

IFB #14-2404-OV – Addendum #2
44th Avenue East (From 40th Street East to 45th Street East)

TECHNICAL SPECIAL PROVISION

TSP-122

SLURRY WALL

122-1 DESCRIPTION

Furnish and install the necessary plant, labor, materials, tools, equipment, and services necessary to construct a soil-bentonite slurry trench in accordance with these specifications.

122-2 SUBMITTALS

Submit the following:

122-2.1: Manufacturer's product data and specification data sheet

122-2.2: Design Mix

122-3 MATERIALS

122-3.1 Soil-Bentonite: The slurry trench shall be constructed using a premium grade Wyoming-type sodium cation based natural montmorillonite powder conforming to the American Petroleum Institute (API) standards Specification 13A, Specification for Drilling-Fluid Materials, Section 4 or 5. Each truckload of bentonite shall have a certificate provided by the Supplier certifying that the bentonite meets API 13A specifications.

122-3.2 Fluid Materials: The Contractor shall supply water for mixing with bentonite to produce slurry. The water shall be clean, fresh, and shall not adversely impact bentonite hydration.

122-4 MIXTURE/PLACEMENT

Soil-bentonite backfill mixture shall not shrink, consolidate or otherwise settle more than two (2) inches beneath the proposed top of the slurry trench during the first 24 hours after filling, or more than six (6) inches thereafter. If settlement in excess of the Specifications occurs, the Contractor shall be required to refill the trench with approved soil-bentonite backfill at no additional cost.

122-4.1 Bentonite Slurry Properties:

- (a) The in-situ coefficient of permeability of the soil-bentonite backfill shall be no greater than 1×10^{-6} cm/sec., unless otherwise specified by the designer.
- (b) The soil-bentonite backfill mixture shall have a minimum bentonite content of 4.0 percent by dry weight, unless otherwise specified by the designer.

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- (c) The soil used as backfill shall have no less than 10-percent material by dry weight passing the U.S. Standards No. 200 sieve size, unless otherwise specified by the designer.
- (d) The soil-bentonite mixture shall no less than 13.0 percent by dry weight passing the U.S. Standards No. 200 sieve and no particles larger than three (3) inches in diameter, unless otherwise specified by the designer.
- (e) Soil excavated from the trench may be used as backfill provided it is a homogenous mix meeting Specifications. If the excavated soil does not meet the Specifications, borrow material shall be added to the excavated soils, thoroughly mixed until a homogenous mixture meeting specification is obtained. It can then be used as backfill.
- (f) Admixtures shall not be used except as approved in writing by the Engineer.
- (g) Slurry with balls of partially wetted clay will be rejected at the trench.

122-4.2 Placement: Upon completion of the backfill placement, the slurry trench shall be capped before the exposed backfill can dry out. Prior to placing of the cap material, the slurry trench shall be inspected by the Engineer. Cracked or damaged areas of the slurry trench and areas of excessive settlement shall be replaced before placement of the cap material. Upon completion of the slurry trench a layer of geotextile fabric followed by 12-inches of capping material shall be placed above the slurry trench, followed by embankment material to finished grade. Geotextile fabric shall meet the requirements of Standard Specification 985. The capping material shall be select soil material mixed with Type B stabilizing material in sufficient portions to provide a Limerock Bearing Ratio of at least 40. The material shall be placed in compacted lifts to at least 95% of the AASHTO T-180 maximum dry density.

122-5 FIELD QUALITY CONTROL

122-5.1 Testing: Provide samples and measurements to the approved geotechnical service for the following minimum tests:

- (a) Daily gradation and permeability of the soil-bentonite backfill.
- (b) Trench depth and trench bottom soil sample every 20 feet of trench length.
- (c) Bentonite slurry viscosity (Marshall Funnel 1.5/1 quart, 40 seconds minimum) soil-bentonite backfill slump (ASTM C 143, between 4 to 6 inches) and bentonite slurry density (Mud Balance between 54 to 95 pounds per cubic foot (pcf), at least 15 pcf lighter than soil-bentonite backfill) every two hours.

Measurement and Payment:

Bid Item 122-1 - Slurry Wall

The quantity for Slurry Wall to be paid for under this section shall be for “Slurry Wall” per square foot, complete in place and accepted. The area to be paid for shall be measured from the top of the slurry wall to the bottom of the slurry trench; and from the beginning to end of seepage wall limits in the Contract Plans. The assumed width of the slurry wall is two (2) feet. The cost of the geotextile fabric and cap material is to be included in the contract Unit Price for slurry wall, square feet.

This price shall include full compensation for furnishing all labor, equipment, tools and incidentals necessary to complete this item.