

## INTERIM REMEDIAL MEASURE DESIGN

### Certification

I, Terry W. Young, PE, certify that I am currently a New York State registered professional engineer and that the *Interim Remedial Measure Design Specifications – Red Hook 3 and Red Hook 4* were prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER *Technical Guidance for Site Investigation and Remediation* (DER-10).



A handwritten signature in black ink, appearing to read "Terry W. Young".

\_\_\_\_\_ Date October 24, 2019

Red Hook 3  
Site No. C224213  
and  
Red Hook 4  
Site No. C224214  
Brooklyn, New York

Prepared for:  
BT Red Hook, LLC

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TABLE OF CONTENTS

Document No.:      Title:      Initial Page:

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 10	Table of Contents .....	00 01 10 – 1
00 01 15	List of Drawing Sheets.....	00 01 15 – 1

DIVISION 01 – GENERAL REQUIREMENTS

01 11 00	Summary of Work.....	01 11 00 – 1
01 14 33	Work in Highway Rights-of-Way.....	01 14 33 – 1
01 25 00	Substitution Procedures .....	01 25 00 – 1
01 26 00	Contract Modification Procedures .....	01 26 00 – 1
01 29 73	Schedule of Values.....	01 29 73 – 1
01 26 76	Progress Payment Procedures .....	01 29 76 – 1
01 31 13	Project Coordination .....	01 31 13 – 1
01 31 19.13	Pre-Construction Conference.....	01 31 19.13 – 1
01 31 19.23	Progress Meetings.....	01 31 19.23 – 1
01 32 16	Construction Progress Schedule.....	01 32 16 – 1
01 32 26	Construction Progress Reporting .....	01 32 26 – 1
01 33 00	Submittal Procedures .....	01 33 00 – 1
01 35 23	Safety Requirements .....	01 35 23 – 1
01 35 29	Contractor's Health and Safety Plan .....	01 35 29 – 1
01 35 43.13	Environmental Procedures for Hazardous Materials.....	01 35 43.13 – 1
01 41 26	Storm Water Pollution Prevention Plan and Permit .....	01 41 26 – 1
01 42 00	References .....	01 42 00 – 1
01 51 05	Temporary Utilities.....	01 51 05 – 1
01 52 11	Engineer's Field Office .....	01 52 11 – 1
01 52 13	Contractor's Field Office and Sheds.....	01 52 13 – 1
01 52 16	First-Aid Facilities .....	01 52 16 – 1
01 52 19	Sanitary Facilities .....	01 52 19 – 1
01 55 13	Temporary Access Roads and Parking Areas .....	01 55 13 – 1

DIVISION 01 – GENERAL REQUIREMENTS (CONTINUED)

01 55 26	Maintenance and Protection of Traffic.....	01 55 26 – 1
01 57 05	Temporary Controls.....	01 57 05 – 1
01 57 33	Security.....	01 57 33 – 1
01 58 13	Temporary Project Signage.....	01 58 13 – 1
01 61 00	Common Product Requirements .....	01 61 00 – 1
01 62 00	Product Options.....	01 62 00 – 1
01 65 00	Product Delivery Requirements.....	01 65 00 – 1
01 66 00	Product Storage and Handling Requirements.....	01 66 00 – 1
01 71 26	Construction Surveying and Layout .....	01 71 26 – 1
01 71 33	Protection of the Work and Property .....	01 71 33 – 1
01 74 05	Cleaning.....	01 74 05 – 1
01 74 19	Construction Waste Management and Disposal .....	01 74 19 – 1
01 77 19	Closeout Requirements.....	01 77 19 – 1
01 78 39	Project Record Documents.....	01 78 39 – 1

DIVISION 02 – EXISTING CONDITIONS

02 41 19	Selective Demolition .....	02 41 19 – 1
02 60 05	Contaminated Waste Management and Disposal.....	02 60 05 – 1

DIVISION 03 – CONCRETE (NOT USED)

DIVISION 04 – MASONRY (NOT USED)

DIVISION 05 – METALS (NOT USED)

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES (NOT USED)

DIVISION 07 – THERMAL AND MOISTURE PROTECTION (NOT USED)

DIVISION 08 – OPENINGS (NOT USED)

DIVISION 09 – FINISHES (NOT USED)

DIVISION 10 – SPECIALTIES (NOT USED)

DIVISION 11 – EQUIPMENT (NOT USED)

DIVISION 12 – FURNISHINGS (NOT USED)

DIVISION 13 – SPECIAL CONSTRUCTION

13 31 33	Temporary Framed Fabric Structures .....	13 31 33 – 1
----------	--	--------------

DIVISION 14 – CONVEYING EQUIPMENT (NOT USED)

DIVISION 21 – FIRE SUPPRESSION (NOT USED)

Document No.:      Title:

Initial Page:

DIVISION 22 – PLUMBING (NOT USED)

DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (NOT USED)

DIVISION 25 – INTEGRATED AUTOMATION (NOT USED)

DIVISION 26 – ELECTRICAL (NOT USED)

DIVISION 27 – COMMUNICATIONS (NOT USED)

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY (NOT USED)

DIVISION 31 – EARTHWORK

31 05 19.13	Geotextiles for Earthwork .....	31 05 19.13 – 1
31 09 13	Geotechnical Instrumentation and Monitoring.....	31 09 13 – 1
31 23 00	Excavation and Fill .....	31 23 00 – 1
31 50 00	Excavation Support and Protection .....	31 50 00 – 1

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 12 00	Flexible Paving .....	32 12 00 – 1
32 15 40	Crushed Stone Surfacing .....	32 15 40 – 1
32 31 13	Chain-Link Fences and Gates .....	32 31 13 – 1

DIVISION 33 – UTILITIES

DIVISION 34 – TRANSPORTATION (NOT USED)

DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION

DIVISION 40 – PROCESS INTERCONNECTIONS (NOT USED)

DIVISION 41 – MATERIAL PROCESSING AND HANDLING EQUIPMENT (NOT USED)

DIVISION 42 – PROCESS HEATING, COOLING, AND DRYING EQUIPMENT (NOT USED)

DIVISION 43 – PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE EQUIPMENT (NOT USED)

Document No.:      Title:      Initial Page:

DIVISION 44 – POLLUTION AND WASTE CONTROL EQUIPMENT (NOT USED)

DIVISION 45 – INDUSTRY-SPECIFIC MANUFACTURING EQUIPMENT (NOT USED)

DIVISION 46 – WATER AND WASTEWATER EQUIPMENT (NOT USED)

46 07 53      Temporary Water Treatment System ..... 46 07 53 – 1

DIVISION 48 – ELECTRICAL POWER GENERATION (NOT USED)

END OF TABLE OF CONTENTS

## LIST OF RED HOOK 4 DRAWING SHEETS

Sheet No.:            Title:

### GENERAL

G-001	Cover Sheet, Location Map, and List of Drawings
G-002	General Notes, Reference Drawings, Abbreviations, and Legend
G-101	Existing Site Plan
G-102	Existing Site Utility Plan
G-103	Existing Soil Boring and Well Plan
G-104	Site Utilization Plan
G-105	Truck Traffic Plan

### HAZARDOUS MATERIALS (NOT USED)

### SURVEY/MAPPING (NOT USED)

### GEOTECHNICAL (NOT USED)

### CIVIL

C-101	Site Preparation Plan
C-102	Site Remedial Excavation Plan
C-103	Site Restoration and Final Grading Plan
C-501	Temporary Erosion and Sediment Control Details
C-502	Temporary Construction Details
C-503	Site Restoration Details

### LANDSCAPE (NOT USED)

### STRUCTURAL

S-101	Areas 1 and 2 Excavation and Shoring Plan
S-102	Area 3 Excavation and Shoring Plan
S-501	Excavation Support Sections
S-502	Shoring Details
S-503	Shoring Details

### ARCHITECTURAL (NOT USED)

### INTERIORS (NOT USED)

### EQUIPMENT (NOT USED)

### FIRE PROTECTION (NOT USED)

### PLUMBING (NOT USED)

### PROCESS

D-601	Temporary Water Treatment System Process Flow Diagram
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Sheet No.:            Title:

MECHANICAL (NOT USED)

ELECTRICAL (NOT USED)

DISTRIBUTED ENERGY (NOT USED)

TELECOMMUNICATIONS (NOT USED)

RESOURCE (NOT USED)

OTHER DISCIPLINES (NOT USED)

CONTRACTOR/SHOP DRAWINGS (NOT USED)

OPERATIONS (NOT USED)

END OF LIST OF DRAWING SHEETS

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## SECTION 01 11 00

### SUMMARY OF WORK

#### PART 1 – GENERAL

##### 1.01 LOCATION AND DESCRIPTION OF THE WORK

- A. The Work is located at two industrial/commercial sites: Red Hook 3 located at 68 and 100 Ferris Street/242 and 300 Coffey Street Brooklyn, New York (RH3), and the adjacent Red Hook 4 located at 44 and 62 Ferris Street/219 Sullivan Street in Brooklyn, New York (hereinafter, combined RH3 and RH4 will be the “Site”). These sites are part of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), sites C224213 and C224214, respectively. The area surrounding the Site includes a mix of commercial, industrial, and residential land uses.
- B. The RH3 Work is an approximately 9.1-acre paved, irregularly L-shaped parcel located within a mixed industrial, commercial, and residential area in an urban setting. RH3 consists of four adjoining parcels (Block 573, Lots 1, 80, and 100; and Block 595 Lot 70); and is bounded to the northeast by Wolcott Street (approximately 750-foot frontage) with NYSDEC Brownfield Site C224214 beyond (RH4); to the southeast by Ferris Street (approximately 250-foot frontage) with NYSDEC Brownfield Site C224256 across Ferris Street (145-65 Wolcott Street site); to the south and southwest by Dikeman Street; and to the west and northwest by Buttermilk Channel (approximately 900-foot frontage). Three buildings (which will or have been demolished as part of the redevelopment) are/were located on RH3 as follows:
- A vacant, three-story, brick warehouse, constructed circa 1920 and occupying a footprint of approximately 100,000 square feet.
  - A vacant, single-story, metal-sided warehouse constructed circa 1995 and occupying approximately 50,000 square feet.
  - A single-story, masonry-sided building, formerly occupied by U.S. government offices (United States Bureau of Alcohol, Tobacco, Firearms, and Explosives and United States Drug Enforcement Administration) occupying approximately 37,000 square feet.

Areas on RH3 not occupied by buildings are covered with impervious surfaces including pavement, concrete, or asphalt. A steel retaining wall is located along the bulkhead along Buttermilk Channel. Elevation across the RH3 site ranges from approximately 8 feet above mean sea level (AMSL) at the extreme eastern corner near the intersection of Ferris and Wolcott Streets, to 11 feet AMSL along the retaining wall at the western/northwestern boundary along Buttermilk Channel. Portions of the RH3 Site where buildings do not front the street are enclosed by fencing and gates.

- C. The RH4 Work is generally bounded by Sullivan Street to the northeast, Ferris Street to the southeast, Wolcott Street and the RH 3 Site to the southwest, and a commercial building to the northwest. The area surrounding the Site includes a mix of commercial, industrial, and residential land uses. RH4 encompasses an area of approximately 2.29 acres and comprises two contiguous properties, Block 514, Lot 1 and Block 514 Lot 40 which are collectively referred to as “Red Hook 4” or “RH4”. RH4 was most recently used as a large commercial parking lot for truck, trailer, and car parking; it is enclosed by fencing and gates and is generally secure from public access. There are no permanent buildings or other structures located at RH4.

- D. The Work to be performed under this Contract includes, but is not limited to, the following:
  - 1. Site preparation.
  - 2. Excavation of impacted soil from within the remedial excavation limits to approximately 15 to 24 feet below existing grade, as identified in the NYSDEC-approvable IRM Design Work Plans for RH3 and RH4.
  - 3. Backfilling remedial excavation areas with suitable fill material.
  - 4. Removal of demolition, excavation, and construction waste from the Site and disposal at appropriate, Owner-approved facilities in accordance with Laws and Regulations.
  - 5. On-Site treatment of construction wastewater and discharge (following treatment) to Buttermilk Channel in accordance with Laws and Regulations.
  - 6. Restoration of the Site to the grades and conditions shown or indicated in the Contract Documents.
  - 7. Demobilization.
- E. The Work may be conducted while redevelopment activities by the Owner are ongoing.
- F. Contracting Method: The Project shall be performed under one prime contract.
- G. Contaminants: Work related to Waste, described in reports provided as Not Part of Contract Documents, is included in the Work.

## 1.02 SEQUENCE AND PROGRESS OF THE WORK

- A. Sequencing:
  - 1. Incorporate sequencing of the Work into the Progress Schedule.
  - 2. Sequencing requirement:
    - a. Construction shall begin with RH4 and transition to RH3.
- B. Work Hours:
  - 1. Incorporate work hours/days into the Progress Schedule.
  - 2. Work will be conducted within work hours and workdays in accordance with the Rules of the City of New York, with Work anticipated to be performed between the hours of 7 AM and 6 PM during the normal work week. Option for extended work hours and workdays with approval from Owner and in accordance with the Rules of the City of New York.

## 1.03 CONTRACTOR'S USE OF THE SITE

- A. Use of Premises:
  - 1. Confine construction operations to the work areas shown or indicated. Do not disturb portions of the Site beyond areas of the Work without prior approval of Owner or Engineer.
  - 2. Confine storage of materials and equipment, and locations of temporary facilities to the areas shown or indicated. Move stored materials and equipment that interfere with operations of Owner.
  - 3. Authorities having jurisdiction at the Site and others performing work for Owner shall, for all purposes that may be required by their contracts, have access to the Site and the premises used by Contractor, and Contractor shall provide safe and proper access.
- B. Access to the Site, Access Roads, and Parking Areas: Comply with Section 01 55 13 (Temporary Access Roads and Parking Areas).
- C. Promptly repair damage to premises caused by construction operations. Upon completion of the Work, restore premises to condition specified in the Contract Documents. If condition is not specified, restore to pre-construction condition or as directed by Engineer.

#### 1.04 EASEMENTS AND RIGHTS-OF-WAY

- A. General:
  - 1. Confine construction operations within public rights-of-way and the limits shown or indicated.
  - 2. Use care in placing construction tools, equipment, excavated materials, and materials and equipment to be incorporated into the Work to avoid damaging property and interfering with traffic.
  - 3. Do not enter private property outside the construction limits without permission from the owner of the property.
- B. On Private Property:
  - 1. Limits of Contractor's operations on private property are shown on the Drawings.
- C. Within Highway Right-of-Way:
  - 1. Work performed and Contractor's operations within limits of highway and right-of-way shall comply with requirements of highway owner and applicable work permits, or authority having jurisdiction over right-of-way.
  - 2. Comply with Section 01 14 33 (Work in Highway Rights-of-Way).

#### 1.05 NOTICES TO OWNERS AND AUTHORITIES OF PROPERTIES ADJACENT TO THE WORK

- A. Notify Owner and Engineer when prosecution of the Work may affect adjacent properties or use of adjacent properties. Owner or Engineer will notify owners of adjacent property; do not contact owners of adjacent property directly unless authorized by Owner to do so.
- B. When it is necessary to temporarily obstruct access to property, or when utility service connection will be interrupted, provide notices sufficiently in advance to enable affected persons to provide for their needs. Such notifications shall comply with Laws and Regulations and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.
- C. Notify utility owners and other concerned entities not less than two working days, but not greater than 10 working days, prior to cutting or closing streets or other traffic areas or excavating near Underground Facilities or exposed utilities.

#### PART 2 – PRODUCTS (NOT USED)

#### PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 14 33

### WORK IN HIGHWAY RIGHTS-OF-WAY

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. Scope:
  - 1. Contractor shall obtain necessary permits, arrange and pay for inspections required by the highway owner, and pay all fees for associated Work.
  - 2. Comply with applicable rules and regulations of highway owner.
  - 3. Obtain required permits prior to commencing associated work.
- B. Highway owners having jurisdiction over the Work include:
  - a. New York City Department of Transportation
- C. Related Sections:
  - 1. Section 01 55 26, Maintenance and Protection of Traffic.

##### 1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
  - 1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
    - a. 34 RCNY 2, Highway Rules.
    - b. 34 RCNY 4, Traffic Rules.
  - 2. Comply with applicable provisions and recommendations of the following:
    - a. NYCDOT Standard Highway Specifications and Standard Details of Construction.

##### 1.03 SUBMITTALS

- A. Informational Submittals:
  - 1. Permits: Submit copies of work permits obtained from highway owner.

#### PART 2 – PRODUCTS

##### 2.01 MATERIALS

- A. Materials shall comply with requirements of highway owner and the Contract Documents.

#### PART 3 – EXECUTION

##### 3.01 PREPARATION AND PROTECTION

- A. Contractor shall implement means necessary to prevent accidents caused or influenced by the Work. Provide flagmen, temporary barricades, temporary lights, temporary signs, and other precautions to provide safe conditions during the Work. Comply with Section 01 55 26.

### 3.02 INSTALLATION

- A. Work shall be located as shown on the Drawings and/or permits secured from the highway owner. Provide materials, equipment, piping, and appurtenances required for crossings of existing Underground Facilities and above-ground utilities and structures. Furnish and maintain at the Site a supply of pipe fittings, adapters, and short lengths of pipe to expedite utility crossings required.
- B. Pavement:
  - 1. When fill is stabilized in accordance with requirements of highway owner and the Contract Documents, replace highway subbase material and pavement with pavement of similar type and equal thickness to the pavement in place prior to start of the Work.
  - 2. Pavement installation shall comply with requirements of highway owner and the Contract Documents.

END OF SECTION

## SECTION 01 25 00

### SUBSTITUTION PROCEDURES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. Scope:
1. This Section includes:
    - a. Administrative and procedural requirements for selecting materials and equipment for the Project.
    - b. Procedural requirements for substitutions of materials and equipment.
    - c. Procedural requirements for substitute construction methods or procedures, when construction methods or procedures are specified.
- B. A proposed substitute will not be accepted for review if:
1. Approval would require changes in design concept or a substantial revision of the Contract Documents.
  2. Approval would delay completion of the Work or the work of other contractors.
  3. Substitution request is indicated or implied on a Shop Drawing or other submittal, or on a request for interpretation or clarification, and is not accompanied by Contractor's formal and complete request for substitution.
- C. If proposed substitute is not approved, Contractor shall provide the specified materials, equipment, method, or procedure, as applicable.
- D. Approval of a substitute does not relieve Contractor from requirement for submitting Shop Drawings and other submittals in accordance with the Contract Documents.
- E. Owner and Engineer have the right to rely upon the completeness and accuracy of the information included in Contractor's request for approval of a substitute, and Contractor accepts full responsibility for the completeness and accuracy thereof.
- F. When approved substitute is defective or fails to perform in accordance with the Contract Documents, responsibility for remedying the defect or failure resides solely with Contractor and Supplier.

##### 1.02 SUBSTITUTE MATERIALS AND EQUIPMENT

- A. Requests for approval of substitute materials or equipment items will be considered within a period of 90 days after the Effective Date of the Agreement. After the end of specified period, substitution requests will be considered only in case of unavailability of a specified material or equipment item or other conditions beyond Contractor's control.
- B. Procedure:
1. Submit to Engineer one copy of each substitution request in accordance with the requirements for furnishing submittals, as indicated in Section 01 33 00 (Submittal Procedures).
  2. Submit separate request for each proposed substitute.
  3. Engineer will provide timely review of substitution requests. Allow sufficient time for review and response.

4. Engineer will maintain a log of all substitution requests. A copy of the log will be provided upon request.
  5. Engineer will provide written response to each substitution request. One copy of Engineer's response will be distributed to:
    - a. Contractor.
    - b. Owner.
    - c. Engineer.
  6. If Engineer requests additional information to make an interpretation, provide information requested within ten days, unless Engineer allows additional time, via correspondence referring to substitution request number.
- C. Preparation of Substitution Request:
1. Prepare each substitution request using the form included with this Section, or other form acceptable to Engineer.
  2. Number each substitution request using a two-digit sequential number. First substitution request will be "01".
  3. Complete all information requested on the form, and enclose with the form supplementary information as required. In addition to the requirements of the Contract Documents and information required on the substitution request form, include with each substitution request the following:
    - a. Identification of the material or equipment item (as applicable), including manufacturer's name and address.
    - b. Manufacturer's literature with description of the material or equipment item, performance and test data, and reference standards with which material or equipment item complies.
    - c. Samples, when appropriate.
    - d. Name and address of similar projects on which the material or equipment item was used, and date of installation.

### 1.03 SUBSTITUTE CONSTRUCTION METHODS OR PROCEDURES

- A. Where construction methods or procedures are specified, for a period of 90 days after the Effective Date of the Agreement, Engineer will consider Contractor's written requests for substitute construction methods or procedures specified.
- B. The provisions of the Contract Documents regarding substitute materials and equipment items are hereby extended to apply to substitute construction methods or procedures.
- C. Procedure:
  1. Submit to Engineer one copy of each substitution request in accordance with the requirements for furnishing submittals, as indicated in Section 01 33 00 (Submittal Procedures).
  2. Submit separate request for each proposed substitute.
  3. Engineer will provide timely review of substitution requests. Allow sufficient time for review and response.
  4. Engineer will maintain a log of all substitution requests. A copy of the log will be provided upon request.
  5. Engineer will provide written response to each substitution request. One copy of Engineer's response will be distributed to:
    - a. Contractor.
    - b. Owner.
    - c. Engineer.

6. If Engineer requests additional information to make an interpretation, provide information requested within ten days, unless Engineer allows additional time, via correspondence referring to request for substitution number.

D. Preparation of Substitution Request:

1. Prepare each substitution request using the form included with this Section, or other form acceptable to Engineer.
2. Number each substitution request using a two-digit sequential number. First substitution request will be "01".
3. Complete all information requested on the form, and enclose with the form supplementary information as required. In addition to the requirements of the Contract Documents and information required on the substitution request form, include with each substitution request the following:
  - a. Detailed description of proposed method or procedure.
  - b. Itemized comparison of the proposed substitution with the specified method or procedure.
  - c. Drawings illustrating method or procedure.
  - d. Other data required by Engineer to establish that proposed substitution is equivalent to specified method or procedure.

1.04 CONTRACTOR'S REPRESENTATIONS

A. In submitting substitution request, Contractor represents that:

1. Contractor has read and fully understands the provisions regarding substitutes as indicated in the Contract Documents.
2. Substitution request is complete and includes all information required by the Contract Documents.
3. Contractor certifications required by the Contract Documents are valid and made with Contractor's full knowledge, information, and belief.
4. Contractor will provide the same or better guarantees or warranties for proposed substitute as for the specified materials, equipment, methods, or procedures, as applicable.
5. Contractor waives all Claims for additional costs or extension of time related to proposed substitute that subsequently may become apparent.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 ATTACHMENTS

- A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:
1. Attachment A: Substitution request form (four pages).

END OF SECTION



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SUBSTITUTION REQUEST

Substitution Request No.: \_\_\_\_\_ Date: \_\_\_\_\_

Reference: \_\_\_\_\_  
                            Specifications Section                              Page                              Article / Paragraph

Proposed Substitute: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Address: \_\_\_\_\_ Telephone No.: \_\_\_\_\_

Trade Name: \_\_\_\_\_ Model No.: \_\_\_\_\_

Installer: \_\_\_\_\_

Address: \_\_\_\_\_ Telephone No.: \_\_\_\_\_

History:  New Product       1 to 4 Years Old       5 to 10 Years Old       More than 10 Years Old

Differences between proposed substitute and specified item: \_\_\_\_\_

Point-by-Point Comparative Data Attached

Reason for not providing specified item: \_\_\_\_\_

Similar Installation:

Project: \_\_\_\_\_ Date Installed: \_\_\_\_\_

Address: \_\_\_\_\_

Owner: \_\_\_\_\_ Engineer: \_\_\_\_\_

Proposed substitute affects other parts of Work:       No       Yes; explain \_\_\_\_\_

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Savings to Owner for accepting substitute: \_\_\_\_\_ (\$ \_\_\_\_\_)  
*(attach detailed, itemized estimate)*

Proposed substitute changes Contract Time:  No  Yes [Add] [Deduct] \_\_\_\_\_ days.  
*(clarify whether change is to Substantial Completion, Milestone, or time for readiness for final payment)*

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Supporting Data Attached:  Drawings  Product Data  Samples  Tests  Reports

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Substitute product, method, or procedure is subject to payment of licensing fee or royalty  
*(check if "yes" and attach information)*

Substitute product, method, or procedure is patented or copyrighted  
*(check if "yes" and attach information)*

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The Undersigned certifies:

- Representations in the Contract Documents and in Section 01 25 00 (Substitution Procedures) regarding substitutions are valid.
- Same or better warranty and guarantee will be furnished for proposed substitute as for specified item.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitute will have no adverse effect on other trades and will not affect or delay Progress Schedule.
- Cost data as stated above is complete. Claims for additional costs or time related to accepted substitution which may subsequently become apparent are waived.
- Proposed substitute does not affect dimensions and functional clearances.
- Payment will be made for Engineer's review and changes, if any, to the design and Contract Documents, and construction costs caused by the substitute.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

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Submitted By: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Attachments: \_\_\_\_\_

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ENGINEER'S REVIEW AND ACCEPTANCE (OR NON-ACCEPTANCE) WILL BE DOCUMENTED IN A FIELD ORDER OR CHANGE ORDER, AS APPROPRIATE.

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Additional Comments:

Contractor    Subcontractor    Supplier    Manufacturer    Engineer    Other: \_\_\_\_\_

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Adapted from CSI Form No. 13.0B, 2004 edition.

END OF SUBSTITUTION REQUEST

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## SECTION 01 26 00

### CONTRACT MODIFICATION PROCEDURES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section expands upon the provisions of the Contract Documents and includes general administrative and procedural requirements for the following:
  - a. Requests for interpretation.
  - b. Written clarifications.
  - c. Minor changes in the Work and Field Orders.
  - d. Work Change Directives.
  - e. Proposal requests.
  - f. Change Proposals.
  - g. Change Orders.

###### B. Submit Contract modification documents to Engineer.

- C. Retain at Contractor's office and at the Site a complete copy of each Contract modification document and related documents, and Engineer's response.

##### 1.02 REQUESTS FOR INTERPRETATION

###### A. General:

1. Submit written requests for interpretation to obtain clarifications or interpretations of the Contract Documents. Report conflicts, errors, ambiguities, and discrepancies in the Contract Documents by requesting interpretation.
2. Do not submit request for interpretation when other form of communication is appropriate, such as Contractor's submittals, requests for approvals of substitutes, notices, ordinary correspondence, or other form of communication. Improperly prepared or inappropriate requests for interpretation will be returned without response or action by Engineer.
3. Do not submit request for interpretation or clarification when:
  - a. answer may be obtained by observations at the Site; or
  - b. required information is clearly indicated in the Contract Documents; or
  - c. required information is included in industry standards referenced in the Contract Documents or Supplier's instructions that are consistent with the Contract Documents; or
  - d. are reasonably inferable from any of the foregoing.
4. Contractor shall have sole financial responsibility for requests for interpretations or clarifications that are submitted late, out of sequence, or that are unnecessary.
5. Submit written requests for interpretation to Engineer. Contractor and Owner may submit requests for interpretation.
6. Engineer will maintain a log of all requests for interpretation. Upon request, copy of log will be transmitted to Owner or Contractor.

###### B. Procedure:

1. Submit one original and one copy of each request for interpretation to Engineer. Submit each request for interpretation with separate letter of transmittal.
2. Engineer will provide timely review of requests for interpretation. Allow sufficient time for review and response.

3. Engineer will provide written response to each request for interpretation. One copy of Engineer's response will be distributed to:
    - a. Contractor.
    - b. Owner.
    - c. Engineer.
  4. If Engineer requests additional information to make an interpretation, entity requesting the interpretation shall transmit the information requested within ten days, unless Engineer allows additional time, via correspondence referring to request for interpretation number.
  5. Interpretations that One or Both Parties Believes Entails a Change to the Contract:
    - a. If Contractor or Owner believes that a change in the Contract Price or Contract Times or other change to the Contract is required as a result of Engineer's interpretation, so advise Engineer in writing before proceeding with the Work associated with the request for interpretation.
    - b. If, after this initial communication, either Owner or Contractor believes that a change in the Contract Price, Contract Times, both, or other relief with respect to the terms of the Contract is necessary, recourse shall be in accordance with the Contract Documents.
- C. Preparation of Request for Interpretation:
1. Prepare each request for interpretation using the form included with this Section, or other form acceptable to Engineer.
  2. Number each request for interpretation using a two-digit sequential number. First request for interpretation will be "01".
  3. In space provided on request for interpretation form, describe the interpretation requested. Provide additional sheets as necessary. Include text and sketches as required in sufficient detail to describe the need for an interpretation.
  4. When applicable, request for interpretation shall include Contractor's recommended resolution.

### 1.03 WRITTEN CLARIFICATIONS

- A. General:
1. Written clarifications provide clarification or interpretation of conflicts, errors, ambiguities, and discrepancies in the Contract Documents that are identified by Engineer.
  2. Written clarifications do not change the Contract Price or Contract Times, and do not alter the Contract Documents.
  3. Written clarifications, when required, will be initiated and issued by Engineer as correspondence or using a clarification notice form, with additional information as required.
- B. Procedure:
1. Engineer will distribute one copy of each written clarification to:
    - a. Contractor.
    - b. Owner.
    - c. Engineer.

2. Written Clarifications that One or Both Parties Believes Entails a Change to the Contract:
  - a. If Contractor or Owner believes that a change in the Contract Price or Contract Times or other change to the Contract is required as a result of Engineer's written clarification, so advise Engineer in writing before proceeding with the Work associated with the written clarification.
  - b. If, after this initial communication, either Owner or Contractor believes that a change in the Contract Price, Contract Times, both, or other relief with respect to the terms of the Contract is necessary, recourse shall be in accordance with the Contract Documents.
3. If Engineer's written clarification is unclear, submit request for interpretation.

#### 1.04 MINOR CHANGES IN THE WORK AND FIELD ORDERS

##### A. General:

1. Field Orders authorize minor variations in the Work, but do not change the Contract Price or Contract Times.
2. Field Orders, when required, will be initiated and issued by Engineer.
3. Field Orders will be in the form of EJCDC® C-942, "Field Order", or other form acceptable to Engineer.
4. Engineer will maintain a log of all Field Orders issued.

##### B. Procedure:

1. Engineer will distribute one copy of each Field Order to:
  - a. Contractor.
  - b. Owner.
  - c. Engineer.
2. Field Orders that One or Both Parties Believes Entails a Change to the Contract:
  - a. If Contractor or Owner believes that a change in the Contract Price or Contract Times or other change to the Contract is required as a result of a Field Order, so advise Engineer in writing before proceeding with the Work associated with the Field Order.
  - b. If, after this initial communication, Contractor or Owner believes that a change in the Contract Price, Contract Times, both, or other relief with respect to the terms of the Contract is necessary, recourse shall be in accordance with the Contract Documents.
3. If Field Order is unclear, submit request for interpretation.

#### 1.05 WORK CHANGE DIRECTIVES

##### A. General:

1. Work Change Directives, when required, order additions, deletions, or revisions to the Work.
2. Work Change Directives do not change the Contract Price or Contract Times, but are evidence that the parties to the Contract expect that the change ordered or documented by the Work Change Directive will be included in a subsequently issued Change Order following agreement by the parties as to the Work Change Directive's effect, if any, on the Contract Price or Contract Times.
3. Work Change Directives, when required, will be initiated and issued by Engineer.
4. Work Change Directives will be in the form of EJCDC® C-940, "Work Change Directive", or other form acceptable to Engineer.
5. Engineer will maintain a log of all Work Change Directives issued.



- B. Procedure:
1. Engineer will furnish to Contractor four originals of each Work Change Directive signed by Owner and Engineer.
  2. Promptly sign each original Work Change Directive and, within five days of receipt, return all originals to Engineer.
  3. Engineer will distribute original, signed Work Change Directives as follows:
    - a. Contractor: One original.
    - b. Owner: Two originals.
    - c. Engineer: One original.
  4. Documentation of Costs:
    - a. When required by Engineer, document the Work performed under each separate Work Change Directive.
    - b. For each day, document the following in a format acceptable to Engineer:
      - 1) Number and labor classifications of workers employed and hours worked.
      - 2) Construction equipment used, including manufacturer, model, and year of manufacture, and number of hours such equipment was on-site and used for the Work under the Work Change Directive.
      - 3) Consumables and similar materials used.
      - 4) Receipts, bills, or invoices for and descriptions of materials and equipment incorporated into the Work.
      - 5) Invoices and labor and equipment breakdowns for Subcontractors and Suppliers.
      - 6) Other information required by Owner or Engineer.
    - c. Submit documentation to Engineer as a Change Proposal.

#### 1.06 PROPOSAL REQUESTS

- A. General:
1. Proposal requests are for requesting details on the effect on the Contract Price, and Contract Times, and other information relative to contemplated changes in the Work.
  2. Proposal requests do not authorize changes or variations in the Work, and do not change the Contract Price or Contract Times, or terms of the Contract.
  3. Proposal requests may be initiated by Engineer or Owner.
  4. Proposal requests will be in a form acceptable to Owner or Engineer.
  5. Engineer will maintain a log of all proposal requests issued.
- B. Procedure:
1. Engineer will transmit one copy of each signed proposal request to Contractor, with one copy each distributed to Owner and Engineer.
  2. Submit request for interpretation to clarify conflicts, errors, ambiguities, and discrepancies in proposal request.
  3. Upon receipt of proposal request, Contractor shall prepare and submit to Engineer a Change Proposal, in accordance with the Contract Documents, for the proposed Work described in the proposal request.

#### 1.07 CHANGE PROPOSALS

- A. General:
1. Submit written Change Proposal to Engineer:
    - a. in response to each proposal request; or
    - b. when Contractor believes a change in the Contract Price or Contract Times, or other change to the terms of the Contract is required; or
    - c. to appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; or

- d. contest a set-off against payment due; or
- e. seek other relief under the Contract.
2. Engineer will maintain a log of all Change Proposals.

B. Procedure:

1. Prepare and transmit Change Proposals within time limits indicated in the Contract Documents.
2. Submit one original and one copy of each Change Proposal to Engineer. Include with each Change Proposal all required supporting documentation and a separate letter of transmittal.
3. Engineer's Review and Requests for Additional Information:
  - a. Engineer will review and act on each Change Proposal in accordance with, and within the time limits indicated in, the Contract Documents.
  - b. When Engineer requests additional information to render a decision, submit required information within five days of receipt of Engineer's request, unless Engineer allows more time. Submit the required information via correspondence that identifies the specific Change Proposal number.
  - c. Owner shall transmit to Engineer such comments, if any, that Owner has on the Change Proposal, within 10 days of Owner's receipt of the Change Proposal.
  - d. Engineer will render a written decision on the Change Proposal.
4. Upon completing review, one copy of Engineer's written response will be distributed to:
  - a. Contractor.
  - b. Owner.
  - c. Engineer.
5. If Change proposal is recommended for approval by Engineer and is approved by Owner, a Change Order will be issued or, when applicable, an appropriate use of contingency allowance will be authorized by Owner.
6. If parties do not agree on terms for the change, Owner or Contractor may file a Claim against the other, in accordance with the Contract Documents.

C. Preparation of Change Proposals:

1. Prepare each Change Proposal using the form included with this Section, or other form acceptable to Owner and Engineer.
2. Number each Change Proposal using a two-digit sequential number. First Change Proposal will be "01".
3. In space provided on Change Proposal form:
  - a. Describe the scope of each proposed change. Include text and sketches on additional sheets as required to provide detail sufficient for Engineer's review and response. If a change item is submitted in response to a proposal request, write in as scope, "In accordance with proposal request number" followed by the proposal request number. Submit written clarifications, if any, to scope of change.
  - b. Submit justification for each proposed change. If a change item is submitted in response to a proposal request, write in as justification, "In accordance with proposal request number" followed by the proposal request number.
  - c. List the total change in the Contract Price and Contract Times for each separate change item included in the Change Proposal.
4. Unless otherwise directed by Engineer, attach to the Change Proposal detailed breakdowns of pricing (Cost of the Work and Contractor's fee), including:
  - a. List of Work tasks to accomplish the change.
  - b. For each task, labor cost breakdown including labor classification, total hours per labor classification, and hourly cost rate for each labor classification.
  - c. Construction equipment and machinery to be used, including manufacturer, model, and year of manufacture, and number of hours for each.

- d. Detailed breakdown of cost of materials and equipment to be incorporated into the Work, including quantities, unit costs, and total cost, with Supplier's written quotations.
- e. Breakdowns of the Cost of the Work and fee for Subcontractors, including labor, construction equipment and machinery, and materials and equipment incorporated into the Work, other costs, and Subcontractor fees (e.g., overhead and profit).
- f. Breakdown of other costs eligible, in accordance with the Contract Documents, under "Cost of the Work" provisions.
- g. Other information required by Engineer.
- h. Contractor's fees applied to eligible Contractor costs and eligible Subcontractor costs.

## 1.08 CHANGE ORDERS

### A. General:

1. Change Orders will be recommended by Engineer (when required by the Contract Documents), and will be signed by Owner and Contractor, to authorize additions, deletions, or revisions to the Work, or changes to the Contract Price or Contract Times.
2. Change Orders will be in the form of EJCDC® C-941, "Change Order", or other form acceptable to Owner.
3. Engineer will maintain a log of all Change Orders issued.

### B. Procedure:

1. Engineer will furnish to Contractor four originals of each Change Order.
2. Promptly sign each original Change Order and, within five days of receipt, return all originals to Engineer.
3. Engineer will sign each original Change Order and forward them to Owner.
4. After approval and signature by Owner, Engineer will distribute original, signed Change Orders as follows:
  - a. Contractor: One original.
  - b. Owner: Two originals.
  - c. Engineer: One original.

## PART 2– PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 ATTACHMENTS

- A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:
  1. Attachment A: Request for interpretation form (two pages).
  2. Attachment B: Change Proposal form (two pages).

END OF SECTION

REQUEST FOR INTERPRETATION

Request for Interpretation No.: \_\_\_\_\_

Contractor: \_\_\_\_\_ Purchase Order No.: \_\_\_\_\_

Date Transmitted: \_\_\_\_\_ Date Received: \_\_\_\_\_

Date Response Requested: \_\_\_\_\_ Date Response Transmitted: \_\_\_\_\_

Subject: \_\_\_\_\_

Reference(s): \_\_\_\_\_  
  Specifications Section(s)    Drawing(s) / Note(s) / Detail(s)

---

Interpretation Requested:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

---

Engineer's Response:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

END OF REQUEST FOR INTERPRETATION

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CHANGE PROPOSAL

Change Proposal No.: \_\_\_\_\_ Date: \_\_\_\_\_

Contractor: \_\_\_\_\_ Purchase Order No.: \_\_\_\_\_

Submitted in Response to Proposal Request No.: \_\_\_\_\_

Subject: \_\_\_\_\_

---

Scope of Work:

*Attach and list supporting information as required.*

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Justification:

**Changes in Contract Price and Contract Times:**

*For Contract Price, attach detailed cost breakdowns for Contractor and Subcontractors, Supplier quotations, and other information required. For the Contract Times, state increase, decrease, or no change to Contract Times for Substantial Completion, readiness for final payment, and Milestones, if any. If increase or decrease, state specific number of days for changes to the Contract Times.*

The following changes are proposed to the Contract Price and Contract Times:

Description	Contract Price (dollars)	Contract Times (days)	
		Substantial	Final
1.	\$		
2.	\$		
<b>Total This Change Proposal:</b>	<b>\$</b>		

Changes to Milestones (if any): \_\_\_\_\_

Contractor represents that supporting data attached to this Change Proposal are accurate and complete. The requested time or price adjustment indicated in this Change Proposal is the entire adjustment to which Contractor believes it is entitled as a result of the proposed change(s) indicated herein.

Change Proposal By: \_\_\_\_\_

Signature of Proposer: \_\_\_\_\_ Date: \_\_\_\_\_

END OF CHANGE PROPOSAL

SECTION 01 29 73  
SCHEDULE OF VALUES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. Contractor shall prepare and submit to Construction Manager for acceptance a Schedule of Values that allocates cost to each item of the Work. Schedule of Value list of line items shall correspond to each aspect of the Work, establishing in detail the portion of the Contract Price allocated to each major component of the Work.
2. Upon request of Construction Manager, support values with data that substantiate their correctness.
3. Submit preliminary Schedule of Values to Construction Manager for initial review. Contractor shall incorporate Construction Manager's comments into the Schedule of Values and resubmit to Construction Manager. Construction Manager may require corrections and re-submittals until Schedule of Values is acceptable.
4. Schedule of Values may be used as a basis for negotiating price of changes, if any, in the Work.
5. Schedule of Values and the Progress Schedule updates specified in Section 01 32 16 (Construction Progress Schedule) will be basis for preparing each Application for Payment.

1.02 SUBMITTALS

A. Informational Submittals:

1. Submit to Construction Manager Schedule of Values in the form and quantity required in Section 01 33 00 (Submittal Procedures).
2. Content of Schedule of Values submittals shall be in accordance with Article 1.03 of this Section.
3. Timing of Submittals:
  - a. Submit preliminary Schedule of Values within time limit indicated in the Contract Documents.
  - b. Submittal of the Schedule of Values for acceptance by Construction Manager shall be in accordance with the Contract Documents. Construction Manager will not accept Applications for Payment without an acceptable Schedule of Values.
  - c. When required by Construction Manager, promptly submit updated Schedule of Values to include cost breakdowns for changes in the Contract Price.

1.03 SCHEDULE OF VALUES FORMAT AND CONTENT

A. Organization and Major Elements of Schedule of Values:

1. Prepare Schedule of Values on the "progress estimate" or "continuation sheets", as applicable, of the Application for Payment form indicated in Section 01 29 76 (Progress Payment Procedures).
2. Organization in Accordance with Specifications Sections:
  - a. Within each work area, organize the Schedule of Values by the various Specifications Section numbers and titles included in the Contract Documents.
  - b. Label each row in the Schedule of Values with the appropriate Specifications Section number. Include an amount for each row in the Schedule of Values.



- c. List sub-items of major products or systems, as appropriate or when requested by Construction Manager.
  3. Include in Schedule of Values unit price payment items with their associated quantity. Provide in the Schedule of Values detailed breakdown of unit prices when required by Construction Manager.
- B. Requirements for preliminary Schedule of Values and Schedule of Values are:
  1. Subcontracted Work:
    - a. Schedule of Values shall show division of Work between Contractor and Subcontractors.
    - b. Line items for Work to be done by Subcontractor shall include the word "(SUBCONTRACTED)".
  2. Apportionment between Materials and Equipment, and Installation:
    - a. Schedule of Values shall include breakdown of costs for materials and equipment, installation, and other costs used in preparing the Bid by Contractor and each Subcontractor.
    - b. List purchase and delivery costs for materials and equipment for which Contractor may apply for payment as stored materials.
  3. Sum of individual values shown on the Schedule of Values shall equal the total of associated payment item. Sum of payment item totals in the Schedule of Values shall equal the Contract Price.
  4. Overhead and Profit: Include in each line item a directly proportional amount of Contractor's overhead and profit. Do not include overhead and profit as separate item(s).
  5. Include separate line item for each allowance, and for each unit price item.
  6. Include relevant items for the Contract Documents, permits (when applicable), construction Progress Schedule, and other items required by Construction Manager or Engineer. Include such items in Applications for Payment on payment schedule acceptable to Construction Manager.
  7. Line items for Site maintenance such as snow removal, compliance with storm water pollution prevention plans and permits, spill prevention control and countermeasures plans, and for construction photographic documentation; temporary utilities and temporary facilities, field offices, temporary controls, and similar Work shall be included in the Schedule of Values and proportioned in Applications for Payment throughout duration of the Work.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 29 76

### PROGRESS PAYMENT PROCEDURES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes general administrative and procedural requirements for Contractor's requests for progress payments.
2. Contractor's requests for payment shall be in accordance with the Contract Documents.
3. Applications for Payment shall be in the form of EJCDC® C-620, "Contractor's Application for Payment" (2013 edition or later).

##### 1.02 PROGRESS PAYMENTS

###### A. Procedure:

1. Review with Engineer and Resident Project Representative the quantities and the Work proposed for inclusion in each progress payment. Application for Payment shall cover only the quantities and Work recommended by Engineer.
2. Submit to Engineer four printed originals, each with Contractor's original signature, of each complete Application for Payment and other documents to accompany the Application for Payment.
3. Engineer will act on request for payment in accordance with the Contract Documents.

###### B. Each request for progress payment shall include:

1. Completed Application for Payment form, including summary/signature page, progress estimate sheets, and stored materials summary. Progress estimate sheets shall have the same level of detail as the Schedule of Values.
2. Engineer-approved quantity survey sheets, sketches, receipts, or other appropriate supporting documentation to substantiate proposed quantities and Work.
3. Documentation for Stored Materials and Equipment:
  - a. For materials and equipment not incorporated in the Work but suitably stored, submit documentation in accordance with the Contract Documents.
  - b. Legibly indicate on invoice or bill of sale the specific materials or equipment included in the payment request and corresponding bid/payment item number for each.
4. Allowance Work:
  - a. For payment requests that include payment for Work under an allowance, include with the progress payment request copy of Owner's authorization of the associated allowance Work.
5. Partial Release or Reduction of Retainage:
  - a. For each Application for Payment where Contractor requests partial release or reduction of retainage in any amount (other than request for final payment), submit with associated progress payment request consent of surety to partial release or reduction of retainage, duly completed by Contractor and surety.
  - b. Acceptable form includes AIA® G707ATM, "Consent of Surety to Reduction in or Partial Release of Retainage" (1994 or later edition), or other form acceptable to Owner.
  - c. For payment requests that include reduction in or payment of retainage in an amount greater than that required by the Contract Documents, obtain Owner's concurrence for partial release or reduction in retainage prior to submitting such Application for Payment.

C. Final Payment:

1. Requirements for request for final payment are in the Contract Documents and Section 01 77 19 (Closeout Requirements).

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 31 13

### PROJECT COORDINATION

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes general requirements for coordinating construction operations on the Project.

##### 1.02 COORDINATION

- A. Contractor shall coordinate the Work, including testing agencies, whether hired by Contractor, Owner, or others, Subcontractors, Suppliers, and others with whom coordination is necessary, in accordance with the Contract Documents and this Section, to perform the Work within the Contract Times and in accordance with the Contract Documents.
- B. In accordance with the Contract Documents, Contractor shall cooperate with and coordinate the Work with other contractors, utility owners, utility service companies, Owner's employees working at the Site, and other entities working at the Site, in accordance with Section 01 11 00 (Summary of Work).
- C. Attend and participate in all project coordination and progress meetings, and report on the progress of the Work and compliance with the Progress Schedule.
- D. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
- E. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Progress Schedule.
  2. Installation and removal of temporary utilities, facilities, and controls.
  3. Delivery and processing of submittals.
  4. Progress meetings.
  5. Startup and adjustment of systems.
  6. Project closeout activities.
- F. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

- G. Maintain sufficient competent personnel, drafting and computer-aided drafting/design (CADD) equipment, software, systems, and supplies at the Site or at Contractor's office for preparing layout drawings, coordination drawings, and record documents. With the Contract Documents and Shop Drawings, use such coordination drawings as tools for coordinating the Work of various trades. Where such coordination drawings are to be prepared by Subcontractors, ensure that each Subcontractor maintains required personnel and facilities at the Site or at Subcontractor's office.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 19.13

PRE-CONSTRUCTION CONFERENCE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope:
1. A pre-construction conference will be held for the Project.
  2. Contractor shall attend the conference prepared to discuss all items on the pre-construction conference agenda.
  3. Engineer will distribute an agenda, preside at conference, and prepare and distribute minutes to all conference participants and others as requested.
- B. Purpose of Pre-Construction Conference:
1. Purpose of conference is to designate responsible personnel, establish working relationships, discuss preliminary schedules submitted by Contractor, and review administrative and procedural requirements for the Project.
  2. Matters requiring coordination will be discussed and procedures for handling such matters will be established.
  3. Unless otherwise indicated in the Contract Documents or otherwise agreed to by the entities involved, Site mobilization meeting will be part of the pre-construction conference.

1.02 PREPARATION FOR PRE-CONSTRUCTION CONFERENCE

- A. Date, Time, and Location:
1. Conference will be held after execution of the Contract and before Work starts at the Site.
  2. Engineer will establish the date, time, and location of conference and will notify the interested and involved entities.
- B. Submittals Required Prior to Pre-Construction Conference:
1. Not less than three days prior to pre-construction conference, submit the following preliminary schedules in accordance with the Contract Documents:
    - a. Progress Schedule.
    - b. Schedule of Submittals.
    - c. Listing of identity and general scope of Work or supply (as applicable) of planned Subcontractors and Suppliers. Indicate extent of each Subcontract proposed and overall percentage of Contract Price to be subcontracted.
- C. Contractor shall provide information required and contribute appropriate items for discussion at the pre-construction conference.
- D. Handouts for Pre-Construction Conference:
1. Contractor shall bring to the conference the following, with sufficient number of copies for each attendee:
    - a. Preliminary Progress Schedule.
    - b. Preliminary Schedule of Submittals.
    - c. Listing of identity and general scope of Work or supply of planned Subcontractors and Suppliers.
    - d. List of emergency contact information, in accordance with Article 1.05 of Section 01 35 23 (Safety Requirements).

### 1.03 REQUIRED ATTENDEES

- A. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.
- B. Contractor Attendance: Conference shall be attended by Contractor's:
  - 1. Project manager.
  - 2. Site superintendent.
  - 3. Safety representative.
  - 4. Project managers for major Subcontractors, and major equipment Suppliers as Contractor deems appropriate.
- C. Other attendees will be representatives of:
  - 1. Owner.
  - 2. Engineer.
  - 3. NYSDEC, NYSDOH, and other authorities having jurisdiction over the Work, if available.
  - 4. Others as requested by Owner, Contractor, or Engineer.

### 1.04 AGENDA

- A. Preliminary Agenda: Be prepared to discuss in detail the topics indicated below. Revisions, if any, to the agenda below will be furnished to required attendees prior to the pre-construction conference.
  - 1. Procedural and Administrative:
    - a. Personnel and Teams:
      - 1) Designation of roles and responsible personnel.
      - 2) Limitations of authority of personnel, including personnel who will sign Contract modifications and make binding decisions.
      - 3) Subcontractors and Suppliers in attendance.
      - 4) Authorities having jurisdiction.
    - b. Procedures for communication and correspondence, including electronic communication protocols.
    - c. Community relations and interaction during the Project.
    - d. Copies of Contract Documents and availability.
    - e. Subcontractors and Suppliers:
      - 1) List of proposed Subcontractors and Suppliers.
    - f. The Work and Scheduling:
      - 1) General scope of the Work.
      - 2) Contract Times, including Milestones (if any).
      - 3) Phasing and sequencing.
      - 4) Preliminary Progress Schedule.
      - 5) Critical-path activities.
      - 6) Working hours.
    - g. Safety:
      - 1) Responsibility for safety.
      - 2) Contractor's safety representative.
      - 3) Emergency procedures and accident reporting.
      - 4) Emergency contact information.
      - 5) Hazardous materials communication program.
      - 6) Impact of Project on public safety.
    - h. Permits, approvals, and access agreements.
    - i. Review of insurance requirements and insurance claims.
    - j. Coordination:
      - 1) Project coordination, and coordination among contractors.
      - 2) Progress meetings.

- 3) Preliminary Schedule of Submittals.
- 4) Procedures for furnishing and processing submittals.
- 5) Product options, "or equals", and substitutions.
- 6) Construction photographic documentation.
- k. Contract Modification Procedures:
  - 1) Requests for interpretation.
  - 2) Written clarifications.
  - 3) Field Orders.
  - 4) Work Change Directives.
  - 5) Proposal requests.
  - 6) Change Order requests.
  - 7) Change Orders.
- l. Payment:
  - 1) Procedures for measuring for payment.
  - 2) Progress payment procedures.
  - 3) Taxes.
  - 4) Retainage.
- m. Testing and inspections.
- n. Record documents.
- o. Preliminary Discussion of Contract Closeout:
  - 1) Procedures for Substantial Completion.
  - 2) Contract closeout requirements.
  - 3) Correction period.
  - 4) Duration of bonds and insurance.
- 2. Site Mobilization:
  - a. Field offices, trailers and sheds, and staging areas.
  - b. Temporary facilities and utilities.
  - c. Access to Site, access roads, and parking.
  - d. Maintenance and protection of traffic.
  - e. Use of Site and premises.
  - f. Protection of property.
  - g. Security.
  - h. Temporary Controls:
    - 1) Erosion and sediment control.
    - 2) Storm water control.
    - 3) Odor, vapor, and dust control.
    - 4) Noise control.
    - 5) Pollution control.
  - i. Site barriers and temporary fencing.
  - j. Storage of materials and equipment.
  - k. Reference points and benchmarks; surveys and layouts.
  - l. Site maintenance and housekeeping during the Project, including cleaning and removal of trash and debris.
  - m. Restoration.
- 3. General discussion and questions.
- 4. Next meeting.
- 5. Site visit, if required

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION



SECTION 01 31 19.23

PROGRESS MEETINGS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope:
1. Progress meetings will be held on a regular basis throughout the Project. Contractor shall attend each progress meeting prepared to discuss in detail all items on the agenda.
  2. Engineer will preside at progress meetings and will prepare and distribute minutes of progress meetings to all meeting participants and others as requested.
- B. Date and Time:
1. Regular Meetings: Every week on a day and time agreeable to Owner, Engineer, and Contractor.
  2. Other Meetings: As required.
- C. Location:
1. Contractor's field office at the Site or other location mutually agreed upon by Owner, Engineer, and Contractor.
- D. Handouts:
1. Contractor shall bring to each progress meeting not less than 10 copies of each of the following:
    - a. List of Work accomplished since the previous progress meeting.
    - b. Up-to-date Progress Schedule.
    - c. Up-to-date Schedule of Submittals.
    - d. Detailed "look-ahead" schedule of Work planned for the next three weeks, with specific starting and ending dates for each activity, including shutdowns, deliveries of important materials and equipment, Milestones (if any), and important activities affecting Owner, the Project, and the Site.

1.02 ATTENDANCE

- A. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.
- B. Attendance:
1. Contractor:
    - a. Project manager.
    - b. Site superintendent.
    - c. Safety representative.
    - d. Representatives of other Subcontractors and Suppliers when needed for the discussion of a particular agenda item.
  2. Owner.
  3. Engineer.
  4. NYSDEC, NYSDOH, and other authorities having jurisdiction over the Work, if available.
  5. Others, as appropriate.

### 1.03 AGENDA

- A. Preliminary Agenda: Be prepared to discuss in detail the topics indicated below. Revisions, if any, to the agenda below will be furnished to Contractor prior to the first progress meeting. Progress meeting agenda may be modified by Engineer during the Project as required.
1. Review, comment, and amendment (if required) of minutes of previous progress meeting.
  2. Safety and safe work practices.
  3. Community relations and interactions.
  4. Results of community air monitoring performed since previous progress meeting.
  5. Review of progress since previous progress meeting.
  6. Planned progress through next progress meeting.
  7. Review of Progress Schedule:
    - a. Contract Times, including Milestones (if any).
    - b. Critical path.
    - c. Schedules for fabrication and delivery of materials and equipment.
    - d. Issues potentially affecting the Contract Times, including Milestones (if any).
    - e. Corrective measures, if required, to achieve Contract Times, including Milestones (if any).
  8. Submittals:
    - a. Status of critical submittals.
    - b. Review of Schedule of Submittals and Engineer's submittal log.
  9. Field observations, problems, and conflicts.
  10. Quality standards, testing, and inspections.
  11. Coordination between parties.
  12. Site management issues, including access, security, temporary controls, maintenance and protection of traffic, and housekeeping.
  13. Permits.
  14. Punch list status, as applicable.
  15. Agency comments and concerns.
  16. Other business.

### PART 2 – PRODUCTS (NOT USED)

### PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 32 16

### CONSTRUCTION PROGRESS SCHEDULE

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall prepare, submit, maintain, and update Progress Schedule in accordance with the Contract Documents and this Section, unless otherwise accepted by Owner.
2. Owner's acceptance of the Progress Schedule, and comments or opinions concerning the activities in the Progress Schedule shall not control Contractor's independent judgment relative to the means, methods, techniques, sequences, and procedures of construction. Contractor is solely responsible for complying with the Contract Times.
3. If the Progress Schedule reflects completion date(s) different than the Contract Times, the Contract Times are not thereby voided, nullified, or affected. The Contract Times govern. Where the Progress Schedule reflects completion date(s) that are earlier than the Contract Times, Owner may accept such Progress Schedule with Contractor to specifically understand that no Claim for additional Contract Times or additions to the Contract Price shall be brought against Owner resulting from Contractor's failure to complete the Work by the earlier date(s) indicated on the accepted Progress Schedule.

###### B. Factors Affecting the Progress Schedule:

1. In preparing the Progress Schedule, take into consideration submittal requirements and submittal review times, time for fabricating and delivering materials and equipment, Work by Subcontractors, availability and abilities of workers, availability of construction equipment, weather conditions, restrictions in operations at the Site and coordination with Owner's operations, if any, and other factors that have the potential to affect completion of the Work within the Contract Times.
2. Comply with sequencing requirements, if any, indicated in the Contract Documents.

##### 1.02 SUBMITTALS

###### A. Informational Submittals:

1. Preliminary Progress Schedule: Submit in accordance with the Contract Documents.
2. Initial Progress Schedule: After making revisions in accordance with Owner's comments on the preliminary Progress Schedule, submit initial Progress Schedule in accordance with the Contract Documents.
3. Progress Schedule Updates:
  - a. Submit updated Progress Schedule at each progress meeting. Bring to meeting the minimum number of copies specified in Section 01 31 19.23 (Progress Meetings).
  - b. Submit each updated Progress Schedule with letter of transmittal complying with requirements of Section 01 33 00 (Submittal Procedures) and specifically indicating the following:
    - 1) Listing of activities and dates that have changed since the previous Progress Schedule submittal.
    - 2) Discussion of problems causing delays, anticipated duration of delays, and proposed countermeasures.
    - 3) Completed activities, if any, and the anticipated and actual durations of each.
  - c. If the Progress Schedule remains unchanged from one progress meeting to the next, submit written statement to that effect.

4. Look-Ahead Schedules: Submit two-week look-ahead schedule at each progress meeting. Bring to meeting the minimum number of copies specified in Section 01 31 19.23.
5. Recovery Schedules: Submit in accordance with Article 1.04 of this Section.

### 1.03 PROGRESS SCHEDULE

#### A. Format:

1. Type: Gantt chart prepared using Microsoft Project 2007 or later edition, Oracle Primavera P6, or similar scheduling software.
2. Sheet Size: 11 inches by 17 inches, unless otherwise accepted by Owner.
3. Time Scale: Indicate first date of each work week.
4. Organization:
  - a. Group deliveries of materials and equipment into a separate sub-schedule that is part of the Progress Schedule.
  - b. Group construction into a separate sub-schedule (that is part of the Progress Schedule) by activity.
  - c. Group Work by Subcontractors into a separate sub-schedule (that is part of the Progress Schedule) by activity.
  - d. Group critical activities that dictate the rate of progress (the "critical path") into a separate sub-schedule that is part of the Progress Schedule. Clearly indicate the critical path on the Progress Schedule.
  - e. Organize each sub-schedule by Specifications Section or payment item number.
5. Activity Designations: Indicate title and related Specifications Section or payment item number.

#### B. Content: Progress Schedule shall indicate the following:

1. Dates for shop-testing.
2. Delivery dates for materials and equipment to be incorporated into the Work.
3. Dates for beginning and completing each phase of the Work by activity and by trade.
4. Dates for start-up and check-out, field-testing, and instruction of operations and maintenance personnel.
5. Dates corresponding to the Contract Times, and planned completion date associated with each Milestone (if any), Substantial Completion, and readiness for final payment.

#### C. Progress Schedule Updates: Update Progress Schedule on a weekly basis and to reflect changes to the Contract Times, if any, made by Change Order.

### 1.04 RECOVERY SCHEDULES

#### A. General:

1. When updated Progress Schedule indicates that the ability to comply with the Contract Times falls two or more weeks behind schedule, the delay is within the control of Contractor, and there is no corresponding Change Order or Work Change Directive to support an extension of the Contract Times, Contractor shall prepare and submit a Progress Schedule demonstrating Contractor's plan to accelerate the Work to achieve compliance with the Contract Times ("recovery schedule") for Owner's acceptance.
2. Submit recovery schedule within three days after submittal of updated Progress Schedule where need for recovery schedule is indicated.

- B. Implementation of Recovery Schedule:
1. At no additional cost to Owner, do one or more of the following: furnish additional resources (additional workers, additional construction equipment, increased work hours or additional shifts, and other resources), provide suitable materials, expedite procurement of materials and equipment to be incorporated into the Work, and other measures necessary to complete the Work within the Contract Times.
  2. Upon acceptance of recovery schedule by Owner, incorporate recovery schedule into the next Progress Schedule update.
- C. Lack of Action: Contractor's refusal, failure, or neglect to take appropriate recovery action, or to submit a recovery schedule, shall constitute reasonable evidence that Contractor is not prosecuting the Work or separable part thereof with the diligence that will ensure completion within the Contract Times. Such lack of action shall constitute sufficient basis for Owner to exercise remedies available to Owner under the Contract Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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## SECTION 01 32 26

### CONSTRUCTION PROGRESS REPORTING

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall prepare and submit construction progress reports in accordance with this Section.
2. Construction progress reports include:
  - a. Daily construction reports.
  - b. Field condition reports.

##### 1.02 SUBMITTALS

###### A. Informational Submittals:

1. Daily Construction Reports: Submit in accordance with Article 1.03 of this Section.
2. Field Condition Reports: Submit in accordance with Article 1.04 of this Section.

##### 1.03 DAILY CONSTRUCTION REPORTS

- ###### A. Prepare daily construction reports throughout the Project. Include in each report, at a minimum, the following:
1. Contractor's name.
  2. Owner's name.
  3. Project name.
  4. Site name and location.
  5. Date and day of the week.
  6. High and low temperatures and general weather conditions.
  7. Number of Contractor employees at the Site.
  8. Number of employees at the Site for each Subcontractor.
  9. Copy of daily security log, in accordance with Section 01 57 33 (Security).
  10. Copy of daily inspection log, in accordance with Section 31 23 00 (Excavation and Fill).
  11. Breakdown of employees by trades.
  12. Major construction equipment used.
  13. Material and equipment deliveries.
  14. Waste shipments.
  15. Meter readings and similar recordings.
  16. Work performed, including field quality control measures and testing, and representative photographs, if available.
  17. Location of areas in which construction was performed.
  18. Major equipment and materials installed as part of the Work.
  19. Services connected and disconnected.
  20. Equipment or system tests and startups.
  21. Stoppages, delays, shortages, and losses.
  22. Accidents. Comply with accident reporting requirements of Section 01 35 29 (Contractor's Health and Safety Plan).
  23. Emergency procedures.
  24. Meetings and significant decisions.
  25. Orders and requests of authorities having jurisdiction.
  26. Change Orders received and implemented.

- 27. Work Change Directives received and implemented.
  - 28. Field Orders received and implemented.
  - 29. Other instructions received from Owner or Engineer.
- B. Submit daily construction reports to Engineer by 9:00 a.m. the next working day after the day covered in the associated report. Daily report shall be signed by responsible member of Contractor's staff, such as Contractor's project manager or superintendent, or foreman designated by Contractor as having authority to sign daily reports.

#### 1.04 FIELD CONDITION REPORTS

- A. Immediately upon discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- B. Submit field condition reports to Engineer with request for interpretation, prepared in accordance with Section 01 26 00 (Contract Modification Procedures).

#### PART 2 – PRODUCTS (NOT USED)

#### PART 3 – EXECUTION (NOT USED)

END OF SECTION



## SECTION 01 33 00

### SUBMITTAL PROCEDURES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall prepare and furnish submittals in accordance with the Contract Documents and this Section.
2. Provide submittals within the timeframes specified in the respective Specifications Sections (when such timeframes are specified) and well in advance of the need for the material, equipment, or procedure (as applicable) in the Work and with ample time required for delivery of materials and equipment and to implement procedures following Engineer's review or acceptance of the associated submittal. Work covered by a submittal will not be included in progress payments until review or acceptance of related submittals has been obtained in accordance with the Contract Documents.
3. Contractor is responsible for dimensions to be confirmed and corrected at the Site; quantities; information pertaining solely to fabrication processes; means, methods, sequences, procedures, and techniques of construction; safety precautions and programs incident thereto; and for coordinating the work of all trades.
4. Contractor's signature of submittal's stamp and letter of transmittal shall be Contractor's representation that Contractor has complied with its obligations under the Contract Documents relative to that submittal. Owner and Engineer shall be entitled to rely on such representations by Contractor.
5. Provisions of the Contract Documents apply to all Contractor-furnished submittals required by the Contract Documents, regardless of whether such submittals are other than Shop Drawings or Samples.

###### B. Samples:

1. Submittal of Samples shall comply with the Contract Documents, this Section, and the Specifications Section in which the Sample is specified.
2. Furnish at the same time those Samples and submittals that are related to the same element of the Work or Specifications Section. Engineer will not review submittals without associated Samples, and will not review Samples without associated submittals.
3. Samples shall clearly illustrate functional characteristics of materials, all related parts and attachments, and full range of color, texture, pattern, and materials.

##### 1.02 TYPES OF SUBMITTALS

A. Submittals are classified as Action Submittals, Informational Submittals, Closeout Submittals, and Maintenance Material Submittals. The type of each required submittal is designated in the respective Specifications Sections. When type of submittal is not designated in the associated Specifications Section, submittal will be classified as follows:

1. Action Submittals include:
  - a. Shop Drawings.
  - b. Product data.

- c. Delegated design submittals, which include documents prepared, sealed, and signed by a design professional retained by Contractor, Subcontractor, or Supplier for materials and equipment to be incorporated into the completed Work. Delegated design submittals do not include submittals related to temporary construction unless specified otherwise in the related Specifications Section. Delegated design submittals include design drawings, design data including calculations, specifications, certifications, and other submittals prepared by such design professional.
  - d. Samples.
  - e. Testing plans, procedures, and testing limitations.
2. Informational Submittals include:
- a. Certificates.
  - b. Design data not sealed and signed by a design professional retained by Contractor, Subcontractor, or Supplier.
  - c. Pre-construction test and evaluation reports, such as reports on pilot testing, subsurface investigations, testing for potential Contaminants, and similar reports.
  - d. Supplier instructions, including installation data, and instructions for handling, starting-up, and troubleshooting.
  - e. Source quality control submittals (other than testing plans, procedures, and testing limitations), including results of shop testing.
  - f. Field quality control submittals (other than testing plans, procedures, and testing limitations), including results of operating and acceptability tests at the Site.
  - g. Supplier reports.
  - h. Sustainable design submittals (other than sustainable design closeout documentation).
  - i. Special procedure submittals, including plans for shut-downs and tie-ins, and other procedural submittals.
  - j. Qualifications statements.
  - k. Administrative submittals, including:
    - 1) Progress Schedules.
    - 2) Progress reports.
    - 3) Schedules of Submittals.
    - 4) Schedules of Values.
    - 5) Photographic documentation.
    - 6) Coordination drawings, when submittal of such is required.
    - 7) Copies of permits obtained by Contractor.
    - 8) Survey data and similar information.
3. Closeout Submittals include:
- a. Maintenance contracts.
  - b. Operations and maintenance data.
  - c. Bonds, such as special maintenance bonds and bonds for a specific material, equipment item, or system.
  - d. Warranty documentation.
  - e. Record documentation.
  - f. Sustainable design closeout documentation.
  - g. Software.
  - h. Keying.
4. Maintenance Material Submittals include:
- a. Spare parts.
  - b. Extra stock materials.
  - c. Tools.
5. When type of submittal is not specified and is not included in the list above, submit request for interpretation in accordance with Section 01 26 00 (Contract Modification Procedures).

- B. Not Included in this Section: Administrative and procedural requirements for the following are covered elsewhere in the Contract Documents:
1. Requests for interpretations of the Contract Documents.
  2. Field Orders, Work Change Directives, and Change Orders.
  3. Applications for Payment.
  4. Reports, documentation, and permit applications required to be furnished by Contractor to authorities having jurisdiction.

### 1.03 SUBMITTALS REQUIRED IN THIS SECTION

A. Informational Submittals:

1. Schedule of Submittals:
  - a. Timing:
    - 1) Furnish submittal within time frames indicated in the Contract Documents.
    - 2) Submit updated Schedule of Submittals with each submittal of the updated Progress Schedule.
  - b. Content: In accordance with the Contract Documents and this Section. Requirements for content of preliminary Schedule of Submittals and subsequent submittals of the Schedule of Submittals are identical. Identify on Schedule of Submittals all submittals required in the Contract Documents. Updates of Schedule of Submittals shall show scheduled dates and actual dates for completed tasks. Indicate submittals that are on the Project's critical path. Indicate the following for each submittal:
    - 1) Date by which submittal will be received by Engineer.
    - 2) Whether submittal will be for a substitution or "or-equal". Procedures for requesting approval of substitutes and "or-equals" are specified Sections 01 25 00 (Substitution Procedures) and 01 62 00 (Product Options).
    - 3) Date by which Engineer's response is required. Not less than 14 days shall be allowed for Engineer's review, starting upon Engineer's actual receipt of each submittal. Allow increased time, upwards of 28 days, for large or complex submittals.
    - 4) For submittals for materials or equipment, date by which material or equipment must be at the Site to avoid delaying the Work and to avoid delaying the work of other contractors, if any.
  - c. Prepare Schedule of Submittals using same software, and in same format, specified for Progress Schedules in Section 01 32 16 (Construction Progress Schedule).
  - d. Coordinate Schedule of Submittals with the Progress Schedule.
  - e. Schedule of Submittals that is not compatible with the Progress Schedule, or that does not indicate submittals on the Project's critical path, or that places extraordinary demands on Engineer for time and resources, is unacceptable. Do not include submittals not required by the Contract Documents.
  - f. In preparing Schedule of Submittals:
    - 1) Considering the nature and complexity of each submittal, allow sufficient time for review and revision.
    - 2) Reasonable time shall be allowed for Engineer's review and processing of submittals, for submittals to be revised and resubmitted, and for returning submittals to Contractor.
    - 3) Identify and accordingly schedule submittals that are expected to have long anticipated review times and submittals that may be subject to review by authorities having jurisdiction.

## 1.04 PROCEDURE FOR SUBMITTALS

- A. Submittal Identification System: Use the following submittal identification system, consisting of submittal number and review cycle number.
1. Submittal number shall be separate and unique number correlating to each individual submittal required. Contractor shall assign submittal number as follows:
    - a. First part of submittal number shall be the applicable Specification Section number, followed by a hyphen.
    - b. Second part of submittal number shall be a three-digit number (sequentially numbered from 001 through 999) assigned to each separate and unique submittal furnished under the associated Specifications Section.
    - c. Typical submittal number for the third submittal furnished for Section 31 23 00 (Excavation and Fill) would be "31 23 00-003".
  2. Review cycle number shall be a letter designation indicating the initial submittal or re-submittal associated with each submittal number:
    - a. "A" = Initial (first) submittal.
    - b. "B" = Second submittal (i.e., first re-submittal).
    - c. "C" = Third submittal (i.e., second re-submittal).
  3. Typical submittal identification for the second submission (first re-submission) of the third submittal provided for Section 31 23 00 (Excavation and Fill) would be "31 23 00-003-B".
- B. Letter of Transmittal for Submittals:
1. Furnish separate letter of transmittal with each submittal.
  2. Each letter of transmittal shall contain the following:
    - a. Contractor's name.
    - b. Owner's name.
    - c. Project name.
    - d. Contract or Purchase Order number.
    - e. Transmittal number.
    - f. Submittal number and review cycle number.
    - g. Submittal date and dates of any previous submissions.
    - h. Reference to appropriate Specifications Section number, page, and paragraph(s).
    - i. Reference to appropriate Drawing sheet(s) and detail(s).
    - j. Clear space at least three inches by three inches in size for affixing Engineer's review stamp.
    - k. Clear space suitably sized for affixing Contractor's stamp.
  3. For submittals with proposed deviations from the requirements of the Contract Documents, letter of transmittal shall specifically describe each proposed variation.
- C. Contractor's Review and Stamp:
1. Contractor's Review: Before transmitting submittals to Engineer, review submittals to:
    - a. Ensure proper coordination of the Work.
    - b. Determine that each submittal is in accordance with Contractor's desires.
    - c. Verify that submittal contains sufficient information for Engineer to determine compliance with the Contract Documents.
  2. Incomplete or inadequate submittals will be returned without review.
  3. Contractor's Stamp and Signature:
    - a. Each submittal furnished shall bear Contractor's stamp of approval and signature, as evidence that submittal has been reviewed by Contractor and verified as complete and in accordance with the Contract Documents.
    - b. Submittals without Contractor's stamp and signature will be returned without review.
    - c. Contractor's stamp shall contain the following certification statement:

“By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers, and similar data, and I have checked and coordinated each item with other applicable Shop Drawings and all Project requirements.”

D. Submittal Marking and Organization:

1. Mark each page of submittal, and each individual component submitted, with submittal number and applicable Specifications paragraph.
2. Arrange submittal information in same order as requirements are written in the associated Specifications Section.
3. Each Shop Drawing sheet shall have title block with complete identifying information satisfactory to Engineer.
4. Package together submittals for the same Specifications Section. Do not furnish required information piecemeal.

E. Format of Submittals:

1. Action Submittals and Informational Submittals: Submit electronic copies, except that submittals of Samples shall be as specified in Paragraph 1.04.E.2 of this Section.
2. Samples:
  - a. Securely label or tag Samples with submittal identification number. Label or tag shall include clear space at least three inches by three inches in size for affixing Engineer's review stamp. Label or tag shall not cover, conceal, or alter appearance or features of Sample. Label or tag shall not be separated from the Sample.
  - b. Submit quantity of Samples required in Specifications. If quantity of Samples is not specified in the associated Specifications Section, furnish not less than three identical Samples of each item required for Engineer's review. Samples will not be returned to Contractor. If Contractor requires Sample(s) for Contractor's use, notify Engineer in writing and furnish additional Sample(s). Contractor is responsible for furnishing, shipping, and transporting additional Samples.
  - c. Deliver one Sample to Engineer's field office at the Site. Deliver balance of Samples to Engineer's office, unless otherwise directed by Engineer.
3. Closeout Submittals:
  - a. Submit electronic copies of the following Closeout Submittals:
    - 1) Maintenance contracts.
    - 2) Operations and maintenance data.
    - 3) Bonds for specific products or systems.
    - 4) Warranty documentation.
    - 5) Sustainable design closeout documentation.
  - b. Record Documentation: Submit in accordance with Section 01 78 39 (Project Record Documents).
  - c. Software: Submit number of copies required in Specifications Section where the software is specified. If number of copies is not specified, furnish two copies on compact disc in addition to software loaded on to Owner's computer(s) or microprocessor(s).
4. Maintenance Material Submittals: For spare parts, extra stock materials, and tools, furnish quantity of items specified in associated Specifications Section.

F. Electronic Submittals:

1. Format: Electronic files shall be in Portable Document Format (PDF). Files shall be electronically searchable.
2. Organization and Content:
  - a. Each electronic submittal shall be one file; do not divide individual submittals into multiple files each.

- b. When submittal is large or contains multiple parts, furnish PDF file with bookmark for each section of submittal.
    - c. Content shall be identical to printed submittal. First page of electronic submittal shall be Contractor's letter of transmittal.
  - 3. Quality and Legibility: Electronic submittal files shall be made from the original and shall be clear and legible. Do not provide scans of faxed copies. Electronic file shall be full size of original, printed documents. Properly orient all pages for reading on a computer screen.
  - 4. Provide sufficient Internet service and e-mail capability for Contractor's use in transferring electronic submittals, receiving responses to electronic submittals, and associated electronic correspondence. Check not less than once per day for distribution of electronic submittals, responses to electronic submittals, and electronic correspondence related to submittals.
  - 5. Submitting Electronic Files: Provide electronic copies of submittals to Engineer.
- G. Distribution:
- 1. Engineer will provide electronic copy of each reviewed or accepted submittal requiring Engineer's written response.
  - 2. Contractor shall distribute hard copy reproductions of reviewed or accepted submittals, where required, to the job site file and elsewhere, as directed by Engineer. Number of hard copies shall be as directed by Engineer, but will not exceed six.
- H. Resubmittals: Refer to the Contract Documents for resubmittal requirements.
- I. Engineer's Submittal Log:
- 1. Engineer will maintain a log of required submittals using the form included with this Section. Updated submittal log will be provided to Contractor upon request.
  - 2. Review submittal log and status of each submittal with Engineer on a weekly or more frequent basis.
  - 3. Coordinate updates to Schedule of Submittals with Engineer's updates to submittal log.

## 1.05 ENGINEER'S REVIEW

- A. Timing: Engineer's review will conform to timing indicated in the Schedule of Submittals accepted by Engineer.
- B. Submittals not required by the Contract Documents will not be reviewed by Engineer and will not be recorded in Engineer's submittal log. Hard copies, if any, of such submittals will be returned to Contractor.
- C. Results of Engineer's Review:
- 1. Action Submittals: Each submittal will be given one of the following dispositions by Engineer:
    - a. Reviewed: Upon return of submittal marked "Reviewed", order, ship, or fabricate materials and equipment included in the submittal (pending Engineer's review or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents.
    - b. Reviewed and Noted: Upon return of submittal marked "Reviewed and Noted", order, ship, or fabricate materials and equipment included in the submittal (pending Engineer's review or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents, and in accordance with corrections indicated in Engineer's submittal response.

- c. Revise and Resubmit: Upon return of submittal marked “Revise and Resubmit”, make the corrections indicated and re-submit to Engineer for review.
  - d. Rejected: This disposition indicates that submittal includes material or equipment that cannot be reviewed. Upon return of submittal marked “Rejected”, repeat initial submittal procedure utilizing reviewable material or equipment. Number resubmittal with appropriate review cycle number
2. Informational Submittals:
- a. Each submittal will be given one of the following dispositions:
    - 1) Accepted: Information included in submittal complies with the applicable requirements of the Contract Documents, and is acceptable. No further action by Contractor is required relative to this submittal, and the Work covered by the submittal may proceed, and materials and equipment with submittals with this disposition may be shipped or operated, as applicable.
    - 2) Not Accepted: Submittal does not indicate compliance with the applicable requirements of the Contract Documents and is not acceptable. Revise submittal and re-submit to indicate acceptability and compliance with the Contract Documents.
  - b. The following types of Informational Submittals, when acceptable to Engineer, will not receive a written response from Engineer. Disposition as “Accepted” will be recorded in Engineer’s submittal log. When submittals of the following are not acceptable, Engineer will provide written response to Contractor:
    - 1) Safety data sheets.
    - 2) Manifests and other shipping documents.
    - 3) Delivery tickets.
    - 4) Compaction testing reports.
    - 5) Concrete testing reports.
    - 6) Manufacturer’s instructions.
3. Closeout Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Closeout Submittals will not receive a written response from Engineer. Disposition as “Accepted” will be recorded in Engineer’s submittal log. When Closeout Submittal is not acceptable, Engineer will provide written response to Contractor.
4. Maintenance Material Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Maintenance Material Submittals will not receive a written response from Engineer. Disposition as “Accepted” will be recorded in Engineer’s submittal log. When Maintenance Material Submittal is not acceptable, Engineer will provide written response to Contractor, and Contractor is responsible for costs associated with transporting and handling of maintenance materials until compliance with the Contract Documents is achieved.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 35 23

### SAFETY REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section expands upon the requirements elsewhere in the Contract Documents regarding Contractor's responsibilities for safety and protection, and includes requirements for Contractor's safety representative and other safety requirements applicable to the Project.
2. Contractor shall provide all labor, materials, tools, equipment, training, certifications, protective measures, and incidentals shown, specified, and required to comply with Contractor's obligations under the Contract for safety and protection of personnel and property.
3. Owner's safety programs that are applicable to the Work are identified in the Contract Documents.

###### B. Related Sections:

1. Section 01 35 29, Contractor's Health and Safety Plan.
2. Section 01 35 43.13, Environmental Procedures for Hazardous Materials.
3. Section 01 52 16, First-Aid Facilities.
4. Section 01 71 33, Protection of the Work and Property.

##### 1.02 QUALITY ASSURANCE

###### A. Qualifications:

1. Contractor's Safety Representative:
  - a. Employ or retain the services, as needed, of a full-time safety industry professional to manage, oversee, and enforce Contractor's health and safety program at the Site, and ensure throughout the Project compliance with Contractor's Site-specific health and safety plan (HASP), Owner's safety programs applicable to the Work, and applicable Laws and Regulations.
  - b. Contractor's safety representative shall possess not less than five years of experience serving as the safety representative on projects similar to or larger in size than this Contract, and for type(s) of construction similar in nature to the Work.
  - c. Contractor's safety representative shall be experienced in the types of Work to be performed under the Contract and shall be experienced with safety precautions, procedures, and equipment appropriate for the safe performance of the Work.
  - d. Prior to the Effective Date of the Contract, safety representative shall have successfully completed, at a minimum, a 30-hour OSHA construction safety and health training course, a 40-hour OSHA Hazardous Waste operations and emergency response (HAZWOPER) training course, training for confined space entry, and other training required by Laws and Regulations.
  - e. Contractor's safety representative shall be completely experienced with and knowledgeable of all applicable health and safety Laws and Regulations and with good safety practices, and shall ensure compliance with such Laws and Regulations and practices at the Site.
  - f. Minimum responsibilities of Contractor's safety representative are indicated in Article 1.04 of this Section.



- g. If more than one safety representative will be assigned to the Project (e.g., due to multiple work shifts, etc.), each safety representative shall be qualified in accordance with this Paragraph 1.02.A.1 and shall comply with the requirements of this Section. Submit separate qualifications statement for and obtain Engineer's acceptance of each safety representative.
- h. Engineer's acceptance of Contractor's safety representative's qualifications does not in any way mitigate or relieve Contractor of Contractor's safety obligations under the Contract Documents.
- i. Contractor's safety representative may not change during the Project unless prior written approval is obtained from Owner. Contractor is solely responsible for any costs incurred or delays if Contractor's safety representative is not available and an acceptable substitute has not been approved by Owner.

**B. Regulatory Requirements:**

- 1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses.
  - b. 29 CFR 1910, Occupational Safety and Health Standards.
  - c. 29 CFR 1926, Safety and Health Regulations for Construction.
  - d. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
  - e. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
  - f. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
  - g. 6 NYCRR 375, Environmental Remediation Programs.
  - h. 12 NYCRR 23, Protection in Construction, Demolition, and Excavation Operations.
  - i. 16 NYCRR 753, Protection of Underground Facilities.
  - j. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.

**1.03 SUBMITTALS**

**A. Informational Submittals:**

- 1. Qualifications Statements: Submit name and qualifications of safety representative, including summary of experience, training received, and copy of valid certifications applicable to the Project.
- 2. Emergency Contact Information: Submit in accordance with Article 1.05 of this Section.
- 3. Citations: Submit copies of safety citations from authorities having jurisdiction and insurance companies within 24 hours of Contractor's receipt of such citations.
- 4. Reports:
  - a. Accident Reports: Submit in accordance with Article 1.07 of this Section.
  - b. Daily Health and Safety Field Reports: Submit in accordance with Article 1.08 of this Section.

**1.04 MINIMUM RESPONSIBILITIES OF SAFETY REPRESENTATIVE**

**A. General:**

- 1. Contractor's safety representative shall be at the Site full-time when Work is in progress. When Contractor employs multiple shifts, furnish more than one safety representative as necessary. Each safety representative shall be qualified in accordance with Paragraph 1.02.A.1 of this Section.
- 2. Contractor's safety representative shall have no other duties on the Project except those directly related to safety. Safety representative shall not be Contractor's project manager, superintendent, or other supervisory personnel working on the Project.

3. Contractor's safety representative shall have appropriate space at the Site to maintain and keep available safety records, up-to-date copies of pertinent safety Laws and Regulations, safety data sheets, Contractor's HASP, copies of Owner's safety programs with which Contractor shall comply, and emergency contact information as required in Article 1.05 of this Section.
- B. Contractor's safety representative's responsibilities include, but are not necessarily limited to, the following:
1. Duties and responsibilities in accordance with the Contract Documents.
  2. Supervising the implementation of Contractor's HASP throughout the Project.
  3. Coordinating with Contractor's "competent person" required under Laws and Regulations.
  4. Attending pre-construction conference, progress meetings, and other Project meetings in accordance with the Contract Documents.
  5. Scheduling and conducting safety meetings and safety training programs as required by Laws and Regulations, Contractor's HASP, and good safety practices. Advise Engineer and Air Monitoring personnel prior to the time and place of such meetings. Instruct Contractor's employees (and Subcontractors, Suppliers with personnel at the Site, and others for whom Contractor is responsible) on recognition of hazards, observance of precautions, of the contents of the HASP and other safety programs with which Contractor shall comply, and use of personal protective equipment (PPE) and safety equipment.
  6. Determining that operators of specific construction equipment (and permanent equipment used for construction operations) are qualified by training and experience before such personnel are allowed to operate such equipment.
  7. Developing and implementing emergency response procedures, including names, locations, and contact telephone numbers for emergency services and medical assistance as indicated in requirements for the emergency contact list in Article 1.05 of this Section.
  8. Posting appropriate notices regarding health and safety Laws and Regulations at locations at the Site and Contractor's field office that afford maximum exposure to personnel.
  9. Posting appropriate instructions and warning signs in regard to all hazardous areas and hazardous conditions that cannot be eliminated. Identification of such areas shall be based on experience, site surveillance, and severity of the associated hazard. Signage shall not be used in place of appropriate workplace controls.
  10. Ascertaining via personal inspection that safety Laws and Regulations and safety program requirements are enforced. Make inspections not less than once per work shift to ensure that machines, tools, and equipment are in a safe operating condition; and that all work areas are free of hazards to the extent practicable. Implement necessary and timely corrective actions to eliminate unsafe acts and unsafe conditions, and submit to Engineer daily copy of findings resulting from inspection, using inspection checklist forms established in Contractor's HASP.
  11. Submitting to Owner and Engineer copies of safety citations from authorities having jurisdiction and insurance companies within 24 hours of Contractor's receipt of such citations.
  12. Providing appropriate orientation to employees, visitors, Subcontractors, and Supplier personnel at the Site.
  13. Preparing and submitting accident reports in accordance with Article 1.07 of this Section.
  14. Leading accident investigations on Contractor's behalf.
  15. Preparing and submitting daily health and safety field reports in accordance with Article 1.08 of this Section.
  16. Preparing and maintaining health and safety records and statistics in accordance with Article 1.09 of this Section.

17. Performing all related tasks necessary to achieve the highest degree of safety that the nature of the Work allows.
18. Attending all safety inspections conducted by Owner.

#### 1.05 EMERGENCY CONTACT INFORMATION

- A. Contractor shall submit list of emergency contact information for 24-hour use throughout the Project. Emergency contact information shall be updated and kept current throughout the Project. If personnel or contact information change, furnish updated emergency contact information list at the next progress meeting.
- B. Contractor's list of emergency contact information shall include, at a minimum, the following:
  1. Contractor:
    - a. Project manager's office, field office, and cellular telephone numbers.
    - b. Site superintendent's office, field office, and cellular telephone numbers.
    - c. Foreman's field office and cellular telephone numbers.
    - d. Safety representative's field office and cellular telephone numbers.
    - e. Major Subcontractors' and Suppliers' office and cellular telephone numbers of project manager and foreman (when applicable).
  2. Owner:
    - a. Project manager's office and cellular telephone numbers.
    - b. Assistant project manager's office and cellular telephone numbers.
  3. Engineer:
    - a. Engineer of record's office and cellular telephone numbers.
    - b. Project manager's office and cellular telephone numbers.
    - c. Assistant project manager's office and cellular telephone numbers.
  4. Resident Project Representative's office, field office, and cellular telephone numbers.
  5. Air Monitoring Consultant:
    - a. Project manager's office and cellular telephone numbers.
    - b. Air monitoring technician's office, field office, and cellular telephone numbers.
  6. Utility companies' 24-hour contact telephone number(s), including gas, electric, water, sewer, telecommunications, and other companies having utilities in the vicinity of the Work.
  7. Highway and street owners' 24-hour telephone number(s).
  8. Emergency telephone numbers for the hospital, ambulance service, police department, and fire department nearest to the Site. Furnish names of each of these institutions.
  9. Authorities having jurisdiction.
  10. Other involved entities as applicable.
- C. Include with list of emergency contact information an 8.5-inch by 11-inch map showing route from the Site to the nearest hospital.

#### 1.06 SAFETY EQUIPMENT

- A. General:
  1. Contractor shall provide proper safety and rescue equipment, adequately maintained and readily available, for any foreseeable contingency.
  2. Such equipment shall include items such as safety ropes and harnesses, fall-prevention devices, stretchers, water safety devices, oxygen breathing apparatus, resuscitators, gas detectors, oxygen deficiency indicators, combustible gas detectors, fire extinguishers, and first-aid equipment in accordance with the Division 01 Specifications, and similar equipment.
  3. Keep safety equipment in protected areas. Check safety equipment at scheduled intervals.

4. Temporary First-Aid Facilities: Comply with Section 01 52 16 (First-Aid Facilities).
- B. Safety Equipment Log:
  1. Maintain a log indicating the person who checked the equipment, when equipment was checked, and that equipment was acceptable.
  2. Update equipment log not less-often than monthly.
  3. Include in safety representative's on-site records copies of equipment calibration records.
- C. Provide replacement safety equipment when primary safety equipment is unavailable due to use or when undergoing maintenance.
- D. Personal Protective Equipment (PPE):
  1. All persons entering the work areas shall wear appropriate PPE required for the particular area and task.
  2. Remove from the Site any person failing to comply with this or any other safety requirement.
  3. Continuously provide all necessary PPE for Owner's and Engineer's employees; Resident Project Representative; and visitors to the Site. Engineer will furnish for its respective employees protective helmets (hard hats), safety eyewear, reflective vests, and hearing protection. Contractor shall furnish other PPE required.

#### 1.07 ACCIDENT REPORTING AND INVESTIGATION

- A. Immediately notify Owner and Engineer of all accidents that:
  1. Result in bodily injury, illness, or property damage.
  2. Affect the environment.
  3. Involve the public.
- B. Submit accident report to Owner and Engineer within 24 hours after accident occurs. Include in each report the following:
  1. Date, time, and location of accident.
  2. Names of all Site personnel involved in or affected by accident.
  3. Description of accident and activities being performed when accident occurred.
  4. Medical treatment administered, if any.
  5. Nature and seriousness of injury or damage.
  6. Other information requested by Owner to complete Owner's incident analysis.
- C. Comply with 29 CFR 1904.29, including using OSHA Forms 300, 300A, and 301 (or equivalent) to document all accidents that result in bodily injury.
- D. Based upon results of accident investigation, modify HASP as required by changing tasks or procedures to prevent reoccurrence of accident.
- E. Post current copy of Contractor's OSHA Form 300A at conspicuous place at the Site during period of February 1 through April 30 of each year.

## 1.08 DAILY HEALTH AND SAFETY FIELD REPORTS

- A. Prepare daily health and safety field reports throughout the Project. Include in each report, at a minimum, the following:
1. Contractor's name.
  2. Owner's name.
  3. Project name.
  4. Site name and location.
  5. Date and day of the week.
  6. Weather conditions.
  7. Delays encountered in construction.
  8. Copy of daily job safety briefing form.
  9. Acknowledgment of deficiencies noted along with corrective actions taken on current and previous deficiencies.
  10. Daily health and safety exposure monitoring results.
  11. Documentation of instrument calibrations performed.
  12. New hazards encountered.
  13. PPE utilized.
  14. Description of problems, real or anticipated, encountered during the Work that should be brought to the attention of Owner and Engineer.
  15. Deviations from planned Work described in previously-submitted daily health and safety field report(s).
- B. Submit daily health and safety field reports to Engineer by 9:00 a.m. the next working day after the day covered in the associated report. Daily reports shall be signed by Contractor's safety representative.

## 1.09 HEALTH AND SAFETY RECORDS

- A. Retain at the Site complete and accurate health and safety records for all Contractor and Subcontractor employees assigned to the Project. Records shall include, at a minimum, the following:
1. Valid training certificates for the following:
    - a. Initial 40-hour HAZWOPER training.
    - b. Initial 24-hour HAZWOPER training.
    - c. Eight-hour HAZWOPER supervisor training.
    - d. Annual eight-hour HAZWOPER refresher training.
    - e. Ten-hour construction safety training.
    - f. First-aid/cardiopulmonary resuscitation training.
    - g. Other training required by Contractor's HASP.
  2. Valid medical clearance certificates.
  3. Valid respirator fit test certificates.
  4. Accident reports, prepared in accordance with Article 1.07 of this Section.
  5. Daily health and safety field reports, prepared in accordance with Article 1.08 of this Section.
  6. Other records required by Owner or Laws and Regulations.
- B. Keep records up-to-date throughout the Project.
- C. Contractor's safety representative shall meet at least monthly with Owner and Engineer to review Contractor's health and safety records and verify compliance with this Section.

## PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

END OF SECTION

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## SECTION 01 35 29

### CONTRACTOR'S HEALTH AND SAFETY PLAN

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall prepare and maintain a written, Site-specific Health and Safety Plan (HASP), and conduct all construction activities in a safe manner that avoids:
  - a. injuries to employees, Subcontractors, and other persons with an interest at or near the Site;
  - b. employee exposures to health hazards above occupational limits established by Laws or Regulations, the American Conference of Governmental Industrial Hygienists, and the Nuclear Regulatory Commission (NRC), as applicable;
  - c. exposure of the public and Owner's employees to air contaminants above levels established for public exposure by USEPA, NRC, NYSDEC, NYSDOH, NYCDEP, and other authorities having jurisdiction at the Site;
  - d. significant increases in concentrations of contaminants in soil, water, or sediment near the Site; or
  - e. violations of OSHA Regulations, or other Laws or Regulations.

###### B. Related Sections:

1. Section 01 35 23, Safety Requirements.
2. Section 01 35 43.13, Environmental Procedures for Hazardous Materials.

##### 1.02 QUALITY ASSURANCE

###### A. Qualifications:

1. HASP Preparer:
  - a. Engage a certified industrial hygienist, accredited by the American Board of Industrial Hygiene, or certified safety professional certified by the Board of Certified Safety Professionals, to prepare or supervise preparation of Contractor's HASP.
  - b. HASP preparer shall be thoroughly familiar with the following:
    - 1) Laws and Regulations and industry standards of safety and protection relating to health and safety pertaining to the Work.
    - 2) The requirements of the Contract Documents relative to health, safety, and protection.
    - 3) Health and safety hazards associated with the Work and appropriate protections therefor.
    - 4) Contractor's and Owner's safety programs.
  - c. HASP preparer shall have previously prepared site-specific health and safety plans for not less than five construction projects similar in nature, scope, and complexity to the Work.
  - d. Submit HASP preparer's qualifications with HASP.

###### B. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses.
  - b. 29 CFR 1910, Occupational Safety and Health Standards.
  - c. 29 CFR 1926, Safety and Health Regulations for Construction.



- d. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
- e. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
- f. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
- g. 6 NYCRR 375, Environmental Remediation Programs.
- h. 12 NYCRR 23, Protection in Construction, Demolition, and Excavation Operations.
- i. 16 NYCRR 753, Protection of Underground Facilities.
- j. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.

### 1.03 SUBMITTALS

#### A. Informational Submittals:

- 1. Contractor's HASP: Submit in accordance with Article 1.04 of this Section.
- 2. Qualifications Statements: Submit name and qualifications of HASP preparer, including summary of experience and copy of valid certifications.

### 1.04 HASP SUBMITTAL

#### A. General:

- 1. The Site is classified as a Hazardous Waste site. Presence of Contaminants, where known to Owner and Engineer, are indicated in the reports and drawings (if any) of such Contaminants are identified in the not-part-of Contract Documents.
- 2. Each employer working at the Site shall develop and implement a written HASP for its employees and other individuals for whom such employer is responsible. HASP shall include procedures that will be used to ensure the safe handling of Contaminants during excavating, loading, and transporting activities.
- 3. HASP shall comply with 29 CFR 1904, 29 CFR 1910, 29 CFR 1926, and other Laws and Regulations.
- 4. Include in HASP requirements for complying with Owner's safety programs that are applicable to the Work, as identified in the Contract Documents and Owner's Site-specific hazard/emergency response plans.
- 5. HASP shall be kept at the Site, shall address safety and health hazards of each phase of operations at the Site, and shall include requirements and procedures for employee protection.

#### B. HASP Contents: HASP shall address and include the following:

- 1. Organizational Structure:
  - a. Specific chain of command and overall responsibilities of supervisors and employees. Include the following:
    - 1) Name and contact information for Contractor's safety representative.
    - 2) Name and contact information for Contractor's "competent person(s)" for various work-related activities.
    - 3) Designation of general supervisor who has responsibility and authority to direct all Hazardous Waste operations.
    - 4) Other personnel required for Hazardous Waste operations at the Site and emergency response, and general functions and responsibilities of each.
    - 5) Lines of authority, responsibility, and communication.
  - b. Review and update organizational structure as necessary to reflect current status of work activities on the Project and status of personnel.
- 2. Site description, background, and scope of Work.
- 3. Safety and health risk or hazard analysis, and planned hazard controls, for each task and operation required to complete the Project.

4. Site control measures, including procedures for:
  - a. Preventing trespassing.
  - b. Preventing unqualified or unprotected workers from entering restricted areas.
  - c. Preventing the “tracking” of Contaminants out of the Site.
  - d. Maintaining a log of employees at the Site and visitors to the Site.
  - e. Ensuring safe handling of Contaminants during the Work, including excavating, handling, loading, and transporting activities. Include procedures for ensuring safety when working in or in proximity to Contaminants.
  - f. Delineating exclusion, contamination reduction, and support zones.
  - g. Locating personnel and equipment decontamination zones.
  - h. Communicating routes of escape and gathering points.
5. Training Program:
  - a. Initial training requirements for Site workers and supervisors.
  - b. Exceptions to initial training requirements.
  - c. Site briefings for visitors and workers.
  - d. Refresher training requirements.
  - e. Certification of training for all Contractor and Subcontractor employees assigned to the Project.
6. Medical Surveillance Program:
  - a. Provisions of the Site medical surveillance program.
  - b. Communication protocols between the Site, physicians, and workers.
  - c. Medical recordkeeping procedures.
  - d. Certification of medical clearance for all Contractor and Subcontractor employees assigned to the Project.
7. Personal Protective Equipment (PPE):
  - a. PPE selection criteria.
  - b. Site- and task-specific PPE ensembles.
  - c. Training in the use of PPE.
  - d. Respiratory protection.
  - e. Hearing conservation.
  - f. PPE maintenance and storage.
8. Exposure Monitoring Program:
  - a. Frequency and types of air monitoring, personnel monitoring, and environmental sampling to detect the presence of Contaminants; gases, vapors, fumes, mists, and dusts (including, but not limited to, respirable crystalline silica); noise; stress due to temperature extremes; and other health hazards exposure to which results or may result in adverse effects on the health or safety of workers.
  - b. Air monitoring, personnel monitoring, and environmental sampling procedures and equipment.
  - c. Action levels and required responses.
  - d. Calibration and maintenance procedures for monitoring and sampling equipment.
  - e. Handling and management of monitoring and sampling data.
9. Heat and cold stress prevention programs.
10. Spill containment program. Comply with Section 01 35 43.13.
11. Decontamination Program:
  - a. Location and type of temporary decontamination facilities.
  - b. General and specific decontamination procedures for personnel and PPE.
  - c. General and specific decontamination procedures for equipment and vehicles.
  - d. Disposal of residual waste from decontamination.
  - e. Decontamination equipment and materials.
  - f. Monitoring procedures used to evaluate the effectiveness of decontamination.
12. Emergency Response Plan:
  - a. Potential emergencies that may occur at the Site.
  - b. Pre-emergency planning.

- c. On-site emergency response equipment, materials, and PPE.
  - d. Emergency Maps: Evacuation routes, gathering points, and route to nearest hospital.
  - e. Emergency roles and responsibilities.
  - f. Emergency alerting and evacuation procedures for Site personnel.
  - g. Procedures for notifying, and list of emergency contact information for:
    - 1) Emergency responders, including fire officials, ambulance service, poison control, police, and local hospitals.
    - 2) Authorities having jurisdiction.
    - 3) Owner, Engineer, and Air Monitoring Personnel.
    - 4) Contractor's project manager, Site superintendent, safety representative, and foreman.
    - 5) Other entities, as required.
  - h. Emergency response procedures.
  - i. Emergency decontamination, medical treatment, and first-aid.
  - j. Emergency response training.
13. Confined space entry program. Comply with Section 01 41 28.
14. Other standard operating procedures applicable to the Work.

C. Submittal Procedure:

- 1. Submit HASP to Engineer the sooner of: seven days prior to pre-construction conference, or 30 days prior to Contractor's scheduled mobilization to the Site.
- 2. Do not perform Work at the Site until written HASP has been accepted by Engineer.
- 3. Notwithstanding other provisions of the Contract Documents, changes in the Contract Price or Contract Times will not be authorized due to delay by Contractor in developing, submitting, revising, or obtaining acceptance of HASP.

D. Limitations of Engineer's Review of HASP:

- 1. Engineer's review and acceptance of HASP will be only to determine if the topics covered in HASP comply with the Contract Documents and specific requirements of safety documents referenced therein (such as Owner's safety programs, if any).
- 2. Engineer's review and acceptance will not extend to safety measures, means, methods, techniques, procedures of construction, or whether representations made in the HASP comply with Laws and Regulations, or standards of good practice.
- 3. Contractor's responsibility for safety and protection at the Site shall be as indicated in the Contract Documents. Nothing associated with Engineer's review or acceptance of HASP will create or imply any obligation by Engineer to oversee or become, in any way, responsible for Contractor's safety obligations under the Contract Documents.

E. Location:

- 1. Retain at the Site a copy of complete HASP and related information. Comply with Section 01 35 23.
- 2. Throughout the Project, update as necessary all copies of HASP and related information.
- 3. Copies of HASP and other related information shall be made available to Contractor's employees, Subcontractors, Suppliers, Owner, and Engineer immediately upon request.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 35 43.13

### ENVIRONMENTAL PROCEDURES FOR HAZARDOUS MATERIALS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, equipment, tools, and incidentals necessary to comply with environmental procedures for Hazardous Materials.
2. Contractor shall develop, implement, and maintain throughout the Project a Hazardous Materials management program (HMMP) in accordance with Laws and Regulations.
  - a. Hazardous Materials Brought to the Site by Contractor: Transport, handle, store, label, use, and dispose of in accordance with this Section, and Laws and Regulations.
  - b. Hazardous Materials Generated by Contractor:
    - 1) Hazardous Material shall be properly handled, stored, labeled, transported, and disposed of by Contractor in accordance with Laws and Regulations, and this Section.
    - 2) If Contractor will generate or has generated Hazardous Material at the Site, obtain Owner's USEPA identification number listing Owner's name and address of the Site as generator of the Hazardous Material.
    - 3) Contractor shall be responsible for identifying, characterizing, profiling, transporting, and disposing of Hazardous Material generated by Contractor.
  - c. Fines or civil penalties levied against Owner for violations committed at the Site by Contractor, and costs to Owner (if any) associated with cleanup of Hazardous Materials brought to the Site or generated by Contractor shall be paid by Contractor.

###### B. Enforcement of Laws and Regulations:

1. Interests of Owner are that accidental spills and emissions, Site contamination, and injury of personnel at and near the Site are to be avoided.
2. When Owner is aware of suspected violations, Owner will notify Contractor, and authorities having jurisdiction if Owner reasonably concludes that doing so is required by Laws or Regulations.
3. Responsibilities regarding Laws and Regulations shall be in accordance with the Contract Documents.

###### C. Related Sections:

1. Section 01 35 29, Contractor's Health and Safety Plan.

##### 1.02 DEFINITIONS

###### A. The following terms are defined for this Section and supplement the terms defined in the Contract Documents:

1. Hazardous Material: Material, whether solid, semi-solid, liquid, or gas, that, if not stored or used properly, may cause harm or injury to persons through inhalation, ingestion, absorption or injection, or that may negatively impact the environment through use or discharge of the material on the ground, in water (including groundwater), or to the air. Hazardous Material includes, but is not limited to, chemicals, Asbestos, Hazardous Substance, Hazardous Waste, PCBs, Petroleum, Radioactive Material, and which is or becomes listed, regulated, or addressed pursuant to the following:

- a. Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code (USC) §§9601 et seq. ("CERCLA").
- b. Hazardous Materials Transportation Act, 49 USC §§1801 et seq.
- c. Resource Conservation and Recovery Act, 42 USC §§6901 et seq. ("RCRA").
- d. Toxic Substances Control Act, 15 USC §§2601 et seq.
- e. Clean Water Act, 33 USC §§1251 et seq.
- f. Clean Air Act, 42 USC §§7401 et seq.
- g. Any other Law or Regulation regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

### 1.03 QUALITY ASSURANCE

#### A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1910, Occupational Safety and Health Standards.
  - b. 29 CFR 1926, Safety and Health Regulations for Construction.
  - c. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
  - d. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
  - e. 6 NYCRR 364, Waste Transporter Permits.
  - f. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
  - g. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.
  - h. 6 NYCRR 375, Environmental Remediation Programs.
  - i. 6 NYCRR 596, Hazardous Substance Bulk Storage Regulations.
  - j. 6 NYCRR 597, List of Hazardous Substances.
  - k. 6 NYCRR 598, Handling and Storage of Hazardous Substances.
  - l. 6 NYCRR 613, Handling and Storage of Petroleum.
  - m. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.
2. Comply with applicable provisions and recommendations of the following:
  - a. NYSDEC Spill Guidance Manual.

### 1.04 SUBMITTALS

#### A. Informational Submittals:

1. Hazardous Materials (including Chemicals) Proposed for Use at the Site:
  - a. Submit the following information for each Hazardous Material proposed for use at the Site:
    - 1) Current (dated within the past two years) safety data sheet (SDS) in accordance with 29 CFR 1910.1200 (OSHA Hazard Communication Standard).
    - 2) Manufacturer.
    - 3) Supplier (if different than manufacturer).
    - 4) Container size(s) and number of containers proposed to be at the Site.
    - 5) Minimum and maximum volume of material intended to be stored at the Site.
    - 6) Description of process or procedures in which Hazardous Material will be used.
  - b. Furnish such information in sufficient time to obtain Owner's acceptance not later than three days before bringing Hazardous Material to the Site.
2. Hazardous Materials Generated at the Site:
  - a. Submit the following information for each Hazardous Material generated at the Site:
    - 1) Identification number.
    - 2) Analysis results.
    - 3) Number and size of storage containers at the Site.

- b. Furnish such information not later than three days after Contractor's receipt of analytical results.
- 3. Permits: Submit copies of permits for storing, handling, using, transporting, and disposing of Hazardous Materials, obtained from authorities having jurisdiction.
- 4. Hazardous Materials Communication Plan: Submit in accordance with Article 1.05 of this Section.
- 5. Emergency/Spill Response Plan: Submit in accordance with Article 1.06 of this Section.

#### 1.05 HAZARDOUS MATERIALS COMMUNICATION PLAN

- A. Develop and implement a Hazardous Materials communication plan. At a minimum, maintain at the Site two notebooks containing the following:
  - 1. Inventory of Hazardous Materials, including all chemicals.
  - 2. Current (dated within the past two years) SDSs for all materials being used to accomplish the Work, whether or not defined as Hazardous Material in this Section. Keep one notebook in Contractor's field office at the Site; keep second notebook at location acceptable to Owner and Engineer. Keep notebooks up-to-date as materials are brought to and removed from the Site.

#### 1.06 EMERGENCY/SPILL RESPONSE PLAN

- A. Develop, implement, and maintain an emergency/spill response plan, for each Hazardous Material or each class/group of Hazardous Materials as applicable. Response plan shall include, at a minimum, the following:
  - 1. Description of equipment and materials available at the Site to contain a spill of, or respond to an emergency related to, the material.
  - 2. Procedures for notifying, and list of emergency contact information for the following:
    - a. Authorities having jurisdiction.
    - b. Emergency responders.
    - c. Contractor's project manager, Site superintendent, safety representative, and foreman.
    - d. Owner, Engineer, and Air Monitoring Personnel.
    - e. Other entities as required.
  - 3. Response coordination procedures between Contractor, Owner, and others as appropriate.
  - 4. Site plan showing proposed location of Hazardous Materials storage area, location of spill containment/response equipment and materials, and location of storm water drainage inlets and drainage routes, including storm sewers, ditches and swales, and surface waters.
  - 5. Description of Hazardous Material handling and spill response training provided to Contractor's and Subcontractors' employees, in accordance with 29 CFR 1926.21(b) and other Laws and Regulations.
- B. Emergency/spill response plan shall be incorporated into Contractor's Site-specific health and safety plan in accordance with Section 01 35 29.

#### 1.07 HAZARDOUS MATERIALS MANAGEMENT

- A. Obtain Owner's acceptance before bringing each Hazardous Material to the Site.
- B. Storage of Hazardous Materials and Non-Hazardous Materials:
  - 1. Vessels containing Hazardous Materials shall bear applicable hazard diamond(s).

2. Container Labeling:
    - a. Properly label each container of consumable materials, whether or not classified as Hazardous Materials under this Section.
    - b. Stencil Contractor's name and, as applicable, Subcontractor's name, on each vessel containing Hazardous Material and, for non-Hazardous Materials, on each container over five-gallon capacity. Containers shall bear securely-attached label clearly identifying contents. Label containers that are filled from larger containers.
    - c. If Owner becomes aware of unlabeled containers at the Site, Owner will notify Contractor. Properly label container(s) within one hour of receipt of such notification from Owner or remove container from the Site.
  3. To greatest extent possible, store Hazardous Materials off-site until required for use in the Work.
- C. Hazardous Materials Storage Area:
1. Maintain designated storage area for Hazardous Materials. Storage area shall include secondary containment to prevent release of spilled or leaking substances, barriers to prevent vehicles from colliding with storage containers, and protection from environmental factors such as weather.
  2. Provide signage in accordance with Laws and Regulations, clearly identifying the Hazardous Materials storage area.
- D. Not less than monthly, Contractor's safety representative shall meet with Owner and Engineer to review Contractor's HMMP documents and procedures, and inspect storage areas and the Site in general, to verify compliance with this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 41 26

### STORM WATER POLLUTION PREVENTION PLAN AND PERMIT

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes requirements for compliance with storm water pollution prevention plans (SWPPP) and permit(s) applicable to the Project.
2. Contractor shall comply with the Project's SWPPP and the substantive requirements of the most current version of NYSDEC's SPDES General Permit for Storm Water Discharges from Construction Activity (hereinafter, the "SPDES General Permit"). Contractor is responsible for providing necessary materials and taking appropriate measures to comply with requirements of the SPDES General Permit and minimize pollutants in storm water run-off from the Site.
3. Controls – General:
  - a. Prevent discharge of sediment to and erosion from the Site to surface waters, drainage routes, public streets and rights-of-way, and private property, including dewatering operations.
  - b. Prevent trash and demolition and construction debris from leaving the Site via storm water runoff.
  - c. Provide berms, dikes, and other acceptable methods of directing storm water around work areas to drainage routes.
  - d. Prior to starting the Work associated with such discharge, construction-related discharges to publicly-owned conveyance or treatment systems shall be approved by owner of system to which the discharge will be directed.
4. Water Quality:
  - a. Do not cause or contribute to a violation of water quality standards, Laws, or Regulations.
  - b. Provide and implement measures to control pollutants in storm water run-off from the Site to prevent:
    - 1) Turbidity increases that will cause a substantial visible contrast to natural conditions.
    - 2) Increase in suspended, colloidal, and settleable solids that would cause sediment deposition or impair receiving water quality and use.
    - 3) Presence of residue from oil and floating substances, visible oil, and globules of grease.
5. Contractor shall pay civil penalties and other costs incurred by Owner, including additional engineering, construction management, and inspection services, associated with non-compliance with applicable permits related to storm water discharges associated with construction activity, erosion and sediment controls, and pollution prevention measures associated with the Work. Owner may deduct as set-offs such amounts from payments due Contractor.
6. Contract Price includes all material, labor, and other permits and incidental costs related to:
  - a. Installing, constructing, repairing, replacing, and maintaining structural and non-structural items used in complying with the SWPPP and its revisions, if any.
  - b. Clean-up, disposal, and repairs following wet weather events or spills caused by Contractor.



- c. Implementing and maintaining “best management practices”, as defined in applicable permits and Laws or Regulations, to comply with requirements that govern storm water discharges at the Site.
  - d. Inspecting erosion, sediment, and storm water controls and pollution prevention measures as specified.
- B. Documents: The following are part of the Work included under this Section:
- 1. SWPPP: Prepared by Engineer, on behalf of Owner, and filed with authorities having jurisdiction. The SWPPP is included with this Section and is part of the Contract Documents.
  - 2. SWPPP Revisions: To be prepared by Engineer, on behalf of Owner, in accordance with Article 1.04 of this Section. Copy of each SWPPP revision will be furnished to Contractor. SWPPP revisions, if any, will become part of the Contract Documents.
  - 3. Storm Water Permit Certification Statement:
    - a. To be prepared by Contractor and submitted to Engineer on the form included with this Section.
    - b. Do not perform Work at the Site until the storm water permit certification statement has been submitted to and accepted by Engineer.
  - 4. Storm Water Inspection Reports: To be prepared by Engineer’s Resident Project Representative (RPR) using the form included with this Section. Storm water inspection reports will be filed in a log book kept at the Site by Engineer. Copy of each report will be furnished to Contractor upon request.
- C. Coordination:
- 1. Coordinate requirements of this Section with requirements for earthwork, erosion and sediment control, pollution control, and landscaping in the Contract Documents, applicable permit requirements, and Laws and Regulations.
  - 2. Implement SWPPP controls and practices prior to starting other Work at the Site.

## 1.02 QUALITY ASSURANCE

- A. Qualifications:
- 1. Trained Contractor:
    - a. Employ and retain at the Site a Site supervisor or project manager with experience and knowledgeable in the principles and practices of erosion and sediment control (hereinafter, the “trained contractor”).
    - b. Contractor’s trained contractor shall be present at the Site at all times when ground-intrusive or other soil-disturbing Work is being performed, and shall be responsible for the day-to-day implementation of the SWPPP, including the performance of Site inspections and assessments in accordance with this Section.
    - c. Trained contractor shall have received four hours of NYSDEC-endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC-endorsed entity. Following the initial training, trained contractor shall have completed four hours of training every three years.
- B. Regulatory Requirements:
- 1. Comply with Laws and Regulations related to environmental protection and restoration, including:
    - a. SPDES General Permit.
    - b. New York State Standards and Specifications for Erosion and Sediment Control.

### 1.03 SUBMITTALS

#### A. Informational Submittals:

1. Storm Water Permit Certification Statement: Submit in accordance with Paragraph 1.01.B.3 of this Section.
2. Qualifications Statements: Submit name and qualifications of trained contractor, including summary of experience, training received, and copy of valid certifications applicable to the Project.

### 1.04 SWPPP REVISIONS

#### A. Engineer will prepare a SWPPP revision in accordance with the SPDES General Permit:

1. When the provisions of the SWPPP prove to be ineffective in minimizing pollutants in storm water discharges from the Site.
2. When there is a significant change in design, construction, operation, or maintenance of the Project that has or could have an effect on the discharge of pollutants from the Site.
3. To address issues or deficiencies identified during an inspection by Engineer's RPR, Contractor's trained contractor, NYSDEC, or other regulatory authority having jurisdiction.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 INSPECTION AND MAINTENANCE

#### A. General:

1. Perform Site inspections and assessments as required by the SPDES General Permit and this Section to ensure the continued effectiveness and integrity of all SWPPP controls and practices, including erosion and sediment controls and pollution prevention measures.
2. Initiate repairs or maintenance to SWPPP controls and practices within one day after each inspection.
3. Complete repairs or maintenance to SWPPP controls and practices in accordance with applicable requirements and to satisfaction of Engineer within two days after each inspection. If Site conditions prevent repairs or maintenance from being completed, promptly notify Engineer's RPR and complete repairs or maintenance as soon as Site conditions permit.
4. Cooperate with representatives of authorities having jurisdiction during periodic visits to the Site, and promptly provide information requested by authorities having jurisdiction.

#### B. Maintenance Inspections:

1. Maintenance inspections shall be performed by Contractor's trained contractor on a daily basis during the Work until all disturbed areas have achieved final stabilization in accordance with the SPDES General Permit and the SWPPP.
2. For temporary Work stoppages and seasonal shut-downs greater than two weeks in duration, maintenance inspections may be suspended if temporary stabilization measures have been applied to all disturbed surfaces, and if approved by Engineer.
3. Immediately notify Engineer's RPR of any deficiencies observed during maintenance inspections, and any maintenance activities or corrective actions required to address those deficiencies.

- C. Periodic Inspections:
1. Periodic inspections shall be performed by Contractor's trained contractor, together with Engineer's RPR:
    - a. After installation of SWPPP controls and practices, and temporary field offices and other temporary facilities, prior to starting other Work at the Site.
    - b. Every seven days during the Work, and within 24 hours after wet weather events, until all disturbed areas have achieved final stabilization in accordance with the SPDES General Permit and the SWPPP.
  2. For temporary Work stoppages and seasonal shut-downs greater than two weeks in duration, inspection frequency may be reduced to once every 30 days if temporary stabilization measures have been applied to all disturbed surfaces.
  3. Engineer's RPR will prepare a storm water inspection report for each periodic inspection.

### 3.02 ATTACHMENTS

- A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:
1. Attachment A: SWPPP (174 pages).
  2. Attachment B: Storm water permit certification statement form (two pages).
  3. Attachment C: Storm water inspection report form (four pages).

END OF SECTION

BT Red Hook, LLC

# STORM WATER POLLUTION PREVENTION PLAN

Red Hook 3 Site No. C224213

68 and 100 Ferris Street/242 and 300 Coffey Street  
Borough of Brooklyn, Kings County, New York  
and

Red Hook 4 Site No. C224214

44 and 62 Ferris Street/219 Sullivan Street  
Borough of Brooklyn, Kings County, New York

October 2019

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# STORM WATER POLLUTION PREVENTION PLAN

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**STORM WATER  
POLLUTION  
PREVENTION PLAN**

Red Hook 3  
Site No. C224213  
and  
Red Hook 4  
Site No. C224214

Prepared for:  
BT Red Hook, LLC

Prepared by:  
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Our Ref.:  
B0038993.0003

Date:  
October 2019

# STORM WATER POLLUTION PREVENTION PLAN

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STORM WATER POLLUTION PREVENTION PLAN

**RECORD OF CHANGE**

Revision No.	Date Issued	Description of Change	Reviewed By
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# STORM WATER POLLUTION PREVENTION PLAN

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## TABLE OF CONTENTS

Acronyms and Abbreviations .....	iii
1 Introduction .....	1
1.1 General .....	1
1.2 SWPPP Responsibilities .....	1
1.3 SWPPP Revisions .....	3
1.4 SWPPP Organization .....	3
2 Site Background .....	5
2.1 General .....	5
2.2 Site Location and Description .....	5
2.3 Site Operational History .....	6
2.4 Site Geology .....	6
2.5 Hydrogeology .....	7
2.6 Threatened or Endangered Species .....	7
3 Erosion and Sediment Controls .....	8
3.1 General .....	8
3.2 Stabilized Construction Entrances and Construction Road Stabilization .....	8
3.3 Silt Fencing, Straw Bale Dike, and/or Filter Sock .....	8
3.4 Storm Drain Inlet Protection .....	8
3.5 Temporary Decontamination Area .....	9
3.6 Temporary Containment Area .....	9
3.7 Site Restoration .....	9
4 Pollution Prevention Measures .....	10
4.1 General .....	10
4.2 Contaminated Material Handling, Transportation, and Disposal .....	10
4.2.1 Excavated Soil and Debris .....	10
4.2.2 Construction Wastewater .....	11
4.3 Spill Prevention, Control, and Countermeasures .....	11
4.3.1 Spill Prevention .....	11
4.3.2 Spill Control and Countermeasures .....	12

# STORM WATER POLLUTION PREVENTION PLAN

4.4	Dust Controls.....	13
4.5	Temporary Sanitary Facilities.....	13
4.6	Good Housekeeping Practices.....	14
5	Post-Construction Storm Water Management.....	16
6	Inspection and Maintenance Requirements.....	18
6.1	General.....	18
6.2	Maintenance Inspections.....	18
6.3	Periodic Inspections.....	18
7	References.....	20

## **TABLES**

Table 1.	SWPPP Responsibilities.....	1
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## **APPENDICES**

Appendix A. Site Location Map

Appendix B. Supplemental Remedial Investigation Figures and Geotechnical Information

Appendix C. Project Drawings

Appendix D. SPDES General Permit for Stormwater Discharges from Construction Activity

## STORM WATER POLLUTION PREVENTION PLAN

### ACRONYMS AND ABBREVIATIONS

AESI	Atlantic Environmental Solutions, Inc.
AMSL	Above Mean Sea Level
Arcadis	Arcadis of New York, Inc.
BCP	Brownfield Cleanup Program
BGS	Below Ground Surface
BMP	Best Management Practice
BT Red Hook	BT Red Hook, LLC
Contractor	Sevenson Environmental
NAVD88	North American Vertical Datum of 1988
NRCS	Natural Resources Conservation Service
NYSDEC	New York State Department of Environmental Conservation
RH3	Red Hook 3 (Brownfield Site No. C224213)
RH4	Red Hook 4 (Brownfield Site No. C224214)
Site	combined RH3 and RH4 is the "Site"
SPDES	State Pollution Discharge Elimination System
SWPPP	Storm Water Pollution Prevention Plan

# STORM WATER POLLUTION PREVENTION PLAN

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# 1 INTRODUCTION

## 1.1 General

This Storm Water Pollution Prevention Plan (SWPPP) has been prepared by Arcadis of New York, Inc. (Arcadis), on behalf of BT Red Hook, LLC (BT Red Hook), to present the storm water best management practices (BMPs) that will be implemented during the remediation of two industrial/commercial sites: Red Hook 3 located at 68 and 100 Ferris Street/242 and 300 Coffey Street Brooklyn, New York (RH3), and the adjacent Red Hook 4 located at 44 and 62 Ferris Street/219 Sullivan Street in Brooklyn, New York (hereinafter, combined RH3 and RH4 will be the “Site”). These sites are part of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), sites C224213 and C224214, respectively. RH3 and RH4 are subject to a Brownfield Cleanup Agreement among Red Hook Industrial Center, LLC (the most recent previous site owner and Volunteer in the BCP); BT Red Hook (site owner as of December 19, 2018); and NYSDEC. RH3 was entered into the BCP in August 2015 via an agreement between Red Hook 212, LLC (owner prior to Red Hook Industrial Center, LLC); and NYSDEC. RH4 was entered into the BCP in August 2015 via an agreement between Kenmare E4, LLC (owner prior to Red Hook Industrial Center, LLC); and NYSDEC. The overall objective of this SWPPP is to minimize the discharge of pollutants to surface waters from RH3 and RH4 during the implementation of the remedial action (hereinafter, the “Project”), and thereby prevent a violation of water quality standards, laws, or regulations.

As described in Specification Section 01 11 00 (Summary of Work), the Project will generally include the excavation and off-site disposal of materials to the horizontal and vertical limits presented in the Project Drawings and backfilling and restoration of each excavation area with suitable fill materials in accordance with the Design Documents.

This SWPPP has been prepared in accordance with the substantive requirements of NYSDEC’s *State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity* (SPDES General Permit; NYSDEC 2015). The SPDES General Permit is provided as Appendix D of this SWPPP.

## 1.2 SWPPP Responsibilities

The responsibilities of Arcadis (hereinafter, the “Engineer”) and the contractor selected by BT Red Hook to perform the Project (hereinafter, the “Contractor”) as they relate to the controls and practices identified in this SWPPP are summarized in Table 1 below.

Table 1. SWPPP Responsibilities

Role	Entity	Responsibilities
Engineer	Arcadis	<ol style="list-style-type: none"> <li>1. Preparing and issuing SWPPP revisions to Project participants in accordance with Section 1.3 of this SWPPP.</li> <li>2. Identifying at least one employee with experience and knowledgeable in the principles and practices of erosion and sediment control (hereinafter, the “Qualified Inspector”, as</li> </ol>

## STORM WATER POLLUTION PREVENTION PLAN

Role	Entity	Responsibilities
		<p>defined in Appendix A of the SPDES General Permit) who will be responsible for the performance of periodic inspections in accordance with Section 6.3 of this SWPPP.</p> <ol style="list-style-type: none"> <li>3. Ensuring that employee(s) designated as a Qualified Inspector have received proper training in accordance with the SPDES General Permit.</li> <li>4. Reviewing all shop drawings, product data, qualifications statements, certification statements, and special procedure submittals furnished by the Contractor for the SWPPP controls and practices identified in this SWPPP to verify compliance with the Specifications and Project Drawings.</li> <li>5. Performing an initial site inspection following the installation or implementation of all temporary SWPPP controls and practices, and prior to the commencement of construction, to verify the proper installation or implementation of such controls and practices.</li> <li>6. Performing periodic inspections of SWPPP controls and practices in accordance with Section 6.3 of this SWPPP.</li> <li>7. Preparing a storm water inspection report for each periodic inspection using the Storm Water Inspection Report form included as an attachment to Specifications Section 01 41 26 (Storm Water Pollution Prevention Plan and Permit).</li> <li>8. Maintaining hard or electronic copies of all SWPPP-related records at the Site, including the current (up-to-date) SWPPP, the Contractor's Storm Water Permit Certification Statement, and all storm water inspection reports.</li> <li>9. Upon completion of the Project, furnishing copies of all SWPPP-related records to BT Red Hook.</li> </ol>
Contractor	Sevenson	<ol style="list-style-type: none"> <li>1. Signing the Storm Water Permit Certification Statement form included as an attachment to Specifications Section 01 41 26 (Storm Water Pollution Prevention Plan and Permit).</li> <li>2. Identifying at least one employee with experience and knowledgeable in the principles and practices of erosion and sediment control (hereinafter, the "Trained Contractor", as defined in Appendix A of the SPDES General Permit) who will be responsible for the day-to-day implementation of this SWPPP, including the performance of daily maintenance inspections in accordance with Section 6.2 of this SWPPP.</li> <li>3. Ensuring that employee(s) designated as a Trained Contractor have received proper training in accordance with the SPDES General Permit and Specifications Section 01 41 26 (Storm Water Pollution Prevention Plan and Permit).</li> </ol>

## STORM WATER POLLUTION PREVENTION PLAN

Role	Entity	Responsibilities
		<ol style="list-style-type: none"><li>4. Preparing and furnishing to the Engineer all required shop drawings, product data, qualifications statements, certification statements, and special procedure submittals for the SWPPP controls and practices identified in this SWPPP.</li><li>5. Ensuring that at least one Trained Contractor is present at the Project site at all times when ground-intrusive or other soil-disturbing work is being performed.</li><li>6. Furnishing, installing, constructing, or implementing as appropriate the SWPPP controls and practices identified in this SWPPP.</li><li>7. Performing daily maintenance inspections of SWPPP controls and practices in accordance with Section 6.2 of this SWPPP.</li><li>8. Initiating and completing repairs, maintenance, or other corrective actions to SWPPP controls and practices within the timeframes identified in Sections 6.2 and 6.3 of this SWPPP.</li><li>9. Upon achievement of final stabilization, and acceptance of final site conditions by BT Red Hook and the Engineer, removing any temporary erosion and sediment controls (e.g., silt fencing, straw bale dikes, , filter socks, etc.) that are no longer needed.</li></ol>

### 1.3 SWPPP Revisions

This SWPPP will be kept current so that at all times it accurately documents the erosion and sediment control practices that are being used or will be used during construction. At a minimum, this SWPPP will be amended: 1) whenever the current provisions prove to be ineffective in minimizing pollutants in storm water discharges from the Site; 2) whenever there is a change in design, construction, operation, or maintenance at the Site that has or could have an effect on the discharge of pollutants; and 3) to address issues or deficiencies identified during an inspection by the Qualified Inspector, NYSDEC, or other regulatory authorities having jurisdiction.

### 1.4 SWPPP Organization

The remainder of this SWPPP is organized into six sections as follows:

- Section 2 (Site Background), presents general information regarding existing (pre-construction) conditions at the Site;
- Section 3 (Erosion and Sediment Controls), summarizes the temporary erosion and sediment controls that will be used or constructed during the Project;
- Section 4 (Pollution Prevention Measures), summarizes the pollution prevention measures that will be implemented during the Project;



## STORM WATER POLLUTION PREVENTION PLAN

- Section 5 (Post-Construction Storm Water Management Practices), identifies the post-construction storm water management practices that are applicable to the project;
- Section 6 (Inspection and Maintenance Requirements), summarizes the inspection and maintenance requirements for the erosion and sediment controls and pollution prevention measures identified in this SWPPP; and
- Section 7 (References), presents a list of reference documents used in the preparation of this SWPPP.

## 2 SITE BACKGROUND

### 2.1 General

This section provides general information regarding the existing (pre-construction) conditions at the Site.

### 2.2 Site Location and Description

The RH3 site is an approximately 9.1-acre paved, irregularly L-shaped parcel located within a mixed industrial, commercial, and residential area in an urban setting. The RH3 site is zoned for manufacturing as M2-1, which allows manufacturing and certain commercial uses. RH3 consists of four adjoining parcels bounded to the northeast by Wolcott Street (approximately 750-foot frontage) with NYSDEC Brownfield Site C224214 beyond (RH4); to the southeast by Ferris Street (approximately 250-foot frontage) with NYSDEC Brownfield Site C224256 across Ferris Street (145-65 Wolcott Street site); to the south and southwest by Dikeman Street; and to the west and northwest by Buttermilk Channel (approximately 900-foot frontage). Three buildings which will or have been demolished as part of the redevelopment are/were located on RH3 as follows:

- A vacant, three-story, brick warehouse, constructed circa 1920 and occupying a footprint of approximately 100,000 square feet.
- A vacant, single-story, metal-sided warehouse constructed circa 1995 and occupying approximately 50,000 square feet.
- A single-story, masonry-sided building, formerly occupied by U.S. government offices (United States Bureau of Alcohol, Tobacco, Firearms, and Explosives and United States Drug Enforcement Administration) occupying approximately 37,000 square feet.

Areas not occupied by buildings are covered with impervious surfaces including pavement, concrete, or asphalt. A steel retaining wall is located along the bulkhead along Buttermilk Channel. Elevation across the RH3 site ranges from approximately 8 feet above mean sea level (AMSL) at the extreme eastern corner near the intersection of Ferris and Wolcott Streets, to 11 feet AMSL along the retaining wall at the western/northwestern boundary along Buttermilk Channel. Portions of the RH3 Site where buildings do not front the street are enclosed by a 6-foot-high fence with locked gates along Wolcott Street, Dikeman Street, and Coffey Street.

The RH4 site is an approximately 2.29-acre paved, rectangular parcel located within a mixed industrial, commercial, and residential area in an urban setting. The RH4 site is zoned for manufacturing as M2-1, which allows manufacturing and certain commercial uses. RH4 consists of two adjoining tax parcels bounded to the northeast by Sullivan Street (500-foot frontage), to the southeast by Ferris Street (200-foot frontage), and to the southwest by Wolcott Street (500-foot frontage), with the RH3 site (No. C224213) beyond. A commercial building adjoins the RH4 Site to the northwest. Elevation across the RH4 site ranges from approximately 5 feet AMSL at the extreme eastern corner near the intersection of Ferris and Sullivan Streets, to 9 feet AMSL along Wolcott Street on the southwest side of RH4. The RH4 Site was most recently used as a large commercial parking lot for truck, trailer, and car parking. The entire RH4 Site is surrounded by a 8-foot-high fence and locked gates along Wolcott Street and Sullivan Street. There are no buildings or other structures located at the RH4 site, which is currently vacant.

## STORM WATER POLLUTION PREVENTION PLAN

A location map of the Site is provided in Appendix A.

### 2.3 Site Operational History

The RH3 site has a long history of commercial and industrial development dating to the late 1800s. Historical documentation indicates that the property now occupied by RH3 was below the mean water line in the late 1700s/early 1800s and was subsequently filled. Prior uses include fertilizer and chemical manufacturing, tar manufacturing, tar and resin storage, shipyard/repair, and newspaper production.

The RH4 site has a long history of commercial and industrial development dating to the late 1800s. Historical documentation indicates that the property now occupied by RH4 was below the mean water line in the late 1700s/early 1800s and was subsequently filled. Prior uses included oil refining, lumber and grain storage, dry-dock and boat repair, and manufacture and storage of lubricating oils. Historical uses of adjoining and surrounding properties included fertilizer and chemical manufacturing, tar and resin storage, shipyard/repair, foundry use, and heavy industrial manufacturing.

### 2.4 Site Geology

RH3 is currently underlain by fill (sand, silt, gravel, concrete, and asphalt) that extends to approximately 10 to 15 feet below ground surface (BGS). Bedrock was not encountered in borings advanced to a maximum depth of 80 feet BGS by Arcadis in 2017 and 2018 or Atlantic Environmental Solutions, Inc. (AESI) in 2017. Borings advanced by Arcadis in 2017 and 2018 penetrated a surficial layer of fill sitewide across RH3. A discontinuous layer of sand, silt and gravel underlain by a soft deposit of interbedded clayey silt and fine sand was encountered along portions of the site adjacent to Buttermilk Channel and to a lesser extent along Wolcott Street. A dense silt and clay were found below these layers in similar regions of RH3 but was not present within the central and southern portion of the site. Underlying these units is a thick deposit of predominantly sand with trace amounts of silt and gravel. In the southern portion of the site this sand unit typically becomes siltier.

RH4 is currently underlain by fill (sand, silt, gravel, concrete, and asphalt) that extends to approximately 10 to 15 feet BGS. Bedrock was not encountered in borings advanced to a maximum depth of 80 feet BGS by Arcadis in 2017 and 2018 or AESI in 2017, and to a maximum depth of 95 feet BGS by Pillori Associates in 2014. Information from Pillori Associates indicates that RH4 has a surficial fill layer of 10 to 15 feet in thickness, underlain primarily by glacial sand to 95 feet BGS, with a silt and clay layer of 5 to 14 feet in thickness, the top of which was encountered approximately 13 to 36 feet BGS (Pillori Associates 2014). In general, borings advanced at RH4 by Arcadis in 2017 and 2018 encountered a surficial layer of fill across the site. Below the fill is a unit of sand, silt and gravel underlain by a dense silt and clay. A loose sand containing trace amounts of silt and gravel was encountered below the dense silt and clay to at least 80 feet BGS. The loose sand typically becomes finer grained with depth transitioning to a fine sand containing little to some silt but at times still containing coarse sand seams.

Geotechnical information can be found in Appendix B of this SWPPP.

## 2.5 Hydrogeology

RH3 is in the Red Hook section of Brooklyn at an elevation of approximately 8 to 11 feet AMSL. This section of Brooklyn is in an area that was historically below the water line. The water table beneath RH3 occurs at approximately 4.5 to 11 feet BGS and is tidally influenced. Gauging data from well pairs with the deeper wells screened below the silt/clay layer indicate a potentiometric surface approximately 0.5 to 1 foot lower than the adjacent, shallow-screened wells suggesting a downward hydraulic gradient. Groundwater contour maps show a dynamic pattern with apparent flow direction reversals, as would be expected in a tidally influenced environment. The measured hydraulic gradient ranges from approximately 0.0029 to 0.0073 feet per foot (ft/ft) in deep-screened wells and 0.0047 to 0.05 feet per foot in shallow-screened wells. There are no groundwater supply wells located at or in the vicinity of the RH3 Site. New York City's drinking water is supplied from reservoirs located in upstate New York.

RH4 is in the Red Hook section of Brooklyn at an elevation of approximately 5 to 9 feet AMSL. This section of Brooklyn is in an area that was historically below the water line. The water table beneath RH4 occurs at approximately 3 to 8 feet BGS. Gauging data from well pairs with the deeper wells screened below the silt/clay layer indicate a potentiometric surface approximately 1 to 3 feet lower than the adjacent, shallow-screened wells, suggesting a downward hydraulic gradient. Groundwater contour maps show a dynamic pattern with apparent flow direction reversals, as would be expected in a tidally influenced environment. The measured hydraulic gradient ranges between approximately 0.0029 and 0.0073 feet per foot in deep-screened wells and 0.0047 to 0.05 feet per foot in shallow-screened wells. There are no groundwater supply wells located at or in the vicinity of the RH4 Site. New York City's drinking water is supplied from reservoirs located in upstate New York.

Hydrogeological information can be found in Appendix B of this SWPPP.

## 2.6 Threatened or Endangered Species

The current industrial and commercial site usage generally consisting of paved surfaces, buildings, and parking areas do not offer potential habitat for threatened or endangered terrestrial plant or animal species and/or unique communities.

## 3 EROSION AND SEDIMENT CONTROLS

### 3.1 General

This section summarizes the erosion and sediment controls that will be used or constructed during the Project. Erosion and sediment controls will be furnished, installed, inspected, and maintained by the Contractor in accordance with the *New York State Standards and Specifications for Erosion and Sediment Control* (NYSDEC 2016a; NYS Standards and Specifications), Project Drawings (Appendix C), and the following Specifications:

- Specifications Section 01 41 26, Storm Water Pollution Prevention Plan and Permit;
- Specifications Section 01 55 13, Temporary Access Roads and Parking Areas; and
- Specifications Section 01 57 05, Temporary Controls.

As Site conditions allow, temporary erosion and sediment controls will be installed before initiating any ground-intrusive or sediment-disturbing activities, and additional erosion and sediment controls will be installed during construction (as needed) to achieve the storm water management objectives of this SWPPP and the SPDES General Permit.

### 3.2 Stabilized Construction Entrances and Construction Road Stabilization

Temporary construction entrances will be used to stabilize entrances to the Site, on-site vehicle transportation routes, and equipment lay-down and parking areas. Temporary construction entrances and access roads (as needed) will be installed before ground-intrusive work begins.

Temporary construction entrances and access roads will be constructed and maintained by the Contractor in accordance with Section 2 of the NYS Standards and Specifications and Specifications Sections 01 55 13 (Temporary Access Roads and Parking Areas) and 01 57 05 (Temporary Controls).

### 3.3 Silt Fencing, Straw Bale Dike, and/or Filter Sock

Silt fencing, straw bale dikes, and/or filter socks will be used to reduce or otherwise control the potential off-site migration of suspended sediments in storm water run-off, and will be installed before any existing soils or vegetation are disturbed at the Site. Contractor may choose one or multiple of the three perimeter control options (e.g., silt fence, straw bale dikes, and/or filter socks) depending on field conditions encountered in the field. Silt fencing, straw bale dikes, and/or filter socks will be installed and maintained by the Contractor in accordance with Section 5 of the NYS Standards and Specifications and Specifications Section 01 57 05 (Temporary Controls).

### 3.4 Storm Drain Inlet Protection

Storm drain inlet protection will be used to protect catch basins and curb inlets with the potential to receive storm water run-off from exposed soils. Storm drain inlet protection will be installed and

## STORM WATER POLLUTION PREVENTION PLAN

maintained by the Contractor in accordance with Section 5 of the NYS Standards and Specifications and Specifications Section 01 57 05 (Temporary Controls).

### **3.5 Temporary Decontamination Area**

Temporary decontamination area will be used to clean equipment and prevent the tracking of contaminated sediments. The temporary decontamination area will be installed and maintained by the Contractor in accordance with the Design Documents.

### **3.6 Temporary Containment Area**

Temporary containment areas will be used to stockpile contaminated debris until off-site disposal can be achieved. The area will be constructed to contain all sediments and water from stockpiled materials. A typical design is shown on the Project Drawings, although the Contractor may propose an alternative design for Engineer approval. The temporary containment area will be installed and maintained by the Contractor in accordance with Specifications Section 02 60 05 (Contaminated Waste Management and Disposal).

### **3.7 Site Restoration**

Remedial excavation areas will be backfilled, and the Site will be restored to the final grades and conditions shown or indicated on the Project Drawings. All other disturbed areas will be restored to existing (pre-construction) condition. A final inspection will be performed to verify that all restoration areas have achieved final stabilization. If the restoration areas are not suitably stabilized, corrective actions will be taken by the Contractor and a second inspection will be performed. Upon achievement of final stabilization, and acceptance of final Site conditions by BT Red Hook and the Engineer, the Contractor will remove any temporary erosion and sediment controls (e.g., silt fencing, straw bale dikes, filter socks, etc.) that are no longer needed.

## 4 POLLUTION PREVENTION MEASURES

### 4.1 General

This section summarizes the measures that will be used to control and prevent impacted material, spills, and construction materials and wastes from becoming a pollutant source in Site-related storm water runoff. Pollution prevention measures will comply with the Project Drawings and the following Specifications:

- Specifications Section 01 35 29, Contractor's Health and Safety Plan;
- Specifications Section 01 35 43.13, Environmental Procedures for Hazardous Materials;
- Specifications Section 01 52 19, Sanitary Facilities;
- Specifications Section 01 55 13, Temporary Access Roads and Parking Areas;
- Specifications Section 01 55 26, Maintenance and Protection of Traffic;
- Specifications Section 01 57 05, Temporary Controls;
- Specifications Section 01 66 00, Product Storage and Handling Requirements;
- Specifications Section 01 74 05, Cleaning;
- Specifications Section 01 74 19, Construction Waste Management and Disposal; and
- Specifications Section 02 60 05, Contaminated Waste Management and Disposal.

### 4.2 Contaminated Material Handling, Transportation, and Disposal

#### 4.2.1 Excavated Soil and Debris

Impacted soil and debris will be excavated to the horizontal and vertical limits shown or indicated on the Project Drawings. As Site conditions allow, excavated soil and debris will be direct-loaded into properly-licensed and permitted vehicles (pursuant to Title 6, Part 364 of the New York Codes, Rules, and Regulations), and will be transported to appropriate off-site disposal facilities in accordance with applicable laws and regulations. Transport vehicles will be water-tight and structurally sound, and will possess functioning tailgate locks and solid, waterproof tarpaulins. The bed and sidewalls of each dump box or trailer will also be lined with not less than six-mil polyethylene sheeting prior to loading with excavated soil and debris.

Excavated soil will be dewatered by the Contractor as necessary to, at a minimum, remove any free liquids before leaving the Site. The Contractor's means and methods of dewatering will conform to the requirements of Specifications Section 02 60 05 (Contaminated Waste Management and Disposal). Those requirements include prohibitions against the use of quick lime, lime kiln dust, or other lime-based soil drying agents containing more than 50 percent reactive (free) calcium oxide and magnesium oxide by weight.

Before leaving the Site, transport vehicles will be staged and inspected within a temporary decontamination area, and will be cleaned of any visible soil and sediment. Upon leaving the Site,

## STORM WATER POLLUTION PREVENTION PLAN

transport vehicles will follow approved haul routes to the off-site disposal facilities in accordance with Specifications Section 01 55 26 (Maintenance and Protection of Traffic).

In certain instances, excavated soil and debris may be stockpiled on a temporary basis within the limits of the excavation or in a temporary containment. Temporary stockpiles placed outside active excavations will be covered at all times (during both working and non-working hours) with minimum six-mil polyethylene liners when not in use. Liners will be properly anchored to prevent uplift due to wind conditions and will be installed to minimize the ponding of precipitation. Temporary stockpiles of excavated soil and debris will be transported off-site for disposal within a reasonable time period agreed to with the Engineer.

### **4.2.2 Construction Wastewater**

Construction wastewater resulting from excavation dewatering or decontamination operations will be collected, treated on-site, and discharged (following treatment) to the Buttermilk Channel under a SPDES Permit equivalent to be issued by NYSDEC. Treated wastewater will be sampled and tested by the Contractor in accordance with the permit to confirm compliance with the effluent discharge criteria. Additional samples may be collected and tested by the Contractor throughout the Project to monitor overall system performance. The temporary wastewater treatment system will be staged on-site within a temporary containment area (constructed as shown or indicated on the Project Drawings) to capture any untreated wastewater that may leak or spill from the system during Project activities.

## **4.3 Spill Prevention, Control, and Countermeasures**

As required by Specifications Sections 01 35 29 (Contractor's Health and Safety Plan) and 01 35 43.13 (Environmental Procedures for Hazardous Materials), the Contractor will prepare a Site-specific Emergency/Spill Response Plan that addresses spill prevention and control, and response to spills and other Site emergencies during the Project. The Emergency/Spill Response Plan will include evacuation procedures for Site personnel, directions and a figure showing the route to the local hospital, and a contact list with telephone numbers for emergency responders (e.g., police, ambulance, fire, poison control, etc.).

### **4.3.1 Spill Prevention**

The Contractor's spill prevention practices will include, at a minimum, the following as applicable:

- Maintaining a written hazardous materials communication plan, including inventory of and safety data sheets for each hazardous material brought to the Site;
- Storing hazardous substances in appropriate, labeled containers that are compatible with the materials to be stored therein;
- Storing hazardous materials in a designated hazardous materials storage area that includes secondary containment;
- Storing portable fuel tanks within a temporary containment area or providing alternate secondary containment;



## STORM WATER POLLUTION PREVENTION PLAN

- Storing petroleum products, chemicals, and other hazardous substances not less than 100 feet away from all wetlands, streams, and other surface waters;
- Storing construction vehicles and equipment away from Site hazards and sensitive resources, to the extent practicable;
- Performing regular inspections of construction vehicles, equipment, portable fuel tanks, hazardous material storage areas, and temporary containment areas to check for leaks;
- Performing routine maintenance on construction vehicles and equipment in accordance with the manufacturer's specifications;
- Promptly repairing or replacing damaged or defective construction vehicles and equipment;
- Re-fueling construction equipment and vehicles on level ground in a designated area of the Site away from steep slopes, storm water run-off conveyance features (e.g., ditches/diversions, catch basins, storm sewers, etc.), and all wetlands, streams, and other surface waters;
- Turning off internal combustion engines before re-fueling;
- Attending to construction vehicles and equipment while re-fueling;
- Taking care not to overfill fuel tanks;
- Replacing the cap on vehicle fuel tanks before starting the engine; and
- Securing/locking fuel pump dispensers when not in use to avoid accidental fuel release.

### 4.3.2 Spill Control and Countermeasures

The Contractor will provide and maintain on-site sufficient equipment, materials, and personnel to perform emergency measures required to: 1) contain and clean-up spills (should they occur); 2) remove soils and liquids contaminated by spills; and 3) prevent the potential migration of pollutants beyond the work area. Spill kits, including oil-absorbent pads, socks, and booms, will also be provided at or immediately adjacent to the Site's major work areas and equipment storage and fueling areas. In the event of a spill, the Contractor will immediately notify BT Red Hook's on-site representative(s) and implement the following:

1. *Source Isolation/Shut-Down:* As conditions allow, Contractor personnel will attempt to stop or isolate the source of the spill by closing valves or shutting down affected vehicles or equipment.
2. *Containment:* If the spilled material is floating on a water surface, spill-absorbent pads/booms will be placed across the path of the floating spill. If the spilled material sinks below the water surface, a dam, weir, or other containment method will be used to stop the flow of the spilled material. If the spill occurs on land, a containment unit will be constructed to stop the flow of the spilled material and sorbents will be applied as necessary.
3. *Clean-Up/Recovery:* Spills in water will be recovered using pumps and sorbents as necessary until the spilled material is recovered and no sheen or other evidence of the spill is observed on the water surface. Spills on land will be recovered using pumps, sorbents, and heavy equipment as necessary.

## STORM WATER POLLUTION PREVENTION PLAN

until the spilled material is recovered. Construction vehicles and equipment used in the clean-up effort, or otherwise affected by the spill, will also be cleaned/decontaminated.

4. *Waste Collection, Storage, and Disposal:* Impacted materials, sorbents, and other wastes will be collected and stored in appropriate containers. The containers will be labeled with the waste type and date of accumulation, and will be transported off-site for disposal at a permitted facility in accordance with applicable laws and regulations.
5. *Post-Spill Maintenance:* Following the clean-up of the spill, Contractor personnel will verify that all impacted materials, vehicles, and equipment have either been transported off-site for disposal, or cleaned/decontaminated, as appropriate. The vehicle or piece of equipment that may have caused the spill will also be repaired. If the vehicle or piece of equipment cannot be repaired, it will be removed from the Site and replaced.

BT Red Hook or a designated representative will notify the NYSDEC Project Manager of all spills, regardless of volume or circumstances involved. Appropriate emergency response groups, including the local fire department, NYSDEC, and National Response Center, will be contacted immediately if the spill or material release has impacted soil, groundwater, or surface water, or is beyond the capabilities of Site personnel to control using the methods described above.

### 4.4 Dust Controls

Dust controls will be used to prevent surface and air movement of dust from disturbed or open-soil areas that may cause off-site damage, health hazards, and traffic safety problems. Dust controls will be proactively employed by the Contractor in accordance with Section 2 of the NYS Standards and Specifications and Specifications Sections 01 55 13 (Temporary Access Roads and Parking Area), 01 57 05 (Temporary Controls), and 01 74 05 (Cleaning ). Such controls may include one or more of the following:

- Excavating and backfilling, and loading, handling, and unloading excavated materials and clean fill materials in a manner that minimizes the generation of airborne dust;
- Hauling excavated materials and clean fill materials in properly covered vehicles;
- Wetting down temporary access roads and active haul routes at the Site;
- Restricting vehicle speeds on temporary access roads and active haul routes at the Site;
- Covering shallow excavations and stockpiles of clean fill materials with polyethylene liners before extended work breaks and at the end of each work day;
- Holding to a minimum the areas of bare soil exposed at one time; and
- Not less than weekly, brush-sweeping roadways and paved areas at the Site that are used by construction vehicles or otherwise affected by construction activities.

### 4.5 Temporary Sanitary Facilities

Temporary sanitary facilities, including toilet facilities, drinking water for personnel, and personnel washing facilities, will be provided at RH3 and RH4 by the Contractor in accordance with Specifications

## STORM WATER POLLUTION PREVENTION PLAN

Section 01 52 19 (Sanitary Facilities) and applicable laws and regulations. Such facilities will be utilized by all construction personnel and will be serviced and maintained by the Contractor through the end of the project.

### **4.6 Good Housekeeping Practices**

Good housekeeping practices will be used to reduce the potential for construction materials and wastes to become a pollutant source in Site-related storm water run-off. The Contractor will maintain the Site in a neat and orderly condition throughout the Project in accordance with Specifications Sections 01 55 13 (Temporary Access Roads and Parking Area), 01 66 00, 01 74 05 (Cleaning ), and 01 74 19 Construction Waste Management and Disposal. This will include the: 1) proper storage of construction materials, equipment, and wastes at the Site; 2) routine cleaning of public rights-of-way, streets, and sidewalks; and 3) routine collection and disposal of trash, recyclables, and construction wastes.

# STORM WATER POLLUTION PREVENTION PLAN

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## 5 POST-CONSTRUCTION STORM WATER MANAGEMENT

The proposed work will not result in a change to storm water flow as impervious area is not increasing and runoff patterns will be restored to existing (pre-construction) conditions. Since there will be no increase in storm water flow after the Project is completed, post-construction storm water BMPs are not required for the Project.

Temporary (e.g., silt fence, straw bale dikes, filter socks, etc.) erosion and sediment control measures will be employed during construction and permanent (e.g., compacted gravel, concrete) erosion and sediment control measures will be employed following construction activities as appropriate to limit the potential for erosion and off-site migration of sediments.

# STORM WATER POLLUTION PREVENTION PLAN

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## 6 INSPECTION AND MAINTENANCE REQUIREMENTS

### 6.1 General

This section summarizes the inspection and maintenance requirements for the erosion and sediment controls and pollution prevention measures identified in this SWPPP. SWPPP controls and practices will be inspected and maintained for the duration of the Project, and until such time as all disturbed or open-soil areas at the Site have achieved “final stabilization”, as defined in Appendix A of the SPDES General Permit.

### 6.2 Maintenance Inspections

SWPPP controls and practices within the active work area will be inspected by the Contractor on a daily basis to ensure that they are being maintained in effective operating condition at all times. For temporary work stoppages greater than two weeks in duration (e.g., winter shut-downs, etc.), maintenance inspections may be suspended if temporary stabilization measures (e.g., covering with impermeable sheeting) have been applied to all disturbed surfaces, and if approved by the Engineer. Contractor personnel responsible for maintenance inspections will meet the requirements of a Trained Contractor, as defined in Appendix A of the SPDES General Permit.

Any deficiencies observed during the inspection, and any maintenance activities or corrective actions required to address those deficiencies, will be immediately communicated to BT Red Hook’s on-site representative(s). Maintenance activities and corrective actions will be initiated by the Contractor within one working day after the inspection and will be completed within two working days after the inspection. If Site conditions prevent the repairs or maintenance from being completed, the Contractor will promptly notify BT Red Hook’s on-site representative(s) and complete the repairs or maintenance as soon as conditions permit.

### 6.3 Periodic Inspections

SWPPP controls and practices will be inspected by the Contractor once every seven calendar days (at a minimum) and after wet weather events to verify their continued effectiveness and integrity. For temporary work stoppages greater than two weeks in duration (e.g., winter shut-downs, etc.), the inspection frequency may be reduced to once every 30 calendar days if temporary stabilization measures have been applied to all disturbed surfaces. Engineer personnel responsible for periodic inspections will meet the requirements of a Qualified Inspector, as defined in Appendix A of the SPDES General Permit. The results of each inspection, including any corrective actions to be taken, will be documented using the storm water inspection report form included in Specifications Section 01 41 26 (Storm Water Pollution Prevention Plan and Permit).

Any deficiencies observed during the inspection, and any maintenance activities or corrective actions required to address those deficiencies, will be communicated to the Contractor in real-time. Maintenance activities and corrective actions will be initiated by the Contractor within one working day after the inspection and will be completed within two working days after the inspection. If Site conditions prevent

## STORM WATER POLLUTION PREVENTION PLAN

the repairs or maintenance from being completed, the Contractor will promptly notify BT Red Hook's on-site representative(s) and complete the repairs or maintenance as soon as conditions permit.



## 7 REFERENCES

- NRCS. 2016. Web Soil Survey. Soil Survey Staff, NRCS, United States Department of Agriculture. Available online at: <http://websoilsurvey.nrcs.usda.gov>. Retrieved September 11.
- NYSDEC. 2015. *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity*. Permit No. GP-0-15-002. Division of Environmental Permits. January 29, Revised July 14, 2015 and November 23, 2016.
- NYSDEC. 2016a. *New York State Standards and Specifications for Erosion and Sediment Control*. Division of Water. July.
- NYSDEC. 2016b. Environmental Resource Mapper. Division of Fish and Wildlife. Available online at: <http://www.dec.ny.gov/gis/erm/>.
- United States Fish and Wildlife Service. 2016. Information for Planning and Conservation. Available online at: <https://ecos.fws.gov/ipac/>. Retrieved November 1.

# STORM WATER POLLUTION PREVENTION PLAN

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# APPENDICES



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# APPENDIX A

## Site Location Map



CITY: SYRACUSE, NY DIV/GROUP: IMDY, DB: B.SMALL, K.DAVIS, LD: B.SMALL, P/C: C.GERACI, PM: C.GERACI, TM: D.NODINE, L/R: ON=OFF+REF  
 C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\ANA - UNITED PARCEL SERVICE\RED HOOK 3 DESIGN\2019\B0038903.000\301-DWG\IRMDWP-03-ADJOINING PROPERTIES.dwg LAYOUT: 2B, SAVER: 3/27/2019 10:30 AM, ACADVER: 23.05 (LMS TECH), PAGES: 2B, PLOTSTYLETABLE: ----, PLOTTED: 3/27/2019 10:31 AM, BY: DAVIS, KATHI, XREFS: X00-IRMDWP-BLR

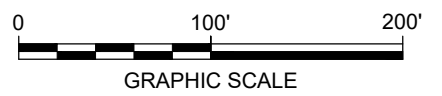


**LEGEND:**

- BLOCK/LOT BOUNDARY
- RED HOOK 3 BROWNFIELD SITE (BCP: C224213)
- RED HOOK 4 BROWNFIELD SITE (BCP: C224214)
- BROWNFIELD BOUNDARY

**NOTES:**

- BASED ON "EXISTING SITE" FIGURE (AESI MARCH 2017) AND "NY CITY DEPARTMENT OF FINANCE DIGITAL TAX MAP" (AUGUST 15, 2017).
- ALL BOUNDARIES ARE APPROXIMATE.



**DRAFT**

BT RED HOOK, LLC - RED HOOK 3 AND RED HOOK 4 BROOKLYN, NEW YORK	
INTERIM REMEDIAL MEASURE STORM WATER POLLUTION PREVENTION PLAN	
<b>SITE LOCATION MAP</b>	
<b>ARCADIS</b> <small>Design &amp; Consultancy for natural and built assets</small>	FIGURE <b>1</b>

# APPENDIX B

## Supplemental Remedial Investigation Figures and Geotechnical Information

Appendix B-1 - Red Hook 3 Selected Supplemental Remedial Investigation Figures

Appendix B-2 - Red Hook 4 Selected Supplemental Remedial Investigation Figures

Appendix B-3 - Red Hook 3 and Red Hook 4 Geotechnical Information

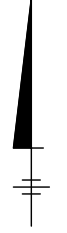
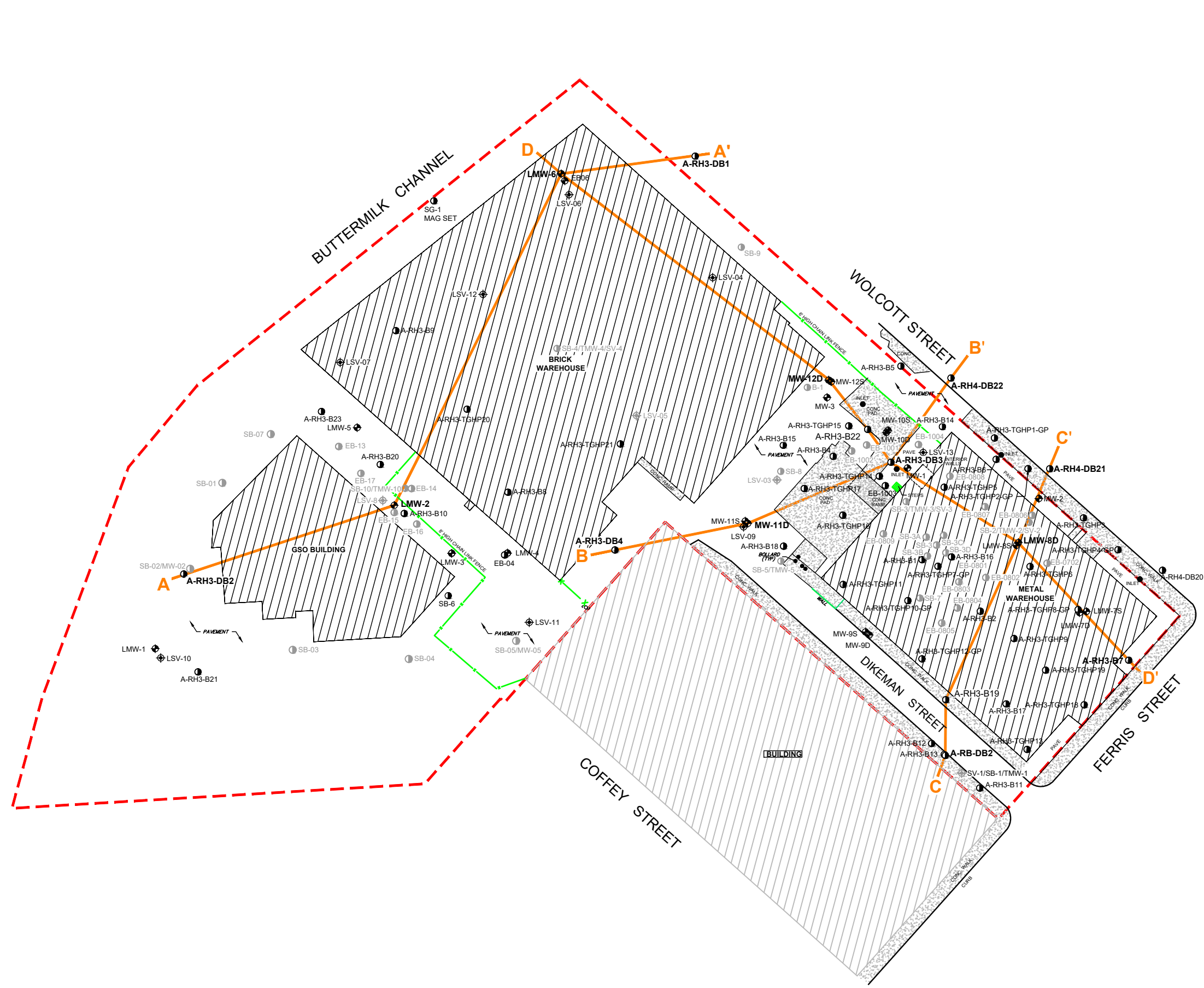


# APPENDIX B-1

Red Hook 3 - Selected Supplemental Remedial Investigation Figures





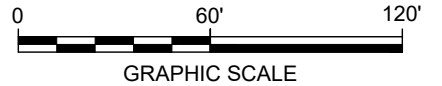


**LEGEND:**

- MONITORING WELL
- SOIL BORING
- SOIL BORING (NOT SURVEYED)
- SOIL VAPOR MONITORING POINT
- SOIL VAPOR MONITORING POINT (NOT SURVEYED)
- SITE BOUNDARY
- FENCE
- UTILITY POLES
- GEOLOGIC CROSS-SECTION TRANSECT

**NOTES:**

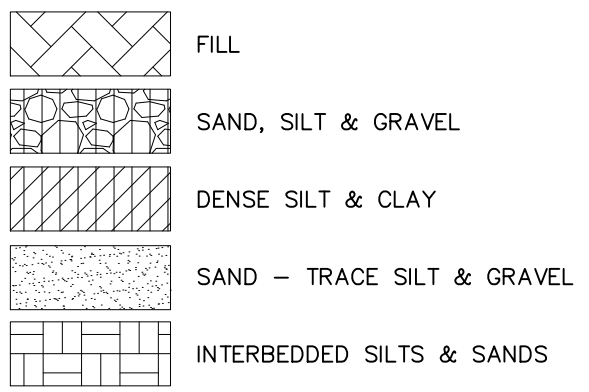
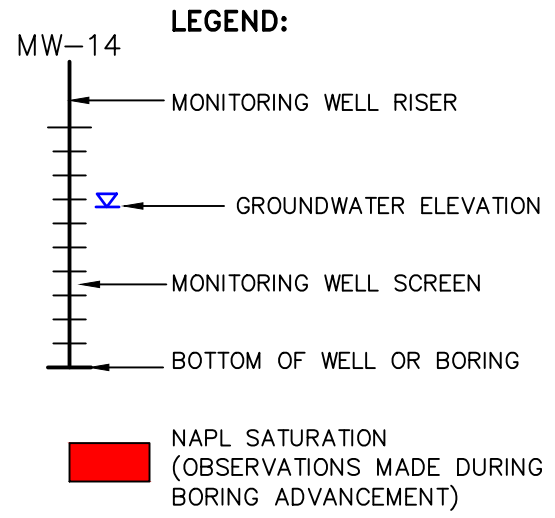
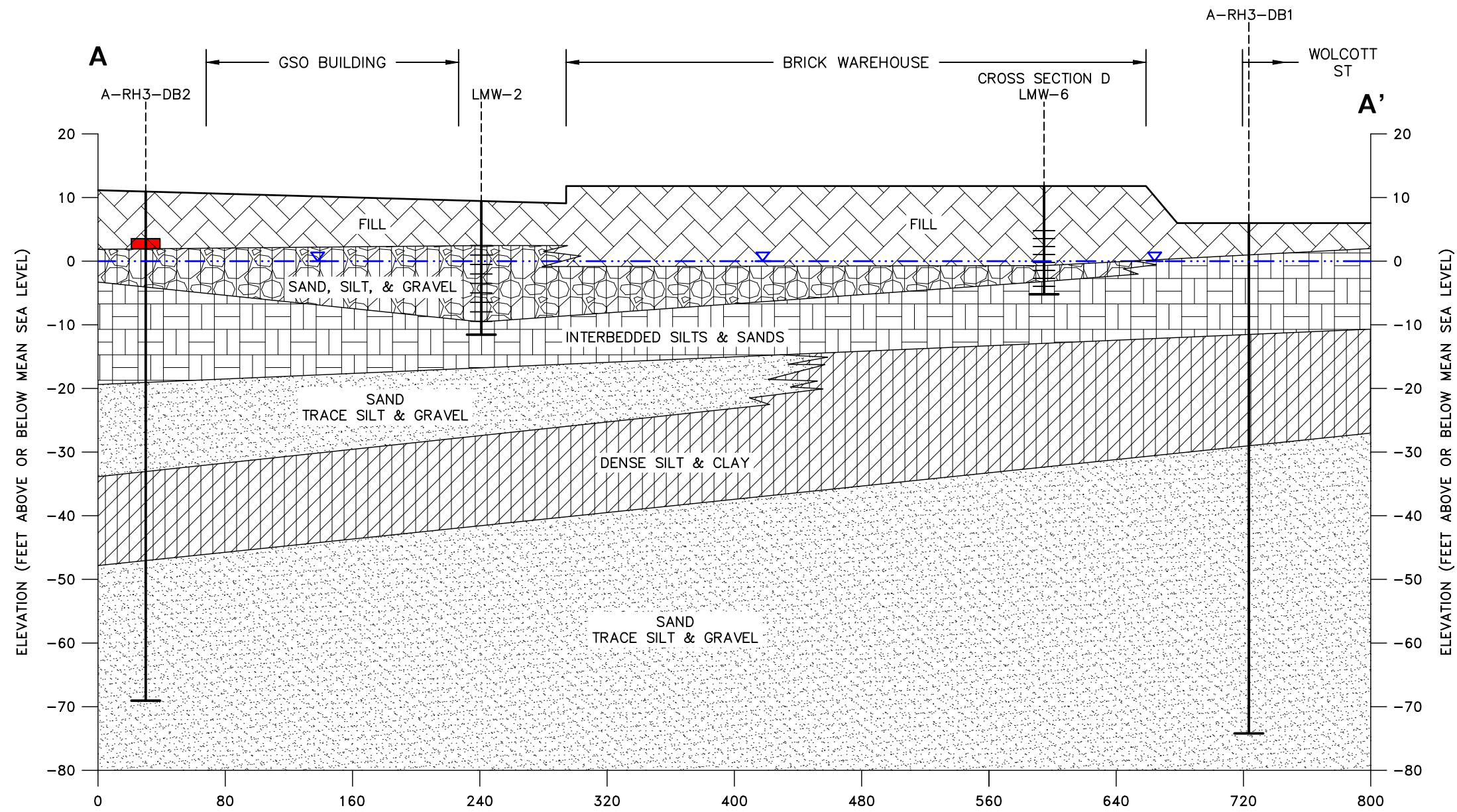
1. BORING/WELL LOCATIONS AND PHYSICAL FEATURES BASED ON SURVEYS CONDUCTED BY DPK LAND SURVEYING, LLC ON OCTOBER 27, 2017 AND SEPTEMBER 26, 2018.
2. PROPERTY BOUNDARIES OBTAINED FROM FIGURE ENTITLED "ALTA/SPS LAND TITLE SURVEY" (LANGAN APRIL 4, 2017).
3. BORING LOCATIONS SHOWN IN GRAY WERE NOT FIELD LOCATED OR SURVEYED BY ARCADIS AND WERE DIGITIZED FROM FIGURES PROVIDED BY AESI AND LANGAN.
4. "TGHP" INDICATES A TarGOST® LOCATION ONLY.
5. TarGOST® -TAR SPECIFIC GREEN OPTICAL SENSING TOOL.
6. "TGHP#-GP" INDICATES A GEOPROBE BORING ADVANCED IMMEDIATELY ADJACENT TO A TarGOST® LOCATION; HOWEVER, THE TarGOST® LOCATION IS NOT SHOWN. FOR EXAMPLE, A-RH3-TGHP4-GP WAS ADVANCED IMMEDIATELY ADJACENT TO TarGOST® LOCATION A-RH3-TGHP4.
7. SOIL BORINGS AND TarGOST® LOCATIONS WITH AN "A-" PREFIX WERE ADVANCED BY ARCADIS.



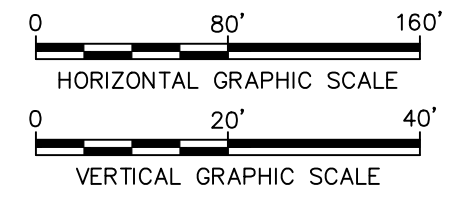
BT RED HOOK, LLC - RED HOOK 3  
 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GEOLOGIC CROSS SECTION  
 LOCATION MAP**

CITY: SYRACUSE, NY DIV: GROUP: EBC-IMDV DE: L. POSENAUER PM: A. KORIK TM: D. CORNELL LVR: (OPTION) OFF: REF  
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- NOTES:**
- GROUNDWATER TABLE DEPICTED ON FIGURE IS APPROXIMATE AND IS INFLUENCED BY THE TIDE.
  - COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM NEW YORK LONG ISLAND STATE PLANE COORDINATE NAD 83.
  - ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NAVD) OF 88.
  - ALL LOCATIONS ARE APPROXIMATE.
  - SOIL LAYERS AND GEOLOGICAL CONTACT LOCATIONS ARE APPROXIMATE AND INFERRED BETWEEN BORING LOCATIONS.



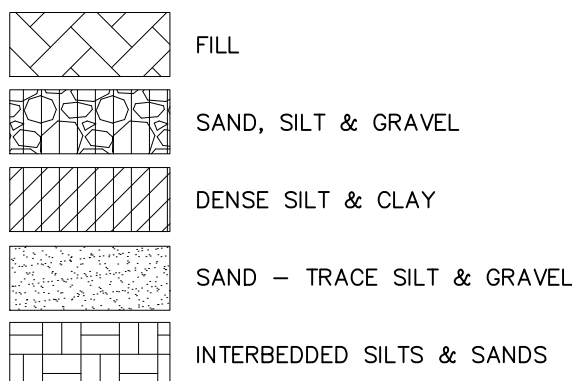
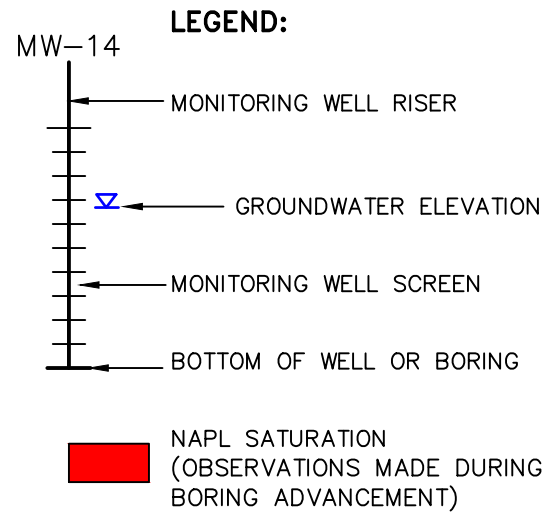
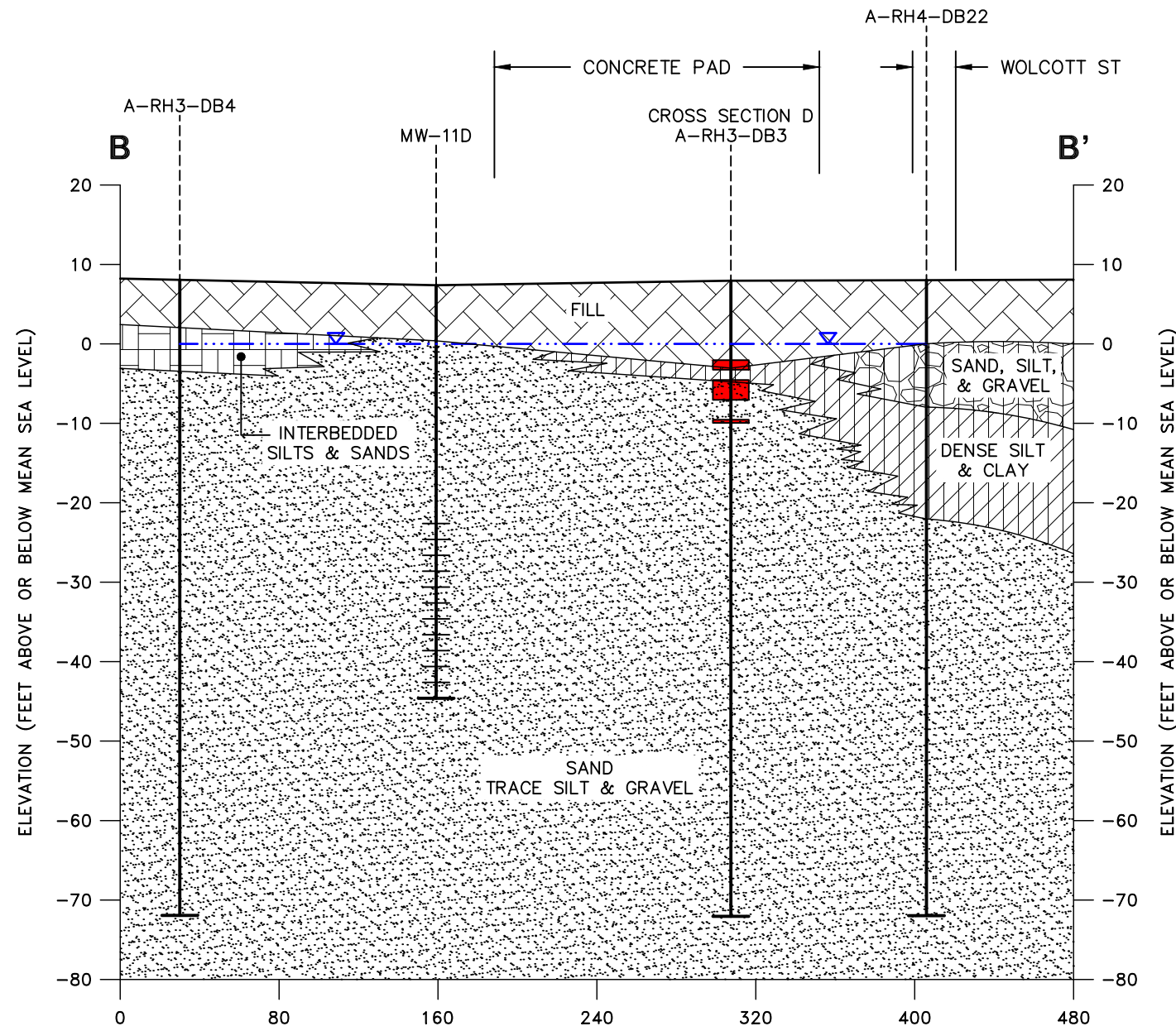
BT RED HOOK, LLC - RED HOOK 3  
 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 BROOKLYN, NEW YORK

**SUPPLEMENTAL REMEDIAL INVESTIGATION**

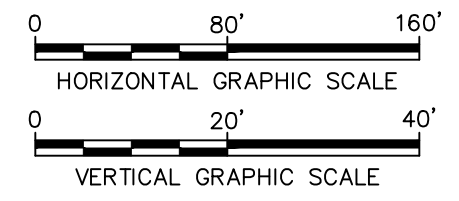
**GEOLOGIC CROSS SECTION A-A'**

**ARCADIS** Design & Consultancy  
 for natural and built assets

FIGURE  
**I-2**



- NOTES:**
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  2. COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM NEW YORK LONG ISLAND STATE PLANE COORDINATE NAD 83.
  3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NAVD) OF 88.
  4. ALL LOCATIONS ARE APPROXIMATE.
  5. SOIL LAYERS AND GEOLOGICAL CONTACT LOCATIONS ARE APPROXIMATE AND INFERRED BETWEEN BORING LOCATIONS.

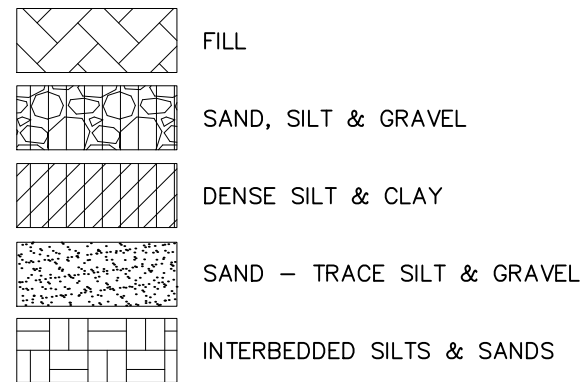
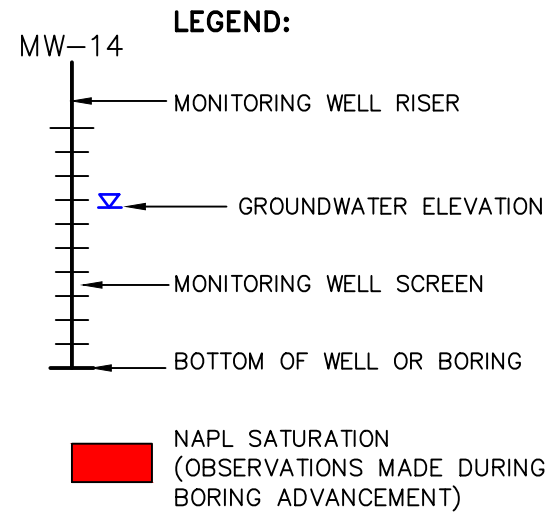
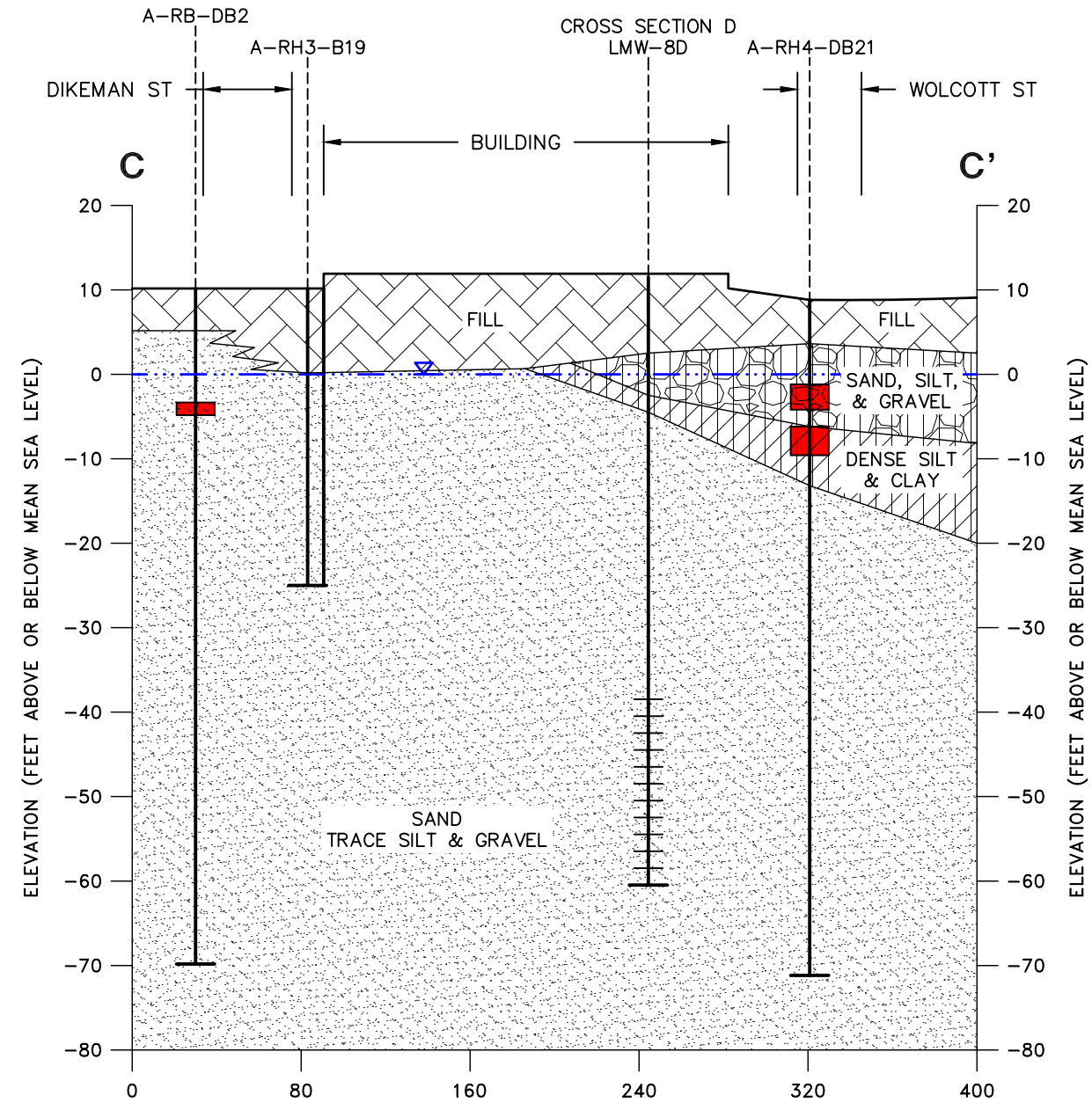


BT RED HOOK, LLC - RED HOOK 3  
 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GEOLOGIC CROSS SECTION B-B'**

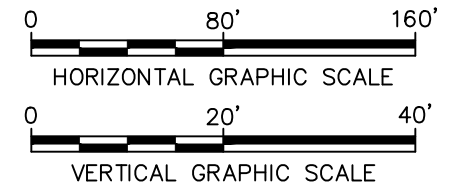
**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE  
**I-3**



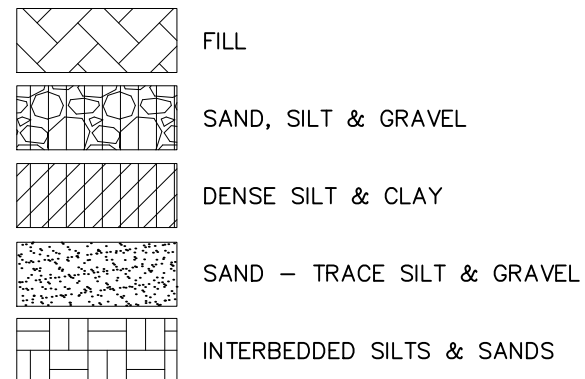
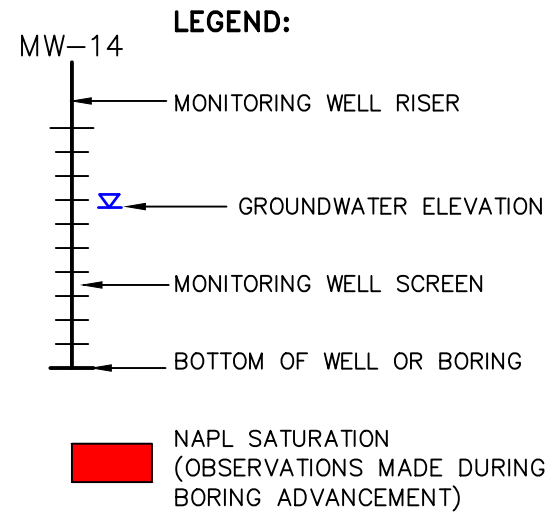
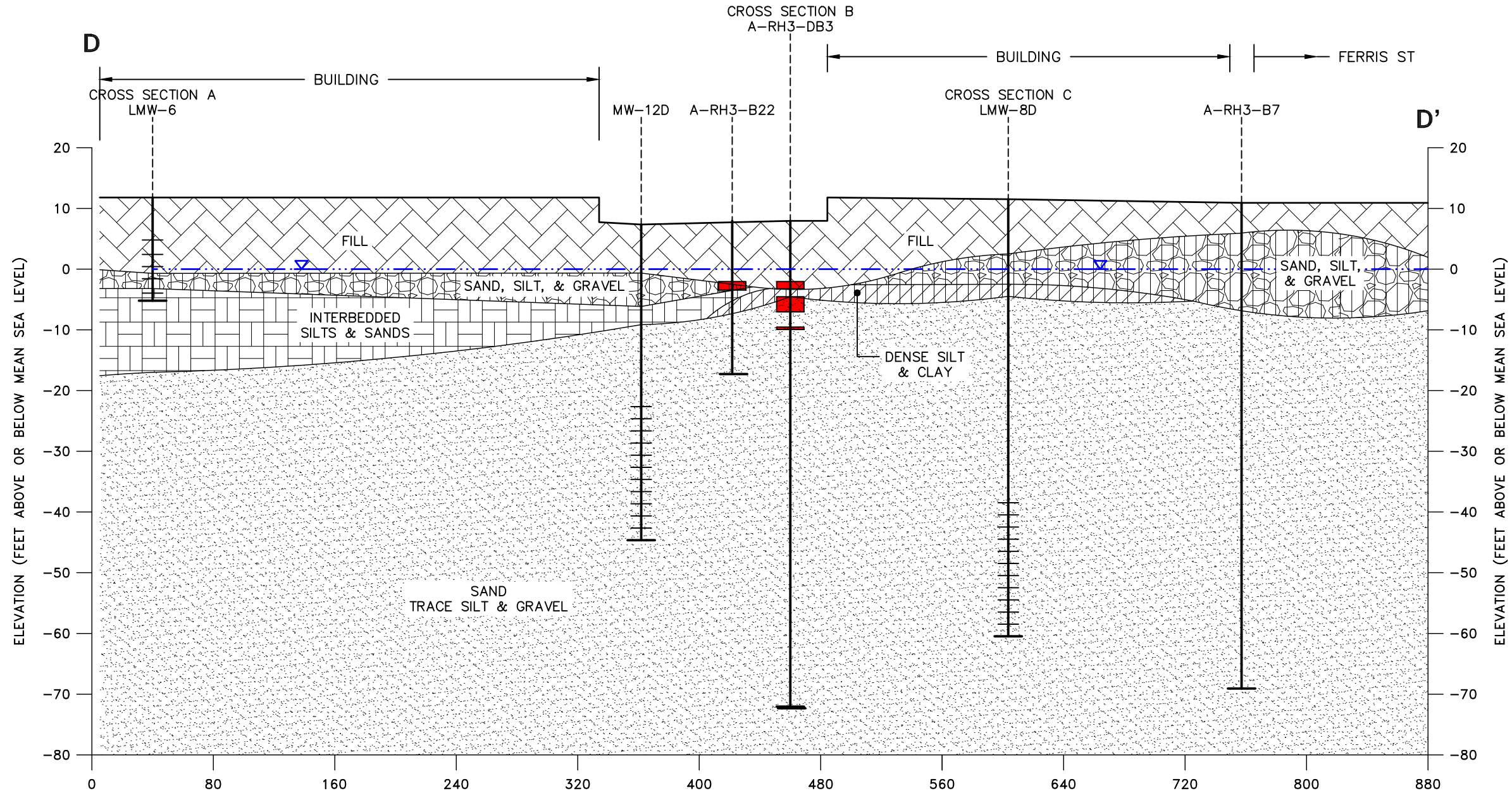
**NOTES:**

1. GROUNDWATER TABLE DEPICTED ON FIGURE IS APPROXIMATE AND IS INFLUENCED BY THE TIDE.
2. COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM NEW YORK LONG ISLAND STATE PLANE COORDINATE NAD 83.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NAVD) OF 88.
4. ALL LOCATIONS ARE APPROXIMATE.
5. SOIL LAYERS AND GEOLOGICAL CONTACT LOCATIONS ARE APPROXIMATE AND INFERRED BETWEEN BORING LOCATIONS.



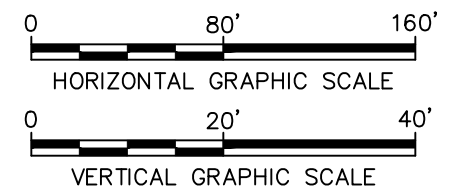
BT RED HOOK, LLC - RED HOOK 3  
 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GEOLOGIC CROSS SECTION C-C'**



**NOTES:**

1. GROUNDWATER TABLE DEPICTED ON FIGURE IS APPROXIMATE AND IS INFLUENCED BY THE TIDE.
2. COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM NEW YORK LONG ISLAND STATE PLANE COORDINATE NAD 83.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NAVD) OF 88.
4. ALL LOCATIONS ARE APPROXIMATE.
5. SOIL LAYERS AND GEOLOGICAL CONTACT LOCATIONS ARE APPROXIMATE AND INFERRED BETWEEN BORING LOCATIONS.



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 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GEOLOGIC CROSS SECTION D-D'**











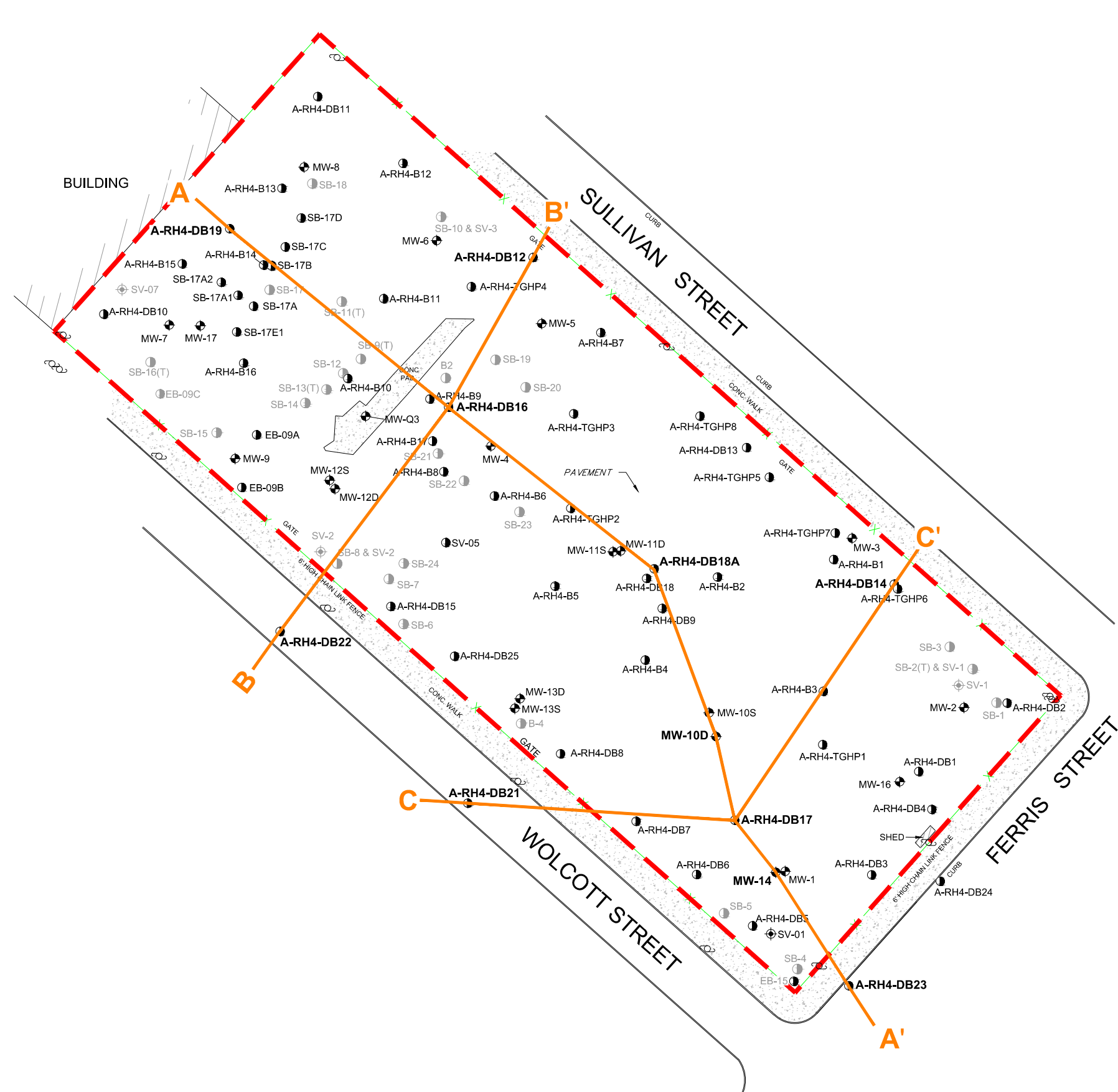




# APPENDIX B-2

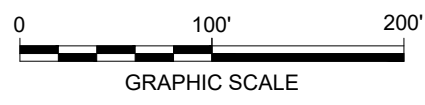
Red Hook 4 - Selected Supplemental Remedial Investigation Figures





- LEGEND:**
- MONITORING WELL
  - SOIL BORING
  - SOIL BORING (NOT SURVEYED)
  - SOIL VAPOR MONITORING POINT
  - SOIL VAPOR MONITORING POINT (NOT SURVEYED)
  - SITE BOUNDARY
  - FENCE
  - UTILITY POLES
  - GEOLGIC CROSS-SECTION TRANSECT
  - TarGOST® TAR-SPECIFIC GREEN OPTICAL SCREENING TOOL

- NOTES:**
1. BORING/WELL LOCATIONS AND PHYSICAL FEATURES BASED ON SURVEYS CONDUCTED BY DPK LAND SURVEYING, LLC ON OCTOBER 27, 2017 AND SEPTEMBER 26, 2018.
  2. PROPERTY BOUNDARIES OBTAINED FROM FIGURE ENTITLED "ALTA/NSPS LAND TITLE SURVEY" (LANGAN APRIL 4, 2017).
  3. BORING LOCATIONS SHOWN IN GRAY WERE NOT FIELD LOCATED OR SURVEYED BY ARCADIS AND WERE DIGITIZED FROM FIGURES PROVIDED BY AESI AND LANGAN.
  4. "TGHP" INDICATES A TarGOST® LOCATION ONLY.
  5. SOIL BORINGS AND TarGOST® LOCATIONS WITH AN "A-" PREFIX WERE ADVANCED BY ARCADIS.



BT RED HOOK, LLC - RED HOOK 4  
44 AND 62 FERRIS STREET/219 SULLIVAN STREET  
BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

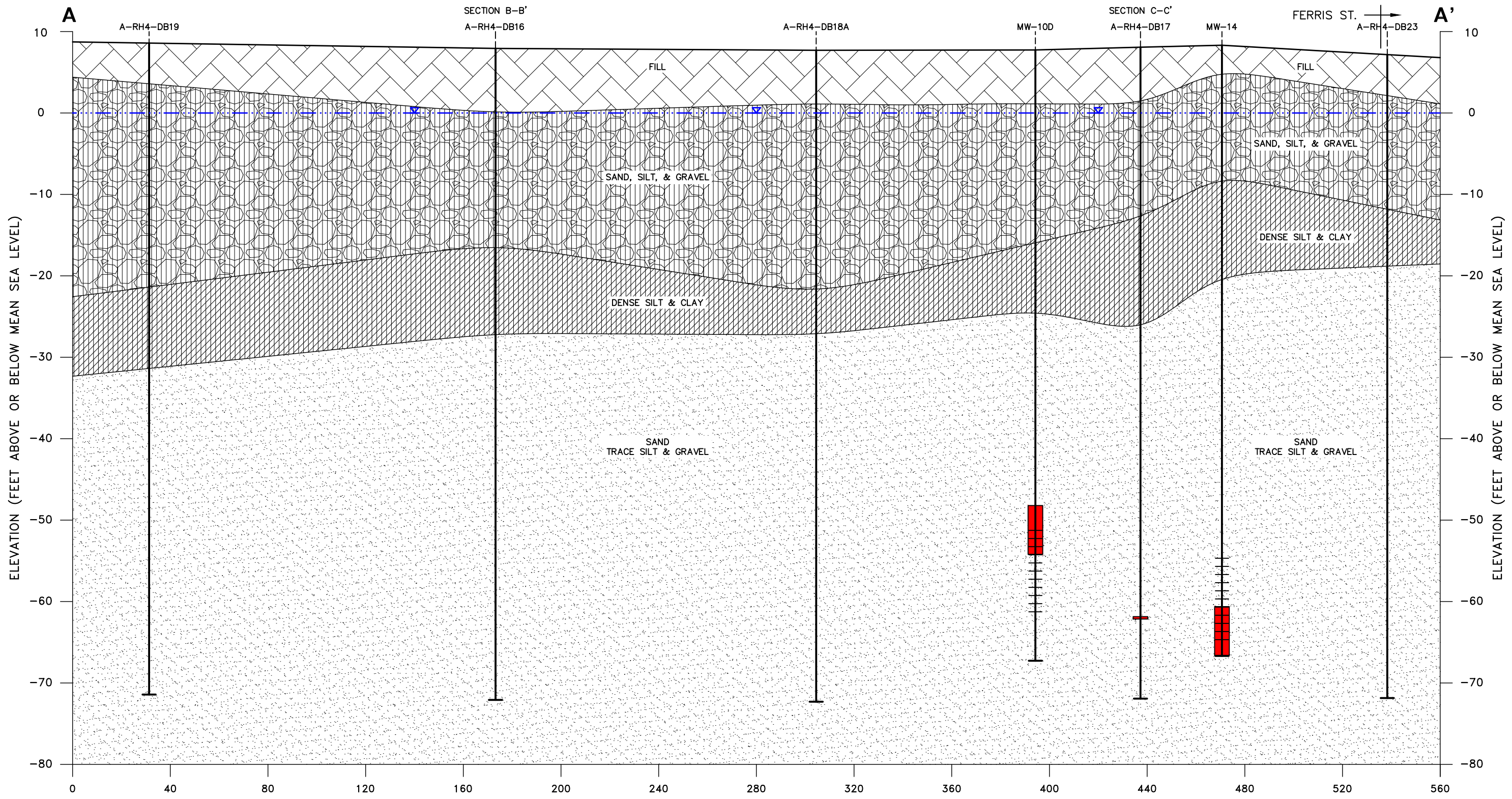
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**GEOLOGIC CROSS SECTION  
LOCATION MAP**

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**ARCADIS** Design & Consultancy  
for natural and built assets

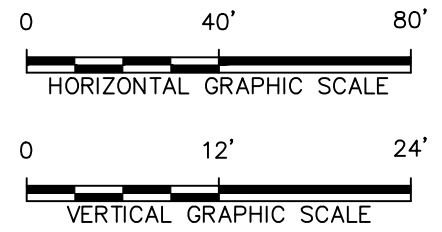
FIGURE  
**I-1**



**LEGEND:**

	MONITORING WELL RISER		FILL
	GROUNDWATER ELEVATION		SAND, SILT & GRAVEL
	MONITORING WELL SCREEN		DENSE SILT & CLAY
	BOTTOM OF WELL OR BORING		SAND - TRACE SILT & GRAVEL
	NAPL SATURATION (OBSERVATIONS MADE DURING BORING ADVANCEMENT)		

- NOTES:**
- GROUNDWATER TABLE DEPICTED ON FIGURE IS APPROXIMATE AND IS INFLUENCED BY THE TIDE.
  - COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM NEW YORK LONG ISLAND STATE PLANE COORDINATE NAD 83.
  - ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NAVD) OF 88.
  - ALL LOCATIONS ARE APPROXIMATE.
  - SOIL LAYERS AND GEOLOGICAL CONTACT LOCATIONS ARE APPROXIMATE AND INFERRED BETWEEN BORING LOCATIONS.



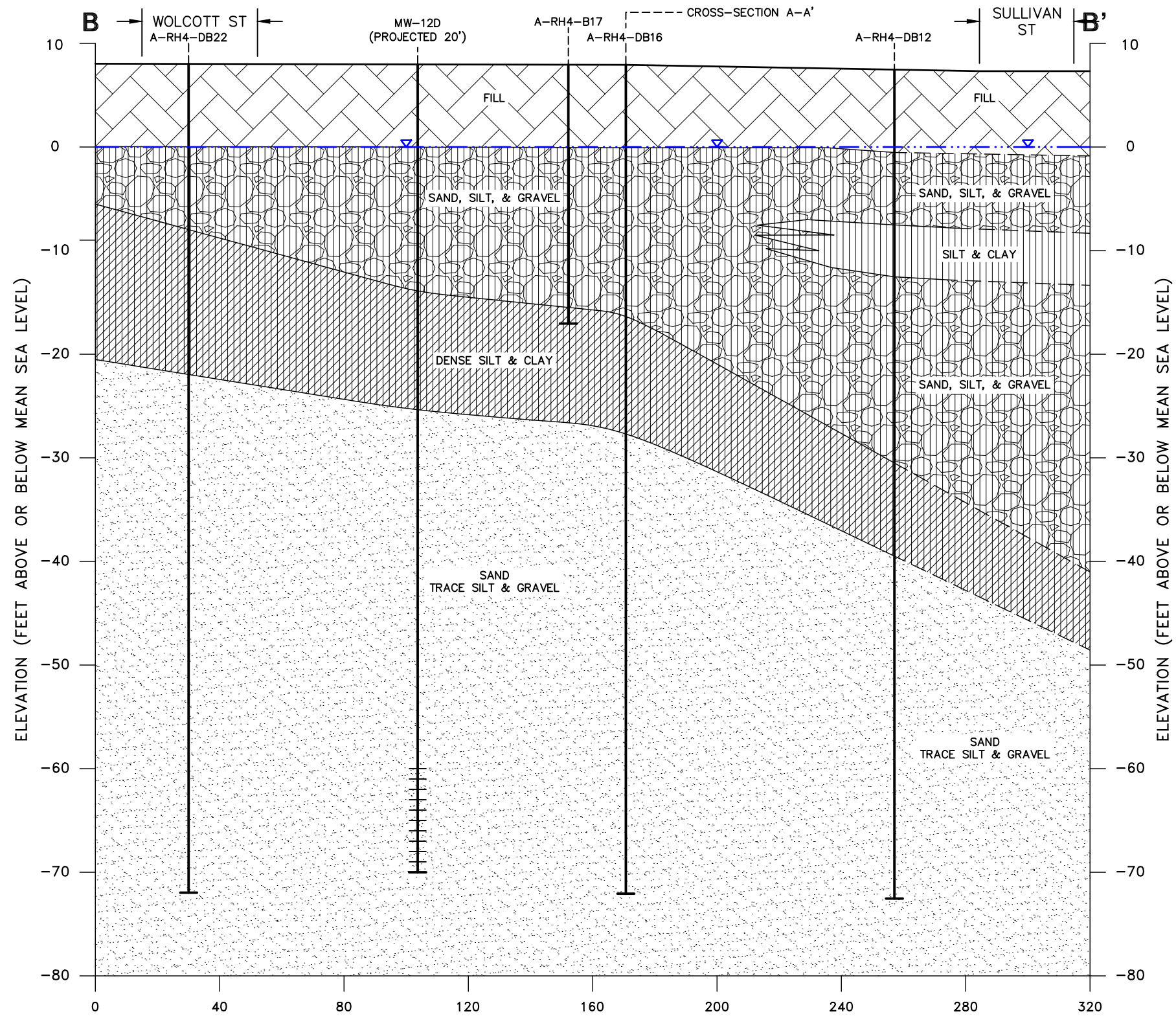
BT RED HOOK, LLC - RED HOOK 4  
44 AND 62 FERRIS STREET/219 SULLIVAN STREET  
BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GEOLOGIC CROSS SECTION A-A'**

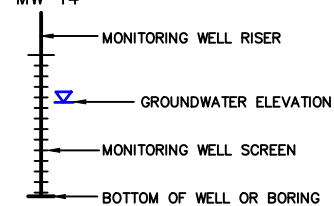
**ARCADIS** Design & Consultancy for natural and built assets

FIGURE I-2

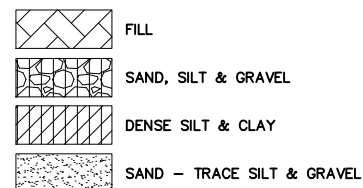
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**LEGEND:**

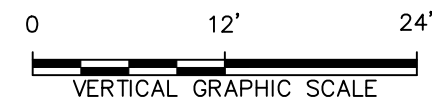
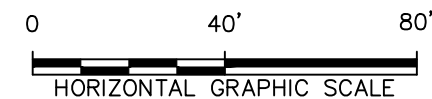


NAPL SATURATION (OBSERVATIONS MADE DURING BORING ADVANCEMENT)



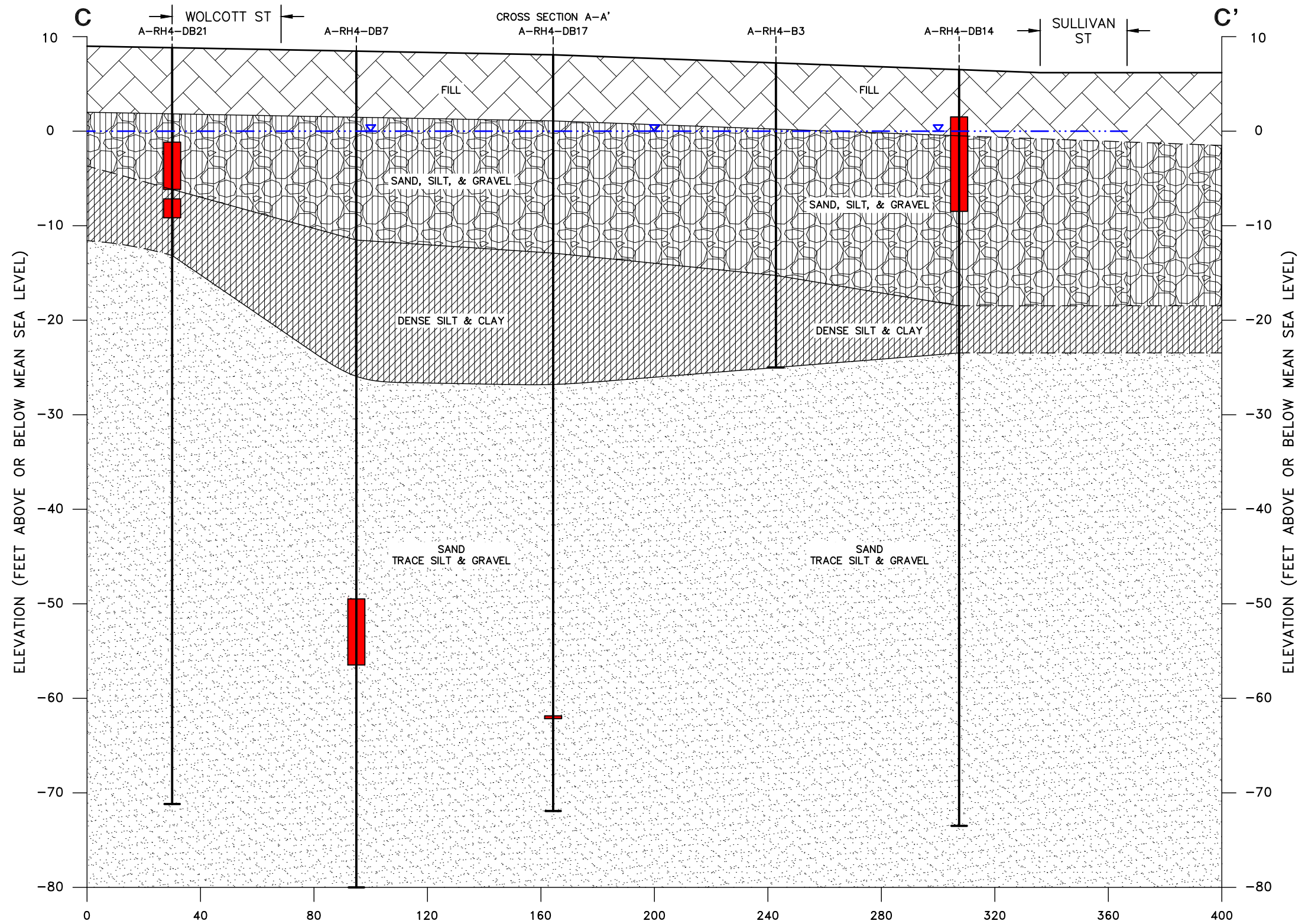
**NOTES:**

- GROUNDWATER TABLE DEPICTED ON FIGURE IS APPROXIMATE AND IS INFLUENCED BY THE TIDE.
- COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM NEW YORK LONG ISLAND STATE PLANE COORDINATE NAD 83.
- ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NAVD) OF 88.
- ALL LOCATIONS ARE APPROXIMATE.
- SOIL LAYERS AND GEOLOGICAL CONTACT LOCATIONS ARE APPROXIMATE AND INFERRED BETWEEN BORING LOCATIONS.

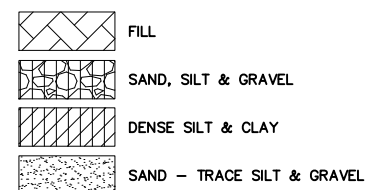
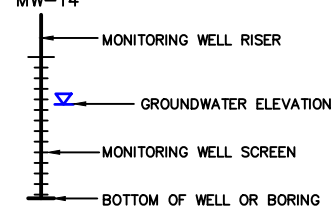


BT RED HOOK, LLC - RED HOOK 4  
 44 AND 62 FERRIS STREET/219 SULLIVAN STREET  
 BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GEOLOGIC CROSS SECTION B-B'**



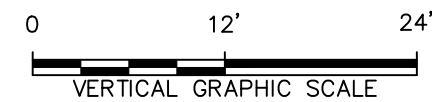
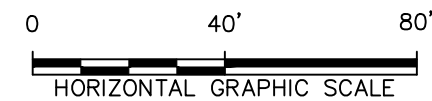
**LEGEND:**



NAPL SATURATION  
(OBSERVATIONS MADE DURING BORING ADVANCEMENT)

**NOTES:**

- GROUNDWATER TABLE DEPICTED ON FIGURE IS APPROXIMATE AND IS INFLUENCED BY THE TIDE.
- COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM NEW YORK LONG ISLAND STATE PLANE COORDINATE NAD 83.
- ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NAVD) OF 88.
- ALL LOCATIONS ARE APPROXIMATE.
- SOIL LAYERS AND GEOLOGICAL CONTACT LOCATIONS ARE APPROXIMATE AND INFERRED BETWEEN BORING LOCATIONS.

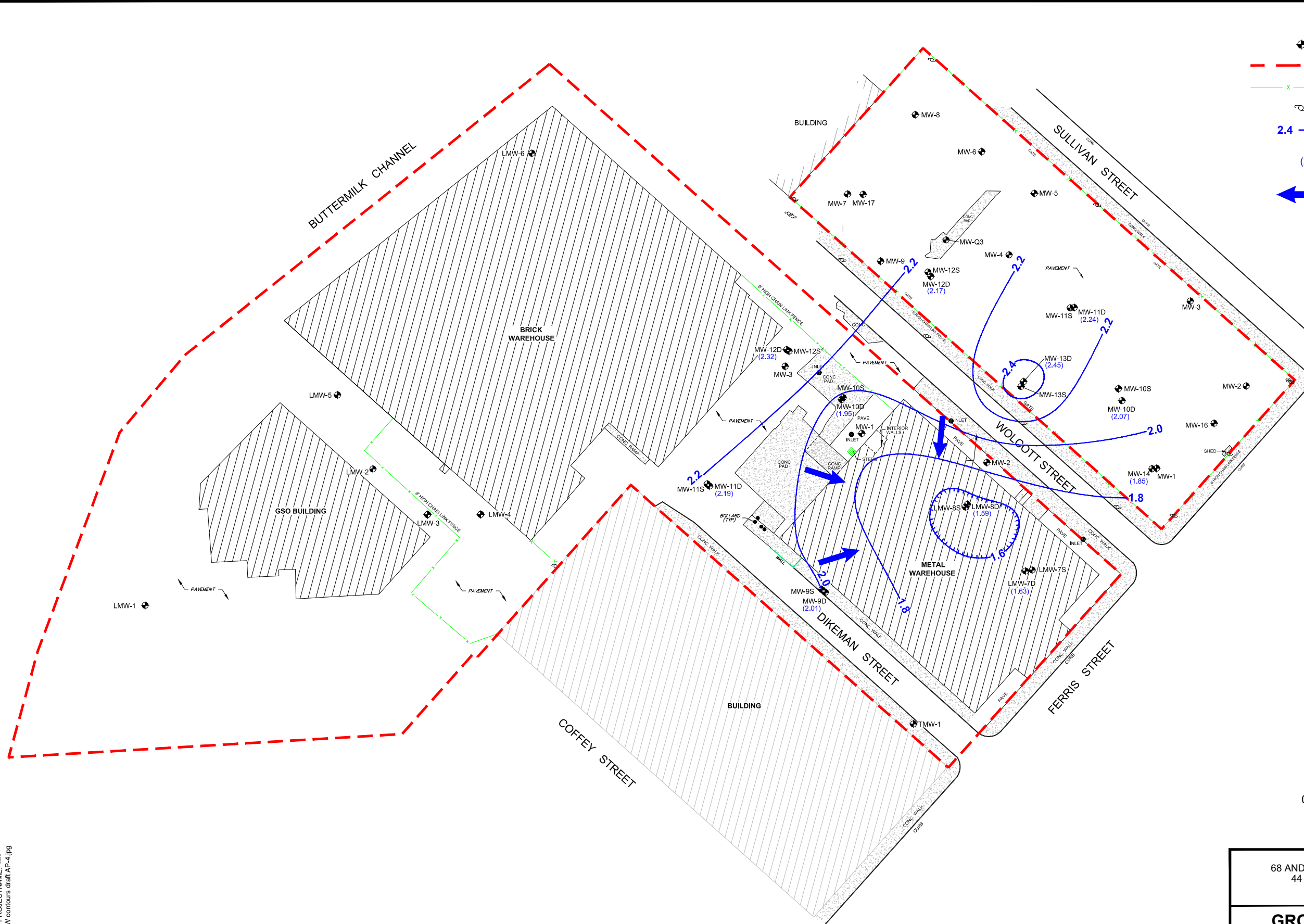


BT RED HOOK, LLC - RED HOOK 4  
44 AND 62 FERRIS STREET/219 SULLIVAN STREET  
BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GEOLOGIC CROSS SECTION C-C'**

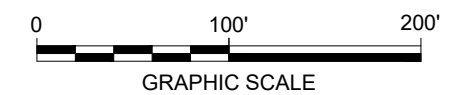


CITY:\Redd\DIV\GROUP\Redd\_DB\Redd\LD\Opt\ PIC\Opt\ PM\Redd\ TM\Opt\ LVR\OPTION\OFF=REF\*  
 C:\Users\BSSmail\OneDrive - ARCADIS\BIM 360 Docs\UNITED PARCEL SERVICE\Red Hook 42018\B0038932\_000310+DWG\Figure 13 - RH3-13-RH4 GWCMWDW HIGH TIDE.dwg LAYOUT: 13 SAVED: 12/17/2018 10:31 AM ACADVER: 21.05 (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB  
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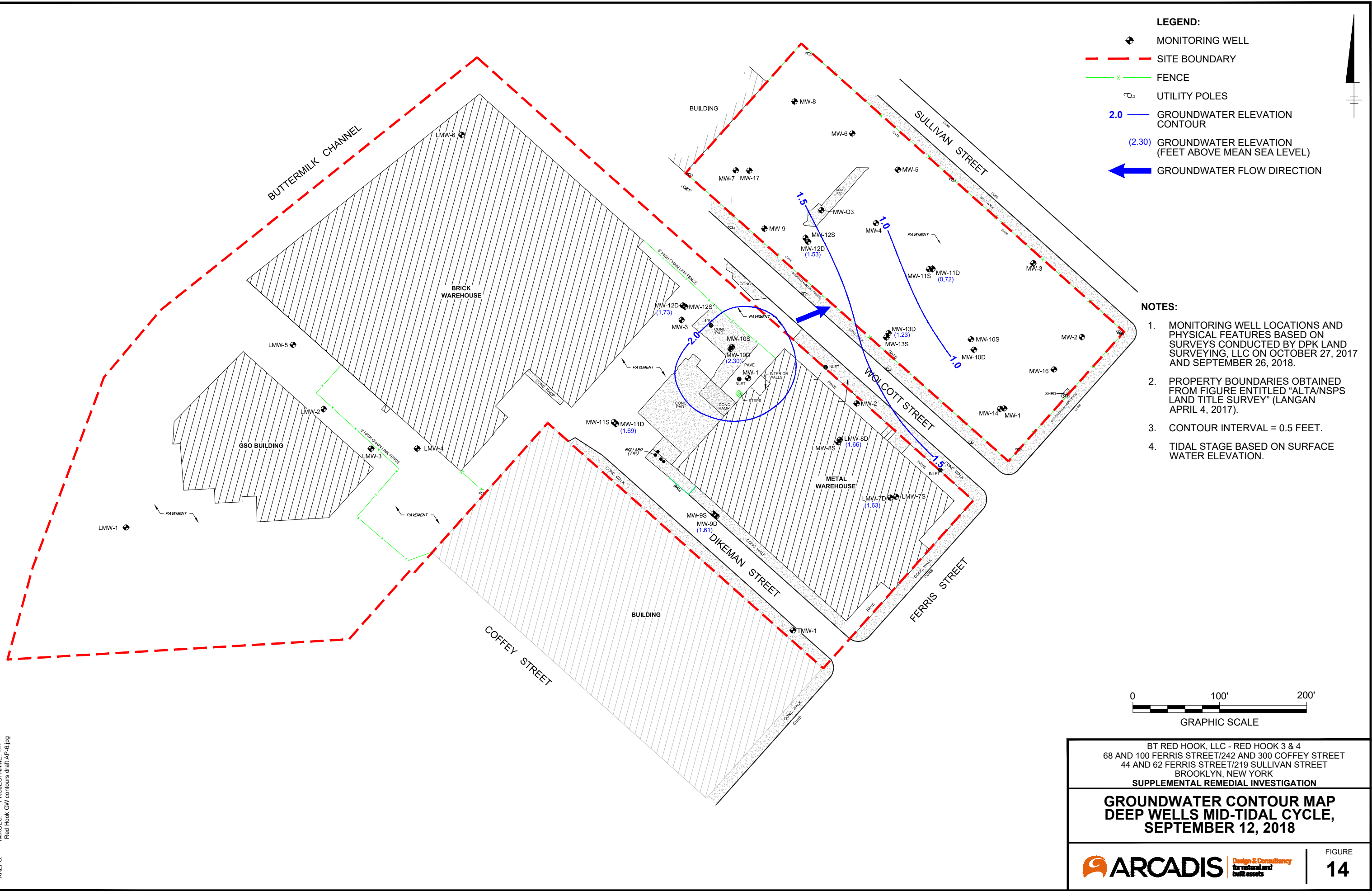
- LEGEND:**
- MONITORING WELL
  - SITE BOUNDARY
  - FENCE
  - UTILITY POLES
  - 2.4 GROUNDWATER ELEVATION CONTOUR
  - (2.45) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
  - GROUNDWATER FLOW DIRECTION

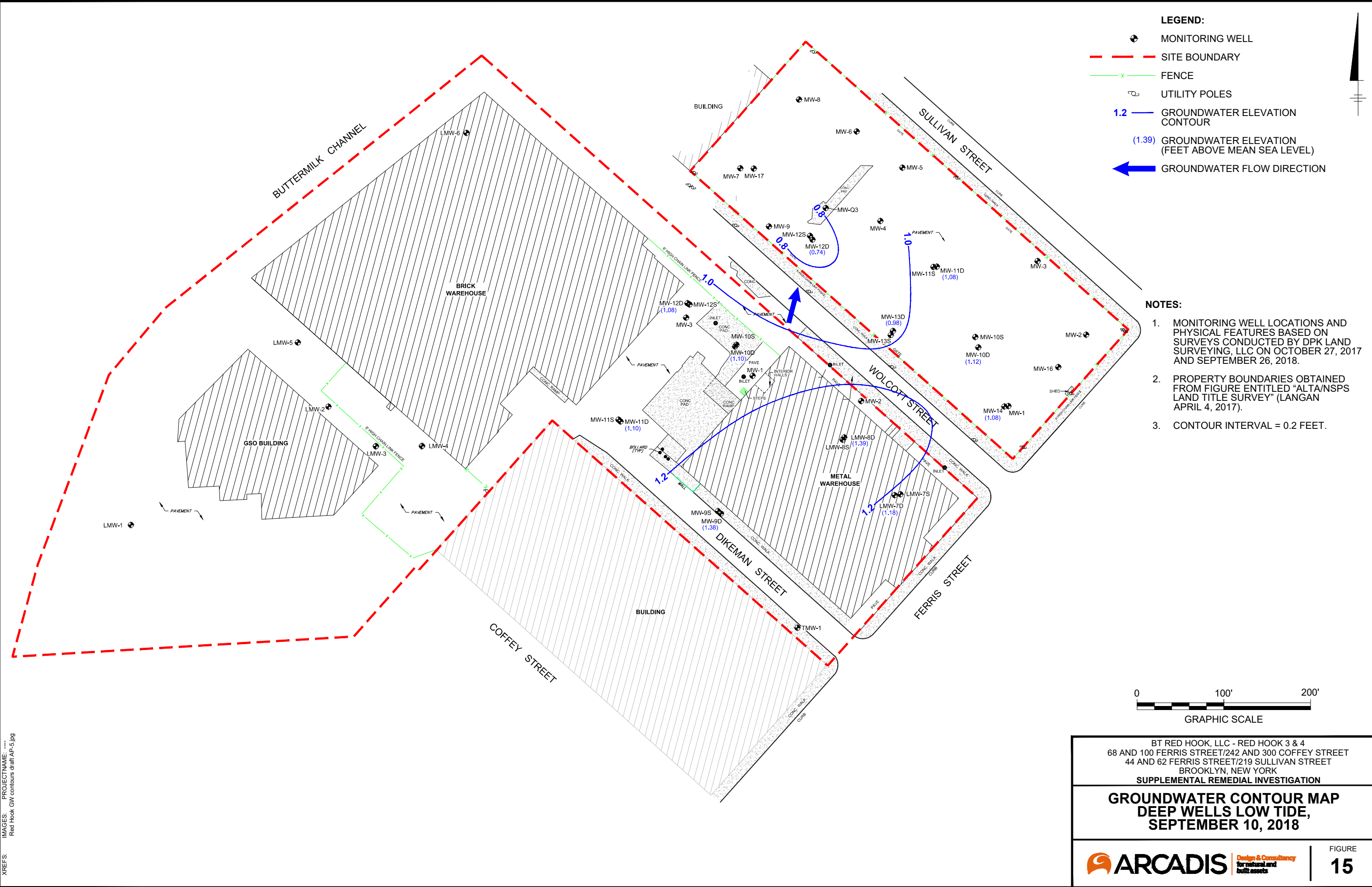
- NOTES:**
1. MONITORING WELL LOCATIONS AND PHYSICAL FEATURES BASED ON SURVEYS CONDUCTED BY DPK LAND SURVEYING, LLC ON OCTOBER 27, 2017 AND SEPTEMBER 26, 2018.
  2. PROPERTY BOUNDARIES OBTAINED FROM FIGURE ENTITLED "ALTA/NSPS LAND TITLE SURVEY" (LANGAN APRIL 4, 2017).
  3. CONTOUR INTERVAL = 0.2 FEET.



BT RED HOOK, LLC - RED HOOK 3 & 4  
 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 44 AND 62 FERRIS STREET/219 SULLIVAN STREET  
 BROOKLYN, NEW YORK  
**SUPPLEMENTAL REMEDIAL INVESTIGATION**  
**GROUNDWATER CONTOUR MAP**  
**DEEP WELLS AT HIGH TIDE,**  
**SEPTEMBER 10, 2018**

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 C:\Users\BSSmail\OneDrive - ARCADIS\BIM 360 Docs\UNITED PARCEL SERVICE\Red Hook 42018\B0038932.000310+DWG\Figure 14 - RH3-44RH4 GWCMDW MID-TIDAL.dwg LAYOUT: 14 SAVED: 12/17/2018 10:31 AM ACADVER: 21.05 (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB  
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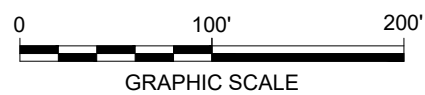




**LEGEND:**

- ⊕ MONITORING WELL
- - - SITE BOUNDARY
- x — FENCE
- ⊙ UTILITY POLES
- 1.2 — GROUNDWATER ELEVATION CONTOUR
- (1.39) — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- ← GROUNDWATER FLOW DIRECTION

- NOTES:**
1. MONITORING WELL LOCATIONS AND PHYSICAL FEATURES BASED ON SURVEYS CONDUCTED BY DPK LAND SURVEYING, LLC ON OCTOBER 27, 2017 AND SEPTEMBER 26, 2018.
  2. PROPERTY BOUNDARIES OBTAINED FROM FIGURE ENTITLED "ALTA/NSPS LAND TITLE SURVEY" (LANGAN APRIL 4, 2017).
  3. CONTOUR INTERVAL = 0.2 FEET.



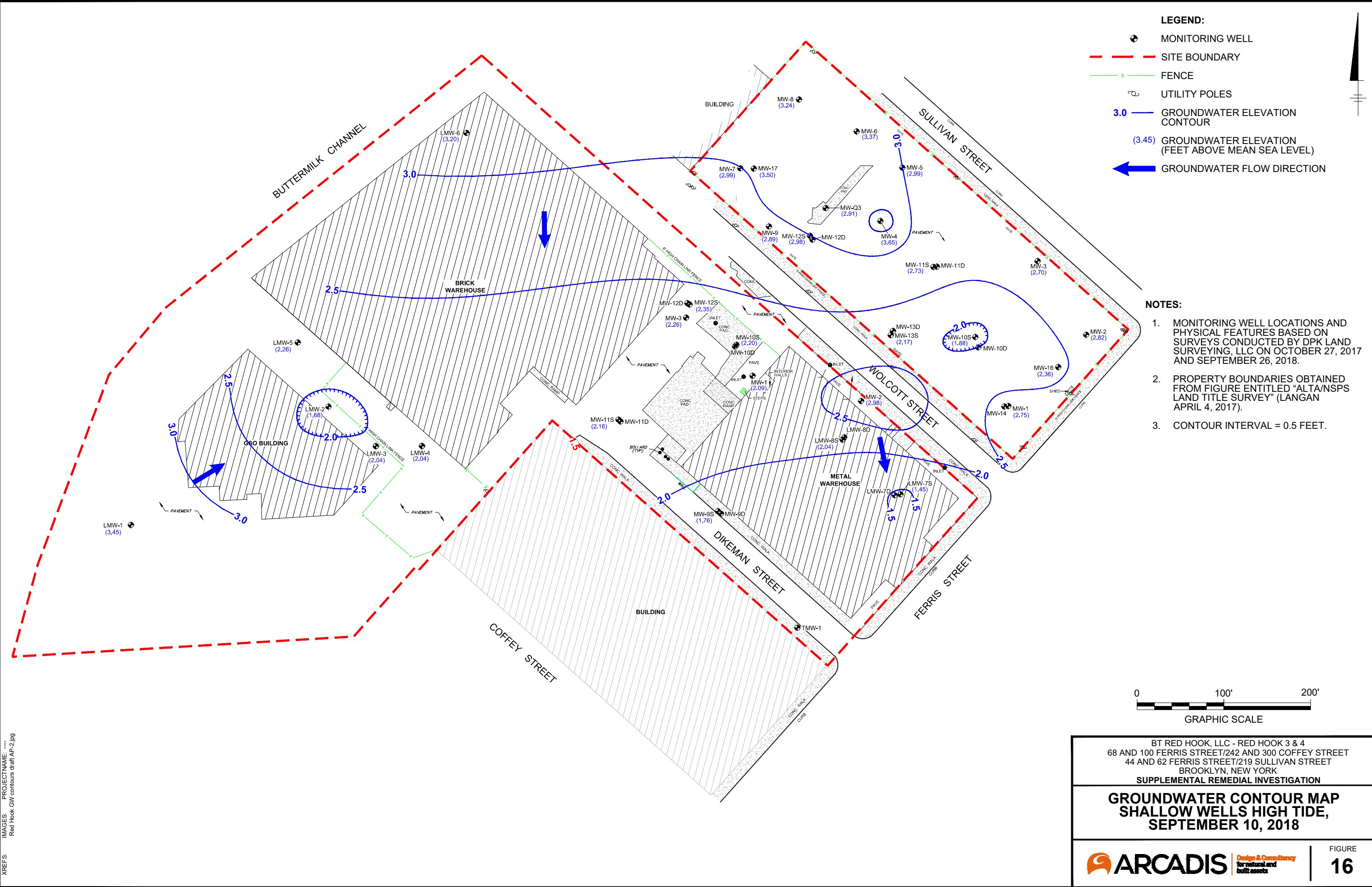
BT RED HOOK, LLC - RED HOOK 3 & 4  
 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 44 AND 62 FERRIS STREET/219 SULLIVAN STREET  
 BROOKLYN, NEW YORK

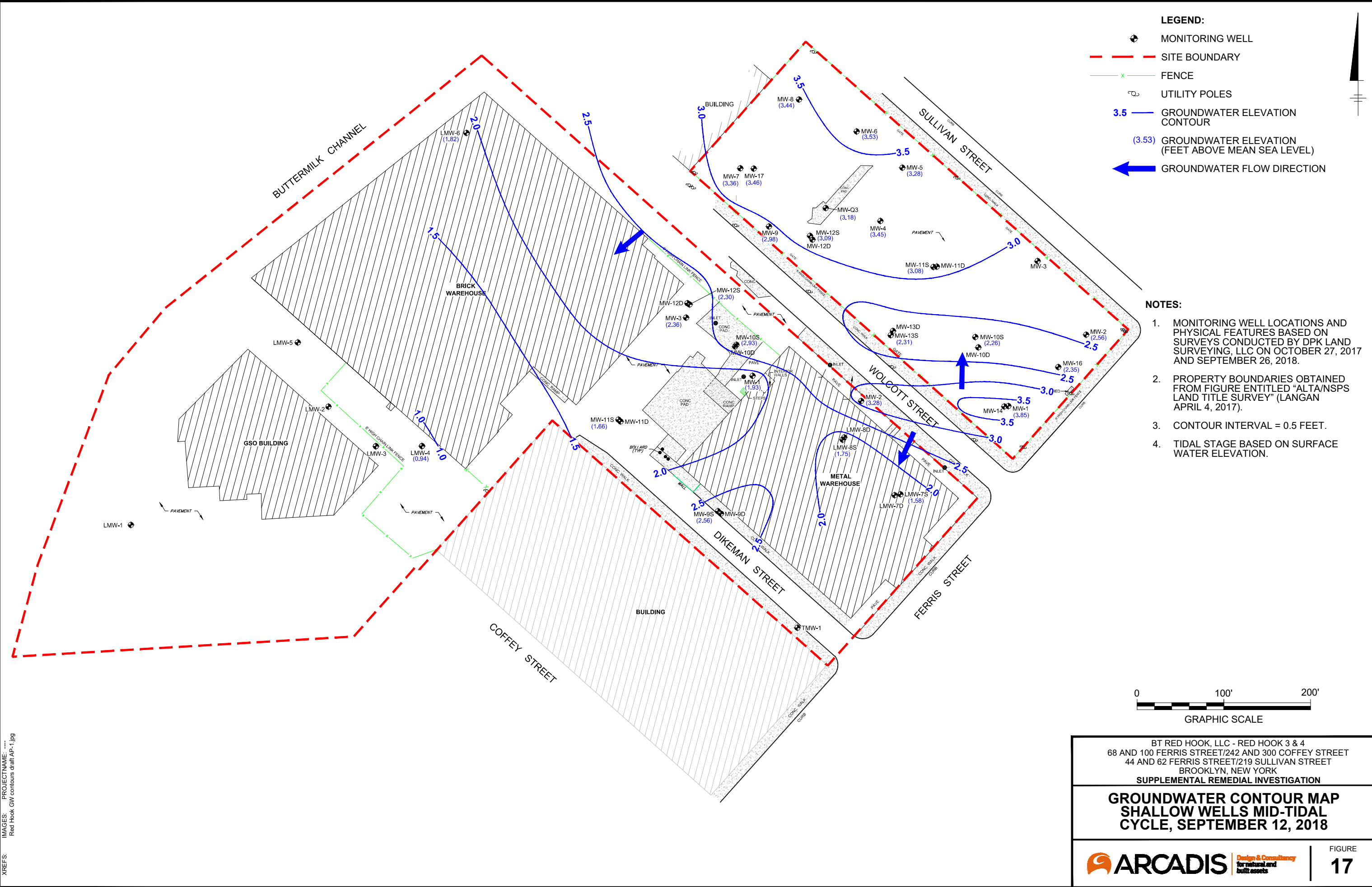
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GROUNDWATER CONTOUR MAP  
 DEEP WELLS LOW TIDE,  
 SEPTEMBER 10, 2018**

**ARCADIS** Design & Consultancy  
 for natural and built assets

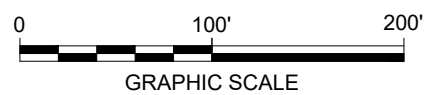
FIGURE  
**15**





- LEGEND:**
- ⊕ MONITORING WELL
  - - - SITE BOUNDARY
  - x — FENCE
  - ⊕ UTILITY POLES
  - 3.5 — GROUNDWATER ELEVATION CONTOUR
  - (3.53) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
  - ← GROUNDWATER FLOW DIRECTION

- NOTES:**
1. MONITORING WELL LOCATIONS AND PHYSICAL FEATURES BASED ON SURVEYS CONDUCTED BY DPK LAND SURVEYING, LLC ON OCTOBER 27, 2017 AND SEPTEMBER 26, 2018.
  2. PROPERTY BOUNDARIES OBTAINED FROM FIGURE ENTITLED "ALTA/NSPS LAND TITLE SURVEY" (LANGAN APRIL 4, 2017).
  3. CONTOUR INTERVAL = 0.5 FEET.
  4. TIDAL STAGE BASED ON SURFACE WATER ELEVATION.



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 68 AND 100 FERRIS STREET/242 AND 300 COFFEY STREET  
 44 AND 62 FERRIS STREET/219 SULLIVAN STREET  
 BROOKLYN, NEW YORK

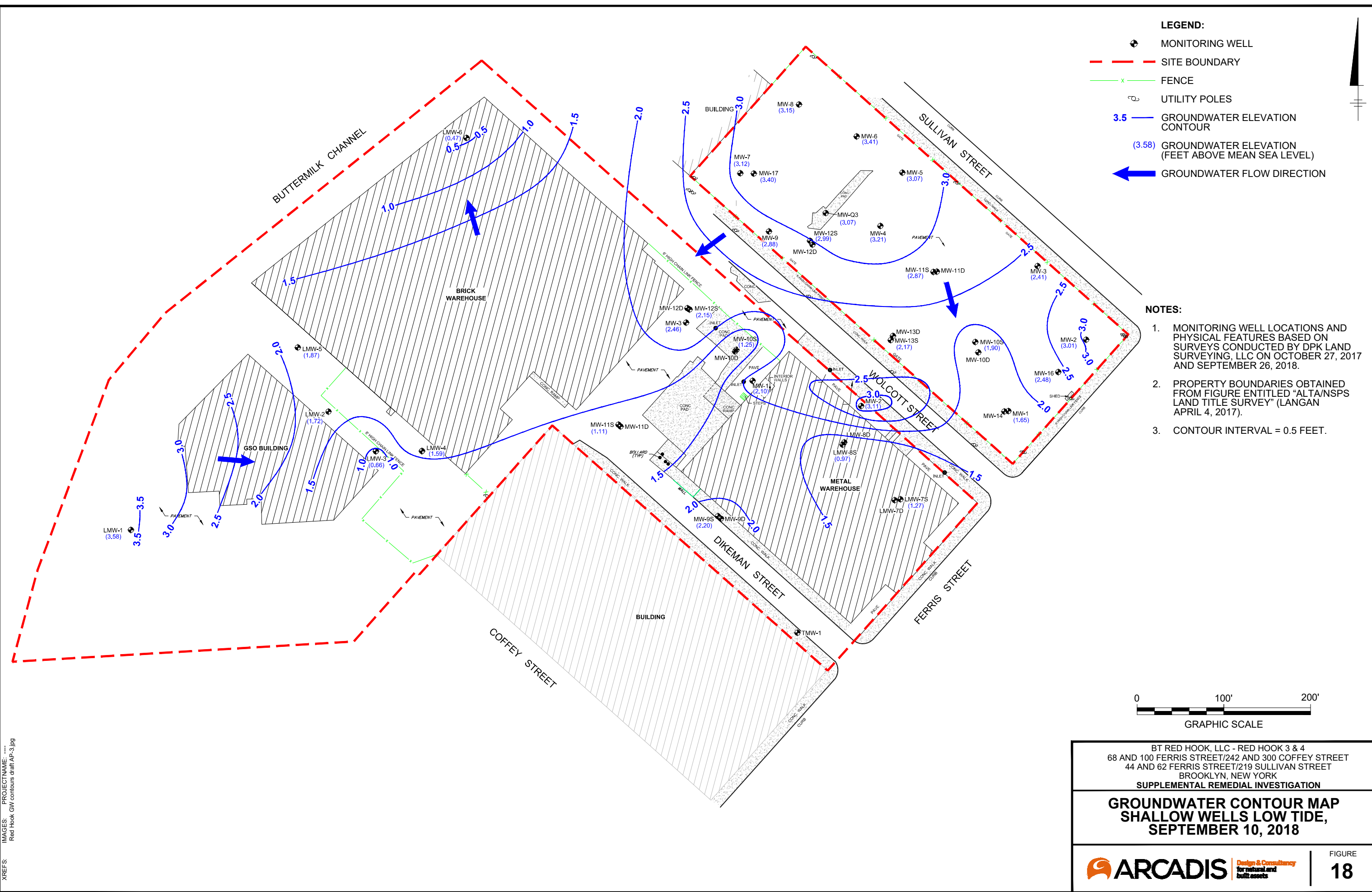
**SUPPLEMENTAL REMEDIAL INVESTIGATION**

**GROUNDWATER CONTOUR MAP  
 SHALLOW WELLS MID-TIDAL  
 CYCLE, SEPTEMBER 12, 2018**

**ARCADIS** Design & Consultancy  
 for natural and built assets

FIGURE 17

CITY:\Redd\DIV\GROUP\Redd\DB\Redd\LD\Opt\PM\Redd\PIC\Opt\PM\Redd\ARCADIS\BIM\360\Docs\UNITED PARCEL SERVICE\Red Hook 42018\B0038932.000310+DWG\Figure 18 - RH3-16-RH4 GWCMS-SW LOW TIDE.dwg LAYOUT: 18 SAVED: 12/14/2018 3:31 PM ACADYER: 21.0S (LMS TECH) PAGES: 18 PLOTSTYLETABLE: PLTFULL.CTB  
 C:\Users\BSSmall\OneDrive - ARCADIS\BIM\360\Docs\UNITED PARCEL SERVICE\Red Hook 42018\B0038932.000310+DWG\Figure 18 - RH3-16-RH4 GWCMS-SW LOW TIDE.dwg LAYOUT: 18 SAVED: 12/14/2018 3:31 PM ACADYER: 21.0S (LMS TECH) PAGES: 18 PLOTSTYLETABLE: PLTFULL.CTB  
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 XREFS: IMAGES: PROJECTNAME: Red Hook GW contours draft-AP-3.jpg



# APPENDIX B-3

Red Hook 3 and Red Hook 4 - Geotechnical Information





David T. Gockel, P.E., P.P.  
George P. Kelley, P.E.  
George E. Derrick, P.E.  
Michael A. Semeraro, Jr., P.E.  
Nicholas De Rose, P.G.  
Andrew J. Ciancia, P.E.  
George E. Leventis, P.E.  
Rudolph P. Frizzi, P.E.  
Ronald A. Fuerst, C.L.A.  
Colleen Costello, P.G.  
Cristina M. González, P.E.  
Gerald J. Zambrella, C.E.M.  
Gregory Elko, P.E.  
Steven Ueland, P.E.

20 April 2012  
170195101

Gregory L. Biesiadecki, P.E.  
Marc Gallagher, P.E.  
Donald J. Hodson, P.E.  
Joel B. Landes, P.E.  
Michele O'Connor, P.E.  
Alan R. Poeppel, P.E.  
Christopher T. Vitolano, P.E.

Chris Carlin  
On behalf of Red Hook 212 LLC  
c/o Funaro & Co.  
Empire State Building  
350 Fifth Avenue, 41<sup>st</sup> Floor  
New York, New York 10118

**Re: Preliminary Geotechnical Review  
212 Wolcott Street (aka 68 Ferris Street)("The Project")  
Brooklyn, New York  
Langan Project No.: 170195101**

Dear Mr. Carlin:

We are pleased to submit this preliminary geotechnical engineering review for the conceptual development located at 212 Wolcott Street in Brooklyn, New York. The purpose of this study was to obtain general subsurface conditions at the site and discuss implications for foundation construction. A summary of our exploration, findings, and preliminary recommendations for foundation construction are provided herein. All elevations provided in this report reference the USGS NGVD (Mean Sea Level at Sandy Hook, NJ, 1929). All work was performed in accordance with our approved 30 March 2012 proposal.

## **PROJECT UNDERSTANDING**

The project site is located in the Red Hook section of Brooklyn, New York, and is on a city block bordered by the Upper New York Bay (Buttermilk Channel) to the northwest, Wolcott Street to the northeast, Ferris Street to the southeast, and Dikeman Street to the southwest (Figure 1). The property consists of two lots, 212 Wolcott Street and 68 Ferris Street (Block 573, Lots 1 and 100) that are currently being used as a beverage distribution facility. Surface elevations vary from el 6 to el 10. Lot 1 has an area of about 68,000 square feet and is occupied by a one-story warehouse building with a footprint of 50,000 square feet. Lot 100 has an area of 200,000 square feet and is occupied by a



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two-story warehouse building with a footprint of about 135,000 square feet and a parking lot. While development plans are not yet prepared, we understand that you may purchase the property and re-use the existing two-story building with a possible two- to three-story addition, and develop a new four to six-story-high building. No cellar spaces are envisioned at this time.

## **SUBSURFACE EXPLORATION**

We were allotted one day for a preliminary subsurface exploration which was completed on 6 April 2012; our exploration consisted of drilling one test boring (B-1). The boring was drilled in the parking lot asphalt-paved area within Lot 100. A boring location plan is included as Figure 2. Boring B-1 was completed by Aquifer Drilling & Testing, Inc. under the full time observation of Langan. The boring was drilled with a truck-mounted drill rig using mud-rotary drilling techniques with steel casing and drilling mud used for soil support. The boring was advanced to a depth of 67 feet below grade (about el -57 NGVD).

Soil samples were collected continuously to twelve feet and at five-foot intervals thereafter. All soil samples were obtained with a 2-inch outside-diameter split-spoon sampler while performing the Standard Penetration Tests (SPT)<sup>1</sup> in accordance with ASTM D-1586. Standard penetration resistances (N-values) were measured for all the recovered samples.

A Langan engineer observed the drilling operations and logged the soil encountered. Recovered soil samples were visually examined and classified in the field in accordance with the United Soil Classification System (USCS). Soil classifications, Standard Penetration Resistances, and other field observations were recorded on the field logs. Detailed descriptions of the soils encountered are presented in the boring log in Appendix A.

## **SUBSURFACE CONDITIONS**

The generalized subsurface profile consists of uncontrolled fill overlying coarse to fine sands with intermittent zones of silt, overlying dense glacial deposits. Rock was not

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<sup>1</sup> The Standard Penetration Test is an indicator of the soil density and consistency. The SPT N-value is defined as the number of blows required to drive a 2-inch outside diameter split-barrel sampler for 12 inches, after an initial penetration of 6 inches, using a 140-pound hammer free-falling from a height of 30 inches.

---

encountered and is expected to be about 110 to 150 feet below grade. Detailed descriptions of each subsurface stratum are given below in order of increasing depth.

#### Uncontrolled Fill [Class 7]

A 3-inch-thick layer of asphalt overlying a 21-inch-thick layer of densely graded aggregate (DGA) and a 2-foot-thick layer of medium dense to loose granular fill was encountered. The fill consisted primarily of brown coarse to fine sand with varying amounts of silt, gravel, concrete, and asphalt. The thickness of the fill layer was about 4 feet with the bottom of the layer corresponding to about el 5. The one Standard Penetration Test N-value recorded in the fill layer was 24 blows per foot (bpf).

The fill layer is classified as Building Code Class 7 material, "Controlled and Uncontrolled Fills".

#### Sand and Silt [Class 3b/5/6]

A layer consisting of black/brown silty sands with intermittent zones of silt was encountered directly below the fill layer. The thickness of the sand and silt layer was about 10 feet with the bottom of the layer corresponding to about el -5. Standard Penetration Test N-values ranged from 4 to 26 bpf, with an average of about 14 bpf.

Black staining, tar and gas odors, and sheen were observed in samples throughout this layer indicating a product release. Photoionization detector (PID) readings ranging from 20 to 40 parts per million (ppm) were measured in this layer (see Langan's forthcoming environmental report).

The sand and silt layer is classified as Building Code Class 3b material, "Granular Soils" and Class 5b and Class 6, "Silts and silty soils".

#### Glacial Till [Class 3a]

A layer of brown, medium dense to dense, coarse to fine sand with varying amounts of gravel, silt, and clay was encountered directly below the sand and silt layer. The boring was terminated 53 feet into this layer (about el -57). Standard Penetration Test N-values ranged from 32 bpf to refusal, with an average of 39 bpf.

The glacial till layer is classified as Building Code Class 3a, "Granular Soils".

---

### Bedrock

Bedrock was not encountered during our exploration. According to rock maps and available borings in the area, the bedrock consists of granite and mica schist and the depth to bedrock is estimated at about 110 feet to 150 feet below ground surface.

### **Groundwater**

The groundwater level could not be established because the drilling was done with mud-rotary drilling techniques and the samples above and below the suspected groundwater elevation were stained with product. The depth of the water table was estimated to be about 9 feet below ground surface (sea level at Upper Bay of New York).

We have reviewed the National Flood Insurance Rate Maps (FIRM) for the City of New York published by the Federal Emergency Management Agency (FEMA). Based on our review, the site is located in an area of 100 year flooding. The delineated 100 year flood level is el 11. Considering nearby USGS benchmarks and the available survey data, this is approximately one to five feet above existing site grades.

### **GEOTECHNICAL CONSIDERATIONS**

The following summarizes geotechnical items to be considered for the foundation design and construction of the proposed structures. Environmental considerations are presented under a separate cover:

#### New six-story building

1. The footprint of the new building has not been developed. We assume the existing one-story building will be demolished. Depending on the new building footprint, the number of borings will vary from a minimum of 14 borings for a footprint of 50,000 square feet to 30 borings for a 130,000-square-foot footprint (full development of the site) to meet the New York City Building Code (Building Code) requirements for shallow foundations. If deep foundations are needed the number of borings would increase by 30 percent. In general, for large sites with uniform soil conditions we recommend performing approximately half to two thirds of the required number of borings and requesting a variance from the New York City Department of Buildings with proper documentation. The final number of borings needed would be finalized once the scope of construction is finalized, the building loads are better defined and the soil conditions are confirmed.

2. Based on the available subsurface information, a shallow foundation system may be feasible for a new six-story building (i.e. spread footings, a continuous mat or a combination of the two with or without appropriate ground improvement). However, this must be confirmed after additional investigations (borings and test pits), a geotechnical analysis, and the proposed building loads are known. A heavier building may need to be pile supported or a pile-supported raft; if required driven piles are a likely choice.
3. For seismic design of the new construction the preliminary seismic site class is "D" per the Building Code (based on the one boring). The site class would need to be verified once the site investigation is completed. This should not impose significant hardship on the seismic design; however, a site-specific seismic study may show lower seismic lateral loads and leads to construction costs savings.
4. The groundwater is likely shallow (about 9 feet or less from ground surface). If a basement is included in the new building the cost may be significant because the excavation will require dewatering.

#### Existing 2-story building renovation

5. Based on the approximately 135,000 square-foot building footprint, 31 test borings would be required to meet the New York City Building Code (Building Code) requirements for shallow foundations in the case of significant renovations or additions. The final number of borings (if needed) would be finalized once the scope of construction is finalized and the anticipated building loads are better defined.
6. We do not have information regarding the existing building foundations. We expect it is supported on shallow foundation because of the soil condition and relatively light building load. If the renovated building loads do not increase significantly, then the foundations may be acceptable. If the loads increase significantly then additional exploration and analyses to determine the foundation capacity is required; recommendations for added support can then be provided. Additional foundation capacity can be provided by enlarging existing footings or supplementing the footings with micropiles.
7. If significant renovations/or additions are planned there may be a need for seismic upgrades. The structural engineer should be consulted to determine the "trigger" level. If seismic upgrades are needed, the preliminary seismic site class is "D" per

the Building Code. The site class would need to be verified once the site investigation is completed.

8. Again, the groundwater is likely shallow (should be about 9 feet from ground surface). If a basement is included the cost may be significant because the excavation will require dewatering.

## **CLOSURE**

In summary, the site conditions should not present significant issues with respect to foundation construction for the developments described herein. Excavation and foundation methods and solutions typical of those employed in construction near rivers should be anticipated, possibly including pile foundations, ground improvement and construction dewatering.

Thank you for the opportunity and we look forward to further working with you on this project.

Very truly yours,  
**LANGAN ENGINEERING AND  
ENVIRONMENTAL SERVICES, P.C.**



Konstantinos Syngros, Ph.D., P.E.  
Project Engineer



Marc J. Gallagher, P.E, LEED<sup>AP</sup>  
Senior Associate

Cc: File





Project		Project No.											
212 Wolcott Street (AKA 68 Ferris Street)		170195101											
Location		Elevation and Datum											
Brooklyn, NY (Red Hook)		Approx. EL 9 (NGVD)											
MATERIAL SYMBOL	Elev. (ft)	Building Code	Sample Description	Casing blws/ft	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)				
					Depth Scale	Number	Type	Recov. (in)		Penetr. resist BL/6in	N-Value (Blows/ft)		
		CLASS 3A	brown c-f SAND, tr. f. gravel, tr. silt [SP]		20				11				
					21	S-8	SS	15		14	32	Take S-8 at 20'-22'	
					22					18		Drill to 25'	
					23					20		Slight rig chatter at 23'-24'	
					24							Brown Wash	
					25					15		Take S-9 at 25'-27'	
					26	S-9	SS	17		16	34	Drill to 30'	
					27					18		Slight rig chatter at 27.5'-28.5'	
					28					21		Brown Wash	
					29								
					30					11		Take S-10 at 30'-32'	
					31	S-10	SS	18		18	40	Drill to 35'	
32					22		Slight rig chatter at 33'-34'						
33					25		Brown Wash						
34													
35					14		Take S-11 at 35'-37'						
36	S-11	SS	24		19	41	Drill to 40'						
37					22		Smooth drilling to 40'						
38					27		Brown Wash						
39													
40					17		Take S-12 at 40'-42'						
41	S-12	SS	24		30	54	Drill to 45'						
42					24		Smooth drilling to 45'						
43					26		Brown Wash						
44													
45													

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Project		Project No.										
212 Wolcott Street (AKA 68 Ferris Street)		170195101										
Location		Elevation and Datum										
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MATERIAL SYMBOL	Elev. (ft)	Building Code	Sample Description	Casing blws/ft	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)		
						Number	Type	Recov. (in)	Penetr. resist BL/6in		N-Value (Blows/ft)	
			brown m-f SAND, tr. f. gravel, tr. silt, tr. mica, tr. garnet [SM]		45				16		Take S-13 at 45'-47' Drill to 50' Slight rig chatter at 49.5' Brown Wash	
					46	S-13	SS	24	23	42		
					47				19			
					48				18			
				brown c-f SAND, so f. gravel, tr. silt [SP-SM/TILL]		50				16		Take S-14 at 50'-52' Drill to 55' Heavy rig chatter at 53'-54.5' Brown Wash
					51	S-14	SS	16	12	30		
					52				18			
					53				19			
			CLASS 3A	brown c-f SAND, so f. gravel, tr. silt [SP-SM/TILL]		55				15		Take S-15 at 55'-57' Drill to 60' Slight rig chatter at 57.5'-59' Brown Wash
					56	S-15	SS	19	16	35		
					57				19			
					58				25			
				brown c-f SAND, so f. gravel, tr. silt [SP-SM/TILL]		60				18		Take S-16 at 60'-62' Drill to 65' Rig chatter at 61'-62' Brown Wash
					61	S-16	SS	18	17	41		
					62				24			
					63				22			
				brown c-f SAND, so f. gravel, tr. silt [SP-SM/TILL]		64						Take S-17 at 65' Gravel at tip of split spoon END OF DAY- 2:50PM
				65	S-17	SS	4	100/5"	100/5"			
	-56.5		End of boring at 65.5'		66							
					67							
					68							
					69							
					70							

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**REPORT**

**PRELIMINARY  
GEOTECHNICAL ENGINEERING  
INVESTIGATION**

**RH4 – 62 Ferris Street  
Brooklyn, New York**

Prepared for:

**Massimiliano Senise  
Kenmare E4 LLC  
C/o Estate Four LLC**

Prepared By:

**Pillori Associates  
333 Meadowlands Parkway  
First Floor – Suite 102  
Secaucus, New Jersey 0094**

March 2014



***PILLORI ASSOCIATES, P.A.***  
***Geotechnical Engineering***

March 25, 2014

Via Email: Christopher@carlinprojects.com

Massimiliano Senise  
Kenmare E4 LLC  
c/o Estate Four LLC

Attn: Mr. Massimiliano Senise

Re: Preliminary Geotechnical Report for  
RH4 – 62 Ferris Street  
Brooklyn, New York

Gentlemen:

Presented herein is the preliminary geotechnical engineering report for the referenced project. We are confident that the subsurface information and engineering recommendations contained herein will meet the needs of the project. Thank you for the opportunity to be of service. Please call if you have any questions or if we can be of further assistance.

Sincerely,

*Gregory Pillori*

Pillori Associates, P.A.

## TABLE OF CONTENTS

INTRODUCTION .....	1
PROJECT AND SITE DESCRIPTION .....	1
PRELIMINARY GEOTECHNICAL INVESTIGATION .....	1
SUBSURFACE CONDITIONS .....	2
ENGINEERING EVALUATION & ENGINEERING RECOMMENDATIONS .....	2
HIGH CAPACITY DRIVEN PILES .....	3
ALTERNATE DRILLED PILES .....	3
GROUND FLOOR SLAB .....	4
COMPACTED FILL AND BACKFILL .....	4
EXCAVATION .....	4
SEISMIC CRITERIA .....	4
ADDITIONAL INVESTIGATION .....	5
PROTECTION OF ADJACENT STRUCTURE .....	5
PRE-CONDITION SURVEY AND MONITORING PROGRAM .....	5
CLOSURE .....	5

## LIST OF ATTACHMENTS

Boring Location Plan	Drawing 1
Subsurface Section - AA	Drawing 2
Subsurface Section - BB	Drawing 3
Boring Logs	B-1 through B-4
Soil Classification Chart	

## **Introduction**

This report presents the results of our preliminary geotechnical engineering investigation conducted for the project at 62 Ferris Street in Brooklyn, New York. The work was performed in general accordance with our proposal dated February 10, 2014. The purpose of the investigation was to identify subsurface soil conditions in order to formulate preliminary foundation and engineering recommendations for the proposed development of the property.

## **Project and Site Description**

The project site is located in the Red Hook section of Brooklyn, NY and is situated on the west side of Ferris Street. The site is bounded by Sullivan Street to the north and Wolcott Street to the south, as shown on Figure 1. Currently the site is vacant land and is used primarily for parking.

The proposed development entails construction of new multi story buildings with the lowest floor slab at or above street level. The new building footprint will occupy an area of about 90,000 square feet.



**Figure 1 – Site Vicinity Map**

## **Preliminary Geotechnical Investigation**

The preliminary geotechnical investigation consisted of drilling four borings spaced evenly across the site. The borings were drilled by Warren George Inc. between the dates of March 7 and March 11, 2014. The borings were drilled with truck mounted drill rig using rotary mud drilling techniques to completion depths of 67 and 102 feet. In the borings, Standard Penetration Tests (SPTs) were performed at regular 5-foot intervals in accordance with procedures specified in ASTM D-1586. A groundwater observation well was installed in completed boring B-3W. The well construction consisted of a 10-foot PVC well screen and 5-foot PVC riser pipe.

Full-time engineering supervision was provided by Pillori Associates to locate the explorations in the field, direct drilling and sampling procedures, and maintain continuous logs of the explorations. The soil samples from the SPT locations were visually classified in the field in accordance with the Unified Soil Classification System (USCS) and New York City Building Code (NYCBC). The sample descriptions, SPT blow counts and locations, strata changes, and other pertinent information were recorded on detailed field logs.

At the conclusion of the investigation program, the SPT soil samples from the borings were delivered to our soil laboratory for re-examination and further classification. The individual

sample classifications were combined according to soil group and geologic origin, and their descriptions were recorded on finalized logs. The final logs of the borings are attached to this report along with a boring location plan, subsurface sections A-A, and B-B, as well as a Unified Soils Classification System chart.

### **Subsurface Conditions**

The subsurface stratigraphy consisted of a layer of miscellaneous fill, overlying glacial soils deposited during Wisconsin glacial period. Detailed descriptions of the subsurface stratigraphy encountered in the borings are presented on the individual boring logs. Generalized descriptions are presented below in order of increasing depth, and are illustrated on sections AA and BB, Drawing Nos. 2 and 3, attached to this report.

***Fill (F):*** A surface layer of miscellaneous fill was encountered in all the explorations. The fill layer varied in depth from 8 to 13 feet below the ground surface. The fill consisted of a heterogeneous mixture of sand, silt and gravel with varying percentages of brick, concrete, and other miscellaneous debris. The fill was classified as "nominally unsatisfactory bearing material," Class 7 material, in accordance with the NYCBC.

***Glacial Drift/Recent Alluvium (G<sub>1</sub>):*** A thick stratum stratified glacial drift recent alluvium was encountered below the fill in all the borings. The layer consisted of highly stratified layers of medium to fine glacial sand and recent silt deposits associated with the emergence of the Brooklyn shoreline. The materials were interbedded and occurred with approximately equal frequency to a maximum depth of about 38 feet. Both the silt and sand layers were loose to medium compact and were classified as SM, SP, SW and ML in accordance with the USCS, and Classes 6, 5b, 5a, 3b, and 3a in accordance with the NYCBC.

***Glacial Drift (G<sub>2</sub>):*** At depth the glacial drift became less stratified, more coarse, and more dense. The material mostly consisted of coarse to fine sand with varying percentages of silt and gravel. All the borings were terminated within the lower glacial drift. Materials encountered in the lower portion of the deposit were classified as SM, SP and SW in accordance with the USCS, and Classes 3b and 3a in accordance with the NYCBC.

***Groundwater:*** The groundwater level was observed in boring B-3W at a depth of approximately 5.3 feet below grade. The groundwater level can be expected to fluctuate with the tides.

### **Engineering Evaluation & Engineering Recommendations**

The surface fill and loose sand and silt encountered in the upper portion of the underlying natural glacial deposit were considered unsuitable bearing materials for conventional shallow foundations. Conventional shallow foundations bearing in these material would experience excessive settlement. As a consequence, deep pile foundations will be required to successfully support the proposed construction. The pile foundations will transfer structural loads past the loose fill and upper glacial soil into the underlying competent glacial materials generally found at depths greater than 38 feet in the borings.

## **High Capacity Driven Piles**

Driven steel tapered piles from Monotube Pile Corporation would be the most appropriate pile type for the project. The Monotube's tapered lead section allows for shorter pile lengths as compared to straight pipe or H sections. Capacities between 100 and 600 tons are achievable with Monotube piles. As an example, a typical 130 ton Monotube pile consists of a 25-foot long Y taper lead section (0.40 inch per foot) with an 8-inch tip diameter and 18-inch butt diameter. The wall thickness should be 0.2391-inches. Spice sections can be added to the tapered section as needed to drive the pile to final resistance. Elastic shortening of the piles should be within the same order of magnitude as the predicted settlements for the shallow foundations; therefore differential between the two foundation types should be minimal. The minimum pile cap depth should be 4 feet below grade.

We recommend that a minimum of 6 index piles be driven on the site prior to driving the production piles. The index piles will be necessary to determine the production pile lengths and to establish the driving criteria for the production piles. Pile Dynamic Analyzer (PDA) instrumentation should be used to collect resistance data during installation of the index piles to establish the final pile driving criteria. Full time special inspection by a professional engineer licensed in New York State will be required during execution of the load test program and during installation of the production piles.

Two compression pile load tests will be required for the first 30,000 square feet of building footprint, plus one load test for every additional 20,000 square feet of footprint to meet NYCBC requirements. The load tests should be performed in accordance with ASTM D 1143 and NYCBC specifications.

Uplift capacity of the piles will be achieved through soil friction on the outer shell and will be a function of the pile lengths. For design purposes we recommend using an uplift capacity of 15 tons; however the design capacity must be verified by performing at least one static uplift test on each pile type. The uplift load tests should be performed in accordance with ASTM D 3689. The NYCBC allows for a minimum lateral load capacity of 1 ton per pile. Higher capacities must be verified by lateral load tests performed in accordance with ASTM D 3966.

## **Alternate Drilled Piles**

As an alternate, drilled piles with a gross capacity of 90 tons can be used to support the proposed construction. Drilled piles develop their capacity through skin friction between the grout and the natural soils. The construction of a conventional drilled pile is a multi-step process in which a steel casing is drilled to a pre-determined design depth. Once the casing has reached the design depth, the inside of the casing is flushed clean and a steel reinforcing threadbar is inserted the full length of pile. After installation of the threadbar, the pile is tremie grouted through grout tubes installed to the bottom of the pile as casing is incrementally extracted to form the earth socket. Secondary grouting may be needed to increase the frictional resistance along the exposed grout column beneath the casing to develop the design capacity.

A typical 90-ton drilled pile would consist of 8-5/8” drilled steel casing (minimum A36 steel) with a 0.408-inch thick wall with a #18 threadbar (75 ksi steel). The casing would be drilled to a depth of 60 feet, then retracted to form a 40-foot long earth socket below the remaining 20 feet of casing. The pile would be tremie grouted with 5,000 psi grout while the casing is retracted. Higher capacities are achievable using larger casing diameters and/or longer earth sockets; however, the additional drilling requirements were considered uneconomical compared to driven Monotube piles.

The same load test requirements mentioned for the high capacity Monotube piles apply to the drilled piles. The load tests and production pile installations also must be inspected by a professional engineer licensed in the State of New York.

### **Ground Floor Slab**

The ground floor slab should be designed as a pile supported structural slab. Grade beams, spanning between column pile caps or individual piles evenly spaced throughout the floor area can be used to support the ground floor slab. Lower capacity drilled or driven piles can be used to support the ground floor slab. All utility pipelines placed beneath the ground floor slab should be hung from the underside of the slab or placed inside pile supported concrete galleyways.

### **Compacted Fill and Backfill**

All compact fill and backfill placed beneath sidewalks, and used for backfilling foundation walls and utility trenches should be performed in a controlled manner using onsite fill material free of organic matter and debris. The fill material should be placed in 12-inch thick loose lifts and compacted to 93% of the maximum dry density as determined ASTM D 1557. Compaction can be performed using walk-behind-vibratory plate or jumping jack type compactors. Lift thickness may be increased to 18 inches for larger compaction equipment.

### **Excavation**

Temporary shallow excavations with vertical sides less than 4 feet high will generally be stable, although there is a potential for sloughing. Temporary excavations sides greater than 4 feet in depth may be sloped back at an inclination of 1.5:1 (horizontal to vertical). Some sloughing or erosion of surface soils should be anticipated. All applicable safety requirements and regulations, including OSHA requirements should be met.

### **Seismic Criteria**

The proposed structures must be designed in accordance with all applicable New York City Building Code seismic design criteria. The soil underlying the site was classified as “Liquefaction Unlikely” in accordance with Figure 1813.1 of the NYCBC. The site classes in the NYCBC are based on the average soil properties in the upper 100 feet. The subsurface conditions encountered in the borings most closely resemble a “Stiff Soil Profile”, Site Class D. The soil profile is based on Table 1615.1.1 of the NYCBC and the peak accelerations may be estimated using Tables 1615.1.2(1) and 1615.1.2(2).



## **Additional Investigation**

The final investigation should consist of drilling a of twenty-five additional borings to complete the investigation and comply with the requirements of the NYCBC. At least 50% of the borings should be located within the footprint of the proposed buidings. The depth of the borings will vary slightly depending on the type of foundation pile chosen for the project.

## **Protection of Adjacent Structure**

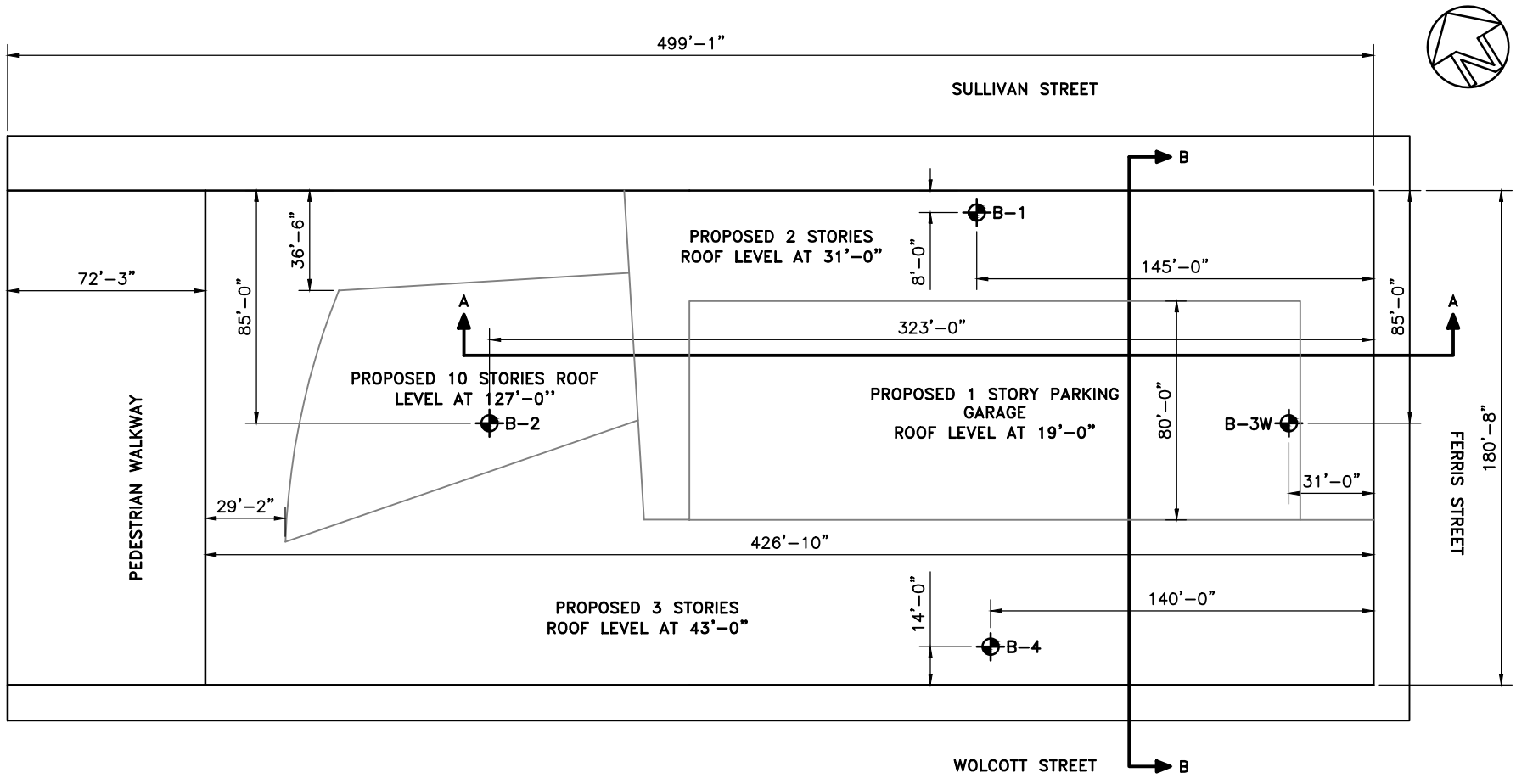
### **Pre-Condition Survey and Monitoring Program**

We strongly recommend that an existing survey be conducted for each of the neighboring buildings. The survey should be completed prior to construction. Each building should be inspected and photographed, inside and out, to record existing conditions. In addition, survey points should be established on the exterior walls of the adjacent buildings for use in a monitoring program during piling operations.



A monitoring program, including optical survey, should be implemented for each of the neighboring buildings prior to the start of pile operations. The optical survey should establish at least three control points on each of the structures. Daily vertical and horizontal readings should be taken at the survey points. If discernible movement is detected, the pile operations should be stopped until an appropriate plan of action can be implemented.

## **Closure**

This preliminary report presents the results of the geotechnical investigation performed at 62 Ferris Street in the Brooklyn, New York. This report is not a bid document, and any contractor reviewing this report must draw his own conclusions regarding specific construction techniques to be used on this project.

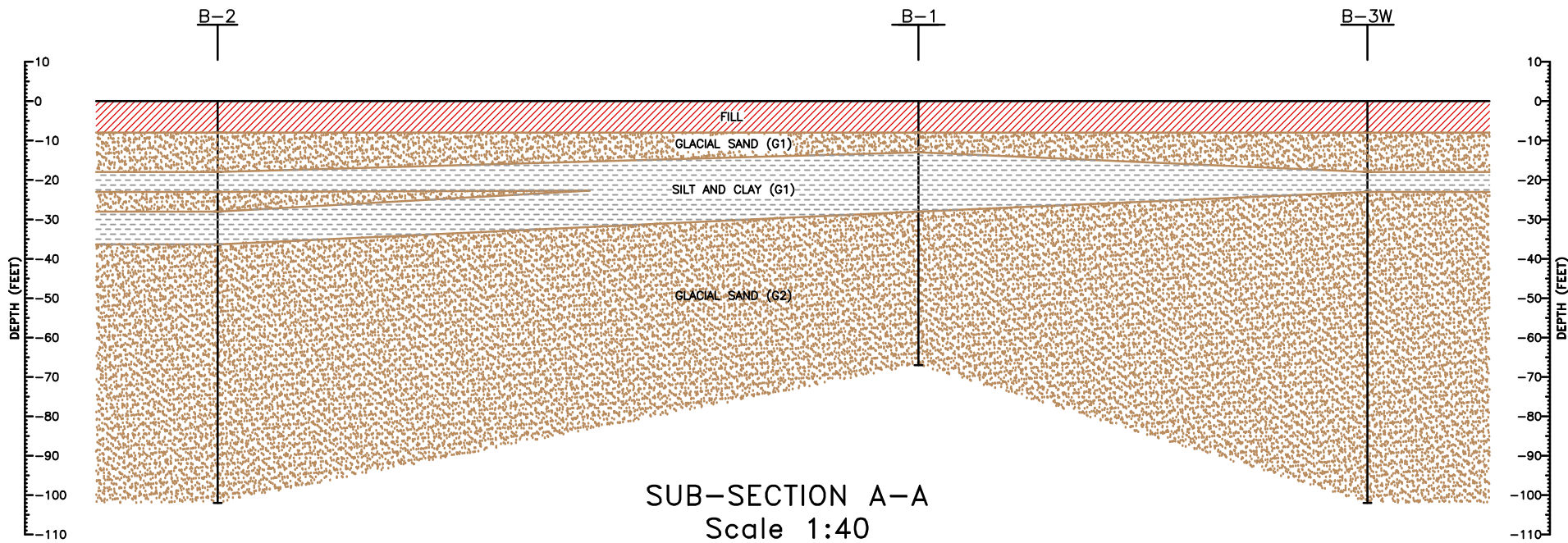


# LEGEND

- 
B-1
BORING LOCATION
- 
B-3W
BORING LOCATION  
w/OBSERVATION WELL

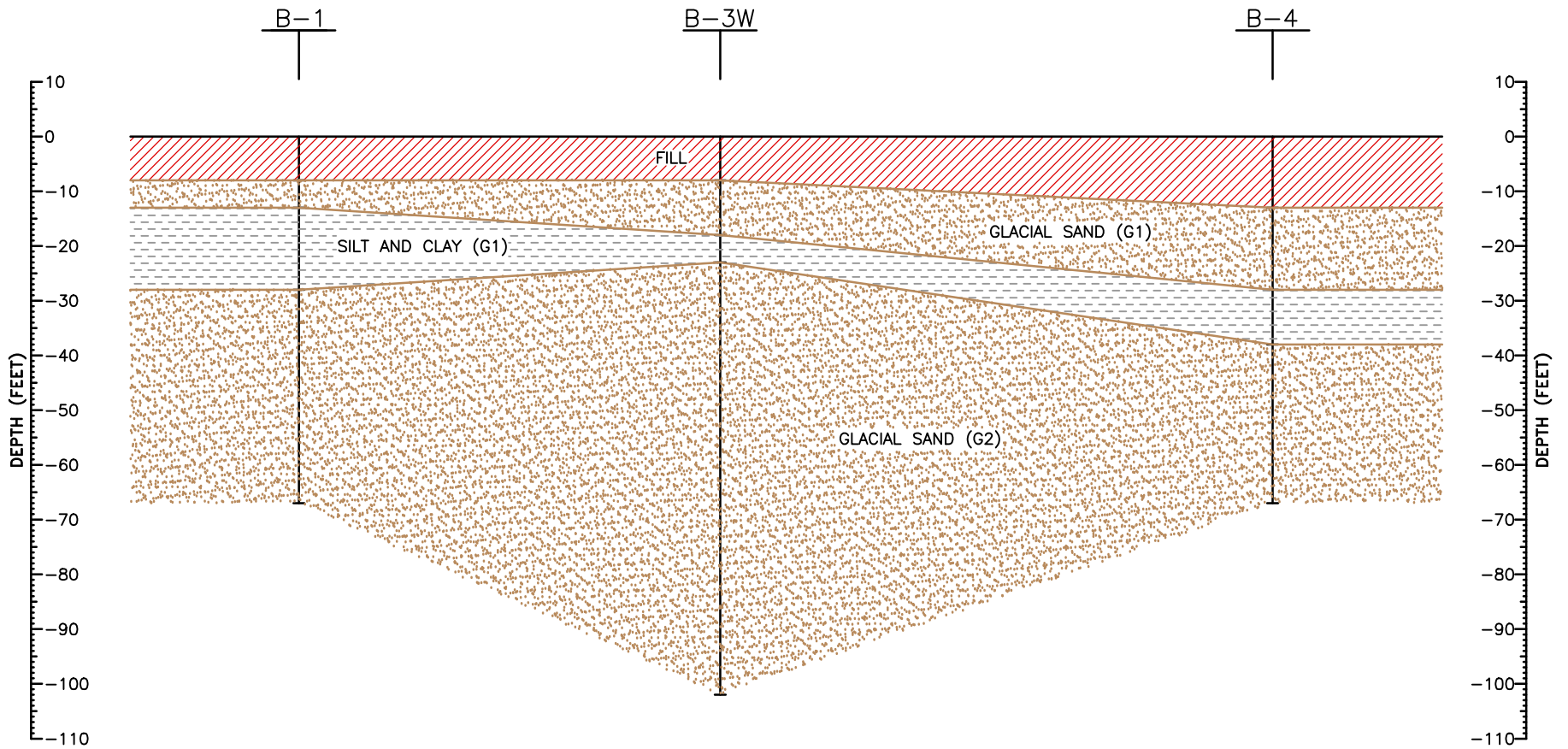
SCALE 1"=60'

Title: <b>BORING LOCATION PLAN</b>	
Project: <b>62 FERRIS STREET Brooklyn, New York</b>	
<b>PILLORI ASSOCIATES, P.A.</b> <i>Geotechnical Engineering</i> 71 Route 35, Laurence Harbor, NJ 08879 1 Harmon Plz, 2nd Fl, Ste 4, Secaucus, NJ 07096	Date: 03/13/2014 Job No.: 140201
Dwg No. <b>1</b>	



SUB-SECTION A-A  
Scale 1:40

Title:			SUB-SECTION A-A		
Project:			62 FERRIS STREET Brooklyn, New York		
PILLORI ASSOCIATES, P.A. <i>Geotechnical Engineering</i> 71 Route 35, Laurence Harbor, NJ 08879 1 Harmon Plz, 2nd Fl, Ste 4, Secaucus, NJ 07096		Date: 03/13/2014	Dwg No. 1		Job No.: 140201



SUB-SECTION B-B  
Scale 1:30

Title:			SUB-SECTION B-B		
Project:			62 FERRIS STREET Brooklyn, New York		
PILLORI ASSOCIATES, P.A. <i>Geotechnical Engineering</i> 71 Route 35, Laurence Harbor, NJ 08879 1 Harmon Plz, 2nd Fl, Ste 4, Secaucus, NJ 07096		Date: 03/13/2014	Dwg No. 1		
		Job No.: 140201			

Project: **62 Ferris Street**  
 Brooklyn, New York  
 Date: 03-07-2014 to 03-10-2014  
 Contractor: WGI

**Boring No.: B-1**

Sheet: 1 of 2

Ground El: NA

Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification Depth Elevation
	Number	Blows / 6"	Strata		
5	S-1	6-5-5-4	F	3" Asphalt	FILL (7) 8'-0"
	S-2	1-2-2-1		Fill: Brown medium to fine Sand, trace Silt with asphalt fragments on top	
10	S-3	1-2-1-1	G1	Brown fine Sand	SM (6) 13'-0"
15	S-4	4-3-5-7		Brown Silt and Clay	ML (6) 28'-0"
20	S-5	5-5-6-9			
25	S-6	6-10-12-16	G2	Brown medium to fine Sand, trace Silt	SP (3b) 33'-0"
30	S-7	8-9-11-9		Brown coarse to fine Sand, some Silt, little fine Gravel	SM (3b) 38'-0"
35	S-8	6-5-11-17			
40	S-9	11-13-11-15	G2	Brown coarse to fine Sand, trace Silt	SW (3b) 48'-0"
45	S-10	11-13-15-13		Brown fine Sand, trace Silt	SP (3a)
50	S-11	15-21-23-25			

Project: **62 Ferris Street**  
**Brooklyn, New York**  
 Date: 03-07-2014 to 03-10-2014  
 Contractor: WGI

**Boring No.: B-1**  
 Sheet: 2 of 2  
 Ground El: NA  
 Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification Depth Elevation
	Number	Blows / 6"	Strata		
55	S-11	15-21-23-25	G2	Brown fine Sand, trace Silt	SP (3a)
60	S-12	22-23-29-33			
65	S-13	22-23-16-19		Reddish brown medium to fine Sand, little Silt	SM (3a)
67'-0"	S-14	22-19-16-18			
70			End of boring		
75					
80					
85					
90					
95					
100					

Project: **62 Ferris Street**  
 Brooklyn, New York  
 Date: 03-10-2014 to 03-11-2014  
 Contractor: WGI

**Boring No.: B-2**  
 Sheet: 1 of 2  
 Ground El: NA  
 Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification Depth Elevation
	Number	Blows / 6"	Strata		
				3" Asphalt	
5	S-1	4-7-7-9	F	Fill: Brown coarse to fine Sand, trace Silt with asphalt fragments on top	FILL (7) 8'-0"
	S-2	8-7-7-4			
10	S-3	1-W.O.H.	G1	Gray fine Sand, some Silt	SM (6) 13'-0"
15	S-4	1-W.O.H.-2-4		Brown medium to fine Sand, trace Silt	SP (6) 18'-0"
20	S-5	6-9-10-11		Brown Silt and Clay	ML (5b) 23'-0"
25	S-6	7-7-10-12	G2	Brown coarse to fine Sand, trace Silt, trace fine Gravel	SW (3b) 28'-0"
30	S-7	9-10-16-17		Brown Silt and Clay	ML (5b) 36'-4"
35	S-8	7-11-100/4"			
40	S-9	12-16-20-22	G2	Brown fine Sand, trace Silt	SP (3a)
45	S-10	14-23-24-100/2"			
50	S-11	18-16-14-14			

Project: **62 Ferris Street**  
**Brooklyn, New York**  
 Date: 03-10-2014 to 03-11-2014  
 Contractor: WGI

**Boring No.: B-2**  
 Sheet: 2 of 2  
 Ground El: NA  
 Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification	
	Number	Blows / 6"	Strata		Depth	Elevation
	S-11	18-16-14-14	G2	Brown fine Sand, little Silt	SP (3a)	53'-0"
55	S-12	13-13-9-7			SP (3b)	
60	S-13	7-6-4-4			63'-0"	
65	S-14	5-6-8-12		Brown coarse to fine Sand, trace Silt, trace fine Gravel	SW (3b)	68'-0"
70	S-15	27-23-23-25				
75	S-16	18-26-37-40				
80	S-17	19-44-100/2"			SW (3a)	
85	S-18	20-24-28-40				
90	S-19	16-18-26-31				
95	S-10	20-19-26-51				
100	S-21	19-23-26-34	Brown medium to fine Sand, trace Silt End of boring	SP (3a)		



Project: **62 Ferris Street**  
 Brooklyn, New York  
 Date: 03-10-2014 to 03-11-2014  
 Contractor: WGI

**Boring No.: B-3W**  
 Sheet: 1 of 2  
 Ground El: NA  
 Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification Depth Elevation
	Number	Blows / 6"	Strata		
				3" Asphalt	
5	S-1	5-8-10-12	F	Fill: Brown coarse to fine Sand, trace Silt with asphalt fragments on top	FILL (7)  8'-0"
	S-2	4-4-8-4			
10	S-3	1-1-3-1	G1	Gray fine Sand, little Silt	SM (6)  13'-0"
15	S-4	5-7-8-9		Brown medium to fine Sand, trace Silt	SP (3b)  18'-0"
20	S-5	3-7-12-14		Brown Silt and Clay	ML (5b)  23'-0"
25	S-6	19-19-21-18	G2	Brown coarse to fine Sand, trace Silt, trace fine Gravel	SW (3a)
30	S-7	15-26-36-49			
35	S-8	19-20-31-35			
40	S-9	12-18-21-23			
45	S-10	18-15-22-19			
50	S-11	10-17-17-21			

Project: **62 Ferris Street**  
 Brooklyn, New York  
 Date: 03-10-2014 to 03-11-2014  
 Contractor: WGI

**Boring No.: B-3W**  
 Sheet: 2 of 2  
 Ground El: NA  
 Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification Depth Elevation
	Number	Blows / 6"	Strata		
55	S-11	10-17-17-21	G2	Brown coarse to fine Sand, trace Silt, trace fine Gravel	SW (3a) 63'-0"
	S-12	5-5-4-5			
60	S-13	6-6-9-10		Brown fine Sand, some Silt	SP (3b) 63'-0"
65	S-14	W.O.R.-3-3		Brown medium to fine Sand, trace Silt	SW (6) 67'-0"
70	S-15	16-18-17-24			
75	S-16	19-25-100/5"			
80	S-17	24-51-69-90			
85	S-18	13-26-34-49		Brown coarse to fine Sand, little Silt, trace fine Gravel	SM (3a)
90	S-19	28-46-100/3"			
95	S-10	25-46-100/1"			
100	S-21	28-100/5"		End of boring	

Project: **62 Ferris Street**  
**Brooklyn, New York**  
 Date: 03-07-2014 to 03-10-2014  
 Contractor: WGI

**Boring No.: B-4**  
 Sheet: 1 of 2  
 Ground El: NA  
 Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification	
	Number	Blows / 6"	Strata		Depth	Elevation
				3" Asphalt		
5	S-1	12-7-7-4	F	Fill: Black and coarse medium to fine Sand, trace Silt with asphalt fragments on top	FILL (7)	13'-0"
	S-2	3-4-4-6				
10	S-3	2-1-1-1				
15	S-4	3-3-4-4	G1	Gray medium to fine Sand, little Silt	SM (6)	18'-0"
20	S-5	10-9-11-11		Brown medium to fine Sand, some Silt and Clay, trace fine Gravel	SM (3b)	23'-0"
25	S-6	15-15-25-22			SM (3a)	28'-0"
30	S-7	10-15-17-19		Brown Silt and Clay	ML (5a)	38'-0"
35	S-8	6-21-26-38				
40	S-9	9-20-22-24	G2	Brown fine Sand, trace to little Silt	SP (3a)	48'-0"
45	S-10	11-15-18-19				
50	S-11	11-12-15-16				

Project: **62 Ferris Street**  
 Brooklyn, New York  
 Date: 03-07-2014 to 03-10-2014  
 Contractor: WGI

**Boring No.: B-4**  
 Sheet: 2 of 2  
 Ground El: NA  
 Groundwater Depth: NA

Depth Feet	SAMPLES			SOIL DESCRIPTION	Classification Depth Elevation
	Number	Blows / 6"	Strata		
55	S-11	11-12-15-16	G2	Brown coarse to fine Sand, trace Silt	SP (3b)
60	S-12	13-16-14-14			
65	S-13	12-13-13-13		Brown coarse to fine Sand, little Silt	SM (3b)
67'-0"	S-14	10-15-13-17			
70				End of boring	
75					
80					
85					
90					
95					
100					

## SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			GROUP SYMBOLS (ASTM D2487)	TYPICAL DESCRIPTIONS	
<b>COARSE-GRAINED SOIL</b> MORE THAN 50% RETAINED ON NO.200 SIEVE*	<b>GRAVEL</b> 50% OR MORE OF COARSE FRACTION RETAINED ON NO.4 SIEVE	CLEAN GRAVEL	<b>GW</b>	WELL- GRADED GRAVEL & GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
		GRAVEL WITH FINES	<b>GP</b>	POORLY GRADED GRAVEL & GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
		<b>SANDS</b> MORE THAN 50% OF COARSE FRACTION PASSES NO. 4 SIEVE	CLEAN SAND	<b>GM</b>	SILTY GRAVEL, GRAVEL SAND CLAY MIXTURES
			SAND WITH FINES	<b>GC</b>	CLAYEY GRAVEL, GRAVEL SAND CLAY MIXTURES
	<b>FINE-GRAINED SOIL</b> 50% OR MORE PASSING NO.200 SIEVE*	<b>SILT &amp; CLAY</b> LIQUID LIMIT LESS THAN 50%	CLEAN SAND	<b>SW</b>	WELL-GRADED SAND & GRAVELLY SAND, LITTLE OR NO FINES
			SAND WITH FINES	<b>SP</b>	POORLY GRADED SAND & GRAVELLY SAND, LITTLE OR NO FINES
			SAND WITH FINES	<b>SM</b>	SILTY SAND, SAND-SILT MIXTURES
		<b>SILT &amp; CLAY</b> LIQUID LIMIT GREATER THAN 50%	SAND WITH FINES	<b>SC</b>	CLAYEY SAND, SAND-CLAY MIXTURES
			SILT & CLAY	<b>ML</b>	INORGANIC SILT, VERY FINE SAND, ROCK FLOUR, SILTY OR CLAYEY FINE SAND
			SILT & CLAY	<b>CL</b>	INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAY, SANDY CLAY, SILTY CLAY, LEAN CLAY
		<b>OL</b>	ORGANIC SILT & ORGANIC SILTY CLAY OF LOW PLASTICITY		
		<b>MH</b>	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT, ELASTIC		
		<b>CH</b>	INORGANIC CLAY OF HIGH PLASTICITY, FAT CLAY		
		<b>OH</b>	ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY		
<b>HIGHLY ORGANIC SOIL</b>			<b>PT</b>	PEAT, MUCK & OTHER HIGHLY ORGANIC SOIL	

\* BASED ON MATERIAL PASSING THE 3" (75MM) SIEVE

GRADATION\*\*

COMPACTNESS\*\*  
(SAND AND/OR GRAVEL)

CONSISTENCY\*\*  
(CLAY AND/OR SILT)

<u>TERM</u>	<u>% BY WEIGHT</u>	<u>TERM</u>	<u>% RELATIVE DENSITY</u>	<u>SHEAR STRENGTH TERM</u>	<u>TONS/SQ.FT.</u>
TRACE	1 TO 10	LOOSE	0 TO 40	SOFT	LESS THAN 0.25
LITTLE	10 TO 20	MEDIUM DENSE	41 TO 70	FIRM	0.25 TO 0.5
SOME	20 TO 35	DENSE	71 TO 90	STIFF	0.5 TO 1.0
AND	35 TO 50	VERY DENSE	91 TO 100	VERY STIFF	1.0 TO 2.0
				HARD	OVER 2.0

\*\* VALUES ARE FROM LABORATORY OR FIELD TEST DATA, WHERE APPLICABLE, WHEN NO TESTING WAS PERFORMED VALUES ARE ESTIMATED.

# APPENDIX C

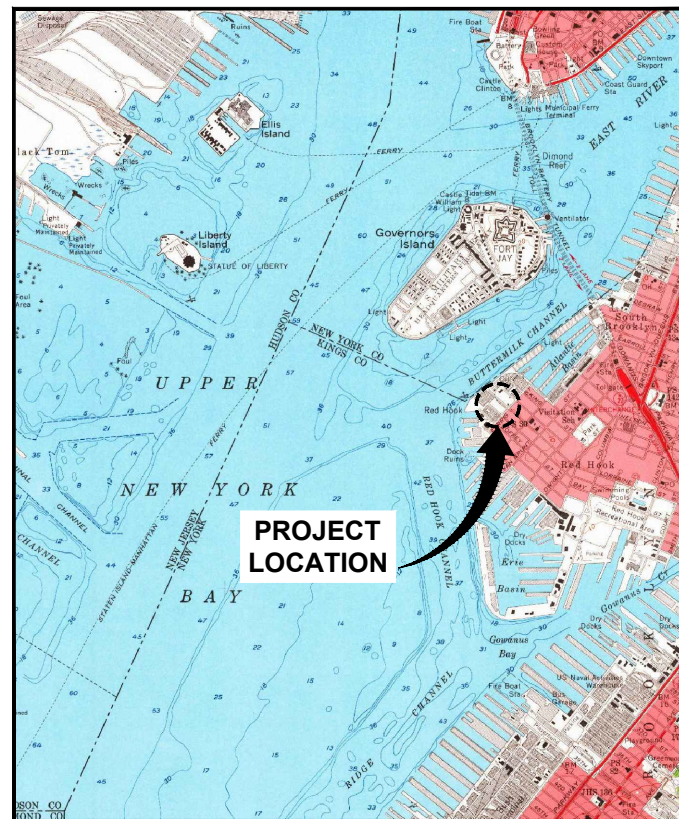
Project Drawings



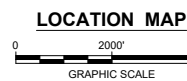
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# DESIGN DRAWINGS

# RED HOOK 4 INTERIM REMEDIAL MEASURE



REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE., JERSEY CITY, N.J.-N.Y., 1981



DATE ISSUED / DATE REVISED  
**OCTOBER 2019**

**BT RED HOOK, LLC**  
**44 AND 62 FERRIS STREET / 219 SULLIVAN STREET**  
**BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK**



ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

## INDEX TO DRAWINGS

- GENERAL**
- G-001 COVER SHEET, LOCATION MAP, AND LIST OF DRAWINGS
- G-002 GENERAL NOTES, REFERENCE DRAWINGS, ABBREVIATIONS AND LEGEND
- G-101 EXISTING SITE PLAN
- G-102 EXISTING SITE UTILITY PLAN
- G-103 EXISTING SOIL BORING, AND WELL PLAN
- G-104 SITE UTILIZATION PLAN
- G-105 TRUCK TRAFFIC PLAN
  
- CIVIL**
- C-101 SITE PREPARATION PLAN
- C-102 REMEDIAL EXCAVATION PLAN
- C-103 SITE RESTORATION AND FINAL GRADING PLAN
- C-501 TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS
- C-502 TEMPORARY CONSTRUCTION DETAILS
- C-503 SITE RESTORATION DETAILS
  
- STRUCTURAL**
- S-101 AREAS 1 AND 2 EXCAVATION AND SHORING PLAN
- S-102 AREA 3 EXCAVATION AND SHORING PLAN
- S-501 EXCAVATION SUPPORT SECTIONS
- S-502 SHORING DETAILS
- S-503 SHORING DETAILS
  
- PROCESS**
- D-601 TEMPORARY WATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM

DIV/GRP: IMDV DB: K.DAVIS LD: K.DAVIS PIC: PM: C.GERACI TW: D.NODINE LYR: ON=OFF=REF= ACADVER: 23.05 (LMS TECH) PAGES: 21 PDF: D2B.BW PLOT: STYLTABLE: PLTCONT.CTB PLOTTED: 10/25/2019 9:41 AM BY: STOWELL, GARY  
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**GENERAL NOTES:**

**SAFETY:**

- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. SUCH RESPONSIBILITY DOES NOT RELIEVE SUBCONTRACTORS OF THEIR RESPONSIBILITY FOR THE SAFETY OF PERSONS OR PROPERTY IN THE PERFORMANCE OF THEIR WORK, NOR FOR COMPLIANCE WITH APPLICABLE SAFETY LAWS AND REGULATIONS. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PROTECTION TO PREVENT DAMAGE, INJURY, OR LOSS TO: ALL PERSONS ON THE SITE, REGARDLESS OF EMPLOYER, OR WHO MAY BE AFFECTED BY THE WORK; ALL THE WORK AND MATERIALS AND EQUIPMENT TO BE INCORPORATED THEREIN, WHETHER IN STORAGE ON OR OFF THE SITE; AND OTHER PROPERTY AT THE SITE OR ADJACENT THERETO, INCLUDING TREES, SHRUBS, LAWNS, WALKS, PAVEMENTS, ROADWAYS, STRUCTURES, OTHER WORK IN PROGRESS, UTILITIES, AND UNDERGROUND FACILITIES NOT DESIGNATED FOR REMOVAL, RELOCATION, OR REPLACEMENT IN THE COURSE OF CONSTRUCTION.
- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS RELATING TO THE SAFETY OF PERSONS OR PROPERTY, OR TO THE PROTECTION OF PERSONS OR PROPERTY FROM DAMAGE, INJURY, OR LOSS; AND SHALL ERRECT AND MAINTAIN ALL NECESSARY SAFEGUARDS FOR SUCH SAFETY AND PROTECTION. CONTRACTOR SHALL NOTIFY OWNER, CONSTRUCTION MANAGER, AND ENGINEER; THE OWNERS OF ADJACENT PROPERTY, UNDERGROUND FACILITIES, AND OTHER UTILITIES; AND OTHER CONTRACTORS AND UTILITY OWNERS PERFORMING WORK AT OR ADJACENT TO THE SITE, WHEN PROSECUTION OF THE WORK MAY AFFECT THEM, AND SHALL COOPERATE WITH THEM IN THE PROTECTION, REMOVAL, RELOCATION, AND REPLACEMENT OF THEIR PROPERTY OR WORK IN PROGRESS.
- THE SITE IS CLASSIFIED AS A HAZARDOUS WASTE SITE. PRESENCE OF CONTAMINANTS, WHERE KNOWN TO OWNER AND ENGINEER, ARE INDICATED IN THE REPORTS AND DRAWINGS (IF ANY) OF SUCH CONTAMINANTS IDENTIFIED IN THE NOT PART OF CONTRACT DOCUMENTS.
- EACH EMPLOYER WORKING AT THE SITE SHALL DEVELOP AND IMPLEMENT A WRITTEN HEALTH AND SAFETY PLAN FOR ITS EMPLOYEES AND OTHER INDIVIDUALS FOR WHOM SUCH EMPLOYER IS RESPONSIBLE. HEALTH AND SAFETY PLAN SHALL INCLUDE PROCEDURES THAT WILL BE USED TO ENSURE THE SAFE HANDLING OF CONTAMINANTS DURING EXCAVATING, LOADING, AND TRANSPORTING ACTIVITIES. HEALTH AND SAFETY PLAN SHALL COMPLY WITH 29 CFR 1904, 29 CFR 1910, 29 CFR 1926, OTHER LAWS AND REGULATIONS, AND SPECIFICATIONS SECTION 01 35 29 (CONTRACTOR'S HEALTH AND SAFETY PLAN).

**EXISTING CONDITIONS, STRUCTURES, AND UNDERGROUND FACILITIES:**

- SITE CONDITIONS AT THE TIME OF CONSTRUCTION MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED ON THE DRAWINGS. CONTRACTOR SHALL VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN OR INDICATED ON THE DRAWINGS BEFORE STARTING WORK. PROMPTLY NOTIFY CONSTRUCTION MANAGER AND ENGINEER IN WRITING OF ANY DISCREPANCIES WITH THE POTENTIAL TO AFFECT THE WORK.
- NOT PART OF CONTRACT DOCUMENTS PROVIDE INDICATE INFORMATION AVAILABLE RELATIVE TO SUBSURFACE CONDITIONS AT THE SITE. SUCH INFORMATION AND DATA ARE NOT INTENDED AS A REPRESENTATION OR WARRANTY OF CONTINUITY OF CONDITIONS BETWEEN SOIL BORINGS OR TEST PITS, NOR OF GROUNDWATER LEVELS AT DATES AND TIMES OTHER THAN DATE AND TIME WHEN MEASURED, NOR THAT PURPOSE OF OBTAINING THE INFORMATION AND DATA WERE APPROPRIATE FOR USE BY CONTRACTOR. OWNER AND ENGINEER WILL NOT BE RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN THEREFROM BY CONTRACTOR.
- SOIL BORINGS AND OTHER EXPLORATORY OPERATIONS MAY BE MADE BY CONTRACTOR, AT NO ADDITIONAL COST TO OWNER. COORDINATE CONTRACTOR-PERFORMED TEST BORINGS AND OTHER EXPLORATORY OPERATIONS WITH OWNER, UTILITY OWNERS, AND OTHERS AS APPROPRIATE. PERFORM SUCH EXPLORATIONS WITHOUT DISRUPTING OR OTHERWISE ADVERSELY AFFECTING OPERATIONS OF OWNER, UTILITY OWNERS, OR OTHERS. COMPLY WITH LAWS AND REGULATIONS RELATIVE TO REQUIRED NOTIFICATIONS.
- UNDERGROUND FACILITIES KNOWN TO OWNER AND ENGINEER, EXCEPT WATER, GAS, SEWER, ELECTRIC, AND COMMUNICATIONS SERVICES TO INDIVIDUAL BUILDINGS AND PROPERTIES, ARE SHOWN ON THE DRAWINGS. INFORMATION SHOWN FOR UNDERGROUND FACILITIES IS THE BEST AVAILABLE TO OWNER AND ENGINEER BUT, IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.
- CONTRACTOR SHALL EXPLORE AHEAD OF SELECTIVE DEMOLITION, TRENCHING, EXCAVATING, PILE DRIVING, OR OTHER SUBSURFACE WORK AND SHALL SUFFICIENTLY UNCOVER UNDERGROUND FACILITIES THAT WILL OR MAY INTERFERE WITH THE WORK TO DETERMINE THEIR LOCATION, TO PREVENT DAMAGE TO UNDERGROUND FACILITIES, AND TO PREVENT SERVICE INTERRUPTION TO STRUCTURES AND PROPERTIES SERVED BY UNDERGROUND FACILITIES.
- COORDINATE WITH UTILITY OWNERS FOR SHUT OFF OF SERVICES IN ACTIVE PIPING AND CONDUITS, AND FOR TESTING, SHUT OFF OF SERVICES, AND DRAINING, PURGING, OR DE-ENERGIZING WHERE SPECIFIED OR REQUIRED OF PIPING AND CONDUITS OF UNKNOWN STATUS. WHEN REQUIRED BY UTILITY OWNER, OWNER WILL ASSIST CONTRACTOR WITH UTILITY OWNER NOTIFICATIONS. COMPLETELY REMOVE BURIED PIPING AND CONDUITS INDICATED FOR REMOVAL AND NOT OTHERWISE INDICATED AS BEING ABANDONED OR TO REMAIN IN PLACE.
- CONTRACTOR SHALL SUSTAIN IN THEIR PLACES AND PROTECT FROM DIRECT OR INDIRECT INJURY ALL UNDERGROUND FACILITIES AND SURFACE STRUCTURES LOCATED WITHIN OR ADJACENT TO THE LIMITS OF THE WORK. SUCH SUSTAINING AND SUPPORTING SHALL BE DONE CAREFULLY AND AS REQUIRED BY THE PARTY OWNING OR CONTROLLING SUCH FACILITY OR STRUCTURE.
- IF CONTRACTOR DAMAGES AN UNDERGROUND FACILITY, OR THE MATERIAL SURROUNDING OR SUPPORTING THE SAME, CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER, ENGINEER, AND THE OWNER OF THE DAMAGED FACILITY AND RESTORE IT TO ITS PRE-CONSTRUCTION CONDITION, IN ACCORDANCE WITH REQUIREMENTS OF THE OWNER OF THE DAMAGED FACILITY AND THE GENERAL CONDITIONS. SUCH REPAIR OR RESTORATION WORK SHALL BE PERFORMED AT NO ADDITIONAL COST TO OWNER.
- DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED AND USED BY OWNER OR OTHERS, EXCEPT WHEN SUCH INTERRUPTION IS INDICATED IN THE CONTRACT DOCUMENTS OR WHEN ALLOWED IN WRITING BY ENGINEER AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES ARE PROVIDED BY CONTRACTOR FOR THE AFFECTED STRUCTURE OR PROPERTY.

**SURVEY:**

- BASE MAP MODIFIED FROM DRAWING TITLED "PARTIAL TOPOGRAPHIC SURVEY FOR: ARCADIS U.S., INC. SITE: RED HOOK 3 & 4" DATED DECEMBER 14, 2018 PREPARED BY DPK LAND SURVEYING, LLC.
- PROJECT HORIZONTAL REFERENCE DATUM IS NAD83, NEW YORK STATE PLANE EAST ZONE.
- PROJECT VERTICAL REFERENCE DATUM IS NAVD88.

**GENERAL REFERENCE DRAWINGS:**

**WASTE MANAGEMENT:**

- CONTRACTOR IS RESPONSIBLE FOR SCHEDULING, COORDINATING, LOADING, TRANSPORTING, AND DISPOSING OF WASTE MATERIALS AT APPROPRIATE, OWNER-APPROVED FACILITIES IN ACCORDANCE WITH LAWS AND REGULATIONS AND SPECIFICATION SECTIONS 01 74 19 (CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL) AND 02 60 05 (CONTAMINATED WASTE MANAGEMENT AND DISPOSAL).
- EXISTING SITE FEATURES NOT SPECIFICALLY SHOWN OR INDICATED ON THE DRAWINGS MAY REQUIRE REMOVAL BY CONTRACTOR TO ACCOMMODATE THE WORK. THE REMOVAL OF SUCH FEATURES SHALL NOT BE PERFORMED WITHOUT THE PRIOR APPROVAL OF OWNER OR ENGINEER.
- ALL WATER GENERATED DURING THE PROJECT (E.G., FROM EXCAVATION/MATERIAL DEWATERING, DECONTAMINATION OF EQUIPMENT, ETC.) SHALL BE COLLECTED, EXTRACTED, CONVEYED, CONTAINERIZED, TREATED, AND DISCHARGED IN ACCORDANCE WITH SPECIFICATION SECTION 46 07 53 (TEMPORARY WATER TREATMENT SYSTEM). THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS AND FEES ASSOCIATED WITH THE OPERATION AND MAINTENANCE OF THE TEMPORARY WATER TREATMENT SYSTEM (E.G., MEDIA CHANGE-OUT, SYSTEM REPAIRS, COMPLIANCE SAMPLING/ANALYSIS, ETC.) AND DISCHARGE OF TREATED WATER IN ACCORDANCE WITH NYSDEC AND CITY CRITERIA.

**SITE MANAGEMENT AND TEMPORARY CONTROLS:**

- CONTRACTOR IS RESPONSIBLE FOR ALL FEDERAL, STATE, AND LOCAL PERMITS THAT MAY BE REQUIRED TO PERFORM THE WORK.
- ALL WORK SHALL BE PERFORMED WITHIN THE PROJECT WORK LIMITS. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT WORK LIMITS WITHOUT OWNER'S PRIOR APPROVAL.
- ALL WORK SHALL BE PERFORMED IN A NEAT AND ORDERLY MANNER, IN CONFORMANCE WITH BEST MODERN TRADE PRACTICE, AND BY COMPETENT, EXPERIENCED PERSONNEL. MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH ALL LAWS AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
- CONSTRUCTION VEHICLES AND EQUIPMENT SHALL BE DECONTAMINATED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS BEFORE ARRIVING ON-SITE AND BEFORE LEAVING THE SITE. VEHICLES AND EQUIPMENT THAT COME IN CONTACT WITH CONTAMINATED MATERIAL SHALL BE APPROPRIATELY DECONTAMINATED BEFORE HANDLING OFF-SITE FILL MATERIALS OR ON-SITE MATERIALS.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN SITE SECURITY MEASURES IN ACCORDANCE WITH SPECIFICATION SECTION 01 57 33 (SECURITY) TO PREVENT UNAUTHORIZED ENTRY OF PERSONS/VEHICLES INTO THE PROJECT WORK LIMITS DURING BOTH WORKING AND NON-WORKING HOURS (24 HOURS A DAY, SEVEN DAYS A WEEK).
- CONTRACTOR SHALL PROVIDE TEMPORARY TRAFFIC CONTROL MEASURES AND COORDINATE THE HAULING OF MATERIALS ON PUBLIC ROADWAYS IN ACCORDANCE WITH SPECIFICATION SECTIONS 01 14 33 (WORK IN HIGHWAY RIGHTS-OF-WAY) AND 01 55 26 (MAINTENANCE AND PROTECTION OF TRAFFIC). THE LOADING/UNLOADING OF MATERIALS AND EQUIPMENT WITHIN PUBLIC ROADWAYS IS PROHIBITED WITHOUT THE PRIOR WRITTEN APPROVAL OF AUTHORITIES HAVING JURISDICTION.
- SURFACE STRUCTURES AND FACILITIES DAMAGED OR DISTURBED DURING THE WORK SHALL BE RESTORED AT CONTRACTOR'S EXPENSE TO THEIR ORIGINAL CONDITION OR AS SHOWN OR INDICATED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL COMPLY WITH ALL NOISE ORDINANCES AND MAKE EVERY EFFORT TO MINIMIZE NOISE CAUSED BY CONSTRUCTION OPERATIONS. EQUIPMENT SHALL BE EQUIPPED WITH SILENCERS OR MUFFLERS DESIGNED TO OPERATE WITH THE LEAST POSSIBLE NOISE IN COMPLIANCE WITH LAWS AND REGULATIONS.
- CONTRACTOR SHALL PROVIDE MEANS, METHODS, AND FACILITIES REQUIRED TO CONTROL NAPL-RELATED ODORS, VAPORS, AND DUST GENERATED DURING THE WORK. COMPLY WITH ODOR, VAPOR, AND DUST CONTROL REQUIREMENTS OF SPECIFICATION SECTION 01 57 05 (TEMPORARY CONTROLS).
- COMMUNITY AIR MONITORING WILL BE PERFORMED ON A CONTINUOUS BASIS DURING ALL GROUND INTRUSIVE WORK OR DUST-GENERATING WORK.

**ABBREVIATIONS AND ACRONYMS:**

BGS	BELOW GROUND SURFACE
CFR	CODE OF FEDERAL REGULATIONS
CIP	CAST IRON PIPE
AC	CONCRETE
EL	ELEVATION
GALV.	GALVANIZED
HDPE	HIGH-DENSITY POLYETHYLENE
ID	IDENTIFICATION
LF	LINEAR FOOT
MAX.	MAXIMUM
MIN.	MINIMUM
NAD83	NORTH AMERICAN DATUM OF 1983
NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988
NO.	NUMBER
NYSDEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OD	OUTSIDE DIAMETER
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SQ.	SQUARE
Typ.	TYPICAL

**LEGEND:**

	PROJECT WORK LIMIT
	PROPERTY LINE (APPROXIMATE)
	EASEMENT LINE (APPROXIMATE)
	10' TOPOGRAPHIC CONTOUR (1-FOOT INTERVAL)
	EDGE OF WATER
	TREE
	EDGE OF PAVEMENT/CONCRETE
	EDGE OF GRAVEL
	CHAIN-LINK FENCE
	BUILDING
	CONCRETE
	OVERHEAD WIRES
	SANITARY SEWER LINE
	STORM SEWER LINE
	WATER LINE
	GAS LINE
	RETIRED GAS LINE
	TELECOMMUNICATIONS LINES
	ELECTRICAL LINE
	BENCHMARK
	BOLLARD
	SIGN
	UTILITY POLE
	UTILITY / LIGHT POLE
	HYDRANT
	SANITARY SEWER MANHOLE
	STORM SEWER MANHOLE
	WATER MANHOLE
	GAS MANHOLE
	TELECOMMUNICATIONS MANHOLE
	ELECTRICAL MANHOLE
	MANHOLE (TYPE UNKNOWN)
	CATCH BASIN
	WATER VALVE
	GAS VALVE
	MONITORING WELL
	MONITORING WELL TO BE DECOMMISSIONED
	SOIL BORING
	SOIL VAPOR MONITORING POINT
	DRY WELL
	PROPOSED TILTMETER LOCATION
	PROPOSED OPTICAL MONITORING POINTS
	PROPOSED SEISMOGRAPH LOCATION
	PROFILE/SECTION/DETAIL NUMBER
	DRAWING NUMBER

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REUSED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.				

Professional Engineer's Name <b>TERRY W. YOUNG</b>		
Professional Engineer's No. 074847		
State NY	Date Signed 10/25/2019	Project Mgr. HD
Designed by DGN	Drawn by KMD	Checked by MCG



**ARCADIS** Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 2209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

BT RED HOOK, LLC • RED HOOK, NEW YORK  
RED HOOK 4  
44 AND 62 FERRIS STREET / 219 SULLIVAN STREET  
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INTERIM REMEDIAL MEASURE

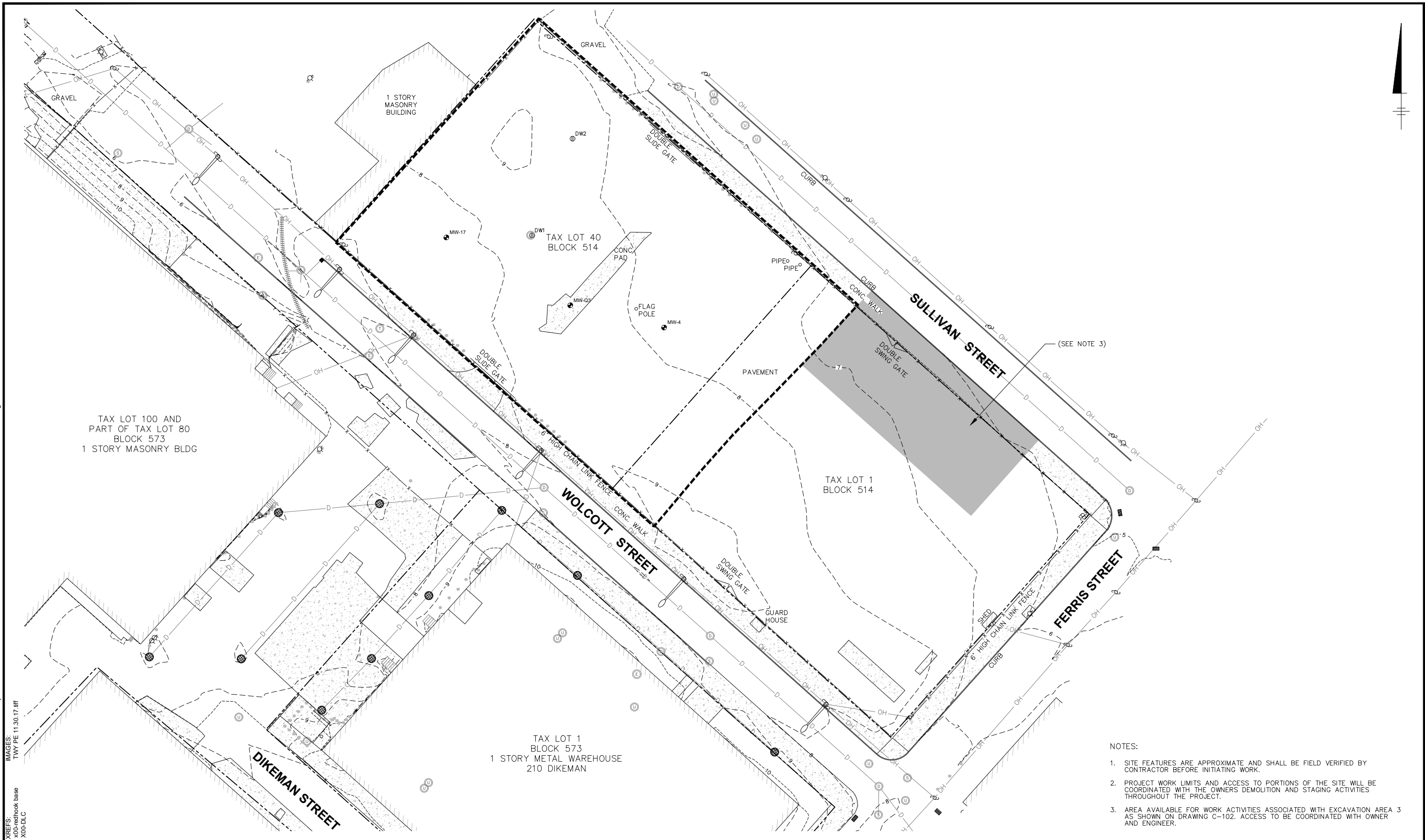
**GENERAL NOTES, REFERENCE DRAWINGS, ABBREVIATIONS AND LEGEND**

ARCADIS Project No. 30034367.00001
Date OCTOBER 2019
ARCADIS 110 WEST FAYETTE STREET STE 300 SYRACUSE, NEW YORK 13202 TEL. 315.446.9120

**G-002**



DIV/GRP:IMDV DB:K.DAVIS LD:K.DAVIS PIC: PM: C.GERACI TM: D.NODINE LVR: ON="OFF=REF" ACADVER: 23.0S (LMS TECH) PAGES: 23 PLOT: PLTCONT.CTB PLOTTED: 10/25/2019 9:41 AM BY: STOWELL, GARY  
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 XREFS: X00:medhook base X00:DLC



TAX LOT 100 AND  
PART OF TAX LOT 80  
BLOCK 573  
1 STORY MASONRY BLDG

TAX LOT 1  
BLOCK 573  
1 STORY METAL WAREHOUSE  
210 DIKEMAN

TAX LOT 1  
BLOCK 514

TAX LOT 40  
BLOCK 514

- NOTES:
1. SITE FEATURES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY CONTRACTOR BEFORE INITIATING WORK.
  2. PROJECT WORK LIMITS AND ACCESS TO PORTIONS OF THE SITE WILL BE COORDINATED WITH THE OWNERS DEMOLITION AND STAGING ACTIVITIES THROUGHOUT THE PROJECT.
  3. AREA AVAILABLE FOR WORK ACTIVITIES ASSOCIATED WITH EXCAVATION AREA 3 AS SHOWN ON DRAWING C-102. ACCESS TO BE COORDINATED WITH OWNER AND ENGINEER.



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Professional Engineer's Name  
**TERRY W. YOUNG**  
Professional Engineer's No.  
074847  
State  
NY  
Date Signed  
10/25/2019  
Project Mgr.  
HD  
Designed by  
DGN  
Drawn by  
KMD  
Checked by  
MCG



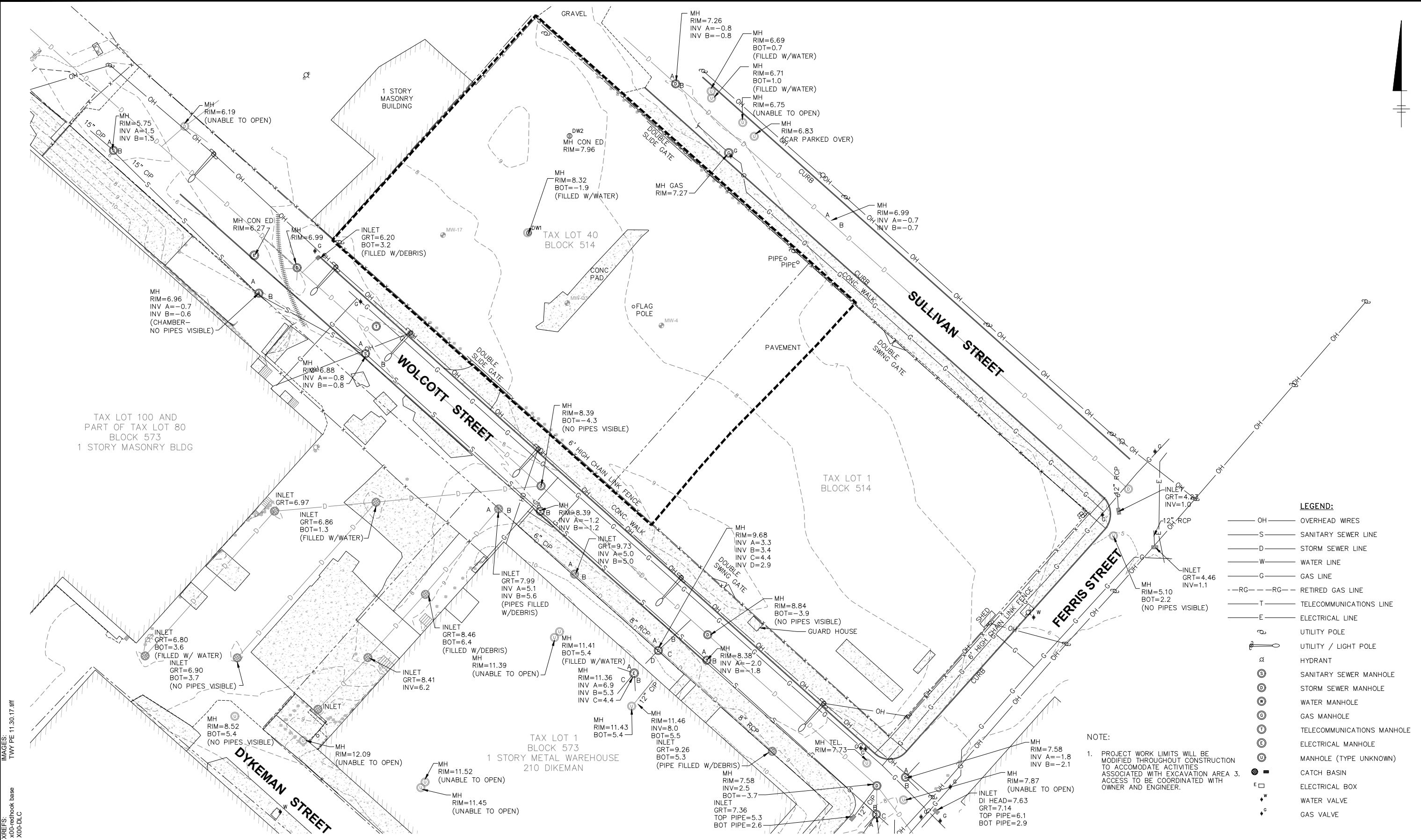
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**EXISTING SITE PLAN**

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STE 300  
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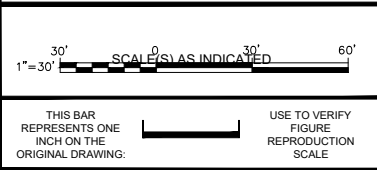
**G-101**

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 IMAGES: TWY PE 11.30.17.rvt  
 XREFS: X:\redhook\_base X00-DLC



- LEGEND:**
- OH — OVERHEAD WIRES
  - S — SANITARY SEWER LINE
  - D — STORM SEWER LINE
  - W — WATER LINE
  - G — GAS LINE
  - RG — RG — GAS LINE
  - T — TELECOMMUNICATIONS LINE
  - E — ELECTRICAL LINE
  - ⊕ UTILITY POLE
  - ⊕ UTILITY / LIGHT POLE
  - ⊕ HYDRANT
  - ⊕ SANITARY SEWER MANHOLE
  - ⊕ STORM SEWER MANHOLE
  - ⊕ WATER MANHOLE
  - ⊕ GAS MANHOLE
  - ⊕ TELECOMMUNICATIONS MANHOLE
  - ⊕ ELECTRICAL MANHOLE
  - ⊕ MANHOLE (TYPE UNKNOWN)
  - ⊕ CATCH BASIN
  - ⊕ ELECTRICAL BOX
  - ⊕ WATER VALVE
  - ⊕ GAS VALVE

**NOTE:**  
 1. PROJECT WORK LIMITS WILL BE MODIFIED THROUGHOUT CONSTRUCTION TO ACCOMMODATE ACTIVITIES ASSOCIATED WITH EXCAVATION AREA 3. ACCESS TO BE COORDINATED WITH OWNER AND ENGINEER.



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 Drawn by  
 KMD  
 Checked by  
 MCG

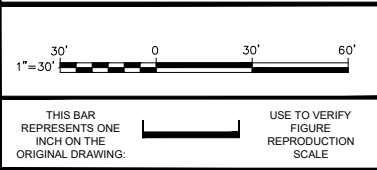
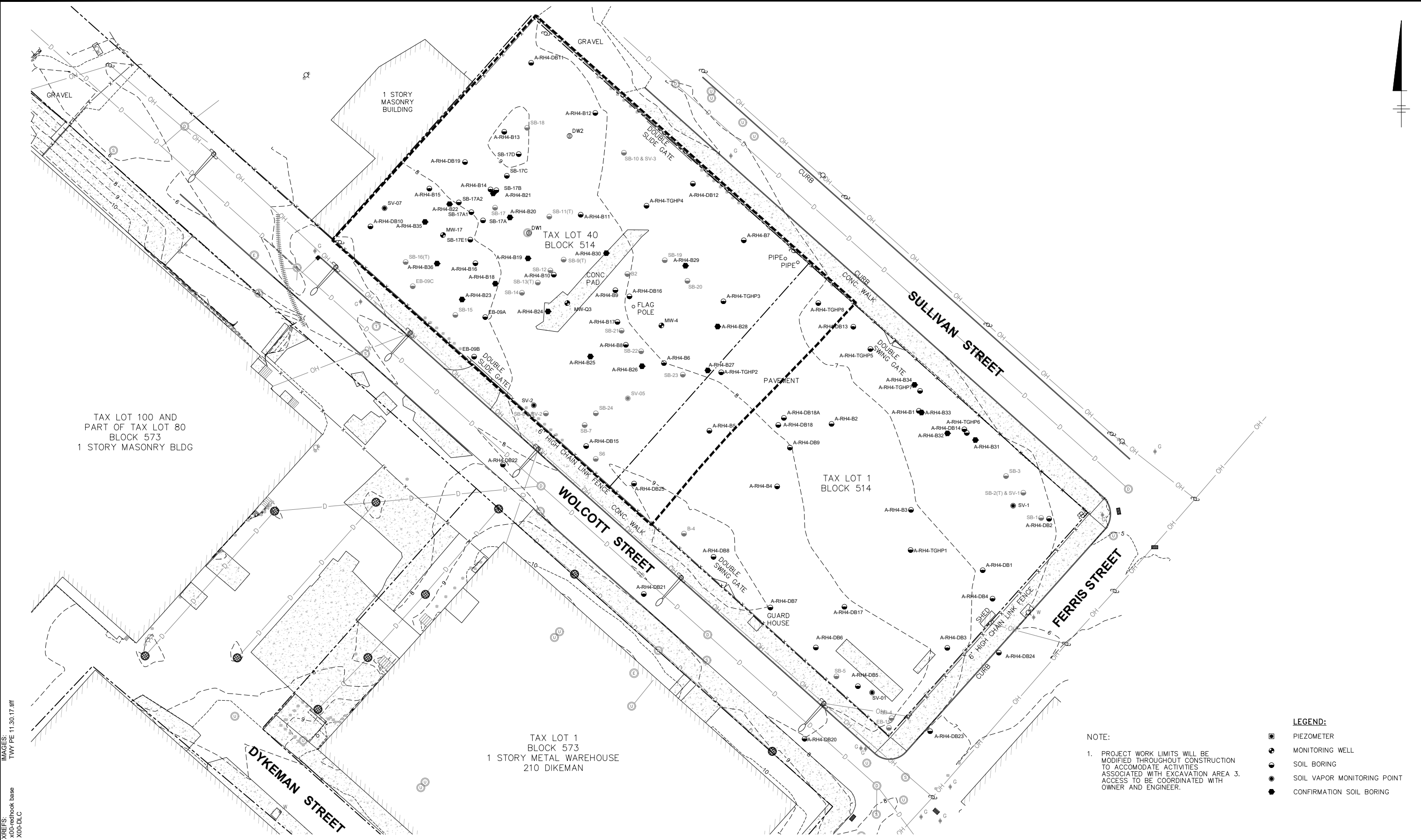


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**EXISTING UTILITY PLAN**

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 SYRACUSE, NEW YORK 13202  
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**G-102**

DIV/GRP:IMDV DB:K.DAVIS LD:K.DAVIS LVR:ON=OFF=REF ACADVER:23.0S(LMS TECH) PAGES:1-10 PLOT:PLTCONT.CTB PLOTTED: 10/25/2019 9:41 AM BY: STOWELL, GARY  
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 KMD  
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## EXISTING SOIL BORING, AND WELL PLAN

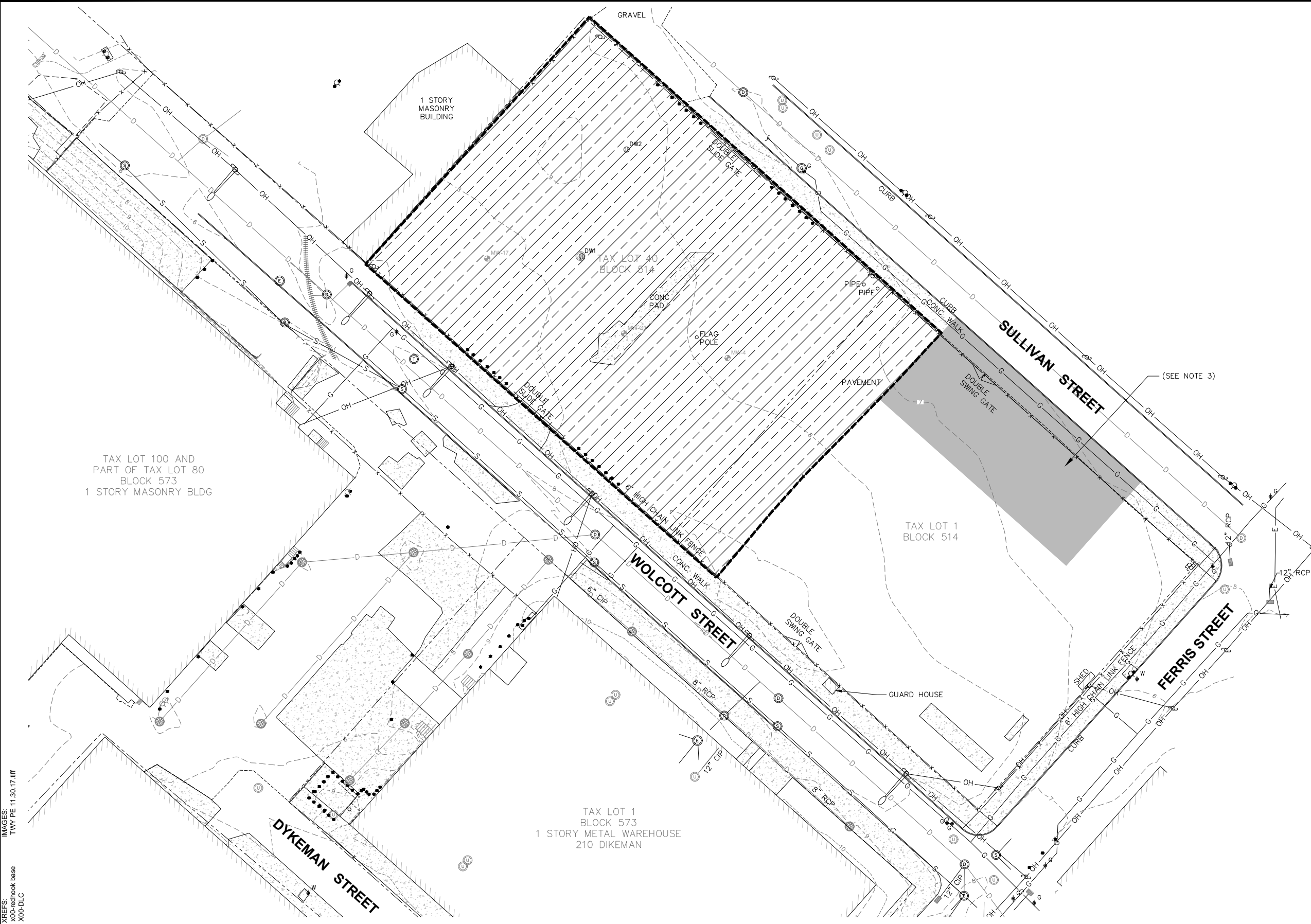
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**G-103**

**NOTE:**  
 1. PROJECT WORK LIMITS WILL BE MODIFIED THROUGHOUT CONSTRUCTION TO ACCOMMODATE ACTIVITIES ASSOCIATED WITH EXCAVATION AREA 3. ACCESS TO BE COORDINATED WITH OWNER AND ENGINEER.

- LEGEND:**
- PIEZOMETER
  - MONITORING WELL
  - SOIL BORING
  - SOIL VAPOR MONITORING POINT
  - CONFIRMATION SOIL BORING

DIV/GRP:IMDV DB:K.DAVIS LD:K.DAVIS PIC: PM: C.GERACI TM: D.NODINE LVR: ON=OFF=REF ACADVER: 23.0S (LMS TECH) PAGES: 10/25/2019 9:41 AM BY: STOWELL, GARY  
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 XREFS: X:\00\redhook base X:\00\DLG  
 IMAGES: TWY PE 11.30.17.rvt



TAX LOT 100 AND PART OF TAX LOT 80  
BLOCK 573  
1 STORY MASONRY BLDG

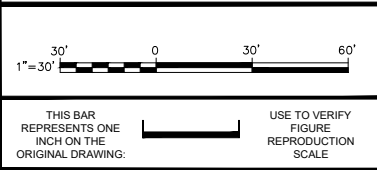
TAX LOT 1  
BLOCK 573  
1 STORY METAL WAREHOUSE  
210 DIKEMAN

TAX LOT 1  
BLOCK 514

**LEGEND:**

AREA AVAILABLE TO CONTRACTOR FOR TEMPORARY CONSTRUCTION FACILITIES, EQUIPMENT, AND MATERIAL STORAGE (SEE NOTE 1)

- NOTES:**
- SITE UTILIZATION LIMITS AND ACCESS TO PORTIONS OF THE SITE WILL BE COORDINATED WITH THE OWNERS DEMOLITION AND STAGING ACTIVITIES THROUGHOUT THE PROJECT TO AVOID DISRUPTION OF OWNERS ACTIVITIES.
  - TEMPORARY CONSTRUCTION FACILITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY UTILITIES, FIELD OFFICES, EQUIPMENT AND SUPPLIES, SHEDS, FIRST-AID FACILITIES, SANITARY FACILITIES, TEMPORARY DECONTAMINATION AREAS, AND TEMPORARY CONTAINMENT AREAS.
  - AREA AVAILABLE FOR WORK ACTIVITIES ASSOCIATED WITH EXCAVATION AREA 3. ACCESS TO BE COORDINATED WITH OWNER AND ENGINEER.
  - CONTRACTOR SHALL CONTACT AND COORDINATE WITH THE APPROPRIATE UTILITY OWNERS TO PROVIDE ELECTRIC REQUIRED FOR TEMPORARY CONSTRUCTION FACILITIES.
  - PROVIDE PROPOSED LOCATION AND LAYOUT OF TEMPORARY CONSTRUCTION FACILITIES AND EQUIPMENT AND MATERIAL STORAGE AREAS TO ENGINEER PRIOR TO MOBILIZATION.
  - WORK AND FACILITIES ASSOCIATED WITH DISCHARGE OF TREATED WATER WILL EXTEND TO THE DISCHARGE LOCATION. THESE ACTIVITIES PERFORMED OUTSIDE THE AREA AVAILABLE TO THE CONTRACTOR SHALL BE MINIMIZED TO THE EXTENT PRACTICABLE.
  - REMOVE, RELOCATE, AND REINSTALL TEMPORARY CONSTRUCTION FACILITIES AS NECESSARY TO ACCOMMODATE THE WORK.
  - COMPLETELY REMOVE TEMPORARY CONSTRUCTION FACILITIES WHEN NO LONGER REQUIRED. REPAIR DAMAGE CAUSED BY TEMPORARY CONSTRUCTION FACILITIES AND THEIR REMOVAL, AND RESTORE THE SITE TO CONDITION REQUIRED BY THE CONTRACT DOCUMENTS. IF RESTORATION OF DAMAGED AREAS IS NOT SPECIFIED, RESTORE TO PRE-CONSTRUCTION CONDITION AND SPECIFICATION OF ENGINEER.



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Professional Engineer's Name  
**TERRY W. YOUNG**

Professional Engineer's No.  
074847

State  
NY

Date Signed  
10/25/2019

Project Mgr.  
HD

Designed by  
DGN

Drawn by  
KMD

Checked by  
MCG



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**SITE UTILIZATION PLAN**

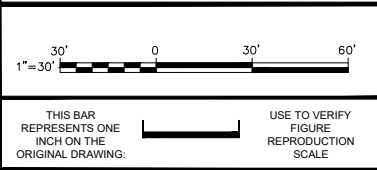
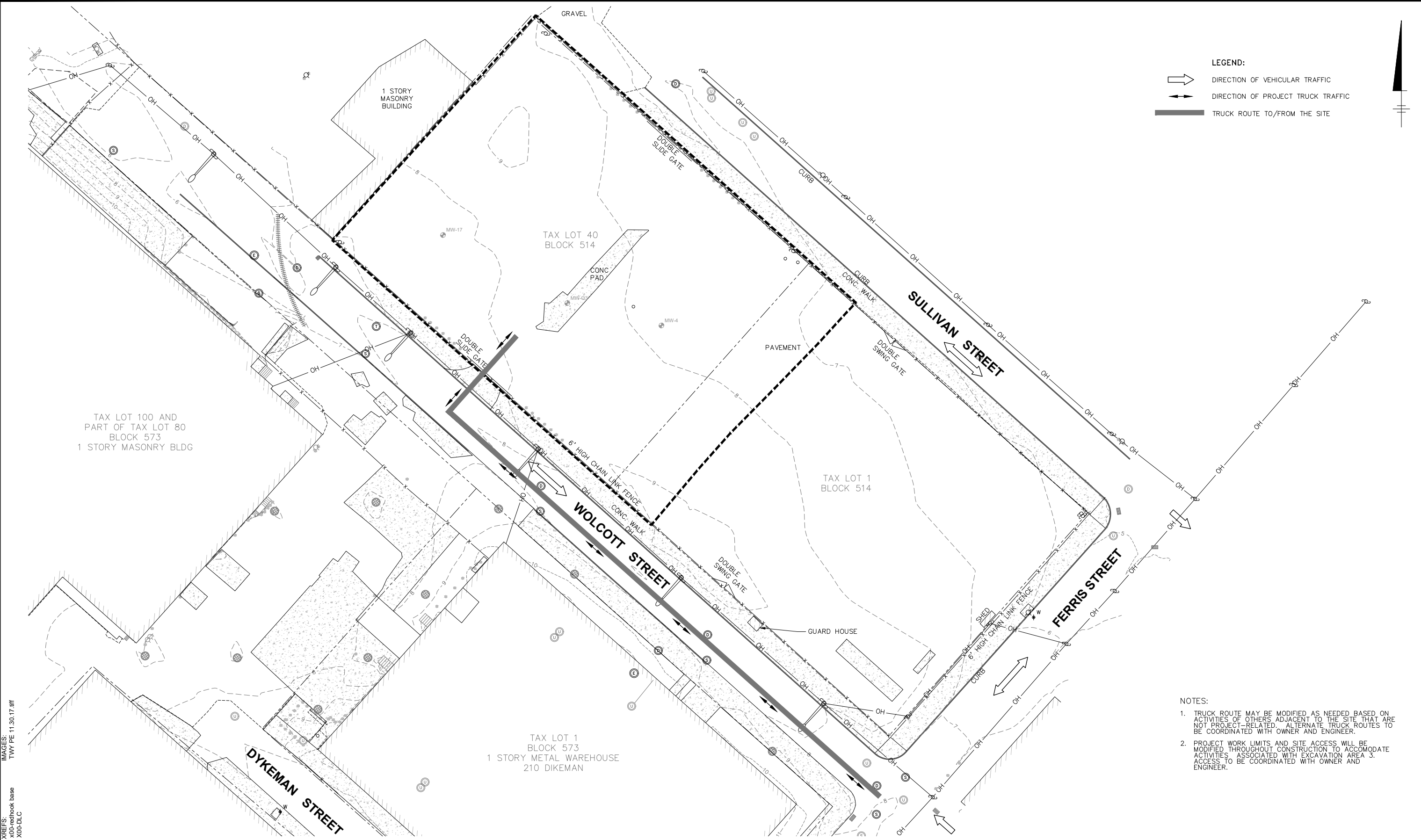
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OCTOBER 2019

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**G-104**

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Designed by  
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KMD

Checked by  
MCG



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**TRUCK TRAFFIC PLAN**

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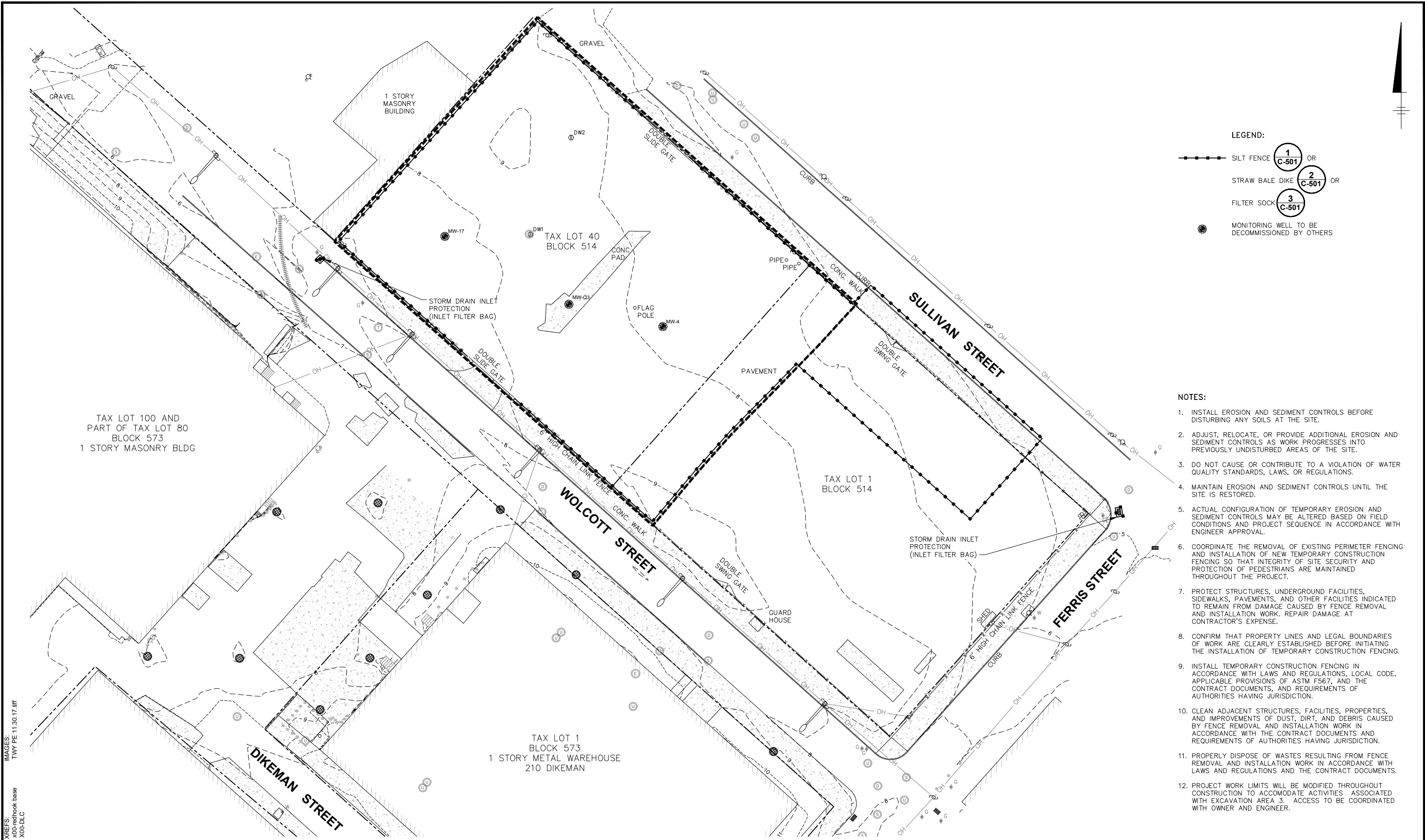
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**G-105**

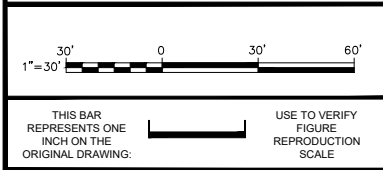
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- LEGEND:**
- SILT FENCE **1** C-501 OR **2** C-501
  - STRAW BALE DIKE **2** C-501 OR **3** C-501
  - FILTER SOCK **3** C-501
  - MONITORING WELL TO BE DECOMMISSIONED BY OTHERS

- NOTES:**
- INSTALL EROSION AND SEDIMENT CONTROLS BEFORE DISTURBING ANY SOILS AT THE SITE.
  - ADJUST, RELOCATE, OR PROVIDE ADDITIONAL EROSION AND SEDIMENT CONTROLS AS WORK PROGRESSES INTO PREVIOUSLY UNDISTURBED AREAS OF THE SITE.
  - DO NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF WATER QUALITY STANDARDS, LAWS, OR REGULATIONS.
  - MAINTAIN EROSION AND SEDIMENT CONTROLS UNTIL THE SITE IS RESTORED.
  - ACTUAL CONFIGURATION OF TEMPORARY EROSION AND SEDIMENT CONTROLS MAY BE ALTERED BASED ON FIELD CONDITIONS AND PROJECT SEQUENCE IN ACCORDANCE WITH ENGINEER APPROVAL.
  - COORDINATE THE REMOVAL OF EXISTING PERIMETER FENCING AND INSTALLATION OF NEW TEMPORARY CONSTRUCTION FENCING SO THAT INTEGRITY OF SITE SECURITY AND PROTECTION OF PEDESTRIANS ARE MAINTAINED THROUGHOUT THE PROJECT.
  - PROTECT STRUCTURES, UNDERGROUND FACILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES INDICATED TO REMAIN FROM DAMAGE CAUSED BY FENCE REMOVAL AND INSTALLATION WORK. REPAIR DAMAGE AT CONTRACTOR'S EXPENSE.
  - CONFIRM THAT PROPERTY LINES AND LEGAL BOUNDARIES OF WORK ARE CLEARLY ESTABLISHED BEFORE INITIATING THE INSTALLATION OF TEMPORARY CONSTRUCTION FENCING.
  - INSTALL TEMPORARY CONSTRUCTION FENCING IN ACCORDANCE WITH LAWS AND REGULATIONS, LOCAL CODE, APPLICABLE PROVISIONS OF ASTM F567, AND THE CONTRACT DOCUMENTS, AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
  - CLEAN ADJACENT STRUCTURES, FACILITIES, PROPERTIES, AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY FENCE REMOVAL AND INSTALLATION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
  - PROPERLY DISPOSE OF WASTES RESULTING FROM FENCE REMOVAL AND INSTALLATION WORK IN ACCORDANCE WITH LAWS AND REGULATIONS AND THE CONTRACT DOCUMENTS.
  - PROJECT WORK LIMITS WILL BE MODIFIED THROUGHOUT CONSTRUCTION TO ACCOMMODATE ACTIVITIES ASSOCIATED WITH EXCAVATION AREA 3. ACCESS TO BE COORDINATED WITH OWNER AND ENGINEER.



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**SITE PREPARATION PLAN**

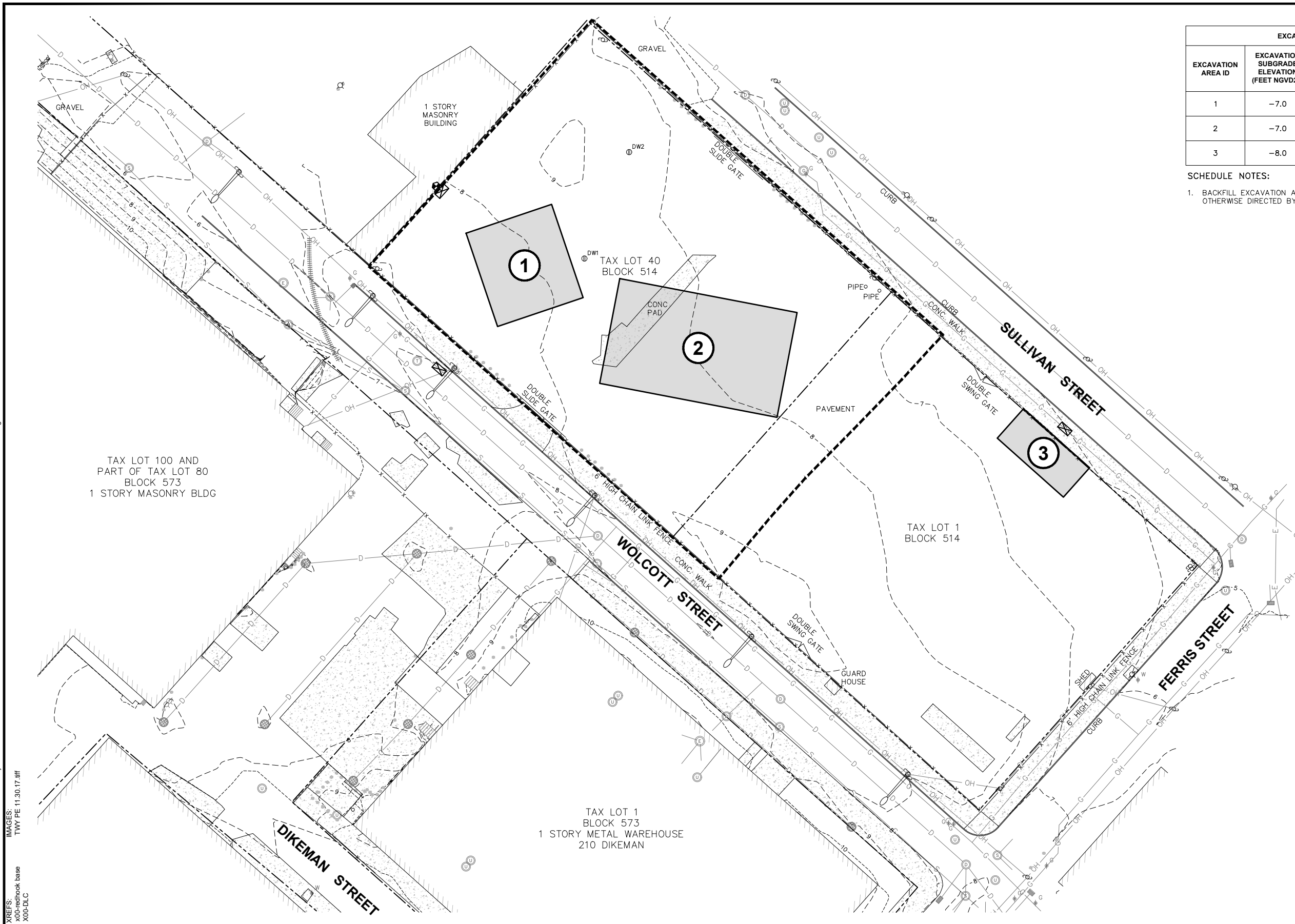
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**C-101**

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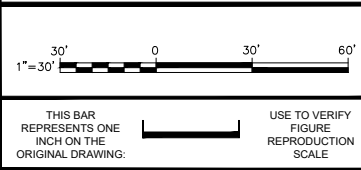
EXCAVATION AND BACKFILL SCHEDULE				
EXCAVATION AREA ID	EXCAVATION SUBGRADE ELEVATION (FEET NGVD29)	DEPTH OF EXCAVATION (FEET BGS)	ESTIMATED SURFACE AREA (SQ. FEET)	ESTIMATED EXCAVATION VOLUME (IN-SITU CUBIC YARDS)
1	-7.0	15	3,300	1,833
2	-7.0	15	7,150	3,972
3	-8.0	15	1,296	720

**SCHEDULE NOTES:**

- BACKFILL EXCAVATION AREAS WITH GENERAL FILL TO SUBGRADE LEVEL UNLESS OTHERWISE DIRECTED BY ENGINEER.

- LEGEND:**
- EXCAVATION AREA
  - 1 IRM/EXCAVATION AREA ID
  - SEISMOGRAPH (SEE NOTE 4)
  - OPTICAL MONITORING POINT (SEE NOTE 4)

- NOTES:**
- COMPLY WITH SPECIFICATION SECTION 31 23 00 (EXCAVATION AND FILL).
  - EXCAVATIONS IN AREAS 1, 2, AND 3 SHALL BE SUPPORTED WITH STEEL SHEETPIILING IN ACCORDANCE WITH SPECIFICATION SECTION 31 50 00 (EXCAVATION SUPPORT AND PROTECTION) AND DRAWINGS S-101 AND S-102.
  - HANDLING AND DISPOSAL OF EXCAVATED MATERIALS AND WASTE SHALL BE IN ACCORDANCE WITH LAWS AND REGULATIONS AND SPECIFICATION SECTION 02 60 05 (REMOVAL AND DISPOSAL OF CONTAMINATED MATERIALS).
  - FOR MONITORING REQUIREMENTS, REFER TO SPECIFICATION SECTION 31 09 13 (GEOTECHNICAL INSTRUMENTATION AND MONITORING) AND DRAWINGS S-101 AND S-102.
  - CONTRACTOR TO INSTALL PIEZOMETERS FOR MONITORING THE PIEZOMETRIC PRESSURES IN THE SAND UNIT DURING EXCAVATION AND BACKFILLING ACTIVITIES. LOCATIONS OF PIEZOMETERS TO BE SELECTED BY CONTRACTOR FOR APPROVAL BY ENGINEER. ONE PIEZOMETER SHALL BE INSTALLED IN THE INTERIOR OF EACH EXCAVATION AREA AND SUBAREA AND A MINIMUM OF ONE PIEZOMETER SHALL BE INSTALLED EXTERIOR OF EACH EXCAVATION AREA. PIEZOMETER DEPTHS WILL VARY AND BE DEPENDENT UPON DEPTH TO BOTTOM OF CLAY LAYER. REFER TO SPECIFICATION SECTION 31 09 13 (GEOTECHNICAL INSTRUMENTATION AND MONITORING) FOR INSTALLATION AND MONITORING REQUIREMENTS.
  - EXCAVATION DEWATERING TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 31 23 00 (EXCAVATION AND FILL). DEWATERING METHODS MAY INCLUDE LOCALIZED SUMPS, DEWATERING WELLS, OR A COMBINATION OF BOTH IN ACCORDANCE WITH ENGINEER APPROVAL.
  - EXCAVATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH OSHA REGULATIONS.
  - PROJECT WORK LIMITS WILL BE MODIFIED THROUGHOUT CONSTRUCTION TO ACCOMMODATE ACTIVITIES ASSOCIATED WITH EXCAVATION AREA 3. ACCESS TO BE COORDINATED WITH OWNER AND ENGINEER.



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Checked by  
MCG

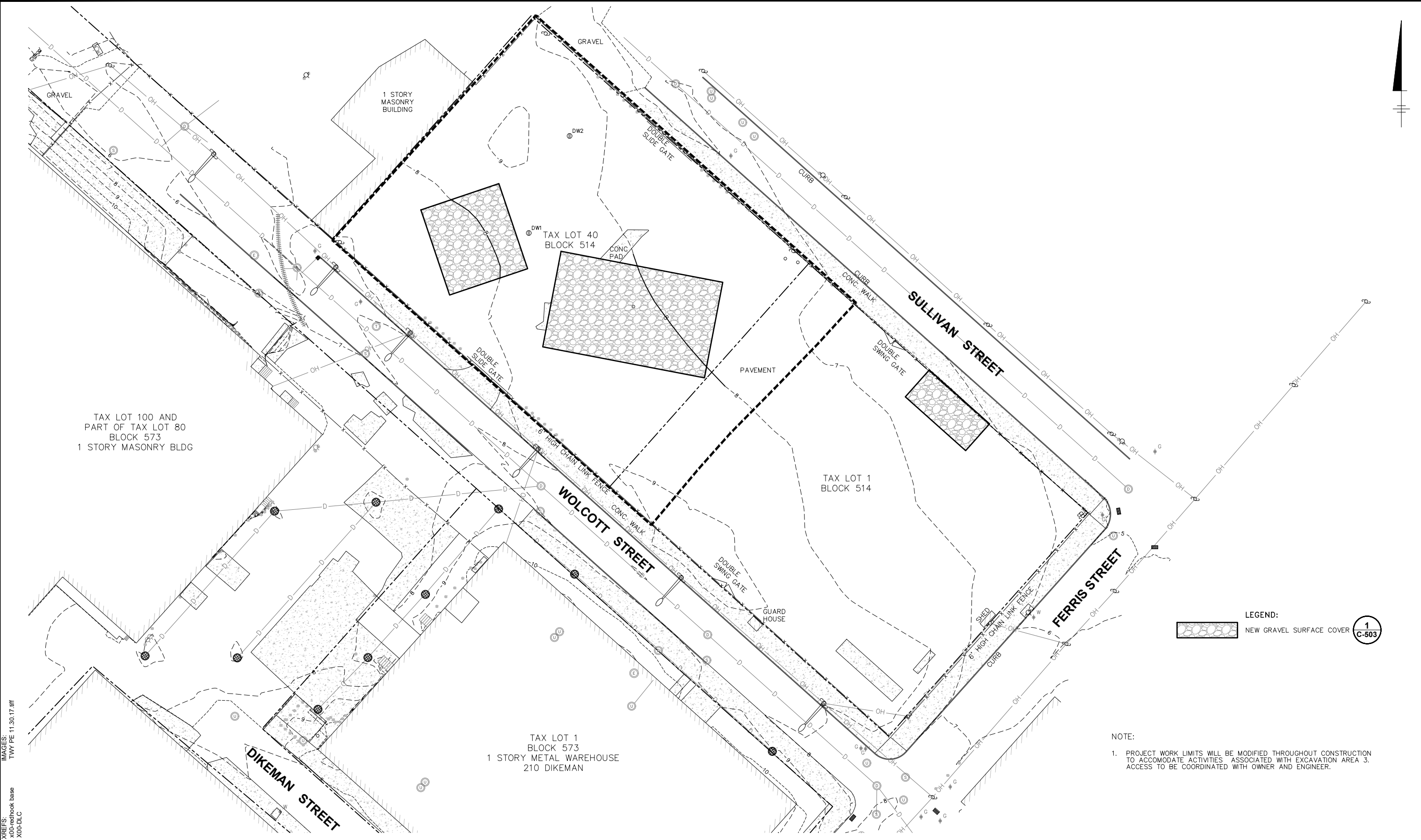


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ARCADIS OF NEW YORK, INC.  
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44 AND 62 FERRIS STREET / 219 SULLIVAN STREET  
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK  
INTERIM REMEDIATION MEASURE  
**REMEDIAL EXCAVATION PLAN**



ARCADIS Project No.  
30034367.00001  
Date  
OCTOBER 2019  
ARCADIS  
110 WEST FAYETTE STREET  
STE 300  
SYRACUSE, NEW YORK 13202  
TEL. 315.446.9120

DIV/GRP:IMDV DB:K.DAVIS LD:K.DAVIS PIC: C.GERACI TM:D.NODINE LVR:ON=OFF=REF ACADVER: 23.0S(LMS TECH) PAGES: 23 PLOT: D2B BW PLOT: STYLETABLE: PLTCONT.CTB PLOTTED: 10/25/2019 9:42 AM BY: STOWELL, GARY  
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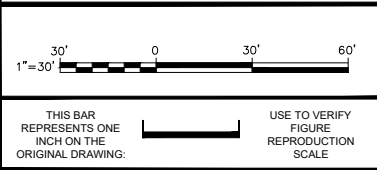


TAX LOT 100 AND  
PART OF TAX LOT 80  
BLOCK 573  
1 STORY MASONRY BLDG

TAX LOT 1  
BLOCK 573  
1 STORY METAL WAREHOUSE  
210 DIKEMAN

LEGEND:  
 NEW GRAVEL SURFACE COVER  


NOTE:  
 1. PROJECT WORK LIMITS WILL BE MODIFIED THROUGHOUT CONSTRUCTION TO ACCOMMODATE ACTIVITIES ASSOCIATED WITH EXCAVATION AREA 3. ACCESS TO BE COORDINATED WITH OWNER AND ENGINEER.



No.	Date	Revisions	By	Ckd

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Professional Engineer's Name  
**TERRY W. YOUNG**  
 Professional Engineer's No.  
074847  
 State  
NY  
 Date Signed  
10/25/2019  
 Project Mgr.  
HD  
 Designed by  
DGN  
 Drawn by  
KMD  
 Checked by  
MCG



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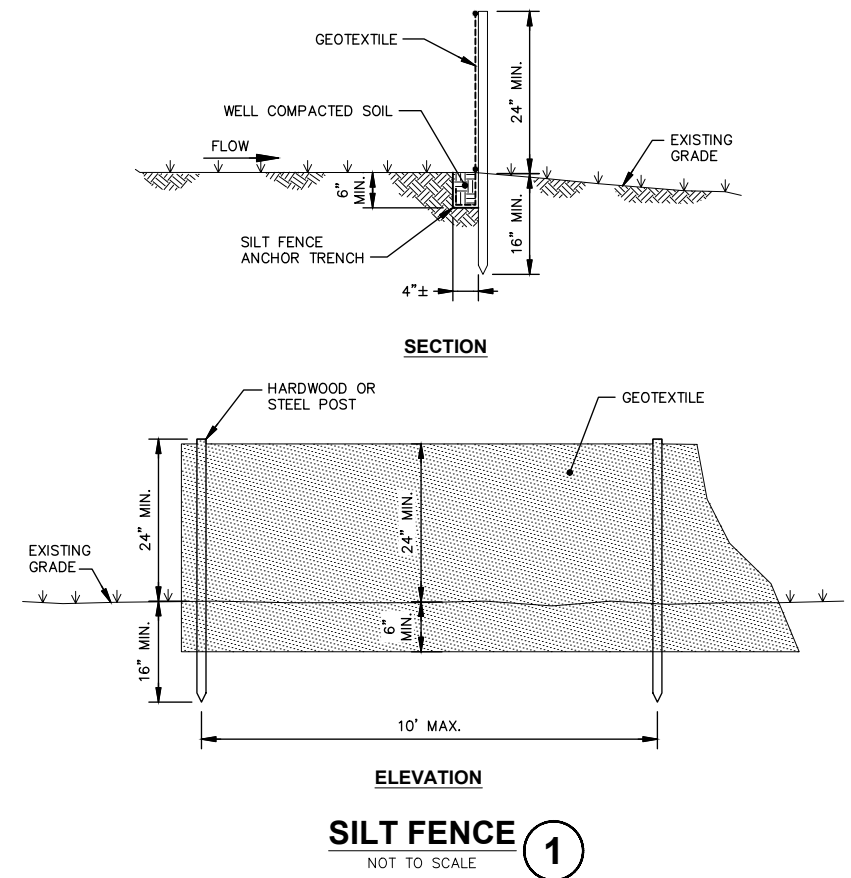
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 44 AND 62 FERRIS STREET / 219 SULLIVAN STREET  
 BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK  
 INTERIM REMEDIAL MEASURE  
**SITE RESTORATION AND FINAL GRADING PLAN**

ARCADIS Project No.  
30034367.00001  
 Date  
OCTOBER 2019  
 ARCADIS  
 110 WEST FAYETTE STREET  
 STE 300  
 SYRACUSE, NEW YORK 13202  
 TEL. 315.446.9120

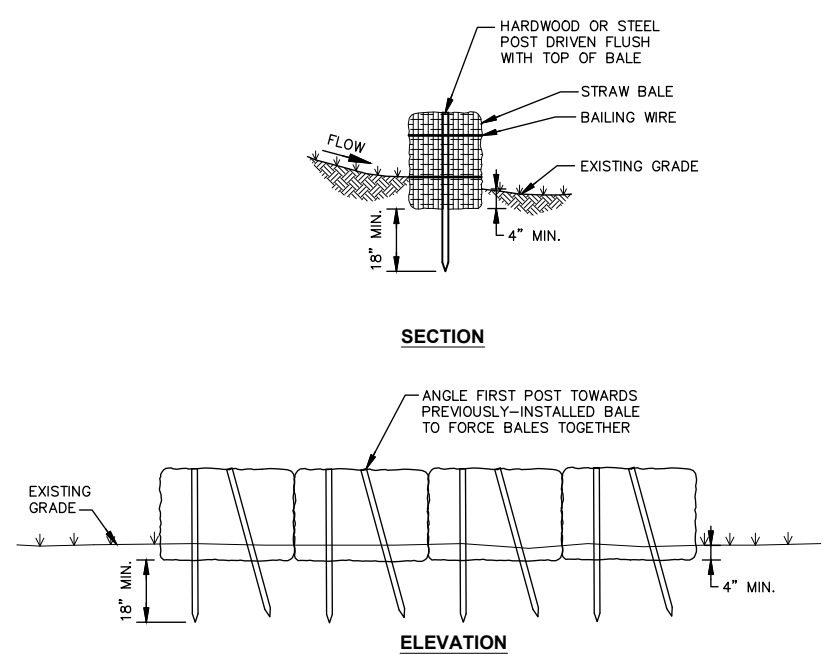
**C-103**



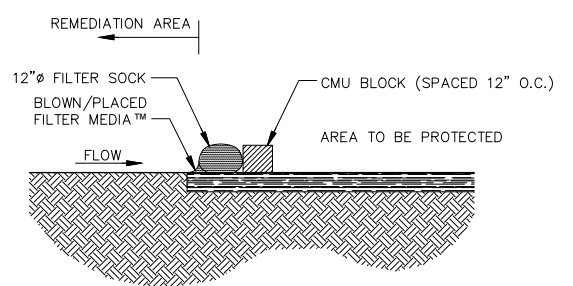
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**SILT FENCE 1**  
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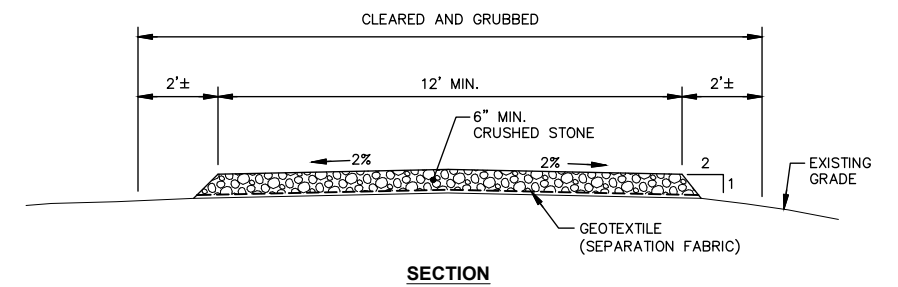
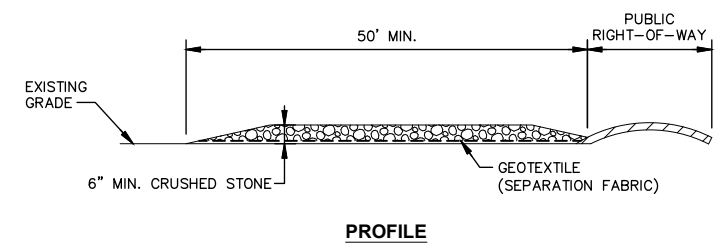
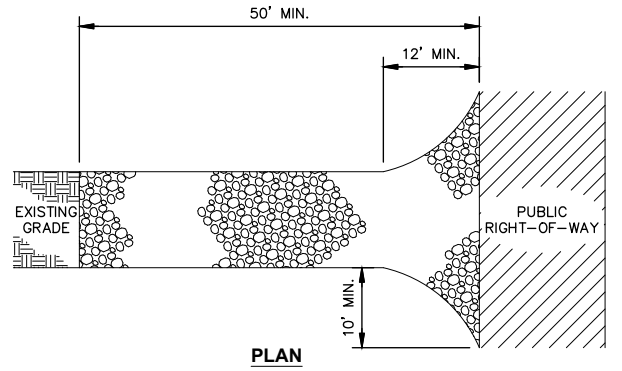


**STRAW BALE DIKE 2**  
NOT TO SCALE



**NOTE:**  
 1. FILTER SOCK SHALL BE 12"Ø FILTREXX SOXX AND FILLED WITH FILTREXX FILTER MEDIA OR APPROVED EQUAL. FILTREXX SOXX SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

**FILTER SOCK 3**  
NOT TO SCALE



**TEMPORARY CONSTRUCTION ENTRANCE 4**  
NOT TO SCALE

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name <b>TERRY W. YOUNG</b>		
Professional Engineer's No. 074847		
State NY	Date Signed 10/25/2019	Project Mgr. HD
Designed by DGN	Drawn by KMD	Checked by MCG



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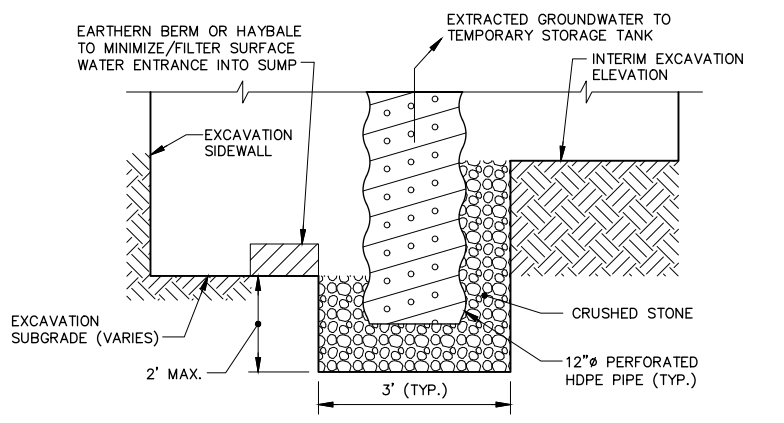
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 BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK  
 INTERIM REMEDIAL MEASURE

**TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS**

ARCADIS Project No. 30034367.00001
Date OCTOBER 2019
ARCADIS 110 WEST FAYETTE STREET STE 300 SYRACUSE, NEW YORK 13202 TEL. 315.446.9120

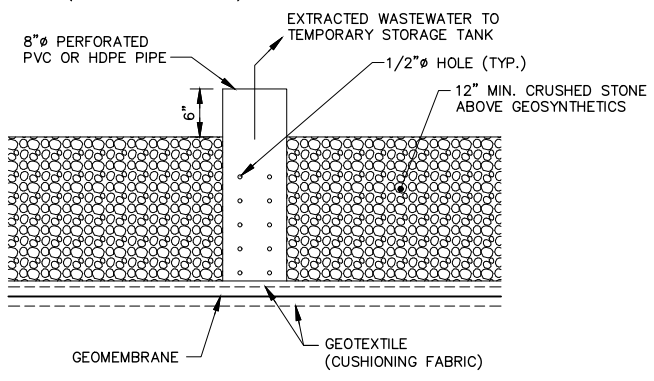
**C-501**

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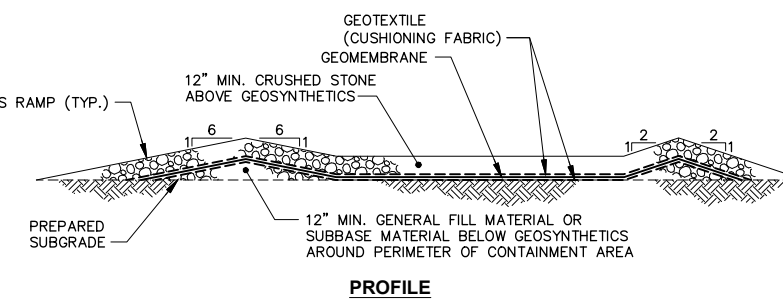
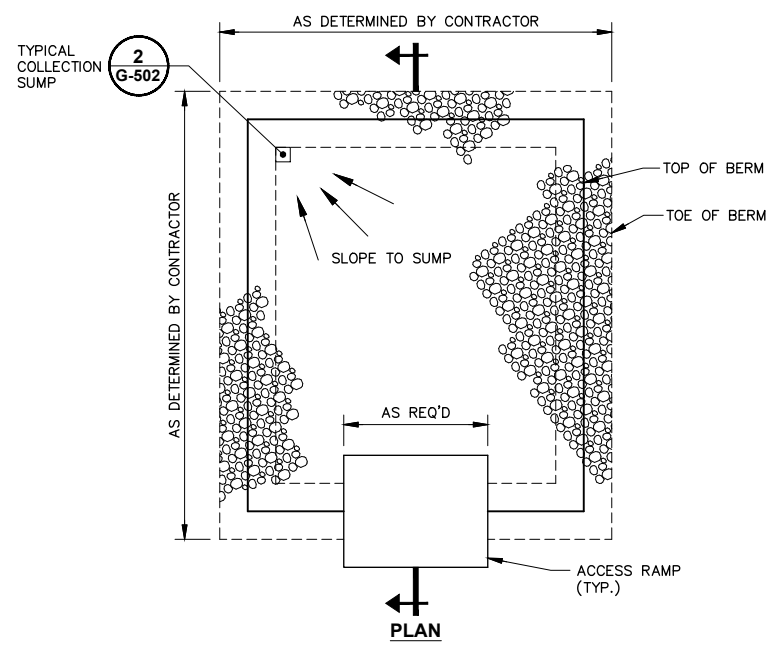


**TYPICAL EXCAVATION DEWATERING SUMP** ①  
NOT TO SCALE

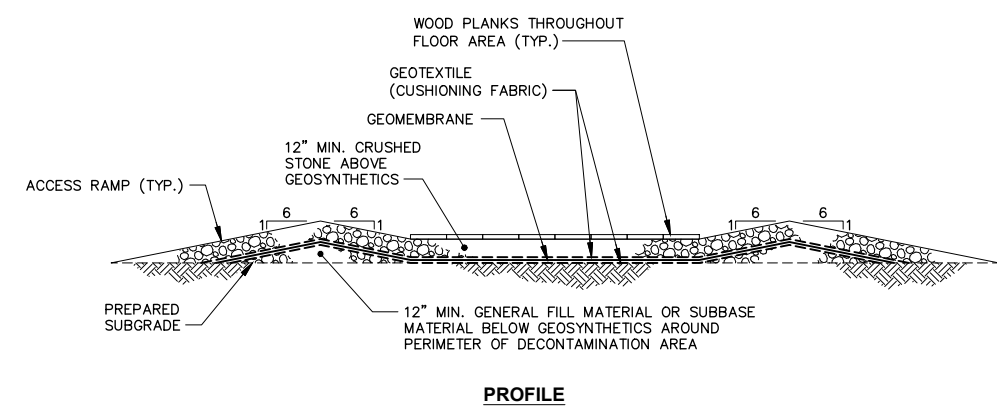
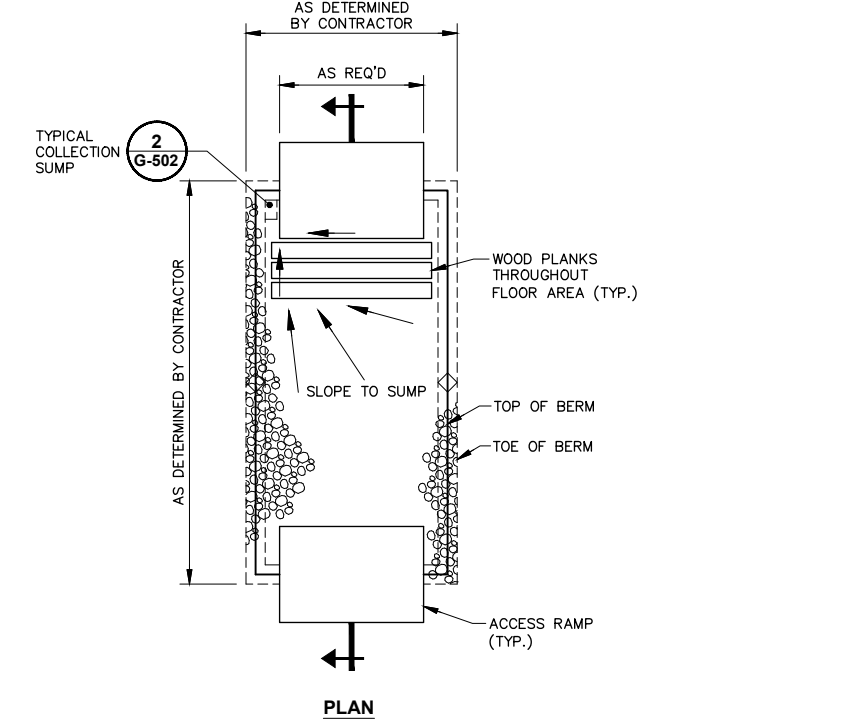
NOTE:  
EXCAVATION DEWATERING TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 31 23 00 (EXCAVATION AND FILL).



**TYPICAL COLLECTION SUMP** ②  
NOT TO SCALE



**TYPICAL TEMPORARY CONTAINMENT AREA** ③  
NOT TO SCALE



**TYPICAL TEMPORARY DECONTAMINATION AREA** ④  
NOT TO SCALE

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Professional Engineer's Name <b>TERRY W. YOUNG</b>		
Professional Engineer's No. 074847		
State NY	Date Signed 10/25/2019	Project Mgr. HD
Designed by DGN	Drawn by KMD	Checked by MCG



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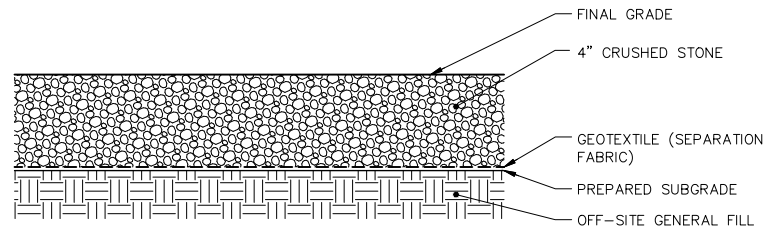
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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK  
INTERIM REMEDIAL MEASURE

**TEMPORARY CONSTRUCTION DETAILS**

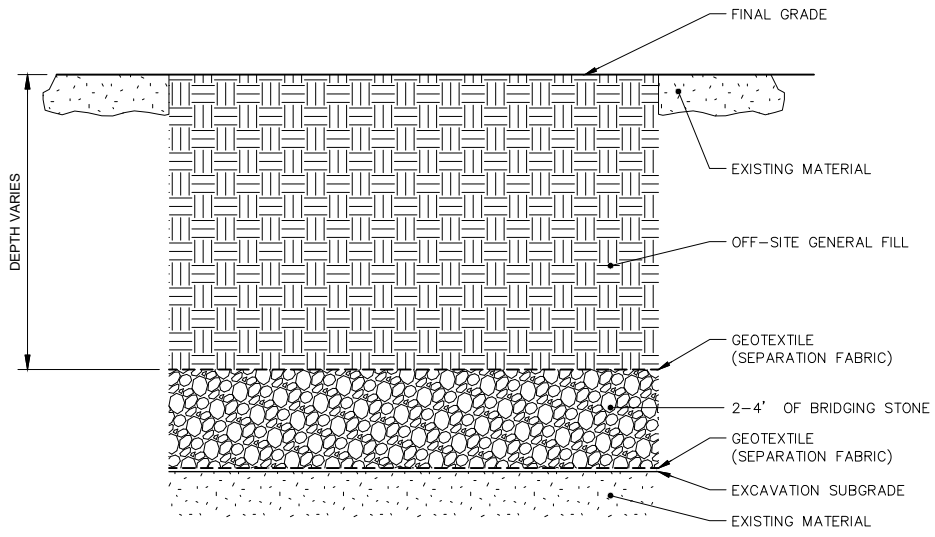
ARCADIS Project No. 30034367.00001
Date OCTOBER 2019
ARCADIS 110 WEST FAYETTE STREET STE 300 SYRACUSE, NEW YORK 13202 TEL. 315.446.9120

**C-502**

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 IMAGES: TWY PE 11.30.17.rvt



**NEW GRAVEL SURFACE COVER** ①  
NOT TO SCALE



**EXCAVATION BACKFILL WITH BRIDGING STONE** ②  
NOT TO SCALE

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Professional Engineer's Name  
**TERRY W. YOUNG**

Professional Engineer's No.  
074847

State: NY Date Signed: 10/25/2019 Project Mgr.: HD

Designed by: DGN Drawn by: KMD Checked by: MCG



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INTERIM REMEDIAL MEASURE

**SITE RESTORATION DETAILS**

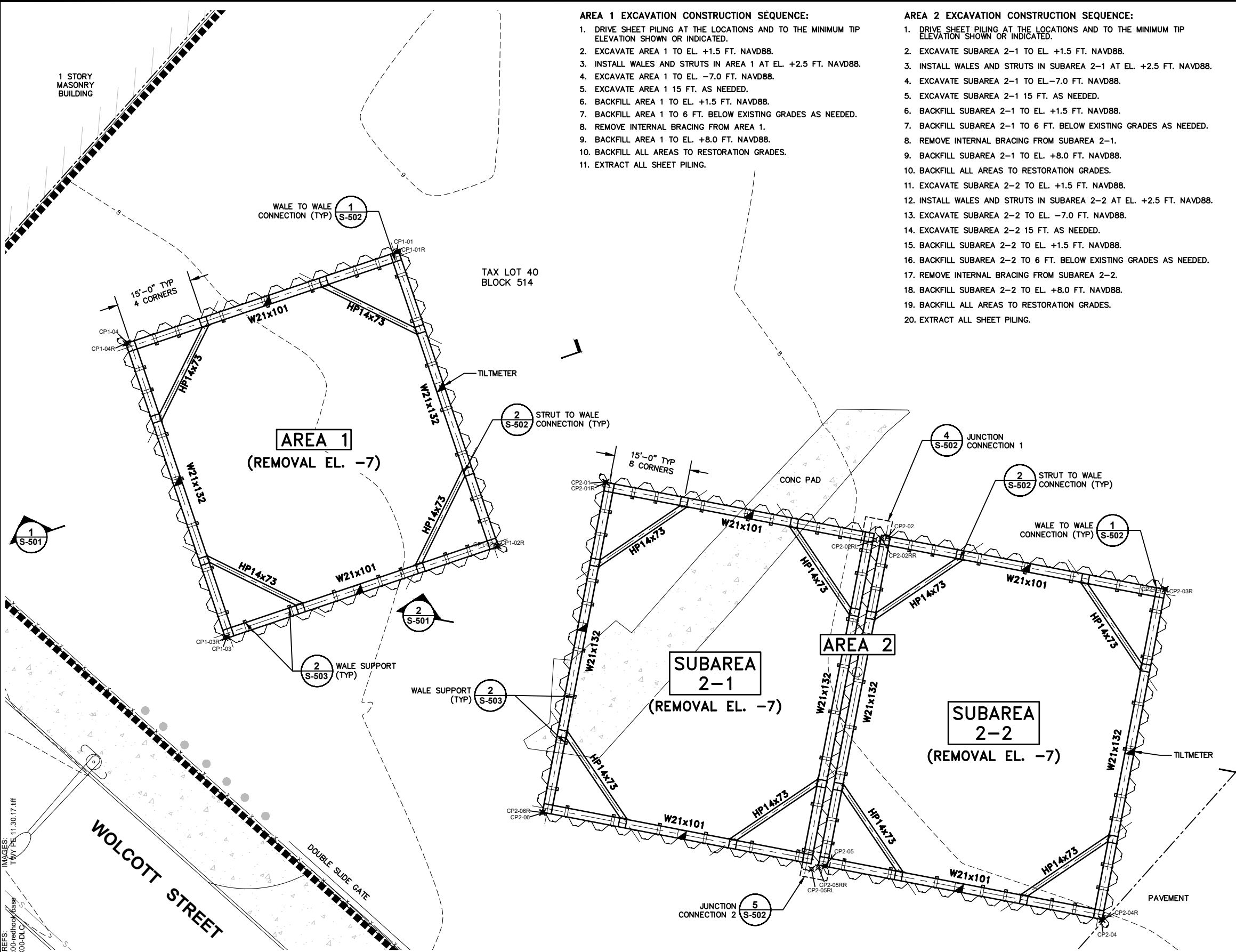
ARCADIS Project No.  
30034367.00001

Date  
OCTOBER 2019

ARCADIS  
110 WEST FAYETTE STREET  
STE 300  
SYRACUSE, NEW YORK 13202  
TEL: 315.446.9120

**C-503**

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**AREA 1 EXCAVATION CONSTRUCTION SEQUENCE:**

1. DRIVE SHEET PILING AT THE LOCATIONS AND TO THE MINIMUM TIP ELEVATION SHOWN OR INDICATED.
2. EXCAVATE AREA 1 TO EL. +1.5 FT. NAVD88.
3. INSTALL WALES AND STRUTS IN AREA 1 AT EL. +2.5 FT. NAVD88.
4. EXCAVATE AREA 1 TO EL. -7.0 FT. NAVD88.
5. EXCAVATE AREA 1 15 FT. AS NEEDED.
6. BACKFILL AREA 1 TO EL. +1.5 FT. NAVD88.
7. BACKFILL AREA 1 TO 6 FT. BELOW EXISTING GRADES AS NEEDED.
8. REMOVE INTERNAL BRACING FROM AREA 1.
9. BACKFILL AREA 1 TO EL. +8.0 FT. NAVD88.
10. BACKFILL ALL AREAS TO RESTORATION GRADES.
11. EXTRACT ALL SHEET PILING.

**AREA 2 EXCAVATION CONSTRUCTION SEQUENCE:**

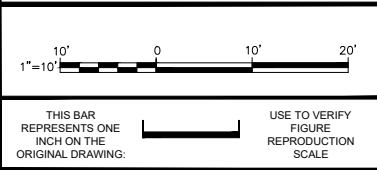
1. DRIVE SHEET PILING AT THE LOCATIONS AND TO THE MINIMUM TIP ELEVATION SHOWN OR INDICATED.
2. EXCAVATE SUBAREA 2-1 TO EL. +1.5 FT. NAVD88.
3. INSTALL WALES AND STRUTS IN SUBAREA 2-1 AT EL. +2.5 FT. NAVD88.
4. EXCAVATE SUBAREA 2-1 TO EL. -7.0 FT. NAVD88.
5. EXCAVATE SUBAREA 2-1 15 FT. AS NEEDED.
6. BACKFILL SUBAREA 2-1 TO EL. +1.5 FT. NAVD88.
7. BACKFILL SUBAREA 2-1 TO 6 FT. BELOW EXISTING GRADES AS NEEDED.
8. REMOVE INTERNAL BRACING FROM SUBAREA 2-1.
9. BACKFILL SUBAREA 2-1 TO EL. +8.0 FT. NAVD88.
10. BACKFILL ALL AREAS TO RESTORATION GRADES.
11. EXCAVATE SUBAREA 2-2 TO EL. +1.5 FT. NAVD88.
12. INSTALL WALES AND STRUTS IN SUBAREA 2-2 AT EL. +2.5 FT. NAVD88.
13. EXCAVATE SUBAREA 2-2 TO EL. -7.0 FT. NAVD88.
14. EXCAVATE SUBAREA 2-2 15 FT. AS NEEDED.
15. BACKFILL SUBAREA 2-2 TO EL. +1.5 FT. NAVD88.
16. BACKFILL SUBAREA 2-2 TO 6 FT. BELOW EXISTING GRADES AS NEEDED.
17. REMOVE INTERNAL BRACING FROM SUBAREA 2-2.
18. BACKFILL SUBAREA 2-2 TO EL. +8.0 FT. NAVD88.
19. BACKFILL ALL AREAS TO RESTORATION GRADES.
20. EXTRACT ALL SHEET PILING.

LOT 40 CONTROL POINT SCHEDULE				
ID	Northing(Y)	Eastng(X)	SPECIAL PILE CONNECTION TYPE	
CP1-01	187135.30	979644.85		
CP1-01R	187135.42	979645.20	C 14	
CP1-02	187077.83	979664.26		
CP1-02R	187077.78	979664.64	C 14	
CP1-03	187060.05	979611.58		
CP1-03R	187059.86	979611.25	C 14	
CP1-04	187117.51	979592.18		
CP1-04R	187117.39	979591.83	C 14	
CP2-01	187090.27	979685.73		
CP2-01R	187090.24	979685.59	C 14	
CP2-02	187079.61	979740.79		
CP2-02RL	187078.96	979738.19	JUNC. CONNECTION 1	
CP2-02RR	187079.30	979739.52	JUNC. CONNECTION 1	
CP2-03	187069.35	979794.92		
CP2-03R	187069.38	979795.06	C 14	
CP2-04	187004.82	979782.56		
CP2-04R	187004.78	979782.70	C 14	
CP2-05	187015.29	979728.46		
CP2-05RL	187014.65	979725.86	JUNC. CONNECTION 2	
CP2-05RR	187014.98	979727.20	JUNC. CONNECTION 2	
CP2-06	187025.74	979673.37		
CP2-06R	187025.71	979673.23	C 14	

LOT 40 SHEET PILE SCHEDULE					
WALL ALIGNMENT		LENGTH OF WALL (LF)	MIN. SHEET PILE TIP EL. (FEET NAVD88)	MIN. REQUIRED SECTION	DESIGN SECTION
FROM	TO				
CP1-01R	CP1-02R	61	-35.0	NZ 14	NZ 19
CP1-02R	CP1-03R	56	-35.0	NZ 14	NZ 19
CP1-03R	CP1-04R	61	-35.0	NZ 14	NZ 19
CP1-04R	CP1-01R	56	-35.0	NZ 14	NZ 19
CP2-01R	CP2-02RL	54	-35.0	NZ 14	NZ 19
CP2-02RL	CP2-05RL	65	-35.0	NZ 14	NZ 19
CP2-05RL	CP2-06R	54	-35.0	NZ 14	NZ 19
CP2-06R	CP2-01R	66	-35.0	NZ 14	NZ 19
CP2-02RR	CP2-03R	56	-35.0	NZ 14	NZ 19
CP2-03R	CP2-04R	66	-35.0	NZ 14	NZ 19
CP2-04R	CP2-05RR	56	-35.0	NZ 14	NZ 19
CP2-05RR	CP2-02RR	65	-35.0	NZ 14	NZ 19

**LEGEND:**  
 PROPOSED TILTMETER LOCATION

- NOTES:**
1. CONTRACTOR SHALL COMPLY WITH SPECIFICATION SECTIONS 31 23 00 (EXCAVATION AND FILL), AND 31 50 00 (EXCAVATION SUPPORT AND PROTECTION).
  2. FOUNDATIONS OF FORMER STRUCTURES AND EXISTING AT-GRADE CONCRETE SLABS AND PADS PRESENT WITHIN THE REMOVAL LIMITS SHALL BE REMOVED. SUCH MATERIALS SHALL BE MANAGED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
  3. PRIOR TO SHEET PILE INSTALLATION, THE CONTRACTOR SHALL INSTALL ENGINEERING SEISMOGRAPHS ON STRUCTURES WITHIN 50 FEET OF THE ACTIVE WORK AREA AS RECOMMENDED IN THE SPECIFICATION AND ESTABLISH BASELINE MONITORING. STRUCTURES INCLUDE, BUT ARE NOT LIMITED TO, EXISTING GAS LINES, ROADWAYS, AND BUILDINGS. CONTRACTOR SHALL ADJUST THE LOCATION OF SEISMOGRAPHS AS NEEDED TO REMAIN 50 FEET OF THE ACTIVE WORK AREA.
  4. DEFLECTION MONITORING IN STRUCTURES SHALL BE CONDUCTED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS USING THEODOLITE AND REFLECTIVE TARGETS (E.G. LEICA RETRO REFLECTIVE TARGET).
  5. DEFLECTION MONITORING IN SHEET PILES SHALL BE CONDUCTED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS USING TILTMETERS (E.G. DCSI EL TILTMETER) ATTACHED TO THE EXCAVATION FACE OF THE SHEET PILES, NEAR THE TOP OF THE SHEET PILE.
  6. SEISMIC AND DEFLECTION MONITORING SHALL BE PERFORMED DURING EXCAVATION AND BACKFILL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
  7. EXCAVATED TREATMENT AREAS SHALL BE BACKFILLED WITH GENERAL FILL TO REQUIRED ELEVATION.



No.	Date	Revisions	By	Ckd

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Professional Engineer's Name  
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 Professional Engineer's No.  
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NY  
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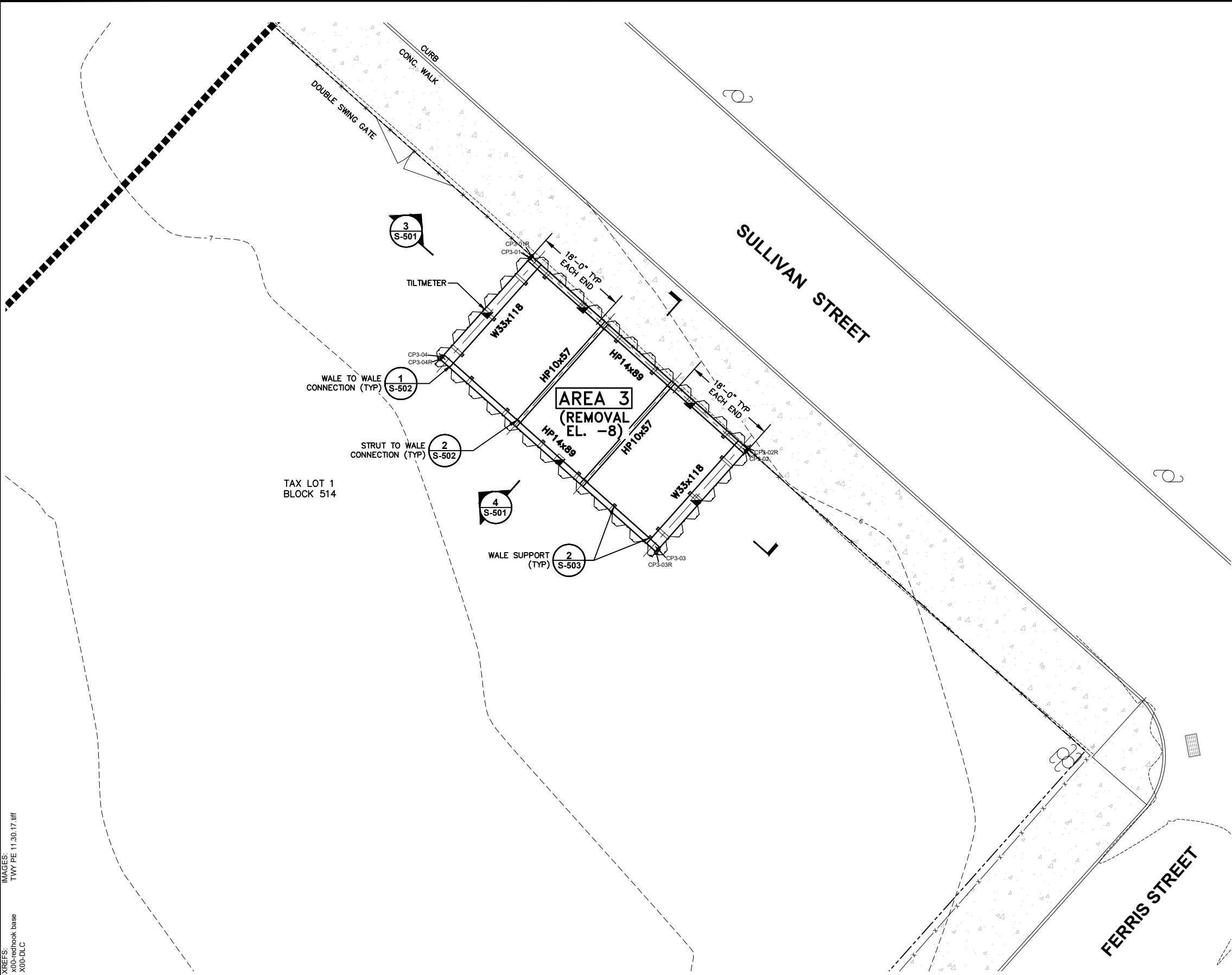
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 INTERIM REMEDIAL MEASURE  
**AREAS 1 AND 2**  
**EXCAVATION AND SHORING PLAN**

ARCADIS Project No.  
30034367.00001  
 Date  
OCTOBER 2019  
 ARCADIS  
 110 WEST FAYETTE STREET  
 STE 300  
 SYRACUSE, NEW YORK 13202  
 TEL. 315.446.9120

**S-101**

DIV/GRP:IMDV DB:K DAVIS LD:K DAVIS PIC: PM: C GERACI TM: D NODINE LYR: ON=OFF=REF\* ACADVER: 23.0S(LMS TECH) PAGES: 10/25/2019 9:43 AM BY: STOWELL, GARY  
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LOT 1 CONTROL POINT SCHEDULE			
ID	Northing(Y)	Eastng(X)	SPECIAL PILE CONNECTION TYPE
CP3-01	187009.97	979931.76	
CP3-01R	187010.36	979932.11	C 14
CP3-02	186972.96	979973.24	
CP3-02R	186973.60	979973.59	C 14
CP3-03	186954.09	979956.41	
CP3-03R	186953.56	979955.97	C 14
CP3-04	186991.10	979914.93	
CP3-04R	186990.61	979914.49	C 14

LOT 1 SHEET PILE SCHEDULE					
WALL ALIGNMENT		LENGTH OF WALL (LF)	MIN. SHEET PILE TIP EL. (FEET NAVD88)	MIN. REQUIRED SECTION	DESIGN SECTION
FROM	TO				
CP3-01R	CP3-02R	55	-35.0	NZ 14	NZ 19
CP3-02R	CP3-03R	27	-35.0	NZ 14	NZ 19
CP3-03R	CP3-04R	56	-35.0	NZ 14	NZ 19
CP3-04R	CP3-01R	26	-35.0	NZ 14	NZ 19

**AREA 3 EXCAVATION CONSTRUCTION SEQUENCE:**

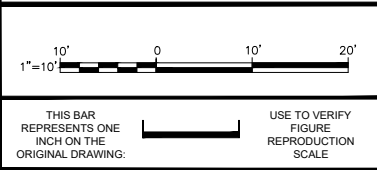
1. DRIVE SHEET PILING AT THE LOCATIONS AND TO THE MINIMUM TIP ELEVATION SHOWN OR INDICATED.
2. EXCAVATE AREA 3 TO EL. -0.5.
3. INSTALL WALES AND STRUTS IN AREA 3 AT EL. +0.5.
4. EXCAVATE AREA 3 TO EL. -3.0.
5. BEFORE CONTINUING EXCAVATION, CONFIRM PIEZOMETRIC LEVEL IN THE SAND LAYER DOES NOT EXCEED MAXIMUM ALLOWABLE ELEVATION FOR AREA 3. DO NOT CONTINUE EXCAVATION UNTIL PIEZOMETRIC LEVEL IN THE SAND LAYER IS BELOW THE MAXIMUM ALLOWABLE ELEVATION.
6. EXCAVATE NORTHERN HALF OF AREA 3 TO EL. -8.0 AND BACKFILL THIS HALF TO EL. -3.0.
7. EXCAVATE REMAINING SOUTHERN HALF OF AREA 3 TO EL. -8.0 AND BACKFILL THIS HALF TO EL. -3.0.
8. BACKFILL AREA 3 TO EL. -0.5.
9. REMOVE INTERNAL BRACING FROM AREA 3.
10. BACKFILL TO RESTORATION GRADE.
11. EXTRACT ALL SHEET PILING.

**LEGEND:**

- ▣ PROPOSED TILTMETER LOCATION

**NOTES:**

1. CONTRACTOR SHALL COMPLY WITH SPECIFICATION SECTIONS 31 23 00 (EXCAVATION AND FILL), AND 31 50 00 (EXCAVATION SUPPORT AND PROTECTION, AND OF 31 09 13 (GEOTECHNICAL INSTRUMENTATION AND MONITORING).
2. FOUNDATIONS OF FORMER STRUCTURES AND EXISTING AT-GRADE CONCRETE SLABS AND PADS PRESENT WITHIN THE REMOVAL LIMITS SHALL BE REMOVED. SUCH MATERIALS SHALL BE MANAGED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
3. PRIOR TO SHEET PILE INSTALLATION, THE CONTRACTOR SHALL INSTALL SEISMOGRAPHS ON STRUCTURES WITHIN 50 FEET OF THE ACTIVE WORK AREA AND ESTABLISH BASELINE MONITORING. STRUCTURES INCLUDE, BUT ARE NOT LIMITED TO, EXISTING GAS LINES, ROADWAYS, AND BUILDINGS.
4. FOR GAS LINE MONITORING, CONTRACTOR SHALL ADJUST THE LOCATION OF SEISMOGRAPHS SUCH THAT THE METER IS ABOVE THE GAS LINE AT THE POINT CLOSEST TO SHEET PILE INSTALLATION.
5. DEFLECTION MONITORING OF BUILDINGS SHALL BE CONDUCTED USING THEODOLITE AND REFLECTIVE TARGETS (E.G. LEICA RETRO REFLECTIVE TARGET).
6. DEFLECTION MONITORING OF SHEET PILES SHALL BE CONDUCTED USING TILTMETERS (E.G. DCSI EL TILTMETER) ATTACHED TO THE EXCAVATION FACE OF THE SHEET PILES, NEAR THE TOP OF THE SHEET PILE.
7. PIEZOMETRIC AND DEFLECTION MONITORING SHALL BE PERFORMED DURING EXCAVATION AND BACKFILL ACTIVITIES, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.



No.	Date	Revisions	By	Ckd

Professional Engineer's Name  
**TERRY W. YOUNG**  
Professional Engineer's No.  
074847  
State  
NY  
Date Signed  
10/25/2019  
Project Mgr.  
HD  
Designed by  
DGN  
Drawn by  
KMD  
Checked by  
MCG



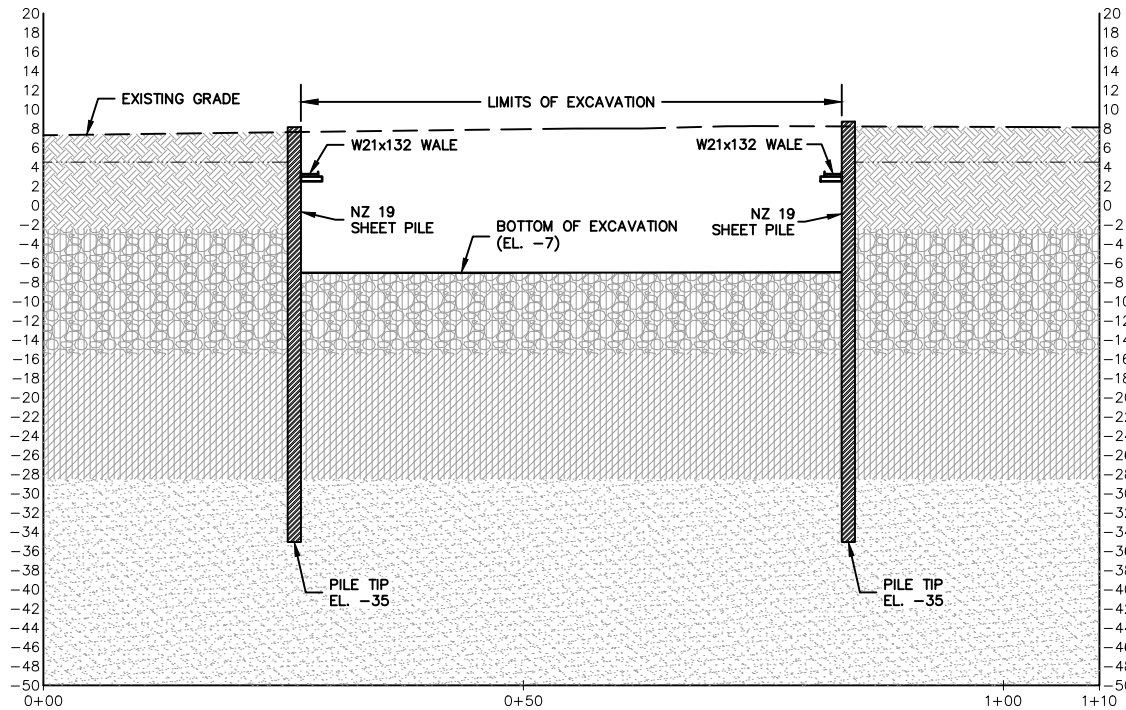
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**AREA 3 EXCAVATION AND SHORING PLAN**

ARCADIS Project No.  
30034367.00001  
Date  
OCTOBER 2019  
ARCADIS  
110 WEST FAYETTE STREET  
STE 300  
SYRACUSE, NEW YORK 13202  
TEL. 315.446.9120

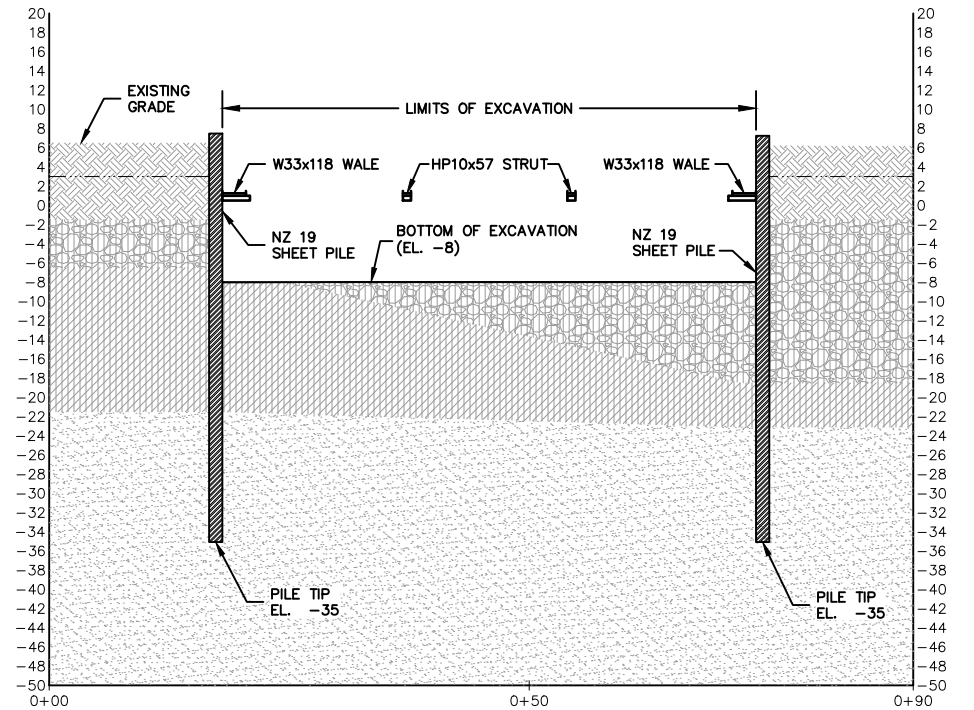
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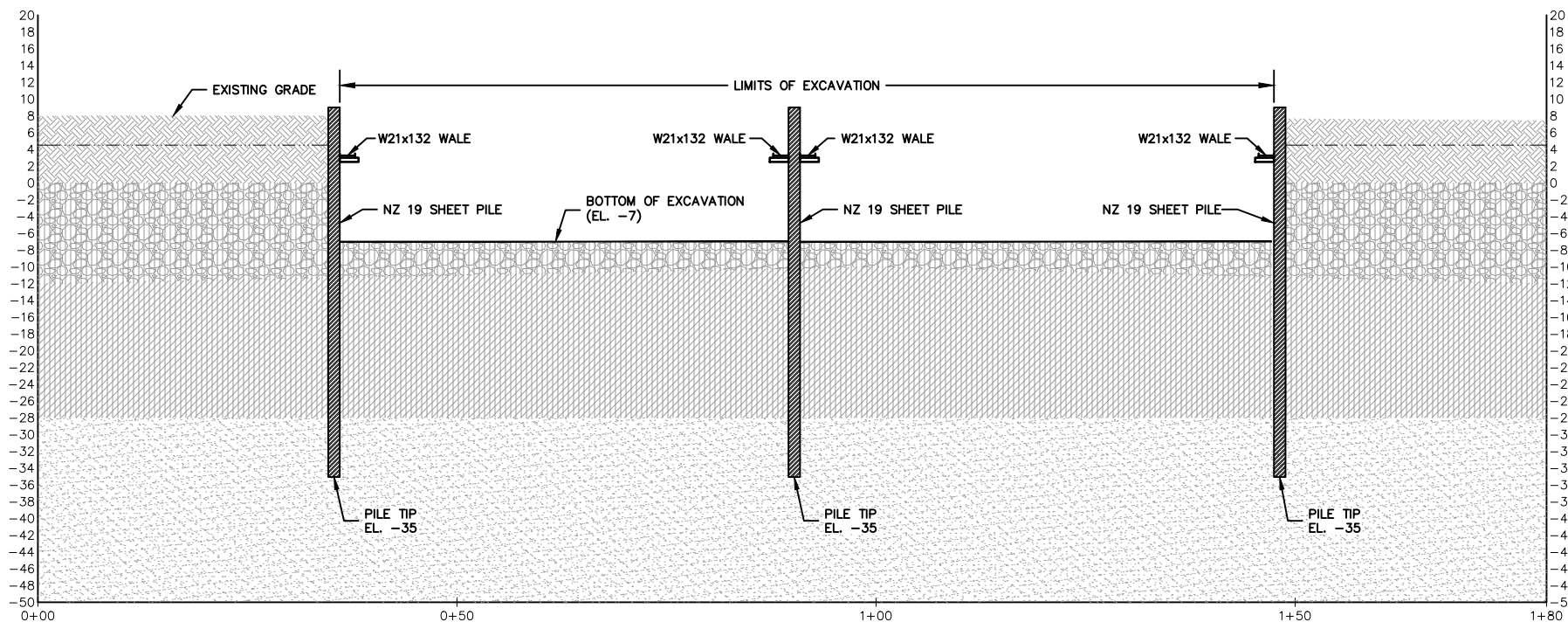
**SECTION 1**

SCALE: 1" = 10' HORIZONTAL AND VERTICAL



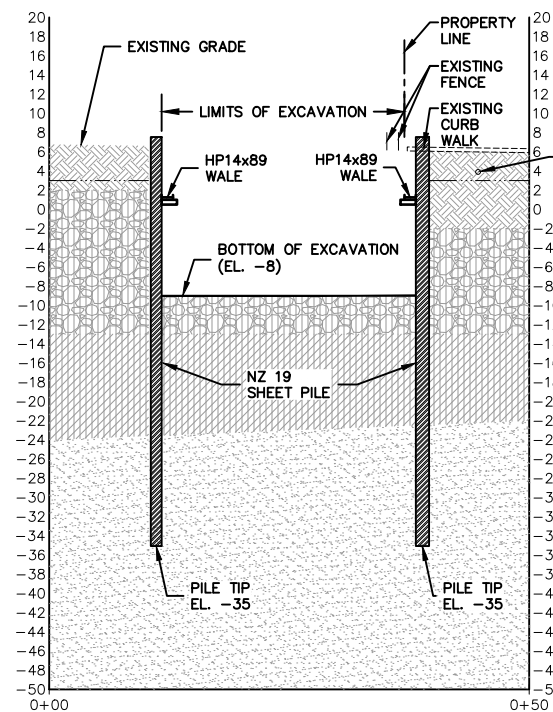
**SECTION 3**

SCALE: 1" = 10' HORIZONTAL AND VERTICAL



**SECTION 2**

SCALE: 1" = 10' HORIZONTAL AND VERTICAL

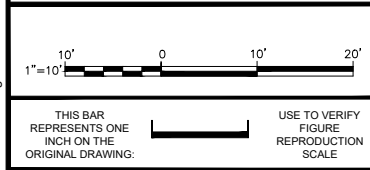


**SECTION 4**

SCALE: 1" = 10' HORIZONTAL AND VERTICAL

- LEGEND:**
- FILL
  - SAND, SILT, AND GRAVEL
  - SILT AND CLAY
  - SAND
  - APPROXIMATE GROUNDWATER LEVEL (SEE NOTE 2)

- NOTES:**
- INFORMATION RELATED TO SUBSURFACE CONDITIONS SHOULD BE CONSIDERED APPROXIMATE AND SHOULD NOT BE RELIED UPON AS A COMPLETE DESCRIPTION OF SITE CONDITIONS. SITE FEATURES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO START OF WORK.
  - EXCAVATION DEWATERING TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 31 23 00 (EXCAVATION AND FILL).
  - PIEZOMETRIC LEVEL IN THE SAND UNIT SHALL BE BELOW MAXIMUM ALLOWABLE ELEVATION WHEN EXCAVATING OR BACKFILLING WITHIN 5 FEET OF BOTTOM OF EXCAVATION. REFER TO SPECIFICATION SECTION 31 23 00 FOR MAXIMUM ALLOWABLE PIEZOMETRIC ELEVATIONS FOR EACH EXCAVATION AREA.
  - EXCAVATION AREAS SHALL BE BACKFILLED WITH GENERAL FILL TO REQUIRED ELEVATION.
  - OFFSET MAY BE MODIFIED IN THE FIELD DUE TO CONSTRUCTABILITY AND PRESENCE OF UTILITIES.



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Professional Engineer's No. 074847		
State NY	Date Signed 10/25/2019	Project Mgr. HD
Designed by DGN	Drawn by KMD	Checked by MCG



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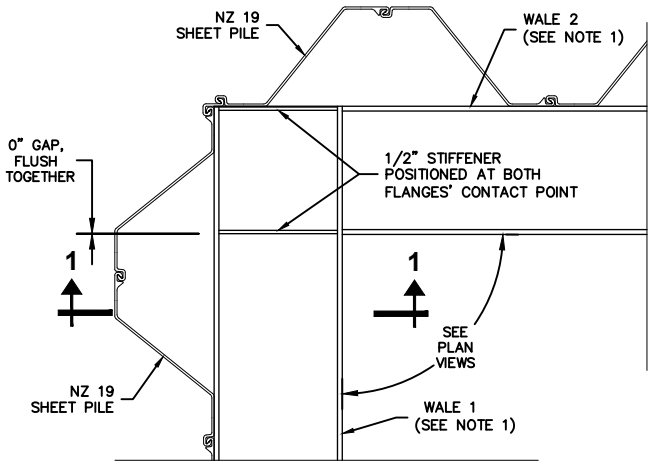
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**EXCAVATION SUPPORT SECTIONS**

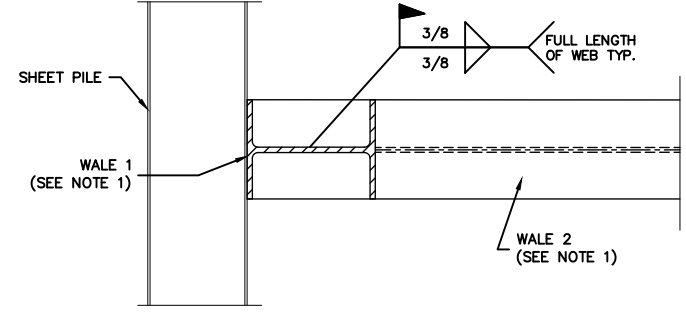
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**S-501**

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PLAN

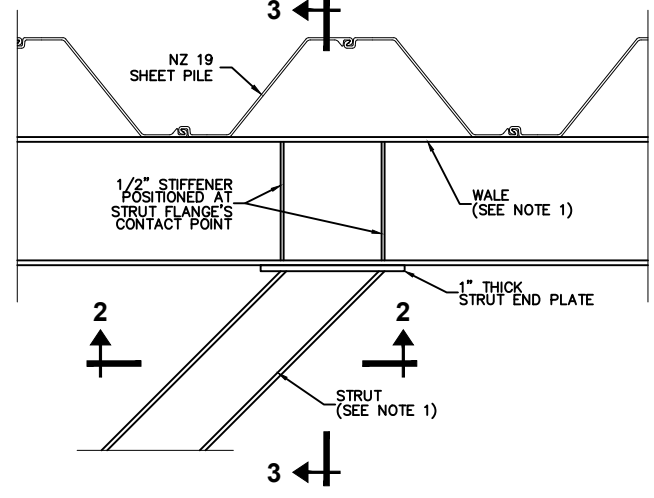


SECTION 1-1

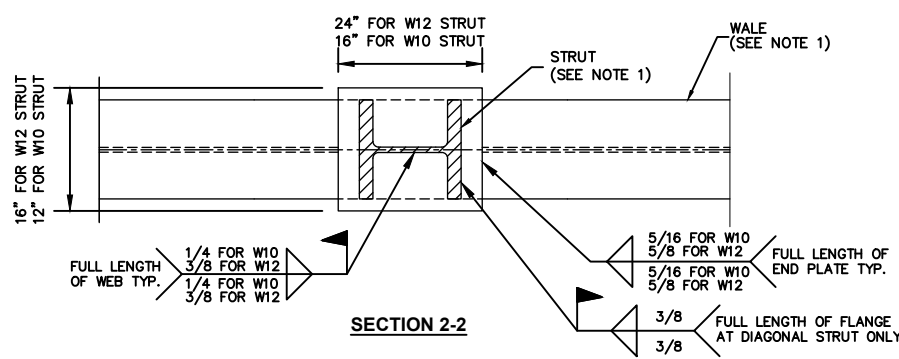
**WALE TO WALE CONNECTION DETAIL**

SCALE: 3/4"=1'-0"

1



PLAN

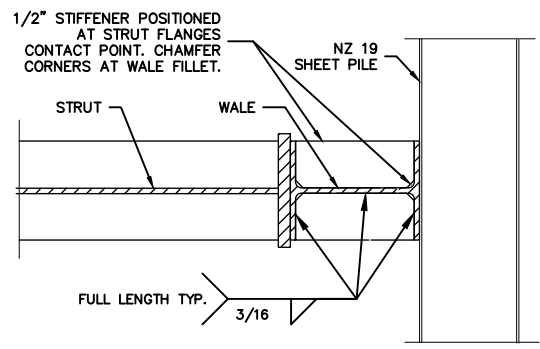


SECTION 2-2

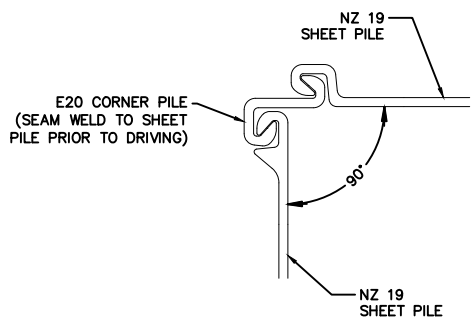
**STRUT TO WALE CONNECTION DETAIL**

SCALE: 3/4"=1'-0"

2



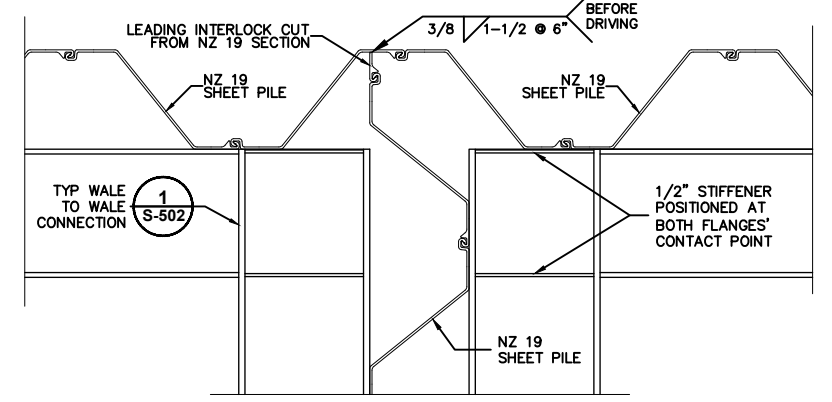
SECTION 3-3



**TYPICAL C 14 CORNER**

SCALE: 3"=1'-0"

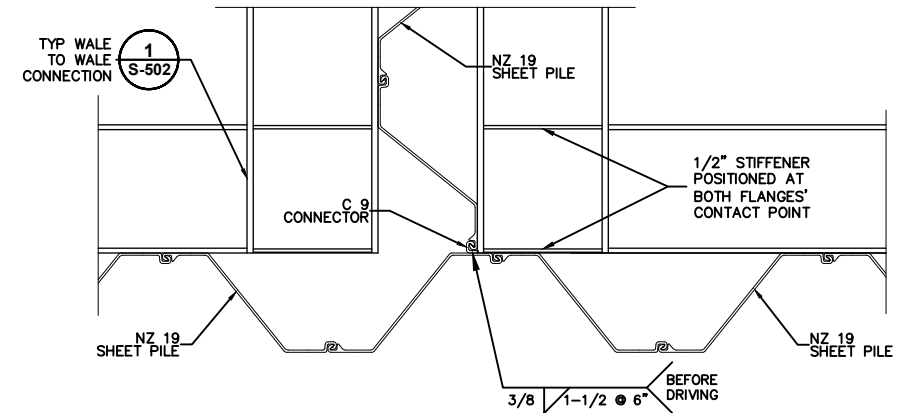
3



**JUNCTION CONNECTION 1**

SCALE: 3/4"=1'-0"

4



**JUNCTION CONNECTION 2**

SCALE: 3/4"=1'-0"

5

NOTE:  
 1. REQUIRED STRUT AND WALE SECTIONS VARY. SEE DRAWINGS S-101 AND S-102.

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Professional Engineer's No. 074847			
State	Date Signed	Project Mgr.	
NY	10/25/2019	HD	
Designed by	Drawn by	Checked by	
DGN	KMD	MCG	



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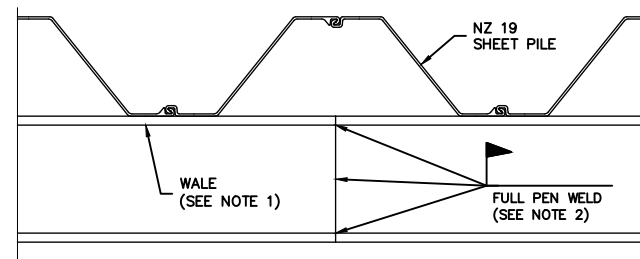
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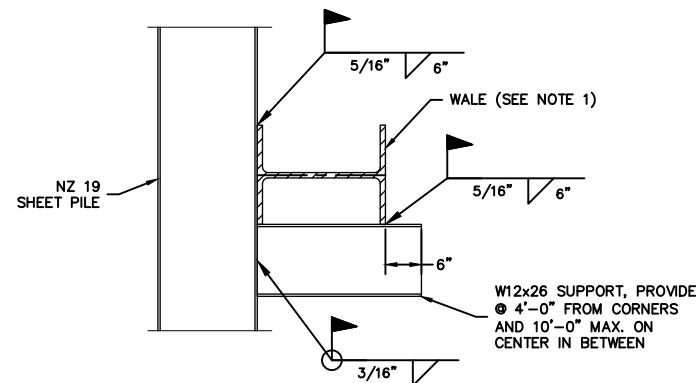
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PLAN

**WALE SPLICE** ①  
 SCALE: 3/4"=1'-0"



SECTION

**WALE SUPPORT** ②  
 SCALE: 3/4"=1'-0"

NOTE:

1. REQUIRED STRUT AND WALE SECTIONS VARY. SEE DRAWINGS S-101 AND S-102.
2. PROVIDE FULL PENETRATION FIELD WELD SPLICES OF WALE BEAMS WHERE NEEDED TO ACCOMMODATE WALE PLACEMENT AND SHIPPING. CONTRACTOR MAY PROVIDE ALTERNATE CONTRACTOR-DESIGNED SPLICE DETAIL FOR PARTIAL LOADING. SUBMIT SIGNED AND SEALED CALCULATIONS BY A PROFESSIONAL ENGINEER SHOWING LOAD CAPACITIES FOR ALTERNATE SPLICE DETAIL WITH SHOP DRAWINGS FOR COORDINATION.

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Professional Engineer's No. 074847		
State NY	Date Signed 10/25/2019	Project Mgr. HD
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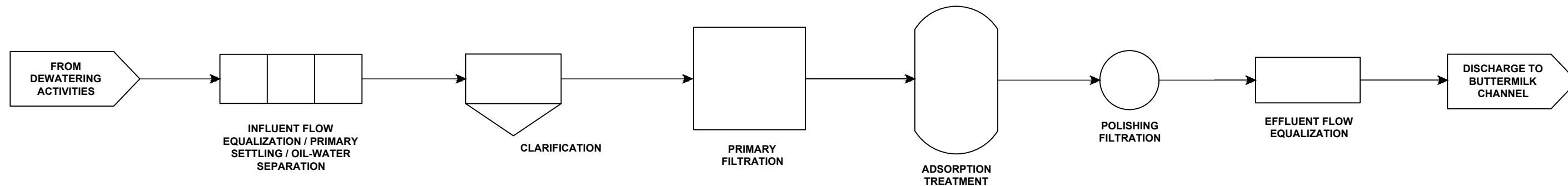
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**S-503**



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**NOTES:**

1. CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR WATER MANAGEMENT AND COMPLIANCE WITH THE NYSDEC DISCHARGE REQUIREMENTS.
2. TEMPORARY WATER TREATMENT SYSTEM COMPONENTS SHOWN ARE CONCEPTUAL ONLY. IDENTIFY ALL WATER MANAGEMENT METHODS INCLUDING, BUT NOT LIMITED TO: TREATMENT SYSTEM PROCESS, TREATMENT COMPONENTS, LOCATION OF SYSTEM, SIZING ALL TREATMENT SYSTEM ELEMENTS, AND IDENTIFICATION OF ALTERNATIVE PROPOSED METHODS FOR WATER MANAGEMENT (I.E., TREATMENT PROCESS, OFF-SITE TREATMENT, ETC).
3. THE WATER TREATMENT SYSTEM SHALL BE CAPABLE OF OPERATING IN COLD (FREEZING) CONDITIONS WITHOUT DISRUPTION.
4. PERFORM ANY ADDITIONAL TESTING (JAR TESTS, CHEMICAL TESTING, ETC.) TO CONFIRM THE ABILITY OF THE TREATMENT SYSTEM TO MEET NYSDEC DISCHARGE REQUIREMENTS. CONTRACTOR WILL ALSO BE REQUIRED TO OPERATE THE SYSTEM IN ACCORDANCE WITH THE NYSDEC DISCHARGE REQUIREMENTS TO DEMONSTRATE THE SYSTEM'S ABILITY TO MEET DISCHARGE REQUIREMENTS DURING OPERATION.
5. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WATER TREATMENT SYSTEM OPERATION, MAINTENANCE, AND MONITORING.

**WATER TREATMENT PROCESS FLOW DIAGRAM**

NOT TO SCALE

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No.	Date	Revisions	By	Ckd

Professional Engineer's Name <b>TERRY W. YOUNG</b>		
Professional Engineer's No. 074847		
State NY	Date Signed 10/25/2019	Project Mgr. HD
Designed by DGN	Drawn by KMD	Checked by MCG



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**TEMPORARY WATER TREATMENT SYSTEM  
PROCESS FLOW DIAGRAM**

ARCADIS Project No. 30034367.00001
Date OCTOBER 2019
ARCADIS 110 WEST FAYETTE STREET STE 300 SYRACUSE, NEW YORK 13202 TEL: 315.446.9120

**D-601**

# APPENDIX D

## SPDES General Permit for Stormwater Discharges from Construction Activity





Department of  
Environmental  
Conservation

NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
SPDES GENERAL PERMIT  
FOR STORMWATER DISCHARGES

From

**CONSTRUCTION ACTIVITY**

Permit No. GP-0-15-002

Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2015

Expiration Date: January 28, 2020

Modification Date:

July 14, 2015 – Correction of typographical error in definition of “New Development”,  
Appendix A

November 23, 2016 – Updated to require the use of the New York State Standards and  
Specifications for Erosion and Sediment Control, dated November  
2016. The use of this standard will be required as of February 1,  
2017.

John J. Ferguson  
Chief Permit Administrator

  
Authorized Signature

11.14.16  
Date

Address: NYS DEC  
Division of Environmental Permits  
625 Broadway, 4th Floor  
Albany, N.Y. 12233-1750



## PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York’s *State Pollutant Discharge Elimination System (“SPDES”)* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law (“ECL”)*.

This general permit (“permit”) is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent (“NOI”) to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation (“the Department”) regional office (see Appendix G). They are also available on the Department’s website at:

<http://www.dec.ny.gov/>

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of “*construction activity*”, as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a point source and therefore, pursuant to Article 17-0505 of the ECL, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. They cannot wait until there is an actual *discharge* from the construction site to obtain permit coverage.

**\*Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
 SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES  
 FROM CONSTRUCTION ACTIVITIES**

Part I. PERMIT COVERAGE AND LIMITATIONS .....	1
A. Permit Application .....	1
B. Effluent Limitations Applicable to Discharges from Construction Activities .....	1
C. Post-construction Stormwater Management Practice Requirements .....	4
D. Maintaining Water Quality .....	8
E. Eligibility Under This General Permit.....	9
F. Activities Which Are Ineligible for Coverage Under This General Permit .....	9
Part II. OBTAINING PERMIT COVERAGE .....	12
A. Notice of Intent (NOI) Submittal .....	12
B. Permit Authorization.....	13
C. General Requirements For Owners or Operators With Permit Coverage .....	15
D. Permit Coverage for Discharges Authorized Under GP-0-10-001 .....	17
E. Change of <i>Owner or Operator</i> .....	17
Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP).....	18
A. General SWPPP Requirements .....	18
B. Required SWPPP Contents .....	20
C. Required SWPPP Components by Project Type.....	23
Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS .....	24
A. General Construction Site Inspection and Maintenance Requirements .....	24
B. Contractor Maintenance Inspection Requirements .....	24
C. Qualified Inspector Inspection Requirements.....	24
Part V. TERMINATION OF PERMIT COVERAGE .....	28
A. Termination of Permit Coverage .....	28
Part VI. REPORTING AND RETENTION OF RECORDS .....	30
A. Record Retention .....	30
B. Addresses .....	30
Part VII. STANDARD PERMIT CONDITIONS.....	31
A. Duty to Comply.....	31
B. Continuation of the Expired General Permit.....	31
C. Enforcement.....	31
D. Need to Halt or Reduce Activity Not a Defense.....	31
E. Duty to Mitigate .....	32
F. Duty to Provide Information.....	32
G. Other Information .....	32
H. Signatory Requirements.....	32
I. Property Rights.....	34
J. Severability.....	34
K. Requirement to Obtain Coverage Under an Alternative Permit.....	34
L. Proper Operation and Maintenance .....	35
M. Inspection and Entry .....	35
N. Permit Actions .....	36
O. Definitions .....	36
P. Re-Opener Clause .....	36

Q. Penalties for Falsification of Forms and Reports.....	36
R. Other Permits.....	36
APPENDIX A.....	37
APPENDIX B.....	44
APPENDIX C.....	46
APPENDIX D.....	52
APPENDIX E.....	53
APPENDIX F.....	55

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(Part I)

## Part I. PERMIT COVERAGE AND LIMITATIONS

### A. Permit Application

This permit authorizes stormwater *discharges to surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

### B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharges* authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge of pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the Stormwater Pollution Prevention Plan (“SWPPP”) the reason(s) for the deviation or alternative design and provide information



(Part I.B.1)

which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

- (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;
- (ii) Control stormwater *discharges* to *minimize* channel and streambank erosion and scour in the immediate vicinity of the *discharge* points;
- (iii) *Minimize* the amount of soil exposed during *construction activity*;
- (iv) *Minimize* the disturbance of *steep slopes*;
- (v) *Minimize* sediment *discharges* from the site;
- (vi) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, unless *infeasible*;
- (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted; and
- (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover.

b. **Soil Stabilization.** In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering.** *Discharges* from dewatering activities, including *discharges*

(Part I.B.1.c)

from dewatering of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to *minimize the discharge of pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

- (i) *Minimize the discharge of pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;
- (ii) *Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater.* Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge of pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and
- (iii) Prevent the *discharge of pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited Discharges.** The following *discharges* are prohibited:

- (i) Wastewater from washout of concrete;
- (ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- (iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;
- (iv) Soaps or solvents used in vehicle and equipment washing; and
- (v) Toxic or hazardous substances from a spill or other release.

f. **Surface Outlets.** When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion

(Part I.B.1.f)

at or below the outlet does not occur.

### **C. Post-construction Stormwater Management Practice Requirements**

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

#### **a. Sizing Criteria for New Development**

- (i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

**In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual.** The remaining portion of the total WQv

(Part I.C.2.a.ii)

that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) Overbank Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that overbank control is not required.
- (v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that overbank control is not required.

**b. Sizing Criteria for New Development in Enhanced Phosphorus Removal Watershed**

- (i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or

(Part I.C.2.b.ii)

standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

**In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual.** The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) Overbank Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that overbank control is not required.
- (v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that overbank control is not required.

**c. Sizing Criteria for Redevelopment Activity**

(Part I.C.2.c.i)

- (i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.
- (1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
  - (2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
  - (3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
  - (4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

- (ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iii) Overbank Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(Part I.C.2.c.iv)

- (iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

**d. Sizing Criteria for Combination of Redevelopment Activity and New Development**

Construction projects that include both *New Development* and *Redevelopment Activity* shall provide post-construction stormwater management controls that meet the *sizing criteria* calculated as an aggregate of the *Sizing Criteria* in Part I.C.2.a. or b. of this permit for the *New Development* portion of the project and Part I.C.2.c of this permit for *Redevelopment Activity* portion of the project.

**D. Maintaining Water Quality**

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or

(Part I.D)

if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

#### **E. Eligibility Under This General Permit**

1. This permit may authorize all *discharges* of stormwater from *construction activity to surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges* from *construction activities*.
3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater *discharges* may be authorized by this permit: *discharges* from firefighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated *groundwater* or spring water; uncontaminated *discharges* from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who *discharge* as noted in this paragraph, and with the exception of flows from firefighting activities, these *discharges* must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.
4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

#### **F. Activities Which Are Ineligible for Coverage Under This General Permit**

All of the following are **not** authorized by this permit:



(Part I.F)

1. *Discharges after construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;
4. *Construction activities* or *discharges from construction activities* that may adversely affect an endangered or threatened species unless the *owner or operator* has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.C.2 of this permit.
5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which disturb one or more acres of land with no existing *impervious cover*; and
  - c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture (“USDA”) Soil Survey for the County where the disturbance will occur.
7. *Construction activities* for linear transportation projects and linear utility projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which disturb two or more acres of land with no existing *impervious cover*; and
  - c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the USDA Soil Survey for the County where the disturbance will occur.

(Part I.F.8)

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.C.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:
- a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the construction site within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.
    - 1-5 acres of disturbance - 20 feet
    - 5-20 acres of disturbance - 50 feet
    - 20+ acres of disturbance - 100 feet, or
  - b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
    - (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
    - (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
    - (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
    - (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or
  - c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:
    - (i) No Affect
    - (ii) No Adverse Affect

(Part I.F.8.c.iii)

(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

## Part II. OBTAINING PERMIT COVERAGE

### A. Notice of Intent (NOI) Submittal

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the Department in order to be authorized to *discharge* under this permit. An *owner or operator* shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (<http://www.dec.ny.gov/>). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address.

**NOTICE OF INTENT  
NYS DEC, Bureau of Water Permits  
625 Broadway, 4<sup>th</sup> Floor  
Albany, New York 12233-3505**

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department. An *owner or operator* shall use either the electronic (eNOI) or paper version of the NOI.

The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the address in Part II.A.1.

(Part II.A.2)

The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.E. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4*.

3. The *owner or operator* shall have the SWPPP preparer sign the “SWPPP Preparer Certification” statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

**B. Permit Authorization**

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
  - a. project review pursuant to the State Environmental Quality Review Act (“SEQRA”) have been satisfied, when SEQRA is applicable. See the Department’s website (<http://www.dec.ny.gov/>) for more information,
  - b. where required, all necessary Department permits subject to the *Uniform Procedures Act (“UPA”)* (see 6 NYCRR Part 621) have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators of construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,
  - c. the final SWPPP has been prepared, and
  - d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.B.2 above

(Part II.B.3)

will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
  - (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or
  - (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;
  - (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.
- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
  - (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed “MS4 SWPPP Acceptance” form, or
  - (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed “MS4 SWPPP Acceptance” form.

4. The Department may suspend or deny an *owner’s or operator’s* coverage

(Part II.B.4)

under this permit if the Department determines that the SWPPP does not meet the permit requirements. In accordance with statute, regulation, and the terms and conditions of this permit, the Department may deny coverage under this permit and require submittal of an application for an individual SPDES permit based on a review of the NOI or other information pursuant to Part II.

5. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.B. of this permit.

### **C. General Requirements For Owners or Operators With Permit Coverage**

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (“NOT”) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.
2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-15-002), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, and all documentation necessary to demonstrate eligibility with this permit at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.
3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:
  - a. The *owner or operator* shall

(Part II.C.3.a)

have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

- b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.
  - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
  - d. The *owner or operator* shall install any additional site specific practices needed to protect water quality.
  - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.
  5. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the *regulated, traditional land use control MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice

(Part II.D)

**D. Permit Coverage for Discharges Authorized Under GP-0-10-001**

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-10-001), an *owner or operator* of a *construction activity* with coverage under GP-0-10-001, as of the effective date of GP-0-15-002, shall be authorized to *discharge* in accordance with GP-0-15-002, unless otherwise notified by the Department.

An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-15-002.

**E. Change of *Owner or Operator***

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.A.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.



(Part III)

## Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

### A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.
2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP:
  - a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;
  - b. whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the *discharge* of *pollutants*; and
  - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority.
5. The Department may notify the *owner or operator* at any time that the

(Part III.A.5)

SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.C.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the

(Part III.A.6)

*trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the construction site. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

**B. Required SWPPP Contents**

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:
  - a. Background information about the scope of the project, including the location, type and size of project;
  - b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge(s)*;
  - c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
  - d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other

(Part III.B.1.d)

activity at the site that results in soil disturbance;

- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;
- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;
- j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;
- k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the construction site; and
- l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design

(Part III.B.1.I)

and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

The post-construction stormwater management practice component of the SWPPP shall include the following:

- a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;
- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
- c. A Stormwater Modeling and Analysis Report that includes:
  - (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;
  - (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;
  - (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;
  - (iv) Summary table, with supporting calculations, which demonstrates

(Part III.B.2.c.iv)

that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

- (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and
  - (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;
- d. Soil testing results and locations (test pits, borings);
  - e. Infiltration test results, when required; and
  - f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.
3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria*, Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

### **C. Required SWPPP Components by Project Type**

Unless otherwise notified by the Department, *owners or operators of construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators of the construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

(Part IV)

## **Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS**

### **A. General Construction Site Inspection and Maintenance Requirements**

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

### **B. Contractor Maintenance Inspection Requirements**

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.
2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

### **C. Qualified Inspector Inspection Requirements**

(Part IV.C)

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:
  - a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
  - b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
  - c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
  - d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:
  - a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
  - b. For construction sites where soil disturbance activities are on-going and



(Part IV.C.2.b)

the *owner or operator* has received authorization in accordance with Part II.C.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

- c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.
- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice*” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1 of this permit.
- e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall

(Part IV.C.2.e)

be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of *discharge* from the construction site.
4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:
  - a. Date and time of inspection;
  - b. Name and title of person(s) performing inspection;
  - c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
  - d. A description of the condition of the runoff at all points of *discharge* from the construction site. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
  - e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
  - f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;
  - g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
  - h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

(Part IV.C.4.i)

- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
  - j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
  - k. Identification and status of all corrective actions that were required by previous inspection; and
  - l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
  6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.C.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

## Part V. TERMINATION OF PERMIT COVERAGE

### A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.A.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

(Part V.A.2)

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:
  - a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;
  - b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
  - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.E. of this permit.
  - d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.
3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice certification statements*” on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.
4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the “*MS4 Acceptance*” statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.A.3. of this permit.

(Part V.A.5)

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:
  - a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,
  - b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
  - c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,
  - d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

## **Part VI. REPORTING AND RETENTION OF RECORDS**

### **A. Record Retention**

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

### **B. Addresses**

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.A.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

(Part VII)

## **Part VII. STANDARD PERMIT CONDITIONS**

### **A. Duty to Comply**

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

### **B. Continuation of the Expired General Permit**

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

### **C. Enforcement**

Failure of the *owner or operator*, its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to \$37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

### **D. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

(Part VII.E)

### **E. Duty to Mitigate**

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

### **F. Duty to Provide Information**

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

### **G. Other Information**

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

### **H. Signatory Requirements**

1. All NOIs and NOTs shall be signed as follows:
  - a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
    - (i) a president, secretary, treasurer, or vice-president of the

(Part VII.H.1.a.i)

corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

- (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

- (i) the chief executive officer of the agency, or

- (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named



(Part VII.H.2.b)

individual or any individual occupying a named position) and,

- c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

#### **I. Property Rights**

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

#### **J. Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

#### **K. Requirement to Obtain Coverage Under an Alternative Permit**

1. The Department may require any *owner or operator* authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any *discharger* authorized by a general permit to apply for an individual SPDES permit, it shall notify the *discharger* in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from *owner or operator* receipt of the notification letter, whereby the authorization to

(Part VII.K.1)

*discharge* under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge(s)*, the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

#### **L. Proper Operation and Maintenance**

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

#### **M. Inspection and Entry**

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a construction site which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.
4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

(Part VII.N)

**N. Permit Actions**

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

**O. Definitions**

Definitions of key terms are included in Appendix A of this permit.

**P. Re-Opener Clause**

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with *construction activity* covered by this permit, the *owner or operator* of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

**Q. Penalties for Falsification of Forms and Reports**

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

**R. Other Permits**

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

## APPENDIX A

### Definitions

**Alter Hydrology from Pre to Post-Development Conditions** - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

**Combined Sewer** - means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

**Commence (Commencement of) Construction Activities** - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “*Construction Activity(ies)*” also.

**Construction Activity(ies)** - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

**Direct Discharge (to a specific surface waterbody)** - means that runoff flows from a construction site by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a construction site to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

**Discharge(s)** - means any addition of any pollutant to waters of the State through an outlet or point source.

**Environmental Conservation Law (ECL)** - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

**Equivalent (Equivalence)** – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

**Final Stabilization** - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied

on all disturbed areas that are not covered by permanent structures, concrete or pavement.

**General SPDES permit** - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

**Groundwater(s)** - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

**Historic Property** – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

**Impervious Area (Cover)** - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

**Infeasible** – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

**Larger Common Plan of Development or Sale** - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

**Minimize** – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

**Municipal Separate Storm Sewer (MS4)** - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters,

ditches, man-made channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a *combined sewer*; and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES)** - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

**New Development** – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

**NOI Acknowledgment Letter** - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

**Owner or Operator** - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

**Performance Criteria** – means the design criteria listed under the “Required Elements” sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf ) in Part I.C.2. of the permit.

**Pollutant** - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

**Qualified Inspector** - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

**Qualified Professional** - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York..

**Redevelopment Activity(ies)** – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

**Regulated, Traditional Land Use Control MS4** - means a city, town or village with land use control authority that is required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

**Routine Maintenance Activity** - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Stream bank restoration projects (does not include the placement of spoil material),
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that makes the transition between the road shoulder and the ditch or embankment,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or embankment,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

**Site limitations** – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

**Sizing Criteria** – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), Overbank Flood (Qp), and Extreme Flood (Qf).

**State Pollutant Discharge Elimination System (SPDES)** - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

**Steep Slope** – means land area with a Soil Slope Phase that is identified as an E or F, or



the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture (“USDA”) Soil Survey for the County where the disturbance will occur.

**Surface Waters of the State** - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

**Temporarily Ceased** – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

**Temporary Stabilization** - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

**Total Maximum Daily Loads (TMDLs)** - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for point source discharges, load allocations (LAs) for nonpoint sources, and a margin of safety (MOS).

**Trained Contractor** - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

**Uniform Procedures Act (UPA) Permit** - means a permit required under 6 NYCRR Part

621 of the Environmental Conservation Law (ECL), Article 70.

**Water Quality Standard** - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

## APPENDIX B

### Required SWPPP Components by Project Type

**Table 1**  
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP**  
**THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS**

**The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:**

- Single family home not located in one of the watersheds listed in Appendix C or not directly discharging to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other agricultural building, silo, stock yard or pen.

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Bike paths and trails
- Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), excluding projects that *alter hydrology from pre to post development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of less than five acres and construction activities that include the construction or reconstruction of impervious area

**The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:**

- All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

**Table 2**  
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES**  
**POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other agricultural building(e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

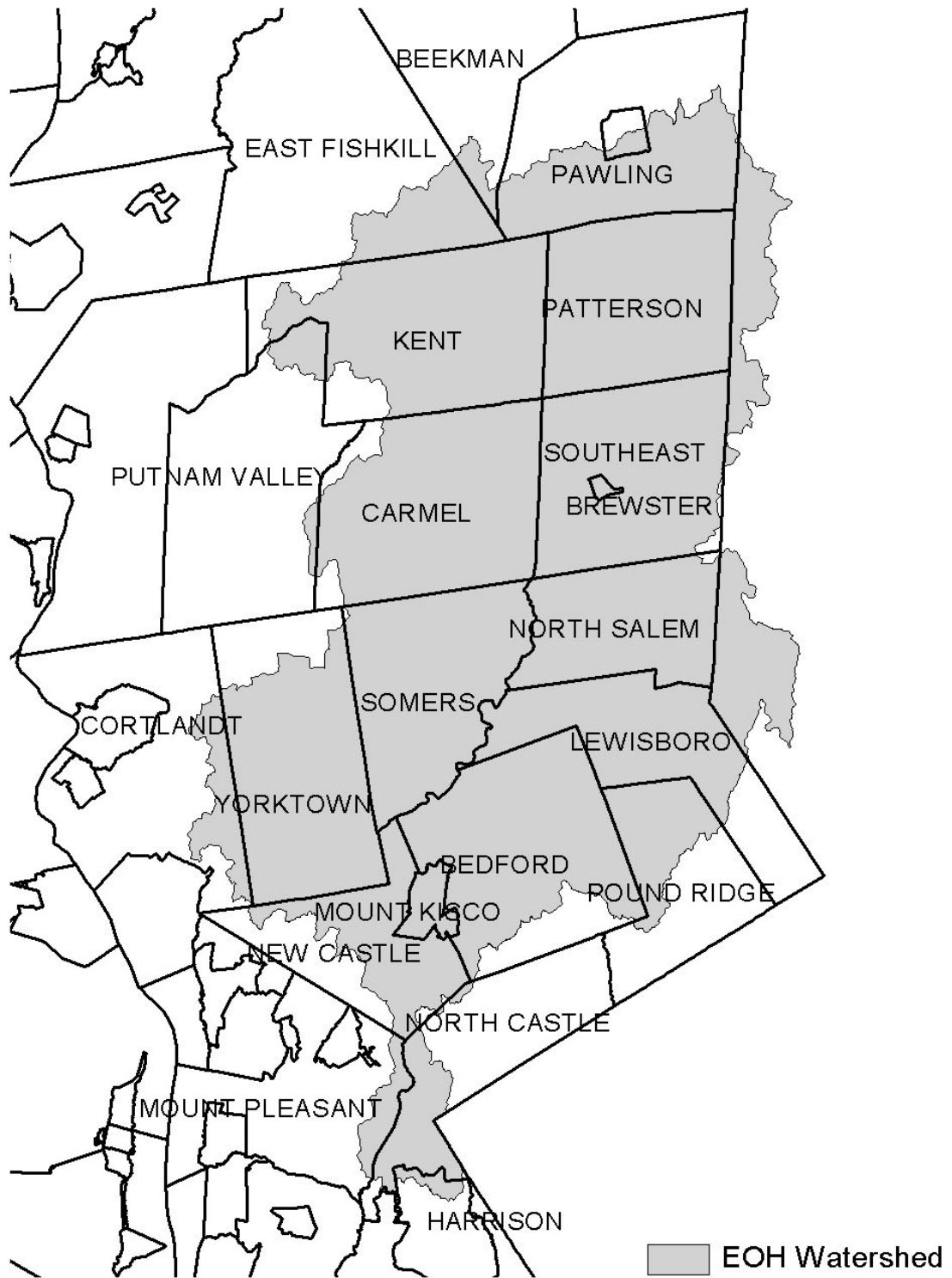
## APPENDIX C

### Watersheds Where Enhanced Phosphorus Removal Standards Are Required

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

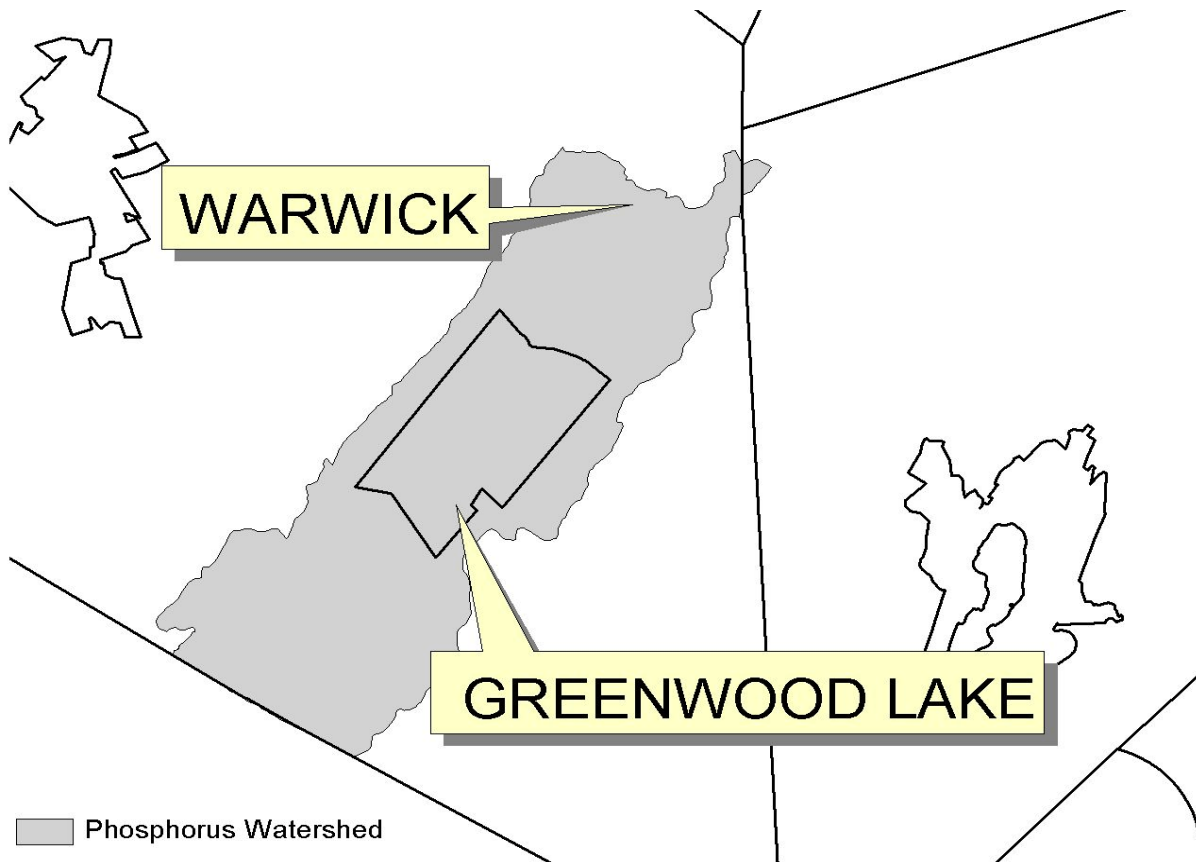
**Figure 1 - New York City Watershed East of the Hudson**



**Figure 2 - Onondaga Lake Watershed**



**Figure 3 - Greenwood Lake Watershed**





**Figure 4 - Oscawana Lake Watershed**

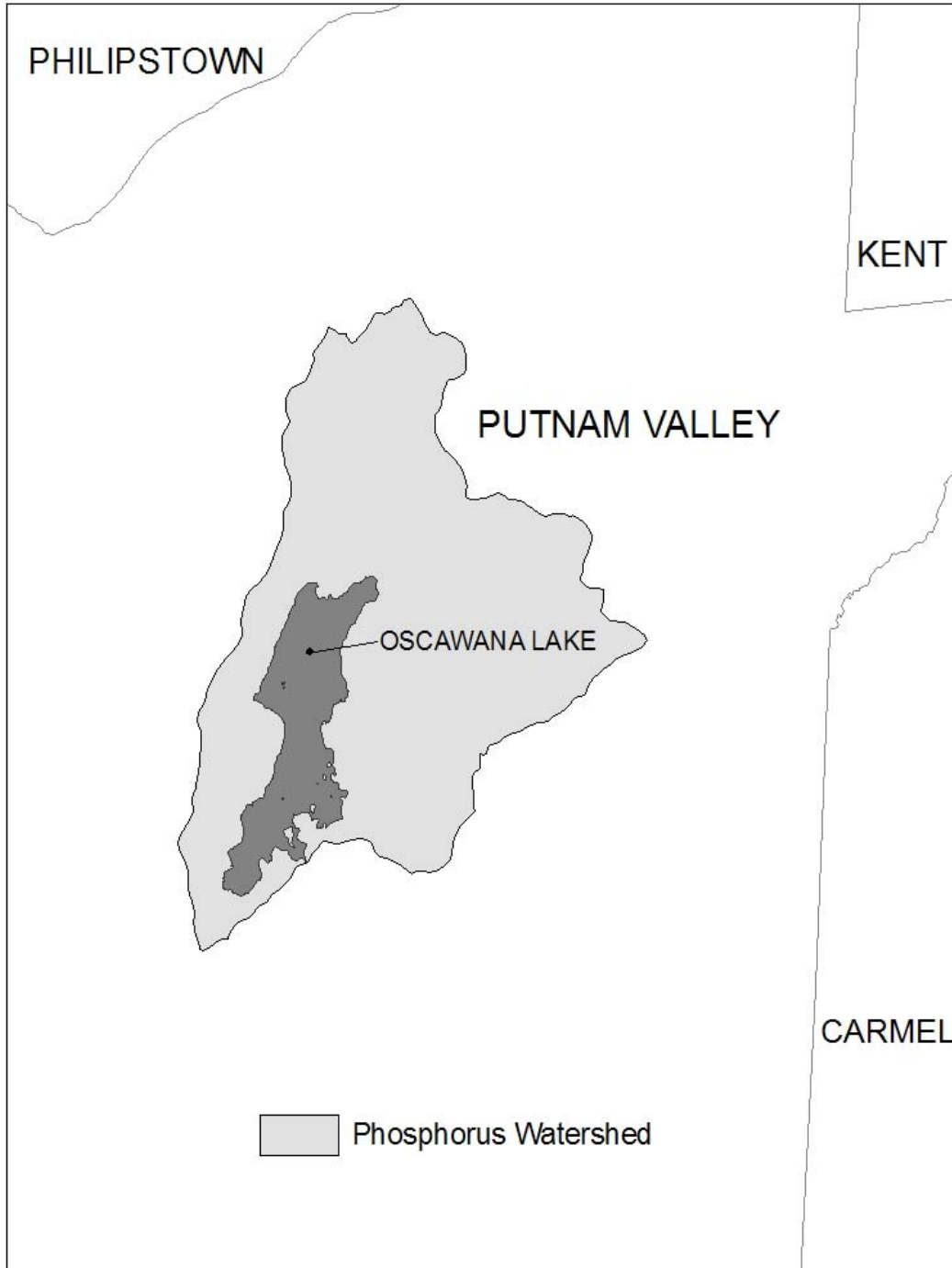
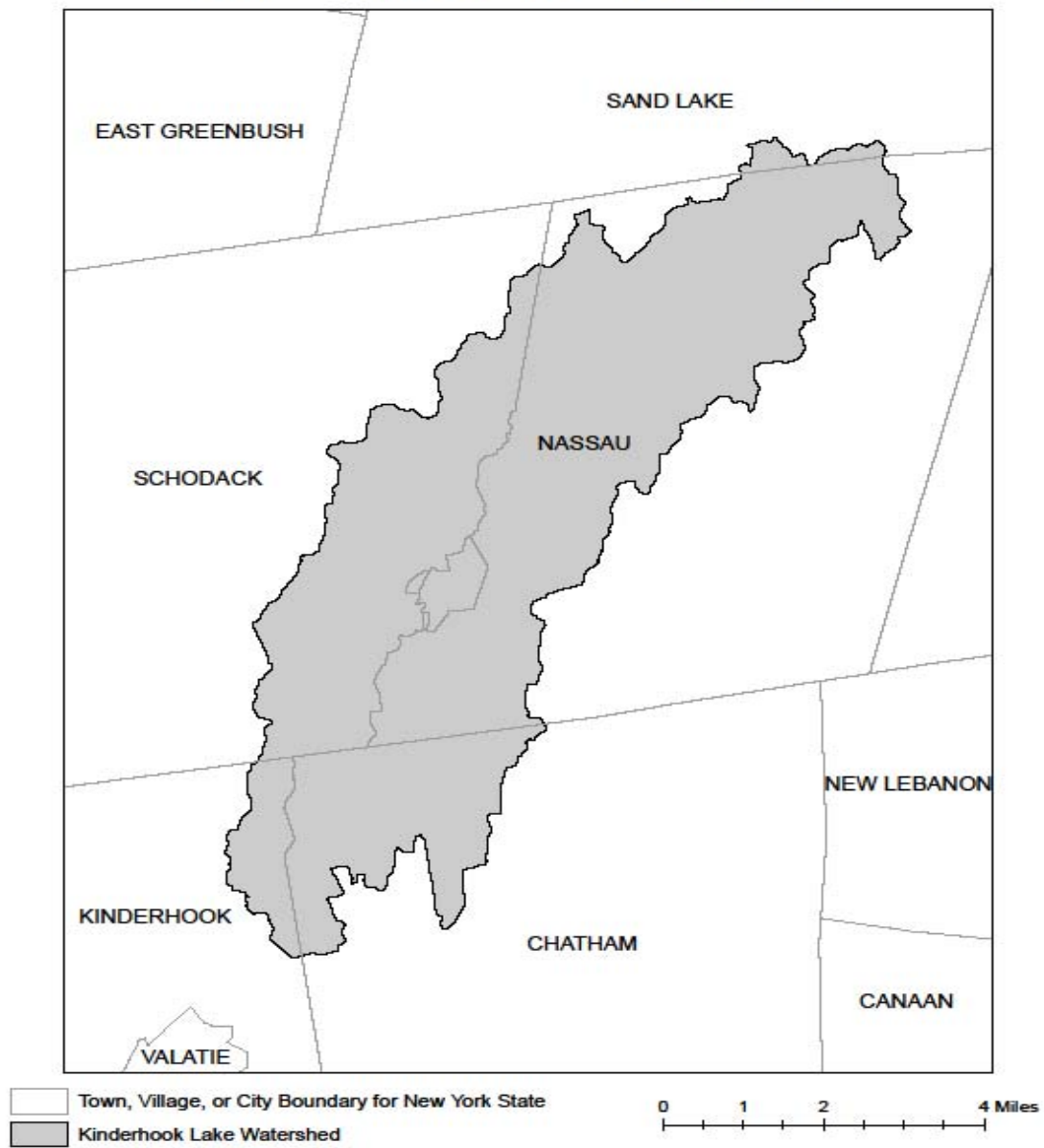


Figure 5: Kinderhook Lake Watershed



## APPENDIX D

**Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.**

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

## APPENDIX E

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015.

COUNTY	WATERBODY	COUNTY	WATERBODY
Albany	Ann Lee (Shakers) Pond, Stump Pond	Greene	Sleepy Hollow Lake
Albany	Basic Creek Reservoir	Herkimer	Steele Creek tribs
Allegheny	Amity Lake, Saunders Pond	Kings	Hendrix Creek
Bronx	Van Cortlandt Lake	Lewis	Mill Creek/South Branch and tribs
Broome	Whitney Point Lake/Reservoir	Livingston	Conesus Lake
Broome	Fly Pond, Deer Lake	Livingston	Jaycox Creek and tribs
Broome	Minor Tribs to Lower Susquehanna (north)	Livingston	Mill Creek and minor tribs
Cattaraugus	Allegheny River/Reservoir	Livingston	Bradner Creek and tribs
Cattaraugus	Case Lake	Livingston	Christie Creek and tribs
Cattaraugus	Linlyco/Club Pond	Monroe	Lake Ontario Shoreline, Western
Cayuga	Duck Lake	Monroe	Mill Creek/Blue Pond Outlet and tribs
Chautauqua	Chautauqua Lake, North	Monroe	Rochester Embayment - East
Chautauqua	Chautauqua Lake, South	Monroe	Rochester Embayment - West
Chautauqua	Bear Lake	Monroe	Unnamed Trib to Honeoye Creek
Chautauqua	Chadakoin River and tribs	Monroe	Genesee River, Lower, Main Stem
Chautauqua	Lower Cassadaga Lake	Monroe	Genesee River, Middle, Main Stem
Chautauqua	Middle Cassadaga Lake	Monroe	Black Creek, Lower, and minor tribs
Chautauqua	Findley Lake	Monroe	Buck Pond
Clinton	Great Chazy River, Lower, Main Stem	Monroe	Long Pond
Columbia	Kinderhook Lake	Monroe	Cranberry Pond
Columbia	Robinson Pond	Monroe	Mill Creek and tribs
Dutchess	Hillside Lake	Monroe	Shipbuilders Creek and tribs
Dutchess	Wappinger Lakes	Monroe	Minor tribs to Irondequoit Bay
Dutchess	Fall Kill and tribs	Monroe	Thomas Creek/White Brook and tribs
Erie	Green Lake	Nassau	Glen Cove Creek, Lower, and tribs
Erie	Scajaquada Creek, Lower, and tribs	Nassau	LI Tribs (fresh) to East Bay
Erie	Scajaquada Creek, Middle, and tribs	Nassau	East Meadow Brook, Upper, and tribs
Erie	Scajaquada Creek, Upper, and tribs	Nassau	Hempstead Bay
Erie	Rush Creek and tribs	Nassau	Hempstead Lake
Erie	Ellicott Creek, Lower, and tribs	Nassau	Grant Park Pond
Erie	Beeman Creek and tribs	Nassau	Beaver Lake
Erie	Murder Creek, Lower, and tribs	Nassau	Camaans Pond
Erie	South Branch Smoke Cr, Lower, and tribs	Nassau	Halls Pond
Erie	Little Sister Creek, Lower, and tribs	Nassau	LI Tidal Tribs to Hempstead Bay
Essex	Lake George (primary county: Warren)	Nassau	Massapequa Creek and tribs
Genesee	Black Creek, Upper, and minor tribs	Nassau	Reynolds Channel, east
Genesee	Tonawanda Creek, Middle, Main Stem	Nassau	Reynolds Channel, west
Genesee	Oak Orchard Creek, Upper, and tribs	Nassau	Silver Lake, Lofts Pond
Genesee	Bowen Brook and tribs	Nassau	Woodmere Channel
Genesee	Bigelow Creek and tribs	Niagara	Hyde Park Lake
Genesee	Black Creek, Middle, and minor tribs	Niagara	Lake Ontario Shoreline, Western
Genesee	LeRoy Reservoir	Niagara	Bergholtz Creek and tribs
Greene	Schoharie Reservoir	Oneida	Ballou, Nail Creeks
		Onondaga	Ley Creek and tribs
		Onondaga	Onondaga Creek, Lower and tribs

## APPENDIX E

### List of 303(d) segments impaired by pollutants related to construction activity, cont'd.

COUNTY	WATERBODY	COUNTY	WATERBODY
Onondaga	Onondaga Creek, Middle and tribs	Suffolk	Great South Bay, West
Onondaga	Onondaga Creek, Upp, and minor tribs	Suffolk	Mill and Seven Ponds
Onondaga	Harbor Brook, Lower, and tribs	Suffolk	Moriches Bay, East
Onondaga	Ninemile Creek, Lower, and tribs	Suffolk	Moriches Bay, West
Onondaga	Minor tribs to Onondaga Lake	Suffolk	Quantuck Bay
Onondaga	Onondaga Creek, Lower, and tribs	Suffolk	Shinnecock Bay (and Inlet)
Ontario	Honeoye Lake	Sullivan	Bodine, Montgomery Lakes
Ontario	Hemlock Lake Outlet and minor tribs	Sullivan	Davies Lake
Ontario	Great Brook and minor tribs	Sullivan	Pleasure Lake
Orange	Monhagen Brook and tribs	Sullivan	Swan Lake
Orange	Orange Lake	Tompkins	Cayuga Lake, Southern End
Orleans	Lake Ontario Shoreline, Western	Tompkins	Owasco Inlet, Upper, and tribs
Oswego	Pleasant Lake	Ulster	Ashokan Reservoir
Oswego	Lake Neatahwanta	Ulster	Esopus Creek, Upper, and minor tribs
Putnam	Oscawana Lake	Ulster	Esopus Creek, Lower, Main Stem
Putnam	Palmer Lake	Ulster	Esopus Creek, Middle, and minor tribs
Putnam	Lake Carmel	Warren	Lake George
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Warren	Tribs to L.George, Village of L George
Queens	Bergen Basin	Warren	Huddle/Finkle Brooks and tribs
Queens	Shellbank Basin	Warren	Indian Brook and tribs
Rensselaer	Nassau Lake	Warren	Hague Brook and tribs
Rensselaer	Snyders Lake	Washington	Tribs to L.George, East Shr Lk George
Richmond	Grasmere, Arbutus and Wolfes Lakes	Washington	Cossayuna Lake
Rockland	Congers Lake, Swartout Lake	Washington	Wood Cr/Champlain Canal, minor tribs
Rockland	Rockland Lake	Wayne	Port Bay
Saratoga	Ballston Lake	Wayne	Marbletown Creek and tribs
Saratoga	Round Lake	Westchester	Lake Katonah
Saratoga	Dwaas Kill and tribs	Westchester	Lake Mohegan
Saratoga	Tribs to Lake Lonely	Westchester	Lake Shenorock
Saratoga	Lake Lonely	Westchester	Reservoir No.1 (Lake Isle)
Schenectady	Collins Lake	Westchester	Saw Mill River, Middle, and tribs
Schenectady	Duane Lake	Westchester	Silver Lake
Schenectady	Mariaville Lake	Westchester	Teatown Lake
Schoharie	Engleville Pond	Westchester	Truesdale Lake
Schoharie	Summit Lake	Westchester	Wallace Pond
Schuyler	Cayuta Lake	Westchester	Peach Lake
St. Lawrence	Fish Creek and minor tribs	Westchester	Mamaroneck River, Lower
St. Lawrence	Black Lake Outlet/Black Lake	Westchester	Mamaroneck River, Upp, and tribs
Steuben	Lake Salubria	Westchester	Sheldrake River and tribs
Steuben	Smith Pond	Westchester	Blind Brook, Lower
Suffolk	Millers Pond	Westchester	Blind Brook, Upper, and tribs
Suffolk	Mattituck (Marratooka) Pond	Westchester	Lake Lincolndale
Suffolk	Tidal tribs to West Moriches Bay	Westchester	Lake Meahaugh
Suffolk	Canaan Lake	Wyoming	Java Lake
Suffolk	Lake Ronkonkoma	Wyoming	Silver Lake
Suffolk	Beaverdam Creek and tribs		
Suffolk	Big/Little Fresh Ponds		
Suffolk	Fresh Pond		
Suffolk	Great South Bay, East		
Suffolk	Great South Bay, Middle		

Note: The list above identifies those waters from the final New York State "2014 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy", dated January 2015, that are impaired by silt, sediment or nutrients.

**APPENDIX F**

**LIST OF NYS DEC REGIONAL OFFICES**

<b><u>Region</u></b>	<b><u>COVERING THE FOLLOWING COUNTIES:</u></b>	<b><u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u></b>	<b><u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u></b>
<b>1</b>	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
<b>2</b>	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
<b>3</b>	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
<b>4</b>	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
<b>5</b>	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, Po Box 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
<b>6</b>	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
<b>7</b>	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
<b>8</b>	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROAD AVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
<b>9</b>	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVE. BUFFALO, NY 14203-2999 TEL. (716) 851-7070

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STORM WATER PERMIT CERTIFICATION STATEMENT

Contractor shall certify that it understands the permit conditions and Contractor's responsibilities as set forth in the Storm Water Pollution Prevention Plan (SWPPP). Contractor shall sign and submit this certification statement to Engineer prior to performing the Work. Certification statement shall be signed by an owner, principal, president, secretary, or treasurer of the firm.

---

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Employee Responsible for SWPPP Implementation ("Trained Contractor"):

Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a Site inspection. I also understand that Owner must comply with the terms and conditions of the most current version of NYSDEC's SPDES General Permit for Storm Water Discharges from Construction Activity (SPDES General Permit), and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.

Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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STORM WATER INSPECTION REPORT

Owner: \_\_\_\_\_

Project: \_\_\_\_\_

Site: \_\_\_\_\_

Date and Time of Inspection: \_\_\_\_\_

Qualified Inspector (Name, Title, and Affiliation): \_\_\_\_\_

Weather Conditions: \_\_\_\_\_

Soil Conditions: \_\_\_\_\_

---

Describe disturbed areas at time of inspection: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Describe areas stabilized (temporary or final) since previous inspection: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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ATTACH SITE PLAN SHOWING APPROXIMATE LIMITS OF DISTURBED AND NEWLY-STABILIZED AREAS

---

Describe repairs, maintenance, or corrective actions implemented since previous inspection: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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ATTACH PHOTOGRAPHS OF AREAS OR ITEMS INSTALLED, REPAIRED, OR REPLACED

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### **Maintaining Water Quality**

**Yes No NA**

- Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
- Is there residue from oil and floating substances, visible oil film, or globules or grease?
- All disturbance is within the limits of the approved plans?
- Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

### **Housekeeping**

**Yes No NA**

#### 1. General Site Conditions:

- Is construction site litter and debris appropriately managed?
- Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
- Is construction impacting the adjacent property?
- Is dust adequately controlled?

#### 2. Temporary Stream Crossing:

- Maximum diameter pipes necessary to span creek without dredging are installed?
- Installed non-woven geotextile fabric beneath approaches?
- Is fill composed of aggregate (no earth or soil)?
- Rock on approaches is clean enough to remove mud from vehicles and prevent sediment from entering stream during high flow?

### **Run-Off Control Practices**

**Yes No NA**

#### 1. Excavation Dewatering:

- Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan?
- Clean water from upstream pool is being pumped to the downstream pool?
- Sediment laden water from work area is being discharged to a silt-trapping device?
- Constructed upstream berm with 1-foot minimum freeboard?

#### 2. Level Spreader:

- Installed per plan?
- Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow?
- Flow sheets out of level spreader without erosion on downstream edge?

#### 3. Interceptor Dikes and Swales:

- Installed per plan with minimum side slopes of 2H:1V or flatter?
- Stabilized by geotextile fabric, seed, or mulch with no erosion occurring?
- Sediment-laden run-off directed to sediment trapping structure?

#### 4. Stone Check Dam:

- Is channel stable (flow is not eroding soil underneath or around the structure)?
- Check dam is in good condition (rocks in place and no permanent pools behind the structure)?
- Has accumulated sediment been removed?

#### 5. Rock Outlet Protection:

- Installed per plan?
- Installed concurrently with pipe installation?

### **Soil Stabilization**

**Yes No NA**

#### 1. Topsoil and Spoil Stockpiles:

- Stockpiles are stabilized with vegetation and/or mulch?
- Sediment control is installed at the toe of the slope?

#### 2. Revegetation:

- Temporary seed and mulch have been applied to idle areas?
- Six inches minimum of topsoil has been applied under permanent seeding?

**Sediment Control Practices**

Yes No NA

1. Stabilized Construction Entrance:

- Stone is clean enough to effectively remove mud from vehicles?
- Installed per standards and specifications?
- Does all traffic use the stabilized entrance to enter and leave construction site?
- Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence:

Sediment accumulation is \_\_\_% of design capacity.

- Installed on contour, 10 feet from toe of slope (not across conveyance channels)?
- Joints constructed by wrapping the two ends together for continuous support?
- Fabric buried six inches minimum below grade?
- Posts are stable, fabric is tight and without rips or frayed areas?

3. Storm Drain Inlet Protection (Use for Stone and Block; Filter Fabric; Curb; or Excavated Practices)

Sediment accumulation \_\_\_% of design capacity.

- Installed concrete blocks lengthwise so open ends face outward, not upward?
- Placed wire screen between No. 3 crushed stone and concrete blocks?
- Drainage area is one acre or less?
- Excavated area is 900 cubic feet?
- Excavated side slopes are 2H:1V?
- 2"x4" frame is constructed and structurally sound?
- Three-foot maximum spacing between posts?
- Fabric is embedded one to 1.5 feet below ground and secured to frame/posts with staples at maximum eight-inch spacing?
- Posts are stable, fabric is tight and without rips or frayed areas?

4. Temporary Sediment Trap:

Sediment accumulation is \_\_\_% of design capacity.

- Outlet structure is constructed per the approved plan or drawing?
- Geotextile fabric has been placed beneath rock fill?

5. Temporary Sediment Basin:

Sediment accumulation is \_\_\_% of design capacity.

- Basin and outlet structure constructed per the approved plan?
- Basin side slopes are stabilized with seed and mulch?
- Drainage structure flushed and basin surface restored upon removal of sediment basin facility?

Describe any repairs, maintenance, or corrective actions required to correct observed deficiencies: \_\_\_\_\_

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ATTACH PHOTOGRAPHS OF DEFICIENT AREAS OR ITEMS OBSERVED DURING THE INSPECTION

Qualified Inspector's Certification:

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein may be punishable by Law.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## SECTION 01 42 00

### REFERENCES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes the following:
  - a. Definitions and terminology in general use in the Contract Documents.
  - b. Applicable codes.
  - c. Abbreviations in general use throughout the Contract Documents.
  - d. General requirements regarding reference standards, including a listing of standard-issuing organizations (and their acronyms) used in the Contract Documents.

##### 1.02 DEFINITIONS AND TERMINOLOGY

###### A. Definitions and terminology applicable to the Contract Documents are defined therein.

###### B. Additional terminology used in the Contract Documents includes:

1. "Indicated" refers to graphic representations, notes, or schedules on the Drawings, or to other paragraphs, provisions, tables, or schedules in the Specifications and similar locations in the other Contract Documents. Terminology such as "shown", "noted", "scheduled", and "specified" are used to help the user locate the reference without limitation on the location.
2. "Installer", "applicator", or "erector" is Contractor or another person or entity engaged by Contractor, either as an employee or Subcontractor, to perform a particular construction activity, including installation, erection, application or similar Work. Installers shall be experienced in the Work that installer is engaged to perform.
  - a. The term "experienced", when used in conjunction with the term "installer", means having successfully completed not less than five previous projects similar in size and scope to this Project; being familiar with the special requirements indicated and required; being familiar with Laws and Regulations; and having complied with requirements of authorities having jurisdiction, and complying with requirements of the Supplier of the material or equipment being installed, unless other experience requirements specific to that element of the Work are indicated elsewhere in the Contract Documents.
3. Trades: Use of term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter", unless otherwise indicated in the Contract Documents or required by Laws or Regulations. Such terminology also does not imply that specified requirements apply exclusively to trade personnel of the corresponding generic name.

##### 1.03 APPLICABLE CODES

###### A. References in the Contract Documents to local code(s) shall mean the following:

1. New York City Administrative Code.
2. New York City Construction Codes:
  - a. General Administrative Provisions.
  - b. New York City Plumbing Code.
  - c. New York City Building Code.



- d. New York City Mechanical Code.
- e. New York City Fuel Gas Code.
- f. New York City Energy Conservation Code.
- 3. New York City Electrical Code.
- 4. New York City Fire Code.
- 5. Rules of the City of New York.

#### 1.04 ABBREVIATIONS AND ACRONYMS

- A. Common abbreviations and acronyms that may be found in the Contract Documents are indicated below, alphabetically by their written-out meaning:

alternating current	a-c
ampere	A
ante meridian	a.m.
average	avg
biochemical oxygen demand	BOD
brake horsepower	bhp
British thermal unit	Btu
Centigrade (or Celsius)	C
chlorinated polyvinyl chloride	CPVC
chlorofluorocarbons	CFC
Code of Federal Regulations	CFR
cubic inch	cu in
cubic foot	cu ft
cubic yard	cu yd, or CY
cubic meter	m <sup>3</sup>
cubic feet per minute	cfm
cubic feet per second	cfs
decibel	db
degrees Centigrade (or Celsius)	degrees C or °C
degrees Fahrenheit	degrees F or °F
diameter	dia
direct current	d-c
dollars	\$
each	ea
efficiency	eff
Fahrenheit	F
feet	ft
feet per hour	fph
feet per minute	fpm
feet per second	fps
figure	Fig
flange	flg
gallon	gal

gallons per hour	gph
gallons per minute	gpm
gallons per second	gps
gram	g
grams per liter	g/L
Hertz	Hz
high-density polyethylene	HDPE
horsepower	hp or HP
hour	hr
inch	in.
inches water gage	in. w.g.
inch-pound	in.-lb
inside diameter	ID
iron pipe size	IPS
thousand pounds	kips
thousand pounds per square inch	ksi
kilovolt-ampere	kva
kilowatt	kw
kilowatt-hour	kwhr or kwh
linear foot	lin ft or LF
linear low-density polyethylene	LLDPE
liter	L
maximum	max
mercury	Hg
microgram	ug
microgram per cubic meter	ug/m <sup>3</sup>
milligram	mg
milligrams per liter	mg/l or mg/L
milliliter	ml
millimeter	mm
million gallons per day	mgd or MGD
million gallon	MG
minimum	min
nitrogen oxide (total concentration of mono-nitrogen oxides such as nitric oxide [NO] and nitrogen dioxide [NO <sub>2</sub> ])	NOx
nominal pipe size	NPS
number	no.
New York Codes, Rules, and Regulations	NYCRR
ounce	oz
outside diameter	OD
particulate matter less than 10 micrometers in diameter	PM <sub>10</sub>
parts per million	ppm
parts per billion	ppb

polychlorinated biphenyl	PCB
polycyclic aromatic hydrocarbon	PAH
polyvinyl chloride	PVC
post meridian	p.m.
pound	lb
pounds per square inch	psi
pounds per square inch absolute	psia
pounds per square inch gauge	psig
pounds per square foot	psf
revolutions per minute	rpm
Rules of the City of New York	RCNY
second	sec
semi-volatile organic compound	SVOC
specific gravity	sp gr, or SG
square	sq
square foot	sq ft, or sf
square inch	sq in.
square yard	sq yd, or SY
standard	std
standard cubic feet per minute	scfm
thousand pounds per square inch	ksi
volt	V
volts alternating current	vac
volts direct current	vdc
volatile organic compound	VOC

#### 1.05 REFERENCE STANDARDS

- A. Refer to the Contract Documents relative to reference standards and resolving discrepancies between reference standards. Provisions of reference standards are in effect in accordance with the Specifications.
- B. Copies of Standards: Each entity engaged in the Work shall be familiar with reference standards applicable to its construction activity. Copies of applicable reference standards are not bound with the Contract Documents. Where reference standards are needed for a construction activity, obtain copies of standards from the publication source.
- C. Abbreviations and Acronyms: Where reference standards, specifications, codes, manuals, Laws or Regulations, or other published data of international, national, regional, or local organizations are referred to in the Contract Documents, the organization issuing the standard may be referred to by its abbreviation or acronym only. The following abbreviations or acronyms that may appear in the Contract Documents shall have the meanings indicated below. Listing is alphabetical by abbreviation or acronym.

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CLFMI	Chain-Link Fence Manufacturers Institute
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
EJCDC	Engineers Joint Contract Documents Committee
FHWA	Federal Highway Administration
FS	Federal Specification
IBC	International Building Code
ICC	International Code Council
NEC	National Electric Code
NFPA	National Fire Protection Association
NYCDDC	New York City Department of Design and Construction
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation
NYCDPR	New York City Department of Parks and Recreation
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety and Health Administration
RCSC	Research Council on Structural Connections
SSPC	Society for Protective Coatings
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

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REFERENCES  
01 42 00 – 6  
REVISION NO. 00  
DATE ISSUED: 10.23.2019

Arcadis of New York, Inc.

BT RED HOOK, LLC  
INTERIM REMEDIAL MEASURE  
RED HOOK 3 AND RED HOOK 4  
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

01 42 00 - References

## SECTION 01 51 05

### TEMPORARY UTILITIES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all temporary utilities required for the Project, including the following:
  - a. Electricity.
  - b. Lighting.
  - c. Telephone and communications.
  - d. Heating, cooling, ventilating, and temporary enclosures.
  - e. Water.
  - f. Fire protection.
2. Make all arrangements with utility owners and obtain required permits and approvals for temporary utilities.
3. Pay all service costs for utilities indicated in this Section as Contractor's responsibility, including cost of electricity, water, fuel, and other utility services required for the Work.
4. Continuously maintain adequate temporary utilities for all purposes during the Project, until removal of temporary utilities. At a minimum, provide and maintain temporary utilities through Substantial Completion and removal of temporary field offices and sheds.
5. Maintain, including cleaning, temporary utilities, and continuously provide consumables as required.
6. Temporary utilities shall be adequate for personnel using the Site and the needs of the Project.
7. Provide temporary utilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.

###### B. Related Sections:

1. Section 01 52 11, Engineer's Field Office.
2. Section 01 52 19, Sanitary Facilities.

##### 1.02 REFERENCE STANDARDS

###### A. The following standards are referenced in this Section:

1. NFPA 10, Standard for Portable Fire Extinguishers.
2. NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.

##### 1.03 REQUIREMENTS FOR TEMPORARY UTILITIES

###### A. Electrical:

1. Provide temporary electrical service required for the Work, including continuous power for temporary field offices and sheds. Provide temporary outlets with circuit breaker protection and ground fault protection.
2. Entity and personnel performing temporary electrical Work shall be an electrician legally qualified to perform electrical construction and electrical work in the jurisdiction where the Site is located.

- B. Lighting:
1. Provide lighting at the Site of not less than five foot-candles for open areas and not less than 10 foot-candles for stairs and shops. Provide not less than one, 300-watt lamp every 15 feet in indoor Work areas. Provide night security lighting of not less than five foot-candles within 50 feet of all parts of the Site during hours of darkness, controlled by photocell.
  2. Do not work in areas with insufficient lighting. Where lighting is insufficient for the work activities to be performed, provide additional temporary lighting.
  3. Provide temporary lighting sufficient for observation of the Work by Engineer and inspection by Contractor and authorities having jurisdiction. Where required by Engineer, provide additional temporary lighting.
  4. Provide temporary lighting for field offices in accordance with Section 01 52 11.
- C. Telephone and Communications:
1. Provide temporary telephone and communications required for Contractor's operations at the Site and for summoning emergency medical assistance.
  2. Provide temporary telephone and communications for field offices in accordance with Section 01 52 11.
- D. Heating, Cooling, Ventilating, and Enclosures:
1. Provide sufficient temporary heating, cooling, ventilating, and enclosures to ensure safe working conditions and prevent damage to existing facilities and the Work.
  2. Except where otherwise specified, temporary heating shall maintain temperature of the space served between 50 degrees F and maximum design temperature of building or facility and its contents.
  3. Maintain temperature of areas occupied by Owner's personnel or electronic equipment, including offices, lunch rooms, locker rooms, toilet rooms, and rooms containing computers, microprocessors, and control equipment, between 65 degrees F and 75 degrees F with relative humidity less than 75 percent.
  4. Required temperature range for storage areas and certain elements of the Work, including preparation of materials and surfaces, installation or application, and curing as applicable, shall be in accordance with the Contract Documents for the associated Work and the Supplier's recommended temperature range for storage, application, or installation, as appropriate.
  5. Provide temporary ventilation sufficient to prevent accumulation in construction areas and areas occupied by Owner of hazardous and nuisance levels or concentrations of dust and particulates, mist, fumes or vapors, odors, and gases associated with construction.
  6. Provide temporary enclosures and partitions required to maintain required temperature and humidity.
  7. Provide temporary heating, cooling, and ventilating for field offices in accordance with Section 01 52 11.
- E. Water:
1. General:
    - a. Provide temporary water facilities including piping, valves, meters if not provided by owner of existing waterline, backflow preventers, pressure regulators, and other appurtenances. Provide freeze-protection as required.
    - b. Continuously maintain adequate water flow and pressure for all purposes during the Project, until removal of temporary water systems.
  2. Water for Construction Purposes:
    - a. Provide water for Site maintenance and cleaning and, water necessary for construction activities, and water for disinfecting and testing of systems.
  3. Water for Human Consumption and Sanitation: Comply with Section 01 52 19.

- F. Fire Protection:
1. Provide temporary fire protection, including portable fire extinguishers rated not less than 2A or 5B in accordance with NFPA 10, for each work zone, each temporary building, and every 3,000 square feet of floor area under construction.
  2. Provide Class A (ordinary combustibles), Class B (combustible liquids and gases), and Class C (electrical equipment) fire extinguishers as necessary.
  3. Comply with NFPA 241 and requirements of fire marshals and authorities having jurisdiction at the Site.
  4. Provide temporary fire protection for field offices in accordance with Section 01 52 11.

## PART 2 – PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment for temporary utilities may be new or used, but shall be adequate for purposes intended and shall not create unsafe conditions, and shall comply with Laws and Regulations.
- B. Provide required materials, equipment, and facilities, including piping, cabling, controls, and appurtenances.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

- A. Install temporary utilities in neat, orderly, manner, and make structurally, mechanically, and electrically sound throughout.
- B. Location of Temporary Utilities:
1. Locate temporary systems for proper function and service.
  2. Temporary systems shall not interfere with or provide hazards or nuisances to the Work under this and other contracts, movement of personnel, traffic areas, materials handling, hoisting systems, storage areas, finishes, and work of utility owners and others.
  3. Do not install temporary utilities on the ground, with the exception of temporary extension cords, hoses, and similar systems in place for short durations.
- C. Modify and extend temporary systems as required by progress of the Work.

### 3.02 USE

- A. Maintain temporary systems to provide safe, continuous service as required.
- B. Properly supervise operation of temporary systems:
1. Enforce compliance with Laws and Regulations.
  2. Enforce safe practices.
  3. Prevent abuse of services.
  4. Prevent nuisances and hazards caused by temporary systems and their use.
  5. Prevent damage to finishes.
  6. Ensure that temporary systems and equipment do not interrupt continuous progress of construction.



- C. At end of each work day, check temporary systems and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

### 3.03 REMOVAL

- A. Completely remove temporary utilities, equipment, and materials when no longer required. Repair damage caused by temporary systems and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.
- B. Where temporary utilities are disconnected from existing utility, provide suitable, water-tight or gas-tight (as applicable) cap or blind flange, as applicable, on service line, in accordance with requirements of utility owner.
- C. Where permanent utilities and systems were used for temporary utilities, upon Substantial Completion replace all consumables such as filters and light bulbs and parts used during the Work.

END OF SECTION

## SECTION 01 52 11

### ENGINEER'S FIELD OFFICE

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes requirements for Contractor-provided temporary field offices, with furnishings, equipment, and consumables, for use by Owner, Construction Manager, Engineer, Air Monitoring Consultant, and authorities having jurisdiction.
2. Contractor shall provide and maintain mobile field office trailer(s) for:
  - a. Owner and Construction Manager.
  - b. Engineer.
  - c. Air Monitoring Personnel.
  - d. Authorities having jurisdiction.
3. Provide trailer(s) and field offices at location approved by Engineer, near Contractor's field office.
4. Field offices shall be complete, fully functional, and ready for occupancy within 14 days after Engineer's approval of the submittal required by this Section.
5. Obtain and pay for required permits and utilities. Field offices shall comply with Laws and Regulations.

###### B. Related Sections:

1. Section 01 51 05, Temporary Utilities.
2. Section 01 52 16, First-Aid Facilities.

##### 1.02 SUBMITTALS

###### A. Action Submittals:

1. Field Office Submittal: Submit, as a single submittal, the following:
  - a. Site plan indicating proposed number and location of field office trailers, parking for field offices, and facilities related to the field offices.
  - b. Information on proposed field office trailer size, construction, exterior appearance, interior finishes, and security measures.
  - c. Proposed layout of field office interior, showing location of offices, common areas, closets, with dimensions indicated for each.
  - d. Listing of utility providers.
  - e. Product data and technical information for multifunction printer and telephone system.

#### PART 2 – PRODUCTS

##### 2.01 MOBILE FIELD OFFICE TRAILERS

- A. Provide not more than two mobile office trailers, each in first-class condition approved by Engineer, and specifically designed for use as construction field office.
  1. Supplier: Provide field office by one of the following:
    - a. Modular Space Corporation (ModSpace).
    - b. Williams Scotsman, Inc.
    - c. Or equal.

2. Size: Floor area of not less than 430 square feet, and not less than 10 feet wide.
3. Partitioned to provide three separate office spaces.
4. Completely weather-tight and insulated, with minimum R-19 insulation.
5. Exterior finish approved by Engineer.
6. New interior finishes approved by Engineer, including resilient floor covering in first-class condition.
7. Provide skirting around perimeter of each mobile field office trailer.
8. Field Office Ingress and Egress:
  - a. Two doors for ingress and egress for each field office unit, each with landing, stairs, and railing complying with building codes and other Laws and Regulations in effect at the Site.
  - b. Landing and stairs shall be metal, pressure-treated wood, fiberglass, or concrete, and shall have slip-resistant walking surfaces.
  - c. Railing shall be metal, wood, or fiberglass.
  - d. Door Security:
    - 1) Doors shall be secure and lockable.
    - 2) Furnish each door with suitable, lockable security bar. Security bar shall be Master Lock 265DCCSEN Dual-Function Security Bar, or equal.
9. Windows:
  - a. Window area equal to not less than 10 percent of floor area.
  - b. Windows shall each have insect screen and operable sash.
  - c. Provide each window with lock and exterior security bars approved by Engineer.
10. One lockable closet for storage.
11. Keys:
  - a. Furnish to Engineer two identical sets of keys suitable for operating all keyed locks, including ingress/egress door locks, security bars for doors, window locks, closets, and office furnishings.
  - b. Permanently label each key to indicate its associated lock.

## 2.02 FIELD OFFICE UTILITIES

- A. Comply with Section 01 51 05.
- B. Provide the following for each field office trailer:
  1. Electrical System and Lighting:
    - a. Electric service as required, including paying all costs.
    - b. Interior lighting of not less than 50 foot-candles at desktop height.
    - c. Not less than eight 120-volt, wall-mounted, duplex convenience electrical receptacles.
    - d. Exterior, wall-mounted lighting of not less than 250 watts at each entrance.
    - e. Exterior security light for field office parking area. Provide at least one 1,000-watt, pole-mounted fixture with photocell control.
  2. Heating, Ventilating, and Air Conditioning System:
    - a. Provide automatic heating to maintain indoor temperature in field office of not less than 65 degrees F in cold weather.
    - b. Provide automatic cooling to maintain indoor temperature in field office of not warmer than 75 degrees F in warm weather.
    - c. Furnish all fuel and pay all utility costs.
  3. Telephone Service:
    - a. Land Lines:
      - 1) Private telephone service, including payment of installation, monthly, and service costs.
      - 2) Provide two telephone lines, each with separate telephone number assigned by the telephone company.

- 3) Pay for unlimited local and domestic long-distance service for duration of the Project.
  4. Internet Service:
    - a. Obtain and pay for Internet service, with unlimited (untimed) Internet access, until removal of field offices.
    - b. Cable or Fiber-Optic Service:
      - 1) Provide either cable or fiber-optic service via communication service provider at download speed of not less than 15 megabytes per second (Mbps) and upload speed of not less than 1 Mbps.
      - 2) Provide appropriate modem, cabling, and appurtenances.
    - c. Set up system and appurtenances required and verify functionality in each field office space.
- C. Should actions of utility companies delay the complete set up of field offices, Contractor shall provide temporary electricity, heat, telephone, and internet service as required at no additional cost to Owner.

## 2.03 FIELD OFFICE FURNISHINGS AND EQUIPMENT

- A. Provide the following furnishings and equipment for each field office trailer:
1. Desks: Four five-drawer desks, each with desktop surface five feet long by 2.5 feet wide with not less than one file drawer per desk suitable for storing 8.5-inch by 11-inch documents.
  2. Desk Chairs: Four new or used (in good condition) five-point, high-backed, cushioned swivel chairs with seat-height adjustment.
  3. Other Chairs: Four metal folding chairs without arm rests.
  4. Tables:
    - a. Two new or used (in good condition) portable folding tables, each eight feet long by 2.5 feet wide.
    - b. Two new or used (in good condition) portable folding tables, each four feet long by 2.5 feet wide.
  5. Plan rack(s) to hold not less than four sets of the Drawings.
  6. Two four-drawer file cabinets with locks.
  7. Shelving or bookcase with a total of 12 feet of shelf length and not less than 12 inches deep.
  8. Four polyethylene waste baskets, each with capacity of not less than seven gallons.
  9. Suitable doormat at each exterior ingress/egress door.
  10. Two cork tack-boards, each approximately 2.5 feet high by three feet wide, with thumbtacks.
  11. One white board for use with dry markers, approximately four feet high by six feet wide, with marker holding tray, installed by Contractor at location selected by Engineer in the field office. Furnish supply of colored markers and eraser for the white board.
  12. Safety Equipment: Provide two wall-mounted fire extinguishers, one battery-operated ceiling-mounted smoke detector, and one carbon monoxide detector suitably installed. Comply with Laws and Regulations and fire protection requirements of Section 01 51 05.
  13. One first-aid station. Comply with Section 01 52 16.
  14. Two electric clocks.
  15. One electric coffee maker with ten-cup capacity or larger.
  16. One microwave oven with capacity of not less than 0.9 cubic foot.
  17. One refrigerator with capacity of not less than 2.5 cubic feet.
  18. Bottled water with electric cooler dispenser for five-gallon bottles, with cup dispenser.

19. Telephone System:
  - a. Telephone System Features:
    - 1) Provide two cordless telephones.
    - 2) Each telephone shall have hands-free speaker, speed-dialing with not less than 16 programmable numbers, volume control, and buttons for mute, redial, and hold.
    - 3) Set up and verify operation of each telephone set.
  - b. Provide two digital telephone answering machines.
20. Multifunction Printer:
  - a. System Description: Provide one multifunction inkjet printer with color printing capability.
  - b. Manufacturer and Model: Provide one of the following:
    - 1) Brother MFC-J5720DW Business Smart Plus Inkjet All-in-One Printer.
    - 2) Epson WorkForce WF-7610 All-in-One Printer.
    - 3) HP Officejet 7612 Wide Format e-All-in-One Printer.
    - 4) Or equal.
  - c. Functions: Printing, photocopying, scanning, and faxing.
  - d. Paper Size: Capable of printing 8.5-inch by 11-inch (A), 8.5-inch by 14-inch (legal), and 11-inch by 17-inch (B) sheets.
  - e. Scanning: Capable of scanning to PDF and JPG file formats, selectable by user.
  - f. Ink Cartridges: Provide all cartridges required for full-color printing, and promptly replace cartridges as needed throughout the Project.
  - g. Provide necessary cables and appurtenances to enable all functions specified in this Section, including printing from field office computers.
21. Wireless Router:
  - a. Provide dual-band wireless-N router with capacity not less than 300 Mbps.
  - b. Manufacturer: Provide wireless router by one of the following:
    - 1) Linksys.
    - 2) Netgear.
    - 3) Or equal.
  - c. Set up router and appurtenances required and verify functionality in each field office space.
  - d. Routers will remain Contractor's property upon removal of field offices from the Site.
22. Two-way portable radio and charging unit.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

- A. Install field offices and related facilities in accordance with Laws and Regulations.
- B. Install materials and equipment, including pre-fabricated structures, in accordance with manufacturer's instructions, and to provide optimal performance and accuracy.

### 3.02 CLEANING, MAINTENANCE, AND SUPPLIES

- A. Furnish the following maintenance services:
  1. Immediately repair malfunctioning, damaged, leaking, or defective field office trailers, site improvements, systems, and equipment.
  2. Promptly provide snow and ice removal for field offices, including parking areas, walkways, and stairs and landings.

3. Provide continuous maintenance and janitorial service of field offices and sanitary facilities. Clean field offices not less than once per week. Sweep or vacuum field office not less than daily, or more-frequently when site conditions are such that dirt or mud is frequently tracked into field office.
  4. Waste Disposal:
    - a. Properly dispose of trash and waste as needed, not less than twice per week.
    - b. Properly handle and dispose of recyclables. Do not dispose of recyclables as trash.
    - c. Dispose of other waste, if any, as required, to avoid creation of nuisances and adverse environmental effects. Properly dispose of electronic waste, when necessary, at proper waste receiving facility.
- B. Consumables: Provide the following consumables as needed:
1. Light bulbs for interior and exterior lights.
  2. Ink cartridges for multifunction printers, as required.
  3. Paper supplies for multifunction printers. Always maintain in field office not less than one ream of each size of paper for which multifunction printers are capable.
  4. Dry markers in six colors and white board eraser set. Replace markers when exhausted or lost.
  5. Bottled water suitable for water dispensers and disposable cups.
  6. Coffee supplies, including coffee, filters, disposable cups, sugar, creamer, and stir-sticks.
  7. Hand-soap, paper towels, cleansers, sanitary supplies, and janitorial implements, including broom.
  8. Batteries for smoke detector and other battery-powered items furnished by Contractor.
  9. Replace fire extinguishers upon expiration.
  10. Not less-often than monthly, inspect first-aid kit and inventory items consumed or used, and remove items that are at or near their expiration date. Promptly replace and restock consumed and expired items.

### 3.03 REMOVAL

- A. Remove field offices and furnishings when directed by Engineer, prior to inspection for final completion. Repair damage caused by field offices and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

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ENGINEER'S FIELD OFFICE  
01 52 11 - 6  
REVISION NO. 00  
DATE ISSUED: 10.23.2019

Arcadis of New York, Inc.

BT RED HOOK, LLC  
INTERIM REMEDIAL MEASURE  
RED HOOK 3 AND RED HOOK 4  
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

01 52 11 - Engineer's Field Office

## SECTION 01 52 13

### CONTRACTOR'S FIELD OFFICE AND SHEDS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. Scope:
  - 1. Contractor shall provide a temporary field office for Contractor's use with not less than the minimum facilities specified.
  - 2. Provide required temporary storage and work sheds.
  - 3. Obtain and pay for required permits and utilities. Field offices and sheds shall comply with Laws and Regulations.
- B. Location:
  - 1. Locate field offices and sheds in accordance with the Contract Documents and in accordance with the Site mobilization discussions at the pre-construction conference.
- C. Furnish in Contractor's field office one complete set of the Contract Documents for ready reference by interested persons. In addition to the reference set, comply with Section 01 78 39 (Project Record Documents) and related provisions of the Contract Documents.
- D. Related Sections:
  - 1. Section 01 52 11, Engineer's Field Office.

#### PART 2 – PRODUCTS

##### 2.01 FIELD OFFICE AND SHEDS, FURNISHINGS, AND EQUIPMENT

- A. Contractor's Field Office and Furnishings:
  - 1. Construction: As required by Contractor and sufficient for Project meetings.
  - 2. Utilities and Services: Provide the following:
    - a. Telephone service.
    - b. Computer network and related facilities as required for Contractor's needs.
    - c. Utilities and related facilities for lighting and maintaining temperature, in accordance with Section 01 52 11.
  - 3. Furnishings:
    - a. Conference Facilities: Provide conference area with conference table and chairs sufficient for 15 people. Conference facilities and furnishings shall be provided with suitable utilities, lighting, ventilation, and temperature controls prior to the first progress meeting, unless otherwise approved by Engineer.
    - b. Other furnishings required by Contractor.
  - 4. Provide on field office's exterior an identification sign displaying Contractor's company name. Maximum size of sign shall be four feet by eight feet. Sign shall be suitable for outdoor use for the duration of the Project.
  - 5. Personal Protective Equipment for Site Visitors: Furnish and maintain at Contractor's field office the following:
    - a. Protective Helmets (Hard Hats): Eight, each with full brim, of fiberglass or thermoplastic; each with ratchet suspension; white in color.
    - b. Safety Glasses: Eight, each with clear lenses, polycarbonate, anti-fog and anti-scratch coating, suitable to fit over personal eyewear.



- c. Reflective Safety Vest: Eight, each of polyester mesh or other material acceptable to Engineer, color to be high-visibility orange, with one-inch-wide reflective tape, one-size-fits-all design.
  - d. Earplugs: Supply of foam, disposable earplugs. Promptly resupply when stock is depleted.
- B. Contractor's Storage and Work Sheds:
- 1. Provide storage and work sheds sized, furnished, and equipped to accommodate personnel, materials, and equipment involved in the Work, including temporary utility services and facilities required for environmental controls sufficient for personnel, materials, and equipment.

### PART 3 – EXECUTION

#### 3.01 INSTALLATION

- A. Install Contractor's temporary field offices, sheds, and related facilities in accordance with Laws and Regulations.
- B. Install materials and equipment, including pre-fabricated structures, in accordance with manufacturer's instructions.

#### 3.02 CLEANING, MAINTENANCE, AND SUPPLIES

- A. Clean and maintain field offices and sheds as needed.
- B. Provide consumables as needed.

#### 3.03 REMOVAL

- A. Do not remove temporary field offices and sheds until after Substantial Completion of the entire Work, unless otherwise approved by Engineer.
- B. Remove temporary field offices and sheds, and restore areas prior to final inspection.

END OF SECTION

## SECTION 01 52 16

### FIRST-AID FACILITIES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes requirements for temporary first-aid facilities for personnel use at the Site during construction, including first-aid stations, lists of emergency contact information, and first-aid-trained personnel.
2. Contractor shall provide temporary first-aid facilities during the Project.
  - a. Pay all costs for temporary first-aid facilities, including installation, maintenance, and removal.
  - b. Maintain, including cleaning, temporary first-aid facilities. Keep first-aid facilities continuously supplied with consumables.
  - c. Facilities shall be adequate for personnel using the Site and requirements of the Project.
  - d. Provide facilities in compliance with Laws and Regulations.

###### B. Related Sections:

1. Section 01 35 23, Safety Requirements.

##### 1.02 QUALITY ASSURANCE

###### A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1910.151, Medical Services and First-Aid.
  - b. 29 CFR 1926.50, Medical Services and First-Aid.

##### 1.03 REQUIREMENTS FOR TEMPORARY FIRST-AID FACILITIES

###### A. Provide the following temporary first-aid facilities:

1. First-Aid Stations at the Site:
  - a. Provide first-aid stations at or immediately adjacent to the Site's work areas, and inside each temporary field office:
  - b. Locations of first-aid stations shall be determined by Contractor's safety representative.
  - c. First-aid stations shall be adequate for the number of personnel at the Site and the types of work and hazards anticipated.
2. Emergency Contact List:
  - a. Provide list of emergency telephone numbers at each hardwired telephone at the Site.
  - b. List shall be in accordance with the list of emergency contact information required in Section 01 35 23.
3. Personnel Trained in First-Aid:
  - a. When work is in progress, furnish at the Site not less than one person trained in first-aid and cardiopulmonary resuscitation (CPR).
  - b. First-aid- and CPR-trained personnel shall possess valid certificate indicating that they have successfully completed a first-aid and CPR training course by the American Red Cross or similar entity.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Location of temporary first-aid facilities shall be as specified in Article 1.03 of this Section.

3.02 USE

- A. Use of Temporary Facilities:
  - 1. Properly supervise temporary first-aid facilities.
  - 2. Properly dispose of wastes.
- B. Not less-often than monthly, inspect each temporary first-aid station, inventory items consumed or used, and remove items that are at or near their expiration date. Promptly replace and restock consumables and expired items.

3.03 REMOVAL

- A. Completely remove temporary first-aid facilities and materials when no longer required. Repair damage caused by temporary first-aid facilities and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

## SECTION 01 52 19

### SANITARY FACILITIES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes requirements for temporary sanitary facilities, including toilet facilities, drinking water for personnel, and personnel washing facilities.
2. Contractor shall provide all temporary sanitary facilities required for the Project.
  - a. Make all arrangements with temporary sanitary facility providers for temporary sanitary services and obtain required permits and approvals for temporary sanitary facilities and associated services.
  - b. Pay all costs for temporary sanitary facilities and associated services, including cost of electricity, water, fuel, and other utility services required for temporary sanitary facilities.
  - c. Continuously maintain adequate temporary sanitary facilities for all purposes during the Project, until removal of temporary sanitary facilities. At a minimum, provide and maintain temporary sanitary facilities through Substantial Completion and removal of temporary field offices and sheds, and at all times thereafter when Contractor is at the Site performing Work.
  - d. Maintain and clean temporary sanitary facilities and continuously provide consumables as required.
  - e. Temporary sanitary facilities shall be adequate for personnel using the Site, Site visitors, and requirements of the Project.
  - f. Provide temporary sanitary facilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.

##### 1.02 QUALITY ASSURANCE

###### A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1910.141, Sanitation.
  - b. 29 CFR 1926.51, Sanitation.

##### 1.03 REQUIREMENTS FOR TEMPORARY SANITARY FACILITIES

###### A. Sanitary Facilities:

1. Portable Toilets:
  - a. Provide suitably-enclosed, temporary chemical or self-contained toilets for Contractor's employees, Engineer, and visitors to the Site.
  - b. Location of temporary toilets shall be acceptable to Owner.
2. Drinking Water:
  - a. Provide supply of potable drinking water and related facilities and consumables for all personnel using the Site, including employees of contractors, Owner, Engineer, visitors, and others.
  - b. Location of potable drinking water supply shall be as required by Contractor and convenient for access by personnel.
  - c. Replenish drinking water supply as needed. Avoid creating hazards to health and safety caused by shortages of drinking water quantity and inadequate quality.

- d. Drinking water quality shall comply with Laws and Regulations.
- 3. Washing Facilities:
  - a. Provide suitable temporary washing facilities for Contractor's employees, Owner, Engineer, and visitors to the Site.
  - b. Washing facilities shall be adequate for the nature of work underway at the Site.
  - c. Properly handle, store, and dispose of used wash water in accordance with Laws and Regulations.

## PART 2 – PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment for temporary sanitary facilities may be new or used, but shall be adequate for purposes intended and shall not create unsafe conditions, and shall comply with Laws and Regulations.
- B. Provide required materials, equipment, and facilities, including piping, wiring, and controls.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

- A. Install temporary sanitary facilities in neat, orderly, manner, and make structurally, mechanically, and electrically sound throughout.
- B. Location of Temporary Sanitary Facilities:
  - 1. Locate temporary sanitary facilities for proper function and service.
  - 2. Temporary sanitary facilities shall not interfere with or provide hazards or nuisances to:
    - a. The Work under this contract.
    - b. Movement of personnel.
    - c. Traffic areas, materials handling, hoisting systems, storage areas, and finishes.
    - d. Work of utility companies.
- C. Modify and extend temporary sanitary facilities as required by progress of the Work.

### 3.02 USE

- A. Maintain temporary sanitary facilities to provide safe, continuous service as required.
- B. Supervision and Enforcement of Use:
  - 1. Properly supervise operation of temporary sanitary facilities:
  - 2. Enforce compliance with Laws and Regulations.
  - 3. Enforce safe practices.
  - 4. Prevent abuse of services.
  - 5. Prevent nuisances and hazards caused by temporary sanitary facilities and their use.
  - 6. Prevent damage to finishes.
  - 7. Ensure that temporary sanitary facilities do not interrupt continuous progress of the Work.
- C. At the end of each work day, check temporary sanitary facilities and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

### 3.03 REMOVAL

- A. Completely remove temporary sanitary facilities and materials when no longer required. Repair damage caused by temporary sanitary facilities and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

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## SECTION 01 55 13

### TEMPORARY ACCESS ROADS AND PARKING AREAS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide temporary construction roads, walks, parking areas, and appurtenances required during the Project for use by Contractor, Owner, and emergency vehicles.
2. Temporary roads and parking areas shall be designed and maintained by Contractor and shall be fully passable to vehicles in all weather conditions.

###### B. Use of Existing Roads:

1. Prevent interference with traffic on existing roads and parking areas. At all times, keep access roads and entrances serving the Site clear and available to Owner, emergency vehicles, and other contractors. Do not use access roads or Site entrances for parking or storage of materials or equipment.
2. Contractor shall indemnify and hold harmless Owner, Engineer, and property owners from expenses caused by Contractor's operations over existing roads and parking areas.
3. Schedule deliveries to minimize use of driveways and Site entrances.

###### C. Related Sections:

1. Section 01 55 26, Maintenance and Protection of Traffic.

##### 1.02 SITE ACCESS

- A. Contractor access to the Site shall be via the Wolcott Street or Sullivan Street gate.

##### 1.03 CONTRACTOR PARKING

- A. Contractor employee vehicles shall park in the area designated on the Drawings, or in other areas approved by Owner.
- B. Park construction vehicles and equipment in work areas off of permanent roads and parking areas, in areas of the Site designated for Contractor staging, or in other areas approved by Owner.

#### PART 2 – PRODUCTS

##### 2.01 MATERIALS

- A. Materials for temporary access roads and parking areas shall comply with the Contract Documents' requirements for permanent roads, drives, and parking areas.
- B. Traffic controls shall comply with requirements of authorities having jurisdiction and Section 01 55 26.



## PART 3 – EXECUTION

### 3.01 TEMPORARY ROADS AND PARKING AREAS

- A. Provide temporary roads and parking areas (as necessary) adequate to support and withstand traffic loads during the Project. Locate temporary roads and parking areas within construction limits shown or indicated.
- B. Provide reasonably-level, graded, well-drained subgrade of satisfactory soil material, compacted to not less than 95 percent of maximum dry density in the upper six inches.
- C. Where required to support loads and provide separation between subgrade and subbase materials, provide geosynthetic separation fabric as required.
- D. Provide crushed stone or gravel subbase material not less than six inches thick, roller-compacted to level, smooth, dense surface. Subbase for temporary roads and areas traveled by construction vehicles shall be adequate for loads and traffic served.

### 3.02 TRAFFIC AND PARKING CONTROL

- A. Provide temporary traffic controls at intersections of temporary roads, including intersections with other temporary roads, intersections with public roads, and intersections with permanent access roads at the Site.
- B. Provide temporary warning signs on permanent roads and drives, and provide temporary “STOP” signs for traffic on temporary roads where required and at entrances to permanent pavement.
- C. Control Contractor-related vehicular parking at the Site to preclude interfering with traffic and parking, access by emergency vehicles, Owner’s operations, and construction operations.
- D. Control parking of construction and private vehicles at the Site as follows:
  - 1. Maintain free vehicular access to and through parking areas.
  - 2. Prohibit parking on or adjacent to access roads, and in non-designated areas.
  - 3. Construction vehicles shall possess current vehicle registration.
  - 4. Private vehicles shall park only in designated areas.
- E. Comply with requirements of authorities having jurisdiction and Section 01 55 26.

### 3.03 MAINTENANCE OF ROADS

- A. General:
  - 1. Maintain temporary roads and parking areas to continuously provide at the Site access for construction vehicles and trucks, Owner’s vehicles, emergency vehicles, and parking areas for Owner’s personnel.
  - 2. Public roads shall be passable at all times unless a road closure is approved in writing by authority having jurisdiction.
  - 3. When granular material of temporary roads and parking areas without hard surfacing become intermixed with soil, or when temporary roads otherwise create a nuisance, remove intermixed granular-and-soil material and replace with clean granular material as required.
  - 4. Provide snow and ice removal for temporary roads and parking areas.
- B. Cleaning and Dust Control:

1. Cleaning: Clean paved surfaces over which construction vehicles travel. Perform cleaning not less often than the frequency indicated in Section 01 74 05 (Cleaning), or more frequently as directed by Engineer, by mechanical sweeping or other means acceptable to Engineer.
  2. Clean the following surfaces:
    - a. Roads within limits of the Project.
    - b. Permanent roads at the Site, between the Site entrance and the work areas, and between the Site entrance and construction parking and staging areas.
    - c. Public roads that require sweeping and cleaning due to construction operations.
  3. Dust Control:
    - a. Control dust resulting from construction operations to prevent nuisances at the Site and in nearby areas.
    - b. Apply water or use other methods approved by Engineer that will minimize airborne dust. Do not use water when water will cause hazardous or objectionable conditions such as ice, mud, ponds, and pollution.
    - c. Provide dust control that is non-polluting and does not contribute to tracking-out of dirt and dust onto pavement. Re-apply dust control treatment as required.
    - d. Comply with dust control requirements of Section 01 57 05 (Temporary Controls).
- C. Protection of Underground Facilities: Comply with Section 01 71 33 (Protection of the Work and Property), and other requirements of the Contract Documents.

### 3.04 REMOVAL AND RESTORATION

- A. Removal:
1. Remove and properly dispose of temporary roads, walks, and parking areas that are not intended or acceptable for integration into permanent pavement. Return areas of temporary roads, walks, and parking to pre-construction condition or to condition required by the Contract Documents, as applicable.
  2. Remove temporary fencing, gates, and traffic controls associated with temporary roads and parking areas.
  3. Where areas of temporary roads and parking will be permanently landscaped, remove pavement, granular subbase, geosynthetics (where required by Engineer), soil, and other materials that do not comply with the Contract Documents regarding fill, subsoil, and landscaping.
  4. Remove and properly dispose of materials contaminated with oil, bitumen, and other petrochemical compounds resulting from Contractor's operations, and other substances that might impair growth of plants and lawns.
- B. Restoration:
1. Repair or replace existing paving, curbs, gutters, and sidewalks affected by temporary roads and parking areas, and restore to conditions shown, specified, or required by authorities having jurisdiction.
  2. Restore to pre-construction conditions existing roads, walks, and parking areas damaged by Contractor, subject to approval of the owner of affected roads, walks, and parking areas.

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## SECTION 01 55 26

### MAINTENANCE AND PROTECTION OF TRAFFIC

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall keep all roads, streets, and traffic ways open for passage of traffic and pedestrians during the Work, unless otherwise approved by owner of the street, traffic way, or right-of-way, as applicable.
2. Construction traffic shall access the Site only via the entrances indicated in Section 01 55 13 (Temporary Access Roads and Parking Areas).
3. Unless otherwise shown or specified in the Contract Documents, maintenance and protection of traffic shall be in accordance with Section 619 of the NYSDOT Standard Specifications and Standard Sheets.

###### B. Coordination:

1. Coordinate with owner of the highway or street right-of-way, as applicable, for maintenance and protection of traffic requirements.
2. Give required advance notice to fire departments, police departments, and other emergency services as applicable of proposed construction operations and modifications to existing traffic patterns.
3. Give reasonable notice to Owner of private properties that may be affected by construction operations. Give such notice not less than 14 days prior to when such property will or may be affected by construction operations. Owner will notify owners or tenants of private properties.
4. Coordinate with the following:
  - a. Section 01 14 33, Work in Highway Rights-of-Way.
  - b. Section 01 55 13, Temporary Access Roads and Parking Areas.
  - c. Section 01 71 33, Protection of the Work and Property, regarding temporary barriers.
  - d. Section 31 23 00, Excavation and Fill, for temporary barriers at excavations.

##### 1.02 QUALITY ASSURANCE

###### A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 34 RCNY 2, Highway Rules.
  - b. 34 RCNY 4, Traffic Rules.
2. Comply with applicable provisions and recommendations of the following:
  - a. NYSDOT Standard Specifications and Standard Sheets.
  - b. NYCDOT Standard Highway Specifications and Standard Details of Construction.

##### 1.03 SUBMITTALS

###### A. Informational Submittals:

1. Traffic Control Plan: Submit detailed plan, procedures, and sequencing for maintaining and protecting traffic in accordance with the Contract Documents and requirements of authorities having jurisdiction. Include the following:
  - a. Traffic staging plan, and construction sequencing as applicable to maintain and protect traffic.

- b. Map or drawing depicting proposed haul routes.
- c. Product data, including manufacturer's catalog information and specifications, for temporary signage, temporary signals, temporary illumination devices, and other products to be used in maintaining and protecting traffic.
- d. Indication of number and types of personnel dedicated to maintaining and protecting traffic during construction.

## PART 2 – PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment used for the maintenance and protection of traffic shall comply with the reference specification indicated in Paragraph 1.01.A.3 of this Section.

## PART 3 – EXECUTION

### 3.01 GENERAL PROVISIONS

- A. When required to cross, obstruct, or temporarily close a street or traffic way, provide and maintain suitable detours, or other acceptable temporary expedient for the accommodation of traffic. Closings shall be for shortest duration practical, and passage shall be restored immediately after completion of Work.
- B. Temporary Control Devices:
  - 1. Provide temporary signs, signals, barricades, flares, lights and other equipment, services, and personnel required to regulate and protect traffic and warn of hazards. Such Work shall comply with the requirements of Owner and authorities having jurisdiction.
  - 2. Remove temporary equipment and facilities when no longer required, and restore grounds to condition required by the Contract Documents, as applicable. If condition is not specified, restore to pre-construction condition.
- C. Keep accessible for use permanent facilities, such as hydrants, valves, fire alarm boxes, postal boxes and delivery service boxes, and other facilities that may require access during construction.

### 3.02 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate temporary traffic controls and directional signals required to direct and maintain an orderly flow of traffic in areas under Contractor's control, and areas affected by construction operations.
- B. Provide temporary traffic controls and directional signs, mounted on temporary barriers or standard posts, at the following locations:
  - 1. Each change of direction of a roadway and at each crossroad.
  - 2. Detours and areas of hazard.
  - 3. Parking areas.
  - 4. Each traffic entrance to and exit from the Site.
  - 5. Other locations required by the reference specification indicated in Paragraph 1.01.A.3 of this Section and authorities having jurisdiction.

### 3.03 TRAFFIC CONTROL PERSONNEL

#### A. General:

1. When construction operations encroach on traffic lanes, furnish qualified and suitably-equipped traffic control personnel as required for regulating traffic and in accordance with requirements of authorities having jurisdiction.
2. Traffic control personnel shall use appropriate flags or mobile signs.
3. Equip traffic control personnel with appropriate personal protection equipment and suitable attire.
4. Attire and conduct of traffic control personnel shall be appropriate and shall not create nuisances or distractions for traffic.

### 3.04 FLARES AND LIGHTS

#### A. During periods of low visibility provide temporary flares and lights for the following:

1. To clearly delineate traffic lanes, to guide traffic, and to warn of hazard areas.
2. For use by traffic control personnel directing traffic.

#### B. Provide adequate illumination of critical traffic and parking areas.

### 3.05 PARKING CONTROL

#### A. Control Contractor-related vehicular parking at the Site to preclude interfering with traffic and parking, access by emergency vehicles, Owner's operations, and construction operations. Provide temporary parking facilities for the public, as required because of construction operations.

#### B. Comply with parking control requirements of Section 01 55 13.

### 3.06 HAUL ROUTES

#### A. Drawings indicate haul routes designated by authorities having jurisdiction that shall be used for construction traffic.

#### B. Confine construction traffic to approved haul routes.

#### C. Provide temporary traffic controls at critical areas of haul routes to expedite traffic flow, and to minimize interference with normal traffic.

### 3.07 REMOVAL

#### A. Maintain and protect traffic until Substantial Completion and at all times thereafter when Contractor is working at the Site. Provide maintenance and protection of traffic measures at the Site until no longer required due to the progress of the Work. When no longer required, completely remove maintenance and protection of traffic measures and restore the Site to condition required by the Contract Documents or, when not indicated in the Contract Documents, to pre-construction condition.

END OF SECTION

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## SECTION 01 57 05

### TEMPORARY CONTROLS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide and maintain methods, equipment, materials, and temporary construction as required for controlling environmental conditions at the Site and adjacent areas during construction.
2. Provide temporary controls throughout the Project. Maintain temporary controls until no longer required.
3. Temporary controls include, but are not limited to, the following:
  - a. Erosion and sediment controls.
  - b. Control of surface water, including storm water run-off.
  - c. Odor, vapor, and dust controls.
  - d. Pollution controls.
  - e. Noise controls.

###### B. Related Sections:

1. Section 01 34 43.13, Environmental Procedures for Hazardous Materials.
2. Section 01 41 26, Storm Water Pollution Prevention Plan and Permit.
3. Section 01 55 13, Temporary Access Roads and Parking Areas.
4. Section 01 74 05, Cleaning.
5. Section 31 23 00, Excavation and Fill.

##### 1.02 REFERENCE STANDARDS

###### A. The following standards are referenced in this Section:

1. AASHTO M 288, Standard Specification for Geotextile Specification for Highway Applications.
2. ASTM D4751, Standard Test Method for Determining Apparent Opening Size (AOS) of a Geotextile.

##### 1.03 QUALITY ASSURANCE

###### A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 15 RCNY 13, Rules Pertaining to the Prevention of the Emission of Dust from Construction Related Activities.
  - b. 15 RCNY 28, Citywide Construction Noise Mitigation.
2. Comply with applicable provisions and recommendations of the following:
  - a. NYSDEC New York State Standards and Specifications for Erosion and Sediment Control.
  - b. NYSDEC Spill Guidance Manual.
  - c. NYSDOT Standard Specifications and Standard Sheets.
  - d. NYCDOT Standard Highway Specifications and Standard Details of Construction.



## 1.04 SUBMITTALS

- A. Action Submittals:
  - 1. Product Data: Submit manufacturer's data and specifications for the following:
    - a. Silt fencing.
    - b. Drop inlet filter and curb inlet filter.
    - c. Vapor mitigation agents and proposed application and storage equipment for each.
- B. Informational Submittals:
  - 1. Procedure Submittals:
    - a. Dust Mitigation Plan: Submit in accordance with Article 1.05 of this Section.
    - b. Construction Noise Mitigation Plan: Submit in accordance with Article 1.06 of this Section.

## 1.05 DUST MITIGATION PLAN

- A. Develop and implement a dust mitigation plan for controlling fugitive dust emissions during the Project. Prepare dust mitigation plan using the form included with this Section.
- B. Submit dust mitigation plan to Engineer not less than 14 days prior to Contractor's scheduled mobilization to the Site.
- C. Post copy of accepted dust mitigation plan at conspicuous location at the Site.

## 1.06 CONSTRUCTION NOISE MITIGATION PLAN

- A. Develop and implement a construction noise mitigation plan for minimizing construction-related noise emissions during the Project. Prepare construction noise mitigation plan using the form included with this Section.
- B. Submit construction noise mitigation plan to Engineer not less than 14 days prior to Contractor's scheduled mobilization to the Site.
- C. Post copy of accepted construction noise mitigation plan at conspicuous location at the Site.

## PART 2 – PRODUCTS

### 2.01 EROSION AND SEDIMENT CONTROLS

- A. General:
  - 1. Materials used for temporary erosion and sediment controls shall be in accordance with the applicable regulatory requirements indicated in Article 1.03 of this Section, unless otherwise shown or indicated in the Contract Documents.
- B. Silt Fencing:
  - 1. Filter Fabric:
    - a. Material: Geotextile shall comply with AASHTO M 288 specifications for temporary silt fence.
    - b. Height: Three feet, minimum.
  - 2. Fence Support Posts:
    - a. Material: Hardwood or steel posts may be used.
      - 1) Hardwood posts shall be at least 1.25 inches by 1.25 inches in cross section.

- 2) Steel posts shall be "T" or "U" shape in cross section with a minimum weight of 1.0 pound per linear foot.
  - b. Length: Four feet, minimum.
  3. Fabric fasteners shall be heavy-duty staples, wire ties, or other fastener compatible with support post material.
- C. Straw Bale Dike:
1. Straw bales shall be firmly-packed, unrotted straw bound firmly with intact bailing wire. Cross-sectional area on the small end of each bale shall be approximately 12 inches by 12 inches or larger.
  2. Posts shall comply with requirements for silt fencing support posts, or may be suitable reinforcing steel rods.
- D. Protection of Storm Water Drainage Inlets and Catch Basins:
1. Drop Inlet Filter:
    - a. Product and Manufacturer: Provide one of the following for each drop inlet to be protected:
      - 1) GateGator, Type B, by ACF Environmental, Inc.
      - 2) Or equal.
    - b. AOS of drop inlet filter fabric shall be between 40 and 85 (US sieve size), as determined by ASTM D4751. Fabric shall be woven polypropylene with double stitching to prevent bursting.
    - c. Drop inlet filter shall:
      - 1) Fit over the drainage inlet or catch basin and shall be secured by the structure's grate or by other acceptable means.
      - 2) Have means of removing inlet filter bag and the silt and sediment collected therein without dumping filter bag's contents into the drainage inlet or catch basin.
  2. Curb Inlet Filter:
    - a. Product and Manufacturer: Provide one of the following for each curb inlet to be protected:
      - 1) GutterGator, by ACF Environmental, Inc.
      - 2) Or equal.
    - b. AOS of curb inlet filter fabric shall be between 40 and 85 (US sieve size), as determined by ASTM D4751. Fabric shall be woven polypropylene with double stitching to prevent bursting.
- E. Temporary Construction Entrance:
1. Crushed Stone: Crushed stone shall be clean, durable, sharp-angled fragments of rock of uniform quality conforming to Material Designation 703-0201, Size Designation No. 3, in accordance with Section 703 of the NYSDOT Standard Specifications.
  2. Geotextile Separation Fabric: Geotextile fabric shall comply with AASHTO M 288 specifications for a Class 1 separation geotextile.

## 2.02 ODOR, VAPOR, AND DUST CONTROLS

- A. Vapor Mitigation Agents: Provide the following:
1. BioSolve Pinkwater, by The BioSolve Company.
  2. AC-645 Long-Duration Foam, by Rusmar, Inc.
- B. Water: Clean, potable.
- C. Equipment:

1. Provide pressure washers, pneumatic foam unit, sprayers, misters, portable tanks, hoses, and other equipment required for the storage and application of vapor mitigation agents and water.
2. Furnish and retain at the Site spare equipment to allow for uninterrupted odor, vapor, and dust control in the event of equipment damage or malfunction.

## PART 3 – EXECUTION

### 3.01 EROSION AND SEDIMENT CONTROL

#### A. Installation and Maintenance – General:

1. General:
  - a. Provide temporary erosion and sediment controls as shown and indicated on the Drawings and as indicated elsewhere in the Contract Documents. Provide erosion and sediment controls as the Work progresses into previously undisturbed areas.
  - b. Installation of erosion and sediment controls shall be in accordance with the applicable regulatory requirements indicated in Article 1.03 of this Section, unless more stringent methods are otherwise shown or indicated in the Contract Documents.
  - c. Use necessary methods to successfully control erosion and sedimentation, including ecology-oriented construction practices, vegetative measures, and mechanical controls. Use best management practices in accordance with Laws and Regulations, and regulatory requirements indicated in Article 1.03 of this Section, to control erosion and sedimentation during the Project.
  - d. Plan and execute construction, disturbances of soils and soil cover, and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation. Provide temporary measures for controlling erosion and sedimentation, as indicated in the Contract Documents and as required for the Project.
  - e. Where areas must be cleared for storage of materials or equipment, or for temporary facilities, provide measures for regulating drainage and controlling erosion and sedimentation, subject to Engineer's approval.
  - f. Provide erosion and sediment controls, including stabilization of soils, at the end of each work day.
2. Coordination:
  - a. Coordinate erosion and sediment controls with this Section's requirements on surface water control and with Section 01 41 26.
  - b. Coordinate temporary erosion and sediment controls with construction of permanent drainage facilities and other Work to the extent necessary for economical, effective, and continuous erosion and sediment controls.
3. Before commencing activities that will disturb soil or soil cover at the Site, provide all erosion and sediment control measures required by the Contract Documents for the areas where soil or soil cover will be disturbed.
4. In general, implement construction procedures associated with, or that may affect, erosion and sediment control to ensure minimum damage to the environment during construction. Contractor shall implement any and all additional measures required to comply with Laws and Regulations, and Section 01 41 26.
5. Access Roads and Parking Areas: When possible, access roads, temporary roads, and parking areas shall be located and constructed to avoid adverse effects on the environment. Provide measures to regulate drainage, avoid erosion and sedimentation, and minimize damage to vegetation.
6. Earthwork and Temporary Controls:
  - a. Perform excavation, fill, and related operations in accordance with Section 31 23 00.

- b. Control erosion to minimize transport of silt from the Site into existing waterways and surface waters. Such measures shall include, but are not limited to, using berms, silt fencing, straw bale dikes, gravel or crushed stone, temporary plantings, mulching and soil stabilization, slope drains, and other methods. Apply such temporary measures to erodible materials exposed by activities associated with the construction of the Project.
  - c. Hold to a minimum the areas of bare soil exposed at one time.
  - d. Construct fills and waste areas by selectively placing fill and waste materials to eliminate surface silts and clays that will erode.
  - e. In performing earthwork, eliminate depressions that could cause ponding of water or serve as mosquito breeding pools.
  - f. Contractor shall provide special care in areas with steep slopes, where disturbance of vegetation shall be minimized to maintain soil stability.
7. Inspection and Maintenance:
- a. Periodically inspect areas of earthwork and areas where soil or soil cover are disturbed to detect evidence of the start of erosion and sedimentation. Promptly implement corrective measures as required to control erosion and sedimentation. Continue inspections and corrective measures until soils are permanently stabilized and permanent vegetation has been established.
  - b. Inspect and report not less often than the frequency indicated in Section 01 41 26.
  - c. Repair or replace damaged erosion and sediment controls within two days of Contractor becoming aware of such damage.
  - d. Periodically remove silt and sediment that has accumulated in or behind sediment and erosion controls. Properly dispose of silt and sediment.
8. Duration of Erosion and Sediment Controls:
- a. Maintain erosion and sediment controls in effective working condition until the associated drainage area has been permanently stabilized.
  - b. Maintain erosion and sediment controls until the Site is restored and site improvements including landscaping, if any, are complete with underlying soils permanently stabilized.
9. Work Stoppage: If the Work is temporarily stopped or suspended for any reason, Contractor shall provide additional temporary controls necessary to prevent environmental damage to the Site and adjacent areas while the Work is stopped or suspended.
10. Failure to Provide Adequate Controls: In the event Contractor repeatedly fails to satisfactorily control erosion and sedimentation, Owner reserves the right to employ outside assistance or to use Owner's own forces for erosion and sediment control. Cost of such work by Owner, plus engineering and inspection costs, will be deducted from amounts due to Contractor.
- B. Silt Fencing:
- 1. Install and maintain silt fencing in a vertical plane, at the location(s) shown or indicated in the Contract Documents and where required.
  - 2. Locations of Silt Fencing:
    - a. Where possible, install silt fencing along contour lines so that each given run of silt fencing is at the same elevation.
    - b. On slopes, install silt fencing at intervals that do not exceed the maximum lengths indicated in Table 01 57 05-A.

**TABLE 01 57 05-A  
MAXIMUM LENGTH OF SLOPE BETWEEN RUNS**

<b>Slope (V:H)</b>	<b>Slope Length (feet)</b>
1:2 (50%)	25
1:3 (33%)	50
1:4 (25%)	75
1:5 (20%) and Less	100

- c. Provide silt fencing around the perimeter of each stockpile of general fill material and excavated material. Install silt fencing before expected precipitation and maintain until stockpile is removed.
- d. Do not install silt fencing at the following types of locations:
  - 1) Area of concentrated storm water flows such as ditches, swales, or channels.
  - 2) Where rock or rocky soils prevent full and uniform anchoring of silt fencing.
  - 3) Across upstream or discharge ends of storm water piping or culverts.

3. Installation:
    - a. Securely fasten filter fabric to each support post in no less than four locations. Spacing between support posts shall not exceed 10 feet (center to center).
    - b. When two sections of filter fabric abut each other, fold over edges and overlap by not less than six inches and securely fasten to wire mesh.
    - c. Embed posts in the ground to the depth necessary for proper controls, but not less than 16 inches below ground surface.
    - d. Filter fabric shall extend not less than six inches below ground and not less than 16 inches above ground.
    - e. Filter fabric at bottom of silt fence shall be buried in a trench, in a "J" configuration, to a depth of six inches.
    - f. Remove sediment accumulated at silt fencing as required. Repair and reinstall silt fencing as required.
  4. Maintenance:
    - a. Do not allow formation of concentrated storm water flows on slopes above silt fencing unless so shown or indicated in the Contract Documents. If unauthorized concentrated storm water flows occur, stabilize the slope via earthmoving and other stabilization measures as required to prevent flow of concentrated storm water flows toward silt fencing.
- C. Straw Bale Dike:
1. Install straw bale dikes where shown or indicated, including in swales, along contours, and along toe of slopes. On slopes, install straw bale dikes at intervals that do not exceed the maximum lengths indicated in Table 01 57 05-A of this Section.
  2. Install straw bales in shallow excavation as wide as the bale and approximately four to six inches below surrounding grade.
  3. Ends of straw bale shall tightly abut ends of adjacent bales.
  4. Securely install straw bales using two support posts per bale, driven into the ground not less than 1.5 to two feet below bottom of bale. Top of post shall be flush with top of bale. Angle first post for each straw bale toward the previously-installed bale.
  5. Frequently inspect straw bales and repair or replace as required. Remove accumulated silt and debris from behind straw bales.
- D. Protection of Storm Water Drainage Inlets and Catch Basins:
1. Protect each drainage inlet and catch basin that has the potential to receive storm water run-off from exposed soils.
  2. Install drop inlet filter over drainage inlet or catch basin in accordance with manufacturer's instructions. Secure drop inlet filter with the structure's grate or by other acceptable means.
  3. Install curb inlet filter in front of drainage inlet opening in accordance with manufacturer's instructions. Filter shall extend not less than two feet on either side of opening.
  4. Inlet filters shall not pose any obstruction above the elevation of the drainage inlet or catch basin grate requiring barricades or flashers.
  5. Inspect inlet filters not less than weekly and immediately after wet weather events. Clean inlet filters and remove accumulated silt, sediment, and debris as required to maintain flow through drainage inlet or catch basin and prevent ponding.

### 3.02 SURFACE WATER CONTROL

- A. General:
1. Provide methods to control surface water to prevent damage to the Work, the Site, and adjoining properties.

2. Control fill, grading, and ditching to direct surface water away from disturbed areas, excavations, pits, tunnels, and other construction areas, and to direct drainage to proper run-off courses to prevent erosion, damage, or nuisance. Avoid directing to adjoining properties run-off from the Site and construction operations.
- B. Equipment and Facilities for Surface Water Control:
1. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.
- C. Dewatering, Discharge, and Disposal:
1. Comply with dewatering requirements of Section 31 23 00.
  2. Dispose of surface water in a manner to prevent flooding, erosion, and other damage to any and all parts of the Site and adjoining areas, and that complies with Laws and Regulations.

### 3.03 ODOR, VAPOR, AND DUST CONTROL

- A. General:
1. Provide necessary labor, materials, equipment, tools, services, and incidentals to control Site-related odors, vapors, and dust generated during the Work and comply with the Community Air Monitoring Plan.
  2. Proactively employ odor, vapor, and dust controls during the Work, and evaluate and modify construction techniques and site management practices, as necessary and appropriate, to:
    - a. Mitigate Site-related odor emissions to the greatest extent practicable, and to the satisfaction of Owner, Engineer, and authorities having jurisdiction.
    - b. Prevent exceedances of the community air monitoring action levels specified in the Community Air Monitoring Plan.
  3. If Contractor's means, methods, and facilities are unsuccessful in controlling Site-related odors, vapors, and dust in accordance with the Contract Documents, based on visual observations or the results of community air monitoring, Work shall be suspended until appropriate corrective actions are taken by Contractor to remedy the situation to Engineer's satisfaction. Owner will not be liable for any expense or delay resulting from Contractor's failure to control Site-related odors, vapors, and dust in accordance with the Contract Documents.
- B. Vapor Mitigation Agents:
1. Mobilize vapor mitigation agents and means of storage and dispersion at the Site before initiating any ground-intrusive Work or dust-generating Work.
  2. Application of vapor mitigation agents shall be as follows:
    - a. BioSolve Pinkwater:
      - 1) Prepare three-percent solution of BioSolve Pinkwater concentrate and water. Apply to exposed soils and excavation faces using backpack sprayers, power washers, or misters.
      - 2) Apply when actively excavating, when actively handling excavated materials, and as required by Owner or Engineer.
    - b. AC-645 Long-Duration Foam:
      - 1) Prepare 13-percent solution of AC-645 Long-Duration Foam concentrate and water. Apply to excavation faces and uncovered stockpiles of excavated materials using pneumatic foam unit. Completely and uniformly cover exposed soil surfaces with minimum three inches of foam.
      - 2) Apply before each work break, at the end of each work day, and as required by Owner or Engineer.

- C. Construction Techniques and Site Management Practices:
  - 1. Excavate and backfill, and load, handle, and unload excavated materials and clean fill materials, in manner that minimizes the generation of airborne dust.
  - 2. Haul excavated materials and clean fill materials in properly covered vehicles.
  - 3. Restrict vehicle speeds on temporary access roads and active haul routes.
  - 4. Cover shallow excavations and stockpiles of clean fill materials with polyethylene liners before extended work breaks and at the end of each work day. Anchor liners to resist wind forces; slope to prevent accumulation of water.
  - 5. Hold to a minimum the areas of bare soil exposed at one time.
  - 6. Comply with cleaning and dust control requirements of Section 01 55 13 and progress cleaning requirements of Section 01 74 05.

### 3.04 POLLUTION CONTROL

- A. General:
  - 1. Provide means, methods, and facilities required to prevent contamination of soil, water, and atmosphere caused by discharge of noxious substances from or caused by construction operations.
  - 2. Equipment used during construction shall comply with Laws and Regulations.
  - 3. Comply with Sections 01 35 43.13 and 01 41 26.
- B. Spills and Contamination:
  - 1. Provide equipment, materials, and personnel to perform emergency measures required to contain and clean up spills, and to remove soils and liquids contaminated by spills.
  - 2. Provide spill kits, including oil-absorbent pads, socks, and booms, at or immediately adjacent to the Site's major work areas and equipment storage and fueling areas.
  - 3. Immediately notify Owner and Engineer of all spills, regardless of material, volume, or circumstances involved.
  - 4. Excavate contaminated material and properly dispose of off-Site and replace with suitable compacted fill.
- C. Protection of Surface Waters:
  - 1. Provide and maintain special measures to prevent harmful substances from entering surface waters. Prevent disposal of wastes, effluents, chemicals, and other such substances in or adjacent to surface waters and open drainage routes, in sanitary sewers, or in storm sewers.
- D. Atmospheric Pollutants:
  - 1. Provide and maintain systems for controlling atmospheric pollutants related to the Work.
  - 2. Prevent generation or release of toxic concentrations of chemicals and vapors.
  - 3. Prevent harmful dispersal of pollutants into atmosphere.
- E. Solid Waste:
  - 1. Provide and maintain systems for controlling and managing solid waste related to the Work.
  - 2. Prevent solid waste from becoming airborne, and from discharging to surface waters and drainage routes.
  - 3. Properly handle and dispose of solid waste.
  - 4. Comply with requirements for cleaning and disposal of debris in Section 01 74 05 and any other requirements of the Contract Documents.



### 3.05 NOISE CONTROL

#### A. General:

1. Contractor's vehicles, equipment, and operations shall minimize noise emissions to the greatest degree practicable. Provide mufflers and silencers on construction equipment, and provide temporary sound barriers when necessary, or as directed by Owner, Engineer, or authorities having jurisdiction, and comply with provisions of accepted construction noise mitigation plan.
2. Noise levels shall comply with Laws and Regulations, including OSHA requirements and local ordinances.
3. Noise emissions shall not interfere with the Work of Owner or others.

### 3.06 PROHIBITED CONSTRUCTION PROCEDURES

#### A. Prohibited construction procedures include, but are not limited to, the following:

1. Dumping or disposing of spoil material, cleared vegetation, debris, or other waste material in any surface waters, drainage ways, or other unauthorized locations.
2. Indiscriminate, arbitrary, or capricious operation of equipment in any surface waters, drainage ways, or other unauthorized locations.
3. Pumping of silt-laden water from trenches or other excavations to any surface waters, drainage ways, sewers, or other unauthorized locations.
4. Damaging vegetation beyond the extent necessary for construction.

### 3.07 REMOVAL OF TEMPORARY CONTROLS

- #### A. Remove temporary controls only when directed by Owner or Engineer.

### 3.08 ATTACHMENTS

- #### A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:
1. Attachment A: Dust mitigation plan form (four pages).
  2. Attachment B: Construction noise mitigation plan form (three pages).

END OF SECTION

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**DUST Mitigation Plan**

**FORM**

**September 23, 2009\***

**It is not necessary to file this document with DEP  
however, it must be accessible to inspectors.**

**The responsible party shall be liable for the accuracy of the document and compliance with  
all applicable rules in 15 RCNY Chapter 13.**

**I General Introduction**

All persons constructing or operating a large article, machine, device, equipment, such as a rock crusher, or other contrivance or facility capable of causing or permitting emission of dust into the atmosphere at a construction site shall keep on site a document detailing such equipment . Information provided on this document shall include the ownership, location, design, make and model, operation, i.e. how does it operate, as well as any other pertinent information requested by the Department. In addition, the measures utilized to reduce dust emissions resulting from the use of these items as set forth in 15 RCNY 13-01 *et seq.* shall be clearly outlined. This document shall be attached as an addendum sheet to the Noise Mitigation Plan prepared pursuant to Section 24-220 of the Noise Code.

**II Contact Information**

Name of Responsible Party as defined in 15 RCNY §28-109 \_\_\_\_\_

Work Site Location with Borough  
(BLOCK/LOT/Address) \_\_\_\_\_

Contact Phone Number of Responsible Party \_\_\_\_\_

**II Specialized Equipment**

1. Common or Brand Name \_\_\_\_\_
2. Make \_\_\_\_\_
3. Model \_\_\_\_\_
4. Type (i.e. rock crusher) \_\_\_\_\_
5. Owner \_\_\_\_\_
6. Lease YES NO
7. Rental YES NO
8. Describe Use on Site

\_\_\_\_\_  
\_\_\_\_\_

---

---

9. Dust Control Measures Used with Equipment

---

---

---

---

**III Additional Dust Control Measures that will be employed at site**

Wetting

Describe the process i.e. handheld hoses; wheel wash station; automated sprinkler system

---

---

---

---

Appropriate Spraying Methods

---

---

---

---

Trucks Covered

YES

NO

Adequate and continuous supply of water delivered to the construction site under proper pressure and distributed by a hose system and terminating in suitable water sprays or jets. Portable hand water sprinklers or hose sprinklers are acceptable means of wetting for dust control.

Suitable drainage means shall be provided for the removal of water and sludge which drains from the operation.

Prior to the commencement of demolition activities, all exterior surfaces of a building up to six stories in height shall be wetted.

All construction material shall be sufficiently wetted to prevent dust from becoming airborne before loading into trucks.

Wetting shall be used to control dust where drilling, grinding, or other similar construction activities occur.

Sprinklers or other effective means shall be provided to control dust produced at dumps, conveyors, chutes, and other transfer points.

Soil or debris piles shall be moistened if dust is being emitted from the piles due to prevailing winds and not from a momentary gust.

Where the demolition or renovation of any building or other structure is being performed by hand, debris, bricks, and other material shall be removed by means of chutes, by means of buckets or hoists.

During sandblasting or other similar operations, installation and use of hoods, fans and dust collectors to enclose and vent shall be used.

Earth moving equipment or erosion is required daily when there is removal of earth or other material from paved roads.

Dust and debris from the demolition operations shall be removed daily from the adjacent streets, sidewalks and alleys.

\*Use latest version of the plan which can be found on the DEP Website at [www.nyc.gov/dep/html/airnoise.html](http://www.nyc.gov/dep/html/airnoise.html).

I \_\_\_\_\_ of the \_\_\_\_\_ hereby certify the information contained  
(Name of Responsible Party) (Company) in the form is true and accurate.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
NOTARY PUBLIC

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# CONSTRUCTION NOISE MITIGATION PLAN

**MUST PRINT AND POST ON WORKSITE**

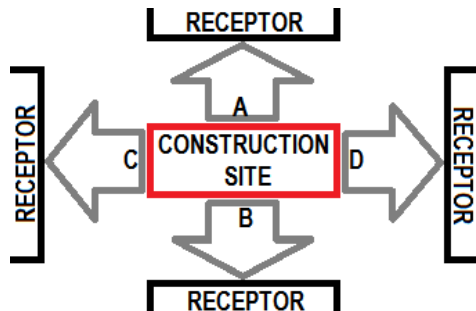
*The responsible party shall be liable for the accuracy of the document and compliance with all applicable rules in Title 15 Rules of the City of New York - RCNY Chapter 28.*

## CONTACT INFORMATION

NAME OF RESPONSIBLE PARTY AS DEFINED IN TITLE 15 RCNY §28-109	EMAIL	PHONE NUMBER	WORK SITE ADDRESS			
BUSINESS ADDRESS	CITY	STATE	ZIP	ZIP	BOROUGH	BLOCK LOT

## CONSTRUCTION INFORMATION

Approximate Distance to Closest Receptor (defined in Title 15 RCNY §28-109)



A. \_\_\_\_\_ feet  
 B. \_\_\_\_\_ feet  
 C. \_\_\_\_\_ feet  
 D. \_\_\_\_\_ feet

**NORMAL WORK HOURS (AS DEFINED IN NYC ADMINISTRATIVE CODE §24-222)**  
 Do you anticipate having to work at any time other than 7am to 6pm Monday to Friday?  
 YES  NO

If YES, what phase[s] do you anticipate needing an After Hours Variance:  
 Demolition  Excavation  Foundation  
 Superstructure  Finishing  
 Other \_\_\_\_\_

CONSTRUCTION PHASE	PHASES AND DURATION DATES		NYC DEP DEMOLITION REGISTRATION #	NYC DOB DEMOLITION PERMIT #	NYC DOT DEMOLITION PERMIT #
	From	To			
Demolition					
Excavation			Estimated Depth of Excavation: SOIL _____ FEET + BEDROCK _____ FEET = TOTAL _____ FEET		
Foundation			Pumping Operation: <input type="checkbox"/> YES <input type="checkbox"/> NO	If YES, NUMBER OF INDIVIDUAL TRUCKS _____ PER HOUR	
Superstructure			Number of Floors / Stories:	Describe How Flooring Will Be Laid: <input type="checkbox"/> CONCRETE PUMP <input type="checkbox"/> PREFAB <input type="checkbox"/> OTHER: _____	
Finishing			<input type="checkbox"/> COMPLETED EXTERIOR BEFORE BEGINNING INTERIOR WORK <input type="checkbox"/> INTERIOR WORK BEFORE EXTERIOR WALLS / WINDOWS ARE IN.		
Other			Explain:		

## CONSTRUCTION DEVICES

List of §102 construction devices to be used at the site. When the additional devices listed below each category are utilized, the use of barriers as set forth in section IV herein is not required unless the NYC Department of Environmental Protection receives complaints as set forth in §28-102(C) of Title 15 of the RCNY for each device. If however, the specific devices listed below each main category of devices are not checked, and you are using any of the main devices listed below, then the use of barriers set forth in Section IV herein shall be utilized. However, if you specified "other" in a category, you shall be required to utilize barriers as set forth in Section IV herein.

DEVICE	PILE DRIVERS	JACKHAMMERS	HOE RAMS	BLASTING	VACUUM EXCAVATORS	DUMP TRUCKS	CRANES	CONCRETE SAWS	SANDBLASTING EQUIPMENT	AUGER DRILL RIGS	OTHER
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PHASE USED FOR:	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Demolition <input type="checkbox"/> Excavation <input type="checkbox"/> Foundation <input type="checkbox"/> Superstructure <input type="checkbox"/> Finishing <input type="checkbox"/> Other (Explain):
MAKE (s)											
DETAIL	<input type="checkbox"/> Vibratory Pile Driver or Hydraulic Impact Pile Driver as defined in 102(a)(1)(B)(ii) <input type="checkbox"/> Noise Bellows as defined in 102(a)(1)(B)(viii) <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Quieter makes and models as defined in 102(a)(2)(B)(i) <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Quieter makes and models as defined in 102(a)(3)(B)(i) <input type="checkbox"/> Noise Shroud as defined in 102(a)(3)(B)(iii) <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Blast Mats	<input type="checkbox"/> Smaller Capacity vac-truck as defined in 102(b)(1)(B)(i) <input type="checkbox"/> Silencer as defined in 102(b)(1)(B)(iii) <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> US Made European Environmental Label equipment or equivalent as defined in 102(c)(1)(B)(iii) <input type="checkbox"/> Other (Explain):	<input type="checkbox"/> Modern Hydraulic Crane as defined in 102(d)(1)(B)(ii) <input type="checkbox"/> US Made European Environmental Label equipment or equivalent as defined in 102(d)(B)(1)(iii) <input type="checkbox"/> Other (Explain):				
FUEL TYPE											
<b>MAXIMUM NUMBER OF UNIT TO BE USED AT THE SAME TIME:</b>											

## ADDITIONAL CONSTRUCTION DEVICES

List of additional applicable construction devices to be used at the site:

GENERATORS     COMPRESSORS     STREET PLATES     BACKUP ALARMS     PUMPS     HOIST

## NOISE MITIGATION

Noise Mitigation Barriers Utilized: If required as set forth in §28-101(g) of Title 15 of the RCNY.

Required to use Perimeter barrier /DOB construction fence or temporary/moveable barrier:

YES     NO

PILE DRIVERS	JACKHAMMERS	HOE RAMS	BLASTING	VACUUM EXCAVATORS	DUMP TRUCKS	CRANES	CONCRETE SAWS	STREET PLATES	AUGER DRILL RIGS	BACKUP ALARMS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier	<input type="checkbox"/> Perimeter barrier/DOB <input type="checkbox"/> Construction Fence <input type="checkbox"/> Temporary barrier <input type="checkbox"/> Moveable barrier



**CHECK ALL THAT APPLY**

Please check all equipment that will be used on site. Review Rules for Citywide Construction Noise Mitigation Section 28-109. Certify that equipment has been sound tested and complies with Spec 721.560 Lmax @50 ft.

<input type="checkbox"/>	Label ID	Equipment Description	<input type="checkbox"/>	Label ID	Equipment Description	<input type="checkbox"/>	Label ID	Equipment Description
	A	All Other Equipment > 5 HP		T	Excavator		AM	Refrigerator Unit
	B	Auger Drill Rig		U	Flat Bed Truck		AN	Rivet Buster / Chipping Gun
	C	Backhoe		V	Front End Loader		AO	Rock Drill
	D	Bar Bender		W	Generator		AP	Roller
	E	Blasting		X	Generator (<25KVA, VMS signs)		AQ	Sand Blasting
	F	Boring Jack Power Unit		Y	Gradall		AR	Scrapper
	G	Chain Saw		Z	Grader		AS	Shears (on backhoe)
	H	Clam Shovel (dropping)		AA	Grapple (on backhoe)		AT	Slurry Plant
	I	Compactor (ground)		AB	Horizontal Boring Hydr. Jack		AU	Slurry Trenching Machine
	J	Compressor (air)		AC	Hydra Break Ram		AV	Soil Mix Drill Rig
	K	Concrete Batch Plant		AD	Impact Pile Driver		AW	Tractor
	L	Concrete Mixer Truck		AE	Jackhammer		AX	Vacuum Excavator (Vac-truck)
	M	Concrete Pump Truck		AF	Man Lift		AY	Vacuum Street Sweeper
	N	Concrete Saw		AG	Mounted Impact Hammer (hoe ram)		AZ	Ventilation Fan
	O	Crane		AH	Pavement Scarafier		BA	Vibrating Hopper
	P	Dozer		AI	Paver		BB	Vibratory Concrete Mixer
	Q	Drill Rig Truck		AJ	Pickup Truck		BC	Vibratory Pile Driver
	R	Drum Mixer		AK	Pneumatic Tools		BD	Warning Horn
	S	Dump Truck		AL	Pumps		BE	Water Jet Deleading
							BF	Welder / Torch

Note: DEP will utilize the Federal Highway Administration Roadway Construction Model as a means of identifying equipment either in Section II or III, that may be the cause of a noise complaint, see §28-101(a) of Title 15 of the RCNY for compliance options.

By checking this box, I certify that the information contained in this form is true and accurate.

NAME	COMPANY	DATE	
BUSINESS ADDRESS	CITY	STATE	ZIP

## SECTION 01 57 33

### SECURITY

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes general requirements for security at the Site, including accessing the Site, securing the Work, temporary fencing, and other requirements.
2. Contractor shall safely guard all Work, the Project, materials, equipment, and property from loss, theft, damage, and vandalism until Substantial Completion, unless otherwise agreed upon by the parties.
3. Contractor's duty includes safely guarding Owner's property in the vicinity of the Work and Project, the Site, and other private property in the vicinity of the Project from injury and loss in connection with the performance of the Project.
4. Employ a security guard to provide required security and prevent unauthorized entry during non-working hours, seven days a week, from the date of initial mobilization until Substantial Completion, or as otherwise directed by Owner.
5. Costs for security required under this Section shall be paid by Contractor.
6. Make no claim against Owner or property owners for damage resulting from trespass.
7. Remedy damage to property of Owner and others arising from failure to furnish adequate security.
8. Provide temporary fencing in accordance with the Contract Documents.

##### 1.02 SUBMITTALS

###### A. Action Submittals:

1. Shop Drawings: Submit drawings showing proposed locations and extent of breaches in existing site security fencing and proposed locations and extent of temporary site security fencing.
2. Product Data: Submit manufacturer's data, specifications, and installation instructions for proposed temporary site security fencing and privacy screens.

###### B. Informational Submittals:

1. Daily Security Logs: Submit in accordance with Paragraph 1.03.B of this Section.

##### 1.03 CONTRACTOR'S SITE ACCESS AND SECURITY PROCEDURES

- ###### A. Comply with Section 01 55 13 (Temporary Access Roads and Parking Areas) and Owner's security procedures and access restrictions at the Site throughout the Project.

###### B. Daily Security Log:

1. Maintain a daily security log of all Site workers and visitors throughout the Project. Include, at a minimum, the following information for each Site worker and visitor:
  - a. Date.
  - b. Name.
  - c. Affiliation.
  - d. Purpose of visit.
  - e. Time in and time out.
2. Submit copy of daily security log to Engineer with daily construction report in accordance with Section 01 32 26 (Construction Progress Reporting).

## PART 2 – PRODUCTS

### 2.01 TEMPORARY FENCING

- A. Temporary Fencing:
  - 1. Provide free-standing chain-link fence panels, or chain-link fencing with in-ground posts, at locations shown on the Drawings, and at locations where permanent security fencing or barriers are breached or temporarily removed for the Work.
  - 2. Requirements:
    - a. Materials: Fence fabric and framework shall be galvanized steel.
    - b. Nominal Height: Eight feet, minimum.

### 2.02 RELATED MATERIALS

- A. Privacy Screens:
  - 1. Provide privacy screens for all permanent security fencing and temporary fencing used for site security.
  - 2. Requirements:
    - a. Size: Match to height of fence fabric.
    - b. Color: Green or black.
    - c. Opacity: 85 percent, minimum.

## PART 3 – EXECUTION

### 3.01 TEMPORARY FENCING

- A. Installation:
  - 1. Provide temporary fencing for site security so that integrity of site security is maintained throughout the Project.
  - 2. Install temporary fencing used for site security in accordance with the Contract Documents and manufacturer's instructions.
  - 3. Install privacy screens in accordance with manufacturer's instructions on all permanent security fencing and all temporary fencing used for site security.
- B. Maintenance:
  - 1. Maintain temporary fencing and privacy screens throughout the Project.
  - 2. Repair damage to temporary fencing and replace temporary fencing when required to preserve site security.
  - 3. Adjust or relocate temporary fencing at the Site as needed to accommodate the Work and construction sequencing.
- C. Removal:
  - 1. Remove temporary fencing when permanent site security fencing is in place and fully functional, or when otherwise directed by Owner or Engineer.
  - 2. Repair damage caused by temporary fencing and its removal, and restore the Site to condition required by the Contract Documents. If condition is not specified, restore to pre-construction condition.

### 3.02 FIELD QUALITY CONTROL

- A. Site Inspections:
  - 1. Perform hourly or more frequent inspections of the Site during non-working hours.

2. Document the time and outcome of each inspection in a dedicated log. Log shall be made available to Owner Engineer upon request.
3. In the event of an on-site emergency during non-working hours, Contractor's security guard shall be responsible for notifying Contractor personnel, Owner Engineer, local emergency responders, and others as appropriate.

END OF SECTION

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## SECTION 01 58 13

### TEMPORARY PROJECT SIGNAGE

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. Scope:
1. Contractor shall furnish and install temporary signage as specified in this Section for Project identification and construction site information.
  2. Temporary signs include:
    - a. Project identification signs.
    - b. Danger signs.
    - c. Security signs.
  3. Do not display any other temporary signs, other than those specified, without prior approval of Owner.
- B. Related Sections:
1. Section 01 55 26, Maintenance and Protection of Traffic.

##### 1.02 SUBMITTALS

- A. Action Submittals:
1. Shop Drawings: Submit drawings indicating size, text, font, character size, colors, graphics or logos (if any), type and grade of materials, and dimensions of each temporary sign, and the proposed locations and orientations of temporary signs at the Site.

#### PART 2 – PRODUCTS

##### 2.01 MATERIALS AND CONSTRUCTION

- A. Project Identification Signs:
1. Project identification signs, including size, colors, text, and logos, shall be in accordance with Figure 01 58 13-A (Red Hook 3) and Figure 01 58 13-B (Red Hook 4), which are attached to this Section.
  2. Location: Install sign on perimeter security fencing at Wolcott Street Site entrance.
  3. Font: Calson 540.
  4. Background Color: White.
  5. Printing: Digital or screen printing with ultraviolet-resistant inks.
  6. Sign Board:
    - a. Material: Aluminum composite, minimum thickness of three millimeters.
    - b. Minimum Dimensions: As indicated on Figure 01 58 13-A and Figure 01 58 13-B.
  7. Distance from Ground to Center of Sign: Six feet.
  8. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.
- B. Danger Signs:
1. Location: Install signs on perimeter security fencing and gates at intervals of not greater than 100 linear feet.
  2. Text: "DANGER" in upper panel and "CONSTRUCTION AREA AUTHORIZED PERSONNEL ONLY" in lower panel.

3. Background Color: Red upper panel, black outline along border, and white lower panel.
  4. Text Color: White in upper panel and black in lower panel.
  5. Printing: Digital or screen printing with ultraviolet-resistant inks.
  6. Sign Board:
    - a. Material: Treated polyethylene, thickness of 0.055 inch.
    - b. Minimum Dimensions: 14 inches wide by 10 inches high.
  7. Distance from Ground to Center of Sign: Six feet.
  8. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.
- C. Security Signs:
1. Location: Install signs on security gates and at entrances of each field office trailer. Provide one sign for each trailer entrance.
  2. Text: "SECURITY NOTICE" in upper panel and "ALL VISITORS MUST SIGN-IN AT THE FIELD OFFICE" in lower panel.
  3. Background Color: Yellow upper panel, black outline along border, and white lower panel.
  4. Text Color: Black for upper and lower panels.
  5. Printing: Digital or screen printing with ultraviolet-resistant inks.
  6. Sign Board:
    - a. Material: Treated polyethylene, thickness of 0.055 inch.
    - b. Minimum Dimensions: 20 inches wide by 14 inches high.
  7. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.
- D. Other Signs:
1. Provide temporary signage as required for construction site operations and controlling traffic at the construction site. Temporary signage for controlling traffic shall comply with Section 01 55 26.

## PART 3 – EXECUTION

### 3.01 INSTALLATION, MAINTENANCE, AND REMOVAL

- A. Installation:
1. Install temporary signs within 14 days of Engineer's approval of the submittal required by this Section.
  2. Location of signs shall be as shown or indicated in the Contract Documents, or as directed by Engineer. Temporary signs shall be plainly visible to vehicular traffic.
  3. Install signs in a neat, professional, workmanlike manner.
- B. Maintenance:
1. Maintain temporary signage so that signs are clean, legible, and upright.
  2. Cut grass, weeds, and other plants so that temporary signs are not covered or obscured.
  3. Repair or replace damaged temporary signs.
  4. Relocate signs as required by progress of the Project.
- C. Removal:
1. Remove temporary signage prior to final inspection of the Work, or when directed by Engineer.

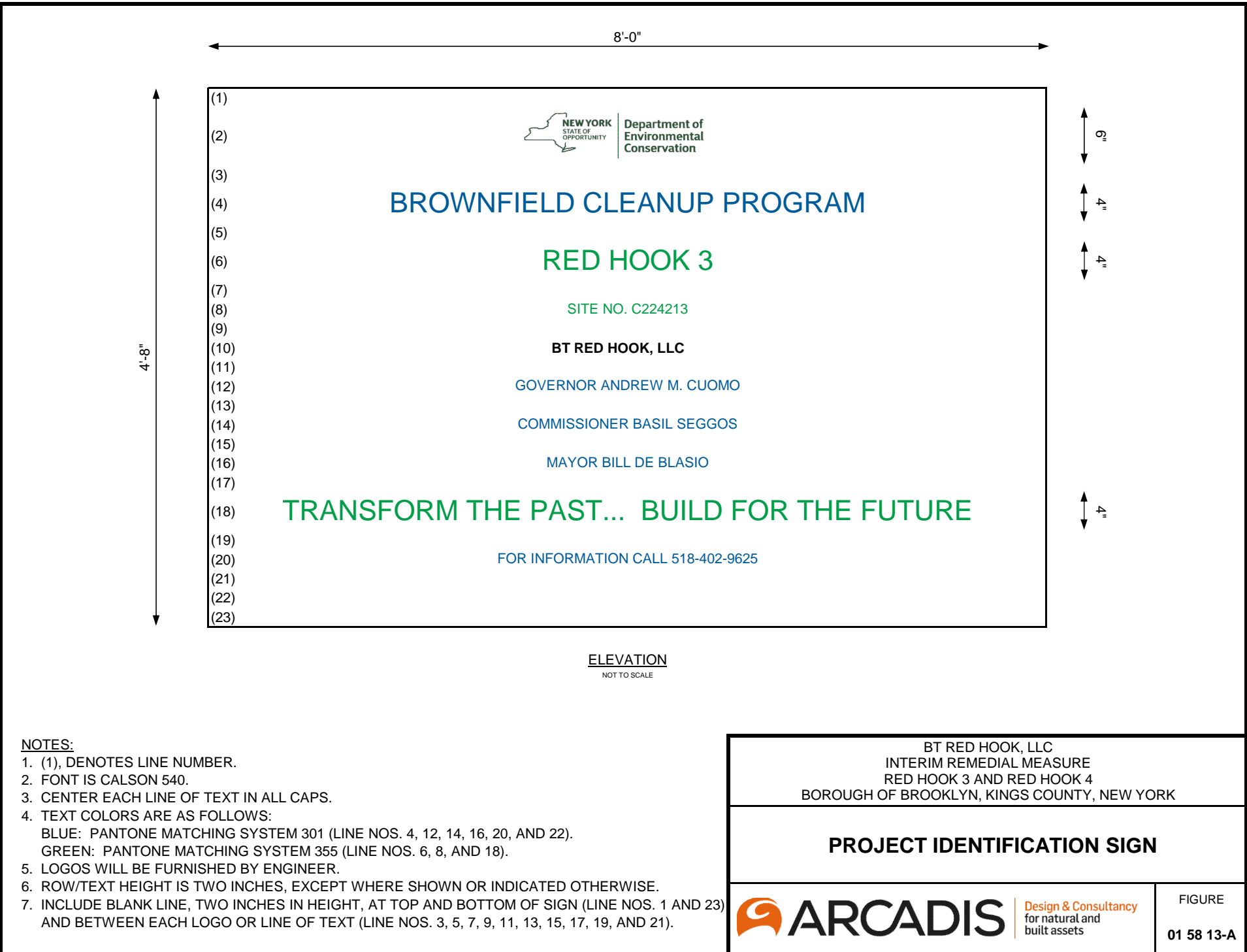
### 3.02 ATTACHMENTS

- A. The attachments listed below, which follow after the “End of Section” designation, are part of this Section:
  - 1. Attachment A: Figure 01 58 13-A (Red Hook 3) and Figure 01 58 13-B (Red Hook 4), Project Identification Signs (two pages).

END OF SECTION



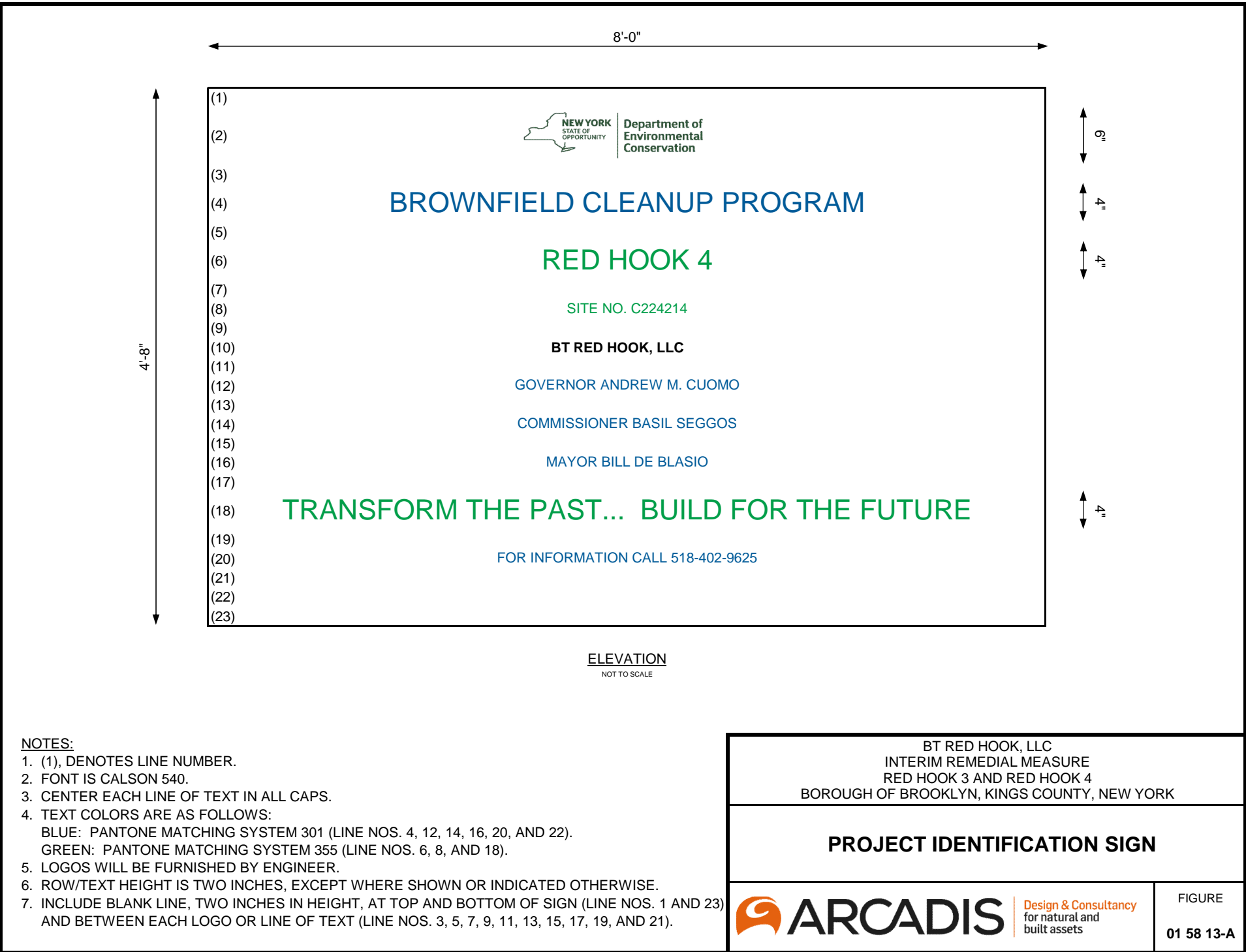
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**NOTES:**

1. (1), DENOTES LINE NUMBER.
2. FONT IS CALSON 540.
3. CENTER EACH LINE OF TEXT IN ALL CAPS.
4. TEXT COLORS ARE AS FOLLOWS:  
BLUE: PANTONE MATCHING SYSTEM 301 (LINE NOS. 4, 12, 14, 16, 20, AND 22).  
GREEN: PANTONE MATCHING SYSTEM 355 (LINE NOS. 6, 8, AND 18).
5. LOGOS WILL BE FURNISHED BY ENGINEER.
6. ROW/TEXT HEIGHT IS TWO INCHES, EXCEPT WHERE SHOWN OR INDICATED OTHERWISE.
7. INCLUDE BLANK LINE, TWO INCHES IN HEIGHT, AT TOP AND BOTTOM OF SIGN (LINE NOS. 1 AND 23) AND BETWEEN EACH LOGO OR LINE OF TEXT (LINE NOS. 3, 5, 7, 9, 11, 13, 15, 17, 19, AND 21).

BT RED HOOK, LLC INTERIM REMEDIAL MEASURE RED HOOK 3 AND RED HOOK 4 BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK	
<b>PROJECT IDENTIFICATION SIGN</b>	
<b>ARCADIS</b>	Design & Consultancy for natural and built assets
FIGURE <b>01 58 13-A</b>	



## SECTION 01 61 00

### COMMON PRODUCT REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. Scope:
1. This Section includes:
    - a. Common requirements for materials and equipment.
    - b. Compatibility of materials and equipment.

##### 1.02 REQUIREMENTS FOR MATERIALS AND EQUIPMENT

- A. Unless otherwise indicated in the Contract Documents, furnish materials and equipment that:
1. have not been previously been incorporated into another project or facility; and
  2. have not changed ownership after initial shipment from the manufacturer's factory or facility; and
  3. if stored since their manufacture or fabrication, have, while in storage, been properly maintained and serviced in accordance with the manufacturer's recommendations for long-term storage; submit documentation as required by Engineer that such maintenance and service has been performed; and
  4. that the item(s) have not been subject to degradation or deterioration since manufacture; and
  5. are the current model(s) or type(s) furnished by the Supplier.
- B. To the extent possible, furnish from a single source those materials and equipment that are of the same generic kind.
- C. Furnish materials and equipment complete with accessories, trim, finish, fasteners, and other items shown, indicated, or required for a complete installation for the indicated use and performance.
- D. Standard Items: When available, and unless custom or non-standard options are specified or indicated, furnish standard materials and equipment of types that have been produced and used successfully in similar situations on other projects.
- E. Visual Matching: Where required in the Contract Documents, furnish materials and equipment that match (as determined by Engineer) referenced existing construction, and mock-ups and Samples approved by Engineer.
- F. Where the Contract Documents include the phrase "as selected" for color of materials or equipment, finish pattern, option, or similar phrase, furnish materials and equipment selected by Engineer as follows:
1. Standard Range: Where the Contract Documents include the phrase "standard range of colors, patterns, textures" or similar wording, furnish color, pattern, density, or texture selected by Engineer from manufacturer's product line that does not include premium items.
  2. Full Range: Where the Contract Documents include the phrase "full range of colors, patterns, textures" or similar wording, Engineer will select color, pattern, density, or texture from manufacturer's entire product line, including standard and premium items.

1.03 COMPATIBILITY

- A. Similar materials and equipment by the same Supplier shall be compatible with each other, unless otherwise indicated in the Contract Documents or approved by Engineer.
- B. Furnish materials and equipment compatible with items previously selected or installed on the Project.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 62 00

PRODUCT OPTIONS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section includes:
  - a. Contractor's options for selecting materials and equipment.
  - b. Requirements for consideration of "or-equal" materials and equipment.

1.02 PRODUCT OPTIONS

- A. For materials and equipment specified only by reference standard or description, without reference to Supplier, furnish materials and equipment complying with such standard, by a Supplier or from a source that complies with the Contract Documents.
- B. For materials and equipment specified by naming one or more items or Suppliers, furnish the named materials and equipment that comply with the Contract Documents, unless an "or-equal" or substitute item is approved by Engineer.
- C. For materials and equipment specified by naming one or more items or Suppliers and the term, "or equal", when Contractor proposes a material or equipment item or Supplier as an "or equal", submit to Engineer a request for approval of an "or-equal" item or Supplier.
- D. For materials and equipment specified by naming only one item or manufacturer and followed by words indicating that no substitution is allowed, there is no option and no "or-equals" or substitution will be allowed or approved.

1.03 "OR-EQUAL" ITEMS

A. Procedure:

1. For proposed materials and equipment not named in the Contract Documents and considered as an "or-equal" in accordance with the Contract Documents, Contractor shall request in writing Engineer's approval of the "or-equal".
2. Request for approval of an "or-equal" item shall accompany the Shop Drawing or product data submittal for the proposed item.

B. Requests for approval of "or-equals" shall include:

1. Contractor's written request that the proposed item be considered as an "or-equal" in accordance with the Contract Documents, accompanied by Contractor's certifications required.
2. Documentation adequate to demonstrate to Engineer that proposed item does not require extensive revisions to the Contract Documents, is consistent with the Contract Documents, will produce results and performance required in the Contract Documents, and is compatible with other portions of the Work.
3. Detailed comparison of significant qualities of proposed item with the materials, equipment, and manufacturers named in the Contract Documents. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements shown or indicated.

4. Evidence that proposed item's manufacturer will furnish warranty equal to or better than that specified, if any.
5. List of similar installations for completed projects with project names and addresses, and names and address of design professionals and owners, when requested.
6. Samples, when requested by Engineer.
7. Other information requested by Engineer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01 65 00

### PRODUCT DELIVERY REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes general requirements for preparing for shipping, delivering, and handling materials and equipment to be incorporated into the Work.
2. Contractor shall make all arrangements for transporting, delivering, and handling of materials and equipment required for prosecution and completion of the Work.
3. When required, move stored materials and equipment without changes to the Contract Price or Contract Times.

##### 1.02 SUBMITTALS

- ###### A. Refer to individual Specifications Sections for submittal requirements relative to delivering and handling materials and equipment.

##### 1.03 PREPARING FOR SHIPMENT

- ###### A. When practical, factory-assemble materials and equipment. Mark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements or climate with strippable, protective coating.
- ###### B. Package materials and equipment to facilitate handling, and protect materials and equipment from damage during shipping, handling, and storage. Mark or tag outside of each package and crate to indicate the associated purchase order number, bill of lading number, contents by name, Owner's contract designation, Contractor name, equipment number, and approximate weight. Include complete packing lists and bills of materials with each shipment.
- ###### C. Protect materials and equipment from exposure to the elements and damage by climate, and keep thoroughly dry and dust-free at all times. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Lubricate bearings and other items requiring lubrication in accordance with manufacturer's instructions.
- ###### D. Advance Notification of Shipments:
1. Keep Engineer informed of delivery of all materials and equipment to be incorporated in the Work.
- ###### E. Do not ship materials and equipment until:
1. Related Shop Drawings, Samples, and other submittals required by the Contract Documents have been reviewed or accepted (as applicable) by Engineer, including, but not necessarily limited to, all Action Submittals associated with the materials and equipment being delivered.
  2. Manufacturer's instructions for handling, storing, and installing the associated materials and equipment have been submitted to and accepted by Engineer in accordance with the Specifications.
  3. Results of source quality control testing (factory testing), when required by the Contract Documents for the associated materials or equipment, have been submitted to and accepted by Engineer.



4. Facilities required for handling materials and equipment in accordance with the Contract Documents and manufacturer's instructions are in place and available.
5. Required storage facilities have been provided.

#### 1.04 DELIVERY

##### A. Scheduling and Timing of Deliveries:

1. Arrange deliveries of materials and equipment in accordance with the Progress Schedule accepted by Engineer and in ample time to facilitate inspection and observation prior to installation.
2. Schedule deliveries to minimize space required for and duration of storage of materials and equipment at the Site or other delivery location, as applicable.
3. Coordinate deliveries to avoid conflicting with the Work and conditions at the Site, and to accommodate the following:
  - a. Work of other contractors and Owner.
  - b. Storage space limitations.
  - c. Availability of equipment and personnel for handling materials and equipment.
  - d. Owner's use of premises.
4. Deliver materials and equipment to the Site during regular working hours.
5. Deliver materials and equipment to avoid delaying the Work and the Project, including work of other contractors, as applicable. Deliver anchor system materials, including anchor bolts to be embedded in concrete or masonry, in ample time to avoid delaying the Work.

##### B. Deliveries:

1. Shipments shall be delivered with Contractor's name, Subcontractor's name (if applicable), Site name, Project name, and contract designation clearly marked.
2. Site may be listed as the "ship to" or "delivery" address, but Owner shall not be listed as recipient of shipment unless otherwise directed in writing by Engineer.
3. Provide Contractor's telephone number to shipper; do not provide Owner's telephone number.
4. Arrange for deliveries while Contractor's personnel are at the Site. Contractor shall receive and coordinate shipments upon delivery. Shipments delivered to the Site when Contractor is not present will be refused by Owner, and Contractor shall be responsible for the associated delays and additional costs, if incurred.
5. Comply with Section 01 35 43.13 (Environmental Procedures for Hazardous Materials).

##### C. Containers and Marking:

1. Have materials and equipment delivered in manufacturer's original, unopened, labeled containers.
2. Clearly mark partial deliveries of component parts of materials and equipment to identify materials and equipment, to allow easy accumulation of parts, and to facilitate assembly.

##### D. Inspection of Deliveries:

1. Immediately upon delivery, inspect shipment to verify that:
  - a. Materials and equipment comply with the Contract Documents and reviewed or accepted (as applicable) submittals.
  - b. Quantities are correct.
  - c. Materials and equipment are undamaged and of the required quality.
  - d. Containers and packages are intact and labels are legible.
  - e. Materials and equipment are properly protected.

2. Promptly remove damaged materials and equipment from the Site and expedite delivery of new, undamaged materials and equipment, and remedy incomplete or lost materials and equipment. Furnish materials and equipment in accordance with the Contract Documents, to avoid delaying progress of the Work.
3. Advise Engineer in writing when damaged, incomplete, or defective materials and equipment are delivered, and advise Engineer of the associated impact on the Progress Schedule.

#### 1.05 HANDLING OF MATERIALS AND EQUIPMENT

- A. Provide equipment and personnel necessary to handle materials and equipment, including those furnished by Owner, by methods that prevent soiling or damaging materials, equipment, and packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring, and otherwise damaging materials, equipment, and surrounding surfaces.
- C. Handle materials and equipment by methods that prevent bending and overstressing.
- D. Lift heavy components only at designated lifting points.
- E. Handle materials and equipment in safe manner and as recommended by the manufacturer to prevent damage. Do not drop, roll, or skid materials and equipment off delivery vehicles or at other times during handling. Hand-carry or use suitable handling equipment.

#### PART 2 – PRODUCTS (NOT USED)

#### PART 3 – EXECUTION (NOT USED)

END OF SECTION

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## SECTION 01 66 00

### PRODUCT STORAGE AND HANDLING REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes general requirements for storing and protecting materials and equipment.
2. Contractor shall provide all labor, materials, tools, equipment, and incidentals to store and handle materials and equipment to be incorporated into the Work, and other materials and equipment at the Site.

##### 1.02 STORAGE

###### A. General:

1. Store and protect materials and equipment in accordance with manufacturer's recommendations and the Contract Documents.
2. Contractor shall make all arrangements and provisions necessary for, and pay all costs for, storing materials and equipment.
3. Excavated materials, construction equipment, and materials and equipment to be incorporated into the Work shall be placed to avoid injuring the Work and existing facilities and property, and so that free access is maintained at all times to all parts of the Work and to public utility installations in vicinity of the Work.
4. Store materials and equipment neatly and compactly in locations that cause minimum inconvenience to Owner, other contractors, public travel, and owners, tenants, and occupants of adjoining property.
5. Arrange storage in manner to allow easy access for inspection by Engineer and Resident Project Representative.

###### B. Storage Location:

1. Areas available at the Site for storing materials and equipment are shown or indicated in the Contract Documents, or as acceptable to Owner or Engineer.
2. Restrictions:
  - a. Do not store materials or equipment in structures being constructed unless approved by Engineer in writing.
  - b. Do not use lawns or other private property for storage without written permission of the owner or other person in possession or control of such premises.

###### C. Protection of Stored Materials:

1. Store materials and equipment to become Owner's property to ensure preservation of quality and fitness of the Work, including proper protection against damage by freezing, moisture, and with outdoor ambient air high temperatures as high as 100 degrees F; temperature and humidity inside crates, containers, storage sheds, and packaging may be significantly higher than the outdoor ambient air temperature.
2. Store in indoor, climate-controlled storage areas all materials and equipment subject to damage by moisture, humidity, heat, cold, and other elements, unless otherwise acceptable to Owner.

3. When placing orders to Suppliers for equipment and controls containing computer chips, electronics, and solid-state devices, Contractor shall obtain, coordinate, and comply with specific temperature and humidity limitations on materials and equipment, because temperature inside cabinets and components stored in warm temperatures can approach 200 degrees F.
4. Contractor shall be fully responsible for loss or damage (including theft) to stored materials and equipment.
5. Do not open manufacturer's containers until time of installation, unless recommended by the manufacturer or otherwise specified in the Contract Documents.
6. Comply with requirements of Article 1.03 of this Section.

### 1.03 PROTECTION – GENERAL

- A. Equipment to be incorporated into the Work shall be boxed, crated, or otherwise completely enclosed and protected during shipping, handling, and storage, in accordance with Section 01 65 00 (Product Delivery Requirements).
- B. Store all materials and equipment off the ground (or floor) on raised supports such as skids or pallets.
- C. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Painted equipment surfaces that are damaged or marred shall be repainted in their entirety in accordance with equipment manufacturer and paint manufacturer requirements, to the satisfaction of Engineer.
- D. Protect electrical equipment, controls, and instrumentation against moisture, water damage, humidity, heat, cold, and dust. Space heaters provided in equipment shall be connected and operating at all times until equipment is placed in operation and permanently connected.

### 1.04 UNCOVERED STORAGE

- A. The following types of materials may be stored outdoors without cover on supports so there is no contact with the ground:
  1. Reinforcing steel.
  2. Precast concrete materials.
  3. Structural steel.
  4. Metal stairs.
  5. Handrails and railings.
  6. Grating.
  7. Checker plate.
  8. Metal access hatches.
  9. Castings.
  10. Fiberglass items.
  11. Rigid electrical conduit, except PVC-coated conduit.
  12. Piping, except PVC or CPVC pipe.

### 1.05 COVERED STORAGE

- A. The following materials and equipment may be stored outdoors on supports and completely covered with covering impervious to water:
  1. Grout and mortar materials.
  2. Masonry units.
  3. Rough lumber.
  4. Soil materials and granular materials such as aggregate.

5. PVC-coated electrical conduit.
  6. PVC and CPVC pipe.
  7. Filter media.
- B. Tie down covers with rope or anchor with sandbags, and slope covering to prevent accumulation of water.
- C. Store loose soil materials and granular materials, with covering impervious to water, in well-drained area or on solid surfaces to prevent mixing with foreign matter. Place, grade, and shape stockpiles for proper drainage.

#### 1.06 FULLY-PROTECTED STORAGE

- A. Store all material and equipment not indicated in Articles 1.04 and 1.05 of this Section on supports in buildings or trailers that have concrete or wooden flooring, roof, and fully-closed walls on all sides. Covering with visquine plastic sheeting or similar material in space without floor, roof, and walls is unacceptable. Comply with the following:
1. Provide heated storage for materials and equipment that could be damaged by low temperatures or freezing.
  2. Provide air-conditioned storage for materials and equipment that could be damaged by high temperatures or humidity.
  3. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.
  4. Maintain humidity at levels recommended by manufacturers for electrical and electronic equipment.

#### 1.07 HAZARDOUS MATERIALS AND EQUIPMENT

- A. Prevent contamination of personnel, storage areas, and the Site. Comply with Laws and Regulations, manufacturer's instructions, Section 01 35 43.13 (Environmental Procedures for Hazardous Materials), and other provisions of the Contract Documents.

#### 1.08 MAINTENANCE OF STORAGE

- A. On a scheduled basis, periodically inspect stored materials and equipment to ensure that:
1. Condition and status of storage facilities is adequate to provide required storage conditions.
  2. Required environmental conditions are maintained on a continuing basis.
  3. Materials and equipment exposed to elements are not adversely affected.

#### 1.09 RECORDS

- A. Keep up-to-date account of materials and equipment in storage to facilitate preparation of Applications for Payment, if the Contract Documents provide for payment for materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing.

### PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

PRODUCT STORAGE AND HANDLING REQUIREMENTS  
01 66 00 – 4  
REVISION NO. 00  
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Arcadis of New York, Inc.

BT RED HOOK, LLC  
INTERIM REMEDIAL MEASURE  
RED HOOK 3 AND RED HOOK 4  
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

01 66 00 - Product Storage and Handling Requirements

## SECTION 01 71 26

### CONSTRUCTION SURVEYING AND LAYOUT

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes surveying and layouts by Contractor and associated requirements. This Section provides provisions on reference points and other matters.
2. Contractor shall provide surveying and layout services for the Project, including:
  - a. Developing and making all detail surveys and measurements required for construction, including slope stakes, batter boards, and all other working lines, elevations, and cut sheets.
  - b. Providing materials required for benchmarks, control points, batter boards, grade stakes, structure and pipeline elevation stakes, and other items.
  - c. Keeping a transit, theodolite, or total station (theodolite with electronic distance measurement device), leveling instrument, and related implements such as survey rods and other measurement devices, at the Site at all times, and having a skilled instrument person available when necessary for laying out the Work.
  - d. Being solely responsible for all locations, dimensions, and levels. No data other than Change Order, Work Change Directive, or Field Order shall justify departure from dimensions and levels required by the Contract Documents.
  - e. Rectifying all Work improperly installed because of not maintaining, not protecting, or removing without authorization established reference points, stakes, marks, and monuments.
  - f. Providing such facilities and assistance necessary for Engineer and Resident Project Representative to check lines and grade points placed by Contractor. Do not perform excavation or backfilling Work until all cross-sectioning necessary for determining payment quantities for Unit Price Work have been completed and accepted by Engineer.

###### B. Coordination:

1. Review requirements of this and other Sections and coordinate Work that must be performed with or before surveying and layout Work.

##### 1.02 QUALITY ASSURANCE

###### A. Qualifications:

1. Surveyor:
  - a. Employ or retain the services, as needed, at the Site a surveyor with experience and capability of performing surveying and layout tasks required in the Contract Documents and as required for the Work.
  - b. Contractor's surveyor shall possess not less than five years of experience performing duties similar in scope and extent to those required of Contractor's surveyor on this Project.
  - c. Surveyor shall be a professional land surveyor licensed and registered in the State of New York.
  - d. Responsibilities include, but are not necessarily limited to, the following:
    - 1) Providing required surveying equipment, including transit, theodolite, or total station; level; stakes; and surveying accessories.



- 2) Establishing required lines and grades for performing all excavating, filling, compacting, and grading, and for constructing all facilities, structures, pipelines, and site improvements.
- 3) Preparing and maintaining professional-quality, accurate, well-organized, legible notes of all measurements and calculations made while surveying and laying out the Work.
- 4) Performing such surveys and computations necessary to determine quantities of Work performed, placed, or installed.
- 5) Performing such surveys necessary to record actual construction, including demolition, excavation, backfilling, and restoration operations.
- 6) Prior to backfilling operations, surveying, locating, and recording on a copy of the Contract Documents accurate representation of buried Work and Underground Facilities installed and encountered.
- 7) Locating on a site plan of the Site the actual location of above-ground Work to be indicated on record documents.
- 8) Preparing certified surveys in accordance with Article 1.05 of this Section.
- 9) Complying with requirements of the Contract Documents relative to surveying and related Work.

### 1.03 SUBMITTALS

#### A. Informational Submittals:

1. Procedure Submittals: Submit acceptable plan for conducting all survey Work not less than 10 days prior to starting survey Work.
2. Survey Field Books: Submit original field books within two days after completing survey Work.
3. Qualifications Statements: Submit name and address of firm, and resumes of each professional land surveyor and crew chief conducting the survey Work. Submit at least 10 days prior to beginning survey Work. During the Project, submit resume for each new registered land surveyor and crew chief employed or retained by Contractor at least 10 days prior to starting on the survey Work.
4. Certificates: When requested by Engineer, submit certificate signed by professional surveyor certifying that elevations and locations of the Work comply with the Contract Documents. Explain all deviations, if any.

#### B. Closeout Submittals:

1. Certified Surveys: Submit in accordance with Article 1.05 of this Section.

### 1.04 RECORDS

#### A. General:

1. Maintain at the Site a complete and accurate log of control and survey Work as such Work progresses.

#### B. Field Books and Records:

1. Survey data and records shall be in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the locality where the Site is located.
2. Original field notes, computations, and other surveying data shall be recorded by Contractor's surveyor in Contractor-furnished hard-bound field books, and shall be signed and sealed by Contractor's surveyor.
3. Completeness and accuracy of survey Work, and completeness and accuracy of survey records, including field books, shall be responsibility of Contractor.

4. Failure to organize and maintain survey records in an appropriate manner that allows reasonable and independent verification of calculations, and to allow identification of elevations, dimensions, and grades of the Work, shall be cause for rejecting the survey records, including field books.
5. Illegible notes or data, and erasures on any page of field books, are unacceptable. Do not submit copied notes or data. Corrections by ruling or lining out errors will be unacceptable unless initialed by the surveyor. Violation of these requirements may require re-surveying the data questioned by Engineer.

#### 1.05 CERTIFIED SURVEYS

- A. Upon completion of the Work, prepare certified surveys, signed and sealed by a professional surveyor licensed and registered in the State of New York, of the following:
  1. Remedial excavation plan, showing or indicating the final horizontal and vertical limits of excavation for each remedial excavation area, including subgrade spot elevations and topographic contours, referenced to Project datums.
  2. Bulkhead barrier wall plan, showing or indicating the final horizontal and vertical limits of the bulkhead barrier wall, including deadmen, tie rods, wales, pile caps, cathodic protection systems, and appurtenances related thereto, referenced to Project datums.
  3. Hydraulic relief system plan and profile, showing or indicating the horizontal and vertical location of new hydraulic relief piping, cleanouts, and manholes, including connections to the bulkhead barrier wall, referenced to Project datums.
  4. Final Site plan, showing or indicating final (post-construction) Site conditions.
- B. Drawing Requirements:
  1. General Content:
    - a. Property lines, easements, and rights-of-way.
    - b. Topographic contours at minimum one-foot intervals, referenced to Project elevation datum.
    - c. Horizontal and vertical location of buildings, foundations, and walls.
    - d. Horizontal location of exposed piping and utilities, poles, exposed wires, posts, signs, markers, curbs, fencing, gates, guard rails, guard cables, valves, hydrants, and other facilities visible at or above ground surface.
    - e. Horizontal limits of lawns, pavements, roads, walks, drives, and other surface improvements.
    - f. Horizontal and vertical location of wells, including ground surface elevation, outer casing elevation, and inner casing elevation, referenced to Project elevation datum.
    - g. Horizontal location, size (diameter at breast height), and species of trees and other plantings.
  2. Sheet Size: 34 inches wide by 22 inches high.
- C. Certification:
  1. Each survey drawing shall be signed and sealed by Contractor's surveyor.

#### PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 SURVEYING

- A. Verification of Conditions:
1. Verify Site conditions before starting Work and promptly notify Construction Manager and Engineer of any discrepancies with the potential to affect the Work.
- B. Reference Points:
1. Refer to Contract Documents for requirements regarding reference points.
  2. Owner's established reference points that are damaged or destroyed by Contractor will be re-established by Owner at Contractor's expense. Owner may deduct from payments owed Contractor such amounts as set-offs in accordance with the Contract Documents.
  3. From Owner-established reference points, establish lines, grades, and elevations necessary to control the Work. Obtain measurements required for executing the Work to tolerances specified in the Contract Documents.
  4. Establish, place, and replace as required, such additional stakes, markers, and other reference points necessary for control, intermediate checks, and guidance of construction operations.
- C. Surveys to Determine Quantities for Payment:
1. For each Application for Payment, perform such surveys and computations necessary to determine quantities of Work performed, placed, or installed. Perform surveys necessary for Engineer to determine final quantities of Work performed or in place.
  2. Notify Engineer not less than 24 hours before performing survey services for determining quantities to be included in Application for Payment. Unless waived in writing by Engineer, perform quantity surveys in presence of Engineer or Resident Project Representative.
- D. Surveys to Record Actual Construction: Perform such surveys necessary to record actual construction including, but not limited to, the following:
1. Horizontal and vertical limits of excavation.
  2. Horizontal and vertical location of existing Underground Facilities and surface structures demolished, realigned, or abandoned in-place.
  3. Horizontal and vertical location of new Underground Facilities, including connections to existing Underground Facilities.
  4. Horizontal and vertical limits of fill for each material classification.
  5. Subgrade and final grade topography.
  6. Horizontal and vertical location of buildings, foundations, and walls.
  7. Horizontal location of exposed piping and utilities, poles, overhead wires, posts, signs, markers, curbs, fencing, gates, guard rails, guard cables, valves, hydrants, and other facilities visible at or above ground surface.
  8. Horizontal limits of lawns, pavements, roads, walks, drives, and other surface improvements.
  9. Horizontal and vertical location of wells, including ground surface elevation, outer casing elevation, and inner casing elevation.
  10. Horizontal location, size (diameter at breast height), and species of trees and other plantings.
- E. Construction Surveying: Comply with the following:
1. Alignment Staking: Provide alignment stakes at 50-foot intervals on tangent, and at 25-foot intervals on curves.
  2. Structures: Stake-out structures, including elevations, and check prior to and during construction.

3. Pipelines: Stake-out pipelines including elevations, and check prior to and during construction.
  4. Roads, Drives, and Paved Areas: Stake-out roadway, driveway, and paved area elevations at 50-foot intervals on tangent, and at 25-foot intervals on curves.
  5. Cross-Sections: Provide original, intermediate, and final staking as required for site work, and other locations as necessary for quantity surveys.
  6. Easement Staking: Provide easement staking at 50-foot intervals on tangent, and at 25-foot intervals on curves. Also provide wooden laths with flagging at maximum intervals of 100 feet.
  7. Record Staking: Provide permanent stake at each blind flange and each utility cap provided for future connections. Stakes for record staking shall be material acceptable to Engineer.
- F. Accuracy:
1. Establish Contractor's temporary survey reference points for Contractor's use to not greater than second-order accuracy (i.e., 1:10,000). Construction staking used as a guide for the Work shall be set at not greater than third-order accuracy (i.e., 1:5000). Basis on which such orders are established shall provide the absolute margin for error specified below.
  2. Horizontal accuracy of easement staking shall be plus or minus 0.1 foot. Accuracy of other staking shall be plus-or-minus 0.04 foot horizontally and plus-or-minus 0.02 foot vertically.
  3. Survey calculations shall include an error analysis sufficient to demonstrate required accuracy.

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## SECTION 01 71 33

### PROTECTION OF THE WORK AND PROPERTY

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes general requirements for safety and protection that augment other requirements in the Contract Documents. This Section also includes requirements for barricades and warning signals, and protection of trees and plants, existing structures, installed items, and landscaping.
2. Contractor shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect personnel health and safety, and to protect the Work and all public and private property and facilities from damage as specified in the Contract Documents and the Specifications.
3. To prevent damage, injury, or loss, Contractor's actions shall include the following:
  - a. Providing measures for safety of personnel at the Site, including workers engaged in the Work, delivery personnel, testing and inspection personnel, personnel of authorities having jurisdiction, other visitors to the Site, the public, Owner's personnel, Engineer, and Resident Project Representative.
  - b. Storing apparatus, materials, supplies, and equipment in an orderly, safe manner that does not unduly interfere with the progress of the Work or work of other contractors, utility owners, and owners of transportation rights-of-way.
  - c. Providing suitable storage facilities for materials and equipment subject to damage or degradation by exposure to climate, temperature, theft, breakage, or other cause.
  - d. Placing upon the Work or any part thereof only loads consistent with the safety and integrity of that portion of the Work and existing construction.
  - e. Frequently removing and disposing of refuse, rubbish, scrap materials, and debris caused by Contractor's operations so that, at all times, the Site is safe, orderly, and workmanlike in appearance.
  - f. Providing temporary barricades, fencing, and guard rails around openings, scaffolding, temporary stairs and ramps, excavations, elevated walkways, and other areas that may present a fall-hazard or hazard to vehicles and pedestrians.
4. Do not, except after written consent from proper parties, enter or occupy privately-owned property or premises with personnel, tools, materials, or equipment, except on lands and easements provided by Owner. Contractor shall not seek out such written consent unless specifically authorized by Owner in writing to do so.
5. Contractor has full responsibility for preserving public and private property and facilities on and adjacent to the Site. Direct or indirect damage done by, or on account of, any act, omission, neglect, or misconduct by Contractor in executing the Work, shall be remedied by Contractor, at its expense, to condition equal to that existing before damage was done.
6. Owner may remedy:
  - a. Should Contractor fail to protect and safeguard property and the Work after requests from Owner or Engineer, Owner may implement measures to protect property and the Work.
  - b. Cost of such Owner-implemented measures shall be paid by Contractor. Owner may deduct from payments due Contractor such amounts as set-offs in accordance with the Contract Documents.

- c. Such right, however, shall not result in any obligation by Owner or Engineer to continuously monitor or have responsibility for protection of property and the Work, which responsibility is exclusively Contractor's.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 BARRICADES AND WARNING SIGNALS

#### A. General:

1. Where the Work is performed on or adjacent to roadway, access road or driveway, right-of-way, or public place:
  - a. Provide temporary barricades, fences, lights, warning signs, danger signals, watchmen, and take other precautionary measures for protecting persons, property, and the Work.
  - b. Use appropriately colored and reflective barricades, or paint barricades accordingly, to be visible at night.
  - c. From sunset to sunrise, provide and maintain not less than one temporary light at each barricade.
  - d. Erect sufficient barricades to keep vehicles from being driven on or into Work under construction.
  - e. Furnish watchmen in sufficient numbers to protect the Work.
2. Provide temporary barricades to protect personnel and property for Work not in or adjacent to transportation routes and vehicular travel areas, including indoor work, in accordance with Laws and Regulations.
3. Contractor's responsibility for maintaining temporary barricades, signs, and lights, and for providing watchmen shall continue until the Work is substantially complete in accordance with the Contract Documents, unless other provision for security and protection is agreed to by the parties. After Substantial Completion, protect Work and property during periods when final Work or corrective Work is underway.

#### B. Temporary Fencing: Comply with Section 01 57 33 (Security).

#### C. Coordinate Work in this Article with the following Specifications:

1. Section 01 55 26, Maintenance and Protection of Traffic.
2. Section 01 57 33, Security.
3. Section 31 23 00, Excavation and Fill.

### 3.02 PROTECTION OF EXISTING STRUCTURES

#### A. Underground Facilities:

1. Underground Facilities known to Owner and Engineer, except water, gas, sewer, electric, and communications services to individual buildings, field office trailers, and properties, are shown on the Drawings. Information shown for Underground Facilities is the best available to Owner and Engineer but is not guaranteed to be correct or complete.
2. Utility Locating and Mark-Out:
  - a. Clearly delineate areas of selective demolition, trenching, excavating, pile driving, or other subsurface Work at the Site.

- b. Not less than 14 days before planned start of selective demolition, trenching, excavating, pile driving, or other subsurface Work, engage an experienced subsurface utility engineering firm to investigate, locate, mark-out, and survey existing utilities at the Site. All locating Work and associated deliverables shall comply with utility quality level A requirements in accordance with the American Society of Civil Engineers' Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02).
  - c. Provide required notification to local one-call notification system (New York 811) at least two working days, but not more than 10 working days, before planned start of selective demolition, trenching, excavating, pile driving, or other subsurface Work.
  - d. Walk the Site and review utility locations and markings with Engineer before proceeding with selective demolition, trenching, excavating, pile driving, or other subsurface Work.
  - e. Protect and preserve staking, markings, or other designations until no longer required for proper and safe Work at or near Underground Facilities.
3. Contractor shall explore ahead of selective demolition, trenching, excavating, pile driving, or other subsurface Work, and shall sufficiently uncover Underground Facilities that will or may interfere with the Work to determine their location, to prevent damage to Underground Facilities, and to prevent service interruption to structures and properties served by Underground Facilities. If Contractor damages an Underground Facility, or the material surrounding or supporting the same, Contractor shall immediately notify Owner, Engineer, and the owner of the damaged facility and restore it to its pre-construction condition, in accordance with requirements of the owner of the damaged facility and the Contract Documents. Such repair or restoration Work shall be performed at no additional cost to Owner.
- a. Undertake such emergency response actions as may be required.
  - b. Collect, containerize, characterize, and properly dispose of any oils or pollutants released from the damaged facility.
  - c. Provide provisions for alternate or temporary service until damaged facility is repaired.
  - d. Provide assistance to the owner of the damaged facility during repairs unless authorized by the facility's owner to undertake such repairs directly.
4. Necessary changes in the location of the Work may be directed by Engineer to avoid Underground Facilities not shown or indicated on the Contract Documents.
5. If permanent relocation of an existing Underground Facility is required and is not otherwise shown or indicated in the Contract Documents, Contractor may be directed in writing to perform the required Work. When such relocation Work results in a change in the Contract Price or Contract Times, the associated contract modification procedures and payment for such Work shall be in accordance with the Contract Documents.
- B. Surface Structures:**
- 1. Surface structures are existing buildings, structures, and other facilities at or above ground surface, including their foundations and any extension below ground surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage routes, exposed piping and utilities, wells, poles, exposed wires, posts, signs, markers, curbs, walks, fencing, and other facilities visible at or above ground surface.
  - 2. Existing surface facilities, including but not limited to guard rails, posts, guard cables, signs, poles, markers, curbs, and fencing, that are damaged or temporarily removed to facilitate the Work shall be replaced and restored to their pre-construction condition at Contractor's expense.

**C. Protection of Underground Facilities and Surface Structures:**



1. Contractor shall sustain in their places and protect from direct or indirect injury all Underground Facilities and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such facility or structure.
  2. Before proceeding with the Work of sustaining and supporting such facility or structure, Contractor shall satisfy Engineer that methods and procedures to be used have been approved by party owning same.
  3. Contractor shall bear all risks attending the presence or proximity of all Underground Facilities and surface structures within or adjacent to the limits of the Work, in accordance with the Contract Documents.
  4. Contractor shall be responsible for damage and expense for direct or indirect injury, caused by Contractor's activities, to structures and facilities. Contractor shall promptly repair damage caused by Contractor's activities, to the satisfaction of the owner of damaged structure or facility.
  5. Protection of Underground Facilities Under Roads and Parking Areas:
    - a. Provide temporary, heavy-duty steel roadway plates to protect existing manholes, handholes, valve boxes, vaults, and other Underground Facilities near to or visible at the ground surface.
  6. Protection of Wells:
    - a. Clearly mark, maintain, and protect wells shown or indicated to remain.
    - b. Repair or decommission and replace at Contractor's expense wells damaged during the Work.
      - 1) Replace decommissioned well with new well of equal construction. Install new well at location selected by Engineer.
  7. Comply with 16 NYCRR 753 (Protection of Underground Facilities) and other Laws and Regulations regarding the protection of Underground Facilities.
- D. Coordinate Work in this Article with the following Specifications:
1. Section 02 41 19, Selective Demolition.
  2. Section 31 09 13, Geotechnical Instrumentation and Monitoring.
  3. Section 31 23 00, Excavation and Fill.
  4. Section 31 50 00, Excavation Support and Protection.

### 3.03 PROTECTION OF INSTALLED MATERIALS, EQUIPMENT, AND LANDSCAPING

- A. Protect installed Work to prevent damage from subsequent operations. Remove protective items when no longer needed, prior to Substantial Completion of the Work.
- B. Control traffic to prevent damage to equipment, materials, and surfaces.
- C. Provide temporary coverings to protect materials and equipment from damage.

END OF SECTION

## SECTION 01 74 05

### CLEANING

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes requirements for keeping the Site free of accumulations of waste materials during construction (“progress cleaning”) and cleaning for Substantial Completion and prior to final inspection (collectively, “closeout cleaning”).
2. Contractor shall perform cleaning during the Project, including progress cleaning, upon completion of the Work, and as required by this Section and the Contract Documents.
3. Maintain in a clean manner the Site, the Work, and areas adjacent to or affected by the Work.

##### 1.02 REFERENCE STANDARDS

###### A. The following standards are referenced in this Section:

1. NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations.

#### PART 2 – PRODUCTS (NOT USED)

#### PART 3 – EXECUTION

##### 3.01 PROGRESS CLEANING

###### A. General:

1. Clean the Site, work areas, and other areas occupied by Contractor not less than weekly. Dispose of materials in accordance with the Contract Documents, and the following:
  - a. Comply with NFPA 241 for removing combustible waste materials and debris.
  - b. Do not hold non-combustible materials at the Site more than three days if the temperature is expected to rise above 80 degrees F. When temperature is less than 80 degrees F, dispose of non-combustible materials within seven days of their generation.
  - c. Provide suitable containers for storage of waste materials and debris.
  - d. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately.

###### B. Site:

1. Keep outdoor, dust-generating areas wetted down or otherwise control dust emissions.
2. Not less than weekly, brush-sweep roadways and paved areas at the Site that are used by construction vehicles or otherwise affected by construction activities.
3. Comply with cleaning and dust control requirements of Sections 01 55 13 (Temporary Access Roads and Parking Areas) and 01 57 05 (Temporary Controls).

- C. Work Areas:
1. Clean areas where the Work is in progress to maintain the extent of cleanliness necessary for proper execution of the Work.
  2. Remove liquid spills promptly. Immediately report spills, regardless of material, volume, or circumstances involved, to Owner, Engineer, and authorities having jurisdiction in accordance with the Contract Documents and Laws and Regulations.
  3. Where dust would impair proper execution of the Work, broom-clean or vacuum entire work area, as appropriate.
  4. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- D. Installed Work:
1. Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of material or equipment installed, using only cleaning agents and methods specifically recommended by material or equipment manufacturer. If manufacturer does not recommend specific cleaning agents or methods, use cleaning agents and methods that are not hazardous to health and property and that will not damage exposed surfaces.
- E. Exposed Surfaces:
1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration until Substantial Completion.
- F. Cutting and Patching:
1. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, trailings and cuttings, and similar materials.
  2. Thoroughly clean piping, conduits, and similar features before applying patching material, paint, or other finishing materials. Restore damaged coverings on piping, ducting, and similar items to its pre-construction condition.
- G. Waste Disposal:
1. Properly dispose of waste materials, surplus materials, debris, and rubbish off the Site.
  2. Do not burn or bury rubbish and waste materials at the Site.
  3. Do not discharge volatile or hazardous substances, such as mineral spirits, oil, or paint thinner, into storm sewers or sanitary sewers.
  4. Do not discharge wastes into surface waters or drainage routes.
  5. Contractor is solely responsible for complying with Laws and Regulations regarding storing, transporting, and disposing of waste generated by Contractor's operations or brought to the Site by Contractor.
- H. During handling and installation of materials and equipment, clean and protect construction in progress and adjoining materials and equipment already in place. Apply protective covering where required for protection from damage or deterioration, until Substantial Completion.
- I. Clean completed construction as frequently as necessary throughout the construction period.

### 3.02 CLOSEOUT CLEANING

- A. Complete the following prior to requesting inspection for Substantial Completion:
1. Clean and remove from the Site rubbish, waste material, debris, and other foreign substances.
  2. Sweep paved areas broom-clean. Remove petrochemical spills, stains, and other foreign deposits.
  3. Hose-clean sidewalks and loading areas.
  4. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

5. Leave surface waterways, drainage routes, storm sewers, and gutters open and clean.
  6. Repair pavement, roads, sod, and other areas affected by construction operations and restore to specified condition. If condition is not specified, restore to pre-construction condition.
  7. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, and similar spaces.
  8. Remove non-permanent tags and labels.
  9. Leave the Site clean, and in neat, orderly condition, satisfactory to Owner and Engineer.
- B. Complete the following prior to requesting final inspection:
1. Following completion of the Work on the "punch list" of Work uncompleted at Substantial Completion, clean in accordance with Paragraph 3.02.A of this Section.

END OF SECTION

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## SECTION 01 74 19

### CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes administrative and procedural requirements for:
  - a. Recycling non-hazardous, uncontaminated demolition and construction waste.
  - b. Recycling and reusing non-hazardous, uncontaminated demolition and construction waste.
  - c. Disposing of non-hazardous, uncontaminated demolition and construction waste.

###### B. Coordination:

1. Coordinate recycling and disposing of waste as specified under this and other Sections.

###### C. Related Sections:

1. Section 01 31 13, Project Coordination.
2. Section 02 41 19, Selective Demolition.
3. Section 02 60 05, Contaminated Waste Management and Disposal.
4. Section 31 23 00, Excavation and Fill.

###### D. Performance Requirements:

1. Practice efficient waste management in using materials in the Work.
2. Employ reasonable means to divert demolition and construction waste from landfills and incinerators. Facilitate recycling of materials, including the following:
  - a. Demolition Waste:
    - 1) Concrete.
    - 2) Concrete reinforcing steel.
    - 3) Brick.
    - 4) Concrete masonry units.
    - 5) Structural steel and miscellaneous steel and metal.
  - b. Construction Waste:
    - 1) Site-clearing waste.
    - 2) Packaging:
      - a) Paper.
      - b) Cardboard and boxes.
      - c) Pallets and wood crates.
3. Dispose of demolition and construction waste only at Owner-approved facilities.

##### 1.02 TERMINOLOGY

###### A. The following words or terms are not defined but, when used in this Section, have the following meaning:

1. "Construction waste" is building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
2. "Demolition waste" is building and site improvement materials resulting from demolition or selective demolition operations.

3. "Disposal" is removal to an off-site location of demolition and construction waste and subsequent sale, recycling, reuse, or placement in an Owner-approved landfill or incinerator facility conforming to Laws and Regulations and acceptable to authorities having jurisdiction.
4. "Recycle" is recovery of demolition waste or construction waste for subsequent processing in preparation for reuse.
5. "Recycle and reuse" is recovery of demolition waste or construction waste and subsequent processing and reuse in the Work.

### 1.03 QUALITY ASSURANCE

#### A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 6 NYCRR 217, Motor Vehicle Emissions.
  - b. 6 NYCRR 360, Solid Waste Management Facilities.
  - c. 16 RCNY 2, Use of Department Disposal Facilities.
  - d. 16 RCNY 5, Specifications for Trucks and Vehicles Conveying Rubbish Through the Streets and the Impoundment of Vehicles.
2. Obtain required permits and approvals for transportation and disposal Work.
3. Comply with hauling and disposal Laws and Regulations of authorities having jurisdiction.

### 1.04 SUBMITTALS

#### A. Informational Submittals:

1. Waste Management Plan: Submit acceptable plan for managing demolition and construction waste within 14 days of the date the Contract Times commence running, and before removing any waste from the Site. Include the following:
  - a. For materials that will be recycled and reused in the Work, procedures and equipment for preparing recycled materials before incorporating them into the Work.
  - b. Procedures for separating each type of recyclable waste, including sizes of containers, container labeling, and designated location at the Site where materials will be separated and stored.
  - c. List of local, Owner-approved disposal facilities that will be used for demolition and construction waste. Include name, address, and telephone number of each recycling or processing facility, landfill, and incinerator facility. Identify type of waste to be disposed of at each facility.
2. Waste Profiles:
  - a. Preliminary Waste Profiles: Submit waste profile, listing Owner's name and address of the Site as generator of waste, for each landfill and incinerator facility. Owner will sign and return each acceptable waste profile to Contractor.
  - b. Final Waste Profiles: Submit counter-signed waste profile and proof of acceptance of waste for each landfill and incinerator facility.
3. Disposal Records:
  - a. Recycling and Processing Facility Records: Submit counter-signed manifests, weight tickets, receipts, and invoices on a monthly basis throughout the Project, and concurrent with each Application for Payment.
  - b. Landfill and Incinerator Facility Records: Submit counter-signed manifests, weight tickets, receipts, and invoices on a monthly basis throughout the Project, and concurrent with each Application for Payment.

## 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Recyclable Waste: On a daily basis, remove all recyclable materials from the work area in acceptable containers.
- B. Provide separate collection containers as required by recycling haulers and to prevent contamination of materials, including protection from the elements as applicable.
- C. Replace loaded containers with empty containers as demand requires, at least weekly.
- D. Handling: Deposit recyclable materials in containers in clean (no mud, adhesives, solvents, or petroleum or coal tar contamination), debris-free condition.
- E. If contamination chemically combines with materials so that materials cannot be cleaned, do not deposit into recycle containers.
- F. Environmental Requirements: Transport recyclable waste materials from the work area to recycling containers, and carefully deposit in containers in manner to minimize noise and dust. Close the covers of container immediately after materials are deposited. Do not place recyclable waste materials on the ground adjacent to container.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 WASTE MANAGEMENT

- A. Provide handling, containers, storage, signage, transportation, and other items required to manage wastes during the Project.
- B. Site Access and Temporary Controls:
  - 1. Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent facilities.
    - a. Designate and label specific areas of the Site necessary for separating materials to be recycled or recycled and reused.
    - b. Provide temporary controls in accordance with the Contract Documents.
- C. Shipping Documents: Prepare a non-hazardous waste manifest for each shipment of demolition and construction waste. Owner or an authorized agent will review and sign each manifest as generator of waste.

### 3.02 RECYCLING WASTE

- A. General:
  - 1. Recycle paper and beverage containers used by Contractor's personnel, Subcontractors, and Suppliers.
  - 2. Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at the Site to the maximum extent practical.
    - a. Provide appropriately marked containers or bins for controlling recyclable waste until recyclable materials are removed from the Site. Post list of acceptable and unacceptable materials at each container and bin. Inspect containers and bins for contamination and remove contaminated materials if found.



- b. Before removing from the Site, prepare and process recyclable waste as required by recycling or processing facility.
  - c. Stockpile processed materials at the Site without intermixing with other materials. Place, grade, and shape stockpiles to drain water. Cover to prevent dust and blowing debris.
  - d. Stockpile materials away from the construction area. Do not store within drip line of trees.
  - e. Remove recyclable waste from the Site and from Owner's property not less than weekly and transport to Owner-approved recycling or processing facility.
- B. Recycling and Reuse of Demolition Waste:
- 1. Concrete:
    - a. Remove reinforcement and other metals from concrete and sort with other metals.
    - b. Crush concrete to maximum dimensions of three inches and screen to comply with general fill gradation requirements of Section 31 23 00.
    - c. Concrete that does not comply with requirements for fill, or is in excess of the quantity required for fill, shall be removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.
  - 2. Masonry:
    - a. Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
    - b. Crush masonry to maximum dimensions of three inches and screen to comply with general fill gradation requirements of Section 31 23 00.
    - c. Masonry that does not comply with requirements for fill, or is in excess of the quantity required for fill, shall be removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.
- C. Recycling Demolition Waste:
- 1. Metals:
    - a. Separate metals by type.
    - b. Stack structural steel according to size, type of member, and length.
    - c. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- D. Recycling Construction Waste:
- 1. Site-Clearing Wastes:
    - a. Cut trees, branches, shrubs, brush, and logs into manageable lengths.
    - b. If required by recycling or processing facility, chip trees, branches, shrubs, brush, and logs before removing from the Site.
  - 2. Packaging:
    - a. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store at dry location.
    - b. Pallets: Require that goods delivered on pallets have the pallets removed from Site, to the extent possible. For pallets that remain at the Site, break down pallets into component wood pieces. Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, and treated wood materials.
    - c. Crates: Break down crates into component wood pieces. Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, and treated wood materials.

### 3.03 DISPOSAL OF WASTE

- A. General: Except for items or materials to be recycled or recycled and reused, remove from the Site and properly dispose of waste at Owner-approved facility such as permitted landfill or incinerator, or other method acceptable to Owner and authorities having jurisdiction.

1. Except as otherwise specified, remove from the Site all waste and debris from the Work as it accumulates. Upon completion of the Work, remove materials, equipment, waste, and debris and leave the Site clean, neat, and orderly. Comply with the Contract Documents regarding cleaning and removal of trash, debris, and waste.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials at the Site.

END OF SECTION

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## SECTION 01 77 19

### CLOSEOUT REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes general administrative and procedural requirements for the following:
  - a. Substantial Completion.
  - b. Final inspection.
  - c. Request for final payment and acceptance of the Work.

##### 1.02 SUBSTANTIAL COMPLETION

###### A. Substantial Completion – General:

1. Prior to requesting Substantial Completion, perform the following for the substantially completed Work:
  - a. Materials and equipment for which Substantial Completion is requested shall be fully ready for their intended use, including full operating and monitoring capability in automatic and manual modes.
  - b. Complete field quality control Work, including testing at the Site, indicated in Specifications Sections for individual materials and equipment items. Submit results of, and obtain Engineer's acceptance of, field quality control tests required by the Contract Documents.
  - c. Startup and checkout shall be completed in accordance with the requirements of the Specifications for the various materials and equipment in the substantially completed Work.
  - d. Cleaning for Substantial Completion shall be completed in accordance with Section 01 74 05 (Cleaning).
  - e. Spare parts, extra stock materials, and tools shall be delivered and accepted in accordance with the Specifications for the various materials and equipment in the substantially completed Work.
  - f. Submit and obtain Engineer's acceptance of final operations and maintenance manuals, if any.
  - g. Obtain and submit to Engineer all required permits, inspections, and approvals of authorities having jurisdiction for the substantially completed Work to be occupied and used by Owner.
  - h. Complete other tasks that the Contract require be completed prior to Substantial Completion.
2. Procedures for requesting and documenting Substantial Completion are specified in the Contract Documents.
3. Unless decided otherwise by Owner and Engineer, form of certificate of Substantial Completion will be EJCDC® C-625, "Certificate of Substantial Completion" (2013 edition) prepared by Engineer.
4. Refer to Section 1 29 76 (Progress Payment Procedures) for requirements regarding consent of surety to partial release of or reduction in retainage.

### 1.03 FINAL INSPECTION

- A. Final Inspection – General:
1. Prior to requesting final inspection, verify that all of the Work is fully complete and ready for final payment.
  2. Procedures for requesting and documenting the final inspection are specified in the Contract Documents.

### 1.04 REQUEST FOR FINAL PAYMENT AND ACCEPTANCE OF THE WORK

- A. Procedure:
1. Submit request for final payment in accordance with the Contract Documents using the procedures specified in Section 01 29 76 (Progress Payment Procedures) and this Section.
  2. Acceptance of the Work:
    - a. Upon Engineer's receipt of the final Application for Payment, accompanied by other required Contract closeout documentation in accordance with the Contract Documents, Engineer will issue to Owner and Contractor a notice of acceptability of the Work, in accordance with the Contract Documents.
    - b. Nothing other than receipt of such notice of acceptability from Engineer constitutes acceptance of the Work.
    - c. Unless decided otherwise by Owner and Engineer, form of acceptance will be EJCDC® C-626, "Notice of Acceptability of Work" (2014 edition).
- B. Request for final payment shall include:
1. Documents required for progress payments in Section 01 29 76 (Progress Payment Procedures).
  2. Documents required by the Contract Documents.
  3. List of all disputes that Contractor believes are unsettled.
  4. Consent of Surety to Final Payment:
    - a. Acceptable form includes AIA® G707TM, "Consent of Surety to Final Payment" (1994 or later edition), or other form acceptable to Owner.
  5. Releases or Waivers of Lien Rights:
    - a. When submitting releases or waivers of Lien rights, furnish release or waiver by Contractor and each Subcontractor and Supplier that provided Contractor, Subcontractor, or Supplier with labor, material, or equipment totaling \$1,000.00 or more for the Contract.
    - b. Furnish list of Subcontractors and Suppliers for which release or waiver of Lien is required, indicating final amount of the associated subcontract or purchase order for each. Include on the list all lower-tier Subcontractors and Suppliers retained by Subcontractors and Suppliers with direct subcontract or purchase order with Contractor.
    - c. Each release or waiver of Lien shall be signed by an authorized representative of the entity submitting release or waiver of Lien, and shall include Contractor's, Subcontractor's, or Supplier's (as applicable) corporate seal, when applicable.
    - d. Release or waiver of Lien may be conditional upon receipt of final payment.

6. Affidavits:
  - a. In lieu of the release or waiver of Liens, Contractor may submit the following, for Contractor and each Subcontractor and Supplier that provided Contractor, Subcontractor, or Supplier with labor, material, or equipment totaling \$1,000.00 or more, to Owner's satisfaction:
    - 1) Affidavit of payment of debts and claims. Acceptable form includes AIA® G706TM, "Contractor's Affidavit of Payment of Debts and Claims" (1994 or later edition), or other form acceptable to Owner, and;
    - 2) Affidavit of release of Liens. Acceptable form includes AIA® G706ATM, "Affidavit of Release of Liens" (1994 or later edition), or other form acceptable to Owner.
  - b. Affidavits and supporting documents furnished under this Paragraph 1.04.B.6 shall comply with the requirements of the Contract Documents.
  - c. Each affidavit furnished shall be signed by an authorized representative of the entity furnishing the affidavit, and shall include Contractor's, Subcontractor's, or Supplier's (as applicable) corporate seal, when applicable.
7. Evidence satisfactory to Owner that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of Liens or other title defects, or will so pass upon final payment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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## SECTION 01 78 39

### PROJECT RECORD DOCUMENTS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes requirements for Project record documents.
2. Contractor shall provide all labor, materials, equipment, and services to maintain and submit to Engineer Project record documents in accordance with the Contract Documents.

##### 1.02 SUBMITTALS

###### A. Closeout Submittals:

1. Record Documents: Submit the following Project record documents in accordance with Article 1.04 of this Section:
  - a. Drawings.
  - b. Specifications and Addenda.

##### 1.03 MAINTENANCE OF RECORD DOCUMENTS

###### A. Maintain in Contractor's field office, in clean, dry, legible condition, complete sets of the following record documents:

1. Drawings, Specifications, and Addenda.
2. Shop Drawings, Samples, and other Contractor submittals, including records of test results, reviewed or accepted, as applicable, by Engineer.
3. Change Orders, Work Change Directives, Field Orders, copies of all interpretations and clarifications issued.
4. Photographic documentation, survey data, permits, and all other documents pertinent to the Work.

###### B. Provide files and racks for proper storage and easy access to record documents. File record documents in accordance with the edition of the Construction Specifications Institute's MasterFormat™ used for organizing the Project Manual, unless otherwise accepted by Engineer.

###### C. Promptly make record documents available for observation and review upon request of Owner or Engineer.

###### D. Do not use record documents for any purpose other than serving as Project record. Do not remove record documents from Contractor's field office without Engineer's approval.

##### 1.04 SUBMITTAL OF RECORD DOCUMENTS

###### A. Prior to readiness for final payment, submit to Engineer one copy of the Project's final record documents and obtain Engineer's acceptance of the same. Submit complete record documents; do not make partial submittals.

###### B. Submit record documents with transmittal letter on Contractor letterhead in accordance with requirements of Section 01 33 00 (Submittal Procedures).



C. Certifications:

1. Record documents submittal shall include certification, with original signature of an official authorized to execute legal agreements on behalf of Contractor, reading as follows:

*"[Insert Contractor's corporate name] has maintained and submitted record documentation in accordance with Specification Section 01 78 39, and other elements of Contract Documents, for the BT Red Hook, LLC, Interim Remedial Measure, "[Insert Site name - Red Hook 3 or Red Hook 4], Borough of Brooklyn, Kings County, New York. We certify that each record document submitted is complete, accurate, and legible relative to the Work performed under our Contract, and that the record documents comply with the requirements of the Contract Documents.*

*[Provide signature, print name, print signing party's corporate title, and date]"*

1.05 RECORDING CHANGES

A. General:

1. At the start of the Project, label each record document to be submitted as "PROJECT RECORD" using legible, printed letters. Letters on record copy of the Drawings shall be two inches high.
2. Keep record documents current, consistent with the progress of the Work. Make entries on record documents within two working days of receipt of information required to record the change.
3. Do not permanently conceal the Work until required information has been recorded for Project record documents.
4. Accuracy of record documents shall be such that future searches for items shown on the record documents may rely reasonably on information obtained from Engineer-accepted record documents.
5. Marking of Entries:
  - a. Use erasable, colored pencils (not ink or indelible pencil) for marking changes, revisions, additions, and deletions to record documents.
  - b. Clearly describe the change by graphic line and make notations as required. Use straight-edge to mark straight lines. Writing shall be legible and sufficiently dark to allow scanning of record documents into legible electronic files in portable document format (".PDF").
  - c. Date each entry on record documents.
  - d. Indicate changes by drawing a "cloud" around the change(s) indicated.
  - e. Mark initial revisions in red. In the event of overlapping changes, use different colors for subsequent changes.

B. Drawings:

1. Record changes on a copy of the Drawings. Submittal of Contractor-originated or -produced drawings as a substitute for recording changes on a copy of the Drawings is unacceptable.
2. Record changes on plans, sections, elevations, schematics, schedules, and details as required for clarity, making reference dimensions and elevations (to Project datum) for complete record documentation.

3. Record actual construction, including:
  - a. Horizontal and vertical location of existing Underground Facilities and surface structures demolished, realigned, or abandoned in-place, referenced to permanent surface improvements and Project datums. For each Underground Facility or surface structure, show and indicate dimensions to not less than two permanent, visible surface improvements.
  - b. Horizontal and vertical limits of excavation.
  - c. Horizontal and vertical location of new Underground Facilities referenced to permanent surface improvements and Project datums. For each Underground Facility, including pipe fittings, provide dimensions to at least two permanent, visible surface improvements.
  - d. Location of exposed utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure and, where applicable, to Project datums.
  - e. Changes in structural and architectural elements of the Work, including changes in reinforcing.
  - f. Field changes of dimensions, arrangements, and details.
  - g. Changes made in accordance with Addenda, Change Orders, Work Change Directives, and Field Orders.
  - h. Changes in details on the Contract Drawings. Submit additional details prepared by Contractor when required to document such changes.
4. Supplemental Drawings:
  - a. In some cases, drawings produced during construction by Engineer or Contractor supplement the Drawings and shall be included with Project record documents submitted by Contractor. Supplemental record drawings shall include drawings or sketches that are part of Change Orders, Work Change Directives, and Field Orders and that cannot be incorporated into the Drawings because of space limitations.
  - b. Supplemental drawings submitted with record drawings shall be integrated with the Drawings and include necessary cross-references between drawings. Supplemental record drawings shall be on sheets the same size as the Drawings.
  - c. When supplemental drawings developed by Contractor using computer-aided drafting/design (CADD) software are to be included in record drawings, submit electronic files for such drawings in "DWG" format compatible with AutoDesk AutoCAD 2012 as part of record drawing submittal. Submit electronic files on compact disc labeled, "Supplemental Record Drawings", including Contractor name, Project name, and Contract designation.

C. Specifications and Addenda:

1. Mark each Specifications Section to record:
  - a. Manufacturer, trade name, catalog number, and Supplier of each material and equipment item actually provided.
  - b. Changes made by Addendum, Change Orders, Work Change Directives, and Field Orders.

1.06 ELECTRONIC FILES FURNISHED BY ENGINEER

- A. CADD files of the Drawings will be furnished by Engineer upon the following conditions:
  1. Contractor shall submit to Engineer a letter on Contractor letterhead requesting CADD files of the Drawings and indicating specific definition(s) or description(s) of how such files will be used, and specific description of benefits to Owner if the request is granted.
  2. Contractor shall execute Engineer's standard agreement for release of electronic files and shall abide by the provisions of such agreement for release of electronic files.

3. Layering system incorporated in CADD files shall be maintained as transmitted by Engineer. CADD files transmitted by Engineer containing cross-referenced files shall not be bound by Contractor. Drawing cross-references and paths shall be maintained. If Contractor alters layers or cross-reference files, Contractor shall restore all layers and cross-references prior to submitting record documents to Engineer.
4. Contractor shall submit record drawings to Engineer in same CADD format that files were furnished to Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 02 41 19

### SELECTIVE DEMOLITION

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, equipment, and incidentals as shown, specified, and required for the selective demolition, removal, and disposal of existing buildings and structures, pavements, curbs, sidewalks, gutters, fencing, Underground Facilities, and similar facilities.
2. Perform selective demolition Work within areas shown or indicated.
3. Pay all fees associated with transporting and disposing of materials and equipment resulting from selective demolition.

###### B. Coordination:

1. Review procedures under this and other Sections and coordinate Work that must be performed with or before selective demolition Work.

###### C. Related Sections:

1. Section 01 74 05, Cleaning.
2. Section 01 74 19, Construction Waste Management and Disposal.
3. Section 02 60 05, Contaminated Waste Management and Disposal.
4. Section 31 23 00, Excavation and Fill.

##### 1.02 REFERENCES:

###### A. Terminology:

1. The following words or terms are not defined but, when used in this Section, have the following meaning:
  - a. "Remove" means to detach items from existing construction and legally dispose of them off-Site unless indicated to be removed and reinstalled.
  - b. "Remove and reinstall" means to detach items from existing construction, prepare for reuse, and reinstall where indicated.
  - c. "Existing to remain" means existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed or removed and reinstalled.

###### B. Reference Standards:

1. The following standards are referenced in this Section:
  - a. NFPA 51, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.

##### 1.03 QUALITY ASSURANCE

###### A. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
  - b. 29 CFR 1910.251 through 29 CFR 1910.255, Subpart Q – Welding, Cutting, and Brazing.
  - c. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.

- d. 29 CFR 1926.350 through 29 CFR 1926.354, Subpart J – Welding and Cutting.
  - e. 29 CFR 1926.850 through 29 CFR 1926.860, Subpart T – Demolition.
  - f. 12 NYCRR 23-1.25, Welding and Flame Cutting Operations.
  - g. 12 NYCRR 23-3.1 through 12 NYCRR 23-3.3, Subpart 23-3 – Demolition Operations.
  - h. 16 NYCRR 753, Protection of Underground Facilities.
2. Obtain required permits and approvals for selective demolition, removal, and disposal Work.
  3. Comply with requirements of authorities having jurisdiction.

#### 1.04 SUBMITTALS

##### A. Informational Submittals:

1. Selective Demolition Plan: Submit acceptable plan for selective demolition Work not less than 14 days prior to starting selective demolition Work. Include the following:
  - a. Plan for coordinating shut-offs, locating, capping, temporary services, and continuing utility services.
  - b. List of proposed equipment for selective demolition Work.
  - c. Proposed selective demolition procedures. Where different procedures or equipment will be used for different types of material or at different locations at the Site, indicate where each procedure and equipment item will be used.
  - d. Planned sequence of selective demolition operations, including coordination with excavation, backfilling, and pile driving Work.
  - e. Detailed schedule of selective demolition Work in accordance with the accepted Progress Schedule.
2. Notification of Intended Demolition Start: Submit in accordance with Paragraph 3.03.A of this Section.

#### 1.05 WARRANTY

- A. Existing Special Warranty: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

### PART 2 – PRODUCTS (NOT USED)

### PART 3 – EXECUTION

#### 3.01 INSPECTION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. Inventory and record the condition of items to be removed and reinstalled.

#### 3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain:
  1. Maintain services/systems indicated to remain and protect them against damage during selective demolition Work.
- B. Existing Services/Systems to be Removed, Relocated, or Abandoned:

1. Shutdown of utility services shall be coordinated and paid for by Contractor, and will be assisted by Owner as required relative to contacting utility owners.
  2. Before proceeding with selective demolition, locate; identify; drain, purge, or de-energize; and make safe for removal and capping all Underground Facilities to be removed, relocated, or abandoned. Collect, containerize, and properly dispose of chemicals, gases, coal tar, or other dangerous materials recovered from Underground Facilities.
  3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems.
  4. All modifications, shut-downs, and removals shall be in accordance with utility owner's policies and procedures.
- C. Should uncharted or incorrectly charted Underground Facilities be encountered, Contractor's responsibilities shall be in accordance with the Contract Documents. Cooperate with utility owners in keeping adjacent services and facilities in operation.

### 3.03 PREPARATION

A. Notification:

1. At least 48 hours prior to commencing selective demolition or removal Work, notify Engineer in writing of planned start of selective demolition Work. Do not start selective demolition without permission of Engineer.

B. Protection of Surrounding Areas and Facilities:

1. Perform selective demolition and removal Work in manner that prevents damage and injury to property, structures, occupants, the public, and facilities. Do not interfere with use of, and free and safe access to and from, structures and properties.
2. Closing or obstructing roads, drives, sidewalks, and passageways adjacent to the Work is not allowed unless indicated otherwise in the Contract Documents. Conduct the Work with minimum interference to vehicular and pedestrian traffic.
3. Provide temporary barriers, lighting, sidewalks, sheds, and other necessary protection.
4. Protect construction and facilities indicated to remain against damage and soiling during selective demolition operations. Repair damage at Contractor's expense. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
5. Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - a. Strengthen or add new supports when required during progress of selective demolition.
  - b. Cease operations and immediately notify Engineer if safety of structure or facility appears to be endangered.
  - c. Do not resume selective demolition operations until safety is restored.

C. Pollution Control:

1. Provide and maintain special measures to prevent debris, waste, rubbish, and material resulting from selective demolition operations from entering surface waters, open drainage routes, sanitary sewers, or storm sewers. Comply with pollution control requirements of Section 01 57 05.
2. Use water sprinkling, temporary enclosures, and other suitable methods to limit emissions of dust and dirt to lowest practical level. Comply with Section 01 57 05 and Laws and Regulations.

3. Do not use water when water may create hazardous or objectionable conditions such as icing, flooding, or pollution.

### 3.04 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  1. Unless otherwise approved by Engineer, proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. Cutting and Patching: Comply with the following:
    - a. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
    - b. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  3. Hot Work: Comply with NFPA 51, Laws and Regulations, and the following:
    - a. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
    - b. Maintain adequate ventilation when using cutting torches.
  4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  5. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain and at regular intervals using power-driven saw or hand tools, then remove concrete or masonry between saw cuts. Do not use power-driven impact tools. Where reinforcement is present, dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition.
  6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  7. Break up and remove foundations and slabs-on-grade unless otherwise shown or indicated as remaining in place.
  8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing, adjacent surfaces, and Underground Facilities.
  9. Dispose of demolished items and materials promptly. Comply with requirements of Sections 01 74 19 and 02 60 05.
- B. Selective Demolition of Buildings or Structures:
  1. Remove structures to lines and grades shown or indicated, unless otherwise directed by Engineer. Where limits are not shown or indicated, limits shall be four inches outside item to be installed. Removals beyond limits shown or indicated shall be at Contractor's expense and such excess removals shall be reconstructed to satisfaction of Engineer without additional cost to Owner.
  2. After removing concrete and masonry walls or portions thereof, slabs, and similar construction that ties into the Work or existing construction, neatly repair the junction point to leave exposed only finished edges and finished surfaces.

3. Where parts of existing structures are to remain in service following demolition, remove the portions shown or indicated for removal, repair damage, and leave the building or structure in proper condition for the intended use.
    - a. Remove concrete and masonry to the lines shown or indicated by sawing, drilling, chipping, and other suitable methods. Leave the resulting surfaces true and even, with sharp, straight corners that will result in neat joints with new construction and be satisfactory for the purpose intended.
    - b. Do not damage reinforcing bars beyond the area of concrete and masonry removal. Do not saw-cut beyond the area to be removed.
    - c. Reinforcing bars that are exposed at surfaces of removed concrete and masonry that will not be covered with new concrete or masonry shall be removed to 1.5 inches below the final surface. Repair the resulting hole, with repair mortar for concrete and grout for masonry, to be flush with the surface.
    - d. Where existing reinforcing bars are shown or indicated to extend into new construction, remove existing concrete so that reinforcing bars are clean and undamaged.
  4. Where equipment or material anchored to concrete or masonry are removed and anchors are not to be re-used, remove the anchors to not less than 1.5 inches beneath surface of concrete or masonry member. Repair the resulting hole, using repair mortar for concrete and grout for masonry, to be flush with the surface. Alternately, when the anchor is stainless steel, the anchor may be cut flush with the surface of the concrete or masonry, when so approved by Engineer.
  5. Jambs, sills and heads of windows, passageways, doors, or other openings (as applicable) cut-in to the Work or to existing construction shall be dressed with masonry, concrete, or metal to provide smooth, finished appearance.
  6. Where anchoring materials, including bolts, nuts, hangers, welds, and reinforcing steel, are required to attach the Work to existing construction, provide such materials under this Section, unless specified elsewhere in the Contract Documents.
- C. Selective Demolition of Site Improvements:
1. Pavement, Sidewalks, Curbs, and Gutters: Selective demolition of asphalt or concrete pavement, sidewalks, curbs, and gutters, as applicable, shall terminate at saw-cut edges. Edges shall be linear and have a vertical cut face.
  2. Fencing, Guardrails, and Bollards: Remove to the limits shown or indicated on the Drawings. Completely remove below-grade posts and concrete.
- D. Selective Demolition of Underground Facilities:
1. Manholes, Vaults, Chambers, and Handholes: Remove to the limits shown or indicated on the Drawings.



2. Underground Facilities Other than Wells, Piezometers, Manholes, Vaults, Chambers, and Handholes:
    - a. Remove to the extent shown or indicated on the Drawings. Where extent is not shown or indicated, extent of removal shall be 24 inches (horizontally) outside of excavations and six inches below subgrade elevations shown or indicated.
    - b. Unless otherwise shown or indicated, cap ends of piping to remain. Caps shall be compatible with the piping to which the cap is attached, fluid-tight and gas-tight, and appropriate for the fluid or gas conveyed in the pipe.
    - c. Upon completing removals, measure, survey, and record portions of Underground Facilities, if any, that remain.
- E. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended use.
  2. Pack or crate items after repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- F. Existing Items to Remain:
1. Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location off-Site during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### 3.05 REUSE OF DEMOLISHED MATERIALS

- A. Concrete and Masonry:
1. Separate concrete and masonry resulting from selective demolition operations from other demolished materials and process at the Site for use as fill. Comply with Sections 01 74 19 and 31 23 00.
  2. Concrete or masonry that does not comply with requirements for general fill material, or is in excess of the quantity required for general fill material, shall be removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.

### 3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. Except for items or materials indicated to be reinstalled, remove from the Site all debris, waste, rubbish, and material resulting from selective demolition operations and equipment used in selective demolition Work. Comply with Sections 01 74 05, 01 74 19, and 02 60 05 and other requirements of the Contract Documents.
- B. Transportation and Disposal:
1. Non-Hazardous Material: Properly transport and dispose of non-hazardous demolition debris at an appropriate, Owner-approved facility in accordance with Laws and Regulations. Non-hazardous material does not contain Asbestos, PCBs, Petroleum, Hazardous Waste, Radioactive Material, or other material designated as hazardous in Laws and Regulations.
  2. Hazardous Material: When handling and disposal of hazardous materials is included in the Work, properly transport and dispose of hazardous materials in accordance with Laws and Regulations and the Contract Documents.

3.07 CLEANING

- A. Clean adjacent structures, facilities, properties, and improvements of dust, dirt, and debris caused by selective demolition operations in accordance with Section 01 74 05 and other requirements of the Contract Documents.

END OF SECTION

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SELECTIVE DEMOLITION  
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REVISION NO. 00  
DATE ISSUED: 10.23.2019

Arcadis of New York, Inc.

BT RED HOOK, LLC  
INTERIM REMEDIAL MEASURE  
RED HOOK 3 AND RED HOOK 4  
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

02 41 19 - Selective Demolition

## SECTION 02 60 05

### CONTAMINATED WASTE MANAGEMENT AND DISPOSAL

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, equipment, services, and incidentals as specified and required to manage, remove from the Site, and dispose of contaminated waste generated during the Project.
2. The Work includes, but is not limited to, characterizing, handling, segregating, dewatering, containerizing, temporary storage as necessary, loading, transporting, and disposing of contaminated waste at appropriate, Owner-approved facilities in accordance with Laws and Regulations.
3. Pay all fees associated with transporting and disposing of contaminated waste.

###### B. Coordination:

1. Coordinate disposing of waste as specified under this and other Sections.

###### C. Related Sections:

1. Section 02 41 19, Selective Demolition.
2. Section 31 23 00, Excavation and Fill.
3. Section 46 07 53, Temporary Water Treatment System Process Flow Diagram.

##### 1.02 REFERENCES

###### A. Terminology:

1. The following words or terms are not defined but, when used in this Section, have the following meaning:
  - a. "Construction wastewater" is water used for working or processing, that results from excavation dewatering, well development, or decontamination operations, or that otherwise contains or comes into contact with material Site-related Contaminants.
  - b. "Contaminated waste" is waste material containing Manufactured Gas Plant Waste or Site-related Contaminants. Examples of potential contaminated wastes include, but are not limited to, the following:
    - 1) Construction wastewater.
    - 2) Demolition waste.
    - 3) Excavation waste.
    - 4) Free-phase product.
  - c. "Demolition waste" is building and site improvement materials resulting from demolition or selective demolition operations.
  - d. "Disposal" is removal to an off-Site location of contaminated waste and subsequent recycling, reuse, or disposal in an Owner-approved treatment facility, landfill, or incinerator facility conforming to Laws and Regulations and acceptable to authorities having jurisdiction.
  - e. "Excavation waste" is earth; sand; clay; gravel; hardpan; soft, weathered, or decomposed rock; debris; and other materials removed from excavations that does not comply with the requirements for general fill material, or is in excess of the quantity required for general fill material.

###### B. Reference Standards:

1. The following standards are referenced in this Section:
  - a. ASTM D5199, Standard Test Method for Measuring the Nominal Thickness of Geosynthetics.
  - b. ASTM D5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles.
  - c. GRI GM13, Standard Specification for Test Methods, Test Properties and Testing Frequency for High-Density Polyethylene (HDPE) Smooth and Textured Geomembranes.
  - d. GRI GM17, Standard Specification for Test Methods, Test Properties and Testing Frequency for Linear Low-Density Polyethylene (LLDPE) Smooth and Textured Geomembranes.
  - e. GRI GT12, Standard Specification for Test Methods and Properties for Nonwoven Geotextiles Used as Protection (or Cushioning) Materials.
  - f. USEPA SW-846 Method 9095, Paint Filter Liquids Test.

### 1.03 QUALITY ASSURANCE

#### A. Qualifications:

1. Waste Transporters: Waste transportation firms shall possess valid permit or license issued by authorities having jurisdiction for transporting contaminated waste.

#### B. Regulatory Requirements:

1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
  - b. 29 CFR 1918, Safety and Health Regulations for Longshoring.
  - c. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.
  - d. 29 CFR 1926.600 through 29 CFR 1926.606, Subpart O – Motor Vehicles, Mechanized Equipment, and Marine Operations.
  - e. 33 CFR 155, Oil or Hazardous Material Pollution Prevention Regulations for Vessels.
  - f. 33 CFR 161, Navigation Safety Regulations.
  - g. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
  - h. 49 CFR 171 through 49 CFR 185, Subchapter C – Hazardous Materials Regulations.
  - i. 6 NYCRR 217, Motor Vehicle Emissions.
  - j. 6 NYCRR 360, Solid Waste Management Facilities.
  - k. 6 NYCRR 364, Waste Transporter Permits.
  - l. 6 NYCRR 370, Hazardous Waste Management System – General.
  - m. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
  - n. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.
  - o. 6 NYCRR 373, Hazardous Waste Management Facilities.
  - p. 6 NYCRR 375, Environmental Remediation Programs.
2. Comply with applicable provisions and recommendations of the following:
  - a. NYSDEC Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment from Former Manufactured Gas Plants (MGPs) (DER-4).
  - b. NYSDOT Standard Specifications and Standard Sheets.
3. Obtain required permits and approvals for contaminated waste transportation and disposal operations.
4. Comply with hauling and disposal Laws and Regulations of authorities having jurisdiction.

### 1.04 SUBMITTALS

#### A. Action Submittals:

1. Product Data: Submit manufacturer's product data for proposed soil drying agent.

B. Informational Submittals:

1. Contaminated Waste Management Plan: Submit acceptable plan for managing contaminated waste within 14 days of the date the Contract Times commence running, and before removing any contaminated waste from the Site. Include the following:
  - a. List of local, Owner-approved disposal facilities that will be used for contaminated wastes. Include name, address, and telephone number of each treatment facility, landfill, and incinerator facility. Identify type of contaminated waste to be disposed of at each facility.
  - b. Procedures for characterizing each type of contaminated waste, including disposal facility characterization requirements, number and locations of characterization samples to be collected, sampling procedures or approach, and tests to be performed.
  - c. Procedures for separating each type of contaminated waste, including sizes of containers, container labeling, and designated location at the Site where contaminated wastes will be separated and stored.
  - d. Description of the type(s) and size(s) of vehicles or vessels that will be used for transporting contaminated waste from the Site.
  - e. Procedures for loading contaminated waste into transport vehicles or vessels.
2. Waste Profiles:
  - a. Preliminary Waste Profiles: Submit waste profile, listing Owner's name and address of the Site as generator of waste, for each treatment facility, landfill, and incinerator facility. Owner will sign and return each acceptable waste profile to Contractor.
  - b. Final Waste Profiles: Submit counter-signed waste profile and proof of acceptance of waste for each treatment facility, landfill, and incinerator facility.
3. Permits: Submit copy of valid NYSDEC waste transporter permit for each waste transporter hauling contaminated waste.
4. Waste Characterization Results: Submit laboratory test reports for waste characterization samples collected by Contractor.
5. Disposal Records: Submit counter-signed manifests or bills of lading, weight tickets, receipts, and invoices for each treatment facility, landfill, and incinerator facility on a monthly basis throughout the Project, and concurrent with each Application for Payment.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store soil drying agent in closed, water-proof containers not exceeding one ton in weight. Bulk deliveries and on-site storage of soil drying agent are prohibited.

1.06 REQUIREMENTS FOR VEHICLES AND VESSELS TRANSPORTING CONTAMINATED WASTE

- A. General:
  1. Vehicles and vessels transporting contaminated waste shall comply with Laws and Regulations, and shall be permitted, licensed, or certified, as appropriate, by authorities having jurisdiction.

- B. Vehicles:
1. Vehicles transporting contaminated waste shall be water-tight and structurally sound, and shall possess functioning tailgate locks and solid, water-proof tarpaulins.
  2. License plates and placards shall be properly affixed and visible at all times.
  3. Completely line the bed and sidewalls of each dump box or trailer with not less than six-mil polyethylene sheeting prior to loading contaminated waste.

## PART 2– PRODUCTS

### 2.01 MATERIALS

- A. Soil Drying Agent:
1. Soil drying agent shall be non-biodegradable sorbent complying with 40 CFR 264.314(d)(1). Inorganic minerals, if used, shall contain no more than 50 percent reactive (free) calcium oxide and magnesium oxide by weight.
- B. Temporary Containment Areas:
1. Crushed stone shall be clean, durable, sharp-angled fragments of rock of uniform quality conforming to Material Designation 703-0201, Size Designation No. 3, in accordance with Section 703 of the NYSDOT Standard Specifications.
  2. Geomembrane shall be chemically-resistant, free of and resistant to fungal or bacterial attack, and free of cuts, abrasions, holes, blisters, contaminants, and other imperfections. Nominal thickness of geomembrane shall be not less than 40 mils when tested in accordance with ASTM D5199. HDPE or LLDPE geomembrane may be used.
    - a. HDPE Geomembrane: Comply with GRI GM13.
    - b. LLDPE Geomembrane: Comply with GRI GM17.
  3. Geotextile shall be a non-woven cushioning fabric composed of 100 percent polyester filaments. Fabric shall be inert to biological degradation and naturally encountered chemicals, alkalizes, and acids. Unit weight of fabric shall be not less than 12 ounces per square yard when tested in accordance with ASTM D5261. Comply with GRI GT12.

## PART 3 – EXECUTION

### 3.01 CONTAMINATED WASTE MANAGEMENT

- A. General:
1. Provide handling; packagings, markings, labeling, and placarding; storage; signage; transportation; and other items required to manage contaminated wastes during the Project in accordance with Laws and Regulations.
  2. Packagings shall be new or in like-new condition, water-tight, and compatible with the contaminated wastes to be contained therein.
  3. Segregate contaminated waste streams in accordance with Laws and Regulations and as required by waste transporters and disposal facilities.
  4. Crush excavated rock and debris, as necessary, to render material suitable for disposal.
- B. Site Access and Temporary Controls: Conduct contaminated waste management operations to ensure minimum interference with roads, streets, drives, walkways, and other adjacent facilities.
1. Designate and label specific areas of the Site necessary for separating and storing contaminated wastes.
  2. Provide temporary controls in accordance with the Contract Documents.

- C. Waste Characterization:
  - 1. Determine disposal facility characterization requirements for each waste stream.
  - 2. Collect required waste characterization samples, and coordinate and pay for required laboratory testing.

### 3.02 DEWATERING EXCAVATION WASTE

- A. Dewater excavation waste as necessary to pass Paint Filter testing procedures (USEPA SW-846 Method 9095) before leaving the Site.
- B. Dewatering may include one or more of the following:
  - 1. Active dewatering of soils before or during excavation in accordance with Section 31 23 00.
  - 2. Blending of dry soils excavated from above the water table with wet soils excavated from below the water table.
  - 3. Stockpiling soils on a temporary basis to allow for gravity dewatering.
  - 4. Use of approved soil drying agent to amend soils excavated from below the water table. Unless otherwise directed by Owner, excavation waste shall be amended with not more than four percent soil drying agent by weight.
- C. Storage of Liquids Resulting from Dewatering Operations: Comply with temporary storage requirements for construction wastewater.

### 3.03 TEMPORARY CONTAINMENT AREAS

- A. General:
  - 1. Provide temporary containment areas for the temporary storage of contaminated waste.
  - 2. Temporary containment areas shall be constructed as shown or indicated in the Contract Documents.
- B. Installation:
  - 1. Provide reasonably level, graded, well-drained subgrade of satisfactory soil material, compacted to at least 95 percent of maximum dry density in the upper six inches. Prepared subgrade shall be free of sharp stones, roots, debris, and other deleterious matter.
  - 2. Install geomembrane, with layer of cushioning geotextile fabric above and below liner, upon prepared subgrade. Comply with manufacturer's installation instructions. Geomembrane shall be sloped to a sump to allow for the collection and removal of leachate.
  - 3. Provide crushed stone material a minimum of 12 inches thick above geosynthetics. Grade crushed stone to a level, dense surface.
  - 4. Provide compacted berm around perimeter of temporary containment area not less than 12 inches in height.
- C. Maintenance:
  - 1. Maintain not less than the minimum required thickness of crushed stone above geosynthetics. Add crushed stone as required to maintain thickness.
  - 2. Remove leachate from temporary containment areas on a regular basis so as to not exceed storage capacity of temporary containment area.
- D. Removal:



1. Completely remove temporary containment areas when no longer required. Repair damage caused by temporary containment areas and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

### 3.04 TEMPORARY STORAGE OF CONTAMINATED WASTE

#### A. Excavation Waste:

1. Excavation waste shall be stockpiled in a temporary containment area.
  - a. Place, grade, and shape stockpiles for proper drainage.
  - b. Stockpiles shall be securely covered at all times, during both working and non-working hours, with minimum six-mil polyethylene liners or other covering impervious to water when not in use. Covers shall be properly anchored to prevent uplift due to wind conditions and shall be sloped to prevent accumulation of water.
  - c. Inspect stockpiles not less than daily and immediately correct any deficiencies observed.
2. Based on Site conditions, Owner may elect to limit the maximum size of stockpiles. Limitations to stockpile size shall not result in any additional cost to Owner.
3. Remove stockpiles from the Site within 24 hours of placement unless a longer duration is approved by Owner or Engineer.

#### B. Drilling Waste:

1. Soil Cuttings, Well Casing, and Well Screen: Soil cuttings, well casing, and well screen shall be stored in 55-gallon steel drums or in lined roll-off units.
  - a. Drums: Locate drums in a temporary containment area.
  - b. Roll-Off Units:
    - 1) Locate roll-off units in area(s) approved by Engineer.
    - 2) When not in use, roll-off units shall be securely covered at all times, during both working and non-working hours, with covering impervious to water.
    - 3) Remove liquids that collect inside roll-off units and store in accordance with requirements for construction wastewater.
2. Groundwater: Comply with temporary storage requirements for construction wastewater.
3. Drilling Fluids: Drilling fluids shall be stored in 55-gallon steel drums.

#### C. Construction Wastewater:

1. Construction wastewater shall be stored in closed-top steel tanks or 55-gallon steel drums.
2. Locate tanks and drums in a temporary containment area.

#### D. Product:

1. Free-phase product, if encountered, shall be stored in 55-gallon steel drums.
2. Locate drums in a temporary containment area.

### 3.05 TREATMENT AND DISCHARGE OF CONSTRUCTION WASTEWATER

- A. Unless otherwise directed by Engineer, construction wastewater shall be treated at the Site and discharged in accordance with Laws and Regulations and Section 46 07 53.

### 3.06 SHIPPING DOCUMENTS

- A. Prepare a waste manifest or bill of lading, as appropriate, for each shipment of contaminated waste from the Site.

- B. Owner or an authorized representative will review and sign each manifest or bill of lading as generator of contaminated waste.
- C. Submit counter-signed waste manifests and bills of lading in accordance with this Section.

### 3.07 LOADING, TRANSPORTATION, AND DISPOSAL OF CONTAMINATED WASTE

- A. General:
  - 1. Load, transport, and dispose of contaminated waste in accordance with Laws and Regulations and in a manner that will prevent spillage on adjacent surfaces and areas.
  - 2. Provide and maintain special measures to prevent contaminated waste from entering surface waters, open drainage routes, sanitary sewers, or storm sewers. Comply with pollution control requirements of Section 01 57 05 (Temporary Controls).
  - 3. Keep all streets, drives, sidewalks, and pavements clean and free from contaminated waste. Comply with Section 01 74 05 (Cleaning) and cleaning requirements of Section 01 55 13 (Temporary Access Roads and Parking Areas).
  - 4. Maintenance and Protection of Traffic: Comply with Section 01 55 26 (Maintenance and Protection of Traffic).
  - 5. Vehicle idling or queueing in public rights-of-way is prohibited.
- B. Loading:
  - 1. Direct-load contaminated waste to the greatest extent practicable.
  - 2. Exercise care when loading contaminated waste to prevent spillage and contamination of vehicles and adjacent surfaces.
  - 3. Upon completion of loading, completely cover each load with vapor-suppressant foam in accordance with Section 01 57 05 (Temporary Controls) and water-proof liner.
  - 4. Inspect each vehicle before it leaves the Site. Clean vehicles of visible soil or debris within a temporary decontamination area.
- C. Transportation:
  - 1. Transport contaminated waste directly from the Site to the intended transfer, processing, or disposal facility.
  - 2. Vehicles transporting contaminated waste from the Site shall follow approved haul route(s) in accordance with Section 01 55 26 (Maintenance and Protection of Traffic).
- D. Disposal:
  - 1. Remove from the Site and properly dispose of contaminated waste at Owner-approved treatment facility, landfill, or incinerator facility permitted to accept each type of contaminated waste.
  - 2. Except as otherwise specified, remove contaminated waste from the Site as fast as it accumulates.

END OF SECTION

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## SECTION 13 31 33

### TEMPORARY FRAMED FABRIC STRUCTURES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, tools, equipment, services, and incidentals as shown, specified, and required to design, furnish, install, maintain, relocate as necessary, and remove temporary framed fabric structures.
2. Types of products required under this Section include the following:
  - a. Temporary framed fabric structures.
  - b. Temporary air treatment systems.
3. Obtain and pay for required permits and utilities. Temporary framed fabric structures and related Work shall comply with Laws and Regulations and local code.
4. Extent of areas to be enclosed in temporary framed fabric structures is shown or indicated on the Drawings.

###### B. Coordination:

1. Review installation procedures under this and other Sections and coordinate Work that must be performed with or before temporary framed fabric structure Work.

##### 1.02 QUALITY ASSURANCE

###### A. Qualifications:

1. Professional Engineer: Retain the services of a professional engineer licensed and registered in the State of New York and experienced in providing engineering services of the kind indicated. Responsibilities include, but are not necessarily limited to, the following:
  - a. Reviewing system performance and requirements shown or indicated in the Contract Documents.
  - b. Preparing or supervising the preparation of design calculations and related submittals verifying compliance of temporary framed fabric structures with the requirements of the Contract Documents.
  - c. Signing and sealing all calculations, drawings, and submittals (including NYCDOB permit application) prepared by professional engineer.
  - d. Certifying that:
    - 1) it has performed the design of the temporary framed fabric structures in accordance with the performance requirements stated in the Contract Documents; and
    - 2) said design conforms to Laws and Regulations, local code, and to prevailing standards of practice
    - 3) NYCDOB permit application as required for preparation and submission to secure NYCDOB permit to facilitate temporary framed fabric structures and related Work.
2. Manufacturers:
  - a. Structure Manufacturer: Manufacturer shall be a proven, established manufacturer with a minimum of 10 years experience in the design, fabrication, and delivery of framed fabric structures substantively similar to those specified, and shall be able to show evidence of not less than 10 successful installations in North America.

- b. Treatment System Manufacturer: Manufacturer shall have a minimum of five years of experience producing temporary air treatment systems substantively similar to those specified, and shall be able to show evidence of not less than five installations in satisfactory operation for at least five years.
  - 3. Installer:
    - a. Engage a single installer skilled, trained, and with successful and documented experience in the installation of framed fabric structures, and who agrees to employ only tradesmen with specific skill and successful experience in the type of Work required.
    - b. Installer shall be acceptable to structure manufacturer.
- B. Component Supply and Compatibility:
  - 1. Obtain temporary air treatment systems from a single manufacturer who shall be responsible for providing a complete system.
- C. Regulatory Requirements:
  - 1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
    - a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
    - b. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.
    - c. 16 NYCRR 753, Protection of Underground Facilities.
    - d. 1 RCNY, Department of Buildings.
    - e. 27 NYCADC Chapter 1, Building Code.
  - 2. Obtain required permits and approvals for temporary framed fabric structure and related Work.

### 1.03 SUBMITTALS

- A. Action Submittals:
  - 1. Shop Drawings:
    - a. Temporary Framed Fabric Structure: Submit completely dimensioned plans, elevations, and cross-sections showing all pertinent information necessary for the fabrication, erection, anchoring, and relocation as necessary of temporary framed fabric structures. All loads and reactions for the proper design of the foundation or anchoring system shall be supplied by the structure manufacturer. All design calculations and drawings shall be stamped and signed by a professional engineer licensed and registered in the State of New York. Accurately locate, show, and dimension the following:
      - 1) Structural framing system including the center lines of the bottom of all columns. Show complete fabrication of primary and secondary framing. Indicate welds and bolted connections, distinguishing between shop and Site applications. Include transverse cross sections.
      - 2) Complete erection drawings showing locations of sidewall, endwall, and roof framing, covering and trim details, doors, foundation and anchoring details, and accessory installation details to clearly indicate the proper assembly of structure components. Include plans, elevations, details, and attachments to other Work.
      - 3) Show layouts of wall, roof, and liner panels on support framing, details of edge conditions, joints, panel profiles, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory and Site assembled Work.
      - 4) All required wall and roof penetrations.
      - 5) Auxiliary and accessory components. Include details of lights, ventilators, louvers, gutters and downspouts, and similar auxiliary and accessory system components.

- 6) External utility requirements such as air and power.
- b. Temporary Air Treatment System: Submit sufficient literature, detailed specifications, and drawings to show dimensions, make, style, speed, size, type, horsepower, service factors, efficiency, materials used, design features, internal construction, weights, and any other information required by Engineer for review of all temporary air treatment system equipment.
- 2. Product Data:
  - a. Submit manufacturer's complete product information, specifications, and installation instructions for temporary framed fabric structure and temporary air treatment system components and accessories. Include material descriptions, dimensions, and profiles of individual system components.
- 3. Delegated Design Data:
  - a. Provide Project-specific information as required and as necessary to clearly show calculations, dimensions, logic and assumptions, and referenced standards and codes on which temporary framed fabric structure design is based.
  - b. Certification of Design: Contractor shall submit written certification from the manufacturer, signed and sealed by a professional engineer licensed and registered in the State of New York, verifying that the design of the temporary framed fabric structure meets the loading conditions, lateral restraint, wind load design requirements, and seismic zone requirements specified herein. Professional engineer may be an employee of the manufacturer.
- B. Informational Submittals:
  - 1. Temporary Structure Installation Plan: Submit acceptable plan for temporary framed fabric structure and related Work not less than 45 days prior to delivery of temporary framed fabric structures and temporary air treatment systems to the Site. Include the following:
    - a. Proposed procedures for installing, removing, relocating as necessary, and cleaning temporary framed fabric structures and temporary air treatment systems. Clearly indicate the number of structure relocations required for the Work.
    - b. List of proposed equipment for temporary framed fabric structure and related Work. Include make, model, and size or rating of each.
    - c. Sketches showing proposed layout of each temporary framed fabric structure, including locations of temporary air treatment systems, ducts, and sources of power for each structure and treatment system. Sketches shall be scale drawings acceptable to Engineer, and shall include site plans similar to those in the Contract Documents.
    - d. Detailed schedule of temporary framed fabric structure Work in accordance with the accepted Progress Schedule. Include dates of mobilizing temporary framed fabric structure and temporary air treatment system, installing, relocating as necessary, and demobilizing temporary framed fabric structure and temporary air treatment system. Update and resubmit schedule as required.
    - e. Basis for the capacity of each temporary air treatment system proposed.
    - f. System curve of flow plotted against pressure loss, and calculations that substantiate the proposed temporary air treatment system.
    - g. Technical information and specifications on noise controls for noise-generating equipment.
    - h. Narrative describing proposed operation of temporary air treatment systems, including designation of responsible personnel who will operate and monitor the systems, staffing, and planned frequency of maintenance and treatment media changeout.
  - 2. Qualifications Statements: Submit name, address of firm, and qualifications of the following:
    - a. Professional engineer.

- b. Structure manufacturer.
- c. Treatment system manufacturer.
- d. Installer.
- 3. Permit Applications:
  - a. Draft Permit Applications: Submit draft permit applications, together with associated drawings and information required for applications, prepared in conformance with Laws and Regulations, local code, and requirements of authorities having jurisdiction.
  - b. Final Permit Applications: Submit copy of each permit application submitted to authorities having jurisdiction as applicable to temporary framed fabric structures and related Work.
- 4. Permits: Submit copy of each permit obtained from authorities having jurisdiction as applicable to temporary framed fabric structures and related Work.

#### 1.04 DESIGN REQUIREMENTS

##### A. Temporary Framed Fabric Structure:

- 1. System Description:
  - a. Temporary framed fabric structure shall consist of a modular steel or aluminum frame covered by a tensioned, all-weather architectural membrane.
  - b. Structure shall be entirely clear-span and self-supporting, free of interior supports of any kind and exterior guys or cables.
- 2. Dimensions:
  - a. Dimensions of temporary framed fabric structure shall be determined by Contractor.
  - b. At a minimum, temporary framed fabric structure shall fully enclose remedial excavation areas shown or indicated and contaminated waste storage, handling, and load-out areas.
  - c. Comply with Laws and Regulations, local code, and access restrictions and sequencing requirements indicated in the Contract Documents.
- 3. Size, number, and location(s) of personnel and vehicle access doors shall be determined by Contractor based on Contractor's intended construction approach, sequencing, equipment, and Site utilization; Laws and Regulations; and local code. All personnel doors, especially fire exits, shall come complete with protective all-weather hoods to shed rain and snow away from the front of doors.
- 4. Design temporary framed fabric structures to withstand regional climatic conditions (e.g., snow/ice load, wind load, rainfall/precipitation, etc.) in accordance with local code.
- 5. Provide temporary interior lighting in accordance with Laws and Regulations and Section 01 51 05 (Temporary Utilities).

##### B. Temporary Air Treatment System:

- 1. System Description:
  - a. Temporary air treatment system shall be a complete ventilation, filtration, and treatment system, designed to remove odors, organic vapors (particularly, volatile organic compounds), and dust.
  - b. System shall consist of vapor-phase activated carbon adsorption units, complete with blowers, motors, particulate filters, intake louvers, ductwork, and controls.
- 2. System Capacity:
  - a. Required capacity of temporary air treatment system shall be determined by Contractor.
  - b. Capacity of each temporary air treatment system shall be adequate to maintain a constant negative pressure within temporary framed fabric structure and provide not less than six exchanges per hour of total air volume contained within structure. Total air volume shall include volume of remedial excavation areas contained within temporary framed fabric structure.

3. Performance Requirements:
  - a. Air inside of temporary framed fabric structure shall allow personnel to work in Level C or lower personal protective equipment.
  - b. Treated air outside of temporary framed fabric structure shall comply with Laws and Regulations and community air monitoring action levels indicated in the Contract Documents.
  - c. There shall be no detectable NAPL-related odors at the perimeter of the Site.
4. Noise Control: Provide noise controls for temporary air treatment system. Noise emissions from temporary air treatment system shall comply with Laws and Regulations, including OSHA requirements and local ordinances, and the Contract Documents.
  - a. Blowers shall be enclosed by an engineered sound barrier. Barrier shall be constructed of minimum 3/4-inch plywood and completely lined with sound-absorbing materials, unless otherwise specified by Engineer. Enclosures shall be constructed to allow for proper ventilation of equipment in accordance with manufacturer's specifications.
  - b. Provide noise attenuation panels at each air intake and louver.
  - c. Effluent stacks shall be equipped with vendor-supplied stack silencers.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Examine the areas and conditions under which temporary framed fabric structures will be installed and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.
- B. Fabric structure engineer will provide oversight of temporary framed fabric structure and related Work as required to meet permit requirements or requirements of authorities having jurisdiction.

### 3.02 PREPARATION

- A. Protection of Surrounding Areas and Facilities:
  1. Protect structures, Underground Facilities, and other construction from damage caused by the installation of temporary framed fabric structures. Repair damage at Contractor's expense.

### 3.03 INSTALLATION

- A. Install temporary framed fabric structure and air treatment system prior to initiating remedial excavation operations, unless otherwise shown or indicated.
- B. Install all Work in complete accordance with manufacturer's instructions, approved Shop Drawings, and the Contract Documents.
- C. Architectural membrane panels, when installed and tensioned, shall be wrinkle free and remain so indefinitely in temperatures normal for the region.



### 3.04 OPERATION AND MAINTENANCE

#### A. General:

1. Protect temporary framed fabric structure and air treatment system from damage due to construction operations, weather, and vandalism.
2. Preventative maintenance and repair of temporary framed fabric structure and air treatment system, if required, shall only be performed by qualified personnel, or authorized representatives of the manufacturers.
3. Maintain roll up doors in good working condition. Open roll up doors only long enough to permit vehicles.

#### B. Temporary Air Treatment System:

1. Operate temporary air treatment system on a continuous basis during both working and non-working hours unless otherwise approved by Engineer.
2. Contractor shall be responsible for all system repairs and replacement of air filtration and treatment media. Monitor performance of temporary air treatment system components throughout the Project and replace air filtration and treatment media as required for proper system operation.

### 3.05 RELOCATION

- A. Relocate temporary framed fabric structure and air treatment system as necessary to accommodate Contractor's sequencing and construction operations.
- B. Any damage to the temporary framed fabric structure or air treatment system during relocation shall be promptly repaired by Contractor at no additional cost to Owner.

### 3.06 REMOVAL AND CLEANING

- A. Completely remove temporary framed fabric structure and air treatment system when no longer required. Repair damage caused by temporary framed fabric structures and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.
- B. Clean temporary framed fabric structure and air treatment system of visible dust, dirt, and Contaminants, if present. Cleaning shall be to satisfaction of Construction Manager, Engineer, and manufacturers.
- C. Clean adjacent structures, facilities, properties, and improvements of dust, dirt, and debris caused by temporary framed fabric structure Work in accordance with the Section 01 74 05 (Cleaning) and other requirements of the Contract Documents.
- D. Remove from the Site and properly dispose of spent air filtration and treatment media in accordance with Laws and Regulations and the Contract Documents.

END OF SECTION

## SECTION 31 05 19.13

### GEOTEXTILES FOR EARTHWORK

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, tools, equipment, and services as shown, specified, and required to furnish and install geotextiles.
2. Types of geotextiles required under this Section include the following:
  - a. Geotextile separation fabric.
  - b. Geotextile drainage fabric.

###### B. Related Sections:

1. Section 31 23 00, Excavation and Fill.

##### 1.02 REFERENCE STANDARDS

###### A. The following standards are referenced in this Section:

1. AASHTO M 288, Standard Specification for Geotextile Specification for Highway Applications.

##### 1.03 QUALITY ASSURANCE

###### A. Qualifications:

1. Manufacturer: Geotextile manufacturer shall be a specialist in the manufacture of geotextile fabrics, and shall have produced and successfully installed a minimum of five million square feet.

##### 1.04 SUBMITTALS

###### A. Action Submittals:

1. Product Data: Submit manufacturer's data, specifications, installation instructions, and dimensions for each geotextile furnished under this Section.

##### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Each roll of geotextile delivered to the Site shall be labeled by the manufacturer identifying the manufacturer's name, product identification, lot number, roll number, and roll dimensions.
- B. All rolls and packages shall be inspected by Contractor upon delivery to the Site. Contractor shall notify Engineer if any loss or damage exists to geotextile. Replace loss and repair damage to new condition, in accordance with manufacturer's instructions.
- C. Geotextile shall be protected from ultraviolet light exposure, precipitation or other inundation, mud, dirt, dust, puncture, cutting, or any other damaging or deleterious conditions. Geotextile rolls shall be shipped and stored in relatively opaque and watertight wrappings.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

- A. Geotextile Separation Fabric:
  - 1. Geotextile shall be composed of high-tenacity polypropylene yarns, which are woven into a stable network such that the yarns retain their relative position. Fabric shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids. Geotextile fabric shall conform to AASHTO M 288 specifications for a Class 1 separation geotextile.
  - 2. Product and Manufacturer: Provide one of the following:
    - a. Mirafi 600X by TenCate Mirafi.
    - b. US 315 by US Fabrics, Inc.
    - c. Or equal.
- B. Geotextile Drainage Fabric:
  - 1. Geotextile shall be a needle punched, nonwoven fabric composed of polypropylene filaments, which are formed into a stable network such that the fibers retain their relative position. Fabric shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.
  - 2. Product and Manufacturer: Provide one of the following:
    - a. Mirafi 180N by TenCate Mirafi.
    - b. US 205NW by US Fabrics, Inc.
    - c. Or equal.

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Examine the areas and conditions under which the Work will be performed and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.

### 3.02 PREPARATION

- A. Excavate or fill subgrade, as required, to bring subgrade to elevations shown or indicated. Maintain all angles of repose. Confirm that subgrade is at proper elevations and that no further earthwork is required to bring the subgrade to proper elevations.
- B. Remove all stones greater than two inches in any dimension, construction debris, trash, rubble, and all other extraneous materials from the subgrade.
- C. Notify Engineer that subgrade has been prepared, and obtain Engineer's approval before installing geotextile.

### 3.03 INSTALLATION

- A. Geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. On slopes steeper than 10 percent, lay geotextile with the machine direction of the fabric parallel to the slope direction. Geotextiles shall be placed (rolled out) in the direction of most frequent vehicular travel.

- B. Continuously overlap geotextile panels a minimum of 12 inches at all longitudinal and transverse joints. Where seams must be oriented across the slope, lap the upper panel over the lower panel.
- C. Geotextile shall be weighted with sandbags or equivalent when required. Such sandbags shall be installed during placement and shall remain until replaced with cover materials.
- D. During installation of geotextile, care shall be taken not to entrap in the geotextile stone, excessive dust, mud, or moisture that could damage or cause clogging of the geotextile.
- E. Use proper tools to cut and size geotextile; exercise care while cutting geotextile.
- F. Geotextile shall not be exposed to precipitation prior to being installed, and shall not be exposed to direct sunlight for more than 15 days.

#### 3.04 GEOTEXTILE REPAIR

- A. Any holes or tears in the fabric shall be repaired as follows:
  - 1. On Slopes: A fabric patch shall be sewn into place using a double sewn lock stitch (1/4 inch to 3/4 inch apart and no closer than one inch from any edge). Should any tear exceed 10 percent of the width of the roll, that roll shall be removed from the slope and replaced.
  - 2. Non-Slopes: A fabric patch shall be spot-seamed in place with a minimum of 24 inches of overlap in all directions.

#### 3.05 PLACEMENT OF COVER MATERIALS

- A. Place cover materials in such a manner as to ensure that geotextile is not damaged or dislodged.

END OF SECTION

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## SECTION 31 09 13

### GEOTECHNICAL INSTRUMENTATION AND MONITORING

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. This Section includes requirements for compliance with the Project's geotechnical monitoring program.
2. Furnish and install geotechnical instrumentation in accordance with this Section and as shown on the Design Drawings, which includes vibration and deformation monitoring of structures and monitoring of groundwater pressures during installation of excavation support, excavation, and backfilling activities.
3. Provide and maintain safe means of access to all geotechnical instrumentation for the duration of the Project.
4. Geotechnical monitoring will include the following:
  - a. Vibration monitoring, using automated seismographs.
  - b. Movement and deformation monitoring, using optical survey points and tilt meters.
  - c. Groundwater monitoring on RH4, using piezometers installed into the Sand unit.
5. Contractor is responsible for providing necessary labor, materials, equipment, tools, services, and incidentals and taking appropriate measures to:
  - a. Prevent exceedances of the threshold and limiting values specified in this Section.
  - b. Mitigate vibrations and the movement and deformation of buildings, structures, Underground Facilities, excavations, fills, and slopes to the greatest extent practicable.
6. Continuously evaluate construction techniques and operations, and take corrective actions in response to results of geotechnical monitoring and as directed by Engineer. Corrective actions taken by Contractor in response to results of geotechnical monitoring shall be at no cost to Owner.
7. Do not cause or allow earthmoving, pile driving, or other operations that result in vibrations or movement and deformation that exceed the threshold and limiting values specified in this Section or limits prescribed by authorities having jurisdiction.
8. Resolve complaints and repair damage resulting from vibrations or movement and deformation that exceed the threshold and limiting values specified in this Section at no cost to Owner.
9. Protect geotechnical instrumentation from damage due to construction operations, weather, and vandalism. Provide suitable protective barriers, covers, and enclosures around instruments in construction areas.

###### B. Coordination:

1. Coordinate requirements of this Section with requirements for earthmoving, pile driving, and other ground-intrusive operations in the Contract Documents, applicable permit requirements, Laws and Regulations, and local code.

###### C. Related Sections:

1. Section 31 23 00, Excavation and Fill.
2. Section 31 50 00, Excavation Support and Protection.

##### 1.02 QUALITY ASSURANCE

###### A. Qualifications:

BT RED HOOK, LLC  
INTERIM REMEDIAL MEASURE  
RED HOOK 3 AND RED HOOK 4  
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

GEOTECHNICAL INSTRUMENTATION AND MONITORING  
31 09 13 – 1  
REVISION NO. 00  
DATE ISSUED: 10.23.2019

1. Instrumentation personnel to be hired by the Contractor must have at least 4 years of direct field experience in installation and monitoring of the types of instruments specified herein and interpreting instrumentation data.
  2. Responsibilities include, but are not necessarily limited to, the following:
    - a. Installing and removing all geotechnical instrumentation.
    - b. Calibrating geotechnical instrumentation at frequencies recommended by the manufacturer.
    - c. Coordinating instrument maintenance and repairs.
    - d. Collecting and recording instrument readings.
    - e. Managing a database of geotechnical monitoring data at the Site.
    - f. Preparing and submitting daily geotechnical monitoring reports in accordance with Part 1.03 of this Section.
    - g. Responding to exceedances of alert or action levels during the Work.
    - h. Notifying Engineer and appropriate Contractor personnel when alert or action levels are exceeded during the Work.
- B. Instrument Calibration:
1. A factory calibration shall be conducted on all geotechnical instrumentation at the place of manufacture before shipment to the Site. Review calibration record for each instrument and match to serial number of instrument. Submit factory calibration records to Engineer upon request.
  2. During the Work, calibrate geotechnical instrumentation at frequencies recommended by the Manufacturer, in accordance with Manufacturer's calibration and quality assurance requirements. Document all instrument readings, field reference checks, and calibrations in a dedicated log.
  3. Preventative maintenance and repair of geotechnical instrumentation, if required, shall only be performed by qualified personnel or authorized representatives of the Manufacturer.
  4. Prepare and retain at the Site electronic or written records of all instrument calibrations, preventative maintenance, and repairs. Submit to Engineer upon request.
- C. Pre-Installation Testing:
1. Examine geotechnical instrumentation and accessories upon delivery to the Site for damage due to shipment.
  2. Verify that instruments and accessories are in working order before installing.
  3. Immediately remove from the Site and replace at Contractor's expense, damaged or malfunctioning instruments and accessories.

## 1.03 SUBMITTALS

- A. Informational Submittals:
1. Qualifications: Submit qualifications of proposed instrumentation personnel.
  2. Prior to the start of work, submit an Instrumentation Installation Plan that includes the following:
    - a. Shop Drawings that detail the proposed means, methods, and locations (plan and elevation) for installing the instruments. Details shall include manufacturer's specifications and installation/operating procedures. Shop Drawings shall include proposed locations of seismographs, optical monitoring points, tiltmeters and piezometers.
    - b. Manufacturer's technical specifications, where applicable, indicating that the equipment meets the minimum requirements outlined in this Section.
    - c. Estimate of vibration at adjacent structures during installation of excavation support system and when excavation or backfilling activities are taking place at the closest point to the adjacent structures.

- d. Instrumentation Installation Methods:
  - 1) Relevant health and safety measures applicable to geotechnical installation and removal.
  - 2) Detailed descriptions of the proposed installation procedures for the geotechnical instrumentation (i.e., vibration monitoring, optical survey, tiltmeters, and piezometers).
  - 3) Piezometer details, including borehole diameter and depth, riser pipe type and diameter, granular bentonite and grout materials, piezometer type and depth, filter sand and surface protection, and methods of post installation acceptance testing.
  - 4) Manufacturer's installation recommendations and requirements.
  - 5) Methods for demarcating the location of geotechnical instruments.
  - 6) Proposed methods for reinstalling the instruments if they are damaged, fail to operate properly, or otherwise require temporary removal and reinstallation.
  - 7) Proposed means of protecting geotechnical instrumentation during completion of the Work.
3. Geotechnical Monitoring Reports: Submit daily geotechnical monitoring reports to Engineer by 9:00 a.m. the next working day after the monitoring event in accordance with this Section.
4. Submit electronic or written records of all field checks of monitoring equipment, performed in accordance with this Section, to Engineer upon request.

#### 1.04 THRESHOLD AND LIMITING VALUES

- A. Threshold and limiting values for geotechnical monitoring are specified in the Geotechnical Monitoring Schedule at the end of this Section. Threshold and limiting values are subject to adjustment by Engineer based on the results of baseline (pre-construction) monitoring, Site conditions, or observations made during the Work.
- B. If a threshold value is reached or exceeded:
  1. Engineer will immediately notify Contractor.
  2. Contractor shall meet with Engineer to discuss appropriate corrective action(s).
  3. Engineer may also implement one or more of the following:
    - a. Increase frequency of monitoring.
    - b. Install and monitor additional instrumentation.
    - c. Adjust threshold or limiting values.
    - d. Require Contractor to modify construction procedures. Prepare and submit corrective action plan to Engineer so that the Limiting Values are not exceeded.
- C. If a limiting value is reached or exceeded:
  1. Engineer will immediately notify Contractor.
  2. All Work by Contractor in the vicinity of the instrument or monitored building, structure, or Underground Facility where exceedance was measured or recorded shall stop until a meeting takes place between Contractor and Engineer to assess the cause of the exceedance.
  3. Prepare and submit to Engineer a written plan that identifies the activity or activities that caused the exceedance and corrective action(s) to be taken by Contractor to prevent further exceedances of the limiting value.
  4. Perform no work in the vicinity of the instrument or monitored building, structure, or Underground Facility where exceedance was measured or recorded until corrective action plan is accepted by Engineer.



## 1.05 RECORD KEEPING

- A. Contractor shall prepare a record of vibration monitoring activities. The record will include the following information:
1. Serial number of Seismograph
  2. Location
  3. Start time, stop time, and duration of monitoring
  4. Maximum PPV for monitoring period
  5. Histograms of longitudinal, transverse, and vertical readings in units of inches per second
  6. Weather conditions
  7. Name of the responsible person in charge
  8. Signature and title of person making record entries.
- B. Contractor shall prepare displacement monitoring reports for all excavation, excavation support installation, and backfill activities completed within 50 feet of an existing building. The displacement monitoring report will include the following information for each optical monitoring point:
1. Location/designation of optical survey point
  2. Date, time and reading for each monitoring event. Include cumulative readings and change from baseline readings
  3. Current work activities
  4. Weather conditions
  5. Name of the responsible person in charge
  6. Signature and title of person making record entries.
- C. Contractor shall prepare deflection monitoring reports for all excavation, excavation support installation, and backfill activities. The deflection monitoring report will include the following information for each tiltmeter:
1. Serial number of tiltmeter
  2. Location/designation of tiltmeter
  3. Deflection results to date, including baseline monitoring data
  4. Date, time, and reading for each monitoring event. Include cumulative readings and change from baseline readings
  5. Current Work activities
  6. Weather conditions
  7. Name of the responsible person in charge
  8. Signature and title of person making record entries.
- D. Contractor shall prepare a record of piezometer monitoring activities. The record will include the following information:
1. Piezometer designation and location
  2. Date, time, and reading for each monitoring event. Include cumulative readings and change from baseline readings
  3. Current Work activities and excavation/backfill depths
  4. Weather conditions
  5. Name of the responsible person in charge
  6. Signature and title of person making record entries
- E. Exceedances (if any) of the alert levels and action levels specified in this Section. Contractor shall provide the following:
1. Time, location, and instrument reading of exceedance
  2. Summary of Work being performed at time of exceedance
  3. Corrective actions taken or to be taken in response to exceedance.

- F. Contractor shall provide a site plan showing approximate locations of all geotechnical instrumentation at the Site. Label each instrument with its serial number where appropriate.

## PART 2 – PRODUCTS

### 2.01 GENERAL

- A. Geotechnical instrumentation shall be specifically designed, manufactured, and installed for the application intended and environmental conditions required.

### 2.02 VIBRATION MONITORING (SEISMOGRAPHS)

- A. Provide portable seismographs with triaxial geophones for the continuous monitoring of vibrations per Part 3.02 of this Section.
  - 1. Manufacturer: Provide products of one of the following:
    - a. GeoSonics/Vibra-Tech, Inc.
    - b. InstanTel.
    - c. Or equal.
  - 2. Range: 0.01 to 10 inches per second.
  - 3. Resolution: 0.005 inch per second.
  - 4. Accuracy: Plus-or-minus five percent.
  - 5. Frequency Response Range: Two to 250 Hertz.
  - 6. Furnish seismographs complete with readout displays, data loggers, protective housings, software, and other accessories recommended by manufacturer for the intended application and mounting surfaces.

### 2.03 OPTICAL SURVEY POINTS

- A. Optical survey equipment shall meet a 0.05-inch tolerance in order to know that any variances in movements are not due to the equipment tolerance, but rather they are due to the actual movements due to removal and backfilling activities.
- B. Optical Survey Points shall be fixed prisms or an approved equivalent that will allow the points to be optically surveyed.

### 2.04 TILTMETERS

- A. Provide bi-axial tiltmeters for monitoring deflection of temporary steel sheet piling during excavation and backfilling operations in each excavation area.
- B. Manufacturer: Provide products of one of the following:
  - 1. Durham Geo-Enterprises, Inc.
  - 2. Jewell Instruments, LLC.
  - 3. Rieker, Inc.
  - 4. RST Instruments, Ltd.
  - 5. Or equal.
- C. Angular Range: Plus-or-minus 10 degrees.
- D. Resolution: 0.005 degree.

- E. Furnish tiltmeters, complete with readout displays, data loggers, mounting hardware, protective housings, software, and other accessories recommended by Manufacturer for the intended application.

## 2.05 PIEZOMETERS

- A. Piezometers shall be either open standpipe type or vibrating wire, or a combination of, at the discretion of the Contractor.
  - 1. For open standpipe piezometers, provide porous points of HDPE, minimum 24 inches long, with pore size 50 to 60 microns. For measuring, provide an electrical water level indicator of suitable length, with graduations at 0.02 foot or smaller intervals.
  - 2. For vibrating wire piezometer, provide model 4500S, as manufactured by Geokon Inc., or acceptable equivalent. Associated equipment, such as cables and readout devices, shall be from the same commercial source as the piezometer.
- B. Riser Pipe materials shall consist of 3/4-inch nominal diameter Schedule 40 PVC or acceptable equivalent.
- C. Granular bentonite shall consist of commercial grade high yield sodium bentonite pellets and shall be supplied with a maximum diameter of 1/2-inch. Bentonite pellets shall be hydrated for a minimum of 30 minutes after placement. Water used for hydration shall be clean, fresh and free from oil, acid, alkali, organic matter or other deleterious substances. Resulting bentonite seal shall have a maximum permeability of  $1 \times 10^{-7}$  cm/sec.
- D. Filter Pack sand shall conform to ASTM C-778 or acceptable equivalent.
- E. Grout shall consist of a cement/bentonite grout mixture suitable for filling boreholes.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

- A. General:
  - 1. Supply and install geotechnical instrumentation, per the Manufacturer's recommendations, in accordance with the Contractor's Instrumentation Installation Plan or as directed by Engineer. Vibration monitoring locations shall be approved by Engineer.
  - 2. Notify Engineer at least 24 hours before installing each instrument.
  - 3. Lay out and stake individual instrument locations for approval of. Adjust locations when requested and obtain Engineer' acceptance of layout before installing. Make minor adjustments as required.
- B. Seismograph:
  - 1. Before commencing any construction activity that could cause vibration, firmly mount engineering seismographs on structures within 50 feet of the active work area to establish baseline vibration monitoring. Structures include, but are not limited to, existing on-site structures, existing utilities, roadways, and adjacent structures. Contractor shall adjust the location of the seismograph such that the meter is above or on the structures at the point closest to sheet pile installation.
  - 2. Use installation methods consistent with the Manufacturer's recommendations with consideration of the specific substrate of this Site.
- C. Optical Monitoring Points:

1. Contractor shall have a qualified Surveyor establish a benchmark and optical survey points, at locations specified by Engineer.
2. Engineer shall be notified at least 24 hours before installing each fixed prism or approved equivalent.
3. Install optical survey points in approved locations (horizontal and vertical) and in accordance with Manufacturer's specifications.
4. The Contractor shall establish baseline monitoring before any significant excavation/trenching (3 feet or greater) and/or shoring installation.

D. Tiltmeters:

1. Install tiltmeters following completion of pile driving operations and before excavating greater than 3 feet below ground surface adjacent to the shoring alignments.
2. Install tiltmeters as shown or indicated on the Drawings or as directed by Engineer.
3. Install tiltmeters on the inside face of temporary steel sheet piling, 1 inch down from the top edge.

E. Piezometers:

1. Piezometer shall be installed at the locations and depths shown in the Contractor's Instrumentation Installation Plan.
2. Piezometer installation depth shall be below the bottom of Clay layer for monitoring the piezometric pressures in the underlying Sand unit. Contractor shall take three split spoon samples to confirm stratigraphy for each piezometer installed. One sample shall be taken within 5 feet above the planned installation depth, one at the planned installation depth, and a third at a depth as directed by the Engineer.
3. Drilling methodology shall be the responsibility of Contractor, but drilling methodology shall not employ water or mud. The depth of the finished monitoring well shall be field verified.
4. Complete appropriate post installation acceptance testing for the piezometer type to verify seal integrity and that piezometer is operating properly. Perform post installation testing in presence of Engineer.
5. Disposal of Drilling Wastes:
  - a. Soil cuttings, groundwater, and other wastes resulting from drilling operations shall be managed in accordance with Section 01 74 19 - Construction Waste Management and Disposal.
  - b. Handling and temporary storage of drilling wastes shall be in accordance with Laws and Regulations and the Contract Documents.

### 3.02 MONITORING

A. Engineering Seismograph Monitoring Schedule:

1. Baseline Monitoring:
  - a. Perform baseline vibration monitoring, at locations shown on the Drawings, before initiating any pile driving operations at the Site.
  - b. Baseline monitoring shall be performed continuously between the hours of 7:00 a.m. and 5:00 p.m. over a period of not less than 3 working days.
2. Routine Monitoring: Continuously monitor vibrations, at locations shown or indicated on the Drawings or as directed by Engineer, during all pile driving and pile removal operations.

B. Displacement Monitoring Schedule:

1. Baseline Monitoring: Perform baseline displacement monitoring prior to pile driving operations and/or before excavating greater than 3 feet below ground surface.

2. Routine Monitoring: Collect and record readings once per day, in the morning, during excavation and backfilling operations during pre-trenching, shoring installation, excavation, and backfill within 50 feet of a monitored structured.
- C. Tiltmeter Monitoring Schedule:
1. Baseline Monitoring: Perform baseline tiltmeter monitoring following completion of pile driving operations and before excavating greater than 3 feet below ground surface adjacent to shoring alignments.
  2. Routine Monitoring: Collect and record tiltmeter readings twice per day, in the morning and afternoon, during excavation and backfilling operations adjacent to shoring alignments.
- D. Piezometers:
1. Baseline Monitoring: Perform baseline piezometer monitoring before initiating temporary dewatering system.
  2. Routine Monitoring: Collect piezometer readings a minimum of twice per day and coordinate additional readings with operation of temporary dewatering system as necessary to confirm piezometric elevations are within the maximum allowable per Table 31 23 00-D of Section 31 23 00.

### 3.03 DAMAGE TO INSTRUMENTATION

- A. The Contractor shall protect all instruments and appurtenant fixtures, leads, connections, and other components of instrumentation from damage due to construction operations, weather, and vandalism.
- B. If an instrument is damaged or inoperative, the Contractor shall repair or replace the damaged or inoperative instrument within 48 hours with no additional cost to Owner. Engineer will be the sole judge of whether repair or replacement is required.

### 3.04 REMOVAL

- A. The Contractor shall completely remove geotechnical instrumentation and protective barriers when no longer required, with approval by Engineer. Repair damage caused by geotechnical instrumentation and their removal and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.
- B. Tiltmeters:
  1. Remove tiltmeters upon completion of backfilling operations.
- C. Optical Monitoring Points:
  1. Remove optical monitoring points upon completion of backfilling operations for excavations within 50 feet of a monitored structure.
- D. Seismographs:
  1. Remove seismographs at the end of each work day, and only after all pile driving, excavation, and backfill operations have been completed for the day.
  2. Download monitoring data from seismographs at the end of each day.
- E. Piezometers:
  1. Decommission piezometers, unless otherwise required, in accordance with NYSDEC CP-43. Restore disturbed or damaged surfaces to the conditions existing prior to installation of instruments.

- F. Repair any damaged or disturbed surfaces to original condition unless otherwise directed by Engineer.
- G. All instrumentation shall become the property of the Contractor.

3.05 SCHEDULES

- A. The schedules listed below, which follow after the “End of Section” designation, are part of this Section:
  - 1. Table 31 09 13-A, Geotechnical Monitoring Schedule.

END OF SECTION

**TABLE 31 09 13-A  
GEOTECHNICAL MONITORING SCHEDULE**

<b>Parameter</b>	<b>Instrument</b>	<b>Location</b>	<b>Threshold Value<sup>1</sup></b>	<b>Limiting Value<sup>1</sup></b>
Vibration, Continuous or Steady-State <sup>2</sup>	Seismograph	Buildings and Structures	Peak Particle Velocity: 0.2 in./sec	Peak Particle Velocity: 0.3 in./sec
		Buried Gas Line	Peak Particle Velocity: 1.0 in./sec	Peak Particle Velocity: 2.0 in./sec
Vibration, Transient or Impact <sup>3</sup>	Seismograph	Buildings and Structures	Peak Particle Velocity: 0.2 in./sec	Peak Particle Velocity: 0.3 in./sec
		Buried Gas Line	Peak Particle Velocity: 1.0 in./sec	Peak Particle Velocity: 2.0 in./sec
Movement and Deformation	Optical Monitoring Points	Buildings and Structures	Vertical or Horizontal Displacement <sup>4</sup> : 0.375 in.	Vertical or Horizontal Displacement <sup>4</sup> : 0.500 in.
	Tiltmeters	RH4, Areas 1 and 2 Temporary Sheet Piling	Deflection: 1.5 in. (0.48 degrees)	Deflection: 2 in. (0.64 degrees)
		RH4, Area 3 Temporary Sheet Piling	Deflection: 0.5 in. (0.16 degrees)	Deflection: 0.75 in. (0.24 degrees)

Notes:

1. Threshold and limiting values represent change from baseline. Threshold and limiting values are subject to adjustment by Engineer based on the results of baseline monitoring, Site conditions, or observations made during the Work.
2. Equipment or activities that generate continuous or steady-state vibrations include, but are not necessarily limited to, drill rigs, jack hammers, reciprocating pavement breakers, hoe rams, vibratory pile drivers, vibratory compactors, large pumps and compressors, trucks, bulldozers, cranes, and other large machinery.
3. Equipment or activities that generate transient or impact vibrations include, but are not necessarily limited to, blasting, drop chisels, clam shell buckets, impact pile drivers, wrecking balls, gravity drop compactors, and gravity drop pavement breakers.
4. Vertical displacement includes settlement or heave.

SECTION 31 23 00  
EXCAVATION AND FILL

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. Contractor shall provide all labor, materials, equipment, and incidentals required to perform all excavating, dewatering, filling and compacting, and grading, and disposing of earth materials as shown, specified, and required to complete the Work.
2. Perform excavation and fill Work within the areas shown or indicated on the Drawings.
3. Preparation of subgrade for crushed stone surfacing is included under this Section.
4. No classification of excavated materials will be made. Excavation includes all materials regardless of type, character, composition, moisture, or condition thereof, except rock requiring drilling, blasting, or special equipment for removal.

B. Coordination:

1. Review requirements of this and other Sections and coordinate Work that must be performed with or before excavation and fill Work.

C. Related Sections:

1. Section 01 41 26, Storm Water Pollution Prevention Plan and Permit.
2. Section 01 55 26, Maintenance and Protection of Traffic.
3. Section 01 57 05, Temporary Controls.
4. Section 02 41 19, Selective Demolition.
5. Section 02 60 05, Contaminated Waste Management and Disposal.
6. Section 31 05 19.13, Geotextiles for Earthwork.
7. Section 31 09 13, Geotechnical Instrumentation and Monitoring
8. Section 31 50 00, Excavation Support and Protection.
9. Section 46 07 53, Temporary Water Treatment System Process Flow Diagram.

1.02 REFERENCES

A. Terminology:

1. The following words or terms are not defined but, when used in this Section, have the following meaning:
  - a. "Debris" means man-placed buried material including, but not limited to, brick, concrete, metal, wood, ash, cinders, and glass.
  - b. "Subgrade" means the uppermost surface of soil material unremoved from cuts; the bottom of excavation.

B. Reference Standards:

1. The following standards are referenced in this Section:
  - a. ASTM C-136 Standard Method for Particle-Size Analysis of Aggregates
  - b. ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> [2,700 kN-m/m<sup>3</sup>]).
  - c. ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
  - d. ASTM D6913, Standard Test Method for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.



- e. ASTM D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- f. ASTM E329, Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
- g. USEPA SW-846 Method 6010, Inductively Coupled Plasma-Atomic Emission Spectrometry.
- h. USEPA SW-846 Method 7471, Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique).
- i. USEPA SW-846 Method 8081, Organochlorine Pesticides by Gas Chromatography.
- j. USEPA SW-846 Method 8082, Polychlorinated Biphenyls (PCBs) by Gas Chromatography.
- k. USEPA SW-846 Method 8151, Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzoylation Derivatization.
- l. USEPA SW-846 Method 8260, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS).
- m. USEPA SW-846 Method 8270, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS).
- n. USEPA SW-846 Method 9012, Total and Amenable Cyanide (Automated Colorimetric, with Off-Line Distillation).
- o. USEPA Method 537.1 (modified).

### 1.03 QUALITY ASSURANCE

#### A. Qualifications:

- 1. Geotechnical Testing Laboratory: Retain the services of an independent testing laboratory to perform quality assurance and field quality control testing required in this Section. Testing laboratory shall comply with ASTM E329.
- 2. Analytical Testing Laboratory: Laboratory used to analyze fill materials shall be certified by the NYSDOH Environmental Laboratory Approval Program for the chemical testing and analytical methods to be performed and shall be experienced in the types of testing required.

#### B. Regulatory Requirements:

- 1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
  - a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
  - b. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.
  - c. 29 CFR 1926.650 through 29 CFR 1926.652, Subpart P – Excavations.
  - d. 6 NYCRR 375, Environmental Remediation Programs.
  - e. 12 NYCRR 23-4.1 through 12 NYCRR 23-4.5, Subpart 23-4 – Excavation Operations.
  - f. 16 NYCRR 753, Protection of Underground Facilities.
- 2. Comply with applicable provisions and recommendations of the following:
  - a. NYSDEC Technical Guidance for Site Investigation and Evaluation (DER-10).
  - b. NYSDEC Sampling for 1,4-Dioxane and Per- and Polyfluoroalkyl Substances (PFAS) Under DEC's Part 375 Remedial Programs
  - c. NYSDOT Standard Specifications and Standard Sheets.
  - d. NYCDOT Standard Highway Specifications and Standard Details of Construction.
- 3. Obtain required permits and approvals for excavation and fill Work, including work permits from right-of-way owners.

#### C. Quality Assurance Testing:

- 1. Off-Site Fill Materials:

- a. Collect samples and coordinate and pay for laboratory testing of proposed off-Site fill materials to verify compliance with the Contract Documents.
- b. Advise Engineer not less than three days before sampling proposed off-Site fill materials. Engineer's Resident Project Representative will accompany Contractor and observe sampling.
- c. Geotechnical Testing: Perform the following testing for each off-site material source for the designated fill classifications. Tests shall be completed at a frequency of one test for every 1,500 cubic yards or each change in material type.
  - 1) Particle size in accordance with ASTM D6913 or ASTM C-136, as appropriate for the material type.
  - 2) Water content per ASTM D2216.
  - 3) Atterberg limits in accordance with ASTM D4318.
  - 4) Moisture/density relationship in accordance with ASTM D1557.
- d. Chemical Testing: Perform chemical testing on each proposed off-Site fill material with greater than 10 percent by weight passing the No. 80 sieve, as determined by particle size testing performed in accordance with Paragraph 1.03.C.1.c.1) of this Section.
  - 1) Collect a combination of discrete and composite samples of each off-Site fill material in accordance with Subdivision 5.4(e) of DER-10 and as follows:
    - a) Virgin Mine, Pit, or Quarry: Collect seven discrete samples and two composite samples for initial 1,000 cubic yards of material, and two discrete samples and one composite sample for every 5,000 cubic yards of material thereafter .
    - b) Fill Sources Other Than Virgin Mine, Pit, or Quarry: Collect seven discrete samples and two composite samples for the initial 1,000 cubic yards of material, and two discrete samples and one composite sample for every 1,000 cubic yards of material thereafter, unless otherwise approved by Engineer.
  - 2) Perform the following testing on each discrete sample:
    - a) VOCs in accordance with USEPA SW-846 Method 8260.
  - 3) Perform the following testing on each composite sample:
    - a) SVOCs (including 1,4-dioxane) in accordance with USEPA SW-846 Method 8270.
    - b) PCBs in accordance with USEPA SW-846 Method 8082.
    - c) Pesticides in accordance with USEPA SW-846 Method 8081.
    - d) Herbicides in accordance with USEPA SW-846 Method 8151.
    - e) Total metals in accordance with USEPA SW-846 Methods 6010.
    - f) Total mercury in accordance with USEPA SW-846 Methods 7471.
    - g) Total cyanide in accordance with USEPA SW-846 Method 9012.
    - h) Full list of PFAS compounds (currently 21) in accordance with USEPA Method 537.1 (modified)
- e. Requirements for geotechnical or chemical testing may be waived by Engineer if sufficient laboratory test data documenting compliance with the Contract Documents is submitted to and accepted by Engineer. Tests shall have been performed not more than one year before the Effective Date of the Agreement, and shall have been made on the same material types from the same off-Site sources proposed for the Work.
- f. Submit test results, certified by testing laboratory, to Engineer within 24 hours after completion of each test.
- g. Engineer will submit test results for acceptable off-Site granular fill materials to NYSDEC. Do not ship off-Site granular fill materials to the Site until proposed materials, sources, and Suppliers are accepted by Engineer and approved by NYSDEC.

- h. If test results indicate that a proposed off-Site fill material does not comply with the Contract Documents, identify and propose new off-Site source of the specified material.
  - 1) Submit required information for proposed off-Site fill source and Supplier in accordance with Article 1.04 of this Section.
  - 2) Collect samples and coordinate and pay for laboratory testing in accordance with this Paragraph 1.03.C.1.

## 1.04 SUBMITTALS

### A. Action Submittals:

1. Excavation and Backfilling Plan: Submit acceptable plan for excavating, backfilling, and related Work not less than 21 days prior to starting excavation Work. Include the following:
  - a. Name of Contractor's "competent person" in responsible charge of excavation and fill Work.
  - b. Plan for coordinating shut-offs, locating, capping, abandoning, temporary services, and continuing utility services.
  - c. List of proposed equipment for excavation, dewatering, backfilling, and compaction Work.
  - d. Proposed excavation, dewatering, backfilling, and compaction procedures. Where different procedures or equipment will be used for different types of material or at different locations at the Site, indicate where each procedure and equipment item will be used.
  - e. Equipment and methods for conditioning wet soils, including mixing stabilization agent (e.g., ash, Portland cement or other approved stabilization agent).
  - f. Planned sequence of excavation, dewatering, and backfilling operations.
  - g. Detailed schedule of excavation, dewatering, and backfilling Work in accordance with the accepted Progress Schedule.
2. Shop Drawings: Submit shop drawings showing arrangement, locations, and construction details of wells, vacuum well points, sumps, piezometers, etc., and locations of headers and discharge lines. Shop drawings shall include proposed layouts of dewatering components and flow-measuring devices necessary for monitoring the performance of dewatering system and demonstrating its ability to lower the groundwater and piezometric levels at each removal area.
3. Qualifications Statements:
  - a. Testing Laboratory: Submit name and qualifications of testing laboratory to be employed, and qualifications of testing laboratory's personnel that will perform quality assurance and field quality control testing required in this Section. If more than one laboratory will be employed, submit qualifications statement for each laboratory and indicate scope of testing assigned to each.
4. Quality Assurance Test Results Submittals:
  - a. Submit results of quality assurance testing performed in accordance with Paragraph 1.03.C of this Section, unless included as part of another submittal under this Section.
5. Source Quality Control Submittals: Submit Supplier name, source address, copy of NYSDEC mining permit, and proof of NYSDOT approval, as required, for each proposed source of off-Site fill material.
6. Delivery Tickets:
  - a. Submit copy of delivery ticket for each load of off-Site fill materials delivered to the Site. Each delivery ticket shall indicate Supplier name and source address, project name, contract number, date, material type, NYSDOT item number when applicable, and quantity delivered.
7. Field Quality Control Submittals:

- a. Field Test Reports: Submit in accordance with Paragraph 3.09.A of this Section.
- b. Daily Inspection Logs: Submit in accordance with Paragraph 3.98.B of this Section.

## 1.05 SITE CONDITIONS

### A. Subsurface Information:

1. The Not Part of Contract Documents provide information available relative to subsurface conditions at the Site. Such information and data are not intended as a representation or warranty of continuity of conditions between soil borings or test pits, nor of groundwater levels at dates and times other than date and time when measured, nor that purpose of obtaining the information and data were appropriate for use by Contractor. Owner and Engineer will not be responsible for interpretations or conclusions drawn therefrom by Contractor.
2. Soil borings and other exploratory operations may be made by Contractor, at no additional cost to Owner. Coordinate Contractor-performed test borings and other exploratory operations with Owner, utility owners, other contractors, and others performing work for Owner as appropriate. Perform such explorations without disrupting or otherwise adversely affecting operations of Owner, utility owners, other contractors, and others performing work for Owner. Comply with Laws and Regulations relative to required notifications.

### B. Existing Structures:

1. The Contract Documents show or indicate certain structures and Underground Facilities adjacent to or within the limits of the Work. Such information was obtained from existing records and is not guaranteed to be correct or complete. Contractor shall explore ahead of trenching, excavating, pile driving, or other subsurface Work to determine the exact location of all existing structures and Underground Facilities. Existing structures and Underground Facilities shall be supported and protected from damage by Contractor. Immediately repair and restore existing structures and Underground Facilities damaged by Contractor without additional cost to Owner.
2. Movement or operation of construction equipment over Underground Facilities shall be at Contractor's sole risk and only after Contractor has prepared and submitted to Engineer, and received acceptance therefrom, a plan describing Contractor's analysis of the loads to be imparted and Contractor's proposed measures to protect structures and Underground Facilities during the Project.
3. Coordinate with utility owners for shut-off of services in active piping and conduits, and for testing, shut-off of services, and draining, purging, or de-energizing where specified or required of piping and conduits of unknown status. When required by utility owner, Owner will assist Contractor with utility owner notifications. Completely remove buried piping and conduits indicated for removal and not otherwise indicated for abandonment or to remain in place.
4. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when such interruption is indicated in the Contract Documents or when allowed in writing by Engineer after acceptable temporary utility services are provided by Contractor for the affected structure or property.

### C. Contaminants:

1. The Not Part of Contract Documents provide information available relative to the presence of Contaminants in soil and groundwater at the Site.

**PART 2 – PRODUCTS**

**2.01 FILL MATERIALS**

**A. General Fill:**

1. Material shall be free of rock and gravel larger than three inches in any dimension, debris, waste, frozen materials, organic material, and other deleterious matter.
2. Gradation shall be as specified in Table 31 23 00-A.

**TABLE 31 23 00-A  
GRADATION REQUIREMENTS FOR GENERAL FILL MATERIAL**

<b>U.S. Sieve Size</b>	<b>Percentage by Weight Passing Sieve</b>
3-inch	100
No. 200	10-30

3. Fill shall have a liquid limit not greater than 45, and plasticity index not greater than 25.
4. Material shall be free of foreign chemical contaminants and shall comply with the soil cleanup objectives for restricted residential use, as set forth in 6 NYCRR 375-6.8(b).

**B. Bridging Stone:**

1. Material shall be naturally- or artificially-graded mixture of natural or crushed gravel, crushed stone, or natural or crushed sand. Crushed slag is unacceptable.
2. Gradation shall be as specified in Table 31 23 00-B.

**TABLE 31 23 00-B  
GRADATION REQUIREMENTS FOR BRIDGING STONE**

<b>U.S. Sieve Size</b>	<b>Percentage by Weight Passing Sieve</b>
2 1/2-inch	100
2-inch	90-100
1 1/2-inch	35-70
1-inch	0-15

3. Material shall be free of foreign chemical contaminants and shall comply with the soil cleanup objectives for restricted residential use, as set forth in 6 NYCRR 375-6.8(b); no chemical testing is required if the material contains less than 10% by weight material passing through a size 80 sieve and consists of virgin material from a permitted mine or quarry.

**C. Subbase:**

1. Material shall be naturally- or artificially-graded mixture of natural or crushed gravel, crushed stone, or natural or crushed sand. Crushed slag is unacceptable.
2. Gradation shall be as specified in Table 31 23 00-C.

**TABLE 31 23 00-C  
GRADATION REQUIREMENTS FOR SUBBASE MATERIAL**

<b>U.S. Sieve Size</b>	<b>Percentage by Weight Passing Sieve</b>
2-inch	100
1/4-inch	25-60
No. 40	5-40
No. 200	0-10

3. Plasticity index of material passing the No. 40 sieve shall not exceed 5.0.
4. Material shall be free of foreign chemical contaminants and shall comply with the soil cleanup objectives for restricted residential use, as set forth in 6 NYCRR 375-6.8(b).

- D. Stabilizing/drying agents may include lime, or Portland cement, or other approved materials.
- E. Source Quality Control
  - 1. Provide off-Site fill materials from a NYSDEC-permitted mine, pit, or quarry. Sources shall be approved by NYSDOT for furnishing aggregates for NYSDOT projects.
  - 2. Perform quality assurance testing, and submit results to Engineer, in accordance with Paragraph 1.03.C.1 of this Section.

## 2.02 DEWATERING SYSTEM

- A. Contractor shall install a dewatering system that meets the following requirements:
  - 1. Dewater the area at an average flow rate that meets the GPD discharge criteria.
  - 2. Install an extraction system complete with all equipment, materials, and appurtenances per the approved dewatering operation including any fittings and valves, self-jetting stainless steel well points with steel risers and screens, well point pump, sediment/jet tank and discharge pipe and fittings, sump construction materials, sump pumps, piezometers, and any other equipment or materials as required for the dewatering of excavation areas.
- B. Contractor shall be responsible for the security, fueling and daily monitoring of the dewatering system during its entire use on this Project. Normal engine, pump and system maintenance, as may be required, will also be the responsibility of the Contractor.
- C. Contractor shall provide equipment and labor required to off and on load, install, remove, and move the dewatering equipment, as required.
- D. Contractor shall furnish all lines and grade and establish the layout and physical location of the dewatering system and warrant that all overhead and underground utilities have been located and will not interfere with the work.
- E. Dewatering system operation and maintenance shall include 24-hour on-call service which can be accessed by telephone by the ENGINEER.
- F. CONTRACTOR shall provide electrical service connection(s) as appropriate for the operation of the dewatering system. Such connections shall be installed in accordance with applicable federal, state, and local regulations, codes and requirements

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Provide Engineer with sufficient notice and with means to examine areas and conditions under which excavating, dewatering, filling, and grading Work will be performed. Engineer will advise Contractor in writing when Engineer is aware of conditions that may be detrimental to proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected.

### 3.02 PREPARATION

- A. Erosion and Sediment Control: Provide temporary erosion and sediment controls in accordance with Section 01 57 05, and comply with Section 01 41 26.

- B. Odor, Vapor, and Dust Control: Provide odor, vapor, and dust controls in accordance with Section 01 57 05.
- C. Site Preparation:
  - 1. Demolitions, Removals, and Abandonments: Comply with Section 02 41 19.
- D. Temporary Barriers:
  - 1. Provide temporary barrier surrounding excavations and excavation work areas in accordance with Laws and Regulations and local code to provide temporary protection to persons and property.
  - 2. Temporary barrier shall be not less than eight feet in height and built solid for its entire length of wood or other suitable material and shall be returned at the ends to the extent necessary to effectively close off the area.
  - 3. Provide temporary sliding or swing gates where required for vehicular, equipment, and worker access. Gates shall consist of the same material and construction as the rest of the barrier. Keep gates closed at all times except during active loading and unloading operations, when individuals or vehicles are actively entering or leaving the work area, or as needed to facilitate active work around the gate.
- E. Maintenance and Protection of Traffic: Comply with Section 01 55 26.

### 3.03 TEST PITS

- A. General: In advance of the construction, excavate, make observations and measurements, and fill test pits to determine conditions or location of existing structures and Underground Facilities. Perform all Work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, and filling test pits. Contractor shall be responsible for the definite location of each existing structure and Underground Facility involved within the areas of excavation for the Work. Exercise care during such location work to avoid damaging and disrupting the affected structure or Underground Facility. Contractor shall be responsible for repairing, at its expense, damage caused during the Work to existing structures or Underground Facilities to remain.
- B. Payment for Test Pits: There shall be no separate payment for test pits.

### 3.04 DEWATERING

- A. General:
  - 1. Provide and maintain adequate drainage and dewatering equipment to remove and dispose of all surface water and groundwater entering excavations, or other parts of the Work and work areas. Keep each excavation dry to the extent practicable during excavation, subgrade preparation, and continually thereafter until backfilling operations are completed and acceptable to Engineer.
  - 2. Keep all working areas at the Site free of surface water at all times. Provide temporary drainage ditches and temporary dikes, and provide required temporary pumping and other work necessary for diverting or removing rainfall and all other accumulations of surface water from excavation and fill areas. Perform diversion and removal of surface water in a manner that prevents accumulation of water behind permanent or temporary structures and at any other locations in the work area where such accumulations may be detrimental. Comply with surface water control requirements of Section 01 57 05.
  - 3. Contractor shall be responsible for the condition of piping, conduits, and channels used for drainage, and such piping, conduits, and channels shall be clean and free of sediment.
  - 4. Remove water from excavations as fast as water collects to extent practicable.

5. Water generated from dewatering activities shall be sent for treatment through the temporary treatment system.
6. Install open standpipe piezometers for monitoring of the underlying Sand unit during excavation and backfilling activities. Comply with installation and monitoring requirements in Section 31 09 13 and as shown on the Design Drawings.
7. Remove dewatering system from Site upon completion of dewatering. Properly abandon dewatering points in accordance with the state and local regulations.

**B. Temporary Dewatering System:**

1. Contractor shall design, provide, operate, and maintain dewatering system to include sufficient trenches, sumps, pumps, hose, piping, wells and well points, and similar facilities, necessary to depress and maintain groundwater levels below the working face of each excavation until backfilling operations are completed and acceptable to Engineer.
2. Dewatering system shall be designed and operated to reduce and maintain the piezometric head within the RH4 excavation areas to the following:
  - a. Maintain water level a minimum of 12 inches below surface of excavation at all times.
  - b. When the excavation surface is within 5 feet of the bottom of excavation, maintain a maximum piezometric head elevation in the Sand unit for each excavation area as shown in Table 31 23 00-D.

**TABLE 31 23 00-D  
MAXIMUM ALLOWABLE RH4 PIEZOMETRIC ELEVATIONS**

Excavation Area	Elevation
1	+1.6
2	+1.8
3	-2.5

3. Design and operate dewatering system to avoid settlement and damage to existing structures and Underground Facilities, and to minimize the turbidity of the collected water.
4. To the extent practicable, groundwater table shall be lowered in advance of excavation for a sufficient period of time to allow dewatering of fine grain soils.
5. Operate dewatering system continuously during active excavation and backfilling Work. Provide standby pumping facilities and personnel to maintain the continued effectiveness of the system. Do not discontinue dewatering operations without first obtaining Engineer's acceptance for such discontinuation.
6. If, in Engineer's opinion, groundwater levels and piezometric heads are not being lowered or maintained as required, provide additional or alternate temporary dewatering devices, as necessary, at no additional cost to Owner.
7. Locate elements of temporary dewatering system to allow continuous dewatering operation without interfering with the Work to the extent practicable.

**C. Disposal of Water Removed by Dewatering System:**

1. Water used for working or processing, that results from excavation dewatering or decontamination operations, or that otherwise contains or comes into contact with material containing Site-related Contaminants shall be collected, containerized, treated at the Site, and discharged in accordance with Laws and Regulations and Section 46 07 53, unless otherwise directed by Engineer.
2. Convey water removed from excavations in closed, water-tight piping. Do not use trench excavations as temporary drainage ditches.



### 3.05 EXCAVATION

- A. Perform all excavation required to complete the Work as shown, specified, and required. Excavation shall include removing and handling of earth, sand, clay, gravel, hardpan, soft, weathered, or decomposed rock, pavements, rubbish, debris, and other materials within the excavation limits.
- B. Excavation Protection: Provide and maintain excavation protection system(s) in accordance with Section 31 50 00, Laws and Regulations, and local code to prevent injury to persons and property, including surface structures and Underground Facilities.
  - 1. Excavation Less Than Five Feet Deep: Excavations in stable rock or in soil conditions where there is no potential for a cave-in may be made with vertical sides. Under all other conditions, excavations shall be sloped and benched, shielded, or shored and braced.
  - 2. Excavations Greater Than Five Feet Deep: Excavations in stable rock may be made with vertical sides. Under all other conditions, excavations shall be sloped and benched, shielded, or shored and braced.
- C. Fall Protection: Provide and maintain guardrail system, consisting of toprail, midrail, toeboard, and posts, or a solid enclosure not less than 3.5 feet in height, at the open edges of all excavations six feet or greater in depth. Guardrail system or enclosure shall comply with Laws and Regulations and local code.
- D. Maintain excavations in dry condition in accordance with Article 3.04 of this Section.
- E. Extend excavations sufficiently on each side of structures, footings, and similar construction to allow setting of forms, installation of shoring and bracing, and the safe sloping of banks, as necessary.
- F. Subgrades:
  - 1. General:
    - a. Subgrades shall be firm and intact, dense, and thoroughly compacted and consolidated; shall be free of standing water and mud, muck, and other soft or unsuitable materials; and shall remain firm and intact under all construction operations. Subgrades that are otherwise solid but become soft or mucky on top due to construction operations shall be reinforced or stabilized as directed by Engineer. Finished elevation of reinforced or stabilized subgrades shall not be above subgrade elevations shown or indicated.
    - b. If, in Engineer's opinion, subgrade becomes softened or mucky because of construction delays, failure to dewater properly, or other cause within Contractor's control, the subgrade shall be reinforced or stabilized as directed by Engineer at Contractor's expense.
- G. Disposal of Excavation Waste:
  - 1. Handling, temporary storage, and disposal of excavation waste shall be in accordance with Laws and Regulations and Section 02 60 05.
- H. Unauthorized Excavation: All excavations outside the lines and grades shown or indicated and that are not approved by Engineer, together with removing and disposing of the excavated material and backfilling with suitable material, shall be at Contractor's expense. Fill unauthorized excavations with properly-compacted general fill material at Contractor's expense.

### 3.06 FILL AND COMPACTION

- A. Provide and compact all fill required for the finished grades as shown and as specified in this Section.
- B. Place fill in excavations as promptly as progress of the Work allows, but not until completing the following:
  - 1. Surveying and recording of horizontal and vertical limits of excavation.
  - 2. Inspection, testing, approval, and recording of horizontal and vertical locations of Underground Facilities.
  - 3. Removal of trash and debris.
- C. Fill that includes organic materials or other unacceptable material shall be removed and replaced with approved fill material in accordance with the Contract Documents.
- D. Placement – General:
  - 1. Place fill to the grades shown or indicated. Bring up evenly on all sides fill around structures and Underground Facilities.
  - 2. Fill areas shall be undercut and proof-rolled as directed by Engineer.
  - 3. Place fill materials at moisture content and density specified in Paragraph 3.06.E and Table 31 23 00-E of this Section. Furnish and use equipment capable of adding measured amounts of water to the fill materials to bring fill materials to a condition within required moisture content range. Furnish and use equipment capable of discing, aerating, and mixing the fill materials to ensure reasonable uniformity of moisture content throughout the fill materials, and to reduce moisture content of borrow materials by air drying, when necessary. When subgrade or lift of fill materials requires moisture-conditioning before compaction, fill material shall be sufficiently mixed or worked on the subgrade to ensure uniform moisture content throughout the lift of material to be compacted. Materials at moisture content in excess of specified limit shall be dried by aeration or stockpiled for drying.
  - 4. Perform compaction with equipment suitable for the type of fill material placed. Select and use equipment capable of providing the minimum density required in the Contract Documents. Furnish and use equipment capable of compacting in restricted areas next to structures and around piping and Underground Facilities. Effectiveness of the equipment selected by Contractor shall be tested at start of compacted fill Work by constructing a small section of fill within or adjacent to the area where fill will be placed. Record total number of coverages with selected compaction equipment and perform field moisture content and density tests to ensure that specified compaction of fill has been obtained. If tests on the test section of fill indicate that required compaction has not been obtained, do one or more of the following:
    - a. Increase the amount of coverages.
    - b. Decrease the lift thicknesses.
    - c. Use different compaction equipment.
  - 5. Place fill materials in horizontal, loose lifts, not exceeding specified uncompacted thickness. Place fill in a manner ensuring uniform lift thickness after placing. Mechanically compact each lift, by not less than two complete coverages of the compactor. One coverage is defined as the conditions reached when all portions of the fill lift have been subjected to the direct contact of compactor's compacting surface. Compaction of fill materials by inundation with water is unacceptable.
  - 6. Do not place fill materials when standing water is present on surface of the area where fill will be placed. Do not compact fill when standing water is present on the fill to be compacted. Do not place or compact fill in a frozen condition or on top of frozen material. Fill containing organic materials or other unacceptable material previously described shall be removed and replaced prior to compaction.

7. If required densities are not obtained because of improper control of placement or compaction procedures, or because of inadequate or improperly-functioning compaction equipment, Contractor shall perform all work required to provide the required densities. Such work shall include, at no additional cost to Owner, complete removal of unacceptable fill areas and replacement and re-compaction until acceptable fill is provided.
  8. Repair, at Contractor's expense, observed or measured settlement. Make repairs and replacements as required within five days after being so advised by Engineer.
- E. Compaction Density Requirements:
1. Compaction required for all types of fills shall be in accordance with Table 31 23 00-E of this Section. Moisten material or aerate the material as necessary to provide the moisture content that will facilitate obtaining the required compaction.

**TABLE 31 23 00-E  
MINIMUM DENSITY REQUIREMENTS**

Fill Material	Maximum Uncompacted Lift Thickness (inches)	Percent Compaction (ASTM D1557)
General Fill Material		
More Than Five Feet Below Final Grade	18	92
Less Than Five Feet Below Final Grade	12	92
Subbase Material		
Below Pavements and Sidewalks	6	95
All Other Locations	12	92
Bridging Stone	18 to 24	See Note 1

Note:

1. Compact to a firm non-yielding condition using suitable compaction equipment unless otherwise approved by Engineer.
  2. Fill shall be wetted and thoroughly mixed to achieve optimum moisture content plus-or-minus two percent.
  3. Replace natural, undisturbed soils or compacted soil subsequently disturbed or removed by construction operations with materials compacted as indicated in Table 31 23 00-D of this Section.
  4. Field quality control testing for density, to verify that specified density was obtained, shall be performed in accordance with Paragraph 3.09.A of this Section.
  5. When field quality control testing indicates unsatisfactory compaction, provide additional compaction necessary to obtain the specified compaction. Perform additional compaction Work at no additional cost to Owner until specified compaction is obtained. Such work includes complete removal of unacceptable (as determined by Engineer) fill areas and replacement and re-compaction until acceptable fill is provided in accordance with the Contract Documents.
- F. Use of Bridging Stone: When difficult subgrade conditions (i.e., high moisture content and/or loose subgrade soils) are encountered at the bottom of an excavation, bridging stone can be placed stabilize the subgrade with approval from the Engineer. In these cases, placement of bridging stone to a maximum depth of 4 feet above the excavation bottom is acceptable. When directed by Engineer, place a nonwoven geotextile fabric over bridging stone prior to backfilling excavation with general fill.

- G. Replacement of Unacceptable Excavated Materials: In cases where over-excavation to replace unacceptable soil materials is required, backfill the excavation to required subgrade with general fill material and thoroughly compact in accordance with Paragraph 3.06.E and Table 31 23 00-E of this Section.

### 3.07 GRADING

- A. General:
  - 1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas.
  - 2. Smooth subgrade surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
  - 3. Blend grading over trench or excavation to elevations shown or indicated. Where elevations are not shown or indicated, blend finished grade with existing grade on each side of trench or excavation.

### 3.08 SUBBASE COURSE FOR PAVEMENT AND CRUSHED STONE SURFACING

- A. General:
  - 1. Place subbase material, in layers of specified thickness, over ground surface to support pavement base course or crushed stone surfacing.
  - 2. After completing filling and grading, shape and compact subgrade to an even, firm foundation in accordance with this Section. Remove unsuitable subgrade materials, including soft materials, boulders, vegetation, and loose stones, and replace with compacted fill material as directed by Engineer.
- B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.
- C. Subbase Course Placement:
  - 1. Place subbase course material on prepared subgrade in layers of uniform thickness, in accordance with indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placing operations.
  - 2. Provide geotextile separation fabric over the prepared subgrade in accordance with Section 31 05 19.13.
  - 3. Compaction and Grade Control: Comply with compaction requirements for excavation and fill in this Section, and the following requirements:
    - a. Compaction with roller shall begin at the sides of the area to be paved or receive crushed stone surfacing and shall continue toward the center. Continue compaction until there is no movement of the course ahead of the roller.
    - b. After rolling, check for grade with a line not less than 40 feet in length. Depressions over 1/2 inch deep shall be filled to satisfaction of Engineer.
  - 4. After completing compaction, other than that necessary for bringing material for the next course, do not haul or drive over the compacted subbase.
  - 5. If subgrade material becomes churned up into or mixed with the subbase material, remove the mixed material and replace with clean, compacted subbase material.

### 3.09 FIELD QUALITY CONTROL

- A. Site Tests:
  - 1. Moisture Content and Density Tests:

- a. Perform field moisture content and density tests in accordance with ASTM D6938 to verify that specified compaction of fill materials has been obtained. Comply with the following:
  - 1) Remedial Excavation Areas:
    - a) More Than Five Feet Below Final Grade: Perform test at one location for every 2,000 square feet of excavation and for every fourth compacted lift placed.
    - b) Less Than Five Feet Below Final Grade: Perform test at one location for every 1,000 square feet of excavation and for every compacted lift placed.
  - b. Submit test results, certified by testing laboratory, to Engineer within 24 hours after completion of test.
  - c. If testing or inspections indicate compaction below specified density, Contractor shall remove unacceptable materials as necessary and replace with specified materials, and provide additional compaction at Contractor's expense until subgrades and fills are acceptable. Costs for retesting of subgrade or fills that did not originally comply with specified density shall be paid by Contractor.
  
- B. Site Inspections:
  - 1. Perform daily or more frequent inspections of all excavations, adjacent areas, and protective systems as required by Laws and Regulations and this Section to ensure their continued effectiveness and integrity, and the safety of exposed employees.
  - 2. Inspections shall be performed by Contractor's competent person, together with Engineer's Resident Project Representative:
    - a. Prior to the start of Work and as needed throughout the day.
    - b. After every rainstorm or other hazard-increasing occurrence.
  - 3. During each inspection, note the condition of each excavation, the adjacent areas, and protective systems, and any evidence of situations that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.
  - 4. Where Contractor's competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions or corrective actions have been taken to ensure their safety.
  - 5. Document the date, time, and outcome of each inspection in a dedicated log. Submit copy of inspection log to Engineer with daily construction report in accordance with Section 01 32 26 (Construction Progress Reporting).

END OF SECTION

## SECTION 31 50 00

### EXCAVATION SUPPORT AND PROTECTION

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish, install, monitor, and maintain excavation support and protection systems capable of supporting excavation sidewalls, and resisting soil and hydrostatic pressures and superimposed and construction loads.
2. Types of excavation support and protection systems required under this Section include:
  - a. Steel sheet piling.
  - b. Internal bracing.
3. Extent of excavation support and protection systems is shown or indicated on the Drawings.
4. Install excavation support and protection systems without damaging existing buildings, structures, Underground Facilities, and site improvements adjacent to excavations.

###### B. Coordination:

1. Review procedures under this and other Sections and coordinate Work that must be performed with or before excavation support and protection Work.

###### C. Related Sections:

1. Section 02 41 19, Selective Demolition.
2. Section 02 60 05, Contaminated Waste Management and Disposal.
3. Section 31 09 13, Geotechnical Instrumentation and Monitoring.
4. Section 31 23 00, Excavation and Fill.

##### 1.02 REFERENCE STANDARDS

###### A. The following standards are referenced in this Section:

1. American Institute of Steel Construction (AISC)
  - a. AISC 303, Code of Standard Practice for Steel Buildings and Bridges
  - b. AISC 325, Steel Construction Manual.
  - c. AISC 360, Specification for Structural Steel Buildings
2. American Welding Society (AWS)
  - a. AWS D1.1/D1.1M, Structural Welding Code – Steel.
3. ASTM International (ASTM)
  - a. ASTM A36/A36M, Standard Specification for Carbon Structural Steel.
  - b. ASTM A572/A572M, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
  - c. ASTM A992/A992M, Standard Specification for Structural Steel Shapes.
  - d. ASTM D6914/D6914M, Standard Practice for Sonic Drilling for Site Characterization and the Installation of Subsurface Monitoring Devices.

##### 1.03 QUALITY ASSURANCE

###### A. Qualifications:

1. Pile Installer:

- a. Engage an experienced pile installer possessing not less than five years experience installing piles substantively similar to those specified, to perform all pile driving indicated in this Section.
  - 2. Welders:
    - a. Qualify all welders, welding processes, and procedures in accordance with AWS D1.1/D1.1M.
    - b. Each welder employed on or to be employed for the Work shall possess current AWS certification in the welding process with which welder will be working. Certifications shall be current and valid throughout the Work.
  - 3. Surveyor:
    - a. Engage a registered professional land surveyor licensed and registered in the State of New York and experienced in providing surveying services of the kind indicated.
    - b. Responsibilities include, but are not necessarily limited to, the following:
      - 1) Performing or supervising performance of field survey work to check lines and elevations of sheet piling, and locations and elevations of bracing.
      - 2) Notifying Contractor, Construction Manager, and Engineer in writing when surveyed Work does not comply with the Contract Documents.
- B. Regulatory Requirements:
- 1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
    - a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
    - b. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.
    - c. 29 CFR 1926.750 through 29 CFR 1926.761, Subpart R – Steel Erection.
    - d. 29 CFR 1926.1400 through 29 CFR 1926.1442, Subpart CC – Cranes and Derricks in Construction.
    - e. 12 NYCRR 23-2.3, Structural Steel Assembly.
    - f. 16 NYCRR 753, Protection of Underground Facilities.
  - 2. Obtain required permits and approvals for excavation support and protection Work.

## 1.04 SUBMITTALS

- A. Action Submittals:
- 1. Shop Drawings: Submit the following:
    - a. Drawings showing locations of all piling. Assign a unique identification number to each pile coinciding with identification number used in driving record of each pile. Shop Drawings shall include anticipated driving sequence for the Work.
    - b. Complete details and schedule of all steel members. Clearly indicate the following for each member:
      - 1) Member type, designation, or shape.
      - 2) Size and length.
      - 3) Type, number, and orientation of pile connectors.
      - 4) Welds using standard AWS notations and symbols, including size, length, and type of each weld.
  - 2. Product Data:
    - a. Steel Materials: Submit manufacturer's data and specifications for the following:
      - 1) Sheet piles and connectors.
      - 2) W-shapes.
      - 3) Angles, plates, and bars.
      - 4) Fasteners and connectors.
    - b. Hydrophilic Waterstop Sealant: Submit manufacturer's data, specifications, and installation instructions for hydrophilic waterstop sealant.

**B. Informational Submittals:**

1. Pile Driving Plan: Submit acceptable plan for pile driving and related Work not less than 45 days prior to starting pile driving operations. Include the following:
  - a. Proposed procedures for the following:
    - 1) Pre-trenching sheet pile alignment.
    - 2) Storing, handling, preparing, driving, removing, and cleaning piles in accordance with this Section.
    - 3) Accommodating or removing obstructions encountered during pile driving operations.
  - b. List of proposed equipment for pile driving operations. Include make, model, and size or rating of each.
  - c. Complete data on hammer(s) and other driving equipment to be used.
  - d. Planned sequence of pile driving operations, including coordination with remedial excavation and backfilling operations.
  - e. Detailed schedule of pile driving operations in accordance with the accepted Progress Schedule.
  - f. Quality control procedures to ensure piles are driven within the tolerances specified in this Section.
2. Test and Evaluation Reports: Submit copies of certified mill test reports covering chemical and physical properties of structural steel of each type furnished under this Section.
3. Qualifications Statements:
  - a. Pile Installer: When requested by Engineer, submit qualifications of pile installer.
  - b. Welders: When requested by Engineer, submit copies of current AWS certifications for each welder employed on or to be employed for the Work.
  - c. Surveyor: Submit name and address of firm, and resumes of each professional land surveyor and crew chief conducting the survey Work. Submit at least 10 days prior to beginning survey Work. During the Project, submit resume for each new registered land surveyor and crew chief employed or retained by Contractor at least 10 days prior to starting on the survey Work.
4. Driving Records: Within two days after completing driving, submit copies of driving record of each pile, including the following information:
  - a. Project name, Contract number, and report date.
  - b. Contractor and Subcontractor names.
  - c. Pile location, referenced to Project datum, and number.
  - d. Ground and subgrade elevation, referenced to Project datum.
  - e. Pile section designation and dimensions.
  - f. Total length of pile.
  - g. Type, size, and energy rating of hammer.
  - h. Type of pile driving cap used.
  - i. Driving date(s), and start and finish times.
  - j. Rate of penetration in feet per minute, as well as changes in rate of penetration and depths at which changes occurred.
  - k. Tip and butt elevation of pile, referenced to Project datum.
  - l. Total length of pile in ground.
  - m. Variations from specified tolerances, including surveyed location and plumbness.
  - n. Description and elevation of any obstructions encountered, special procedures employed, and whether removal was obtained.
  - o. Description of any other difficulties encountered during driving operations.

**C. Closeout Submittals:**

1. Record Documentation:
  - a. Record Drawings:



- 1) Maintain accurate and up-to-date record documents showing modifications made in the field, in accordance with approved submittals, and other Contract modifications relative to excavation support and protection Work. Submittal shall show actual location of each excavation support and protection system as installed and appurtenances at same scale as the Drawings.
- 2) Show excavation support and protection systems with elevations referenced to Project datum and dimensions from permanent structures.
- 3) Comply with Sections 01 71 26 (Construction Surveying and Layout) and 01 78 39 (Project Record Documents).

#### 1.05 DELIVERY, STORAGE, AND HANDLING

##### A. Delivery:

1. Deliver materials to the Site in such quantities and at such times to ensure continuity of excavation support and protection Work in accordance with the accepted Progress Schedule.

##### B. Storage:

1. Store piles in orderly groups above ground on level blocks or racks to minimize potential for permanent deflection, distortion, or damage to interlocks.
2. Protect steel members and packaged materials from corrosion and deterioration.

##### C. Handling:

1. Handle piling with care using only handling holes or lifting devices to prevent permanent deflection, distortion, or damage to interlocks.
2. Do not drag piles across the ground.

#### 1.06 SITE CONDITIONS

##### A. Subsurface Information:

1. The Not Part of Contract Documents provide information available relative to subsurface conditions at the Site. Such information and data are not intended as a representation or warranty of continuity of conditions between soil borings or test pits, nor of groundwater levels at dates and times other than date and time when measured, nor that purpose of obtaining the information and data were appropriate for use by Contractor. Owner and Engineer will not be responsible for interpretations or conclusions drawn therefrom by Contractor.
2. Soil borings and other exploratory operations may be made by Contractor, at no additional cost to Owner. Coordinate Contractor-performed test borings and other exploratory operations with Owner, utility owners, other contractors, and others performing work for Owner as appropriate. Perform such explorations without disrupting or otherwise adversely affecting operations of Owner, utility owners, other contractors, and others performing work for Owner. Comply with Laws and Regulations relative to required notifications.

##### B. Existing Structures:

1. The Contract Documents show or indicate certain structures and Underground Facilities adjacent to or within the limits of the Work. Such information was obtained from existing records and is not guaranteed to be correct or complete. Contractor shall explore ahead of demolition, trenching, excavation, pile driving, or other subsurface Work to determine the exact location of all existing structures and Underground Facilities. Existing structures and Underground Facilities shall be supported and protected from damage by Contractor. Immediately repair and restore existing structures and Underground Facilities damaged by Contractor without additional cost to Owner.

2. Movement or operation of construction equipment over Underground Facilities shall be at Contractor's sole risk and only after Contractor has prepared and submitted to Engineer, and received acceptance therefrom, a plan describing Contractor's analysis of the loads to be imparted and Contractor's proposed measures to protect structures and Underground Facilities during the Project.
  3. Coordinate with utility owners for shut-off of services in active piping and conduits, and for testing, shut-off of services, and draining, purging, or de-energizing where specified or required of piping and conduits of unknown status. When required by utility owner, Owner will assist Contractor with utility owner notifications. Completely remove buried piping and conduits indicated for removal and not otherwise indicated for abandonment or to remain in place.
  4. In general, service lines and laterals to individual houses and businesses are not shown; however, Contractor shall assume that a service exists for each utility owner to each house, business, and property.
  5. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when such interruption is indicated in the Contract Documents or when allowed in writing by Engineer after acceptable temporary utility services are provided by Contractor for the affected structure or property.
- C. Contaminants:
1. The Not Part of Contract Documents provide information available relative to the presence of Contaminants in soil and groundwater at the Site.
- D. Line and Level:
1. Using reference points and engineering surveys provided by Owner, Contractor shall establish and locate all other lines and levels, and is responsible for the correct location and deviation of all piles.
  2. Install piles at the proper locations and orientation shown or indicated in the Contract Documents.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

- A. Steel Materials:
1. General Material Requirements:
    - a. Provide materials that are either new or in serviceable (like-new) condition, and of the types, grades, and sizes shown or indicated on the Drawings.
    - b. Unless otherwise shown or indicated, all materials and work for structural steel and miscellaneous metal work shall comply with applicable provisions of the latest edition of AISC 325.
  2. Sheet Piles: ASTM A572/A572M, Grade 50.
  3. W-Shapes: ASTM A992/A992M.
  4. Angles, Plates, and Bars: ASTM A36/A36M.
- B. Hydrophilic Waterstop Sealant:
1. Material shall be single-component, gun-grade, polyurethane sealant. Sealant shall be expandable by not less than 200 percent of dry volume when in the presence of water to form water-tight joint seal.
  2. Product and Manufacturer: Provide one of the following:
    - a. De Neef Swellseal WA by GCP Applied Technologies, Inc.
    - b. Ultraseal P-201 by Adeka Corporation.
    - c. Or equal.

## 2.02 EQUIPMENT

### A. Pile Driving Equipment:

#### 1. Driving Hammer:

- a. Piles shall be driven with a variable-moment vibratory hammer or with a single- or double-acting diesel or hydraulic impact hammer. Contractor shall select a hammer(s) with sufficient energy to drive piling to the required tip elevations without causing damage to the pile or surrounding structures, utilities, sidewalks, pavements, and other facilities indicated to remain. Contractor shall provide all material relative to construction and performance of hammer(s) as Engineer may request. Hammer(s) shall be in good operating condition at all times during driving.
- b. Size or capacity of hammer(s) shall be as recommended by hammer manufacturer(s) for the total pile mass weight and character of soil formation to be penetrated.
- c. For impact hammers, a pile cushion block will be required to protect the piling integrity.

## 2.03 FABRICATION

### A. Shop Fabrication and Assembly:

#### 1. General:

- a. Fabricate and assemble structural assemblies in the shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC 325 and the Contract Documents.
- b. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence that will expedite installation and minimize handling of materials for storage and minimize handling at the Site.

### B. Connections:

1. Shop and field connections shall be welded. Welds shall be 3/16 inch minimum.
  - a. Shop-welded connections shall be detailed to eliminate or minimize eccentricity in the connection.
2. Welded Construction: Comply with AWS D1.1/D1.1M for procedures, appearance, and quality of welds, and methods used in correcting defective welding Work.

### C. Holes and Appurtenances for Other Work:

1. Provide holes required for securing other work to steel piling and bracing, and for passage of other work through steel piling and bracing members, as shown or indicated on the Drawings.
2. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Examine the areas and conditions under which the Work will be performed and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.

### 3.02 PREPARATION

- A. Protection of Surrounding Areas and Facilities:

1. Protect structures, utilities, sidewalks, pavements, and other facilities indicated to remain from damage caused by settlement, lateral movement, undermining, washout, dewatering, and other hazards that could develop during excavation support and protection Work. Repair damage at Contractor's expense.

B. Selective Demolition:

1. Before proceeding with excavation support and protection Work, locate, identify, and remove or relocate obstructing structures and Underground Facilities. Comply with Section 02 41 19 and Paragraphs 3.03.B and 3.03.C of this Section.

### 3.03 STEEL SHEET PILING

A. Pile Preparation:

1. Pile Markings: Label each pile using a waterproof marking device with its total length and a unique identification number. Identification number shall be clearly visible and located within two feet of the top of each pile.
2. Splices: Splices will not be permitted.
3. Jetting: Jetting will not be permitted.
4. Interlock Preparation: Seal all sheet pile interlocks with hydrophilic waterstop sealant to mitigate potential groundwater infiltration through interlocks during remedial excavation and backfilling operations. Contractor shall be responsible for all delays, repairs, additional Work, and expenses resulting from improper sealing of sheet pile interlocks.
  - a. Clean interlock surfaces immediately before installing sealant. Remove dirt, weakly-adhering coatings, moisture, and other substances that would interfere with bonds of sealant compound as recommended in sealant manufacturer's written instructions. Blow out interlocks with oil-free compressed air.
  - b. Remove rough or sharp edges on leading (male) interlock and install sacrificial plug at bottom of interlock to prevent entrance of dirt and debris during driving.
  - c. Apply hydrophilic waterstop sealant to lagging (female) interlock after cleaning. Locate sealant as near as possible to center of interlock. Sealant shall be continuous along entire length of interlock. Comply with sealant manufacturer's written instructions.
  - d. Drive the sheeting (immediately as needed) or store them up to 1 month (the joint must be kept dry prior to installation). Stored sheeting must be protected from precipitation or other weather conditions that may react with sealant materials. Any sealant that has prematurely expanded prior to driving must be removed, the female interlock recleaned, and the sealant reapplied.
  - e. Check the maximum annular space in the interlock area to ensure that enough sealant is being applied.

B. Pre-Trenching:

1. General:
  - a. Before proceeding with pile driving operations, excavate and clear sheet pile alignment of near-surface boulders, cobbles, debris, foundations, and other obstructions. Perform all work required in connection with excavating, stockpiling, maintaining, shoring, and backfilling trenches. Contractor shall be responsible for clearing sheet pile alignment to a depth of not less than eight feet below existing grade.
  - b. Exercise care during pre-trenching operations to avoid damaging and disrupting existing structures and Underground Facilities to remain. Contractor shall be responsible for repairing, at its expense, damage caused during the Work to existing structures and Underground Facilities to remain.
  - c. Comply with Laws and Regulations and Section 31 23 00.
2. Payment for Pre-Trenching: There shall be no separate payment for pre-trenching.

C. Pile Driving:

1. Piles shall be driven in the sequence recommended by manufacturer and in such a manner so as to prevent damage to piling and surrounding areas and facilities. All piling, unless specified otherwise, shall be driven in the presence of Engineer.
2. Continuously drive each pile without interruption at the location and to the minimum tip elevation shown or indicated. Tightly interlock piling along entire length of each pile to form a continuous wall.
3. Prevent pile damage due to excessive bending or twisting when lifting and positioning piles for driving. Bent or twisted piles will be rejected by Engineer.
4. When handling and driving long piles, take special precautions to ensure against overstress or leading away from a true position when driving.
5. Carefully plumb the pile before driving. Take care during driving to prevent and to correct any tendency of piling to bend, twist, rotate, or disengage from interlocks. Pull and re-drive piles that disengage from interlocks at Contractor's expense. Integrity of each interlock shall be maintained during driving.
6. Inspect piles upon completion of driving for damage resulting from driving. Promptly pull, remove from the Site, and replace at Contractor's expense damaged piles.
7. Provide temporary wales, templates, or guide structures to ensure that piles are placed and driven to the required alignment and within the required tolerances. Use a system of structural framing sufficiently rigid to resist lateral and driving forces and to adequately support piling until design tip elevation is achieved. Templates shall not move when supporting piling. Fit templates with wood blocking to bear against the web of each alternate pile and hold the pile at the design location alignment. Provide outer template straps or other restraints as necessary to prevent piling from warping or wandering from design alignment.

D. Driving Tolerances:

1. Drive piles within the following maximum tolerances:
  - a. Horizontal: One inch per 20 linear feet of wall.
  - b. Plumbness: 1/4 inch per foot.
2. Remove and re-drive piles driven outside the specified tolerances at no additional cost to Owner. Prior to re-driving, remove sealant from lagging (female) interlock and re-prepare pile interlocks in accordance with Paragraph 3.03.A.4 of this Section.

E. Obstructions:

1. Should an obstruction including, but not limited to, boulders, rock, rubble, fill, existing foundations, or other debris be encountered that prevents driving of pile to its required tip elevation, threatens pile damage, or causes pile to drift from required location, cease driving operations and immediately notify Engineer. Engineer, together with Contractor, will determine corrective measures, including, but not necessarily limited to, pre-drilling and pile relocation, required to accommodate or remove obstruction.
2. Pre-Drilling:
  - a. Provide not less than 12-inch diameter boreholes, drilled using sonic drilling methods in accordance with ASTM D6914/D6914M, at locations and to depths as required for satisfactory driving results.
  - b. As drilling progresses, advance temporary steel outer casing to stabilize borehole. Withdraw outer casing as borehole is being backfilled.
  - c. Backfill boreholes with fine sand or other material satisfactory to Engineer, placed using tremie pipe.
3. Pile Relocation:
  - a. Pull pile and re-drive at new location to be selected by Engineer. Completely fill spaces that are left by withdrawn pile with approved fill material in accordance with Section 31 23 00.

- b. If abandonment of pile is required because of obstructions encountered, cut off pile three feet below final grade or as directed by Engineer and install new pile at location to be selected by Engineer.
      - 4. Corrective measures due to obstructions located at depths greater than eight feet below existing grade and not otherwise indicated for removal will be paid by Owner via Change Order or other method in accordance with the Contract Documents.
      - 5. Re-drive pile upon successful removal of obstruction. Prior to re-driving, remove sealant from lagging (female) interlock and re-prepare pile interlocks in accordance with Paragraph 3.03.A.4 of this Section.
- F. Repairs and Corrections:
- 1. Damaged or Misdriven Piles:
    - a. Damaged piles and piles driven outside required driving tolerances, piles that are too short to achieve required tip elevation, piles that become disengaged from interlocks, or that otherwise do not comply with the Contract Documents, are considered defective and are unacceptable.
    - b. Damaged piles shall include, but not necessarily be limited to, piles that are bent, buckled, fabricated without complying with tolerances in the Contract Documents, or piles fabricated with defects that may weaken the pile, as determined by Engineer.
    - c. Replace damaged or misdriven piles as directed by Engineer at no additional cost to Owner. Engineer will provide redesign, as required, for corrections required for damaged or misdriven piles.
      - 1) When possible, withdraw rejected piles and replace with new piles. Withdrawal method shall be submitted to Engineer for approval.
      - 2) If withdrawal of damaged or misdriven pile is impossible or impractical, install required additional piles and other corrective measures, as required by Engineer's redesign.
- G. Removal and Cleaning:
- 1. Remove piles when approved by Engineer and when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging existing structures and Underground Facilities to remain. Repair any damage at Contractor's expense.
  - 2. Upon removal, thoroughly clean piles of visible soil and Contaminants, if present, using high-pressure potable water spray. Cleaning shall be to satisfaction of Engineer and authorities having jurisdiction.
  - 3. Backfill voids resulting from the removal of piles with approved fill material in accordance with Section 31 23 00.
- H. Reuse of Piles:
- 1. After remediation and backfilling operations have been completed, remove wales, struts, and steel sheeting in a manner that minimizes damage to the members.
  - 2. Inspect piles upon removal, and prior to reuse, for damage resulting from driving, remedial excavation and backfilling operations, or removal. Promptly remove from the Site and replace at Contractor's expense damaged or defective piles before reusing at the Site.
  - 3. Prior to reuse, remove sealant from lagging (female) interlock and re-prepare pile interlocks in accordance with Paragraph 3.03.A.4 of this Section.

### 3.04 INTERNAL BRACING

- A. General:
- 1. Provide internal bracing where shown or indicated to support excavation faces retained by steel sheet piling.

2. Comply with sequencing requirements shown or indicated in the Contract Documents.
- B. Installation:
1. Install wales, struts, and corner braces at the locations and elevations shown or indicated in the Contract Documents.
  2. Include web stiffeners, plates, brackets, angles, or other bracing as needed to prevent rotation, crippling, or buckling of connections and points of bearing between structural steel members. Allow for eccentricities due to field fabrication and assembly.
  3. Install and maintain internal bracing support members in tight contact with each other and with the surface being supported. Use steel shims or wedges, welded or bolted into place, to provide tight bearing between wales and support system wall. Wooden blocks or wedges are prohibited.
  4. Splice members as indicated.
  5. Connections:
    - a. Comply with AISC 325 for bearing, adequacy of temporary connections, alignment, and the removal of paint on surfaces adjacent to field welds.
  6. Do not proceed with excavation below bracing elevation without approval of Engineer and only after completing installation of all bracing and excavation and backfilling operations, as required, in adjacent areas.
- C. Removal:
1. Remove internal bracing when backfilling operations have progressed to the elevation shown or indicated in the Contract Documents.

### 3.05 MONITORING

- A. Monitor excavation support and protection systems and surrounding conditions daily during excavation progress and for as long as excavation remains open. Comply with Section 31 09 13 and Laws and Regulations.
- B. Immediately notify Engineer of any movement, cracking, or settlement of the ground surface surrounding the excavation, or of any visual damage to or movement of adjacent structures, utility poles, or other facilities.
- C. Promptly correct bulges, breakage, leaks, or other evidence of movement to ensure that excavation support and protection systems remain stable.

### 3.06 RESTORATION

- A. Repair damage caused by excavation support and protection systems and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

## SECTION 32 12 00

### FLEXIBLE PAVING

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install flexible, hot-mix, hot-laid, asphalt concrete pavement.
2. The Work includes:
  - a. Preparation such as saw-cutting, cleaning, and other preparation for installing flexible pavements.
  - b. Providing asphalt concrete paving materials.
  - c. Providing tack coat material.
  - d. Providing quality controls and testing.

###### B. Coordination:

1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with or before flexible paving.

###### C. Related Section:

1. Section 31 23 00, Excavation and Fill.

##### 1.02 REFERENCE STANDARDS

###### A. The following standards are referenced in this Section:

1. ASTM D2950/D2950M, Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods.
2. ASTM D3549/D3549M, Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.
3. ASTM D6690, Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
4. ASTM E329, Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.

##### 1.03 QUALITY ASSURANCE

###### A. Qualifications:

1. Asphalt Concrete Production Facility: Production facility for asphalt concrete, tack coat materials, and other bitumastic materials shall be approved by NYCDDC for furnishing such materials for NYCDOT projects.
2. Contractor's Testing Laboratory: Retain the services of an independent testing laboratory to perform testing and determine compliance with the Contract Documents of the materials provided under this Section. Testing laboratory shall comply with ASTM E329, and shall be experienced in the types of testing required.



- B. Regulatory Requirements:
  - 1. Reference Specifications and Details: Comply with applicable requirements of the following:
    - a. NYCDOT Standard Highway Specifications and Standard Details of Construction.
  - 2. Obtain required highway and street rights-of-way work permits.
- C. Quality Assurance Testing:
  - 1. Test bituminous materials and asphalt concrete mix design for each asphalt concrete material in accordance with reference specifications indicated in Article 1.03 of this Section.
  - 2. In lieu of quality assurance testing, submit evidence and certification of material compliance with reference specifications indicated in Article 1.03 of this Section. When evidence of conformance submitted is not acceptable to Engineer, perform quality assurance testing.
  - 3. To facilitate testing laboratory, Contractor shall:
    - a. Secure and deliver to testing laboratory representative Samples of materials that Contractor proposes to furnish and that are required to be tested.
    - b. Furnish such labor as is necessary to obtain and handle Samples at the Site or at asphalt concrete production facility and other material sources.
    - c. Advise testing laboratory and Engineer sufficiently in advance of operations to allow for completion of quality assurance tests and for the assignment of personnel.

#### 1.04 SUBMITTALS

- A. Action Submittals:
  - 1. Shop Drawings:
    - a. Submit the proposed asphalt concrete mix design for each asphalt concrete material, and other bituminous materials, required under this Section. Provide complete data on materials, including location in the Work, source, material content and percentages, temperatures, and all other pertinent data.
    - b. Proposed gradation for each aggregate to be used in flexible paving. Submit gradation test results for the same material furnished on a previous project.
    - c. In lieu of the information required under Paragraphs 1.04.A.1.a and 1.04.A.1.b, above, submit certificates of compliance with the reference specifications indicated in Article 1.03 of this Section, for each for the following:
      - 1) Each asphalt concrete mix design required.
      - 2) Bituminous materials required.
      - 3) Aggregates to be used in flexible paving, from each material source and each required gradation.
      - 4) Density of uncompacted asphalt concrete material.
      - 5) Density of previously-compacted, previously-tested asphalt concrete material.
      - 6) Density and voids analysis for each asphalt concrete material test specimen.
      - 7) Evidence of asphalt concrete plant inspection and compliance with the reference specifications indicated in Article 1.03 of this Section.
- B. Informational Submittals:
  - 1. Qualifications Statements:
    - a. Asphalt Concrete Production Facility: Submit name, address, and proof of NYCDDC approval for asphalt concrete production facility.
    - b. Contractor's Testing laboratory: Submit name and qualifications of testing laboratory to be employed, and qualifications of testing laboratory's personnel that will perform quality assurance and field quality control testing required in this Section. If more than one laboratory will be employed, submit qualifications statement for each laboratory.

2. Quality Assurance Test Data Submittals:
  - a. Submit for quality assurance tests required.
3. Delivery Tickets:
  - a. Submit copy of delivery ticket for each load of asphalt concrete, tack coat materials, and other materials obtained from asphalt concrete production facility, signed by Contractor.
4. Field Quality Control Submittals:
  - a. Submit results of required field quality control testing.

## 1.05 SITE CONDITIONS

- A. Environmental Requirements:
  1. Temperature:
    - a. For base course and binder course paving lifts equal to or greater than two inches thick, atmospheric temperature shall be 40 degrees F and rising.
    - b. For top course paving or other pavement courses in lifts less than two inches thick, temperature of surface on which pavement is to be placed shall be 50 degrees F or greater.
  2. Prohibitions:
    - a. Do not place flexible paving materials when weather is foggy or during precipitation.
    - b. Do not place flexible paving materials when the base on which the material will be placed contains moisture in that does not meet the requirements for placement.
    - c. Place flexible paving materials only when Engineer concurs that weather conditions are suitable.

## PART 2 – PRODUCTS

### 2.01 SYSTEM PERFORMANCE

- A. System Description:
  1. Subbase Course: Provide subbase course of the thickness shown or indicated, in accordance with Section 31 23 00.
  2. Flexible Pavement Courses: Provide the following:
    - a. Binder Course: Four inches compacted thickness.
    - b. Top Course: Two inches compacted thickness.

### 2.02 ASPHALT CONCRETE MIXES

- A. Asphalt Concrete Mixtures: Provide the following materials designed and manufactured in accordance with the reference specifications indicated in Article 1.03 of this Section:
  1. Binder Course: Rut Avoidance Binder Mixture, Type 3 RA.
  2. Top Course: Rut Avoidance Asphaltic Concrete Mixture, Type 6F RA.

### 2.03 BITUMINOUS MATERIALS

- A. Bituminous Materials for Asphalt Concrete:
  1. Bituminous materials for asphalt concrete shall comply with the reference specifications indicated in Article 1.03 of this Section, for the asphalt concrete mixes specified.
- B. Tack Coat:
  1. Tack coat shall be emulsified asphalt.
  2. Provide RS-1 asphalt emulsion in accordance with the reference specifications indicated in Article 1.03 of this Section.

- C. Crack Sealant:
  - 1. Provide sealant complying with ASTM D6690, Type II, hot-applied type.

## 2.04 AGGREGATES IN FLEXIBLE PAVEMENTS

- A. Aggregates for Asphalt Concrete:
  - 1. Aggregate materials used in flexible pavement shall be in accordance with the reference specifications indicated in Article 1.03 of this Section, for the asphalt concrete mix designs indicated.

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Examine the subgrade, subbase, and base on which flexible paving will be installed and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected.
- B. Do not place materials on subgrades or subbase that is muddy or has water thereon.

### 3.02 PREPARATION

- A. Preparation: Before starting installation of flexible paving, perform the following:
  - 1. Grade Control: Establish and maintain throughout flexible paving installation the required lines and grades, including crown and cross-slope for each asphalt concrete course during construction operations.
  - 2. Prepare subgrade and provide subbase for flexible pavement in accordance with Section 31 23 00. Before installing flexible pavement, obtain Engineer's concurrence that subgrade and subbase are suitable for installing flexible pavement.
  - 3. Coordinate placement of flexible pavement with Work included under Sections 33 05 13 and 33 46 36 and Work involving similar items.
  - 4. Maintenance and Protection of Traffic: Comply with Section 01 55 26 (Maintenance and Protection of Traffic).
- B. Surface Preparation:
  - 1. Repair surface defects in existing pavement to provide uniform surface to receive new pavement.
  - 2. Provide crack sealant to completely fill cracks more than 1/16 inch wide in areas shown or indicated.
  - 3. Clean existing surfaces over which asphalt concrete pavement will be installed, by removing from the surface foreign material, excess asphalt concrete, excess joint sealant and crack filler, and other undesirable matter.
  - 4. Provide tack coat as indicated in Article 3.03 of this Section.

### 3.03 INSTALLATION OF FLEXIBLE PAVING

- A. General:
  - 1. Provide final pavement surfaces of uniform texture, at required grades and cross-sections.
  - 2. Construct roadways to the lines, grades, and typical sections shown or indicated.

- B. Installation of Asphalt Concrete:
1. Asphalt concrete mixture shall be transported to the site of paving and placed as soon as possible after mixing.
  2. Placement of each asphalt concrete course shall be completed over the full width of the section under construction during each day's paving operations.
  3. Spread and finish asphalt concrete courses by means of self-propelled mechanical spreading and finishing equipment. Compacted thickness of layers placed shall not exceed 150 percent of specified thickness unless approved in writing by Engineer.
  4. Compaction:
    - a. Rollers:
      - 1) Use sufficient rolling equipment to satisfactorily compact and finish the quantity of asphalt concrete placed. There shall be not less than two rollers on the Project at all times. When acceptable to Engineer, one of the rollers may be a pneumatic-tire roller.
      - 2) During rolling operations, roller speed shall not exceed three miles per hour. When sufficient number of rollers is not available, reduce the quantity of asphalt concrete placed to accommodate the available rollers' speed.
      - 3) Required rollers shall be at the Site, in acceptable operating condition, prior to placing of asphalt concrete.
      - 4) Use of vibratory rollers in lieu of steel-wheeled rollers is acceptable, however when thickness of asphalt concrete is one inch or less, rolling shall be in the static mode.
    - b. Rolling of initially-placed asphalt concrete material, or breakdown rolling, shall begin as soon as the asphalt concrete mixture will bear the roller without undue displacement.
    - c. Rolling shall be longitudinal, overlapping on successive trips by not less than one-half roller rear wheel width, and not more than three-quarters of roller rear wheel width. Alternate trips of the roller shall be of slightly different lengths.
    - d. At all times, roller motion shall be slow enough to avoid displacing the asphalt concrete.
    - e. Operate rollers continuously from breakdown of laid asphalt concrete through finish rolling.
    - f. Perform finish rolling using a steel-wheeled roller or a vibratory steel-wheel roller operating in the static mode.
    - g. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.
    - h. At each location not accessible to roller, thoroughly compact asphalt concrete with tampers and finish, where necessary, with a hot smoothing iron to provide uniform, smooth layer over the entire area so compacted.
  5. Each compacted asphalt concrete course shall be within plus-or-minus 1/4 inch of the indicated thickness. Total thickness of flexible pavement shall be within plus-or-minus 1/2 inch of the indicated thickness.
  6. Placement of Adjacent Strips of New Asphalt Concrete:
    - a. When more than one width of asphalt concrete material will be placed, a six-inch wide strip of asphalt concrete adjacent to the area on which the future material is to be placed shall not be rolled until such future material is placed.
    - b. Do not leave the unrolled strip unrolled for more than two hours after placement, unless the six-inch unrolled strip is first heated with a joint heater.
    - c. After the first strip or width of asphalt concrete is compacted, place, finish, and compact the second width or strip as required for the first width, except that rolling shall be extended to include the six-inch strip of the first width not previously compacted.

C. Construction Joints:

1. Construction joints shall be made in such a manner as to ensure a neat junction, thorough compaction, and bond throughout.
2. Provide a transverse joint extending over the full width of the strip being laid and at right angles to its centerline at the end of each work day and at other times when the placement of hot-mix asphalt concrete will be suspended for a period of time that will allow asphalt concrete mixture to chill.
3. Thoroughly compact by rolling the forward end of a freshly laid strip of asphalt concrete before the asphalt concrete mixture becomes chilled. When the Work is resumed, the end shall be cut vertically for the full depth of the layer.

D. Joining of Pavements:

1. When pavement is to join existing or previously-laid pavement, the existing or previously-laid pavement shall be neatly and carefully edged to allow for overlapping and feathering of the subsequent course of asphalt concrete material.
2. Where new pavement is to meet existing pavement, the existing pavement shall be saw-cut and notched.
3. Where new pavement will meet existing asphalt pavement, remove existing pavement 12 inches onto undisturbed existing pavement course at edges where new pavement will meet existing pavement.
4. Tack Coat:
  - a. Provide tack coat material at the following locations:
    - 1) At edges where new pavement will connect to existing or previously-installed pavement.
    - 2) On surface of existing or previously-installed pavement course over which new pavement will be installed, prior to placement of the subsequent pavement course. Tack coat may be deleted when a succeeding layer of asphalt pavement is being applied over a freshly-placed asphalt pavement course that has been subjected to very little or no traffic, with approval of Engineer.
    - 3) Where new pavement will abut curbing, concrete gutters, drainage structures and frames, manhole cover frames, valve boxes, and similar items.
  - b. Tack Coat Installation: Install tack coat immediately prior to installing pavement. Place pavement while tack coat is wet. Apply tack coat in accordance with reference specifications indicated in Article 1.03 of this Section.

E. Curing:

1. Do not allow traffic onto pavement until directed by Engineer. Traffic will not be allowed on new asphalt concrete pavement until surface temperature is less than 140 degrees F.
2. Hold construction traffic on new pavement to a minimum as acceptable to Engineer.

F. Defective Pavement Work:

1. When directed by Engineer, remove and replace defective flexible paving Work. Cut out such areas of defective pavement and fill with fresh asphalt concrete materials, compacted to required density.

### 3.04 FIELD QUALITY CONTROL

A. Site Tests: Employ a testing laboratory to perform field quality control testing.

1. Testing Laboratory Scope:
  - a. Perform field density tests to verify that required compaction of asphalt materials has been obtained.
  - b. Test the proposed materials for compliance with the Contract Documents, as directed by Engineer.
  - c. Submit reports of all test results to Engineer and Contractor.

2. Asphalt Concrete Mix Temperature: Measure temperature at time of placement, record, and submit to Engineer.
3. Surface Smoothness:
  - a. Test finished surface of each flexible paving course for smoothness, using a 10-foot straightedge applied parallel to and at right angles to centerline of paved areas.
  - b. Check surfaced areas at intervals as directed by Engineer.
  - c. Surfaces will be acceptable relative to smoothness when measurements are equal to or less than the following:
    - 1) Binder Course: 3/8 inch vertical in 10 feet horizontal.
    - 2) Top Course: 1/4 inch vertical in 10 feet horizontal.
    - 3) Crowned Surfaces:
      - a) Test crowned surfaces with a crown template, centered and at right angles to the crown.
      - b) Surfaces will be acceptable when variance is equal to or less than 1/4 inch from the template.
  - c. Elevation: Finished surface of pavement shall be within plus-or-minus 1/2 inch of elevations shown or indicated.
4. Density:
  - a. Test in accordance with ASTM D2950/D2950M. Test one sample every 1,000 square yards of pavement. Test for each asphalt concrete course installed.
  - b. In addition, when directed by Engineer, compare density of in-place flexible paving materials against laboratory specimen or certificates on same asphalt pavement mixture, using nuclear density device.
  - c. Criteria for Acceptance: Density of in-place asphalt pavement material shall be not less than 90 percent of the recorded laboratory specimen or certificate density. Density shall be not greater than 98 percent.
5. Asphalt Concrete Pavement Thickness: Measure in accordance with ASTM D3549/D3549M. Obtain and test one core sample from every 1,000 square yards of compacted pavement. Comply with thickness tolerance specified in Article 3.03 of this Section.
6. Repair holes from test specimens in accordance with this Section's requirements for repairing defective Work.
7. Submit test results, certified by testing laboratory, to Engineer within 24 hours of completion of test.

### 3.05 ADJUSTING

#### A. Frames and Covers:

1. Set frames of drainage structures, manholes, valve boxes, and similar items to final grade. Adjust frames of existing structures and frames furnished under other Sections. Frames shall be at substantially similar elevation to finished top course of pavement.
2. Replace covers and gratings of existing structures immediately following adjusting associated frames. Install covers and gratings of structures provided under the Project as quickly as possible.
3. Where there is a delay between adjusting of frames and installation of top course, provide temporary bituminous material around perimeter of each frame to smooth vehicle access over the frame. Maintain and repair temporary bituminous material as required until placement of top course. Remove temporary bituminous material before installing top course.

#### B. Pavement Adjustment:

1. Repair or replace in manner acceptable to Engineer areas of pavement that are observed to pond or collect water.

3.06 CLEANING

- A. After completing paving operations, clean surfaces of excess or spilled bituminous materials, excess asphalt concrete, and foreign matter.

3.07 PROTECTION

- A. Protect finished pavement until pavement has become properly hardened and cool.
- B. Cover openings of drainage structures, manholes, valve boxes, and similar items in the paved area until permanent coverings are provided.

END OF SECTION

## SECTION 32 15 40

### CRUSHED STONE SURFACING

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

- A. Scope:
  - 1. Contractor shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and install crushed stone surfacing.
  - 2. Extent of crushed stone surfacing is shown or indicated on the Drawings.
- B. Coordination:
  - 1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with or before crushed stone surfacing.
- C. Related Sections:
  - 1. Section 31 23 00, Excavation and Fill.

##### 1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
  - 1. Reference Specifications: Comply with applicable requirements of the NYSDOT Standard Specifications.

##### 1.03 SUBMITTALS

- A. Informational Submittals:
  - 1. Source Quality Control Submittals: Submit Supplier name, source address, copy of current NYSDEC mining permit, and proof of NYSDOT approval for proposed source of crushed stone.
  - 2. Delivery Tickets: Submit copy of delivery ticket for each load of crushed stone delivered to the Site. Each delivery ticket shall indicate Supplier name and source address, project name, contract number, date, material type, NYSDOT item number, and quantity delivered.

#### PART 2 – PRODUCTS

##### 2.01 MATERIALS

- A. Crushed Stone: Provide clean, durable, sharp-angled fragments of rock of uniform quality conforming to Material Designation 703-0201, Size Designation No. 2, in accordance with Section 703 of the NYSDOT Standard Specifications.

##### 2.02 SOURCE QUALITY CONTROL

- A. Crushed Stone Source: Provide crushed stone from a NYSDEC-permitted mine, pit, or quarry. Source shall be approved by NYSDOT for furnishing aggregates for NYSDOT projects.



## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Examine the subgrade and subbase on which crushed stone surfacing will be installed and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.
- B. Subgrade:
  - 1. Verify that earthwork is completed to correct line and grade.
  - 2. Verify that subgrade is smooth, properly compacted, and free of frost and excessive moisture in accordance with Section 31 23 00.
  - 3. Do not commence the Work under this Section until conditions are satisfactory.

### 3.02 PREPARATION

- A. Prepare subgrade and provide subbase for crushed stone surfacing in accordance with Section 31 23 00. Before installing crushed stone surfacing, obtain Engineer's concurrence that subgrade and subbase are suitable for installing crushed stone surfacing.

### 3.03 INSTALLATION

- A. Place and uniformly spread crushed stone to a depth of three inches, but not less than required to meet finished grades after rolling.
- B. Perform rolling with consecutive passes to achieve an even and smooth finish without roller marks, within plus-or-minus 1/2 inch of final elevations. Roll and rake and remove all ridges, and fill depressions, as required.
- C. If subbase material becomes churned up into or mixed with the crushed stone, remove the mixed material and replace with clean, crushed stone.

### 3.04 CLEANING AND REPAIR

- A. Repair all erosion channels that may form until time of Substantial Completion.
- B. Keep crushed stone surfacing free of all foreign materials including, but not limited to, soil, debris, and weeds, until time of Substantial Completion.

### 3.05 INSPECTION AND ACCEPTANCE

- A. When the crushed stone surfacing is completed, including cleaning and repair, Engineer will make an inspection to determine acceptability.
- B. Where inspected crushed stone surfacing does not comply with the requirements, replace rejected Work and continue specified cleaning and repair until reinspected by Engineer and found to be acceptable.

END OF SECTION

## SECTION 32 31 13

### CHAIN-LINK FENCES AND GATES

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and install chain-link fencing and gates.
2. Extent of chain-link fencing and gates is shown or indicated on the Drawings.
3. Types of products required under this Section include the following:
  - a. Galvanized steel chain-link fabric.
  - b. Galvanized steel framework.
  - c. Auxiliary system components, gates, accessories, fasteners, and fittings.

###### B. Coordination:

1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with or before chain-link fences and gates.

##### 1.02 REFERENCES

###### A. Terminology:

1. The following words or terms are not defined but, when used in this Section, have the following meaning:
  - a. “Knuckling” describes the type of selvage obtained by interlocking adjacent pairs of wire ends and then bending the wire ends back into a closed loop.
  - b. “Fencing” describes an assembly of metal components, including wire chain-link fabric fastened to top, bottom, and intermediate horizontal rails, and to vertical line posts, corner posts, and terminal posts. This assembly includes all auxiliary components, gates, fittings, fasteners, and other accessories, all with specified protective coatings.
2. Terminology used in this Section and not defined in this Article will be construed in accordance with the terminology used in ASTM F552 and CLFMI CLF-PM0610.

###### B. Reference Standards:

1. The following standards are referenced in this Section:
  - a. ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  - b. ASTM A90/A90M, Standard Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
  - c. ASTM A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - d. ASTM A392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
  - e. ASTM A641/A641M, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
  - f. ASTM A780/A780M, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
  - g. ASTM A817, Standard Specification for Metallic-Coated Steel Wire for Chain-Link Fence Fabric and Marcellled Tension Wire.
  - h. ASTM A824, Standard Specification for Metallic-Coated Steel Marcellled Tension Wire for Use With Chain-Link Fence.

- i. ASTM B6, Standard Specification for Zinc.
- j. ASTM B221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- k. ASTM C33/C33M, Standard Specification for Concrete Aggregates.
- l. ASTM C150/C150M, Standard Specification for Portland Cement.
- m. ASTM F552, Standard Terminology Relating to Chain-Link Fencing.
- n. ASTM F567, Standard Practice for Installation of Chain-Link Fence.
- o. ASTM F626, Standard Specification for Fence Fittings.
- p. ASTM F900, Standard Specification for Industrial and Commercial Swing Gates.
- q. ASTM F1043, Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework.
- r. ASTM F1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
- s. ASTM F1184, Standard Specification for Industrial and Commercial Horizontal Slide Gates.
- t. CLFMI CLF-PM0610, Product Manual.

### 1.03 QUALITY ASSURANCE

#### A. Qualifications:

- 1. Installer:
  - a. Engage a single installer skilled, trained, and with successful and documented experience in the installation of fencing, and who agrees to employ only tradesmen with specific skill and successful experience in the type of Work required.
  - b. Installer shall be acceptable to fencing manufacturer.

#### B. Component Supply and Compatibility:

- 1. Provide fencing as complete system with all gates, hardware, appurtenances, and other components produced by a single manufacturer, including custom erection accessories, fittings, clamps, and fastenings as required for complete system.

#### C. Regulatory Requirements:

- 1. Obtain required permits and approvals for the installation of chain-link fencing and gates.

### 1.04 SUBMITTALS

#### A. Action Submittals:

- 1. Shop Drawings:
  - a. Submit shop drawings of typical fence assembly, identifying all materials, dimensions, sizes, weights, and finishes of rails, posts, braces, supports, and other fencing components. Show fence heights and locations of gates. Show gate swing or other operation, hardware, and accessories. Include plans, elevations, and sections, with required installation and operating clearances, and details of post anchorage, attachments, and bracing.
  - b. Submit large-scale details for all connections and gate details.
  - c. Submit list of all hardware, fasteners, and accessories.
- 2. Product Data:
  - a. Submit copies of manufacturer's technical product information, and specifications for all fencing components and accessories.
  - b. Submit data substantiating that materials proposed comply with the following:
    - 1) Weight of zinc coating on wire and pipe fabrications, in compliance with ASTM A90/A90M.

- B. Informational Submittals:
  - 1. Certifications: Submit shipping list for materials used, endorsed with manufacturer's voucher, signed by authorized employee of manufacturer, certifying that material used in fencing complies with the Contract Documents and with the approved submittals.
  - 2. Manufacturer's Instructions: Submit manufacturer's installation instructions.
  - 3. Qualifications Statements: Submit name and address of fence installer.
- C. Closeout Submittals:
  - 1. Submit warranty documentation in accordance with Article 1.07 of this Section.
  - 2. Submit specified number of keys for locksets and padlocks.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in manufacturer's original, unopened packaging with all factory-applied tags, labels, and other identifying information intact, legible, and accurately representing material on approved submittals.
- B. Storage:
  - 1. Store all materials under weather-proof cover, off the ground and away from other construction activities.
  - 2. Do not store material in a manner that would create a humidity chamber. Provide for free movement of air under protective cover and between components of the fencing.
- C. Handling: Handle material in manner that is in compliance with manufacturer's recommendations and that avoids damaging coatings.

#### 1.06 SITE CONDITIONS

- A. Obtain measurements at the Site to verify layout information and dimensions for fencing and gates in relation to reference points provided by Owner or indicated in the Contract Documents.

#### 1.07 WARRANTY

- A. General Warranty: The special warranties specified in this Article shall not deprive Owner of other rights or remedies Owner may otherwise have under the Contract Documents and shall be in addition to and run concurrent with other warranties made by Contractor under the Contract Documents.
- B. Special Warranties: Submit manufacturer's written 10-year warranty against rusting or corrosion of metal.

### PART 2 – PRODUCTS

#### 2.01 MATERIALS

- A. General:
  - 1. Pipe sizes specified are actual outside dimension.
  - 2. Wire gages shall conform to American Steel and Wire Company gage.
- B. Steel Wire:
  - 1. Chain-Link Fabric and Tension Wire: ASTM A817, Type II, Class 4.
  - 2. Tie Wires and Hog Rings: ASTM A641/A641M, Class 3 or A.

- C. Steel Pipe:
  1. ASTM F1083, Regular Grade, Standard Weight (Schedule 40).
- D. Square and Rectangular Aluminum Tube:
  1. ASTM B221.

2.02 FENCE FABRIC

- A. Steel Chain-Link Fabric: ASTM A392. Fabric shall be galvanized before weaving.
  1. Wire Size: Nine gage.
  2. Mesh Size: Two inches.
  3. Nominal Fabric Height: As shown or indicated.
  4. Selvage: Knuckled at top, twisted at bottom.
- B. Provide fence fabric imprinted with manufacturer's trade name, country of origin, core wire gage, and finished outside diameter gage.

2.03 FENCE FRAMEWORK

- A. Steel Fence Framework: ASTM F1043, Group IA. Provide posts and rails of the following minimum sizes:
  1. End, Corner, and Pull Posts: Provide posts of the minimum sizes indicated in Table 32 31 13-A:

**TABLE 32 31 13-A  
MINIMUM TERMINAL POST SIZE**

Nominal Fence Fabric Height	Post OD (inches)	Post Weight (pounds per linear foot)
Up to Six Feet	2.375	3.65
Over Six Feet to Eight Feet	2.875	5.79
Over Eight Feet to 10 Feet	3.500	7.58

2. Line Posts: Provide posts of the minimum sizes indicated in Table 32 31 13-B:

**TABLE 32 31 13-B  
MINIMUM LINE POST SIZE**

Nominal Fence Fabric Height	Post OD (inches)	Post Weight (pounds per linear foot)
Up to Six Feet	1.900	2.72
Over Six Feet to Eight Feet	2.375	3.65
Over Eight Feet to 10 Feet	2.875	5.79

3. Top Rail: 1.660-inch OD pipe weighing 2.27 pounds per linear foot. Furnish in manufacturer's longest lengths.
4. Brace Rail: 1.660-inch OD pipe weighing 2.27 pounds per linear foot.

2.04 GATES

- A. Swing Gates: ASTM F900.
  1. Gate Framework: ASTM F1043, Group IA. Provide framework of the minimum sizes indicated in Table 32 31 13-C:

**TABLE 32 31 13-C  
MINIMUM SWING GATE FRAME MEMBER SIZE**

<b>Frame Member</b>	<b>Member OD (inches)</b>	<b>Member Weight (pounds per linear foot)</b>
Nominal Gate Fabric Height Up to Six Feet:		
Perimeter Frame	1.660	1.83
Interior Bracing	1.660	1.83
Nominal Gate Fabric Height Over Six Feet:		
Perimeter Frame	1.900	2.28
Interior Bracing	1.660	1.83

2. Provide gate frames with intermediate horizontal rails. Provide additional horizontal and vertical members to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Space so that frame members are not more than eight feet apart.
3. Gate Hardware: Gate hardware shall be of sufficient strength and durability to support the gate and repeated open-close cycles.
  - a. Gate Hinges: Provide non-lift-off-type hinges of galvanized pressed steel. Hinges shall permit the gate to swing a full 180 degrees inward.
  - b. Gate Latch: Provide forked-type latch of galvanized pressed steel to permit operation from either side of gate, with padlock eye as integral part of latch. Latch shall be capable of retaining gate in closed position and shall have provision for padlock.
4. Assemble gate frames by welding or with special malleable or pressed steel fittings and rivets for rigid connections. Use same fabric as provided for fence. Install fabric with tension bars at vertical edges. Attach tension bars to gate frame with tension bands spaced not more than 15 inches on centers. Attach hardware with rivets or by other means that will provide security against removal and breakage.
5. Gate Posts: ASTM F1043, Group IA. Provide posts of the minimum sizes indicated in Table 32 31 13-D:

**TABLE 32 31 13-D  
MINIMUM SWING GATE POST SIZE**

<b>Gate Leaf Width</b>	<b>Post OD (inches)</b>	<b>Post Weight (pounds per linear foot)</b>
Nominal Gate Fabric Height Up to Six Feet:		
Up to Four Feet	2.375	3.11
Over Four Feet to 10 Feet	2.875	4.64
Over 10 Feet to 18 Feet	4.000	8.65
Nominal Gate Fabric Height Over Six Feet:		
Up to Six Feet	2.875	4.64
Over Six Feet to 12 Feet	4.000	8.65
Over 12 Feet to 18 Feet	6.625	18.02
Over 18 Feet to 24 Feet	8.625	27.12

- B. Cantilever Slide Gates: ASTM F1184, Type II, Class 2.
  1. Gate Framework: ASTM B221. Fabricate gate perimeter frames of square or rectangular extruded aluminum-alloy tubing in accordance with manufacturer's design and based on gate opening and height. Top horizontal member shall be one-piece precision extruded structural section with integral enclosed track to accommodate truck assemblies. Provide additional vertical members to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Space so that frame members are not more than eight feet apart.
  2. Gate Hardware: Gate hardware shall be of sufficient strength and durability to support the gate and repeated open-close cycles.

- a. Provide manufacturer's internal truck assemblies, hanger brackets, guides, stays, bracing, and accessories as required. Internal truck assemblies shall be self-aligning, factory lubricated and sealed ball-bearing wheels. Each internal roller truck assembly shall be affixed to hanger bracket by means of a 5/8-inch diameter stainless steel bolt. Attachment of center bolt to truck body shall be by means of a swivel joint to ensure equivalent and consistent loading on all bearing wheels and internal track surfaces throughout the travel of the gate.
  - b. Gate latch shall be capable of retaining gate in closed position and shall have provision for padlock.
  - 3. Assemble gate frames by welding or with special malleable or pressed steel fittings and rivets for rigid connections. Use same fabric as provided for fence. Install fabric with stretcher bars at vertical edges. Bars may also be used at top and bottom edges. Attach stretchers to gate frame at not more than 15 inches on centers. Attach hardware with rivets or by other means that will provide security against removal and breakage.
  - 4. Install diagonal cross-bracing on gates consisting of adjustable-length truss rods provided with turnbuckles to ensure frame rigidity without sag or twist.
  - 5. Gate Posts: ASTM F1043, Group IA. Provide 4.00-inch OD pipe weighing not less than 6.56 pounds per linear foot.
- C. Padlocks: Provide each gate with heavy-duty bronze padlock and shackle chain as follows:
- 1. Product and Manufacturer: Provide one of the following:
    - a. No. 160DHM with 1 1/32-inch marine brass shackle by Master Lock Company.
    - b. Or equal.
  - 2. Provide three keys for each padlock. Where more than one gate is required for same enclosure, padlocks shall be keyed identically.

## 2.05 AUXILIARY FENCING MATERIALS AND ACCESSORIES

- A. Steel Tension Wire: ASTM A824, Type II, Class 4.
- B. Fittings: ASTM F626.
- 1. Post Caps: Galvanized pressed steel, designed to fit snugly over tubular posts and exclude moisture.
    - a. Provide one loop-type cap for each line post.
    - b. Provide one dome-type cap for each terminal post.
  - 2. Rail and Brace Ends: Provide galvanized pressed steel rail and brace ends for each connection of brace or rail to terminal posts.
  - 3. Top Rail Sleeves: Galvanized pressed steel or round steel tubing with minimum thickness of 0.051 inch and minimum length of six inches. Provide one sleeve for each length of rail.
  - 4. Tie Wires and Clips:
    - a. Tie Wires: Nine-gage galvanized steel wire with Class 3 or A coating in accordance with ASTM A641/A641M.
    - b. Hog Rings: 12-gage galvanized steel wire with Class 3 or A coating in accordance with ASTM A641/A641M.
  - 5. Tension and Brace Bands:
    - a. Tension Bands: Galvanized pressed steel with minimum thickness of 0.074 inch (14 gage) and minimum width of 3/4 inch.
    - b. Brace Bands: Galvanized pressed steel with minimum thickness of 0.105 inch (12 gage) and minimum width of 3/4 inch.
  - 6. Tension Bars: Galvanized, merchant-quality steel in one-piece lengths equal to full height of fabric, with minimum cross-section of 3/16 inch by 3/4 inch. Provide one tension bar for each gate and end post, and two tension bars for each corner and pull post.

7. Truss Rod Assembly: Galvanized, merchant-quality steel rod with minimum diameter of 3/8 inch, complete with pressed steel tightener.

C. Concrete:

1. Materials:
  - a. Portland Cement: ASTM C150/C150M, Type II.
  - b. Aggregates: ASTM C33/C33M, Class Designation 4S.
  - c. Water: Clean, potable.
  - d. Chemical Admixtures: Provide chemical admixtures in accordance with product manufacturer's published instructions. Admixtures shall be compatible with each other. Do not use calcium chloride or admixtures containing chloride ions. Use only admixtures that have been tested and approved in the mix design.
2. Concrete Mix:
  - a. Normal Weight: 145 pounds per cubic foot.
  - b. Entrained Air: Six percent, plus-or-minus one percent.
  - c. Minimum Compressive Strength at 28 Days: 3,000 psi.
  - d. Maximum Water-Cement Ratio by Weight: 0.50.
  - e. Minimum Cement Content: 517 pounds per cubic yard.
  - f. Slump Limits: Proportion and design mix to result in concrete slump at point of placement of not less than one inch and not more than four inches.

D. Privacy Screens:

1. Provide privacy screens for all fencing.
2. Requirements:
  - a. Size: Match to height of fence fabric.
  - b. Color: Green or black.
  - c. Opacity: 85 percent, minimum.

## 2.06 FINISHING

A. Galvanized Finish:

1. Provide galvanized finish for all fencing components. Zinc for galvanizing shall be of High Grade or Special High Grade conforming to ASTM B6 with maximum aluminum content of 0.01 percent.
2. Galvanize metal using hot-dip process in accordance with the following:
  - a. Steel Wire:
    - 1) Chain-Link Fabric and Tension Wire: ASTM A817.
    - 2) Tie Wires and Hog Rings: ASTM A641/641M.
  - b. Steel Pipe: ASTM A53/A53M.
  - c. Fittings: ASTM F626.
  - d. Hardware and Accessories: ASTM A153/A153M.
3. Provide minimum weights of zinc as follows:
  - a. Steel Wire:
    - 1) Chain-Link Fabric and Tension Wire: 1.20 ounces of zinc per square foot of uncoated wire surface, as determined by ASTM A90/A90M.
    - 2) Tie Wires and Hog Rings: 0.90 ounce of zinc per square foot of uncoated wire surface, as determined by ASTM A90/A90M.
  - b. Steel Pipe: 1.80 ounces of zinc per square foot. Apply Type A coating both inside and outside according to ASTM F1043, as determined by ASTM A90/A90M.
  - c. Fittings: 1.20 ounces of zinc per square foot of surface area, as determined by ASTM A90/A90M.
  - d. Hardware and Accessories: Zinc weights in accordance with Table 1 of ASTM A153/A153M.



- B. Welded Joints:
  - 1. Repair zinc coatings at welded joints by applying zinc-rich paint, as specified in ASTM A780/A780M.

## 2.07 SOURCE QUALITY CONTROL

- A. Fabrication Tolerances: Fabric, posts, rails, and other supports shall be straight or uniformly curved to provide the profiles shown, to dimensional tolerance of 1/16 inch in 10 feet without warp or rack in the finished Work.

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Examine the areas and conditions under which the Work will be erected and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.

### 3.02 PREPARATION

- A. Confirm that areas to receive fencing are at proper elevations and that no further earthwork is required to bring the subgrade to proper elevations.
- B. Confirm that property lines and legal boundaries of Work are clearly established before initiating the installation of fencing.

### 3.03 INSTALLATION

- A. Comply with ASTM F567. Do not begin installation of fencing until final grading is completed.
- B. Post Locations:
  - 1. Space line posts equidistant at intervals not exceeding 10 feet on centers.
  - 2. Set terminal posts at the beginning and end of each continuous length of fence and at abrupt changes in vertical and horizontal alignments.
- C. Setting Posts:
  - 1. Posts shall be set in concrete footings, except as otherwise shown or specified.
  - 2. Excavate or drill holes of diameters and depths specified for post footings in firm, undisturbed or compacted soil.
    - a. End, Corner, Pull, and Line Posts: Provide post holes excavated or drilled approximately three inches deeper than bottom of post, with bottom of posts set not less than two feet below finished grade plus an additional three inches for each one-foot increase in fence height over four feet. Hole diameter shall be not less than four times the largest cross-section of post to be installed.
    - b. Gate Posts: Provide post holes excavated or drilled approximately six inches deeper than bottom of post. Hole diameter shall be not less than four times the largest cross-section of post to be installed.
      - 1) Swing Gates: Bottom of posts shall be set not less than two feet below finished grade plus an additional three inches for each one-foot increase in fence height over four feet.
      - 2) Cantilever Slide Gates: Bottom of posts shall be set not less than three feet below finished grade.

3. When solid rock or concrete is encountered at ground surface, drill into rock or concrete at least 12 inches for line posts and at least 18 inches for end, corner, pull, and gate posts. Hole diameter shall be a minimum of one inch greater than the largest cross-section of post to be installed.
4. If solid rock or concrete is below soil overburden, drill to full depth required, except penetration into rock or concrete need not exceed the minimum depths specified for rock or concrete encountered at ground surface.
5. Remove loose and foreign materials from sides and bottoms of holes, and moisten soil prior to placing concrete.
6. Center and align posts in holes three or six inches above bottom of excavation, as specified.
7. Place concrete around posts in continuous pour, and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
8. Extend concrete to two inches above ground surface, or to two inches below ground surface if cover of sod, bituminous asphalt paving, or other material is shown or indicated to conceal concrete. Crown to shed water away from posts.
9. Extend footings for gate posts to underside of bottom hinge. Set keeps, stops, sleeves, and other accessories into concrete as required.
10. Keep exposed concrete surfaces moist for at least seven days after placement, or cure with membrane curing materials, or other acceptable curing method.
11. Allow concrete to attain at least 75 percent of its minimum 28-day unconfined compressive strength, but in no case sooner than seven days after placement, before installing rails, tension wires, or chain-link fabric.
12. Do not stretch and tension fabric and wires, and do not hang gates, until concrete has attained its full design strength.
13. Provide caps on top of each post to exclude moisture and to receive top rail.

D. Rails and Braces:

1. Top Rails: Run rail continuously through post caps or extension arms, bending to radius for curved runs. Provide expansion couplings as recommended by fencing manufacturer to form continuous rail between terminal posts.
2. Brace Assemblies: Provide brace assemblies at end and gate posts, and at both sides of corner and pull posts, with horizontal brace located at mid-height of fabric. Diagonal bracing, consisting of adjustable-length truss rods, shall run from center of first line post to bottom of terminal post. Install brace assemblies so posts are plumb when diagonal rod is under proper tension.

E. Tension Wire:

1. Install tension wire within bottom six inches of chain-link fabric.
2. Stretch tension wire taut and free of sag, from end to end of each stretch of fence, and secure to terminal posts with brace bands.
3. Fasten tension wire to each line post with tie wire.

F. Chain-Link Fabric:

1. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.
  - a. Fasten to terminal posts and gate posts with tension bars threaded through mesh and secured with tension bands at maximum intervals of 15 inches.
  - b. Fasten to line posts, gate frames, and rails with tie wires spaced at maximum intervals of 15 inches on posts and 24 inches on rails.
  - c. Fasten to tension wire with hog rings spaced at maximum intervals of 24 inches.
2. Leave approximately two inches between finished grade and bottom selvage, except where bottom of fabric extends into concrete.

3. Join roll of chain-link fabric by weaving a single picket into the ends of roll to form continuous mesh.

G. Gates:

1. Install gates plumb, level, and secure for full opening without interference.
2. Adjust hardware for smooth operation and lubricate where necessary.

- H. Tie Wires: Use "U"-shaped wires conforming to diameter of pipe. Clasp pipe and fabric firmly with ends twisted at least two full turns. Bend ends of wire to minimize hazard to persons and clothing.

- I. Fasteners: Install nuts for tension band and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

- J. Privacy Screens: Install privacy screens in accordance with manufacturer's instructions.

### 3.04 ADJUSTMENT AND CLEANING

- A. Repair coatings damaged in the shop or at the Site by recoating with manufacturer's recommended repair compound, applied in accordance with manufacturer's directions. Repair hot-dip galvanized coatings in accordance with ASTM A780/A780M.
- B. Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, and malfunction throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- C. Lubricate operating equipment and clean exposed surfaces.
- D. Repair and replace broken or bent components.

END OF SECTION

## SECTION 46 07 53

### TEMPORARY WATER TREATMENT SYSTEM

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION

###### A. Scope:

1. Contractor shall satisfy themselves of existing site conditions and potential influent water conditions in order to satisfy the requirements herein.
2. Provide all labor, materials, equipment, and incidentals required to furnish, install, test, and place into satisfactory operation, a temporary water treatment system. Include the material, equipment and incidentals required to: collect, store, convey, treat, and discharge all liquids generated during performance of the Work including, but not be limited to, the following:
  - a. Rainfall runoff that accumulates in excavation or containment areas.
  - b. Direct precipitation in excavation or containment areas.
  - c. Water generated from dewatering activities.
  - d. Water generated from decontamination activities.
  - e. Groundwater/surface water encountered during remedial activities.
  - f. Other water generated during remedial activities that may be considered impacted or as directed by the Engineer.
3. Provide all labor, materials, equipment, and incidentals required to provide power, and to operate and maintain the temporary water treatment system.
4. Select components for the temporary water treatment system, that at a minimum, meets the performance standards, and operational intent established herein.
5. Submit the proposed temporary water treatment system design with proposed components to the Engineer as described in Article 1.04.

B. Coordination: Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with, or before the temporary water treatment system.

###### C. Related Sections:

1. Section 31 23 00 – Excavation and Fill

##### 1.02 REFERENCES

###### A. Standards referenced in this Section are listed below:

1. American Society of Mechanical Engineers, (ASME).
2. American Society for Testing and Materials, (ASTM).
3. U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA) (Safety and Health Standards 29 CFR 1910/1926).

##### 1.03 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Equipment manufacturers shall have a minimum of five years' experience producing substantially similar equipment and shall be able to show evidence of at least five installations in satisfactory operation for at least five years.

B. Contractor's Qualifications: Contractor shall have a minimum of ten years' experience with identifying treatment components, assembling water treatment systems, operating and

maintaining water treatment systems and successfully complying with discharge requirements in New York State.

- C. Treatment System Operators: Treatment system operators shall have a minimum of ten years' experience operating, monitoring and maintaining water treatment systems in New York State. Contractor shall at minimum identify a primary and a secondary water treatment system operator for the project.
- D. Component Compatibility: All components shall be specifically constructed for the specified service conditions and shall be integrated into the overall assembly by Contractor.

#### 1.04 SUBMITTALS

- A. Action Submittals: Submit the following:
  - 1. Piping and Instrumentation Diagram and specifications for all proposed temporary water treatment system components.
  - 2. Shop Drawings: Complete layout and installation drawings for the equipment showing mounting details, dimensions, fitting locations, materials of construction, containment details, etc. Submit manufacturer's literature, catalog cuts, and specifications for major equipment, and for all appurtenances (piping, valves, instrumentation, etc.) showing performance data, electrical wiring and control diagrams, installation and operation Instructions, and applicable certifications.
  - 3. Operation and Maintenance Manual: Complete Operation and Maintenance Manual, including, but not limited to the following (as applicable): description of operation, start-up and testing procedures; normal (daily) operational procedures; normal and emergency shut down procedures; alarm responses; maintenance data and schedules; daily log sheet; equipment manufacturer's manuals; sampling plan and schedule; manufacturer's recommended spare parts inventory; and calibration and alignment information.
  - 4. Provide the following information on a daily basis to the Engineer:
    - a. Volume of water treated
    - b. Daily log sheets
    - c. Analytical results received (if any)
    - d. Identification of upset events and corrective measures taken

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Packing, Shipping, Handling and Unloading: Deliver materials to the Site to ensure uninterrupted progress of the Work.
- B. Storage and Protection: Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.
- C. Acceptance at Site: All boxes, crates and packages shall be inspected by Contractor upon delivery to the Site. Contractor shall notify Engineer, in writing, if any loss or damage exists to equipment or components. Replace loss and repair damage to new condition in accordance with manufacturer's instructions.

## PART 2 – PRODUCTS

### 2.01 EQUIPMENT PERFORMANCE

#### A. General:

1. Design the temporary water treatment system to treat collected liquids at a maximum flow rate of 200 gallons per minute (gpm).
2. Design the temporary water treatment system to operate in “batch mode” during start-up and “continuous discharge” mode once compliance has been demonstrated.
3. If the Contractor does not intend to have continuous on-site operation of the temporary treatment system, necessary instrumentation, controls, alarms, or telemetry will be required to respond to potential alarm conditions that could cause a non-compliance of effluent or downstream water quality.
4. Winterize the system as needed to protect equipment, pipes, and other components from damage during periods of freezing weather.
5. Locate and operate the water treatment system within the Project Work Limits on a level and appropriate base to support the temporary water treatment system equipment when full and operational. Base construction to be determined by the Contractor.
6. Operate the temporary water treatment system within spill containment berms appropriate for the treatment system equipment to collect miscellaneous water that may leak/leave the treatment system prior to treatment (e.g., due to leaks in hoses or pipe connections). Any water that accumulates within the containment berms shall be collected and treated by the water treatment system. Non-contact water in the lined staging area may be removed and discharged without treatment unless system leaks or other conditions are observed that would render the water “contact water”.
7. Size spill containment berms to be capable of containing a minimum of 110% of one effluent storage tank (approximately 21,000 gallons), and a one-year, 24-hour storm event of approximately 2 inches. Management of water will be to satisfaction of the Engineer.
8. The water treatment system shall be surrounded by orange construction fence.

### 2.02 CONCEPTUAL EQUIPMENT

#### A. Temporary Water Treatment System Components

1. The Contractor shall select the components of the temporary water treatment system to meet the downstream discharge requirements of the SPDES equivalent discharge permit. Conceptual treatment components are anticipated to include:
  - a. Influent flow equalization; primary settling; and oil-water separation
  - b. Clarification
  - c. Primary filtration
  - d. Liquid-phase adsorption treatment
  - e. Polishing filtration
  - f. Effluent equalization
  - g. Associated piping, hosing, valves, meters, appurtenances and spare parts as deemed necessary to maintain continuous operation of the treatment system when necessary

## PART 3– EXECUTION

### 3.01 GENERAL

- A. Install, operate, and maintain temporary water treatment system in accordance with the Contract Documents, approved submittals, and manufacturer's instructions and requirements; and so as to not exceed the substantive requirements for water discharge limitations (to be determined based on permit requirements obtained prior to remedial construction).
- B. Provide dedicated water treatment system operator, and designated backup, to monitor and operate the treatment system as specified herein.

### 3.02 TESTING AND STARTUP ACTIVITIES

- A. Perform temporary water treatment system startup, testing, and troubleshooting activities prior to initiating full scale (normal) operations. Conduct startup and testing activities in accordance with equipment manufacturer's recommendations and as indicated in Contractor-prepared O&M Manual which has been reviewed by Engineer.
- B. Treat a minimum of 20,000 gallons of water collected from the first proposed excavation area (i.e., water that has been in contact with soil to be disturbed). During the startup test, operate the temporary water treatment system at the maximum flow rate until the entire 20,000-gallon batch is treated. Continuously monitor and record readings (every 30 minutes minimum) from all pressure gauges, flow meters, and other installed instrumentation necessary to demonstrate that the system is operating as designed, including backwash, by-pass, and recycle functions, to the satisfaction of Engineer.
- C. The Contractor will collect start-up testing water samples representative of the 20,000 gallons of water treated. Retain the entire 20,000 gallons of treated water in the effluent storage tank(s) until analytical results indicate that water may be discharge in accordance with the SPDES Permit Equivalent. The Contractor will submit samples collected during start-up for laboratory testing based on the parameter list presented in the following table:

**TABLE 01 53 53-B  
START-UP TESTING REQUIREMENTS**

<b>Parameter – USEPA Method No.</b>	<b>Influent/Effluent</b>	<b>Mid-Process</b>
pH	Yes	Yes
Volatile Organic Compounds (VOCs) – 624	Yes	Yes
Semi-Volatile Organic Compounds (SVOCs), including PAHs - 625	Yes	Yes
4,4-DDD – 8081A	Yes	Yes
4,4-DDE – 8081 A	Yes	Yes
4,4-DDT – 8081 A	Yes	Yes
Metals – 200.7 (total unless otherwise indicated)	Yes	Yes
Arsenic (dissolved)		
Cadmium		
Chromium VI		
Copper		
Lead		
Nickel		
Zinc		
Perfluorooctanoic acid (PFOA) - 537, Version 1.1	See Note 3	
Perfluorooctanesulfonic acid (PFOS) - 537, Version 1.1	See Note 3	

**Notes:**

1. Actual parameter list, methods, and testing requirements will be dictated by the SPDES Permit Equivalent to be obtained for discharging treated water.
2. Collect mid-process samples downstream of the primary filtration, adsorption treatment, and polishing filtration. If the treatment train is divided into parallel streams, collect samples from each parallel stream. Collect samples during general startup testing of the system and during normal operations. Some or all of these mid-process locations may be eliminated as operating experience is gained.
3. Monitoring for PFOA and PFOS shall occur after the first of two granular activated carbon (GAC) filters in series.

- D. Contractor will retreat water and may be directed by the Engineer to treat additional water to demonstrate the ability of the treatment system to meet discharge criterion.

**3.03 EXCAVATION DEWATERING**

- A. Provide all labor, materials, and equipment to remove accumulations of groundwater, direct precipitation, or run-off that inhibit excavation activities, compromise the integrity of the excavation, or when directed by the Engineer.
- B. Transport or convey the water to the temporary water treatment system for processing.

**3.04 COLLECTION OF LIQUIDS**

- A. Collect and transfer liquid that requires treatment to the temporary water treatment system. Collect water in an area-specific manner that prohibits the spillage, leakage, or other release of liquid.
- B. Maintain timely and accurate records concerning the volumes and areas from which accumulated liquids are removed and transported to the temporary water treatment system.



- C. Decontaminate equipment utilized to collect/handle accumulated liquids, including pumps, tanks, and tanker trucks, as appropriate, prior to removal from the Site.

3.05 SYSTEM MONITORING

A. WATER QUALITY TESTING

1. Collect temporary water treatment system water quality sampling during normal operations in accordance with the SPDES Permit Equivalent. Samples will be submitted for laboratory analysis for the parameters in Table 01 53 53-B and are anticipated to require meeting the following discharge limits (actual discharge limits will be dictated by the SPDES Permit Equivalent):

Parameter	Discharge Limit <sup>1</sup> (ug/L)
pH	6.5 – 8.5
Individual VOCs	10
Individual SVOCs	10
Individual PAHs	10
4,4-DDD	0.02
4,4-DDE	0.01
4,4-DDT	0.05
Arsenic (dissolved)	63
Cadmium	7.7
Chromium VI	54
Copper	5.6
Lead	2.5
Nickel	1.7
Zinc	66
PFOA	*
PFOS	*

**Notes:**

- Actual discharge limits and other requirements will be dictated in the SPDES Permit Equivalent to be obtained for discharging treated water.
- \* = Monitoring for PFOA and PFOS shall occur after the first of the two GAC filters in series. Upon receipt of the analytical results for PFOA or PFOS with detectable levels at or above the Lowest Concentration Minimum Reporting Level (LCMRL), discharge shall cease and the lead GAC filter shall be replaced using the following step-wise procedure:
  - Lead GAC filter shall be removed
  - Second GAC filter shall be the lead filter
  - New GAC filter shall be installed in the lag position
 Once this procedure is complete – treatment, discharge, sampling and testing may resume.

B. ROUTINE MONITORING

- The Contractor shall initially manually operate and control the temporary water treatment system through a series of valves, visual reading gauges, and pump controls as necessary to accommodate system operation. Provide an experienced on-site operator and designated back up operator during temporary water treatment system operation. The operator shall not have other duties that interfere with the manual operation of the temporary water treatment system while the system is operating. The Contractor may elect to add/implement additional controls and alarms approved by Engineer to eliminate (or reduce) the need for a dedicated on-site system operator as operating experience is gained.
- The Contractor-prepared O&M manual shall describe the routine activities to be conducted at least once per shift by the temporary water treatment system operator.

Activities should be in accordance with equipment manufacturer's requirements and recommendations. Those activities shall include, but not be limited, to the following:

- a. Verifying that valves are positioned properly, to fill and drain the tanks as applicable.
- b. Visually inspecting piping, hoses, and valves noting damage, leakage, or other defects.
- c. Visually inspecting storage tanks noting water levels, damage, leakage, corrosion, or other defects. Gauge and record the sediment thickness in the bottom of the tank when tanks are emptied. If sediment is observed to be 4 inches deep, or if directed by Engineer, clean the tank. Treat all liquids resulting from cleaning activities using the temporary water treatment system and collect solids for subsequent disposal.
- d. Visually inspecting pumps and equipment noting excessive noise or vibration, damage, leakage, corrosion, or other defects.
- e. Obtaining readings from temporary water treatment system pressure gauges associated with the different treatment processes within the treatment train(s). Pressure gauge readings shall be utilized to determine when a backwash event or filter replacement is required, or a particular treatment unit is not functioning properly.
- f. Obtaining readings from the system flow meter totalizer to monitor system flow rate, totalized flow to date, and daily flow total.
- g. Visually inspecting containment liner noting damage, standing water, or other issues.
- h. Collecting, at a minimum once per day, water quality field data consisting of turbidity and pH measurements to provide indications of system performance. As operating experience is gained and following approval of Engineer, Contractor may reduce the frequency of the monitoring. Samples shall be collected in the individual treatment trains at the following locations:
  - 1) Influent flow equalization/primary settling/oil-water separation
  - 2) Upstream of clarification
  - 3) Upstream of primary filtration
  - 4) Upstream of adsorption treatment
  - 5) Downstream of adsorption treatment
  - 6) Downstream of polishing filtration
- i. Document the above information on the daily log sheet.

### 3.06 CORRECTIVE ACTIONS

- A. At the direction of Engineer, take corrective actions necessary to maintain specified treatment system performance in the event of an upset condition and/or operating conditions that result in non-compliant effluent water quality. During corrective actions, the Contractor may be required by Engineer to mobilize additional effluent storage tanks, improved equipment, and/or repeat start-up and testing procedures as specified herein. If Contractor fails to make these corrections, or if the improved equipment fails to meet specified requirements, Owner, notwithstanding having made partial payment for work and materials which have entered into the manufacture of said equipment, may reject said equipment and order the Contractor to remove it from the premises at the Contractor's expense. Correction of the water treatment system and water management to facilitate timely and compliant completion of the project is solely the responsibility of the Contractor at no additional cost to the Owner.

### 3.07 DOCUMENTATION

- A. Maintain a daily operations log (i.e., tabulated results) recording the process variables listed in Article 1.04. Also document in the daily log all temporary water treatment system O&M activities. Maintain the daily log onsite and make available to Engineer on demand.

END OF SECTION

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