

614 PCC TRAFFIC BARRIERS

614.01 PCC MEDIAN AND ROADSIDE BARRIERS

- (A) **DESCRIPTION.** Work consists of the construction of PCC traffic barriers in accordance with these specifications at locations indicated in the contract documents and/or established by the Chief Engineer. The types of barrier will be stipulated in the contract documents. The PCC Median and Curb Barriers may be precast, cast-in-place or slip-form. The construction of various types of barrier shall include the assembly and erection of all component parts and furnishing all materials complete in place.

Necessary transition of the PCC Median and Curb Barriers to sections different from the standard uniform section such as at bridge piers, sign pedestals, bridge end walls, or guardrail terminal sections, shall be accomplished in a smooth and uniform manner as shown in the standard drawings or in the contract documents.

(B) **MATERIALS.**

Concrete – [817, Class B](#)

Reinforcement – [812.02](#)

Epoxy Coated Reinforcement Bars – [812.03](#)

Preformed Joint Filler – [807.01](#)

Anchor Bolts, Rods, Sleeves, Dowels, etc. – [815.01](#)

Compression Seals – [807.06](#)

Epoxy Grout – [806.05\(C\)](#)

Mastic Joint Sealer – [807.02\(B\)](#)

Barrier Delineators – [822.13\(B\)](#)

(C) **CONSTRUCTION REQUIREMENTS.**

- (1) **CAST-IN-PLACE BARRIERS.** When casting in place, the forming may be either the conventional fixed form or slip-form method.

Cast-in-place concrete barriers shall be in accordance with the following:

- (a) **FIXED FORM METHOD.** Forms shall be steel and of such construction that there shall be minimum interference to inspection for grade and alignment. The condition and the stability of the forms shall be such that they will produce a barrier that shall meet the required tolerance of deviations not exceeding 1/4 inch in ten feet in either grade or alignment. Before concrete is placed against the forms, they shall be thoroughly cleaned and coated with form release compound each time they are used.

Concrete shall be mixed in accordance with [501.09](#) and placed in accordance with [703.08](#). Concrete shall be vibrated by means of an approved immersion type mechanical vibrator.

Construction or contraction joints shall be constructed every 20 feet except that joints shall match the joints in the roadways, footers and walls where barrier is anchored to the roadway slab or abuts a wall. However, sections of a minimum of 10 feet in length may be constructed if necessary to make use of delivered concrete. Expansion joints shall be placed at the same location as that of the roadway or as directed by the Chief Engineer.

Concrete shall be finished in accordance with [703.19](#). The top of barrier, when finished, shall show no deviation from grade and alignment in excess of 1/4 inch in 10 feet.

The minimum time required before removal of forms will depend on the temperature at the time of pour and shall be as follows:

Temperature	Hours
Greater than 50°F (10°C)	12
Between 35°F (2°C) and 50°F (10°C)	24
Less than 35°F (2° C)	72

All honeycombed and damaged areas shall be repaired to the satisfaction of the Chief Engineer immediately after the removal of the forms.

- (b) **SLIP-FORM METHOD.** Slip-form equipment shall be approved by the Chief Engineer and include the incorporation of automatic guidance controls to follow line and grade reference. The use of manual control on slip-form equipment is not permitted. Line and grade reference shall consist of taut lines or wire suspended from supports set in the subgrade or adjacent pavement. The references shall be 25 feet intervals on uniform grades and tangent sections. On vertical and horizontal curves, an additional intermediate support shall be set in the field to establish a reference line acceptable to the Chief Engineer. The use of ski or shoe sensors reflecting variations in grade of existing roadway surface will not be permitted.

Concrete shall be mixed in accordance with [501.09](#). The concrete shall be of such consistency that after extrusion it will maintain the shape of the barrier without support. The surface shall be free of surface pits larger than 3/16 inch in diameter. The concrete shall require no further finishing other than light brushing with water only. Finishing with a brush application of grout will not be permitted.

Whenever a tear occurs during the operation of the slip-form equipment, it shall be repaired immediately. The repair shall be made in accordance with good concrete practices that are acceptable to the Chief Engineer. It will be at the sole discretion of the Chief Engineer as to whether the tear can be repaired or whether the areas will require removal and replacement.

Contraction joints shall be sawed or formed at 20 feet intervals in the barrier and footing. Each joint shall be a minimum of 2 inches in depth and 1/8 inch in width. Expansion joints will be required at the same location as that of the roadway and/or as directed by the Chief Engineer. However, sections of 10 feet

length may be constructed if necessary to make use of delivered concrete. At the terminus of any pour less than 20 feet a bulkhead form shall be placed; and six No. 8 dowels, 2 feet long, shall be placed through the bulkhead. No joint material is required.

The concrete footing may be constructed by the fixed form or the slip-form method. The construction of the footing and the barrier section as a monolithic pour shall not be permitted.

- (2) **PRECAST CONCRETE BARRIERS.** Precast concrete barriers will not be permitted on curves of short radius. They shall be cast in sections having a uniform length of 10 to 12 feet.

The concrete shall be placed, cured and protected in accordance with [703.08](#) and [703.18](#). Lifting holes, rings, hooks or other handling devices, as approved by the Chief Engineer, may be inserted in the precast sections. Holes exposed to completed work shall be filled with mortar. Other handling devices shall be removed to the satisfaction of the Chief Engineer.

The supporting concrete base shall be constructed by the conventional fixed form method and shall have joints constructed at 10 feet intervals to coincide with lengths of barriers. The joint shall be constructed by sawing or other methods for the width of the base to a minimum depth of 3 inches. The base section shall be doweled to the barrier section as shown in the contract documents.

Precast barriers shall be placed in such a manner that there will generally be a joint opening of 1/4 inch between sections. To this specified joint opening, a tolerance of 1/8 inch plus or minus will be permitted throughout the plane of the joint.

The ends of each section of barrier shall have an interlocking configuration and/or mechanical locking device to resist lateral movements when in final position.

All surfaces shall have an ordinary finish as specified in [703.19](#).

(D) MEASURE.

The unit of measure for PCC Median Barrier (Cast-In-Place or Precast) and PCC Roadside Barrier will be the linear foot as measured along the top center line of the barrier complete in place. The unit of measure for PCC Median/Curb Barrier (Variable Section) will be the cubic yard. If installation of Barrier Delineators is specified, they will not be measured for payment.

(E) PAYMENT.

Payment for each type of barrier will be made at the contract unit price per linear foot or per cubic yard as measured above which payment shall be full compensation for all equipment, labor, materials, such as reinforcement, joint filler, compression seals, epoxy grout, anchorage, and incidentals necessary to complete the various items of work.

No payment will be made for barrier delineators. The cost of delineators will be included in the contract unit price for the barrier.

614.02 PORTABLE PRECAST PCC BARRIER

- (A) **DESCRIPTION.** Work consists of furnishing, installing and maintaining temporary precast PCC New Jersey or F Shape (safety shape barriers, including replacing any broken sections, maintaining proper alignment, relocating barriers as shown on the contract plans or as per approved traffic control plans, during the course of the project, and removal from the work site after completion of the project. Work also includes cleaning the barriers as directed.

Barriers shall be either 32 inches in height and 24 inches in width, or 32 inches in height and 18 inches in width for half size as specified in the contract documents. Typical section lengths shall be 12 feet but may be varied to insure portability and proper installation. Portable Precast PCC Barriers shall have built-in connections devices meeting the requirements of NCHRP Report 350, TL3. Where specified on the contract plans, barriers shall be anchored to the concrete bridge deck at no additional cost to the District. Half size barrier shall not be installed unless anchored by approved methods. Barriers shall have drainage slots or be placed so as to permit drainage of the roadway surface.

- (B) **MATERIALS.**

Concrete – [817, Class B](#)

Welded Wire Fabric – [812.01](#) (4 x 4)

Barrier Delineators – [822.13\(B\)](#)

- (C) **MEASURE AND PAYMENT.**

The unit of measure for Portable Precast PCC Barrier will be the linear foot. The length for measurement will be the actual maximum length along the top centerline complete in place. If installation of Barrier Delineators is specified, they will not be measured for payment.

Install Portable PCC Barrier – Payment for the delivery and the initial installation of the Barrier in the work zone for the first phase of construction and removal from the job site upon completion of the work will be made at the contract unit price per linear foot, which payment will include all labor materials, tools, equipment and incidentals necessary to complete the work. Barrier stored at the project site prior to the construction start will not be measured under the item for Move Portable PCC Barrier.

Move Portable PCC Barrier – Payment for Move Portable PCC Barrier will be made at the contract unit price per linear foot of barrier moved for each phase of construction as specified in the approved traffic control plan or directed by the Chief Engineer. Payment will include all labor, material, tools, equipment and incidentals necessary to complete the work.

No payment will be made for Barrier Delineators. The cost of delineators will be included in the contract unit price for the barrier.

No payment will be made for barrier delineators. The cost of delineators will be included in the contract unit price for the barrier.