

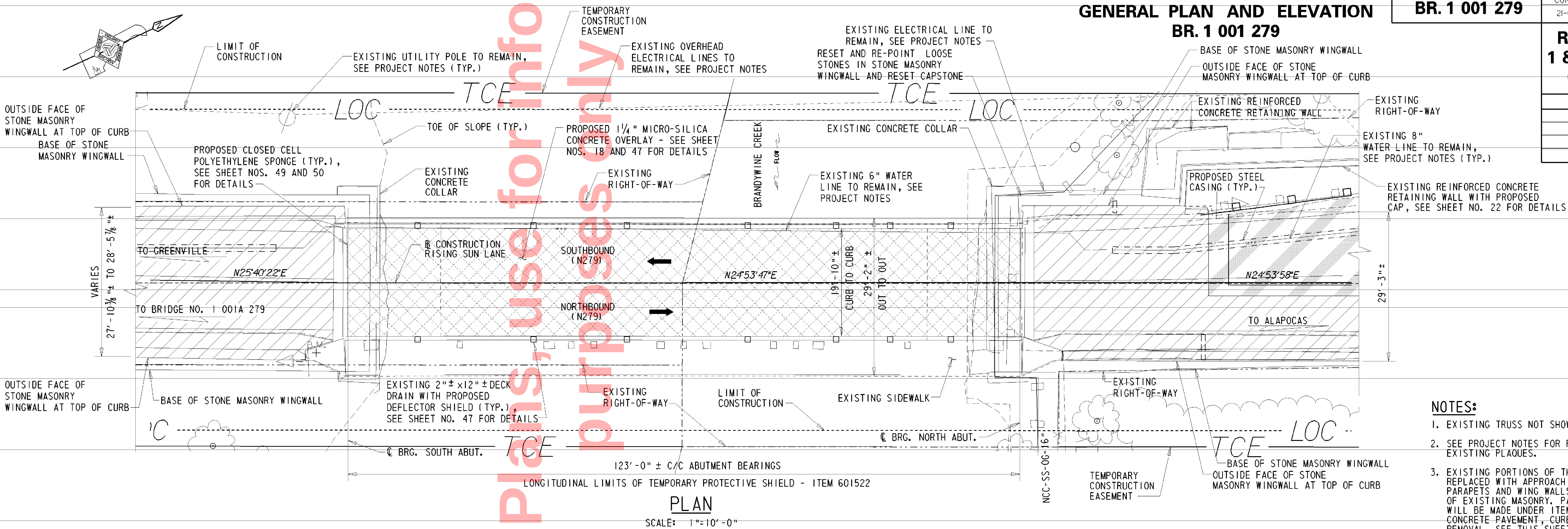
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PREL. TRACING K.P.L./K.W.F. DESIGN B.K.B./S.E.B. CHKD. J.A.G.



GENERAL PLAN AND ELEVATION
BR. 1 001 279

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(I)	17	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

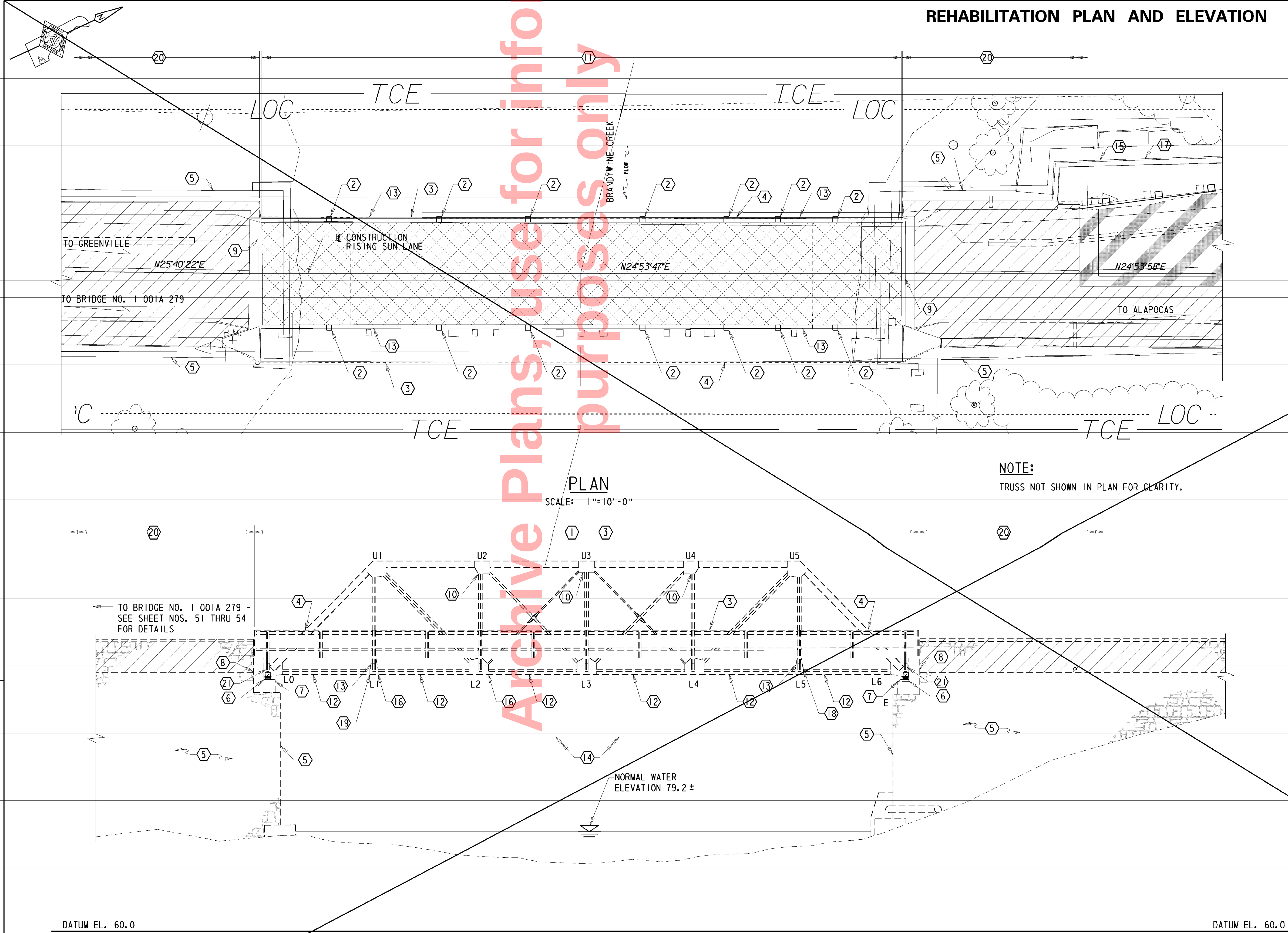
NOTES:

- EXISTING TRUSS NOT SHOWN IN PLAN FOR CLARITY.
- SEE PROJECT NOTES FOR REMOVAL, PROTECTION, AND REATTACHMENT OF THE EXISTING PLAQUES.
- EXISTING PORTIONS OF THE APPROACH ROADWAY TO BE REMOVED AND REPLACED WITH APPROACH SLABS. PAYMENT FOR REMOVAL OF CAPSTONES, PARAPETS AND WING WALLS WILL BE MADE UNDER ITEM 607000 - REMOVAL OF EXISTING MASONRY. PAYMENT FOR REMOVAL OF SIDEWALKS AND CURBS WILL BE MADE UNDER ITEM 758000 - REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, CURB, SIDEWALK, ETC. FOR HORIZONTAL LIMITS OF REMOVAL, SEE THIS SHEET. THE EXISTING CAPSTONES AND STONE TO BE REMOVED SHALL BE SALVAGED, SPLIT AND INCORPORATED INTO THE APPROACH SLABS AND PARAPETS. PAYMENT FOR SALVAGING, SPLITTING AND INCORPORATING STONE INTO THE APPROACH SLABS AND PARAPETS WILL BE MADE UNDER ITEM 610001 - STONE MASONRY. PAYMENT FOR SALVAGING AND INCORPORATING CAPSTONES WILL BE INCIDENTAL TO ITEM 610001 - STONE MASONRY. FOR APPROACH AND MOMENT SLAB DETAILS, SEE SHEET NOS. 55 THRU 69.
- THE REMOVAL LIMITS SHOWN AS 6'-6" +/- ARE APPROXIMATE. THE LOWER LIMIT OF REMOVAL SHALL FOLLOW THE EXISTING MORTAR JOINTS OF INDIVIDUAL STONES AND SHALL NOT BE REMOVED BY MACHINE OR CUT. THE EXISTING STONES SHALL BE CHIPPED/SHAPED IN PLACE TO THE UTMOST EXTENT POSSIBLE TO ACHIEVE THE DESIRED REMOVAL LIMIT NECESSARY. ANY REMOVAL/DISTURBANCE/REPLACEMENT OF EXISTING STONES SHALL BE MINIMIZED AS MUCH AS POSSIBLE TO RE-BUILD THE WALL TO THE BOTTOM OF THE BEARING PAD UNDER THE MOMENT SLAB/PARAPET SYSTEM. THE SHAPED AND RE-BUILT PORTION OF THE WALL SHALL BE RELATIVELY FLAT AND TO THE PROPOSED GRADES AS REQUIRED BY THE CONTRACT DOCUMENTS TO ACCEPT PLACEMENT OF THE BEARING PADS AND PROPOSED MOMENT SLAB/PARAPET SYSTEM. PAYMENT FOR RE-BUILDING THE EXISTING STONES AND ASSOCIATED CHIPPING/SHAPING WILL BE MADE UNDER ITEM 610001 - STONE MASONRY.

LEGEND

	MILLING - HOT-MIX, 2\"/>
	REMOVAL, SEE NOTE 3
	1/4\"/>

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DESIGN
B.K.B./S.E.B.
CHKD.
J.A.G.



REHABILITATION PLAN AND ELEVATION

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(1)	18	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

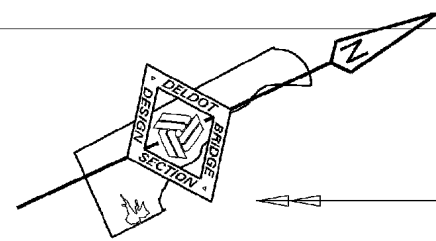
△ SHEET DELETED	B.K.B. 11/05/08

REHABILITATION ITEMS:

- 1 REPLACE DETERIORATED RIVETS THROUGHOUT SUPERSTRUCTURE WITH AN TENSION CONTROL BOLT. ITEM 605578 - REPLACING STEEL RIVETS/BOLTS. SEE SHEET NO.44 FOR DETAILS.
- 2 INSTALL DEFLECTOR SHIELD ON BRIDGE DECK DRAIN. ITEM 605681 - BRIDGE DRAINAGE SYSTEM, FITTINGS. SEE SHEET NO.47 FOR DETAILS.
- 3 CLEAN BRIDGE RAILING AND STRUCTURAL STEEL TO REMOVE EXISTING PAINT. REPLACE PAINT SYSTEM WITH A THREE COAT SYSTEM. ITEM 605533 - CLEANING EXISTING STEEL STRUCTURES (HAZARDOUS BASE) AND ITEM 605522-URETHANE PAINT SYSTEM, EXISTING STEEL.
- 4 REPAIR BROKEN/DETERIORATED CONNECTIONS AND ELEMENTS WITHIN BRIDGE RAILING. ITEM 606508 - STEEL HANDRAIL REPAIR. SEE SHEET NOS.45 AND 46 FOR DETAILS. THE BRIDGE RAILING SHALL BE REMOVED FROM SITE AND SHOP REPAIRED.
- 5 RE-POINT DETERIORATED MASONRY AND REPLACE MISSING OR LOOSE STONES IN STONE MASONRY ABUTMENTS AND WINGWALLS. ITEM 610501 - POINTING EXISTING RUBBLE MASONRY. SEE SHEET NOS.20, 22, 23 AND 52 THRU 54 FOR DETAILS.
- 6 REPLACE EXISTING BEARING WITH TFE - STAINLESS STEEL STRUCTURAL BEARINGS. ITEM 605607 - JACKING BRIDGE AND ITEM 605639 - TFE - STAINLESS STEEL STRUCTURAL BEARINGS. SEE SHEET NOS. 26 THRU 32 FOR DETAILS.
- 7 REPAIR REINFORCED CONCRETE BEARING SEAT. ITEM 602551 - REHABILITATION OF EXISTING CONCRETE STRUCTURES AND ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE. SEE SHEET NO.21 FOR DETAILS.
- 8 REPAIR REINFORCED CONCRETE BACKWALL. ITEM 602551 - REHABILITATION OF EXISTING CONCRETE STRUCTURES AND ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE. SEE SHEET NO.21 FOR DETAILS.
- 9 REMOVE AND REPLACE EXISTING COMPRESSION SEAL WITH AN CLOSED CELL POLYETHYLENE SPONGE. ITEM 605558 - DECK JOINT REPAIR, 1 1/2" AND ITEM 605561 - DECK JOINT REPAIR, 2 1/4". INSTALL A CLOSED CELL POLYETHYLENE SPONGE WITHIN THE SIDEWALK. ITEM 605558 - DECK JOINT REPAIR, 3 1/4". INSTALL A CLOSED CELL POLYETHYLENE SPONGE WITHIN THE CURB. ITEM 605558 - DECK JOINT REPAIR, 1 1/2". DECK JOINT REPAIR, 3 1/4" AND ITEM 605665 - DECK JOINT REPAIR, 5". SEE SHEET NOS. 49 AND 50 FOR DETAILS.
- 10 REPLACE SWAY BRACES. ITEM 605584 - STEEL STRUCTURE REPAIR. SEE SHEET NO.42 AND 43 FOR DETAILS.
- 11 MILL 1 1/4" EXISTING CONCRETE DECK AND PLACE 1 1/4" OVERLAY. ITEM 760001 - PAVEMENT - MILLING, CONCRETE. ITEM 602583 - FURNISHING MICRO-SILICA MODIFIED CONCRETE AND ITEM 602584 - CONSTRUCTING MICRO-SILICA MODIFIED CONCRETE OVERLAY. SEE SHEET NOS.19 AND 48 FOR DETAILS.
- 12 REPLACE BOTTOM LATERALS AND CONNECTION PLATES WITHIN BOTTOM CHORD. ITEM 605584 - STEEL STRUCTURE REPAIR. SEE SHEET NOS.33 AND 34 FOR DETAILS.
- 13 REPLACE TRUSS INTERIOR VERTICAL GUSSET PLATES. ITEM 605584 - STEEL STRUCTURE REPAIR. SEE SHEET NOS. 35 THRU 37 FOR DETAILS.
- 14 REMOVE AND REPLACE WELDED COVER PLATES ON STRINGERS WITH BOLTED COVER PLATES. ITEM 605584 - STEEL STRUCTURE REPAIR. LOCATIONS NOT SHOWN, SEE SHEET NOS. 38 AND 39 FOR DETAILS.
- 15 REHABILITATE DELAMINATED AND SPALLED CONCRETE IN RETAINING WALL FOOTING, FACE AND CAP. ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE AND ITEM 602551 - REHABILITATION OF EXISTING CONCRETE STRUCTURES. SEE SHEET NO. 22 FOR DETAILS.
- 16 PLATE KNEE BRACE. ITEM 605584 - STEEL STRUCTURE REPAIR. SEE SHEET NO. 41 FOR DETAILS.
- 17 SEAL CRACKS IN CONCRETE RETAINING WALL FACE. ITEM 602611 - REPAIR OF CONCRETE STRUCTURES BY EPOXY INJECTION. SEE SHEET NO. 22.
- 18 PLATE BOTTOM CHORD. ITEM 605584 - STEEL STRUCTURE REPAIR. SEE SHEET NO. 35 FOR DETAILS.
- 19 REPLACE CONNECTION PLATE AT SIDEWALK . ITEM 605584 - STEEL STRUCTURE REPAIR. SEE SHEET NO. 47 FOR DETAILS.
- 20 EXISTING PORTIONS OF THE APPROACH ROADWAYS TO BE REMOVED AND REPLACED WITH APPROACH SLABS. PAYMENT FOR REMOVAL OF CAPSTONES, PARAPETS AND WINGWALLS. ITEM 607000 - REMOVAL OF EXISTING MASONRY. PAYMENT FOR REMOVAL OF SIDEWALKS AND CURBS. ITEM 758000 - REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, CURB, SIDEWALK, ETC. FOR APPROACH AND MOMENT SLAB DETAILS AND PAYMENT ITEMS, SEE SHEET NOS. 55 THRU 69.
- 21 PLATE DIAPHRAGMS ABOVE BEARINGS. ITEM 605584 - STEEL STRUCTURE REPAIR. SEE SHEET NO. 40 FOR DETAILS.

LEGEND

	MILLING - HOT-MIX, 2" SUPERPAVE TYPE C
	REMOVAL
	1 1/4" CONCRETE MILL AND MICRO-SILICA CONCRETE OVERLAY



REHABILITATION PLAN AND ELEVATION

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(1)	18A	83

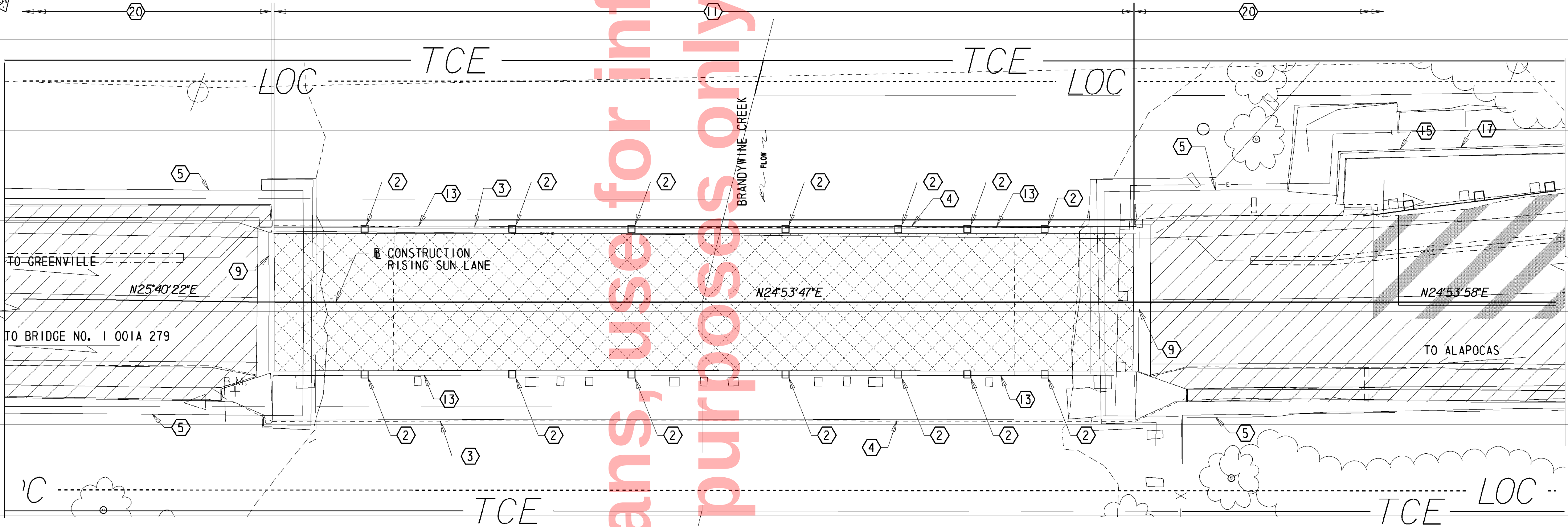
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

NEW SHEET	B.K.B. 11/05/08

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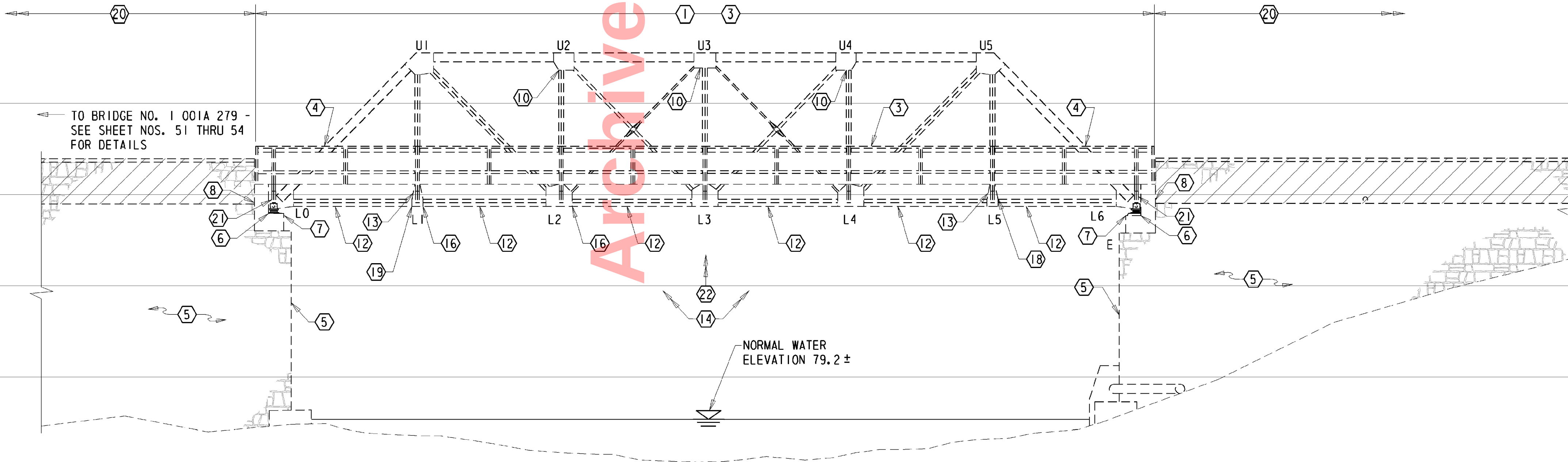


PLAN

SCALE: 1"=10'-0"

NOTE:

TRUSS NOT SHOWN IN PLAN FOR CLARITY.



ELEVATION

SCALE: 1"=10'-0"

LEGEND

	MILLING - HOT-MIX, 2" SUPERPAVE TYPE C
	REMOVAL
	1 1/4" CONCRETE MILL AND MICRO-SILICA CONCRETE OVERLAY

NOTES:

1. TYPICAL SECTIONS SHOWN LOOKING UP STATION.
2. RIVETS ARE NOT SHOWN FOR CLARITY.
3. THE THICKNESS OF THE PROPOSED MICRO-SILICA CONCRETE OVERLAY IS A MINIMUM VALUE. SEE SHEET NO. 48 FOR FINISHED DECK ELEVATIONS. THE PROPOSED MICRO-SILICA CONCRETE OVERLAY SHALL BE TRANSITIONED TO MATCH THE INVERT ELEVATIONS OF THE EXISTING SCUPPERS AS DIRECTED BY THE ENGINEER.
4. PAYMENT FOR SAW CUTTING THE EXISTING DECK WILL BE MADE UNDER ITEM 762003 - SAW CUTTING, CONCRETE, VARIABLE DEPTH.
5. THE CONTRACTOR SHALL USE CARE DURING THE MILLING OF THE EXISTING CONCRETE DECK SLAB TO AVOID DAMAGE TO THE EXISTING PORTIONS OF THE STRUCTURE THAT ARE TO REMAIN IN PLACE. ANY DAMAGE INCURRED TO EXISTING PORTIONS OF THE STRUCTURE TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR ALL AT HIS SOLE COST TO THE COMPLETE SATISFACTION OF THE ENGINEER. DURING MILLING OF THE EXISTING CONCRETE DECK SLAB, IF REINFORCING STEEL IS ENCOUNTERED WITH LESS THAN 1 1/4" COVER THE CONTRACTOR SHALL MODIFY HIS MILLING OPERATIONS AND MILL ONLY THE PORTIONS OF THE EXISTING CONCRETE DECK SLAB ABOVE THE REINFORCING STEEL (LESS THAN 1 1/4"). UPON COMPLETION OF THE MILLING OPERATIONS, THE CONTRACTOR, IN THE PRESENCE OF THE ENGINEER, SHALL CONDUCT A FULL AND THOROUGH INSPECTION OF THE DECK. THE PURPOSE OF THIS INSPECTION WILL BE TO IDENTIFY AREAS IN NEED OF REPAIR. THE ENGINEER SHALL BE THE SOLE JUDGE IN DETERMINING THE NEED FOR THIS REPAIR AND IF NECESSARY, THE EXTENT OF CONCRETE REMOVAL AND WHEN SOUND CONCRETE IS ENCOUNTERED. THE COST OF THIS INSPECTION WILL BE INCIDENTAL TO CONTINGENCY ITEMS 602576 - DECK REPAIR, 3" TO < FULL DEPTH AND 602577 - DECK REPAIR, FULL DEPTH. ALL REPAIRS TO THE DECK SHALL BE MADE IN ACCORDANCE WITH ITEMS 602576 AND 602577.

6. WHEREVER POSSIBLE, ALL EXPOSED EXISTING REINFORCING STEEL SHALL BE INCORPORATED INTO THE FINISHED STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:
 - (A) IN THE OPINION OF THE ENGINEER, IF THE REINFORCING STEEL HAS LOST 20 PERCENT OR MORE OF ITS ORIGINAL CROSS SECTION AREA, IT SHALL BE CUT OUT. A NEW BAR OF THE SAME DIAMETER SHALL BE PROVIDED AND PLACED SO AS TO HAVE THE MINIMUM REQUIRED LAP AT EACH END OF THE NEW BAR.
 - (B) WHERE THE REQUIRED BAR LAP LENGTH IS AVAILABLE, IT SHALL BE USED AS A DOWEL.
 - (C) WHERE THE REQUIRED BAR LAP IS NOT AVAILABLE OR LIMITS OF CONCRETE REMOVAL TO ACHIEVE BAR LAP ARE TOO GREAT, A STANDARD HOOK OR A WELDED OR APPROVED MECHANICAL SPLICE SHALL BE PROVIDED. THE ENGINEER SHALL BE THE SOLE JUDGE WHETHER REINFORCING STEEL IS TO BE REUSED OR REPLACED.

7. ALL EXISTING REINFORCING STEEL SHALL BE INCORPORATED INTO THE FINISHED CONSTRUCTION AND SHALL BE BLAST CLEANED TO REMOVE ALL CONCRETE, DEBRIS AND RUST. PAYMENT SHALL BE INCIDENTAL TO ITEM 760001 - PAVEMENT MILLING, CONCRETE.
8. ALL EXISTING REINFORCING STEEL REQUIRING REPLACEMENT DUE TO CORROSION SHALL BE EPOXY COATED. PAYMENT FOR ALL WORK ASSOCIATED WITH EXISTING REINFORCING STEEL REQUIRING REPLACEMENT INCLUDING CUTTING OUT REINFORCING STEEL SHALL BE INCIDENTAL TO APPROPRIATE CONCRETE REPAIR ITEM.
9. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION OF ALL EQUIPMENT TO BE UTILIZED ON BR. 1 001 279, INCLUDING CONSTRUCTION VEHICLES (I.E. MILLING EQUIPMENT, SCREEDS, TRUCKS, ETC.), TO THE ENGINEER FOR APPROVAL. SEE LOAD RESTRICTIONS IN THE PROJECT NOTES. THE CONTRACTOR WILL NOT BE PERMITTED TO BEGIN WORK UNTIL APPROVAL HAS BEEN OBTAINED FROM THE ENGINEER.

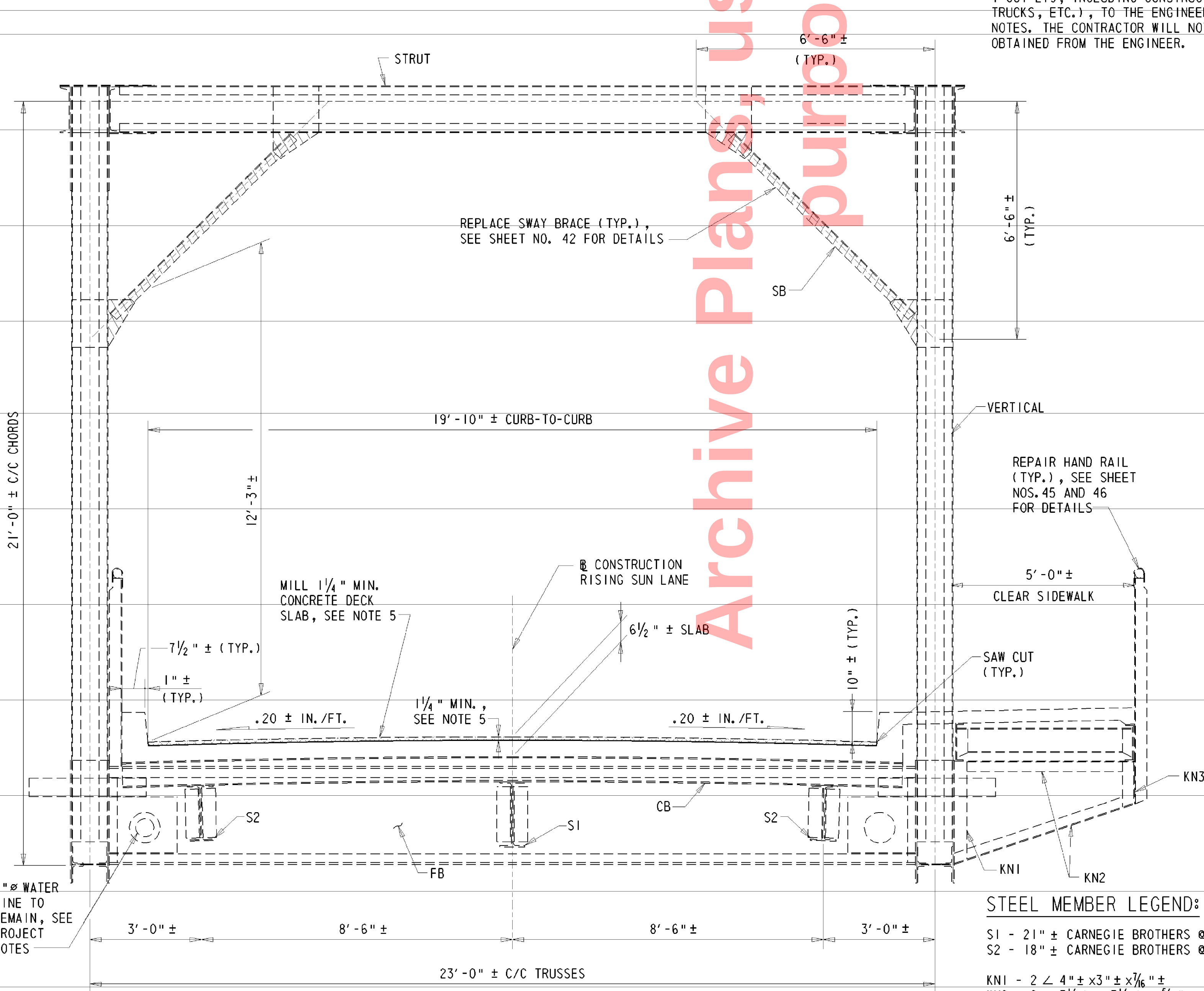
TYPICAL SECTIONS
BR. 1 001 279

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(I)	19	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



EXISTING TYPICAL SECTION

SCALE: 1/2" = 1'-0"

STEEL MEMBER LEGEND:

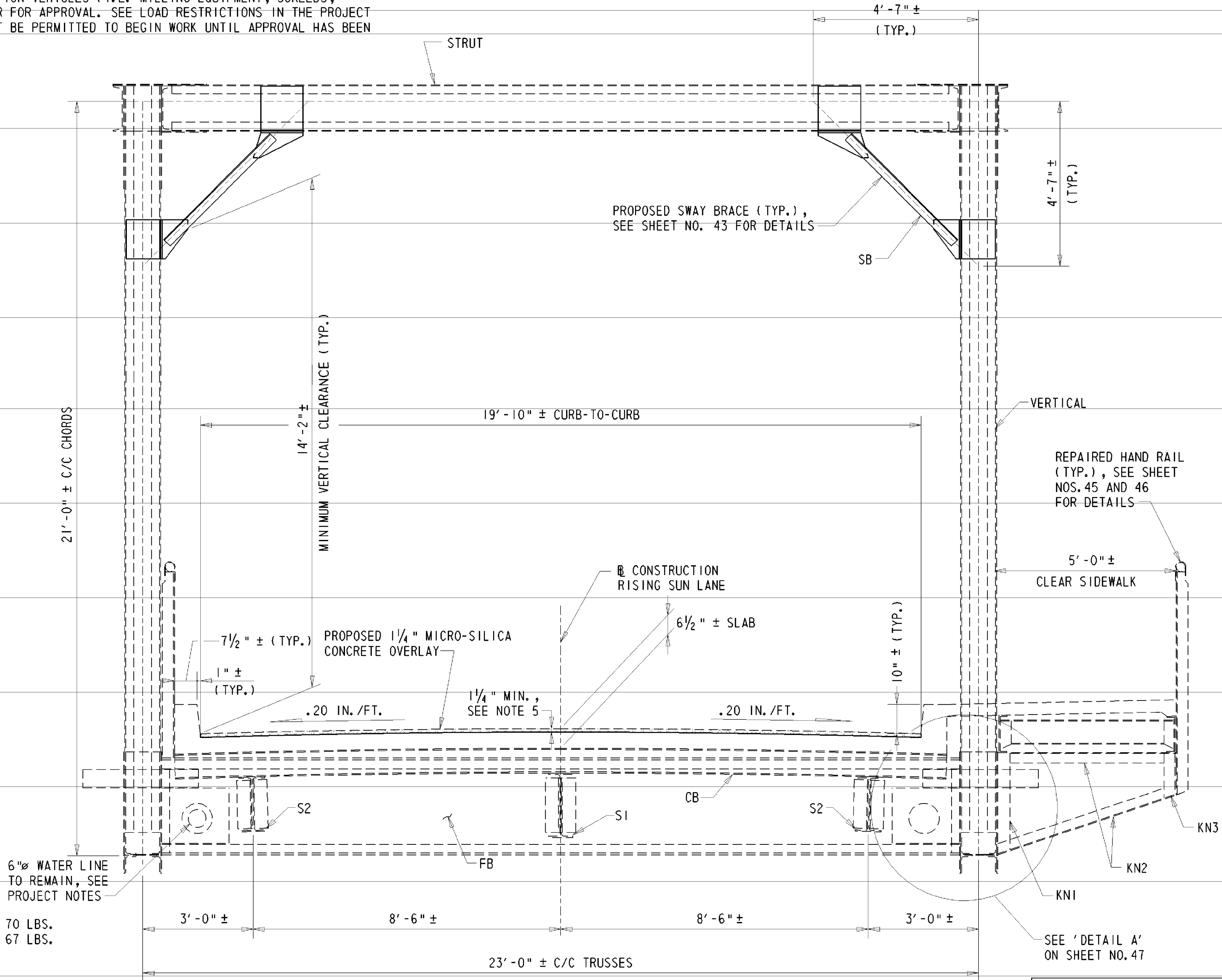
S1 - 21" ± CARNEGIE BROTHERS Ø 70 LBS.
S2 - 18" ± CARNEGIE BROTHERS Ø 67 LBS.

KN1 - 2 ∠ 4" ± x 3" ± x 3/8" ±
KN2 - 2 ∠ 3 1/2" ± x 3 1/2" ± x 3/8" ±
KN3 - 2 ∠ 4" ± x 4" ± x 3/8" ±

FB - (WEB) 32" ± x 3/8" ±
(FLANGE) 2 ∠ 5" ± x 3 1/2" ± x 3/8" ±

VERTICAL - 4 ∠ 4" ± x 3" ± x 3/8" ±
STRUT - 4 ∠ 4" ± x 3" ± x 3/8" ±

SB - 3" ± x 3" ± x 3/8" ± (SWAY BRACE)
CB - W8"x24" (CROSS BEAM)



PROPOSED TYPICAL SECTION

SCALE: 1/2" = 1'-0"

LEGEND

1/4" CONCRETE MILL AND OVERLAY

REMOVAL

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ABUTMENT STEM REPAIRS

BR. 1 001 279

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21-074-01	NEW CASTLE	EBHN-N279(I)	20	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

BEARING SEAT AND BACKWALL
SEE NOTE 2

24' -6" ±

28' -0" ±

RE-POINT AREAS OF
DETERIORATED MASONRY

STONE MASONRY ABUTMENT FACE

NORMAL WATER
ELEVATION 79.2 ±

APPROXIMATE
EXISTING
GROUNDLINE

CONCRETE COLLAR

32' -4" ±

CONCRETE REPAIR,
SEE NOTE 4

SCALE: 3/8"=1' -0"

EXISTING SOUTH ABUTMENT - ELEVATION

NOTES:

1. SUPERSTRUCTURE NOT SHOWN FOR CLARITY.

2. FOR CONCRETE BEARING SEAT AND BACKWALL REPAIRS, SEE SHEET NO. 21 FOR DETAILS.

3. ABUTMENT STONE MASONRY REPAIRS SHOWN GRAPHICALLY. REPAIR AREAS ARE BASED ON FIELD INSPECTION OBSERVATIONS TAKEN 5/01 AND 5/04. THE POINTING EXISTING RUBBLE MASONRY QUANTITY FOR ITEM 610501 HAS BEEN INCREASED TO ACCOUNT FOR LATENT DEFECTS THAT MAY HAVE OCCURRED SINCE THE 5/01 AND 5/04 INSPECTIONS. FOR THE CONTINGENCY FACTOR UTILIZED FOR THESE REPAIRS SEE CONTINGENT QUANTITIES IN THE PROJECT NOTES. ALL PROPOSED REPAIR LOCATIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK. REFERENCE APPLICABLE SPECIAL PROVISIONS.

4. CONCRETE REPAIR LOCATED AT THE SOUTH ABUTMENT COLLAR SHALL BE MADE USING A NON-SEPARABLE GROUT APPROVED BY MATERIALS AND RESEARCH THAT CAN BE PLACED UNDERWATER WITHOUT WASH OUT OF THE CEMENT PASTE. THE UNDERWATER MORTAR SHALL HAVE A COMPRESSIVE STRENGTH OF 5,000 PSI AND SHALL NOT BE PLACED WHEN THE TEMPERATURE IS BELOW 35°F. PAYMENT WILL BE INCIDENTAL TO ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE. IF CONCRETE REPAIR LOCATION IS NOT UNDERWATER, REHABILITATE USING MATERIAL SPECIFIED FOR ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE.

5. PAYMENT FOR STONE MASONRY RE-POINTING WILL BE MADE UNDER 610501 - POINTING EXISTING RUBBLE MASONRY.

6. IF ADDITIONAL STONES ARE REQUIRED FOR STONE MASONRY REPAIRS THE ADDITIONAL STONES SHALL MATCH THE COLOR, TEXTURE, AND TYPE OF THE EXISTING STONES. PAYMENT FOR THE ADDITIONAL STONES WILL BE INCIDENTAL TO ITEM 610501 - POINTING EXISTING RUBBLE MASONRY.

7. CONTRACTOR SHALL PROTECT THE EXISTING SANITARY SEWER RUNNING ALONG THE NORTH ABUTMENT. ANY DAMAGE INCURRED TO THIS UTILITY OR ANY OTHER UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE. SEE UTILITIES IN THE PROJECT NOTES.

BEARING SEAT AND BACKWALL
SEE NOTE 2

22' -10" ±

RE-POINT AREAS OF
DETERIORATED MASONRY
(TYP.)

STONE MASONRY ABUTMENT FACE

THRUST BLOCK

16"Ø SANITARY SEWER PIPE,
SEE NOTE 7

NORMAL WATER
ELEVATION 79.2 ±

CONCRETE COLLAR

32' -8" ±

APPROXIMATE
EXISTING
GROUNDLINE

SCALE: 3/8"=1' -0"

EXISTING NORTH ABUTMENT - ELEVATION

LEGEND

- RE-POINT AREAS
OF DETERIORATED
MASONRY (TYP.)
- CONCRETE REPAIR

PREL. TRACING
K.P.L./K.W.F. DESIGN
3.K.B./S.E.B. CHKD.
J.A.G.

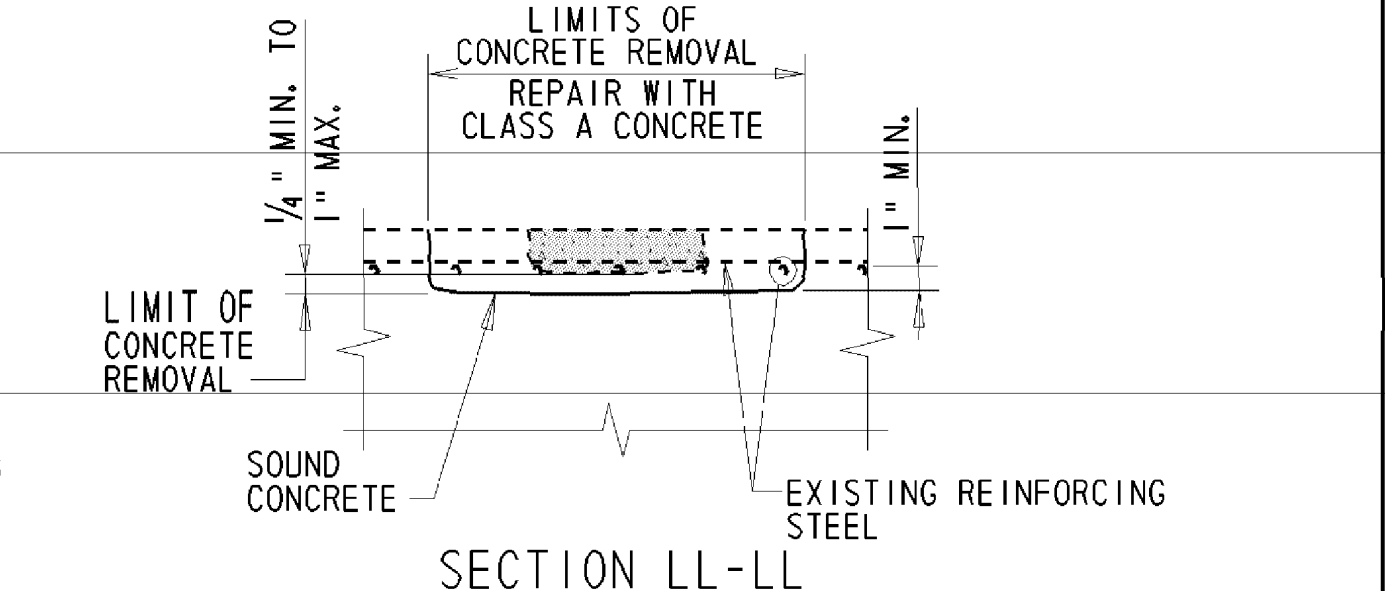
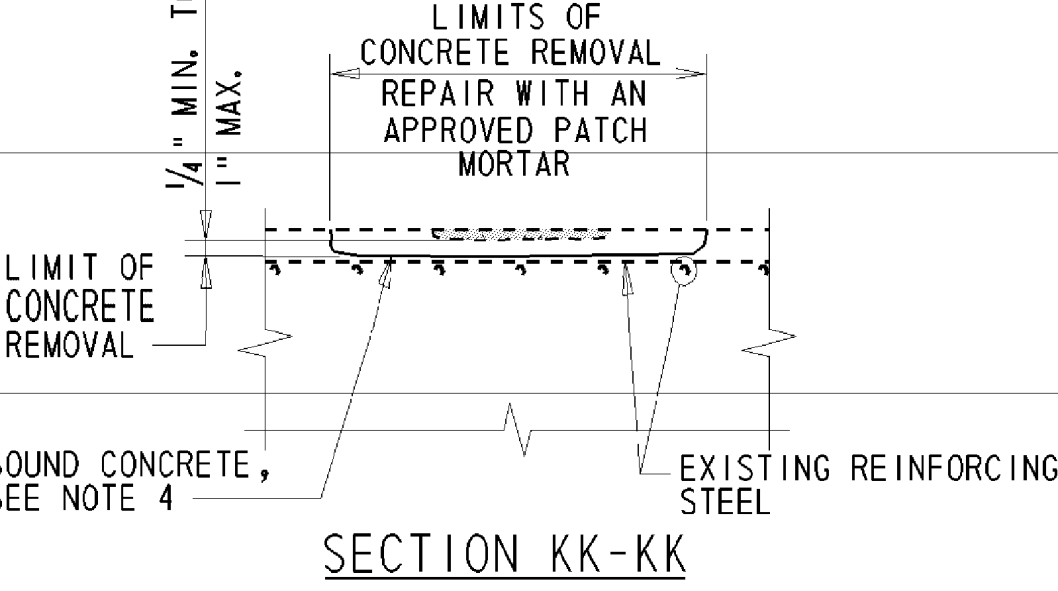
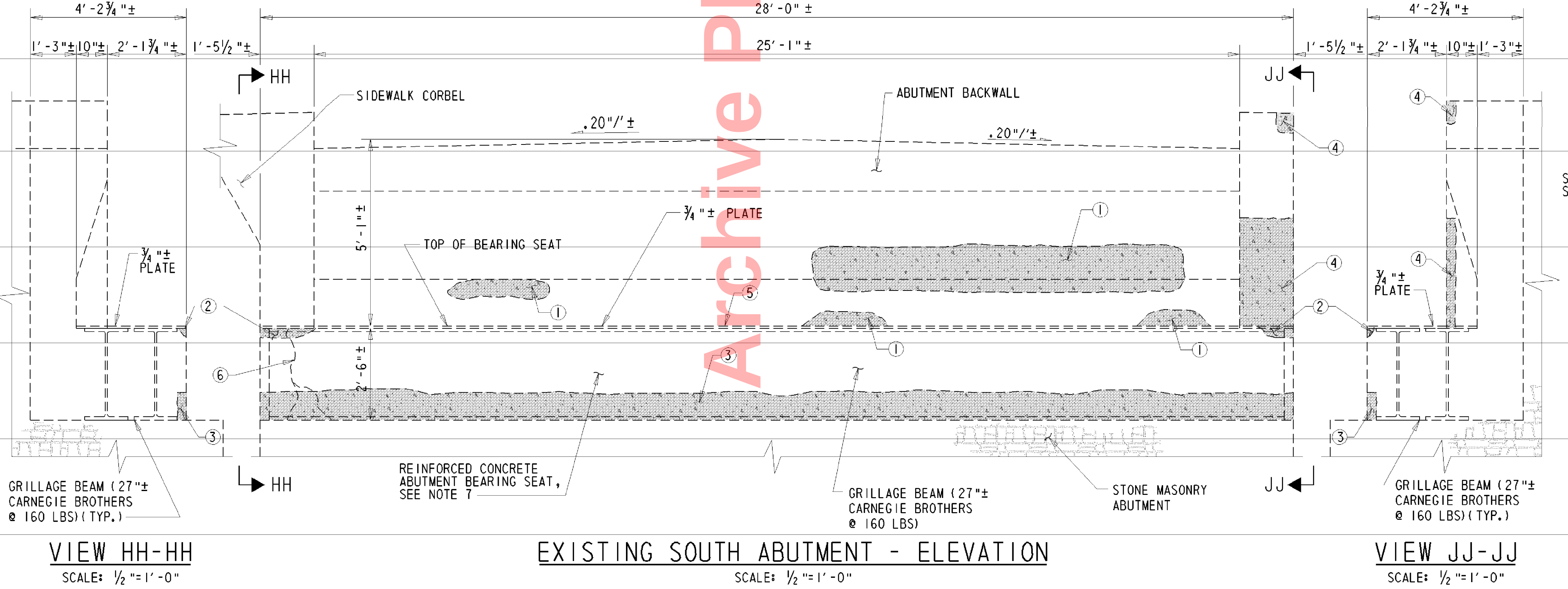
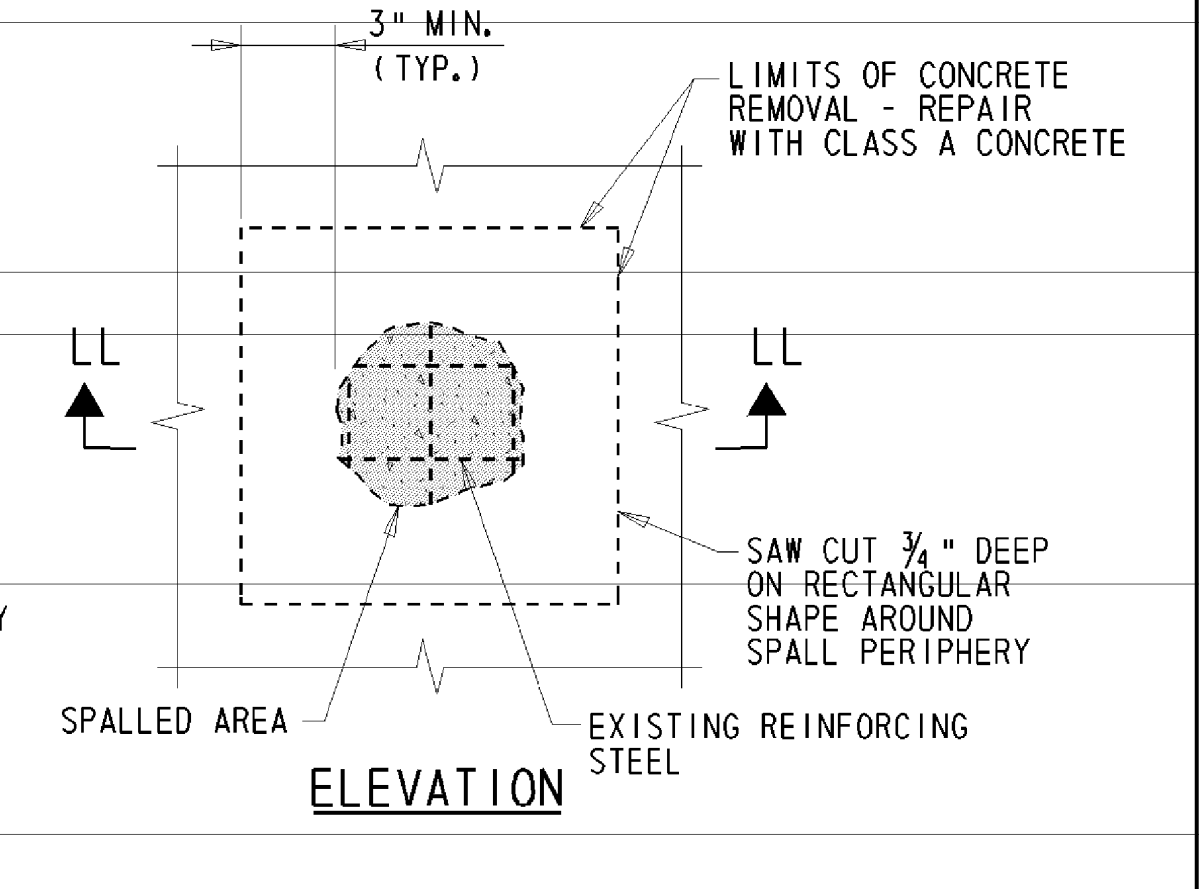
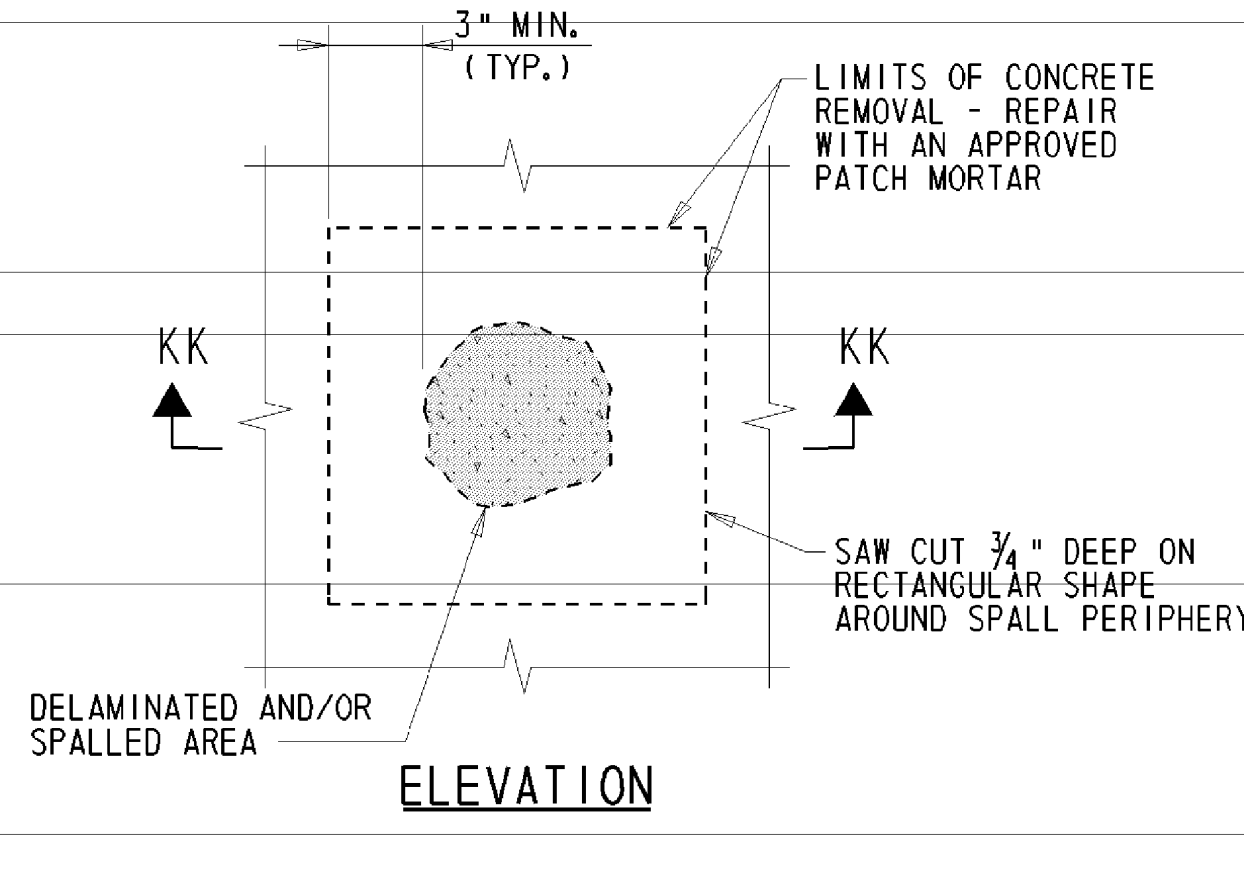
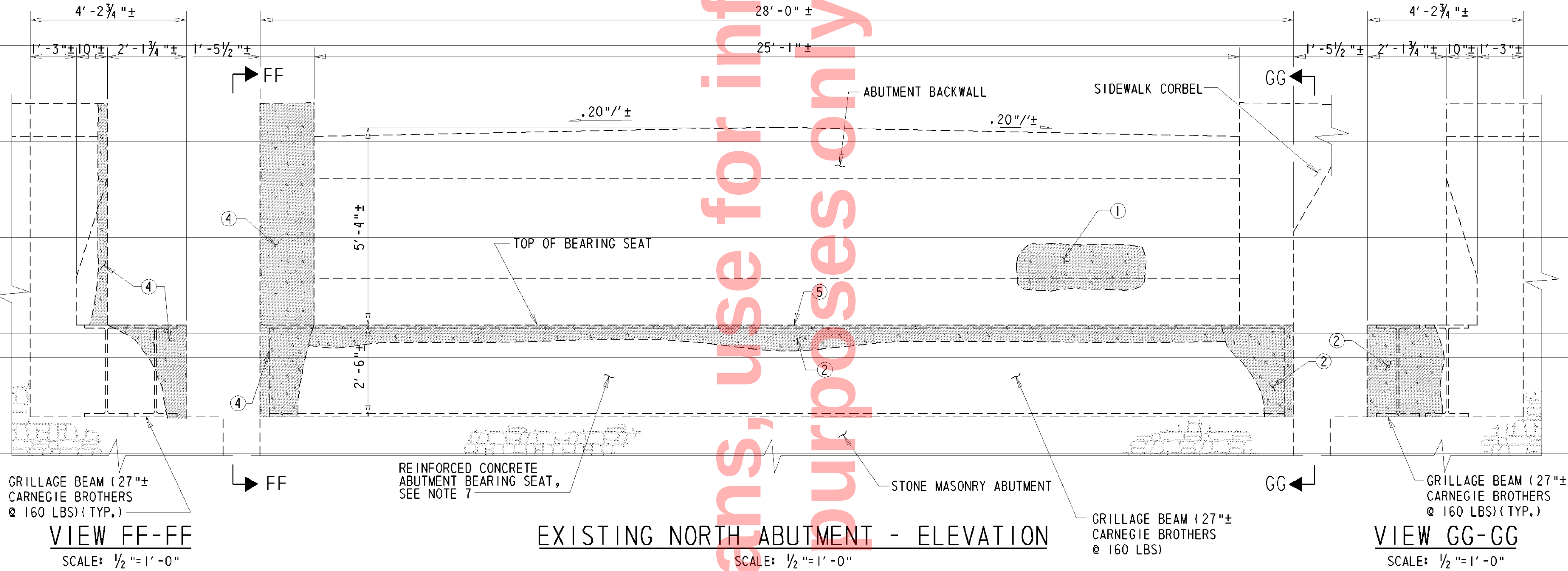
BEARING SEAT
AND BACKWALL REPAIRS

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	2I	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



SHALLOW SPALL REPAIR
NOT TO SCALE

DEEP SPALL REPAIR
NOT TO SCALE

NOTES:

1. SUPERSTRUCTURE NOT SHOWN FOR CLARITY.
2. PAYMENT FOR SHALLOW SPALL REPAIR WILL BE MADE UNDER ITEM 602551 - REHABILITATION OF EXISTING CONCRETE STRUCTURES.
3. PAYMENT FOR DEEP SPALL REPAIR WILL BE MADE UNDER ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE.
4. IF SOUND CONCRETE IS NOT ENCOUNTERED BEFORE EXPOSING EXISTING REINFORCING STEEL, USE 'DEEP SPALL REPAIR' DETAIL.
5. WHEREVER POSSIBLE, ALL EXPOSED EXISTING REINFORCING STEEL SHALL BE INCORPORATED INTO THE FINISHED STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:
 - (A) IN THE OPINION OF THE ENGINEER, IF THE REINFORCING STEEL HAS LOST 20 PERCENT OR MORE OF ITS ORIGINAL CROSS SECTION AREA, IT SHALL BE CUT OUT. A NEW BAR OF THE SAME DIAMETER SHALL BE PROVIDED AND PLACED SO AS TO HAVE THE MINIMUM REQUIRED LAP AT EACH END OF THE NEW BAR.
 - (B) WHERE THE REQUIRED BAR LAP LENGTH IS AVAILABLE, IT SHALL BE USED AS A DOWEL.
 - (C) WHERE THE REQUIRED BAR LAP IS NOT AVAILABLE OR LIMITS OF CONCRETE REMOVAL TO ACHIEVE BAR LAP ARE TOO GREAT, A STANDARD HOOK OR A WELDED OR APPROVED MECHANICAL SPLICE SHALL BE PROVIDED. THE ENGINEER SHALL BE THE SOLE JUDGE WHETHER REINFORCING STEEL IS TO BE REUSED OR REPLACED.
6. ALL EXISTING REINFORCING STEEL TO BE INCORPORATED INTO THE FINISHED CONSTRUCTION SHALL BE BLAST CLEANED TO REMOVE ALL CONCRETE, DEBRIS AND RUST. PAYMENT SHALL BE INCIDENTAL TO ITEM 602580 - PARTIAL REMOVAL OF P.C.C. MASONRY.
7. ALL NEW REINFORCING STEEL REQUIRED TO COMPLETE CONCRETE REPAIRS SHALL NOT BE EPOXY COATED. PAYMENT WILL BE INCIDENTAL TO APPROPRIATE CONCRETE REPAIR ITEM.
8. SIZE, TYPE, AND LOCATION OF EXISTING REINFORCING STEEL UNKNOWN.
9. PAYMENT FOR DEBRIS REMOVAL FROM BEARING SEATS SHALL BE INCIDENTAL TO ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE.
10. PAYMENT FOR SEALING CRACKS WILL BE MADE UNDER ITEM 602611 - REPAIR OF CONCRETE STRUCTURES BY EPOXY INJECTION.

REPAIR LEGEND:

- ① REPAIR DELAMINATED CONCRETE AND/OR SHALLOW SPALL - ITEM 602551.
- ② REPAIR SHALLOW SPALL ON FACE OF BEARING SEAT - ITEM 602551.
- ③ REPAIR DELAMINATED CONCRETE AND/OR DEEP SPALL ALONG ENTIRE FACE OF SOUTH ABUTMENT BEARING SEAT - ITEM 602586.
- ④ REPAIR DEEP SPALL - ITEM 602586.
- ⑤ REMOVE DEBRIS FROM BEARING SEATS - ITEM 602586.
- ⑥ SEAL CRACKS - ITEM 602611.

NOTE:

ABUTMENT SPALL REPAIR LOCATIONS SHOWN GRAPHICALLY. REPAIR AREAS ARE BASED ON FIELD INSPECTION OBSERVATIONS TAKEN 5/01 AND 5/04. THE CONCRETE REPAIR QUANTITIES FOR ITEMS 602551 AND 602586 HAVE BEEN INCREASED TO ACCOUNT FOR LATENT DEFECTS THAT MAY HAVE OCCURRED SINCE THE 5/01 AND 5/04 INSPECTIONS. FOR THE CONTINGENCY FACTOR UTILIZED FOR THESE REPAIRS SEE CONTINGENT QUANTITIES IN THE PROJECT NOTES. ALL PROPOSED REPAIR LOCATIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK. REFERENCE APPLICABLE SPECIAL PROVISIONS.

LEGEND



CONCRETE REPAIR

PREL. TRACING
K.P.L./K.W.F.
DESIGN
3.K.B./S.E.B.
CHKD.
J.A.G.

Archive Plans, use for informational purposes only

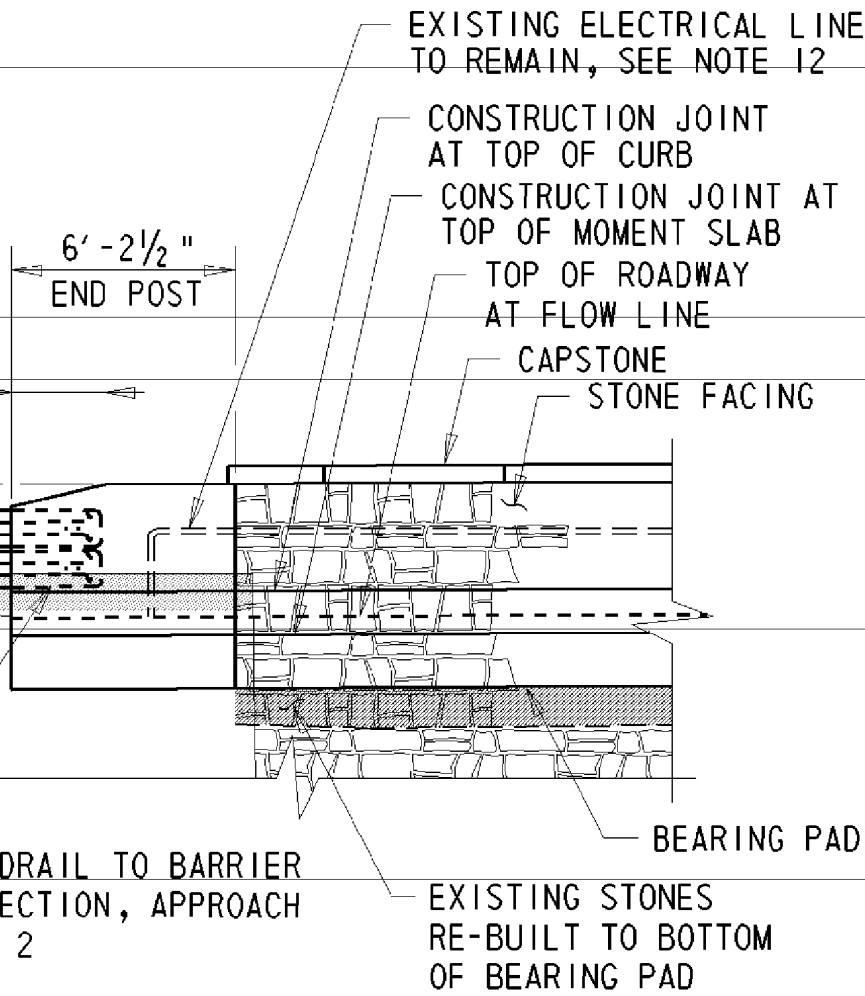
NORTHWEST
WINGWALL REPAIRS

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	22	83

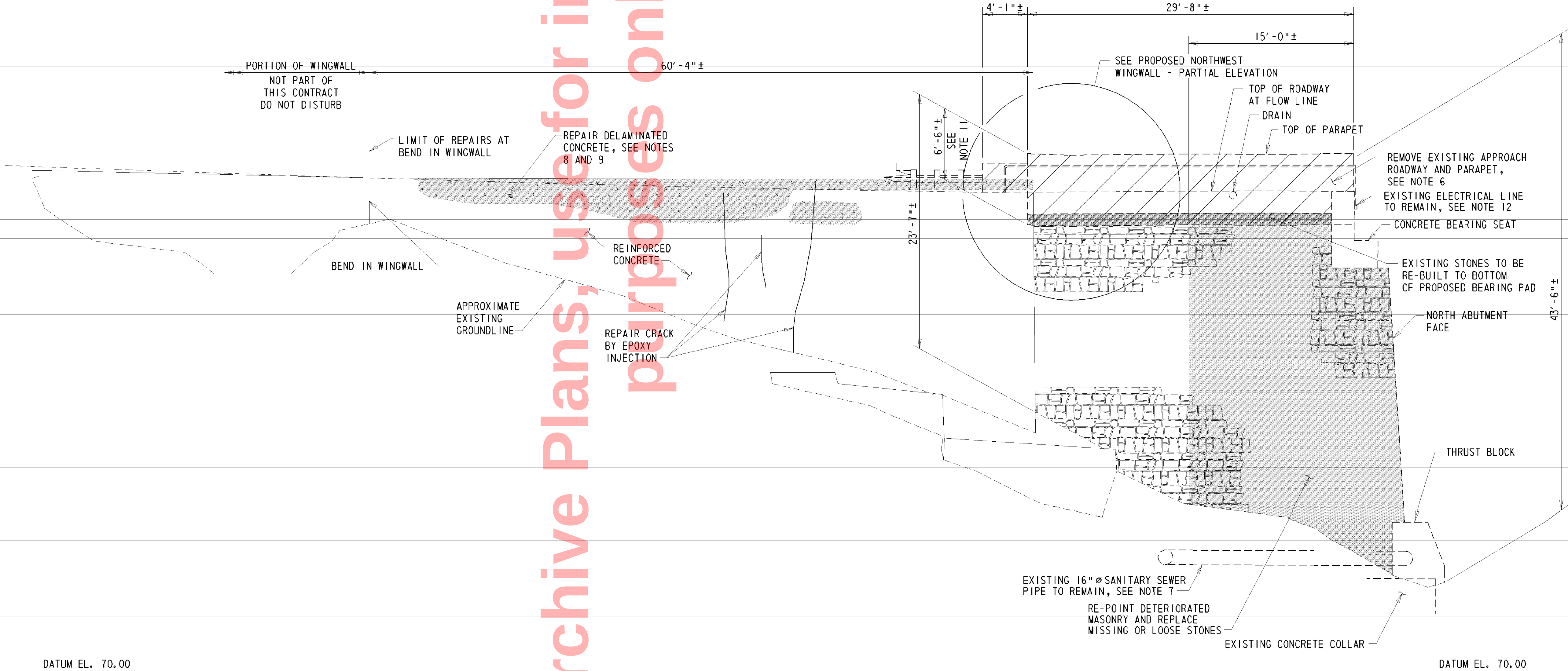
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



PROPOSED NORTHWEST
WINGWALL - PARTIAL ELEVATION

SCALE: 3/16"=1'-0"



NORTHWEST WINGWALL - ELEVATION

SCALE: 3/16"=1'-0"

NOTES:

- SUPERSTRUCTURE OF BR. 1 001 279 NOT SHOWN FOR CLARITY.
- FOR ABUTMENT STEM REPAIRS, SEE SHEET NO. 20. FOR CONCRETE BEARING SEAT AND BACKWALL REPAIRS, SEE SHEET NO. 21.
- CONCRETE AND WINGWALL STONE MASONRY REPAIRS SHOWN GRAPHICALLY. REPAIR AREAS ARE BASED ON FIELD INSPECTION OBSERVATIONS TAKEN 5/01 AND 5/04. THE REHABILITATION OF EXISTING CONCRETE STRUCTURES QUANTITY FOR ITEM 602611, REHABILITATION OF CONCRETE STRUCTURES QUANTITY FOR ITEM 602586 AND POINTING EXISTING RUBBLE MASONRY QUANTITY FOR ITEM 610501 HAS BEEN INCREASED TO ACCOUNT FOR LATENT DEFECTS THAT MAY HAVE OCCURRED SINCE THE 5/01 AND 5/04 INSPECTIONS. SIMILARLY, THE LENGTH OF CONCRETE CRACKS ARE SHOWN GRAPHICALLY AND THE REPAIR OF CONCRETE STRUCTURES BY EPOXY INJECTION QUANTITY FOR ITEM 602611 HAS BEEN INCREASED. FOR THE CONTINGENCY FACTORS UTILIZED FOR THESE REPAIRS SEE CONTINGENT QUANTITIES IN THE PROJECT NOTES. ALL PROPOSED REPAIR LOCATIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK. REFERENCE APPLICABLE SPECIAL PROVISIONS.
- PAYMENT FOR STONE MASONRY RE-POINTING WILL BE MADE UNDER ITEM 610501 - POINTING EXISTING RUBBLE MASONRY.
- IF ADDITIONAL STONES ARE REQUIRED FOR STONE MASONRY REPAIRS THE ADDITIONAL STONES SHALL MATCH THE COLOR, TEXTURE, AND TYPE OF THE EXISTING STONES. PAYMENT FOR THE ADDITIONAL STONES WILL BE INCIDENTAL TO ITEM 610501 - POINTING EXISTING RUBBLE MASONRY.
- EXISTING PORTIONS OF THE APPROACH ROADWAY TO BE REMOVED AND REPLACED WITH APPROACH SLABS. PAYMENT FOR REMOVAL OF CAPSTONES, PARAPETS AND WINGWALLS WILL BE MADE UNDER ITEM 607000 - REMOVAL OF EXISTING MASONRY. PAYMENT FOR REMOVAL OF SIDEWALKS AND CURBS WILL BE MADE UNDER ITEM 758000 - REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, CURB SIDEWALK, ETC. FOR HORIZONTAL LIMITS OF REMOVAL, SEE SHEET NO. 17. THE EXISTING CAPSTONES AND STONE TO BE REMOVED SHALL BE SALVAGED, SPLIT AND INCORPORATED INTO THE APPROACH SLABS AND PARAPETS. PAYMENT FOR SALVAGING, SPLITTING AND INCORPORATING STONE INTO THE APPROACH SLABS AND PARAPETS WILL BE MADE UNDER ITEM 610001 - STONE MASONRY. PAYMENT FOR SALVAGING AND INCORPORATING CAPSTONES WILL BE INCIDENTAL TO ITEM 610001 - STONE MASONRY. FOR APPROACH AND MOMENT SLAB DETAILS, SEE SHEET NOS. 55 THRU 69.
- CONTRACTOR SHALL PROTECT THE EXISTING SANITARY SEWER RUNNING ALONG THE NORTH ABUTMENT. ANY DAMAGE INCURRED TO THIS UTILITY OR ANY OTHER UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS DUE TO THE CONTRACTORS OPERATIONS SHALL BE REPAIRED AT THE CONTRACTORS SOLE EXPENSE, TO THE COMPLETE SATISFACTION OF THE ENGINEER. SEE UTILITIES IN THE PROJECT NOTES.
- THE DELAMINATED CONCRETE IN THE REINFORCED CONCRETE RETAINING WALL CAP SHALL BE REHABILITATED WITH A DEEP SPALL REPAIR. SEE SHEET NO. 21 FOR DETAILS. PAYMENT FOR THE DEEP SPALL REPAIR WILL BE MADE UNDER ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE.
- IF SOUND CONCRETE IS NOT ENCOUNTERED WITHIN 2" BENEATH THE TOP LAYER OF EXISTING REINFORCING STEEL, DETERIORATED CONCRETE SHALL BE REMOVED AND REPAIRED USING CLASS A CONCRETE. PAYMENT FOR CONCRETE REMOVAL WILL THEN BE MADE UNDER ITEM 602580 - PARTIAL REMOVAL OF P.C.C. MASONRY AND PAYMENT FOR CONCRETE PLACEMENT WILL BE MADE UNDER ITEM 602001 - PORTLAND CEMENT CONCRETE MASONRY, CLASS A.
- THE DELAMINATED CONCRETE IN THE REINFORCED CONCRETE RETAINING WALL FACE SHALL BE REHABILITATED WITH A SHALLOW SPALL REPAIR. PAYMENT FOR THE SHALLOW SPALL REPAIR WILL BE MADE UNDER ITEM 602551 - REHABILITATION OF EXISTING CONCRETE STRUCTURES. SEE SHEET NO. 21 FOR DETAILS.
- THE REMOVAL LIMITS SHOWN AS 6'-6" +/- ARE APPROXIMATE. THE LOWER LIMIT OF REMOVAL SHALL FOLLOW THE EXISTING MORTAR JOINTS OF INDIVIDUAL STONES AND SHALL NOT BE REMOVED BY MACHINE OR CUT. THE EXISTING STONES SHALL BE CHIPPED/SHAPED IN PLACE TO THE UTMOST EXTENT POSSIBLE TO ACHIEVE THE DESIRED REMOVAL LIMIT NECESSARY. ANY REMOVAL/DISTURBANCE/REPLACEMENT OF EXISTING STONES SHALL BE MINIMIZED AS MUCH AS POSSIBLE TO RE-BUILD THE WALL TO THE BOTTOM OF THE BEARING PAD UNDER THE MOMENT SLAB/PARAPET SYSTEM. THE SHAPED AND RE-BUILT PORTION OF THE WALL SHALL BE RELATIVELY FLAT AND TO THE PROPOSED GRADES AS REQUIRED BY THE CONTRACT DOCUMENTS TO ACCEPT PLACEMENT OF THE BEARING PADS AND PROPOSED MOMENT SLAB/PARAPET SYSTEM. PAYMENT FOR RE-BUILDING THE EXISTING STONES AND ASSOCIATED CHIPPING/SHAPING WILL BE MADE UNDER ITEM 610001 - STONE MASONRY.
- THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY SUPPORTING AND PROTECTING THE ELECTRICAL LINE WHICH SHALL REMAIN IN SERVICE DURING CONSTRUCTION. SEE UTILITIES IN THE PROJECT NOTES. THE COST FOR THIS WORK WILL BE INCIDENTAL TO THE CONTRACT.

LEGEND

- RE-POINT DETERIORATED MASONRY AND REPLACE MISSING OR LOOSE STONES
- CONCRETE REPAIR
- EXISTING STONES RE-BUILT TO BOTTOM OF BEARING PAD
- REMOVAL, SEE NOTE 6

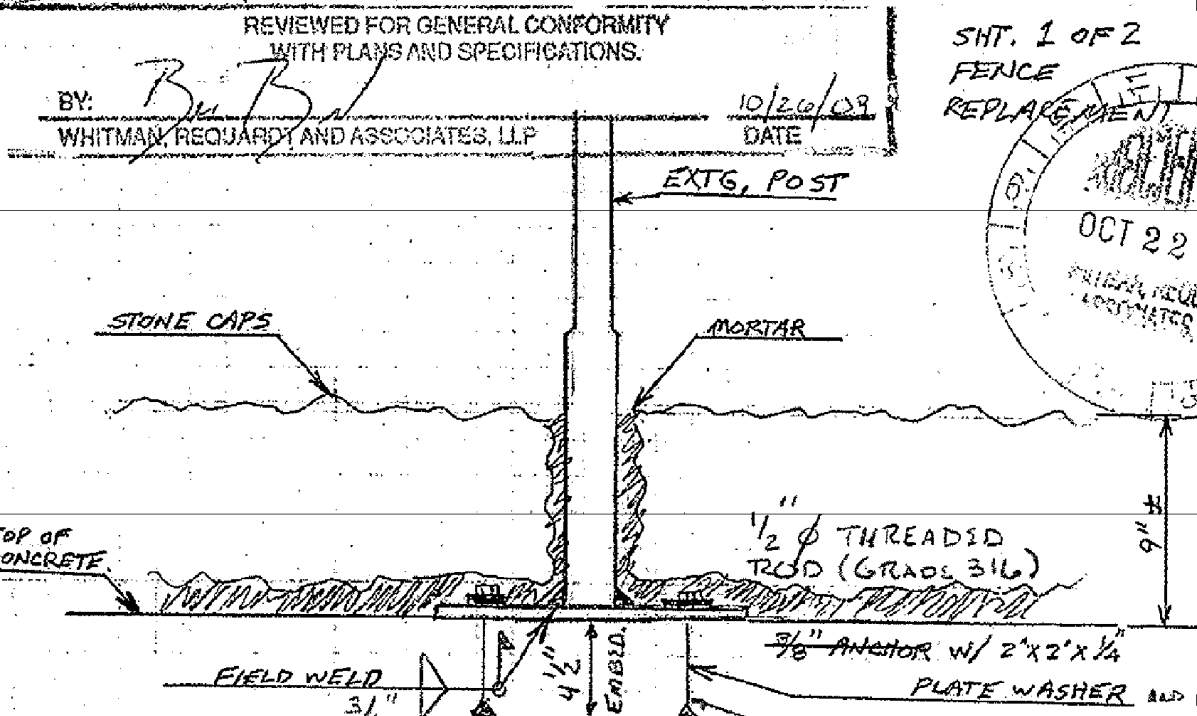
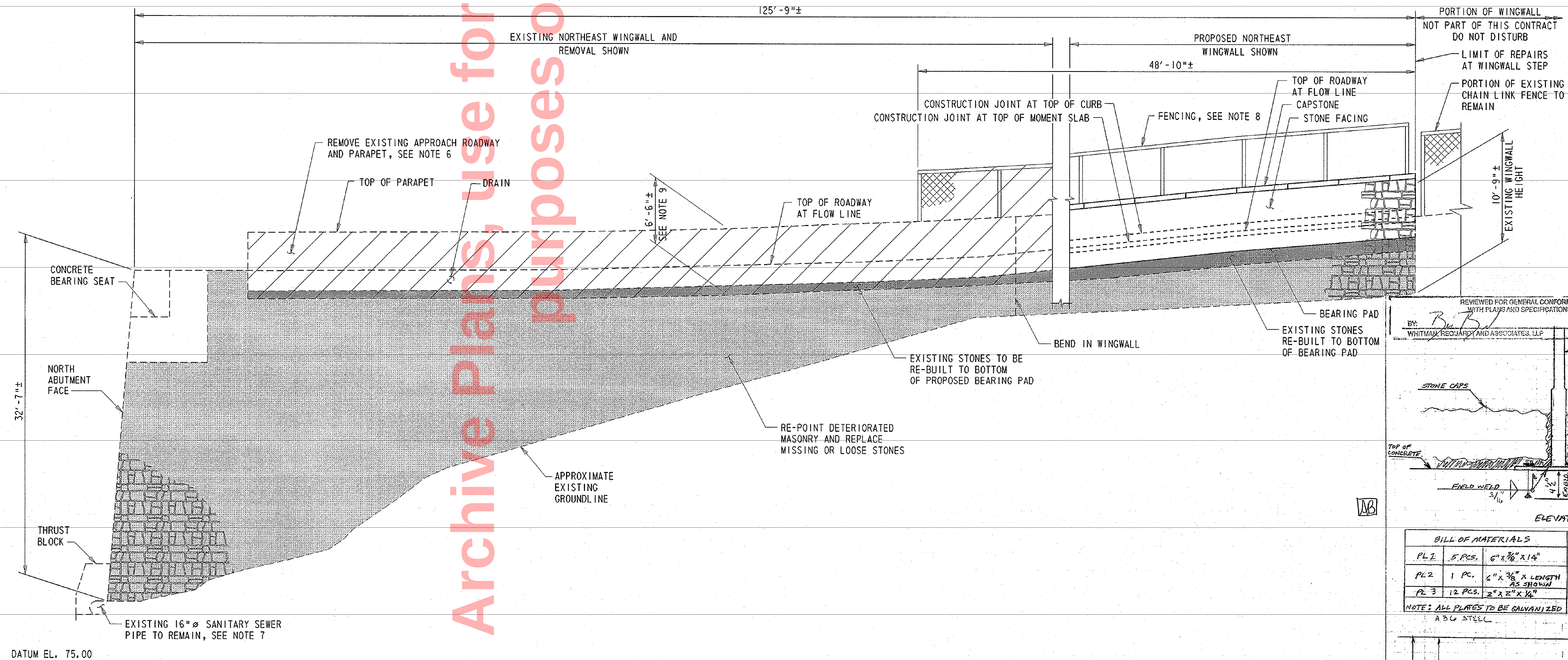
NORTHEAST
WINGWALL REPAIRS

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(1)	23	83

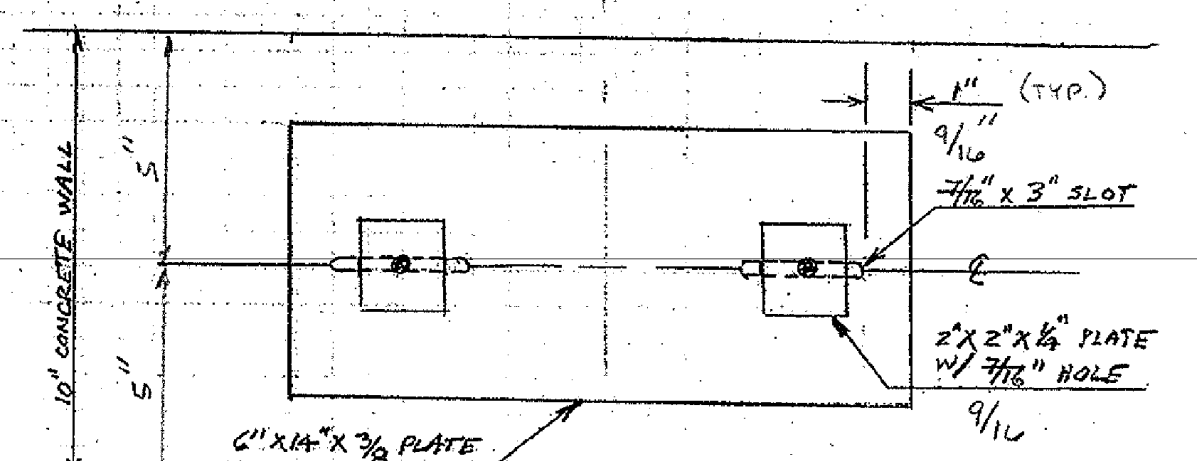
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



BILL OF MATERIALS			
PL 1	5 PCS.	6" X 3/8" X 1/4"	
PL 2	1 PC.	6" X 3/8" X LENGTH AS SHOWN	
PL 3	12 PCS.	2" X 2" X 1/4"	

NOTE: ALL PLATES TO BE GALVANIZED A36 STEEL



LEGEND	
	RE-POINT DETERIORATED MASONRY AND REPLACE MISSING OR LOOSE STONES
	EXISTING STONES RE-BUILT TO BOTTOM OF BEARING PAD
	REMOVAL

- NOTES:
- SUPERSTRUCTURE OF BR. 1 001 279 NOT SHOWN FOR CLARITY.
 - FOR ABUTMENT STEM REPAIRS, SEE SHEET NO. 20. FOR CONCRETE BEARING SEAT AND BACKWALL REPAIRS, SEE SHEET NO. 21.
 - WINGWALL STONE MASONRY REPAIRS SHOWN GRAPHICALLY. REPAIR AREAS ARE BASED ON FIELD INSPECTION OBSERVATIONS TAKEN 5/01 AND 5/04. THE POINTING EXISTING RUBBLE MASONRY QUANTITY FOR ITEM 610501 HAS BEEN INCREASED TO ACCOUNT FOR LATENT DEFECTS THAT MAY HAVE OCCURRED SINCE THE 5/01 AND 5/04 INSPECTIONS. FOR THE CONTINGENCY FACTOR UTILIZED FOR THESE REPAIRS SEE CONTINGENT QUANTITIES IN THE PROJECT NOTES. ALL PROPOSED REPAIR LOCATIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK. REFERENCE APPLICABLE SPECIAL PROVISIONS.
 - PAYMENT FOR STONE MASONRY RE-POINTING WILL BE MADE UNDER ITEM 610501 - POINTING EXISTING RUBBLE MASONRY.
 - IF ADDITIONAL STONES ARE REQUIRED FOR STONE MASONRY REPAIRS THE ADDITIONAL STONES SHALL MATCH THE COLOR, TEXTURE, AND TYPE OF THE EXISTING STONES. PAYMENT FOR THE ADDITIONAL STONES WILL BE INCIDENTAL TO ITEM 610501 - POINTING EXISTING RUBBLE MASONRY.
 - EXISTING PORTIONS OF THE APPROACH ROADWAY TO BE REMOVED AND REPLACED WITH APPROACH SLABS. PAYMENT FOR REMOVAL OF CAPSTONES, PARAPETS AND WINGWALLS WILL BE MADE UNDER ITEM 607000 - REMOVAL OF EXISTING MASONRY. PAYMENT FOR REMOVAL OF SIDEWALKS AND CURBS WILL BE MADE UNDER ITEM 758000 - REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, CURB SIDEWALK, ETC. FOR HORIZONTAL LIMITS OF REMOVAL, SEE SHEET NO. 17. THE EXISTING CAPSTONES AND STONE TO BE REMOVED SHALL BE SALVAGED, SPLIT AND INCORPORATED INTO THE APPROACH SLABS AND PARAPETS. PAYMENT FOR SALVAGING, SPLITTING AND INCORPORATING STONE INTO THE APPROACH SLABS AND PARAPETS WILL BE MADE UNDER ITEM 610001 - STONE MASONRY. PAYMENT FOR SALVAGING AND INCORPORATING CAPSTONES WILL BE INCIDENTAL TO ITEM 610001 - STONE MASONRY. FOR APPROACH AND MOMENT SLAB DETAILS, SEE SHEET NOS. 55 THRU 69.

NORTHEAST WINGWALL - ELEVATION
SCALE: 3/16" = 1' - 0"

- CONTRACTOR SHALL PROTECT THE EXISTING SANITARY SEWER RUNNING ALONG THE NORTH ABUTMENT. ANY DAMAGE INCURRED TO THIS UTILITY OR ANY OTHER UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS DUE TO THE CONTRACTORS OPERATIONS SHALL BE REPAIRED AT THE CONTRACTORS SOLE EXPENSE TO THE COMPLETE SATISFACTION OF THE ENGINEER.
- FENCING SHALL BE REMOVED AND REPLACED IN-KIND. SHOP DRAWINGS FOR THE PROPOSED FENCING INCLUDING METHOD OF ATTACHMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. PAYMENT FOR REMOVAL AND REPLACEMENT OF FENCING SHALL BE INCIDENTAL TO ITEM 607000 - REMOVAL OF EXISTING MASONRY.
- THE REMOVAL LIMITS SHOWN AS 6'-6"±/- ARE APPROXIMATE. THE LOWER LIMIT OF REMOVAL SHALL FOLLOW THE EXISTING MORTAR JOINTS OF INDIVIDUAL STONES AND SHALL NOT BE REMOVED BY MACHINE OR CUT. THE EXISTING STONES SHALL BE CHIPPED/SHAPED IN PLACE TO THE UTMOST EXTENT POSSIBLE TO ACHIEVE THE DESIRED REMOVAL LIMIT NECESSARY. ANY REMOVAL/DISTURBANCE/REPLACEMENT OF EXISTING STONES SHALL BE MINIMIZED AS MUCH AS POSSIBLE TO RE-BUILD THE WALL TO THE BOTTOM OF THE BEARING PAD UNDER THE MOMENT SLAB/PARAPET SYSTEM. THE SHAPED AND RE-BUILT PORTION OF THE WALL SHALL BE RELATIVELY FLAT AND TO THE PROPOSED GRADES AS REQUIRED BY THE CONTRACT DOCUMENTS TO ACCEPT PLACEMENT OF THE BEARING PADS AND PROPOSED MOMENT SLAB/PARAPET SYSTEM. PAYMENT FOR RE-BUILDING THE EXISTING STONES AND ASSOCIATED CHIPPING/SHAPING WILL BE MADE UNDER ITEM 610001 - STONE MASONRY.

AB

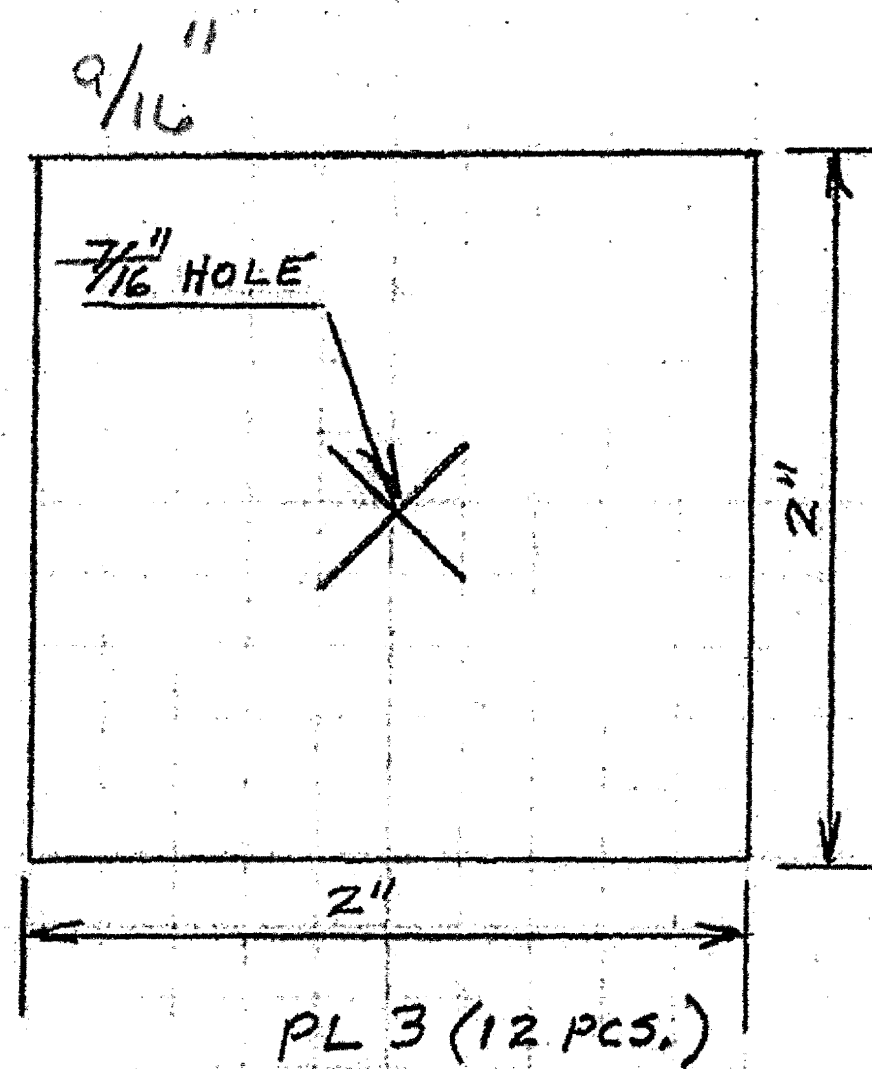
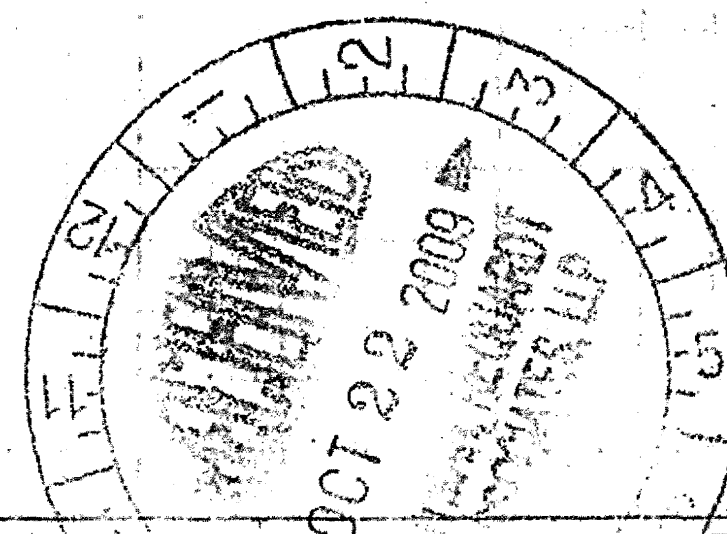
23A

SHT. 2 OF 2
FENCE
REPLACEMENT

CONTRACTOR SHALL FIELD VERIFY
DIMENSIONS SHOWN PRIOR TO
FABRICATION OF PLATE. THE
ANGLE BREAK UTILIZED DOES
NOT APPEAR TO BE CONSISTENT
WITH THE CONTRACT DOCUMENTS
AND RECENT SURVEY INFORMATION.

6" X 3/8" X LENGTH
AS SHOWN

PLAN
PL 2 (1 PC.)



7/16" X 4" SLOT

9/16"

6" (TYP.)

1" (TYP.)

9"

9 1/8"

6 1/2"

6 1/2"

5"

5"

10" CONCRETE WALL

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

Δ SHEET DELETED	S.N. 11/05/08
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NOTES:

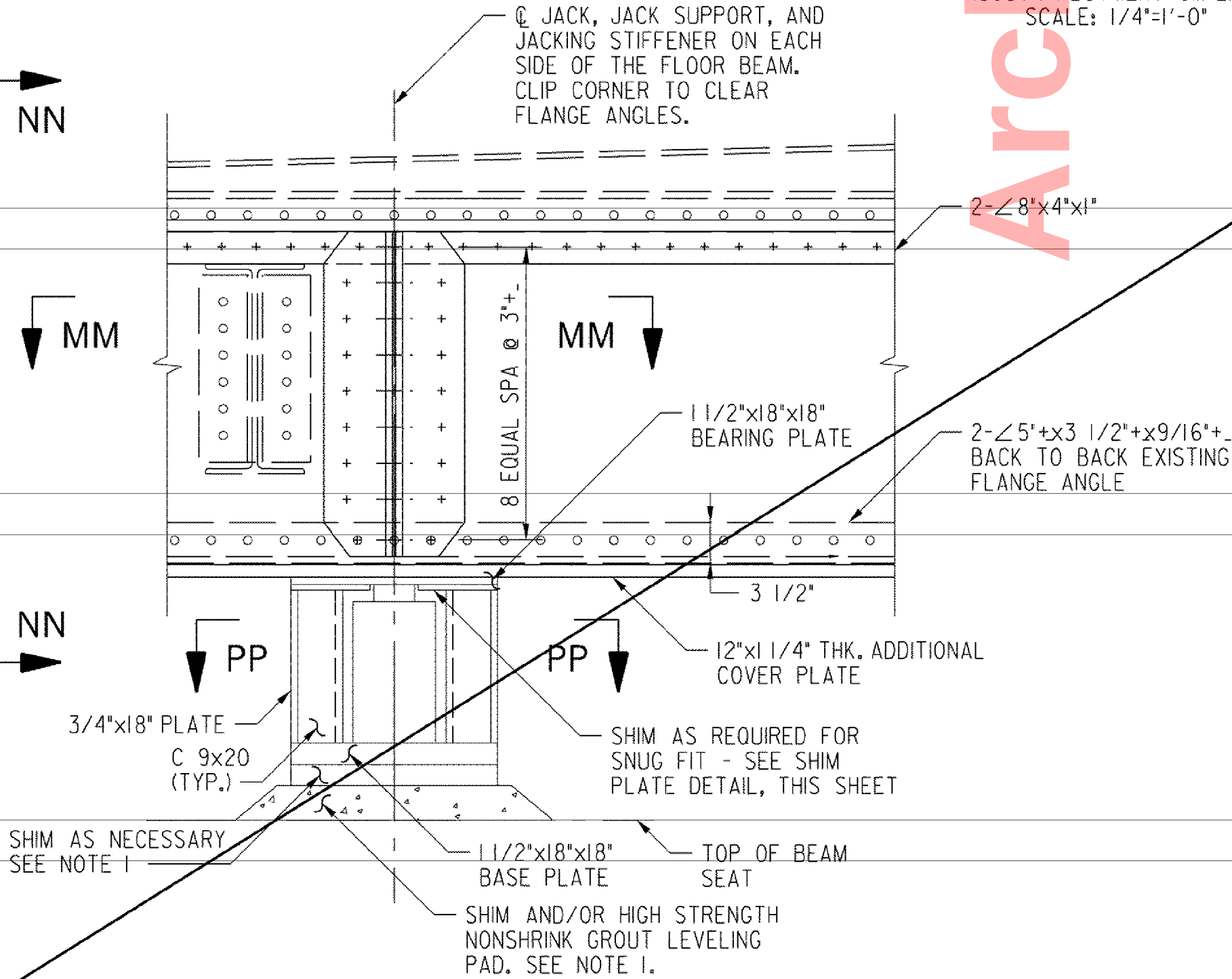
- STEEL SHIM PLATE AND/OR GROUT LEVELING PAD SHALL BE AS REQUIRED BY SITE CONDITIONS TO PROVIDE FULL CONTACT BEARING FOR JACK MASONRY PLATE AND AS RECOMMENDED BY JACK MANUFACTURER. GROUT MAY BE LEFT IN PLACE.
- JACK SHALL BE CENTERED UNDER THE FLOOR BEAM WEB AND JACKING STIFFENERS.
- ALL MATERIAL TO BE ASTM A709 GRADE 36.
- THE JACK SHALL NOT BE USED TO SUPPORT LOAD DURING BEARING REPAIRS, THE LOAD SHALL BE SUPPORTED BY THE JACK SUPPORT.
- THE CONTRACTOR HAS THE OPTION OF SUBMITTING ANOTHER METHOD OF JACKING TO THE ENGINEER FOR APPROVAL. THE DESIGN SHALL BE DONE BY A PROFESSIONAL ENGINEER EXPERIENCED IN JACKING OPERATIONS AND SHALL BE REGISTERED IN THE STATE OF DELAWARE.
- EXISTING 1" DIA. ROD AND 1" DIA. RIVETS MAY NEED TO BE REMOVED AT THE NORTH ABUTMENT EXPANSION BEARINGS TO ALLOW FOR THE STRUCTURE TO BE RAISED. SIMILARLY THE EXISTING 1" DIA. BOLT MAY NEED TO BE REMOVED AT THE SOUTH ABUTMENT FIXED BEARINGS TO ALLOW FOR THE STRUCTURE TO BE RAISED.
- TRUSS SHALL BE JACKED NO MORE THAN 1/8" OR JUST ENOUGH TO TAKE THE LOAD OFF THE EXISTING BEARING.
- JACKING SHALL BE DONE UNDER DEAD LOAD ONLY.
- JACKING OPERATIONS AT EACH FLOOR BEAM SHALL BE COMPLETED SIMULTANEOUSLY. ONLY ONE FLOOR BEAM SHALL BE JACKED AT A TIME.
- THE CONTRACTOR SHALL VERIFY AVAILABLE CLEARANCES FOR JACK, AND SUPPORT ASSEMBLY PRIOR TO ORDERING MATERIALS AND THE COMMENCEMENT OF THE JACKING OPERATION.
- PAYMENT FOR JACKING ASSEMBLY AND JACKING OF BRIDGE WILL BE MADE UNDER ITEM 605607-JACKING BRIDGE.
- JACK SHALL HAVE A MINIMUM SAFE CAPACITY OF 100 TONS. DIMENSIONS FOR JACK SUPPORT ASSEMBLY ARE BASED ON A ENERPAC RSM-1000, 100 TON CAPACITY JACK.
- 3/4" DIAMETER RIVETS CONNECTING FLOOR BEAM CONNECTION ANGLES TO GUSSET PLATE AND FLOOR BEAM SHALL BE REPLACED WITH TEMPORARY 3/4" DIAMETER HIGH STRENGTH A-490 BOLTS PRIOR TO JACKING BRIDGE. FOR FURTHER DETAILS, SEE SHEET NO. 25, 26 AND 29.
- Q JACK, JACK SUPPORT AND THE JACKING STIFFENER ON EACH SIDE OF THE FLOOR BEAM SHALL BE LOCATED 4'-0" FROM THE C OF THE TRUSS OR AT THE C OF THE EXISTING RIVET, WHICHEVER CONTROLS, IN ORDER TO REPLACE THE EXISTING 3/4" RIVETS WITH PROPOSED 7/8" DIA. HIGH STRENGTH BOLTS.

JACKING FORCE TABLE

LOCATION	DEAD LOAD (POUNDS)	MAXIMUM JACKING FORCE (POUNDS)
SOUTH ABUTMENT	165,000	165,000
-	-	-
NORTH ABUTMENT	165,000	165,000
-	-	-

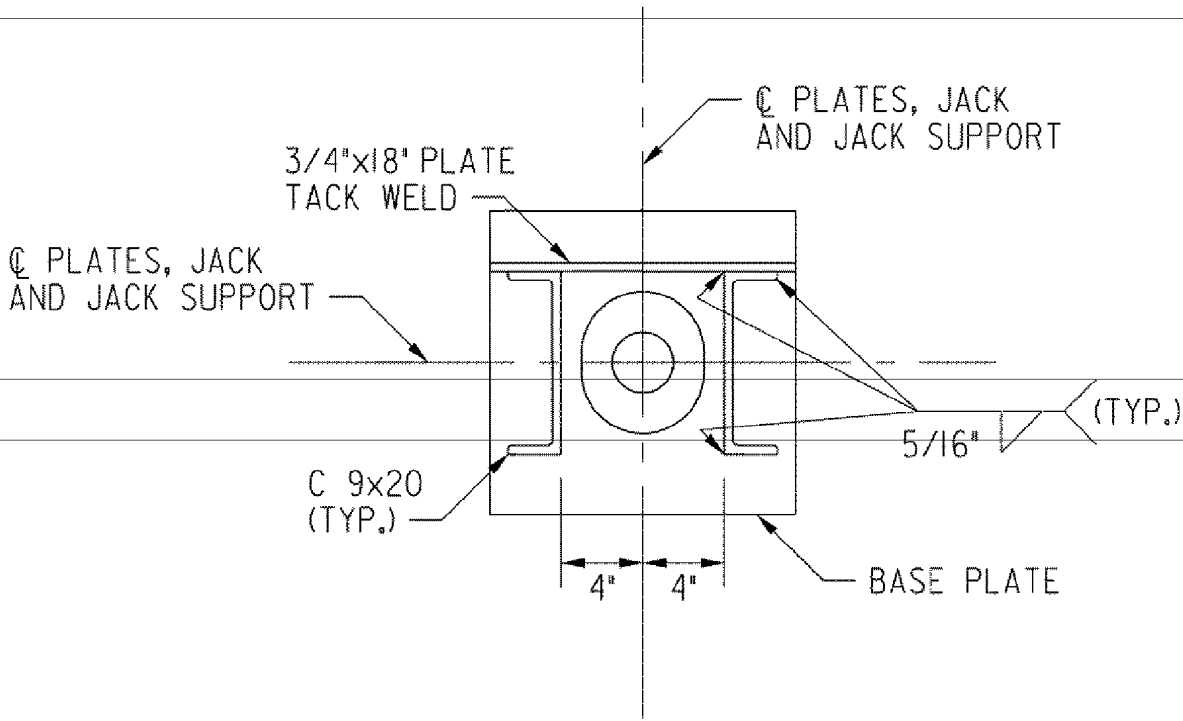
PROPOSED JACKING SCHEME ELEVATION
NORTH ABUTMENT

(SOUTH ABUTMENT SIMILAR)
SCALE: 1/4"=1'-0"



JACK SUPPORT ELEVATION

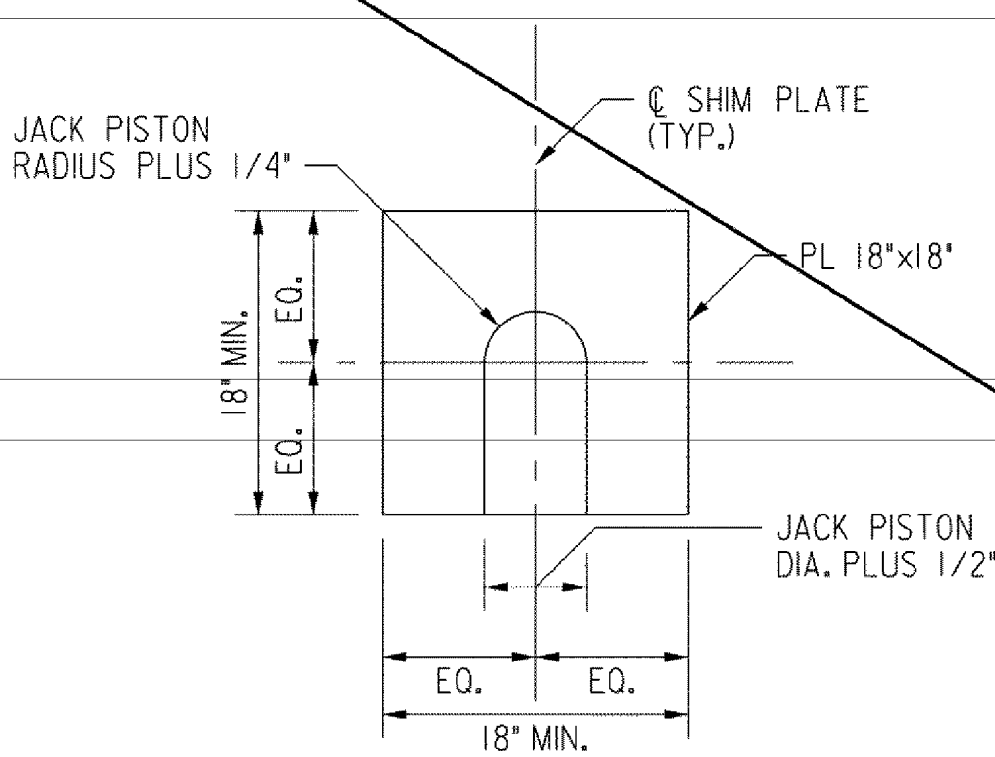
SCALE: 1/2"=1'-0"



SECTION PP-PP

NOTE:

THE LENGTH OF THE CHANNELS AND THE 3/4" PLATE ARE TO BE CUSTOM FIT TO THE JACK BEING USED.



SHIM PLATE DETAIL

NOTE:

THIS PLATE IS NOT WELDED TO THE JACK SUPPORT ASSEMBLY.

JACK SUPPORT DETAILS

SCALE: 1/2"=1'-0"

PREL. TRACING N.W. DESIGN S.N. CHKD.

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(1)	24A	33

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

NEW SHEET	S.N. 11/05/08

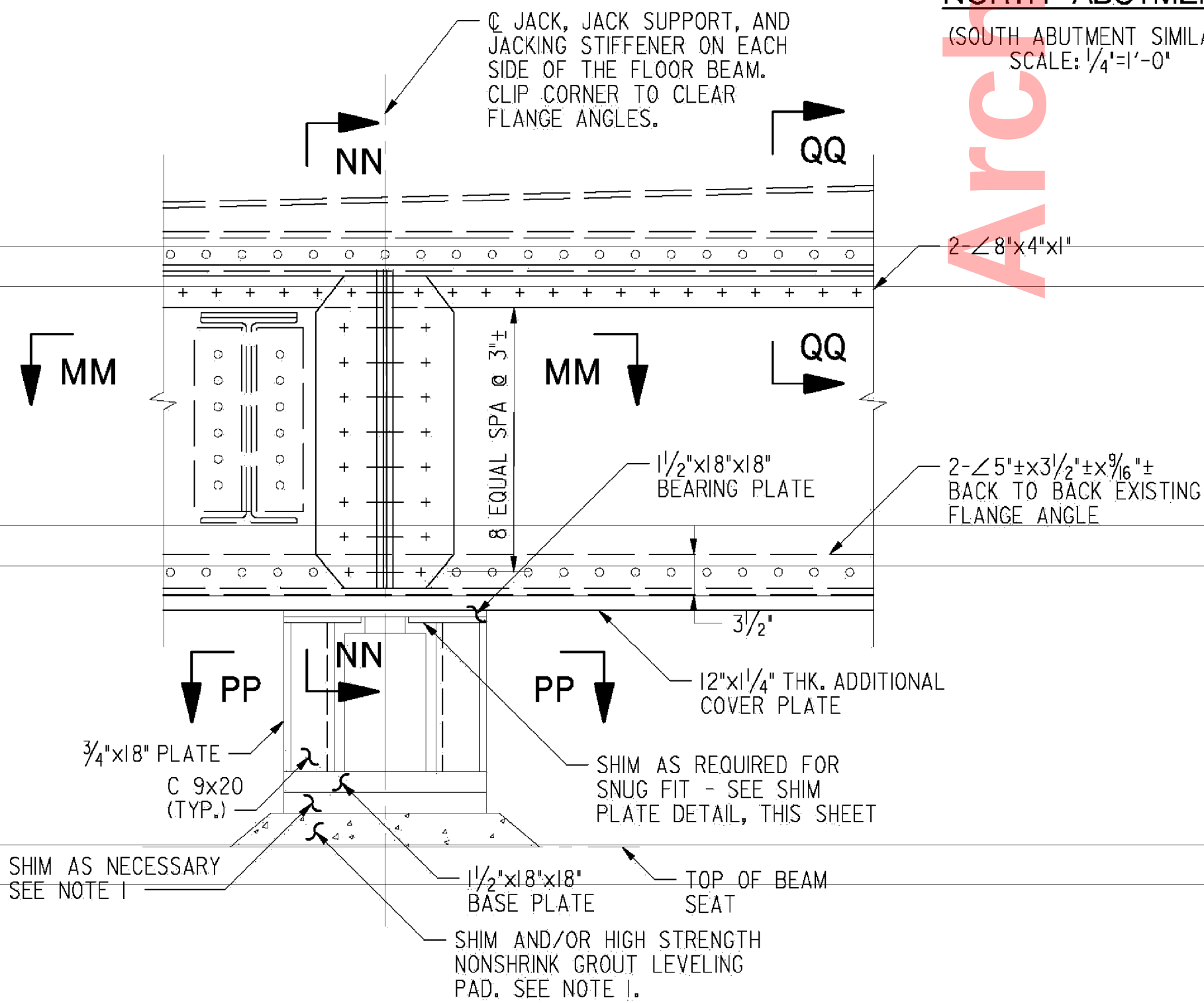
NOTES:

- STEEL SHIM PLATE AND/OR GROUT LEVELING PAD SHALL BE AS REQUIRED BY SITE CONDITIONS TO PROVIDE FULL CONTACT BEARING FOR JACK MASONRY PLATE AND AS RECOMMENDED BY JACK MANUFACTURER. GROUT MAY BE LEFT IN PLACE.
- JACK SHALL BE CENTERED UNDER THE FLOOR BEAM WEB AND JACKING STIFFENERS.
- ALL MATERIAL TO BE ASTM A709 GRADE 36.
- THE JACK SHALL NOT BE USED TO SUPPORT LOAD DURING BEARING REPAIRS. THE LOAD SHALL BE SUPPORTED BY THE JACK SUPPORT.
- THE CONTRACTOR HAS THE OPTION OF SUBMITTING ANOTHER METHOD OF JACKING TO THE ENGINEER FOR APPROVAL. THE DESIGN SHALL BE DONE BY A PROFESSIONAL ENGINEER EXPERIENCED IN JACKING OPERATIONS AND SHALL BE REGISTERED IN THE STATE OF DELAWARE.
- EXISTING 1" DIA. ROD AND 1" DIA. RIVETS MAY NEED TO BE REMOVED AT THE NORTH ABUTMENT EXPANSION BEARINGS TO ALLOW FOR THE STRUCTURE TO BE RAISED. SIMILARLY THE EXISTING 1" DIA. BOLT MAY NEED TO BE REMOVED AT THE SOUTH ABUTMENT FIXED BEARINGS TO ALLOW FOR THE STRUCTURE TO BE RAISED.
- TRUSS SHALL BE JACKED NO MORE THAN 1/8" OR JUST ENOUGH TO TAKE THE LOAD OFF THE EXISTING BEARING.
- JACKING SHALL BE DONE UNDER DEAD LOAD ONLY.
- JACKING OPERATIONS AT EACH FLOOR BEAM SHALL BE COMPLETED SIMULTANEOUSLY. ONLY ONE FLOOR BEAM SHALL BE JACKED AT A TIME.
- THE CONTRACTOR SHALL VERIFY AVAILABLE CLEARANCES FOR JACK, AND SUPPORT ASSEMBLY PRIOR TO ORDERING MATERIALS AND THE COMMENCEMENT OF THE JACKING OPERATION.
- PAYMENT FOR JACKING ASSEMBLY AND JACKING OF BRIDGE WILL BE MADE UNDER ITEM 605607-JACKING BRIDGE.
- JACK SHALL HAVE A MINIMUM SAFE CAPACITY OF 100 TONS. DIMENSIONS FOR JACK SUPPORT ASSEMBLY ARE BASED ON A ENERPAC RSM-1000, 100 TON CAPACITY JACK.
- 3/4" DIAMETER RIVETS CONNECTING FLOOR BEAM CONNECTION ANGLES TO GUSSET PLATE AND FLOOR BEAM SHALL BE REPLACED WITH TEMPORARY 3/4" DIAMETER HIGH STRENGTH A-490 BOLTS PRIOR TO JACKING BRIDGE. FOR FURTHER DETAILS, SEE SHEET NO. 25, 26 AND 29.
- Q JACK, JACK SUPPORT AND THE JACKING STIFFENER ON EACH SIDE OF THE FLOOR BEAM SHALL BE LOCATED 4'-0" FROM THE Q OF THE TRUSS OR AT THE Q OF THE EXISTING RIVET, WHICHEVER CONTROLS, IN ORDER TO REPLACE THE EXISTING 3/4" RIVETS WITH PROPOSED 1/2" DIA. HIGH STRENGTH BOLTS.

JACKING FORCE TABLE		
LOCATION	DEAD LOAD (POUNDS)	MAXIMUM JACKING FORCE (POUNDS)
SOUTH ABUTMENT	165,000	165,000
-	-	-
NORTH ABUTMENT	165,000	165,000
-	-	-

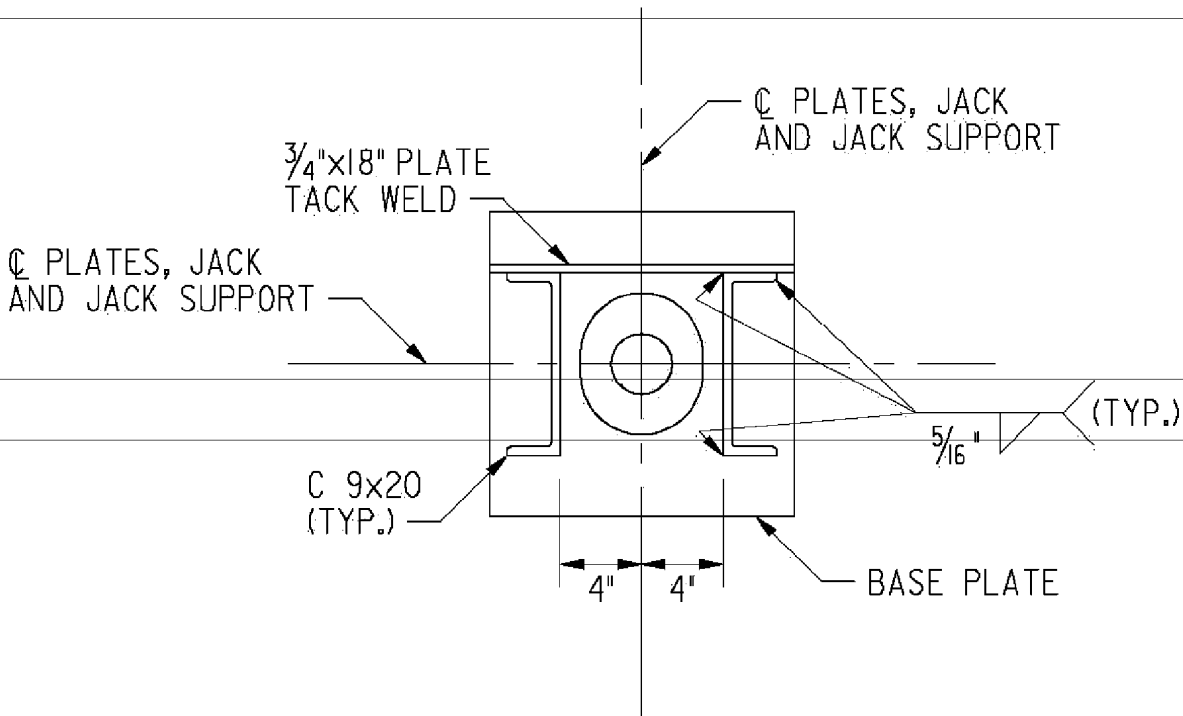
PROPOSED JACKING SCHEME ELEVATION
NORTH ABUTMENT

(SOUTH ABUTMENT SIMILAR)
SCALE: 1/4"=1'-0"



JACK SUPPORT ELEVATION

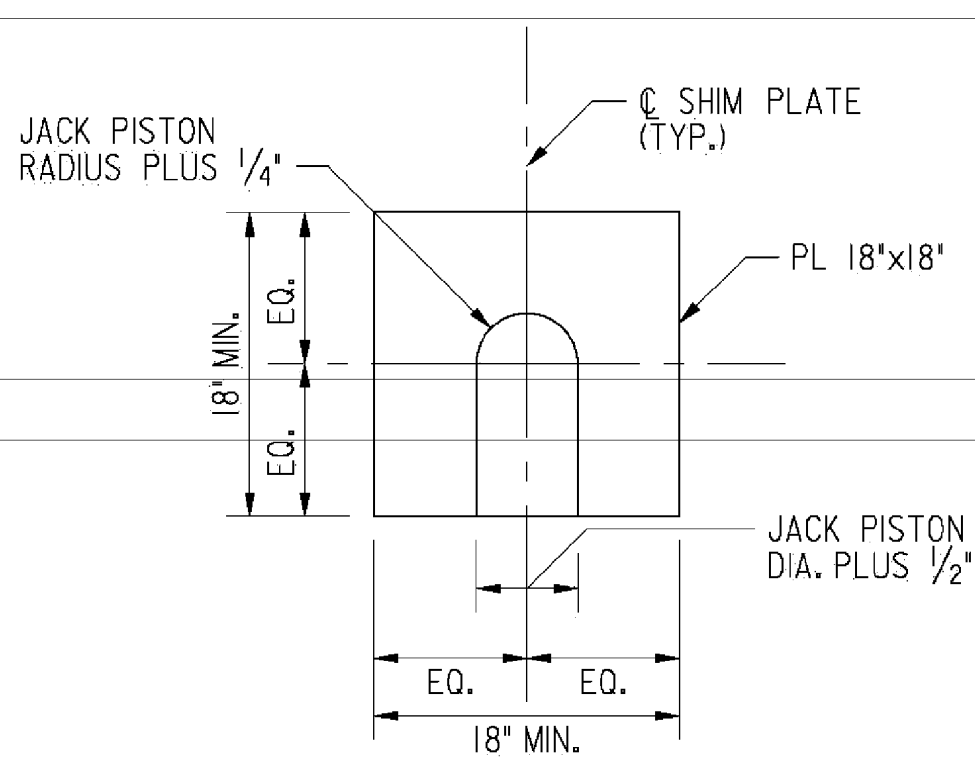
SCALE: 1/2"=1'-0"



SECTION PP-PP

NOTE:

THE LENGTH OF THE CHANNELS AND THE 3/4" PLATE ARE TO BE CUSTOM FIT TO THE JACK BEING USED.



SHIM PLATE DETAIL

NOTE:

THIS PLATE IS NOT WELDED TO THE JACK SUPPORT ASSEMBLY.

JACK SUPPORT DETAILS

SCALE: 1/2"=1'-0"

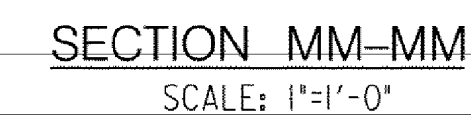
REFERENCE NOTES:

- FOR BEARING REMOVAL SEQUENCE, SEE SHEET NO. 26 AND 29.
- FOR BEARING REPLACEMENT SEQUENCE, SEE SHEET NO. 27, 28 AND 30 THRU 32.
- FOR SECTION MM-MM, NN-NN, QQ-QQ AND DETAIL H, SEE SHEET NO. 25.

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(1)	25	83

REVISIONS

2 SHEET DELETED	S.N. 11/05/08

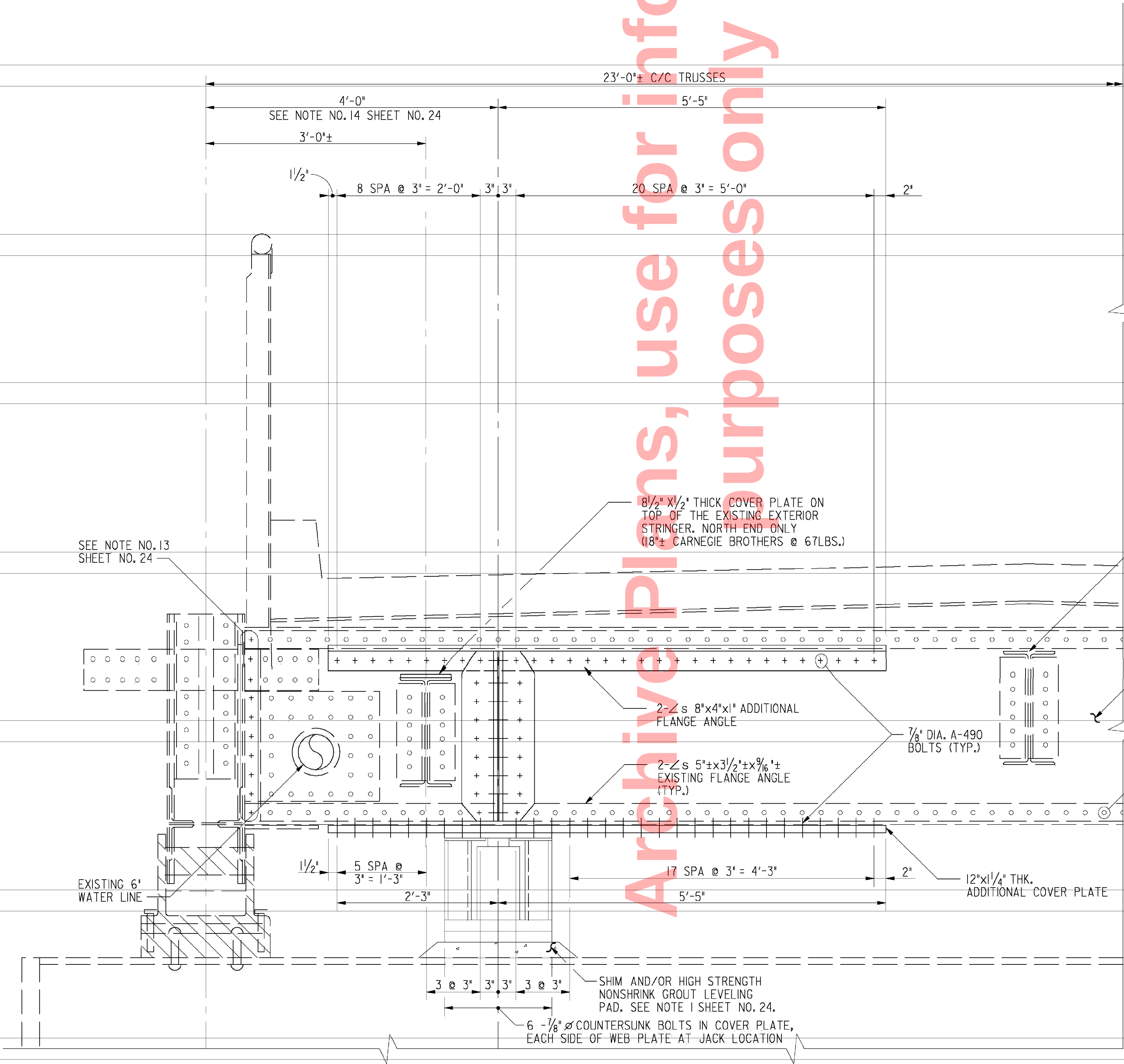


1. FOR BEARING REMOVAL SEQUENCE, SEE SHEET NO. 26 AND 29.
2. FOR BEARING REPLACEMENT SEQUENCE, SEE SHEET NO. 27, 28 AND 30 THRU 32.
3. FOR LOCATION OF SECTION A-A, B-B AND DETAIL A, SEE SHEET NO. 24.

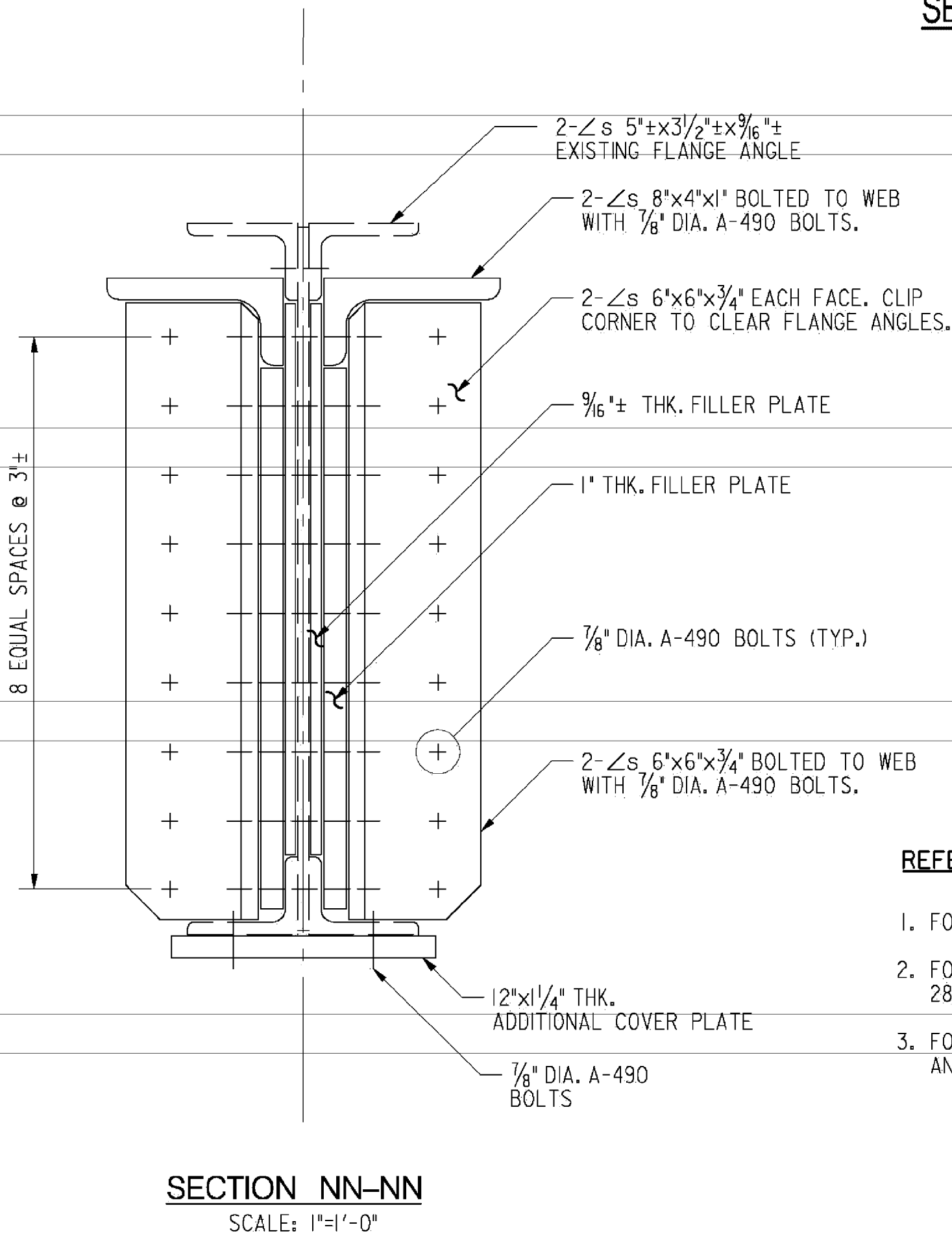
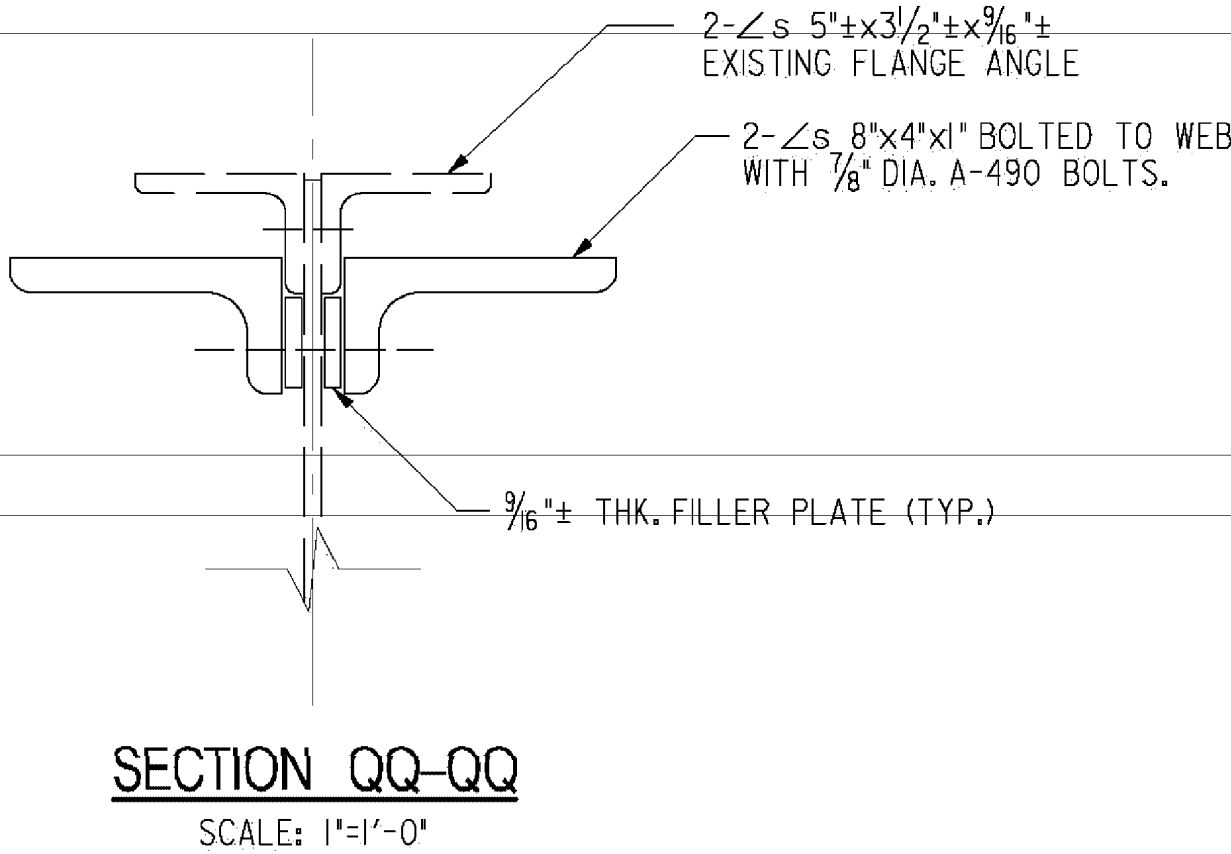
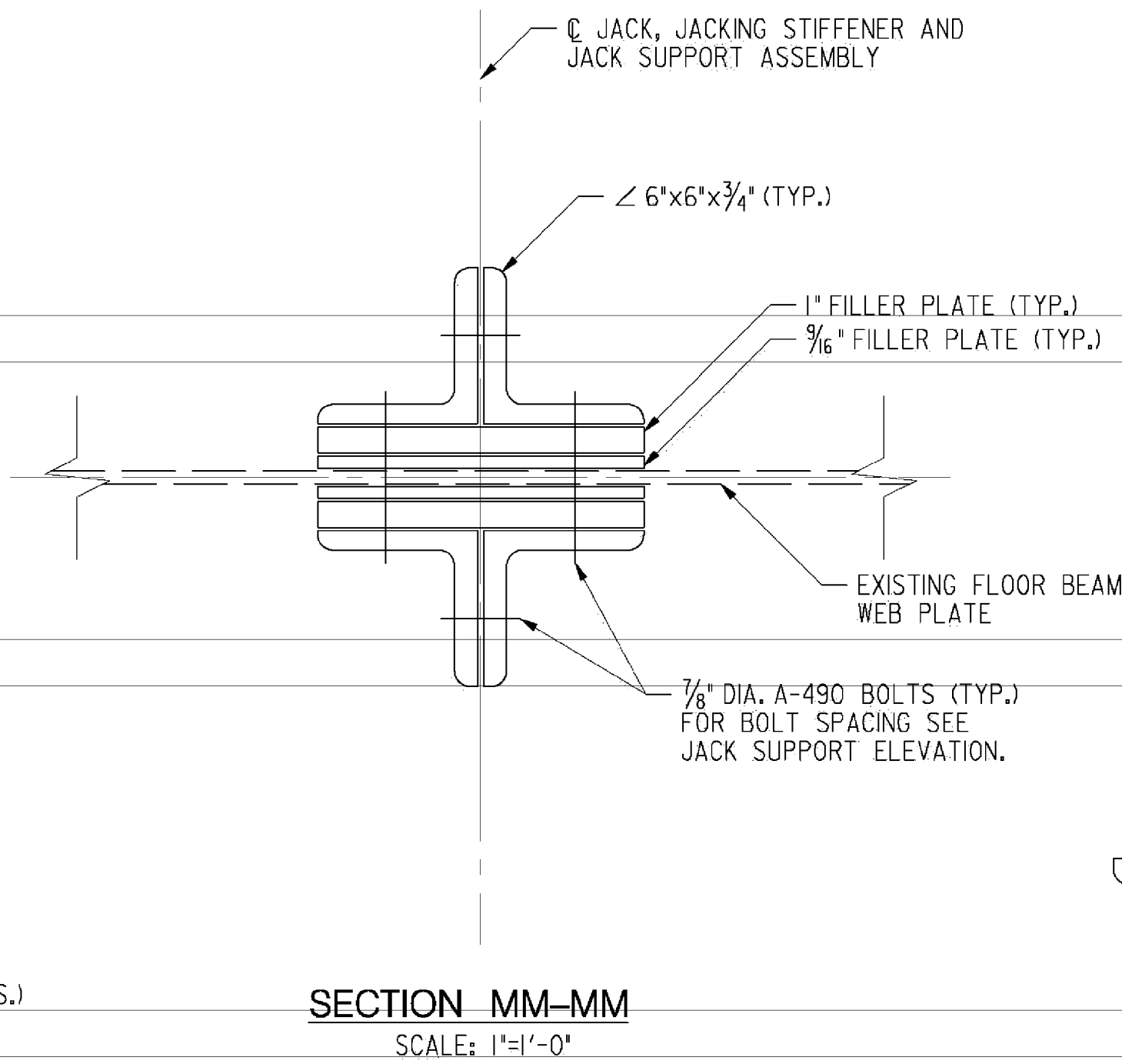
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

NEW SHEET	S.N. 11/05/08



DETAIL H
SCALE: 1/2"=1'-0"



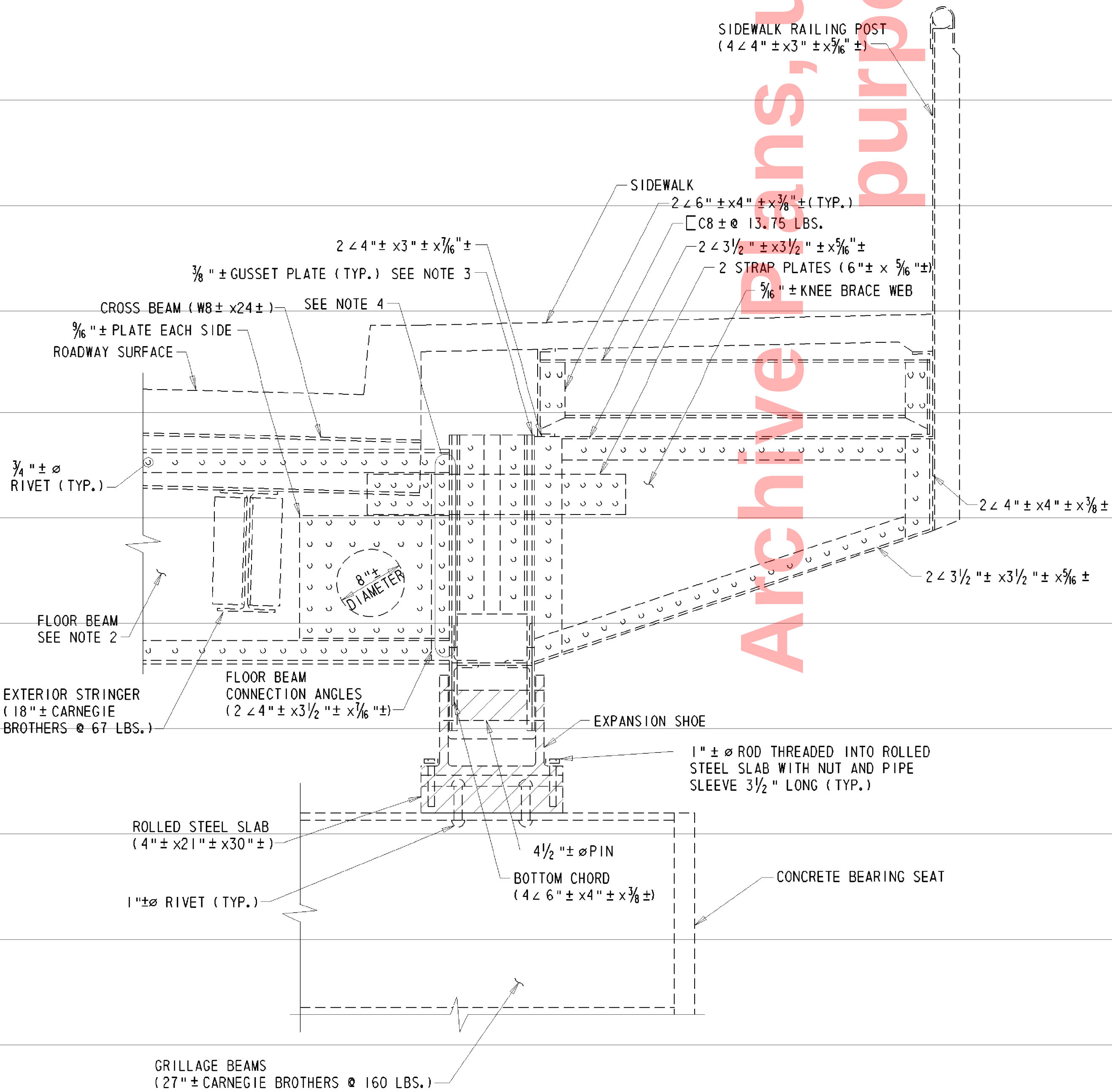
REFERENCE NOTES:

- FOR BEARING REMOVAL SEQUENCE, SEE SHEET NO.26 AND 29.
- FOR BEARING REPLACEMENT SEQUENCE, SEE SHEET NO.27, 28 AND 30 THRU 32.
- FOR LOCATION OF SECTION A-A, B-B, MM-MM, NN-NN, QQ-QQ AND DETAIL H, SEE SHEET NO. 24.

PREL. TRACING K.P.L./K.W.F. DESIGN B.K.B./S.E.B. CHKD. J.A.G.

NOTES:

1. PAYMENT FOR THE REMOVAL OF EXISTING BEARINGS WILL BE INCIDENTAL TO ITEM 605607 - JACKING BRIDGE.
2. FLOOR BEAM WEB $32" \pm \times \frac{7}{16}" \pm$ PLATE
FLOOR BEAM FLANGES $2 \angle 5" \pm \times 3\frac{1}{2}" \pm \times \frac{5}{16}" \pm$
3. $\frac{3}{4}" \pm$ PIN PLATE IS LOCATED ON THE INSIDE FACE OF BOTH GUSSET PLATES.
4. $\frac{3}{4}" \pm$ DIAMETER RIVETS CONNECTING FLOOR BEAM CONNECTION ANGLES TO GUSSET PLATE AND FLOOR BEAM WEB SHALL BE REPLACED WITH TEMPORARY $\frac{3}{4}"$ DIAMETER A 490 BOLTS PRIOR TO JACKING BRIDGE (APPROXIMATELY 30 AT EACH BEARING LOCATION). THE TEMPORARY $\frac{3}{4}"$ DIAMETER A 490 BOLTS SHALL BE REMOVED AND REPLACED WITH $\frac{3}{4}"$ DIAMETER TENSION CONTROL BOLTS AFTER ALL BEARINGS HAVE BEEN REPLACED. PAYMENT FOR REMOVAL OF EXISTING RIVETS AND INSTALLATION OF TEMPORARY $\frac{3}{4}"$ DIAMETER A 490 BOLTS AND $\frac{3}{4}"$ DIAMETER TENSION CONTROL BOLTS WILL BE INCIDENTAL TO ITEM 605607 - JACKING BRIDGE.



BEARING SEAT - ELEVATION

SCALE: 1"= 1'-0"

EXPANSION BEARING DETAILS - I
(EXISTING AT NORTH ABUTMENT)

BR. 1 001 279

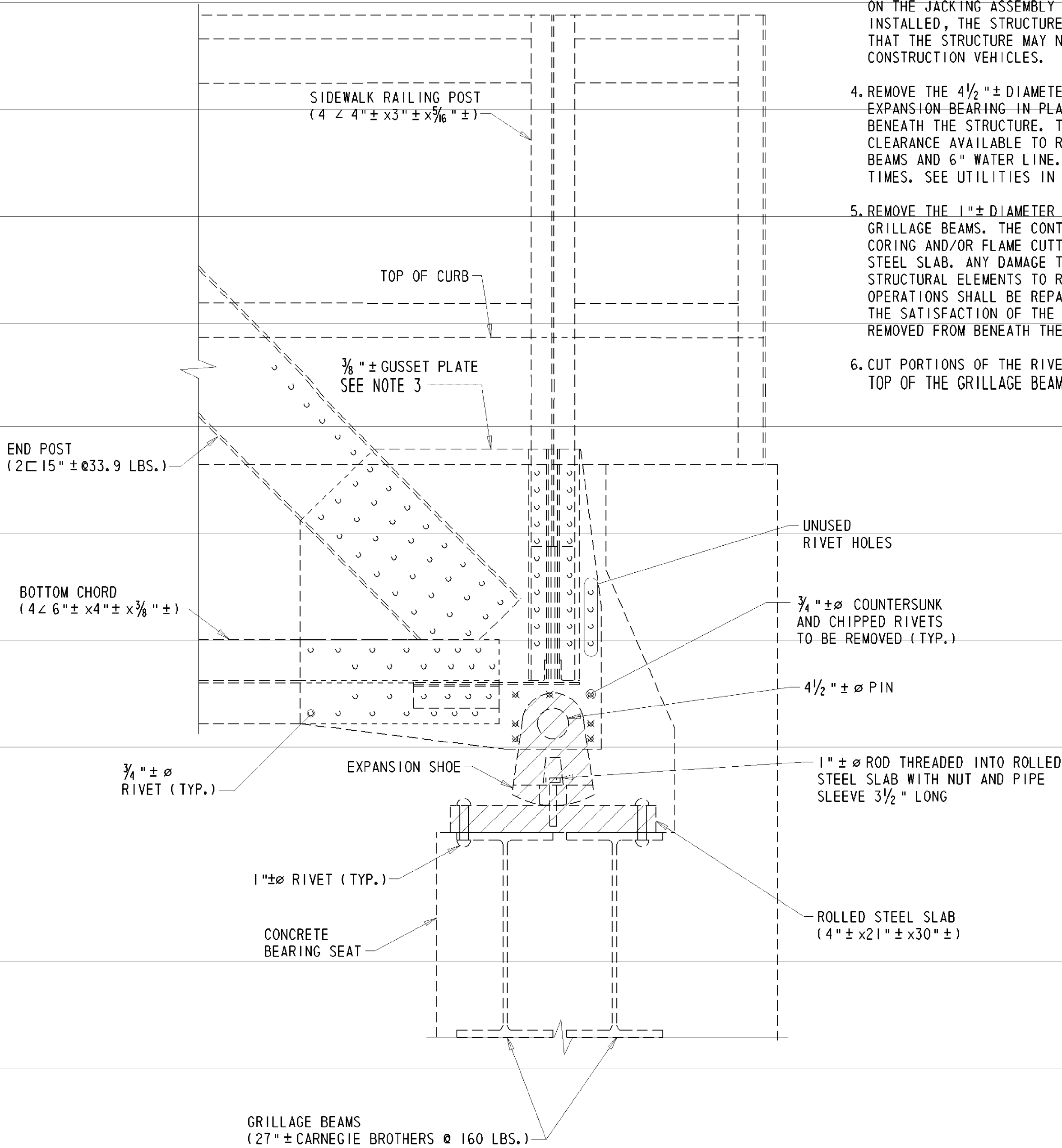
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	26	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

SUGGESTED BEARING REMOVAL SEQUENCE:

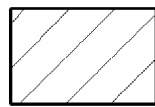
1. PAYMENT FOR THIS WORK WILL BE INCIDENTAL TO ITEM 605607 - JACKING BRIDGE.
2. REMOVE $\frac{3}{4}" \pm$ COUNTERSUNK AND CHIPPED RIVETS WITHIN THE GUSSET PLATE AND PIN PLATE SURROUNDING THE $4\frac{1}{2}" \pm$ DIAMETER PIN AND INSTALL TEMPORARY $\frac{3}{4}"$ DIAMETER A 325 BOLTS IN HOLES.
3. INSTALL JACKING ASSEMBLY IN ACCORDANCE WITH THE NOTES AND DETAILS AS SHOWN ON THE JACKING ASSEMBLY DETAIL SHEETS. ONCE THE JACKING ASSEMBLY IS INSTALLED, THE STRUCTURE SHALL BE JACKED AND TEMPORARILY SUPPORTED. NOTE THAT THE STRUCTURE MAY NOT BE JACKED UNDER TRAFFIC OF ANY KIND INCLUDING CONSTRUCTION VEHICLES.
4. REMOVE THE $4\frac{1}{2}" \pm$ DIAMETER PIN AND 1" $\pm$ DIAMETER ROD (THREADED) HOLDING THE EXPANSION BEARING IN PLACE. THE EXPANSION SHOE CAN THEN BE REMOVED FROM BENEATH THE STRUCTURE. THE CONTRACTOR IS HEREBY NOTIFIED THAT THE OVERHEAD CLEARANCE AVAILABLE TO REMOVE THE EXISTING BEARINGS IS LIMITED BY THE FLOOR BEAMS AND 6" WATER LINE. THE 6" WATER LINE SHALL REMAIN IN SERVICE AT ALL TIMES. SEE UTILITIES IN THE PROJECT NOTES.
5. REMOVE THE 1" $\pm$ DIAMETER RIVETS CONNECTING THE ROLLED STEEL SLAB TO THE GRILLAGE BEAMS. THE CONTRACTOR IS HEREBY NOTIFIED THAT EXTENSIVE STEEL CORING AND/OR FLAME CUTTING MAY BE NECESSARY FOR REMOVAL OF THE ROLLED STEEL SLAB. ANY DAMAGE TO THE FLOOR BEAM, GUSSET PLATES, OR ADJACENT STRUCTURAL ELEMENTS TO REMAIN RESULTING FROM THE CONTRACTOR'S REMOVAL OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT HIS SOLE COST AND TO THE SATISFACTION OF THE ENGINEER. THE ROLLED STEEL SLAB CAN THEN BE REMOVED FROM BENEATH THE STRUCTURE.
6. CUT PORTIONS OF THE RIVETS TO REMAIN IN THE GRILLAGE BEAMS LEVEL WITH THE TOP OF THE GRILLAGE BEAM AND GRIND SMOOTH.



BEARING SEAT - SIDE VIEW

SCALE: 1"= 1'-0"

LEGEND

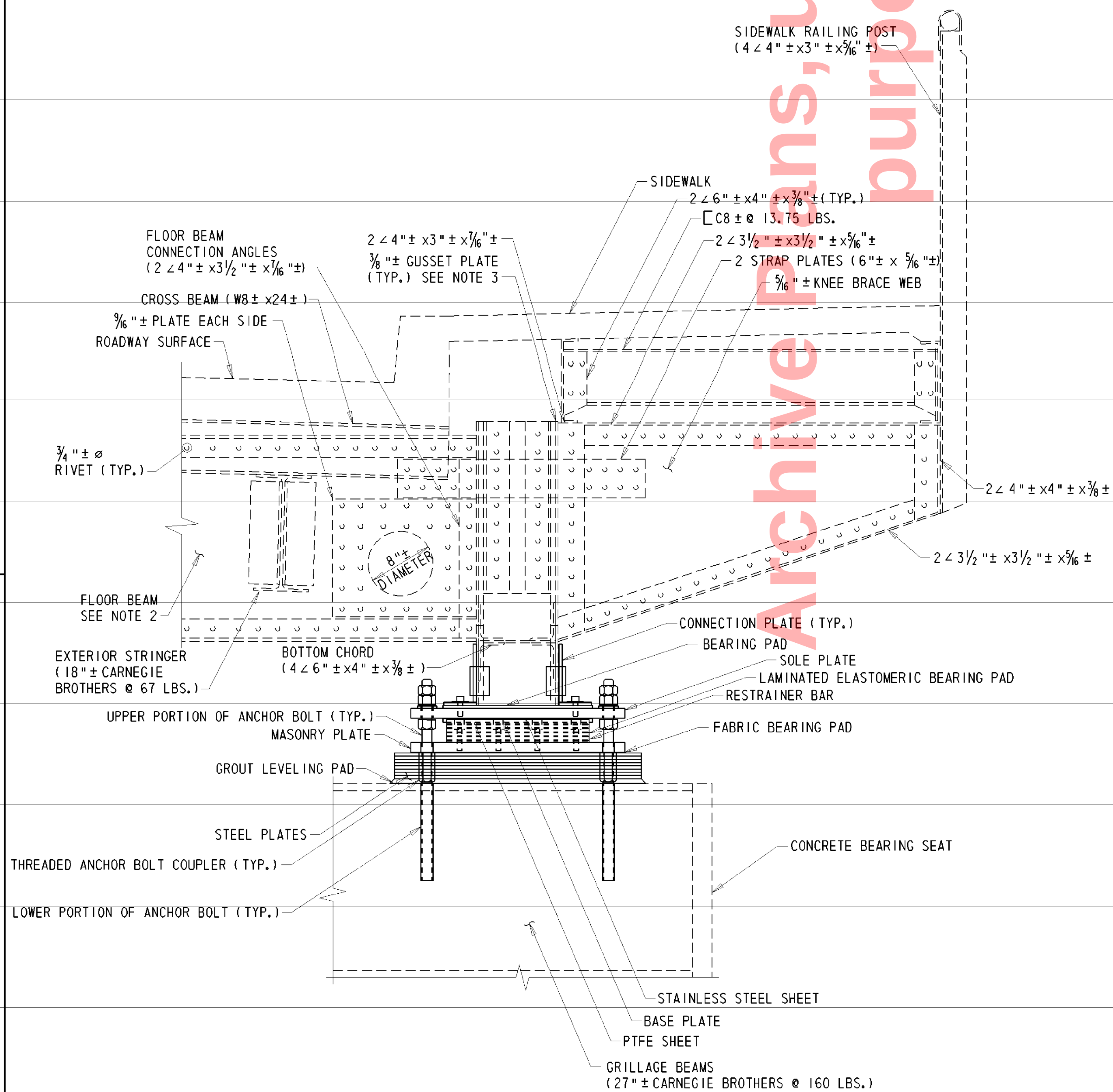


REMOVAL

PREL. TRACING
K.P.L./K.W.F. DESIGN
B.K.B./S.E.B. CHKD.
J.A.G.

NOTES:

- FOR NOTES AND ADDITIONAL EXPANSION BEARING DETAILS, SEE SHEET NOS. 28 AND 32.
- FLOOR BEAM WEB $32" \pm \times \frac{7}{16}" \pm$ PLATE
FLOOR BEAM FLANGES $2 \angle 5" \pm \times 3\frac{1}{2}" \pm \times \frac{5}{16}" \pm$
- $\frac{3}{4}" \pm$ PIN PLATE IS LOCATED ON THE INSIDE FACE OF BOTH GUSSET PLATES.



BEARING SEAT - ELEVATION

SCALE: 1"= 1'-0"

EXPANSION BEARING DETAILS - II
(PROPOSED AT NORTH ABUTMENT)

BR. 1 001 279

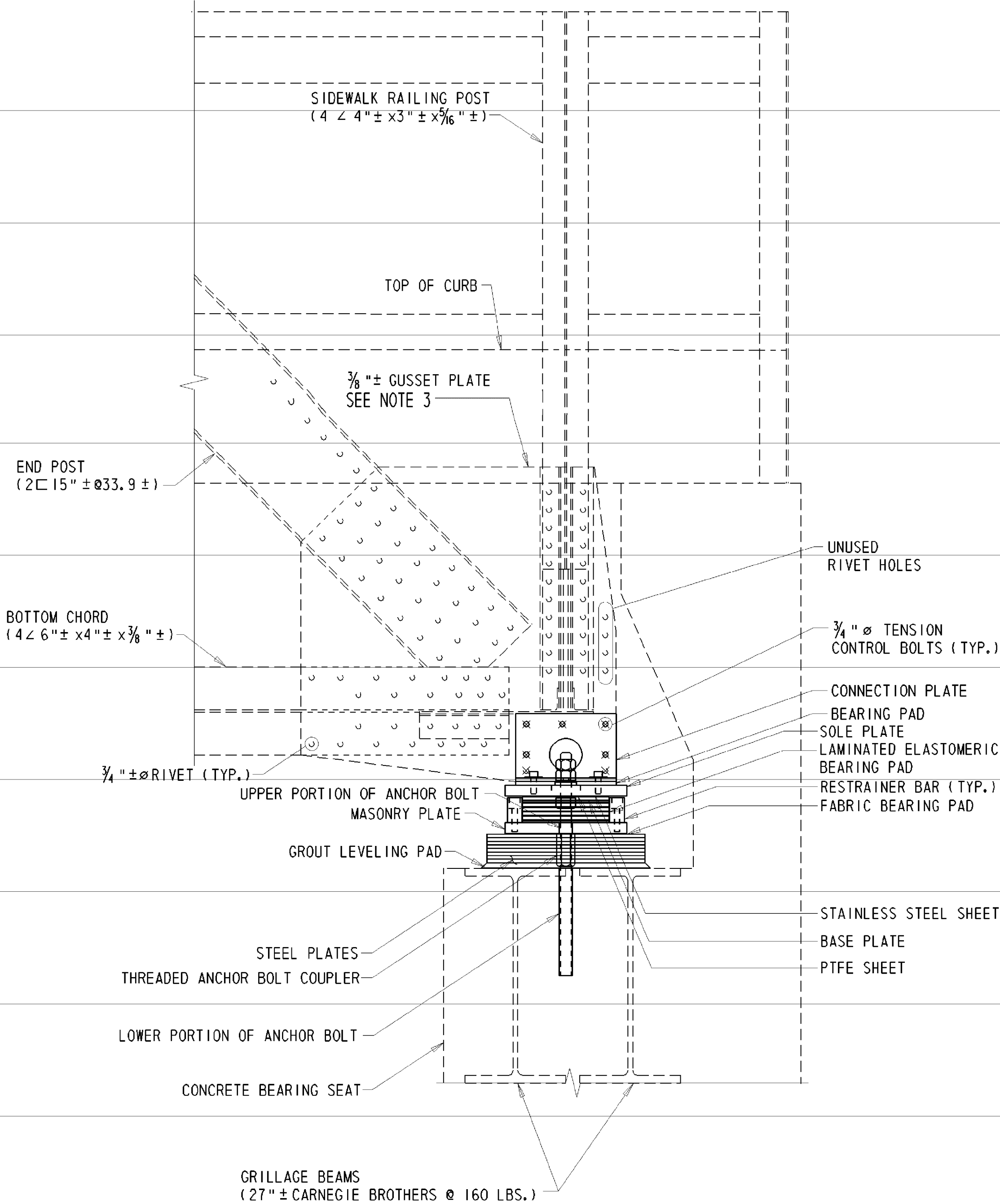
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	27	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

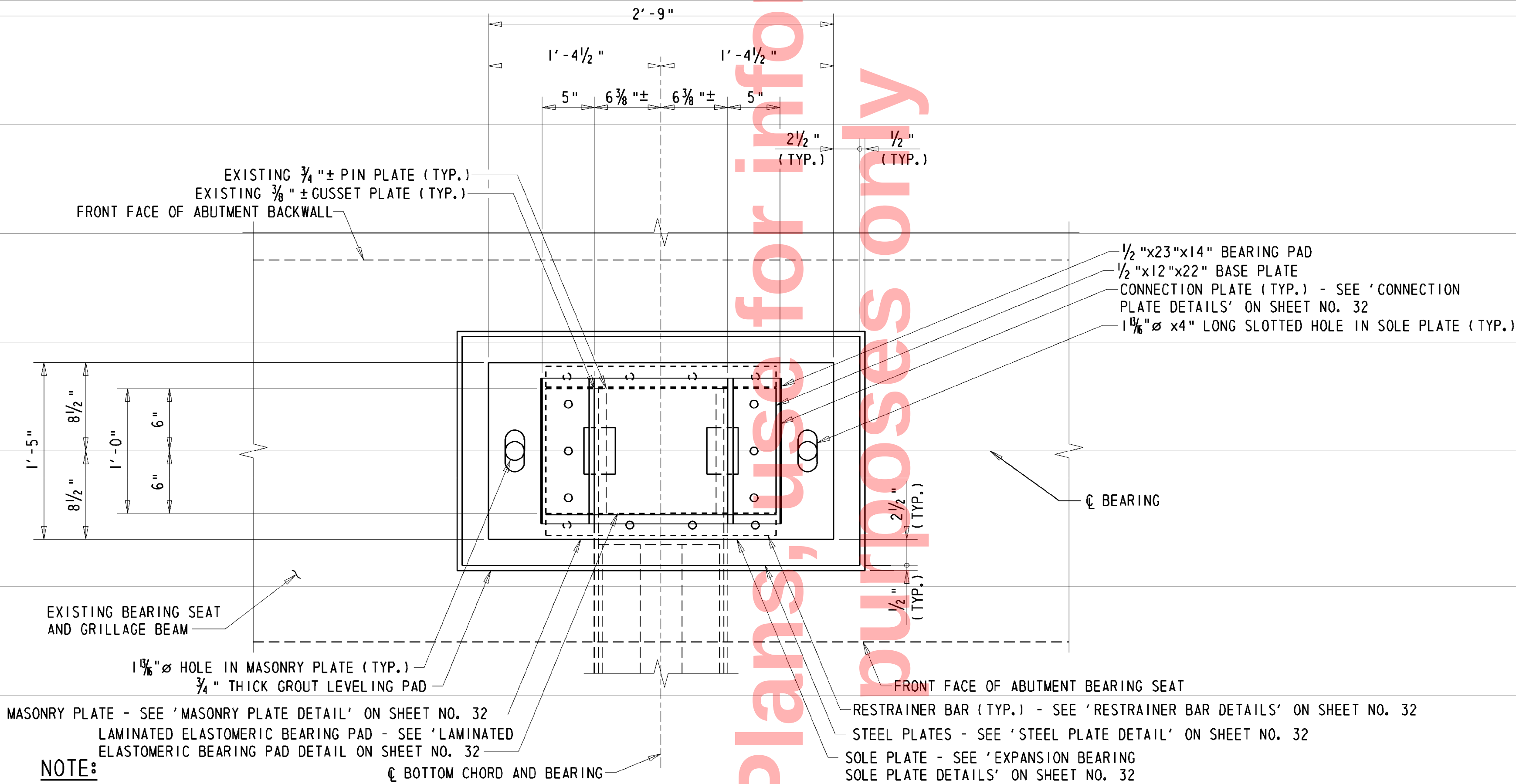
SUGGESTED BEARING REPLACEMENT SEQUENCE:

- THIS WORK WILL BE PAID FOR UNDER ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- LOCATE THE CENTERLINE OF BEARING AND LAYOUT THE LOCATIONS OF THE $\frac{1}{2}"$ DIAMETER SWEDGE ANCHOR BOLTS. CORE A MINIMUM 3" DIAMETER HOLE THROUGH THE EXISTING GRILLAGE BEAMS AND INTO THE EXISTING CONCRETE BEARING SEAT TO THE MINIMUM DEPTH SPECIFIED ON THE PLANS. THE CONTRACTOR IS HEREBY NOTIFIED THAT DUE TO THE MINIMAL OVERHEAD CLEARANCE IN THE WORK AREA THE REQUIRED ANCHOR BOLT HOLES MAY HAVE TO BE BUILT UP TO THE REQUIRED DIAMETER. IN ADDITION, THE BITS USED TO CORE THE HOLES MAY HAVE TO BE FIELD CUT TO FIT WITHIN THE MINIMAL OVERHEAD CLEARANCE. THE CONTRACTOR IS HEREBY NOTIFIED THAT THE SIZE AND LOCATION OF THE EXISTING REINFORCING STEEL LOCATED IN THE CONCRETE BEARING SEAT IS UNKNOWN. ADJUSTMENTS SHALL BE MADE AS NECESSARY TO INSTALL THE BEARING ASSEMBLY. COSTS ASSOCIATED WITH THE BUILD-UP OF ANCHOR BOLT HOLES AND/OR THE CUTTING OF NUMEROUS DRILL BITS AND/OR INSTALLATION ADJUSTMENTS SHALL BE INCIDENTAL TO ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- PLACE AND GROUT LOWER PORTION OF THE ANCHOR BOLT WITH THE THREADED ANCHOR BOLT COUPLER IN HOLES USING GRAVITY FED NONSHRINK GROUT.
- REMOVE THE TEMPORARY $\frac{3}{4}"$ A 325 BOLTS WITHIN THE GUSSET PLATE SURROUNDING THE EXISTING $\frac{1}{2}"$ DIAMETER PIN TO BE UTILIZED FOR THE PROPOSED CONNECTION PLATE.
- INSTALL THE CONNECTION PLATES TO THE EXISTING GUSSET PLATES AND EXISTING PIN PLATES USING $\frac{3}{4}"$ DIAMETER TENSION CONTROL BOLTS.
- PLACE GROUT LEVELING PAD AND THEN PLACE THE STEEL PLATES ON THE GROUT. TACK WELD THE STEEL PLATES INTO PLACE.
- PLACE THE $\frac{1}{8}"$ FABRIC BEARING PAD ON TOP OF THE STEEL PLATES.
- INSTALL THE FOLLOWING PORTIONS OF THE BEARING ASSEMBLY PREASSEMBLED, SOLE PLATE, STAINLESS STEEL SHEET, PTFE SHEET, BASE PLATE, LAMINATED ELASTOMERIC BEARING PAD, MASONRY PLATE WITH RESTRAINER BARS, UPPER PORTION OF THE ANCHOR BOLT AND THE LOWER JAM NUT.
- INSTALL THE $\frac{1}{2}"$ BEARING PAD BETWEEN THE CONNECTION PLATE AND SOLE PLATE.
- FASTEN THE SOLE PLATE TO THE CONNECTION PLATES USING $\frac{3}{4}"$ DIAMETER CAP SCREWS. CONTRACTOR SHALL ENSURE THE GUSSET PLATE AND PIN PLATE ARE BEARING ON THE $\frac{1}{2}"$ BEARING PAD.
- INSTALL THE HEX NUT AND THE UPPER JAM NUT ON THE ANCHOR BOLTS.
- IF NECESSARY, INSTALL STEEL SHIM PLATES BETWEEN MASONRY PLATE AND FABRIC BEARING PAD.
- REMOVE JACKS, LEAVING JACKING ASSEMBLY IN PLACE.



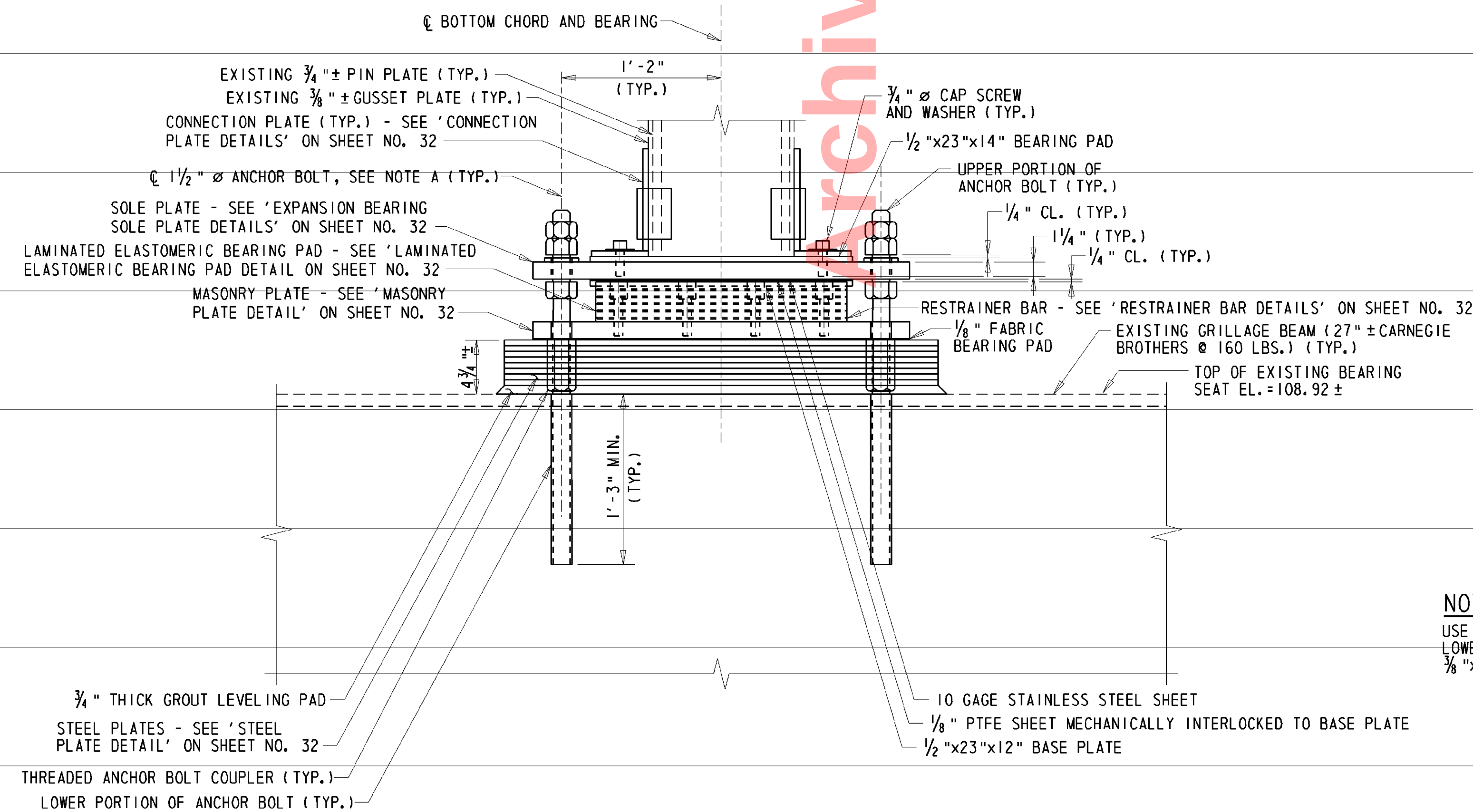
BEARING SEAT - SIDE VIEW

SCALE: 1"= 1'-0"



BEARING ASSEMBLY - PLAN

SCALE: 1 1/2" = 1'-0"



BEARING ASSEMBLY - ELEVATION

SCALE: 1 1/2" = 1'-0"

EXPANSION BEARING DETAILS - III (PROPOSED AT NORTH ABUTMENT)

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(II)	28	83

REHABILITATION OF BRIDGES 1 & 1A ON RISING SUN LANE OVER BRANDYWINE CREEK

REVISIONS

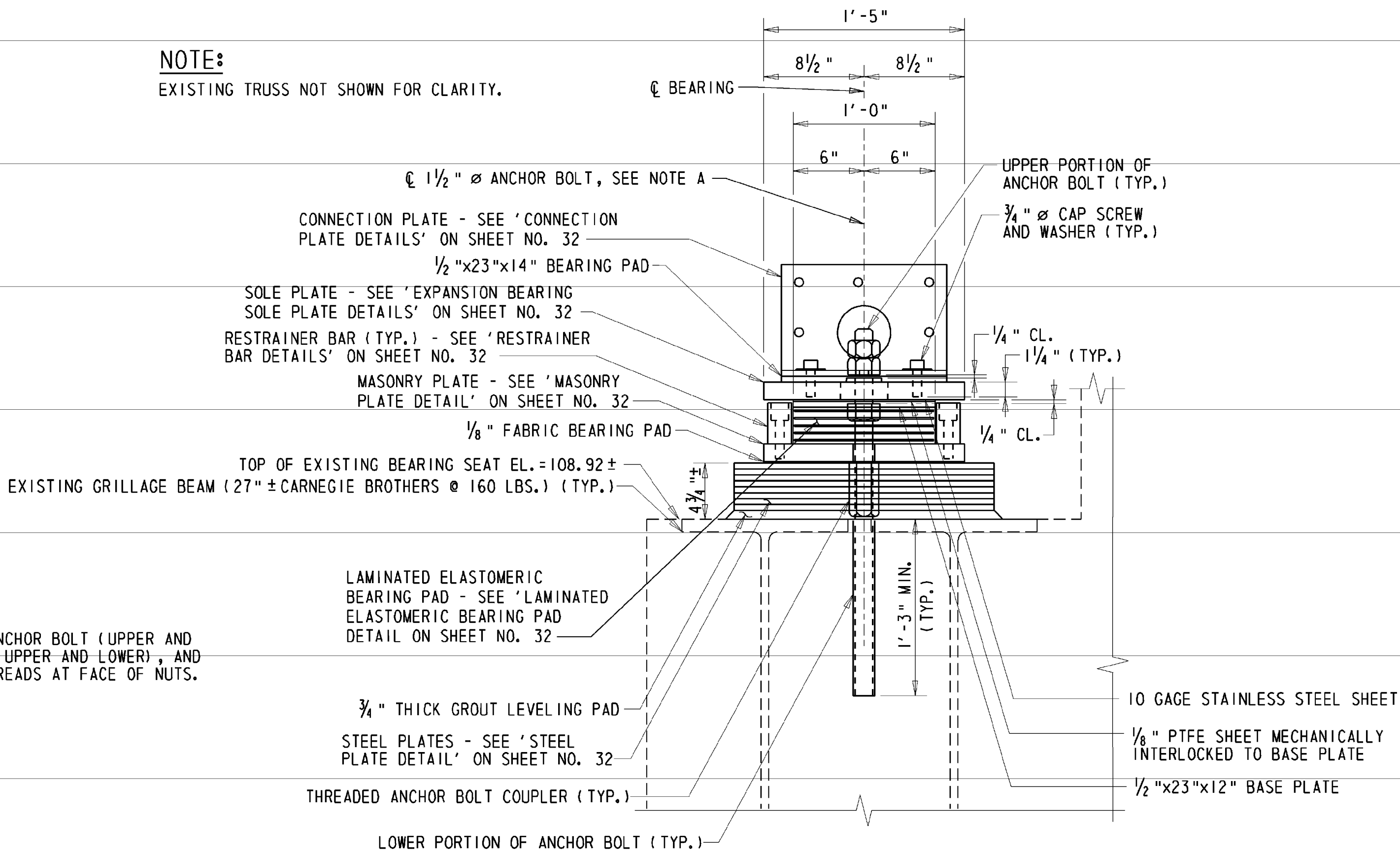
ADDENDUM NO. 2	B.K.B. II/05/08
MODIFIED NOTE	

NOTES:

- FABRICATION AND INSTALLATION OF PROPOSED BEARING ASSEMBLY WILL BE MADE UNDER ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- PAYMENT FOR FABRICATION AND INSTALLATION OF CONNECTION PLATES, BEARING PAD, SOLE PLATE, STAINLESS STEEL SHEET, LAMINATED ELASTOMERIC BEARING PAD, BASE PLATE, PTFE SHEET, MASONRY PLATE, ANCHOR BOLTS, CAP SCREWS, FABRIC BEARING PAD, RESTRAINER BAR, STEEL PLATES, NUTS, WASHERS, GROUT LEVELING PAD, EPOXY BONDING AGENT, TEMPORARY 3/4" DIAMETER A 325 BOLTS, 3/4" DIAMETER TENSION CONTROL BOLTS, AND ANCHOR BOLT COUPLERS SHALL BE INCIDENTAL TO ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- SOLE PLATES, MASONRY PLATES, BASE PLATES, RESTRAINER BARS, AND CONNECTION PLATES SHALL BE GALVANIZED A 709 GRADE 36 STEEL.
- STEEL SURFACES OF SOLE PLATE, BASE PLATE, AND MASONRY PLATE TO BE A MACHINE FINISH IN ACCORDANCE WITH ANSI B46.1.
- ALL STEEL PORTIONS OF THE TFE-STAINLESS STEEL STRUCTURAL BEARINGS LEFT EXPOSED IN THE COMPLETED STRUCTURE SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 605522 - URETHANE PAINT SYSTEM, EXISTING STEEL.
- ANCHOR BOLTS SHALL BE GROUTED IN DRILLED HOLES.
- GROUT FOR GROUT LEVELING PAD AND FOR ANCHOR BOLT HOLES SHALL BE A NONSHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI IN SEVEN DAYS WHEN TESTED AS SPECIFIED IN AASHTO T 106 EXCEPT THAT THE CUBE MOLDS SHALL REMAIN INTACT WITH A TOP FIRMLY ATTACHED THROUGHOUT THE CURING PERIOD. THE NONSHRINK GROUT SHALL HAVE A MINIMUM EXPANSION OF 0.0 PERCENT AFTER SEVEN DAYS WHEN TESTED AS SPECIFIED IN AASHTO T 160. PRIOR TO PLACEMENT OF THE GROUT LEVELING PAD, AN EPOXY BONDING AGENT SUITABLE FOR USE ON STEEL AND CONCRETE SURFACES SHALL BE APPLIED. THE BONDING MATERIAL SHALL CONSIST OF A THERMOSETTING EPOXY RESIN AND HARDENER IN CONFORMANCE WITH ASTM C 881.
- FILL SLOTS AND HOLES IN STEEL PLATES AND MASONRY PLATE AROUND ANCHOR BOLTS WITH AN APPROVED ELASTIC JOINT SEALER.
- CAP SCREWS SHALL BE 3/4" -10 UNC CLASS 3A THREAD WHICH CONFORMS TO A 574 ALLOY STEEL. 3/4" HIGH STRENGTH TENSION CONTROL BOLTS SHALL CONFORM TO A 325.
- CONTRACTOR SHALL REMOVE EXISTING COUNTERSUNK AND CHIPPED RIVETS WITHIN GUSSET PLATE AND PIN PLATE SURROUNDING EXISTING 4 1/2" ± DIAMETER PIN. DIMENSIONS FOR CONNECTION PLATE AND LOCATIONS OF 1/8" ∅ HOLES FOR 3/4" ∅ HIGH STRENGTH TENSION CONTROL BOLTS ARE APPROXIMATE AND BASED ON UTILIZING THE LOCATION OF THE EXISTING COUNTERSUNK AND CHIPPED RIVET HOLES. THE LOCATION OF THE EXISTING COUNTERSUNK AND CHIPPED RIVETS SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING OR FABRICATING MATERIALS.
- THE MASONRY PLATE AND BASE PLATE SHALL BE FACTORY VULCANIZED TO THE ELASTOMERIC BEARING.
- FABRIC BEARING PAD AND BEARING PAD MATERIAL SHALL BE A LAMINATED FABRIC PAD COMPRISED OF LIGHTWEIGHT DUCK MATERIAL AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI AND A SHORE A HARDNESS BETWEEN 85 AND 95.

NOTE:

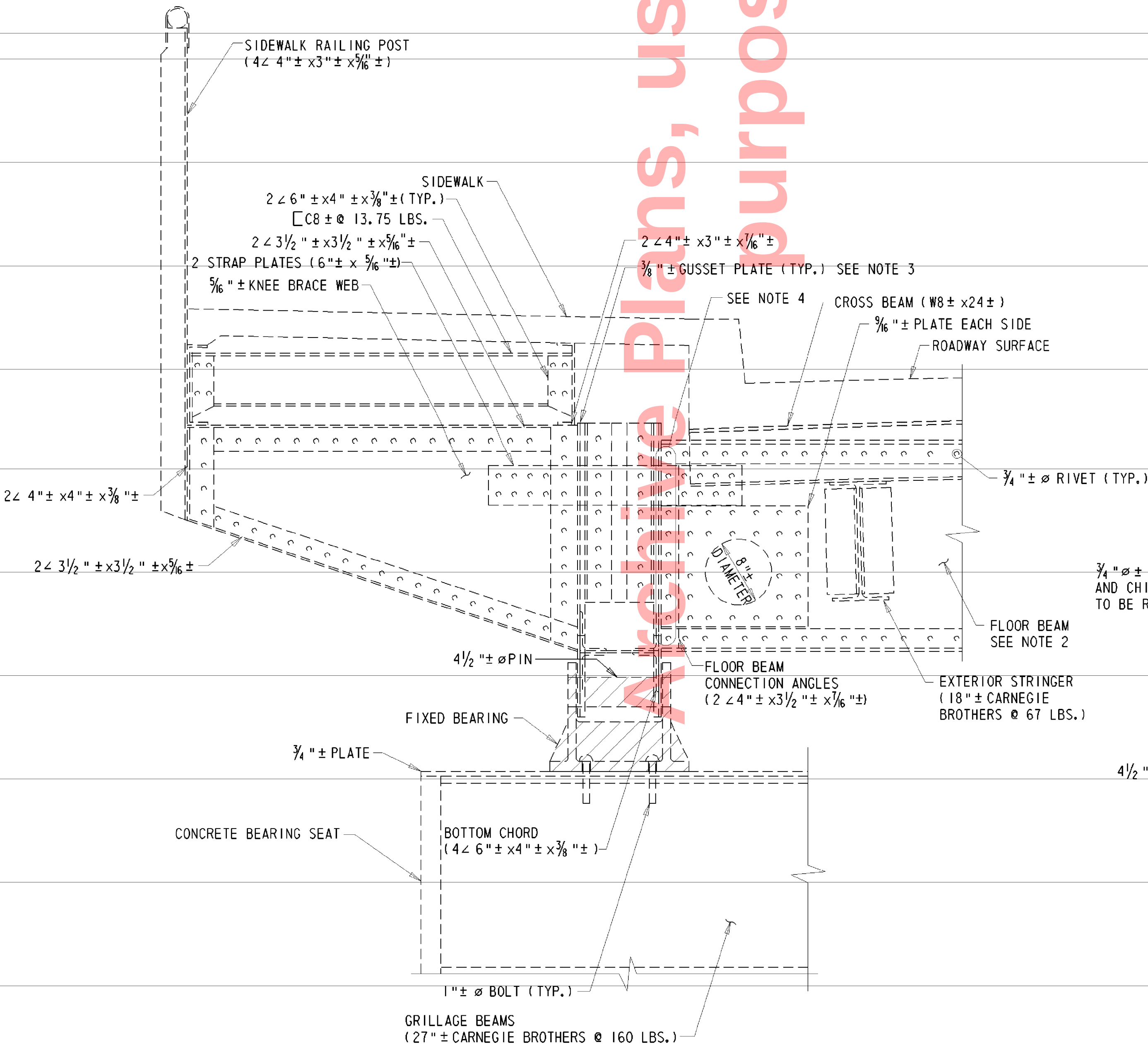
EXISTING TRUSS NOT SHOWN FOR CLARITY.



BEARING ASSEMBLY - SIDE ELEVATION

SCALE: 1 1/2" = 1'-0"

- NOTES:
- PAYMENT FOR THE REMOVAL OF EXISTING BEARINGS WILL BE INCIDENTAL TO ITEM 605607 - JACKING BRIDGE.
 - FLOOR BEAM WEB $32" \pm \times \frac{7}{16}" \pm$ PLATE
FLOOR BEAM FLANGES $2 \angle 5" \pm \times 3\frac{1}{2}" \pm \times \frac{5}{16}" \pm$
 - $\frac{3}{4}" \pm$ PIN PLATE IS LOCATED ON THE INSIDE FACE OF BOTH GUSSET PLATES.
 - $\frac{3}{4}" \pm$ DIAMETER RIVETS CONNECTING FLOOR BEAM CONNECTION ANGLES TO GUSSET PLATE AND FLOOR BEAM WEB SHALL BE REPLACED WITH TEMPORARY $\frac{3}{4}"$ DIAMETER A 490 BOLTS PRIOR TO JACKING BRIDGE (APPROXIMATELY 30 AT EACH BEARING LOCATION). THE TEMPORARY $\frac{3}{4}"$ DIAMETER A 490 BOLTS SHALL BE REMOVED AND REPLACED WITH $\frac{3}{4}"$ DIAMETER TENSION CONTROL BOLTS AFTER ALL BEARINGS HAVE BEEN REPLACED. PAYMENT FOR REMOVAL OF EXISTING RIVETS AND INSTALLATION OF TEMPORARY $\frac{3}{4}"$ DIAMETER A 490 BOLTS AND $\frac{3}{4}"$ DIAMETER TENSION CONTROL BOLTS WILL BE INCIDENTAL TO ITEM 605607 - JACKING BRIDGE.



BEARING SEAT - ELEVATION

SCALE: 1"= 1'-0"

FIXED BEARING DETAILS - I
(EXISTING AT SOUTH ABUTMENT)

BR. 1 001 279

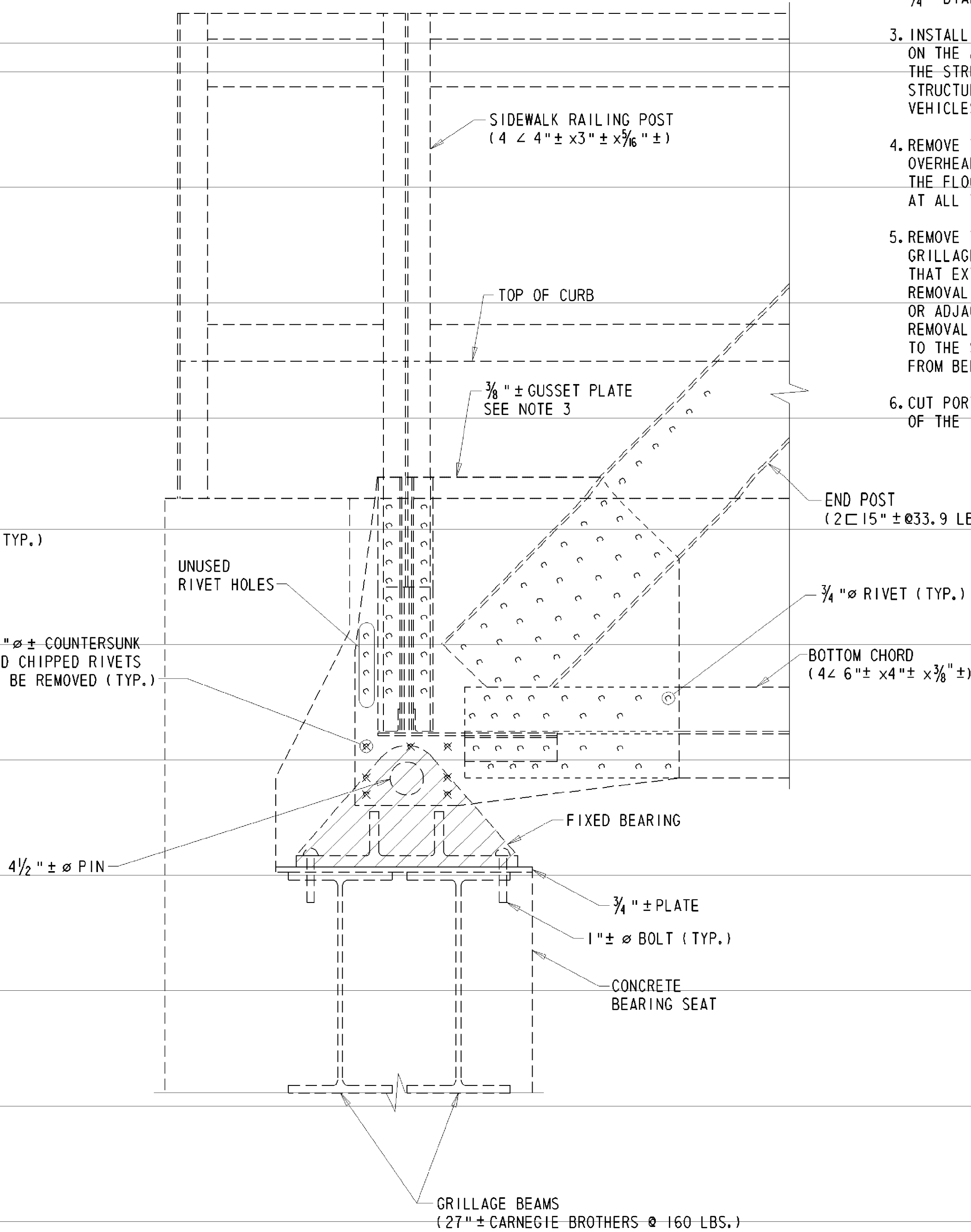
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	29	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

SUGGESTED BEARING REMOVAL SEQUENCE:

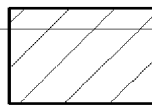
- PAYMENT FOR THIS WORK WILL BE INCIDENTAL TO ITEM 605607 - JACKING BRIDGE.
- REMOVE $\frac{3}{4}" \pm$ COUNTERSUNK AND CHIPPED RIVETS WITHIN THE GUSSET PLATE AND PIN PLATE SURROUNDING THE $4\frac{1}{2}" \pm$ DIAMETER PIN AND INSTALL TEMPORARY $\frac{3}{4}"$ DIAMETER A 325 BOLTS IN HOLES.
- INSTALL JACKING ASSEMBLY IN ACCORDANCE WITH THE NOTES AND DETAILS AS SHOWN ON THE JACKING ASSEMBLY DETAIL SHEETS. ONCE THE JACKING ASSEMBLY IS INSTALLED, THE STRUCTURE SHALL BE JACKED AND TEMPORARILY SUPPORTED. NOTE THAT THE STRUCTURE MAY NOT BE JACKED UNDER TRAFFIC OF ANY KIND INCLUDING CONSTRUCTION VEHICLES.
- REMOVE THE $4\frac{1}{2}" \pm$ DIAMETER PIN. THE CONTRACTOR IS HEREBY NOTIFIED THAT THE OVERHEAD CLEARANCE AVAILABLE TO REMOVE THE EXISTING BEARINGS IS LIMITED BY THE FLOOR BEAM AND 6" WATER LINE. THE 6" WATER LINE SHALL REMAIN IN SERVICE AT ALL TIMES. SEE UTILITIES IN THE PROJECT NOTES.
- REMOVE THE $1" \pm$ DIAMETER BOLTS CONNECTING THE FIXED BEARING TO THE $\frac{3}{4}" \pm$ PLATE, GRILLAGE BEAM AND CONCRETE BEARING SEAT. THE CONTRACTOR IS HEREBY NOTIFIED THAT EXTENSIVE STEEL CORING AND/OR FLAME CUTTING MAY BE NECESSARY FOR REMOVAL OF THE FIXED BEARING. ANY DAMAGE TO THE FLOOR BEAM, GUSSET PLATES, OR ADJACENT STRUCTURAL ELEMENTS TO REMAIN RESULTING FROM THE CONTRACTOR'S REMOVAL OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT HIS SOLE COST AND TO THE SATISFACTION OF THE ENGINEER. THE FIXED BEARING CAN THEN BE REMOVED FROM BENEATH THE STRUCTURE.
- CUT PORTIONS OF THE BOLTS IN THE GRILLAGE BEAM TO REMAIN LEVEL WITH THE TOP OF THE $\frac{3}{4}" \pm$ PLATE AND GRIND SMOOTH.



BEARING SEAT - SIDE VIEW

SCALE: 1"= 1'-0"

LEGEND



REMOVAL

- NOTES:
- FOR NOTES AND ADDITIONAL FIXED BEARING DETAILS, SEE SHEET NOS. 31 AND 32.
 - FLOOR BEAM WEB $32" \pm \times \frac{1}{8}" \pm$ PLATE
FLOOR BEAM FLANGES $2 \angle 5" \pm \times 3\frac{1}{2}" \pm \times \frac{3}{8}" \pm$
 - $\frac{3}{4}" \pm$ PIN PLATE IS LOCATED ON THE INSIDE FACE OF BOTH GUSSET PLATES.

FIXED BEARING DETAILS - II
(PROPOSED AT SOUTH ABUTMENT)

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(II)	30	83

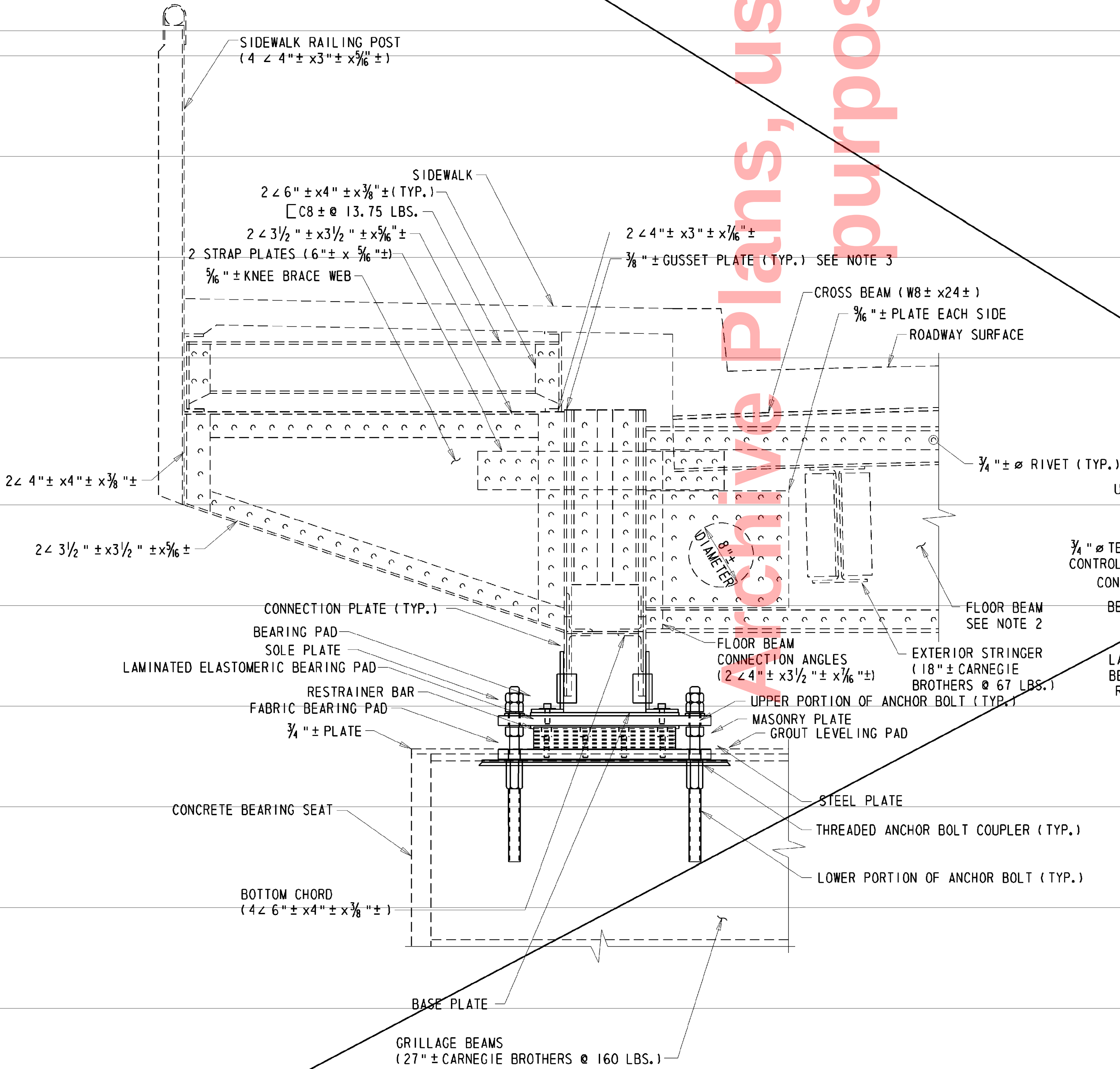
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

△ SHEET DELETED	B.K.B. II/05/08

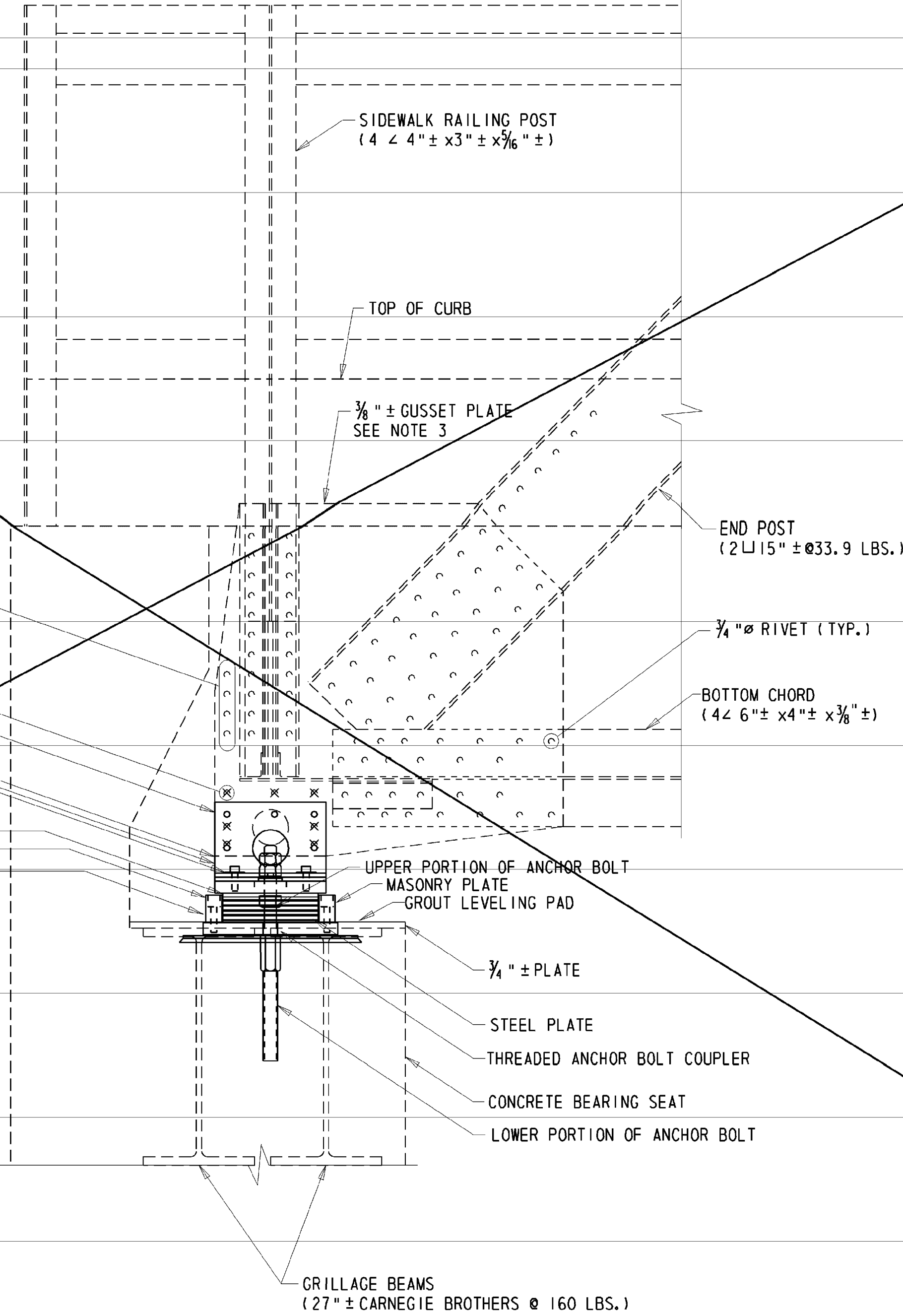
SUGGESTED BEARING REPLACEMENT SEQUENCE:

- THIS WORK WILL BE PAID FOR UNDER ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- LOCATE THE CENTERLINE OF BEARING AND LAYOUT THE LOCATIONS OF THE $1\frac{1}{2}"$ DIAMETER SWEDGE ANCHOR BOLTS. CORE A MINIMUM 3" DIAMETER HOLE THROUGH THE EXISTING GRILLAGE BEAMS AND INTO THE EXISTING CONCRETE BEARING SEAT TO THE MINIMUM DEPTH SPECIFIED ON THE PLANS. THE CONTRACTOR IS HEREBY NOTIFIED THAT DUE TO THE MINIMAL OVERHEAD CLEARANCE IN THE WORK AREA THE REQUIRED ANCHOR BOLT HOLES MAY HAVE TO BE BUILT UP TO THE REQUIRED DIAMETER. IN ADDITION, THE BITS USED TO CORE THE HOLES MAY HAVE TO BE FIELD CUT TO FIT WITHIN THE MINIMAL OVERHEAD CLEARANCE. THE CONTRACTOR IS HEREBY NOTIFIED THAT THE SIZE AND LOCATION OF THE EXISTING REINFORCING STEEL LOCATED IN THE CONCRETE BEARING SEAT IS UNKNOWN. ADJUSTMENTS SHALL BE MADE AS NECESSARY TO INSTALL THE BEARING ASSEMBLY. COSTS ASSOCIATED WITH THE BUILD-UP OF ANCHOR BOLT HOLES AND/OR THE CUTTING OF NUMEROUS DRILL BITS AND/OR INSTALLATION ADJUSTMENTS SHALL BE INCIDENTAL TO ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- PLACE AND GROUT LOWER PORTION OF THE ANCHOR BOLT WITH THE THREADED ANCHOR BOLT COUPLER IN HOLES USING GRAVITY FED NONSHRINK GROUT.
- REMOVE THE TEMPORARY $\frac{3}{4}"$ DIAMETER A 325 BOLTS WITHIN THE GUSSET PLATE SURROUNDING THE EXISTING $4\frac{1}{2}" \pm$ PIN TO BE UTILIZED FOR THE CONNECTION PLATE.
- INSTALL THE CONNECTION PLATES TO THE EXISTING GUSSET PLATES AND EXISTING PIN PLATES USING $\frac{3}{4}"$ DIAMETER TENSION CONTROL BOLTS.
- PLACE GROUT LEVELING PAD AND THEN PLACE THE STEEL PLATES ON THE GROUT. TACK WELD THE STEEL PLATES INTO PLACE.
- PLACE THE $\frac{1}{8}"$ FABRIC BEARING PAD ON TOP OF THE STEEL PLATES.
- INSTALL THE FOLLOWING PORTIONS OF THE BEARING ASSEMBLY PREASSEMBLED, SOLE PLATE, BASE PLATE, LAMINATED ELASTOMERIC BEARING PAD, MASONRY PLATE WITH RESTRAINER BARS, UPPER PORTION OF THE ANCHOR BOLT AND THE LOWER JAM NUT.
- INSTALL THE $\frac{1}{2}"$ BEARING PAD BETWEEN THE CONNECTION PLATE AND SOLE PLATE.
- FASTEN THE SOLE PLATE TO THE CONNECTION PLATES USING $\frac{3}{4}"$ DIAMETER CAP SCREWS. CONTRACTOR SHALL ENSURE THE GUSSET PLATE AND PIN PLATE ARE BEARING ON THE $\frac{1}{2}"$ BEARING PAD.
- INSTALL THE HEX NUT AND THE UPPER JAM NUT ON THE ANCHOR BOLTS.
- IF NECESSARY, INSTALL STEEL SHIM PLATES BETWEEN MASONRY PLATE AND FABRIC BEARING PAD.
- REMOVE JACKS, LEAVING JACKING ASSEMBLY IN PLACE.



BEARING SEAT - ELEVATION

SCALE: 1" = 1'-0"



BEARING SEAT - SIDE VIEW

SCALE: 1" = 1'-0"

PREL. TRACING K.P.L./K.W.F. DESIGN B.K.B./S.E.B. CHKD. J.A.G.

NOTES:

- FOR NOTES AND ADDITIONAL FIXED BEARING DETAILS, SEE SHEET NOS. 31 AND 32.
- FLOOR BEAM WEB $32" \pm \times \frac{1}{8}" \pm$ PLATE
FLOOR BEAM FLANGES $2 \angle 5" \pm \times 3\frac{1}{2}" \pm \times \frac{5}{16}" \pm$
- $\frac{3}{4}" \pm$ PIN PLATE IS LOCATED ON THE INSIDE FACE OF BOTH GUSSET PLATES.

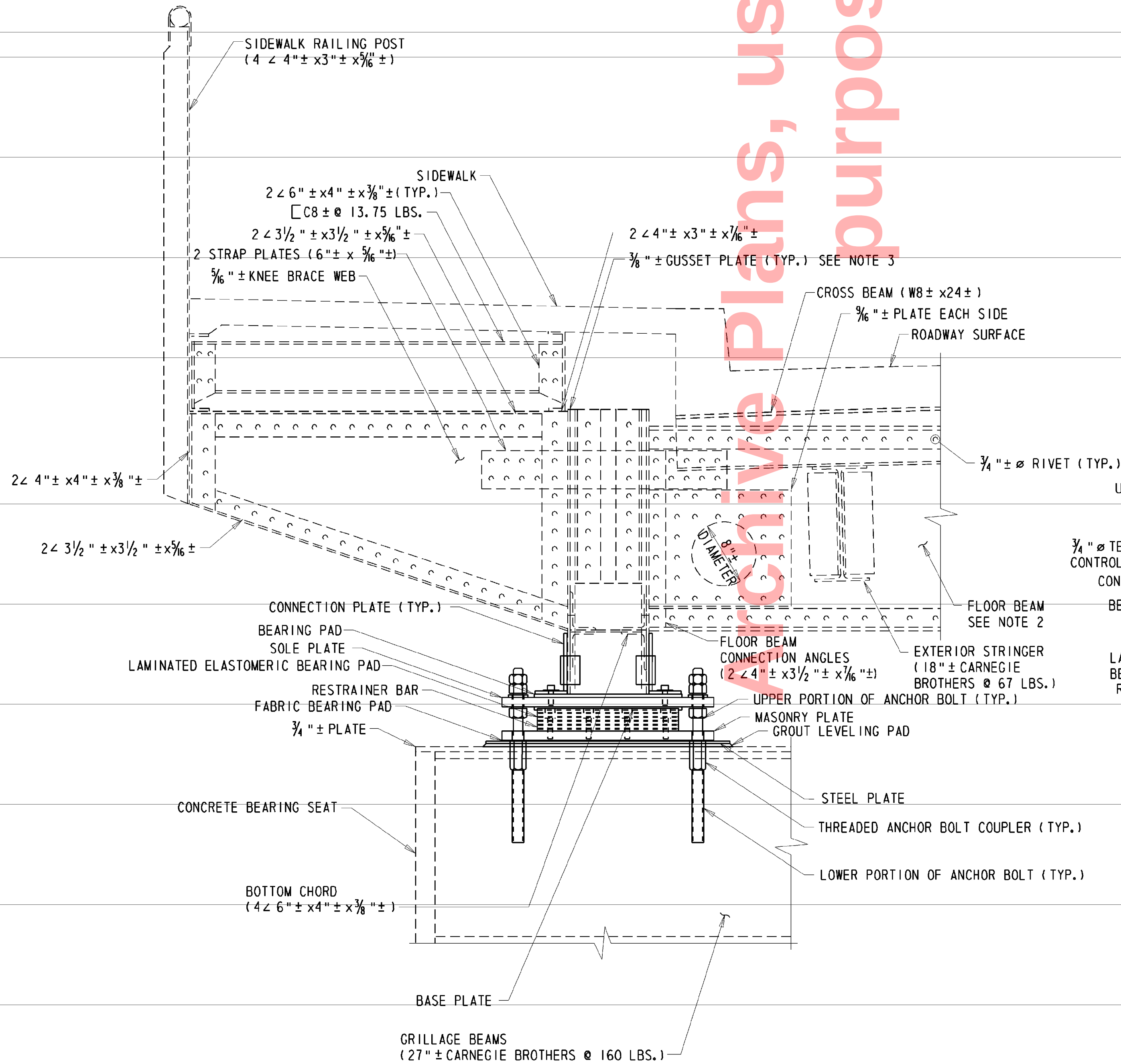
FIXED BEARING DETAILS - II
(PROPOSED AT SOUTH ABUTMENT)

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(II)	30A	83
REHABILITATION OF BRIDGES 1 & 1A ON RISING SUN LANE OVER BRANDYWINE CREEK				
REVISIONS				
NEW SHEET			B.K.B. II/05/08	

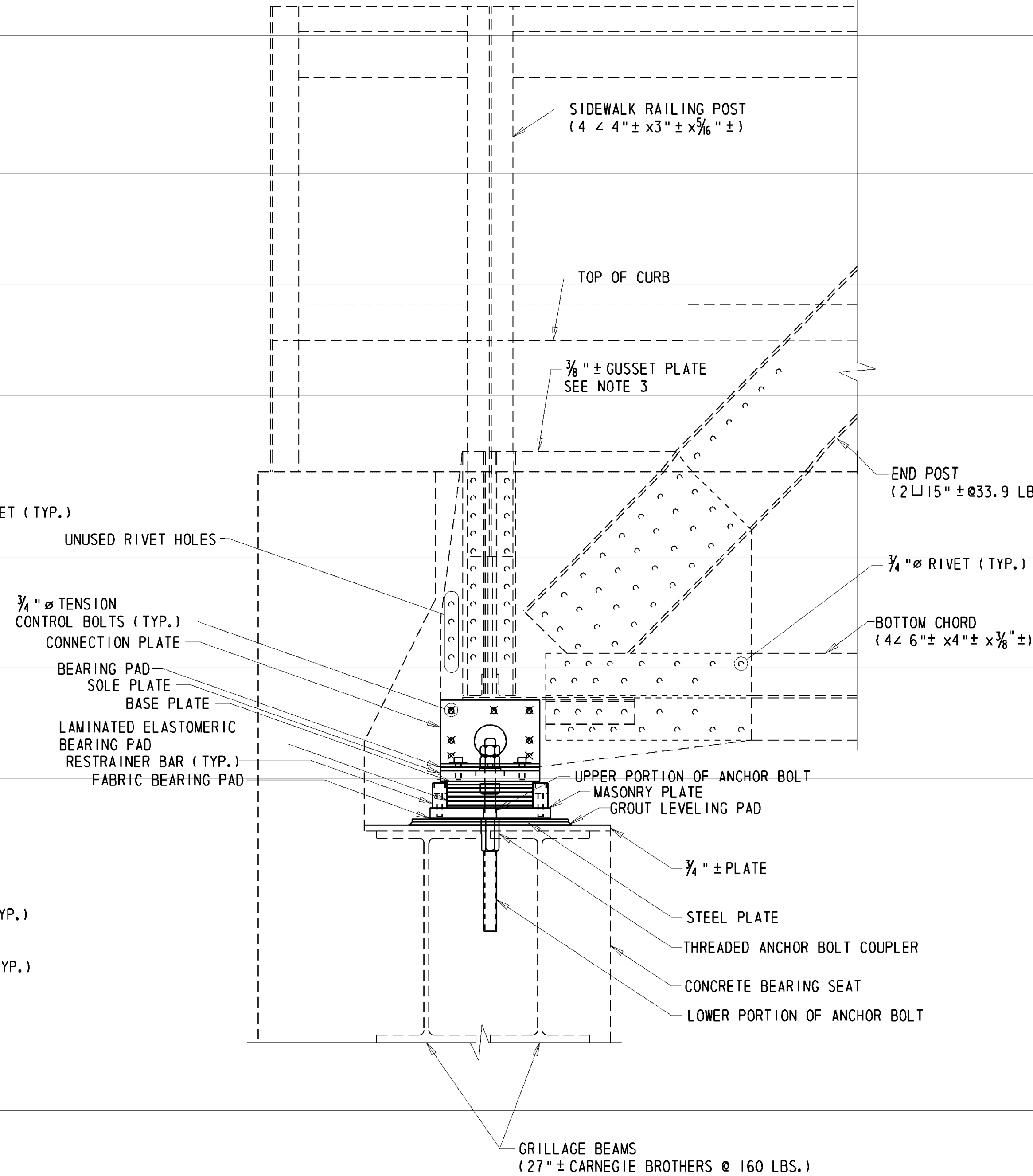
SUGGESTED BEARING REPLACEMENT SEQUENCE:

- THIS WORK WILL BE PAID FOR UNDER ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- LOCATE THE CENTERLINE OF BEARING AND LAYOUT THE LOCATIONS OF THE $1\frac{1}{2}"$ DIAMETER SWEDGE ANCHOR BOLTS. CORE A MINIMUM 3" DIAMETER HOLE THROUGH THE EXISTING GRILLAGE BEAMS AND INTO THE EXISTING CONCRETE BEARING SEAT TO THE MINIMUM DEPTH SPECIFIED ON THE PLANS. THE CONTRACTOR IS HEREBY NOTIFIED THAT DUE TO THE MINIMAL OVERHEAD CLEARANCE IN THE WORK AREA THE REQUIRED ANCHOR BOLT HOLES MAY HAVE TO BE BUILT UP TO THE REQUIRED DIAMETER. IN ADDITION, THE BITS USED TO CORE THE HOLES MAY HAVE TO BE FIELD CUT TO FIT WITHIN THE MINIMAL OVERHEAD CLEARANCE. THE CONTRACTOR IS HEREBY NOTIFIED THAT THE SIZE AND LOCATION OF THE EXISTING REINFORCING STEEL LOCATED IN THE CONCRETE BEARING SEAT IS UNKNOWN. ADJUSTMENTS SHALL BE MADE AS NECESSARY TO INSTALL THE BEARING ASSEMBLY. COSTS ASSOCIATED WITH THE BUILD-UP OF ANCHOR BOLT HOLES AND/OR THE CUTTING OF NUMEROUS DRILL BITS AND/OR INSTALLATION ADJUSTMENTS SHALL BE INCIDENTAL TO ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- PLACE AND GROUT LOWER PORTION OF THE ANCHOR BOLT WITH THE THREADED ANCHOR BOLT COUPLER IN HOLES USING GRAVITY FED NONSHRINK GROUT.
- REMOVE THE TEMPORARY $\frac{3}{4}"$ DIAMETER A 325 BOLTS WITHIN THE GUSSET PLATE SURROUNDING THE EXISTING $4\frac{1}{2}" \pm$ PIN TO BE UTILIZED FOR THE CONNECTION PLATE.
- INSTALL THE CONNECTION PLATES TO THE EXISTING GUSSET PLATES AND EXISTING PIN PLATES USING $\frac{3}{4}"$ DIAMETER TENSION CONTROL BOLTS.
- PLACE GROUT LEVELING PAD AND THEN PLACE THE STEEL PLATES ON THE GROUT. TACK WELD THE STEEL PLATES INTO PLACE.
- PLACE THE $\frac{1}{8}"$ FABRIC BEARING PAD ON TOP OF THE STEEL PLATES.
- INSTALL THE FOLLOWING PORTIONS OF THE BEARING ASSEMBLY PREASSEMBLED, SOLE PLATE, BASE PLATE, LAMINATED ELASTOMERIC BEARING PAD, MASONRY PLATE WITH RESTRAINER BARS, UPPER PORTION OF THE ANCHOR BOLT AND THE LOWER JAM NUT.
- INSTALL THE $\frac{1}{2}"$ BEARING PAD BETWEEN THE CONNECTION PLATE AND SOLE PLATE.
- FASTEN THE SOLE PLATE TO THE CONNECTION PLATES USING $\frac{3}{4}"$ DIAMETER CAP SCREWS. CONTRACTOR SHALL ENSURE THE GUSSET PLATE AND PIN PLATE ARE BEARING ON THE $\frac{1}{2}"$ BEARING PAD.
- INSTALL THE HEX NUT AND THE UPPER JAM NUT ON THE ANCHOR BOLTS.
- IF NECESSARY, INSTALL STEEL SHIM PLATES BETWEEN MASONRY PLATE AND FABRIC BEARING PAD.
- REMOVE JACKS, LEAVING JACKING ASSEMBLY IN PLACE.



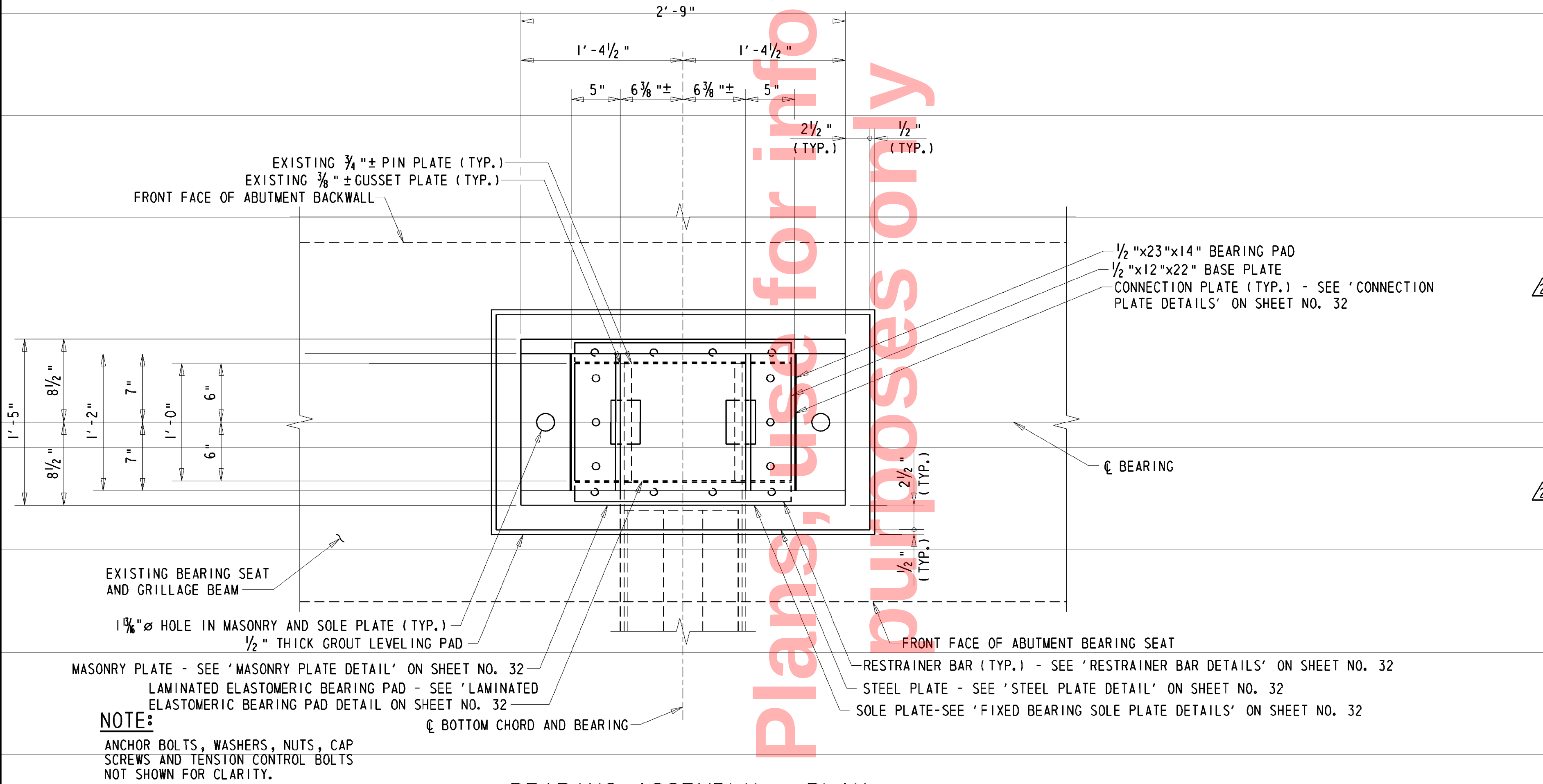
BEARING SEAT - ELEVATION

SCALE: 1" = 1'-0"



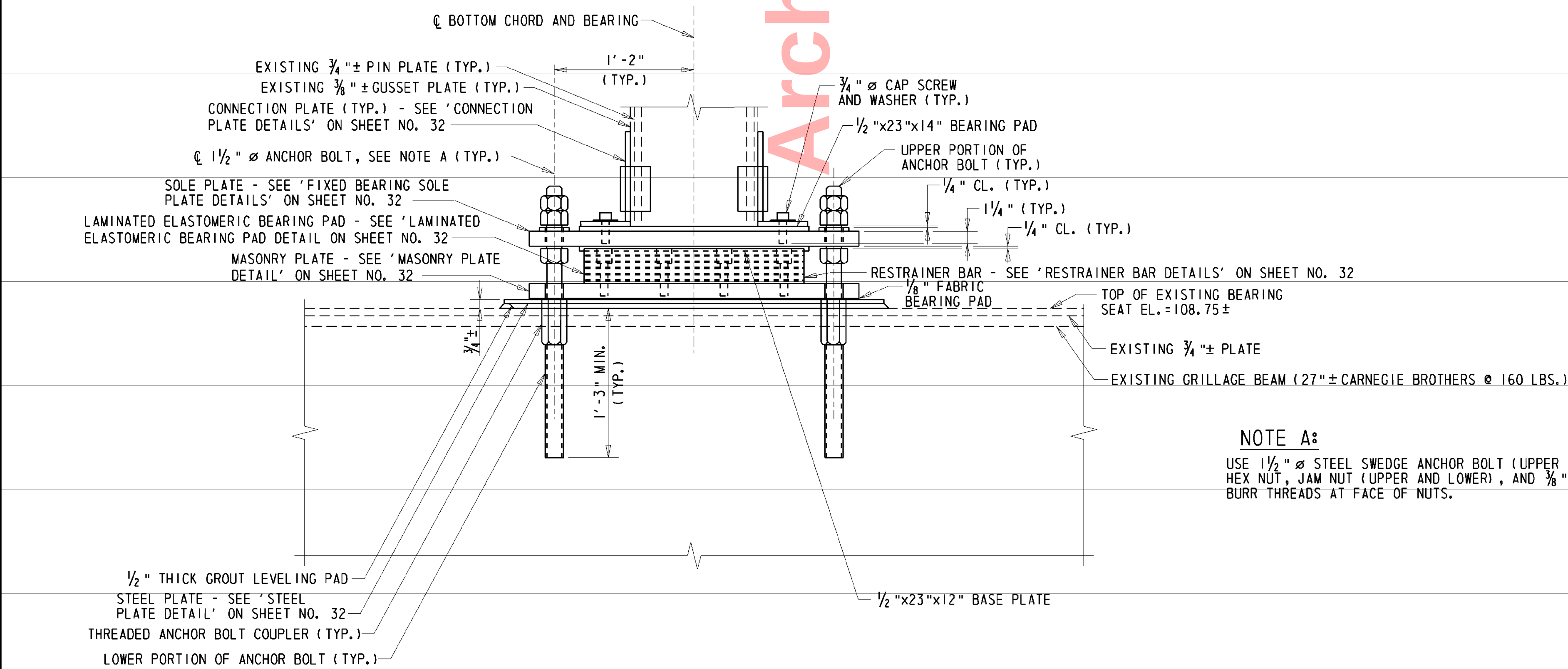
BEARING SEAT - SIDE VIEW

SCALE: 1" = 1'-0"



BEARING ASSEMBLY - PLAN

SCALE: 1 1/2"=1'-0"



BEARING ASSEMBLY - ELEVATION

SCALE: 1 1/2"=1'-0"

FIXED BEARING DETAILS - III
(PROPOSED AT SOUTH ABUTMENT)

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(II)	3I	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

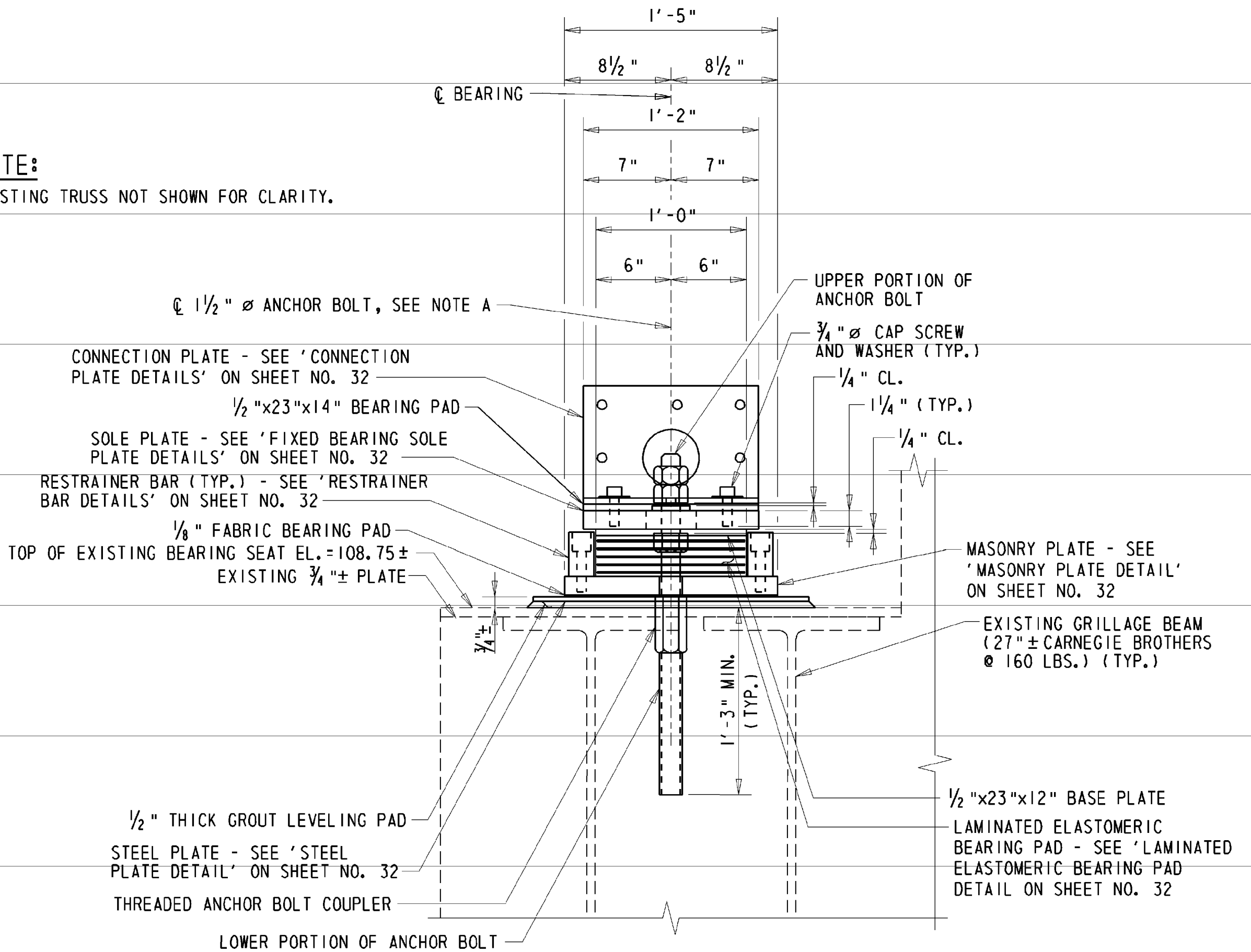
ADDENDUM NO. 2	B.K.B. II/05/08
MODIFIED NOTE	

NOTES:

- FABRICATION AND INSTALLATION OF PROPOSED BEARING ASSEMBLY WILL BE MADE UNDER ITEM 605639 - TFE-STAINLESS STEEL STRUCTURAL BEARINGS.
- PAYMENT FOR FABRICATION AND INSTALLATION OF CONNECTION PLATES, BEARING PAD, SOLE PLATE, LAMINATED ELASTOMERIC BEARING PAD, BASE PLATE, MASONRY PLATE, ANCHOR BOLTS, CAP SCREWS, FABRIC BEARING PAD, RESTRAINER BAR, STEEL PLATES, NUTS, WASHERS, GROUT LEVELING PAD, EPOXY BONDING AGENT, TEMPORARY 3/4" DIAMETER A 325 BOLTS, 3/4" DIAMETER TENSION CONTROL BOLTS, AND ANCHOR BOLT COUPLERS SHALL BE INCIDENTAL TO ITEM 605639 - TFE- STAINLESS STEEL STRUCTURAL BEARINGS.
- SOLE PLATES, MASONRY PLATES, BASE PLATES, RESTRAINER BARS, AND CONNECTION PLATES SHALL BE GALVANIZED A 709 GRADE 36 STEEL.
- STEEL SURFACES OF SOLE PLATE, BASE PLATE, AND MASONRY PLATE TO BE A MACHINE FINISH IN ACCORDANCE WITH ANSI B46.1.
- ALL STEEL PORTIONS OF THE TFE-STAINLESS STEEL STRUCTURAL BEARINGS LEFT EXPOSED IN THE COMPLETED STRUCTURE SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. PAYMENT FOR THIS WORK WILL BE MADE UNDER ITEM 605522 - URETHANE PAINT SYSTEM, EXISTING STEEL.
- ANCHOR BOLTS SHALL BE GROUTED IN DRILLED HOLES.
- GROUT FOR GROUT LEVELING PAD AND FOR ANCHOR BOLT HOLES SHALL BE A NONSHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI IN SEVEN DAYS WHEN TESTED AS SPECIFIED IN AASHTO T 106 EXCEPT THAT THE CUBE MOLDS SHALL REMAIN INTACT WITH A TOP FIRMLY ATTACHED THROUGHOUT THE CURING PERIOD. THE NONSHRINK GROUT SHALL HAVE A MINIMUM EXPANSION OF 0.0 PERCENT AFTER SEVEN DAYS WHEN TESTED AS SPECIFIED IN AASHTO T 160. PRIOR TO PLACEMENT OF THE GROUT LEVELING PAD, AN EPOXY BONDING AGENT SUITABLE FOR USE ON STEEL AND CONCRETE SURFACES SHALL BE APPLIED. THE BONDING MATERIAL SHALL CONSIST OF A THERMOSETTING EPOXY RESIN AND HARDENER IN CONFORMANCE WITH ASTM C 881.
- FILL SLOTS AND HOLES IN STEEL PLATE AND MASONRY PLATE AROUND ANCHOR BOLTS WITH AN APPROVED ELASTIC JOINT SEALER.
- CAP SCREWS SHALL BE 3/4" -10 UNC CLASS 3A THREAD WHICH CONFORMS TO A 574 ALLOY STEEL. 3/4" HIGH STRENGTH TENSION CONTROL BOLTS SHALL CONFORM TO A 325.
- CONTRACTOR SHALL REMOVE EXISTING COUNTERSUNK AND CHIPPED RIVETS WITHIN GUSSET PLATE AND PIN PLATE SURROUNDING EXISTING 4 1/2" ± DIAMETER PIN. DIMENSIONS FOR CONNECTION PLATE AND LOCATIONS OF 1/4" ∅ HOLES FOR 3/4" ∅ HIGH STRENGTH TENSION CONTROL BOLTS ARE APPROXIMATE AND BASED ON UTILIZING THE LOCATION OF THE EXISTING COUNTERSUNK AND CHIPPED RIVET HOLES. THE LOCATION OF THE EXISTING COUNTERSUNK AND CHIPPED RIVETS SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING OR FABRICATING MATERIALS.
- THE MASONRY PLATE AND BASE PLATE SHALL BE FACTORY VULCANIZED TO THE ELASTOMERIC BEARING.
- FABRIC BEARING PAD AND BEARING PAD MATERIAL SHALL BE A LAMINATED FABRIC PAD COMPRISED OF LIGHTWEIGHT DUCK MATERIAL AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI AND A SHORE A HARDNESS BETWEEN 85 AND 95.

NOTE:

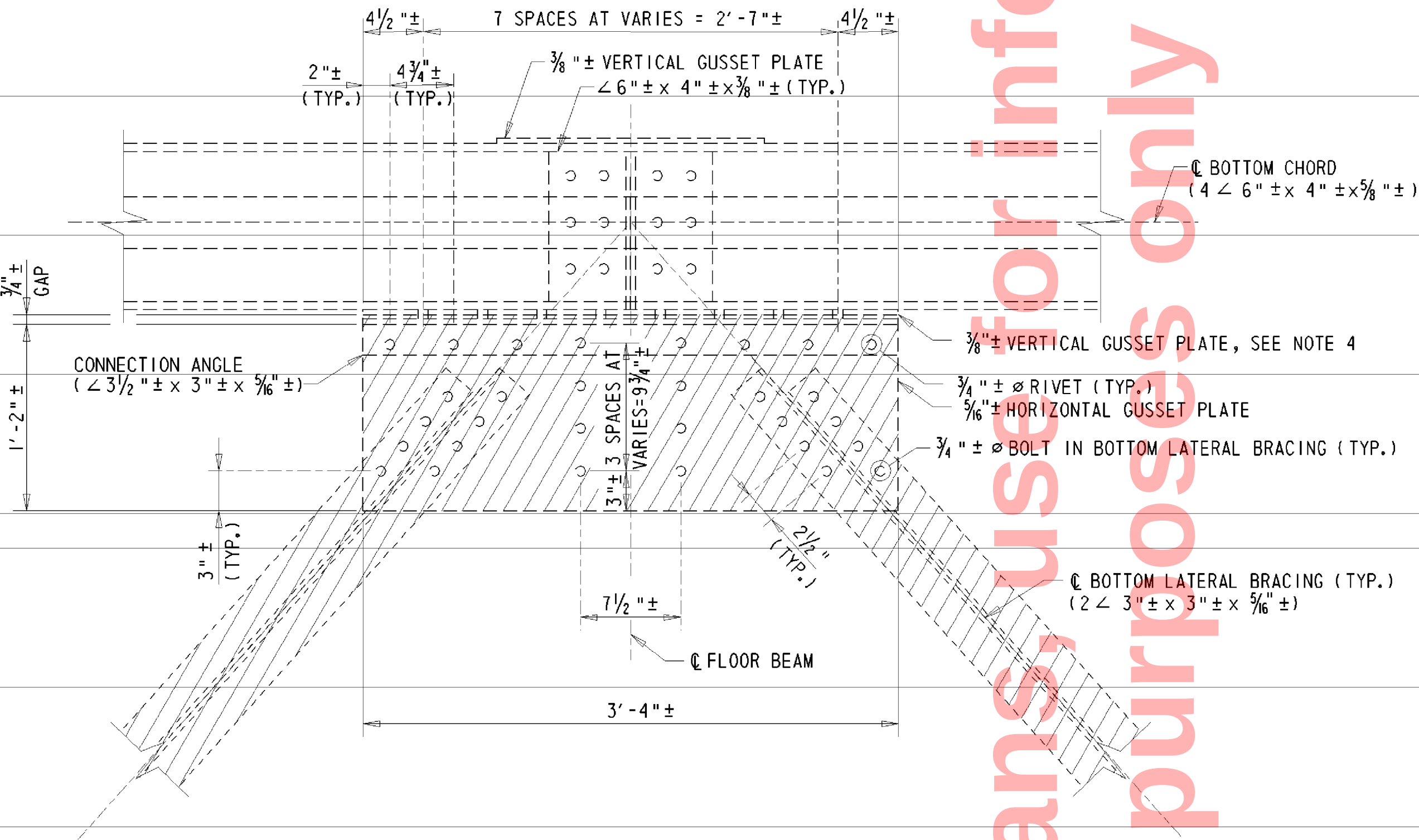
EXISTING TRUSS NOT SHOWN FOR CLARITY.



BEARING ASSEMBLY - SIDE ELEVATION

SCALE: 1 1/2"=1'-0"

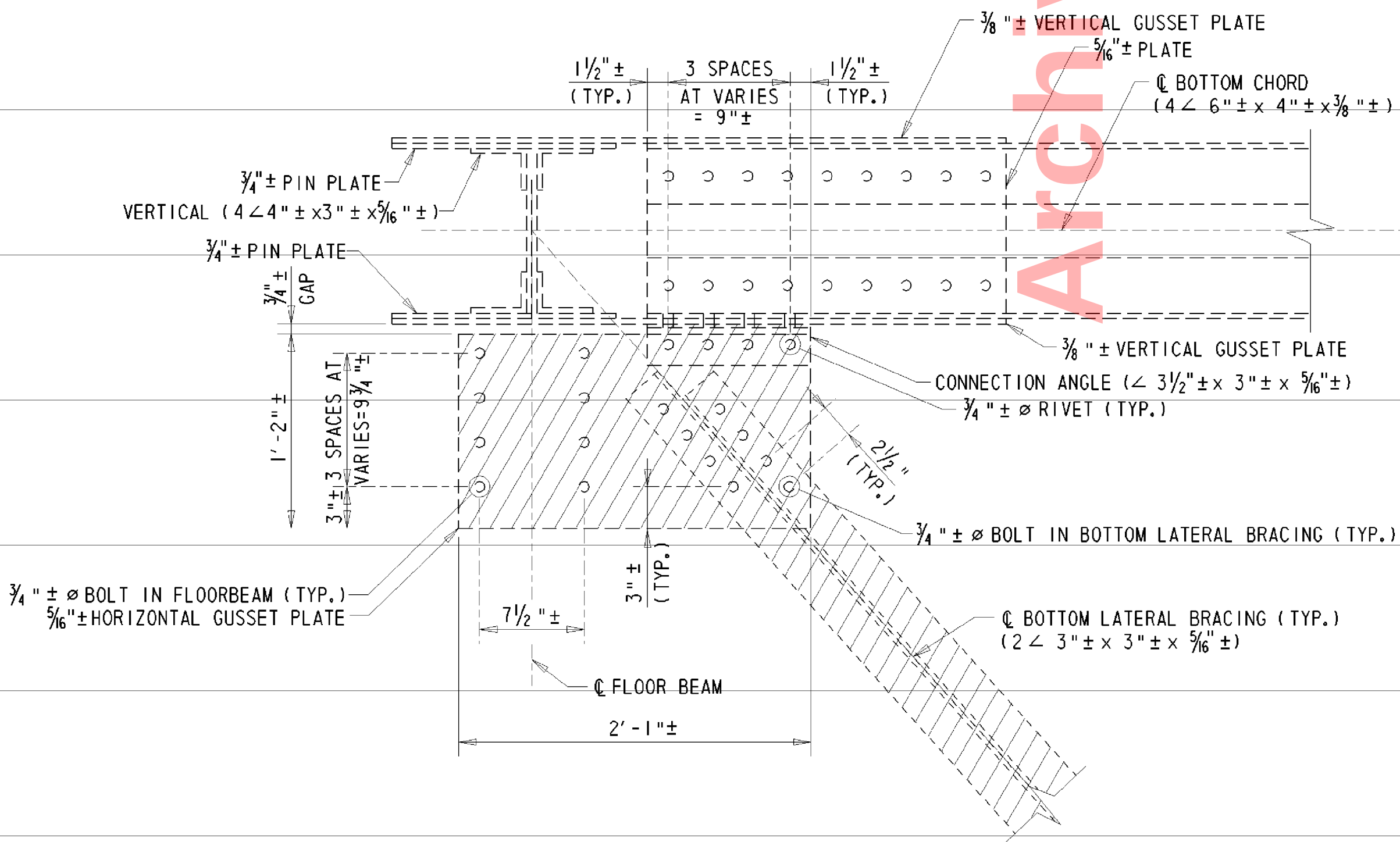
PREL. TRACING K.P.L./K.W.F. DESIGN S.K.B./S.E.B. CHKD. J.A.G.



NOTE:
FLOOR BEAM NOT SHOWN FOR CLARITY.

EXISTING INTERIOR FLOOR BEAM BOTTOM LATERAL CONNECTION PLAN

SCALE: 1 1/2" = 1'-0"



NOTE:
FLOOR BEAM NOT SHOWN FOR CLARITY.

EXISTING END FLOOR BEAM BOTTOM LATERAL CONNECTION PLAN

SCALE: 1 1/2" = 1'-0"

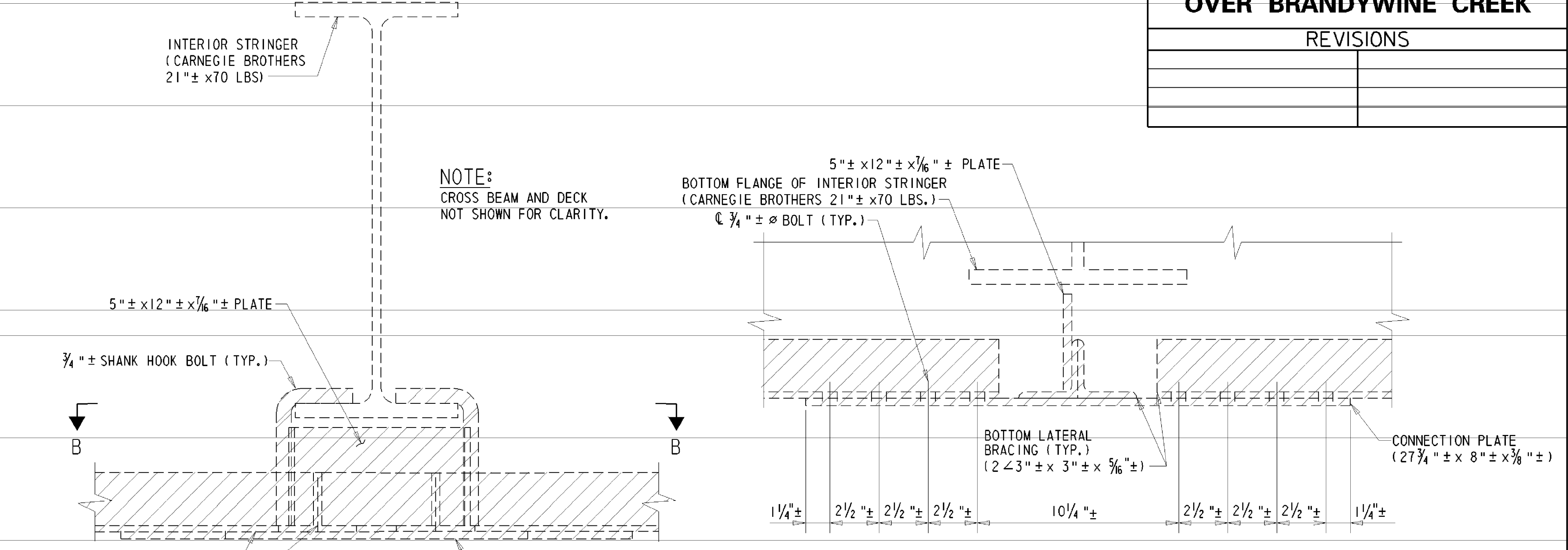
BOTTOM LATERAL
REPLACEMENT DETAILS - I

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	33	83

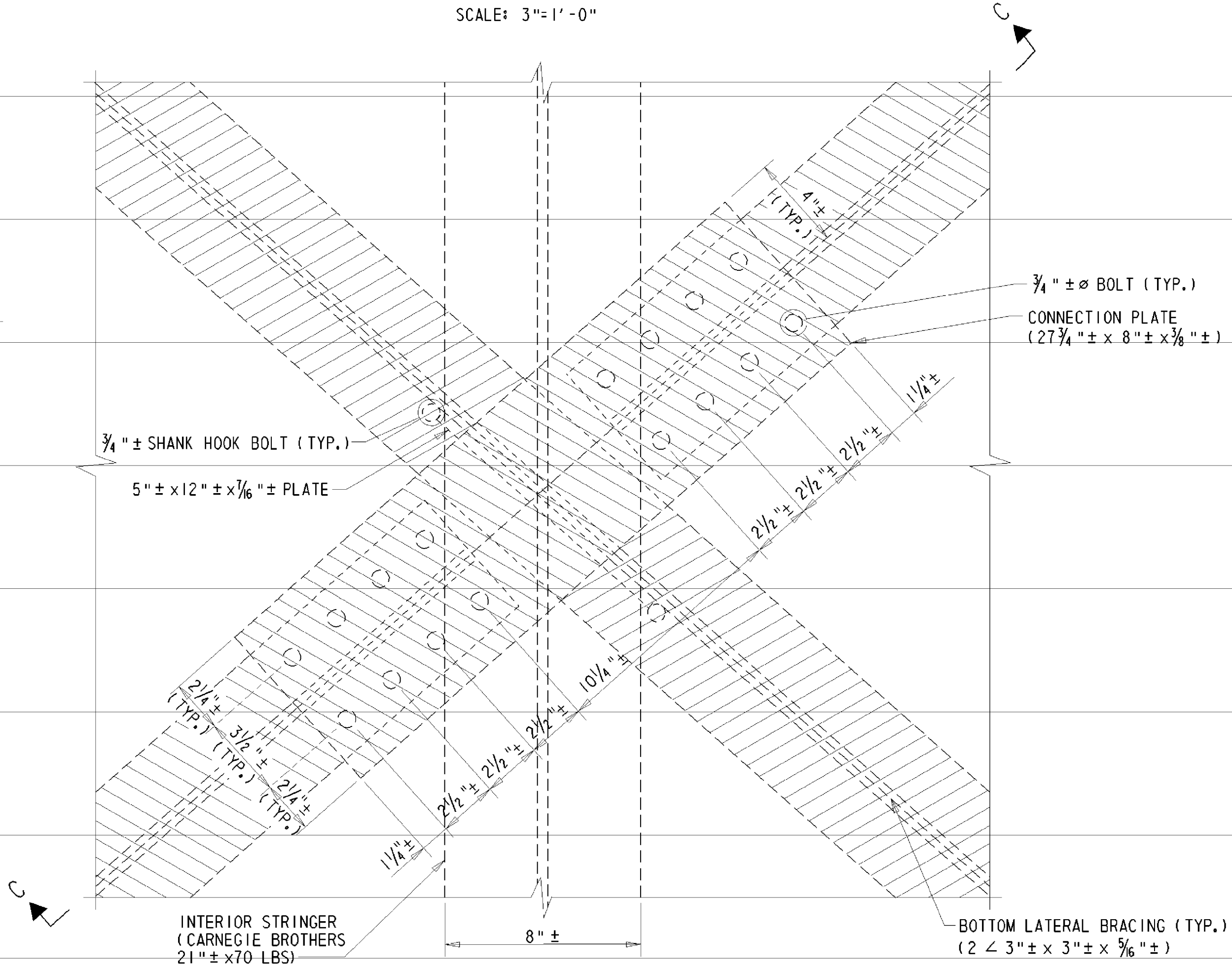
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



EXISTING BOTTOM LATERAL TO STRINGER CONNECTION

SCALE: 3" = 1'-0"



VIEW B-B

SCALE: 3" = 1'-0"

REMOVAL NOTES:

1. BOTTOM LATERAL CONNECTIONS SHALL BE REMOVED AND REPLACED IN EACH BAY (6 BAYS TOTAL).
2. THE BOTTOM LATERAL BRACING SHALL BE REPLACED ONLY ONE BAY AT A TIME. THE BOTTOM LATERAL BRACING IN THE BAY ADJACENT TO THE BAY BEING REPLACED MAY BE DISCONNECTED FROM THE 5/16" HORIZONTAL GUSSET PLATE AT ONE LOCATION AT A TIME. NO CONCURRENT REPLACEMENT OF ANY STRUCTURAL MEMBERS OR COMPONENTS SHALL BE ALLOWED WHILE THE LATERAL BRACING IS BEING REPLACED. THE BOTTOM LATERAL BRACING WORK SHALL BE COORDINATED WITH THE INTERIOR VERTICAL GUSSET PLATE REPLACEMENT WORK. THE INTERIOR VERTICAL GUSSET PLATES SHALL BE REPLACED PRIOR TO THE REPLACEMENT OF THE BOTTOM LATERAL BRACING.
3. DIMENSIONS FOR BOTTOM LATERAL BRACING AND CONNECTIONS SHOULD BE VERIFIED PRIOR TO ORDERING OR FABRICATING MATERIALS.
4. AT PANEL POINTS L1 AND L5, 3/8" FILL PLATES EXIST BETWEEN THE CONNECTION ANGLE AND THE BOTTOM CHORD ON EACH SIDE OF THE VERTICAL GUSSET PLATE.
5. SEE 'RIVET REPLACEMENT NOTES' AND 'RIVET REPLACEMENT GUIDELINES' ON SHEET NO. 44 FOR REMOVAL AND REPLACEMENT OF 3/4" DIAMETER RIVETS.
6. SEE 'FABRICATION AND ERECTION NOTES' ON SHEET NO. 44 FOR PREPARATION OF THE EXISTING STEEL, PREPARATION OF THE EXISTING RIVET HOLES, AND ALL INFORMATION REGARDING FABRICATION AND ERECTION OF THE PROPOSED BOTTOM LATERAL BRACING AND CONNECTIONS.
7. PAYMENT FOR THE REPLACEMENT OF BOTTOM LATERAL BRACING, GUSSET PLATES AND ANGLES, INSTALLING 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CLEANING EXISTING STEEL, PAINTING, REAMING AND ALL WORK ASSOCIATED WITH REPLACEMENT OF BOTTOM LATERALS WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.
8. FOR PROPOSED BOTTOM LATERAL CONNECTION DETAILS, SEE SHEET NO. 34.

LEGEND

REMOVAL

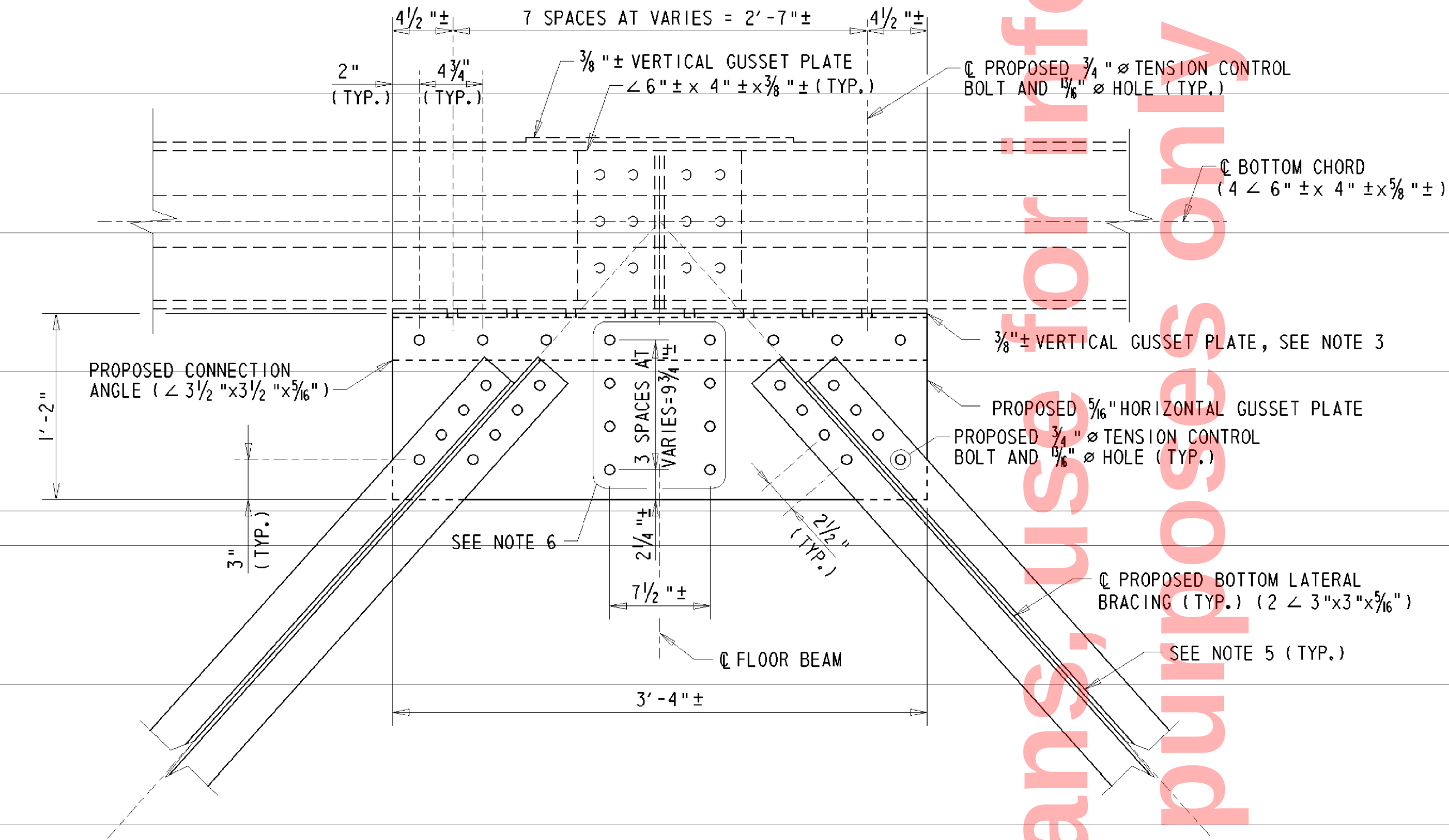
BOTTOM LATERAL
REPLACEMENT DETAILS - II

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	34	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

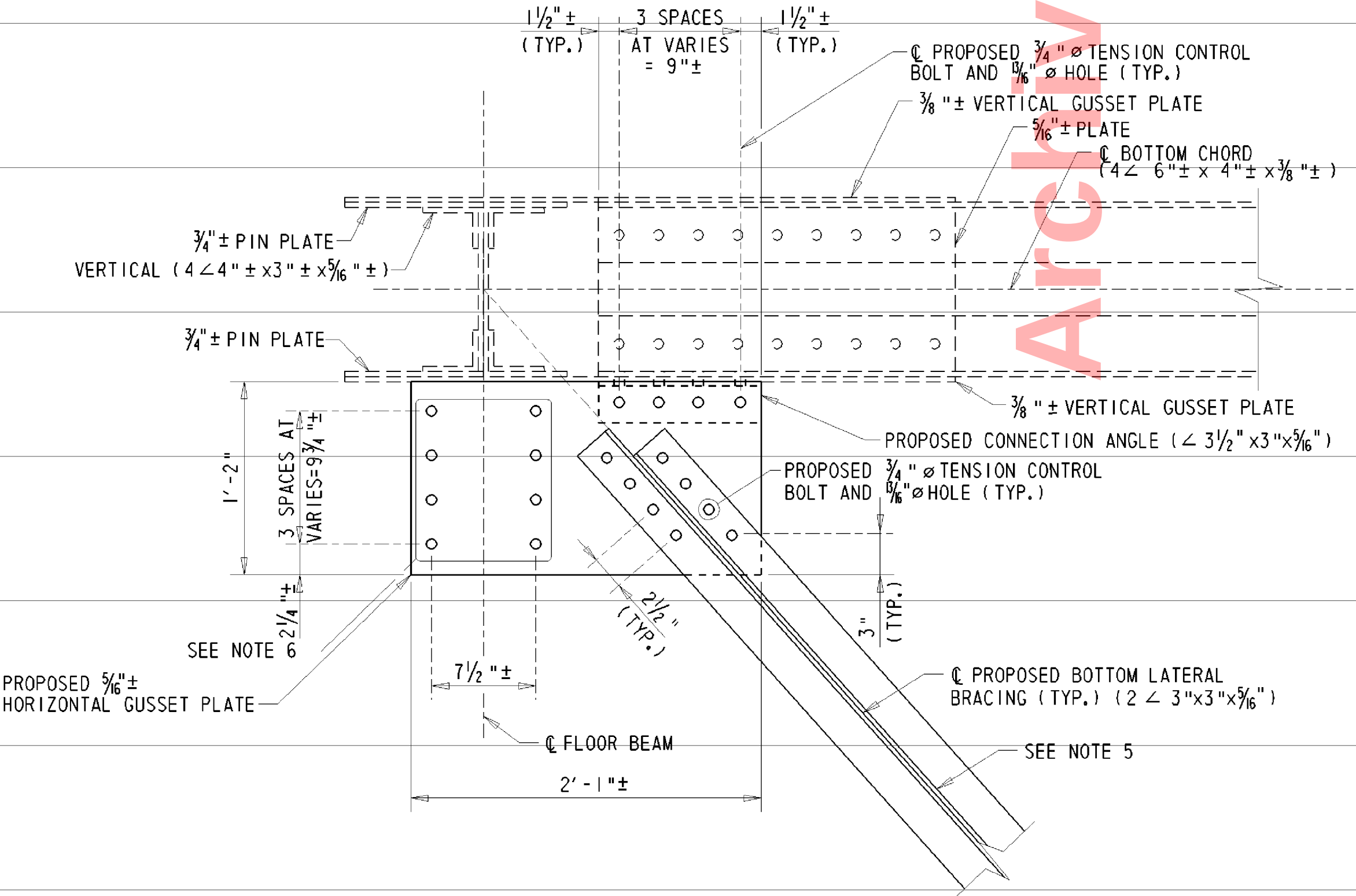
REVISIONS



NOTE:
FLOOR BEAM NOT SHOWN FOR CLARITY.

PROPOSED INTERIOR FLOOR BEAM BOTTOM LATERAL CONNECTION PLAN

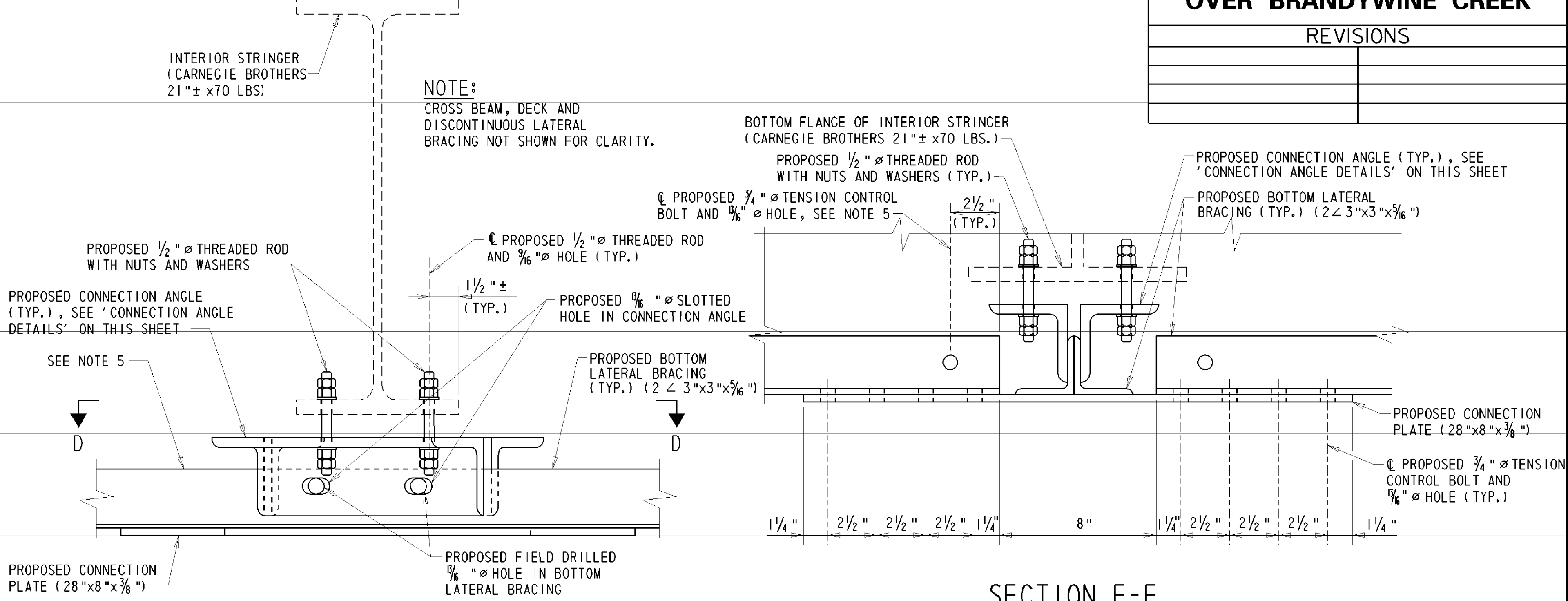
SCALE: 1 1/2"=1'-0"



NOTE:
FLOOR BEAM NOT SHOWN FOR CLARITY.

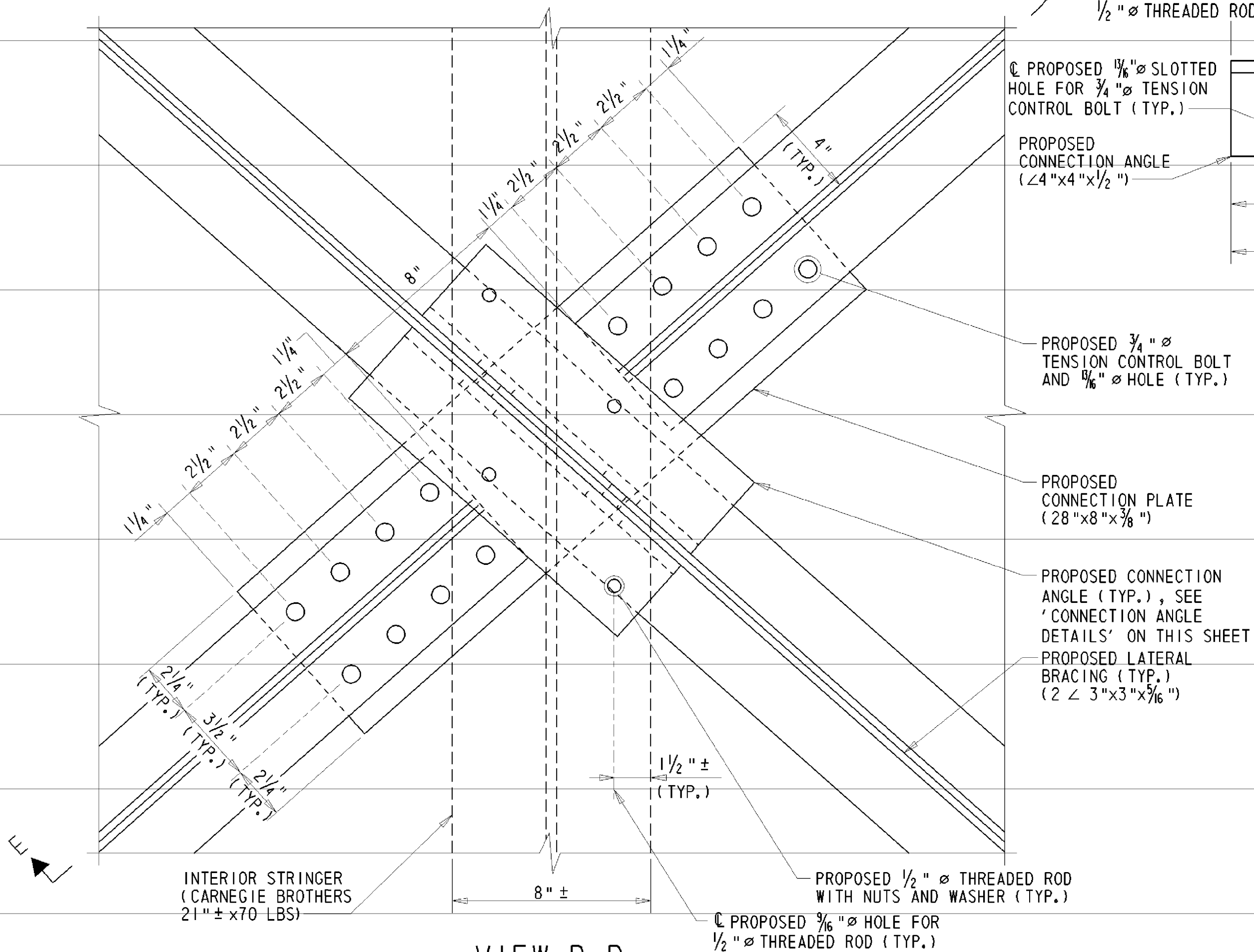
PROPOSED END FLOOR BEAM BOTTOM LATERAL CONNECTION PLAN

SCALE: 1 1/2"=1'-0"



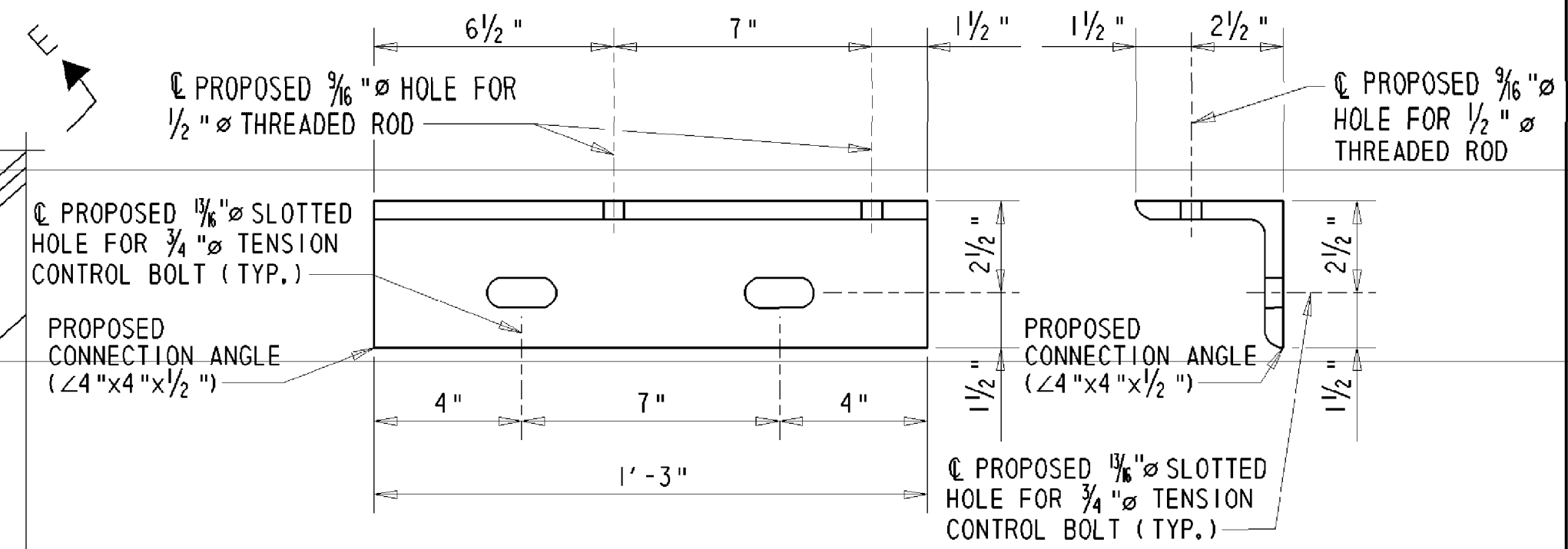
PROPOSED BOTTOM LATERAL TO STRINGER CONNECTION

SCALE: 3"=1'-0"



VIEW D-D

SCALE: 3"=1'-0"



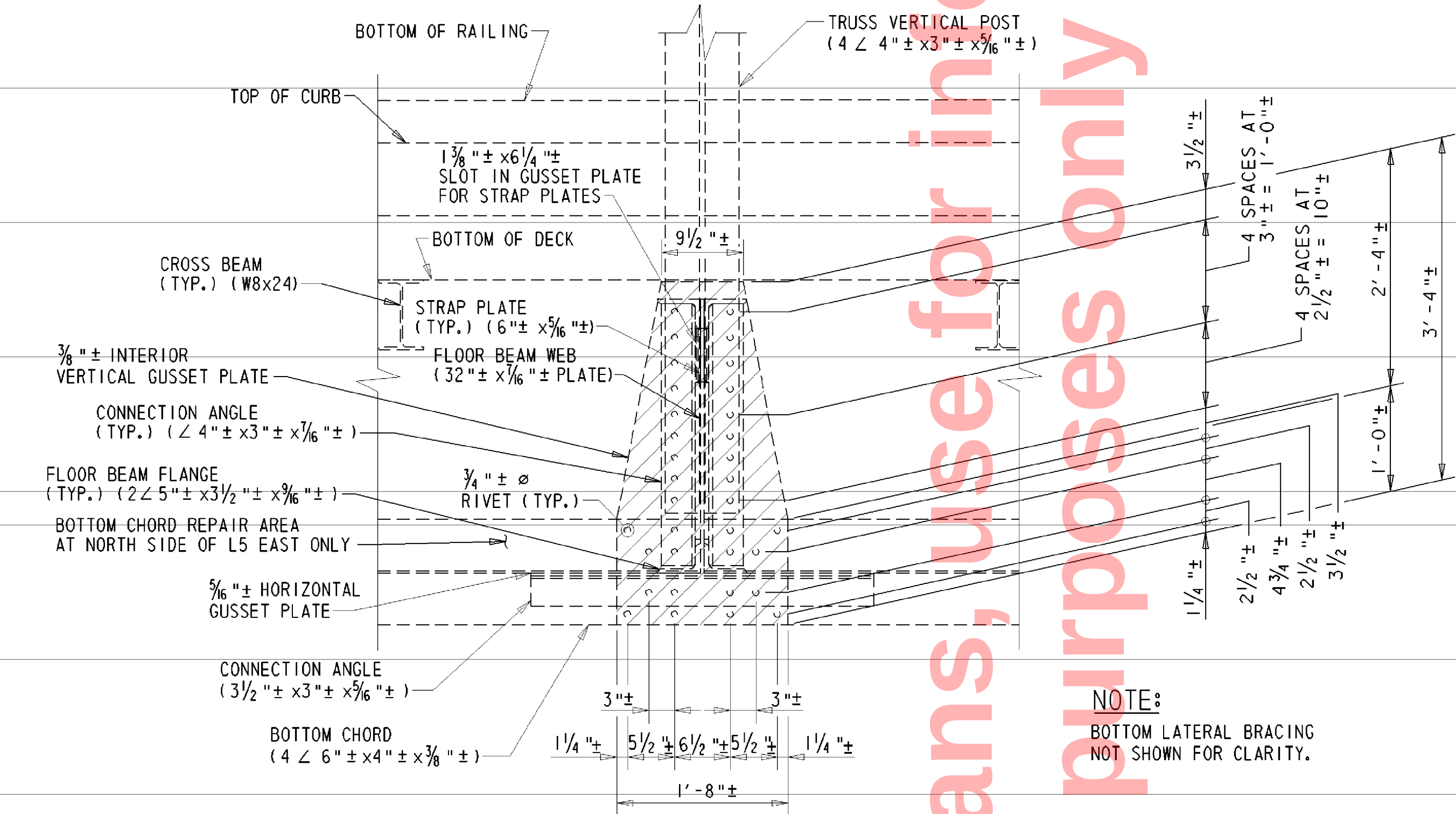
CONNECTION ANGLE DETAILS

SCALE: 3"=1'-0"

REPAIR NOTES:

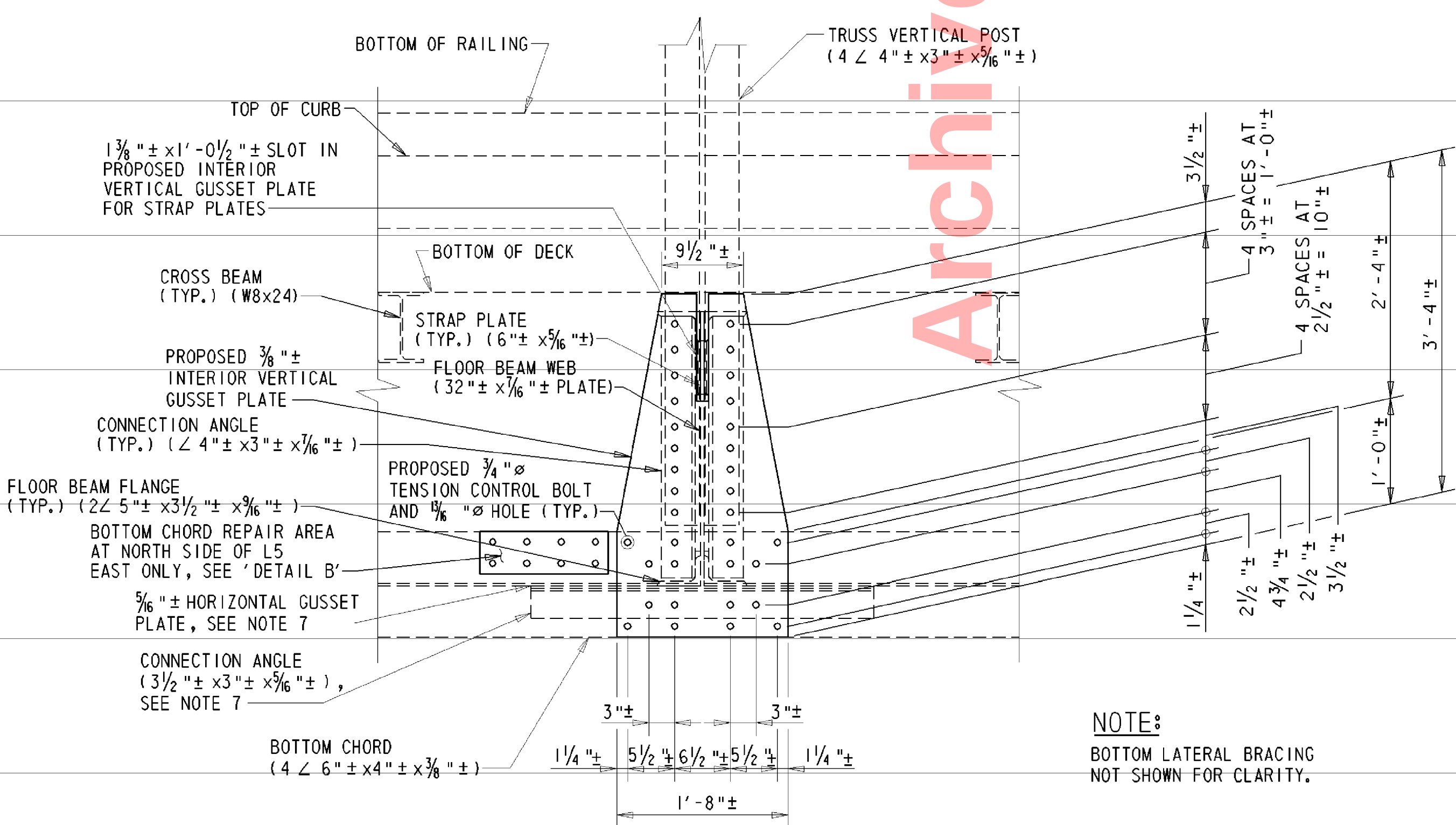
1. BOTTOM LATERAL CONNECTIONS SHALL BE REMOVED AND REPLACED IN EACH BAY (6 BAYS TOTAL).
2. DIMENSIONS FOR BOTTOM LATERALS AND CONNECTIONS SHOULD BE VERIFIED PRIOR TO ORDERING OR FABRICATING MATERIALS.
3. AT PANEL POINTS L1 AND L5 WHERE, 3/8" ± THICK FILL PLATES EXIST BETWEEN THE CONNECTION ANGLE AND THE VERTICAL GUSSET PLATE FOR A PORTION OF THE LENGTH. THESE FILL PLATES SHALL BE REPLACED IN-KIND.
4. THE BOTTOM LATERAL BRACING SHALL BE REPLACED ONLY ONE BAY AT A TIME. THE BOTTOM LATERAL BRACING IN THE BAY ADJACENT TO THE BAY BEING REPLACED MAY BE DISCONNECTED FROM THE 3/8" ± HORIZONTAL GUSSET PLATE AT ONE LOCATION AT A TIME. NO CONCURRENT REPLACEMENT OF ANY STRUCTURAL MEMBERS OR COMPONENTS SHALL BE ALLOWED WHILE THE LATERAL BRACING IS BEING REPLACED. THE BOTTOM LATERAL BRACING WORK SHALL BE COORDINATED WITH THE INTERIOR VERTICAL GUSSET PLATE REPLACEMENT WORK. THE INTERIOR VERTICAL GUSSET PLATES SHALL BE REPLACED PRIOR TO THE REPLACEMENT OF THE BOTTOM LATERAL BRACING.
5. THE VERTICAL LEGS OF THE BOTTOM LATERAL BRACING SHALL BE FASTENED WITH 3/4" DIAMETER TENSION CONTROL BOLTS. 3/8" DIAMETER HOLES SHALL BE SPACED AT 5'-0" MAXIMUM ON CENTER ALONG THE LENGTH OF BOTTOM LATERAL BRACING.
6. SEE 'FABRICATION AND ERECTION NOTES' ON SHEET NO. 44 FOR PREPARATION OF THE EXISTING STEEL, PREPARATION OF THE EXISTING RIVET HOLES, AND ALL INFORMATION REGARDING FABRICATION AND ERECTION OF THE PROPOSED BOTTOM LATERAL BRACING AND CONNECTIONS.
7. PAYMENT FOR THE REPLACEMENT OF BOTTOM LATERAL BRACING, GUSSET PLATES AND ANGLES, INSTALLING 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CLEANING EXISTING STEEL, PAINTING, REAMING AND ALL WORK ASSOCIATED WITH REPLACEMENT OF BOTTOM LATERALS WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.

PREL. TRACING
K.P.L./K.W.F.
DESIGN
R.K.B./S.F.B.
CHKD.
J.A.G.



EXISTING L1 AND L5 EAST AND WEST
INTERIOR VERTICAL GUSSET PLATE ELEVATION

SCALE: 1"=1'-0"



PROPOSED L1 AND L5 EAST AND WEST
INTERIOR VERTICAL GUSSET PLATE ELEVATION

SCALE: 1"=1'-0"

NOTE:
BOTTOM LATERAL BRACING
NOT SHOWN FOR CLARITY.

NOTE:
BOTTOM LATERAL BRACING
NOT SHOWN FOR CLARITY.

INTERIOR VERTICAL GUSSET PLATE REPLACEMENT DETAILS - I

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	35	83

REHABILITATION OF BRIDGES 1 & 1A ON RISING SUN LANE OVER BRANDYWINE CREEK

REVISIONS

NOTES:

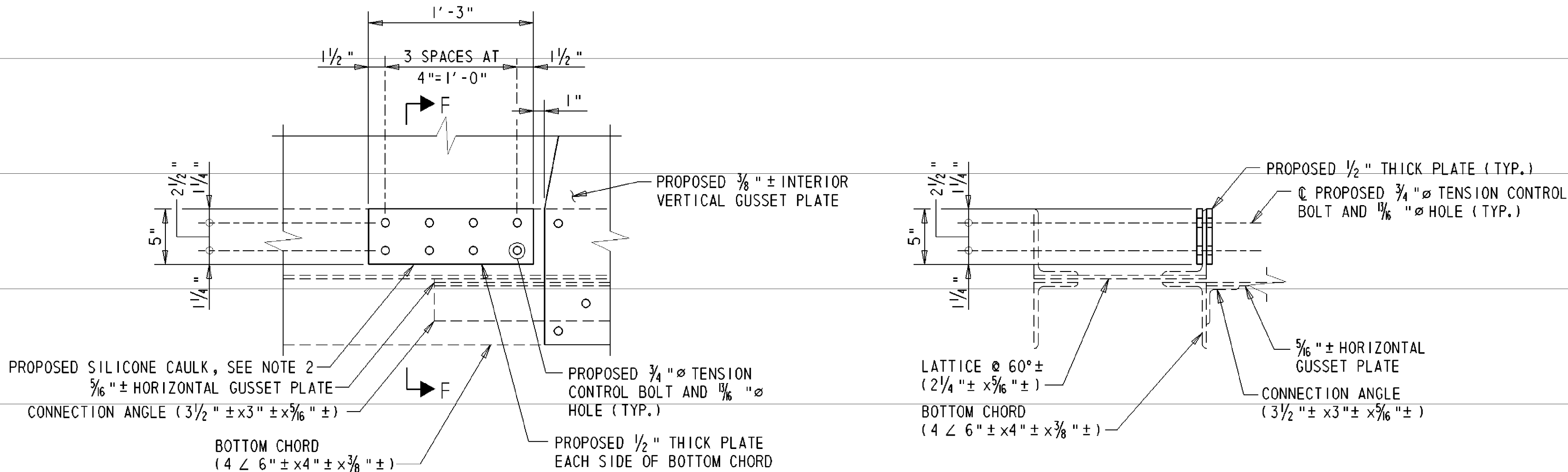
- FOR INTERIOR VERTICAL GUSSET PLATE REMOVAL AND TEMPORARY TRUSS SUPPORT DETAILS AND NOTES, SEE SHEET NOS. 36 AND 37.
- DIMENSIONS FOR INTERIOR VERTICAL GUSSET PLATES SHOULD BE VERIFIED PRIOR TO ORDERING OR FABRICATING MATERIALS.
- THE INTERIOR VERTICAL GUSSET PLATES SHALL BE REPLACED ONE AT A TIME. NO CONCURRENT REPLACEMENT OF ANY STRUCTURAL MEMBERS SHALL BE ALLOWED WHILE AN INTERIOR VERTICAL GUSSET PLATE IS BEING REPLACED. THE INTERIOR VERTICAL GUSSET PLATE REPLACEMENT WORK SHALL BE COORDINATED WITH THE BOTTOM LATERAL BRACING WORK. THE INTERIOR VERTICAL GUSSET PLATES SHALL BE REPLACED PRIOR TO THE REPLACEMENT OF THE BOTTOM LATERAL BRACING.
- SEE 'RIVET REPLACEMENT NOTES' AND 'RIVET REPLACEMENT GUIDELINES' ON SHEET NO. 44 FOR REMOVAL AND REPLACEMENT OF 3/4" DIAMETER RIVETS.
- SEE 'FABRICATION AND ERECTION NOTES' ON SHEET NO. 44 FOR PREPARATION OF THE EXISTING STEEL, PREPARATION OF THE EXISTING RIVET HOLES, AND ALL INFORMATION REGARDING FABRICATION AND ERECTION OF THE PROPOSED INTERIOR VERTICAL GUSSET PLATES.
- PAYMENT FOR THE REPLACEMENT OF INTERIOR VERTICAL GUSSET PLATES, INSTALLING 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, 3/4" DIAMETER TEMPORARY A 325 BOLTS, NUTS, WASHERS, CLEANING EXISTING STEEL, PAINTING, REAMING AND ALL WORK ASSOCIATED WITH REPLACEMENT OF INTERIOR VERTICAL GUSSET PLATES WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.
- HORIZONTAL GUSSET PLATE AND CONNECTION ANGLE TO BE REPLACED WITH BOTTOM LATERAL BRACING. FOR DETAILS, SEE SHEET NO. 34.
- EXISTING 3/4" ± DIAMETER RIVETS SHALL BE REPLACED WITH 3/4" DIAMETER TEMPORARY A 325 BOLTS AS WORK PROGRESSES. AT NO TIME SHALL HOLES IN THE GUSSET PLATE BE LEFT WITHOUT A RIVET OR TEMPORARY BOLT. WHEN THE PROPOSED INTERIOR VERTICAL GUSSET PLATE IS TO BE REPLACED THE TEMPORARY BOLTS SHALL BE REMOVED AND THE GUSSET PLATE INSTALLED.

BOTTOM CHORD PLATING NOTES:

- PAYMENT FOR PLATING BOTTOM CHORD WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR INCLUDING 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CAULKING MATERIALS, METAL REINFORCED EPOXY FILLER, CLEANING EXISTING STEEL, SURFACE PREPARATION AND PAINTING.
- SILICONE CAULKING MATERIAL SHALL BE PLACED AROUND THE ENTIRE PERIMETER OF EACH PROPOSED 1/2" THICK PLATE AFTER ALL PAINTING WORK HAS BEEN COMPLETED AND ACCEPTED.
- SILICONE CAULKING MATERIAL SHALL BE A CLEAR, ONE-PART, ACETOXY CURE SILICONE SEALANT AND SHALL CONFORM TO THE FOLLOWING WHEN TESTED AT 77 ± °F AND 50 PERCENT HUMIDITY:

SHORE A HARDNESS	27
TENSILE STRENGTH	350 PSI
MIN. ELONGATION	600%
TOOLING TIME	5-10 MIN.
TACK-FREE TIME	15-20 MINUTES
- EXISTING STEEL SURFACE THAT IS TO BE COVERED BY THE NEW PLATE SHALL BE THOROUGHLY CLEANED TO AN SSPC SP3 FINISH. AREAS OF SECTION LOSS AND PITTING SHALL BE COATED WITH A METAL REINFORCED EPOXY FILLER JUST PRIOR TO INSTALLING NEW PLATE.
- METAL REINFORCED EPOXY FILLER SHALL CONFORM TO THE FOLLOWING CRITERIA:

MIN. POT LIFE	20 MINS. @ 75°
MIN. SPECIFIC GRAVITY	1.65
MIN. COMPRESSIVE STRENGTH	
ASTM D 695/7 DAYS	15000 PSI
MIN. FLEXURAL STRENGTH	
ASTM D 790/7 DAYS	13500 PSI
MIN. SHEAR STRENGTH	
(TENSILE: STEEL TO STEEL)	
ASTM D 1002	2400 PSI



DETAIL B

SCALE: 1 1/2"=1'-0"

SECTION F-F

SCALE: 1 1/2"=1'-0"

LEGEND

REMOVAL

PREL. TRACING _____ K.P.L./K.W.F. _____ DESIGN _____ B.K.B./S.E.B. _____ CHKD. _____ J.A.G. _____

NOTES:

1. SEE SHEET NO. 37 FOR SECTION.
2. TYPICAL FLOORBEAM SUPPORT SCHEME SHOWN FOR INTERIOR VERTICAL GUSSET REPLACEMENT AT L5. FLOORBEAM SUPPORT SCHEME FOR INTERIOR VERTICAL GUSSET REPLACEMENT AT L1, SIMILAR.

INTERIOR VERTICAL GUSSET PLATE
REPLACEMENT DETAILS - II

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	36	83

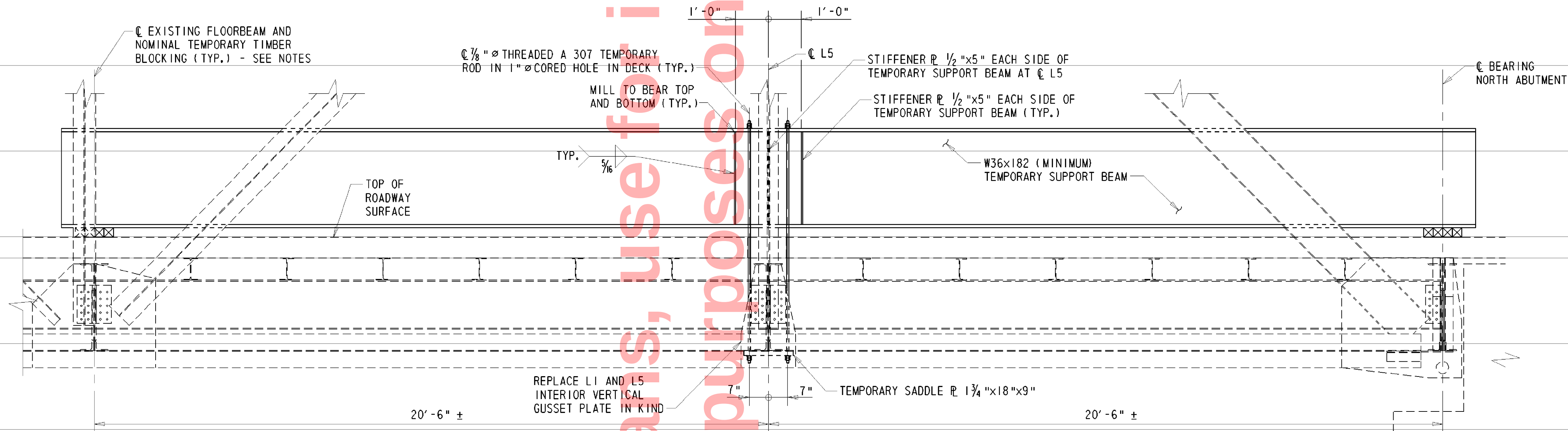
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

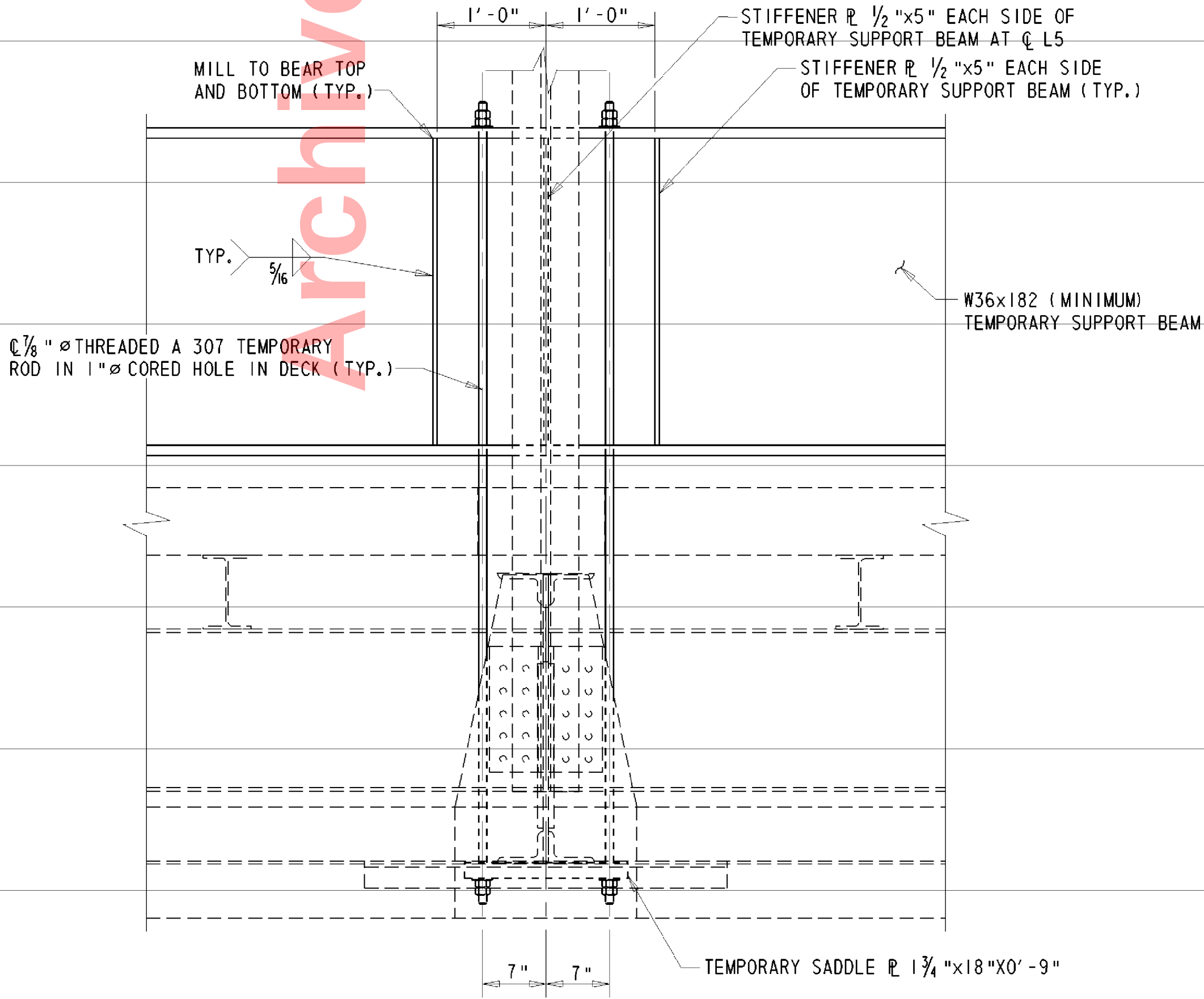
GUSSET PLATE REPLACEMENT NOTES:

- THE GUSSET PLATE REPLACEMENT DETAILS SHOWN HEREON INDICATE SUGGESTED METHODS FOR COMPLETING THE REQUIRED WORK UNDER ITEM 605606 - TEMPORARY BRIDGE SUPPORT SYSTEM.
- MATERIAL FOR THE STRUCTURAL SUPPORT BEAM, STIFFENERS AND SADDLE PLATES SHALL CONFORM TO A 709 GRADE 36. STEEL USED FOR THESE MEMBERS SHALL BE IN GOOD CONDITION WITH FULL SECTION (I.E., NO EXCESSIVE RUSTING OR CORROSION THAT WOULD REDUCE THE MEMBER SECTION THICKNESS). ANCHOR RODS SHALL BE ALL THREAD A 307 RODS OR BETTER.
- THE STRUCTURAL MEMBER SIZES SHOWN HEREON ARE MINIMUMS. THE CONTRACTOR MAY UTILIZE LARGER ROLLED MEMBER SIZES THAN THOSE INDICATED AS WELL AS LARGER ANCHOR RODS, BEARINGS STIFFENERS, SADDLE PLATES, ETC. NO INCREASE IN PAYMENT FOR ITEM 605606 WILL BE ALLOWED FOR THE SUBSTITUTION ON ANY LARGER MEMBER SIZES. THE MEMBER SIZES SHOWN ARE FOR A 709 GRADE 36. IF THE CONTRACTOR ELECTS TO USE STRUCTURAL STEEL WITH A HIGHER YIELD STRENGTH, IT MAY BE SUBSTITUTED FOR THE MEMBER SHOWN. HOWEVER, THE USE OF A SMALLER MEMBER MADE UP OF A GREATER YIELD STRENGTH SHALL BE ACCOMPANIED BY CALCULATIONS VERIFYING THE ADEQUACY OF THE SUBSTITUTED MEMBER. THESE CALCULATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE 2002 AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE.
- THE TEMPORARY BRIDGE SUPPORT SYSTEM SHOWN IS BASED ON A 62,000 POUND FLOOR BEAM REACTION.

THIS LOAD ACCOUNTS FOR THE IN PLACE DEAD LOAD OF THE BRIDGE AND A CONSTRUCTION LOAD ALLOWANCE OF 100 PSF INCLUSIVE OF ANY BRIDGE SCAFFOLDING, RIGGING, EQUIPMENT, MATERIAL, LABOR AND/OR VEHICLES PRESENT ON THE EXISTING BRIDGE. IF THE CONTRACTOR'S PROPOSED SCAFFOLDING SYSTEM AND ANTICIPATED CONSTRUCTION LOADS ARE GREATER THAN 100 PSF, THE CONTRACTOR SHALL INCREASE THE SIZES OF ALL AFFECTED MEMBERS ACCORDINGLY. NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR ANY INCREASES IN MEMBER SIZES TO ACCOMMODATE CONSTRUCTION LOADS HIGHER THAN 100 PSF.
- THE TEMPORARY THREADED RODS SHALL BE PRETENSIONED TO 30,000 LBS. PRIOR TO THE REMOVAL OF ANY PORTION OF THE EXISTING STRUCTURE REQUIRED FOR THE INTERIOR VERTICAL GUSSET PLATE REPLACEMENT. LATERAL BRACING SHALL BE PROVIDED AS REQUIRED AT INTERMEDIATE LOCATIONS AND THE ENDS OF THE TEMPORARY SUPPORT BEAM.
- NO TRAFFIC OF ANY KIND INCLUDING CONSTRUCTION VEHICLES WILL BE ALLOWED ON THE BRIDGE DURING THE REMOVAL AND REPLACEMENT OF THE SPECIFIED GUSSET PLATES.
- THE TIMBER BLOCKING PROPOSED FOR USE IN SUPPORTING THE ENDS OF THE SUPPORT BEAM SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 168 SOUTHERN PINE NO. 1 OR APPROVED EQUAL. TIMBER BLOCKING SHALL BE IN GOOD CONDITION. BLOCKING SHALL BE PLACED IN A MANNER TO ALLOW THE STRUCTURAL SUPPORT BEAM TO BE SET LEVEL.
- THE TEMPORARY SUPPORT SHALL BE INSTALLED IN A MANNER TO MAINTAIN THE SAME ELEVATION OF THE FLOOR BEAM BEFORE IT IS RELEASED FROM THE GUSSET PLATE CONNECTION. ANY DAMAGE TO THE FLOOR BEAM OR ADJACENT STRUCTURAL ELEMENTS RESULTING FROM A CHANGE IN ELEVATION OF THE FLOOR BEAM SHALL BE REPAIRED BY THE CONTRACTOR TO THE COMPLETE SATISFACTION OF THE ENGINEER ALL AT THE CONTRACTOR'S SOLE COST.
- REPLACEMENT OF THE L1 AND L5 INTERIOR VERTICAL GUSSET PLATE IN KIND, INCLUDING ALL TENSION CONTROL BOLTS, WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.



TYPICAL FLOORBEAM SUPPORT SCHEME - ELEVATION
SCALE: 1/2" = 1'-0"



TYPICAL FLOORBEAM SUPPORT
SCHEME - DETAIL
SCALE: 1" = 1'-0"

PREL. TRACING K.P.L./K.W.F. DESIGN B.K.B./S.E.B. CHKD. J.A.G.

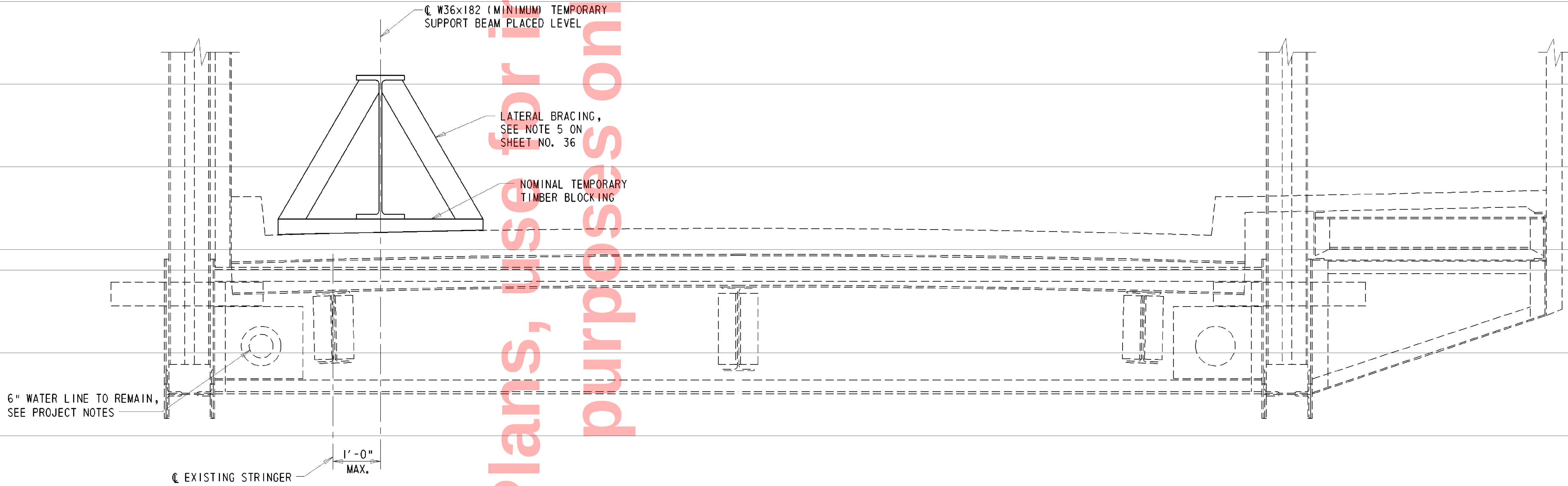
INTERIOR VERTICAL GUSSET PLATE
REPLACEMENT DETAILS - III

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	37	83

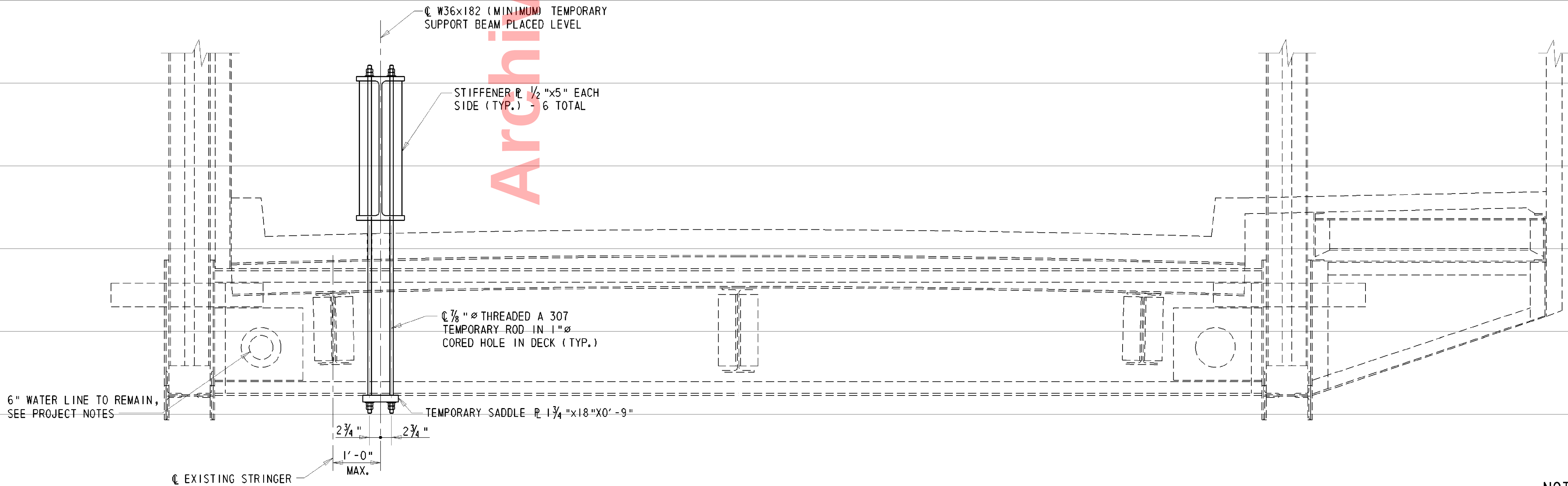
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



TYPICAL FLOORBEAM SUPPORT SCHEME - SECTION AT SUPPORT

SCALE: 3/4" = 1' - 0"



TYPICAL FLOORBEAM SUPPORT SCHEME - SECTION AT THREADED ROD

SCALE: 3/4" = 1' - 0"

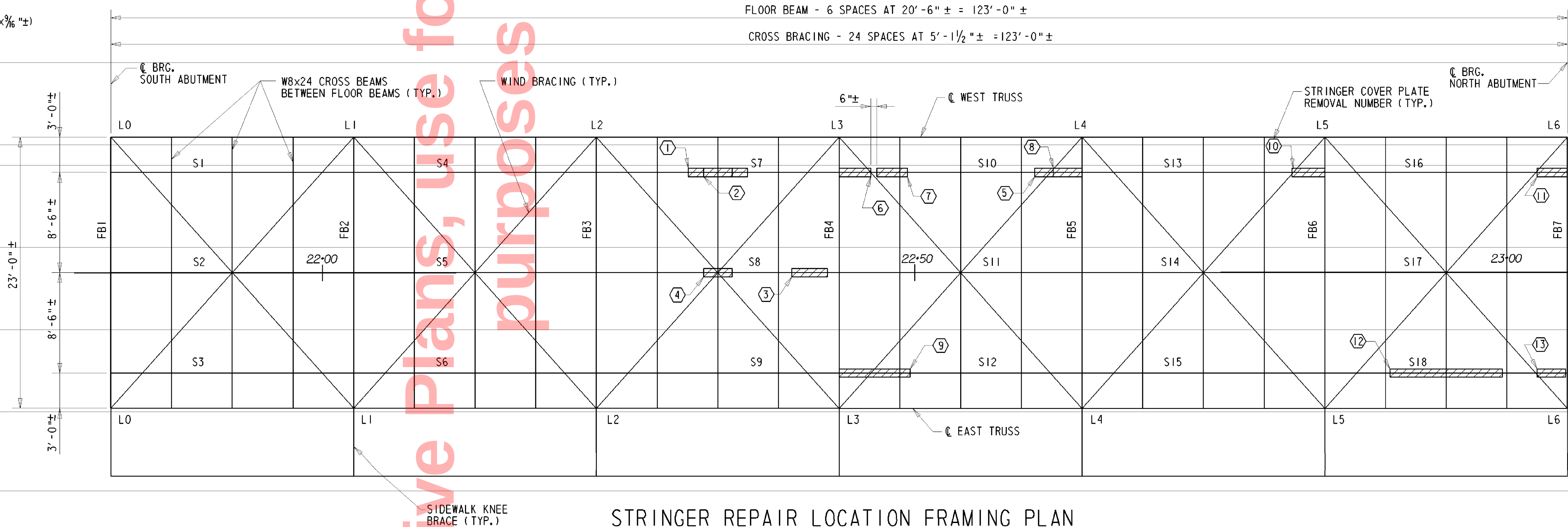
NOTES:

1. SEE SHEET NO. 36 FOR ELEVATION AND DETAILS.
2. TYPICAL FLOORBEAM SUPPORT SCHEME SHOWN FOR INTERIOR VERTICAL GUSSET REPLACEMENT AT L5. FLOORBEAM SUPPORT SCHEME FOR INTERIOR VERTICAL GUSSET REPLACEMENT AT L1, SIMILAR.

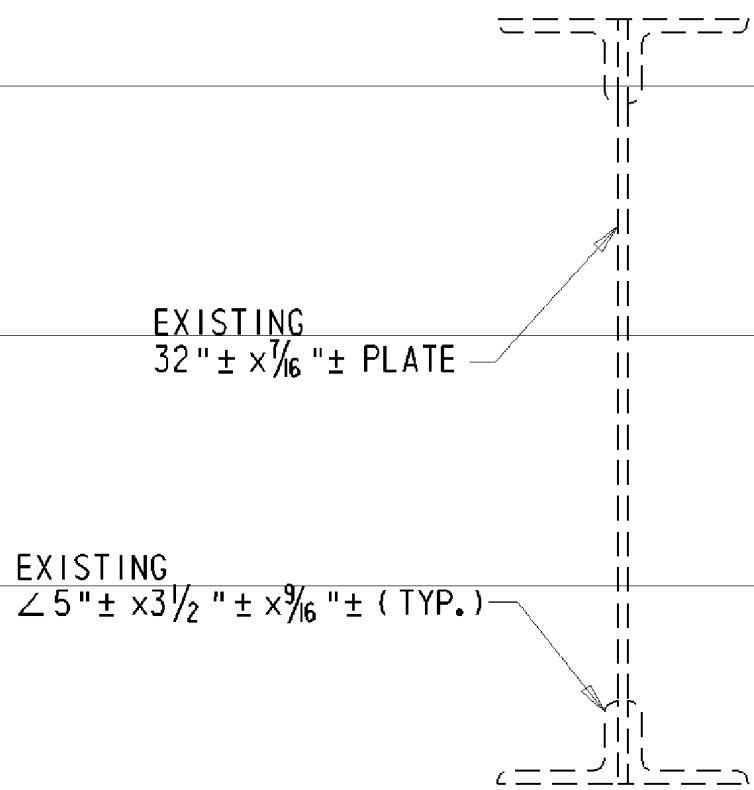
PREL. TRACING _____ K.P.L./K.W.F. _____ DESIGN _____ B.K.B./S.E.B. _____ CHKD. _____ J.A.G. _____

STEEL MEMBER LEGEND:

- L1 TRUSS CHORD JOINT
TOP CHORD (2 L 15"± @ 33.9 LBS. AND 20"± x 3/8"± PLATE)
BOTTOM CHORD BETWEEN L0 AND L2 AND L4 AND L6 (4 L 6"± x 4"± x 3/8"±)
BOTTOM CHORD BETWEEN L2 AND L4 (4 L 6"± x 4"± x 3/8"±)
- S1 STRINGER NUMBER
EXTERIOR STRINGER (18"± CARNEGIE BROTHERS @ 67 LBS.)
INTERIOR STRINGER (21"± CARNEGIE BROTHERS @ 70 LBS.)
- FB1 FLOOR BEAM NUMBER
WEB (32"± x 1/8"± PLATE)
FLANGE (2 L 5"± x 3 1/2"± x 3/8"±)



STRINGER REPAIR LOCATION FRAMING PLAN
SCALE: 3/8"=1'-0"



CONTINGENT FLOOR BEAM REPAIR SECTION
SCALE: 1 1/2"=1'-0"

FLOOR BEAM REPAIR NOTE:
IF THE EXISTING FLOOR BEAM BOTTOM FLANGE ANGLES EXHIBIT SECTION LOSS THAT REDUCES THE AVERAGE THICKNESS OF THE ENTIRE BOTTOM FLANGE TO LESS THAN 1/8", THE BOTTOM FLANGE ANGLES SHALL BE REMOVED AND REPLACED WITH SIMILAR OR LARGER SIZE ANGLES. THE NEW REPLACEMENT ANGLES SHALL BE FASTENED TO THE EXISTING FLOOR BEAM WEB USING 3/4" Ø TENSION CONTROL BOLTS. PAYMENT FOR THESE CONTINGENT FLOOR BEAM REPAIRS WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR INCLUDING THE REQUIRED SURFACE PREPARATION AND PAINTING.

STRINGER AND FLOOR
BEAM REPAIRS - I

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	38	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

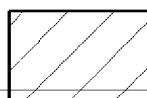
REVISIONS

NOTES:

- EXISTING TRUSS AND SUBSEQUENT MEMBERS ARE NOT SHOWN FOR CLARITY.
- STRINGER REPAIRS SHALL BE LIMITED TO THE COVER PLATE REPAIRS SHOWN. SEE SHEET NO. 39 FOR DETAILS.
- PAYMENT FOR STRINGER COVER PLATE REPAIRS WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR INCLUDING SHIM PLATES, 3/4" DIAMETER HIGH-STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, METAL REINFORCED EPOXY FILLER, CLEANING EXISTING STEEL, THE REQUIRED SURFACE PREPARATION, TESTING AND PAINTING.

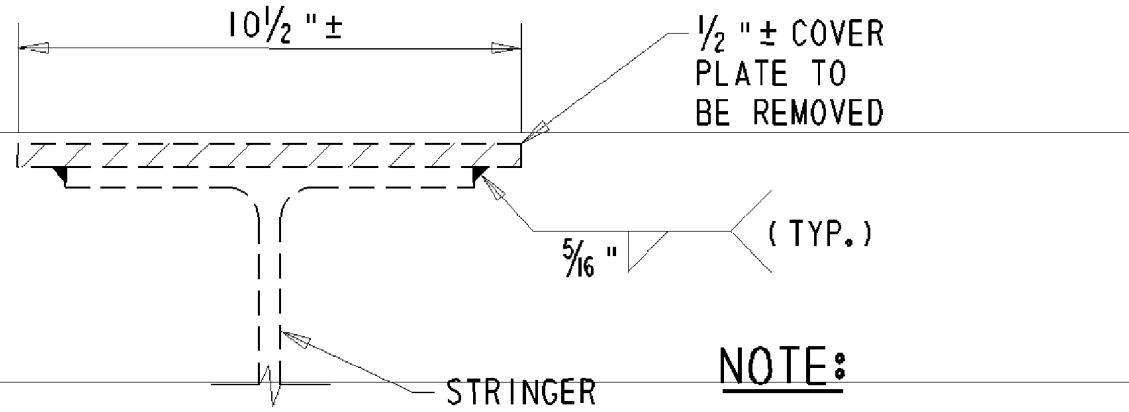
B CONSTRUCTION
RISING SUN LANE

LEGEND

 EXISTING STRINGER
COVER PLATE REMOVAL

PREL. TRACING
K.P.L./K.W.F.
DESIGN
B.K.B./S.E.B.
CHKD.
J.A.G.

EXISTING STRINGER SECTION
SCALE: 3"=1'-0"



NOTE:
TOP FLANGE SHOWN,
BOTTOM FLANGE SIMILAR.

STRINGER COVER PLATE REPAIRS TABLE						
NUMBER	STRINGER	LOCATION	FLANGE	A (IN.)	B (IN.)	C (IN.)
①	7	MID SPAN	BOTTOM	8 1/2	5 1/2	60
② *	7	MID SPAN	TOP	8 1/2	5 1/2	29
③	8	NORTH END	BOTTOM	8	5	36
④ *	8	MID SPAN	TOP	8	5	29
⑤	10	NORTH END	BOTTOM	8 1/2	5 1/2	48
⑥	10	SOUTH END	TOP	8 1/2	5 1/2	32
⑦ *	10	SOUTH END	TOP	8 1/2	5 1/2	31
⑧	10	NORTH END	TOP	8 1/2	5 1/2	29
⑨	12	SOUTH END	BOTTOM	8 1/2	5 1/2	72
⑩	13	NORTH END	TOP	8 1/2	5 1/2	33 1/4
⑪	16	NORTH END	TOP	8 1/2	5 1/2	31
⑫	18	MID SPAN	BOTTOM	8 1/2	5 1/2	180
⑬	18	NORTH END	TOP	8 1/2	5 1/2	31

* STRINGER COVER PLATE REPAIR LOCATIONS WITH CROSS BEAM INTERFERENCE

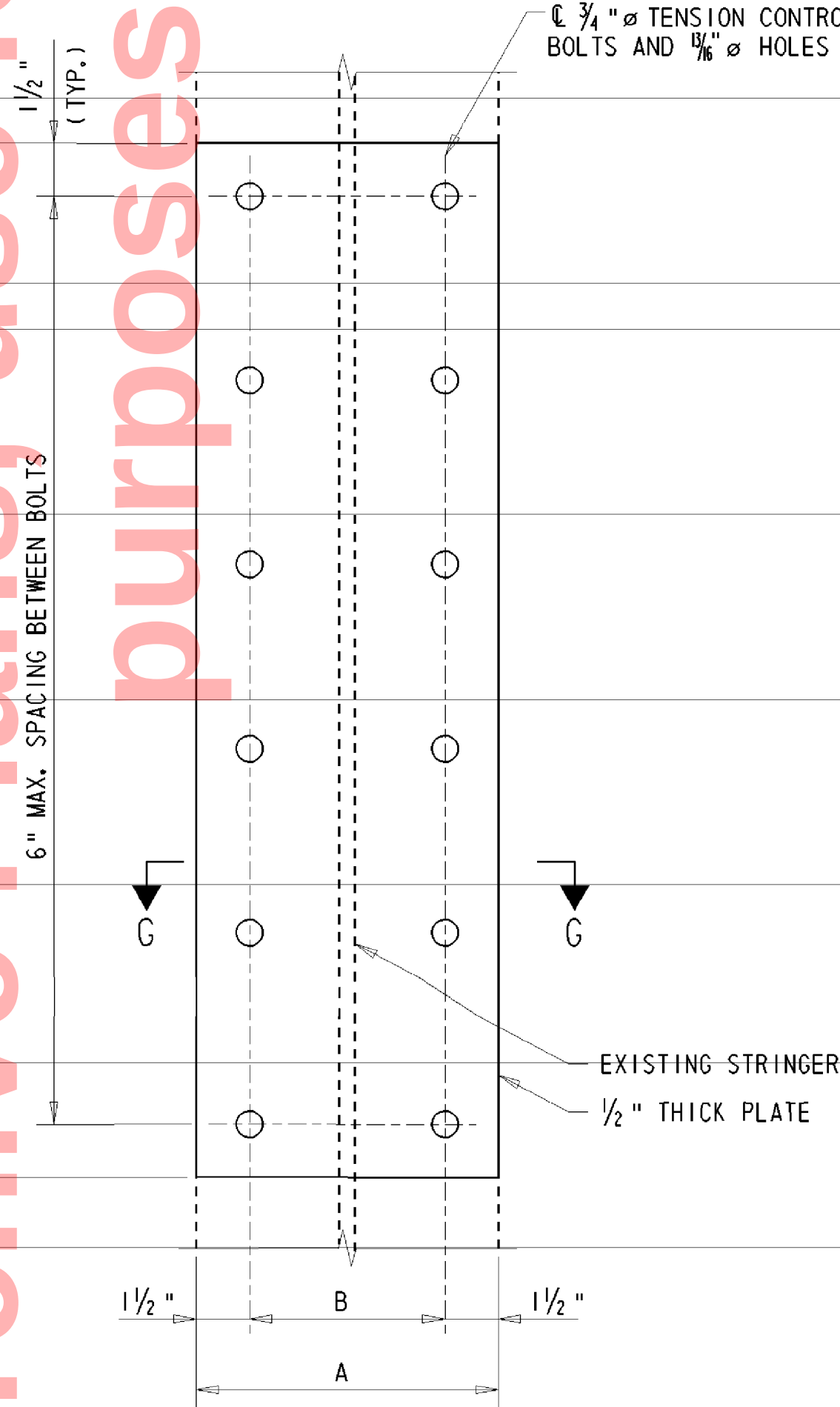
STRINGER COVER PLATE REPAIR NOTES:

- FOR LOCATION OF STRINGER COVER PLATE REPAIRS SEE SHEET NO. 38.
- LENGTHS OF COVER PLATES SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING OR FABRICATING MATERIALS.
- STRINGER COVER PLATE REPAIR AT ⑥ AND ⑦ SHALL BE COMPLETED WITH ONE NEW COVER PLATE THAT EXTENDS OVER THE ENTIRE LENGTH RATHER THAN TWO INDIVIDUAL COVER PLATES AND PROVIDES FULL BEARING FOR THE EXISTING CROSS BEAM.
- METAL REINFORCED EPOXY FILLER SHALL CONFORM TO THE FOLLOWING CRITERIA:

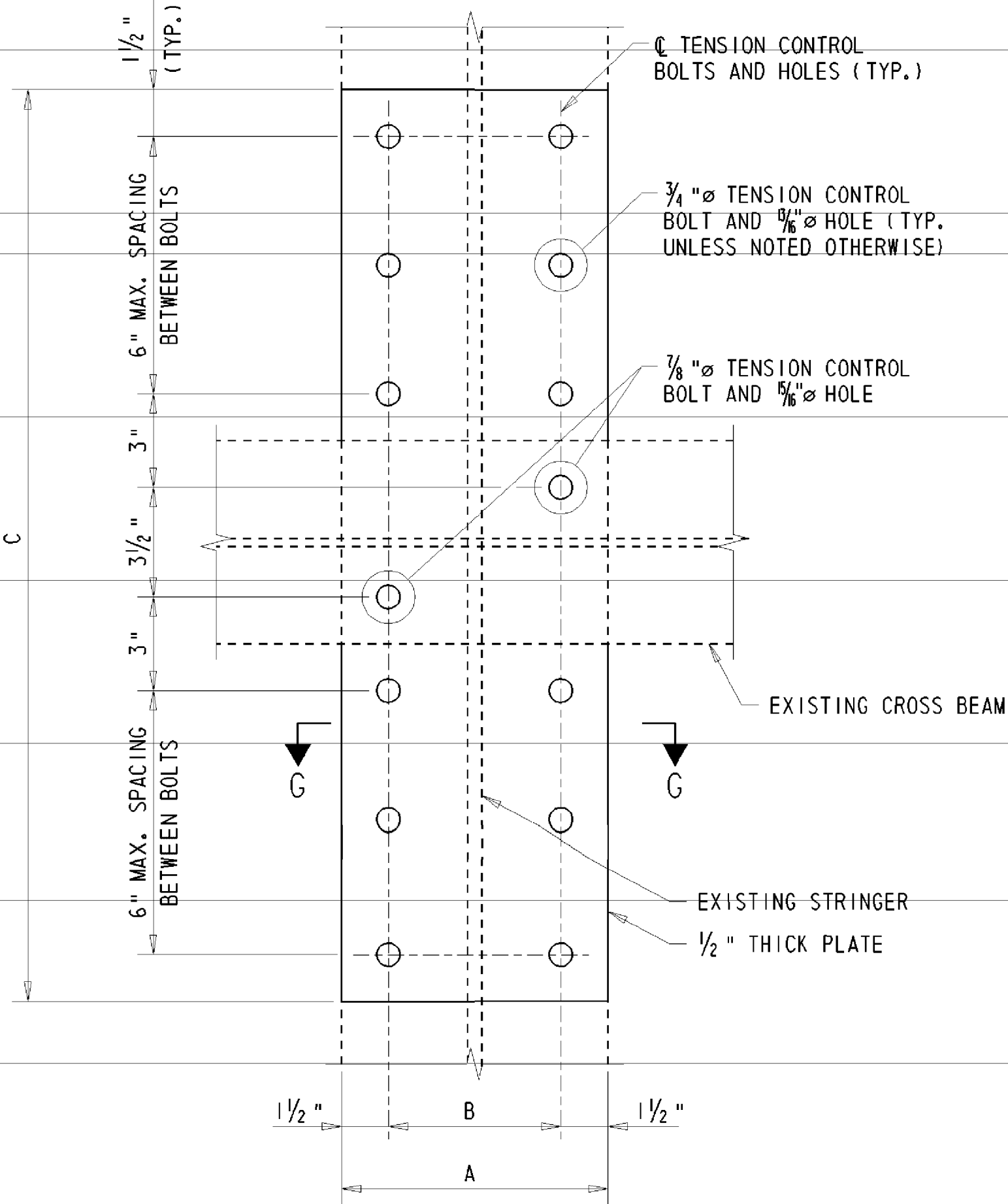
MIN. POT-LIFE	20 MINS. @ 75°
MIN. SPECIFIC GRAVITY	1.65
MIN. COMPRESSIVE STRENGTH	
ASTM D 695/7 DAYS	15000 PSI
MIN. FLEXURAL STRENGTH	
ASTM D 790/7 DAYS	13500 PSI
MIN. SHEAR STRENGTH	
(TENSILE: STEEL TO STEEL)	
ASTM D 1002	2400 PSI

- PAYMENT FOR STRINGER COVER PLATE REPAIRS WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR INCLUDING SHIM PLATES, 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, METAL REINFORCED EPOXY FILLER, CLEANING EXISTING STEEL, THE REQUIRED SURFACE PREPARATION, TESTING AND PAINTING.

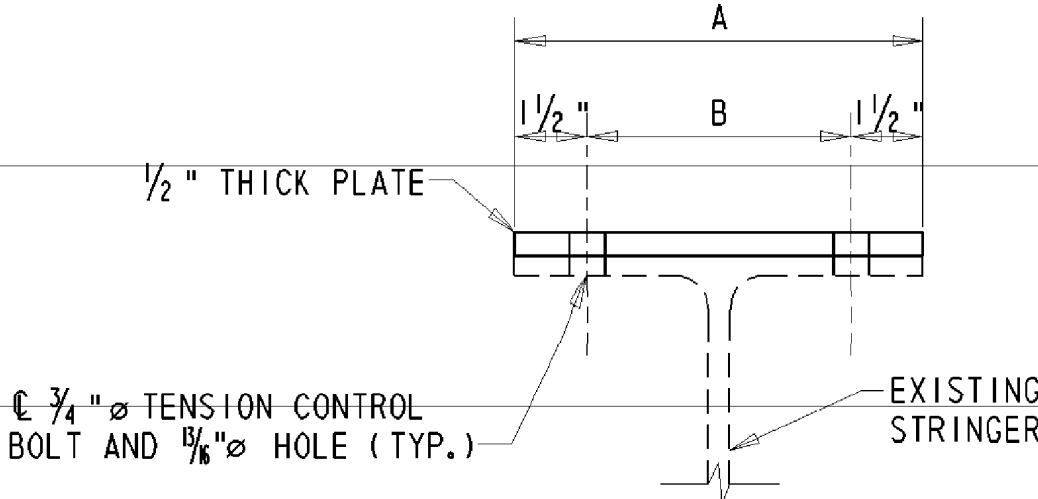
STRINGER COVER PLATE REPAIR PLAN
SCALE: 3"=1'-0"



STRINGER COVER PLATE REPAIR
WITH CROSS BEAM INTERFERENCE PLAN
SCALE: 3"=1'-0"



SECTION G-G
SCALE: 3"=1'-0"



LEGEND

EXISTING STRINGER
COVER PLATE REMOVAL

10. ATTACH THE NEW COVER PLATE.

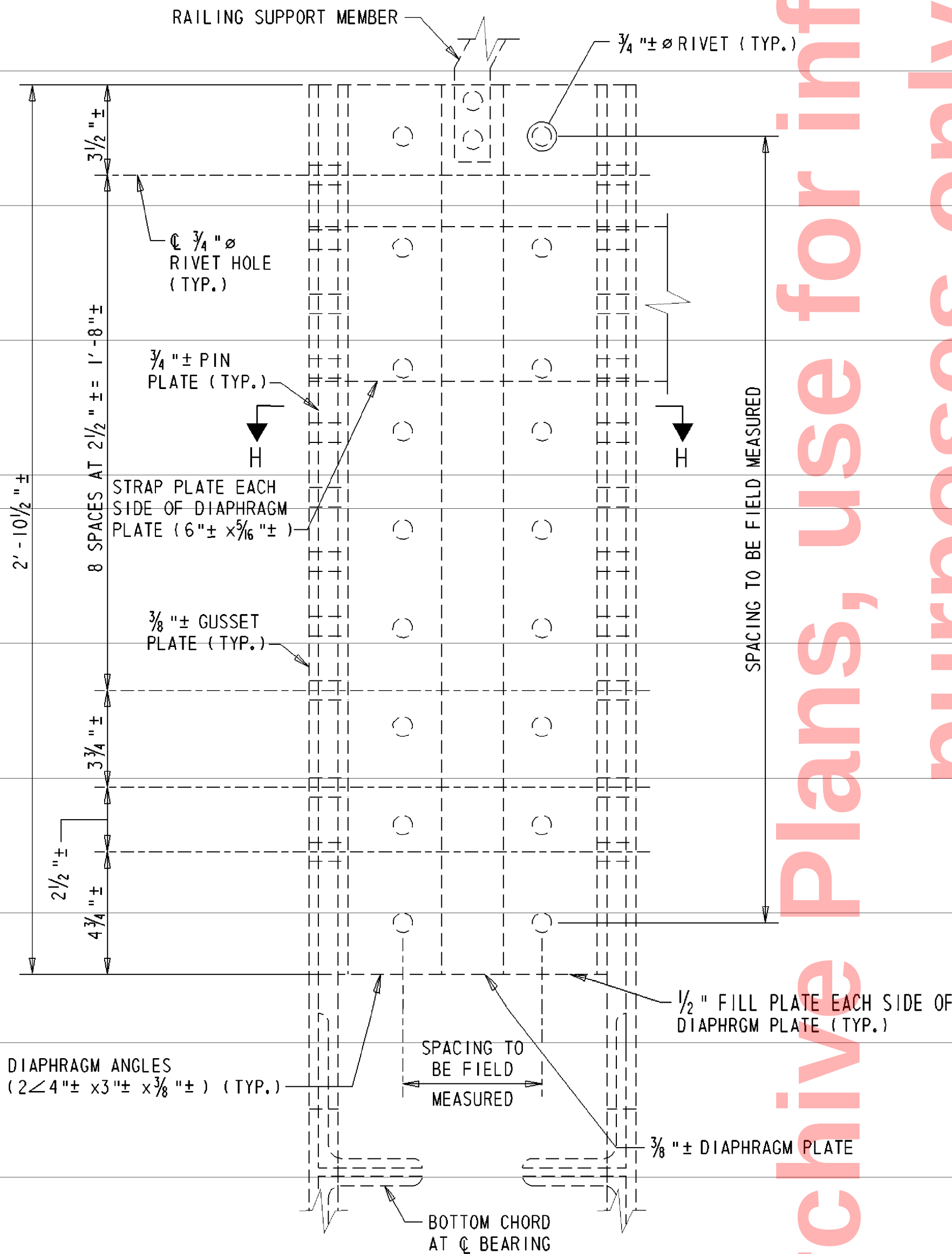
PREL. TRACING
K.P.L./K.W.F. DESIGN
B.K.B./S.E.B.
CHKD.
J.A.G.

DIAPHRAGM REPAIRS

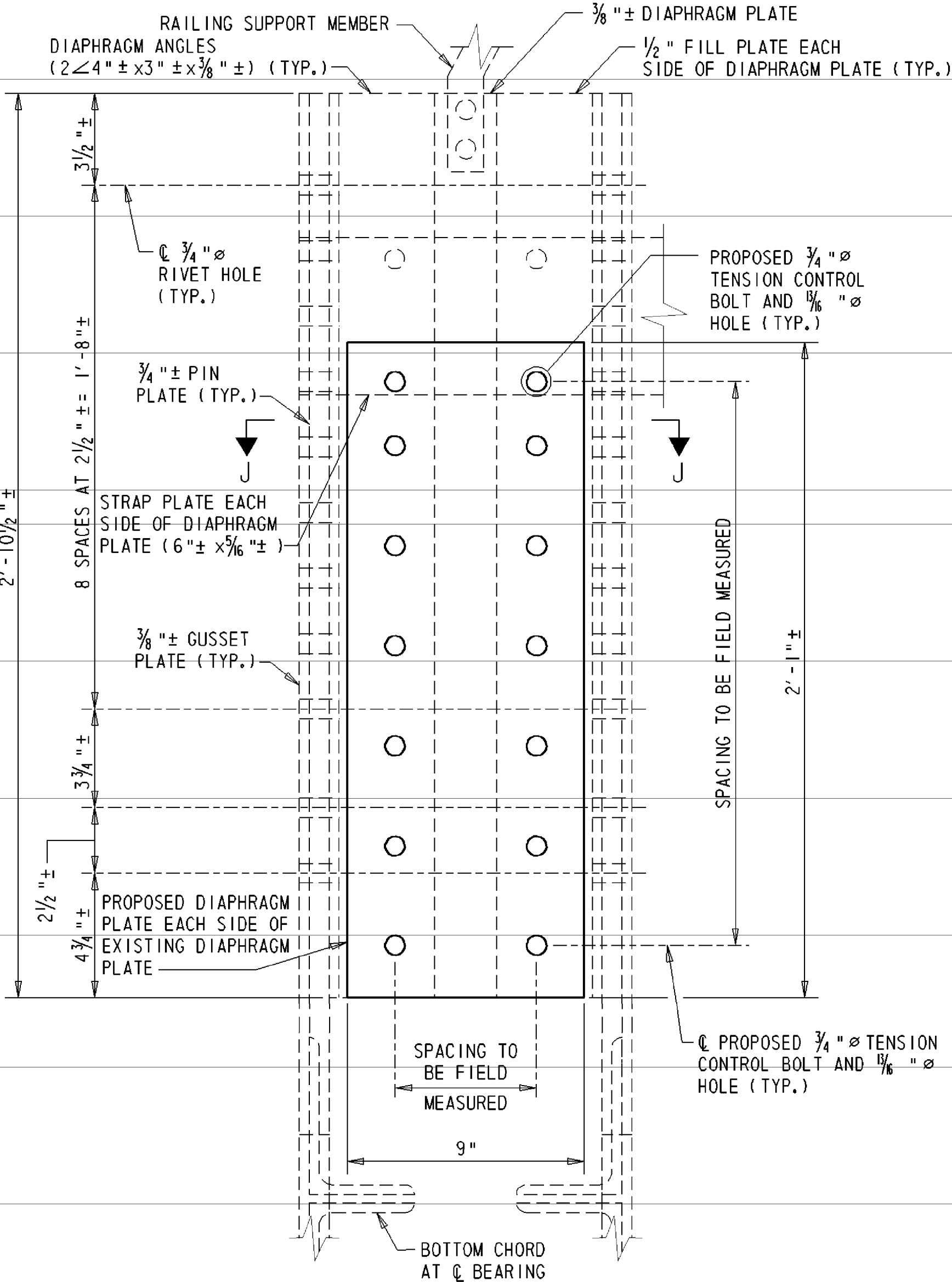
BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	40	83

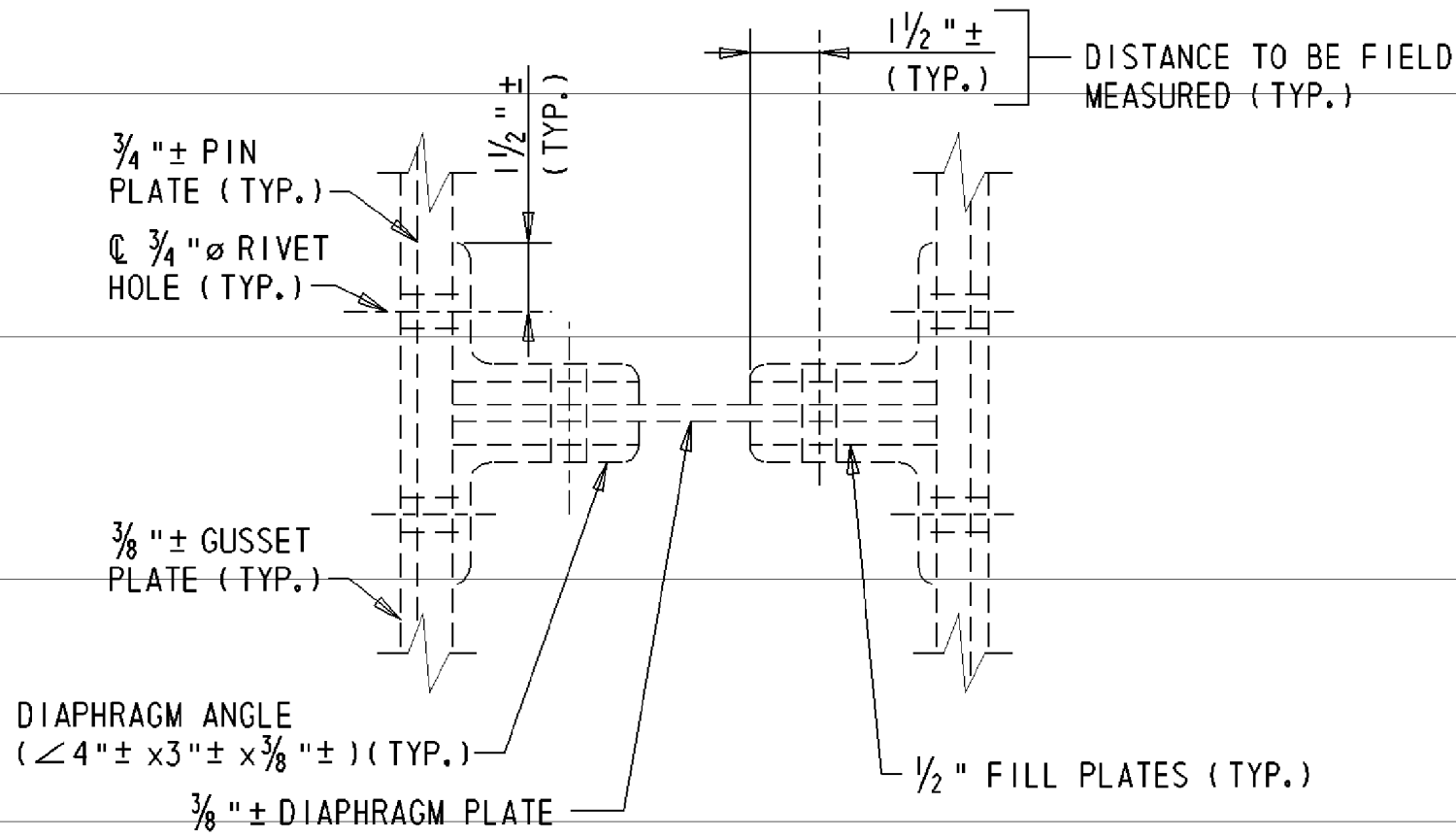
REHABILITATION OF BRIDGES 1 & 1A ON RISING SUN LANE OVER BRANDYWINE CREEK	
REVISIONS	



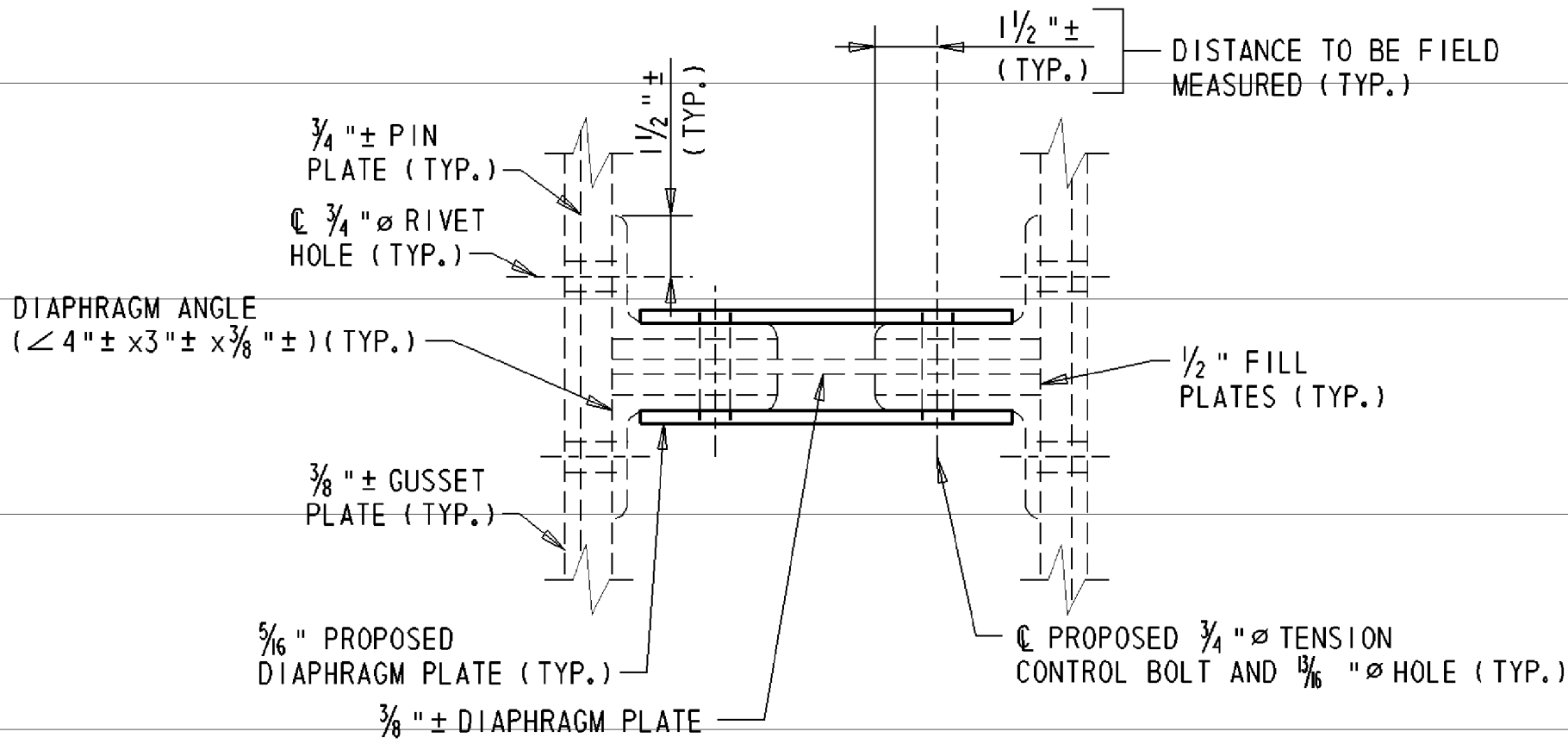
EXISTING DIAPHRAGM - ELEVATION
SCALE: 3"= 1'-0"



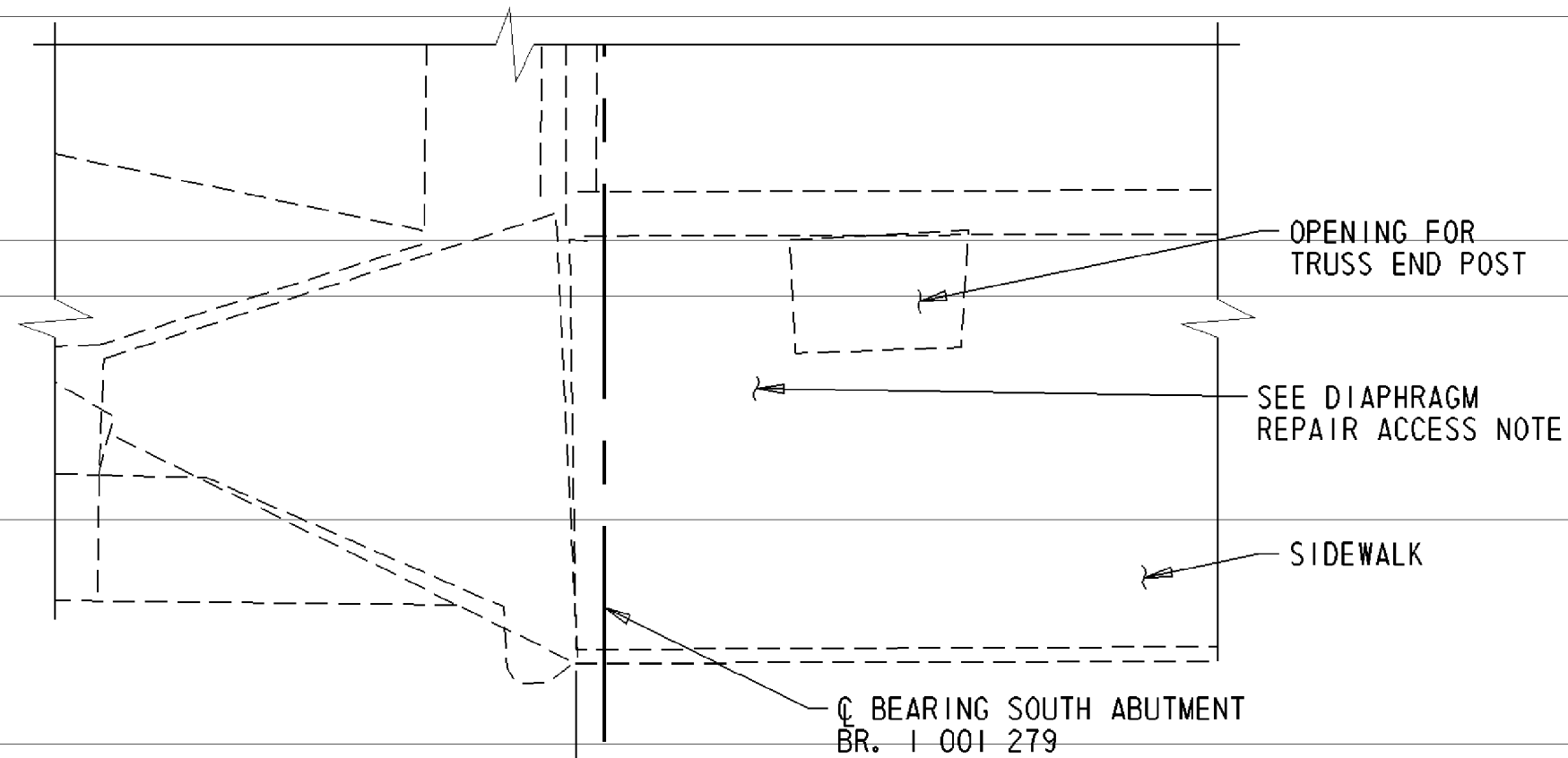
PROPOSED DIAPHRAGM - ELEVATION
SCALE: 3"= 1'-0"



SECTION H-H
SCALE: 3"= 1'-0"



SECTION J-J
SCALE: 3"= 1'-0"

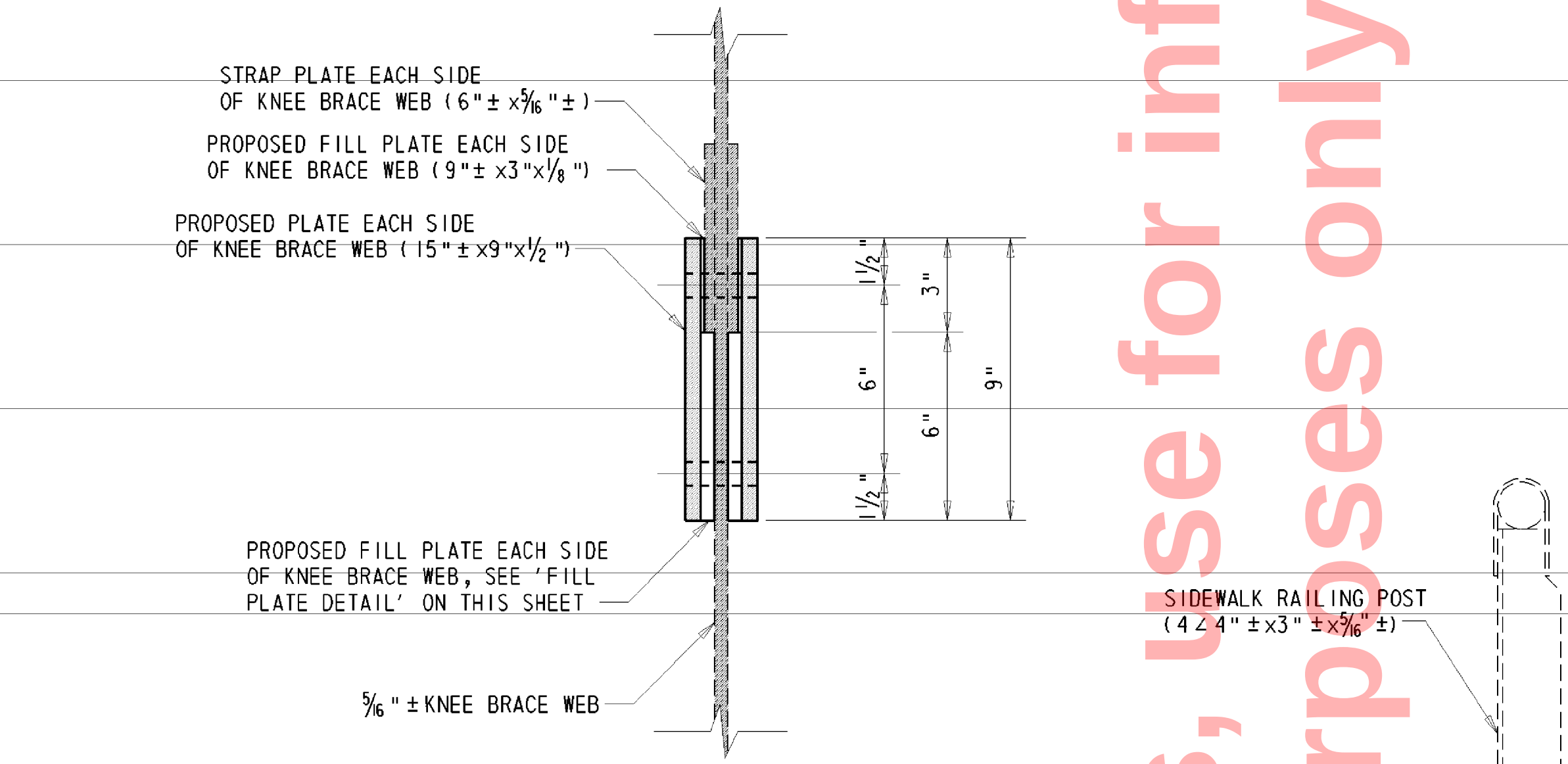


NOTE:
SOUTH ABUTMENT SHOWN,
NORTH ABUTMENT SIMILAR.

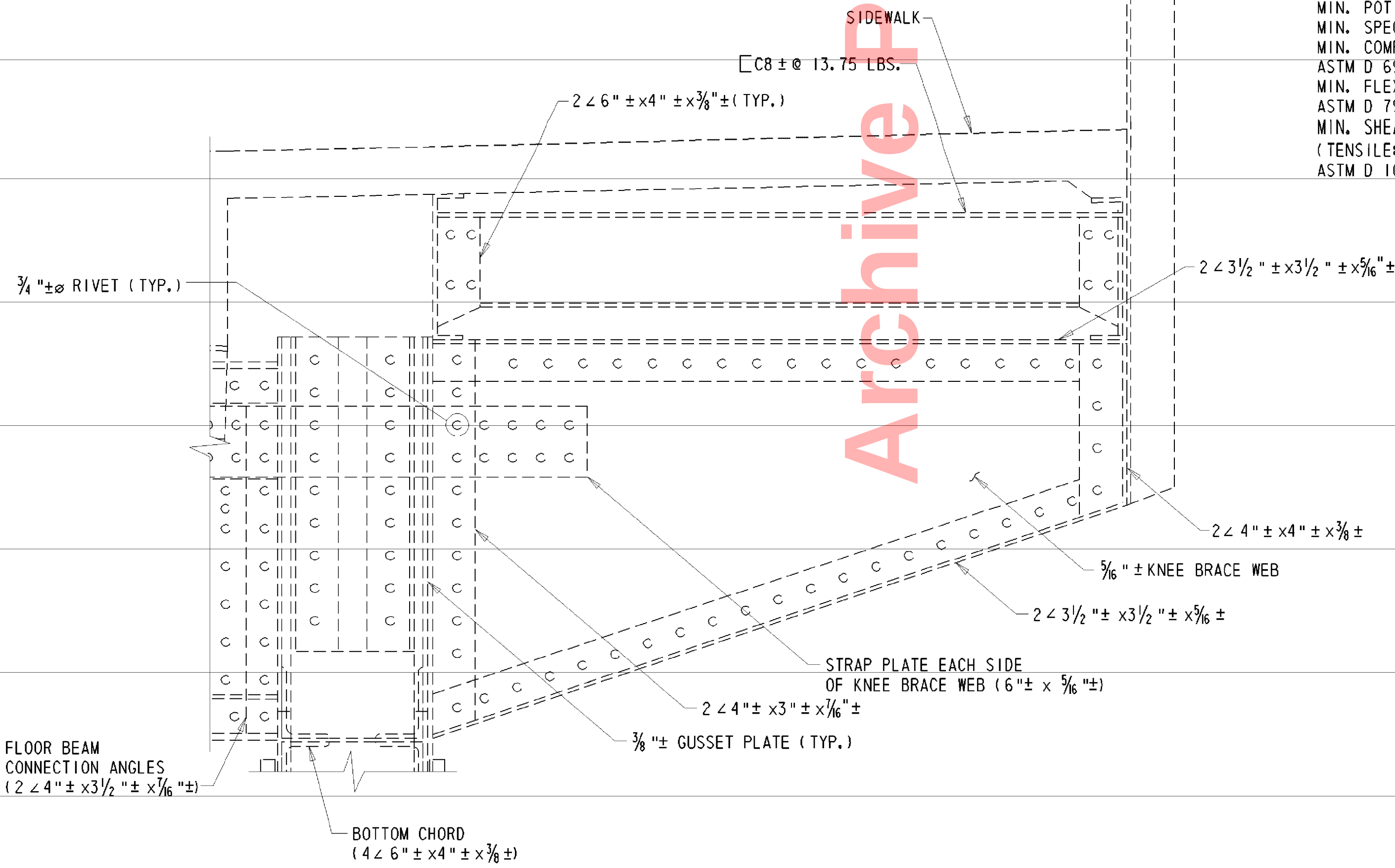
DIAPHRAGM REPAIR ACCESS PLAN
SCALE: 3/8"= 1'-0"

DIAPHRAGM REPAIR ACCESS NOTE:
THE CONTRACTOR MAY PARTIALLY REMOVE THE BACKWALL AND SIDEWALK TO THE MINIMUM LIMITS NECESSARY TO FACILITATE REASONABLE ACCESS FOR THE INSTALLATION OF THE DIAPHRAGM PLATES AT THE EAST END OF BOTH ABUTMENTS. THE ENGINEER WILL BE THE SOLE JUDGE REGARDING THE ACCEPTABLE LIMITS OF REMOVAL. THE BACKWALL AND SIDEWALK SHALL BE REPAIRED FOLLOWING THE GUIDELINES SET FORTH IN THE SPECIAL PROVISIONS FOR ITEM 602586 - REHABILITATION OF CONCRETE STRUCTURE. PAYMENT FOR THIS WORK WILL BE INCIDENTAL TO ITEM 605584 - STEEL STRUCTURE REPAIR.

- NOTES:
- THE DIAPHRAGM REPAIR WORK SHALL BE COORDINATED WITH THE JACKING BEARING REPLACEMENT WORK. THE DIAPHRAGM REPAIR WORK SHALL BE COMPLETED PRIOR TO JACKING AND REPLACEMENT OF BEARINGS.
 - DIMENSIONS FOR DIAPHRAGM PLATES SHOULD BE VERIFIED PRIOR TO ORDERING OR FABRICATING MATERIALS.
 - SEE 'RIVET REPLACEMENT NOTES' AND 'RIVET REPLACEMENT GUIDELINES' ON SHEET NO. 44 FOR REMOVAL AND REPLACEMENT OF 3/4" DIAMETER RIVETS.
 - SEE 'FABRICATION AND ERECTION NOTES' ON SHEET NO. 44 FOR PREPARATION OF THE EXISTING STEEL, PREPARATION OF THE EXISTING HOLES, AND ALL INFORMATION REGARDING FABRICATION AND ERECTION OF THE DIAPHRAGM REPAIRS.
 - PAYMENT FOR THE DIAPHRAGM REPAIR, INSTALLING 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CLEANING EXISTING STEEL, PAINTING, REAMING AND ALL WORK ASSOCIATED WITH INSTALLING THE DIAPHRAGM PLATES WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.



SECTION K-K
SCALE: 3"= 1'-0"



EXISTING KNEE BRACE - ELEVATION
SCALE: 1 1/2"= 1'-0"

NOTES:

1. KNEE BRACE SHALL BE PLATED AT L1 AND L2. EACH SIDE OF THE KNEE BRACE SHALL BE PLATED AT THESE LOCATIONS.
2. DIMENSIONS FOR FILL PLATES AND PLATE SHOULD BE VERIFIED PRIOR TO ORDERING OR FABRICATING MATERIALS.
3. SEE 'RIVET REPLACEMENT NOTES' AND 'RIVET REPLACEMENT GUIDELINES' ON SHEET NO. 44 FOR REMOVAL AND REPLACEMENT OF 3/4" DIAMETER RIVETS.
4. SEE 'FABRICATION AND ERECTION NOTES' ON SHEET NO. 44 FOR PREPARATION OF THE EXISTING STEEL, PREPARATION OF THE EXISTING HOLES, AND ALL INFORMATION REGARDING FABRICATION AND ERECTION OF THE KNEE BRACE PLATING.
5. PAYMENT FOR INSTALLING PLATES, FILL PLATES, 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CAULKING MATERIALS, METAL REINFORCED EPOXY FILLER, CLEANING EXISTING STEEL, SURFACE PREPARATION, PAINTING, REAMING AND ALL WORK ASSOCIATED WITH KNEE BRACE PLATING WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.
6. SILICONE CAULKING MATERIAL SHALL BE PLACED AROUND THE ENTIRE PERIMETER OF EACH PROPOSED 15"± x 9" x 1/2" PLATE AFTER ALL PAINTING WORK HAS BEEN COMPLETED AND ACCEPTED.
7. SILICONE CAULKING MATERIAL SHALL BE A CLEAR, ONE-PART, ACETOXY CURE SILICONE SEALANT AND SHALL CONFORM TO THE FOLLOWING WHEN TESTED AT 77± °F AND 50 PERCENT HUMIDITY:
SHORE A HARDNESS 27
TENSILE STRENGTH 350 PSI
MIN. ELONGATION 600%
TOOLING TIME 5-10 MIN.
TACK-FREE TIME 15-20 MINUTES
8. EXISTING STEEL SURFACE THAT IS TO BE COVERED BY THE NEW PLATES SHALL BE THOROUGHLY CLEANED TO AN SSPC SP3 FINISH. AREAS OF SECTION LOSS AND PITTING SHALL BE COATED WITH A METAL REINFORCED EPOXY FILLER JUST PRIOR TO INSTALLING NEW PLATES.

9. METAL REINFORCED EPOXY FILLER SHALL CONFORM TO THE FOLLOWING CRITERIA:
- | | |
|---------------------------|----------------|
| MIN. POT LIFE | 20 MINS. @ 75° |
| MIN. SPECIFIC GRAVITY | 1.65 |
| MIN. COMPRESSIVE STRENGTH | |
| ASTM D 695/7 DAYS | 15000 PSI |
| MIN. FLEXURAL STRENGTH | |
| ASTM D 790/7 DAYS | 13500 PSI |
| MIN. SHEAR STRENGTH | |
| (TENSILE: STEEL TO STEEL) | |
| ASTM D 1002 | 2400 PSI |

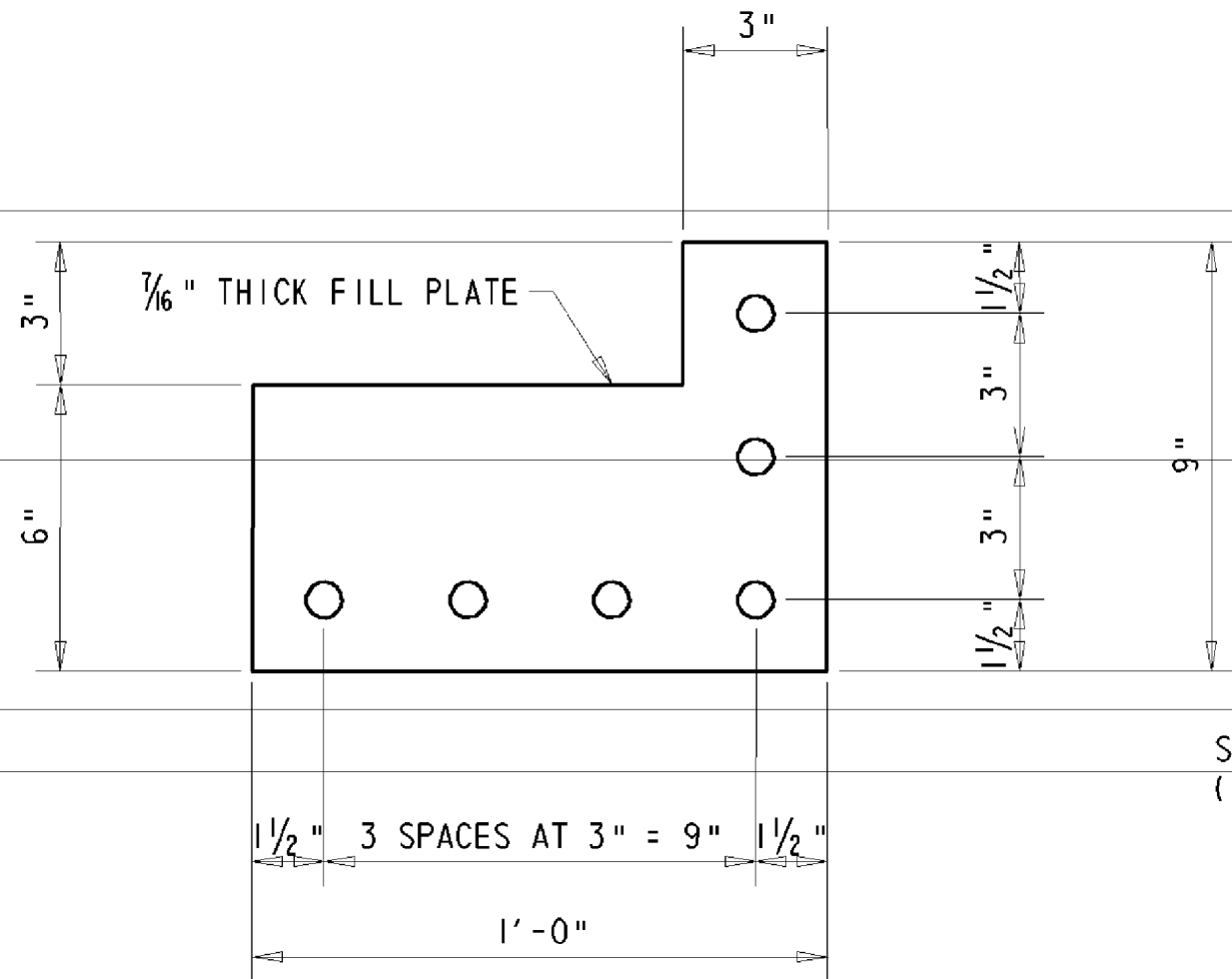
KNEE BRACE REPAIRS

BR. 1 001 279

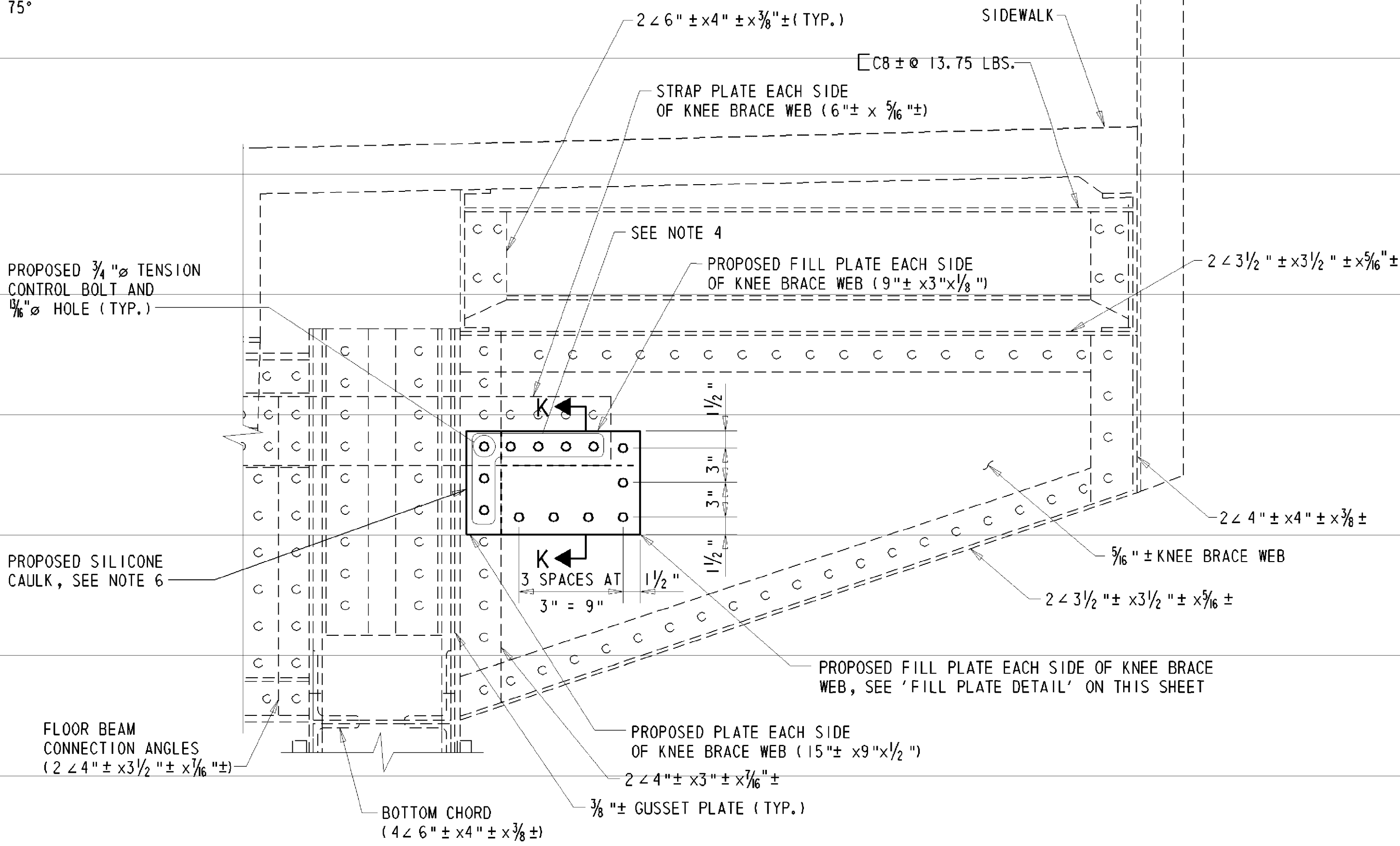
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(II)	41	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



FILL PLATE DETAIL
SCALE: 3"= 1'-0"



PROPOSED KNEE BRACE - ELEVATION
SCALE: 1 1/2"= 1'-0"

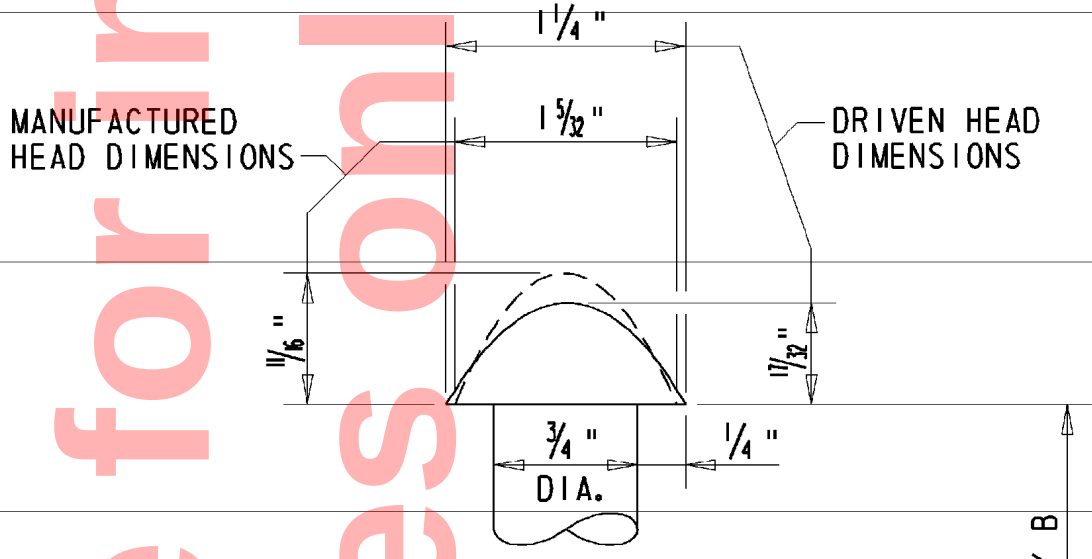
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

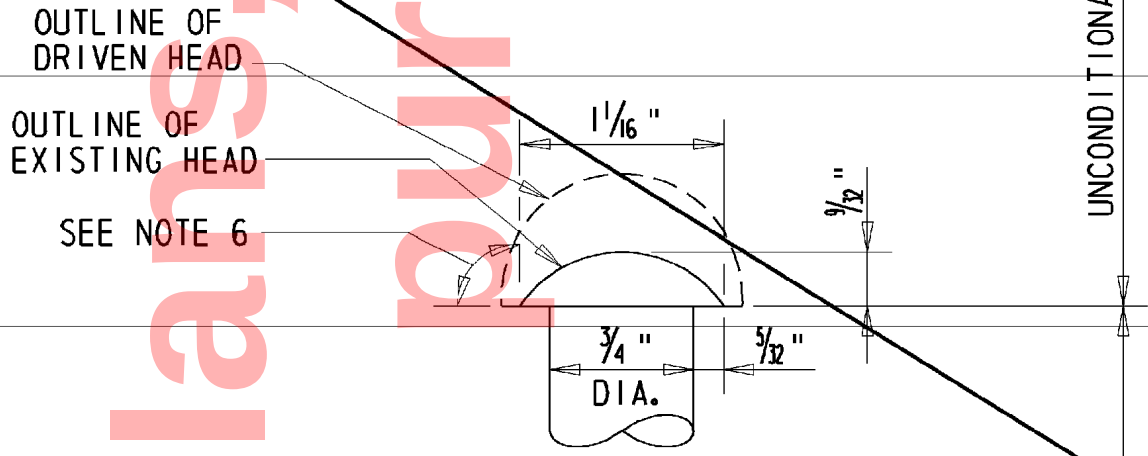
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RIVET REPLACEMENT NOTES:

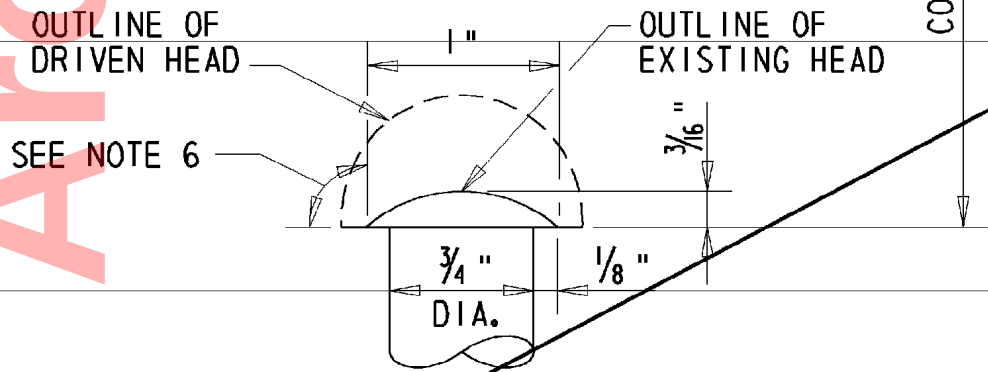
- RIVETS REPLACED TO PERMIT REQUIRED REMOVAL OF ANY OF THE CONNECTED PARTS (WHETHER CALLED FOR ON THE PLANS OR ORDERED BY THE ENGINEER) SHALL BE REMOVED AND REPLACED WITH 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS. PAYMENT FOR THE REMOVAL AND REPLACEMENT OF RIVETS REPLACED TO PERMIT THE REQUIRED REMOVAL OF ANY CONNECTED PARTS (WHETHER CALLED FOR ON THE PLANS FOR A REPAIR/REPLACEMENT ITEM OR ORDERED BY THE ENGINEER) WILL BE INCIDENTAL TO ITEM 605584 - STEEL STRUCTURE REPAIR. DETERIORATED RIVETS REPLACED IN ACCORDANCE WITH NOTES 2 THROUGH 7 BELOW WILL BE MADE UNDER ITEM 605578 - REPLACING STEEL RIVETS/BOLTS.
- DETERIORATED RIVETS NOT COVERED UNDER NOTE 1 ABOVE WILL BE INSPECTED BY THE ENGINEER, WHO WILL ORDER THAT SPECIFIC RIVETS BE REPLACED WITH HIGH STRENGTH TENSION CONTROL BOLTS IN ACCORDANCE WITH THE FOLLOWING GUIDELINES.
- RIVETS (CATEGORY B) WITH DIMENSIONS OF BOTH HEADS MEETING OR SURPASSING EACH OF THE MINIMUM REQUIREMENTS SHOWN FOR CONDITION B MAY BE LEFT IN PLACE SUBJECT TO CONDITIONS DESCRIBED IN NOTES 6 AND 7.
- RIVETS (CATEGORY C) NOT MEETING THE REQUIREMENTS OF CONDITION B BUT HAVING DIMENSIONS WHICH MEET OR SURPASS AT BOTH HEADS EACH OF THE MINIMUM REQUIREMENTS SHOWN FOR CONDITION C MAY BE LEFT IN PLACE SUBJECT TO THE FOLLOWING CONDITIONS:
 - THERE IS NO PRYING ACTION FROM APPLIED STRESS OF CREVICE CORROSION (SEE NOTE 7) WHICH TENDS TO SEPARATE THE CONNECTED PARTS.
 - RIVETS HEADS DO NOT HAVE ADDITIONAL LOSSES DESCRIBED IN NOTE 6.
 - RIVETS MAY BE LEFT IN PLACE TO THE EXTENT THAT THEIR NUMBER DOES NOT EXCEED 20% OF CONNECTION RIVETS IN ANY ONE CONNECTION OR 50% OF STITCH RIVETS IN ANY ONE PORTION OF A MEMBER.
 - WHERE THE ABOVE PERCENTAGES ARE EXCEEDED THE NUMBER OF RIVETS OVER THE PRESCRIBED PERCENTAGE SHALL BE REPLACED WITH 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS.
 - WHEN SELECTING RIVETS FOR REPLACEMENT TO MEET THE ABOVE PERCENTAGE REQUIREMENTS, THE WORST RIVETS IN ANY GROUP OR CONNECTION SHALL BE SELECTED FOR REPLACEMENT.
- RIVETS (CATEGORY D) NOT MEETING THE REQUIREMENTS OF CONDITION C AT EITHER HEAD SHALL BE REPLACED.
- REPLACEMENT WILL ALSO BE REQUIRED FOR ANY RIVET EXHIBITING ADDITIONAL LOSS IN THE FORM OF PITS OR GOUGES AT THE EDGE OF EITHER HEAD PROJECTING BEYOND THE SHANK WHERE SUCH LOSS REDUCES THE SECTION BELOW THE LIMITS SHOWN FOR CONDITION B.
- WHERE CREVICE OR INTERFACE CORROSION BETWEEN CONNECTED PARTS IS PRESENT, THE RIVETS ADJACENT TO THAT AREA SHALL BE REPLACED AFTER CLEANING BETWEEN THE PARTS REGARDLESS OF THE CONDITION OF THE RIVETS.
- DIMENSIONS SHOWN IN THESE SKETCHES FOR CONDITIONS B AND C ARE MINIMUM REQUIREMENTS FOR BOTH DRIVEN AND MANUFACTURED HEADS. THE MINIMUM HEIGHT OF HEAD IS MEASURED TO THE CENTER OF THE RIVETS. THE MINIMUM DIAMETER APPLIES TO THAT DIRECTION IN WHICH IT IS THE SMALLEST.
- ALL HIGH STRENGTH TENSION CONTROL BOLT CONNECTIONS SHALL BE ASSEMBLED WITH A HARDENED WASHER UNDER BOTH THE BOLT HEAD AND NUT. WHERE NECESSARY WASHERS MAY BE CLIPPED ON ONE SIDE TO A POINT NOT CLOSER THAN 7/8" OF THE BOLT DIAMETER FROM THE CENTER OF THE WASHER.
- EXISTING RIVET HOLES SHALL BE REAMED WHERE REQUIRED TO ALLOW FOR INSTALLATION OF HIGH STRENGTH TENSION CONTROL BOLTS. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH REMOVAL OF ANY CONNECTED PARTS (WHETHER CALLED FOR ON THE PLANS FOR A REPAIR/REPLACEMENT ITEM OR ORDERED BY THE ENGINEER), PAYMENT WILL BE INCIDENTAL TO ITEM 605584 - STEEL STRUCTURE REPAIR. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH DETERIORATED RIVETS REPLACED IN ACCORDANCE WITH NOTES 2 THROUGH 7 ABOVE, PAYMENT WILL BE MADE UNDER ITEM 605578 - REPLACING STEEL RIVETS/BOLTS. IF AFTER REAMING, THE HOLE EXCEEDS THE TOLERANCE FOR A 3/4" DIAMETER TENSION CONTROL BOLT, THE CONTRACTOR SHALL INSTALL THE NEXT LARGER SIZE BOLT AT NO ADDITIONAL COST TO THE DEPARTMENT.
- REPLACEMENT QUANTITY IS BASED ON FIELD INSPECTION OBSERVATIONS TAKEN 5/01 AND 5/04. THE RIVET REPLACEMENT QUANTITY FOR ITEM 605578 - REPLACING STEEL RIVETS/BOLTS HAS BEEN INCREASED TO ACCOUNT FOR LATENT DEFECTS THAT MAY HAVE OCCURRED SINCE THE 5/01 AND 5/04 INSPECTIONS. FOR THE CONTINGENCY FACTOR UTILIZED FOR THESE REPAIRS SEE CONTINGENT QUANTITIES IN THE PROJECT NOTES. RIVET REPLACEMENT QUANTITIES SHALL BE VERIFIED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK. REFERENCE APPLICABLE SPECIAL PROVISIONS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF RIVET HEAD TEMPLATES FOR REVIEW. THESE TEMPLATES SHALL BE UTILIZED BY THE CONTRACTOR AND THE ENGINEER TO DETERMINE THE CONDITION/CATEGORY OF RIVETS BASED ON THE HEAD HEIGHT AND DIAMETER. PAYMENT FOR THE FABRICATION OF THESE TEMPLATES WILL BE INCIDENTAL TO ITEM 605578 - REPLACING STEEL RIVETS/BOLTS.



CONDITION A - NEW RIVET



CONDITION B - MINIMUM
UNCONDITIONALLY ACCEPTABLE



CONDITION C - MINIMUM
CONDITIONALLY ACCEPTABLE

RIVET REPLACEMENT GUIDELINES

N. T. S.

RIVET REPLACEMENT TABLE

	LOCATION	APPROXIMATE NUMBER
	OF RIVETS	
TOP CHORD	U1 - EAST TRUSS	5
	U1 - WEST TRUSS	5
	U2 - WEST TRUSS	15
	U3 - WEST TRUSS	5
	U4 - EAST TRUSS	10
BOTTOM CHORD	U5 - EAST TRUSS	10
	U5 - WEST TRUSS	5
	L0 - EAST TRUSS	15
	L0 - WEST TRUSS	15
	L1 - EAST TRUSS	15
	L1 - WEST TRUSS	15
	L2 - EAST TRUSS	15
	L2 - WEST TRUSS	15
	L3 - EAST TRUSS	15
	L3 - WEST TRUSS	15
	L4 - EAST TRUSS	15
	L4 - WEST TRUSS	15
	L5 - EAST TRUSS	15
	L5 - WEST TRUSS	15
	L6 - EAST TRUSS	15
	L6 - WEST TRUSS	15
TOTAL		265

NOTE:

THE QUANTITY SHOWN IN THE RIVET REPLACEMENT TABLE DOES NOT INCLUDE THE RIVETS THAT NEED TO BE REPLACED FOR ANY STRUCTURAL STEEL REPAIRS INCLUDING JACKING REQUIRED FOR BEARING REPLACEMENT, INTERIOR VERTICAL GUSSET PLATE, BEARING, BOTTOM LATERAL AND CONNECTION PLATE REPLACEMENT AND SWAY BRACE, KNEE BRACE, STRINGER COVER PLATE, BATTING AND DIAPHRAGM REPAIRS. PAYMENT FOR RIVETS PERTAINING TO THE AFOREMENTIONED WORK WILL BE INCIDENTAL TO ITEM 605584 - STEEL STRUCTURE REPAIR.

FABRICATION AND ERECTION NOTES:

- WHERE NEW MATERIAL IS TO BE CONNECTED TO EXISTING MATERIAL, THE EXISTING SURFACE AT THE FAYING SURFACE SHALL BE CLEANED BY VACUUM CONTAINED BLAST TO BARE METAL PRIOR TO THE INSTALLATION OF NEW MATERIAL.
- BOLT HOLES IN NEW MATERIAL THAT ARE REQUIRED TO MATCH EXISTING HOLES SHALL BE EITHER DRILLED FULL SIZE IN THE FIELD USING THE EXISTING HOLES AS A TEMPLATE OR DRILLED 1/4" SUB SIZE IN THE SHOP FROM A TEMPLATE MADE FROM FIELD MEASUREMENTS AND REAMED TO SIZE IN THE FIELD AFTER THE MEMBER HAS BEEN ALIGNED AND ALL PLYS ASSEMBLED.
- EXISTING RIVET HOLES SHALL BE REAMED WHERE REQUIRED TO ALLOW FOR INSTALLATION OF HIGH STRENGTH TENSION CONTROL BOLTS. AFTER REAMING, HOLES SHALL BE PERPENDICULAR TO THE FAYING SURFACE AND 75% OF THE GROUP OF HOLES SHALL NOT BE ELONGATED GREATER THAN 1/32". THE REMAINING 25% OF THE GROUP SHALL NOT BE ELONGATED GREATER THAN 1/16". IF ANY BOLT HOLES, AFTER REAMING IS MORE THAN 1/8" LARGER THAN THE NORMAL SIZE OF BOLT INDICATED ON THE DRAWINGS, THE NEXT LARGER SIZE BOLT SHALL BE USED. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH REMOVAL OF ANY CONNECTED PARTS (WHETHER CALLED FOR ON THE PLANS FOR A REPAIR/REPLACEMENT ITEM OR ORDERED BY THE ENGINEER), PAYMENT WILL BE INCIDENTAL TO ITEM 605584 - STEEL STRUCTURE REPAIR. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH DETERIORATED RIVETS REPLACED IN ACCORDANCE WITH RIVET REPLACEMENT NOTES 2 THROUGH 7, PAYMENT WILL BE MADE UNDER ITEM 605578 - REPLACING STEEL RIVETS/BOLTS. SHOULD OVERSIZE BOLTS BE REQUIRED, THE ENGINEER SHALL BE NOTIFIED FOR APPROVAL. NO ADDITIONAL PAYMENT SHALL BE MADE FOR BOLTS OF LARGER NOMINAL SIZE THAN INDICATED ON THE DRAWINGS.
- EXCEPT AS NOTED, ALL NEW BOLTS SHALL BE 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS WITH HEAVY HEX NUTS AND ONE HARDENED WASHER UNDER THE PART TURNED EXCEPT THAT WASHERS SHALL BE USED UNDER BOTH THE HEAD AND THE NUT WHEN BOLTS ARE USED FOR CONNECTIONS IN ANY OF THE FOLLOWING CONDITIONS:
 - REPLACEMENT OF EXISTING BOLTS OR RIVETS.
 - CONNECTIONS WHICH ARE PREPARED BY DRILLING OR REAMING IN THE FIELD.
 - CONNECTIONS BETWEEN NEW AND EXISTING STEEL.

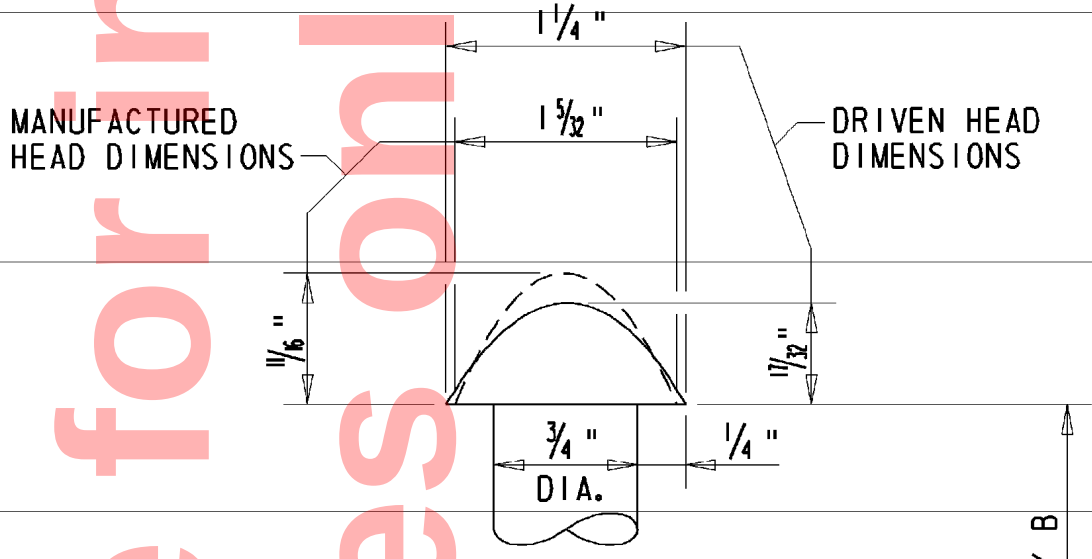
REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

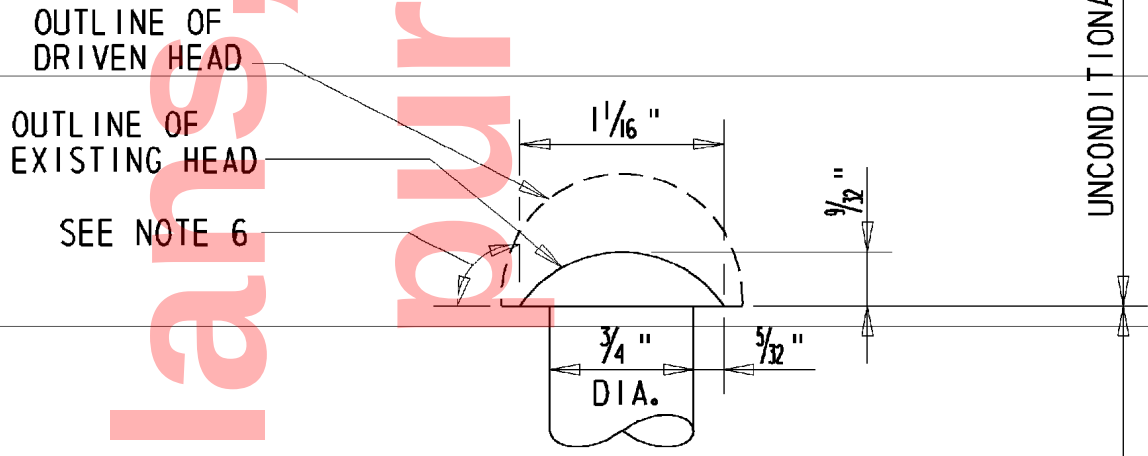
NEW SHEET	B.K.B. II/05/08

RIVET REPLACEMENT NOTES:

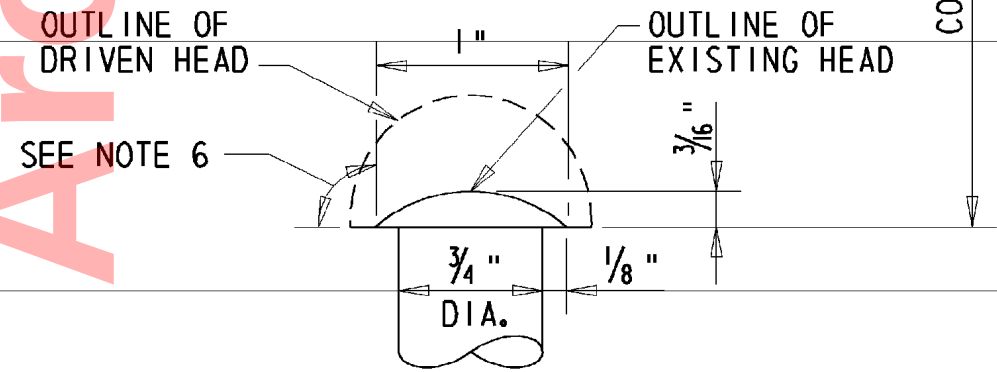
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- DETERIORATED RIVETS NOT COVERED UNDER NOTE 1 ABOVE WILL BE INSPECTED BY THE ENGINEER, WHO WILL ORDER THAT SPECIFIC RIVETS BE REPLACED WITH HIGH STRENGTH TENSION CONTROL BOLTS IN ACCORDANCE WITH THE FOLLOWING GUIDELINES.
- RIVETS (CATEGORY B) WITH DIMENSIONS OF BOTH HEADS MEETING OR SURPASSING EACH OF THE MINIMUM REQUIREMENTS SHOWN FOR CONDITION B MAY BE LEFT IN PLACE SUBJECT TO CONDITIONS DESCRIBED IN NOTES 6 THROUGH 8.
- RIVETS (CATEGORY C) NOT MEETING THE REQUIREMENTS OF CONDITION B BUT HAVING DIMENSIONS WHICH MEET OR SURPASS AT BOTH HEADS EACH OF THE MINIMUM REQUIREMENTS SHOWN FOR CONDITION C MAY BE LEFT IN PLACE SUBJECT TO THE FOLLOWING CONDITIONS:
 - THERE IS NO PRYING ACTION FROM APPLIED STRESS OF CREVICE CORROSION (SEE NOTE 7) WHICH TENDS TO SEPARATE THE CONNECTED PARTS.
 - RIVETS HEADS DO NOT HAVE ADDITIONAL LOSSES DESCRIBED IN NOTE 6.
 - RIVETS ARE NOT LOOSE AND/OR BROKEN AS DESCRIBED IN NOTE 8.
 - RIVETS MAY BE LEFT IN PLACE TO THE EXTENT THAT THEIR NUMBER DOES NOT EXCEED 20% OF CONNECTION RIVETS IN ANY ONE CONNECTION OR 50% OF STITCH RIVETS IN ANY ONE PORTION OF A MEMBER.
 - WHERE THE ABOVE PERCENTAGES ARE EXCEEDED THE NUMBER OF RIVETS OVER THE PRESCRIBED PERCENTAGE SHALL BE REPLACED WITH 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS.
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- WHERE CREVICE OR INTERFACE CORROSION BETWEEN CONNECTED PARTS IS PRESENT, THE RIVETS ADJACENT TO THAT AREA SHALL BE REPLACED AFTER CLEANING BETWEEN THE PARTS REGARDLESS OF THE CONDITION OF THE RIVETS.
- ALL RIVETS SHALL BE SOUNDED WITH A HAMMER TO DETERMINE RIVETS THAT ARE LOOSE AND/OR BROKEN. RIVET REPLACEMENT WILL ALSO BE REQUIRED FOR ANY RIVET THAT IS DETERMINED TO BE LOOSE AND/OR BROKEN IN THE PRESENCE OF THE ENGINEER.
- DIMENSIONS SHOWN IN THESE SKETCHES FOR CONDITIONS B AND C ARE MINIMUM REQUIREMENTS FOR BOTH DRIVEN AND MANUFACTURED HEADS. THE MINIMUM HEIGHT OF HEAD IS MEASURED TO THE CENTER OF THE RIVETS. THE MINIMUM DIAMETER APPLIES TO THAT DIRECTION IN WHICH IT IS THE SMALLEST.
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- EXISTING RIVET HOLES SHALL BE REAMED WHERE REQUIRED TO ALLOW FOR INSTALLATION OF HIGH STRENGTH TENSION CONTROL BOLTS. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH REMOVAL OF ANY CONNECTED PARTS (WHETHER CALLED FOR ON THE PLANS FOR A REPAIR/REPLACEMENT ITEM OR ORDERED BY THE ENGINEER), PAYMENT WILL BE INCIDENTAL TO ITEM 605584 - STEEL STRUCTURE REPAIR. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH DETERIORATED RIVETS REPLACED IN ACCORDANCE WITH NOTES 2 THROUGH 8 ABOVE, PAYMENT WILL BE MADE UNDER ITEM 605578 - REPLACING STEEL RIVETS/BOLTS. IF AFTER REAMING, THE HOLE EXCEEDS THE TOLERANCE FOR A 3/4" DIAMETER TENSION CONTROL BOLT, THE CONTRACTOR SHALL INSTALL THE NEXT LARGER SIZE BOLT AT NO ADDITIONAL COST TO THE DEPARTMENT.
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CONDITION A - NEW RIVET



CONDITION B - MINIMUM
UNCONDITIONALLY ACCEPTABLE



CONDITION C - MINIMUM
CONDITIONALLY ACCEPTABLE

RIVET REPLACEMENT GUIDELINES

N. T. S.

RIVET REPLACEMENT TABLE		
TOP CHORD	LOCATION	APPROXIMATE NUMBER OF RIVETS
	U1 - EAST TRUSS	5
	U1 - WEST TRUSS	5
	U2 - WEST TRUSS	15
	U3 - WEST TRUSS	5
BOTTOM CHORD	U4 - EAST TRUSS	10
	U5 - EAST TRUSS	10
	U5 - WEST TRUSS	5
	L0 - EAST TRUSS	15
	L0 - WEST TRUSS	15
	L1 - EAST TRUSS	15
	L1 - WEST TRUSS	15
	L2 - EAST TRUSS	15
	L2 - WEST TRUSS	15
	L3 - EAST TRUSS	15
	L3 - WEST TRUSS	15
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	L4 - WEST TRUSS	15
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	L6 - EAST TRUSS	15
	L6 - WEST TRUSS	15
	TOTAL	265

NOTE:

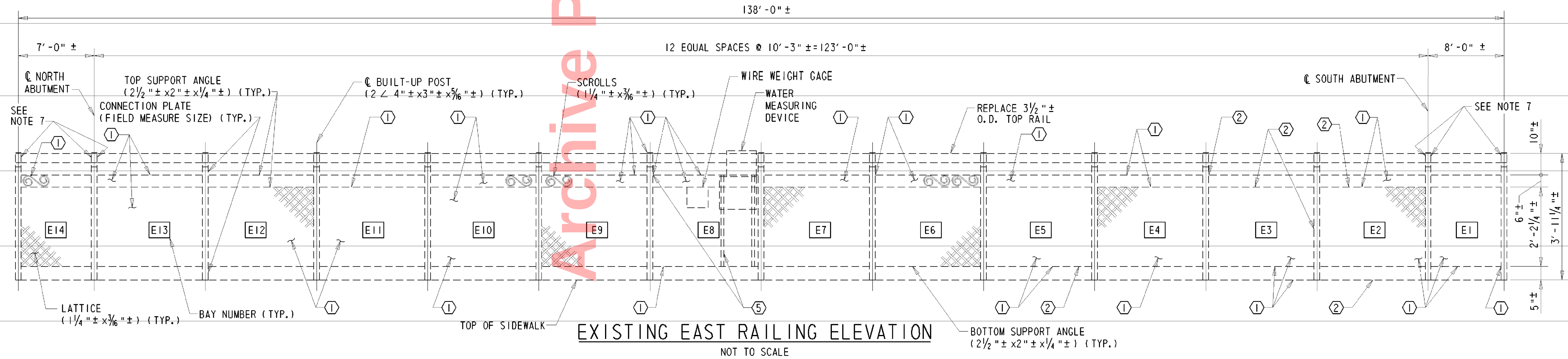
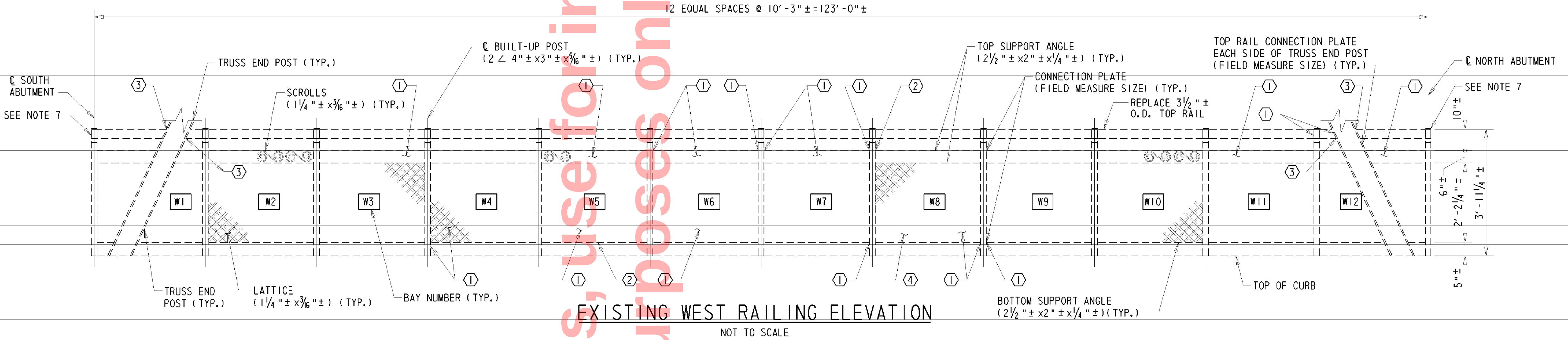
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FABRICATION AND ERECTION NOTES:

- WHERE NEW MATERIAL IS TO BE CONNECTED TO EXISTING MATERIAL, THE EXISTING SURFACE AT THE FAYING SURFACE SHALL BE CLEANED BY VACUUM CONTAINED BLAST TO BARE METAL PRIOR TO THE INSTALLATION OF NEW MATERIAL.
- BOLT HOLES IN NEW MATERIAL THAT ARE REQUIRED TO MATCH EXISTING HOLES SHALL BE EITHER DRILLED FULL SIZE IN THE FIELD USING THE EXISTING HOLES AS A TEMPLATE OR DRILLED 1/4" SUB-SIZE IN THE SHOP FROM A TEMPLATE MADE FROM FIELD MEASUREMENTS AND REAMED TO SIZE IN THE FIELD AFTER THE MEMBER HAS BEEN ALIGNED AND ALL PLYS ASSEMBLED.
- EXISTING RIVET HOLES SHALL BE REAMED WHERE REQUIRED TO ALLOW FOR INSTALLATION OF HIGH STRENGTH TENSION CONTROL BOLTS. AFTER REAMING, HOLES SHALL BE PERPENDICULAR TO THE FAYING SURFACE AND 75% OF THE GROUP OF HOLES SHALL NOT BE ELONGATED GREATER THAN 1/32". THE REMAINING 25% OF THE GROUP SHALL NOT BE ELONGATED GREATER THAN 1/16". IF ANY BOLT HOLES, AFTER REAMING IS MORE THAN 1/8" LARGER THAN THE NORMAL SIZE OF BOLT INDICATED ON THE DRAWINGS, THE NEXT LARGER SIZE BOLT SHALL BE USED. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH REMOVAL OF ANY CONNECTED PARTS (WHETHER CALLED FOR ON THE PLANS FOR A REPAIR/REPLACEMENT ITEM OR ORDERED BY THE ENGINEER), PAYMENT WILL BE INCIDENTAL TO ITEM 605584 - STEEL STRUCTURE REPAIR. IF REAMING IS REQUIRED FOR WORK ASSOCIATED WITH DETERIORATED RIVETS REPLACED IN ACCORDANCE WITH RIVET REPLACEMENT NOTES 2 THROUGH 7, PAYMENT WILL BE MADE UNDER ITEM 605578 - REPLACING STEEL RIVETS/BOLTS. SHOULD OVERSIZE BOLTS BE REQUIRED, THE ENGINEER SHALL BE NOTIFIED FOR APPROVAL. NO ADDITIONAL PAYMENT SHALL BE MADE FOR BOLTS OF LARGER NOMINAL SIZE THAN INDICATED ON THE DRAWINGS.
- EXCEPT AS NOTED, ALL NEW BOLTS SHALL BE 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS WITH HEAVY HEX NUTS AND ONE HARDENED WASHER UNDER THE PART TURNED EXCEPT THAT WASHERS SHALL BE USED UNDER BOTH THE HEAD AND THE NUT WHEN BOLTS ARE USED FOR CONNECTIONS IN ANY OF THE FOLLOWING CONDITIONS:
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REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



RAILING REPAIR SCHEDULE		
BAY NO.	REPAIR	NUMBER OF REPAIRS
E1	REPLACE LATTICE MEMBER	18
E1	REPLACE BOTTOM SUPPORT ANGLE	1
E2	REPLACE SCROLL	5
E2	REPLACE LATTICE MEMBER	3
E3	REPLACE LATTICE MEMBER	5
E4	REPLACE LATTICE MEMBER	5
E4	REPLACE SCROLL	5
E5	REPLACE LATTICE MEMBER	5
E6	REPLACE CONNECTION PLATE	2
E6	REPLACE SCROLL	6
E7	REPLACE SCROLL	2
E7	REPLACE LATTICE MEMBER	2
E8	REPLACE BOLT IN BRACE FOR MEASURING BOX	3
E8	REPLACE LATTICE MEMBER	5
E8	REPLACE SCROLL	5
E8	REPLACE BOLT IN TOP SUPPORT ANGLE	2
E9	REPLACE SCROLL	6
E10	REPLACE SCROLL	5
E10	REPLACE LATTICE MEMBER	8
E11	REPLACE LATTICE MEMBER	8
E11	REPLACE SCROLL	5
E12	REPLACE LATTICE MEMBER	3
E13	REPLACE CONNECTION PLATE	2
E13	REPLACE SCROLL	5
E13	REPLACE LATTICE MEMBER	2
E14	REPLACE SCROLL	2
W1	REPLACE TOP RAIL CONNECTION PLATE	2
W2	REPLACE SCROLL	2
W3	REPLACE SCROLL	2
W3	REPLACE LATTICE MEMBER	2
W4	REPLACE LATTICE MEMBER	3
W5	REPLACE SCROLL	3
W5	REPLACE CONNECTION PLATE	2
W5	REPLACE LATTICE MEMBER	2
W6	REPLACE CONNECTION PLATE	2
W6	REPLACE SCROLL	2
W6	REPLACE LATTICE MEMBER	3
W7	REPLACE CONNECTION PLATE	2
W7	REPLACE SCROLL	3
W7	REPLACE LATTICE MEMBER	2
W8	REPLACE CONNECTION PLATE	2
W8	REPLACE LATTICE MEMBER	8
W9	REPLACE LATTICE MEMBER	2
W10	REPLACE LATTICE MEMBER	2
W11	REPLACE SCROLL	2
W12	REPLACE TOP RAIL CONNECTION PLATE	2
W12	REPLACE SCROLL	3
W12	REPLACE CONNECTION PLATE	2
E	REPLACE ENTIRE TOP RAIL AND ALL END CAPS	1
W	REPLACE ENTIRE TOP RAIL AND ALL END CAPS	1
E/W	CONTINGENT TOP SUPPORT ANGLE	4
E/W	CONTINGENT BOTTOM SUPPORT ANGLE	2
E/W	CONTINGENT CONNECTION PLATE	10

LEGEND:

- ① 100% SECTION LOSS WITHIN RAILING ELEMENT
- ② MEASURABLE SECTION LOSS WITHIN RAILING ELEMENT
- ③ BROKEN TOP RAIL CONNECTION PLATE
- ④ IMPACT DAMAGE
- ⑤ MISSING BOLT
- E10 BAY NUMBER

NOTES:

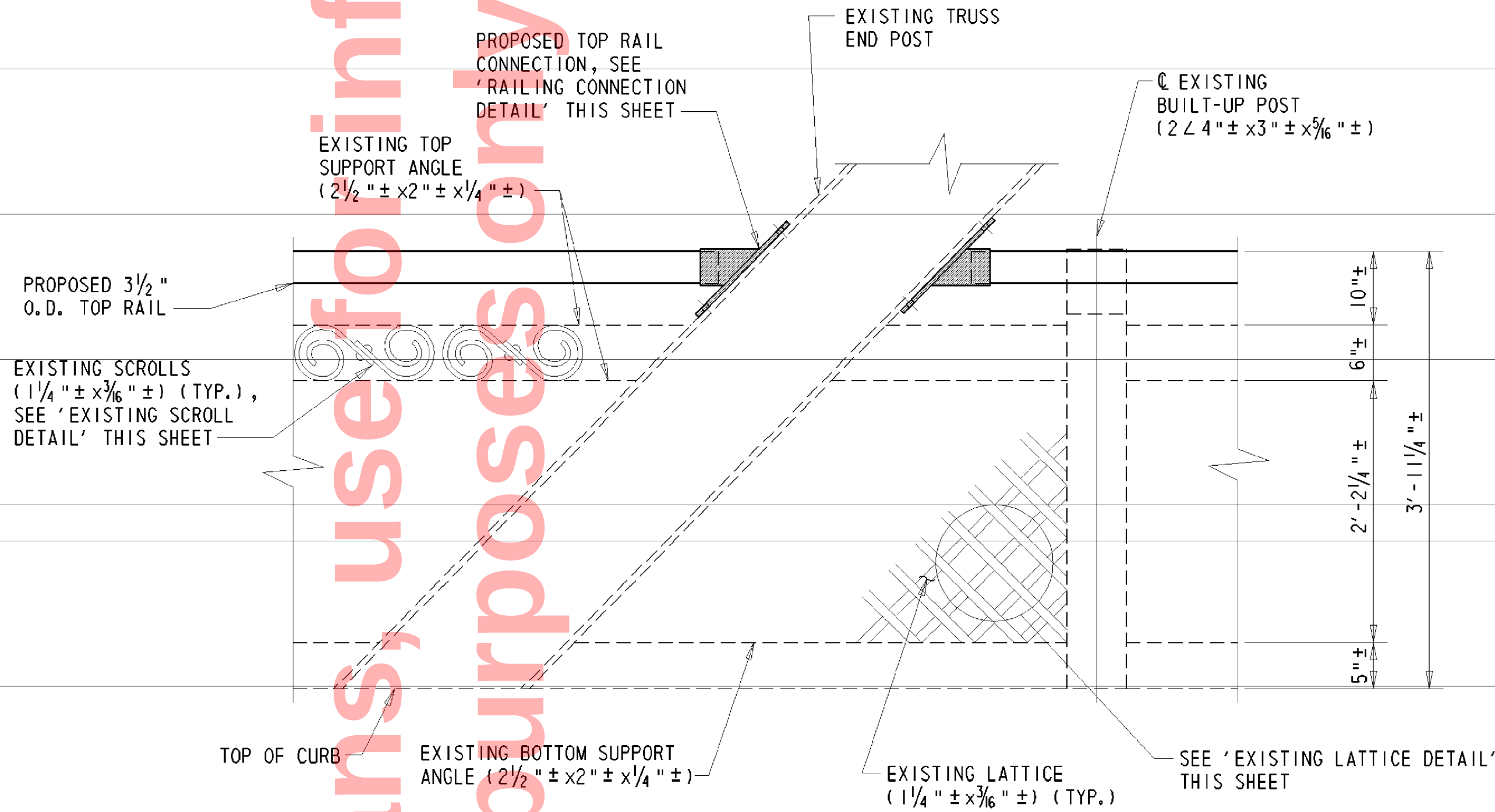
- PAYMENT FOR RAILING REPAIRS WILL BE MADE UNDER ITEM 606508 - STEEL HAND RAIL REPAIR.
- MEMBERS SHALL BE REPLACED IN-KIND AND CONNECTIONS MADE USING 3/8" Ø RIVETS TO MATCH EXISTING. NO SPLICING OF RAILING MEMBERS WILL BE ALLOWED. FULL MEMBER REPLACEMENT IS REQUIRED.
- CONTRACTOR SHALL REMOVE RAILING AND TAKE RAILING OFF-SITE TO MAKE REPAIRS. NEW STEEL SHALL ARRIVE AT SHOP AND/OR BE ASSEMBLED WITH A PRIMER COAT IN ACCORDANCE WITH THE SPECIAL PROVISIONS. TEMPORARY CHAIN LINK FENCING SHALL BE INSTALLED ON THE STRUCTURE ALONG THE LIMITS OF RAILING REMOVAL UNTIL ALL RAILING ELEMENTS ARE REINSTALLED. THE RAILING SHALL BE REINSTALLED AT THE SAME LOCATION THE RAILING WAS REMOVED FROM. PAYMENT FOR REMOVING AND REINSTALLING RAILING AND FURNISHING/INTALLING/MAINTAINING TEMPORARY CHAIN LINK FENCING WILL BE INCIDENTAL TO ITEM 606508 - STEEL HAND RAIL REPAIR.
- RAILING REPAIRS ARE BASED ON FIELD INSPECTION OBSERVATIONS TAKEN 5/01 AND 5/04. THE NUMBER OF LATTICE MEMBER AND SCROLL REPAIRS SHOWN IN THE RAILING REPAIR SCHEDULE SHOWN ON THIS SHEET HAVE BEEN INCREASED BY 50% TO ACCOUNT FOR LATENT DEFECTS THAT MAY HAVE OCCURRED SINCE THE 5/01 AND 5/04 INSPECTIONS. ALL PROPOSED REPAIR LOCATIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO BEGINNING ANY WORK. REFERENCE APPLICABLE SPECIAL PROVISIONS.
- THE CONTRACTOR IS REQUIRED TO REHABILITATE ONE RAILING PANEL, WITH AT LEAST ONE TYPE OF EACH REPAIR, FOR REVIEW AND APPROVAL BY THE DELAWARE STATE HISTORIC PRESERVATION OFFICE (SHPO). THE PURPOSE OF THIS REVIEW PANEL IS TO INSURE THAT THE WORK WILL MATCH PRE-EXISTING AND HISTORIC DESIGN CONFIGURATIONS. UPON COMPLETION OF THE REVIEW PANEL, THE CONTRACTOR MUST NOTIFY THE DISTRICT ENGINEER (A MINIMUM OF 5 DAYS IN ADVANCE) FOR MEETING COORDINATION PURPOSES. THIS REQUIREMENT IS NECESSARY BECAUSE BRIDGES 1 AND 1A ARE ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES AND ARE IN THE OVERLAPPING HISTORIC DISTRICTS OF HENRY CLAY AND BRECK'S MILL. THEREFORE, THE REPAIR, REHABILITATION, PATCHING, AND OR REPLACEMENT OF ALL BRIDGE COMPONENTS ARE UNDER A HISTORIC REVIEW AND APPROVAL PROCESS BY DELDOT AND THE SHPO, AND ANY OTHER INTERESTED PARTIES. REFER TO THE HISTORIC PRESERVATION GENERAL PROVISIONS, LOCATED IN THE PROJECT NOTES CONTAINED WITHIN THE CONTRACT BID DOCUMENTS, FOR ADDITIONAL DETAILS AND GUIDELINES.
- "REPLACE SCROLL" IN 'RAILING REPAIR SCHEDULE', REFERS TO ONE INDIVIDUAL SCROLL ELEMENT ONLY. SEE SHEET NO. 46 FOR 'EXISTING SCROLL DETAIL'.
- EXISTING SCREW FITTING CAPS SHALL BE SALVAGED AND INCORPORATED INTO THE NEW 3/2" O.D. TOP RAIL. ENDS OF RAIL SHALL BE TAPPED WITH THE APPROPRIATE THREADS TO ACCEPT CAPS. PAYMENT WILL BE INCIDENTAL TO ITEM 606508 - STEEL HAND RAIL REPAIR.

PREL. TRACING
K.P.L./K.W.F. DESIGN
B.K.B./S.E.B. CHKD.
J.A.G.

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	46	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

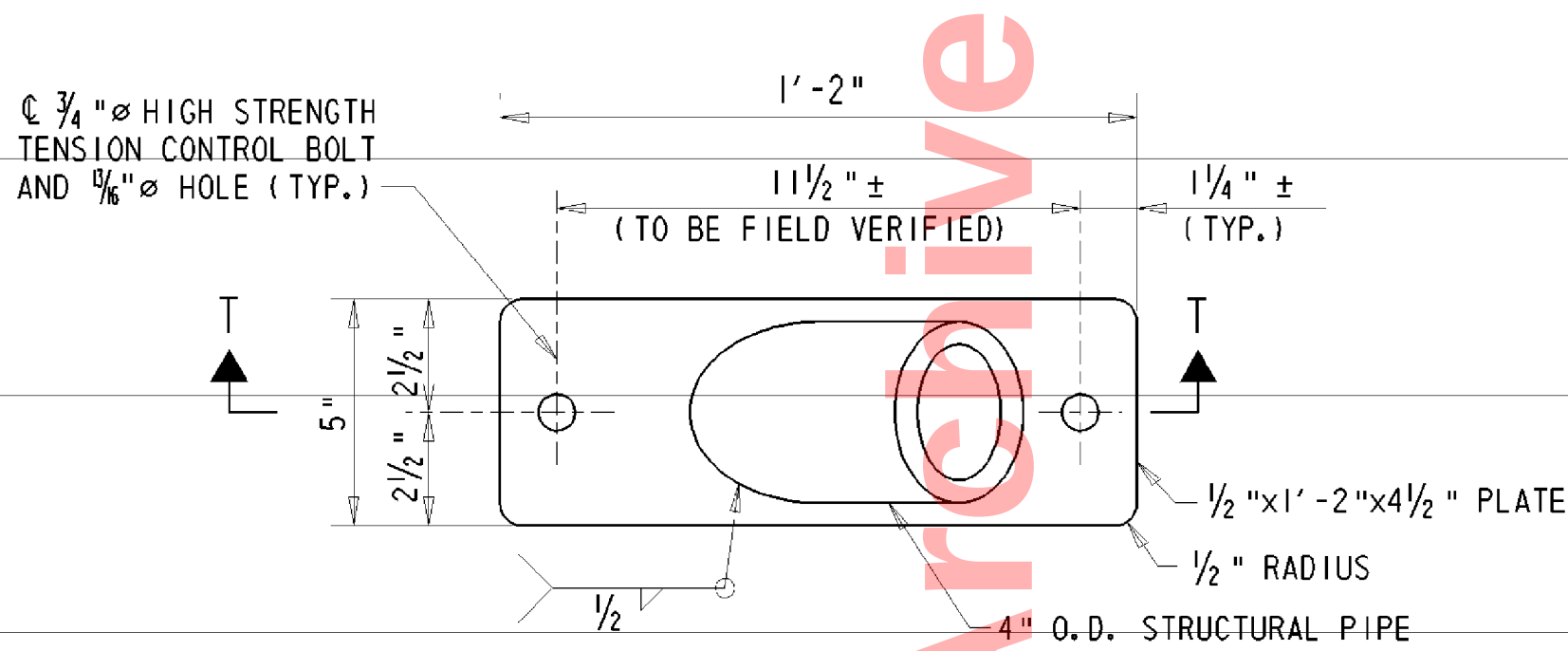
REVISIONS



NOTE:
PAYMENT FOR RAILING REPAIRS WILL BE MADE UNDER ITEM 606508 - STEEL HAND RAIL REPAIR.

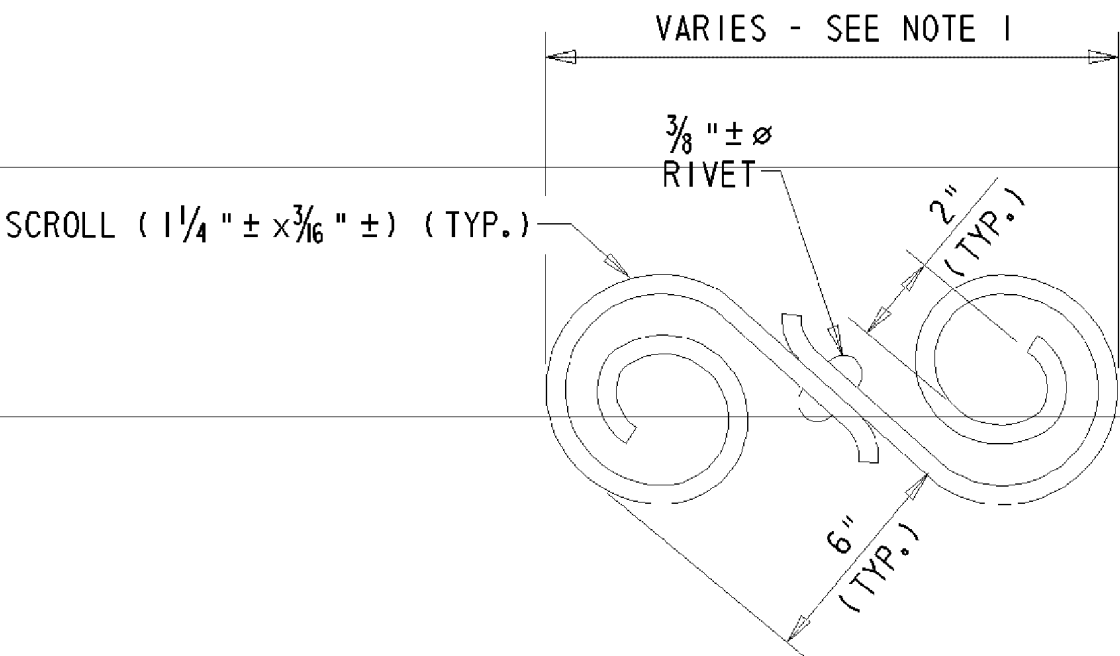
PROPOSED RAILING ELEVATION

SCALE: 1"=1'-0"



RAILING CONNECTION DETAIL

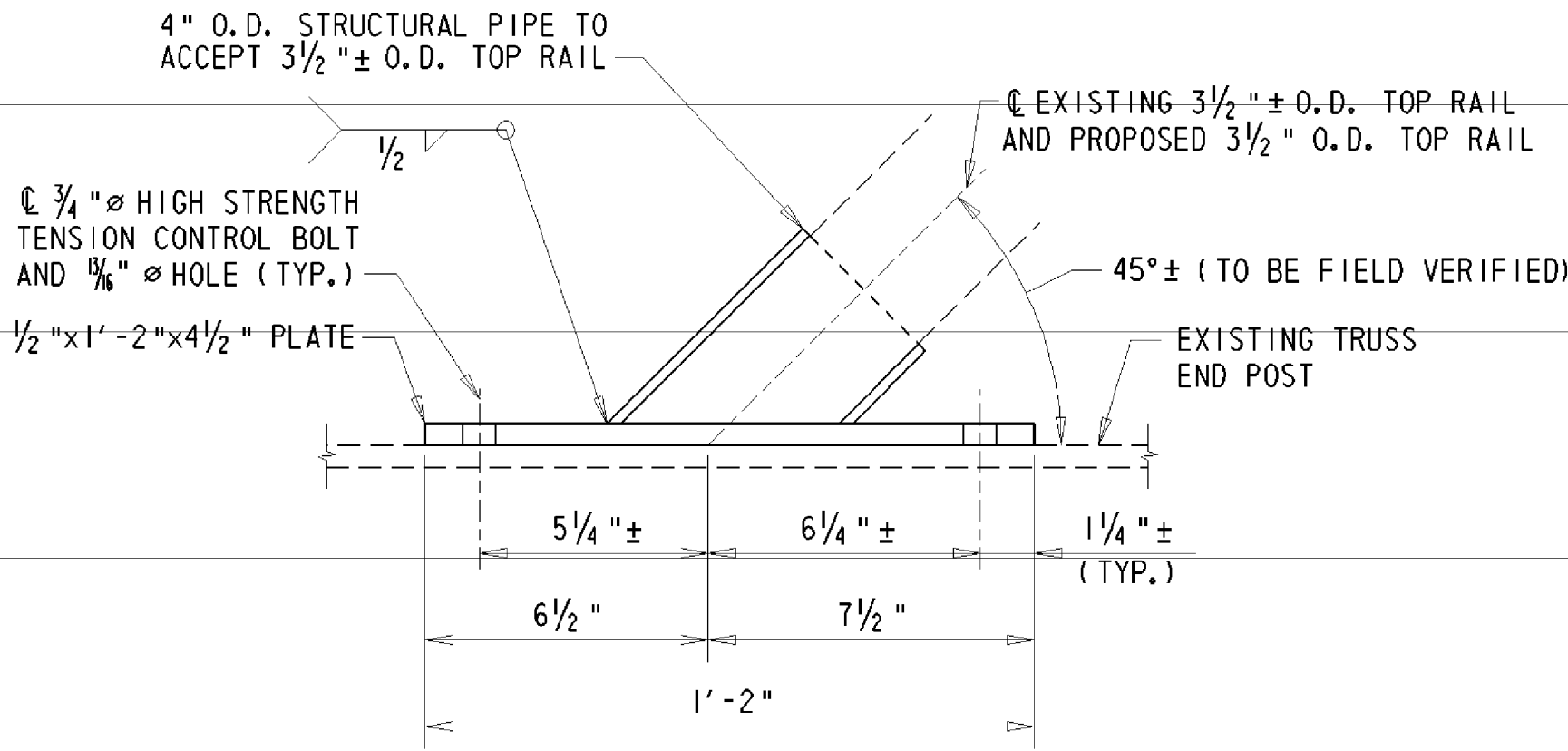
SCALE: 3"=1'-0"



EXISTING SCROLL DETAIL

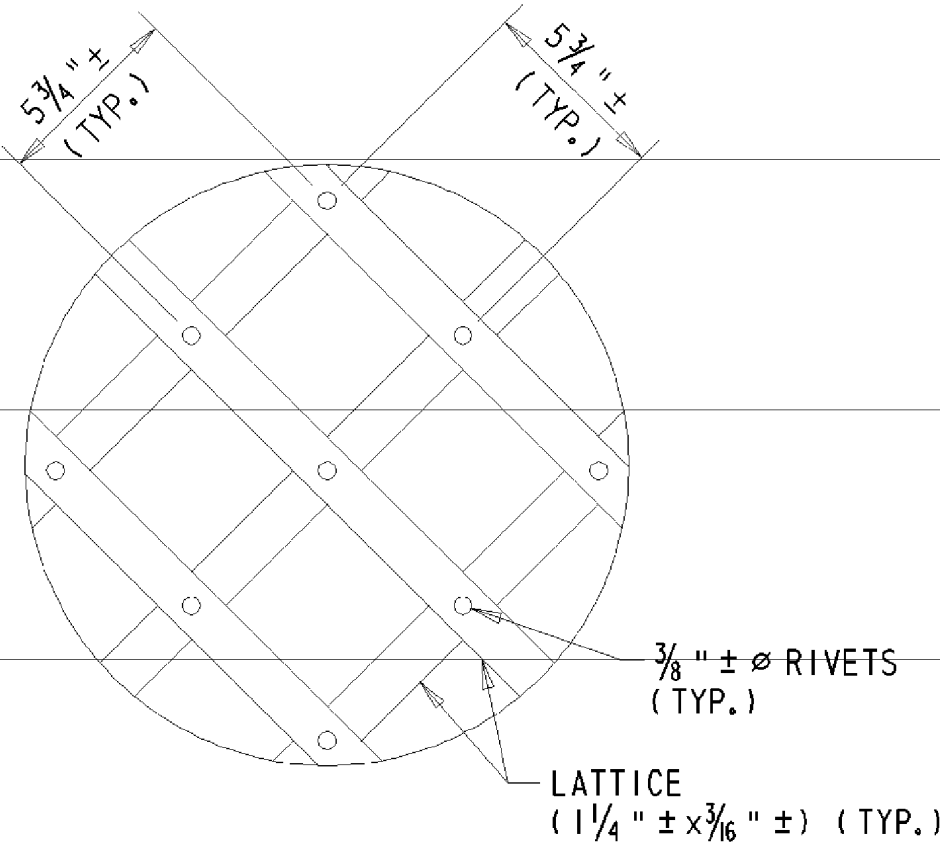
NOT TO SCALE

- NOTES:
1. LENGTH VARIES FROM 1'-6 $\frac{1}{2}$ " $\pm$ TO 1'-9" $\pm$ DEPENDING ON LOCATION. SCROLL REPLACEMENT TO BE IN-KIND AND THE LENGTH OF EACH SCROLL TO BE REPLACED SHALL BE FIELD MEASURED PRIOR TO ORDERING OR FABRICATING SCROLL.
 2. TWO INDIVIDUAL SCROLLS ARE SHOWN IN THE 'EXISTING SCROLL DETAIL'.



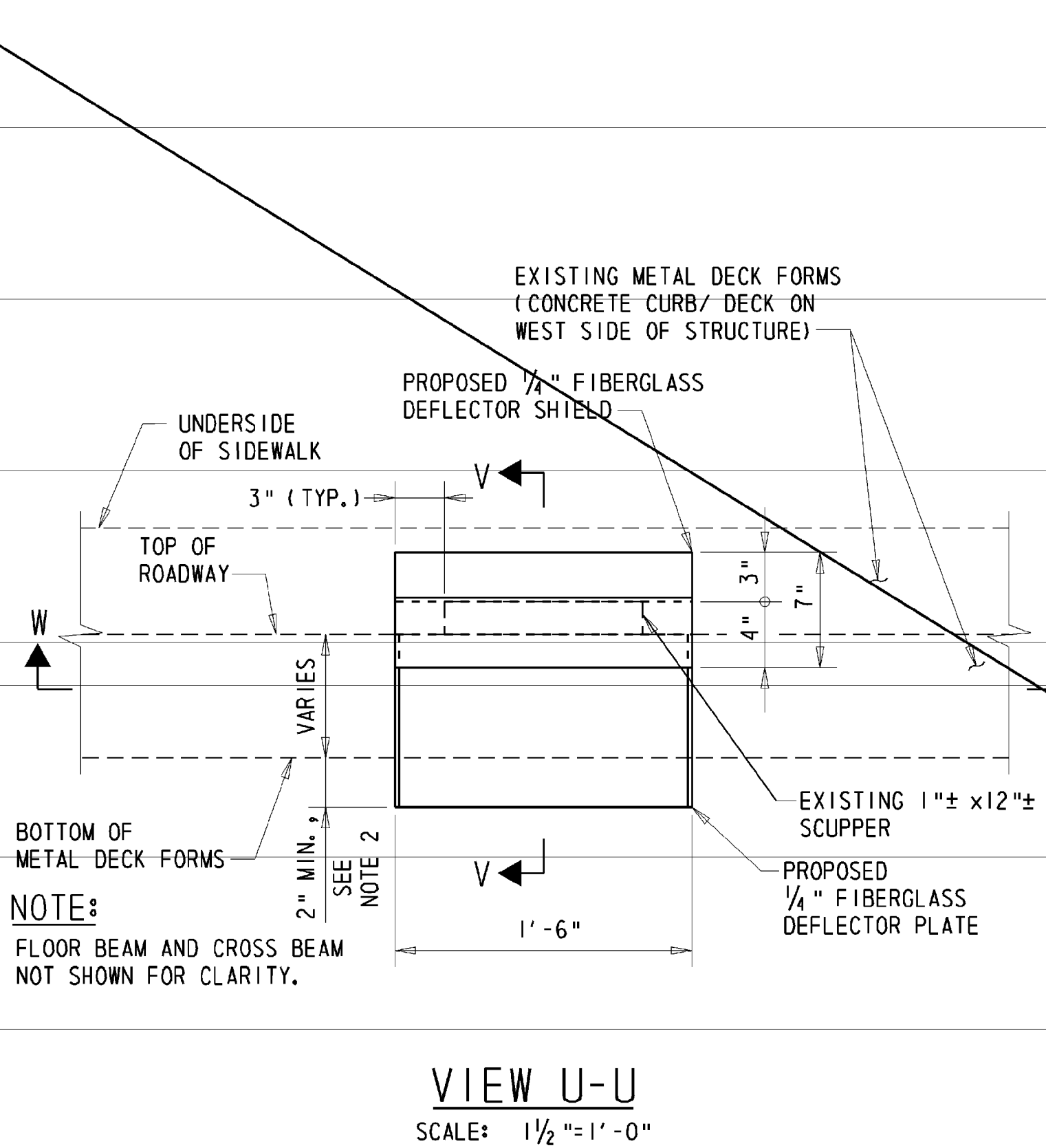
SECTION T-T

SCALE: 3"=1'-0"



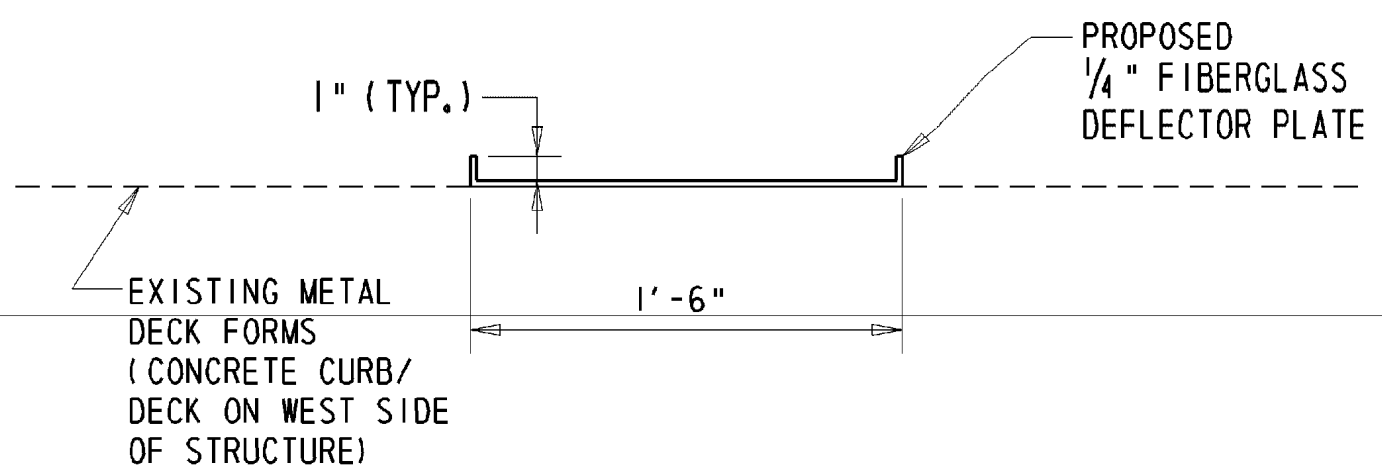
EXISTING LATTICE DETAIL

NOT TO SCALE

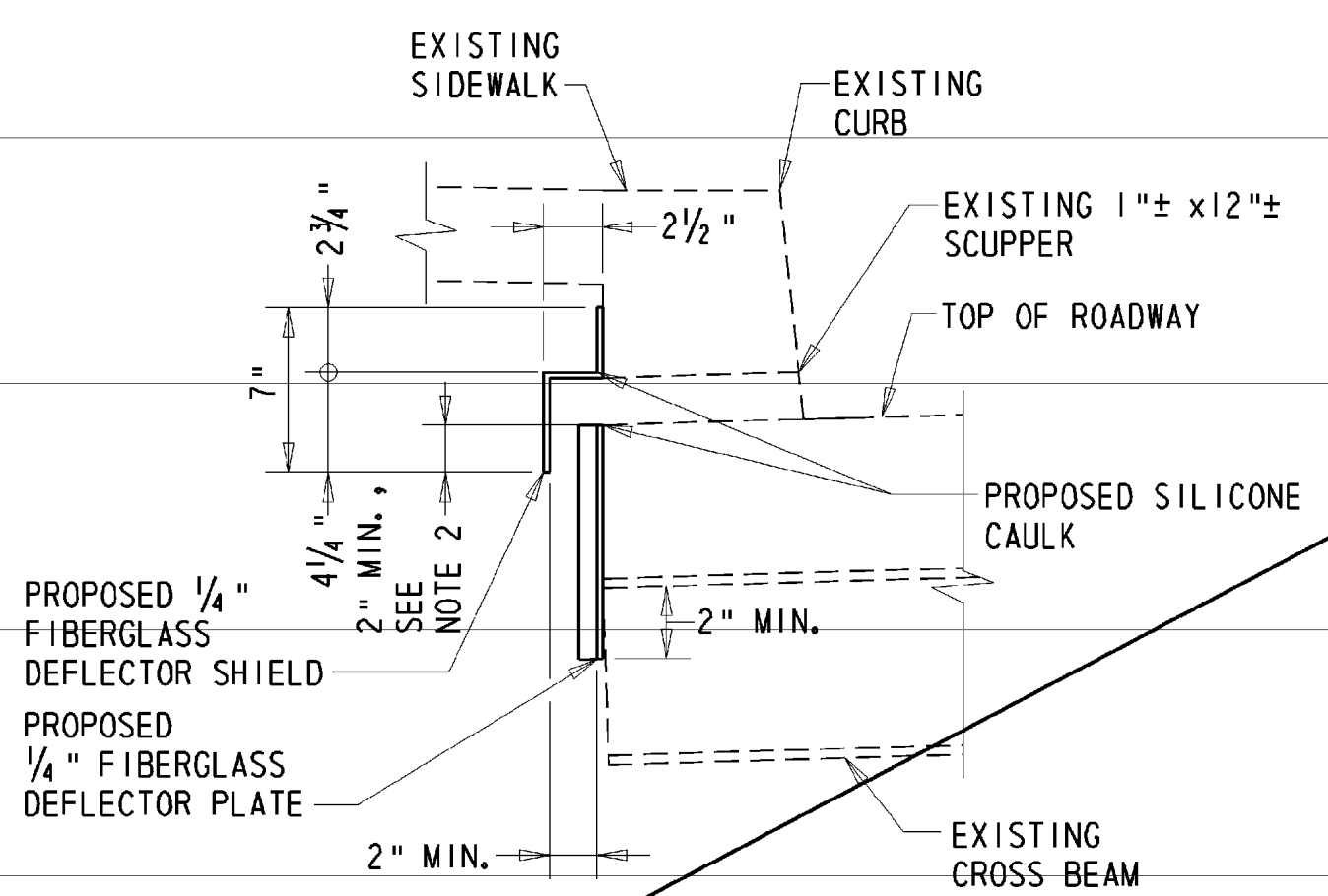


NOTE:
FLOOR BEAM AND CROSS BEAM
NOT SHOWN FOR CLARITY.

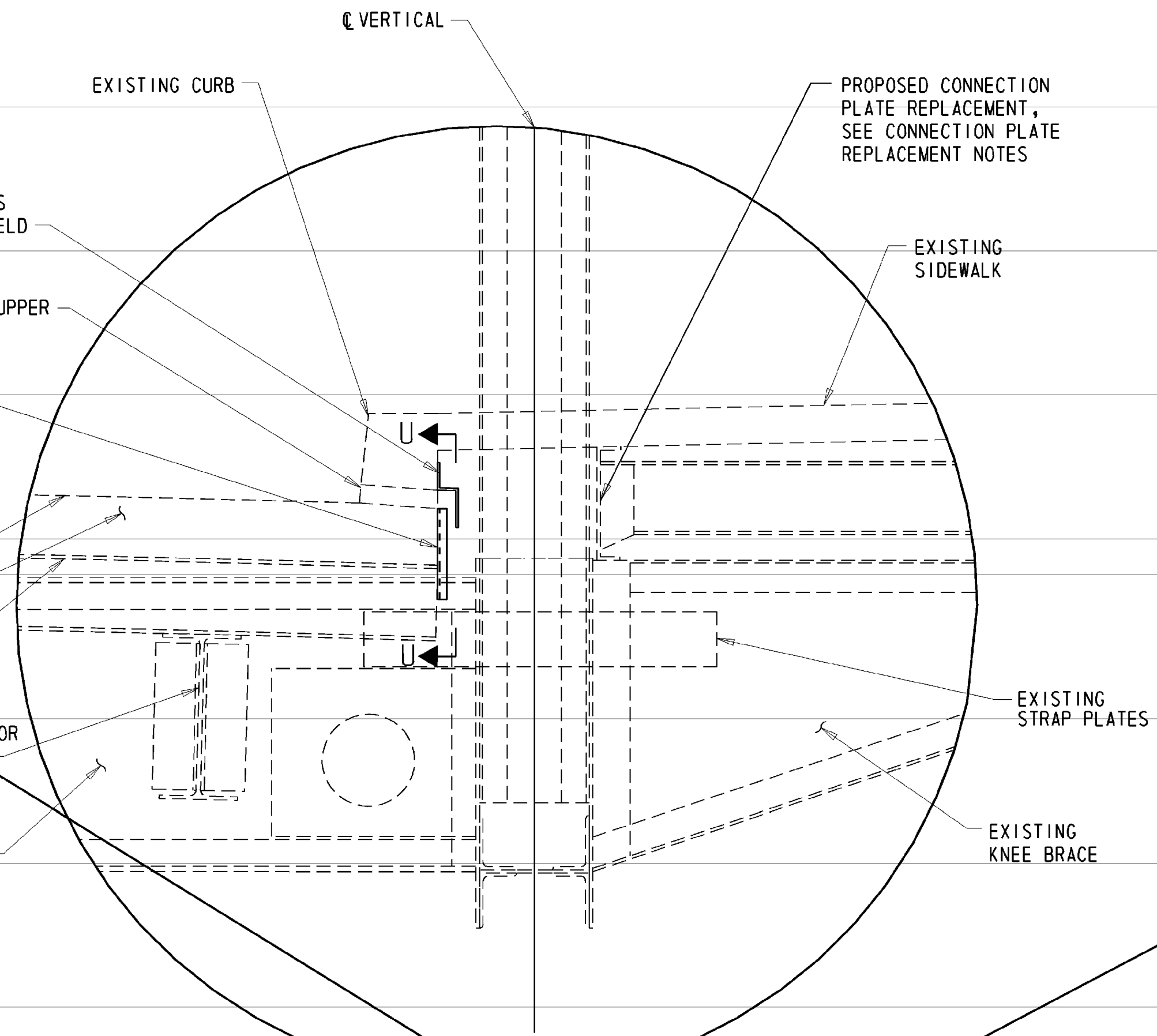
VIEW U-U
SCALE: 1 1/2" = 1'-0"



SECTION W-W
SCALE: 1 1/2" = 1'-0"



SECTION V-V
SCALE: 1 1/2" = 1'-0"



DETAIL A
SCALE: 1" = 1'-0"

FIBERGLASS DEFLECTOR PLATE AND SHIELD NOTES:

1. THE AREAS OF THE BRIDGE FASCIA TO RECEIVE THE FIBERGLASS DEFLECTOR PLATE AND SHIELD SHALL BE THOROUGHLY CLEANED AND PREPARED IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS PRIOR TO APPLYING ANY STRUCTURAL ADHESIVE.
2. THE FIBERGLASS DEFLECTOR PLATES AND SHIELDS SHALL BE INSTALLED FLUSH AGAINST THE BRIDGE FASCIA AT BRIDGE DECK DRAIN LOCATIONS (14 LOCATIONS). THE FIBERGLASS DEFLECTOR PLATE AND SHIELD IS ATTACHED TO THE CONCRETE CURB/DECK ON THE WEST SIDE OF THE STRUCTURE (7 LOCATIONS) AND METAL DECK FORMS ON THE EAST SIDE OF THE STRUCTURE (7 LOCATIONS). AT LOCATIONS WHERE THE FIBERGLASS DEFLECTOR PLATE WILL DRAIN WATER ONTO THE EXISTING CROSS BEAM FLANGES, THE FIBERGLASS DEFLECTOR PLATE SHALL EXTEND 2" MIN. BEYOND THE EXISTING CROSS BEAM BOTTOM FLANGE.
3. THE DEFLECTOR PLATE AND SHIELD SHALL BE PREFORMED FIBERGLASS CONFORMING TO THE FOLLOWING TEST CRITERIA:

MIN. DENSITY (ASTM D 792)	78 PCF
MAX. ABSORPTION (ASTM D 570)	1.0%
MIN. AVERAGE TENSILE STRENGTH (ASTM D 638)	10,000 PSI
THICKNESS	1/4 IN.
THICKNESS TOLERANCE	+1/16 IN. / -0 IN.
COLOR (FED. STD. 595)	26622
4. STRUCTURAL ADHESIVE SHALL CONFORM TO ASTM C 881 AND SHALL BE SUITABLE FOR BONDING TO FIBERGLASS, METAL AND CONCRETE.
5. SILICONE CAULKING MATERIAL SHALL BE A CLEAR, ONE-PART, ACETOXY CURE SILICONE SEALANT AND SHALL CONFORM TO THE FOLLOWING WHEN TESTED AT 77 ± °F AND 50 PERCENT HUMIDITY:

SHORE A HARDNESS	27
TENSILE STRENGTH	350 PSI
MIN. ELONGATION	600%
TOOLING TIME	5-10 MIN.
TACK-FREE TIME	15-20 MINUTES
6. PAYMENT FOR FABRICATING, FURNISHING AND ATTACHING EACH FIBERGLASS DEFLECTOR PLATE AND SHIELD AND FOR ALL LABOR, STRUCTURAL ADHESIVE AND CAULKING MATERIALS NECESSARY TO COMPLETE THE WORK WILL BE MADE UNDER ITEM 605681 - BRIDGE DRAINAGE SYSTEM - FITTINGS.

MISCELLANEOUS REPAIRS

BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(1)	47	83

REHABILITATION OF BRIDGES 1 & 1A ON RISING SUN LANE OVER BRANDYWINE CREEK	
REVISIONS	
△ SHEET DELETED	B.K.B. 11/05/08

CONNECTION PLATE AT SIDEWALK REPLACEMENT NOTES:

1. THE CONNECTION PLATE (10" ± x 5/8" ±) LOCATED AT L1 EAST CONNECTING THE WEST SIDEWALK CHANNELS SHALL BE REPLACED IN-KIND.
2. SEE 'RIVET REPLACEMENT NOTES' AND 'RIVET REPLACEMENT GUIDELINES' ON SHEET NO. 44 FOR REMOVAL AND REPLACEMENT OF 3/4" DIAMETER RIVETS.
3. SEE 'FABRICATION AND ERECTION NOTES' ON SHEET NO. 44 FOR PREPARATION OF THE EXISTING STEEL, PREPARATION OF THE EXISTING HOLES, AND ALL INFORMATION REGARDING FABRICATION AND ERECTION OF THE CONNECTION PLATE REPLACEMENT.
4. PAYMENT FOR REPLACEMENT OF CONNECTION PLATE, INSTALLING 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CLEANING EXISTING STEEL, PAINTING, REAMING AND ALL WORK ASSOCIATED WITH REPLACEMENT OF THE CONNECTION PLATE WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.

NOTE:
EAST SIDE OF STRUCTURE SHOWN.
WEST SIDE SIMILAR.

MISCELLANEOUS REPAIRS

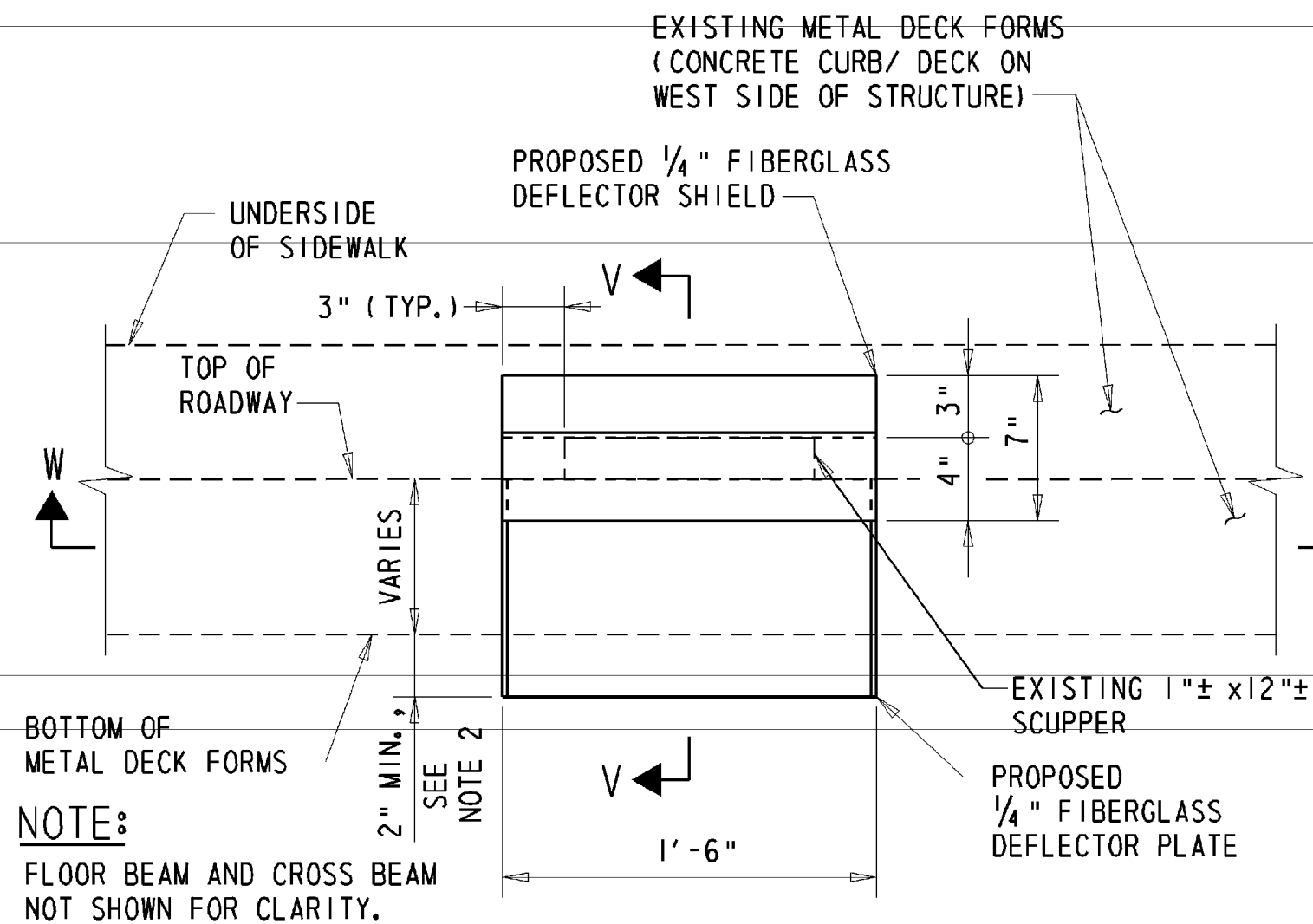
BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(1)	47A	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

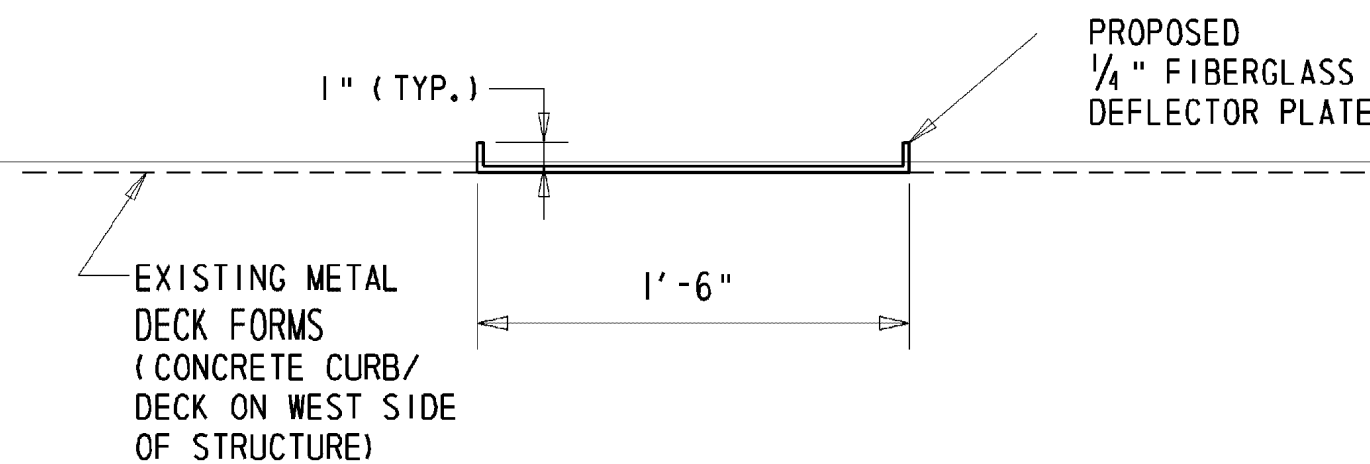
REVISIONS

NEW SHEET	B.K.B. 11/05/08



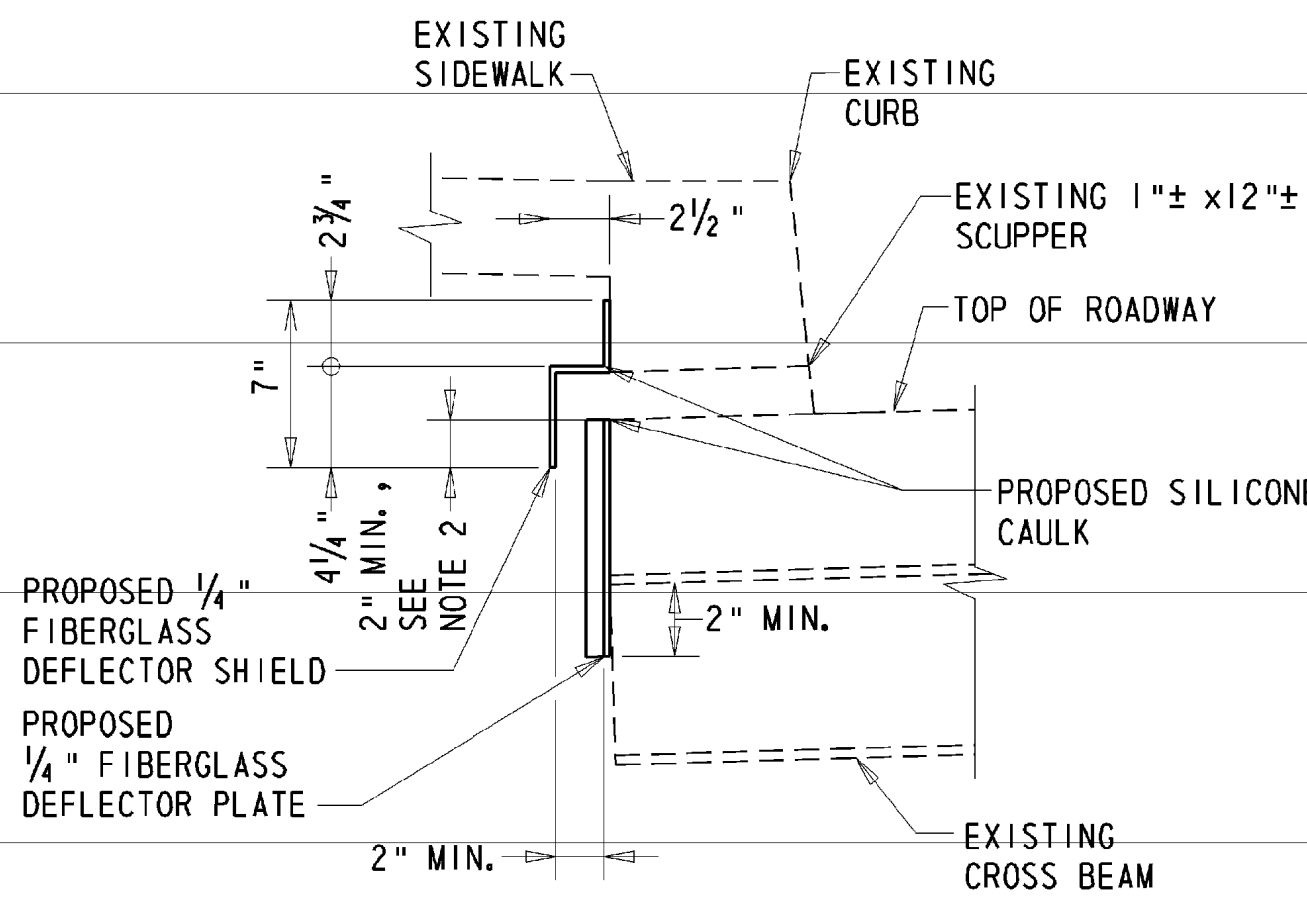
VIEW U-U

SCALE: 1 1/2" = 1'-0"



SECTION W-W

SCALE: 1 1/2" = 1'-0"



SECTION V-V

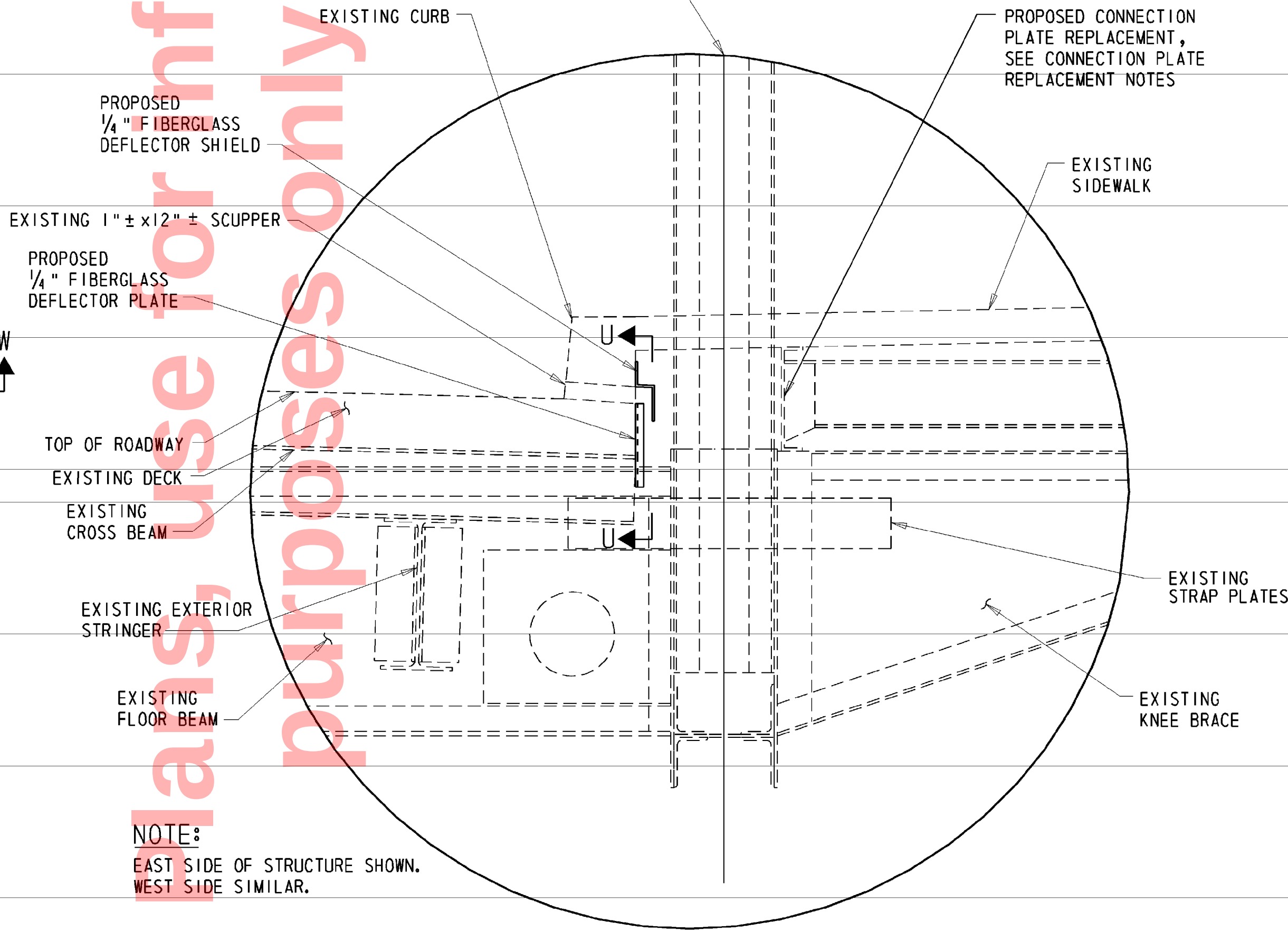
SCALE: 1 1/2" = 1'-0"

FIBERGLASS DEFLECTOR PLATE AND SHIELD NOTES:

- THE AREAS OF THE BRIDGE FASCIA TO RECEIVE THE FIBERGLASS DEFLECTOR PLATE AND SHIELD SHALL BE THOROUGHLY CLEANED AND PREPARED IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS PRIOR TO APPLYING ANY STRUCTURAL ADHESIVE.
- THE FIBERGLASS DEFLECTOR PLATES AND SHIELDS SHALL BE INSTALLED FLUSH AGAINST THE BRIDGE FASCIA AT BRIDGE DECK DRAIN LOCATIONS (14 LOCATIONS). THE FIBERGLASS DEFLECTOR PLATE AND SHIELD IS ATTACHED TO THE CONCRETE CURB/DECK ON THE WEST SIDE OF THE STRUCTURE (7 LOCATIONS) AND METAL DECK FORMS ON THE EAST SIDE OF THE STRUCTURE (7 LOCATIONS). AT LOCATIONS WHERE THE FIBERGLASS DEFLECTOR PLATE WILL DRAIN WATER ONTO THE EXISTING CROSS BEAM FLANGES, THE FIBERGLASS DEFLECTOR PLATE SHALL EXTEND 2" MIN. BEYOND THE EXISTING CROSS BEAM BOTTOM FLANGE.
- THE DEFLECTOR PLATE AND SHIELD SHALL BE PREFORMED FIBERGLASS CONFORMING TO THE FOLLOWING TEST CRITERIA:

MIN. DENSITY (ASTM D 792)	78 PCF
MAX. ABSORPTION (ASTM D 570)	1.0%
MIN. AVERAGE TENSILE STRENGTH (ASTM D 638)	10,000 PSI
THICKNESS	1/4 IN.
THICKNESS TOLERANCE	+1/16 IN. / -0 IN.
COLOR (FED. STD. 595)	26622
- STRUCTURAL ADHESIVE SHALL CONFORM TO ASTM C 881 AND SHALL BE SUITABLE FOR BONDING TO FIBERGLASS, METAL AND CONCRETE.
- SILICONE CAULKING MATERIAL SHALL BE A CLEAR, ONE-PART, ACETOXY CURE SILICONE SEALANT AND SHALL CONFORM TO THE FOLLOWING WHEN TESTED AT 77± °F AND 50 PERCENT HUMIDITY:

SHORE A HARDNESS	27
TENSILE STRENGTH	350 PSI
MIN. ELONGATION	600%
TOOLING TIME	5-10 MIN.
TACK-FREE TIME	15-20 MINUTES
- PAYMENT FOR FABRICATING, FURNISHING AND ATTACHING EACH FIBERGLASS DEFLECTOR PLATE AND SHIELD AND FOR ALL LABOR, STRUCTURAL ADHESIVE AND CAULKING MATERIALS NECESSARY TO COMPLETE THE WORK WILL BE MADE UNDER ITEM 605681 - BRIDGE DRAINAGE SYSTEM - FITTINGS.

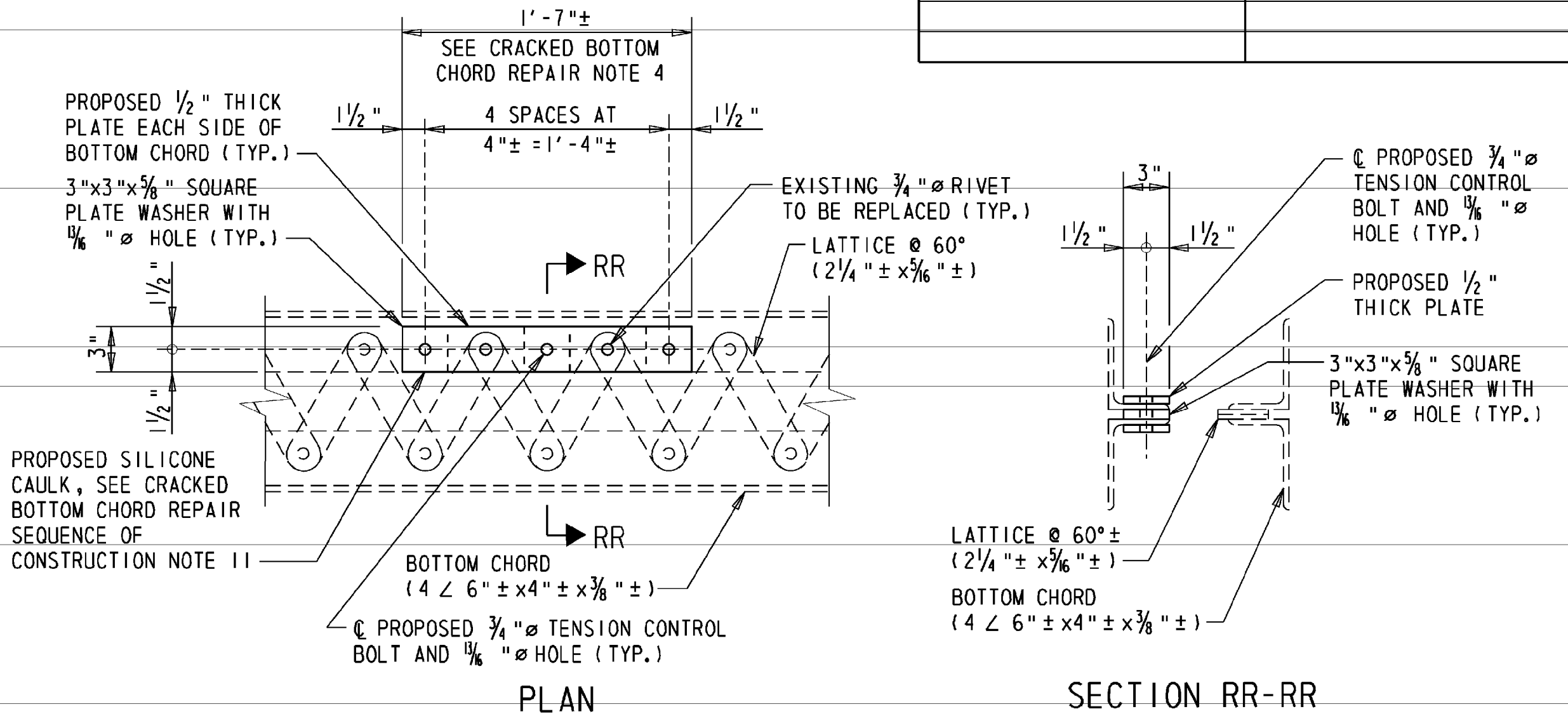


DETAIL A

SCALE: 1" = 1'-0"

CRACKED BOTTOM CHORD REPAIR SEQUENCE OF CONSTRUCTION:

- IN THE PRESENCE OF THE ENGINEER LOCATE THE CRACK IN THE EAST BOTTOM CHORD AT THE HORIZONTAL LEG OF THE LOWER WEST ANGLE. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK AT THIS LOCATION UNTIL DIRECTED BY THE ENGINEER.
- THOROUGHLY CLEAN THE EXISTING STEEL ADJACENT TO THE CRACKED AREA AND REMOVE ALL PAINT TO BARE METAL.
- IN THE PRESENCE OF THE ENGINEER LOCATE THE END OF THE CRACK USING MAGNETIC PARTICLE TESTING. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK AT THIS LOCATION UNTIL DIRECTED BY THE ENGINEER.
- DRILL OR CORE A 1" DIAMETER HOLE THROUGH THE LOWER BOTTOM CHORD ANGLE SO THE CRACK IS CENTERED AND COMPLETELY WITHIN THE HOLE DIAMETER. THE HOLE SHALL ONLY PROCEED THROUGH THE LOWER BOTTOM CHORD ANGLE. THE ADJACENT LACING OR UPPER VERTICAL ANGLE SHALL NOT BE DRILLED OR CORED.
- REMOVE A PORTION OF THE LOWER BOTTOM CHORD ANGLE BY SAW CUTTING FROM THE HOLE TO THE OUTSIDE OF THE ANGLE.
- GRIND THE REPAIR AREA TO PROVIDE AN EVEN AND CONSISTENT INNER SURFACE. ALL BURRS, NICKS, GOUGES, SCRAPES, ETC. INDICATED OR IDENTIFIED FOR REPAIR SHALL BE GRIND DOWN TO A SURFACE FINISH OF 125 MICROINCHES PER INCH RMS AND TAPERED TO THE ORIGINAL SURFACE USING A 10:1 SLOPE IN THE DIRECTION OF STRESS.
- POLISH HOLE WITH A FLAPPER WHEEL. THE FINISHED INNER SURFACE SHALL BE SMOOTH AND RELATIVELY UNIFORM WITH NO OBSERVED SURFACE IRREGULARITIES.
- THE REPAIR AREA SHALL BE INSPECTED AND ACCEPTED BY THE ENGINEER. ANY REPAIR NOT MEETING THE ENGINEER'S APPROVAL SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE DEPARTMENT.
- REMOVE EXISTING 3/4" Ø RIVETS AS INDICATED IN THE CRACKED BOTTOM CHORD REPAIR DETAIL.
- EXISTING STEEL SURFACE THAT IS TO BE COVERED BY THE NEW PLATE SHALL BE THOROUGHLY CLEANED TO AN SSPC SP3 FINISH. AREAS OF SECTION LOSS AND PITTING SHALL BE COATED WITH A METAL REINFORCED EPOXY FILLER JUST PRIOR TO INSTALLING NEW PLATE.
- PLACE SQUARE PLATE WASHER BETWEEN BOTTOM CHORD ANGLES AS INDICATED IN THE CRACKED BOTTOM CHORD REPAIR DETAIL.
- PLACE BOTTOM OF CHORD IN AREA OF CRACK AS INDICATED IN THE CRACKED BOTTOM CHORD REPAIR DETAIL.
- PLACE SILICONE CAULKING MATERIAL AROUND THE ENTIRE PERIMETER OF EACH PROPOSED 1/2" THICK PLATE AFTER ALL PAINTING WORK HAS BEEN COMPLETED AND ACCEPTED.



CRACKED BOTTOM CHORD REPAIR DETAIL

SCALE: 1 1/2" = 1'-0"

CRACKED BOTTOM CHORD REPAIR NOTES:

- PAYMENT FOR BOTTOM CHORD CRACK REPAIR WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR - INCLUDING TESTING, DRILLING, CORING, SAW CUTTING, 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CAULKING MATERIALS, METAL REINFORCED EPOXY FILLER, CLEANING EXISTING STEEL, SURFACE PREPARATION AND PAINTING.
- SILICONE CAULKING MATERIAL SHALL BE A CLEAR, ONE-PART, ACETOXY CURE SILICONE SEALANT AND SHALL CONFORM TO THE FOLLOWING WHEN TESTED AT 77± °F AND 50 PERCENT HUMIDITY:

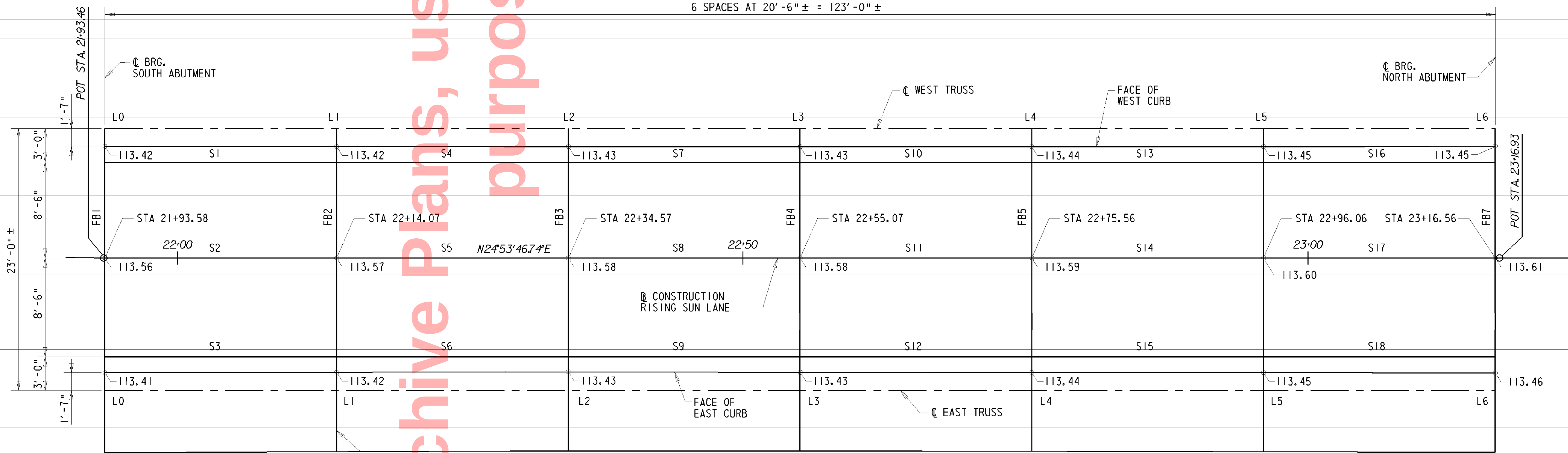
SHORE A HARDNESS	27
TENSILE STRENGTH	350 PSI
MIN. ELONGATION	600%
TOOLING TIME	5-10 MIN.
TACK-FREE TIME	15-20 MINUTES
- METAL REINFORCED EPOXY FILLER SHALL CONFORM TO THE FOLLOWING CRITERIA:

MIN. POT LIFE	20 MINS. @ 75°
MIN. SPECIFIC GRAVITY	1.65
MIN. COMPRESSIVE STRENGTH	
ASTM D 695/7 DAYS	15000 PSI
MIN. FLEXURAL STRENGTH	
ASTM D 790/7 DAYS	13500 PSI
MIN. SHEAR STRENGTH (TENSILE: STEEL TO STEEL)	
ASTM D 1002	2400 PSI
- THE CRACKED BOTTOM CHORD REPAIR LENGTH OF 1'-7"± SHALL BE APPROXIMATELY CENTERED ON THE BOTTOM CHORD CRACK.

CONNECTION PLATE AT SIDEWALK REPLACEMENT NOTES:

- THE CONNECTION PLATE (10"± x 5/8"±) LOCATED AT L1 EAST CONNECTING THE WEST SIDEWALK CHANNELS SHALL BE REPLACED IN-KIND.
- SEE 'RIVET REPLACEMENT NOTES' AND 'RIVET REPLACEMENT GUIDELINES' ON SHEET NO. 44 FOR REMOVAL AND REPLACEMENT OF 3/4" DIAMETER RIVETS.
- SEE 'FABRICATION AND ERECTION NOTES' ON SHEET NO. 44 FOR PREPARATION OF THE EXISTING STEEL, PREPARATION OF THE EXISTING HOLES, AND ALL INFORMATION REGARDING FABRICATION AND ERECTION OF THE CONNECTION PLATE REPLACEMENT.
- PAYMENT FOR REPLACEMENT OF CONNECTION PLATE, INSTALLING 3/4" DIAMETER HIGH STRENGTH TENSION CONTROL BOLTS, NUTS, WASHERS, CLEANING EXISTING STEEL, PAINTING, REAMING AND ALL WORK ASSOCIATED WITH REPLACEMENT OF THE CONNECTION PLATE WILL BE MADE UNDER ITEM 605584 - STEEL STRUCTURE REPAIR.

PREL. TRACING _____ K.P.L./K.W.F. _____ DESIGN _____ B.K.B./S.E.B. _____ CHKD. _____ J.A.G. _____



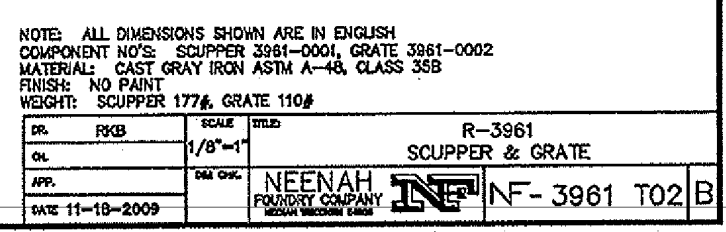
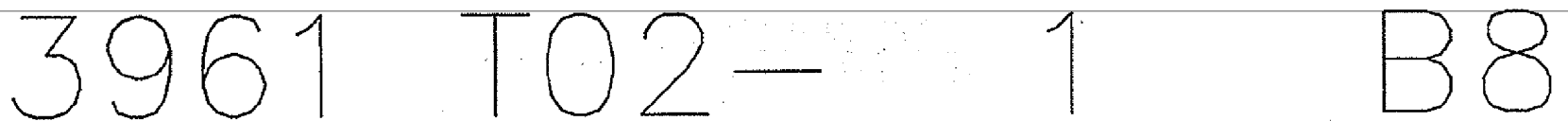
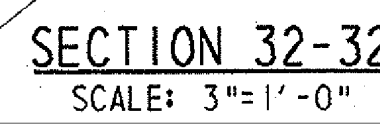
DECK ELEVATIONS
SCALE: 3/16"=1'

- LEGEND:**
- L1 TRUSS CHORD JOINT
 - S1 STRINGER NUMBER
 - FB1 FLOOR BEAM NUMBER

- NOTES:**
- PAYMENT FOR THE DECK OVERLAY WILL BE MADE UNDER ITEM 602583 - FURNISHING MICRO-SILICA MODIFIED CONCRETE AND ITEM 602584 - CONSTRUCTING MICRO-SILICA MODIFIED CONCRETE OVERLAY.
 - PRIOR TO MILLING DECK SURFACE, CONTRACTOR SHALL CONDUCT A PRE-REMOVAL SURVEY AND CROSS-SLOPE VERIFICATION. SEE PROJECT NOTES FOR FURTHER INFORMATION. PAYMENT FOR ALL WORK ASSOCIATED WITH THIS WORK WILL BE INCIDENTAL TO ITEM 763501 - CONSTRUCTION ENGINEERING.

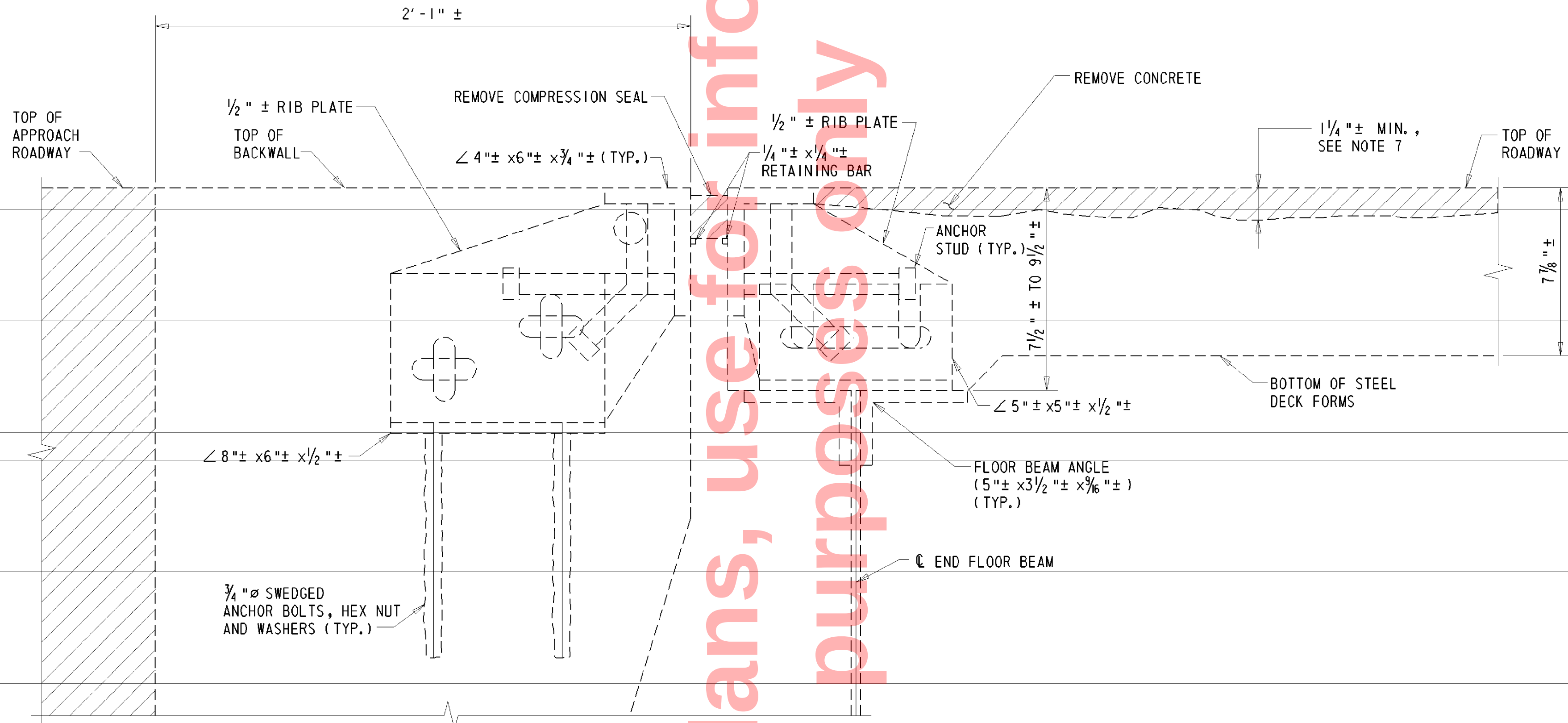
DECK ELEVATIONS BR. 1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
21-074-01	NEW CASTLE	EBHN-N279(I)	48	83
REHABILITATION OF BRIDGES 1 & 1A ON RISING SUN LANE OVER BRANDYWINE CREEK				
REVISIONS				

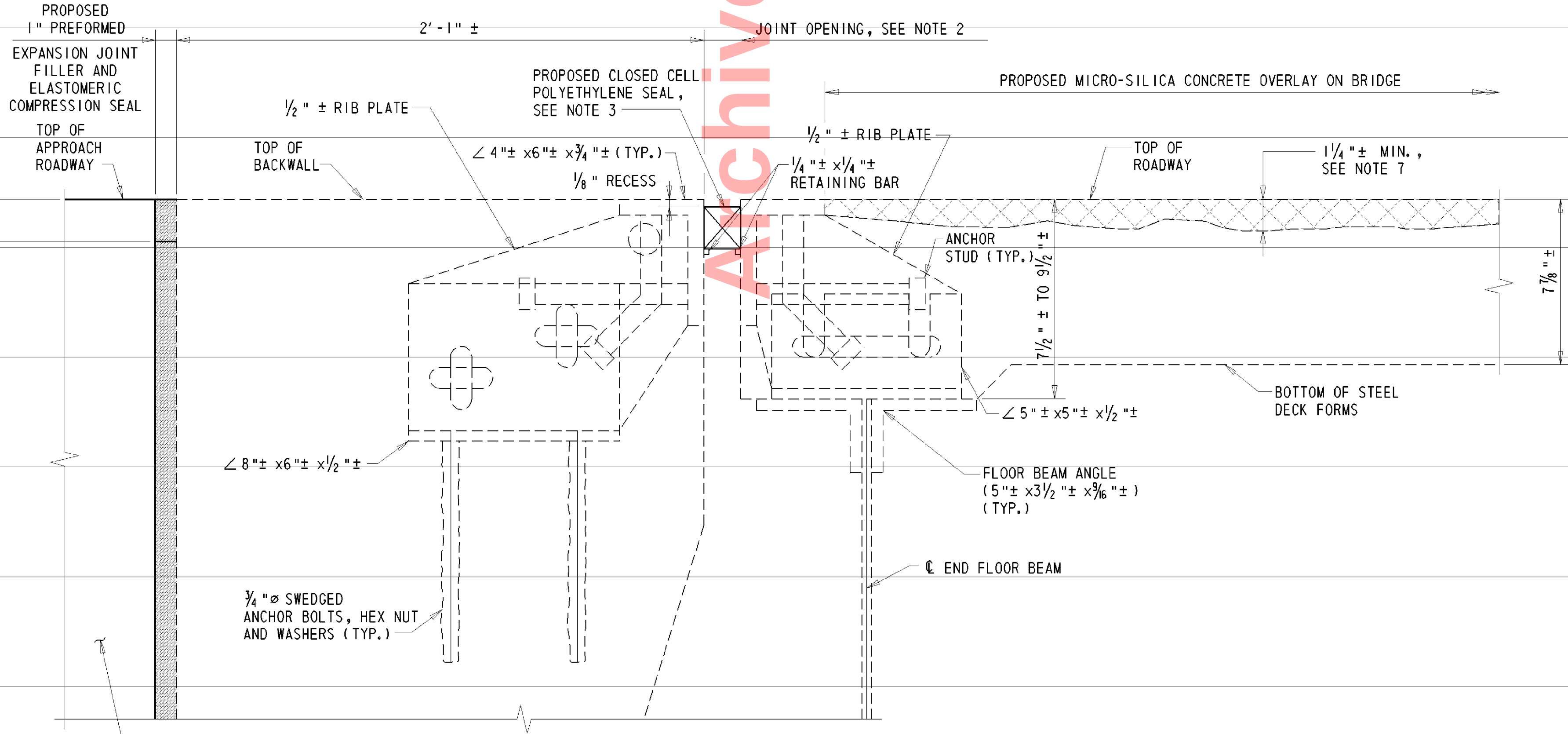


11/4/2009 21-074-01

PREFORMED EXPANSION JOINT FILLER
SEE NOTE 1 ON SHEET NO. 67 FOR PAYMENT
2" ELASTOMERIC COMPRESSION SEAL



EXISTING ABUTMENT JOINT
SCALE: 3"=1'-0"



PROPOSED ABUTMENT JOINT
SCALE: 3"=1'-0"

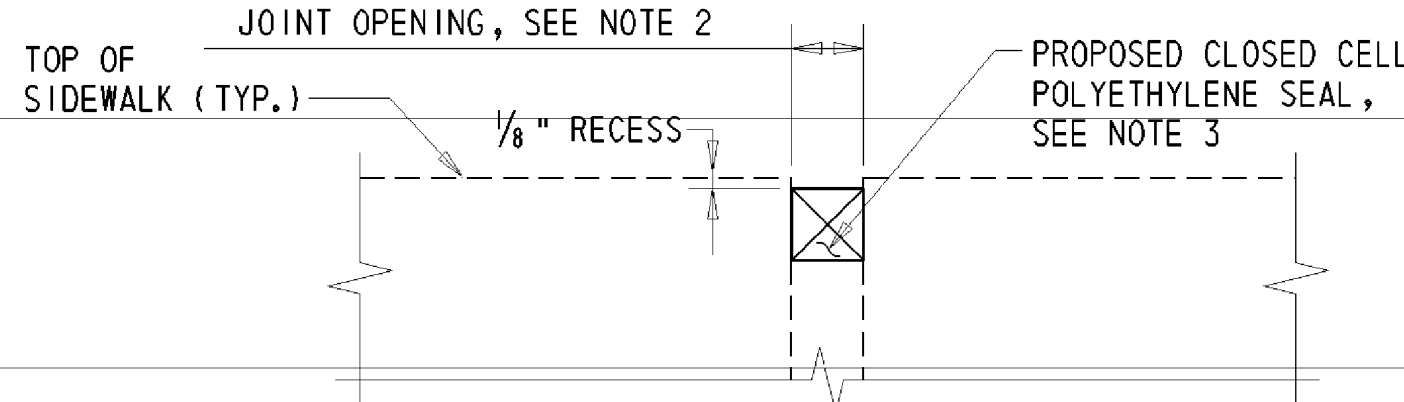
JOINT REPAIRS - I

BR. 1 001 279

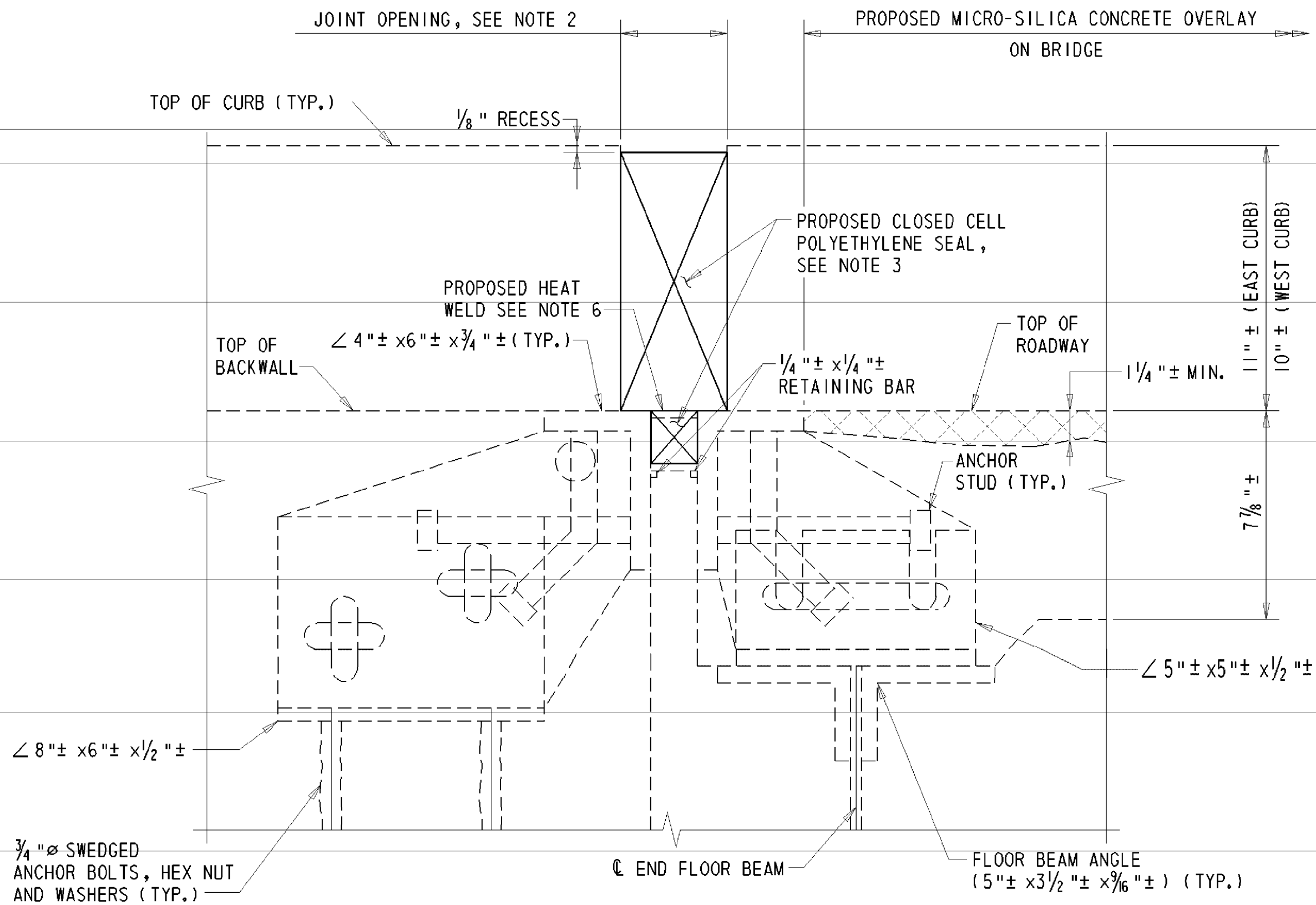
CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	49	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS



PROPOSED SIDEWALK - SECTION
SCALE: 3"=1'-0"



PROPOSED CURB - SECTION
SCALE: 3"=1'-0"

NOTES:

- PAYMENT FOR MILLING THE CONCRETE DECK WILL BE MADE UNDER ITEM 760001 - PAVEMENT - MILLING, CONCRETE. PAYMENT FOR THE DECK OVERLAY WILL BE MADE UNDER ITEM 602583 - FURNISHING MICRO-SILICA MODIFIED CONCRETE AND 602584 - CONSTRUCTING MICRO-SILICA MODIFIED CONCRETE OVERLAY.
- THE LIMITS OF CLOSED CELL POLYETHYLENE SEAL AT BOTH ABUTMENTS SHALL EXTEND FROM BACK OF CURB TO OUTSIDE OF SIDEWALK. SEE 'CLOSED CELL POLYETHYLENE SEAL PAYMENT TABLE' ON SHEET NO. 50 FOR PAYMENT ITEMS. FOR JOINT OPENINGS AND LIMITS OF EACH SIZE OF DECK JOINT REPAIR SEE 'PROPOSED ABUTMENT JOINT PLAN' AND 'CLOSED CELL POLYETHYLENE SEAL OPENING TABLE' ON SHEET NO. 50.
- THE EXISTING ABUTMENT JOINT, CURB, AND SIDEWALK OPENINGS SHALL BE THOROUGHLY CLEANED OF ANY DIRT AND DEBRIS PRIOR TO INSTALLING THE CLOSED CELL POLYETHYLENE SEAL.
- JOINT OPENINGS SHALL BE FIELD VERIFIED PRIOR TO ORDERING MATERIAL.
- THE CLOSED CELL POLYETHYLENE SEAL SHALL BE INSTALLED AT BOTH ABUTMENTS IN ONE CONTINUOUS PIECE.
- THE CLOSED CELL POLYETHYLENE SEAL SHALL BE HEAT WELDED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AT DIRECTIONAL CHANGES. THE CLOSED CELL POLYETHYLENE SPONGE IN THE CURB SHALL BE HEAT WELDED TO THE SEAL AT THE GUTTERLINE AND REAR FACE OF CURB.
- THE CONTRACTOR SHALL USE CARE DURING THE MILLING OF THE EXISTING CONCRETE DECK SLAB TO AVOID DAMAGE TO THE EXISTING PORTIONS OF THE STRUCTURE THAT ARE TO REMAIN IN PLACE. ANY DAMAGE INCURRED TO EXISTING PORTIONS OF THE STRUCTURE TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR ALL AT HIS SOLE COST TO THE COMPLETE SATISFACTION OF THE ENGINEER. DURING MILLING OF THE EXISTING CONCRETE DECK SLAB IF REINFORCING STEEL IS ENCOUNTERED WITH LESS THAN 1/4" COVER THE CONTRACTOR SHALL MODIFY HIS MILLING OPERATIONS AND MILL ONLY THE PORTIONS OF THE EXISTING CONCRETE DECK SLAB ABOVE THE REINFORCING STEEL (LESS THAN 1/4"). UPON COMPLETION OF THE MILLING OPERATIONS, THE CONTRACTOR, IN THE PRESENCE OF THE ENGINEER, SHALL CONDUCT A FULL AND THOROUGH INSPECTION OF THE DECK. THE PURPOSE OF THIS INSPECTION WILL BE TO IDENTIFY AREAS IN NEED OF REPAIR. THE ENGINEER SHALL BE THE SOLE JUDGE IN DETERMINING THE NEED FOR THIS REPAIR AND IF NECESSARY, THE EXTENT OF CONCRETE REMOVAL AND WHEN SOUND CONCRETE IS ENCOUNTERED. THE COST OF THIS INSPECTION WILL BE INCIDENTAL TO CONTINGENCY ITEMS 602576 - DECK REPAIR, 3" TO < FULL DEPTH AND 602577 - DECK REPAIR, FULL DEPTH. ALL REPAIRS TO THE DECK SHALL BE MADE IN ACCORDANCE WITH ITEMS 602576 AND 602577.

LEGEND

	1/4" CONCRETE MILL AND MICRO-SILICA CONCRETE OVERLAY
	REMOVAL

PREL. TRACING K.P.L./K.W.F. DESIGN B.K.B./S.E.B. CHKD. J.A.G.

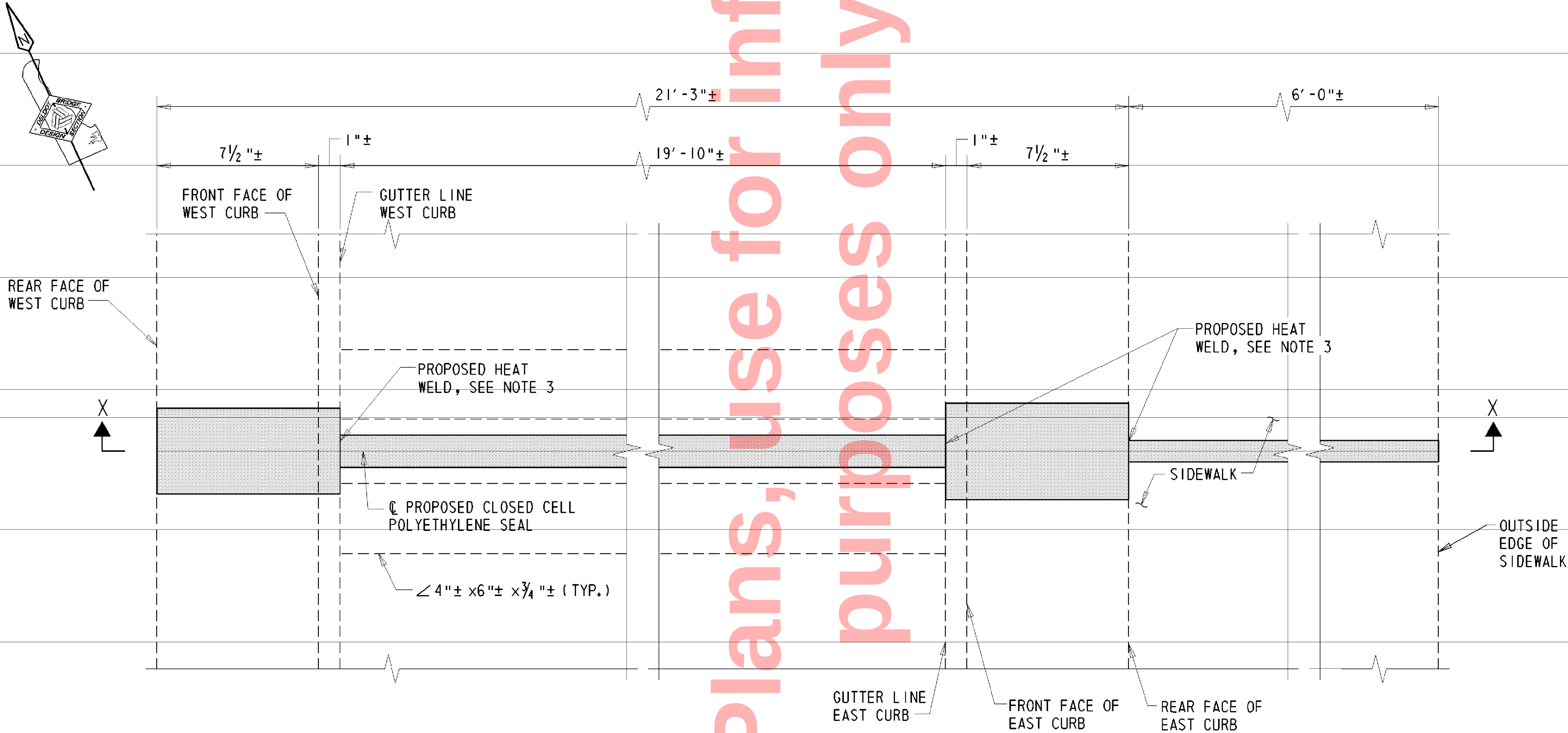
JOINT REPAIRS - II

BR.1 001 279

CONTRACT	COUNTY	F.A.P. NO.	SHEET NO.	TOTAL SHTS.
2I-074-0I	NEW CASTLE	EBHN-N279(I)	50	83

REHABILITATION OF BRIDGES
1 & 1A ON RISING SUN LANE
OVER BRANDYWINE CREEK

REVISIONS

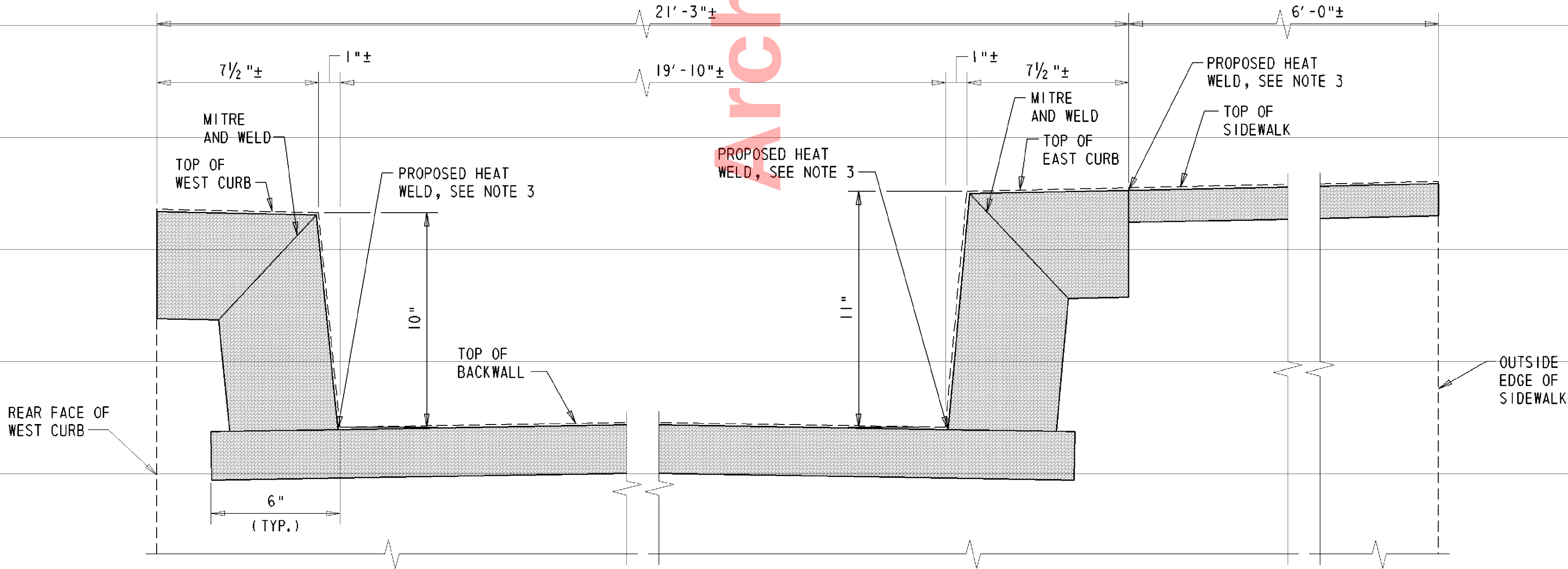


PROPOSED ABUTMENT JOINT - PLAN

SCALE: 3"=1'-0"

CLOSED CELL POLYETHYLENE SEAL OPENING TABLE

LOCATION	MATERIAL WIDTH	OPENING @					
		40°F	50°F	60°F	70°F	80°F	90°F
NORTH ABUTMENT	1 1/2"	1 1/8"	1 3/8"	1 1/4"	1 1/8"	1 1/8"	5/8"
NORTHWEST CURB	5"	3 1/8"	3 3/8"	3 1/2"	3 3/8"	3 3/8"	3 3/8"
NORTHEAST CURB	3 1/4"	2 1/8"	2 3/8"	2 1/2"	2 3/8"	2 3/8"	2 3/8"
NORTH SIDEWALK	1 1/2"	1 1/8"	1 3/8"	1 1/2"	1 3/8"	1 3/8"	1 3/8"
SOUTH ABUTMENT	2 1/4"	1 3/4"	1 3/4"	1 3/4"	1 3/4"	1 3/4"	1 3/4"
SOUTHWEST CURB	5"	4"	4"	4"	4"	4"	4"
SOUTHEAST CURB	5"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"	4 1/2"
SOUTH SIDEWALK	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"



PROPOSED ABUTMENT JOINT - SECTION X-X

SCALE: 3"=1'-0"

CLOSED CELL POLYETHYLENE SEAL PAYMENT TABLE

JOINT OPENING LOCATION	MATERIAL WIDTH	PAYMENT ITEM
NORTH ABUTMENT	1 1/2"	605558 - DECK JOINT REPAIR, 1 1/2"
NORTH SIDEWALK	1 1/2"	605558 - DECK JOINT REPAIR, 1 1/2"
SOUTH SIDEWALK	1 1/2"	605558 - DECK JOINT REPAIR, 1 1/2"
SOUTH ABUTMENT	2 1/4"	605561 - DECK JOINT REPAIR, 2 1/4"
NORTHEAST CURB	3 1/4"	605565 - DECK JOINT REPAIR, 3 1/4"
SOUTHEAST CURB	5"	605665 - DECK JOINT REPAIR, 5"
SOUTHWEST CURB	5"	605665 - DECK JOINT REPAIR, 5"
NORTHWEST CURB	5"	605665 - DECK JOINT REPAIR, 5"

NOTES:

1. 'SEE CLOSED CELL POLYETHYLENE SEAL PAYMENT TABLE' FOR PAYMENT ITEMS.
2. THE CLOSED CELL POLYETHYLENE SEAL SHALL BE INSTALLED AT BOTH ABUTMENTS IN ONE CONTINUOUS PIECE.
3. THE CLOSED CELL POLYETHYLENE SEAL SHALL BE HEAT WELDED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AT DIRECTIONAL CHANGES. THE CLOSED CELL POLYETHYLENE SPONGE IN THE CURB SHALL BE HEAT WELDED TO THE SEAL AT THE GUTTERLINE AND REAR FACE OF CURB.