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HARDESTY & HANOVER, LLC
5110 EISENHOWER BLVD.,
SUITE 310, TAMPA, FL 33634
TRAVIS M. KIMMINS, P.E. NO. 87786

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
B1-2	SIGNATURE SHEET
BQ1-2	SUMMARY OF QUANTITIES (2 OF 3)
B1-15	GENERAL MACHINERY NOTES
B1-17	SPAN DRIVE MACHINERY ELEVATION

BRIDGE NO. 124134

REVISIONS						TRAVIS M. KIMMINS, P.E. P.E. LICENSE NUMBER 87786 HARDESTY & HANOVER, LLC 5110 EISENHOWER BLVD, SUITE 310 TAMPA, FLORIDA 33634	DRAWN BY: VR 07-24			LEE COUNTY DEPARTMENT OF TRANSPORTATION			SHEET TITLE:		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		CHECKED BY: TMK 07-24						SIGNATURE SHEET		
							DESIGNED BY: VR 07-24			ROAD NO.	COUNTY	FINANCIAL PROJECT ID			PROJECT NAME: MATLACHA BASCULE BRIDGE EMERGENCY REPAIRS
							CHECKED BY: VR 07-24			CR 78	LEE	453997-1-58-01 CN-1414-218	B1 - 2		
							TMK 07-24								

SUMMARY OF STRUCTURE QUANTITIES										
SECTION	PAY ITEM NO.	PAY ITEM DESCRIPTION	LOCATION	UNIT	QUANTITY		TOTAL		DESIGN NOTES	CONSTRUCTION REMARKS
					P	F	P	F		
MOVABLE BRIDGE / MECHANICAL	465-2-122	MOVABLE BRIDGE MACHINERY & CASTING - REHABILITATION, FURNISH & INSTALL, SPHERICAL BEARINGS	BASCULE SPAN 7	EA		6.0 ²		6 ²		
	465-2-421	MOVABLE BRIDGE MACHINERY & CASTING - REHABILITATION, RECONDITION, PLAIN JOURNAL BEARINGS	BASCULE SPAN 7	EA		4.0		4		
	465-2-452	MOVABLE BRIDGE MACHINERY & CASTING-REHABILITATION, RECONDITION, HYDRAULIC CYLINDER	BASCULE SPAN 7	EA		2.0		2		
	465-2-454	MOVABLE BRIDGE MACHINERY & CASTING-REHABILITATION, RECONDITION, HYDRAULIC POWER PACK	BASCULE SPAN 7	EA		1.0		1		
	465-2-505	MOVABLE BRIDGE MACHINERY & CASTING - REHABILITATION, ADJUST & MODIFY, SPAN LOCKS	BASCULE SPAN 7	AS		2.0		2		
	465-2-508	MOVABLE BRIDGE MACHINERY & CASTING - REHABILITATION, ADJUST/MODIFY LIVE LOAD SHOES	BASCULE SPAN 7	LS		1.0		1		
	465-2-660	MOVABLE BRIDGE MACHINERY & CASTING-REHABILITATION, REMOVE & DISPOSE, OTHER MACHINERY COMPONENTS	BASCULE SPAN 7	LS		1.0		1		
	¹ 465-3-17	MOVABLE BRIDGE COUNTERWEIGHT, F&I, BALANCE BLOCKS	BASCULE SPAN 7	LS		1.0		1		
	465-3-50	MOVABLE BRIDGE COUNTERWEIGHT, ADJUST	BASCULE SPAN 7	EA		1.0		1	INCLUDE SPAN BALANCING TESTING ONLY TO CONFIRM PROPER BALANCE, NO ADJUSTMENTS ANTICIPATED.	¹
	¹ 465-3-96	MOVABLE BRIDGE COUNTERWEIGHT, CLEAN, POCKETS	BASCULE SPAN 7	EA		2.0		2		
	465-20	MOVABLE BRIDGE- PREVENTATIVE MAINTENANCE & ROUTINE REPAIR	BASCULE SPAN 7	LS		1.0		1		
	465-21	MOVABLE BRIDGE OPERATOR	BASCULE SPAN 7	LS		1.0		1		
	465-71-3	MOVABLE BRIDGE FUNCTIONAL CHECKOUT, PHASE C, COMPLETE	BASCULE SPAN 7	LS		1.0		1		
MOVABLE BRIDGE / CONTROL HOUSE	512-71-1	MOVABLE BRIDGE-PLUMBING SYSTEM, F&I (INCLUDES NEW HANGERS)	BASCULE SPAN 7	EA		1.0		1		

NOTES:
1. FOR PAY ITEM NOTES, SEE SHEET NO. B1-5.

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		CHECKED BY: TMK 07-24				PROJECT NAME:		
1/25	PCR	 REMOVED PAY ITEM NUMBERS 465-3-17 465-3-96. ADDED DESIGN NOTES.					DESIGNED BY: VR 07-24	ROAD NO.	COUNTY	FINANCIAL PROJECT ID			
2/25	VR	 UPDATED PAY ITEM QTY.					CHECKED BY: TMK 07-24	CR 78	LEE	453997-1-58-01 CN-1414-218		MATLACHA BASCULE BRIDGE EMERGENCY REPAIRS	SHEET NO.
													BQ1-2

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

MECHANICAL GENERAL NOTES:

DETAILS OF MACHINERY TO CONFORM TO THE AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS CURRENT EDITION, AND ALL SUBSEQUENT INTERIMS, UNLESS OTHERWISE SHOWN ON THE PLANS, OR PROVIDED FOR IN THE SPECIFICATIONS. REFER TO TSP SECTIONS T465 MOVABLE BRIDGES AND T468 MECHANICAL CONSTRUCTION FOR MOVABLE BRIDGES FOR ADDITIONAL REQUIREMENTS.

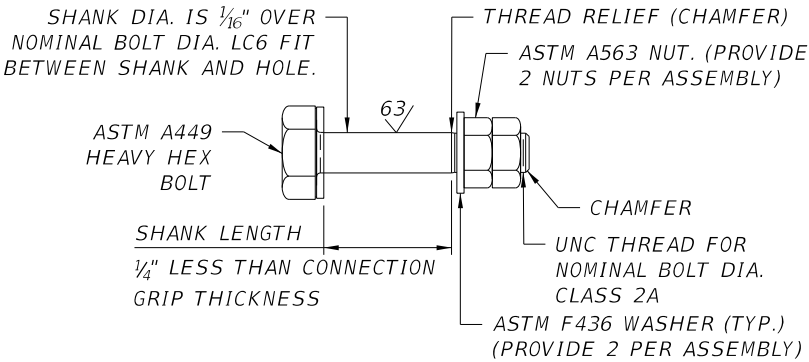
PROVIDE SHIMS FOR LEVELING AND ALIGNING ALL MACHINERY COMPONENTS. PROVIDE SHIMS AT 1/2" NOMINAL THICKNESS, UNLESS OTHERWISE SPECIFIED, WITH ADJUSTMENT VARIATIONS AS DESCRIBED IN THE TECHNICAL SPECIAL PROVISION SECTION T468.

UNLESS OTHERWISE INDICATED, PROVIDE ALL FASTENERS USED FOR CONNECTING MACHINERY PARTS TO EACH OTHER AND TO SUPPORTING STEEL TO BE TURNED BOLTS THAT CONFORM TO THE MINIMUM SPECIFIED PHYSICAL REQUIREMENTS OF HIGH STRENGTH, ASTM A449 TYPE 1, CUT THREAD, SEMI-FINISHED, WASHER FACED, HEAVY HEXAGONAL BOLTS. THE DIMENSIONS OF THE BOLT HEADS TO BE PROVIDED TO CONFORM TO ANSI/ASME B18.2.6 - HEAVY HEX STRUCTURAL BOLTS. PROVIDE STRUCTURAL BOLTS TO MEET ASTM F3125 GRADE A325 TYPE 1 SPECIFICATIONS.

PROVIDE THREADS FOR TURNED BOLTS THAT CONFORM TO COARSE THREAD SERIES AS PER THE REQUIREMENTS OF ANSI/ASME B.1.1. ALL TURNED BOLTS ARE TO BE SECURED WITH DOUBLE HEAVY HEX NUTS UNLESS OTHERWISE SPECIFIED. NUTS TO CONFORM TO ASTM A563, HEAVY HEX NUTS, ANSI/ASME 18.2.2. USE JAM NUTS ONLY WHERE SPACE PROHIBITS USE OF STANDARD NUTS. PROVIDE HARDENED STEEL, PLAIN WASHERS CONFORMING TO ASTM F436 TO BE USED AT BOTH ENDS OF ALL TURNED BOLTS.

BOLT HOLE CLEARANCE FOR TURNED BOLTS/FASTENERS TO BE LC6 UNLESS OTHERWISE NOTED. HIGH STRENGTH TURNED BOLTS THAT HAVE BEEN TORQUED ARE NOT BE REUSED. TURNED BOLTS TO BE DRILLED AND REAMED IN THE FIELD AFTER FINAL ALIGNMENT UNLESS OTHERWISE NOTED. REFER TO TSP SECTION T468 FOR BOLT TENSIONING REQUIREMENTS.

TYPICAL H.S. TURNED BOLT DETAIL



DETAIL THE EDGES AND CORNERS OF ALL MACHINERY PARTS AND MACHINE WITH SUITABLE FILLETS AND CHAMFERS. IN GENERAL THE MINIMUM RADIUS OR CHAMFER TO BE 3/4" IF THE PART THICKNESS IS LESS THAN 1" AND 1/4" IF THE PART THICKNESS IS EQUAL TO OR GREATER THAN 1", UNLESS NOTED OTHERWISE. IN THE CASE OF MATING PARTS, ALLOWANCE TO BE MADE FOR THE PROPER FIT AND ASSEMBLY. PROVIDE SUCH DETAILS ON SHOP DRAWINGS.

ALL CORNERS AND EDGES OF CASTINGS TO HAVE SUITABLE FILLETS AND RADII. IN GENERAL, PROVIDE THE FILLET OR RADII TO BE A MINIMUM OF 1/2" R FOR SECTIONS EQUAL OR GREATER THAN 2" AND 1/4" R FOR SECTIONS LESS THAN 2". CASTINGS TO BE PROVIDED WITH A SPOT FACE FOR VERTICAL MOUNTING BOLTS AND A BOSS FOR HORIZONTAL MOUNTING BOLTS. BOSSES TO HAVE A HEIGHT OF 1/4" AND HAVE A MINIMUM DIAMETER OF 1/2" PLUS THE NOMINAL WASHER DIAMETER. SPOT FACES TO BE 1/16" DEEP AND HAVE A MINIMUM DIAMETER OF 1/2" PLUS THE NOMINAL WASHER DIAMETER. ADHERE TO THE PROPER CASTING AND COOLING PROCESSES, SO THAT SURFACE SHRINKAGE CRACKS ARE ELIMINATED.

MACHINERY DIMENSIONS SHOWN ON DRAWINGS ARE DIMENSIONS AFTER MACHINING. UNLESS OTHERWISE INDICATED OR REQUIRED FOR THE PROPER ASSEMBLY OF PARTS, DIMENSIONAL TOLERANCES FOR MACHINERY IN GENERAL TO BE IN INCHES AS FOLLOWS:

SURFACE STRAIGHTNESS:	<div><div>—</div><div>0.010</div></div>
FLATNESS:	<div><div>▭</div><div>0.010</div></div>
PARALLELISM: (PER LINEAR FOOT):	<div><div>∥</div><div>0.005</div><div>-</div></div>
PERPENDICULARITY (PER LINEAR FOOT):	<div><div>⊥</div><div>0.005</div><div>-</div></div>
ANGULARITY (PER LINEAR FOOT):	<div><div>∠</div><div>0.02</div><div>-</div></div>
POSITION (FEATURES WITHIN A COMPONENT):	<div><div>⊕</div><div>0.02</div><div>-</div></div>
CONCENTRICITY:	<div><div>⊙</div><div>0.005</div><div>-</div></div>
CIRCULAR RUNOUT:	<div><div>↗</div><div>0.005</div><div>-</div></div>

DETAILS SHOWN HEREIN WITH DIMENSIONS DEPEND ON MANUFACTURED ITEMS AND ARE TO BE SIZED BASED ON THE ACTUAL MANUFACTURED ITEMS PURCHASED BY THE CONTRACTOR.

UNLESS NOTED OTHERWISE, DIMENSIONS BETWEEN MACHINED SURFACES HAVE A TOLERANCE OF 0.010-INCH.

UNLESS NOTED OTHERWISE, PROVIDE FITS AND FINISHES FOR MACHINERY AS FOLLOWS:

SURFACE	FINISH	FIT
MACHINERY BASE ON STEEL	125	-
MACHINERY BASE ON MASONRY	250	-
MACHINERY SUPPORTS	125	-
MACHINERY PARTS IN FIXED CONTACT	125	-
SHAFT JOURNAL	8	RC6
JOURNAL BUSHINGS	16	RC6
HUBS ON SHAFTS (TO 2" BORE)	32	FN2
HUBS ON SHAFTS (OVER 2" BORE)	63	FN2
SPLIT BUSHINGS IN BASE	125	LC1
SOLID BUSHING IN BASE (TO 1/4" WALL)	63	FN1
SOLID BUSHING IN BASE (OVER 1/4" WALL)	63	FN2
SLIDING AND THRUST BEARINGS	32	RC6

THE ABOVE FITS FOR CYLINDRICAL PARTS TO ALSO APPLY TO THE MAJOR DIMENSIONS OF NON-CYLINDRICAL PARTS.

ALL TRANSITIONS OF SURFACES OF MACHINERY PARTS TO BE BLENDED IN SMOOTH. ALL SURFACES OF FORGINGS TO BE MACHINED TO THE DIMENSIONS SHOWN IN THE CONTRACT DOCUMENTS. ALL MATING SURFACES OF MACHINERY PARTS AND SUPPORTS ARE TO BE MACHINED.

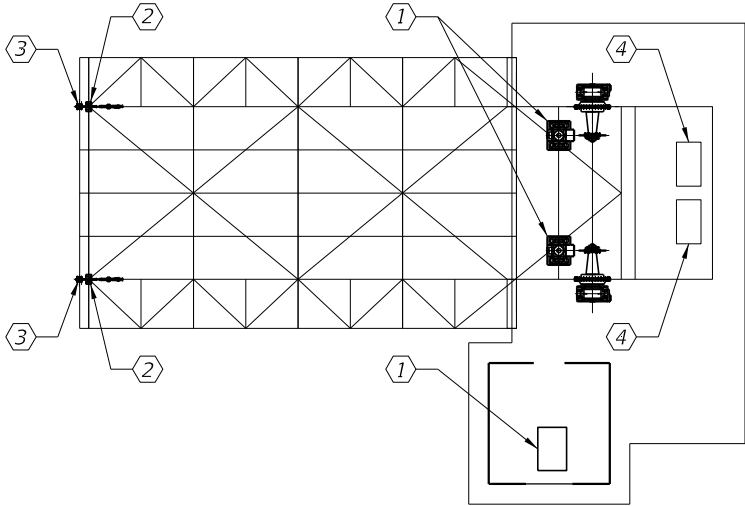
PAINT MACHINERY IN ACCORDANCE WITH SPECIFICATIONS. PROVIDE THREE-PART MACHINERY PAINT SYSTEM: ALUMINUM, EPOXY MASTIC PRIME AND INTERMEDIATE COATS, ALIPHATIC POLYURETHANE TOPCOAT. PAINT PER FDOT STANDARD SPECIFICATION SECTION 560 AND 561. REFER TO TSP SECTION T468 FOR ADDITIONAL MACHINERY PAINTING DETAILS.

MECHANICAL SCOPE OF WORK:

SEE TSP FOR A COMPLETE ITEM LIST OF ASSOCIATED ITEMS TO BE REPLACED.

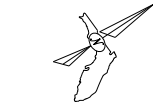
- RECONDITION SPAN DRIVE HYDRAULIC SYSTEM (REFER TO REF. DWG. NO. BM-2 AND BM-3)
 - RECONDITION (1) HYDRAULIC POWER UNIT AND ASSOCIATED HARDWARE. REFER TO TSP FOR ADDITIONAL INFORMATION. SEE REF. DWG. NO. BM-4 THRU BM-8.
 - REFURBISH (4) PLAIN CARDANIC RING BEARINGS AND PROVIDE NEW COVER PLATES.
 - FURNISH AND INSTALL (4) PLAIN SPHERICAL BEARINGS AT CARDANIC RING ASSEMBLIES.
 - △

FURNISH AND INSTALL (2) PLAIN SPHERICAL BEARINGS AT UPPER CLEVIS ASSEMBLIES.
- LIVE LOAD BEARING ASSEMBLY (REFER TO REF. DWG. NO. BM-10)
 - SHIM AND ADJUST (2) LIVE LOAD SHOE ASSEMBLIES.
- SPAN LOCK MACHINERY (REFER TO REF. DWG. NO. BM-9)
 - SHIM AND ADJUST (2) SPAN LOCK ASSEMBLIES. COORDINATE WORK WITH LIVE LOAD BEARING ASSEMBLY SHIM WORK.
- PERFORM SPAN BALANCE TESTING, ADJUST SPAN BALANCE AND CLEAN COUNTERWEIGHT POCKETS COVERED UNDER ITEMS 465-3-17, 50 & 96. REFER TO TSPS FOR ADDITIONAL INFORMATION.



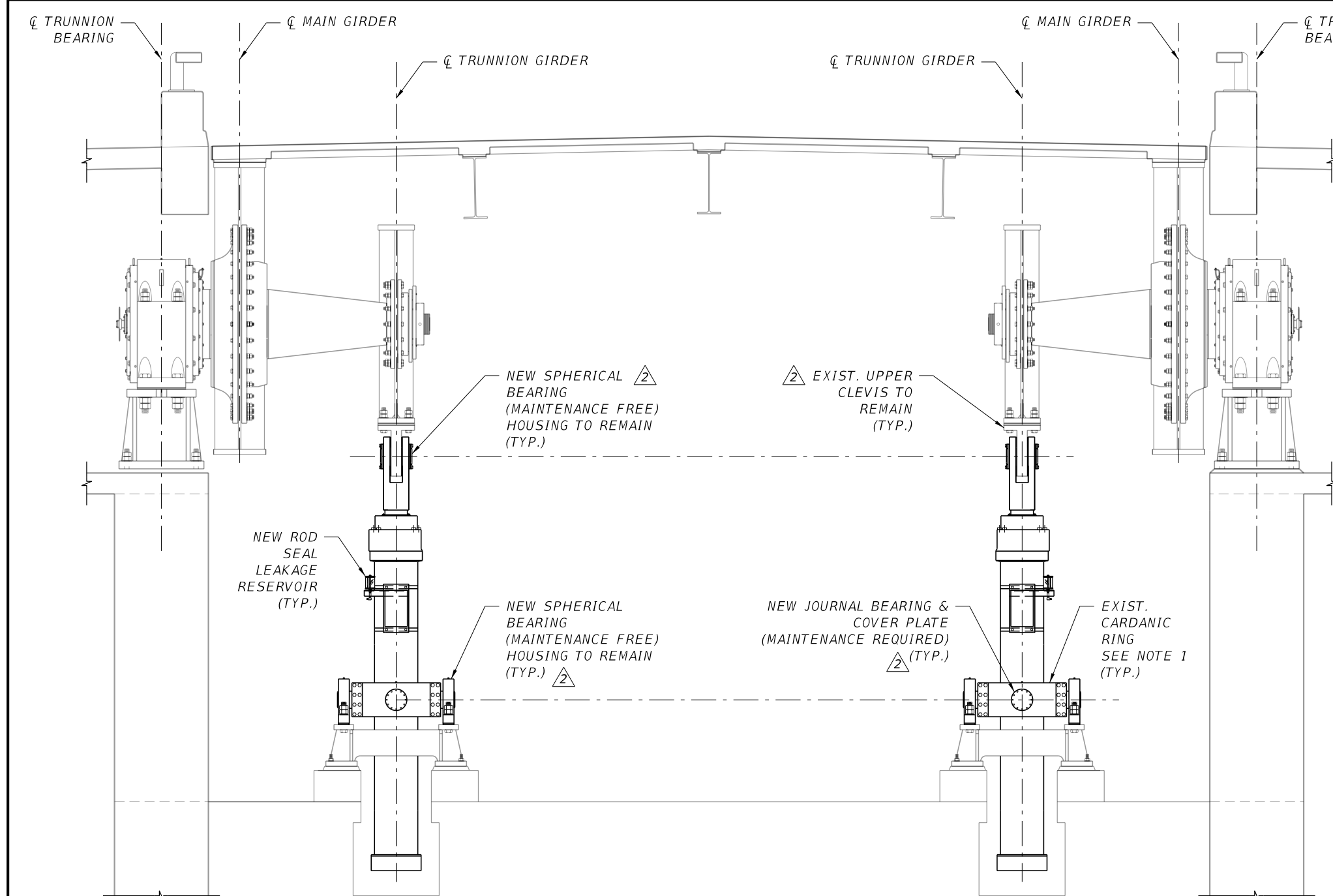
BRIDGE B1 - 124134

BRIDGE LAYOUT KEY PLAN



BRIDGE NO. 124134

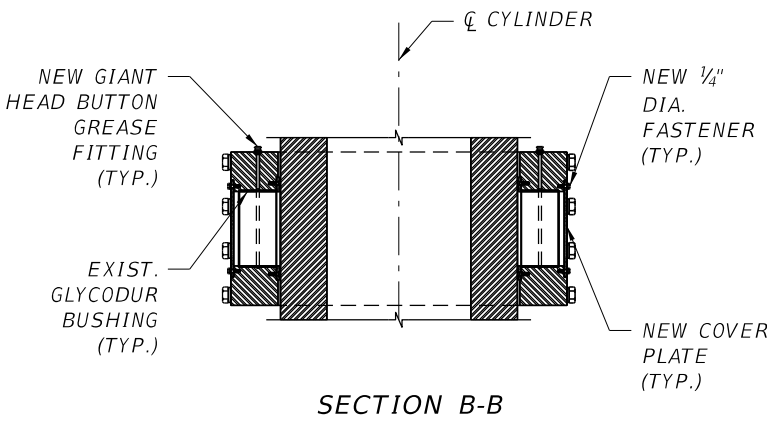
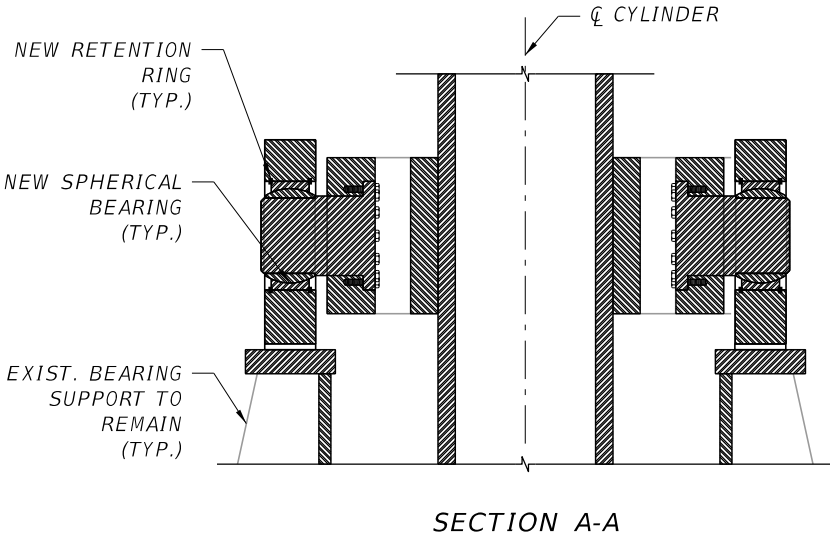
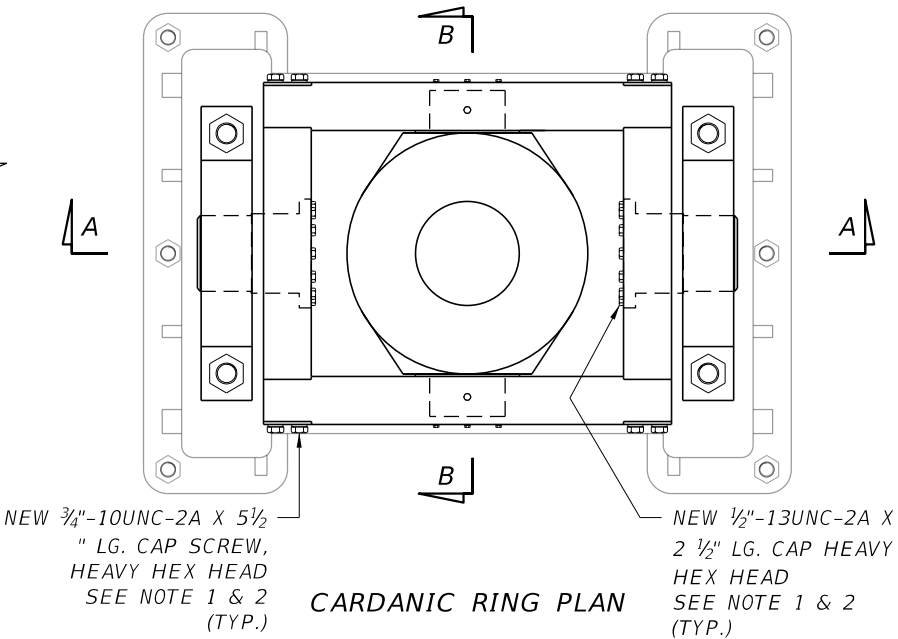
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION							
2/25	VR	<div>△</div> ADDED NOTE 1D TO SCOPE.						ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME: MATLACHA BASCULE BRIDGE EMERGENCY REPAIRS	SHEET NO. B1-15
								CR 78	LEE	453997-1-58-01 CN-1414-218		



MACHINERY FLOOR ELEVATION
(HYDRAULIC PIPING AND HOSES NOT SHOWN FOR CLARITY)

CYLINDER SUPPORT BEARING TABLE						
TYPE	QTY.	MANUFACTURER	PART NUMBER	MIN. DYNAMIC RADIAL LOAD RATING	MIN. STATIC RADIAL LOAD RATING	OPERATION
6.3" NOM. DIA. SPHERICAL BEARING (CARDANIC RING ASSY.)	4	SKF	GE 160 TXG3A-2RS	854.2 KIP	1438.7 KIP	REPLACE
6.3" NOM. DIA. SPHERICAL BEARING (UPPER CLEVIS ASSY.)	2	SKF	GE 160 TXG3A-2RS	854.2 KIP	1438.7 KIP	REPLACE
PLAIN JOURNAL BEARING (CARDANIC RING ASSY.)	4	CUSTOM	-	-	-	CLEAN, GREASE, REFURBISH
GIANT BUTTON HEAD GREASE FITTING 1/4" NPT	4	MCMaster CARR	1094K26	-	-	REPLACE
SPHERICAL BEARING RETAINING RING	8	ROTORCLIP	H0-900	-	-	REPLACE (2 PER ASSY.)

- NOTES:
- SEE TECHNICAL SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
 - PROVIDE HEAVY HELICAL SPRING LOCK WASHER FOR EACH CAP SCREW CONFORMING TO ANSI B21.18.1.



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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
2/25	VR	2 ADDED/UPDATED CALL OUT. UPDATED TABLE ITEMS.						CR 78	LEE	453997-1-58-01 CN-1414-218	PROJECT NAME: MATLACHA BASCULE BRIDGE EMERGENCY REPAIRS	SHEET NO. B1-17