

## SECTION 503—RIGHT-OF-WAY MONUMENTS

### 503.01—Description.

This work shall consist of erecting right-of-way monuments in accordance with the requirements of the standard drawings at locations shown on the plans or as designated by the Engineer.

### 503.02—Materials.

Right-of-way monuments shall conform to the requirements of Section 219.

### 503.03—Procedures.

Monuments shall be placed at locations designated on the plans or by the Engineer. Backfill shall be thoroughly compacted in a manner that will not displace the monument.

### 503.04—Measurement and Payment.

**Right-of-way monuments** will be measured in units of each, complete-in-place, and will be paid for at the contract unit price per each. This price shall include excavating and backfilling.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Right-of-way monument (Standard)	Each

## SECTION 504—SIDEWALKS, STEPS, AND HANDRAILS

### 504.01—Description.

This work shall consist of constructing sidewalks, steps, and handrails on steps or walls in accordance with these specifications and in reasonably close conformity to the lines and grades shown on the plans or as established by the Engineer.

### 504.02—Materials.

- (a) **Concrete** shall be Class A3 conforming to the requirements of Section 217.

- (b) **Reinforcing steel** shall conform to the requirements of Section 223.
- (c) **Curing materials** shall conform to the requirements of Section 220.
- (d) **Preformed joint filler** shall conform to the applicable requirements of Section 212. Material shall be approximately 1/2 inch in thickness and shall have a width and depth equal to those of the structure.
- (e) **Asphalt concrete** shall conform to the requirements of Section 211.
- (f) **Rails and posts** shall conform to the requirements of Section 232.02 (c) 4. b. Rails shall be of standard weight, and posts shall be extra strong pipe.
- (g) **Geotextile drainage fabric** shall conform to the requirements of Section 245.

#### 504.03—Procedures.

- (a) **Sidewalks:** The foundation shall be shaped and compacted to a firm, even surface.

Unsuitable material shall be removed and replaced with approved material as directed by the Engineer.

When geotextile drainage fabric is required, the designated area shall be cleared of debris prior to fabric installation. Large holes shall be filled with sandy, coarse material, and sharp contours and rises shall be leveled. Adjacent strips of geotextile drainage fabric shall be overlapped at least 12 inches. If fabric is torn or punctured, it shall be repaired with the same type of fabric. A patch shall be placed over the damaged area with an overlap of at least 12 inches in all dimensions at the Contractor's expense.

Forms shall be straight, free from warp, and of sufficient strength to resist the pressure of concrete without springing and shall extend for the full depth of concrete. Forms shall be braced and stacked so that they will remain in horizontal and vertical alignment until their removal. Where practicable, forms shall be placed at least 100 feet in advance of concrete placement. Forms shall be cleaned of foreign matter and oiled before concrete is placed.

1. **Hydraulic cement concrete sidewalk:** The foundation shall be thoroughly moistened immediately prior to concrete placement. Concrete shall be placed in forms by methods that will prevent segregation. Concrete shall be spread to the full depth and brought to grade by screeding and straightedging. Concrete shall be spaded adjacent to forms to prevent a honeycomb appearance, and the surface shall be floated with a wooden float to produce a surface free from irreg-

ularities. The final finish shall be obtained with an approved hand float that will produce a uniform surface texture. Light metal marking rollers or light brooming may be used to hide trowel marks. Outside edges of the sidewalk slab and joints shall be edged with an edging tool having a radius of 1/4 inch.

Transverse expansion joints shall be constructed at intervals of approximately 100 feet, except for closures. Slabs shall be at least 3 feet in length. Slabs shall be separated by transverse preformed joint filler, 1/2 inch in thickness, that extends from the bottom of the slab to approximately 1/4 inch below the top surface.

The slab between expansion joints shall be divided into sections approximately 5 feet in length by transverse control joints formed by a jointing tool, trowel, or other approved means. Transverse control joints shall also be provided when the time period between consecutive concrete placements is more than 45 minutes. Control joints shall extend into concrete for at least 1/4 of the depth and shall be approximately 1/8 inch in width. Where slabs are more than 7 feet in width, control joints shall be formed longitudinally to obtain secure uniform blocks that are approximately square. Transverse control joints shall also be installed where the corners of the drop inlets project into the sidewalk.

Construction joints shall be formed around appurtenances extending into and through the sidewalk. Preformed joint filler 1/4-inch thick shall be installed in these joints except that joint filler shall not be used adjacent to drop inlets. An expansion joint shall be formed and filled with 1/4 inch preformed joint filler no less than 6 feet and no more than 10 feet from drop inlets. Preformed joint filler shall also be installed between concrete sidewalk and any adjacent fixed structure which is not tied to the sidewalk with steel dowels.

Where the sidewalk is constructed in conjunction with adjacent curb, expansion joints in the curb and sidewalk shall coincide. Where such construction is adjacent to existing curb, the expansion joint shall coincide, where practicable.

Where existing or proposed structures are within the limits of the sidewalk area, concrete around them shall be scored in a block approximately 8 inches wider than the maximum dimension of the structure at the sidewalk elevation.

Preformed joint filler shall be securely fastened.

The Engineer may drill cores from the completed slab to make depth measurements. Sections showing a deficiency of more than 3/8 inch shall be removed and replaced to the specified depth at the Contractor's expense.

Immediately following finishing operations, concrete shall be cured and protected in accordance with the requirements of Section 316.04. Sidewalks shall not be opened to pedestrian traffic for the first 5 days. Vehicular traffic shall be excluded for the first 14 days or until the minimum design compressive strength is attained, whichever is the lesser time.

When liquid membrane-forming compound is used, heavy concentrations of compound that will not properly set and that may be tracked into homes or businesses shall not be used.

2. **Asphalt concrete sidewalk:** When specified on the plans, a layer of bedding material consisting of approved aggregate conforming to the grading requirements of No. 8 aggregate shall be placed in layers not more than 4 inches in depth, loose measurement, and thoroughly compacted.

Asphalt concrete shall be placed in forms in one or more courses to provide the specified depth when compacted. Compaction shall be accomplished by means of a hand-operated or power roller of a type and weight acceptable to the Engineer. Tamping by hand will be permitted in areas inaccessible to a roller. The method of compaction shall produce a smooth, dense, uniformly compacted sidewalk.

- (b) **Hydraulic Cement Concrete Steps:** Hydraulic cement concrete steps shall be constructed in accordance with the requirements of Sections 404 and 406. The tread portion of steps shall be given a light broom texture. Finished concrete shall be cured and protected in accordance with the requirements of Section 316.04.
- (c) **Handrails:** Standard or special fittings shall be used, or joints may be welded. If joints are welded, exposed joints shall be finished by grinding or filing to give a neat appearance.

Metal items, including rails, posts, and fittings, shall be galvanized in accordance with the requirements of Section 233 except for metal posts and rails fabricated from pregalvanized material whose ends and other exposed areas are satisfactorily repaired with a material conforming to the requirements of Section 233.

When rails are placed on a mortar rubble wall, the wall shall be capped with 14 inches of Class A3 concrete.

#### **504.04—Measurement and Payment.**

**Hydraulic cement concrete sidewalks** will be measured in square yards of finished surface, complete-in-place, and will be paid for at the contract unit price per square

yard. Each structure located within the limits of the sidewalk having an area greater than 1 square yard will be excluded in computing the square yards of sidewalk.

**Asphalt concrete sidewalks** will be measured in tons of asphalt mixture placed and will be paid for at the contract unit price per ton.

If regular excavation is not shown in the sidewalk area, the contract unit price for sidewalks shall include excavating, removing existing sidewalk, and disposing of surplus and unsuitable material. When the sidewalk area is located in the cross-sectional area for roadway excavation, excavation within the sidewalk area will be paid for at the contract unit price for regular excavation.

**Bedding material** will be measured in tons or cubic yards in accordance with the requirements of Section 109 and will be paid for at the contract unit price per ton or cubic yard.

**Concrete steps** will be measured in cubic yards of concrete and pounds of reinforcing steel, complete-in-place, and will be paid for at the contract unit price per cubic yard of concrete and per pound of reinforcing steel.

**Handrails** will be measured in linear feet along the top rail, complete-in-place, and will be paid for at the contract unit price per linear foot. This price shall include concrete placed on mortar rubble walls when the wall is not included in the Contract.

**Geotextile drainage fabric** will be measured in square yards to the limits shown on the plans or as directed by the Engineer, complete-in-place, and will be paid for at the contract unit price per square yard. Overlaps, overwidths, and waste fabric will not be measured. This price shall include preparing the surface, furnishing and installing fabric, overlaps and repair work, and excavating and backfilling toe-ins.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Hydraulic cement concrete sidewalk (Depth)	Square yard
Asphalt concrete sidewalk	Ton
Bedding material	Ton or cubic yard
Concrete, Class A3, Miscellaneous	Cubic yard
Reinforcing steel	Pound
Handrail (Standard)	Linear foot
Geotextile drainage fabric (Type)	Square yard

## SECTION 505—GUARDRAIL AND STEEL MEDIAN BARRIERS

### 505.01—Description.

This work shall consist of furnishing and constructing guardrail and steel median barriers and installing reuse galvanized guardrail in accordance with the plans and