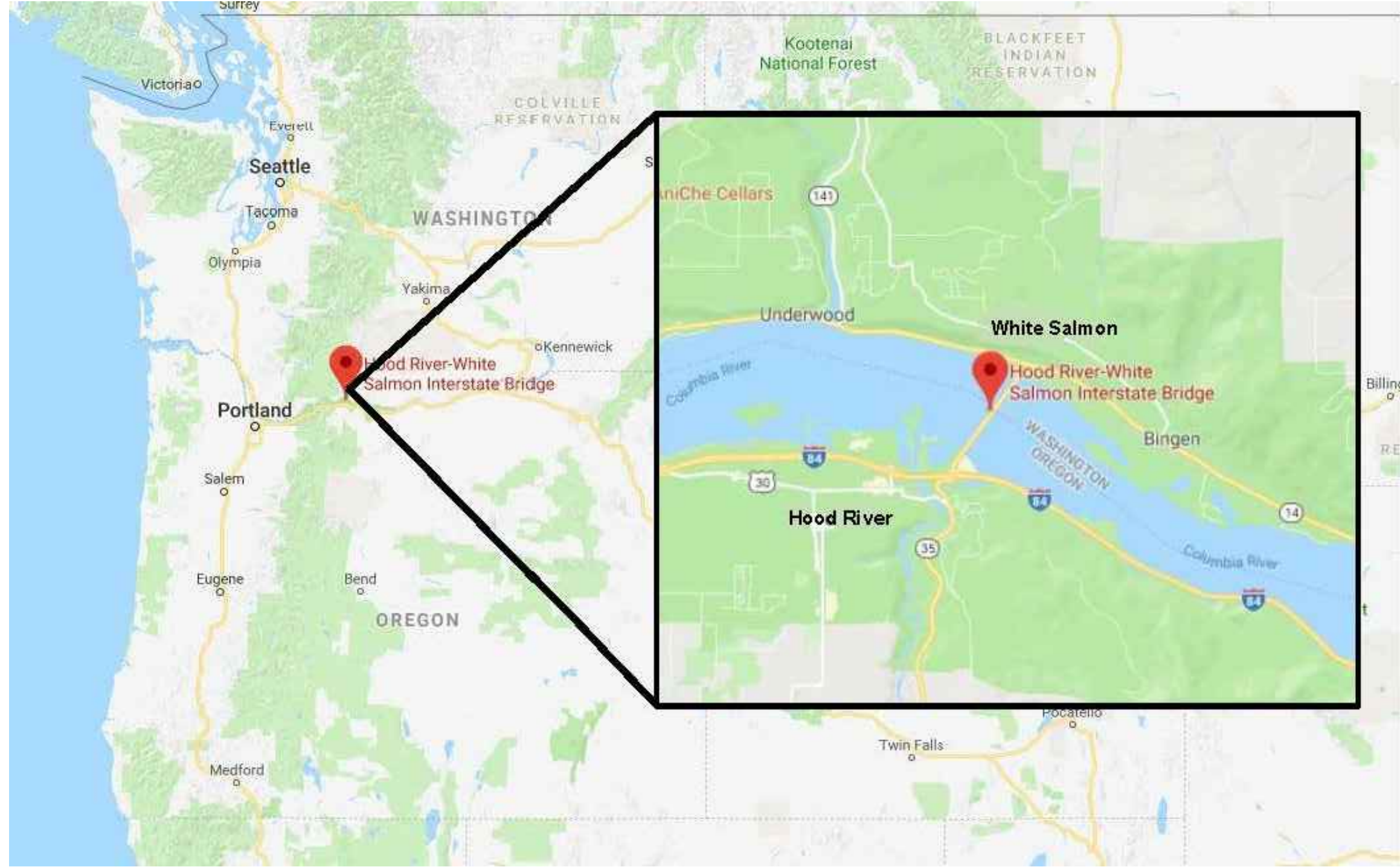


ELEVATION VIEW



LOCATIONAL MAP



PARTIAL ELEVATION  
DEPICTING EXTENDED APPROACHES OVER RIVER

| WORK IDENTIFICATION SCHEDULE |  |                    |
|------------------------------|--|--------------------|
| MARK NO.                     | DESCRIPTION                                | REFERENCE DRAWINGS |
| MK1                          | JACK AND SUPPORT THE COUNTERWEIGHTS        | G-1, S-1 TO S-4    |
| MK2                          | REMOVE AND REPLACE THE COUNTERWEIGHT ROPES | M-1 TO M-2         |
| MK3                          | EQUALIZE COUNTERWEIGHT ROPE TENSIONS       | G-1                |

- GENERAL NOTES:
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS WITH THE LATEST INTERIM REVISIONS, THE AASHTO STANDARD SPECIFICATIONS FOR WIRE ROPES AND SOCKETS FOR MOVABLE BRIDGES (M277-06), AND THE AASHTO STANDARD SPECIFICATIONS FOR MOVABLE HIGHWAY BRIDGES WHERE INDICATED.
  - SEE SPECIAL PROVISIONS FOR ADDITIONAL DETAILS, INFORMATION, AND REQUIREMENTS RELATED TO THE WORK INDICATED ON THESE CONTRACT PLANS.
  - ALL DIMENSIONS ARE IN INCHES UNLESS NOTED OTHERWISE.
  - ALL DIMENSIONS SHOWN ON DRAWINGS M-1 AND M-2 SHALL BE COORDINATED WITH ALL OTHER CONTRACT PLANS TO ENSURE PROPER FIT UP AND FUNCTION.
  - ALL EXISTING MATERIAL IDENTIFIED FOR REPLACEMENT IN THESE PLANS SHALL BE REMOVED AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR TO BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND OR FEDERAL REGULATIONS.
  - THE DIMENSIONS SHOWN ON THESE DRAWINGS ARE NOMINAL UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL SHOW ALL DIMENSIONS WITH APPROPRIATE TOLERANCES TO OBTAIN REQUIRED FITS BETWEEN MATING PARTS ON THE SHOP DRAWINGS.
  - ALL HARDWARE INCIDENTAL TO EACH MARK NUMBER SHALL BE FURNISHED AND INSTALLED AS PART OF THE WORK.

Wiss, Janney, Elstner Associates, Inc.  
ARCHITECTS  
215 340 5830 lei  
www.wje.com

DESIGN AGENCY

ENGINEERS  
ARCHITECTS  
MATERIALS SCIENTISTS

WJE

DATE

08/18/2022

REVIEWED

RJT

STRUCTURE FILE NUMBER

DRAWN

CPN

REVISION

---

DESIGNED

RJT

CHECKED

PMB

SHEET TITLE

WORK IDENTIFICATION

PROJECT

MAIN COUNTERWEIGHT WIRE ROPE REPLACEMENT HOOD RIVER LIFT BRIDGE

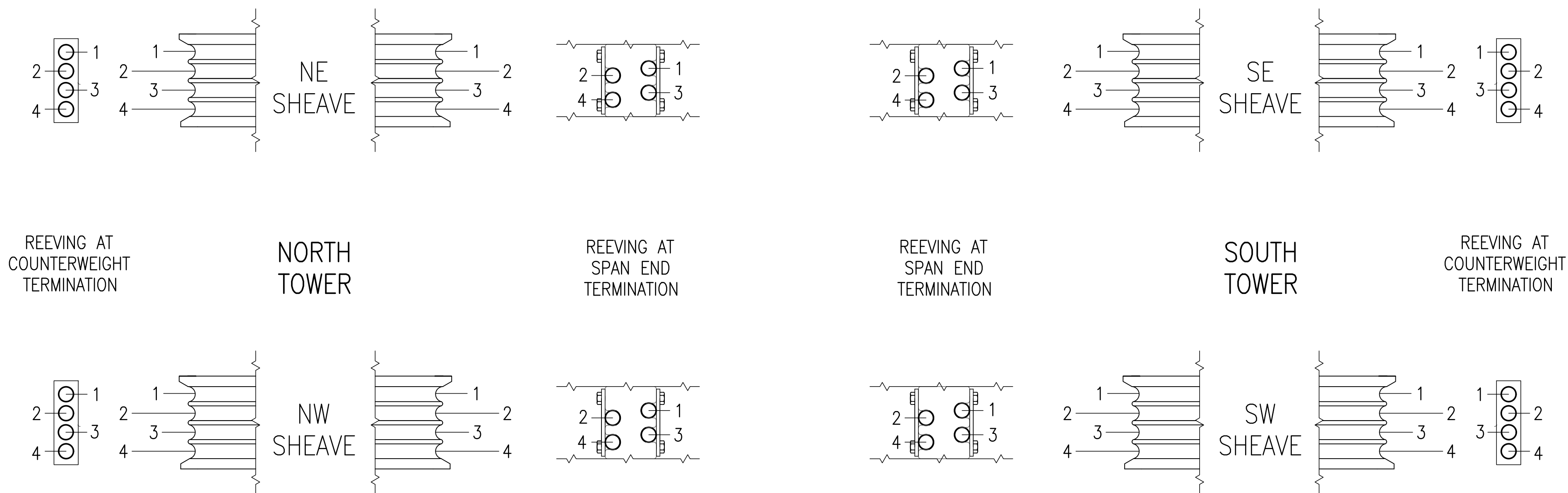
Port of HOOD RIVER

G1 / G1

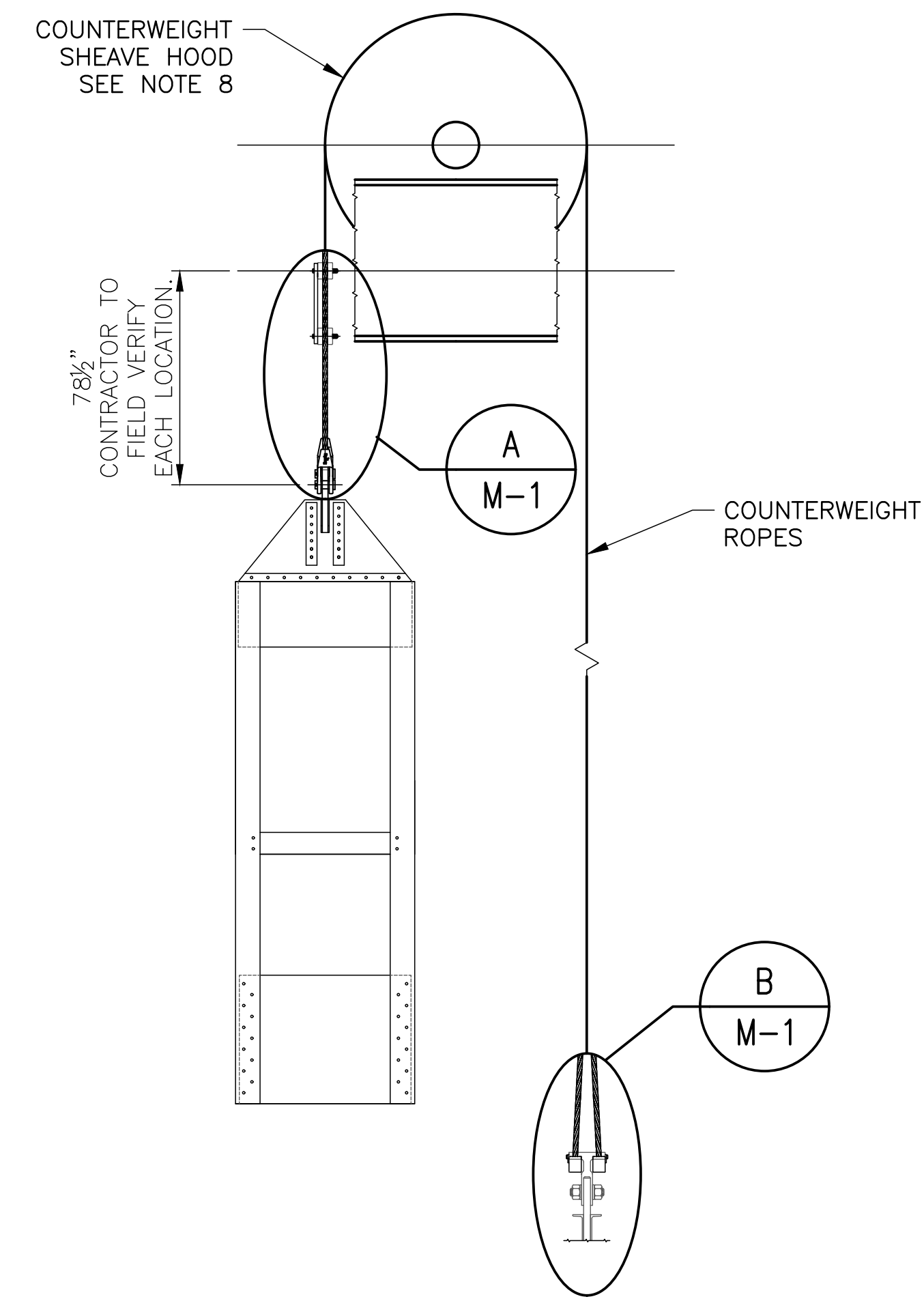
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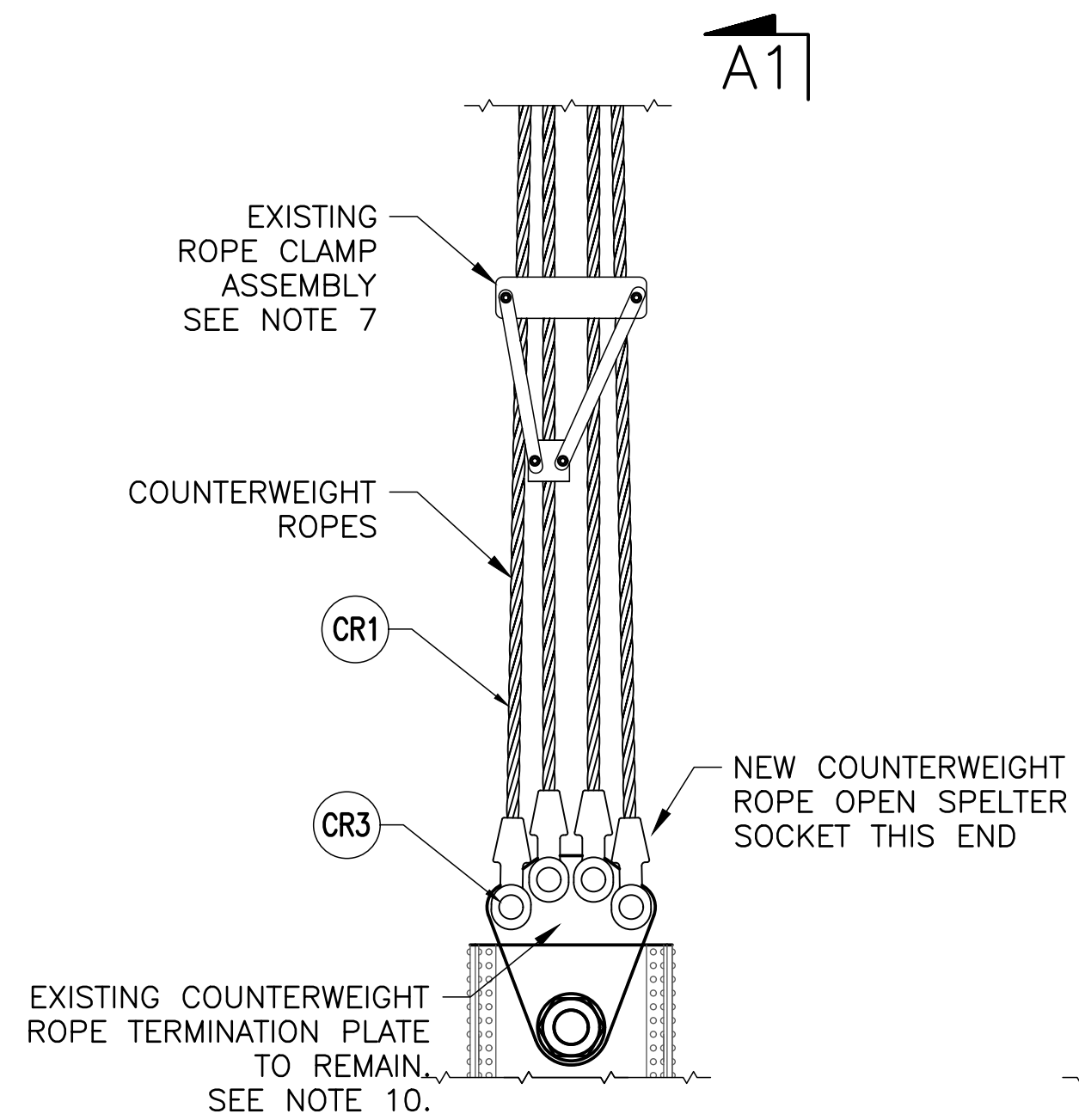




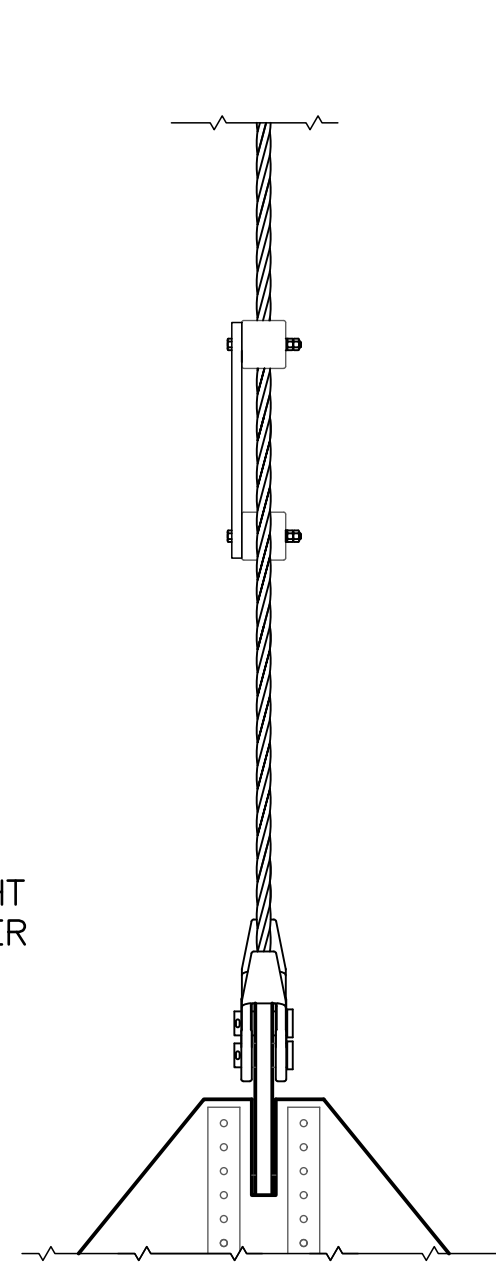
COUNTERWEIGHT ROPE REEVING DIAGRAM  
PLAN VIEW



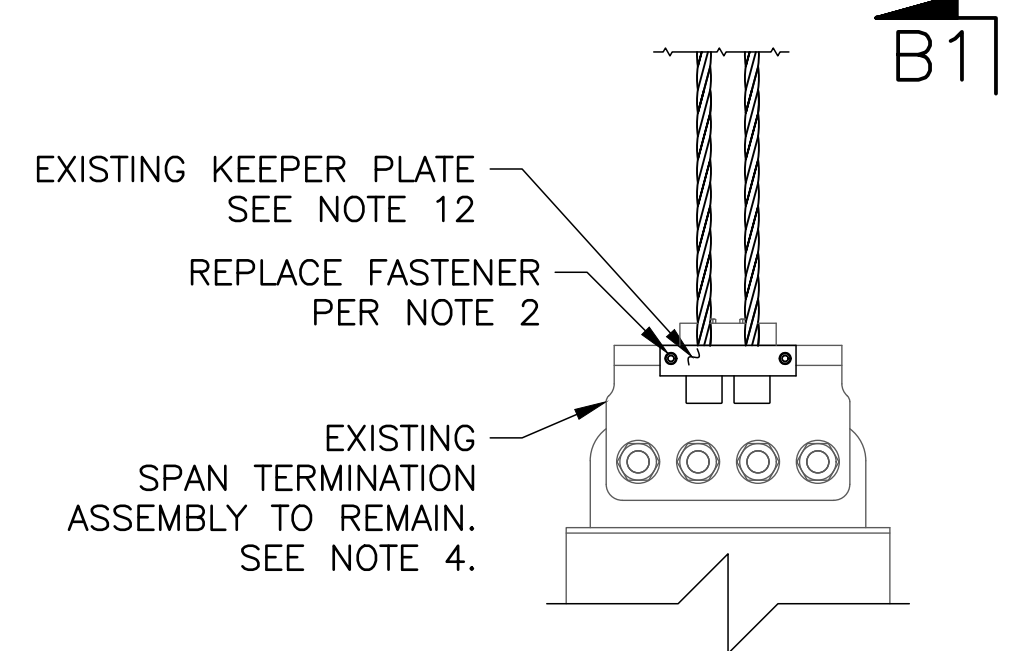
COUNTERWEIGHT ROPE ARRANGEMENT  
ELEVATION VIEW WITH SPAN SEATED  
SOUTH TOWER SHOWN, NORTH TOWER SIMILAR



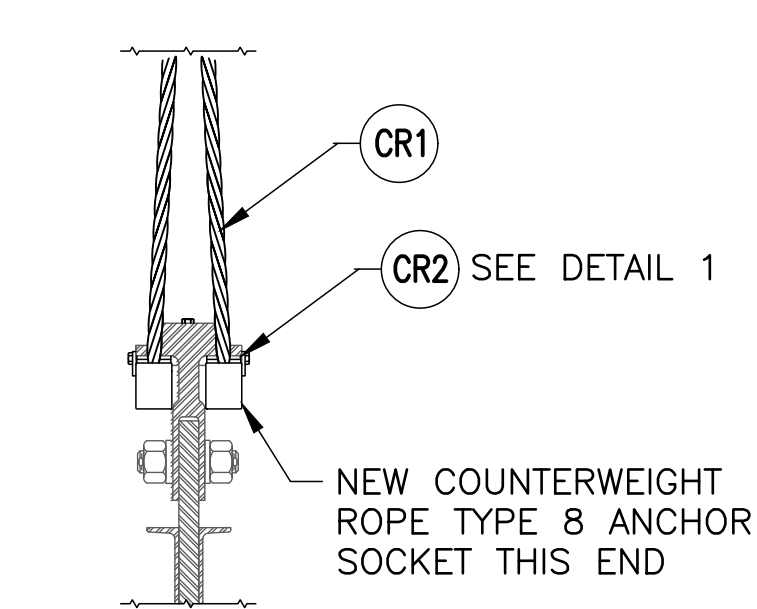
COUNTERWEIGHT END ROPE TERMINATIONS  
ELEVATION VIEW



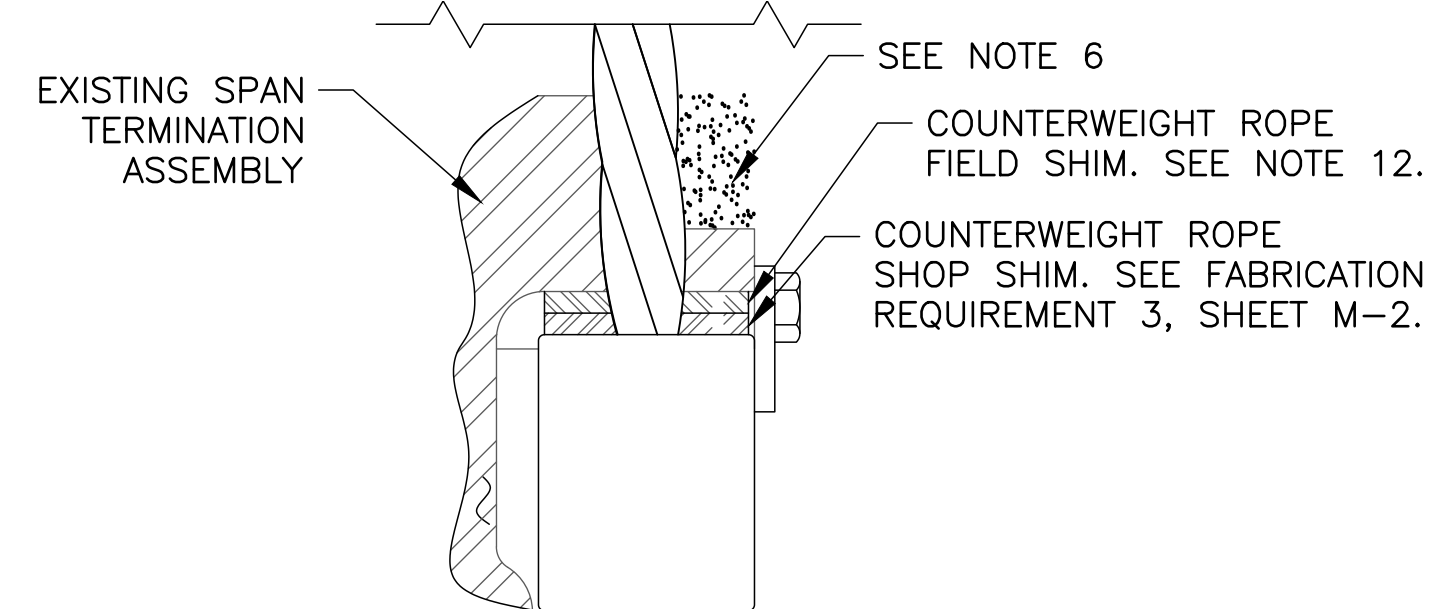
A1-A1



SPAN END ROPE TERMINATIONS  
ELEVATION VIEW  
FAR SIDE ROPES NOT SHOWN FOR CLARITY



VIEW B1-B1

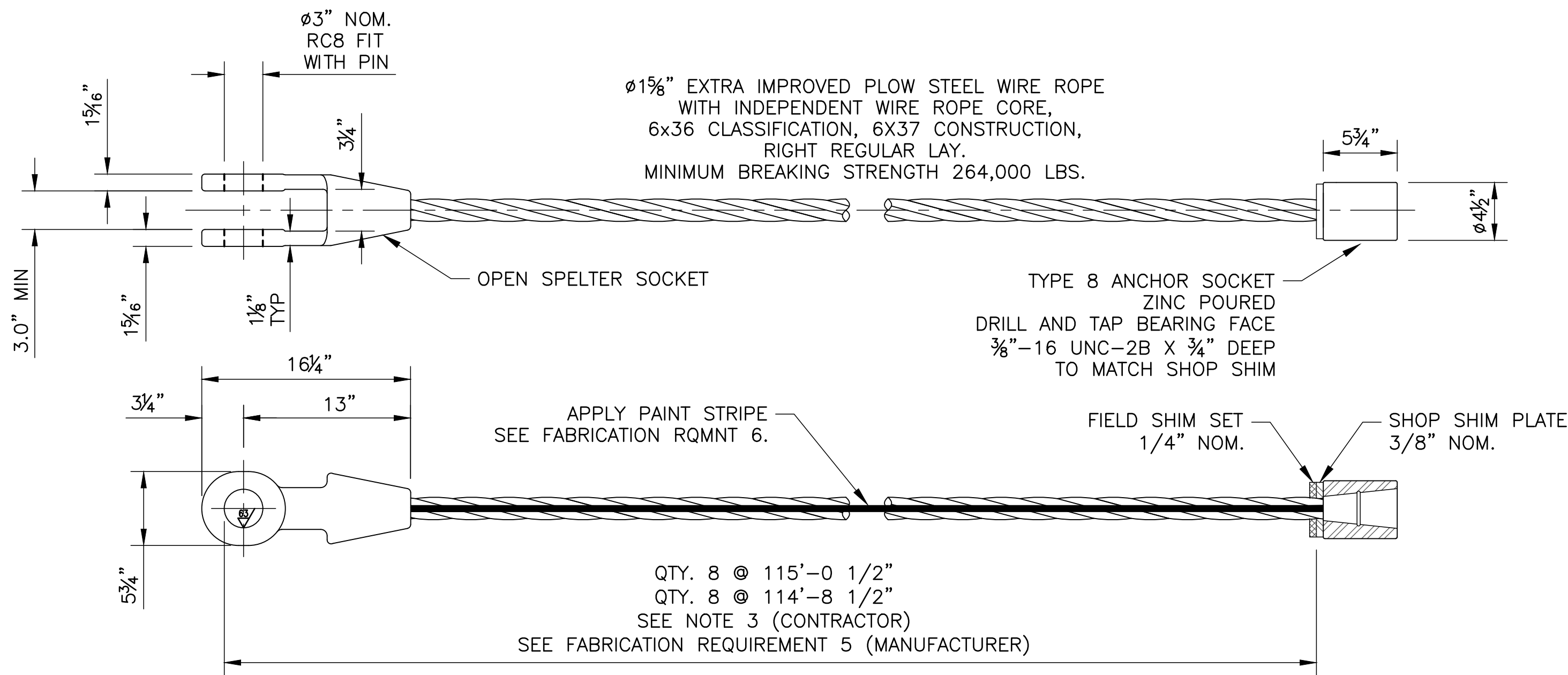


DETIAL 1

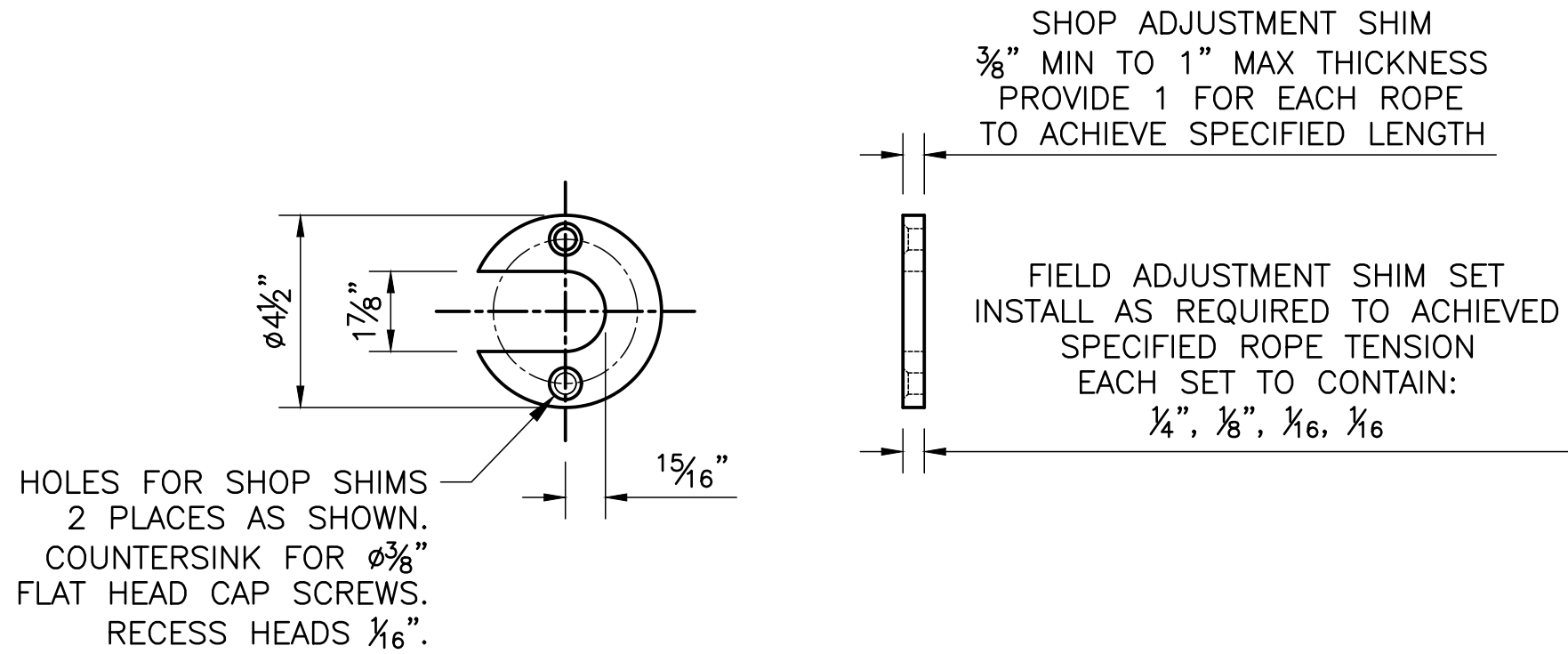
| COUNTERWEIGHT ROPE SCHEDULE |            |                             |   |                    |
|-----------------------------|------------|-----------------------------|---|--------------------|
| MARK NO.                    | QTY. REQD. | COMPONENT                   | DESCRIPTION                             | REFERENCE DRAWINGS |
| CR1                         | 16         | COUNTERWEIGHT ROPE ASSEMBLY | SEE FABRICATION REQUIREMENTS SHEET M-2. | M-1, M-2           |
| CR2                         | 16         | COUNTERWEIGHT ROPE SHIM     | 316 S.S. SHIM PACKS.                    | M-1, M-2           |
| CR3                         | 16         | COUNTERWEIGHT PIN           | FORGED PIN. ASTM A668 CLASS G.          | M-1, M-2           |

- NOTES:
- REFER TO SHEET G-1 FOR GENERAL NOTES.
  - ALL SCHEDULE QUANTITIES ARE TOTAL FOR PROJECT EXCEPT AS OTHERWISE INDICATED IN PROJECT SPECIAL PROVISIONS.
  - PROVIDE NEW STAINLESS STEEL HARDWARE TO REPLACE ALL FASTENERS.
  - CLEAN ALL SHEAVE GROOVES, SPLAY CASTINGS, DEFLECTORS AND BILLETS TO REMOVE OLD AND HARDENED LUBRICANT DEPOSITS, SURFACE CORROSION, AND DEBRIS FOLLOWING ROPE REMOVAL. COAT WITH FRESH LUBRICANT PRIOR TO ROPE INSTALLATION.
  - SEAL SPACE ABOVE ANCHOR SOCKET BETWEEN ROPE AND SPAN SPLAY CASTING WITH A PLIABLE JOINT COMPOUND UPON REASSEMBLY TO RESIST INTRUSION OF WATER AND DEBRIS.
  - ADHERE TO REEVING PLAN FOR NEW ROPE INSTALLATION.
  - DOCUMENT ORIENTATION AND MATCH MARK ROPE CLAMPS PRIOR TO UNLOADING ROPES. DISASSEMBLE AFTER UNLOADING ROPES. CLEAN PER NOTE 4. RE-INSTALL TO SAME LOCATION AND ORIENTATION PRIOR TO LOADING NEW ROPES. RE-USE ROPE CLAMP HARDWARE OR REPLACE IN-KIND.
  - REMOVAL OF SHEAVE COVERS TO BE PERFORMED BY OWNER IN ADVANCE OF CONSTRUCTION ACTIVITIES. COVERS TO BE REPLACED BY OWNER FOLLOWING CONSTRUCTION.
  - APPLY MARINE GRADE ANTI-SEIZE TO PINS AND NUTS IMMEDIATELY PRIOR TO RE-ASSEMBLY.
  - FOLLOWING ROPE REMOVAL AT COUNTERWEIGHT END TERMINATION PLATE, WIRE BRUSH CLEAN ID OF PIN HOLES TO REMOVE ALL DEBRIS AND CORROSIVE SCALE. COAT BORE WITH MARINE GRADE ANTI-SEIZE.
  - INSTALL NEW ROPES SO THAT PAINT STRIPE IS ORIENTED UP ACROSS TOPS OF SHEAVES.
  - ADJUST FIELD SHIMS TO MEET ROPE TENSION REQUIREMENTS IN SPECIAL PROVISIONS. SECURE FIELD SHIMS WITH KEEPER PLATES.

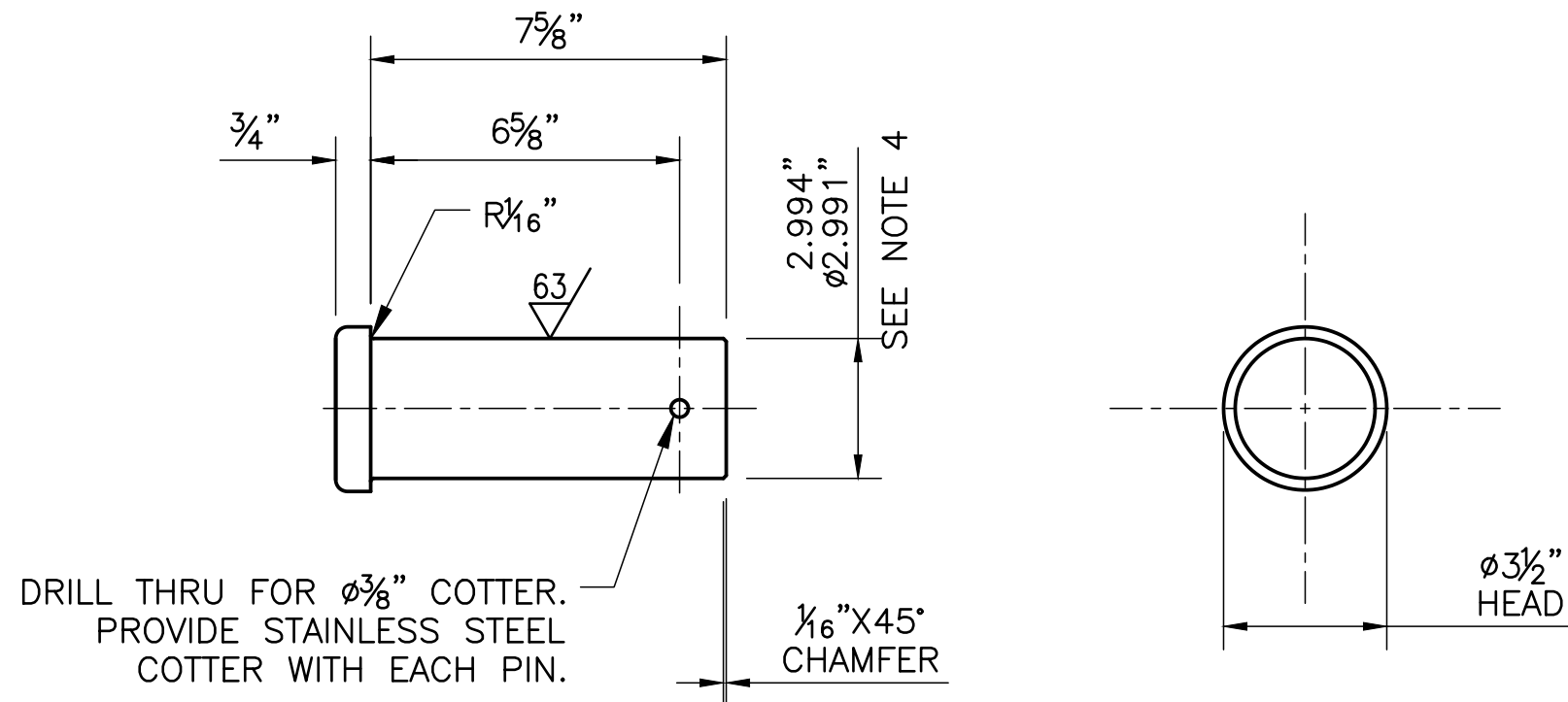




**CR1** COUNTERWEIGHT ROPE ASSEMBLY  
SCALE: 1 1/2"=1'-0"  
MATERIALS: SEE FABRICATION REQUIREMENTS  
QUANTITY: 16



**CR2** COUNTERWEIGHT ROPE SHIM  
SCALE: 3"=1'-0"  
MATERIAL: ASTM A709 (SHOP SHIM)  
316 STAINLESS STEEL (FIELD SHIM)  
QUANTITY: AS INDICATED  
PROVIDE 125% ALL OVER U.O.N.



**CR3** COUNTERWEIGHT ROPE PIN  
SCALE: 3"=1'-0"  
MATERIAL: ASTM A668 CLASS G  
QUANTITY: 16  
PROVIDE 125% ALL OVER U.O.N.

NOTES:

- REFER TO SHEET G-1 FOR GENERAL NOTES.
- REFER TO SHEET M-1 FOR ROPE ASSEMBLY AND SCHEDULE FOR MATERIALS AND QUANTITIES.
- CONTRACTOR SHALL FIELD VERIFY EXISTING ROPE LENGTHS AND SUBMIT TO OWNER FOR REVIEW PRIOR TO FABRICATION.
- ROPE PIN DIAMETER TOLERANCE IS CONSTRAINED BY EXISTING CONNECTION PLATE DETAIL.

FABRICATION REQUIREMENTS

- ALL ROPES SHALL COMPLY WITH AASHTO M277-06 EXCEPT AS MODIFIED HEREIN. ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND DRAWING REQUIREMENTS SHALL BE BROUGHT TO THE OWNER'S ATTENTION FOR CLARIFICATION PRIOR TO MANUFACTURE.
- ALL UNITS IN FEET AND INCHES.
- ROPE ULTIMATE STRENGTH SHALL BE DEMONSTRATED THROUGH BREAK TESTS. A MINIMUM OF TWO TEST PIECES SHALL BE PROVIDED FROM EACH MANUFACTURED LENGTH OF ROPE; ONE TEST PIECE SHALL BE TAKEN FROM EACH END OF THE MANUFACTURED ROPE LENGTH. EACH TEST PIECE SHALL HAVE A LENGTH NOT LESS THAN 88 INCHES BETWEEN SOCKETS. SOCKETS SHALL BE SELECTED RANDOMLY FROM THE JOB LOT AND ATTACHED TO EACH TEST PIECE USING THE SAME PROCESS AS FOR THE PERMANENT ROPES. EACH TEST PIECE SHALL BE TESTED TO DESTRUCTION WITH THE MACHINE RUNNING AT ITS SLOWEST SPEED FOR THE FIRST SAMPLE. IF THE ROPE DOES NOT MEET THE MINIMUM SPECIFIED STRENGTH, THE ENTIRE MANUFACTURED LENGTH SHALL BE REJECTED. PRIOR TO THE BREAK TEST, A SUITABLE MARK SHALL BE PLACED AROUND THE ROPE NEAR THE BASE OF EACH SOCKET, SO THAT ANY RELATIVE MOVEMENT CAN BE DETECTED. SOCKET REQUIREMENTS ARE PROVIDED BELOW.
- ALL WIRE ROPES TO BE PRESTRETCHED AT 40% OF MINIMUM ULTIMATE STRENGTH (MUS) FOR THREE FIVE MINUTE CYCLES. ROPE TO BE RELAXED TO 5% OF MUS BETWEEN CYCLES.
  - 40% PRESTRETCH LOAD = 105,600 LBS
  - 5% HOLDING LOAD = 13,200 LBS
- THE FABRICATED LENGTH AFTER PRESTRETCHING SHALL BE DETERMINED FROM BEARING FACE OF OPEN SOCKET PIN BORE TO BEARING FACE OF ANCHOR SOCKET. THE ROPE LENGTH SHALL BE MEASURED UNDER A LOAD OF 31,000 LBS WITH THE ROPE TWISTED TO THE CORRECT LAY AND SUPPORTED THROUGHOUT ITS LENGTH AT POINTS NOT MORE THAN 25 FEET APART. THE NOMINAL VARIATION IN LENGTH SHALL BE NOT MORE THAN 1/4" IN 100 FEET. THIS VARIATION SHALL BE CORRECTED IN THE SHOP BY PERMANENTLY FASTENING THE APPROPRIATE THICKNESS STEEL SHIM TO THE BEARING FACE OF THE ANCHOR SOCKET SO THAT THE LENGTH CORRESPONDS TO THE REQUIRED LENGTH WITHIN 1/32". NO SHIM SHALL BE LESS THAN 3/8" THICK. WATERPROOF TAGS SHALL BE FIRMLY ATTACHED TO EACH ROPE ASSEMBLY INDICATING THE FINAL ROPE LENGTH.
- EACH WIRE ROPE SHALL HAVE A STRIPE PAINTED ON ONE SIDE ALONG ITS ENTIRE LENGTH AT THE TIME THE MEASUREMENT OF LENGTH IS MADE TO ASSURE THE CORRECT ALIGNMENT OF THE ROPE AT FIELD INSTALLATION. THE STRIPE SHALL BE IN-LINE WITH THE HEAD OF PIN FOR THE OPEN SOCKET. THE STRIPE MAY BE WHITE OR YELLOW AND SHALL HAVE A MINIMUM WIDTH OF 1/2".
- THE ROPES SHALL BE RIGHT REGULAR LAY AND SHALL HAVE A MAXIMUM LENGTH OF LAY OF 12-3/16"
- THE ROPES SHALL UTILIZE BRIGHT (UNCOATED) WIRE. THE WIRES SHALL BE THOROUGHLY COATED WITH LUBRICANT DURING MANUFACTURE PER AASHTO REQUIREMENTS.
- SOCKETS AND SOCKET DIMENSIONS SHALL CONFORM TO REQUIREMENTS OF FEDERAL SPECIFICATION RR-S-550F UNLESS OTHERWISE NOTED.
- ALL SOCKETS SHALL BE HOT-DIP GALVANIZED PER ASTM A153 AFTER FABRICATION.
- SOCKETS SHALL BE ATTACHED TO ROPES USING ZINC OF A QUALITY NOT LESS THAN THAT DEFINED IN THE CURRENT SPECIFICATION ASTM B6 HIGH GRADE.
- MAXIMUM SOCKET SLIP OR SEATING OF THE ZINC CONE WHEN TENSIONED TO 211,200 LBS (80% OF SPECIFIED ULTIMATE STRENGTH) SHALL BE NOT GREATER THAN 1/6 THE NOMINAL DIAMETER OF THE ROPE.
- ALL SOCKETS SHALL BE STRONGER THAN THEIR ROPES. IF A SOCKET SHOULD BREAK DURING THE TESTING REQUIRED UNDER THESE NOTES, TWO OTHER JOB SOCKETS SHALL BE SELECTED AT RANDOM AND ATTACHED TO ANOTHER PIECE OF ROPE, AND THE SEQUENCE SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED. IF 10% OR MORE OF THE TESTED SOCKETS FAIL AT A LOAD LESS THAN THE SPECIFIED MINIMUM ULTIMATE STRENGTH OF THE ROPE, THE ENTIRE LOT OF SOCKETS SHALL BE REJECTED.
- THE ROPES SHALL BE SHIPPED ON REELS WITH A DIAMETER EQUAL TO OR GREATER THAN 44".
- THE OWNER RESERVES THE RIGHT TO PERFORM SHOP INSPECTION OF CRITICAL ASPECTS OF THE ROPE FABRICATION INCLUDING THE SOCKETING PROCESS, SOCKET SLIP MEASUREMENT, ULTIMATE STRENGTH TEST, PRESTRETCHING AND ROPE LENGTH MEASUREMENT. THE SHOP SHALL PROVIDE SUFFICIENT ADVANCE NOTICE TO THE OWNER TO SCHEDULE THESE ACTIVITIES.
- FIELD SHIM SETS SHALL BE PROVIDED FOR ADJUSTMENT OF ROPE TENSIONS FOLLOWING INSTALLATION IN FIELD AND INITIAL OPERATION. FIELD SHIM THICKNESS IS NOT INCLUDED IN THE SHOP MEASURED ROPE LENGTH. A NOMINAL THICKNESS OF 1/4" SHALL BE INSTALLED IN THE FIELD AT INITIAL ASSEMBLY.

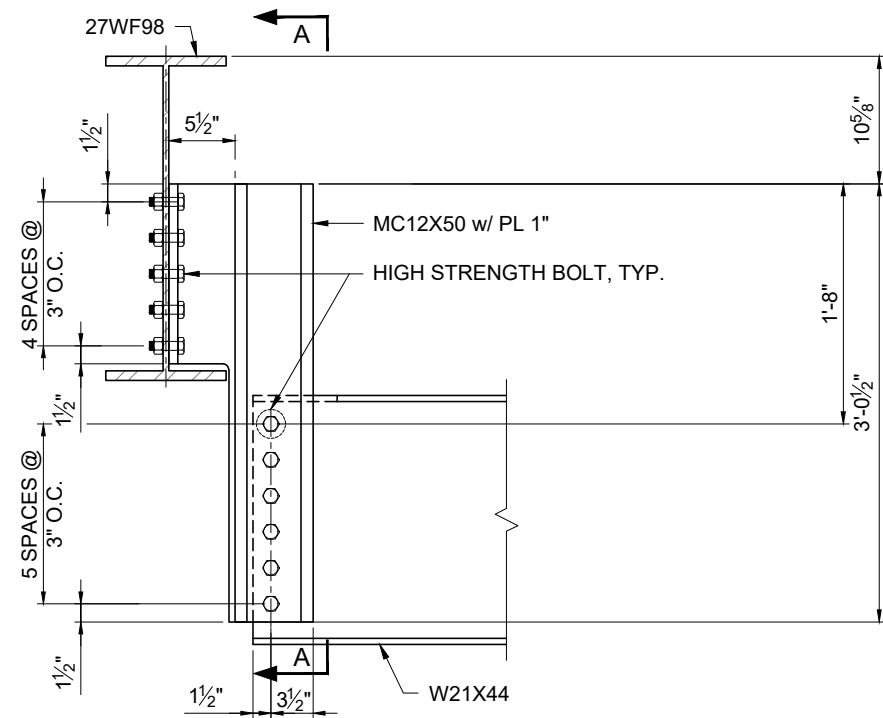
COUNTERWEIGHT SUPPORT FRAMING NOTES:

1. WORKING DIMENSIONS SHOWN IN PLANS ARE THEORETICAL, BASED ON ORIGINAL PLAN DIMENSIONS OF THE EXISTING STRUCTURE. CONTRACTOR SHALL VERIFY ALL CRITICAL FIELD DIMENSIONS AND ADJUST ALL RELEVANT DETAILS ACCORDINGLY, SUBJECT TO REVIEW AND APPROVAL OF THE ENGINEER.
2. ALL STRUCTURAL STEEL TOWER AND COUNTERWEIGHT SUPPORT FRAMING SHOWN IN PLANS IS EXISTING.
3. EXISTING HIGH STRENGTH BOLTS ARE 7/8" DIAMETER ASTM A325 BOLTS UNLESS NOTED OTHERWISE.
4. CONTRACTOR SHALL PROVIDE HYDRAULIC RAMS, JACKING STOOLS, ALL-THREAD BARS, AND SPHERICAL NUT AND WASHER HARDWARE.
5. STEEL PLATE MATERIAL FOR JACKING STOOL SHALL CONFORM TO AASHTO M270 GRADE 36 (ASTM A709 GRADE 36). HSS FOR JACKING STOOL SHALL CONFORM TO ASTM A500 GRADE C. SUPPLEMENTARY MATERIAL ADDED AND DESIGNED BY CONTRACTOR FOR CONTRACTOR'S CONSTRUCTION PROCEDURES AND NOT DETAILED IN THE PLANS MAY BE SPECIFIED BY THE CONTRACTOR AND IS SUBJECT TO REVIEW AND APPROVAL OF THE ENGINEER.
6. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.5. FILLET WELDS SHALL UTILIZE E70XX ELECTRODES.
7. 150 KSI ALL-THREAD BARS SHALL CONFORM TO ASTM A722. SPHERICAL NUTS AND DISHED WASHERS SHALL BE MATCHING HARDWARE PROVIDED BY THE ALL-THREAD BAR MANUFACTURER.
8. CONTRACTOR SHALL PROVIDE A HYDRAULIC SYSTEM DIAGRAM FOR REVIEW AND APPROVAL OF ENGINEER. SYSTEM SHALL BE EQUIPPED WITH AN ACCURATE 0 - 10,000 PSI PRESSURE GAGE. HYDRAULIC RAMS SHALL BE CALIBRATED.
9. CONTRACTOR SHALL PROVIDE A JACKING PROCEDURE FOR REVIEW AND APPROVAL OF ENGINEER. PROCEDURE SHALL INCORPORATE A MEANS OF MONITORING COUNTERWEIGHT POSITION DURING JACKING AND ROPE REPLACEMENT OPERATIONS. EXPECTED JACKING LOAD AT LIFTOFF IS 139 KIPS AT EACH HYDRAULIC RAM. A JACKING LOAD OF 165 KIPS PER HYDRAULIC RAM SHALL NOT BE EXCEEDED.
10. CONTRACTOR SHALL PROVIDE HARDWOOD WEDGES BETWEEN COUNTERWEIGHT AND COUNTERWEIGHT GUIDES TO PREVENT HORIZONTAL MOVEMENT OF COUNTERWEIGHT AFTER JACKING
11. FIELD TOUCH-UP OF NEW AND EXISTING STEEL COATINGS DAMAGED DURING TEMPORARY WORKS AND PERMANENT COMPONENT INSTALLATION AND REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 00594, MEETING THE COATING MANUFACTURER'S RECOMMENDATIONS. COATING MATERIALS SHALL CONSIST OF AN APPROVED 3 COAT SYSTEM USING AN ORGANIC ZINC PRIMER.

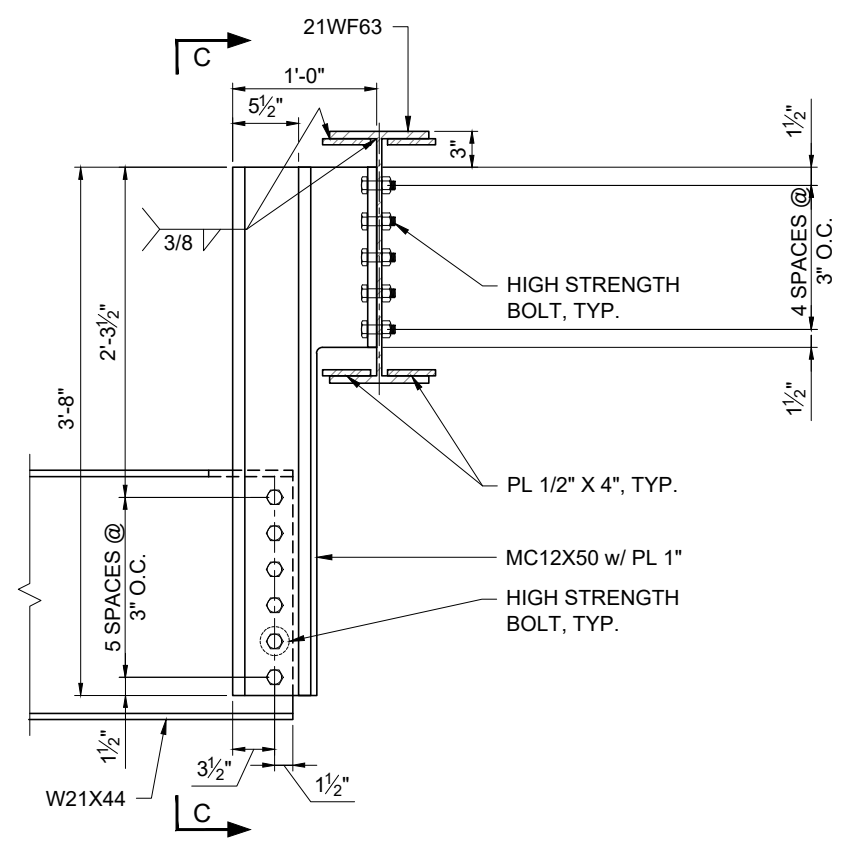
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|---|------------------------------|--|--|-----------------|------------------|---|--------------------|---|
|  | Port of<br><b>HOOD RIVER</b> | PROJECT<br>MAIN COUNTERWEIGHT<br>WIRE ROPE REPLACEMENT<br>HOOD RIVER LIFT BRIDGE | SHEET TITLE<br>COUNTERWEIGHT<br>SUPPORT FRAMING<br>GENERAL NOTES | DESIGNED<br>MWJ | DRAWN<br>LS      | REVIEWED<br>MWJ   | DATE<br>06/18/2022 | DESIGN AGENCY<br><b>wje</b><br>ENGINEERS<br>ARCHITECTS<br>MATERIALS SCIENTISTS<br>Wiss, Janney, Elstner<br>Associates, Inc.<br>800 Hyde Park<br>Suite 100<br>Do 215.340.5530<br>Fax 215.340.5530<br>www.wje.com |
|   |                              |  |  | CHECKED<br>WMC  | REVISED<br>----- | STRUCTURE FILE NUMBER   |                    |   |
|   |                              |  |  | S1/S4           |                  |  |                    |   |



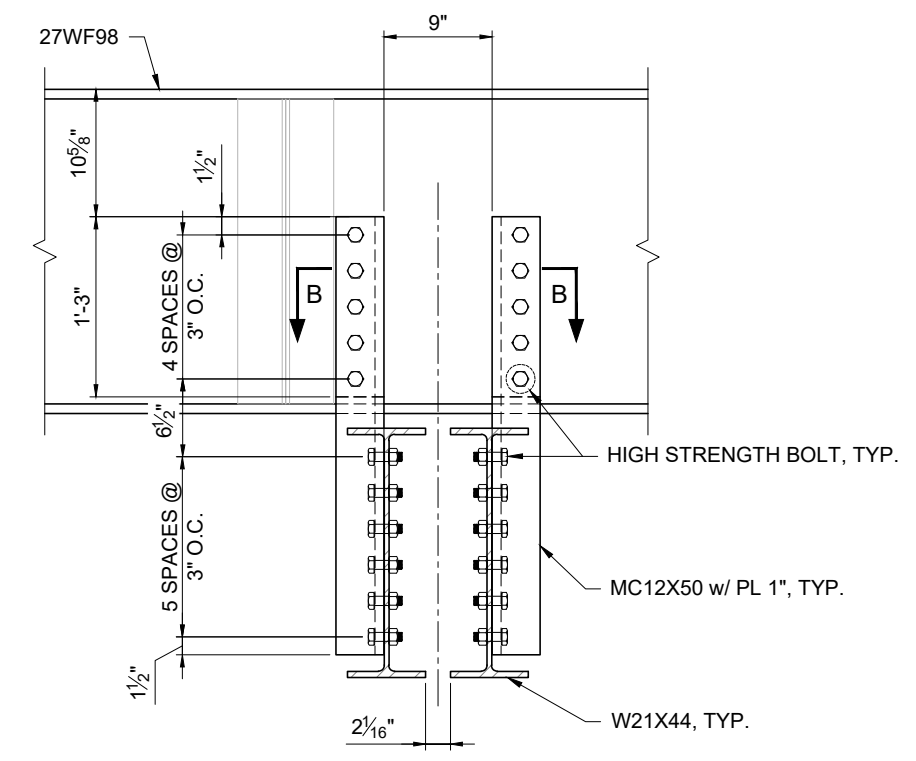




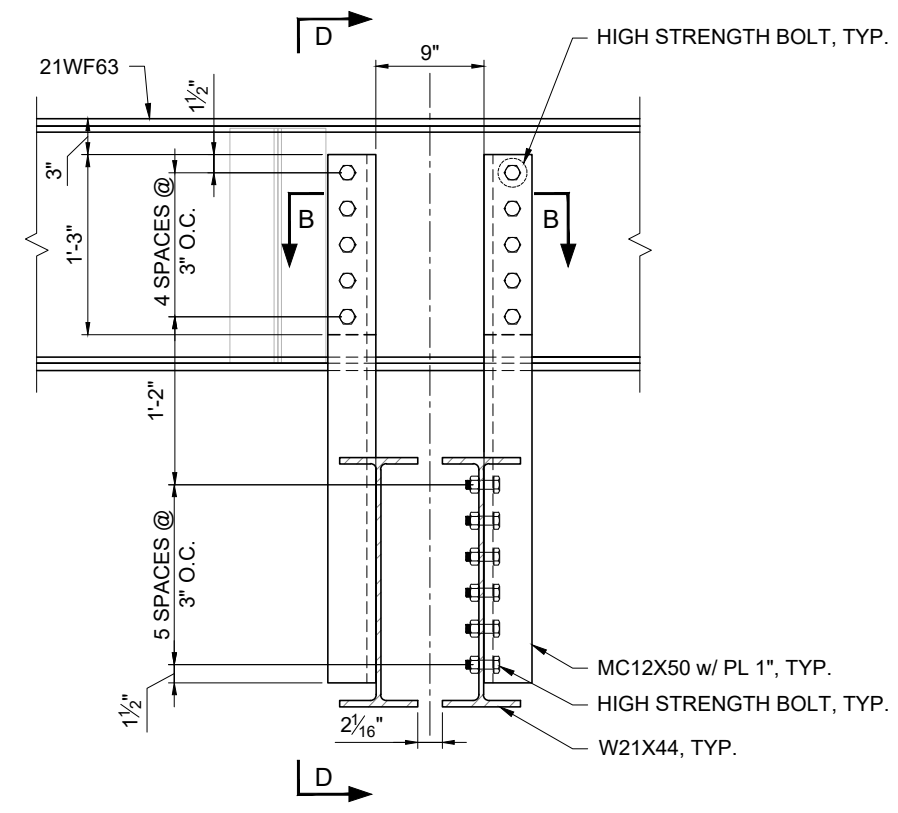
1 CHANNEL HANGER CONNECTION TO 27WF98 TYPICAL  
SCALE: NTS



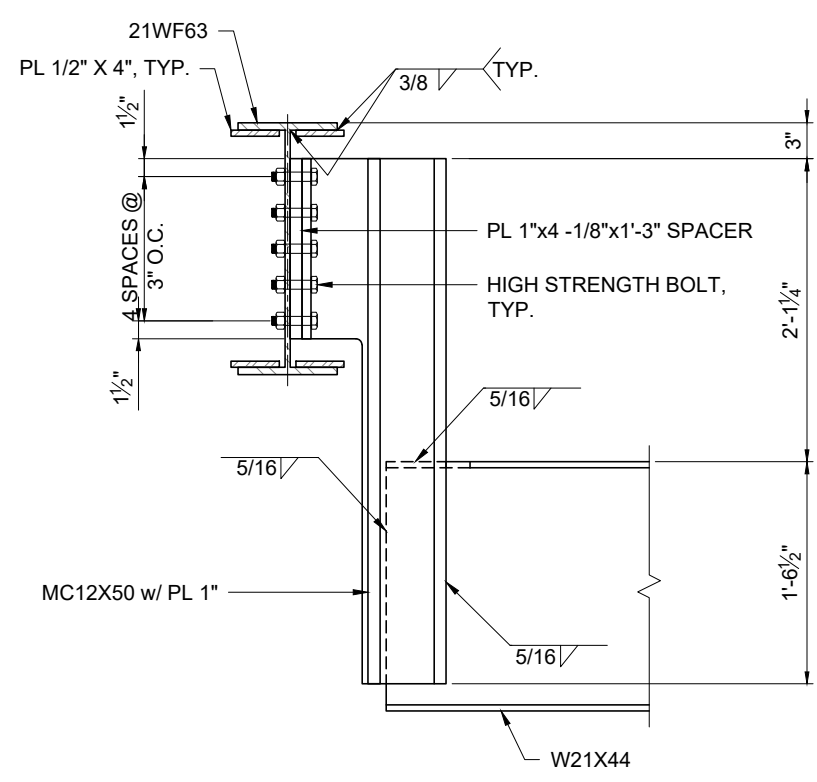
2 INBOARD CHANNEL HANGER TO 21WF63  
SCALE: NTS



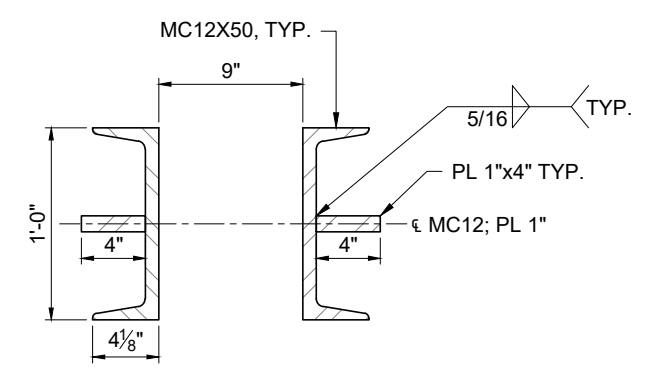
3 SECTION A-A  
SCALE: NTS



4 SECTION C-C  
SCALE: NTS



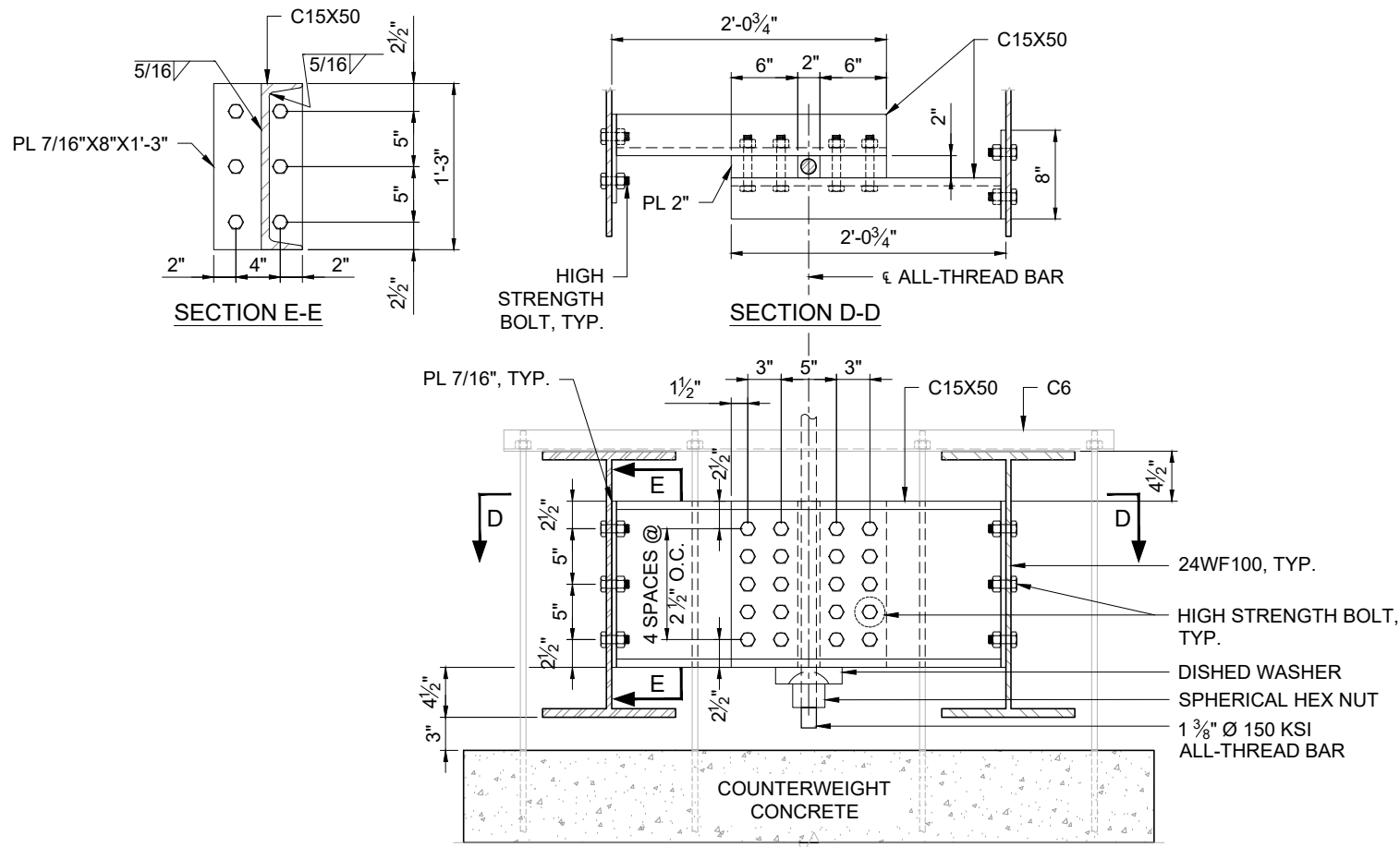
5 SECTION D-D OUTBOARD CHANNEL HANGER TO 21WF63  
SCALE: NTS



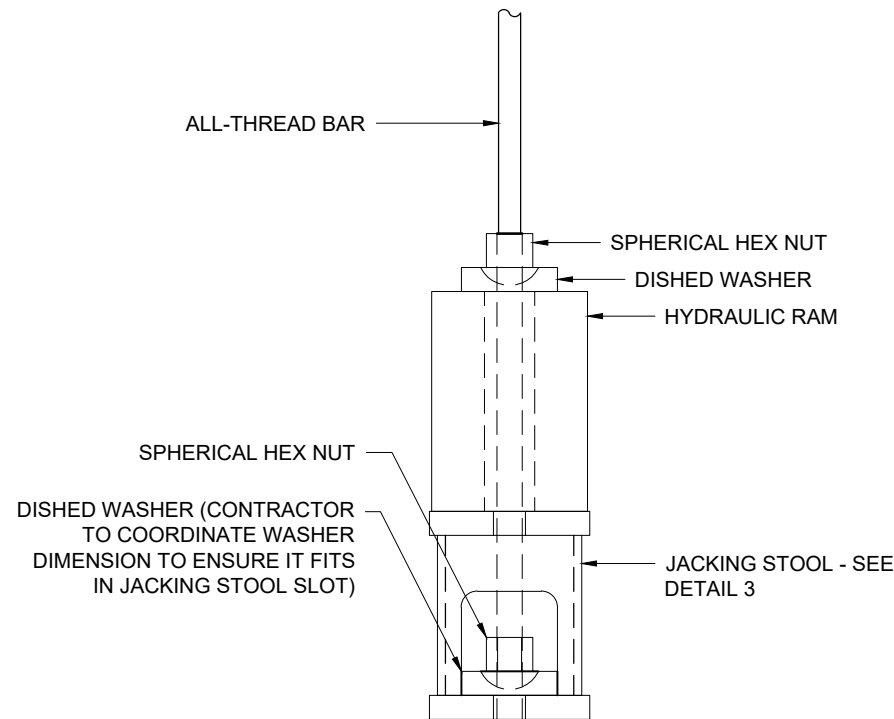
6 SECTION B-B  
SCALE: NTS

NOTE:  
FOR CLARITY, ONLY HANGER COMPONENT  
SHOWN HERE

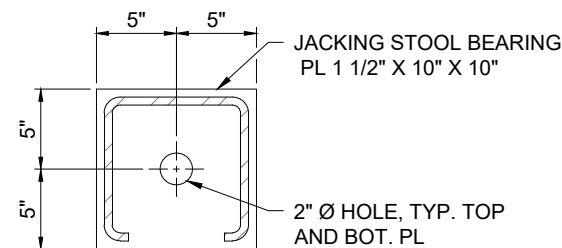
NOTE:  
ALL VIEWS THIS SHEET ARE EXISTING  
AND ARE FOR REFERENCE ONLY.



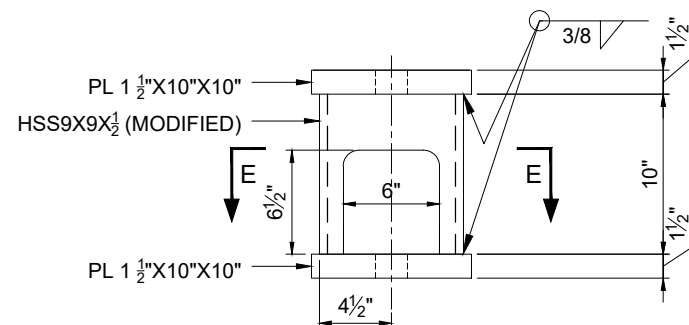
1 EXISTING COUNTERWEIGHT BEAM CONNECTION DETAIL  
SCALE: NTS



2 JACKING EQUIPMENT DETAIL  
SCALE: NTS



SECTION E-E



NOTE:  
SEE NOTES SHEET S-1 FOR MATERIAL  
SPECIFICATION AND JACKING DETAILS.

3 JACKING STOOL DETAIL  
SCALE: NTS