

## **Section 2512. Portland Cement Concrete Curb and Gutter**

### **2512.01 DESCRIPTION.**

- A.** Construct PCC curb and gutter, separate from the construction of a pavement according to the contract documents.
- B.** Produce, transport, and place concrete according to [Section 2403](#) when curb or curb and gutter construction is associated with a bridge structure.

### **2512.02 MATERIALS.**

Meet the requirements of [Division 41](#) for respective materials. Ensure the consistency of the concrete, as measured by the slump test, does not exceed 3 inches (75 mm).

- A.** Use Class C concrete for curb or curb and gutter not associated with a bridge structure. Place according to [Section 2301](#).
- B.** Use Class D concrete when curb or curb and gutter construction is associated with a bridge structure.

### **2512.03 CONSTRUCTION.**

Meet the following requirements for PCC curb or curb and gutter construction:

#### **A. Preparation of the Subgrade.**

- 1.** Prepare the subgrade upon which concrete curb or curb and gutter is to be placed by excavating or filling with suitable earth to a depth below finished grade line so that, when tamped or rolled until smooth and firm, the subgrade will be uniform and at the desired depth below finished grade line.
- 2.** When curb or curb and gutter is constructed on a filled section, extend the compacted fill a minimum of 1 foot (0.3 m) outside the form line. Ensure it is no lower than the base of the form at the form line. Thoroughly moisten the subgrade or cover it with a layer of plastic film meeting requirements of [Section 4107](#) before placing concrete.

#### **B. Slip Form Equipment.**

Slip form equipment may be used.

#### **C. Forms.**

- 1.** ~~Unless slip form equipment is permitted~~ When hand placement methods are used, form all straight sections of curb and gutter with steel forms for the full depth of the concrete. Wood forms may be used on curving sections.
- 2.** Place a steel face, rigidly welded or bolted to the main form, on any extensions used to obtain the required depth of form.
- 3.** Ensure the top face of forms does not vary from a true plane by more than 1/8 inch in 10 feet (3 mm in 3 m). Ensure the upstanding face,

including any extension, does not vary from a true plane by more than 1/4 inch in 10 feet (6 mm in 3 m). Remove forms that are bent, twisted, warped, broken, or battered from the work. Allow Engineer to inspect and approve repaired forms before using.

4. Use flexible or rigid forms of proper curvature for curves having a radius of 100 feet (30 m) or less.
5. While concrete is being placed and consolidated, form the front face of the curb with fixed or movable forms. If movable slip forms are used, use forms that are at least 6 feet (1.8 m) long with provide a suitable opening for placing and consolidating concrete. Obtain Engineer's approval for slip forms.
6. Curb may be placed and shaped by hand methods, without the use of a front face form, provided placement tolerances in Article 2512.03, C, 3, are met. Form back of curb and consolidate to produce an integral unit with underlying gutter section.
7. Set forms with the upper edge to the correct line and grade. Firmly hold forms in place with adequate stakes and bracing.
8. Forms with height greater than the thickness of the concrete may be used, with no additional cost to the Contracting Authority for extra concrete required, if:
  - The upper edge is set accurately to line and grade, and
  - The subgrade is excavated to meet the bottom edge of the form in a slope not steeper than one vertical to four horizontal.

#### **D. Placing Concrete.**

Place concrete to construct curb and gutter as an integral unit. Consolidate the concrete during placement with internal vibration operating at a frequency between 3,500 vibrations per minute (vpm) and 8,000 vpm.

#### **E. Finishing.**

1. After concrete has been consolidated and face forms have been removed, finish the surface to a uniform texture. Use a suitable edging tool to perform edging along all forms and expansion and contraction joints.
2. Ensure the finished surface conforms to the lines and grades shown in the contract documents. Ensure the gutters drain as indicated in the contract documents, with no depressions that trap water.

#### **F. Protection and Curing.**

After finishing, cure and protect the concrete using one of the methods described in Article 2301.03, K.

#### **G. Joints.**

Construct joints for PCC curb and gutter according to Section 2301 and the contract documents.

**2512.04 METHOD OF MEASUREMENT.**

The Engineer will measure the linear feet (the length to the nearest 0.1 m) of Curb or Curb and Gutter along the face of the curb at the gutter line.

**2512.05 BASIS OF PAYMENT.**

- A. Payment for Curb or Curb and Gutter will be the contract unit price per linear foot (meter).
- B. Payment is full compensation for:
  - Furnishing all materials,
  - Preparation of subgrade, and
  - Placing, compacting, finishing, and curing the concrete curb or curb and gutter.