

MILLER CONSTRUCTION, INC.

P.O. BOX 86 ASCUTNEY BLVD WINDSOR, VERMONT 05089-0086
 TELEPHONE (802) 674-5525 / FAX (802) 674-5245

TRANSMITTAL

TO: Kristin Higgins Vermont Agency of Transportation	DATE	PROJECT NO.
	3/12/2013	Jamaica ER-BRF 015-1 (23)

XX WE ENCLOSE THE FOLLOWING: _____ UNDER SEPARATE COVER WE ARE SENDING THE FOLLOWING

COPIES	NUMBER	DESCRIPTION	CODE
1		Bearing Shop Drawings - Rev 1	H
1		Production Procedure	H

CODE:

- | | |
|---|----------------------------|
| A FOR INITIAL APPROVAL | H FOR APPROVAL |
| B FOR FINAL APPROVAL | I AS REQUESTED OR REQUIRED |
| C APPROVED AS NOTED-RESUBMISSION REQUIRED | J FOR USE IN ERECTION |
| D APPROVED AS NOTED-RESUBMISSION NOT REQUIRED | K LETTER FOLLOWS |
| E DISAPPROVED-RESUBMIT | L FOR FIELD CHECK |
| F QUOTATION REQUESTED | M FOR YOUR USE |
| G APPROVED | |

BY: _____



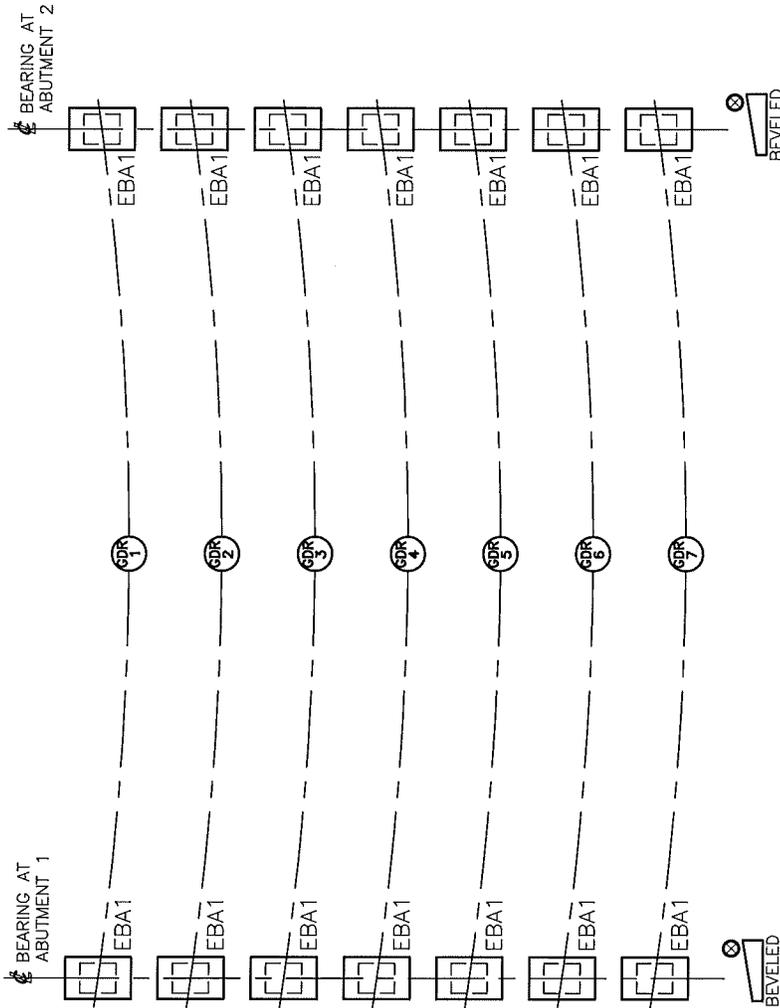
GENERAL NOTES

SHOP NOTES:

1. ALL BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 506, 531, 714, 726 AND 731 OF THE 2011 VTAOT STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
2. MATERIAL:
ELASTOMER: 50 DUROMETER GR. 4 NATURAL RUBBER & WITH A SHEAR MODULUS OF 110psi +/- 15%
3. **A** SOLE PLATES: AASHTO M270 GR. 36 (ZINC METALLIZED & SEAL COATED)
STEEL LAMINAE: ASTM A36, A1011 GR. 36 OR EQUAL
4. **A** SHIM PLATES: AASHTO M270 GR. 36 (ZINC METALLIZED & SEAL COATED)
5. SHOP TO MARK **⊗** HIGH-SIDE OF BEVELED SOLE PLATES AND AHEAD STATIONS AS SHOWN.
6. ALL STEEL BEARING PLATES SHALL BE BLAST CLEANED SSPC-SP6 (COMMERCIAL BLAST CLEANING) THEN GALVANIZED PER VTAOT STD. SPECIFICATIONS SUBSECTION 531.04(b).
7. ALL FREE EDGES OF PLATES TO BE COATED SHALL BE ROUNDED TO A 1/16" RADIUS OR SHALL HAVE THE EQUIV. FLAT SURFACE AT A SUITABLE ANGLE.
8. BEARING IS TO BE PROTECTED FROM MOISTURE AND DUST DURING SHIPMENT, STORAGE AND ERECTION.
9. PROTECT BEARING ASSEMBLIES FROM WELD SPATTER, DIRT AND OTHER FOREIGN MATTER.
10. WHEN WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PEN OR OTHER SUITABLE MEANS TO INSURE OF THE BEARING AT THE ELASTOMER DOES NOT EXCEED 200°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
11. FIELD WELDING OF THE BEARING UNIT DURING THE INSTALLATION PHASE SHALL BE PERFORMED BY QUALIFIED WELDERS USING APPROVED PROCEDURES AND ELECTRODES.
12. ALL DIMENSIONS ARE IN INCHES.
13. COSMEC REPRESENTATIVE DEBBIE PLANTE: (508) 455-3290

STATE OF VERMONT AGENCY OF TRANSPORTATION		VT	COUNTY WINDHAM	CONTROL NO. N/A
VT RTE 30 (MINOR ARTERIAL) BRIDGE NO. 30 TOWN OF JAMAICA		PROJ. NO.: ER-BRF 015-1 (23)		
DYNAMIC RUBBER: LAMINATED BEARING ASSEMBLIES				
Cosmec 1501 ROCKY RIDGE ROAD P.O. BOX 2159 ATHENS, TEXAS 75751				
SCALE: NONE	DRAWN BY: ELS	CHECKED BY: SL	DATE: 3/7/13	
SHEET GN1 OF 1	DATE: 2/28/13	JOB NO.: 11880		DRAWING NUMBER REV: 11880-GN1 1
CUSTOMER: MILLER CONSTRUCTION INC.				

REV.	DESCRIPTION	BY	DATE	CRD	DATE
1	ISSUED FOR CONSTRUCTION PER DESIGN CHANGE	ELS	3/17/13	JR	3/17/13



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 VT RTE 30 (MINOR ARTERIAL)
 BRIDGE NO. 30
 TOWN OF JAMAICA

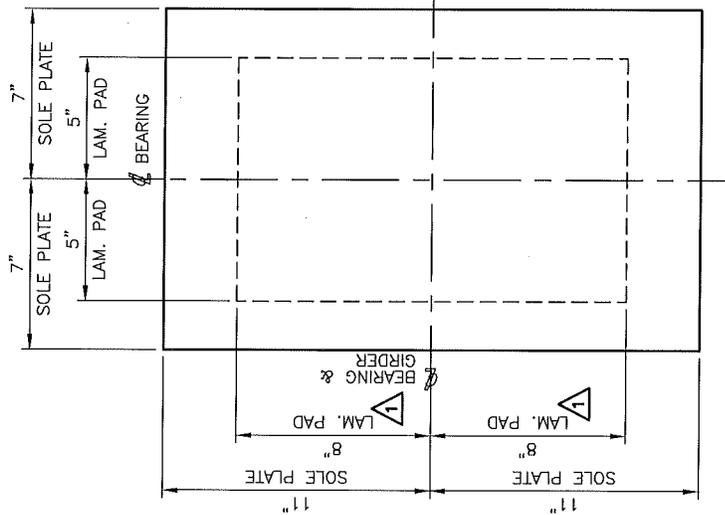
STATE VT COUNTY WINDHAM CONTROL NO. N/A
 PROJ. NO.: ER-BRF 015-1 (23)
 PROJ. NO.: ER-BRF 015-1 (23)
 DYNAMIC RUBBER:
 LAMINATED BEARING ASSEMBLIES

Cosmea
 1501 ROCKY RIDGE ROAD
 P.O. BOX 2159
 ATHENS, TEXAS 75751

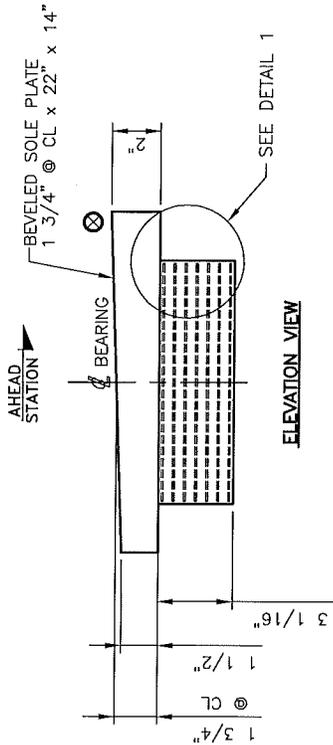
SCALE: NONE DRAWN BY: ELS CHECKED BY: SL
 DATE: 3/7/13 DATE: 3/7/13

SHEET E1 of 1 JOB NO.: 11880
 CUSTOMER: MILLER CONSTRUCTION, INC. DRAWING NUMBER: REV. 11880-E1 10

REV.	DESCRIPTION	BY	DATE	CRD	DATE



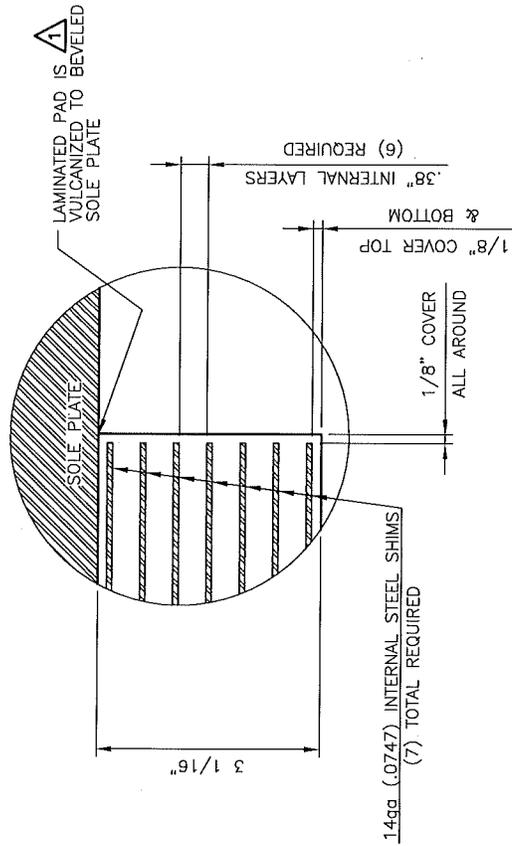
PLAN VIEW



ELEVATION VIEW

EXPANSION ELASTOMERIC BEARING ASSEMBLY

- EBA1
- (7) LOCATED AT ABUT 1
- (7) LOCATED AT ABUT 2
- (14) TOTAL REQUIRED



DETAIL 1

- (1) LAMINATED PAD
- 3 1/16" x 16" x 10"
- 50 DUROMETER GR. 4 NATURAL RUBBER
- WITH A SHEAR MODULUS OF 110 PSI +/- 15%
- (14) TOTAL REQUIRED

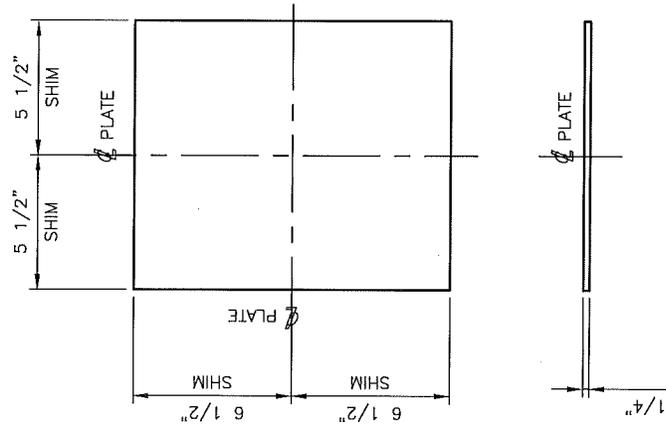
TEST PADS

- (1) LAMINATED PAD
- 3 1/16" x 16" x 10"
- 50 DUROMETER GR. 4 NATURAL RUBBER
- WITH A SHEAR MODULUS OF 110 PSI +/- 15%
- PAD ONLY - NO SOLE PLATE
- (2) TOTAL REQUIRED

MAXIMUM DESIGN LOAD UNFACTORED (KIPS)

DL = 154.40

LL + I = 0.0



SHIM DETAIL

- (1) 1/4" x 13/32" x 1" SHIM PLATE
- AASHTO M270 GR. 36 (ZINC METALLIZED)
- (16) REQUIRED

FOR GENERAL NOTES SEE SHEET GN1

STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 VT RTE 30 (MINOR ARTERIAL)
 BRIDGE NO. 30
 TOWN OF JAMAICA

STATE	COUNTY	CONTROL NO.
VT	WINDHAM	N/A
PROJ. NO.:	ER-BRF 015-1 (23)	

DYNAMIC RUBBER
LAMINATED BEARING ASSEMBLIES

Cosmea
 1501 ROCKY RIDGE ROAD
 P.O. BOX 2149
 ATHENS, TEXAS 75751

SCALE	NONE	DRAWN BY	ELS	CHECKED BY	SL
SHEET 1 OF 1		DATE	2/28/13	DATE	3/7/13
CUSTOMER	MILLER CONSTRUCTION INC.	JOB NO.:	11880	DRAWING NUMBER	RB7
REV.		DATE		DATE	

REVISED LAM. PAD SIZE		DATE	
ADDED PAD IS VULCANIZED & BEVELED		DATE	
PER DESIGN CHANGE		DATE	

PRODUCTION PROCEDURES

1. SCOPE AND PURPOSE

1.1 The purpose of these procedures is to establish standard methods of fabrication to insure the production of consistently high quality product.

2. GENERAL REQUIREMENTS

2.1 The Plant Manager shall be responsible for insuring that all operational procedures and work practices are performed as required.

3. WORK ORDERS

3.1 Work Orders for each pad are to be made by the Engineering Department and must follow all the applicable requirements as set down in the Engineering & Drafting Procedures of the Quality Assurance Manual (*see pages 35 through 44*), except as follows:

3.2 The Work Order (WO) is to include:

- 3.2.1 Rubber Type and Durometer required.
- 3.2.2 Number, thickness and size of shims, as well as any holes or slots required.
- 3.2.3 Thickness of top, bottom and internal layers.
- 3.2.4 Weight of rubber required for each of the layers in 3.2.3 above – based on the latest unit weights of the rubber from our Custom Mixers.
- 3.2.5 Any Special Notes as to marking and testing of the finished pads.
- 3.2.6 Include a sketch accurately depicting the pad and any plates or like to be vulcanized to it. Show any bevels as well as holes or slots required in the pads or plates as well.

3.3 Standard Work Order sheets have been created that are to be used. The sheets have been automated to calculate rubber weights, etc.

3.4 Standard Work Order sheets will be updated by the Engineering & Drafting Department as required to reflect changing requirements, specifications and practices.

3.5 The completed and checked Work Orders are to be Distributed by the Engineering & Drafting Department as follows:

- 3.5.1 Copy to Rubber Shop
- 3.5.2 Copy to Q.C.
- 3.5.3 Copy to VP of Engineering
- 3.5.4 Copy of Transmittal to President

4. FABRICATION OF INTERNAL SHIMS

- 4.1 Steel shims used for reinforcement shall be made from rolled mild steel conforming to ASTM A 1011 or equivalent, unless otherwise specified by the Contract Documents.
- 4.2 The shims shall be of the thickness, width and length and quantity specified by the Contract Documents and the Work Order provided by Engineering and Drafting.
- 4.3 All shim edges shall be ground to remove burrs.
- 4.4 Surface profiles shall be checked and permanently recorded using the Test-X-Tape method, reporting on the Shim Surface form. (*Frequency once daily*)

5. INTERNAL SHIM PREPARATION

- 5.1 Sized shims shall be blasted until a surface profile of .5 to 2.0 mm is obtained.
- 5.2 Blasted shims shall be cleaned and degreased prior to adhesive application.
- 5.3 Adhesive viscosities shall be checked by Quality Control Personnel, daily prior to use.
- 5.4 Cleaned shims shall be painted with a two part adhesive.
- 5.5 Shims must be completely painted within an 8 hour period of blast completion.
- 5.6 Painted shims must be completely dried before use.
- 5.7 Painted shims must be stored in a clean dry area and must be used within a 24 hour period.

6. EXTERNAL PLATE PREPARATION

- 6.1 Sized load bearing plates shall be blasted until a surface profile of .5 to 2.0 mm is obtained.
- 6.2 Blasted plates shall be cleaned and degreased prior to adhesive application.
- 6.3 Cleaned plates shall have the adhesive mixture applied to the area where the elastomer will be vulcanized.
- 6.4 Plates shall have the adhesive mixture applied within an 8 hour period of blast completion.
- 6.5 Painted plates must be completely dry before use.
- 6.6 Plates will be stored in a clean dry area and must be used within a 24 hour period.

7. RUBBER LOAD BUILD

- 7.1 Monitoring of load build operation shall constitute assurance that load weights are within tolerance (2%). Placement of layers should be in a uniform manner and so placed as not to trap air or displace shims irregularly.
- 7.2 First piece inspection indicating a light rubber load shall constitute a corrective action to load build for re-weighing all loads if applicable and correcting them if necessary. Load Building techniques are the responsibility of Production.

8. PRESS LINE: VULCANIZING AND CURING

- 8.1 Press platen temperatures shall be monitored daily per established guidelines and reported to the Production Manager and Quality Control Manager.
- 8.2 All presses operating at inadequate temperatures will be adjusted and/or repaired for appropriate temperatures.
- 8.3 Cure times and pressures are determined by the Production Manager.
- 8.4 Bearing pads with steel laminates shall be cast as a unit in a mold and shall be bonded and vulcanized under heat and pressure. The mold finish shall conform to standard shop practice.
- 8.5 Bearing pads that are designed to act as a single unit with a given shape factor must be manufactured as a single unit.
- 8.6 Plain pads may be molded, to size or molded in large sheets and cut to size. Cutting shall not heat the material and shall produce a smooth finish. Adhesive bonding pads of lesser thicknesses together will not be allowed.
- 8.7 Flash tolerance, finish and appearance shall meet the requirements of the Contract Documents and specifications.

9. TRIMMING AND MARKING

- 9.1 All bearing pads shall have their cosmetic "flash" trimmed, in a manner that maintains all specified dimensions and cosmetic requirements.
- 9.2 All parts ready for staging (or shipment) must be grouped by job and identified in indelible ink or flexible paint marker with the appropriate sales order number and part number.

10. TRAINING PROGRAMS

- 10.1 Dynamic employees endure the same stringent training regimen as Cosmec employees. In addition to the standard topics listed on page 91, Dynamic employees undergo training specific to their job functions.

QUALIFICATIONS

- 10.2 All personnel performing shim and plate preparation and adhesive application have been trained by Dynamic Supervisors in the particulars of their job responsibilities.
- 10.3 Employees in the shim and plate preparation areas have demonstrated their proficiencies in the applicable methods, standards and procedures demanded of the individual assignment.

MONITORING PERFORMANCE

- 10.4 Employees in the shim and plate preparation and adhesive application areas have their proficiencies and skill levels monitored on a daily basis by both the Shop Foreman and the Quality Control Department.
 - 10.4.1 Shim and plate proficiencies must include consistent performance in the following areas: Removal of mill scale from shims and plates; Rounding of all corners and edges; Proper surface profile; and Removal of contaminants and surface debris.
 - 10.4.2 Adhesive application proficiencies must include consistent performance in: Mixing; coating thickness; Coating quality; and Equipment cleaning.