To:		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 99-015
SUPERSEDED BY EB 02-024 EFFECTIVE 7/11/02			
Title: **SINGLE SLOPE CONCRETE BARRIERS**			
Distribution: ☒ Manufacturers (18) ☒ Surveyors (33) ☒ Main Office (30) ☒ Consultants (34) ☒ Local Govt. (31) ☒ Contractors (39) ☒ Regions/Agencies (32) ☐ _____( )		Approved: P. Clark, Deputy Chief Engineer, Design Division 7/22/99 Date	

ADMINISTRATIVE INFORMATION: This Engineering Instruction will be *effective with projects submitted for letting on or after 11/04/99*. This instruction supersedes EI 93-023 because all of its information is incorporated in the HDM. This Instruction supplements the information in EB 99-040.

SUPERSEDED SPECIFICATIONS: Disapproved metric items: 15606.3041 M through 15606.3048 M (inclusive), 93606.3041 M through 93606.3048 M (inclusive).

PURPOSE: The purpose of this Engineering Instruction is to issue new book items and an alternate detail for the continuity connection for standard (NJ) concrete half section barriers.

TRANSMITTED MATERIAL: New items for single slope concrete barriers as indicated below:

606.304X M	Single-Slope Concrete Median Barrier	Meter
606.305X M	Single-Slope Concrete Median Barrier - Wide	Meter
606.306X M	Single-Slope Concrete Half Section Barrier	Meter
606.9002 M	Transition between Wide and Normal Single Slope Concrete Median Barrier	Each

where: X takes on values from 1 through 4 depending on how the barrier is constructed .

Also transmitted is a shelf note titled "Concrete Barrier".

BACKGROUND: Single-Slope concrete barriers no longer require monitoring to satisfy the requirements of section 1058 of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). Hence the special specifications are being replaced by standard specifications. Also to cut down the number of shop drawings being reviewed by the Materials Bureau, standard sheets are being issued for the barriers.

The single-slope concrete barriers have been successfully crash tested in accordance with the requirements of NCHRP Report 350 Test Level 3.

USAGE:

Barrier: The single-slope concrete barrier may be used for any barrier applications that the standard NJ barriers are used, as the warrants for the two barriers are the same. More information about these barriers may be found in the Highway Design Manual section (HDM) 10.2.4.9.

Terminal: The best way to end a barrier run is to bury the end in an existing back slope. Otherwise the following guidelines should be followed. These guidelines apply to both normal width median barrier and half section barrier placed on one side of traffic. The wide median barrier should be first transitioned into the

normal width barrier shape before terminating in one of the following ways.

At the approach end in one-way as well as two way situations the **ramped** end terminal should be used only at **low design speeds** (off-peak 85th percentile) of 50 km/h (30 mph) or less when placed *well within the clear zone*.

For design speeds in excess of 50 km/h (30 mph), the ramped terminal should not be used at the approach end when placed *well within the clear zone*. Instead, an **impact attenuator/crash cushion** such as Quad-Guard or REACT 350 or any other approved system should be used.

For design speeds in excess of 50 km/h (30 mph), the ramped terminal may be used at the approach end of a one-way situation as long as the tip of the terminal is placed at the edge or beyond the clear zone. For allowable flare rates at approach end refer to the HDM section 10.2.5.

At the departure end in one-way situations the ramped end terminal may be used at any speed.

IMPLEMENTATION: The main office Design Quality Assurance Bureau (DQAB) will insert the attached shelf note into projects that include these items.

CONTACT PERSON: Pratip Lahiri of DQAB at (518) 457-4090.

CONCRETE BARRIER

Make the following ***changes*** to the Standard Specifications of January 2, 1995:

Page 6-25, line 20

Under **606-3.05 A.** ***Precast Concrete Barrier add*** the following after line 20:

"**3.** ***Dimensional Tolerance.***

a. Cross-sectional dimensions shall not vary from the dimensions shown by more than 5 mm.
b. The barrier shall not be out of plumb by more than 5 mm.
c. Longitudinal dimensions shall not vary from the dimensions shown by more than 5 mm per 3.0 m of the barrier.
d. When checked with a 3.0 m straight edge, irregularities shall not exceed 5 mm."

Page 6-26, line 18

Under **7.** ***Reinforcement add*** the following after "plans." in line 18:

"All reinforcing steel shall be epoxy coated meeting the requirements of §709-04."

Page 6-26, line 18

Under **606-3.05 B.** ***Cast-in-Place Concrete Barrier add*** the following after line 18:

"**8.** ***Placement Adjacent to Cement Concrete Pavement or Shoulders.*** The barrier shall be separated from the cement concrete pavement or shoulder by a 13 mm wide vertical joint extending down to the bottom of the pavement or shoulder. The joint shall be formed with and contain Premoulded Resilient Joint Filler conforming to the requirements of §705-07. A recess of approximately 25 mm shall be provided at the top of the joint for installation of a backer rod and joint sealant. The joint sealant shall be a silicone sealant appearing on the Department's Approved List and shall be applied in accordance with the manufacturer's instructions.

9. Dimensional Tolerance

e. Cross-sectional dimensions shall not vary from the dimensions shown by more than 5 mm.
f. The barrier shall not be out of plumb by more than 5 mm.
g. Longitudinal dimensions shall not vary from the dimensions shown by more than 5 mm per 3.0 m of the barrier.
h. When checked with a 3.0 m straight edge, irregularities shall not exceed 5 mm."

Page 6-26, line 32

Under **4. *Reinforcement add*** the following after "plans." in line 32:

"All reinforcing steel shall be epoxy coated meeting the requirements of §709-04."

Page 6-28, line 12

Under item **10. Tolerances *delete*** paragraph on Finished Tolerances in its entirety (lines 12 through 18) and ***replace*** with the following:

"Dimensional Tolerance

a. Cross-sectional dimensions shall not vary from the dimensions shown by more than 5 mm.
b. The barrier shall not be out of plumb by more than 5 mm.
c. Longitudinal dimensions shall not vary from the dimensions shown by more than 5 mm per 3.0 m of the barrier.
d. When checked with a 3.0 m straight edge, irregularities shall not exceed 5 mm."

Page 6-29, line 1

Under **606-3.05 Concrete Barrier**, ***delete*** item **14. Tapered End Sections.** in its entirety and ***replace*** with the following:

"**14. Transitions and Tapered End Sections.** Transitions and tapered end sections shall be either cast-in-place or precast, at the Contractor's option."

Page 6-31, line 23

Under **606-4 METHOD OF MEASUREMENT**, ***delete*** line 23 and ***replace*** the following:

"**606-4.03 Concrete Barrier and Terminal Sections.** The quantity of concrete barrier and terminal sections measured for payment will be the number"

Page 6-32, line 30

Under **606-4 METHOD OF MEASUREMENT**, ***insert*** the following ***after*** line 30:

"**606-4.17 Transition between Concrete Sections.** Transitions will be measured by the actual number of units installed in accordance with the plans, standard sheets and/or as directed by the Engineer."

Page 6-32, line 32

Under **606-5 BASIS OF PAYMENT**, ***delete*** line 32 and ***replace*** with the following:

"**606-5.01 Guide Railing, Median Barrier, Concrete Barrier, and Terminal Sections; Various Types.** The unit price"

Page 6-35, line 9

Under **605-5 BASIS OF PAYMENT**, ***insert*** the following after line 9:

"**606-5.12 Transition between Concrete Sections.** The unit price bid per concrete transition shall include the cost of all labor, equipment, and material necessary to satisfactorily complete the work, including back-up posts, connections and hardware."

Page 6-36, line 31

Under **606-5 BASIS OF PAYMENT**, ***insert*** the following ***after*** line 31 which begins with 606.3034 M:

"606.3041 M	Single-Slope Concrete Median Barrier (Optional)	Meter
606.3042 M	Single-Slope Concrete Median Barrier (Precast)	Meter
606.3043 M	Single-Slope Concrete Median Barrier (Cast-in-Place)	Meter
606.3044 M	Single-Slope Concrete Median Barrier (Machine Formed)	Meter
606.3051 M	Single-Slope Concrete Median Barrier - Wide (Optional)	Meter
606.3052 M	Single-Slope Concrete Median Barrier - Wide (Precast)	Meter
606.3053 M	Single-Slope Concrete Median Barrier - Wide (Cast-in-Place)	Meter
606.3054 M	Single-Slope Concrete Median Barrier - Wide (Machine Formed)	Meter
606.3061 M	Single-Slope Concrete Half Section Barrier (Optional)	Meter
606.3062 M	Single-Slope Concrete Half Section Barrier (Precast)	Meter
606.3063 M	Single-Slope Concrete Half Section Barrier (Cast-in-Place)	Meter
606.3064 M	Single-Slope Concrete Half Section Barrier (Machine Formed)	Meter"

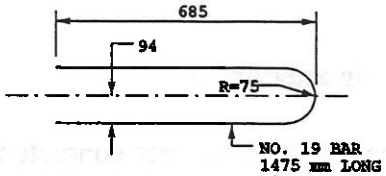
Page 6-39, line 39

Under **606-5 BASIS OF PAYMENT**, ***insert*** the following ***after*** line 39 which begins with (One-Way ....):

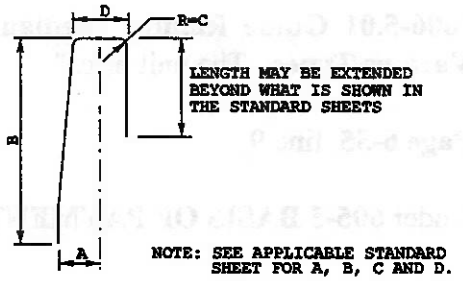
"606.9002 M	Transition between Wide and Normal Single Slope Concrete Median Barrier	Each"

Page 7-33, line 16

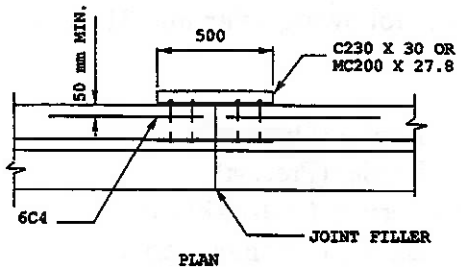
Under **704-05 PRECAST CONCRETE BARRIER** ***delete*** section "**3. Dimensional Tolerances**" (lines 16 through 21) in its entirety.



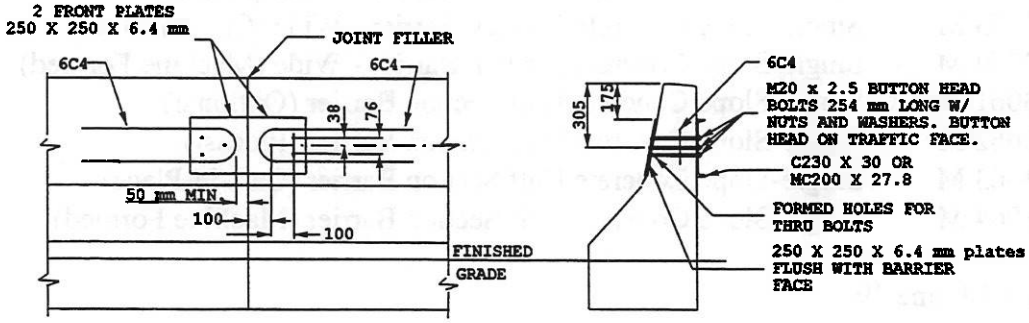
DETAIL OF 6C4 BAR



TYPICAL STIRRUP
(MACHINE FORMED, PRECAST, & CAST-IN-PLACE BARRIERS)



PLAN



ELEVATION

SECTION

ALTERNATE CONTINUITY CONNECTION FOR HALF SECTION BARRIERS

APPLICABLE TO ALL STANDARD SHEETS FOR STANDARD (NJ) CONCRETE HALF-SECTION BARRIERS (M606-20, 21, 22, 25)