

August 18, 2008

EXPRESS MAIL

Pam Clawson
Claims Coordinator
Ohio Department of Transportation
1980 W. Broad St.
Columbus, OH 43223

Gary D. Yancer
Vice President
C.J. Mahan Construction Company
3400 Southwest Blvd.
Grove City, OH 43123

Subject: Grant Bridge Arbitration
Baffle Plates

Dear Pam and Gary:

Enclosed is the ruling.

Best regards,



Daniel F. Meyer

**OHIO DEPARTMENT OF TRANSPORTATION
U. S. GRANT BRIDGE
ODOT PROJECT 178-01 SCIOTO COUNTY
C. J. MAHAN CONSTRUCTION COMPANY**

**BAFFLE PLATE DISPUTE
ARBITRATION RULING**

**I. BACKGROUND AND SUMMARY LEVEL
DESCRIPTION OF DISPUTE**

The project comprises construction of a cable-stayed bridge across the Ohio River. The work includes foundations, construction of two main towers, a segmental structural steel floor system, precast deck panels and other work.

The project owner is the Ohio Department of Transportation (ODOT) and the contractor is the C.J. Mahan Construction Company (CJM). The project was awarded in early 2001 and the construction work has been completed.

The bridge designer is the HNTB Corp. (HNTB). The structural steel fabricator is PDM Bridge (PDM) and the steel detailer is Tensor Engineering (TE). TE appears to be a sub-consultant to PDM and PDM holds a structural steel supply contract with CJM.

This dispute is about detailing, erecting and field-correcting the orientation of certain steel baffle plates that are attached to the bottom of the bridge's strut beams: the strut beams are part of the bridge floor system. CJM seeks \$151,433.53 from ODOT, which is the stipulated cost for the repair work, as agreed to by both parties during the hearing.

The hearing was conducted on August 4, 2007 in ODOT's Columbus headquarters. Each party submitted position papers before the start of the hearing and more information was submitted during and after the hearing.

It is not the intent of the Arbitrator to recount in detail each and every argument advanced by the parties. The Arbitrator has summarized the parties' most salient positions and believes that every position deemed to be material and significant to the resolution of this dispute has been considered.

II. CJM POSITION

The baffle plates (BPs) comprise 5/16" structural steel plates attached to the strut beam bottom flanges via angled-plate brackets: the BPs are ultimately fixed to the superstructure by a series of welds and bolts. The BPs are 5'-9" deep x 24'-10" long and the plate tips are horizontally displaced from the strut beam vertical centerlines by 2'-0".

Based on the contract documents and its experience with about 3,000 bridges, TE concluded that the BPs tips were to be oriented inward, that is, the above mentioned horizontal offset was toward the bridge centerline. According to CJM, both ODOT and its designer reviewed and approved the PDM/TE shop drawings and the plates were initially field-erected in an inward manner, pursuant to the shop drawings. Additionally, ODOT inspectors observed the inward plates and failed to determine that any conflicts existed between the as-detailed BPs and the field-erected plates.

CJM stresses that the issue of plate orientation never arose until after installation of BPs in ~16 of 24 superstructure segments. During September 2005, CJM's own Engineer in Training noticed the orientation variance with respect to that shown on the contract's *Typical Deck Section Sheet 106*.

At the time the variance was discovered, CJM told ODOT that if the as-built condition did not conform to the design intent, that is due to a contract ambiguity.

CJM contends that *Framing Plan Sheets 137* and *138* identify the BP tip location by use of a dashed line, inward of the strut beams. According to CJM, the only other BP information to be gleaned from the contract documents is via a reference to *Baffle Plate Detail Sheet 148*.

Sheet 148 shows the BP angled to the left side of the detail. However, as shown on *Sheet 137*, there are 2 lines identifying the BPs, one left and one right. There is no indication on *Sheet 148* whether the BP is a left-side or right-side view. Thus, CJM maintains that without a point of reference, it is equally reasonable to conclude that the plates are to be either inward or outward oriented. With

respect to *Section X-X* on *Sheet 148*, CJM asserts that orientation is not clearly evidenced therein.

According to CJM and TE, *Sheets 137, 138* and *148*, taken as a whole, indicate that an inward orientation is reasonable, based on TE's vast experience in detailing ~3,000 bridges. This conclusion is based on considering the dashed lines on *Sheets 137* and *138*. The TE shop drawings conform to the above conclusion and clearly show the BP inward orientation by the use of directional center-line arrows pointing to floor beams and edge girders. Thus, TE is clear in designating BP orientation even though the contract's plan sheets are not.

As for *Typical Deck Section, Sheet 106* CJM contends that this sheet now, in hindsight, comprises a conflict with *Framing Plan Sheets 137* and *138*. Furthermore, typical deck sections only provide very general information regarding the structure but details such as member sizes, etc. are missing. Accordingly, CJM maintains that TE did not refer to *Sheet 106* when it formulated the shop drawings. Thus, TE did not ascertain any conflicts when it performed its work.

With respect to ODOT's positions in this dispute, CJM contends that *Sheet 106* is simply too general to provide BP guidance. Since it lacks details such as member sizes, an experienced detailer would not refer to it when making shop drawings. The plans show two equally reasonable BP orientation interpretations which comprise a latent ambiguity: the *Framing Plan* is clear in regard to inward orientation. Further, ODOT reviewed and accepted the PDM shop drawings and then went on to inspect and approve of the plates as initially field erected.

Subsequent to discovery of the inward oriented BPs, ODOT ordered the same to be brought into conformance with *Sheet 106*. The field correction entailed removing existing bolts, coping extension tabs, rotating the BP assemblies and, later, replacing improper bolts with HS A325 bolts. CJM used the wrong bolts after rotating the BPs but contends that its bolt-mistake was derivative of the root-cause contract ambiguity and is thus compensable. CJM wants its money for all BP re-orientation efforts.

CJM also points out that during the Step 3 ODOT Dispute Resolution process, the Review Board found that CJM was the victim of a contract ambiguity and ODOT offered 50% payment which CJM subsequently rejected. CJM's rejection was founded on its belief that ODOT is responsible for the ambiguity. Also, according to CJM, the Review Board ignored the timing aspects of this dispute in that TE did nothing wrong at the time it prepared the shop drawings: CJM did not ignore any duties to clarify nor was ODOT deprived of any mitigation opportunities.

In summary, CJM contends that there is no rule of thumb or basic industry understanding in regard to BPs, their workings and thus their orientation.

Accordingly, there was no reason for a detailer such as TE to ask questions when preparing shop drawings.

III. ODOT POSITION

Although ODOT acknowledges that CJM erected the BPs in a manner consistent with the PDM/TE shop drawings, it nevertheless contends that the correct orientation is outward, pursuant to the contract documents. Only when the plates were being field erected was it determined that the shop drawings are not consistent with the design plans. According to ODOT, all re-orientation expenses should be borne by CJM including rotating the plates, coping extension tabs and replacing the improperly installed bolts with A325 Type 3 bolts.

ODOT contends that *Typical Deck Section Sheet 106* is the 6th drawing in the deck and ODOT typically reserves this drawing for setting forth many bridge details and everybody knows that. As a bookmark, during the hearing CJM did not challenge ODOT's observation.

In any event, according to ODOT and its *Sheet 106*, the BP orientation is crystal clear.

As for *Baffle Plate Detail Sheet 148*, this drawing references: a) *Framing Plan sheets 137 and 138* and b) *Typical Floor Beam Sheet 146*. The fact that BP orientation is not shown on any of the above sheets is proof plenty that there is no contract ambiguity in regard to orientation. Orientation is only shown on *Sheet 106*. Here, ODOT contends that CJM only had to consider all of the plans together and it would not have incorrectly detailed and installed the BPs.

Supplemental Specification (SS) 863.08 Structural Steel Members sets forth that the general contractor accepts shop drawings and in doing so confirms field verifications and issues resolved with ODOT. By accepting shop drawings, the contractor also represents that it has verified fabrication details as being correct with no additional compensation. According to ODOT, ODOT's receipt of shop drawings does not create any acceptance on its part of the contractor's design.

ODOT also contends that *CMS 105.03* requires that non-conformance corrections be performed at no cost to ODOT.

As for review of the PDM/TE shop drawings, ODOT denies that it performed a full review including BPs.

IV. DISCUSSION OF RELATED FACTS, TESTIMONY, CONTRACT PROVISIONS, AND FINDINGS

Within the heavy construction industry, it is widely understood and generally accepted that the plans and specifications have to be considered as a whole. The Grant Bridge project is no exception.

Sheet 106 is an integral part of the plan-set and is the 6th drawing in order of appearance: the sheet is significant and has not been salted away in some obscure corner of the contract documents. *Sheet 106* clearly and unambiguously shows the BPs with an outward orientation.

CJM and its vendors had a reasonable responsibility to review and consider *Sheet 106* in conjunction with the balance of the contract plans when preparing the project's shop drawings. To the extent that parties chose to do otherwise, that is not the fault of ODOT.

In support of its overall position, CJM explains that *Sheet 106* was not consulted when the shop drawings were initially prepared but TE, its detailer, gave testimony to the contrary, during the hearing. TE stated that it *may have glanced or seen Sheet 106* upon initial review of the contract documents. Once having reviewed the sheet, TE had a reasonable obligation to do one of two things: 1) detail the BPs according to *Sheet 106* or 2) seek clarification as to BP orientation if TE somehow reckoned that *Sheets 137* and *138* were inconsistent in any way with *Sheet 106*. TE failed to do either and that is not the fault of ODOT.

TE also stated during the hearing that it *looks at typical drawings* but does not rely upon them in preparing its own shop drawings. While this may be true, TE does not appear reasonable in this regard since all of the plans must be considered as a whole. Cherry picking the drawings is a risky sport.

As far as the ODOT and HNTB shop drawing review is concerned, that issue is not dispositive in regard to this dispute. First of all, ODOT denied during the hearing that it ever reviewed the entirety of the shop drawings related to BP orientation, namely, PDM shop drawing *Sheets 141* and *TD6*. In its post-hearing submittal, CJM has presented evidence which indicates that ODOT at least received the drawings. However, the ODOT *Shop Plan Engineer* was not present during the hearing and the nature of her testimony in regard to drawing reviews is unknown. The drawings bear no ODOT approval stamp.

Second, even if ODOT did review the BP orientation shop drawings, a reasonable reading of *CMS 105.03* and *SS 863.08* nevertheless indicates that responsibility for contract drawing compliance permanently resides with CJM

including at the time which CJM accepted the PDM/TE shop drawings. Here, the contract is clear and the Arbitrator has no authority to change it.

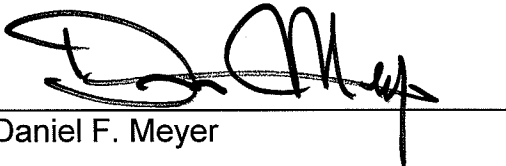
Under the terms of the contract, notwithstanding the contention that ODOT and its team witnessed incorrect BP installation and failed to object, the duty to comply with the contract drawings nevertheless resides with the CJM team.

With respect to compensation for its BP orientation correction expenses, under the terms of the contract, CJM is not due any. Even though ODOT has previously offered 50% compensation, it apparently did so in *good will*, a prerogative not handed over by the parties to the Arbitrator.

The above finding applies to each category of cost including replacement of the bolts. As for the bolt issue, while that appears to be an honest mistake, there is no contract provision that places the burden of correcting honest mistakes of this nature on ODOT's shoulder.

V. ARBITRATION RULING

Based on the position papers, testimony and post-hearing submittals, the Arbitrator rules that the Grant Bridge BPs were incorrectly installed and this was not the fault of ODOT. ODOT acted reasonably in requiring field correction and is not liable for any BP correction costs.



Daniel F. Meyer

August 18, 2008

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