

**SPECIFICATIONS:**

**GRADING**

ALL DOUGLAS FIR-LARCH TO BE GRADED PER WCLIB STANDARD GRADING RULES.

**MATERIALS & TREATMENT**

TIMBER PRESERVATIVE TREATMENT SHALL BE IN ACCORDANCE WITH CURRENT AASHTO SPECIFICATIONS. ALL TIMBER SHALL BE COPPER NAPHTHENATE TREATED UNLESS NOTED OTHERWISE.

GLU-LAM TOP CHORD TO BE DOUGLAS FIR, 24F-V4, DF/DF.

CHORDS, VERTICALS, DIAGONALS, KNEE BRACE, PORTAL, INTERMEDIATE VERTICALS, MIDDLE CONNECTION PLATES, & GIRTS TO BE DOUGLAS FIR, LARCH NO.1.

BALANCE OF TIMBER TO BE DOUGLAS FIR-LARCH, IN ACCORDANCE WITH DESIGN REQUIREMENTS.

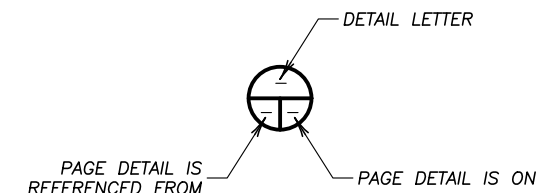
ALL TIMBER IS ROUGH UNLESS OTHERWISE NOTED.

**MISCELLANEOUS**

ALL TIMBER TO BE CUT TO EXACT LENGTH, DRESSED TO SIZE REQUIRED AND ALL PRACTICAL FRAMING TO BE DONE PRIOR TO TREATMENT.

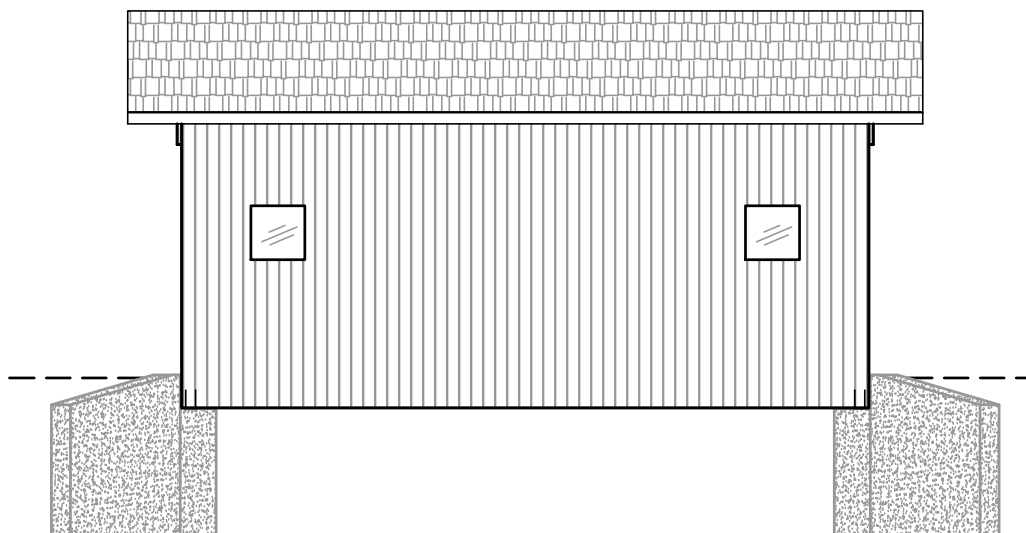
ALL HARDWARE TO MEET ASTM A307-97 GALVANIZED TO ASTM F2329 (A153). ALL HIGH STRENGTH HARDWARE TO MEET ASTM A449 GALVANIZED TO ASTM F2329 (A153). ALL STRUCTURAL STEEL TO MEET ASTM A36, GALVANIZED TO ASTM A123.

# PINE COUNTY, MINNESOTA BRIDGE 58559 TIMBER COVER



**CALLOUT LEGEND**

**DO NOT SCALE DRAWINGS**



**TIMBER COVER ELEVATION**

**BRIDGE COVER REACTIONS (KIPS)**

DEAD LOAD	4.4 PER BEARING
SNOW LOAD	20.3 PER BEARING
WIND (HORIZONTAL)	10.1 PER ABUTMENT
WIND (LONGITUDINAL)	3.4 PER BEARING

REV.	DESCRIPTION	DATE	INIT.
△	MOVED ANCHOR BOLTS	1/3/24	JLS
△	CHANGE TO SHAKE ROOFING (BY OTHERS)	1/26/24	JLS
△	ADDED WINDOWS, SOFFIT, CHANGED GIRTS	2/5/24	JLS
△	REMOVED ROOFING MATERIALS	3/1/24	JLS

**PLAN SHEET INDEX**

SHEET	DESCRIPTION
1	COVER SHEET & SPECIFICATIONS
2	GENERAL TIMBER COVER PLAN & ELEVATION
3	TRUSS CONNECTION DETAILS
4	TRUSS CONNECTION DETAILS
5	TRUSS CONNECTION DETAILS
6	ROOF TRUSS LAYOUT & ELEVATION
7	ROOF TRUSS CONNECTION DETAILS
8	STEEL DETAILS
9	STEEL DETAILS
10	STEEL DETAILS
11	STEEL DETAILS

**CONSTRUCTION NOTES:**

AFTER DRILLING HOLES INTO CONCRETE, CLEANING OF HOLES MAY REQUIRE TEMPORARILY REMOVING PLATES FROM CONCRETE.

ALL HOLES DRILLED FOR BOLTS ARE TO BE 1/16" LARGER THAN BOLT SIZE.

ANY NUT OR MACHINE BOLT HEAD IN DIRECT CONTACT WITH TIMBER TO HAVE ONE PLATE WASHER BETWEEN NUT & TIMBER, OR BOLT HEAD & TIMBER.

ANY NUT OR MACHINE BOLT HEAD IN DIRECT CONTACT WITH STEEL TO HAVE ONE CUT WASHER BETWEEN NUT & STEEL, OR BOLT HEAD & STEEL.

SET THREADS ON ALL BOLTS AT NUT WITH A CENTER PUNCH AFTER TIGHTENING.

ALL TIMBER CUT OR DRILLED IN THE FIELD SHALL BE TREATED WITH AN APPROVED PRESERVATIVE.

CONSTRUCTION REQUIREMENTS SHALL CONFORM TO STATE SPECIFICATIONS UNLESS OTHERWISE NOTED.

ALTHOUGH ALL PRACTICAL PRE-FRAMING WILL BE DONE PRIOR TO TREATING, SOME CUTTING & DRILLING WILL BE REQUIRED IN THE FIELD.

**DESIGN DATA:**

THE INTERNATIONAL BUILDING CODE GOVERNS.

THE DESIGN OF THIS STRUCTURE COMPLIES WITH THE BUILDING CODE AND SUPPLEMENTAL SPECIFICATIONS AS INDICATED IN THE CODE AND THE DESIGN COMPUTATIONS.

- 1) ROOF LIVE LOAD USED IN THE DESIGN 57.1 PSF
  - A) GROUND SNOW LOAD 68 PSF
  - B) FLAT ROOF SNOW LOAD 57.1 PSF
  - C) SNOW EXPOSURE FACTOR 1.0
  - D) THERMAL FACTOR 1.2
- 2)
  - A) BASIC WIND SPEED 107 MPH
  - B) OCCUPANCY CATEGORY 2
  - C) EXPOSURE "C"

**CONSTRUCTION NOTES:**

PREDRILL HOLES FOR SCREWS AND NAILS AS NECESSARY TO AVOID SPLITTING TIMBERS.

ENGINEER'S SIGNATURE AND SEAL ARE TO ASSUME DESIGN RESPONSIBILITY FOR THE TIMBER SUPERSTRUCTURE AS SUPPLIED & DRAWN BY WHEELER LUMBER, LLC, INDEPENDENT OF ITS FINAL POSITION. THIS DESIGN RESPONSIBILITY IS LIMITED TO THE TIMBER SUPERSTRUCTURE AND DOES NOT INCLUDE ANY DESIGN RESPONSIBILITY PERTAINING TO, BUT NOT LIMITED TO, ROADWAY GEOMETRICS, BRIDGE POSITIONING, HYDRAULIC DESIGN, SCOUR ANALYSIS, PERMITTING PROCEDURES, ERECTION, TL-2 RAIL DESIGN, UTILITY FACILITIES, SOIL CONDITIONS, EXISTING TIMBER BRIDGE AND CONCRETE ABUTMENTS, ETC.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*DALE DRAVES*

DALE DRAVES

DATE 4-3-2024 LIC. NO. 20666

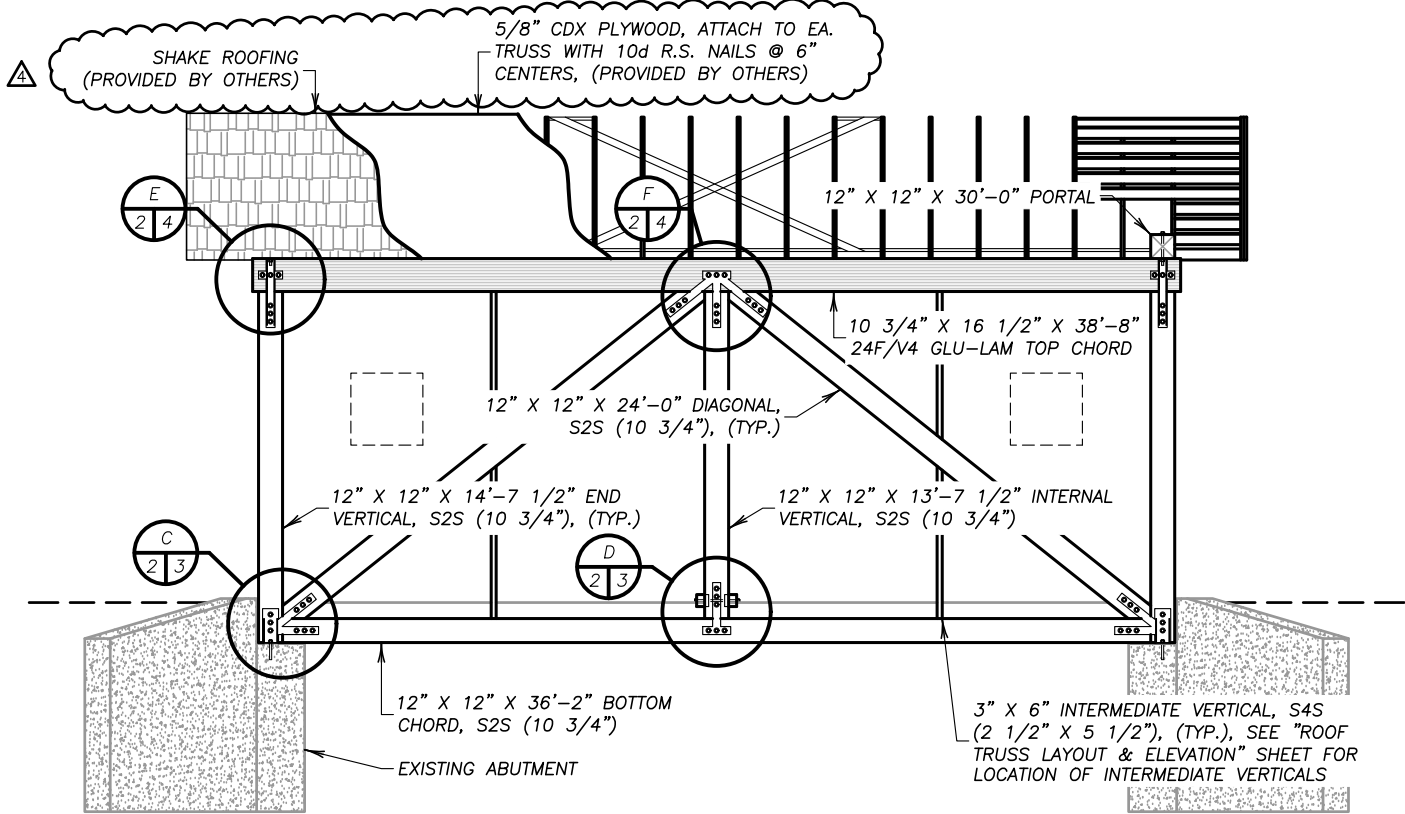
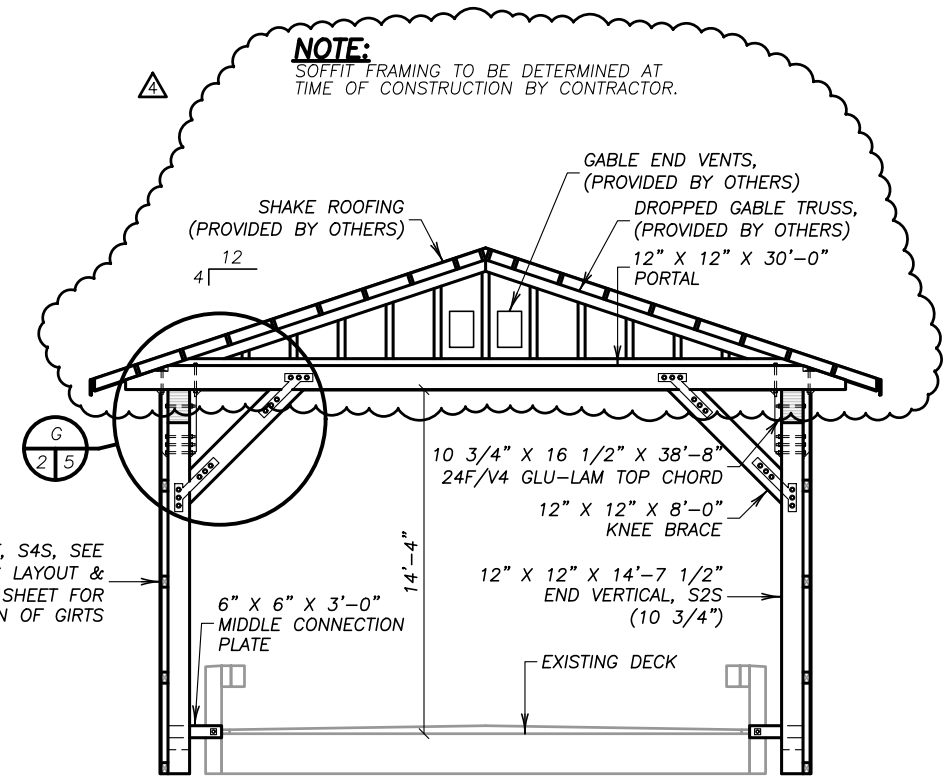
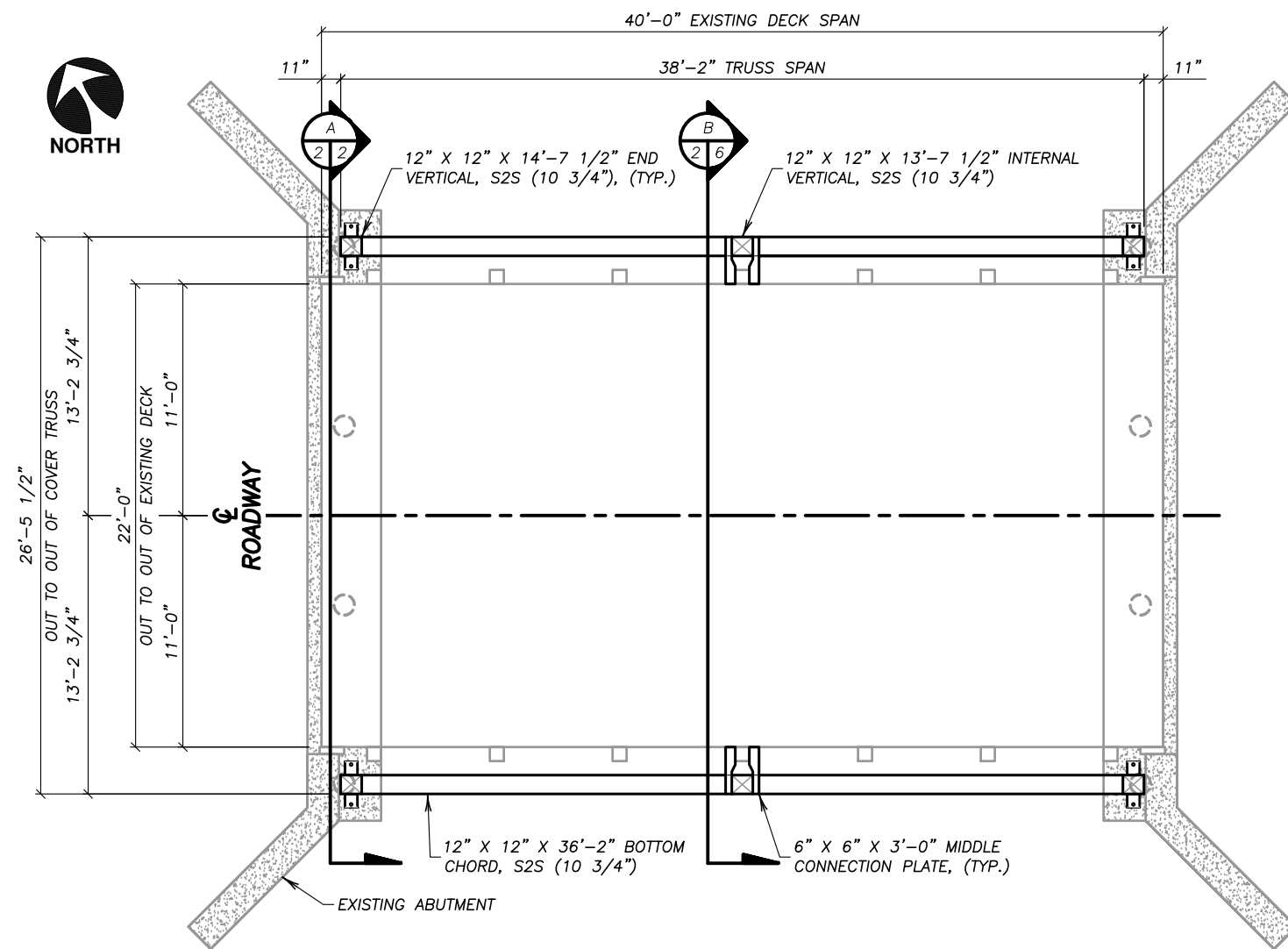
**COVER SHEET & SPECIFICATIONS**

**38'-2" TREATED TIMBER SPAN  
20'-1" CLEAR ROADWAY  
BRIDGE 58559 COVER  
PINE COUNTY, MINNESOTA**

**Wheeler**

9531 W.78th Street, Ste.100  
Eden Prairie, MN 55344  
952-929-7854  
info@wheeler1892.com  
wheeler1892.com

DATE: 12/6/23	TRACKING NO. T23569A	SHEET NO.
DWN: JLS	CHK: LAF	ORDER NO. 651-15280
		1 OF 11



**TIMBER COVER FRONT VIEW**

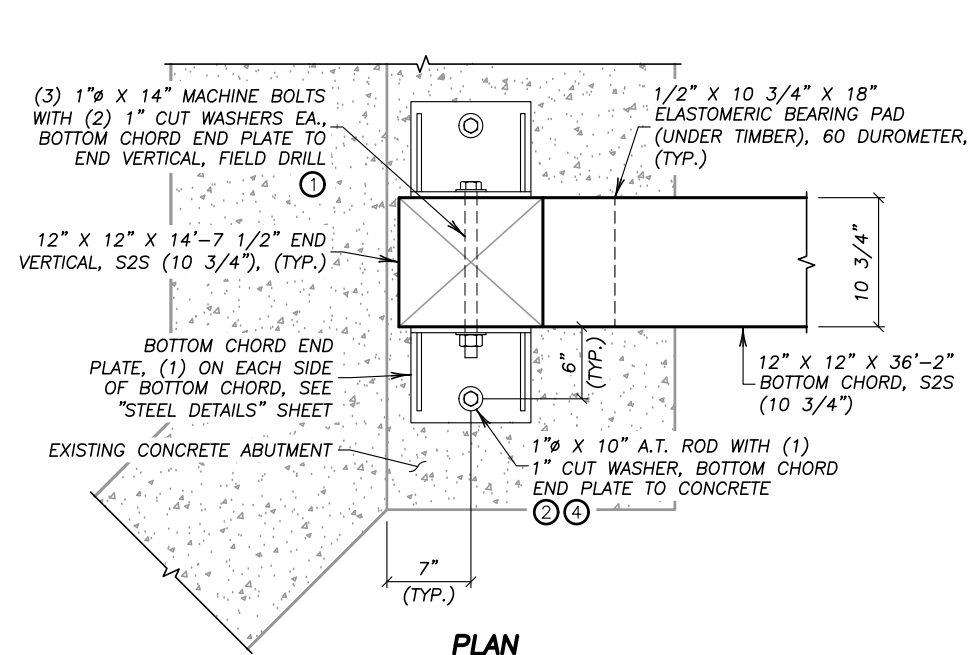
**GENERAL TIMBER COVER PLAN & ELEVATION**

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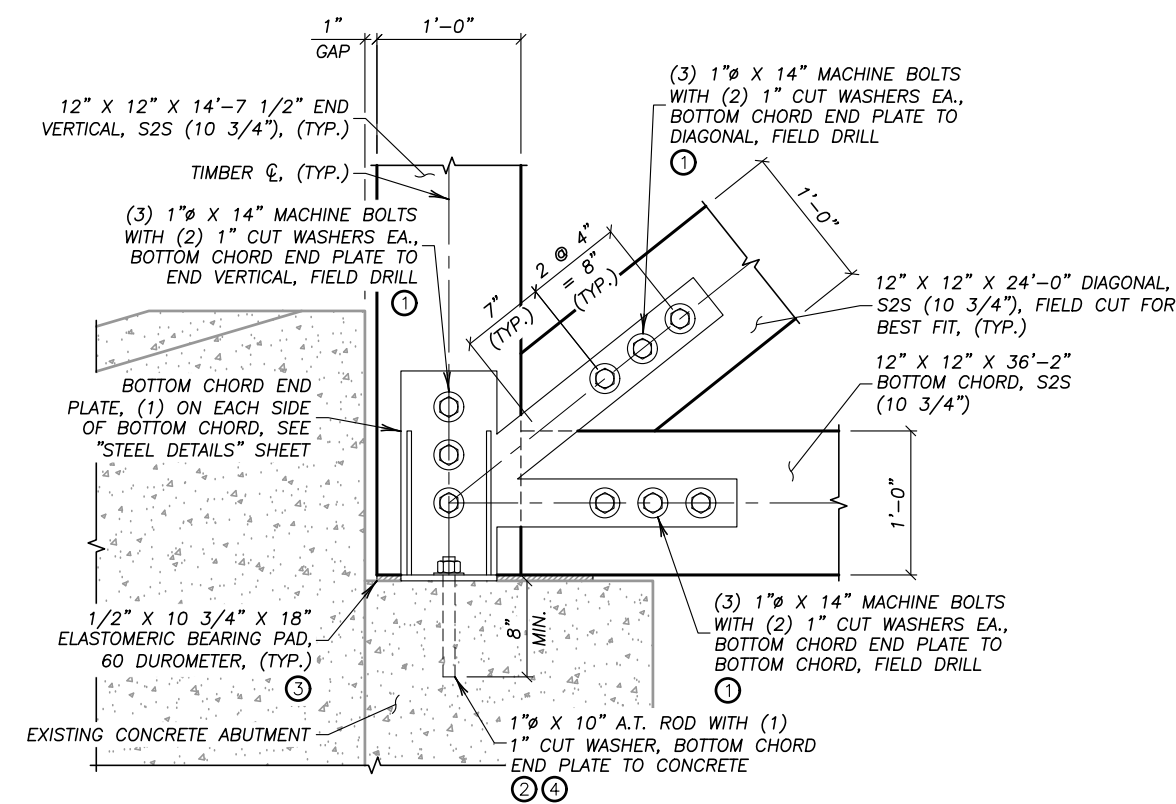
CERTIFIED BY *Dale Draves*  
PROFESSIONAL ENGINEER/DALE DRAVES  
DATE 4-3-2024 LIC. NO. 20666

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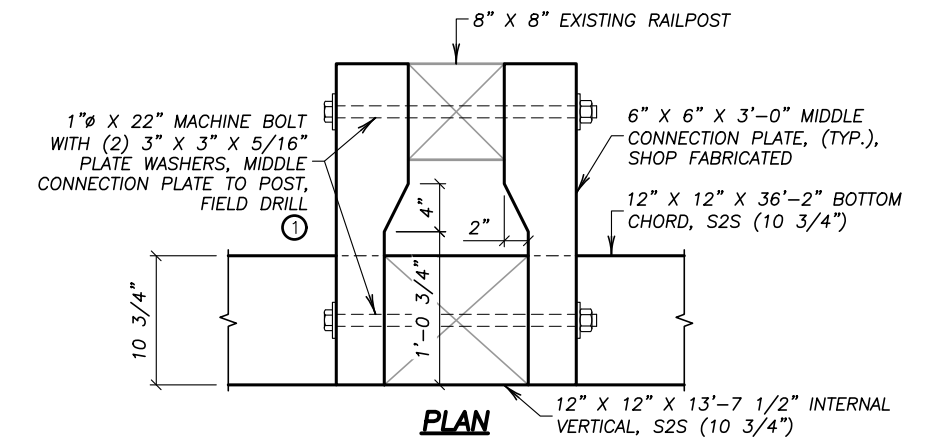
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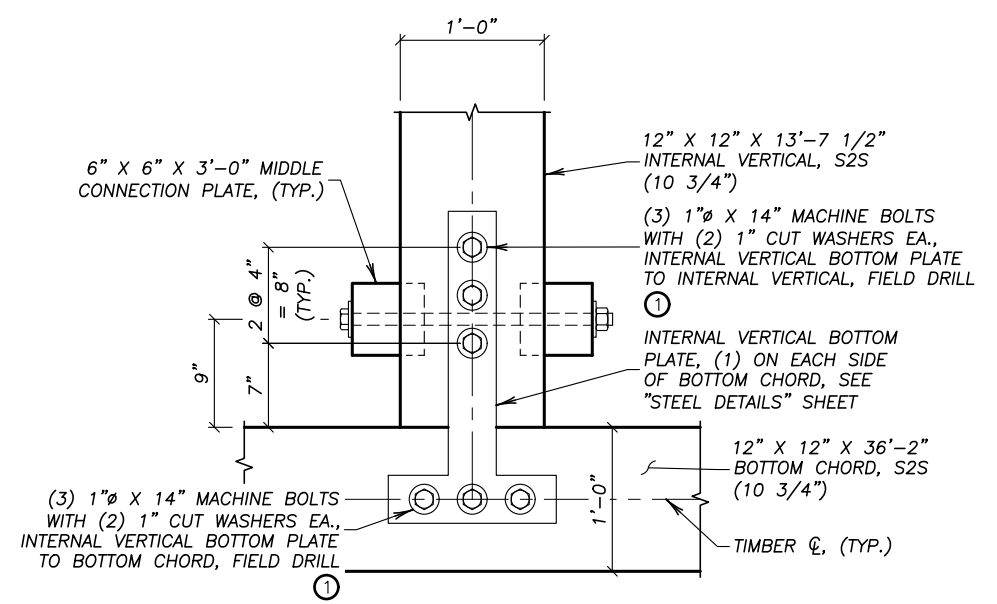
**PLAN**



**C BOTTOM CHORD END PLATE DETAIL**



**PLAN**



**D INTERNAL VERTICAL BOTTOM PLATE DETAIL**

- NOTES:**
- ① ALL HARDWARE PENETRATING THE TOP OR BOTTOM EDGE OF THE TIMBER SHALL PASS THROUGH THE CENTER OF THAT EDGE DIMENSION.
  - ② 1"Ø X 10" ALL THREAD RODS, TRUSS TO CONCRETE, WITH (1) 1" CUT WASHER EA. INSTALL 1"Ø ALL THREAD ROD/ADHESIVE INTO CONCRETE THAT IS IN SOUND CONDITION WITH EMBEDMENT DEPTH OF 8". ADHESIVE SHALL BE "SIMPSON AT-XP 12.5OZ TUBE". ANCHORS SHALL BE INSTALLED PER SIMPSON FASTENING INSTRUCTIONS.
  - ③ 1/2" X 10 3/4" X 18" ELASTOMERIC BEARING PAD UNDER TRUSS @ BOTH ABUTMENTS.
  - ④ ANCHOR LOCATION 1" CLEAR TO REBAR BASED ON ABUTMENT DESIGN PROVIDED IN ERICKSON ENGINEERING BRIDGE PLANS. VERIFY REBAR LOCATIONS WITH NON-DESTRUCTIVE TESTING PRIOR TO DRILLING TO AVOID ANCHOR/REBAR CONFLICT. THE MINIMUM REQUIRED CLEARANCE MAY BE REDUCED WITH CONSIDERATION OF THE ACCURACY OF THE TEST, AS NEEDED TO AVOID HITTING THE BAR.

ENGINEER'S SIGNATURE AND SEAL ARE TO ASSUME DESIGN RESPONSIBILITY FOR THE TIMBER SUPERSTRUCTURE AS SUPPLIED & DRAWN BY WHEELER LUMBER, LLC. INDEPENDENT OF ITS FINAL POSITION. THIS DESIGN RESPONSIBILITY IS LIMITED TO THE TIMBER SUPERSTRUCTURE AND DOES NOT INCLUDE ANY DESIGN RESPONSIBILITY PERTAINING TO, BUT NOT LIMITED TO, ROADWAY GEOMETRICS, BRIDGE POSITIONING, HYDRAULIC DESIGN, SCOUR ANALYSIS, PERMITTING PROCEDURES, ERECTION, TL-2 RAIL DESIGN, UTILITY FACILITIES, SOIL CONDITIONS, EXISTING TIMBER BRIDGE AND CONCRETE ABUTMENTS, ETC.

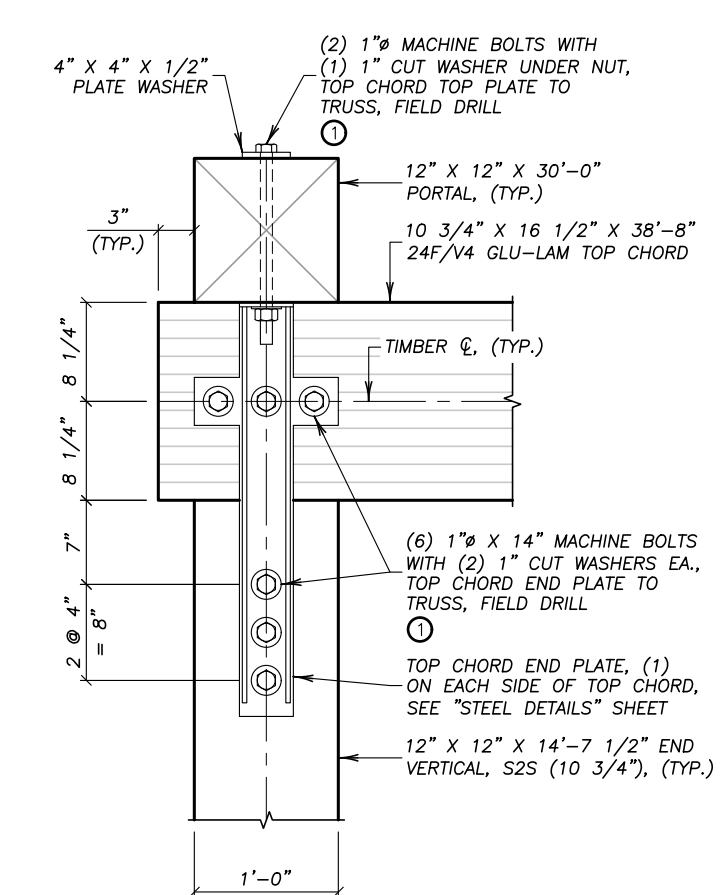
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 PROFESSIONAL ENGINEER/DALE DRAVES  
 DATE 4-3-2024 LIC. NO. 20666

**TRUSS CONNECTION DETAILS**  
 BRIDGE 58559 COVER, PINE COUNTY, MINNESOTA

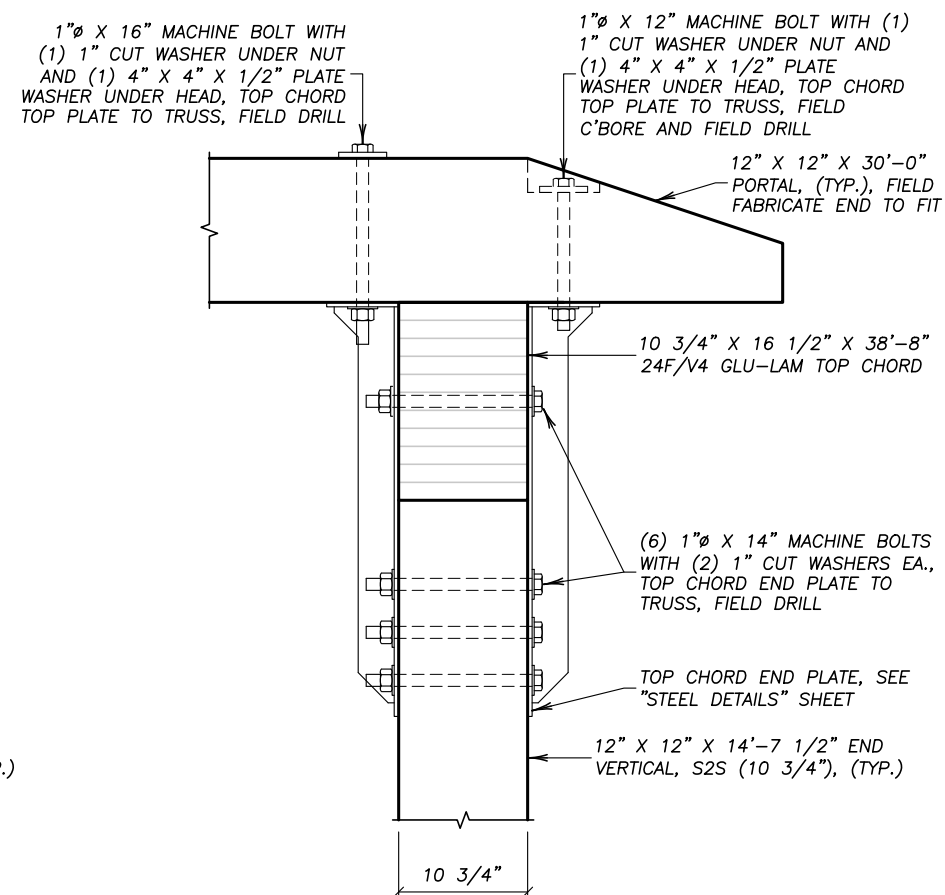
Wheeler

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 Eden Prairie, MN 55344  
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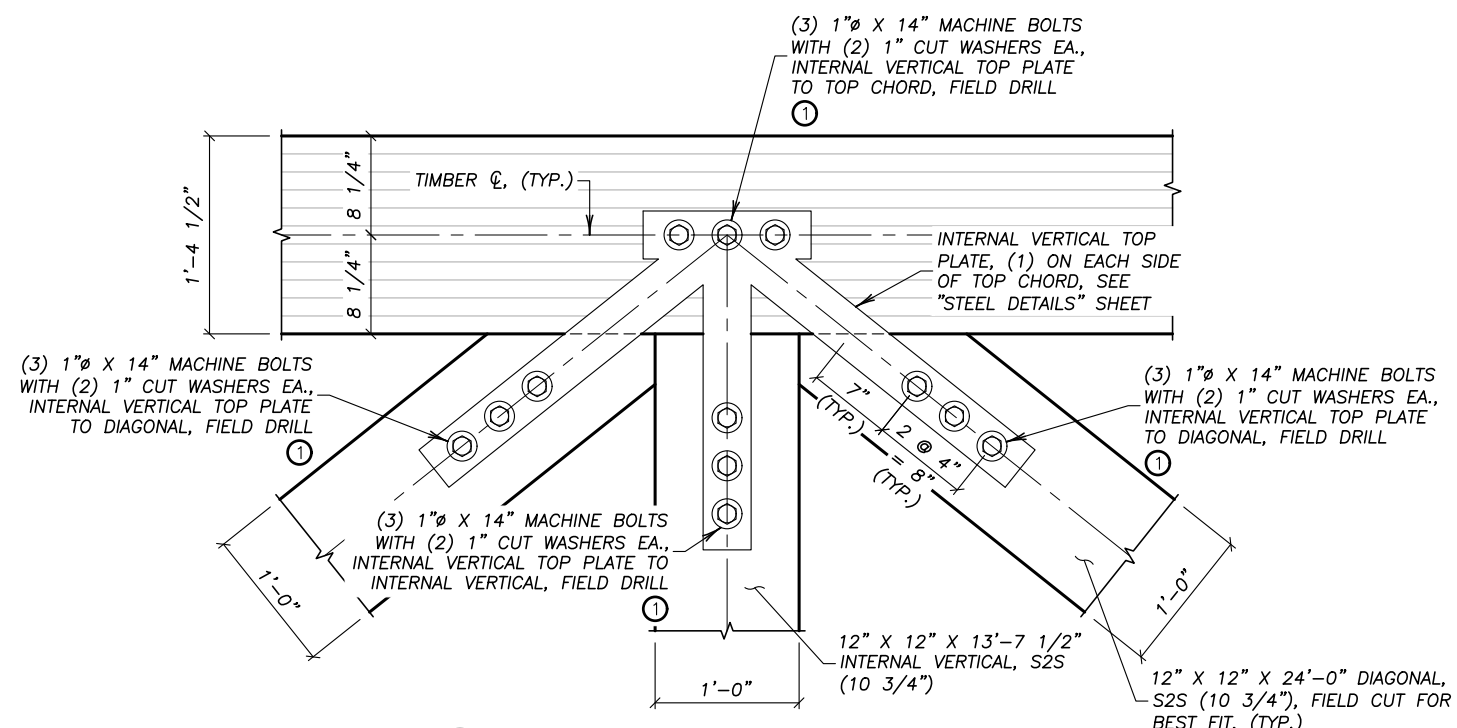
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**E**  
2 | 4  
**TOP CHORD END PLATE DETAIL**



**END VIEW**



**F**  
2 | 4  
**INTERNAL VERTICAL TOP PLATE DETAIL**

**NOTES:**  
 ① ALL HARDWARE PENETRATING THE TOP OR BOTTOM EDGE OF THE TIMBER SHALL PASS THROUGH THE CENTER OF THAT EDGE DIMENSION.

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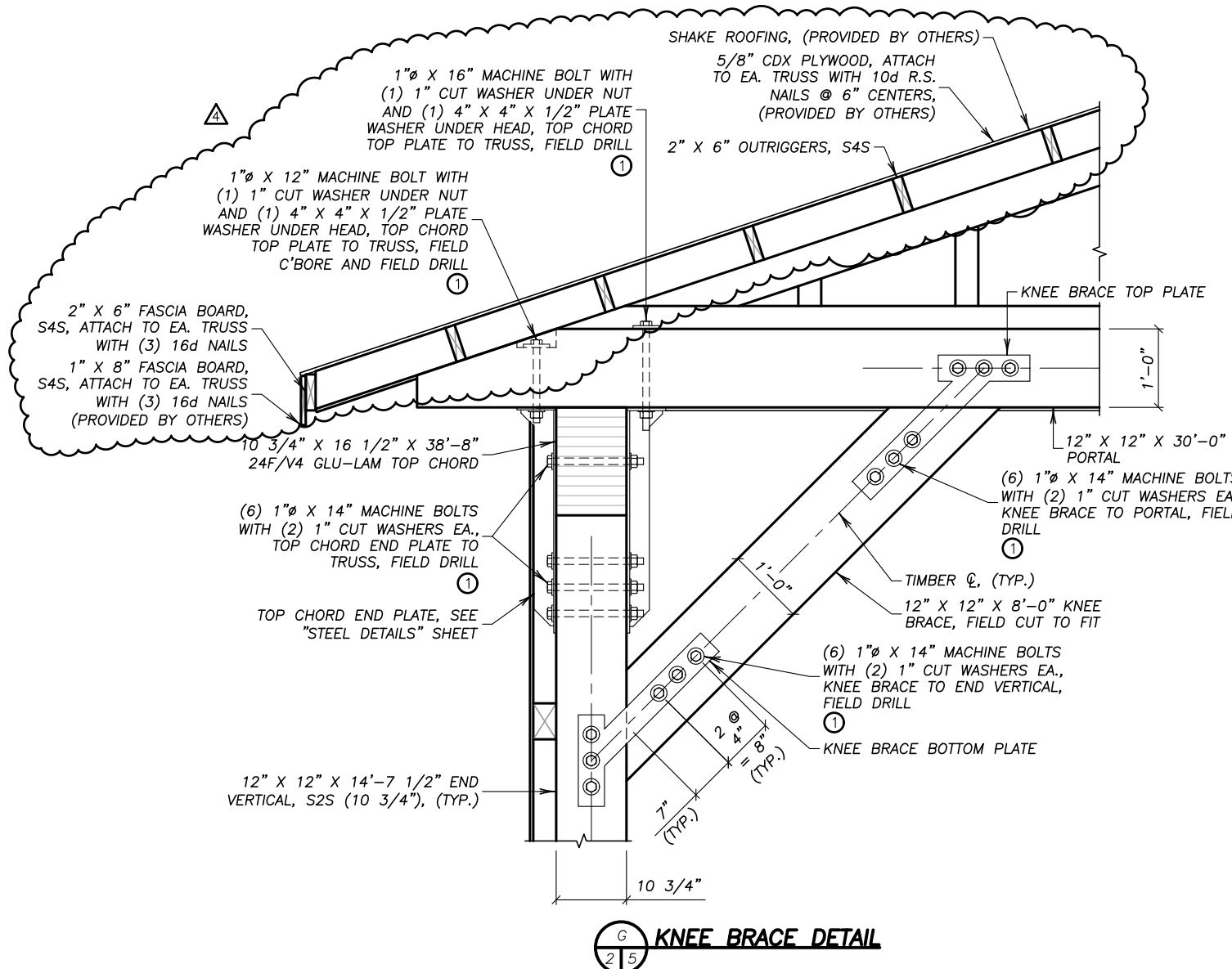
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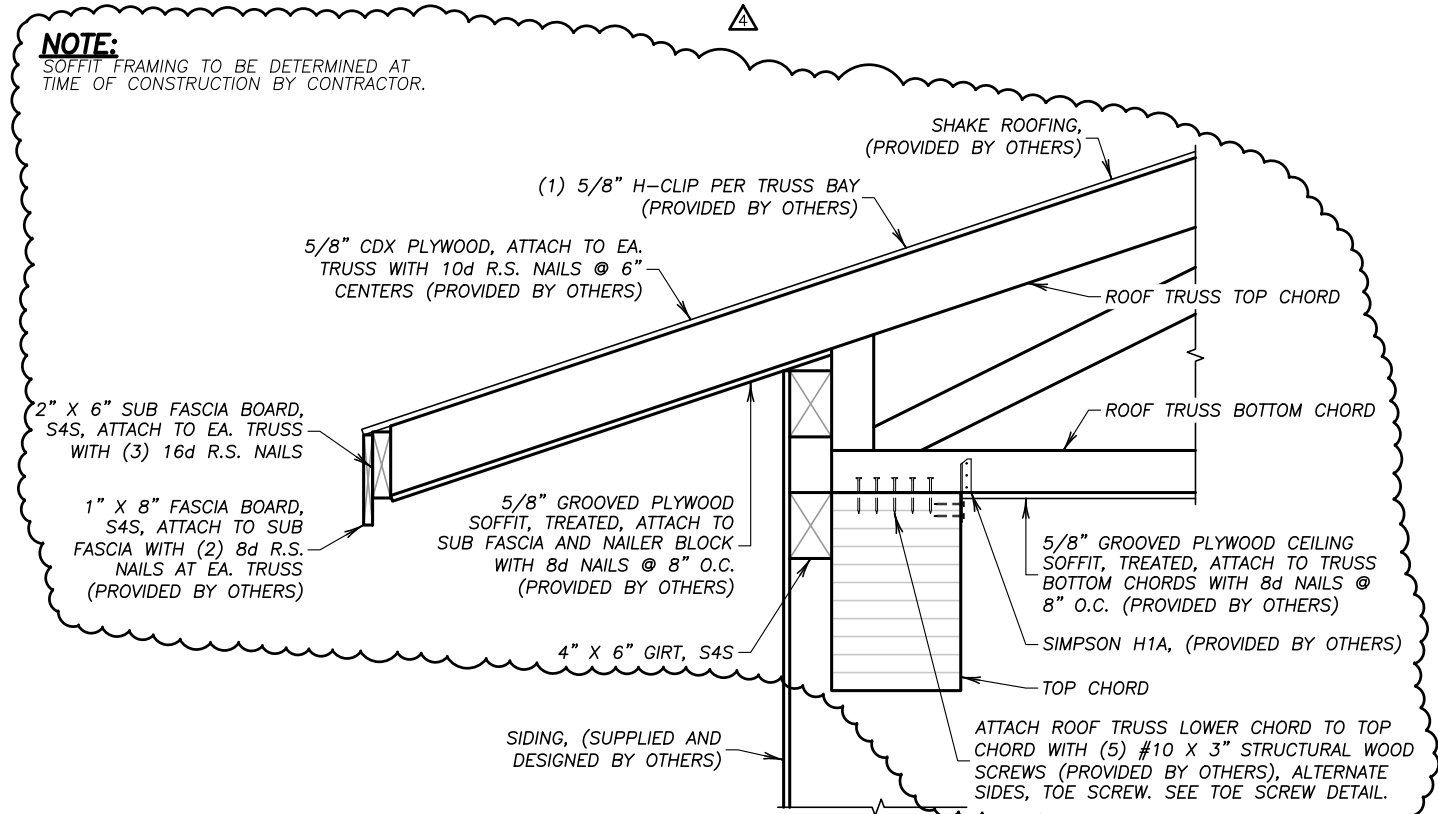
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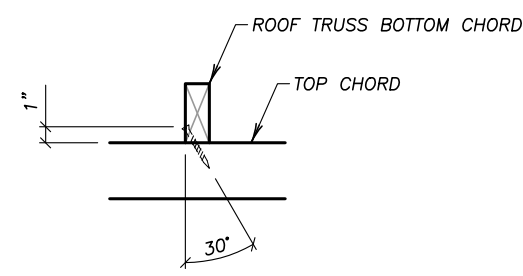
**KNEE BRACE DETAIL**



**ROOF TRUSS & TOP CHORD CONNECTION DETAIL**

**NOTE:**  
SOFFIT FRAMING TO BE DETERMINED AT TIME OF CONSTRUCTION BY CONTRACTOR.

**NOTES:**  
① ALL HARDWARE PENETRATING THE TOP OR BOTTOM EDGE OF THE TIMBER SHALL PASS THROUGH THE CENTER OF THAT EDGE DIMENSION.



**TOE SCREW DETAIL**  
TOE SCREWS @ TRUSS MUST BE PLACED THROUGH SOLID WOOD, IT IS ACCEPTABLE TO PLACE THROUGH TRUSS PLATE. 2" MIN. SPACING.

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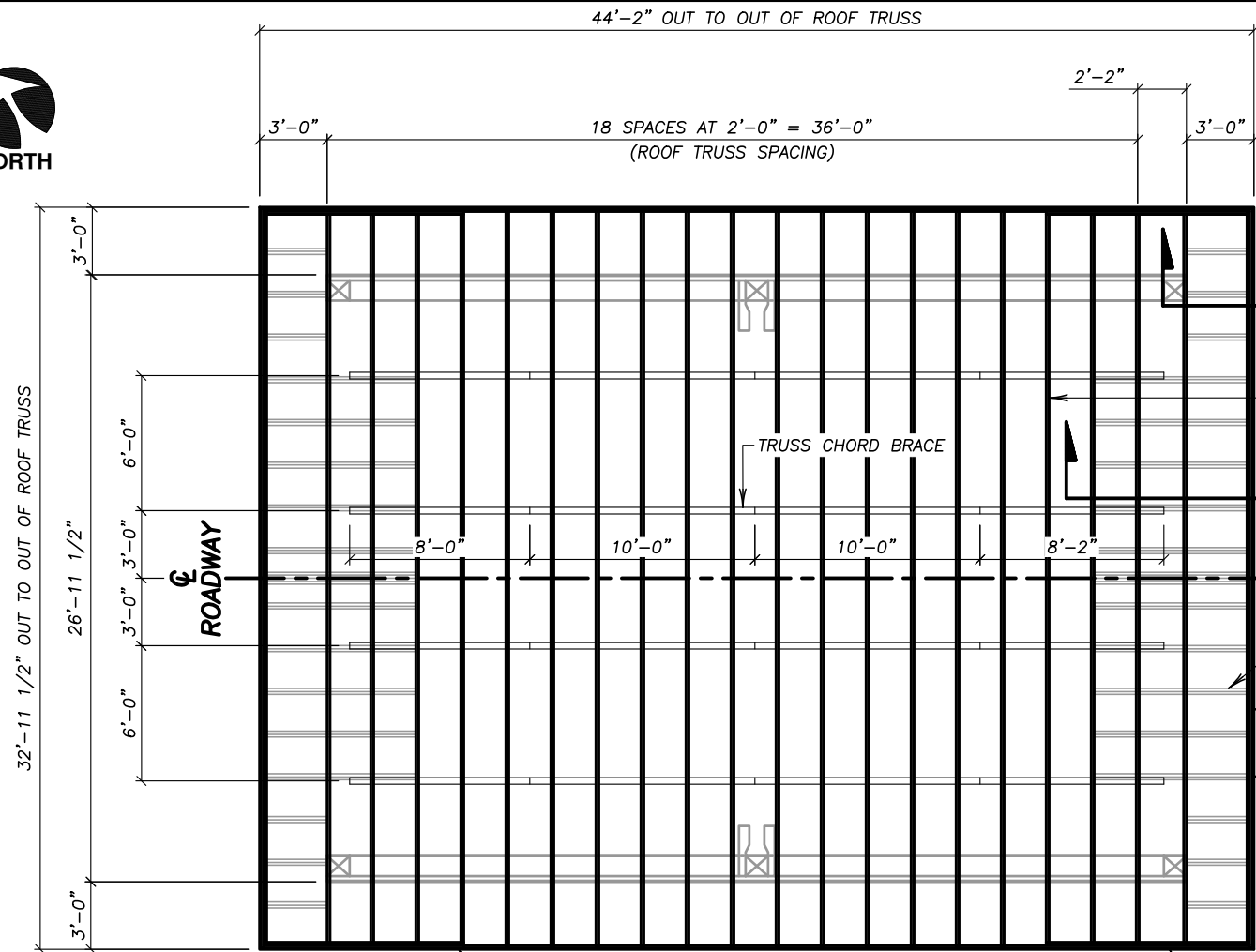
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(2) DROPPED GABLE TRUSSES,  
(2) DROPPED INTERIOR TRUSSES,  
(16) INTERIOR ROOF TRUSSES,  
(ALL PROVIDED BY OTHERS)

2" X 6" OUTRIGGERS,  
S4S, (TYP.)

(2) 2" X 6" BARGE  
BOARDS, S4S, (TYP.)

(1) 1" X 8" FASCIA, S4S,  
(PROVIDED BY OTHERS)

(1) 1" X 8" FASCIA, S4S,  
(PROVIDED BY OTHERS)

2" X 4" 'X' BRACE S4S

2" X 4" 'X' BRACE BLOCK, S4S,  
CUT TO LENGTH IN THE FIELD

2" X 4" X 1'-0" BLOCK, S4S, ATTACH  
TO 'X' BRACE WITH (4) 16d R.S. NAILS

TOE NAIL 'X' BRACE BLOCK TO UPPER  
ROOF CHORD WITH (2) 16d R.S. NAILS

ATTACH 'X' BRACE TO BLOCK  
WITH (4) 16d R.S. NAILS

HGA10 GUSSET ANGLE, (PROVIDED  
BY OTHERS), SEE "ROOF  
CONNECTION DETAILS" SHEET

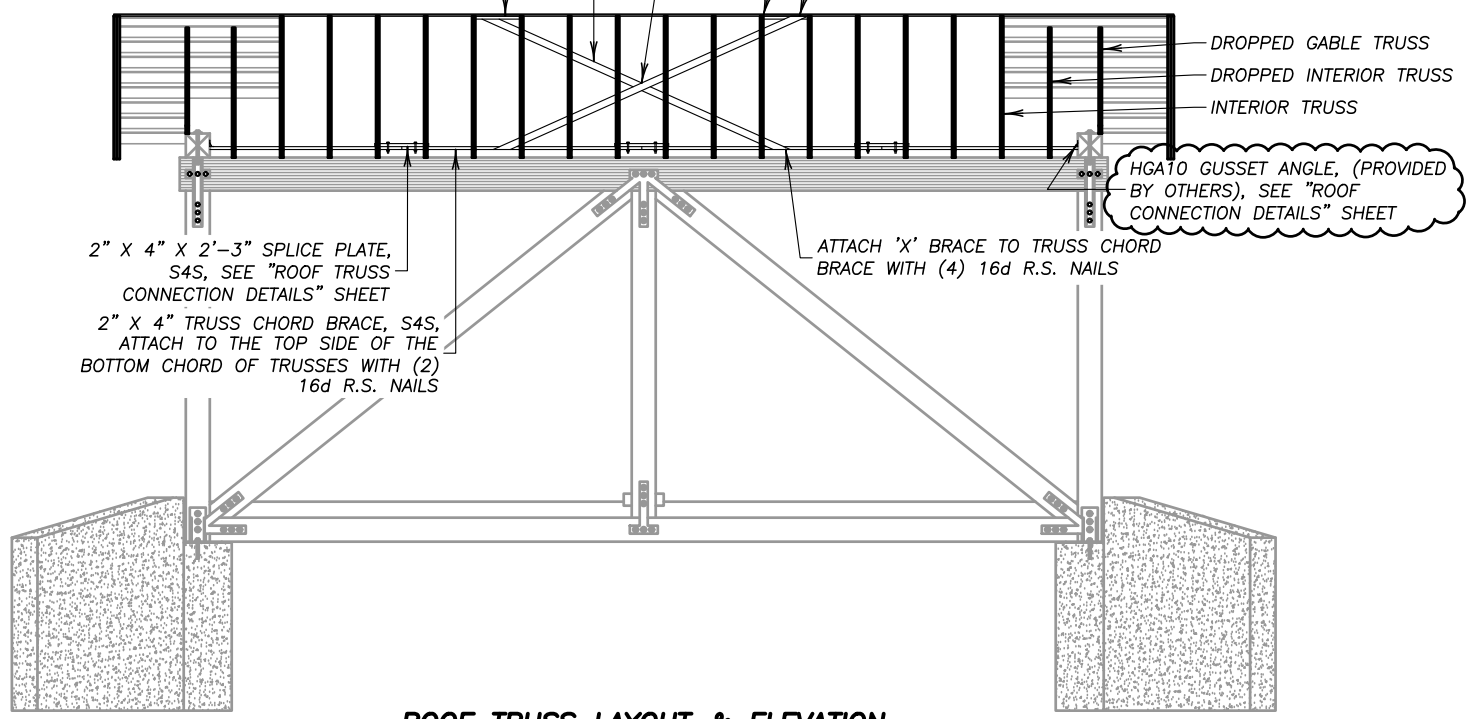
2" X 4" X 2'-3" SPLICE PLATE,  
S4S, SEE "ROOF TRUSS  
CONNECTION DETAILS" SHEET

2" X 4" TRUSS CHORD BRACE, S4S,  
ATTACH TO THE TOP SIDE OF THE  
BOTTOM CHORD OF TRUSSES WITH (2)  
16d R.S. NAILS

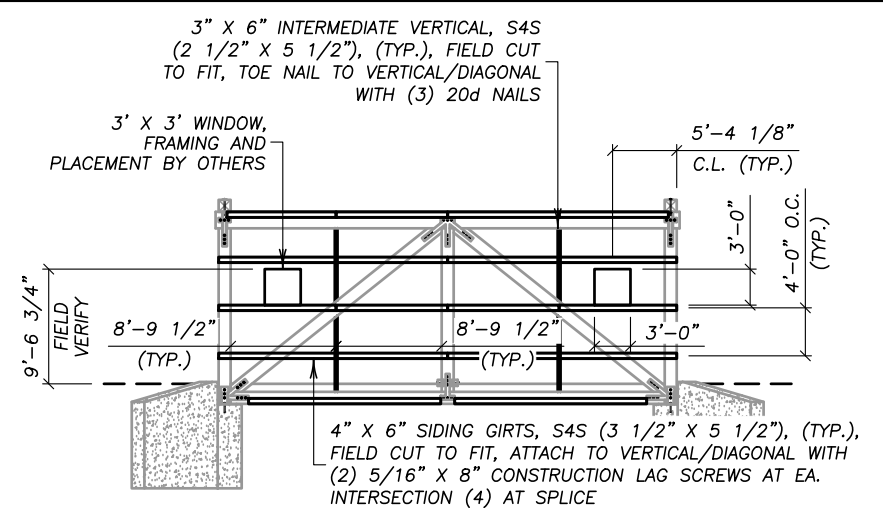
ATTACH 'X' BRACE TO TRUSS CHORD  
BRACE WITH (4) 16d R.S. NAILS

**NOTE:**  
ONE "X" BRACE TO BE PROVIDED  
AT EACH BOTTOM CHORD BRACE  
LOCATION. (4) "X" BRACES TOTAL.

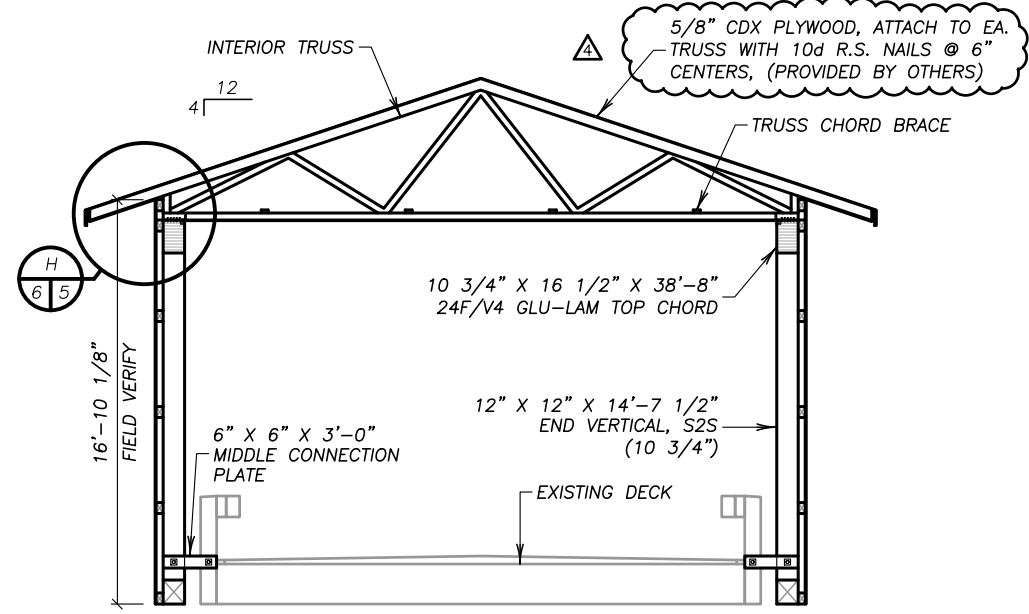
SOFFIT FRAMING TO BE  
DETERMINED AT TIME OF  
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**ROOF TRUSS LAYOUT & ELEVATION**



**GENERAL SIDING GIRT LAYOUT**



**TIMBER COVER SECTION THRU**

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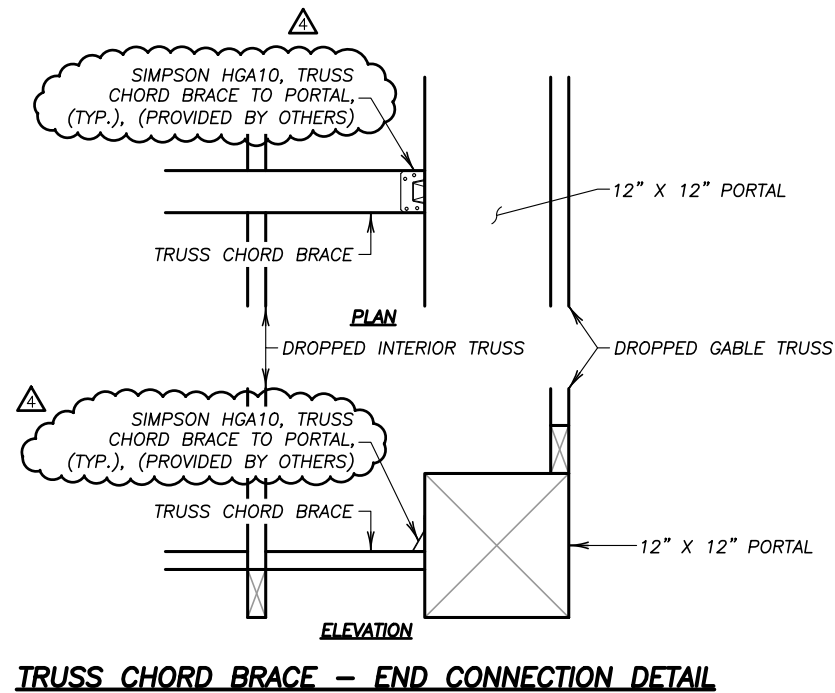
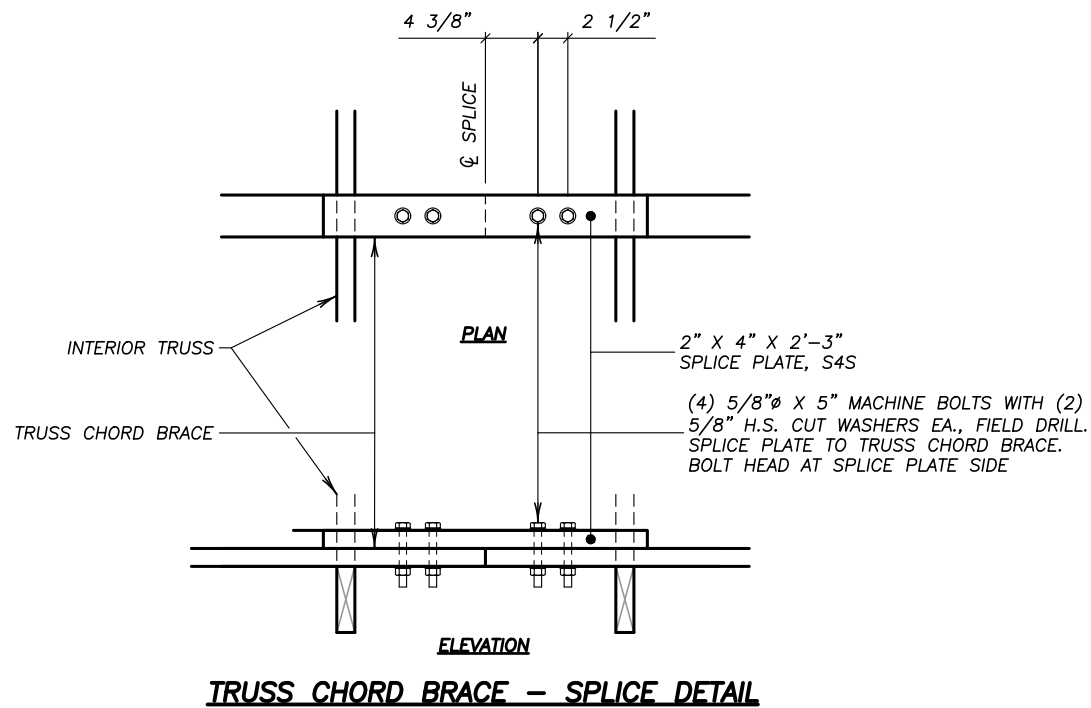
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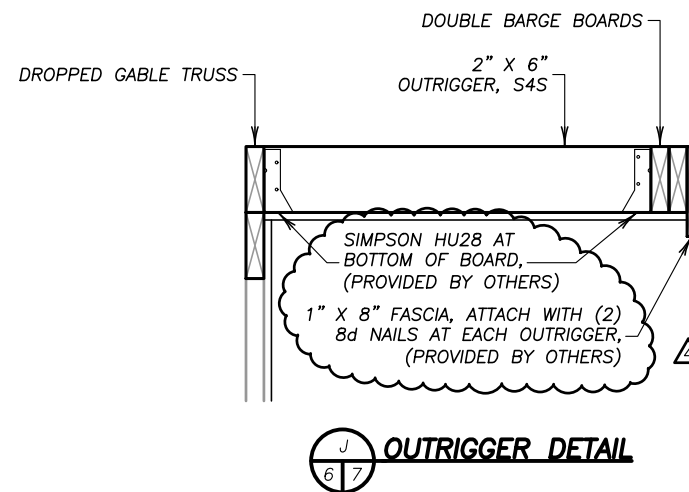
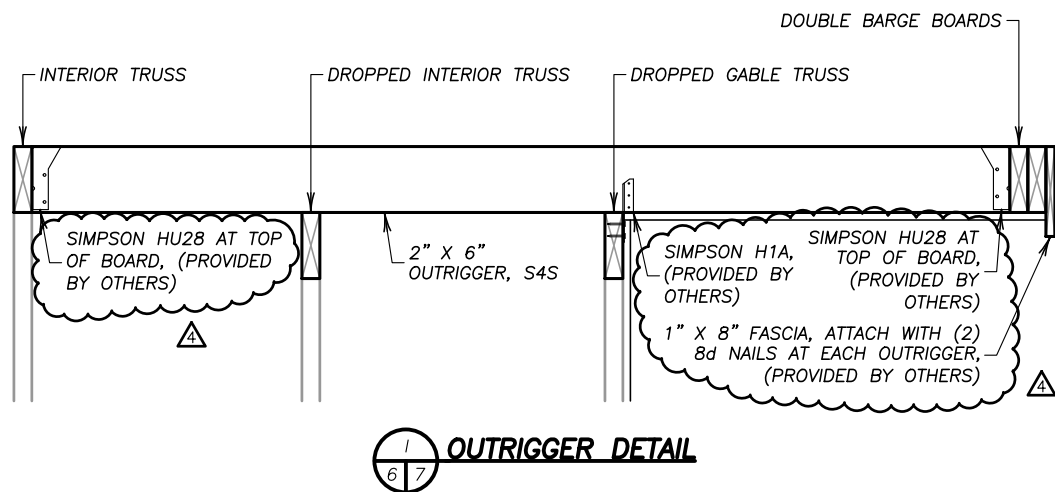
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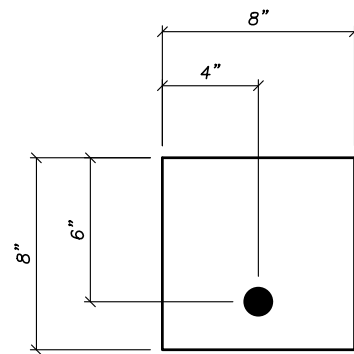


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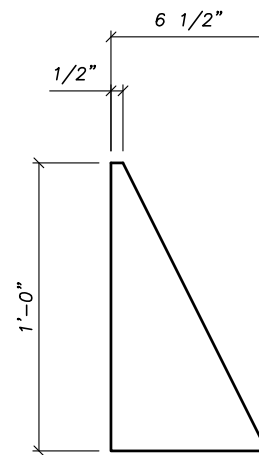
**ROOF TRUSS CONNECTION DETAILS**  
BRIDGE 58559 COVER, PINE COUNTY, MINNESOTA

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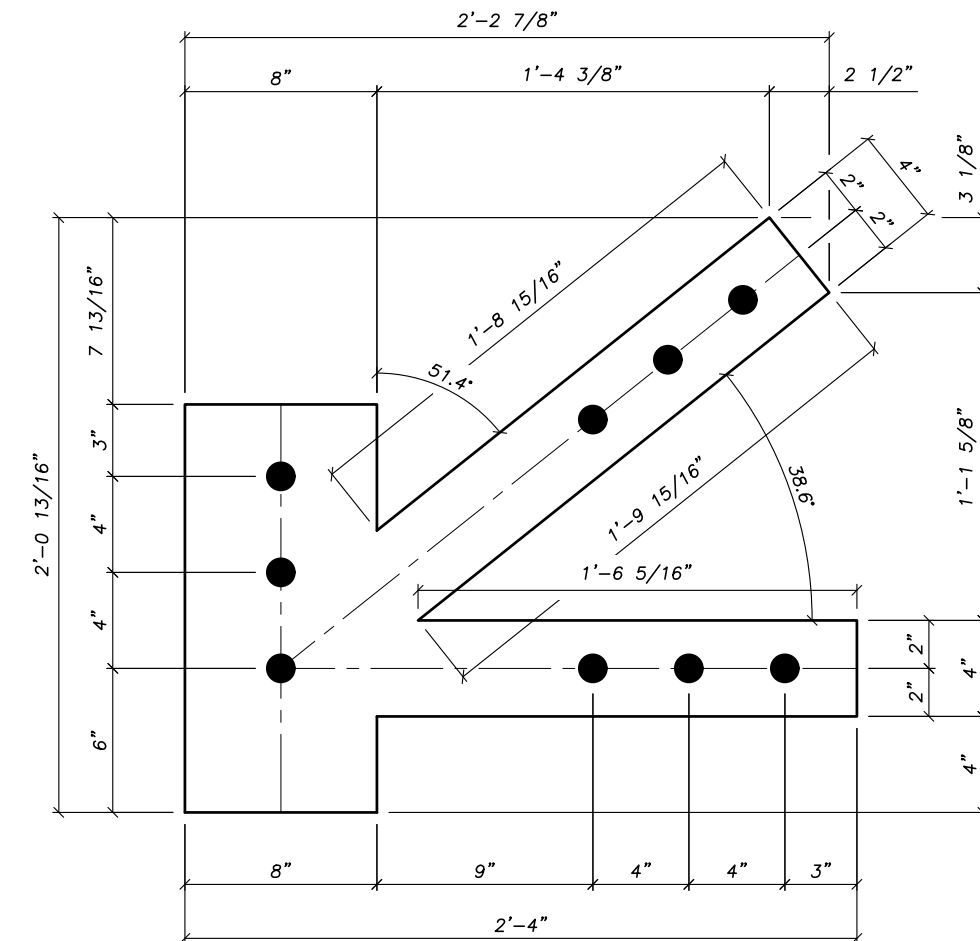
**BOTTOM PLATE THUS**

(8) 1/2" X 8" X 0'-8"  
 ASTM A36, H.D.G. A123  
 HOLE IS 1 1/8"Ø  
 FOR BOTTOM CHORD END PLATE ASSEMBLY



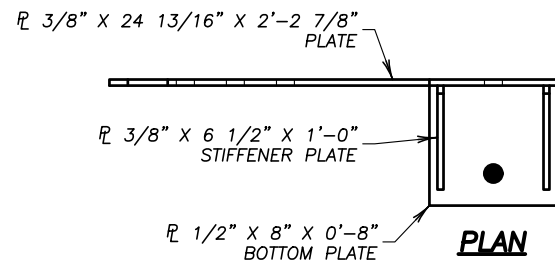
**STIFFENER PLATE THUS**

(16) 3/8" X 6 1/2" X 1'-0"  
 ASTM A36, H.D.G. A123  
 FOR BOTTOM CHORD END PLATE ASSEMBLY

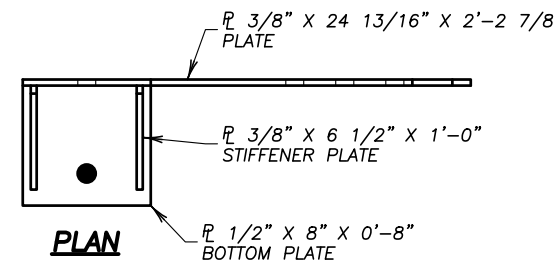


**PLATE THUS**

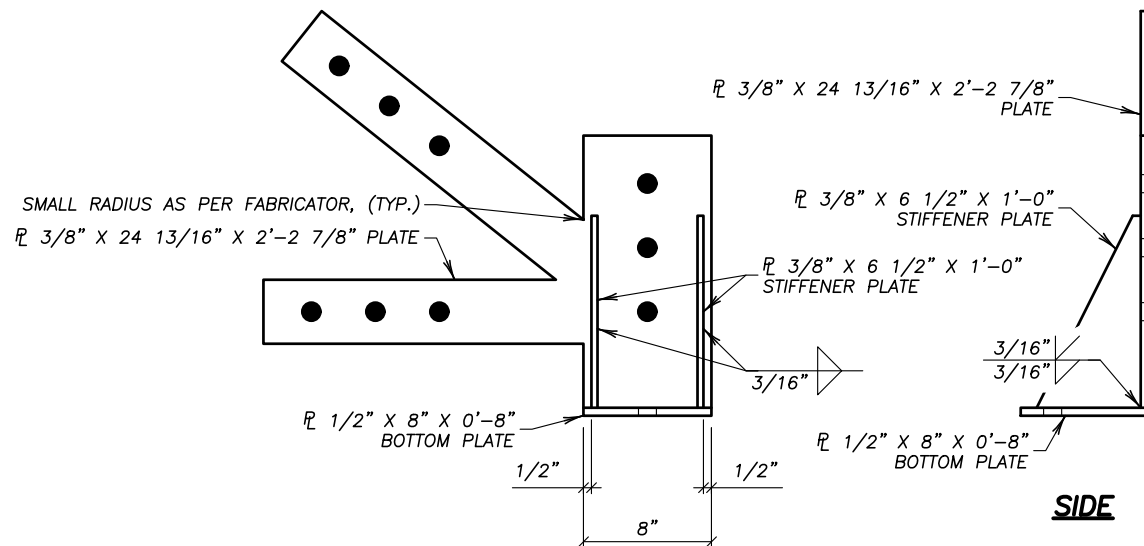
(8) 3/8" X 24 13/16" X 2'-4"  
 ASTM A36, H.D.G. A123  
 ALL HOLES ARE 1 1/8"Ø  
 FOR BOTTOM CHORD END PLATE ASSEMBLY



**PLAN**

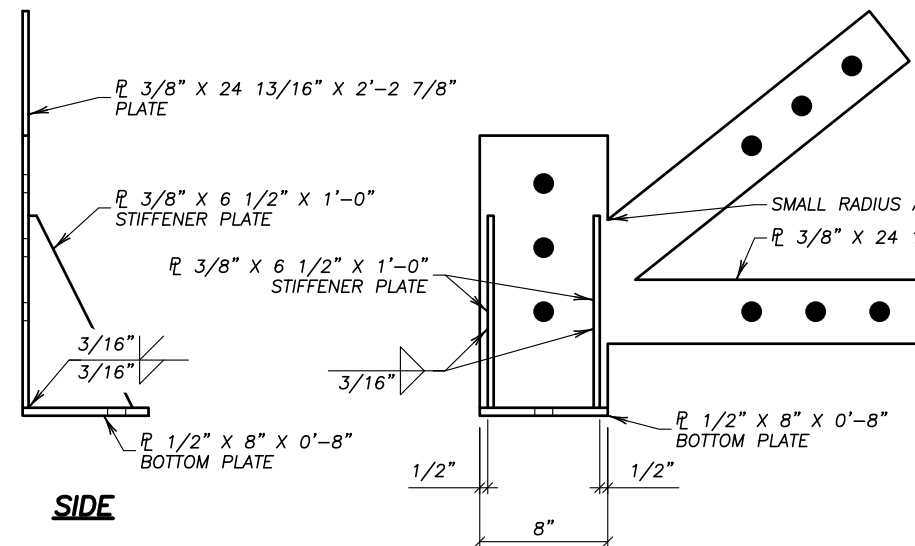


**PLAN**



**BOTTOM CHORD END PLATE THUS**

(4) ASSEMBLED END PLATES  
 ASTM A36, H.D.G. A123



**BOTTOM CHORD END PLATE THUS**

(4) ASSEMBLED END PLATES  
 ASTM A36, H.D.G. A123

ENGINEER'S SIGNATURE AND SEAL ARE TO ASSUME DESIGN RESPONSIBILITY FOR THE  
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 DESIGN, UTILITY FACILITIES, SOIL CONDITIONS, EXISTING TIMBER BRIDGE AND CONCRETE  
 ABUTMENTS, ETC.

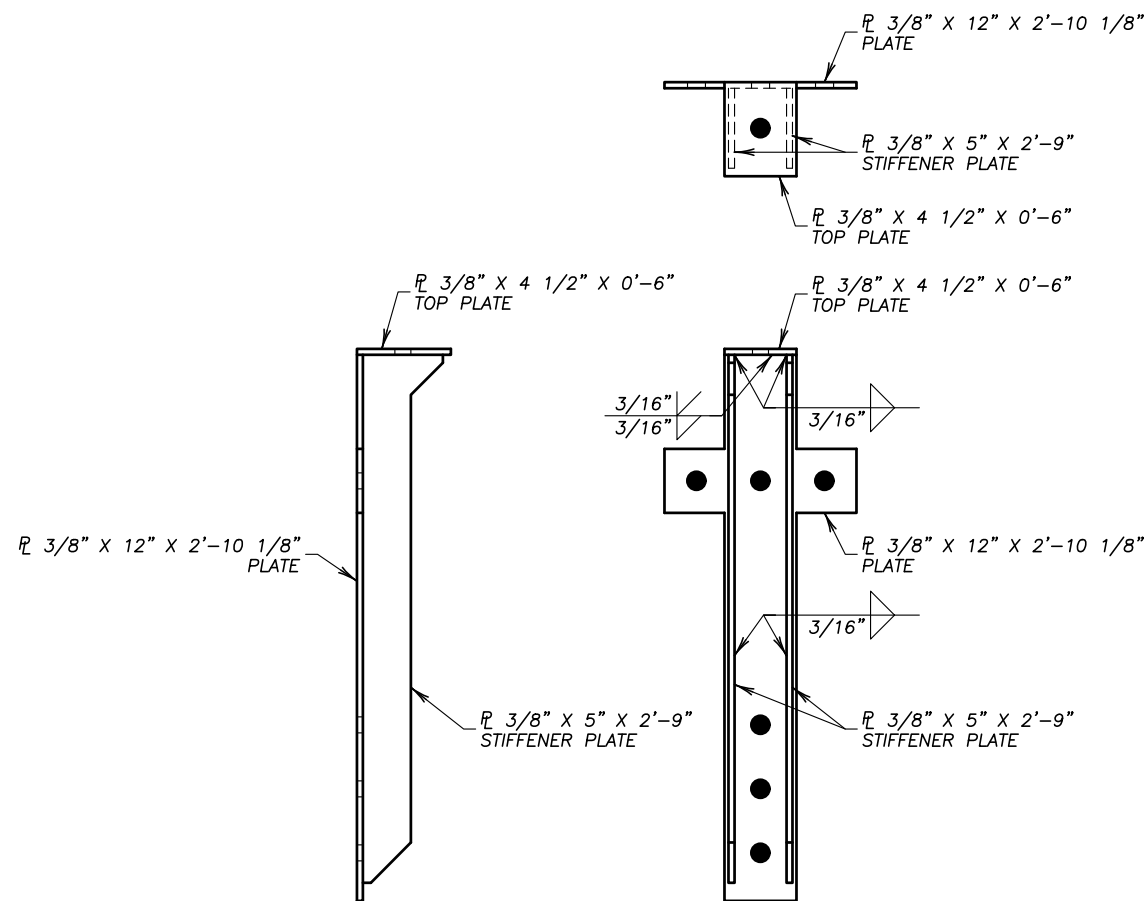
CERTIFIED BY Dale Draves  
 PROFESSIONAL ENGINEER/DALE DRAVES  
 DATE 4-3-2024 LIC. NO. 20666

**STEEL DETAILS**  
 BRIDGE 58559 COVER, PINE COUNTY, MINNESOTA

**Wheeler**  
 9531 W.78th Street, Ste.100  
 Eden Prairie, MN 55344  
 952-929-7854  
 info@wheeler1892.com  
 wheeler1892.com

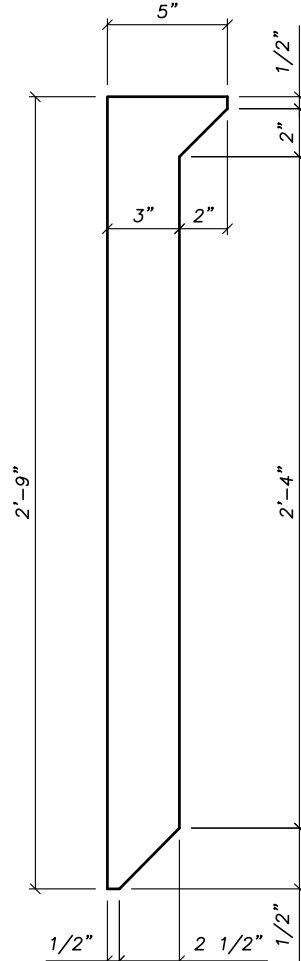
DATE: 12/6/23	TRACKING NO. T23569A	SHEET NO.
DWN: JLS	CHK: LAF	ORDER NO. 651-15280
		8 OF 11





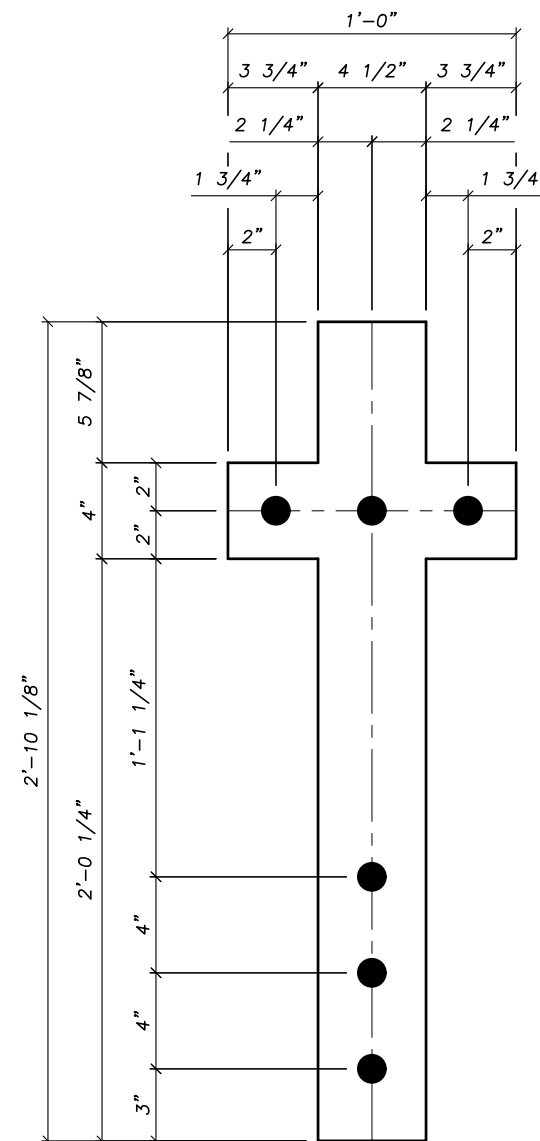
**TOP CHORD  
END PLATE THUS**

(8) ASSEMBLED END PLATES  
ASTM A36, H.D.G. A123



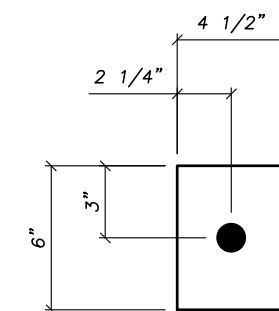
**STIFFENER PLATE THUS**

(16) 3/8" X 5" X 2'-9"  
ASTM A36, H.D.G. A123  
FOR TOP CHORD END PLATE ASSEMBLY



**PLATE THUS**

(8) 3/8" X 12" X 2'-10 1/8"  
ASTM A36, H.D.G. A123  
ALL HOLES ARE 1 1/8"  
FOR TOP CHORD END PLATE ASSEMBLY



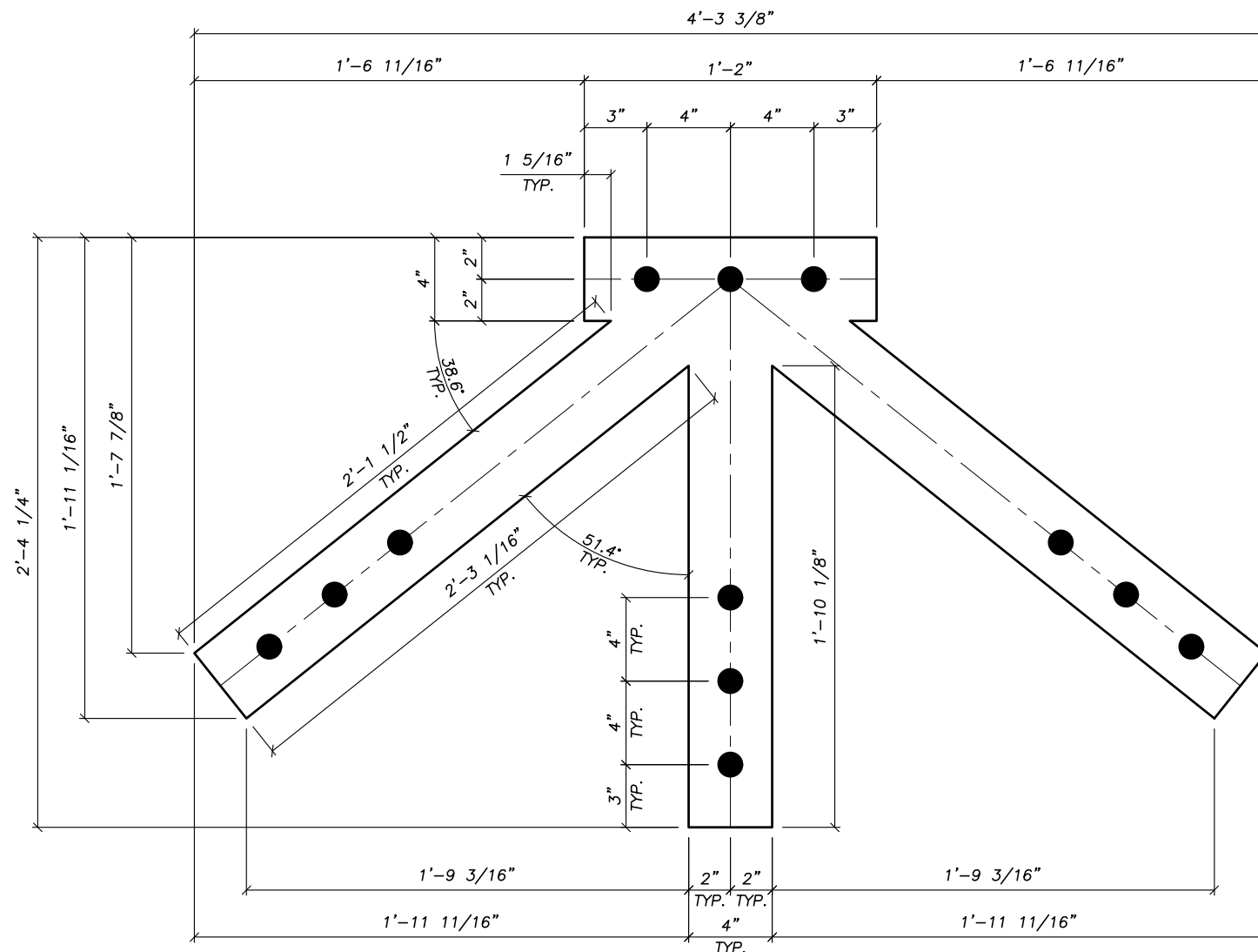
**TOP PLATE THUS**

(8) 3/8" X 4 1/2" X 0'-6"  
ASTM A36, H.D.G. A123  
HOLE IS 1 1/8"  
FOR TOP CHORD END PLATE ASSEMBLY

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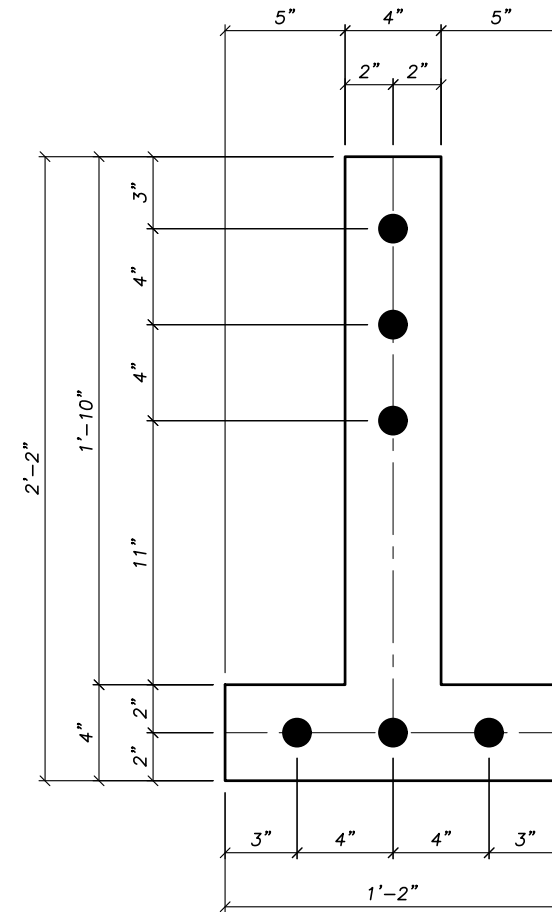
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STEEL DETAILS			
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<b>Wheeler</b>	9531 W.78th Street, Ste.100 Eden Prairie, MN 55344 952-929-7854 info@wheeler1892.com wheeler1892.com		
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**INTERNAL VERTICAL TOP PLATE THUS**

(4) 1/2" X 28 1/4" X 4'-3 3/8"  
 ASTM A36, H.D.G. A123  
 ALL HOLES ARE 1 1/8"Ø



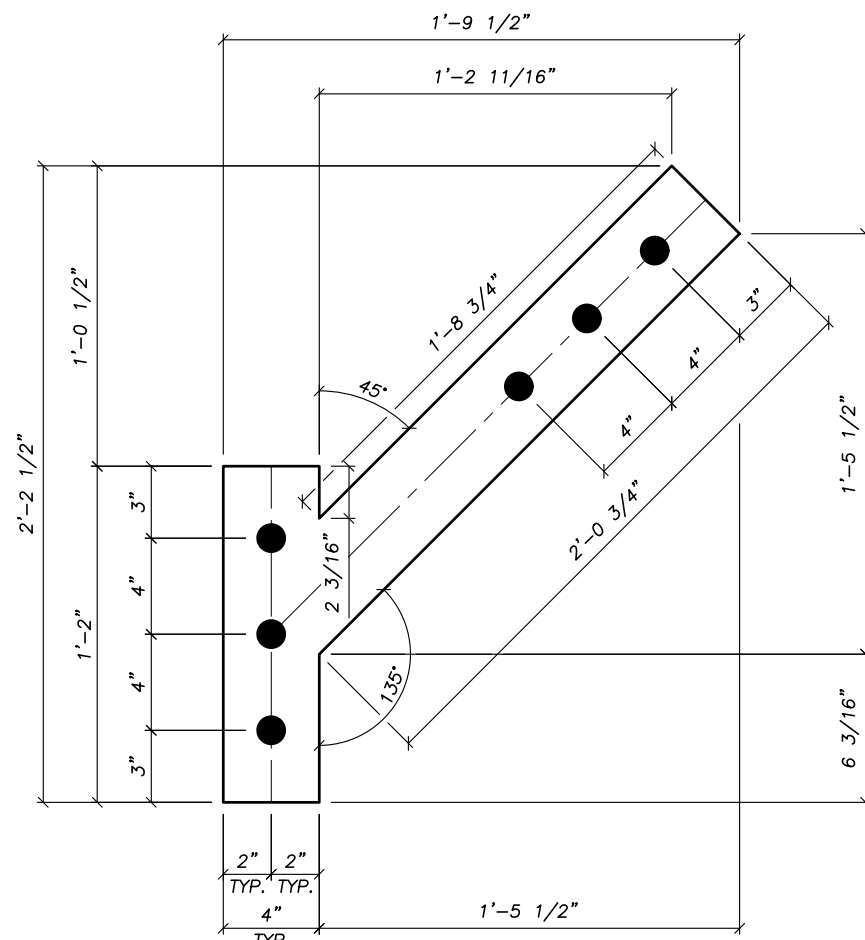
**INTERNAL VERTICAL BOTTOM PLATE THUS**

(4) 1/2" X 14" X 2'-2"  
 ASTM A36, H.D.G. A123  
 ALL HOLES ARE 1 1/8"Ø

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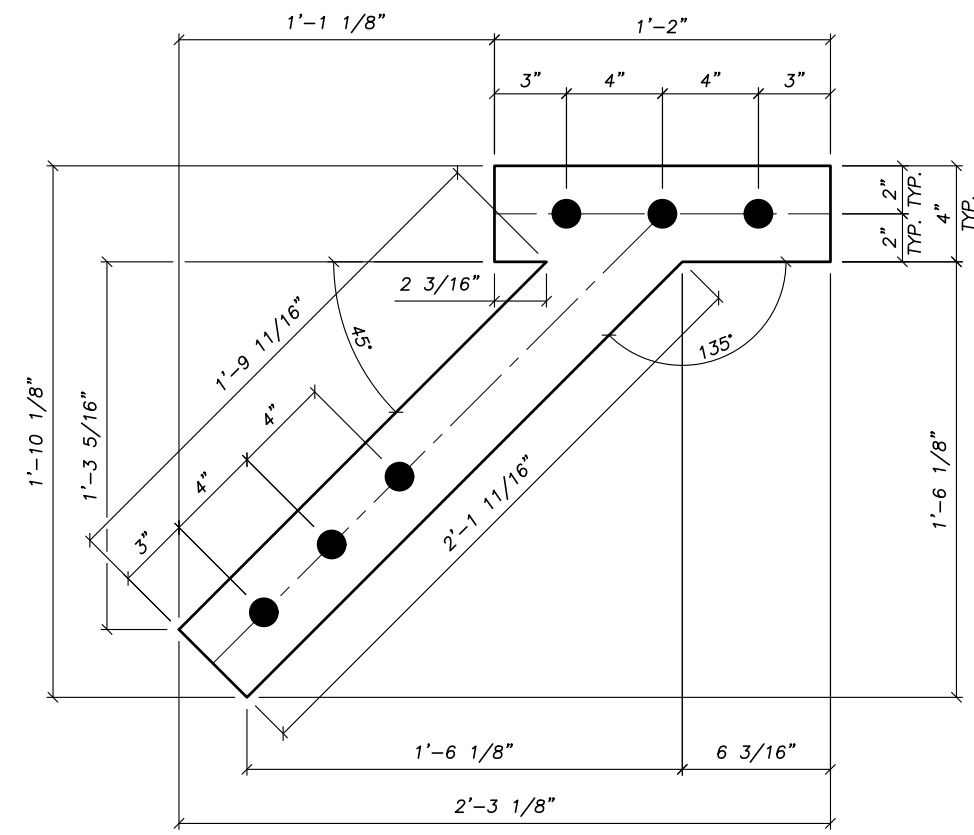
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**KNEE BRACE BOTTOM PLATE THUS**

(8) 1/2" X 21 1/2" X 2'-2 1/2"  
 ASTM A36, H.D.G. A123  
 ALL HOLES ARE 1 1/8"Ø



**KNEE BRACE TOP PLATE THUS**

(8) 1/2" X 22 1/8" X 2'-3 1/8"  
 ASTM A36, H.D.G. A123  
 ALL HOLES ARE 1 1/8"Ø

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