

May 15, 2003

Refer to: HSA-10/B-119A

Mr. Rodney A. Boyd  
Trinity Highway Safety Products Division  
P.O. Box 568887  
Dallas, Texas 75356-8887

Dear Mr. Boyd:

In his March 31 letter to Mr. Richard Powers of my staff, your representative, Mr. Don Johnson, requested formal Federal Highway Administration (FHWA) acceptance of a modified version of the wire rope traffic barrier called the Cable Safety System (CASS) that was originally accepted for use on the National Highway System (NHS) in my May 13, acceptance letter B119. Whereas the original design used a 3-m post spacing, the modified design used a 5-m spacing for all the CASS line posts. Included with the second letter were copies of a Texas Transportation Institute report dated March 2003, entitled "NCHRP Report 350 test 3-11 of TRINITY Cable Safety System (CASS) with 5m Post Spacing" and videotapes of the crash test.

The CASS barrier remained as described in my original acceptance letter, consisting of three 19 mm diameter, pre-stretched 3 x 7 strand steel cables. Mounting heights were 530 mm, 640 mm, and 750 mm above the ground and each cable was tensioned to 24kN using turnbuckles attached to swaged threaded fittings on each end. These cables were supported by 1600-mm long, galvanized 100 x 50 x 4 mm C-channels driven into a Report 350 standard soil. As shown on Enclosure 1, the upper central section of the post web was removed to accept the cables, which are kept separated in a vertical plane by the insertion of plastic spacer blocks, a stainless steel strap, and a plastic cap over the top of each post. In this modified version, the posts were set on 5-m centers rather than 3-m apart as in the initial test. A 2000-kg pickup truck impacted the CASS barrier at 99.4 km/h near the mid-point of a 100-meter long test installation at an impact angle of 25.7 degrees. As seen on the test summary sheet (Enclosure 2), all Report 350 evaluation criteria were met. The cable rail deflected 2.8 meters with the 5-m post spacing.

Thus, the CASS barrier, as described above, meets NCHRP Report 350 evaluation criteria as a test level 3 barrier and may be used on the NHS as either a roadside or median barrier when such use is acceptable to the contracting agency. Since it is a proprietary product, the provisions of Title 23, Code of Federal Regulations, Section 635.411 apply to its use on Federally funded projects, except exempt non-NHS projects. The need to use crashworthy (or shielded) terminals emphasized in my May 13 letter for the 3-m post spacing design applies to the 5-m post spacing layout as well.

This Acceptance Letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any proprietary device for which ownership may be in question. All FHWA acceptances are based primarily on staff review of the crashworthiness characteristics of the proposed device and we are neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any should arise, are to be resolved by the applicant.

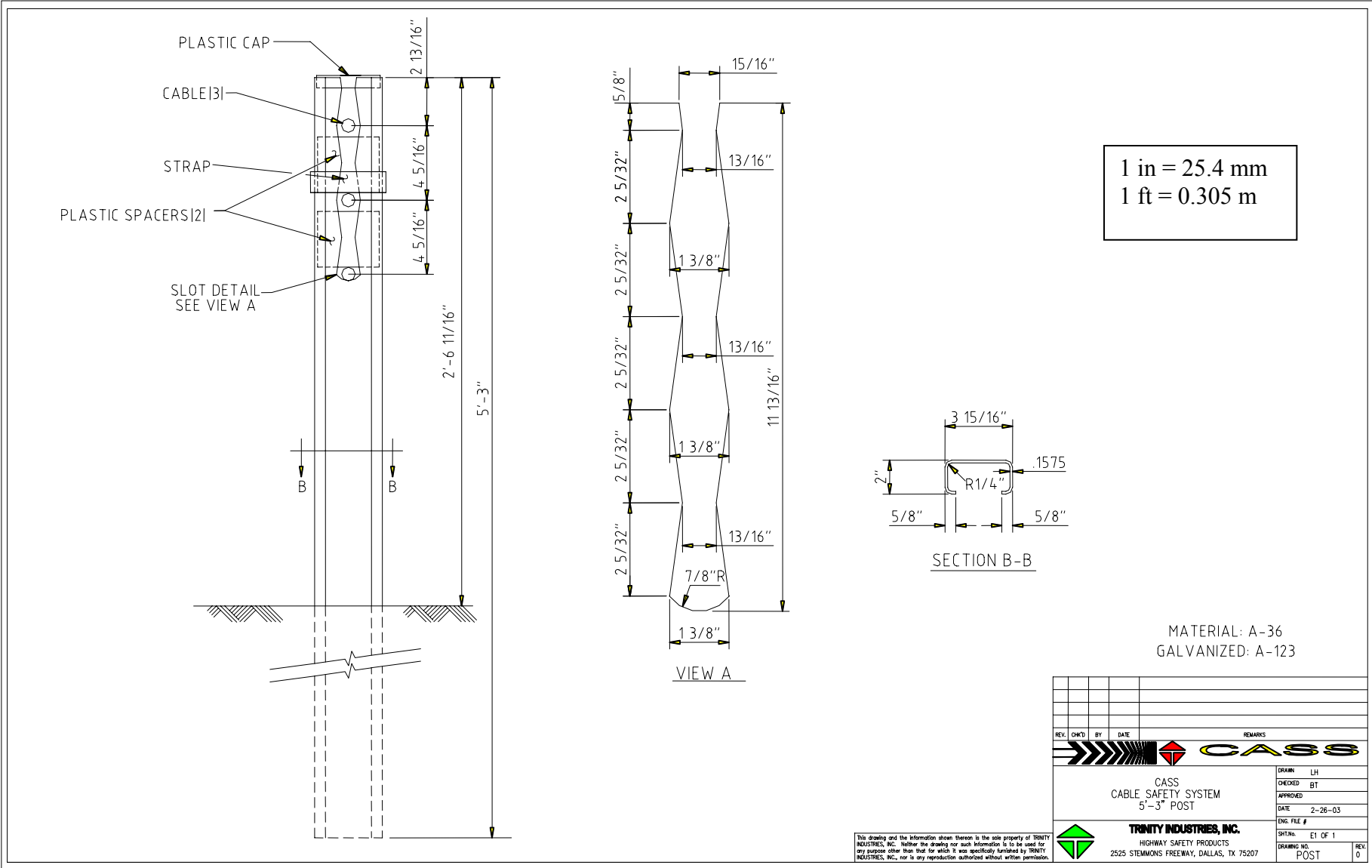
Sincerely yours,

(original signed by Michael S. Griffith)

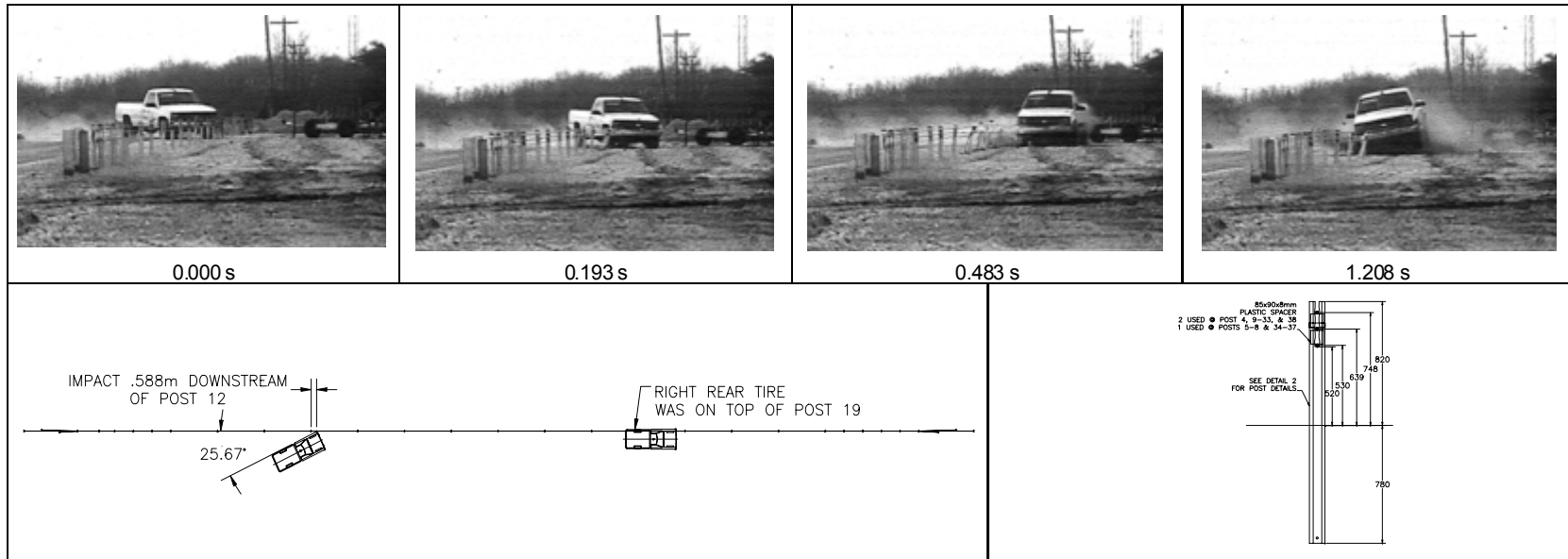
Michael S. Griffith  
Acting Director, Office of Safety Design  
Office of Safety

2 Enclosures

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Details of CASS post.



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<b>General Information</b>		<b>Impact Conditions</b>		<b>Test Article Deflections (m)</b>	
Test Agency	Texas Transportation Institute	Speed (km/h)	99.4	Dynamic	2.80
Test No.	400001-TCR2	Angle (deg)	25.7	Permanent	0.11
Date	01/31/03	<b>Exit Conditions</b>		Working Width	3.40
<b>Test Article</b>		Speed (km/h)	77.4	<b>Vehicle Damage</b>	
Type	Guardrail	Angle (deg)	9.5	Exterior	
Name	Trinity Cable Safety System (CASS)	<b>Occupant Risk Values</b>		VDS	11FL1
Installation Length (m)	101.9	Impact Velocity (m/s)		CDC	11FLEW1
Material or Key Elements	3 Wire Ropes Supported By C-Channel	x-direction	2.5	Maximum Exterior	
<b>Soil Type and Condition</b>		y-direction	3.3	Vehicle Crush (mm)	100
Standard Soil, Dry		THIV (km/h)	14.0	Interior	
<b>Test Vehicle</b>		Ridedown Accelerations (g's)		OCDI	LF0000000
Type	Production	x-direction	-4.4	Max. Occ. Compart.	
Designation	2000P	y-direction	5.2	Deformation (mm)	None
Model	1998 Chevrolet 2500 Pickup	PHD (g's)	6.3	<b>Post-Impact Behavior</b>	
Mass (kg)		ASI	0.36	(during 1.0 s after impact)	
Curb	2075	Max. 0.050-s Average (g's)		Max. Yaw Angle (deg)	33.4
Test Inertial	2050	x-direction	-2.3	Max. Pitch Angle (deg)	6.9
Dummy	N/A	y-direction	3.0	Max. Roll Angle (deg)	18.1
Gross Static	2050	z-direction	-1.9		

Summary of results for test 400001-TCR2 (CASS w/5 m spacing), NCHRP Report 350 test 3-11.