U.S. Department of Transportation
Federal Highway Administration

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

May 5, 2026

In Reply Refer To:
HSST-1/B-384

Eric Mastin
Pro-Cast Products
27417 3rd Street
Highland, CA, 92346

Dear Mr. Mastin:

We received your initial correspondence on January 17, 2024, requesting issuance of a Federal-aid reimbursement eligibility letter under the Federal-aid highway program for the roadside safety system, device, design, product, or hardware (collectively "device") described below. On June 6, 2024, we received a complete set of files needed to complete our review. We write to inform you that the device Pro-Cast 30' Rigid TL-3 MASH Barrier (with and without spacers) is eligible for Federal-aid reimbursement. This letter is assigned Federal Highway Administration (FHWA) control number B-384.

ELIGIBILITY LETTERS

The FHWA issues Federal-aid reimbursement eligibility letters for new roadside safety devices that are crash tested in accordance with the industry standard of the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH).

FHWA, the Department of Transportation, and the United States (government) do not regulate roadside safety devices, crash test facilities, or the manufacturing industry. Issuance of eligibility letters is discretionary and provided only as a service to the states. FHWA may, at its discretion, decline to issue, revise, or rescind an eligibility letter. Eligibility letters are only issued by the FHWA Office of Safety.

Eligibility letters are issued only as notice to the states that a device is eligible for reimbursement under the Federal-aid highway program. They do not establish approval or certification for any other purpose. Issuance of an eligibility letter is not a prerequisite or requirement for state transportation agencies seeking to use Federal-aid funds for roadside safety devices. State agencies may use a device for which an eligibility letter has not been issued and seek Federal-aid reimbursement.

FEDERAL-AID REIMBURSEMENT

The request for issuance of this letter certified the device was crash tested in accordance with the industry standard of AASHTO's MASH. This eligibility letter is based on that certification and the material offered in support of its issuance. The device described below is eligible for reimbursement under the Federal-aid highway program.

Name of system: Pro-Cast 30' Rigid TL-3 MASH Barrier (with and without Spacers)
Type of system: Longitudinal Barrier
Test Level: Test Level 3
Testing conducted by: Applus IDIADA KARCO Engineering
Date of request: January 17, 2024

The device and as-tested condition(s) is described as follows:

The Pro-Cast 30' Rigid TL-3 MASH Barrier was a temporary concrete longitudinal barrier designed to shield roadside hazards. The 30' Freestanding Barriers were 30.0 ft. (9.1 m) long, 2.0 ft (0.6 m). wide, and 2.7 ft. (0.8 m) high.

Each 30.0 ft. (9.1 m) barrier required a minimum 28-day compressive strength of 4,000 psi (27.6 MPa). The concrete barrier utilized steel reinforcement composed of ASTM A36 Grade 60 rebar and consisted of thirty-six (36) #4 vertical bars, thirty-six (36) #5 loops, seventy-two (72) #5 angled loops, and six (6) #5 longitudinal bars down the length of the barrier. In addition, each barrier also had #5 reinforcement bars at each 4.0 in. (102 mm) diameter lifting thru-hole and an assortment of #5 rebar reinforcing the stake opening.

The barrier sections were connected to one another with ASTM A36 0.75 in. (19 mm) steel loops embedded in each barrier which were then interlocked with a 1.25" (32 mm) diameter by 24.5 in. (622 mm) long solid steel pins.

The barriers were set on an asphalt slab 6.0 in. (152 mm) thick. A total of seven (7) freestanding barriers were used. The barrier system allows for installation of a barrier limiting and protection spacer constructed of 24.0 in. (610 mm) high by 3.0 in. (76 mm) wide by 0.375 in. (10 mm) uniform density plastic with a minimum compressive strength of 6000 psi (41.4 MPa). If utilized the spacers are placed on the ends of each barrier on the traffic side of the interconnecting pins. The spacer sits flush with the barrier if utilized.

The Pro-Cast 30' Rigid TL-3 barrier was tested in 2 configurations:
1) Freestanding with no spacers
2) Freestanding with spacers

Information about the device, including material such as the eligibility request, crash test reports, drawings, or images are included in one or more attachment(s) to this letter.

Eligibility letter B-384 is inapplicable to devices, optional equipment, alternate materials, or other features that were not crash tested in accordance with AASHTO's MASH.

This letter is issued only for the subject device as crash tested under AASHTO's MASH. Later modification(s) of the device are not eligible for Federal-aid reimbursement under this letter. Notice of later modification(s) should be given to transportation agencies, facility owners, and operators (collectively "agencies").

Agencies should be provided appropriate information about the device's design, installation, maintenance, materials, and mechanical properties.

Issuance of this letter is discretionary, and it may be revised or rescinded at FHWA's discretion. This letter is not a determination of compliance with the Build America Buy America Act, the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) or ownership of any intellectual property rights.

This eligibility letter is not a determination by the government that a crash involving the subject device will result in any particular outcome. It is limited to only the device's eligibility for Federal-aid reimbursement.

INTELLECTUAL PROPERTY

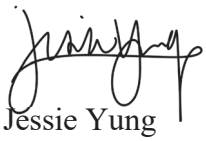
Issuance of this eligibility letter does not convey property rights of any sort nor any exclusive privilege. This letter is not authorization or consent by the government for the use, manufacture, or sale of any patented or proprietary system, device, design, product, or hardware for which the requester is not the patent owner. Eligibility letters are not an expression of any view, position, or determination by the government as to the validity, scope, or ownership of any intellectual property rights to a specific device. These letters do not grant, impute, suggest, or otherwise establish any ownership, distribution, or licensing rights to the requester. The government expresses no opinion about the intellectual property rights relating to any device for which this or any other eligibility letter is issued.

PUBLIC DISCLOSURE

To prevent any misunderstanding, and as discussed above, this Federal-aid eligibility letter is assigned FHWA control number B-384. It should only be reproduced in full with its attachment(s). This Federal-aid eligibility letter and the material offered by the requester supporting its issuance is public information. All eligibility letters and supporting material are subject to public disclosure under the Freedom of Information Act (FOIA). Eligibility letters are available to the public at https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/.

If you have any questions please contact Paul LaFleur at Paul.LaFleur@dot.gov.

Sincerely,



Jessie Yung
Director, Office of Safety Technologies
Office of Safety

Enclosures

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	January 17, 2024	◉ New ○ Resubmission
	Name:	Eric Mastin	
	Company:	Pro-Cast Products	
	Address:	27417 3rd St, Highland, CA, 92346	
	Country:	United States of America	
	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.

Device & Testing Criterion - Enter from right to left starting with Test Level

! - ! - !

System Type	Submission Type	Device Name / Variant	Testing Criterion	Test Level
'B': Rigid/Semi-Rigid Barriers (Roadside, Median, Bridge Railings)	◉ Physical Crash Testing ○ Engineering Analysis	Pro-Cast 30' Rigid TL-3 MASH Barrier	AASHTO MASH	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 AASHTO Manual for Assessing Safety Hardware and that the evaluation results meet the appropriate evaluation criteria in the MASH.

Individual or Organization responsible for the product:

Contact Name:	Eric Mastin	Same as Submitter ☐
Company Name:	Pro-Cast Products	Same as Submitter ☐
Address:	27417 3rd St, Highland, CA, 92346	Same as Submitter ☐
Country:	United States of America	Same as Submitter ☐

Enter below all disclosures of financial interests as required by the FHWA `Federal-Aid Reimbursement Eligibility Process for Safety Hardware Devices' document.

Pro-Cast Products is the manufacturer and marketer of device.

Applus IDIADA KARCO Engineering, LLC (IDIADA KARCO) is an independent research and testing laboratory having no affiliation with any other entity. IDIADA KARCO is actively involved in data acquisition and compliance/certification testing for a variety of government agencies and equipment manufacturers. The principals and staff of IDIADA KARCO have no past or present financial, contractual or organizational interest in any company or entity directly or indirectly related to the products that KARCO tests. If any financial interest should arise, other than receiving fees for testing, reporting, etc., with respect to any project, the company will provide, in writing, a full and immediate disclosure to the FHWA.

PRODUCT DESCRIPTION

(●) New Hardware or Significant Modification ( ) Modification to Existing Hardware

The Pro-Cast 30' Rigid TL-3 MASH Barrier was a temporary concrete longitudinal barrier designed to shield roadside hazards. The 30' Freestanding Barriers were 30.0 ft. (9.1 m) long, 2.0 ft (0.6 m). wide, and 2.7 ft. (0.8 m) high.

Each 30.0 ft. (9.1 m) barrier required a minimum 28-day compressive strength of 4,000 psi (27.6 MPa). The concrete barrier utilized steel reinforcement composed of ASTM A36 Grade 60 rebar and consisted of thirty-six (36) #4 vertical bars, thirty-six (36) #5 loops, seventy-two (72) #5 angled loops, and six (6) #5 longitudinal bars down the length of the barrier. In addition, each barrier also had #5 reinforcement bars at each 4.0 in. (102 mm) diameter lifting thru-hole and an assortment of #5 rebar reinforcing the stake opening.

The barrier sections were connected to one another with ASTM A36 0.75 in. (19 mm) steel loops embedded in each barrier which were then interlocked with a 1.25" (32 mm) diameter by 24.5 in. (622 mm) long solid steel pins.

The barriers were set on an asphalt slab 6.0 in. (152 mm) thick. A total of seven (7) freestanding barriers were used. The barrier system allows for installation of a barrier limiting and protection spacer constructed of 24.0 in. (610 mm) high by 3.0 in. (76 mm) wide by 0.375 in. (10 mm) uniform density plastic with a minimum compressive strength of 6000 psi (41.4 MPa). If utilized the spacers are placed on the ends of each barrier on the traffic side of the interconnecting pins. The spacer sits flush with the barrier if utilized.

The Pro-Cast 30' Rigid TL-3 barrier was tested in 2 configurations:

1) Freestanding with no spacers
2) Freestanding with spacers

CRASH TESTING

By signature below, the Engineer affiliated with the testing laboratory, agrees in support of this submission that all of the critical and relevant crash tests for this device listed above were conducted to meet the MASH test criteria. The Engineer has determined that no other crash tests are necessary to determine the device meets the MASH criteria.

Engineer Name:	Fadi Alset	
Engineer Signature:	Fadi Alset — Digitally signed by Fadi Alset DN: cn=Fadi Alset, o=Applus Idiada Karco, ou, email=fadi.alset@idiada.com, c=US Date: 2024.01.25 16:58:10 -08'00'	
Address:	9270 Holly Rd, Adelanto, CA 92301	Same as Submitter ☐
Country:	United States of America	Same as Submitter ☐

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
3-10 (1100C)	Applus IDIADA KARCO Test No. P43152-02. Test Date July 25, 2023. Crash Test Report No. TR-P43152-02-A for MASH 2016 Test 3-10 Crash Test of Pro-Cast Products, Pro-Cast 30' Rigid TL-3 MASH Barrier with spacers. An 1100C test vehicle approached the test article at a nominal speed of 62.00 mph (100.00 km/h). The Pro-Cast 30' Rigid TL-3 MASH Barrier was oriented at 25.0° and the vehicle was set to impact 80.4 in. upstream of joint 3-4 of the concrete barrier. The Pro-Cast 30' Rigid TL-3 MASH Barrier was impacted at a velocity of 61.74 mph (99.36 km/h) and an angle of 24.6°. The Pro-Cast 30' Rigid TL-3 MASH Barrier with spacers contained and redirected the vehicle without allowing it to penetrate, underride, or override the installation. The occupant compartment was not penetrated and the maximum deformation into the occupant compartment was not exceeded. Applus IDIADA KARCO Test No. P43166-01. Test Date July 27, 2023. Crash Test Report No. TR-P43166-01-A for MASH 2016 Test 3-10 Crash Test of Pro-Cast Products, Pro-Cast 30' Rigid TL-3 MASH Barrier without spacers. An 1100C test vehicle approached the test article at a nominal speed of 62.00 mph (100.00 km/h). The Pro-Cast 30' Rigid TL-3 MASH Barrier was oriented at 25.0° and the vehicle was set to impact 80.4 in. upstream of joint 3-4 of the concrete barrier. The Pro-Cast 30' Rigid TL-3 MASH Barrier was impacted at a velocity of 62.88 mph (101.20 km/h) and an angle of 24.6°. The Pro-Cast 30' Rigid TL-3 MASH Barrier without spacers contained and redirected the vehicle without allowing it to penetrate, underride, or override the installation. The occupant compartment was not penetrated and the maximum deformation into the occupant compartment was not exceeded. The Pro-Cast 30' Rigid TL-3 MASH Barrier met all the requirements for MASH Test 3-10.	PASS

Required Test Number	Narrative Description	Evaluation Results
3-11 (2270P)	Applus IDIADA KARCO Test No. P43153-01. Test Date July 25, 2023. Crash Test Report No. TR-P43153-01-A for MASH 2016 Test 3-11 Crash Test of Pro-Cast Products, Pro-Cast 30' Rigid TL-3 MASH Barrier with spacers. An 2270P test vehicle approached the test article at a nominal speed of 62.00 mph (100.00 km/h). The Pro-Cast 30' Rigid TL-3 MASH Barrier was oriented at 25.0° and the vehicle was set to impact 93.6 in. upstream of joint 3-4 of the concrete barrier. The Pro-Cast 30' Rigid TL-3 MASH Barrier was impacted at a velocity of 61.98 mph (99.75 km/h) and an angle of 24.9°. The Pro-Cast 30' Rigid TL-3 MASH Barrier with spacers contained and redirected the vehicle without allowing it to penetrate, underride, or override the installation. The occupant compartment was not penetrated and the maximum deformation into the occupant compartment 3.0 in. (76 mm) at the passenger side toe pan. Applus IDIADA KARCO Test No. P43173-01. Test Date July 28, 2023. Crash Test Report No. TR-P43173-01-A for MASH 2016 Test 3-11 Crash Test of Pro-Cast Products, Pro-Cast 30' Rigid TL-3 MASH Barrier without spacers. An 2270P test vehicle approached the test article at a nominal speed of 62.00 mph (100.00 km/h). The Pro-Cast 30' Rigid TL-3 MASH Barrier was oriented at 25.0° and the vehicle was set to impact 93.6 in. upstream of joint 3-4 of the concrete barrier. The Pro-Cast 30' Rigid TL-3 MASH Barrier was impacted at a velocity of 61.83 mph (99.50 km/h) and an angle of 24.7°. The Pro-Cast 30' Rigid TL-3 MASH Barrier without spacers contained and redirected the vehicle without allowing it to penetrate, underride, or override the installation. The occupant compartment was not penetrated and the maximum deformation into the occupant compartment 3.0 in. (76 mm) at the passenger side toe pan. The Pro-Cast 30' Rigid TL-3 MASH Barrier met all the requirements for MASH Test 3-11.	PASS
3-20 (1100C)		Non-Critical, not conducted
3-21 (2270P)		Non-Critical, not conducted

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:	Applus IDIADA KARCO Engineering, LLC.	
Laboratory Signature:	Fadi Alset — Digitally signed by Fadi Alset DN: cn=Fadi Alset, o=Applus Idiada Karco, ou, email=fadi.alset@idiada.com, c=US Date: 2024.01.25 16:58:32 -08'00'	
Address:	9270 Holly Road, Adelanto, CA,92301	Same as Submitter ☐
Country:	United States of America	Same as Submitter ☐
Accreditation Certificate Number and Dates of current Accreditation period :	TL 371: April 27, 2022 - April 27, 2025	

Submitter Signature*: Eric W. Mastin Digitally signed by Eric W. Mastin Date: 2024.01.29 07:05:53 -08'00'

Submit Form

ATTACHMENTS

Attach to this form:

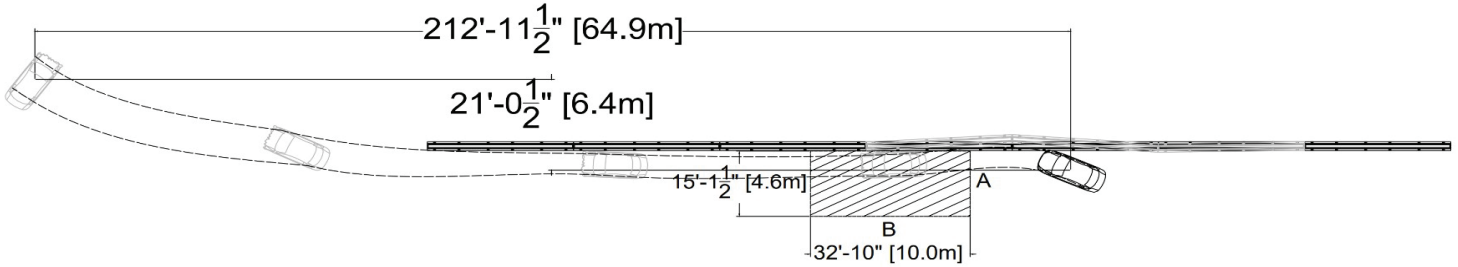
1) Additional disclosures of related financial interest as indicated above.
2) A copy of the full test report, video, and a Test Data Summary Sheet for each test conducted in support of this request.
3) A drawing or drawings of the device(s) that conform to the Task Force-13 Drawing Specifications [Hardware 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 relevant to understanding the dimensions and performance of the device should also be submitted to facilitate our review.

FHWA Official Business Only:

Eligibility Letter		
Number	Date	Key Words

MASH 2016 Test 3-10 Summary

0.000 seconds | 0.090 seconds | 0.180 seconds | 0.270 seconds | 0.330 seconds



GENERAL INFORMATION

Test Agency	Applus IDIADA
Test Number	P43166-01
Test Designation	3-10
Test Date	07/27/23

TEST ARTICLE

Name / Model	Pro-Cast 30' Rigid TL-3 MASH Barrier no spacers
Type	Freestanding Longitudinal Barrier
Installation Length	210.0 ft. (64.0 m)
Module Length	30.0 ft. (9.1 m)
Road Surface	Clean, Dry, Asphalt

TEST VEHICLE

Type / Designation	1100C
Year, Make, and Model	2017 Kia Rio
Curb Mass	2,537.5 lbs (1,151.0 kg)
Test Inertial Mass	2,431.7 lbs (1,103.0 kg)
Gross Static Mass	2,594.8 lbs (1,177.0 kg)

Impact Conditions

Impact Velocity	62.88mph (101.20 km/h)
Impact Angle	24.6°
Location / Orientation	Plan Critical Impact Point 80.4 in. [Actual 96.0 in.] upstream of joint 3-4
Impact Severity	55.7 kip-ft (75.5 KiloJoules)
Minimum Impact Severity	51.0 kip-ft (69.7 KiloJoules)

Exit Conditions

Exit Velocity	53.7 mph (86.42 km/h)
Exit Angle	3.6°
Final Vehicle Position	213.0 ft. (64.9 m) downstream 21.0 ft. (6.4m) toward the passenger side
Exit Box Criteria Met	Yes
Vehicle Snagging	Satisfactory
Vehicle Pocketing	Satisfactory
Vehicle Stability	Satisfactory
Maximum Roll Angle	-8.1°
Maximum Pitch Angle	16.2°
Maximum Yaw Angle	-28.6°

Occupant Risk

Longitudinal OIV	18.0 ft/s (5.5 m/s)
Lateral OIV	22.3 ft/s (6.8 m/s)
Longitudinal RA	-4.2 g
Lateral RA	-8.0 g
THIV	28.9 ft/s (8.8 m/s)
PHD	8.7 g
ASI	1.85

Test Article Deflections

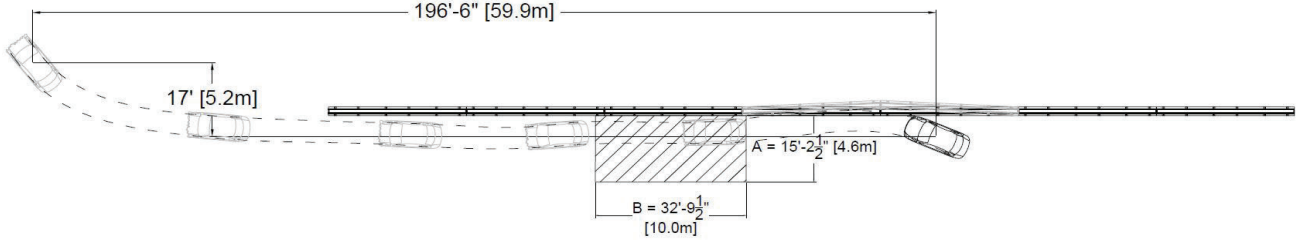
Static	1.7 ft. (0.5 m)
Dynamic	1.7 ft. (0.5 m)
Working Width	3.5 ft. (1.1 m)
Debris Field (longitudinal)	1.9 ft. (0.6 m)
Debris Field (lateral)	4.8 ft. (1.5 m)

Vehicle Damage

Vehicle Damage Scale	12-FD-6
CDC	12FDEW4
Maximum Intrusion	0.0 in. (0 mm)

Figure 2 Summary of Test 3-10

MASH 2016 Test 3-10 Summary



GENERAL INFORMATION

Test Agency	Applus IDIADA
Test Number	P43152-02
Test Designation	3-10
Test Date	07/25/23

TEST ARTICLE

Name / Model	Pro-Cast 30' Rigid TL-3 MASH Barrier with spacers
Type	Freestanding Longitudinal barrier
Installation Length	210.0 ft. (64.0 m)
Module Length	30.0 ft. (9.1 m)
Road Surface	Clean, Dry, Asphalt

TEST VEHICLE

Type / Designation	1100C
Year, Make, and Model	2018 Kia Rio
Curb Mass	2,493.4 lbs (1,131.0 kg)
Test Inertial Mass	2,427.2 lbs (1,101.0 kg)
Gross Static Mass	2,590.4 lbs (1,175.0 kg)

Impact Conditions

Impact Velocity	61.74 mph (99.36 km/h)
Impact Angle	24.6°
Location / Orientation	Plan Critical Impact Point 80.4 in. [Actual 87.8 in.] upstream from joint 3-4
Impact Severity	53.6 kip-ft (72.7 KiloJoules)
Minimum Impact Severity	51.0 kip-ft (69.7 KiloJoules)

Exit Conditions

Exit Velocity	55.14 mph (88.74 km/h)
Exit Angle	6.0°
Final Vehicle Position	17.0 ft. (5.2 m) toward the passenger side 196.5 ft. (59.9 m) downstream
Exit Box Criteria Met	Yes
Vehicle Snagging	Satisfactory
Vehicle Pocketing	Satisfactory
Vehicle Stability	Satisfactory
Maximum Roll Angle	15.3°
Maximum Pitch Angle	11.9°
Maximum Yaw Angle	-32.8°

Occupant Risk

Longitudinal OIV	15.7 ft/s (4.8 m/s)
Lateral OIV	22.3 ft/s (6.8 m/s)
Longitudinal RA	-2.5 g
Lateral RA	-10.1 g
THIV	27.6 ft/s (8.4 m/s)
PHD	10.2 g
ASI	1.89

Test Article Deflections

Static	1.3 ft. (0.4 m)
Dynamic	1.3 ft. (0.4 m)
Working Width	3.2 ft. (1.0 m)
Debris Field	None

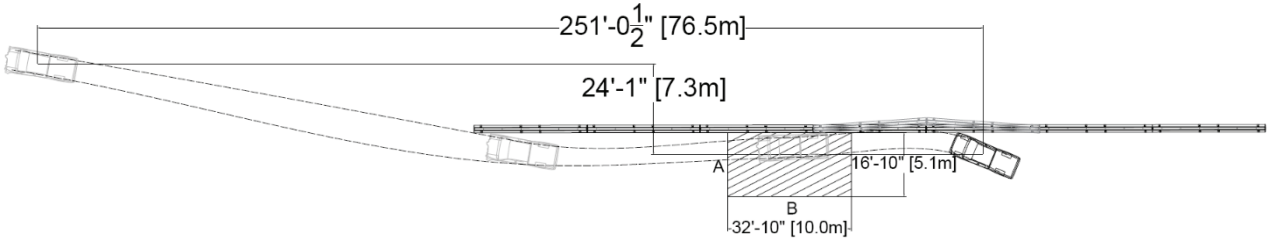
Vehicle Damage

Vehicle Damage Scale	12-FR-3
CDC	12FREN1
Maximum Intrusion	0.0 in. (0 mm)

Figure 2 Summary of Test 3-10

MASH 2016 Test 3-11 Summary

0.000 seconds 0.120 seconds 0.240 seconds 0.360 seconds 0.440 seconds



GENERAL INFORMATION

Test Agency	Applus IDIADA
Test Number	P43173-01
Test Designation	3-11
Test Date	07/28/23

TEST ARTICLE

Name / Model	Pro-Cast 30' Rigid TL-3 MASH Barrier no spacers
Type	Freestanding Longitudinal barrier
Installation Length	210.0 ft. (64.0 m)
Module Length	30.0 ft. (9.1 m)
Road Surface	Clean, Dry, Asphalt

TEST VEHICLE

Type / Designation	2270P
Year, Make, and Model	2018 RAM 1500
Curb Mass	4,898.6 lbs (2,222.0 kg)
Test Inertial Mass	5,040.8 lbs (2,286.5 kg)
Gross Static Mass	5,040.8 lbs (2,286.5 kg)

Impact Conditions

Impact Velocity	61.83 mph (99.50 km/h)
Impact Angle	24.7°
Location / Orientation	Plan Critical Impact Point 93.6 in. [Actual 105.0 in.] upstream from joint 3-4
Impact Severity	112.5 kip-ft (152.5 KiloJoules)
Minimum Impact Severity	106.0 kip-ft (144 KiloJoules)

Exit Conditions

Exit Velocity	50.8 mph (81.75 km/h)
Exit Angle	6.8°
Final Vehicle Position	251.0 ft. (76.5 m) downstream 24.1 ft. (7.3 m) towards the passenger side
Exit Box Criteria Met	Yes
Vehicle Snagging	Satisfactory
Vehicle Pocketing	Satisfactory
Vehicle Stability	Satisfactory
Maximum Roll Angle	-15.4°
Maximum Pitch Angle	-11.8°
Maximum Yaw Angle	-29.4°

Occupant Risk

Longitudinal OIV	13.5 ft/s (4.1 m/s)
Lateral OIV	20.7 ft/s (6.3 m/s)
Longitudinal RA	-6.6 g
Lateral RA	-5.9 g
THIV	24.9 ft/s (7.6 m/s)
PHD	6.6 g
ASI	1.27

Test Article Deflections

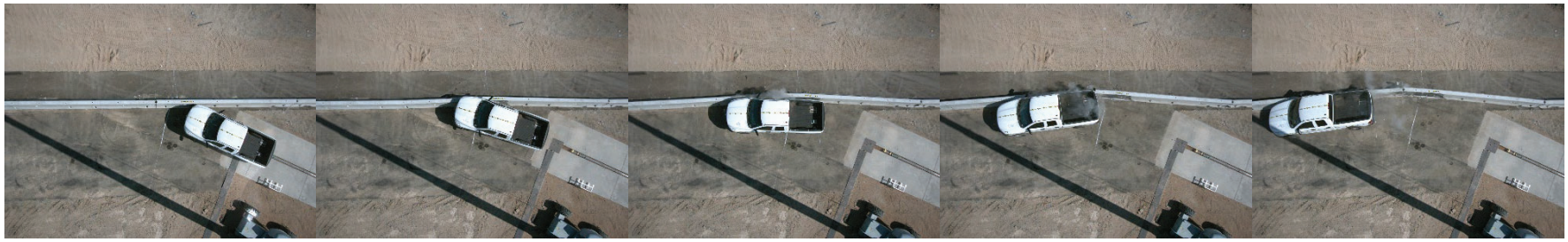
Static	1.9 ft. (0.6 m)
Dynamic	1.9 ft. (0.6 m)
Working Width	3.4 ft. (1.0 m)
Debris Field (longitudinal)	1.7 ft. (0.5 m)
Debris Field (lateral)	1.5 ft. (0.5 m)

Vehicle Damage

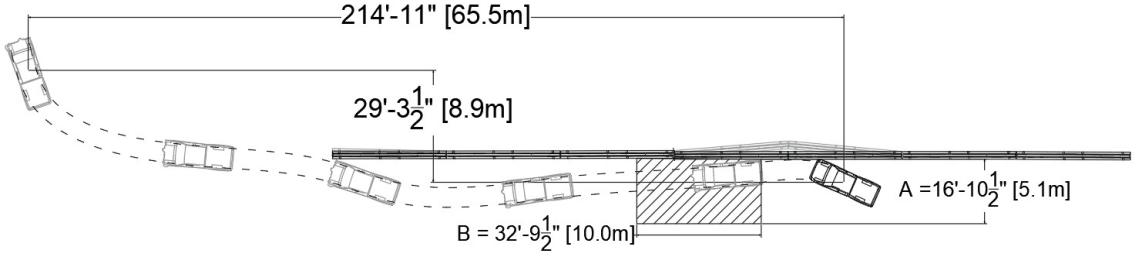
Vehicle Damage Scale	12-FR-3
CDC	12FREN1
Maximum Intrusion	3.0 in. (76 mm) Passenger Toe Pan

Figure 2 Summary of Test 3-11

MASH 2016 Test 3-11 Summary



0.000 seconds 0.100 seconds 0.200 seconds 0.300 seconds 0.400 seconds



GENERAL INFORMATION

Test Agency	Applus IDIADA
Test Number	P43153-01
Test Designation	3-11
Test Date	07/25/23

TEST ARTICLE

Name / Model	Pro-Cast 30' Rigid TL-3 MASH Barrier with spacers
Type	Freestanding Longitudinal barrier
Installation Length	210.0 ft. (64.0 m)
Module Length	30.0 ft. (9.1 m)
Road Surface	Clean, Dry, Asphalt

TEST VEHICLE

Type / Designation	2270P
Year, Make, and Model	2017 Ram 1500
Curb Mass	5,070.6 lbs (2,300.0 kg)
Test Inertial Mass	5,039.8 lbs (2,286.0 kg)
Gross Static Mass	5,039.8 lbs (2,286.0 kg)

Impact Conditions

Impact Velocity	61.98 mph (99.75 km/h)
Impact Angle	24.6°
Location / Orientation	Plan Critical Impact Point 93.6 in. [Actual 89.3 in.] upstream from joint 3-4
Impact Severity	112.2 kip-ft (155.0 KiloJoules)
Minimum Impact Severity	106.0 kip-ft (144.0 KiloJoules)

Exit Conditions

Exit Velocity	35.11 mph (56.50 km/h)
Exit Angle	6.5°
Final Vehicle Position	29.3 ft. (8.9 m) toward the passenger side 214.9 ft. (65.5 m) Downstream
Exit Box Criteria Met	Yes
Vehicle Snagging	Satisfactory
Vehicle Pocketing	Satisfactory
Vehicle Stability	Satisfactory
Maximum Roll Angle	15.4°
Maximum Pitch Angle	-11.6°
Maximum Yaw Angle	-32.3°

Occupant Risk

Longitudinal OIV	17.1 ft/s (5.2 m/s)
Lateral OIV	21.3 ft/s (6.5 m/s)
Longitudinal RA	-4.8 g
Lateral RA	-11.0 g
THIV	27.6 ft/s (8.4 m/s)
PHD	11.0 g
ASI	1.60

Test Article Deflections

Static	2.7 ft. (0.8 m)
Dynamic	2.7 ft. (0.8 m)
Working Width	4.4 ft. (1.4 m)
Debris Field	None

Vehicle Damage

Vehicle Damage Scale	1-FR-2
CDC	01FRMW3
Maximum Intrusion	3.0 in. (76 mm) Passenger Side Toepan

Figure 2 Summary of Test 3-11

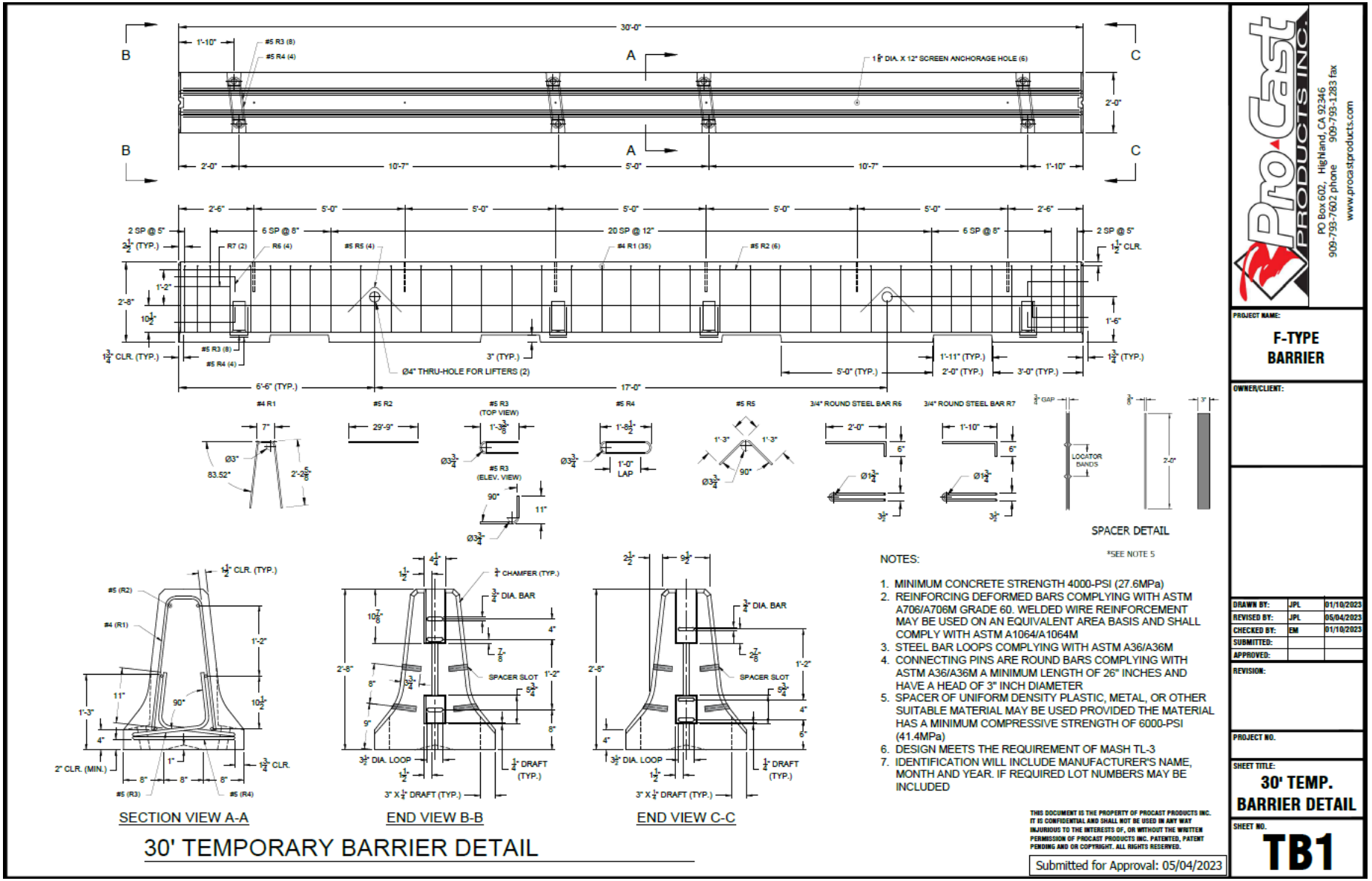


Figure 1: 30’ Temporary Barrier Detail