



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

October 18, 2021
Subject: Interstate 295/US Route 1
Northbound & Southbound Bridge
Replacements & Multiuse Path
State WINs: 023106.01 & 023825.00
Location: **Yarmouth**
Amendment No. 2

Dear Sir/Ms.:

Please make the following changes to the Bid Documents:

In the Bid Book:

REMOVE page 73, Special Provision – Section 107 – Time - (Supplemental Liquidated Damages for Fabrication Time), 1 page, dated August 2021, and **REPLACE** with the attached, revised Special Provision – Section 107 – Time - (Supplemental Liquidated Damages for Fabrication Time), 1 page dated October 2021.

In the Plan Set:

REMOVE SHEET NUMBER 237 OF 312, “BEARING LAYOUT – SB” and **REPLACE** with the attached, revised SHEET NUMBER 237 OF 312, “BEARING LAYOUT – SB”.

REMOVE SHEET NUMBER 238 OF 312, “BEARING DETAILS – SB” and **REPLACE** with the attached, revised SHEET NUMBER 238 OF 312, “BEARING DETAILS – SB”.

REMOVE SHEET NUMBER 276 OF 312, “BEARING LAYOUT – NB” and **REPLACE** with the attached, revised SHEET NUMBER 276 OF 312, “BEARING LAYOUT – NB”.

REMOVE SHEET NUMBER 277 OF 312, “BEARING DETAILS – NB” and **REPLACE** with the attached, revised SHEET NUMBER 277 OF 312, “BEARING DETAILS – NB”.

The following questions have been received:

Question: Disc bearings: the horizontal loads at the Fixed Abutments for both bridges are exceedingly extreme (150% to 250%) as compared to the vertical loads at these locations. We have never seen such extreme condition before and question if this is an error or if not “if the EOR has determined that this extreme HL will NOT cause uplift, overturn or other problems with these bearings.

Response: Please see changes to the plan set.

Question: The Disc Bearings for Bridge 1509 – Abutment No. 1 and Bridge 5833 – Abutment No. 2 have Service Horizontal Loads (HL) GREATER THAN the Service Vertical Loads (VL) - as much as 185% HL vs. VL. This is contrary to AASHTO recommendation and requirements for HLMR bearings. No such loading combinations has ever been attempted to our knowledge and it is doubtful that a disc bearing will work properly or withstand this type of loading conditions without some kind of damage. No type of testing of loading conditions such as these is even possible since the bearing would be forced out of the test press due to the much higher horizontal load.

If this loading condition is indeed present, some type of Shear Key (or similar structure) should be designed by the EOR to accommodate the huge HL and it should not be left for the disc bearing to bear the complete excessive HL. Please have the EOR review this and send a reply as soon as possible since a change in design may be required for the structure.

Response: Please see changes to the plan set.

Question: The NB and SB bridges have significantly different design rotations. Can you please confirm the design rotations stated for the Bridges?

Response: Please see changes to the plan set.

Question: Please see sheet number 277 of 312, “Bearing Details – NB”. Bridge No. 5833. Please confirm that the design rotation values are correct in the Disc Bearing Design Table. Design rotations over 0.02 are unusual, some of the rotation values shown are double that.

Response: Please see changes to the plan set.

Question: Special Provision section 652 indicates the Department expects temporary pavement to maintain Rte. 1 lanes as required. Is this temporary pavement on Rte. 1 paid for under item 461.131 Temporary Pavement (estimated qty of 1,540T); along with the I-295 temporary widening & crossover pavement?

Response: Yes, Route 1 and I-295 temporary widening and cross over pavement shall be paid under Item 461.131 Temporary Pavement.

Question: There are multiple monitoring wells onsite. Is there any requirement to maintain access to these during construction?

Response: No. There are 4 Monitoring Wells on site. Sheet 27 and 28 of 312.

BB-YRO-210 (OW) 61.7

BB-YRO-203 (OW) 60.7

BB-YRO-206 (OW) 65.5

BB-YRO-211 (OW) 59.4

They will be decommissioned/abandoned by MaineDOT Environmental Office.

Question: Temporary Roadway Support/Temporary Structural Support is required at all 4 abutments between the existing structure and new abutments. How is the work paid?

Response: Any temporary support required for construction of the new abutments shall be incidental to related Contract items.

Question: Please look at the days allowed in Special Provision Section 107– 42 calendar days allowed to metallize approximately 60,000 sq. ft. NEED 105 CALENDAR DAYS ALLOWED. Please allow at least 1 calendar day per 571 +/- sq. ft. to metallize for this job.

Response: Please see changes to the bid book.

Question: Please see Disc Bearing Design Tables located on sheets 238 of 312, and 277 of 312. The horizontal loads shown for the fixed and transverse expansion bearings are greater than their vertical loads. Horizontal loads this great are not ordinary. Please confirm that the horizontal loads shown in the Disc Bearing Design Tables are correct.

Response: Please see changes to the plan set.

Consider these changes and information prior to submitting your bid on **October 20, 2021**.

Sincerely,



George M. A. Macdougall P.E.
Contracts & Specifications Engineer

Special Provision
Section 107
Time

(Supplemental Liquidated Damages for Fabrication Time)

107.8.1 Fabrication Time The Department has budgeted for the following amounts of continuous full time fabrication/shop QA inspection for the following Work components for **EACH** WIN:

<u>Element</u>	<u>Time</u>	<u>Supplemental LD</u>
Structural Plate Girders	80 Calendar Days	\$1,000 per Calendar Day
Thermal Spray Coating	56 Calendar Days	\$1,000 per Calendar Day

The Contractor is responsible for requiring their fabricators and suppliers to produce these products for the Work continuously until finished, including any needed actions to correct unacceptable workmanship or materials. If the Department determines that QA inspection beyond these times is required, then the corresponding Supplemental Liquidated Damages will be deducted as they occur from the amounts otherwise due to the Contractor. These allowed Fabrication Time begins on the first day of fabrication and runs consecutively until expiration.

If a fabricator or supplier works more than one shift per day and the Department determines that inspection is required for each shift, each shift will count as a calendar day and the LD rate will be the noted amount per shift per Calendar Day in lieu of per Calendar Day.

QA inspector presence is required but not limited to the following activities:

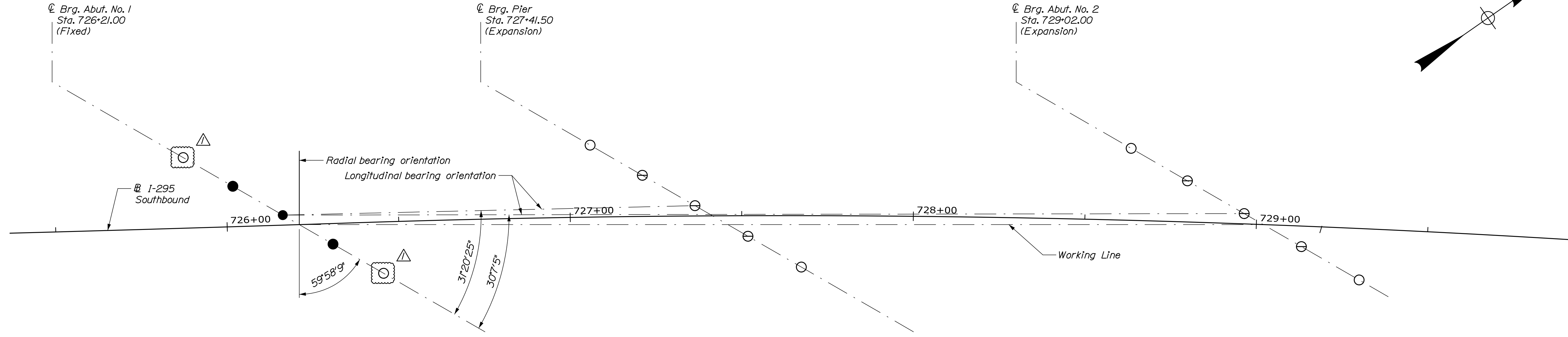
For metal fabrication work: welding, including tack welding, heat correcting, non-destructive examination, assembly verification, and hold points in the approved Thermal Spray Coating procedure and any other times as required in the Standard Specifications or Special Provisions.

Date: 10/18/2021

Username:

Division:

Filename: 237_Bearing Layout - SB.dgn



BEARING LAYOUT PLAN

LEGEND

- Non - Guided Expansion (Expansion)
- ⊖ Guided Longitudinal Expansion (Unidirectional)
- Fixed

DISC BEARING NOTES:

1. The actual dimension "H" shall be the responsibility of the Contractor. Dimensions and sizes of plates not shown are dependent on design loads, capacity, and the manufacturer of the bearings. The shop drawings, prepared by the manufacturer, shall provide all pertinent bearing information. The final bearing pedestal elevations shall be determined by the Contractor and submitted with the shop drawings for approval prior to construction of the substructure units.
2. Masonry plates shall be placed on 1/8" thick preformed pads in accordance with the specifications.
3. All steel, unless otherwise specified, shall meet the requirements of ASTM A709, Grade 50.
4. Bearing anchorage shall be either Anchor Rod with double nuts and washers in breakout, or Bolt & Stud with Coupler in breakout, at the Contractor's option, both options shown in details.
5. Anchorage spacing shall be coordinated with the bearing manufacturer.
6. Anchor bolts shall meet the requirements of ASTM F3125 Grade A325, Type 1.
7. Anchor rods shall meet the requirements of ASTM F1554, Grade 105 and shall be swaged on the embedded portion of the rod.
8. Heavy hex nuts for anchor rods shall meet the requirements of ASTM A563, Grade D or DH.
9. Anchor bolts, rods, washers, and nuts shall be galvanized to ASTM A153 or ASTM B695, Class 50, Type 1. Payment for galvanizing will be considered incidental to the disc bearing pay items.
10. Bearing shall be coated in accordance with Standard Specifications Section 506, Protective Coating - Steel (Thermal Spray Coating). Payment for Coatings for Disc Bearings will be considered incidental to Item 523.5552 Pot or Disc Bearings, Expansion and Item 523.5551 Pot or Disc Bearings, Fixed.
11. The abbreviation "PTFE" indicates polytetrafluoroethylene.
12. All PTFE, including guide and restraint surfaces, shall be unfilled.
13. PTFE minimum bearing pressure shall be 1 ksi under total service loading and 3 ksi under total strength loading.
14. Average compressive stresses on the disc shall be computed using the minimum plan area of the unstressed disc, excluding the area of any holes.

15. The design temperature range shall be 125°F (-20°F to 105°F).
16. Design of the sole plates and masonry plates is the responsibility of the Bearing Manufacturer. Payment for these shall be made under Item 523.5551, Pot or Disc Bearings, Fixed or Item 523.5552, Pot or Disc Bearings, Expansion as applicable.
17. Sole plate shall be beveled according to the grade defined at each substructure location in the Sole Plate Bevel Table.
18. Strength Limit State rotations shown in the Disc Bearing Design Table do not include an allowance for uncertainties of 0.01 radians, as defined in AASHTO LRFD Bridge Design Specifications, 9th Edition 2020.
19. Anchor rods shall be installed to a minimum of 18 inches into the substructure units, below the bottom of the pedestals.
20. Bearings shall be designed with a thermal load factor of 1.0.
21. Longitudinal horizontal forces do not include friction forces at expansion bearings.
22. All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, and a direction arrow that points upstation. All marks shall be permanent and shall be visible after the bearing is installed. Bearings shall be restrained during transit.
23. Bearing installation shall be in strict conformance with the Standard Specifications and the manufacturer's recommendations.
24. In the Disc Bearing Setting Corrections Table, a negative value for Dimension "X" indicates a direction away from the nearer expansion joint. A positive value for Dimension "X" indicates a direction toward the nearer expansion joint.
25. Abutment No. 1 bearings shall be welded to the girder prior to welding of any other bearings. Bearing stiffeners at Abutment No. 1 shall be within 1/2 inch of centerline of bearing at time of welding.
26. Temperatures shown in the Disc Bearing Setting Corrections Table are those of the steel girders and not necessarily the ambient air temperature.
27. Bearings shall not be welded until after all dead load has been applied to the bridge.
28. Fixed bearings shall allow ±1/16" of movement in any direction. Uni-directional bearings shall allow ±1/4" of movement prior to guide engagement. All bearings shall satisfy the minimum rotation value in the Standard Specifications.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
02311000
WIN
023110.00
Bridge No. 1509
BRIDGE PLANS

PROJ. MANAGER
DESIGN-DETAILED
CHECKED-REVIEWED
DESIGN-DETAILED
REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

DATE	BY	DATE
8/21	E. Beausoleil	
8/21	S. Hodgdon	
10/21	J. Waugh	

SIGNATURE
P.E. NUMBER
DATE

1-295 OVER US ROUTE 1
EXIT 17 INTERCHANGE
YARMOUTH CUMBERLAND
BEARING LAYOUT - SB

SHEET NUMBER

237

OF 312

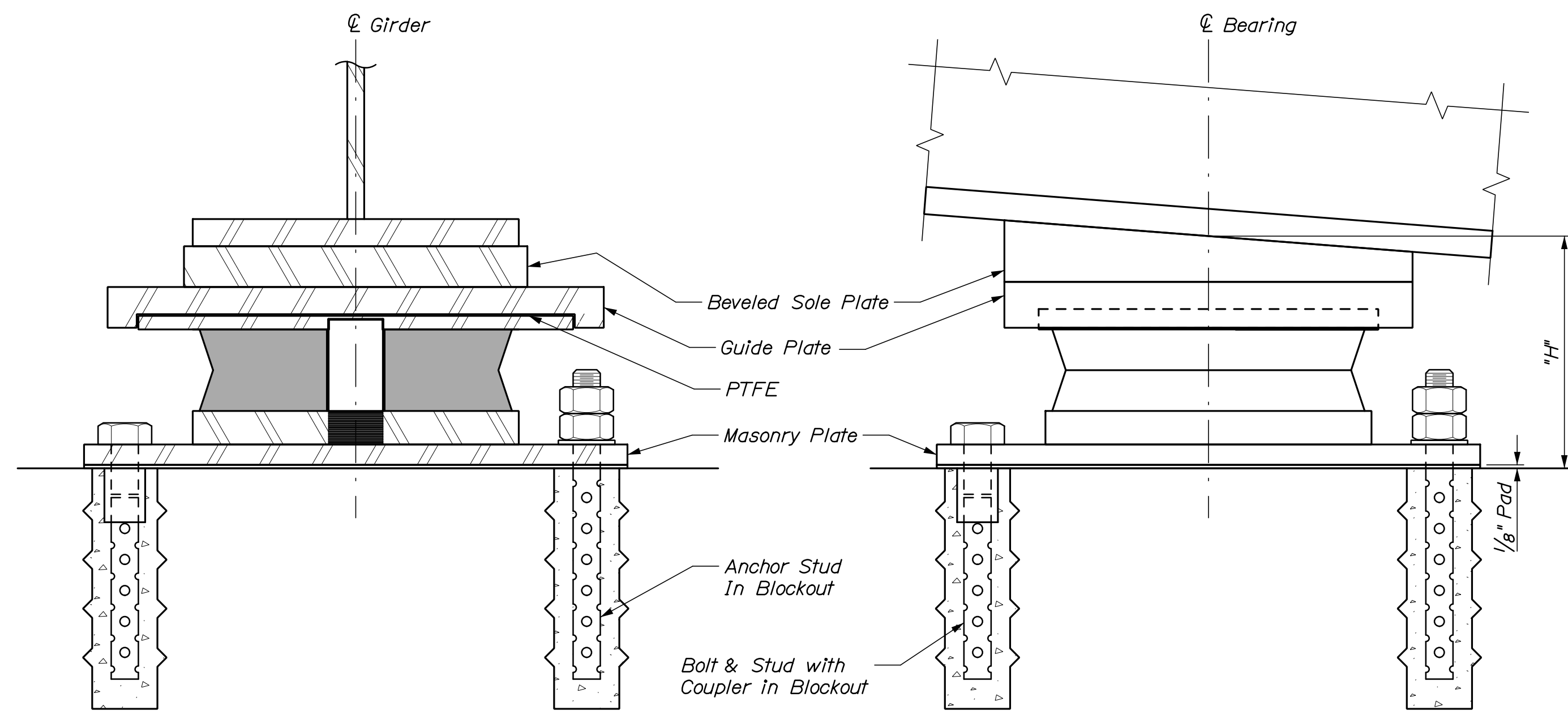


Date: 10/18/2021

Username:

Division:

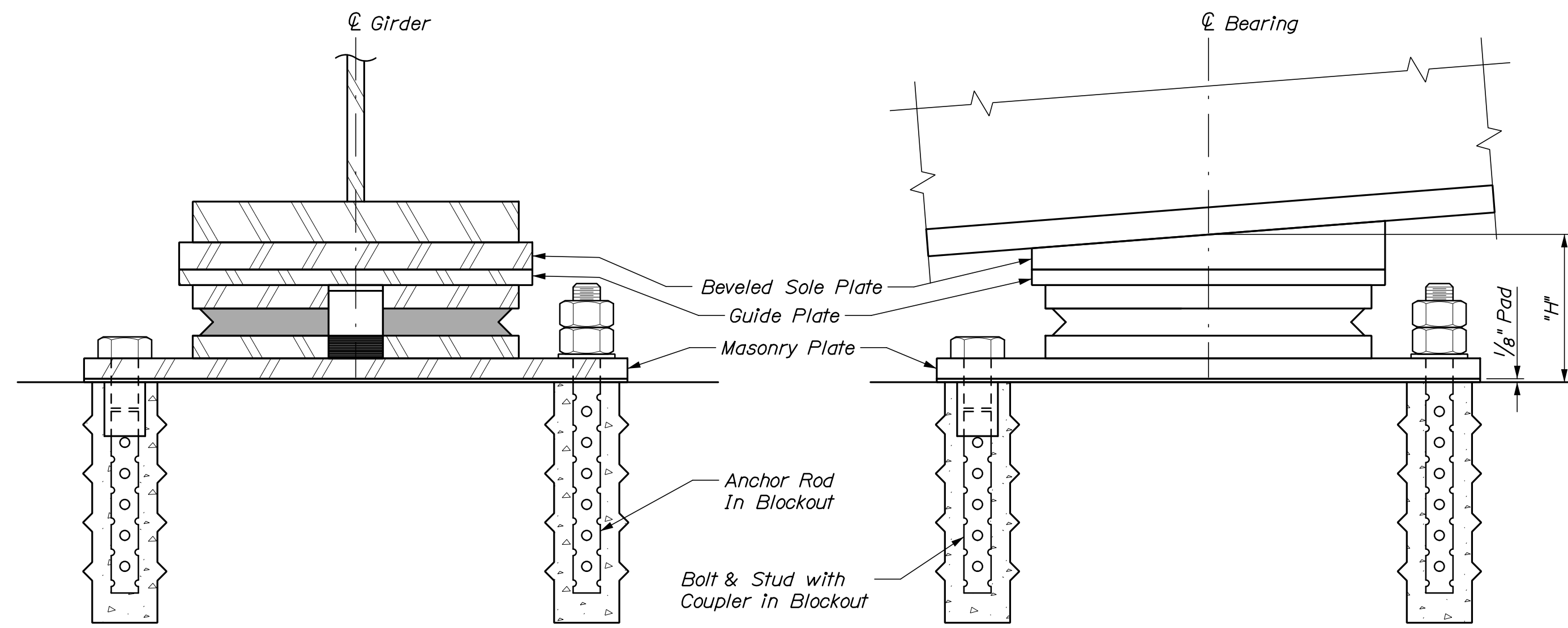
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~ TRANSVERSE SECTION ~

~ LONGITUDINAL ELEVATION ~

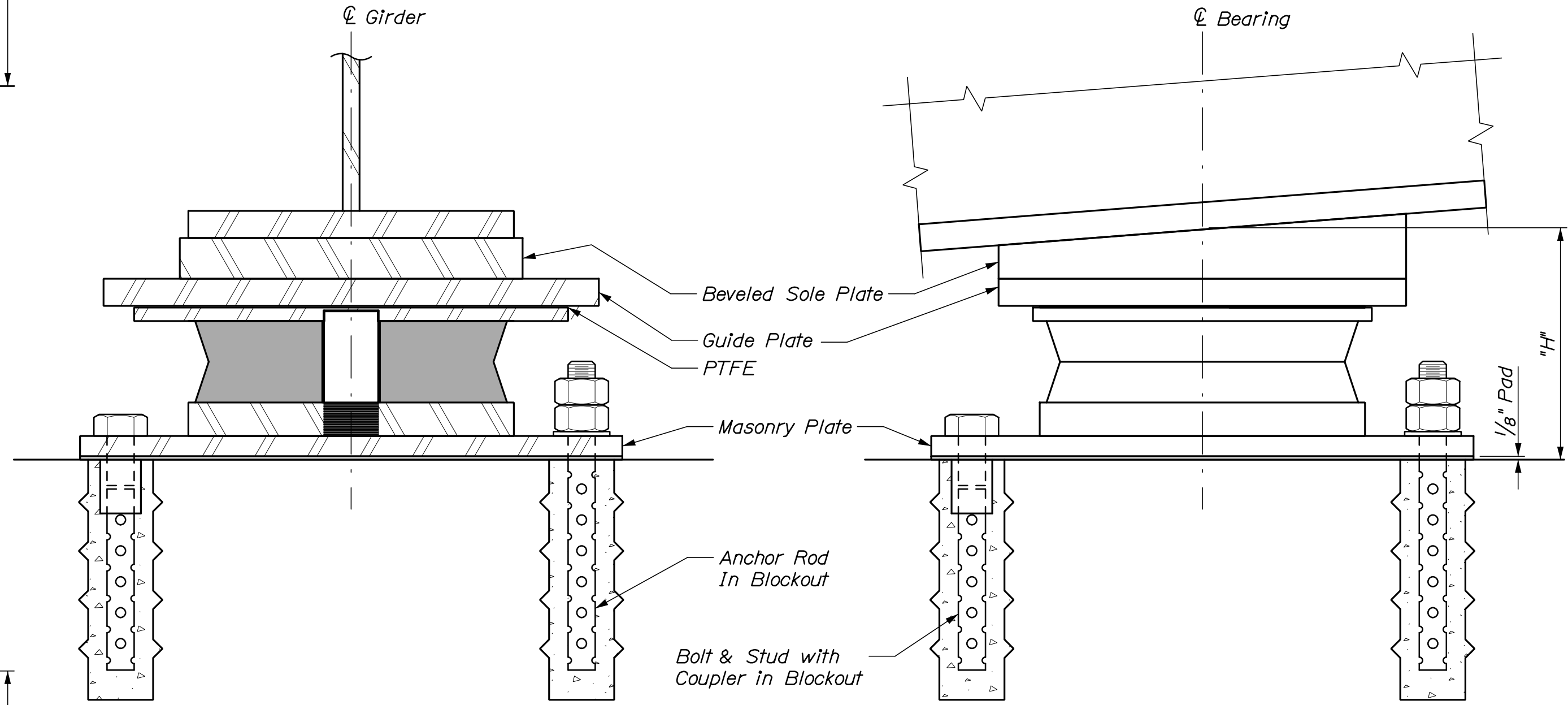
UNI-DIRECTIONAL BEARING



~ TRANSVERSE SECTION ~

~ LONGITUDINAL ELEVATION ~

FIXED BEARING



~ TRANSVERSE SECTION ~

~ LONGITUDINAL ELEVATION ~

EXPANSION BEARING

Location	Bearing Type	Design Loads Per Bearing (kips)										Dim "H" (in.) (See Note 1)	Design Rotation		Total Long. Movement (in.)	
		Vertical					Horizontal						Strength	Service		
		Strength	Extreme Event	Service			Strength	Extreme	Service							
		Total Load	Total Load	Dead Load *	Max. Live Load **	Min. Live Load **	Long.	Trans.	Long.	Trans.	Long.		Trans.	Rotation (radians)		Rotation (radians)
Abut. No. 1, G1 & G5	Exp.	285	78	77	110	32	0	0	0	0	0	0	12	0.007	0.003	0.31
Abut. No. 1, G2 - G4	Fixed	333	92	70	122	15	185	66	243	28	130	39	12	0.004	0.002	0.00
Pier, G1 & G5	Exp.	955	408	408	134	73	0	0	0	0	0	0	12	0.005	0.001	1.65
Pier, G2 - G4	Uni-dir	1054	445	426	137	7	0	94	0	160	0	66	12	0.004	0.001	1.50
Abut. No. 2, G1 & G5	Exp.	500	168	168	218	26	0	0	0	0	0	0	12	0.007	0.003	3.48
Abut. No. 2, G2 - G4	Uni-dir	423	136	136	259	8	0	62	0	56	0	34	12	0.007	0.002	3.30

* Tabulated Dead Loads include DC1, DC2, and DW loads.
 ** Tabulated Live Loads include IM loading and multiple presence factors.

	Dimension "X" (inches)					
	15' F	30' F	45' F	60' F	75' F	90' F
	Abut. No. 1	-	-	-	-	-
Pier	-5/16	-1/8	0	1/8	5/16	7/16
Abut. No. 2	-3/4	-3/8	0	3/8	3/4	1 1/16

Girder/Location	Abut. No. 1	Pier	Abut. No. 2
G1	1.42	0.88	0.17
G2	1.35	0.82	0.10
G3	1.28	0.75	0.04
G4	1.21	0.68	-0.03
G5	1.14	0.61	-0.10

PROJ. MANAGER	BY	DATE	SIGNATURE	P.E. NUMBER	DATE
M. Kerabergen	E. Reussellel	8/21			
J. Waugh	S. Hodgdon	8/21			
T. Poplin	J. Waugh	10/21			

DESIGN-DETAILED	CHECKED-REVIEWED	DESIGN-DETAILED	REVISIONS 1	REVISIONS 2	REVISIONS 3	REVISIONS 4	FIELD CHANGES
J. Waugh	S. Hodgdon	J. Waugh					

I-295 OVER US ROUTE 1
 EXIT 17 INTERCHANGE
 CUMBERLAND
 YARMOUTH
 BEARING DETAILS - SB

SHEET NUMBER

238

OF 312

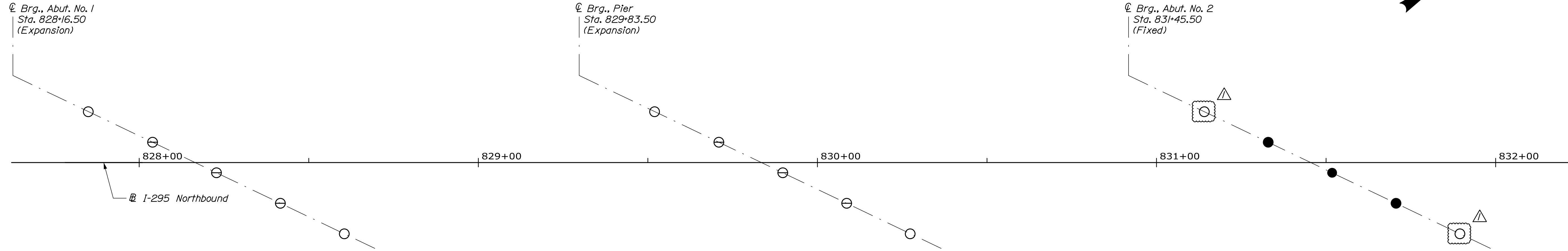


Date: 10/18/2021

Username:

Division:

Filename: 276_Bearing Layout - NB.dgn



BEARING LAYOUT PLAN

LEGEND

- Non - Guided Expansion (Expansion)
- ⊖ Guided Longitudinal Expansion (Unidirectional)
- Fixed

DISC BEARING NOTES:

1. The actual dimension "H" shall be the responsibility of the Contractor. Dimensions and sizes of plates not shown are dependent on design loads, capacity, and the manufacturer of the bearings. The shop drawings, prepared by the manufacturer, shall provide all pertinent bearing information. The final bearing pedestal elevations shall be determined by the Contractor and submitted with the shop drawings for approval prior to construction of the substructure units.
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12. All PTFE, including guide and restraint surfaces, shall be unfilled.
13. PTFE minimum bearing pressure shall be 1 ksi under total service loading and 3 ksi under total strength loading.
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20. Bearings shall be designed with a thermal load factor of 1.0.
21. Longitudinal horizontal forces do not include friction forces at expansion bearings.
22. All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, and a direction arrow that points upstation. All marks shall be permanent and shall be visible after the bearing is installed. Bearings shall be restrained during transit.
23. Bearing installation shall be in strict conformance with the Standard Specifications and the manufacturer's recommendations.
24. In the Disc Bearing Setting Corrections Table, a negative value for Dimension "X" indicates a direction away from the nearer expansion joint. A positive value for Dimension "X" indicates a direction toward the nearer expansion joint.
25. Abutment No. 2 bearings shall be welded to the girder prior to any other bearings. Bearing stiffeners at Abutment No. 2 shall be within 1/2 inch of the centerline of bearing at time of welding.
26. Temperatures shown in the Disc Bearing Setting Corrections Table are those of the steel girders and not necessarily the ambient air temperature.
27. Bearings shall not be welded until after all the dead load has been applied to the bridge.
28. Fixed bearings shall allow ±1/16" of movement in any direction. Uni-directional bearings shall allow ±1/4" of movement prior to guide engagement. All bearings shall satisfy the minimum rotation value in the Standard Specifications.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
02310600
WIN
023106.00
Bridge No. 5633
BRIDGE PLANS

PROJ. MANAGER	M. Kerabirgen	DATE	
DESIGN-DETAILED	J. Waugh	BY	E. Beausoleil
CHECKED-REVIEWED	J. Waugh	DATE	8/21
DESIGN-DETAILED	T. Pajuh	BY	S. Hodgdon
REVISIONS 1	J. Waugh	DATE	10/21
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

1-295 OVER US ROUTE 1
EXIT 17 INTERCHANGE
CUMBERLAND
YARMOUTH
BEARING LAYOUT - NB

SHEET NUMBER
276
OF 312

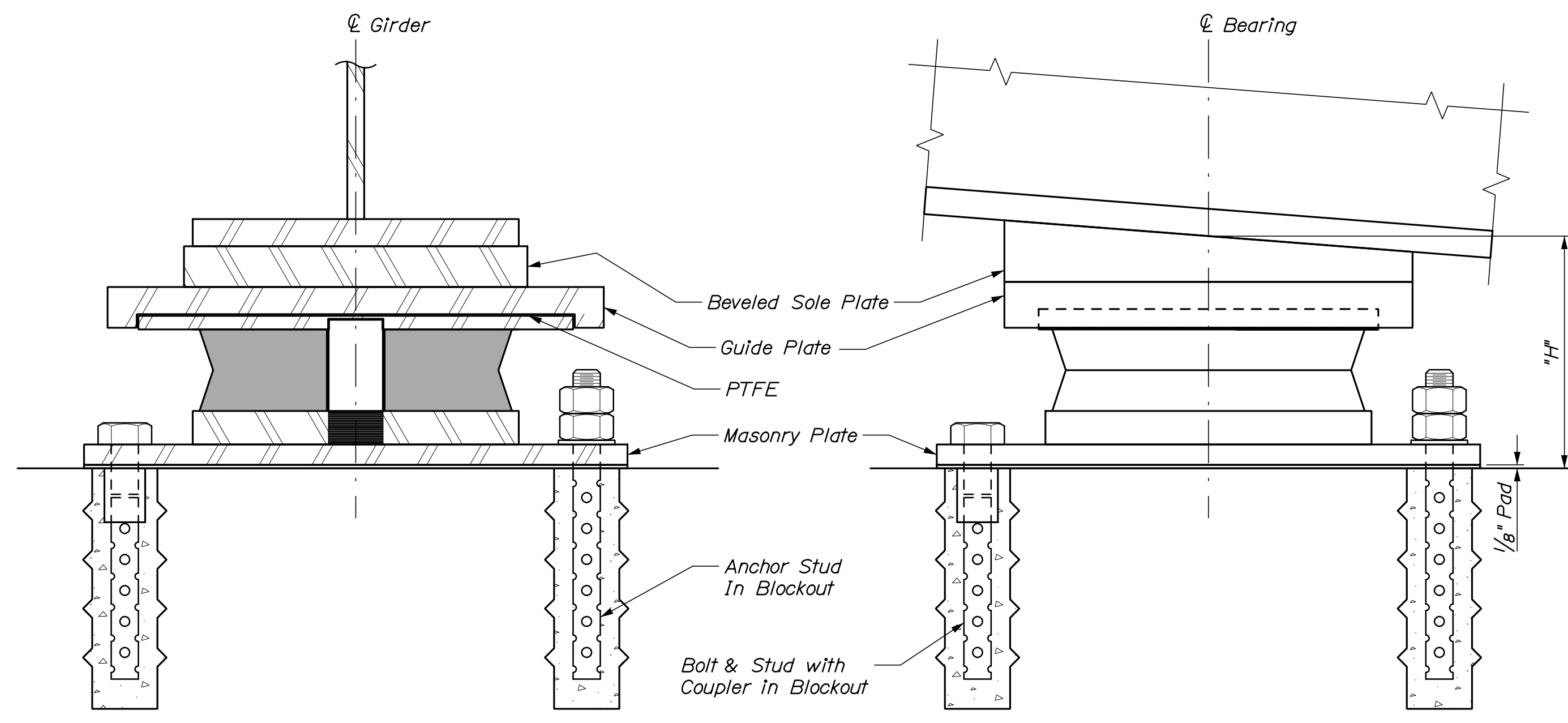


Date: 10/18/2021

Username:

Division:

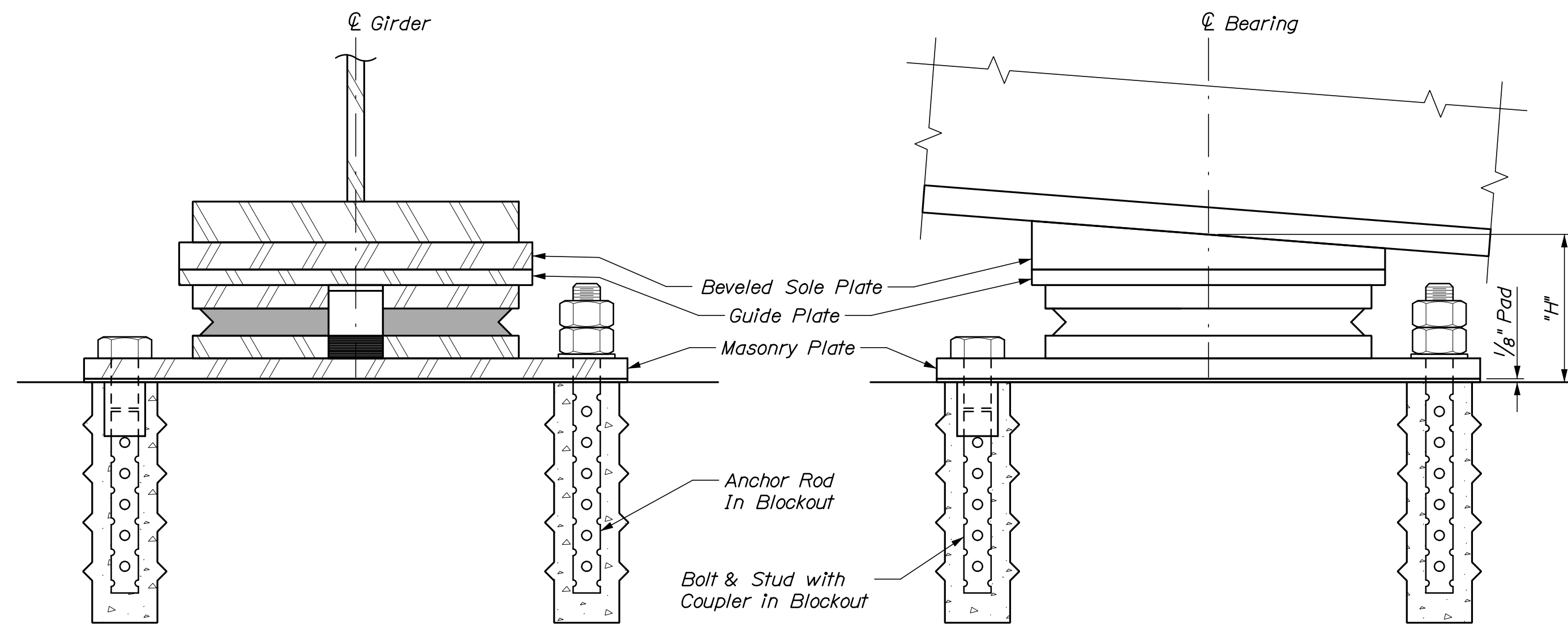
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~ TRANSVERSE SECTION ~

~ LONGITUDINAL ELEVATION ~

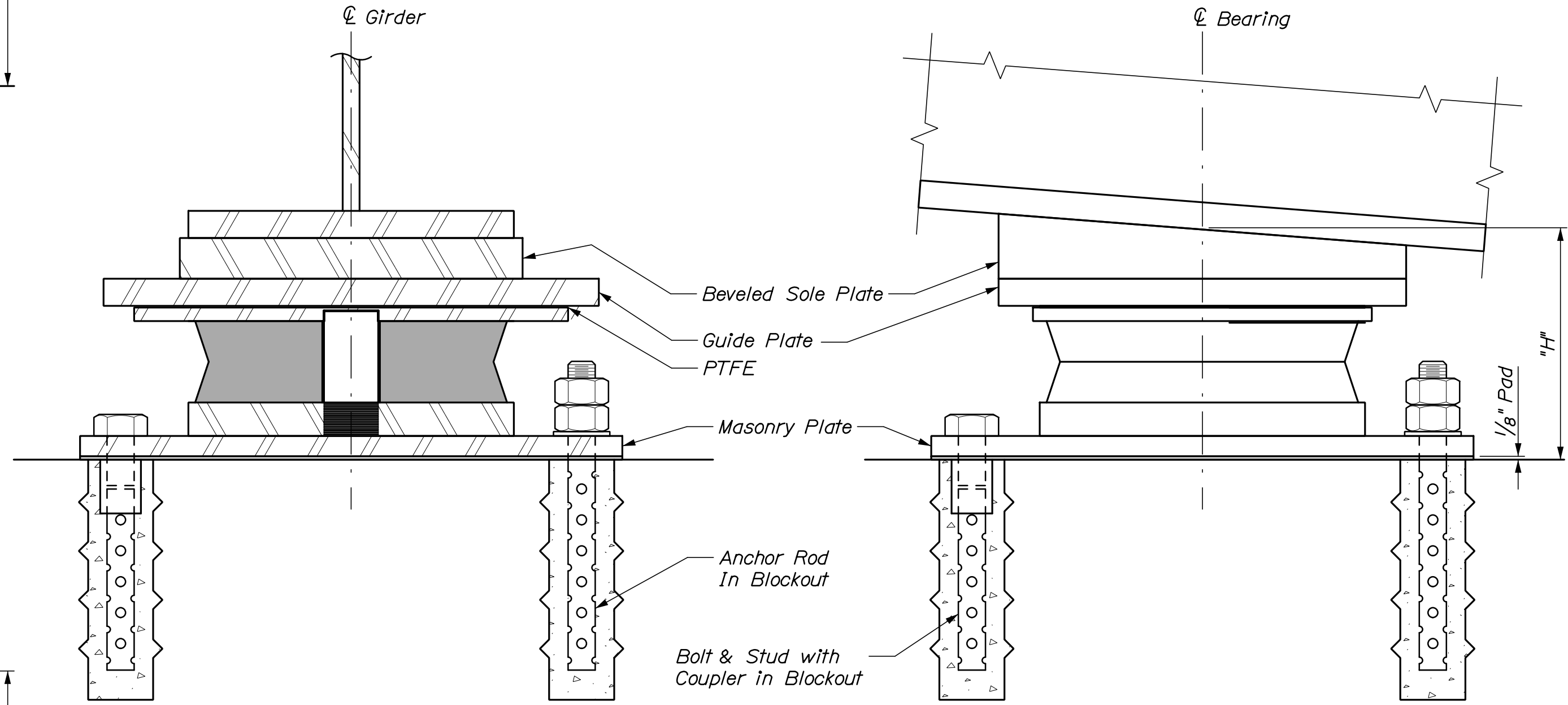
UNI-DIRECTIONAL BEARING



~ TRANSVERSE SECTION ~

~ LONGITUDINAL ELEVATION ~

FIXED BEARING



~ TRANSVERSE SECTION ~

~ LONGITUDINAL ELEVATION ~

EXPANSION BEARING

Location	Bearing Type	Design Loads Per Bearing (kips)										Dim "H" (in.) (See Note 1)	Design Rotation		Total Long. Movement (in.)	
		Vertical					Horizontal						Strength	Service		
		Strength	Extreme Event	Service			Strength	Extreme	Service							
		Total Load	Total Load	Dead Load *	Max. Live Load **	Min. Live Load **	Long.	Trans.	Long.	Trans.	Long.		Trans.	Rotation (radians)		Rotation (radians)
Abut. No. 1, G1 & G5	Exp.	536	129	136	159	44	0	0	0	0	0	0	12	0.009	0.005	4.04
Abut. No. 1, G2 - G4	Uni-dir	468	122	124	132	12	0	52	0	49	0	35	12	0.017	0.010	3.84
Pier, G1 & G5	Exp.	1463	459	472	306	66	0	0	0	0	0	0	12	0.006	0.003	2.17
Pier, G2 - G4	Uni-dir	1543	484	488	294	35	0	111	0	192	0	82	12	0.004	0.004	1.99
Abut. No. 2, G1 & G5	Exp.	490	123	123	149	39	0	0	0	0	0	0	12	0.008	0.005	0.39
Abut. No. 2, G2 - G4	Fixed	444	112	115	133	14	140	58	287	46	111	45	12	0.019	0.011	0

* Tabulated Dead Loads include DC1, DC2, and DW loads.
 ** Tabulated Live Loads include IM loading and multiple presence factors.

	Dimension "X" (inches)					
	15' F	30' F	45' F	60' F	75' F	90' F
Abut. No. 1	-7/8"	-7/16"	0"	7/16"	7/8"	1 5/16"
Pier	-1/2"	-1/4"	0"	1/4"	1/2"	3/4"
Abut. No. 2	-	-	-	-	-	-

Girder/Location	Abut. No. 1	Pier	Abut. No. 2
G1	0.39	-0.34	-1.04
G2	0.30	-0.42	-1.12
G3	0.22	-0.5	-1.21
G4	0.14	-0.58	-1.29
G5	0.06	-0.67	-1.37

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION
 02310600
 WIN
 023106.00
 Bridge No. 8633
 BRIDGE PLANS

PROJ. MANAGER	BY	DATE
M. Kerabergen	E. Reussellel	8/21
J. Waugh	S. Hodgdon	8/21
T. Poplin		
J. Waugh		10/21

DESIGN-DETAILED
 CHECKED-REVIEWED
 DESIGN-DETAILED
 REVISIONS 1
 REVISIONS 2
 REVISIONS 3
 REVISIONS 4
 FIELD CHANGES

1-295 OVER US ROUTE 1
 EXIT 17 INTERCHANGE
 CUMBERLAND
 YARMOUTH

BEARING DETAILS - NB

SHEET NUMBER
 277
 OF 312

