

LEGEND:

- 70-- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- 90- PROPOSED CONTOUR MAJOR
- - - - PROPOSED CONTOUR MINOR
- CL - CENTERLINE
- BL - BASELINE
- T.F.E. - TOP OF FOOTING ELEVATION
- B.F.E. - BOTTOM OF FOOTING ELEVATION
- BRG - BEARING
- E - EXPANSION BEARING
- F - FIXED BEARING
- ⊙ - BORING LOCATION

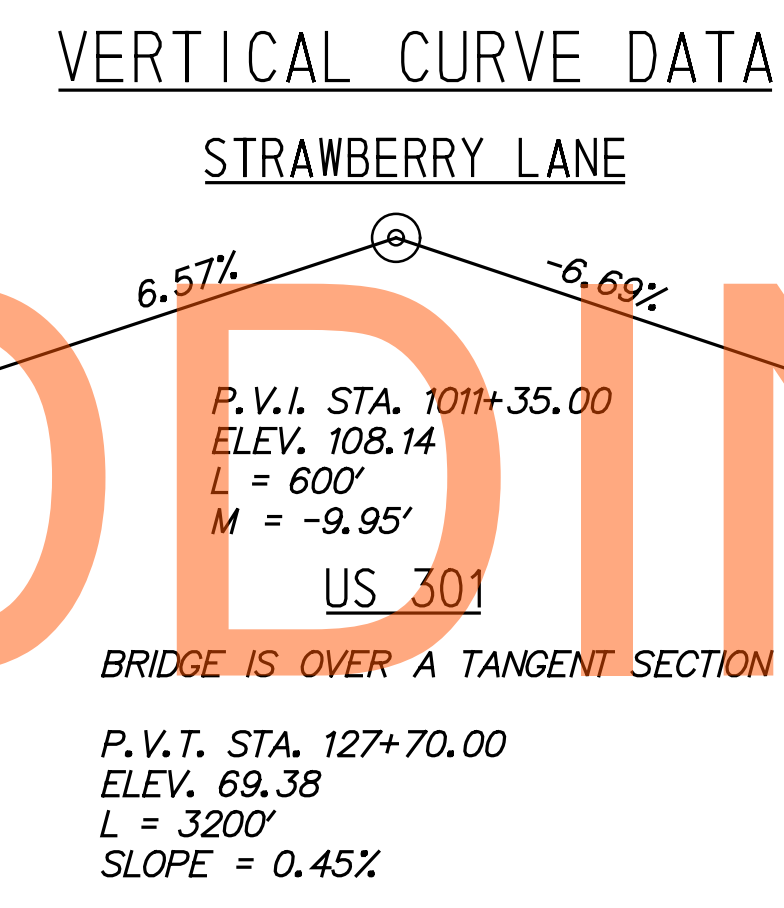
BORING LOCATIONS

BORING NO.	STATION *	OFFSET *
BR3-1-01	1009+43.32	31.67 RT.
BR3-1-02	1010+32.53	0.36 RT.
BR3-1-03	1011+25.36	34.76 LT.
BR3-1-04	1011+18.66	13.62 RT.
BR3-1-05	1009+48.00	15.17 LT.
BR3-1-06	1012+39.69	13.83 LT.
BR3-1-07	1012+42.19	16.92 RT.

* TAKEN FROM STRAWBERRY LANE @

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BR1-486-05	ABUTMENT PILE LAYOUT
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BR1-486-23	PARAPET CHAIN LINK FENCE DETAILS
BR1-486-24	APPROACH SLAB PLAN
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BR1-486-27	REINFORCEMENT BAR SCHEDULE (SHEET 2 OF 2)
BR1-486-28	BRIDGE 1-486 GEOTECHNICAL DATA



TRAFFIC DATA

STRAWBERRY LANE	US 301
2009 A.A.D.T. = 617	2009 A.A.D.T. = 13347
2009 A.A.D.T.T. = 33	2009 A.A.D.T.T. = 2670
DESIGN YEAR = 2030	DESIGN YEAR = 2030
DESIGN YEAR A.A.D.T. = 4500	DESIGN YEAR A.A.D.T. = 57000

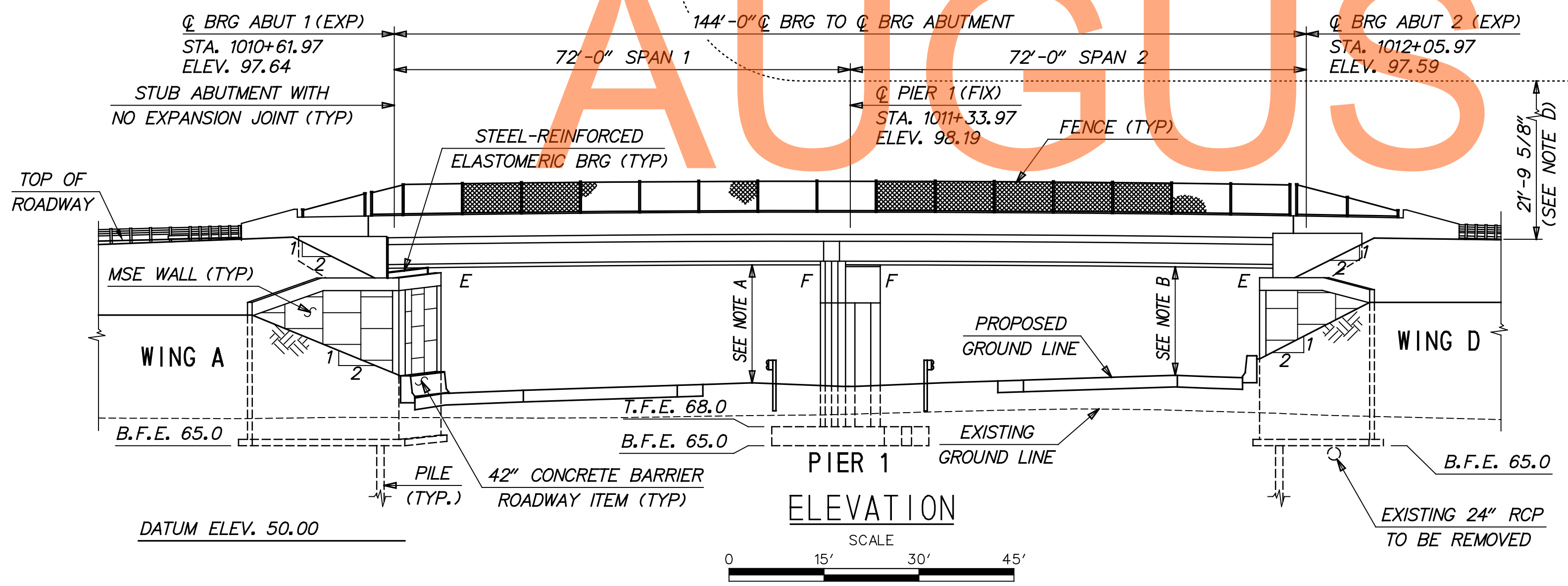
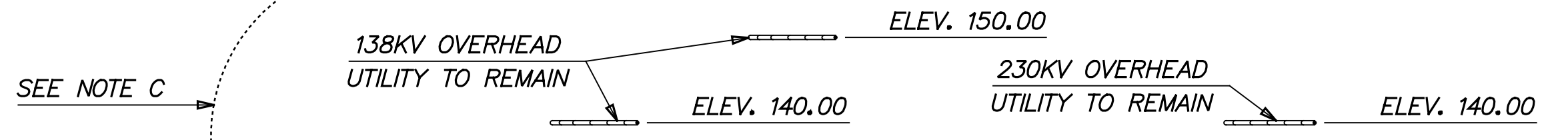
HORIZONTAL CURVE DATA

STRAWBERRY LANE

BRIDGE IS ON A TANGENT
BEARING S 70°42'33" E

US 301

DELTA = 25°09'25.62" LT E = 147.55
D = 0°57'17.75" P.C. STA. 125+47.98
T = 1338.80 P.I. STA. 138+86.78
L = 2634.45 P.T. STA. 151+82.43
R = 6000.00'



- NOTES:**
- A. U.S. 301 SB LANES - MINIMUM REQUIRED CLEAR = 16.50'
MINIMUM PROVIDED CLEAR = 18.71'
 - B. U.S. 301 NB LANES - MINIMUM REQUIRED CLEAR = 16.50'
MINIMUM PROVIDED CLEAR = 17.18'
 - C. PROPOSED CONSTRUCTION CLEAR ZONE FOR HIGH POWER OVERHEAD UTILITY, 20 FOOT MINIMUM CLEAR REQUIRED WITH AN ADDITIONAL 20 FOOT HORIZONTAL CLEAR FOR BLOWOUT.
 - D. MINIMUM DISTANCE FROM CLEAR ZONE TO TOP OF ROADWAY AT @ STRAWBERRY LANE (CLEARANCE INDICATORS TO BE INSTALLED BY OTHERS).
 - E. UNDERGROUND UTILITY TO BE RELOCATED UNDER THIS CONTRACT.

REFERENCE:

- FOR PROJECT NOTES, SEE SHEET BR1-486-03

WARNING:

EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

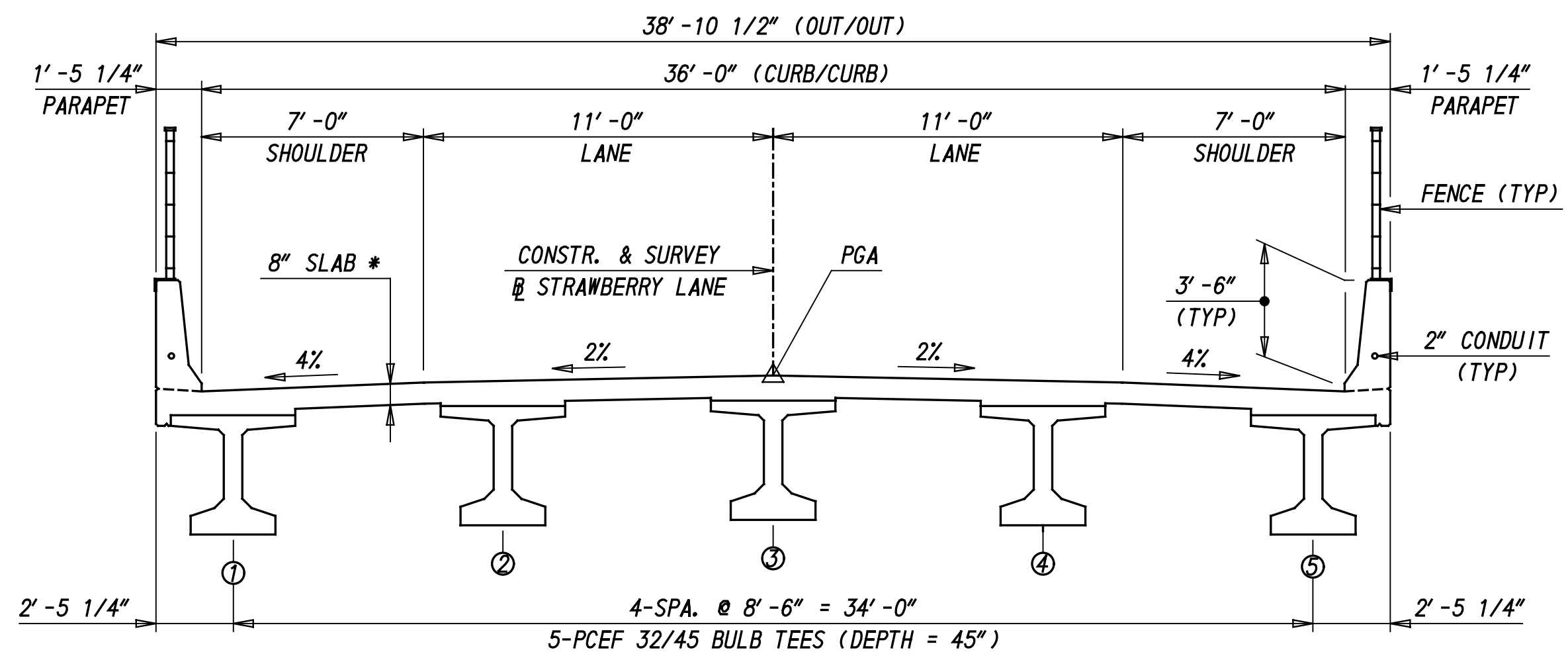
ADDENDUMS / REVISIONS

NO.	DATE	DESCRIPTION

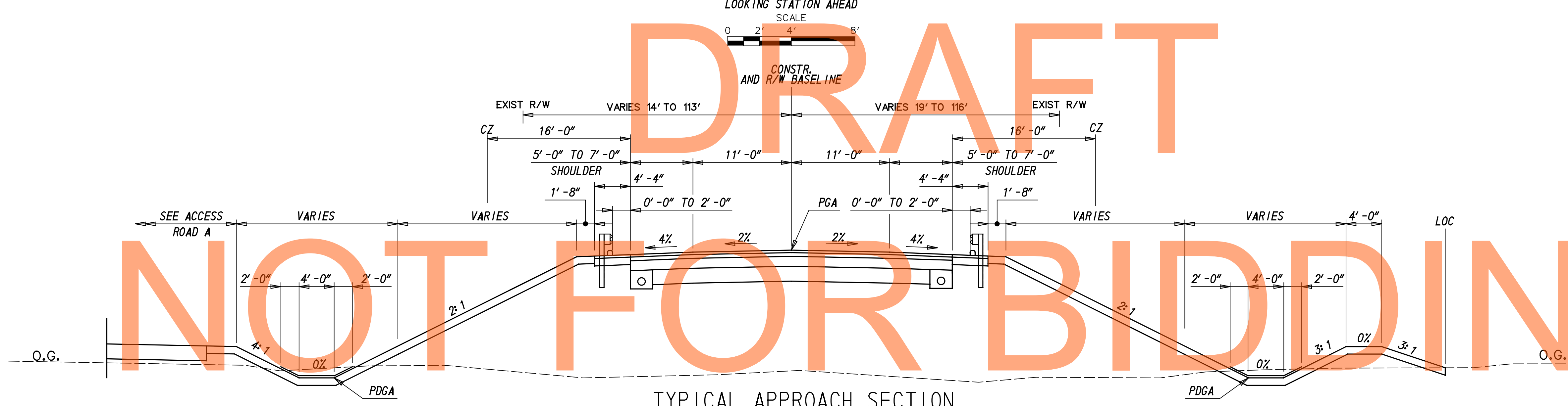
CONTRACT T20081301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: J.L.W. CHECKED BY: J.P.F.

GENERAL PLAN AND ELEVATION

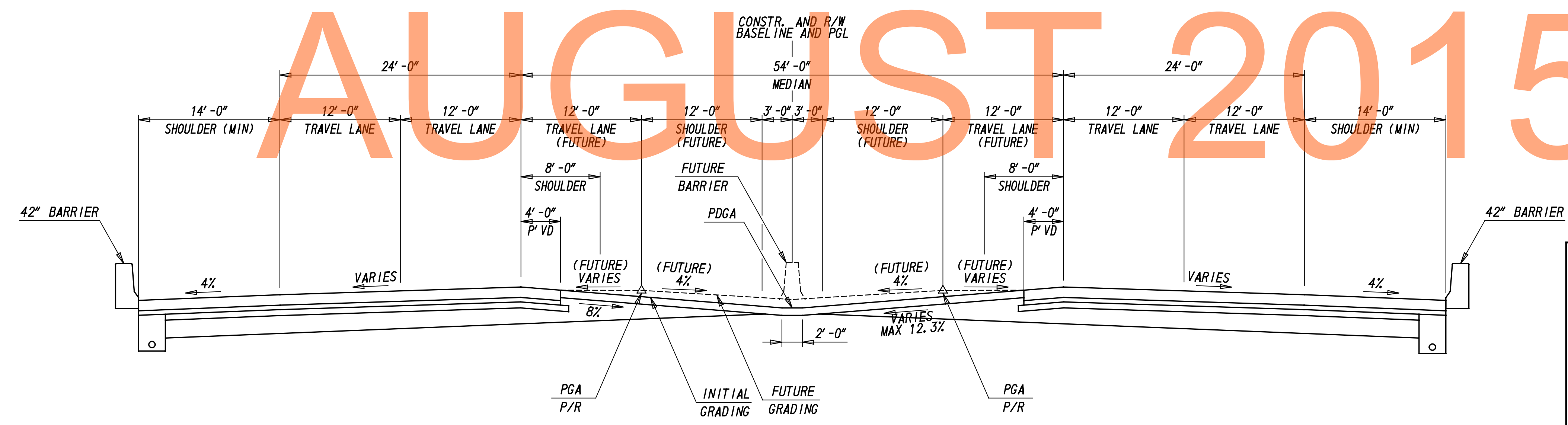
SHEET NO. 264
TOTAL SHTS. 850



* INCLUDES 1/2" INTEGRAL WEARING SURFACE
TYPICAL SECTION
 LOOKING STATION AHEAD
 SCALE 0 2' 4' 8'



TYPICAL APPROACH SECTION
 LOOKING STATION AHEAD
 (NOT TO SCALE)



TYPICAL NORMAL SECTION - US 301
 LOOKING STATION AHEAD
 (NOT TO SCALE)

REFERENCE:
 • FOR GENERAL PLAN, SEE SHEET BR1-486-01

WARNING:
 EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

ADDENDUMS / REVISIONS	

CONTRACT T20081301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: J.L.W. CHECKED BY: J.P.F.

PROJECT NOTES:

1. DESIGN SPECIFICATIONS

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2007 4TH EDITION WITH 2008 AND 2009 INTERIMS.
 DELAWARE DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL, MAY 2005, LATEST REVISIONS JANUARY 2008.
 ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5-2008.
 DELDOT STANDARD SPECIFICATION 619.11 (a)(6) SHALL BE MODIFIED BY REFERENCE TO SPECIAL PROVISIONS 619519 & 619539.

2. LOADING

HL-93 AND RATINGS PROVIDED FOR HS20 44 AND DELAWARE LEGAL LOADS S220, S327, S335, S437, T330, T435, AND T540.
 25 LBS/SQ FT HAS BEEN INCLUDED FOR FUTURE OVERLAY.
 15 LBS/SQ FT HAS BEEN INCLUDED FOR USE OF STEEL BRIDGE DECK FORMS WHICH STAY IN PLACE.
 UNIT WEIGHTS OF MATERIALS ARE IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL. FOR THERMAL LOADS, CONSIDER THE MODERATE CLIMATE AS STIPULATED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE NORMAL TEMPERATURE IS TAKEN TO BE 68°F.
 FOR SEISMIC DESIGN, THE PROJECT SITE IS LOCATED WITHIN SEISMIC ZONE 1 WITH SITE CLASS D.

3. PRESTRESSED CONCRETE

THE MINIMUM COMPRESSIVE STRENGTH FOR PRESTRESSED CONCRETE AT THE AGE OF 28 DAYS SHALL BE $f'c = 7,000$ PSI. THE MINIMUM COMPRESSIVE STRENGTH AT THE TRANSFER OF PRESTRESS SHALL BE $f'ci = 5,800$ PSI. THE PRECAST CONCRETE BEAMS ARE DESIGNED AS NONCOMPOSITE SIMPLE SPANS FOR ALL DEAD LOADS EXCEPT THE PARAPET AND FUTURE WEARING SURFACE. THE PRECAST BEAMS ARE DESIGNED AS CONTINUOUS FOR LIVE LOADS AS WELL AS THE PARAPET AND FUTURE WEARING SURFACE DEAD LOADS.

4. PRETENSIONING STEEL

PRETENSIONING STEEL SHALL CONSIST OF 1/2" DIAMETER 7-WIRE LOW RELAXATION STRANDS CONFORMING TO THE REQUIREMENTS OF ASTM A416 GRADE 1860 (270 KSI). EACH 1/2" STRAND SHALL BE PRETENSIONED TO 30,980 LBS (0.75 $f's$), AFTER ESTIMATED LOSSES OF 26,480 PSI. THE FINAL EFFECTIVE PRESTRESS FORCE PER STRAND IS 26,930 LBS. CAMBER GROWTH IN PRETENSIONED BEAMS BETWEEN THE TIME OF STRESSING AND THE TIME OF SLAB PLACEMENT IS ASSUMED TO BE 80% FOR CAMBER CALCULATIONS.

5. SERVICEABILITY

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

6. PORTLAND CEMENT CONCRETE

PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE ELEMENTS SHALL BE AS FOLLOWS:
 ($f'c=28$ DAY COMPRESSIVE STRENGTH)
 CLASS A (ITEM NO. 602007) - PIER ABOVE FOOTING ($f'c= 4500$ PSI)
 CLASS A (ITEM NO. 602015) - ABUTMENT ($f'c= 4500$ PSI)
 CLASS A (ITEM NO. 602017) - PARAPET ($f'c= 4500$ PSI)
 CLASS B (ITEM NO. 602006) - PIER FOOTING ($f'c= 3000$ PSI)
 CLASS D (ITEM NO. 602013) - DECK ($f'c= 4500$ PSI)
 CLASS D (ITEM NO. 602014) - APPROACH SLAB ($f'c= 4500$ PSI)
 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 OTHERWISE NOTED.

7. BAR REINFORCEMENT

REINFORCEMENT STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCEMENT STEEL SHALL HAVE A CLEAR COVER OF 2" UNLESS OTHERWISE NOTED ON THE PLANS. EPOXY COATED REINFORCEMENT STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963), AND IS DENOTED WITH A SUFFIX "E" IN THE BAR MARKS.
 USE EPOXY COATED REINFORCEMENT STEEL IN THE FOLLOWING LOCATIONS: APPROACH SLABS, DECK SLAB, PARAPET, PARAPET PORTION OF APPROACH SLAB, ABUTMENT AND PIER.
 DO NOT WELD GRADE 60 REINFORCING STEEL.
 PROVIDE MINIMUM LAP LENGTH OF 30 BAR DIAMETERS OR IN ACCORDANCE WITH AASHTO, WHICHEVER IS GREATER, UNLESS OTHERWISE NOTED.

8. CONSTRUCTION JOINTS

KEYED CONSTRUCTION JOINTS SHALL BE 2"X4" OR AS NOTED. ALL EXPOSED JOINT EDGES SHALL HAVE A 3/4" V NOTCH.

9. EXCAVATION REQUIRED TO ATTAIN THE GRADE FOR INSTALLATION OF MSE WALLS SHALL BE INCIDENTAL TO ITEM "602772 - MECHANICALLY STABILIZED EARTH WALLS", AND SHALL NOT BE INCLUDED IN ITEM "207000 - EXCAVATION AND BACKFILL FOR STRUCTURES".

10. PILES

(RECOMMENDED)
 PILES SHALL BE HP14X73 PILES CONFORMING TO ASTM A 709, GRADE 50.

(ALTERNATE)

PILES SHALL BE 14" OUTSIDE DIAMETER OPEN END PIPE PILES WITH 1/2" WALL THICKNESS CONFORMING TO ASTM A252, GRADE 2 (ULTIMATE TENSILE STRENGTH OF 60 KSI).
 THE VOID REMAINING IN THE PILE FOLLOWING DRIVING SHALL BE REINFORCED AND FILLED WITH CLASS A CONCRETE, AS SPECIFIED.

ONLY ONE PILE TYPE SHALL BE USED FOR THIS STRUCTURE. PILES SHALL BE SPLICED AS NECESSARY TO MAINTAIN THE REQUIRED CLEARANCES FROM THE HIGH POWER OVERHEAD UTILITIES THAT WILL REMAIN IN OPERATION THROUGHOUT CONSTRUCTION. FOR MORE INFORMATION REGARDING PILE MATERIALS AND FABRICATION, REFER TO SECTION 618 (PILE MATERIALS) OF THE STANDARD SPECIFICATIONS. FOR MORE INFORMATION REGARDING PILE DRIVING AND INSTALLATION, REFER TO SECTION 619 (INSTALLATION OF PILES) OF THE STANDARD SPECIFICATIONS.

11. HIGH POWER OVERHEAD UTILITIES

AT ALL TIMES THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING REQUIRED CLEAR DISTANCES OF EQUIPMENT AND MATERIAL FROM THE 138KV AND 230KV OVERHEAD UTILITIES. THIS INCLUDES PILE DRIVING AND BEAM ERECTION OPERATIONS.

12. STYROFOAM MUST MEET ASTM C-578, TYPE 1, MATERIAL REQUIREMENTS EXCEPT THE MAXIMUM WATER ABSORPTION TO BE 2%.

13. SEE ROADWAY CONSTRUCTION DETAILS PLAN (DRAWING DT-24) FOR ROADWAY APPROACH EMBANKMENT SETTLEMENT MONITORING AND QUARANTINE PERIOD REQUIREMENTS.

14. PROVIDE MINIMUM TEMPORARY VERTICAL CLEARANCE OF 16'-6" AT ALL TIMES DURING CONSTRUCTION.

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

16. 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.

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

18. 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.

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

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

21. 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.

22. CLOSED CELL NEOPRENE SPONGE PADS MAY BE MANUFACTURED AS SPONGE NEOPRENE OR EXPANDED NEOPRENE AND MAY BE COMPOSED OF LAMINATIONS. USE MATERIAL CONFORMING TO
 * ASTM D 1056, TYPE 2, CLASS C, GRADE 2, INCLUDING THE REQUIREMENTS OF SUFFIXES B3 AND F1
 * ASTM D 1171, QUALITY RETENTION RATING OF 100% AFTER 6 WEEKS EXPOSURE.

23. ALL EXPANSION MATERIAL MUST MEET AASHTO M153 REQUIREMENTS.

BR1-486 ESTIMATED QUANTITIES

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY
207000**	EXCAVATION AND BACKFILL FOR STRUCTURES	CY	216
209002*	BORROW, TYPE B	CY	27
602006	PORTLAND CEMENT CONCRETE MASONRY, PIER FOOTING, CLASS B	CY	94
602007	PORTLAND CEMENT CONCRETE MASONRY, PIER ABOVE FOOTING, CLASS A	CY	70
602013	PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D	CY	195
602014	PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D	CY	110
602015	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A	CY	70
602017	PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A	CY	50
602772	MECHANICALLY STABILIZED EARTH WALLS	LS	1
604000	BAR REINFORCEMENT, EPOXY COATED	LB	135000
608000*	COURSE AGGREGATE FOR FOUNDATION STABILIZATION AND SUBFOUNDATION BACKFILL	TON	20
618062	FURNISH STEEL H PILES, HP 14X73	LF	854
618065	FURNISH STEEL TEST H PILES, HP 14X73	LF	142
618552	FURNISH PIPE PILE, SCHEDULE 40, OPEN END, 14" (ALTERNATE)	LF	924
618557	FURNISH TEST PIPE PILE, SCHEDULE 40, OPEN END, 14" (ALTERNATE)	LF	152
619042	INSTALL STEEL H PILES, HP 14X73	LF	854
619045	INSTALL STEEL TEST H PILES, HP 14X73	LF	142
619501*	PRODUCTION PILE RESTRIKE	EA	1
619502*	TEST PILE RESTRIKE	EA DAY	1
619519	DYNAMIC PILE TESTING BY CONTRACTOR	EA	4
619539	SIGNAL MATCHING ANALYSIS BY CONTRACTOR	EA	4
619540	INSTALL PIPE PILE, SCHEDULE 40, OPEN END, 14" (ALTERNATE)	LF	924
619558	INSTALL TEST PIPE PILE, SCHEDULE 40, OPEN END, 14" (ALTERNATE)	LF	152
623003	PRESTRESSED REINFORCED CONCRETE MEMBERS, BULB T-BEAM, PCEF 32/45	LS	1
727507	BRIDGE SAFETY FENCE	LF	290

THE QUANTITIES PROVIDED INCLUDE ONLY THOSE ASSOCIATED WITH BRIDGE BR1-486 (STRAWBERRY LANE BRIDGE). ROADWAY QUANTITIES FOR US 301 AND STRAWBERRY LANE ARE NOT INCLUDED IN THE TABULATION.

* CONTINGENCY ITEM

** INCLUDES 36 CY CONTINGENCY IF UNSUITABLE MATERIAL IS ENCOUNTERED.

LOAD RATING SUMMARY

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TON)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.40	N/A	SPAN 2: INTERIOR BEAM	200.55	SHEAR
HL-93 TANDEM (INVENTORY)	1.77	N/A	SPAN 1: INTERIOR BEAM	109.45	SHEAR
HL-93 TRUCK TRAIN (INVENTORY)	1.47	N/A	SPAN 1: EXTERIOR BEAM	110.00	FLEXURE
HS-20 (INVENTORY)	1.91	68.93	SPAN 1: INTERIOR BEAM	109.45	SHEAR
HL-93 TRUCK (OPERATING)	1.89	N/A	SPAN 1: INTERIOR BEAM	109.45	SHEAR
HL-93 TANDEM (OPERATING)	2.38	N/A	SPAN 1: INTERIOR BEAM	109.45	SHEAR
HL-93 TRUCK TRAIN (OPERATING)	1.91	N/A	SPAN 1: EXTERIOR BEAM	110.00	FLEXURE
HS-20 (OPERATING)	2.57	92.44	SPAN 1: INTERIOR BEAM	109.45	SHEAR
DE S220 & LEGAL LANE (LEGAL)	4.03	80.63	SPAN 1: EXTERIOR BEAM	109.45	LONG IT. REINF.
DE S335 & LEGAL LANE (LEGAL)	2.62	91.55	SPAN 1: EXTERIOR BEAM	109.45	LONG IT. REINF.
DE S437 & LEGAL LANE (LEGAL)	2.50	91.56	SPAN 2: EXTERIOR BEAM	200.55	FLANGE STRESS
DE T330 & LEGAL LANE (LEGAL)	3.25	97.48	SPAN 1: EXTERIOR BEAM	109.45	LONG IT. REINF.
DE T435 & LEGAL LANE (LEGAL)	2.90	101.50	SPAN 1: EXTERIOR BEAM	109.45	LONG IT. REINF.
DE T540 & LEGAL LANE (LEGAL)	2.65	105.85	SPAN 1: EXTERIOR BEAM	109.45	LONG IT. REINF.

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

RATING NOTES:

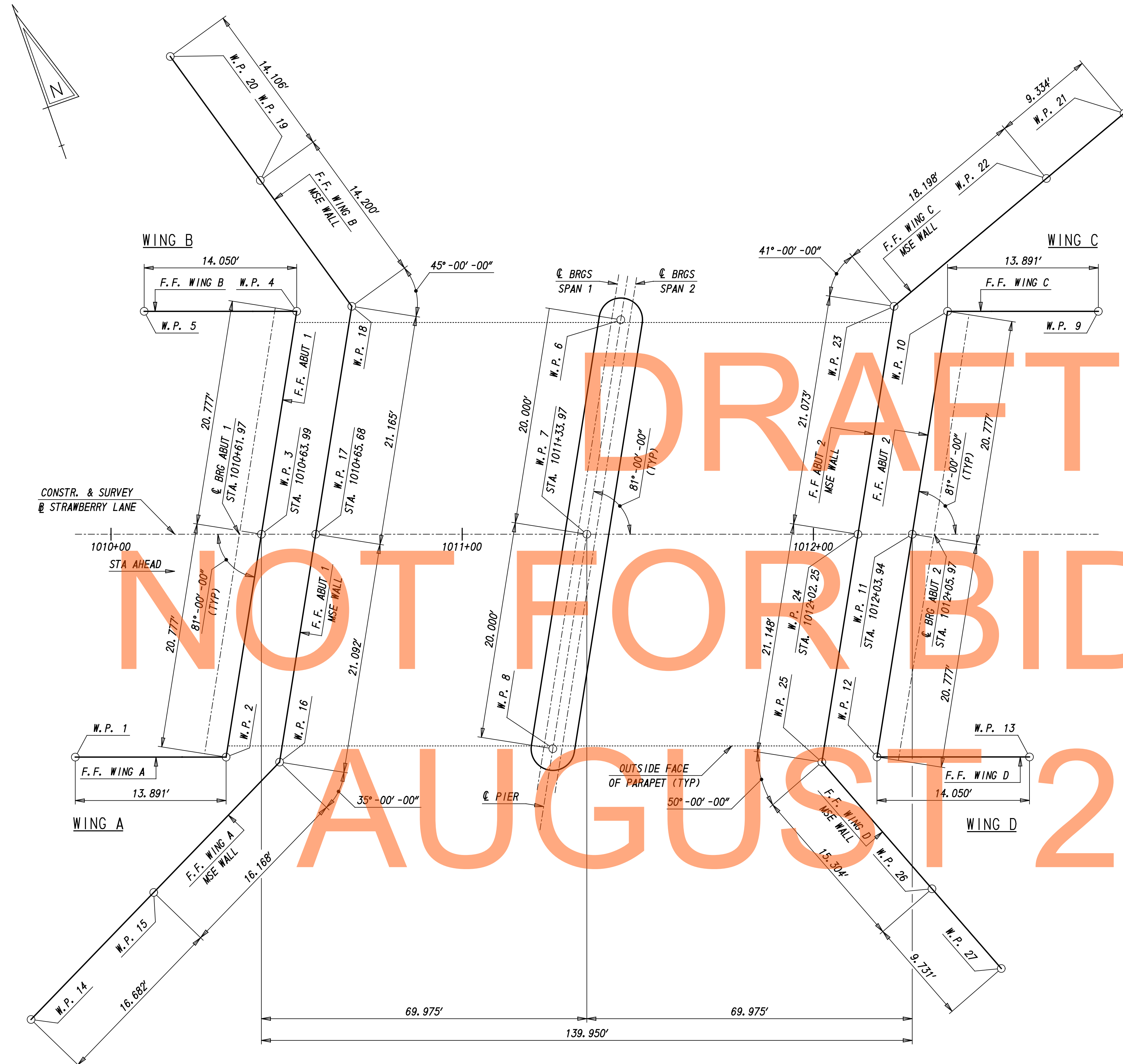
- LOAD RATINGS DETERMINED USING THE LOAD RESISTANCE FACTOR RATING (LRF) METHOD.
- RATING BASED ON COMPUTATIONS FROM WYOMING DEPARTMENT OF TRANSPORTATION BRIDGE RATING AND ANALYSIS OF STRUCTURAL SYSTEMS (BRASS GIRDER), VERSION 7.3.

REFERENCE:

• FOR GENERAL PLAN, SEE SHEET BR1-486-01

BR1-486-03

<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS		<p>US 301 MARYLAND STATE LINE TO LEVELS ROAD</p>	CONTRACT	BRIDGE NO.	1-486	<p>PROJECT NOTES</p>	SHEET NO.
				T200811301	DESIGNED BY: JLW	<p>266</p>		TOTAL SHTS.
				COUNTY	CHECKED BY: JPF			<p>850</p>
				NEW CASTLE				



WORK POINT COORDINATES				
WORKING POINT	STATION	OFFSET	NORTHING	EASTING
W.P. 1	1010+46.85	20.52 R	515579.93	557171.20
W.P. 2	1010+60.74	20.52 R	515575.34	557184.31
W.P. 3	1010+63.99	0.00	515593.63	557194.16
W.P. 4	1010+67.24	20.52 L	515611.93	557204.00
W.P. 5	1010+53.19	20.52 L	515616.57	557190.74
W.P. 6	1011+37.10	19.75 L	515588.13	557269.68
W.P. 7	1011+33.97	0.00	515570.52	557260.20
W.P. 8	1011+30.84	19.75 R	515552.90	557250.72
W.P. 9	1012+21.08	20.52 L	515561.10	557349.21
W.P. 10	1012+07.19	20.52 L	515565.69	557336.09
W.P. 11	1012+03.94	0.00	515547.40	557326.25
W.P. 12	1012+00.69	20.52 R	515529.10	557316.40
W.P. 13	1012+14.74	20.52 R	515524.46	557329.66
W.P. 14	1010+39.56	44.46 R	515559.74	557156.41
W.P. 15	1010+51.15	32.46 R	515567.24	557171.31
W.P. 16	1010+62.38	20.83 R	515574.50	557185.75
W.P. 17	1010+65.68	0.00	515593.08	557195.75
W.P. 18	1010+68.99	20.90 L	515611.71	557205.78
W.P. 19	1010+60.64	32.39 L	515625.31	557201.70
W.P. 20	1010+52.35	43.80 L	515638.82	557197.64
W.P. 21	1012+26.64	38.51 L	515576.25	557360.40
W.P. 22	1012+19.49	32.51 L	515572.95	557351.66
W.P. 23	1012+05.55	20.81 L	515566.51	557334.64
W.P. 24	1012+02.25	0.00	515547.96	557324.65
W.P. 25	1011+98.95	20.89 R	515529.33	557314.63
W.P. 26	1012+08.99	32.44 R	515515.12	557320.29
W.P. 27	1012+15.37	39.78 R	515506.08	557323.89

GEOMETRIC LAYOUT
(NOT TO SCALE)

REFERENCE:

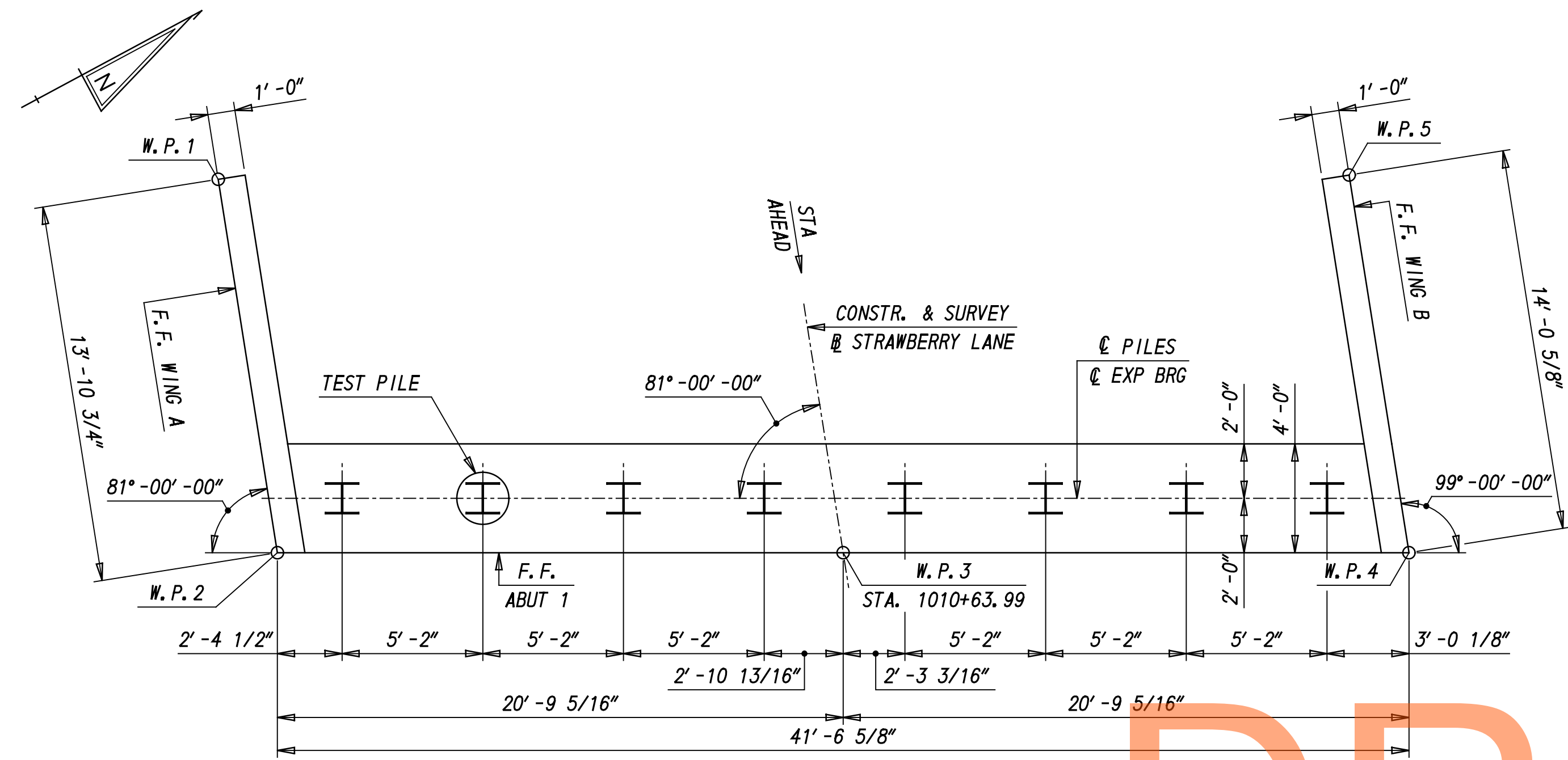
• FOR PROJECT NOTES, SEE SHEET BR1-486-03

WARNING:
EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

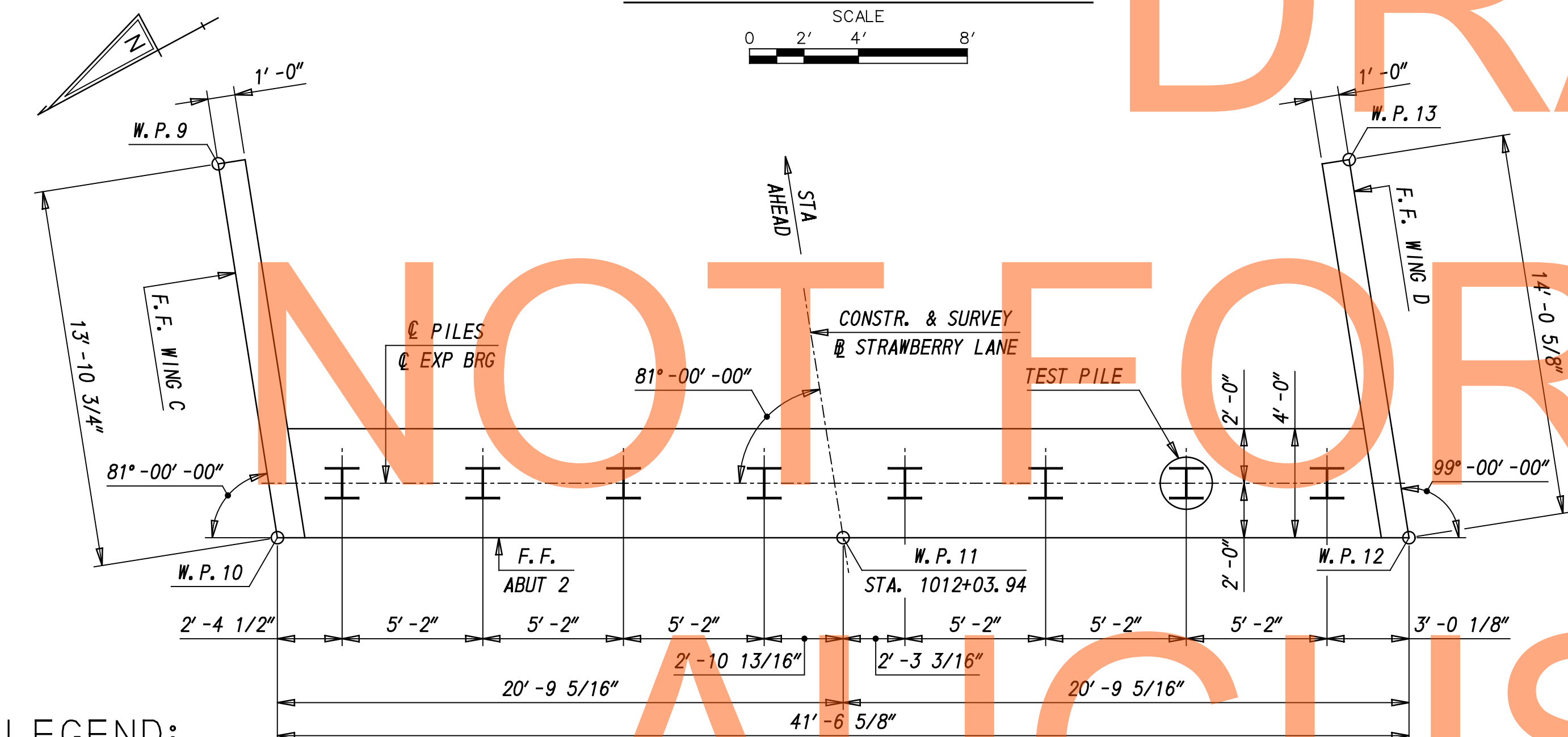
BR1-486-04

ADDENDUMS / REVISIONS

CONTRACT T200811301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: J.L.W. CHECKED BY: J.P.F.



ABUTMENT 1 PILE LAYOUT



ABUTMENT 2 PILE LAYOUT

LEGEND:

- HP14X73 PILE (RECOMMENDED) OR 14" DIA. OPEN END PIPE PILE (ALTERNATE)
- TEST PILE

HP14X73 PILE INSTALLATION DATA (RECOMMENDED)					
SUBSTRUCTURE UNIT	DESIGN DATA			ACTUAL FIELD DATA	
	NOMINAL PILE DRIVING RESISTANCE (R _{ndr}) (KIPS)	ESTIMATED PILE TIP ELEVATION	MINIMUM PILE TIP ELEVATION	AVERAGE MINIMUM TIP ELEVATION	AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT 1	442	29.00	29.00		
ABUTMENT 2	442	29.00	29.00		

14" DIAMETER PIPE PILE INSTALLATION DATA (ALTERNATE)					
SUBSTRUCTURE UNIT	DESIGN DATA			ACTUAL FIELD DATA	
	NOMINAL PILE DRIVING RESISTANCE (R _{ndr}) (KIPS)	ESTIMATED PILE TIP ELEVATION	MINIMUM PILE TIP ELEVATION	AVERAGE MINIMUM TIP ELEVATION	AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT 1	402	24.00	24.00		
ABUTMENT 2	402	24.00	24.00		

PILE DRIVING INFORMATION (RECOMMENDED)	
PILE SIZE AND TYPE:	HP14X73 AASHTO M270 (ASTM A709),
ACTUAL BEARING RETAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

PILE DRIVING INFORMATION (ALTERNATE)	
PILE SIZE AND TYPE:	14" DIAMETER SCHEDULE 40 OPEN END STEEL PIPE PILE
ACTUAL BEARING RETAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

REFERENCE:

- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT 1 PLAN, SEE SHEET BR1-486-07
- FOR WINGWALLS A AND B, SEE SHEET BR1-486-08
- FOR ABUTMENT 2 PLAN, SEE SHEET BR1-486-09
- FOR WINGWALLS C AND D, SEE SHEET BR1-486-10
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27

WARNING:

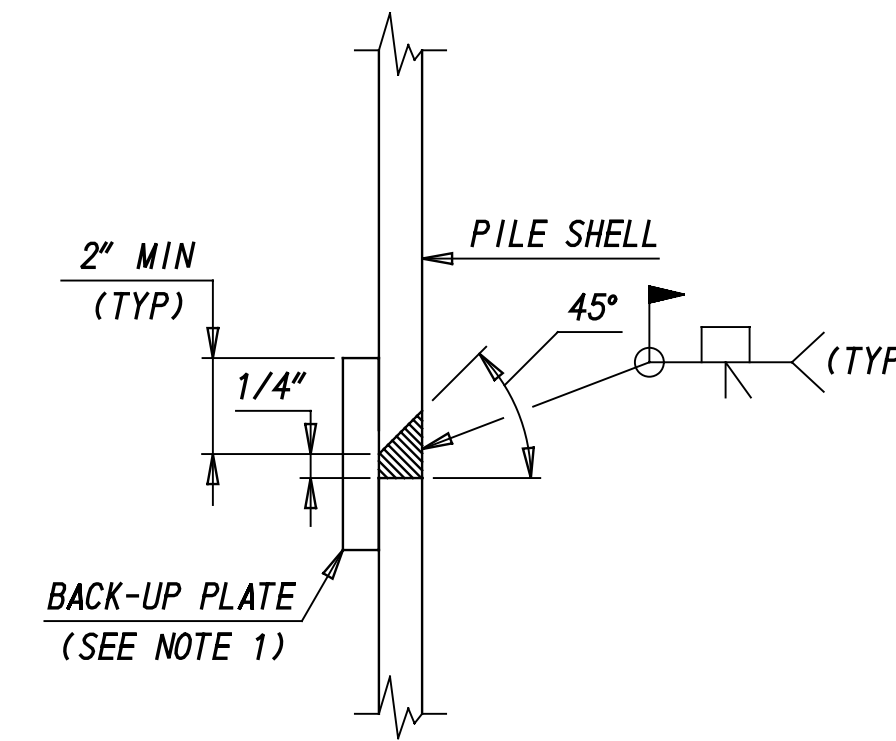
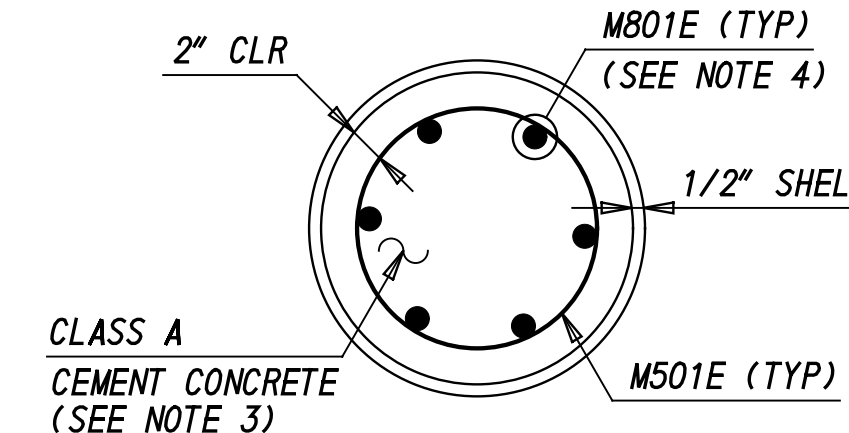
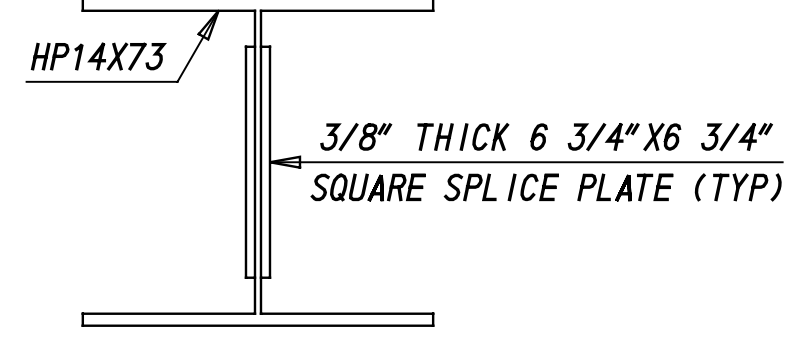
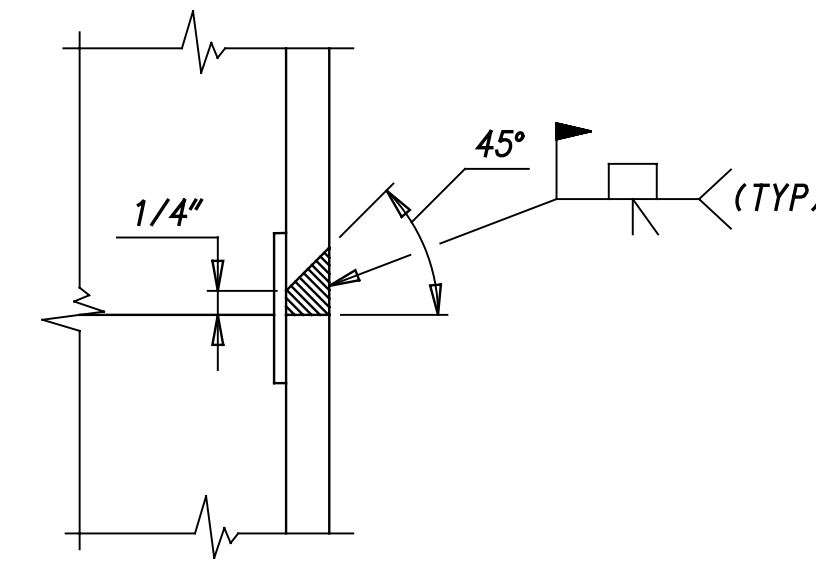
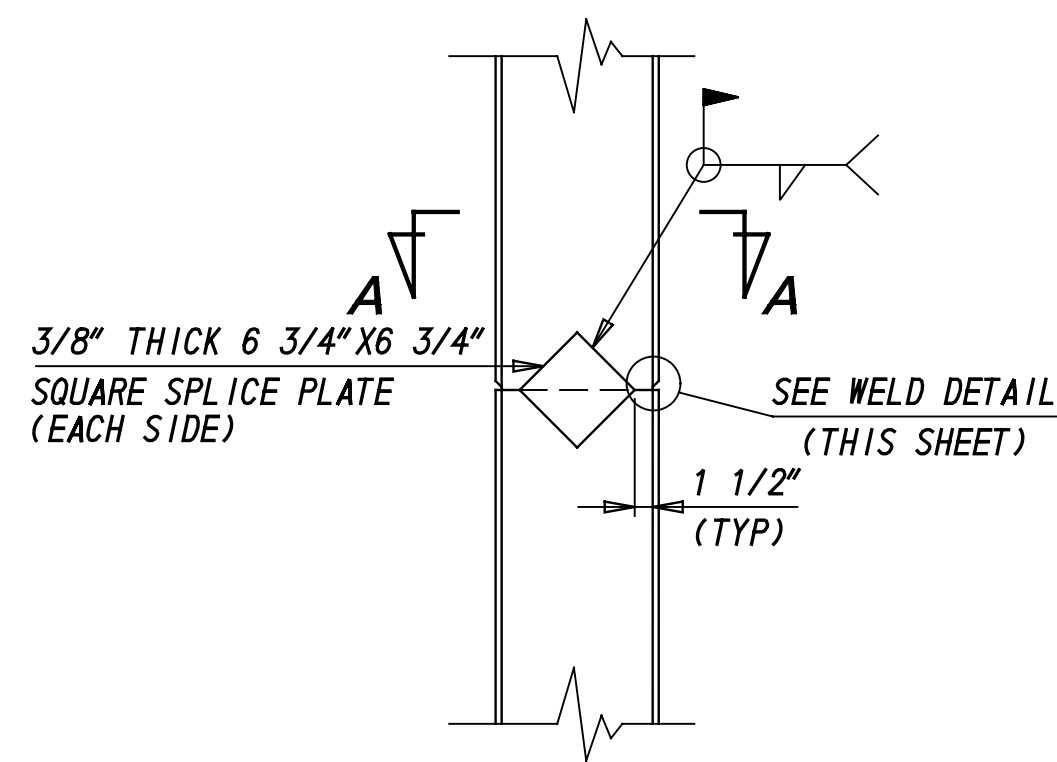
EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS' CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

PILE INSTALLATION NOTES:

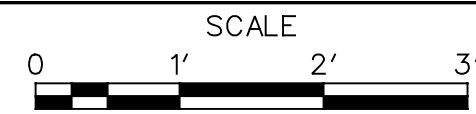
1. ALL PILES SHALL BE EITHER STEEL H PILES HP14X73 AASHTO M270 (ASTM A709), GRADE 50 (RECOMMENDED) OR 14" DIAMETER OPEN END STEEL PIPE PILES, 1/2" WALL THICKNESS, (ASTM A252) GRADE 2 (ALTERNATE).
2. PILES SHALL BE CASED WITH A CORRUGATED GALVANIZED STEEL PIPE FROM THE BOTTOM OF MSE WALL LEVELING PAD ELEVATION AND FILLED WITH FINE AGGREGATE (SEE DELDOT STANDARD SPECIFICATIONS, SECTION 804). FOR THE RECOMMENDED H PILE THE CORRUGATED GALVANIZED STEEL PIPE SHALL BE 24", 16 GAGE 2 2/3" X 1/2" CORRUGATION AND FOR THE ALTERNATE PIPE PILE THE CORRUGATED GALVANIZED STEEL PIPE SHALL BE 18", 16 GAGE 2 2/3" X 1/2" CORRUGATION. REFER TO PILE INSTALLATION SEQUENCE FOR ADDITIONAL INFORMATION. PAYMENT FOR CORRUGATED GALVANIZED STEEL PIPE & FINE AGGREGATE INSIDE PIPE SHALL BE INCIDENTAL TO ITEM "602722 - MECHANICALLY STABILIZED EARTH WALLS."
3. ALL TEST PILES SHALL BE 10 FEET LONGER THAN INDICATED ON THE PILE INSTALLATION TABLE.
4. ALL PILES SHALL BE DRIVEN TO THE NOMINAL PILE DRIVING RESISTANCE (R_{ndr}) LISTED IN THE PILE INSTALLATION DATA TABLE.
5. 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.
6. PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE 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 RESTRIKES WILL BE PAID AS FOLLOWS:
 - A). ALL TEST PILE(S) WILL BE RESTRUCK AFTER A WAITING PERIOD OF AT LEAST 48 HOURS. RESTRIKES OF THESE TEST PILES SHALL BE PERFORMED PRIOR TO PLACING ANY EMBANKMENT IN ACCORDANCE WITH ITEM NO. 619502 TEST PILE RESTRIKE. TEST PILE RESTRIKES SHALL BE INCIDENTAL TO THE INITIAL INSTALLATION OF THE PILE PROVIDED THEY ARE REQUESTED WITHIN FIVE WORKING DAYS FROM COMPLETION OF THE INITIAL DRIVE. IF THE TEST PILE RESTRIKES ARE REQUESTED AFTER THE FIVE WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE THEN THE TEST PILE RESTRIKES 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.
7. THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.

PILE INSTALLATION SEQUENCE:

1. DRIVE PILES PRIOR TO MSE WALL INSTALLATION.
2. PLACE OVER EACH PILE, THE CORRUGATED GALVANIZED STEEL PIPE OF SIZE BASED ON THE PILE TYPE DRIVEN. ENSURE THE CORRUGATED GALVANIZED PIPE DOES NOT EXPERIENCE BUCKLING OR DISTORTION DURING THE PLACEMENT AND COMPACTION OF THE BACKFILL.
3. PLACE SPACERS BETWEEN THE PILE AND THE CORRUGATED GALVANIZED STEEL PIPE TO PREVENT THE CORRUGATED GALVANIZED STEEL PIPE FROM COMING INTO CONTACT WITH THE PILE DURING BACKFILLING OF THE WALL.
4. EXTEND CORRUGATED GALVANIZED STEEL PIPE FROM THE BOTTOM OF THE MSE WALL LEVELING PAD ELEVATION TO THE BOTTOM OF THE BRIDGE STUB ABUTMENT PILECAP.
5. ENSURE NO CONSTRUCTION OR OTHER DEBRIS FALLS INTO THE VOID BETWEEN THE CORRUGATED GALVANIZED STEEL PIPE AND THE PILE.
6. FILL THE CORRUGATED GALVANIZED STEEL PIPE LOOSELY WITH FINE AGGREGATE (SEE DELDOT STANDARD SPECIFICATIONS, SECTION 804). AT THE CONTRACTOR'S OPTION, PLACE FINE AGGREGATE BEFORE OR AFTER THE MSE WALL CONSTRUCTION IS COMPLETED.
7. ALTERNATE PILE ONLY - PLACE REINFORCEMENT CAGE IN 14" DIAMETER STEEL PIPE PILE AND FILL VOID REMAINING IN PILE WITH CLASS A CONCRETE TO THE PLUG FORMED AT THE DRIVEN END.



STEEL H-PILE SPLICE



WELD DETAIL
(NOT TO SCALE)

SECTION A-A



SECTION C-C



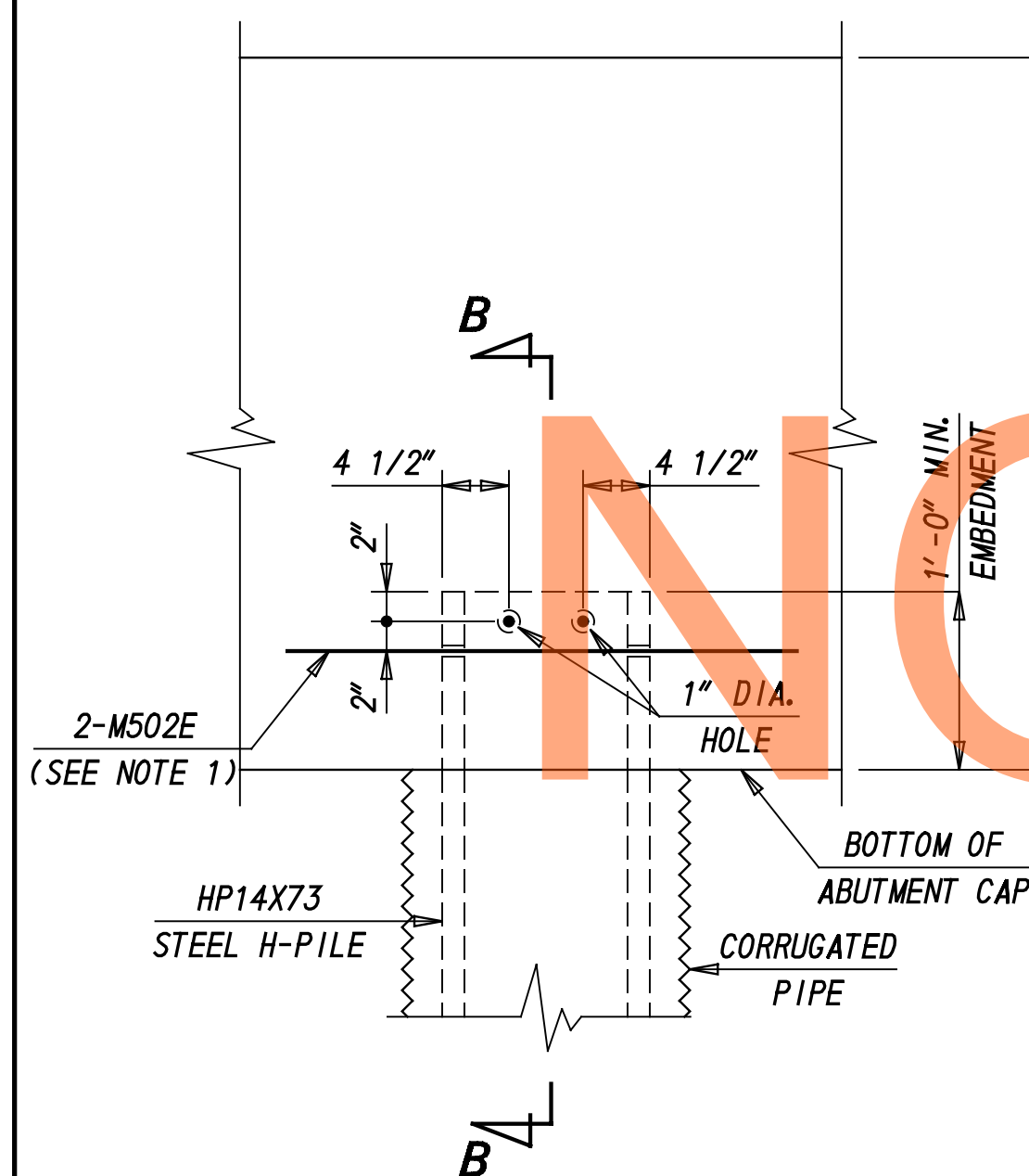
SECTION D-D



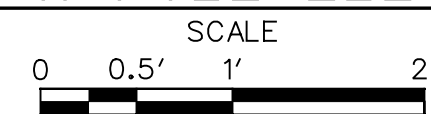
PIPE PILE (ALTERNATE) NOTES:

- BACK-UP PLATE TO BE CUT FROM SAME PILE SIZE AS BEING SPLICED. CUT AND BEND TO FIT INSIDE DIAMETER OF PILE.
- CORRUGATED PIPE NOT SHOWN IN PIPE PILE REINFORCEMENT AND SPLICE DETAILS FOR CLARITY.
- CLASS A CEMENT CONCRETE (MATERIAL) FOR FILLING VOID IN ALTERNATE PILES IS INCIDENTAL TO ITEMS "618552 - FURNISH PIPE PILE, SCHEDULE 40, OPEN END, 14" OR "618557 - FURNISH TEST PIPE PILE, SCHEDULE 40, OPEN END, 14". INSTALLATION OF CLASS A CEMENT CONCRETE FOR FILLING VOID IN ALTERNATE PILES IS INCIDENTAL TO ITEMS "619540 - INSTALL PIPE PILE SCHEDULE 40, OPEN END, 14" OR "619558 - INSTALL TEST PIPE PILE, SCHEDULE 40, OPEN END, 14".
- REINFORCEMENT STEEL FOR ALTERNATE PILES (MATERIAL) IS INCIDENTAL TO ITEMS "618552 - FURNISH PIPE PILE, SCHEDULE 40, OPEN END, 14" OR "618557 - FURNISH TEST PIPE PILE, SCHEDULE 40, OPEN END, 14". INSTALLATION OF REINFORCEMENT STEEL OR ALTERNATE PILES IS INCIDENTAL TO ITEMS "619540 - INSTALL PIPE PILE SCHEDULE 40, OPEN END, 14" OR "619558 - INSTALL TEST PIPE PILE, SCHEDULE 40, OPEN END, 14".

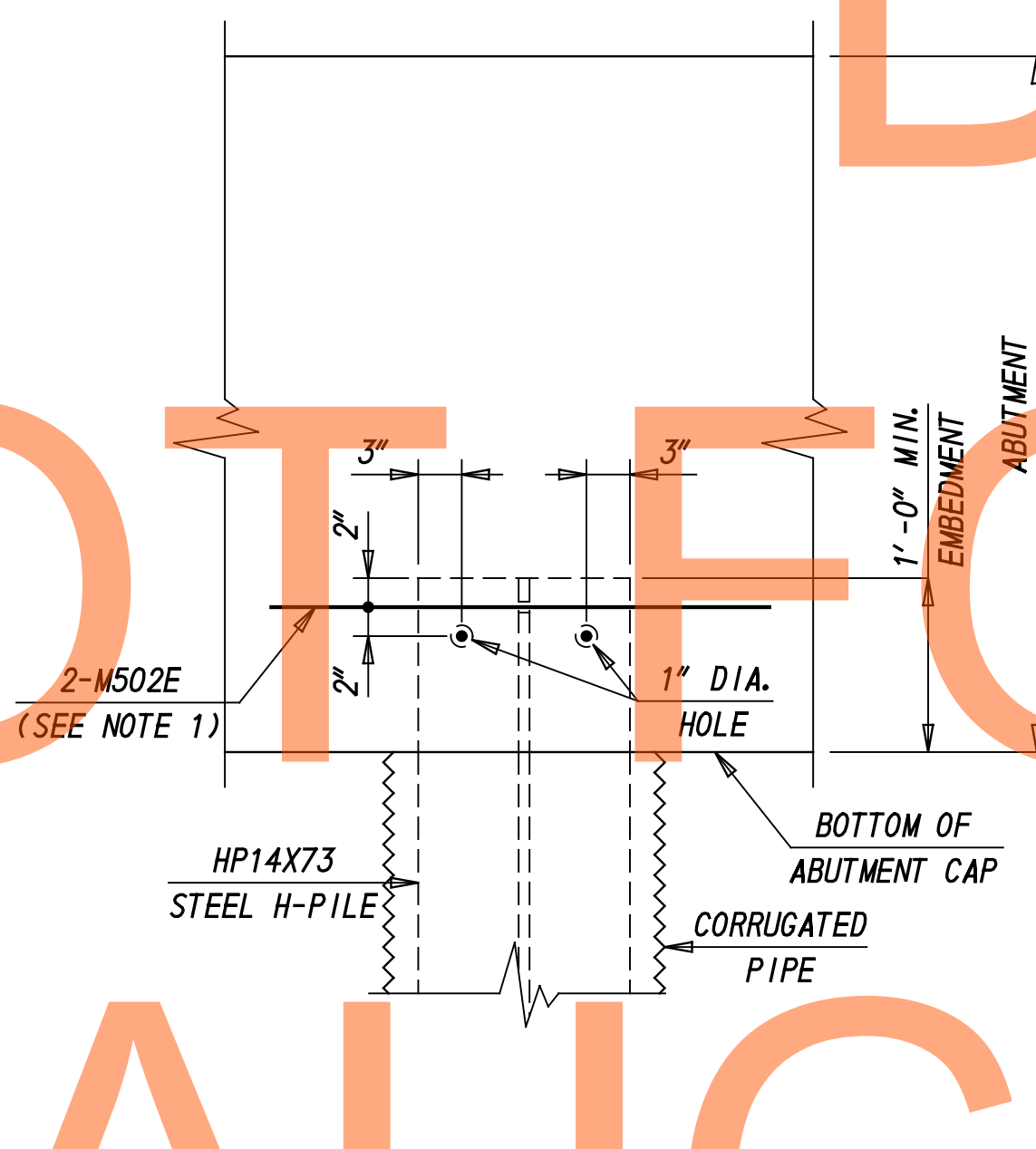
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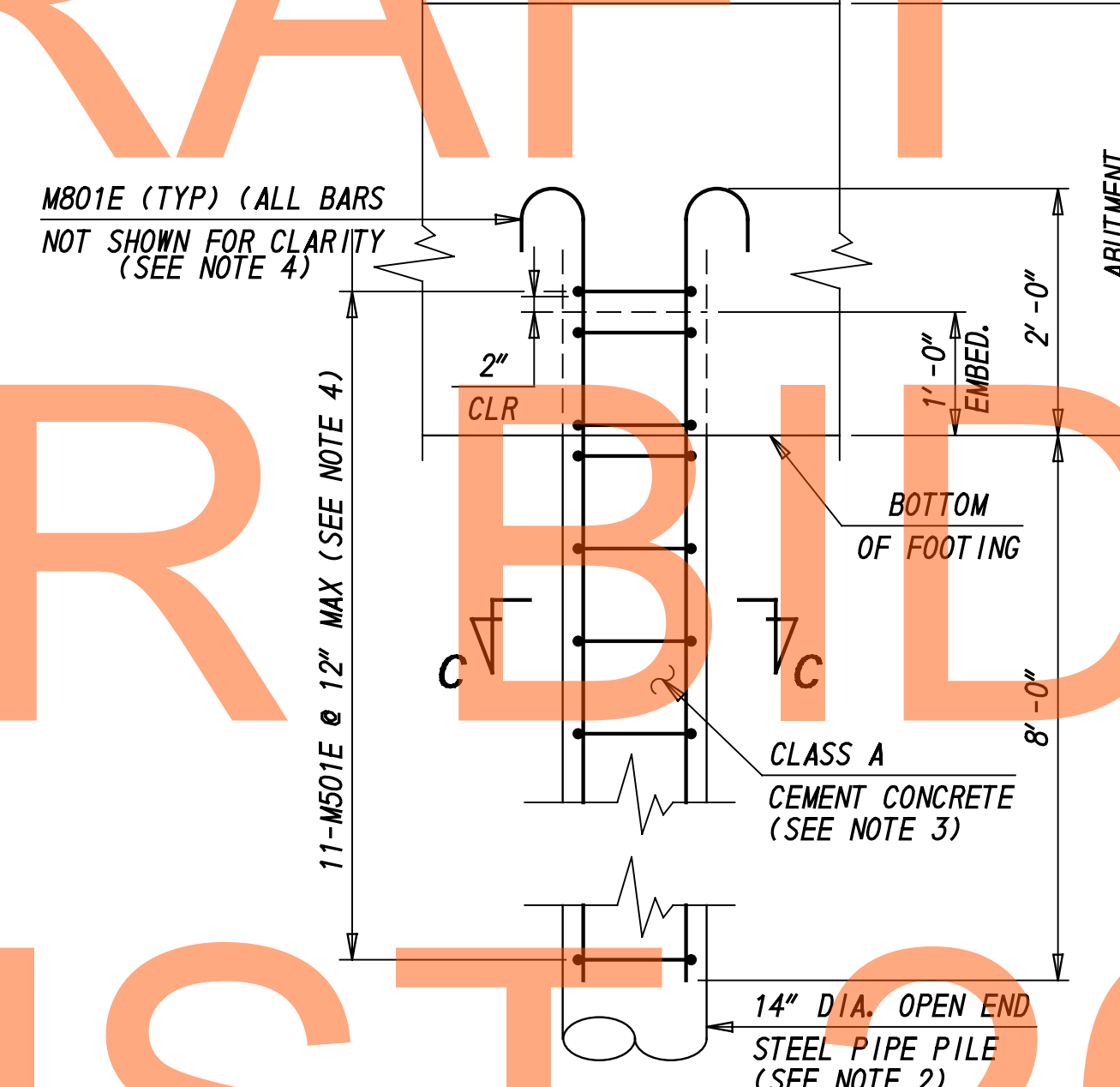
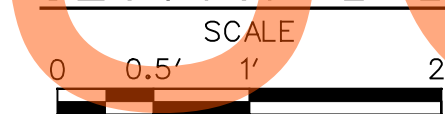
STEEL H-PILE ELEVATION



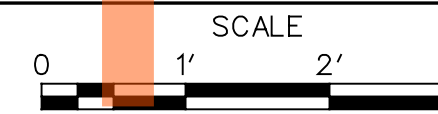
STEEL H-PILE (RECOMMENDED)



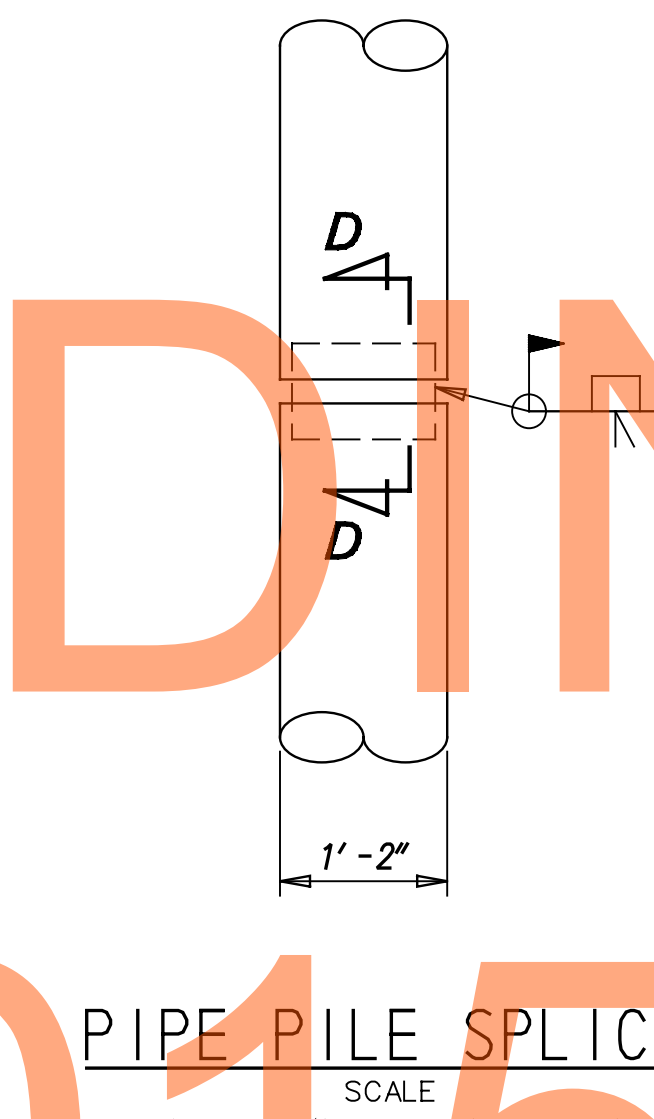
SECTION B-B



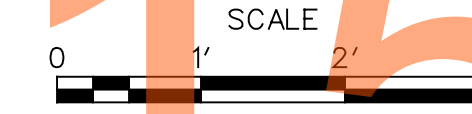
PIPE PILE REINFORCEMENT



PIPE PILE (ALTERNATE)



PIPE PILE SPLICE



STEEL H-PILE (RECOMMENDED) NOTES:

- REINFORCEMENT STEEL (MATERIAL) FOR H-PILES IS INCIDENTAL TO ITEMS "618062 - FURNISH STEEL H PILE, HP14X73" OR "618065 - FURNISH STEEL TEST H PILES, HP14X73". INSTALLATION OF REINFORCEMENT STEEL FOR H PILES IS INCIDENTAL TO ITEMS "618042 - INSTALL STEEL H PILE, HP14X73" OR "619045 - INSTALL STEEL TEST H PILES, HP14X73".

NOT FOR BIDDING

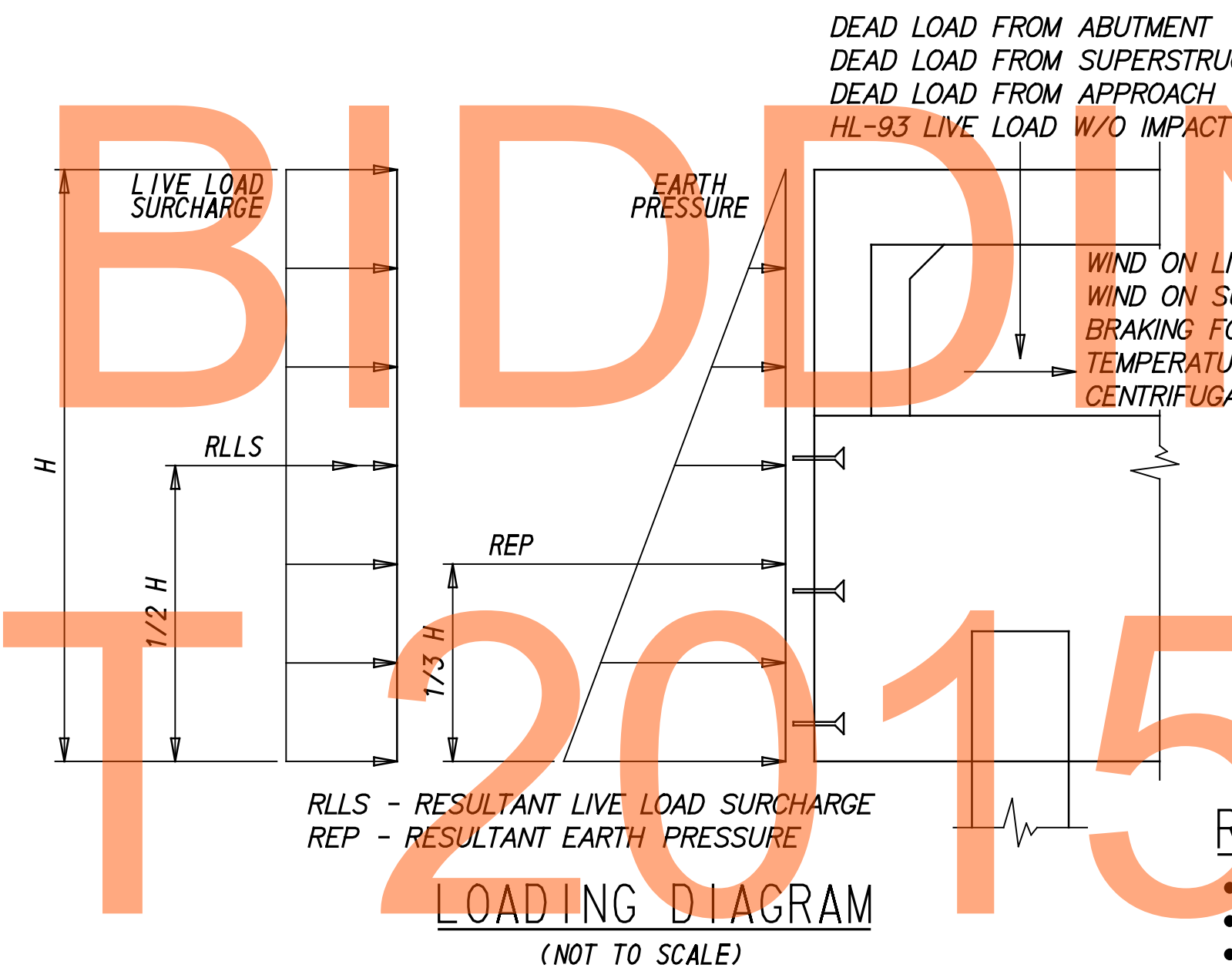
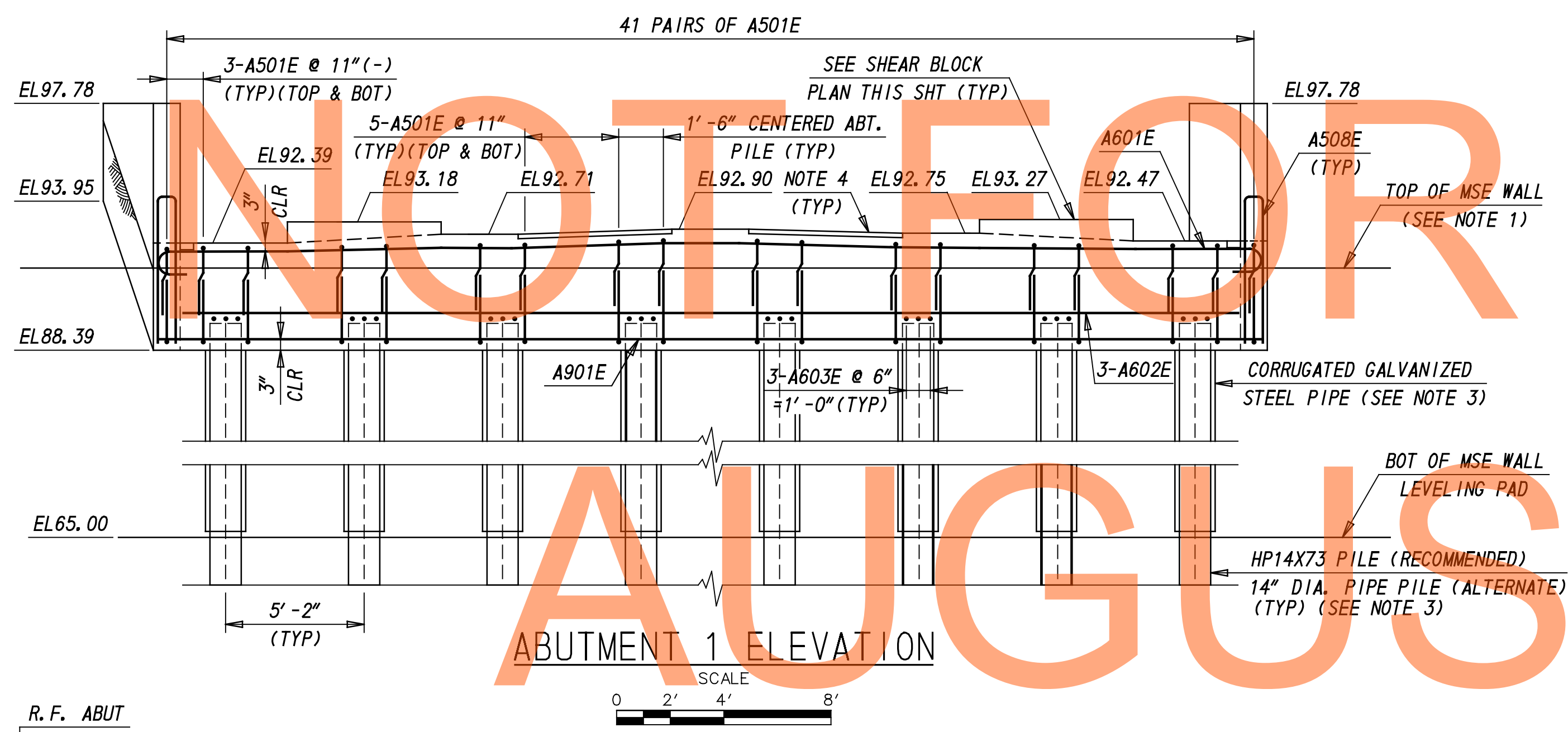
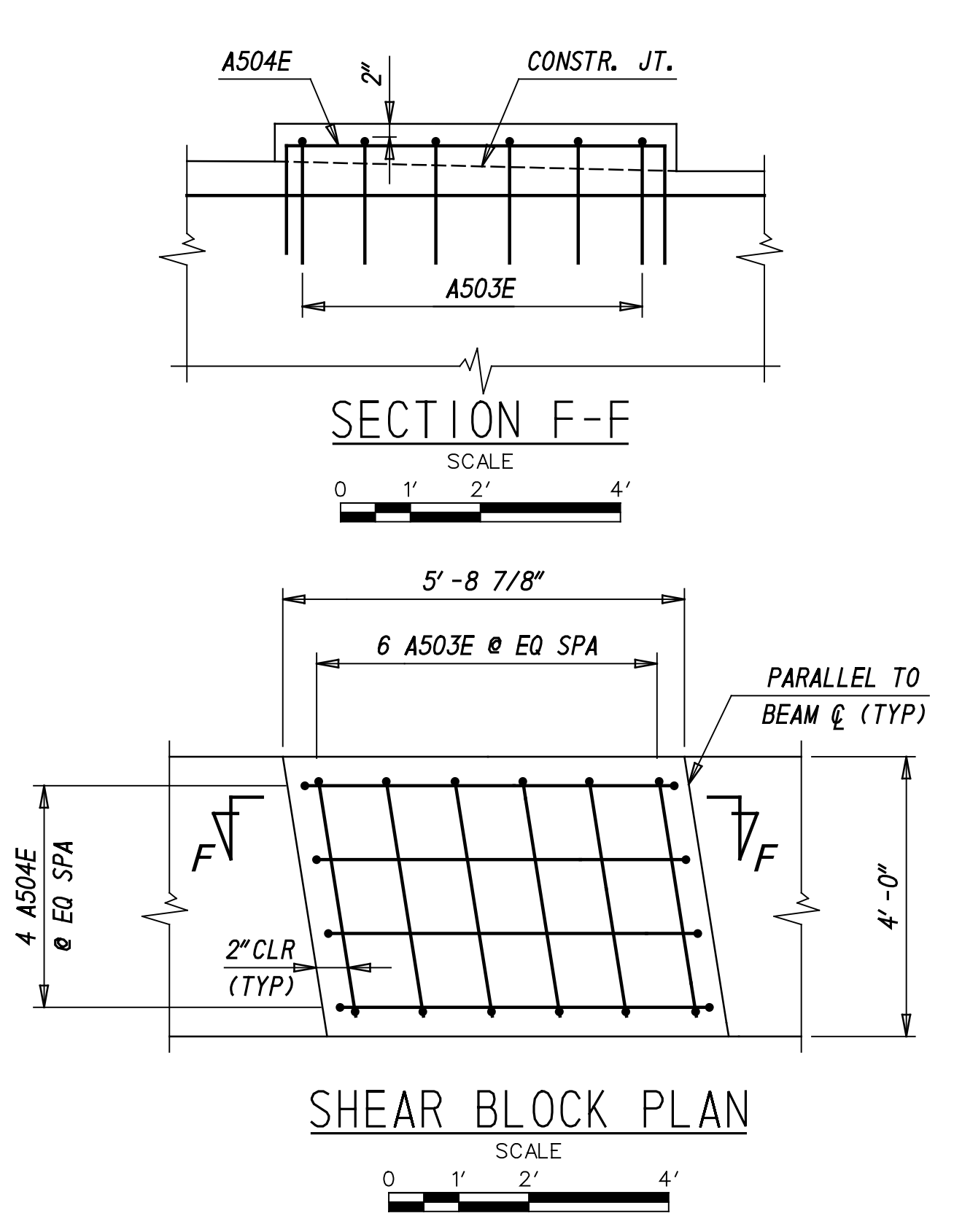
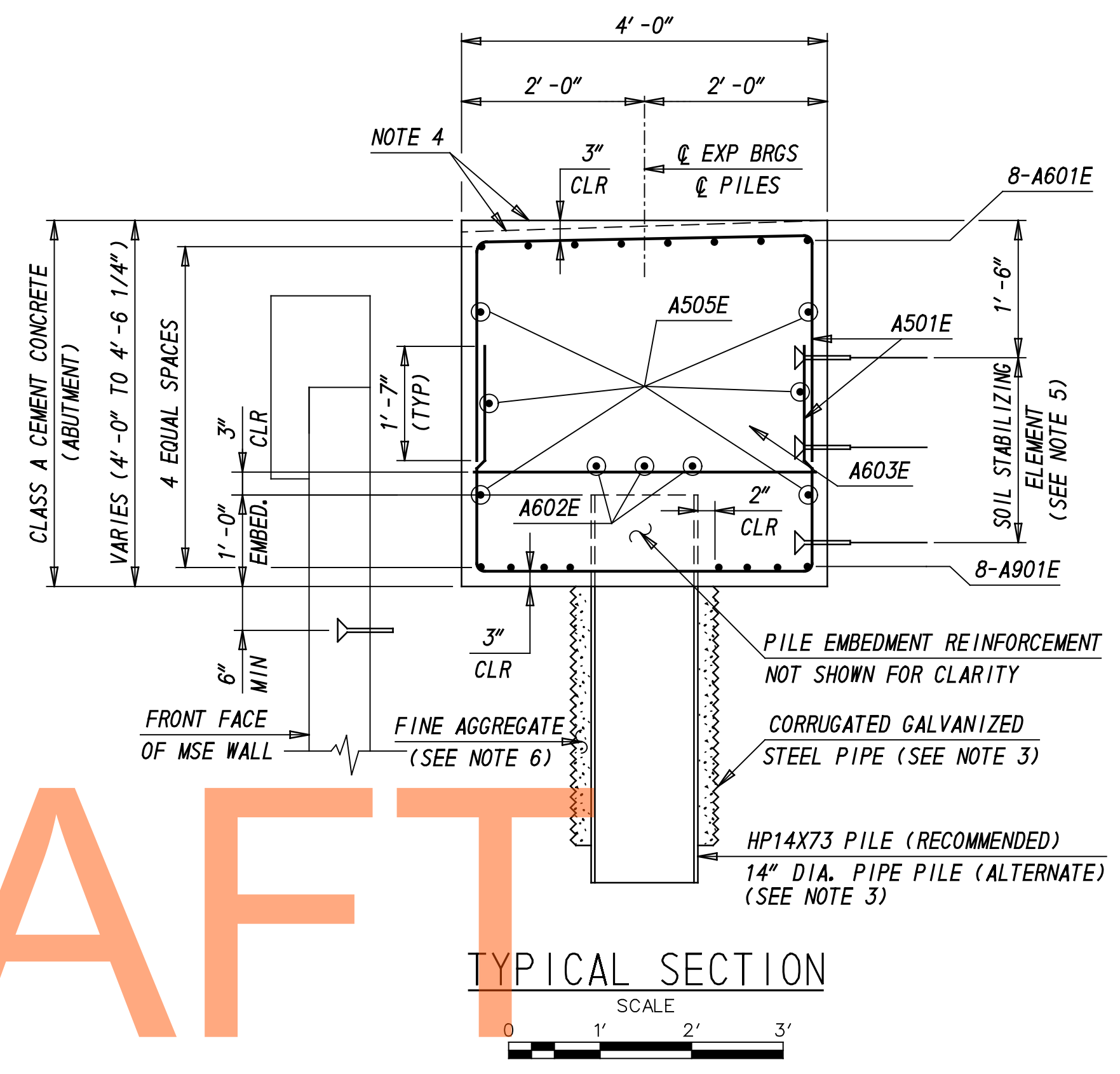
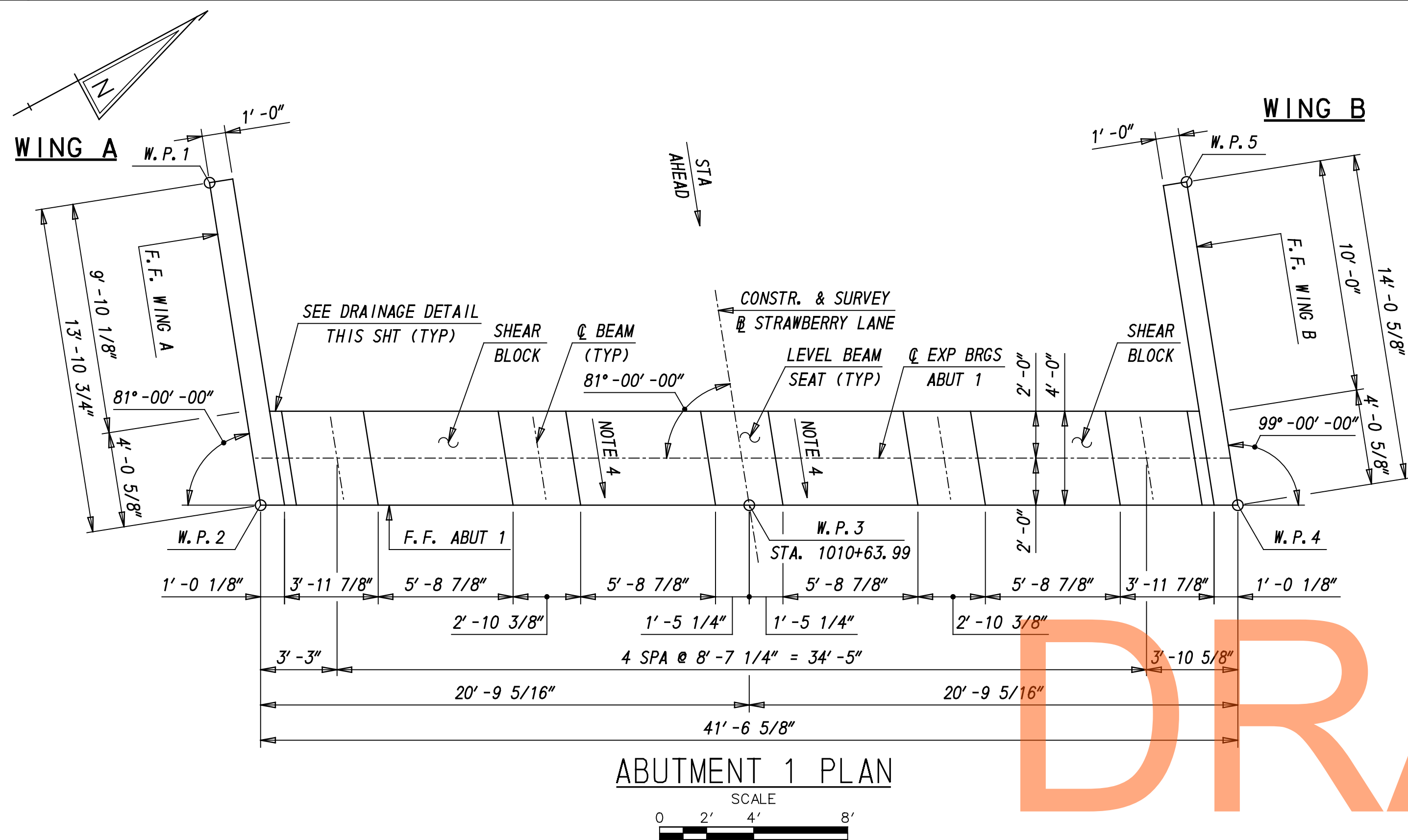
AUGUST 2015

REFERENCE:

- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT 1 PLAN, SEE SHEET BR1-486-07
- FOR WINGWALLS A AND B, SEE SHEET BR1-486-08
- FOR ABUTMENT 2 PLAN, SEE SHEET BR1-486-09
- FOR WINGWALLS C AND D, SEE SHEET BR1-486-10
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27

WARNING:

EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

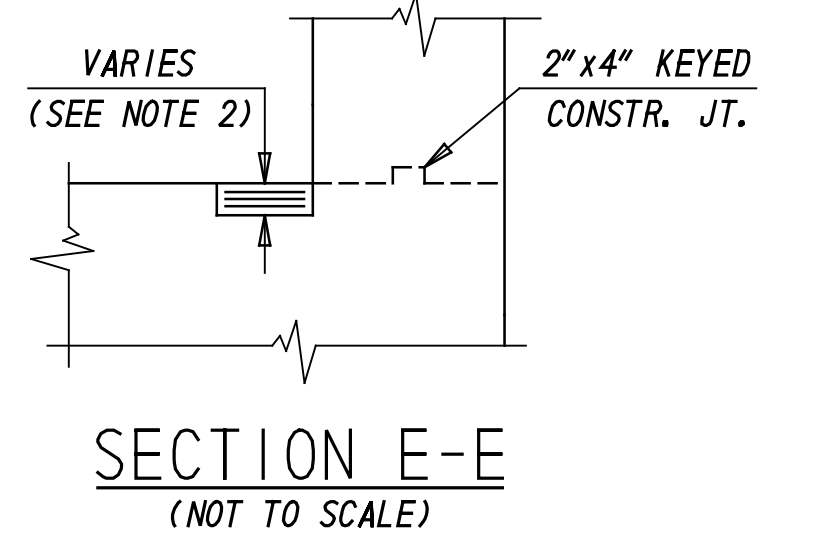
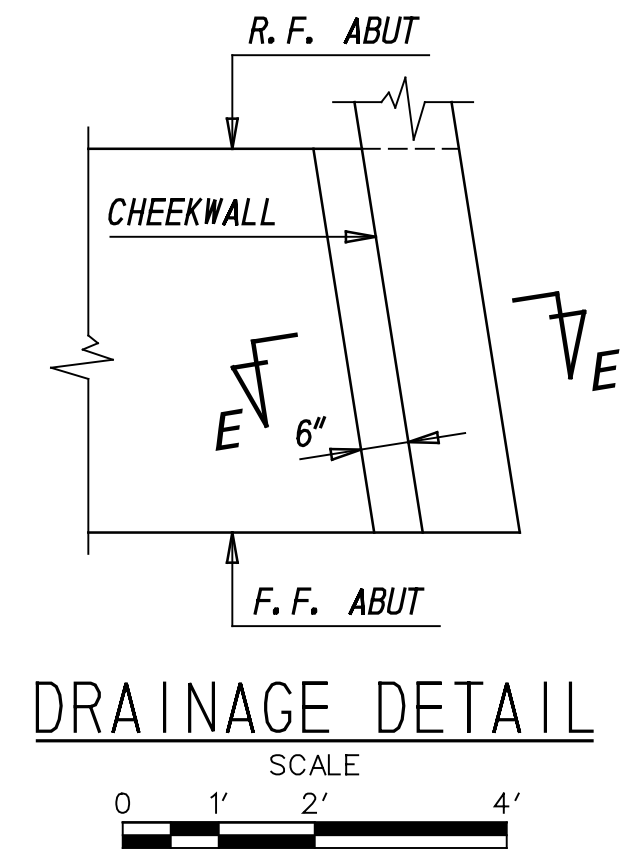


ABUTMENT 1:

VERTICAL LOADS:	
DEAD LOAD FROM ABUTMENT	3.30 K/FT
DEAD LOAD FROM SUPERSTRUCTURE	10.43 K/FT
DEAD LOAD FROM APPROACH SLAB	2.44 K/FT
HL-93 LIVE LOAD W/O IMPACT (1)	5.26 K/FT

HORIZONTAL LOADS IN THE OVERTURNING DIRECTION: (2)	
WIND ON LIVE LOAD (3)	0.00 K/FT
WIND ON SUPERSTRUCTURE (3)	0.00 K/FT
BRAKING FORCE (3)	0.00 K/FT
TEMPERATURE FORCE	0.72 K/FT
EARTH PRESSURE	1.45 K/FT
CENTRIFUGAL FORCE	0.00 K/FT
LIVE LOAD SURCHARGE	0.11 K/FT

(1) LIVE LOAD IS PROVIDED FOR MAXIMUM DESIGN LANE CONFIGURATION INCLUDING MULTIPLE PRESENCE FACTOR
 (2) THE OVERTURNING DIRECTION IS PERPENDICULAR TO & BEARINGS, ALL LOADS UNFACTORED AND CONSIDERED TO BE TAKEN AT THE BEAM SEAT ELEVATION.
 (3) WIND LOADS AND BRAKING FORCE ARE CARRIED BY THE FIXED BEARINGS AT THE PIER.



ABUTMENT NOTES:

- MSE WALL NOT SHOWN FOR CLARITY. REFER TO MSE WALL PLAN AND ELEVATION FOR PROPOSED AND EXISTING GROUND LINES.
- DRAIN NOTCH VARIES FROM 0" @ ABUTMENT R.F. TO 2" @ ABUTMENT F.F.
- STEEL PILE ENCASED WITH CORRUGATED GALVANIZED STEEL PIPE INSTALLED FROM BOTTOM OF THE MSE WALL LEVELING PAD ELEVATION TO THE BOTTOM OF THE BRIDGE BRIDGE STUB ABUTMENT PILECAP. REFER TO ABUTMENT PILE LAYOUT FOR PILE INSTALLATION SEQUENCE. PAYMENT FOR THE CORRUGATED GALVANIZED STEEL PIPE SHALL BE INCIDENTAL TO ITEM "602772 - MECHANICALLY STABILIZED EARTH WALLS."
- ELEVATIONS ARE PROVIDED ALONG THE TOP OF THE ABUTMENT SHEAR BLOCK AND BEAM SEAT LOCATIONS. THESE AREAS ARE SET LEVEL IN THE AREAS DEFINED AS BEAM SEATS ON THE PLAN VIEW. SLOPE TOP OF ABUTMENT 1/4" PER FOOT FROM REAR FACE TO FRONT FACE BETWEEN BEARING BEARING AREAS (TYP).
- SOIL STABILIZING ELEMENTS TO BE DESIGNED AND DETAILED (NUMBER, SIZE, AND SPACING) BY THE MSE WALL COMPANY FOR FORCES INDICATED ON THE LOADING DIAGRAM. SOIL STABILIZING ELEMENTS SHALL BE INCIDENTAL TO ITEM "602015 - PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING."
- FINE AGGREGATE TO MEET THE REQUIREMENTS OF DELDOT STANDARD SPECIFICATIONS, SECTION 804. QUANTITY TO FILL VOID BETWEEN PILE AND CORRUGATED GALVANIZED STEEL PILE SHALL BE INCIDENTAL TO ITEM "602772 - MECHANICALLY STABILIZED EARTH WALLS."
- WINGWALLS ARE INCIDENTAL TO ITEM "602015-PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING."

REFERENCE:

- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT PILE LAYOUT, SEE SHEET BR1-486-05
- FOR WINGWALLS A AND B, SEE SHEET BR1-486-08
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEET BR1-486-26,27

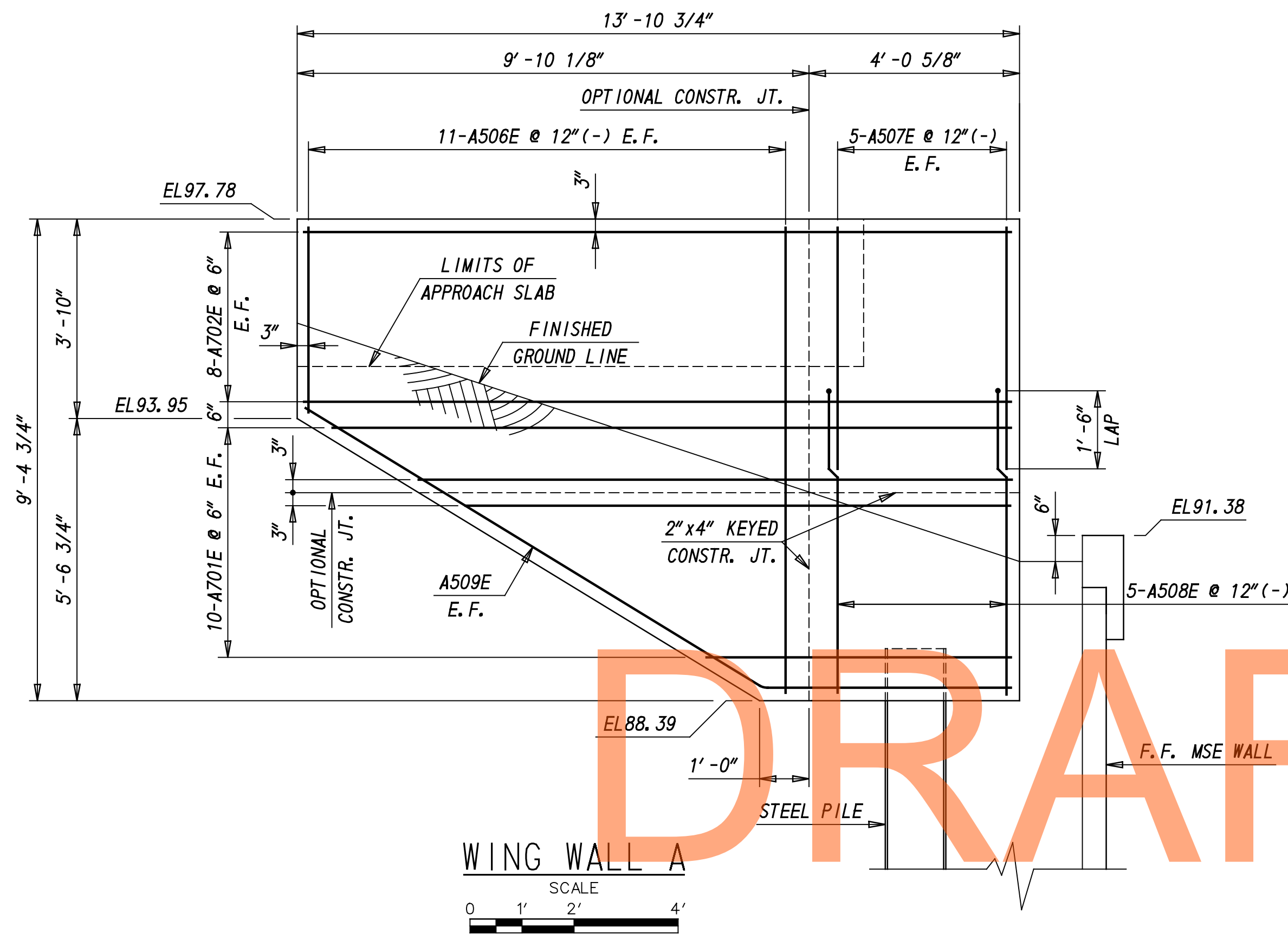
WARNING:

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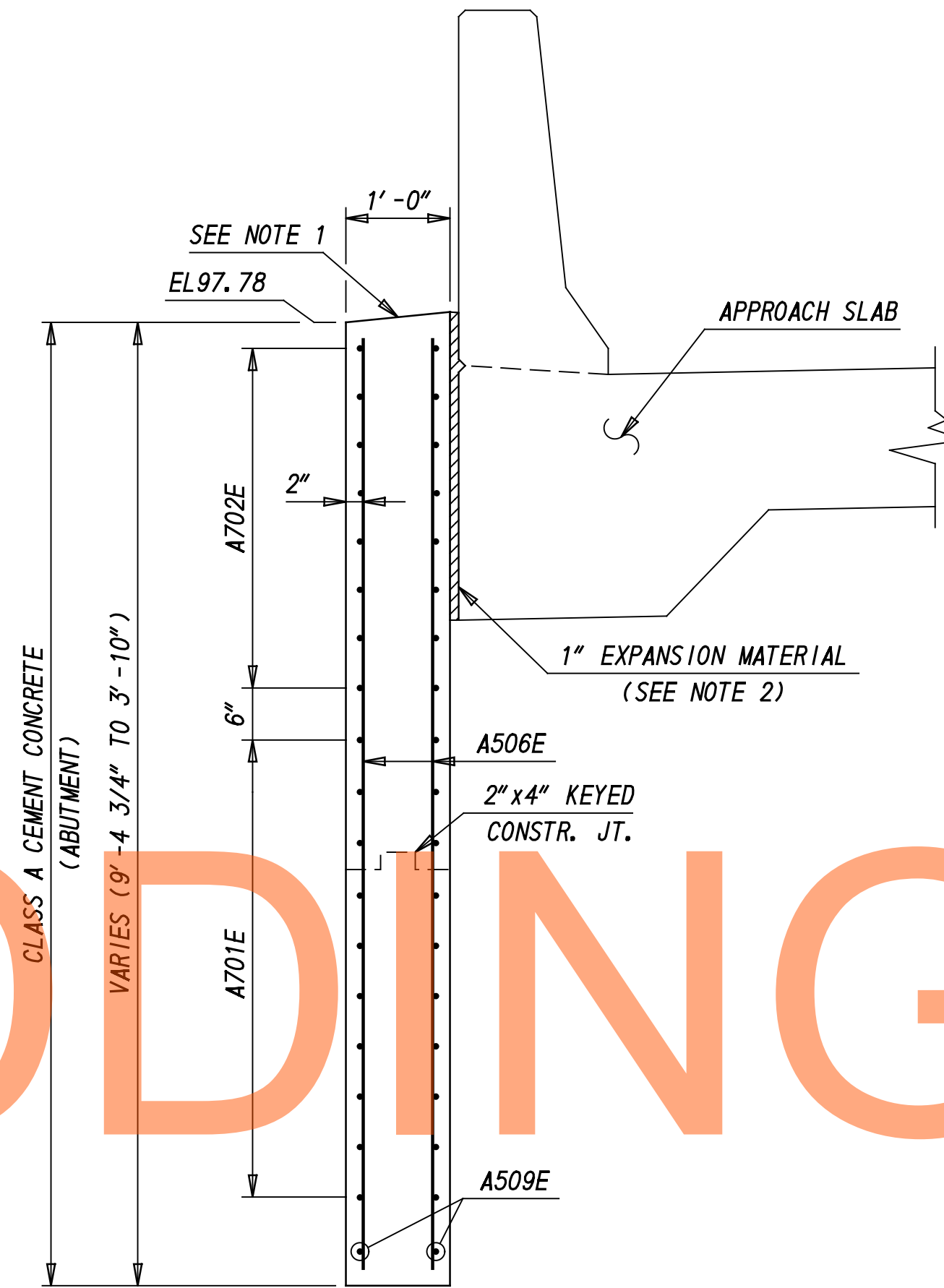
ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	1-486
T200811301	DESIGNED BY:	JLW
COUNTY	CHECKED BY:	JPF
NEW CASTLE		

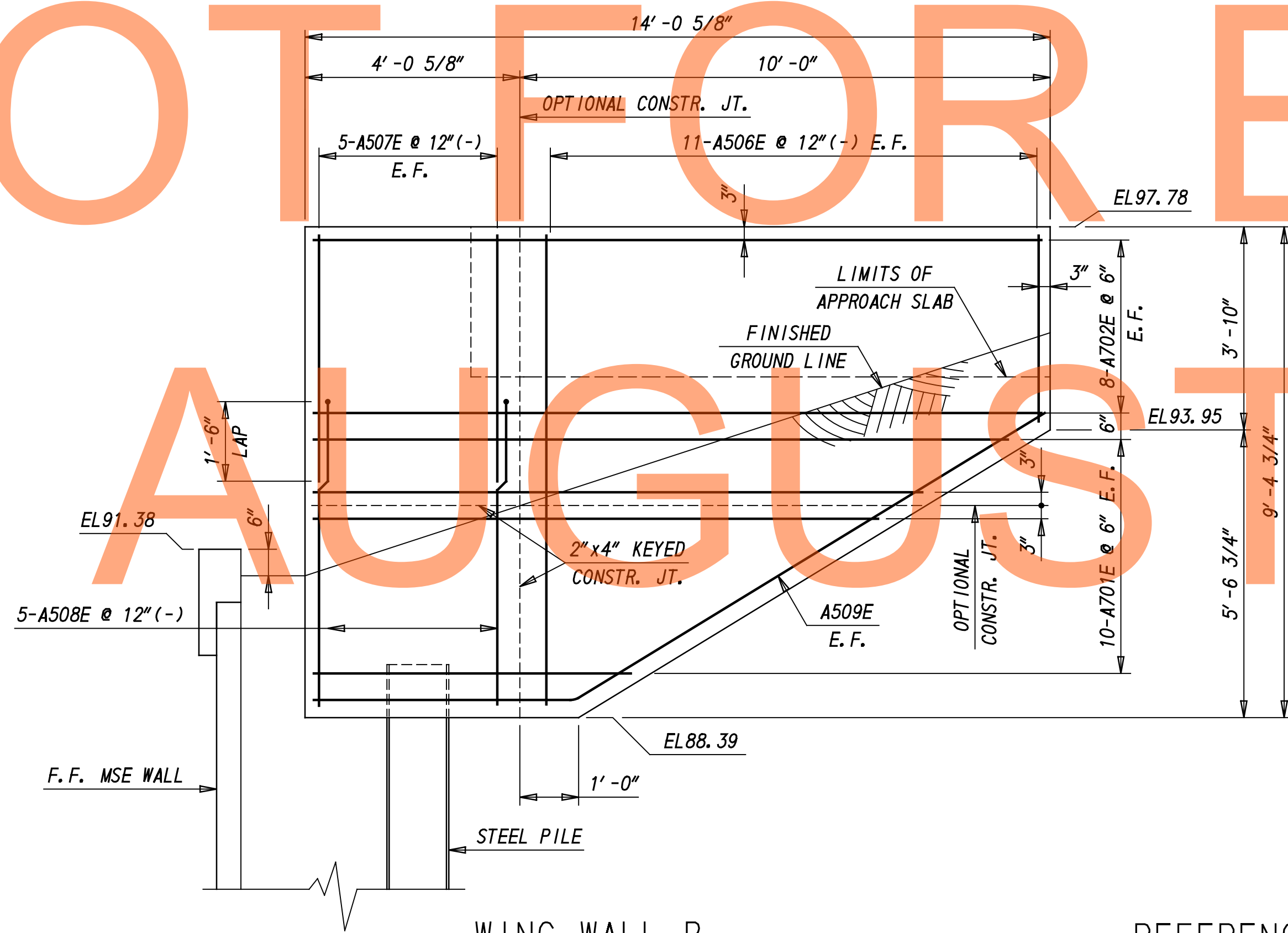
SHEET NO.	270
TOTAL SHTS.	850



WING WALL A
SCALE
0 1' 2' 4'



WING WALL TYPICAL SECTION
SCALE
0 1' 2' 3'



WING WALL B
SCALE
0 1' 2' 4'

WING WALL NOTES:

1. SLOPE 1/2" PER FOOT TO PROVIDE POSITIVE DRAINAGE. ELEVATIONS ARE PROVIDED AT THE FRONT EDGE OF THE WING.
2. 1" EXPANSION MATERIAL SHALL BE INCIDENTAL TO ITEM "602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D."

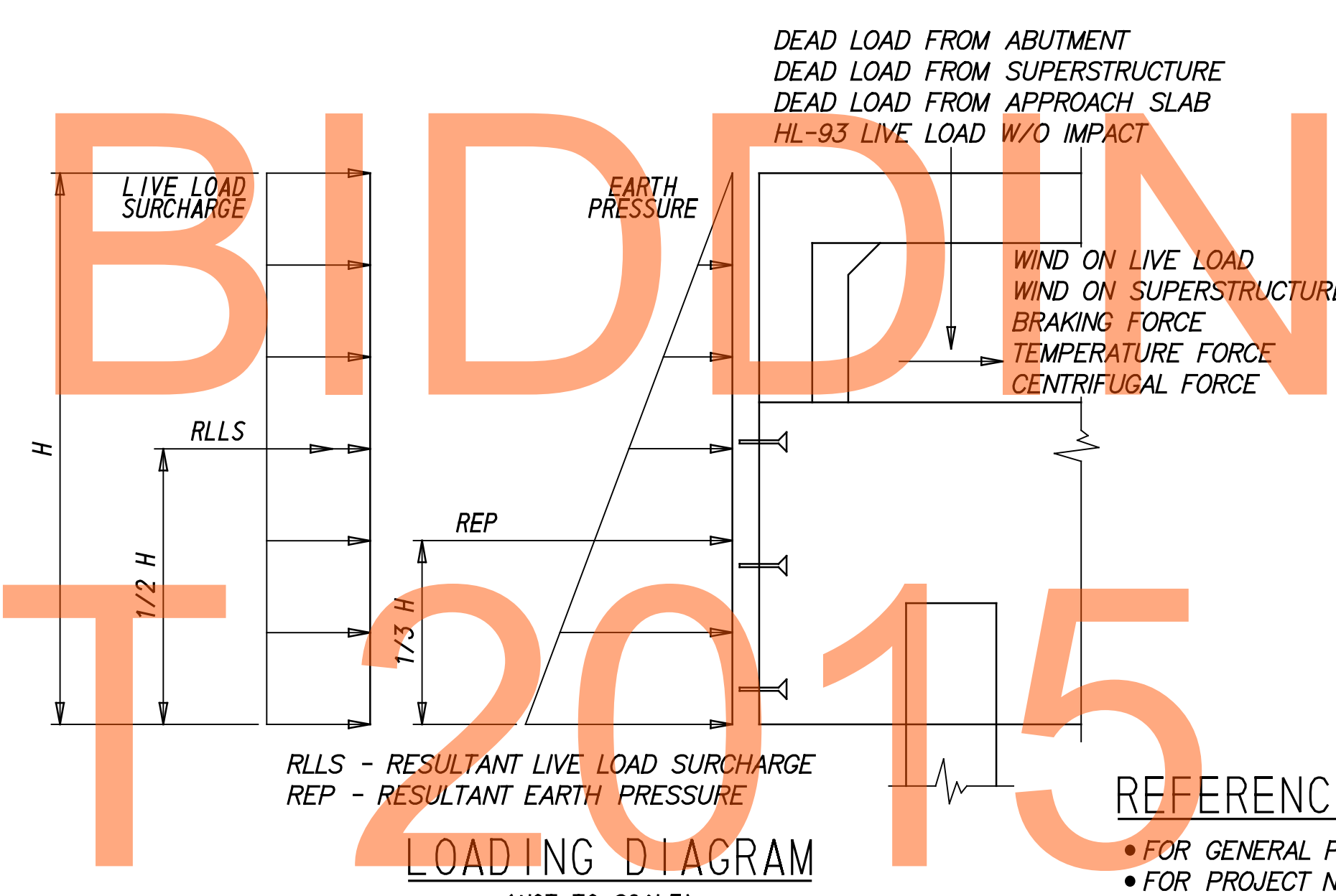
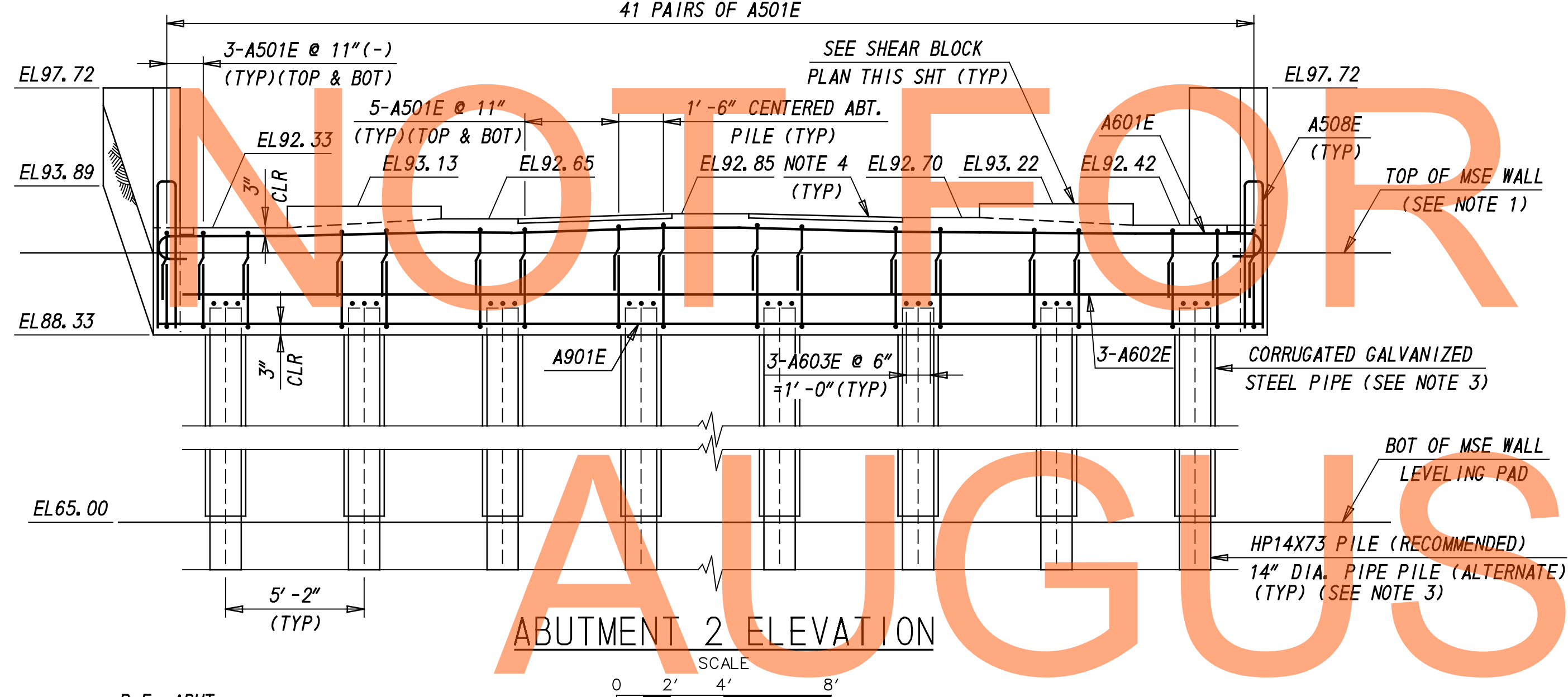
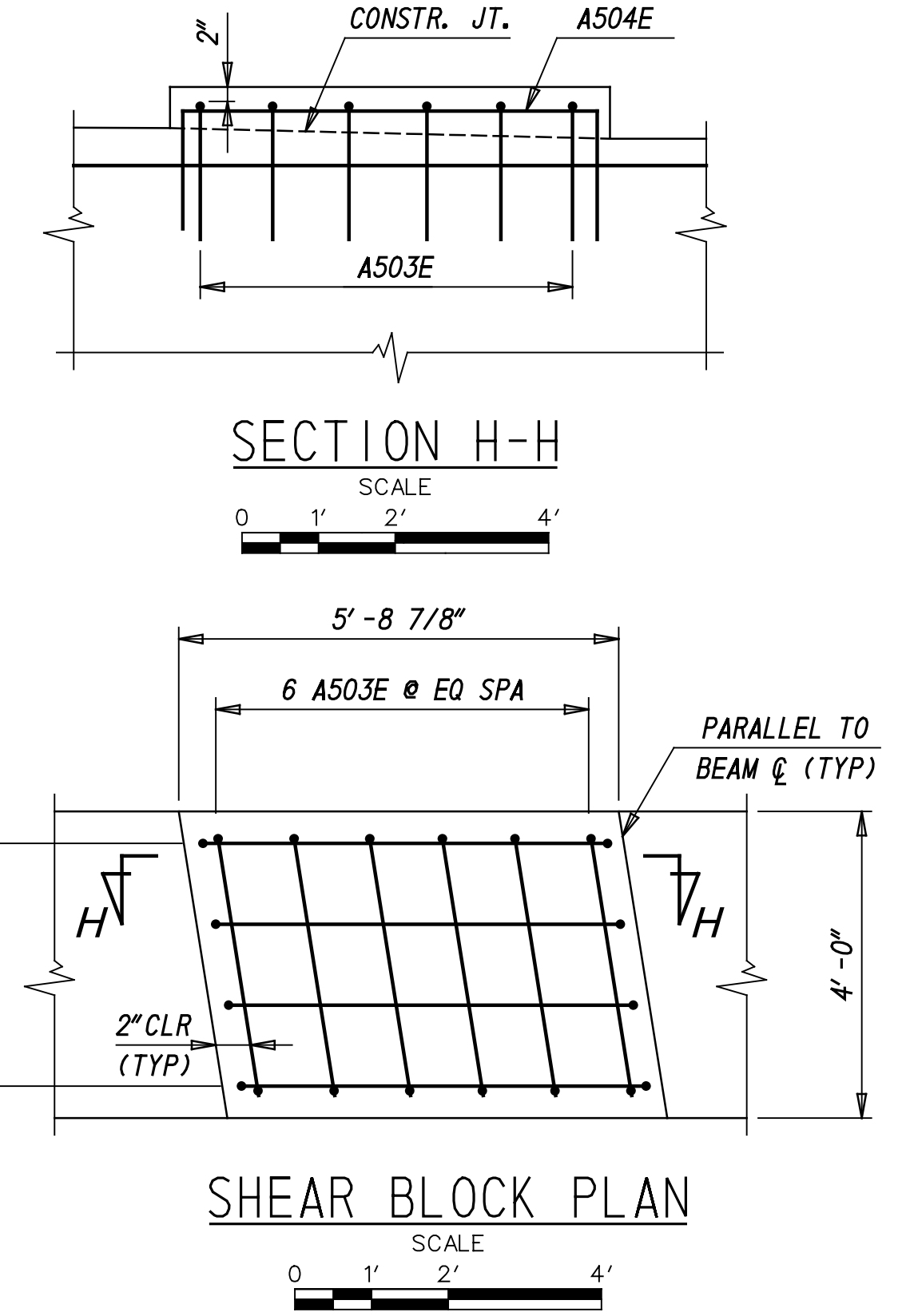
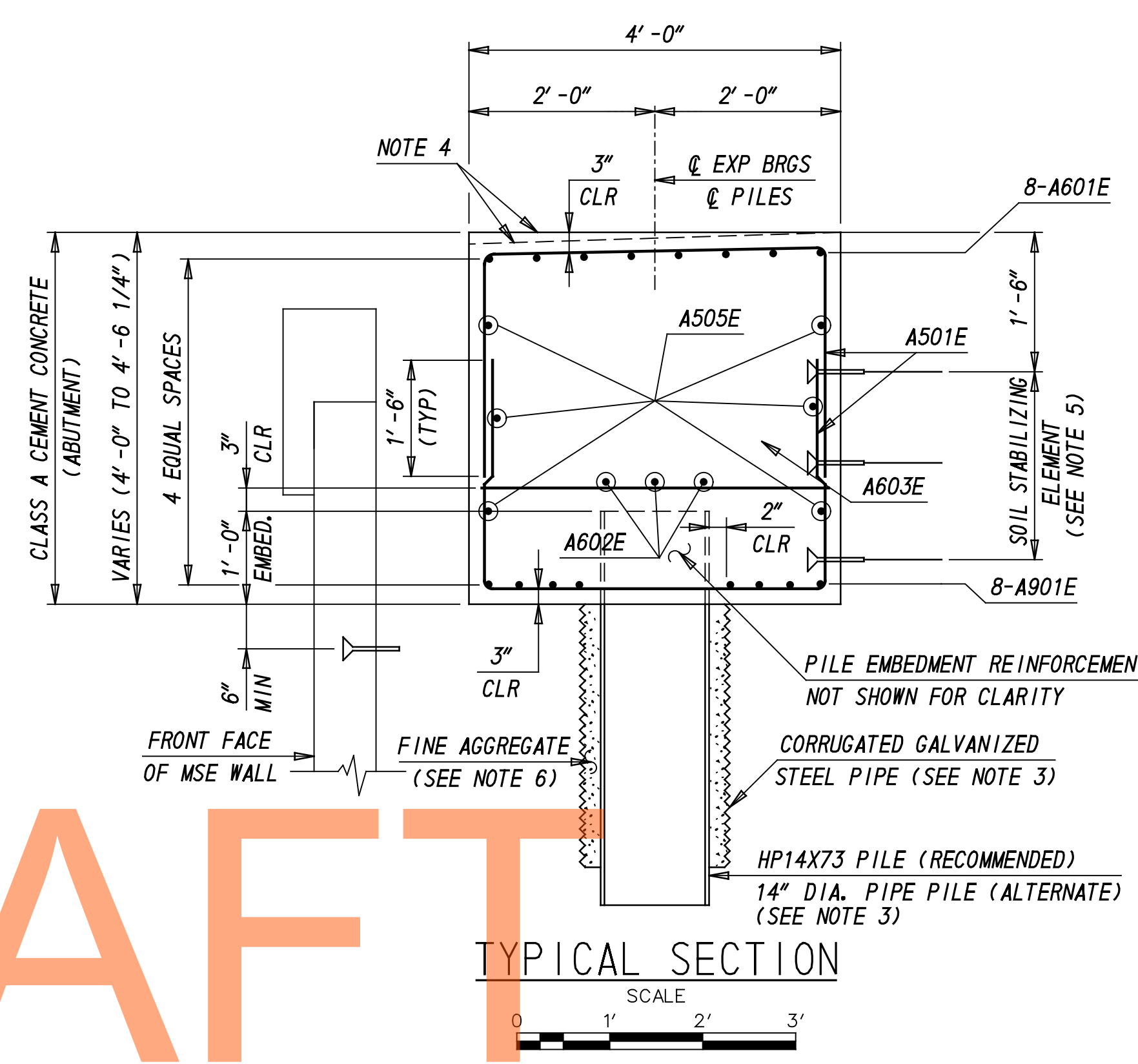
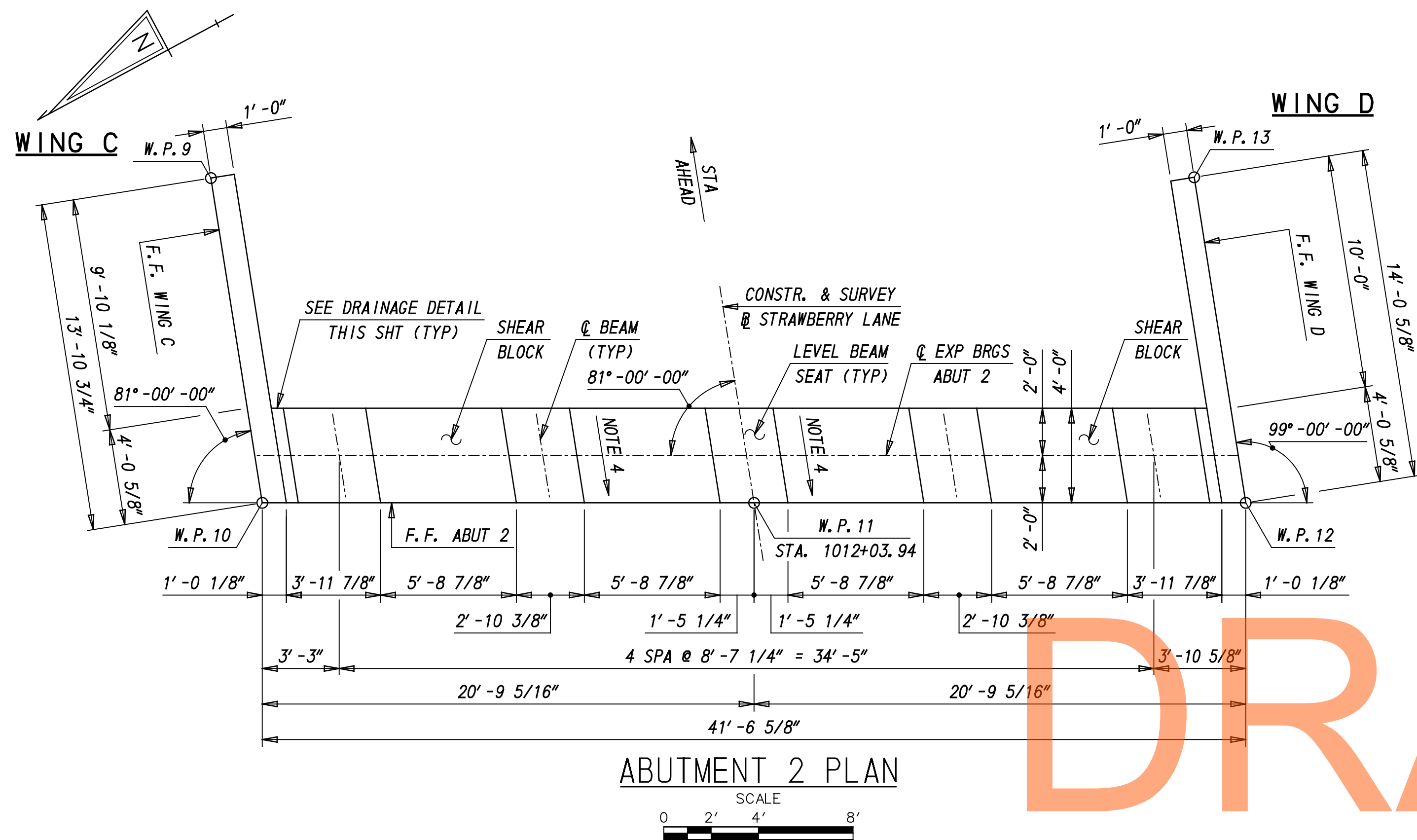
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REFERENCE:

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- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT 1 PLAN, SEE SHEET BR1-486-07
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEET BR1-486-26, 27

DRAFT
NOT FOR BIDDING
AUGUST 2015



ABUTMENT 2:

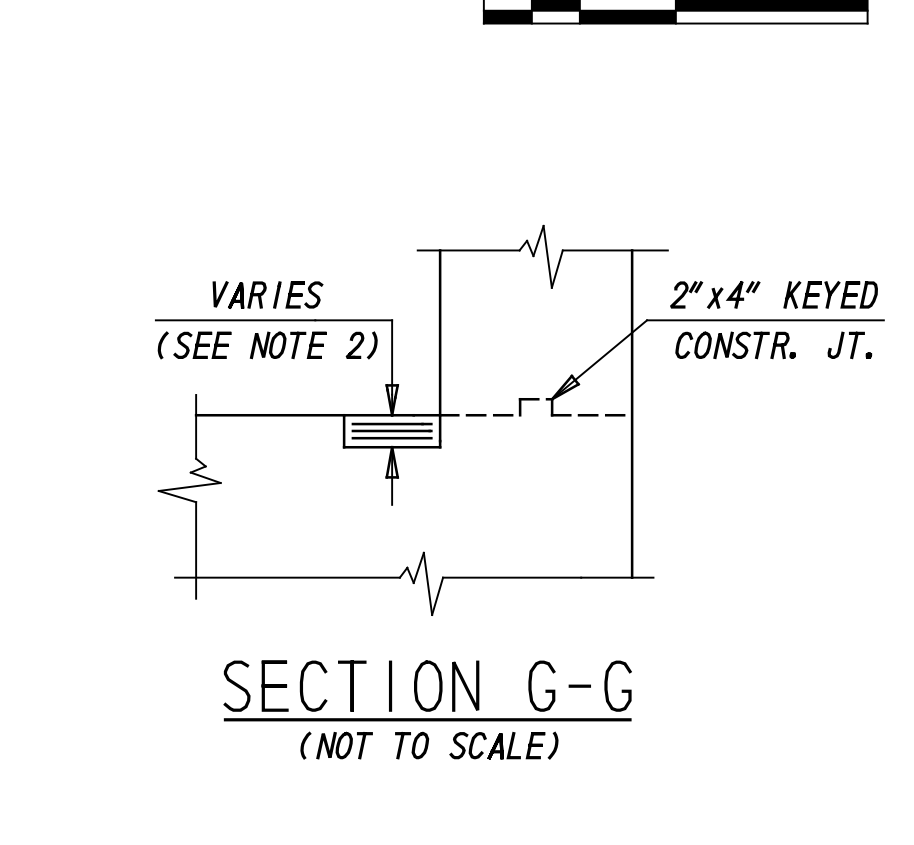
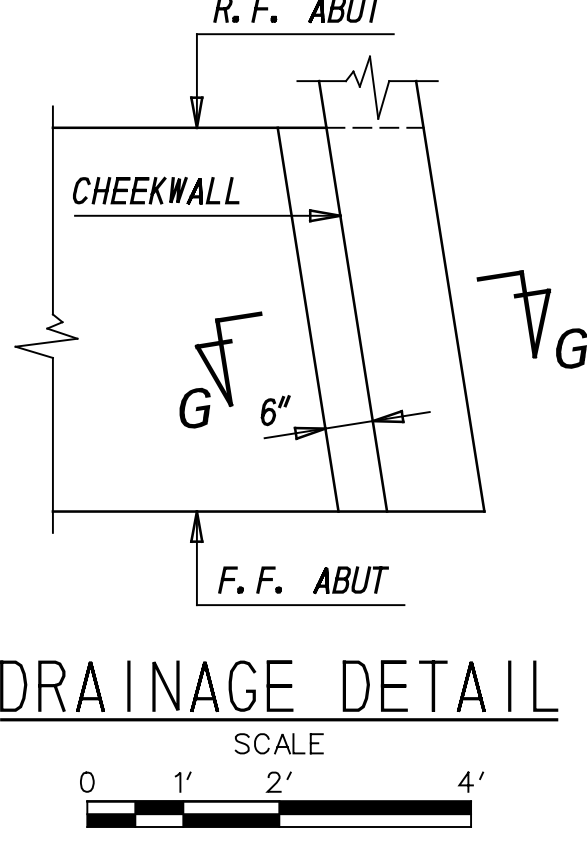
VERTICAL LOADS:

DEAD LOAD FROM ABUTMENT	3.30 K/FT
DEAD LOAD FROM SUPERSTRUCTURE	10.43 K/FT
DEAD LOAD FROM APPROACH SLAB	2.44 K/FT
HL-93 LIVE LOAD W/O IMPACT (1)	5.26 K/FT

HORIZONTAL LOADS IN THE OVERTURNING DIRECTION: (2)

WIND ON LIVE LOAD (3)	0.00 K/FT
WIND ON SUPERSTRUCTURE (3)	0.00 K/FT
BRAKING FORCE (3)	0.00 K/FT
TEMPERATURE FORCE	0.72 K/FT
EARTH PRESSURE	1.45 K/FT
CENTRIFUGAL FORCE	0.00 K/FT
LIVE LOAD SURCHARGE	0.11 K/FT

(1) LIVE LOAD IS PROVIDED FOR MAXIMUM DESIGN LANE CONFIGURATION INCLUDING MULTIPLE PRESENCE FACTOR
 (2) THE OVERTURNING DIRECTION IS PERPENDICULAR TO @ BEARINGS, ALL LOADS UNFACTORED AND CONSIDERED TO BE TAKEN AT THE BEAM SEAT ELEVATION.
 (3) WIND LOADS AND BRAKING FORCE ARE CARRIED BY THE FIXED BEARINGS AT THE PIER.



- ABUTMENT NOTES:**
- MSE WALL NOT SHOWN FOR CLARITY. REFER TO MSE WALL PLAN AND ELEVATION FOR PROPOSED AND EXISTING GROUND LINES.
 - DRAIN NOTCH VARIES FROM 0" @ ABUTMENT R.F. TO 2" @ ABUTMENT F.F.
 - STEEL PILE ENCASED WITH CORRUGATED GALVANIZED STEEL PIPE INSTALLED FROM BOTTOM OF THE MSE WALL LEVELING PAD ELEVATION TO THE BOTTOM OF THE BRIDGE BRIDGE STUB ABUTMENT PILECAP. REFER TO ABUTMENT PILE LAYOUT FOR PILE INSTALLATION SEQUENCE. PAYMENT FOR THE CORRUGATED GALVANIZED STEEL PIPE SHALL BE INCIDENTAL TO ITEM "602772 - MECHANICALLY STABILIZED EARTH WALLS."
 - ELEVATIONS ARE PROVIDED ALONG THE TOP OF THE ABUTMENT SHEAR BLOCK AND BEAM SEAT LOCATIONS. THESE AREAS ARE SET LEVEL IN THE AREAS DEFINED AS BEAM SEATS ON THE PLAN VIEW. SLOPE TOP OF ABUTMENT 1/4" PER FOOT FROM REAR FACE TO FRONT FACE BETWEEN BEARING BEARING AREAS (TYP).
 - SOIL STABILIZING ELEMENTS TO BE DESIGNED AND DETAILED (NUMBER, SIZE, AND SPACING) BY THE MSE WALL COMPANY FOR FORCES INDICATED IN THE LOADING DIAGRAM. SOIL STABILIZING ELEMENTS SHALL BE INCIDENTAL TO ITEM "602015 - PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING."
 - FINE AGGREGATE TO MEET THE REQUIREMENTS OF DELDOT STANDARD SPECIFICATIONS, SECTION 804. QUANTITY TO FILL VOID BETWEEN PILE AND CORRUGATED GALVANIZED STEEL PILE SHALL BE INCIDENTAL TO ITEM "602772 - MECHANICALLY STABILIZED EARTH WALLS."
 - WINGWALLS ARE INCIDENTAL TO ITEM "602015-PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING."

REFERENCE:

- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT PILE LAYOUT, SEE SHEET BR1-486-05
- FOR WINGWALLS C AND D, SEE SHEET BR1-486-10
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27

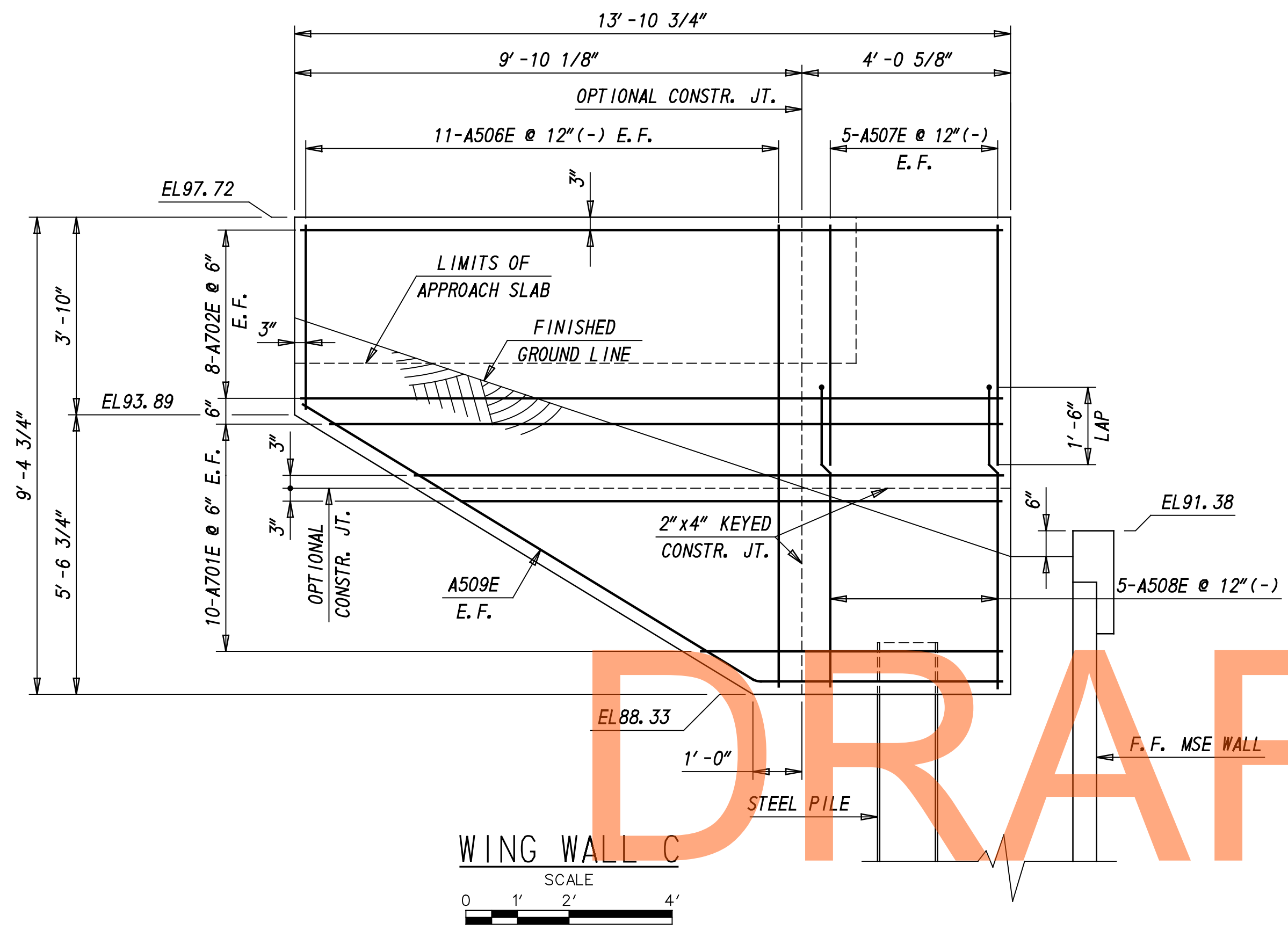
WARNING:

EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

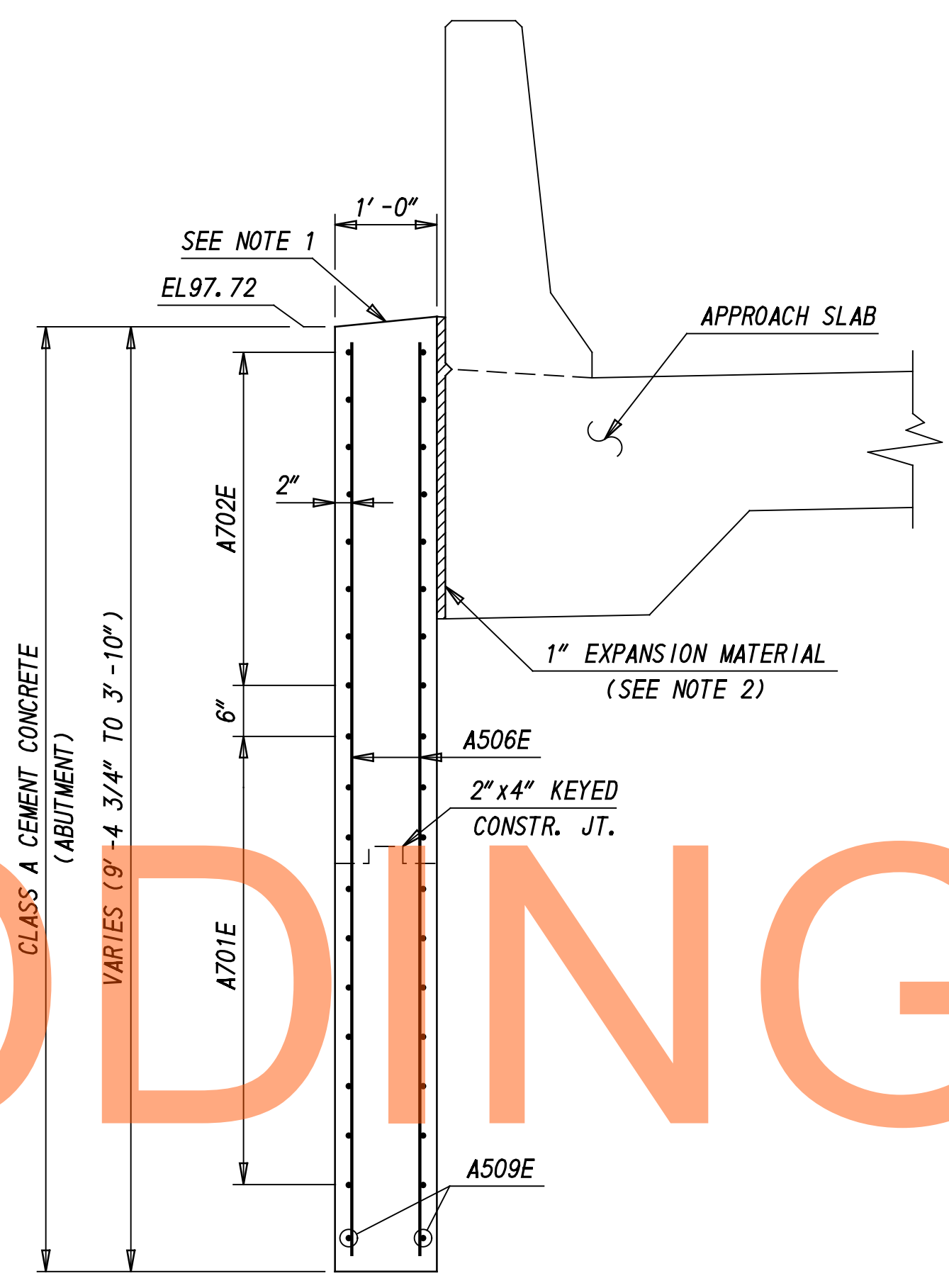
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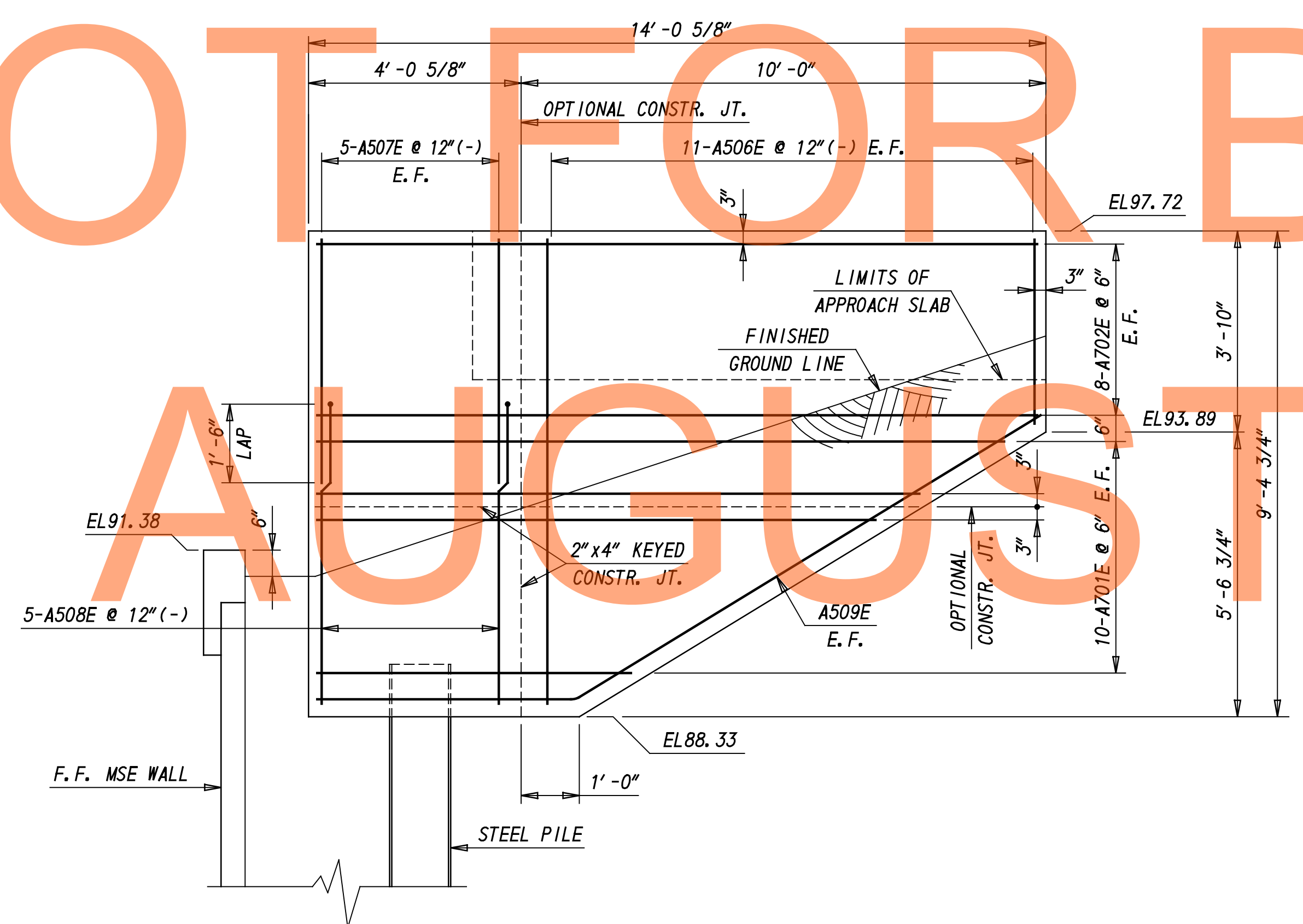
AUGUST 2015



WING WALL C
SCALE
0 1' 2' 4'



WING WALL TYPICAL SECTION
SCALE
0 1' 2' 3'



WING WALL D
SCALE
0 1' 2' 4'

- WING WALL NOTES:**
1. SLOPE 1/2" PER FOOT TO PROVIDE POSITIVE DRAINAGE. ELEVATIONS ARE PROVIDED AT THE FRONT EDGE OF THE WING.
 2. 1" EXPANSION MATERIAL SHALL BE INCIDENTAL TO ITEM "602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D."

- REFERENCE:**
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
 - FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
 - FOR ABUTMENT 2 PLAN, SEE SHEET BR1-486-09
 - FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27

WARNING:
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ADDENDUMS / REVISIONS

CONTRACT T200811301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: J.L.W. CHECKED BY: J.P.F.

ABUTMENT 2 WING WALLS	SHEET NO. 273
	TOTAL SHTS. 850

MSE WALL NOTES:

1. **CONCRETE:**
CONCRETE DESIGN SHALL BE PERFORMED USING LOAD AND RESISTANCE FACTOR DESIGN METHOD.

LEVELING PAD CONCRETE SHALL BE 3000 PSI AND MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
2. **CHAMFERS:**
ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4" x 3/4" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED.
3. **REINFORCEMENT STEEL:**
REINFORCEMENT 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.

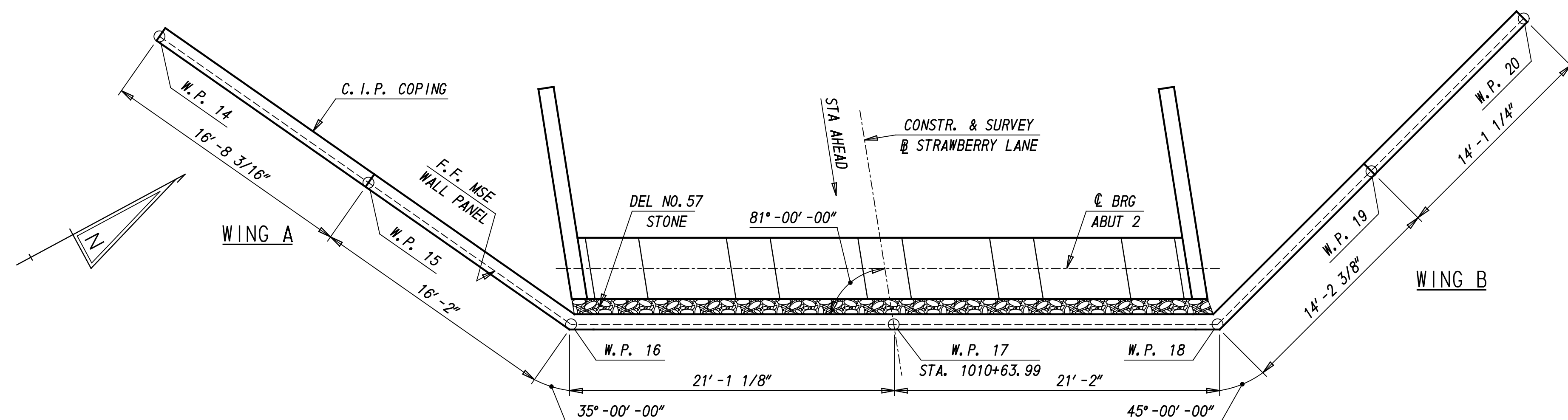
FOR TIES AND STIRRUPS, STANDARD AC BENDING TOLERANCES ARE MODIFIED TO PLUS(+) ZERO INCHES, MINUS(-) NORMAL AC BENDING TOLERANCE.

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

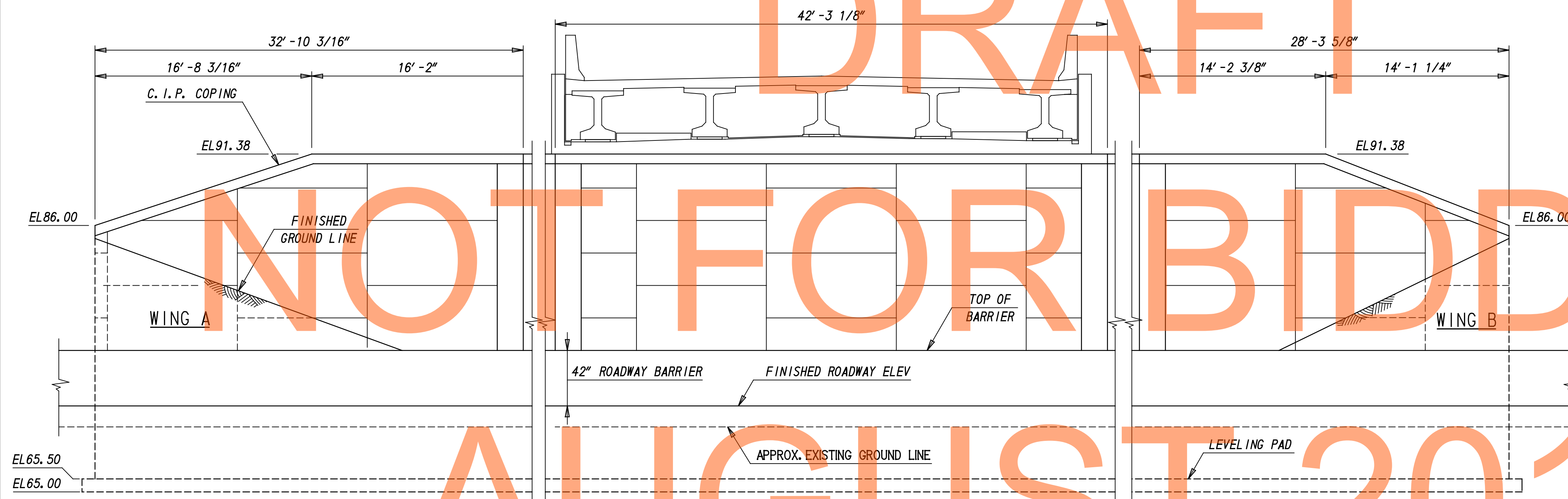
ALL KEYS ARE NORMAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.
4. **ROADWAY LIMITS:**
THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCRONCHED UPON.
5. **COORDINATION:**
CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATION OF MSE STRUCTURE UNDERDRAINS WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM.

ALL MSE WALL PLANS AND SHOP DRAWINGS MUST SHOW PILE LOCATION AND ARRANGEMENT OF MSE WALL SOIL REINFORCEMENT ELEMENTS TO AVOID INTERFERENCE WITH PILES. CUTTING SOIL REINFORCING ELEMENTS TO AVOID INTERFERENCE WITH PILES IS NOT PERMITTED.
6. **SERVICE LIFE:**
ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.
7. **WALL SYSTEM:**
ONLY ONE MSE WALL SYSTEM MAY BE USED FOR THIS CONTRACT.
8. **EXCAVATION AND BACKFILL:**
EXCAVATION REQUIRED FOR INSTALLATION OF MSE WALL SYSTEMS SHALL BE INCIDENTAL TO ITEM "602772 MECHANICALLY STABILIZED EARTH WALLS". BACKFILL SPACES EXCAVATED FOR MSE WALL AND NOT OCCUPIED BY MSE WALL COMPONENTS OR SPECIFIED BACKFILL, WITH TYPE F MATERIAL.
9. **MSE WALL BACKFILL:**
MSE WALL BACKFILL SHALL CONSIST OF SELECT BACKFILL, IN ACCORDANCE WITH SPECIAL PROVISION "602772 MECHANICALLY STABILIZED EARTH WALLS".
10. **FOUNDATION:**
IF DIRECTED BY THE ENGINEER, REMOVE UNSUITABLE MATERIAL BELOW BOTTOM OF MSE WALL FILL, PLACE GEOTEXTILE AT THE BOTTOM OF THE EXCAVATION AND FILL WITH PROPERLY COMPACTED TYPE B BORROW. EXCAVATION FOR THIS ITEM TO BE PAID FOR UNDER ITEM "207000 - EXCAVATION AND BACKFILLING FOR STRUCTURES" AND FILL TO BE PAID FOR UNDER ITEM "209002 - BORROW, TYPE B". GEOTEXTILE IS TO BE IN ACCORDANCE WITH SECTION 827.06 OF THE DELDOT SPECIFICATIONS AND IS INCIDENTAL TO ITEM "209002 - BORROW, TYPE B".
11. **MSE WALL AESTHETIC TREATMENT:**
THE COMPONENTS OF THE MSE WALLS SHALL HAVE THE AESTHETIC TREATMENT AS IDENTIFIED IN THE SPECIAL PROVISION FOR ITEM 602772.



ABUTMENT 1 MSE WALL PLAN
(NOT TO SCALE)



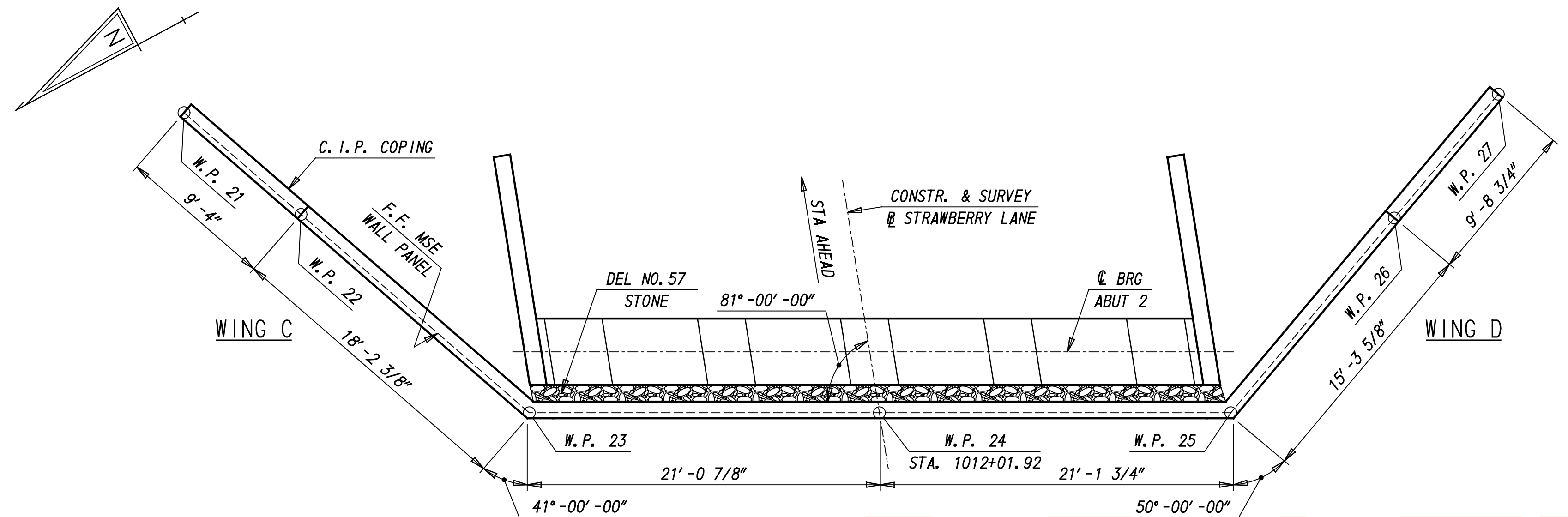
ABUTMENT 1 MSE WALL ELEVATION
(NOT TO SCALE)

WARNING:

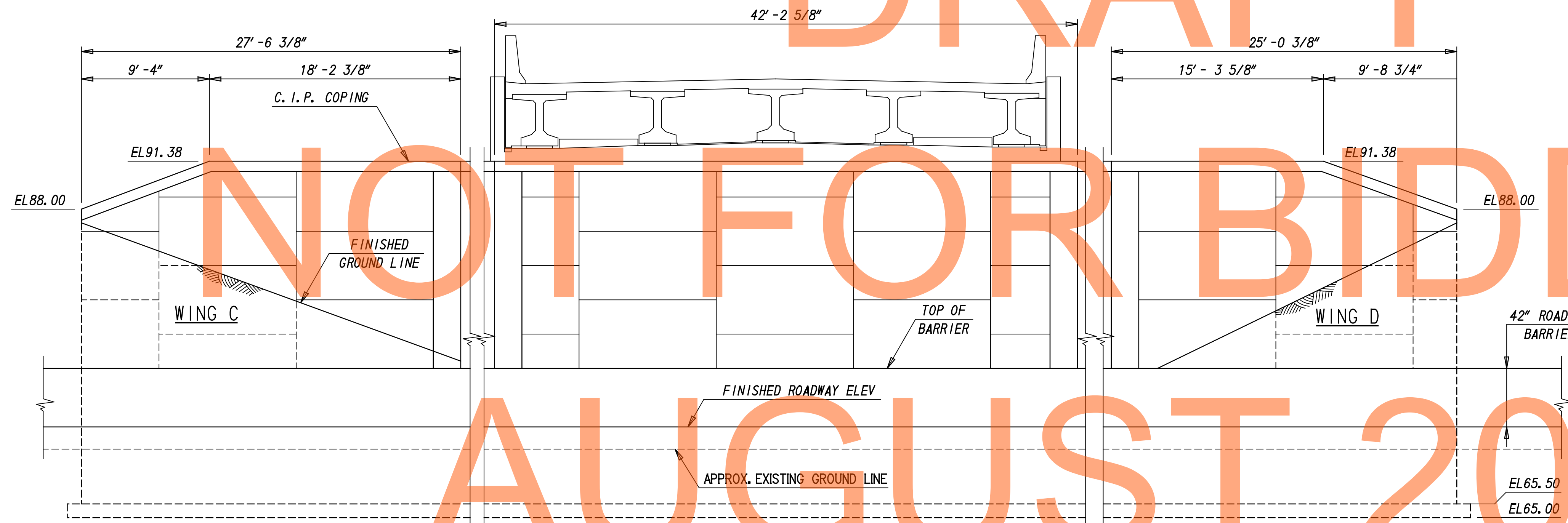
EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

REFERENCE:

- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT 1 DETAILS, SEE SHEET BR1-486-07
- FOR MSE WALL SECTION, SEE SHEET BR1-486-13



ABUTMENT 2 MSE WALL PLAN
(NOT TO SCALE)



ABUTMENT 2 MSE WALL ELEVATION
(NOT TO SCALE)

DRAFT
NOT FOR BIDDING
AUGUST 2015

REFERENCE:

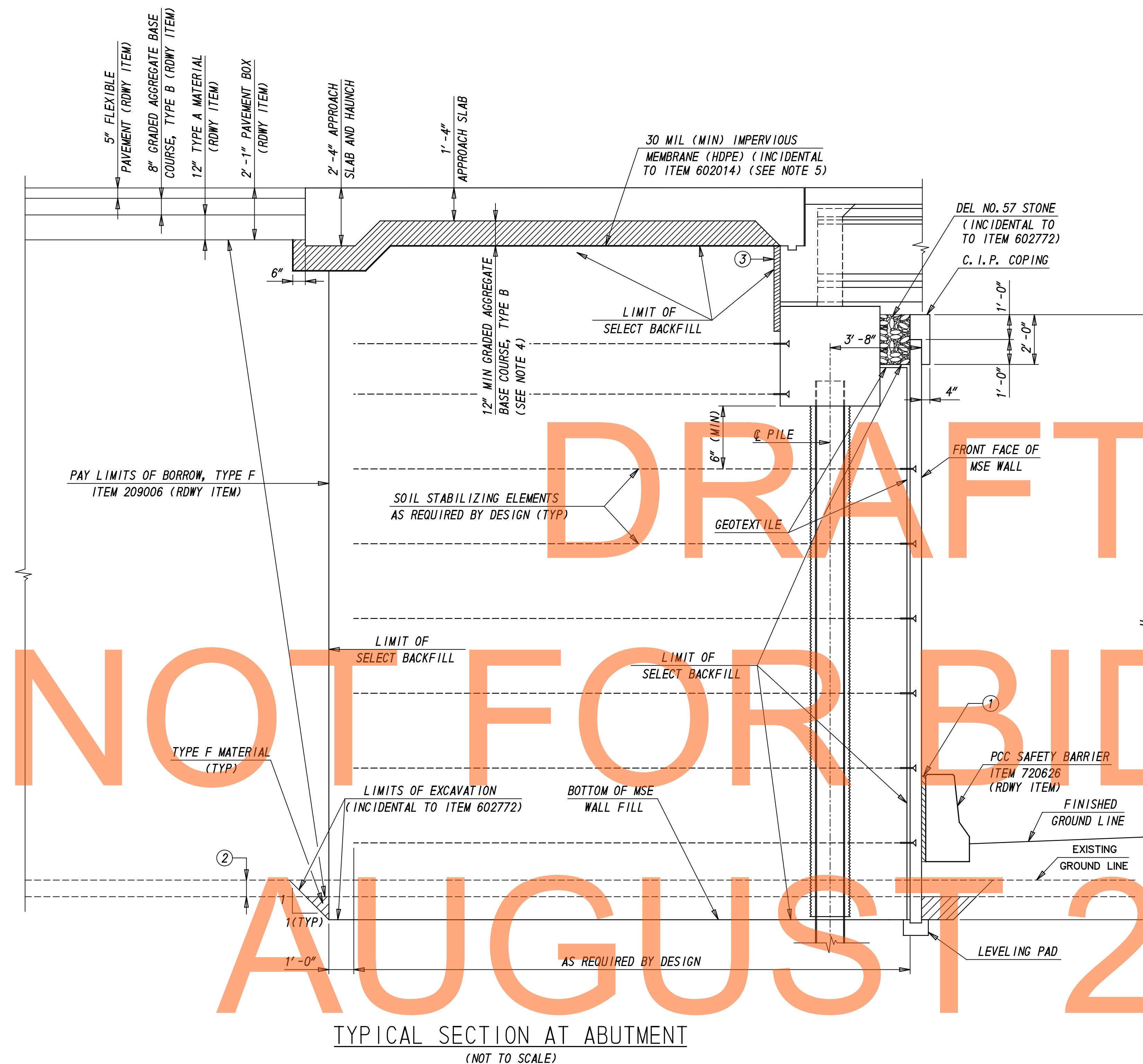
- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT 2 DETAILS, SEE SHEET BR1-486-09
- FOR MSE WALL NOTES, SEE SHEET BR1-486-11
- FOR MSE WALL SECTION, SEE SHEET BR1-486-13
- FOR ADDITIONAL WATERPROOFING AND SYROFOAM DETAILS BETWEEN THE ABUTMENT AND END DIAPHRAGMS, SEE SHEET BR1-486-18.

WARNING:
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ADDENDUMS / REVISIONS

CONTRACT T200811301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: J.L.W. CHECKED BY: J.P.F.

SHEET NO. 275
TOTAL SHTS. 850



TYPICAL SECTION AT ABUTMENT
 (NOT TO SCALE)

NOTES:

1. PLACE 1" THICK STYROFOAM BOARD AT THE FRONT FACE OF THE MSE WALL ADJACENT TO THE 42 INCH ROADWAY BARRIER, ITEM 720626 (ROADWAY ITEM). STYROFOAM BOARD SHALL BE INCIDENTAL TO ITEM 720626 (ROADWAY ITEM). POSITION FRONT EDGE OF ROADWAY BARRIER TO MAINTAIN A 14 FOOT SHOULDER. CAST THE ROADWAY BARRIER AGAINST THE STYROFOAM BOARD WITH THE WIDTH OF THE BARRIER VARYING OVER THE LENGTH OF THE MSE WALL.
2. LIMITS OF TOPSOIL TO BE REMOVED UNDER ITEM 202000 (ROADWAY ITEM) (APPROXIMATE DEPTH=8").
3. 1" THICK STYROFOAM. SEE SHEET BR1-486-18 FOR FURTHER DETAILS.
4. PAYMENT FOR 12" MIN GRADED AGGREGATE BASE COURSE, TYPE B BENEATH THE APPROACH SLAB SHALL BE INCIDENTAL TO ITEM "602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D".
5. HIGH DENSITY POLYETHYLENE (HDPE):
 PHYSICAL REQUIREMENTS:
 *DENSITY: 59 POUNDS PER CUBIC FOOT (MINIMUM), ASTM D 1505
 *UV STABILIZATION: 2% CARBON BLACK, ASTM D1603
 *SHEET THICKNESS: 30 MILS (MINIMUM), ASTM D1599
 *TEAR RESISTANCE: 22 POUNDS, ASTM D1004
 *RESISTANCE SOIL BURIAL: 90% RETAINED STRENGTH, ASTM D3083
 *MINIMUM ROLL WIDTH: 20 FEET (MINIMUM)

DRAFT
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 AUGUST 2015

REFERENCE:

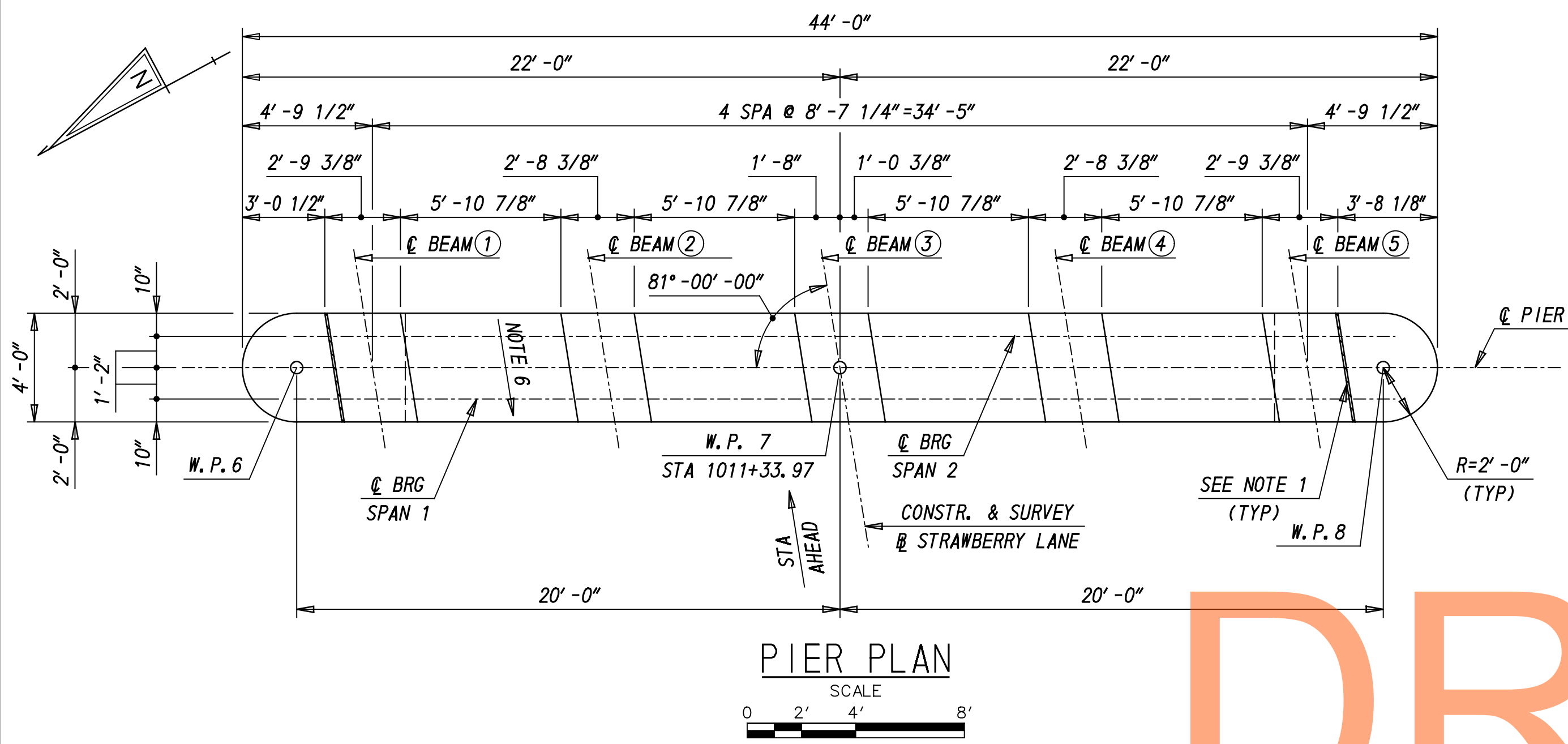
- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR ABUTMENT 1 MSE WALL PLAN, SEE SHEET BR1-486-11
- FOR MSE WALL NOTES, SEE SHEET BR1-486-11
- FOR ABUTMENT 2 MSE WALL PLAN, SEE SHEET BR1-486-12
- FOR ADDITIONAL WATERPROOFING AND SYROFOAM DETAILS BETWEEN THE ABUTMENT AND END DIAPHRAGMS, SEE SHEET BR1-486-18

WARNING:

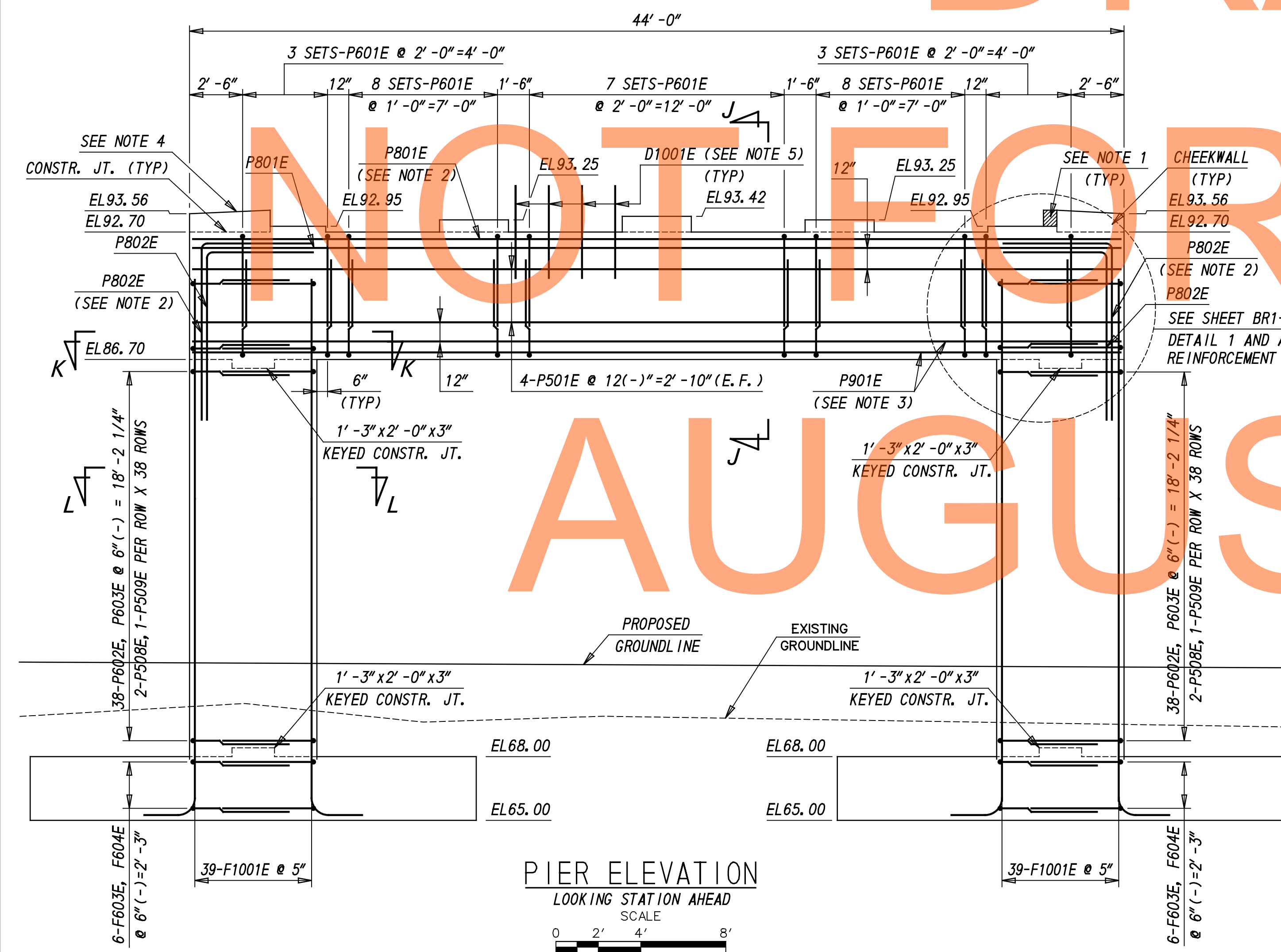
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PIER NOTES:

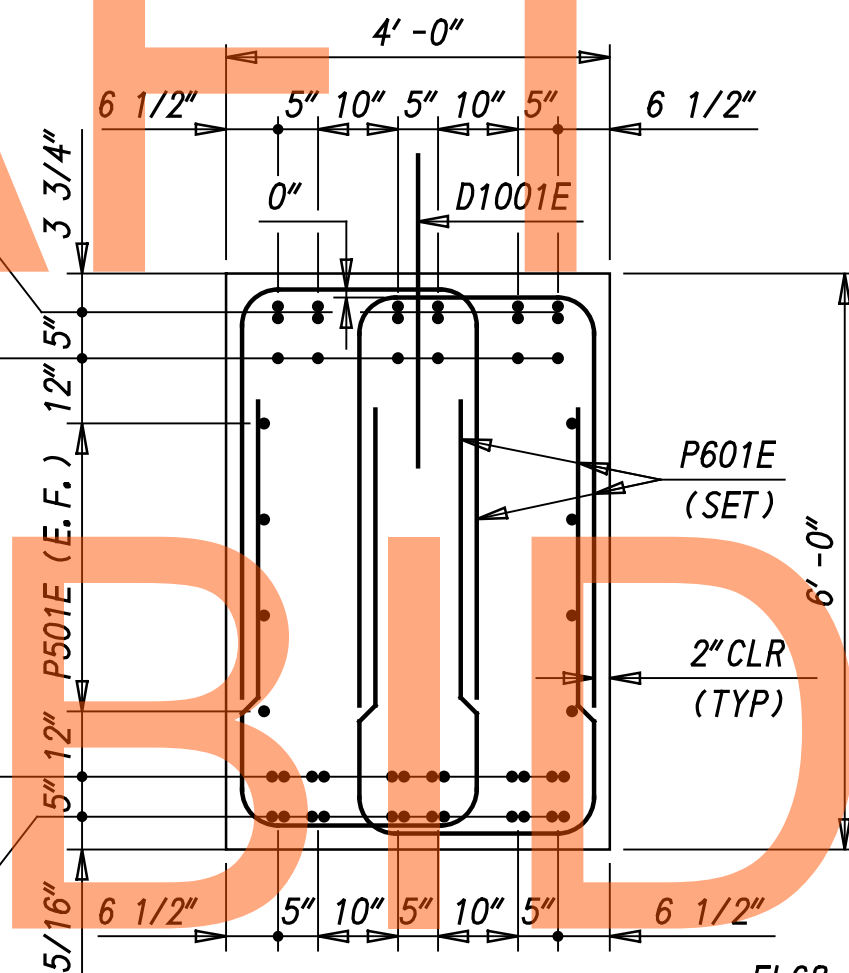
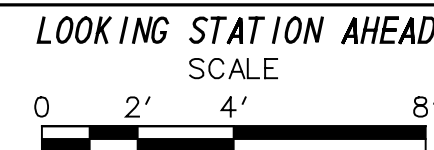
- 1" EXPANSION MATERIAL POSITIONED FLUSH AGAINST THE BOTTOM FLANGE OF THE FASCIA BEAMS PRIOR TO CASTING CHEEKWALL. EXPANSION MATERIAL SHALL BE INCIDENTAL TO ITEM "602007 - PORTLAND CEMENT CONCRETE MASONRY, PIER ABOVE FOOTING, CLASS A."
- 6 BUNDLES OF 2 BARS POSITIONED IN LINE VERTICALLY.
- 6 BUNDLES OF 2 BARS POSITIONED IN LINE HORIZONTALLY.
- FINISH CHEEKWALL SLOPED 1" PER 1'-0" FROM TOP OF THE FASCIA BEAM BOTTOM FLANGE.
- FOUR DOWEL BARS TYPICAL BETWEEN BEARING PEDESTALS AND CAST WITH PIER CAP. REMAINDER OF DOWEL BARS NOT SHOWN FOR CLARITY, SEE DIAPHRAGM DETAILS ON SHEET 19 FOR SPACING. SEE SHEET 15 FOR DOWEL DETAIL.
- SLOPE BEAM SEAT 1/4" PER FOOT FROM CENTERLINE PIER TO FACE OF PIER BETWEEN BEAM BEARING AREAS.
- TIE TOP AND BOTTOM MATS OF REINFORCEMENT STEEL WITH F501E TIE BARS. ALTERNATE 90° AND 135° HOOKS AT TOP IN ALTERNATE TIES.
- IF DIRECTED BY THE ENGINEER, REMOVE UNSUITABLE MATERIAL BELOW BOTTOM OF FOOTING ELEVATION, PLACE GEOTEXTILE AT THE BOTTOM OF THE EXCAVATION AND FILL WITH DELDOT NO. 57 STONE. EXCAVATION FOR THIS ITEM TO BE FOR UNDER ITEM "207000 - EXCAVATION AND BACKFILLING FOR STRUCTURES". DELDOT NO. 57 STONE TO BE IN ACCORDANCE WITH SECTION 608 OF THE DELDOT SPECIFICATIONS AND PAID UNDER ITEM "608000 - COARSE AGGREGATE FOR FOUNDATION STABILIZATION AND SUBFOUNDATION BACKFILL". GEOTEXTILE IS TO BE IN ACCORDANCE WITH SECTION 827.06 OF THE DELDOT SPECIFICATIONS AND IS INCIDENTAL TO ITEM "608000 - COARSE AGGREGATE FOR FOUNDATION STABILIZATION AND SUBFOUNDATION BACKFILL".



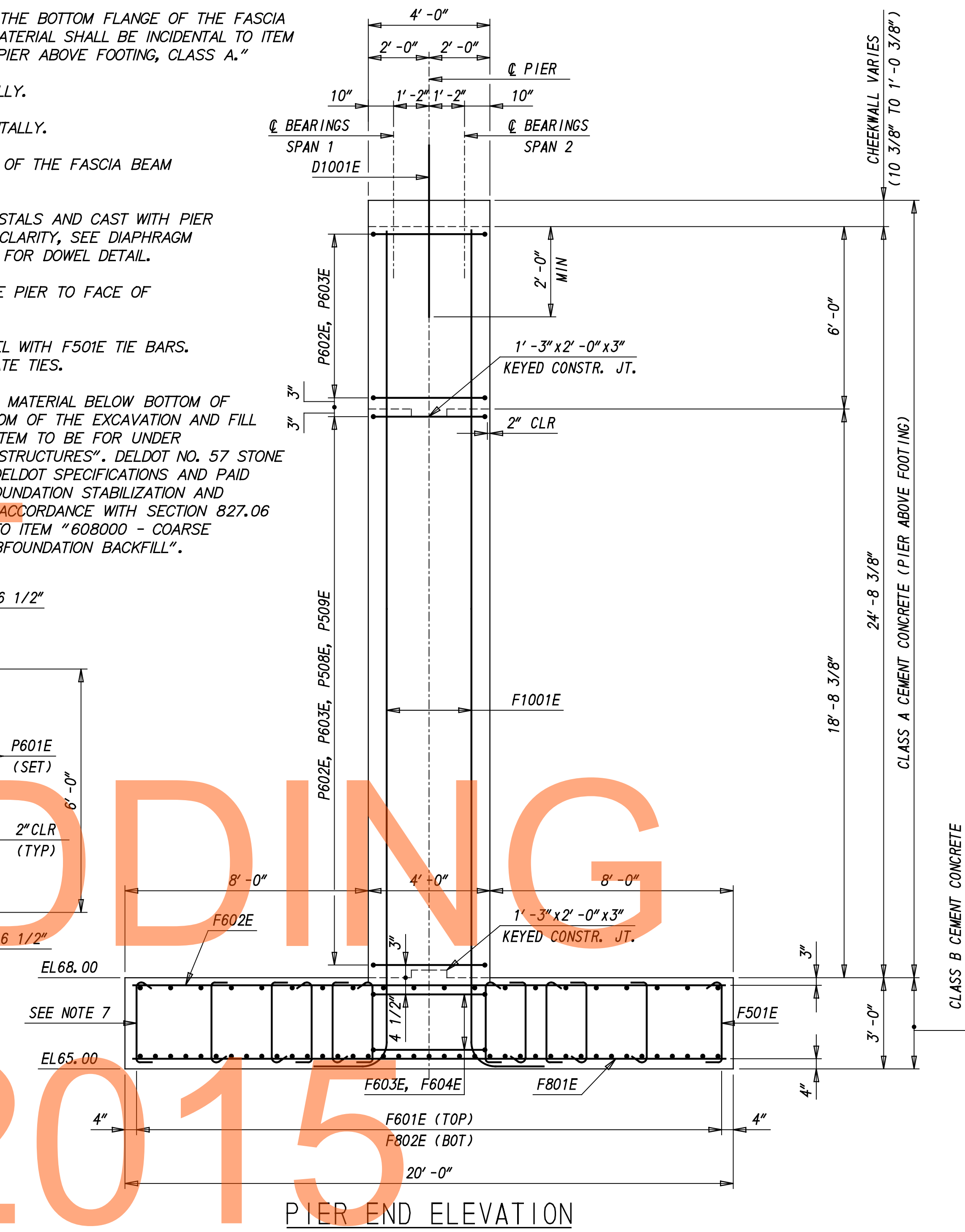
PIER PLAN



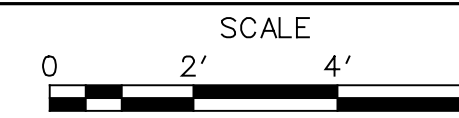
PIER ELEVATION



SECTION J-J



PIER END ELEVATION



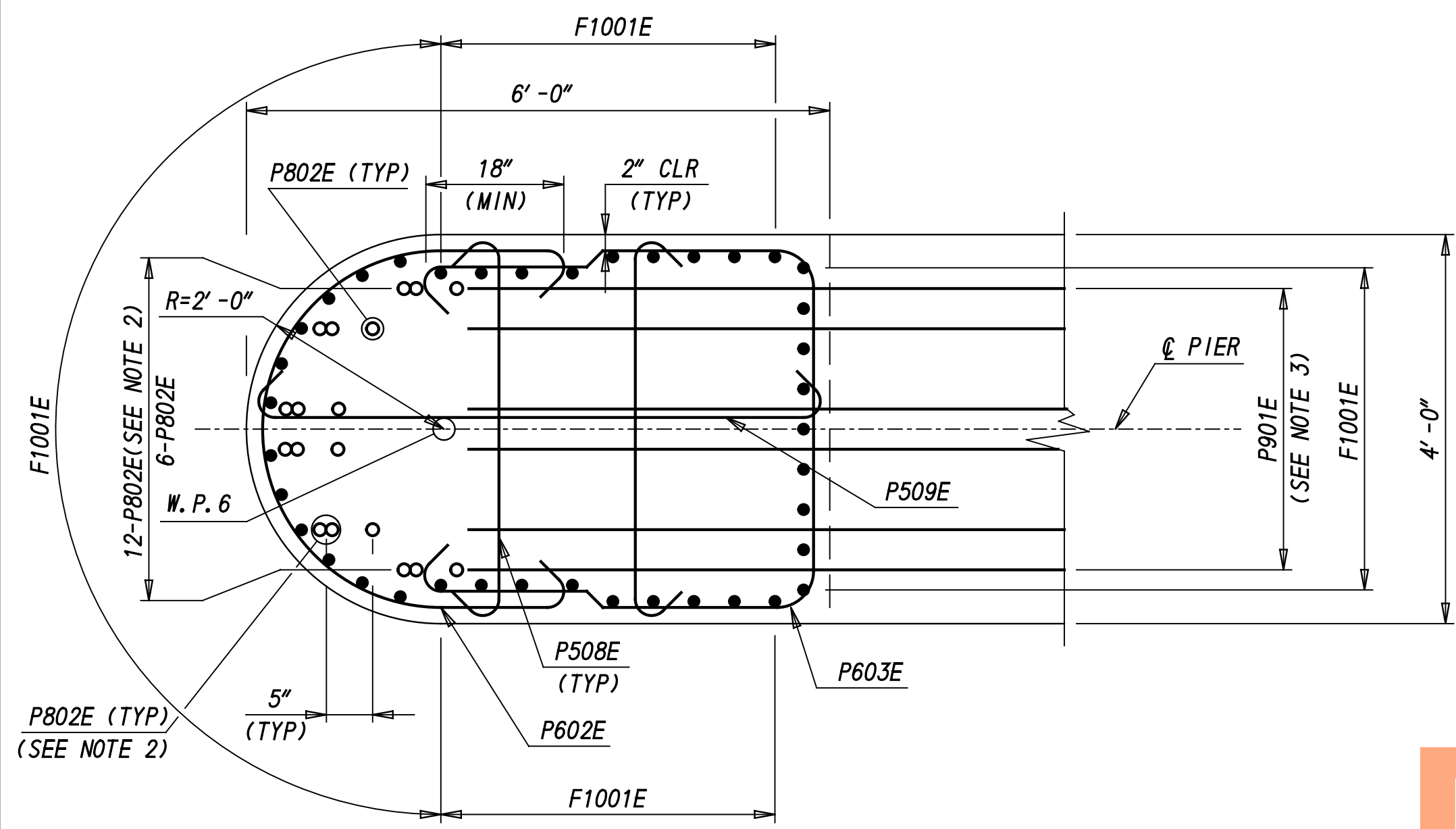
FOUNDATION DESIGN SUMMARY		
BEARING	CONTROLLING LIMIT STATE	EXTREME II
	UNIFORM PRESSURE (KSF)	4.81
	BEARING RESISTANCE (KSF)	10.37
SLIDING	CONTROLLING LIMIT STATE	EXTREME II
	LATERAL FORCE (KIP)	472.82
	LATERAL RESISTANCE (KIP)	544.31

REFERENCE:

- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR SECTIONS K-K AND L-L, SEE SHEET BR1-486-15
- FOR PIER FOOTING PLAN AND DETAILS, SEE SHEET BR1-486-15
- FOR PEDESTAL DETAILS, SEE SHEET BR1-486-15
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27

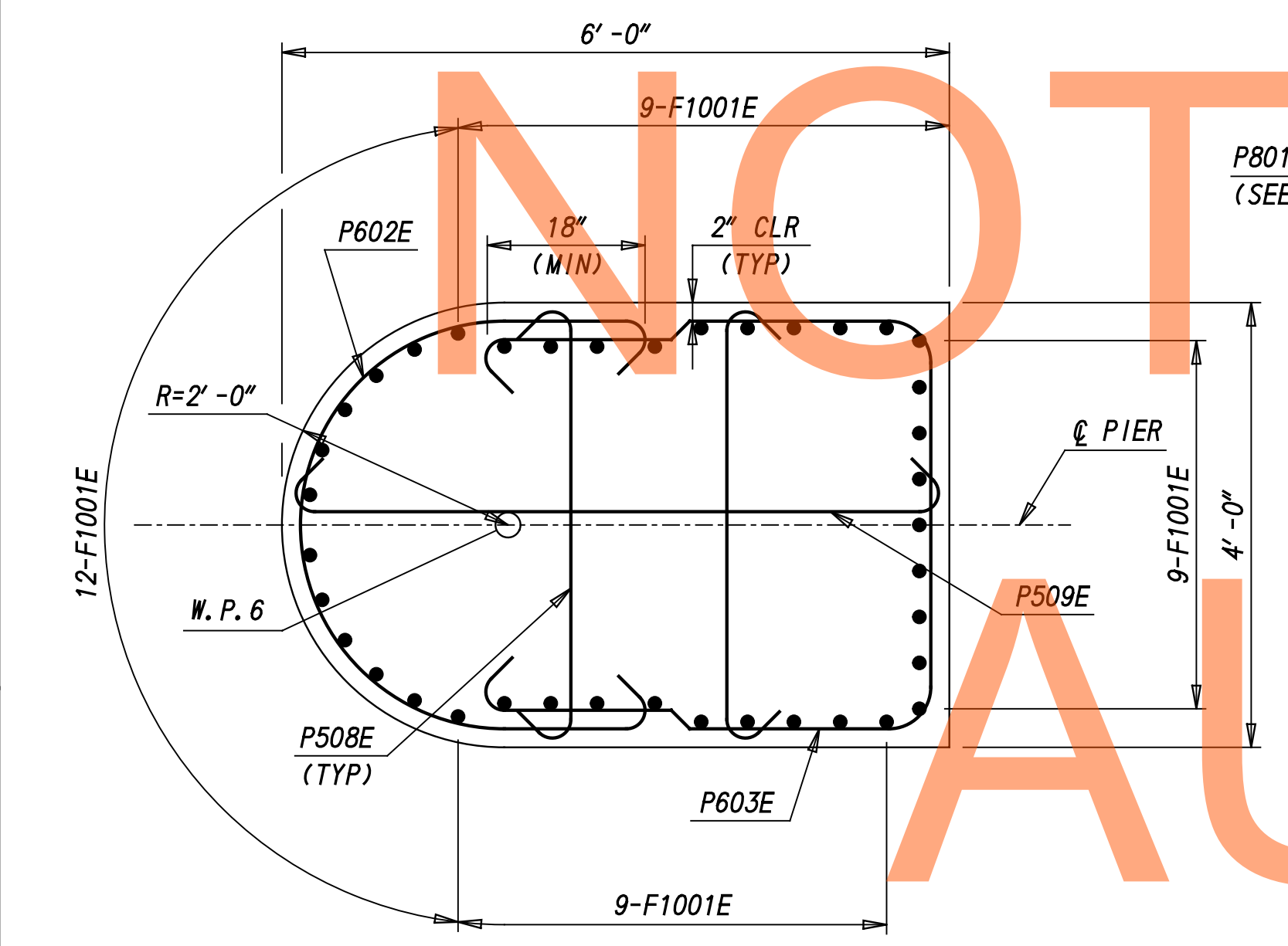
WARNING:

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SECTION K-K
SCALE
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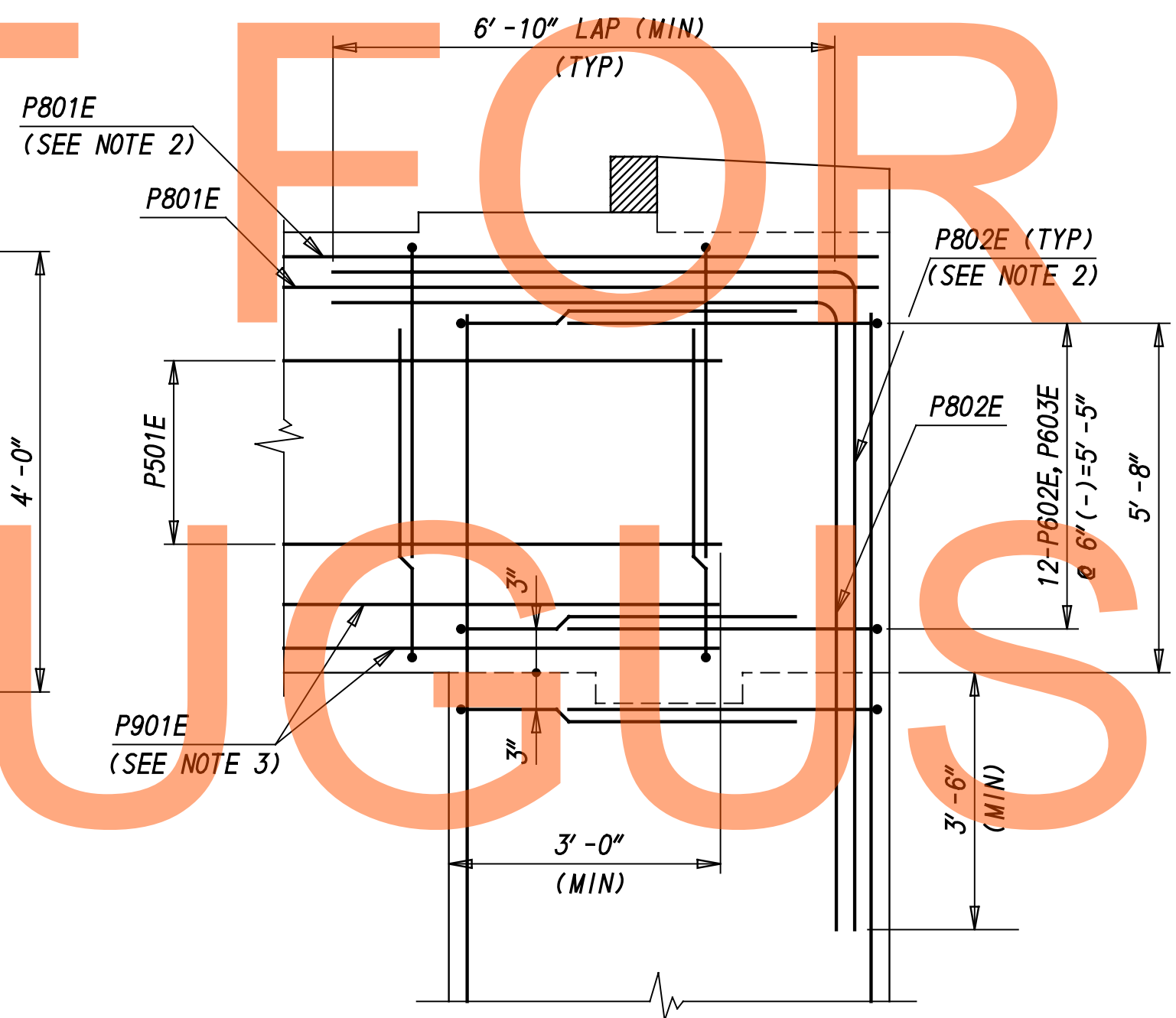
- DENOTES COLUMN REINFORCEMENT
- DENOTES CORNER SPLICE REINFORCEMENT



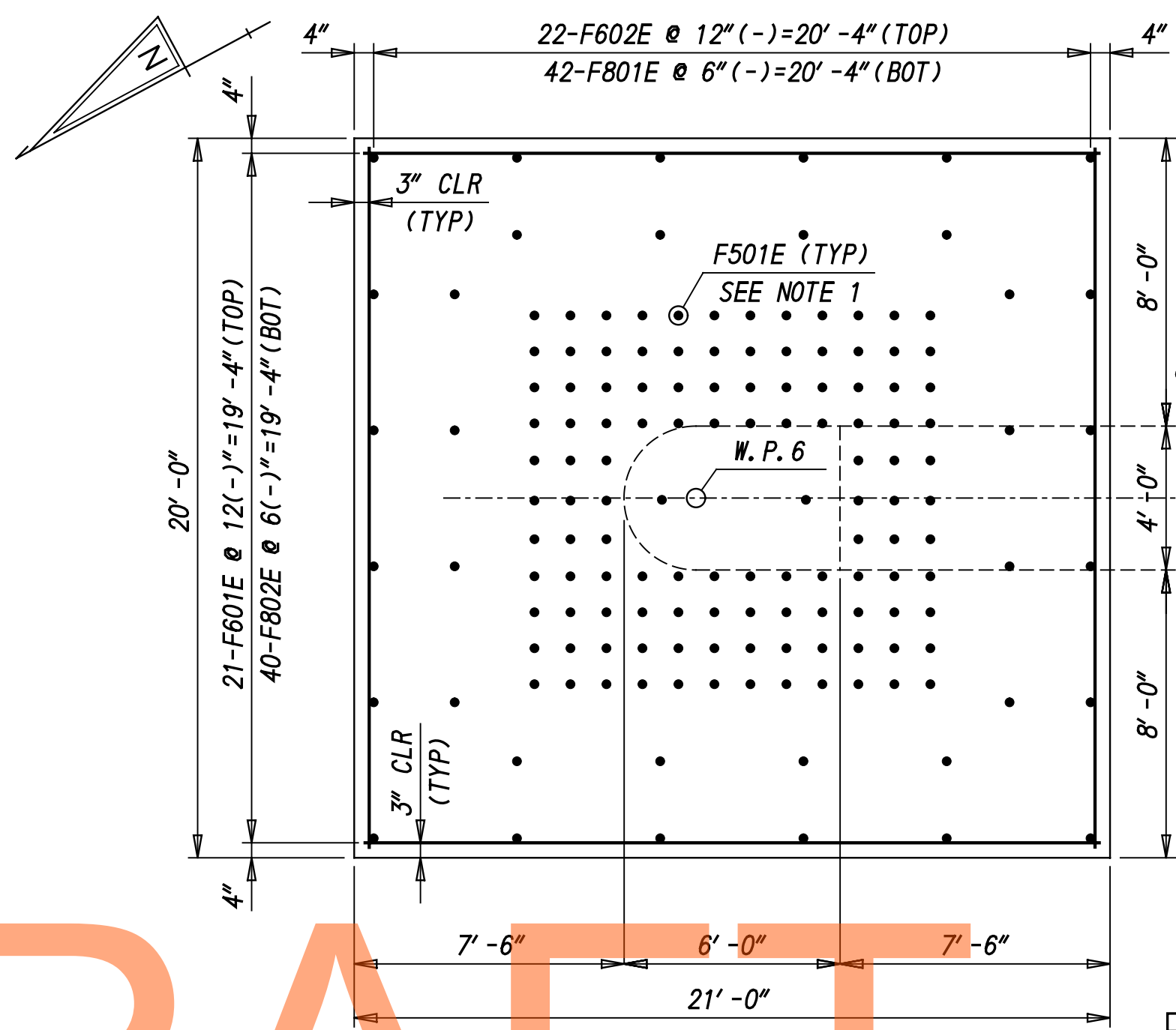
SECTION L-L
SCALE
0 1' 2' 3'

NOTES:

1. PROVIDE F501E TIE BARS HOOKED AT THE TOP AND BOTTOM MAT AT 12" MAXIMUM SPACING IN EACH DIRECTION WITHIN 3'-0" OF COLUMN FACE. PROVIDE TIES IN ALL OTHER LOCATIONS IN THE FOOTING AT A 4'-0" MAXIMUM SPACING IN EACH DIRECTION.
2. 6 BUNDLES OF 2 BARS POSITIONED IN LINE VERTICALLY.
3. 6 BUNDLES OF 2 BARS POSITIONED IN LINE HORIZONTALLY.

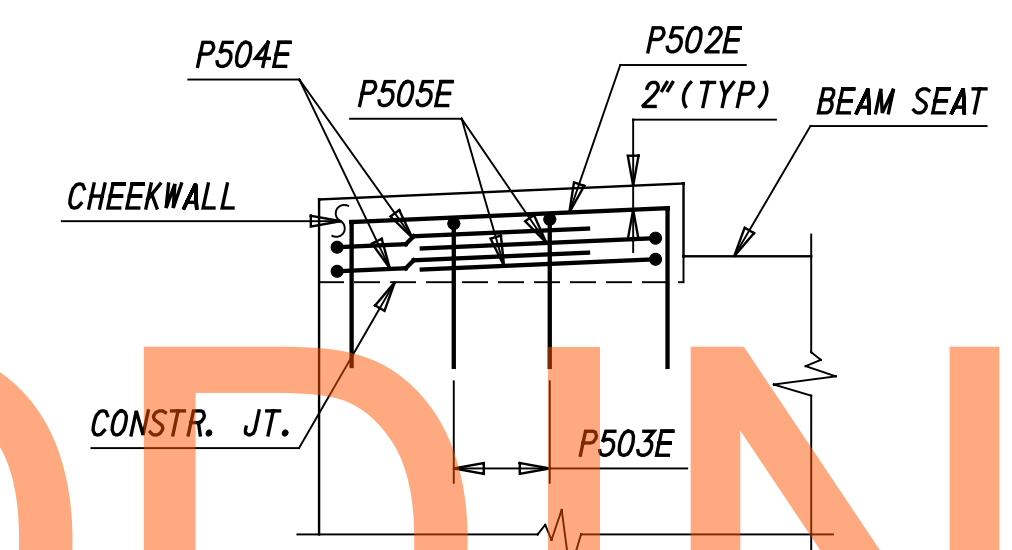


DETAIL 1
(NOT TO SCALE)

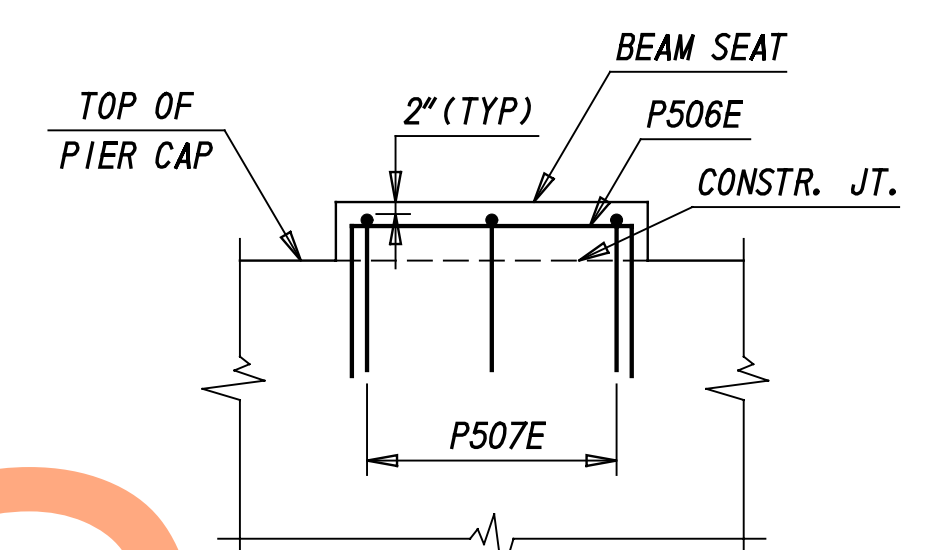


PIER FOOTING PLAN

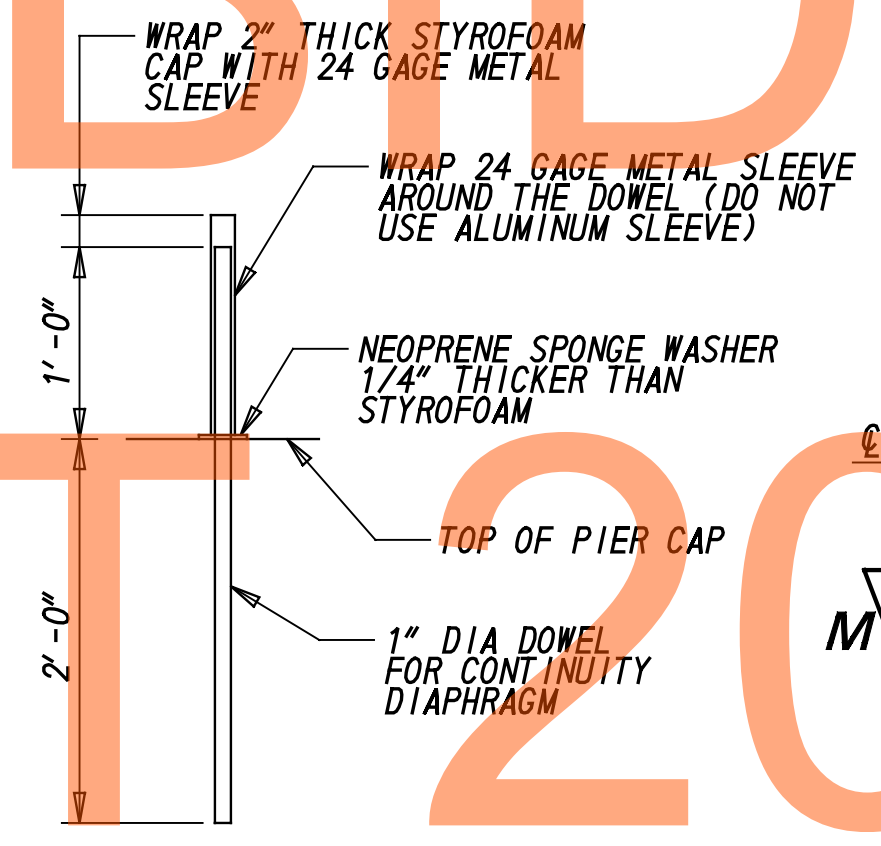
SCALE
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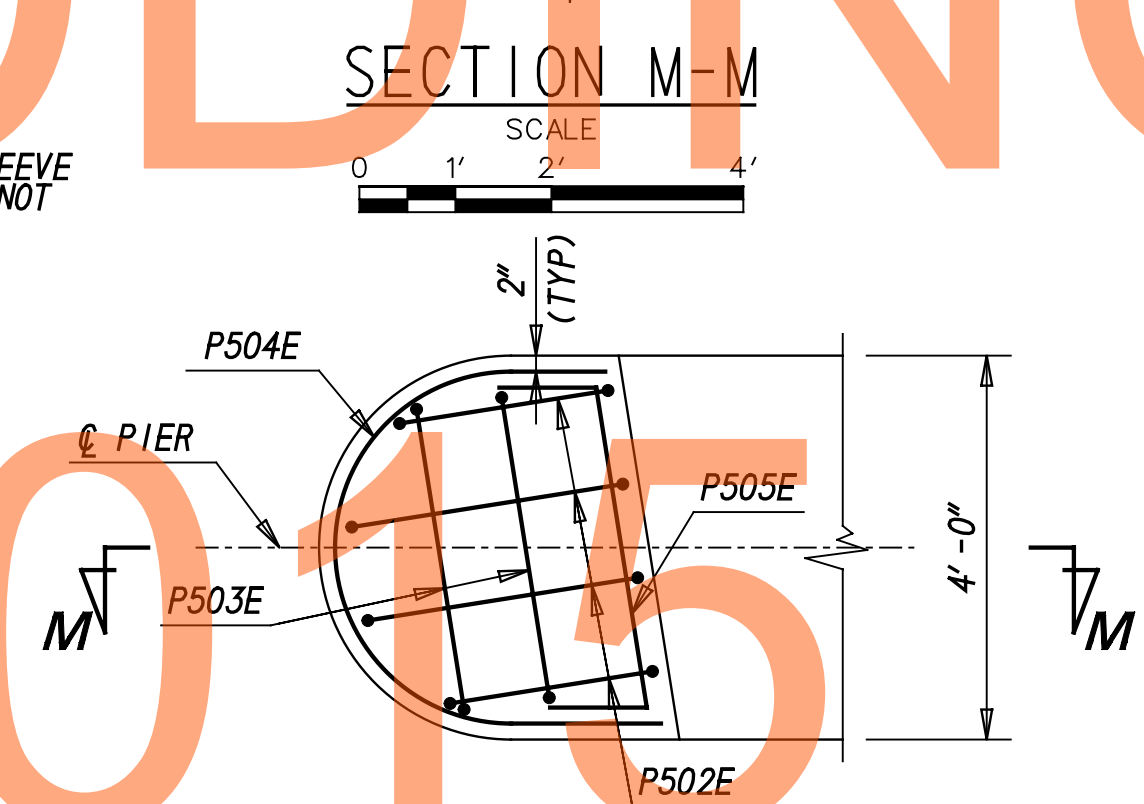
SECTION M-M
SCALE
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SECTION N-N
SCALE
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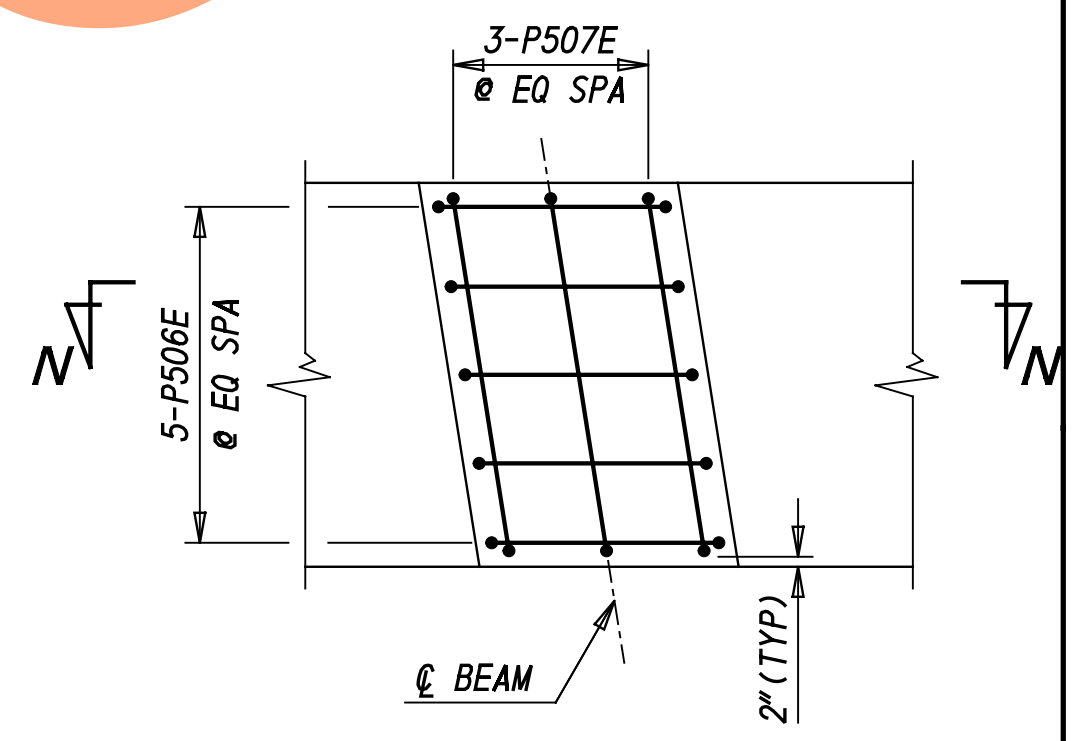


DOWEL DETAIL
(NOT TO SCALE)



CHEEKWALL PLAN

SCALE
0 1' 2' 4'



PEDESTAL PLAN

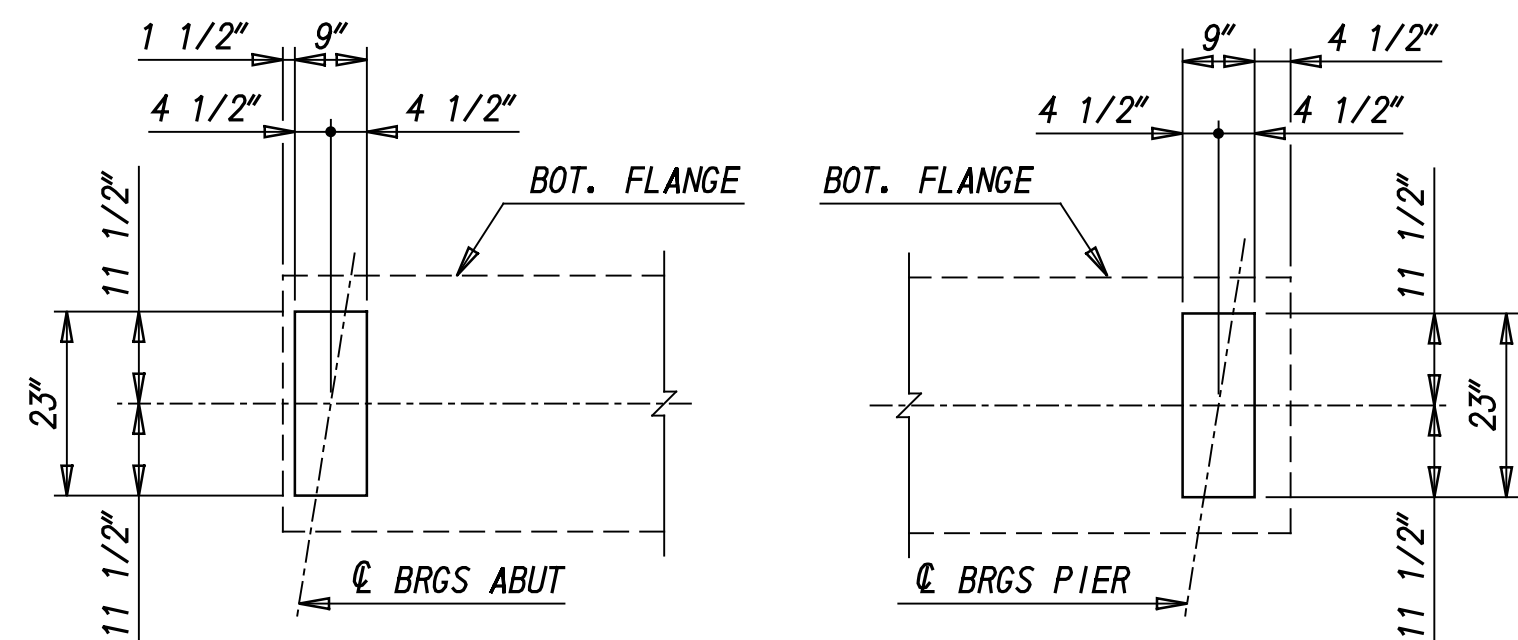
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WARNING:

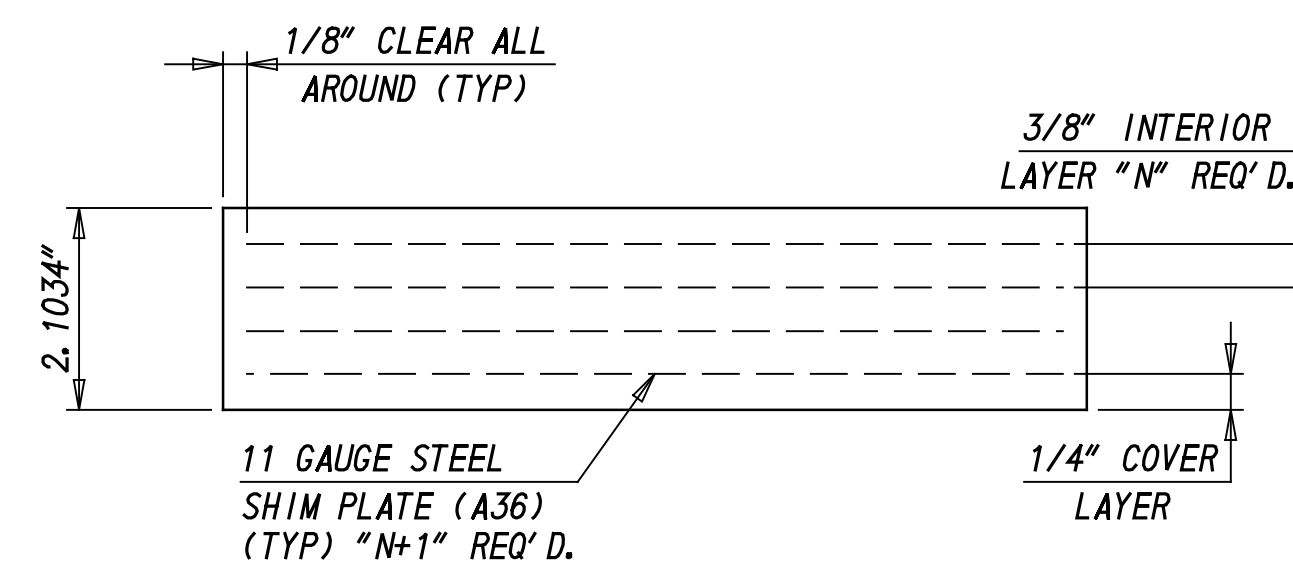
EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

REFERENCE:

- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
- FOR PIER PLAN AND ELEVATION, SEE SHEET BR1-486-14
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27



BEARING PAD LAYOUT



BEARING PAD DETAIL

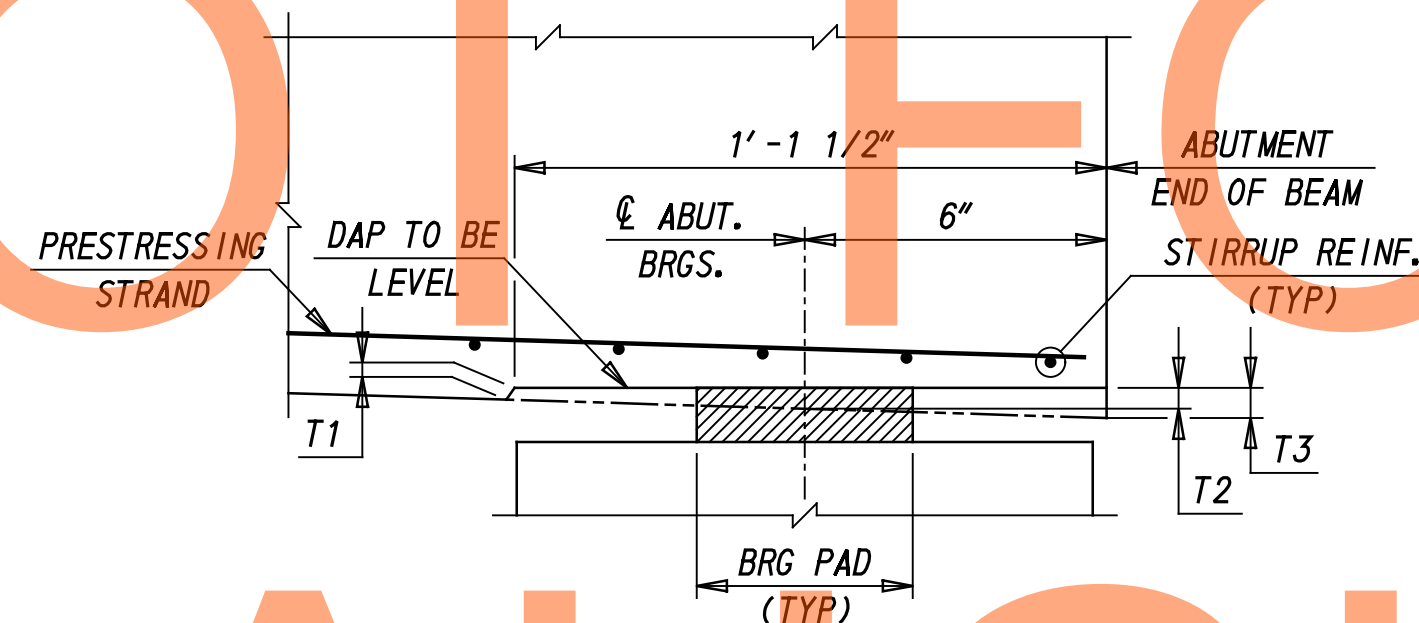
(NOT TO SCALE)

BEARING PAD DATA (50 DUROMETER)											
LOCATION	TYPE	LENGTH	WIDTH	THICKNESS	N	N+1	SHAPE FACTOR		PAD AREA (SQ. INCHES)	NO. OF BRGS REQUIRED	NO. OF TEST BRGS REQUIRED
							INTERIOR	EXTERIOR			
ABUTMENT 1	EXP	9"	23"	2.1034"	3	4	8.625	12.938	207	5	
PIER	FIX	9"	23"	2.1034"	3	4	8.625	12.938	207	10	1
ABUTMENT 2	EXP	9"	23"	2.1034"	3	4	8.625	12.938	207	5	

ELASTOMERIC BEARING PAD NOTES:

- MANUFACTURE ALL BEARINGS IN ACCORDANCE WITH THESE PLANS AND DELDOT SPECIFICATIONS.
- MEET THE MATERIAL SPECIFICATION FOR ELASTOMERIC BEARINGS REQUIREMENTS OF CURRENT AASHTO (M-251-92 STANDARD SPECIFICATIONS BEARINGS) AS LISTED UNDER SUBSECTION "MATERIALS AND TESTING"
- ALL BEARING PADS ARE TO BE MOLDED TO DESIGN DIMENSIONS. CUTTING TO SIZE AFTER FABRICATION IS PROHIBITED.
- HOLES ARE NOT PERMITTED IN ELASTOMERIC BEARINGS.
- PROVIDE NEOPRENE HARDNESS OF 50 DUROMETER (5 +/-)
- PROVIDE INTERNAL LAMINATES CONFORMING TO AASHTO M183.
- SMOOTH CUT AND DEBURR METAL SHIMS.
- GRIT BLAST AND DECREASE METAL SHIMS.
- VULCANIZE PATCH PIN GROOVES.
- PROVIDE A ROUGH TEXTURE TO CONCRETE BEARING SURFACES. DO NOT APPLY EPOXY COATING TO THE BEARING SURFACES WITHIN 2" OF THE BEARING PAD.
- BEARINGS SHALL BE PLACED NORMAL TO THE CENTERLINE OF GIRDER.
- THE MAXIMUM DESIGN LOAD FOR THE BEARINGS IS AS FOLLOWS:
EXPANSION BEARINGS = 176.29 KIPS
FIXED BEARINGS = 172.32 KIPS

NOT FOR BIDDING
AUGUST 2015



TYPICAL BEAM DAP DETAIL OF BEAM AT ABUTMENTS
(NOT TO SCALE)

BEAM DAP TABLE						
BEAM	DAP THICKNESS					
	ABUTMENT 1			ABUTMENT 2		
	T1	T2	T3	T1	T2	T3
1	1/4"	3/8"	7/16"	1/4"	3/8"	7/16"
2	1/4"	3/8"	7/16"	1/4"	3/8"	7/16"
3	1/4"	3/8"	7/16"	1/4"	3/8"	7/16"
4	1/4"	3/8"	7/16"	1/4"	3/8"	7/16"
5	1/4"	3/8"	7/16"	1/4"	3/8"	7/16"

BEAM DAP NOTES:

- PROVIDE BEAM DAPPING AT END OF BEAM AT ABUTMENT 1 AND ABUTMENT 2, DAPPING NOT REQUIRED FOR BEAM ENDS AT THE PIER.
- MAINTAIN MINIMUM COVER OF 1 1/2" ON PRESTRESSING STRANDS IN DAP AREA.
- MAINTAIN MINIMUM COVER OF 1" ON STIRRUPS IN DAP AREA.
- CHAMFER DAP AT 45°
- MINIMUM DAP DEPTH 1/4".
- IF COVER CAN NOT BE MAINTAINED, RAISE STRAND PATTERN IN INCREMENTS OF 1/2".

UNFACTORED REACTIONS (KIPS)					
BEAMS	LOCATION	TOTAL DC		HL-93	
		DC1	DC2	MAX	MIN
G1, G5	ABUTMENT 1	64.52	16.20	66.08	-7.14
	PIER (BACK)	64.12	20.24	56.98	0.00
	PIER (AHEAD)	64.12	20.24	56.98	0.00
G2, G3, G4	ABUTMENT 2	64.52	16.20	66.08	-7.14
	ABUTMENT 1	74.38	16.20	72.80	-7.87
	PIER (BACK)	76.40	20.24	64.28	0.00
	PIER (AHEAD)	76.40	20.24	64.28	0.00
	ABUTMENT 2	74.38	16.20	72.80	-7.87

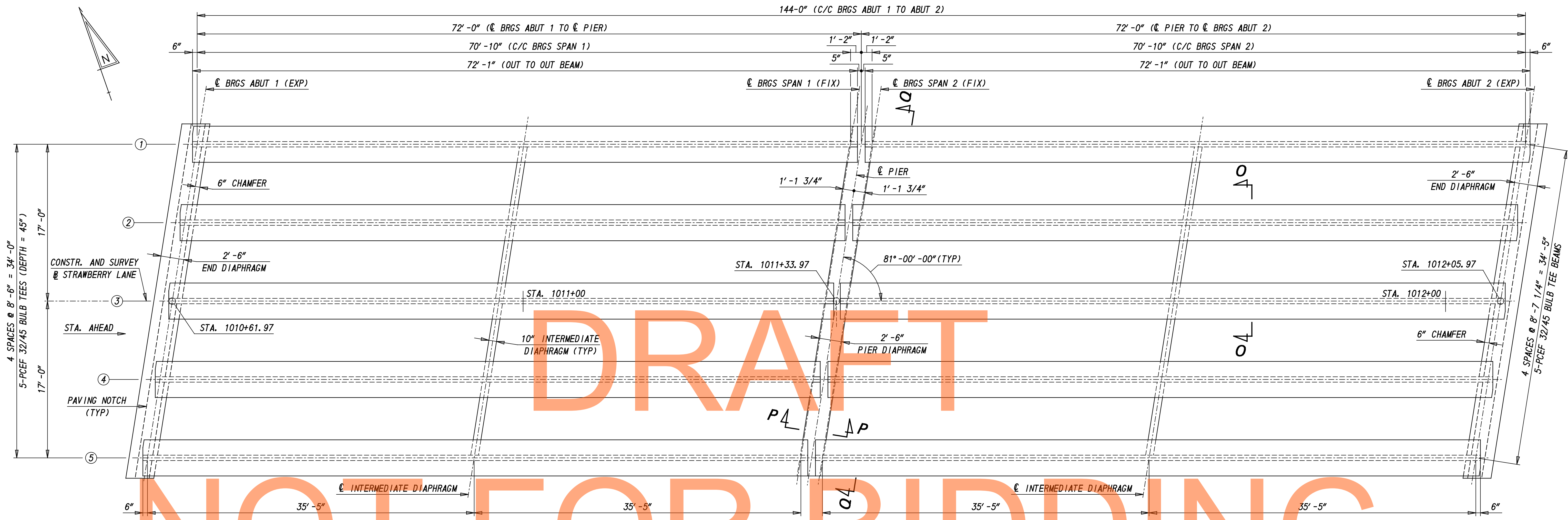
NOTES:
 1. DC2 INCLUDES FUTURE WEARING SURFACE.
 2. LL DOES NOT INCLUDE IMPACT.
 3. LL INCLUDES REACTION DISTRIBUTION FACTORS.

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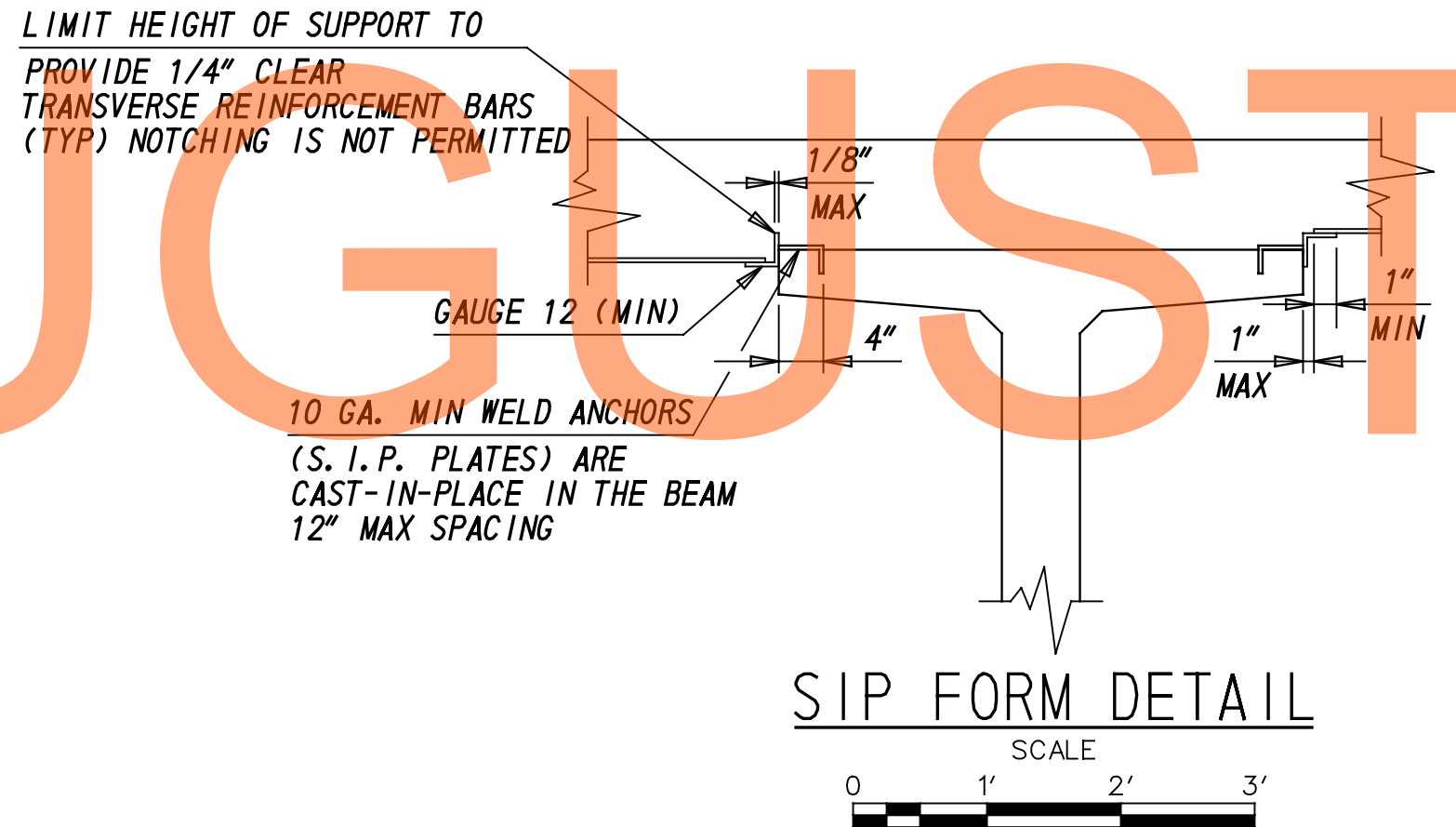
REFERENCE:

- FOR PROJECT NOTES, SEE SHEET BR1-486-02
- FOR FRAMING PLAN, SEE SHEET BR1-486-17
- FOR BEAM DETAILS, SEE SHEET BR1-486-20



SUPPORT NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF FORM SUPPORTS AND THEIR ATTACHMENTS UNDER ALL ANTICIPATED LOADING CONDITIONS, INCLUDING CONSTRUCTION LOADS.
2. SECURELY FASTEN ALL FORMS TO FORM SUPPORTS AND PROVIDE A MINIMUM BEARING LENGTH OF 1" AT EACH END.
3. ATTACH FORM SHEETS PROPERLY TO AVOID HAZARDS THAT CAN RESULT FROM LATERAL MOVEMENT OR SUDDEN UPLIFT. PROVIDE SAFETY STOPS WHERE NECESSARY.
4. CONNECT ADJOINING HAUNCH ANGLE OR CHANNEL BY WELDING.
5. ALL SHEETS MUST HAVE FACTORY CLOSED ENDS.
6. USE 3/8" HWH x 1/4" - 14 THREADS/INCH SCREW FASTENER TO CONNECT DECK FORMS.
7. PROVIDE GRADE 50 PERMANENT METAL DECK FORMS WITH MINIMUM $I = 0.1185 \text{ IN}^4$ PER FOOT, AND MINIMUM $S = 0.1346 \text{ IN}^3$ PER FOOT.
8. PERMANENT METAL DECK FORMS AND SUPPORTS SHALL BE FABRICATED FROM STEEL CONFORMING TO A446 AND SHALL BE ZINC COATED (GALVANIZED) IN CONFORMANCE WITH A653, COATING DESIGNATION 690. THESE FORMS SHALL BE THE PROPER GAUGE TO SUPPORT, WITHIN SPECIFIED DEFLECTIONS, THE SPECIFIED WEIGHTS FOR THE PARTICULAR SPAN INVOLVED. NOTE ALSO, THAT NO FORM LESS THAN 0.0359 INCH THICKNESS WILL BE ACCEPTED. THE DESIGN SPAN SHALL BE THE CLEAR DISTANCE BETWEEN GIRDER FLANGES LESS 2 INCHES.
9. 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.

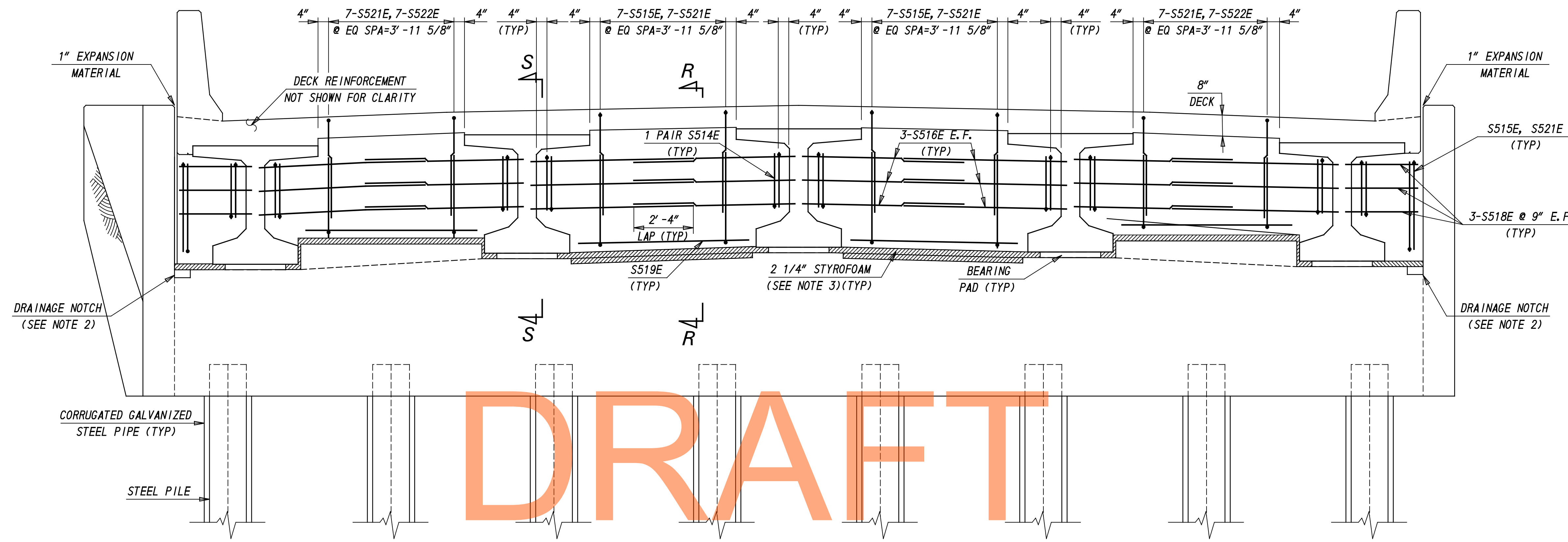


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- REFERENCE:**
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
 - FOR GEOMETRIC LAYOUT, SEE SHEET BR1-486-04
 - FOR SECTIONS O-O, P-P, AND Q-Q, SEE SHEET BR1-486-19

ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	1-486
T200811301	DESIGNED BY:	JLW
COUNTY	CHECKED BY:	JPF
NEW CASTLE		



DRAFT

ABUTMENT DIAPHRAGM
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)

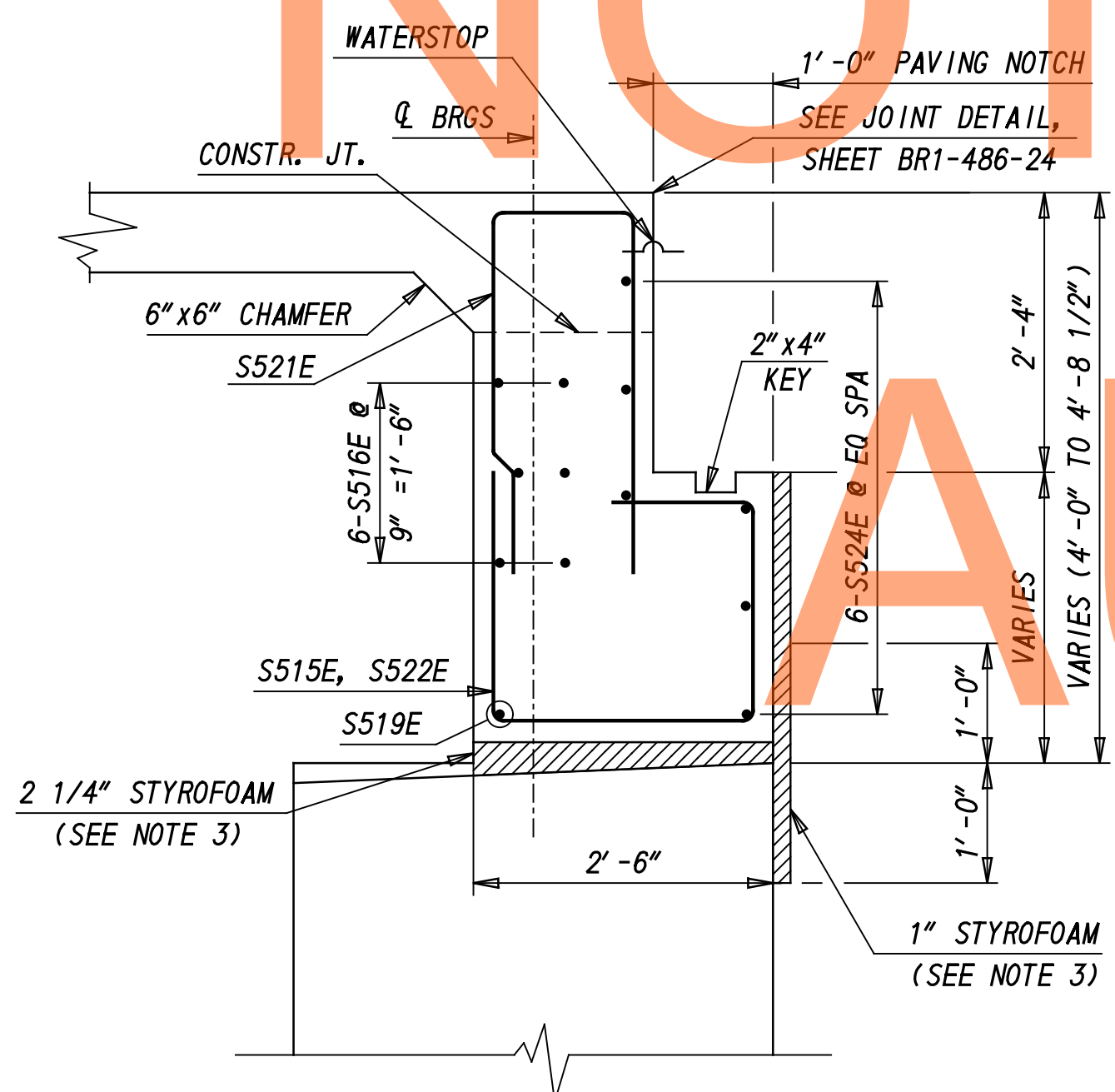


ABUTMENT DIAPHRAGM NOTES:

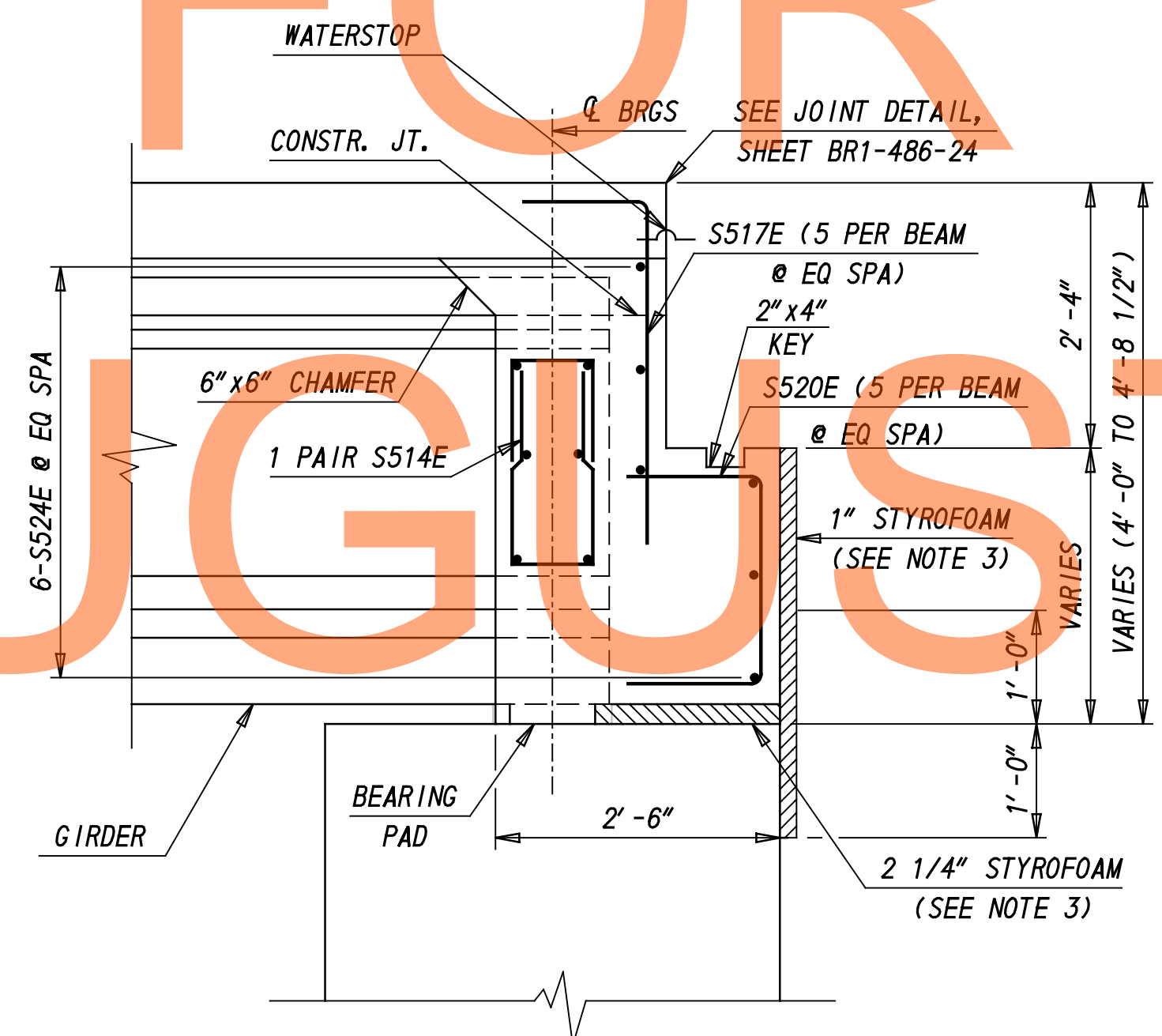
1. ABUTMENT REINFORCEMENT NOT SHOWN FOR CLARITY.
2. ADD REMOVABLE PLUG FOR POUR OF END DIAPHRAGM.
3. STYROFOAM SHALL BE INCIDENTAL TO ITEM "602013 - PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D". SEE NOTE 12 OF PROJECT NOTE SHEET BR1-486-03.
4. MSE WALL NOT SHOWN FOR CLARITY

NOT FOR BIDDING

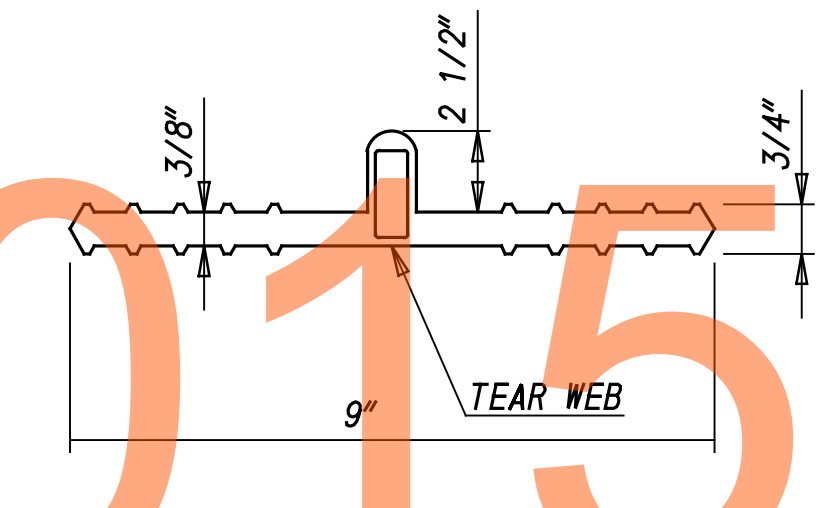
AUGUST 2015



SECTION R-R



SECTION S-S



WATERSTOP DETAIL:
(NOT TO SCALE)

REFERENCE:

- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR ABUTMENT 1 AND 2 DETAILS, SEE SHEETS BR1-486-07,09
- FOR FRAMING PLAN, SEE SHEET BR1-486-17
- FOR BEAM DETAILS, SEE SHEET BR1-486-20
- FOR JOINT DETAIL, SEE SHEET BR1-486-24
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEET BR1-486-26,27

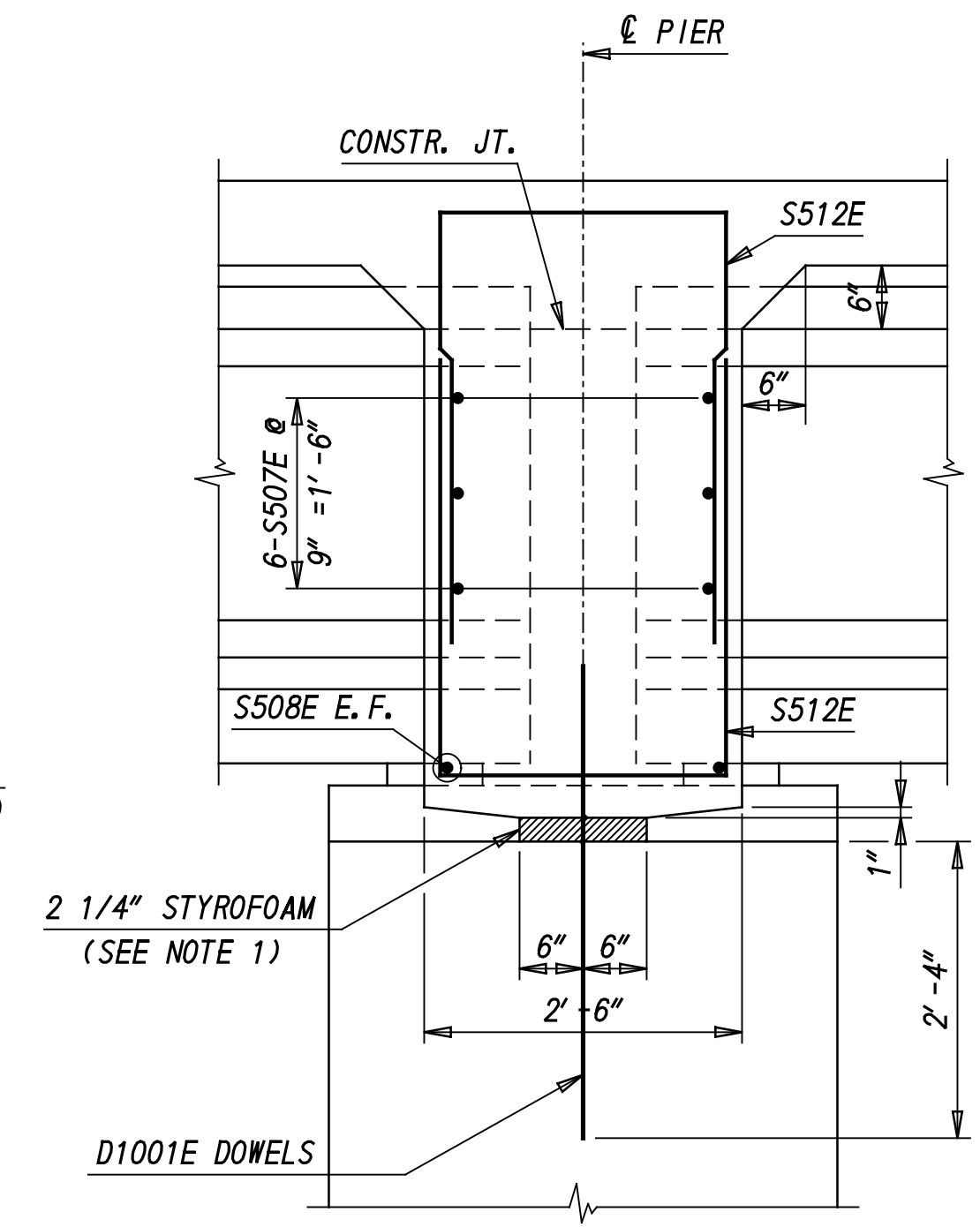
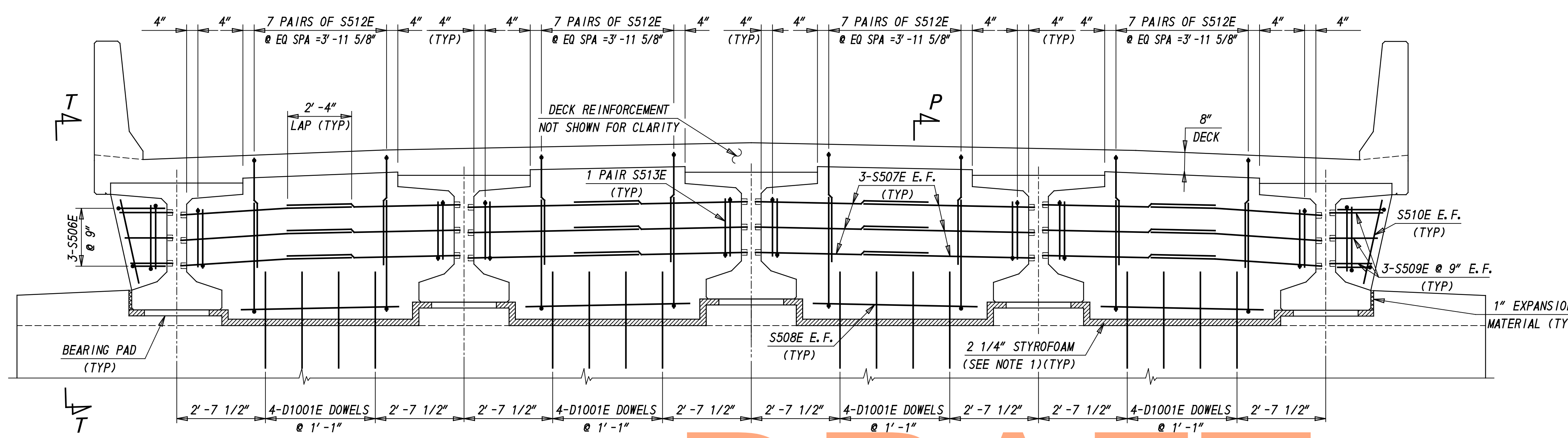
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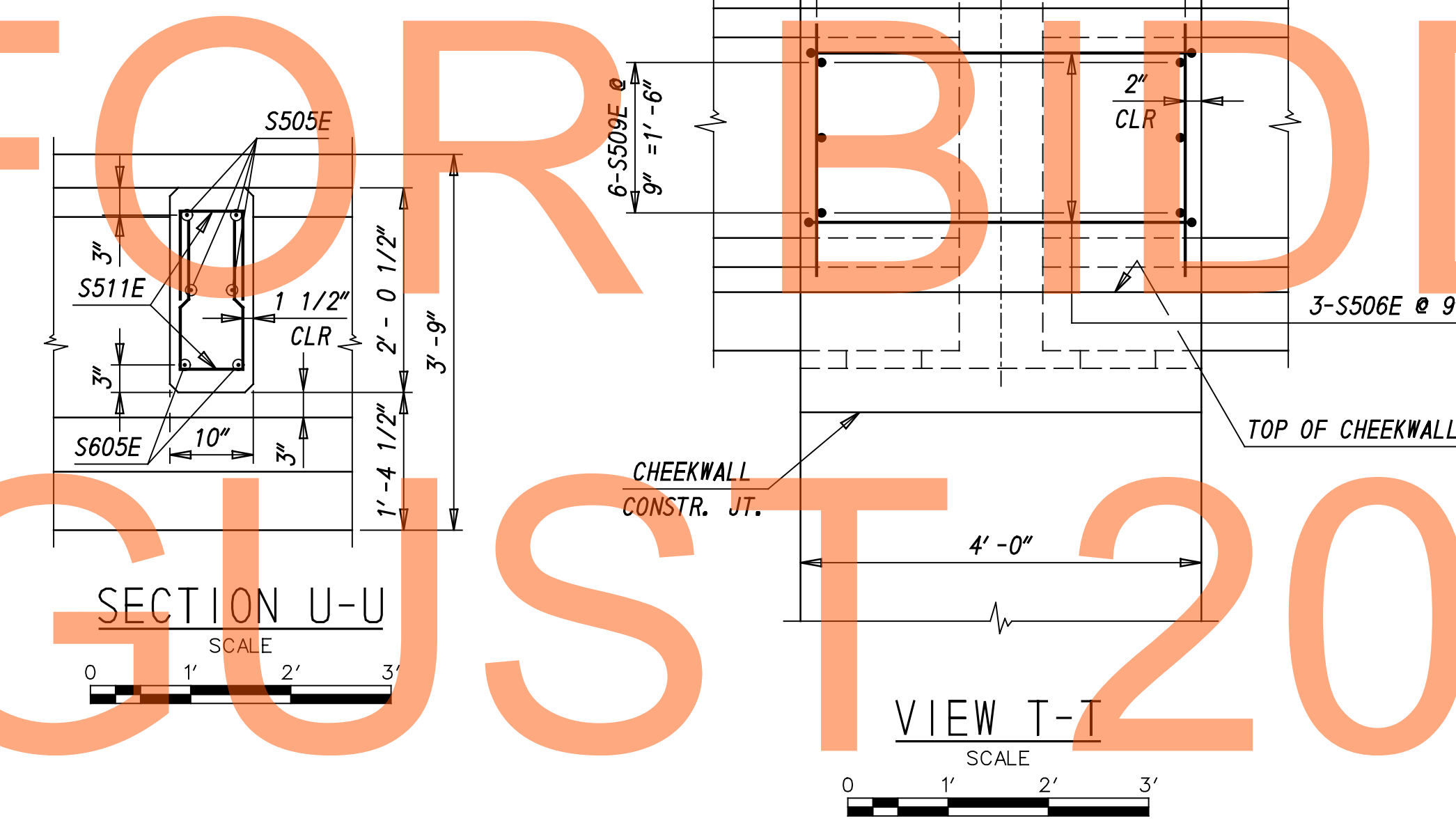
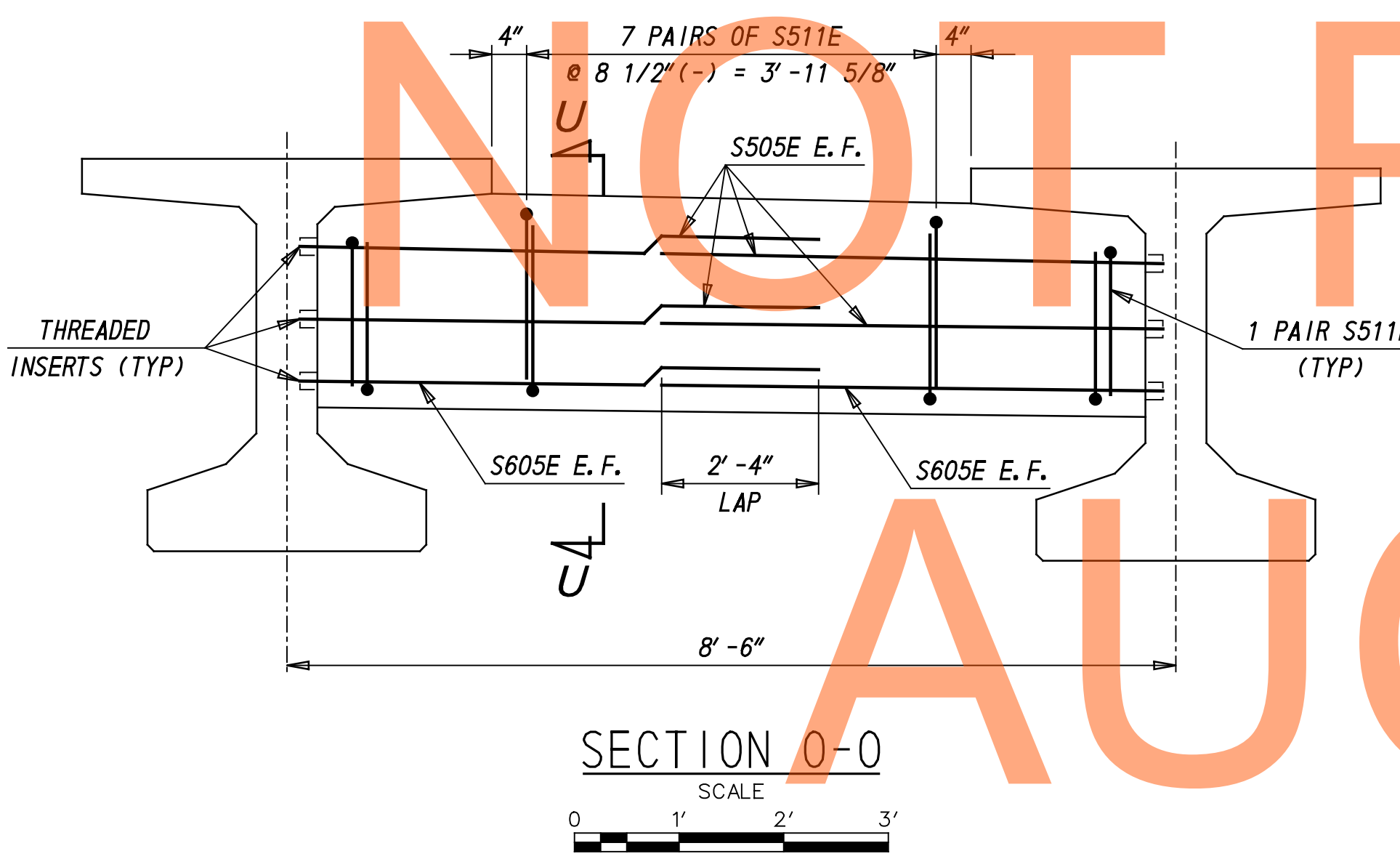
ADDENDUMS / REVISIONS

CONTRACT T200811301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: JLW CHECKED BY: JPF

BR1-486-18
SHEET NO. 281
TOTAL SHTS. 850



DRAFT



DIAPHRAGM NOTES:

1. STYROFOAM TO MEET THE MATERIAL REQUIREMENTS OF ASTM C-578, TYPE 1. STYROFOAM SHALL BE INCIDENTAL TO ITEM "602013 - PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D." SEE NOTE 12 OF PROJECT NOTE SHEET BR1-486-03.

REFERENCE:

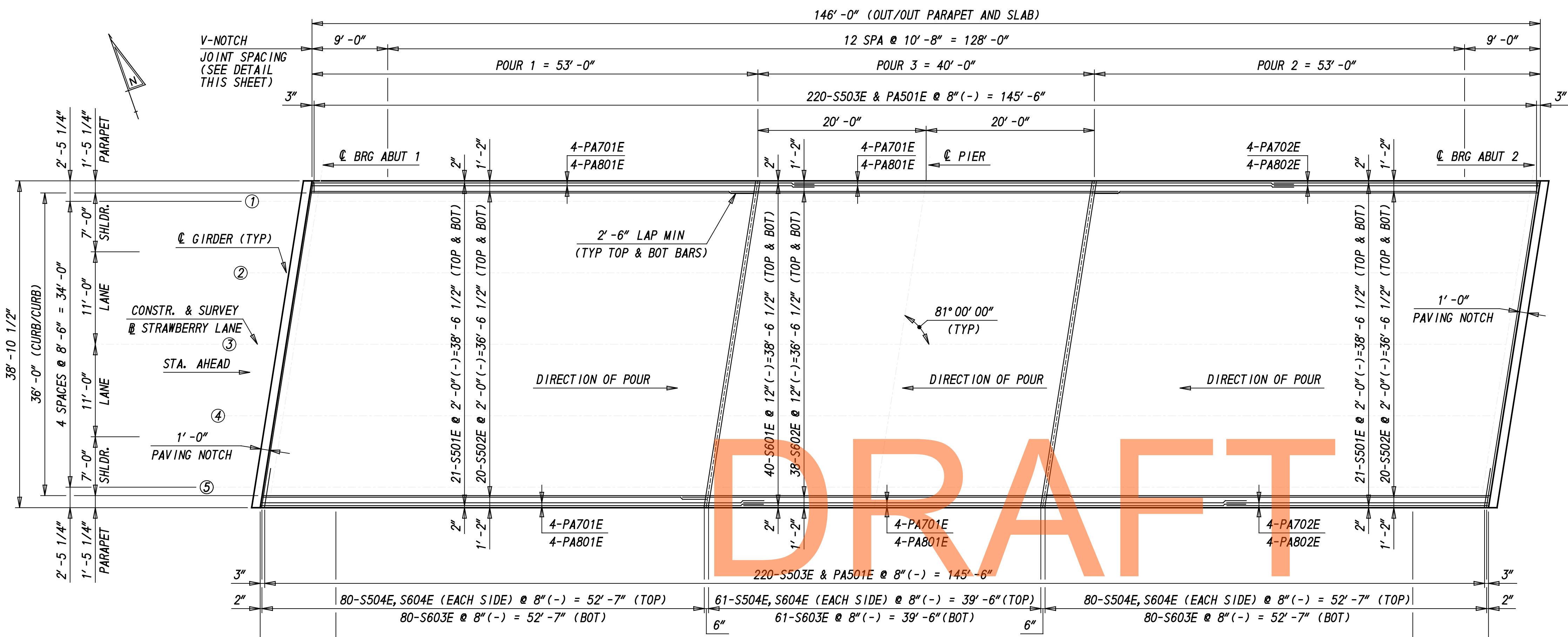
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR PIER DETAILS, SEE SHEETS BR1-486-14,15
- FOR FRAMING PLAN, SEE SHEET BR1-486-17
- FOR BEAM DETAILS, SEE SHEET BR1-486-20
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26,27

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ADDENDUMS / REVISIONS	

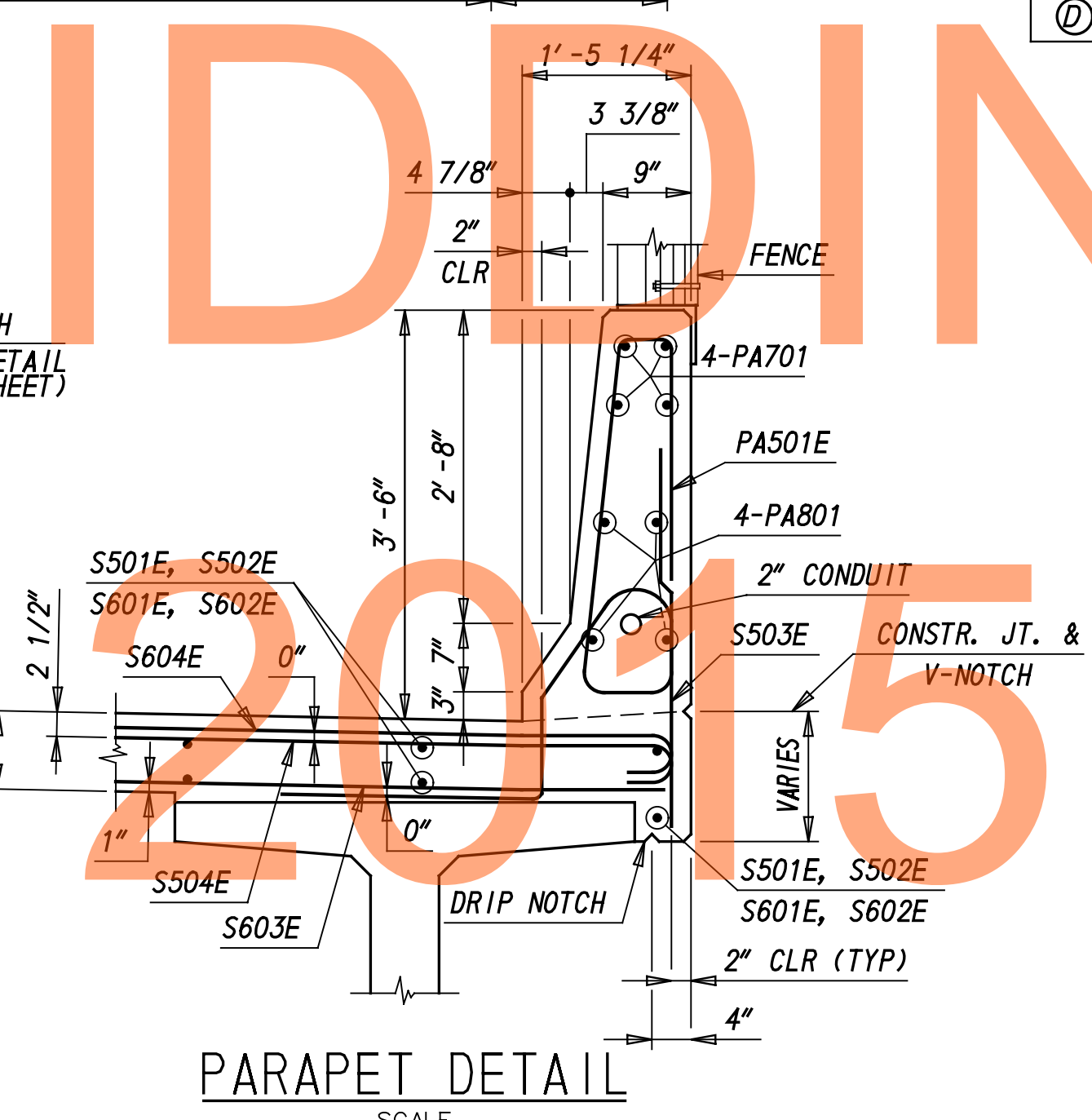
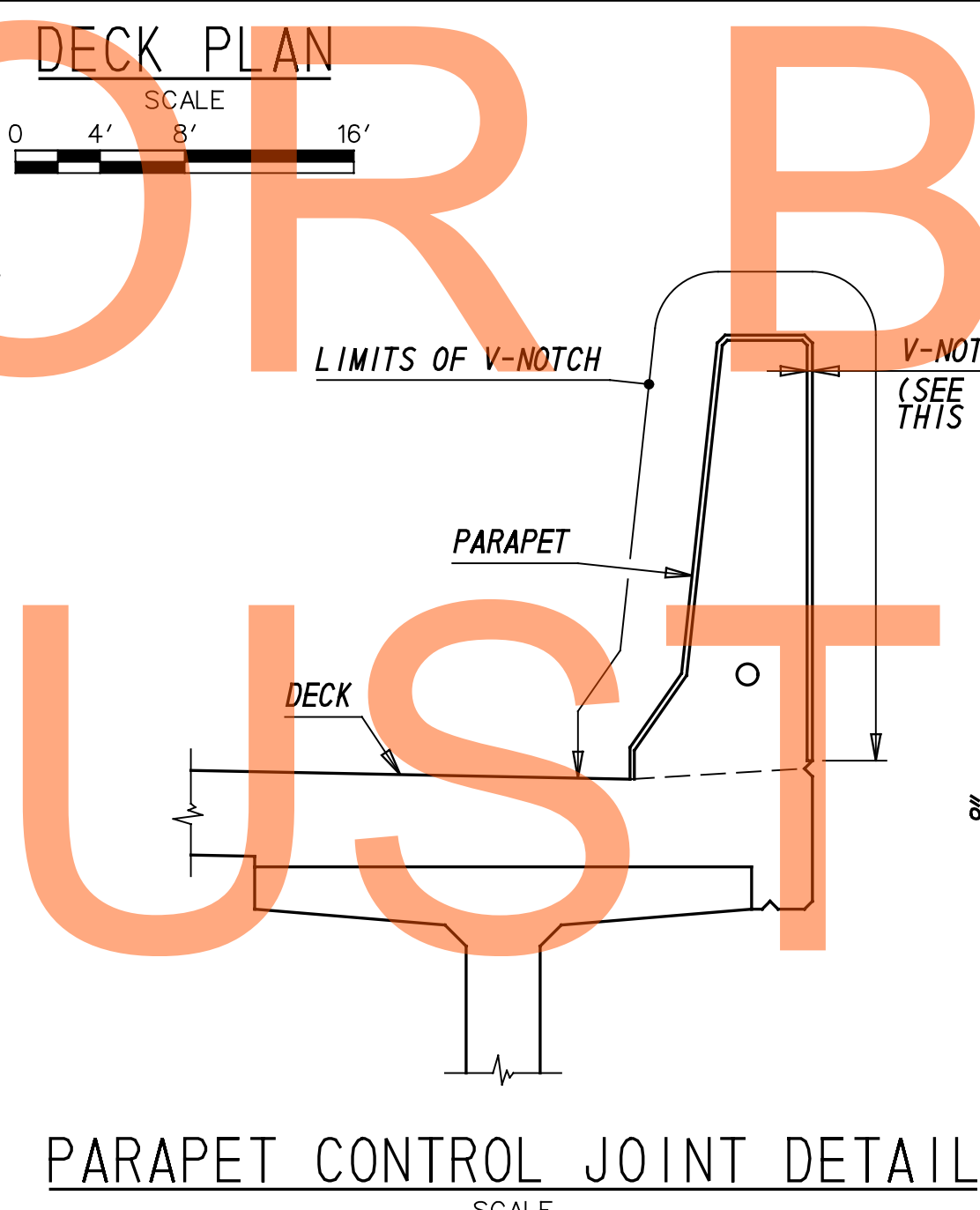
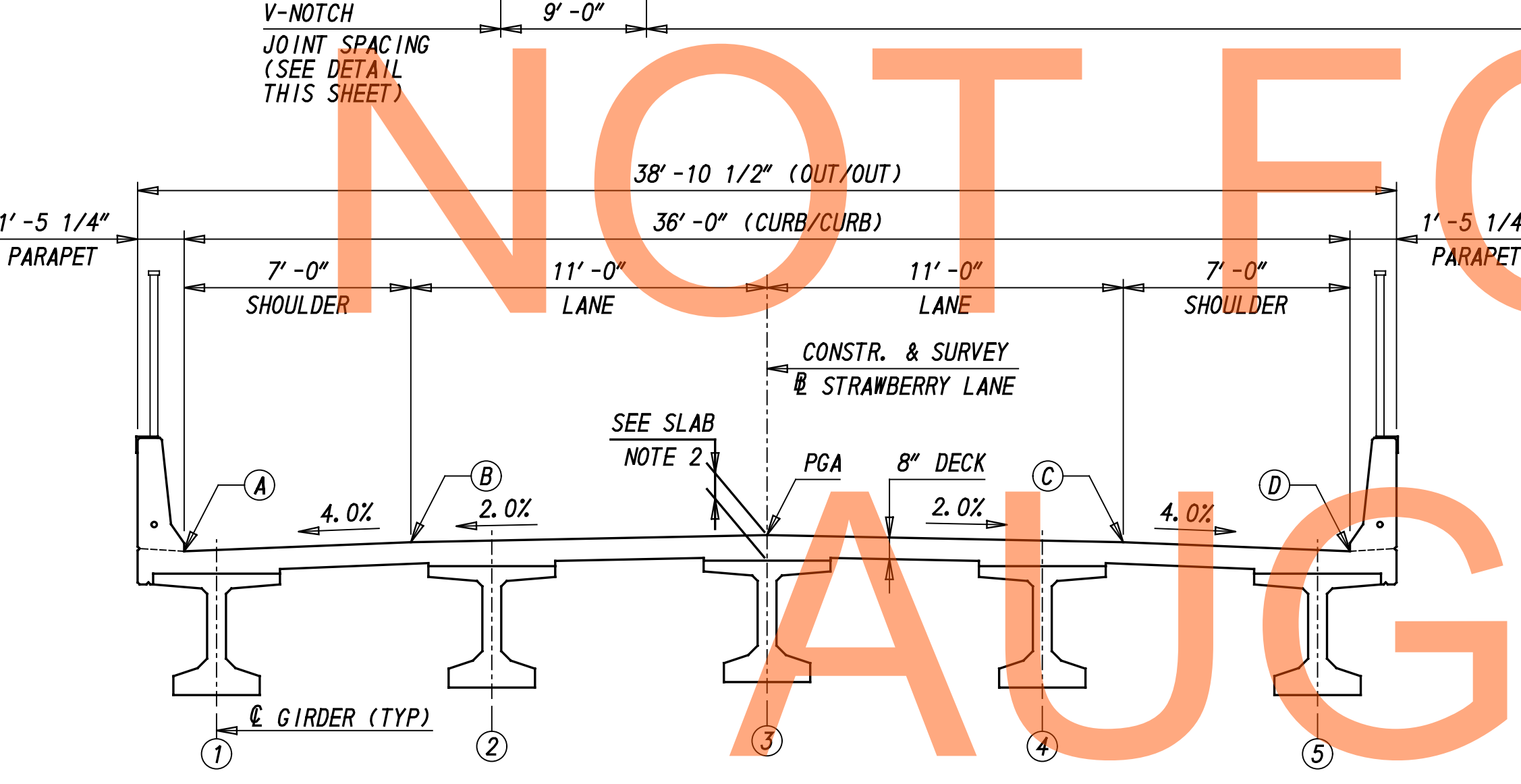
CONTRACT T200811301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: J.L.W. CHECKED BY: J.P.F.

PIER DIAPHRAGM DETAILS	SHEET NO. 282
	TOTAL SHTS. 850
	BR1-486-19



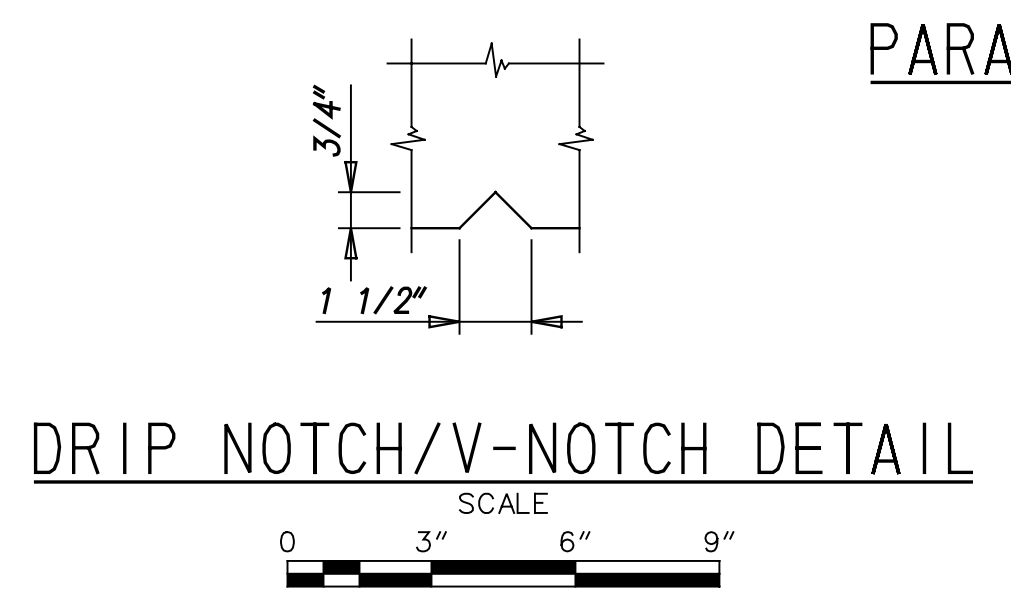
FINISHED GRADE ELEVATIONS					
STATION	(A)	(B)	PGA	(C)	(D)
*1010+58.11	---	---	---	---	97.08
*1010+59.22	---	---	---	97.38	---
*1010+60.96	---	---	97.63	---	---
*1010+62.70	---	97.43	---	---	---
*1010+63.81	97.17	---	---	---	---
1010+61.97	---	---	97.64	97.42	97.14
1010+69.17	97.25	97.53	97.75	97.53	97.25
1010+76.37	97.34	97.62	97.84	97.62	97.34
1010+83.57	97.43	97.71	97.93	97.71	97.43
1010+90.77	97.50	97.78	98.00	97.78	97.50
1010+97.97	97.56	97.84	98.06	97.84	97.56
1011+05.17	97.61	97.89	98.11	97.89	97.61
1011+12.37	97.65	97.93	98.15	97.93	97.65
1011+19.57	97.67	97.95	98.17	97.95	97.67
1011+26.77	97.69	97.97	98.19	97.97	97.69
1011+33.97	97.69	97.97	98.19	97.97	97.69
1011+41.17	97.68	97.96	98.18	97.96	97.68
1011+48.37	97.66	97.94	98.16	97.94	97.66
1011+55.57	97.63	97.91	98.13	97.91	97.63
1011+62.77	97.59	97.87	98.09	97.87	97.59
1011+69.97	97.53	97.81	98.03	97.81	97.53
1011+77.17	97.47	97.75	97.97	97.75	97.47
1011+84.37	97.39	97.67	97.89	97.67	97.39
1011+91.57	97.30	97.58	97.80	97.58	97.30
1011+98.77	97.20	97.48	97.70	97.48	97.20
1012+05.97	97.09	97.37	97.59	---	---
*1012+04.13	---	---	---	---	97.12
*1012+05.24	---	---	---	97.38	---
*1012+06.98	---	---	97.57	---	---
*1012+08.72	---	97.33	---	---	---
*1012+09.83	97.03	---	---	---	---

* DESIGNATES END OF SLAB
 (A) DESIGNATES NORTH GUTTERLINE
 (B) DESIGNATES EDGE OF NORTH LAINE
 PGA DESIGNATES PROFILE GRADE ALIGNMENT
 (C) DESIGNATES EDGE OF SOUTH LAINE
 (D) DESIGNATES SOUTH GUTTERLINE



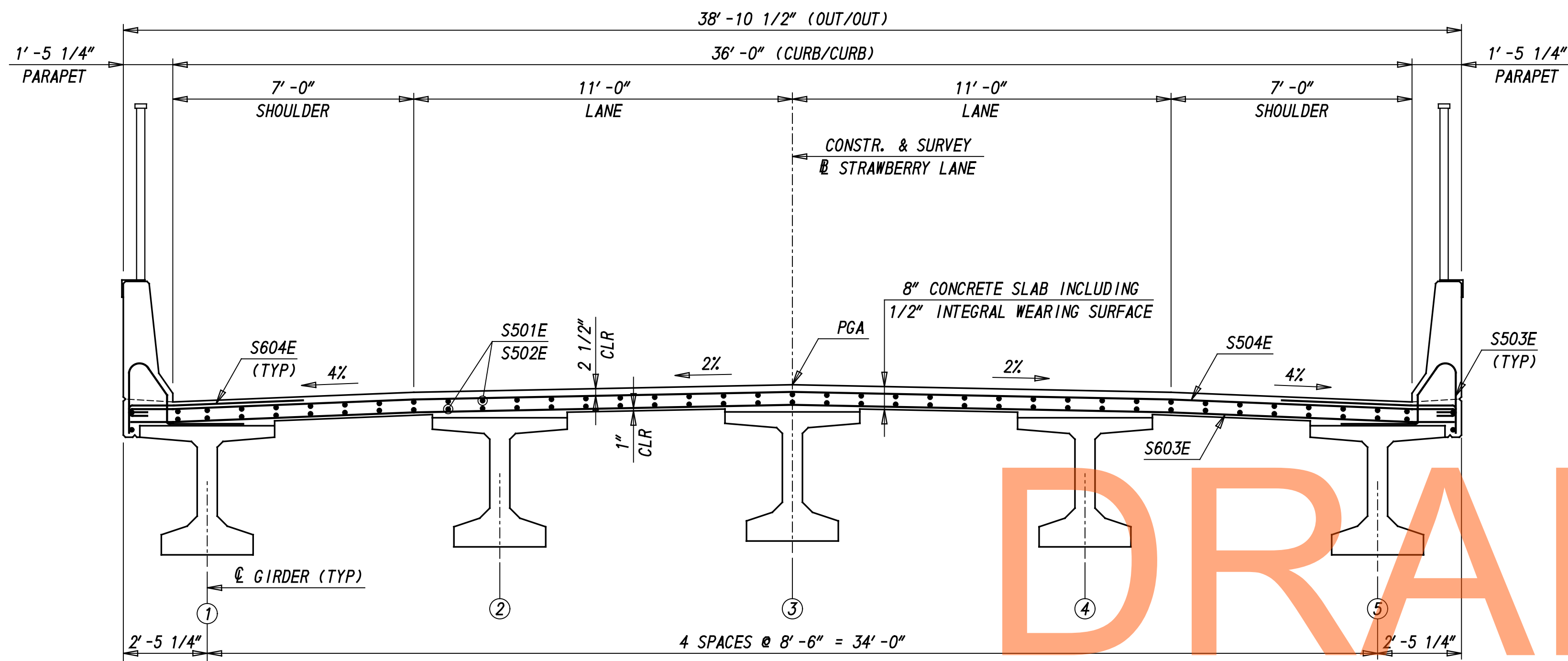
FINISHED DECK ELEVATIONS OVER CENTERLINE OF BEAM					
TENTH POINT	BEAM NUMBER				
	1	2	3	4	5
€ BRG ABUT 1	97.22	97.49	97.64	97.45	97.14
0.1	97.32	97.60	97.75	97.56	97.25
0.2	97.41	97.69	97.84	97.65	97.35
0.3	97.49	97.77	97.92	97.74	97.43
0.4	97.56	97.84	97.99	97.81	97.51
0.5	97.62	97.90	98.06	97.87	97.57
0.6	97.66	97.94	98.10	97.93	97.63
0.7	97.69	97.98	98.14	97.97	97.67
0.8	97.72	98.00	98.17	98.00	97.70
0.9	97.73	98.02	98.19	98.01	97.72
€ BRG PIER	97.73	98.02	98.19	98.02	97.73
0.1	97.71	98.01	98.18	98.01	97.72
0.2	97.69	97.98	98.16	97.99	97.71
0.3	97.65	97.95	98.13	97.96	97.68
0.4	97.60	97.90	98.08	97.92	97.64
0.5	97.55	97.85	98.03	97.87	97.59
0.6	97.48	97.78	97.96	97.81	97.53
0.7	97.39	97.70	97.89	97.73	97.46
0.8	97.30	97.61	97.80	97.65	97.37
0.9	97.20	97.51	97.70	97.55	97.28
€ BRG ABUT 2	97.09	97.40	97.59	97.44	97.17

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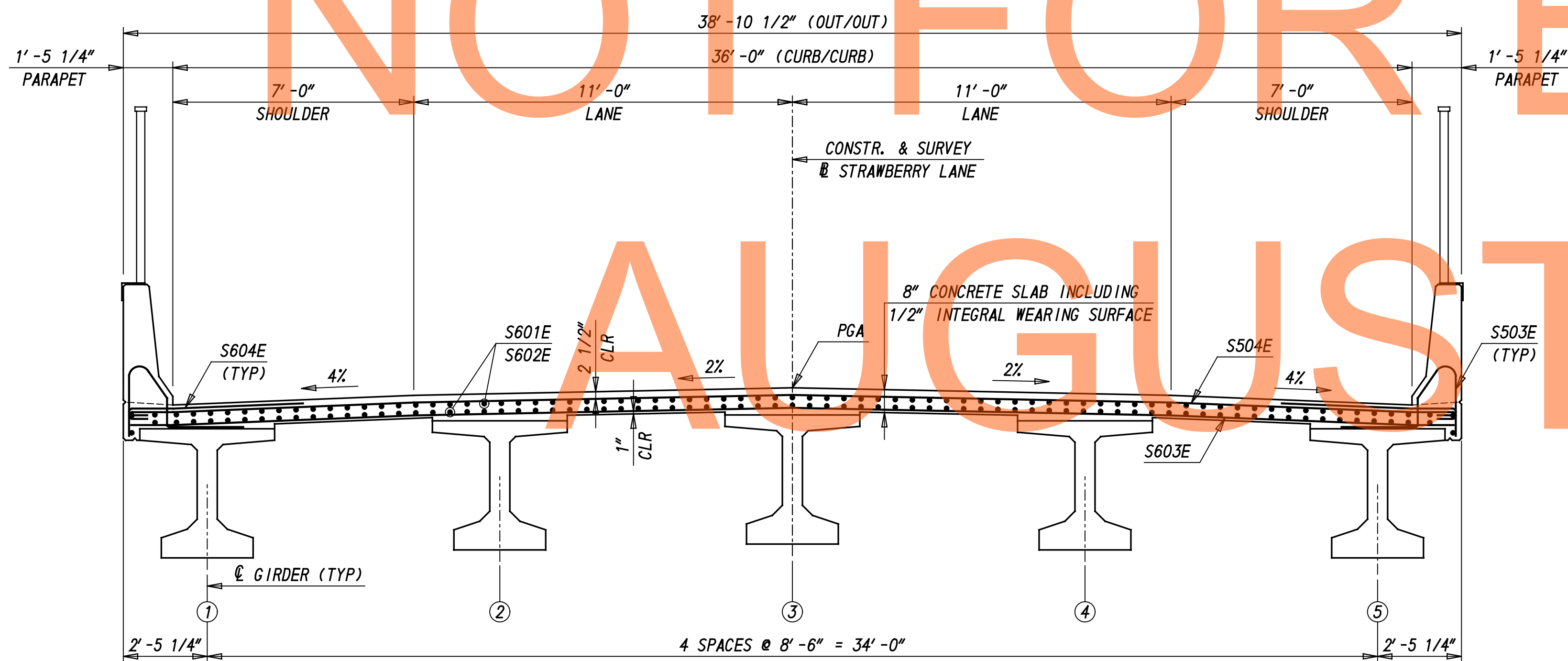
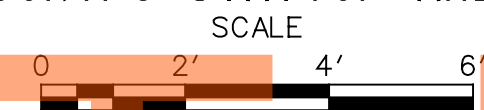


- SLAB NOTES:**
- SLIP FORMING OF THE CAST IN PLACE CONCRETE PARAPET WILL NOT BE ALLOWED ON THIS PROJECT.
 - 10 1/8" AT THE ABUTMENT € BEAMS AND € BEARINGS, TYPICAL FOR ALL BEAMS AT BOTH ABUTMENTS.
 9 7/8" AT THE PIER € BEAMS AND € BEARINGS, TYPICAL FOR ALL BEAMS AT BOTH BEARING LOCATIONS.

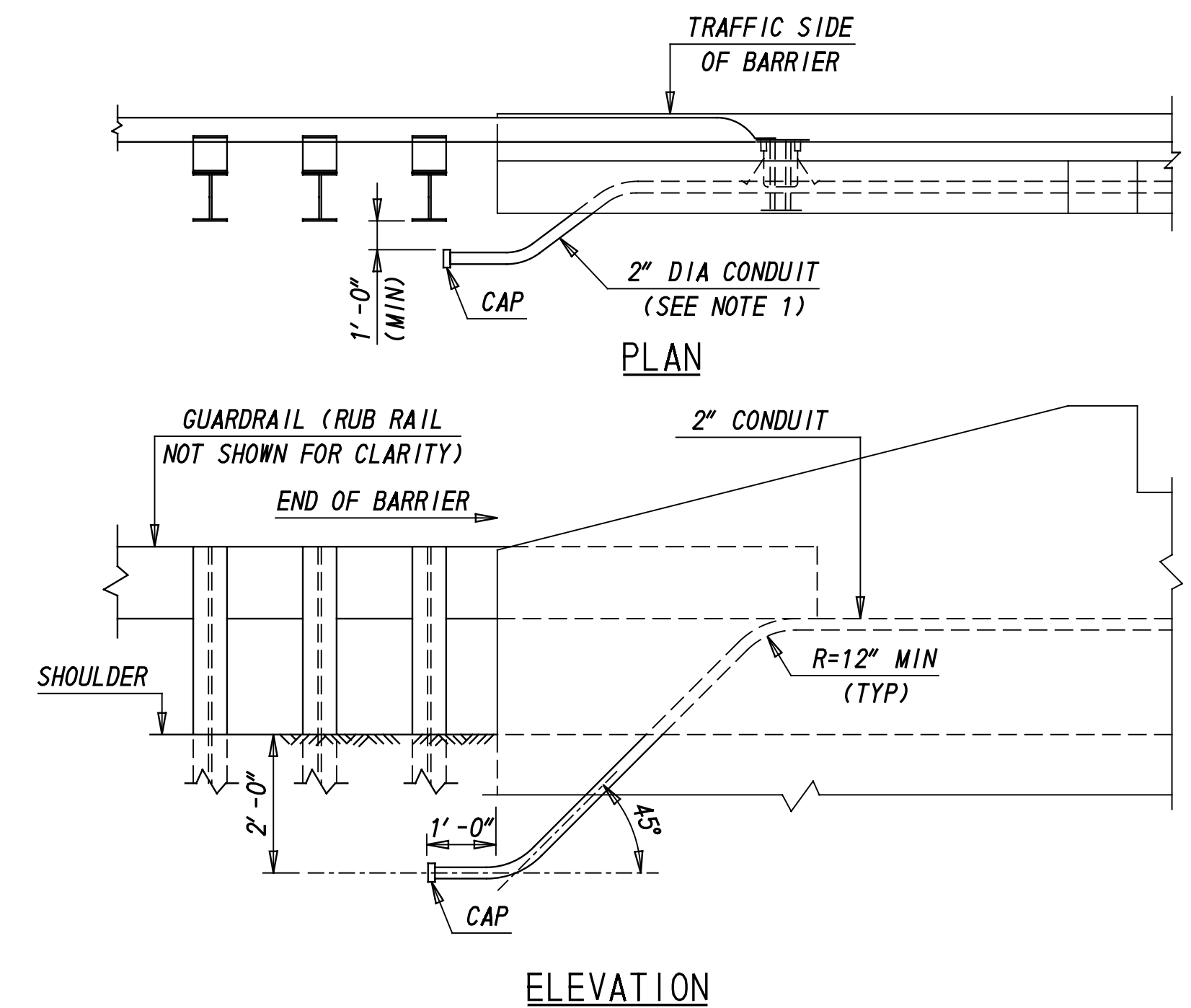
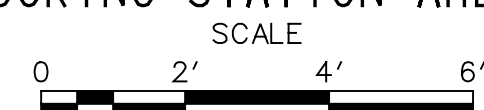
- REFERENCE:**
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
 - FOR FRAMING PLAN, SEE SHEET BR1-486-17
 - FOR BEAM DETAILS, SEE SHEET BR1-486-20
 - FOR CONDUIT DETAILS, SEE SHEET BR1-486-22
 - FOR REINFORCEMENT BAR SCHEDULE, SEE SHEET BR1-486-26, 27



TYPICAL SECTION
POSITIVE MOMENT REGIONS (MIDSPAN/POUR 1)
LOOKING STATION AHEAD



TYPICAL SECTION
NEGATIVE MOMENT REGION (OVER PIER/POUR 2)
LOOKING STATION AHEAD



CONDUIT DETAILS AT ENDS OF BRIDGE
(NOT TO SCALE)

CONDUIT NOTES:

1. CONDUIT TO EXIT BARRIER ON OUTSIDE OF GUARDRAIL POST LINE TO AVOID DAMAGE TO CONDUIT.
2. PROVIDE GALVANIZED STEEL OR NON-METALLIC EXPANSION AND DEFLECTION JOINT FITTINGS THROUGH JOINTS AT THE END OF BRIDGE PARAPET. CONDUIT, FITTINGS, EXPANSION AND DEFLECTION JOINT FITTINGS, SHALL BE INCIDENTAL TO ITEM 602017. MATERIAL AND CONSTRUCTION METHODS SHALL MEET THE REQUIREMENTS, AS APPLICABLE OF SECTION 745, AND BE APPROVED BY THE ENGINEER. PROVIDE SLEEVE OF SUFFICIENT LENGTH TO ACCOMMODATE MAXIMUM EXPANSION AND CONTRACTION OF EXPANSION JOINTS.
3. SLIP FORMING OF CAST IN PLACE CONCRETE PARAPET WILL NOT BE ALLOWED ON THIS PROJECT.
4. REFER TO DECK PLAN AND POURING SEQUENCE FOR SECTION AND VIEW MARKER LOCATIONS.

WARNING:

EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

REFERENCE:

- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR DECK PLAN AND POURING SEQUENCE, SEE SHEET BR1-486-21
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27

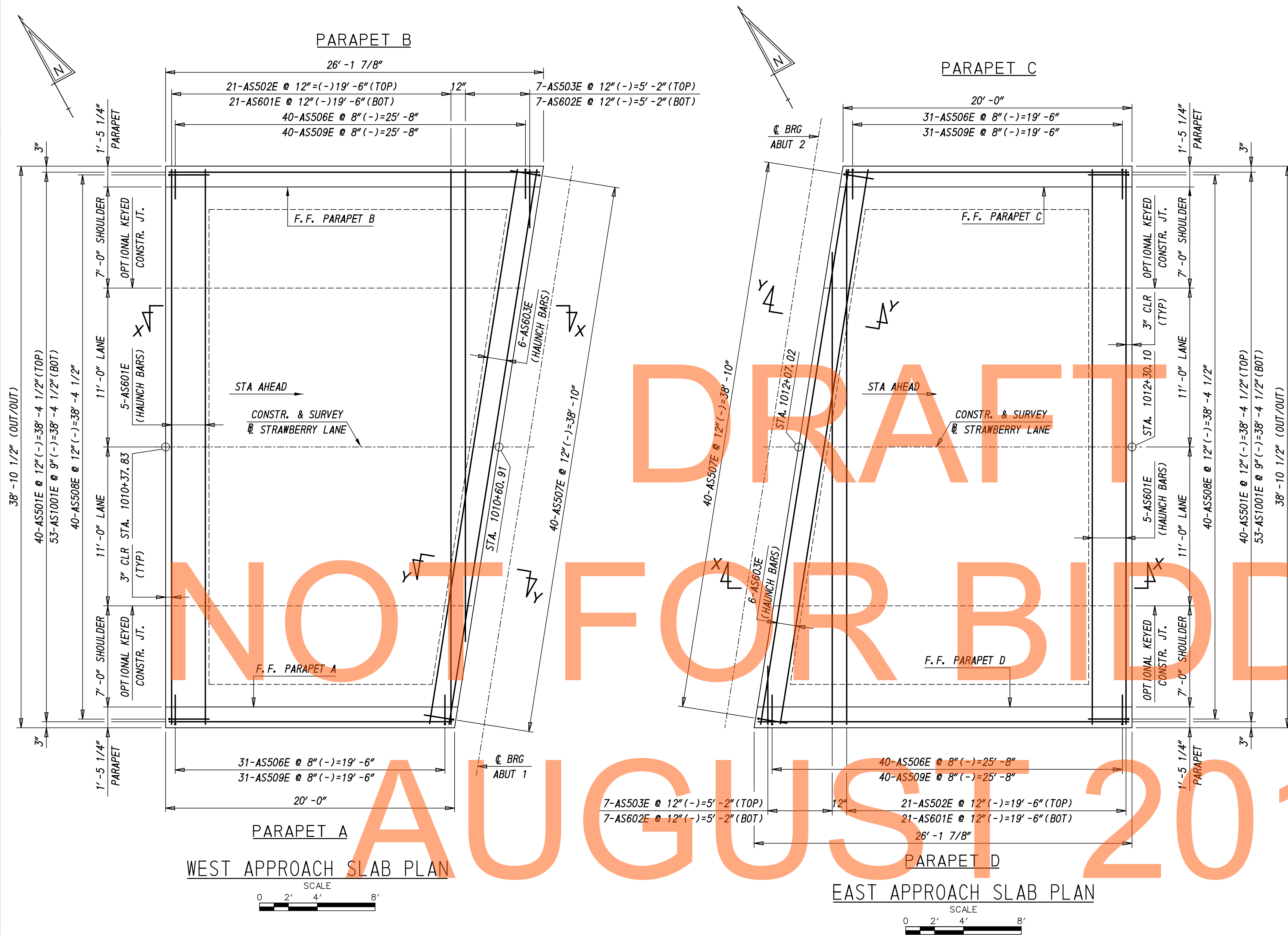
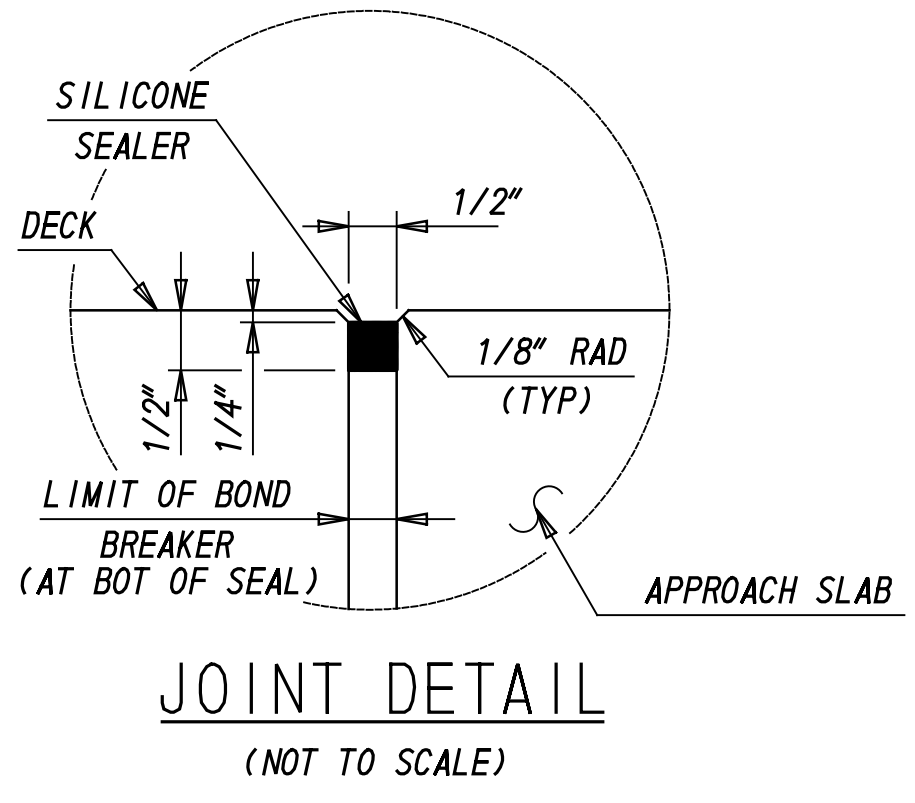
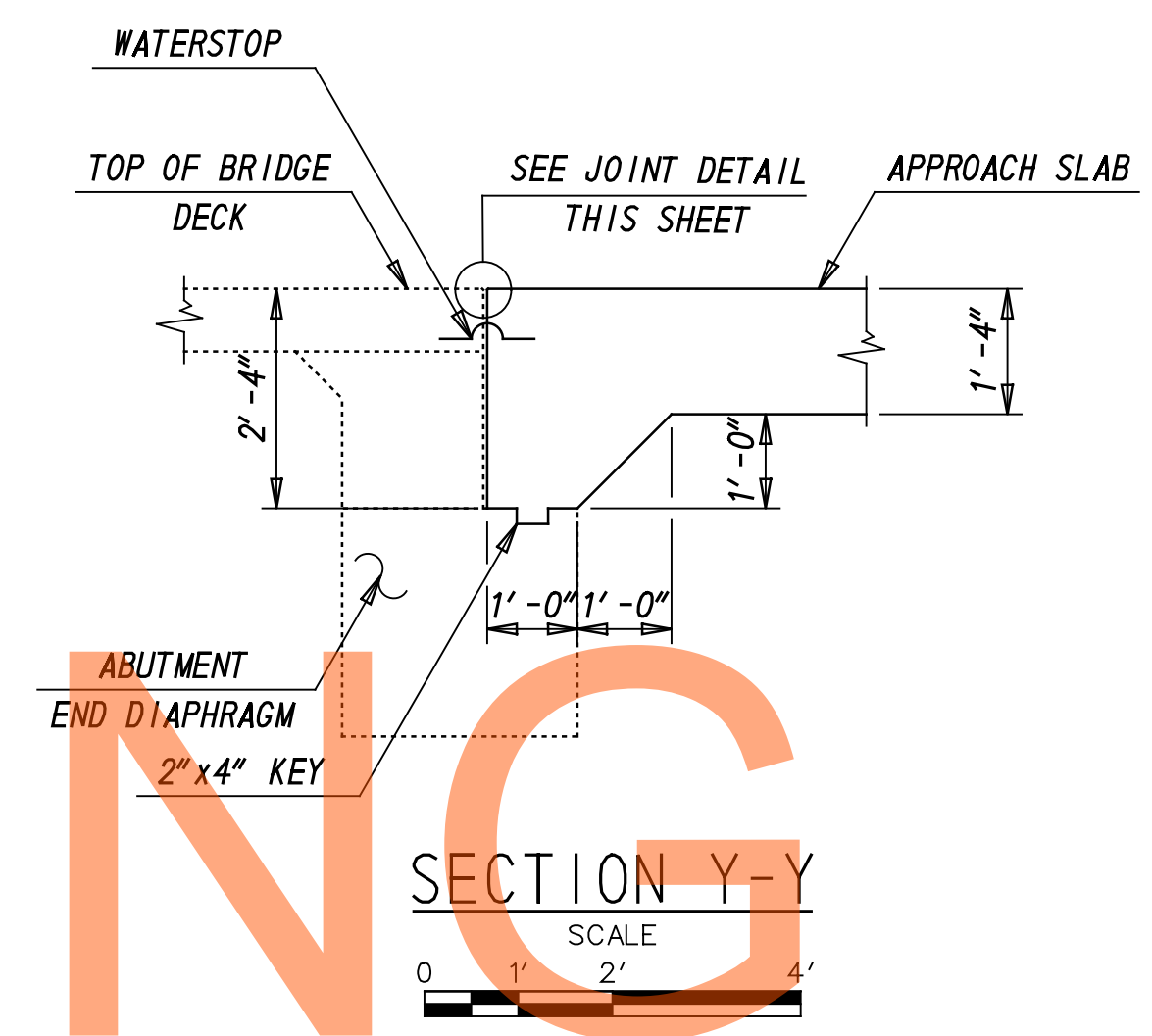


TABLE OF APPROACH SLAB ELEVATIONS						
	STATION	LEFT GUTTER	OUTSIDE EDGE LEFT LANE & OPTIONAL CONSTR. JOINT	PG	OUTSIDE EDGE RIGHT LANE & OPTIONAL CONSTR. JOINT	RIGHT GUTTER
WEST	*1010+37.83	96.70	96.98	97.20	96.98	96.70
	1010+42.83	96.80	97.08	97.30	97.08	96.80
	1010+47.83	96.90	97.18	97.40	97.18	96.90
	1010+52.83	96.99	97.27	97.49	97.27	96.99
	*1010+58.06	---	---	97.58	---	97.08
	*1010+59.17	---	---	97.60	97.38	---
EAST	*1010+60.91	---	---	97.63	---	---
	*1010+62.65	---	97.43	97.65	---	---
	*1010+63.76	97.17	---	97.67	---	---
	*1012+04.17	---	---	97.62	---	97.12
	*1012+05.28	---	---	97.60	97.38	---
	*1012+07.02	---	---	97.57	---	---
	*1012+08.76	---	97.32	97.54	---	---
	*1012+09.87	97.03	---	97.53	---	---
	1012+15.10	96.93	97.21	97.43	97.21	96.93
	1012+20.10	96.84	97.12	97.34	97.12	96.84
	1012+25.10	96.74	97.02	97.24	97.02	96.74
	*1012+30.10	96.63	96.91	97.13	96.91	96.63

* DESIGNATES BEGIN/END OF APPROACH SLAB



DRAFT

NOT FOR BIDDING

AUGUST 2015

APPROACH SLAB NOTES:

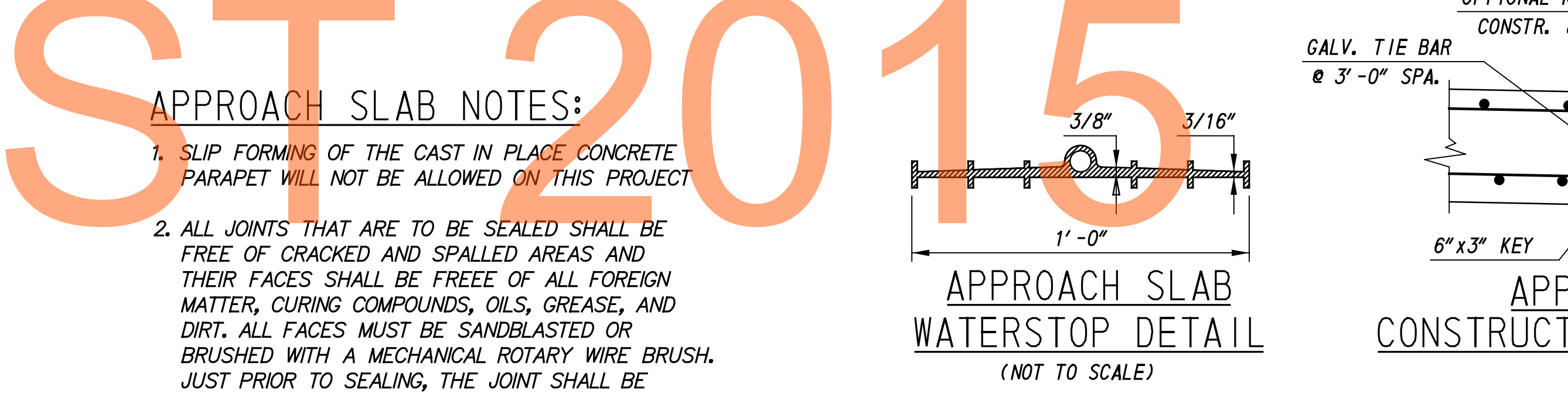
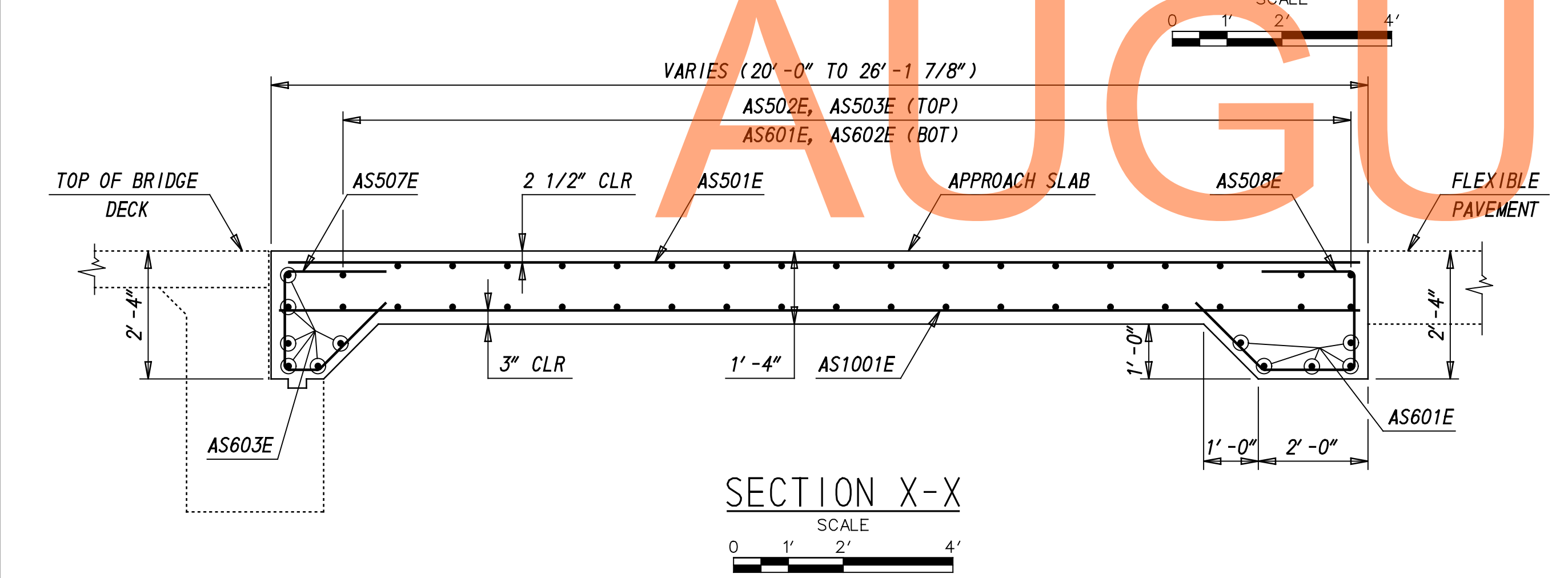
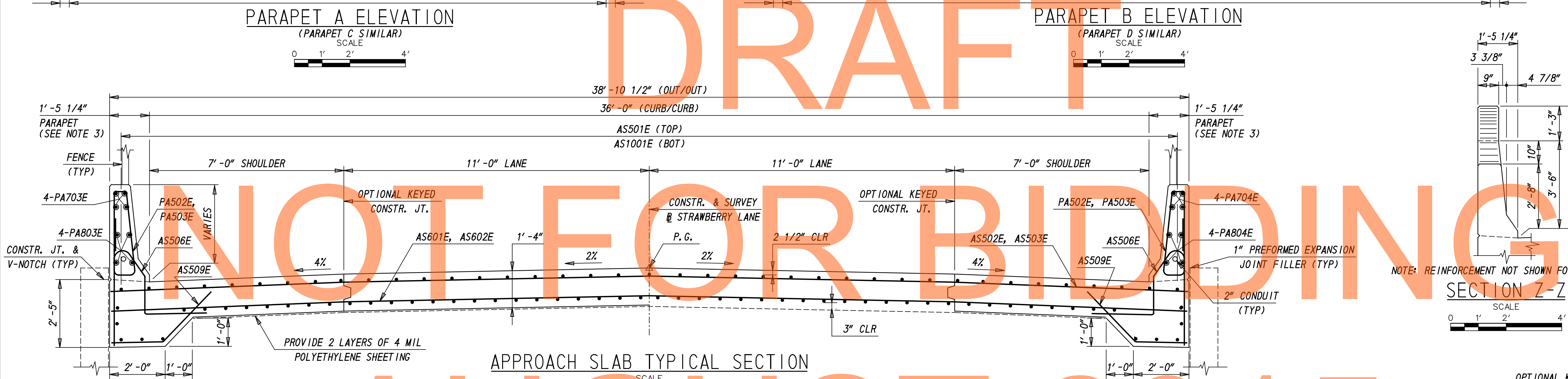
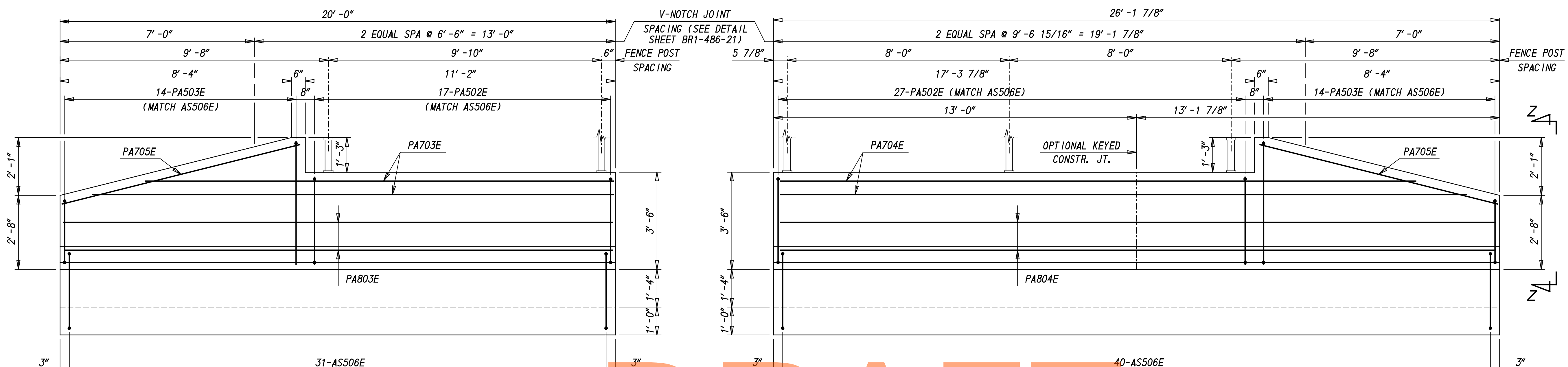
- PAYMENT FOR JOINT DETAIL BETWEEN BRIDGE DECK AND APPROACH SLAB SHALL BE INCIDENTAL TO ITEM "602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D".

REFERENCE:

- FOR GENERAL PLAN, SEE SHEET BR1-486-01
- FOR PROJECT NOTES, SEE SHEET BR1-486-03
- FOR SECTION X-X, SEE SHEET BR1-486-25
- FOR REINFORCEMENT BAR SCHEDULE, SEE SHEETS BR1-486-26, 27
- FOR WATERSTOP DETAIL, SEE SHEET BR1-486-18

WARNING:

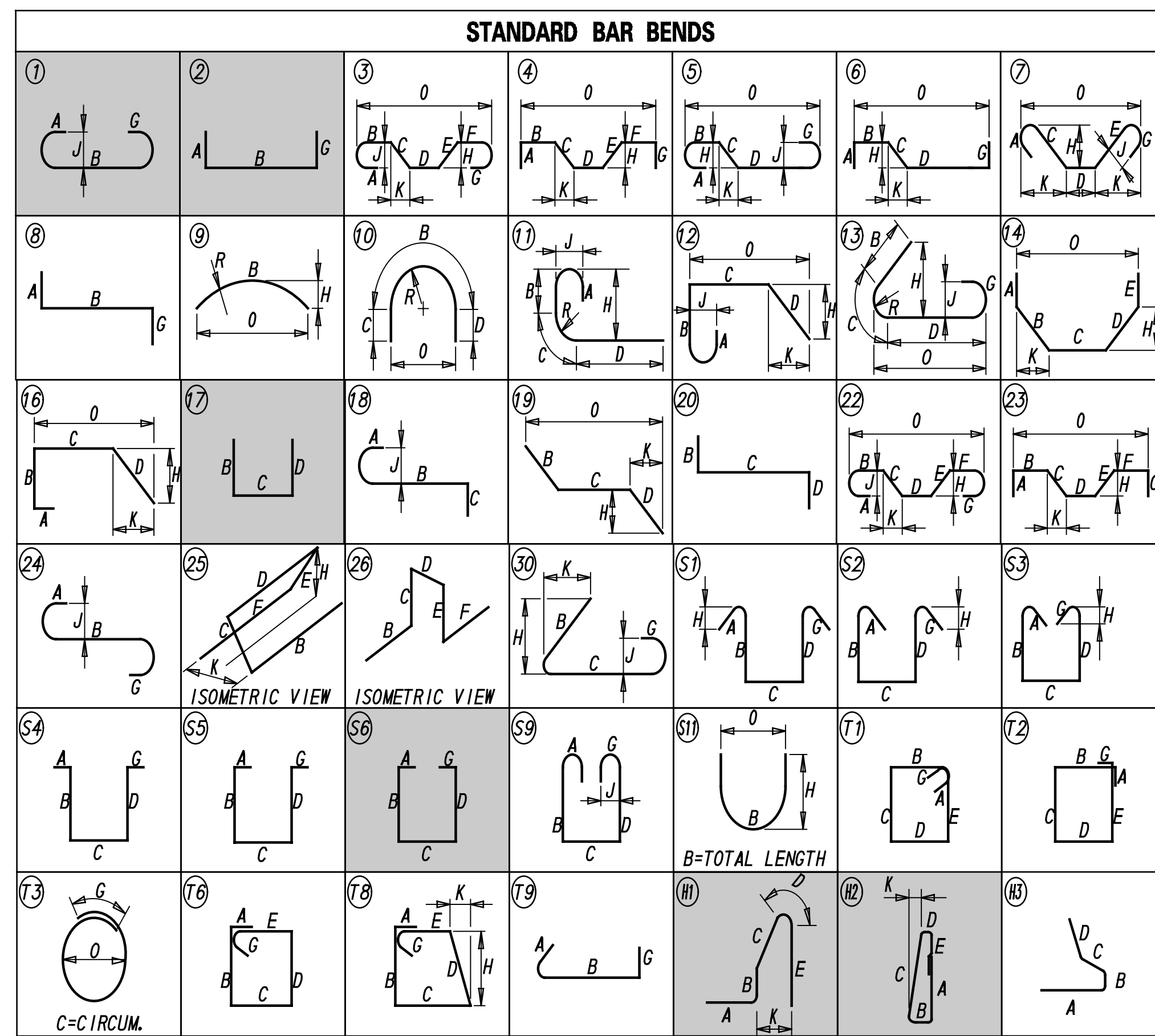
EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.



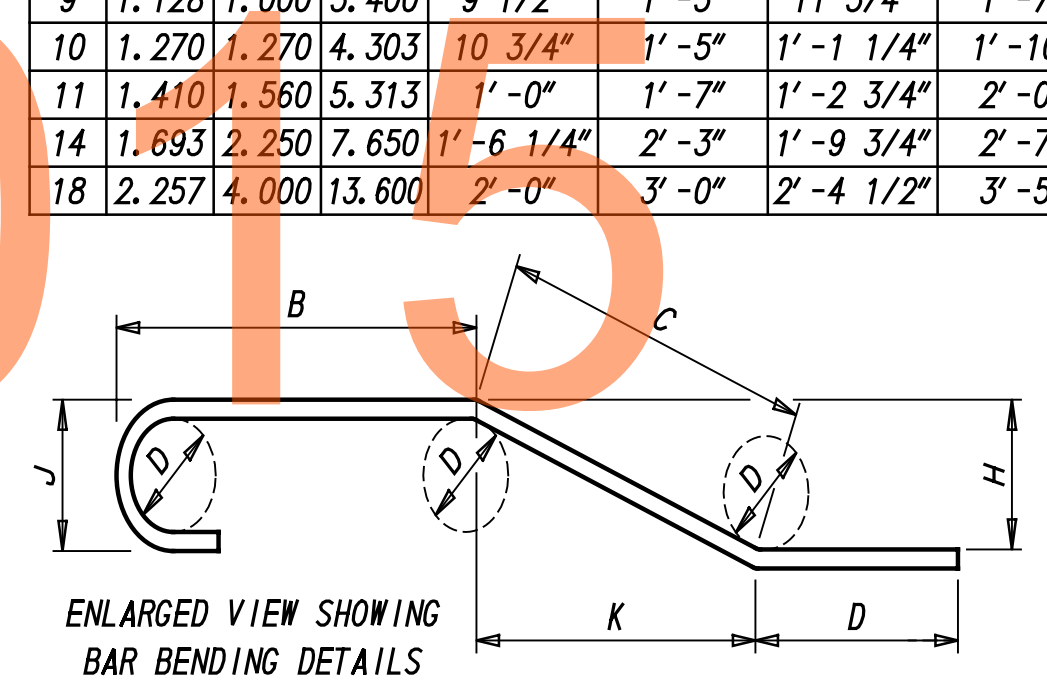
DRAFT
NOT FOR BIDDING
AUGUST 2015

WARNING:
EXISTING OVERHEAD HIGH VOLTAGE POWER LINES ARE IN THE VICINITY OF THE BRIDGE CONSTRUCTION. AT NO TIME WILL THE POWER BE PERMITTED TO BE SHUT OFF. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL CONSTRUCTION OPERATIONS. THE CONTRACTORS CRANES AND OTHER HEAVY EQUIPMENT SHALL MAINTAIN A CLEAR RADIUS OF TWENTY (20) FEET PLUS AN ADDITIONAL TWENTY (20) FEET HORIZONTALLY FOR BLOWOUT FROM THE OVERHEAD HIGH VOLTAGE POWER LINES. DURING CONSTRUCTION OPERATIONS, IT IS THE CONTRACTORS OBLIGATION TO VERIFY THE EXACT LOCATION OF THE POWER LINES IN THE FIELD AND TO MAINTAIN AND ENFORCE CLEARANCE REQUIREMENTS.

SPECIFICATIONS					BENDING DIMENSIONS											REMARKS
QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F/R	G	H	J	K	O	
PARAPET																
440	5	7'-11"	PA501E	H2	2'-0"	8 3/4"	2'-9"	5 1/4"	1'-7"	2"					4"	
88	5	7'-11"	PA502E	H2	2'-0"	8 3/4"	2'-9"	5 1/4"	1'-7"	2"					4"	
56	5	7'-7" TO 10'-6"	PA503E	H2	1'-5" TO 3'-3"	8 3/4"	3'-0" TO 4'-5"	5 1/4" TO 6 1/4"	1'-7"	2"				3" TO 4"		VARY 4 EA BY 2 1/2"
16	7	60'-0"	PA701E	STR												
8	7	3'-6"	PA702E	STR												
8	7	18'-8" TO 16'-8"	PA703E	STR												VARY 4 EA BY 24"
8	7	24'-10" TO 22'-10"	PA704E	STR												VARY 4 EA BY 24"
8	7	8'-7"	PA705E	STR												
16	8	60'-0"	PA801E	STR												
8	8	3'-6"	PA802E	STR												
8	8	19'-8"	PA803E	STR												
8	8	25'-10"	PA804E	STR												
DECK																
84	5	52'-7"	S501E	STR												
80	5	50'-7"	S502E	STR												
440	5	6'-6"	S503E	H1	2'-0"	7 1/2"	1'-2"	7 1/2"	1'-10"					1'-1 1/4"		R1=2", R2=3"
221	5	40'-2"	S504E	1	7"	39'-0"					7"	5"				
80	6	46'-6"	S601E	STR												
76	6	48'-6"	S602E	STR												
221	6	39'-0"	S603E	STR												
442	6	8'-6"	S604E	1	8"	7'-10"					0"	6"				
DIAPHRAGMS																
64	5	5'-3"	S505E	STR												
6	5	5'-8"	S506E	17		1'-0"	3'-8"	1'-0"								
48	5	5'-3"	S507E	STR												
8	5	5'-0"	S508E	STR												
12	5	1'-0" TO 1'-6"	S509E	STR												VARY 4 EA BY 6"
10	5	2'-6"	S510E	STR												
144	5	3'-7"	S511E	17		1'-6"	7"	1'-6"								
56	5	8'-9"	S512E	17		3'-3"	2'-3"	3'-3"								
20	5	5'-3"	S513E	17		1'-6"	2'-3"	1'-6"								
40	5	4'-0"	S514E	17		1'-8"	8"	1'-8"								
32	5	7'-6"	S515E	S6	1'-11"	2'-2"	1'-11"	1'-6"			0"					
96	5	5'-3"	S516E	STR												THREADED ENDS
50	5	4'-2"	S517E	2	3'-0"	1'-2"					0"					
24	5	2'-3"	S518E	STR												
8	5	5'-0"	S519E	STR												
50	5	4'-3"	S520E	17		1'-2"	1'-11"	1'-2"								
60	5	7'-2"	S521E	17		3'-0"	1'-2"	3'-0"								
28	5	7'-2"	S522E	S6	1'-11"	2'-2"	1'-6"	1'-6"			0"					
12	5	39'-0"	S524E	STR												
32	6	5'-3"	S605E	STR												
16	10	3'-8"	D1001E	STR												

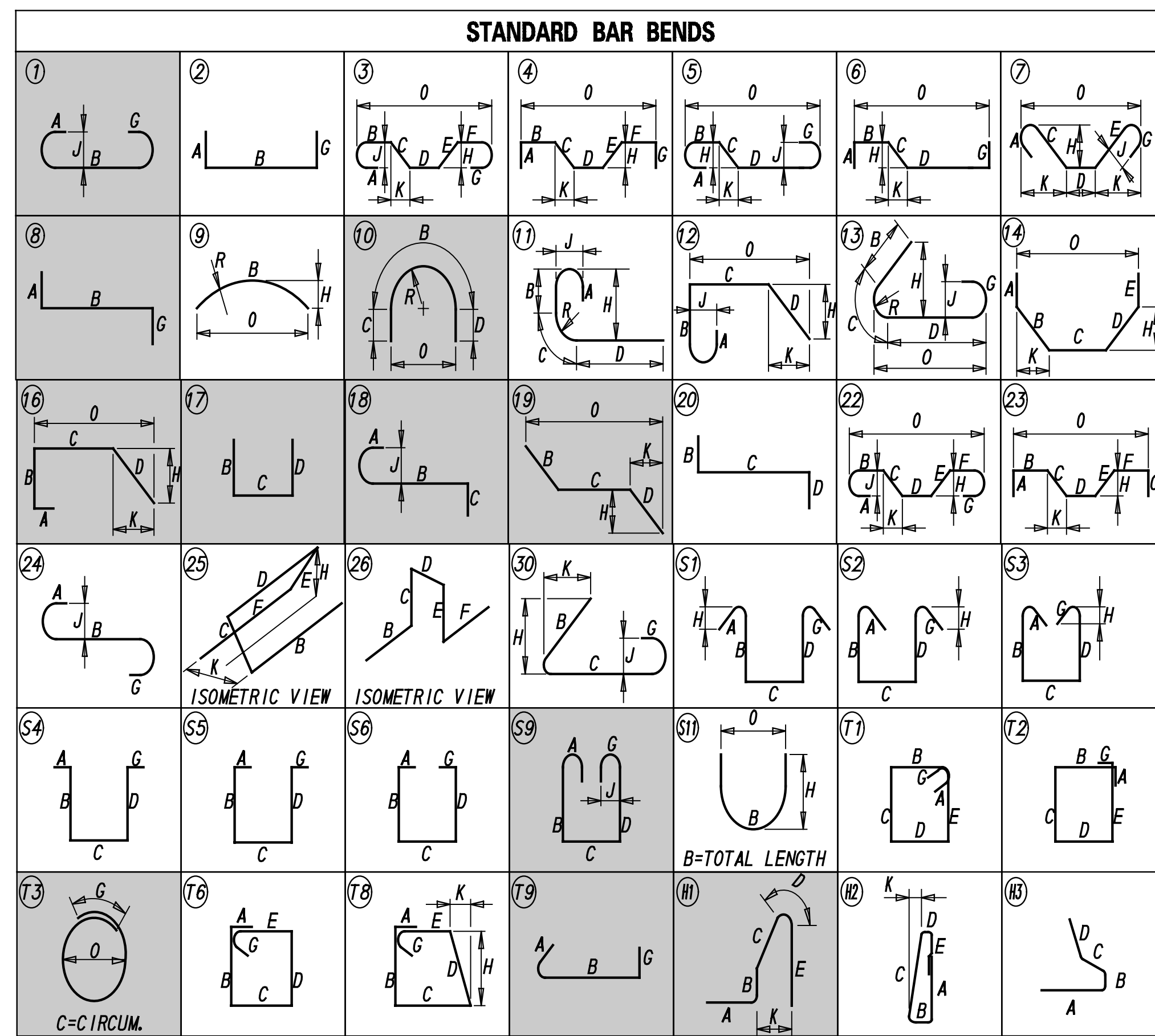


ASTM STANDARD ENGLISH REINFORCING BARS				RECOMMENDED END HOOKS, APPLICABLE TO ALL GRADES			STIRRUP AND TIE HOOKS, APPLICABLE TO ALL GRADES				
BAR SIZE	DIAMETER (INCHES)	AREA (INCHES ²)	WEIGHT (LBS./FT.)	180° HOOKS			90° HOOKS		135° HOOKS		
				D	A OR G	J	A OR G	D	A OR G	A OR G	A OR G
3	0.375	0.110	0.376	2 1/4"	5"	3"	6"	1 1/2"	4"	4"	2 1/2"
4	0.500	0.200	0.668	3"	6"	4"	8"	2"	4 1/2"	4 1/2"	3"
5	0.625	0.310	1.043	3 3/4"	7"	5"	10"	2 1/2"	6"	5 1/2"	3 3/4"
6	0.750	0.440	1.502	4 1/2"	8"	6"	11"	3"	7"	6"	4 1/2"
7	0.875	0.600	2.044	5 1/4"	10"	7"	11"	4"	8"	7"	5 1/4"
8	1.000	0.790	2.670	6"	11"	8"	12"	5"	9"	8"	6"
9	1.128	1.000	3.400	6 3/4"	12"	9"	13"	6"	10"	9"	7"
10	1.270	1.270	4.303	7 1/4"	13"	10"	14"	7"	11"	10"	8"
11	1.410	1.560	5.313	8"	14"	11"	15"	8"	12"	11"	9"
14	1.693	2.250	7.650	10 1/4"	17"	14"	18"	10"	15"	14"	11"
18	2.257	4.000	13.600	14"	21"	18"	24"	14"	20"	18"	14"



- NOTES:**
- FIGURES SHOWN IN CIRCLES REPRESENT BAR BEND TYPES.
 - STANDARD BAR BENDS INCLUDE ONLY THOSE TYPES BELOW, INDICATED AS SUCH.
 - ALL DIMENSIONS OUT-TO-OUT, EXCEPT "A" AND "C" STD. 180° AND 135° HOOKS.
 - "J" DIMENSIONS ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD 'ACY' HOOKS ARE TO BE USED.
 - WHERE "J" IS NOT SHOWN, "J" WILL BE KEPT EQUAL TO OR LESS THAN "H" ON TYPES 3, 5, AND 22. WHERE "J" CAN EXCEED "H", IT SHALL BE SHOWN.
 - "H" DIMENSIONS OF STIRRUPS TO BE SHOWN AS NEEDED TO FIT WITHIN THE CONCRETE.
 - UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR (EXCEPT FOR BEND TYPES 11 AND 13).
 - WHERE SLOPE DIFFERS FROM 45° OFFSET, "H" AND "K" MUST BE SHOWN.
 - WHERE BARS ARE TO BE BENT MORE ACCURATELY THAN STANDARD BENDING TOLERANCES, BENDING DIMENSIONS REQUIRING CLOSER FABRICATION SHOULD HAVE LIMITS INDICATED.
 - FOR RECOMMENDED DIAMETER "D", OF BENDS, HOOKS, ETC., REFER TO TABLE ABOVE, 'CRS' OR 'ACY' TABLES WHERE APPLICABLE AND REQUIRED.
 - TYPE S1-S6, S11, T1-T3 AND T6-T9 APPLICABLE TO BAR SIZES #3 THROUGH #8.

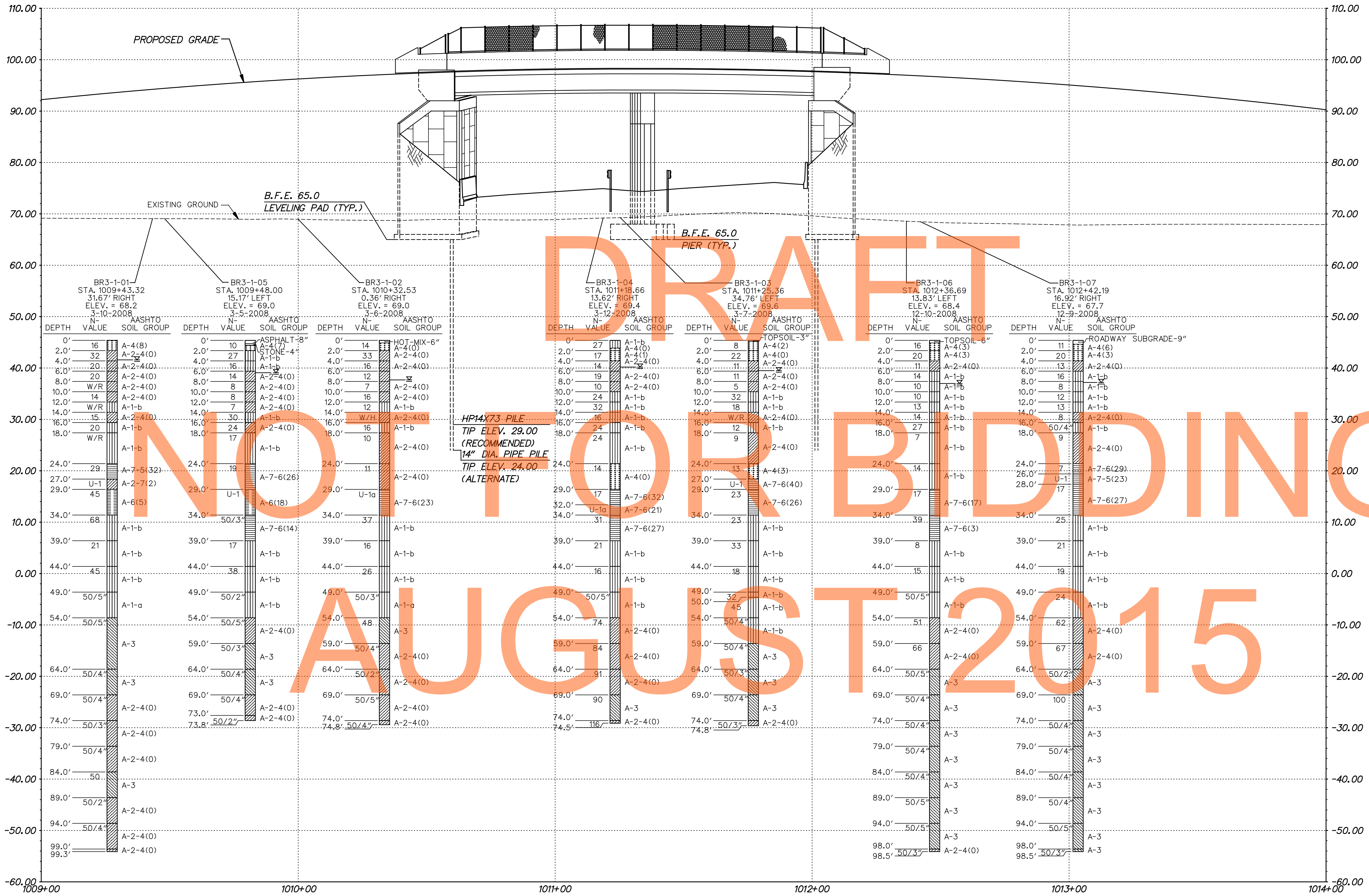
SPECIFICATIONS					BENDING DIMENSIONS											REMARKS
QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F/R	G	H	J	K	O	
PIER																
8	5	38'-0"	P501E	STR												
8	5	6'-6" TO 7'-2"	P502E	17		2'-1"	2'-4" TO 3'-0"	2'-1"								VARY C 4 EA BY 8"
4	5	7'-4"	P503E	17		2'-1"	3'-2"	2'-1"								
4	5	8'-3"	P504E	10		5'-9"	1'-0"	1'-6"							3'-8"	
4	5	5'-8"	P505E	17		1'-0"	3'-8"	1'-0"								
25	5	5'-8"	P506E	17		1'-8"	2'-4"	1'-8"								
15	5	7'-0"	P507E	17		1'-8"	3'-8"	1'-8"								
152	5	4'-10"	P508E	1	7"	3'-8"					7"		5"			
76	5	6'-10"	P509E	1	7"	5'-8"					7"		5"			
116	6	11'-8"	P601E	17		4'-6"	2'-8"	4'-6"								
100	6	10'-11"	P602E	H4	8"	5'-8"	1'-6"				8"		6"		3'-8"	
100	6	12'-8"	P603E	S9	8"	3'-10"	3'-8"	3'-10"			8"		6"			
18	8	41'-6" TO 43'-6"	P801E	STR												VARY 6 EA BY 1'-0"
36	8	16'-0"	P802E	8	6'-10"	9'-2"					0"					
24	9	38'-0"	P901E	STR												
296	5	3'-4 1/2"	F501E	T9	5 1/2"	2'-5"					6"					
42	6	19'-6"	F601E	STR												
44	6	17'-6"	F602E	STR												
12	6	10'-0"	F603E	H4	8"	5'-8"	1'-6"				8"		6"			
12	6	12'-8"	F604E	S9	8"	3'-10"	3'-8"	3'-10"			8"		6"			
84	8	17'-6"	F801E	STR												
80	8	19'-6"	F802E	STR												
78	10	28'-0"	F1001E	8	1'-10"	27'-2"					0"					
ABUTMENTS																
164	5	8'-11"	A501E	17		2'-8"	3'-8"	2'-8"								
24	5	7'-2"	A503E	17		1'-9"	3'-8"	1'-9"								
16	5	8'-10"	A504E	17		1'-9"	5'-4"	1'-9"								
12	5	4'-2"	A505E	STR												
88	5	3'-6" TO 9'-0"	A506E	STR												VARY 8 EA BY 6 1/2"
40	5	4'-10"	A507E	STR												
20	5	12'-8"	A508E	17		6'-0"	8"	6'-0"								
8	5	14'-11"	A509E	19	4'-8"	0"	4'-8"	10'-3"				5'-4"	8'-9"			
16	6	43'-2"	A601E	1	1'-0"	41'-2"					1'-0"		6"			
6	6	41'-2"	A602E	STR												
48	6	3'-8"	A603E	STR												
80	7	5'-11" TO 13'-3"	A701E	STR												VARY 8 EA BY 9 3/4"
64	7	13'-7"	A702E	STR												
16	9	41'-2"	A901E	STR												
PILES																
176	5	3'-10"	M501E	T3							1'-3"				10"	PIPE PILE ONLY
64	5	3'-0"	M502E	STR												H-PILE ONLY
96	8	10'-11"	M801E	18	11"	10'-0"	0"						8"			PIPE PILE ONLY
APPROACH SLABS																
80	5	19'-8" TO 25'-10"	AS501E	STR												VARY 2 EA BY 2"
42	5	38'-6"	AS502E	STR												
14	5	4'-0" TO 32'-6"	AS503E	STR												VARY 2 EA BY 4'-9"
142	5	6'-6"	AS506E	H1	2'-0"	7 1/2"	1'-2"	7 1/2"	1'-10"				1'-11/4"			R1=2", R2=3"
80	5	5'-11"	AS507E	16	1'-10"	1'-9"	7"	1'-9"							2'-10"	
80	5	6'-10"	AS508E	16	1'-10"	1'-9"	1'-8"	1'-9"							1'-10"	
142	5	4'-3"	AS509E	16	0"	0"	1'-8"	2'-7"							2'-7"	
52	6	38'-6"	AS601E	STR												
14	6	4'-0" TO 32'-6"	AS602E	STR												VARY 2 EA BY 4'-9"
12	6	39'-0"	AS603	STR												
106	10	19'-8" TO 25'-10"	AS1001E	STR												VARY 2 EA BY 11/2"



ASTM STANDARD ENGLISH REINFORCING BARS				RECOMMENDED END HOOKS, APPLICABLE TO ALL GRADES			STIRRUP AND TIE HOOKS, APPLICABLE TO ALL GRADES				
BAR SIZE	NOMINAL DIMENSIONS			180° HOOKS			90° HOOKS		135° HOOKS		
	DIAMETER (INCHES)	AREA (INCHES ²)	WEIGHT (LBS/FT)	D	A OR G	J	A OR G	D	A OR G	A OR G	A OR G
3	0.375	0.110	0.376	2 1/4"	5"	3"	6"	1 1/2"	4"	4"	2 1/2"
4	0.500	0.200	0.668	3"	6"	4"	8"	2"	4 1/2"	4 1/2"	3"
5	0.625	0.310	1.043	3 3/4"	7"	5"	10"	2 1/2"	6"	5 1/2"	3 3/4"
6	0.750	0.440	1.502	4 1/2"	8"	6"	11"	3"	6"	5 1/2"	4 1/2"
7	0.875	0.600	2.044	5 1/4"	10"	7"	11"	3 1/2"	6"	5 1/2"	4 1/2"
8	1.000	0.790	2.670	6"	11"	8"	11"	4"	6"	5 1/2"	4 1/2"
9	1.128	1.000	3.400	6 3/4"	11"	8"	11"	4 1/2"	6"	5 1/2"	4 1/2"
10	1.270	1.270	4.303	7 1/4"	11"	8"	11"	5"	6"	5 1/2"	4 1/2"
11	1.410	1.560	5.313	8"	11"	8"	11"	5 1/2"	6"	5 1/2"	4 1/2"
14	1.693	2.250	7.650	9 1/2"	11"	8"	11"	6"	6"	5 1/2"	4 1/2"
18	2.257	4.000	13.600	11"	11"	8"	11"	6 1/2"	6"	5 1/2"	4 1/2"

NOTES:

- FIGURES SHOWN IN CIRCLES REPRESENT BAR BEND TYPES.
- STANDARD BAR BENDS INCLUDE ONLY THOSE TYPES BELOW, INDICATED AS SUCH.
- ALL DIMENSIONS OUT-TO-OUT, EXCEPT "A" AND "G" STD. 180° AND 135° HOOKS.
- "J" DIMENSIONS ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD 'ACY' HOOKS ARE TO BE USED.
- WHERE "J" IS NOT SHOWN, "J" WILL BE KEPT EQUAL TO OR LESS THAN "H" ON TYPES 3, 5, AND 22. WHERE "J" CAN EXCEED "H", IT SHALL BE SHOWN.
- "H" DIMENSIONS OF STIRRUPS TO BE SHOWN AS NEEDED TO FIT WITHIN THE CONCRETE.
- UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR (EXCEPT FOR BEND TYPES 11 AND 13).
- WHERE SLOPE DIFFERS FROM 45° OFFSET, "H" AND "K" MUST BE SHOWN.
- WHERE BARS ARE TO BE BENT MORE ACCURATELY THAN STANDARD BENDING TOLERANCES, BENDING DIMENSIONS REQUIRING CLOSER FABRICATION SHOULD HAVE LIMITS INDICATED.
- FOR RECOMMENDED DIAMETER "D", OF BENDS, HOOKS, ETC., REFER TO TABLE ABOVE, 'CRS' OR 'ACY' TABLES WHERE APPLICABLE AND REQUIRED.
- TYPE S1-S6, S11, T1-T3 AND T6-T9 APPLICABLE TO BAR SIZES #3 THROUGH #8.



LEGEND

- A-1 (WELL GRADED SAND)
- A-2 (POORLY GRADED SILTY/CLAYEY SAND)
- A-3 (CLEAN SAND)
- A-4 (SILT)
- A-5 (ELASTIC SILT)
- A-6 (PLASTIC CLAY)
- A-7 (EXPANSIVE PLASTIC CLAY)
- A-8 (MUCK/PEAT)
- WATER ENCOUNTERED DURING DRILLING

N- = UNCORRECTED SPT BLOW VALUE COUNT (BLOWS/FT)
 U-1 = UNDISTURBED SAMPLE
 W/R = WEIGHT OF RODS
 W/H = WEIGHT OF HAMMER

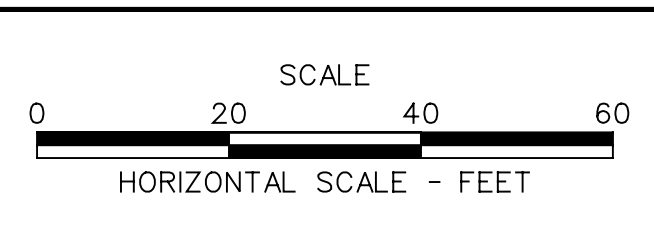
HP14X73 PILE
 TIP ELEV. 29.00
 (RECOMMENDED)
 14" DIA. PIPE PILE
 TIP ELEV. 24.00
 (ALTERNATE)

STRAWBERRY LANE

BR1-486-28



ADDENDUMS / REVISIONS	



**US 301
 MARYLAND STATE LINE
 TO LEVELS ROAD**

CONTRACT T200811301	BRIDGE NO. 1-486
COUNTY NEW CASTLE	DESIGNED BY: J.L.W. CHECKED BY: J.P.F.

**BRIDGE 1-486
 GEOTECHNICAL DATA**

SHEET NO. 291
TOTAL SHTS. 850

