



REVIEW NOTES
MIDDLEBURY RS 0174(8) - SAND HILL BRIDGE
ELASTOMERIC BEARING FABRICATION DRAWINGS
December 17, 2013

RE: Precast Arch Fabrication Drawings received from T Buck on 12/09/2013 (drawings dated 11/2013).

VHB Project No.: 57438.00

These notes accompany the review of the Elastomeric Bearing Fabrication Drawings reviewed by VHB on 12/17/2013. Questions are from the transmittal from D.S. Brown, dated 11/27/2013. Responses are in bold.

Question 1: The contract drawings clearly specify 60 durometer material for the Next Beam bearings, but do not clearly indicate what material is required for the support girder bearings. Please verify if these bearings should also be 60 durometer or if they should be another material.

Response: *At the Fabricator's option, either 50 or 60 durometer elastomer material is acceptable for the support beam bearings. All elastomeric material shall meet or exceed the requirements for Low-Temperature Zone D, Grade 4.*

Question 2: Due to fabrication concerns with the 1/16" thin edge of the beveled shim in the Abutment 2 bearings, please verify if it is acceptable to increase the beveled shim and overall bearing height by 1/16".

Response: *Increasing the beveled shim in the Abutment 2 bearing is acceptable.*

Question 3: The contract drawings did not clearly indicate if the Abutment 1 bearings should be bonded to the beveled sole plates. For consistency with the Abutment 2 bearings, the Abutment 1 bearings were quoted as loose from the plates. Please verify if this is acceptable or if the bearings should be bonded to the plates.

Response: *The Abutment 1 elastomeric bearings should be vulcanized to the steel sole plates.*

Question 4: The contract drawings did not appear to specify an anchor rod material. Please verify if the Abutment 1 anchor rods should be ASTM F1554 Gr 36 per section 714.08 of the state specifications.

Response: *Anchor rods shall be ASTM F1554 Gr 36 Swedged, Galvanized.*

Vermont Agency of Transportation

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ON: **December 9, 2013**

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 12/17/2013

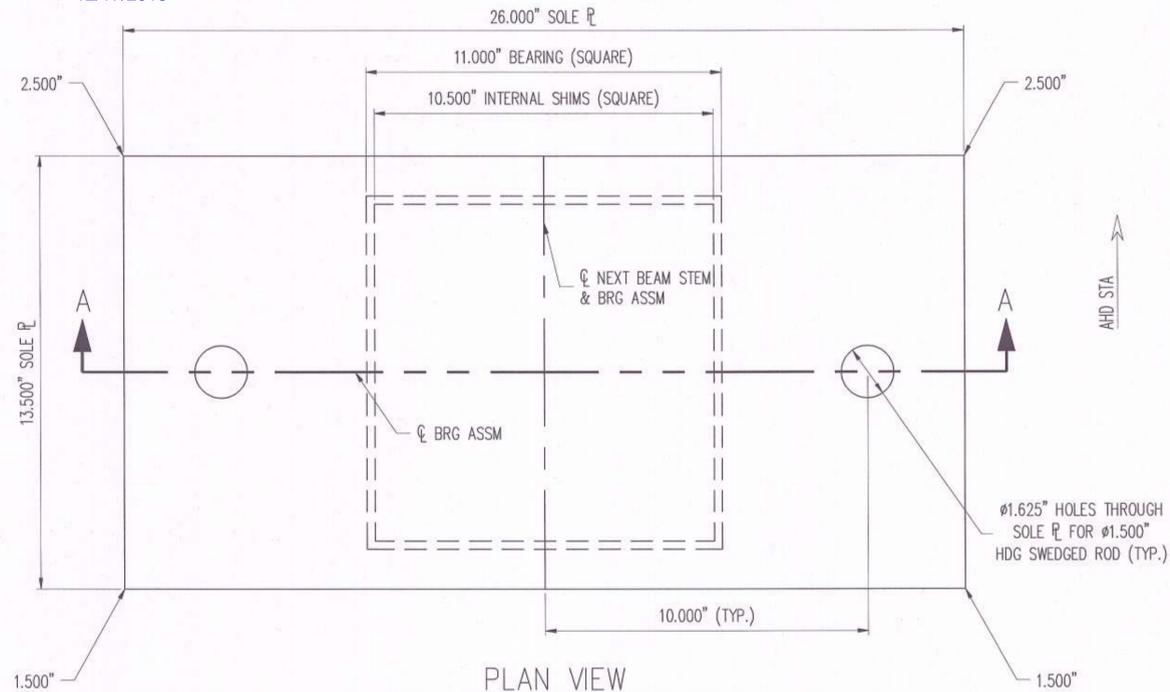
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ON: December 9, 2013

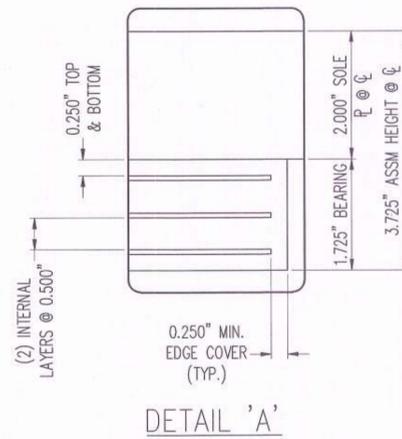
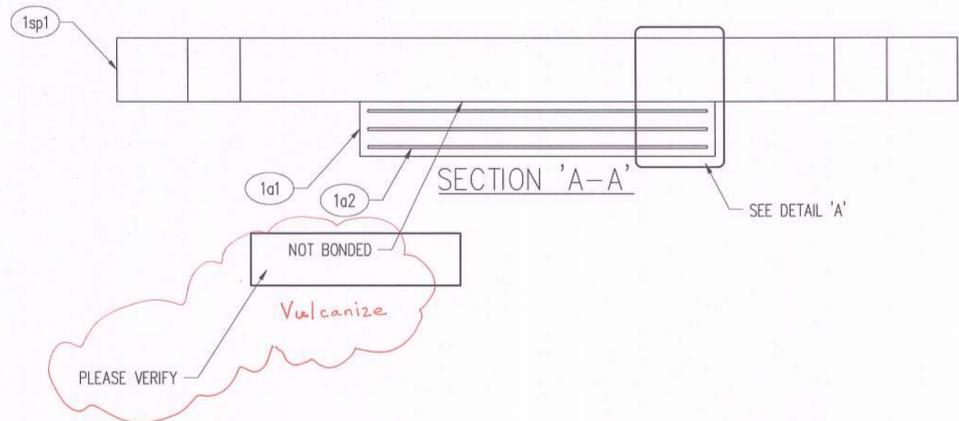
and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 12/17/2013



- (1) REQ'D @ ABUTMENT 1 NEXT BEAM 1, STEM 2
- (2) REQ'D @ ABUTMENT 1 NEXT BEAM 2, STEMS 1 & 2
- (2) REQ'D @ ABUTMENT 1 NEXT BEAM 3, STEMS 1 & 2
- (1) REQ'D @ ABUTMENT 1 NEXT BEAM 4, STEM 1
- (2) SAMPLE BEARINGS W/O EXT. STEEL REQ'D



| LOAD DATA | |
|---------------------------|-------|
| MAX DL REACTION (KIPS) | 51.5 |
| MAX LL REACTION (KIPS) | 50.5 |
| MAX DL+LL REACTION (KIPS) | 102.0 |

SHOP DRAWING REVIEW

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED REVISE AND RESUBMIT FURNISH AS CORRECTED

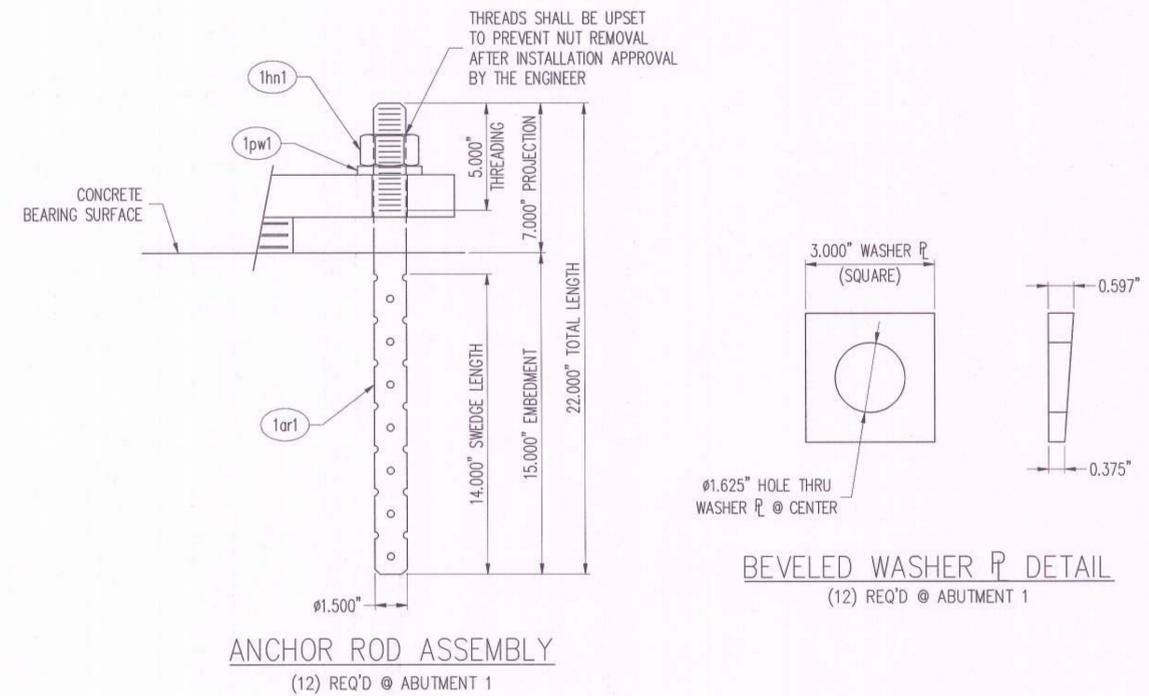
CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR REVIEW OF GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR: CORRECTING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATING HIS WORK WITH THAT OF ALL OTHER TRADES; AND PERFORMING HIS WORK IN A SAFE AND SATISFACTORY MANNER.

VHB
Vanasse Hangen Brustlin, Inc.

Job Number: 57438.00
Reviewed By: G.S. Swartz
Date: 12/17/13

| MK | QTY | DESCRIPTION | MATERIAL | LENGTH | REMARKS | WT* | REV |
|--|-----|-------------------------------|---|---------|--|-----|-----------------------|
| 1A | 8 | ELASTOMERIC BEARING | | | 6 + 2 SAMPLES | 15 | |
| 1a1 | 8 | 1.725" X 11.000" | NATURAL RUBBER | 11.000" | 60+/-5 DURO GR.4 | 8 | |
| 1a2 | 24 | 14 GA. X 10.500" | A1011 GR 36 | 10.500" | PLAIN | 2 | |
| 1B | 6 | Beveled SOLE PLATE | | | | 249 | |
| 1sp1 | 6 | 2.500" X 26.000" | M270 GR 50 (A709) | 13.500" | M111-HDG (A123) | 249 | |
| 1C | 12 | SWEDGED ROD | | | | 11 | |
| 1ar1 | 12 | Ø1.500" X 22.000" SWEDGED ROD | M314 GR 36 (F1554) | | 5" THRD, 14" SWEDGED; M232-HDG (A153) | 11 | |
| 1D | 12 | HEAVY HEX NUT | | | | 1 | |
| 1hn1 | 12 | Ø1.500" HEX NUT | M291-DH OR M292-2H (A563 OR A194) HEAVY HEX | | M232-HDG (A153), DRY LUBE & DYE | 1 | |
| 1F | 12 | PLATE WASHER | | | | 2 | |
| 1pw1 | 12 | 0.597" X 3.000" | M183 (A36) | 3.000" | Ø1.625" HOLE CENTERED; M111-HDG (A123) | 2 | |
| *Approx. Gross Wt. Lbs Per Single Unit | | | | | | | 11/27/2013 3:16:46 PM |

PLEASE VERIFY
OK As Is



BEVELED WASHER P DETAIL
(12) REQ'D @ ABUTMENT 1

SEE SHEET 42253-1104-GN1 FOR GENERAL NOTES

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

| REV. | DESCRIPTION | DATE | DET. | CKD. |
|------|--|------|------|------|
| | LOCATION - VT ROUTE 125 | | | |
| | BRIDGE - NO. 13 | | | |
| | PROJECT NO. - RS 0174 (8) | | | |
| | PROJECT NAME - MIDDLEBURY | | | |
| | DESIGNER - VANASSE HANGEN BRUSTLIN, INC. | | | |
| | CUSTOMER - T BUCK CONSTRUCTION, INC. | | | |

| DESCRIPTION | SCALE | DRAWN BY | CHECKED BY | DATE | QUANTITY |
|--|--------|----------|------------|-------|----------|
| VERSIFLEX ELASTOMERIC BEARING ADDISON CO., VT | N.T.S. | SP | MJG | 11/13 | 8 OF 8 |
| | 42253 | | 1104 | | 6 OF 6 |

Vermont Agency of Transportation

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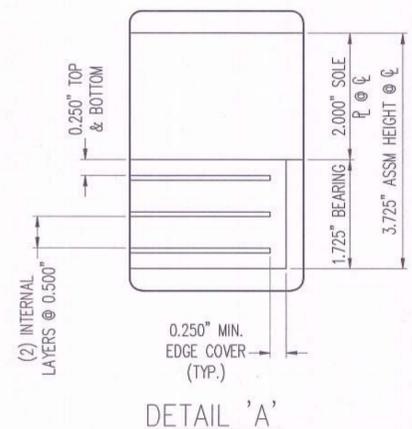
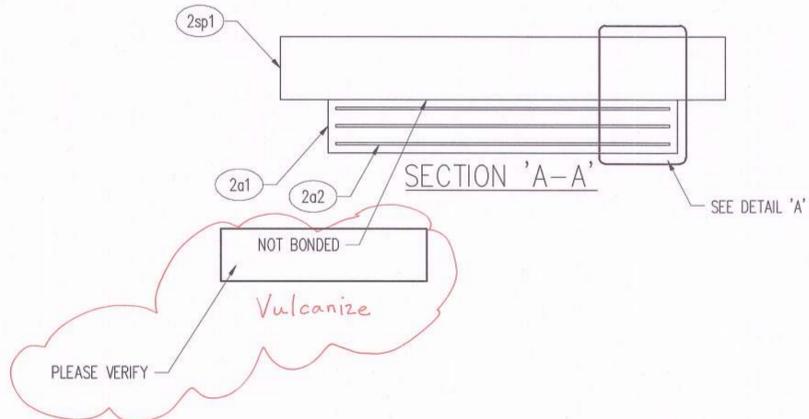
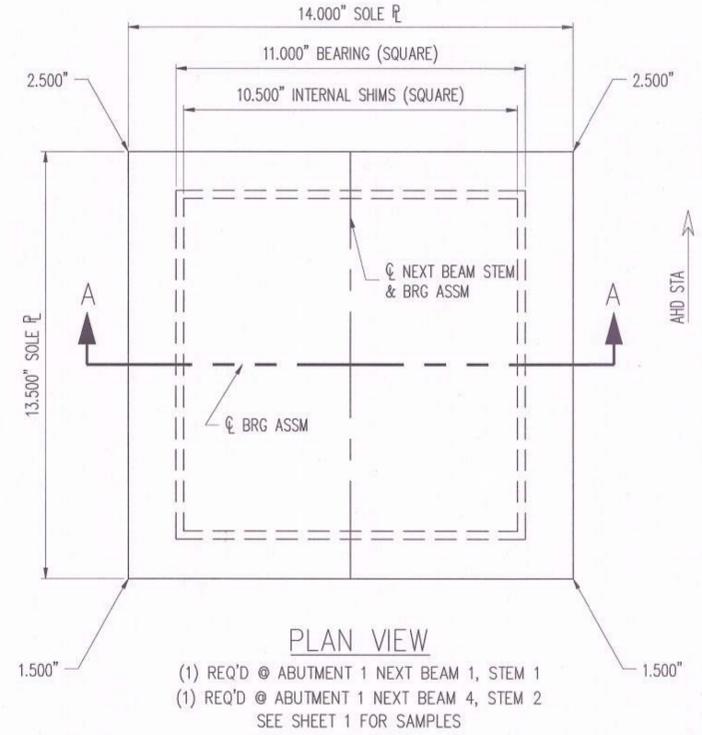
ON: December 9, 2013

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 12/17/2013

| MK | QTY | DESCRIPTION | MATERIAL | LENGTH | REMARKS | WT* | REV |
|--|-----|---------------------|--------------------|---------|------------------|-----|-----------------------|
| 2A | 2 | ELASTOMERIC BEARING | | | | | 15 |
| 2a1 | 2 | 1.725" X 11.000" | NATURAL RUBBER | 11.000" | 60+/-5 DURO GR.4 | | 8 |
| 2a2 | 6 | 14 GA. X 10.500" | A1011 GR 36 | 10.500" | PLAIN | | 2 |
| 2B | 2 | Beveled SOLE PLATE | | | | | 134 |
| 2sp1 | 2 | 2.500" X 14.000" | M270 GR 50X (A709) | 13.500" | M111-HDG (A123) | | 134 |
| *Approx. Gross Wt. Lbs Per Single Unit | | | | | | | 11/27/2013 3:16:46 PM |



| LOAD DATA | |
|---------------------------|-------|
| MAX DL REACTION (KIPS) | 51.5 |
| MAX LL REACTION (KIPS) | 50.5 |
| MAX DL+LL REACTION (KIPS) | 102.0 |

SHOP DRAWING REVIEW

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED REVISE AND RESUBMIT FURNISH AS CORRECTED

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VHB Vanasse Hangen Brustlin, Inc.
 Job Number: 57438-00
 Reviewed By: G.S. [Signature]
 Date: 12/17/13

SEE SHEET 42253-1104-GN1 FOR GENERAL NOTES

D.S. BROWN
 A GIBBALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
 300 E. CHERRY STREET
 NORTH BALTIMORE, OHIO 45872
 419.257.3561
 FAX: 419.257.0332
 WWW.DSBROWN.COM

| REV. | DESCRIPTION | DATE | DET. | CKD. |
|------|--|--------------------|-----------------|-------------|
| | LOCATION — VT ROUTE 125 | | | |
| | BRIDGE — NO. 13 | | | |
| | PROJECT NO. — RS 0174 (B) | | | |
| | PROJECT NAME — MIDDLEBURY | | | |
| | DESIGNER — VANASSE HANGEN BRUSTLIN, INC. | | | |
| | CUSTOMER — T BUCK CONSTRUCTION, INC. | | | |
| | SCALE: N.T.S. | DRAWN BY: SP | CHECKED BY: MJG | DATE: 11/13 |
| | PROJECT NUMBER: 42253 | PRODUCT CODE: 1104 | RELEASE: — | SHEET: 2 |

Vermont Agency of Transportation
RECEIVED
 ON: December 9, 2013
 and Checked for
CONFORMANCE
 BY: Jennifer Fitch DATE: 12/17/2013

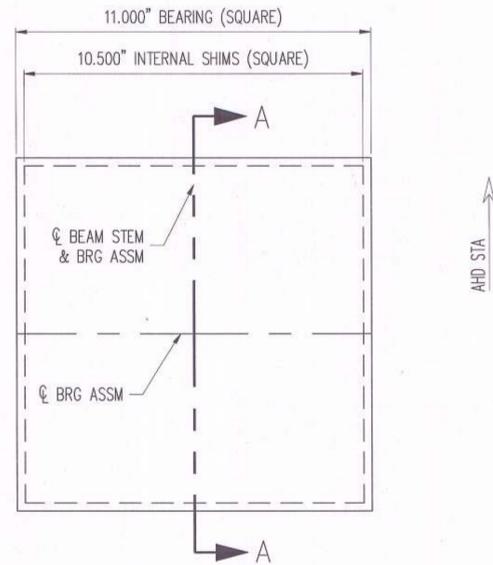
GENERAL NOTES:

1. MATERIALS SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011 AND THE LATEST REVISIONS, INCLUDING SUPPLEMENTARY SPECIFICATIONS, CONTRACT PLANS, AND THE SPECIAL PROVISIONS. GENERAL SHOP PRACTICES, STRUCTURAL FABRICATION AND ASSEMBLY SHALL BE GOVERNED BY ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.
2. THIS SHOP DRAWING WAS PREPARED IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS. THE D.S. BROWN COMPANY DOES NOT ACCEPT LIABILITY FOR THE DESIGN OF THE PRODUCTS DETAILED IN THIS SHOP DRAWING.
3. THE D.S. BROWN COMPANY TO SUPPLY ONLY THE PARTS SHOWN ON THIS DRAWING.
4. ALL STEEL SHALL BE PRODUCED IN THE UNITED STATES OF AMERICA.
5. BEARINGS SHALL BE TESTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

MARKING NOTES:

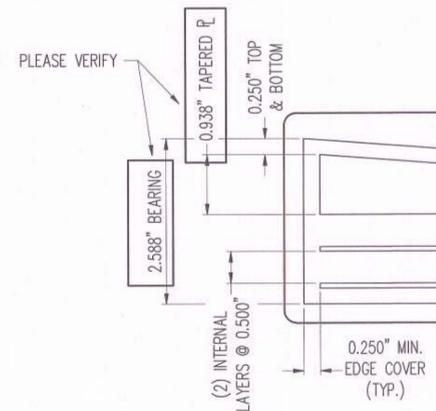
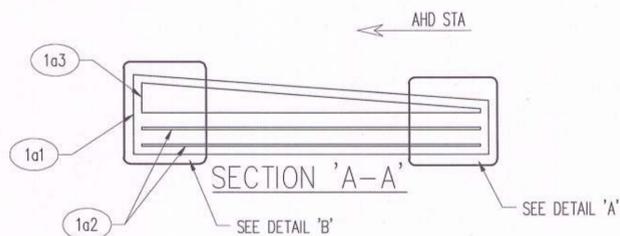
1. EACH BEARING SHALL BE MARKED WITH THE FOLLOWING INFORMATION: LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UPSTATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER BEARING IS INSTALLED.

| MK | QTY | DESCRIPTION | MATERIAL | LENGTH | REMARKS | WT* | REV |
|-----|-----|---------------------|-------------------|---------|--|-----|-----------------------|
| 1A | 10 | ELASTOMERIC BEARING | | | 8 + 2 SAMPLES | 47 | |
| 1a1 | 10 | 2.588" X 11.000" | NATURAL RUBBER | 11.000" | 60+/-5 DURO GR.4 | 13 | |
| 1a2 | 20 | 14 GA. X 10.500" | A1011 GR 36 | 10.500" | PLAIN | 2 | |
| 1a3 | 10 | 0.938" X 10.500" | M270 GR 36 (A709) | 10.500" | TAPERED; PLAIN | 29 | |
| | | | | | *Approx. Gross Wt. Lbs Per Single Unit | | 11/27/2013 3:00:47 PM |

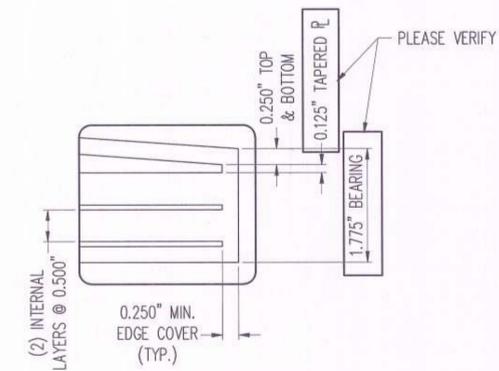


PLAN VIEW

- (2) REQ'D @ ABUTMENT 2 NEXT BEAM 1, STEMS 1 & 2
- (2) REQ'D @ ABUTMENT 2 NEXT BEAM 2, STEMS 1 & 2
- (2) REQ'D @ ABUTMENT 2 NEXT BEAM 3, STEMS 1 & 2
- (2) REQ'D @ ABUTMENT 2 NEXT BEAM 4, STEMS 1 & 2
- (2) SAMPLE BEARINGS REQ'D



DETAIL 'B'



DETAIL 'A'

| LOAD DATA | |
|---------------------------|-------|
| MAX DL REACTION (KIPS) | 51.5 |
| MAX LL REACTION (KIPS) | 50.5 |
| MAX DL+LL REACTION (KIPS) | 102.0 |

| AASHTO M251 & LRFD TOLERANCE TABLE | |
|--|------------|
| DESCRIPTION | TOLERANCE |
| ELASTOMERIC BEARING DESIGN THICKNESS > 1.250" | +1/4", -0" |
| ELASTOMERIC BEARING PLAN ≤ 36" | +1/4", -0" |
| ELASTOMERIC COVER TOP & BOTTOM | +1/8", -0" |
| ELASTOMERIC COVER SIDES | +1/8", -0" |
| POSITION OF EXPOSED CONNECTION MEMBERS | ±1/8" |
| THICKNESS OF INDIVIDUAL LAYERS OF ELASTOMER (LAMINATED BEARINGS ONLY) AT ANY POINT WITHIN THE BEARING | ±1/8" |
| VARIATION FROM A PLANE PARALLEL TO THE THEORETICAL SURFACE (AS DETERMINED BY MEASUREMENTS AT THE EDGE OF THE BEARINGS) | |
| TOP | ±0.005 RAD |
| SIDES | ±1/4" |

SHOP DRAWING REVIEW

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VHB Vanasse Hangen Brustlin, Inc. Job Number: 57438.00
 Reviewed By: G.S. Gendark
 Date: 12/17/13

D.S. BROWN
 A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
 300 E. CHERRY STREET
 NORTH BALTIMORE, OHIO 45872
 419.257.3561
 FAX: 419.257.0332
 WWW.DSBROWN.COM

| REV. | DESCRIPTION | DATE | DET. | CKD. |
|------|--|-----------------------|---------------|-----------------|
| | LOCATION — VT ROUTE 125 | | | |
| | BRIDGE — NO. 13 | | | |
| | PROJECT NO. — RS 0174 (B) | 42253-1103-3 | | 10 OF 10 |
| | PROJECT NAME — MIDDLEBURY | | | |
| | DESIGNER — VANASSE HANGEN BRUSTLIN, INC. | | | |
| | CUSTOMER — T BUCK CONSTRUCTION, INC. | | | |
| | DESCRIPTION: VERSIFLEX ELASTOMERIC BEARING | SCALE: N.T.S. | DRAWN BY: SP | CHECKED BY: MJG |
| | ADDISON CO., VT | PRODUCT NUMBER: 42253 | RELEASE: 1103 | DATE: 11/13 |

RECEIVED

ON: December 9, 2013

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 12/17/2013

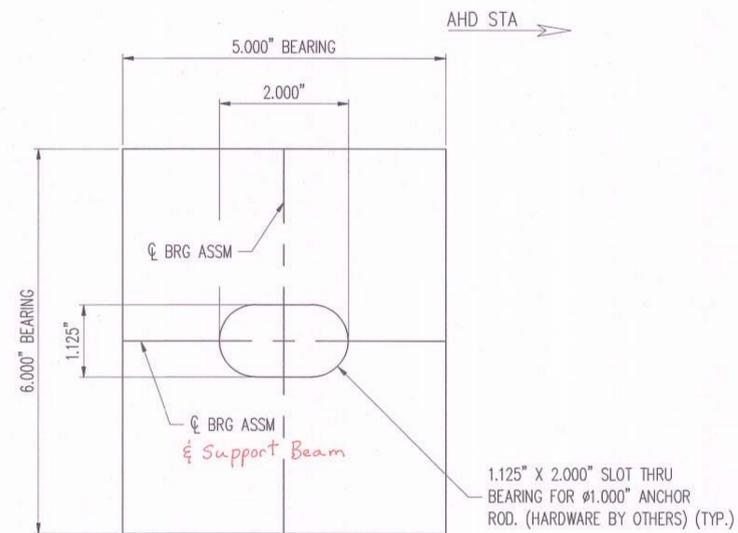
GENERAL NOTES:

1. MATERIALS SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011 AND THE LATEST REVISIONS, INCLUDING SUPPLEMENTARY SPECIFICATIONS, CONTRACT PLANS, AND THE SPECIAL PROVISIONS. GENERAL SHOP PRACTICES, STRUCTURAL FABRICATION AND ASSEMBLY SHALL BE GOVERNED BY ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.
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3. THE D.S. BROWN COMPANY TO SUPPLY ONLY THE PARTS SHOWN ON THIS DRAWING.
4. BEARINGS WILL BE TESTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

| MK | QTY | DESCRIPTION | MATERIAL | LENGTH | REMARKS | WT* | REV |
|-----|-----|--|----------------|--------|------------------------|-----|-----|
| 1A | 6 | PLAIN ELASTOMERIC BEARING | | | 4 + 2 SAMPLES | < 1 | |
| 1a1 | 6 | 0.500" X 6.000" | NATURAL RUBBER | 5.000" | 60+/-5 DURO GR.4; SLOT | < 1 | |
| | | *Approx. Gross Wt. Lbs Per Single Unit | | | 11/24/2013 11:57:01 AM | | |

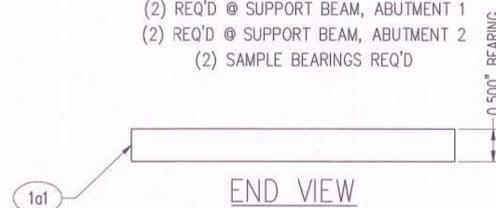
PLEASE VERIFY
 OK As is
 could Also be
 50 +/-5. Contractor's Option

| TOLERANCE TABLE | |
|--|------------|
| DESCRIPTION | TOLERANCE |
| ELASTOMERIC BEARING DESIGN THICKNESS $\leq 1.250"$ | +1/8", -0" |
| ELASTOMERIC BEARING PLAN $\leq 36"$ | +1/4", -0" |



PLAN VIEW

- (2) REQ'D @ SUPPORT BEAM, ABUTMENT 1
- (2) REQ'D @ SUPPORT BEAM, ABUTMENT 2
- (2) SAMPLE BEARINGS REQ'D



END VIEW

| LOAD DATA | |
|---------------------------|------|
| MAX DL REACTION (KIPS) | 31.5 |
| MAX LL REACTION (KIPS) | 0 |
| MAX DL+LL REACTION (KIPS) | 31.5 |

SHOP DRAWING REVIEW

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VHB Vanasse Hangen Brustlin, Inc. Job Number: 57438.00
 Reviewed By: G.S. Campbell Date: 12/17/13

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 419-257-3561
 FAX: 419-257-0332
 WWW.DSBROWN.COM



| REV. | DESCRIPTION | DATE | DET. | CKD. |
|------|--|---------------|-----------------------|--------------------|
| | LOCATION — VT ROUTE 125 | | | |
| | BRIDGE — NO. 13 | | | |
| | PROJECT NO. — RS 0174 (8) | | | |
| | PROJECT NAME — MIDDLEBURY | | | |
| | DESIGNER — VANASSE HANGEN BRUSTLIN, INC. | | | |
| | CUSTOMER — T BUCK CONSTRUCTION, INC. | | | |
| | DESCRIPTION: VERSIFLEX ELASTOMERIC BEARING | SCALE: N.T.S. | DRAWN BY: SP | CHECKED BY: MJG |
| | ADDISON CO., VT | DATE: 11/13 | PRODUCT NUMBER: 42253 | PRODUCT CODE: 1102 |
| | | | RELEASE: - | SHEET: 1 |