

SECTION 520

CONCRETE GUTTER, CURB ELEMENTS, AND TRAFFIC SEPARATOR

520-1 Description.

Construct portland cement concrete curb and gutter, concrete traffic separator, valley gutter, special concrete gutter, and any other types of concrete curb not specified in other Sections.

520-2 Materials.

520-2.1 Concrete: Use Class I concrete meeting the requirements of Section 347.

520-2.2 Reinforcement: For all steel reinforcement required by the plans, meet the requirements of Section 415.

520-2.3 Joint Materials: Meet the requirements of Section 932.

520-3 Forms.

520-3.1 Form Materials: Construct forms for this work of either wood or metal. Provide forms that are straight, free from warp or bends, and of sufficient strength, when staked, to resist the pressure of the concrete without deviation from line and grade. For all items constructed on a radius, use flexible forms.

520-3.2 Depth of Forms: Ensure that forms have a depth equal to the plan dimensions for the depth of concrete being deposited against them.

520-3.3 Machine Placement: The Contractor may place these items by machine methods with the approval of the Engineer provided that the Contractor consistently produces an acceptable finished product, true to line, grade, and cross section.

520-4 Excavation.

Excavate to the required depth, and compact the foundation material upon which these items are to be placed as specified in 120-9.

520-5 Placing Concrete.

Place the concrete in the forms, and tamp and spade it to prevent honeycombing, and until the top of the structure can be floated smooth and the edges rounded to the radius shown in the plans.

520-6 Joints.

520-6.1 Contraction Joints: Except for machine placed items, the Contractor may form joints by using dummy joints (either formed or sawed) or by using sheet metal templates. If using sheet metal templates, ensure that they are of the dimensions, and are set to the lines, shown in the plans. Hold templates firmly while placing the concrete. Leave templates in place until the concrete has set sufficiently to hold its shape, but remove them while the forms are still in place.

Saw contraction joints, for machine placed items, unless the Engineer approves an alternate method. Saw the joints as soon as the concrete has hardened to the degree that excessive raveling will not occur and before uncontrolled shrinkage cracking begins.

Space contraction joints at intervals of 10 feet [3 m] except where closure requires a lesser interval, but do not allow any section to be less than 4 feet [1.2 m] in length.

520-6.2 Expansion Joints: Construct expansion joints at all inlets, at all radius points, and at other locations indicated in the plans. Locate them at intervals of 500 feet [150 m] between other expansion joints or ends of a run. Ensure that the joint is 1/2 inch [13 mm] in width.

520-7 Finishing.

520-7.1 Repair of Minor Defects: Remove the forms within 24 hours after placing the concrete, and then fill minor defects with mortar composed of one part portland cement and two parts fine aggregate. The Engineer will not allow plastering on the face of the curb. Remove and replace any rejected curb, curb and gutter, or valley gutter without additional compensation.

520-7.2 Final Finish: Finish all exposed surfaces while the concrete is still green. In general, the Engineer will only require a brush finish. For any surface areas, however, which are too rough or where other surface defects make additional finishing necessary, the Engineer may require the Contractor to rub the curb to a smooth surface with a soft brick or wood block, using water liberally. Also, if necessary to provide a suitable surface, the Engineer may require the Contractor to rub further, using thin grout or mortar.

520-8 Curing.

520-8.1 General: Continuously cure the concrete for a period of at least 72 hours. Commence curing after completely finishing and as soon as the concrete has hardened sufficiently to permit application of the curing material without marring the surface. Immediately replace any curing material removed or damaged during the 72 hour period.

After removing the forms, cure the surfaces exposed by placing a berm of moist earth against them or by any of the methods described below, for the remainder of the 72 hour curing period.

520-8.2 Wet Burlap Method: Place burlap, as specified in 925-1, over the entire exposed surface of the concrete, with sufficient extension beyond each side to ensure complete coverage. Overlap adjacent strips a minimum of 6 inches [150 mm]. Hold the burlap securely in place such that it will be in continuous contact with the concrete at all times, and do not allow any earth between the burlap surfaces at laps or between the burlap and the concrete. Saturate the burlap with water before placing it, and keep it thoroughly wet throughout the curing period.

520-8.3 Membrane Curing Compound Method: Apply clear membrane curing compound or white pigmented curing compound, as specified in 925-2, by a hand sprayer meeting the requirements of 350-3.10, in a single coat continuous film at a uniform coverage of at least 200 square feet per gallon [0.2 L/m²]. Immediately recoat any cracks, checks, or other defects appearing in the coating. Thoroughly agitate the curing compound in the drum prior to application, and during application as necessary to prevent settlement of the pigment.

520-8.4 Polyethylene Sheeting Method: Place polyethylene sheeting, as specified in 925-3, over the entire exposed surface of the concrete, with sufficient extension beyond each side to ensure complete coverage. Overlap adjacent strips a minimum of 6 inches [150 mm]. Hold the sheeting securely in place and in continuous contact with the concrete at all times.

520-9 Backfilling and Compaction.

After the concrete has set sufficiently, but not later than three days after pouring, refill the spaces in front and back of the curb to the required elevation with suitable material. Place and thoroughly compact the material in layers not thicker than 6 inches [150 mm].

520-10 Surface Requirements.

Test the gutter section of curb and gutter with a 10 foot [3.048 m] straightedge laid parallel to the centerline of the roadway and while the concrete is still plastic. Perform straightedging along the edge of the gutter adjacent to the pavement or along other lines on the gutter cross-section, as directed by the Engineer. Immediately correct irregularities in excess of 1/4 inch [6 mm].

520-11 Method of Measurement.

For curb or curb and gutter, the quantity to be paid will be plan quantity, in feet [meters], measured along the face of the completed and accepted curb or curb and gutter.

For valley gutter or shoulder gutter, the quantity to be paid will be plan quantity, in feet [meters], measured along the gutter line of the completed and accepted valley gutter or shoulder gutter.

For concrete traffic separator of constant width, the quantity to be paid will be plan quantity, in feet [meters], measured along the center of its width, completed and accepted, including the length of the nose.

For concrete traffic separator of varying width, the quantity to be paid will be plan quantity, in square yards [square meters], completed and accepted.

520-12 Basis of Payment.

520-12.1 General: Price and payment will be full compensation for all work specified in this Section.

520-12.2 Excavation: Excavation will be paid for as Roadway Excavation in accordance with 120-12.2.

520-12.3 Reinforcement: Reinforcing steel will not be paid for separately. The Contractor shall include the cost of the steel in the Contract unit price for the item in which the steel is placed.

520-12.4 Joint Materials: The Contractor shall include the cost of all joint materials in the Contract unit price for the item in which they are used.

520-12.5 Payment Items: Payment will be made under:

Item No. 520- 1-	Concrete Curb and Gutter - per foot.
Item No. 2520- 1-	Concrete Curb and Gutter - per meter.
Item No. 520- 2-	Concrete Curb - per foot.
Item No. 2520- 2-	Concrete Curb - per meter.
Item No. 520- 3-	Concrete Valley Gutter - per foot.
Item No. 2520- 3-	Concrete Valley Gutter - per meter.
Item No. 520- 4-	Special Concrete Gutter - per foot.
Item No. 2520- 4-	Special Concrete Gutter - per meter.
Item No. 520- 5-	Concrete Traffic Separator - per foot.
Item No. 2520- 5-	Concrete Traffic Separator - per meter.
Item No. 520- 6-	Concrete Shoulder Gutter - per foot.
Item No. 2520- 6-	Concrete Shoulder Gutter - per meter.
Item No. 520-70-	Concrete Traffic Separator - per square yard.
Item No. 2520-70-	Concrete Traffic Separator - per square meter.