SP- 231035
(New)

SPECIAL PROVISIONS
FOR
SOIL QUALITY RESTORATION

Polk County
EDP-PA26(002)--7Y-77

Effective Date
October 15, 2024

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

231035.01 DESCRIPTION.

A. General.

1. Strip and export topsoil material.

2. Import of topsoil and other related materials.

3. Prepare amended topsoil material as needed for soil quality restoration.

4. Deposit and spread prepared topsoil materials.

5. Testing of related materials.

B. Soil Management Plan.

1. This soil management plan (SMP) has been prepared to guide the removal and restoration of topsoil materials across the disturbed area of the site. This SMP has been prepared following guidance in the Iowa Stormwater Management Manual's section on Soil Quality Management and Restoration.

2. Land disturbing activities and topsoil stripping should be limited to the work construction limits as noted on site drawings. Outside of those limits, or where grading is not shown on plans, existing vegetation and surface soils shall be protected.

3. Due to limited site work area and the inability to stockpile soil materials within the floodplain on the river side of the levee near this site, it is anticipated that all topsoil materials will need to be removed from areas disturbed by construction and removed from the site work area. Topsoil should be stripped to a depth of 12 inches, unless noted otherwise on the site geotechnical report.

4. Prior to respread of topsoil materials, the surface shall be prepared as noted Article SP-231035.03, B.

5. After placement of topsoil materials, the surface shall be stabilized with temporary and permanent stabilization as noted in the project Stormwater Pollution Prevention Plan (SWPPP) and on the site planting plan.

6. Soil Quality Restoration and Management is being used at this site as a Stormwater Quality Best Management Practice (BMP), in order to meet local stormwater management requirements. As such, the requirements of this section need to be executed to meet these local requirements.

231035.02 MATERIALS.

A. Topsoil.

1. Source Material: Topsoil used as source material from off-site locations shall meet the following requirements:
   - **a.** High quality soil consisting of the top 6 inches of field or pasture loam containing a good supply of humus and a high degree of fertility. Do not use surface soils from ditch bottoms, drained ponds, and eroded areas, or soils which are supporting growth of noxious weeds or other undesirable vegetation.
   - **b.** A pH value from 6.0 to 7.5.
   - **c.** A clay content of less than 25% and a minimum of 2% organic matter content. Free from hard clods, rocks, and other debris larger than 2 inches in diameter.
   - **d.** Source material shall be tested by a geotechnical engineer to verify the properties of the source material meet the requirements noted above.

2. Prepared Material for Respread
   - **a.** When source material has an organic matter (OM) content less than 5%, it shall be amended as noted in Article SP-231035.02, B and Article SP-231035.03, B to achieve at least the target value prior to placement.
   - **b.** Prepared material shall be tested by a geotechnical engineer to verify the properties of the material meet the requirements noted above before material is imported to the site and after placement, as noted in Article SP-231035.03, C.

B. Compost.

Use compost meeting the following requirements:

1. Derived from a well-decomposed source of organic matter.

2. Produced using an aerobic composting process, meeting CFR 503 for time, temperature, and heavy metal concentrations.

3. No visible admixture of refuse or other physical contaminants, nor any material toxic to plant growth.

4. Certified by the U.S. Composting Council’s Seal of Testing Assurance program.

5. Conforms to chemical, physical, and biological parameters of AASHTO R 52, with the following additional requirements:
   - **a.** Follow U.S. Composting Council’s TMECC guidelines for all testing.
   - **b.** Organic Matter Content: 30% minimum.
   - **c.** pH: between 6.0 and 8.0.
   - **d.** Maturity (growth screening): Minimum 90% emergence for all compost to be vegetated.
   - **e.** Particle Size:

Sieve Size	Percent Passing*
2”	100
1”	90-100
3/4”	65-100
3/8”	0-75
* 6 inch maximum particle length	

231035.03 CONSTRUCTION.

A. Stripping Topsoil.

1. Remove topsoil from borrows, cuts, or areas to be covered by embankments.

2. Topsoil Excavation: Remove the topsoil to the depth specified. If not otherwise specified (or noted in the site geotechnical report), the depth shall be 12 inches. The topsoil material shall become property of the contractor and shall be removed from the site work area.
- **a.** The material shall be placed at another site location with permit coverage under the State of Iowa’s NPDES General Permit No. 2.
- **b.** Otherwise, the contractor shall be responsible for amendments and updates to the project SWPPP and proper notification of the Iowa DNR of expansion of the permit coverage area for this project.

B. Soil Quality Restoration.

1. Preparation.
- **a.** Till or scarify the upper surface of the existing soil to a depth of 6 inches prior to placement of prepared topsoil material. Do not till wet soils.
- **b.** Prepared topsoil material shall meet the definitions noted Article SP-231035.02.

2. Placement.
- **a.** Spread a maximum 4 inch lift of topsoil material over the tilled subsoil after all grading and trenching activities in the area have been completed.
- **b.** Remove large clods, roots, litter, stones larger than 1/2 inch and other undesirable material.
- **c.** If compost amendments are needed to achieve the target OM content, apply the required depth of compost as needed to meet or exceed the OM target value.
- **d.** Perform tillage to the depth of the topsoil lift and compost layer to incorporate topsoil and compost into the prepared topsoil layer. Do not till wet soils.
- **e.** Repeat steps above until the prepared topsoil depth reaches a minimum depth of 12 inches.
- **f.** Perform testing as described in Article SP-231035.03, C to verify that target OM has been achieved after placement.
- **g.** Fine grade the surface of the restored area to match adjacent hardscapes or existing grades. Shape the surface to minimize locations where surface runoff will funnel or concentrate as it enters the restored area. The surface should be shaped so that runoff spreads across the restored area to the greatest extent possible.

3. Protection: After placement of prepared topsoil, avoid placement of spoils, fill, other materials or heavy equipment on the restored area.

C. Testing.

1. Testing of materials shall be completed by a geotechnical engineer as noted in this section. Tests results shall be provided to the Engineer for review and approval prior to import of any materials to the site work area, or prior to fine grading (as applicable).

2. The quantity of test samples to be collected shall equal or exceed the restored topsoil area in square feet divided by 10,000. (One test for every 10,000 square feet of restored surface area.)

3. **Required Tests.**
   a. **Source and Placed Topsoil Materials.**
      1) Bulk density: Bulk density after placement shall not exceed 80 pounds per cubic foot.
      2) **Organic Matter.**
         a) Source materials shall exceed 2% minimum value. Test report shall determine the appropriate ratio of compost materials to be used to meet project OM requirements for prepared and placed soil materials.
         b) Prepared material (after compost amendments, if required) shall exceed 5% minimum value after placement.
      3) pH: Meet values as noted in Article SP-231035.02, A.
      4) Silt-Sand-Clay content (%): Values for clay content shall meet requirements listed in Article SP-231035.02, A.
      5) Soil texture classification: A soil penetrometer reading shall be taken, with a maximum allowable value of 200 pounds per square inch.
   b. **Compost Materials.**
      1) Testing as required to verify properties listed in Article SP-231035.02, B.
      2) Certified supplier submittal may be provided for review and approval by the Engineer in lieu of testing by geotechnical engineer for compost materials.
      3) Refer also to test requirements and schedule as described in Article SP-231035.03, D.

D. Construction Verification.

1. Complete SWPPP management and inspections and install pollution prevention measures throughout construction.

2. Compare site conditions with contract documents and descriptions listed within Article SP-231035.01, B.

3. When on-site topsoil is used, verify that the topsoil stockpile has been properly located and other site soils, debris, revetment stone or other materials are not being mixed with topsoil stockpile.

4. Verify surface, where soil quality restoration is to be completed, has been prepared and is free of debris, rocks larger than 1/2 inch in diameter or other areas densely covered with smaller rocks and/or gravel.

5. Where topsoil is to be placed, observe site conditions, that the prepared surface is tilled to the required depth prior to topsoil placement and that it is not wet.

6. Refer also to other requirements of this section related to the stripping, stockpiling and placement of topsoil. Verify that clods, lumps, roots, litter, other undesirable material, or stones larger than 1/2 inch have been removed prior to placement of any compost or topsoil.

7. Observe that tillage is performed to the depth required. Do not allow wet soils to be tilled.

8. Use visual observation to determine topsoil is placed to the depth specified within this section.

9. Use visual observation and collect delivery tickets or tags to determine specified volume of compost is applied to the soil quality restoration area. Compare delivery tickets with the SMP to match delivery location, total quantity of material, product description and source of

material. Any deviation from specified materials will require laboratory test results to verify that the delivered materials are equivalent to those specified.

10. Verify depth of amended soil and scarification by using a shovel to dig at least one test hole per 10,000 square feet of soil quality restoration area. The test location should be randomly selected by the site observer. Test holes should extend at least 4 inches below the expected tillage depth and/or topsoil layer and be at least 1 square foot in area. The amended soils and/or topsoil layers should be easy to dig, driven solely by the weight of the observer.

11. The soil should be darker than existing soil below. Particles of organic matter are likely to be visible. Soil that requires vigorous chipping with the shovel to penetrate properly does not meet the specification. Where topsoil has been placed, the next 2 inch depth of soil should be loose enough to penetrate with the shovel. The loosened depth may vary based on pattern of scarification; some sections of the 1 square foot hole should be loosened 2 inches below the topsoil layer. Collect samples from the test hole locations and have tests completed to determine that the organic material content assumed in design has been met or exceeded.

12. Use a rod penetrometer to confirm the soil is uncompacted to the desired tillage depth at a minimum of one location for every 10,000 square feet of soil quality restoration area. Locate test spots by dividing the site in half lengthwise, then spacing test locations generally equally on each side of the soil quality restoration area. The rod penetrometer should enter the soil through 2 inches below the amended soil depth and/or topsoil layer, driven solely by the weight of the observer. Irregular scarification or rocks in subsoils may require probing a few spots at each location.

13. Record the results of the shovel and penetrometer tests on a Field Verification Form.

14. If a given site does not fulfill the intent of the SMP, corrective action will need to be taken prior to site stabilization.

15. Perform seeding, sodding or other stabilization techniques as specified.

16. Do not allow vehicular traffic, storage of materials or other disturbance within the soil quality restoration area during or after application of stabilization measures.

17. Continue SWPPP management and inspections and install pollution prevention measures until final stabilization. Should surface erosion occur, repair such areas with compost or appropriate topsoil-compost blends. Hand rake and reseed as necessary. Such corrective actions shall be considered incidental to items described within this special provision.

231035.04 METHOD OF MEASUREMENT.
Article 2105.04 of the Standard Specifications shall apply to this section, except that placement volume shall be computed based on a 12 inch depth of prepared topsoil materials. All activities and materials described within this section shall be considered as incidental to this bid item.

231035.05 BASIS OF PAYMENT.
Article 2105.05 of the Standard Specifications shall apply, except as amended based on Article SP-231035.04.