

New Hampshire Department of Transportation
BUREAU OF BRIDGE DESIGN
 Office Meeting Minutes – July 27, 2017

In Attendance (X):

<u>Administration</u>		<u>Consultant Section</u>		<u>In-House Design</u>	
X Bob Landry	LRL	X Joe Adams	JCA	X David Scott	DLS
Lynn Paquette	LP	Bob Juliano	RAJ	X Bill Saffian	WPS
		Mike Licciardi	MGL	X Jason Tremblay	JAT
		X John Sargent	JAS	X Tony Weatherbee	ANW
<u>Trainees</u>		X Ron Kleiner	RLK	X Sue Guptill	SMG
				X Mark Wagner	MGW
		<u>Existing Br Section</u>		X Pete Parenteau	PJP
		X Nick Goulas	NBG	X Angela Hubbard	ABH
		Jeff Lorden	JEL	Chelsea Noyes	CKN
<u>Guests</u>		John Poisson	JTP	X Kevin Daigle	KFD
		X Laith Qurreh	LOQ	X Phil Brogan	PAB
		X Jerry Zoller	JSZ		
		X Aaron Janssen	ACJ		

Items:

1. **DLS** haunch concrete spalling to road below.
2. **DLS** noted an email from Steve Johnson on 3-sided boxes as follows: The recent storms have again highlighted the importance of a continuous cast-in-place footing under precast 3-sided boxes and Conspars. On Streeter Pond Road in Sugar Hill, a Municipal Bridge constructed in 2010 with precast non-connected footing sections was undermined and will need to be replaced. Conversely, a State bridge with a continuous concrete foundation and a ConSpan superstructure on NH 116 in Benton that constructed in 2003 was undermined during the same storm and will only need to be underpinned. There is substantial redundancy when the footings are continuous.
3. **DLS-JAS** Do we still allow holes in the web to accommodate Fleming brackets? No, see below.
4. **LRL** Service presentations, JAT and RLK 20 year, SMG 25 year.
5. **DLS** MATS LP asks for nightly updates.
6. **DLS** from major staff, CMW mentioned that the highway trust fund is only funded until 2020, when rescissions are possible. For this, and other reasons, he would like us to begin trying to front load the Ad Schedule. If we get, say \$160 from the feds annually, then if we have it all spent by Feb. 2020, they can't rescind it.
7. **DLS** let Shelley in Rail & Transit know if you are going in a corridor with track (active or not). If it is active, the RR has rules that basically prevent you from being on the track.
8. **DLS** if running estimates and checklists for this year, submit by Wednesday September 23rd.

9. **LRL** GASIT process ... August 23rd ... 10 year plan. \$28M request on shelf projects. FHWA ... time ... of estimates. Document scope change in estimates. ID all parent child projects
10. **LRL** cyber security 74 people haven't done it
11. **LRL** work force statistics in HR website under health administration

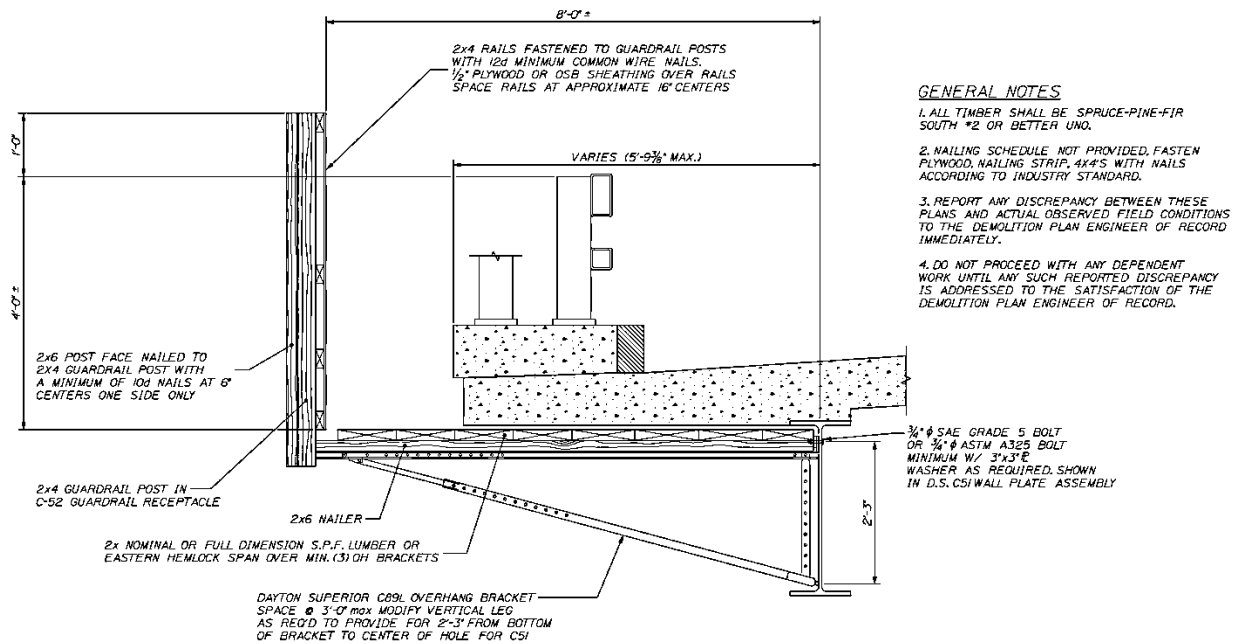
Round the Table:

1. **JAT** the list of bridges on DLS's wall, 12 red list RR and 8 non-red list RR bridges.
2. **PAB** if 5 miles from airport notify Aeronautics ... crane height... larger area around Manchester. 45 days to hear back from FAA.

Prepared by: ACJ 8/4/17

Distributed: 8/4/17

Bolt Holes in Web



Salem-Manchester 14633-D

Thu 7/6/2017 7:59 AM

Hi John,

I agree and still feel that drilling holes in the girders is not consistent with the careful demolition required of this nationally historically significant structure. As we had discussed, this bridge was of the utmost importance to the State Historic Preservation Office (SHPO). They added requirements for this bridge that we have never seen for any structure before such as storage, interpretive panels, national marketing campaigns, etc. They even went so far as to note that we can't even damage the shear connectors and need to keep the bolts that we cut. Putting holes in the structure, and patching seems contrary to the intent of the careful demolition.

Thank you,
Wendy

1988 Special provision

Add to Construction Requirements:

3.4.7.3 Falsework bracket holes. The use of bolt holes in the webs of fascia girders and beams for supporting temporary falsework brackets will be permitted unless otherwise directed on the plans. If such holes are used and after all falsework brackets are removed, the holes shall be filled with the same bolts, nuts and washers as are used for the assembly of the structural steel. The bolt head shall be located on the outer web face.

2000 Bridge Design manual

4. Superstructure cantilever falsework utilizing ready-made brackets, such as Fleming Brackets, shall normally be spaced at 1.25 m (4 ft.) ±. Holes for falsework brackets in exterior girders should not be permitted where the exterior girders will be seen by the travelling public. If holes are allowed, they shall be filled with HS bolts after usage.
 - a) Bracket holes drilled in the web shall be no closer than 75 mm (3 in.), preferably 150 mm (6 in.) to a transverse stiffener or connection plate.

2000 Bridge Standard

- (7) SHOP OR FIELD WELDING OF ATTACHMENTS TO, OR PLACEMENT OF HOLES IN ANY EXPOSED PORTION OF THE PLATE GIRDERS FOR CONSTRUCTION PURPOSES, IS NOT PERMITTED. SHOP OR FIELD ATTACHMENTS TO THE TOP FLANGE FOR CONSTRUCTION PURPOSES MUST BE APPROVED BY THE ADMINISTRATOR, BUREAU OF BRIDGE DESIGN.

Concrete Disposable

Starting on the abutment A, West side of the existing bridge, partial deck coping/wing/abutment removal will take place in accordance with the limits described in the contract documents. This removal will be accomplished with a combination of excavator mounted hoe-rams and concrete processing jaws as well as hand held pneumatic jackhammers as needed. The reinforcing steel will be removed and recycled and the concrete will be processed for use as fill material on site. Once the partial abutment and wing wall have been removed and the existing H-piles exposed, the H-piles in conflict with the required excavation and new retaining wall tie-backs will be extracted.

From: Jerry Zoller

There are three **components** to this discussion, as I understand it, namely, (1) **documentation** of the **history** of the Fleming bracket hole practice; (2) the current applicable **contract** specifications; and (3) what is our engineering **judgment** for what to do. Permit me to address them in that manner.

1. The **history** of what we call “Fleming bracket” holes, or overhang bracket holes, is that we **used to permit** them.

For many years their use was **standard practice** and considered **routine**. The 1979/1982 version of the Bridge Design Manual requires Fleming bracket holes to be within one foot of a stiffener to strengthen the web against bowing.

I frequently checked structural steel shop drawings for drilling the holes into the web in the shop, being careful to check the spacing to avoid stiffeners. I added the practice to require that the falsework bracket holes **be filled** with high strength bolts after the work was done. I did this formally in an **1987** in a note in the Bridge Design Manual (attached) and contractually in an **1988** Special Provision (attached).

However, somewhere along the way the Spec Committee reviewed my Special Provision and Roger Moody objected to the practice of filling the holes with bolts.

Also, somewhere along the way, the thinking changed to **prohibit** the use of falsework bracket holes both for **aesthetics** of having holes (either open or filled with bolts) in the fascia beam, and because there were other ways to support the falsework bracket, namely, “**Richmond**” hangers.

The attached documentation shows that at least starting in **2000** the practice was **not** to drill holes in the web for the falsework brackets, as reflected in the 2000 Bridge Design **Manual** and in standard **contract superstructure notes**.

This **shift** in practice from Fleming brackets to Richmond brackets brought along with it the subject of **welding to the top flange**. To **illustrate** this new discussion see the **2002 sketch** (attached) and the **2006 memo** in which I discussed the subject of welding.

To summarize, drilling holes have not been permitted since at least 2000, which is 16 years ago.

2. The contract plans for this project contain the same note referenced since 2000 which states “Shop or field welding of attachments to, or **placements of holes in any exposed portion** of the rolled beams for construction purposes, is not permitted....”

The Contractor is choosing to dissect this sentence and hang his argument on the one word “exposed” since the beam in question is going to become an interior beam in the final bridge configuration.

But the primary point of the note is that the **Contractor not drill holes in the structural steel for construction purposes**. The point isn’t that it’s OK to drill holes anywhere except the fascia. The use of the word “exposed” is part of the description of when such holes might be used, and is intended to reference falsework brackets and has been understood to mean that.

In my mind, if the Contractor is going to pick on one word ('exposed'), then he could just as easily pick on the word "rolled beam" and say that the note doesn't apply if the bridge happens to be a welded girder.

To summarize, I feel it is weak to push the "exposed"-wording argument.

3. As for final engineering judgment, obviously it doesn't make any/much difference if there are a few holes in the beam or not. We've done it before plenty of times. However, that is not the point. The point is that the holes-in-the-web practice has been changed for at least 16 years, and the issue is a matter of **following the plans**. I'm sure we could point to any number of practices that have been changed we no longer allow. We consider drilling holes to be a **last resort** rather than the first.

Food for thought...

For your consideration. *Jerry*