**SP-150227**
**(New)**

**SPECIAL PROVISIONS**
**FOR**
**EXCAVATION FOR STRUCTURES IN LEVEE CRITICAL AREA**

**Pottawattamie County**
**IMN-029-3(198)55--0E-78**

**Effective Date**
**February 21, 2017**

**THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

**150227.01 DESCRIPTION.**

The work under this contract is located adjacent to federally constructed levees along the Missouri River. As such, no improvement shall be passed over, under, or through the levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the levees other than the construction under this contract and these special provisions without prior approval of the U.S. Army Corps of Engineers (USACE). The limits of the levee critical area are 300 feet riverward and 500 feet landward of the levee.

**150227.02 MATERIALS.**

**A.** If borrow is needed to complete the backfill, it shall be comprised of lean clay (CL). Lean clay shall consist of cohesive materials having at least 50% passing the U.S. Standard 200 mesh sieve size, a Plasticity Index of 10 or greater, and falling between the "U" line and the "A" line on Figure 4 in ASTM D 2487 – Standard Tests for Classifications of Soils for Engineering Purposes, and a Liquid Limit less than 50.

**B.** Moisture and density control of the backfill shall be based on the standard Proctor compaction test (Materials I.M. 309). Cohesive materials shall be compacted to a density of at least 95% of the maximum dry density and be within -1% to +4% of the optimum moisture content at the time compactive effort is applied, which may require the addition of water or aeration of materials. Non-cohesive materials shall be placed in a moist condition and compacted with approved equipment to a density of at least 95% of the maximum dry density. Sampling backfill shall be in accordance with Materials I.M. 312. Testing of the backfill shall be performed for each 2 vertical feet of fill at a maximum horizontal spacing of 200 feet.

**C.** The flowable mortar shall meet the material requirements provided in Standard Specifications Section 2506.

**150227.03 WORK ZONE REQUIREMENTS.**

Areas within these limits disturbed by excavation, other intrusions or disturbances of the soil shall be restored as described in these special provisions. Any excavation within the levee critical area limits that is not directly related to the storm sewer construction shall not commence without prior approval of the Engineer and the USACE.

**150227.04 CONSTRUCTION.**

**A.** No excavation shall be performed until a method of excavation and excavation support, dewatering, and identification and classification of the soils has been submitted and approved by the Engineer. Allow 9 weeks each for the review of the submittal and any resubmittal.

**B.** During the excavation, the various soil types shall be sorted. The clay soils shall be placed in a separate stockpile from the sand soils.

**C.** Excavations shall be completed by a combination of open excavations and braced excavation as shown in the plans.

- Open excavation above the top of the sheet pile shall consist of 2:1 side slopes.
- The top of the shoring system shall be at Elevation 972 feet or higher.
- The bottom of the shoring of system shall extend into the underlying sands.
- Excavated soils shall be sorted, classified and stockpiled.
- A mud mat shall be constructed below the pipe subgrade. The mud mat shall consist of a minimum of 6 inches of flowable mortar.

**D.** Following construction of the storm sewer, backfill of the excavations shall be completed as shown in the plans.

- Flowable mortar shall be placed to the spring line of the storm sewer.
- During the backfilling of the excavation, the sand soils shall be placed in the excavation as they were encountered in the initial excavation.
- Suitable clay soils shall be placed in the excavation as they were encountered in the excavation. Unsuitable clay soils shall be wasted and lean clay soils shall be obtained from a borrow to complete the backfilling of the excavation.
- The sheet piles shall either be completely removed or abandoned in-place following placement of backfill to the top of the sheet piles. If the sheet piles are removed, the disturbed soils within 6 feet of the final grades shall be excavated using 2:1 side slopes to the top of the ground surface. If the sheet piles are abandoned in-place, the top of the sheet pile shall be cutoff and removed within 6 feet of the final grades. The soils within the cutoff portion of the sheet pile shall be shall be excavated using 2:1 side slopes to the top of ground surface and as shown in the plans.
- The backfill shall then be placed in the excavation as shown in the plans.

**E. Quality Control Program.**

**1.** Provide and maintain a Quality Control Program for construction of backfill. This is defined as process control sampling, testing, and inspection as described in Materials I.M. 540 for construction of embankments with moisture and density control.

**2.** Provide a Quality Control Technician who is responsible for all process control sampling, testing, and inspection. The Quality Control Technician shall obtain Soils Technician certification through the Iowa DOT Technical Training and Certification Program (TTCP).

**3.** Provide a laboratory facility and necessary calibrated equipment to perform required tests.

**4.** Notify the Engineer when a moisture content falls outside specified control limits or density falls below required minimum. If a moisture content falls outside control limits, fill material in this area will be considered unacceptable for compaction. Perform corrective action(s) to bring uncompacted fill material within control limits. If material has been compacted, disk it, bring to within control limits, and re-compact. When project has a density requirement, if an in-place density does not meet the requirements, compacted fill material in this area will be considered unacceptable. Perform corrective action(s) to material to meet density requirements. Compensation will not be allowed for delays resulting from moistening, disking, or re-compacting.

**150227.05 METHOD OF MEASUREMENT.**

Compliance with this special provision will not be measured for payment, but will be considered incidental to the bid item associated with the work. Method of measurement for excavation for storm sewer will be as specified in the pay items listed under Basis of Payment.

**150227.06 BASIS OF PAYMENT.**

**A.** All costs associated with sorting, classifying and stockpiling excavated soils, wasting unsuitable soils and placing suitable soils back as they were encountered in the excavation will be considered incidental to bid item for Storm Sewer, Gravity Main, Trenched, RCP, 2000D,(Class III), 84 in. All costs for dewatering will be paid for as Dewatering. All costs for replacing unsuitable soils will be paid for as Embankment-In-Place. All costs for backfilling with moisture and density control will be paid for as Compaction with Moisture and Density Control. All costs for placement of 6 in. mud mat and flowable mortar will be paid for as Flowable Mortar. All costs associated with the placement of sheet piles, removals, cutoffs and portions left in place will be paid for as Temporary Sheetpiles and Shoring

**B.** Payment is full compensation for furnishing a Quality Control Technician, sampling and testing, process control inspection, drying material, furnishing and applying water, controlling moisture content of the materials, and compacting the materials, as specified.