



October 30, 2007

1200 New Jersey Avenue, SE.  
Washington, DC 20590

In Reply Refer To: HSSD/B-164

Mr. Kevin E. Lathan, P.E.  
Barrier Connection, LLC  
976 Narcissus Avenue  
Clearwater, FL 33767-0564

Dear Mr. Lathan:

Thank you for your August 14, 2007, letter requesting the Federal Highway Administration's (FHWA) acceptance of an F-shape portable concrete barrier wall as a test level 3 (TL-3) device for use on the National Highway System (NHS). Accompanying your letter were drawings of the details of the barrier, connections, and reinforcement and a comparison of this design with previously crash tested barriers. 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."

#### **Introduction**

The FHWA guidance on crash testing of roadside safety hardware is contained in a memorandum dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features."

#### **Testing**

The barrier segments were fabricated in accordance with the Virginia Department of Transportation (VDOT) drawing 501.45 (revised August 1997, copy enclosed for reference). The one difference between the VDOT design and the barrier design you are requesting is the lack of the #4 reinforcing bar at the top of the wall. The FHWA acceptance letter B-54 dated May 18, 1999, describes the VDOT barrier:

"The tested barrier was an 810-mm tall F-shaped concrete barrier 6100-mm long. Each segment was made from 30 Mpa concrete (28 day compressive strength) and contains three longitudinal #19 bars [#6 bars U.S. units] and one longitudinal #13 bar [#4 bar, U.S. units]. Adjacent segments are connected by 25-mm diameter ASTM A36 steel pins 610-mm long which pass through loops fabricated with 20-mm diameter steel bars. ASTM F-488 steel washers are used under the pin head and above the 25-mm hex nut used to retain the pin at the bottom."

The VDOT barrier was found acceptable in both 10-foot and 20-foot long sections. An analysis of the reinforcing steel shows that, even minus the #4 bar noted above, the longitudinal steel in the barrier you requested is comparable to that found in other crash tested barrier segments such as the JJ-Hooks Temporary Barrier described in the FHWA acceptance letter B-52 dated March 26, 1999.

### Findings

The F-shape portable concrete barrier wall described above and detailed in the enclosed drawing is acceptable for use on the NHS as it is deemed an equivalent material meeting NCHRP 350 TL-3, when proposed by a highway agency. The connection pin, nut, and washers should be at least 1 inch in diameter and secured with nuts and washers as were the crash tested VDOT barrier segments. Barrier segment lengths may be 10 feet or 20 feet.

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

- This acceptance is limited to the crashworthiness characteristics of the device(s).
- 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, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number B-164 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is 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,

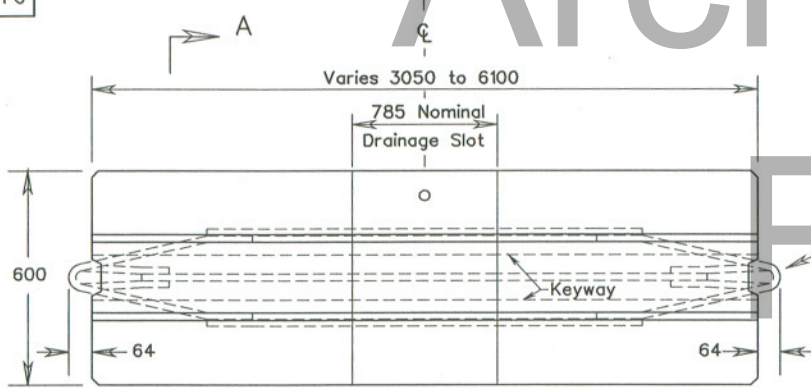


George E. Rice, Jr.  
Acting Director, Office of Safety Design  
Office of Safety

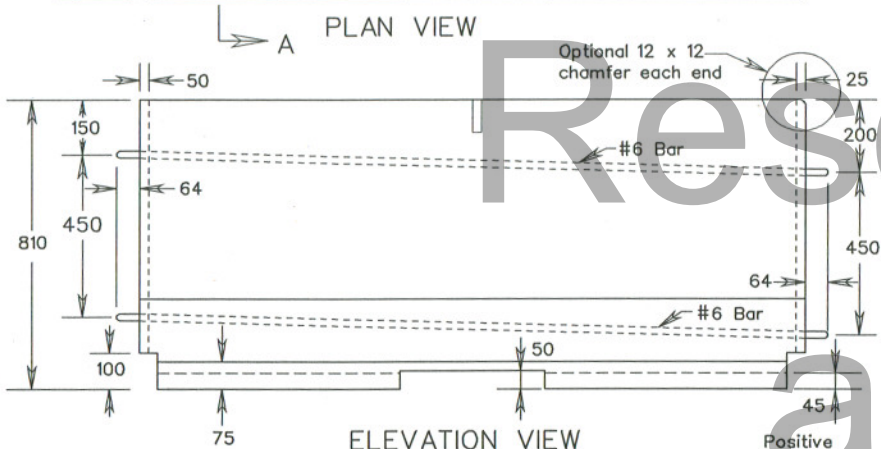
Enclosures

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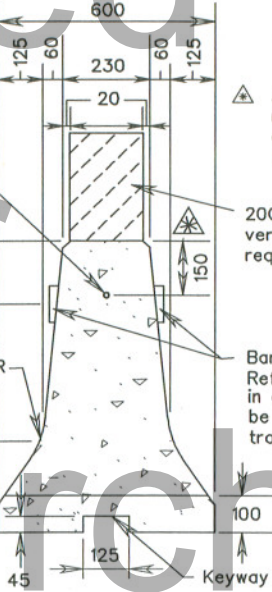
MB-7D PC



PLAN VIEW



ELEVATION VIEW



SECTION A-A

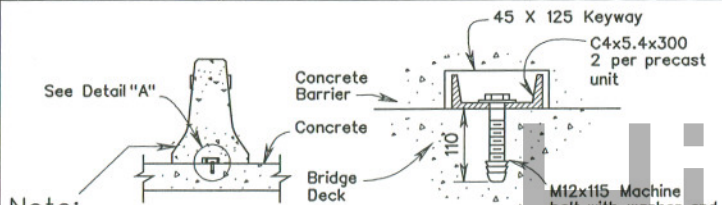
▲ A 25 Radius may be used as an alternate for the 20 chamber.

200 x 300 barrier vertical panels as required.

Barrier Delineator Reflective surface, in all instances, to be facing oncoming traffic

\* Suggested maximum flare rate for rigid barrier systems.

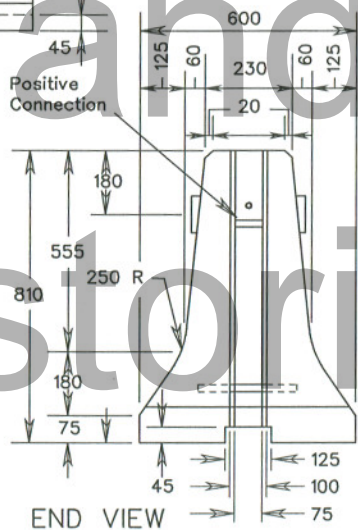
DESIGN SPEED	FLARE RATES		
	INSIDE SHY LINE	BEYOND SHY LINE	
km/h	SHY LINE m	FLARE RATE	FLARE RATE
110	3.0	30:1	20:1
100	2.5	26:1	17:1
80	2.0	21:1	14:1
60	1.5	17:1	11:1
50	1.0	13:1	8:1



Note: This design shall not be used on bridge decks as an exterior parapet or railing.

Note: Detail "A" shall be used on installations separating traffic lanes in opposite directions or on surfaces superelevated at a rate greater than 20 per meter.

DETAIL FOR TEMPORARY INSTALLATION ON BRIDGE DECK



END VIEW

Notes:

- For positive connection details and dimensions see Special Design Drawing No. A-105.
- At the option of the manufacture, additional reinforcing may be added to the precast concrete barrier for handling.
- Concrete to be 4000 P.S.I minimum.
- Barrier delineator size, color and spacing to be in accordance with the Specifications.
- Cost of delineator to be included in the price bid for Median Barrier.
- Approved alternates are an acceptable substitution for Standard.

## PRECAST TRAFFIC BARRIER SERVICE CONCRETE

SPECIFICATION REFERENCE

105  
512

Rev. 8/97

501.45 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION