



Office of General Services

DESIGN & CONSTRUCTION GROUP
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EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 1 TO PROJECT NO. 46091

CONSTRUCTION WORK OLEAN LEVEE BANK STABILIZATION PROJECT ALLEGHENY RIVER FLOOD CONTROL EMBANKMENT OLEAN, NY

January 28, 2025

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 011100 Safety: Discard the Section bound in the Project Manual and substitute the accompanying Section (011100 – 1 thru 011100 – 5) noted “REVISED 1/28/25”.
2. SECTION 013119 Project Meetings: Discard the Section bound in the Project Manual and substitute the accompanying Section (013119 – 1 thru 013119 – 2) noted “REVISED 1/28/25”.

SPECIFICATIONS

3. SECTION 023313 Underground Utility Locator Service: Discard the Section bound in the Project Manual and substitute the accompanying Section (023313 – 1 thru 023313 – 4) noted “REVISED 1/28/25”.
4. SECTION 312513 Erosion and Sediment Control: Discard the Section bound in the Project Manual and substitute the accompanying Section (312513 – 1 thru 0312513 – 7) noted “REVISED 1/28/25”.
5. SECTION 316216 Steel Sheet Pile: Discard the Section bound in the Project Manual and substitute the accompanying Section (316216 – 1 thru 316216 – 8) noted “REVISED 1/28/25”.

END OF ADDENDUM

Brady M. Sherlock, P.E.
Director, Division of Design
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SECTION 011100

SAFETY

PART 1 GENERAL

1.01 SUMMARY

- A. This section requires compliance with applicable Safety codes, standards, and regulations, including but not limited to OSHA, Building Code of New York State, Fire Code of New York State, and Facility Regulations.
- B. The SITE-SPECIFIC SAFETY PLAN shall include measures to address all risks at the site, including but not limited to, the following:
 - 1. Work near water
 - 2. Work in traffic areas.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Summary of the Work: Section 011000.
- B. Regulatory Requirements: Section 014100.

1.03 DEFINITIONS, ABBREVIATIONS

- A. OSHA: Occupational Safety and Health Administration.
- B. BCNYS: Building Code of New York State.
- C. EBCNYS: Existing Building Code of New York State.
- D. FCNYS: Fire Code of New York State.
- E. NFPA: National Fire Protection Association.
- F. NEC: NFPA 70E.
- G. NYSDOT: New York State Department of Transportation

1.04 SUBMITTALS

- A. Provide a SITE-SPECIFIC SAFETY PLAN no later than 15 days after approval of the Contract by the Comptroller. The plan must include at a minimum:
 - 1. Cover page including Project Name/Location/Project Number/Contractor Name/Potential Start/Finish Dates.
 - 2. Complete Scope of work.
 - 3. Roles and Responsibilities page identifying Supervision, list of the names of all competent and/or qualified persons, including their

- qualifications, for each activity requiring a competent person i.e. excavations, scaffolding, rigging, fall protection, etc.
4. A program providing 100% hard hats and safety glasses, as well as other personal protective equipment (PPE), i.e. dust protection, noise protection, safety vests, etc.
 5. A program for assuring employees have proper work attire, i.e. substantial sole safety-toed footwear, long pants, shirts with minimum 4-inch sleeves, etc.
 6. A 100% 6-foot conventional fall protection program which provides full body harnesses, lanyards (connectors), and anchorage points, or guardrails, when applicable.
 7. A program for raising employee awareness through the use of weekly Safety Talks (i.e. “Toolbox Talks” or “Tailgate Meetings”) on topics related to upcoming/relevant work on the project. Contractor shall be required to verify that all employees on site participated in meeting, with documentation submitted to the Director’s Representative.
 8. Confined Space entry program and procedures for entry, when applicable.
 9. A written Respirable Silica Protection Plan, including tasks for which employees could reasonably be expected to be exposed to harmful silica dust, and control methods that will be used to limit or eliminate exposure, as well as any PPE necessary to ensure protection.
 10. Identify specific hazards related to this Project, and how employees will be protected from those hazards.
 11. High Hazard Assessment’s detailing procedures for all high hazard work activities including, but not limited to:
 - a. All lifts involving cranes or material handling equipment.
 - b. Scaffolding where scaffold working deck is expected to be 10’ or higher from a lower level.
 - c. Demolition.
 - d. Excavations where anticipated depth is 5’ or more.
 - e. Hot work activities, which shall follow all applicable requirements stated in NFPA 51B.
 - f. Steel erection with specific fall protection requirements detailed.
 - g. Work at elevations, including roofing work.
 - h. Electrical work involving Lock Out - Tag Out (LOTO) procedures.
 - 1) High Hazard Assessments shall include a step-by-step breakdown of a given task, the hazards associated with each step, the controls that will be utilized to eliminate or minimize the hazards, and the PPE that will be used to protect from remaining hazards.
 - 2) All required certifications shall be provided for all applicable types of work with required training/certifications (i.e. Powder Actuated Tools, Aerial Lifts, Forklifts, Crane Operators License, etc.).
 12. A project safety inspection program, with a minimum of one documented safety inspection per week, during the course of construction. Submit copies of all resultant inspection reports to the Director’s Representative on a weekly basis.

13. A program for providing proper care for injured employees, including the name of the employee with First Aid/CPR certification who will be on site at all times during the course of construction, to include local hospital/medical facility locations and contact information.
 14. Provide an Emergency Action and Evacuation Plan, including Fire Protection and Emergency Response, when applicable.
 - a. Plan to include:
 - 1) Procedures for reporting a fire or other emergency.
 - 2) Procedures for emergency evacuation, including type of evacuation and exit route assignments.
 - 3) Emergency Contact information.
 - 4) Procedures on how to alert workers of an emergency.
 - 5) Procedures to account for all employees after evacuation and muster/evacuation points.
 - 6) A list of all major fire hazards, to include type of fire protection equipment necessary to control hazard.
- B. Provide safety orientation training for each employee prior to their starting work on site. This orientation shall include, but not be limited to: Fitness for Duty (drug, alcohol, and cannabis policies), training on general safety hazards, site-specific safety policies and procedures, personal protective equipment, injury reporting and protocols, emergency evacuation and preferred medical providers, and HAZCOM (GHS Harmonization). Provide documentation of all safety orientation training for each new employee on the site, including all subcontractors, to the Director’s Representative.
- C. Accident Reporting: The Director’s Representative shall be immediately notified of any and all accidents. A copy of a written accident report shall be furnished to the Director’s Representative within 24 hours of an incident.
1. After any incident on site resulting in an employee being injured or damage to property, a Post- Accident Review Investigation shall be held as soon as possible after any incident. As a minimum, this investigation will involve the injured person, his/her supervisor, the responsible project superintendent and/ or supervisor and the onsite safety supervisor. The contractor shall be responsible to provide a written Post-Accident Corrective Action Plan, which will detail immediate steps taken to correct any unsafe condition that led to injury/property damage, long-term actions to prevent repeat incidents from happening on the site, and roles and responsibilities of individuals who will be implementing the corrective measures, which will be reviewed for effectiveness and continually monitored for implementation.
- D. Provide copies of all employee training and certifications related to the safe performance of activities, i.e. OSHA 10-hour certifications, to the Director’s representative.
- E. Where Work related to staging, storage, or temporary use of areas outside the boundaries of state property are required, comply with the rules, regulations, and all applicable safety codes of the applicable municipality.

1.05 STOP WORK ACTIVITY AUTHORITY

- A. All NYS OGS Representatives have the authority to stop a work activity that exposes any Contractor employees to potentially serious injury and/or illness. The responsible Contractor shall immediately cease work, perform an assessment of the activity that is exposing employees to any Immediately Dangerous to Life or Health (IDLH) conditions, and take action necessary to satisfactorily address the unsafe condition(s), at no cost to the State. The activity may only resume when a NYSOGS Representative and respective Contractor’s Safety Representative verify corrective measures have been satisfactorily completed. Any related impact to time of completion shall be considered within the Contractor’s control.
- B. No site work, other than mobilization, shall commence until the Site-Specific Safety Plan is approved.**

1.06 ADDITIONAL SAFETY POLICIES THAT WILL BE ADHERED TO THROUGHOUT THE CONSTRUCTION PHASE

- A. All contractors are required to utilize head (hardhat) and eye protection (safety glasses) at all times well within the project limits.
- B. Any employee exposed to equipment/vehicles shall be required to utilize an ANSI Level 2 Safety Work Vest.
- C. Contractors are strictly prohibited from utilizing any state-owned equipment or materials during construction.
- D. All tools/equipment on multi-trade projects shall bear identifiable markings as to which contractor the tool/equipment belongs to. If any tool/equipment on the project does not have contractor’s markings, the tool shall be immediately removed from the site until owner claims the tool/equipment.
- E. Seatbelts shall be utilized when operating all heavy equipment designed to be operated in a seated position. When traveling in a vehicle, all employees shall be seated in a secured seat with a seatbelt in place.
- F. Inspections of scaffolding prior to use, and excavations prior to entry shall be documented by an on-site competent person. Documented inspection will be available on-site for inspection by the Director’s Representative.
- G. All electrical cords/water hoses, if feasible, shall be run overhead to avoid additional slip/trip hazards. If not feasible due to physical restrictions, cords/hoses shall be placed to avoid all walkways and work areas.
- H. All heavy equipment being utilized on site shall have a fire extinguisher of suitable size/rating within reach of operator.
- I. Any fuel-powered equipment shall have a fire extinguisher of suitable size/rating no closer than 10 feet and no further than 25 feet from the equipment.

- J. All electrical work shall be done when panels/lines/boxes have been de-energized and locked out, unless otherwise approved in writing by the Director's Representative.
- K. An applicable sized Spill Kit shall be available on all jobsites where heavy equipment is being utilized.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 013119**PROJECT MEETINGS****PART 1 GENERAL****1.01 INITIAL JOB MEETING**

- A. The Director's Representative will notify all parties concerned of the time and place of the initial job meeting. The meeting will be conducted by the Director's Representative. The agenda will be based on the Format for Initial Job Meeting. All items on the format, as they apply, will be discussed.
1. A copy of the Facility's current Visitor Identification Policy will be distributed.

1.02 PROJECT SCHEDULE MEETINGS

- A. The Initial Schedule Meeting will be held within 15 days of Project award. The Director's Representative will notify all members of the Project Team of the time and place of the meeting. The meeting will be conducted by the Director's Representative and OGS Scheduling via WebEx™ or an equivalent online method for the following purposes:
1. Define the intent of the specification.
 2. Review the reporting structure of the Project.
 3. Provide training to the Project Team.
- B. The Director's Representative will notify all members of the Project Team of any Schedule development/coordination meetings conducted by the Director's Representative and OGS Scheduling via WebEx™ or an equivalent online method.
- C. The Project will have monthly project update reporting periods. The update meetings will be conducted by the Director's Representative and OGS Scheduling via WebEx™ or an equivalent online method for the following purposes:
1. Agree to the completed Activity dates.
 2. Coordinate and approve the next 6-week Project Work Plan.
 3. Evaluate and acknowledge any impact to the Contractor's ability to execute the Project Schedule according to the approved Baseline Project Schedule.

1.03 BI WEEKLY JOB MEETINGS

- A. Unless otherwise directed, job meetings will be held bi weekly, at a time and place agreed upon by the Director's Representative, the Contractor, and the Facility Representative. Other interested parties may attend when needed, e.g., subcontractors and representatives from suppliers, public utilities, and local government. The meetings will be conducted by the Director's Representative for the following purposes:

1. Review job progress, quality of Work, and approval and delivery of materials.
2. Identify and resolve problems which impede planned progress.
3. Coordinate the efforts of all concerned so that the project progresses on schedule to on-time completion.
4. Maintain sound working relationships between the Contractors and the Director's Representative, and a mutual understanding of the project requirements.
5. Maintain sound working procedures.

1.04 PRE-INSTALLATION MEETINGS

- A. Pre-installation meetings will be held to review the specifications, Project Schedule, drawings, and approved submittals in preparation for start of a particular activity.
- B. The meetings shall be attended by the Director's Representative, a Design Representative, and the Contractor's Representative, including installer and representatives of manufacturers & fabricators involved in or affected by the installation and its coordination with other materials/trades.
- C. The Director's Representative shall schedule the meetings prior to the start of the work. The goal of these meetings is to ensure the quality of construction and to maintain the schedule.

1.05 ATTENDANCE

- A. A Contractor's Representative shall be required to attend all meetings scheduled by the Director's Representative, as set forth above.
- B. If the Contractor's Representative fails to attend two scheduled meetings without prior approval, the Contractor will be directed to replace the current Contractor's Representative. Further incidents of non-attendance by the Contractor's Representative will form the basis for review of the Contractor's responsible vendor status.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 023313**UNDERGROUND UTILITY LOCATOR SERVICE****PART 1 GENERAL****1.01 RELATED WORK SPECIFIED ELSEWHERE**

- A. Field Engineering: Section 017123.

1.02 REFERENCES

- A. American Society of Civil Engineers, CI/ASCE 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."
- B. American Public Works Association, Uniform Color Code."

1.03 DEFINITIONS

- A. Utility Quality Levels:
 - 1. Level A: Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner.
 - 2. Level B: Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents.

1.04 DESCRIPTION

- A. Retain an independent utility locator service company to field locate and mark existing underground utilities and service connections. The word "independent" as used above means a person not in the regular employment of the Contractor or having any vested interest in the Contractor's business.
 - 1. Level B locator service shall be performed in all project areas where excavations, regrading of the ground surface, and penetrations of the ground surface are to be performed.
 - a. Contractor shall include a minimum of 16 hours of Level A locator service to locate underground utilities as identified on the contract drawings or as identified during the Level B investigation that require more specific location, invert elevation, size, etc. Level A investigation shall only be performed at locations where shown or as directed.

- b. In heavy metal areas, such as near perimeter fences, ground penetrating radar shall be used to determine the location of underground utilities. The use of equipment that induce a tracing signal along the utility path (such as a Metrotech unit) can cause false readings, shall not be used within five feet of fences.
- 2. The Level A investigation shall be performed as follows:
 - a. Hand excavation may be performed for depths of three feet or less.
 - b. Vacuum excavation shall be performed at depths greater than three feet.
 - c. All excavation test pits shall be backfilled by close of business that day.
- 3. Support and protect all utilities and service connections to remain in place.
- 4. The locator service shall field locate and mark underground utilities and service connections prior to excavation.
- 5. The contractor shall be responsible for coordinating the extent of the areas of subsurface investigation required to locate all underground utilities and service connections in the areas of excavation.
- 6. All costs associated with the repair of underground utilities and service connections hit/damaged during the investigative work shall be the responsibility of the contractor.
- 7. Utility location services shall be in accordance with the provisions of CIASCE 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

1.05 SUBMITTALS

- A. Quality Control Submittals:
 - 1. Submit detailed experience and qualification information about the underground utility locator service company and the persons that will be performing the Work. Detailed experience and qualification information shall include:
 - a. Minimum of five (5) years experience in field locating, marking and staking out of existing underground utilities and service connections.
 - 1) Qualifying Experience: Project information of 5 similar projects, which the locator service company, had worked on during the past 5 years. Information shall include for each project:
 - a) Name and Address of project.
 - b) Dates worked on project.
 - c) Name and telephone Number of contact person at the project site for which the locator service was performed.
 - b. Description of types of utility locator equipment (investigation equipment) that company will utilize to perform the underground utility investigation.
 - c. Names of persons that the persons that will be performing the Work, including the number of years of experience and training that the persons have in the use of the equipment. Include copy

- of training certificates for locator equipment proving the person performing the locator service are trained on the equipment being used.
 - 2. Submit Quality Control Submittals within 10 days of contract award.
- B. Investigative Report:
 - 1. Submit detailed written report and scaled drawings of the subsurface investigation, documenting all underground utilities and service connections located and identified.
 - a. All documentation shall be referenced to existing data (horizontal and vertical) previously established.
 - b. Provide three (3) paper copies and one (1) electronic copy of detailed written report and drawings.
 - 2. Submit Investigative Report at least two weeks prior to advancing construction within the scheduled areas of excavation within the project site.

1.06 COORDINATION AND SCHEDULING

- A. Coordinate the Work to determine the extent of the areas of subsurface investigation required to locate all underground utilities and service connections in the areas of excavation.
- B. Coordinate the Work with the Director’s Representative to minimize utility disruptions and facility operations. Provide a schedule for the Work required to the Director’s Representative for approval. Upon approval of the schedule, notify the Director’s Representative a minimum of three (3) working days prior to performing the Work.
- C. Within the areas of excavation, all underground utilities and service connections shall be field located and their locations marked at least two (2) weeks prior to the performance of the required excavation work.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.01 WORK AREAS AND PERFORMANCE

- A. If any underground utilities and service connections are hit or damaged during the Work, immediately inform the Director’s Representative for directions on how to proceed.
- B. The utility locator service investigative work, field location and marking of underground utilities and service connections and submission of the investigative report must be completed before any excavation work can begin.
 - 1. Contractor shall maintain markings throughout the contract duration or until a time when directed (in writing) by the Director’s Representative that maintaining of the markings are no longer required.

- C. Provide subsurface investigation information, detailed written report and drawings of the subsurface investigation, documenting all underground utilities and service connections located and identified, prior to the performance of the required excavation work.
- D. If during the Level B investigations, unknown underground utilities are discovered, the Director's Representative shall be notified as soon as possible or before the close of that business day.
- E. Field Marking of underground utilities shall follow the American Public Works Association (APWA) uniform color code:
 - White: Proposed Excavation.
 - Pink: Temporary Survey Markings.
 - Red: Electric power lines, cables, conduit and lighting cables.
 - Yellow: Gas, oil, steam, petroleum and gaseous material.
 - Orange: Communications, alarm, signal lines, cables or conduit.
 - Blue: Potable water.
 - Purple: Reclaimed water, irrigation and slurry lines.
 - Green: Sewer and drain lines.

END OF SECTION

SECTION 312513

EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 310000.
- B. Topsoil: Section 329120.
- C. Seeding: Section 329219.

1.02 REFERENCES

- A. NYSDEC State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity – GP-0-20-001.
- B. Erosion and Sediment Control Guidelines: Conform to the latest edition of “NEW YORK STANDARDS and SPECIFICATIONS for EROSION and SEDIMENT CONTROL” by NYS Department of Environmental Conservation DOW (i.e., Bluebook). Refer to these guidelines for construction and maintenance of all items (Temporary and Permanent Structural, Vegetative and Biotechnical) included in the Storm Water Pollution and Prevention Plan (SWPPP).
- C. Storm Water Management: Conform to the latest edition of “NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL” prepared by Center for Watershed Protection for NYS Department of Environmental Conservation.

1.03 RESPONSIBILITY

- A. A Storm Water Pollution and Prevention Plan (SWPPP) has been prepared for this project. Install and maintain the temporary storm water and diversion control items as shown on the drawings before starting any grading or excavation and maintain compliance of all Storm Water Pollution Plan/SPDES regulations. Provide any temporary sediment and erosion control measures that may be required within limits of the work, including any staging areas, throughout construction in conformance with the plan, and as directed by the Director’s Representative. Place the permanent control practices required before the removal of the temporary storm water diversion and control items.
- B. During construction conduct operations in such a manner as to prevent or reduce to a minimum any 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 which become polluted with sewage, silt, cement, concentrated chlorine, oil, fuels,

lubricants, bitumens, or other impurities shall not be discharged into any water body.

- C. In the event of conflict between these specifications and the regulation of other Federal, State, or local jurisdictions, the more restrictive regulations shall apply.
- D. Adhere to all requirements of the Storm Water Pollution Prevention Plan as presented in Appendix F.
- E. Comply will all applicable NYSDEC regulatory requirements, including the SPDES General Permit for Stormwater Discharges from Construction Activity – GP-0-20-001.
- F. The Contractor will submit copies of certificates documenting that on-site workers have completed a NYS Department of Environmental Conservation endorsed Erosion & Sediment Control training as required by State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001).

1.04 DESCRIPTION

- A. The Work shall consist of furnishing, installing, inspecting, maintaining, and removing soil and erosion control measures as shown on the contract documents, as required, 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 area subject to erosion. These are used during construction to prevent offsite sedimentation. Temporary structural measures shall include construction road stabilization, stabilized construction entrance, dust control, silt fence, sediment log/coir log, storm drain inlet protection, turbidity curtain or other erosion control devices or methods as required.
- C. Permanent structural measures also control protection to a critical area. They are used to convey runoff to a safe outlet. They remain in place and continue to function after completion of construction. Permanent structural measures shall include, land grading, retaining wall (sheet pile), riprap, rock outlets, and stream bank protection or other erosion control devices or methods as required.
- D. Vegetative measures shall include brush matting, dune stabilization, grassed waterway, vegetating waterway, mulching, protecting vegetation, seeding, sod, straw/hay bale dike, stream bank protection, temporary swale, topsoil, and vegetating waterways.
- E. Biotechnical measures shall include wattling and fiber rolls.
- F. Weekly inspections will be completed by the Director’s Representative. Comply with and correct all deficiencies found as a result of these inspections. At the end of the construction season when soil disturbance activities will be finalized or suspended until the following spring, the frequency of the inspections may be

reduced. If soil disturbance is completely suspended and the site is properly stabilized, a minimum of monthly inspections must be maintained. 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. Weekly inspections must resume no later than March 15.

1.05 DEFINITIONS – TEMPORARY STRUCTURAL MEASURES

- A. Check Dam: Small barrier or dam constructed of stone, bagged sand or gravel to reduce velocity of flow.
- B. Construction Road Stabilization: Stabilization of construction roads to control erosion.
- C. Stabilized Construction Entrance: A stabilized pad of aggregate underlain with geo-textile where traffic enters a construction site to reduce or eliminate tracking of sediment to public roads.
- D. Dust Control: Prevent surface and air movement of dust from disturbed soil surfaces.
- E. Earth Dike: A temporary berm or ridge of compacted soil, located to channel water to a sediment trapping device.
- F. Level Spreader: A non-erosive outlet for concentrated runoff to disperse flow uniformly across a slope.
- G. Perimeter Dike/Swale: A temporary ridge of soil excavated from an adjoining swale located along the perimeter of the site or disturbed area to prevent runoff from entering a disturbed area and preventing sediment laden runoff from leaving a construction site.
- H. Pipe Slope Drain: A structure placed from the top of a slope to the bottom of a slope to convey runoff without causing erosion.
- I. Portable Sediment Tank: A compartmented tank to which sediment laden water is pumped to retain sediment before pumping the water to adjoining drainage ways.
- J. Rock Dam: A rock embankment located to capture sediment.
- K. Sediment Basin: A barrier constructed across a drainage way to intercept and trap sediment.
- L. Sediment Traps: A control device formed by excavation to retain sediment at a storm inlet or other points of collection.
- M. Silt Fence: A barrier of geo-textile fabric installed on contours across the slope to intercept runoff by reducing velocity. Replace after 1 year.

- N. Storm Drain Inlet Protection: A semi-permeable barrier installed around storm inlets to prevent sediment from entering a storm drainage system.
- O. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.
- P. Access Waterway Crossing: A structure placed across a waterway to provide circulation for construction purposes.
- Q. Storm drain Diversion: The redirection of a storm drain line or outfall channel for discharge into a sediment trapping device.
- R. Temporary Swale: A temporary excavated drainage swale.
- S. Turbidity Curtain: A flexible, impenetrable barrier used to trap sediment when construction occurs within water bodies or along a shoreline.
- T. Water Bars: A ridge or channel constructed diagonally across a sloping road or right-of-way.

1.06 DEFINITIONS – PERMANENT STRUCTURAL MEASURES

- A. Diversion: A parabolic or trapezoidal swale with a supporting ridge on the lower side constructed across a slope to intercept and convey runoff to stable outlets at non-erosive velocities.
- B. Debris Basin: A barrier or dam constructed across a waterway to form a basin for catching and storing sediment or debris that gives protection downstream.
- C. Grade Stabilization Structure: A structure to stabilize the grade by providing channel linings that can withstand high velocities.
- D. Lined Waterway (rock): A waterway lined with stone to dispose of high velocity runoff.
- E. Paved Channel (concrete): A waterway lined with concrete to dispose of high velocity runoff.
- F. Paved Flume: A concrete lined channel to convey water down a steep slope.
- G. Retaining Wall (Sheetpile wall): A structural wall constructed to prevent soil movement down steep slopes.
- H. Riprap: A layer of stone designed to protect slopes that are subject to erosion.
- I. Rock Outlets: Rock placed at the outlet end of culverts, conduits or channels.

1.07 DEFINITIONS – VEGETATIVE MATERIALS MEASURES

- A. Brush Matting: Hardwood brush layered along a stream bank with a grid of stakes and wire. This acts as a mulch for seedlings established in the bank.

- B. Dune Stabilization:
- C. Grassed or Vegetating Waterway: A parabolic or trapezoidal channel below adjacent ground level stabilized by vegetation to convey water without causing erosion.
- D. Mulches: Hay, straw, wood cellulose, fiber mats, flexible growth medium and other materials approved by the Director's Representative.
- E. Protecting Vegetation: Protecting trees, shrubs, ground cover and other vegetation from damage.
- F. Temporary Seeding: Erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion.
- G. Permanent Seeding: Grasses established and combined with shrubs to provide perennial vegetative cover on disturbed, denuded, slopes subject to erosion.
- H. Sod: Used where a quick vegetative cover is required.
- I. Straw/Hay Bale Dike: Intercept sediment laden runoff by reducing velocity. Replace after 3 months.
- J. Stream Bank Protection: Stabilization of eroding stream banks through use of vegetation.
- K. Temporary Swale: A temporary excavated drainage swale.
- L. Topsoil: Placed before permanent seeding or sod is installed.

1.08 DEFINITIONS – BIOTECHNICAL MATERIALS MEASURES

- A. Vegetative Rock Gabions: A combination of vegetation and rock gabions for slope stabilization. Live branch cuttings are layered through the gabion protruding beyond the face of the gabion.
- B. Live Fascines: Bundles of branches staked into shallow trenches which are then filled with soil. They are oriented along a contour and placed in multiple rows.
- C. Brush Matting: Hardwood brush layered along a stream bank with a grid of stakes and wire. This acts as a mulch for seedlings established in the bank.
- D. Live Staking: Large stakes sharpened at the bottom end and forced vertically into the ground.
- E. Brush Layering: Stabilize slope areas above the flow line of stream banks. Long branches are placed with cut ends into a terraced slope.

- F. Live Crib Wall: A combination of vegetation and structural elements used along streams where flowing water is a hazard. Layers of logs are alternated with long branches protruding out between them.
- G. Tree Revetment: Used for bank stabilization by placing tree trunks and branches overlapped and anchored to absorb energy, reduce velocity and capture sediment.
- H. Branch Packing: Alternates live branch cuttings and tamped backfill to repair small localized holes in slopes. Used for areas less than 4' deep and 6' wide.
- I. Fiber Roll: A coconut fiber, straw, or excelsior woven roll encased in a netting of jute, nylon, or burlap to dissipate water energy and provide a medium for introduction of herbaceous vegetation. Anchor into a bank and provide suitable backfill behind the roll where vegetation can be planted.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Seeding: Permanent see Section 329219.

2.02 COMPANIES-TEMPORARY STRUCTURAL

- A. Mirafi, 365 South Holland Drive, Pendergrass, Ga, 30567, (888) 795-0808, www.mirafi.com.
- B. North American Green, 14649 Highway 41 North, Evansville, IN 47725, (800) 772-2040, www.nagreen.com.
- C. Nedia Enterprises, Inc., 22187 Vantage Pointe Place, Ashburn, VA 20148, (888) 725-6999, www.nedia.com.
- D. Belton Industries, 5600 Oakbrook Parkway, Norcross GA., 30093, (800) 225-4099, www.beltonindustries.com.
- E. KriStar, 1219 Briggs Ave., Santa Rosa, CA 95401, (800) 579-8819, www.kristar.com.
- F. Rolanka International Inc., 155 Andrew Drive, Stockbridge GA 30281, (800) 760-3215, www.rolanka.com.
- G. Apex Resources Inc., 12910 Shelbyville Road, Louisville, KY 40243 (888) 677-2739, www.apexr.com.
- H. MonoSol, LLC, 707 E. 80th PL., Merrillville, IN 46410 (800) 237-9552, www.terraloc.com.

2.03 COMPANIES-BIOTECHNICAL

- A. Rolanka International Inc., 155 Andrew Drive, Stockbridge GA 30281, (800) 760-3215, www.rolanka.com.
- B. Nedia Enterprises, Inc., www.nedia.com.

PART 3 EXECUTION

3.01 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

SECTION 316216

STEEL SHEET PILING

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Soil Boring Data: Document 003132.
- B. Steel Pile Record Drawings: Section 017716.
- C. Earthwork: Section 310000.

1.02 REFERENCES

- A. Welding: Structural Welding Code - Steel, AWS D1.1, by the American Welding Society (AWS Code).
- B. 29 CFR Part 1926 – Safety and Health Regulations for Construction.
- C. Manual of Steel Construction, 15th Edition by the American Institute for Steel Construction (AISC).

1.03 SUMMARY

- A. Section includes steel sheet piling to be utilized as means to modify the shoreline of the Alleghany River in order to prevent future shoreline erosion.

1.04 SUBMITTALS

- A. Product Data: For each type of product.
- B. Written statement by the Contractor indicating that it has read, understood, and accepts the Sheetpile Design Limitations provided in this specification.
- C. Shop Drawings: Submit shop drawings for steel sheet piles. Show fabrication and installation details for piles, including details of pile points and cap plates, where applicable.
- D. Qualification Data: For Installer.
- E. Welding Certificates.
- F. Mill Certificates and Steel Grade for all Contractor supplied steel.
- G. Pile and Driving Equipment Data: Three weeks prior to delivery of pile driving equipment to the site, complete and submit the Pile And Driving Equipment Data form BD 138 (included following this section) to the Director's Representative. The submitted information on this form will be used to determine a driving blow

count. Each separate combination of pile and pile driving equipment proposed by the Contractor will require the submission of a corresponding form BD 138

- H. Submit an Environmental Product Declaration (EPD) from the manufacturer for steel, if available. A statement of the contractor's good faith effort to obtain the EPD shall be provided if not available.
 - 1. Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services*.
- I. Quality Control Submittals:
 - 1. Test Reports: Submit 3 copies of steel manufacturer's mill test reports, covering physical and chemical tests, for all steel piles.
 - 2. Welding Procedure Specifications: Submit procedure specifications for each joint to be welded by flux cored arc welding.
 - 3. Driving Records: Within 2 days after driving, submit 2 copies of the driving record for each pile installed. Include in driving record project name and number, name of contractor, pile identification, pile size and weight, date of driving, type and size of hammer used, rate of operation of pile driving equipment, pile length(s) placed in leads, driven pile length, cutoff elevation and notes for any pile uplift or other unusual occurrences during driving.
- J. Submit staging work plan for pile driving equipment at least three weeks prior to mobilization to the site.

1.05 QUALITY ASSURANCE

- A. Installer's Qualifications: The firm performing the Work of this Section shall have been regularly engaged in pile work for a period of not less than 5 years and shall be properly equipped to execute the Work. If directed, furnish a list of projects of a similar type and magnitude executed by the firm.
- B. Welders' Qualifications: Welding shall be performed only by welders, welding operators, and tackers who have been qualified by tests as prescribed in the AWS Code to perform the type of welding required.
- C. Driving Equipment:
 - 1. Methods and equipment used in driving piles shall be subject to approval by the Director's Representative.
 - 2. Provide equipment of adequate size and capacity to handle, place and hold the piles to the design alignment. The equipment must be capable to maintain the alignment of pile and hammer without damage to either.
 - 3. The Contractor's proposed hammer shall be of appropriate size/energy for driving sheet piles through the anticipated soil strata and to the elevations shown on the plans, without damaging them.
 - 4. Provide and maintain spill control equipment and supplies to contain and properly dispose of spilled fluids, lubricants, etc. The Contractor's equipment shall not release petroleum-based fuels, hydraulic fluid,

- lubricating oils and grease. Any spills shall be immediately remediated. Supply the Director's Representative with records of any equipment spills or leaking equipment requiring cleanup.
5. Any equipment or methods that result in regular or repeated damage to piles during driving, are detrimental to the final shape, alignment or verticality of the sheeting, or that create excessive vibrations on and/or off property may be rejected by the Director's Representative. The Contractor will bear the cost of replacing the damaged/rejected piles.
 6. Leads: Hammer and pile shall be supported in fixed leads arranged so as to hold the pile firmly in position and remain concentric with the anvil of the hammer while being driven. Leads shall be constructed in such a manner as to afford freedom of movement to the hammer and shall be held in position with guys or stiff braces to insure support to the pile during driving. Except where piles are driven through water, leads shall be of sufficient length so that the use of followers will not be necessary.
 7. Jetting of piles will not be allowed.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Transport, store, and handle piles in a manner to prevent damage to the piles and to avoid excessive bending stress in the piles.
- B. Deliver sheet piling to Project Site in such quantities and at such times to ensure continuity of installation.

1.07 FIELD CONDITIONS

- A. Two (2) geotechnical borings were performed in the vicinity of the proposed sheet piling, upgradient from the existing concrete retaining wall. The associated laboratory data from the geotechnical borings are provided in specification section 003132 Geotechnical Data. Data are solely made available for the convenience of the Contractor. Verification of all geotechnical information that is required for construction is the responsibility of the Contractor. Additional test borings and other exploratory operations may be made by the Contractor at no cost to the Director's Representative.
- B. Protect structures, overhead and underground utilities, and other construction from damage caused by pile driving.
- C. Existing effluent pipes, discharging to the Alleghany River and designated to remain in place, and are to be modified or extended through sheet pile as necessary for continued use by the Treatment Facility.

PART 2 PRODUCTS

2.01 MATERIALS

- A. STEEL SHEET PILES

1. Sheet pile installed shall be hot-rolled steel of the section type and size shown in the Drawings. All piling shall meet ASTM A 572 and have a minimum yield strength of 50 kips per square inch (ksi).
2. Any special sections or additional sheeting proposed by Contractor (and pre-approved by the Director's Representative) shall also be ASTM A 572, with minimum yield strength of 50 ksi.
3. Fabrication Tolerances:
 - a. Mass: $\pm 5\%$
 - b. Length: ± 8 -inches. Lengths shown on the drawings are finished, minimum lengths. They do not include additional length that may be needed to account for driving damage, pile cut-off, etc. The Contractor is responsible for ordering sheets of sufficient length to meet all requirements.
 - c. Thickness: $\pm 6\%$
 - d. Width: $\pm 2\%$; Width of Pairs: $\pm 3\%$
 - e. Straightness: 0.2% of length

B. ANCHORAGE SYSTEMS

1. HP Beam Walers: Steel shall meet ASTM A572 and have a minimum yield strength of 50 kips per square inch (ksi).
2. Welding Electrodes: E70xx. Comply with AWS requirements.

2.02 FABRICATION

- A. Fabricate full-length piling to eliminate splicing during driving, with ends square.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible. Plane thermally cut edges to be welded.
- C. Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.
 1. Mark and match-mark materials for field assembly.
 2. Fabricate for delivery a sequence that will expedite erection and minimize field handling of structural steel.
 3. Comply with fabrication tolerance limits of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.
 4. Remove blemishes by filling, grinding, or by welding and grinding, prior to cleaning, treating, and shop priming.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify that site conditions will support driving equipment.

3.02 PREPARATION

- A. Notify the Director's Representative of intent to drive piles at least 5 working days before scheduled start of pile driving.
- B. Do not drive piles until excavation Work in that area has been completed.
- C. Install sheeting at the location(s) and orientation provided in the Contract Drawings.
- D. Active utilities in the area of the sheet piling installation shall be identified and protected as necessary. Abandoned utilities conflicting with sheet pile alignments shall be removed or appropriately treated to allow pile driving to occur, prior to the start of driving activities.
 - 1. Locate all utilities to remain and for which gaps in the sheeting have been designed (as shown in the Drawings), prior to the start of pile driving. Notify the Director's Representative immediately if any specific gaps will not accommodate the actual locations of utilities.
- E. Pre-Installation Probing: Prior to beginning pile driving activities, perform a linear trench excavation a minimum of 18-inches wide and 5 ft deep along the alignment of the proposed wall. Any obstructions identified shall be excavated and removed prior to starting pile driving.
- F. Implement sheet pile construction so as to ensure safe working conditions, comply with applicable regulations, and to prevent accidents, cave-ins, and damage to adjacent structures, facilities, slopes, and surfaces at all times. Maintain clearance between construction equipment and overhead powerlines, per OSHA 29 CFR Part 1926.1408, at all times.
 - 1. Installation of sheet piles shall be from the top of levee only. No work below the Ordinary High Water Level is permitted.
- G. Measure piles and mark them with white paint. Indicate the overall length near top of pile. Mark the entire pile length at intervals as required by driving conditions or as directed. Measure and place graduated lines at closer intervals near top of pile.
- H. Provide sufficient crew and equipment to meet the proposed schedule. Coordinate the work with the Owner and the Director's Representative, so as to minimize downtime.
- I. Professional surveying and monitoring by the Contractor is required during sheet pile driving to ensure that the sheet pile alignment tolerances are maintained, and adjacent structures do not subside, or experience settlement caused by vibrations during installation.

3.03 DRIVING EQUIPMENT

- A. Methods and equipment used in driving shall be subject to approval by the Director's Representative.

- B. Provide equipment of adequate size and capacity to handle, place and hold the piles to the design alignment. The equipment must be capable to maintain the alignment of pile and hammer without damage to either.
- C. Impact or vibratory hammers will be allowed, so long as they meet the requirements of this specification and are capable of driving piling to the specified depths through the geologic formations anticipated at the site. Driving hammers shall be in good repair and operating condition and shall be capable of being operated at the manufacturer's rated number of blows per minute when driving piles, except when necessary to reduce the speed to avoid damage to the piles or adjacent structures. Contractor's driving operations shall not exceed threshold vibration values.
- D. The Contractor's proposed hammer shall be of appropriate size/energy for driving sheet piles through the anticipated soil strata and to the elevations shown on the plans, without damaging them.
- E. Provide and maintain spill control equipment and supplies to contain and properly dispose of spilled fluids, lubricants, etc. The Contractor's equipment shall not release petroleum-based fuels, hydraulic fluid, lubricating oils and grease. Any spills shall be immediately remediated. Supply the Director's Representative with records of any equipment spills or leaking equipment requiring cleanup.
- F. Any equipment or methods that result in regular or repeated damage to piles during driving, are detrimental to the final shape, alignment or verticality of the sheeting, or that create excessive vibrations on and/or off property may be rejected by the Director's Representative. The Contractor will bear the cost of replacing the damaged/rejected piles.
- G. Fixed leads shall be used for driving the piles. The use of hanging or swinging leads is not allowed unless they are so constructed that they can be held in a fixed position during driving. Leads shall be of sufficient length that the use of followers is not necessary.
- H. Jetting of piles will not be allowed.

3.04 WALERS

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section.
- B. Walers shall consist of steel structural shapes fabricated as shown on Drawings and be welded securely to steel piling at locations and elevations shown on Drawings.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members forming part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other

surfaces that will be in permanent contact. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

- E. Walers that are tiled, bent, or otherwise damaged during progress of construction shall be aligned, straightened or replaced as required by the Director's Representative.
- F. Waler splices are not allowed, unless otherwise approved by the Director's Representative in writing.
- G. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.
- H. Comply with AISC specifications referenced in this Section for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

3.05 INSTALLATION

- A. Drive each pile continuously from the time it is started until it is completed unless unusual occurrences are encountered during driving.
- B. Driving Tolerances: Drive piles without exceeding the following tolerances, measured at pile heads:
 - 1. Location: 2 inches from location indicated after pile driving is completed.
 - 2. Plumb: No greater than 0.5% out of plumb, measured when pile is aboveground in leads.
 - 3. Alignment: Horizontal deviation no greater than 1 inch from the straight line alignment or each straight line segment shown on the drawings.
- C. Withdraw damaged or defective piles and piles that exceed driving tolerances, and install new piles within driving tolerances.
- D. Avoid damaging piles by over driving.
- E. If piles are forced up by the driving of adjacent piles, or by any other cause, drive them down again as directed and without additional cost to the State.
 - 1. Obstructions:
 - a. Existing discharge pipes from the Waste Water Treatment Plant are to remain and be protected during sheet pile installation. Discharge pipes shall be modified or extended through the sheet pile as necessary.
 - b. If additional obstructions are encountered in the driving operation which cannot be displaced, break up the obstructions to permit the unobstructed passage of the pile. If necessary, partially withdraw such a pile or remove it entirely as necessary to clear the obstruction and protect the pile from damage.
- F. Splices: Splicing of piles is not allowed, unless otherwise approved by the Director's Representative in writing.

- G. Cutting Off of Piles: Cut off top of piles at the elevation indicated on the Drawings. Make the cut perpendicular to the longitudinal axis of the pile unless otherwise indicated. If cut with a torch, remove slag. Pile cut-offs become property of the Contractor and shall be properly disposed of or recycled off-site.
- H. Pile-Driving Records: Maintain a complete log of each pile length together with the driving log of same. The log shall include the number of hammer blows per foot of pile penetration and shall include the final elevations of the tip and top of each pile. If vibratory hammers are used, the log shall include the time required to drive each 5 feet interval of the pile, and the final elevations of top and tip of pile. Submit copies of pile driving records to the Director's Representative within 24 hours of driving, and upon request.
- I. Rejected Piles: No payment for furnishing, driving, cut-off or extension will be made for any piling installed by order of the Director's Representative to correct or replace piles that are out of tolerance, broken, mis-oriented, or otherwise violate these Specifications, or for pulling or reinstallation of any piling incorrectly installed.

3.06 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor, at his expense, shall engage a qualified testing agency to perform tests and inspections of welds used for splicing sheet piling. Sheet piles shall be considered defective if they do not pass tests and inspections.
- B. Driving Records: Obtain and record the data (required under Quality Control Submittals) on the Driving Records.

3.07 REJECTED PILES

- A. No payment for furnishing, driving, cut-off or extension will be made for any piling installed by order of the Director's Representative to correct or replace piles that are out of tolerance, broken, mis-oriented, or otherwise violate these Specifications, or for pulling or reinstallation of any piling incorrectly installed.

3.08 DISPOSAL

- A. Remove withdrawn piles and cutoff sections of piles from site, and legally dispose of them off the state's property.

END OF SECTION