



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

1200 New Jersey Avenue, SE.
Washington, DC 20590

December 21, 2007

In Reply Refer To: HSSD/B-166

Mr. Robert Slagter
President
Anro Products, Inc.
2752 SW Bear Paw Trail
Palm City, FL 34990

Dear Mr. Slagter:

In your letter of July 11, 2007, you requested the Federal Highway Administration's (FHWA) acceptance of your company's Plastic Spacer Block for use on the National Highway System (NHS) with test level 3 (TL-3) steel strong post W-beam guardrail systems under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features". You indicated in your letter that this device will be marketed under the name Omni Products and it will be referred to as such in this letter. To support your request, you provided Midwest Roadside Safety Facility test report dated June 22, 2007, entitled "Performance Analysis of the Anro Timber Products Plastic Spacer Block Test No. ANRO-1". You also provided test videos and electronic photographs.

Requirements

Longitudinal barriers should meet the guidelines contained in the NCHRP Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features". The FHWA Memorandum "ACTION: Identifying Acceptable Highway Safety Features" of July 25, 1997, provides further guidance on crash testing requirements of longitudinal barriers. Additional information on acceptance of blockouts to NCHRP 350 criteria is found in the FHWA Memorandum "ACTION: Blockouts for Use with Strong-Post W-Beam Guardrail Systems" of January 27, 1998.

Product description

Your company's Plastic Spacer Block for steel strong post W-beam systems is composed of 50 percent polyethylene and 50 percent polypropylene. It measures 191 mm x 102 mm x 356 mm (7.5"x 4"x 14"). A 9.53 mm x 102 mm x 254 mm (0.38"x 4"x 10") groove is routed on the back face of the block to align it with the face of the steel strong post. The block has two octagonal voids located symmetrically about the centerline, and holes to accommodate the fastening hardware. Design details of Omni Products Plastic Spacer Block are provided in the Enclosure.

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Test article installation

For the bogie test of the article, the Omni Products Plastic Spacer Block was mounted on a W 152 x 13.4 steel strong post secured in a rigid foundation. The plastic spacer block was mounted at a height of 550 mm (22"), measured from the center (bolt) of the block to the travel surface. A 305 mm (12") long piece of 12 gauge W-beam guardrail was mounted on the front of the spacer block, using standard fastening hardware.

For the baseline bogie test, a 203 mm x 152 mm x 360 mm (8"x 6"x 14") Southern Yellow Pine wood spacer block was selected. A 10 mm x 100 mm x 360 mm (0.39" x 3.9" x 14.2") slot was routed on the back face of the block, to align it and to accept the steel strong post. The post was secured in a rigid foundation. The wood spacer block was mounted at a height of 550 mm (22"), measured from the center (bolt) of the block to the travel surface. A 305 mm (12") long piece of 12 gauge W-beam guardrail was mounted on the front of the spacer block, using standard fastening hardware.

Testing

You tested your company's Plastic Spacer Block in a bogie test, and compared this test to the baseline bogie test conducted with a standard Southern Yellow Pine wood block. You also compared the force versus deflection diagrams generated by the bogie tests of the Omni Products Plastic Spacer Block and the standard wood block with those produced by the previously accepted Anro Block design (acceptance letter B-107 of September 5, 2003).

According to the information you provided, there was no substantial difference in performance between the standard wooden block and the Omni Products Plastic Spacer Block in the bogie vehicle tests conducted.

We noted that there was a difference in both the weight and impact speed of the bogie vehicles used in the in the two tests (992 kg and 32.2 km/h in the test with wood block vs. 614 kg and 40.14 km/h in the test with Plastic Spacer Block). Despite this discrepancy in weight and impact speed, we found that the impact severities in these tests were comparable.

The plastic block sustained minor damage due to the impact of the bogie vehicle. According to the test report, most of the damage to the block occurred after the main load transfer from the bogie to the post and block during the initial impact, and was the result of the bogie vehicle riding up and over the post subsequent to the initial impact event. Further, a comparison of the force versus deflection diagrams generated by the bogie tests of the Omni Products Plastic Spacer Block, and the previously-accepted Anro Block design, shows that the Omni Products Plastic Spacer Block performed in a manner very similar to the Anro Block design, while reaching a slightly higher peak load.

After analyzing the information you have provided, we concur that the Omni Products Plastic Spacer Block, as described above, may be used with NCHRP 350 TL-3 strong steel post W-beam guardrail systems, at all appropriate locations on the NHS, when selected by the contracting authority, subject to the provisions of Title 23, Code of Federal Regulations, Section 635.411 as they pertain to proprietary products. Note that this acceptance of the Omni Products Plastic Spacer Block is explicitly limited to applications with W-beam guardrail on strong steel

posts, as was used in the test. Acceptance is also contingent on the production version of the Omni Products Plastic Spacer Block being identical to the prototype units tested.

Standard provisions

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

- This acceptance is limited to the crashworthiness characteristics of the device and does not cover its 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 the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number B-166 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.
- The Omni Products Plastic Spacer Block is a patented product and considered proprietary. If proprietary devices are specified by a highway agency 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 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.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,



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

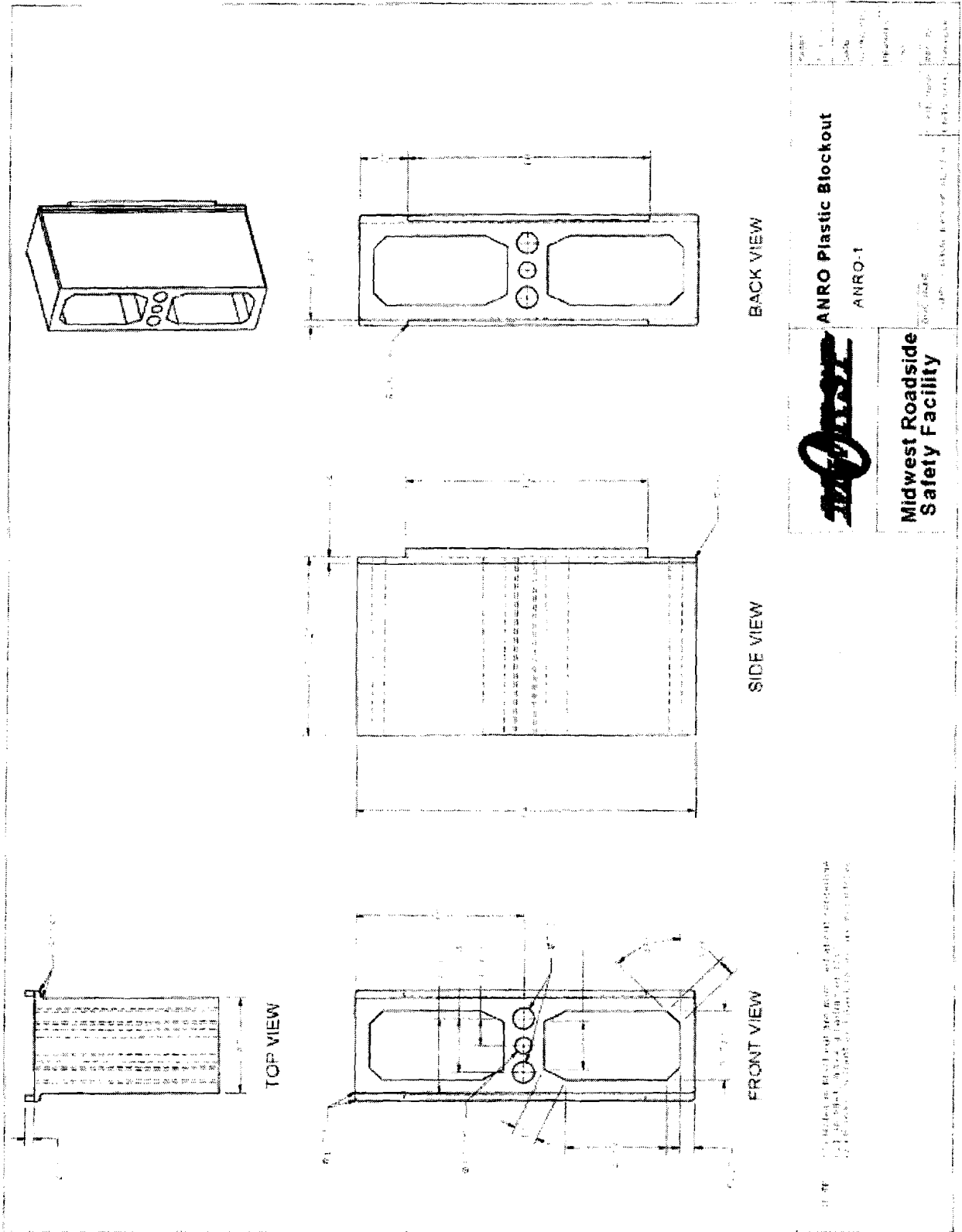
Enclosures

FHWA:HSSD:NArtimovich:tb:x61331:12/19/07

File: s://directory folder/nartimovich/B166AnroBlockout.doc

cc: HSSD (Reader, HSA; Chron File, HSSD; N.Artimovich, HSSD;
M.Bloschock, HSSD; M.McDonough, HSSD)

Enclosure



Title 23, Code of Federal Regulations

§ 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 transportation department 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 transportation department 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 transportation department 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.

(f) In the case of a design-build project, the following requirements apply: 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 Request for Proposals document unless the conditions of paragraph (a) of this section are applicable.

[41 FR 36204, Aug. 27, 1976, as amended at 67 FR 75926, Dec. 10, 2002]