



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

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

May 25, 2012

In Reply Refer To:
WZ-315

Charles Mettler
Engineering Manager
Plastic Safety Systems
2444 Baldwin Road
Cleveland Ohio 44104

Dear Mr. Mettler:

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

Name of system:	SafetyWall
Type of system:	Longitudinal Channelizer
Test Level:	MASH Test Level 3
Testing conducted by:	Transportation Research Center
Date of request:	January 11, 2012
Date initially acknowledged:	April 12, 2012

Decision:

The following device is eligible, with details provided below and in the drawings which are enclosed as an integral part of this letter:

- SafetyWall Longitudinal Channelizer

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 American Association of State Highway and Transportation Officials' Manual for Assessing Safety Hardware (MASH), 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.

Requirements

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

FHWA: HSST: NArtimovicht: sf: x61331:5/24/12
File: s://directory folder/HSST/Artimovich/ WZ315_SafetyWall (3) docx
cc: HSST (NArtimovich; JDewar)

Description

The Plastic Safety Systems Inc. SafetyWall is a longitudinal channelizer formed from high density polyethylene plastic. The crash tested longitudinal channelizer was 201 feet long fabricated from 34 individual inter-connected channelizing devices. Drawings of the individual units are enclosed for reference. The SafetyWall longitudinal channelizer was positioned such that the right front corner of the impacting vehicles struck the longitudinal channelizer at the center of channelizing device number 8 in both MASH tests 3-10 and 3-11.

Each individual channelizing device was secured with two (2) 45-pound sand bags. Each individual channelizing device is equipped with two legs. One (1) 45-pound sand bag was placed on each leg per the manufacturer installation instructions. Type AC lights were mounted on channelizers number 6 through 17 and sign panels were mounted to the face of the longitudinal channelizers in the impact zone. The lights and sign panels remained affixed to the channelizer units during the impacts. Summary pages of the crash tests are enclosed.

Summary and Standard Provisions

Therefore, the system described above and detailed in the enclosed drawings is eligible for reimbursement and may be installed under the range of conditions tested. Individual units may also be used as stand-alone barricades when affixed with the appropriate retroreflective sheeting per Section 6F of the Manual on Uniform Traffic Control Devices.

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 MASH 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 test and evaluation criteria of the MASH.
- To prevent misunderstanding by others, this letter of eligibility is designated as number WZ-315 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 Plastic Safety Systems SafetyWall is a patented product 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

Enclosures



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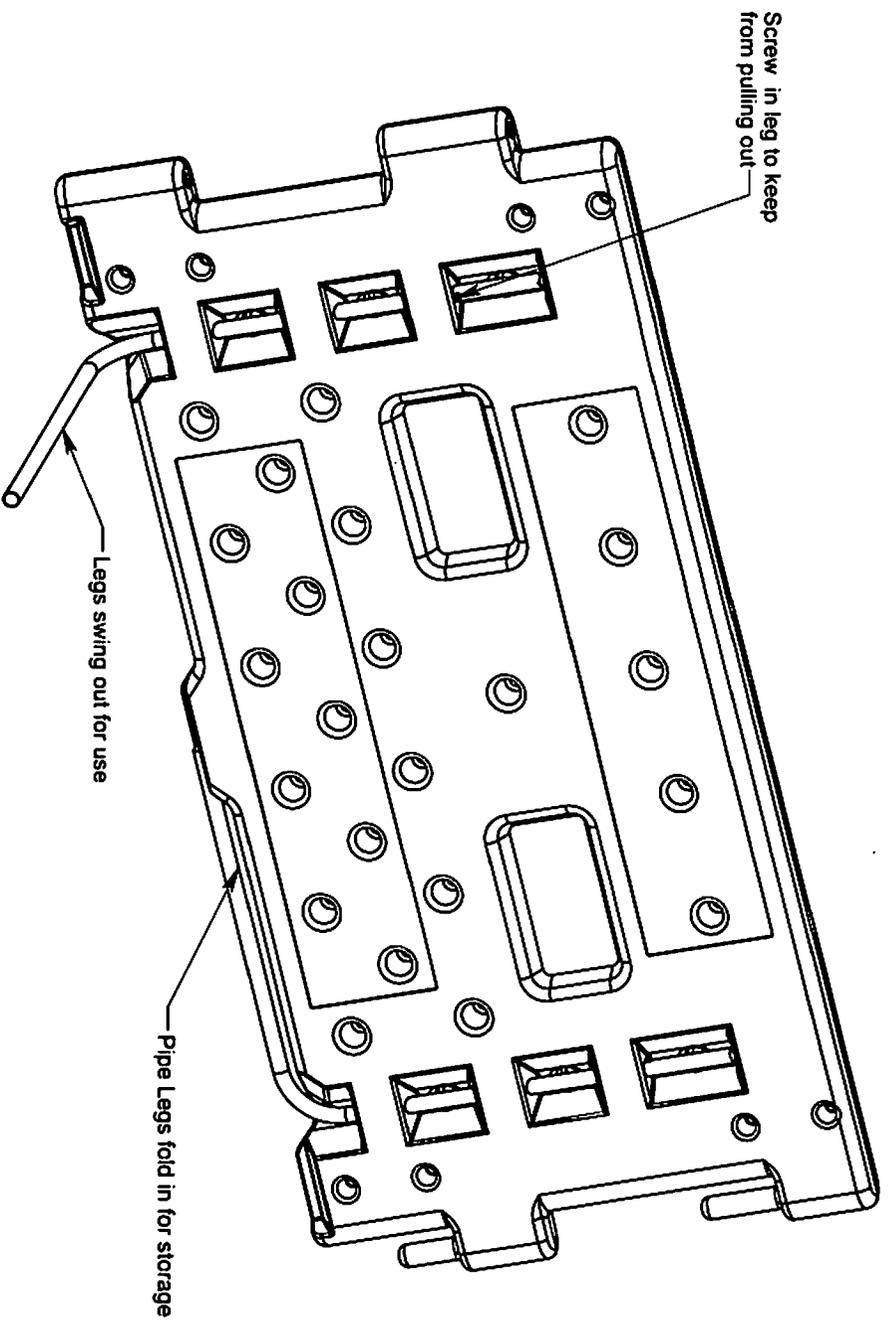
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Sincerely yours,

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

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

Enclosures



UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL :
 ANGULAR: MACH : BEND :
 TWO PLACE DECIMAL :
 THREE PLACE DECIMAL :

NAME DATE
 CMM 12/28/09

CHECKED
 ENG APPR.
 MFG APPR.
 Q.A.
 COMMENTS:
 INTERPRET GEOMETRIC
 TOLERANCING PER:
 MATERIAL HDPE
 FINISH

Plastic Safety Systems, Inc.
 TITLE:
Safety Wall

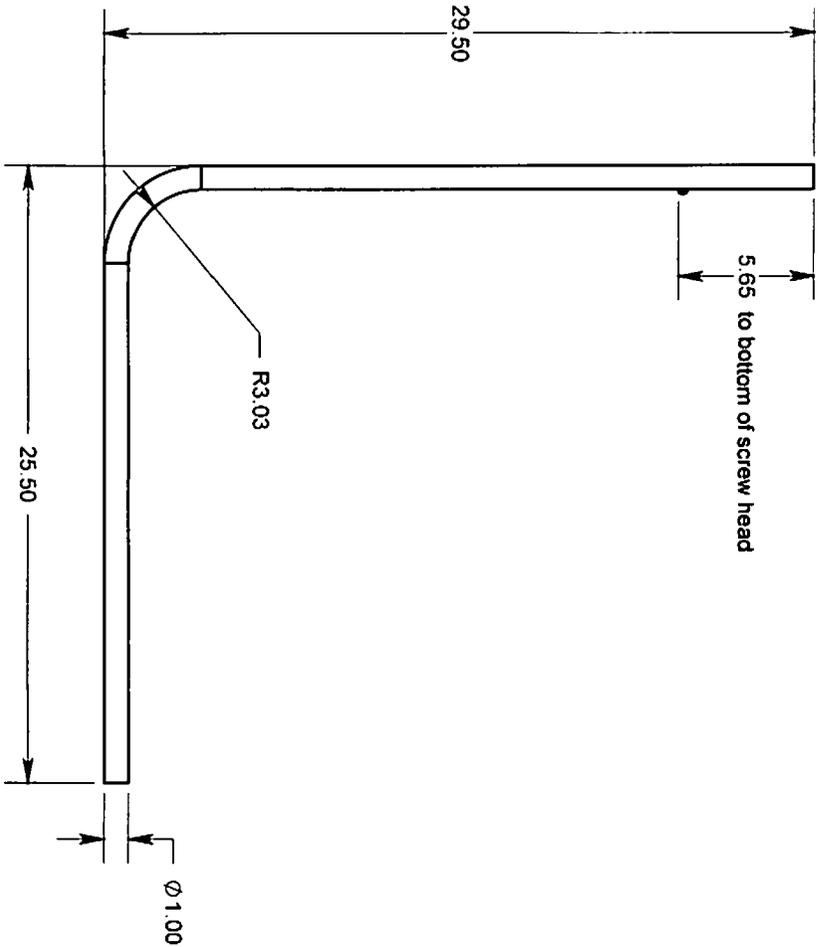
PROPRIETARY AND CONFIDENTIAL
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 DRAWING IS THE SOLE PROPERTY OF
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 REPRODUCTION IN PART OR AS A WHOLE
 WITHOUT THE WRITTEN PERMISSION OF
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NEXT ASSY
 USED ON
 APPLICATION

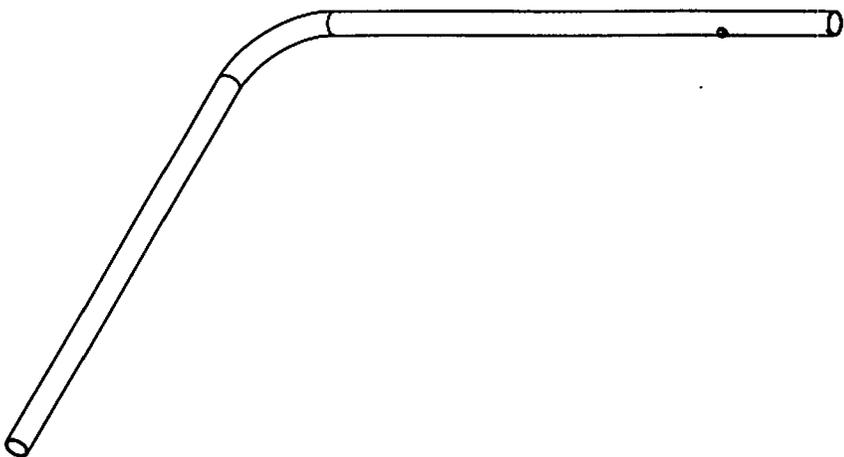
DO NOT SCALE DRAWING

SIZE DWG. NO. REV
A SW-1
 SCALE: 1:16 SHEET 2 OF 4

5 4 3 2 1



Note: Steel Pipe - 1.000" O.D., 0.093" wall
 Galvanize or paint for outdoor application.
 2 pcs per safetyWall unit.



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5

NEXT ASSY

USED ON

APPLICATION

4

UNLESS OTHERWISE SPECIFIED:

- DIMENSIONS ARE IN INCHES
- TOLERANCES:
- FRACTIONAL: ±
- ANGULAR: MACH ±
- TWO PLACE DECIMAL ±
- BEND ±
- THREE PLACE DECIMAL ±
- INTERPRET GEOMETRIC TOLERANCING PER:
- MATERIAL

- DRAWN
- CHECKED
- ENG APPR.
- MFG APPR.
- Q.A.
- COMMENTS:

FINISH

DO NOT SCALE DRAWING

3

NAME

CMM

DATE

12/28/09

TITLE:

Safety Wall

Plastic Safety Systems, Inc.

SIZE DWG. NO.

A SW-1

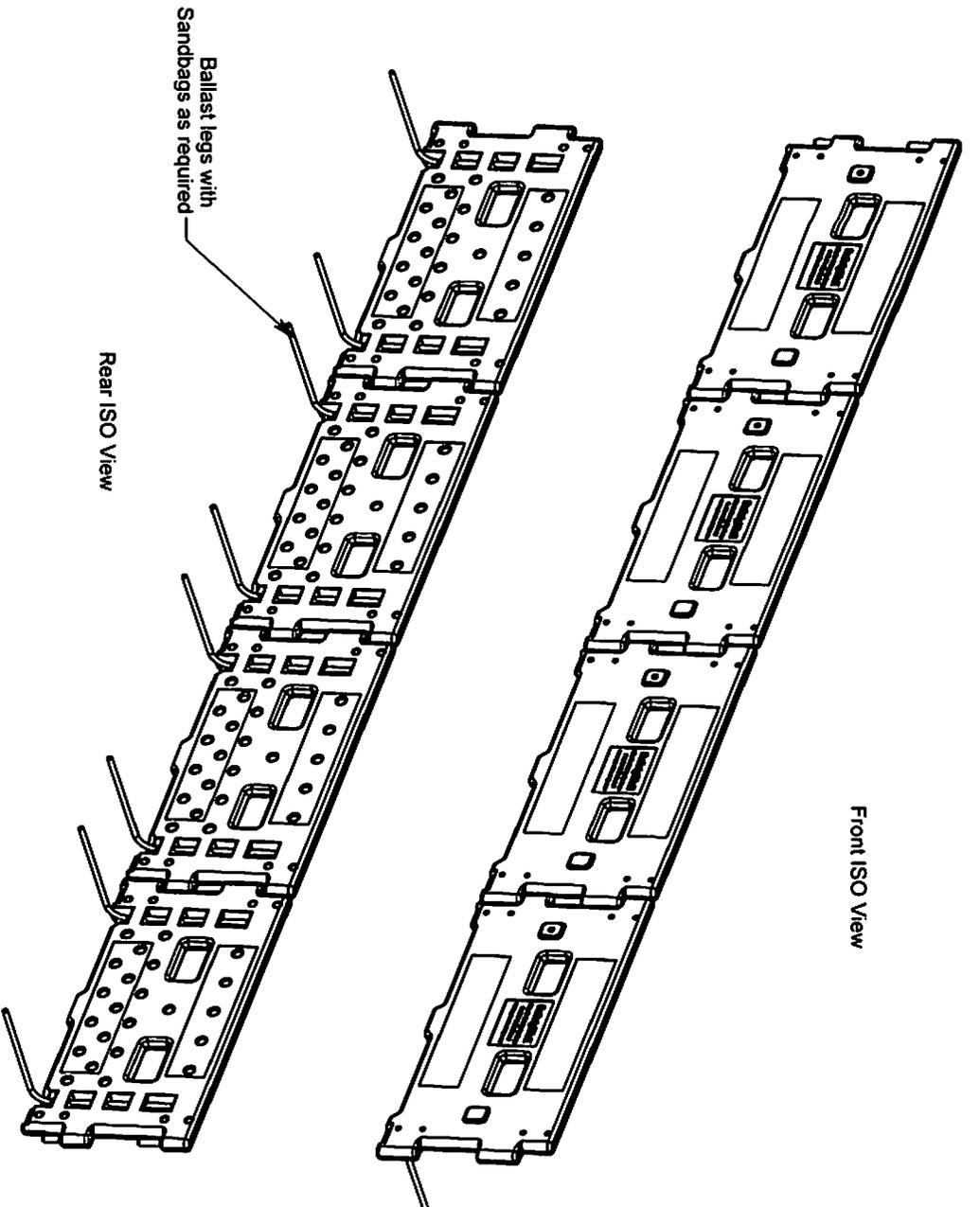
REV

SCALE: 1:16

SHEET 3 OF 4

2

1



UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 TOLERANCES:
 FRACTIONAL: ±
 ANGULAR: MACH ± BEND ±
 TWO PLACE DECIMAL ±
 THREE PLACE DECIMAL ±
 INTERPRET GEOMETRIC TOLERANCING PER: Q.A.
 MATERIAL COMMENTS:

NAME DATE
 CMM 11/28/09

Plastic Safety Systems, Inc.
 TITLE: SafetyWall

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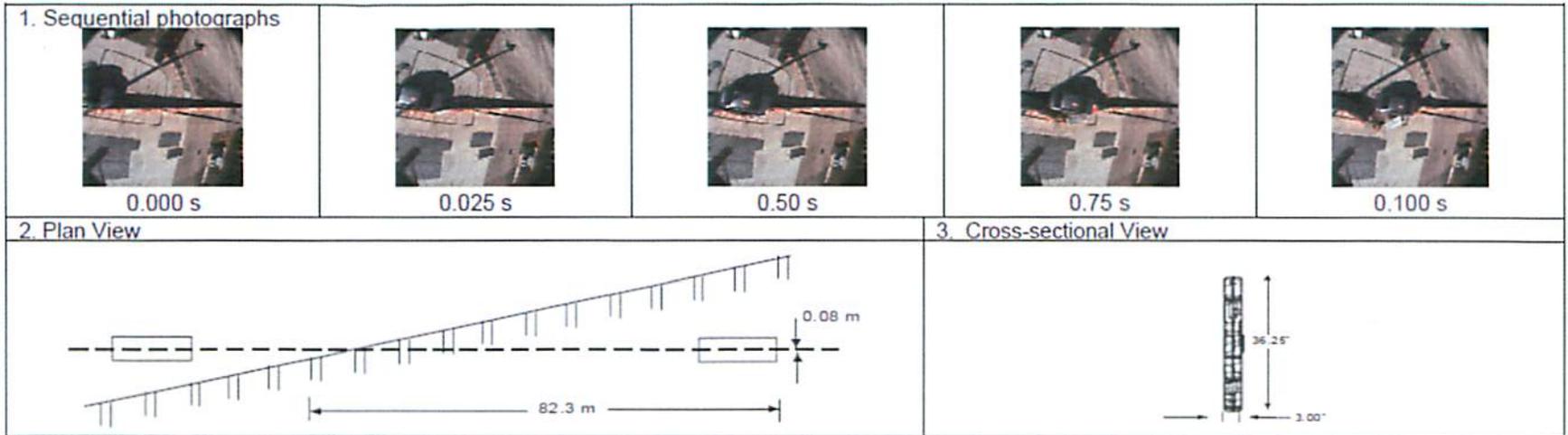
5 NEXT ASSY USED ON APPLICATION

3 DO NOT SCALE DRAWING

2 SCALE: 1:36 WEIGHT: SHEET 4 OF 4

SIZE DWG. NO. **A SW-1**

REV



4. General Information:

- Test Agency: Transportation Research Center Inc.
- Test Number: 111108
- Date: November 8, 2011

5. Test Article:

- Type: longitudinal channelizer
- Installation Length: 201 feet
- Key Elements: Plastic wall sections

6. Soil Conditions:

- Type of Soil: Not applicable
- Soil Strength: Not applicable

7. Test Vehicle:

- Type/Designation: Production Model 1100C
- Make and Model: 2007 Kia Rio SX
- Test Inertial: 1189.2 kg
- Gross Static: 1189.2 kg

8. Impact Conditions:

- Speed: 100.7 km/h
- Angle: 10 degrees
- Location/Orientation: The center of the channelizing device #8

9. Exit Conditions:

- Speed: 100.7 km/h (estimated)
- Angle: 10 degrees (estimated)
- Exit Box Criterion: Not applicable to longitudinal channelizers

10. Post-Impact Trajectory:

- Vehicle Stability: Satisfactory
- Stopping Distance: 82.3 m downstream; 0.08 m laterally left

11. Occupant Risk:

- Longitudinal OIV: 3.70 m/s
- Lateral OIV: 0.05 m/s
- Longitudinal RA: 3.9 g
- Lateral RA: 1.6 g

12. Test Article Damage:

5 segments of the channelizer detached from each other

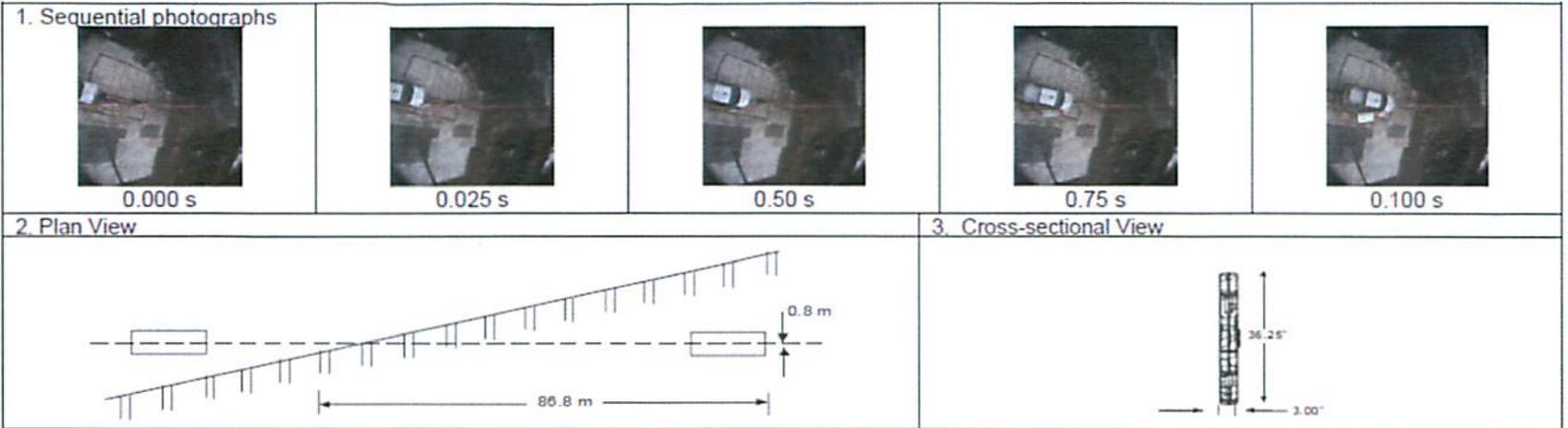
13. Test Article Deflections:

- Permanent Set: 23 m
- Dynamic: 23 m (estimated)
- Working Width: 82.3 meters at vehicle bumper height

14. Vehicle Damage:

- VDS: Slight damage at bumper; no windshield damage
- CDC: N/A
- Maximum Deformation: 01FDLW1, 11 mm

Figure 40. Summary of results for test 111108



<p>4. General Information:</p> <ul style="list-style-type: none"> • Test Agency: Transportation Research Center Inc. • Test Number: 111114 • Date: November 14, 2011 <p>5. Test Article:</p> <ul style="list-style-type: none"> • Type: Safety Wall • Installation Length: Longitudinal channelizer • Key Elements: 201 feet • Plastic wall sections <p>6. Soil Conditions:</p> <ul style="list-style-type: none"> • Type of Soil: Not applicable • Soil Strength: Not applicable <p>7. Test Vehicle:</p> <ul style="list-style-type: none"> • Type/Designation: Production Model 2270P • Make and Model: 2007 Dodge Ram 1500 SLT • Test Inertial: 2331.8 kg • Gross Static: 2331.8 kg <p>8. Impact Conditions:</p> <ul style="list-style-type: none"> • Speed: 100.5 km/h • Angle: 10 degrees • Location/Orientation: The center of the channelizing device #8 	<p>9. Exit Conditions:</p> <ul style="list-style-type: none"> • Speed: 100.5 km/h (estimated) • Angle: 10 degrees (estimated) • Exit Box Criterion: Not applicable to longitudinal channelizers <p>10. Post-Impact Trajectory:</p> <ul style="list-style-type: none"> • Vehicle Stability: Satisfactory • Stopping Distance: 86.8 m downstream; .8 m laterally left <p>11. Occupant Risk:</p> <ul style="list-style-type: none"> • Longitudinal OIV: 1.34 m/s • Lateral OIV: 4.07 m/s • Longitudinal RA: 2.76 g • Lateral RA: 7.15 g <p>12. Test Article Damage: 6 segments of the channelizer detached from each other</p> <p>13. Test Article Deflections:</p> <ul style="list-style-type: none"> • Permanent Set: 71 m • Dynamic: 71 m (estimated) • Working Width: 86.8 meters at vehicle bumper height <p>14. Vehicle Damage: Slight</p> <ul style="list-style-type: none"> • VDS: N/A • CDC: 01FDLW1 • Maximum Deformation: 10 mm
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Figure 40. Summary of results for test 111114