U.S. Department
of Transportation
Federal Highway
Administration

January 29, 2019

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

In Reply Refer To:
HSST-1/B-314

Mr. Kinton Lawler
Asset Integrity Management Solutions, LLC
1617 Peach Leaf Street
Houston, TX. 77039

Dear Mr. Lawler:

This letter is in response to your November 12, 2018 request for the Federal Highway Administration (FHWA) to review a roadside safety device, hardware, or system for eligibility for reimbursement under the Federal-aid highway program. This FHWA letter of eligibility is assigned FHWA control number B-314 and is valid until a subsequent letter is issued by FHWA that expressly references this device.

Decision

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

- AIMS Liferail Retrofit Bridge Rail

Scope of this Letter

To be found eligible for Federal-aid funding, new roadside safety devices should meet the crash test and evaluation criteria contained in the American Association of State Highway and Transportation Officials'(AASHTO) Manual for Assessing Safety Hardware (MASH). However, the FHWA, the Department of Transportation, and the United States Government do not regulate the manufacture of roadside safety devices. Eligibility for reimbursement under the Federal-aid highway program does not establish approval, certification or endorsement of the device for any particular purpose or use.

This letter is not a determination by the FHWA, the Department of Transportation, or the United States Government that a vehicle crash involving the device will result in any particular outcome, nor is it a guarantee of the in-service performance of this device. Proper manufacturing, installation, and maintenance are required in order for this device to function as tested.

This finding of eligibility is limited to the crashworthiness of the system and does not cover other structural features, nor conformity with the Manual on Uniform Traffic Control Devices.

Eligibility for Reimbursement

Based solely on a review of crash test results and certifications submitted by the manufacturer, and the crash test laboratory, FHWA agrees that the device described herein meets the crash test and evaluation criteria of the AASHTO's MASH. Therefore, the device is eligible for reimbursement under the Federal-aid highway program if installed under the range of tested conditions.

Name of system: AIMS Liferail Retrofit Bridge Rail
Type of system: Bridge Rail
Test Level: MASH Test Level 4 (TL4)
Testing conducted by: TamTI
Date of request: November 14, 2018

FHWA concurs with the recommendation of the accredited crash testing laboratory on the attached Form.

Full Description of the Eligible Device

The device and supporting documentation, including reports of the crash tests or other testing done, videos of any crash testing, and/or drawings of the device, are described in the attached form.

Notice

This eligibility letter is issued for the subject device as tested. Modifications made to the device are not covered by this letter. Any modifications to this device should be submitted to the user (i.e., state DOT) as per their requirements.

You are expected to supply potential users with sufficient information on design, installation and maintenance 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 AASHTO's MASH.

Issuance of this letter does not convey property rights of any sort or any exclusive privilege. This letter is based on the premise that information and reports submitted by you are accurate and correct. We reserve the right to modify or revoke this letter if: (1) there are any inaccuracies in the information submitted in support of your request for this letter, (2) the qualification testing was flawed, (3) in-service performance or other information reveals safety problems, (4) the system is significantly different from the version that was crash tested, or (5) any other information indicates that the letter was issued in error or otherwise does not reflect full and complete information about the crashworthiness of the system.

Standard Provisions

- To prevent misunderstanding by others, this letter of eligibility designated as FHWA control number B-314 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 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.

- This FHWA eligibility letter is not an expression of any Agency view, position, or determination of validity, scope, or ownership of any intellectual property rights to a specific device or design. Further, this letter does not impute any distribution or licensing rights to the requester. This FHWA eligibility letter determination is made based solely on the crash-testing information submitted by the requester. The FHWA reserves the right to review and revoke an earlier eligibility determination after receipt of subsequent information related to crash testing.

- If the subject device is a patented product it may be considered to be 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,

Michael S. Griffith

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

Enclosures

Request for Federal Aid Reimbursement Eligibility of Highway Safety Hardware

Submitter	Date of Request:	November 12, 2018	◉ New ○ Resubmission
	Name:	Kinton Lawler	
	Company:	Asset Integrity Management Solutions, LLC dba AIMS International	
	Address:	1617 Peach Leaf Street, Houston, TX 77039	
	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.

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	AIMS Liferail Retrofit Bridge Rail	AASHTO MASH	TL4

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:	Kinton Lawler	Same as Submitter ☒
Company Name:	Asset Integrity Management Solutions, LLC dba AIMS International	Same as Submitter ☒
Address:	1617 Peach Leaf Street, Houston, TX 77039	Same as Submitter ☒
Country:	USA	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.		
Texas A&M Transportation Institute (TTI) was contracted by AIMS International to perform full-scale crash testing of the AIMS Liferail Retrofit Bridge Rail. There are no shared financial interests in the AIMS Liferail Retrofit Bridge Rail by TTI, or between AIMS International and TTI, other than costs involved in the actual crash tests and reports for this submission to FHWA.		

PRODUCT DESCRIPTION

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

The AIMS Liferail retrofit bridge rail test article was comprised of four 40-ft long double fiberglass reinforced plastic (FRP) rail segments (with 2¼-inch long expansion gaps) for a total length of 160 ft-6¾ inches. Each hollow FRP rail element measured 40-ft long × 6½-inches wide × 4-inches tall.

Each rail segment was supported by 6 fabricated stainless steel posts, each 21-½ inches tall, for a total of 24 posts. The posts were anchored to the top of a 25-inch tall concrete sectionalized curb and parapet that was a reproduction of the existing structure on the Lake Pontchartrain Causeway Bridge. The top of the parapet extended 15 inches above the top of the curb. The curb was 28 inches wide × 10 inches tall (nominal) with a 2-inch deep backwards sloping traffic side face (11.3 degrees) and a 2-inch radius shoulder.

The double FRP bridge rail measured 46-3/16 inches in overall height (to the top of the upper rail) above the bridge deck. The top of the lower rail measured 33-⅝ inches above the bridge deck. The traffic-side face of the FRP rail elements were located approximately 1¼ inches out from and beyond the traffic-side face of the parapet, or 16¾ inches to the toe of the curb.

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:	William F. Williams, P.E.	
Engineer Signature:	William Williams Digitally signed by William Williams Date: 2018.11.13 12:02:11 -06'00'	
Address:	TTI, TAMU 3135, College Station, TX 77843-3135	Same as Submitter ☐
Country:	USA	Same as Submitter ☐

A brief description of each crash test and its result:

Required Test Number	Narrative Description	Evaluation Results
4-10 (1100C)	Test 4-10 involves an 1100C vehicle impacting the test article at a target impact speed of 62 mi/h and target angle of 25°. The target CIP for the right corner of the front bumper was 3.6 ft upstream of centerline of the second joint in the concrete parapet (between posts 11 & 12). The results of the test conducted on September 26, 2017 are found in TTI Test Report No. 690900-AIM 1-3. The test vehicle was traveling at an impact speed of 63.5 mi/h as it made contact with AIMS Liferail Retrofit Barrier 3.8 ft upstream of the second parapet joint (between posts 11 and 12) and at an impact angle of 24.6°. After loss of contact with the barrier, the vehicle came to rest 235 ft downstream of the impact point and 33 ft toward the traffic lanes. The bridge rail contained and redirected the 1100C vehicle. The vehicle did not penetrate, underride, or override the installation. Maximum dynamic deflection during the test was 1.0 inch at the top of the barrier. Maximum permanent deformation was 0.62 inch. Working width was 7.5 inches. No detached elements, fragments, or other debris were present to penetrate or show potential for penetrating the occupant compartment, or present undue hazard to others in the area. Maximum occupant compartment deformation was 2.0 inches in the right front firewall area. The 1100C vehicle remained upright during and after the collision event. Maximum roll and pitch angles were 10° and 5°, respectively. Longitudinal OIV was 19.4 ft/s, and lateral OIV was 27.9 ft/s. Maximum longitudinal ridedown acceleration was 5.4 g, and maximum lateral ridedown acceleration was 9.0 g. Maximum exterior crush to the vehicle was 13.0 inches in the side plane at the right front corner at bumper height. The bridge rail performed acceptably for MASH test 4-10.	PASS

Required Test Number	Narrative Description	Evaluation Results
4-11 (2270P)	Test 4-11 involves an 2270P vehicle impacting the test article at a target impact speed of 62 mi/h and target angle of 25°. The target CIP for the right corner of the front bumper was 4.3 ft upstream of centerline of the third joint in the concrete parapet (between posts 17 & 18). The results of the test conducted on September 25, 2017 are found in TTI Test Report No. 690900-AIM 1-3. The test vehicle was traveling at an impact speed of 63.4 mi/h as it made contact with AIMS Liferail Retrofit Barrier 4.5 ft upstream of the third parapet joint (between posts 17 and 18) and at an impact angle of 24.4°. After loss of contact with the barrier, the vehicle came to rest 190 ft downstream of the impact point and 14 ft toward the field side. The bridge rail contained and redirected the 2270P vehicle. The vehicle did not penetrate, underride, or override the installation. Maximum dynamic deflection during the test was 11.1 inch at the top of the barrier. Maximum permanent deformation was 3.0 inches. Working width was 24 inches. No detached elements, fragments, or other debris were present to penetrate or show potential for penetrating the occupant compartment, or present undue hazard to others in the area. Maximum occupant compartment deformation was 4.5 inches in the right front firewall area near the toe pan. The 2270P vehicle remained upright during and after the collision event. Maximum roll and pitch angles were 16° and 12°, respectively. Longitudinal OIV was 18.0 ft/s, and lateral OIV was 21.0 ft/s. Maximum longitudinal ridedown acceleration was 20.3 g, and maximum lateral ridedown acceleration was 10.4 g. Maximum exterior crush to the vehicle was 16.0 inches in the side plane at the right front corner at bumper height. The bridge rail performed acceptably for MASH test 4-11.	PASS

4-12 (10000S)	Test 4-12 involves a 10000S vehicle impacting the test article at a target impact speed of 56 mi/h and target angle of 15°. The target CIP for the right corner of the front bumper was 5.0 ft upstream of centerline of the first joint in the concrete parapet (between posts 5 & 6). The results of the test conducted on September 22, 2017 are found in TTI Test Report No. 690900-AIM 1-3. The test vehicle was traveling at an impact speed of 58.3 mi/h as it made contact with AIMS Liferail Retrofit Barrier 4.6 ft upstream of the third parapet joint (between posts 5 and 6) and at an impact angle of 15.0°. After loss of contact with the barrier, the vehicle came to rest 306 ft downstream of the impact point and 38 ft toward the field side. The bridge rail contained and redirected the 10000S vehicle. The vehicle did not penetrate, underride, or override the installation. Maximum dynamic deflection during the test was not determinable due to obscured views. Maximum permanent deformation was 6.25 inches. Working width was 3.8 feet. No detached elements, fragments, or other debris were present to penetrate or show potential for penetrating the occupant compartment, or present undue hazard to others in the area. No occupant compartment deformation was observed. The 10000S vehicle remained upright during and after the collision event. Maximum roll and pitch angles were 29° and 13°, respectively. Longitudinal OIV was 6.6 ft/s, and lateral OIV was 11.5 ft/s. Maximum longitudinal ridedown acceleration was 4.3 g, and maximum lateral ridedown acceleration was 4.4 g. Maximum exterior crush to the vehicle was 14.0 inches in the side plane at the right front corner. The bridge rail performed acceptably for MASH test 4-12.	PASS
4-20 (1100C)	This product is not a Transition System.	Non-Relevant Test, not conducted
4-21 (2270P)	This product is not a Transition System.	Non-Relevant Test, not conducted
4-22 (10000S)	This product is not a Transition System.	Non-Relevant Test, 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:	Texas AM Transportation Institute	
Laboratory Signature:	Darrell L. Kuhn Digitally signed by Darrell L. Kuhn Date: 2018.11.13 15:16:14 -06'00'	
Address:	TTI, TAMU 3135, College Station, TX 77843-3135	Same as Submitter ☐
Country:	USA	Same as Submitter ☐
Accreditation Certificate Number and Dates of current Accreditation period :	ISO 17025 Laboratory Certificate Number: 2821.01 Valid To: April 30, 2019	

Submitter Signature*: Kinton Lawler Digitally signed by Kinton Lawler DN: cn=Kinton Lawler, o=AIMS International, LLC, ou=CEO, email=kinton@aims-intl.com, c=US Date: 2018.11.14 07:54:38 -06'00'

Submit Form

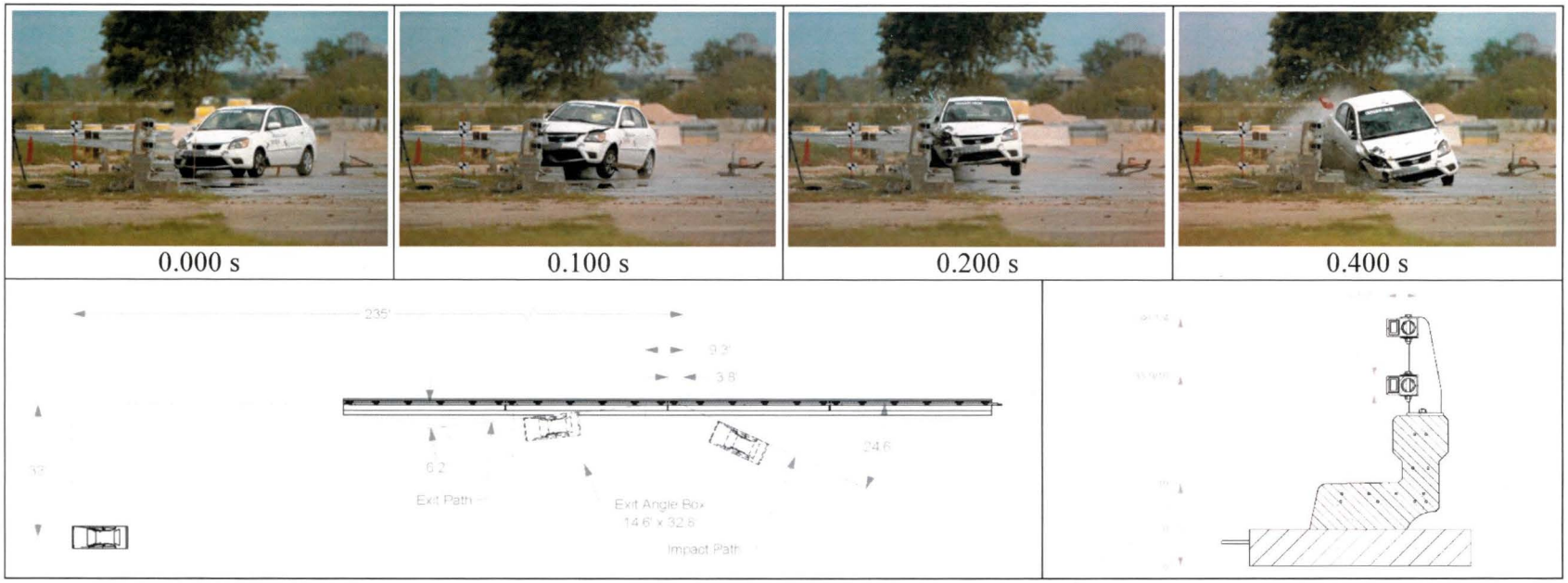
ATTACHMENTS

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



General Information
- Test Agency ..... Texas A&M Transportation Institute (TTI)
- Test Standard Test No. ..... MASH Test 4-10
- TTI Test No. 690900-AIM3
- Test Date 2017-09-26

Test Article
- Type ..... Bridge Rail Retrofit
- Name ..... AIMS International Bridge Rail Retrofit
- Installation Length ..... 160 ft-6¾ inches
- Material or Key Elements ... Double fiberglass reinforced plastic (FRP) rail with steel posts on a concrete parapet

Soil Type and Condition ..... Concrete Bridge Deck, Damp

Test Vehicle
- Type/Designation 1100C
- Make and Model ..... 2011 Kia Rio
- Curb ..... 2469 lb
- Test Inertial ..... 2439 lb
- Dummy ..... 165 lb
- Gross Static ..... 2604 lb

Impact Conditions
- Speed ..... 63.5 mi/h
- Angle ..... 24.6°
- Location/Orientation ..... 3.8 ft upstream of joint 11-12

Impact Severity ..... 57 kip-ft

Exit Conditions
- Speed ..... 49.2 mi/h
- Angle ..... 6.2°

Occupant Risk Values
- Longitudinal OIV ..... 19.4 ft/s
- Lateral OIV ..... 27.9 ft/s
- Longitudinal Ridedown ..... 5.4 g
- Lateral Ridedown ..... 9.0 g
- THIV ..... 36.9 km/h
- PHD ..... 11.2 g
- ASI 1.71

Max. 0.050-s Average
- Longitudinal ..... -8.4 g
- Lateral ..... -13.5 g
- Vertical ..... -5.9 g

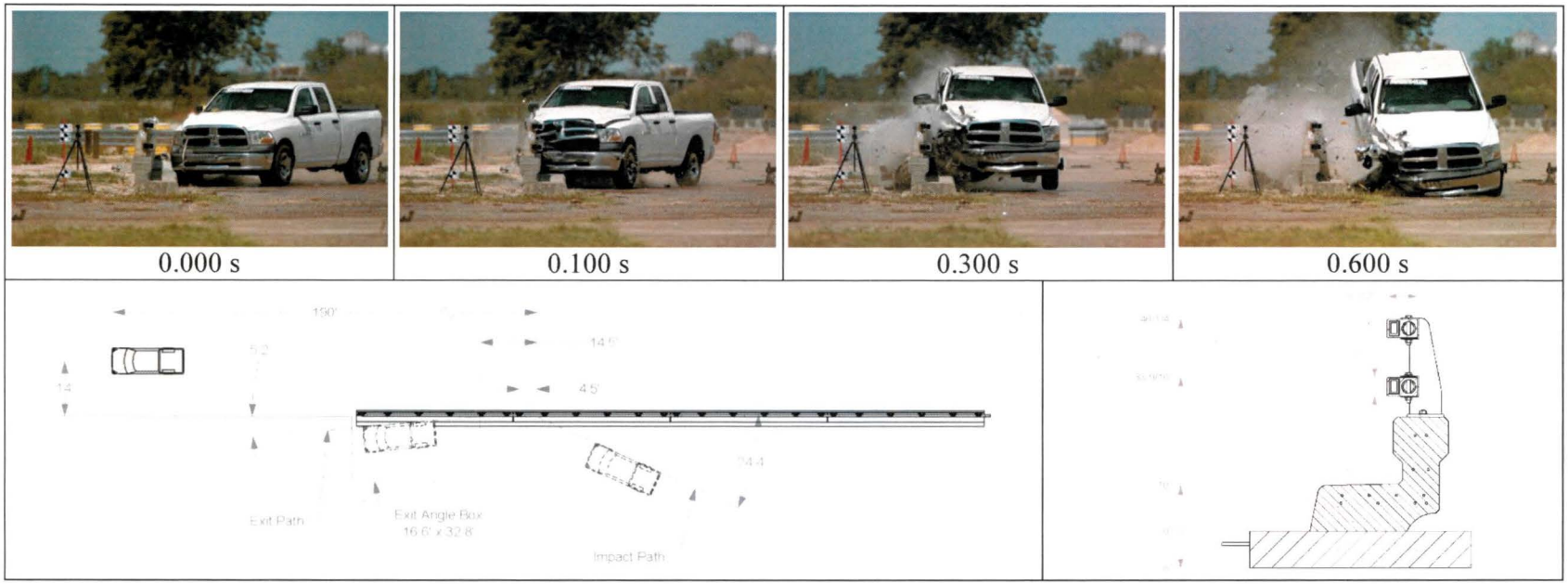
Post-Impact Trajectory
- Stopping Distance ..... 235 ft downstream 33 ft twd traffic

Vehicle Stability
- Maximum Yaw Angle ..... 30°
- Maximum Pitch Angle ..... 5°
- Maximum Roll Angle ..... 10°
- Vehicle Snagging ..... No
- Vehicle Pocketing ..... No

Test Article Deflections
- Dynamic ..... 1.0 inch
- Permanent ..... 0.62 inch
- Working Width ..... 7.5 inches
- Height of Working Width ..... 3.8 ft

Vehicle Damage
- VDS 01RFQ5
- CDC 01FREW4
- Max. Exterior Deformation ..... 13.0 inches
- OCDI FR0010000
- Max. Occupant Compartment Deformation ..... 2.0 inches

Figure 7.6. Summary of Results for *MASH* Test 4-10 on AIMS International Retrofit Bridge Rail Option 1.



General Information
- Test Agency ..... Texas A&M Transportation Institute (TTI)
- Test Standard Test No. ..... MASH Test 4-11
- TTI Test No. 690900-AIM2
- Test Date 2017-09-25

Test Article
- Type ..... Bridge Rail Retrofit
- Name ..... AIMS International Bridge Rail Retrofit
- Installation Length ..... 160 ft-6¾ inches
- Material or Key Elements ... Double fiberglass reinforced plastic (FRP) rail with steel posts on a concrete parapet

Soil Type and Condition ..... Concrete Bridge Deck, Damp

Test Vehicle
- Type/Designation 2270P
- Make and Model ..... 2012 Dodge RAM 1500 Pickup
- Curb ..... 4913 lb
- Test Inertial ..... 5034 lb
- Dummy ..... 165 lb
- Gross Static ..... 5199 lb

Impact Conditions
- Speed ..... 63.4 mi/h
- Angle ..... 24.4°
- Location/Orientation ..... 4.5 ft upstream of joint 18-19

Impact Severity ..... 116 kip-ft

Exit Conditions
- Speed ..... 40.4 mi/h
- Angle ..... 5.2°

Occupant Risk Values
- Longitudinal OIV ..... 18.0 ft/s
- Lateral OIV ..... 21.0 ft/s
- Longitudinal Ridedown ..... 20.3 g
- Lateral Ridedown ..... 10.4 g
- THIV ..... 29.8 km/h
- PHD ..... 21.3 g
- ASI 1.46

Max. 0.050-s Average
- Longitudinal ..... -9.0 g
- Lateral ..... -11.3 g
- Vertical ..... 3.5 g

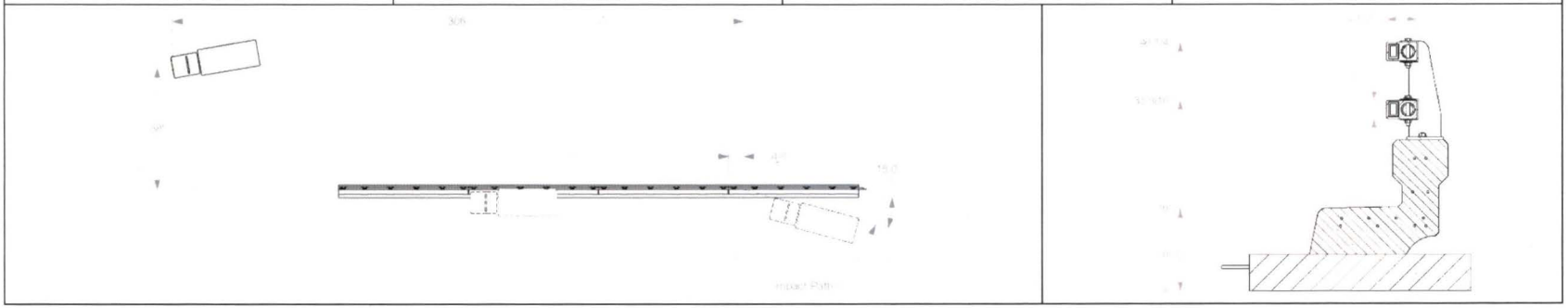
Post-Impact Trajectory
- Stopping Distance ..... 190 ft downstream 14.0 ft twd field side

Vehicle Stability
- Maximum Yaw Angle ..... 29°
- Maximum Pitch Angle ..... 12°
- Maximum Roll Angle ..... 16°
- Vehicle Snagging ..... No
- Vehicle Pocketing ..... No

Test Article Deflections
- Dynamic ..... 11.1 inches
- Permanent ..... 3.0 inches
- Working Width ..... 2.0 ft
- Height of Working Width ..... 5.1 ft

Vehicle Damage
- VDS 01RFQ5
- CDC 01RFEW3
- Max. Exterior Deformation ..... 16.0 inches
- OCDI FR0002000
- Max. Occupant Compartment Deformation ..... 4.5 inches

Figure 6.9. Summary of Results for *MASH* Test 4-10 on AIMS International Retrofit Bridge Rail Option 1.



General Information
- Test Agency ..... Texas A&M Transportation Institute (TTI)
- Test Standard Test No. ..... MASH Test 4-12
- TTI Test No. 690900-AIM1
- Test Date 2017-09-22

Test Article
- Type ..... Bridge Rail Retrofit
- Name ..... AIMS International Bridge Rail Retrofit
- Installation Length ..... 160 ft-6¾ inches
- Material or Key Elements ... Double fiberglass reinforced plastic (FRP) rail with steel posts on a concrete parapet

Soil Type and Condition ..... Concrete Bridge Deck, Damp

Test Vehicle
- Type/Designation 10000S
- Make and Model ..... 2011 International 4300 Single-Unit Truck
- Curb ..... 13,750 lb
- Test Inertial ..... 22,130 lb
- Dummy ..... No dummy
- Gross Static ..... 22,130 lb

Impact Conditions
- Speed ..... 58.3 mi/h
- Angle ..... 15.0°
- Location/Orientation ..... 4.6 ft upstream of joint 6 - 7

Impact Severity ..... 168 kip-ft

Exit Conditions
- Speed ..... 56.6 mi/h
- Angle ..... 0°

Occupant Risk Values
- Longitudinal OIV ..... 6.6 ft/s
- Lateral OIV ..... 11.5 ft/s
- Longitudinal Ridedown ..... 4.3 g
- Lateral Ridedown ..... 4.4 g
- THIV ..... 15.1 km/h
- PHD ..... 5.3 g
- ASI 0.39

Max. 0.050-s Average
- Longitudinal ..... -1.7 g
- Lateral ..... -3.7 g
- Vertical ..... -4.3 g

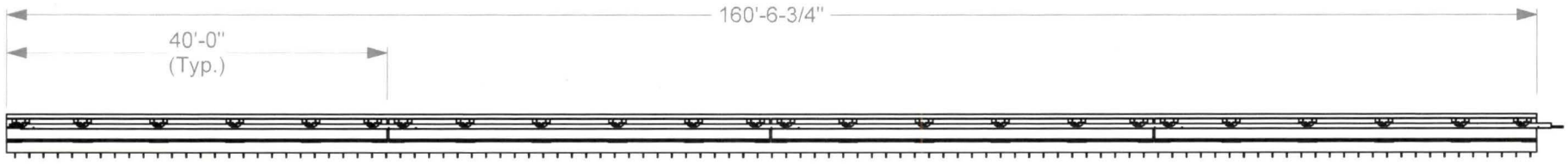
Post-Impact Trajectory
- Stopping Distance ..... 306 ft downstream 38 ft twd field side

Vehicle Stability
- Maximum Yaw Angle ..... 16°
- Maximum Pitch Angle ..... 13°
- Maximum Roll Angle ..... 29°
- Vehicle Snagging ..... Yes
- Vehicle Pocketing ..... No

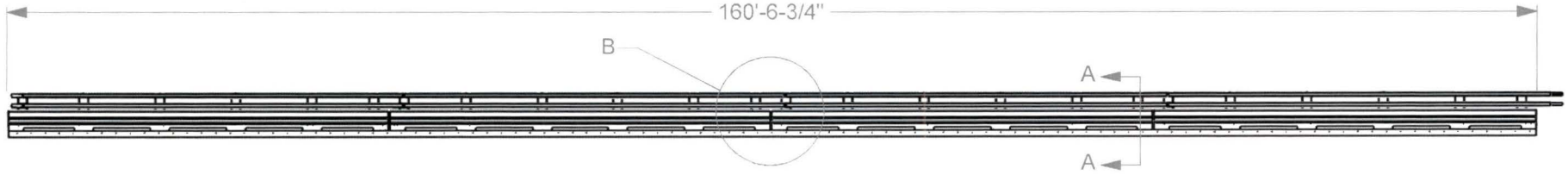
Test Article Deflections
- Dynamic ..... Obscured
- Permanent ..... 6.25 inches
- Working Width ..... 3.8 ft
- Height of Working Width ..... 9.6 ft

Vehicle Damage
- VDS ..... NA
- CDC 01FREW4
- Max. Exterior Deformation ..... 14.0 inches
- OCDI ..... NA
- Max. Occupant Compartment Deformation ..... None

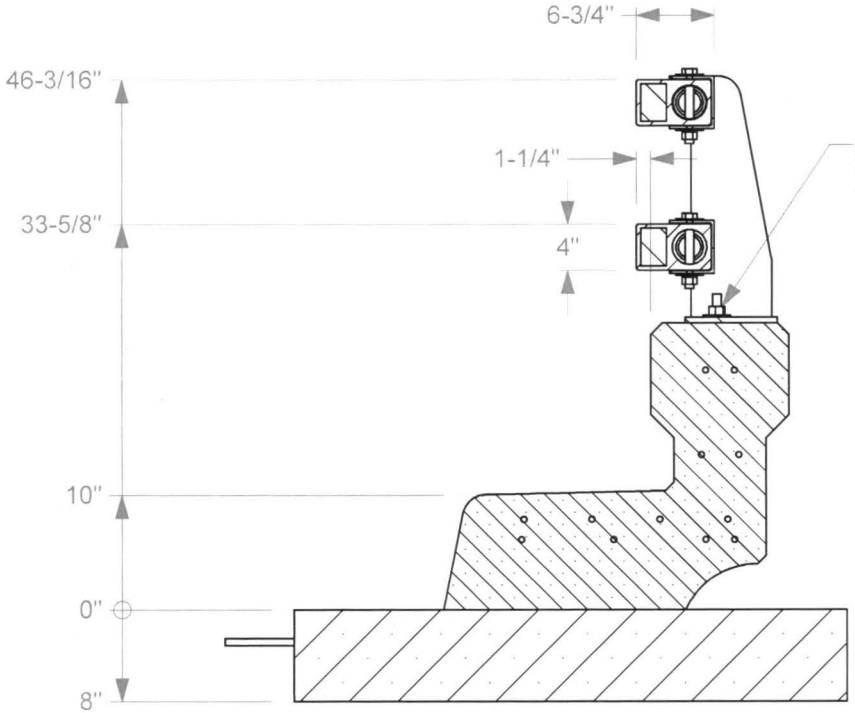
Figure 5.14. Summary of Results for *MASH* Test 4-12 on AIMS International Retrofit Bridge Rail Option 1.



Plan View



Elevation View



Section A-A
Scale 1 : 16

Texas A&M Transportation Institute

Roadside Safety and Physical Security Division - Proving Ground

Project #690900 AIMS TL-4 BRG. RAIL 2017-11-08

Drawn by TDS Scale 1:500 Sheet 1 of 13 Test Installation

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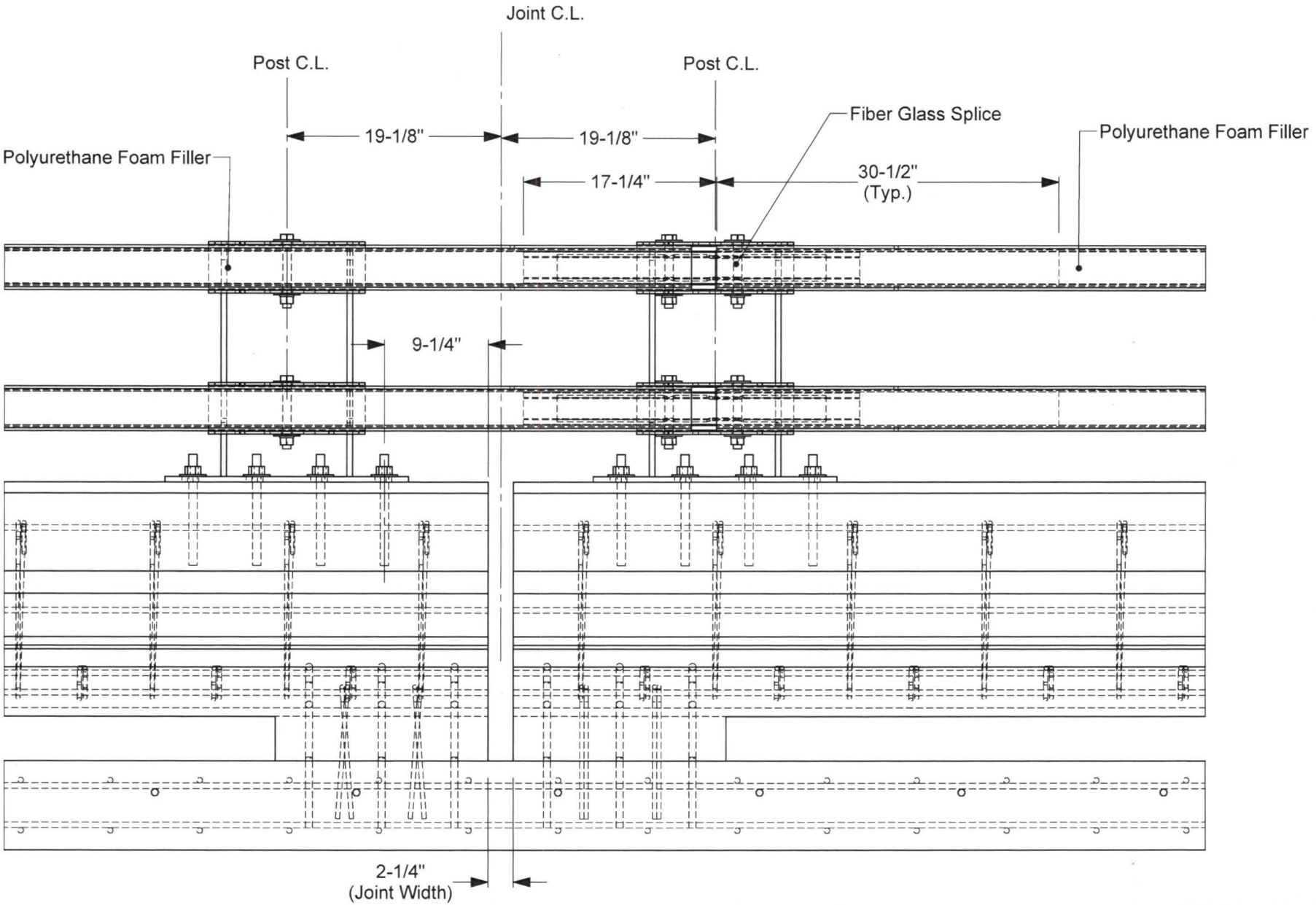

Texas A&M Transportation Institute

Roadside Safety and Physical Security Division - Proving Ground

Project #690900 AIMS TL-4 BRG. RAIL 2017-11-08

Drawn by TDS Scale 1:500 Sheet 2 of 13 Typical Joint Elevation View

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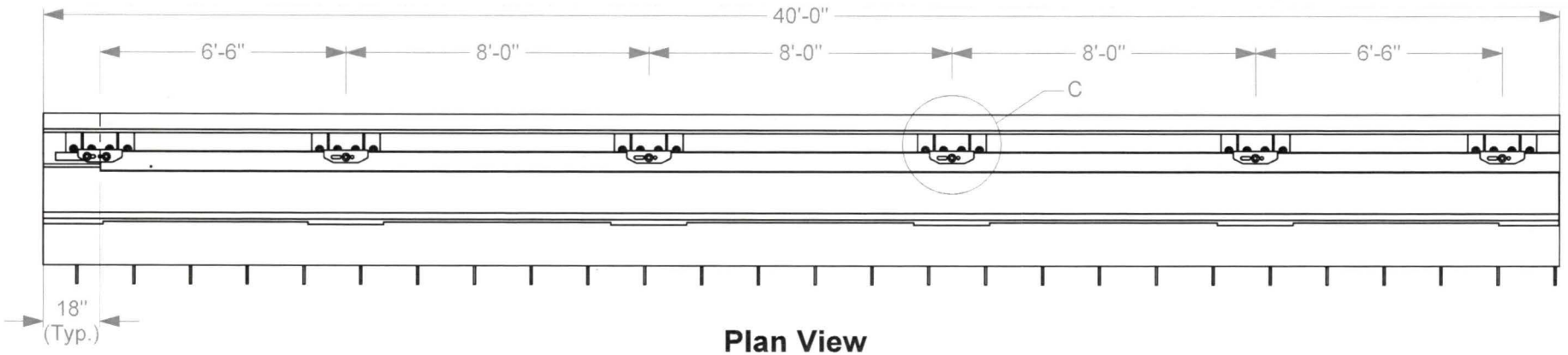
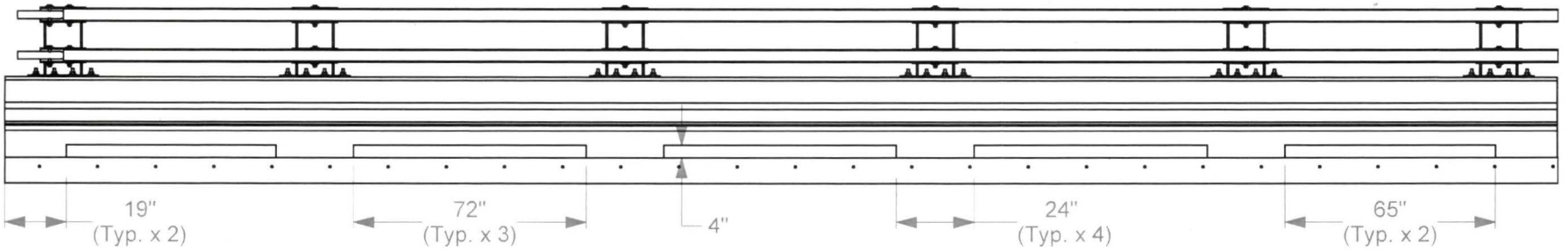
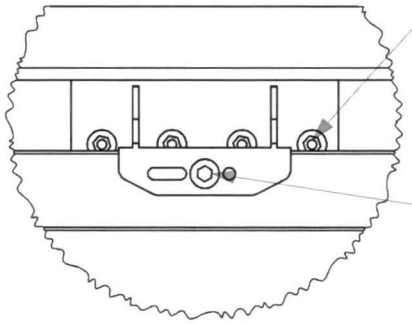


Plan View



Elevation View



Detail C
Scale 1 : 15

Texas A&M Transportation Institute

Roadside Safety and Physical Security Division - Proving Ground

Project #690900 AIMS TL-4 BRG. RAIL 2017-11-08

Drawn by TDS Scale 1:500 Sheet 3 of 13 Section Details

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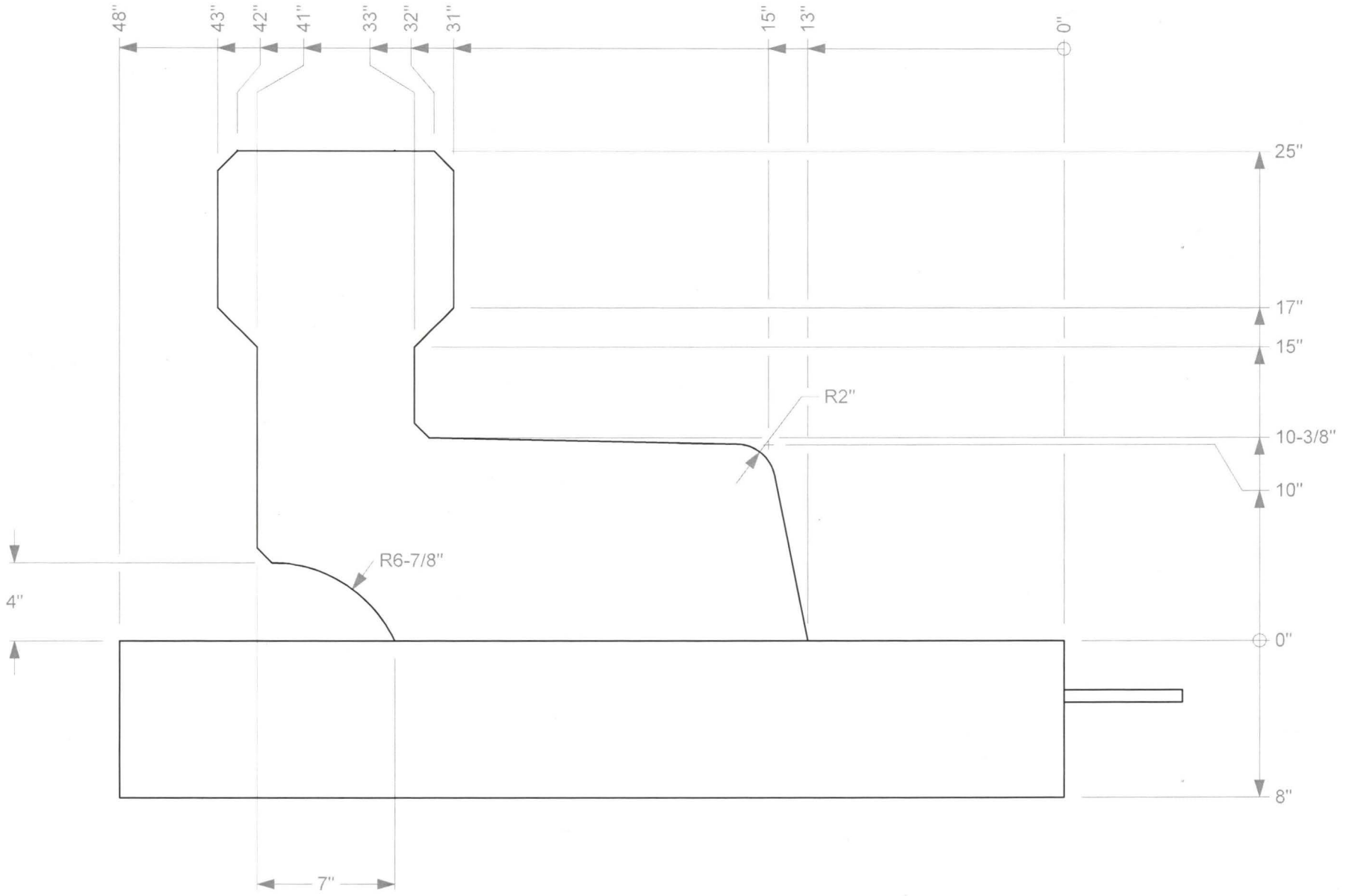

Texas A&M Transportation Institute

Roadside Safety and Physical Security Division - Proving Ground

Project #690900 AIMS TL-4 BRG. RAIL 2017-11-08

Drawn by TDS Scale 1:500 Sheet 4 of 13 Concrete Profile View

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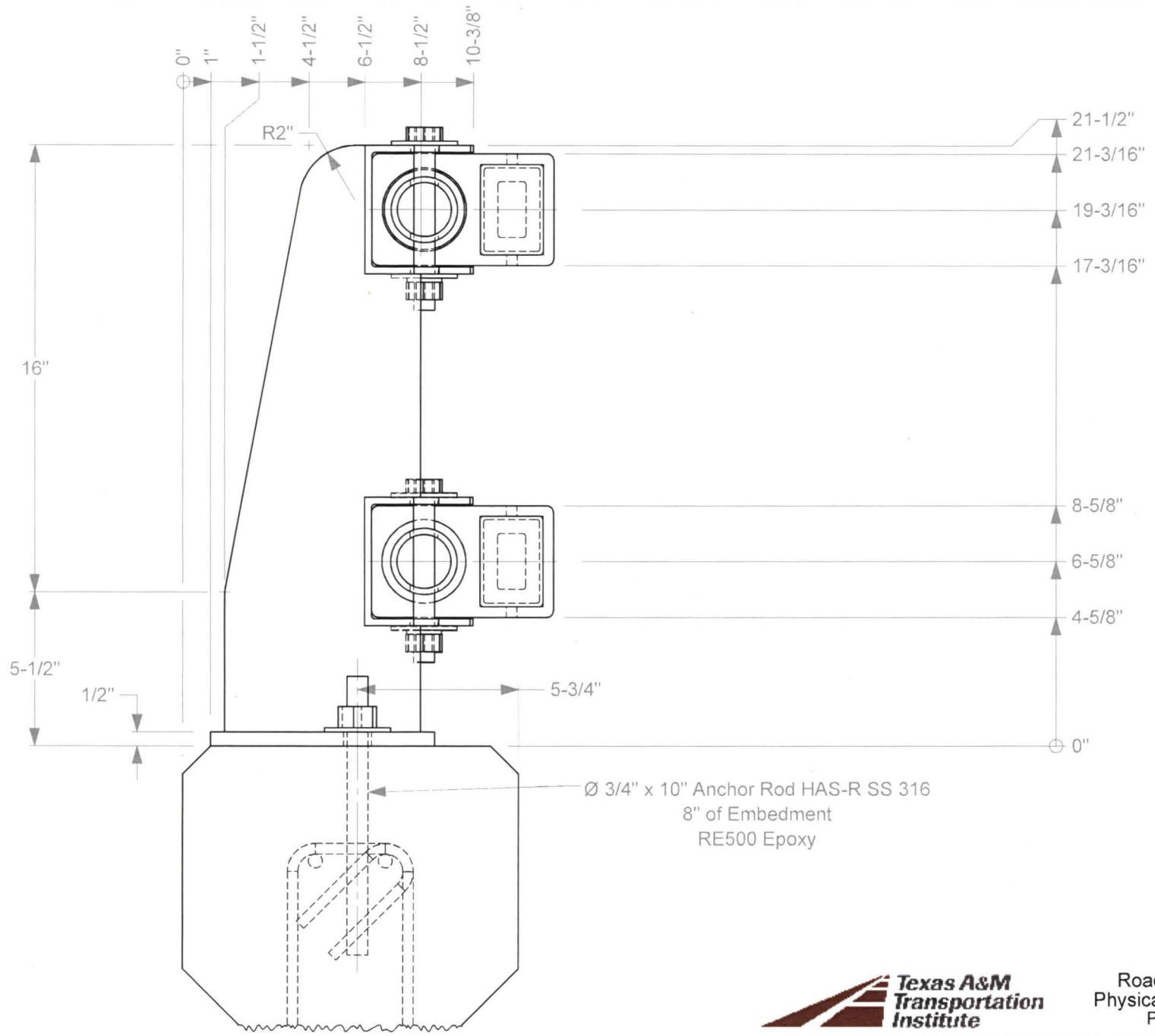

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Drawn by TDS Scale 1:500 Sheet 5 of 13 Profile View

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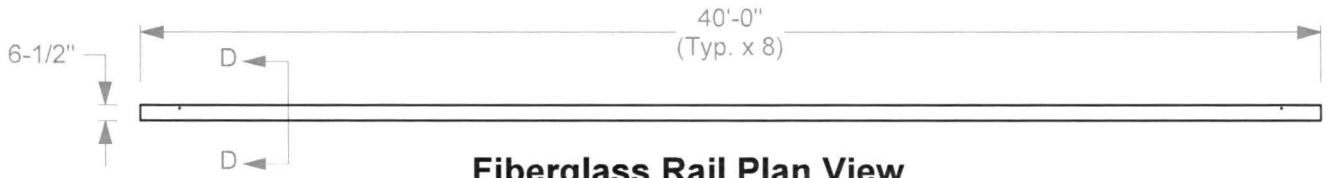
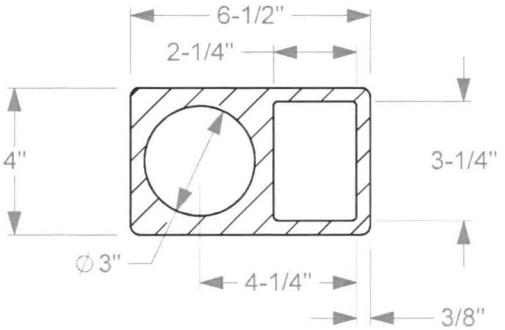
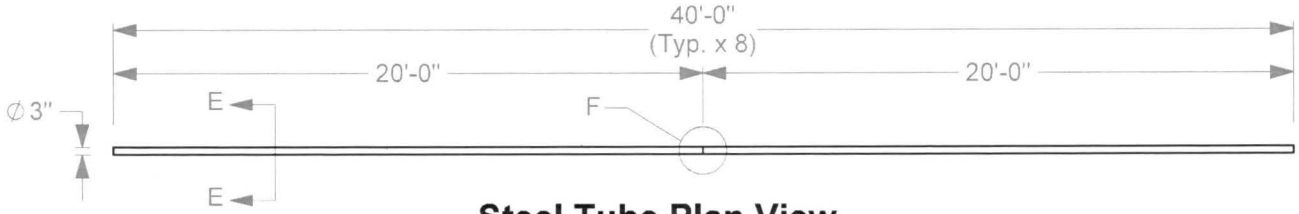


Fiberglass Rail Plan View

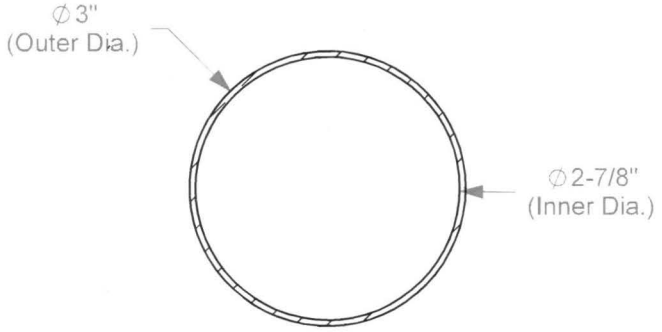


Section D-D

Scale 1 : 5

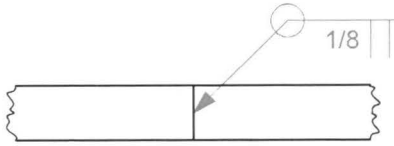


Steel Tube Plan View (316 SS)



Section E-E

Scale 1 : 2



Detail F

Scale 1 : 10

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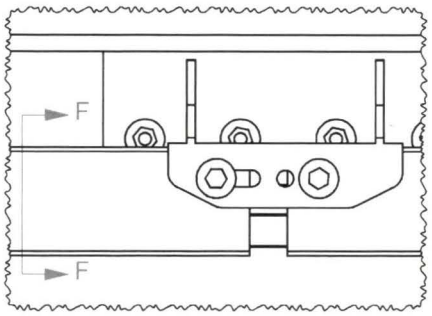
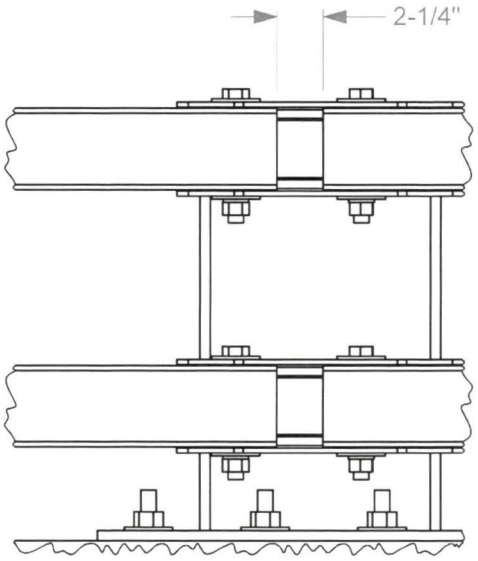
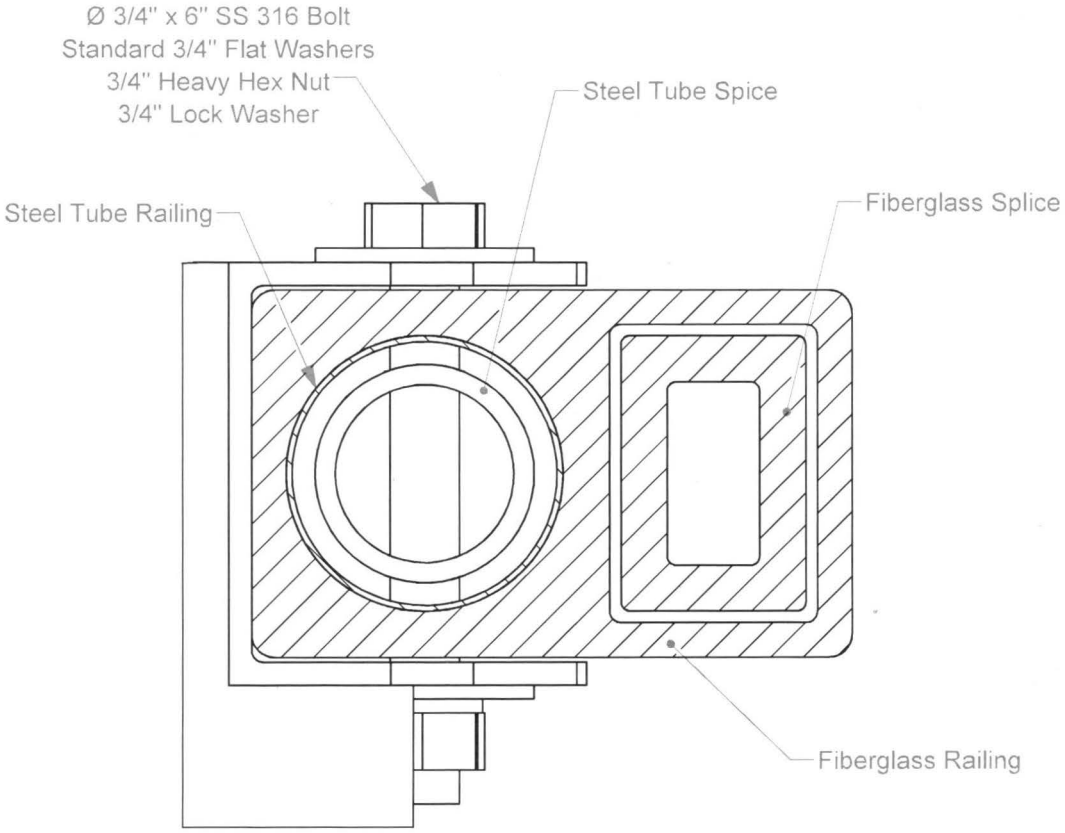


Splice Plan View



Splice Elevation View



Section F-F

Scale 1 : 2

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Drawn by TDS Scale 1:500 Sheet 7 of 13 Splice Detail 1

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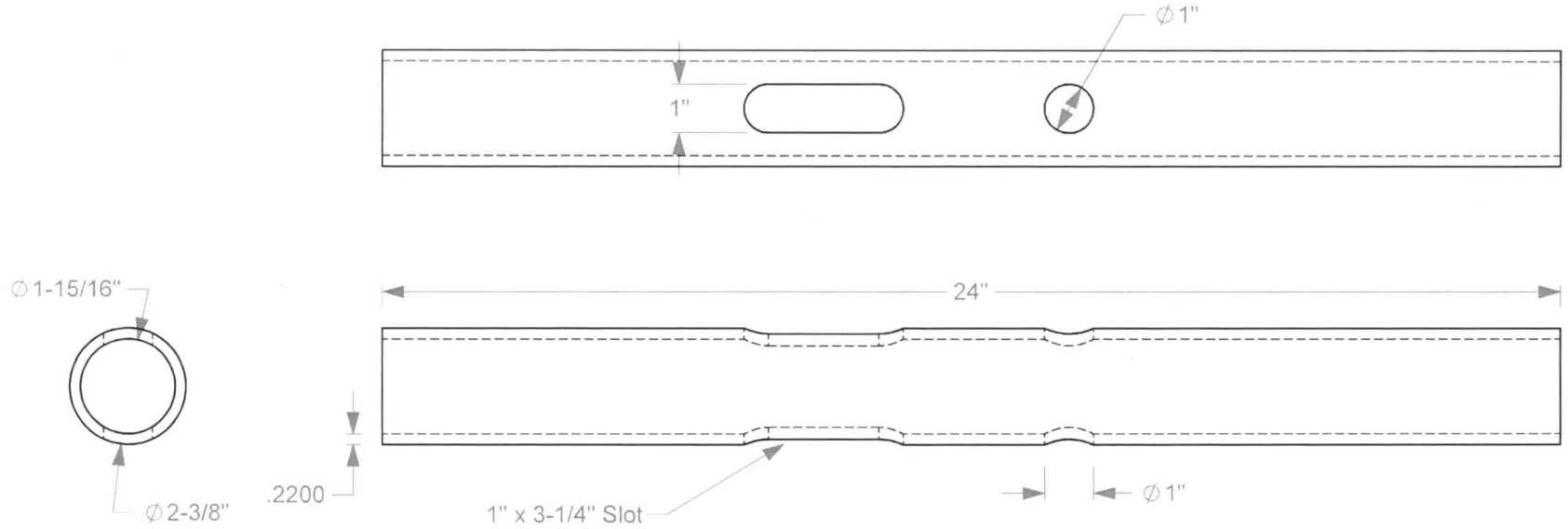

Steel Tube Splice - 2" SCH. 80
(316 SS)

Fiberglass Splice

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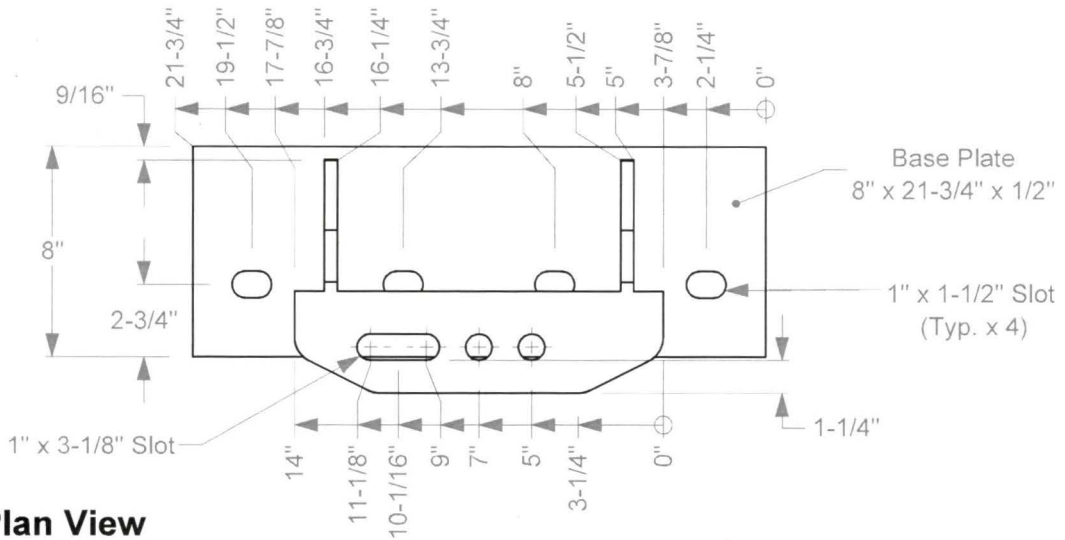
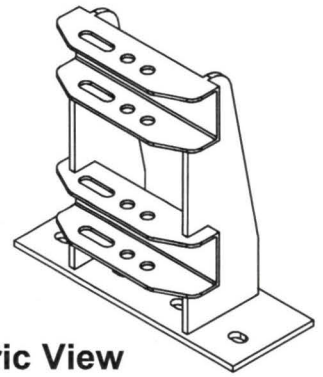
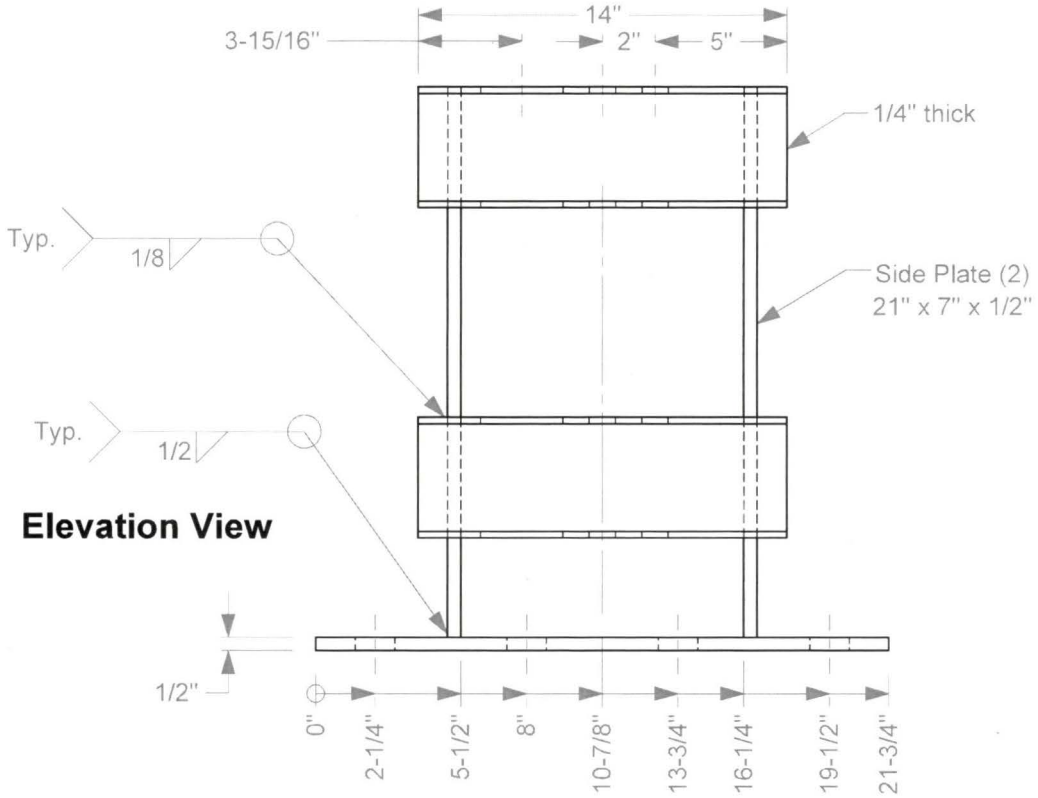


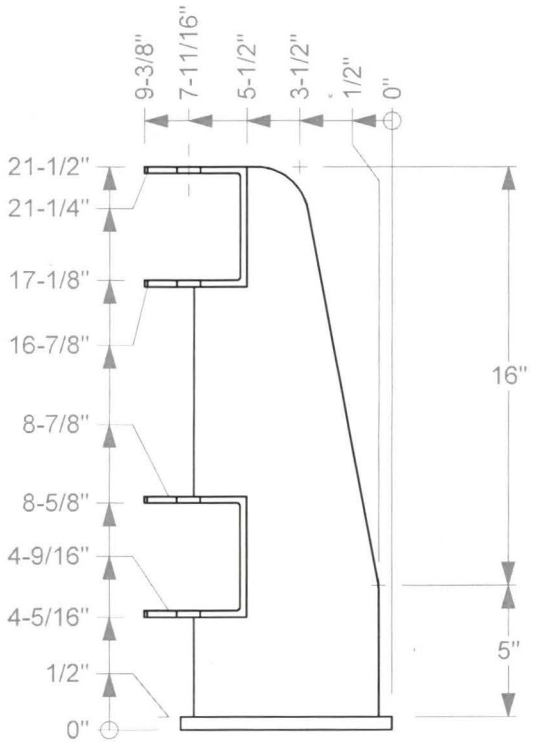
Plan View



Isometric View



Elevation View



Side Plate Details

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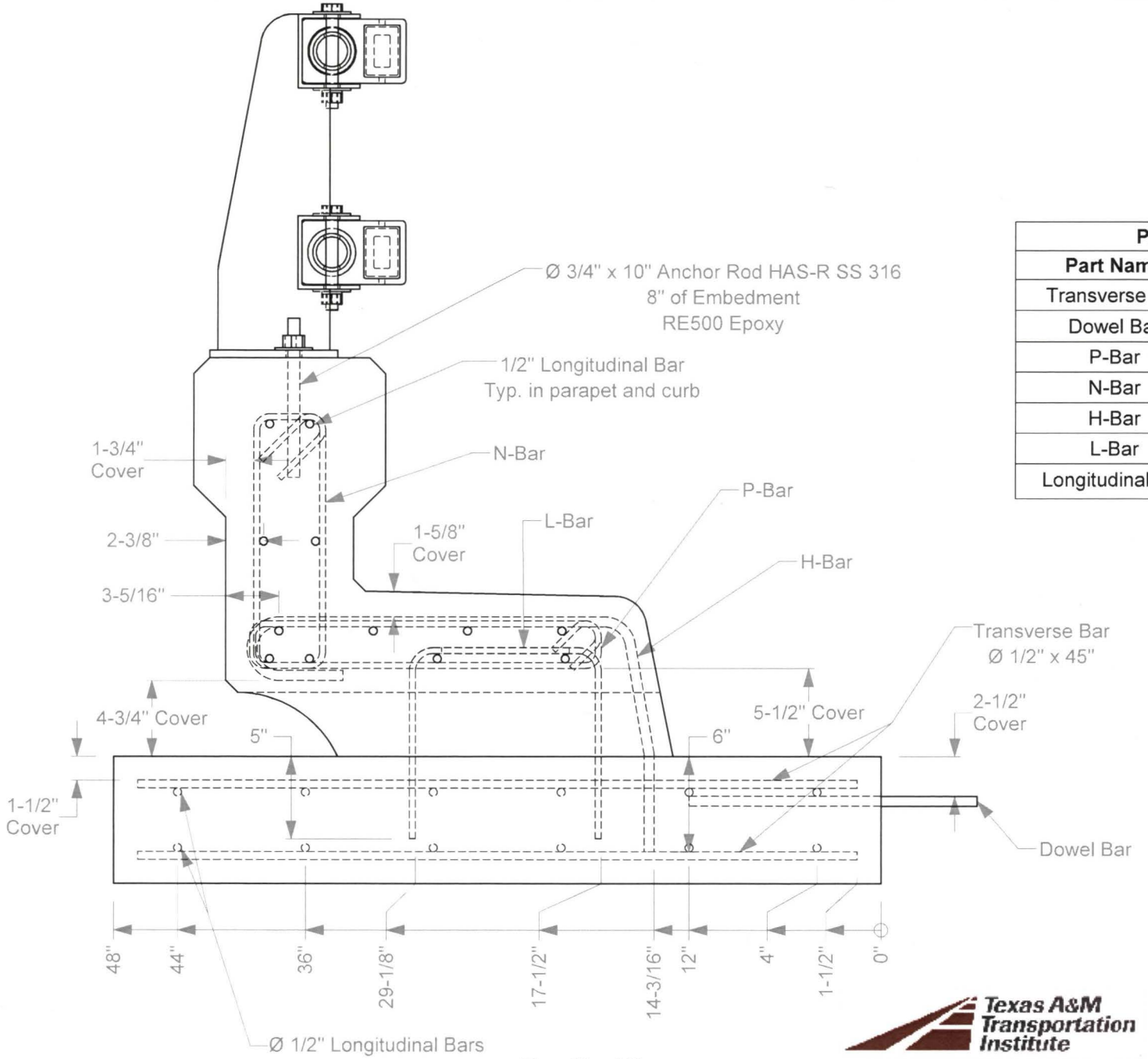

Profile View

Parts and Rebar	
Part Name	**QTY.**
Transverse Bar	241
Dowel Bar	107
P-Bar	164
N-Bar	177
H-Bar	72
L-Bar	104
Longitudinal Bar	12

Note:
L-Bar, H-Bar and Dowel Bar are all anchored with RE500 Epoxy adhesive

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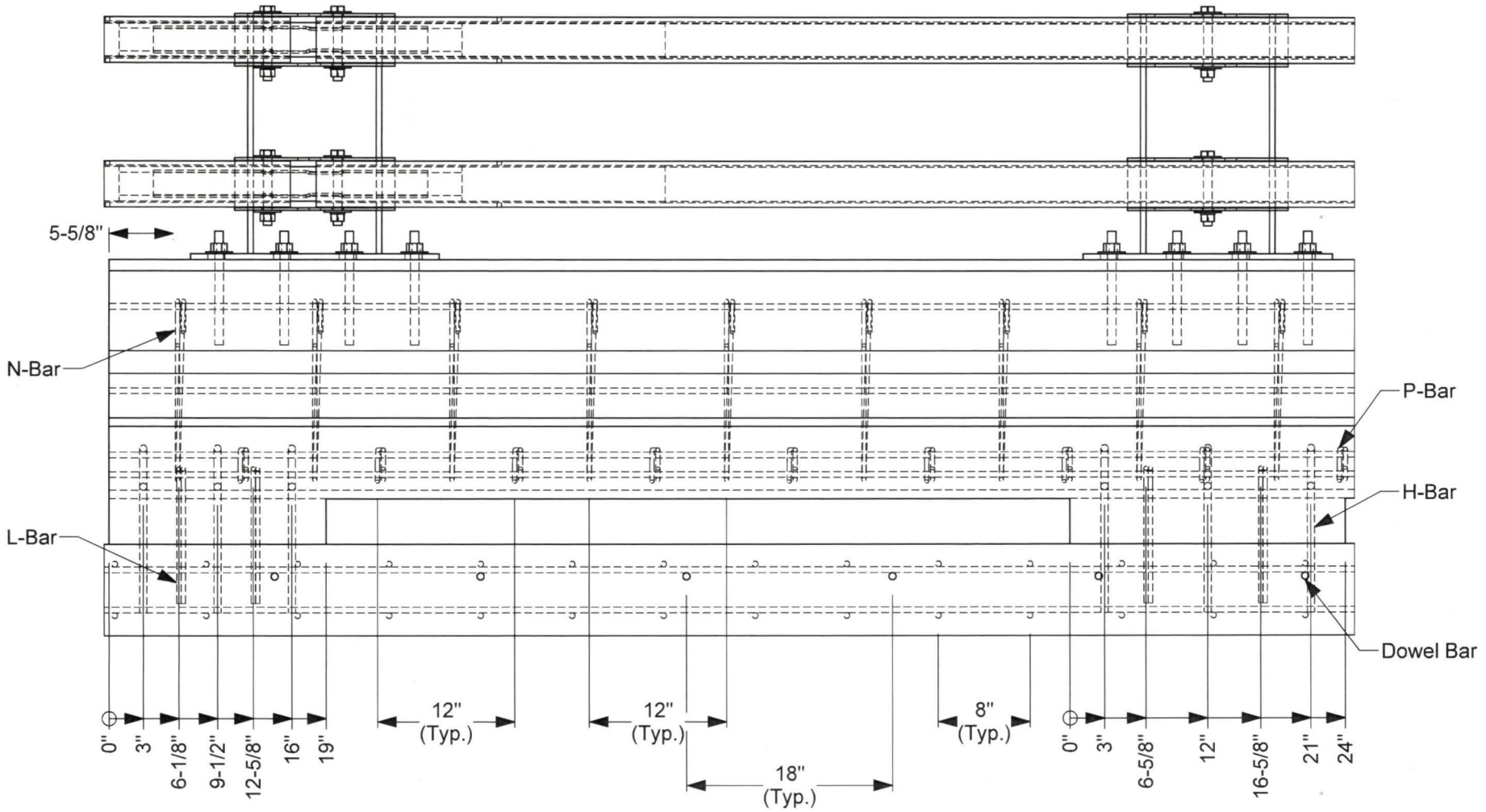

Elevation View

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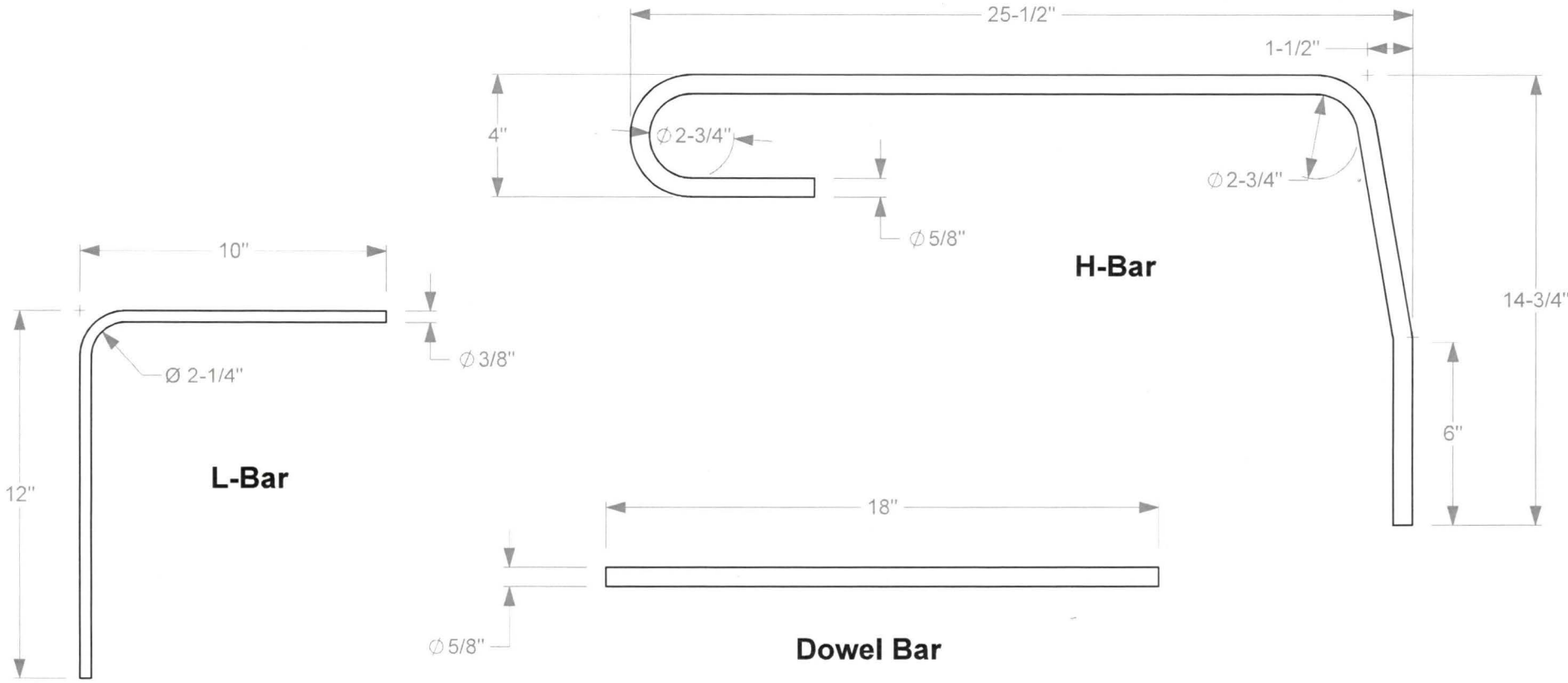
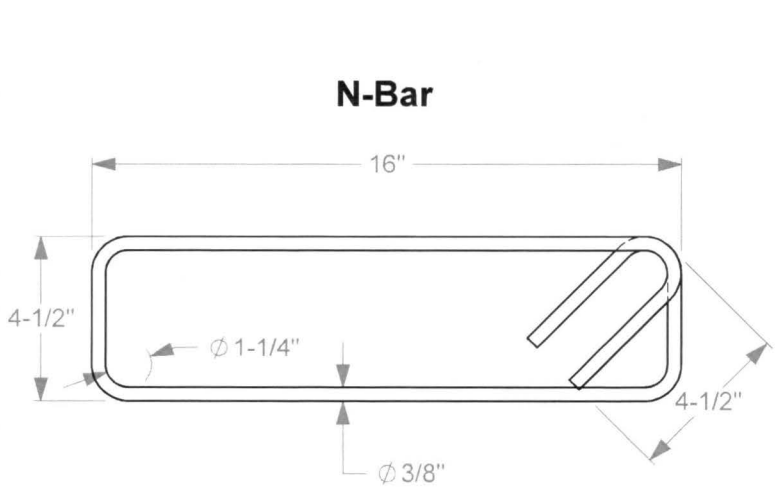
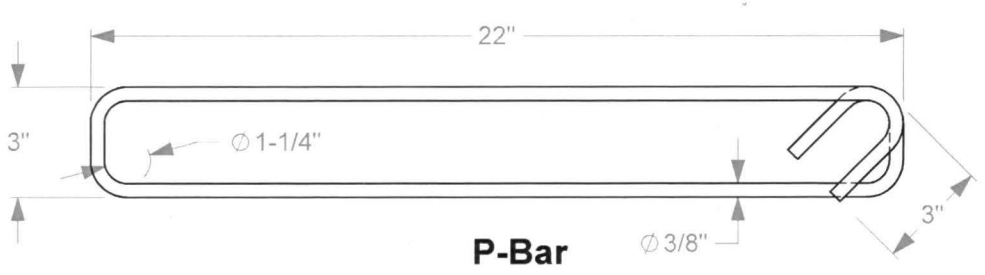
T:\1-ProjectFiles\690900-Compliance\AIM-Lake Pontchartrain-WFW\Drafting, AIM\Test Installation Drawings for Crash Test WFW\2017-11-01\AIMS Bridge Rail-TL-4-







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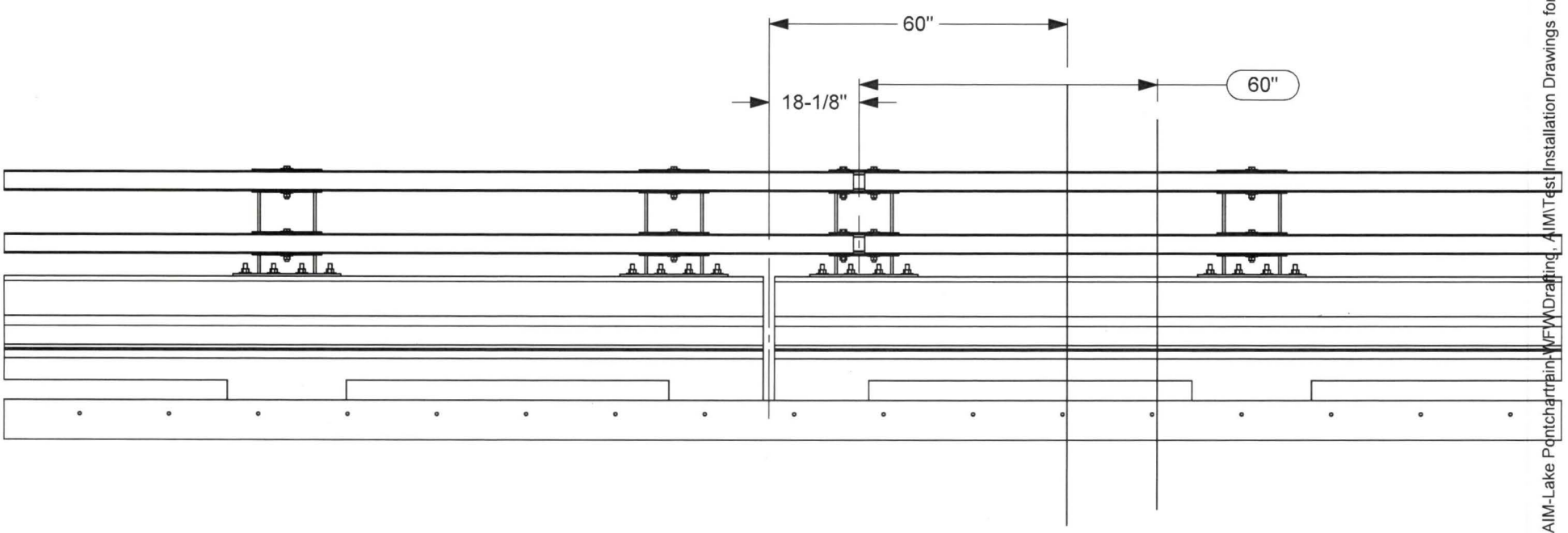

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