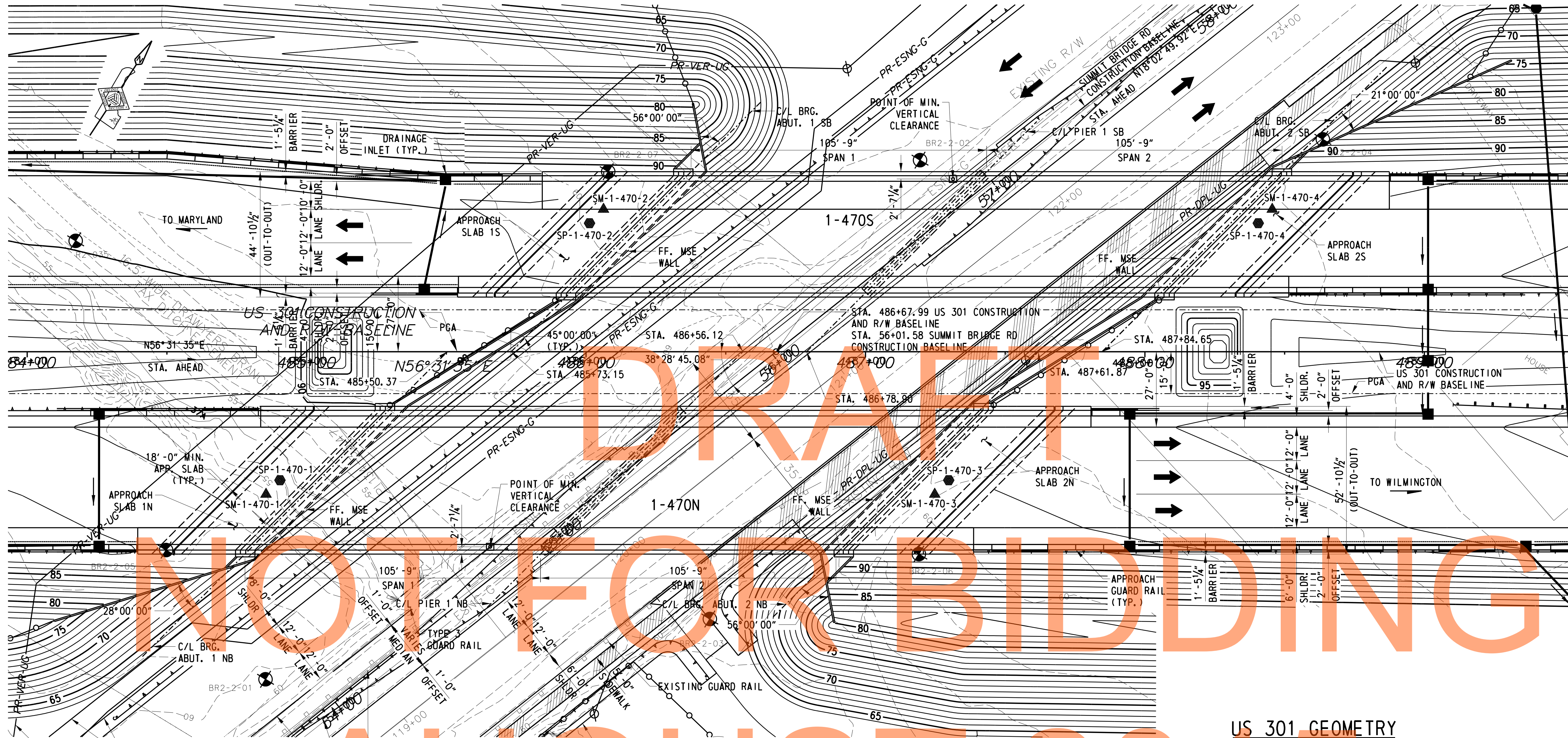


G:\60049040-US301N STRUCTURE\PLANS\FINAL\B2-2\NS\BR2-2PE-01.DGN



NOT FOR BIDDING
AUGUST 2015

PLAN

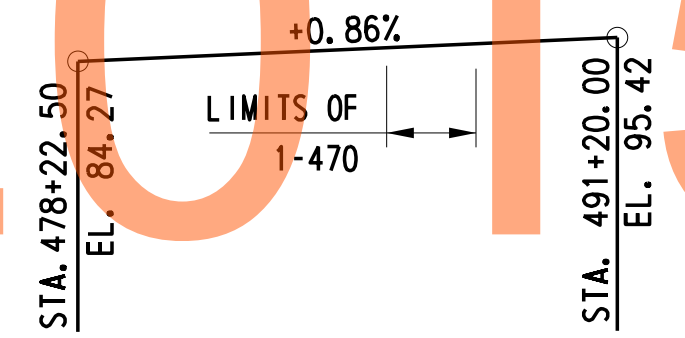
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US 301 GEOMETRY

VERTICAL DATA

HORIZONTAL DATA

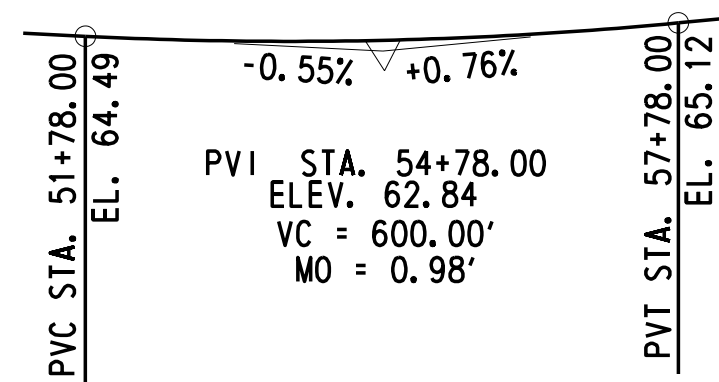
TANGENT



VERTICAL DATA

HORIZONTAL DATA

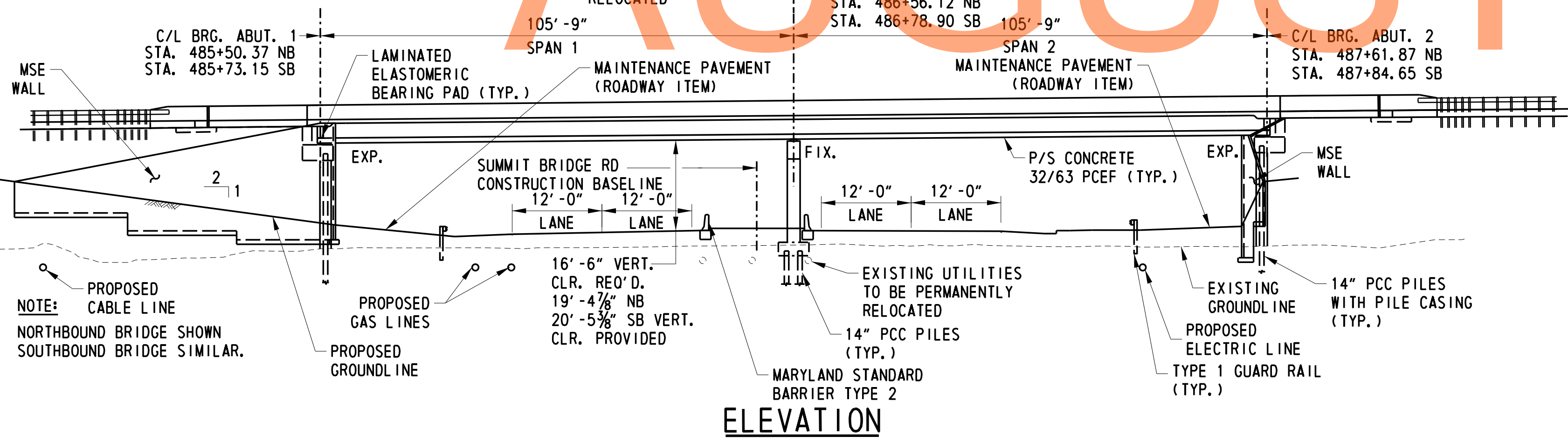
TANGENT



LEGEND

- - SETTLEMENT PLATFORMS
- ▲ - SETTLEMENT MONUMENTS

- CROSS REFERENCE NOTES:**
- FOR SETTLEMENT PLATFORM AND MONUMENT STATIONS AND OFFSETS, SEE DWG. 1-470 DT-1.
 - FOR SETTLEMENT PLATFORM DETAIL, SEE DWG. 1-470 DT-1.

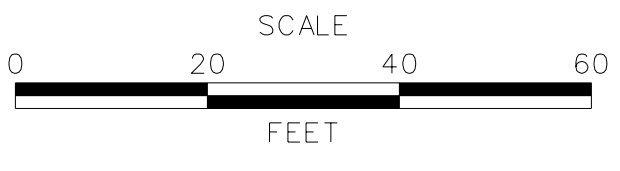


ELEVATION

SCALE: 1"=20'-0"

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS



US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-470N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

US 301 MAINLINE OVER SUMMIT BRIDGE ROAD BRIDGE PLAN AND ELEVATION

SHEET NO.	305
TOTAL SHTS.	1256

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 SPECIFICATION AND CONSTRUCTION DETAILS, AASHTO/AWS D1.5M/D1.5 BRIDGE WELDING CODE, AND CONTRACT SPECIAL PROVISIONS.

LIVE LOAD DISTRIBUTION TO BEAMS IS BASED UPON A REFINED ANALYSIS.

2. LOADING:

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

FUTURE OVERLAY ALLOWANCE SHALL BE 25 LBS/SQ FT.

STEEL BRIDGE DECK FORMS WHICH STAY IN PLACE (INCLUDING CONCRETE IN FORM CORRUGATIONS) SHALL BE 15 LBS/SQ 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. 602006 (CLASS B, F'c=3000 PSI) - PIER FOOTING
- ITEM NO. 602007 (CLASS A, F'c=4500 PSI) - PIER ABOVE 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: CHEEKWALL AND BACKWALL
- ITEM NO. 602017 (CLASS A, F'c=4500 PSI) - BARRIER

RAKE FINISH ALL HORIZONTAL CONSTRUCTION, 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.

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 AND CONTINUOUS 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'c1 = 6,400 PSI.

BEAMS AND PIER DIAPHRAGMS:

TIME FROM CASTING OF BEAMS TO POURING OF PIER DIAPHRAGMS MUST BE NO LESS THAN 90 DAYS. IF TIME IS NOT SUFFICIENT, CONTRACTOR MUST SUBMIT DESIGN FOR APPROVAL SHOWING STRUCTURAL DESIGN CALCULATIONS TO ACCOUNT FOR RESTRAINT MOMENTS. PIER DIAPHRAGM CAN NOT BE POURED UNTIL DECK POUR 1 AND 2 ARE COMPLETE.

PRESTRESSED STEEL:

PRETENSIONING STEEL 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 24,440 PSI, THE FINAL EFFECTIVE PRESTRESS FORCE PER STRAND IS 38,640 LBS.

FABRICATOR TO CHECK 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. 602772 - MECHANICALLY STABILIZED EARTH WALLS.

9. STRUCTURE BACKFILL:

MSE WALL BACKFILL SHALL BE AS SPECIFIED ON THE PLANS.

10. ROADWAY CLEARANCES:

A MINIMUM OF 16'-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.

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ADDENDUMS / REVISIONS

NO.	DATE	DESCRIPTION



**DELAWARE
DEPARTMENT OF TRANSPORTATION**

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

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD**
GENERAL NOTES

1-470 GN-1
SHEET NO. 306
TOTAL SHTS. 1256

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
305	1-470 PE-1	BRIDGE PLAN AND ELEVATION
306	1-470 GN-1	GENERAL NOTES
307	1-470 GN-2	INDEX OF DRAWINGS AND LOAD RATINGS
308	1-470 GG-1	GEOMETRIC LAYOUT
309	1-470 GG-2	GEOMETRIC LAYOUT - DETAILS
310	1-470 TS-1	TYPICAL SECTION AND QUANTITIES
311	1-470 PL-1	ABUTMENTS 1 AND 2 - PILE PLAN
312	1-470 PL-2	PILE DETAILS AND NOTES
313	1-470 AB-1	ABUTMENT 1 NORTHBOUND - PLAN AND REINFORCEMENT
314	1-470 AB-2	ABUTMENT 1 SOUTHBOUND - PLAN AND REINFORCEMENT
315	1-470 AB-3	ABUTMENT 2 NORTHBOUND - PLAN AND REINFORCEMENT
316	1-470 AB-4	ABUTMENT 2 SOUTHBOUND - PLAN AND REINFORCEMENT
317	1-470 AB-5	ABUTMENTS 1 AND 2 - SECTIONS AND DETAILS
318	1-470 WW-1	MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 1
319	1-470 WW-2	MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 2
320	1-470 WW-3	MSE WALL DETAILS
321	1-470 BR-1	ABUTMENT REINFORCEMENT SCHEDULE
322	1-470 PL-3	NORTHBOUND AND SOUTHBOUND PIERS - PILE PLAN
323	1-470 PR-1	NORTHBOUND AND SOUTHBOUND PIERS - FOOTING REINFORCEMENT
324	1-470 PR-2	NORTHBOUND PIER - PLAN AND ELEVATION
325	1-470 PR-3	SOUTHBOUND PIER - PLAN AND ELEVATION
326	1-470 PR-4	NORTHBOUND PIER - REINFORCEMENT
327	1-470 PR-5	SOUTHBOUND PIER - REINFORCEMENT
328	1-470 PR-6	PIER SECTIONS AND DETAILS
329	1-470 BR-2	PIER REINFORCEMENT SCHEDULE
330	1-470 FR-1	FRAMING PLAN - NORTHBOUND
331	1-470 FR-2	FRAMING PLAN - SOUTHBOUND
332	1-470 BM-1	BEAM DETAILS - 1
333	1-470 BM-2	BEAM DETAILS - 2
334	1-470 DPH-1	DIAPHRAGM DETAILS - 1
335	1-470 DPH-2	DIAPHRAGM DETAILS - 2
336	1-470 DPH-3	DIAPHRAGM DETAILS - 3
337	1-470 BD-1	BEARING DETAILS
338	1-470 DK-1	BRIDGE DECK REINFORCEMENT - NORTHBOUND
339	1-470 DK-2	BRIDGE DECK REINFORCEMENT - SOUTHBOUND
340	1-470 DK-3	DECK POUR SEQUENCE
341	1-470 PA-1	DECK SECTIONS AND DETAILS
342	1-470 BR-3	DECK REINFORCEMENT SCHEDULE
343	1-470 AS-1	BRIDGE APPROACH SLAB REINFORCEMENT - SLAB 1 NORTHBOUND
344	1-470 AS-2	BRIDGE APPROACH SLAB REINFORCEMENT - SLAB 2 NORTHBOUND
345	1-470 AS-3	BRIDGE APPROACH SLAB REINFORCEMENT - SLAB 1 SOUTHBOUND
346	1-470 AS-4	BRIDGE APPROACH SLAB REINFORCEMENT - SLAB 2 SOUTHBOUND
347	1-470 AS-5	APPROACH SLAB SECTIONS AND DETAILS
348	1-470 BR-4	APPROACH SLAB REINFORCEMENT SCHEDULE
349	1-470 FD-1	FINISHED DECK ELEVATIONS - NORTHBOUND
350	1-470 FD-2	FINISHED DECK ELEVATIONS - SOUTHBOUND
351	1-470 FD-3	FINISHED APPROACH SLAB ELEVATIONS - NORTHBOUND
352	1-470 FD-4	FINISHED APPROACH SLAB ELEVATIONS - SOUTHBOUND
353	1-470 EX-1	EXPANSION JOINT DETAILS
354	1-470 DT-1	SETTLEMENT PLATFORM DETAIL
355	1-470 BO-1	TEST BORINGS

LOAD RATING SUMMARY (NORTHBOUND)

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TONS)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.25	N/A	INTERIOR BEAM*	201	SHEAR MAXIMUM EFFECTS
HL-93 TANDEM (INVENTORY)	1.50	N/A	EXTERIOR BEAM	105	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TRUCK TRAIN (INVENTORY)	1.48	N/A	INTERIOR BEAM*	110	FLEXURE MINIMUM EFFECTS
HS-20 (INVENTORY)	1.67	60.17	EXTERIOR BEAM	106	LONG. RE INF. MAX. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
HL-93 TRUCK (OPERATING)	1.65	N/A	INTERIOR BEAM*	201	SHEAR MAXIMUM EFFECTS
HL-93 TANDEM (OPERATING)	1.93	N/A	EXTERIOR BEAM	105	LONG. RE INF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TRUCK TRAIN (OPERATING)	1.91	N/A	INTERIOR BEAM*	200	FLEXURE MINIMUM EFFECTS
HS-20 (OPERATING)	2.13	76.68	EXTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE S220 (LEGAL)	2.76	55.17	EXTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE S335 (LEGAL)	1.58	55.41	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE S437 (LEGAL)	1.51	55.23	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE T330 (LEGAL)	2.12	63.58	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE T435 (LEGAL)	1.85	64.67	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE T540 (LEGAL)	1.63	65.22	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM

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

LOAD RATING SUMMARY (SOUTHBOUND)

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TONS)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.08	N/A	INTERIOR BEAM*	202	SHEAR MAXIMUM EFFECTS
HL-93 TANDEM (INVENTORY)	1.33	N/A	INTERIOR BEAM*	202	SHEAR MAXIMUM EFFECTS
HL-93 TRUCK TRAIN (INVENTORY)	1.43	N/A	EXTERIOR BEAM*	110	FLEXURE MINIMUM EFFECTS
HS-20 (INVENTORY)	1.55	55.63	INTERIOR BEAM*	202	SHEAR MAXIMUM EFFECTS
HL-93 TRUCK (OPERATING)	1.44	N/A	INTERIOR BEAM*	202	SHEAR MAXIMUM EFFECTS
HL-93 TANDEM (OPERATING)	1.77	N/A	INTERIOR BEAM*	202	SHEAR MAXIMUM EFFECTS
HL-93 TRUCK TRAIN (OPERATING)	1.85	N/A	EXTERIOR BEAM*	110	FLEXURE MINIMUM EFFECTS
HS-20 (OPERATING)	1.95	70.31	EXTERIOR BEAM	106	LONG. RE INF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE S220 (LEGAL)	2.52	50.50	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE S335 (LEGAL)	1.41	49.45	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE S437 (LEGAL)	1.35	49.29	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE T330 (LEGAL)	1.89	56.74	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE T435 (LEGAL)	1.65	57.71	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM
DE T540 (LEGAL)	1.46	58.20	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECT DL+PS+LL BOT. OF BEAM

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

* LIVE LOAD CONTINUITY CONDITION CONTROLLED RATING.

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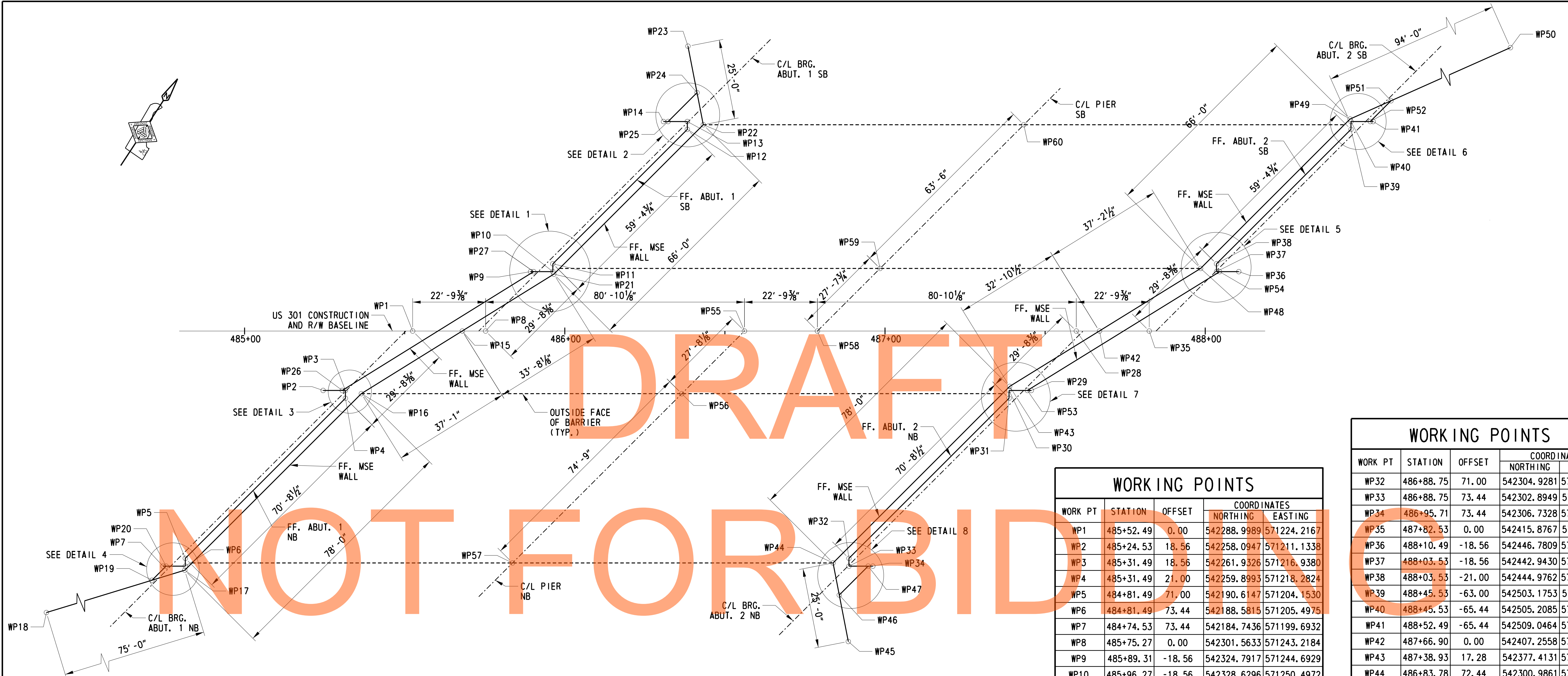
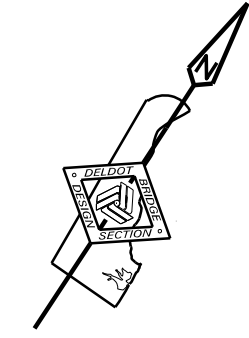
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-470N&S
T200911303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD
INDEX OF DRAWINGS
AND LOAD RATINGS

SHEET NO.	1-470 GN-2
TOTAL SHTS.	307
	1256



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

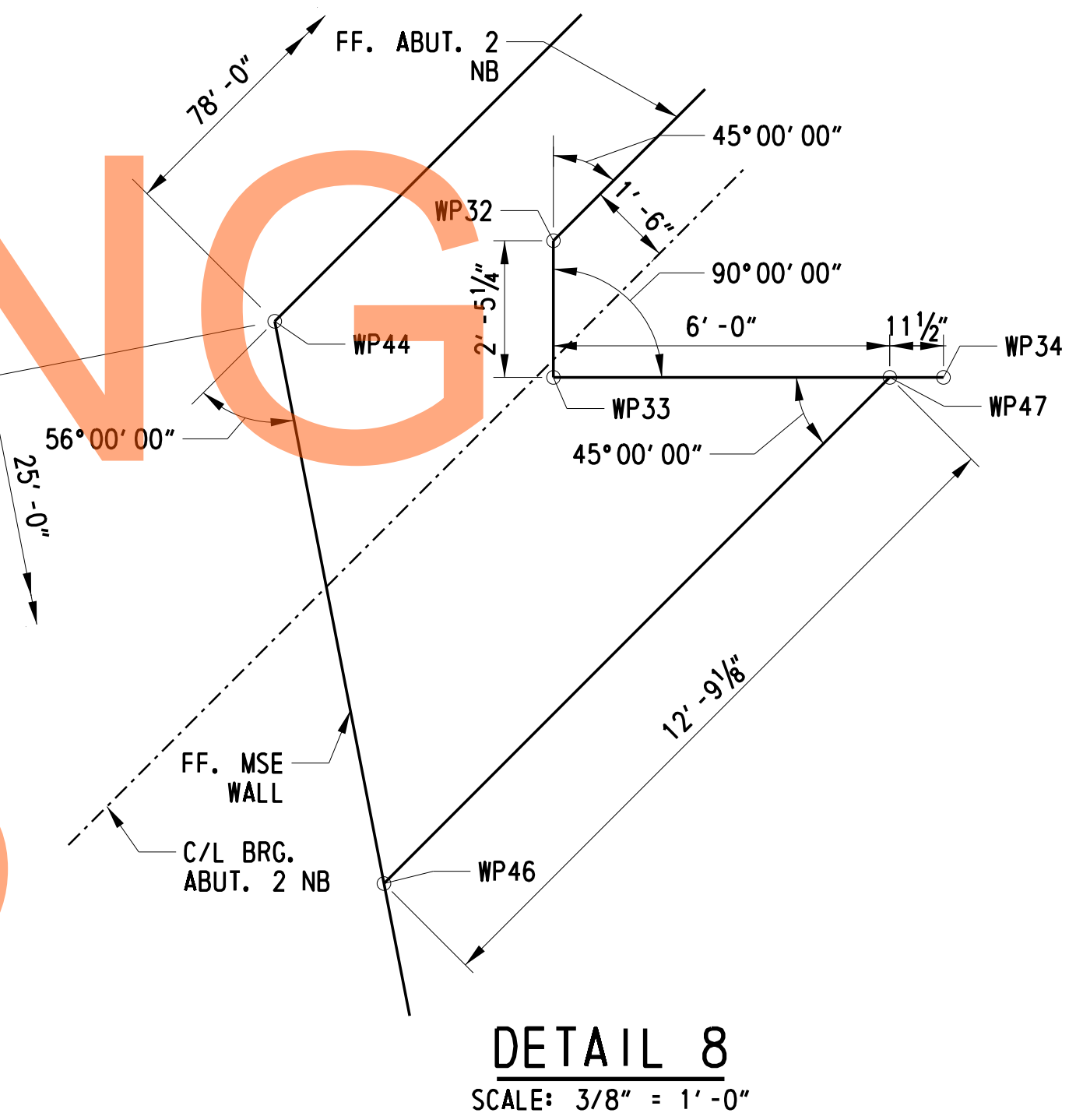
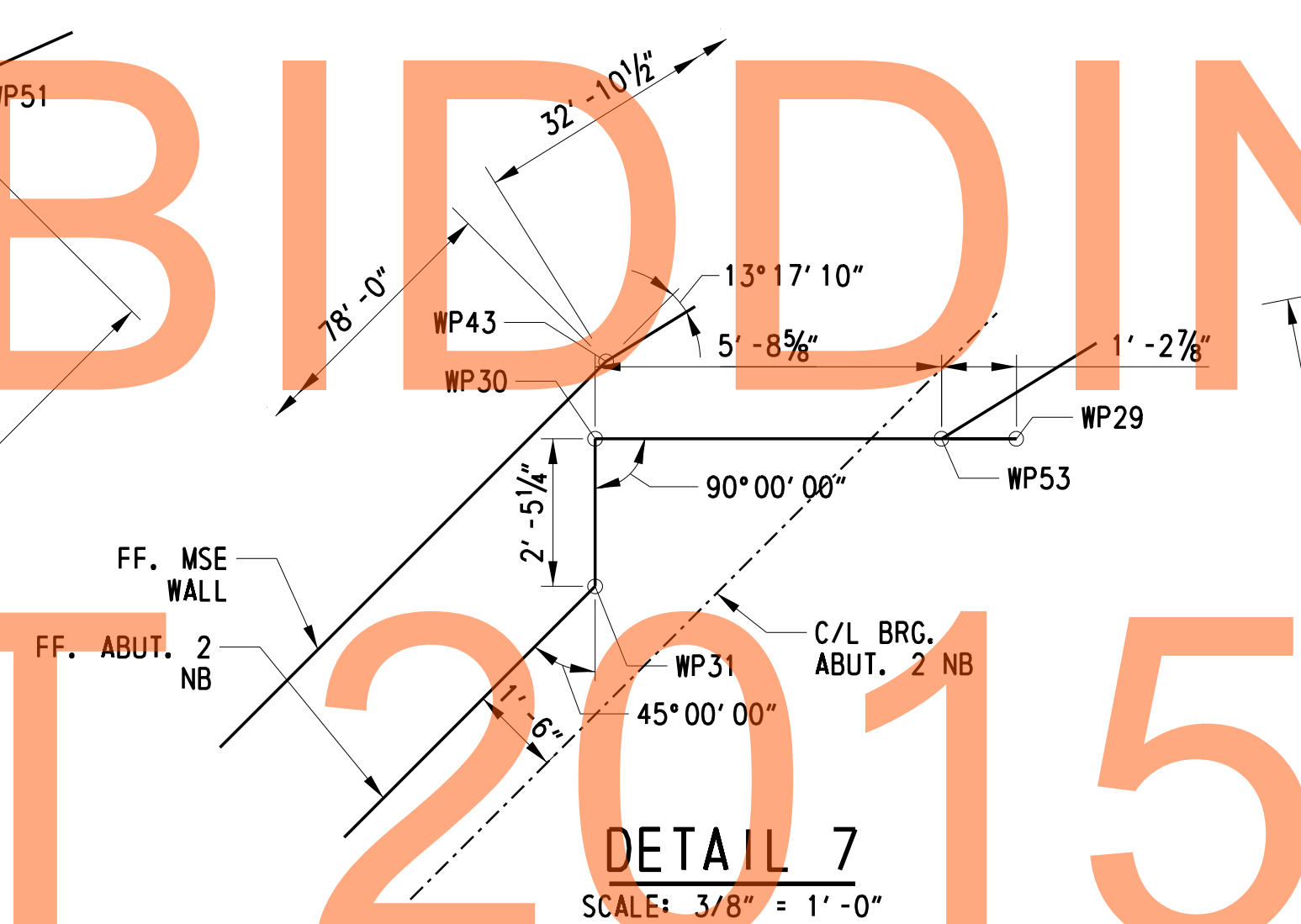
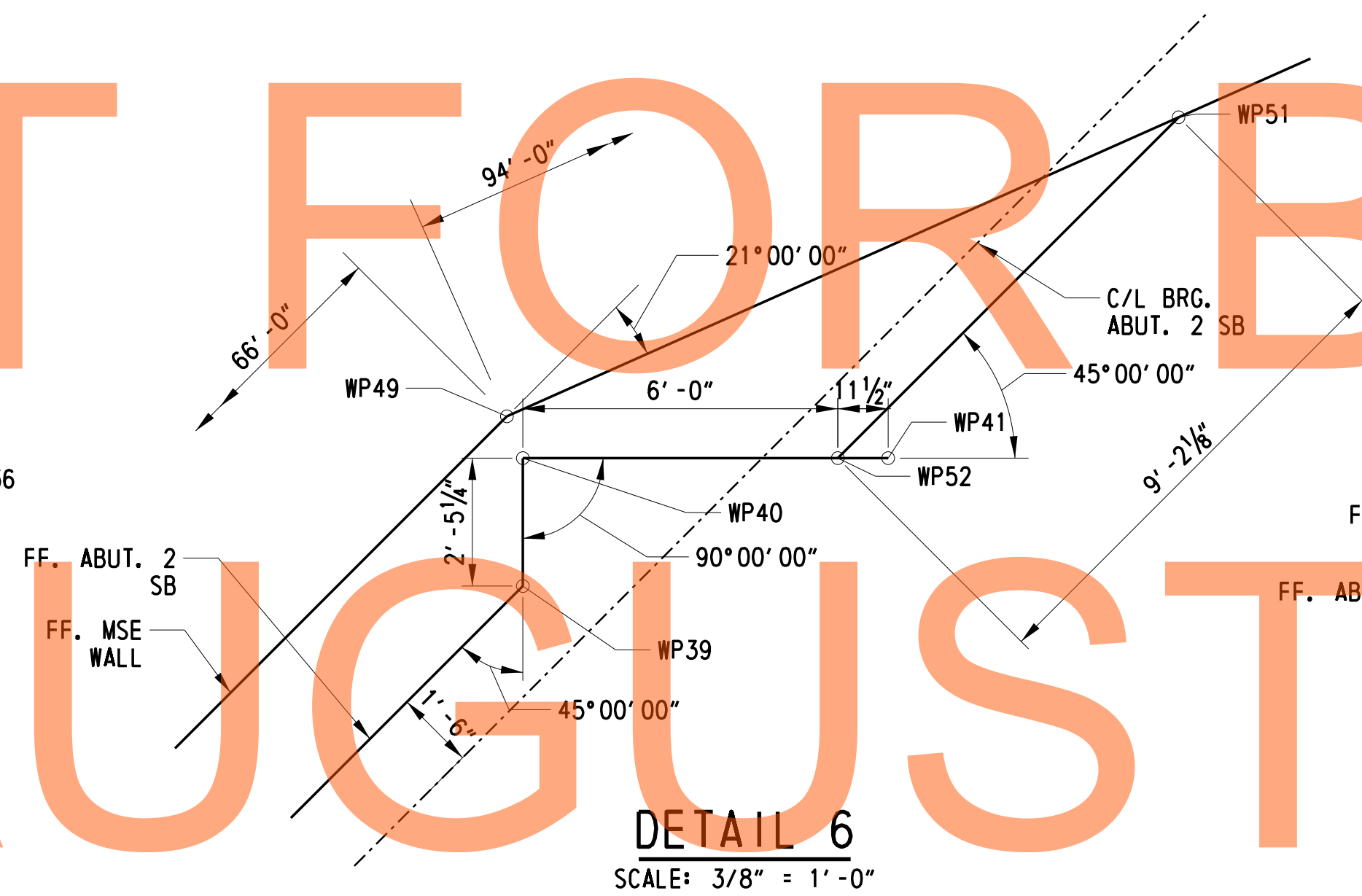
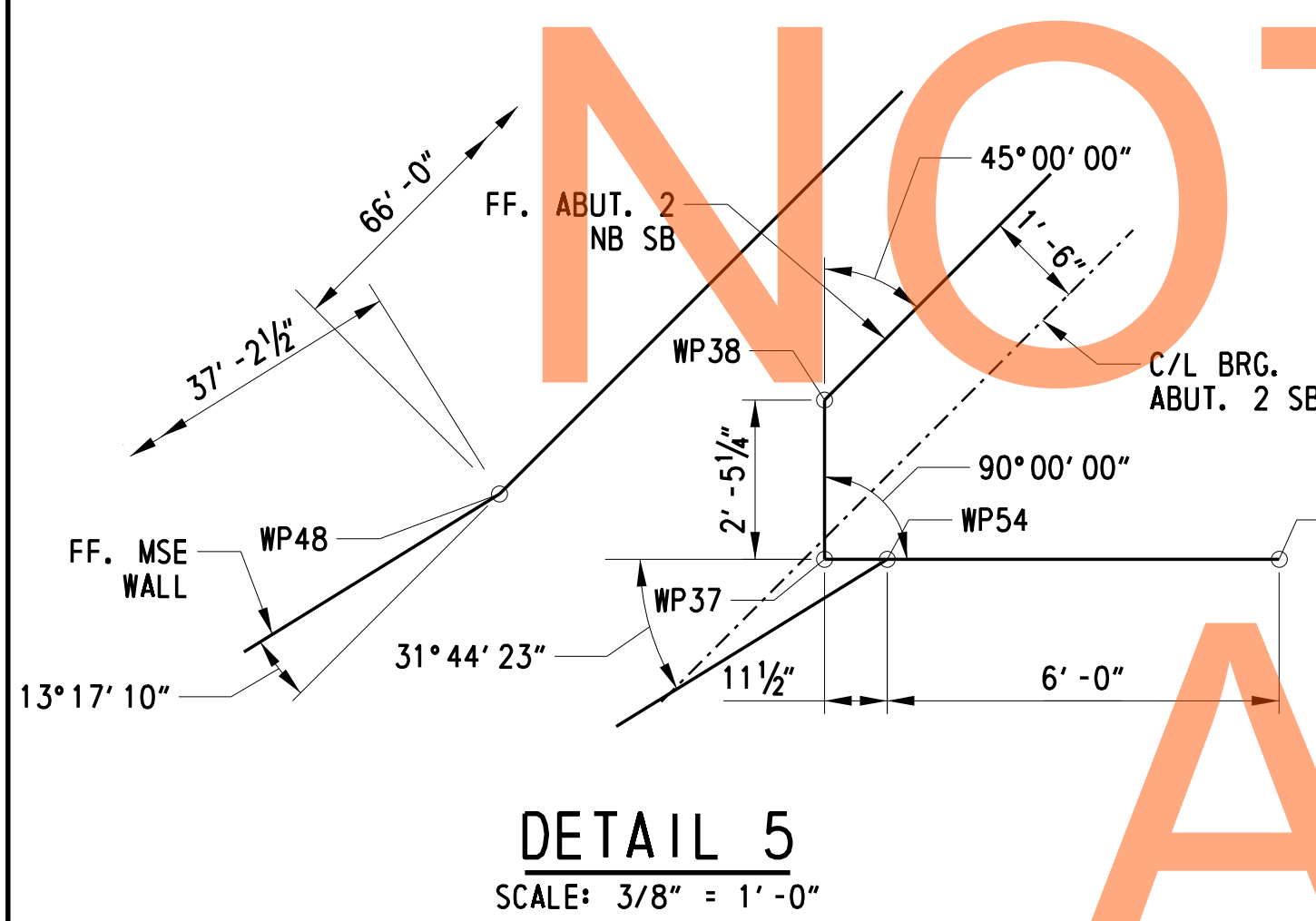
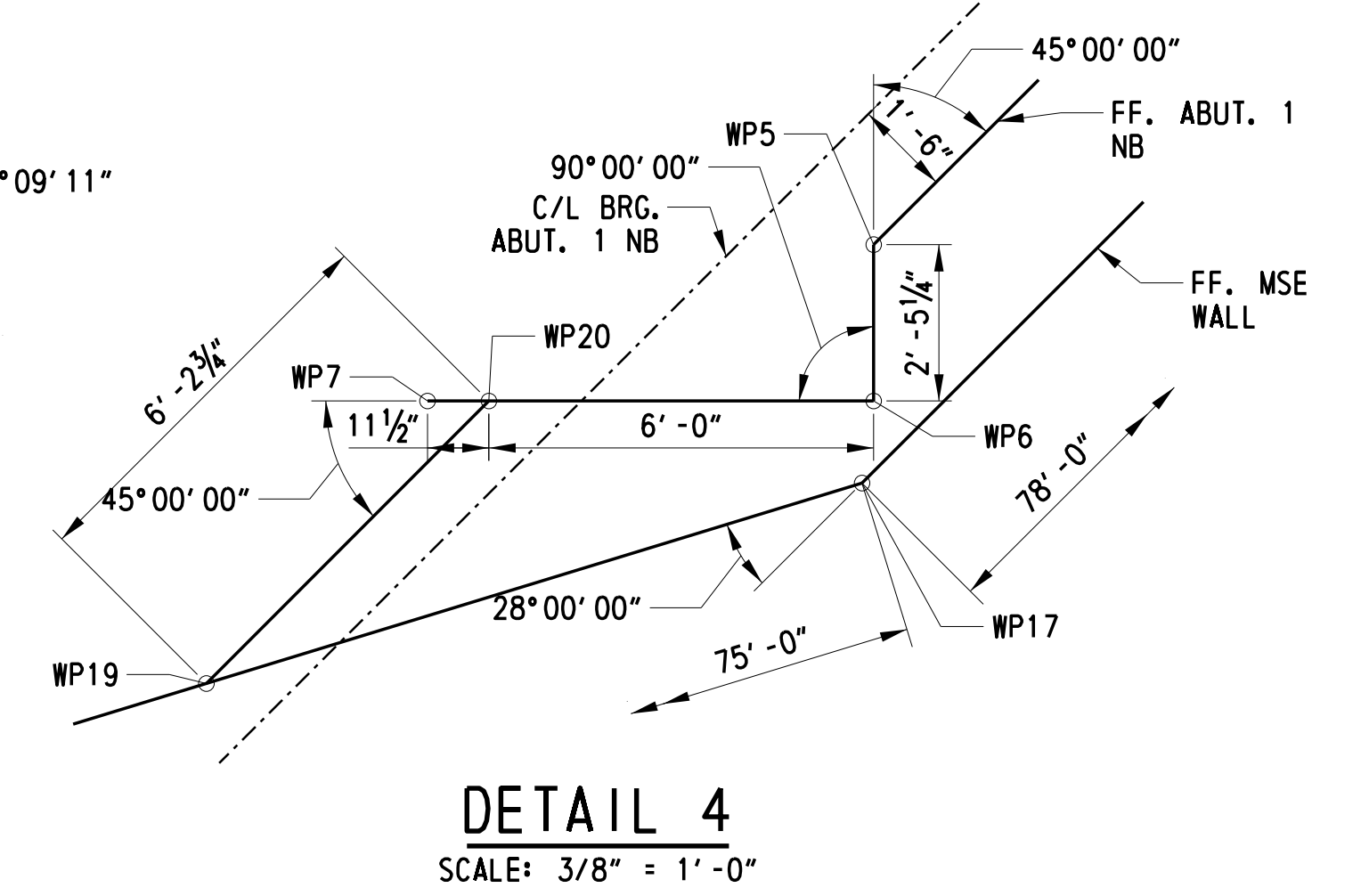
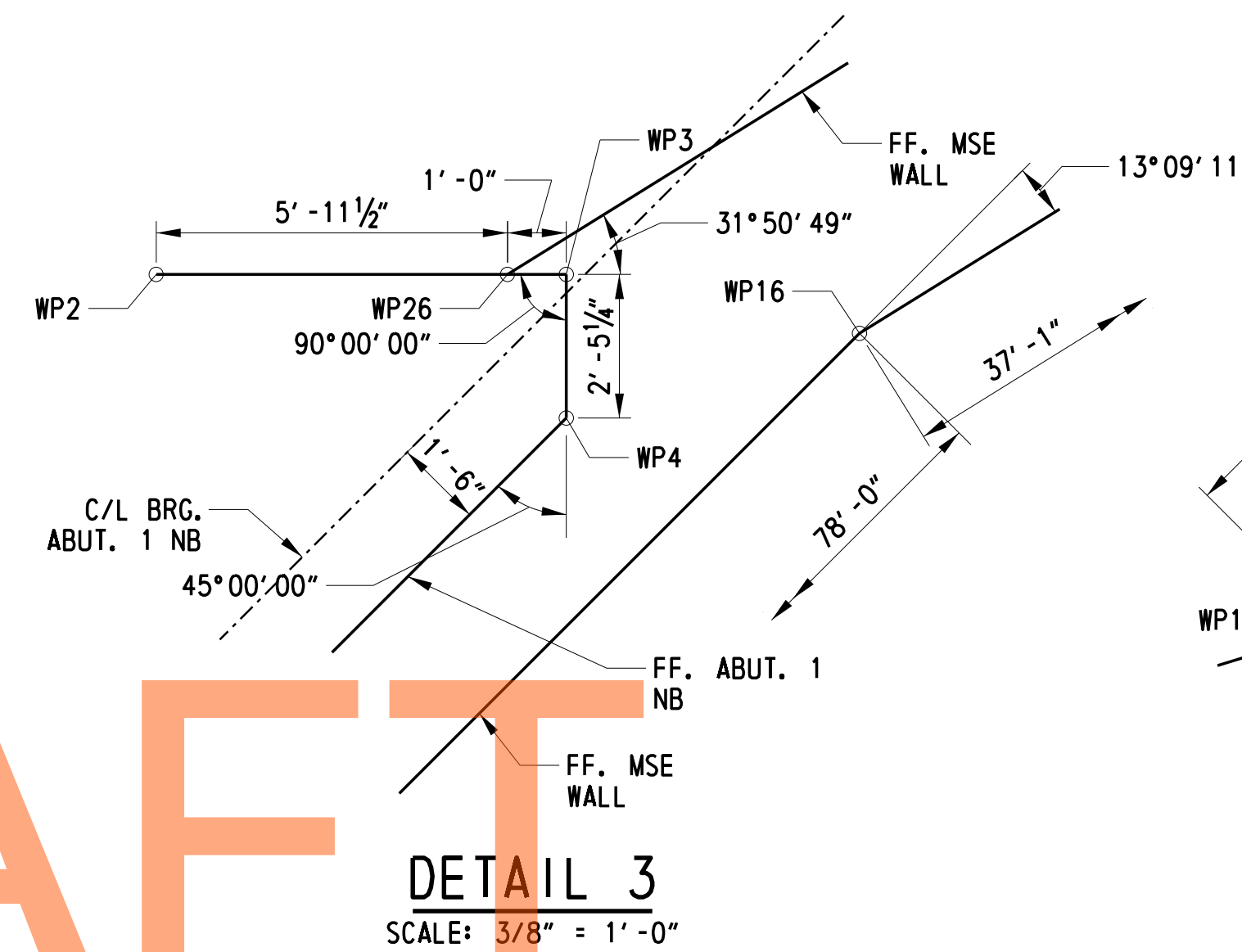
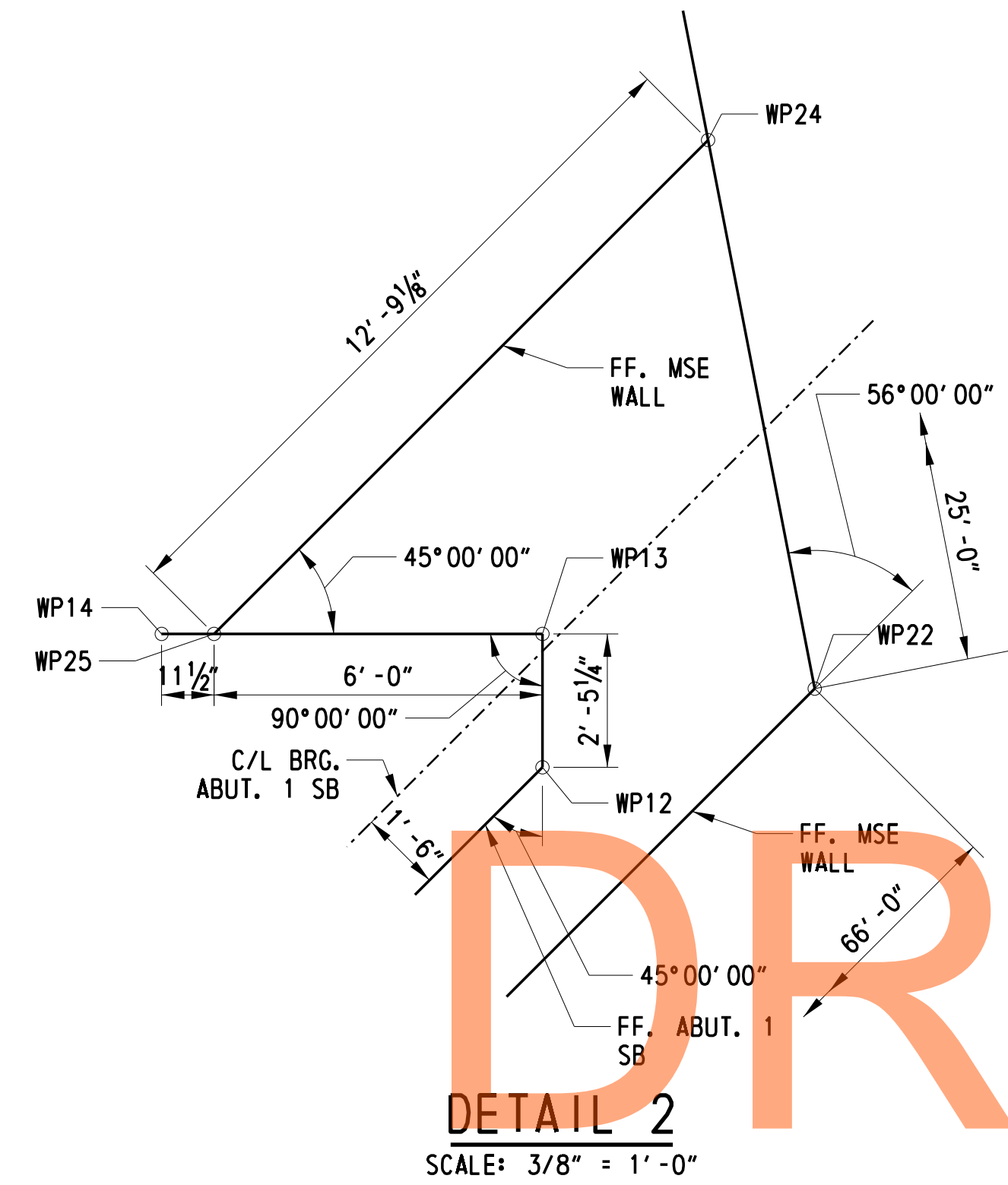
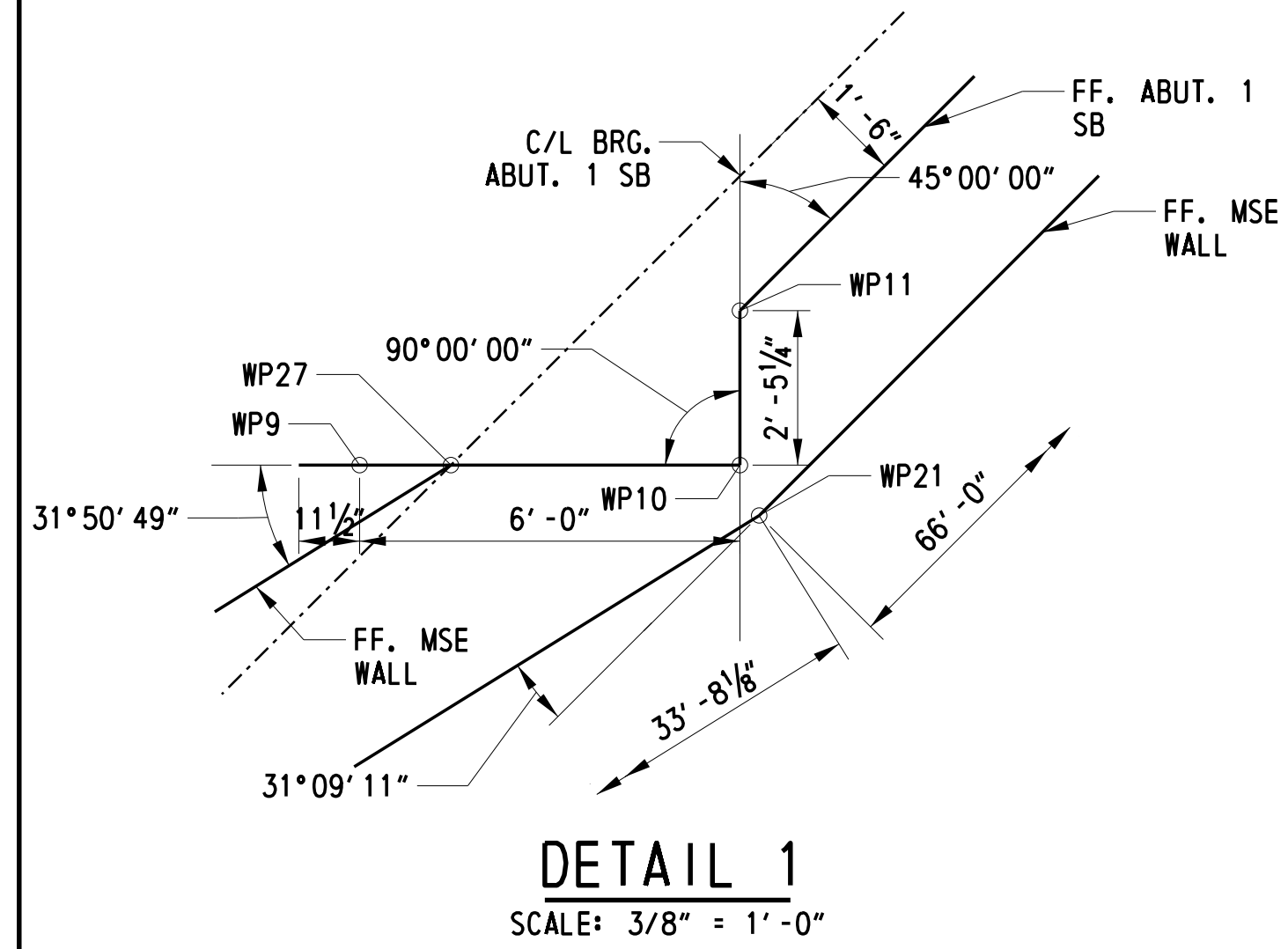
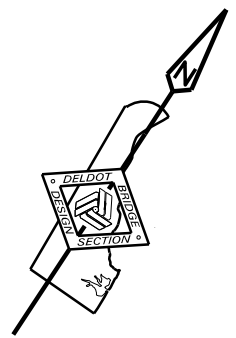
CROSS REFERENCE NOTES:
1. FOR DETAILS, SEE DWG. 1-470 GG-2.

WORK PT	STATION	OFFSET	COORDINATES	
			NORTHING	EASTING
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WP2	485+24.53	18.56	542258.0947	571211.1338
WP3	485+31.49	18.56	542261.9326	571216.9380
WP4	485+31.49	21.00	542259.8993	571218.2824
WP5	484+81.49	71.00	542190.6147	571204.1530
WP6	484+81.49	73.44	542188.5815	571205.4975
WP7	484+74.53	73.44	542184.7436	571199.6932
WP8	485+75.27	0.00	542301.5633	571243.2184
WP9	485+89.31	-18.56	542324.7917	571244.6929
WP10	485+96.27	-18.56	542328.6296	571250.4972
WP11	485+96.27	-21.00	542330.6628	571249.1528
WP12	486+38.27	-63.00	542388.8619	571261.0214
WP13	486+38.27	-65.44	542390.8951	571259.6770
WP14	486+31.31	-65.44	542387.0572	571253.8728
WP15	485+67.96	0.00	542297.5295	571237.1180
WP16	485+36.46	19.56	542263.8413	571221.6377
WP17	484+81.31	74.72	542187.4144	571206.0518
WP18	484+09.59	96.64	542129.5645	571158.3193
WP19	484+71.09	77.84	542179.1681	571199.2478
WP20	484+75.49	73.44	542185.2722	571200.4926
WP21	485+96.57	-17.77	542328.1376	571251.1828
WP22	486+43.24	-64.44	542392.8066	571264.3709
WP23	486+38.47	-88.98	542410.6459	571246.8564
WP24	486+41.30	-74.46	542400.0910	571257.2224
WP25	486+32.27	-65.44	542387.5858	571254.6722
WP26	485+30.49	18.56	542261.3822	571216.1057
WP27	485+90.26	-18.56	542325.3144	571245.4834
WP28	487+59.75	0.00	542403.3123	571397.0984
WP29	487+45.71	18.56	542380.0838	571395.6239
WP30	487+38.75	18.56	542376.2460	571389.8196
WP31	487+38.75	21.00	542374.2127	571391.1640

WORK PT	STATION	OFFSET	COORDINATES	
			NORTHING	EASTING
WP32	486+88.75	71.00	542304.9281	571377.0347
WP33	486+88.75	73.44	542302.8949	571378.3791
WP34	486+95.71	73.44	542306.7328	571384.1833
WP35	487+82.53	0.00	542415.8767	571416.1001
WP36	488+10.49	-18.56	542446.7809	571429.1830
WP37	488+03.53	-18.56	542442.9430	571423.3788
WP38	488+03.53	-21.00	542444.9762	571422.0344
WP39	488+45.53	-63.00	542503.1753	571433.9031
WP40	488+45.53	-65.44	542505.2085	571432.5586
WP41	488+52.49	-65.44	542509.0464	571438.3629
WP42	487+66.90	0.00	542407.2558	571403.0624
WP43	487+38.93	17.28	542377.4131	571389.2652
WP44	486+83.78	72.44	542300.9861	571373.6793
WP45	486+88.55	96.98	542283.1468	571391.1939
WP46	486+85.72	82.46	542293.6991	571380.8337
WP47	486+94.75	73.44	542306.2042	571383.3839
WP48	487+98.56	-19.56	542441.0390	571418.6812
WP49	488+45.23	-66.23	542505.7079	571431.8693
WP50	489+31.10	-104.47	542584.9635	571482.4120
WP51	488+58.02	-71.93	542517.5117	571439.3976
WP52	488+51.53	-65.44	542508.5178	571437.5635
WP53	487+44.47	18.56	542379.4010	571394.5911
WP54	488+04.49	-18.56	542443.4713	571424.1778
WP55	486+56.12	0.00	542346.1556	571310.6575
WP56	486+36.55	19.57	542319.0350	571305.1268
WP57	485+83.69	72.43	542245.7925	571290.1903
WP58	486+78.90	0.00	542358.7200	571329.6593
WP59	486+98.45	-19.55	542385.8094	571335.1836
WP60	487+43.35	-64.45	542448.0288	571347.8722
WP61	485+50.37	0.00	542287.8289	571222.4472
WP62	487+61.87	0.00	542404.4823	571398.8678
WP63	485+73.15	0.00	542300.3932	571241.4490
WP64	487+84.65	0.00	542417.0467	571417.8695

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1-470 GG-1



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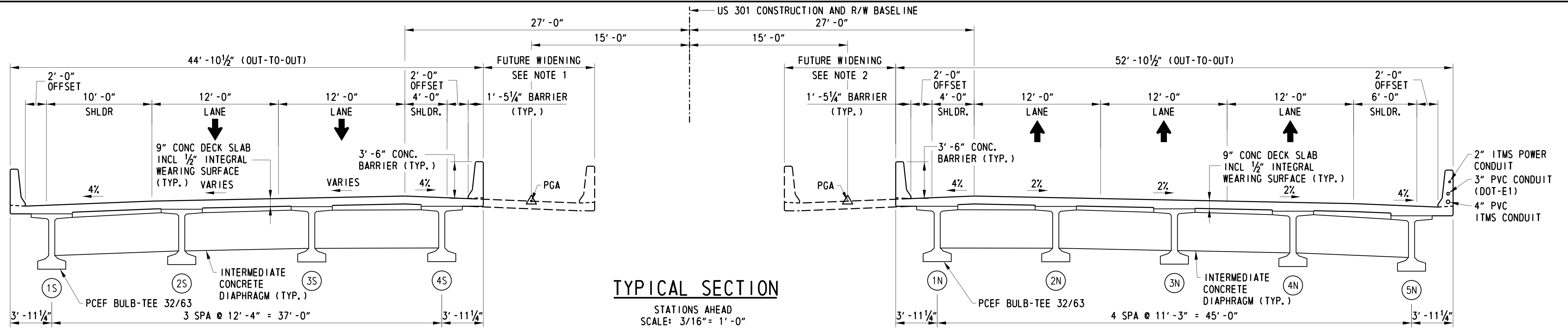
NOT FOR BIDDING

AUGUST 2015

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DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE FEET	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200911303 COUNTY NEW CASTLE	BRIDGE NO. 1-470N&S DESIGNED BY: ADH CHECKED BY: DHG	US 301 MAINLINE OVER SUMMIT BRIDGE ROAD GEOMETRIC LAYOUT - DETAILS	SHEET NO. 309 TOTAL SHTS. 1256

1-470 GG-2



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

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	106	97	203
602003	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT FOOTING, CLASS A	CY	136	121	257
602006	PORTLAND CEMENT CONCRETE MASONRY, PIER FOOTING, CLASS B	CY	88	88	176
602007	PORTLAND CEMENT CONCRETE MASONRY, PIER ABOVE FOOTING, CLASS A	CY	100	94	194
602013	PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D	CY	470	395	865
602014	PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D	CY	218	198	416
602015	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT, ABOVE FOOTING, CLASS A	CY	46	42	88
602017	PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A	CY	77	77	154
602772	MECHANICALLY STABILIZED EARTH WALLS	LS	-	-	-
603000	BAR REINFORCEMENT	LBS	35,270	28,470	63,740
604000	BAR REINFORCEMENT, EPOXY COATED	LBS	193,840	170,880	364,720
605511	PREFABRICATED EXPANSION JOINT SYSTEM, 3"	LF	156	133	289
618041 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE PILES, 14"	LF	1,499	1,304	2,803
618042 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE PILES, 16"	LF	1,803	1,811	3,614

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NORTHBOUND QUANTITIES	SOUTHBOUND QUANTITIES	TOTAL
618046 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE TEST PILES, 14"	LF	136	139	275
618047 (ALTERNATE)	FURNISH CAST-IN-PLACE CONCRETE TEST PILES, 16"	LF	39	39	78
618081	FURNISH PRECAST PRESTRESSED CONCRETE PILE, 14"x14"	LF	3,868	3,682	7,550
618091	FURNISH PRECAST PRESTRESSED CONCRETE TEST PILE, 14"x14"	LF	183	187	370
619021 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE PILES, 14"	LF	1,499	1,304	2,803
619022 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE PILES, 16"	LF	1,803	1,811	3,614
619025 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE TEST PILES, 14"	LF	136	139	275
619026 (ALTERNATE)	INSTALL CAST-IN-PLACE CONCRETE TEST PILES, 16"	LF	39	39	78
619061	INSTALL PRECAST PRESTRESSED CONCRETE PILE, 14"x14"	LF	3,868	3,682	7,550
619067	INSTALL PRECAST PRESTRESSED CONCRETE TEST PILE, 14"x14"	LF	183	187	370
619501	PRODUCTION PILE RESTRIKE	EA	5	5	10
619502	TEST PILE RESTRIKE	EA DY	3	3	6
619519	DYNAMIC PILE TESTING BY CONTRACTOR	EA	3	3	6
619539	SIGNAL MATCHING ANALYSIS BY CONTRACTOR	EA	3	3	6
623000	PRESTRESSED REINFORCED CONCRETE MEMBERS	LS	-	-	-
745522	SUPPLY OF 3" SCHEDULE 80 PVC CONDUIT	LF	295	-	295
746596	JUNCTION BOX ON STRUCTURE	EA	2	-	2

SUPERELEVATION TABLE

NORTHBOUND			
STATION	INSIDE SHOULDER	OUTSIDE SHOULDER	ROADWAY
483+57.50	0.04 FT/FT LT	0.04 FT/FT RT	0.04 FT/FT RT
484+78.00	0.04 FT/FT LT	0.04 FT/FT RT	0.02 FT/FT RT
SOUTHBOUND			
STATION	INSIDE SHOULDER	OUTSIDE SHOULDER	ROADWAY
484+78.00	0.04 FT/FT RT	0.04 FT/FT LT	0.02 FT/FT RT
485+99.00	0.04 FT/FT RT	0.04 FT/FT LT	0.00 FT/FT
487+20.00	0.04 FT/FT RT	0.04 FT/FT LT	0.02 FT/FT LT

CROSS REFERENCE NOTES:

- FOR LOCATIONS OF CONDUITS AND JUNCTION BOXES, SEE DWG. L1-25.
- FOR ITMS AND LIGHTING CONDUITS, JUNCTION BOX DETAILS, AND CONDUIT EXPANSION JOINT DETAILS, SEE DWG. L1-30.
- INSTALLATION OF CONDUIT, CONDUIT EXPANSION JOINTS, AND JUNCTION BOXES SHALL BE INCIDENTAL TO ITEM 602017, PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A.
- FOR DEPTH OF DECK AT CENTER LINE OF BEARING, SEE DWG. 1-470 PA-1.

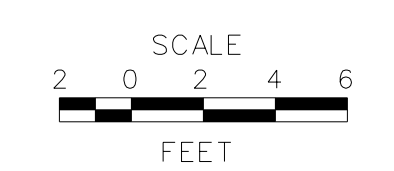
NOTES:

- 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.
- CROSS SLOPE OF FUTURE LANE TRANSITIONS FROM SUPER ELEVATION TO 2% DOWN TO THE PGA. THE CURRENT FASCIA BEAM HAUNCH WOULD NEED TO BE ADJUSTED TO ACCOUNT FOR CHANGE IN ELEVATION OF DECK SLAB.

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ADDENDUMS / REVISIONS

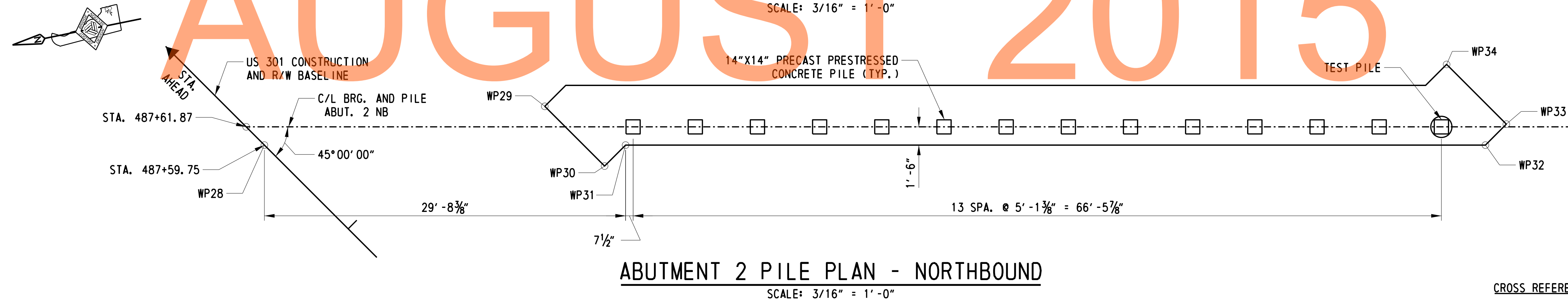
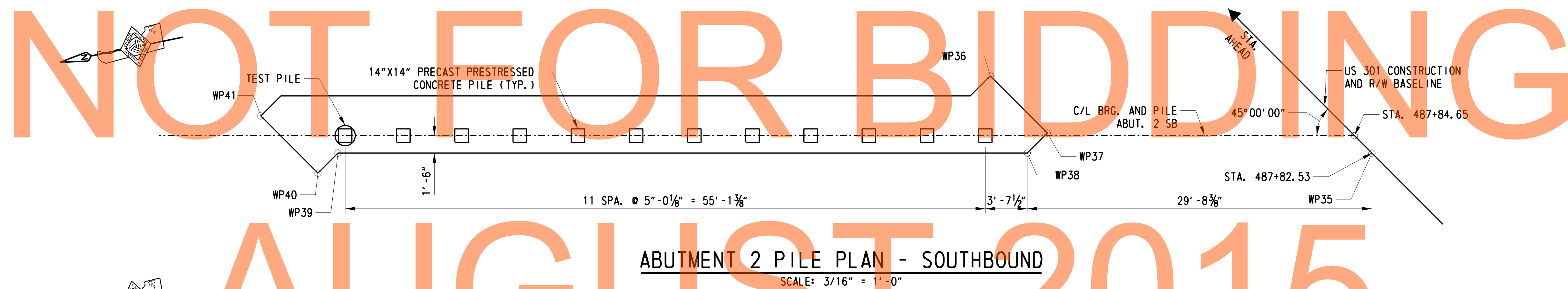
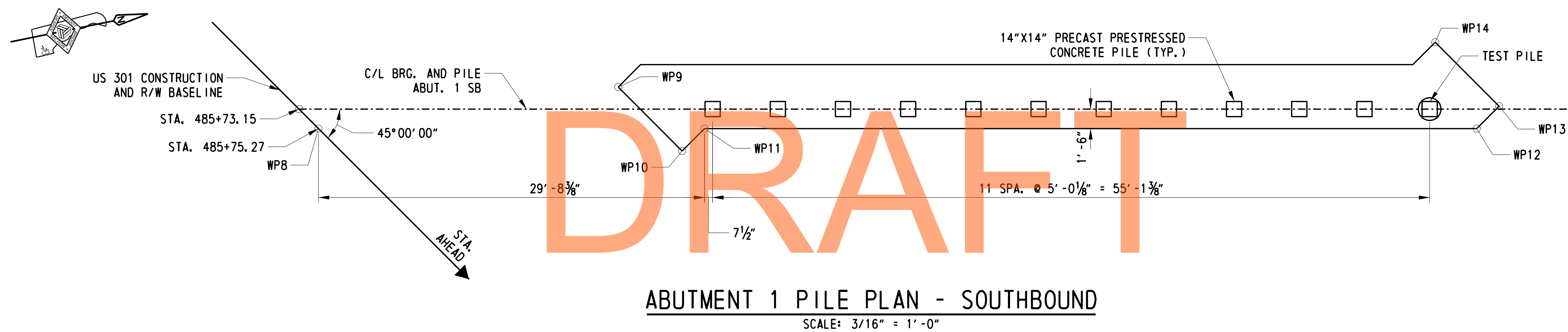
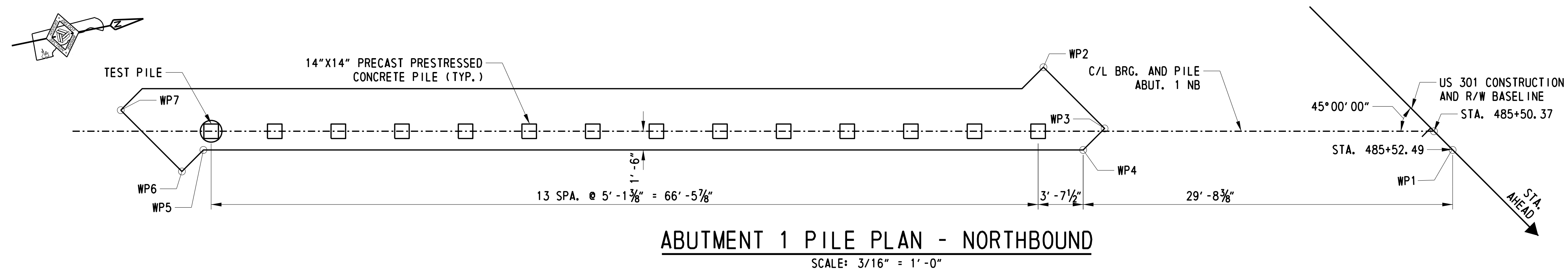


US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-470N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD
TYPICAL SECTION
AND QUANTITIES

1-470 TS-1	
SHEET NO.	310
TOTAL SHTS.	1256



CROSS REFERENCE NOTE:

- FOR PILES NOTES, SECTIONS AND DETAILS, SEE SHEET 1-470 PL-2.

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PILE NOTES:

1. PILES SHALL BE 14"x14" PRECAST PRESTRESSED CONCRETE PILES. PILES SHALL NOT BE COATED. PILES SHALL BE CASED.
2. 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 $f'ci=4800$ PSI.
3. 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.
4. SPIRAL TIES SHALL BE #5 GAGE STEEL WIRE CONFORMING TO THE REQUIREMENTS OF AASHTO M32 (ASTM A82).
5. THE SPLICING OF PRESTRESSED PRECAST CONCRETE PILES SHALL NOT BE PERMITTED.
6. REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
7. PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS DURING THE ABUTMENT MSE WALL CONSTRUCTION.
8. A MINIMUM QUARANTINE PERIOD OF 30 DAYS IS REQUIRED AFTER THE CONSTRUCTION OF THE FULL HEIGHT OF THE FILL AT THE ABUTMENTS IS ACHIEVED.
9. PILES MAY NOT BE DRIVEN UNTIL AFTER COMPLETION OF THE QUARANTINE PERIOD.
10. 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.
11. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD, BASED ON RESULTS OF INSTRUMENTATION.
12. SEE THE SPECIAL PROVISIONS 202505 AND 202518 FOR SETTLEMENT MONITORING REQUIREMENTS.
13. ALL PILES SHALL BE DRIVEN TO THE NOMINAL PILE DRIVING RESISTANCE LISTED IN THE PILE INSTALLATION DATA TABLE.
14. TEST PILES SHALL BE 10 FEET LONGER THAN PRODUCTION PILES AS INDICATED ON PILE INSTALLATION DATA TABLE.
15. 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.
16. 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.
17. DELDOT STANDARD SPECIFICATION 619.11(c)(6) SHALL BE MODIFIED BY REFERENCE TO SPECIAL PROVISIONS 619519 & 619539.
18. 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:
 - a.) 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.
 - b.) IF DIRECTED BY THE ENGINEER TO RESTRIKE A PRODUCTION PILE, THE RESTRIKE OF THE PRODUCTION PILE SHALL BE PAID SEPARATELY UNDER ITEM NO. 619501.
19. THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.
20. PROVIDE 1 1/2" DIAMETER PREFORMED HOLES IN PILE HEAD AT THE DOWEL LOCATIONS. DOWELS SHALL BE GROUTED 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.
21. MINIMUM COMPRESSIVE STRENGTH OF EPOXY GROUT SHALL BE $f'c=6000$ PSI.
22. THE COMPRESSIVE STRENGTH OF THE PILE BUILD-UP SHALL BE $f'c=6000$ PSI.
23. DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN A 1" CLEAR DISTANCE FROM ALL PRESTRESSING STRANDS IN THE PILE.

ADDITIONAL NOTES FOR CAST-IN-PLACE ALTERNATE:

1. A CONTRACTOR'S ALTERNATE OF USING 14" CAST-IN-PLACE CONCRETE PILES (14" MONOTUBES) IS ALLOWED. ASSUME A ONE TO ONE PILE SUBSTITUTION.
2. MONOTUBE SHELLS SHALL HAVE A 3 GAUGE THICKNESS, AN 8 IN TIP WITH A CLOSED CONICAL POINT, 14 IN BUTT, AND A 15 FT Y TAPER AT 0.40 IN/FT.
3. THE ESTIMATED TIP ELEVATION SHALL BE 21 FT AND 24 FT FOR ABUTMENTS 1 AND 2 RESPECTIVELY.
4. A NOMINAL PILE DRIVING RESISTANCE OF 255 KIPS SHALL BE OBTAINED.

PICK-UP NOTES:

1. 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.
2. 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.
3. 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.

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	255	21		
ABUTMENT 2	255	24		

ABUTMENT 1 PILE DRIVING INFORMATION

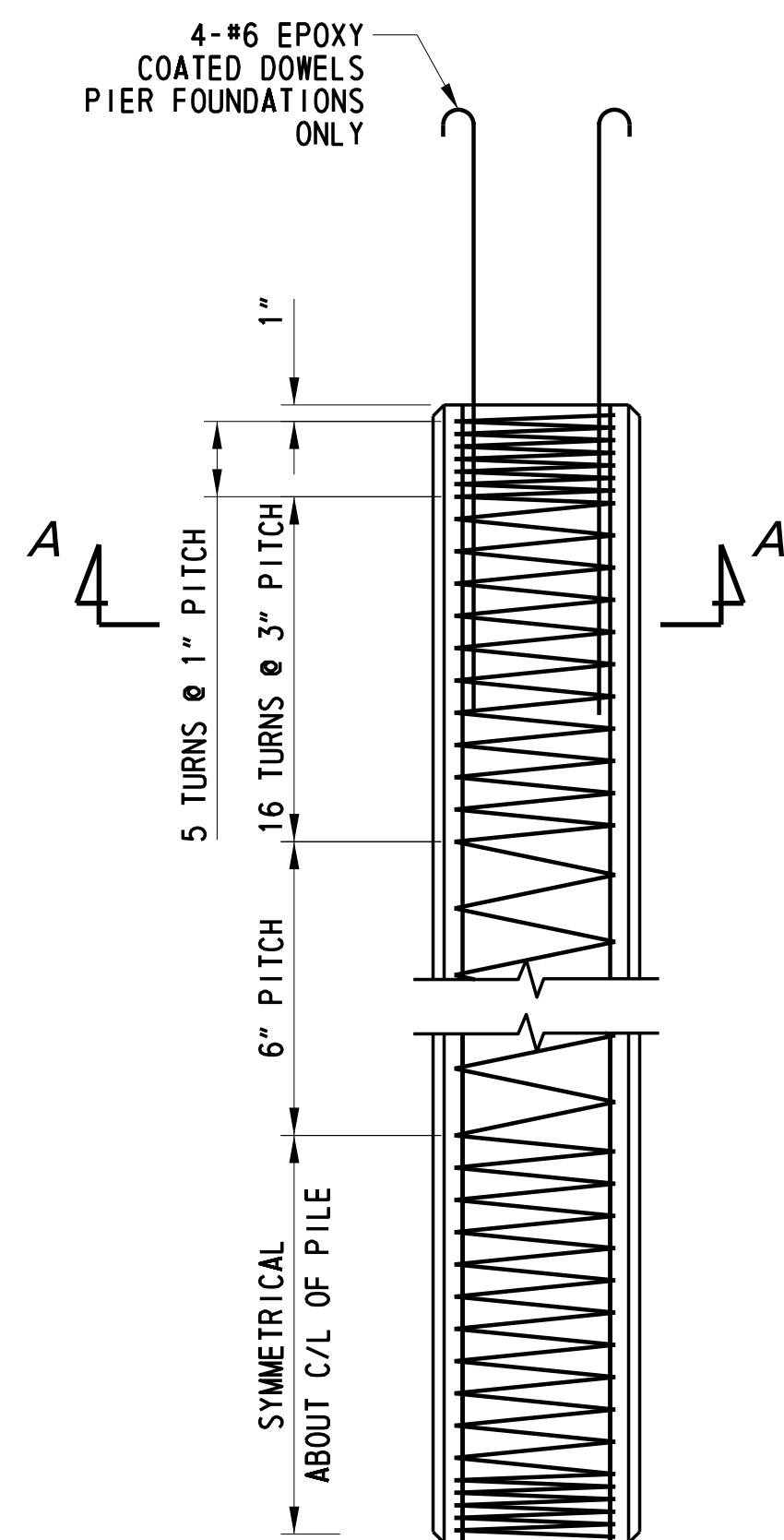
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

ABUTMENT 2 PILE DRIVING INFORMATION

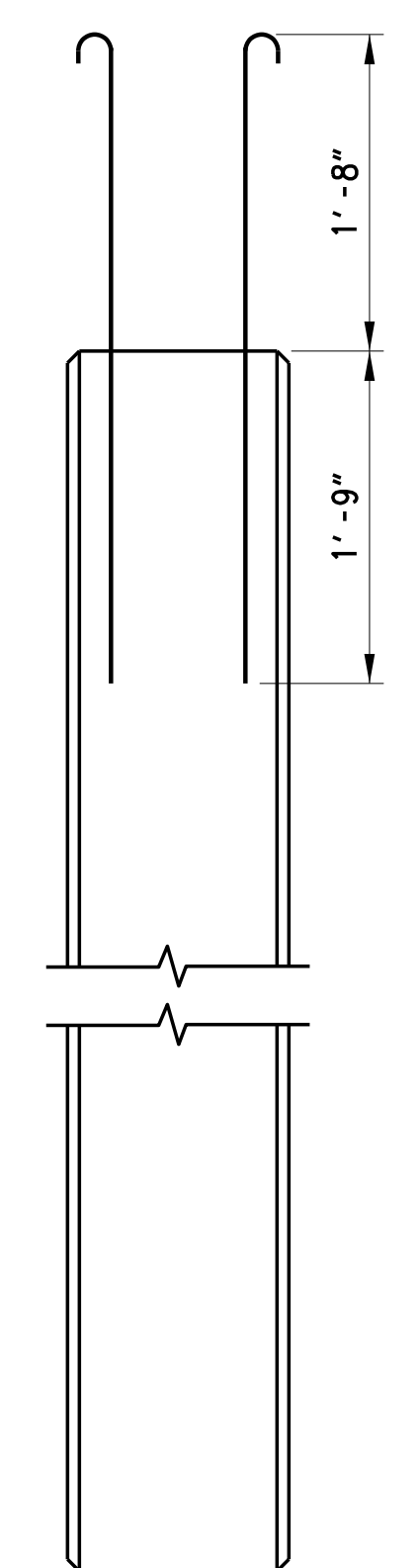
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

CROSS REFERENCE NOTE:

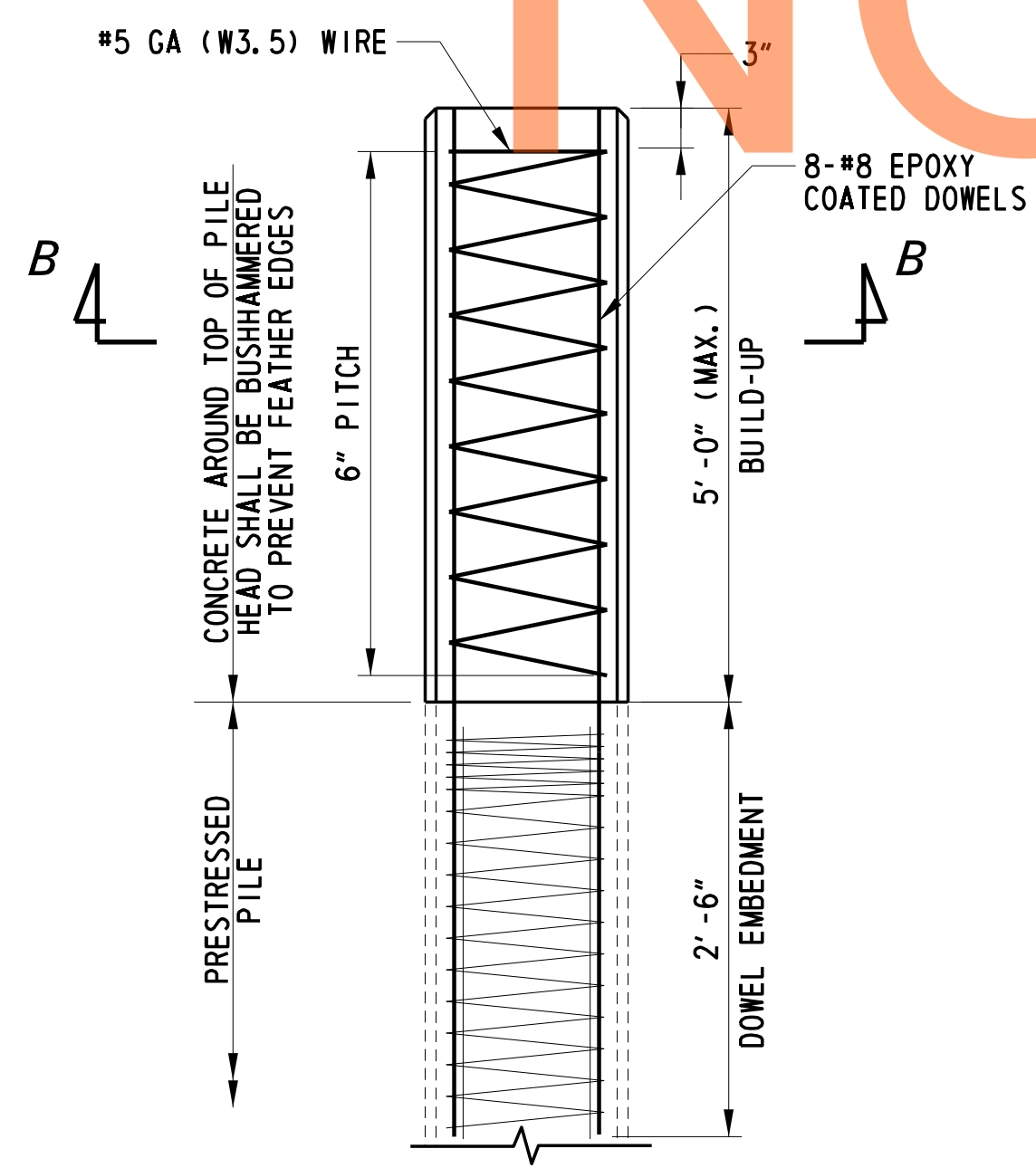
1. FOR PILE CASING DETAIL, SEE DWG. 1-470 AB-5.



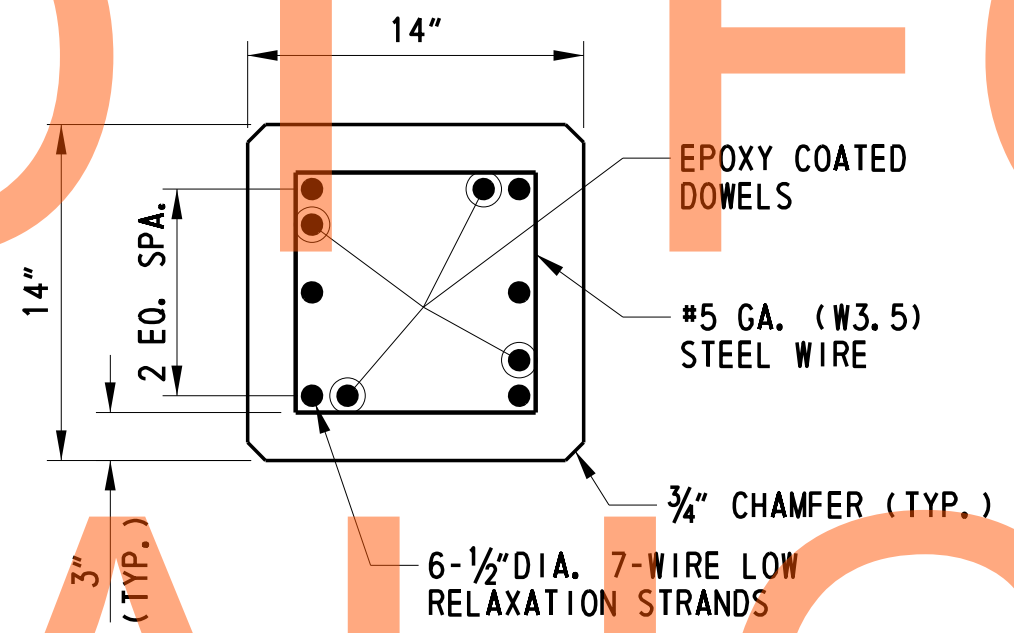
PRESTRESSED CONCRETE PILE
SCALE: 1" = 1'-0"



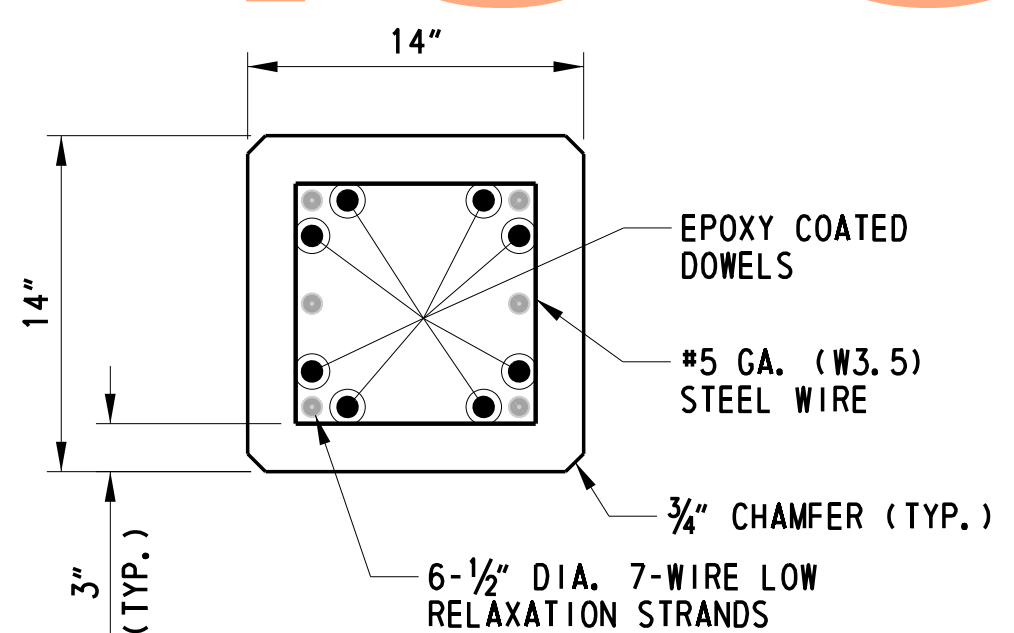
PILE DOWEL EMBEDMENT
SCALE: 1" = 1'-0"



PILE BUILD-UP DETAIL
SCALE: 1" = 1'-0"

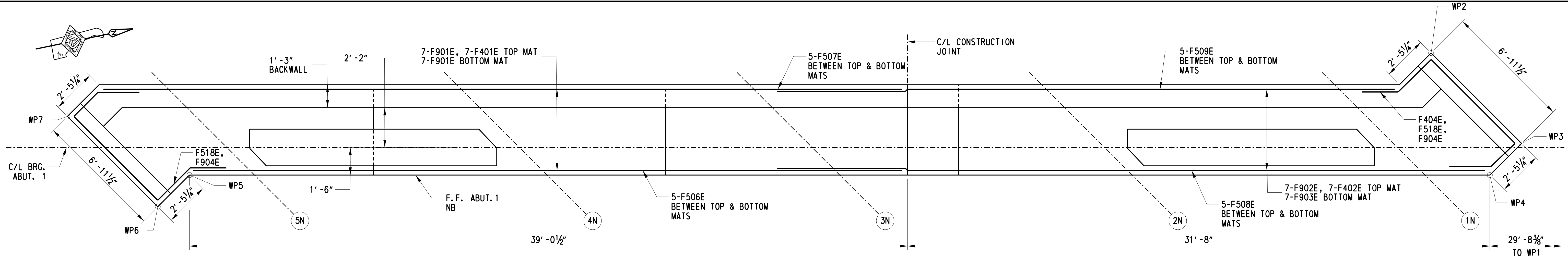


SECTION A-A
SCALE: 1 1/2" = 1'-0"



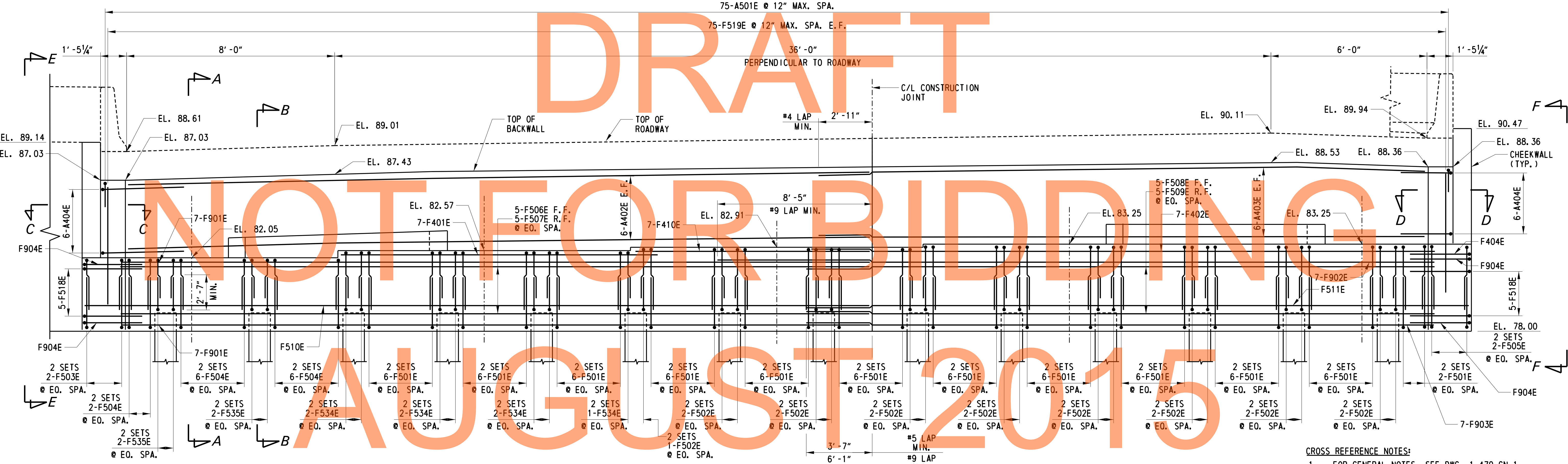
SECTION B-B
SCALE: 1 1/2" = 1'-0"

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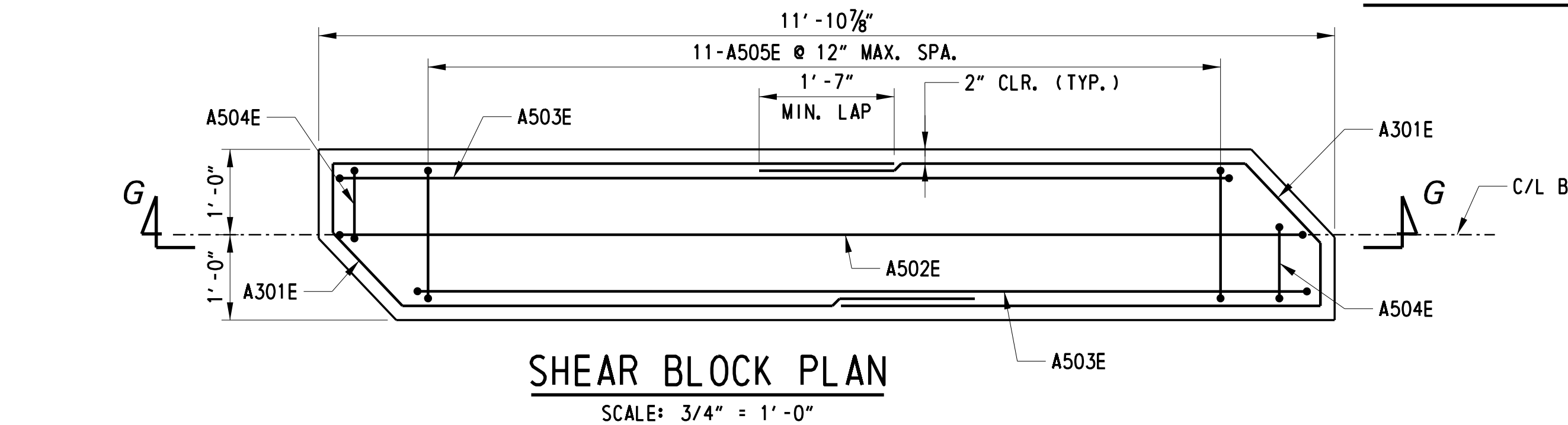
ABUTMENT 1 PLAN - NORTHBOUND

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



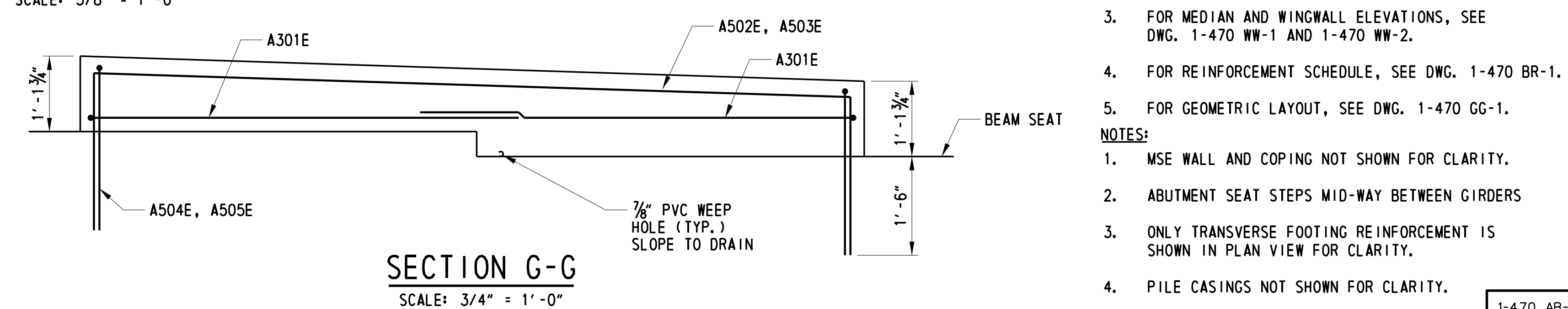
ABUTMENT 1 ELEVATION - NORTHBOUND

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



SHEAR BLOCK PLAN

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



SECTION G-G

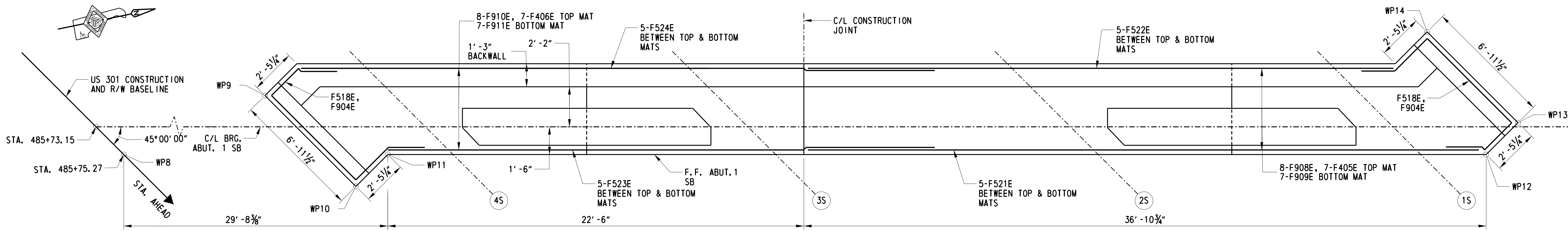
SCALE: 3/4" = 1'-0"

- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 - FOR SECTIONS AND DETAILS, SEE DWG. 1-470 AB-5.
 - FOR MEDIAN AND WINC WALL ELEVATIONS, SEE DWG. 1-470 WW-1 AND 1-470 WW-2.
 - FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-1.
 - FOR GEOMETRIC LAYOUT, SEE DWG. 1-470 GG-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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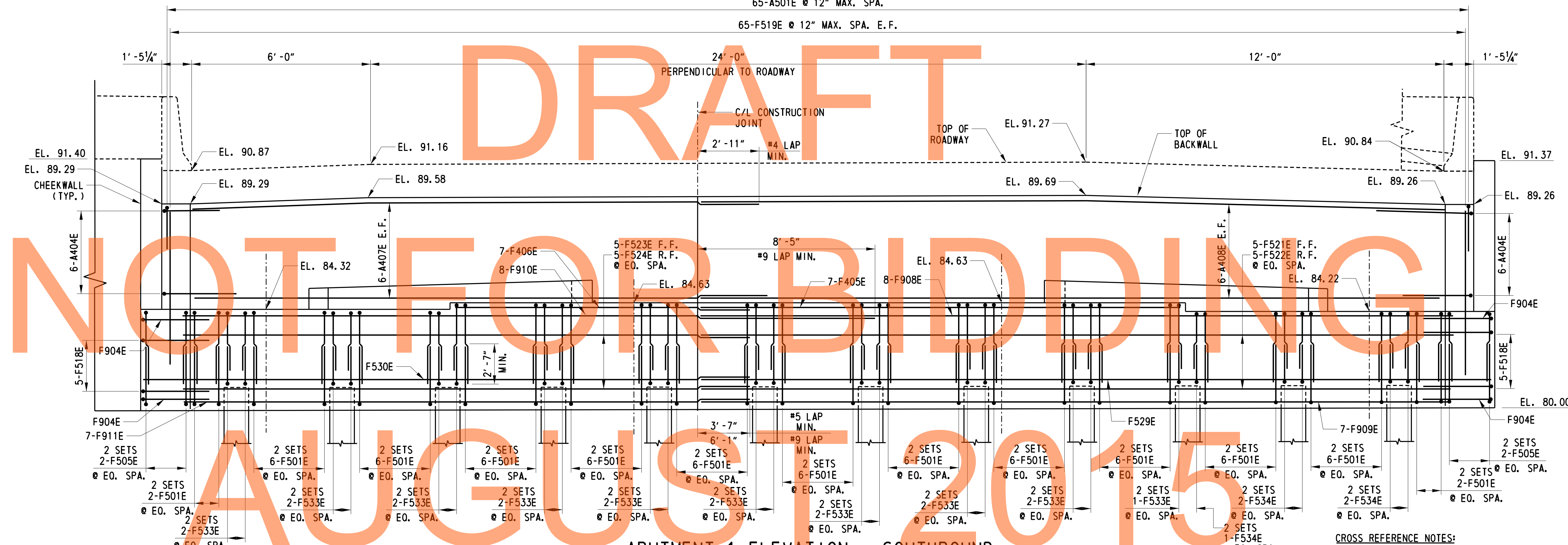
ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		



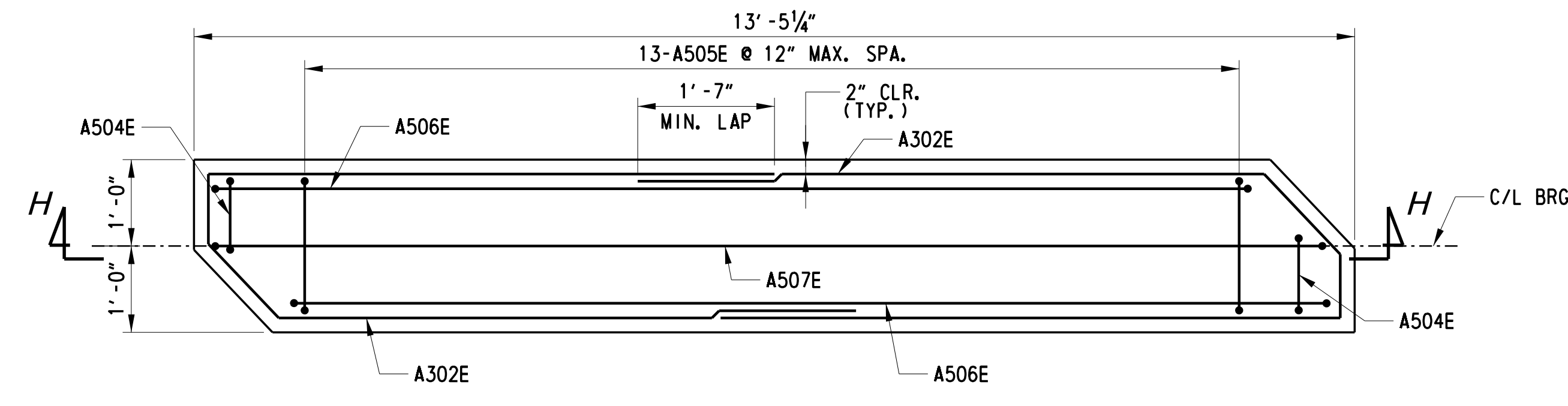
ABUTMENT 1 PLAN - SOUTHBOUND

SCALE: 3/8" = 1'-0"
65-A501E @ 12" MAX. SPA.



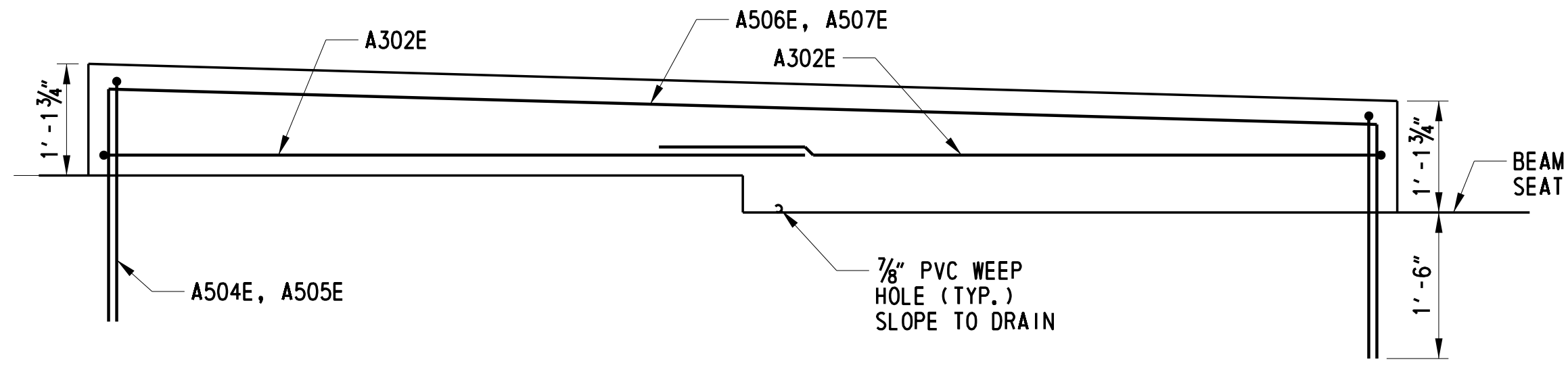
ABUTMENT 1 ELEVATION - SOUTHBOUND

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



SHEAR BLOCK PLAN

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



SECTION H-H

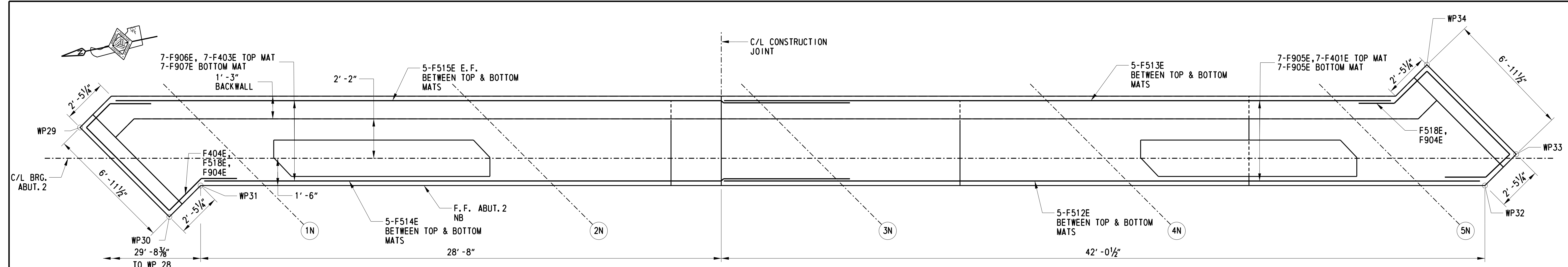
SCALE: 3/4" = 1'-0"

- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 - FOR SECTIONS AND DETAILS, SEE DWG. 1-470 AB-5.
 - FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-470 WW-1 AND 1-470 WW-2.
 - FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-1.
 - FOR GEOMETRIC LAYOUT, SEE DWG. 1-470 GG-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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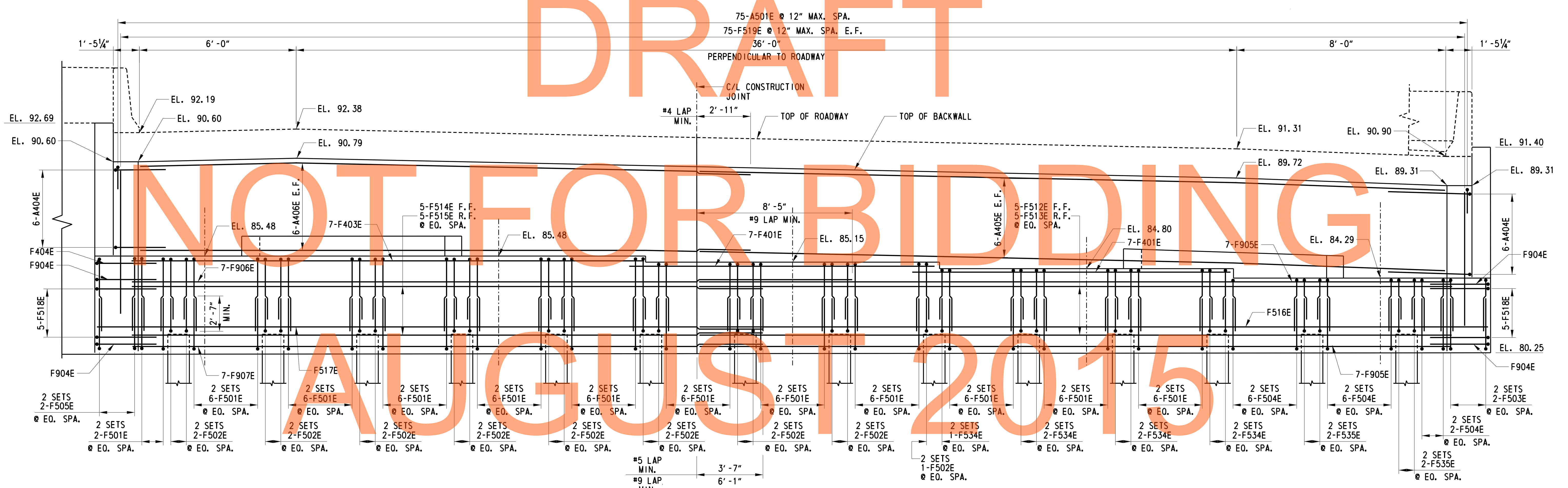
ADDENDUMS / REVISIONS

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-470N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG



ABUTMENT 2 PLAN - NORTHBOUND

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



ABUTMENT 2 ELEVATION - NORTHBOUND

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

NOTES:

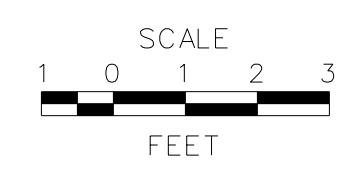
1. MSE WALL AND COPING NOT SHOWN FOR CLARITY.
2. ABUTMENT SEAT STEPS MID-WAY BETWEEN GIRDERS
3. ONLY TRANSVERSE FOOTING REINFORCEMENT IS SHOWN IN PLAN VIEW FOR CLARITY.
4. PILE CASINGS NOT SHOWN FOR CLARITY.

CROSS REFERENCE NOTES:

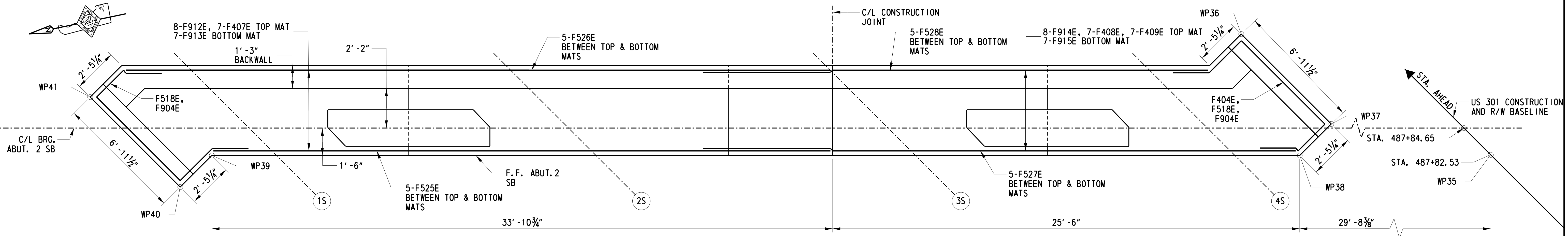
1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
2. FOR SECTIONS AND DETAILS, SEE DWG. 1-470 AB-5.
3. FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-470 WW-1 AND 1-470 WW-2.
4. FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-1.
5. FOR SHEAR BLOCK DETAILS, SEE DWG. 1-470 AB-1.
6. FOR GEOMETRIC LAYOUT, SEE DWG. 1-470 GG-1.

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ADDENDUMS / REVISIONS



CONTRACT	T200911303
COUNTY	NEW CASTLE
BRIDGE NO.	1-470N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

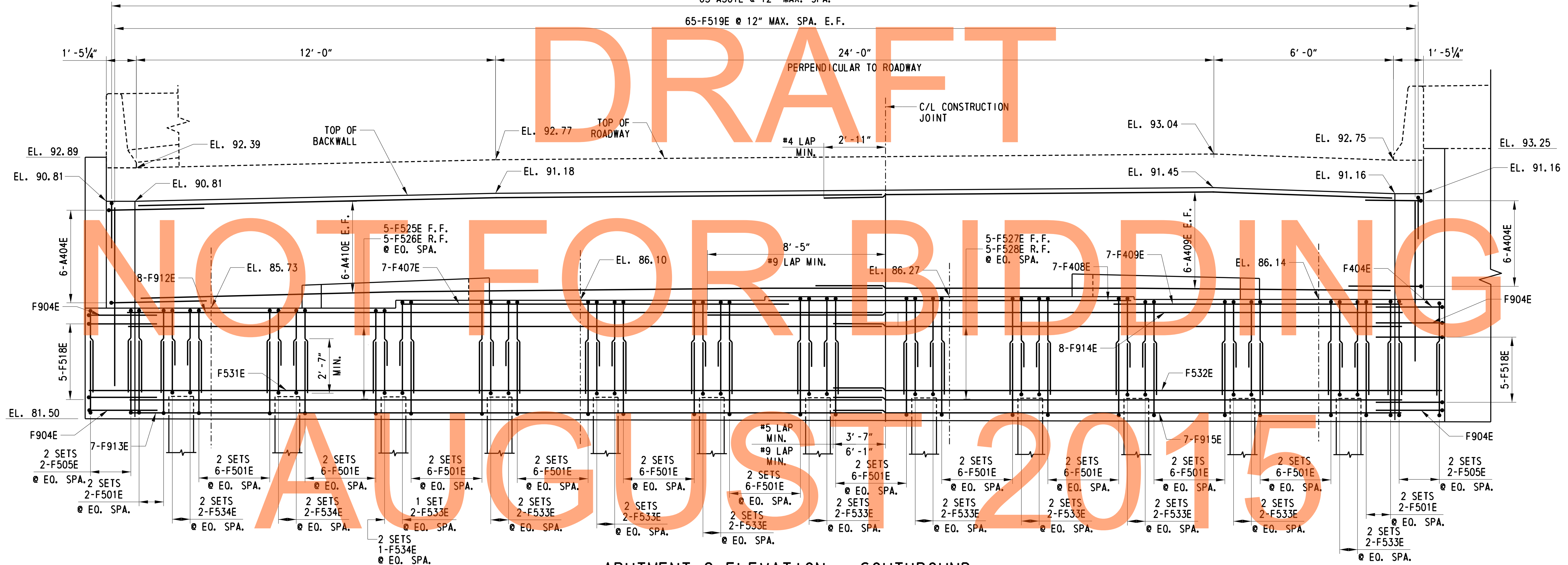


ABUTMENT 2 PLAN - SOUTHBOUND

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

65-A501E @ 12" MAX. SPA.

65-F519E @ 12" MAX. SPA. E.F.



ABUTMENT 2 ELEVATION - SOUTHBOUND

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

CROSS REFERENCE NOTES:

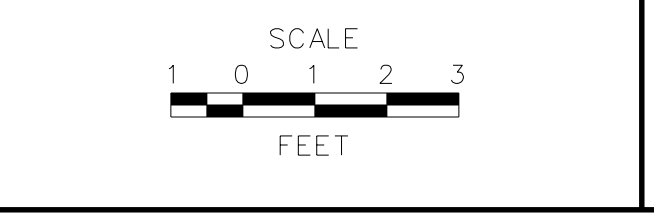
1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
2. FOR SECTIONS AND DETAILS, SEE DWG. 1-470 AB-5.
3. FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-470 WW-1 AND 1-470 WW-2.
4. FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-1.
5. FOR SHEAR BLOCK DETAILS, SEE DWG. 1-470 AB-2.
6. FOR GEOMETRIC LAYOUT, SEE DWG. 1-470 GG-1.

NOTES:

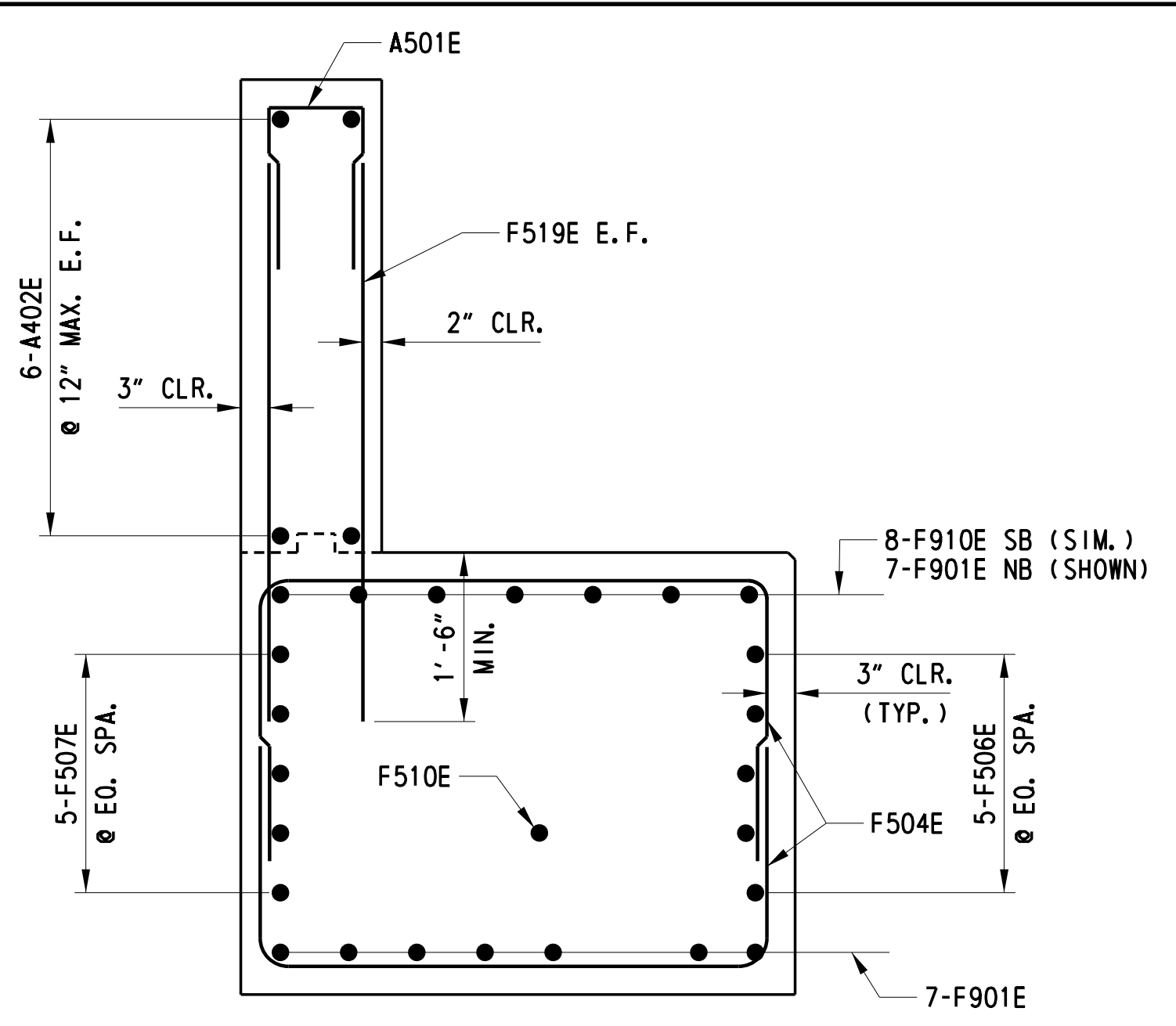
1. MSE WALL AND COPING NOT SHOWN FOR CLARITY.
2. ABUTMENT SEAT STEPS MID-WAY BETWEEN GIRDERS
3. ONLY TRANSVERSE FOOTING REINFORCEMENT IS SHOWN IN PLAN VIEW FOR CLARITY.
4. PILE CASINGS NOT SHOWN FOR CLARITY.

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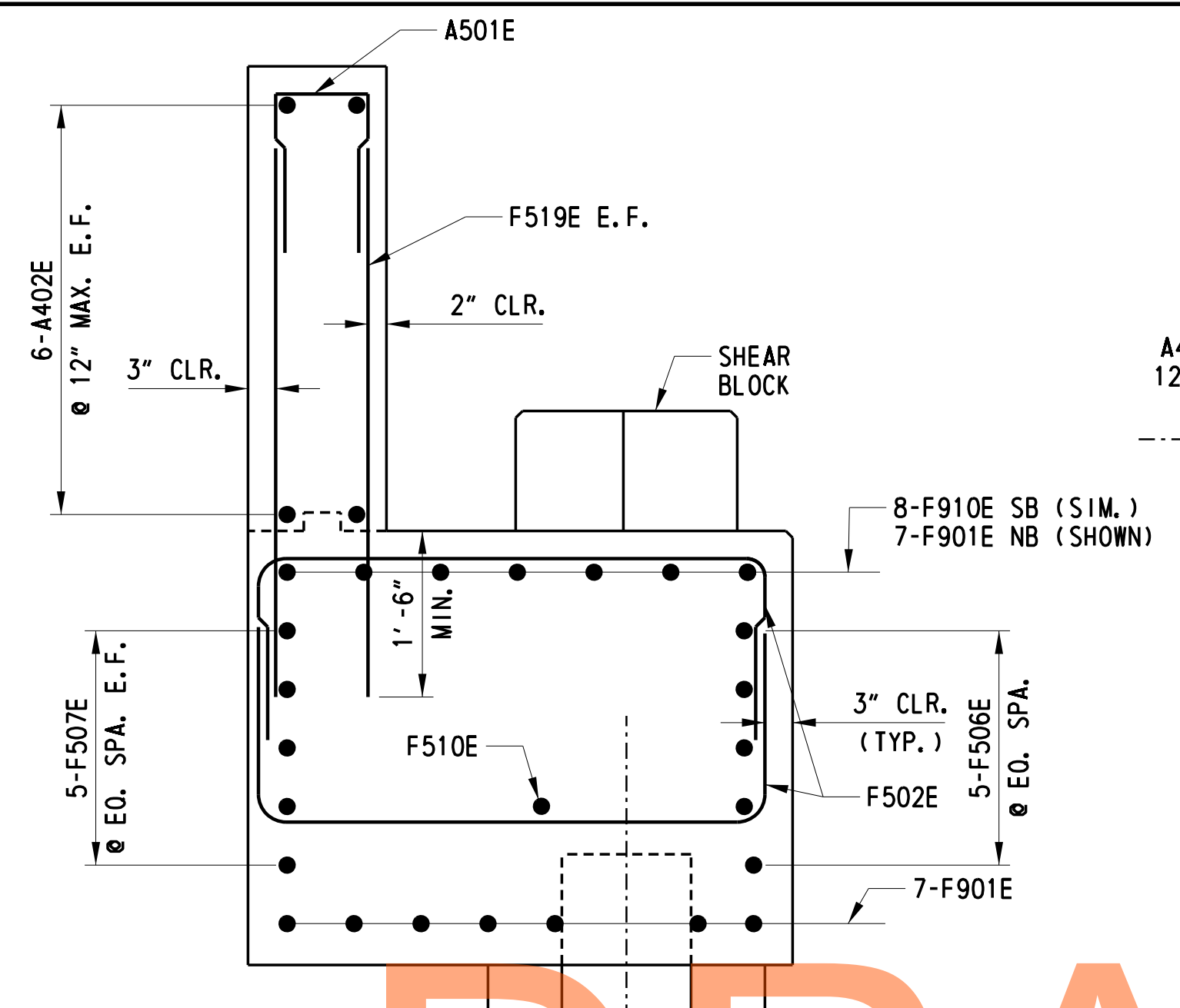
ADDENDUMS / REVISIONS



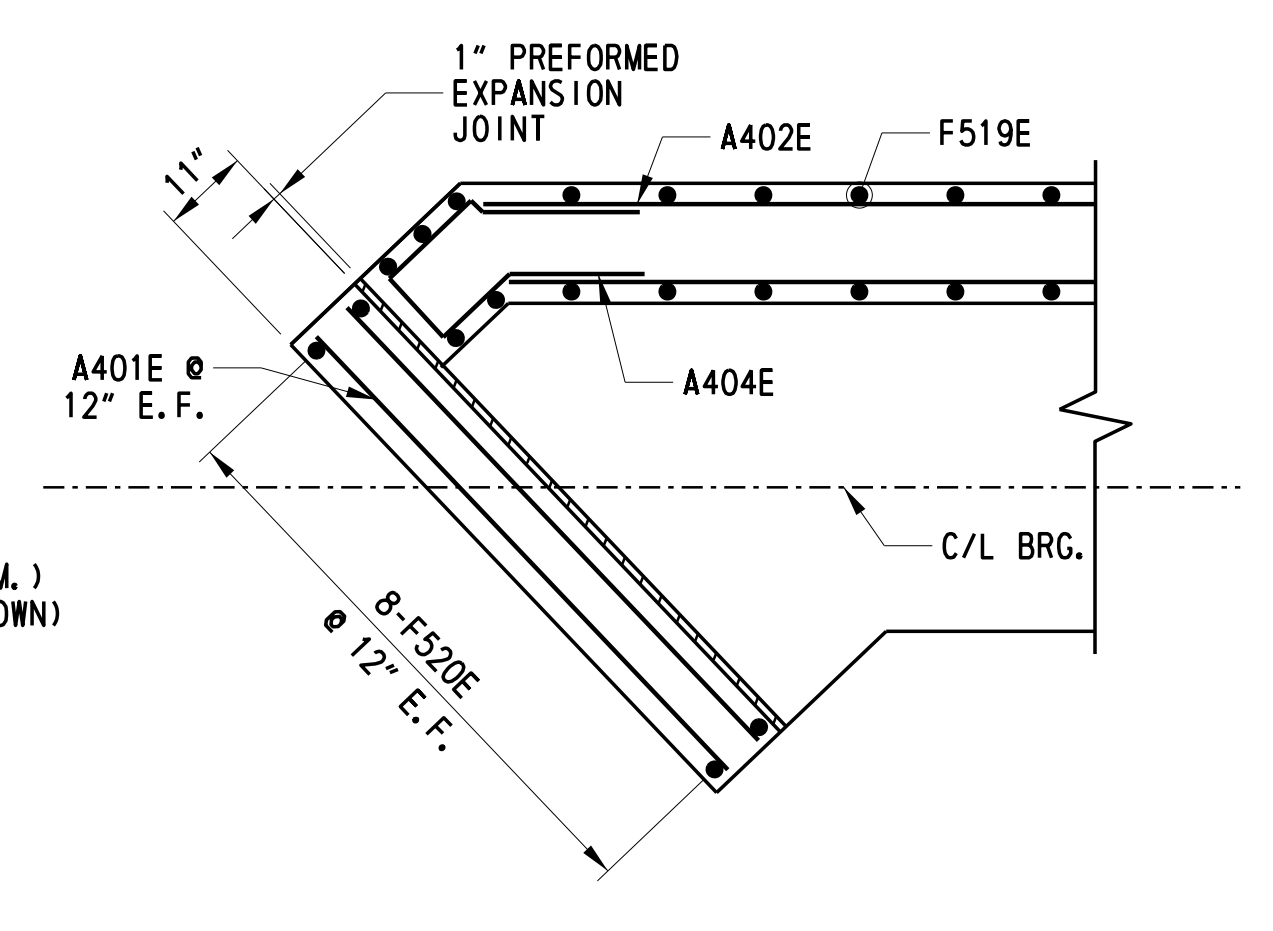
CONTRACT T20091303	BRIDGE NO. 1-470N&S
COUNTY NEW CASTLE	DESIGNED BY: ADH
	CHECKED BY: DHG



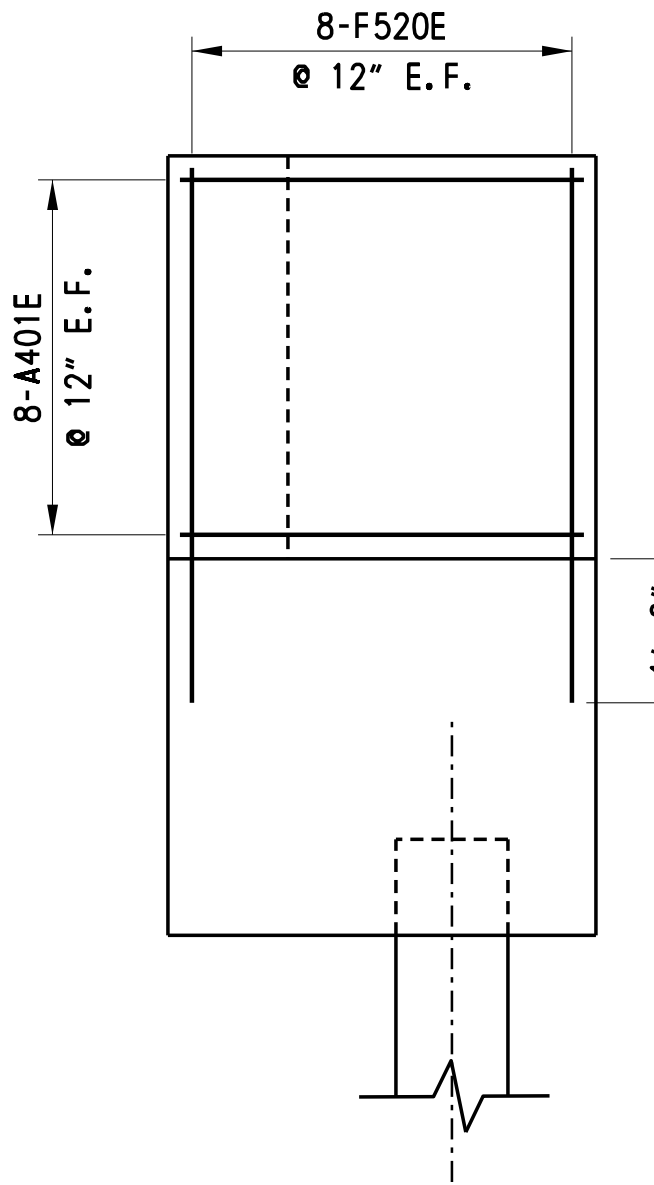
SECTION A-A
SCALE: 3/4" = 1'-0"



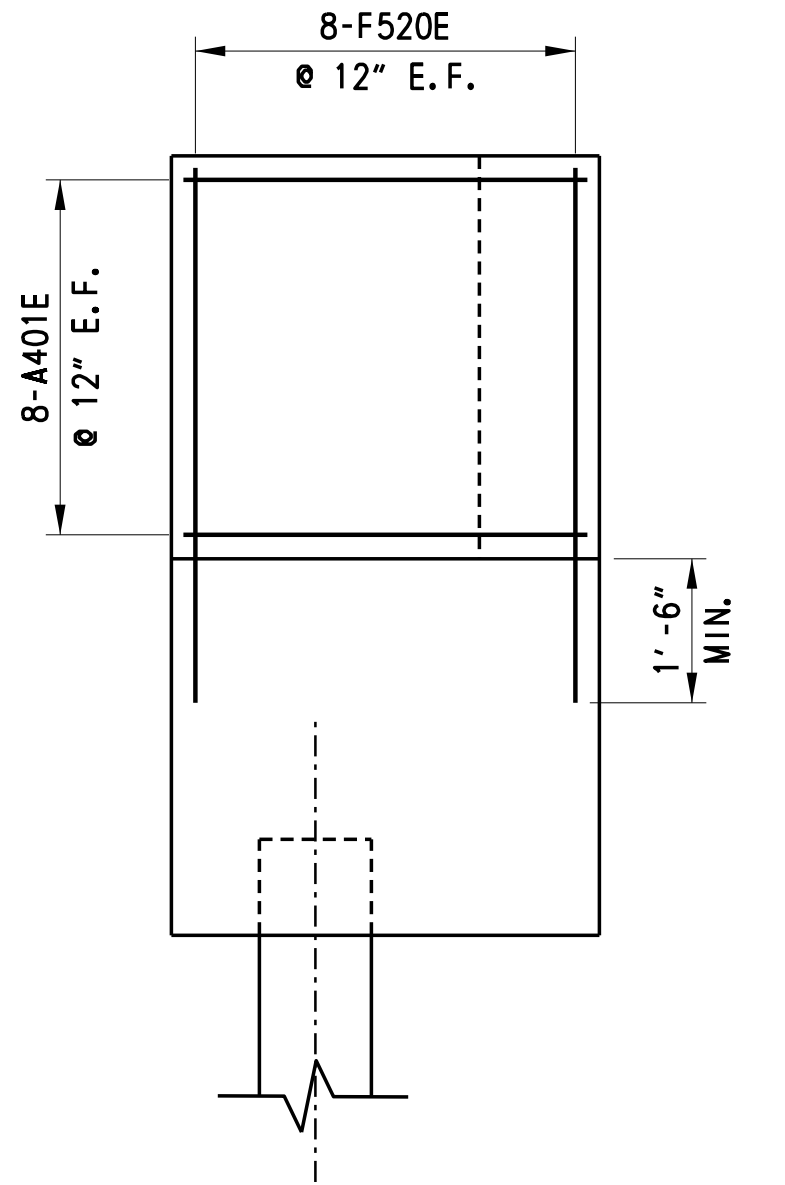
SECTION B-B
SCALE: 3/4" = 1'-0"



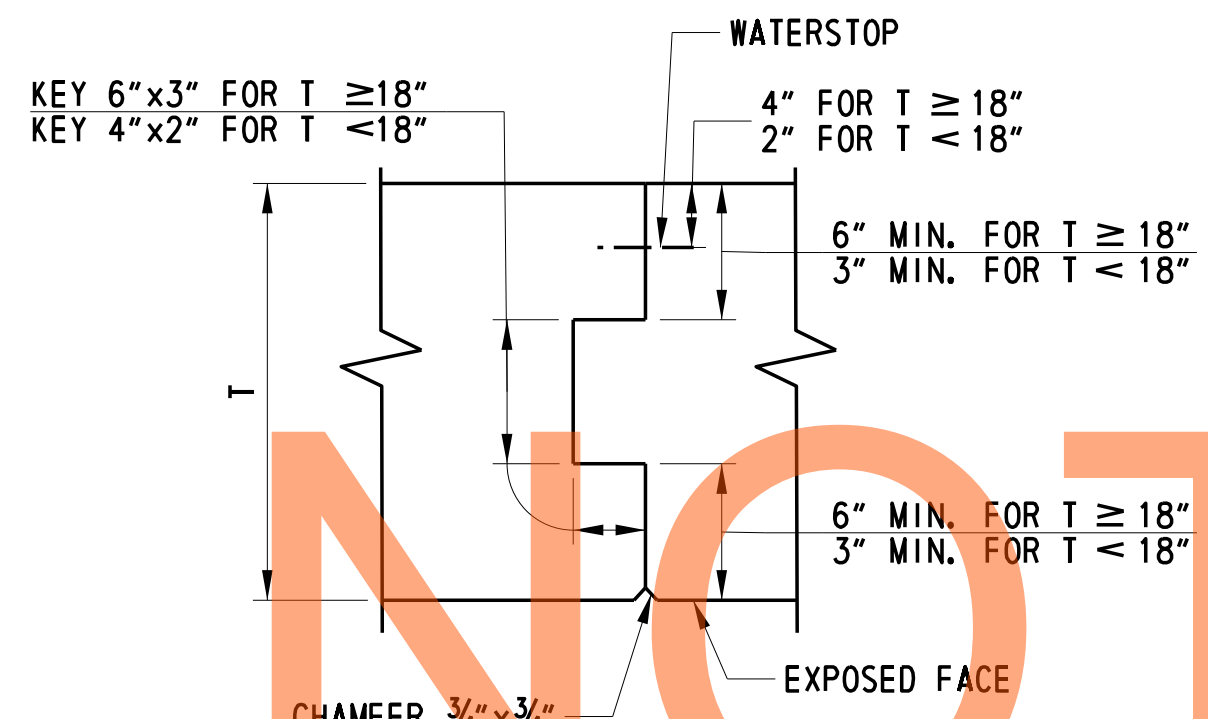
SECTION C-C
SCALE: 1/2" = 1'-0"



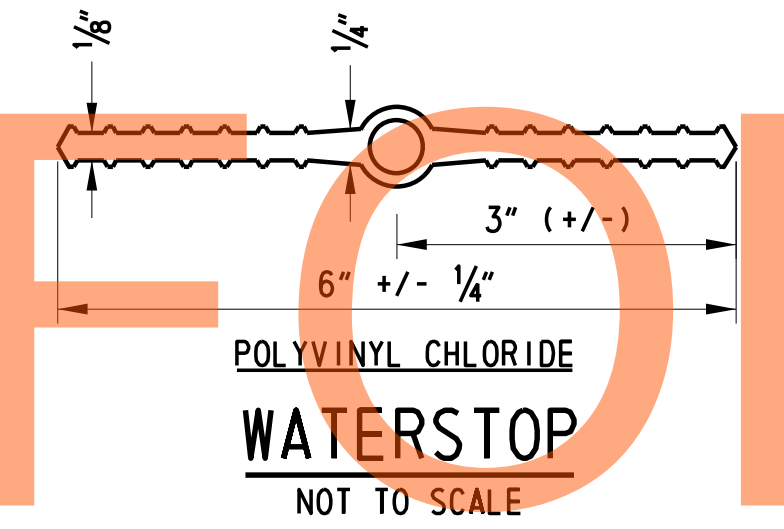
VIEW E-E
SCALE: 1/2" = 1'-0"



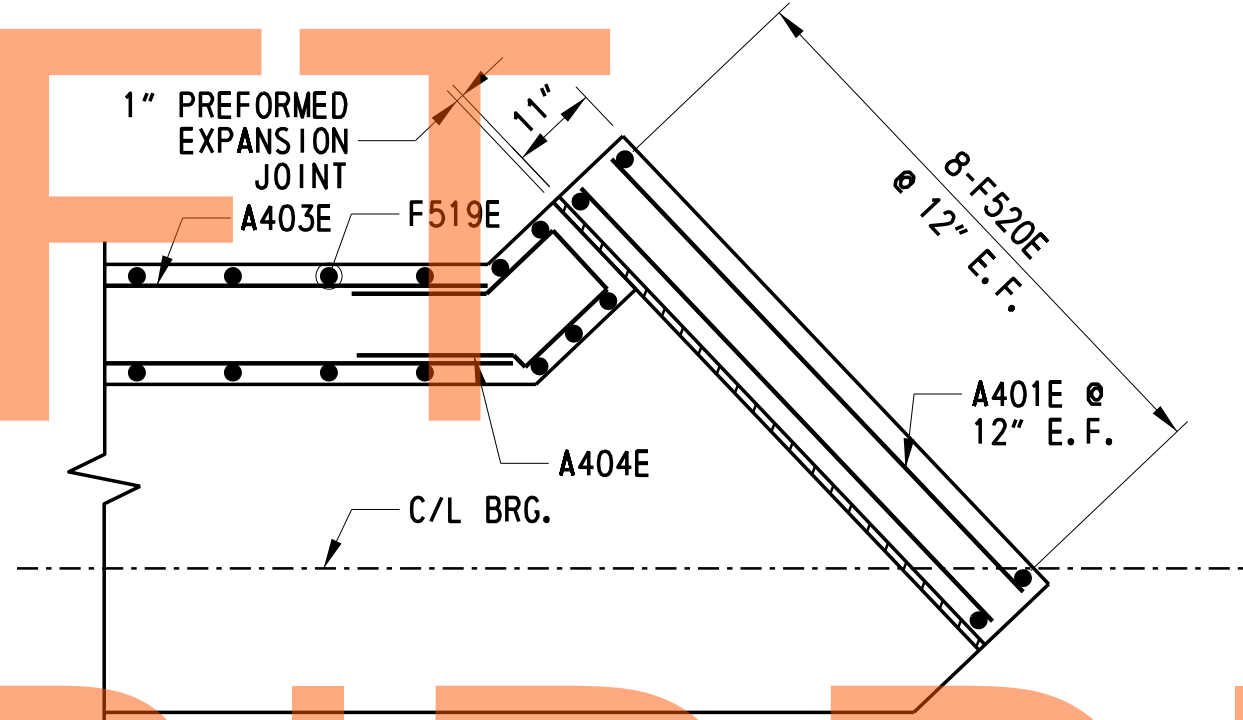
VIEW F-F
SCALE: 1/2" = 1'-0"



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

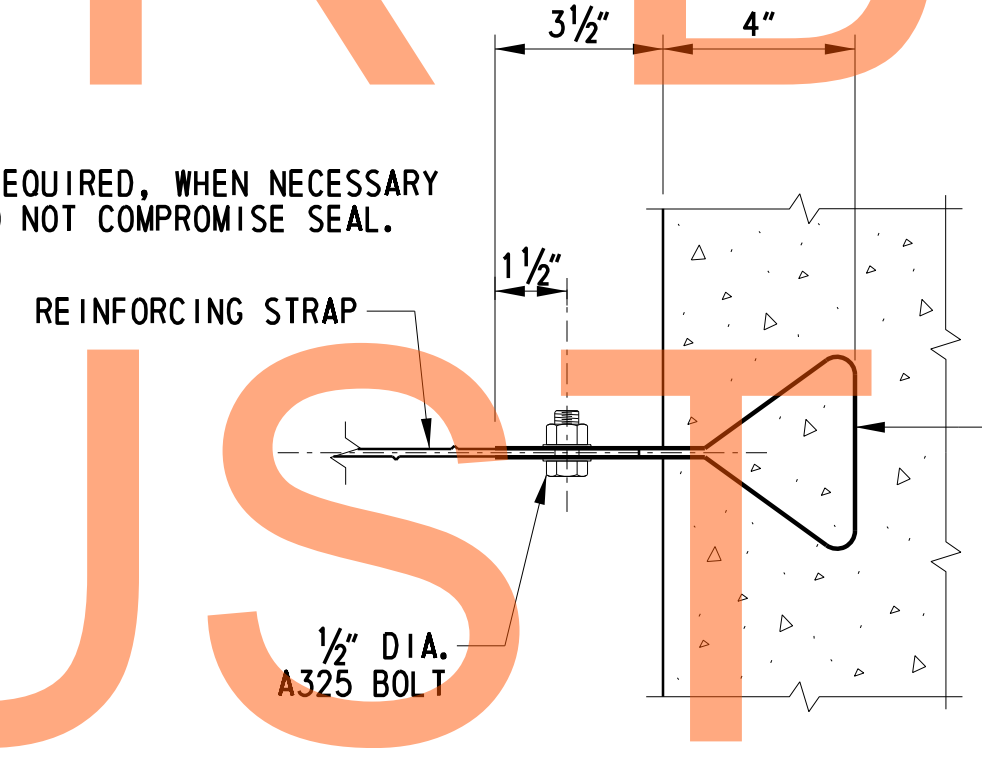


WATERSTOP
NOT TO SCALE

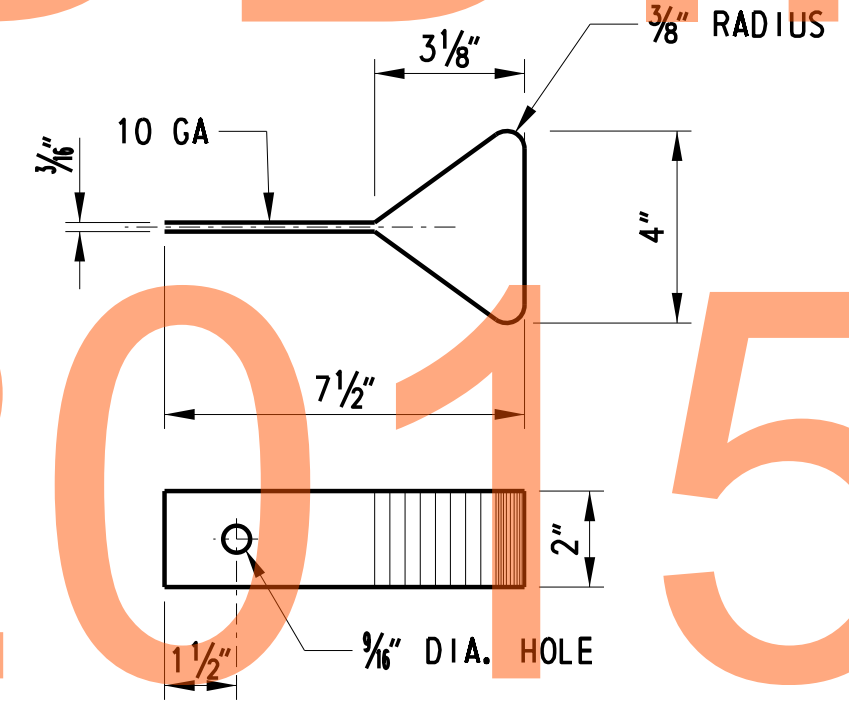


SECTION D-D
SCALE: 1/2" = 1'-0"

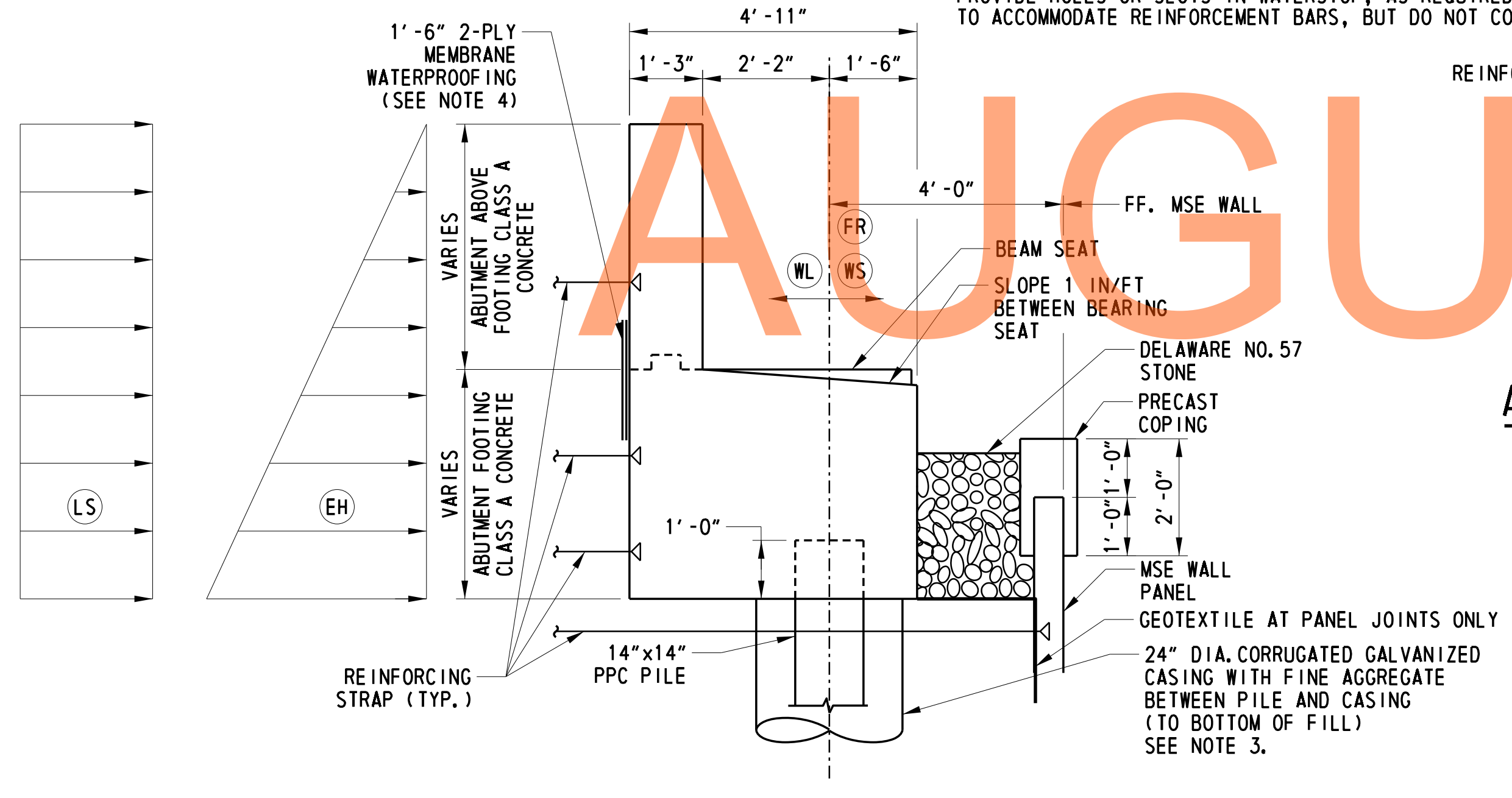
NOTE:
PROVIDE HOLES OR SLOTS IN WATERSTOP, AS REQUIRED, WHEN NECESSARY TO ACCOMMODATE REINFORCEMENT BARS, BUT DO NOT COMPROMISE SEAL.



ABUTMENT STRAP ANCHOR DETAIL
NOT TO SCALE



TIE STRIP DETAIL
NOT TO SCALE



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

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
2. FOR ABUTMENT REINFORCEMENT, SEE DWG. 1-470 AB-1 TO 1-470 AB-4.
3. FOR ABUTMENT REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-1.
4. FOR MEDIAN AND WINGWALL ELEVATIONS, SEE DWG. 1-470 WW-1 AND 1-470 WW-2.

ABUTMENT LATERAL LOADS:

1. CONTRACTOR SHALL DESIGN THE REINFORCING STRAPS IN THE ABUTMENT STEM AND BACKWALL TO RESIST LATERAL LOADS "EH", "FR", "WL", "LS" AND "WS".
2. LOAD "EH" IS THE HORIZONTAL EARTH PRESSURE EXERTED ON THE ABUTMENT.
3. LOAD "FR" IS THE HORIZONTAL LOAD DUE TO THE FRICTION BETWEEN THE APPROACH SLABS AND BACKWALL AS A RESULT OF BRIDGE EXPANSION AND CONTRACTION.
4. LOAD "WL" IS THE HORIZONTAL LOAD DUE TO THE WIND ON LIVE LOAD ON THE SUPERSTRUCTURE.
5. LOAD "WS" IS THE HORIZONTAL LOAD DUE TO THE WIND ON STRUCTURE.
6. 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.

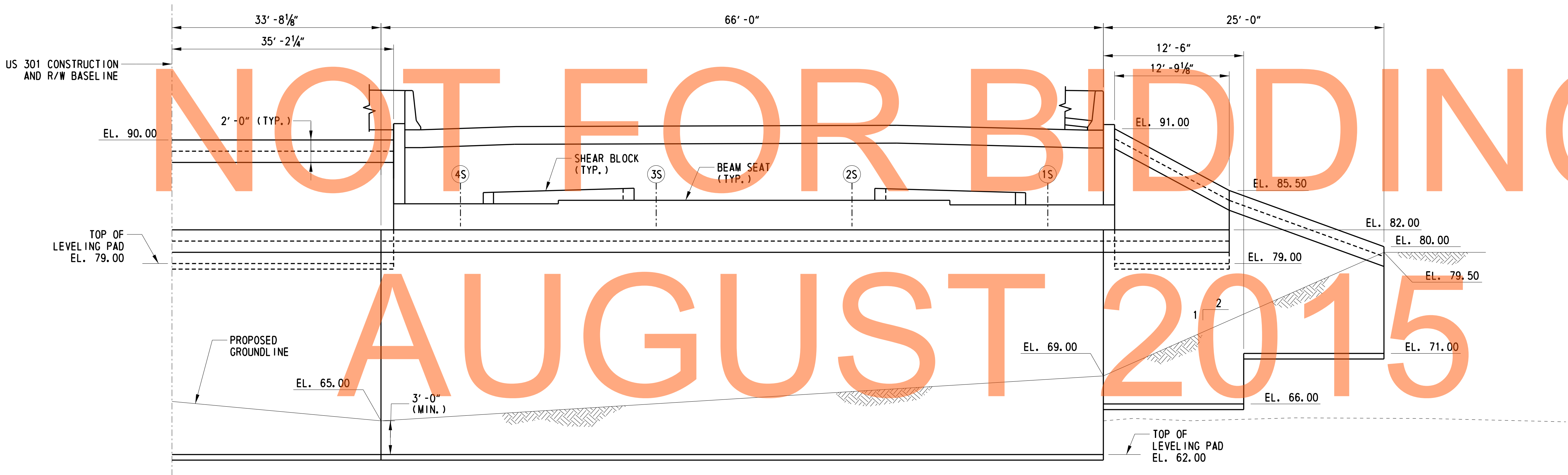
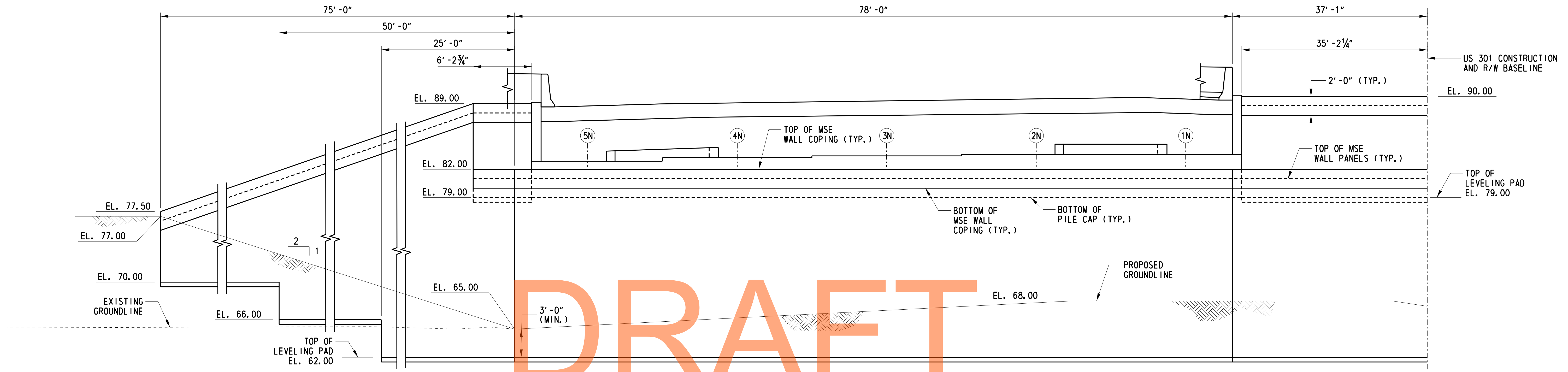
NOTES:

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

SB ABUTMENT LATERAL LOADS	
TYPE	SERVICE LOAD (KIPS/FT)
EH	1.53 KIP/FT
FR	1.22 KIP/FT
WL	0.23 KIP/FT
WS	0.68 KIP/FT
LS	0.46 KIP/FT

NB ABUTMENT LATERAL LOADS	
TYPE	SERVICE LOAD (KIPS/FT)
EH	1.73 KIP/FT
FR	1.22 KIP/FT
WL	0.21 KIP/FT
WS	0.68 KIP/FT
LS	0.47 KIP/FT

ADDENDUMS / REVISIONS

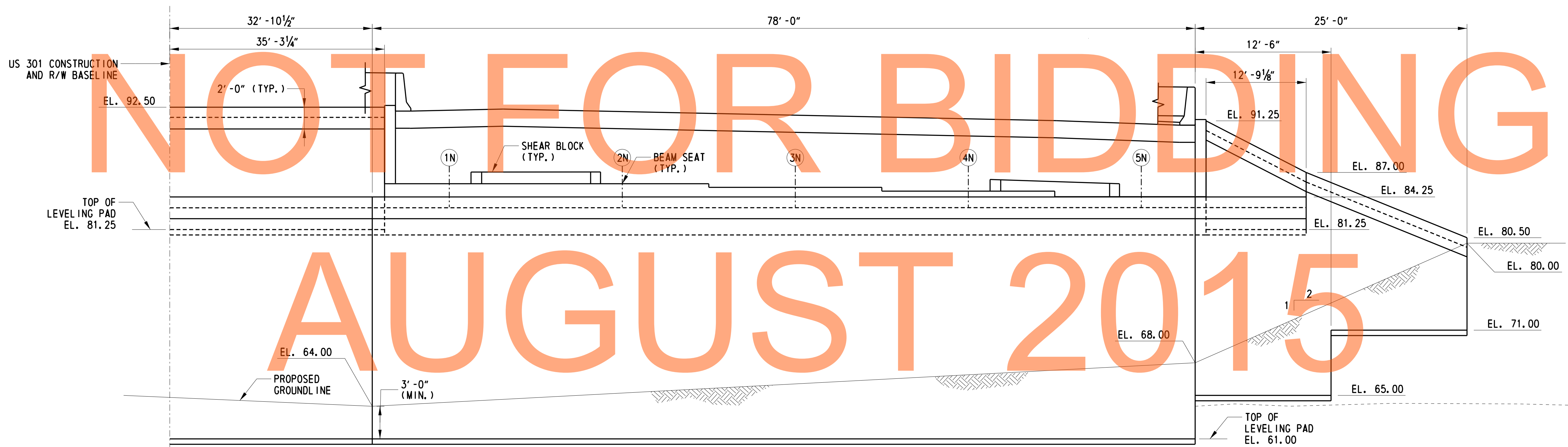
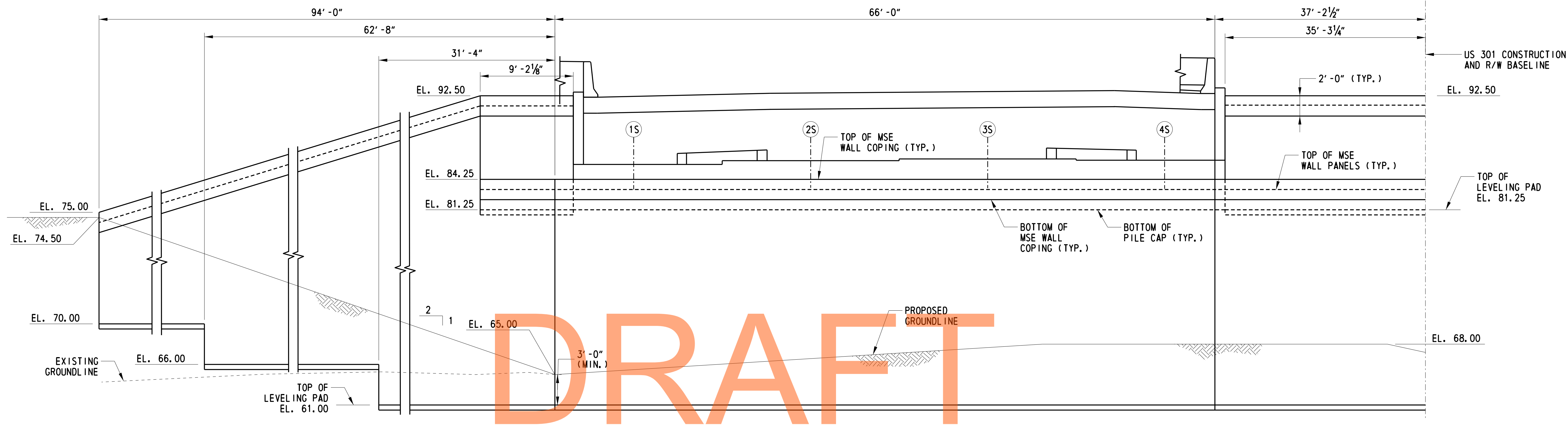


MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 1
SCALE: 3/16" = 1'-0"

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 2. FOR GEOMETRIC LAYOUT, SEE DWG. 1-470 GG-1.
 3. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-470 AB-1 TO 1-470 AB-4.
 4. FOR MSE WALL SECTIONS AND DETAILS, SEE DWG. 1-470 WW-3.

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<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	<p align="center">SCALE</p> <p align="center">FEET</p>	<p align="center">US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD</p>	CONTRACT	BRIDGE NO.	<p align="center">US 301 MAINLINE OVER SUMMIT BRIDGE ROAD MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 1</p>	1-470 WW-1
				T20091303	1-470N&S		SHEET NO.
				COUNTY	DESIGNED BY: ADH		318
				NEW CASTLE	CHECKED BY: DHG		TOTAL SHTS. 1256



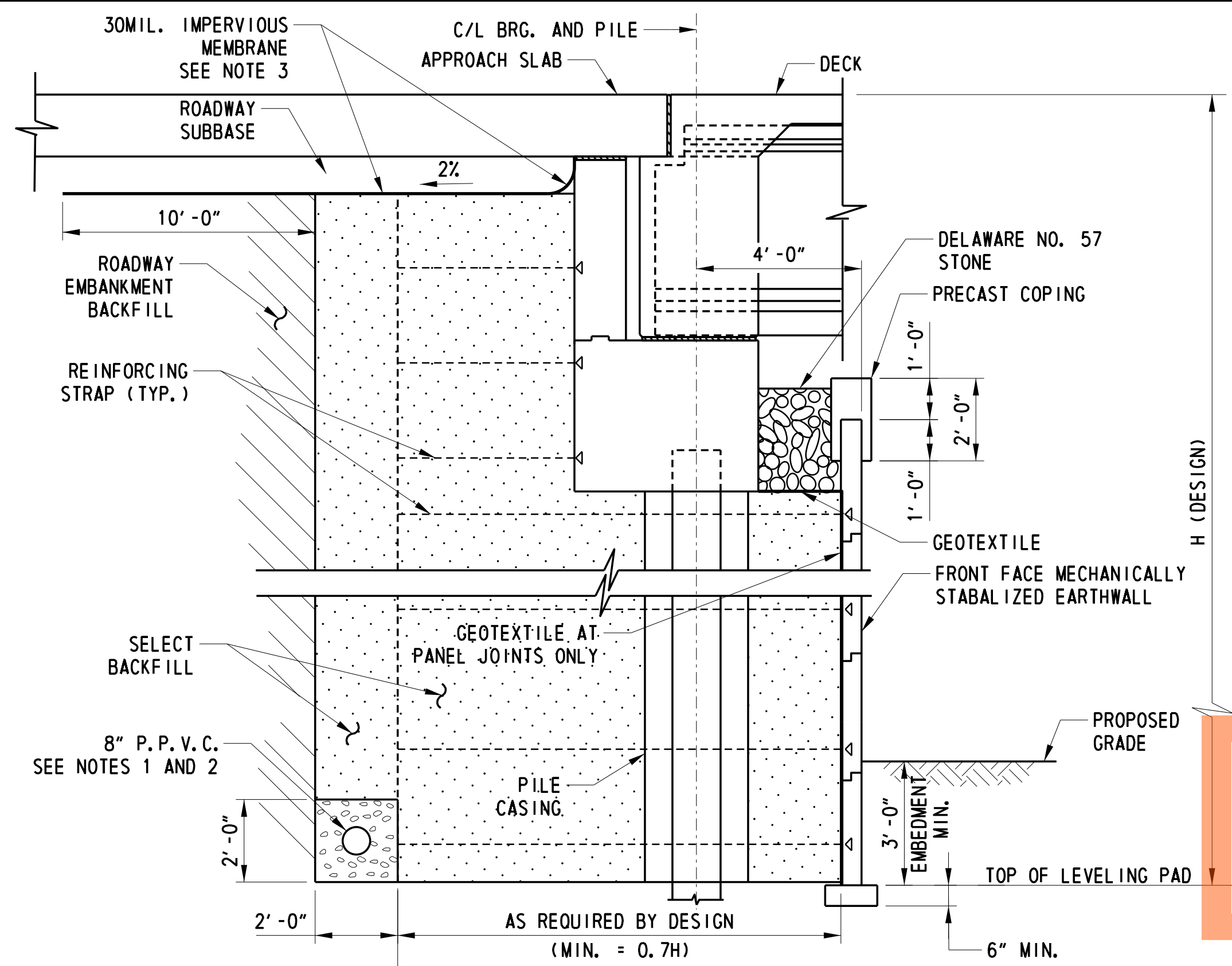
MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 2
SCALE: 3/16" = 1'-0"

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 2. FOR GEOMETRIC LAYOUT, SEE DWG. 1-470 GG-1.
 3. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-470 AB-1 TO 1-470 AB-4.
 4. FOR MSE WALL SECTIONS AND DETAILS, SEE DWG. 1-470 WW-3.

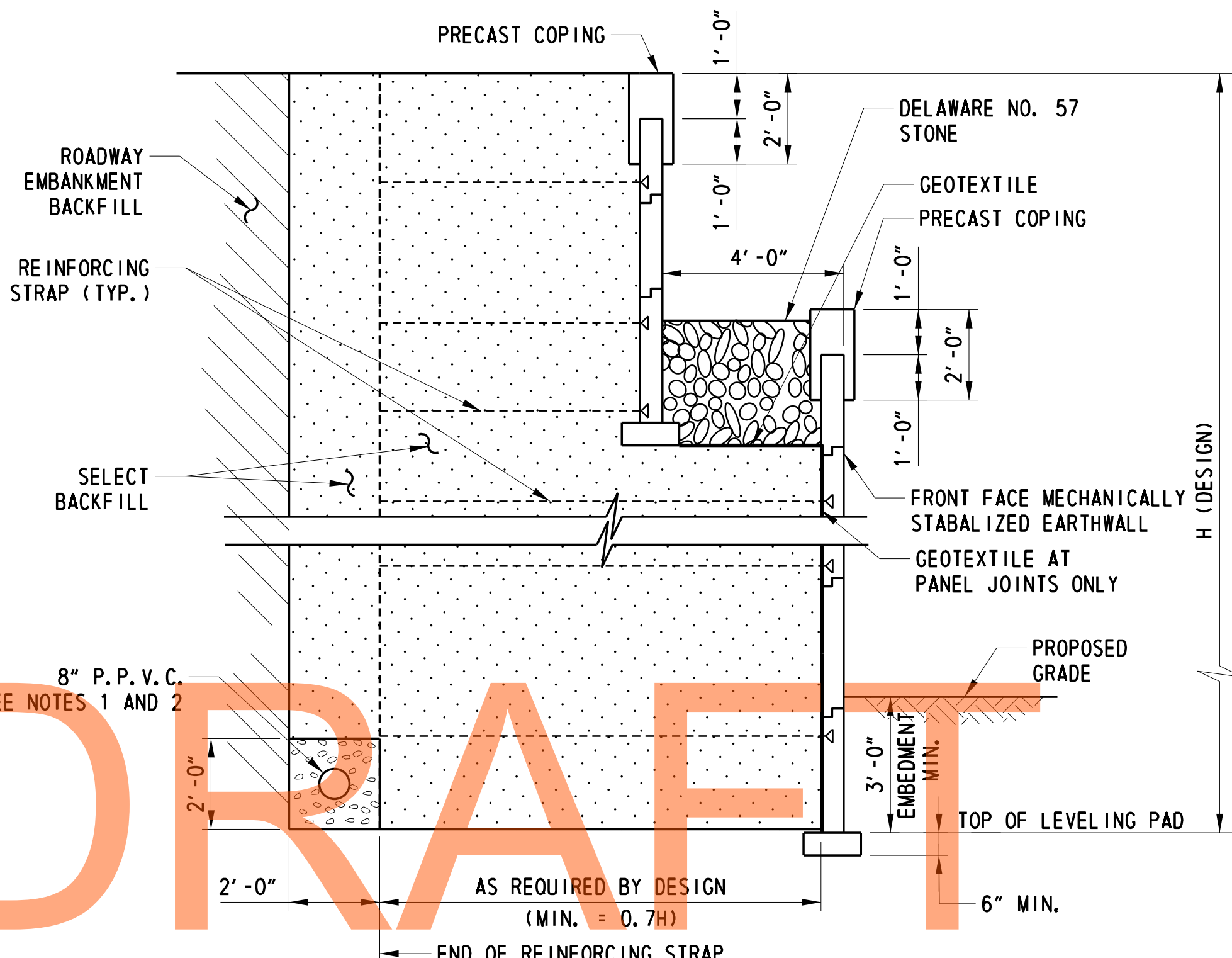
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	ADDENDUMS / REVISIONS		SCALE 	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT	BRIDGE NO.	1-470N&S	US 301 MAINLINE OVER SUMMIT BRIDGE ROAD MEDIAN AND WINGWALL ELEVATIONS - ABUTMENT 2	SHEET NO.
					T200911303	DESIGNED BY: ADH			319
					COUNTY	CHECKED BY: DHG		TOTAL SHTS.	
					NEW CASTLE			1256	

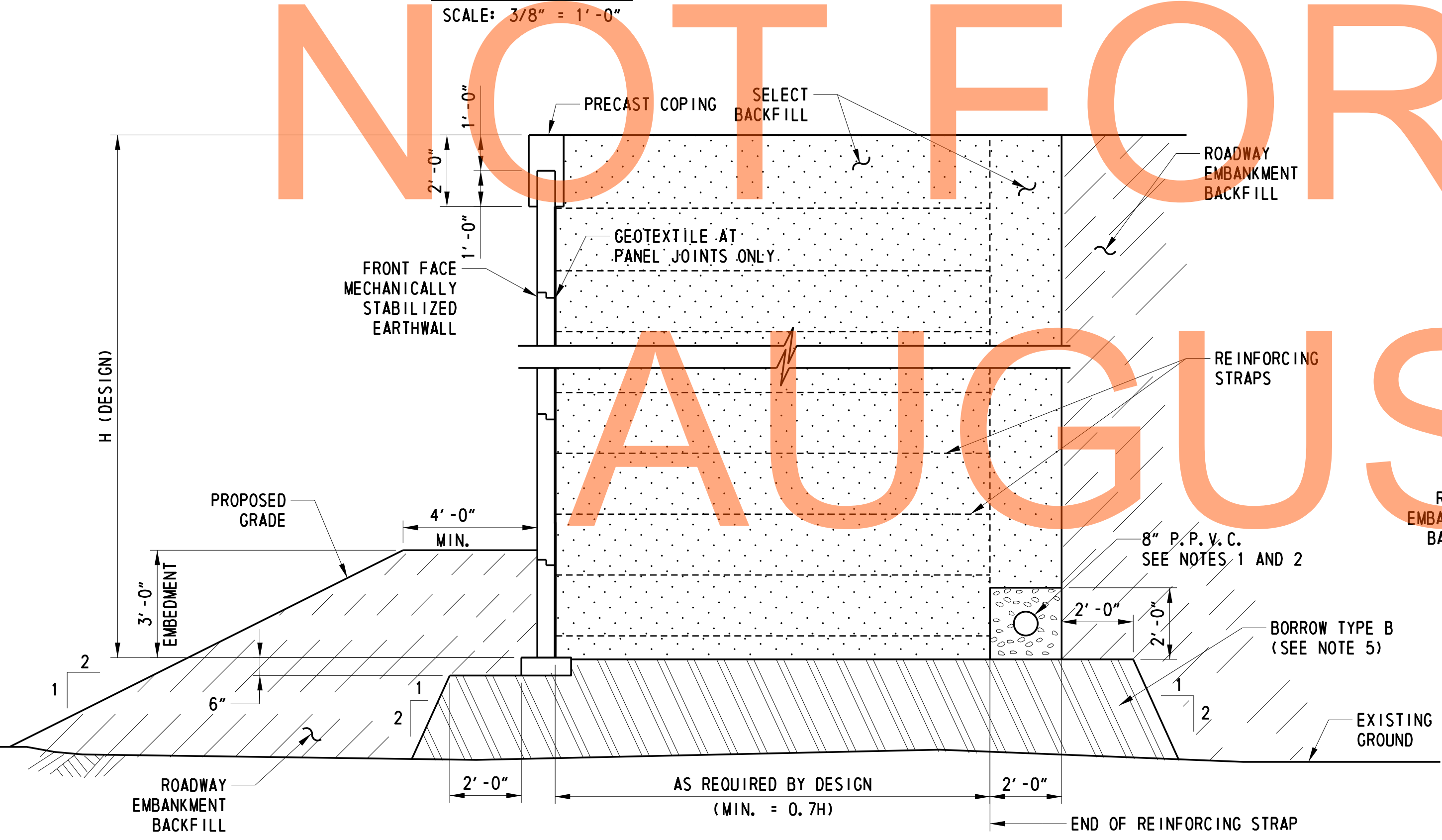
1-470 WW-2



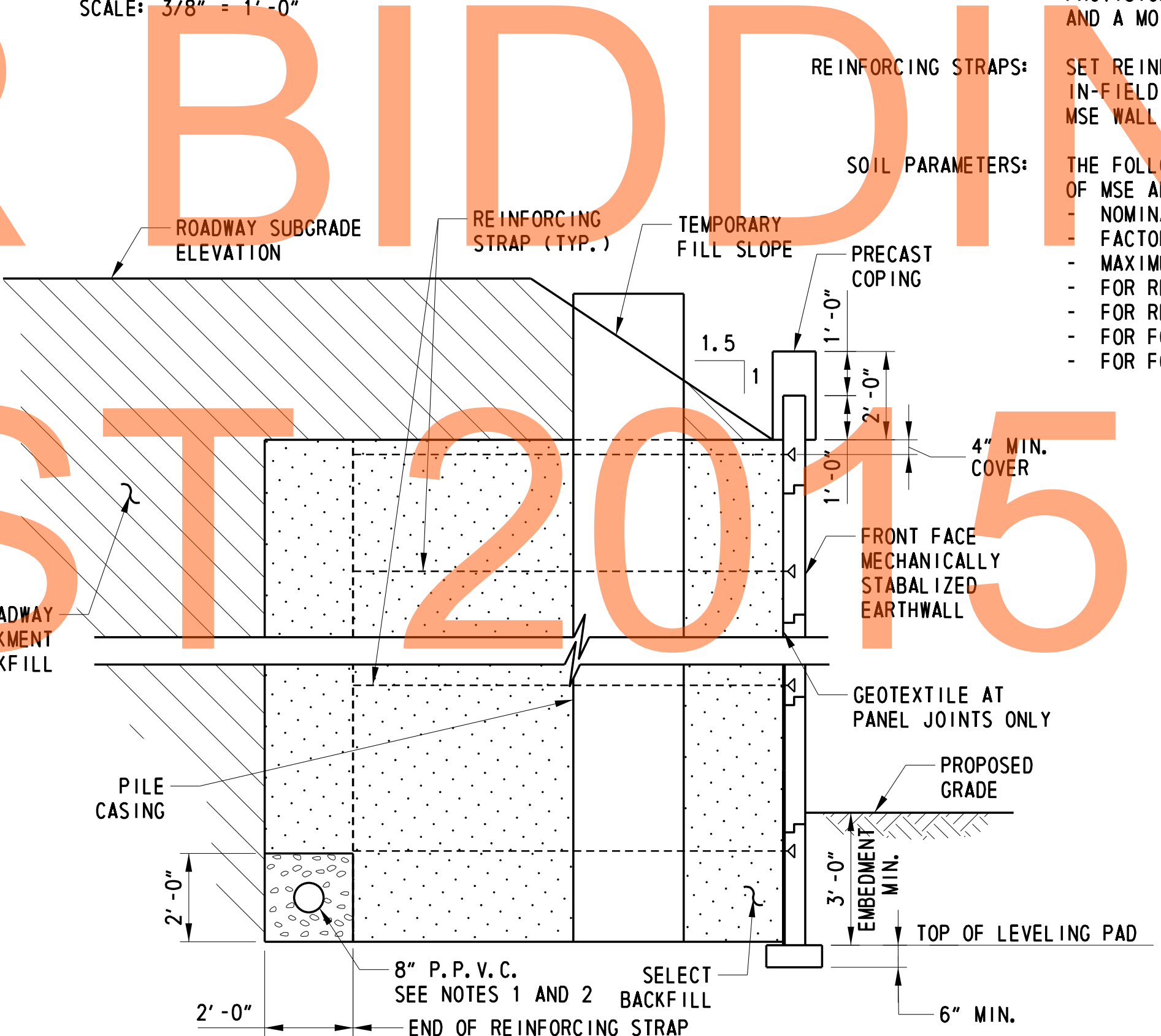
TYPICAL MSE WALL SECTION AT ABUTMENT
SCALE: 3/8" = 1'-0"



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:** 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 ENCRoACHED 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:

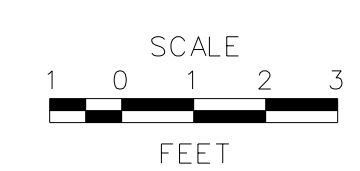
- DRAIN PERFORATED POLYVINYL CHLORIDE PIPE (P.P.V.C.) TO DAYLIGHT.
- SURROUND P.P.V.C. WITH A CONTINUOUS 2'-0"x2'-0" OF DELAWARE NO. 57 STONE ENCLOSED IN GEOTEXTILE.
- SLOPE MEMBRANE A MINIMUM OF 2% AWAY FROM BACKWALL.
- CONTRACTOR TO PROVIDE PROTECTION TO THE PILE CASING DURING QUARANTINE PERIOD TO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

CROSS REFERENCE NOTES:

- FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
- FOR MEDIAN & WINGWALL ELEVATION, SEE DWG. 1-470 WW-1 TO 1-470 WW-2.
- FOR GEOMETRIC LAYOUT, SEE DWG. 1-470 GG-1.

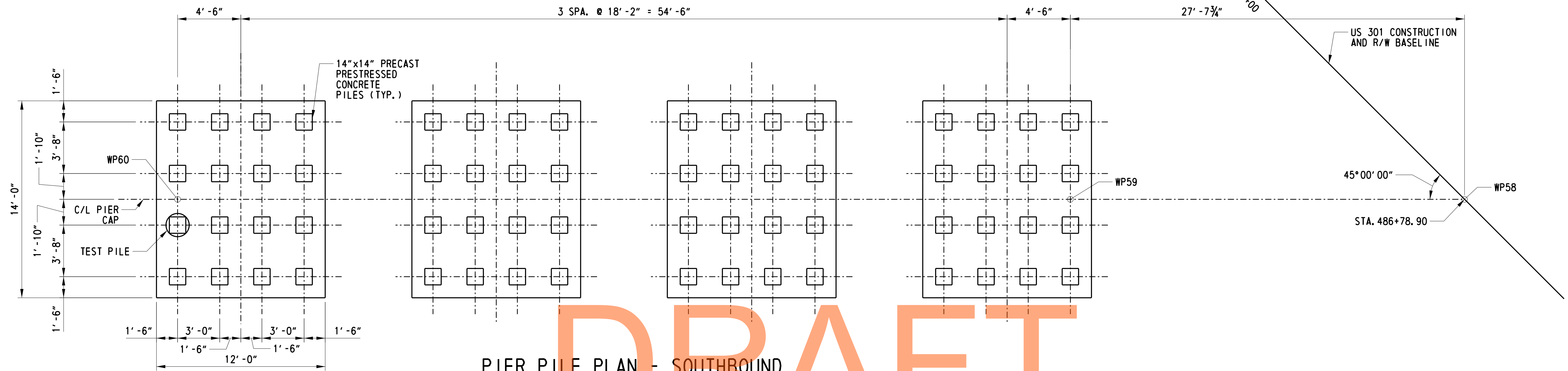
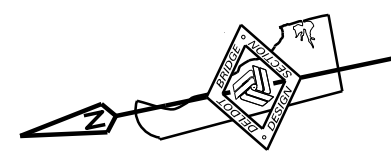
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ADDENDUMS / REVISIONS

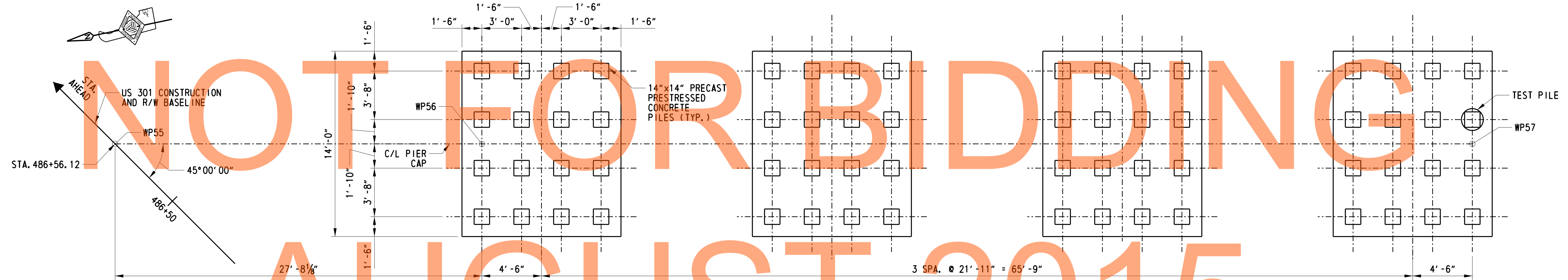


CONTRACT	BRIDGE NO.	1-470N&S
T200911303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-470 WW-3	
SHEET NO.	320
TOTAL SHTS.	1256



PIER PILE PLAN - SOUTHBOUND
SCALE: 1/4" = 1'-0"



PIER PILE PLAN - NORTHBOUND
SCALE: 1/4" = 1'-0"

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
NB PIER	171	21		
SB PIER	171	21		

NORTHBOUND PIER PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

SOUTHBOUND PIER PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

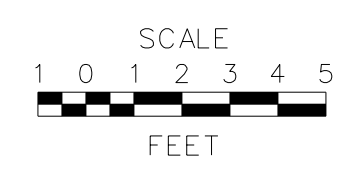
- ADDITIONAL NOTES FOR CAST-IN-PLACE OPTION:**
- A CONTRACTOR'S OPTION OF USING 16" CAST-IN-PLACE CONCRETE PILES (16" MONOTUBES) IS ALLOWED. ASSUME A ONE TO ONE SUBSTITUTION. WITH AN INCREASE IN THE TRANSVERSE SPACING FROM 3'-0" TO 3'-6".
 - MONOTUBE SHELLS SHALL HAVE A 3 GAUGE THICKNESS, AN 8 IN TIP WITH A CLOSED CONICAL POINT, 16 IN BUTT, AND A 16 FT Y TAPER AT 0.40 IN/FT.
 - ESTIMATED TIP ELEVATION SHALL BE 30 FT.
 - A NOMINAL PILE DRIVING RESISTANCE OF 171 KIPS SHALL BE OBTAINED.

- CROSS REFERENCE NOTES:**
- FOR ADDITIONAL PILE NOTES, SECTIONS AND DETAILS, SEE DWG. 1-470 PL-2.

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ADDENDUMS / REVISIONS	

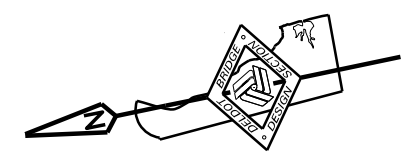


US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

US 301 MAINLINE OVER SUMMIT BRIDGE ROAD NORTHBOUND & SOUTHBOUND PIERS - PILE PLAN

1-470 PL-3
SHEET NO.
322
TOTAL SHTS.
1256

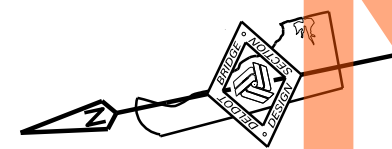
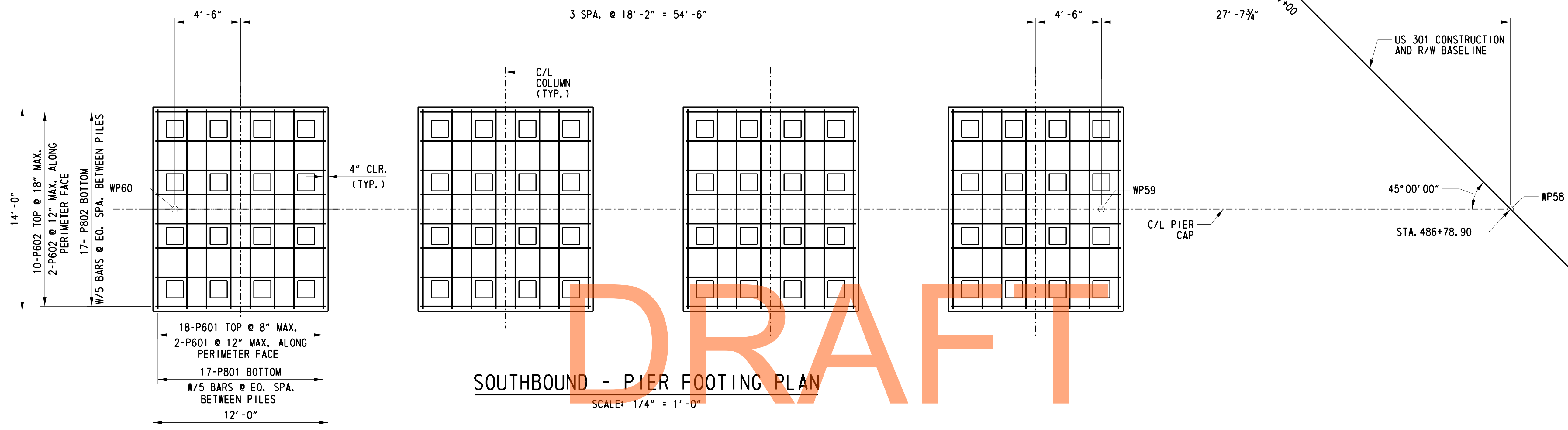


STA. AHEAD
487+00

US 301 CONSTRUCTION AND R/W BASELINE

45°00'00"

STA. 486+78.90

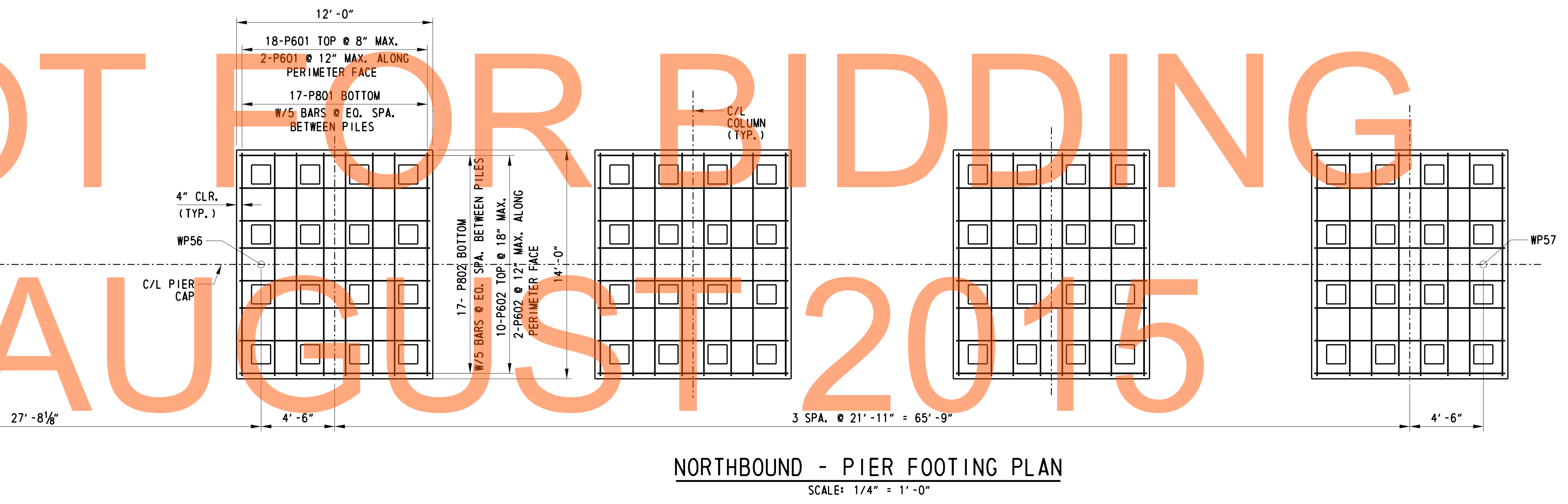


US 301 CONSTRUCTION AND R/W BASELINE

STA. 486+56.12

45°00'00"

27'-8 1/8"

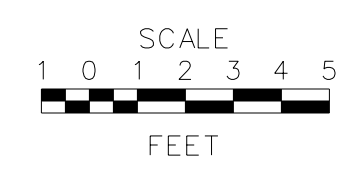


- CROSS REFERENCE NOTES:
- FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-2.

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ADDENDUMS / REVISIONS	

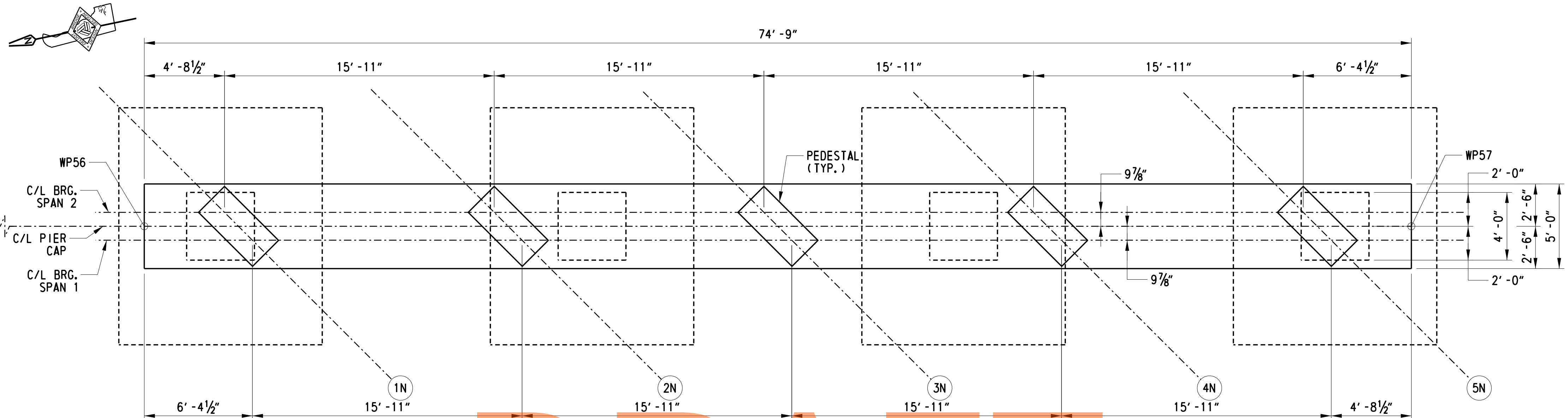
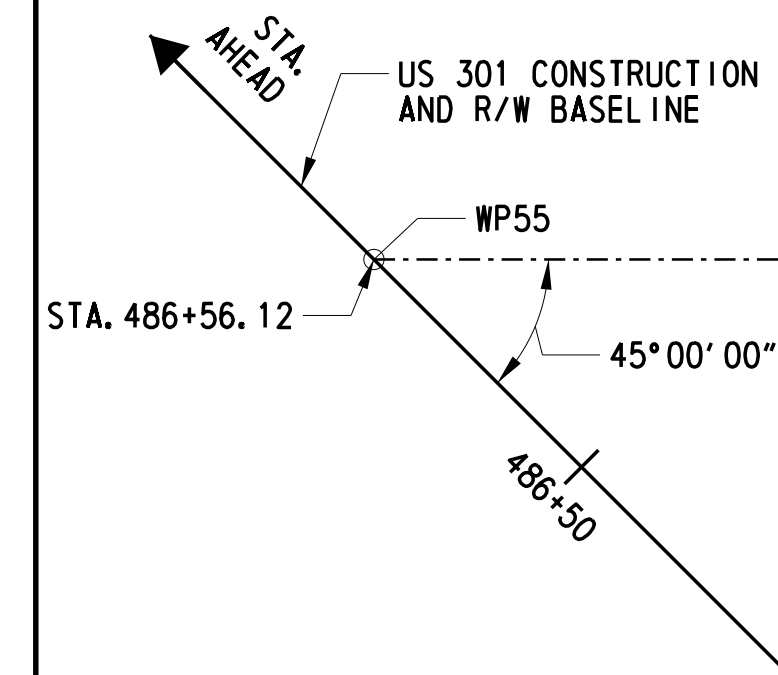


US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-470N&S
T200911303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

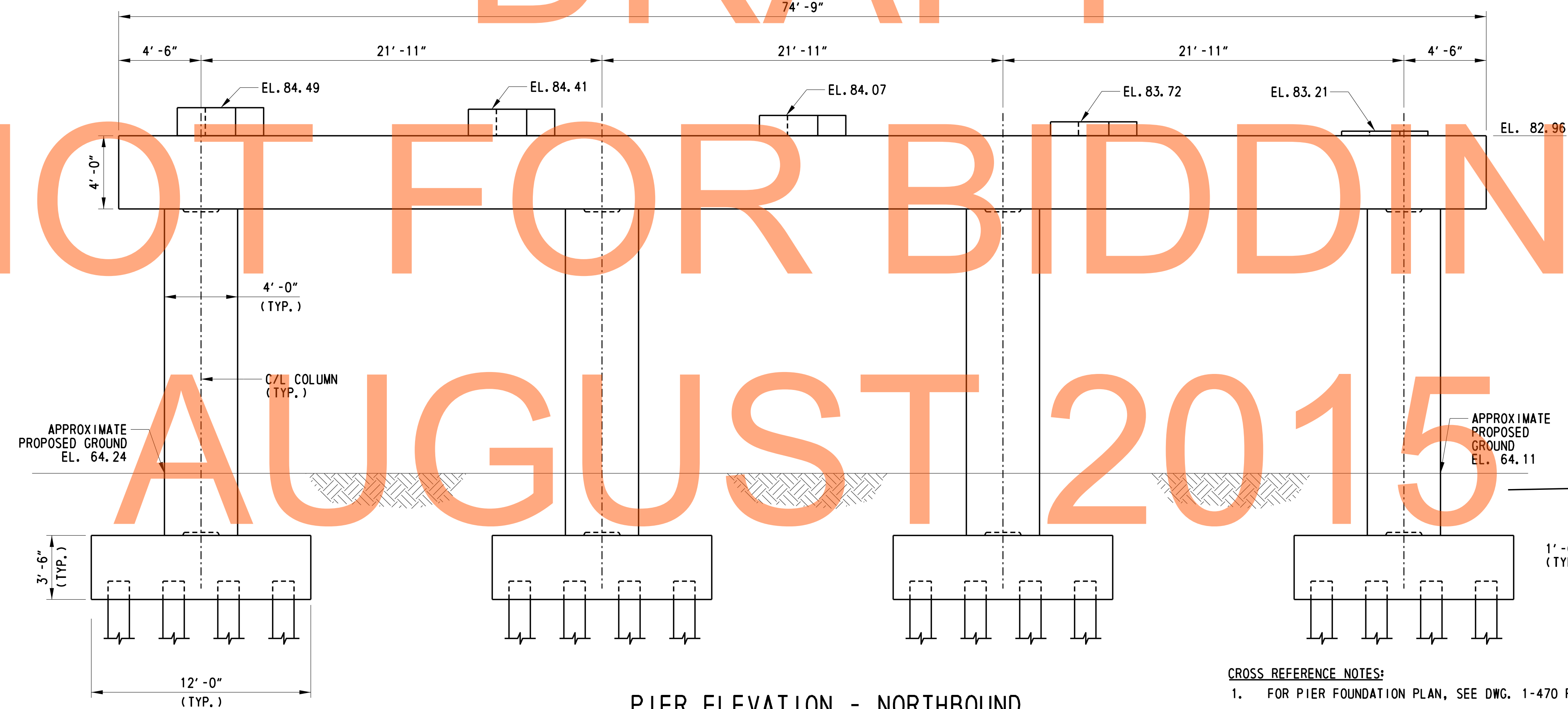
US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD
NORTHBOUND AND
SOUTHBOUND PIERS -
FOOTING REINFORCEMENT

1-470 PR-1
SHEET NO.
323
TOTAL SHTS.
1256

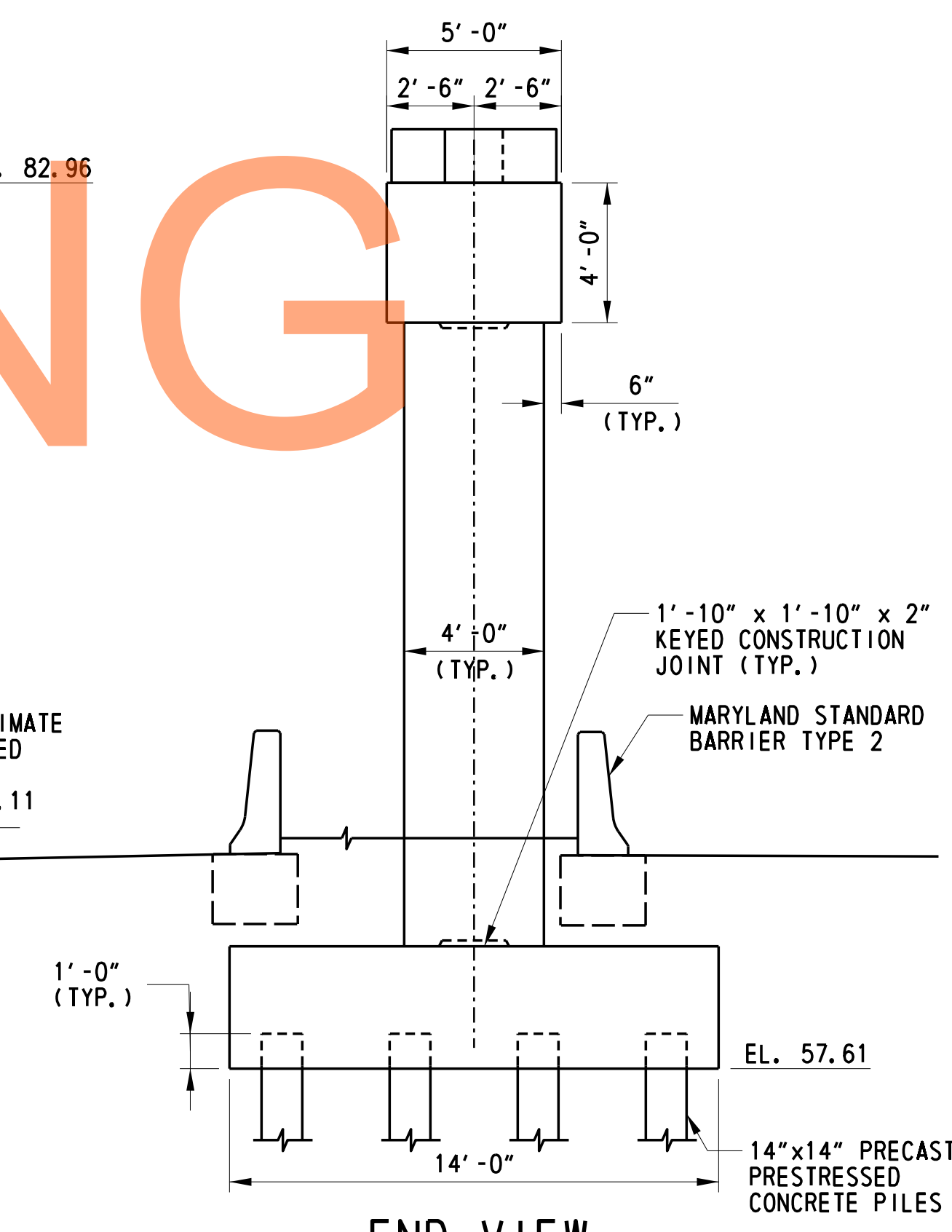


PIER PLAN - NORTHBOUND
SCALE: 1/4" = 1'-0"

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AUGUST 2015



PIER ELEVATION - NORTHBOUND
SCALE: 1/4" = 1'-0"

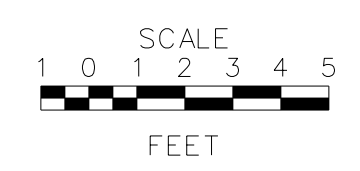


END VIEW
SCALE: 1/4" = 1'-0"

- CROSS REFERENCE NOTES:**
- FOR PIER FOUNDATION PLAN, SEE DWG. 1-470 PL-3.
 - FOR PIER FOUNDATION REINFORCEMENT, SEE DWG. 1-470 PR-1.
 - FOR PIER REINFORCEMENT, SEE DWG. 1-470 PR-4.
 - FOR PIER REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-2.
 - FOR BURIED MOMENT SLAB DETAILS, SEE DWG. 1-470 AS-5.
 - FOR PIER DETAILS, SEE DWG. 1-470 PR-6.

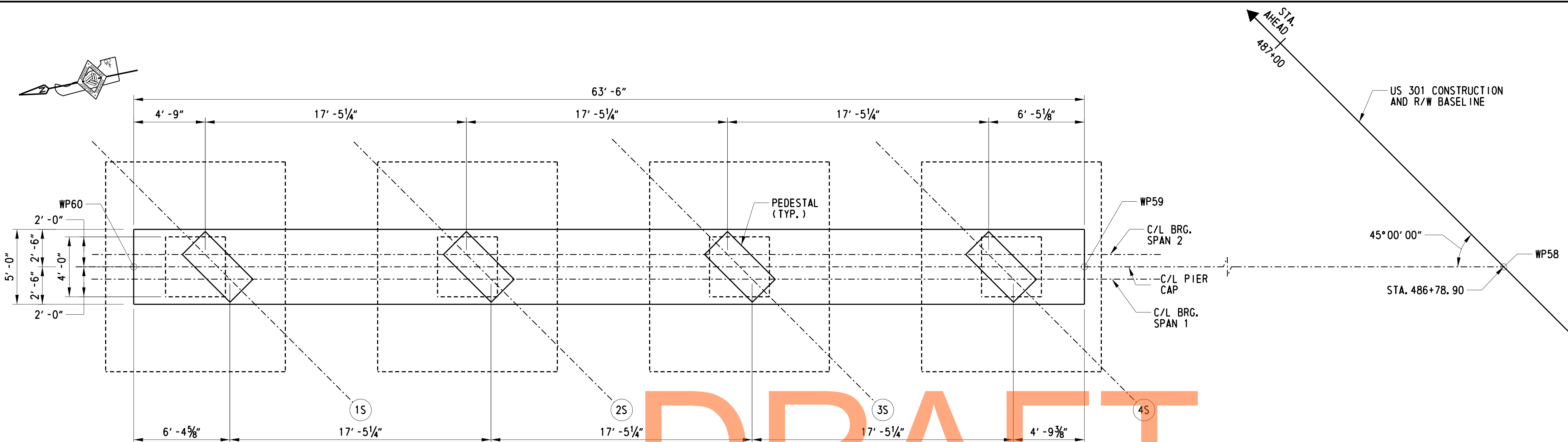
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ADDENDUMS / REVISIONS	



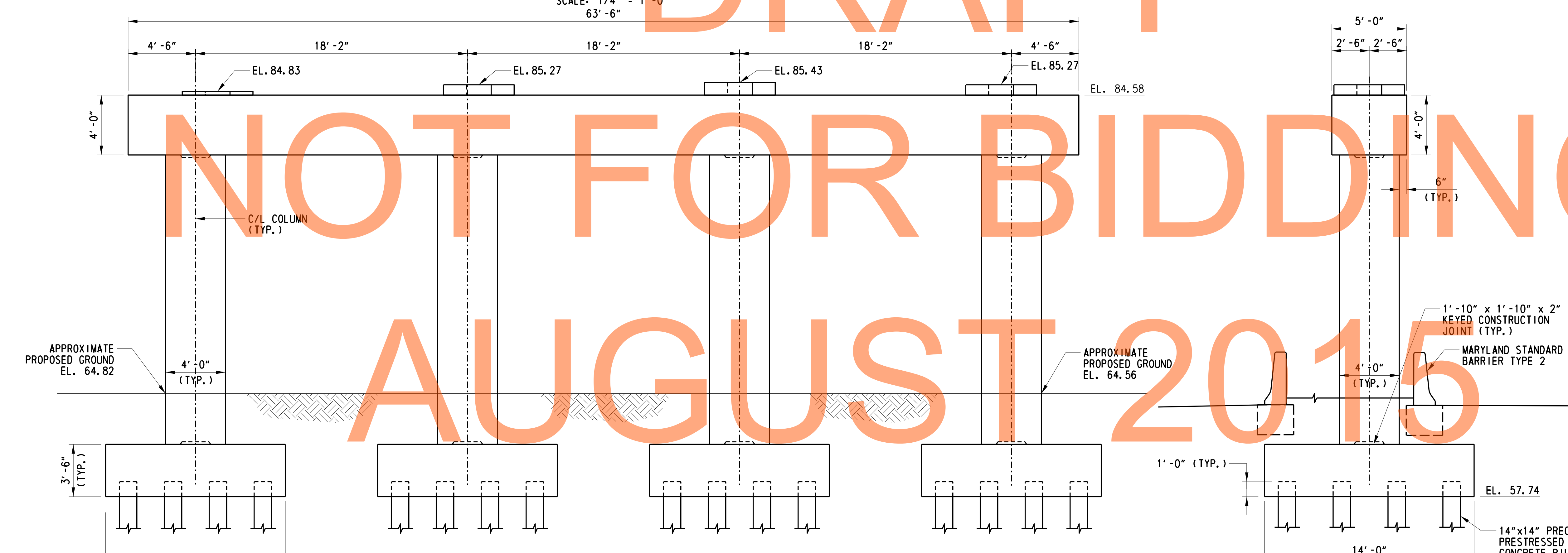
CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-470 PR-2
SHEET NO.
324
TOTAL SHTS.
1256



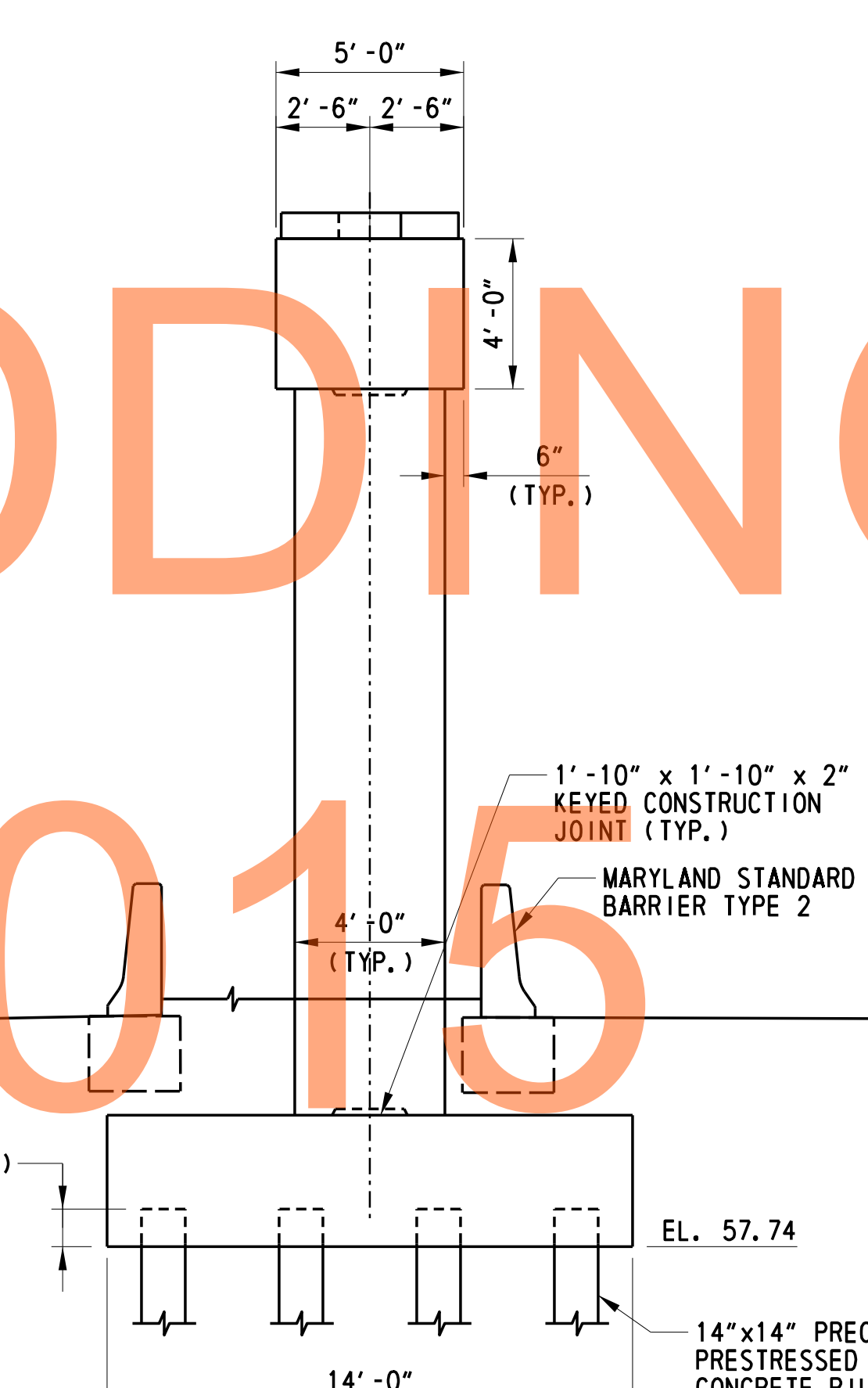
PIER PLAN - SOUTHBOUND

SCALE: 1/4" = 1'-0"
63'-6"



PIER ELEVATION - SOUTHBOUND

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



END VIEW

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

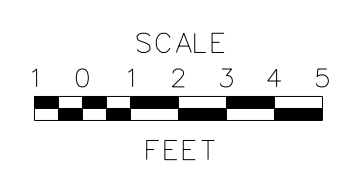
CROSS REFERENCE NOTES:

1. FOR PIER FOUNDATION PLAN, SEE DWG. 1-470 PL-3.
2. FOR PIER FOUNDATION REINFORCEMENT, SEE DWG. 1-470 PR-1.
3. FOR PIER REINFORCEMENT, SEE DWG. 1-470 PR-5.
4. FOR PIER REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-2.
5. FOR BURIED MOMENT SLAB DETAILS, SEE DWG. 1-470 AS-5.
6. FOR PIER DETAILS, SEE DWG. 1-470 DR-6.

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ADDENDUMS / REVISIONS	



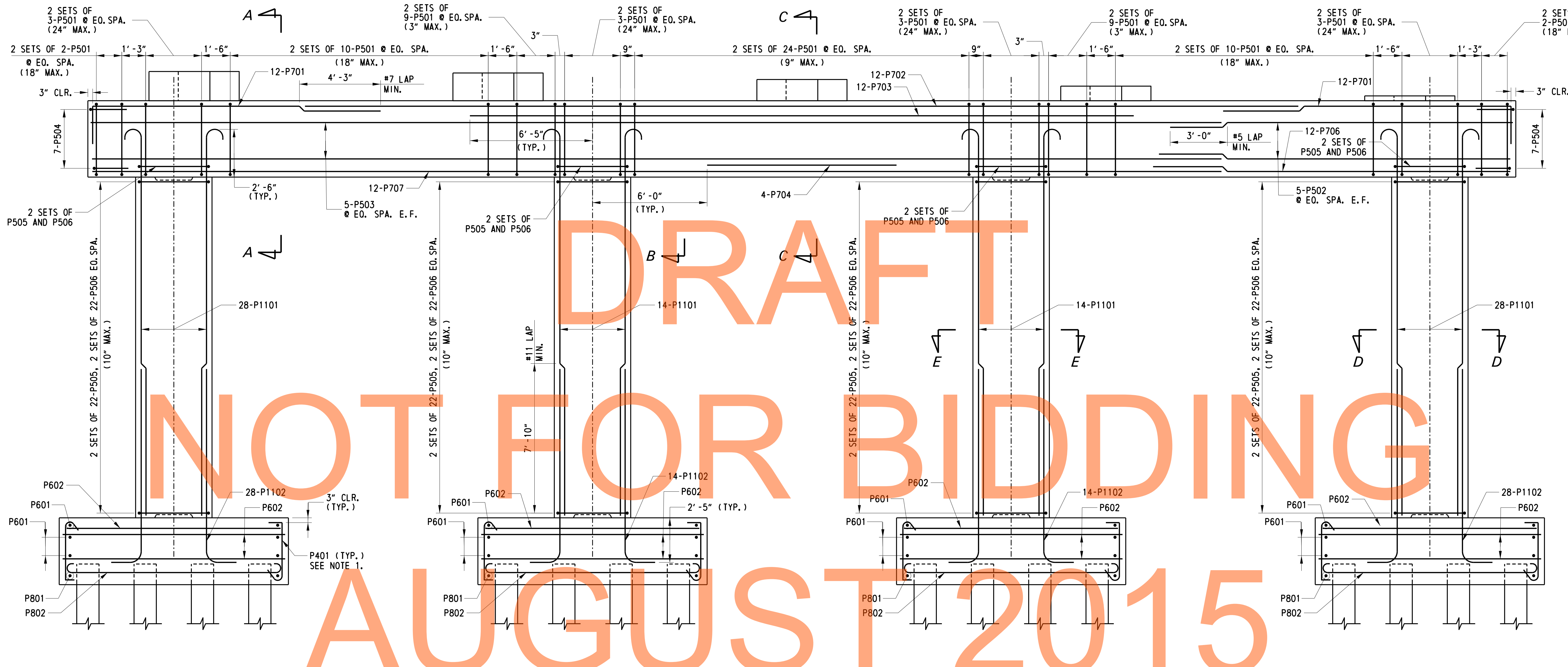
**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD
SOUTHBOUND PIER -
PLAN AND ELEVATION**

SHEET NO.	325
TOTAL SHTS.	1256

1-470 PR-3



DRAFT

NOT FOR BIDDING

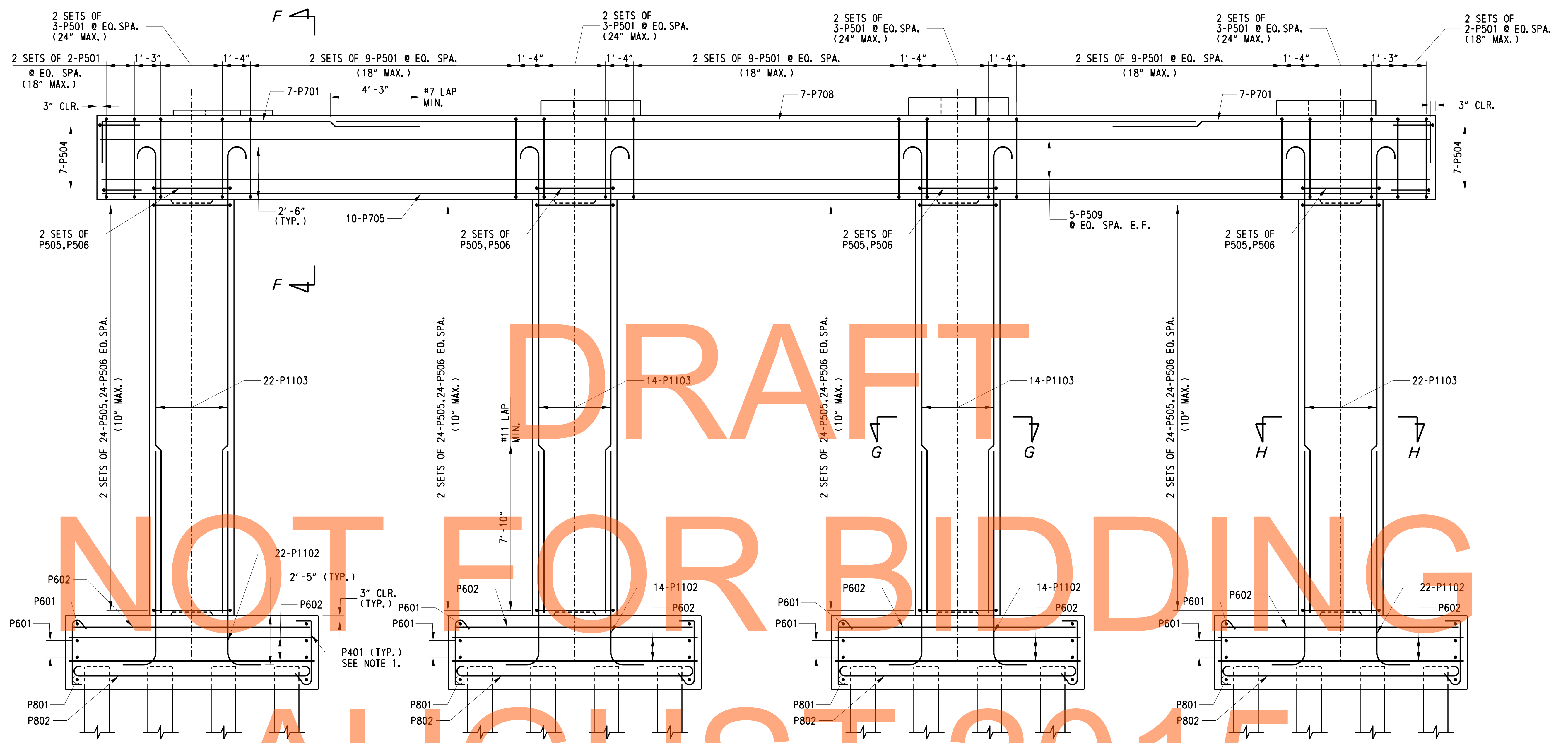
AUGUST 2015

PIER REINFORCEMENT - NORTHBOUND
SCALE: 3/8" = 1'-0"

- NOTE:**
- TIE TOP AND BOTTOM MATS OF REINFORCING STEEL WITH #4 TIES AT A MAXIMUM SPACING OF 6" IN BOTH DIRECTIONS ALONG THE PERIMETER AND A MAXIMUM SPACING OF 4'-0" IN THE INTERIOR. PROVIDE TIE BARS WITH 90° HOOK AT ONE END AND 135° HOOK AT THE OTHER END. ALTERNATE 90° AND 135° HOOK AT TOP IN ALTERNATING TIES.
- CROSS REFERENCE NOTES:**
- FOR SECTIONS A-A THROUGH E-E, SEE DWG. 1-470 PR-6.
 - FOR PEDESTAL DETAILS, SEE DWG. 1-470 PR-6.
 - FOR FOOTING REINFORCEMENT PLAN, SEE DWG. 1-470 PR-1.
 - FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-2.

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	DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T20091303 COUNTY NEW CASTLE	BRIDGE NO. 1-470N&S DESIGNED BY: ADH CHECKED BY: DHG	US 301 MAINLINE OVER SUMMIT BRIDGE ROAD NORTHBOUND PIER - REINFORCEMENT	SHEET NO. 326 TOTAL SHTS. 1256



PIER REINFORCEMENT - SOUTHBOUND

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

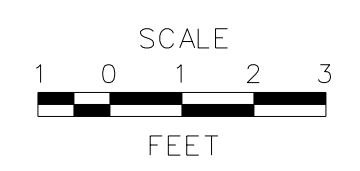
NOTE:
 1. TIE TOP AND BOTTOM MATS OF REINFORCING STEEL WITH #4 TIES AT A MAXIMUM SPACING OF 6" IN BOTH DIRECTIONS ALONG THE PERIMETER AND A MAXIMUM SPACING OF 4'-0" IN THE INTERIOR. PROVIDE TIE BARS WITH 90° HOOK AT ONE END AND 135° HOOK AT THE OTHER END. ALTERNATE 90° AND 135° HOOK AT TOP IN ALTERNATING TIES.

CROSS REFERENCE NOTES:
 1. FOR SECTIONS F-F THROUGH H-H, SEE DWG. 1-470 PR-6.
 2. FOR PEDESTAL DETAILS, SEE DWG. 1-470 PR-6.
 3. FOR FOOTING REINFORCEMENT PLAN, SEE DWG. 1-470 PR-1.
 4. FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-2.

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ADDENDUMS / REVISIONS	

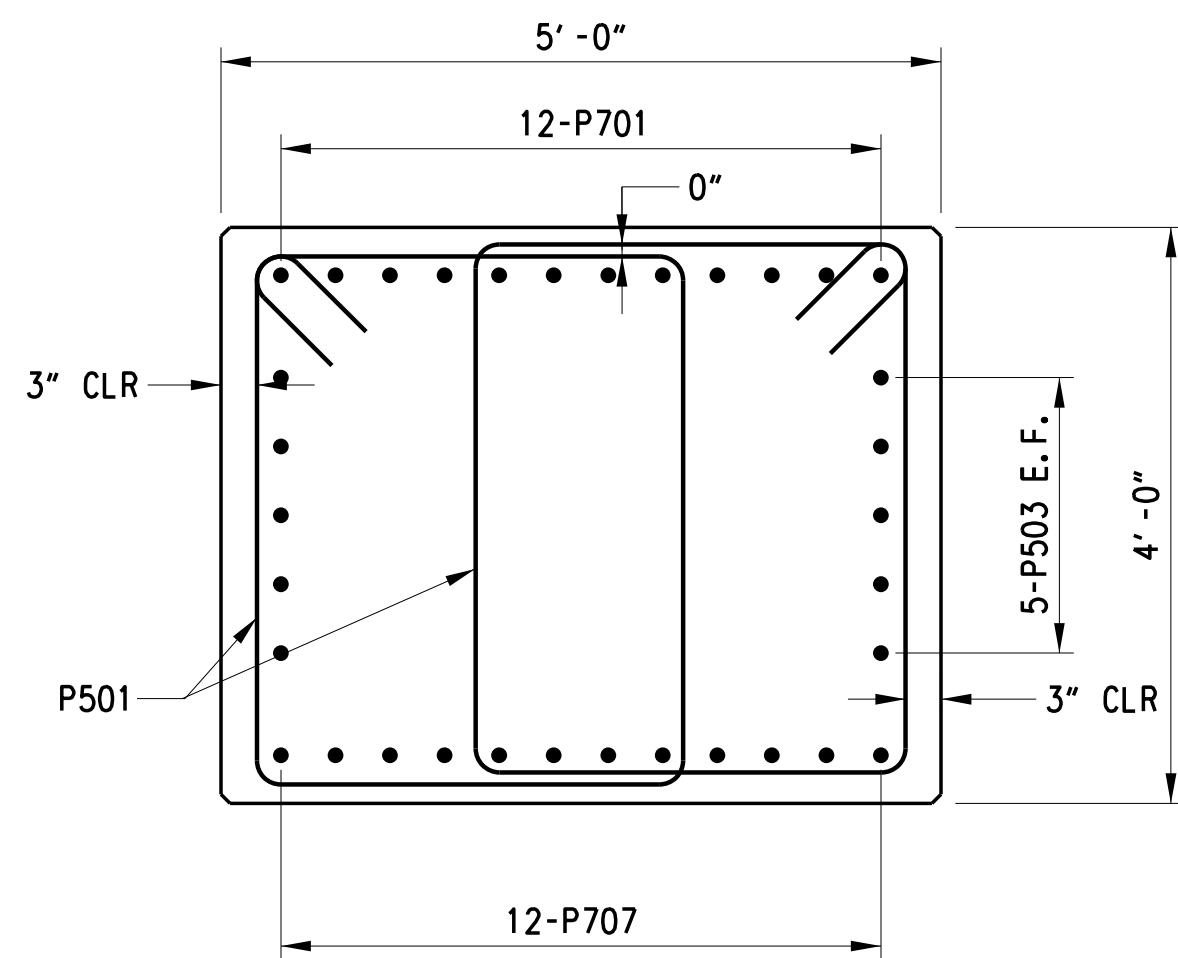


**US 301
 LEVELS ROAD
 TO SUMMIT BRIDGE ROAD**

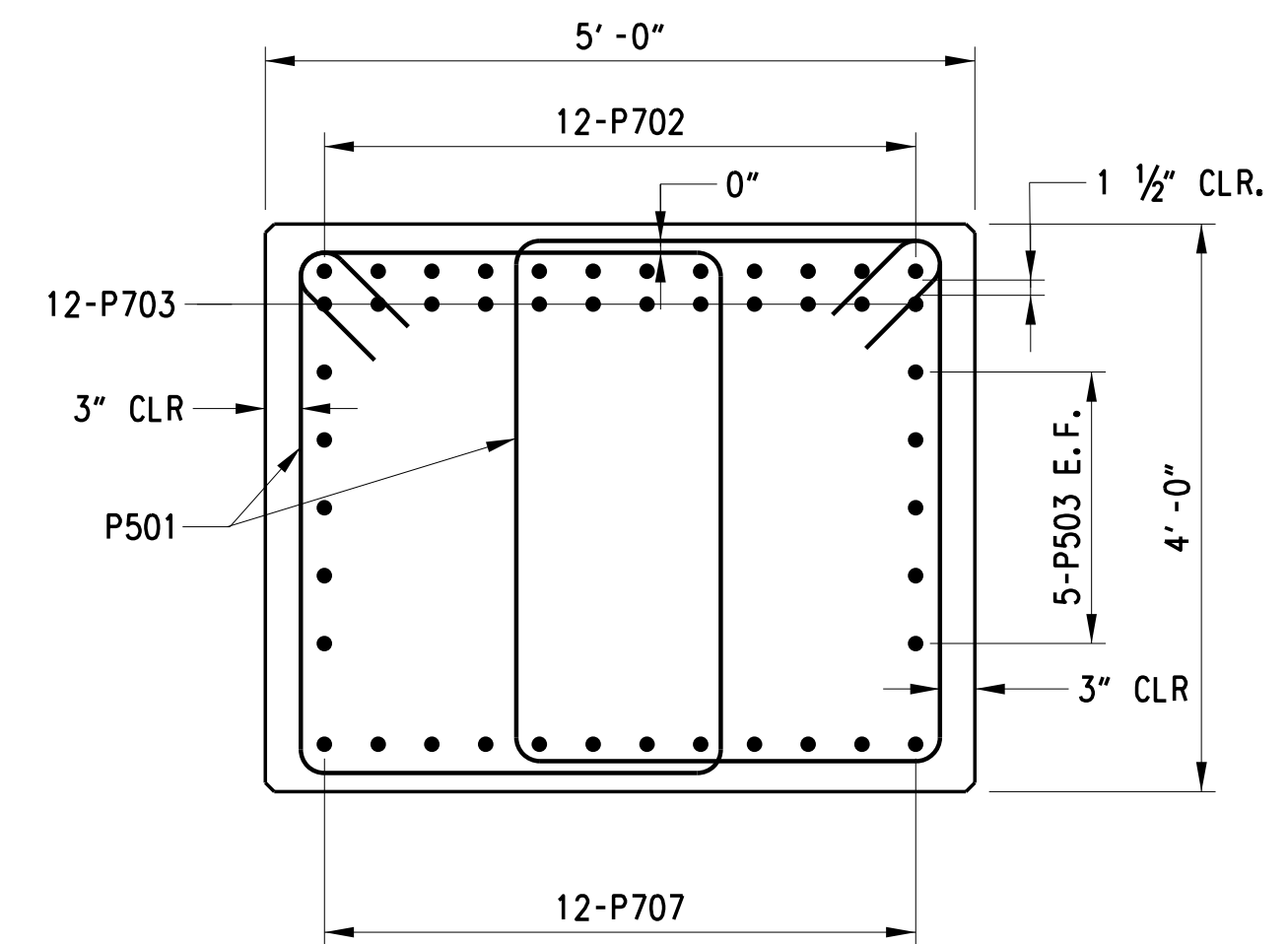
CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
 SUMMIT BRIDGE ROAD
 SOUTHBOUND PIER -
 REINFORCEMENT**

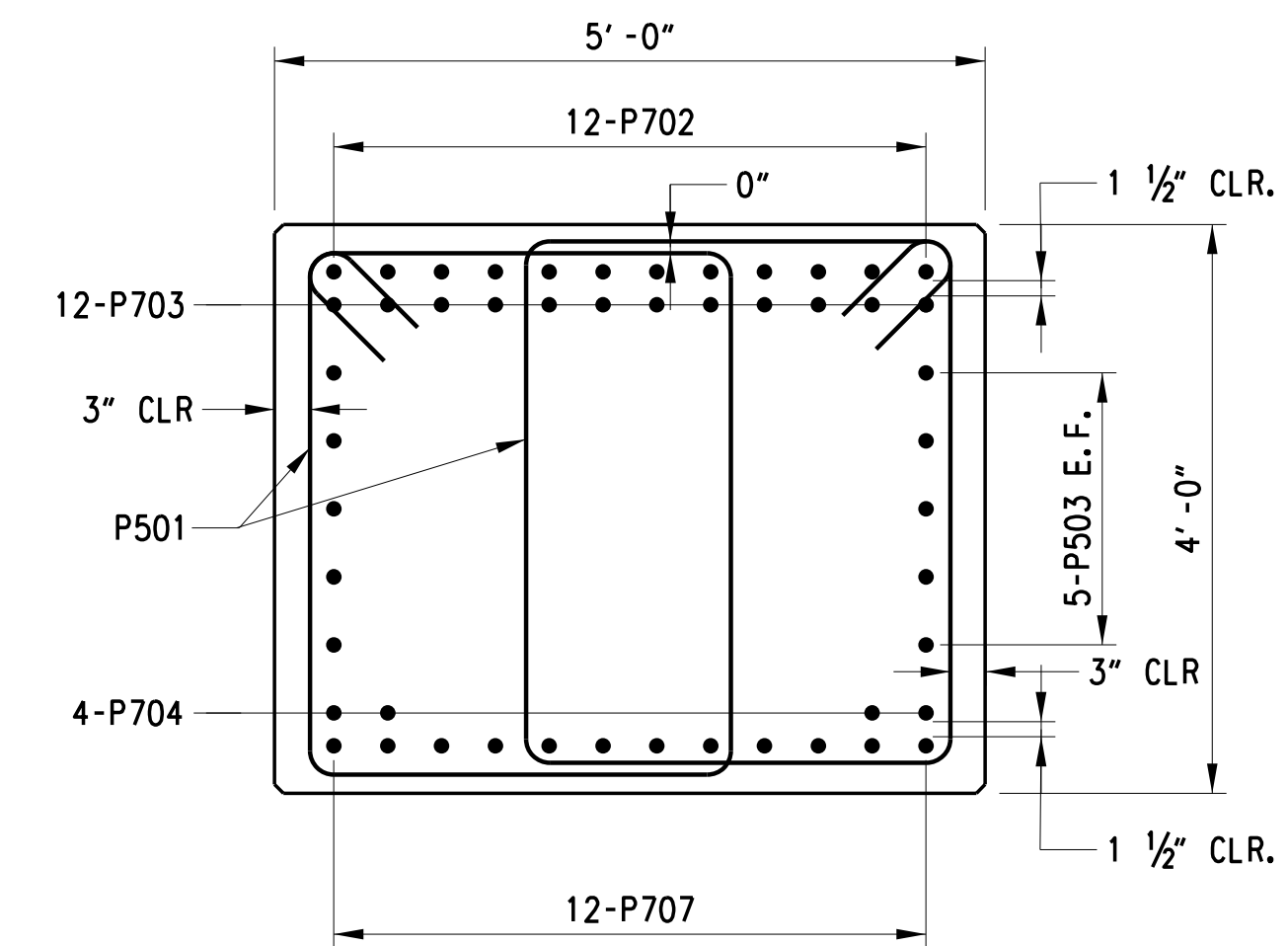
1-470 PR-5
SHEET NO.
327
TOTAL SHTS.
1256



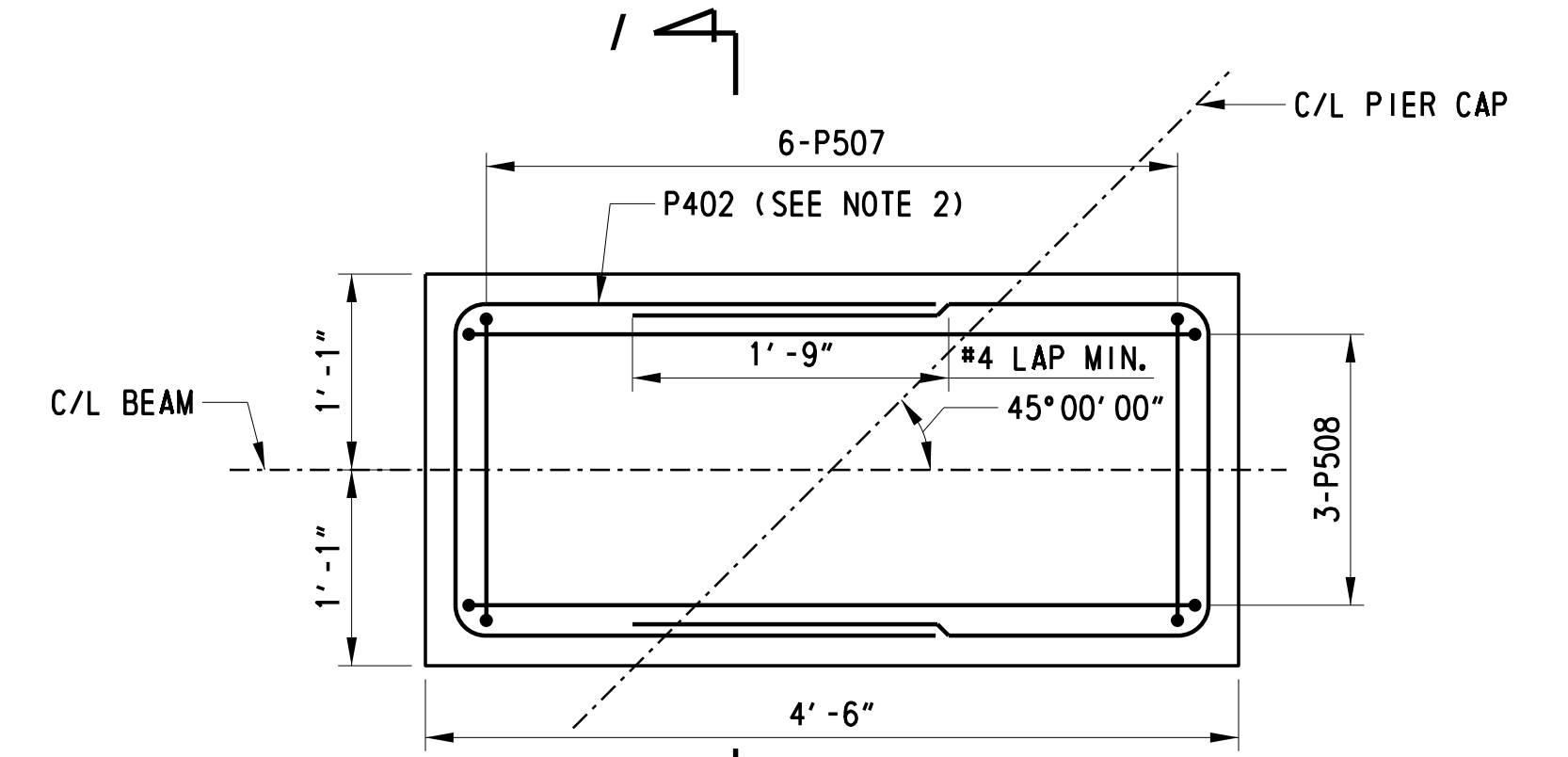
SECTION A-A
SCALE: 3/4" = 1'-0"



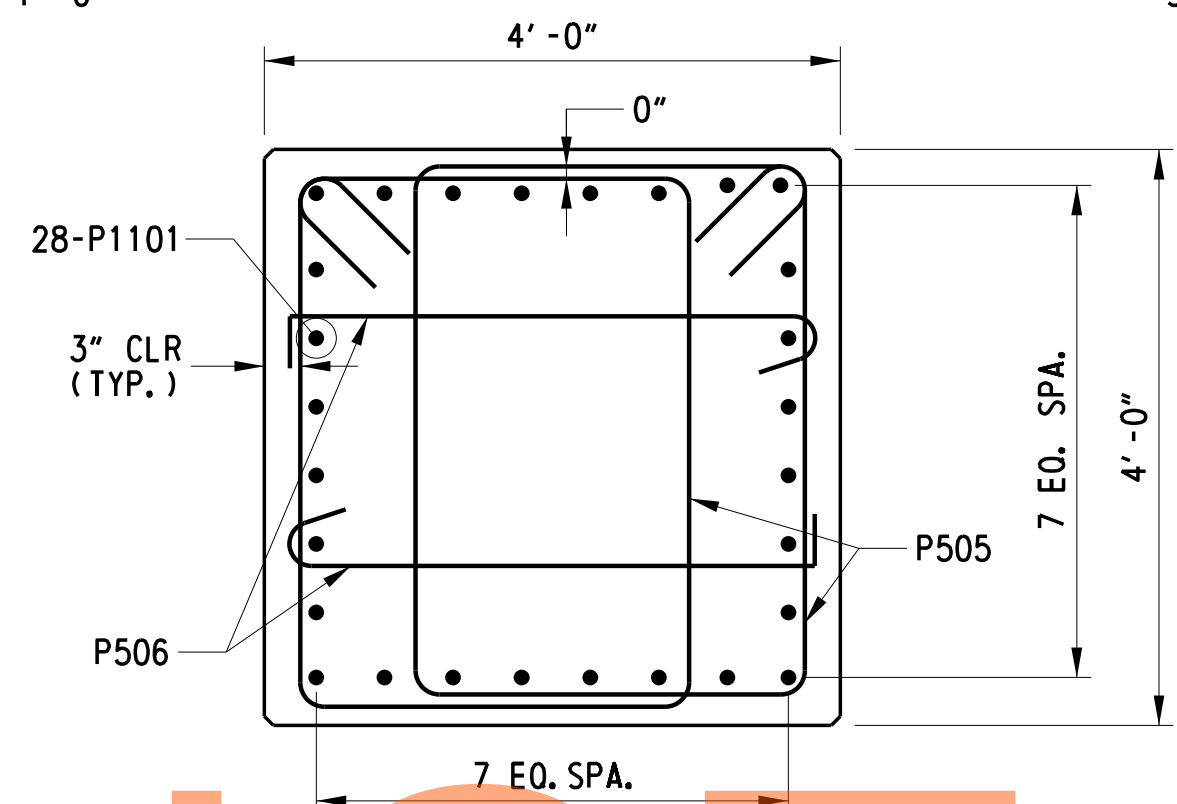
SECTION B-B
SCALE: 3/4" = 1'-0"



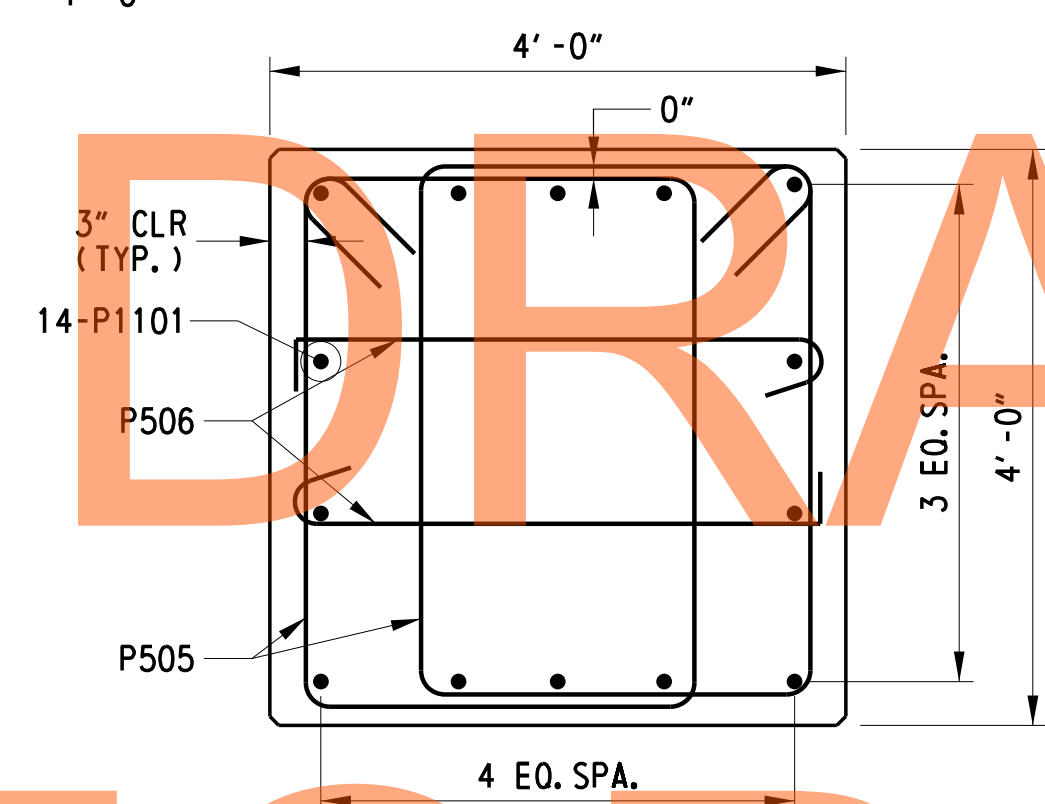
SECTION C-C
SCALE: 3/4" = 1'-0"



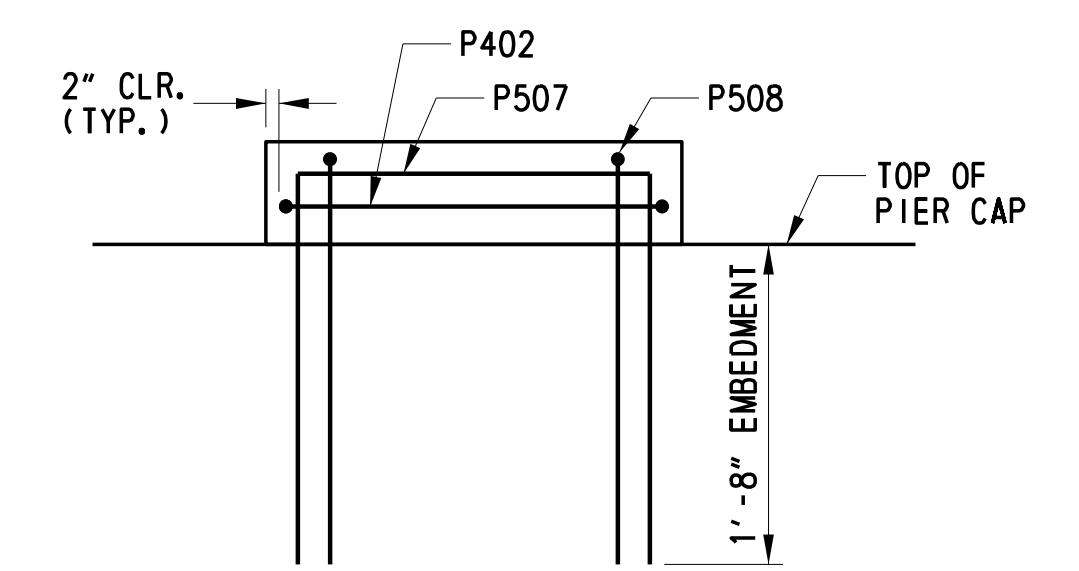
PEDESTAL PLAN
SCALE: 1" = 1'-0"



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



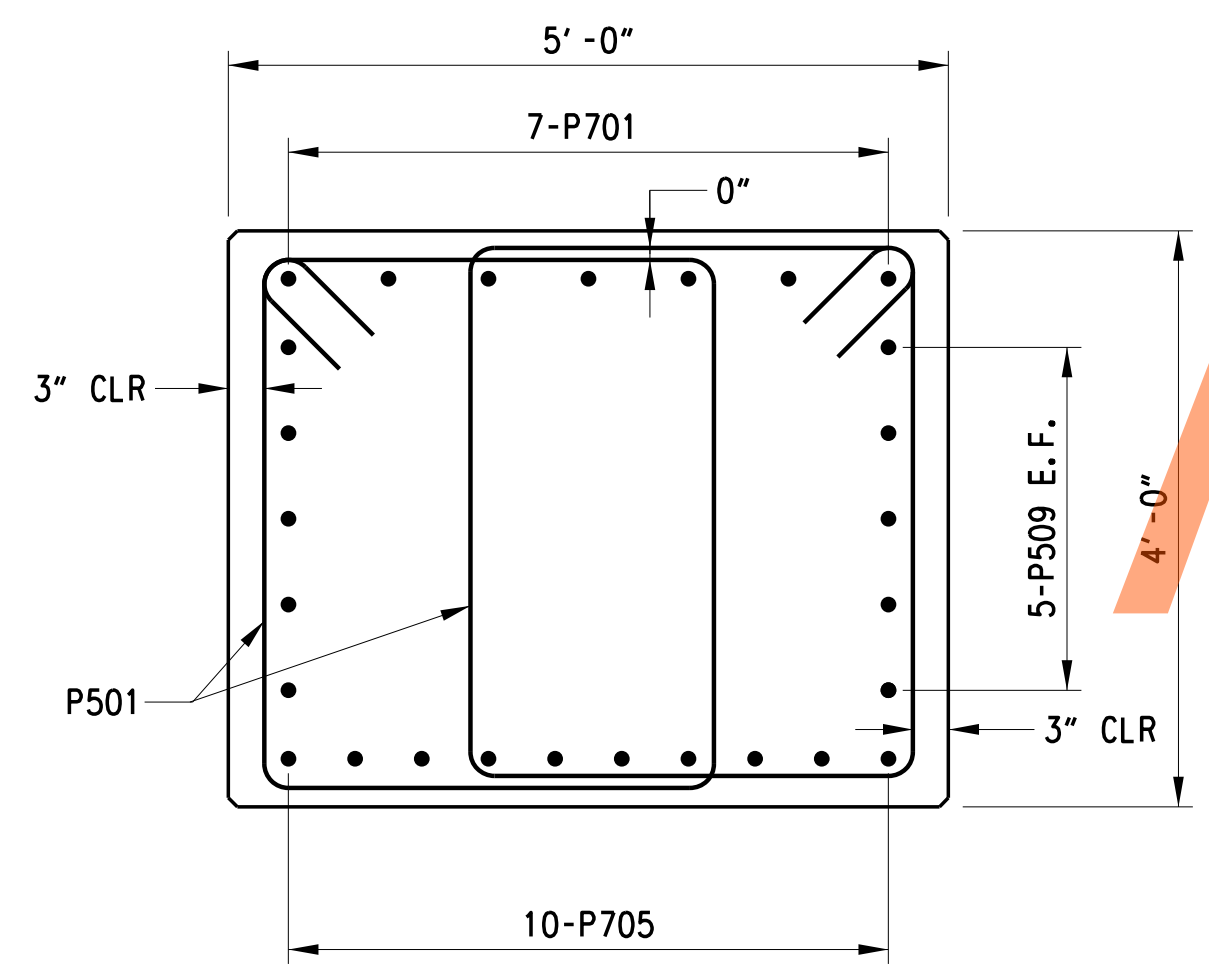
SECTION E-E
SCALE: 3/4" = 1'-0"



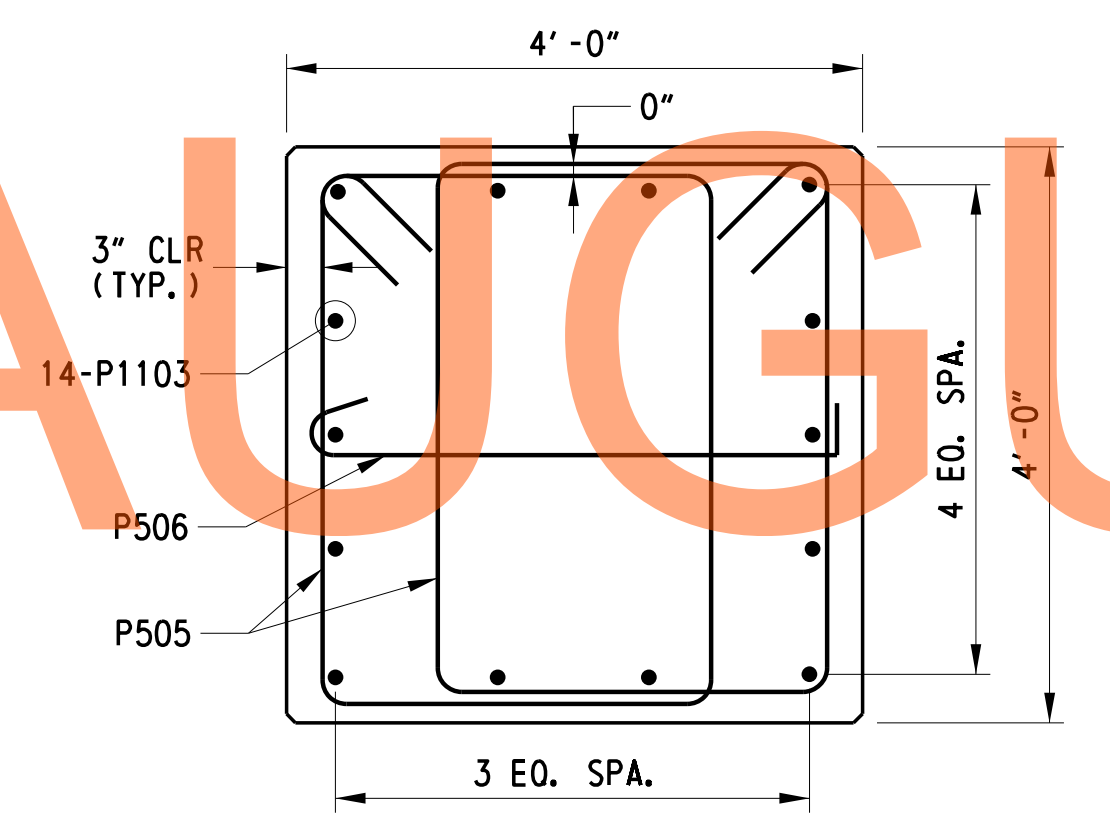
SECTION I-I
SCALE: 1" = 1'-0"

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AUGUST 2015

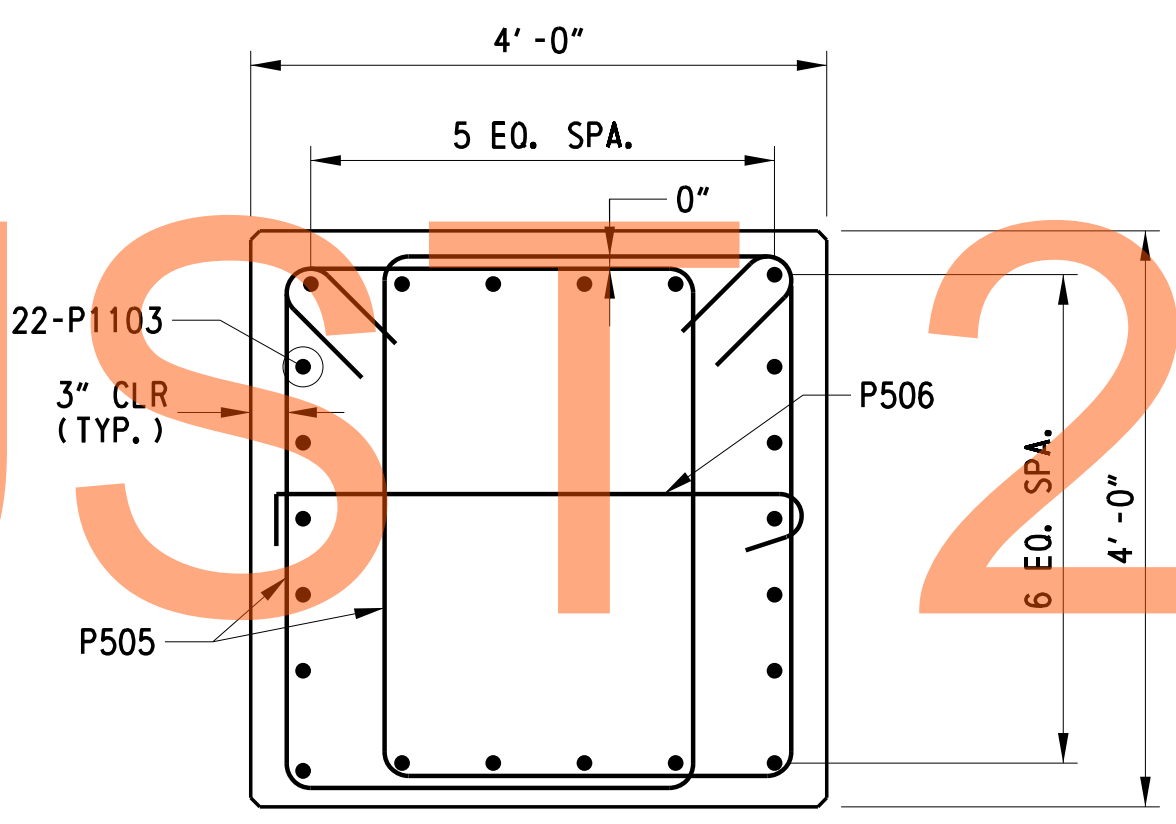
NORTHBOUND TYPICAL SECTIONS



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



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



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

SOUTHBOUND TYPICAL SECTIONS

PEDESTAL REINFORCEMENT					
PEDESTAL NO.	1S	2S	3S	4S	-
REINFORCEMENT REQUIRED	NO	YES	YES	YES	-
QUANTITY OF P402 PAIRS	-	1	1	1	-
PEDESTAL NO.	1N	2N	3N	4N	5N
REINFORCEMENT REQUIRED	YES	YES	YES	YES	NO
QUANTITY OF P402 PAIRS	2	2	1	1	-

NOTES:

- PROVIDE PEDESTAL PEINFORCEMENT WHEN HEIGHT EXCEEDS 4IN.
- PROVIDE P401 WHEN PEDESTAL HEIGHT EXCEEDS 8IN. PLACE AT HALF THE PEDESTAL HEIGHT OR 9 IN. SPACING

CROSS REFERENCE NOTES:

- FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-470 BR-2.

ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

REINFORCING BAR SCHEDULE

NORTHBOUND PIER BAR SCHEDULE

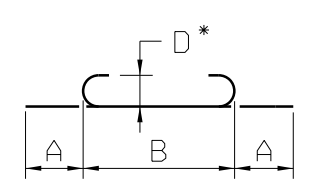
SOUTHBOUND PIER BAR SCHEDULE

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
P401	4'-0 1/2"	440	26	4 1/2"	3'-0"	8"										P401	4'-0 1/2"	440	26	4 1/2"	3'-0"	8"									
P402	7'-10"	12	4	3'-0"	1'-10"	3'-0"										P402	7'-10"	6	4	3'-0"	1'-10"	3'-0"									
P501	14'-3"	156	25	3'-8"	3'-0"	3 3/4"	2 1/2"									P501	14'-3"	86	25	3'-8"	3'-0"	3 3/4"	2 1/2"								
P502	17'-3"	10	STR													P504	9'-8"	14	4	2'-7"	4'-6"	2'-7"									
P503	60'-0"	10	STR													P505	12'-11"	200	25	3'-6"	2'-6"	3 3/4"	2 1/2"								
P504	9'-8"	14	4	2'-7"	4'-6"	2'-7"										P506	4'-9 1/2"	100	26	5 1/2"	3'-6"	10"									
P505	12'-11"	184	25	3'-6"	2'-6"	3 3/4"	2 1/2"									P507	7'-9"	18	4	3'-0"	1'-9"	3'-0"									
P506	4'-9 1/2"	184	26	5 1/2"	3'-6"	10"										P508	10'-1"	9	4	3'-0"	4'-1"	3'-0"									
P507	7'-9"	24	4	3'-0"	1'-9"	3'-0"										P509	63'-0"	10	STR												
P508	10'-1"	12	4	3'-0"	4'-1"	3'-0"																									
P601	13'-6"	88	STR													P601	13'-6"	88	STR												
P602	11'-6"	56	STR													P602	11'-6"	56	STR												
P701	19'-8"	24	10	1'-2"	18'-6"											P701	19'-8"	14	10	1'-2"	18'-6"										
P702	45'-9"	24	STR													P705	63'-0"	10	STR												
P703	34'-11"	12	STR													P708	34'-6"	7	STR												
P704	9'-11"	4	STR																												
P706	18'-6"	12	STR													P801	15'-4"	68	15	11"	13'-6"	8"									
P707	60'-0"	12	STR													P802	13'-2"	68	15	11"	11'-6"	8"									
P801	15'-4"	68	15	11"	13'-6"	8"										P1102	12'-3"	72	10	2'-0"	10'-3"										
P802	13'-4"	68	15	11"	11'-6"	8"										P1103	23'-5"	72	14	1'-7"	21'-10"	1'-2 3/4"									
P1101	22'-0"	84	14	1'-7"	20'-5"	1'-2 3/4"																									
P1102	12'-3"	84	10	2'-0"	10'-3"																										

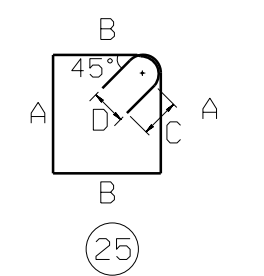
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NOT FOR BIDDING

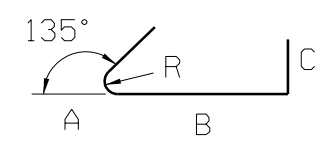
AUGUST 2015



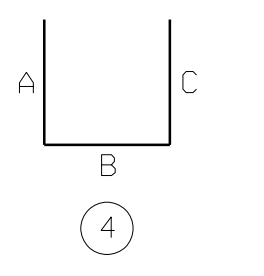
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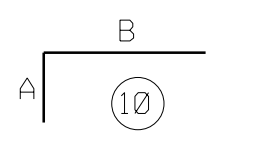
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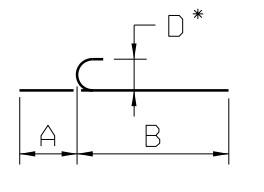
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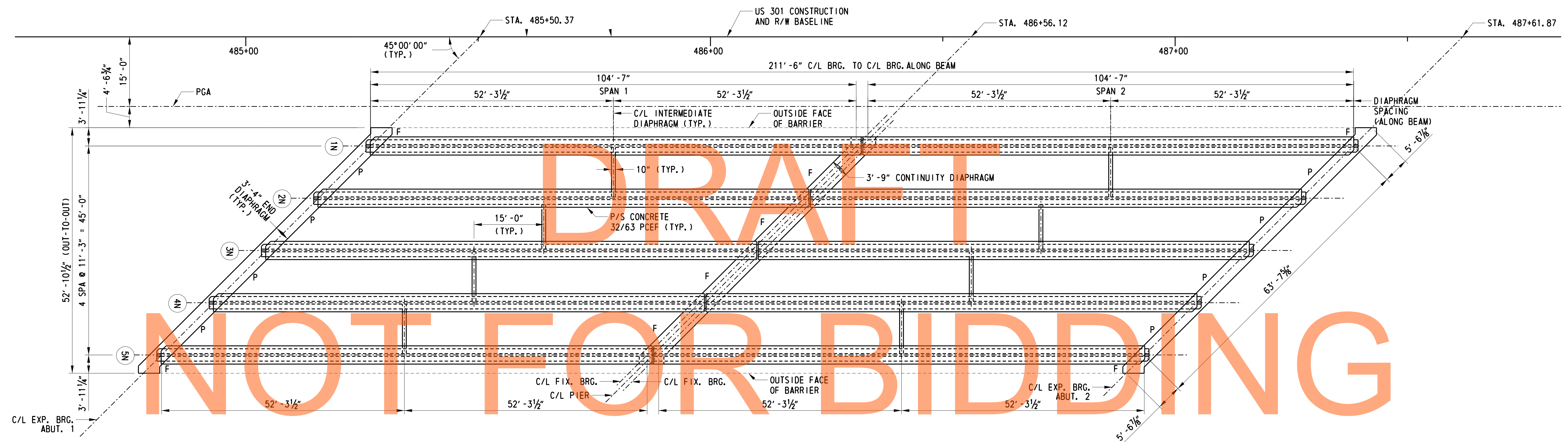
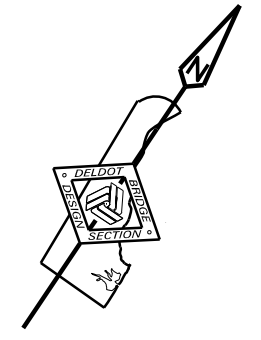


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14

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NOT FOR BIDDING

FRAMING PLAN - NORTHBOUND

SCALE: 3/32" = 1'-0"

AUGUST 2015

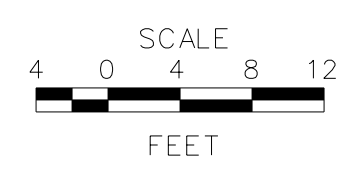
- CROSS REFERENCE NOTES:**
1. FOR BEAM ELEVATION AND DETAILS, SEE DWG. 1-470 BM-1 AND 1-470 BM-2.
 2. FOR BEAM CAMBER, SEE DWG. 1-470 BM-2.
 3. FOR CONCRETE DIAPHRAGM DETAILS, SEE DWG. 1-470 DPH-1, 1-470 DPH-2 AND 1-470 DPH-3.
 4. FOR DECK SECTION, SEE DWG. 1-470 PA-1.

- LEGEND:**
- P PARTIAL DEPTH END DIAPHRAGM
 - F FULL DEPTH END DIAPHRAGM AND FULL DEPTH CONTINUITY DIAPHRAGM.

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ADDENDUMS / REVISIONS



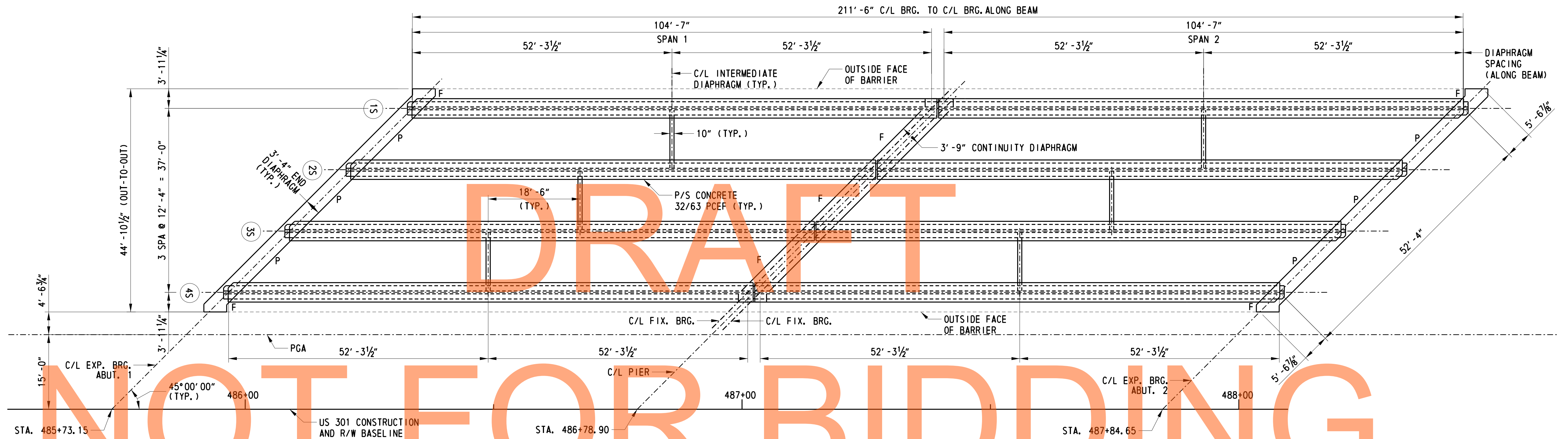
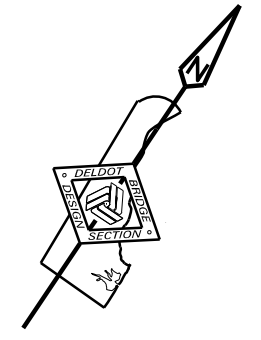
**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD**

**FRAMING PLAN -
NORTHBOUND**

1-470 FR-1
SHEET NO.
330
TOTAL SHTS.
1256



NOT FOR BIDDING

FRAMING PLAN - SOUTHBOUND
SCALE: 3/32" = 1'-0"

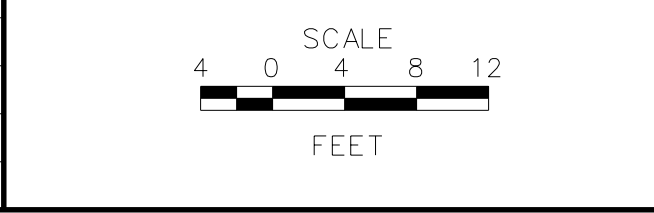
AUGUST 2015

- CROSS REFERENCE NOTES:**
1. FOR BEAM ELEVATION AND DETAILS, SEE DWG. 1-470 BM-1 AND 1-470 BM-2.
 2. FOR BEAM CAMBER, SEE DWG. 1-470 BM-2.
 3. FOR CONCRETE DIAPHRAGM DETAILS, SEE DWG. 1-470 DPH-1, 1-470 DPH-2 AND 1-470 DPH-3.
 4. FOR DECK SECTION, SEE DWG. 1-470 PA-1.

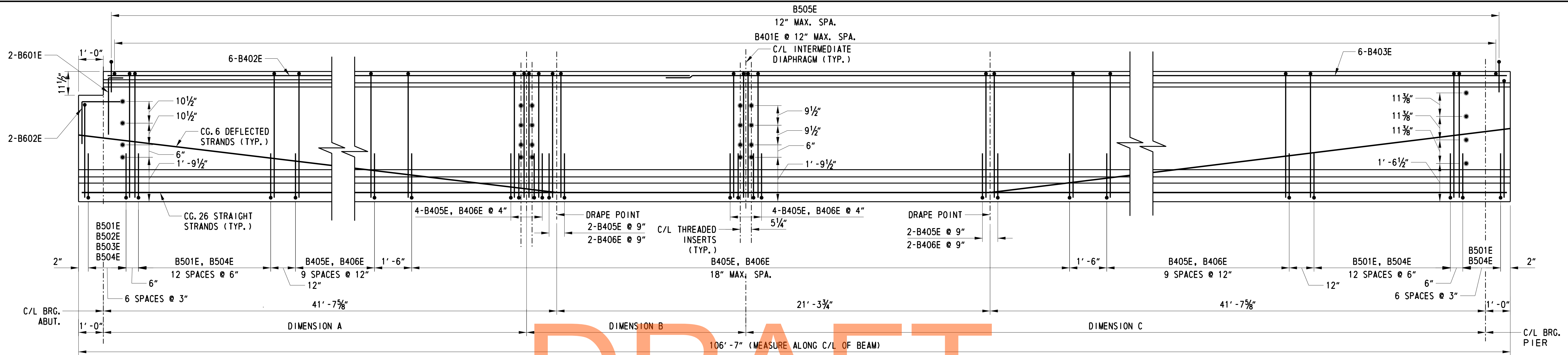
LEGEND:
 P PARTIAL DEPTH END DIAPHRAGM
 F FULL DEPTH END DIAPHRAGM AND FULL DEPTH CONTINUITY DIAPHRAGM.

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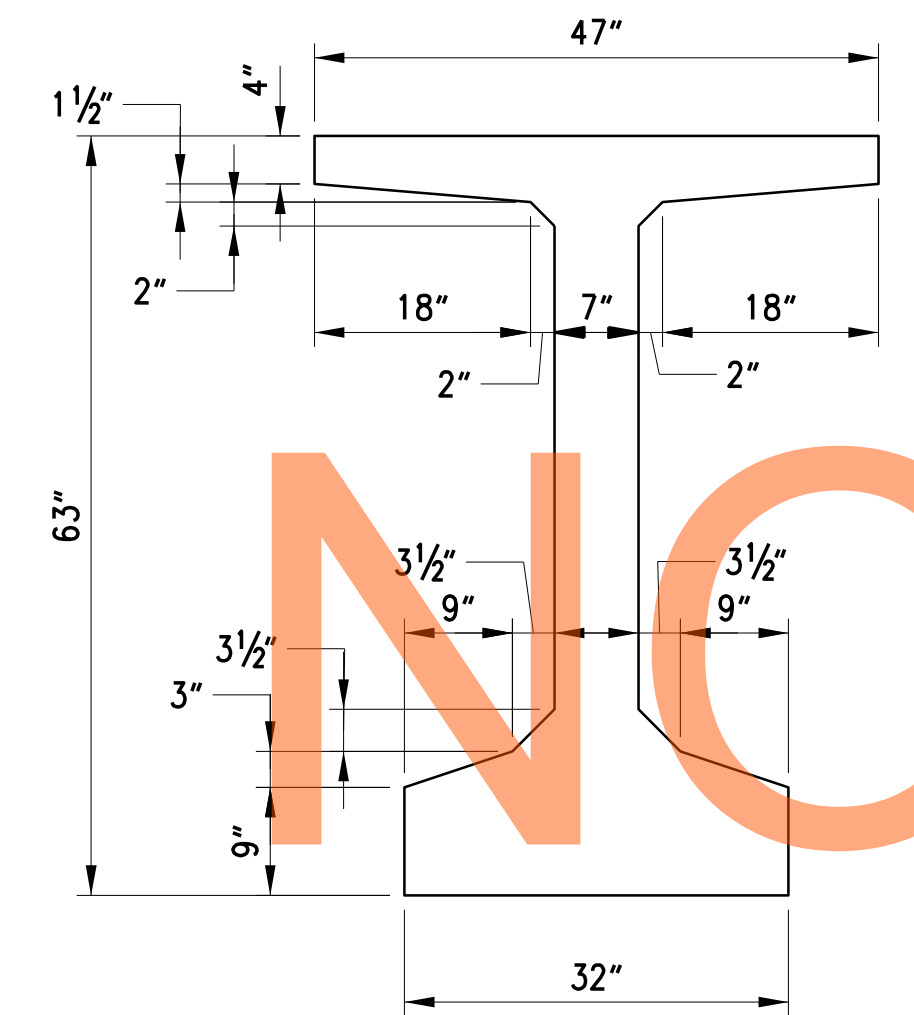
ADDENDUMS / REVISIONS



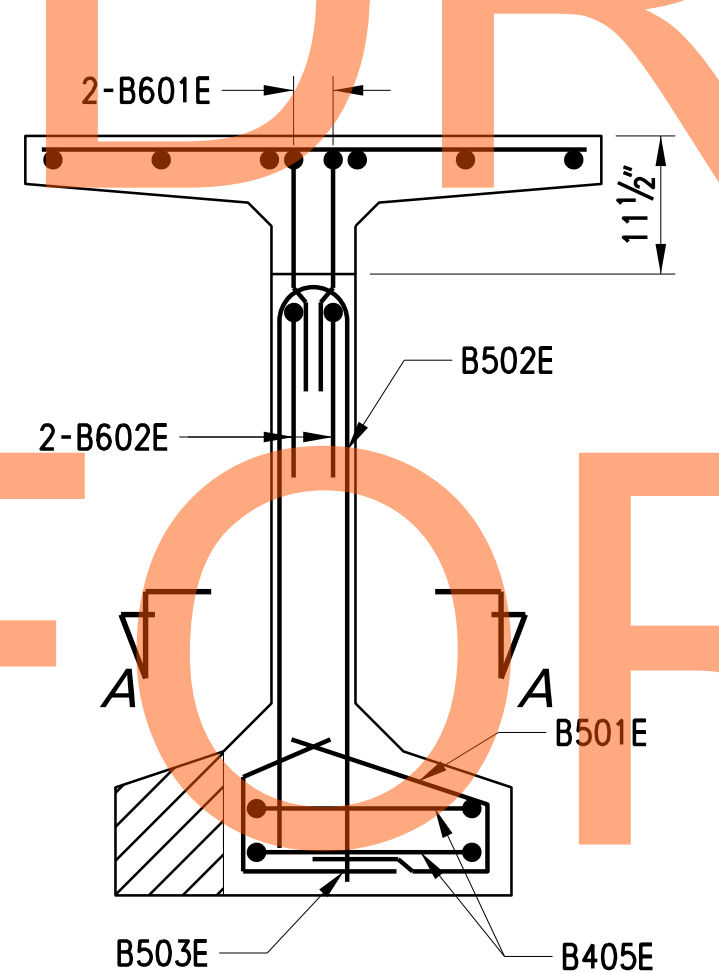
CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		



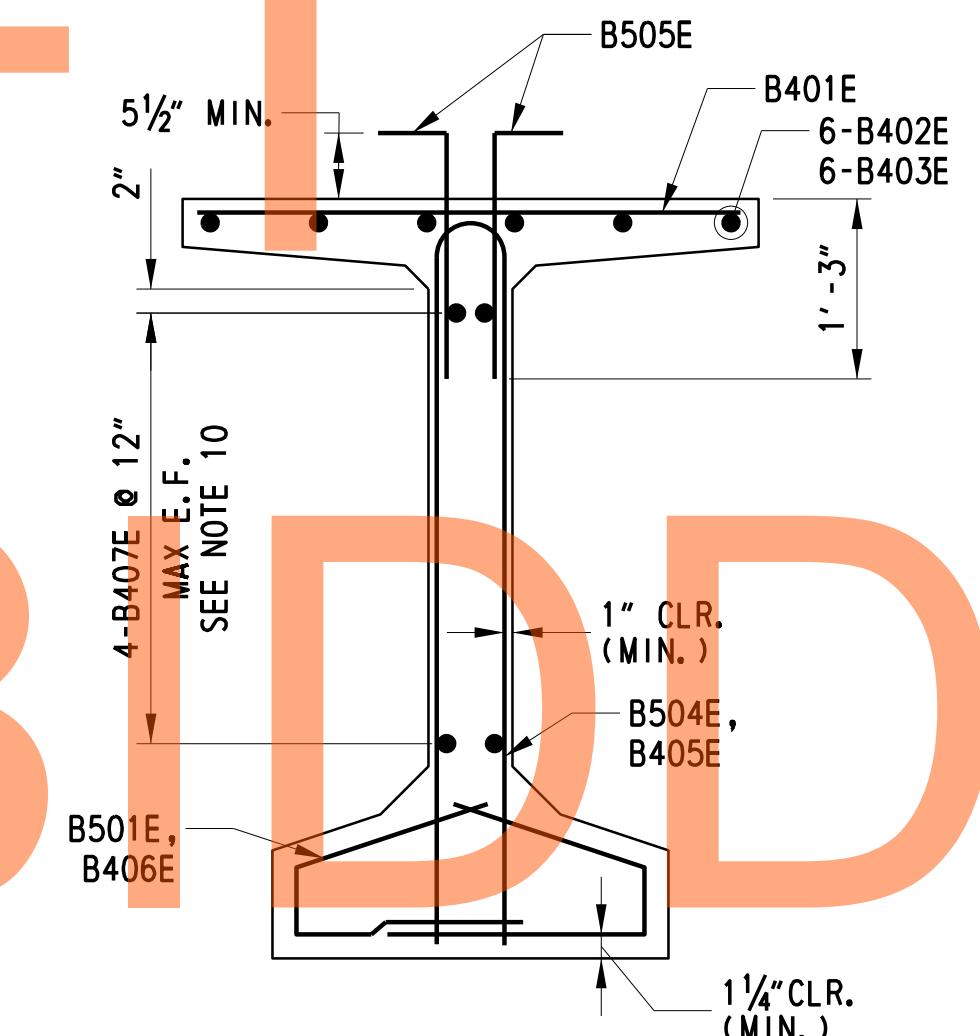
BEAM ELEVATION
SCALE: 1/2" = 1'-0"



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



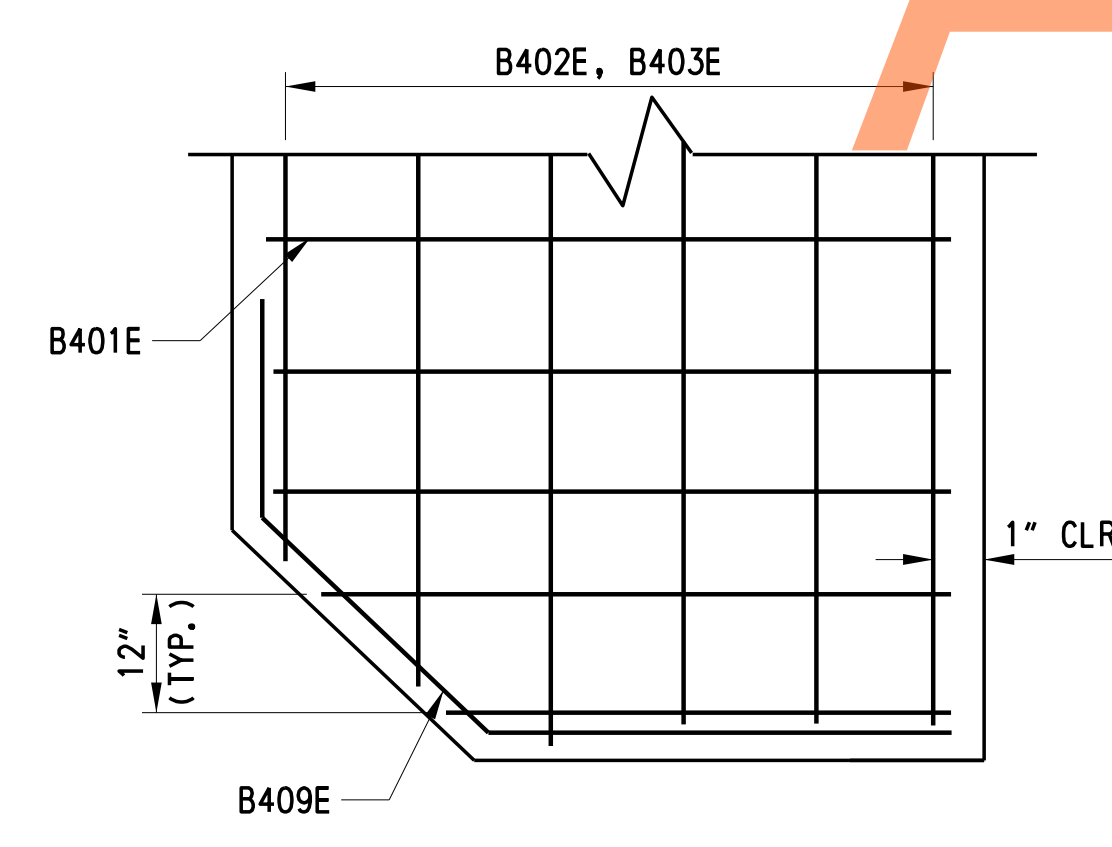
NOTCH END REINFORCEMENT
SCALE: 3/4" = 1'-0"



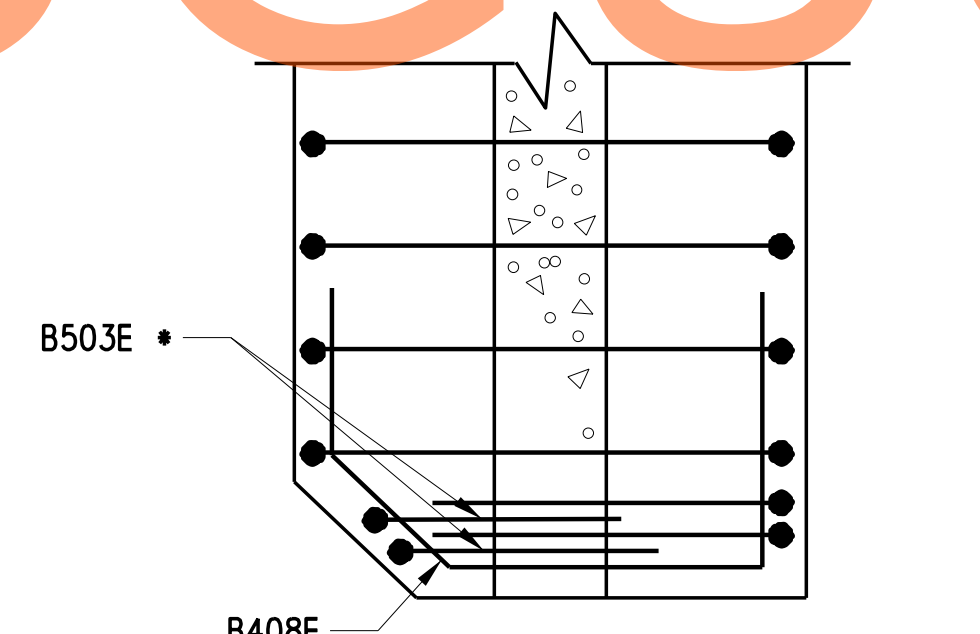
TYPICAL REINFORCEMENT
SCALE: 3/4" = 1'-0"

- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 - FOR FRAMING PLAN, SEE DWG. 1-470 FR-1 AND 1-470 FR-2.
 - FOR ADDITIONAL BEAM DETAILS, SEE DWG. 1-470 BM-2.
 - FOR PERMANENT STEEL BRIDGE DECK FORM DETAILS, SEE DWG. 1-470 BM-2.
 - FOR DIAPHRAGM SECTION AND DETAILS, SEE DWG. 1-470 DPH-1, 1-470 DPH-2 AND 1-470 DPH-3.
 - FOR TYPICAL SECTION, SEE DWG. 1-470 TS-1.
 - FOR CAMBER TABLE, SEE DWG. 1-470 BM-2.

- NOTES:**
- ALL BEAMS ARE 32/63 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 THE FULL LENGTH OF THE 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"

INTERMEDIATE DIAPHRAGM SPACING NORTHBOUND

GIRDERS	DIMENSIONS		
	A	B	C
1N & 5N	52' - 3 1/2"	-	52' - 3 1/2"
2N	48' - 6 1/2"	15' - 0"	41' - 0 1/2"
3N	44' - 9 1/2"	15' - 0"	44' - 9 1/2"
4N	41' - 0 1/2"	15' - 0"	48' - 6 1/2"

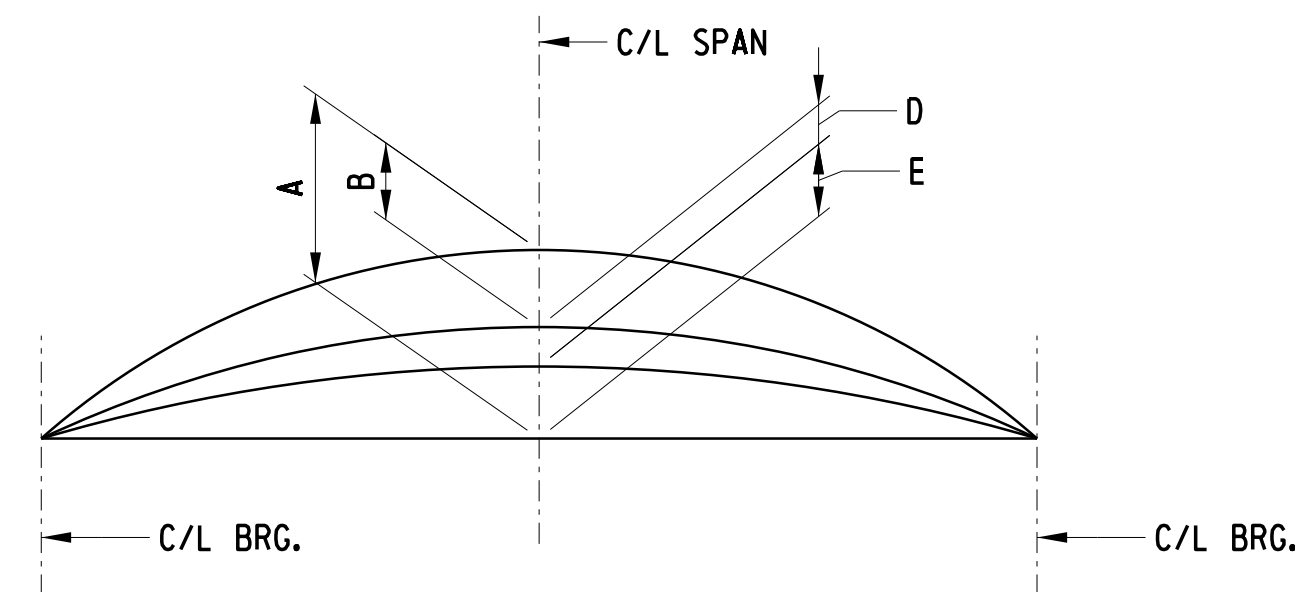
INTERMEDIATE DIAPHRAGM SPACING SOUTHBOUND

GIRDERS	DIMENSIONS		
	A	B	C
1S & 4S	52' - 3 1/2"	-	52' - 3 1/2"
2S	46' - 1 1/2"	18' - 6"	39' - 11 1/2"
3S	39' - 11 1/2"	18' - 6"	46' - 1 1/2"

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ADDENDUMS / REVISIONS

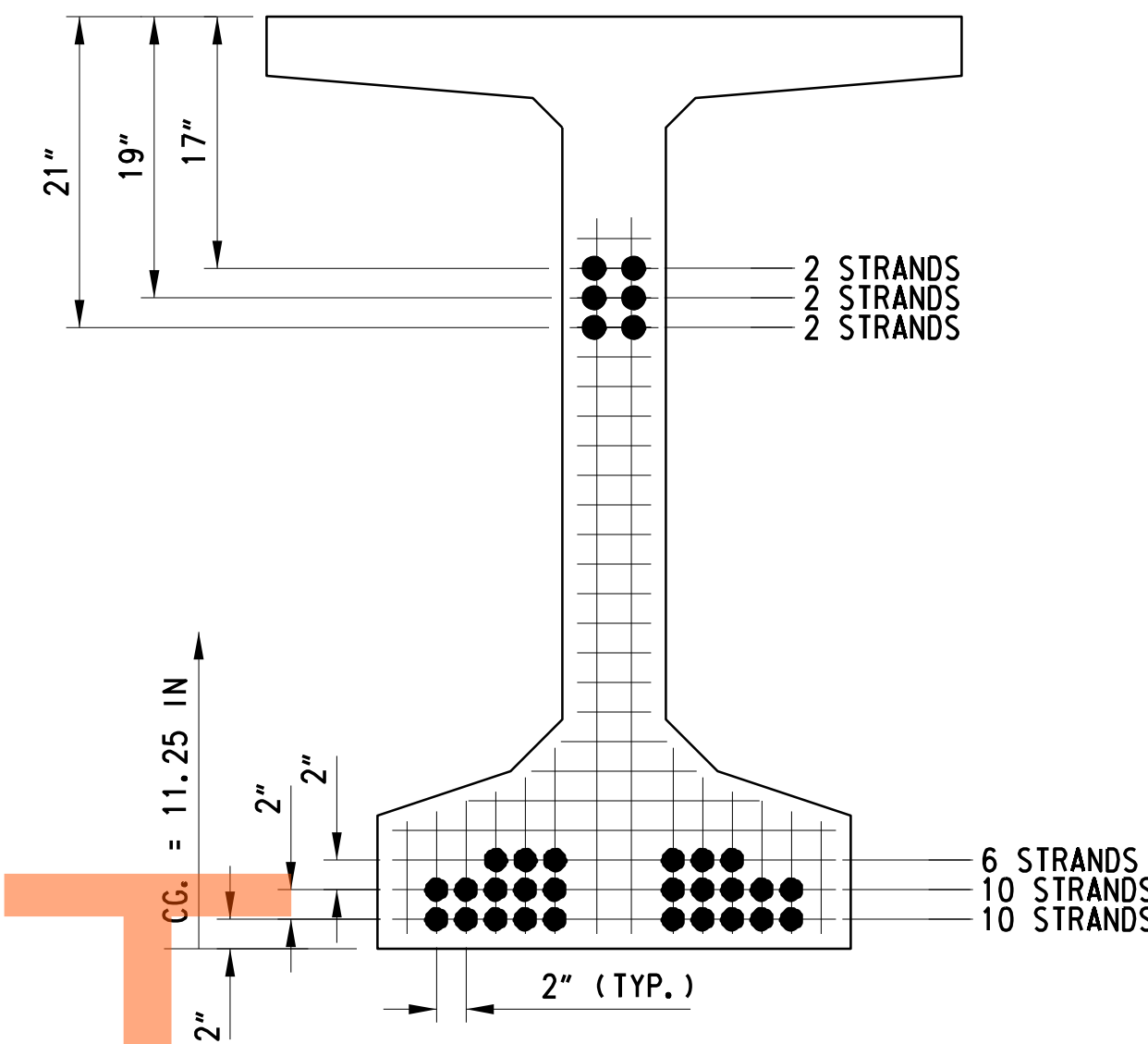
CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-470N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG



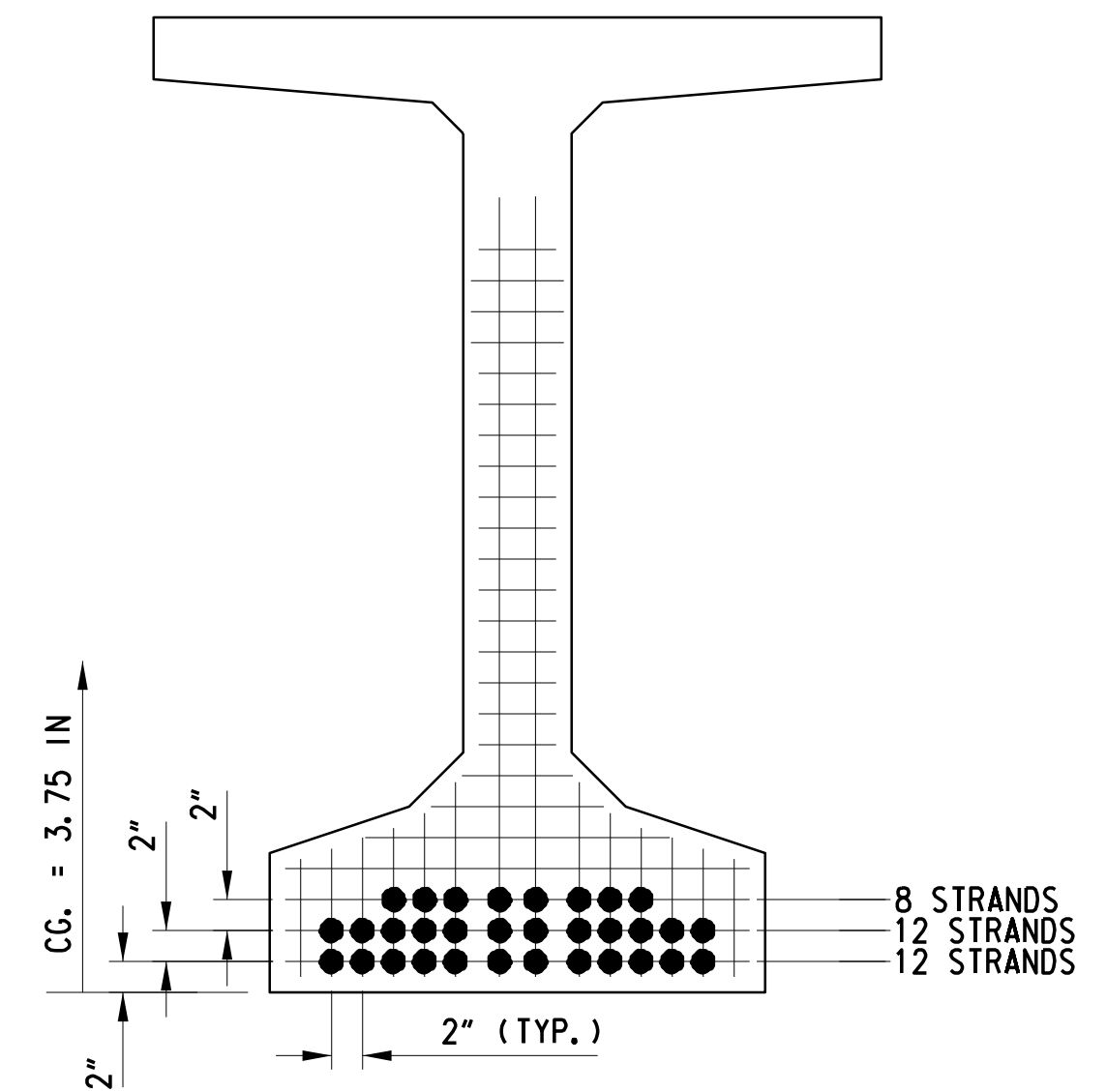
BEAM CAMBER DIAGRAM
NTS

NORTHBOUND CAMBER					
BEAM	A (IN)	B (IN)	C (IN)	D (IN)	E (IN)
1N & 5N	4.843	-2.128	2.715	-1.251	1.464
2N-4N	4.843	-2.128	2.715	-1.524	1.191

SOUTHBOUND CAMBER					
BEAM	A (IN)	B (IN)	C (IN)	D (IN)	E (IN)
1S & 4S	4.843	-2.128	2.715	-1.334	1.381
2S & 3S	4.843	-2.128	2.715	-1.678	1.037



BEAM END PATTERN

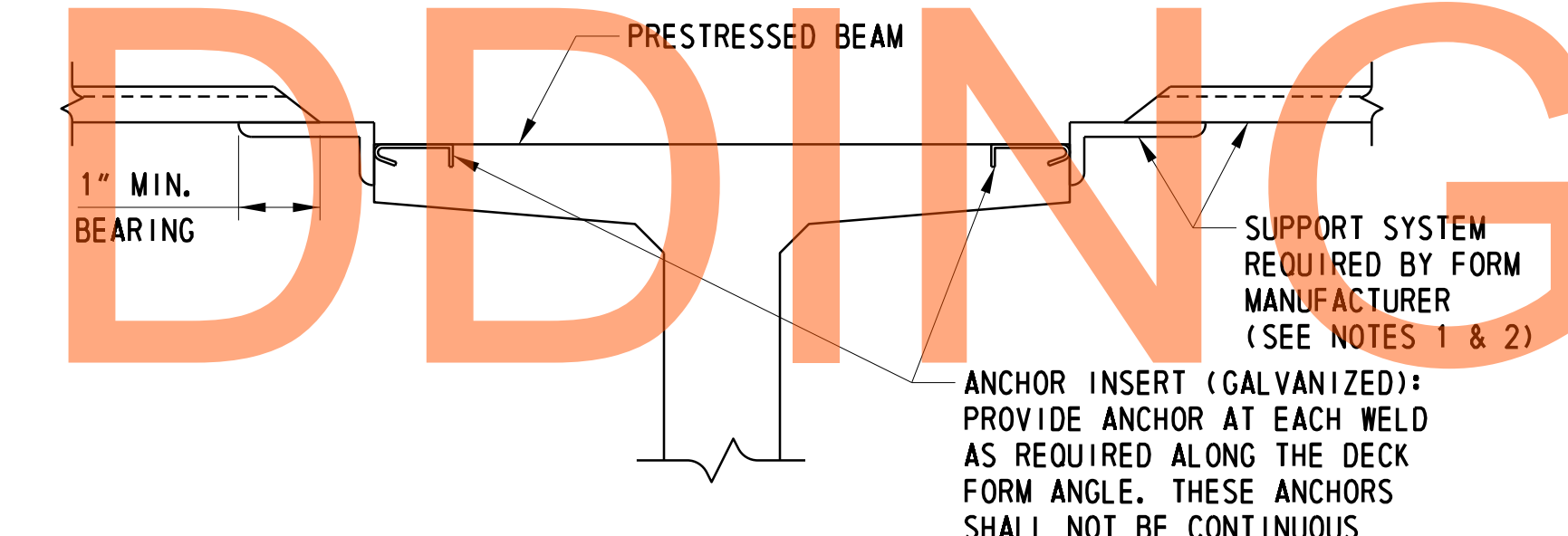


MID SPAN PATTERN

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

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.



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

PRESTRESSING DATA	
LOCATION	ALL BEAMS
BEAM SIZE, I-BEAM	32x63
INITIAL PRESTRESSING FORCE PER BEAM 0.60 DIA. LOW RELAXATION STRANDS	1406.20 K lps
NUMBER OF STRANDS	32
CONCRETE STRENGTH AT STRAND RELEASE (f'c)	6.40 ks1
CONCRETE STRENGTH AT 28 DAYS f'c	8.00 ks1

CROSS REFERENCE NOTES:

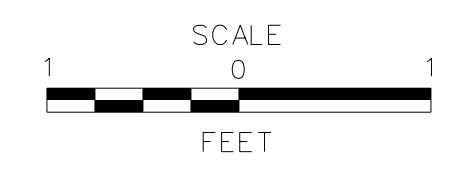
1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
2. FOR FRAMING PLAN, SEE DWG. 1-470 FR-1 AND 1-470 FR-2.
3. FOR BEAM ELEVATION AND TYPICAL SECTION, SEE DWG. 1-470 BM-1.

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 CONCRETE STRENGTH (AGE), VARIOUS PRESTRESSING CONDITIONS, CREEP FACTOR AND PRESTRESSING LOSS. CONTRACTOR TO VERIFY THESE VALUES IN THE FIELD.

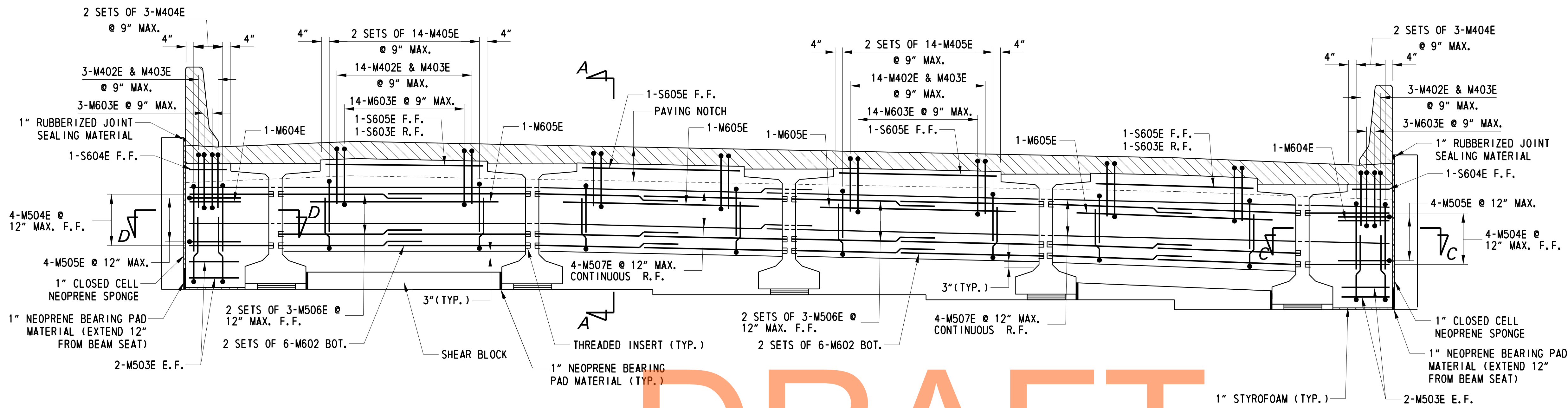
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ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-470 BM-2	
SHEET NO.	333
TOTAL SHTS.	1256

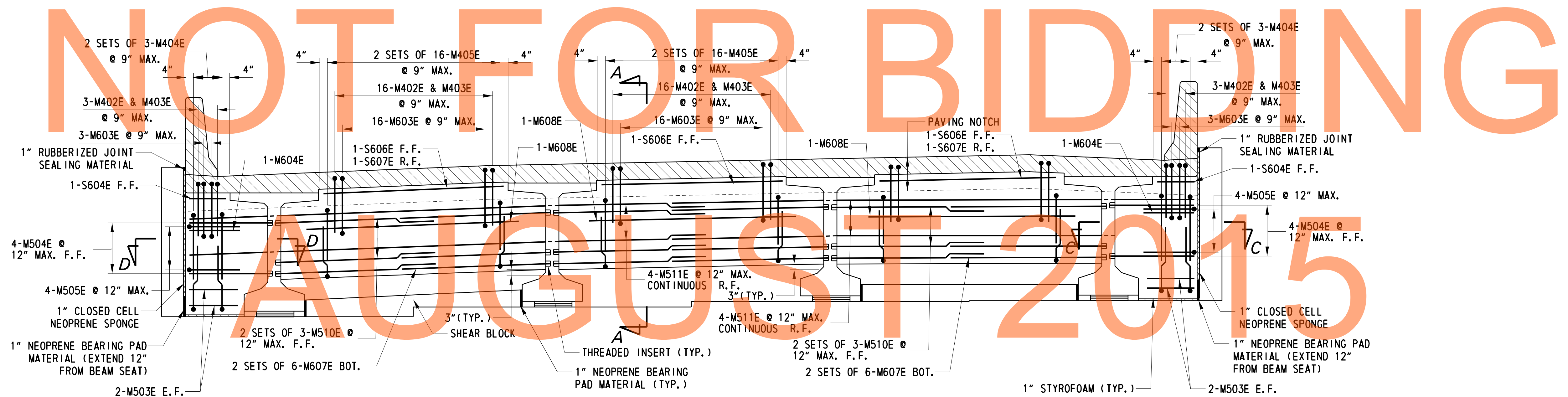


TYPICAL ABUTMENT DIAPHRAGM SECTION - NORTHBOUND

SCALE: 3/8" = 1'-0"
 ABUTMENT 2 REINFORCEMENT SAME AS ABUTMENT 1

NOTES:

S603E & M507E ARE CONTINUOUS ALONG R.F. OF DIAPHRAGM AND LAP AT MIDSPAN OF BRIDGE



TYPICAL ABUTMENT DIAPHRAGM SECTION - SOUTHBOUND

SCALE: 3/8" = 1'-0"
 ABUTMENT 2 REINFORCEMENT SAME AS ABUTMENT 1

NOTES:

S607E & M511E ARE CONTINUOUS ALONG R.F. OF DIAPHRAGM AND LAP AT MIDSPAN OF BRIDGE

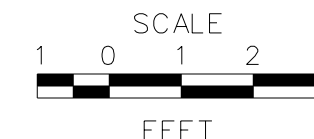
NOTES:

1. INSERTS FOR DEFORMED BARS SHALL BE ONE SIZE SMALLER. THE MINIMUM LENGTH OF INSERT IS 3".
2. MINIMUM LAP SPLICE LENGTHS:
 2'-7" #5 BARS
 3'-1" #6 BARS

CROSS REFERENCE NOTES:

1. FOR SHEAR BLOCK DETAILS, SEE DWG. 1-470 AB-1 AND 1-470 AB-2.
2. FOR SECTION A-A, C-C AND D-D, SEE DWG. 1-470 DPH-2.

ADDENDUMS / REVISIONS

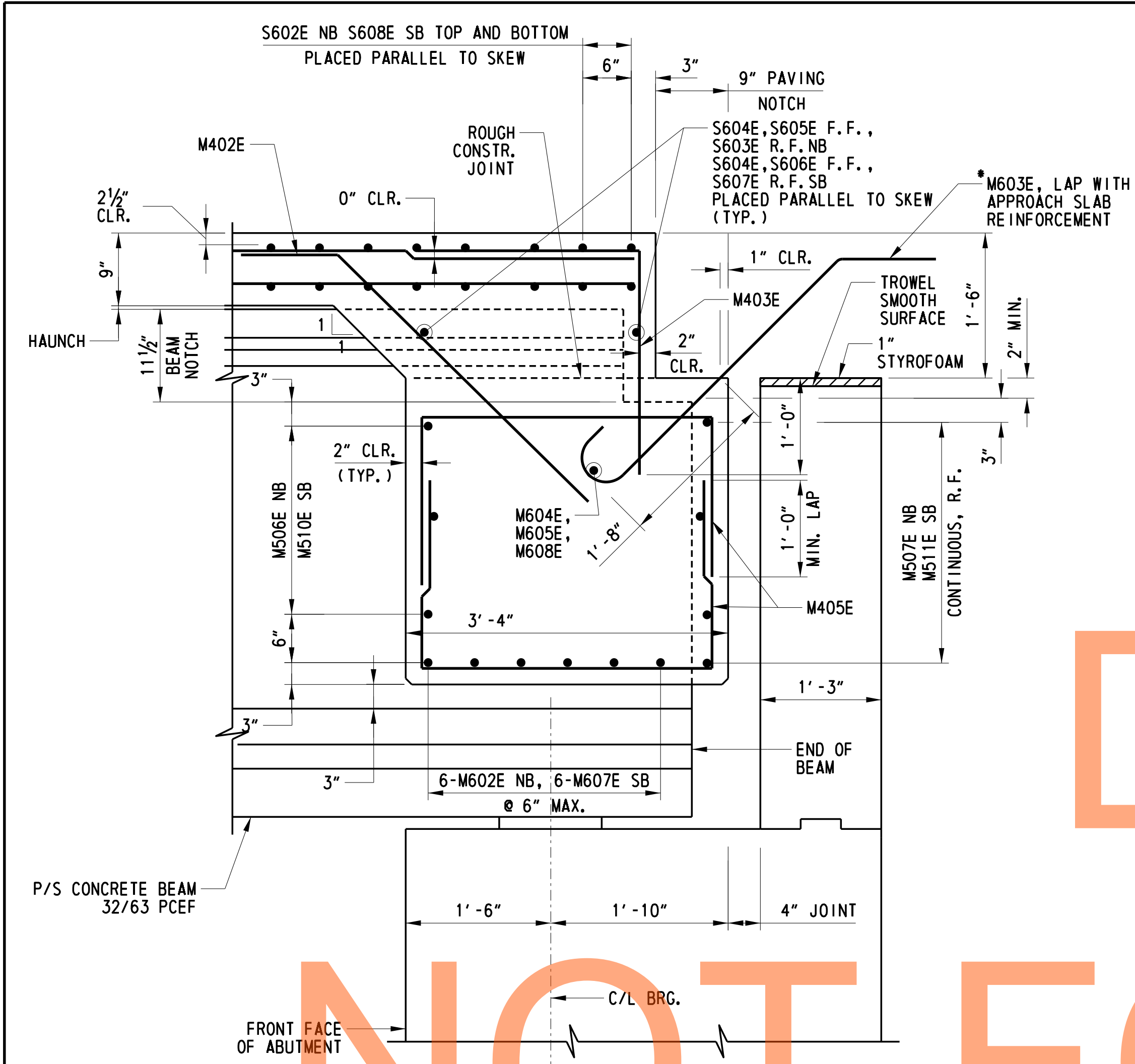


**US 301
 LEVELS ROAD
 TO SUMMIT BRIDGE ROAD**

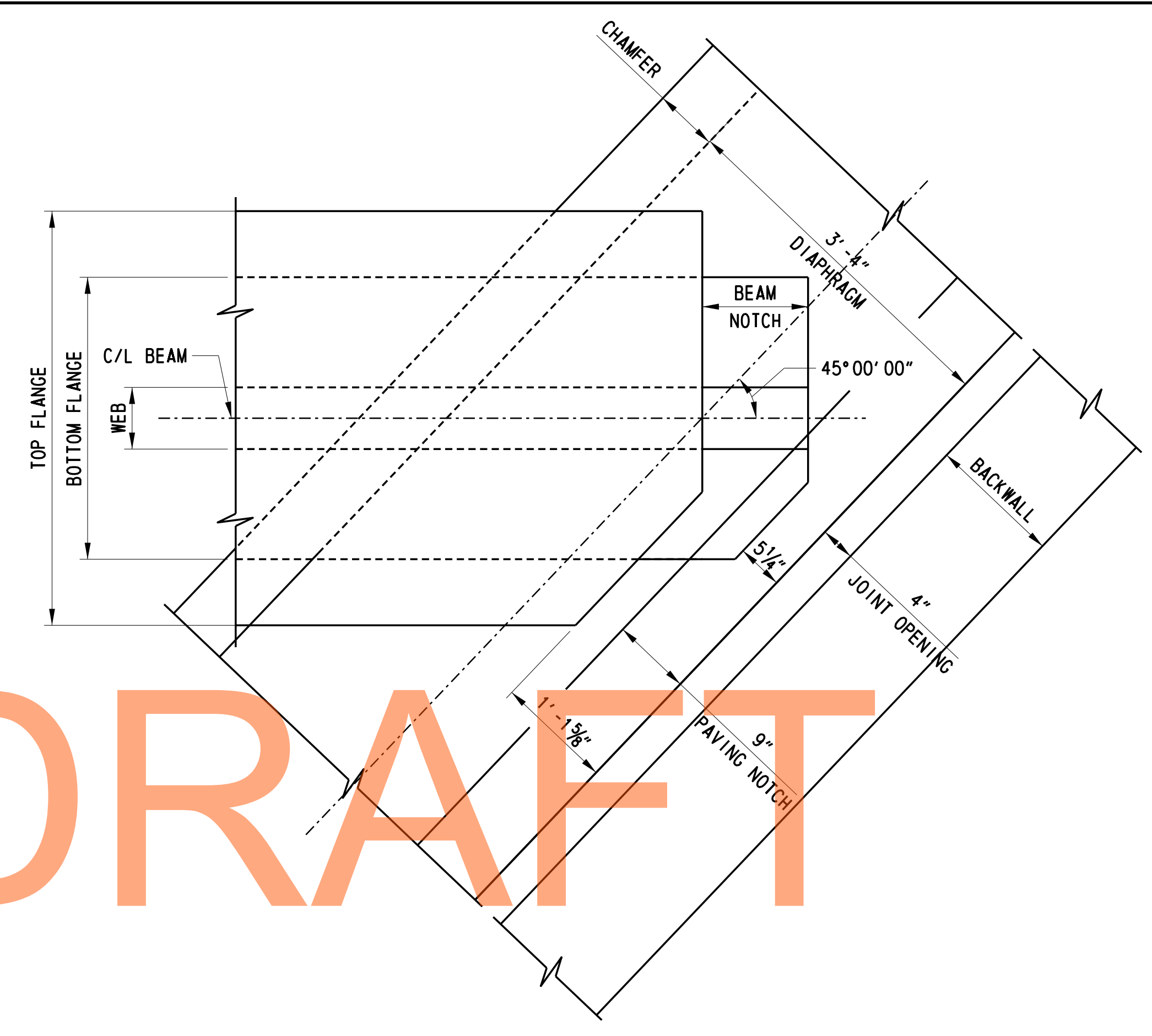
CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
 SUMMIT BRIDGE ROAD
 DIAPHRAGM DETAILS - 1**

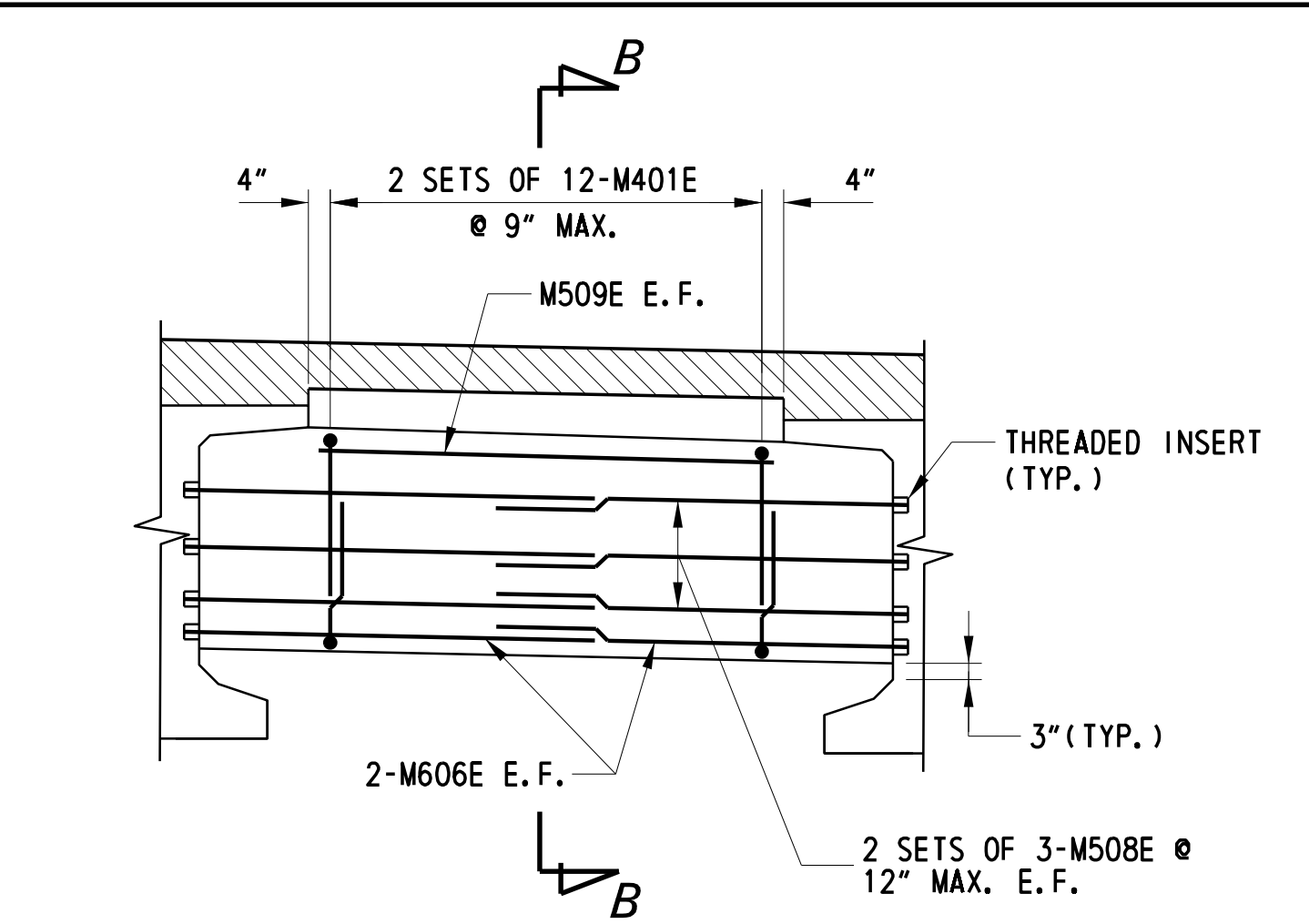
1-470 DPH-1
SHEET NO.
334
TOTAL SHTS.
1256



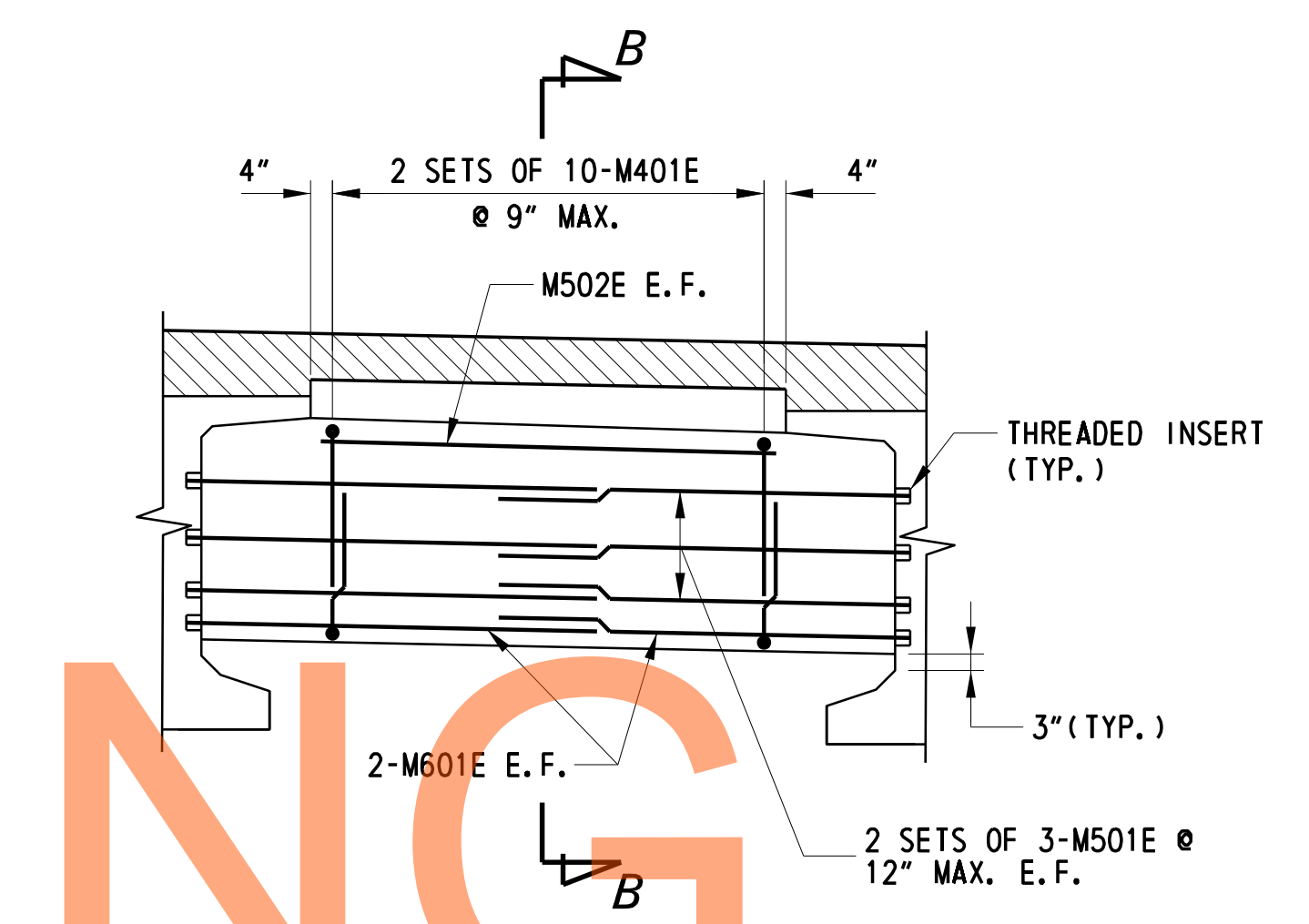
SECTION A-A
PARTIAL-DEPTH DIAPHRAGM
SCALE: 1" = 1'-0"



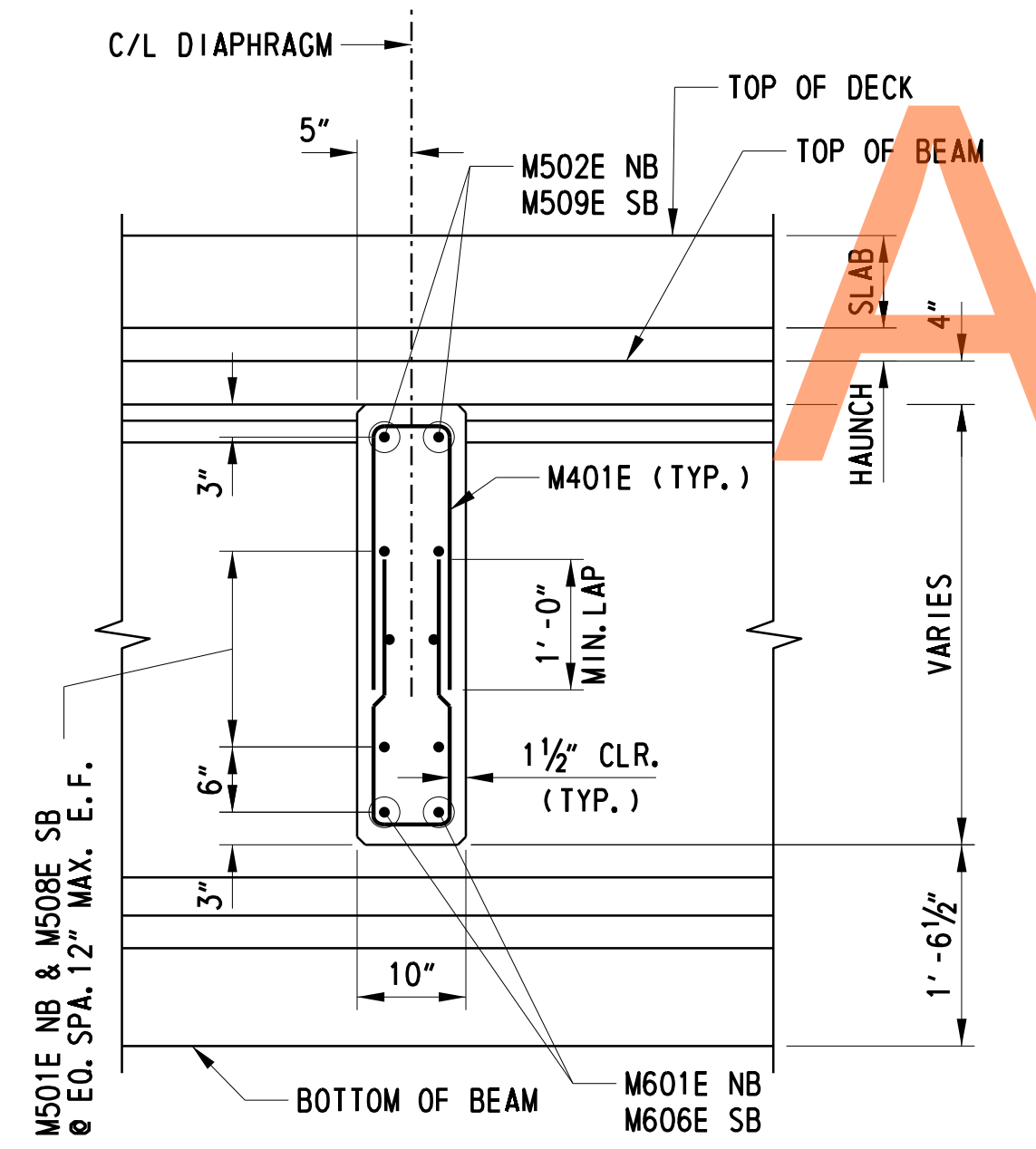
PLAN - END OF BEAM
SCALE: 1" = 1'-0"



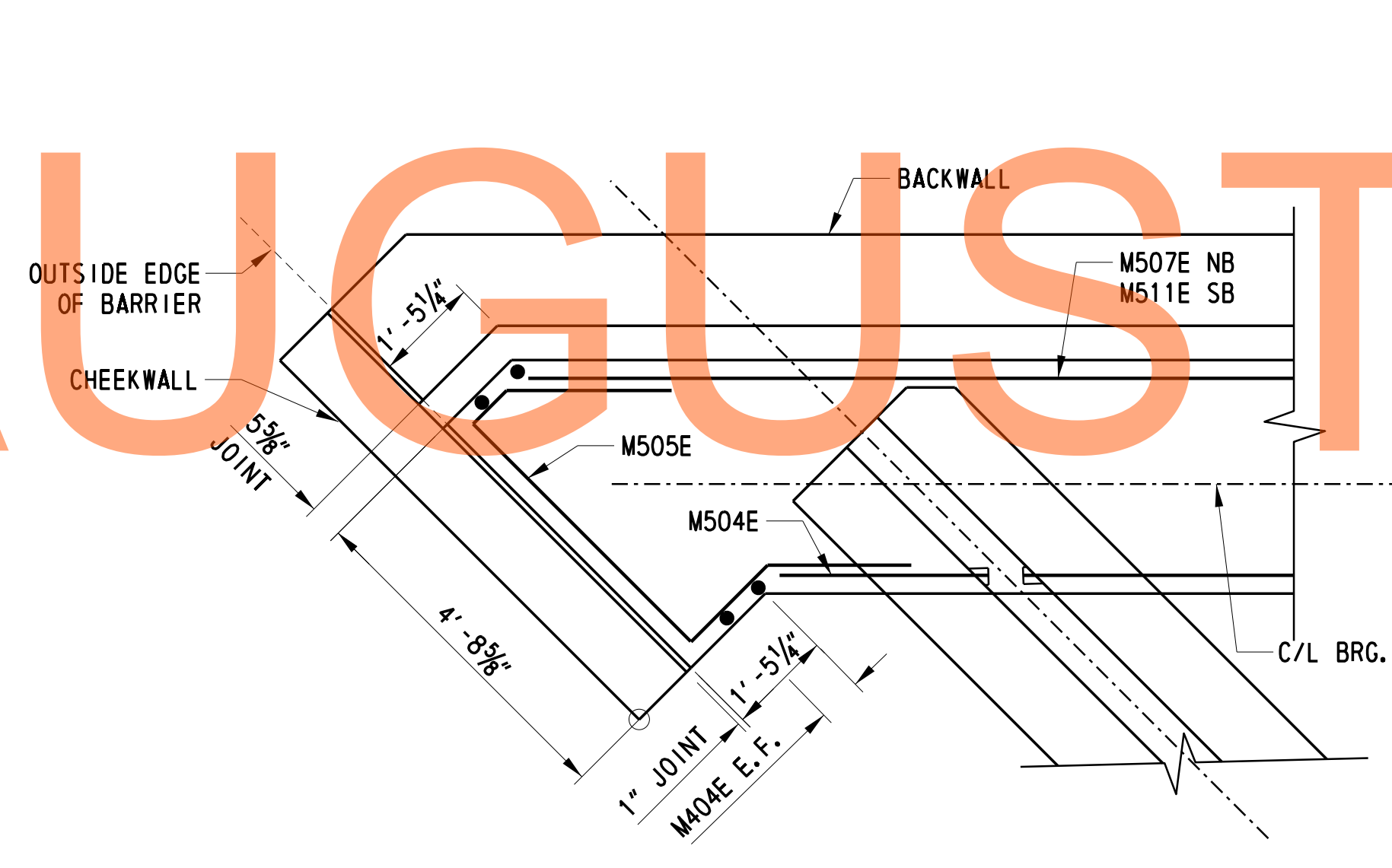
INTERMEDIATE DIAPHRAGM - SOUTHBOUND
SCALE: 3/8" = 1'-0"



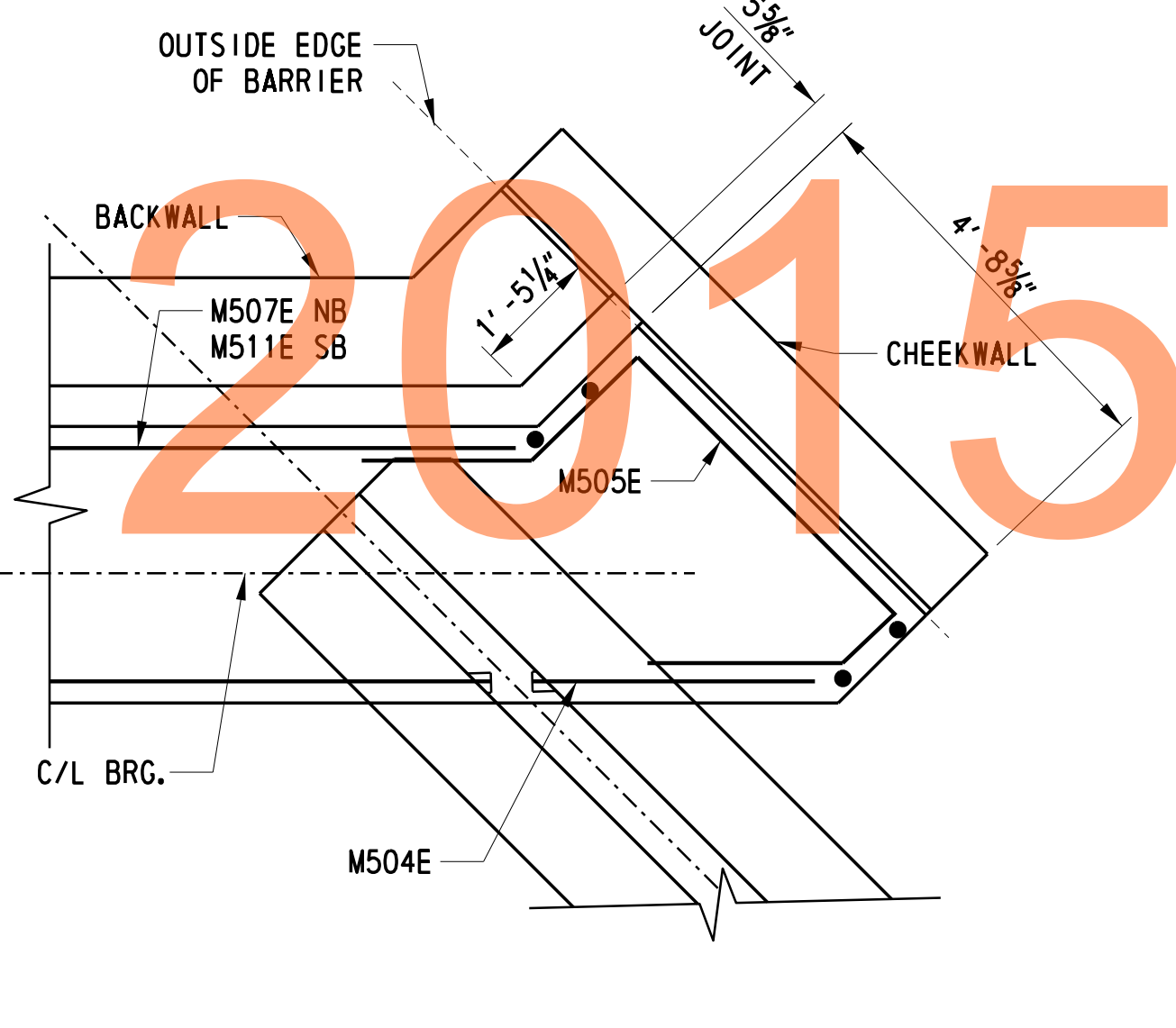
INTERMEDIATE DIAPHRAGM - NORTHBOUND
SCALE: 3/8" = 1'-0"



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



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



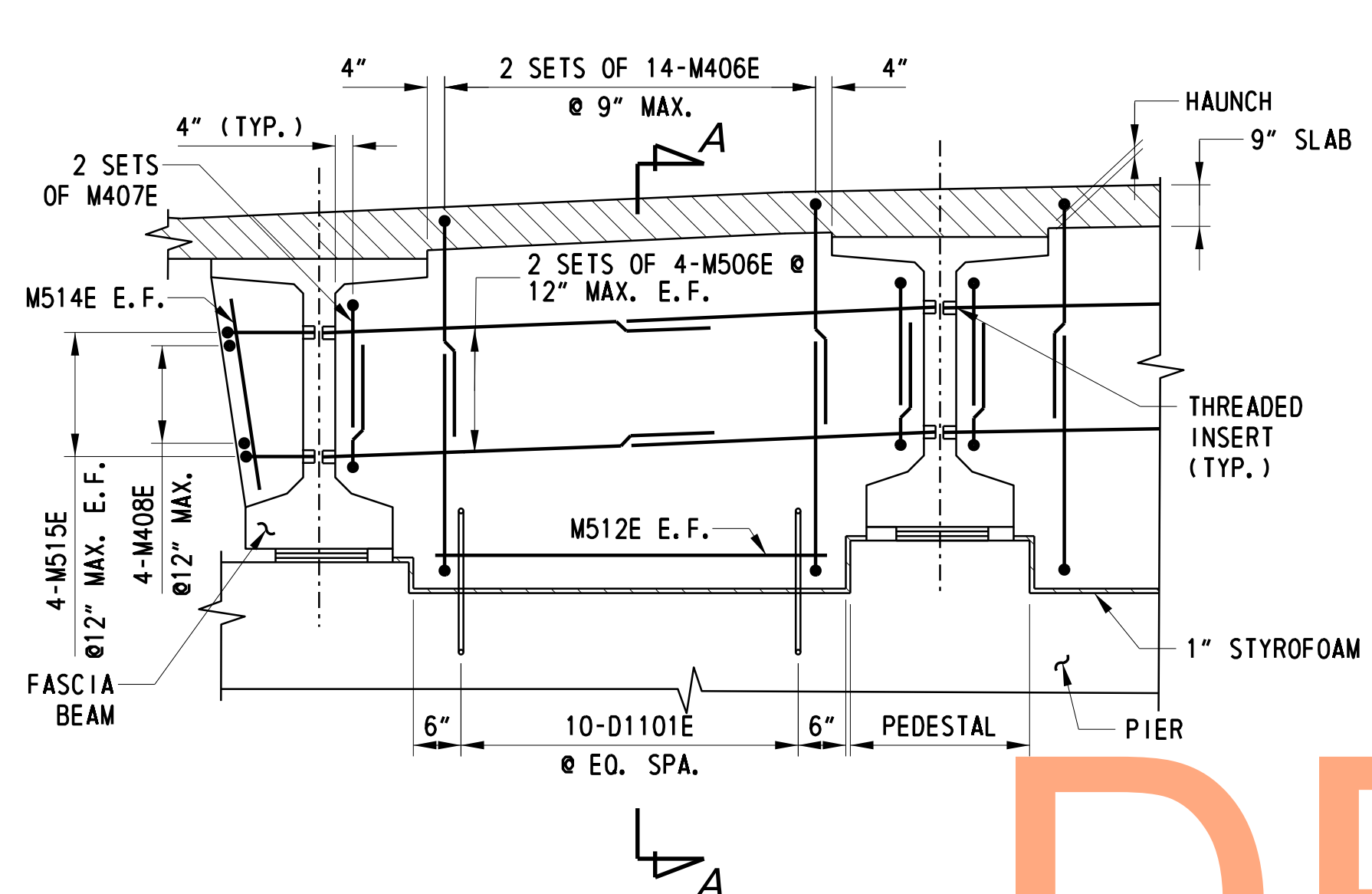
SECTION D-D
SCALE: 1/2" = 1'-0"

- NOTES:**
- INSERTS SHALL BE ONE SIZE SMALLER FOR DEFORMED BARS. THE MINIMUM LENGTH OF INSERT IS 3".
- CROSS REFERENCE NOTES:**
- FOR APPROACH SLAB DETAILS, SEE DWG. 1-470 AS-5.

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NOT FOR BIDDING
AUGUST 2015

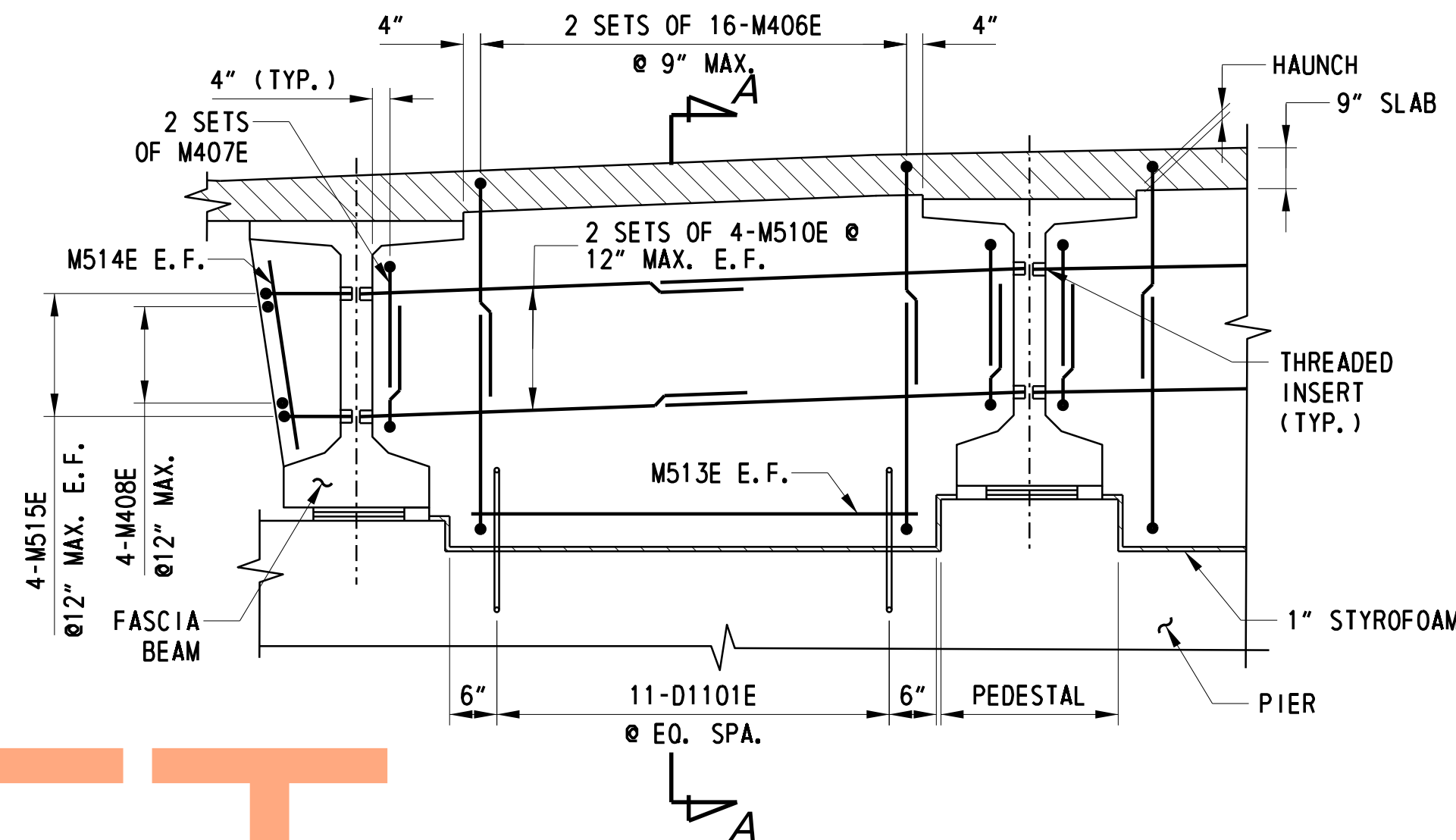
ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		



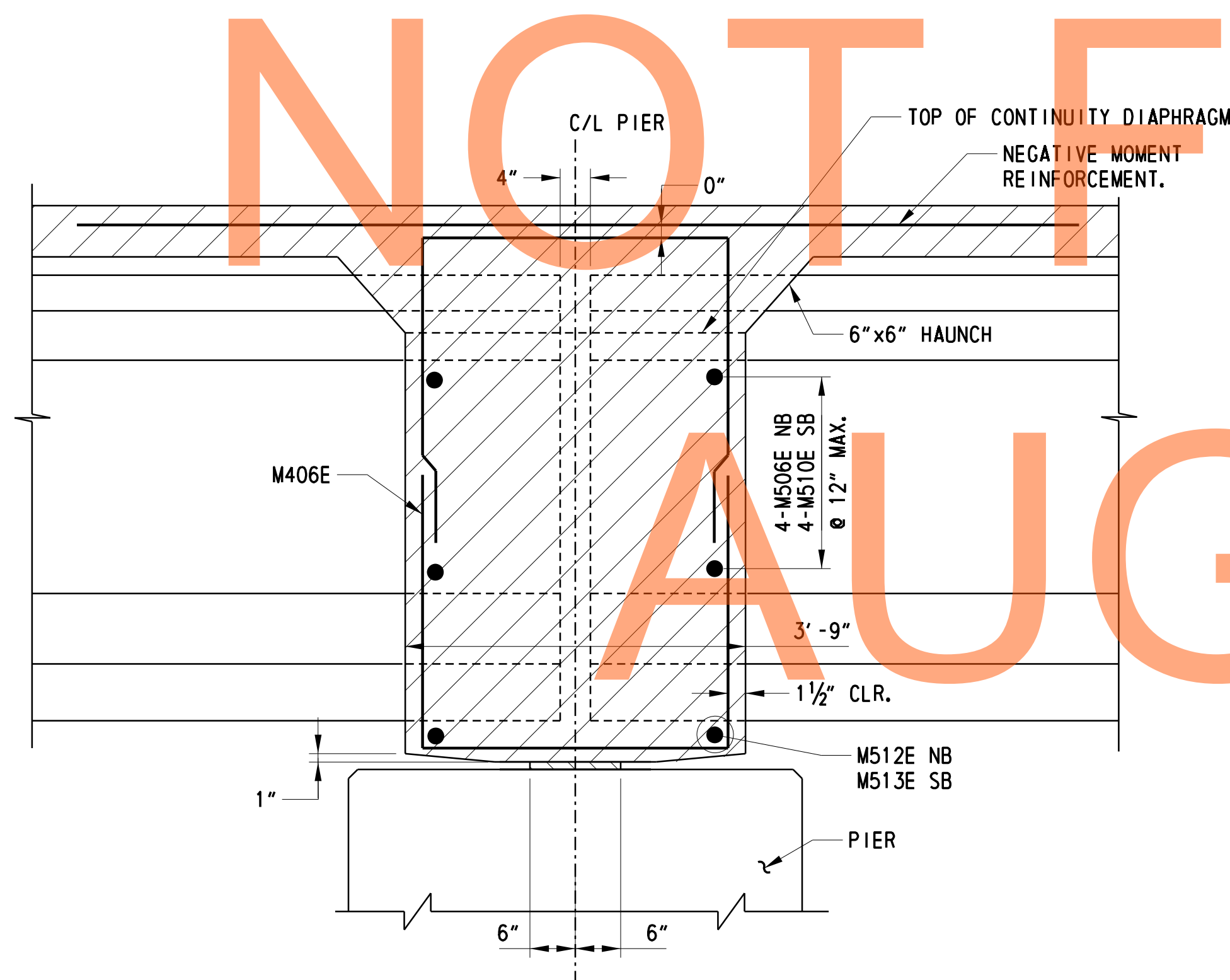
TYPICAL DIAPHRAGM AT PIER - NORTHBOUND

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



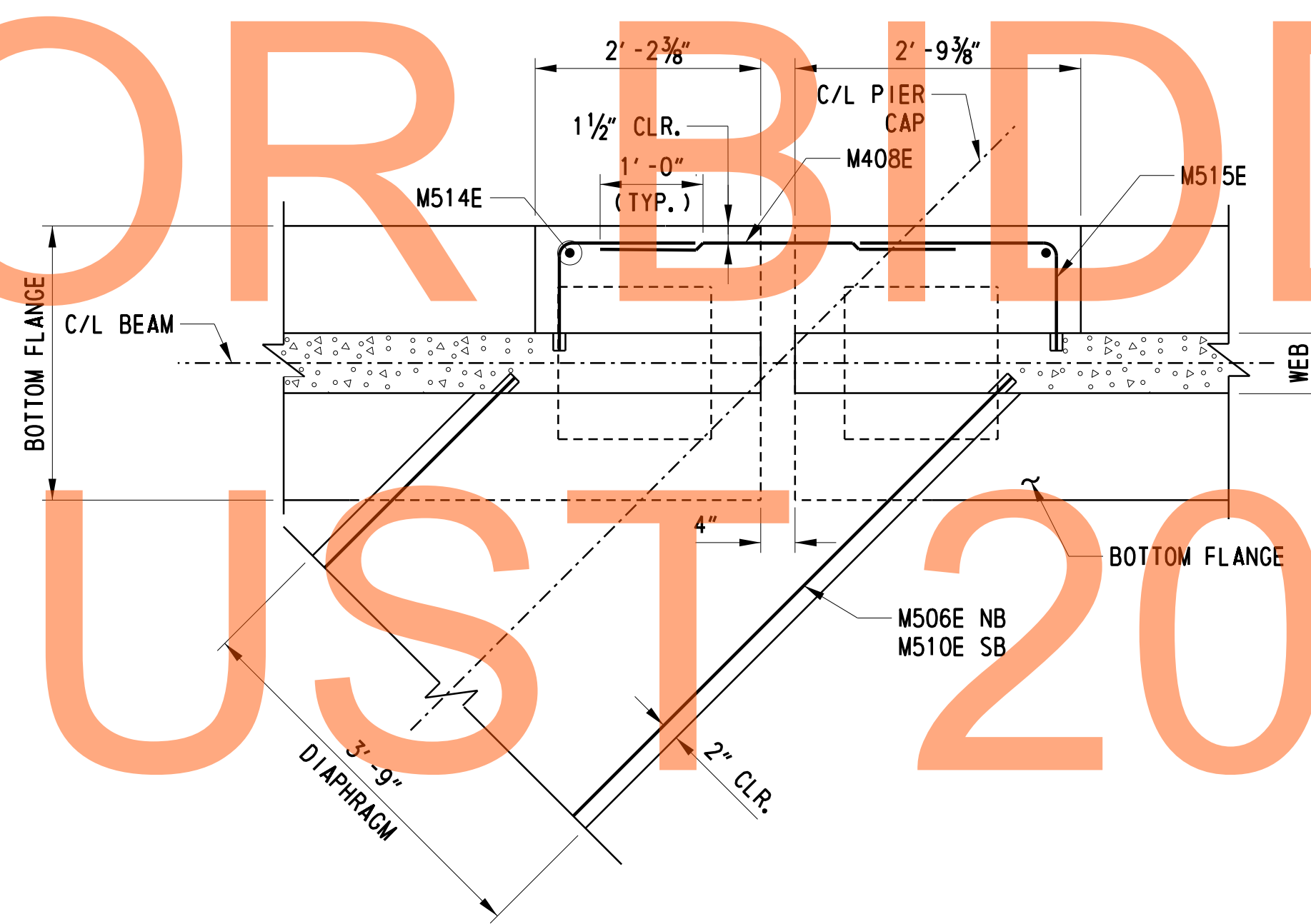
TYPICAL DIAPHRAGM AT PIER - SOUTHBOUND

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



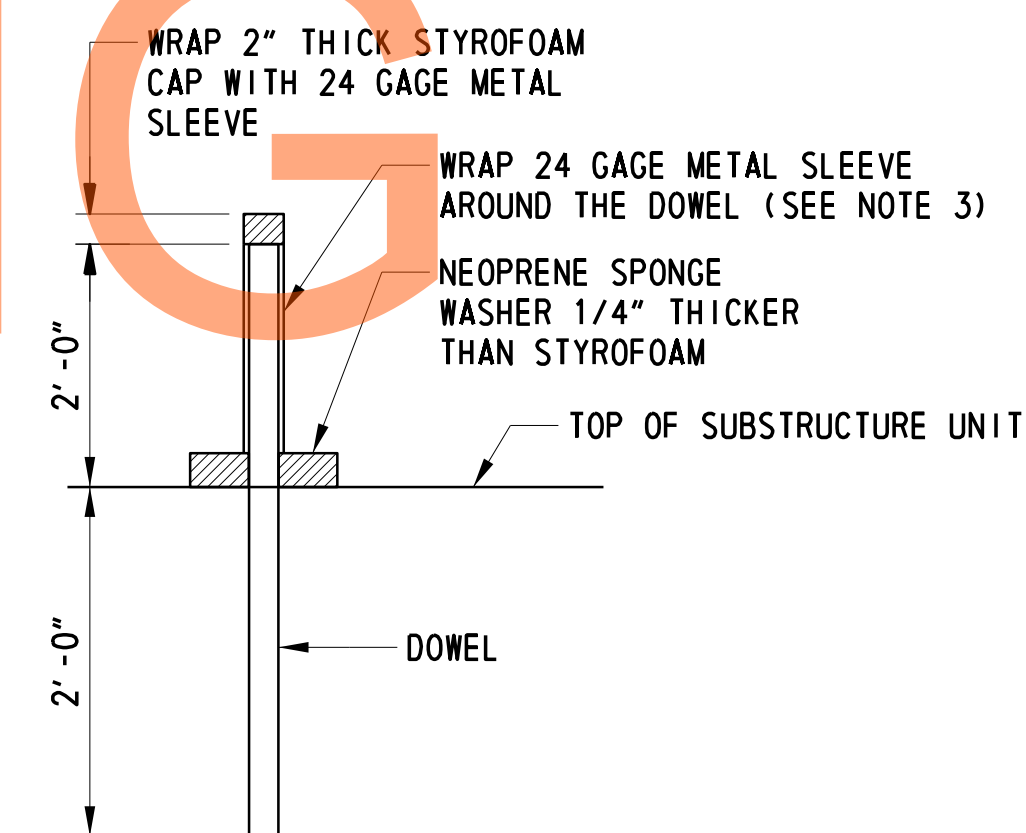
SECTION A-A

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



TYPICAL DIAPHRAGM PLAN - FASCIA BEAM

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



DOWEL DETAIL

SCALE: NTS

NOTES:

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

CROSS REFERENCE NOTES:

1. FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-3.

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

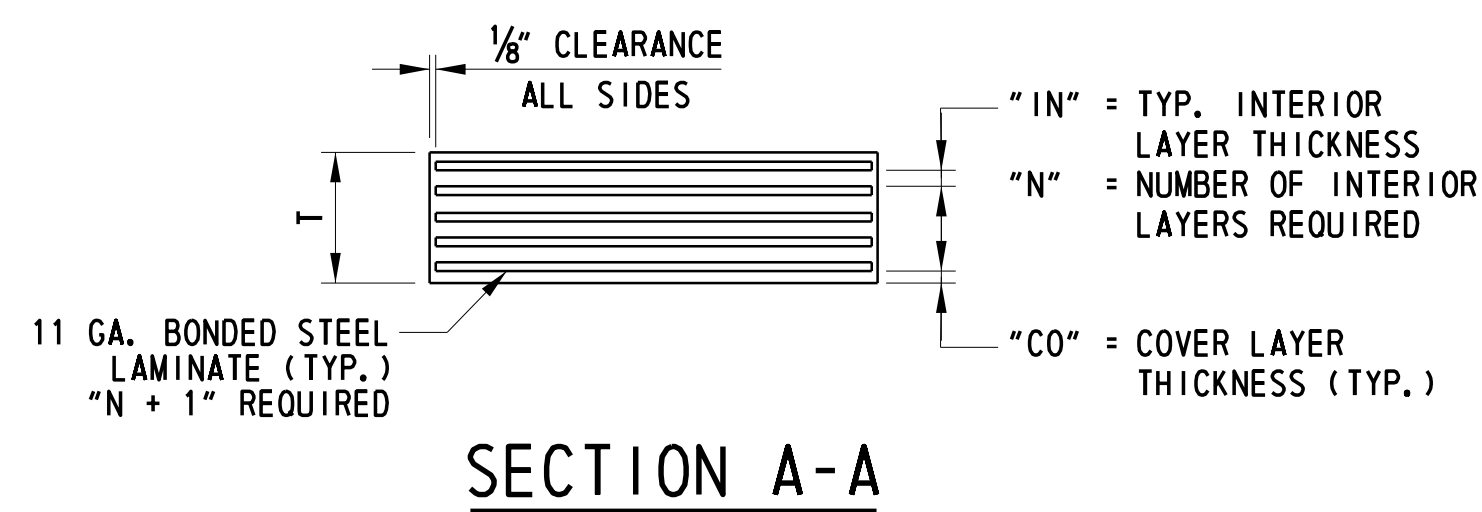
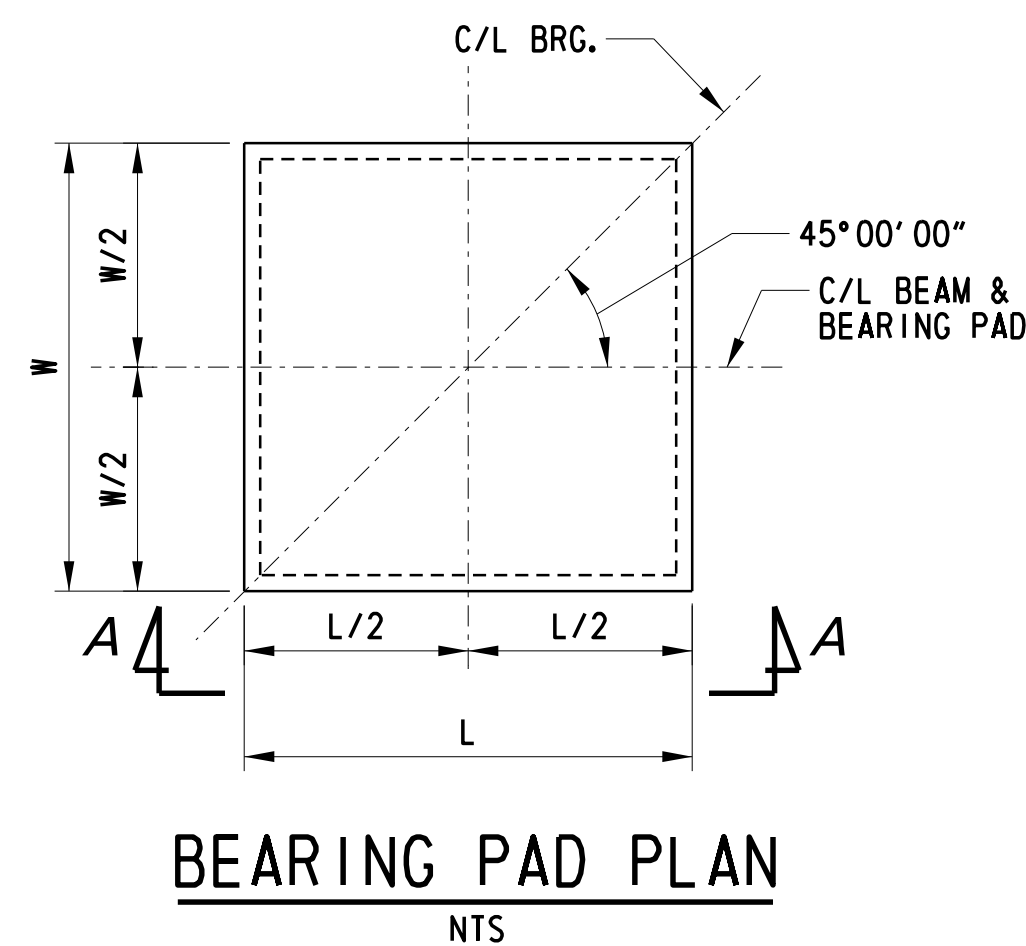
US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT T20091303
COUNTY NEW CASTLE

BRIDGE NO. 1-470N&S
DESIGNED BY: ADH
CHECKED BY: DHG

US 301 MAINLINE OVER SUMMIT BRIDGE ROAD
DIAPHRAGM DETAILS - 3

1-470 DPH-3
SHEET NO. 336
TOTAL SHTS. 1256



DRAFT

NOT FOR BIDDING

AUGUST 2015

BEARING PAD DATA									
LOCATION	QUANTITY	L (IN)	W (IN)	T (IN)	IN (IN)	N	N+1	CO (IN)	COMPRESSION AREA (IN ²)
ABUT 1 NB & SB (EXPANSION)	9	18	19	5.827	0.625	7	8	0.25	342
PIER NB & SB (FIXED)	18	17	20	5.208	0.625	6	7	0.3125	340
ABUT 2 NB & SB (EXPANSION)	9	18	19	5.827	0.625	7	8	0.25	342

UNFACTORED BEAM REACTIONS			
LOCATION		DEAD LOAD (kip)	LIVE LOAD (kip)
NB ABUT 1 & 2 (EXP.)	EXTERIOR BEAM	161.36	90.59
	INTERIOR BEAM	172.36	95.63
NB PIER (FIXED)	EXTERIOR BEAM	155.40	83.63
	INTERIOR BEAM	180.92	90.73
SB ABUT 1 & 2 (EXP.)	EXTERIOR BEAM	169.63	96.88
	INTERIOR BEAM	185.43	108.18
SB PIER (FIXED)	EXTERIOR BEAM	164.40	88.35
	INTERIOR BEAM	194.59	100.05

LAMINATED ELASTOMERIC BEARING PAD NOTES:

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

NOTE:

1. LAMINATED ELASTOMERIC PADS SHALL BE INCIDENTAL TO ITEM 623000.

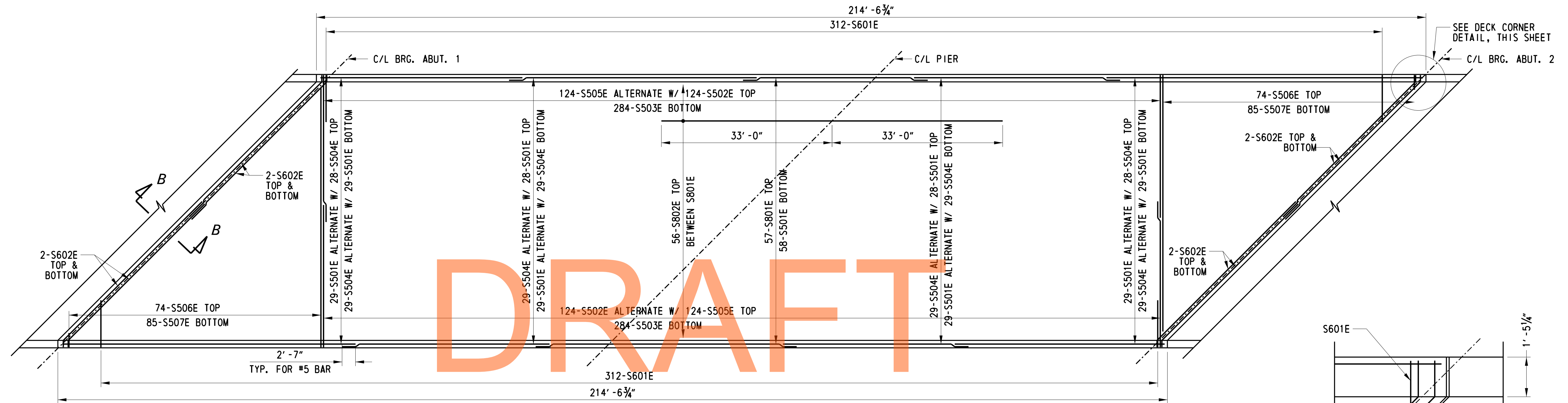
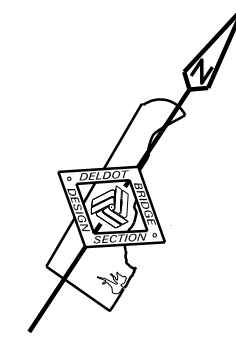
CROSS REFERENCE NOTES:

1. FOR FRAMING PLAN, SEE DWG. 1-470 FR-1 AND 1-470 FR-2.
2. FOR BEAM ELEVATION AND TYPICAL SECTIONS, SEE DWG. 1-470 BM-1 AND 1-470 BM-2.

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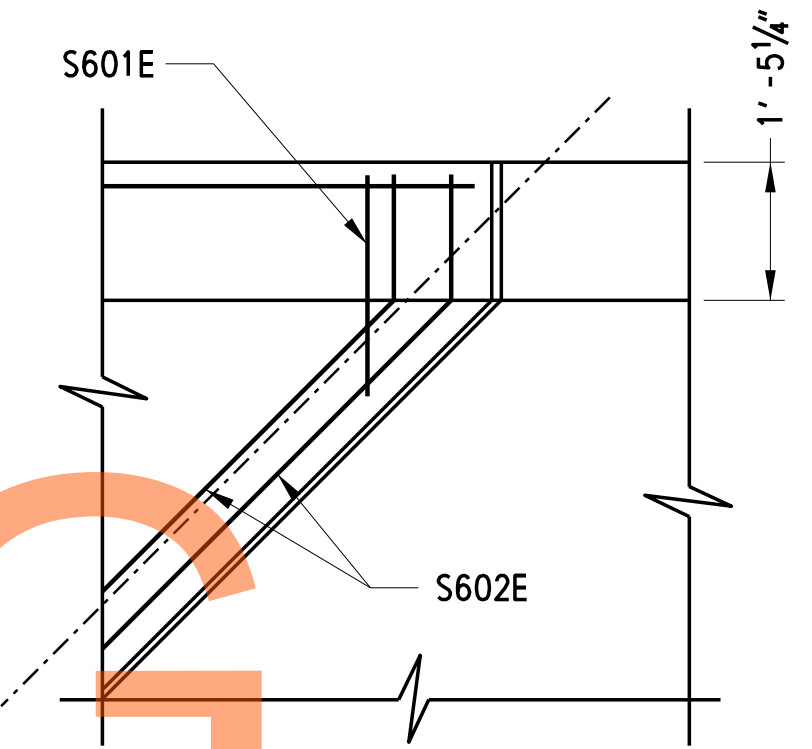
	ADDENDUMS / REVISIONS	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT	BRIDGE NO.	1-470N&S	US 301 MAINLINE OVER SUMMIT BRIDGE ROAD BEARING DETAILS	SHEET NO.	337
			T20091303	DESIGNED BY:	ADH		TOTAL SHTS.	1256
			NEW CASTLE	CHECKED BY:	DHG			

1-470 BD-1



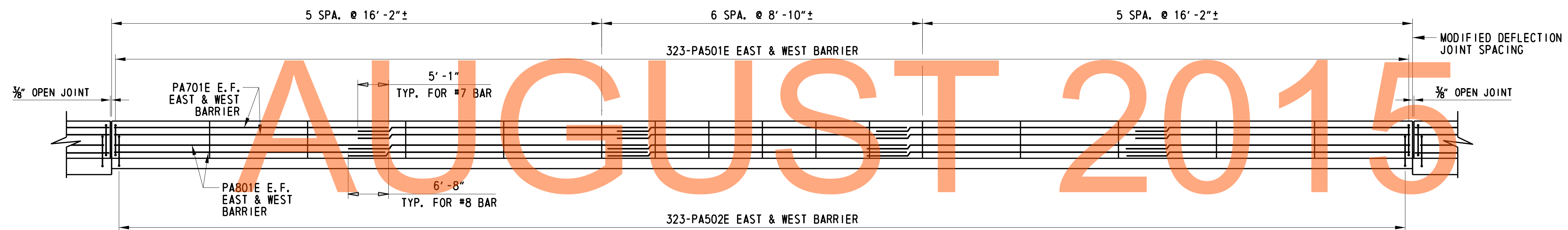
BRIDGE DECK REINFORCEMENT PLAN - NORTHBOUND

SCALE: 3/32" = 1' - 0"



DECK CORNER DETAIL

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



ELEVATION - DECK AND BARRIER REINFORCEMENT

SCALE: NTS

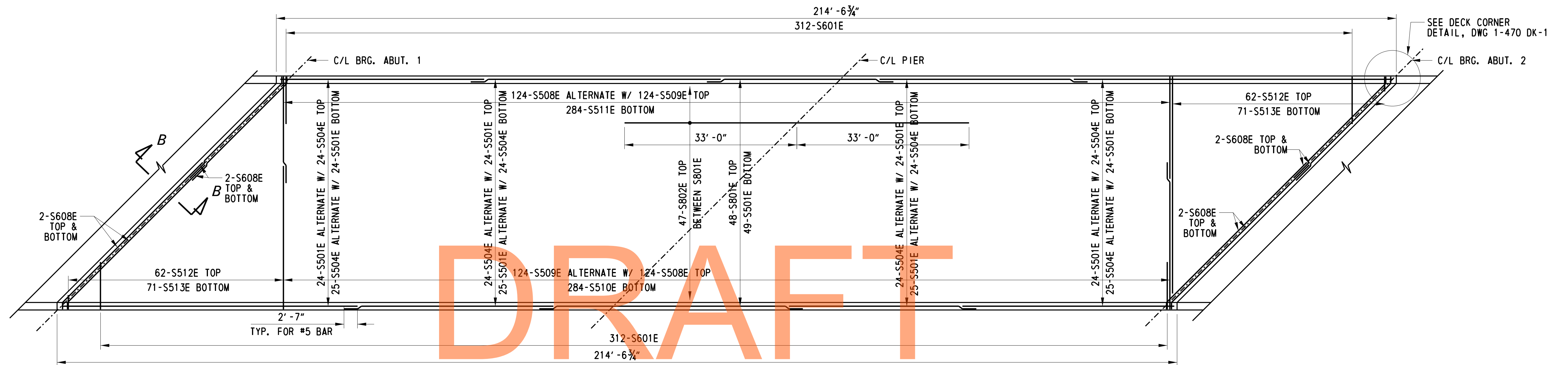
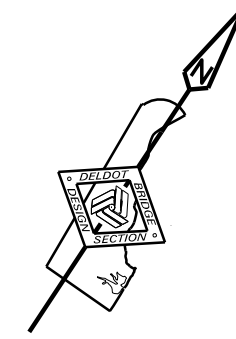
NOTE:

- S801E BARS TO BE CENTERED OVER PIER.

CROSS REFERENCE NOTES:

- FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
- FOR TYPICAL SECTION, SEE DWG. 1-470 PA-1.
- FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-470 BR-3.
- FOR MODIFIED DEFLECTION CONTROL JOINT, SEE DWG. 1-470 AS-5.

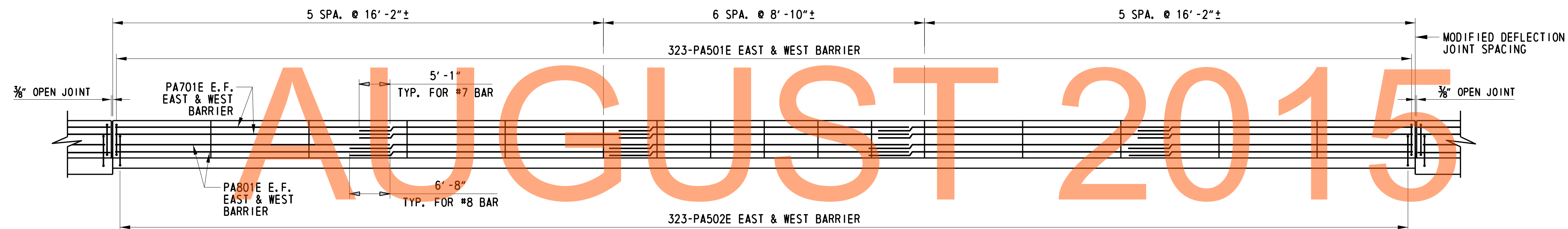
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BRIDGE DECK REINFORCEMENT PLAN - SOUTHBOUND

SCALE: 3/32" = 1'-0"

NOT FOR BIDDING



ELEVATION - DECK AND BARRIER REINFORCEMENT

SCALE: 3/32" = 1'-0"

NOTE:

1. S801E BARS TO BE CENTERED OVER PIER.

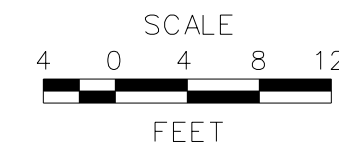
CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
2. FOR TYPICAL SECTION, SEE DWG. 1-470 PA-1.
3. FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-470 BR-3.
4. FOR MODIFIED DEFLECTION CONTROL JOINT, SEE DWG. 1-470 AS-5.

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ADDENDUMS / REVISIONS	

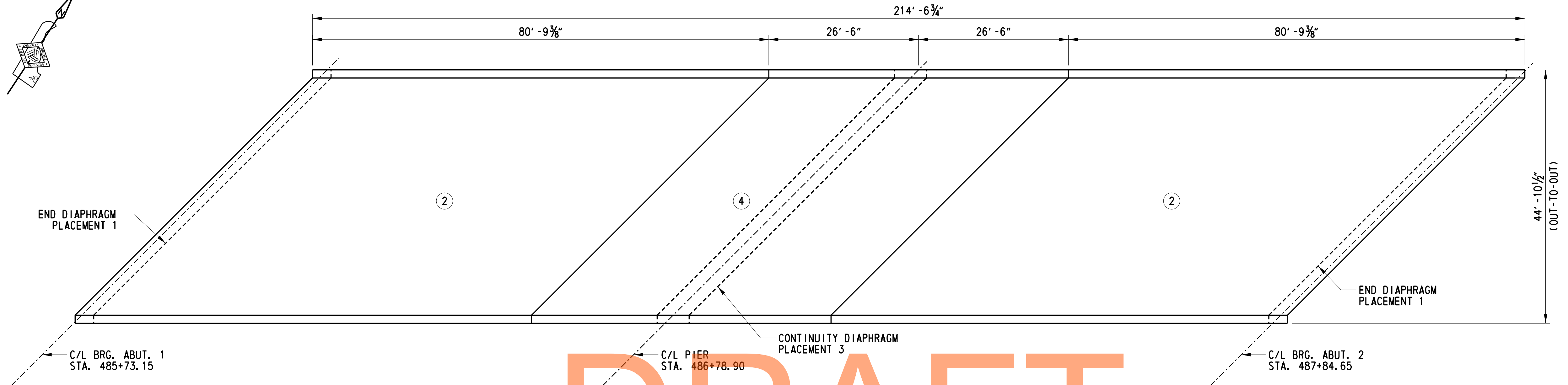
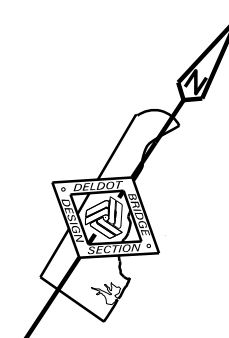


**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

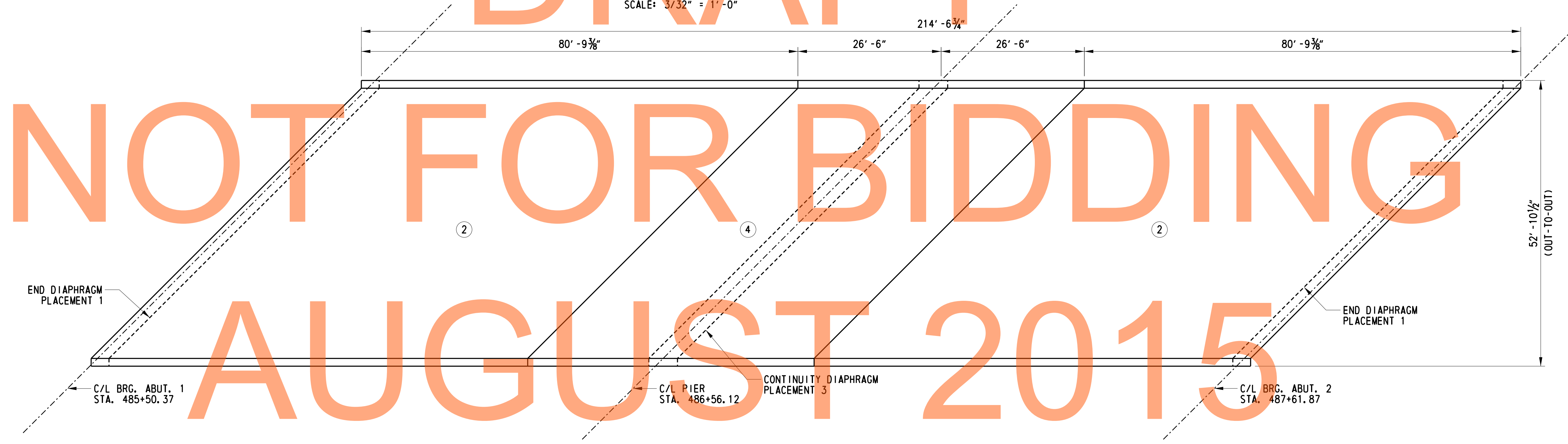
**US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD
BRIDGE DECK
REINFORCEMENT -
SOUTHBOUND**

1-470 DK-2
SHEET NO.
339
TOTAL SHTS.
1256

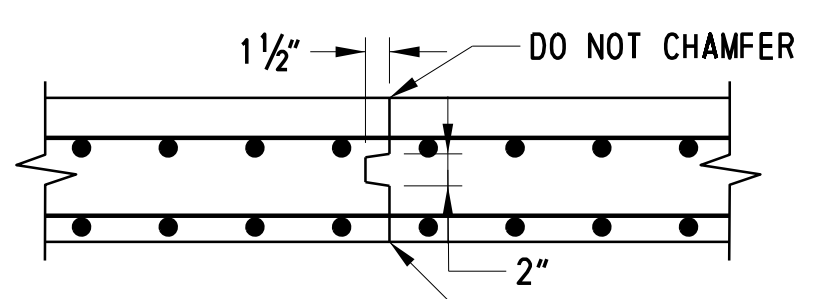


DRAFT

DECK POUR SEQUENCE - SOUTHBOUND
SCALE: 3/32" = 1'-0"



DECK POUR SEQUENCE - NORTHBOUND
SCALE: 3/32" = 1'-0"



PREPARE SURFACE AS PER SPECIFICATION 602.14 ROUGHEN SURFACE, BLAST CLEAN, THEN APPLY A NEAT CEMENT GROUT OR OTHER SUITABLE BONDING MATERIAL IMMEDIATELY PRIOR TO PLACING ADJACENT CONCRETE.

**BRIDGE DECK
CONSTRUCTION JOINT**
NTS

POUR SEQUENCE NOTES:

1. CAST PLACEMENT 1 (INTERMEDIATE DIAPHRAGMS, SHEAR BLOCKS BETWEEN BEAMS AND END DIAPHRAGMS AT ABUTMENTS).
2. CAST PLACEMENT 2 (POSITIVE MOMENT REGION).
3. CAST PLACEMENT 3 (CONTINUITY DIAPHRAGMS AT PIERS).
4. CAST PLACEMENT 4 (NEGATIVE MOMENT REGION): A MINIMUM OF 2 HOURS AFTER PLACEMENT OF CONTINUITY DIAPHRAGMS.
5. CAST BARRIERS IN POSITIVE MOMENT REGION, THEN NEGATIVE MOMENT REGION. UNLESS CONTINUOUS CASTING CAN BE MAINTAINED.

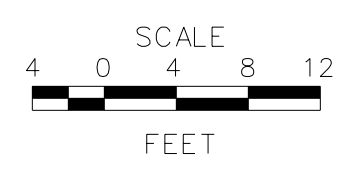
CROSS REFERENCE NOTES:

1. FOR DECK REINFORCEMENT SEE DWG 1-470 DK1 AND 1-470 DK-2.
2. FOR DECK TYPICAL SECTIONS, SEE DWG 1-470 PA-1.
3. FOR FINISHED DECK ELEVATIONS, SEE DWG 1-470 FD-1 AND 1-470 FD-2.
4. FOR REINFORCEMENT SCHEDULE, SEE DWG 1-470 BR-3.

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ADDENDUMS / REVISIONS	

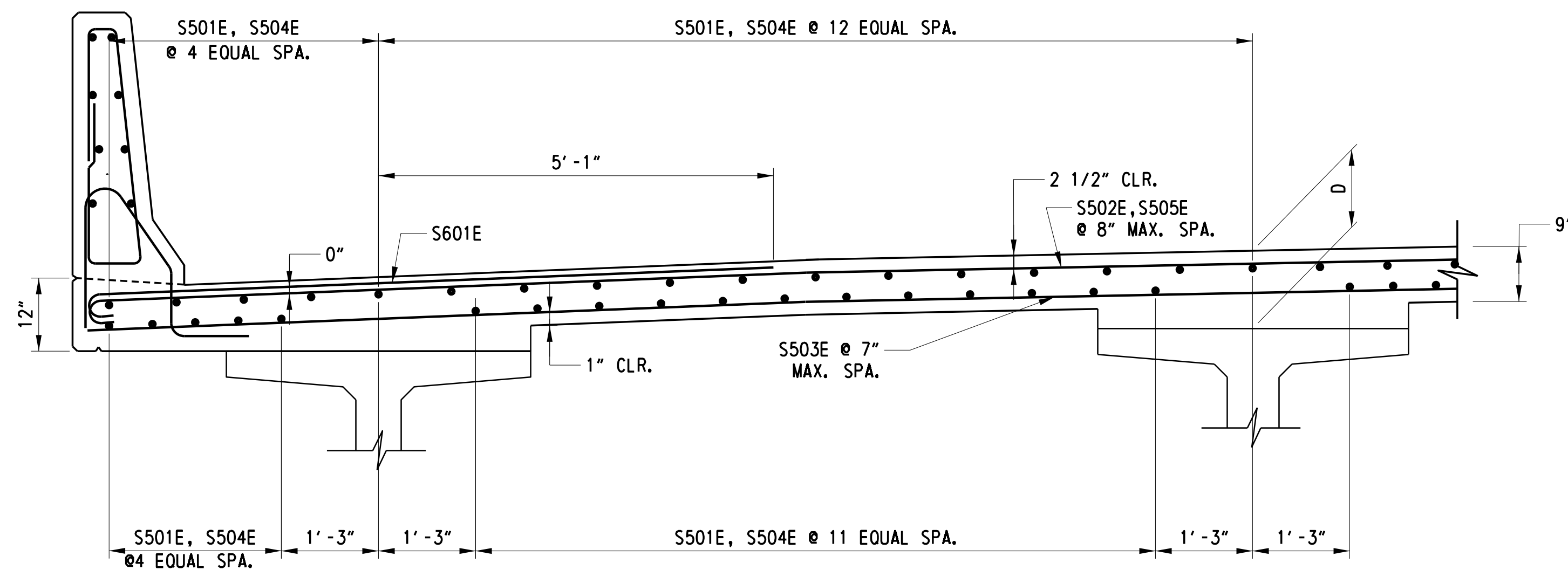


**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

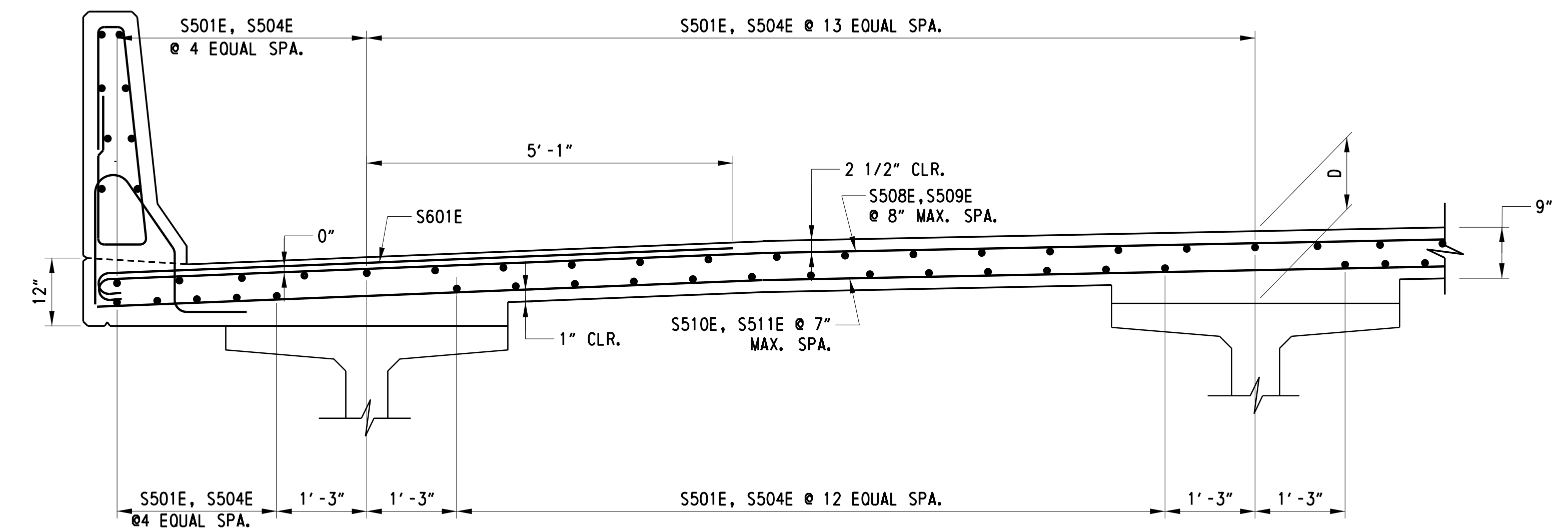
CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD
DECK POUR SEQUENCE**

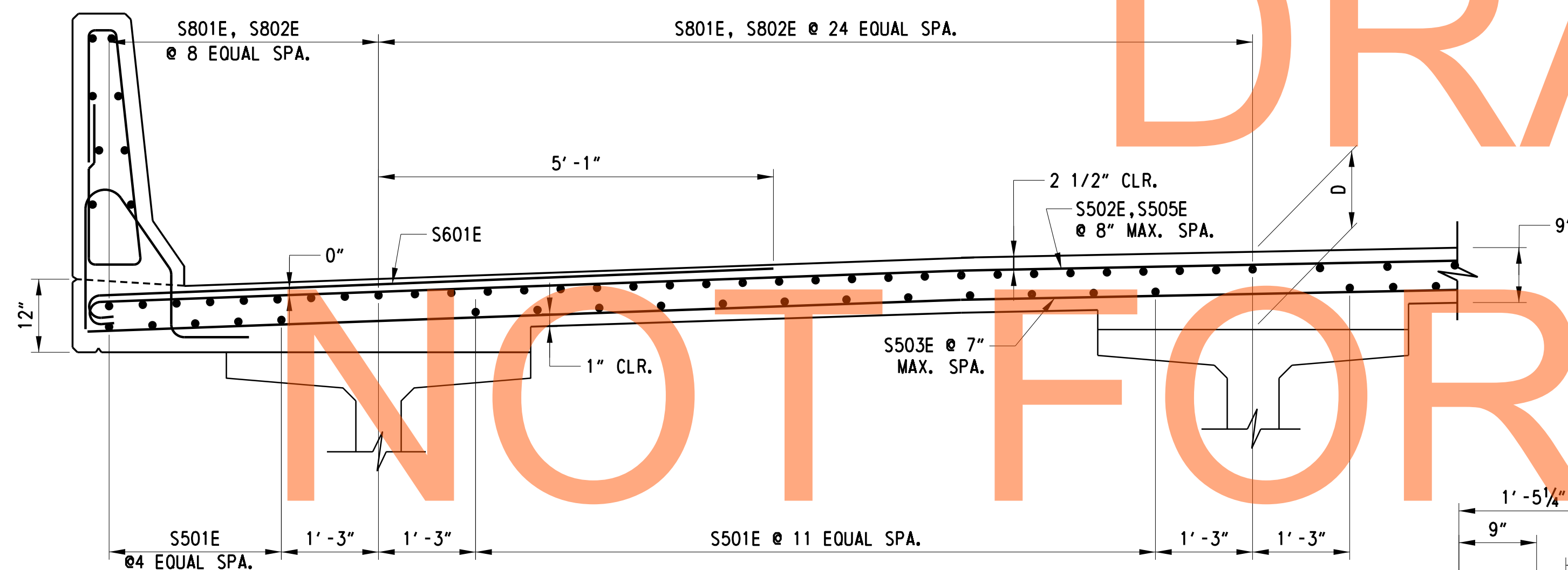
1-470 DK-3
SHEET NO.
340
TOTAL SHTS.
1256



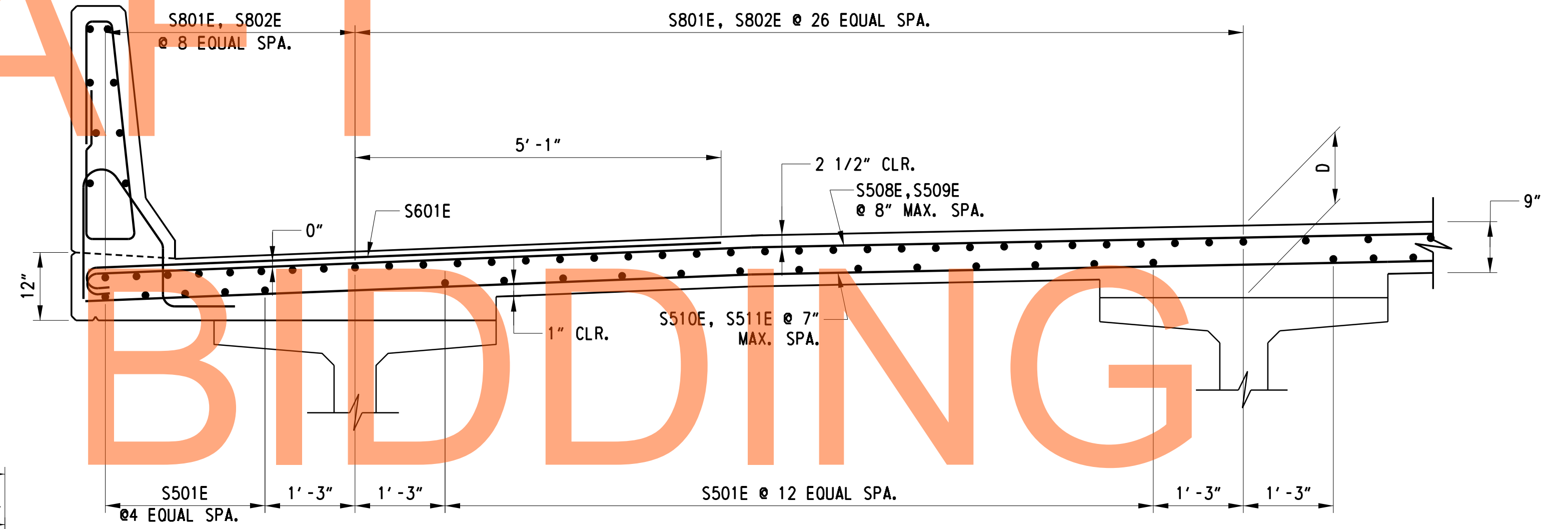
**TYPICAL DECK REINFORCEMENT SECTION - NORTHBOUND
POSITIVE MOMENT REGION**
SCALE: 3/4" = 1'-0"



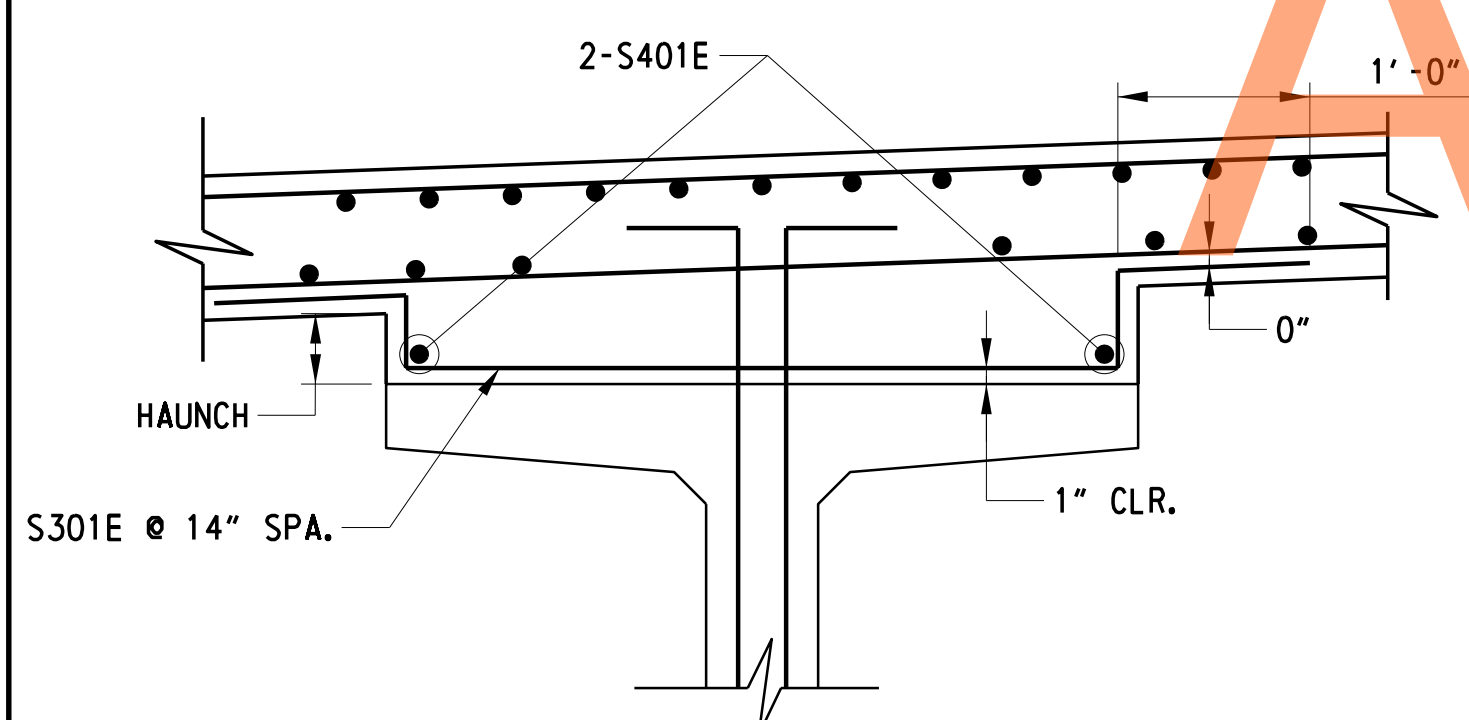
**TYPICAL DECK REINFORCEMENT SECTION - SOUTHBOUND
POSITIVE MOMENT REGION**
SCALE: 3/4" = 1'-0"



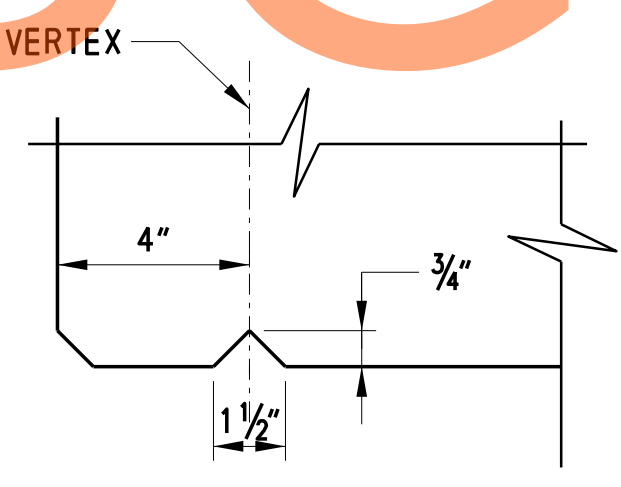
**TYPICAL DECK REINFORCEMENT SECTION - NORTHBOUND
NEGATIVE MOMENT REGION**
SCALE: 3/4" = 1'-0"



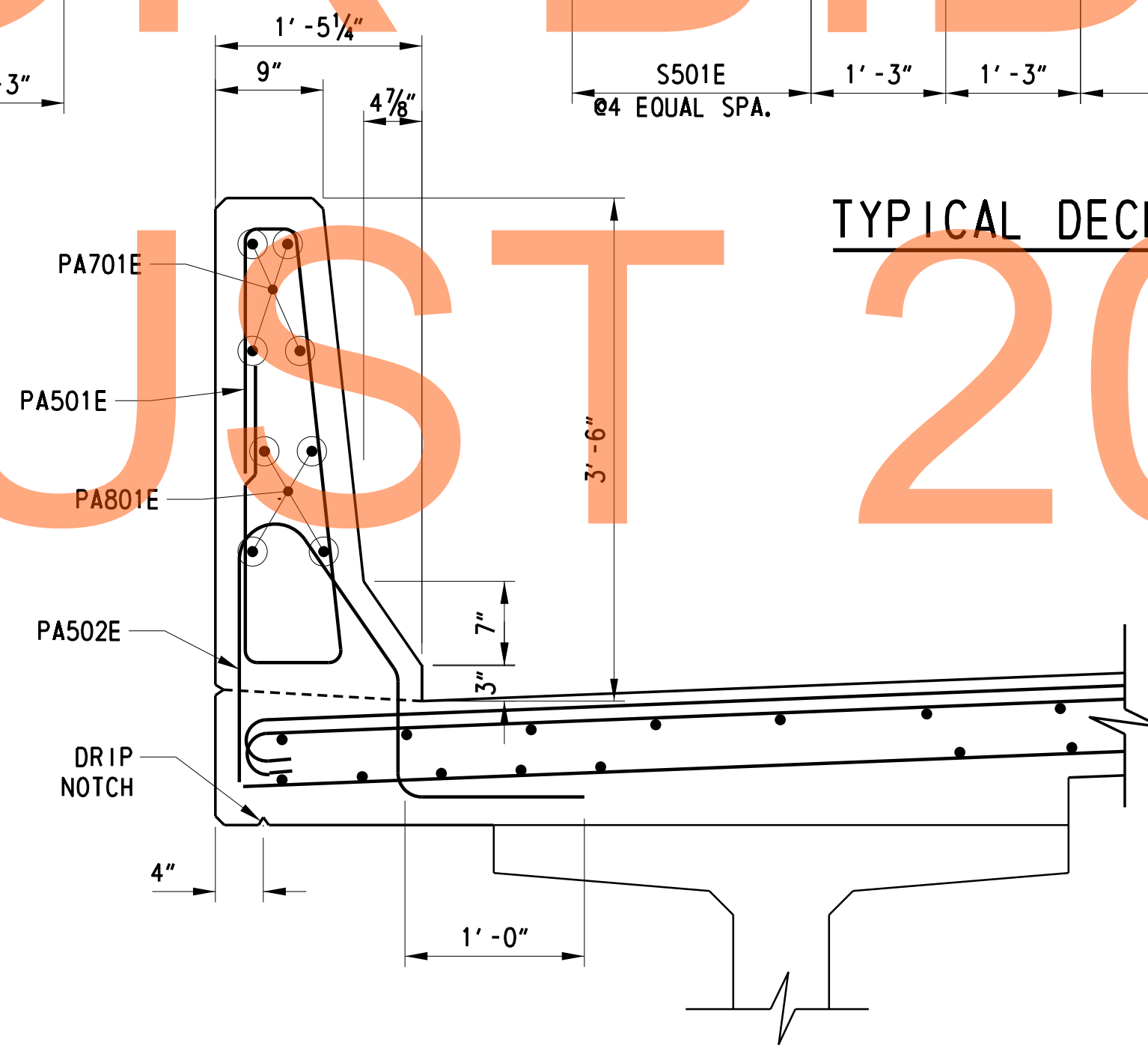
**TYPICAL DECK REINFORCEMENT SECTION - SOUTHBOUND
NEGATIVE MOMENT REGION**
SCALE: 3/4" = 1'-0"



HAUNCH REINFORCEMENT
SCALE: 1" = 1'-0"



DRIP NOTCH DETAIL
SCALE: 3" = 1'-0"



TYPICAL BARRIER REINFORCEMENT SECTION
SCALE: 1" = 1'-0"

SLAB THICKNESS "D" AT C/L OF BRGS. (IN)					
BEAM NO.	1S	2S	3S	4S	-
C/L BRG. ABUT. 1	12.10	11.15	10.60	11.62	-
C/L BRG. PIER SPAN 1	12.16	10.85	10.63	11.66	-
C/L BRG. PIER SPAN 2	12.38	11.05	10.94	11.90	-
C/L BRG. ABUT. 2	11.62	11.18	10.86	11.62	-
BEAM NO.	1N	2N	3N	4N	5N
C/L BRG. ABUT. 1	12.68	10.99	10.99	10.99	11.72
C/L BRG. PIER SPAN 1	11.76	11.02	11.02	11.02	11.76
C/L BRG. PIER SPAN 2	12.06	11.31	11.32	11.32	12.06
C/L BRG. ABUT. 2	12.35	10.91	10.99	10.99	11.72

NOTES:
1. HAUNCH REINFORCEMENT REQUIRED IN ALL FASCIA BEAMS FOR A DISTANCE OF 18'-0" MEASURED FROM THE BEAM ENDS WITH THE EXCEPTION OF GIRDER 1S SPAN 1, WHERE A DISTANCE OF 25'-0" IS REQUIRED FROM THE BEAM END AT ABUTMENT 1.

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REINFORCING BAR SCHEDULE

NORTHBOUND DECK BAR SCHEDULE															
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS
S301E	6'-5 1/2"	136	5	1'-0"	4 1/4"	3'-9"	4 1/4"	1'-0"							HAUNCH REINF.
S401E	18'-0"	16	STR												HAUNCH REINF.
S501E	50'-0"	288	STR												
S502E	34'-7"	248	14	7"	33'-6"		5"								
S503E	27'-8"	568	STR												
S504E	39'-0"	230	STR												
S505E	22'-7"	248	14	7"	22'-0"		5"								
S506E	VARIES	148	14	7"	VARIES		5"								VARY "B" BY 8"
	51'-1" TO				50'-6" TO										
	2'-5"				1'-10"										
S507E	VARIES	170	STR												VARY EACH BY 7"
	50'-7" TO														
	1'-7"														
S601E	9'-7"	624	14	8"	8'-11"		6"								
S602E	40'-3"	16	11	39'-0"	1'-3"	10 1/2"									
S603E	37'-0"	4	STR												
S604E	2'-5"	4	STR												
S605E	10'-0"	8	STR												
S801E	52'-10"	57	STR												
S802E	66'-0"	56	STR												
PA501E	7'-6 3/8"	646	28	2'-9 1/4"	3"	1 3/8"	2 3/4"	2'-9 1/2"	3 3/8"	5 3/8"	3"	3 1/2"			
PA502E	5'-0"	646	43	1'-0 1/8"	7"	9 1/4"	1'-6"	1"	9"	7"	3"	10"			
PA701E	47'-0"	40	STR												
PA801E	48'-6"	40	STR												

SOUTHBOUND DECK BAR SCHEDULE															
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS
S301E	6'-5 1/2"	142	5	1'-0"	4 1/4"	3'-9"	4 1/4"	1'-0"							HAUNCH REINF.
S401E	18'-0"	14	STR												HAUNCH REINF.
S402E	25'-0"	2	STR												HAUNCH REINF.
S501E	50'-0"	243	STR												
S504E	39'-0"	194	STR												
S508E	23'-2"	248	14	7"	22'-7"		5"								
S509E	26'-2"	248	14	7"	25'-7"		5"								
S510E	17'-5"	284	STR												
S511E	29'-9"	284	STR												
S512E	VARIES	124	14	7"	VARIES		5"								VARY "B" BY 8"
	43'-1" TO				42'-6" TO										
	2'-5"				1'-10"										
S513E	VARIES	142	STR												VARY EACH BY 7"
	42'-7" TO														
	1'-9"														
S601E	9'-7"	624	14	8"	8'-11"		6"								
S604E	2'-5"	4	STR												
S606E	11'-6"	6	STR												
S607E	31'-3"	4	STR												
S608E	34'-5"	16	11	33'-2"	1'-3"	10 1/2"									
S801E	52'-10"	48	STR												
S802E	66'-0"	47	STR												
PA501E	7'-6 3/8"	646	28	2'-9 1/4"	3"	1 3/8"	2 3/4"	2'-9 1/2"	3 3/8"	5 3/8"	3"	3 1/2"			
PA502E	5'-0"	646	43	1'-0 1/8"	7"	9 1/4"	1'-6"	1"	9"	7"	3"	10"			
PA701E	47'-0"	40	STR												
PA802E	48'-6"	40	STR												

NORTHBOUND DIAPHRAGM BAR SCHEDULE															
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS
M401E	4'-9"	160	4	2'-1"	7"	2'-1"									
M402E	4'-7"	124	11	1'-0"	3'-7"	2'-7"									
M403E	4'-7"	124	10	2'-1"	2'-6"										
M404E	9'-10"	24	4	2'-9"	4'-4"	2'-9"									
M405E	8'-10"	224	4	2'-3"	4'-4"	2'-3"									
M406E	14'-8"	112	4	4'-10"	5'-0"	4'-10"									
M407E	11'-0"	16	4	3'-0"	5'-0"	3'-0"									
M408E	4'-11 1/4"	8	STR												
M501E	7'-6"	96	STR												
M502E	7'-4"	16	STR												
M503E	3'-3"	16	11	2'-0"	1'-3"	10 1/2"									
M504E	3'-1"	16	STR												
M505E	12'-1"	16	46	2'-7"	1'-4 1/2"	4'-4"	1'-2 1/2"	2'-7"	1'-10"						
M506E	9'-3"	80	STR												
M507E	38'-10"	16	STR												
M512E	11'-10"	8	STR												
M514E	3'-10"	4	STR												
M515E	VARIES	16	10	VARIES	1'-0"										VARY "A" 4 EA BY 1 3/8"
	2'-0" TO			1'-0" TO											
	2'-5"			1'-5"											
M601E	7'-2"	32	STR												
M602E	9'-10"	96	STR												
M603E	5'-10"	124	45	1'-0"	3'-10"	1'-0"	6"	8 1/2"							
M604E	3'-9"	4	STR												
M605E	11'-8"	8	STR												
D1101E	4'-0"	40	STR												DOWELS

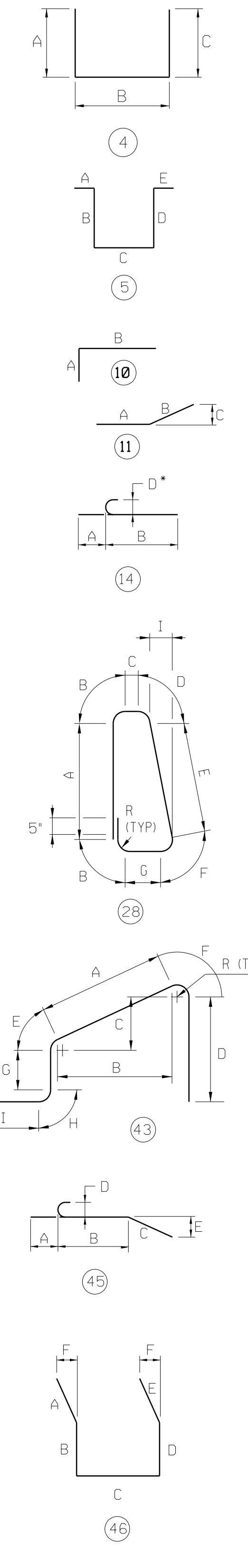
SOUTHBOUND DIAPHRAGM BAR SCHEDULE															
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS
M401E	4'-9"	144	4	2'-1"	7"	2'-1"									
M402E	4'-7"	108	11	1'-0"	3'-7"	2'-7"									
M403E	4'-7"	108	10	2'-1"	2'-6"										
M404E	9'-10"	24	4	2'-9"	4'-4"	2'-9"									
M405E	8'-10"	192	4	2'-3"	4'-4"	2'-3"									
M406E	14'-8"	96	4	4'-10"	5'-0"	4'-10"									
M407E	11'-0"	12	4	3'-0"	5'-0"	3'-0"									
M408E	4'-11 1/4"	8	STR												
M503E	3'-3"	16	11	2'-0"	1'-3"	10 1/2"									
M504E	3'-1"	16	STR												
M505E	12'-1"	16	46	2'-7"	1'-4 1/2"	4'-4"	1'-2 1/2"	2'-7"	1'-10"						
M508E	8'-0"	72	STR												
M509E	8'-5"	12	STR												
M510E	10'-0"	48	STR												
M511E	31'-5"	16	STR												
M513E	13'-4"	6	STR												
M514E	3'-10"	4	STR												
M515E	VARIES	16	10	VARIES	1'-0"										VARY "A" 4 EA BY 1 3/8"
	2'-0" TO			1'-0" TO											
	2'-5"			1'-5"											
M603E	5'-10"	108	45	1'-0"	3'-10"	1'-0"	6"	8 1/2"							
M604E	3'-9"	4	STR												
M606E	7'-8"	24	STR												
M607E	10'-3"	72	STR												
M608E	13'-2"	6	STR												
D1101E	4'-0"	33	STR												DOWELS

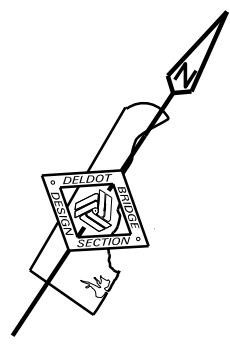
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NOT FOR BIDDING

AUGUST 2015

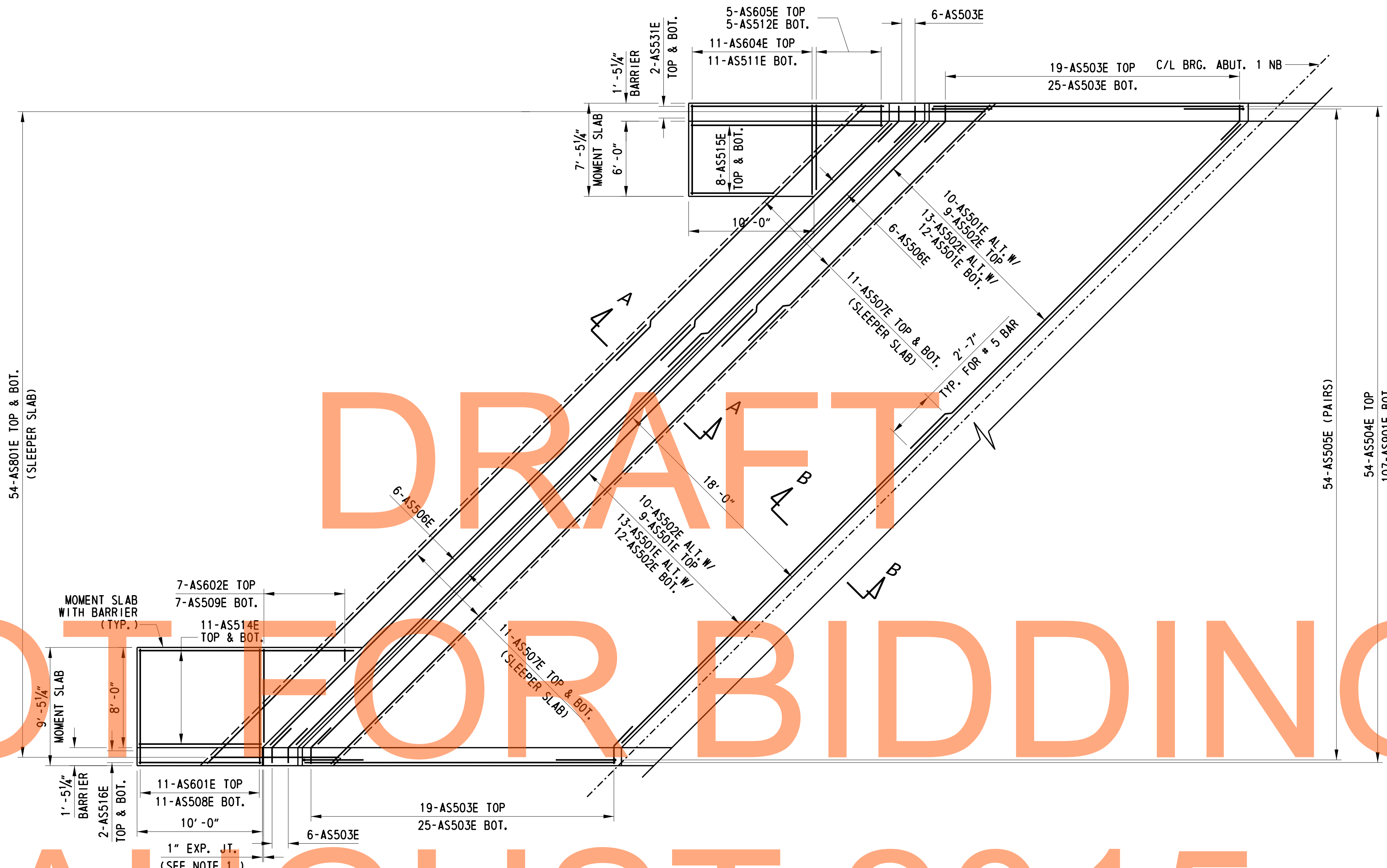




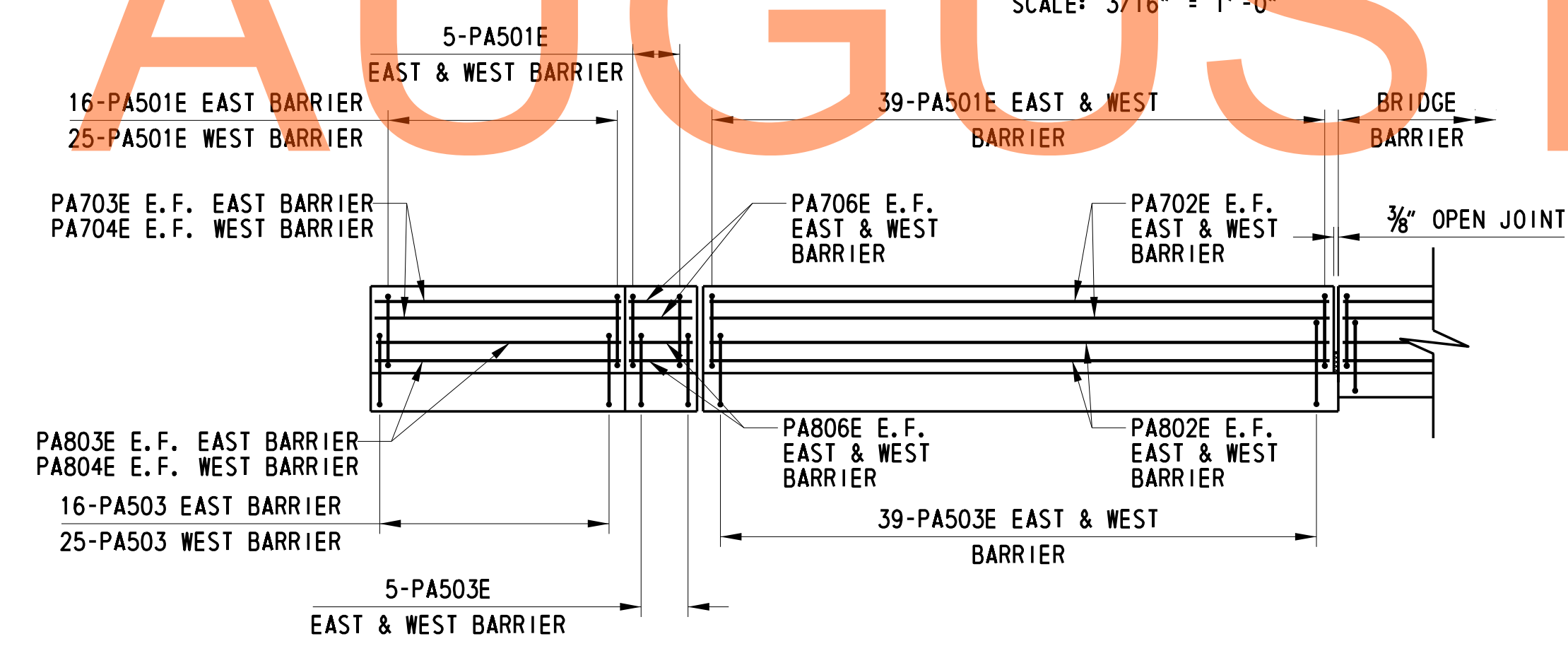
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AUGUST 2015



BRIDGE APPROACH SLAB REINFORCEMENT PLAN - SLAB 1 NORTHBOUND
SCALE: 3/16" = 1'-0"

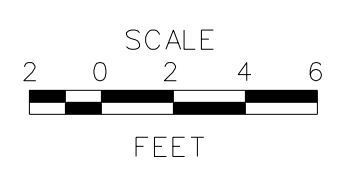


ELEVATION - BRIDGE APPROACH SLAB BARRIER REINFORCEMENT
SCALE: 3/16" = 1'-0"

- NOTE:**
- FOR JOINT DETAIL SEE DELDOT ROADWAY STANDARD P-1.
- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 - FOR DECK PLAN, SEE DWG. 1-470 DK-1.
 - FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-470 BR-4.
 - FOR SECTIONS A-A AND B-B, SEE DWG. 1-470 AS-5.

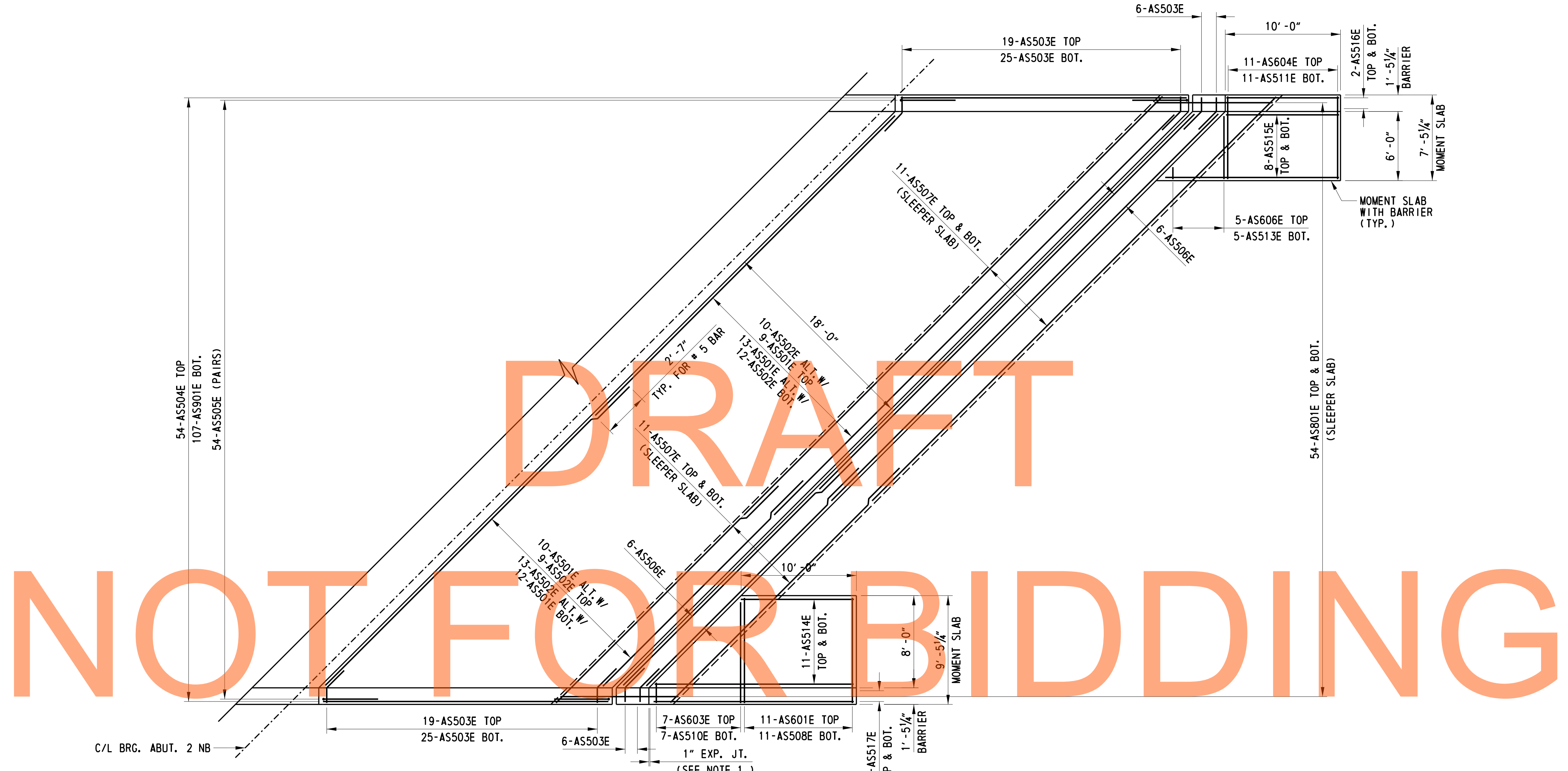
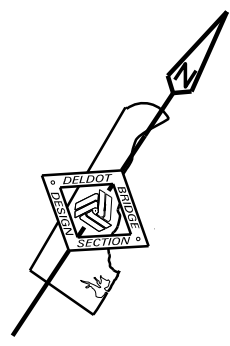
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ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

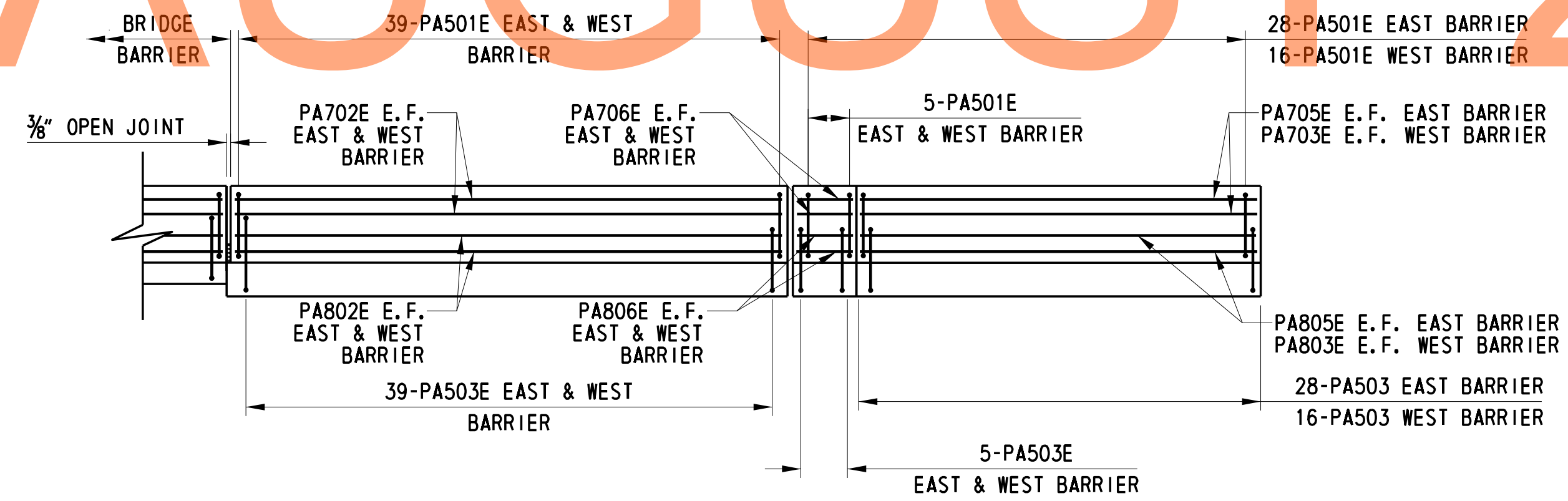
1-470 AS-1
SHEET NO.
343
TOTAL SHTS.
1256



BRIDGE APPROACH SLAB REINFORCEMENT PLAN - SLAB 2 NORTHBOUND

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

AUGUST 2015



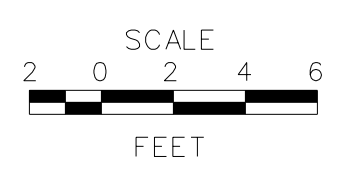
ELEVATION - BRIDGE APPROACH SLAB BARRIER REINFORCEMENT

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. 1-470 GN-1.
 2. FOR DECK PLAN, SEE DWG. 1-470 DK-1.
 3. FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-470 BR-4.

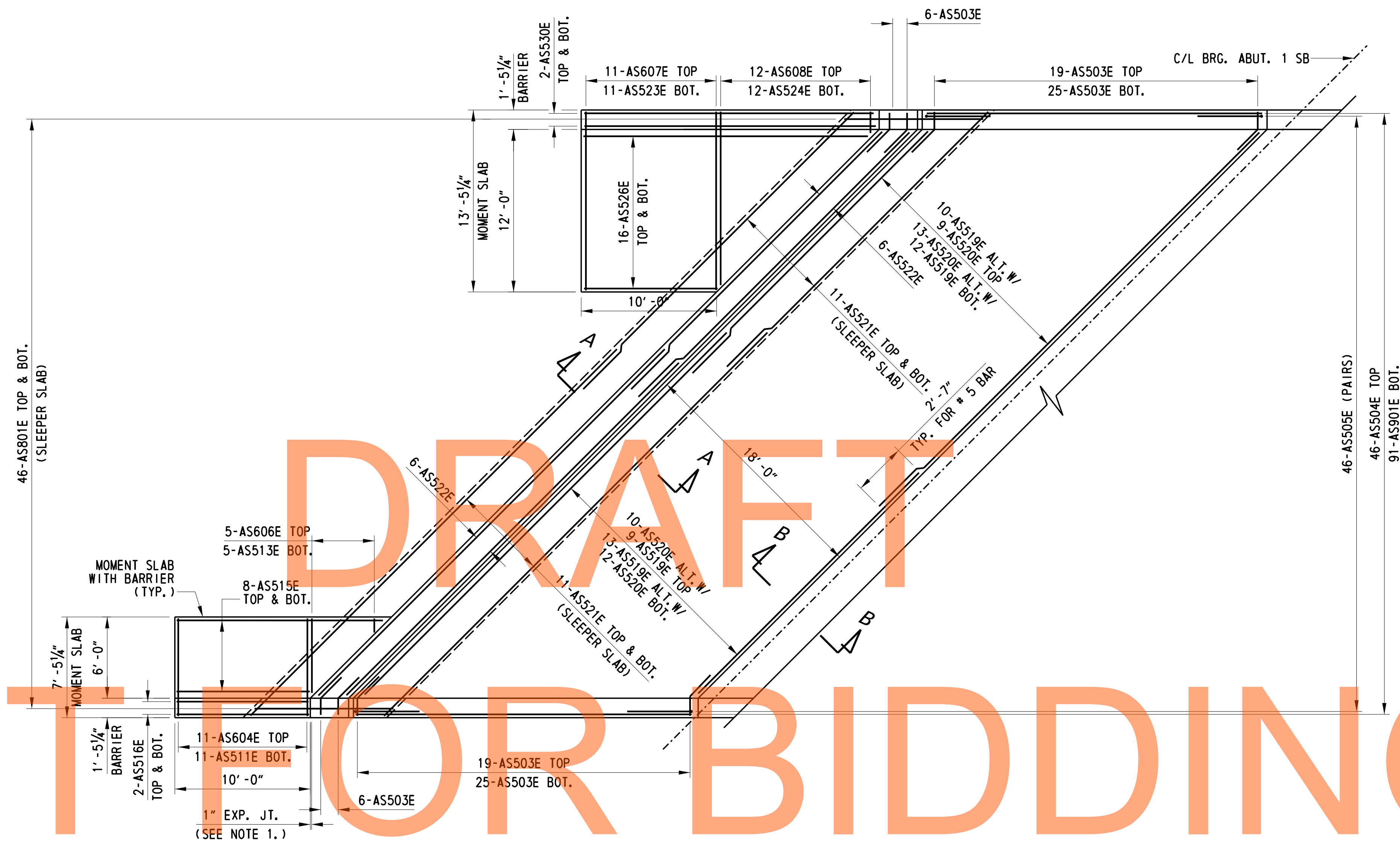
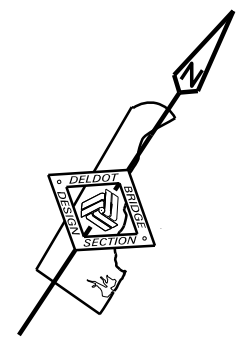
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ADDENDUMS / REVISIONS

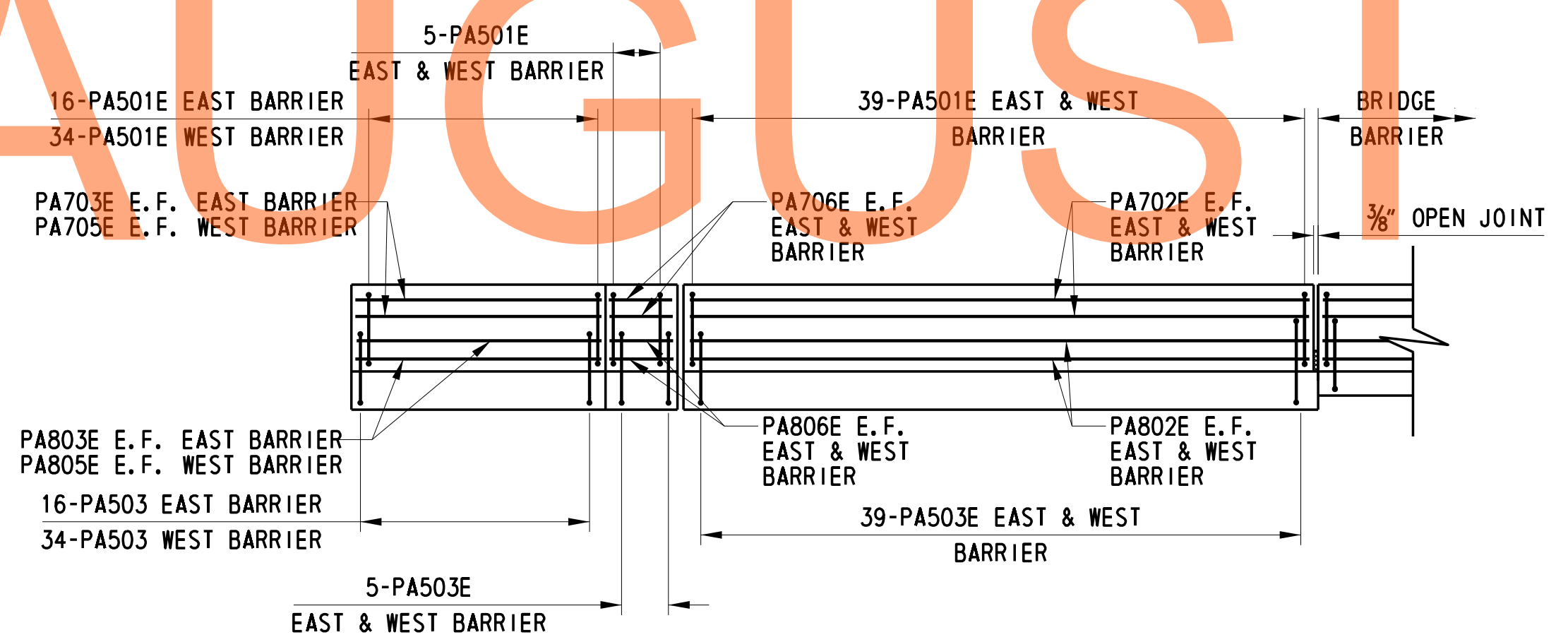


CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-470 AS-2
SHEET NO.
344
TOTAL SHTS.
1256



BRIDGE APPROACH SLAB REINFORCEMENT PLAN - SLAB 1 SOUTHBOUND
SCALE: 3/16" = 1' - 0"



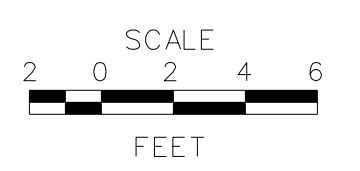
ELEVATION - BRIDGE APPROACH SLAB BARRIER REINFORCEMENT
SCALE: 3/16" = 1' - 0"

NOTE:
1. FOR JOINT DETAIL SEE DELDOT ROADWAY STANDARD P-1.

- CROSS REFERENCE NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 2. FOR DECK PLAN, SEE DWG. 1-470 DK-2.
 3. FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-470 BR-4.
 4. FOR SECTIONS A-A AND B-B, SEE DWG. 1-470 AS-5.

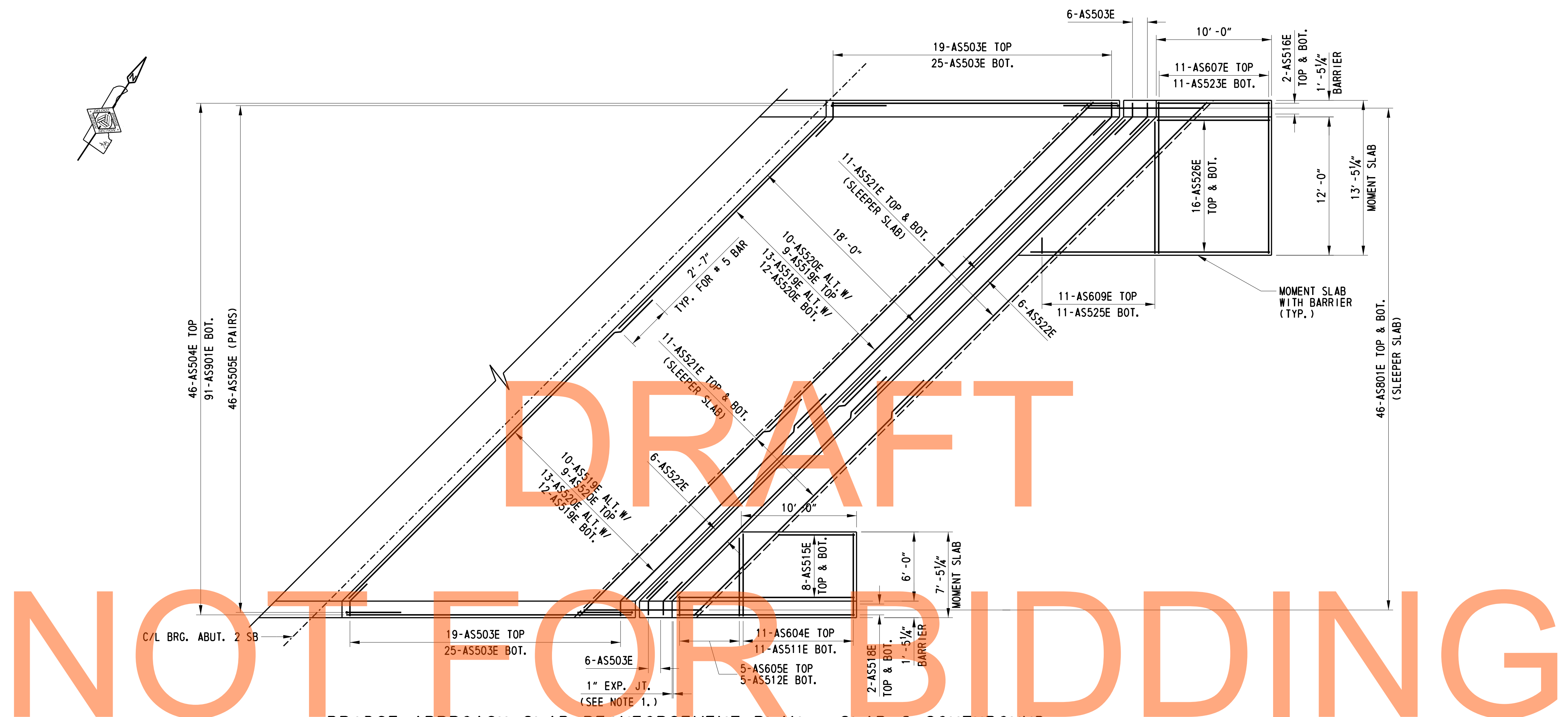
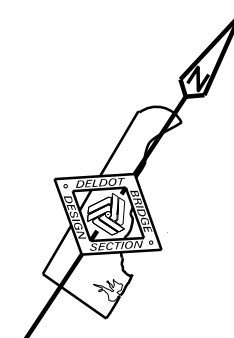
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ADDENDUMS / REVISIONS	



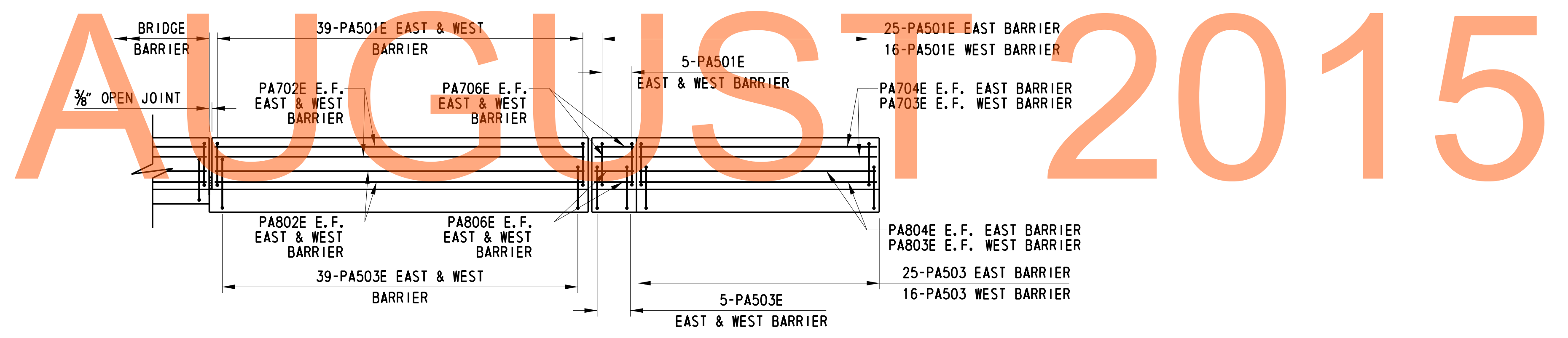
CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-470 AS-3
SHEET NO.
345
TOTAL SHTS.
1256



BRIDGE APPROACH SLAB REINFORCEMENT PLAN - SLAB 2 SOUTHBOUND

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



ELEVATION - BRIDGE APPROACH SLAB BARRIER REINFORCEMENT

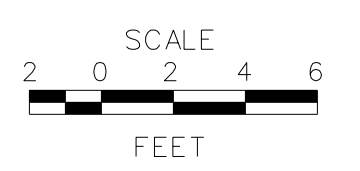
SCALE: 3/16" = 1'-0"

- NOTE:**
- FOR JOINT DETAIL SEE DELDOT ROADWAY STANDARD P-1.
- CROSS REFERENCE NOTES:**
- FOR GENERAL NOTES, SEE DWG. 1-470 GN-1.
 - FOR DECK PLAN, SEE DWG. 1-470 DK-2.
 - FOR REINFORCEMENT BAR SCHEDULE, SEE DWG. 1-470 BR-4.

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ADDENDUMS / REVISIONS	

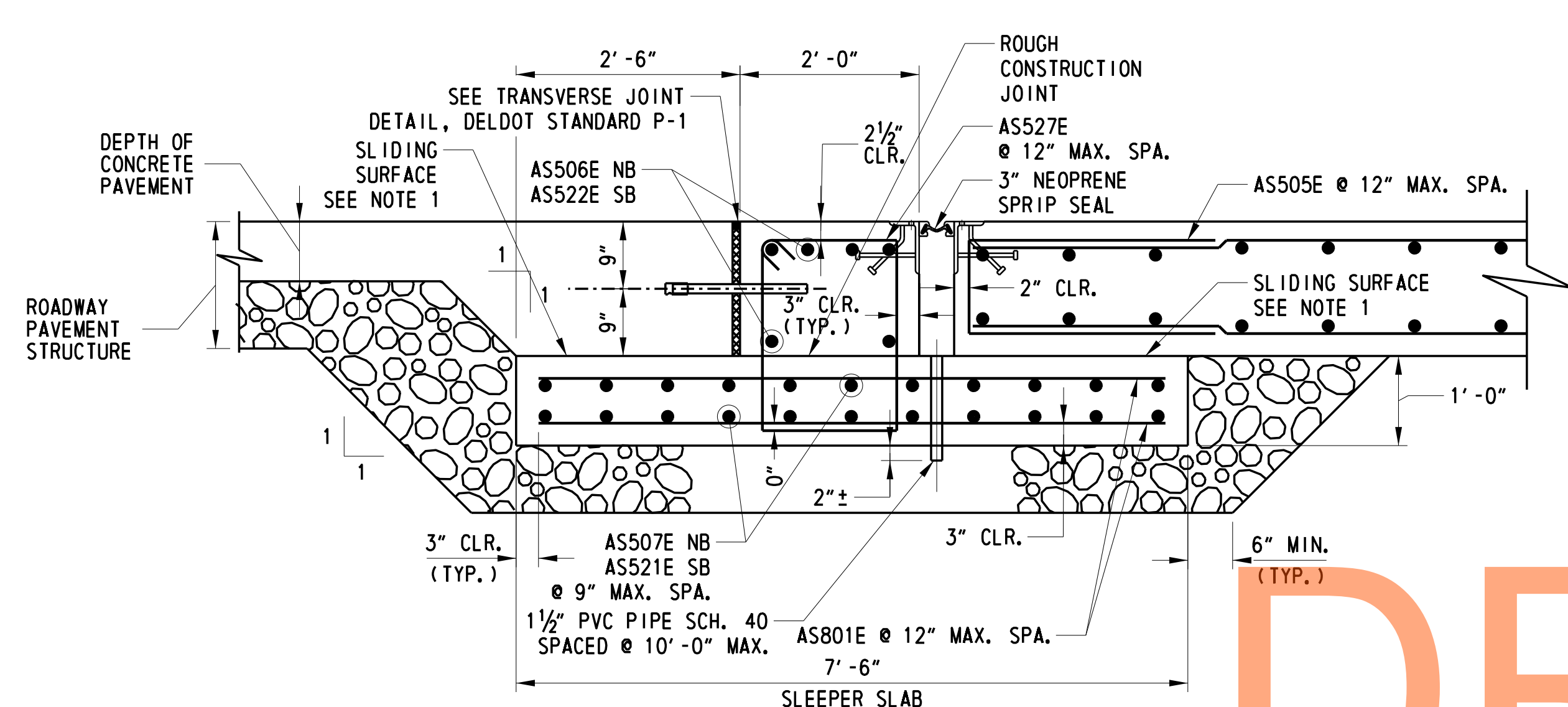


**US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD**

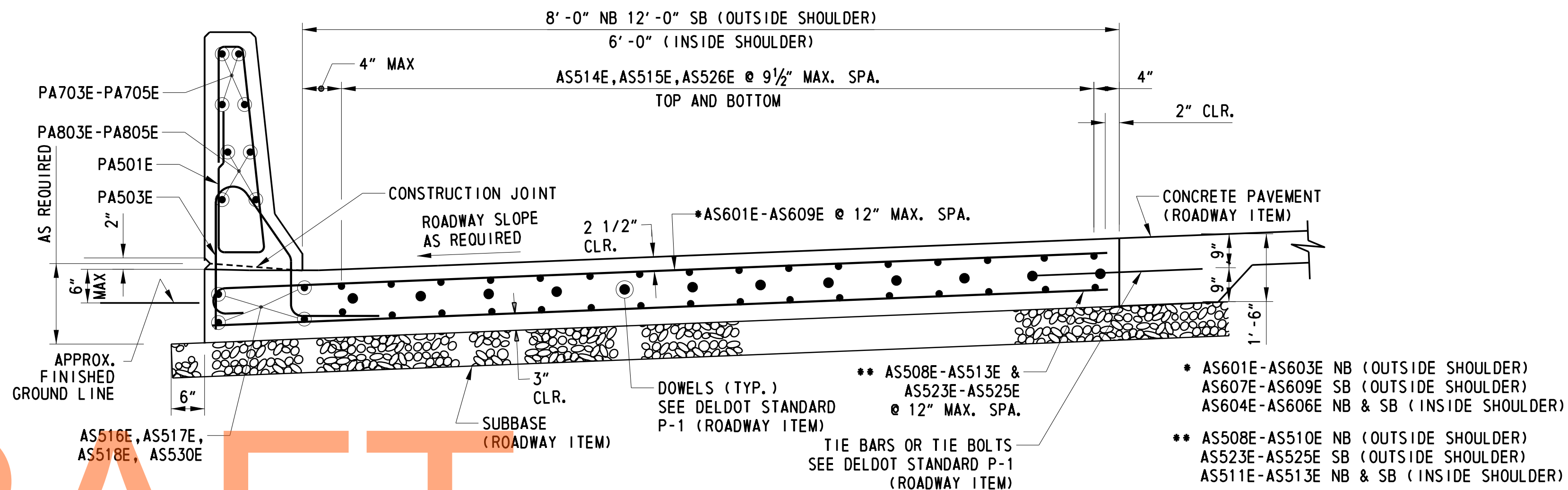
CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

**US 301 MAINLINE OVER
SUMMIT BRIDGE ROAD
BRIDGE APPROACH SLAB
REINFORCEMENT
- SLAB 2 SOUTHBOUND**

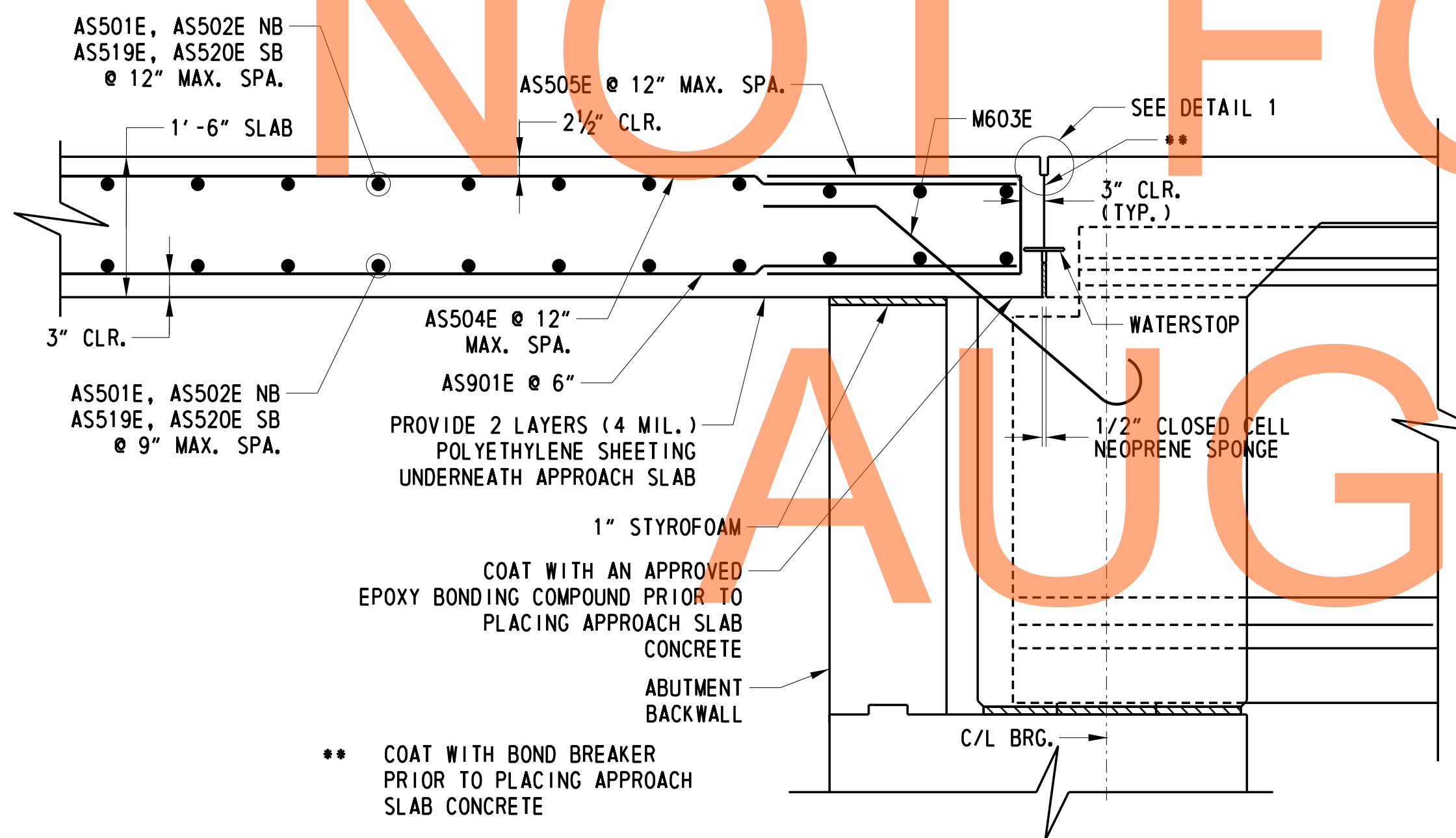
1-470 AS-4
SHEET NO.
346
TOTAL SHTS.
1256



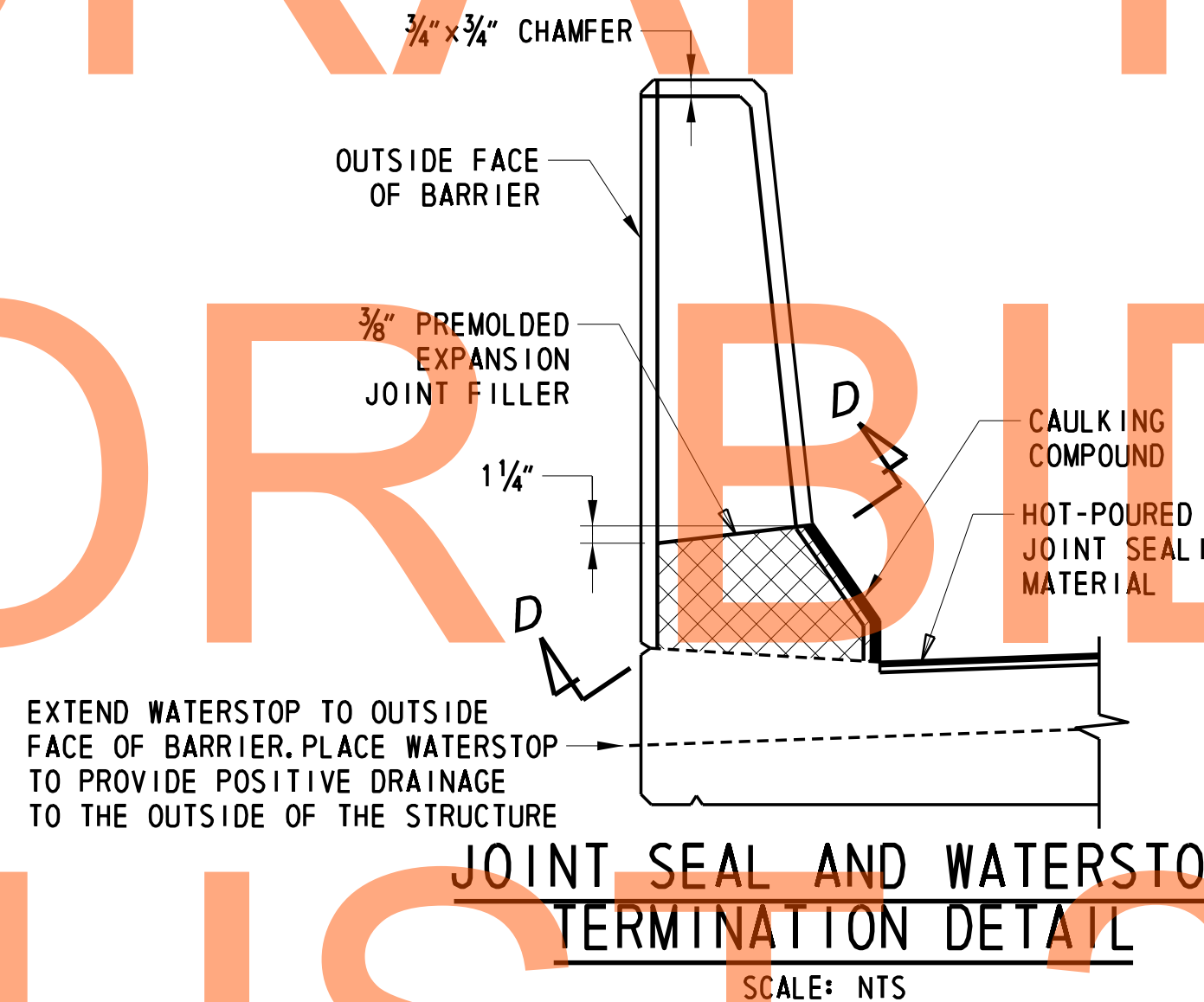
SECTION A-A
SCALE: 3/4" = 1'-0"



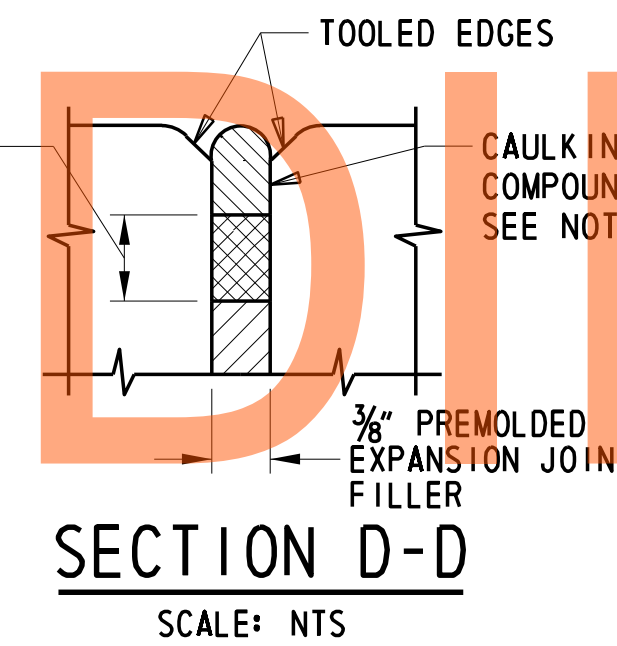
TYPICAL MOMENT SLAB
SCALE: 3/4" = 1'-0"



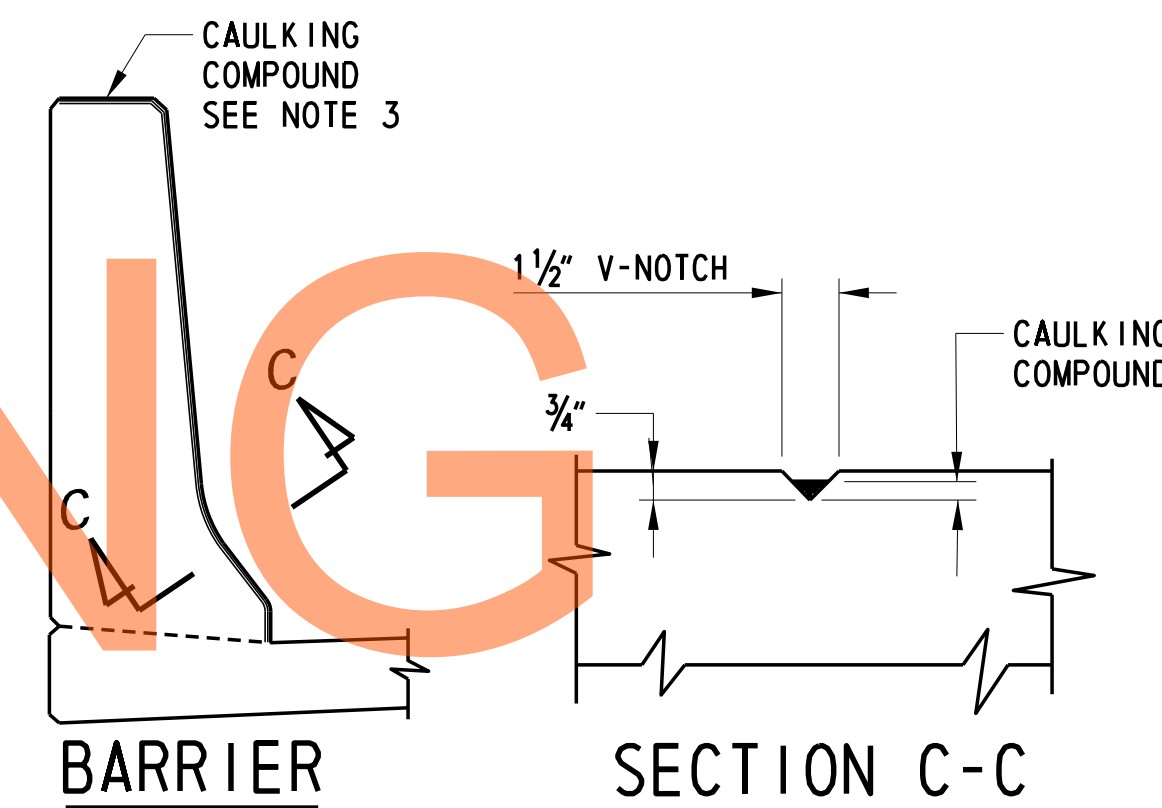
SECTION B-B
SCALE: 3/4" = 1'-0"



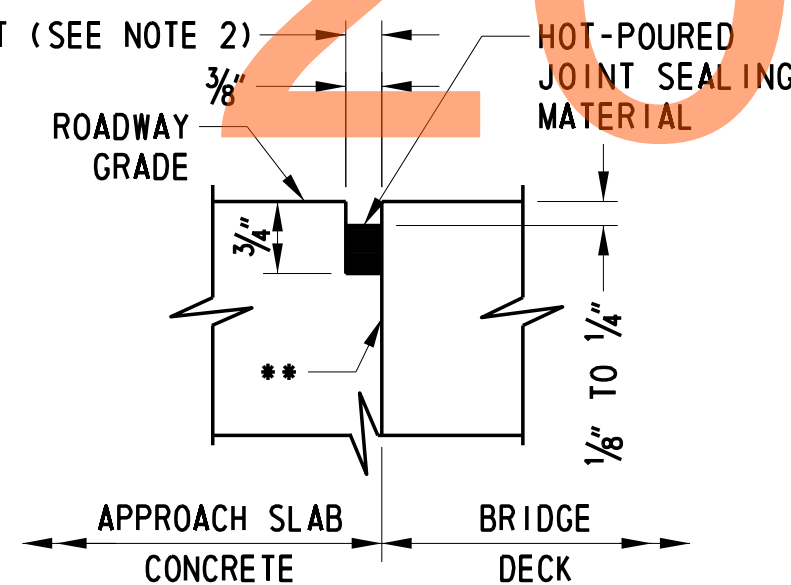
JOINT SEAL AND WATERSTOP TERMINATION DETAIL
SCALE: NTS



SECTION D-D
SCALE: NTS



MODIFIED DEFLECTION JOINT DETAIL
SCALE: NTS



DETAIL 1
SCALE: 6" = 1'-0"

CROSS REFERENCE NOTES:

- FOR DECK REINFORCING PLAN, SEE DWG. 1-470 DK-1 AND 1-470 DK-2.
- FOR APPROACH SLAB AND MOMENTSLAB REINFORCING PLAN, SEE DWG. 1-470 AS-1 THROUGH 1-470 AS-4.
- FOR REINFORCEMENT SCHEDULE, SEE DWG. 1-470 BR-4.
- FOR EXPANSION JOINT DETAILS, SEE DWG. 1-470 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.

DRAFT

NOT FOR BIDDING

AUGUST 2015

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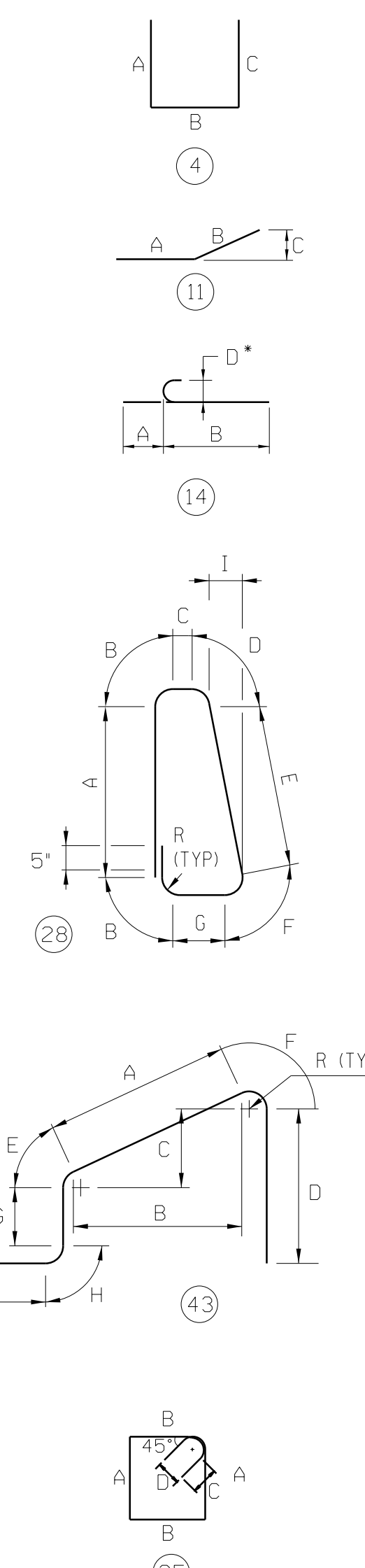
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT	BRIDGE NO.	1-470N&S	US 301 MAINLINE OVER SUMMIT BRIDGE ROAD APPROACH SLAB SECTIONS AND DETAILS	SHEET NO.
				T20091303	DESIGNED BY: ADH		347
				COUNTY	CHECKED BY: DHG		TOTAL SHTS.
			NEW CASTLE				

REINFORCING BAR SCHEDULE

NORTHBOUND APPROACH SLAB BAR SCHEDULE

SOUTHBOUND APPROACH SLAB 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
AS501E	32'-0"	88	STR													AS503E	4'-0"	200	11	2'-7"	1'-5"	11 1/2"									
AS502E	42'-0"	88	STR													AS504E	25'-0"	92	STR												
AS503E	4'-0"	200	11	2'-7"	1'-5"	11 1/2"										AS505E	6'-2 1/2"	184	4	2'-7"	1'-0 1/2"	2'-7"									
AS504E	25'-0"	108	STR													AS511E	7'-1"	22	STR												
AS505E	6'-2 1/2"	216	4	2'-7"	1'-0 1/2"	2'-7"										AS512E	VARIES	5	STR												
AS506E	37'-2"	24	STR																												
AS507E	39'-3"	88	STR																												
AS508E	9'-1"	22	STR																												
AS509E	VARIES	7	STR																												
	6'-10" TO																														
	1'-3"																														
AS510E	VARIES	7	STR																												
	8'-1" TO																														
	2'-2"																														
AS511E	7'-1"	22	STR																												
AS512E	VARIES	5	STR																												
	6'-1" TO																														
	2'-2"																														
AS513E	VARIES	5	STR																												
	4'-10" TO																														
	1'-3"																														
AS514E	VARIES	44	STR																												
	17'-3" TO																														
	9'-11"																														
AS515E	VARIES	32	STR																												
	15'-3" TO																														
	9'-10"																														
AS516E	9'-8"	8	STR																												
AS517E	17'-8"	4	STR																												
AS527E	8'-1"	144	25	2'-1"	1'-6"	3 3/4"	2 1/2"																								
AS531E	15'-8"	4	STR																												
AS601E	9'-9"	22	14	8"	9'-1"		6"																								
AS602E	VARIES	7	14	8"	VARIES		6"																								
	7'-6" TO				6'-10" TO																										
	1'-11"				1'-3"																										
AS603E	VARIES	7	14	8"	VARIES		6"																								
	8'-9" TO				8'-1" TO																										
	2'-10"				2'-2"																										
AS604E	7'-9"	22	14	8"	7'-1"		6"																								
AS605E	VARIES	5	14	8"	VARIES		6"																								
	6'-9" TO				6'-1" TO																										
	2'-10"				2'-2"																										
AS606E	VARIES	5	14	8"	VARIES		6"																								
	5'-6" TO				4'-10" TO																										
	1'-11"				1'-3"																										
AS801E	10'-1"	216	STR																												
AS901E	25'-0"	214	STR																												
PA501E	7'-6 3/8"	261	28	2'-9 1/4"	3"	1 5/8"	2 3/4"	2'-9 1/2"	3 1/8"	5 1/8"		3 1/2"																			
PA503E	6'-2 1/8"	261	43	1'-0 1/8"	7"	9 1/8"	2'-1"	1"	9"	1'-2"	3"	10"																			
PA702E	25'-0"	16	STR																												
PA703E	9'-8"	8	STR																												
PA704E	15'-8"	4	STR																												
PA705E	17'-8"	4	STR																												
PA706E	2'-5"	16	STR																												
PA802E	25'-0"	16	STR																												
PA803E	9'-8"	8	STR																												
PA804E	15'-8"	4	STR																												
PA805E	17'-8"	4	STR																												
PA806E	2'-5"	16	STR																												

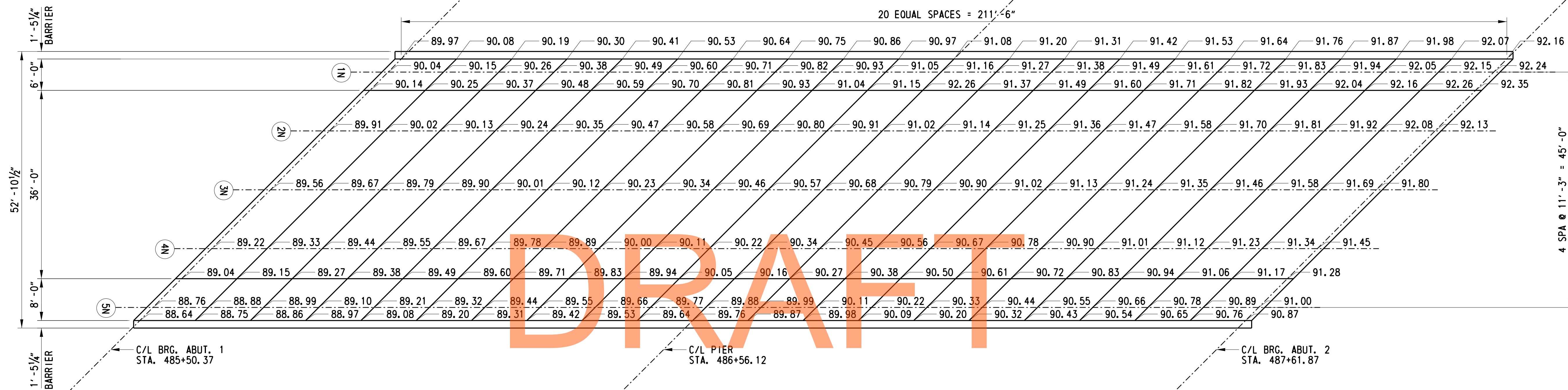
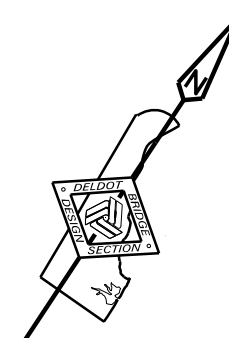


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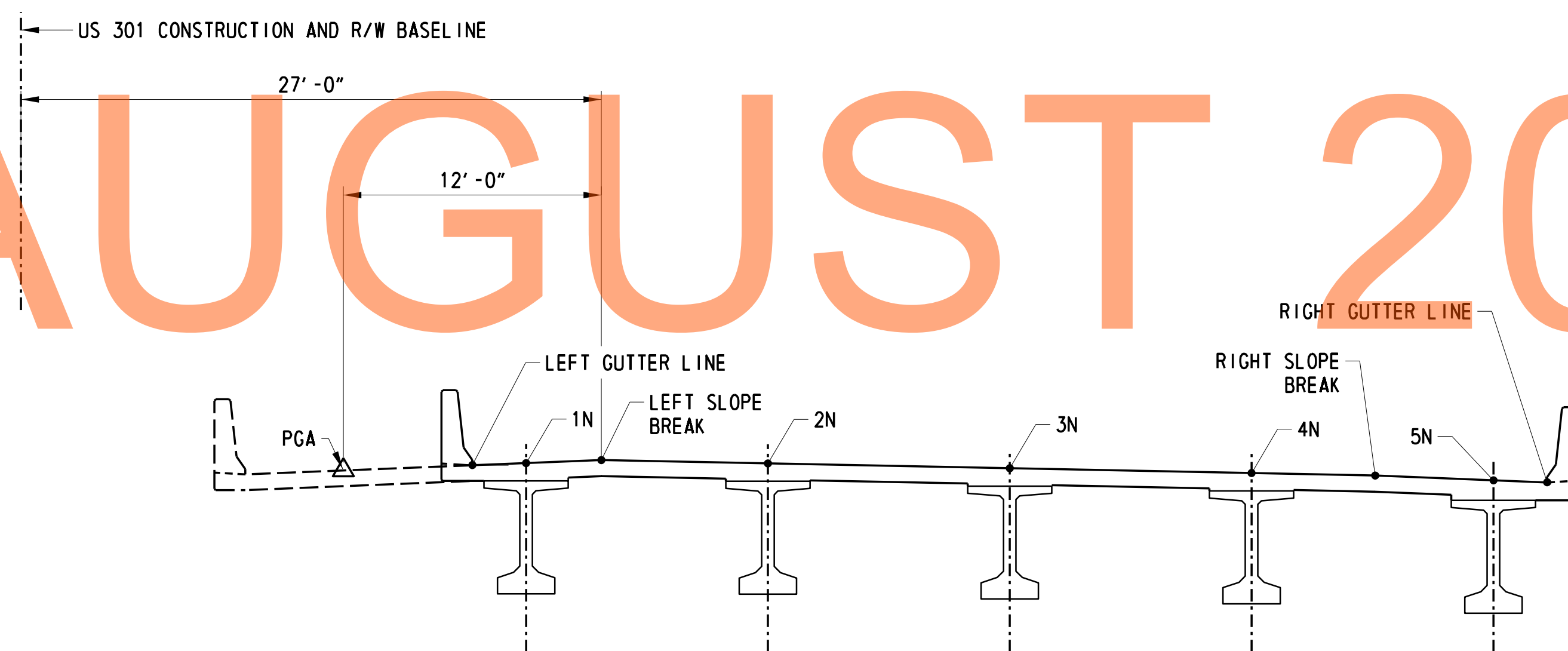


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FINISHED BRIDGE DECK ELEVATIONS - NORTHBOUND

SCALE: 3/32" = 1'-0"

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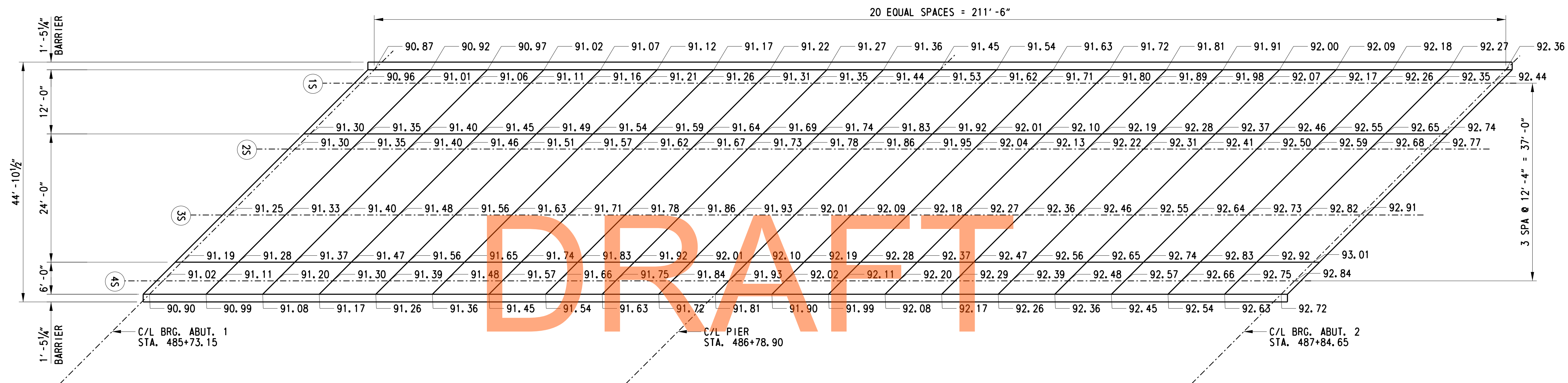
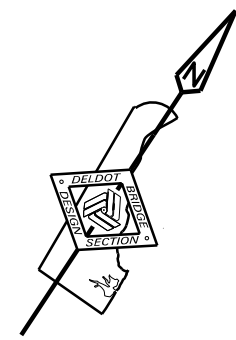


TYPICAL SECTION - NORTHBOUND

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

- CROSS REFERENCE NOTES:**
1. FOR VERTICAL CURVE DATA, SEE DWG. 1-470 PE-1.
 2. FOR CROSS SLOPES, SEE DWG. 1-470 TS-1.

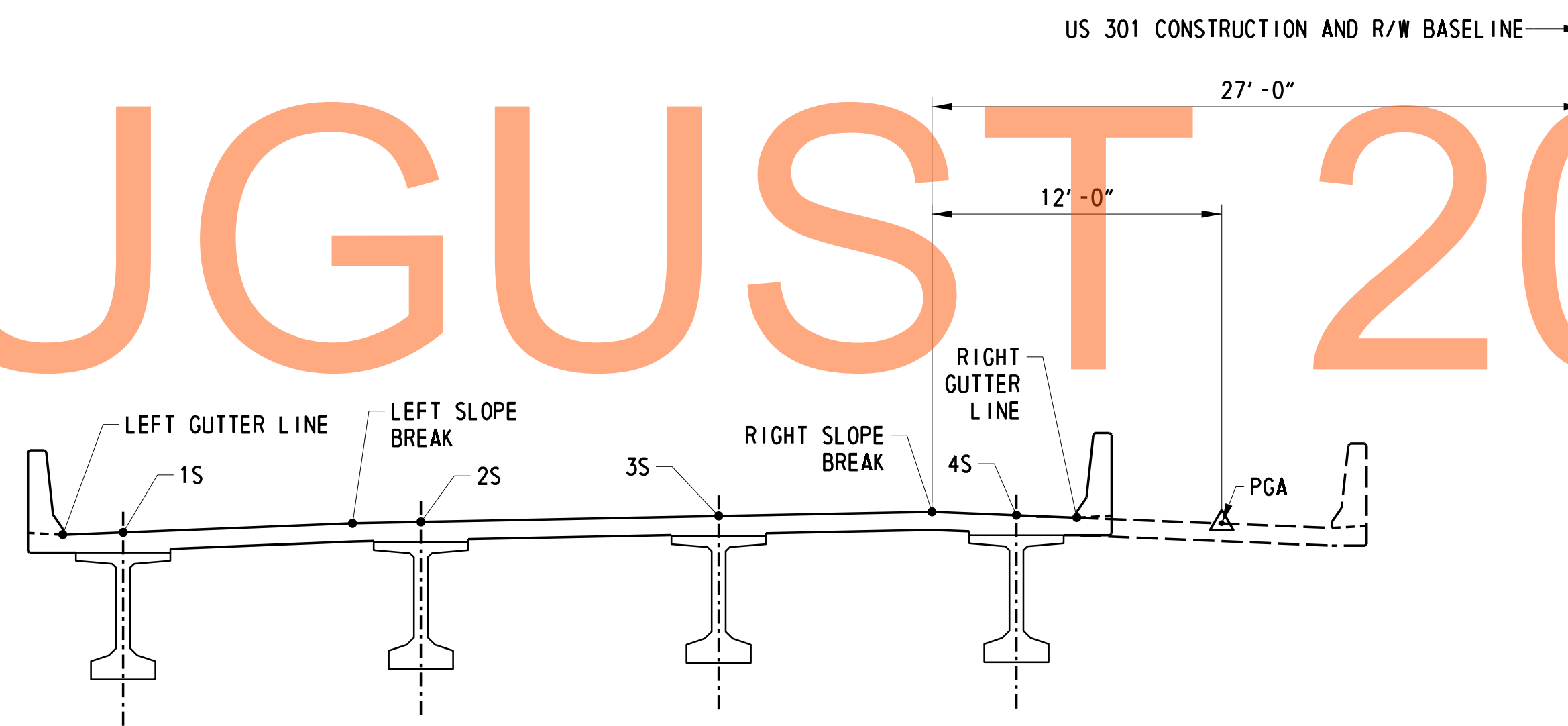
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FINISHED BRIDGE DECK ELEVATIONS - SOUTHBOUND
SCALE: 3/32" = 1'-0"

AUGUST 2015



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

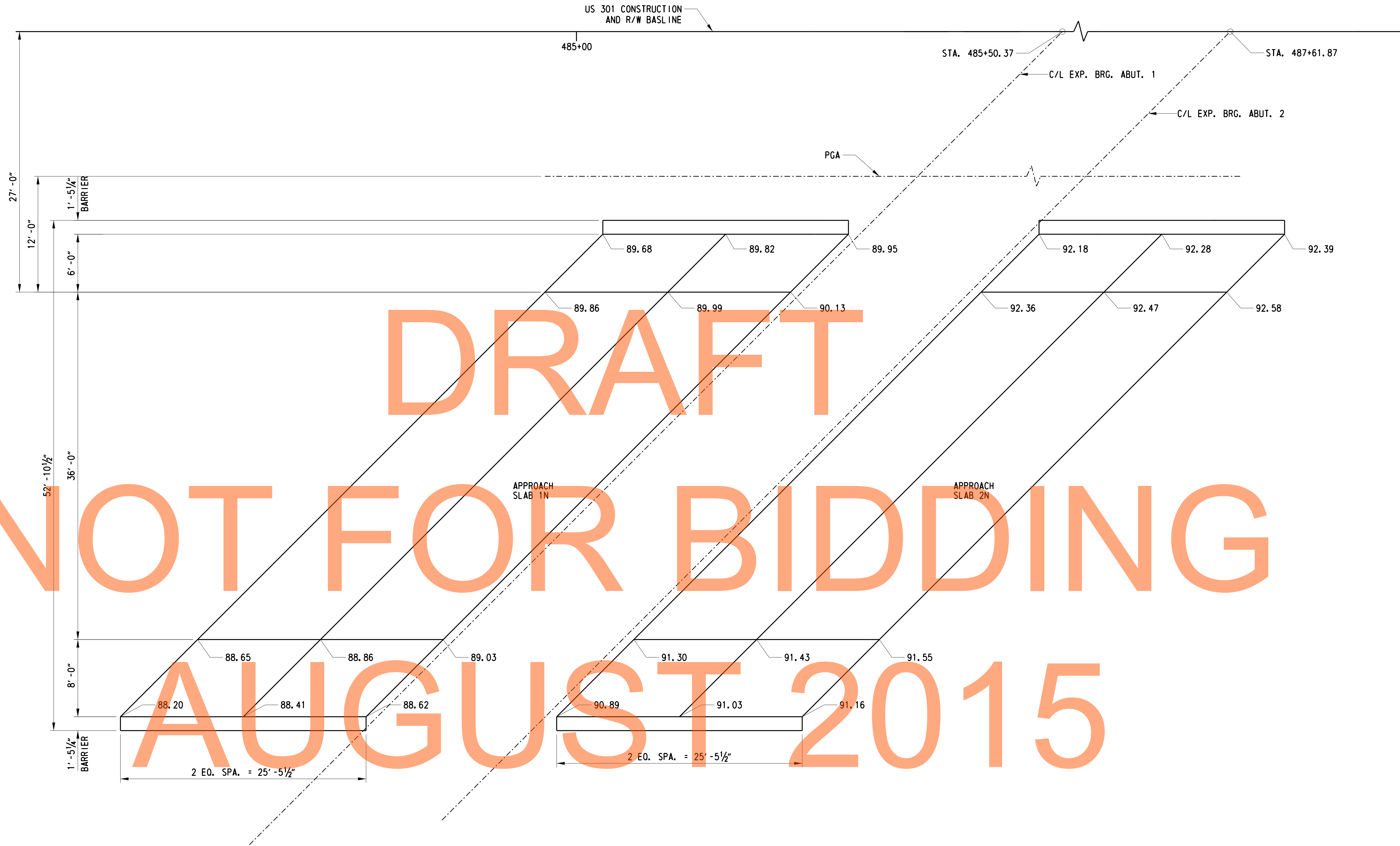
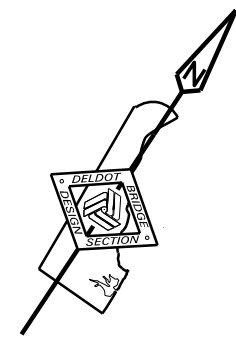
- CROSS REFERENCE NOTES:**
1. FOR VERTICAL CURVE DATA, SEE DWG. 1-470 PE-1.
 2. FOR CROSS SLOPES, SEE DWG. 1-470 TS-1.

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ADDENDUMS / REVISIONS

CONTRACT T20091303	BRIDGE NO. 1-470N&S
COUNTY NEW CASTLE	DESIGNED BY: ADH
	CHECKED BY: DHG

1-470 FD-2
SHEET NO. 350
TOTAL SHTS. 1256

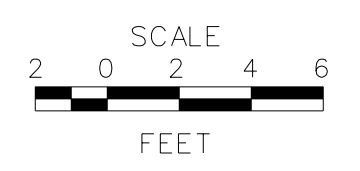


APPROACH SLABS - NORTHBOUND
SCALE: 3/16" = 1' - 0"

- CROSS REFERENCE NOTES:**
1. FOR VERTICAL CURVE DATA, SEE DWG. 1-470 PE-1.
 2. FOR CROSS SLOPES, SEE DWG. 1-470 TS-1.

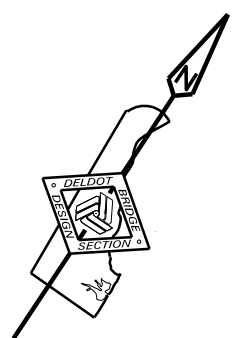
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ADDENDUMS / REVISIONS	



CONTRACT	BRIDGE NO.	1-470N&S
T20091303	DESIGNED BY:	ADH
COUNTY	CHECKED BY:	DHG
NEW CASTLE		

1-470 FD-3
SHEET NO.
351
TOTAL SHTS.
1256

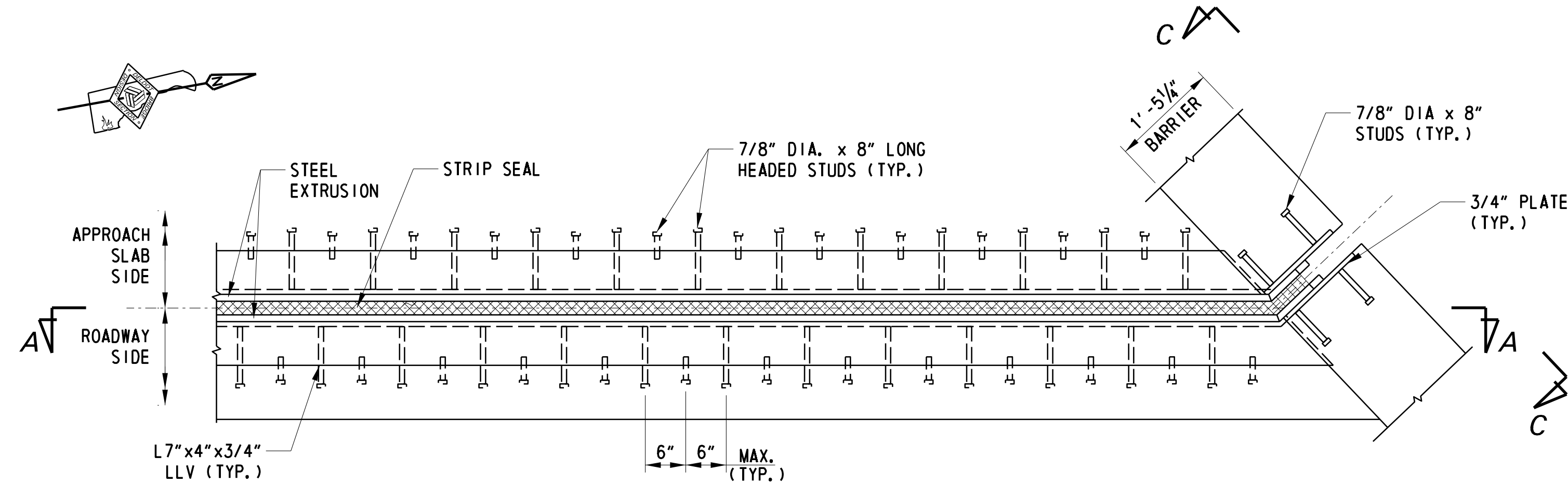


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APPROACH SLABS - SOUTHBOUND
SCALE: 3/16" = 1' - 0"

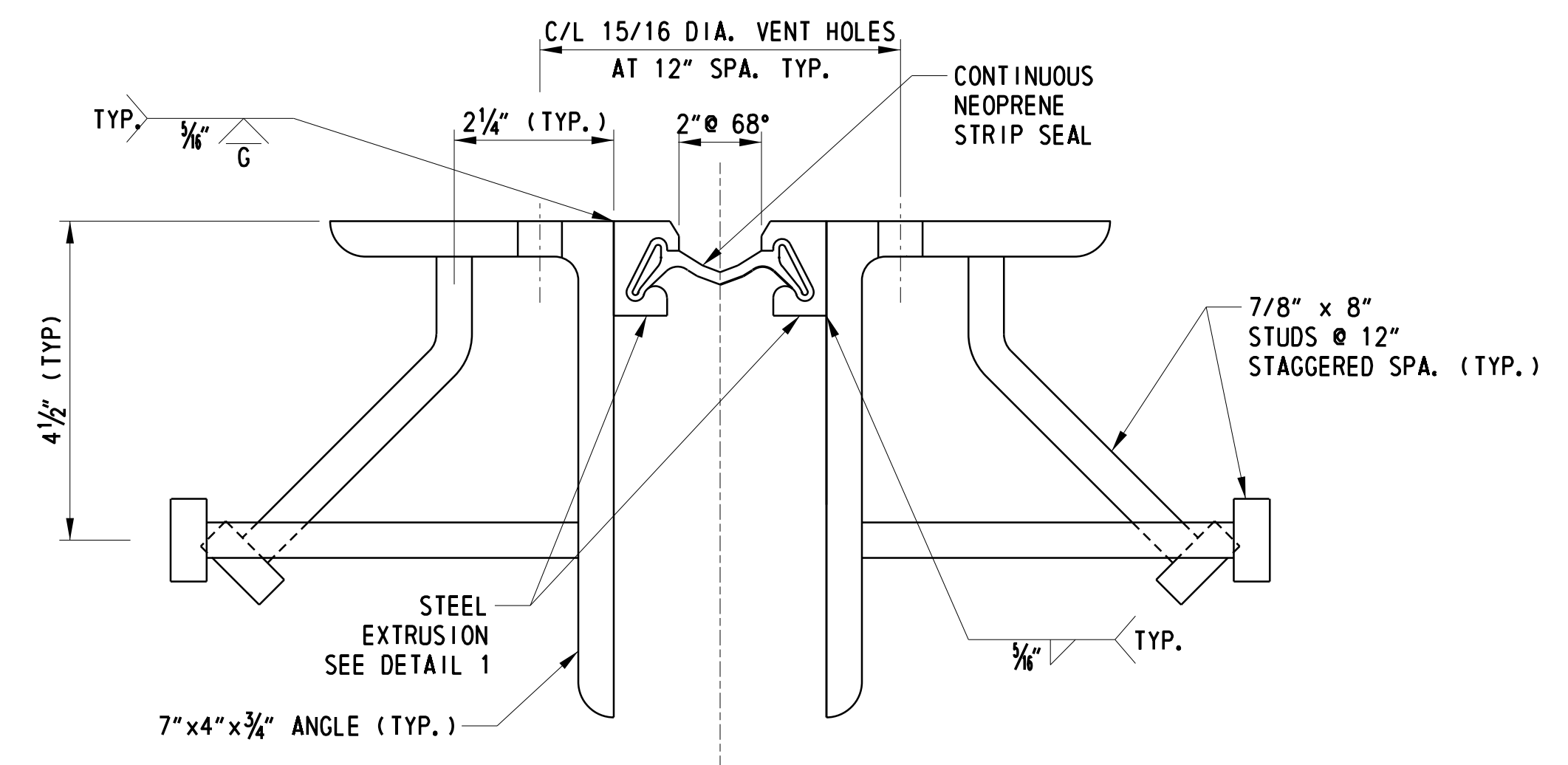
- CROSS REFERENCE NOTES:**
1. FOR VERTICAL CURVE DATA, SEE DWG. 1-470 PE-1.
 2. FOR CROSS SLOPES, SEE DWG. 1-470 TS-1.

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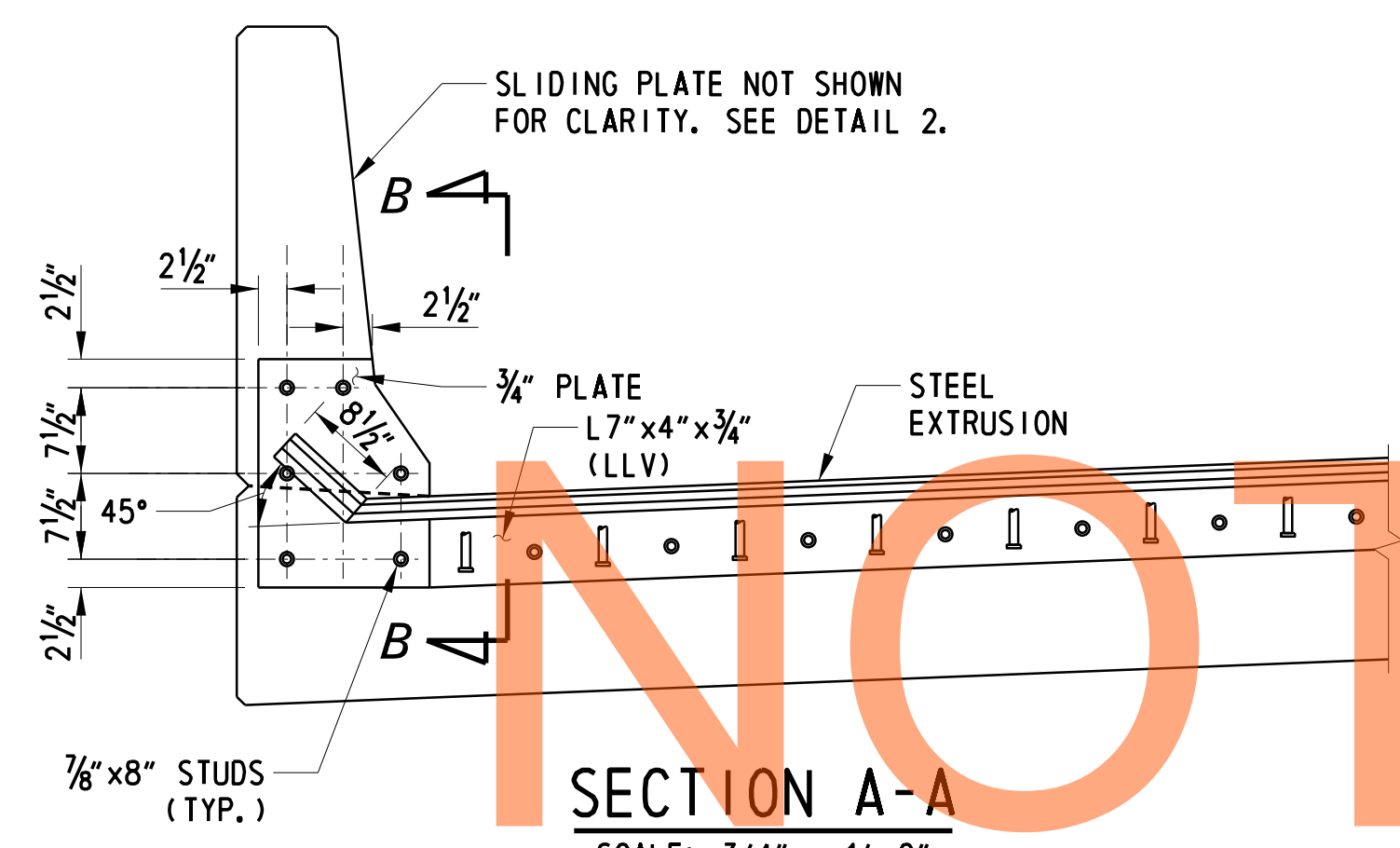
PLAN

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



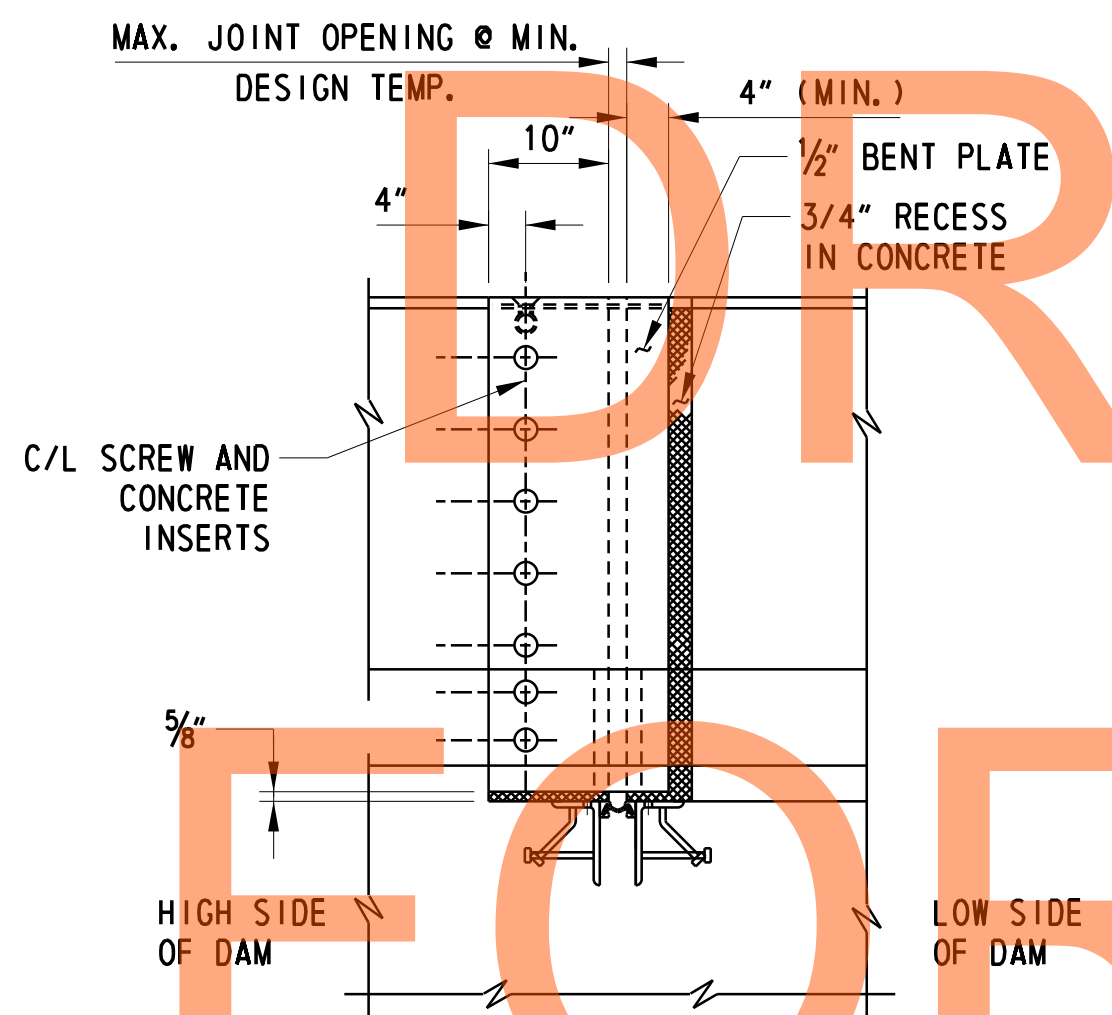
PREFABRICATED EXPANSION JOINT SYSTEM 3"

NTS



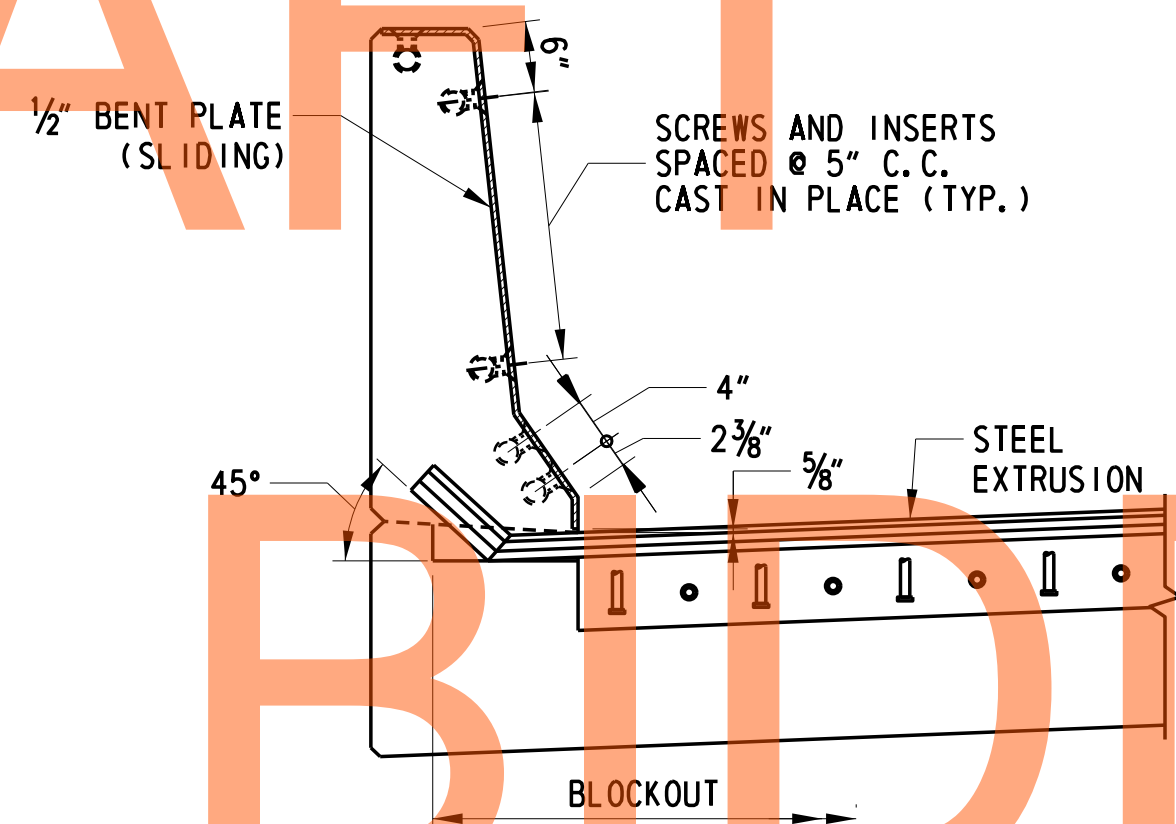
SECTION A-A

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



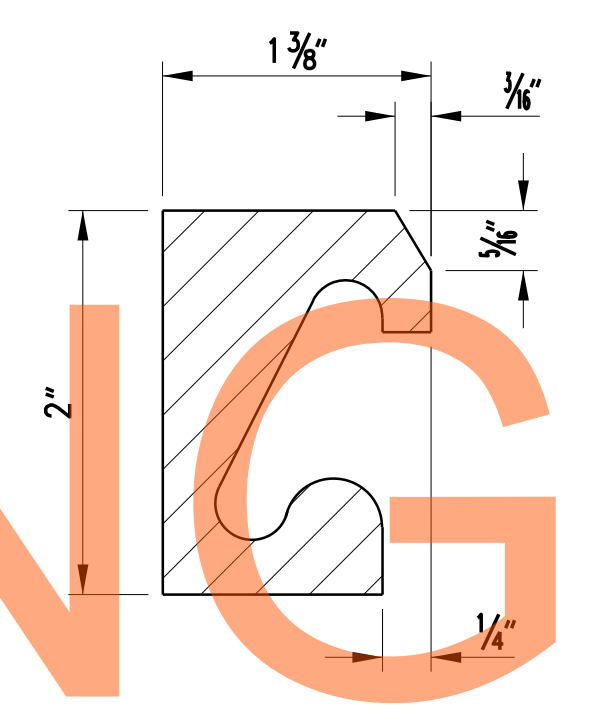
SECTION B-B

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



DETAIL 2

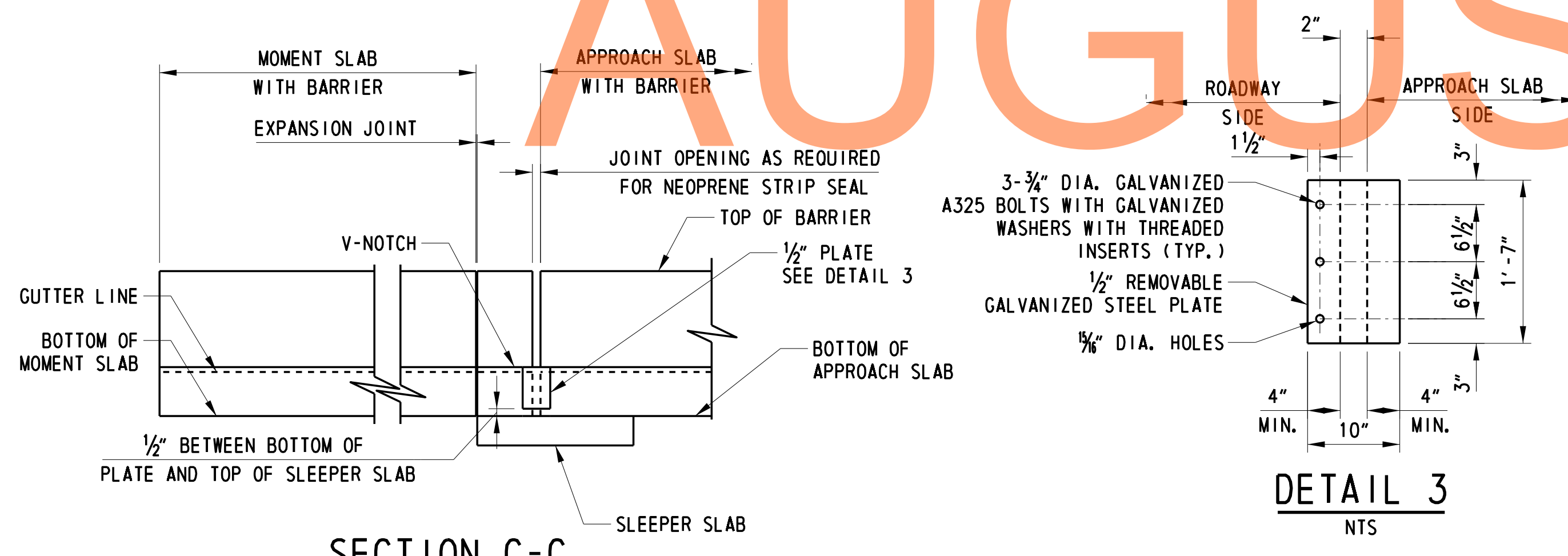
SCALE: 3/4" = 1'-0"



DETAIL 1

NTS

* 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.



SECTION C-C

NTS

DETAIL 3

NTS

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.

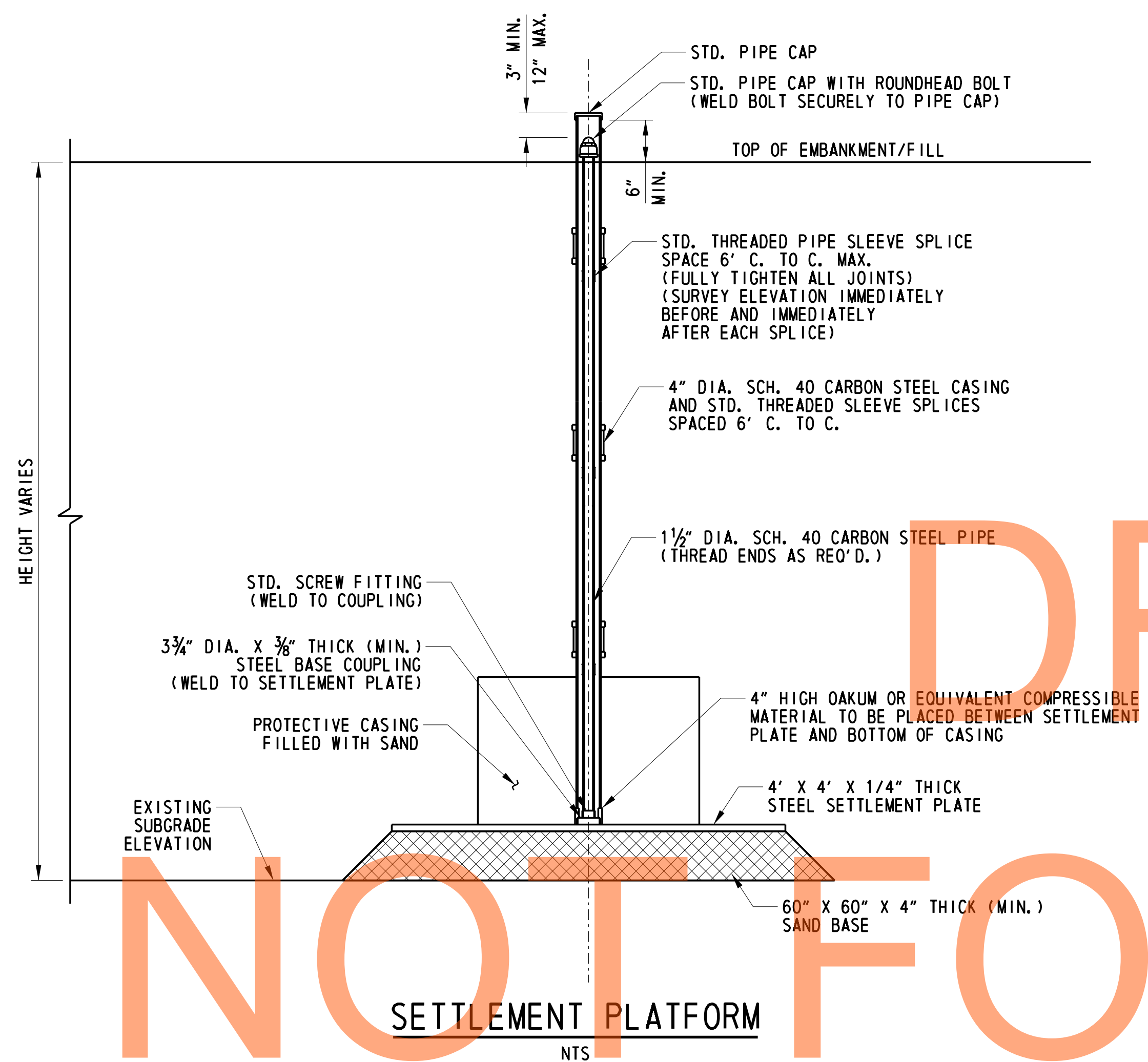
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ADDENDUMS / REVISIONS

CONTRACT	T20091303
COUNTY	NEW CASTLE
BRIDGE NO.	1-470N&S
DESIGNED BY:	ADH
CHECKED BY:	DHG

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SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-470-1	484+90.46	46.00' RT	SM-1-470-1	484+85.46	51.00' RT
SP-1-470-2	486+01.24	42.00' LT	SM-1-470-2	486+06.24	47.00' LT
SP-1-470-3	487+29.78	46.00' RT	SM-1-470-3	487+24.78	51.00' RT
SP-1-470-4	488+40.56	42.00' LT	SM-1-470-4	488+45.56	47.00' LT



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CROSS REFERENCE NOTE:

- FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-470 PE-1.

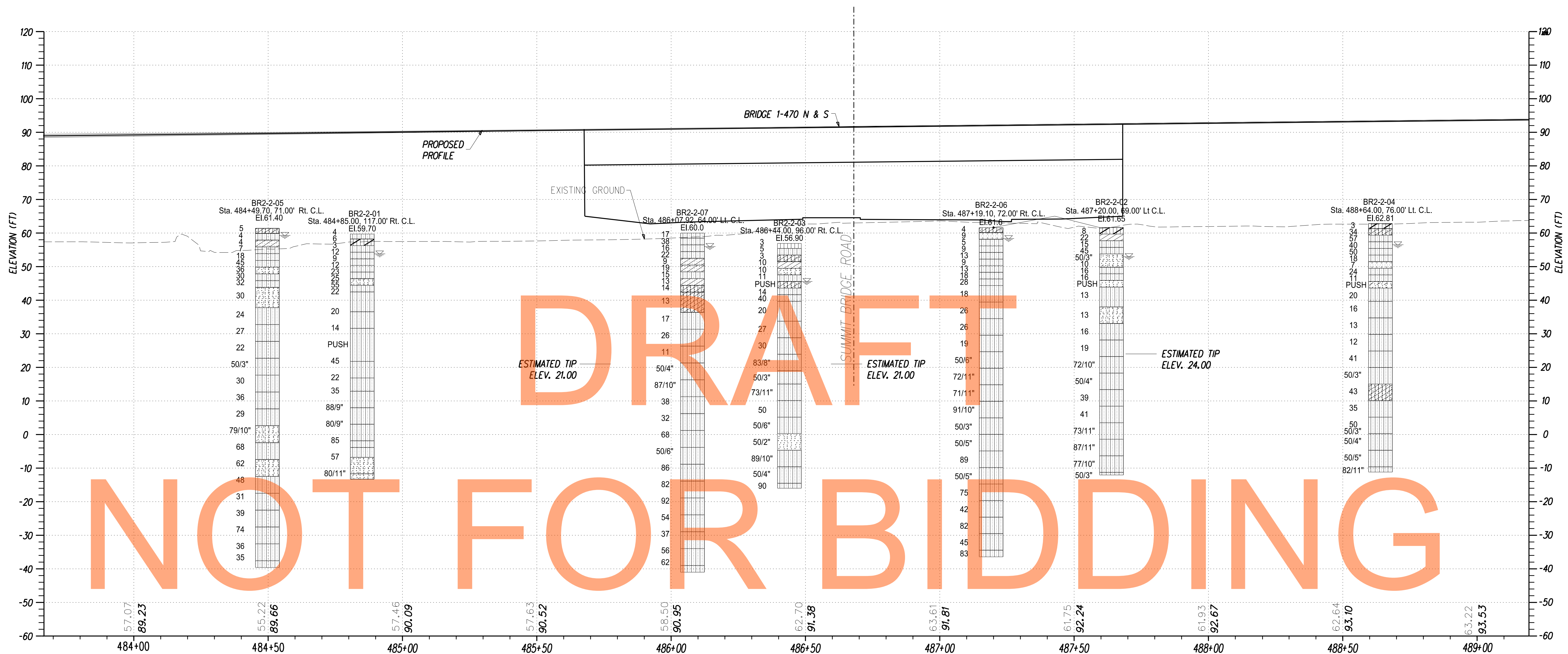
NOTE:

- 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.	1-470N&S	US 301 MAINLINE OVER SUMMIT BRIDGE ROAD SETTLEMENT PLATFORM DETAIL	SHEET NO.
				T200911303	DESIGNED BY: ADH		354
				NEW CASTLE	CHECKED BY: DHG		TOTAL SHTS.
							1256

1-470 DT-1

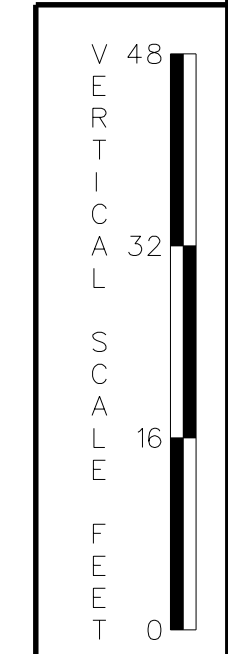


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KEY TO SYMBOLS	
SYMBOL DESCRIPTION	SYMBOL DESCRIPTION
STRATA SYMBOLS	
POORLY GRADED CLAYEY SILTY SAND	POORLY GRADED SAND WITH SILT
SILTY SAND	SILTY LOW PLASTICITY CLAY
CLAYEY SAND	LOW PLASTICITY CLAY
POORLY GRADED SAND	SILT
POORLY GRADED SAND WITH CLAY	WELL GRADED SAND WITH SILT
MISC. SYMBOLS	
	WATER TABLE DURING DRILLING



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