0050104a CONTROL OF THE WORK - BEAM AND GIRDER TEMPORARY BRACING COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Ghulam Mujtaba
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Comment: (Internal Review 3-24-10)

1. The acronym LRFD should be inserted after the word “Design” and delete the repeated “Design” word. The modified sentence should read: “Load and Resistance Factor Design (LRFD) Bridge Specifications.

Response: The acronym (LRFD) is used as an abbreviation for the referenced document and not the design methodology, which is why ‘(LRFD)’ is included at the end of the reference. No changes made.

2. In the second and third paragraphs, there is no need for the phrases “For Construction Affecting Public Safety”. I recommend that they should be deleted. Always the construction is affecting the safety of public, worker, inspectors and contractor.

Response: ‘Construction affecting public safety’ is defined in Specification Section 5-1.4(d). Although bracing is always required for the safety of both the public and site workers, submittal of bracing design plans for approval is only required for projects affecting public safety.
No changes made.

3. In the last paragraph, last sentence, change “analysis of stability” to stability analysis”.

Response: This change has been made.

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JC Miseroy (via Bob Burleson
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Comments: (Internal Review 3-25-10)
We ran into a situation on a project where the CEI made us analyze the beams to make sure the beams could withstand design wind loads in mid-span. We don’t feel this should be our responsibility. We are ok with designing bracing at each end to withstand overturning from wind loads, not having to determine if the girder is structurally adequate to handle the wind loads.

Response:
Please see response to Keith Waugh.

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Enrique Espino
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Comments: (Internal Review 3-25-10)
I question…what wind loads?……the design wind loads or temporary(reduced)wind loads?
I believe the later should be used….but? Beams should not be without the permanent diaphragms more than a week.

Response:
Please see response to Keith Waugh.

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Keith Waugh
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Comments: (Internal Review 3-26-10)
Like, JC, we were forced to analyze short Type III beams (square, not skewed) for wind loads at mid-span and the numbers showed that they wouldn't stand up until the deck was poured. To me, that's a design flaw. If wind loading analysis is required then it needs to be at some reduced number.
An FIB 36 (photo attached) couldn't be knocked over with a dozer. The 45's look about the same. Why should something so stout and secure require any bracing at all (unless a public safety issue)? I don't believe that specific design requirements for bracing as stated in the first paragraph are appropriate. If a construction site is under the Contractor's control and outside the limits of normal public access, let the Contractor proceed as he sees fit, based on his experience.
I guess where I headed is that the revised specification is too restrictive.

Response: (3-31-10 - as per Robert Robertson, State Structures Design Engineer)

We are all going through changing times. Currently some projects have the old AASHTO shapes with their variable stability issues and some projects with FIBs. For either of these, the current specs require the contractor to perform a stability analysis. For designs that are not yet advanced past a certain phase, this analysis is being performed by the EOR in accordance with new DOT policy.

Current project designs for either beam type allow for the beams to be skewed and thus the stability is a question even for short FIBs. We are currently working on policy and details that will eliminate the skew on most beams and all stability analysis, and thus bracing requirements, will be shown in the contract plans. We are currently evaluating the elimination of permanent diaphragms for concrete beam bridges.

As part of these efforts, we will continue to evaluate the stability of all FIBs and believe we will be able to eliminate the bracing requirements for certain shapes due to their own geometry if skews are limited or eliminated.

Please refer to the recent design bulletin
(http://www.dot.state.fl.us/structures/Memos/TemporaryDesignBulletinC10-01.pdf)

No changes made.

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Robert Robertson
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Comments: (Internal 3-31-10)
There has been some misunderstanding of the proposed spec. Please consider the following revision in the first paragraph of 5-1.4.5.6:

Develop the required *bracing* designs *in accordance with* the *AASHTO Load and Resistance Factor Design Bridge Design Specifications (LRFD) using wind loads found in Section 2.4.3 of the Structures Design Guidelines (SDG). For information not included in the SDG or LRFD, refer to the* AASHTO Guide Design Specifications for Bridge Temporary Works and Construction Handbook for Bridge Temporary Works.

The actual design of the beam to resist wind loads is the responsibility of the EOR and DOT. The contractor is not expected to check the beam for flexural capacity due to wind. The attached spec is a stop gap measure. When all current designs are completed and under construction, all bracing requirements for stability will be the responsibility of the EOR. The contractor will design the bracing system itself. The spec was written the way it was to eliminate having to add to the EOR's scope for existing projects.

Response:
From the Specifications Office: This change has been made.

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Thomas Bowles
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Comments: (4-8-10)
The Department should design the required bracing on all projects. This is the only way to keep Bidders on a level field. It is more likely than not that this methodology will over time save the Tax Payers $$$$.

Response: We are considering reviewing and approving bracing designs, which would develop into an approved bracing list, similar to the QPL. In the meantime, Design Standard Index No. 20005 addresses allowed bracing configurations, which will help to keep bidders on a level playing field. No changes made.

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