TO:

Director,
Facilities Design Subdivision

MODIFIED BY EI 77-042
EFFECTIVE 9/26/1977

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: CONCRETE MEDIAN BARRIER
STANDARD SHEET 606-5R1
AND SPECIFICATION

Subject Code: 7.27-2-606.30

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APPROVED: Malcolm D. Graham
Deputy Chief Engineer, Facilities Design Subdiv.

Supersedes: EI 73-28
EI 73-011 DATE 2/5/73
EI 73-065 DATE 8/29/73

Attached is a copy of the Concrete Median Barrier Specification (15606.30) which has been entered into the Engineer's Estimate Handling System for use. We are submitting under separate cover, transparencies and prints of Standard Sheet 606-5R1 (Concrete Median Barrier) which hereby supersedes Standard Sheet 606-5, which was transmitted by EI 73-28, dated April 26, 1973.

The Standard Sheet and Specification will provide a statewide standard cross-section for concrete median barrier. It contains three types of standard barrier sections and one type half-barrier section. You will note, however, the perimeter geometry is essentially the New Jersey section with some slight modifications. The Type A section is to be used on roadways permitting commercial traffic and where lamp post accommodations must be made.

The TYPE B section is to be used on roadways permitting commercial traffic but not requiring lamp post accommodations within the median.

TYPE C section is to be used on parkways and other type facilities not permitting commercial traffic.

The Half-Barrier section can be used on all the above described roadways, both in the median and as an alternate to metal guide rail where deflection distance is not available. If the half-barrier section is used as an alternate for metal guide rail, payment shall be made under a separate item. The Designer shall provide a sufficient backup system for the half-barrier section and this system shall be detailed on the plans. The use of the half-barrier section as a free standing system is discouraged. If used in this manner, sufficient embedment of the base is needed to provide the passive soil resistance necessary to counteract the overturning moment of an impact. A free standing half-barrier section must be separately designed and detailed on the plans. End treatment for the half-barrier section shall also be detailed on the plans.

The Specification is so written as to require wire fabric reinforcement in the face of the barrier system. Please note, any additional steel that the Contractor feels is needed for structural integrity, due to his construction operation, is his reponsibility. It will be the inspectors responsibility to inspect the casting operation and the finished median barrier in its final position. Acceptance or rejection of the finished median barrier is based on the points indicated in the specifications.

15606.30 CONCRETE MEDIAN BARRIER

Description. The work shall consist of constructing concrete median barrier in accordance with this specification, the standard sheet and the lines and grades and locations shown on the plans or as established by the Engineer. The type of median barrier shall be as indicated on the plans and in the proposal.

Materials. All materials in the finished median barrier shall meet the requirement of Section 700, MATERIALS DETAILS. These materials shall be sampled and tested in accordance with the Department's written instructions.

Concrete shall meet the requirements for Class A Concrete in Section 501-PORTLAND CEMENT CONCRETE-GENERAL and be cured by wet quilted covers meeting the requirements of 711-02 Quilted Covers or 711-03 Polyethylene Coated Burlap Blankets used dry. Steam curing will be permitted when barrier sections are precast.

Premoulded Bituminous Joint Filler shall meet the requirements of Subsection 705-07 of the Standard Specifications.

Any modification requested in the proportioning, air content, slump and curing shall be approved by the Deputy Chief Engineer (Technical Services).

Construction Details. The Contractor may at his option precast, cast-in-place or slip-form the barrier sections shown on the plans and/or the Standard sheet.

When barrier sections are precast or cast-in-place, they shall have a uniform length of approximately 20 feet. These sections shall conform to the type shown on the contract plans. The sections shall be placed upon a layer of select granular material thoroughly compacted to such a line and grade that a smooth alignment of the barrier is obtained as determined by the Engineer. The barrier shall be so constructed that the joint opening at any point in the plane of the joint is not less than 1/2" or more than 1". At the Contractor's option suitable concrete sleeper pads may be installed on the grade at the ends of the precast sections. Premoulded Bituminous Joint Filler meeting the requirements of Subsection 705-07 shall be placed in the Joint and recessed 1/2" from the faces of the barrier.

The provisions of subsections 601-3.04 Handling and Placing Concrete, 601-3.06 Provisions for Concreting in Cold Weather, 601-3.08 Finishing, A. Finishing Surfaces Exposed to View and 601-3.09 Curing A. General, shall apply. The desired concrete slump shall be 3" but shall not exceed 4".

If the precast concrete barrier sections are steam cured, the sections shall be cured in an enclosure free from outside drafts, and cured in a moist atmosphere. The temperature shall be maintained at a temperature between 125 degrees and 160 degrees F, by the injection of steam for a period of not less than 12 hours. Steam curing shall not begin less than 2 hours from the time that the last concrete was placed. Care shall be taken by the Contractor to prevent localized "hot spots" caused by the steam lines. A continuous temperature/time recorder is required for each enclosure.

The temperature of the curing atmosphere for any method shall not be increased or decreased at a greater rate than 40°F per hour.

All finished surfaces exposed to view after installation shall be cast in steel forms. Concrete shall be consolidated by internal vibrators and all surfaces shall be free from honeycomb and air voids. When authorized by the Engineer minor imperfections in manufacture and minor surface damage by handling may be repaired in a manner approved by the Engineer.

Ten days before any fabrication of the barrier is started the Contractor shall furnish the Engineer with six copies of working drawings and detailed specifications of the construction method and installation procedure that he will use in accomplishing this work.

The reinforcement shown on the standard sheet shall be held to an inplace tolerance of ± 1/4". The ends of the chairs and spacer devices, that bear on the faces of the forms and which are used to secure the reinforcement in the proper position, shall be made of non-corrosive material so that no discoloration will show on the finished faces of the barrier.

The reinforcement shown on the Standard sheet is the minimum required for the operational function of the barrier in its final position regardless of the construction option chosen by the Contractor. When the precast option is selected by the Contractor additional steel may be required to sustain the resulting handling and installation forces imposed on the barrier sections by that construction method. The amount, placement and cost of this additional steel will be the responsibility of the Contractor. It is the Contractor's responsibility to install the barrier in its final position with no structural and/or surface damage as determined by the Engineer.

When the slip-form method of construction is selected by the Contractor consideration will be given to alternate designs in the specified concrete mix, the minimum amount of reinforcing and its location as shown on the standard sheet and the joint construction and joint spacing all as heretofore indicated for the precast and cast in place methods of construction.

It is the intent of the construction details of this specification to allow the Contractor every innovative construction procedure to furnish and place the concrete median barrier indicated in the contract, however, all alternates must show detailed procedures, specifications, and demonstrations if necessary, in a manner and form required by the Deputy Chief Engineer (Construction). When the Contractor elects the slip form method a demonstration and sample test section of a minimum of 100 feet will be required. This section can be part of the work and may remain in place if satisfactory results are obtained, as determined by the Engineer.

Acceptance of the median barrier will be based on the results of the materials sampled and tested as required under the subsection Materials and the inspection of the barrier in its final position with respect to alignment, geometric configuration, structural integrity and surface finish.

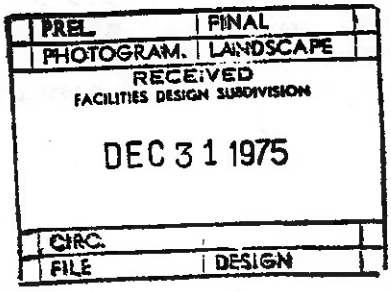
Method of Measurement. The work shall be measured by the pay units indicated below for those items that are actually furnished and placed in accordance with the plans, specifications, standard sheet and as approved by the Engineer.

Basis of Payment. The unit prices bid for the items of work as enumerated below shall include the cost of all labor, material and equipment necessary to satisfactorily complete the work. Progress payments will be made when the median barrier is in its final position and has cured the required length of time. Payment will be made, at the contract unit price, for 90% of the quantity properly placed. The remaining 10% of the quantity will be paid for upon final acceptance of the concrete median barrier.

Payment will be made under:

Item No.	Item	Pay Unit
15606.3001	Concrete Median Barrier (Type A)	Linear Foot
15606.3002	Concrete Median Barrier (Type B)	Linear Foot
15606.3003	Concrete Median Barrier (Type C)	Linear Foot
15606.3101	Concrete Median Barrier End Section (Type A)	Each
15606.3102	Concrete Median Barrier End Section (Type B)	Each
15606.3103	Concrete Median Barrier End Section (Type C)	Each
15606.3201	Half Section Concrete Median Barrier	Linear Foot

12/16/75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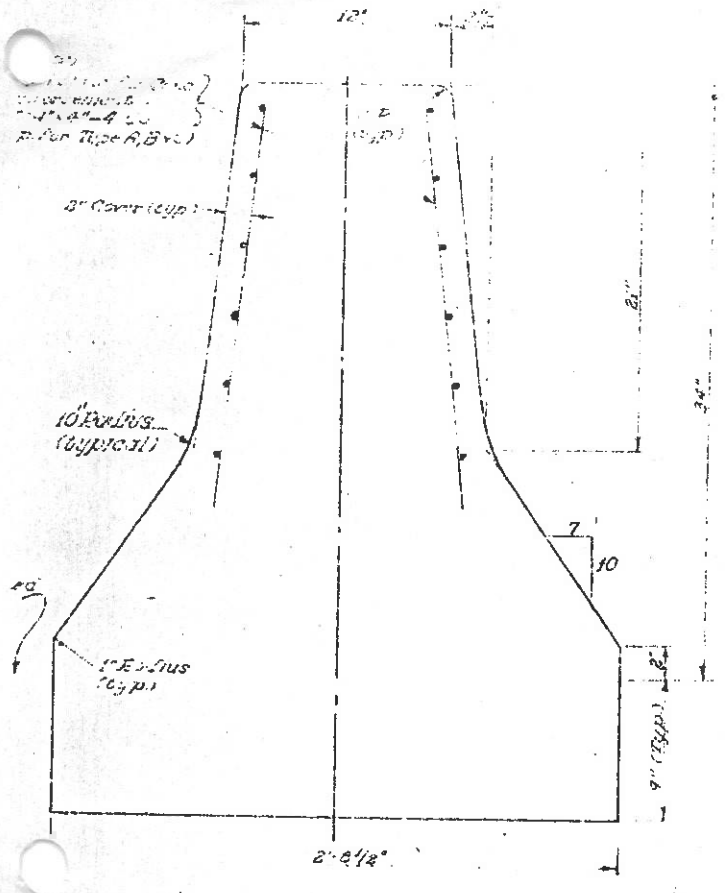

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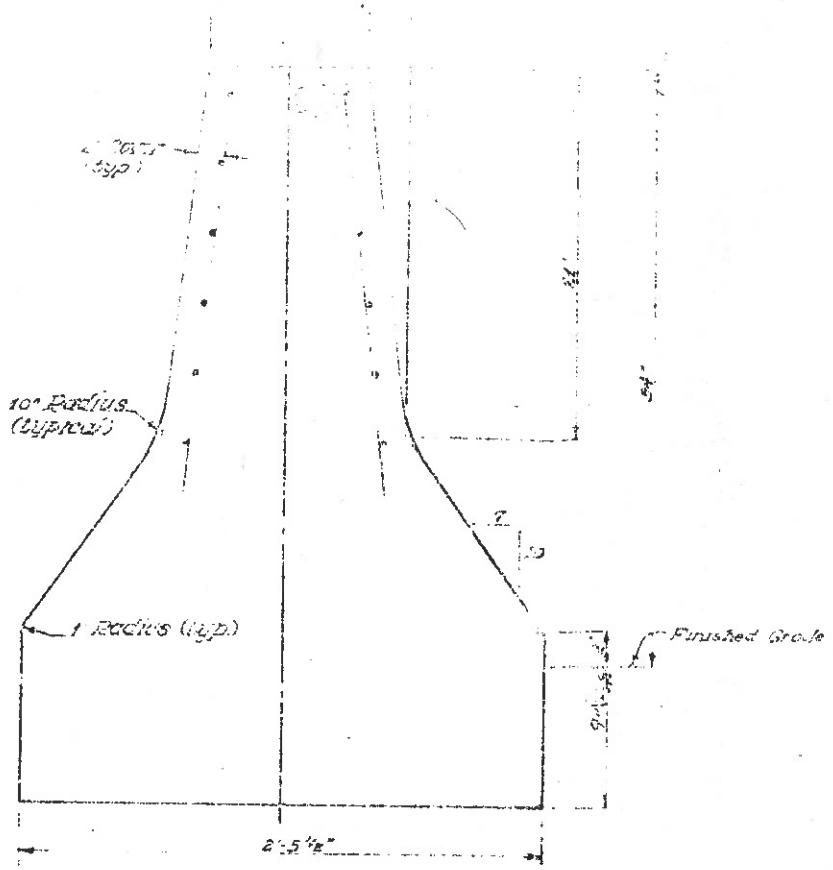

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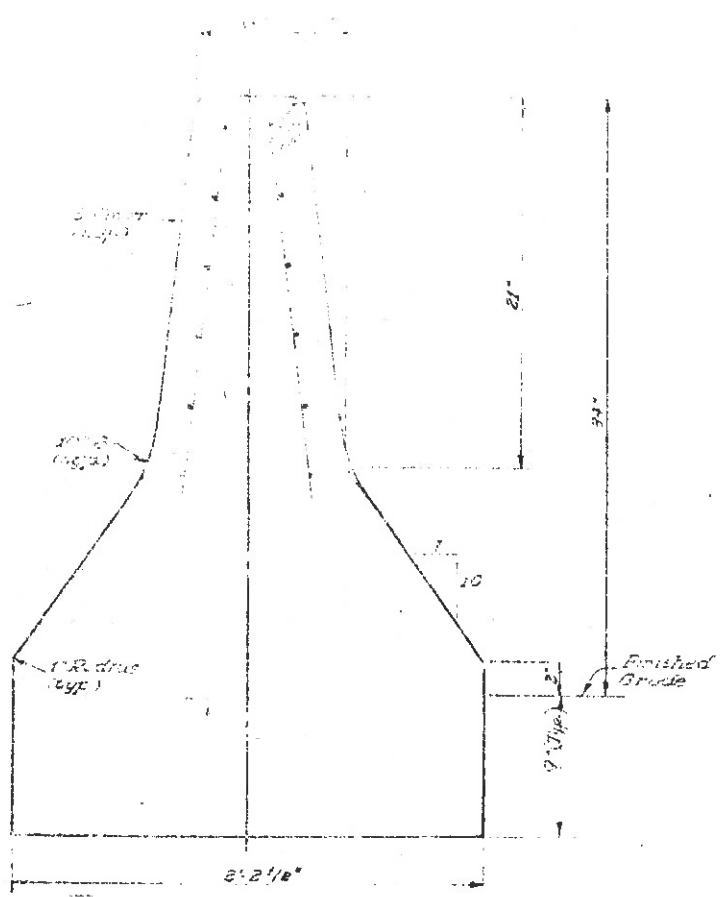

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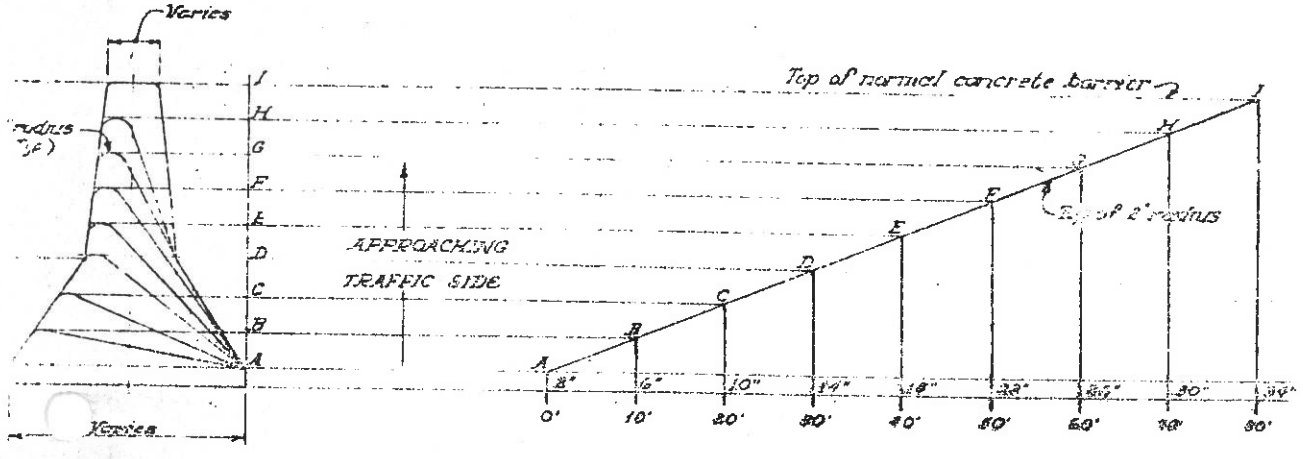
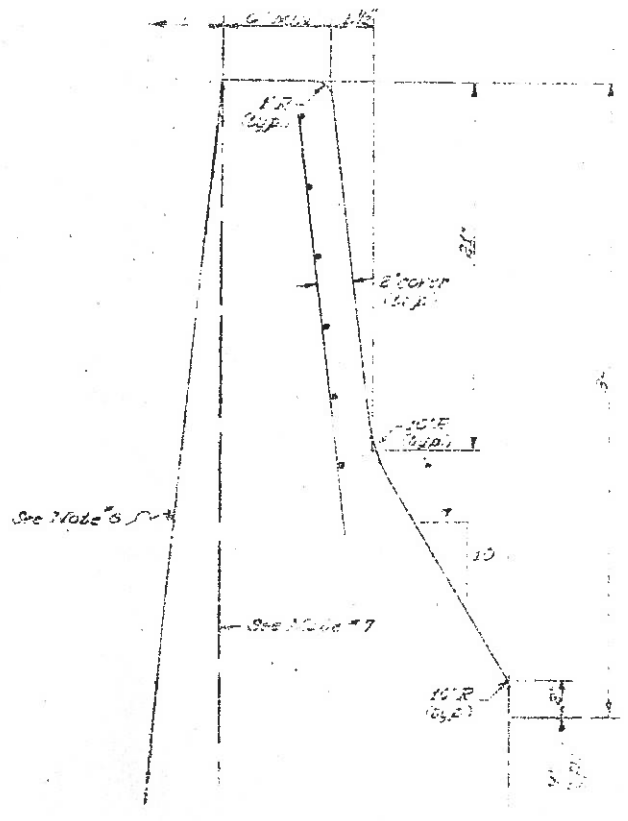


TRANSITION END DETAILS



NOTES

1. The 9" embedment is optional for steel and precast concrete mountings.
2. Barrier half section, barrier at structures and special sections shall be detailed on the plans.
3. Any variation of the type rail or embedment shall be detailed on the plans.
4. The half-barrier section shall not be used as a free standing section. A free standing section must be designed and details shown on the plans.
5. Back up systems for the half-barrier section shall be detailed on the plans.
6. End treatments for the half barrier section shall be detailed on the plans.
7. This form line to be used when two separate half section barriers are used back to back, but not on a median separation or as a rail system on the off side of the highway.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
BUREAU OF CONSTRUCTION OPERATIONS

CONCRETE BARRIER (TYPE 4)