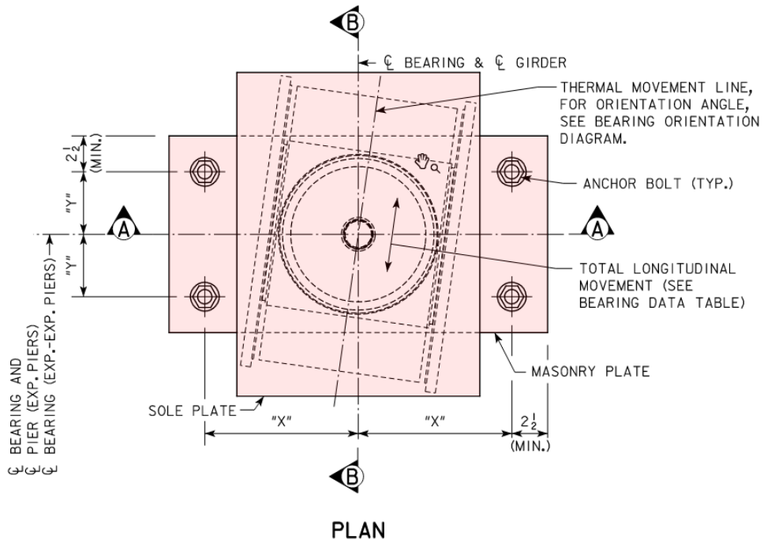
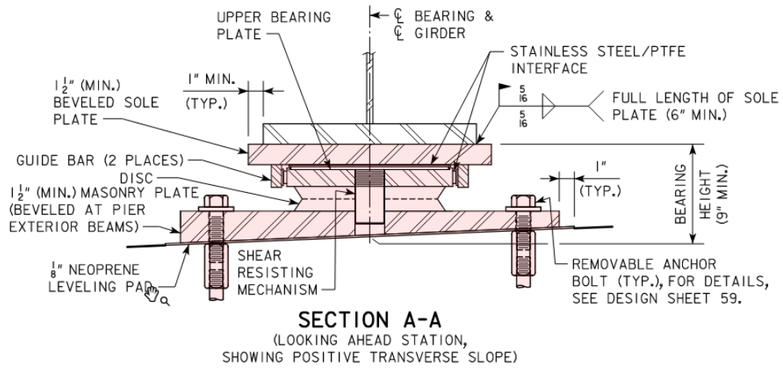
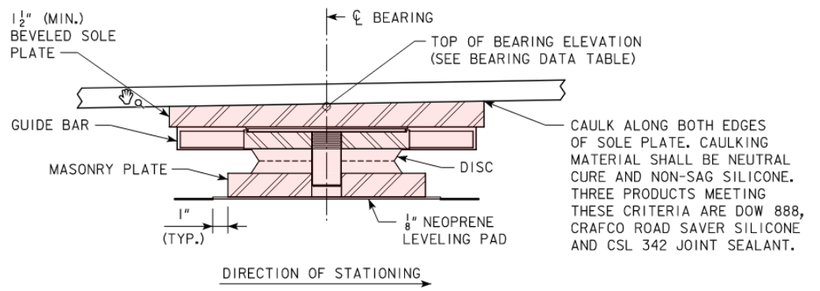


PLAN



SECTION A-A
(LOOKING AHEAD STATION, SHOWING POSITIVE TRANSVERSE SLOPE)



SECTION B-B
(SHOWING POSITIVE LONGITUDINAL SLOPE)

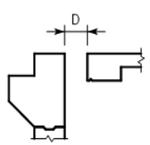
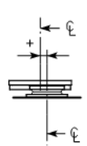
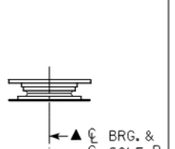
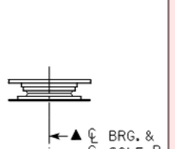
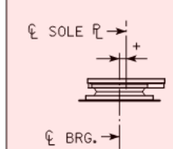
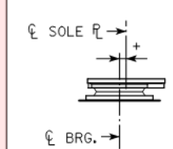
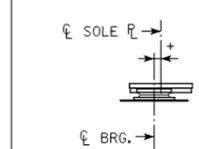
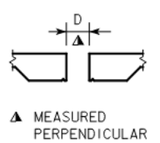
GUIDED LONGITUDINAL EXPANSION BEARING - TYPE GE

BEARING DATA TABLE

LOCATION	TYPE	GIRDER LINE	TOP OF BEARING ELEVATION	LONGITUDINAL SLOPE OF SOLE PLATE (%)	TRANSVERSE SLOPE OF MASONRY PLATE (%)	BEARING HEIGHT (MIN.) (INCHES)	STRENGTH				EXTREME EVENT		SERVICE				TOTAL LONGITUDINAL MOVEMENT (INCHES)	ANCHOR BOLTS			
							VERTICAL LOAD		HORIZONTAL LOAD (KIPS)◪		HORIZONTAL LOAD (KIPS)◪		VERTICAL LOAD		HORIZONTAL LOAD (KIPS)◪			DIM. "X" (INCHES)	DIM. "Y" (INCHES)	NUMBER AND SIZE (EACH BEARING)	MINIMUM EMBEDMENT
							MAX. (KIPS)	MIN. (KIPS)	TRANSV.	LONGIT.	TRANSV.	LONGIT.	MAX. (KIPS)	MIN. (KIPS)	TRANSV.	LONGIT.					
WEST ABUTMENT	GE	"A"	772.97	+1.77	0.00	9	361	25	20	-	21	-	238	61	12	-	2.7	16	6	4-1½"Φ	1'-6
		"D"	772.35		0.00																
		"F"	771.74		0.00																
		"H"	771.12		0.00																
PIER NO. 1	FX	"A"	774.61	+1.21	-2.86	9	1057	262	60	98	◕ 114		731	347	39	77	0.0	16	6	4-2"Φ	2'-0
		"D"	774.28		0.00																
		"F"	773.92		0.00																
		"H"	773.55		-2.86																
PIER NO. 2	FX	"A"	775.91	+0.46	-1.62	9	1025	218	53	56	◕ 74		706	311	29	46	0.0	16	6	4-2"Φ	2'-0
		"D"	775.92		0.00																
		"F"	775.68		0.00																
		"H"	775.31		-1.62																
PIER NO. 3	GE	"A"	775.97	-0.18	-1.13	9	917	143	37	-	67	-	626	201	20	-	3.7	16	6	4-1½"Φ	1'-6
		"C"	776.10		0.00																
		"D"	776.26		0.00																
		"F"	776.01		0.00																
		"H"	775.53		-1.13																
PIER NO. 4	MD	"A"	774.89	-0.83	-0.21	9	672	158	40	-	67	-	465	202	23	-	5.9	16	6	4-1½"Φ	1'-6
		"B"	775.11		0.00																
	GE	"C"	775.37		0.00																
		"D"	775.67		0.00																
		"E"	775.64		0.00																
		"F"	775.34		0.00																
	MD	"G"	775.04		0.00																
		"H"	774.77		-0.21																
PIER NO. 5 BACK BEARING	MD	"A"	773.06	-0.98	+3.76	10.00✱	306	29	29	-	33	-	200	53	22	-	7.5	16	5.5	4-1½"Φ	1'-6
		"B"	773.76		0.00																
	GE	"C"	774.47		0.00																
		"D"	774.39		+3.76																
PIER NO. 5A BACK BEARING	GE	"E"	774.27	-1.32	-3.28	9.55✱✱	294	43	20	-	20	-	194	53	21	-	7.5	16	5.5	4-1½"Φ	1'-6
		"F"	774.13		0.00	9.60✱✱															
	MD	"G"	773.73		0.00	9.60✱✱															
		"H"	773.32		-3.28	9.60✱✱															

NOTES:
Only Pier No 3 Bearing is required

BEARING AND EXPANSION DEVICE SETTING (INCHES)

TEMPERATURE AT TIME OF SETTING ✱	WEST ABUTMENT	WEST ABUTMENT	PIER NO. 1	PIER NO. 2	PIER NO. 3	PIER NO. 4	BACK BRG. PIER NO. 5 OR 5A	PIER NO. 5 OR 5A
								
10°F	3¾	-¾	0	0	-1	-1 3/16	-2	1'-0¼
50°F	3	0	0	0	0	0	0	9
90°F	2¼	¾	0	0	1	1 9/16	2	5¾

Unit Test Instruction for the Design-to-Construction Data Exchange

BIM FOR BRIDGES AND STRUCTURES TPF-5(372)

HDR jō consulting

No.	Date	Issue / Revision Notes
1	12/4/23	.

Unit Test Description: Level 1 Disc Bearing

Unit Test / Sheet No.: L1-Br03-Bearing 02 / 01

Drawn By: AMN

Reviewed By: .

DISC BEARING NOTES:

THE DISC BEARING ASSEMBLIES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 2434 OF THE STANDARD SPECIFICATIONS.

THE SOLE PLATES SHALL BE TAPERED TO THE LONGITUDINAL SLOPE SHOWN IN THE BEARING DATA TABLE AND SHALL BE SIZED FOR THE MOVEMENTS SHOWN IN THE BEARING DATA TABLE. ADDITIONALLY, THE SOLE PLATES SHALL BE 2" WIDER THAN THE GIRDER BOTTOM FLANGE TO ALLOW THE PLACEMENT OF A HORIZONTAL WELD.

THE MASONRY PLATES AT GIRDERS A AND H AT ALL PIERS AND GIRDERS D AND E AT PIERS 5 AND 5A SHALL BE TAPERED IN THE TRANSVERSE DIRECTION TO THE SLOPE SHOWN IN THE BEARING DATA TABLE.

THE BEARINGS SHALL BE DESIGNED FOR THE LOADS AND MOVEMENTS SHOWN IN THE BEARING DATA TABLE OCCURRING SIMULTANEOUSLY. ALL LOADS SHOWN ARE FACTORED LOADS. MINIMUM VERTICAL LOADS SHOWN ARE DUE TO MINIMUM DEAD LOADS (DC) AND L.L. WITH IMPACT CAUSING UPLIFT. MAXIMUM VERTICAL LOADS SHOWN ARE DUE TO DEAD LOADS (DC), FUTURE WEARING COURSE AND UTILITIES (DW) AND L.L. WITH IMPACT.

BEARINGS SHALL BE DESIGNED TO ACCOMMODATE A SERVICE ROTATION OF 0.02 RADIANS IN EACH DIRECTION.

ALL BEARINGS SHALL BE DESIGNED TO BE FULLY REMOVABLE.

FOR GUIDED EXPANSION AND MULTI-DIRECTIONAL BEARINGS, STAINLESS STEEL SURFACES SHALL EXTEND A MINIMUM OF $1\frac{1}{2}$" EACH WAY BEYOND THE SPECIFIED MOVEMENT RANGE. WHERE VALUES OF MOVEMENT ARE NOT SPECIFIED, STAINLESS STEEL SURFACES SHALL EXTEND A MINIMUM OF $1\frac{1}{2}$" BEYOND THE CONTACT SURFACES.

TOTAL MOVEMENTS SHOWN IN THE BEARING DATA TABLE REPRESENT THE COMBINED MOVEMENT RANGE FOR BRIDGE EXPANSION (50°F TO 125°F) AND BRIDGE CONTRACTION (50°F TO -25°F).

AT 50°F, THE SOLE PLATE SHALL BE CENTERED OVER THE LOWER BEARING ASSEMBLY. FOR OTHER INSTALLATION TEMPERATURES, THE SOLE PLATE POSITION SHALL BE ADJUSTED AS NOTED ON DESIGN SHEET 40.

ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION IN THE BRIDGE AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED. THE MARKS SHALL BE ON THE TOP PLATE OF THE BEARING.

ALL EXPANSION BEARINGS SHALL HAVE A MAXIMUM FRICTION COEFFICIENT OF 3%.

THE GAP BETWEEN THE GUIDE BARS AND BEARINGS ON THE "GE" TYPE BEARINGS SHALL BE $\frac{1}{4}$".

NON-STAINLESS STEEL COMPONENTS OF BEARING ASSEMBLIES SHALL BE OF ASTM A709 GRADE 50W STEEL, EXCEPT MASONRY PLATES MAY BE GRADE 36 AND SHALL BE GALVANIZED PER ASTM A 123.

THE BEARING HEIGHT NOTED IN THE BEARING DATA TABLE REPRESENTS THE ASSUMED TOTAL HEIGHT OF THE BEARING ASSEMBLY PLUS THE $\frac{1}{8}$" NEOPRENE LEVELING PAD. THIS HEIGHT WAS USED TO ESTABLISH THE PEDESTAL AND PIER CAP ELEVATIONS AS NOTED ON THE PIER AND ABUTMENT DETAIL SHEETS. THE MINIMUM PEDESTAL HEIGHT, DEPTH OF CAP, AND/OR COLUMN HEIGHT SHALL NOT BE CHANGED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. THE ACTUAL BEARING HEIGHT DETERMINED BY THE BEARING MANUFACTURER SHALL BE USED TO SET THE FINAL TOP OF PEDESTAL AND PIER CAP ELEVATIONS TO ACHIEVE THE PROPER TOP OF BEARING ELEVATIONS GIVEN IN THE BEARING DATA TABLE. THE TOP OF PEDESTAL ELEVATIONS SHALL BE SHOWN ON THE SHOP DRAWINGS. 9" MINIMUM BEARING HEIGHT SHALL BE PROVIDED TO ACCOMMODATE FUTURE JACKING OPERATIONS FOR BEARING REPLACEMENT.

THE $\frac{1}{8}$" NEOPRENE LEVELING PAD SHALL BE 1" LARGER IN EACH DIMENSION THAN THE BEARING SURFACE OF THE MASONRY PLATE. LEVELING PAD SHALL BE OF 50, 60, OR 70 DUROMETER NEOPRENE AND MEET THE REQUIREMENTS OF SECTION 4195.02 OF THE STANDARD SPECIFICATIONS.

IN ORDER TO COORDINATE TOP OF PEDESTAL AND PIER CAP ELEVATIONS AND ANCHOR BOLT LOCATIONS, ABUTMENTS AND PIERS SHALL NOT BE POURED PRIOR TO RECEIVING APPROVED BEARING SHOP DRAWINGS FOR THIS CONTRACT.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF MATERIALS I.M. 453.08. ANCHOR BOLTS SHALL BE AS PER ASTM F1554, GRADE 105. ANCHOR BOLT LAYOUT SHOWN IN THE DETAILS IS BASED ON PRELIMINARY BEARING DESIGN PROVIDED BY TWO BEARING VENDORS. THE ANCHOR BOLT LAYOUT WAS USED IN SETTING THE GEOMETRY OF THE ABUTMENT AND PIER REINFORCING WHICH SHOULD ALLOW THE ANCHOR BOLTS TO BE INSTALLED WITHOUT CONFLICT WITH THE REINFORCING. ANY CHANGES TO THE ANCHOR BOLT PATTERN MAY REQUIRE A PLAN CHANGE TO THE REINFORCING LAYOUT.

ANCHOR BOLTS SHALL BE EMBEDDED IN CONCRETE A MINIMUM DISTANCE AS SPECIFIED IN THE BEARING DATA TABLE, NOT INCLUDING THE DEPTH OF THE PEDESTAL CONCRETE. FABRICATOR SHALL DETERMINE REQUIRED ANCHOR BOLT LENGTH BASED ON BEARING DETAILS AND REQUIRED ANCHOR BOLT EMBEDMENT. SHOP DRAWINGS SHALL SHOW ANCHOR BOLT EMBEDMENT, PROJECTION, THREAD LENGTH, AND TOTAL BOLT LENGTH.

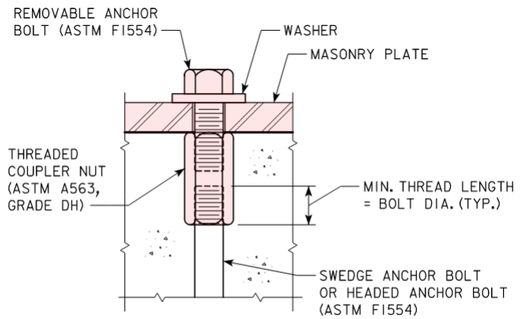
ANCHOR BOLTS ARE TO BE PRESET IN ACCORDANCE WITH 2405.03, H, 2 OF THE STANDARD SPECIFICATIONS.

HOLE DIAMETER FOR THE ANCHOR BOLTS IN THE MASONRY PLATE SHALL BE $\frac{1}{4}$" LARGER THAN THE ANCHOR BOLT DIAMETER.

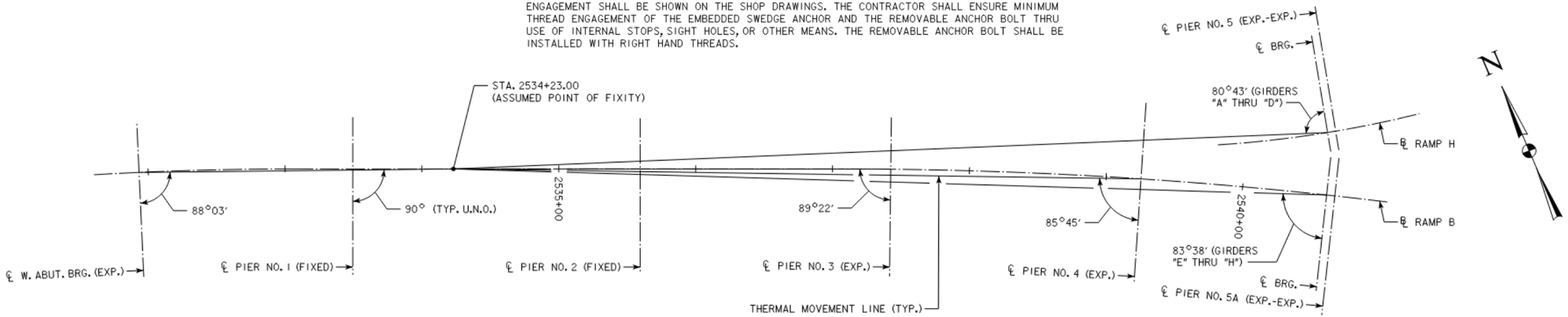
THE COST OF FURNISHING AND INSTALLING THE THREADED COUPLER NUTS SHALL BE INCLUDED IN THE PRICE BID FOR "DISC BEARING ASSEMBLIES".

FIELD WELDING SHALL MEET THE REQUIREMENTS OF MATERIALS I.M. 558.

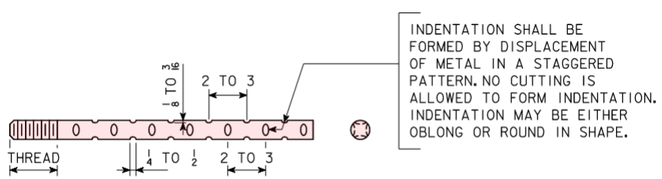
THE LOWER BEARING HORIZONTAL ANCHOR BOLTS SHALL BE FASTENED TO A THREADED COUPLER NUT AS SHOWN. THE COUPLER NUT SHALL MEET THE REQUIREMENTS OF ASTM A563, GRADE DH. IN ADDITION TO THESE REQUIREMENTS, THE ULTIMATE STRENGTH OF THE COUPLER NUT SHALL BE MINIMUM BE 90% OF ULTIMATE TENSILE STRENGTH OF ANCHOR BOLTS AND DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH. THE MINIMUM THREAD ENGAGEMENT SHALL BE THE DIAMETER OF THE BOLT OR THE LENGTH REQUIRED TO DEVELOP THE STRENGTH NOTED. THE THREAD ENGAGEMENT SHALL BE SHOWN ON THE SHOP DRAWINGS. THE CONTRACTOR SHALL ENSURE MINIMUM THREAD ENGAGEMENT OF THE EMBEDDED SWEDGE ANCHOR AND THE REMOVABLE ANCHOR BOLT THRU USE OF INTERNAL STOPS, SIGHT HOLES, OR OTHER MEANS. THE REMOVABLE ANCHOR BOLT SHALL BE INSTALLED WITH RIGHT HAND THREADS.



REMOVABLE ANCHOR BOLT DETAIL



BEARING ORIENTATION



ANCHOR BOLT SWEDGE DETAIL

NOTES:

1.

Unit Test Instruction for the Design-to-Construction Data Exchange		
1	12/4/23	
No.	Date	Issue / Revision Notes

BIM FOR BRIDGES AND STRUCTURES TPF-5(372)

HDR | jö consulting

Unit Test Description	Unit Test / Sheet No.
Level 1 Disc Bearing	L1-Br03-Bearing 02 / 02
Drawn By: AMN	Reviewed By: .