



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

1200 New Jersey Ave., S.E.
Washington, DC 20590

September 27, 2007

In Reply Refer To:
HSSD/WZ-259

Mr. John Simms
Vice President
Traffic Services, Inc.
405 East Terrace Drive
Plant City, FL 33563-9020

Dear Mr. Simms:

In your letter of August 14, 2007, you requested the Federal Highway Administration (FHWA) acceptance of your company's TSI S102 Sign Stand as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). Accompanying your letter was the FHWA Office of Safety Design form and test report documentation including a DVD compilation of relevant crash tests conducted by E-Tech Testing Services. A summary of the test results that include a drawing and specifications are enclosed for reference. You requested that we find this portable A-frame sign stand acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

This letter is the acknowledgement of the FHWA's acceptance of your request. The original completed form has been modified by the addition of the FHWA acceptance letter number WZ-259. The form, of which a copy is enclosed for reference, will be posted on our Web site in the near future.

Sincerely yours,

George E. Rice, Jr.
Acting Director, Office of Safety Design
Office of Safety

Enclosure



FHWA:HSSD:MLupes:tb:x66994:9/18/07

File: s://directory folder/mlupes/.doc

cc: HSSD (Reader, HSA; Chron File, HSSD; M.Lupes, HSSD
M.McDonough, HSSD)



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

1200 New Jersey Ave., S.E.
Washington, DC 20590

September 27, 2007

In Reply Refer To:
HSSD/WZ-259

Mr. John Simms
Vice President
Traffic Services, Inc.
405 East Terrace Drive
Plant City, FL 33563-9020

Dear Mr. Simms:

In your letter of August 14, 2007, you requested the Federal Highway Administration (FHWA) acceptance of your company's TSI S102 Sign Stand as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). Accompanying your letter was the FHWA Office of Safety Design form and test report documentation including a DVD compilation of relevant crash tests conducted by E-Tech Testing Services. A summary of the test results that include a drawing and specifications are enclosed for reference. You requested that we find this portable A-frame sign stand acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

This letter is the acknowledgement of the FHWA's acceptance of your request. The original completed form has been modified by the addition of the FHWA acceptance letter number WZ-259. The form, of which a copy is enclosed for reference, will be posted on our Web site in the near future.


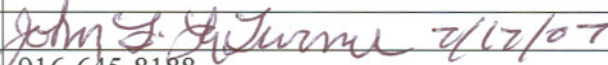
Sincerely yours,



George E. Rice, Jr.
Acting Director, Office of Safety Design
Office of Safety

Enclosure



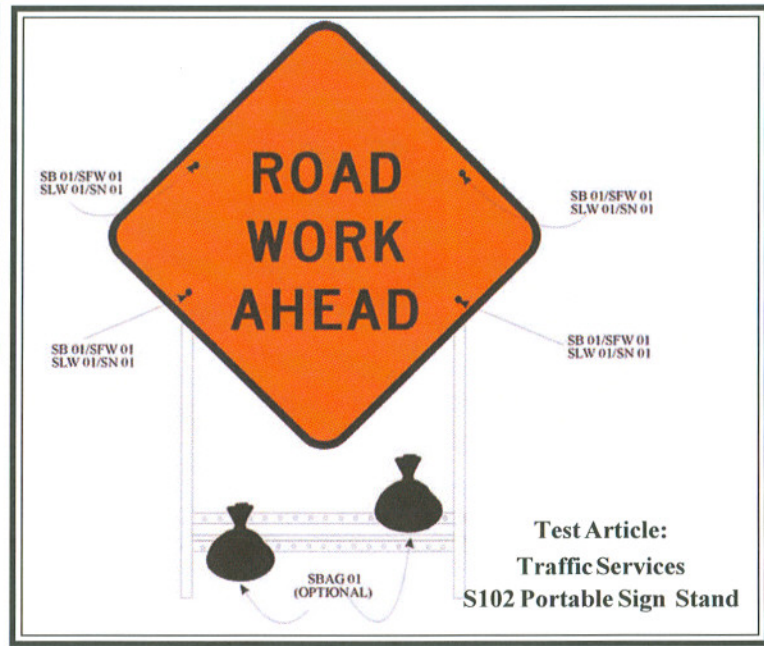
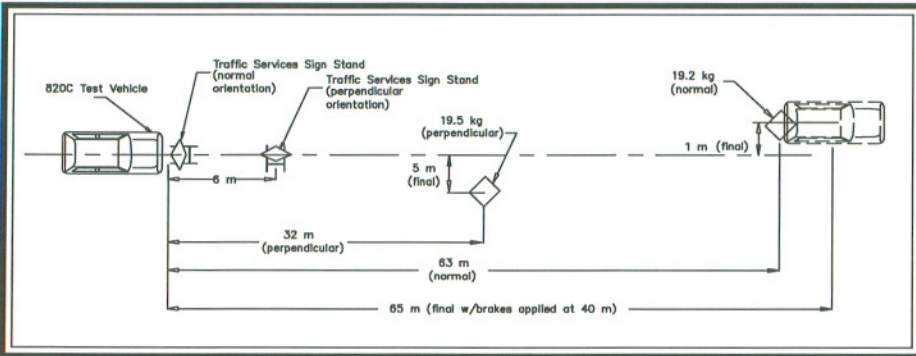
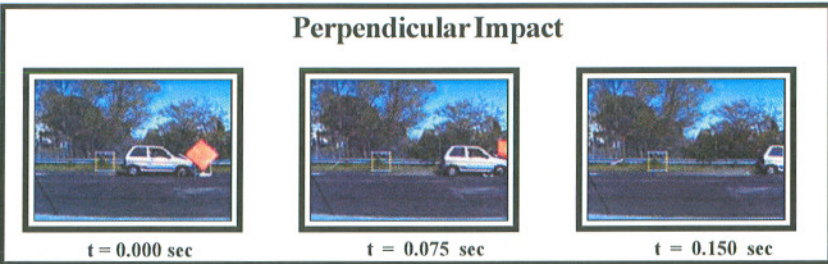
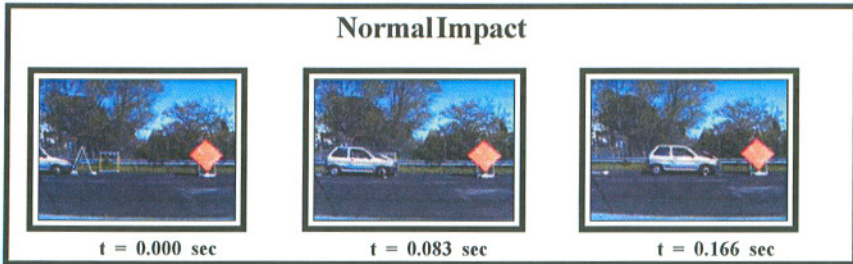
Page 1	FEDERAL HIGHWAY ADMINISTRATION OFFICE OF SAFETY DESIGN Category 2 Work Zone Device Acceptance Letter	Letter Number WZ-259 Date 7/17/07
Contact Info	Petitioner / Developer Name and Address: Mr. John Simms Traffic Services, Inc. 405 E. Terrace Drive Plant City, FL 33563	
	I hereby certify that the device(s) covered by this Acceptance Letter meet(s) the crash – worthiness test and evaluation requirements of the FHWA and NCHRP Report 350.	
Signature	 8/14/07	
Telephone #	813-659-1777	
Email Address	jsimms@trafficservices.net	
	Laboratory / Engineer Name and Address John F. LaTurner, P.E. E-TECH Testing Services, Inc. 3617B Cincinnati Ave. Rocklin, CA 95765	
Check One:		
<input checked="" type="checkbox"/> X	I hereby certify that the testing that supports this Acceptance Letter was conducted in accordance with NCHRP Report 350 guidelines, that the device(s) tested is/are accurately described on this form, and that the test results indicate that the device meets all applicable NCHRP Report 350 evaluation criteria.	
<input type="checkbox"/> N/A	I have evaluated the requested modifications to these devices previously found acceptable by the FHWA in Acceptance Letter WZ-___, and hereby certify that, in my opinion, the modifications do not adversely affect the crash performance of the devices. I also certify that these devices are accurately described on this form.	
Signature	 7/17/07	
Telephone #	916-645-8188	
Email Address	john.laturner@quixotecorp.com	
Keywords:		
	Type of Device (See page 3): A-Frame Sign Stand	
	Composition of Sign or Rail substrate (See Page 3): Sign : aluminum - solid; Rail: 1 ¼" x 1 ¼" x 10 ga steel angle	
	Thickness of substrate (inches): 0.080" thick sign	
	Height of sign from the ground (inches), if applicable: (See Page 3): Low – 12"	
	Flags and or lights present during test? Indicate number of each: # of flags: None # of lights: None Weight of lights: N/A ea.	
Device Name	TSI S102 Sign Stand	

Detailed Desc. Of Device, Materials, sizes, Fasteners, Substrates Foundation, Aux. Features Ballast, etc.	See E-TECH Report #309
--	-------------------------------

Page 2	FEDERAL HIGHWAY ADMINISTRATION		Letter Number
	OFFICE OF SAFETY DESIGN		WZ-259
	Category 2 Work Zone Device Acceptance Letter		Date 7/17/07
	Mandatory Attachments		
	Attachment # 1: Test data summary page(s)		
	Attach. #1a	Test #65-9912-001	
	Attach. #1b		
	Attach. #1c		
	Attach. #1d		
Alternative	Attachment # 1: Description and discussion of modification(s) to crash tested and/or accepted device.		
	Date:		
	Attachment # 2: PDF drawing(s) of device(s)		
	Attach. #2a	Drawing Title:	
		Drawing #:	
	Attach. #2b	Drawing Title:	
		Drawing #:	
	Attach. #2c	Drawing Title:	
		Drawing #:	
	Attach. #2d	Drawing Title:	
		Drawing #:	
	Attach. #2e	Drawing Title:	
		Drawing #:	
	Attach. #2f	Drawing Title:	
		Drawing #:	
	Attach. #2g	Drawing Title:	
		Drawing #:	



E-TECH Testing Services, Inc.
 3617 B Cincinnati Avenue
 Rocklin, CA 95765
 PHONE (916) 645-8188
 FAX (916) 645-3653



General Information

Test Agency E-TECH Testing Services, Inc.
 Test Designation NCHRP 350 Test 3-71
 Test No. 65-9912-001
 Date 3/28/07

Test Article

Type Traffic Services Sign Stand
 Impact Orientation Normal and Perpendicular
 Size and/or dimension and material of key elements

Leg segments:
 (2) Front & (2) Rear:
 (4) 1 1/4" x 1 1/4" x 60"
 (32 mm x 32 mm x 1524 mm)
 10 GA Angle steel
 Cross Bracing:
 (1) Front & (2) Rear:
 (3) 1 1/4" x 1 1/4" x 31"
 (32 mm x 32 mm x 787mm)
 10 GA Angle steel
 Diamond Sign:
 4 ft (1219 mm) by 0.080" (2.03 mm)
 thick
 Test Article (0°, and 90°)
 Mass: 42.9 lb (19.5 kg)
 (2) 15 lb (6.8 kg) Sand Ballast Bags

Test Vehicle

Type Production Model
 Designation 820C
 Model 1991 Ford Festiva
 Mass lb (kg)
 Curb 1790 (812)
 Test inertial 1799 (816)
 Dummy 165 (75)
 Gross Static 1964 (891)

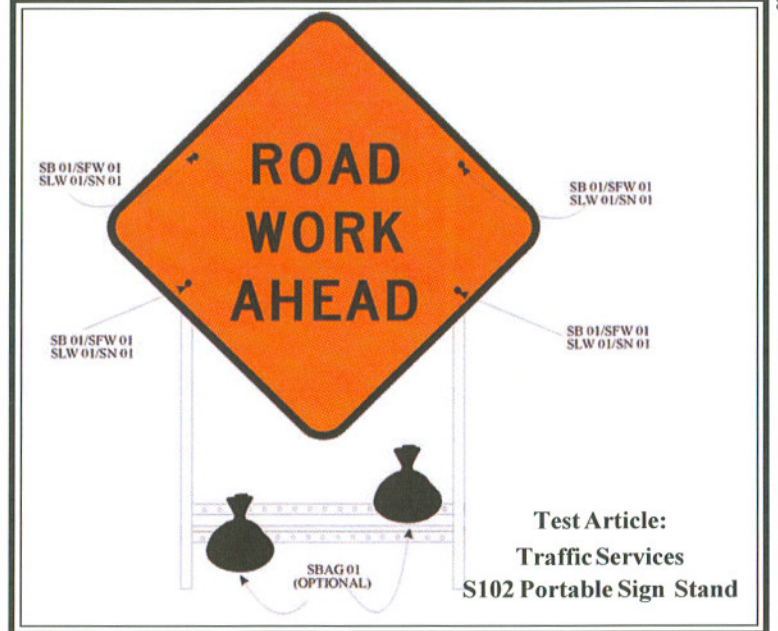
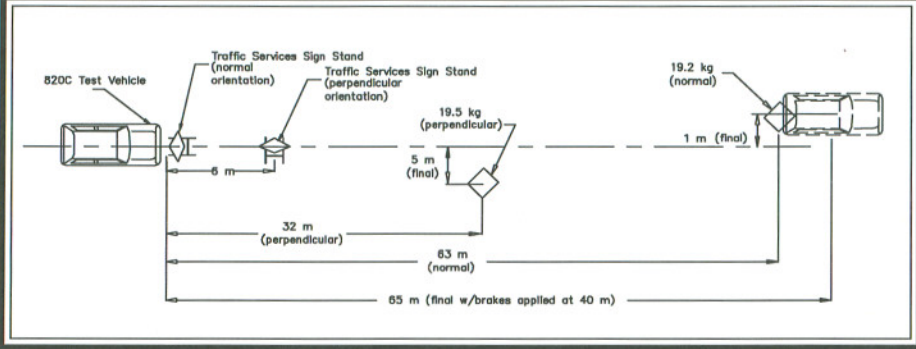
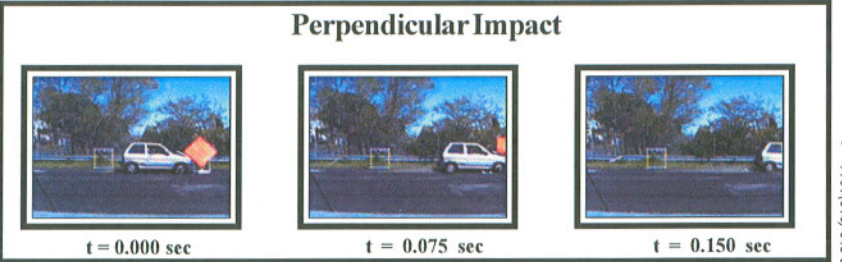
Impact Conditions (Normal/Perpendicular)	
Speed mi/hr (km/h)	63.7 (102.5) / 61.5 (99.0)
Angle (deg)	0 / 0
Impact Severity ft-kip (kJ)	243.8 (330.6) / 227.5 (308.5)
Exit conditions (Normal/Perpendicular)	
Speed mi/hr (km/h)	61.5 (99.0) / 59.3 (95.5)
Angle (deg)	0 / 0
Vehicle Damage (Normal/Perpendicular)	
Exterior	
VDS	FD-1 / FC-1
CDC	12FDEW1 / 12FCEN1
Interior	
OCDI	AS0000000 / AS0000000
Windshield	
per FHWA	Pass
Maximum Perm. Deformation	1/2" (13 mm)

Traffic Services Sign Stand Crash Test Results - 9 of 24

Figure 1. Summary of Results - Traffic Services Sign Stand Test 65-9912-001



E-TECH Testing Services, Inc.
 3617 B Cincinnati Avenue
 Rocklin, CA 95765
 PHONE (916) 545-8188
 FAX (916) 645-3653



General Information

Test Agency E-TECH Testing Services, Inc.
 Test Designation NCHRP 350 Test 3-71
 Test No. 65-9912-001
 Date 3/28/07

Test Article

Type Traffic Services Sign Stand
 Impact Orientation Normal and Perpendicular
 Size and/or dimension and material of key elements

Leg segments:
 (2) Front & (2) Rear:
 (4) 1 1/4" x 1 1/4" x 60"
 (32 mm x 32 mm x 1524 mm)
 10 GA Angle steel
 Cross Bracing:
 (1) Front & (2) Rear:
 (3) 1 1/4" x 1 1/4" x 31"
 (32 mm x 32 mm x 787mm)
 10 GA Angle steel
 Diamond Sign:
 4 ft (1219 mm) by 0.080" (2.03 mm)
 thick
 Test Article (0°, and 90°)
 Mass: 42.9 lb (19.5 kg)
 (2) 15 lb (6.8 kg) Sand Ballast Bags

Test Vehicle

Type
 Designation
 Model
 Mass lb (kg)
 Curb
 Test inertial
 Dummy
 Gross Static

Impact Conditions (Normal/Perpendicular)	
Speed mi/hr (km/h)	63.7 (102.5) / 61.5 (99.0)
Angle (deg)	0 / 0
Impact Severity ft-kip (kJ)	243.8 (330.6) / 227.5 (308.5)
Exit conditions (Normal/Perpendicular)	
Speed mi/hr (km/h)	61.5 (99.0) / 59.3 (95.5)
Angle (deg)	0 / 0
Vehicle Damage (Normal/Perpendicular)	
Exterior	
VDS	FD-1 / FC-1
CDC	12FDEW1 / 12FCEN1
Interior	
OCDI	AS0000000 / AS0000000
Windshield	
per FHWA	Pass
Maximum Perm. Deformation	1/2" (13 mm)

Traffic Services Sign Stand Crash Test Results - 9 of 24

Figure 1. Summary of Results - Traffic Services Sign Stand Test 65-9912-001