



Memorandum

Subject: INFORMATION: Florida DOT Portable Concrete Curb

Date: August 12, 2003

(original signed by A. George Ostensen)
From: A. George Ostensen
Associate Administrator for Safety

In Reply Refer To: HSA-10/B-115

To: Mr. James St. John
Division Administrator (HDA-FL)
Tallahassee, Florida

In your March 13 memorandum, you requested FHWA Headquarters review and acceptance of a portable concrete curb (also referred to as a temporary low profile barrier) developed by and tested for FDOT. Included with your request was a copy of the University of Florida Structures Research Report No. 827-3, dated January 2003 and entitled "Temporary Low Profile Barrier for Roadside Safety: Phase II." You subsequently requested that formal action be delayed pending clarification on the University of Florida's patent and licensing rights for this design, and development of an isometric drawing for inclusion on our safety hardware website. Notification that the University of Florida has retained title to this device was provided April 28. A drawing for inclusion on the safety hardware website, with appropriate University of Florida contact information included, was sent via e-mail to Mr. Richard Powers of my staff on August 5 and is attached to this memorandum.

The FDOT Portable Concrete Curb consists of reinforced concrete segments 3658-mm (12-feet) long, 457-mm (18-inches) high, and 686-mm (27-inches) wide at the base. The traffic face is slightly battered with the toe of the curb 25 mm (1 inch) further from traffic than the top edge of the curb. One end of each segment is vertical while the other end is beveled to allow placement along a roadway radius as small as 20 meters. To resist shear, the beveled end of each segment contains a removable 44-mm diameter high strength steel stud that fits into a vertical steel channel cast into the vertical end of the adjacent segment. On the backside, 32-mm diameter high strength threaded rods are bolted through gusseted steel angle irons cast into the curb to provide tensile strength at the connections.



The FDOT Portable Curb was tested at E-TECH Testing Services, Incorporated and the results summarized in that agency's September 2002 report entitled "NCHRP Report 350 Crash Test Results for the University of Florida Improved Portable Concrete Curb." This report was incorporated into the above-referenced University of Florida report. The NCHRP Report 350 tests 2-10 and 2-11 were successfully completed. In both tests, the impacting vehicles struck a freestanding and unanchored 55-m long installation (15 segments) near its midpoint and were effectively contained and redirected. All occupant impact and ride down acceleration values were significantly below Report 350 upper limits and in most cases, below preferred values as well. Maximum deflections were reported to be 80 mm (3 inches) with the 820-kg car and 230 mm (9 inches) with the 2000-kg pickup truck.

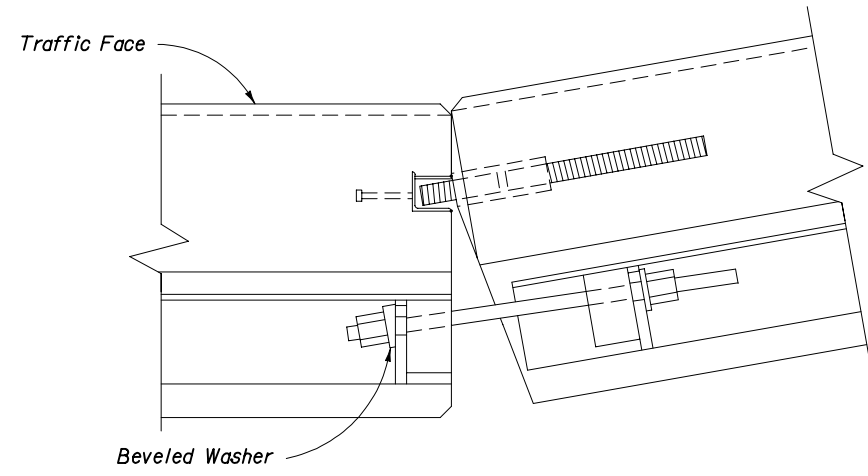
Based on test results, the FDOT Portable Temporary Low Profile Barrier may be classified as an NCHRP Report 350 barrier at TL-2 and may be used on the NHS at locations where impact speeds of 70 km/h or less can be expected. As noted in your memorandum, the blunt end of this design is not crashworthy. Therefore, the Portable Curb should be introduced beyond the appropriate clear zone or appropriately shielded. Since the University of Florida has a patent pending on this device, prospective users can obtain licensing and related information by contacting the University of Florida's Office of Technology Licensing at the address or telephone/fax numbers shown on the attached drawing.

Attachment

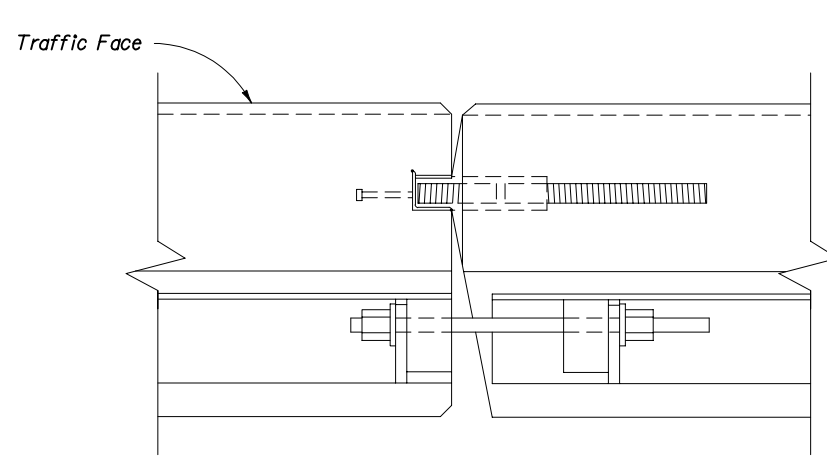
FHWA:HSA-10:RPowers:tb:x61320:8/11/03

File: h://directory folder/rpowers/B115(FDOTcurb) FDOT edits

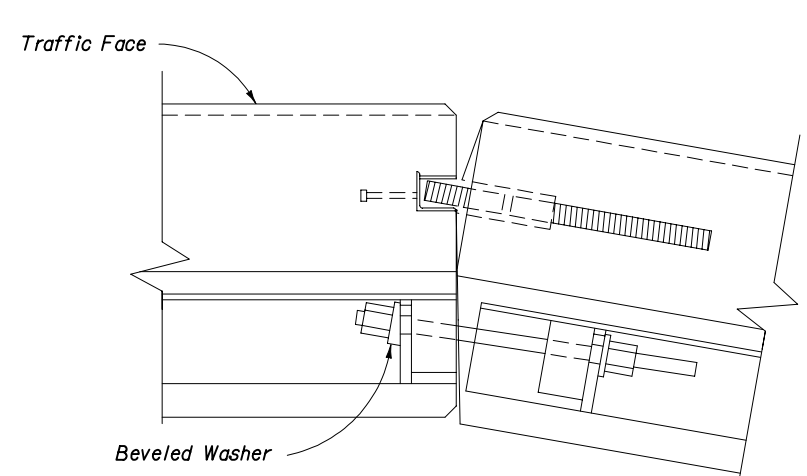
cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;
R.Powers, HSA-10)



CONCAVE CONNECTION

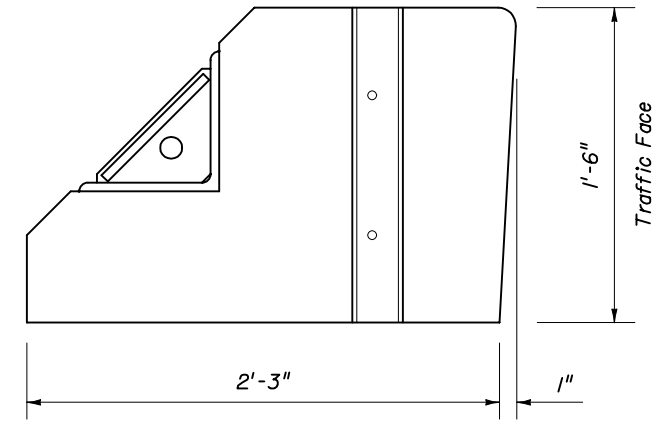


PARALLEL CONNECTION

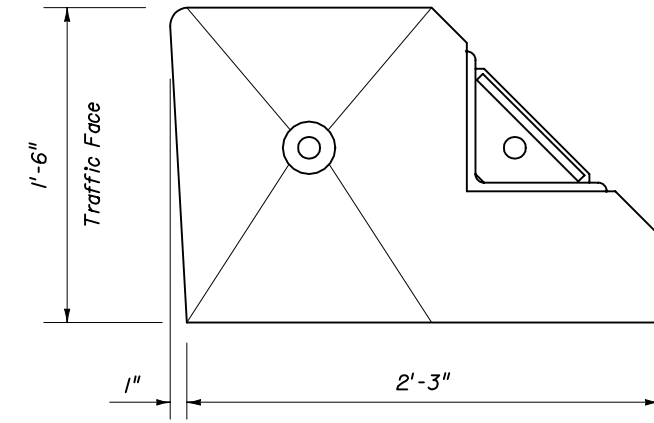


CONVEX CONNECTION

PLAN VIEWS OF CONNECTIONS

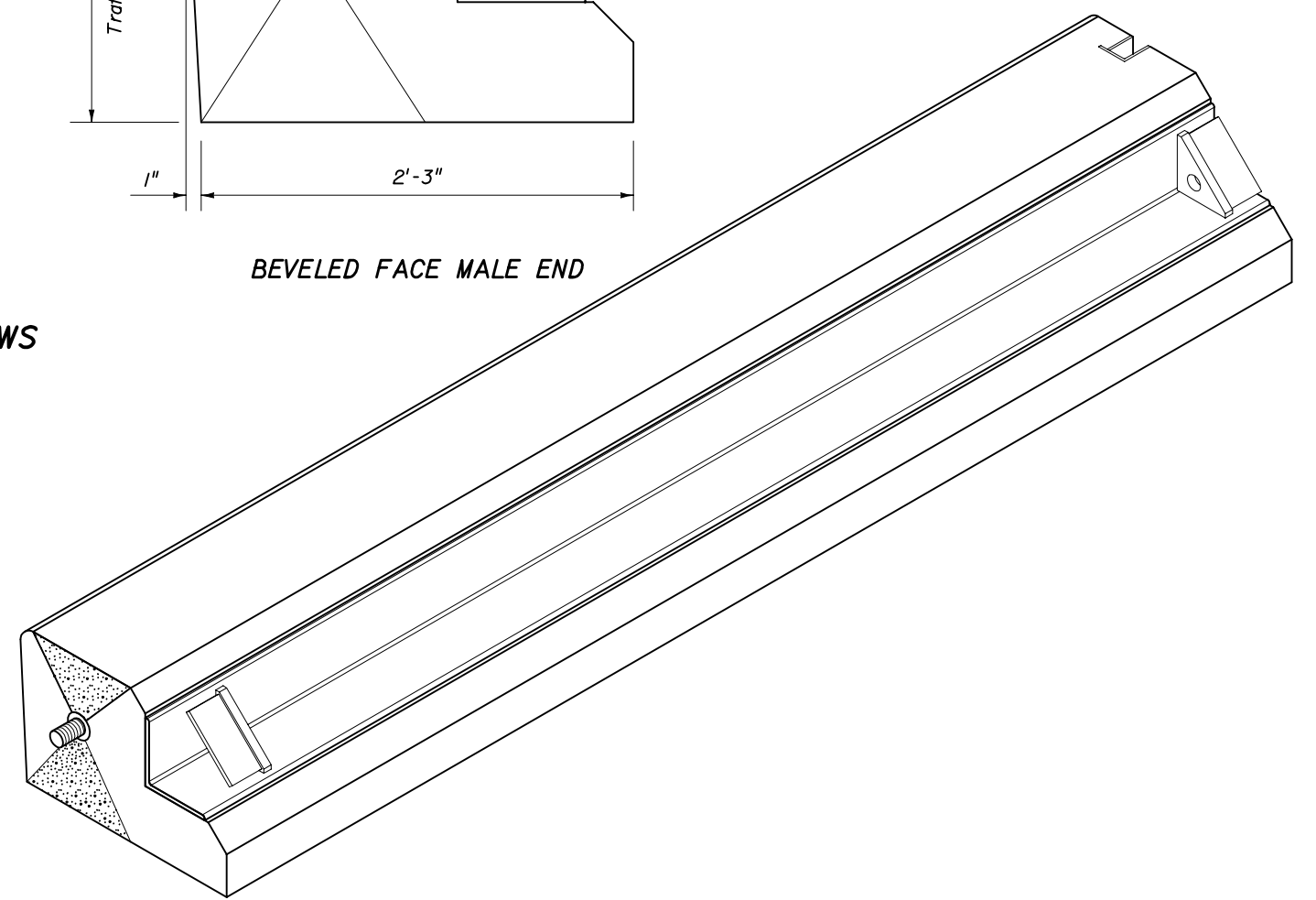
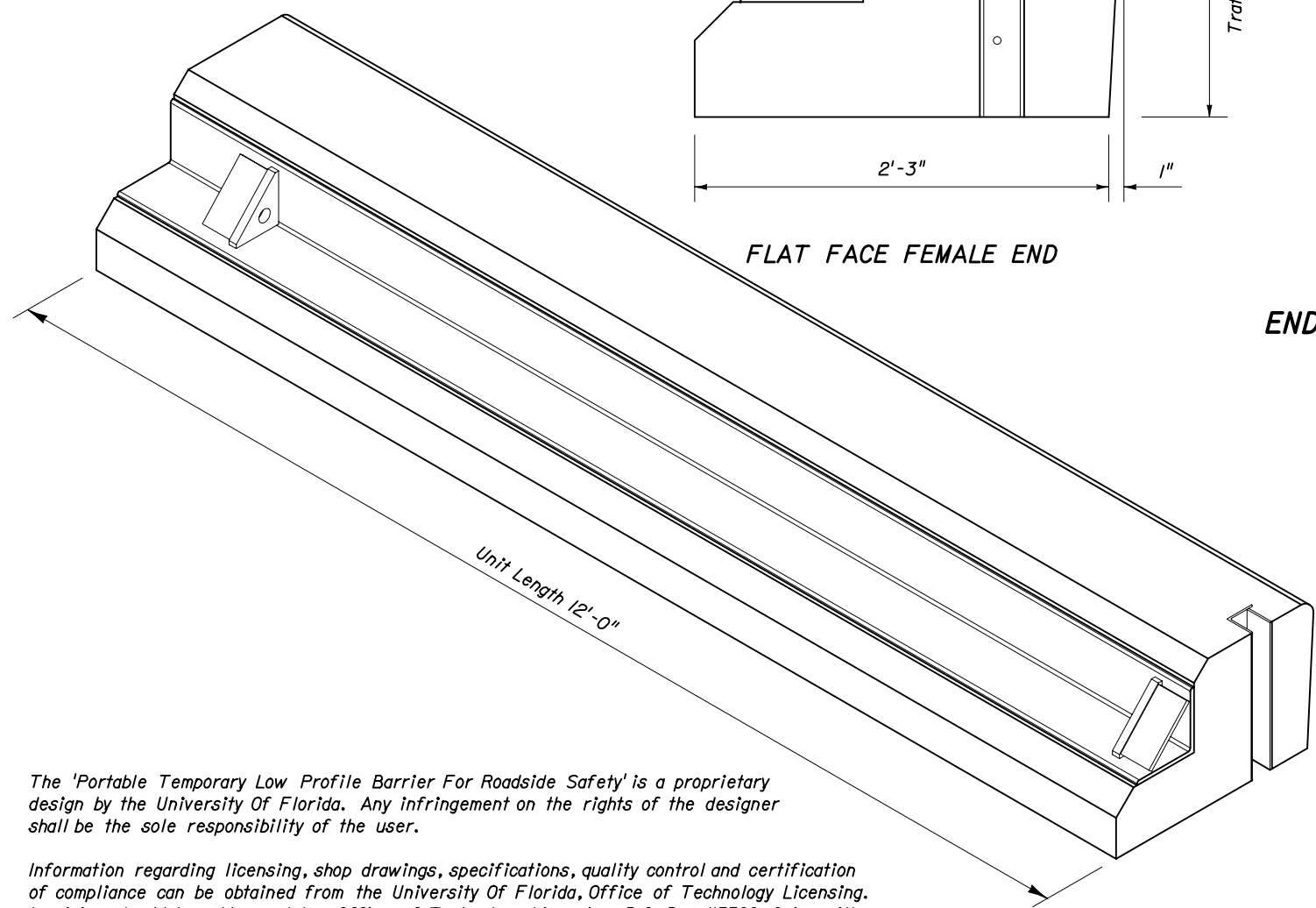


FLAT FACE FEMALE END



BEVELED FACE MALE END

END VIEWS



BACKSIDE AND END PICTORIAL VIEWS

PORTABLE TEMPORARY LOW PROFILE BARRIER FOR ROADSIDE SAFETY

The 'Portable Temporary Low Profile Barrier For Roadside Safety' is a proprietary design by the University Of Florida. Any infringement on the rights of the designer shall be the sole responsibility of the user.

Information regarding licensing, shop drawings, specifications, quality control and certification of compliance can be obtained from the University Of Florida, Office of Technology Licensing. Inquiries should be addressed to: Office of Technology Licensing, P.O. Box 115500, Gainesville, Florida, 32611-5500. Telephone: 352-392-8929, Fax: 352-392-6600. Reference UF#-11052.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PORTABLE TEMPORARY LOW PROFILE BARRIER FOR ROADSIDE SAFETY