



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

March 27, 2008

1200 New Jersey Avenue, SE.  
Washington, DC 20590

In Reply Refer To: HSSD/B-151

Bryant L. Lowery, P.E.  
Special Design Engineer  
Location and Design Division  
Virginia Department of Transportation  
1401 East Broad Street  
Richmond, Virginia 23219

Dear Mr. Lowery:

This letter is in response to your request for Federal Highway Administration (FHWA) acceptance of a roadside safety device for use on the National Highway System (NHS).

Name of device: Permatile Precast Concrete Barrier 10 foot length  
Type of device: Portable concrete barrier  
Test Level: NCHRP Report 350 TL-3  
Prior Testing conducted by: Texas Transportation Institute (TTI)  
Date of request: March 14, 2008

You requested that we find this device acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

### **Requirements**

Roadside safety devices should meet the guidelines contained in the NCHRP Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features". FHWA Memorandum "Action: Identifying Acceptable Highway Safety Features" of July 25, 1997, provides further guidance on crash testing requirements of longitudinal barriers.

### **Description**

You requested formal acceptance of the Virginia Department of Transportation (VDOT) 10 foot F-shape Concrete Barrier with the pin and loop positive connection. A 20 foot version of this design (Scan01.tif, enclosed for reference) was tested and accepted for use as a TL-3 NCHRP 350 temporary barrier in FHWA Acceptance Letter B-54 dated May 18, 1999. Permatile Concrete Products Company manufactured and supplied this barrier that was tested by TTI under NCHRP report 350 Test 3-11, Contract No. T99011 and Project No. 402041. The drawings "Scan02.tif" and "Scan03.tif" include the details of the 10' version and are enclosed for reference.



## **Crash Testing**

The 20-foot long version of the VDOT barrier was successfully crash tested as noted above. Through the observation of crash testing of numerous portable concrete barrier segments of varying lengths over the years FHWA has learned that the length of the barrier plays little, if any, role in the successful performance. As long as the steel reinforcing and the integrity of the end connections are maintained, the shorter barrier length will be acceptable for use.

## **Findings**

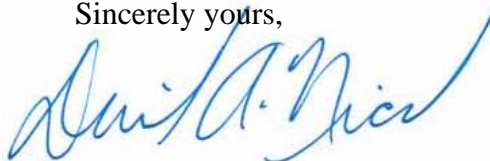
The 10-foot long VDOT barrier described above and detailed in the enclosed drawings is acceptable for use on the NHS under the range of conditions that the 20-foot barrier was tested, when proposed by a State.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- This acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, we reserve the right to modify or revoke our acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- We expect you will wish to have suppliers of this device certify that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that it will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance is designated as number B-151 and shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed at our office upon request.

- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

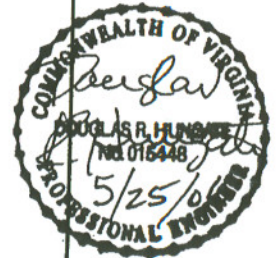
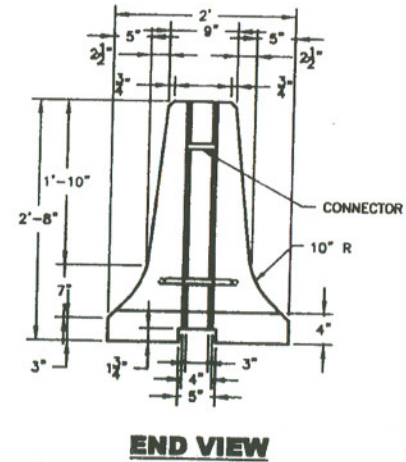
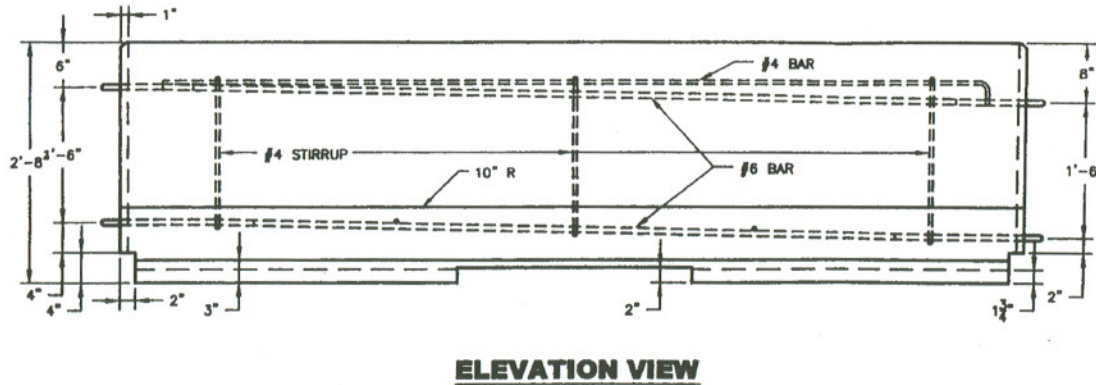
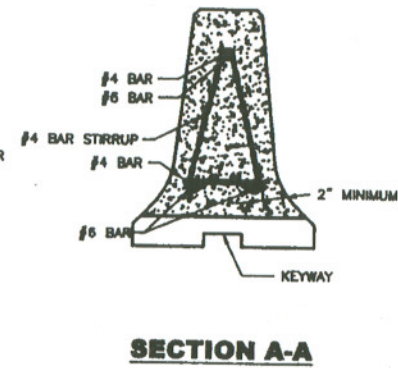
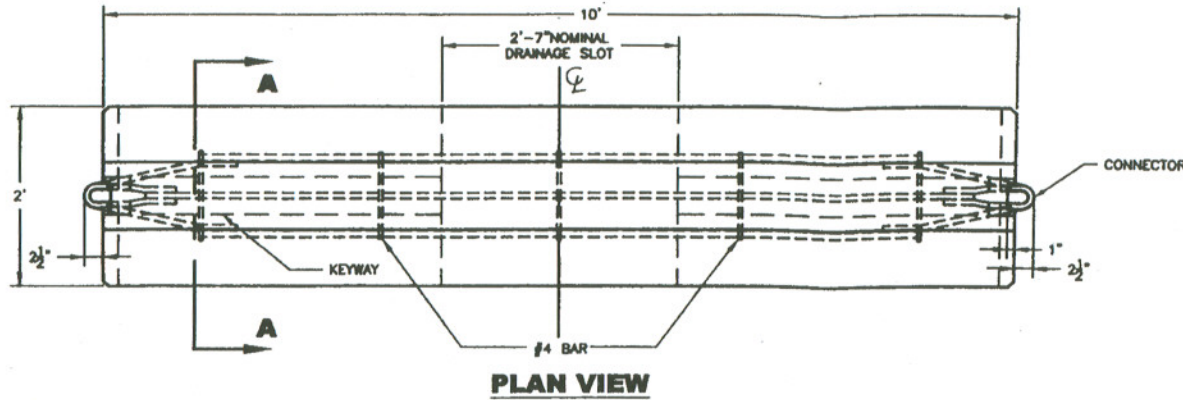


David A. Nicol, P.E.  
Director, Office of Safety Design  
Office of Safety

2 Enclosures

NOTE: ALL NOTES SHOWN ON MB-7D PC SHALL APPLY TO THIS BARRIER SHAPE.

MB-7D PC



PROJECT:

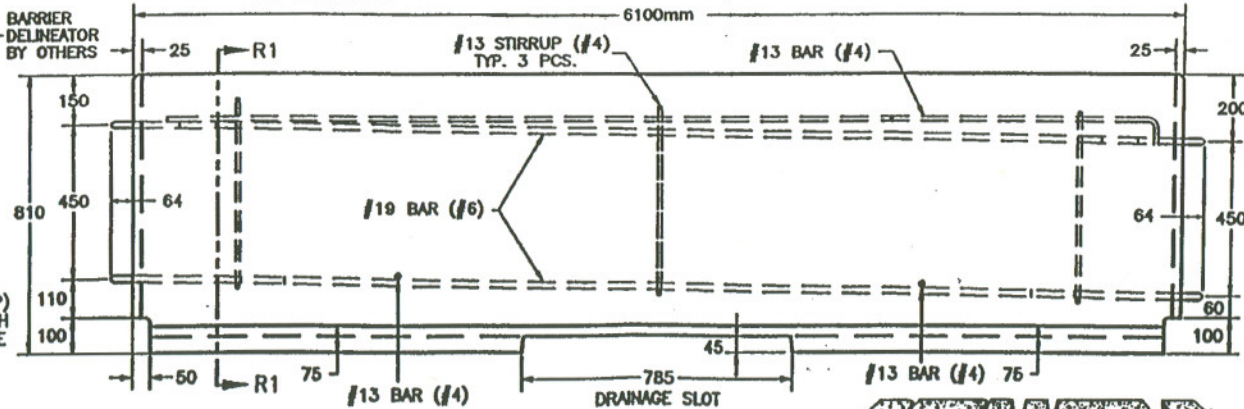
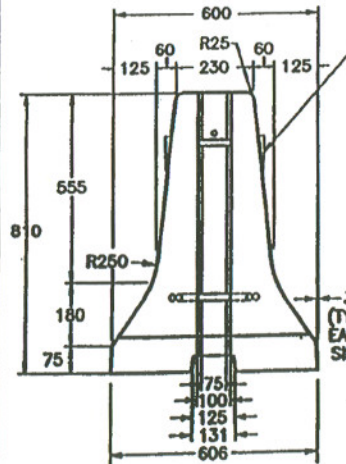
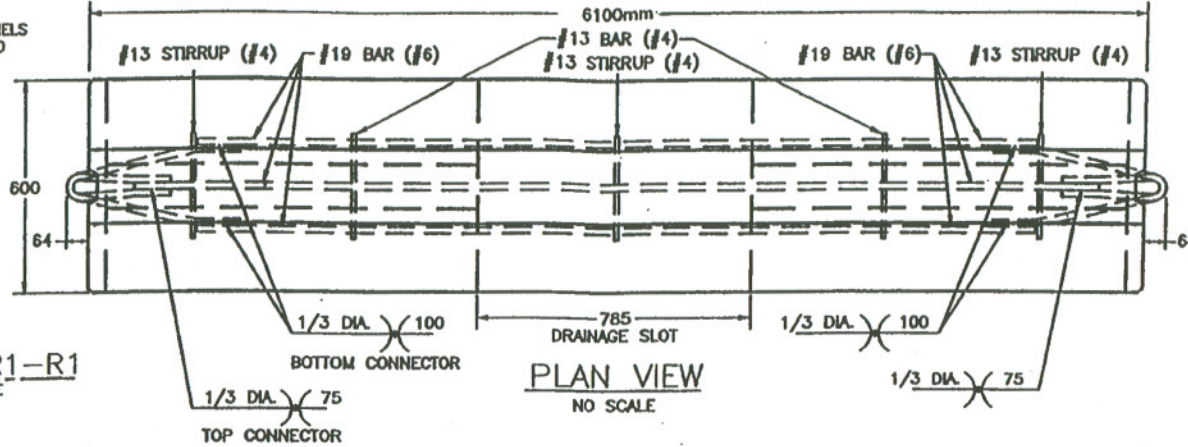
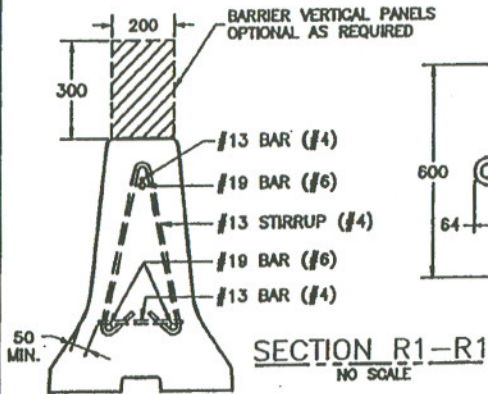
**PRECAST TRAFFIC BARRIER SERVICE CONCRETE**

**PERMANTE**  
 CONCRETE PRODUCTS COMPANY  
 P.O. Box 2048, 100 Beacon Road, Bristol, VA/TN. 24203  
 (276) 689-5332 FAX: (276) 689-2120



NOTES:

1. ALL CONCRETE = 27.50 Mpa (4000 psi) MIN. COMPRESSIVE STRENGTH AT 28 DAYS.
2. ALL STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615M GRADE 420, (GRADE 60).
3. MINIMUM CLEAR CONCRETE COVER OVER ALL STEEL SHALL BE 50mm (2").
4. REFLECTIVE BARRIER DELINEATOR SIZE, COLOR, AND SPACING TO BE IN ACCORDANCE WITH PREVAILING D.O.T. SPECIFICATIONS.
5. REFLECTIVE BARRIER DELINEATORS FURNISHED AND INSTALLED BY OTHERS.
6. 200mm X 300mm BARRIER VERTICAL PANELS MAY BE ADDED TO TOP BARRIER AS REQUIRED.
7. ALL PIN & LOOP POSITIVE CONNECTION HARDWARE SHALL CONFORM TO CURRENT V.D.O.T. SPECIFICATIONS. FOR POSITIVE CONNECTION DETAILS AND DIMENSIONS SEE SPECIAL DESIGN DRAWING NO. A-105 & STD. DWG. NO. MB-INS (SHEET 1 of 4) OF V.D.O.T. ROAD AND BRIDGE STANDARDS & SPECS.
8. BARRIER DESIGN AND MANUFACTURE MEETS OR EXCEEDS REQUIREMENTS OF V.D.O.T. STD. DWG. NO. MB-7D PC. (SPECIFICATION REFERENCE 105.512)
9. UNIT WEIGHT: 6100mm UNIT = 4,318 kg  
(20'-0" UNIT = 9500 lbs.)



NOTE: ALL DIMENSIONS ARE IN MILLIMETERS.

VIRGINIA DEPARTMENT OF TRANSPORTATION  
REVIEW OF WORKING DRAWINGS  
Working drawings have been reviewed in accordance with Section 105.02 of the Specifications with the following comments:  
 Review Completed. *Log & Des*  
 Correct and Resubmit. (Division or District)  
 Rejected. See Remarks.  
Reviewed by *K.R. Hays* Date *10/12/99*



**PERMANILE**  
CONCRETE PRODUCTS COMPANY

P.O. Box 2049, 100 Beacon Road, Bristol, VA/TN. 24203  
1-800-682-6332 FAX 1-540-669-2120

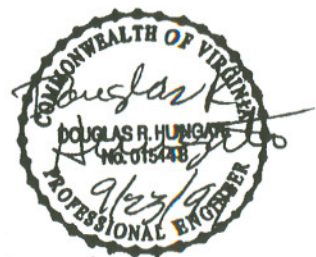
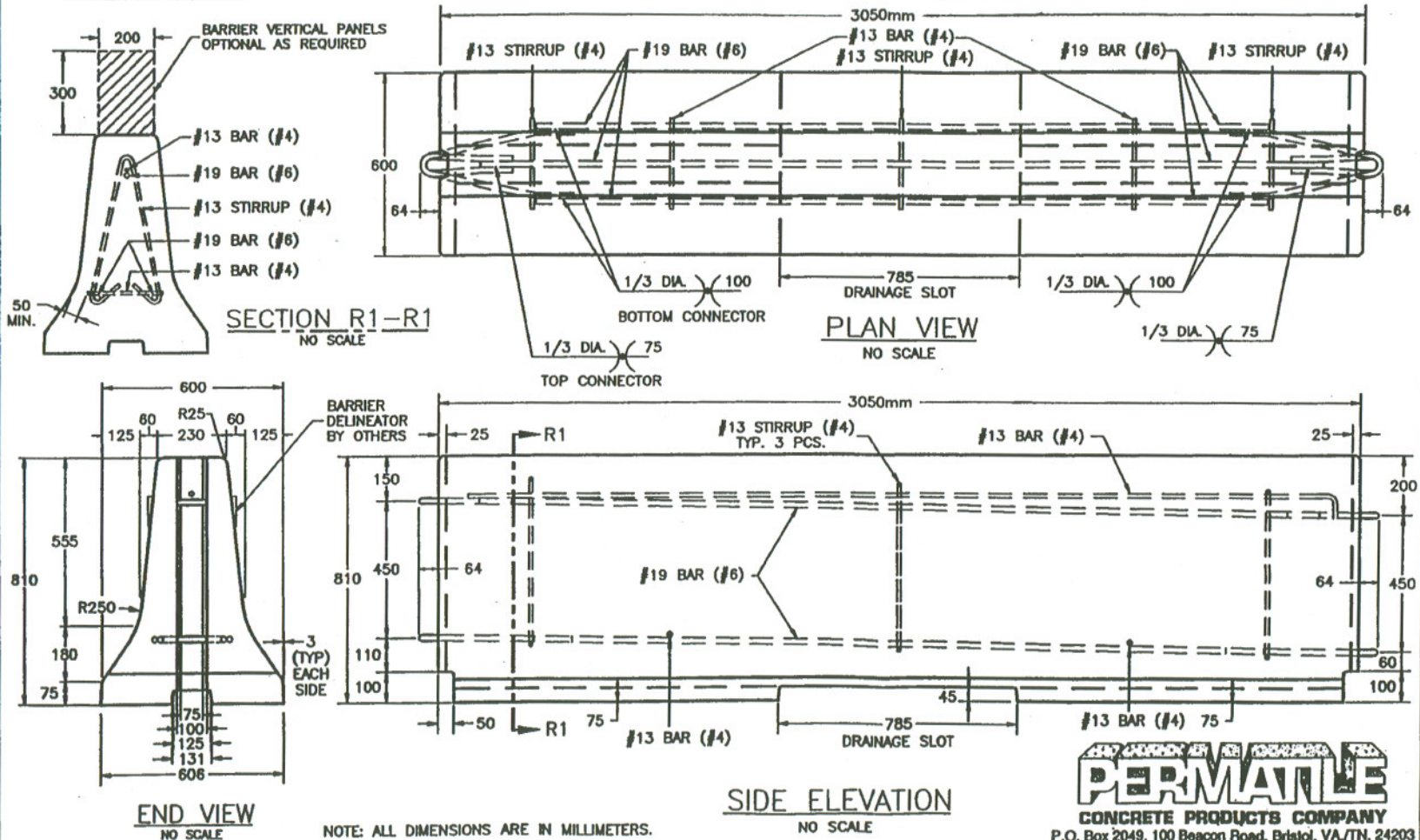
TITLE: **PRECAST TRAFFIC BARRIER SERVICE CONCRETE**  
**V.D.O.T. STD. MB-7D PC (METRIC F-STYLE)**

DATE: 9-11-98	DRAWN BY: RDW	DWG NO: VDOTBF.DWG
PRODUCT: TRAFFIC BARRIER	CHECKED BY: CJR	SCALE: AS NOTED
CONTRACTOR:	CUSTOMER NO.	SHEET 1 OF 1
PERMANILE ORDER NO.		



**NOTES:**

1. ALL CONCRETE = 27.50 Mpa (4000 psi) MIN. COMPRESSIVE STRENGTH AT 28 DAYS.
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8. BARRIER DESIGN AND MANUFACTURE MEETS OR EXCEEDS REQUIREMENTS OF V.D.O.T. STD. DWG. NO. MB-7D PC. (SPECIFICATION REFERENCE 105, 512)
9. UNIT WEIGHT - 3050mm UNIT = 2,159 kg  
(10'-0" UNIT = 4750 lbs.)



**PERMATILE**  
CONCRETE PRODUCTS COMPANY

P.O. Box 2049, 100 Beacon Road, Bristol, VA/TN. 24203  
1-800-682-5332 FAX 1-540-669-2120

<b>TITLE:</b> PRECAST TRAFFIC BARRIER SERVICE CONCRETE - 10' V.D.O.T. STD. MB-7D PC (METRIC F-STYLE)	DATE: 9-11-98	DRAWN BY: RDW	DWG NO: VDOTTBF.DWG
	PRODUCT: TRAFFIC BARRIER	CHECKED BY: CJR	SCALE: AS NOTED
	CONTRACTOR:	CUSTOMER NO.	SHEET 1 OF 1
	PERMATILE ORDER NO.		