PROPOSED ECOLOGICAL RESTORATION OF THE TURKEY FOOT AREA OF JOHN HEINZ
NATIONAL WILDLIFE REFUGE AT TINICUM IN PHILADELPHIA, PA

PART 1 - GENERAL SUMMARY OF WORK

1.1 SUMMARY

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Work restrictions.
5. Specification and drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification: Turkey Foot Ecological Restoration, John Heinz National Wildlife Refuge, Tinicum, PA

B. Property Owner: US Fish and Wildlife Service

C. Project Sponsor: Friends of Heinz Refuge

D. Project Contacts:

1. Property Owner’s Representative: Lamar Gore
2. Project Sponsor’s Representative: Jaclyn Rhoads

E. Summary of Work Scope: The US Fish and Wildlife Service is seeking to restore the Turkey Foot area of the John Heinz National Wildlife Refuge. The goal of this project is four-fold:

1. Recontour the ponds’ shorelines to create a larger littoral zone that includes a planted aquatic bench. This may require a minimal decrease the maximum depth and/or total volume of the ponds.
2. Remove existing non-native plant species present in the wetland and upland areas within the project site,
3. Recontour and regrade the wetland and upland areas within the project site, and replant with native species.
4. Contractors should be aware that this is a Design Build Project. As such, bidders must provide a team capable of satisfying all elements of the project including design, permit acquisition, project supervision, construction/grading, post-construction planting, invasive species control, and reporting as detailed in accompanying Sections 2-12 of this RFP.
1.3 REQUIRED PRE-BID MEETING

A. FOHR will coordinate an on-site, pre-bid meeting. This meeting is mandatory and must be attended by any design engineer/contractor proposing to bid on this project. The primary purpose of this meeting is to familiarize potential bidders with the project site, access and staging areas, and provide an overview of the overall work that will be conducted through this project. The meeting shall also provide an opportunity to determine if there are any issues of concern and to discuss feasible solutions before bids are submitted.

B. The Date and Time of the Mandatory Pre-Bid Meeting is set for: September 3, 2020 at 10AM

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Turkey Foot Area Restoration Project consists of the following:

1. **Project Element 1:** Detailed Work Plan and Associated Contract Plans. The Work Plan and Contract Plans (Drawings) shall detail the means by which the contractor will conduct the work covered by this contract. The Contract Plans must be signed and sealed by a PA licensed Professional Engineer. One hard copy of the approved Work Plan and Contract Plans shall be available at all times at the work site. The Contract Plans will consist of at a minimum, individual signed/sealed engineering drawings detailing the following:
   
   I. Cover Sheet
   II. USGS Site Map with Delineated Boundaries of Project Site
   III. Aerial Photo of Existing Conditions with Delineated Boundaries of Project Site
   IV. Existing Conditions
   V. Proposed Conditions
   VI. Drainage Area Map
   VII. SURGO Soils Map
   VIII. Access and Staging
   IX. Soil Erosion and Sediment Control
   X. Ponds Restoration Plan
   XI. Wetland Restoration Plan
   XII. Planting Plan
   XIII. Planting Plan Details
   XIV. Planting Notes
   XV. Construction Details
   XVI. Construction Notes

2. **Project Element 2:** Final topographic survey of wetlands and uplands and bathymetric survey of ponds to establish existing conditions, set and establish existing conditions survey references.

3. **Project Element 2:** Secure all required local, county, state and federal permits affecting the proposed ecological restoration of the Turkey Foot project area.

4. **Project Element 3:** Site staging, preparation of work area and mobilization of equipment.

5. **Project Element 4:** Temporary diversion of Darby Creek inflow from project area
6. Project Element 5: Ecological restoration of Turkey Foot. This element includes all necessary excavation, grading and earthwork, the control and removal of non-native invasive plant species, and the post-restoration re-planting of the project site with native species.

7. Project Element 6: Demobilization and repair/restoration of disturbed areas

8. Project Element 7: Monitoring and documentation of success of plantings and post-restoration stabilization of disturbed areas

9. Project Element 8: Reporting, including post-restoration As-Built Survey of project site including recontoured ponds.

1.5 REQUIRED SCOPE OF WORK

A. The following specific requirements must be achieved by the successful bidder:

1. Element 1: Review site survey data of project area available through the US Fish and Wildlife Service, FOHR and Heinz Refuge Staff. The contractor shall be responsible for conducting a preliminary, existing conditions topographic and bathymetric survey of the project area (1-foot contour intervals). On-site bench marks and geodetic datum reference points are available within the Refuge, the locations of which and related data will be provided to the contractor by Heinz Refuge staff.

2. Element 2: Secure all required permits and regulatory approvals for proposed ecological restoration work.

3. Element 3: Mobilization of equipment and preparation of work area.
   a. Delineation of area of disturbance and erection of any high visibility safety fencing and/or traffic barriers deemed necessary by Heinz Refuge staff around project area
   b. Installation and maintenance of all Soil Erosion and Sediment Control features as specified.
   c. Maintenance of a clean and safe work area.

4. Element 4: Temporary diversion of Darby Creek to maintain work area in a dewatered state.

5. Element 5: Restoration of the Turkey Foot Project Area
   a. The contractor will be responsible for all excavation and grading and site modifications as per the plans approved by FOHR and the US Fish and Wildlife Service as well as any project limitations as set forth in the secured project permits and regulatory approvals.
   b. The contractor will be responsible for the control and/or removal of invasive plant species using mechanical and/or herbicide techniques as approved by PADEP, USACOE and Heinz Refuge Staff.
   c. The contractor will be responsible for the delivery of all materials, including plants and seeds, imported soils, compost, mulch and related soil erosion and site stabilization materials required to complete this project. With respect to imported soil, before delivering any soil to the site the contractor shall supply both the FOHR and Heinz Refuge Staff with documentation confirming that the imported soils are free of any contamination.
d. The contractor will be responsible for the installation and planting of specified seeds and plant material as well as the stabilization of the new pond edges with coir logs or other suitable materials.

6. Element 6: Demobilization of equipment and restoration/stabilization of any disturbed areas including site staging area, temporary work roads and site access road.

7. Element 7: Monitor success of restoration plantings as per requirements set forth in state/federal permits. Achieve required plant coverage to the satisfaction of site owner.

8. Element 8: Prepare and submit all required reports, including post-restoration “As Built” survey of Turkey Foot area including post-restoration bathymetry of ponds.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on the accompanying figure that establishes the Limits of Disturbance, Proposed Work Staging Area and Proposed Site Access Route.

1. Access to the site will be primarily by means of the designated maintenance roads identified on Figure 1.

2. Contractor is responsible for any damage to the existing roads resulting from use and repairs must be made prior to demobilizing from the site.

B. Use of Site: Limit use of Project site to areas within the delineated Limit of Disturbance. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to areas within the Limit of Disturbance as shown on the contract drawings.

C. There are two limited capacity bridges that are part of the project site. These bridges cannot be used to transport heavy machinery or heavy loads. Mandatory coordination is required of the contractor and the staff of the Heinz National Wildlife Refuge before use of any use of these bridges as part of this work effort.

1.7 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction of said roadways.

2. No work is to be initiated until receipt of all County, PADEP and USACOE permits. The contractor is bound to any seasonal limitations/time constraints identified in said permits.

3. All work is not to be initiated until receipt of authorization to proceed from representatives of FOHR and the Heinz National Wildlife Refuge.

4. All work shall be conducted between 07:00 A.M and 04:00 P.M. Work is not allowed on weekends (Saturday and Sunday) without the authorization of representatives of the
Heinz National Wildlife Refuge. Other project limitations are set forth in the accompanying Sections 2-12 of this RFP.

B. Existing Utility Interruptions: Do not interrupt utilities serving the John Heinz National Wildlife Refuge or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify consulting engineer and Heinz Refuge Staff not less than two (2) days in advance of proposed utility interruptions.
2. Obtain Heinz Refuge Staff’s written permission before proceeding with utility interruptions.

C. Noise, Vibration, and Odors: Coordinate operations with Heinz Refuge Staff that may result in high levels of noise and vibration, odors, or other disruption to the public using John Heinz National Wildlife Refuge.

1. Notify Heinz Refuge Staff and consulting engineer not less than two (2) days in advance of proposed disruptive operations.
2. Obtain Heinz Refuge Staff’s written permission before proceeding with disruptive operations.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words “shall”, “shall be”, or “shall comply with”, depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

PART 2 - GENERAL DESCRIPTION OF EXECUTION OF WORK

2.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Restoration of the Turkey Foot area of John Heinz National Wildlife Refuge, Tinicum, PA, including, but not limited to, the following:

1. Site layout, staging, installation of environmental protections.
2. Completion of the proposed restoration “Work”.
3. Protection of completed restoration “Work”.
4. Correction of the “Work” deemed by Heinz Refuge Staff and/or the consulting engineer that fails to meet or fully satisfy project specifications or permit requirements.

2.2 MATERIALS

A. General: Comply with requirements specified in the approved Construction Plans and other accompanying Sections of the Turkey Foot Restoration Project specification.

2.3 EXAMINATION

A. Existing Conditions: The contractor shall be responsible for preparing a pre-restoration topographic map of the project area and conducting a detailed bathymetric survey of the two ponds located within the Turkey Foot project area. The survey work shall encompass the entire project site (uplands, wetlands, ponds and tidal connection of the ponds to Darby Creek (refer to Figure 2 in Legal Notice to Bidders. The contractor shall also be responsible for identifying the existence and location of all utilities (surface and sub-surface) located within the project area. Before beginning site work, the contractor shall investigate and verify the existence and location of all utilities (surface and sub-surface).

B. Examination and Acceptance of Conditions: Before proceeding with each component of this project, the contractor shall be responsible for examining site conditions that could affect the successful completion of the project or the contractor’s performance. The contractor before proceeding shall review with Heinz Refuge Staff any identified unsatisfactory conditions.

2.4 PREPARATION

A. Existing Utility Information: Although not anticipated, there exists the potential for utility relocation due to unknown utility location(s). If the need arises for the relocation of existing utilities the contractor shall not proceed with the relocation before alerting the Heinz Refuge Staff and the authorities having jurisdiction over said utility.

B. Field Measurements: The contractor shall record field measurements as required over the duration of this project and review these measurements on a regular basis with Heinz Refuge Staff. Where recorded field measurements affect the completion of the project as per the approved construction plans, approval to proceed must be obtained from Heinz Refuge Staff.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the contractor, submit a review request with the consulting engineer and Heinz Refuge Staff.
2.5 CONSTRUCTION LAYOUT

A. Verification: Before proceeding, verify layout information shown on approved Construction Plans, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify the consulting engineer and Heinz Refuge Staff promptly.

B. Site Improvements: Locate and layout site improvements, grades and other conditions that affect the successful regrading of wetlands and alteration of the ponds as so detailed in the approved Construction Plans.

C. The contractor is responsible to confirm the layout and all elevations and grades in accordance with the approved Construction Plans.

2.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Promptly correct any standing water in staging and access areas.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the affected work area, as appropriate.
   3. Correct any spills or contamination

D. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials into waterways.

2.7 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
   1. Repair includes replacing refinishing damaged surfaces and touching up with matching materials.
   2. Replant any damaged plant material
   3. The contractor is responsible to repair any and all damage caused by construction activities to adjacent property including but not limited to utilities, irrigation, landscape features, pavement, etc.

END OF SECTION 001
SECTION 002 – SUBSTITUTION PROCEDURES

PART 3 - GENERAL

3.1 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by contractor.
   1. Substitutions for Cause: Changes proposed by contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
   2. Substitutions for Convenience: Changes proposed by contractor, FOHR, or John Heinz National Refuge that are not required in order to meet other Project requirements but may offer advantage to contractor or FOHR, or John Heinz National Refuge.

3.2 SUBMITTALS

A. Substitution Requests: Submit one (1) copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Documentation: Show compliance with requirements for substitutions and the following as applicable:
      a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
      b. Coordination information, including a list of changes or modifications needed to other parts of the Work, which will be necessary to accommodate proposed substitution.
      c. Detailed comparison of signification qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
      d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
      e. Samples, where applicable or requested.
      f. Certificates and qualification data, where applicable or requested.
      g. List of similar installations for completed projects with project names and addresses and names and addresses of project owner/client.
      h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
      i. Detailed comparison of contractor’s construction schedule using proposed substitution with products or method of construction cannot be provided within
the Contract Time, include letter from manufacturer, on manufacturer’s letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

j. Cost information, including a proposal of change, if any, in the Contract Sum.

k. Contractor’s certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

l. Contractor’s waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Engineer’s Action: If necessary, consulting engineer will request additional information or documentation for evaluation within three (3) days of receipt of a request for substitution. Consulting engineer will notify contractor of acceptance or rejection of proposed substitution within three (3) days of receipt of request, or three (3) days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or consulting engineer’s supplemental instructions for minor changes in the Work. This also applies to supplemental instructions for minor changes in the Work requested/required by Heinz Refuge Staff in consultation with the contractor and consulting engineer.

b. Use product specified if consulting engineer does not issue a decision on use of a proposed substitution within time allocated.

3.3 QUALITY ASSURANCE


3.4 PROCEDURES

A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

B. Approval: All substitution must be approved by the consulting engineer, FOHR, and John Heinz National Refuge.
PART 4 - PRODUCTS

4.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than seven (7) days prior to time required for preparation and review of related submittals.

1. Conditions: Consulting engineer will consider contractor’s request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, consulting engineer will return requests without action, except to record noncompliance with these requirements.

   a. Request substitution is consistent with the Contract Documents and will produce indicated results.
   b. Substitution request is fully documented and properly submitted.
   c. Requested substitution will not adversely affect contractor’s construction schedule.
   d. Requested substitution has received necessary approvals of authorities having jurisdiction.
   e. Requested substitution is compatible with other portions of the Work.
   f. Requested substitution has been coordinated with other portions of the Work.
   g. Requested substitution provides specified warranty.
   h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, and is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

END OF SECTION
SECTION 003 - PHOTOGRAPHIC DOCUMENTATION

PART 5 - GENERAL

5.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Pre-restoration photographs.
2. Periodic photographs of project site during the restoration process.
3. Final completion site restoration photographs.

5.2 INFORMATIONAL SUBMITTALS

A. Submit plan of project site with notation of vantage points marked for location and direction of each photograph.

B. Digital Photographs: Submit image files.

1. Digital Camera: Minimum sensor resolution of 8 megapixels.
2. Format: Minimum 1600 by 1200 pixels, 400 dpi minimum, in unaltered original files, with same aspect ratio as the sensor, uncropped, date- and time- stamped, in folder named by date of photograph, accompanied by key plan file.
3. Identification: Provide the following information with each image description in file metadata tag:
   a. Name of Project.
   b. Name of contractor.
   c. Date photograph was taken.
   d. Description of vantage point, indicating location, direction (by compass point), and elevation of construction.
   e. Unique sequential identifier keyed to accompanying key plan.

PART 6 - PRODUCTS

6.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 1600 by 1200 pixels and 400 dpi.
PART 7 - EXECUTION

7.1 PRE-RESTORATION, RESTORATION AND POST-RESTORATION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of restoration photographs that identifies each photographic location.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.

C. Pre-restoration Photographs: Before initiating the restoration of the project site, the contractor shall take photographs of the project site and immediate surrounding areas, from different vantage points, as directed by consulting engineer.

1. Flag construction limits before taking construction photographs.
2. Take photographs to show existing conditions adjacent to project site before initiating restoration activities.
3. Take photographs to accurately record physical conditions at start of restoration activities.

D. Periodic Photographs During Restoration Project: Take photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of restoration activities and progress since last photographs were taken.

E. Consulting Engineer-Directed Photographs: From time to time, the consulting engineer and/or Heinz Refuge Staff will instruct the contractor about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of restoration progress since last photographs were taken.

F. Post-Restoration Site Photographs: Take color photographs after completion of project for project record documents. Consulting engineer and/or Heinz Refuge Staff may request photographs of site from desired vantage points.

1. Include date stamp.

END OF SECTION

SECTION 004 - MOBILIZATION & DEMOBILIZATION
PART 1 - GENERAL

1.1 WORK INCLUDED

A. The work shall consist of the mobilization and demobilization of the contractor’s forces and equipment necessary for performing the work required under the Contract, including but not limited to the establishment of a suitably sized, properly located and secure staging area and other preparatory work at the site.

B. Mobilization includes the initial as well as daily transportation of personnel, equipment, and operating supplies to the site.

C. Mobilization shall include construction layout by the contractor, and land surveying for determination of construction quantities, project area boundaries, and utility location(s).

D. Demobilization shall include the removal of all personnel, equipment, and operating supplies from the site at project completion and all other site restoration activities, including removal of erosion and sediment control materials, removal of limits-of-disturbance fencing, repair and restoration of staging area and repair and restoration of access roads and paths into and within the Heinz Refuge project site.

E. Demobilization will be subject to review and approval of Heinz Refuge Staff.

1.2 SUBMITTALS

A. Photographs, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site work.

END OF SECTION 004

SECTION 005  SOIL EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.3 DESCRIPTION

A. This work consists of the construction and maintenance of various temporary soil erosion and sediment control measures, as per the Standards for Soil Erosion and Sediment Control required in the Commonwealth of Pennsylvania and as specified in any County, State and/or Federal permits applicable for the restoration of the Turkey Foot area of Heinz National Wildlife Refuge. This includes but is not limited to the following:

1. Silt Fence
2. High Visibility Security Fencing (Cross reference with Sections 004 and 006)
3. Tree and Vegetation Protection Fencing (Cross reference with Sections 007 and 008)
4. Coir Logs
5. Straw Bale Barrier
6. Erosion Control Mat
7. Stabilized Staging Area
8. Truck Stone Tracking Mat(s)

B. The contractor is required to abide by all County, State and/or Federal permits, and associated regulatory limitations, applicable for this project.

C. Details for the required temporary soil erosion and sediment control measures (including details of the installation of silt fencing, security fencing, coir logs, erosion control mats, and other required erosion and sediment control measures) are to be provided by the contractor in specific drawings provided as part of the approved construction plans and drawings.

D. This project includes work conducted in standing water and areas potentially subject to temporary tidal and storm event inundation. As part of the project’s soil erosion and sediment control measures, the contractor shall include details in the approved construction plans and drawings of the measures that will be implemented to prevent the discharge of turbid water from the restoration areas into Darby Creek or into wetland areas located immediately adjacent to the project area. This includes runoff from access roads and equipment/materials staging area(s).

PART 2 - PRODUCTS

2.1 MATERIALS

A. Standard Soil Erosion and Sediment Control Materials
   1. The contractor shall use the standard soil erosion and sediment control measures and materials as detailed in the approved construction plans and as approved as part of any permits issued through County, State and/or Federal agencies.

B. Coir Logs
   1. Coir logs are to be installed as detail in the approved construction plans.

C. Soil Erosion Matting
   1. Soil erosion control matting shall be type S75 as manufactured by North American Green or equal, or an equal substitute, or a matting specified in any permits issued through County, State and/or Federal agencies.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Tree protection, safety fence, silt fences, or straw bales, soil erosion matting, stabilized staging areas and truck stone tracking construction driveways shall be in conformance with the Standards for Pennsylvania Soil Erosion and Sediment Control Manual.

   1. All soil erosion and sediment control devices shall be installed prior to any site clearing or soil disturbance. During the length of the entire project, the contractor shall be responsible for maintaining all soil erosion and sediment control materials and/or devices in an efficient workable condition.
2. All disturbed areas that are left unimproved for a period of more than 30 days and not subjected to construction traffic will immediately receive a temporary vegetative cover conforming to the seeding schedule on the approved construction plans.

3. The contractor shall incorporate all permanent stormwater runoff control features into the project at the earliest practical time. Temporary soil erosion and sediment control measures shall be coordinated with the permanent stormwater runoff control features to the maximum extent practical to assure economical, effective and continuous erosion control throughout the life of the contract, as outlined in the approved progress schedule. The contractor should coordinate the implementation/installation of permanent stormwater runoff control features measures with Heinz Refuge Staff.

4. When unstable areas caused by site grading, or other earth disturbance activities, exist beyond 14 calendar days, the areas shall be seeded and mulched. These requirements pertain to perimeter controls, berms, dams, swales, ditches and slopes. These measures shall be implemented in conformance with the Standards for Pennsylvania Soil Erosion and Sediment Control Manual. Upon completion of the grading, disturbed areas shall be permanently stabilized within 7 calendar days in accordance with permit requirements and as detailed in the approved construction plans. These measures shall be implemented in conformance with the Standards for Pennsylvania Soil Erosion and Sediment Control Manual. Before implementing any temporary and/or permanent seeding and mulching of areas abutting non-disturbed areas of the Heinz Refuge located outside of the restoration project area boundaries shall be reviewed by the contractor with Heinz Refuge Staff.

5. There shall be no discharge of turbid water, including stormwater runoff, into Darby Creek, or other adjacent watercourses, riparian areas or wetlands.

6. Stockpiled soil shall be placed in well-drained areas no closer than 50 feet from Darby Creek, wetlands, floodplains and other watercourses, unless otherwise directed by the consulting engineer and/or Heinz Refuge Staff. Soil stockpiles shall be seeded and mulched in accordance with the Soil Erosion and Sediment Control plans. Adequate temporary soil erosion and sediment controls shall be provided around the stockpiles until such time as vegetation is established on the piles. Details of the containment of soil stockpiles are to be provided in the approved construction plans.

7. Temporary soil erosion and sediment control measures shall be used to correct conditions that develop during construction that were not foreseen during design, and may include soil disturbance outside of the project limits. These measures shall be implemented in conformance with the Standards for Pennsylvania Soil Erosion and Sediment Control Manual.

8. Corrective actions shall be taken immediately whenever the contractor is not in compliance with soil erosion and sediment control requirements specified in any permits issued by County, State or Federal regulatory agencies. The Heinz Refuge Staff may suspend work activities, wholly or in part, until such time as the contractor is fully in compliance. All corrective and remedial work required to bring the contractor into compliance shall be performed at no cost to FOHR and/or Heinz National Wildlife Refuge.
9. Temporary soil erosion and sediment control measures shall be removed when necessary to allow for the installation of permanent control features or as permanent controls become functional. Heinz Refuge Staff will review with the contractor before acceptance of the project, that all items used for temporary soil erosion and sediment control have been removed unless directed that specific items remain in place (Cross Reference with Section 004).

B. Limitations of Operations

1. Clearing and grubbing operations shall be so scheduled and performed such that grading, and mulching, seeding and other permanent stormwater runoff control features can follow immediately thereafter according to the approved progress schedule and related details included in the approved construction plans and drawings. Should seasonal limitations make such coordination unrealistic, additional temporary soil erosion and sediment control measures shall be required between successive construction stages, as directed by the consulting engineer and/or Heinz Refuge Staff.

C. Soil Erosion and Sediment Control Measures

1. Soil erosion and sediment control measures are to be detailed in the construction plans. The sub-sections that follow are recommended minimum standards that are reflective of the measures outlined in the Standards for Pennsylvania Soil Erosion and Sediment Control Manual. Given that this project entails the disturbance and operation within open water, riparian and wetland areas the contractor may choose to implement additional measures to ensure the proper protection of areas of the Heinz Refuge abutting the Turkey Foot restoration project area.

2. Silt fence: Silt fence shall consist of geotextile fabric whose width shall be at least 3 feet to provide for a 2-foot high fence after 1 foot of fabric is buried in the existing soil. Sections of fabric shall be joined in such a manner that, when in operation, the sections work effectively as a continuous fence. Fence posts shall be installed at a slight angle toward the anticipated runoff source.

3. High visibility fencing: This project occurs adjacent to highly used and easily accessed areas of the Heinz Refuge. It is important to prevent visitors to the Heinz Refuge from entering the project area. Therefore, high visibility fencing will be installed and maintained over the course of the project to deter public access into the project area. Signs will be erected that clearly identify construction is taking place and access to the delineated restoration area is prohibited. High visibility fencing will also be utilized to demarcate the limits of disturbance so that the contractor cannot exceed these limits during construction. Cross reference with Section 006.

4. Tree protection fence: Tree protection fence to be installed around the drip line of all trees within the limits of disturbance. Cross reference with Sections 007 and 008.

5. Straw bale barrier: Straw bales shall be placed along the edge of water during wetland
grading to prevent any sediment laden water from entering Darby Creek. Straw bales to be placed around stockpile locations along with silt fencing. **It should be noted that due to past problems arising from invasive plant species being introduced via hay, the Heinz Refuge Staff will only accept the use of straw bales and not hay bales.**

6. **Coir logs:** To prevent shoreline erosion from tides, wind or wave action while plants become established, coir logs are to be installed along the shoreline of the restored ponds. If appropriate, coir logs may also be used to define and stabilize the edges of the created aquatic bench. The approved construction plan will include details of the coir log installation along the shoreline of the ponds and the edges of the aquatic bench.

7. **Erosion Control Mat:** Erosion control matting to be installed on all slopes equal or greater than 3H:1V and where ever indicated on the design plans. The approved construction plan will include a specification and detail of the erosion control mat and its installation.

D. **Dust and Soil Control Measures**

1. **Dust Control.** The contractor shall employ construction methods and means that keep flying dust to the minimum. The materials and methods used for dust control are subject to approval and shall be as directed within the permits issued by County, State and/or Federal regulatory agencies and as approved by Heinz Refuge staff.

2. **Soil Control.** In order to minimize tracking of soil and other materials, a truck stone tracking pad / construction driveway shall be constructed at locations where vehicles exit the work site. Details are to be provided by the contractor in the approved construction plans. The contractor shall promptly remove from existing roadways all dirt and other materials spilled, washed, tracked or otherwise deposited thereon by hauling and other operations whenever the accumulation is sufficient to cause the formation of mud, interfere with drainage, or create a hazard.

E. **Disposal of Excess Waste Materials**

1. **Remove excess material, and dispose the material at a certified offsite facility.**

END OF SECTION 005

SECTION 006 - TEMPORARY SECURITY BARRIERS

PART 1 – GENERAL

1.1 SUMMARY

As noted in Section 005, this project occurs adjacent to publicly accessible and highly used areas of the John Heinz National Wildlife Refuge. Exclusion of the public from the Turkey Foot restoration area is
imperative. This will be accomplished primarily by the installation and maintenance of a project perimeter delineated using High Visibility Fencing.

A. Temporary Security Barriers:
   1. Temporary High Visibility Fence shall be installed as noted on the included design plans.
   2. Temporary High Visibility Fence shall be installed around the delineated materials and equipment staging area
   3. Temporary High Visibility Fence shall be installed at the two low capacity bridges located within the Turkey Foot project area
   4. Temporary High Visibility Fence shall be installed at areas designated by the Heinz Refuge Staff.

PART 2 - EXECUTION

2.1 EXAMINATION

A. Examine security fencing for defects and problems that might affect performance of the Work.

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

7.2 INSTALLATION

A. Installation of the fencing shall be in accordance with the details provided by the Contractor on the approved project plans. Cross reference with Section 005.

7.3 REPAIRS

A. The Contractor shall make all repairs to compromised fencing in a timely manner as necessary throughout the construction period and as requested by Project Engineer and/or Heinz Refuge Staff. Cross reference with Section 005.

END OF SECTION 006

SECTION 007 - ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.4 SCOPE
This section covers the furnishing of all labor, materials and equipment to perform all work required for the protection of the environment during construction operations except for those measures set forth in Sections 005, 006 and 008 of these specifications.
1.5 GENERAL
For the purpose of this specification, environmental protection is defined as the retention of the environment in its natural state to the greatest possible extent during project construction and to enhance the natural appearance after project completion. Environmental protection requires consideration of air, water, stormwater runoff, and soil. In order to prevent, and to provide for abatement and control of, any environmental pollution arising from the construction activities in the performance of this contract, the contractor and subcontractors shall comply with all applicable Federal, State, County and Local laws and regulation concerning environmental pollution control and abatement. This includes any limitations and/or specifications included in all permits and regulatory approvals issued by Federal, State, and County agencies.

1.6 SUBCONTRACTORS
Compliance with the provisions of this section by subcontractors will be the responsibility of the contractor.

1.7 IMPLEMENTATION
At the pre-construction meeting, the contractor will meet with all FOHR representatives and Heinz Refuge Staff to develop mutual understandings relative to compliance with this provision and administration of the environmental program.

1.8 PROTECTION OF LAND RESOURCES
The areas of the Heinz Refuge abutting and located beyond the Turkey Foot project boundaries (limits of disturbance) shall be preserved in their present condition or be restored to a condition after completion of construction which will appear to be natural and not distract from the appearance of the project. The contractor shall confine construction, disturbance and restoration activities to areas defined within the approved work plan, construction drawings and/or specifications.

1.9 PROTECTION OF WATER RESOURCES
This project will involve the active disturbance of open water, riparian and wetland environments. It also occurs within areas affected by a tidal portion of Ridley Creek. As such, the project will inevitably result in conditions that directly or indirectly could cause the discharge of turbid water into Ridley Creek and adjacent riparian and wetland areas of the Heinz Refuge. The containment of turbid water is a major concern. Therefore, it is the contractor’s responsibility to control the discharge of turbid water, or waters containing any harmful materials, into Ridley Creek and adjacent riparian and wetland areas of the Heinz Refuge. The contractor shall comply with all applicable Federal, State, County and Local laws concerning pollution of any waters. This includes any limitations and/or specifications included in all permits and regulatory approvals issued by Federal, State, and County agencies.

1.10 DISPOSAL OF SOLID WASTE MATERIALS
Contractor shall provide for the proper disposal or recycling of all solid waste materials generated through this project. Disposal shall be as directed by Heinz Refuge Staff, including when and if applicable, the disposal of waste materials at a PADEP licensed and approved waste, recycling or other appropriate facility. The contractor shall supply at a minimum documentation identifying the location of the facility where the disposal and/or recycling of all solid waste materials occurred, name of the hauling company and date that the material was taken off site.
1.11 **DUST CONTROL**

The Heinz National Wildlife Refuge is a highly used, public accessible site. Although the public will be excluded from the delineated project area, they may be utilizing nearby areas of the Refuge. Thus, the contractor shall be required to maintain all work areas within the project boundaries free from dust, which would cause a hazard or nuisance to the public. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. No separate or direct payment will be made for dust control and the cost thereof shall be considered incidental to, and included in the contract. The contractor will bear all costs associated with any damages resulting from any dust nuisance and agrees to hold the Project Representatives (FOHR, Heinz Refuge Staff and the representatives of the FOHR) harmless in any related action.

END OF SECTION 007

**SECTION 008 - TEMPORARY TREE AND PLANT PROTECTION**

**PART 8 - GENERAL**

8.1 **SUMMARY**

A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction. The contractor is to coordinate this element of the project closely with Heinz Refuge Staff.

8.2 **DEFINITIONS**

A. Caliper: Diameter of a trunk measured by a diameter tape at 6 inches above the ground for trees up to, and including, 4-inch size; and 54 inches above the ground for trees larger than 4-inch size.

B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.

C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and indicated on the contract documents.

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

8.3 **SUBMITTALS**

A. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities. Documentation shall include, but is not limited to, the following:
1. Use of sufficiently detailed photographs or videotape.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

8.4 PROJECT CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking of vehicles or equipment.
3. Foot traffic not related to the completion of the site’s restoration.
4. Erection of sheds or structures.
5. Impoundment of water other than that related to the completion of the site’s restoration.
6. Excavation, soil disturbance or other digging unless otherwise indicated on approved plan(s) and/or approved by Heinz Refuge Staff.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated on approved plan(s) and/or approved by Heinz Refuge Staff.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 9 - PRODUCTS

9.1 MATERIALS

A. Protection-Zone Fencing: Fencing fixed in position and as specified on the approved plans or equal as approved by Heinz Refuge Staff.

PART 10 - EXECUTION

10.1 EXAMINATION

A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion and sedimentation control measures are in place, have been properly maintained, and are fully functional. Verify that stormwater runoff redirected from construction areas or generated by construction activity do not enter or cross protection zones. Cross reference with Sections 005, 006 and 007.
10.2 PREPARATION

A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Flag each tree trunk at 54 inches above the ground.

B. Protect tree root systems from damage caused by runoff or spillage of materials and fuel while operating equipment or mixing, placing, or storing construction materials. Protect root systems from ponding, erosion, compaction, or excessive wetting caused by soil grading and project area dewatering operations.

10.3 TREE- AND PLANT-PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected area except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation. Cross reference with Sections 005, 006 and 007.

B. Maintain protection zones by keeping them free of debris.

C. Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by the consulting engineer and/or Heinz Refuge Staff.

D. Maintain protection-zone fencing and signage in good condition as acceptable to the consulting engineer and/or Heinz Refuge Staff. Protection-zone fencing and signage shall be removed when site restoration operations are complete and equipment has been removed from the site. The removal of protection-zone fencing and signage shall be coordinated with Heinz Refuge Staff.

10.4 EXCAVATION

A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Sections 005, 006, 007, 009 and 010.

B. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.

C. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
10.5 ROOT PRUNING

A. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
   a. Root cutting shall be a distance from the trunk as follows: at minimum 6 inches away from trunk for every inch in tree diameter at DBH.
2. Cut Ends: Do not paint cut root ends
3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
4. Cover exposed roots with burlap and water regularly.
5. Backfill as soon as possible according to requirements in Section 010 “Earth Moving”.

10.6 REGRADING

A. All regrading shall be conducted consistent with the approved plans and specifications for the restoration of the Turkey Foot area of Heinz National Wildlife Refuge. The contractor, while obligated to create stable grades and surfaces is not to excessively compact the soils within the restoration area, especially soils located within created/restored riparian and wetland areas and the shoreline of the ponds.

B. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

10.7 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by the consulting engineer.

1. Treat damaged trunks, limbs, and roots according to consulting engineer’s, consulting landscape architect’s and/or Heinz Refuge Staff’s written instructions.
2. Perform repairs within 24 hours.
3. Replace vegetation that cannot be repaired and restored to full-growth status, as determined by the consulting engineer.
B. Trees: Remove and replace trees indicated to remain that are significantly and irreparably damaged during construction operations as determined by Heinz Refuge Staff.

1. Provide new trees of same size and species as those being replaced for each tree that measures 6 inches or smaller in caliper size.
2. Provide one new tree(s) of 6-inch caliper size for each tree being replaced that measures more than 6 inches in caliper size.
3. Plant and maintain new trees as specified in Section 011 “Plants”.

10.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove excess excavated material, displaced trees, trash and debris, and legally dispose of them off-site unless otherwise directed and approved by Heinz Refuge Staff.

END OF SECTION 008

SECTION 009 - SITE CLEARING

PART 11 - GENERAL

11.1 SUMMARY

A. Section Includes:

1. Protection of existing vegetation to remain.
2. Removal of vegetation.
3. Clearing and grubbing.
4. Removing above- and below-grade site improvements.
5. Temporary erosion- and sedimentation-control measures.

11.2 DEFINITIONS

A. Soil Erosion Control: Cross reference with Sections 005 and 007

B. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

C. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
D. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.

E. Tree and Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings. Cross reference with Section 006 and 007.

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

11.3 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain within the boundaries of Heinz National Wildlife Refuge as per directions of Heinz Refuge Staff, cleared and waste materials shall become the contractor’s property and shall be removed from Heinz National Wildlife Refuge and disposed of properly.

11.4 PROJECT CONDITIONS

A. Traffic: During site-clearing operations, minimize interference with adjoining Refuge pathways and roadways.

B. Utility Locator Service: Before commencing with any site clearing the contractor shall coordinate with Heinz Refuge Staff and Notify PA One Call at 811 or (800) 242-1776.

C. Temporary Erosion and Sediment Control and Tree Protection: The contractor shall not commence site clearing operations until all required temporary soil erosion and sediment controls, as well as tree protection measures are in place. Refer to Sections 005, 006 and 007.

D. Prohibited Practices: The following are prohibited from occurring within tree and vegetation protection zones and/or beyond the delineated Project Limits of Disturbance:

1. Storage of construction materials, debris, or excavated material.
2. Parking and staging of vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated or authorized by Heinz Refuge Staff.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated or authorized by Heinz Refuge Staff.
PART 12 - EXECUTION

12.1 PREPARATION

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

B. Locate and clearly identify trees, shrubs, and other vegetation that are to remain. Flag each tree trunk at 54 inches above the ground.

C. Protect existing site improvements to remain from damage during construction.
   1. No equipment or vehicles are allowed to cross the two low capacity spans located with the project work zone without the expressed authorization by Heinz Refuge Staff.
   2. Restore damaged improvements to their original condition, as acceptable to Heinz Refuge Staff.

12.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL (CROSS REFERENCE WITH SECTION 005)

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing (turbid) water runoff or airborne dust to adjacent properties and walkways, according to erosion and sedimentation control details provided within the approved plans and the requirements of the regulatory authorities having jurisdiction.

B. Verify that flows of stormwater runoff and/or water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion and sedimentation control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize disturbed areas in accordance with the approved plans. Cross reference with Sections 005, 006, 007, 008, 010 and 011.

12.3 TREE AND PLANT PROTECTION

A. Follow all requirements stated in Sections 005, 006 and 007 pertaining to protection of environmental features, trees and plants.

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Heinz Refuge Staff.
12.4 EXISTING UTILITIES

A. Interrupting Existing Utilities: Do not interrupt utilities serving Heinz National Wildlife Refuge or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify appropriate Heinz National Wildlife Refuge Representative not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Heinz Refuge Staff written permission.

12.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation associated with the regrading, restoration and replanting of the Turkey Foot project area in accordance with the approved construction plans.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Unless otherwise directed by Heinz Refuge Staff, the contractor shall grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods for grubbing, clearing or site preparation within protection zones, unless otherwise so indicated in approved construction plans.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated. Review filling with Heinz Refuge Staff and ensure that any filling is done in accordance with County, State and/or Federal permits.

1. Place fill material in horizontal layers not exceeding a loose depth of 12 inches, and stabilize each layer to a density equal to adjacent original ground. The contractor is to avoid the excessive compaction of soils, especially soils placed and regraded within riparian and wetland areas or adjacent to the shoreline of ponds.

12.6 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements (pipes, culverts, etc.) as indicated on the approved construction plans and as determined to be necessary in order to facilitate the restoration, regrading and replanting of the Turkey Foot project area in accordance with the approved construction plans and plan details.

12.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off of the Heinz National Wildlife Refuge.
B. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 009

SECTION 010 - EARTH MOVING

PART 13 - GENERAL

13.1 SUMMARY

A. Section Includes:

1. Excavation and Regrading of Wetlands.
2. Filling and Alteration of Ponds.
3. Regrading of Adjacent Uplands.
4. Topsoil Amendment.
5. Disposal of Excess Fill.

13.2 DEFINITIONS

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

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

B. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

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

D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

E. Fill: Soil materials used to raise existing grades or decrease water depth of ponds.
F. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

G. Topsoil: soil containing 3 to 20% organic matter by weight. The organic matter shall be decomposed leaf litter and free of wood.

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

13.3 SUBMITTALS

A. Topsoil

1. Topsoil submittal to include organic matter analysis by weight as determined by loss-on-ignition of over dried samples in accordance with ATM T-6.

2. Topsoil submittal to be approved by design engineer prior to placement.

B. Disposal of excess soil

1. Written documentation of soil analysis for all excess fill material prior to disposal.

2. Copies for all disposal slips.

C. Material Test Reports: For each borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.

2. Laboratory compaction curve according to ASTM D 698.

3. Written documentation of proposed excavation method.

4. Written documentation describing provisions for shoring and bracing.


13.4 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, pathways, and other utilized areas of Heinz National Wildlife Refuge during earth moving operations.

B. Utility Locator Service: Notify PA One Call System before beginning earth moving operations.

C. Do not commence earth moving operations until approved temporary erosion and sediment control measures are in place. Cross reference with Sections 005, 007 and 008.

D. Do not commence earth moving operations until plant-protection measures specified in Sections 005, 007 and 008 are in place. Follow all limitations and prohibited actions within tree protection zones, adjacent wetlands and adjacent waters as defined but not limited to
specifications provided in Sections 005, 007, and 008, the approved construction plans, permits issued by County, State and Federal agencies, and any additional guidance issued by Heinz Refuge Staff.

PART 14 - PRODUCTS

14.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Topsoil:
   1. Topsoil furnished by the contractor shall consist of a natural friable surface soil without admixture of undesirable subsoil, refuse, or foreign materials. It shall be reasonably free from roots, hard clay, coarse gravel, stones larger than one inch in any dimension, noxious weeds, tall grass, brush, sticks, stubble or other material which would be detrimental to the proper development of vegetative growth.

   2. Topsoil shall contain not less than 3% or more than 20% organic matter, by weight as determined by loss-on-ignition of over dried samples in accordance with ATM T-6. Organic material shall be decomposed and free of wood.

PART 15 - EXECUTION

15.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Install and maintain erosion and sediment controls during earth moving operations. Cross reference with Sections 005, 007 and 008.

15.2 DEWATERING

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

B. Prevent the discharge of turbid water and sediment into Darby Creek, adjacent waterways and adjacent wetlands.
15.3 EXCAVATION

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

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

B. Wetland Regrading: The contractor in completing this work shall follow the specifications, grading and related details provided in the approved construction plans. Excavate to subgrade elevations as indicated on the approved construction plans. If need be, final grade to be achieved with topsoil amendment. All work shall adhere to any requirements or limitations set forth in permits issued by County, State or Federal regulatory agencies. To prevent excessive soil compaction, traffic of machinery over all planting areas shall be minimized once final grade is achieved. Surface to be rototilled to a depth of 6 inches in preparation for final planting.

C. Filling of Ponds and Re-creation of Riparian Areas: The contractor in completing this work shall follow the specifications, grading and related details provided in the approved construction plans. All work shall adhere to any requirements or limitations set forth in permits issued by County, State or Federal regulatory agencies. To prevent soil compaction of the ponds’ littoral/riparian areas, traffic of machinery over all planting areas shall be minimized once final grade is achieved.

15.4 STORAGE OF SOIL MATERIALS

A. Cross reference with Section 005. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

15.5 SOIL FILL AND BACKFILL

A. Follow all specifications and details as set forth in approved construction plans.

15.6 COMPACTION OF SOIL BACKFILLS AND FILLS

A. No excessive compaction of soils to occur in any locations flagged for planting. Areas may be graded and stabilized, but excessive compaction is prohibited. Guidance can be obtained by contractor from consulting engineer and Heinz Refuge Staff.
15.7 GRADING

A. General: Grade as per specifications and details provided in approved construction plans. Uniformly grade areas to a relatively smooth surface, free of major-irregular surface changes. Guidance can be obtained by contractor from consulting engineer and Heinz Refuge Staff.

15.8 PROTECTION

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

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

C. Where settling occurs before project correction period elapses, backfill with additional soil material, stabilize and regrade surface in accordance with approved plans or otherwise as directed by consulting engineer and Heinz Refuge Staff. Restore appearance, quality, and condition of regraded/repaired areas to match adjacent work.

15.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Transport surplus satisfactory soil to designated storage areas as per direction of Heinz Refuge Staff. Stockpile or spread soil as directed by consulting engineer.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off of the Heinz National Wildlife Refuge.

2. Contractor is responsible for the offsite disposal and all sampling requirements set by the selected disposal facility.

END OF SECTION 010

SECTION 011 – PLANTING MATERIALS

PART 16 - GENERAL

16.1 SUMMARY

A. Section Includes:

16.2 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

C. Finish Grade: Elevation of finished surface of planting soil.

D. Planting Area: Areas to be planted.

E. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

F. Plant; Plants; Plant Material: These terms refer to vegetation in general, including seeds, plugs, trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation. This includes emergent wetland, transitional wetland and aquatic plants that may be specified in the ponds or the ponds’ littoral/riparian areas.

G. Planting Plan and Planting Details: Specific Sheets of the approved construction plans providing details, units, quantities, etc. specific to the re-establishment of plants within the Turkey Foot project area.

16.3 SUBMITTALS

A. Product Data: For each type of product indicated, including soils.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials as per plant lists within the applicable Sheets of the approved construction plans.

B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Grass seed monostand or mixture must match specifications provided on approved construction plans.

C. Stabilized Cover: Material and method to be chosen by the contractor and submitted for approval by Heinz Refuge Staff prior to use. Material and method of application must match specifications provided on approved construction plans.
16.4 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.

B. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.
   1. Do not remove container-grown stock from containers before time of planting.
   2. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

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

D. Handle and pack plants to prevent injuries during transit. Do not dump or drop plants while unloading. Protect the roots of all plants from freezing or desiccating by heeling-in, watering, covering or keeping shaded, or if need be within a climate-controlled building or trailer.

16.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual grade elevations and dimensions of planting areas and construction contiguous with new plantings by field measurements before proceeding with planting work.

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

16.6 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth as specified in the permits received from County, State and/or Federal regulatory agencies.

   1. Failures include, but are not limited to, the following:
a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect, or incidents that are beyond contractor's control.

2. Warranty Periods from Date of Planting Completion:
   a. The contractor will be responsible for all plant material replacement guarantees to extend for one (1) full year or as specified within the permits issued by County, State and/or Federal regulatory agencies. This guarantee shall cover the survival rate of the herbaceous plant materials listed on the approved construction plans and the permits issued by County, State and/or Federal regulatory agencies. Warranty date to begin upon completion of the project.

3. Include the following remedial actions as a minimum:
   a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
   b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
   c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.
   d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

PART 17 - PRODUCTS

17.1 PLANT MATERIAL AND MULCH

A. General: Furnish locally grown, nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown on approved construction plans and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Heinz Refuge Staff, with a proportionate increase in size of roots or balls.

C. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA’s “Journal of Seed Technology; Rules for Testing Seeds” for purity and germination tolerances. Grass seed used in upland, riparian and wetland areas must be compatible with hydrology and take into account the tidal nature of the project site. Grass seed used in upland, riparian and wetland areas must be consistent with details and specifications provided on approved construction plans.

D. Seed Species: State-certified seed of grass species as indicated on the contract documents.
E. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

F. Liquid Mulch Binder: Naturally occurring, powder based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of proposed vegetation. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials.

G. Wood Fiber or Paper Fiber Mulch: Shall be made from wood, plant fibers, or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the product manufacturer) and may be applied by a hydro-seeder. This mulch shall not be mixed in the tank with seed.

H. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.
2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

PART 18 - EXECUTION

18.1 EXAMINATION

A. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.

2. Do not mix or place soil and soil amendments in frozen, wet or muddy conditions.

3. Suspend tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.

4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected or as directed by Heinz Refuge Staff.
C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by the consulting engineer and/or Heinz Refuge Staff and replace with new planting soil.

18.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. Cross reference with Sections 005, 006 and 007.

18.3 SETTING PLANTS

A. Containerized Plants: Immediately before planting, remove container, and make three (3) vertical cuts equidistantly spaced around the perimeter of the root mass. Make each cut ½ inch deep from the top of the root-earth mass to the bottom. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60-1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements and backfill.

B. Backfill with topsoil around the root system. Hand-tamp the topsoil and water at the rate of 15 gallons per square yard of pit area to settle the topsoil and to remove air pockets. Ensure that the topsoil is not frozen at the time of backfilling. Where necessary, backfill areas that have settled with topsoil. Form a 4-inch high compacted berm using topsoil around individual plants to a diameter equal to that of the pit. Ensure that the berm functions properly throughout the plant establishment period.

18.4 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

1. Do not use wet seed or seed that is moldy or otherwise damaged.
2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate as indicated on the contract drawings.

C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes exceeding 1:3 with erosion-control blankets installed and stapled according to manufacturer’s written instructions.
E. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 1.5 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

F. Protect seeded areas from hot, dry weather or drying winds by applying stabilized cover within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch.

G. Conduct seeding in accordance with details and specifications provided in approved construction plans and as directed by Heinz Refuge Staff.

18.5 CLEANUP AND PROTECTION

A. During planting, keep adjacent areas clean and work area in an orderly condition.

B. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

C. After installation and before project completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and project site.

D. Prevent conditions that could result in the discharge of turbid water into Darby Creek and/or the transport of soil into adjacent wetland and riparian areas.

E. The contractor should be cognizant of the tidal nature of the work site and take all the necessary precautions to ensure the correct and successful installation of plant material and seed.

F. While plant materials are becoming established, the contractor shall protect the installed plant material from damage due to Canada geese, other water fowl, muskrat, and other organisms. The protections shall be installed in advance of the completion of the installation of plant material and maintained in a fully functional state for at least one (1) full growing season. Details of protective fencing and other measures required for this project shall be provided by the contractor in the approved construction plans.

18.6 DISPOSAL

A. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off of the Heinz National Wildlife Refuge.

B. Remove waste material including trash and debris and legally dispose of them off of the Heinz National Wildlife Refuge.
SECTION 012 – INVASIVE SPECIES CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removal/Control/Eradication of targeted, non-native, invasive species present within the Turkey Foot Area of Heinz National Wildlife Refuge.

1.2 SCOPE OF WORK

A. The selected contractor must be a PADEP licensed pesticide applicator and have the proper certifications for working in aquatic and wetland environments. The contractor or any employees or subcontractors performing any of the work under this contract shall possess a valid PA commercial herbicide applicator’s license and shall comply with all Federal, State, and local laws and regulations applicable to the contract work and to the products and materials used by the contractor in performing that work. Because the proposed work occurs within wetland and aquatic environments, the contractor shall possess a license for aquatic applications (PA Aquatic Pest Control Category 09). Evidence of such licensing shall be submitted prior to award and also with the submitted and approved work plan (Section 1.3).

B. The contractor shall use the combination of mechanical removal and/or herbicide treatments that they determine best suited for the control and eradication at a minimum of Phragmites australis (Common reed), Reynoutria japonica / Fallopia japonica (Japanese knot weed), and Humulus japonicus (Japanese hops) growth in the Turkey Foot project area of the John Heinz National Wildlife Refuge at Tinicum. The contractor shall coordinate with Heinz Refuge Staff regarding the control of other invasive species occurring within the Turkey Foot project area before commencing with any invasive species control efforts.

C. Work shall consist of furnishing all necessary equipment, labor, and materials necessary to accomplish the control and eradication of the targeted invasive species.

D. Although much of the project site is upland, some of the areas impacted by common reed are wet and/or characterized by relatively unstable, saturated “marsh soils”. Care must be taken when working in these areas to prevent the off-site transport of silt and turbid water into Darby Creek or adjacent riparian or wetland areas.

E. Before initiating work the contractor shall review with Heinz Refuge Staff the areas where invasive species control will be conducted and review the type(s) of controls (herbicide and/or mechanical) that will be implemented. The contractor should be aware that there may be the need
to “hand swab” or otherwise apply herbicides in a manner that limits the drift of herbicides or the spread of herbicides outside of the delineated project area.

F. The contractor shall be responsible for obtaining all required permits and regulatory approvals to conduct the specified targeted invasive species control and eradication program. All control and eradication work will proceed in accordance with any limitations set forth in the issued permits. The contractor shall prevent the drift of any applied herbicides areas adjacent to the Turkey Foot restoration area.

G. The contractor shall be bound to any limitations set forth by the Heinz Refuge Staff.

H. No broadcast spraying shall be performed when wind speeds exceed specifications listed on the herbicide label or 10 mph, whichever is lesser, or wind directions are likely to result in drift to non-target areas, or public use areas. There will be zero tolerance for direct spray or drift of herbicides onto non-targeted vegetation and/or onto adjacent areas. No broadcast spraying shall be performed if more than a 10% chance of rain is forecast for the day of application or for 24-hour period following the planned application.

1.3 SUBMITTALS

A. Work plan detailing the means by which the approved targeted invasive species control and eradication program will be implemented whether by mechanical or chemical means, or a combination of either. Specific to chemical control, the work plan shall outline the types of herbicides, the planned application rates, hyperlinks to MSDS and product labels for each herbicide to be used, scanned copies of applicator licenses, and a spill and contamination action plan. Additionally, the contractor shall certify in writing that all employees engaged in handling, mixing and spraying herbicides have read the MSD sheets and that personal protective equipment as specified by the MSD sheets will be provided to and worn by the contractor’s applicators.

Further, one hard copy of the approved plan shall be provided that will include a signed statement by the contractor that this plan complies with all state, local and federal regulations. This plan shall be submitted for review and approval within 10 working days of the notice of contract award and prior to the desired start of work. Government approval of this plan in no way relieves the contractor of any liability for compliance with all Federal, State, and/or local regulations, should there be omissions/ errors within said plan.

B. Schedule of implementation.

C. When machinery is used to harvest and remove the targeted invasive species the contractor shall provide to the Heinz Refuge Staff details of the proposed machinery. The proposed machinery, whether contractor owned and/or rented, shall be low ground pressure, heavy equipment intended for use in wetland and aquatic environments.

D. Progress reports detailing the implemented invasive species control work completed by the contractor.
1.4 PROJECT CONDITIONS

A. Weather Limitations: Proceed with invasive species control activities only when existing and forecasted weather conditions permit beneficial and optimum results. No broadcast spraying shall be performed when wind speeds exceed specifications listed on the herbicide label, or 10 mph, whichever is lesser, or wind directions are likely to result in drift to non-target areas, or public use areas. There will be zero tolerance for direct spray or drift of herbicides onto non-targeted vegetation and/or onto adjacent areas. No broadcast spraying shall be performed if more than a 10% chance of rain is forecast for the day of application or for 24-hour period following the planned application. Following periods of significant rainfall (> 1.0”) care must be taken by the contractor when using machinery to prevent excessive rutting and soil disturbance within the project area and rutting and soil disturbance in areas adjacent to the project area resulting from the transport or transit of machinery.

B. Apply products according to regulatory permits limitations, manufacturer’s written instructions, warranty requirements, and other directions received from Heinz Refuge Staff.

1.5 CLEANUP AND PROTECTION

A. Prevent conditions that could result in the discharge of turbid water into Darby Creek and/or the transport of soil into adjacent wetland and riparian areas.

B. The contractor should be cognizant of the tidal nature of the work site and take all the necessary precautions to ensure the correct and successful completion of work.

1.6 DISPOSAL

A. Unless instructed otherwise by Heinz Refuge Staff, remove any harvested plant material and legally dispose of them off of the Heinz National Wildlife Refuge.

B. Remove waste material including trash and debris and legally dispose said material off of the Heinz National Wildlife Refuge.

1.7 OTHER

A. SAFETY. Work shall adhere to the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). OSHA standards can be found at www.osha.gov or contact OSHA, Philadelphia, Pennsylvania office: (215) 861-4900.

B. Public safety must be ensured when spraying or using pesticides. The Heinz National Wildlife Refuge is highly used by the public, especially on weekends. In application areas where there is potential for public contact or exposure, the Heinz Refuge Staff will coordinate with the contractor and post station personnel to enforce closure during times of spraying and/or place appropriate warning signs which inform the public that pesticide when applications are scheduled. **No spraying of herbicides will occur on weekends at the Refuge.**
C. HOURS OF OPERATION / TIME FOR COMPLETION. Work will be contracted and performed during weekdays, between the hours of 07:00 AM and 04:00 PM, between the months of March and May, 2021 or September and November 2021 depending upon the swiftness of the application and permit process. **No spraying of herbicides will occur on weekends at the Refuge.**

D. ACCESS. There is good access to the Turkey Foot project area. Pre-existing service roads are in place at the Refuge and a stabilized staging area, used for the storage of equipment and materials used in the completion of other elements of this project, will be available for use during this stage of the project.

E. SUPERVISION. The contractor will be responsible for providing all labor, lodging, materials, equipment, transportation, supplies, and supervision necessary to complete the proposed control/eradication of the targeted invasive species. The contractor will provide a competent foreman or supervisor on the work site at all times during progress of the contract.

F. EPA REGISTRATION LABEL: All work shall be performed in accordance with the instructions on the EPA registration label of the chemical herbicide used. All safety instructions featured on the label shall be strictly adhered to.

G. MATERIAL SAFETY DATA SHEETS: Material Safety Data Sheets (MSDS) shall be submitted to the Project Officer with the approved work plan. The contractor shall also make these SDSs readily available to all affected contract employees.

H. SPILLS AND CONTAMINATION: The contractor shall submit as part of the approved work plan the response measures that will be implemented should a spill or contamination occur. The contractor’s immediate response to a spill or contamination shall be to proceed with the required measures to limit the contamination. Immediately following this initial response, the contractor shall notify the appropriate Heinz Refuge Staff and other appropriate local, State, and Federal officials. Subsequent to these actions, the contractor shall take actions to clean up the spill as recommended by Heinz Refuge Staff and/or PADEP. Should a personnel contamination occur, the contractor shall take immediate actions as prescribed by chemical manufacturer so as to protect the safety and health of the contaminated individual(s). Immediately following the contractor’s initial response, the incident shall be reported to Heinz Refuge Staff and PADEP.

I. INSPECTIONS: Work will be inspected periodically by Heinz Refuge Staff for conformance with these specifications for timeliness, safety and results achieved.

J. SUBMISSION OF INVOICES. The contractor shall submit invoices for work completed within 30 days after services are rendered.

END OF SECTION 012