SECTION 33 01 00

SITE WATER SUPPLY

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Furnish and install 1” domestic cold water service pipe from the new connection to ground hydrants, fittings, and appurtenances.

B. Furnish and install gate valves (4).

C. Trench excavation and backfill is specified in section 31 2200.

D. Furnish and install ground hydrants (4).

E. Connection to existing 1 1/2” cold water service (1).

F. Replace in kind building-mounted hose bibs with new (4).

1.02 REFERENCES:

A. ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures (modified proctor).

B. AWWA C901 - ADS potable water service pipe and fittings (SIDR 15).

C. AWWA C550 – Fusion epoxy coated surfaces.

1.03 SUBMITTALS:

A. Product Data: Contractor shall submit manufacturer's technical product data and installation instructions for all pipe materials, pipe fittings, valves and accessories.

B. Record Drawings: At project closeout, contractor shall submit as-built drawings of installed water line and appurtenances. Record actual locations of piping, valves, connections and invert elevations.

C. Manufacturer’s Certificate: Contractor shall certify that all products of this section meet or exceed specified requirements.

D. Contractor shall identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.04 REGULATORY REQUIREMENTS:

A. Comply with all local and state water supply permits and/or approval requirements.

B. Plumbing Code Compliance: Conform to applicable portions of the National Standard Plumbing Code and local codes pertaining to selection and installation of water supply system's materials and products.

1.05 QUALITY ASSURANCE:

A. All materials and construction methods for work of this section shall comply with details and specifications set forth by the NYSDEC, NYSDOH, and the AWWA standards.

B. Valves: Manufacturer's name and pressure rating marked on valve body.

1.06 DELIVERY, STORAGE, AND HANDLING:

A. Extreme care shall be taken in the handling of pipe and appurtenances. Under no circumstances shall such material be dropped, rolled or skidded against another pipe. All slings, hooks or pipe tongs shall be used in such a manner to prevent damage of the pipe. Handling pipe from the interior pipe wall is prohibited.

B. Deliver and store valves in shipping containers with labeling in place.

PART 2 - PRODUCTS

2.01 WATER PIPE:

A. ADS potable water service pipe and fittings (SIDR 15) shall meet the requirements of ASTM D2239, AWWA C901 and NSF standards 14 and 61. Pipe dimensions shall meet Iron Pipe Size (IPS) standards.

B. Pipe material shall be high-density polyethylene conforming to the minimum requirements of cell classification 345464C as defined and described in ASTM D3350.

C. Disinfection and sampling tap shall use 3/4” Type K copper tubing, annealed, conforming to ASTM B88. The active chlorine content of disinfecting solutions shall not exceed 12%. All disinfecting solutions shall be flushed from all lines within the system.

2.02 GATE VALVES:

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. 1” Gate Valve (drainable):

Ball valve with stop and waste, Ford Meter Box Co. model# BC22-333SW-NL or approved equal.

The valve shall have a curb box extension type with arch pattern base. Ford Meter Box Co. model# EA2-50-50 or approved equal.

2.03 GROUND HYDRANTS:

A. MODEL:

1. Rainbird 44LRC - 44 Model 1 in. Quick Coupling Valve with Locking Rubber Cover 2-Piece Body.
2. Rainbird 1" ACME NP QCV | 1" ACME KEY.
3. Rainbird VB-10RND, 10" Round Valve Box.

2.04 PIPE BEDDING, HAUNCH AND FILL MATERIALS:

A. As specified in Section 31 1100 and as indicated on the drawings.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on the drawings.

B. Verify that the park water main size, location, and invert are as indicated. Notify the Director’s Representative immediately if field conditions vary substantially from the Contract Documents.

3.02 PREPARATION:

A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare pipe connections to equipment with flanges or unions.

3.03 BEDDING:

A. Excavate pipe trench in accordance with Section 31 2200. Hand trim excavation for accurate placement of pipe to elevations indicated.

B. Place pipe bedding at trench bottom, level fill materials in one continuous layer not exceeding the capability of the compaction equipment. Compact to 95% maximum

density.

C. Backfill around sides and to top of pipe with cover fill, tamp in place and compact to 95 percent maximum density.

D. Maintain suitable moisture content of bedding and backfill material to attain required compaction density.

3.04 INSTALLATION OF PIPE AND PIPE FITTINGS:

A. All water pipe shall have a minimum of 4' of cover.

B. Maintain vertical and horizontal separation of water mains in accordance with the following:

1. Horizontal separation - Whenever possible, water lines should be laid at least 10 Feet (edge to edge) from any existing or proposed sewer. Should local conditions prevent this lateral separation, a water line may be laid closer if;

   a) It is in a separate trench.

   b) It is laid in the same trench as the sewer and located on a bench of undisturbed earth. In either case, the elevation of the crown of the sewer is at least 18 inches below the bottom of the water main.

2. Vertical separation - Whenever water lines must cross a sewer, the water line shall be laid at such an elevation that the outside of the sewer pipe is at least 18" from the outside of the water line. One full length of water line should be centered over the sewer so that both ends will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.

C. All water lines and appurtenances shall be installed in a dry trench. Under no circumstances shall ground water be allowed to enter the water line. When construction is not in progress, the open ends of the pipe shall be closed by a watertight plug or cap.

D. Install pipe to allow for expansion and contraction without stressing pipe or joints.

E. Install access fittings to permit disinfection of water system.

F. Form and place concrete for thrust restraints at each elbow or change of direction of pipe main.

G. When using retainer glands, any joint deflection should be taken prior to tightening any bolt. Deflection at any joint shall not exceed 3 degrees.

H. Backfill trench in accordance with Section 31 2200.

3.05 GATE VALVES AND ACCESSORIES:

A. Install as per manufacturer’s recommendations and in accordance with the plans.

3.06 CLEAN-UP:

A. Clean-up and remove all excess materials and debris as a result of work of this section, from the Owner’s property.

END OF SECTION

SECTION 33 01 10

DISINFECTION OF WATER SUPPLY SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Disinfection and pressure testing of the water distribution system.

B. Testing and reporting results.

1.02 REFERENCES:

A. AWWA (American Waterworks Association) B300 - Standard for Hypochlorites.

B. AWWA (American Waterworks Association) B301 - Standard for Liquid Chlorine.

C. AWWA (American Waterworks Association) B302 - Standard for Ammonium Sulfate.

D. AWWA (American Waterworks Association) B303 - Standard for Sodium Chlorite.

E. AWWA (American Waterworks Association) C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

F. AWWA (American Waterworks Association) C651 - Standards for Disinfecting Water Mains.

1.03 SUBMITTALS:

A. Test Reports: Indicate results comparative to specified requirements.

B. Certificate: Certify that cleanliness of water distribution system meets or exceeds specified requirements.

1.04 PROJECT RECORD DOCUMENTS:

A. Disinfection Report:

1. Type and form of disinfectant used.
2. Date and time of disinfectant injection start and time of completion.
3. Test locations.
4. Name of person collecting samples.
5. Initial and 24 hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.
6. Date and time of flushing start and completion.
7. Disinfectant residual after flushing in ppm for each outlet tested.

B. Bacteriological Report:

1. Date issued, project name, and testing laboratory name, address, and telephone number.
2. Time and date of water sample collection.
3. Name of person collecting samples.
4. Test locations.
5. Initial and 24 hour disinfectant residuals in ppm for each outlet tested.
6. Coliform bacteria test results for each outlet tested.
7. Certification that water conforms, or fails to conform, to bacterial standards of NYSDOH.

1.05 QUALITY ASSURANCE:

A. Perform Work in accordance with AWWA C651.

B. Maintain one copy of each document on site.

C. Water Treatment Firm: Company specializing in disinfecting potable water systems specified in this section with minimum three years documented experience.

D. Testing Firm: Company specializing in testing potable water systems, certified by the state of New York.

E. Submit bacteriologist's signature and authority associated with testing.

PART 2 - PRODUCTS

2.01 DISINFECTION CHEMICALS:

A. Chemicals: AWWA B300, Hypochlorite, AWWA B301, Liquid Chlorine, AWWA B302, Ammonium Sulfate, and AWWA B303, Sodium Chlorite.

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Verify that piping system has been cleaned, inspected, and pressure tested.

B. Perform scheduling and disinfecting activity with start-up, water pressure testing, adjusting and balancing, demonstration procedures, including coordination with related systems.

3.02 EXECUTION:

A. Provide and attach required equipment to perform the Work of this section.

B. Introduce treatment into piping system.

C. Maintain disinfectant in system for 24 hours.

D. Flush, circulate, and clean until required cleanliness is achieved; use municipal domestic water.

E. Replace permanent system devices removed for disinfection.

F. Pressure test system to 200 psi. Repair leaks and re-test as necessary.

1. After completion of the pipeline installation, including backfill, but prior to final connection to the existing system, conduct, in the presence of the Owner’s Representative, concurrent hydrostatic pressure and leakage tests in accordance with AWWA C600.

2. Provide all equipment required to perform the leakage and hydrostatic pressure tests.

3. The test pressure shall be not less than 200 psi, or 50 psi in excess of maximum static pressure, whichever is greater.

4. The hydrostatic test shall be at least a two-hour duration.

5. No pipeline installation will be approved if the pressure varies by more than 5 psi during the duration of the hydrostatic pressure test.

6. Before applying the test pressure, air shall be expelled completely from the section of piping under test. Corporation cocks shall be installed so that the air can be expelled as the pipeline is being filled with water. After all the air has been expelled, the corporation cocks shall be closed and the test pressure applied. At the conclusion of the tests, the corporation cocks shall be removed and plugged.

7. Slowly bring the piping to the test pressure and allow the system to stabilize prior to conducting the leakage test. Valves shall not be operated in either the opening or closing direction at differential pressures above the rated pressure.

8. All exposed piping, fittings, valves, hydrants, and joints shall be examined carefully during the hydrostatic pressure test. Any damage or defective pipe, fittings, valves, hydrants, or joints that are discovered following the pressure test shall be repaired or replaced with sound material at no cost to the Owner, and test shall be repeated to the satisfaction of the Architect/Engineer.

9. No pipeline installation will be approved if the leakage is greater than that determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{133{,}200}$$

L = the allowable, in gallons per hour

S = the length of pipe tested, in inches

D = the nominal diameter of the pipe, in inches

p = the average test pressure during the leakage test, in pounds per square inch (gauge)

10. If leakage exceeds the rate as determined in Paragraph 9 above, locate the source and make repairs as necessary to the satisfaction of the Owner's Representative.

11. The testing results shall be certified in writing to Hamilton College.

3.03 FIELD QUALITY CONTROL:

A. Disinfection, Flushing, and Sampling:

1. Disinfect the pipeline installation in accordance with AWWA C651, except that liquid chlorine shall not be used.

2. Upon completion of the retention period required for disinfection, flush the pipeline until the chlorine concentration of water leaving the pipeline is no higher than that generally prevailing in the existing system or is acceptable for domestic use.

3. Dispose of the chlorinated water in conformance with all Federal, State and Municipal laws, ordinances, rules, and regulations. If there is any possibility that the chlorinated discharge will cause damage to the environment, then a neutralizing chemical shall be applied to the chlorinated water to neutralize thoroughly the chlorine residual remaining in the water.

4. After final flushing and *before* the pipeline is connected to the existing system, or placed in service, the Contractor shall employ an NYSDOH approved independent testing laboratory to sample, test and certify the water for conformance with the purity standards of the NYSDOH, the United States Environmental Protection Agency and the Federal Clean Water Act Health Standards. Laboratory results shall be forwarded to the Director's Representative.

END OF SECTION

SECTION 33 03 00

STORMWATER MANAGEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Lower existing catch basins (10) where shown on the plans.

B. Furnish and install perforated pipe under the cobble/concrete gutter repair areas as required for pipe repair and replacement as encountered.

C. Furnish and install trench drain.

D. Furnish and install 4" HDPE drain line at cottage entry and from the foundation drains to connection point.

E. Furnish and install 4" perforated HDPE foundation drains.

1.02 REFERENCES

B. ASTM A48 - Cast iron frames and grates.

E. ASTM D3350 - Standard Specifications for polyethylene plastic pipe and fittings.

H. NYSDOT Standard Specifications (latest edition), Section 706-13 – Perforated Corrugated Polyethylene Underdrain Tubing.

1.03 SUBMITTALS FOR REVIEW

A. Product Data: Submit manufacturer's technical product data for all storm sewer pipe materials and fittings.

B. Shop Drawings: Submit shop drawings for trench drain, showing all materials, structure sizes, pipe sizes, all rim and invert elevations, and any other pertinent information.

C. Record Drawings: At project closeout, submit as-built drawings of installed storm sewer system.

1.04 REGULATORY REQUIREMENTS

A. Plumbing Code Compliance: Conform to applicable portions of the National Standard Plumbing Code pertaining to selection and installation of storm sewer system's materials and products.

1.05 COORDINATION

A. Coordinate work of this section with any and all other underground utility work.

1.06 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of storm sewer system's products of types, materials and sizes required, whose products have been in satisfactory use in similar service for not less than five years.

B. Installer's Qualifications: Firm with at least three years of successful installation experience on projects with storm sewer work similar to that required for project.

PART 2 PRODUCTS

2.01 PIPING AND PERFORATED PIPING AND ACCESSORIES

A. Storm Sewer Solid Pipe: Smooth Interior Corrugated High Density Polyethylene Pipe and fittings (HDPE): Shall be high density, corrugated exterior, smooth interior polyethylene pipe in accordance with AASHTO M294 and section 706-14 of the NYSDOT Standard Specifications. Coupling bends shall cover at least one full corrugation on each section of pipe.

B. 4” Dia. perforated Underdrains (HDPE): Shall be high density, corrugated exterior, smooth interior polyethylene pipe in accordance with AASHTO M294 and section 605 of the NYSDOT Standard Specifications. Conforming to NYSDOT Item No. 605.15. Coupling bands shall cover at least one full corrugation on each section of pipe

2.02 TRENCH DRAIN

A. Polymer Concrete trench drain with a 4” clear inside dimension, built in slope, class C loading and ADA compliant grate. Manufactured by ACO USA, or approved equal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate is ready to receive work and that the excavations, dimensions, and elevations are as indicated on the drawings.

3.02 PREPARATION

A. Hand trim excavations to required elevations. Correct over excavation with fine aggregate.

B. Remove large stones or other hard matter that could damage piping or impede consistent backfilling or compaction.

3.03 INSTALLATION OF PIPE AND PIPE FITTINGS

A. Install pipe, fittings, and accessories in accordance with governing authorities having jurisdiction, and manufacturer's instructions. Seal joints silt tight.

B. Inspect piping before installation to detect apparent defects. Extreme care shall be taken in the handling of pipe and appurtenances. Under no circumstances shall such material be dropped, rolled or skidded against another pipe. All slings, hooks, and pipe tongs shall be padded and used in such a manner to prevent damage to the pipe. Handling pipe from the interior pipe wall is prohibited. Mark defective materials with white paint and promptly remove from site.

C. All pipe bedding, haunching and initial backfill materials shall have optimum moisture content suitable for proper compaction. Pipe haunch material shall be manually compacted and the initial backfill shall be mechanically compacted.

D. Lay pipe beginning at low point of system, true to grades and alignment indicated, with unbroken continuity of invert. Contractor shall use a low intensity mobile laser for pipe alignment and grade. The laser must be set up to emit a beam of light through the pipe being installed. The use of a mechanical blower (designed for pipe lines) is required on all runs over 100' long. Using a level to check the elevation of the pipe at various locations is highly recommended. Maximum variation from true slope of 1/8 inch in 10 feet.

E. Place bell ends or groove ends of piping facing upstream.

F. Install initial backfill at sides and over top of pipe and compact. Provide final backfill in 6” lifts compacted to 95 percent maximum density.

G. When required, install gaskets in accordance with manufacturer's recommendations including the use of lubricants, cements and other special installation requirements.

H. Cleaning Pipe: Clear interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag line and pull past each joint as it is completed. In large, accessible piping, brushes and brooms may be used for cleaning.

I. Place plugs in ends of uncompleted conduit at end of day or whenever work stops.

J. Flush lines between drainage structures, if required, to remove collected debris.

K. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.

1. Make inspections after lines between drainage structures have been installed and approximately 2' of backfill is in place, and again at completion of project.

2. If inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects, and re-inspect.

3.04 INSTALLATION OF TRENCH DRAIN

A. Form bottom of excavation clean and smooth to correct elevation. Install concrete collar to the depths and elevations indicated on the plans.

B. Establish rim and invert elevations for inlets and outlets as indicated.

3.05 TOLERANCES

A. Lay pipe to alignment and slope gradients noted on drawings; with maximum variation from true slope of 1/8 inch in 10 feet.

3.06 BACKFILLING

A. Conduct backfill operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.

B. All piping and drainage structures shall be backfilled as per Section 31 2200.

3.07 PROTECTION

A. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

3.08 CLEAN-UP

A. Remove all excess materials and debris from work of this section.

END OF SECTION

SECTION 33 2000

PVC CONDUIT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Installation of 4” schedule 80 PVC conduit.

1.02 REFERENCES

A. National Electric Code, NFPA No. 70-1996.

B. NYS Uniform Fire Prevention and Building Code.

C. Underwriters Laboratory.

D. Local Utility Standards.

1.03 SUBMITTALS

A. Shop Drawings: Submit shop drawings for all components of specified site lighting.

1.04 QUALITY ASSURANCE

A. Manufacturer’s Qualifications: Firms regularly engaged in manufacture of products of types, materials and sizes specified, whose products have been in satisfactory use in similar service for not less than five (5) years.

B. Installer's Qualifications: Firm with at least three years of successful installation experience on projects with work similar to that required.

PART 2 PRODUCTS

2.01 CONDUIT

A. 4” Schedule 80 PVC conduit.

B. Plastic underground utility warning tape.

PART 3 EXECUTION

3.01 JOB CONDITIONS

A. Verify that surfaces on which foundations are to be placed are level, smooth, clean, and otherwise ready to receive the work of this section. Do not proceed until unsatisfactory conditions are corrected.

3.03 CONDUIT

A. Install 1” schedule 80 PVC conduit and hand holes as indicated on the plans.

3.04 PROTECTION

A. Protect work from damage. Repair or replace damaged equipment at no additional cost to the Owner.

END OF SECTION

SECTION 33 31 11
SANITARY SEWERAGE GRAVITY PIPING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes all material and performance requirements for gravity sewer piping materials as called on the drawings, including:
   1. Sanitary sewerage pipe and fittings.
   2. Pipe to manhole connectors.

1.02 REFERENCE STANDARDS

A. The following is a list of standards which may be referenced in this section:
   1. American Water Works Association (AWWA):
      a. C105, Polyethylene Encasement of Ductile Iron Pipe Systems.
      b. C110, Ductile Iron and Gray Iron Fittings, 3 inches through 48 inches, for Water.
      c. C111, Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
      d. C205, Cement-Mortar Protective Lining and Coating for Steel Water Pipe, 4 inches and Larger, Shop-applied.
      e. C208, Dimensions for Fabricated Steel Water Pipe Fittings.
      f. C302, Reinforced Concrete Pressure Pipe, Noncylinder Type.
      g. C900, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 inch through 12 inch, for Water Distribution.
   2. ASTM International (ASTM):
      a. A48, Gray Iron Castings
      b. A74, Cast Iron Soil Pipe and Fittings
      c. A746, Standard Specification for Ductile Iron Gravity Sewer Pipe.
      d. C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
      e. C150, Standard Specification for Portland Cement.
      f. C361, Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
      g. C443, Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
      h. C564, Rubber Gaskets for Cast Iron Soil Pipe and Fittings
      i. C923, Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes
      j. D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
      k. D2241, Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
      l. D2412, Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
      m. D3034, Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

n. D3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
o. E329, Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
p. F477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
q. F679, Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.

3. Cast Iron Soil Pipe Institute (CISPI):
   a. 301, Hubless Cast-Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications
   b. 310, Patented Joint for Use in Connections with Hubless Cast-Iron Sanitary System

1.03 SUBMITTALS

A. Submittals:
1. Manufacturer’s Data: Submit manufacturer's standard drawings or catalog cuts of the following items:
   a. Pipe and fittings
   b. Joints and couplings
2. Certificates of Compliance: Submit for the following:
   a. Pipe and fittings, including factory applied linings
   b. Pipe joint materials

   Certificates shall attest that tests set forth in each applicable referenced publication have been performed, whether specified in that publication to be mandatory or otherwise. Production control tests shall have been performed at the intervals or frequency specified in the referenced publication. Other tests shall have been performed within 3 years of the date of submittal of certificates on the same type, class, grade, and size of material as is being provided for the project.

1.04 DELIVERY, STORAGE, AND HANDLING:

A. Delivery and Storage:
1. Piping: Inspect materials delivered to site for damage; store with minimum of handling. Store materials on site in enclosures or under protective coverings. Store plastic piping and jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.
2. Metal Items: Check upon arrival; identify and segregate as to types, functions, and sizes. Store off the ground in a manner affording easy accessibility and not causing excessive rusting or coating with grease or other objectionable materials.
3. Cement, Aggregate, and Reinforcement: As specified in Section 03 30 00, "Cast-In-Place Concrete".

B. Handling: Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. Take special care

not to damage linings of pipe and fittings; if lining is damaged, make satisfactory repairs. Carry, do not drag, pipe to trench.

PART 2 - PRODUCTS

2.01 CAST IRON (CI)

A. Cast-Iron Hub and Spigot Pipe and Fittings
   1. Conform ASTM A74
   2. ASTM C564 or CISPI HSN 85 rubber compression gasket joints, or calked and leaded joints.

2.02 CONCRETE MATERIALS:

A. Concrete materials shall be as specified in Section 03 30 00, "Cast-In-Place Concrete".

2.03 CLEANOUTS

A. Cleanouts Exterior to Buildings: Provide cast iron cleanouts and countersunk plugs. Provide 24 by 24 by 4 inch thick concrete slab with top 1.0 inch above grade with cleanout located in center of slab.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Notify the Engineer immediately of manufacturing imperfections or damage caused by improper handling.

B. Verify size, pipe condition, and pipe class prior to installation of pipe.

3.02 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION

A. General:
   1. Where the location of the sewer is not clearly defined by dimensions on the drawings, do not lay sewer line closer horizontally than 10 feet to a water main or service line. Where sanitary sewer lines pass below waterlines, lay pipe so that no joint in the sewer line will be closer than 3 feet, horizontal distance, to the waterline.

B. Pipe Laying and Jointing:
   1. Inspect each pipe and fitting before and after installation; replace those found defective and remove from site. Provide proper facilities for lowering sections of pipe into trenches. At the end of each work day, close open ends of pipe temporarily with wood blocks or bulkheads. Provide batter boards not more than 25 feet apart in trenches for checking and ensuring that pipe invert elevations are as indicated. Laser beam method may be used in lieu of batter boards for the same purpose.

C. Cast Iron Soil Piping:
   1. Unless otherwise specified, install pipe and fittings in accordance with paragraph entitled, "Pipe Laying and Jointing" of this Section and with the recommendations of the pipe manufacturer. Make joints with the rubber gaskets specified for cast iron soil pipe joints and assemble in accordance with the recommendations of the pipe manufacturer.
   2. Cleanouts: Construct cleanouts of cast iron soil pipe and fittings with countersunk plugs. Provide 24-inch by 24-inch by 6-inch thick concrete slab with top flush with grade and cleanout located in center of slab.

3.03 FIELD QUALITY CONTROL

A. Field Tests and Inspections:
   1. The Contractor shall perform field tests and provide labor, equipment, and incidentals required for testing.

B. Drainage Piping Leakage Tests:
   1. Subject the entire system to a final hydronic leakage test. Cap the end of the piping at the storage tank inlet, fill the piping with not less than a 10-foot head of water, and allow to stand for a minimum of 3 hours with no measurable leakage. Prior to testing for leakage, backfill trench up to at least lower half of pipe. When leakage or pressure drop exceeds the allowable amount specified, make satisfactory correction and retest pipeline section in the same manner. Correct visible leaks regardless of leakage test results.

END OF SECTION

D005805 Philipse Manor Hall State Historic Site
Construction of Elevator/Restroom Addition, Interior and Exterior Rehabilitation and Site Enhancements

IMPORTANT Notes to Bidders:

- Confirm with Joanne Beaulieu at (845) 204 5304 that you are registered as a plan holder so that you can be reached or sent future correspondence including important bid addenda.

- Below is a list of all files contained on this USB drive. Notify Joanne Beaulieu at (845) 204 5304 immediately if any files are missing.

1. File Name: D005805 PMH Drawings (84 Pages)
2. File Name: D005805 PMH Project Manual (1064 Pages)
3. File Name: IMPORTANT Readme