



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

400 Seventh St., S.W.
Washington, D.C. 20590

February 23, 2005

In Reply Refer To: HSA-10/WZ-203

Mr. Scott M. McCanna, P.E.
Traffic Control Plans Engineer
Oregon Department of Transportation
355 Capitol Street NE
Salem, Oregon 97301

Dear Mr. McCanna:

Thank you for your letter of December 22, 2004, requesting Federal Highway Administration (FHWA) acceptance of your State's single wood post temporary sign support as a crashworthy traffic control device for use in work zones on the National Highway System (NHS). Accompanying your letter were drawings of the support. You requested that we find this support acceptable for use with signs of 9 square feet or less 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 similarity to other generic wood supports.

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 are those lightweight devices which are to be self-certified by the vendor, Category II devices are other lightweight devices which need individual crash testing but with reduced instrumentation, Category III devices are barriers and other fixed or heavy devices also needing crash testing with normal instrumentation, and Category IV devices are trailer mounted lighted signs, arrow panels, etc. for which crash testing requirements have not yet been established. 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 the devices follows:

The base consists of two 40 inch long 2x4 timbers spaced at 60 inches by a pair of 2x4 timbers 4 inches apart. The base's 60 inch dimension is in the direction of traffic. The upright is a



single 4x4 timber, 120 inches in height, to which is mounted a sign measuring 9 square feet or less. A diagonal 2x4 brace is placed at a 45-degree angle behind the upright. The sign stand, including fasteners, is shown in the enclosed drawings for reference.

Testing

The Texas Transportation Institute (TTI) tested a diagonally braced two-leg portable sign stand at a five-foot mounting height. The uprights were 4x4 timbers with no weakening features, and supported a 48x48 inch sign. The test was conducted with a pickup truck as a worst-case scenario, given that the higher windshield would prove to be a more critical target than that of a mini car. The diagonal braces were safely pushed ahead of the vehicle, and the sign went cleanly over the roof of the pick up. It can be expected that in a head-on test, a single support would behave in a similar manner with the sign passing over the vehicle. On a 90 degree hit, which the TTI did not run, a seven-foot mounting height would still put the corner of the sign (36x36 max) over the roof with little chance for impact.

Findings

The Oregon single 4x4 post Temporary Sign Support described above and detailed in the enclosed drawings are acceptable for use on the NHS under the range of conditions tested, when proposed by a State.

Please note the following standard provisions that apply to the 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 the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-203 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.
- 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,

/Original Signed by Harry W. Taylor/

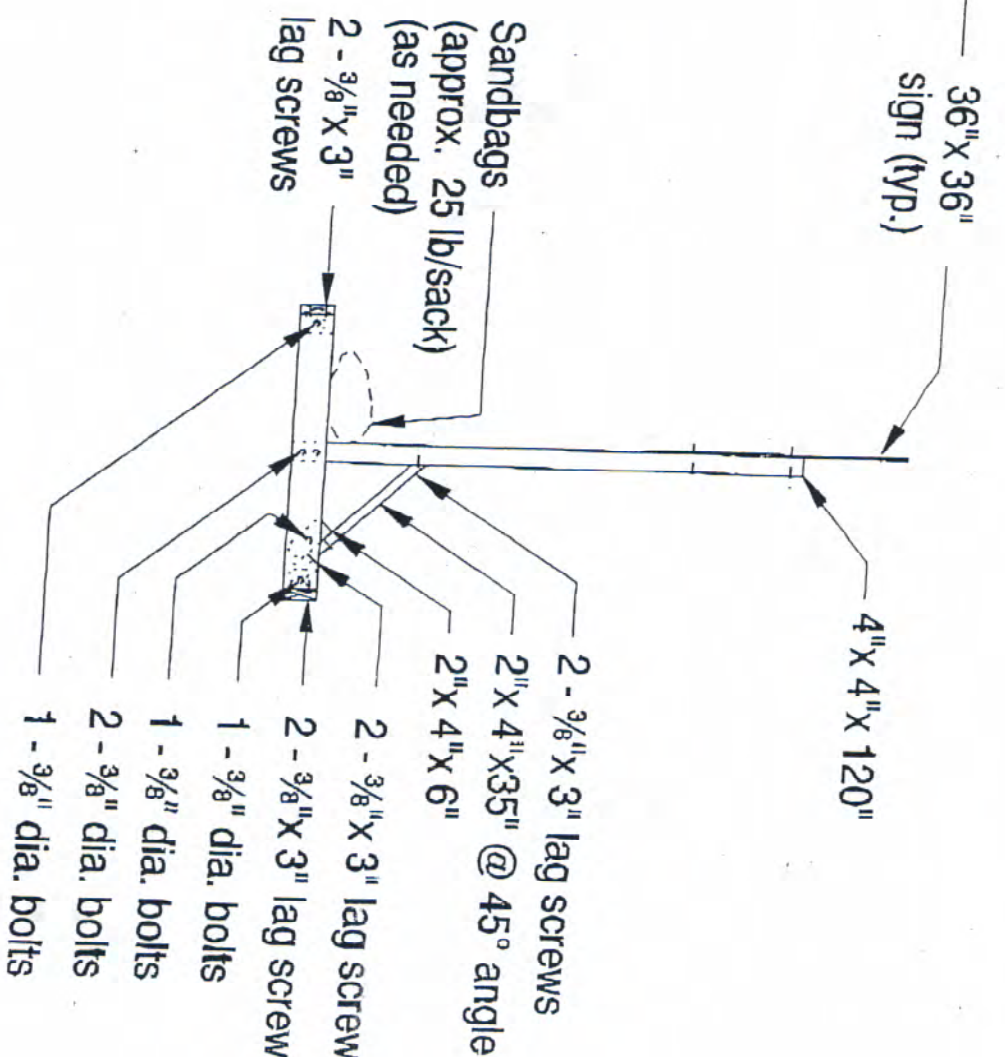
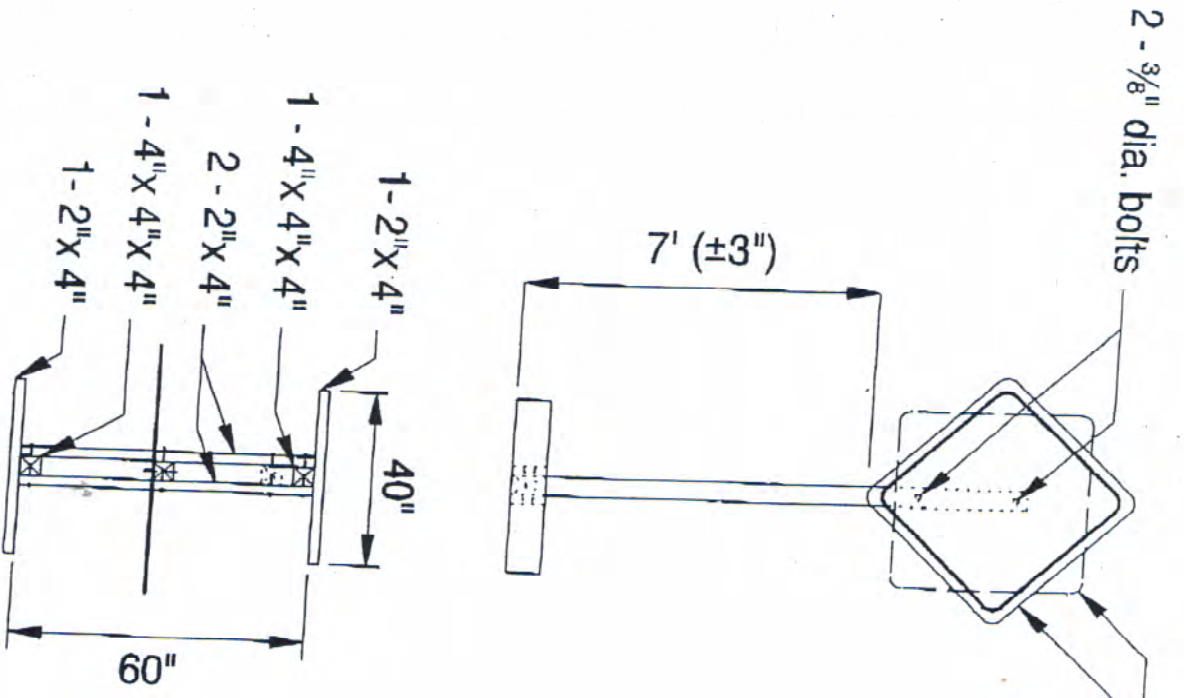
~for~

John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

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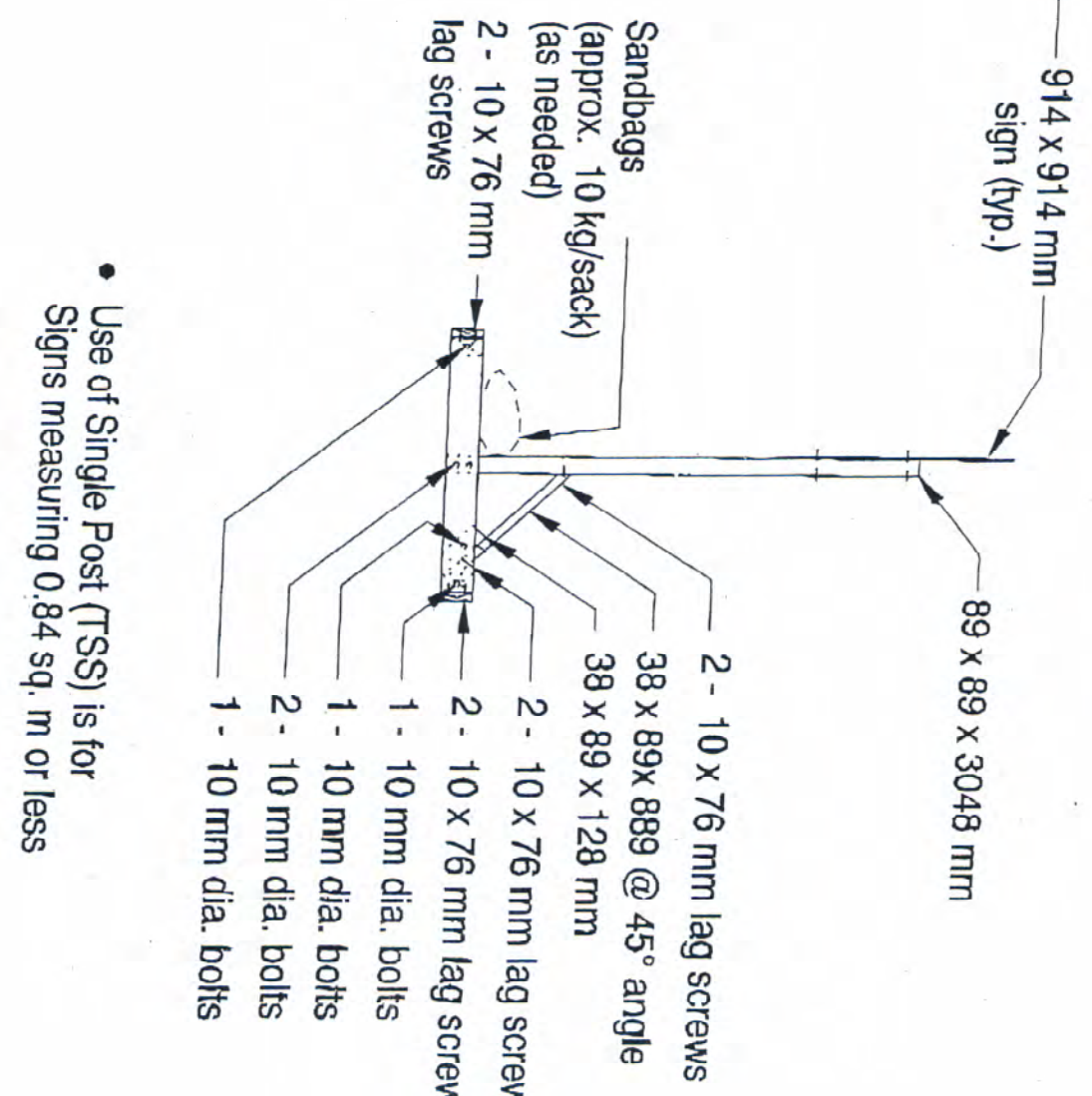
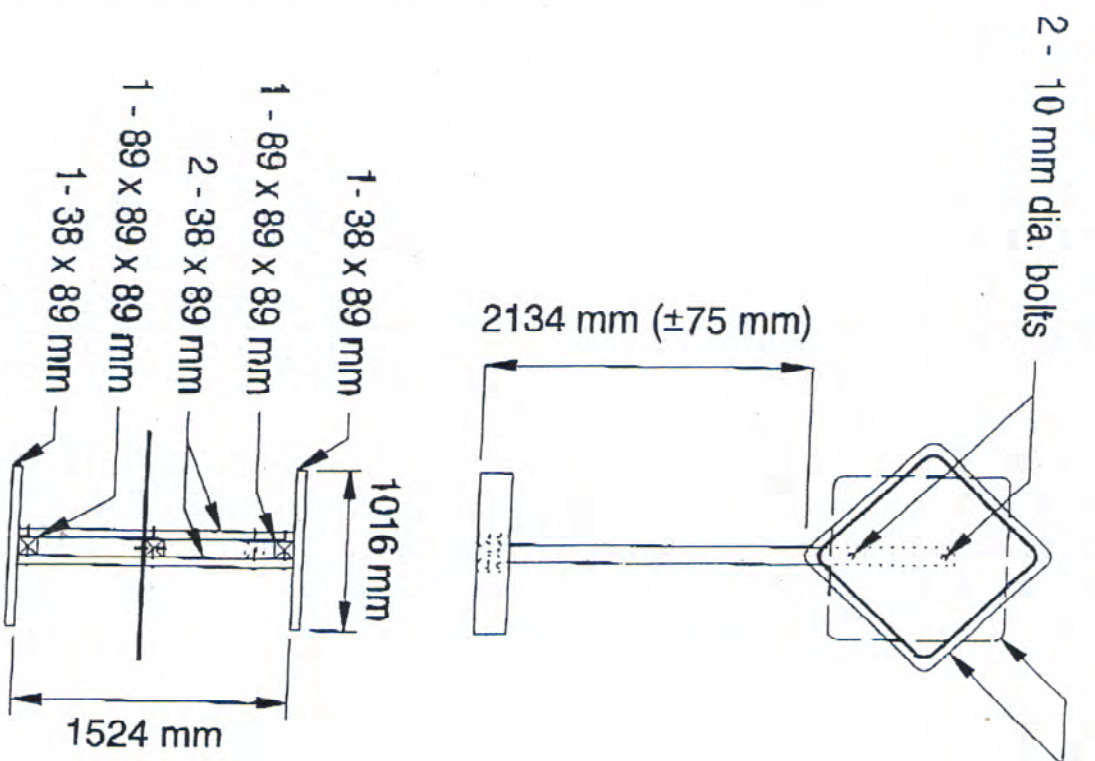
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N.Artimovich, HSA-10)



- Use of Single Post (TSS) is for Signs measuring 9 sq. ft. or less

TEMPORARY SIGN SUPPORT (TSS)

(SINGLE POST)



- Use of Single Post (TSS) is for Signs measuring 0.84 sq. m or less

TEMPORARY SIGN SUPPORT (TSS) (SINGLE POST)