IA-340-100 - Fitzpatrick Wetland Inspection Plan (Gre853129D)

The sequence of construction will be determined with the contractor after the contract is awarded, the start date planned, and whether crops have been harvested. This will be discussed at the pre-construction meeting. The easement boundary stakes will be placed by a third party PLS retained by DU. Three (3) benchmarks to be used for construction have already been placed on-site by the Engineer, and additional benchmarks will be placed by the PLS.

Quality Control (QC) is the responsibility of the contractor, but any work deemed to not be in accordance with the plans and specifications based on inspections completed shall be reworked.

Quality Assurance (QA) is the responsibility of the Design Engineer of Record. The Contractor is responsible to provide materials that meet or exceed the requirements provided on the plans and specification. The Design Engineer will review material certifications provided for all pipe/tile, geotextile, granular material, and riprap. Shop drawings shall also be submitted for approval for the sheet pile weir, drawdown structure, and outlet pipe. The grout mix and seed mix designs shall also be submitted and approved by the Design Engineer prior to placement.

Below is a list of anticipated tasks to be completed along with the amount of inspection required and the experience level of the inspector needed. Engineer refers to either the Design Engineer of Record or an Engineer designated by such. Qualified Technician refers to an individual with sufficient technical background and experience to properly assess the individual work items described below that will be completed by the Contractor.

- Tile Exploration – Full time by Engineer or Qualified Technician
  The site has numerous tile on site based on maps provided by the landowner and the county. A tile investigation was completed during design to determine the location and depth of tiles shown on the plans. The Contractor shall complete the exploration to confirm the depth and location in the presence of the Engineer or Technician with survey equipment. This information will be used by design engineer to adjust the tile outlets as needed to provide suitable outlet(s) based on this acquired information.

- Soil Confirmation – Full time by Engineer or Qualified Technician
  The Contractor shall excavate test pits as needed to confirm suitable soils are available before beginning stripping operations.

- Site stripping - No observation required.
  Site stripping can occur without any site inspection being required. The contractor will need to implement storm water and sedimentation control measures.

- Core Trench Excavation and Backfill – Full time by Engineer or Qualified Technician
  The core trench can occur after stripping of the dike area is completed. Any tile found shall be removed within 15 feet beyond the outside footprint of the dike. Suitable cohesive

borrow material shall be placed and compacted in the core trench using Method 2 as directed in IA-23 and shall be inspected to verify use of specified equipment and the maximum lift thickness is not exceeded. Dewatering shall be completed as needed to ensure proper moisture content of backfill materials are not exceeded.

- Embankment Construction – Intermittent to Full Time by Engineer or Qualified Technician
  The dike shall be constructed to the design height consisting of suitable cohesive material. This critical item of work shall be inspected to ensure proper material, moisture, and placement method. Full-time inspection shall be implemented if the problems arise, or the rate of placement necessitates this level. If work is progressing well and the rate of placement allows, this work shall be inspected intermittently, but at regular intervals. The location and elevations of the dike shall be checked by Engineer or Qualified Technician with survey equipment when Contractor is nearing final construction grade and before topsoil placement. As-built survey shall be completed after topsoil placement has been completed.

- General Grading - Intermittent by Engineer or Qualified Technician
  The site includes grading of sediment forebay and submerged berms, along with deeper pockets within the pool. In addition, the borrow area is identified on the plans (if needed). The Engineer or Qualified Technician will verify the location and dimensions of the sediment forebay, submerged berms and deeper graded areas within the pool using survey equipment. The borrow area shall also be checked (if used) to make sure final grading allows drainage and has adequate topsoil placement.

- Sheet Pile Installation - Full time by Engineer or Qualified Technician
  The sheet pile installation shall be inspected by a technician familiar with this type of work or the design engineer. The initial sheets shall be verified for straightness and location. The final dimensions, including length and elevation, shall be checked prior to installation of the pile cap, and trimming the tops of the sheets.

- Water Control Structure Installation - Full time and Intermittent by Engineer or Qualified Technician
  The location and elevation of the installation of the water control structure, inlet riser, and outlet pipes shall be verified by technician or surveyor prior to backfilling. The Engineer or Qualified Technician shall be on site full-time during the installation of the sand diaphragm.

- Downstream Basin and Channeling - Intermittent by Engineer or Qualified Technician
  The downstream stilling basin and outlet channel shall be checked for location, dimensions, and elevations prior to placement of the geotextile fabric and riprap. Prior to grouting, the Engineer or Qualified Technician shall ensure that the geotextile fabric is in place beneath the riprap and the verify the thickness of the riprap.

- Grouting - Full time by Engineer or Qualified Technician
  Grout is to be placed into the voids of the riprap. The thickness and cleanliness of the riprap shall be checked prior to grouting and adequate coverage shall be checked during grout placement.

- Tile Intercepts and Outlets - Intermittent by Engineer or Qualified Technician
  The Engineer or Qualified Technician shall verify the tile intersection location and elevation. Once established, the tile shall be placed to the designated outlet location by Contractor. The Engineer or Qualified Technician shall observe all joint connections prior to backfilling and shall measure the intercepts and outlet with surveying equipment. The Engineer or Qualified Technician shall also verify that adequate soil cover has been obtained, and any riprap or erosion stone is properly placed at the outlet.

- Seeding - Intermittent by Engineer or Qualified Technician
  Seed bed preparation shall be checked prior to seeding, along with the thickness of the topsoil over fill and borrow areas. Seed tags shall be verified.

The record as-built drawings shall include the following information:

- All construction changes and clarifications shall be shown in red.
- Updates to final quantities.
- Site layout changes (structure centerline and slope changes).
- Dimension changes.
- Altered lines and grades.
- Final location of appurtenances.
- Project Completion date on Cover Sheet.
- Total Project Cost.
- Quality Assurance Inspector.
- Contractor/Firm providing Quality Control.
- Each sheet labeled As-Built with certification on Cover Sheet and EOR initials on each sheet.
- Location and elevation along top of sheet pile weir.
- Location and elevation of stilling basin and outlet channel.
- Location and elevation of tile intercepts and outlets, along with pipe sizes.
- Location and elevation of sedimentation basin.
- Location and elevation of top of drawdown structure and inlet structure.
- Cross section(s) near the center of the wetland to verify elevations.
- Location and elevation of top and toes of the embankment, including the wave berm.