October 23, 2024

CONTRACT NO. 1804

SHERADEN PARK ECOSYSTEM MAINTENANCE 2025-2026

ADDENDUM NO. 2

All bidders bidding **Contract No. 1804** shall read and take note of this **Addendum No. 2**. The Contract Documents for **Contract No. 1804 – Sheraden Park Ecosystem Maintenance 2025-2026** are hereby revised and/or clarified as stated below.

Acknowledgement of Contract No. 1804; Addendum No. 2

The Acknowledgement attached to **Addendum No. 2** is to be signed and returned immediately via email to **Kathleen Uniatowski** at contract.clerks@alcosan.org and acknowledged with Bidder's Proposal.

FOR

Michael Lichte, P.E.

Director – Regional Conveyance

3300 Preble Avenue • Pittsburgh, PA 15233-1092 • ph: 412.766.4810
www.alcosan.org

ACKNOWLEDGEMENT OF

CONTRACT NO. 1804 - SHERADEN PARK ECOSYSTEM MAINTENANCE 2025-2026

ADDENDUM NUMBER 2

FIRM NAME: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

OCTOBER 23, 2024

CONTRACT NO. 1804

SHERADEN PARK ECOSYSTEM MAINTENANCE 2025-2026

ADDENDUM NO. 2

INDEX OF ATTACHMENTS

October 23, 2024

CONTRACT NO. 1804

SHERADEN PARK ECOSYSTEM MAINTENANCE

ADDENDUM NO. 2

A. Contract Documents

1. *(No Items)*

B. Contract Specifications

1. *Article 6, Invasive Species Management, p. 4, Section 14.2 Products, Dye, shall remove the last sentence of this section "The dye shall remain visible for a minimum of one (1) month following application."*

2. *Article 6, Invasive Species Management, p. 12, Section 15.3 Products, Seed Establishment Fence, shall be removed in its entirety.*

3. *Article 6 Invasive Species Management, p. 14, Section 15.6 Acceptance, shall remove the last paragraph of the section "Remove and dispose of the Seed Establishment Fence off-site only after acceptance during the final inspection by the Construction Manager."*

C. Contract Appendices

1. *(No Items)*

D. Questions

1. **Question:** *Wasn't this same project bid out, awarded and previously treated last year? Can documentation be provided on the work completed by the previous contractor?*

Answer: *This Contract is a continuation of the invasive species management effort started during Contract 1773A – Sheraden Park Ecosystem Maintenance. Treatment efforts under that contract began in Spring 2023 and will be wrapping up before the end of the 2024 calendar year. Work completed under Contract 1773A included (or will include) mechanical treatment, chemical treatment, and seeding during Year 1 (2023) and again in Year 2 (2024). Due to the nature of the work, providing quantitative indicators of progress is challenging. In Contract 1773A, the invasive species prevalence was defined to be controlled in contiguous areas. For Contract 1804, the current estimated amount of invasive species at the site is approximately a cumulative 40% of the total site acreage comprised of patch-work sections of invasive species intermixed with desirable species.*

2. **Question:** *Dye. Plant death typically occurs in 2 weeks, most dyes lose effectiveness in a week or faster when in full sun. There isn't a product available that is going to be visible after the plant death let alone 1 month after application. Is there a specific dye that Alcosan is aware of that would meet these requirements?*

   Answer: *The contract documents require a dye submittal to ALCOSAN for approval. The 1-month requirement is derived from the USACE O&M Manual for the site. This requirement has been removed from the Contract Specifications.* ***See Section B, Item 1 above.***

3. **Question:** *Bid prices are for both years 1 and 2. How does the payment schedule work then? Is 50% paid when each year is completed and what are the payment terms?*

   Answer: *The contractor will be required to submit a schedule of values (SOV) after award of the contract. The SOV will more specifically denote the unit pricing for each contract item per year. Payments will be based on the percentage of work completed and the approved SOV. The Contractor may submit payment applications for approval at ALCOSAN's monthly board meetings throughout the duration of the contract based on the work completed the previous month.*

4. **Question:** *Seed fencing to run the perimeter of all new seeded areas. All areas to be seeded are only those disturbed with invasives? Is there a minimum area size for a seeded area or does every area no matter how small that is treated and seeded require a surrounding fence?*

   Answer: *The requirement for seed fencing has been removed entirely from the Contract Specifications.* ***See Section B, Items 2 and 3 above.***

5. **Question:** *14.2 Applying 25-50% glyphosate. This is a common dilution in cut stump, but since the specifications request the regrowth be sprayed after 8 eight weeks any cut will be healed at that point in time and the higher rate will be not as effective. We would suggest the application be sooner, more like 4 weeks after cutting, or a lower foliar rate if you'd prefer the 8 weeks regrowth. To be the most efficient on chemical, control and staying within label requirements.*

Answer: *As stated in the contract documents, the Contractor is permitted to propose alternative methods of control that can be submitted to the Owner for approval as equal to the contract requirements if the contractor feels that there is a more effective method of control.*

6. **Question:** *C. 7 Treatment of Additional Non-target Plants. Is it to be understood that the contractor is to develop a plan at their discretion for the treatment of additional species as required and this is to be priced after the award? The placeholder price here is an estimate of the level of other work required?*

   Answer: *Item C.7 is an allowance for treatment of non-target invasive species in order to maintain the control achieved and the established native species. The allowance value in the contract indicates the maximum level of effort anticipated for this task. If during the course of the treatment effort the Contractor would recommend that treatment of non-target invasive species be conducted, they shall make the Owner aware of this. The Owner may also determine that treatment of non-target invasive species would be recommended during their observation of the effort. In either case, the Owner may then request that the Contractor provide a treatment plan and a detailed cost breakdown for Owner review and approval prior to the start of any work on this pay item. This item is "as directed by Owner," so no work under this item is to be completed without Owner approval.*

ATTACHMENT A

REVISED INVASIVE SPECIES MANAGEMENT SPECIFICATION

*** * * * END OF ADDENDUM NO. 2* * * ***

ARTICLE 6 – TECHNICAL SPECIFICATIONS
INVASIVE SPECIES MANAGEMENT

1. GENERAL OVERVIEW

The work in this contract includes the continuation of invasive plant species control services for the Sheraden Park site which began in late spring 2023. The site is a 22-acre meadow which contains a riparian channel, 18 shallow vernal pools, and various toad houses. The invasive species control efforts include removal, herbicide treatment, and supplemental seeding as required for the mitigation of four target plants and, as needed to maintain those target species, control efforts for additional invasive species as approved by OWNER.

2. SCOPE OF SERVICES

There are four target invasive species for this project: Japanese Knotweed, Reed Canarygrass, Poison Hemlock, and Purple Loosestrife. This contract includes all equipment and materials required to complete the maintenance plan described in the contract specifications. This includes, but is not limited to, cutting, and removing the target plants, application of an approved herbicide, reseeding, and any required repetition thereof. The total treatment area is assumed to be approximately a cumulative 40% of the total site acreage comprised of patch-work sections of invasive species intermixed with desirable species.

Control efforts for additional invasive species, which may include, but not be limited to, Canada Thistle, Japanese Hops, Mugwort, Burdock, and Japanese Honeysuckle as approved by OWNER, may be included in order to maintain the site.

3. LOCATION, BOUNDARIES AND FEATURES

The project site is entirely within the City of Pittsburgh. It is between Sheraden Park and the north and west banks of Chartiers Creek, and it is a total of 22 acres. The area includes 18 shallow vernal pools, the locations of which are noted in the map included in Appendix A. Extreme care shall be taken to prevent herbicides from entering the vernal pools or disturbing the desirable species which have been established during the prior treatment, and the Contractor shall utilize the same access and egress point to each location in order not to disturb the indigenous species.

4. SITE FAMILIARIZATION

The Contractor shall fully inform themselves of the existing site conditions before submitting a bid and shall be responsible for carrying out all work required to properly execute the contract, regardless of the conditions encountered in the actual work. No claim for additional compensation or extension of time will be allowed on account of actual conditions inconsistent with those assumed.

5. ACCESS

There is a vehicle access road on the North side of the Beitler Trucking, Inc. property, located at 3379 Stafford St, Pittsburgh, PA 15204.

No long-term staging operations shall occur within 50 feet of Duquesne Light power line pier foundations. Only hand work and hand tools shall be used within 5 feet of the pier foundations, regardless of the activity.

The Contractor shall coordinate with Beitler Trucking, Inc. and the relevant utility companies as required.

6. WORK HOURS

Work for this contract shall be completed between the hours of 8:00 AM and 4:00 PM Monday through Friday. Access through the Beitler Trucking property will only be available during those hours. At least 48 hours advance notice must be given for requests to work outside of these hours or during holidays. The request must be approved prior to any work being completed during those hours.

7. EQUIPMENT AND METHODS

The Contractor shall own and maintain all equipment necessary to perform invasive species management to the standards outlined in these specifications.

MOWING shall be defined as the cutting of all vegetation in a specified area to a height of 6 inches, or an approved equal height.

MECHANICAL TREATMENT shall be defined as any activities involving treatment by means of cutting the target vegetation.

CHEMCIAL TREATMENT shall be defined as any activities involving treatment by means of applying chemical herbicides to the target vegetation.

8. CARE AND PROTECTION OF PROPERTY

The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, the property shall be restored to a condition equal to that existing before the damage occurred, at the Contractor's expense.

9. SAFETY STANDARDS

All work shall be done in a safe and professional manner, in compliance with the rules and regulations of the Division of Occupational Safety, and all other City, State and Federal agencies and authorities having jurisdiction of the types of work included in this Contract.

The Contractor will prepare and submit a Site-Specific Health and Safety Plan that shall be approved prior to beginning work. This will include all field personnel and contact information, emergency routes and maps to the nearest hospital, and Material Safety Data Sheets (MSDSs) for all relevant items to be used on site.

All label instructions and restrictions must be followed regarding the use, storage, transportation, and disposal of chemical products and containers. All required personal protective equipment (PPE) must be worn during herbicide exposure as noted in Section 13 Personnel and Staffing.

10. PROFESSIONAL STANDARDS

A licensed herbicide applicator certified for aquatic work within the Commonwealth of Pennsylvania waters, which includes both standing water and saturated soils, is required to apply herbicides. The Applicator must have a current license with the appropriate category for the product being applied and shall keep said license onsite during all applications. The Contractor shall submit to the Construction Manager proof of certification of herbicide applicator license not scheduled to expire during the anticipated life of the project.

11. DURATION AND SCHEDULING

The complete duration of this contract will include two (2) growing seasons: Spring through Fall 2025 and Spring through Fall 2026. These are indicated as Year 1 and Year 2 in the bid items and descriptions. The treatment efforts will be completed between March and October of each year.

12. SEASONAL LIMITATIONS

Seeding work shall only be completed in the designated spring (April 15 – June 15) or fall (September 15 – October 15) growing seasons. No work will be performed when the ground is saturated to field capacity, frosted or frozen. If the site is saturated at the time of herbicide application, a permit from the Pennsylvania Fish and Boat Commission will be required prior to any herbicide application.

13. PERSONNEL AND STAFFING

Contractor shall employ only personnel familiar and competent with landscape maintenance and landscape installation work and who possess the required certifications noted in this Invasive Species Management Specification.

Contractor shall provide and guarantee usage of proper protective safety equipment for all activities throughout the duration of the work. This includes, but is not limited to, long sleeve shirts and long pants, boots with socks, chemical resistant gloves, protective eyewear, and chemical resistant aprons.

14. INVASIVE SPECIES MANAGEMENT

14.1 Submittals

The Contractor shall submit to the Construction Manager proof of certification of Foreman or Crew Leader as Pennsylvania Certified Landscape Professional, or Pennsylvania Certified Horticulturist and proof of their current valid Pennsylvania Herbicide Applicator’s License not scheduled to expire during the anticipated life of the Project.

Prior to ordering materials, the Contractor shall submit to the Construction Manager certifications and manufacturer's product data for materials as specified below. No materials shall be ordered or delivered until the required submittals have been reviewed and approved by the Construction Manager. Delivered materials shall closely match the approved documentation. Approval shall not constitute final acceptance. The Construction Manager reserves the right to reject, on or after delivery, any material which does not meet these Specifications.

Herbicide

Submit manufacturer's product data certifying that the herbicide being supplied conforms to these Specifications. Submit the purchasing receipt showing the total quantity purchased for the Project prior to commencement of management work. Submit empty bottles or containers of herbicide to the Construction Manager for verification of use.

Herbicide Application Devices

Submit manufacturer's product data of system or submit the actual device if no manufacturer's product data is available.

Dye

Submit manufacturer's product data.

14.2 Products

Herbicide

Herbicide to be used for the control of invasive plants shall be a glyphosate-based product, such as RodeoTM or approved equal, and devoid of any surfactant or spreading agents. Herbicide shall be applied at a minimum of 25% and maximum of 50% strength directly to cut stems or stumps of invasive plants.

Dye

A dye that the herbicide manufacturer deems compatible with the herbicide product chosen for use shall be mixed for application with the herbicide. The herbicide manufacturer shall certify that the dye product chosen will in no way inhibit the intended effect nor dilute the strength of the herbicide product. The dye shall be a red color or approved equal.

Herbicide Application Device

Device shall be appropriate for cut-stem or cut-stump application, such as a "Weed Wand." It is recommended that application devices be designed specifically to directly apply herbicide to cut stems or stumps with minimal overflow onto the ground. References for direct stem herbicide application devices may be found in The Nature Conservancy's Weed Control Methods Handbook.

14.3 Herbicide Application Techniques

Herbicide to be used for the control of invasive plants shall be a glyphosate-based product, such as Rodeo or approved equal, and devoid of any surfactant or spreading agents. Herbicide shall be applied at a minimum of 25% and maximum of 50% strength directly to cut stems of invasive plants, primarily woody plants. Herbicide shall contain a dye that is compatible with and will not dilute the herbicide's strength. Dye shall be mixed with herbicide such that the dye is strong enough to be easily visible on stem or stump receiving the herbicide application. In conducting herbicide work, Foreman or Crew Leader and crew members shall follow all procedures and take all safety precautions required by Foreman's or Crew Leader's Herbicide Applicator's License.

An herbicide wand, wiper, sponge-tipped or equal hand-held cut stem or cut stump applicator is recommended to apply herbicide directly to cut stems or stumps. It is recommended that the herbicide be dabbed, squirted, wiped, and/or painted directly on the entire exposed cambium (living inner tissue) of the stem or stump. Every attempt shall be made to use application methods and/or products which minimize overthrow or dripping of herbicide.

14.4 Japanese Knotweed:

The following procedure, or an approved equal, shall be used to control the Japanese knotweed population at Sheraden Park:

1. Cut the stands of Japanese knotweed the last week of May or first week of June to a height of 2 to 3 inches from the ground surface.
2. Control migration of cuttings into nearby waterways and vernal pools.
3. Let the plants regrow for at least eight weeks.
4. Immediately following eight weeks from initial cutting, apply glyphosate product to the regrowth in accordance with the manufacturer's recommendations for the product selected. Ensure application does not affect native vegetation. Chemical application shall be in conjunction with the procedure outlined in Section 14.3 Herbicide Application Technique.
5. In conjunction with initial chemical treatment (at eight weeks), the Contractor shall begin a second cycle of mechanical and chemical treatment for any new or remaining visible growth of Japanese knotweed. The timing and procedures shall generally follow those outlined in steps one through four of this section.
6. Overseed the area with a cover crop such as spring oats without disturbing native species. Seeding shall be in accordance with procedure outline in Section 15 Seeded Vegetation.

14.5 Reed Canarygrass:

The following procedure, or an approved equal, shall be used to control the reed canarygrass population at Sheraden Park:

1. Cut the stands of reed canarygrass when plants are beginning to flower during the last week of May or first week of June, to a height of 2 to 3 inches from the ground surface.
2. Let the plants regrow for at least 8 weeks.
3. Immediately following eight weeks from initial cutting, apply glyphosate product to the regrowth in accordance with the manufacturer's recommendations for the product selected. Ensure application does not affect native vegetation. Chemical application shall be in conjunction with the procedure outlined in Section 14.3 Herbicide Application Technique.
4. In conjunction with initial chemical treatment (at eight weeks), the Contractor shall begin a second cycle of mechanical and chemical treatment for any new or remaining visible growth of Reed Canarygrass. The timing and procedures shall generally follow those outlined in steps one through four of this section.
5. Overseed the area with a cover crop such as spring oats without disturbing native species. Seeding shall be in accordance with procedure outline in Section 15 Seeded Vegetation.

14.6 Poison Hemlock:

The following procedure, or an approved equal, shall be used to control the poison hemlock population at Sheraden Park:

1. Apply glyphosate product to poison hemlock growth during the month of March.
2. Cut the stand of poison hemlock, when plants are beginning to flower during the last week of May or first week of June, to a height of two to three inches from the ground surface.
3. Let the plants regrow for at least eight weeks.
4. Immediately following eight weeks from initial cutting, apply glyphosate product to the regrowth in accordance with the manufacturer's recommendations for the product selected. Ensure application does not affect native vegetation. Chemical application shall be in conjunction with the procedure outlined in Section 14.3 Herbicide Application Technique.
5. In conjunction with initial chemical treatment (at eight weeks), the Contractor shall begin a second cycle of mechanical and chemical treatment for any new or remaining visible growth of Poison Hemlock. The timing and procedures shall generally follow those outlined in steps two through five of this section.
6. Overseed the area with a cover crop such as spring oats without disturbing native species. Seeding shall be in accordance with procedure outline in Section 15 Seeded Vegetation.

14.7 Purple Loosestrife:

The following procedure, or an approved equal, shall be used to control the purple loosestrife population at Sheraden Park:

1. Contractor shall cut the flowering tops off the purple loosestrife during the months of June through September. Treatment of work areas shall occur at least in conjunction with Contractor mobilization to site for mechanical or chemical treatments of other invasive species included in this contract.
2. Cut the flowering tops of the loosestrife and bag this material for proper disposal.
3. Contractor shall use one of two alternate techniques for treating the deflowered purple loosestrife with a glyphosate product as soon as possible following the deflowering process:
    a. Spray the target plants with the herbicide.
    b. Use a two-layered glove, which is cotton on the outside with a chemical-resistant liner, to wipe the herbicide onto the target plants.

14.8 Treatment of Non-Target Invasive Species

Treatment of invasive species other than Japanese Knotweed, Poison Hemlock, Reed Canarygrass, and Purple Loosestrife might be necessary at the site in order to maintain the establishment of native vegetation. If the need to treat additional species is determined by the Contractor, the Contractor shall submit a management plan for the additional species to the Owner for review. Any treatment of non-target invasive species shall be paid for under Item C.7 and be in accordance with the procedure outlined in this specification for mechanical treatment, Section 14.3 Herbicide Application Technique, and Section 15 Seeded Vegetation as applicable.

15. SEEDED VEGETATION

15.1 Quality Assurance

Qualification of Landscape Contractor: The work of this Section shall be performed by a landscape contracting firm which has successfully completed work of a similar quality, schedule requirement, and construction detailing. Proof of this experience shall be submitted prior to commencing work. Qualification of Foreman or Crew Leader: All work of seeding shall be supervised by a foreman or crew leader who is a certified landscape professional. Landscape professional shall be a Pennsylvania Landscape & Nursery Association Certified Landscape Professional.

Deliver seed in original sealed containers, labeled with analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, location of packaging, and name of seed grower. Damaged Packages will not be accepted. Seed mixture shall be stored under cool and dry conditions so that the endophytic seed in the mixture can maintain a high level of endophytes.

The Construction Manager will inspect all work for Substantial Completion upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of inspection. Acceptance of material by the Construction Manager will be for general conformance to the Contract Documents. Upon completion and reinspection of all

repairs and renewals necessary in the judgement of the Construction Manager, the Construction Manager will recommend to the Owner that the work of this Section be accepted.

Seeded areas will be accepted when all areas meet the requirements in Section 15.6 Acceptance.

15.2 Submittals

Prior to the first day of the seeding season described in this Section, submit to the Construction Manager proof of certification of Foreman or Crew Leader as Pennsylvania Certified Landscape Professional or Pennsylvania Certified Horticulturist in accordance with QUALITY ASSURANCE paragraph of this Section.

Submit proof of landscape contractor's experience to the Construction Manager in accordance with QUALITY ASSURANCE paragraph of this Section.

At least 30 days prior to intended use, the Contractor shall provide the following submittals for approval by Construction Manager. Do not order materials until Construction Manager approval of certifications has been obtained. Delivered materials shall closely match the approved documentation. Acceptance shall not constitute final acceptance. The Construction Manager reserves the right to reject on or after delivery any material that does not meet these Specifications.

Fertilizer

Submit product literature of seeding fertilizer and certificates showing composition and analysis. Submit the purchasing receipt showing the total quantity purchased for the project prior to installation.

Seed

Submit a manufacturer's Certificate of Compliance to the Specifications with each shipment of each type of seed. These certificates shall include the guaranteed percentages of purity, weed content and germination of the seed, and the net weight and date of shipment. No seed may be sown until the Contractor has submitted the certificates.

Erosion Control Matting

Submit manufacturer's material descriptions and/or installation instructions

Hydroseeding

Prior to the start of hydroseeding, submit a certified statement for approval as to the number of pounds of materials to be used per 100 gallons of water.

Wood Cellulose Fiber Mulch

Prior to ordering submit a digital copy of manufacturer's literature.

15.3 Products

Seed

Seed mixture shall be fresh, clean, new crop seed. Seed shall be of the previous year's crop and in no case shall the weed seed content exceed 0.25% by weight. The seed shall be furnished and delivered in the proportion specified below in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturer's Certificates of Compliance. Seed that has become wet, moldy, or otherwise damaged shall not be acceptable.

Premixed seed mixtures should be obtained from a licensed distributor and/or seed mixing company located within Pennsylvania and be approved by the Construction Manager. The seed material to be planted should come from a local or regional source that has similar environmental conditions to that of the site. Standard acceptable inoculant material may be necessary to treat seeded leguminous vegetation. Seed should be applied at the Site utilizing a hydroseeder. No binding agent or tackifier should be used in the slurry, as this would prevent the seed from falling onto the ground in a manner mimicking natural seed dispersal. Additionally, minimal mulch should be utilized in the slurry. The primary purpose of the mulch will be to act as a visual aid in delineating seeded areas.

The ALCOSAN Floodplain seed mixture below applied at 50 lbs/acre and supplied by Ernst Conservation Seeds Inc., or an approved equal, shall be used for seeding in the floodplain portion of the Sheraden Park site:

ALCOSAN Floodplain Mix (Item No. ALCOSAN)		
Common Name	**Item No.**	**Bulk Quantity**
Big Bluestem, 'Niagara'	ANDGER01	0.057
Swamp Milkweed, PA Ecotype	ASCINC01	0.008
Lance Leaved Aster	ASTLAN01	0.001
New England Aster, PA Ecotype	ASTNOV01	0.001
Heath Aster, PA Ecotype	ASTPIL01	0.001
Zigzag Aster, PA Ecotype	ASTPRE01	0.001
Purplestem Aster, PA Ecotype	ASTPUN01	0.001
Frank's Sedge, PA Ecotype	CARFRA01	0.020
Lurid Sedge, PA Ecotype	CARLUR01	0.020

ALCOSAN Floodplain Mix (Item No. ALCOSAN)		
Common Name	**Item No.**	**Bulk Quantity**
Blunt Broom Sedge, PA Ecotype	CARSCO01	0.010
Fox Sedge, PA Ecotype	CARVUL01	0.060
Virginia Wildrye, PA Ecotype	ELYVIR01	0.080
Joe Pye Weed, PA Ecotype	EUPFIS01	0.002
Boneset, PA Ecotype	EUPPER01	0.002
Purple Node Joe Pye Weed, WV Ecotype	EUPPUR01	0.001
Grassleaf Goldenrod, PA Ecotype	EUTGRA01	0.001
Oxeye Sunflower, PA Ecotype	HELHEL01	0.010
Soft Rush	JUNEFF01	0.004
Path Rush, PA Ecotype	JUNTEN01	0.004
Great Blue Lobelia, PA Ecotype	LOBSIP01	0.001
Seedbox, PA Ecotype	LUDALT01	0.001
American Water Horehound, PA Ecotype	LYCAME02	0.001
Square Stemmed Monkeyflower, PA Ecotype	MIMRIN01	0.001
Deertongue, Tioga	PANCLA01	0.080
Narrowleaf Mountainmint	PYCTEN01	0.002
Green Bulrush, PA Ecotype	SCIATR01	0.001
Woolgrass, PA Ecotype	SCICYP01	0.001
Roughleaf Goldenrod, PA Ecotype	SOLPAT01	0.001
Wrinkleleaf Goldenrod, PA Ecotype	SOLRUG01	0.001
Blue Vervain, PA Ecotype	VERHAS01	0.016
Giant Ironweed, PA Ecotype	VERGIG01	0.002
New York Ironweed, PA Ecotype	VERNOV01	0.002
Golden Alexanders, PA Ecotype	ZIZAUR01	0.006
Rye, Variety Not Stated	SECCER01	0.600

The ALCOSAN Slope seed mixture below applied at 60 lbs/acre and supplied by Ernst Conservation Seeds Inc., or an approved equal, shall be used for seeding in the sloped (non-floodplain) portion of the Sheraden Park site:

ALCOSAN Slope Mix (Item No. ALCOSAN SLOPE MIX)		
Common Name	**Item No.**	**Bulk Quantity**
Autumn Bentgrass, Albany Pine Bush-NY Ecotype	AGRPER01	0.038
Common Milkweed	ASCSYR02	0.002
Heath Aster, PA Ecotype	ASTPIL01	0.002
Zigzag Aster, PA Ecotype	ASTPRE01	0.002
Blunt Broom Sedge, PA Ecotype	CARSCO01	0.008
Fox Sedge, PA Ecotype	CARVUL01	0.017
Virginia Wildrye, Madison-NY Ecotype	ELYVIR07	0.166
Joe Pye Weed, PA Ecotype	EUPFIS01	0.001
Boneset, PA Ecotype	EUPPER01	0.002
Oxeye Sunflower, PA Ecotype	HELHEL01	0.010
Soft Rush	JUNEFF01	0.007

ALCOSAN Slope Mix (Item No. ALCOSAN SLOPE MIX)		
Common Name	**Item No.**	**Bulk Quantity**
Annual Ryegrass	LOLMUL01	0.200
Wild Bergamot, Fort Indiantown Gap-PA Ecotype	MONFIS03	0.002
Deertongue, Tioga	PANCLA01	0.510
Narrowleaf Mountainmint	PYCTEN01	0.002
Blackeyed Susan	RUDHIR04	0.010
Giant Ironweed, PA Ecotype	VERGIG01	0.002
New York Ironweed, PA Ecotype	VERNOV01	0.002
Golden Alexanders, PA Ecotype	ZIZAUR01	0.005

Oats (64 lb/acre) may be used as necessary for temporary stabilization if invasive species residue does not provide sufficient soil cover.

Wood Cellulose Fiber Mulch

Mulch to cover hydroseeded areas with slopes less than 3 to one shall be fiber processed from whole wood chips and clean recycled newsprint in a 1:1 proportion manufactured specifically for standard hydraulic mulching equipment. Fiber shall not be produced from recycled material such as sawdust, paper, or cardboard.

Moisture content shall not exceed 10 percent, plus or minus 3 percent as defined by the pulp and paper industry standards. Fiber shall have a water holding capacity of not less than 900 grams water per 100 grams fiber.

The mulch shall be of such character that the fiber will be dispersed into a uniform slurry when mixed with water. It shall be nontoxic to plant life or animal life.

The mulch shall contain a non-petroleum based organic tackifier and a green dye to allow for easy visual metering during application but shall be non-injurious to plant growth.

Straw Mulch

Use class ‘AA’ straw as defined below. Fiber mulch products applied with a hydraulic seeder may be used in conjunction with straw. The use of clean straw with a low content of viable cereal grains and viable weed seed is an important component of successful seeding.

Class ‘AA’ straw shall be composed entirely of the air-dried stems and leaves of native grasses such as little bluestem, broomsedge, and other species which are compatible with the seeding sites. Class ‘AA’ straw may contain any amount of the viable seed of the native grass species from which it is derived. Class ‘AA’ straw shall be bright in color, and shall not be wet, musty, moldy, caked, decayed, or dusty. Straw shall be easily loosened when removed from the bale, and able to be uniformly spread by hand or with the use of a straw blower.

Class ‘AA’ used as mulch in seeding sites shall be free of seeds, rhizomes, or other viable parts of the following weeds:

Balloonvine	Canada Thistle	Johnsongrass & hybrids	Serrated Tussock
Bermudagrass	Curly Thistle	Musk Thistle	Sicklepod
Bindweed	Dodder	Phragmites	Spurred Anoda
Corn cockle	Giant Foxtail	Plumeless Thistle	Wild Garlic
Cocklebur	Horse Nettle	Quackgrass	Wild Onion

Water

The Contractor shall be responsible to furnish their own supply of water to the site. If possible, the Owner may furnish the Contractor upon request with a source and supply of water at no additional cost to the Contractor. However, if the Owner's water supply is not available or not functioning, the Contractor shall be responsible to furnish adequate supplies at their own cost. All work injured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

15.4 Execution

Seeding Preparation

Immediately prior to seeding all seedbeds shall be free of weeds. Prepare the weed-free seedbed with rototillers, disk harrows, or other soil preparation equipment and leave the soil with an irregular open surface. Bulldozers used to loosen the soil surface shall leave the surface with an open irregular surface, and with track ridges that run parallel to the slope. All rocks and other debris larger than 2.0 inches in diameter shall be removed from the soil surface. The site shall be leveled so that no irregularities greater than 2 inches above or below grade per linear foot are present. The soil at the time of seeding shall be firm, and the surface shall be loose and open, so that seeds may readily fall into soil spaces.

Seeding

Seeding shall be done only in the windows outlined under Section 12. The actual planting of seed shall be done only during periods within this season which are normal for such work as determined by weather conditions and by accepted practice in this locality. Stabilization using coir erosion control matting shall be performed immediately after seeding of areas with 3:1 slope or greater. Seed only when the bed is in a friable condition, not muddy or hard. Most species used in the seed mix are generally small and do not benefit from deep planting.

Hydroseeding

Prior to the start of work, furnish a certified statement as to the number of pounds of materials to be used per 100 gallons of water. This statement shall also specify the number of square feet of hydroseeding that can be covered with the quantity of solution in the hydroseeder.

Hydroseed with wood cellulose fiber mulch at a rate of 46 pounds per 1,000 square feet or 2000 pounds per acre.

At no time shall the mobile tank or tank truck be allowed onto the prepared hydroseed beds. The hose shall be equipped with a nozzle of a proper design to ensure even distribution of the hydroseeding slurry over the area to be hydroseeded and shall be operated by a person thoroughly familiar with this type of seeding operation.

Hydroseeding Process

Spread 100 percent of the required seed uniformly over the prepared loam bed so that the seed comes into direct contact with the soil. To mark the progress of the hydroseeding operation the Contractor may add 10 percent of the wood cellulose fiber mulch to the slurry.

A second separate application of wood cellulose fiber mulch immediately following the first step of hydroseeding noted above. Apply the wood cellulose fiber mulch at a rate of 2,000 pounds per acre.

15.5 Maintenance

Maintenance shall begin immediately after any area is seeded and mulched. If seeding operations are completed too late in the fall for adequate germination and growth of grass and forbs, then maintenance shall continue into the following spring. Maintenance shall include reseeding, watering, weeding, remulching, and replacement of straw mulch and coir erosion control matting, as necessary. During the maintenance period, any decline in the condition of seeded areas shall require timely action to identify potential problems and to undertake corrective measures. Repetition of invasive species treatment required after the completion of seeding in Year 1 shall be addressed in the invasive species treatment work defined for Year 2.

15.6 Acceptance

At the end of the maintenance period for each year, work performed in the defined target areas shall be evaluated by the Owner for compliance of the work with the Contract specifications and effectiveness of invasive species removal including: purple loosestrife, Japanese knotweed, reed canary grass, and poison hemlock.

Seeded areas shall have no bare spots greater than 6 inches in diameter over greater than 75 percent of the overall seeded area. At least 90 percent of the grass and forbs established shall

be permanent grass and form species. If seeded areas are deficient, the Contractor's responsibility for maintenance of all seeded areas shall be extended until deficiencies are corrected. Seeded areas to be corrected shall be prepared and reseeded in accordance with the requirements of this Section listed above.

END OF SECTION