0060300 CONTROL OF MATERIALS-STORAGE OF MATERIALS AND SAMPLES
COMMENTS FROM INTERNAL REVIEW

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Keith Waugh
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Comment: (from internal review)
I take exception to 6-3.3 because it doesn't define "stockpiled materials". Every inspector and project administrator will have a different definition. I guess that reinforcing steel will have to be stockpiled at the end of each bridge and carried at least half the length of the bridge. We can all site a dozen instances where existing and new decks are needed as staging to efficiently prosecute the work.

Response: Agree. Version sent to industry review was revised to address comment.

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David O'Hagan
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Comments:
Although I understand the intent of this specification revision (I-35 Bridge Collapse?), it is overly prescriptive and will increase bridge costs on long and balanced cantilever segmental concrete bridge especially. In the case of the latter, it is/was standard practice to include an allowance in the design (?? Lbs/SF) for such material that would be incorporated into the bridge (reinforcing steel, PT, grout bags, etc.).

Response: This proposed change will not impact construction sequences shown in the plans or erection drawings. No changes made.

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Ghulam Mujtaba
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Comments: (11-17-09)
The proposed specification is open to interpretation and it makes it difficult for the project personnel and contractors to decide that which equipment is considered to be light and which equipment is considered to be heavy. It depends whether these loads are concentrated or distributed loads, moving or static. For concrete bridges another factor is the age of the bridge. The proposed specification has mentioned that the Engineer may require the loads to be analyzed. During construction it will be difficult to implement a requirement which is uncertain. The word "may" indicates uncertainty, not a firm requirement. For concrete bridges, the allowable magnitude of the load on the bridge depends on the age of the bridge components. It has mentioned that the effects of loads to be analyzed. It has not mentioned that the stresses on the bridge components due to the effects of the stored loads to be analyzed. The stored load has been mentioned, but, not the moving load. I recommend that the stress analyses on the structural

components of the bridge due to the stored materials should be provided by the Specialty engineer for every project. This will assure the contractor and project personnel that the loads of the equipment and tools on the bridge are within the allowable limit.
I suggest the addition of the following statement: Provide stress analyses of bridge components due to the effects of the stored materials and static or moving equipment on the bridge.

Response: This is an issue that requires engineering judgment in the field. Each situation is unique and it would be impractical to provide language to address every possible situation that may arise. The language has been modified to clarify the intent.

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Tom Bowles
Russell Engineering, Inc.

Comments: (11-18-09)
The Specification is far too vague. It will serve only the Department's Agent in the field to possibly unfairly limit the use of bridges for storage. The language is not tied to the Specs regarding Stripping of Forms or Opening to Traffic on Bridges and Approaches. I would suggest with regard to Equipment storage that Department clarify what is considered Light. To me anything I can lift with the crane without lifting the rollers out the track is light. We have too often had to deal over cautious Inspectors who considered a 185 cfm Air Compressor a threat to Structure. In short, it needs revisiting. Maybe while he is at it, he could bring the Opening to Traffic for Approaches in line with that of the Deck. Currently, the criteria does not recognize flexural testing, beams, as an alternate course. It strictly calls for 14 days or 100% of 28 day compressive. Something wrong in that picture...

Response: See response to comment from Ghulam Mujtaba above. Other comments are outside the intent of this proposed revision.

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Comments:
On the new Section 6-3.3, I would recommend to distinguish if the bridge is an existing but close for construction reasons or if it is under construction. Storing reinforcing steel (heavy load) on a bridge under construction could be undesirable regardless of the continuity, and could also create problems with the bridge vertical profile.

Response: See response to comment from Ghulam Mujtaba above.

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Pete Kelley
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Comments: (12-9-09)
In general, I think this new section is potentially so vague that we will have to have a specialty engineer analyze anything we store on a deck. While it says not to store anything other than light equipment, forms, and rebar, it also says that "The Engineer may require the effect of stored material loads to be analyzed by the Specialty Engineer." It is possible and probable that most CEI's will require us to submit signed and sealed calculations for a bundle of plywood. I know this isn't the intent of the revision, but in reality I think that this is what will end up happening. I would think that the EOR could provide some basic limitations like psf that the contractors could use as a guideline. Any loads that exceed certain limits could be analyzed, but the way it is worded now leaves too much to the wild imaginations of the CEI firms.

Response: See response to comment from Ghulam Mujtaba above.

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Michael Bone
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Comments: (Internal Review 11-4-09)
I was looking through the Standard Specifications for some ideas and noticed that we already address the subject of items stored on bridge decks in the second part of 400-17.2.

“400-17.2 Storing Materials on Bridge Slabs: Do not store heavy equipment or material, other than light forms or tools, on concrete bridge slabs until 14 days after they have been poured. **For all stockpiles, tools, and equipment stored on bridge slabs at any time, obtain prior approval by the Department, and the Engineer will require any such stored materials or equipment to be dispersed in order to avoid overloading any structural part.”**

This may not be prominent enough to satisfy the Feds. It’s under 400-17, Protection of Concrete, while their intent seems to be protection of the bridge. It is also a specification that is given little regard in practice. Taken literally, the contractor would need the “Department’s” permission to store an empty concrete bucket on the deck.

A possible solution may be to add a sub-article under 8-4, Limitation of Operations,
8-4.X Protection of Bridges: Do not store materials on bridges, other than light equipment, forms, tools and reinforcing steel, without prior approval of the Engineer. The Engineer may require the effect of stored material loads to be analyzed by the Specialty Engineer.
I think we're safe from a contractor going crazy with rebar storage.
Hope this helps.

(as per Tom Andres (11-6-09): I think Section 400-17 is intended to protect new decks the way I read it. However, I like Mike Bone’s proposed language.
Response:
See response to comment from Ghulam Mujtaba above.
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After further discussion with Structures, they have decided to not implement the proposed change dealing with storage of material on bridge decks. Article 400-17.2 addresses this issue.

The agenda for the February 2010 DCE Meeting will include a discussion relating to storage of material on bridge decks and 400-17.2.