

## SECTION X. CURB AND GUTTER

- A. Design
- B. Construction
- C. Reinforced Concrete Cross-Drains
- D. Protection

### A. DESIGN:

**1. Standard Curb & Gutter:** Pavement that is bounded by concrete curb and gutter must be designed as shown in the Standard Construction Drawings. All other types or designs of curb and gutter are not permitted without the approval of the City.

**2. Minimum and Maximum Grades (New construction):** Grades for gutters shall not be less than one-half of one percent (0.5%) nor greater than eighteen percent (18%). The grade from the crown of the road to the lip of the curb shall be a minimum of two percent (2%) and a maximum of four percent (4%).

### B. CONSTRUCTION

**1. Excavation, Base Preparation & Backfilling:** All excavation and preparation of sub-grade required for construction of concrete curb and gutter and reinforced concrete drain gutter shall be done as provided in all applicable provisions of the Surfacing & Paving section of these specifications. Structural fill required under the concrete shall be with approved material compacted to ninety five percent (95%) of maximum density.

**a.** Concrete curb and gutter and reinforced concrete drain gutter shall be constructed in conformity with the lines, grades, slopes, form and dimensions shown on the plans.

**b.** In the construction of combined curb and gutter, the entire structure shall be built simultaneously and no joint or line or cleavage shall be made between the curb and the gutter. All newly installed curbs at street intersections shall provide a ramped curb to permit accessible access for the disabled. All ramps shall meet state and federal accessibility requirements.

**2. Concrete:** The concrete used for the construction of reinforced concrete drain gutter and concrete curb and gutter shall be 4000 psi, air entrained type II cement.

**3. Joints:** At intervals of ten feet (10'), joints should be made by inserting iron plates one-eighth inch (1/8") in thickness and shaped to the exact form and dimension of the curb and gutter. In no case shall joints be less than five feet (5') or greater than fifteen feet (15').

Plates must be smooth and clean. Plates shall be lubricated immediately before using. Any plate that has become warped or damaged shall not be used. Plates shall be carefully removed and the remaining void tooled after the concrete has set.

**a. Plates:** At the contractor's option, plates a minimum of two inches (2") deep may be substituted for the full depth plates at contraction joint only. A full plate must be used at expansion joints and ends of the constructed section, such as at driveways, curved sections, etc.

**4. Placing, Compacting and Curing:** The method of mixing, placing, compacting, finishing and curing, etc., of the concrete shall conform to all applicable requirements of the Portland Cement section of these Standards and Specifications.

**a. Slip Form Method:** Curb and gutter may be placed by an approved slip form method. The slip form machine equipment shall spread, consolidate, screed and float finish the freshly placed concrete in such a manner that a minimum of hand float finishing will be required to provide a dense and homogeneous concrete section.

**i. Distribution:** The concrete shall be distributed uniformly into final position by the machine without delay and competently placed true to line and grade.

**ii. Contraction Joints:** The contraction joints every ten feet (10') may be provided by cutting into the fresh concrete to a minimum depth of one and one-half inches (1½") to create a weakened vertical plane. The edges or such joints shall be tooled with an edger so as to provide a neat workmanlike appearance. Expansion joints will not be required except at adjacent pavement, walk or structure.

### **C. REINFORCED CONCRETE CROSS-DRAINS**

**1. Construction:** The reinforced concrete cross-drain shall be built to conform to dimensions, form and elevations as shown on the standard detail drawings.

### **D. PROTECTION**

The contractor shall protect all curb and gutter and drain gutter from damage from traffic and all other causes until accepted by the City. Should the curb and gutter or drain gutter become damaged by weather, traffic, or during the rolling of the street, or from any other cause, it shall be repaired by reconstructing an entire section, by and at the expense of the contractor or developer.