



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

1200 New Jersey Ave., SE
Washington, D.C. 20590

July 29, 2013

In Reply Refer To:
HSST/B-85F

Mr. Don Gripne
Trinity Highway Products, LLC
2325 Stemmons Freeway
Dallas, Texas 75207

Dear Mr. Gripne:

This letter is in response to your request for the Federal Highway Administration (FHWA) to review a modification to a roadside safety system for eligibility for reimbursement under the Federal-aid highway program.

Name of system:	Thrie Beam Guardrail with King Size King Block
Type of system:	Semi Rigid Steel Beam Roadside Barrier
Test Level:	NCHRP Report 350 TL-3
Testing conducted by:	N/A
Task Force 13 Designator:	N/A
Date of request:	April 5, 2013

Decision

The following device is eligible, with details provided in the form which is attached as an integral part of this letter:

- Thrie Beam roadside barrier with King Size King Block using 70% High Density Polyethylene.

Based on a review of crash test results submitted by the manufacturer certifying the device described herein meets the crash test and evaluation criteria of the National Cooperative Highway Research Program (NCHRP) Report 350, the device is eligible for reimbursement under the Federal-aid highway program. Eligibility for reimbursement under the Federal-aid highway program does not establish approval or endorsement by the FHWA for any particular purpose or use.

The FHWA, the Department of Transportation, and the United States Government do not endorse products or services and the issuance of a reimbursement eligibility letter is not an endorsement of any product or service.

FHWA:HSST:NArtimovich:sf:x61331:7/24/13

File: s://directory folder/HSST/ B85F_ThrieKingBlock70%_Trinity.docx

cc: HSST: NArtimovich

Requirements

To be found eligible for Federal-aid funding, roadside safety devices should meet the crash test and evaluation criteria contained in the NCHRP Report 350 or the American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH).

Description

The device and supporting documentation are described in the attached form. This modification allows the use of the 70% HDPE material in the King Size King Block. This material was previously crash tested with w-beam guardrail.

Summary and Standard Provisions

Therefore, the system described and detailed in the attached form is eligible for reimbursement and may be installed under the range of conditions that standard Thrie Beam guardrail was crash-tested under NCHRP Report 350.

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

- This finding of eligibility does not cover other structural features of the systems, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may influence system conformance with NCHRP Report 350 criteria will require a new reimbursement eligibility letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals safety problems, or that the system is significantly different from the version that was crash tested, we reserve the right to modify or revoke this letter.
- You are expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You are expected to certify to potential users that the hardware furnished has the same chemistry, mechanical properties, and geometry as that submitted for review, and that it will meet the crash test and evaluation criteria of the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of eligibility is designated as number B-85F 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 letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented system for which the applicant is not the patent holder. The FHWA does not become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

- The King Blocks for W-beam and Thrie beam barriers are patented products and considered proprietary. If proprietary systems are specified by a highway agency for use on Federal-aid projects: (a) they must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with the existing highway facilities or that no equally suitable alternative exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411.

Sincerely yours,

Michael S. Griffith
Director, Office of Safety Technologies
Office of Safety

Enclosure



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Sincerely yours,

A handwritten signature in blue ink that reads "Michael S. Griffith". The signature is written in a cursive style with a large initial "M" and "G".

Michael S. Griffith
Director, Office of Safety Technologies
Office of Safety

Enclosure

Request for Federal Aid Reimbursement Eligibility Of Highway Safety Hardware

Submitter	Date of Request:	June 19, 2013	<input checked="" type="radio"/> New <input type="radio"/> Resubmission
	Name:	Don Gripne	Signature:
	Company:	Trinity Highway Products, LLC	
	Address:	5216 Brassfield Dr. SE, Olympia, WA 98501	
	Country:	USA	
	To:	Michael S. Griffith, Director FHWA, Office of Safety Technologies	

I request the following devices be considered eligible for reimbursement under the Federal-aid highway program.

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'B': Barriers (Roadside, Median, Bridge Railings)	<input checked="" type="radio"/> Physical Crash Testing <input type="radio"/> FEA & V&V Analysis	KING KING SIZE BLOCK	NCHRP Report 350	TL3

By submitting this request for review and evaluation by the Federal Highway Administration, I certify that the product(s) was (were) tested in conformity with the NCHRP Report 350 (Report 350) and that the evaluation results meet the appropriate evaluation criteria in the Report 350.

Identification of the individual or organization responsible for the product:

Contact Name:	Brian Smith	Same as Submitter <input type="checkbox"/>
Company Name:	Trinity Highway Products, LLC	Same as Submitter <input type="checkbox"/>
Address:	2525 Stemmons Freeway, Dallas, TX 75207	Same as Submitter <input type="checkbox"/>
Country:	USA	Same as Submitter <input type="checkbox"/>

PRODUCT DESCRIPTION

Modification to Existing Hardware Non-Significant - Effect is positive or Inconsequential

The Thrie Beam King Block (known as the King Size King Block or King King Block) had an FHWA letter, CC-85C issued on January 13, 2003. This letter was issued based on Pendulum Test KB-110 by Southwest Research. The Test Report is dated December 12, 2002. The title is: Impact Evaluation of A Recycled Plastic/Rubber Composite Blockout. The composition of the recycled material for the block consisted of 52% of high density polyethylene (HDPE) and 45% Ground Rubber. Letter B-85 E dated May 8, 2007 was issued based on a full scale crash test for the King Block with 70% HDPE. This test was conducted by SwRI. The report is NCHRP Report 350 Test 3-11 Full-Scale Crash Evaluation of a G4-1S Guardrail with Modified King-block Blockouts. The Test No. is SwRI X06, SwRI Project No 18.12886 dated December 18, 2006.

The King Block used with W-beam guardrail has had several changes to the composition since it was first tested. Letter B-85 was issued based on a pickup test. The composition was 67% HDPE and 30% Ground Rubber.

Letter B-85A was issued on July 10, 2001 based on a Pendulum Test. The composition was changed to 52% HDPE and 45% Ground Rubber.

FHWA letter B-85D was issued for a composition changed based on a Pendulum Test. The Composition was changed from 68.5% and 30% Ground Rubber.

FHWA letter B-85E dated May 8, 2007 was issued based on a full scale crash test with a composition material of 70% HDPE, 28.7% Ground Rubber, 0.3% Blowing Agent, and 1% Color Concentrate.

This request is for acceptance of the Thrie Beam King Block with the composition that is the same that is used with the King Block for W-Beam. This composition would be 70% HDPE, 28.7% Ground Rubber, 0.3% Blowing Agent, and 1% Color Concentrate. The shape and configuration of the Thrie Beam King Block will continue to be the same as in FHWA letter CC-85C. The depth can also be increased to 12" for the MGS Transition or other systems requiring a 12" deep thrie beam block.

This modification is considered Non-significant, Effect is Positive or Inconsequential.

CRASH TESTING

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
3-10 (820C)	N/A	
S3-10 (700C)		WAIVER REQUESTED
3-11 (2000P)	The test vehicle impacted the longitudinal barrier 1.30 m (4.25 ft) downstream of post 10 at 23.4 degrees, and laterally deflected the barrier 1.04 m (3.4 ft) (dynamically). Impact velocity of the test vehicle was measured using high-speed film analysis, and was determined to be 107.9 km/hr (67.0 mph). NCHRP Report 350 states that the recommended impact severity for Test 3-11 is 139. KJ (-10.8 kJ/+11.3 kJ). The actual impact severity of test X06 was 247.2 kJ, a deviation of +9.1 kJ from the nominal impact severity recommended in NCHRP Report 350. Given the impact severity of 147.2 kJ, the equivalent impact speed of a 2000 kg vehicle impacting the longitudinal barrier at exactly 25 degrees would be 103.3 km/hr (64.2 mph).	PASS
3-20 (820C)	N/A	
S3-20 (700C)		WAIVER REQUESTED
3-21 (2000P)		WAIVER REQUESTED

Full Scale Crash Testing was done in compliance with MASH by the following accredited crash test laboratory (cite the laboratory's accreditation status as noted in the crash test reports.):

Laboratory Name:	Southwest Research Institute		
Laboratory Contact:	Oliver Harrison	Same as Submitter <input type="checkbox"/>	
Address:	6220 Culebra Road San Antonio, TX 78238	Same as Submitter <input type="checkbox"/>	
Country:	USA	Same as Submitter <input type="checkbox"/>	
Accreditation Certificate Number and Date:	ISO 17025 1110.02 March 31, 2014		

ATTACHMENTS

Attach to this form:

- 1) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
- 2) A drawing or drawings of the device(s) that conform to the Task Force-13 Drawing Specifications [[Hardware Guide Drawing Standards](#)]. For proprietary products, a single isometric line drawing is usually acceptable to illustrate the product, with detailed specifications, intended use, and contact information provided on the reverse. Additional drawings (not in TF-13 format) showing details that are key to understanding the performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

Eligibility Letter		AASHTO TF13	
Number	Date	Designator	Key Words
B-85F	July 29, 2013	None	Thrie Beam Blockout Recycled Materials

Request for Federal Aid Reimbursement Eligibility Of Highway Safety Hardware

Submitter	Date of Request:	June 19, 2013	<input checked="" type="radio"/> New <input type="radio"/> Resubmission
	Name:	Don Grippe	Signature: <i>Don Jay Grippe</i>
	Company:	Trinity Highway Products, LLC	
	Address:	5216 Brassfield Dr. SE, Olympia, WA 98501	
	Country:	USA	
	To:	Michael S. Griffith, Director FHWA, Office of Safety Technologies	

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