

# **Guardrail Committee Agenda**

February 17<sup>th</sup>, 2005, 10:30 AM  
Roadway Design Conference Room

## **I. Closing up the gap between the Cable Guiderail Anchor Unit and the Impact Attenuator Unit (Attachment No. 1)**

Letter dated November 30, 2004 went out under Jay Bennett's signature to address this detail revision. This issue also went before the Implementation Committee. They have since requested that we continue to investigate a more permanent solution to close up these gaps.

**Action:** *We will continue the usage of the new detail. Prior to the implementation of the 2006 Standards, we will re-evaluate other cable to end terminal treatments that may be used to close up gaps on both existing and proposed freeway facilities.*

## **II. Composite Offset Blocks**

Mr. Joe Geigle questioned the long-term durability of composite offset blocks. From field observations, the top lip of the offset block that rides on the top front edge of the steel post was sheered off on a couple of blocks. This specific installation is approximately 6 years old and is located on US 1 NBL and SBL approaching a bridge in Chatham County.

**Action:** *Warren Walker volunteered to take a survey of the Roadway Construction Engineers. He will solicit their comments, based upon field observations, to find out if they have any concerns with the long-term durability of the composite offset blocks. Warren will try to provide us a response in the next couple of months.*

## **III. Information regarding the Guidelines for the Selection of W-Beam Barrier Terminals (Attachment No. 2)**

Information provided by Mr. Brad Hibbs with FHWA. These guidelines provide an overview of what site specific grading conditions, when practicable, should be used with the placement of both Tangent End Terminals (energy absorbing designs) and Flared End Terminals (non-energy absorbing designs).

**Action:** *Joe Geigle will find out what other states are doing. Garry Lee, Joe Geigle, Roger Thomas and Ron Allen will meet to determine if our standards need to be revised to meet these guidelines. They will then report their findings back to the committee.*

## **IV. "Wire Rope Safety Fence" by Brifen USA (Attachment No. 3)**

Approved during the 9/23/04 New Products Committee Meeting for "Conceptual Approval" status. Project R-2206AA in Gaston and Lincoln Counties is a pilot project where the usage of the subject proprietary item has been approved.

**Action:** Need to identify other suitable test projects for the usage of this product. It was also noted that WRSF could be used with an alternate bid. Warren Walker suggested that in future contracts we might want to incorporate a 1-year maintenance clause with the contractor to maintain this product.

**V. Replacement of outdated anchor units and offset blocks when removing/resetting guardrail (Attachment No. 4)**

Removal of all BCT-1 anchor units  
W-Beam with steel offset blocks  
MELT anchor units

**Action:** Committee recommended that the 2006 Specifications be revised to address when guardrail is removed and reset that the offset blocks and end terminals are upgraded to meet 350 test level requirements.

**VI. Type III anchor units and the placement of shoulder berm gutter (Attachment No. 5)**

**Action:** Garry Lee noted that with the new minimum 25 foot approach slabs there should no longer be any need for additional shoulder berm gutter on the approach end or trailing end of a proposed bridge. The only exception is when the hydraulics unit request additional shoulder berm gutter to address drainage concerns. This issue will be addressed at the next Roadway Design Staff Meeting.

**VII. Guardrail design to accommodate motorcyclists**

This issue was brought before the committee due to concerns raised by a citizen.

**Action:** After discussion of the pros and cons of implementing such a design change, the committee did not think this issue warranted further action. It was noted that the Department is in compliance with the current Federal Highway Administration guidelines.

**VII. Request by Trinity to use steel post as an equal alternative to wood post at bridge anchors**

Letter dated July 21, 2004 from Mr. Reid Scott with Trinity Industries to Jay Bennett. The letter requests that the Department revise their bridge guardrail anchor standard to include steel posts as an equal alternate to wood post.

**Action:** The Nebraska three-beam guardrail to bridge rail transition design has a design that uses 1970 mm long W/50 X 13.5 steel posts with 102 mm X 178 mm x 4.76 mm thick structural tube blockouts behind the nested three-beam (FHWA acceptance letter B-47). North Carolina has concerns with the fabrication and the use of tubular blockouts on posts 1 through 7. It is our opinion that composite offset blocks will be substituted for the tubular blockouts, which is an application that has not been tested. Jay Bennett suggests the continued use of wood posts and wood offset blocks for the type III anchor units.

A written response to this effect will be sent to Mr. Reid Scott.

**IX. Guardrail Installation in Rock and Mowing Strips  
(Attachment 6)**

New guidance provided by Mr. John R. Baxter, PE, Director, Office of Safety Design, noted that strong post w-beam guardrail is designed to absorb some crash energy through post rotation in the soil prior to post failure. Restraining the posts by setting them in concrete or by placing a 'Mowing Strip' around the post can lead to early post failure, placing more load on the rail element itself and possibly leading to rail rupture.

**Action:** *Jay Bennett requested that Mr. Joel Howerton check our specifications to see if they address this issue. Joel will report back to the committee at our next meeting.*

**X. Temporary Guardrail Anchor connection to existing bridge barrier rail.**

In most cases, a temporary TYPE-III anchor unit is used or a special detail is modified to mimic the TYPE-III anchor. Mr. Joel Howerton will address this issue further by providing additional details.

**Action:** *Mr. Garry Lee provided some background information on how the development and usage of the proposed Temporary Guardrail Anchor Unit, Type III, was coordinated with the Structure Design Unit. It was the consensus of the committee that a meeting should be held with the Structure Design Unit to find out what measures they use to make sure that the temporary guardrail anchors are close to meeting 350 TL requirements.*

**Follow up:** *This issue will be discussed during the Structures Workshop on March 10, 2005.*

**XI. Cable Barrier Retrofit (Attachment No. 7)**

Various tests were performed by the National Crash Analysis Center to determine the placement of the Cable Barrier that would stop penetration. The tests were conducted to help validate simulation runs. Based on this data, a new list of proposed cable barrier retrofits were developed. This list was then ranked by the NCDOT.

**Action:** *According to Joe Geigle there is a contract dispute that has this research pending. No further action taken.*

**XII. Barrier Systems, Inc. - "Flush Mount Backstop"  
(Attachment No. 8)**

Because the G.R.E.A.T systems are being phased out this product offered by Barrier Systems, Inc. is replacement alternative. The new flush Mount Backstop will allow the Universal TAU-II Crash Cushion System to be mounted directly to the face of the concrete block.

**Action:** *A copy of the letter from Barrier Systems, Inc. requesting the usage of this product by the Department and a copy of their flyer was provided to the committee members. This information was provided to the committee members to make them aware that this product is available for usage.*

**FYI:**

**Cass - Cable Safety System**

Mr. Reid Scott of Trinity Industries, Inc provided a presentation on July 23, 2004.

**Roadside Systems, Inc**

On February 1, 2005, Mr. David Reese, Product Manager, with Roads Systems, Inc. gave a presentation. The presentation primarily gave an overview of the performance of the SKT and the FLEAT end terminals.

**Next meeting**

The next Guardrail Committee Meeting will be held June 23, 2005 at 10:30 AM in the Roadway Design Conference Room.

Minutes prepared by Roger Thomas, PE

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Minutes approved by Ron Allen, PE

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