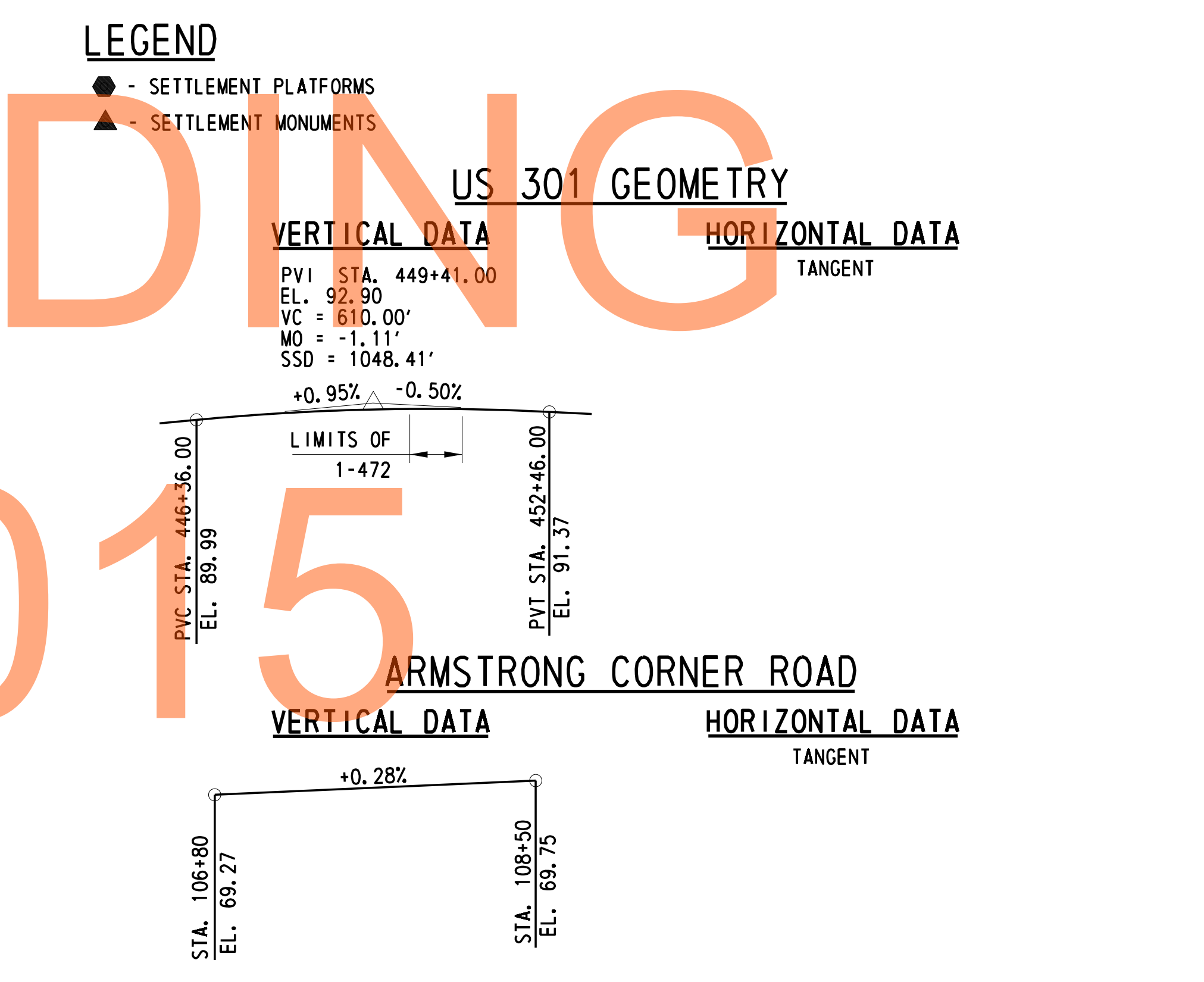
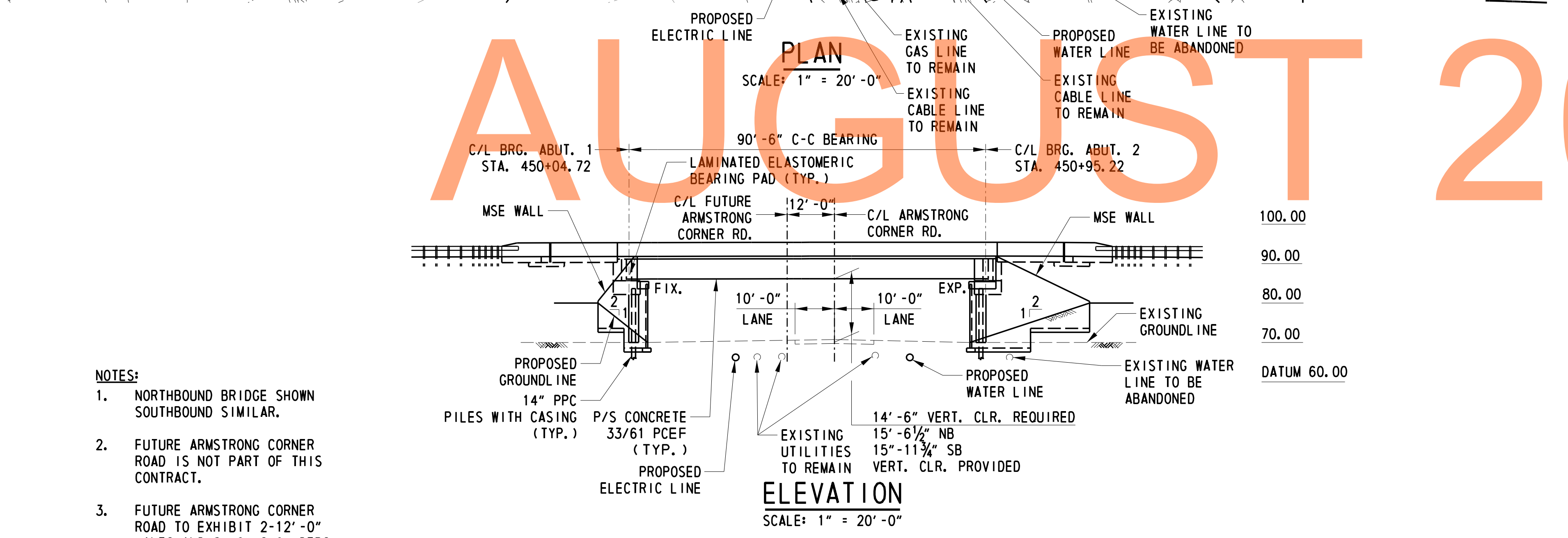


LOAD RATING SUMMARY

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TONS)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.10	N/A	INTERIOR BEAM	105	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TANDEM (INVENTORY)	1.26	N/A	INTERIOR BEAM	105	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TRUCK TRAIN (INVENTORY)	N/A	N/A	N/A	N/A	N/A
HS-20 (INVENTORY)	1.32	47.64	INTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
HL-93 TRUCK (OPERATING)	1.41	N/A	INTERIOR BEAM	105	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TANDEM (OPERATING)	1.62	N/A	INTERIOR BEAM	105	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TRUCK TRAIN (OPERATING)	N/A	N/A	N/A	N/A	N/A
HS-20 (OPERATING)	1.63	58.75	INTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE S220 (LEGAL)	2.08	41.61	INTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE S335 (LEGAL)	1.28	44.86	INTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE S437 (LEGAL)	1.26	46.01	INTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE T330 (LEGAL)	1.75	52.42	INTERIOR BEAM	106	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
DE T435 (LEGAL)	1.46	51.11	INTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE T540 (LEGAL)	1.44	57.49	INTERIOR BEAM	106	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR

NOTE: LOAD RATING DOES INCLUDE FUTURE WEARING SURFACE AS NOTED IN THE PLANS.



- NOTES:**
- NORTHBOUND BRIDGE SHOWN SOUTHBOUND SIMILAR.
 - FUTURE ARMSTRONG CORNER ROAD IS NOT PART OF THIS CONTRACT.
 - FUTURE ARMSTRONG CORNER ROAD TO EXHIBIT 2-12'-0" LANES AND 8'-0" SHOULDERS.

- CROSS REFERENCE NOTES:**
- FOR SETTLEMENT PLATFORM AND MONUMENT STATIONS AND OFFSETS, SEE DWG. 1-472 DT-1.
 - FOR SETTLEMENT PLATFORM DETAILS, SEE DWG. 1-472 DT-1.

GENERAL NOTES

1. DESIGN SPECIFICATIONS:

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION, 2007, INCLUDING 2008 AND 2009 INTERIM REVISIONS, AND AS SUPPLEMENTED BY DELAWARE DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL, MAY 2005, INCLUDING LATEST REVISIONS.

PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS, AASHTO/AWS D1.5M/D1.5 BRIDGE WELDING CODE, AND CONTRACT SPECIAL PROVISIONS.

LIVE LOAD DISTRIBUTION TO BEAMS IS BASED UPON AASHTO DISTRIBUTION FACTORS.

2. LOADING:

UNIT WEIGHTS OF MATERIALS SHALL BE IN ACCORDANCE WITH THE DELAWARE DESIGN MANUAL.

FUTURE OVERLAY ALLOWANCE SHALL BE 25 LBS/SO FT.

STEEL BRIDGE DECK FORMS WHICH STAY IN PLACE (INCLUDING CONCRETE IN FORM CORRUGATIONS) SHALL BE 15 LBS/SO FT.

VEHICLE LIVE LOAD SHALL BE AASHTO HL-93 DESIGN VEHICLE, WHICH CONSISTS OF A DESIGN TRUCK OR TANDEM WITH DYNAMIC LOAD ALLOWANCE AND A LANE LOAD. RATINGS SHALL USE ALL DELAWARE LEGAL LOADS SPECIFIED IN THE BRIDGE DESIGN MANUAL.

BARRIER HAS BEEN DESIGNED FOR TEST LEVEL FOUR (TL-4).

FATIGUE DESIGN IS BASED ON THE FOLLOWING:
ADTT 3,045 (2030 ONE-DIRECTIONAL).

FOR THERMAL LOADS, CONSIDER THE MODERATE TEMPERATURE RANGE AS STIPULATED IN THE AASHTO LRFD DESIGN SPECIFICATIONS, THE NORMAL TEMPERATURE SHALL BE CONSIDERED TO BE 68F.

FOR SEISMIC LOADS, CONSIDER SEISMIC PERFORMANCE ZONE 1, WITH A SITE CLASS = D AND IMPORTANCE CATEGORY - ESSENTIAL.

SEISMIC FORCES WERE CONSIDERED FOR ACCELERATION COEFFICIENT OF 0.08.

3. PORTLAND CEMENT CONCRETE:

PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE ELEMENTS SHALL BE AS FOLLOWS:
(28 DAY COMPRESSIVE STRENGTH)

- ITEM NO. 602003 (CLASS A, F'c=4500 PSI) - ABUTMENT FOOTING
- ITEM NO. 602013 (CLASS D, F'c=4500 PSI) - DECK AND DIAPHRAGMS
- ITEM NO. 602014 (CLASS D, F'c=4500 PSI) - APPROACH SLAB, MOMENT SLAB AND SLEEPER SLAB
- ITEM NO. 602015 (CLASS A, F'c=4500 PSI) - ABUTMENT ABOVE FOOTING, BACKWALL AND CHEEKWALL
- ITEM NO. 602017 (CLASS A, F'c=4500 PSI) - BARRIER

RAKE FINISH ALL HORIZONTAL CONSTRUCTION JOINTS, EXCEPT AS INDICATED.

CONSTRUCT DECK SLAB TRANSVERSE CONSTRUCTION JOINTS PARALLEL TO BRIDGE CENTERLINE OF BEARING.

PLACE CHEEKWALL AND BACKWALL CONCRETE AFTER BEAMS HAVE BEEN SET IN POSITION.

DECK SLAB THICKNESS INCLUDES 1/2" INTEGRAL WEARING SURFACE.

MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4" X 3/4" MILLED CHAMFER STRIPS UNLESS NOTED OTHERWISE, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE NOTATION ON THE PLANS, "DO NOT CHAMFER".

NO SLIP-FORMING OF BARRIERS IS PERMITTED, UNLESS NOTED OTHERWISE.

4. BAR REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60.

PROVIDE 2" CONCRETE COVER ON REINFORCEMENT BARS, EXCEPT AS NOTED.

FUSION-BONDED EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963), AND SHALL BE DENOTED WITH A SUFFIX "E" IN THE BAR MARKS.

DO NOT WELD GRADE 60 REINFORCING STEEL, UNLESS NOTED OTHERWISE.

5. PRESTRESSED CONCRETE DESIGN:

THE PRECAST CONCRETE GIRDERS ARE DESIGNED AS NONCOMPOSITE FOR ALL DEAD LOADS EXCEPT THE BARRIERS AND FUTURE WEARING SURFACE. THE PRECAST GIRDERS ARE DESIGNED AS COMPOSITE FOR LIVE LOADS AS WELL AS THE BARRIER AND FUTURE WEARING SURFACE DEAD LOADS.

PRESTRESSED CONCRETE:

THE MINIMUM COMPRESSIVE STRENGTH FOR PRESTRESSED CONCRETE AT THE AGE OF 28 DAYS SHALL BE $f'c = 8,000$ PSI. THE MINIMUM COMPRESSIVE STRENGTH AT THE TRANSFER OF PRESTRESS SHALL BE $f'c_i = 6,400$ PSI.

PRESTRESSED STEEL:

PRETENSIONING STEEL FOR BEAMS SHALL CONSIST OF HIGH STRENGTH 7-WIRE LOW RELAXATION STRANDS, WITH NOMINAL 0.60 INCH DIAMETER CONFORMING TO THE REQUIREMENTS OF AASHTO M203 (ASTM A416) GRADE 270. EACH 0.60 INCH DIAMETER STRAND SHALL BE PRETENSIONED TO 43,943 LBS. (0.75 Fpu).

AFTER ESTIMATED LOSSES OF 22,490 PSI, THE FINAL EFFECTIVE PRESTRESS FORCE PER STRAND IS 39,063 LBS.

FABRICATOR TO CHECK FOR STABILITY DURING ERECTION.

6. SERVICEABILITY:

LIVE LOAD DEFLECTION SHALL BE LIMITED TO $L/800$.

FOR REINFORCEMENT DISTRIBUTION REQUIREMENTS, CONSIDER CLASS 2 EXPOSURE CRITERIA FOR DECKS.

7. CONSTRUCTION JOINTS:

KEYED CONSTRUCTION JOINTS SHALL BE 2" X 4" OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A 3/4" V-NOTCH, UNLESS NOTED OTHERWISE.

8. STRUCTURAL EXCAVATIONS:

EXCAVATION REQUIRED TO ATTAIN THE GRADE FOR INSTALLATION OF MSE WALLS SHALL BE INCIDENTAL TO ITEM NO. 60272 - MECHANICALLY STABILIZED EARTH WALLS.

9. STRUCTURAL BACKFILL:

MSE WALL BACKFILL SHALL BE AS SPECIFIED ON THE PLANS.

10. ROADWAY CLEARANCES:

A MINIMUM OF 14'-6" VERTICAL CLEARANCE SHALL BE MAINTAINED ABOVE ALL ROADWAYS. A MINIMUM OF 2'-0" HORIZONTAL CLEARANCE SHALL BE MAINTAINED FROM THE OUTSIDE EDGE OF SHOULDER OFFSET (FACE OF CURB) TO THE FACE OF ANY OBSTRUCTION. THESE CLEARANCES APPLY AT ALL TIMES, INCLUDING DURING CONSTRUCTION.

11. UTILITIES:

COORDINATE ALL WORK RELATED TO PUBLIC AND PRIVATE UTILITIES IN ACCORDANCE WITH SECTION 107.04 OF THE STANDARD SPECIFICATIONS.

VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING WORK. CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED AND ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO UTILITIES DURING CONSTRUCTION. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISION, OR LIABILITY FOR ACCURACY OF TYPE, SIZE AND LOCATION OF ANY UTILITY.

12. WORKING OVER ROADWAYS:

DO NOT PICK OR LIFT OVER LANES AND OR SHOULDERS OPEN TO TRAFFIC.

DO NOT PERFORM ANY WORK DIRECTLY OVER OPEN LANES OF TRAFFIC WITHOUT ADEQUATE SHIELDING OR WORK PLATFORMS, LANE CLOSURES OR DETOURS IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS.

INSTALL SIP FORMS, ADDITIONAL PROTECTIVE SHIELD SYSTEM, WORK PLATFORMS AND/OR OVERHANG FALSEWORK BEFORE BEGINNING ANY CONSTRUCTION OPERATIONS OVER TRAFFIC.

IF THE CONTRACTOR DETERMINES THAT ADDITIONAL PROTECTIVE SHIELDING OR WORK PLATFORMS ARE NEEDED TO PROTECT TRAFFIC, SUBMIT PLANS AND CALCULATIONS FOR REVIEW AND APPROVAL FOR PROTECTING TRAFFIC WHILE WORKING OVER TRAVELWAYS. HAVE THE DRAWINGS AND DESIGN CALCULATIONS PREPARED, SIGNED, AND SEALED BY A DELAWARE REGISTERED PROFESSIONAL ENGINEER. THE APPROVAL OF THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR THE SAFETY OF THE METHOD OR EQUIPMENT. BASED ON CONTRACTOR MEANS AND METHODS DETERMINE AND CLEARLY DEFINE ALL DEAD AND LIVE LOADS FOR THIS SYSTEM, WHICH, AT A MINIMUM, SHALL BE INSTALLED BETWEEN BEAMS OR GIRDERS OVER ANY TRAVEL WAY OR SHOULDER AREA WHERE TRAFFIC IS MAINTAINED. NO SEPARATE PAYMENT WILL BE MADE FOR ADDITIONAL PROTECTIVE SHIELDING OR WORK PLATFORMS.

ALL FORMWORK INCLUDING STAY-IN-PLACE FORMS SHALL BE MORTAR TIGHT.

WHILE PLACING DECK, DECK OVERHANG AND PARAPET CONCRETE OVER LANES OPEN TO TRAFFIC, NO CLOSURE OR DETOURS WILL BE ALLOWED DURING THESE OPERATIONS.

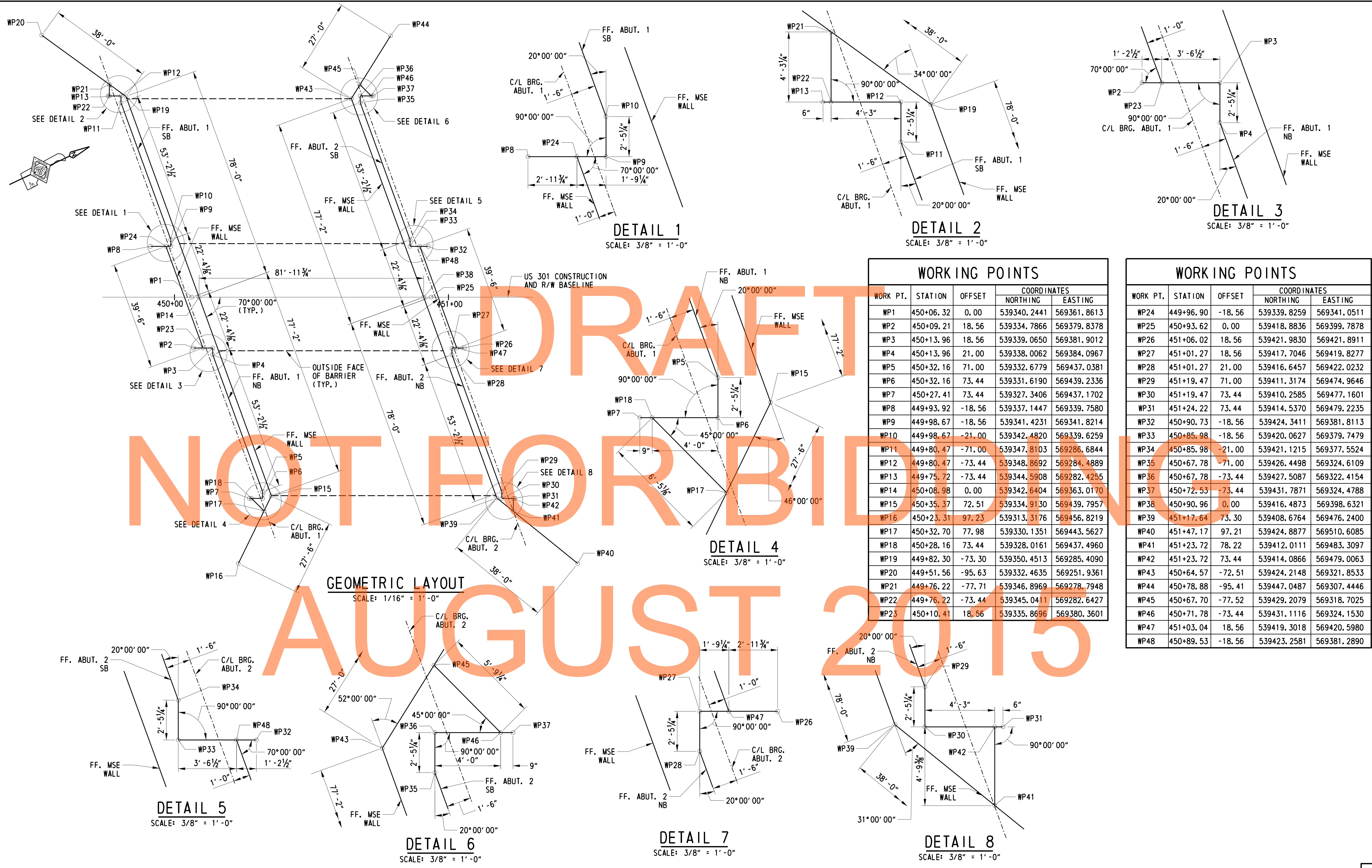
THE MAINTENANCE OF TRAFFIC REQUIRED FOR THE INSTALLATION OF THESE ITEMS WILL BE PAID UNDER THE MAINTENANCE OF TRAFFIC UNIT BID ITEMS. CONTRACTOR SHALL ADHERE TO THE TRAFFIC CONTROL PLAN, DELAWARE MUTCD, AND TRAFFIC LANE CLOSURE AND WORK RESTRICTIONS PROVIDED IN THE CONTRACT DOCUMENTS.

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
356	1-472 PE-1	BRIDGE PLAN AND ELEVATION
357	1-472 GN-1	GENERAL NOTES AND INDEX OF DRAWINGS
358	1-472 GG-1	GEOMETRIC LAYOUT
359	1-472 TS-1	TYPICAL SECTION AND QUANTITIES
360	1-472 PL-1	ABUTMENTS 1 AND 2 - PILE PLAN
361	1-472 PL-2	PILE DETAILS AND NOTES
362	1-472 AB-1	ABUTMENT 1 NORTHBOUND - PLAN AND REINFORCEMENT
363	1-472 AB-2	ABUTMENT 1 SOUTHBOUND - PLAN AND REINFORCEMENT
364	1-472 AB-3	ABUTMENT 2 NORTHBOUND - PLAN AND REINFORCEMENT
365	1-472 AB-4	ABUTMENT 2 SOUTHBOUND - PLAN AND REINFORCEMENT
366	1-472 AB-5	ABUTMENTS 1 AND 2 - SECTIONS AND DETAILS
367	1-472 WW-1	MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 1
368	1-472 WW-2	MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 2
369	1-472 WW-3	MSE WALL DETAILS
370	1-472 BR-1	ABUTMENT REINFORCEMENT SCHEDULE
371	1-472 FR-1	FRAMING PLAN - NORTHBOUND
372	1-472 FR-2	FRAMING PLAN - SOUTHBOUND
373	1-472 BM-1	BEAM DETAILS - 1
374	1-472 BM-2	BEAM DETAILS - 2
375	1-472 DPH-1	DIAPHRAGM DETAILS - 1
376	1-472 DPH-2	DIAPHRAGM DETAILS - 2
377	1-472 BD-1	BEARING DETAILS
378	1-472 DK-1	BRIDGE DECK REINFORCEMENT - NORTHBOUND
379	1-472 DK-2	BRIDGE DECK REINFORCEMENT - SOUTHBOUND
380	1-472 AS-1	BRIDGE APPROACH SLAB REINFORCEMENT - NORTHBOUND
381	1-472 AS-2	BRIDGE APPROACH SLAB REINFORCEMENT - SOUTHBOUND
382	1-472 PA-1	DECK SECTIONS AND DETAILS
383	1-472 BR-2	DECK REINFORCEMENT SCHEDULE
384	1-472 BR-3	APPROACH SLAB REINFORCEMENT SCHEDULE
385	1-472 FD-1	FINISHED DECK ELEVATIONS - NORTHBOUND
386	1-472 FD-2	FINISHED DECK ELEVATIONS - SOUTHBOUND
387	1-472 FD-3	FINISHED APPROACH SLAB ELEVATIONS
388	1-472 EX-1	EXPANSION JOINT DETAILS
389	1-472 DT-1	SETTLEMENT PLATFORM DETAIL
390	1-472 BO-1	TEST BORINGS

	<p align="center">DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS		<p align="center">US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD</p>	CONTRACT	BRIDGE NO.	1-472N&S	<p>US 301 MAINLINE OVER ARMSTRONG CORNER ROAD GENERAL NOTES AND INDEX OF DRAWINGS</p>	1-472 GN-1
		T20091303	DESIGNED BY: ADH		SHEET NO.				
		COUNTY	CHECKED BY: DHG		TOTAL SHTS.				
		NEW CASTLE			1256				

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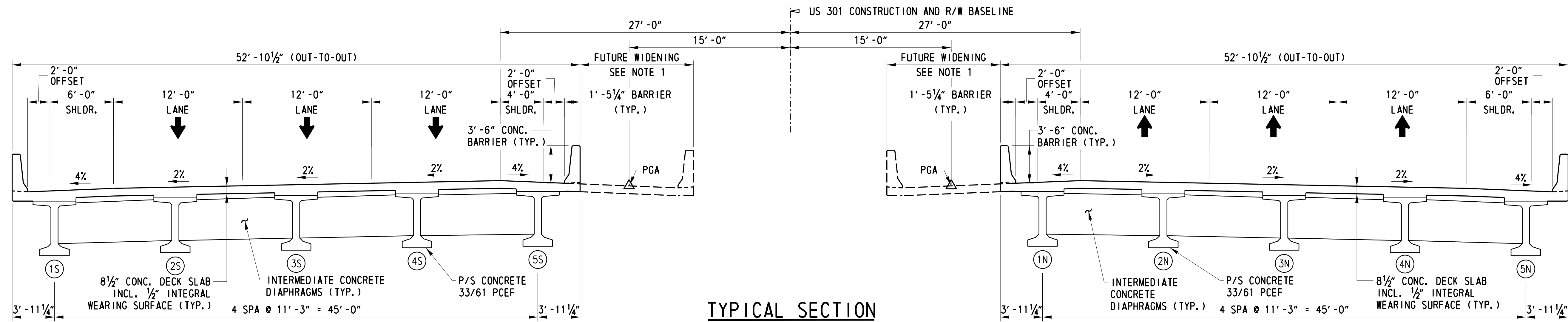
WORK PT.	STATION	OFFSET	COORDINATES	
			NORTHING	EASTING
WP1	450+06.32	0.00	539340.2441	569361.8613
WP2	450+09.21	18.56	539334.7866	569379.8378
WP3	450+13.96	18.56	539339.0650	569381.9012
WP4	450+13.96	21.00	539338.0062	569384.0967
WP5	450+32.16	71.00	539332.6779	569437.0381
WP6	450+32.16	73.44	539331.6190	569439.2336
WP7	450+27.41	73.44	539327.3406	569437.1702
WP8	449+93.92	-18.56	539337.1447	569339.7580
WP9	449+98.67	-18.56	539341.4231	569341.8214
WP10	449+98.67	-21.00	539342.4820	569339.6259
WP11	449+80.47	-71.00	539347.8103	569286.6844
WP12	449+80.47	-73.44	539348.8692	569284.4889
WP13	449+75.72	-73.44	539344.5908	569282.4255
WP14	450+08.98	0.00	539342.6404	569363.0170
WP15	450+35.37	72.51	539334.9130	569439.7957
WP16	450+23.31	97.23	539313.3176	569456.8219
WP17	450+32.70	77.98	539330.1351	569443.5627
WP18	450+28.16	73.44	539328.0161	569437.4960
WP19	449+82.30	-73.30	539350.4513	569285.4090
WP20	449+51.56	-95.63	539332.4635	569251.9361
WP21	449+76.22	-77.71	539346.8969	569278.7948
WP22	449+76.22	-73.44	539345.0411	569282.6427
WP23	450+10.41	18.56	539335.8696	569380.3601

WORK PT.	STATION	OFFSET	COORDINATES	
			NORTHING	EASTING
WP24	449+96.90	-18.56	539339.8259	569341.0511
WP25	450+93.62	0.00	539418.8836	569399.7878
WP26	451+06.02	18.56	539421.9830	569421.8911
WP27	451+01.27	18.56	539417.7046	569419.8277
WP28	451+01.27	21.00	539416.6457	569422.0232
WP29	451+19.47	71.00	539411.3174	569474.9646
WP30	451+19.47	73.44	539410.2585	569477.1601
WP31	451+24.22	73.44	539414.5370	569479.2235
WP32	450+90.73	-18.56	539424.3411	569381.8113
WP33	450+85.98	-18.56	539420.0627	569379.7479
WP34	450+85.98	-21.00	539421.1215	569377.5524
WP35	450+67.78	-71.00	539426.4498	569324.6109
WP36	450+67.78	-73.44	539427.5087	569322.4154
WP37	450+72.53	-73.44	539431.7871	569324.4788
WP38	450+90.96	0.00	539416.4873	569398.6321
WP39	451+17.64	73.30	539408.6764	569476.2400
WP40	451+47.17	97.21	539424.8877	569510.6085
WP41	451+23.72	78.22	539412.0111	569483.3097
WP42	451+23.72	73.44	539414.0866	569479.0063
WP43	450+64.57	-72.51	539424.2148	569321.8533
WP44	450+78.88	-95.41	539447.0487	569307.4446
WP45	450+67.70	-77.52	539429.2079	569318.7025
WP46	450+71.78	-73.44	539431.1116	569324.1530
WP47	451+03.04	18.56	539419.3018	569420.5980
WP48	450+89.53	-18.56	539423.2581	569381.2890

GEOMETRIC LAYOUT
SCALE: 1/16" = 1'-0"

ADDENDUMS / REVISIONS

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-472N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG



TYPICAL SECTION

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

SOUTHBOUND

NORTHBOUND

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NORTHBOUND QUANTITIES	SOUTHBOUND QUANTITIES	TOTAL
202505	SETTLEMENT PLATFORM	EA	2	2	4
202518	SETTLEMENT MONUMENT	EA	2	2	4
302012	DELAWARE NO. 57 STONE	TON	78	78	156
602003	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT FOOTING, CLASS A	CY	90	90	180
602013	PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D	CY	190	190	380
602014	PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D	CY	176	176	352
602015	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT, ABOVE FOOTING, CLASS A	CY	29	29	58
602017	PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A	CY	41	41	82
602772	MECHANICALLY STABILIZED EARTH WALLS	LS	-	-	-
604000	BAR REINFORCEMENT, EPOXY COATED	LBS	96,050	96,050	192,100
605511	PREFABRICATED EXPANSION JOINT SYSTEM, 3"	LF	113	113	226
618041 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE PILES, 14"	LF	1,052	1,052	2,104

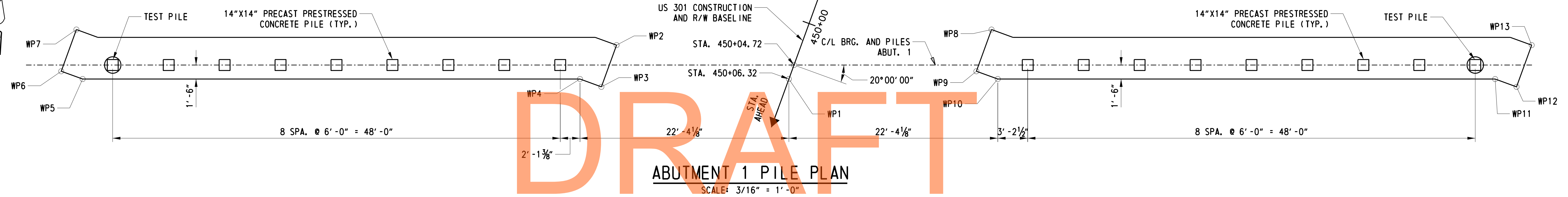
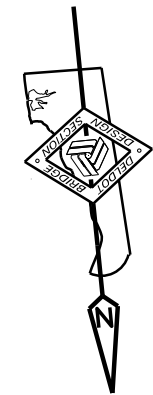
ESTIMATED BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NORTHBOUND QUANTITIES	SOUTHBOUND QUANTITIES	TOTAL
618046 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE TEST PILES, 14"	LF	152	152	304
618081	FURNISH PRECAST PRESTRESSED CONCRETE PILE, 14"x14"	LF	1,052	1,052	2,104
618091	FURNISH PRECAST PRESTRESSED CONCRETE TEST PILE, 14"x14"	LF	152	152	304
619021 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE PILES, 14"	LF	1,052	1,052	2,104
619025 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE TEST PILES, 14"	LF	152	152	304
619061	INSTALL PRECAST PRESTRESSED CONCRETE PILE, 14"x14"	LF	1,052	1,052	2,104
619067	INSTALL PRECAST PRESTRESSED CONCRETE TEST PILE, 14"x14"	LF	152	152	304
619501	PRODUCTION PILE RESTRIKE	EA	2	2	4
619502	TEST PILE RESTRIKE	EA DY	2	2	4
619519	DYNAMIC PILE TESTING BY CONTRACTOR	EA	2	2	4
619539	SIGNAL MATCHING ANALYSIS BY CONTRACTOR	EA	2	2	4
623000	PRESTRESSED REINFORCED CONCRETE MEMBERS	LS	-	-	-

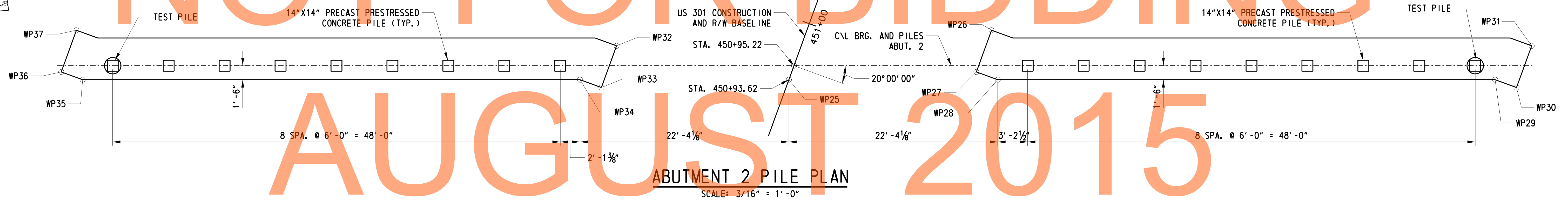
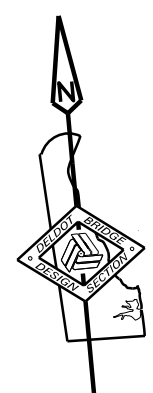
CROSS REFERENCE NOTE:
1. FOR DEPTH OF DECK AT CENTER LINE OF BEARING, SEE DWG. 1-472 PA-1.

NOTE:
1. CROSS SLOPE OF FUTURE LANE SLOPES AT 2% DOWN TO PGA. THE CURRENT FASCIA BEAM HAUNCH WOULD NEED TO BE INCREASED TO ACCOUNT FOR CHANGE IN ELEVATION OF DECK SLAB.

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ABUTMENT 1 PILE PLAN
SCALE: 3/16" = 1'-0"



ABUTMENT 2 PILE PLAN
SCALE: 3/16" = 1'-0"

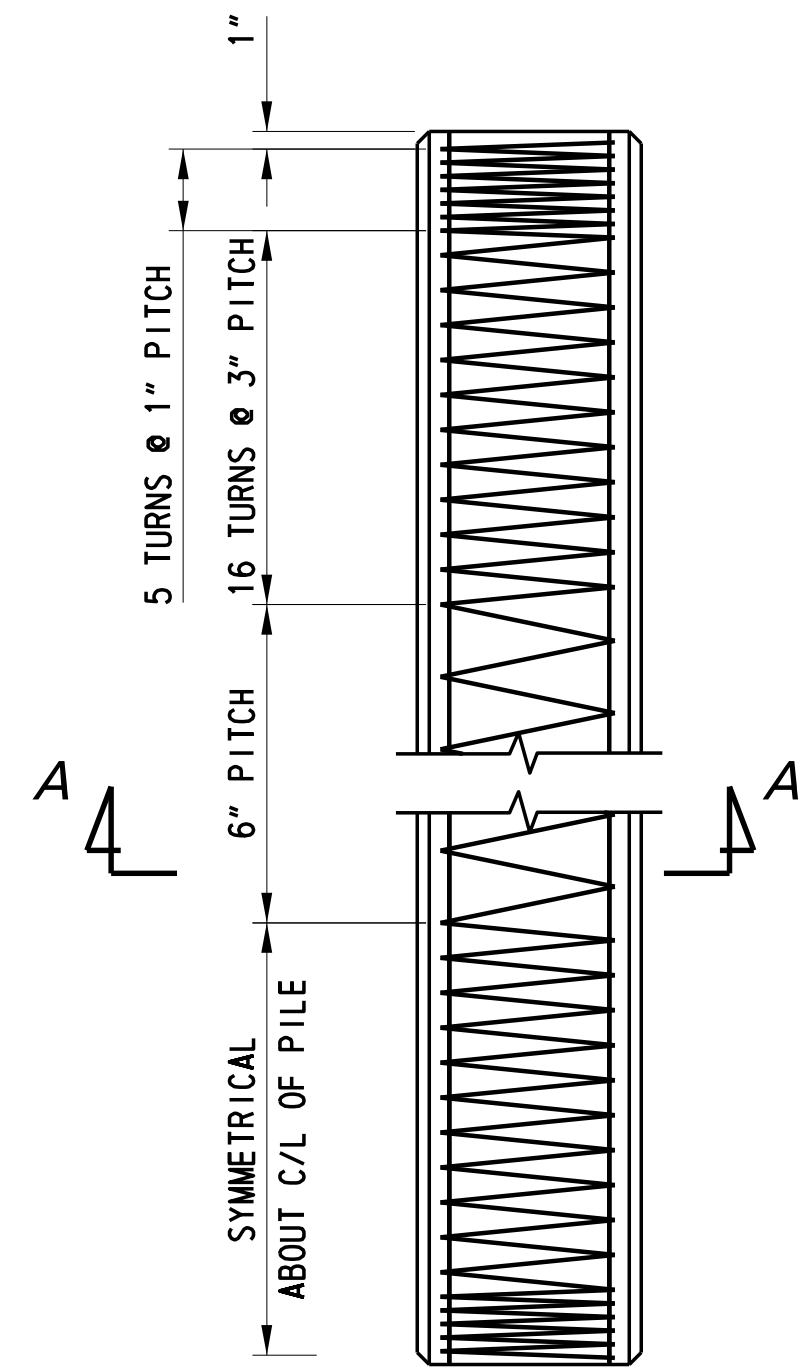
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NOT FOR BIDDING
AUGUST 2015

CROSS REFERENCE NOTE:
1. FOR PILE DETAILS AND NOTES, SEE DWG 1-472 PL-2.

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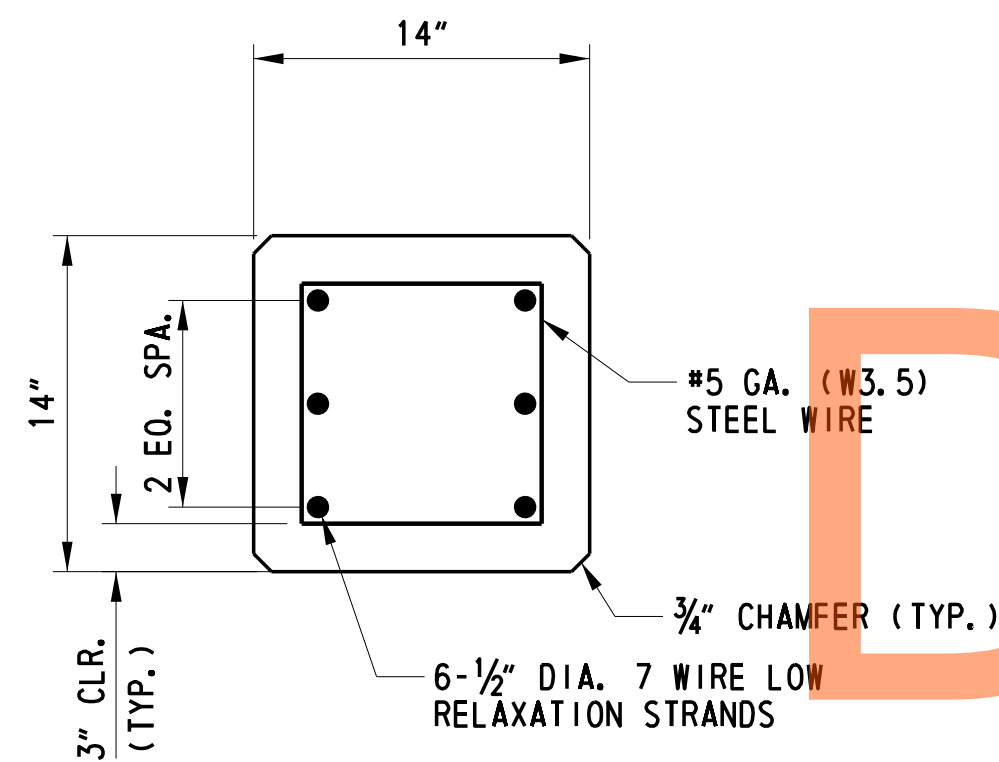
ADDENDUMS / REVISIONS	

CONTRACT	BRIDGE NO.	1-472N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		



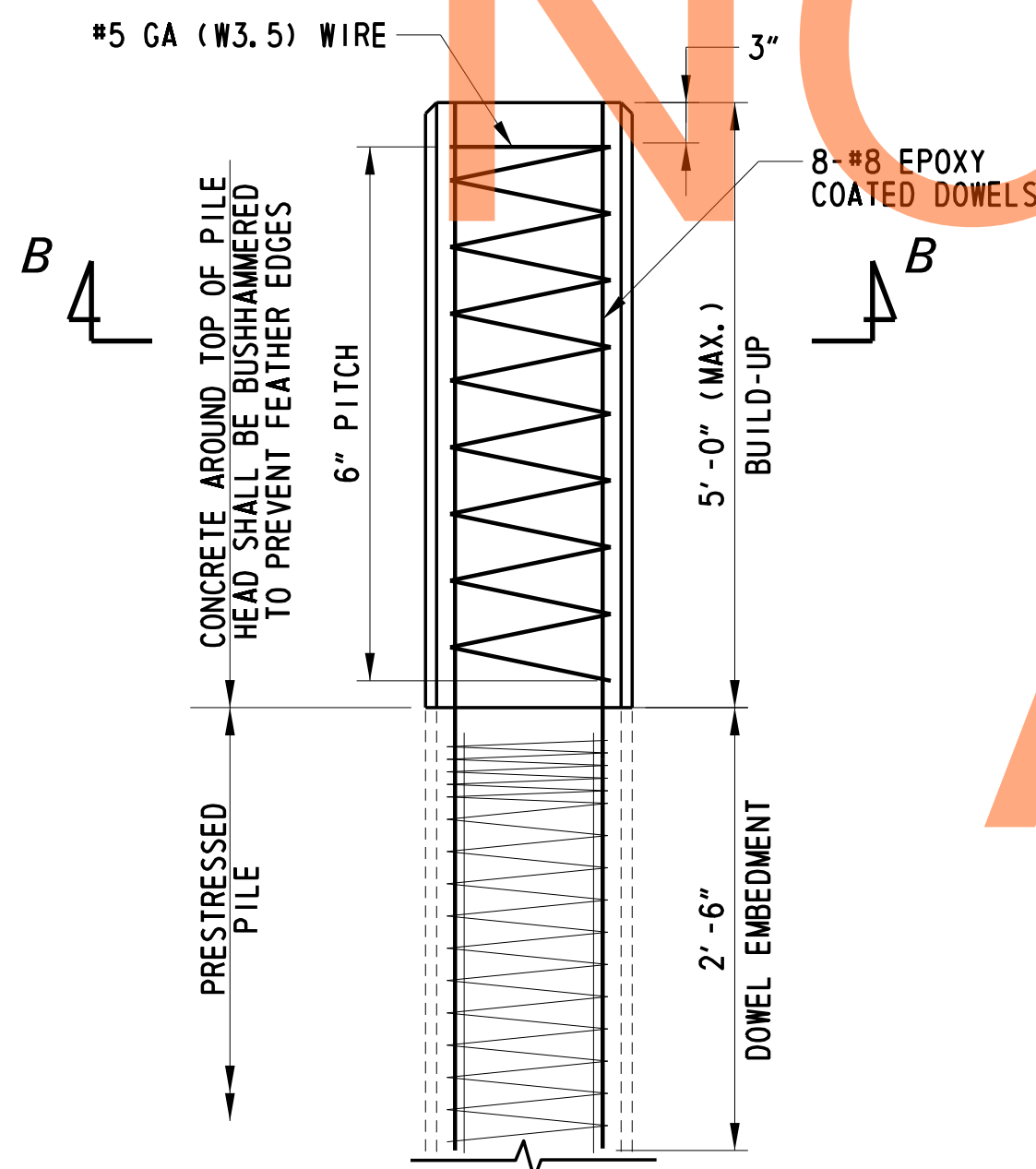
PRESTRESSED CONCRETE PILE

SCALE: 1" = 1'-0"



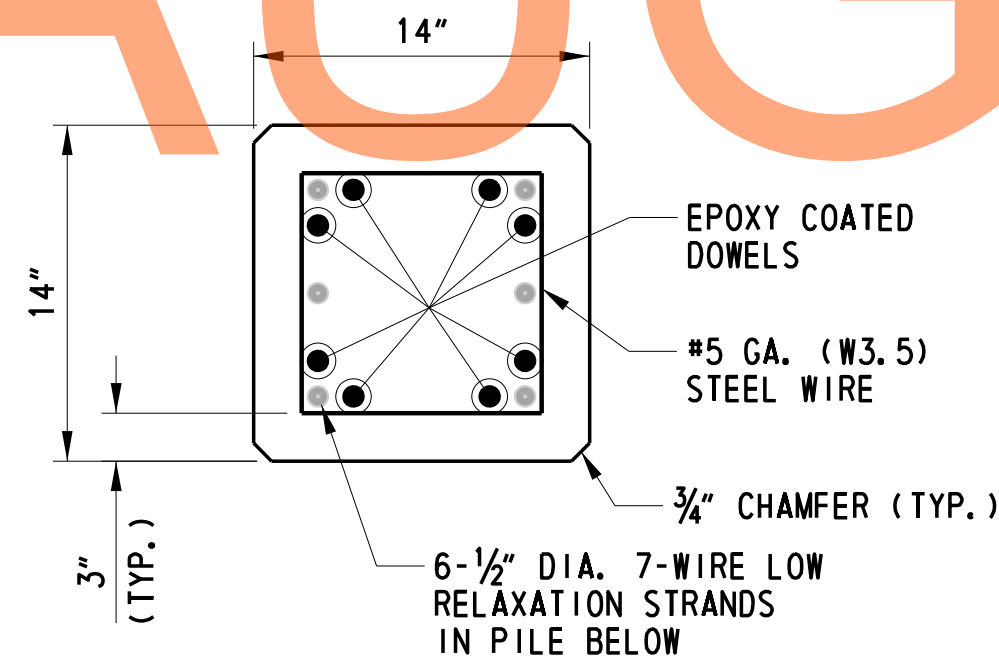
SECTION A-A

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



PILE BUILD-UP DETAIL

SCALE: 1" = 1'-0"



SECTION B-B

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

PILE NOTES:

- PILES SHALL BE 14"x14" PRECAST PRESTRESSED CONCRETE PILES. PILES SHALL NOT BE COATED. PILES SHALL BE CASED.
 - THE MINIMUM COMPRESSIVE STRENGTH FOR THE PRESTRESSED CONCRETE PILES AT THE AGE OF 28 DAYS SHALL BE $f'c=6000$ PSI. THE MINIMUM COMPRESSIVE STRENGTH AT TIME OF TRANSFER OF PRESTRESS SHALL BE $f'c=4800$ PSI.
 - ALL PRESTRESSING STRANDS SHALL MEET THE REQUIREMENTS OF ASTM 416, GRADE 270, LOW RELAXATION. 1/2" DIAMETER STRANDS SHALL HAVE AN ULTIMATE STRENGTH OF 41,300 LBS.
 - SPIRAL TIES SHALL BE #5 GAGE STEEL WIRE CONFORMING TO THE REQUIREMENTS OF AASHTO M32 (ASTM A82).
 - THE SPLICING OF PRESTRESSED PRECAST CONCRETE PILES SHALL NOT BE PERMITTED.
 - REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
 - PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS DURING THE ABUTMENT MSE WALL CONSTRUCTION.
 - A MINIMUM QUARANTINE PERIOD OF 30 DAYS IS REQUIRED AFTER THE CONSTRUCTION OF THE FULL HEIGHT OF THE FILL AT THE ABUTMENTS IS ACHIEVED.
 - PILES MAY NOT BE DRIVEN UNTIL AFTER COMPLETION OF THE QUARANTINE PERIOD.
 - TEST PILES MAY BE DRIVEN PRIOR TO PLACING MSE WALL BACKFILL. RESTRIKES OF THESE TEST PILES SHALL BE PERFORMED PRIOR TO PLACING ANY EMBANKMENT IN ACCORDANCE WITH ITEM 619502-TEST PILE RESTRIKE. TEST PILES BEHIND MSE WALLS SHALL THEN BE CASED PRIOR TO PLACING EMBANKMENT. AFTER THE SETTLEMENT HAS BEEN ACHIEVED AND THE SUBSTRUCTURE HAS BEEN RELEASED BY THE ENGINEER, PRODUCTION PILES MAY BE INSTALLED. AT THIS POINT, THE TEST PILE SHALL BE ACTING AS A PRODUCTION PILE AND IT SHALL BE RE-STRUCK AS DIRECTED BY THE ENGINEER PRIOR TO PLACING ANY OTHER PRODUCTION PILES WITH PAYMENT UNDER ITEM 619501- PRODUCTION PILE RESTRIKE.
 - THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD, BASED ON RESULTS OF INSTRUMENTATION.
 - SEE THE SPECIAL PROVISIONS 202505 AND 202518 FOR SETTLEMENT MONITORING REQUIREMENTS.
 - ALL PILES SHALL BE DRIVEN TO THE NOMINAL PILE DRIVING RESISTANCE LISTED IN THE PILE INSTALLATION DATA TABLE.
 - TEST PILES SHALL BE 10 FEET LONGER THAN PRODUCTION PILES AS INDICATED ON PILE INSTALLATION DATA TABLE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE WAVE EQUATION AND HIGH-STRAIN DYNAMIC PILE TESTING MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - UPON COMPLETION OF THE HIGH-STRAIN DYNAMIC PILE TESTING THE CONTRACTOR SHALL SUBMIT A SIGNAL MATCHING ANALYSIS TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - DELDOT STANDARD SPECIFICATION 619.11(c)(6) SHALL BE MODIFIED BY REFERENCE TO SPECIAL PROVISIONS 619519 & 619539.
 - PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE (1) PILE PER SUBSTRUCTURE, AS SHOWN ON THE PLANS, SHALL BE DYNAMICALLY TESTED WITH SIGNAL MATCHING ANALYSIS BY THE CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISION 619519 AND 619539. TEST AND PRODUCTION PILE RE-STRIKES WILL BE PAID AS FOLLOWS:
 - ALL TEST PILE(S) WILL BE RESTRUCK AFTER A WAITING PERIOD OF AT LEAST 48 HOURS. TEST PILE RESTRIKES SHALL BE INCIDENTAL TO THE INITIAL INSTALLATION OF THE PILE PROVIDED THEY ARE REQUESTED WITHIN FIVE WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE. IF TEST PILE RESTRIKES ARE REQUESTED AFTER THE FIVE WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE THEN THE TEST PILE RESTRIKE SHALL BE PAID AS NOTED IN SPECIAL PROVISION 619502.
 - IF DIRECTED BY THE ENGINEER TO RESTRIKE A PRODUCTION PILE, THE RESTRIKE OF THE PRODUCTION PILE SHALL BE PAID SEPARATELY UNDER ITEM NO. 619501.
 - THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.
 - PROVIDE 1 1/2" DIAMETER PREFORMED HOLES IN PILE HEAD AT THE DOWEL LOCATIONS. DOWELS SHALL BE GROUDED INTO PLACE WITH AN APPROVED EPOXY GROUT. PRIOR TO THE GROUTING PROCEDURE, PREFORMED HOLES SHALL REMAIN PLUGGED TO ENSURE THAT WATER AND FOREIGN MATERIAL DOES NOT ENTER THE PREFORMED HOLES.
 - MINIMUM COMPRESSIVE STRENGTH OF EPOXY GROUT SHALL BE $f'c=6000$ PSI.
 - THE COMPRESSIVE STRENGTH OF THE PILE BUILD-UP SHALL BE $f'c=6000$ PSI.
 - DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN A 1" CLEAR DISTANCE FROM ALL PRESTRESSING STRANDS IN THE PILE.
- PICK-UP NOTES:**
- UNLESS SPECIAL LIFTING DEVICES ARE ATTACHED FOR PICK-UP, PICK-UP POINTS SHALL BE PLAINLY MARKED ON ALL PILES AFTER REMOVAL OF THE FORMS. THE PILE SHALL BE SUPPORTED ONLY AT THE INDICATED PICK-UP POINTS WHILE BEING STORED OR HANDLED.
 - THE USE OF PROPER RIGGING IS REQUIRED TO INSURE THAT THE PICK-UP POINTS REMAIN IN A STRAIGHT LINE DURING LIFTING AND WHEN POSITIONING THE PILE FOR DRIVING.
 - THE USE OF SPECIAL EMBEDDED OR ATTACHED LIFTING DEVICES, THE USE OF OTHER PICK-UP LOCATIONS OR ANY OTHER METHOD OF PICK-UP SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

ADDITIONAL NOTES FOR CAST-IN-PLACE ALTERNATE:

- A CONTRACTOR'S ALTERNATE OF USING 14" CAST-IN-PLACE CONCRETE PILES (14" MONOTUBES) IS ALLOWED. ASSUME A ONE TO ONE PILE SUBSTITUTION.
- MONOTUBE SHELLS SHALL HAVE A 3 GAUGE THICKNESS, AN 8 IN TIP WITH A CLOSED CONICAL POINT, 14 IN BUTT AND 15 FT Y TAPER AT 0.40 IN/FT
- THE ESTIMATED TIP ELEVATION SHALL BE 16 FT.
- A NOMINAL PILE DRIVING RESISTANCE OF 361 KIPS SHALL BE OBTAINED.

PILE INSTALLATION DATA				
SUBSTRUCTURE UNITS	DESIGN DATA		ACTUAL FIELD DATA	
	NOMINAL PILE DRIVING RESISTANCE (KIP)	ESTIMATED PILE TIP ELEVATION	AVERAGE MINIMUM TIP ELEVATION	AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT 1	361	16.0		
ABUTMENT 2	361	16.0		

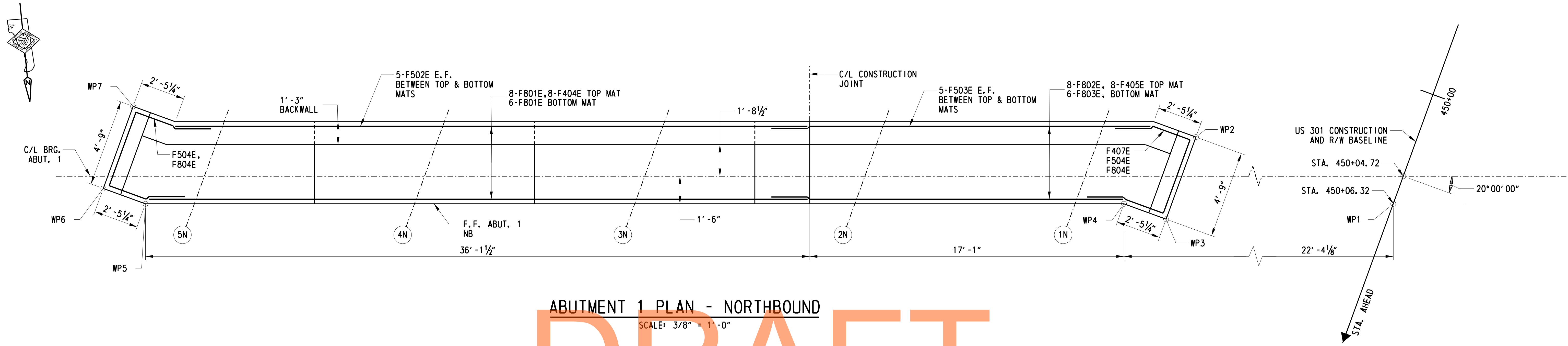
ABUTMENT 1 PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

ABUTMENT 2 PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

CROSS REFERENCE NOTE:

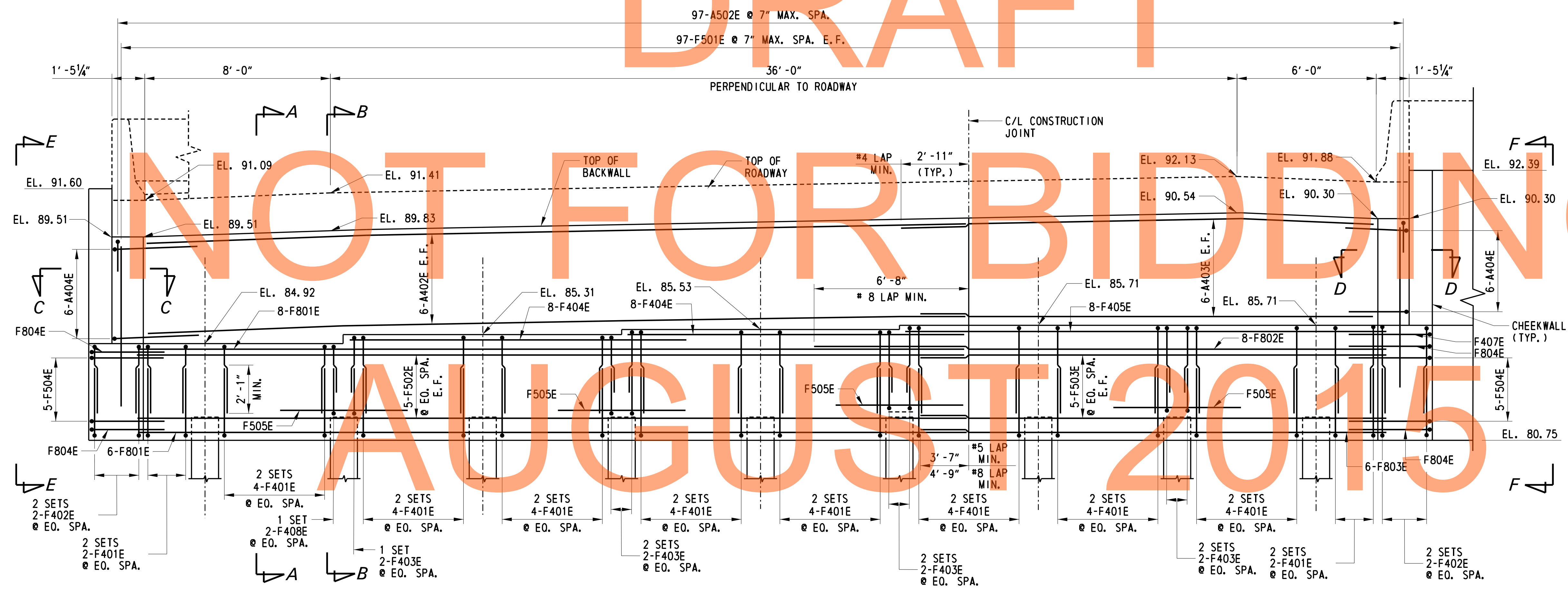
- FOR PILE CASING DETAIL, SEE DWG. 1-472 AB-5.

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ABUTMENT 1 PLAN - NORTHBOUND

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



ABUTMENT 1 ELEVATION - NORTHBOUND

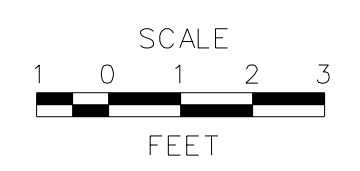
SCALE: 3/8" = 1'-0"

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 2. FOR SECTIONS AND DETAILS, SEE DWG. 1-472 AB-5.
 3. FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-472 WW-1 AND 1-472 WW-2.
 4. FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-472 BR-1.

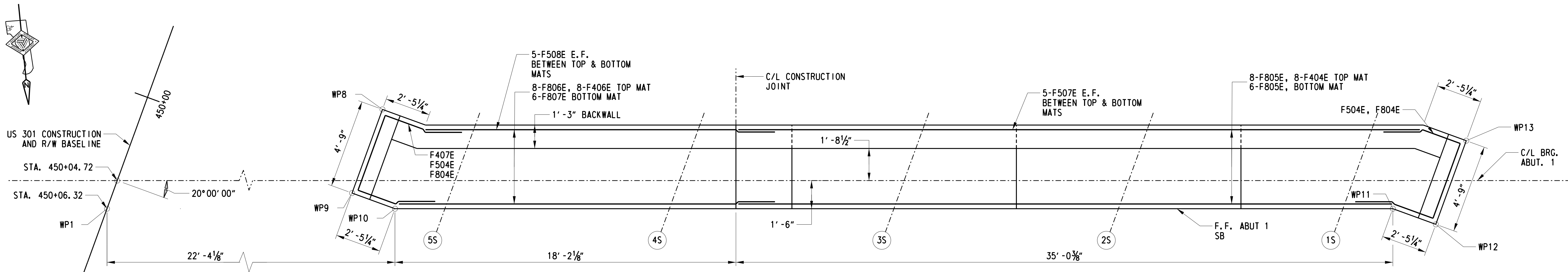
- NOTES:**
1. MSE WALL AND COPING NOT SHOWN FOR CLARITY.
 2. ABUTMENT SEAT STEPS MID-WAY BETWEEN GIRDERS
 3. ONLY TRANSVERSE FOOTING REINFORCEMENT IS SHOWN IN PLAN VIEW FOR CLARITY.
 4. PILE CASINGS NOT SHOWN FOR CLARITY.

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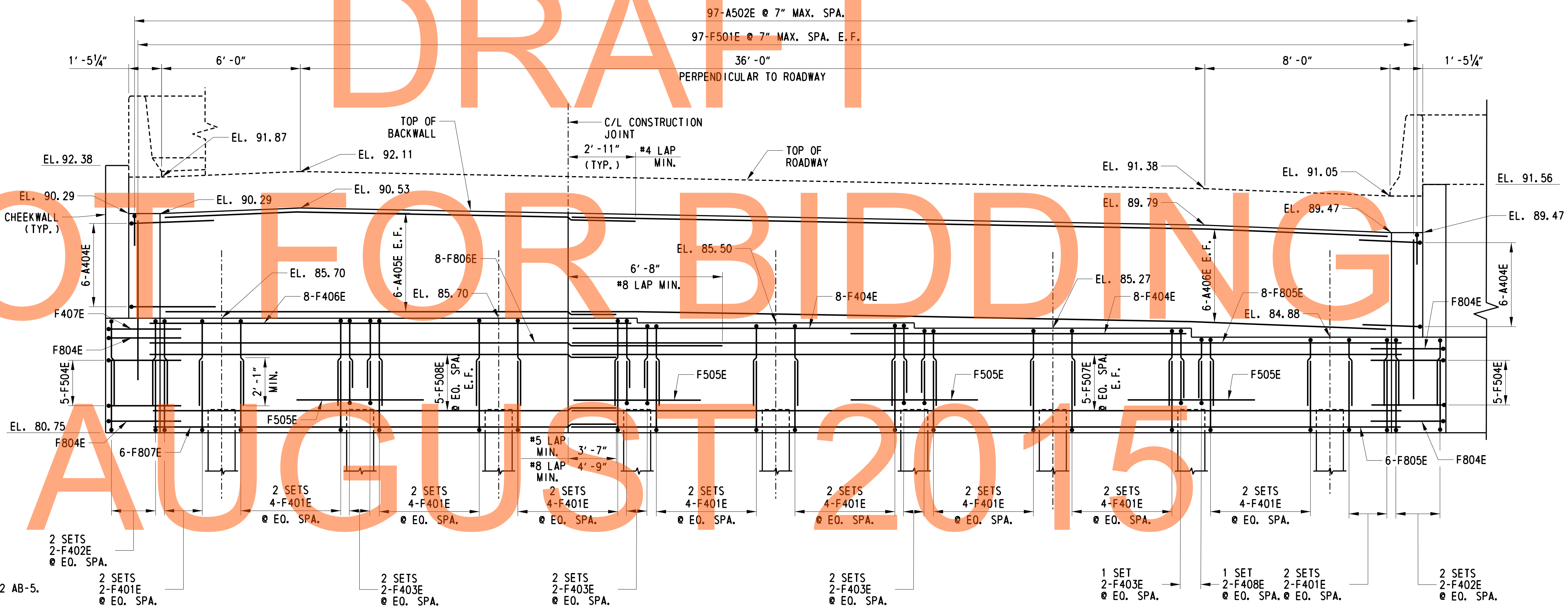
ADDENDUMS / REVISIONS



CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-472N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG



ABUTMENT 1 PLAN - SOUTHBOUND
SCALE: 3/8" = 1'-0"



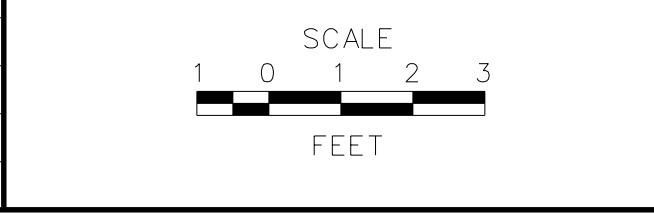
ABUTMENT 1 ELEVATION - SOUTHBOUND
SCALE: 3/8" = 1'-0"

- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 - FOR SECTIONS AND DETAILS, SEE DWG. 1-472 AB-5.
 - FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-472 WW-1 AND 1-472 WW-2.
 - FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-472 BR-1.
- NOTES:**
- MSE WALL AND COPING NOT SHOWN FOR CLARITY.
 - ABUTMENT SEAT STEPS MID-WAY BETWEEN GIRDERS
 - ONLY TRANSVERSE FOOTING REINFORCEMENT IS SHOWN IN PLAN VIEW FOR CLARITY.
 - PILE CASINGS NOT SHOWN FOR CLARITY.

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AUGUST 2015

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ADDENDUMS / REVISIONS	



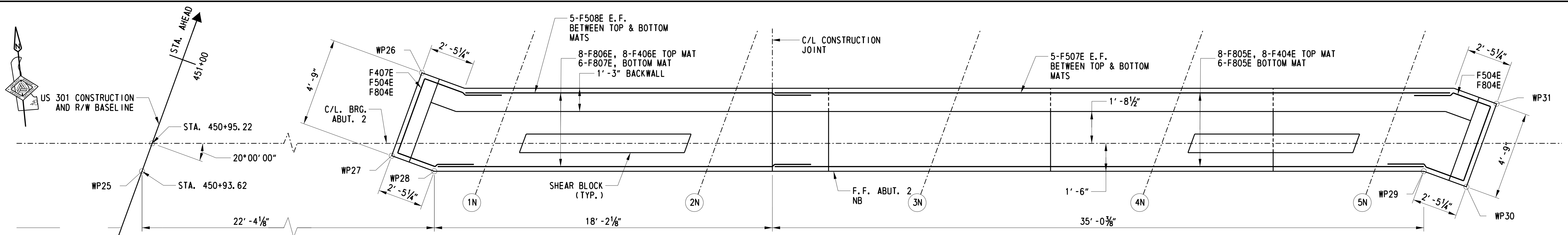
US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT T20091303	BRIDGE NO. 1-472N&S
COUNTY NEW CASTLE	DESIGNED BY: ADH
	CHECKED BY: DHG

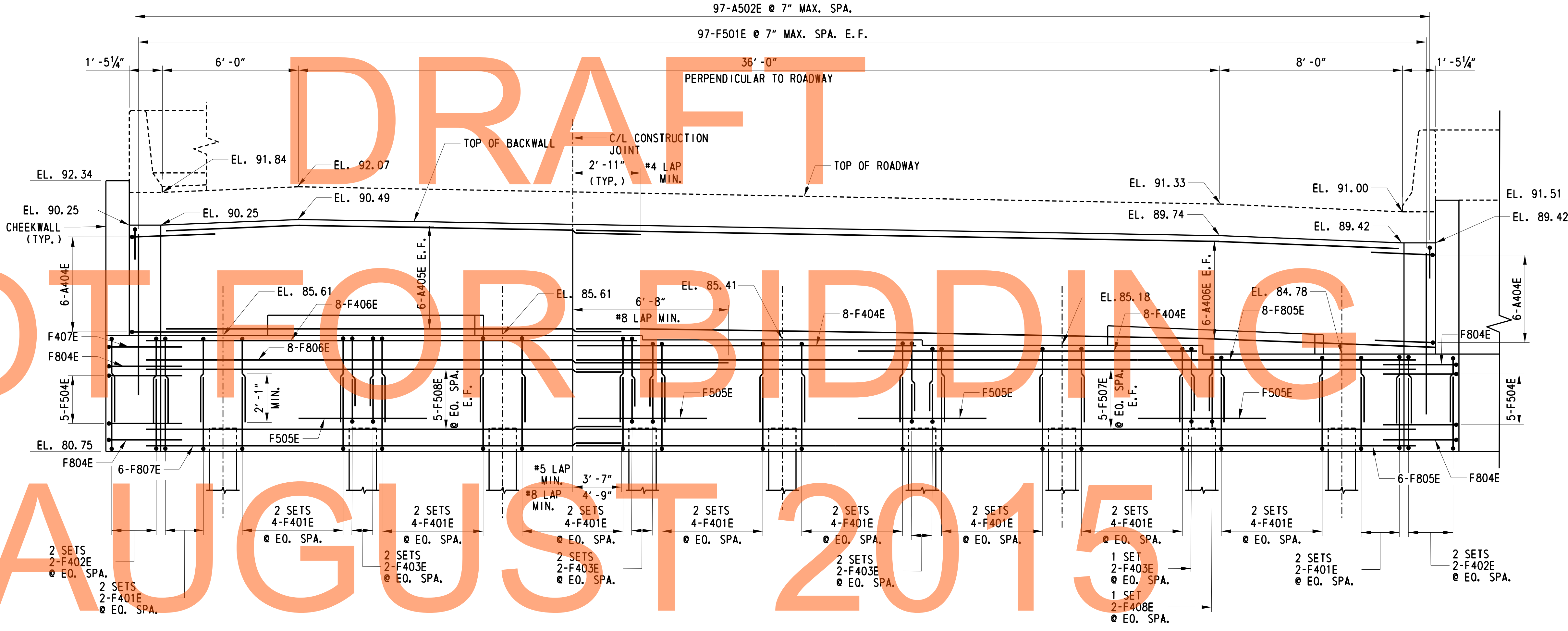
US 301 MAINLINE OVER ARMSTRONG CORNER ROAD ABUTMENT 1 SOUTHBOUND - PLAN AND REINFORCEMENT

SHEET NO. 363
TOTAL SHTS. 1256

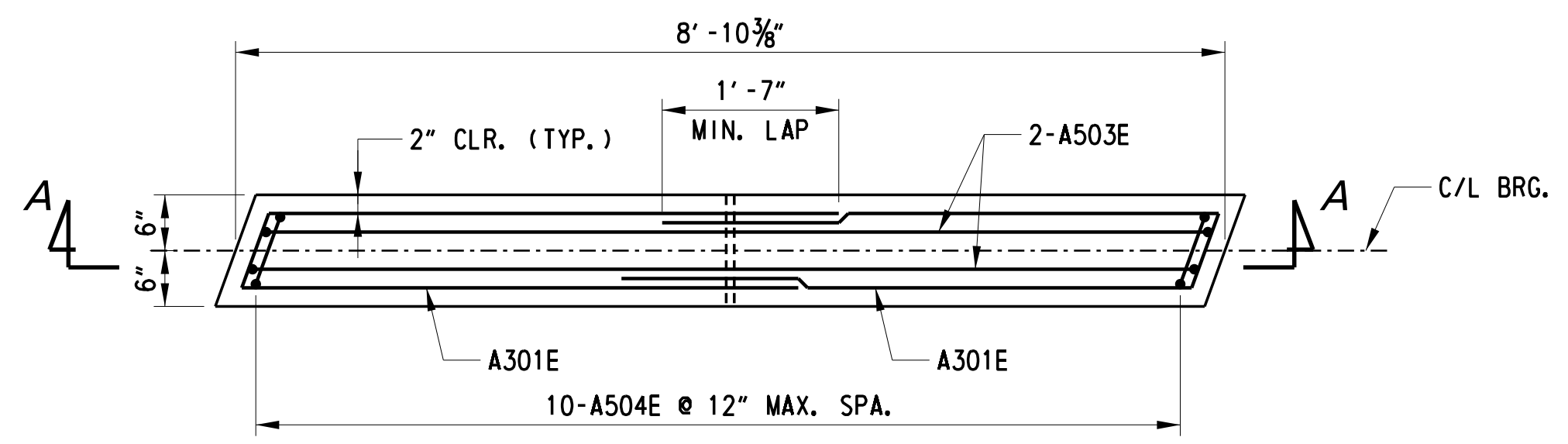
1-472 AB-2



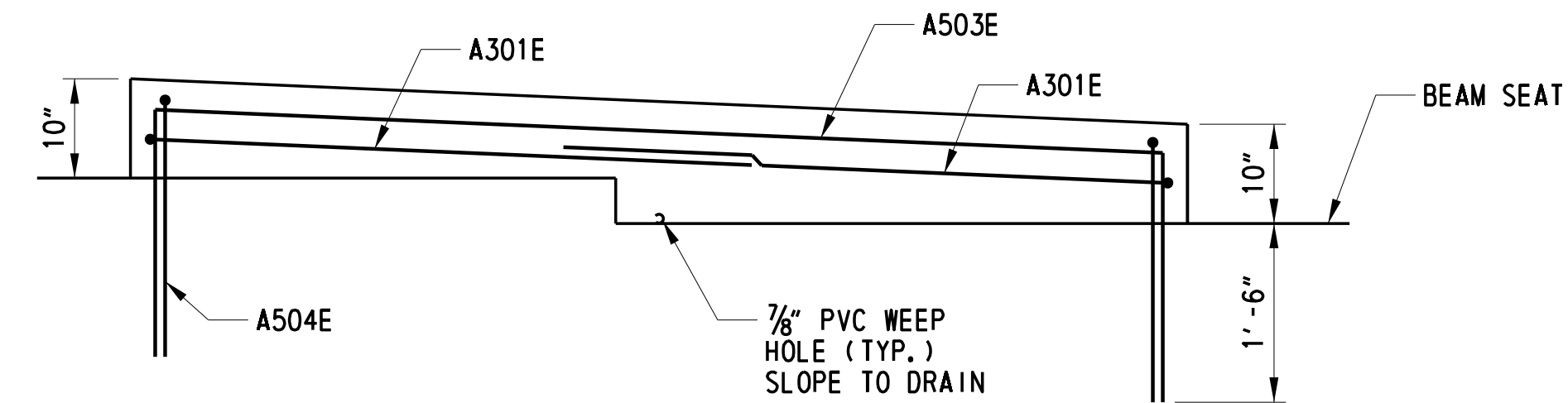
ABUTMENT 2 PLAN - NORTHBOUND
SCALE: 3/8" = 1'-0"



ABUTMENT 2 ELEVATION - NORTHBOUND
SCALE: 3/8" = 1'-0"



SHEAR BLOCK PLAN
SCALE: 3/4" = 1'-0"



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

- NOTES:**
- MSE WALL AND COPING NOT SHOWN FOR CLARITY.
 - ABUTMENT SEAT STEPS MID-WAY BETWEEN GIRDERS
 - ONLY TRANSVERSE FOOTING REINFORCEMENT IS SHOWN IN PLAN VIEW FOR CLARITY.
 - PILE CASINGS NOT SHOWN FOR CLARITY.
- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 - FOR SECTIONS AND DETAILS, SEE DWG. 1-472 AB-5.
 - FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-472 WW-1 AND 1-472 WW-2.
 - FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-472 BR-1.

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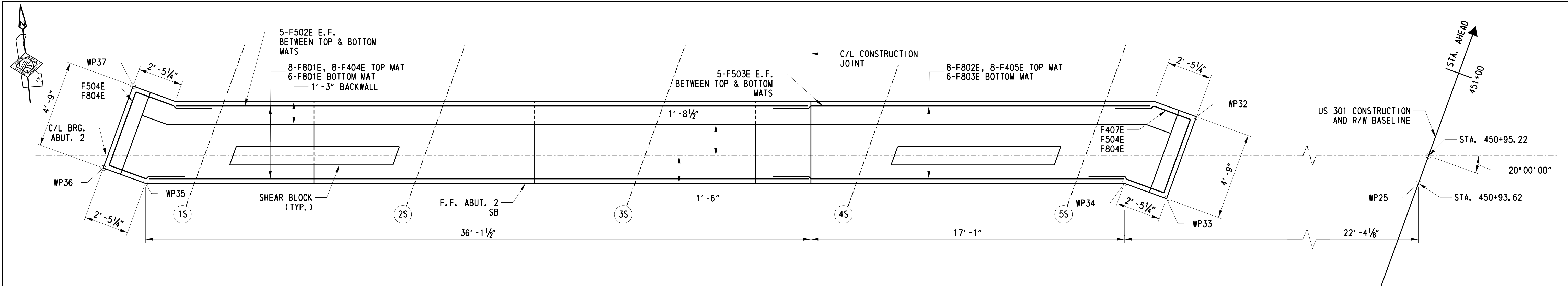
ADDENDUMS / REVISIONS	

**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	1-472N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

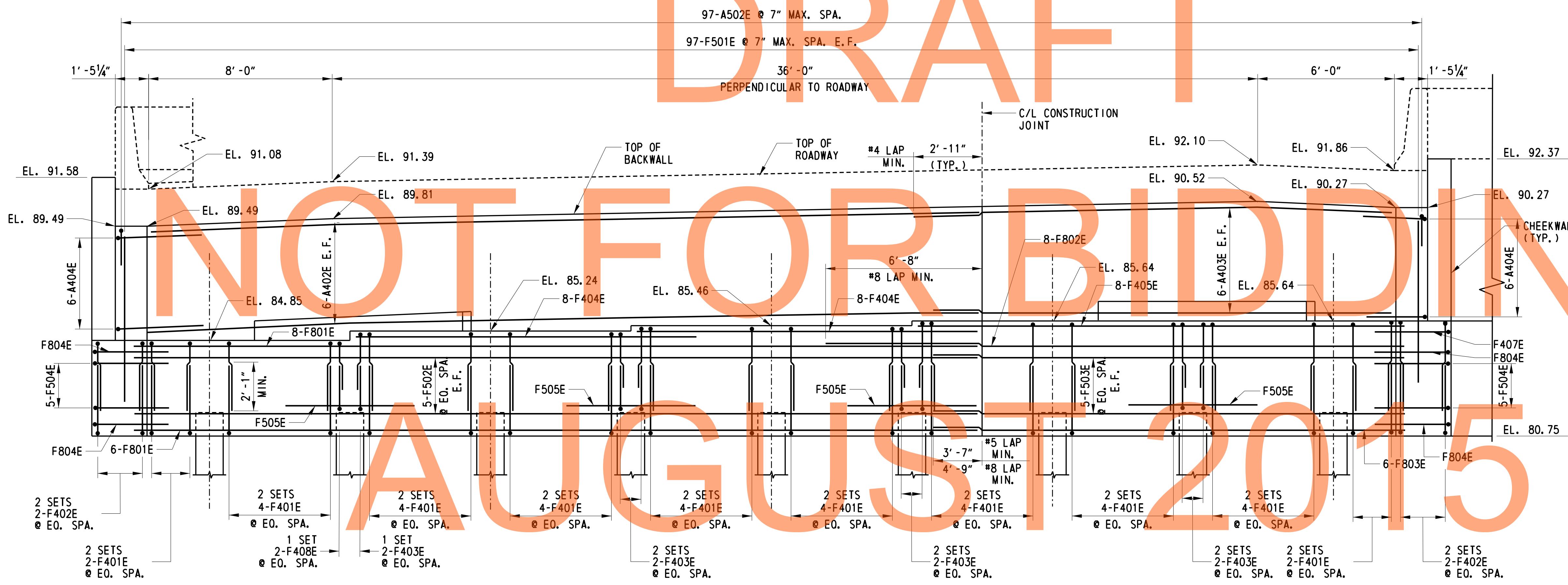
**US 301 MAINLINE OVER
ARMSTRONG CORNER ROAD
ABUTMENT 2
NORTHBOUND -
PLAN AND REINFORCEMENT**

1-472 AB-3	
SHEET NO.	364
TOTAL SHTS.	1256



ABUTMENT 2 PLAN - SOUTHBOUND

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



ABUTMENT 2 ELEVATION - SOUTHBOUND

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

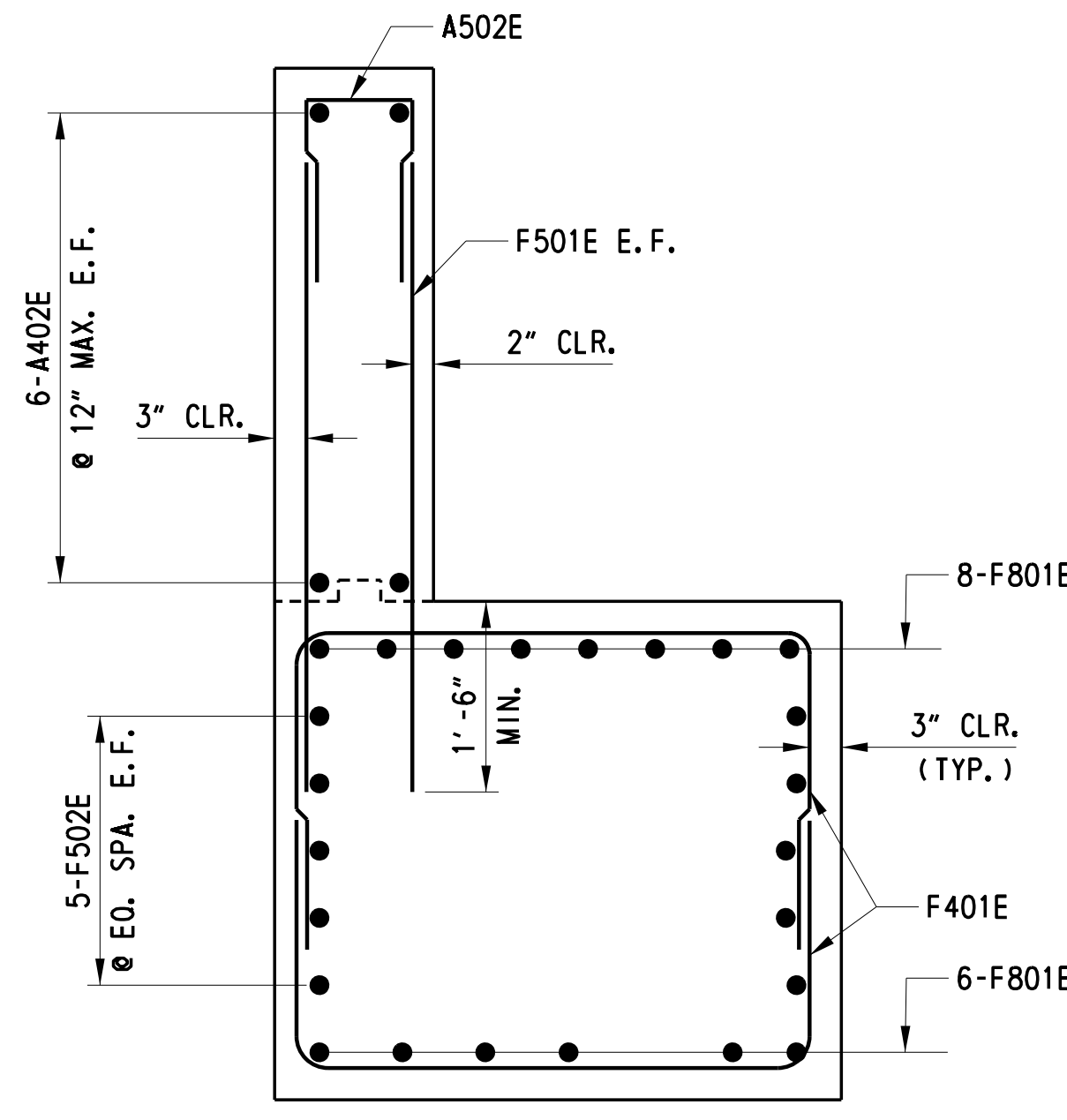
DRAFT
NOT FOR BIDDING
AUGUST 2015

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 2. FOR SECTIONS AND DETAILS, SEE DWG. 1-472 AB-5.
 3. FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-472 WW-1 AND 1-472 WW-2.
 4. FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-472 BR-1.
 5. FOR SHEAR BLOCK DETAILS, SEE DWG. 1-472 AB-3.

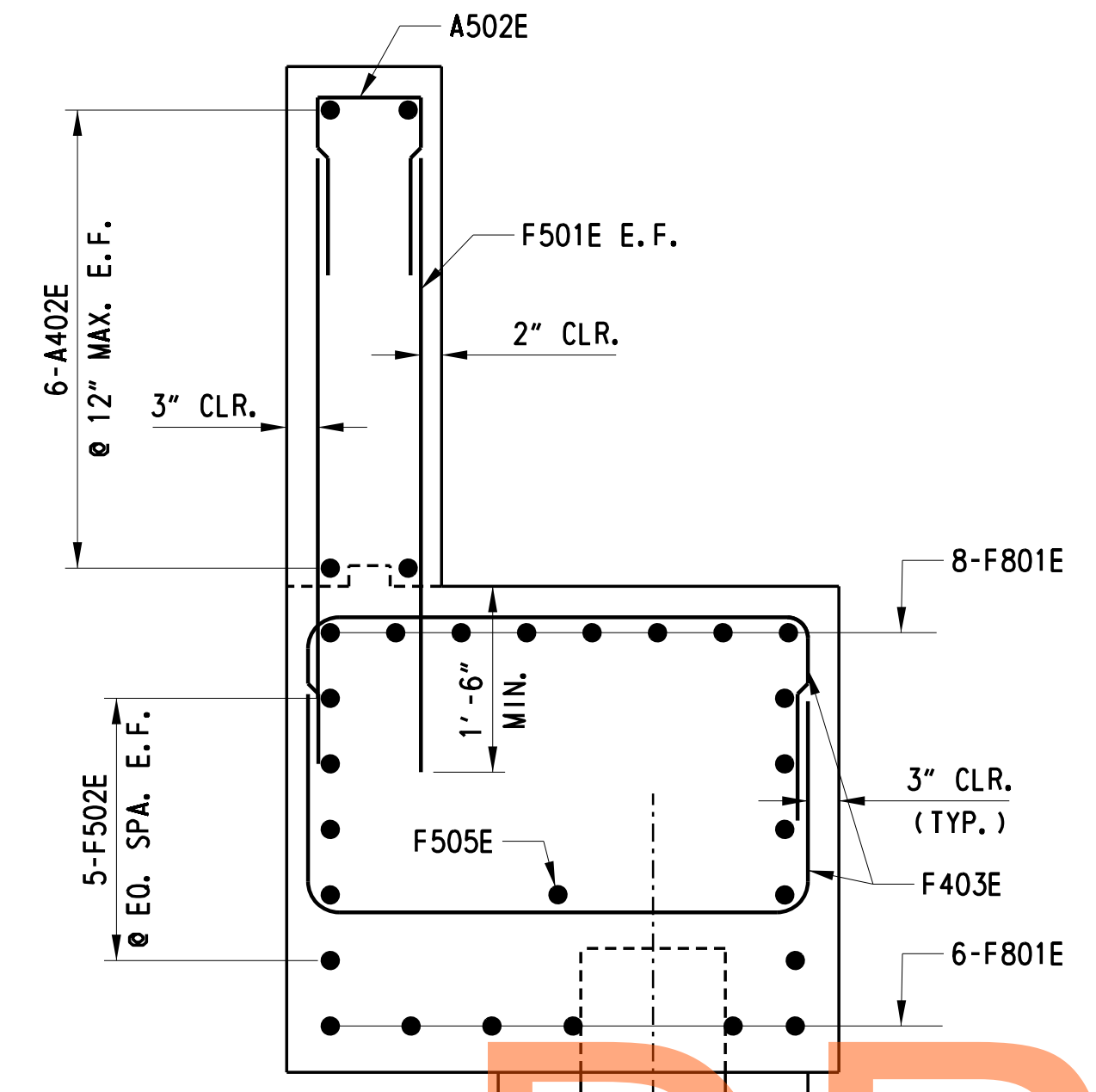
- NOTES:**
1. MSE WALL AND COPING NOT SHOWN FOR CLARITY.
 2. ABUTMENT SEAT STEPS MID-WAY BETWEEN GIRDERS
 3. ONLY TRANSVERSE FOOTING REINFORCEMENT IS SHOWN IN PLAN VIEW FOR CLARITY.
 4. PILE CASINGS NOT SHOWN FOR CLARITY.

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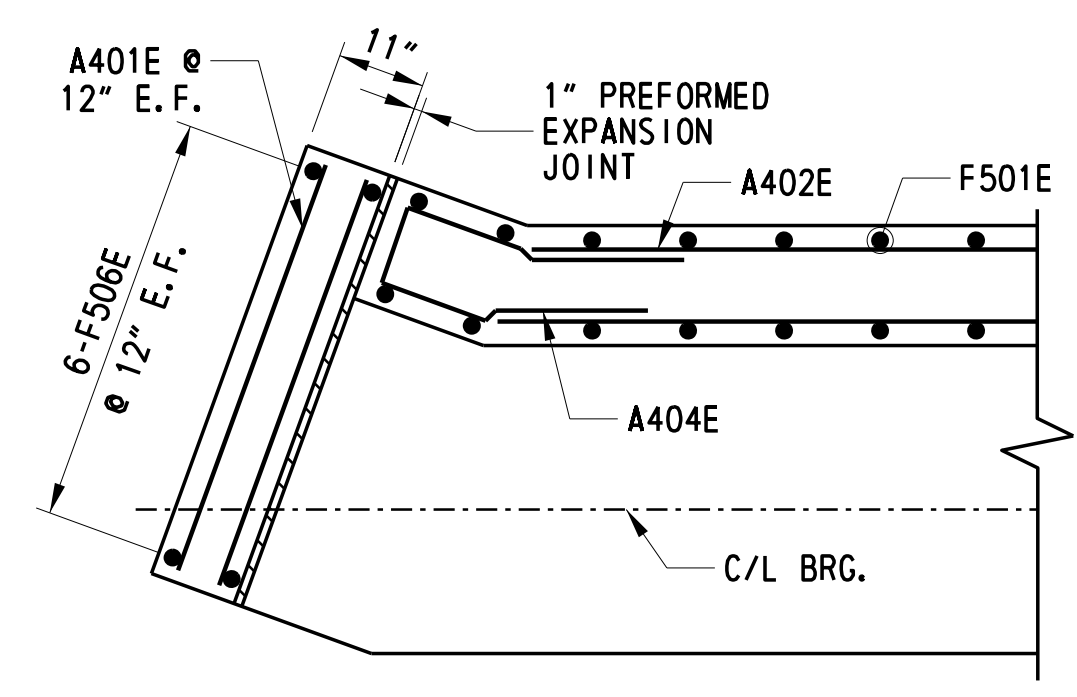
 DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE FEET	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T20091303	BRIDGE NO. 1-472N&S DESIGNED BY: ADH CHECKED BY: DHG	US 301 MAINLINE OVER ARMSTRONG CORNER ROAD ABUTMENT 2 SOUTHBOUND - PLAN AND REINFORCEMENT	SHEET NO. 365 TOTAL SHTS. 1256



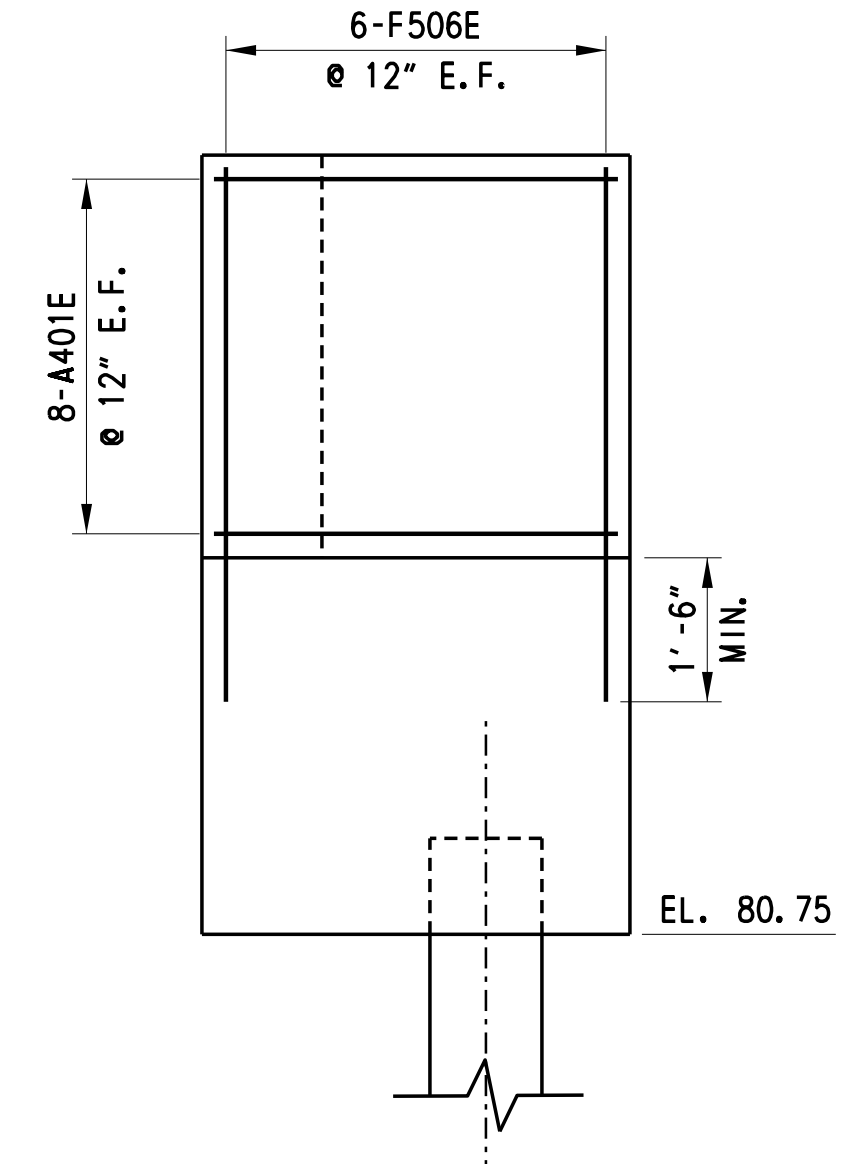
SECTION A-A
SCALE: 3/4" = 1'-0"



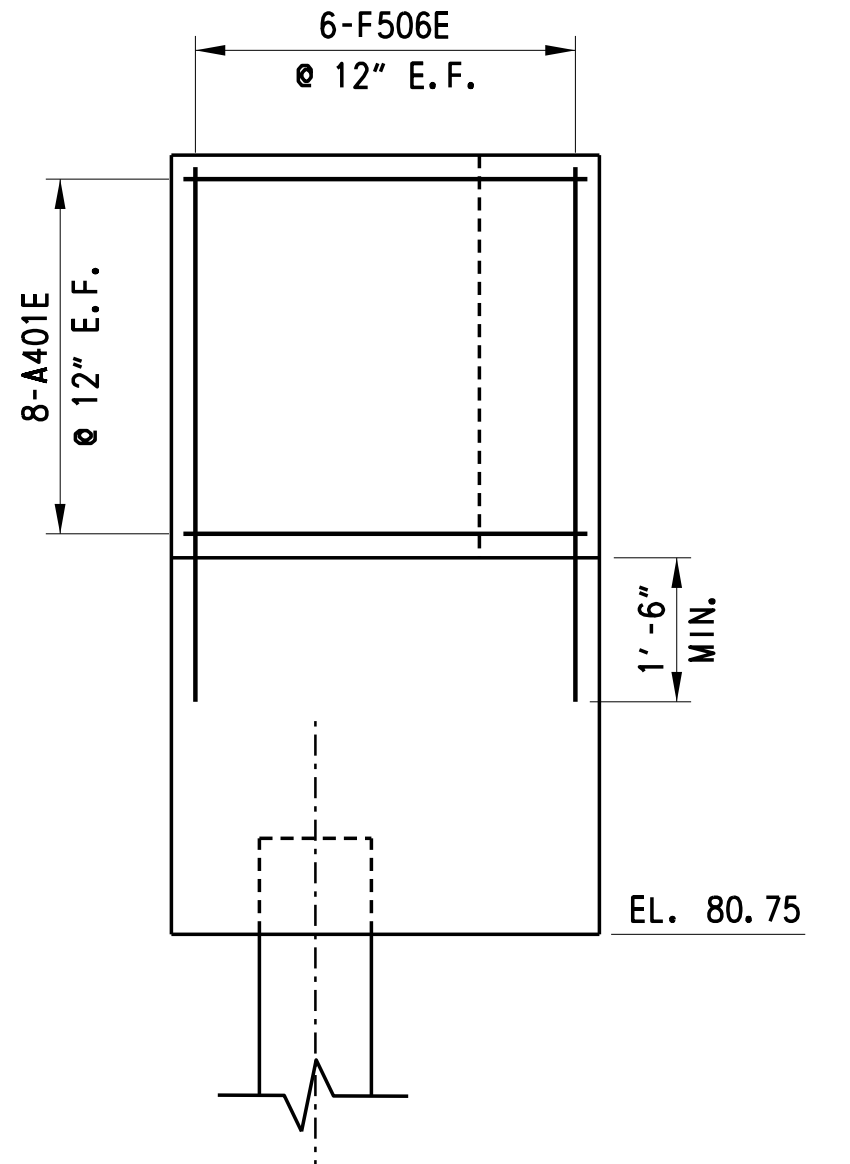
SECTION B-B
SCALE: 3/4" = 1'-0"



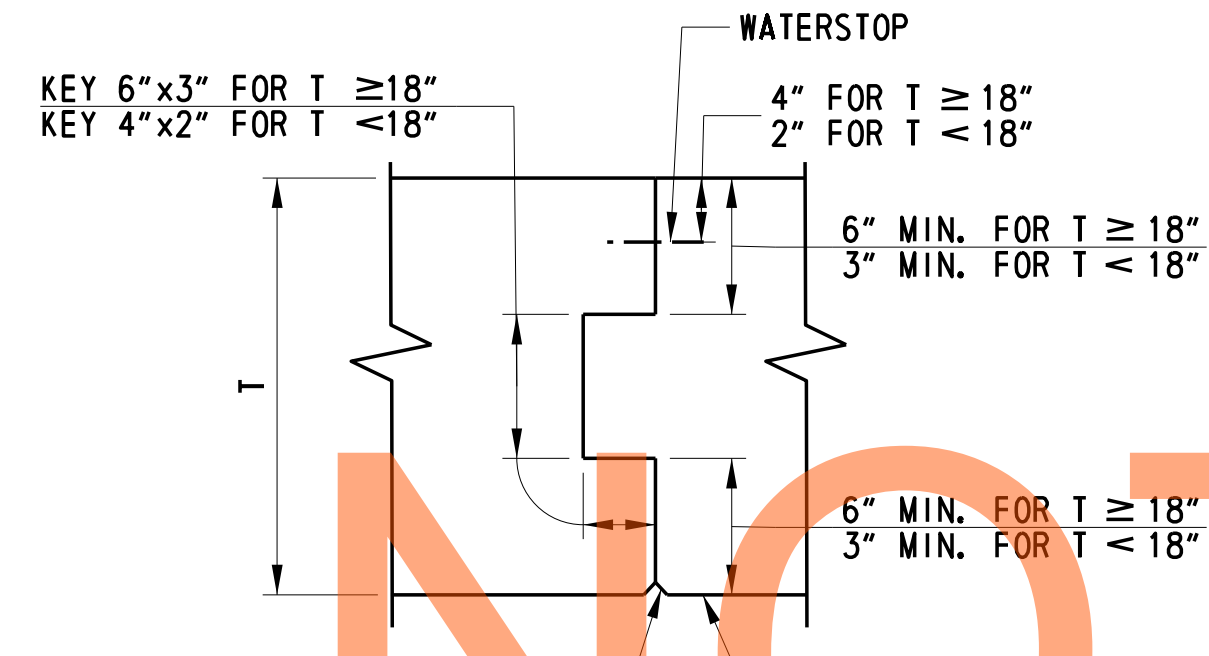
SECTION C-C
SCALE: 1/2" = 1'-0"



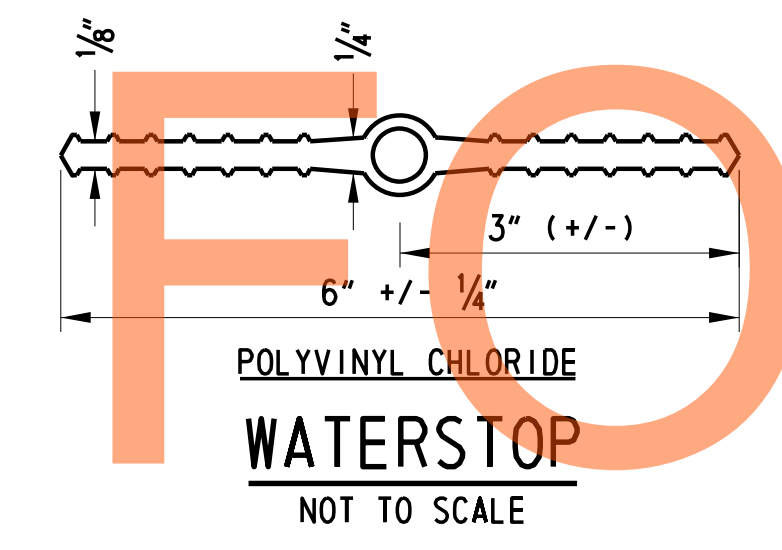
VIEW E-E
SCALE: 1/2" = 1'-0"



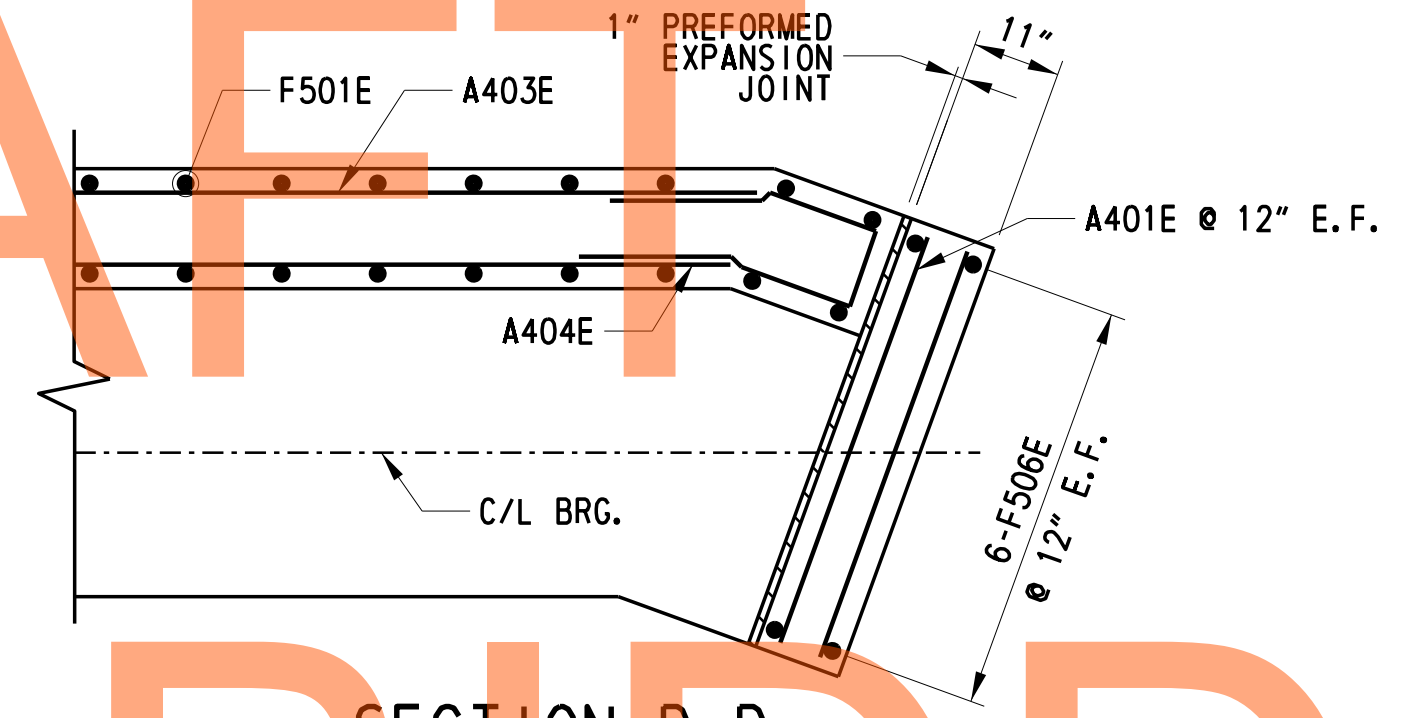
VIEW F-F
SCALE: 1/2" = 1'-0"



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



WATERSTOP
NOT TO SCALE

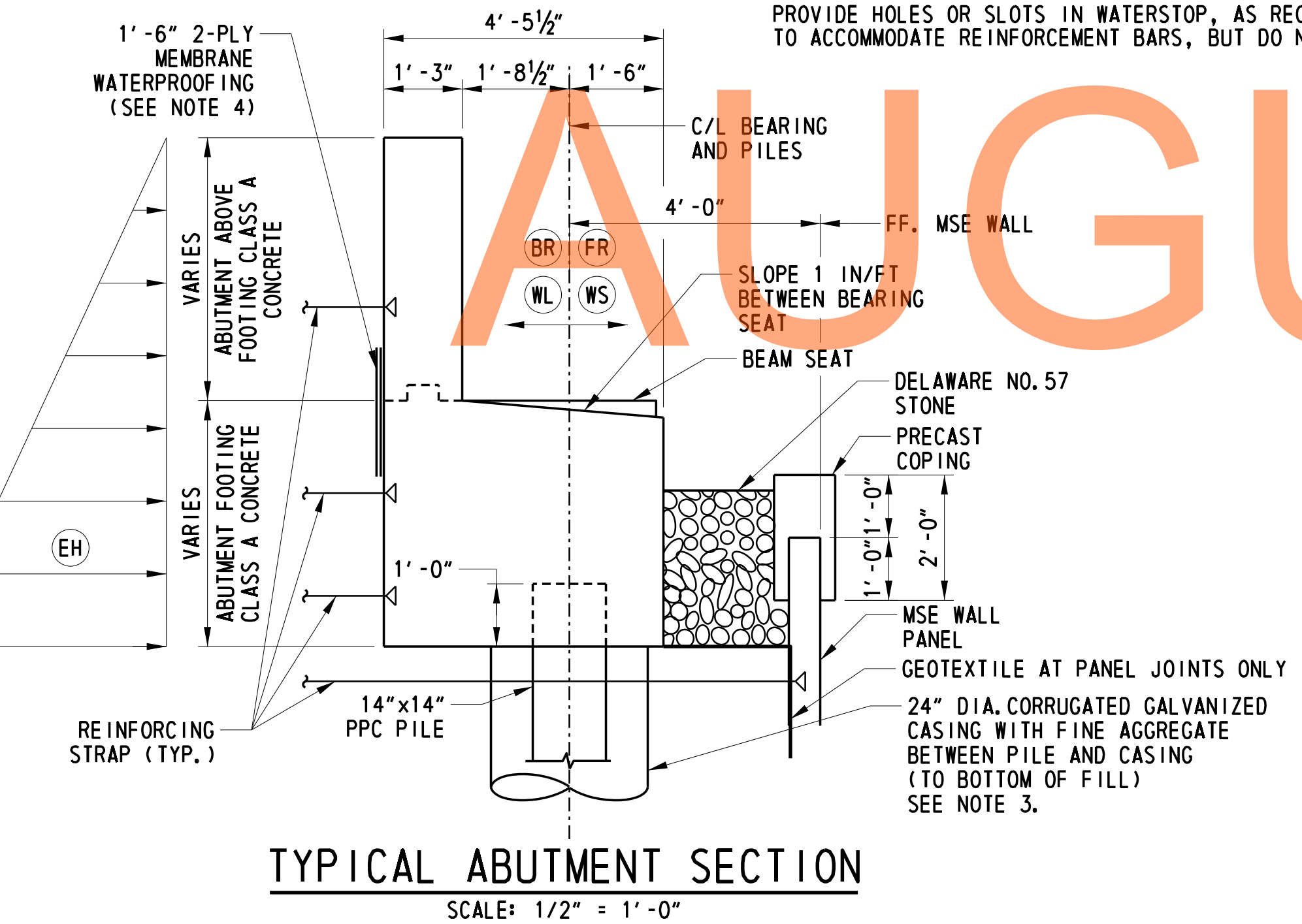


SECTION D-D
SCALE: 1/2" = 1'-0"

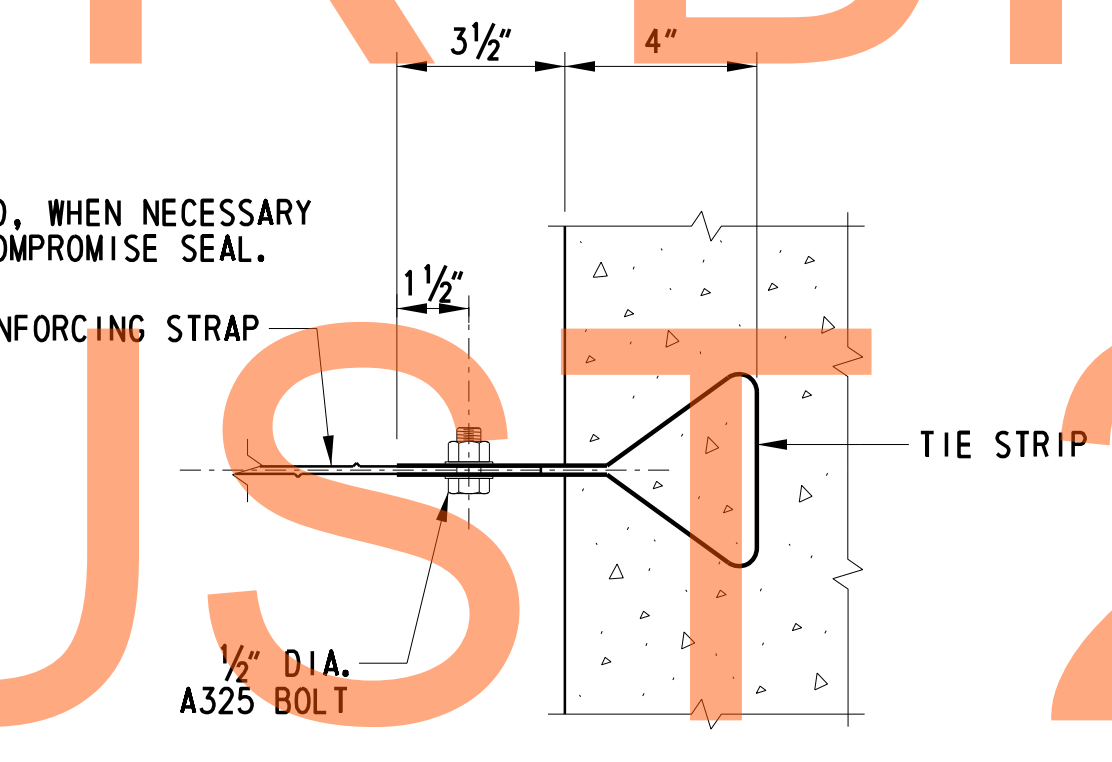
- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 - FOR ABUTMENT REINFORCEMENT, SEE DWG. 1-472 AB-1 TO 1-472 AB-4.
 - FOR ABUTMENT REINFORCEMENT SCHEDULE, SEE DWG. 1-472 BR-1.
 - FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-472 WW-1 AND 1-472 WW-2.

- ABUTMENT LATERAL LOADS:**
- CONTRACTOR SHALL DESIGN THE REINFORCING STRAPS IN THE ABUTMENT STEM AND BACKWALL TO RESIST LATERAL LOADS "EH", "BR", "FR", "WL", "LS" AND "WS".
 - LOAD "EH" IS THE HORIZONTAL EARTH PRESSURE EXERTED ON THE ABUTMENT.
 - LOAD "BR" IS THE HORIZONTAL LOAD DUE TO BRAKING FORCE ON THE SUPERSTRUCTURE.
 - LOAD "FR" IS THE HORIZONTAL LOAD DUE TO THE FRICTION BETWEEN THE APPROACH SLABS AND BACKWALL AS A RESULT OF BRIDGE EXPANSION AND CONTRACTION.
 - LOAD "WL" IS THE HORIZONTAL LOAD DUE TO THE WIND ON LIVE LOAD ON THE SUPERSTRUCTURE.
 - LOAD "WS" IS THE HORIZONTAL LOAD DUE TO THE WIND ON STRUCTURE.
 - LOAD "LS" IS THE ADDITIONAL HORIZONTAL SOIL PRESSURE DUE TO 3FT OF SOIL SURCHARGE IN ACCORDANCE WITH AASHTO 3.11.6.4. CONTRACTOR IS RESPONSIBLE FOR PROVIDING MSE WALL DESIGNER WITH OTHER CONSTRUCTION LOADS WHICH WILL BE IN EXCESS OF 3FT OF SOIL SURCHARGE.

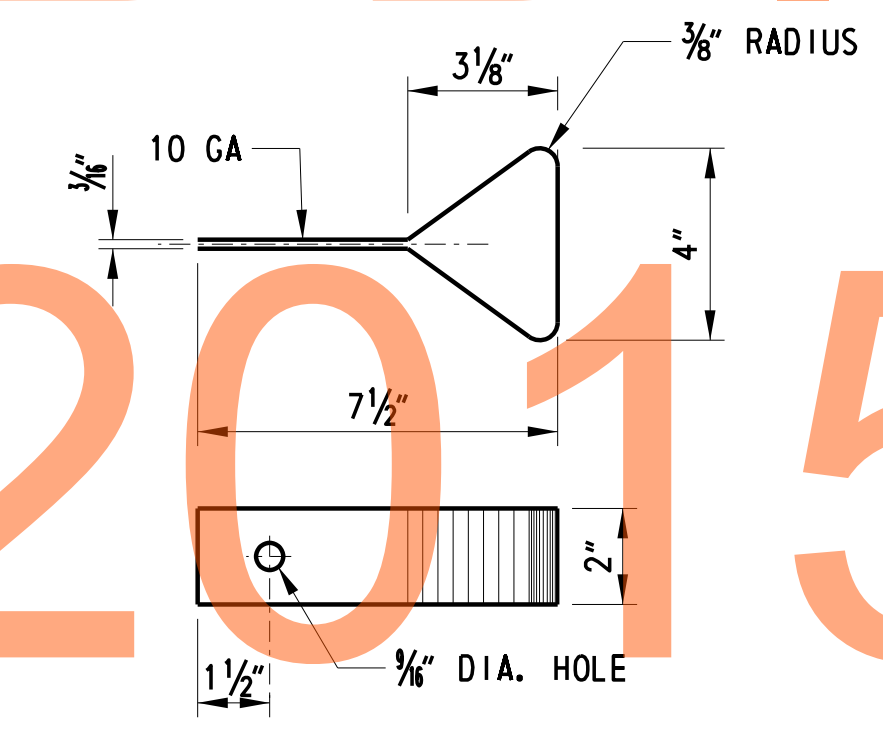
- NOTES:**
- STOP KEYED JOINTS IN TOP OF EXPOSED WALL FLUSH TO A DEPTH OF 12".
 - STOP WATERSTOP 12" FROM TOP OF WALL.
 - FINE AGGREGATE SHALL BE IN ACCORDANCE WITH SECTION 804 OF THE STANDARD SPECIFICATIONS. THIS ITEM SHALL BE INCIDENTAL TO THE PILE INSTALLATION.
 - THE WATERPROOFING MEMBRANE SHALL BE INCIDENTAL TO ITEM 602015.



TYPICAL ABUTMENT SECTION
SCALE: 1/2" = 1'-0"



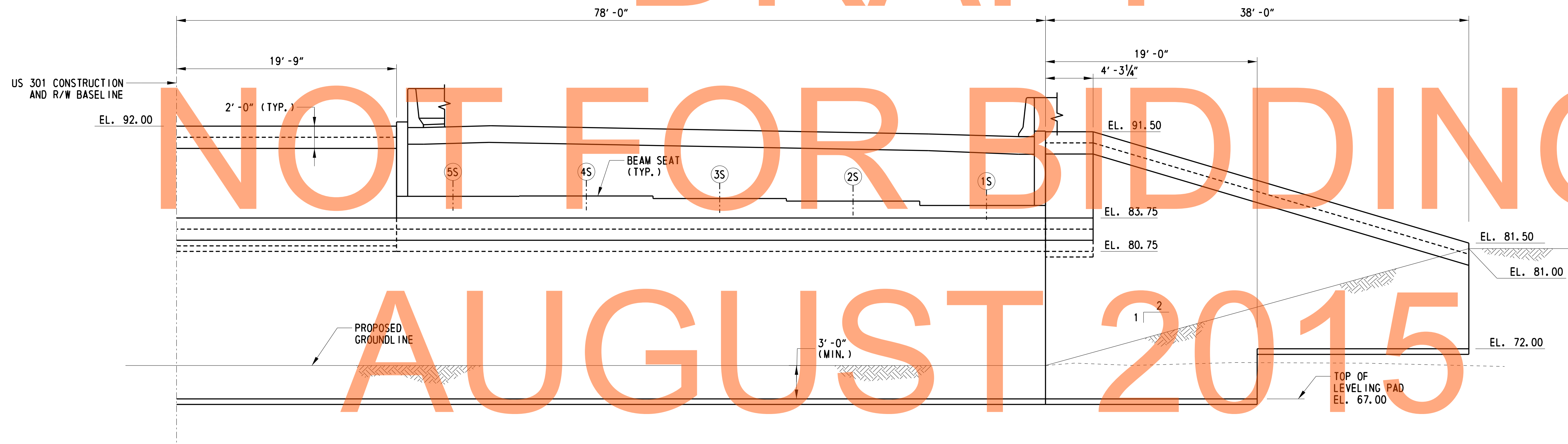
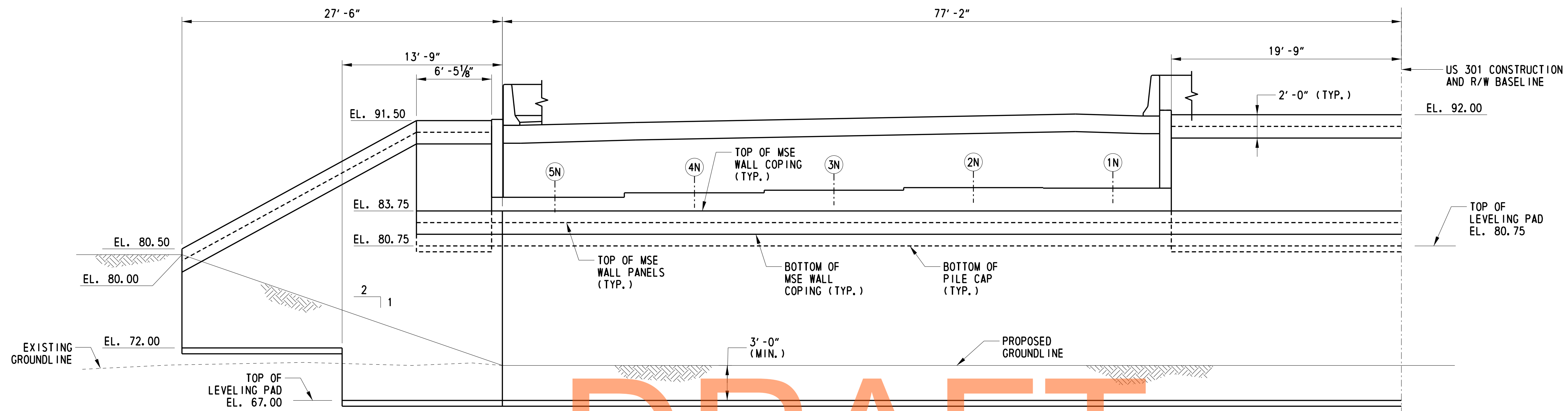
ABUTMENT STRAP ANCHOR DETAIL
NOT TO SCALE



TIE STRIP DETAIL
NOT TO SCALE

ABUTMENT 1 LATERAL LOADS	
TYPE	SERVICE LOAD (KIPS/FT)
EH	1.49 KIP/FT
BR	3.07 KIP/FT
FR	1.21 KIP/FT
WL	0.26 KIP/FT
WS	0.79 KIP/FT
LS	0.58 KIP/FT

ABUTMENT 2 LATERAL LOADS	
TYPE	SERVICE LOAD (KIPS/FT)
EH	1.49 KIP/FT
FR	1.21 KIP/FT
WL	0.11 KIP/FT
WS	0.36 KIP/FT
LS	0.58 KIP/FT

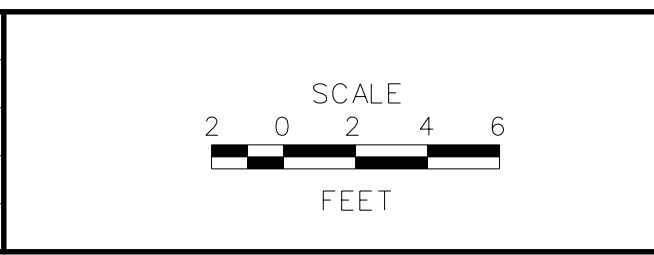


MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 1
SCALE: 3/16" = 1'-0"

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 2. FOR GEOMETRIC LAYOUT, SEE DWG. 1-472 GG-1.
 3. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-472 AB-1 TO 1-472 AB-4.
 4. FOR MSE WALL SECTIONS AND DETAILS, SEE DWG. 1-472 WW-3.

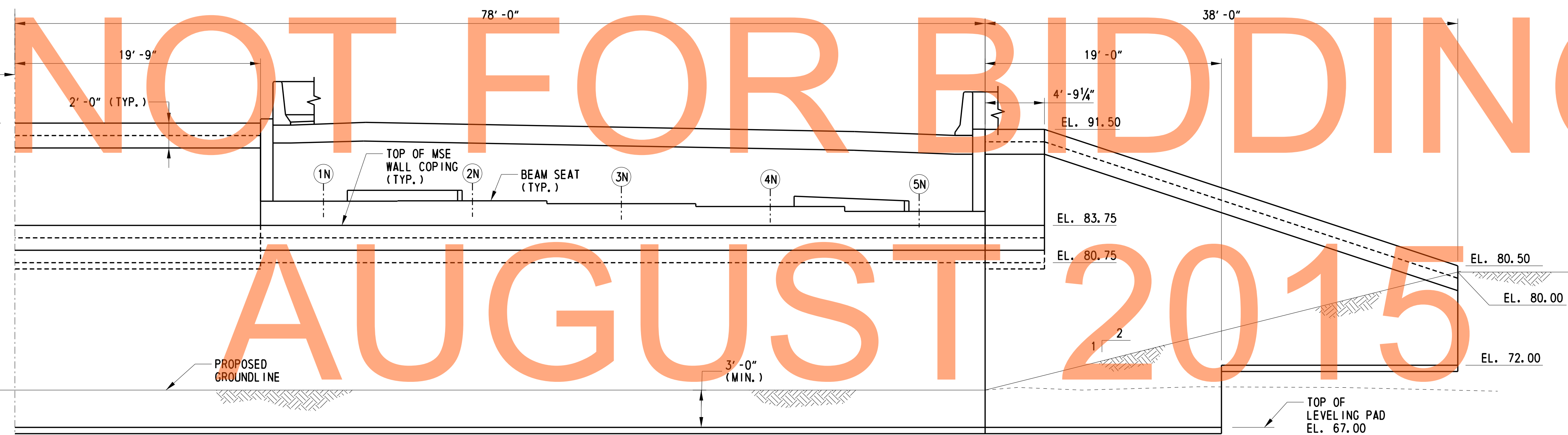
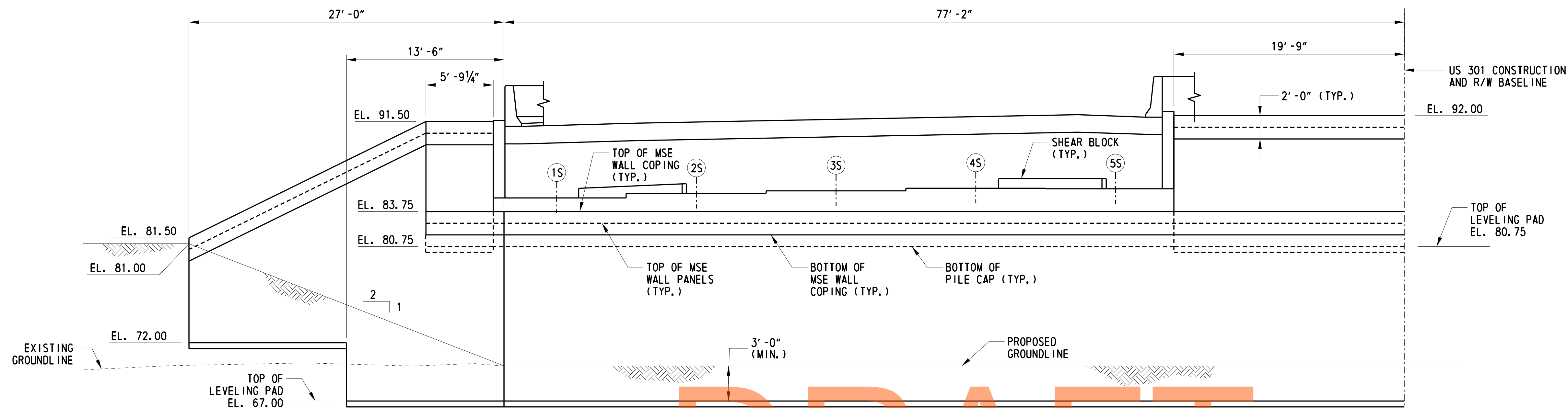
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ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	1-472N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-472 WW-1
SHEET NO.
367
TOTAL SHTS.
1256

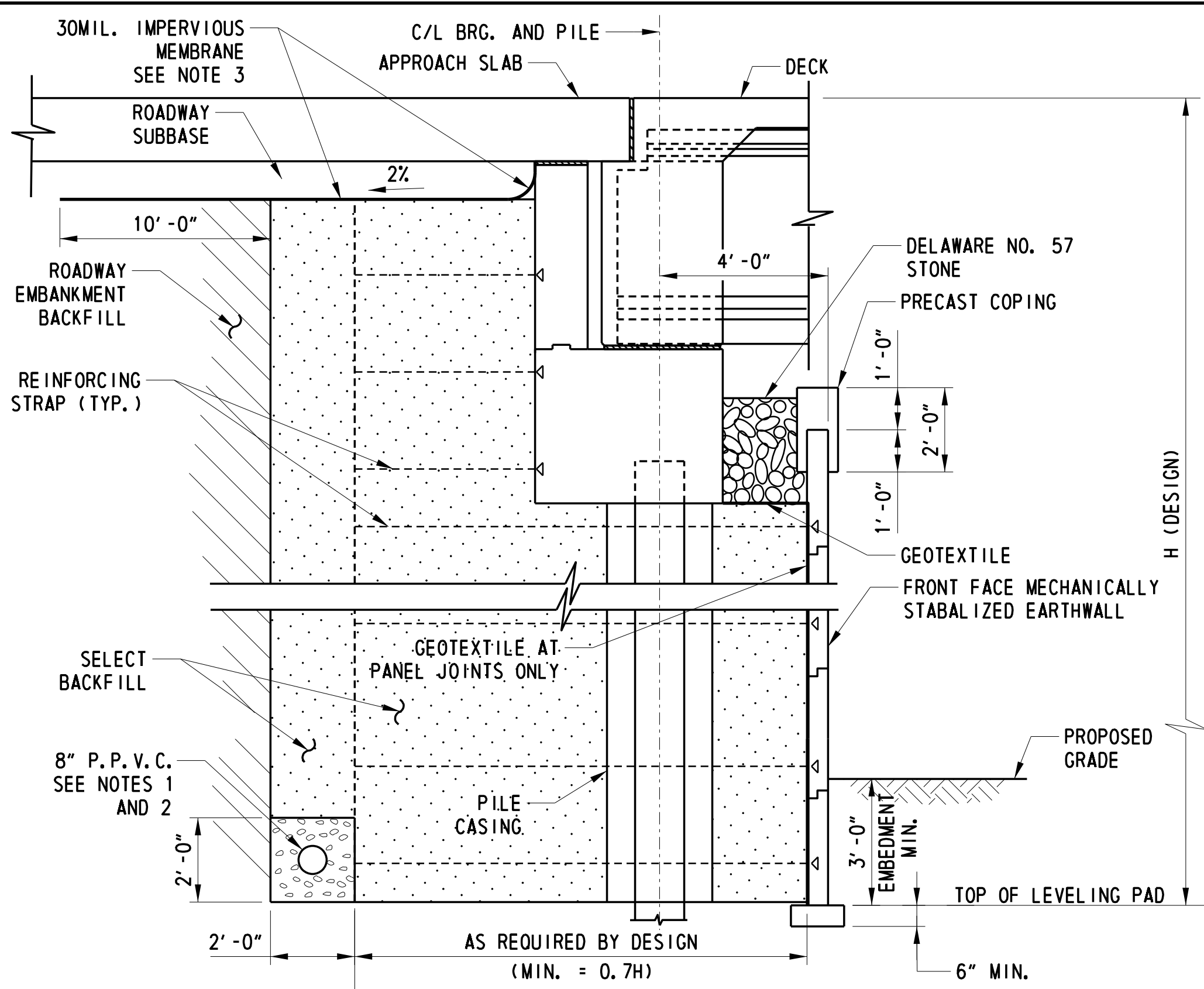


MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 2
SCALE: 3/16" = 1'-0"

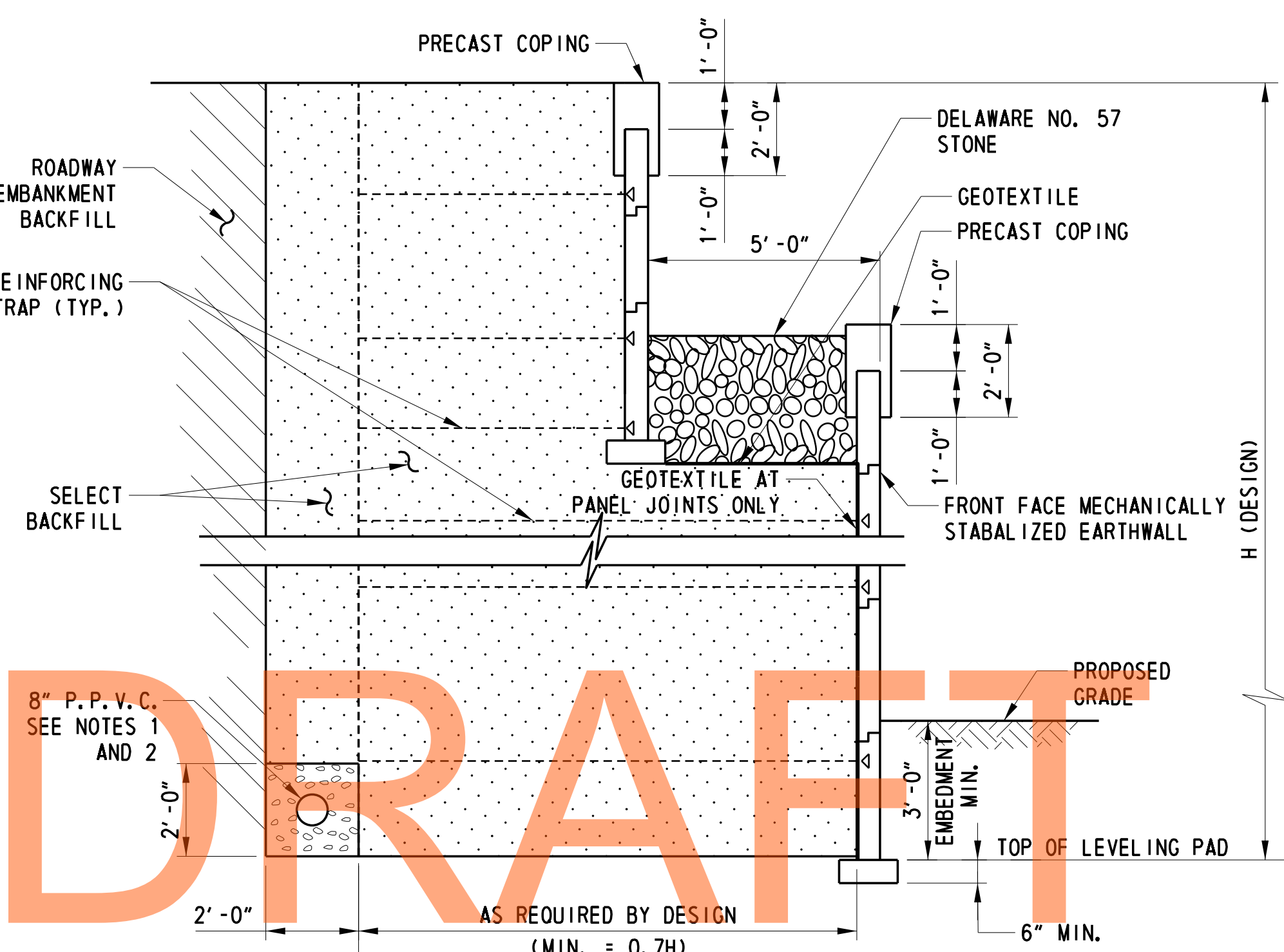
CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
2. FOR GEOMETRIC LAYOUT, SEE DWG. 1-472 GG-1.
3. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-472 AB-1 TO 1-472 AB-4.
4. FOR MSE WALL SECTIONS AND DETAILS, SEE DWG. 1-472 WW-3.

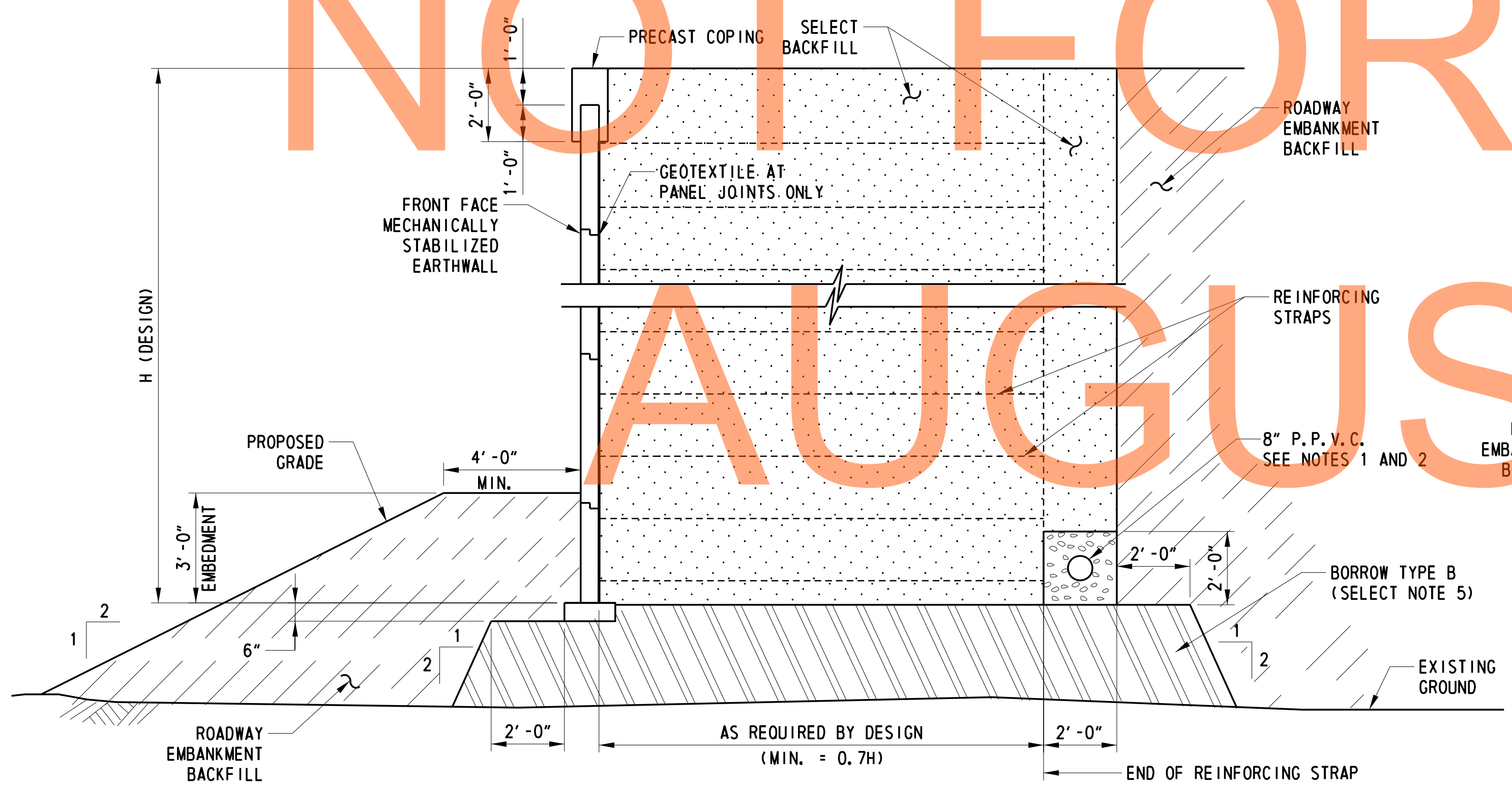
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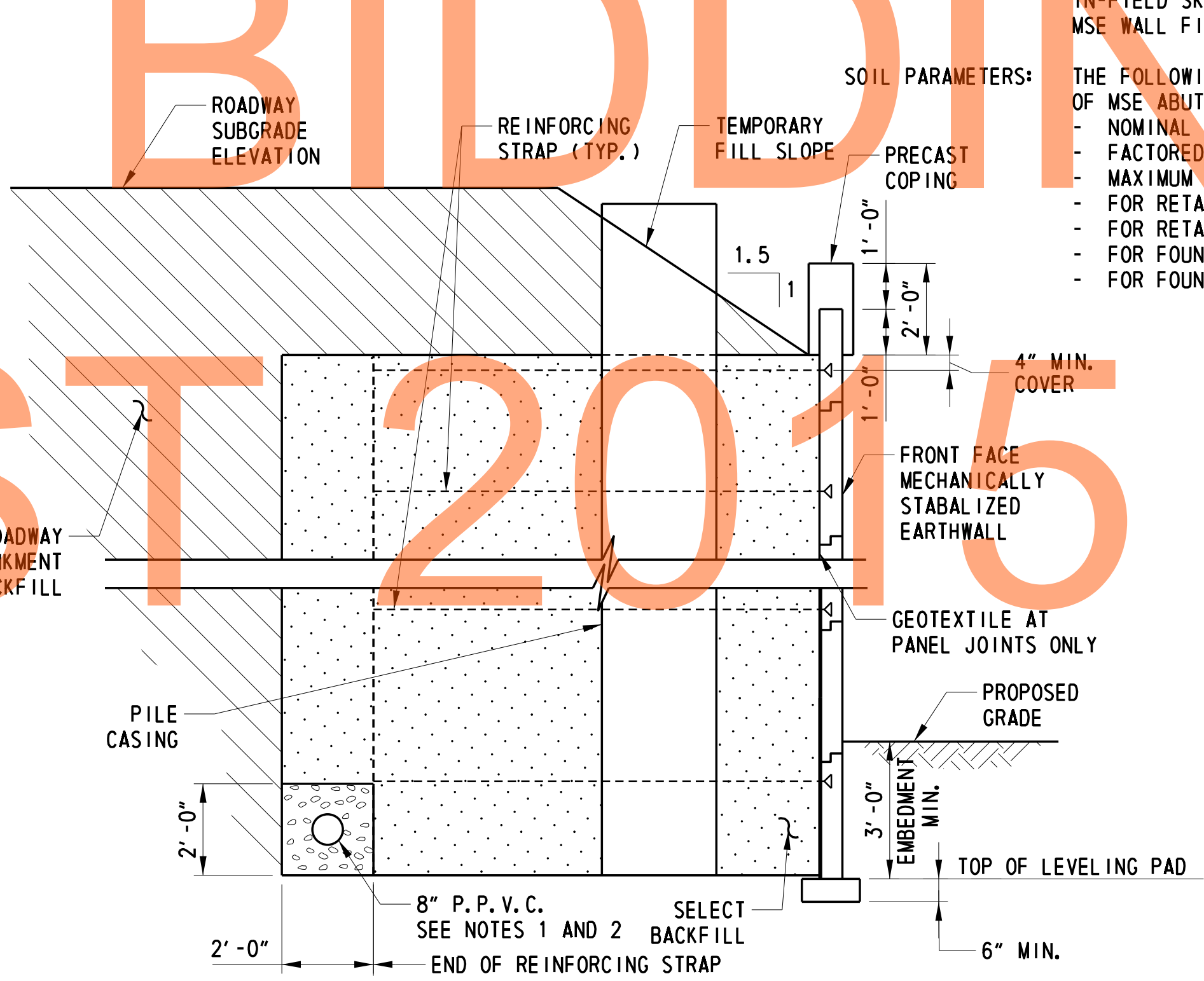
TYPICAL MSE WALL SECTION AT ABUTMENT
SCALE: 3/8" = 1'-0"



TYPICAL MSE WALL SECTION AT MEDIAN
SCALE: 3/8" = 1'-0"



TYPICAL MSE WALL SECTION WINGWALL ON FILL
SCALE: 3/8" = 1'-0"



FILL PLACEMENT DURING QUARANTINE PERIOD
SCALE: 3/8" = 1'-0"

MSE WALL NOTES:

- SPECIFICATIONS:** PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
 - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
 - FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NOS. FHWA-NHI-10-024 AND FHWA-NHI-10-025, "DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES", VOLUME I AND VOLUME II.
- CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.
- CONCRETE:** LEVELING PAD CONCRETE SHALL BE 3,000 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
- CHAMFERS:** ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4" x 3/4" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".
- REINFORCING STEEL:** REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A 615), GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE LRFD BRIDGE DESIGN SPECIFICATIONS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.
- FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.
- LEVELING PAD:** THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- ROADWAY LIMITS:** THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCLOSED UPON.
- COORDINATION:** CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM.
- SERVICE LIFE:** ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.
- WALL SYSTEM:** RETAINING WALL TYPE SHALL BE MECHANICALLY STABILIZED EARTH (MSE) WALLS. NO OTHER WALL TYPE MAY BE SUBSTITUTED.
- MSE WALL BACKFILL:** MSE WALL BACKFILL SHALL BE SELECT BACKFILL IN ACCORDANCE WITH SPECIAL PROVISION 602772 WITH MINIMUM ANGLE OF INTERNAL FRICTION OF 34 DEGREES AND A MOIST UNIT WEIGHT OF 125 LB/FT³.
- REINFORCING STRAPS:** SET REINFORCING STRAPS TO CLEAR PILE CASING, 2" MIN. CLEARANCE. MAXIMUM IN-FIELD SKEW OF 15 DEGREES. IF GREATER SKEW ANGLE IS REQUIRED, CONTACT MSE WALL FIELD REPRESENTATIVE PRIOR TO INSTALLATION.
- SOIL PARAMETERS:** THE FOLLOWING ARE RECOMMENDED SOIL PARAMETERS TO BE USED FOR THE DESIGN OF MSE ABUTMENT AND WINGWALLS:
 - NOMINAL BEARING RESISTANCE = 16.6 KIP/FT²
 - FACTORED BEARING RESISTANCE = 10.8 KIP/FT²
 - MAXIMUM ANTICIPATED SETTLEMENT = 4.5 IN
 - FOR RETAINED SOIL, MOIST UNIT WEIGHT = 120 LB/FT³
 - FOR RETAINED SOIL, ANGLE OF INTERNAL FRICTION = 30 DEGREES
 - FOR FOUNDATION SOIL, MOIST UNIT WEIGHT = 120 LB/FT³
 - FOR FOUNDATION SOIL, ANGLE OF INTERNAL FRICTION = 30 DEGREES

NOTES:

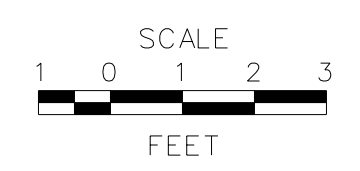
1. DRAIN PERFORATED POLYVINYL CHLORIDE PIPE (P.P.V.C.) TO DAYLIGHT.
2. SURROUND P.P.V.C. WITH A CONTINUOUS 2'-0"x2'-0" OF DELAWARE NO. 57 STONE ENCLOSED IN GEOTEXTILE.
3. SLOPE MEMBRANE A MINIMUM OF 2% AWAY FROM THE BACKWALL.
4. CONTRACTOR TO PROVIDE PROTECTION TO THE PILE CASING DURING QUARANTINE PERIOD TO PREVENT MATERIAL FROM ENTERING CASING.
5. BORROW TYPE B SHALL BE INCIDENTAL TO ITEM 602772.

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG 1-472 GN-1.
2. FOR MEDIAN AND WINGWALL ELEVATION, SEE DWG. 1-472 WW-1 TO 1-472 WW-2.
3. FOR GEOMETRIC LAYOUT, SEE DWG. 1-472 GG-1.
4. FOR LOADS TO BE RESISTED BY REINFORCING STRAPS IN ABUTMENT, SEE DWG. 1-472 AB-5.

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ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	1-472N&S
T200911303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-472 WW-3	
SHEET NO.	369
TOTAL SHTS.	1256

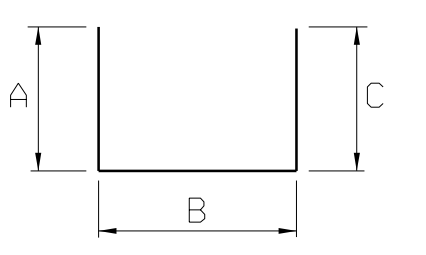
REINFORCING BAR SCHEDULE

NORTHBOUND ABUTMENT 1 AND 2 BAR SCHEDULE															SOUTHBOUND ABUTMENT 1 AND 2 BAR SCHEDULE																
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS	MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS
A301E	10' - 10 1/2"	4	46	5' - 1"	0"	8 1/2"	0"	5' - 1"	1' - 8 3/4"							A301E	10' - 10 1/2"	4	46	5' - 1"	0"	8 1/2"	0"	5' - 1"	1' - 8 3/4"						
A401E	4' - 5"	64	STR													A401E	4' - 5"	64	STR												
A402E	34' - 9"	12	STR													A402E	34' - 9"	12	STR												
A403E	21' - 9"	12	STR													A403E	21' - 9"	12	STR												
A404E	7' - 7 3/4"	24	46	2' - 1"	1' - 3 3/4"	11"	1' - 3"	2' - 1"	8 1/2"							A404E	7' - 7 3/4"	24	46	2' - 1"	1' - 3 3/4"	11"	1' - 3"	2' - 1"	8 1/2"						
A405E	20' - 1"	12	STR													A405E	20' - 1"	12	STR												
A406E	36' - 5"	12	STR													A406E	35' - 5"	12	STR												
A502E	6' - 0"	194	4	2' - 7"	10"	2' - 7"										A502E	6' - 0"	194	4	2' - 7"	10"	2' - 7"									
A503E	12' - 9 5/8"	4	4	2' - 2"	8' - 5 5/8"	2' - 2"										A503E	12' - 9 5/8"	4	4	2' - 2"	8' - 5 5/8"	2' - 2"									
A504E	5' - 0"	20	4	2' - 2"	8"	2' - 2"										A504E	5' - 0"	20	4	2' - 2"	8"	2' - 2"									
F401E	10' - 7 1/2"	144	4	3' - 4"	3' - 11 1/2"	3' - 4"										F401E	10' - 7 1/2"	144	4	3' - 4"	3' - 11 1/2"	3' - 4"									
F402E	10' - 11"	16	4	3' - 4"	4' - 3"	3' - 4"										F402E	10' - 11"	16	4	3' - 4"	4' - 3"	3' - 4"									
F403E	9' - 5 1/2"	28	4	2' - 9"	3' - 11 1/2"	2' - 9"										F403E	9' - 5 1/2"	28	4	2' - 9"	3' - 11 1/2"	2' - 9"									
F404E	13' - 10"	32	STR													F404E	13' - 10"	32	STR												
F405E	21' - 5"	8	STR													F405E	21' - 5"	8	STR												
F406E	20' - 10"	8	STR													F406E	20' - 10"	8	STR												
F407E	12' - 9 1/2"	2	46	2' - 1"	2' - 2 3/4"	4' - 3"	2' - 1 3/4"	2' - 1"	8 1/2"							F407E	12' - 9 1/2"	2	46	2' - 1"	2' - 2 3/4"	4' - 3"	2' - 1 3/4"	2' - 1"	8 1/2"						
F408E	8' - 11 1/2"	4	4	2' - 6"	3' - 11 1/2"	2' - 6"										F408E	8' - 11 1/2"	4	4	2' - 6"	3' - 11 1/2"	2' - 6"									
F501E	6' - 6"	388	STR													F501E	6' - 6"	388	STR												
F502E	35' - 11"	10	STR													F502E	35' - 11"	10	STR												
F503E	22' - 5"	10	STR													F503E	22' - 5"	10	STR												
F504E	13' - 9 1/2"	20	46	2' - 7"	2' - 2 3/4"	4' - 3"	2' - 1 3/4"	2' - 7"	10 5/8"							F504E	13' - 9 1/2"	20	46	2' - 7"	2' - 2 3/4"	4' - 3"	2' - 1 3/4"	2' - 7"	10 5/8"						
F505E	6' - 4"	8	STR													F505E	6' - 4"	8	STR												
F506E	8' - 3"	48	STR													F506E	8' - 3"	48	STR												
F507E	36' - 6"	10	STR													F507E	36' - 6"	10	STR												
F508E	21' - 10"	10	STR													F508E	21' - 10"	10	STR												
F801E	36' - 0"	14	STR													F801E	36' - 0"	14	STR												
F802E	25' - 5"	8	STR													F802E	25' - 5"	8	STR												
F803E	23' - 6"	6	STR													F803E	23' - 6"	6	STR												
F804E	18' - 1 1/2"	8	46	4' - 9"	2' - 2 3/4"	4' - 3"	2' - 1 3/4"	4' - 9"	1' - 7 1/2"							F804E	18' - 1 1/2"	8	46	4' - 9"	2' - 2 3/4"	4' - 3"	2' - 1 3/4"	4' - 9"	1' - 7 1/2"						
F805E	36' - 6"	14	STR													F805E	36' - 6"	14	STR												
F806E	25' - 0"	8	STR													F806E	25' - 0"	8	STR												
F807E	23' - 1"	6	STR													F807E	23' - 1"	6	STR												

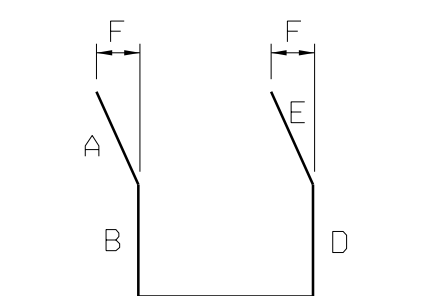
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NOT FOR BIDDING

AUGUST 2015

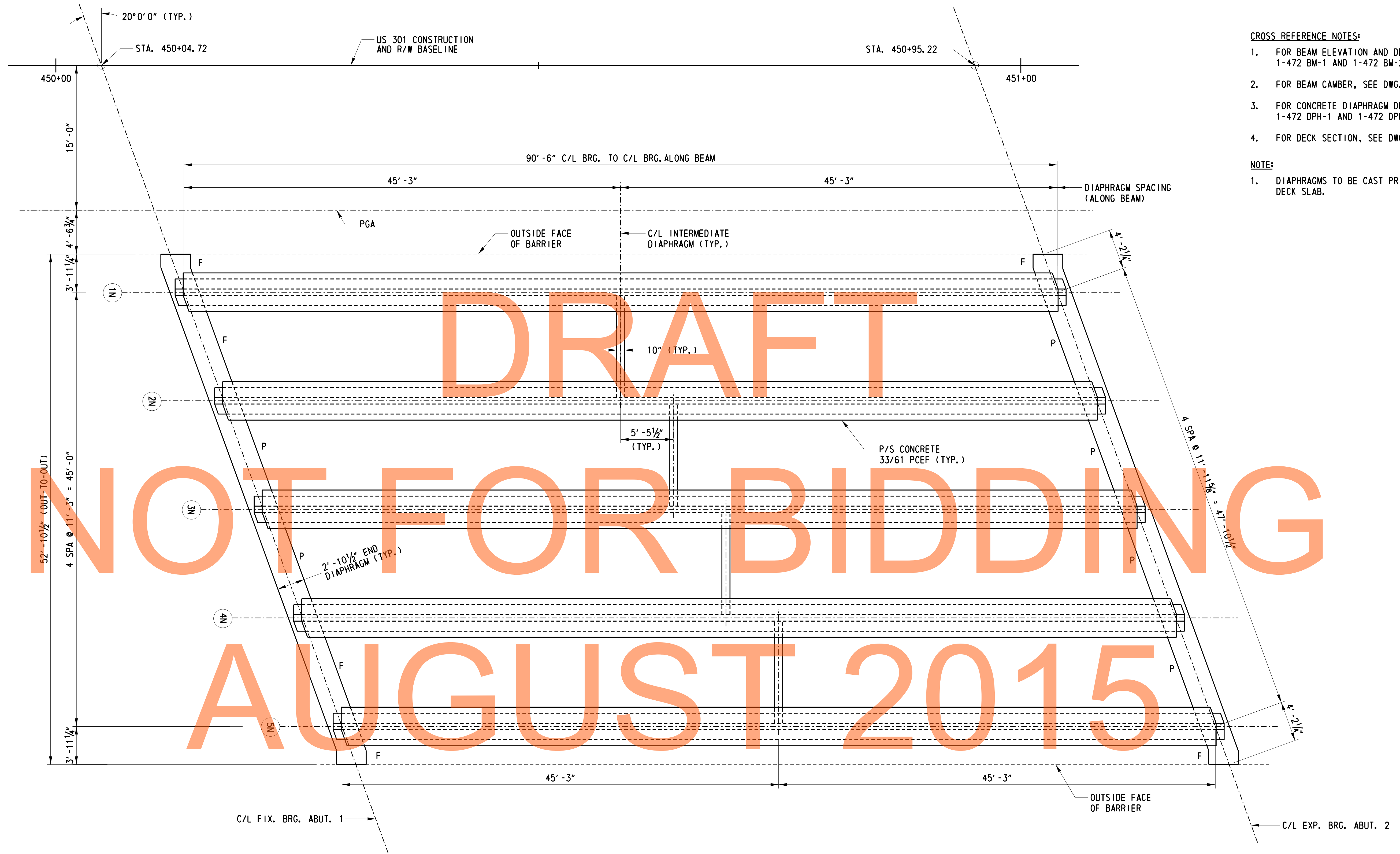


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46

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- CROSS REFERENCE NOTES:**
1. FOR BEAM ELEVATION AND DETAILS, SEE DWG. 1-472 BM-1 AND 1-472 BM-2.
 2. FOR BEAM CAMBER, SEE DWG. 1-472 BM-2.
 3. FOR CONCRETE DIAPHRAGM DETAILS, SEE DWG. 1-472 DPH-1 AND 1-472 DPH-2.
 4. FOR DECK SECTION, SEE DWG. 1-472 PA-1.

- NOTE:**
1. DIAPHRAGMS TO BE CAST PRIOR TO CASTING DECK SLAB.

DRAFT

NOT FOR BIDDING

AUGUST 2015

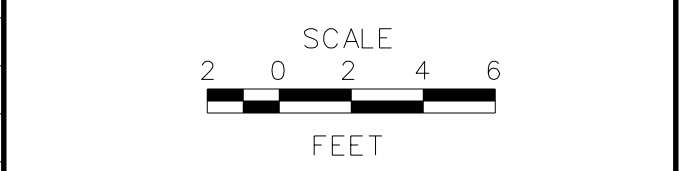
FRAMING PLAN - NORTHBOUND
SCALE: 3/16" = 1'-0"

LEGEND:
P PARTIAL DEPTH END DIAPHRAGM
F FULL DEPTH END DIAPHRAGM

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ADDENDUMS / REVISIONS	



**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	1-472N&S
T200911303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

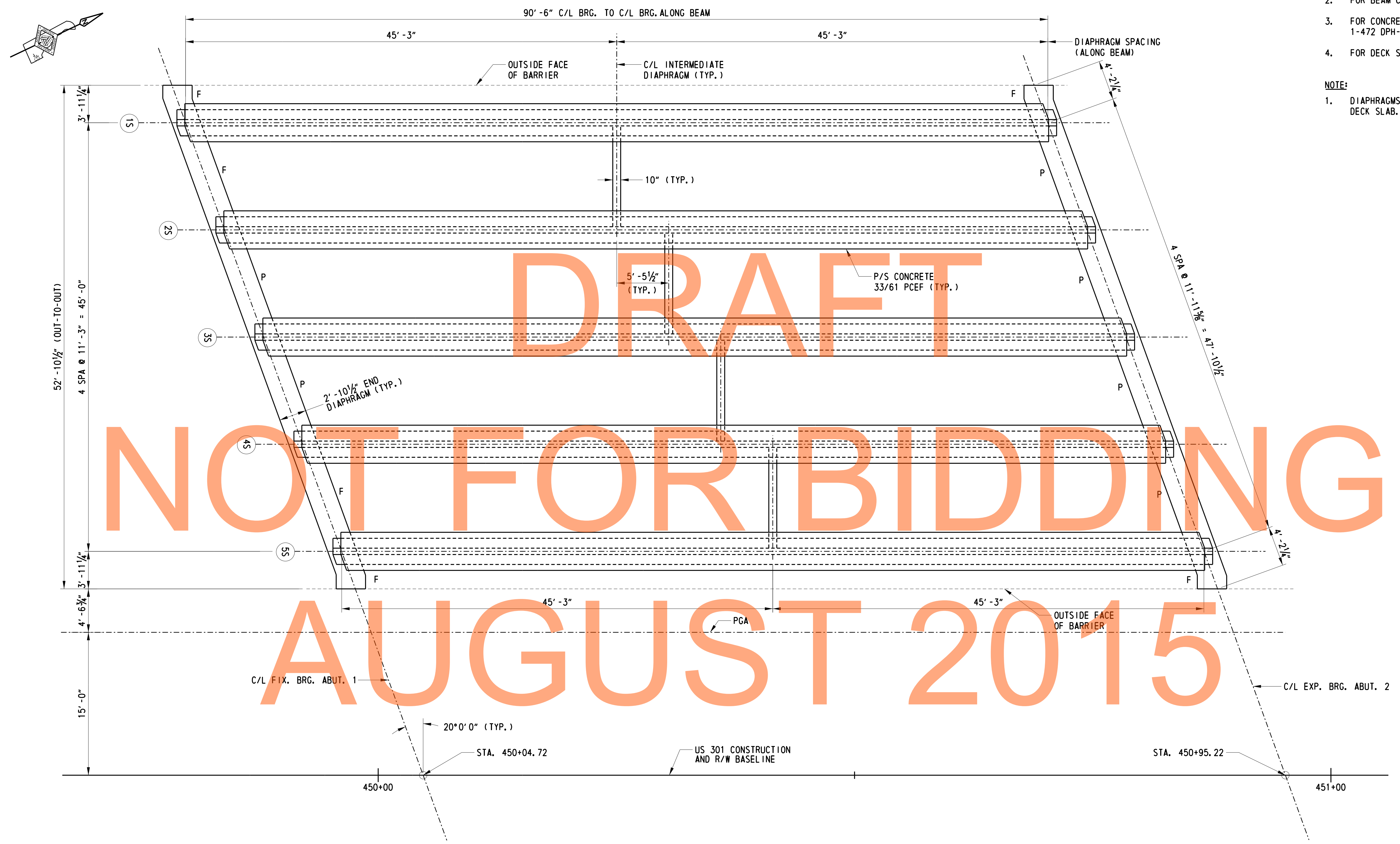
**US 301 MAINLINE OVER
ARMSTRONG CORNER ROAD
FRAMING PLAN -
NORTHBOUND**

1-472 FR-1
SHEET NO.
371
TOTAL SHTS.
1256

- CROSS REFERENCE NOTES:**
- FOR BEAM ELEVATION AND DETAILS, SEE DWG. 1-472 BM-1 AND 1-472 BM-2.
 - FOR BEAM CAMBER, SEE DWG. 1-472 BM-2.
 - FOR CONCRETE DIAPHRAGM DETAILS, SEE DWG. 1-472 DPH-1 AND 1-472 DPH-2.
 - FOR DECK SECTION, SEE DWG. 1-472 PA-1.

NOTE:

- DIAPHRAGMS TO BE CAST PRIOR TO CASTING DECK SLAB.



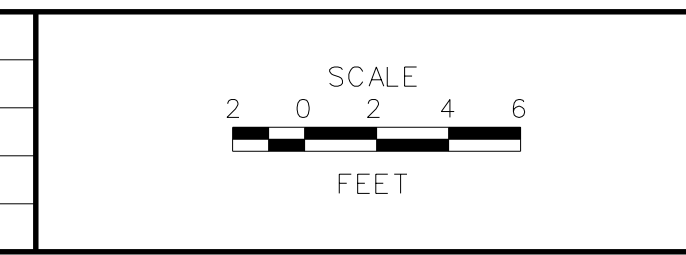
DRAFT
NOT FOR BIDDING
AUGUST 2015

FRAMING PLAN - SOUTHBOUND
SCALE: 3/16" = 1'-0"

LEGEND:
P PARTIAL DEPTH END DIAPHRAGM
F FULL DEPTH END DIAPHRAGM

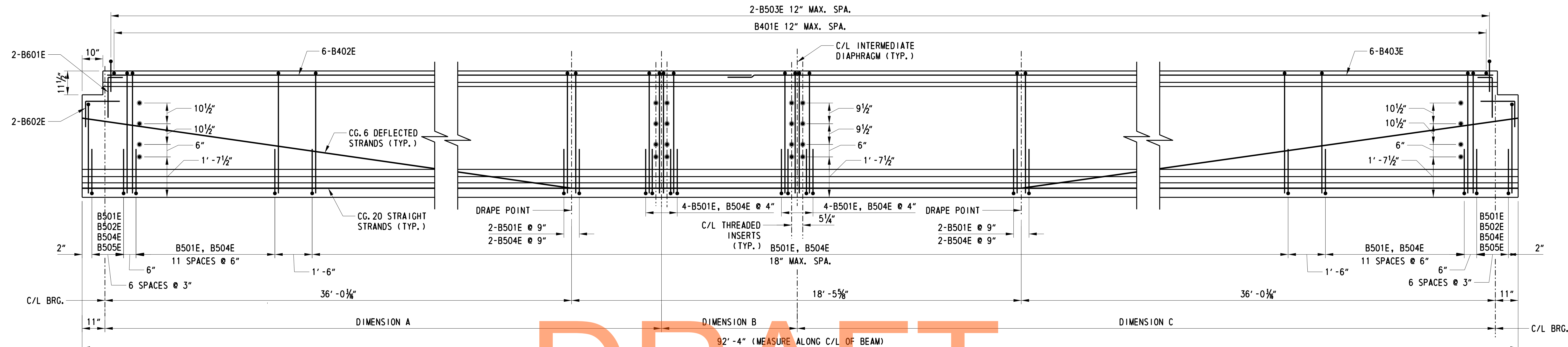
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ADDENDUMS / REVISIONS	

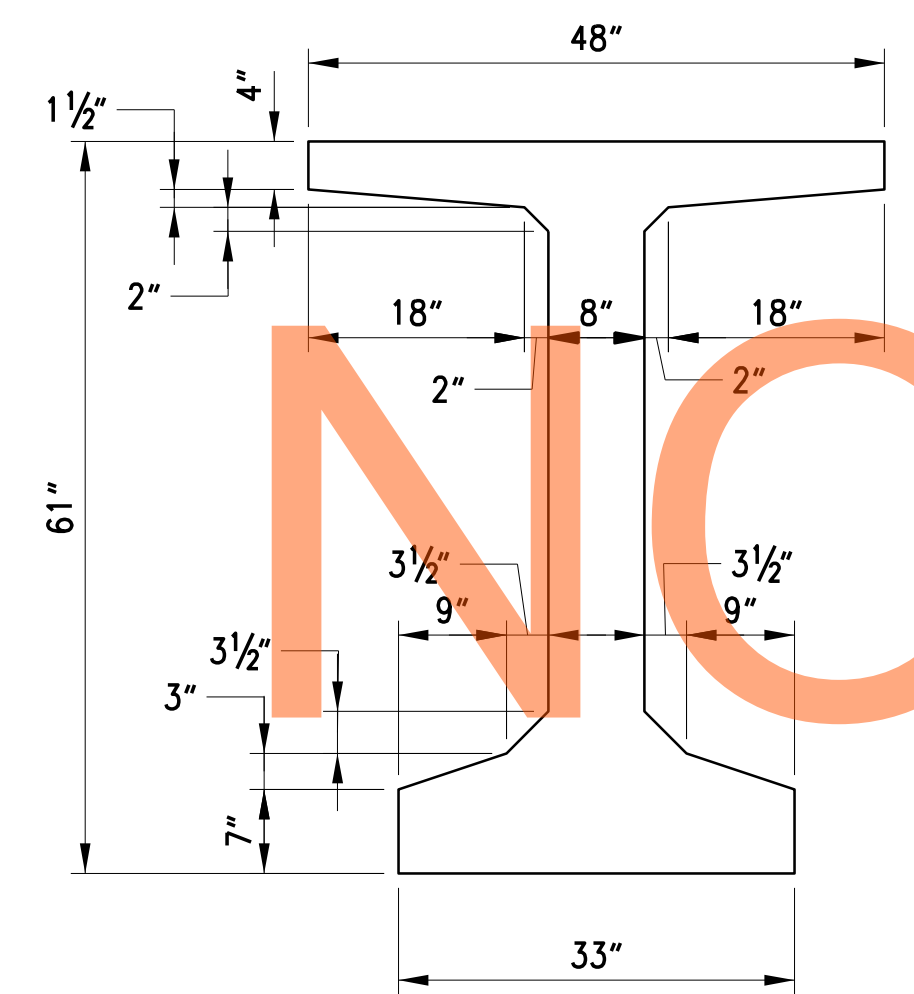


CONTRACT	BRIDGE NO.	1-472N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

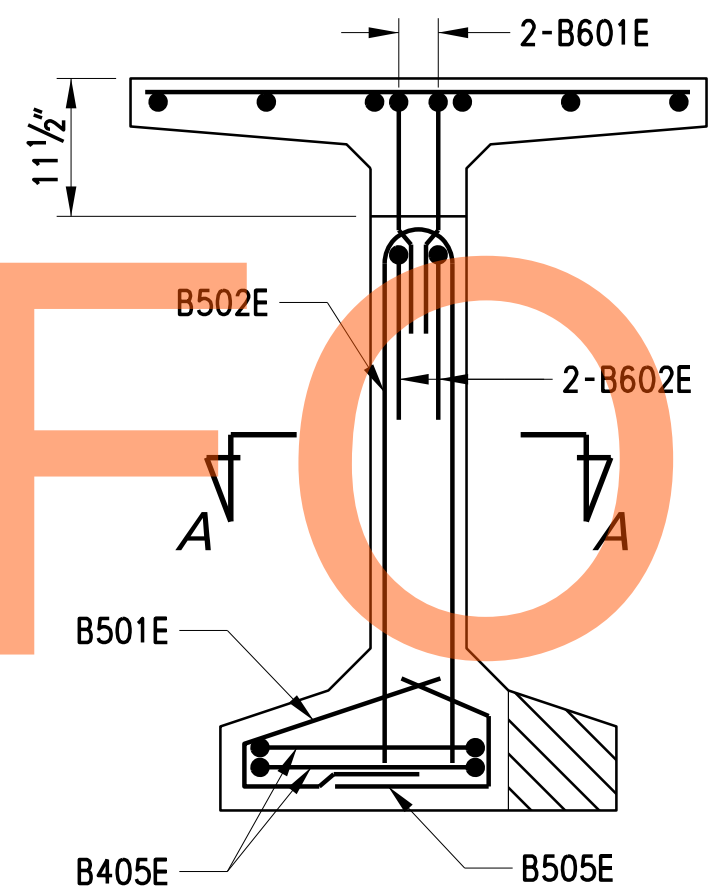
1-472 FR-2
SHEET NO.
372
TOTAL SHTS.
1256



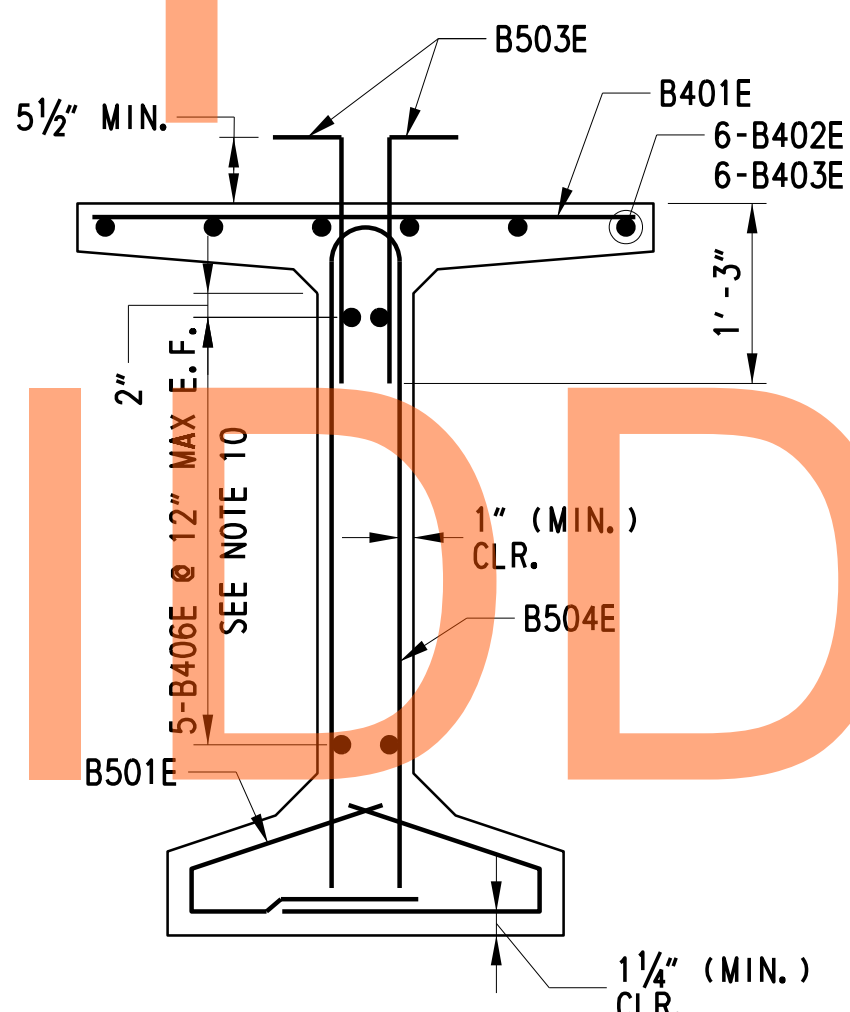
BEAM ELEVATION
SCALE: 1/2" = 1'-0"



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



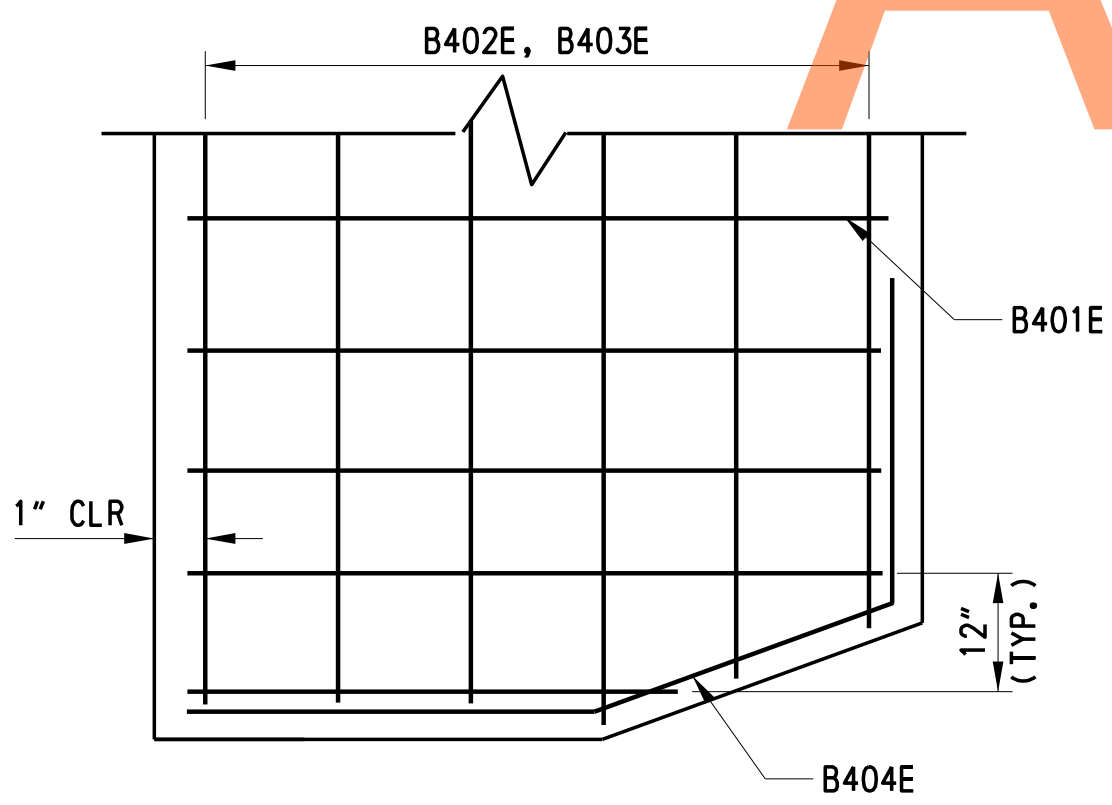
NOTCH END REINFORCEMENT
SCALE: 3/4" = 1'-0"



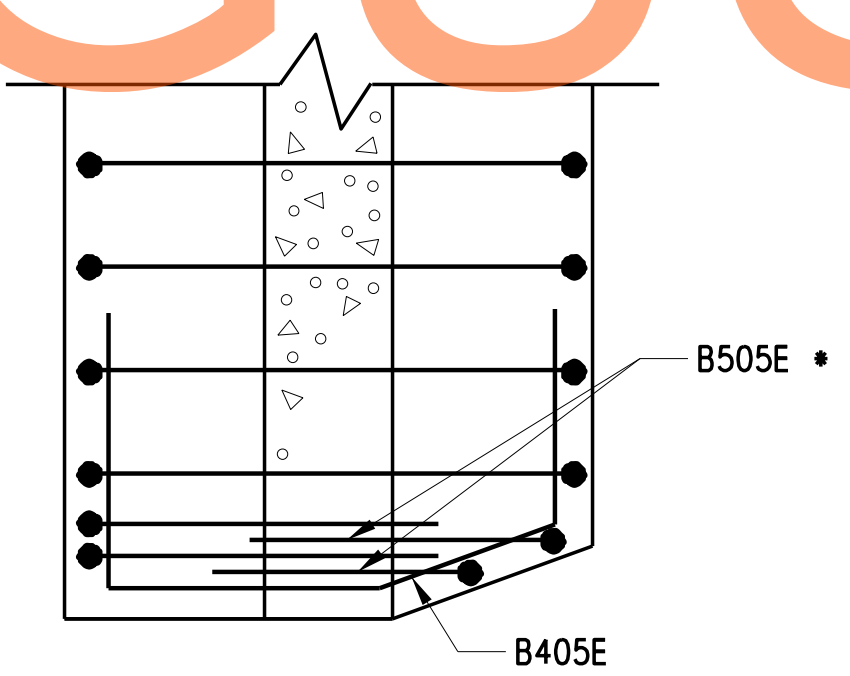
TYPICAL REINFORCEMENT
SCALE: 3/4" = 1'-0"

- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 - FOR FRAMING PLAN, SEE DWG. 1-472 FR-1 AND 1-472 FR-2.
 - FOR ADDITIONAL BEAM DETAILS, SEE DWG. 1-472 BM-2.
 - FOR PERMANENT STEEL BRIDGE DECK FORM DETAILS, SEE DWG. 1-472 BM-2.
 - FOR DIAPHRAGM SECTION AND DETAILS, SEE DWG. 1-472 DPH-1 AND 1-472 DPH-2.
 - FOR TYPICAL SECTION, SEE DWG. 1-472 TS-1.
 - FOR CAMBER TABLE, SEE DWG. 1-472 BM-2.

- NOTES:**
- ALL BEAMS ARE 33/61 PCEF.
 - ALL MILD STEEL REINFORCEMENT IN BEAMS SHALL BE EPOXY COATED.
 - GIRDER LENGTH IN CASTING BED SHALL BE DETERMINED AND DEPICTED IN SHOP DRAWINGS TO COMPENSATE FOR GRADE SHORTENING DUE TO PRESTRESS EFFECTS.
 - TOP SURFACE OF ALL GIRDERS SHALL BE ROUGH FINISHED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED TRANSVERSELY WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PRODUCE A ROUGHENED SURFACE FOR BONDING.
 - NO CLEAR COVER LESS THAN THAT SHOWN ON THESE PLANS WILL BE ACCEPTED.
 - DO NOT PLACE PRESTRESSING STRANDS AT CORNER LOCATION IN BOTTOM ROW.
 - END ZONE REINFORCEMENT MAY BE INCREASED BY FABRICATOR TO REFLECT FABRICATOR'S EXPERIENCE AND/OR TO CONTROL CRACKING.
 - FABRICATOR TO CHECK STABILITY FOR HANDLING AND TRANSPORTING OF THE MEMBER.
 - OMIT DIAPHRAGM THREADED INSERTS ON OUTSIDE FACE OF FASCIA BEAMS.
 - LONGITUDINAL REINFORCEMENT FULL LENGTH OF WEB. OMIT AT STRAND DRAPE POINTS TO MAINTAIN PROPER CLEARANCE. REINFORCEMENT NOT SHOWN IN ELEVATION FOR CLARITY.



PLAN - TOP FLANGE
SCALE: 1" = 1'-0"



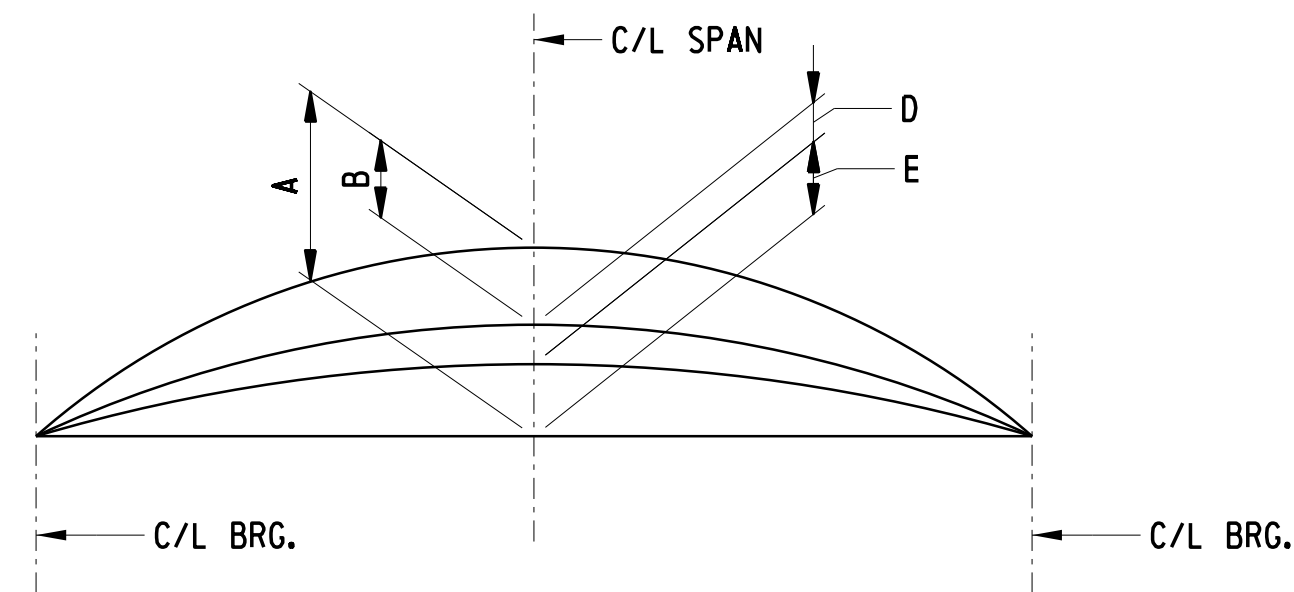
SECTION A-A - BOTTOM FLANGE
SCALE: 1" = 1'-0"

GIRDERS	DIMENSIONS		
	A	B	C
1N, 5N, 1S, 5S	45' - 3"	-	45' - 3"
2N & 2S	41' - 1 7/8"	5' - 5 1/2"	43' - 10 5/8"
3N & 3S	42' - 6 1/4"	5' - 5 1/2"	42' - 6 1/4"
4N & 4S	43' - 10 5/8"	5' - 5 1/2"	41' - 1 7/8"

* MODIFY REINFORCEMENT BARS TO ACCOMMODATE CLIPPED FLANGE.

ADDENDUMS / REVISIONS

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-472N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

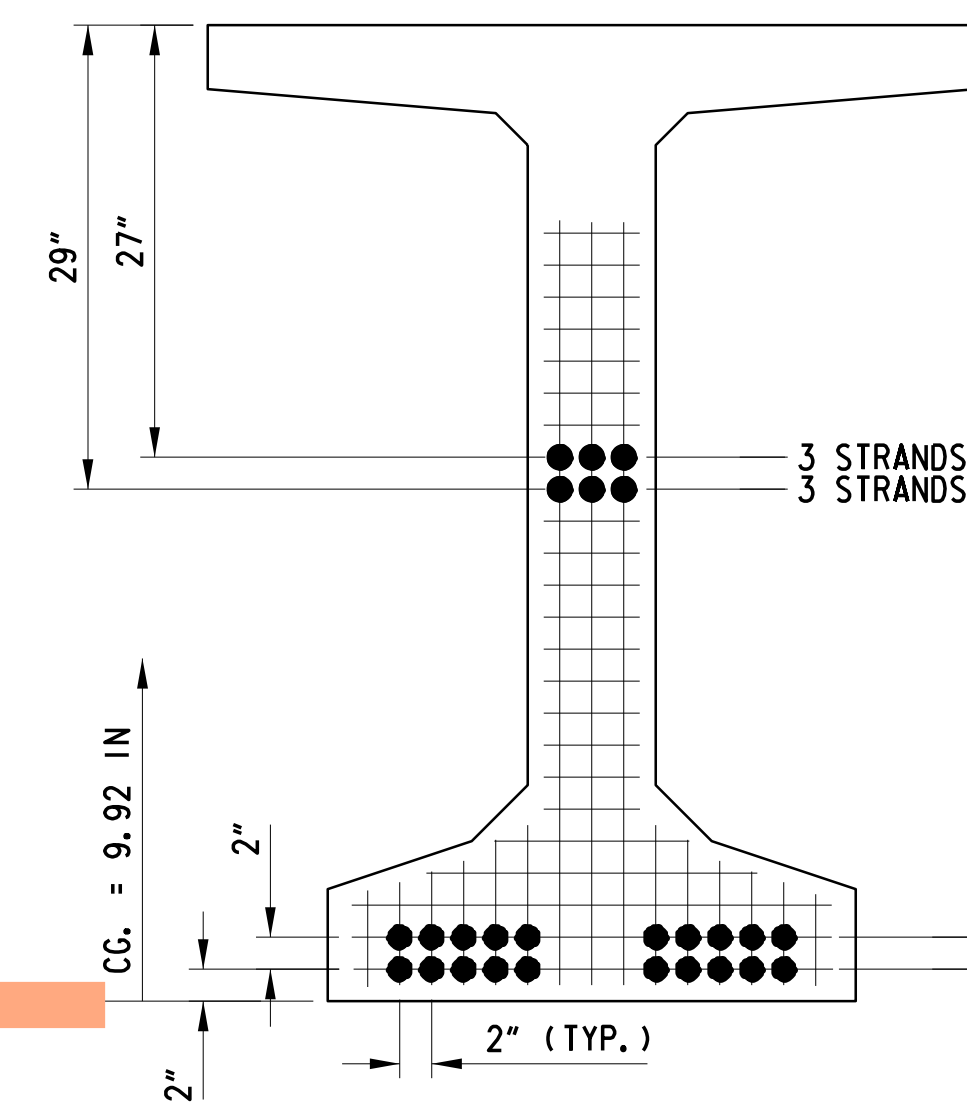


BEAM CAMBER DIAGRAM
NTS

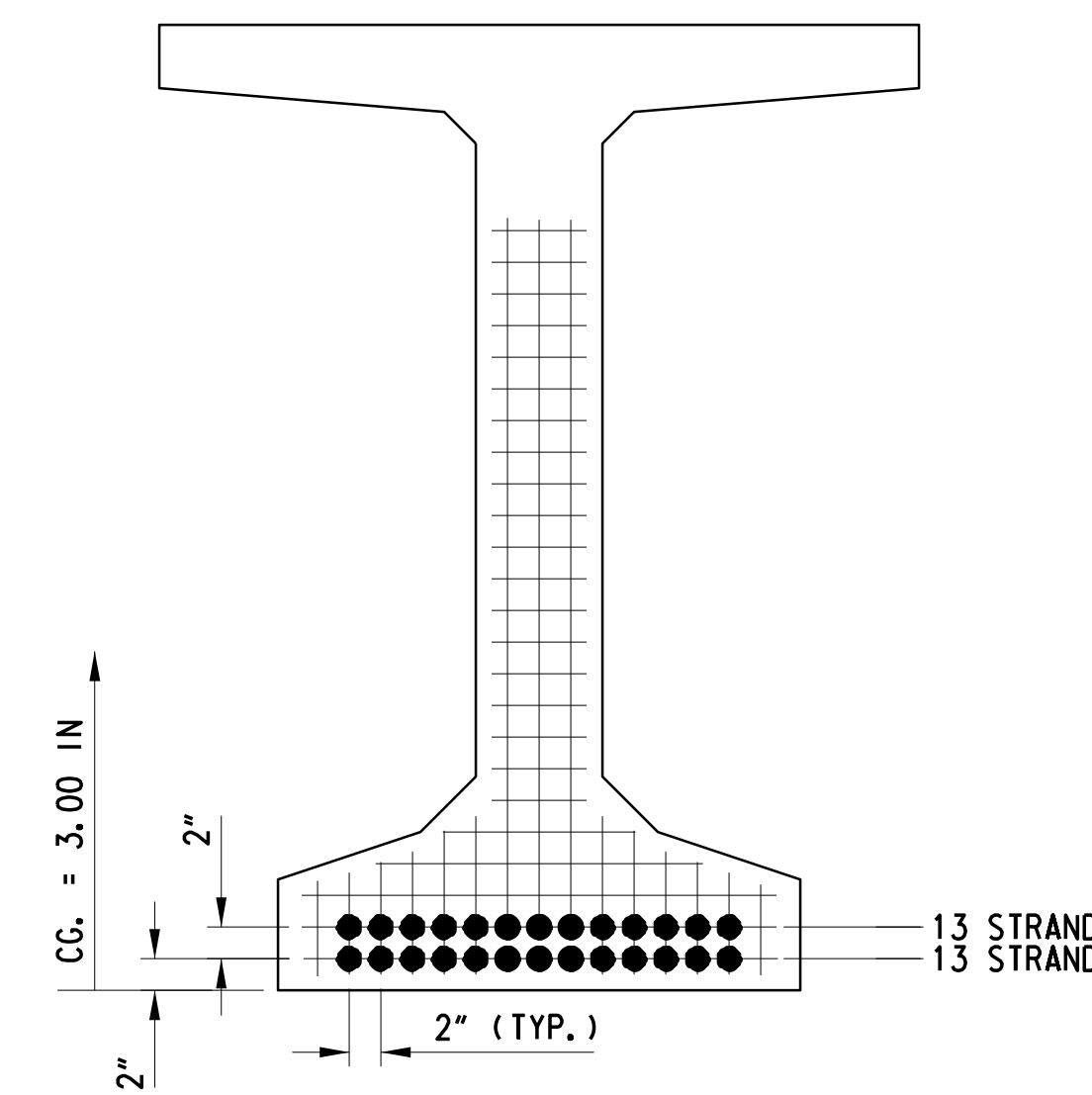
CAMBER					
BEAM	A (IN)	B (IN)	C (IN)	D (IN)	E (IN)
1N, 1S, 5N, 5S	3.483	-1.289	2.194	-0.791	1.403
2N - 4N & 2S - 4S	3.483	-1.289	2.194	-0.964	1.230

LEGEND:

- A DENOTES CAMBER DUE TO PRESTRESS AT ERECTION, CREEP FACTOR MULTIPLIER = 1.8.
- B DENOTES DEFLECTION DUE TO GIRDER DEAD LOAD AT ERECTION, CREEP MULTIPLIER = 1.85.
- C A+B
- D DENOTES DEFLECTION DUE TO SLAB, BARRIER AND DIAPHRAGMS. (DOES NOT INCLUDE FUTURE WEARING SURFACE)
- E DENOTES NET CAMBER, C+D.



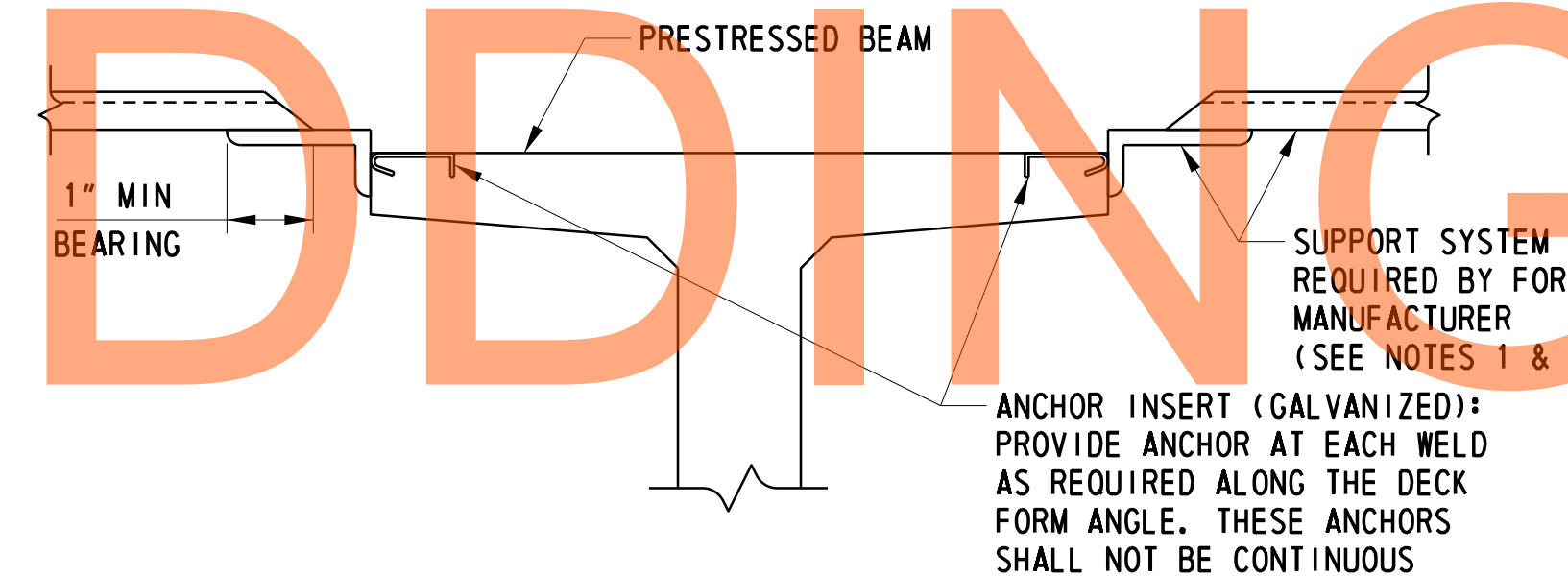
BEAM END PATTERN



MID SPAN PATTERN

DRAPING PATTERN
SCALE: 1" = 1'-0"

DRAFT
NOT FOR BIDDING
AUGUST 2015



FORM ANCHOR DETAIL
SCALE: 1" = 1'-0"

PRESTRESSING DATA	
LOCATION	ALL BEAMS
BEAM SIZE, I-BEAM	33x61
INITIAL PRESTRESSING FORCE PER BEAM 0.60 DIA. LOW RELAXATION STRANDS	1142.50 Kips
NUMBER OF STRANDS	26
CONCRETE STRENGTH AT STRAND RELEASE (f'c1)	6.40 KSI
CONCRETE STRENGTH AT 28 DAYS f'c	8.00 KSI

CROSS REFERENCE NOTES:

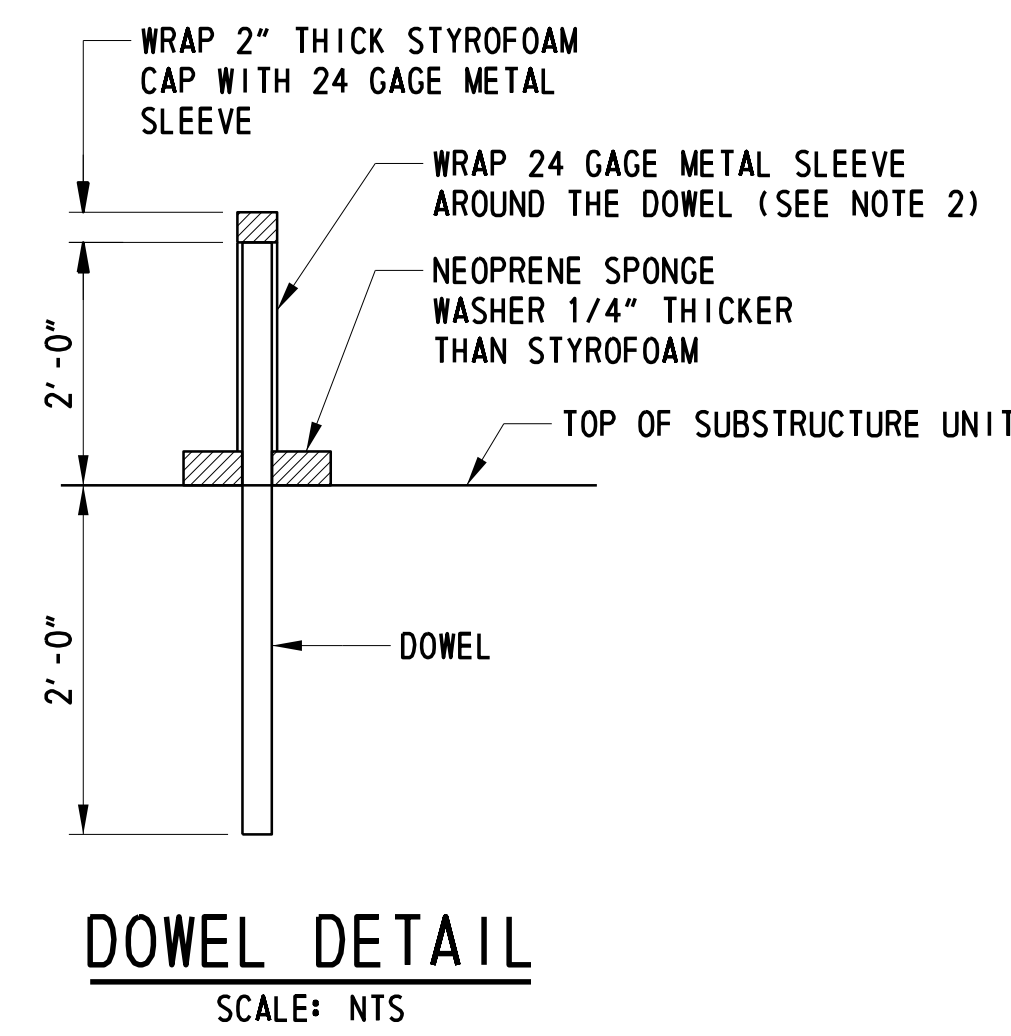
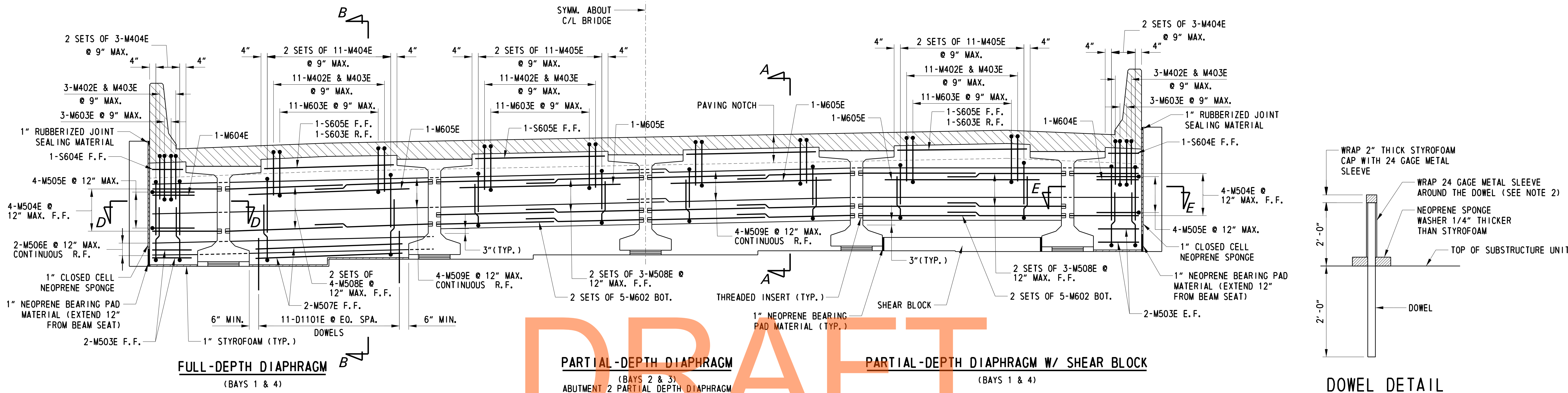
1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
2. FOR FRAMING PLAN, SEE DWG. 1-472 FR-1 AND 1-472 FR-2.
3. FOR BEAM ELEVATION AND TYPICAL SECTION, SEE DWG. 1-472 BM-1.

NOTES:

1. PERMANENT STEEL BRIDGE DECK FORMS AND SUPPORTS SHALL BE PROVIDED CONFORMING TO THE REQUIREMENTS OF SECTION 602 OF THE DELDOT STANDARD SPECIFICATIONS AND AS SHOWN IN THE BDM.
2. ANY PERMANENTLY EXPOSED FORM METAL WHERE THE GALVANIZED COATING HAS BEEN DAMAGED SHALL BE THOROUGHLY CLEANED, WIRE BRUSHED AND PAINTED WITH TWO COATS OF ZINC DUST-ZINC OXIDE PAINT, NO COLOR ADDED, TO THE SATISFACTION OF THE ENGINEER. MINOR HEAT DISCOLORATION IN AREAS OF WELDS NEED NOT BE TOUCHED UP.
3. THE MAXIMUM CORRUGATION DEPTH AND WIDTH SHALL BE SUCH THAT THE TOTAL DEAD LOAD OF THE FORM AND CONCRETE IN THE FORM DOES NOT EXCEED 15 LBS/FT².
4. VARY THICKNESS OF CONCRETE HAUNCH TO COMPENSATE FOR ANY INACCURACIES IN BEAM CAMBER.
5. CAMBER VALUES ARE THEORETICAL VALUES AND MAY VARY WITH ACTUAL CONCRETE STRENGTH (AGE), VARIOUS PRESTRESSING CONDITIONS, CREEP FACTOR AND PRESTRESS LOSSES. CONTRACTOR TO VERIFY THESE VALUES IN THE FIELD.

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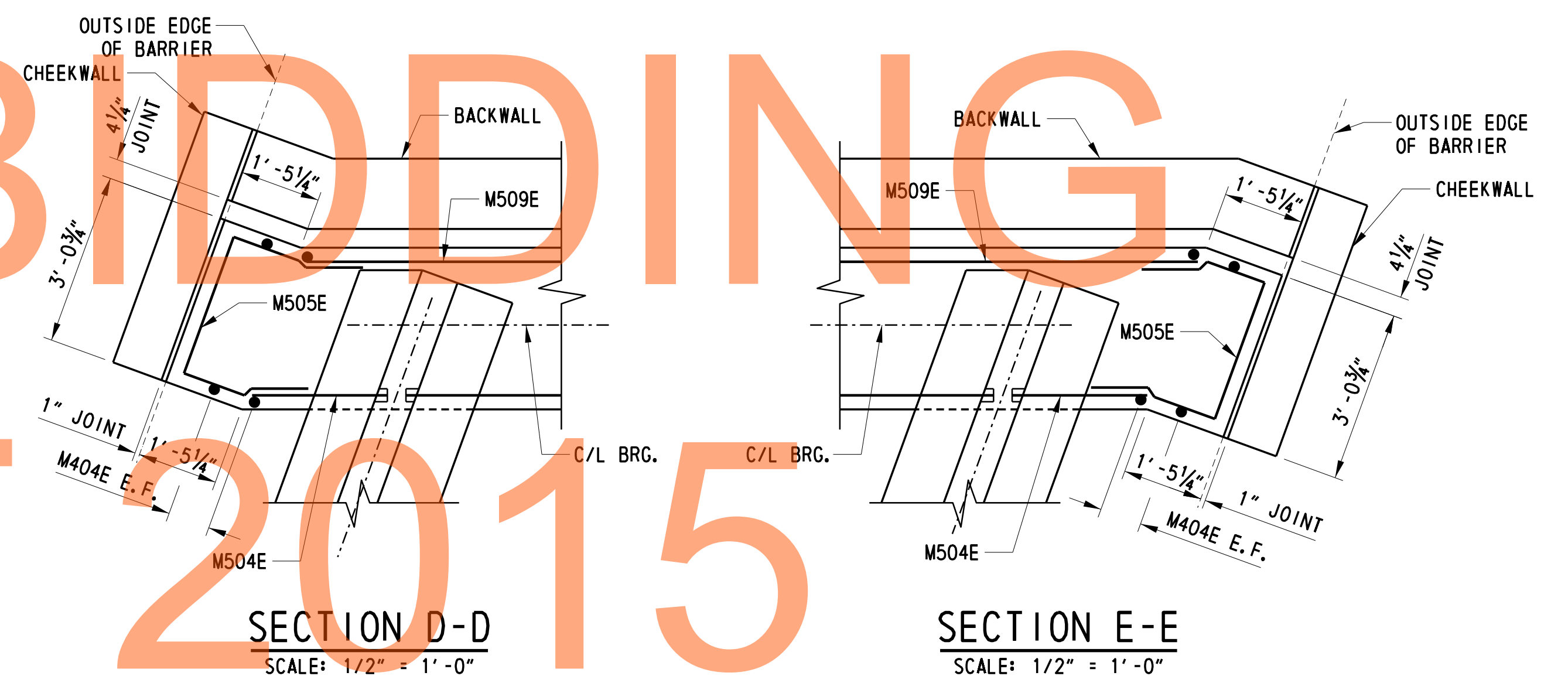
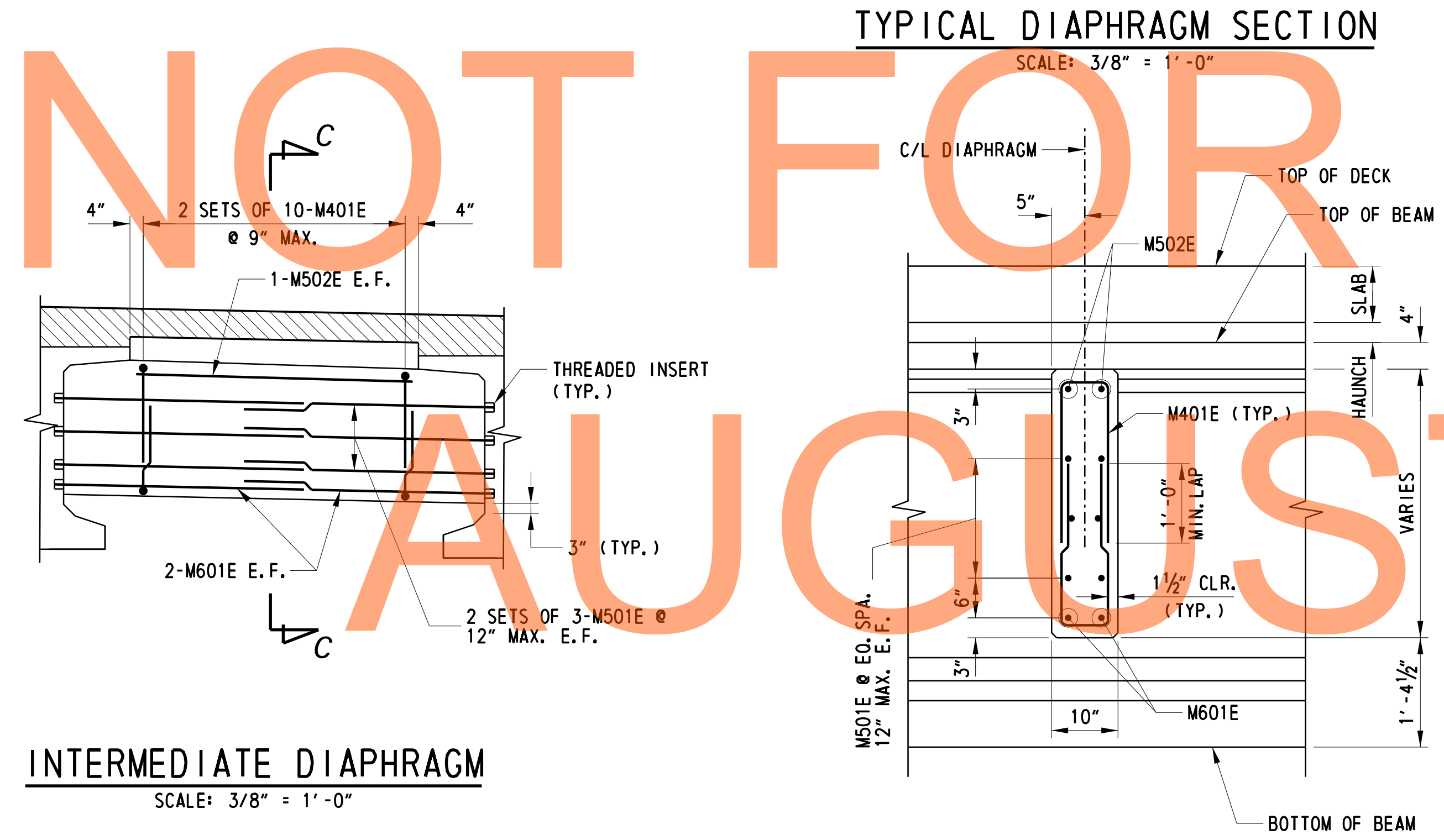
<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS		<p>US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD</p>	CONTRACT T20091303	BRIDGE NO. 1-472N&S	<p>US 301 MAINLINE OVER ARMSTRONG CORNER ROAD BEAM DETAILS - 2</p>	SHEET NO. 374
				COUNTY NEW CASTLE	DESIGNED BY: ADH		TOTAL SHTS. 1256
				CHECKED BY: DHG			



NOTE:
S603E & M509E ARE CONTINUOUS
ALONG R.F. OF DIAPHRAGM AND LAP AT
MIDSPAN OF BRIDGE

ABUTMENT 1 (FIXED)

ABUTMENT 2 (EXP.)

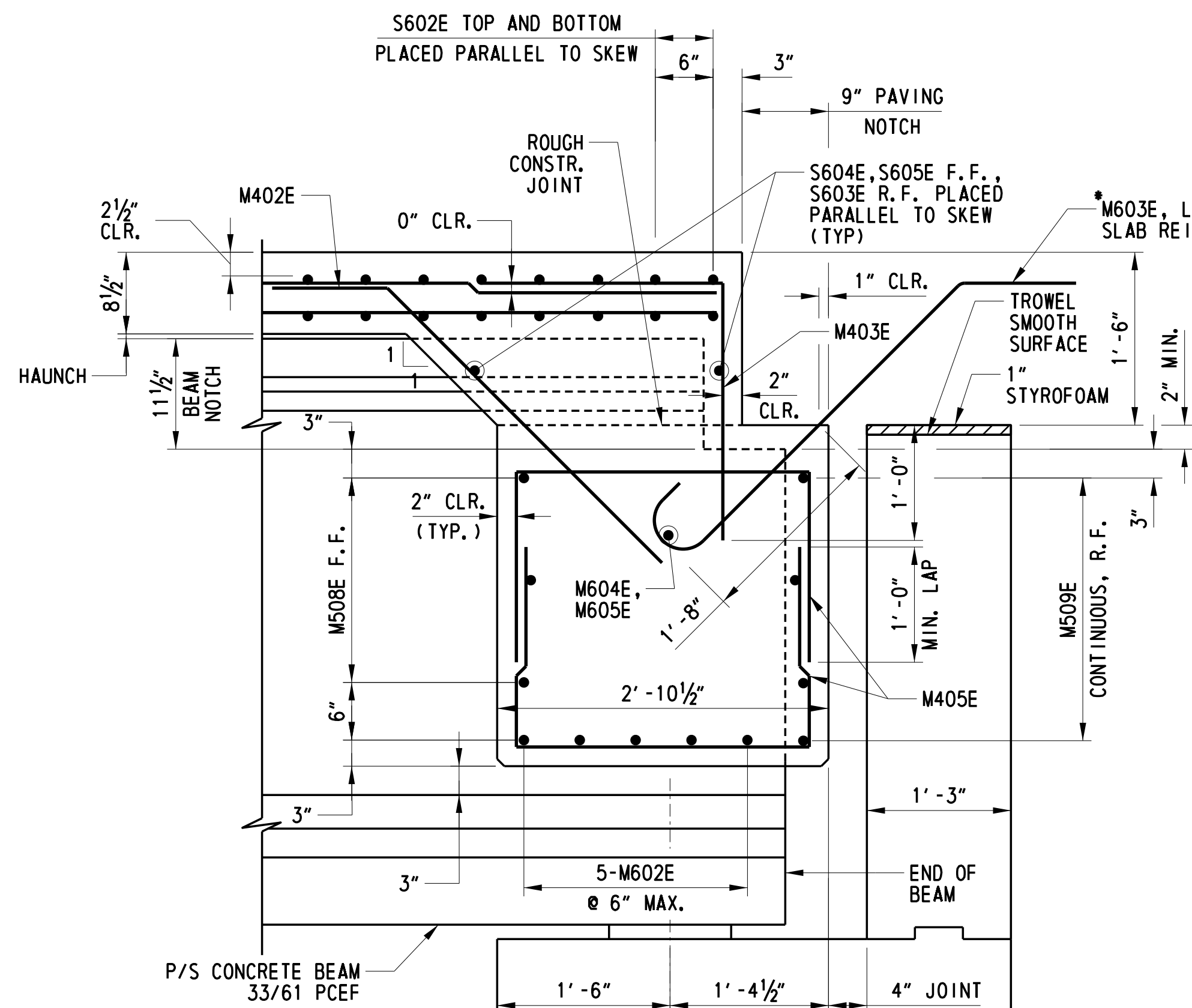


- NOTES:
1. INSERTS FOR DEFORMED BARS SHALL BE ONE SIZE SMALLER. THE MINIMUM LENGTH OF INSERT IS 3".
 2. BITUMINOUS TAR PAPER OR SCHEDULE 40 P.V.C. PIPE ARE PERMITTED TO BE USED AS ALTERNATE BOND BREAKER MATERIALS IN LIEU OF THE METAL SLEEVE. OTHER BOND BREAKER MATERIALS MAY BE USED WITH THE APPROVAL OF THE ENGINEER. DO NOT USE ALUMINUM SLEEVES.
 3. MINIMUM LAP SPLICE LENGTHS:
2'-7" #5 BARS
3'-1" #6 BARS

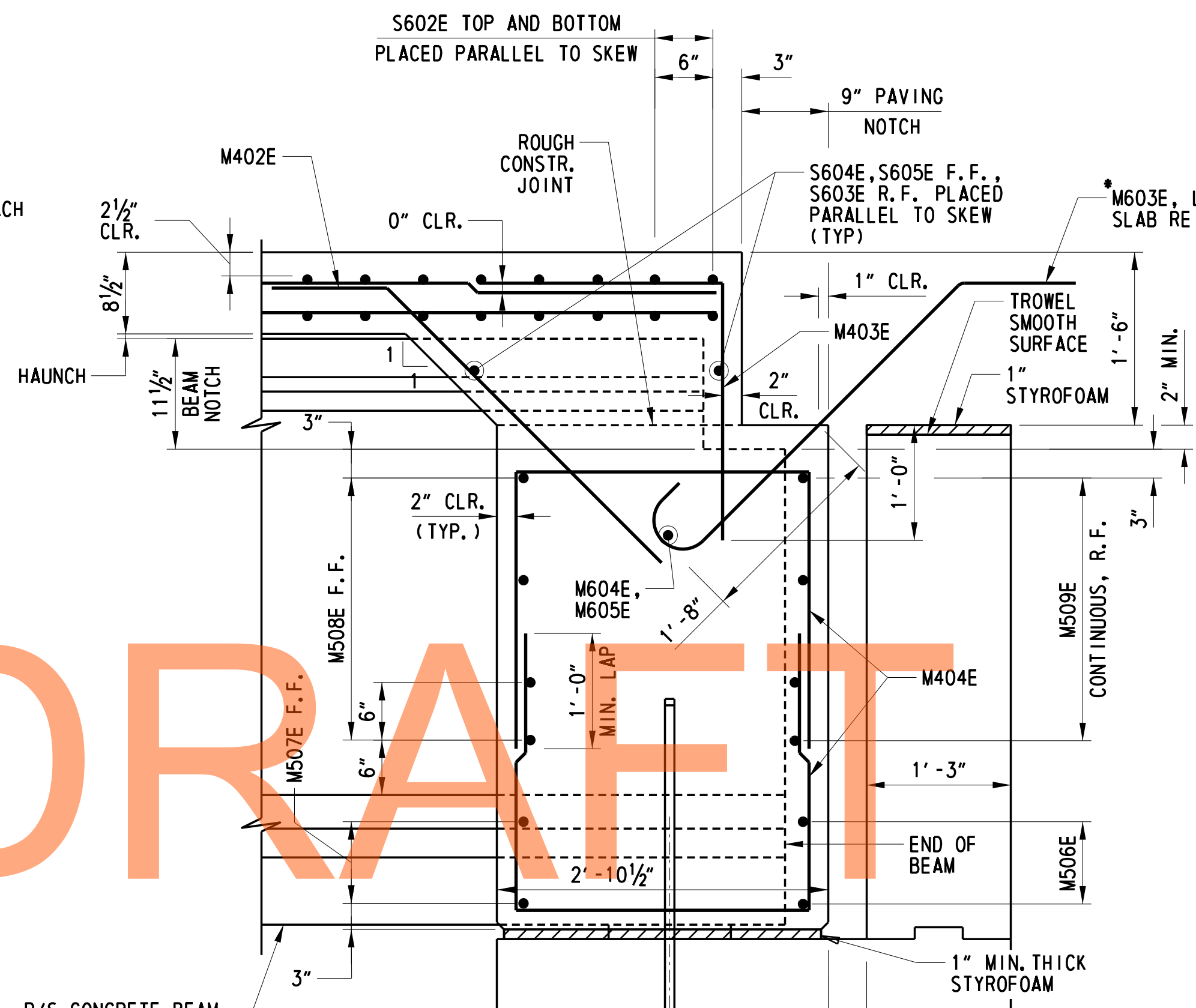
- CROSS REFERENCE NOTES:
1. FOR SHEAR BLOCK DETAILS, SEE DWG. 1-472 AB-3.
 2. FOR SECTION A-A AND B-B, SEE DWG. 1-472 DPH-2
 3. FOR CHEEKWALL REINFORCEMENT, SEE DWG. 1-472 AB-5.

ADDENDUMS / REVISIONS

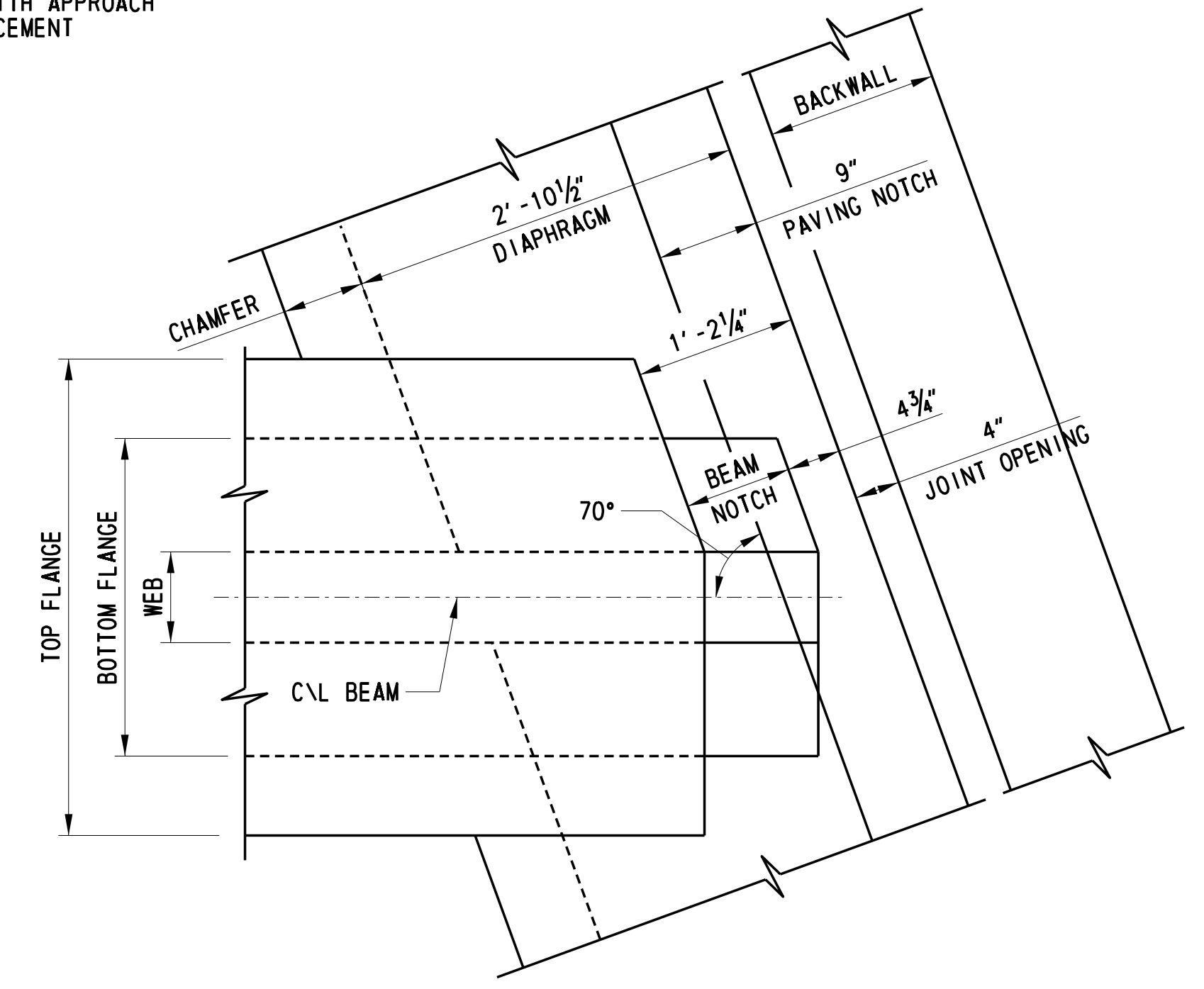
CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-472N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG



SECTION A-A
PARTIAL-DEPTH DIAPHRAGM
(FIXED AND EXPANSION)
 SCALE: 1" = 1'-0"



SECTION B-B
FULL-DEPTH DIAPHRAGM
(FIXED)
 SCALE: 1" = 1'-0"



PLAN - END OF BEAM
 SCALE: 1" = 1'-0"

DRAFT

NOT FOR BIDDING

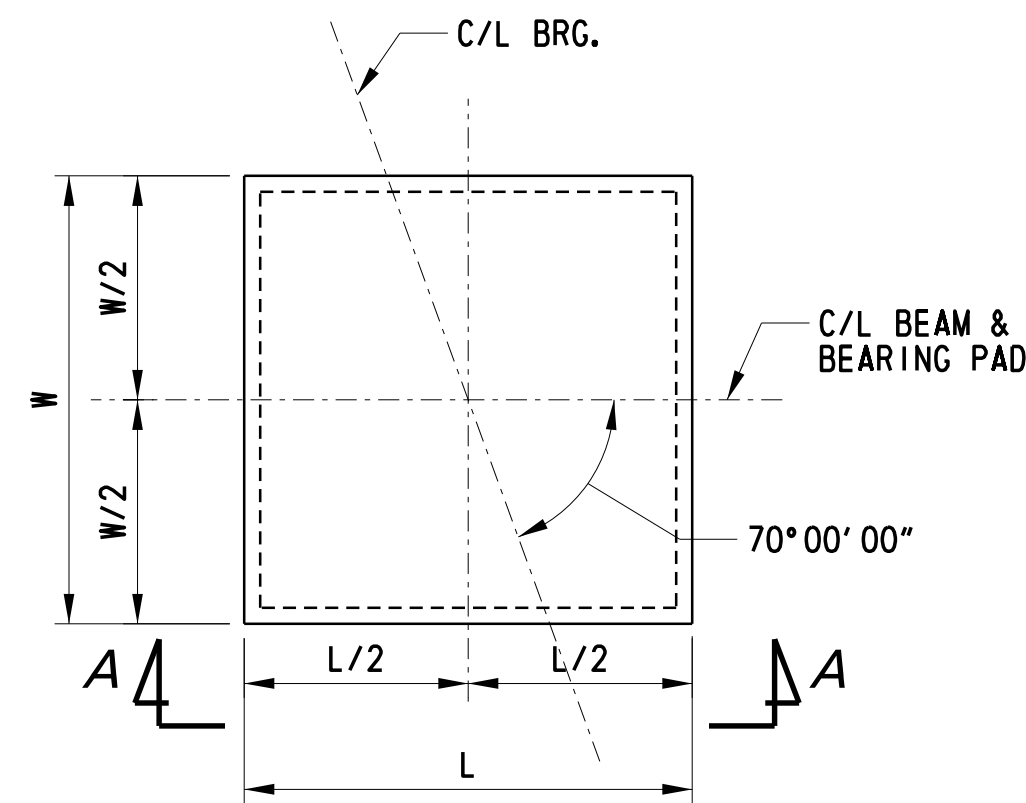
AUGUST 2015

*APPROACH SLAB NOT SHOWN FOR CLARITY.

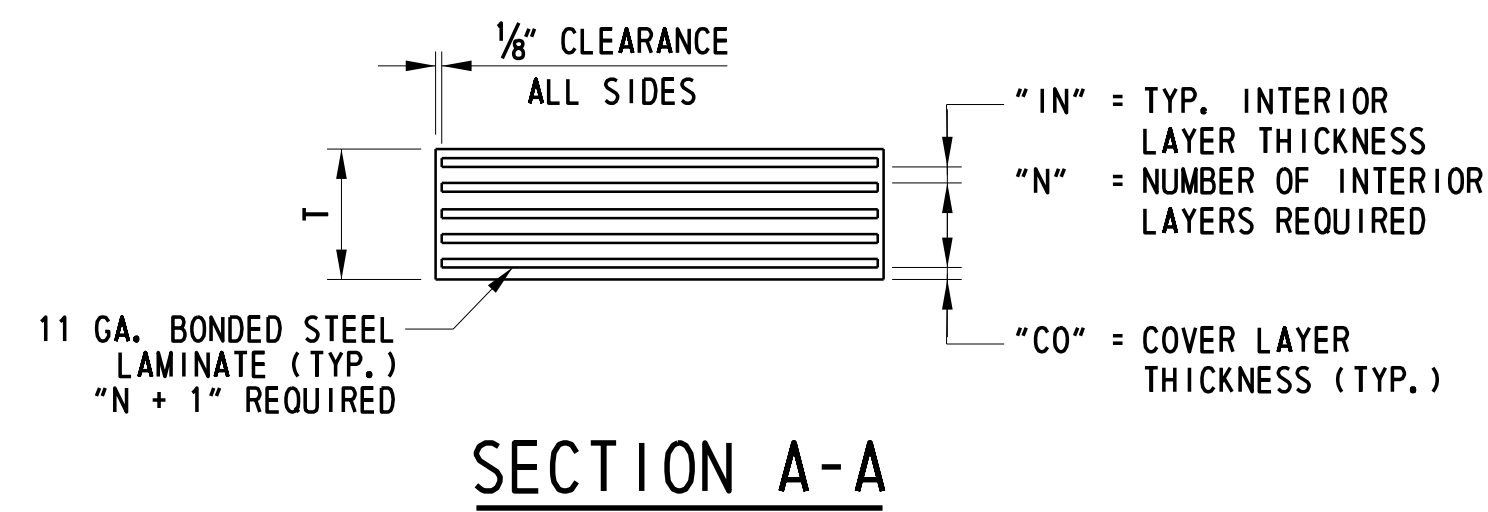
- NOTES:**
- INSERTS FOR DEFORMED BARS SHALL BE ONE SIZE SMALLER FOR DEFORMED BARS. THE MINIMUM LENGTH OF INSERT IS 3".
- CROSS REFERENCE NOTES:**
- FOR APPROACH SLAB DETAILS, SEE DWG. 1-472 PA-1.

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<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	<p>SCALE 0 1 FEET</p>	<p>US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD</p>	CONTRACT T20091303	BRIDGE NO. 1-472N&S	<p>US 301 MAINLINE OVER ARMSTRONG CORNER ROAD DIAPHRAGM DETAILS - 2</p>	1-472 DPH-2
				COUNTY NEW CASTLE	DESIGNED BY: ADH		SHEET NO. 376
				CHECKED BY: DHG	TOTAL SHTS. 1256		



BEARING PAD PLAN
NTS



SECTION A-A

BEARING PAD DATA									
LOCATION	QUANTITY	L (IN)	W (IN)	T (IN)	IN (IN)	N	N+1	CO (IN)	COMPRESSION AREA (IN ²)
ABUT 1 (FIXED)	10	14	17	3.401	0.4375	5	6	0.25	238
ABUT 2 (EXPANSION)	10	15	16	3.958	0.4375	6	7	0.25	240

UNFACTORED BEAM REACTIONS			
LOCATION		DEAD LOAD (kip)	LIVE LOAD (kip)
ABUT 1 (FIXED)	EXTERIOR BEAM	136.00	89.67
	INTERIOR BEAM	150.00	102.94
ABUT 2 (EXP.)	EXTERIOR BEAM	134.60	89.67
	INTERIOR BEAM	149.10	102.94

LAMINATED ELASTOMERIC BEARING PAD NOTES:

- SMOOTH CUT AND DEBURR METAL SHIMS.
- GRIT BLAST AND DEGREASE METAL SHIMS.
- ALL BEARINGS ARE TO BE MOLDED TO DESIGN DIMENSIONS. CUTTING TO SIZE AFTER FABRICATION IS PROHIBITED.
- HOLES ARE NOT PERMITTED IN THE ELASTOMERIC BEARINGS.
- PROVIDE NEOPRENE 50 +/-5 DUROMETER.
- PROVIDE MINIMUM LOW-TEMPERATURE NEOPRENE, GRADE 3.
- VULCANIZE PATCH PIN GROOVES.

NOTE:

- LAMINATED ELASTOMERIC BEARING PADS SHALL BE INCIDENTAL TO ITEM 623000.

CROSS REFERENCE NOTES:

- FOR FRAMING PLAN, SEE DWG. 1-472 FR-1 AND 1-472 FR-2.
- FOR BEAM ELEVATION AND TYPICAL SECTIONS, SEE DWG. 1-472 BM-1 AND 1-472 BM-2.

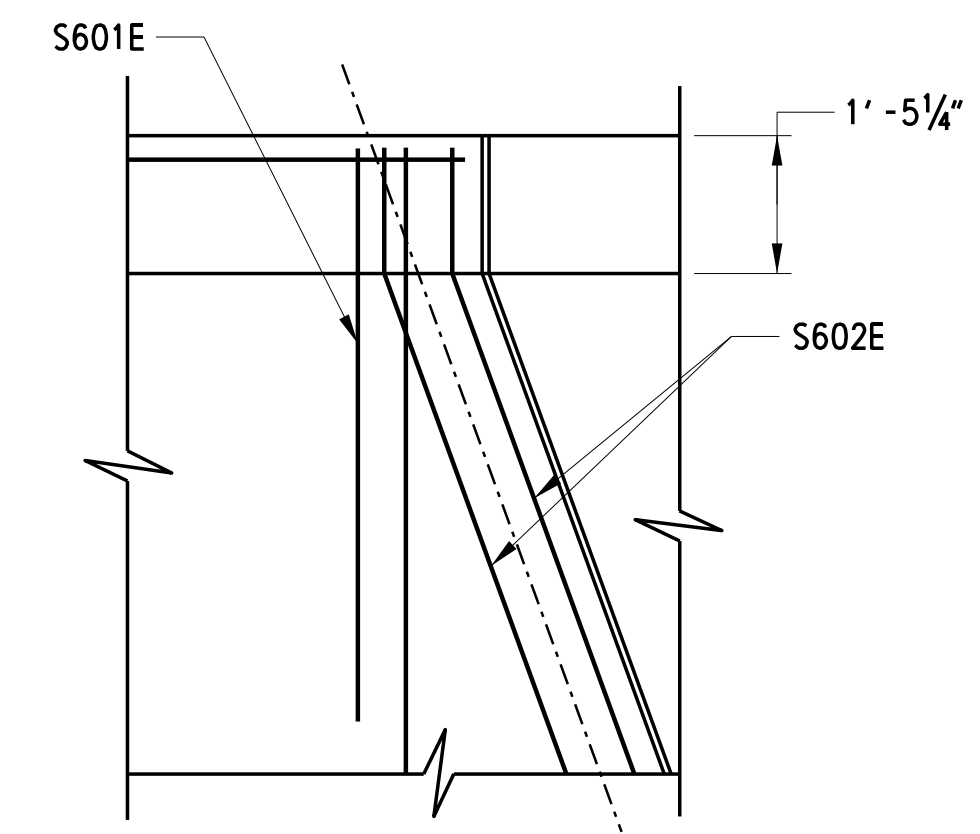
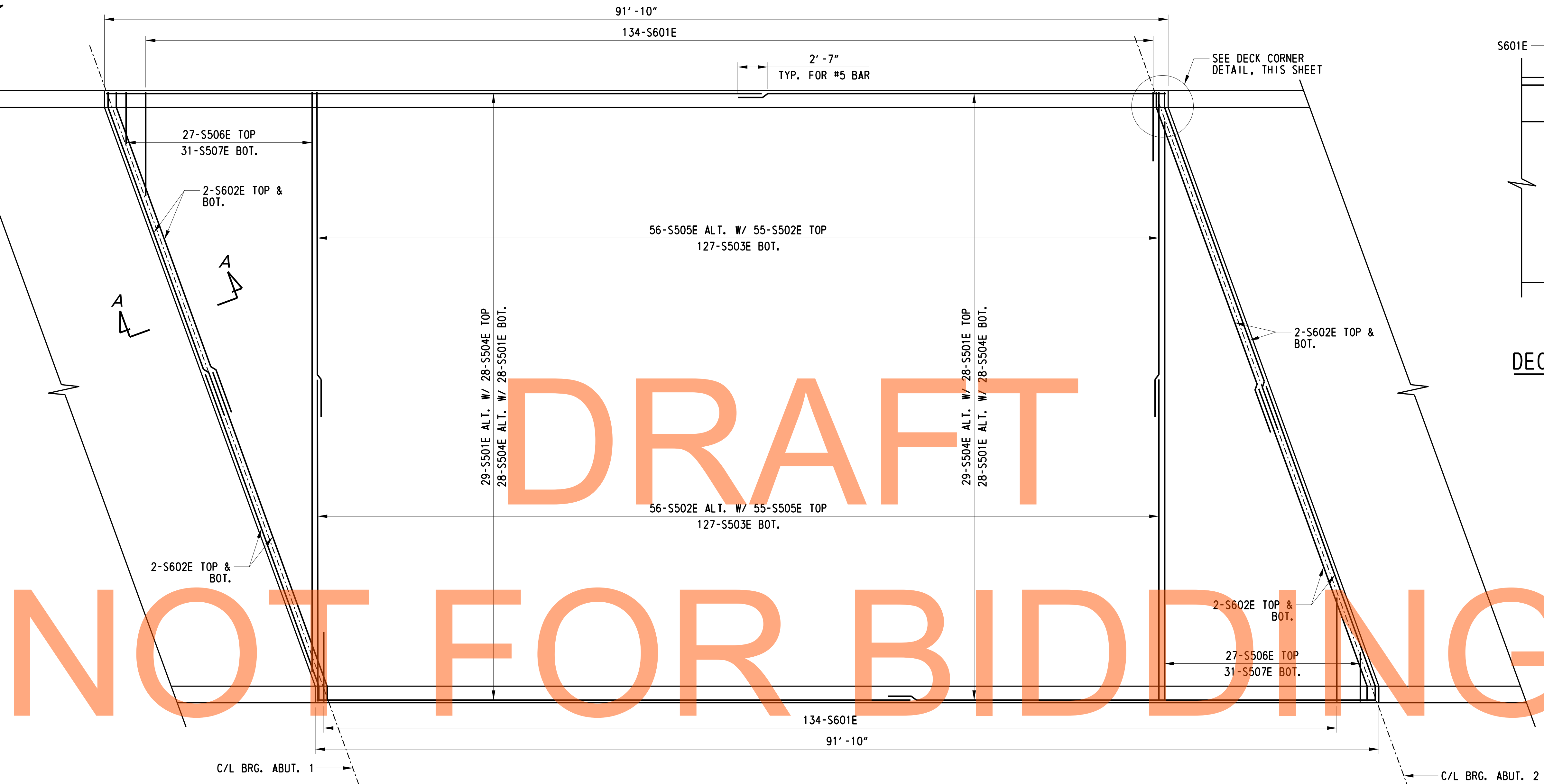
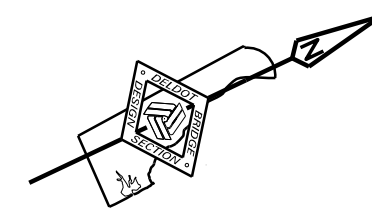
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NOT FOR BIDDING

AUGUST 2015

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<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS		<p>US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD</p>	CONTRACT	BRIDGE NO.	1-472N&S	<p>US 301 MAINLINE OVER ARMSTRONG CORNER ROAD BEARING DETAILS</p>	1-472 BD-1
	T20091303	DESIGNED BY: ADH		SHEET NO.				
	COUNTY	CHECKED BY: DHG		TOTAL SHTS.				
	NEW CASTLE			1256				

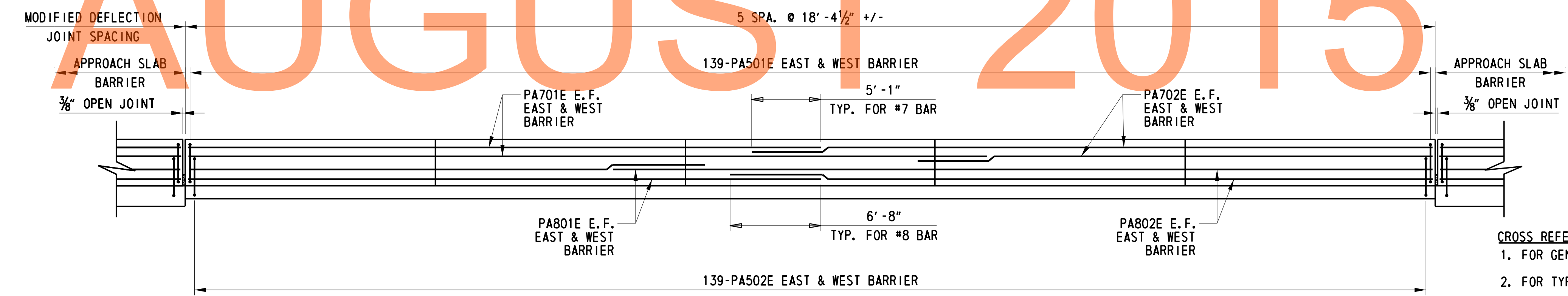


DECK CORNER DETAIL
SCALE: 1/2" = 1'-0"

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NOT FOR BIDDING
AUGUST 2015

BRIDGE DECK REINFORCEMENT PLAN - NORTHBOUND

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



ELEVATION - DECK AND BARRIER REINFORCEMENT

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

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 2. FOR TYPICAL DECK AND BARRIER SECTION, SEE DWG. 1-472 PA-1.
 3. FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-472 BR-2.
 4. FOR SECTION A-A, SEE DWG. 1-472 PA-1.
 5. FOR MODIFIED DEFLECTION CONTROL JOINT, SEE DWG. 1-472 DK-2.

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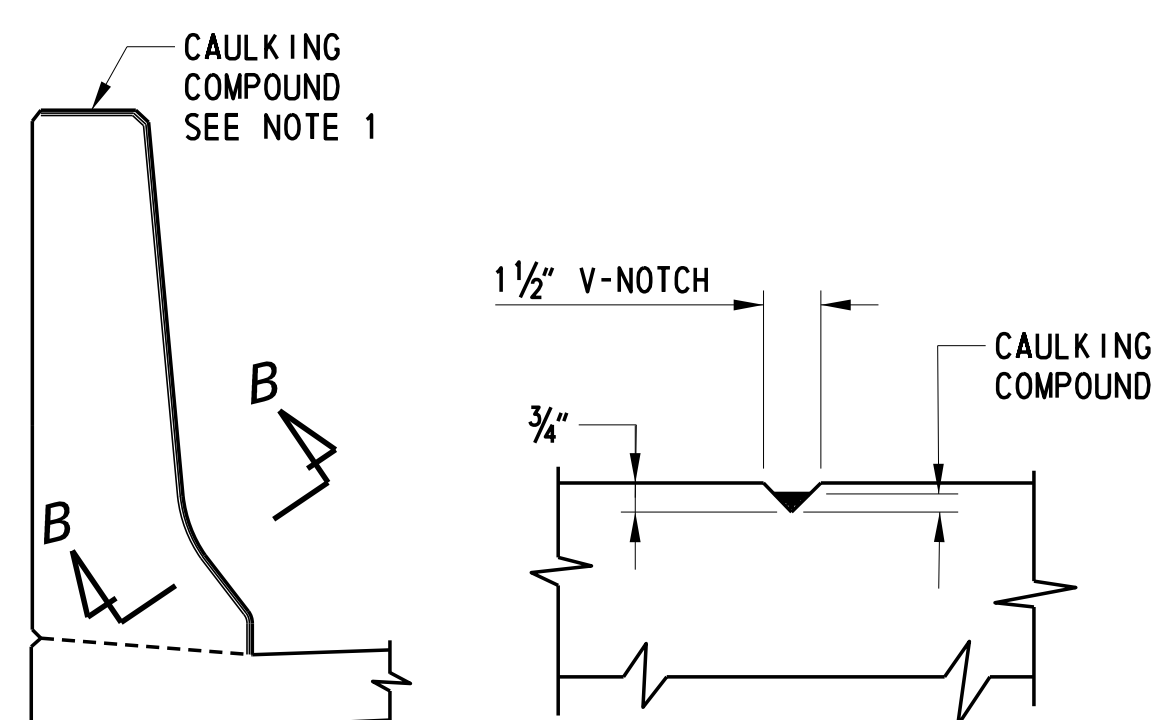
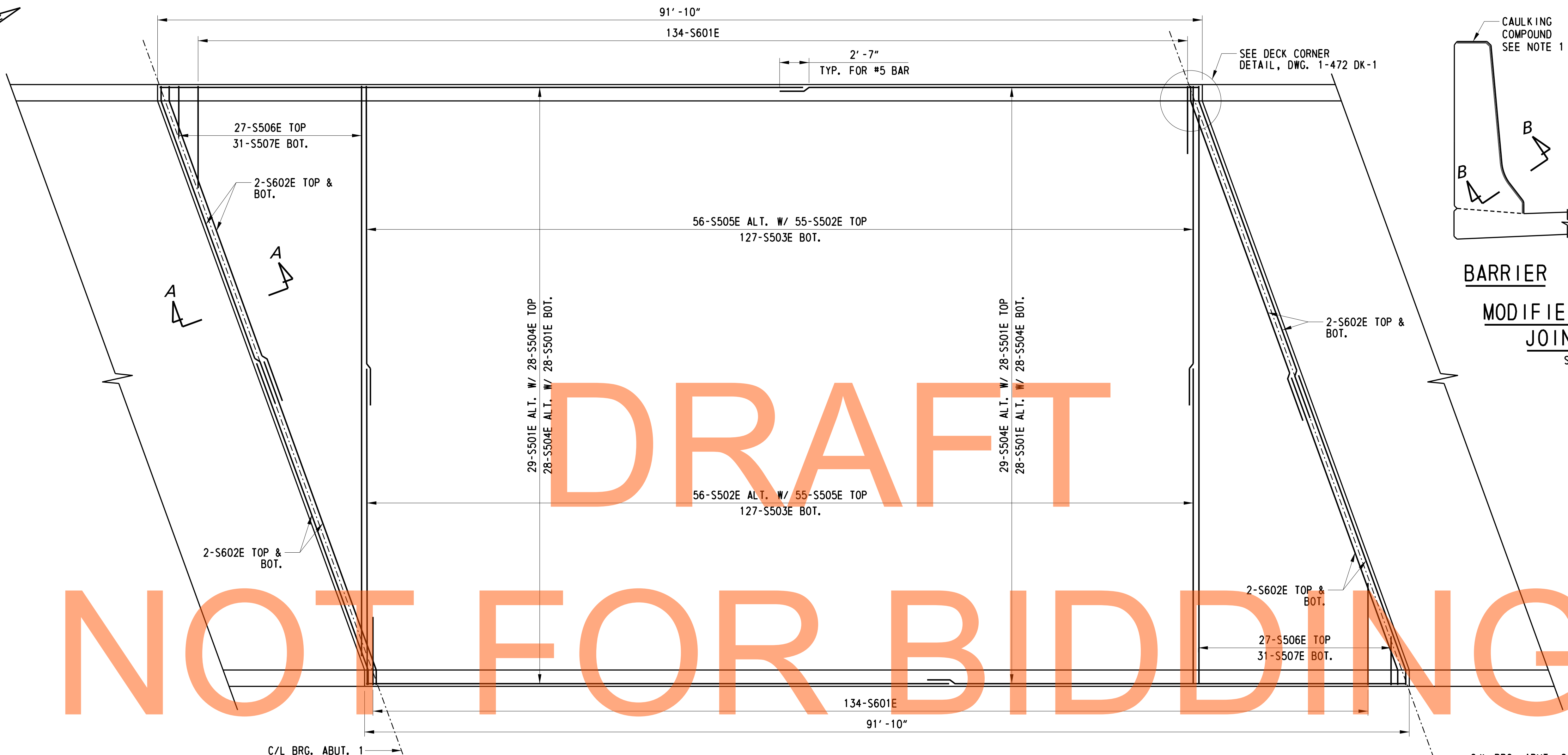
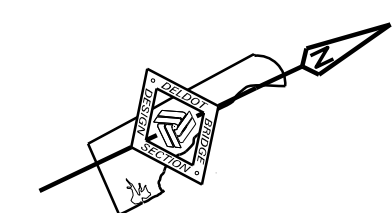
ADDENDUMS / REVISIONS	

**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	1-472N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
ARMSTRONG CORNER ROAD
BRIDGE DECK
REINFORCEMENT -
NORTHBOUND**

1-472 DK-1
SHEET NO.
378
TOTAL SHTS.
1256



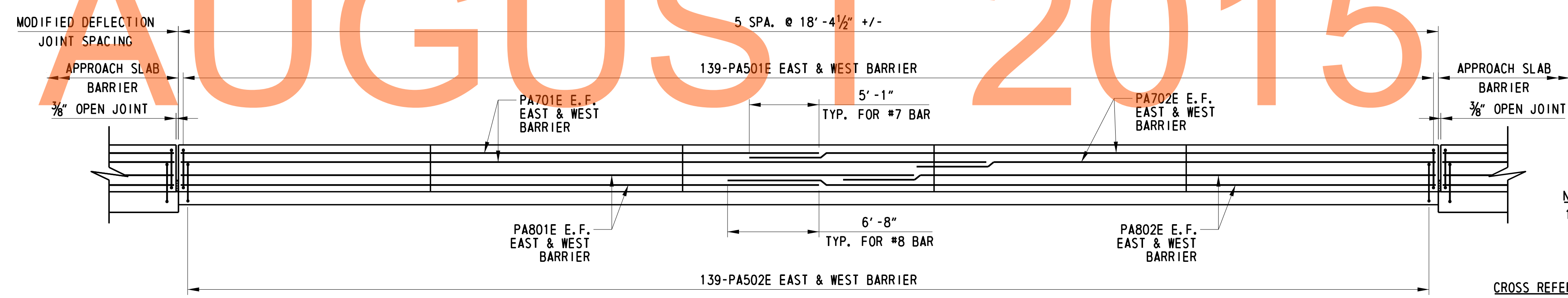
DRAFT

NOT FOR BIDDING

AUGUST 2015

BRIDGE DECK REINFORCEMENT PLAN - SOUTHBOUND

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



ELEVATION - DECK AND BARRIER REINFORCEMENT

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

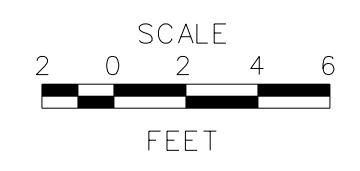
- NOTES:**
1. CAULKING COMPOUND SHALL CONFORM TO THE REQUIREMENTS OF ASTM C834 OR C920.

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 2. FOR TYPICAL DECK AND BARRIER SECTION, SEE DWG. 1-472 PA-1.
 3. FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-472 BR-2.
 4. FOR SECTION A-A, SEE DWG. 1-472 PA-1.

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ADDENDUMS / REVISIONS	

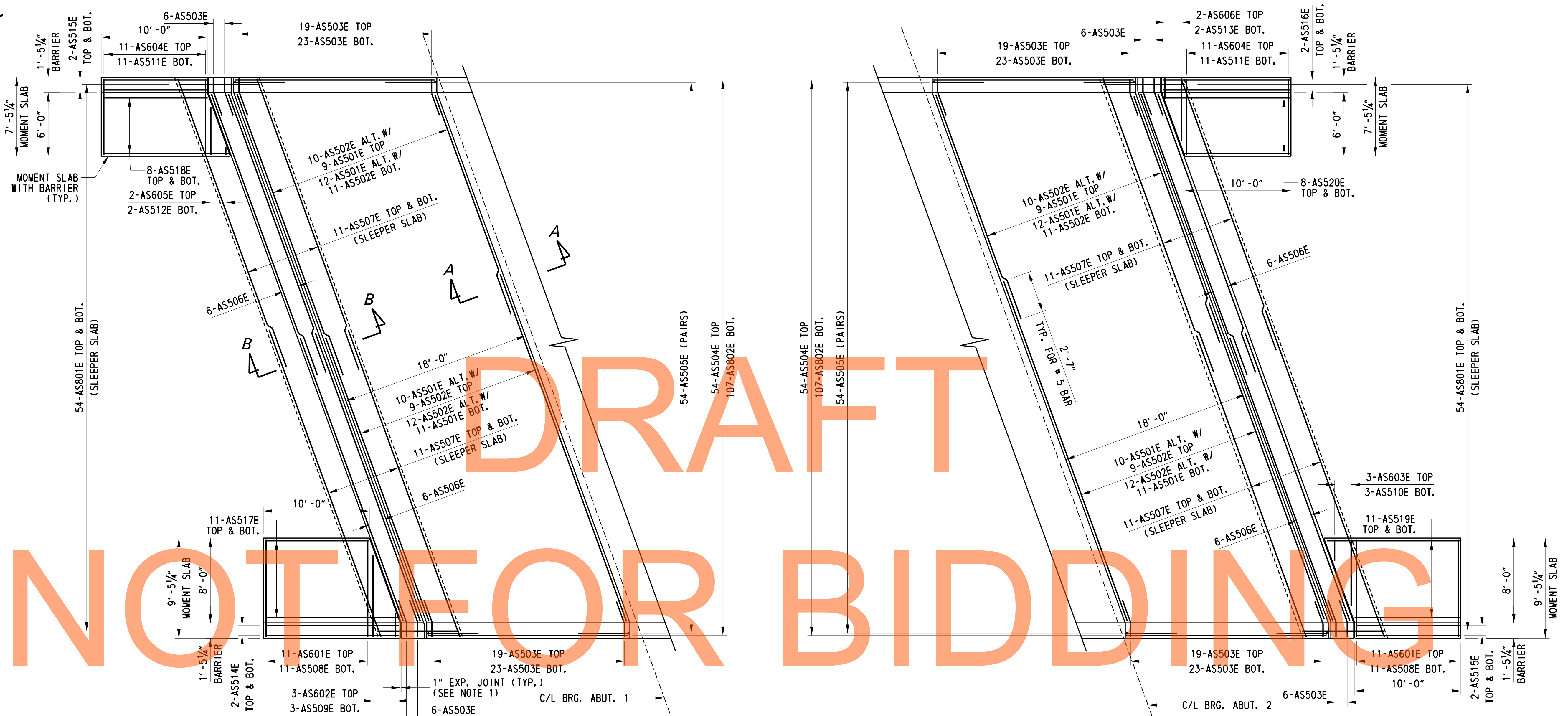


**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	1-472N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
ARMSTRONG CORNER ROAD
BRIDGE DECK
REINFORCEMENT -
SOUTHBOUND**

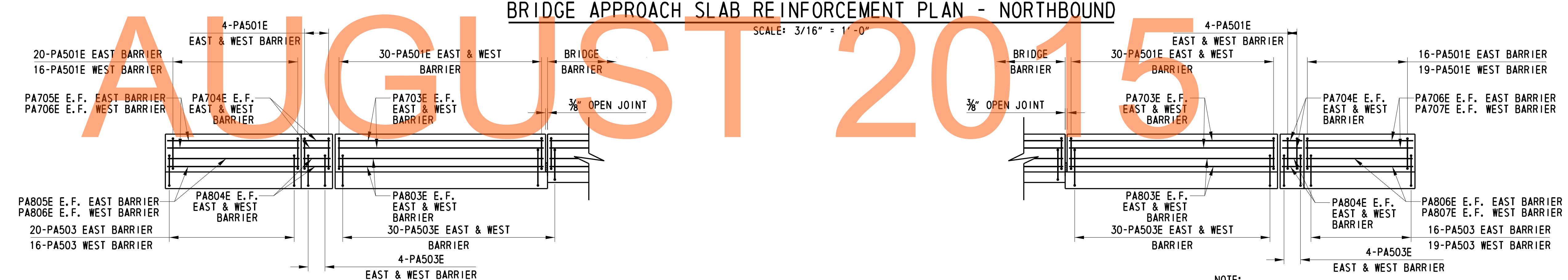
1-472 DK-2
SHEET NO.
379
TOTAL SHTS.
1256



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NOT FOR BIDDING

BRIDGE APPROACH SLAB REINFORCEMENT PLAN - NORTHBOUND

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



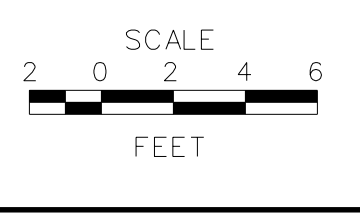
ELEVATION - BRIDGE APPROACH SLAB BARRIER REINFORCEMENT

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

- NOTE:**
 1. FOR JOINT DETAIL SEE DELDOT ROADWAY STANDARD P-1.
CROSS REFERENCE NOTES:
 1. FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 2. FOR DECK PLAN, SEE DWG. 1-472 DK-1.
 3. FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-472 BR-3.
 4. FOR SECTIONS A-A AND B-B, SEE DWG. 1-472 PA-1.



ADDENDUMS / REVISIONS	

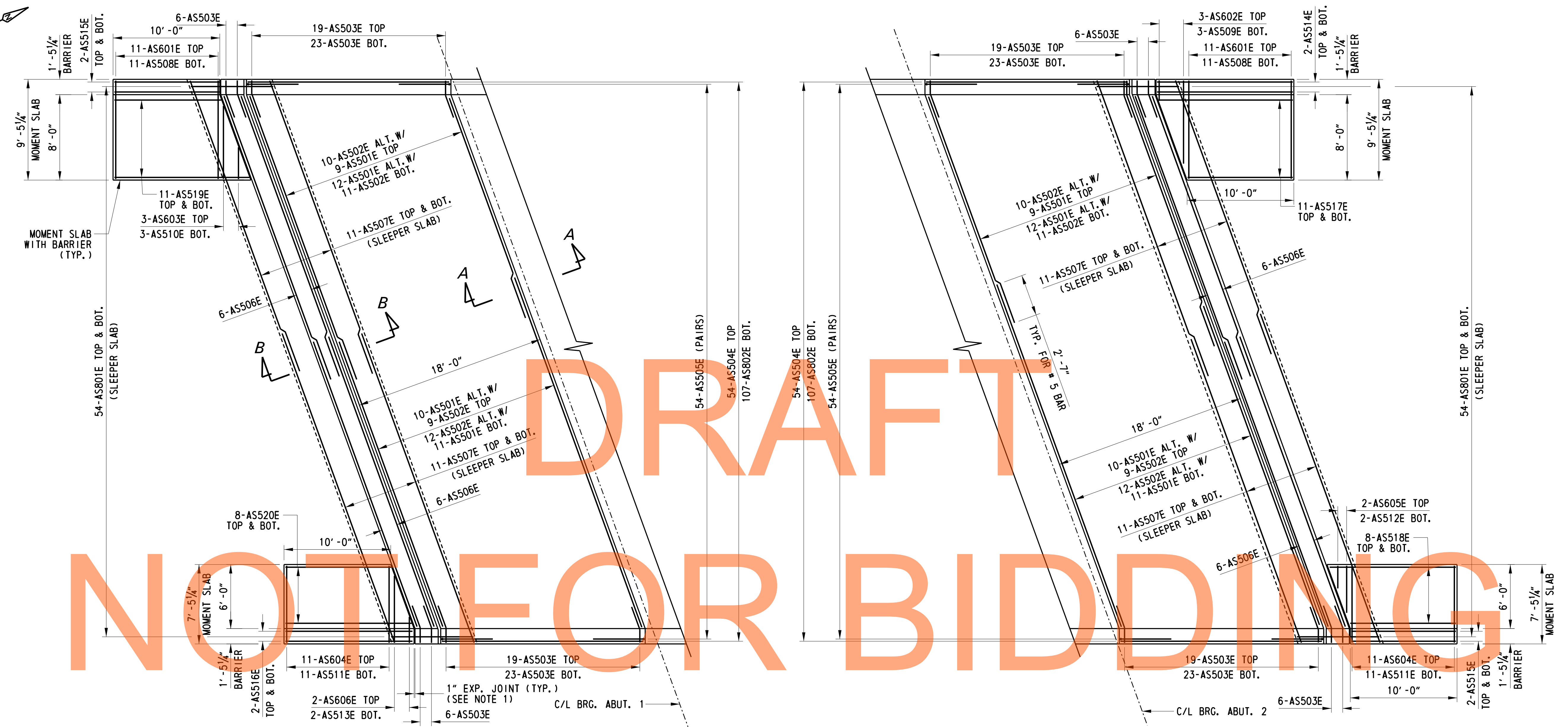
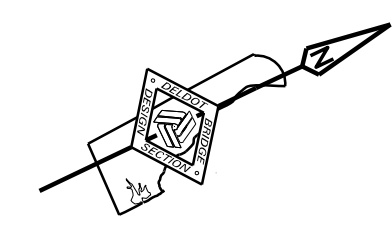


US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	T200911303
COUNTY	NEW CASTLE
BRIDGE NO.	1-472N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

US 301 MAINLINE OVER ARMSTRONG CORNER ROAD BRIDGE APPROACH SLAB REINFORCEMENT - NORTHBOUND

1-472 AS-1	SHEET NO.	380
TOTAL SHTS.	1256	



BRIDGE APPROACH SLAB REINFORCEMENT PLAN - SOUTHBOUND

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



ELEVATION - BRIDGE APPROACH SLAB BARRIER REINFORCEMENT

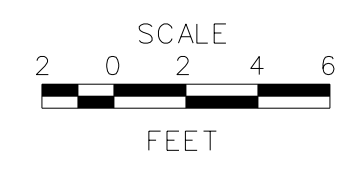
SCALE: 3/16" = 1'-0"

- NOTE:**
- FOR JOINT DETAIL SEE DELDOT ROADWAY STANDARD P-1.
- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-472 GN-1.
 - FOR DECK PLAN, SEE DWG. 1-472 DK-2.
 - FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-472 BR-3.
 - FOR SECTIONS A-A AND B-B, SEE DWG. 1-472 PA-1.

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ADDENDUMS / REVISIONS



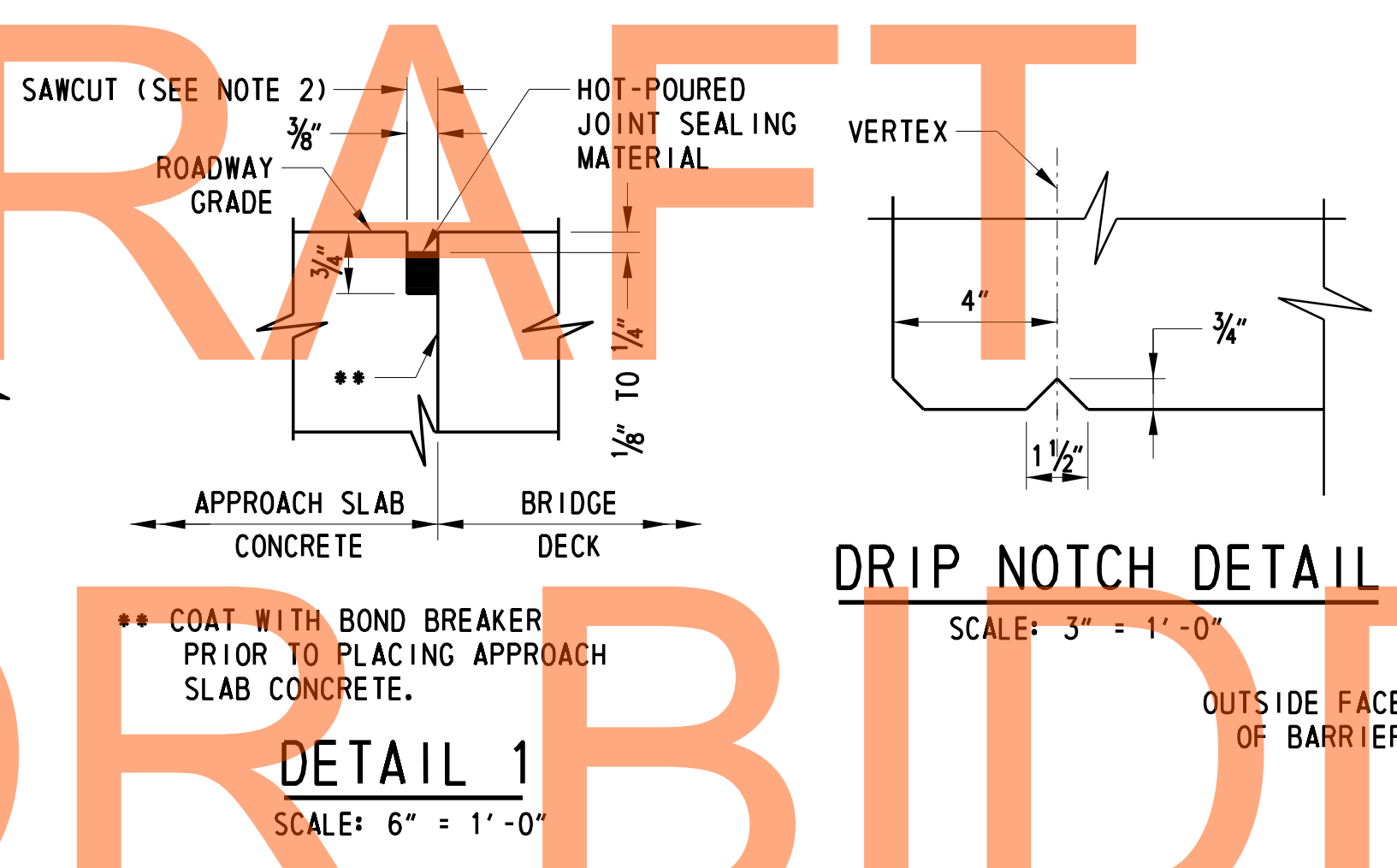
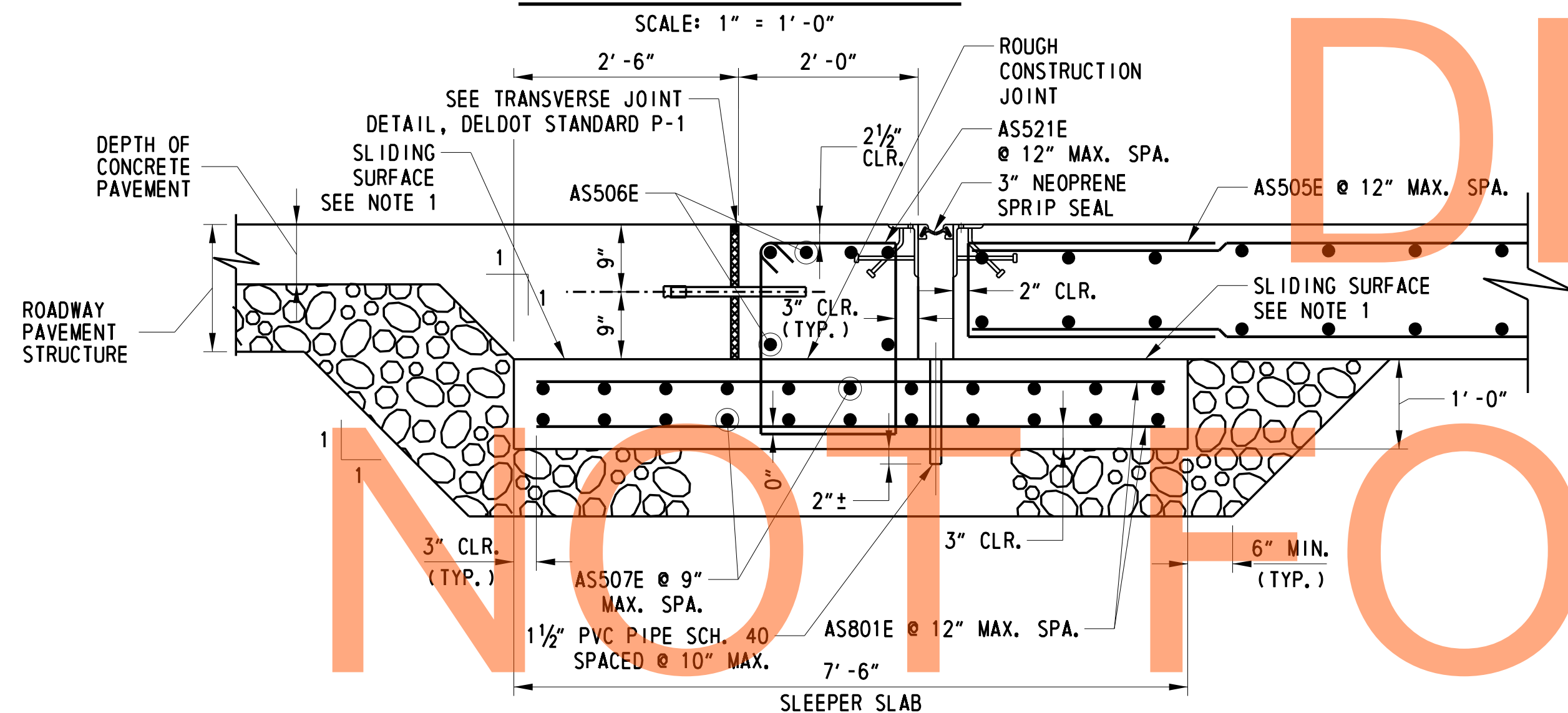
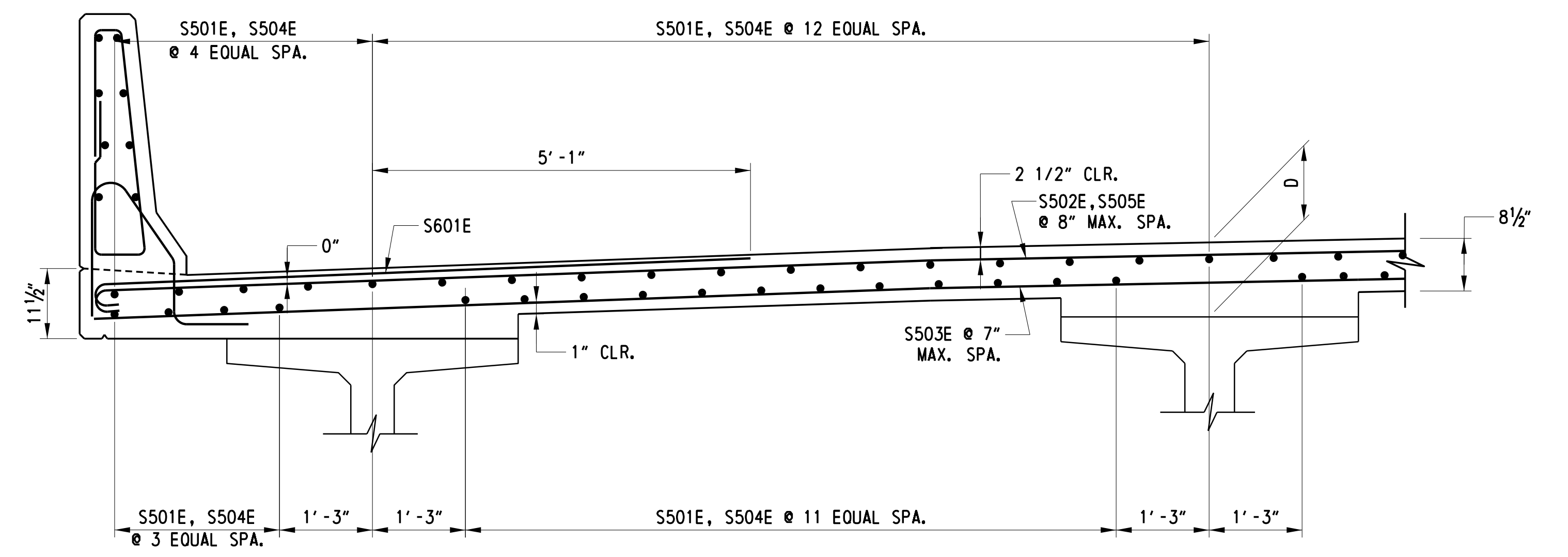
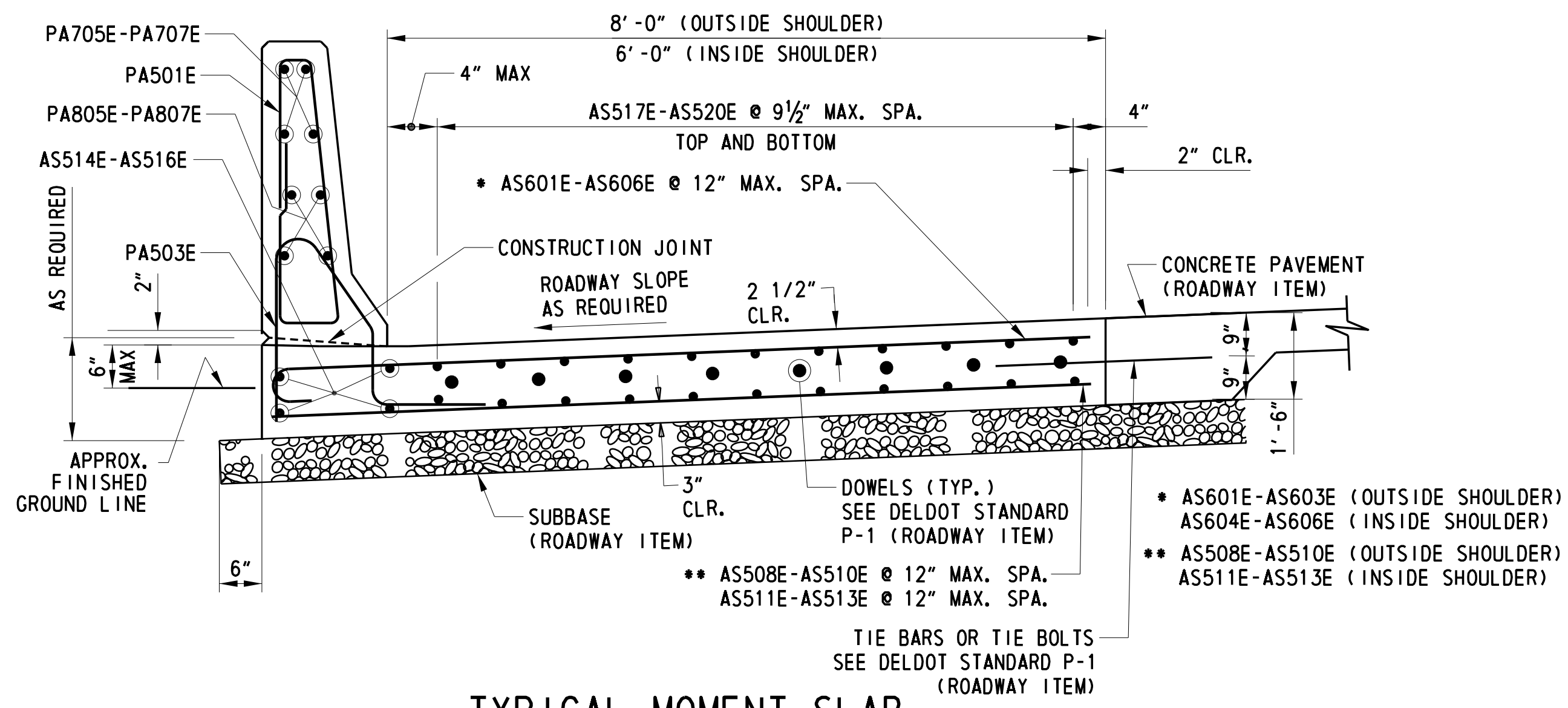
**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-472N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

**US 301 MAINLINE OVER
ARMSTRONG CORNER ROAD
BRIDGE APPROACH SLAB
REINFORCEMENT -
SOUTHBOUND**

SHEET NO.	381
TOTAL SHTS.	1256

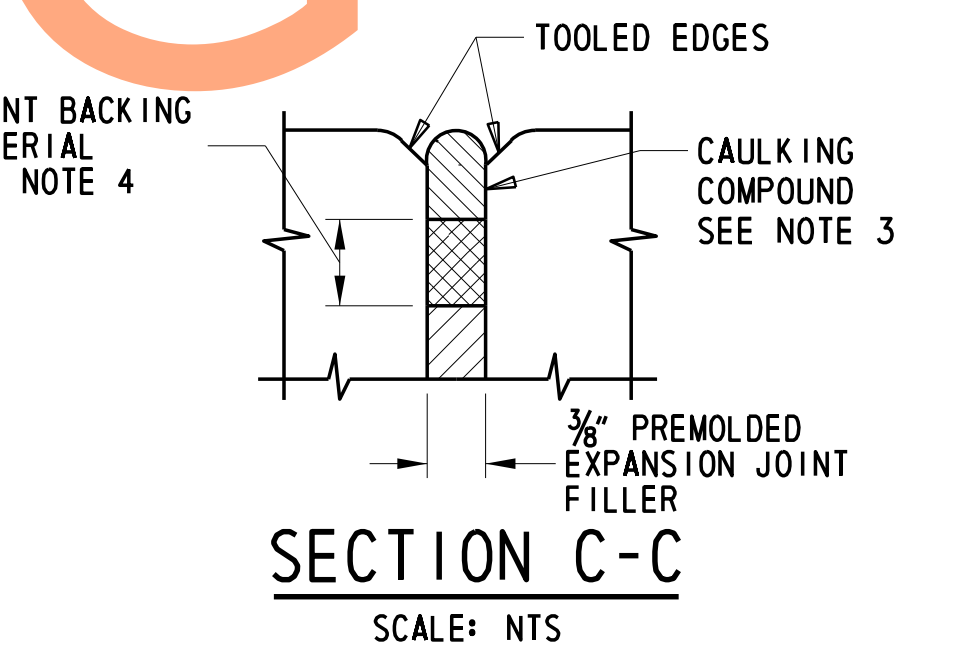
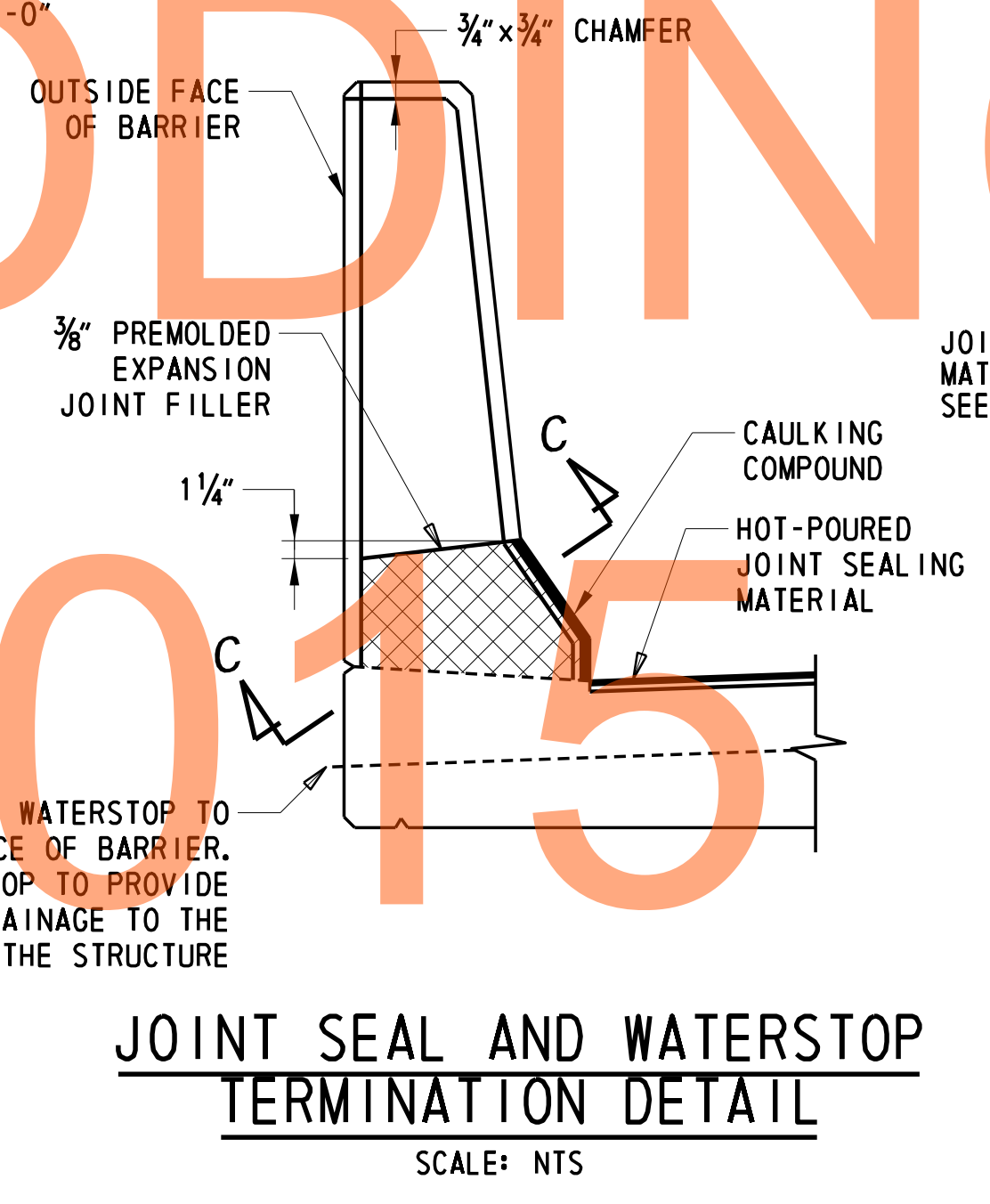
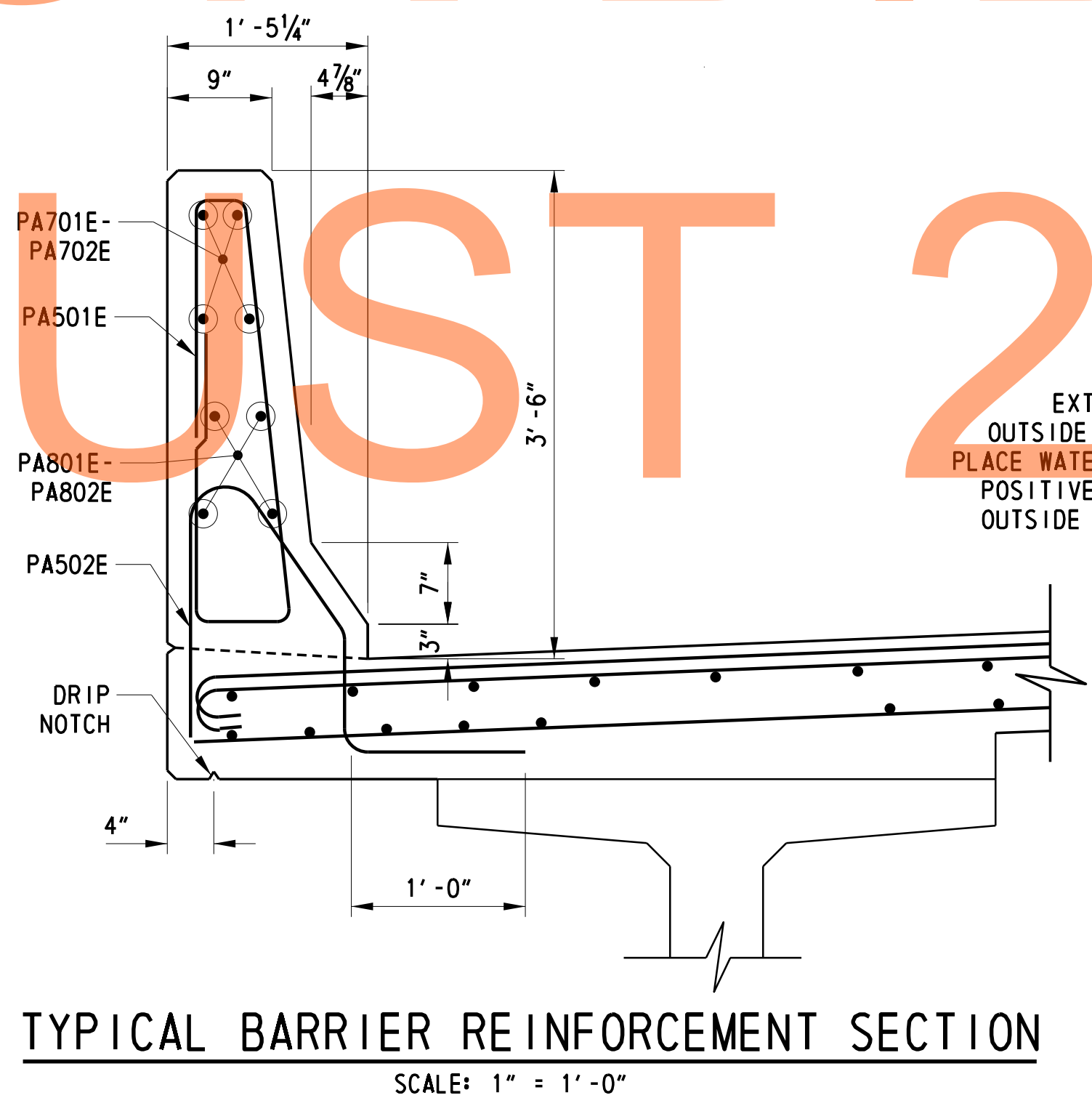
1-472 AS-2



SLAB THICKNESS "D" AT C/L OF BRGS. (IN)

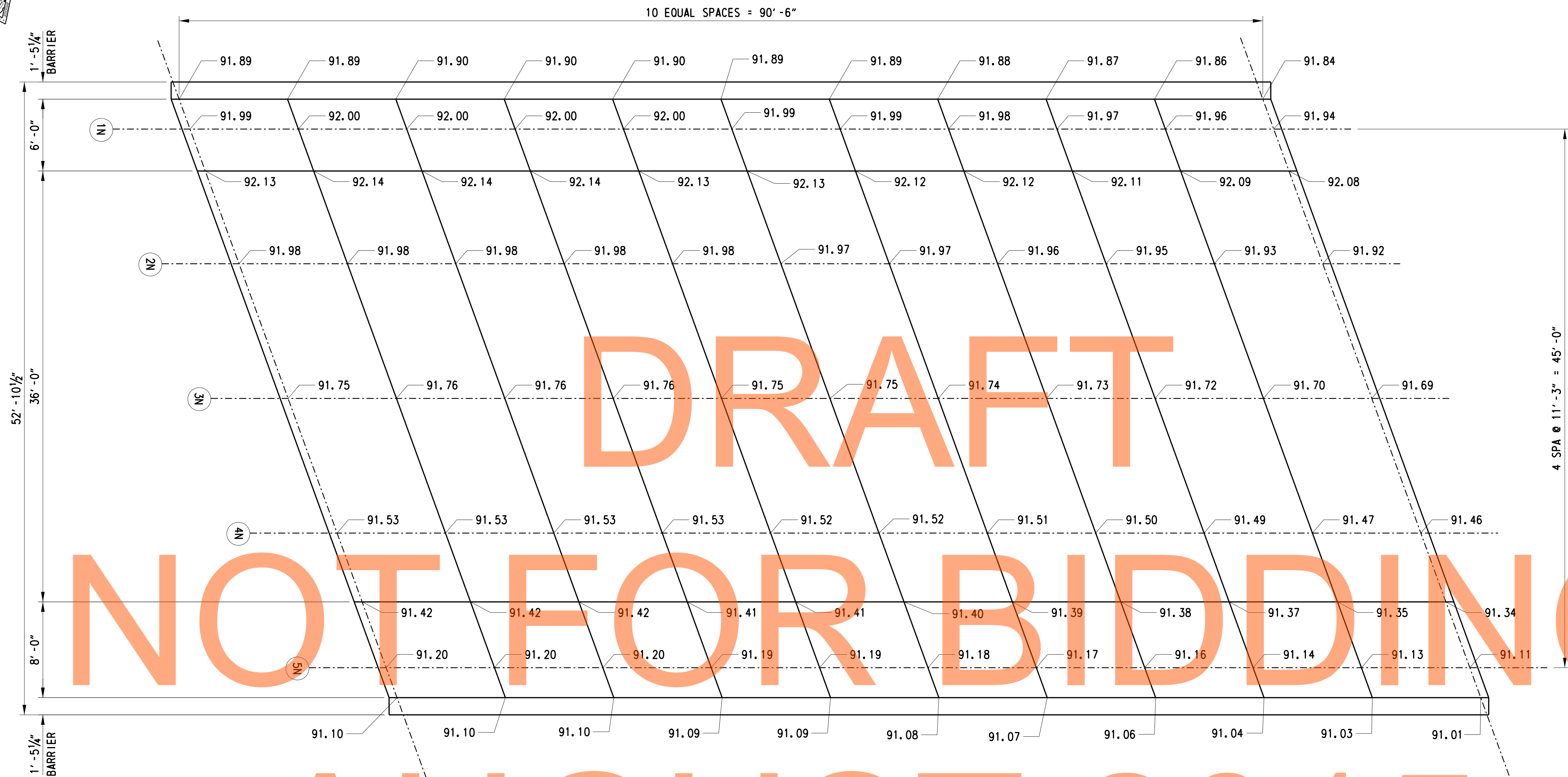
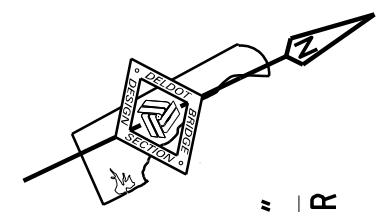
BEAM NO.	1S	2S	3S	4S	5S
C/L BRG. ABUT. 1	11.00	10.35	10.35	10.71	11.00
C/L BRG. ABUT. 2	11.00	10.35	10.35	10.83	11.00

BEAM NO.	1N	2N	3N	4N	5N
C/L BRG. ABUT. 1	11.00	10.83	10.35	10.35	11.00
C/L BRG. ABUT. 2	11.00	10.71	10.35	10.35	11.00



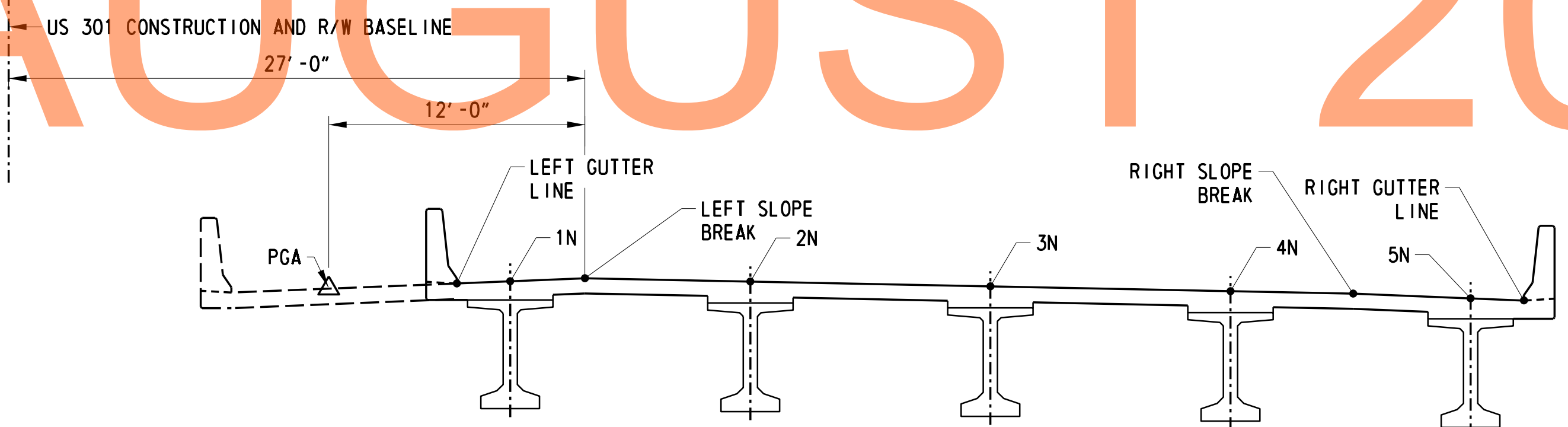
- CROSS REFERENCE NOTES:**
- FOR DECK REINFORCING PLAN, SEE DWG. 1-472 DK-1 AND 1-472 DK-2.
 - FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-472 BR-2 AND 1-472 BR-3.
 - FOR EXPANSION JOINT DETAILS, SEE DWG. 1-472 EX-1.
- NOTES:**
- TROWEL SMOOTH AND PLACE 2 LAYERS OF 4 MIL. POLYETHYLENE SHEETING AS BOND BREAKER.
 - WATER BLAST OPENING IMMEDIATELY FOLLOWING SAW CUTTING OPERATION TO REMOVE ANY RESIDUAL SLURRY BEFORE IT DRIES.
 - CAULKING COMPOUND SHALL CONFORM TO THE REQUIREMENTS OF ASTM C834 OR C920.
 - JOINT BACKING MATERIAL SHALL BE IN ACCORDANCE WITH ASTM D5249.

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FINISHED BRIDGE DECK ELEVATIONS - NORTHBOUND
SCALE: 3/16" = 1'-0"



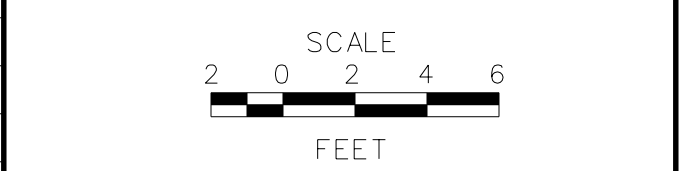
TYPICAL SECTION - NORTHBOUND
SCALE: 3/16" = 1'-0"

- CROSS REFERENCE NOTES:**
1. FOR VERTICAL CURVE DATA, SEE DWG. 1-472 PE-1.
 2. FOR CROSS SLOPES, SEE DWG. 1-472 TS-1.

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ADDENDUMS / REVISIONS

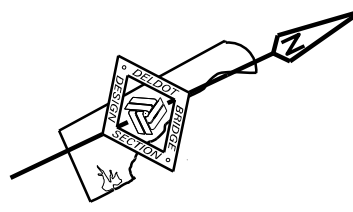


**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT T20091303	BRIDGE NO. 1-472N&S
COUNTY NEW CASTLE	DESIGNED BY: ADH
	CHECKED BY: DHG

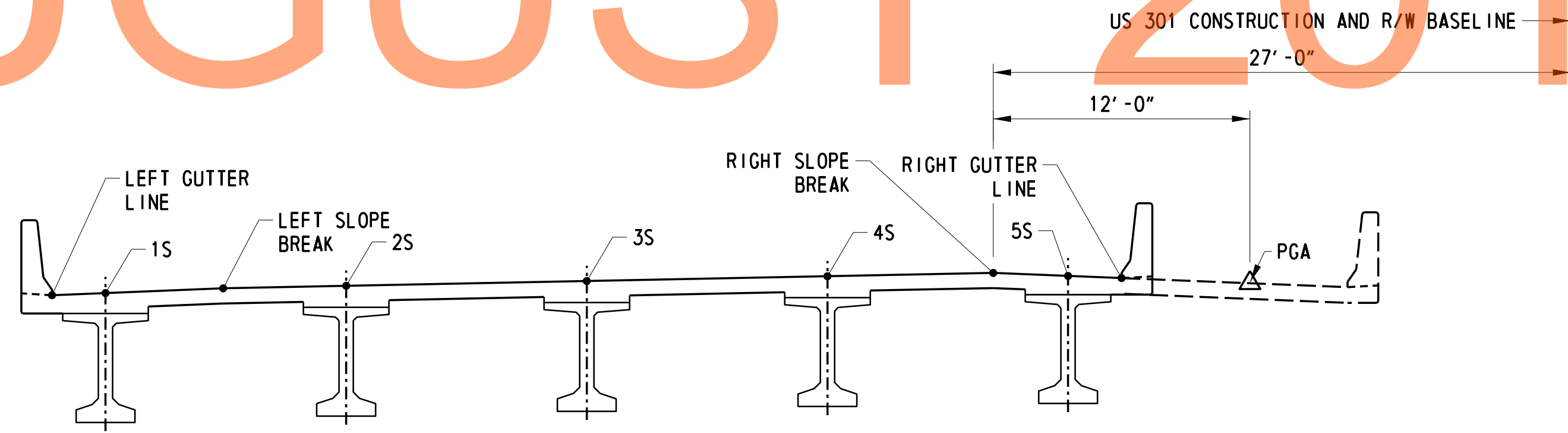
**US 301 MAINLINE OVER
ARMSTRONG CORNER ROAD
FINISHED DECK ELEVATIONS
- NORTHBOUND**

1-472 FD-1
SHEET NO. 385
TOTAL SHTS. 1256



DRAFT
NOT FOR BIDDING
AUGUST 2015

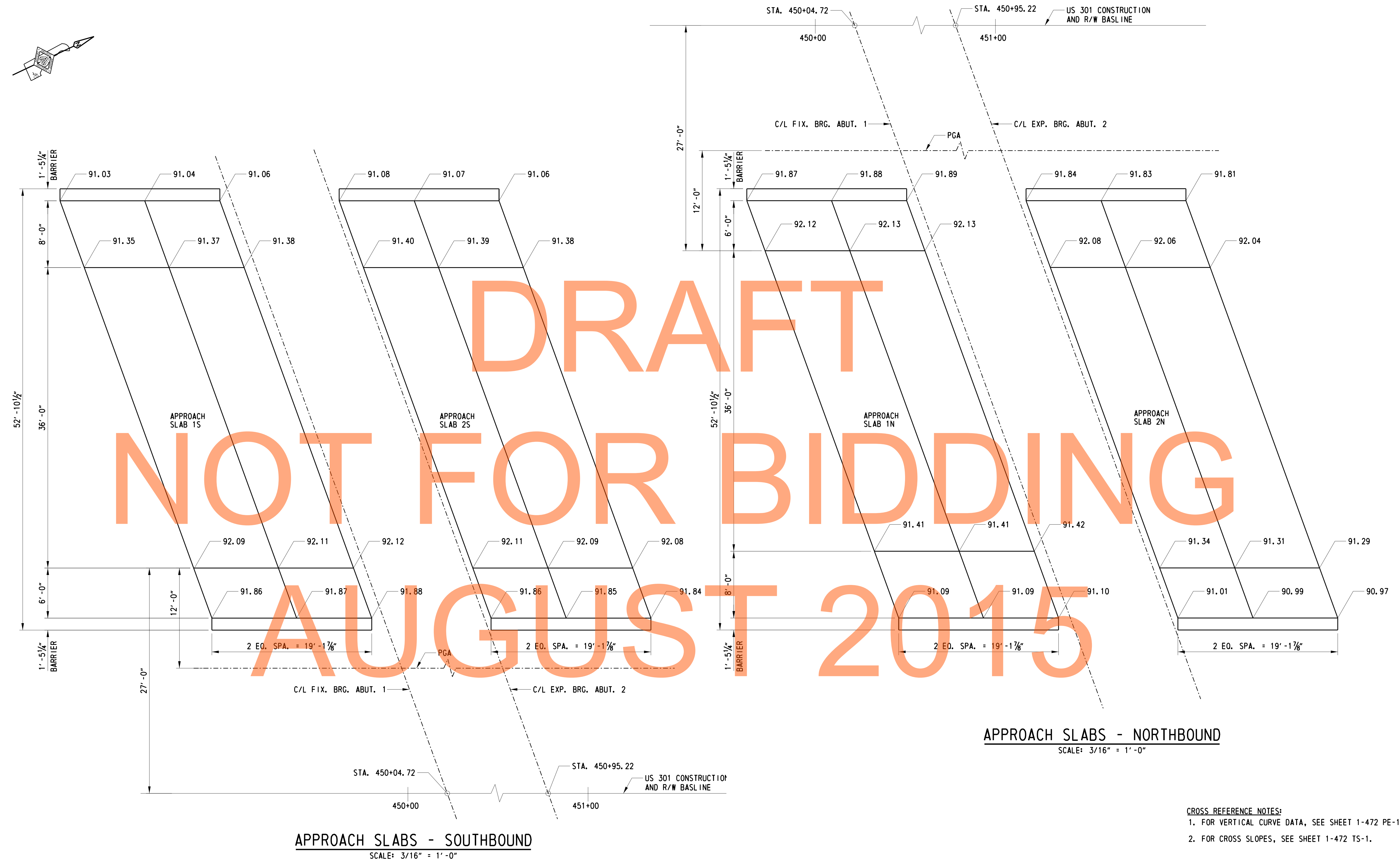
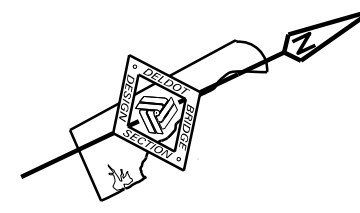
FINISHED BRIDGE DECK ELEVATIONS - SOUTHBOUND
SCALE: 3/16" = 1' - 0"



TYPICAL SECTION - SOUTHBOUND
SCALE: 3/16" = 1' - 0"

- CROSS REFERENCE NOTES:**
- FOR VERTICAL CURVE DATA, SEE DWG. 1-472 PE-1.
 - FOR CROSS SLOPES, SEE DWG. 1-472 TS-1.

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NOT FOR BIDDING
AUGUST 2015

APPROACH SLABS - NORTHBOUND
SCALE: 3/16" = 1'-0"

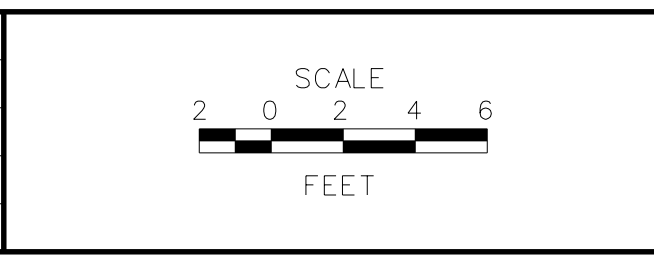
APPROACH SLABS - SOUTHBOUND
SCALE: 3/16" = 1'-0"

- CROSS REFERENCE NOTES:**
1. FOR VERTICAL CURVE DATA, SEE SHEET 1-472 PE-1.
 2. FOR CROSS SLOPES, SEE SHEET 1-472 TS-1.

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**DELAWARE
DEPARTMENT OF TRANSPORTATION**

ADDENDUMS / REVISIONS	

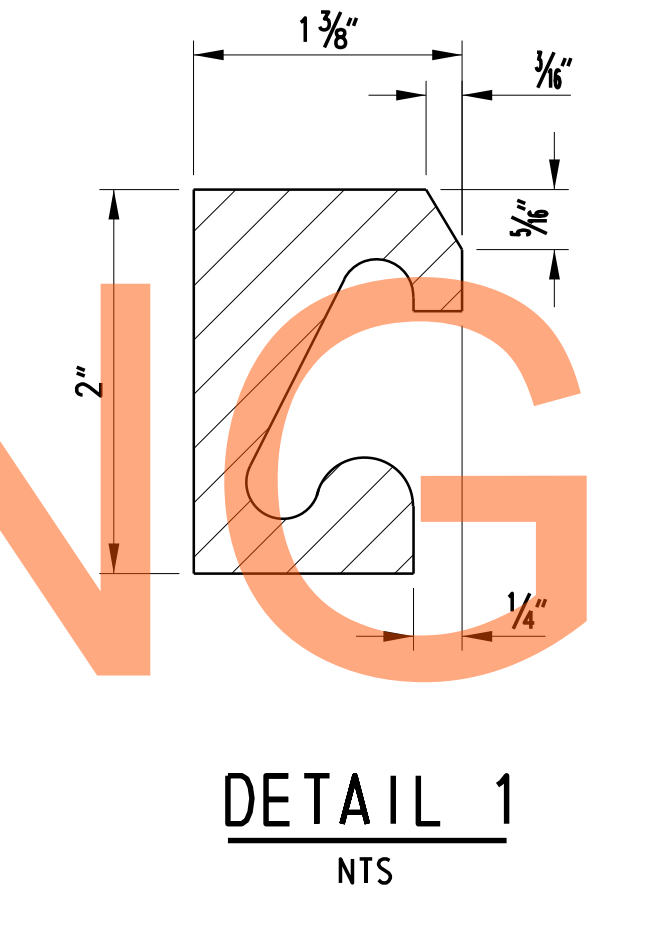
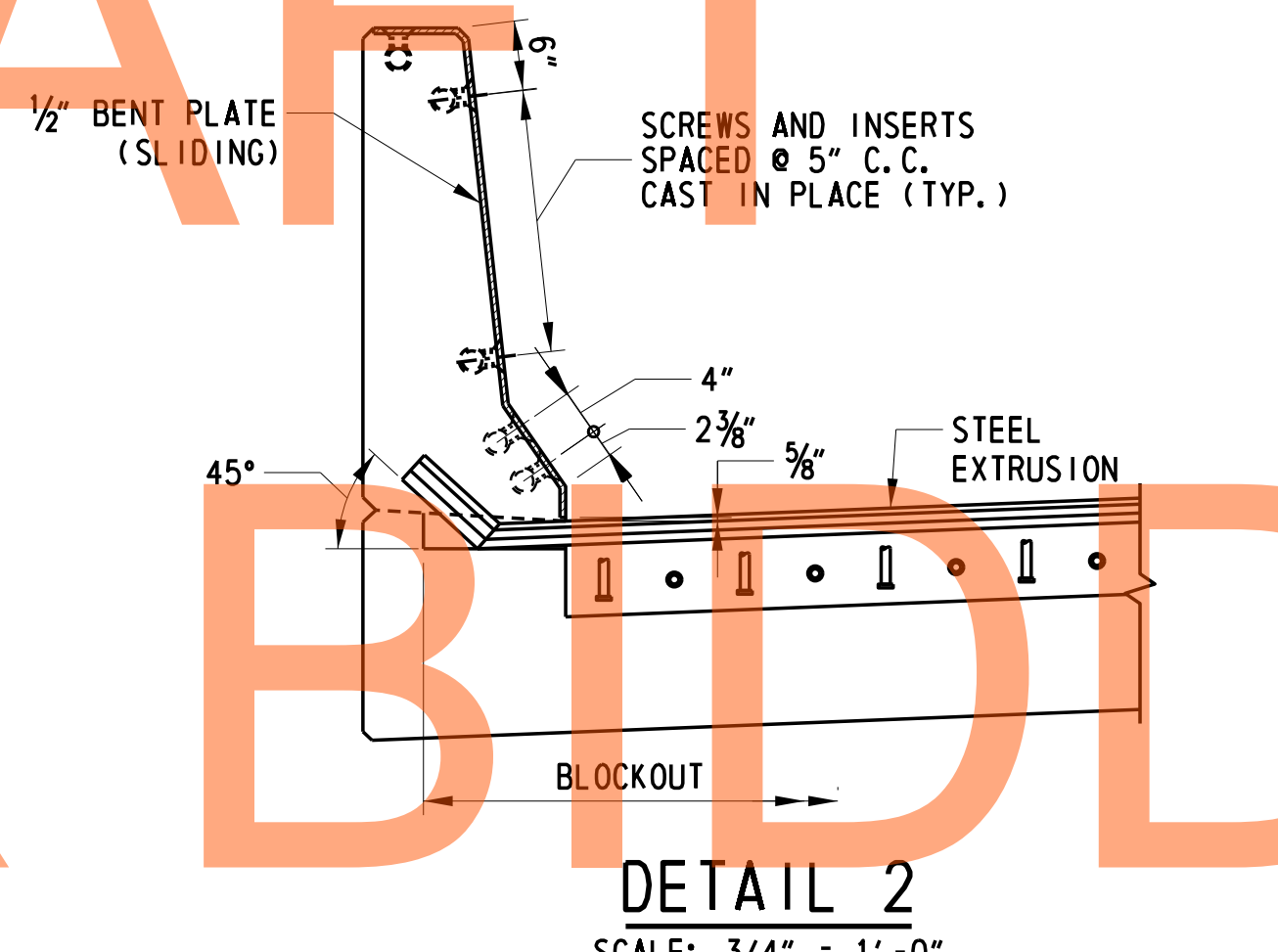
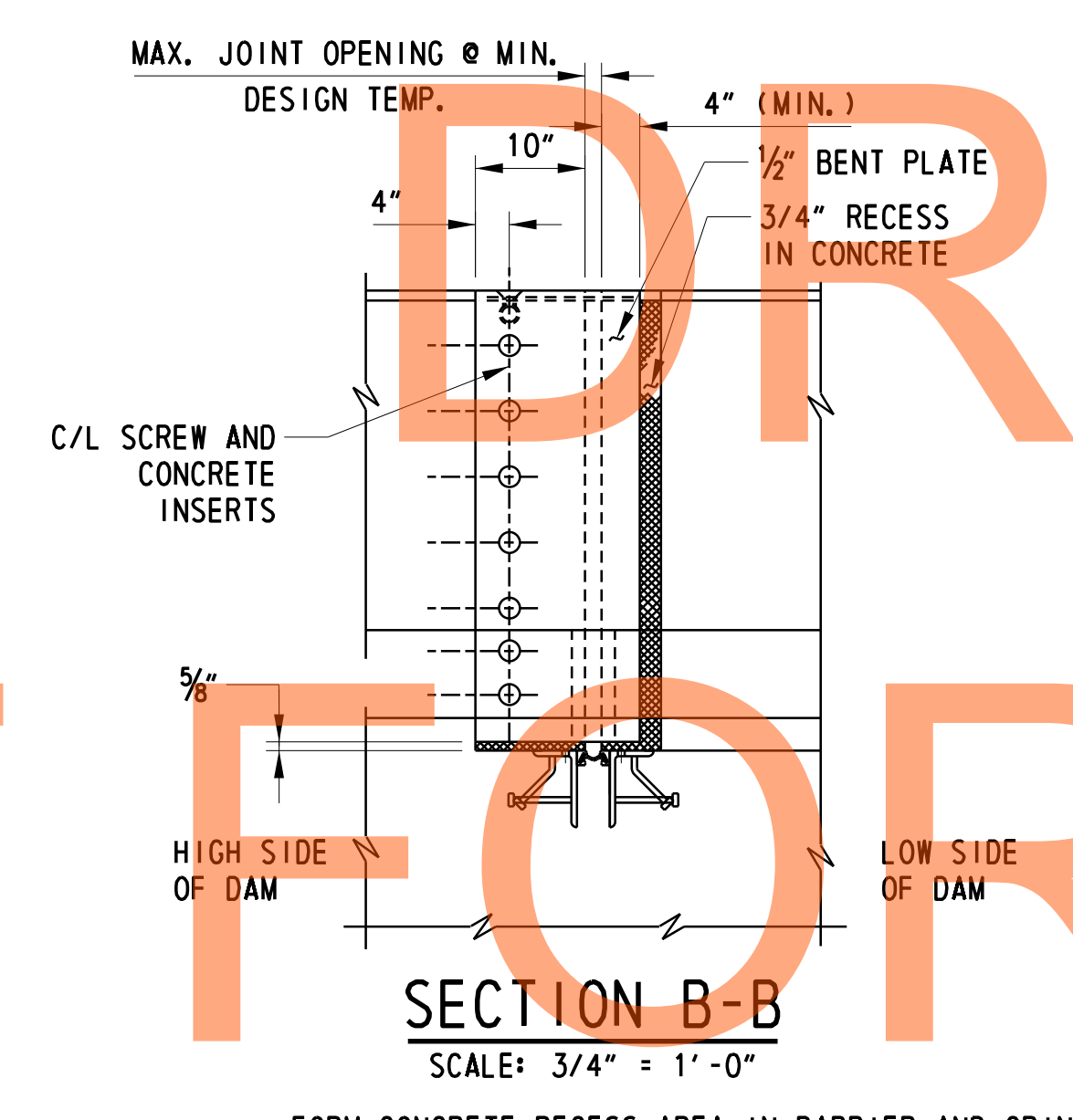
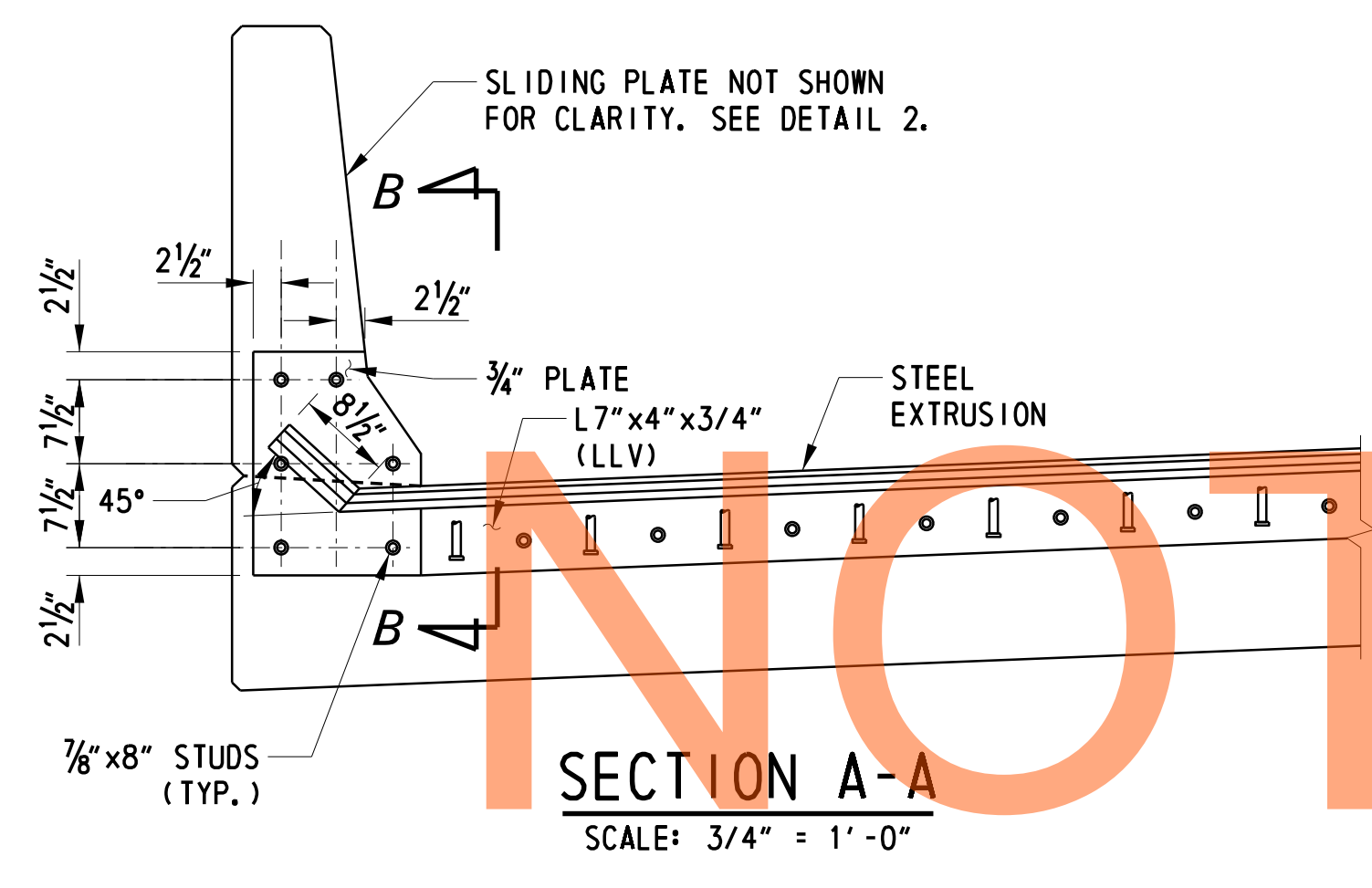
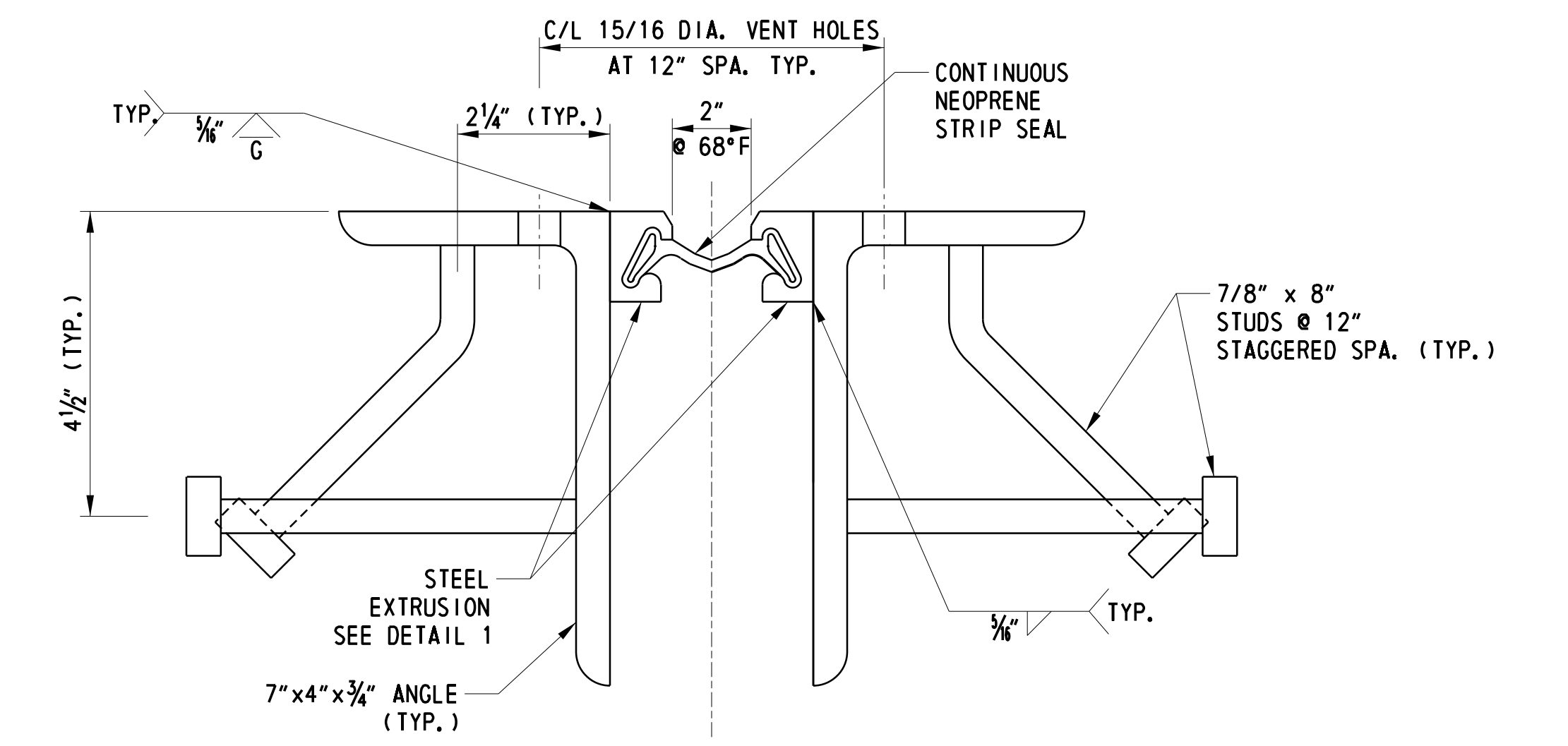
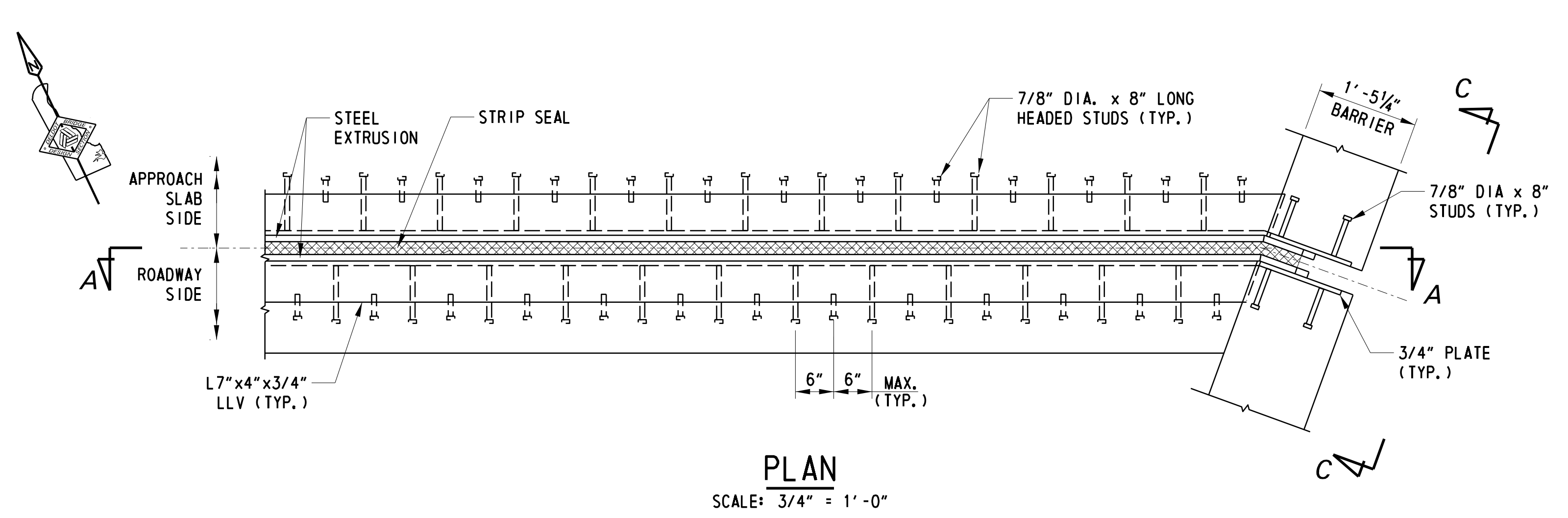


**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

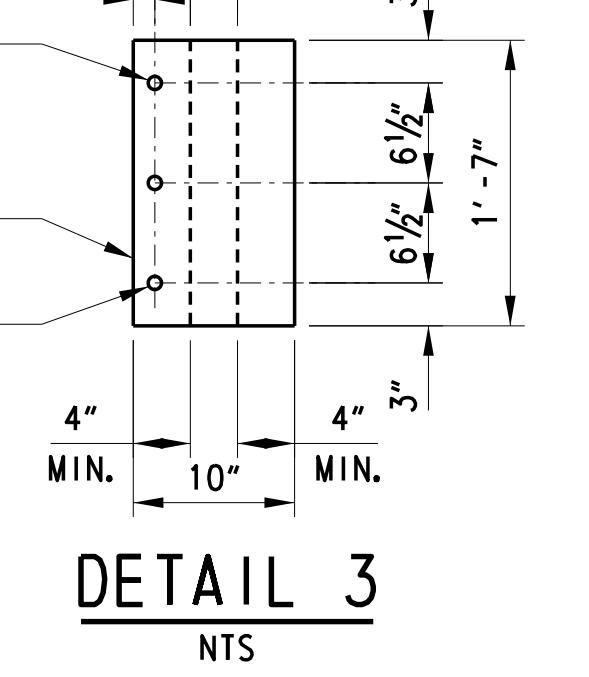
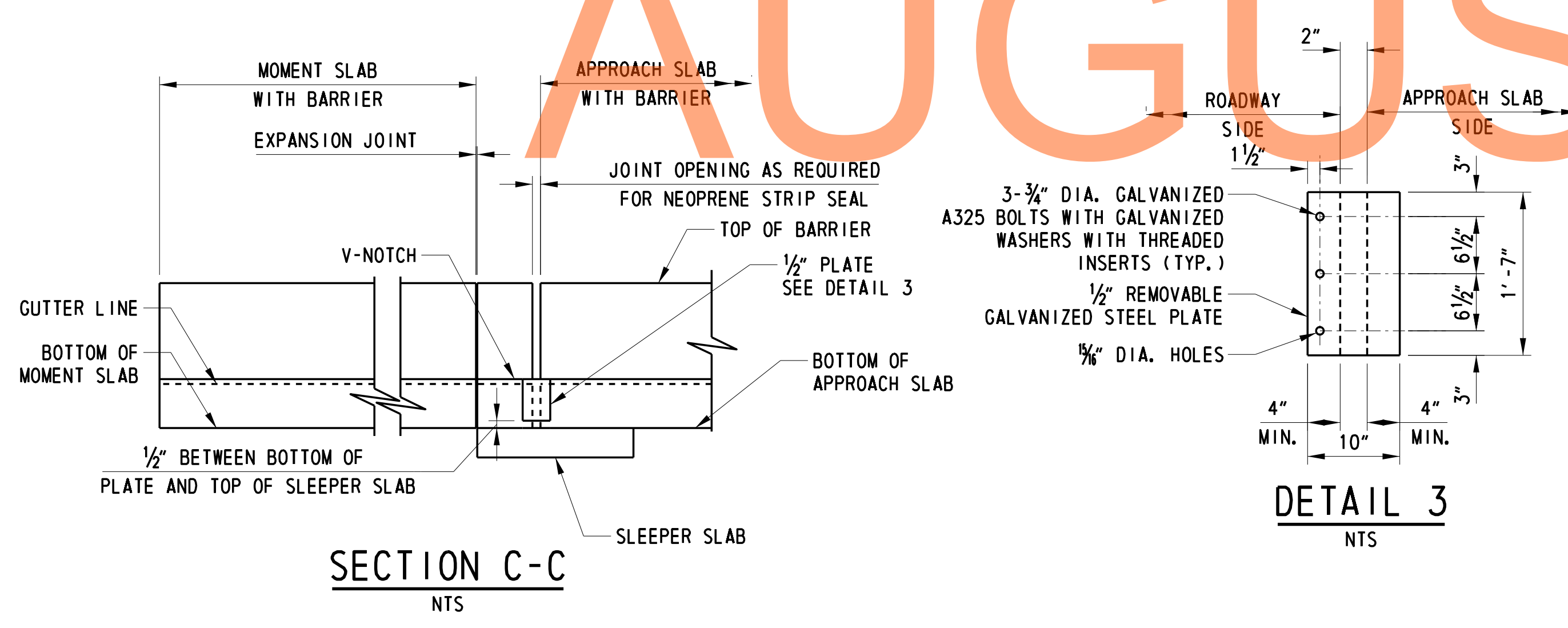
CONTRACT	BRIDGE NO.	1-472N&S
T200911303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
ARMSTRONG CORNER ROAD
FINISHED
APPROACH SLAB
ELEVATIONS**

1-472 FD-3
SHEET NO.
387
TOTAL SHTS.
1256



* FORM CONCRETE RECESS AREA IN BARRIER AND GRIND TO PROVIDE SMOOTH SURFACE. APPLY ONE COAT OF ASPHALT CEMENT PAINT WA-1 OR PERFORMANCE GRADED ASPHALT CEMENT PG 64-22 TO ALLOW BENT SLIDING PLATE TO MOVE FREELY WITHOUT FRICTION.



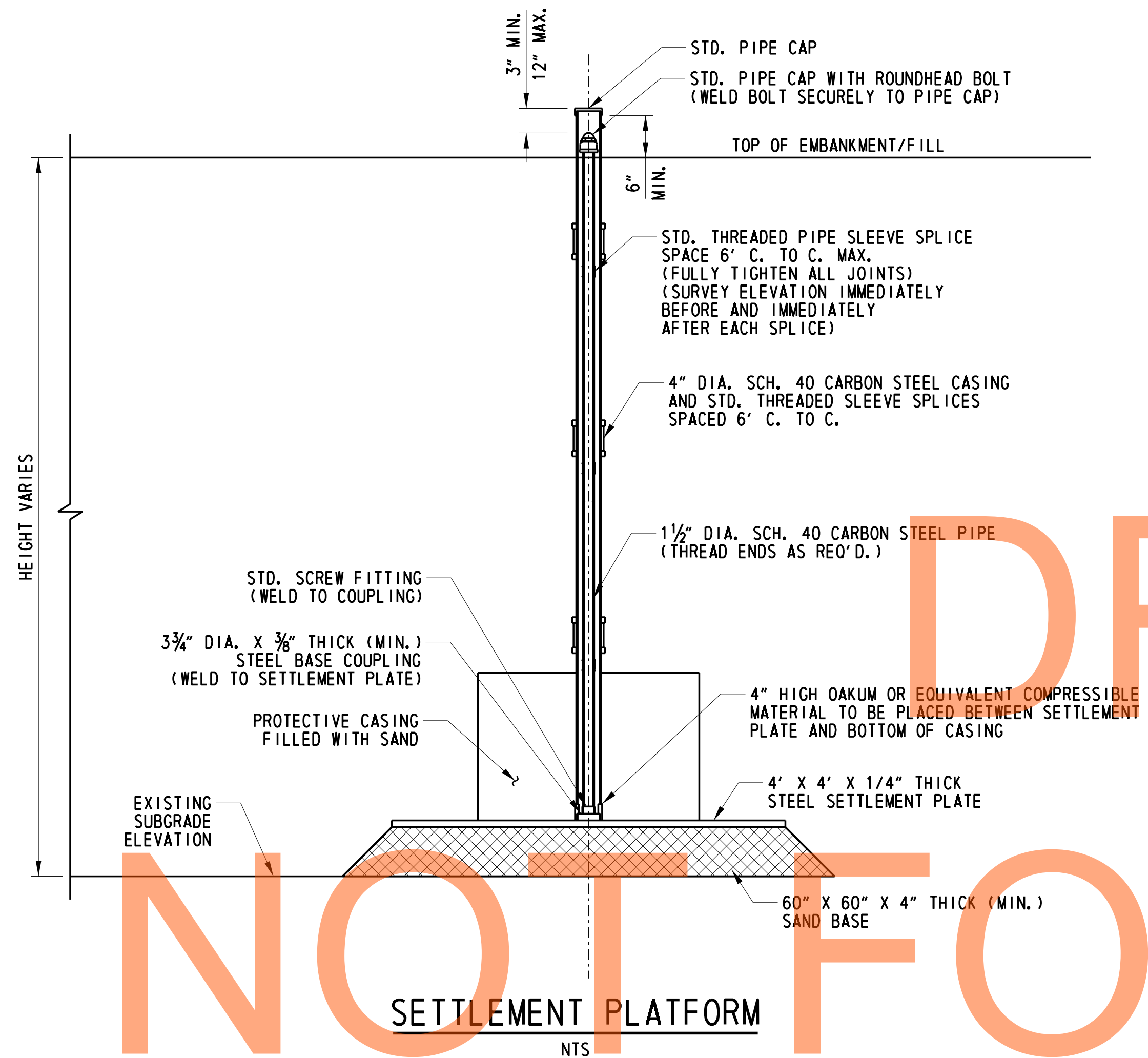
- NOTES:**
1. STRUCTURAL STEEL FOR DECK JOINTS SHALL CONFORM TO AASHTO M270, GRADE 36.
 2. STEEL EXTRUSIONS FOR DECK JOINTS SHALL CONFORM TO AASHTO M270, GRADE 36.
 3. THE NEOPRENE STRIP SEAL SHALL BE PROVIDED CONTINUOUS THROUGHOUT THE LIMITS OF THE DECK. SPLICING OF THE NEOPRENE STRIP SEAL IS NOT PERMITTED.
 4. COST FOR MATERIALS, FABRICATION AND INSTALLATION OF STRIP SEAL EXPANSION JOINTS, 3" MOVEMENT CLASSIFICATION, WITH STEEL ELEMENTS INCLUDING STUDS AND STEEL EXTRUSIONS, SHALL BE PAID FOR UNDER ITEM 605511.
 5. EXPANSION JOINT PLAN IS SHOWN AT APPROACH SLAB.

G:\60049040-US301\Structure\Plans\FINAL\B2-JNS\BR2-3EX-01.dgn

ADDENDUMS / REVISIONS

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-472N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-472-1	450+11.22	46.00' RT	SM-1-472-1	450+13.04	51.00' RT
SP-1-472-2	449+77.73	46.00' LT	SM-1-472-2	449+75.91	51.00' LT
SP-1-472-3	451+22.20	46.00' RT	SM-1-472-3	451+24.02	51.00' RT
SP-1-472-4	450+88.72	46.00' LT	SM-1-472-4	450+86.90	51.00' LT



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AUGUST 2015

CROSS REFERENCE NOTE:

- FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-472 PE-1.

NOTE:

- THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING SUBGRADE.
- READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS IF INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF 3 CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SECESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1", THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT 6 MONTHS OR AS DIRECTED BY THE ENGINEER.

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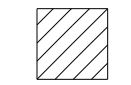
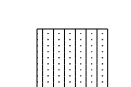
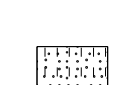
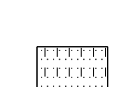




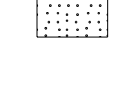
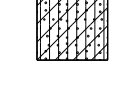
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT	BRIDGE NO.	1-472N&S	US 301 MAINLINE OVER ARMSTRONG CORNER ROAD SETTLEMENT PLATFORM DETAIL	SHEET NO.
				T20091303	DESIGNED BY: ADH		389
				COUNTY	CHECKED BY: DHG		TOTAL SHTS.
				NEW CASTLE			1256

1-472 DT-1

KEY TO SYMBOLS

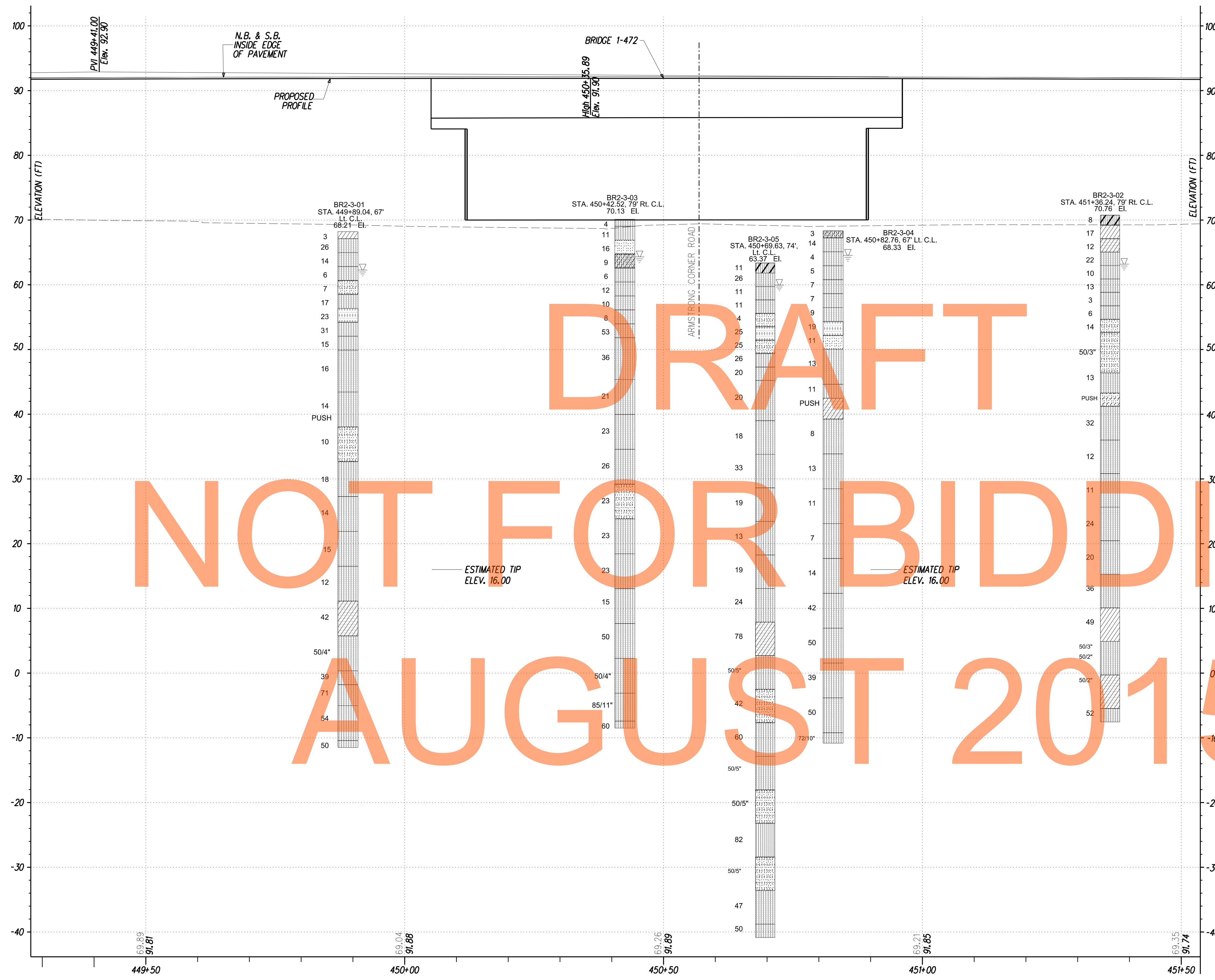
SYMBOL DESCRIPTION

STRATA SYMBOLS

-  LOW PLASTICITY CLAY
-  SILTY SAND
-  POORLY GRADED SAND WITH SILT
-  WELL GRADED SAND WITH SILT
-  CLAYEY SAND
-  SILTY LOW PLASTICITY CLAY
-  POORLY GRADED SAND WITH CLAY
-  POORLY GRADED SAND
-  POORLY GRADED CLAYEY SILTY SAND
-  SILT

MISC. SYMBOLS

 WATER TABLE DURING DRILLING



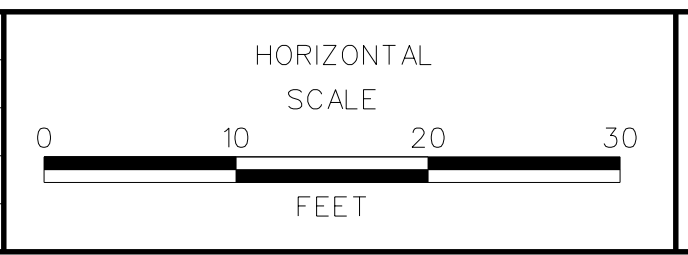
DRAFT

NOT FOR BIDDING

AUGUST 2015

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ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	1-472N&S
T20091303	DESIGNED BY:	ZH
COUNTY	CHECKED BY:	RDB
NEW CASTLE		

VERTICAL SCALE	1-472 B0-1
0 8 16 24 FEET	SHEET NO.
	390
	TOTAL SHTS.
	1256