

**MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF AERONAUTICS - STANDARD SPECIFICATION
D-754
Concrete Gutters, Ditches, and Flumes**

DESCRIPTION

1.1 This item shall consist of portland cement concrete gutters, ditches, flumes, curbs, curbs and gutters, and other drainage ways constructed in accordance with these specifications at the specified locations in accordance with the dimensions, lines, and grades as shown on the plans or required by the Engineer.

The concrete shall be tamped and spaded until it is consolidated and mortar entirely covers and forms the top surface. The surface of the concrete shall be floated smooth and the edges rounded to the radii shown on the plans. Before the concrete is given the final finishing, the surface shall be tested with a 10-foot straightedge, and any irregularities of more than ¼ inch in 10 feet shall be eliminated.

MATERIALS

2.1 **Concrete.** Plain and reinforced concrete shall meet the requirements of Item P-610.

The concrete shall be placed with dummy-grooved joints not to exceed 25 feet apart, except where shorter lengths are necessary for closures, but no section shall be less than 4 feet long.

2.2 **Joints.** Joint filler materials and premolded joint material shall conform to Item P-610.

Expansion joints of the type called for in the plans shall be constructed to replace a dummy groove at spacings of approximately 100 feet. When the gutter is placed next to concrete pavement, expansion joints in the gutter shall be located opposite expansion joints in the pavement. When a gutter abuts a pavement or other structure, an expansion joint shall be placed between the gutter and the other structure.

CONSTRUCTION METHODS

3.1 **Preparing Subgrade.** Excavation shall be made to the required width and depth, and the subgrade upon which the item is to be built shall be compacted to a firm uniform grade. All soft and unsuitable material shall be removed and replaced with suitable approved material. When required, a layer of approved granular material, compacted to the thickness indicated on the plans, shall be placed to form a subbase. The underlying course shall be checked and accepted by the Engineer before placing and spreading operations are started.

Forms shall not be removed within 24 hours after the concrete has been placed. Minor defects shall be repaired with mortar containing 1 part cement and 2 parts fine aggregate.

3.2 **Placing.** The forms for and the mixing, placing, finishing, and curing of concrete shall conform to the requirements of Item P-610 and shall be in accordance with the following requirements.

The operations of depositing, compacting, and finishing the item shall be conducted so as to build a satisfactory structure. If any section of concrete is found to be porous, other than minor defects which may be plastered, or is otherwise defective, it shall be removed and replaced by the contractor without additional compensation.

3.3 **Backfilling.** After the concrete has set sufficiently, the spaces adjacent to the structure

shall be refilled to the required elevation with material specified on the plans and compacted by mechanical equipment to at least 90% density, as determined by FAA compaction control tests T 611.

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 embankments, shoulders, or as ordered by the Engineer. The Contractor shall restore all disturbed areas to their original condition.

After all work is completed, the Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

Performance of the work described in this section is not payable but shall be considered as a subsidiary obligation of the Contractor, covered under the contract unit price for the structure.

METHOD OF MEASUREMENT

4.1 Concrete shall be measured by the cubic yard in accordance with the dimensions shown on the plans or ordered by the Engineer. No deductions shall be made for the volume occupied by reinforcing steel, anchors, conduits, weep holes, or piling.

4.2 Reinforcing steel shall be measured by the pound based on the theoretical number of pounds complete in place as shown on the plans or placed as ordered by the Engineer.

4.3 Curb, curb and gutter, and other drainage ways of uniform cross section, shall be measured by linear feet horizontally along the face of curbs or flowline of drainage ways, as applicable.

5.1 The accepted quantities of structural concrete will be paid for at the contract unit price per cubic yard complete in place.

5.2 The accepted quantities of reinforcing steel will be paid for at the contract price per pound complete in place. No allowance shall be made for clips, wire, or other material used for fastening reinforcement in place.

5.3 The accepted quantities of curb, curb and gutter, or other drainage ways, shall be paid for at the contract price per linear foot, which price includes all materials, work and materials necessary to construct the item complete in place.

Payment will be made under the nomenclature and seven digit item number specified in the plans and proposal for each type of concrete drainage way work required per cubic yard, per pound, or per linear foot, as applicable.

The first three digits of any item number for work included under this specification shall be 754, i.e. 754XXXX.

TESTING AND MATERIAL REQUIREMENTS

Test and Short Title

FAA T-611 - Density

Material and Short Title

None

NOTE: Others as required by referenced specifications. Cross-referenced specification required: P-610.