

Refer to: HSA-10/WZ-103

Mr. Jan Miller
Eastern Metal/USA Sign
1430 Sullivan Street
Elmira, NY 14901-1698

Dear Mr. Miller:

Thank you for your letter of November 19, 2001, amended via facsimile on December 19, 2001, requesting Federal Highway Administration (FHWA) acceptance of a number of your company's portable signs and stands as crashworthy traffic control devices for use in work zones on the National Highway System (NHS). You requested that we find these devices acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features" based on prior crash testing of your devices and interpolation of results.

Introduction

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices were those lightweight devices which could be self-certified by the vendor, Category II devices were other lightweight devices which needed individual crash testing, Category III devices were barriers and other fixed or massive devices also needing crash testing, and Category IV devices were trailer mounted lighted signs, arrow panels, etc. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III.

A brief description of your requests follows:

Request 1. X-602 Hi-level Spring Stand with frangible coupling, for use with 48 inch diamond, 48 x 60 inch and other sized signs of 0.100 and 0.125 inch thick solid aluminum substrates, and hollow-core 5/8 inch thick, blow molded HD Polyethylene substrate with waffle pattern tack-offs and radius corners, as furnished by the Stabler Companies, mounted at the tested height of 60 inches above grade.

The X-602 stand was accepted in our letter WZ-78A dated June 15, 2001. It was tested with 48x48 diamond signs of 0.080 aluminum and 5/8 inch plywood mounted at 60 inches. The tested signs weighed 18 pounds and 30 pounds respectively. This range brackets the weights of the signs you are presently requesting for use with this stand: 22.6 pounds (0.100 inch thick) and

28.25 pounds (0.0125 inch thick). The high density polyethylene (HDPE) substrate has not been crash tested, but because its properties are within the bounds of the plywood and the Endurance substrates, both of which have been successfully crash tested on this stand, it will be acceptable for use.

Because this stand performed in an acceptable manner due in large part to the frangible coupling we concur that the three requested signs will also be acceptable for use.

Request 2. Type III Barricade with reinforced plastic posts or perforated square steel tube post and skid system, using Semi-Rigid plastic plank rails. To be used with 48x48, 60x48 and smaller signs of Roll-up, corrugated plastic, hollow-core 5/8 inch thick, blow molded HD Polyethylene substrate with waffle pattern tack-offs and radius corners as furnished by the Stabler Companies, Endurance, and 0.080 inch aluminum panels mounted to lengthened accepted post system 60 inches or more above grade, above the 3-barricade rails.

Testing was conducted by others on type III barricades. Generic Type III barricades and acceptable signs to be mounted are covered in our Acceptance Letter WZ-85 dated November 15, 2001, a copy of which is enclosed. It permits the use of lightweight substrate signs attached to the face of the barricade, but not aluminum or plywood. Your request, however, is for aluminum signs (and the lightweight signs) mounted above the top rail. We concur in the use of these substrates and different shapes as long as the height to the top of the sign is kept at 128 inches (this is the height to the top of a 48x48 mounted at 60 inches above the pavement.)

Request 3. E-350 Heavy Duty Tripod Stand with 48x48 diamond and smaller signs of 5/8 inch plywood, 0.100 and 0.125 solid aluminum, and hollow-core 5/8 inch thick, blow molded HD Polyethylene substrate with waffle pattern tack-offs and radius corners, as furnished by the Stabler Companies.

The E-350 was accepted in our letter WZ-78A with various substrates, mounted at 15 inches above the pavement, the heaviest of which was the hinged ABS at 23.25 pounds. Your request is to use 5/8 inch plywood (30 pounds), 0.125 aluminum (28.25 pounds), and 0.100 aluminum (22.6 pounds.) We concur with the 0.100 aluminum and the hollow-core 5/8 inch thick, blow molded HD Polyethylene substrate with waffle pattern tack-offs and radius corners, as furnished by the Stabler Companies as they are within the weight range of the tested substrates. As discussed above, because the properties of the HDPE substrate are within the bounds of the plywood and the Endurance substrates, both of which have been successfully crash tested on this stand, it will be acceptable for use.

Request 4a. X-550 series mid-size stands with hollow-core 5/8 inch thick, blow molded HD Polyethylene substrate with waffle pattern tack-offs and radius corners, as furnished by the Stabler Companies.

The X-550 stands (Model X-552, Model X-553) have been crash tested with various substrates that bracket the weight and rigidity properties of the HDPE substrate, therefore it will be acceptable for use under the same conditions and mounting heights (15 inches) as the other substrates were tested.

Findings

Your requests 1), 2), 3), and 4a) are acceptable as you asked with the exception of 0.125 aluminum in Request 3. We will look further into Request 4), which was not summarized above, and discuss it with you.

The devices described above are acceptable for use on the NHS under the range of conditions tested, or under the extrapolation conditions discussed above in your four requests, when proposed by a State.

Please note the following standard provisions which apply to FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of FHWA and NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-103 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- Eastern Metal/USA Signs stands, barricades, and sign substrates used thereon may include patented components and if so are considered "proprietary." The use of proprietary work zone traffic control devices in Federal-aid projects is generally of a temporary nature. They are selected by the contractor for use as needed and removed upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are

specified for use on Federal-aid projects, except exempt, non-NHS projects, they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with 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, a copy of which is enclosed.

Sincerely yours,

Michael L. Halladay
Acting Program Manager, Safety

Enclosure

FHWA:HSA-10:NArtimovich:tm:x61331:1/18/01
File: WZ103-JanMillerDecFin.wpd
cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10;
N. Artimovich, HSA-10)

Sec. 635.411 Material or product selection.

(a) Federal funds shall not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

(1) Such patented or proprietary item is purchased or obtained through competitive bidding with equally suitable unpatented items; or

(2) The State highway agency certifies either that such patented or proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate exists; or

(3) Such patented or proprietary item is used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes.

(b) When there is available for purchase more than one nonpatented, nonproprietary material, semifinished or finished article or product that will fulfill the requirements for an item of work of a project and these available materials or products are judged to be of satisfactory quality and equally acceptable on the basis of engineering analysis and the anticipated prices for the related item(s) of work are estimated to be approximately the same, the PS&E for the project shall either contain or include by reference the specifications for each such material or product that is considered acceptable for incorporation in the work. If the State highway agency wishes to substitute some other acceptable material or product for the material or product designated by the successful bidder or bid as the lowest alternate, and such substitution results in an increase in costs, there will not be Federal-aid participation in any increase in costs.

(c) A State highway agency may require a specific material or product when there are other acceptable materials and products, when such specific choice is approved by the Division Administrator as being in the public interest. When the Division Administrator's approval is not obtained, the item will be nonparticipating unless bidding procedures are used that establish the unit price of each acceptable alternative. In this case Federal-aid participation will be based on the lowest price so established.

(d) Appendix A sets forth the FHWA requirements regarding (1) the specification of alternative types of culvert pipes, and (2) the number and types of such alternatives which must be set forth in the specifications for various types of drainage installations.

(e) Reference in specifications and on plans to single trade name materials will not be approved on Federal-aid contracts.

ENCLOSURE 2