DESIGN & CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 1 TO PROJECT NO. Q1994

**CONSTRUCTION WORK
REHABILITATE MAIN ENTRANCE
PARKING LOT AND SIDEWALK,
BUILDING 732 MIDDLETOWN CAMPUS
ROCKLAND PSYCHIATRIC CENTER
45 ASHLEY AVENUE
MIDDLETOWN, NY**

November 19, 2026

NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

GENERAL REQUIREMENTS

1. SECTION 017419.01 CONSTRUCTION WASTE MANAGEMENT: Discard the Section bound in the Project Manual and substitute with the accompanying Section (pages 017419.01 – 1 thru 017419.01 – 5) noted "Addendum No. 1".

SPECIFICATIONS

2. SECTION 310000 EARTHWORK: Discard the Section bound in the Project Manual and substitute with the accompanying Section (pages 310000 – 1 thru 310000 – 16) noted "Addendum No. 1".

3. SECTION 312500 EROSION AND SEDIMENTATION CONTROLS: Discard the Section bound in the Project Manual and substitute with the accompanying Section (pages 312500 – 1 thru 312500 – 6) noted "Addendum No. 1".

4. SECTION 321723 PAVEMENT MARKINGS: Discard the Section bound in the Project Manual and substitute with the accompanying Section (pages 321723 – 1 thru 321723 – 3) noted "Addendum No. 1".

5. SECTION 329200 TURF AND GRASSES: Discard the Section bound in the Project Manual and substitute with the accompanying Section (pages 329200 – 1 thru 329200 – 7) noted "Addendum No. 1".

6. SECTION 331416 SITE WATER UTILITY DISTRIBUTION PIPING: Discard the Section bound in the Project Manual and substitute with the accompanying Section (pages 331416 – 1 thru 331416 – 7) noted "Addendum No. 1".

END OF ADDENDUM

Brady Sherlock, P.E.
Director, Division of Design
Design & Construction

SECTION 017419.01 - CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements for Construction Waste Management (CWM), with criteria for recycling and/or salvaging demolition and construction waste generated during the project. A Construction Waste Management (CWM) Plan shall be developed for approval by the Director's Representative. The Plan shall be implemented throughout the duration of the project and shall be documented in accordance with the SUBMITTALS Article below.

B. Each contract shall supply the means for proper disposal, recycling, and/or salvaging job site waste. Locations for removal bins or dumpsters shall be coordinated with Directors Representative.

1.2 PERFORMANCE REQUIREMENTS

A. Each Contract shall prepare and submit a Construction Waste Management (CWM) Plan to the Director's Representative for approval. The CWM Plan shall outline the provisions to be implemented to properly dispose of, recycle, and/or salvage demolition and construction waste generated during the project.

1. The CWM Plan should be developed with a goal of diverting 75% of waste away from landfill.

B. Upon approval of the CWM Plan by the Director's Representative, it shall be implemented throughout the duration of the project and documented in accordance with the SUBMITTALS Article below.

C. Unless otherwise indicated, demolition and construction waste become the property of the Contractor.

D. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their content, commemorative plaques and tablets, and other items of interest or value that may be uncovered during demolition remain the property of the State. Coordinate with Director's Representative.

1. Carefully salvage in a manner to prevent damage and promptly return to the Director's Representative.

E. The CWM Plan shall include, but not be limited to, the following components:

1. Identify a single point of contact to act as the Construction Waste Manager. Provide the individuals name, email, and phone number.

2. Listing of Materials: Develop a list of the waste materials and expected quantity from the Project. Categorize what will be targeted for reuse, salvage, composting, recycling, or disposal at landfill. At minimum, the following materials shall be accounted for:

    a. Aggregates
    b. Asphalt
    c. Beverage containers
    d. Bricks
    e. Cardboard, paper, packaging
    f. Clean dimensional wood, palette wood
    g. Concrete
    h. Electronics & equipment
    i. Glass
    j. Lamps and light fixtures
    k. Land clearing debris
    l. Metals from banding, stud trim, ductwork, piping, rebar, roofing, windows, other trim, steel, iron, galvanized sheet steel, stainless steel, structural steel, aluminum, copper, zinc, lead, brass, and bronze
    m. Office supplies
    n. Paint
    o. Plastics
    p. Refrigerants
    q. Stone
    r. Temporary construction materials
    s. Universal Waste

3. Sorting Method: Provide a description of the proposed means of sorting and transporting the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site for off-site sorting).

    a. If off-site sorting is utilized, the facility shall provide a sorting method description to be included in the CWM Plan.

4. Compost Facility: Provide the name and address of the composting facility where compostable material will be accepted and current NYSDEC permit.
5. Composting: Provide a description of the proposed means of ensuring compostable material remains uncontaminated during construction and transportation.
6. Packaging Waste: Provide an estimate of packaging materials generated and note whether suppliers will eliminate or take back packaging. Packaging material may include, but is not limited to:

    a. Paper
    b. Cardboard
    c. Boxes
    d. Plastic sheet and film
    e. Polystyrene packaging
    f. Wood crates
    g. Wood pallets
    h. Plastic pails

7. Landfill Information: Provide the name and address of the landfill(s) where trash will be disposed of and current operating permit.
8. Recycling facilities: Provide the name and address of the recycling facilities(s) where materials will be sent for recycling, current operating permit, and description of how it will be recycled.
9. Universal Waste Facility: Provide the name and address of the facility where universal waste will be disposed of and current NYSDEC permit.
10. Refrigerant Recovery Technician Qualifications: The technician shall be Universal certified by EPA approved certification program.

    a. Universal - For servicing all types of equipment

11. Waste Transporter: Provide name and address of proposed waste transporters and appliable NYSDEC registration and/or permits.
12. Re-Used materials/Equipment: Materials or equipment to be removed from the site or turned over to the State which are classified as recycled materials and shall be documented. Documentation shall include the materials turned over, weight or quantity of materials/equipment and a letter on company letterhead indicating the intended use of items.
13. Additional Information: Include any additional information deemed relevant to describe the scope and intent of the CWM Plan to the Director's Representative.
14. Subcontractor Requirements: CWM and recycling requirements shall be incorporated into all Subcontractor's contracts.

1.3 SUBMITTALS

A. Submittal Requirements:

1. A copy of the Construction Waste Management (CWM) Plan, as defined in the PERFORMANCE REQUIREMENTS Article above.
2. Contractors shall submit monthly CWM Reports. This submission shall include explanation of actual waste management compared to the CWM Plan, waste receipts and a completed CWM Reporting Form (sample included at the end of this Section identified as Exhibit "A").
3. Calculations and supporting documentation to demonstrate disposal, recycling, and/or salvage rates meeting the requirements of the CWM Plan. The process for recording and assembling documentation shall be as follows:

    a. Record and document the quantity of all demolition and construction waste materials sent to the landfill. The final reporting form shall specify:

        1) The type of waste disposed of.
        2) The total quantity of the waste disposed of.
        3) Provide the name and permit of the landfill that accepted the materials. Receipts or other proof of facility reception of materials is required.

    b. Record and document the total quantity of all demolition and construction waste materials reused on-site, reused off-site, recycled, or otherwise salvaged. The final reporting form shall specify:

1) The type of reused, recycled, or salvaged material.
2) he quantity of the reused, recycled, or salvaged material.
3) Provide the name and permit of the receiving facilities/companies that purchased or accepted the reused, recycled, or salvaged materials. Receipts or other proof of facility reception of materials is required.
4) For materials separated for recycling off-site, establish a method for tracking the quantity of the recycled material. The method shall be included in the CWM Plan for the Director's Representative review and approval.

c. Record and document the total quantity of materials composted. The final reporting form shall specify:

1) The type of material composted.
2) The quantity of the material composted.
3) Provide the name and permit of the receiving facilities/companies that purchased or accepted the material to be composted. Receipts or other proof of facility reception of materials is required.

d. For materials turned over to others (not the State) for reuse (sale or donation), provide documentation on company letterhead indicating the material(s), the quantity (either by weight or units), the date, contact information, indicate whether the organization is tax exempt, and the intended reuse of the product.

e. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered.

B. Contract Closeout Submittals:

1. Contractors shall submit a Final Waste Management Report. This submission shall compile all monthly data for the duration of the project. The final report shall include an explanation of actual waste managed, lessons learned, and a final CWM Reporting Form. Resubmission of waste receipt is not necessary.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 IMPLEMENTATION

A. The Contractor shall be responsible for the provision of containers and the removal of all waste, non-returned surplus materials, and rubbish from the site in accordance with the CWM Plan. The Contractor shall oversee and document the results of the Plan. Each trade shall be responsible for collecting, sorting, and depositing in designated areas, their waste, non-returned surplus materials, and rubbish, as per the CWM Plan.

1. The Prime Contractor shall be responsible for ensuring their subcontractors abide by the CWM Plan.

B. Instruction: The Contractor shall provide on-site instruction of appropriate separation, handling and recycling, salvage, reuse and return methods to be used by all parties in appropriate stages of the Project.

C. Separation Facilities: The Contractor shall provide signage for specific area(s) to facilitate separation of materials for potential recycling, salvage, composting, reuse, and return. Signage shall be multi-lingual as appropriate. Each potential material shall be collected and stored to avoid being mixed with other materials. Recycling and waste bin areas are to be kept neat and clean, and clearly marked.

3.2 MEETINGS

A. Conduct CWM meetings. Meetings shall include Subcontractors affected by the CWM Plan. At a minimum, waste management goals and issues shall be discussed at the following meetings:

1. Pre-bid meeting.
2. Pre-construction meeting.
3. Regular job-site meetings.
4. Close out meeting.

B. Any non-compliant practices in the field will be addressed at regular job-site meetings.

3.3 MONTHLY CONSTRUCTION WASTE MANAGEMENT REPORTING

A. Monthly CWM Reporting Forms, as required in the SUBMITTALS Article above, shall be submitted to the Director's Representative for review throughout the duration of the project.

END OF SECTION 017419.01

SECTION 310000 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Disconnecting, capping, sealing, and/or removing existing utilities.
2. Site Clearing:
    a. Protecting existing vegetation to remain.
    b. Removing existing vegetation.
    c. Clearing and grubbing.
    d. Stripping and stockpiling topsoil and rock.
    e. Removing above- and below-grade improvements.
    f. Disconnecting, capping or sealing, and removing or abandoning site utilities in place.
3. Excavation:
    a. Excavating trenches for utilities and pits for buried utility structures.
4. Fill and Backfill:
    a. Backfilling for building and site structures to subgrade elevations.
    b. Backfilling for trenches.
    c. Fill under slabs-on-grade.
    d. Fill under pavements.
    e. Fill for over-excavation.
    f. Subsurface drainage backfill for walls and trenches.
5. Preparation of subgrades.
6. Compaction.
7. Riprap placement.
8. Rough and final grading.

B. Related Requirements:

1. Section 310001 – Earthwork Materials.
2. Section 312500 – Erosion and Sedimentation Controls.
3. Section 329200 – Turf and Grasses.

1.3 REFERENCE STANDARDS

A. ASTM International:

1. ASTM C88 - Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
2. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
3. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3).
4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3).
5. ASTM D2419 – Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
6. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head).
7. ASTM D2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
8. ASTM D2974 – Standard Test Methods for Determining the Water (moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils.
9. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
10. ASTM D4373 - Standard Test Method for Rapid Determination of Carbonate Content of Soils
11. ASTM D4873 – Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.
12. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

B. Related Requirements:

1. Local utility standards when working in close proximity to utility lines.
2. Occupational Safety and Health Administration: Comply with the applicable requirements of the Code of Federal Regulations Title 29 – Labor, Part 1926 Safety and Health Regulations for Construction (OSHA).

C. New York State Department of Transportation (NYS DOT)

1. NYS DOT 620 - Bank and Channel Protection
2. NYS DOT 703 - Aggregates
3. NYS DOT 733 - Earthwork Materials

1.4 DEFINITIONS

A. Surface Soil: Soil that is present at the top layer of the existing soil profile.

B. Subsurface: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsurface; reasonably free of subsurface soils, clay lumps, gravel, weeds, roots, toxic materials, or other non-soil materials.

D. Borrow Soil: Approved soil imported from off-site for use as fill or backfill.

E. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

F. Fill: Soil materials used to raise existing grades.

G. Suitable Material (Fill and Backfill for Landscaped Areas): Material generally consisting of mineral soil (inorganic), blasted or broken rock and similar materials of natural or man-made origin, including mixtures thereof. Maximum particle size will not exceed 2/3 of the specified layer thickness prior to compaction. Topsoil and organic silt may be used as suitable material in landscaped areas provided it is placed as the surface soil.

H. Unsuitable Material: Material containing cinders, industrial waste, sludge, building/construction rubble, land fill, muck, and peat.

I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage material, or topsoil materials.

J. Subbase Course: Aggregate layer placed between the subgrade and asphaltic or concrete pavement section or concrete structure.

K. Bedding Course (Cushion Material): Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

L. Drainage Material: Aggregate layer with minimal material passing the #200 sieve to promote downward water flow and minimizes upward capillary flow of pore water.

M. Classified Earth Excavation: Removal of all surface and subsurface material not classified as rock, to the lines and dimensions indicated.

N. Rock: Limestone, sandstone, shale, granite and similar material in solid beds or masses in its original or stratified position which can be removed only by blasting operations, drilling, wedging, or use of pneumatic tools, and boulders with a volume greater than 1.0 cu yd. Concrete building foundations and concrete slabs, not indicated, with a volume greater than 1.0 cu yd shall be classified as rock.

1. Limestone, sandstone, shale, granite, and similar material in a broken or weathered condition which can be removed with an excavator or backhoe equipped with a bucket with ripping teeth or any other style bucket shall be classified as earth excavation.
2. Masonry building foundations, whether indicated or not, shall be classified as earth excavation.

O. Unclassified Earth Excavation: Removal of all surface and subsurface material, of any description, necessary to perform the work of this contract. This will include:

1. All soil deposits of any description both above and below groundwater levels. These may be naturally deposited or placed by previous construction operations.
2. Boulders of any size.

3. Any materials of man-made origin.

P. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Director's Representative. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

Q. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.

R. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Director's Representative. Unauthorized excavation, as well as remedial work directed by Director's Representative, shall be without additional compensation.

S. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

T. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

U. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

V. Landscaped Areas: Areas not covered by structures, walks, roads, paving, or parking.

W. Grading Limit Line (Shown on Drawings): Limits of grading, excavations and filling required for the Work. Unless specifically noted otherwise, the Grading Limit Line and Contract Limit Line shall be considered the same.

1.5 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain State's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.6 SUBMITTALS

A. Submittals for this Section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer's installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Existing Conditions: Submit documentation before earthwork activities begin of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by the Work of this Section.

1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

E. Qualification Data: For qualified testing agency.

1.7 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E329 and ASTM D3740 for testing indicated.

1.8 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Director's Representative and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Director's Representative or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining State's property will be obtained by Director's Representative before award of Contract.

1. Do not proceed with work on adjoining property until directed by Director's Representative.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store where indicated.

D. Utility Locator Service: Locate underground utilities, in accordance with Section 023313 – Underground Utility Locator Service, before beginning site clearing or earth-moving operations.

E. Do not commence operations until temporary site fencing and erosion and sedimentation control measures are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

I. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

A. See Section 310001 - Earthwork Materials.

B. Protection-Zone Fencing:

1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.

a. Height: 48 inches
b. Color: High-visibility orange, nonfading.

2. Chain-Link Protection-Zone Fencing: As specified in Section 015000 - Construction Facilities and Temporary Controls.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed as required.

C. Protect existing site features, to remain, from damage during construction. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

1. Restore damaged improvements to their original condition, as acceptable to the Director's Representative.

D. Protect and maintain erosion and sedimentation controls during earth-moving operations.

E. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide and maintain temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, in accordance with Section 312500 Erosion & Sedimentation Controls, the Contract

Drawings, and requirements of authorities having jurisdiction. If the erosion and sedimentation controls specified by the authorities having jurisdiction are more stringent than those specified in the Contract Documents, contact the Director's Representative.

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
2. Inspect, maintain, and repair erosion and sedimentation control measures during construction until permanent vegetation has been established.
3. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 PLANT PROTECTION

A. Locate and clearly identify trees, shrubs, and other vegetation to remain and be protected. Tie a 1-inch blue vinyl tape around each tree trunk at 54 inches above the ground.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people and animals from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation. Install access gates where indicated.

D. Maintain protection zones free of weeds and trash.

E. Maintain protection-zone fencing and signage in good condition as acceptable to Director's Representative and remove when construction operations are complete and equipment has been removed from the site.

1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

F. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations.

1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 6 inches or smaller in caliper size.
2. Large Trees: Provide one new tree(s) of 6-inch caliper size for each tree being replaced that measures more than 6 inches in caliper size.

    a. Species: to match existing, unless otherwise directed by Director's Representative.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities as necessary

B. Interrupting Existing Utilities: Do not interrupt utilities serving occupied facilities unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Director's Representative not less than seven days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without the Director's Representative's written permission.

C. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain.
2. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and stockpile in areas approved by the Director's Representative.

B. Fill depressions caused by clearing and grubbing operations with suitable material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to specified density.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 4 inches in a manner to prevent intermingling with underlying soil or other waste materials.

1. Remove subsurface soil and non-soil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsurface soil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 120 inches.
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated suitable materials away from the edge of excavations and without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of soil stockpiles to 180 inches.
2. Do not stockpile soil material within protection zones.
3. Dispose of surplus soils. Surplus soil is that which exceeds quantity indicated to be stockpiled or reused.

3.8 STOCKPILING ROCK

A. Remove from construction area naturally formed boulders that measure more than 1 foot across in least dimension. Do not include excavated or crushed rock.

1. Separate or wash off non-rock materials from rocks, including soil, clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

B. Stockpile rock away from edge of excavations without intermixing with other materials. Cover to prevent windblown debris from accumulating among rocks.

1. Limit height of rock stockpiles to 240 inches.
2. Do not stockpile rock within protection zones.
3. Dispose of surplus rock. Surplus rock is that which exceeds quantity indicated to be stockpiled or reused.

3.9 DEWATERING

A. Provide dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

C. Protect subgrades from rain or water accumulation that can cause softening, undermining/undercutting, washout, damage, and other soil changes that would be detrimental to the stability of subgrades.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

D. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

3.10 SHEETING, SHORING, AND BRACING

A. Temporary Sheeting: Install temporary sheeting, shoring and bracing as required to create a safe working environment and prevent settlement or other damage to adjacent grounds and structures resulting from excavation operations. Shore and brace sheeting in a manner which will not interfere with progress of other Work or related contracts (if any) on this project. Check shoring and bracing for settlement and adjust for settlement. Promptly remove temporary sheeting, shoring, and bracing when no longer required.

3.11 EXCAVATION, GENERAL

A. Unclassified Earth Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsuitable materials and rock, replace with suitable materials.

B. Classified Earth Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned. The Contract Sum will be adjusted for rock excavation according to Contract provisions for changes in the Work. Changes in the Contract Time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; and soil, boulders, and other materials not classified as rock or unauthorized excavation.

    a. Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.

3.12 EXCAVATION

A. Excavations at Edges of Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

B. Excavation for Walks and Pavements: Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

C. Excavation for Open Ditches: Cut ditches to cross sections and grades indicated.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line, unless noted otherwise in contract plans.
2. Trench Width: Excavate trenches to uniform widths to provide 12 inches of clearance on each side of pipe or conduit.
3. Trench Bottoms: Excavate trenches 6 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells and coupling joints of pipe.

3.13 SUBGRADE INSPECTION

A. Notify Director's Representative when excavations have reached required subgrade and are ready for inspection.

B. Proof-roll subgrade below the pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction**,** repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.

C. If Director's Representative determines that unsuitable material is present or that there are soft spots or areas of excessive pumping or rutting, excavate and replace with compacted backfill or fill material as directed.

1. Have cross section taken, under the supervision of an independent land surveyor, to determine volume of additional excavations.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Director's Representative, without additional compensation.

3.14 BACKFILL & SOIL FILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Cutting off top of permanent sheeting or sheetpiling.
8. Installing permanent or temporary horizontal bracing on horizontally supported walls.
9. Acceptance by the Director's Representative of construction below finish grade.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

C. Place fill and backfill on subgrades free of mud, frost, snow, or ice.

D. Place fill and backfill materials in layers not more than eight inches thick in loose depth, unless otherwise specified. Before compaction, moisten or aerate each layer as necessary to facilitate compaction to the specified density.

1. Place fill and backfill against foundation walls and in confined areas such as trenches not easily accessible by larger compaction equipment in maximum 6-inch-thick loose depth layers.
2. For large fill and backfill areas, the layer thickness may be modified by the Director's Representative, at the Contractor's written request, if in the Director's Representative's judgment, the equipment used is capable of compacting the fill material in a greater layer thickness. This request will include the type and specifications of compaction equipment intended for use.

E. Under Pavements and Walks:

1. Up to Subgrade Surface Elevation: Place Selected Fill when fill or backfill is required.
2. Subbase Material: Place 6 inches of Type 2 Subbase over subgrade surface.

F. Landscaped Areas: Place Suitable Material when required to complete fill or backfill areas up to subgrade surface elevation. Do not use material containing particles over four inches in diameter within the top 12 inches of suitable material.

G. Utility Trench Backfill

1. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
2. Backfill voids with suitable material while removing shoring and bracing.
3. Initial Backfill:

    a. Soil Backfill: Place and compact initial backfill of Cushion Material to a minimum depth of 6 inches below the bottom, 12 inches to the sides, and to a height of 12 inches over the pipe or conduit.

        1) Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit.

4. Coordinate backfilling with utilities testing.
5. Final Backfill:

    a. Soil Backfill: Place and compact final backfill of Selected Fill soil to final subgrade elevation.

H. Backfilling Excavation Resulting From Removal of Unsuitable Material:

1. Up to Subgrade Surface Elevation: Place Select Granular Material when backfill is needed unless otherwise specified by the Directors Representative.

3.15 SOIL MOISTURE CONTROL

A. Where fill or backfill must be moisture conditioned before compaction, uniformly apply water to the surface and to each layer of fill or backfill to within 2 percent of optimum moisture content.

B. Prevent ponding or other free water on surface during and after compaction operations.

C. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to specified density. Soil that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a value which will permit compaction to the percentage of maximum density specified.

D. When the existing ground surface to be compacted has a density less than that specified for the particular area classification, break up and pulverize, and moisture condition to facilitate compaction to the required percentage of maximum density.

3.16 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Compact soil materials to not less than the following percentages of maximum density according to ASTM D1557 for the following:

1. Under structures, including area within 10-ft outside perimeter: 95 percent.
2. Under concrete slabs, steps, and pavements: 95 percent.
3. Under walkways: 95 percent.
4. Under landscaped areas, turf, or unpaved areas: 90 percent.
5. Pipe bedding: 95 percent.
6. Behind retaining walls: 92 percent.

3.17 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Rough Grading:

1. Exterior Grading: Trim and grade area within the Grading Limit Line and excavations outside the limit line, required by this Contract, to a level of 4 inches below the finish grades indicated unless otherwise specified herein or where greater depths are indicated. Provide smooth uniform transition to adjacent areas.

a. Slope cut and fill in transition areas, outside of the grading limit line, to meet corresponding levels of existing grades at a slope of 1 vertical to 2 horizontal unless otherwise indicated.
b. Landscaped Areas: Provide uniform subgrade surface within 1 inch of required level to receive topsoil thickness specified. Compact fill as specified to within 3 inches of subgrade surface. Remove objectionable material detrimental to proper compaction or to placing full depth of topsoil. If the top 3 inches of subgrade has become compacted before placement of topsoil, harrow or otherwise loosen rough graded surface to receive topsoil to a depth of three inches immediately prior to placing topsoil.

C. Subgrade Surface for Walks and Pavement

1. Shape and grade subgrade surface as follows:

a. Walks: Shape the surface of areas under walks to required line, grade and cross section, with the finish surface not more than 1 inch above or below the required subgrade surface elevation.
b. Pavements: Shape the surface of areas under pavement to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subgrade surface elevation.

2. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.
3. Thoroughly compact subgrade surface for walks and pavement by mechanical rolling, tamping, or with vibratory equipment as approved to the density specified.

D. Finish Grading:

1. Uniformly grade rough graded areas within limits of the Grading Limit Line to finish grade elevations indicated.
2. Grade and compact to smooth finished surface within tolerances specified, and to uniform levels or slopes between points where finish elevations are indicated or between such points and existing finished grade.
3. Grade areas adjacent to building lines so as to drain away from structures and to prevent ponding.
4. Finish surfaces free from irregular surface changes, and as follows:

a. Walks: Place and compact subbase material as specified. Shape surface of areas under walks to required line, grade and cross section, with the finish surface not more than 1/4 inch above or below the required subbase elevation.
b. Pavements: Place and compact subbase material as specified. Shape surface of areas under pavement to required line, grade and cross section, with the finish surface not more than 1/4 inch above or below the required subbase elevation.
c. Surfaces To Receive Vapor Barrier: Provide smooth surfaces graded, tamped and/or rolled, entirely free of obstructions or protruding objects.

5. Spread topsoil directly upon prepared subgrade surface to a depth measuring 4 inches after natural settlement of the topsoil has occurred in areas to be seeded or to receive sod. Perform topsoil spreading operations only during dry weather. Place to greater depth when necessary to adjust grades to required elevations.

a. Approved existing topsoil within the Grading Limit Line may be used. Provide additional topsoil from outside sources as required.

6. Finish topsoil surface free of depressions that would trap water, free of stones over 1 inch in any dimension, and free of debris or other objectionable material. Finished surfaces shall conform to the contour lines and elevations indicated on the drawings or as directed by the Director's Representative.

3.18 FIELD QUALITY CONTROL

A. Special Inspections: Director's Representative will engage a qualified Special Inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material classification and maximum lift thickness comply with requirements.
3. Determine, during placement and compaction, that in-place density of compacted fill complies with requirements.

B. Testing Agency: Director's Representative will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Coordinate with and allow testing agency to inspect and test subgrades and each fill or backfill layer; provide testing agency minimum three working days advanced notice prior to all phases of filling and backfilling operations. Proceed with subsequent earthwork activities only after test results for previously completed work comply with requirements.

D. Testing agency will test compaction of soils in place according to ASTM D698 or ASTM D1557, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab but in no case fewer than three tests.
2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length but no fewer than two tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.19 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Director's Representative; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove from State property and dispose of excess and unsuitable materials, including materials resulting from clearing, grubbing and removal of existing improvements; soil; trash; and debris.

B. Transport excess topsoil to areas on State property designated by the Director's Representative. Smooth grade deposited topsoil.

C. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 310000

SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Temporary Structural Measures
2. Vegetative Measures
3. Sediment Traps.

1.3 REFERENCES

A. New York State Standards and Specifications for Erosion and Sediment Control, current version as published by the New York State Department of Environmental Conservation.

B. New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity, current version, as published by the New York State Department of Environmental Conservation.

C. ASTM International:

1. ASTM C127 - Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3).
4. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.4 SUBMITTALS

A. Submittals for this Section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

C. Trained Contractor Documentation:

1. Name and Title of individual from each contractor or subcontractor performing land disturbance, who will be known as the Trained Contractor.
2. For each Trained Contractor, submit copy of completion certificate or card for NYS Department of Environmental Conservation endorsed Erosion & Sediment Control training.

D. Product Data: Submit data on temporary erosion and sediment control measures.

E. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Perform Work according to NEW YORK STATE STANDARDS AND SEPCIFICATIONS FOR EROSION AND SEDIMENT CONTROL by NYS Department of Environmental Conservation (i.e., Bluebook) standards.

1.6 PRE-INSTALLATION MEETING

A. Section 013000 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing Work of this Section.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not place grout when air temperature is below freezing.

B. Do not place concrete when base surface temperature is less than [40 degrees F], or surface is wet or frozen.

1.8 RESPONSIBILITY

A. Adhere to all erosion and sediment control requirements presented in the contract Drawings and outlined in the SWPPP. Comply with all applicable NYSDEC regulatory requirements.

B. A SWPPP has been prepared for this project. Prior to commencing any land disturbance (i.e. clearing, grading, excavation, etc.), install the temporary erosion and sediment control measures as shown on the drawings, outlined in the SWPPP, and/or as directed by the Director's Representative. Maintain all temporary erosion and sediment control measures in compliance with SPDES permit regulations for the duration of construction. Adjust temporary measures as needed to prevent erosion and sediment transport beyond the contract limit line. Place required permanent control practices prior to removal of temporary stormwater diversion, or erosion and sediment control measures.

C. The Trained Contractor(s) shall inspect erosion and sediment controls on a daily basis to ensure that they are being maintained in effective operating condition at all times. If deficiencies are

identified, begin implementing corrective actions within one business day and complete the corrective actions in a reasonable time frame.

1. For construction activities 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 maintenance inspections. The trained contractor shall recommence maintenance inspections as soon as soil disturbance activities resume or winter shutdown ceases.
2. For winter shutdown, the stabilization activities must be completed before snow cover or frozen ground. If vegetation is required, seeding, planting and/or sodding must be scheduled to avoid die-off from fall frosts and allow for proper germination/establishment. Trained contractor inspections must resume no later than April 1.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the trained contractor can stop conducting maintenance inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practice required (if applicable) for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

D. A qualified inspector will be obtained by the Director's Representative to perform SWPPP Inspections, at the frequency specified in the project SWPPP. If deficiencies are identified, begin implementing corrective actions within one business day of notification and complete the corrective actions in a reasonable time frame.

E. During construction conduct operations to prevent damage to any water body from pollution by debris, sediment, chemical or other foreign material, or from the manipulation of equipment and/or materials in or near a stream or ditch flowing directly to a stream. Any water which has been used for wash purposes or other similar operations that becomes polluted with sewage, silt, cement, concentrated chlorine, oil, fuels, lubricants, bitumens, or other impurities shall not be discharged into any water body.

F. In the event of conflict between these specifications and the regulation of other Federal, State, or local jurisdictions, the more restrictive regulations shall apply.

1.9 DESCRIPTION

A. The Work shall consist of furnishing, installing, inspecting, maintaining, and removing erosion and sediment control measures as shown on the contract documents or as ordered by the Director's Representative during the life of the contract to provide erosion and sediment control.

B. Temporary structural measures provide erosion control protection to a critical area for an interim period. A critical area is any disturbed, bare slope subject to erosion. These are used during construction to prevent off-site sedimentation. Temporary structural measures shall include:

1. Stabilized construction access
2. Dust control
3. Silt fence
4. Storm drain inlet protection
5. Straw/hay bale dike

C. Vegetative measures shall include:

1. Mulching
2. Protecting vegetation
3. Seeding
4. Straw/hay bale dike
5. Topsoil

PART 2 - PRODUCTS

2.1 ROCK AND GEOTEXTILE MATERIALS

A. Rock: As specified in Section 310001 Earthwork Materials.

B. Geotextile Fabric: As specified in Section 310001 Earthwork Materials.

2.2 PLANTING MATERIALS

A. Soil Supplements: As specified in Section 329200 Turf and Grasses.

B. Seeding: Temporary or permanent, as specified in Section 329200 Turf and Grasses.

C. Mulch: As specified in Section 329200.

2.3 ACCESSORIES

A. Joint Sealers: As specified in Section 321373 Concrete Paving Joint Sealants.

B. Joint Filler: As specified in Section 321373 Concrete Paving Joint Sealants.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support devices and imposed loads.

B. Verify gradients and elevations of base or foundation for other Work are correct.

3.2 SITE STABILIZATION

A. Incorporate erosion control devices indicated on the Drawings ,and in the SWPPP, into the Project at the earliest practicable time.

B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.

C. Stockpile and waste pile heights shall not exceed 35 feet. Slope stockpile sides at 2:1 or flatter.

D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.

1. During non-germinating periods, apply mulch at recommended rates.
2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year in accordance with Section 329200 Turf and Grasses at 80 percent of permanent application rate with no topsoil.
3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 329200 Turf and Grasses permanent seeding specifications.

E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

3.3 FIELD QUALITY CONTROL

A. Field inspecting, testing, adjusting, and balancing.

B. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

C. Compaction Testing: As specified in Section 310000.

D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

E. Frequency of Compaction Testing: One for each lift.

3.4 CLEANING

A. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.

B. Do not damage structure or device during cleaning operations.

C. Do not permit sediment to erode into construction or site areas or natural waterways.

D. Clean channels when depth of sediment reaches approximately one-half channel depth.

3.5 PROTECTION

A. Immediately after placement, protect paving from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit construction traffic over paving for 7 days minimum after finishing. until 75 percent design strength of concrete has been achieved.

C. Protect paving from elements, flowing water, or other disturbance until curing is completed.

3.6 WORK AREAS

A. The Director's Representative has the authority to limit the surface area of erodible earth exposed by earthwork operations and to direct the Contractor to provide immediate temporary or permanent erosion measures to minimize damage to property and contamination of watercourses and water impoundments. Under no circumstances will the area of erodible earth material exposed at one time exceed 50,000 sq. ft. The Director's Representative may increase or decrease this area of erodible earth material exposed at one time as determined by their analysis of project, weather and other conditions. The Director's Representative may limit the area of clearing and grubbing and earthwork operations in progress commensurate with the Contractor's demonstrated capability in protecting erodible earth surfaces with temporary, permanent, vegetative or biotechnical erosion control measures.

B. Schedule the work so as to minimize the time that earth areas will be exposed to erosive conditions. Provide temporary structural measures immediately to prevent any soil erosion.

C. Provide temporary seeding on disturbed earth or soil stockpiles exposed for more than 7 days or for any temporary shutdown of construction. In spring, summer or early fall apply rye grass at a rate of 1 lb/ 1000 sq.ft. In late fall or early spring, apply certified Aroostook Rye at a rate of 2.5 lbs./ 1000 sq. ft. Apply hay or straw at a rate of 2 bales/ 1000 sq. ft. or wood fiber hydromulch at the manufacturer's recommended rate. Hay or straw shall be anchored.

D. Coordinate the use of permanent controls or finish materials shown with the temporary erosion measures.

E. All erosion and sediment control devices must be maintained in working order until the site is stabilized. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, or re-mulching, must be performed immediately.

F. After final stabilization has been achieved temporary sediment and erosion controls must be removed. Areas disturbed during removal must be stabilized immediately.

END OF SECTION 312500

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Painted markings applied to asphalt paving.
2. Painted markings applied to concrete surfaces.

1.2 REFERENCES

A. United States Department of Justice (US DOJ)

1. Americans with Disabilities Act (ADA), Standards for Accessible Design

B. Building Code of New York State Chapter 11 - Accessibility

C. New York State Department of Transportation (NYS DOT)

1. DOT 640 – Reflectorized Pavement Marking Paints

1.3 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer’s installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Product Data: Include technical data and tested physical and performance properties.

E. Samples:

1. For each exposed product and for each color and texture specified; on rigid backing, 8 inches square.

F. Quality Assurance:

1. Certification: Affidavit by the paint applicator, certifying that the materials comply with the current regulatory requirements in effect at the time products were delivered and applied.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F.

B. Perform the painting operations after working hours, on weekends or at such time so as not to interfere with the flow of traffic. Provide temporary barriers to prevent vehicles from driving over newly painted areas.

PART 2 - PRODUCTS

2.1 PAVEMENT MARKINGS

A. Paint: DOT Section 640-2, yellow, white, and blue as indicated, or if not indicated as directed. Delete reference to Glass Beads.

B. Source Limitations: Obtain pavement-marking paints from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in the latest edition of the Building Code of New York State, Chapter 11.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement-marking substrate is dry and in suitable condition to begin pavement marking in accordance with manufacturer's written instructions.

B. Remove dust, dirt, and other foreign material detrimental to paint adhesion.

C. Mark layout of stripes and lines with chalk or paint.

D. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.2 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified by the Director’s Representative.

B. Allow asphalt paving or concrete surfaces to age for the minimum duration recommended by the pavement marking manufacturer before starting pavement marking.

A. Apply paint in accordance with DOT Section 640-3.02, except as follows:

1. Delete references to Glass Beads.
2. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.

3.3 PROTECTING AND CLEANING

A. Protect pavement markings from damage and wear during remainder of construction period.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 321723

SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.
2. Hydroseeding.

B. Turf renovation. Related Requirements:

1. Section 312500 “Erosion and Sedimentation Controls.”

1.2 DEFINITIONS

A. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 310001 “Earthwork Materials” and drawing designations for planting soils.

B. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.3 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer’s installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.

E. Product Certificates: For fertilizers, from manufacturer.

F. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

G. Maintenance Data: Recommended procedures to be established by Director's Representative for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.4 QUALITY ASSURANCE

A. Field Examples: Seed samples will be taken by the Director's Representative 30 days before sowing and sent to the New York State Seed Testing Laboratory, 6 Harriman Campus Road, Albany, NY 12206 for testing. Test analysis will indicate species, purity, percent of germination, and weed content. Results will be sent directly to the Director for acceptance or rejection based on these tests. Pay all expenses incurred for testing.

B. Provide prepackaged seed readily available to the public with quality and purity equal to product of O.M. Scotts and Son, Marysville, OH. On-the-job or made-to-order mixes will not be accepted.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

1. Seed: Store all seed at the site in a cool dry place as approved by the Director's Representative. Replace any seed damaged during storage.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

1.6 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. Spring Planting: Between April 1st and May 15th.
2. Fall Planting: Between August 15th and October 1st.
3. Provide temporary seed and mulch when final grading is complete while waiting for optimal seeding period.
4. Provide temporary seed and mulch for temporary cover on disturbed ground not to be worked on for more than 7 days.
5. Provide temporary seed and mulch on disturbed earth prior to temporary shutdown of construction.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

1. Do not install sod when temperature is below 32 degrees F. Do not install sod on saturated or frozen soil.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

1. Acceptable material in a seed mixture other than pure live seed consists of nonviable seed, chaff, hulls, live seed of crop plants and inert matter. The percentage of weed seed shall not exceed 0.1 percent by weight.
2. All seed will be rejected if the label or test analysis indicates any of the following contaminates: Timothy, Orchard Grass, Sheep Fescue, Meadow Fescue, Canada Blue Grass, Alta Fescue, Kentucky 31 Fescue, and Bent Grass.

B. Seed Species: Provide the following seed mixture:
A = Min. Percentage of Germination
B= Min. Purity Percentage
C = Weight Pure Live Seed in Mixture

1. For seed mixes in wetland areas, refer to Section 327100.
2. Seed Mix “A” – Urban Lawn Mix

Name	Variety	A	B	C
Chewings Fescue (Festuca rubra commutata)	Banner, Highlight, Jamestown, or an approved equal.	85	97	25
Kentucky Bluegrass * (Poa pratensis)	Barron, Flyking, Glade, or an approved equal.	80	95	55
Perennial Ryegrass ** (Lolium perenne)	Manhatten II, Pennfine, York-town II, or an approved equal.	90	98	20

2.2 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition:

a. 10 percent nitrogen, 6 percent phosphorous, and 4 percent potassium, by weight. 50% of total nitrogen shall be derived from ureaform furnishing a minimum of 3.5%

water insoluble nitrogen (3.5% WIN). The balance of the nitrogen shall be present as methylene urea, water soluble urea, nitrate and ammoniacal compounds.

b. Other fertilizers meeting DOT Specification Section 713-03 Fertilizer can be used.

2.3 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley that are free of noxious weeds. Weight shall be based on a 15 percent moisture content.

B. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

C. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.4 EROSION-CONTROL MATERIALS

A. Erosion-Control Blankets: As specified in Section 312500 “Erosion and Sedimentation Controls”.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Director’s Representative and replace with new planting soil.

3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 SEEDING

A. Seed Bed: Scarify soil to a depth of 3 inches in compacted areas. Smooth out unsightly variations, bumps, ridges, and depressions which will hold water. Remove stones, litter, or other objectionable material.

1. Obtain written approval of seed bed from the Director's Representative before commencing seeding operations.

B. Assume all risks when seed is sowed before approval of seed analysis.

C. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
2. Do not use wet seed or seed that is moldy or otherwise damaged.
3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

D. Sow seed at a total rate of 5 lb/1000 sq. ft. for Seed Mix "A".

E. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
1. Protect all seeded areas by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
    a. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.4 HYDROSEEDING

A. Hydroseeding: Mix specified seed, commercial fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with nonasphaltic tackifier.
2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

3.5 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll,

regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain grass at heights between 3 inches and 3-1/2 inches until the Final Acceptance of the Work

3.6 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Director's Representative:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 95 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
3. Satisfactory Plugged Turf: At end of maintenance period, the required number of plugs has been established as well-rooted, viable patches of grass, and areas between plugs are free of weeds and other undesirable vegetation.

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

C. Portions of the turf may be accepted at various times at the discretion of the Director's Representative.

D. At the physical completion of the Work, the State will assume maintenance responsibilities of the turf areas.

3.7 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Director’s Representative's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after Final Acceptance of the Work.

D. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 329200

SECTION 331416 - SITE WATER UTILITY DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for Site water line, including combined potable water line and fire water line.
2. Bedding and cover materials.

B. Related Requirements:

1. Section 310001 - Earthwork Materials: Soils for backfill in trenches.
2. Section 310000 - Earthwork: Product and execution requirements for excavation and backfill; Execution requirements for trenching.
3. Section 330110.58 - Disinfection of Water Utility Piping Systems: Disinfection of water mains and appurtenances.
4. Section 330509.33 - Thrust Restraint for Utility Piping: Tied joint-restraint system to anchor and resist forces developed in underground closed pipeline systems.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 10-lb Rammer and a 18-in. Drop.

B. American Society of Mechanical Engineers:

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
2. ASME B16.18 - Cast Copper Alloy Solder-Joint Pressure Fittings.
3. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.

C. American Society of Sanitary Engineering:

1. ASSE 1012 - Performance Requirements for Backflow Preventers with an Intermediate Atmospheric Vent.
2. ASSE 1013 - Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers.

D. ASTM International:

1. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
2. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3).

3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3).
4. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
5. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
6. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
7. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets.
8. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
9. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
10. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

E. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
4. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
5. AWWA C200 - Steel Water Pipe, 6 In. (150 mm) and Larger.
6. AWWA C203 - Coal-Tar Protective Coatings and Linings for Steel Water Pipe.
7. AWWA C205 - Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 In. and Larger - Shop Applied.
8. AWWA C206 - Field Welding of Steel Water Pipe.
9. AWWA C207 - Steel Pipe Flanges for Waterworks Service, Sizes 4 In. Through 144 In. .
10. AWWA C208 - Dimensions for Fabricated Steel Water Pipe Fittings.
11. AWWA C213 - Fusion-Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings.
12. AWWA C300 - Reinforced Concrete Pressure Pipe, Steel-Cylinder Type.
13. AWWA C301 - Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.
14. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.
15. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.
16. AWWA C606 - Grooved and Shouldered Joints.
17. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In., for Water Transmission and Distribution.
18. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. Through 3 In. for Water Service.
19. AWWA C906 - Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 63 In. , for Waterworks.

F. American Welding Society:

1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.

G. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

H. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

1.3 SUBMITTALS

A. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.

B. Manufacturer’s installation instructions shall be provided along with product data.

C. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

D. Product Data: Submit manufacturer information regarding pipe materials and fittings

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

G. Qualifications Statements:

1. Submit qualifications for manufacturer and installer.

1.4 CLOSEOUT SUBMITTALS

A. Section 017716 - Contract Closeout: Requirements for submittals.

B. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.5 QUALITY ASSURANCE

A. Valves: Mark valve body with manufacturer's name and pressure rating.

B. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372.

C. Perform Work according to NYSDOH standards.

D. Comply with AWWA M17 standard for fire hydrants.

E. For UL Listed or FM Global-Approved Fire Hydrants, comply with NFPA 24.

F. Maintain a copy of each standard affecting Work of this Section on Site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years' documented experience.

B. Installer: Company specializing in performing Work of this Section with minimum five years' documented experience in installation of Work of this Section.

C. Installer Qualification Data: Persons engaged with the installation of water utility service main distribution piping and their appurtenances shall have a minimum of 5 years' experience while in the employ of a company or companies engaged in the installation of water service systems for domestic and fire service mains and their appurtenances.

1. Name of each person who will be performing the work.
2. Upon request, furnish names and addresses of the required number of similar project that each person has worked on which meets the qualifications requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

B. Storage:

1. Store materials according to manufacturer instructions.
2. Block individual and stockpiled pipe lengths to prevent moving.
3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
4. Store PE and PVC materials out of sunlight.

C. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PIPING

A. Ductile Iron Pipe:

1. Comply with AWWA C151 and C104.
2. Fittings:

   a. Material: Ductile iron.
   b. Thickness: Standard.

3. Joints:

   a. Comply with AWWA C111.
   b. Provide rubber gasket with rods.

4. Jackets: AWWA C105 PE jacket

2.2 ACCESSORIES

A. Thrust Restraints: As specified in Section 330509.33 - Thrust Restraint for Utility Piping.

B. Steel Rods, Bolt, Lugs, and Brackets:

1. Comply with ASTM A36 or A307.
2. Grade A carbon steel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that building service connections and municipal utility water main sizes, locations, and elevations are as indicated on Drawings.

3.2 PREPARATION

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

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

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

D. Protect and support existing distribution piping and appurtenances as Work progresses.

3.3 INSTALLATION

A. Bedding:

1. Excavate pipe trench as specified in Section 310000 - Earthwork.
2. Placement:

    a. Place bedding material as specified in Section 310000 – Earthwork.

3. Backfill around sides and to top of pipe as specified in Section 310000 - Earthwork.
4. Place fill materials as specified in Section 310000 - Earthwork.

B. Pipe and Fittings:

1. Maintain separation of water main from sewer piping according to NYSDOH requirements.
2. Group piping with other Site piping work whenever practical.
3. Install pipe to elevations indicated on Drawings.
4. Install ductile-iron piping and fittings according to AWWA C600.
5. Route pipe in straight line.
6. Install access fittings to permit disinfection of water system performed under Section 330110.58 - Disinfection of Water Utility Piping Systems.
7. Thrust Restraints:

    a. Provide thrust restraint as indicated on the Drawings.

8. Establish elevations of buried piping with not less than 5 feet of cover.

C. Disinfection: As specified in Section 330110.58 - Disinfection of Water Utility Piping Systems.

3.4 TOLERANCES

A. Install pipe within tolerance of 5/8 inch.

3.5 FIELD QUALITY CONTROL

A. Testing:
1. Pressure test piping system according to AWWA C600 and following:

    a. Test Pressure: Not less than 200 psig or 50 psi in excess of maximum static pressure, whichever is greater.
    b. Conduct hydrostatic test for a minimum of two hours.
    c. Slowly fill section to be tested with water; expel air from piping at high points.
    d. Install corporation cocks at high points.
    e. Close air vents and corporation cocks after air is expelled.
    f. Raise pressure to specified test pressure.
    g. Observe joints, fittings, and valves under test.
    h. Remove and renew cracked pipes, joints, fittings, and valves showing visible leakage, and retest.

i. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.
j. Maintain pressure within plus or minus 5 psi of test pressure.
k. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
l. Compute maximum allowable leakage using following formula:

1) L = SD x sqrt(P)/C.
2) L = testing allowance, gph.
3) S = length of pipe tested, feet.
4) D = nominal diameter of pipe, inches.
5) P = average test pressure during hydrostatic test, psig.
6) C = 148,000.

m. If pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.
n. Leakage:

1) If test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits.
2) Correct visible leaks regardless of quantity of leakage.

2. Perform pressure test on piping according to NYSDOH standards.

3. Provide all testing results to the Director's Representative.

END OF SECTION 331416