Item D-752 Concrete Culverts, Headwalls, and Miscellaneous Drainage Structures

DESCRIPTION

752-1.1 This item shall consist of reinforced concrete culverts, headwalls, and miscellaneous drainage structures constructed in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

MATERIALS

752-2.1 Concrete. Concrete shall meet the requirements of Item P-610.

CONSTRUCTION METHODS

752-3.1 Unclassified excavation.

a. Trenches and foundation pits for structures or structure footings shall be excavated to the lines and grades and elevations shown on the plans. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximate only; and the RPR may approve, in writing, changes in dimensions or elevations of footings necessary to secure a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing steel is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to perform and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for excavation.

d. All bracing, sheathing, or shoring shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage the finished concrete. The cost of removal shall be included in the unit price bid for excavation.

e. After each excavation is completed, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

752-3.2 Backfilling.

a. After a structure has been completed, backfilling with approved material shall be accomplished by applying the fill in horizontal layers not to exceed 8 inches (200 mm) in loose depth, and compacted. The field density of the compacted material shall be at least 90% of the maximum density for cohesive soils and 95% of the maximum density for noncohesive soils. The maximum density shall be determined in accordance with ASTM D698. The field density shall be determined in accordance with ASTM D1556.

b. No backfilling shall be placed against any structure until approved by the RPR. For concrete, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill or the placement methods.

c. Fill placed around concrete culverts shall be deposited on each side at the same time and to approximately the same elevation. All slopes bounding or within the areas to be backfilled shall be stepped or serrated to prevent wedge action against the structure.

d. Backfill will not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor, covered under the contract unit price for "unclassified excavation for structures."

752-3.3 Weep holes. Weep holes shall be constructed as shown on the plans.

752-3.4 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankment, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition. **Cleaning and restoration of the site is considered subsidiary to the work items specified under this section.**

METHOD OF MEASUREMENT

752-4.1 Unclassified excavation is considered subsidiary to the work item specified under this section and will not be measured for payment.

752-4.2 Concrete is considered subsidiary to the work item specified under this section and will not be measured for payment.

752-4.3 Reinforcing steel is considered subsidiary to the work item specified under this section and will not be measured for payment.

752-4.4 Concrete culverts, headwalls, and miscellaneous drainage structures will be paid for by each whole unit, constructed in accordance with the plans, and accepted in place.

752-4.5 Underground Stormwater Detention Systems will be measured as a complete system, including excavation, backfill, filter stone, stormwater detention structures, and all related appurtenances necessary to provide a fully operational system.

BASIS OF PAYMENT

752-5.1 Concrete culverts, headwalls, miscellaneous drainage structures, and underground stormwater detention systems will be paid for by each whole unit, constructed in accordance with the plans, and accepted in place.

These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and placing the materials, and for all labor, equipment, tools, and incidentals necessary to complete the structure.

Payment will be made under:

Item D-752-5.1 Flared End Section, FES 1, 30" RCP, GDOT 1120 - per each

Item D-752-5.2	Flared End Section, FES 2, 15” RCP, GDOT 1120 - per each
Item D-752-5.3	Mitered End Section, MES 2, 24” RCP, GDOT Std - per each
Item D-752-5.4	Concrete Headwall, Headwall 01, (2) 24”x28” ERCP, GDOT 1001B - per each
Item D-752-5.5	Concrete Headwall, Headwall 02, (2) 24”x28” ERCP, GDOT 1001B - per each
Item D-752-5.6	Concrete Headwall, Headwall 03, (2) 24” Dia. RCP, GDOT 1001B - per each
Item D-752-5.7	Concrete Headwall, Headwall 04, (3) 19”x30” ERCP, GDOT 1001B - per each
Item D-752-5.8	Concrete Headwall, Headwall 06, (3) 19”x30” ERCP, GDOT 1001B - per each
Item D-752-5.9	Underground Stormwater Detention System, Delegated Design, ADS Stormtech or Equal, 54,000 CF Storage Volume, Installed, Complete - per lump sum
Item D-752-5.10	Remove Drainage Structure, Pond 1 - per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

END OF ITEM D-752

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