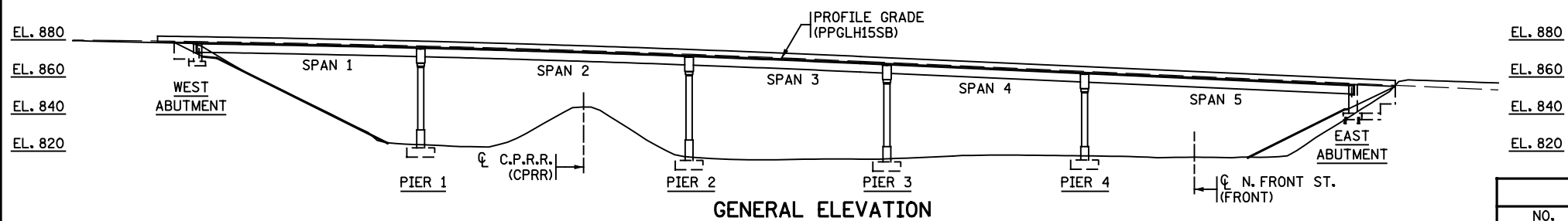
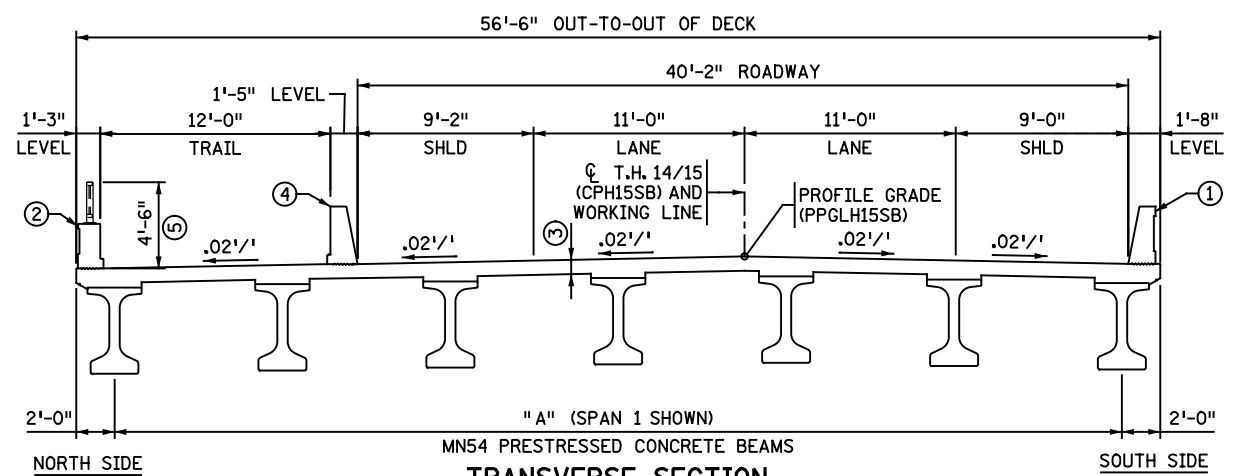


GENERAL PLAN



GENERAL ELEVATION

- ① CONCRETE BARRIER TYPE 1 MOD S, (TL-4) 3'-0" MIN. HEIGHT ABOVE SLAB.
- ② CONCRETE PARAPET TYPE MOD P-1 WITH ORNAMENTAL METAL RAILING.
- ③ 9" MIN. SLAB
- ④ CONCRETE BARRIER TYPE 2 MOD S, (TL-4) 3'-0" MIN. HEIGHT ABOVE SLAB.
- ⑤ TYPICAL EXCEPT 8'-0" OVER RAILROAD TRACKS AND 6'-0" OVER FRONT STREET. SEE BARRIER LAYOUT.



TRANSVERSE SECTION

SPAN	"A" BEAM SPACING
1	6 SPS. @ 8'-9" = 52'-6"
2	10 SPS. @ 5'-3" = 52'-6"
3	5 SPS. @ 10'-6" = 52'-6"
4	5 SPS. @ 10'-6" = 52'-6"
5	10 SPS. @ 5'-3" = 52'-6"

NOTES:

SEE BORING SHEETS FOR INPLACE UTILITIES.
 SUBSTRUCTURES SET PARALLEL AT AZ. 325°53'18.1"
 BRIDGE APPROACH PANEL LAYOUT STANDARDS 5-297.224 AND 5-297.225 SHALL APPLY.
 BRIDGE APPROACH TREATMENT STANDARD 5-297.233 APPLIES.
 TRAFFIC TO BE DETOURED TO C.S.A.H. 37 DURING CONSTRUCTION.
 ALLOW FOR 2" FORMLINER IN ABUTMENT FACE AND WINGWALLS.

DESIGN DATA

DESIGNED IN ACCORDANCE WITH 2014 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 HL-93 LIVE LOAD
 DEAD LOAD INCLUDES 20 psf ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.
 MATERIAL DESIGN PROPERTIES:
 REINFORCED CONCRETE:
 f'c = 4 ksi CONCRETE
 fy = 60 ksi PLAIN AND EPOXY COATED BARS
 fy = 60 ksi STAINLESS STEEL BARS
 n = 8 FOR REINFORCEMENT
 PRETENSIONED CONCRETE:
 f'c = 9 ksi CONCRETE
 fpu = 270 ksi LOW RELAXATION STRANDS
 n = 1 FOR REINFORCEMENT
 0.75 fpu FOR INITIAL PRESTRESS
 2035 PROJECTED TRAFFIC VOLUMES:

ROAD OVER		ROAD UNDER
9400	A.D.T.	1200
1100	H.C.A.D.T.	160

 DESIGN SPEED: 50 MPH (OVER), 30 MPH (UNDER)
 APPROXIMATE DECK AREA = 35330 SF
 HL 93 LRFR
 BRIDGE OPERATING RATING FACTOR RF = ---

LIST OF SHEETS

NO.	TITLE
1	KEY PLAN
2	CONSTRUCTION NOTES AND SOQ
3-4	GENERAL PLAN AND ELEVATION
5	BRIDGE LAYOUT
6	CORNER DETAILS
7-9	WEST ABUTMENT DETAILS
10-14	WEST ABUTMENT REINFORCEMENT
15-17	EAST ABUTMENT DETAILS
18-22	EAST ABUTMENT REINFORCEMENT
23-24	PIER 1 DETAILS
25	PIER DETAILS
26-29	PIER 1 REINFORCEMENT
30-31	PIER 2 DETAILS
32-35	PIER 2 REINFORCEMENT
36-37	PIER 3 DETAILS
38-41	PIER 3 REINFORCEMENT
42-43	PIER 4 DETAILS
44-47	PIER 4 REINFORCEMENT
48	FRAMING PLAN
49-51	PRESTRESSED CONCRETE BEAMS
52-56	SUPERSTRUCTURE DETAILS
57-63	BARRIER LAYOUT
64-65	SINGLE SLOPE CONCRETE BARRIER (36")
66	ORNAMENTAL METAL RAILING (DESIGN T-4)
67	ORNAMENTAL METAL RAILING TRANSITION
68	CONCRETE PARAPET
69-70	CONCRETE PARAPET DETAILS
71	STABILIZED AGGREGATE SLOPE PAVING
72-73	WATERPROOF EXPANSION DEVICE
74-78	BRIDGE DETAILS
79	AS-BUILT PLAN
80	BRIDGE SURVEY
81-82	BORINGS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNED: _____ DATE: _____
 LICENSED PROFESSIONAL ENGINEER
 NAME: _____ LIC. NO. _____



TRUNK HIGHWAY NO. 14/15
 MINNESOTA DEPARTMENT
 OF TRANSPORTATION

**BRIDGE NO. 08017
 KEY PLAN**

T.H. 14/15 OVER C.P.R.R. AND N. FRONT ST.
 0.4 MILES NORTHEAST OF
 JCT. T.H. 14 AND T.H. 15

119'-144'-106'-106'-144' PRESTRESSED CONC. BEAM SPANS
 SPAN IDENTIFICATION NO. 501

SEC. 20 TWP. 110 N. R. 30 W.
 CITY OF NEW ULM BROWN COUNTY, MN

APPROVED: _____ STATE BRIDGE ENGINEER DATE _____

DES: DJR DR: DJR
 CHK: BAP CHK: BAP **08017**

Unit 11.dwg
 6/17/14 5 AM
 3/29/2017
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CONSTRUCTION NOTES:

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

SEE SPECIAL PROVISIONS FOR ALL XXXX.6XX SERIES PAY ITEMS FOR ADDITIONAL REQUIREMENTS.

THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

BARS MARKED WITH THE SUFFIX "S" SHALL BE STAINLESS STEEL IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R_n) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

CONSTRUCTION OF THE EAST ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUTMENT HAS BEEN CONSTRUCTED TO THE FULL HEIGHT AND CROSS SECTION (AND ALLOWED TO SETTLE FOR 7 DAYS).


SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS FOR REMOVALS WITHIN RAILROAD RIGHT OF WAY.

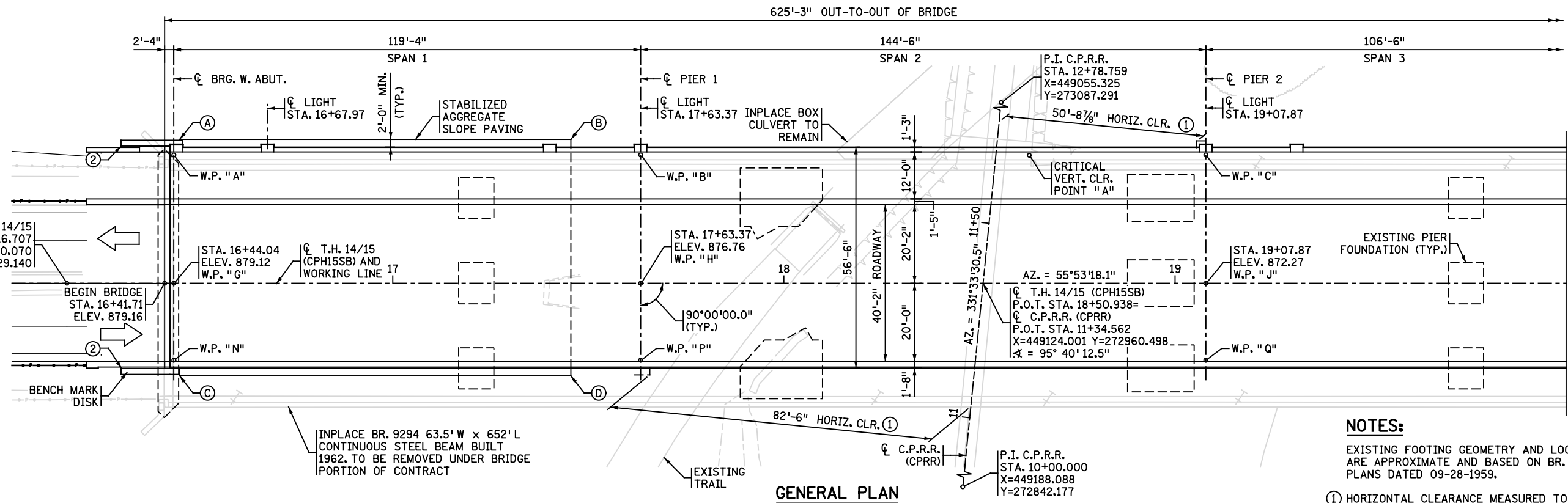
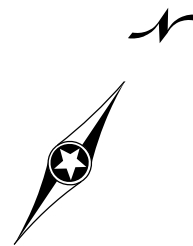
EXISTING WEST ABUTMENT AND PIER 3 SHALL BE REMOVED TO BOTTOM OF FOOTING. CUT OFF PILES 1' BELOW BOTTOM OF PROPOSED FOOTING AT WEST ABUTMENT. CUT OFF PILES 3' BELOW BOTTOM OF PROPOSED FOOTING AT EXISTING PIER 3. REMOVE REMAINING PIERS AND ABUTMENT PER SPEC. 2442.

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE			
ITEM NO.	ITEM	UNIT	QUANTITY
2105.604	GEOGRID	SQ YD	0
2105.604	GEOTEXTILE FABRIC TYPE V	SQ YD	0
2401.501	STRUCTURAL CONCRETE (1G52)	CU YD	0 (P)
2401.501	STRUCTURAL CONCRETE (3B52)	CU YD	0 (P)
① 2401.513	TYPE 1 MOD P-1 BARRIER CONC (3S52)	LIN FT	0 (P)
② 2401.513	TYPE 2 MOD S (TL-4) 36" BARRIER CONCRETE (3S52)	LIN FT	0 (P)
② 2401.541	REINFORCEMENT BARS	POUND	0 (P)
2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	0 (P)
2401.541	REINFORCEMENT BARS (STAINLESS-60KSI)	POUND	0 (P)
2401.601	STRUCTURE EXCAVATION	LUMP SUM	0
③ 2401.602	CONCRETE RAIL POST TYPE 1	EACH	0
2401.602	CONCRETE RAIL POST TYPE 2	EACH	0
2401.602	CONCRETE RAIL POST TYPE 3	EACH	0
2401.602	CONCRETE RAIL POST TYPE 4	EACH	0
2401.618	BRIDGE SLAB CONCRETE (3YHPC-M)	SQ FT	0 (P)
① 2402.583	ORNAMENTAL METAL RAILING	LIN FT	0 (P)
2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL 1	LIN FT	0 (P)
2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL 2	LIN FT	0 (P)
2402.591	EXPANSION JOINT DEVICES TYPE 5	LIN FT	0 (P)
2402.595	BEARING ASSEMBLY	EACH	0
2405.502	PRESTRESSED CONCRETE BEAMS MN54	LIN FT	0 (P)
2405.511	DIAPHRAGMS FOR TYPE MN54 PREST BEAMS	LIN FT	0 (P)
2411.602	PRECAST CONCRETE CAP	EACH	0
2411.604	STONE MASONRY VENEER 1.0" THICK	SQ YD	0 (P)
2411.604	STONE MASONRY VENEER 2.0" THICK	SQ YD	0 (P)
2411.618	ANTI-GRAFFITI COATING	SQ FT	0 (P)
2411.618	ARCHITECTURAL SURFACE FINISH (MULTI COLOR)	SQ FT	0 (P)
2411.618	ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	SQ FT	0 (P)
2411.618	ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE)	SQ FT	0 (P)
2442.501	REMOVE EXISTING BRIDGE	LUMP SUM	0
2451.505	AGGREGATE BACKFILL (CV)	CU YD	0 (P)
2452.520	STEEL H-TEST PILE 40FT LONG 10"	EACH	0
2452.530	PILE TIP PROTECTION 10"	EACH	0
2452.603	STEEL H-PILING 10"	LIN FT	0
2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	0
2514.503	AGGREGATE SLOPE PAVING	SQ YD	0 (P)

- ① INCLUDES ---- LIN FT FOR APPROACH PANELS
- ② INCLUDES ---- LIN FT FOR APPROACH PANELS
- ③ LOCATED ON EACH APPROACH PANEL

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<table border="1"> <thead> <tr> <th colspan="4">REVISION</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> <th></th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>				REVISION				NO.	DATE	DESCRIPTION															CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER DATE _____ NAME: _____ LIC. NO. _____		TITLE: CONSTRUCTION NOTES AND SUMMARY OF QUANTITIES		DES: BAP DR: DJR APPROVED: _____ CHK: DRS CHK: BAP		BRIDGE NO. 08017
REVISION																															
NO.	DATE	DESCRIPTION																													
STATE PROJECT NO. 0804-08017																															
SHEET NO. 2 OF 82 SHEETS																															

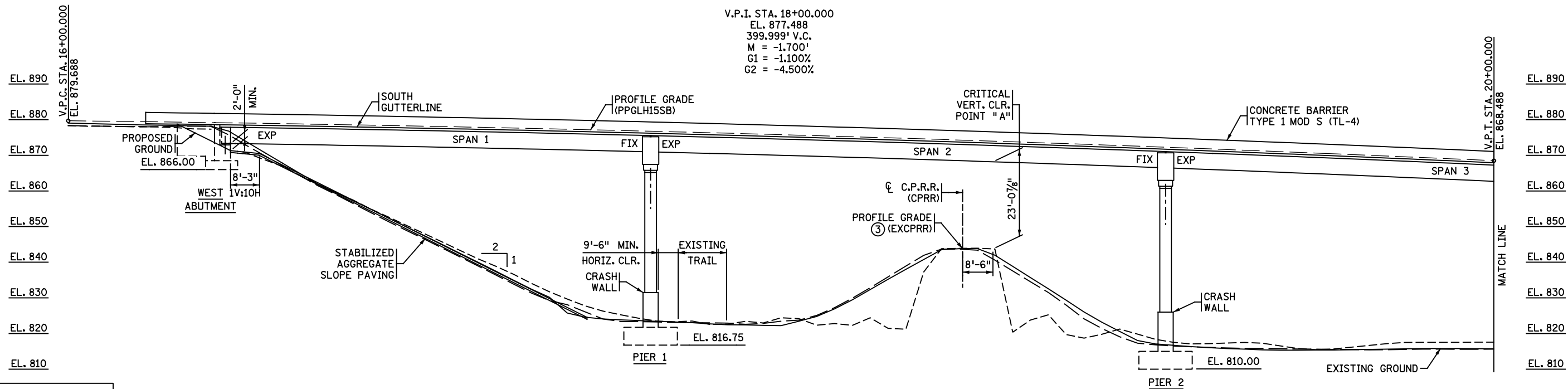


GENERAL PLAN

- (A) STA. 16+45.54 OFFSET 36.83' LT. EL. 871.31
- (B) STA. 17+45.54 OFFSET 36.83' LT. EL. 824.55
- (C) STA. 16+45.54 OFFSET 23.67' RT. EL. 871.31
- (D) STA. 17+45.54 OFFSET 23.67' RT. EL. 824.55

NOTES:

- EXISTING FOOTING GEOMETRY AND LOCATION ARE APPROXIMATE AND BASED ON BR. 9294 PLANS DATED 09-28-1959.
- ① HORIZONTAL CLEARANCE MEASURED TO EDGE OF CAP
- ② BEGIN WINGWALL STA. 16+30.54
- ③ TOP OF HIGH RAIL



GENERAL ELEVATION

V.P.I. STA. 18+00.000
 EL. 877.488
 399.999' V.C.
 M = -1.700'
 G1 = -1.100%
 G2 = -4.500%

EXISTING GROUND PROFILE	
35' LT.	-----
☉ T.H. 14/15	-----
22' RT.	-----

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



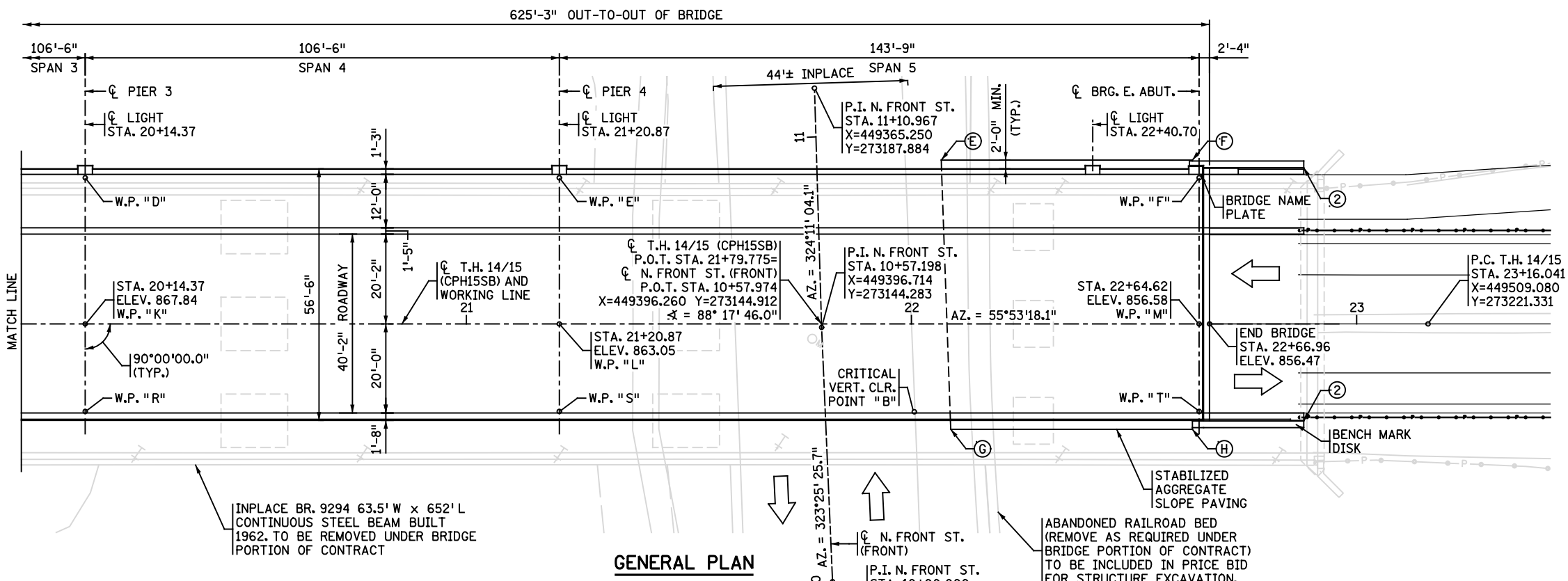
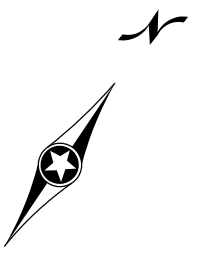
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 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: _____
GENERAL PLAN AND ELEVATION 1

DES: DJR	DR: DJR	APPROVED: _____
CHK: BAP	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 3 OF 82 SHEETS		

BRIDGE NO.
08017

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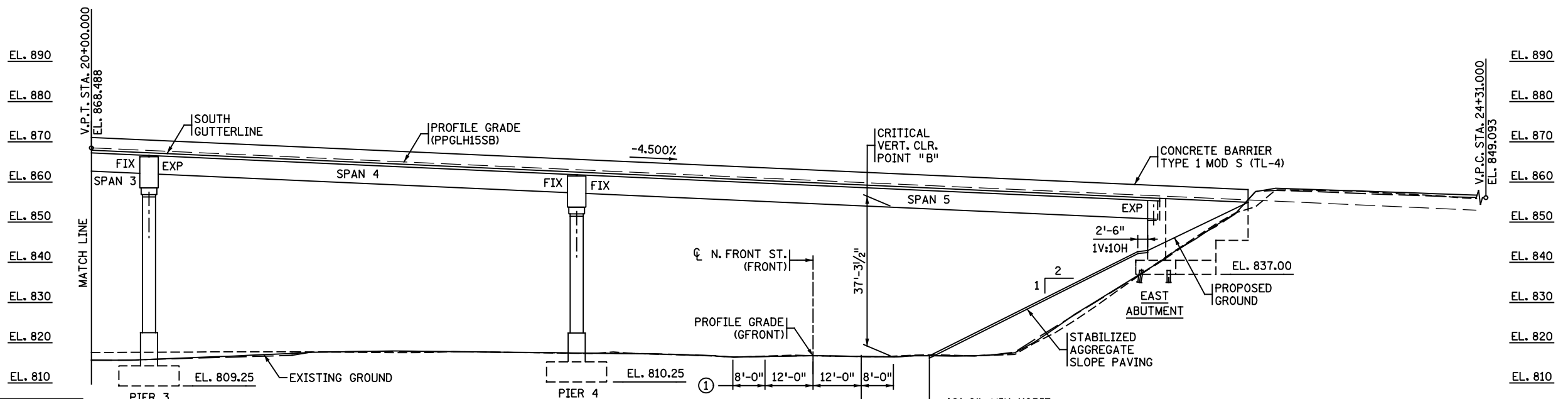


GENERAL PLAN

- (E) STA. 22+06.70 OFFSET 36.83' LT. EL. 816.74
- (F) STA. 22+63.12 OFFSET 36.83' LT. EL. 842.92
- (G) STA. 22+08.82 OFFSET 23.67' RT. EL. 816.74
- (H) STA. 22+63.12 OFFSET 23.67' RT. EL. 842.92

NOTES:

- EXISTING FOOTING GEOMETRY AND LOCATION ARE APPROXIMATE AND BASED ON BR. 9294 PLANS DATED 09-28-1959.
- ① INPLACE WIDTHS ARE APPROXIMATE ONLY. VERTICAL CLEARANCE IS CALCULATED BASED ON SURVEY SHOTS ON EXISTING GUTTERLINE.
- ② END WINGWALL STA. 22+88.12



GENERAL ELEVATION

EXISTING GROUND PROFILE

35' LT.	-----
☉ T.H. 14/15	-----
22' RT.	-----

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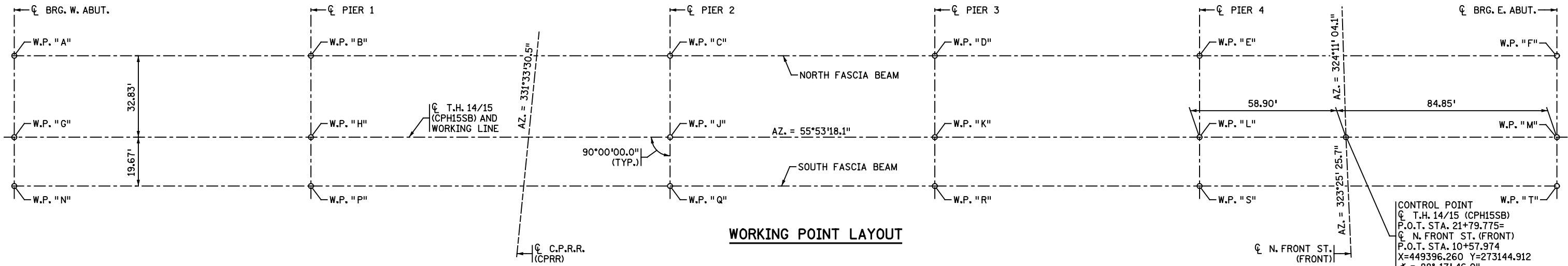
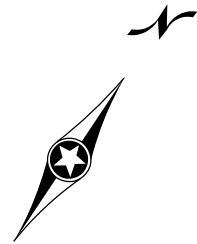


CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: _____
GENERAL PLAN AND ELEVATION 2

DES: DJR	DR: DJR	APPROVED:
CHK: BAP	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 4 OF 82 SHEETS		

BRIDGE NO.
 08017



WORKING POINT LAYOUT

TOP OF ROADWAY TO BRIDGE SEAT

②	DECK THICKNESS	STOOL HEIGHT		BEAM HEIGHT	BEARING HEIGHT	TOTAL N. FASCIA		TOTAL S. FASCIA	
		N. FASCIA	S. FASCIA			INCHES	FEET	INCHES	FEET
WEST ABUT.	9"	2 1/2"	2 1/2"	54"	9 1/2"	75"	6.25'	75"	6.25'
PIER 1 WEST	9"	2 1/2"	2 1/2"	54"	3 1/4"	68 3/4"	5.73'	68 3/4"	5.73'
PIER 1 EAST	9"	1 3/8"	1 3/4"	54"	3 1/4"	68 7/8"	5.68'	68"	5.67'
PIER 2 WEST	9"	1 7/8"	1 7/8"	54"	3 1/4"	68 7/8"	5.68'	68 7/8"	5.68'
PIER 2 EAST	9"	2 1/2"	1 3/4"	54"	3 1/4"	68 3/4"	5.73'	68"	5.67'
PIER 3 WEST	9"	2 1/2"	1 3/4"	54"	3 1/4"	68 3/4"	5.73'	68"	5.67'
PIER 3 EAST	9"	4"	3 3/8"	54"	3 1/4"	70 1/4"	5.85'	69 3/8"	5.78'
PIER 4 WEST	9"	4"	3 3/8"	54"	3 1/4"	70 1/4"	5.85'	69 3/8"	5.78'
PIER 4 EAST	9"	3 1/4"	3 1/4"	54"	3 1/4"	69 1/2"	5.79'	69 1/2"	5.79'
EAST ABUT.	9"	3 3/4"	3 1/4"	54"	7 1/4"	73 1/8"	6.16'	74"	6.17'

NOTES:

ALL DISTANCES ARE STRAIGHT LINE HORIZONTAL DISTANCES MEASURED IN FEET.

ALL COORDINATE VALUES SHOWN ARE PROJECT COORDINATES DEFINED IN FEET.

WORKING LINE IS TANGENT TO C.T.H. 14/15 AT CONTROL POINT (C.T.H. 14/15 INTERSECTION WITH C.N. FRONT ST.)

① SEE TABLE A FOR ELEVATIONS NOT SHOWN.

② WEST OR EAST DESIGNATION ON PIERS REFER TO C.BEARING LOCATION.

DIMENSIONS BETWEEN WORKING POINTS

POINT	STATION	X-COORDIN	Y-COORDIN	DIMENSIONS BETWEEN WORKING POINTS															ELEVATIONS ①			POINT						
				A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T		TOP OF ROADWAY	TOP OF RDWY TO BR. SEAT	BRIDGE SEAT			
A	16+44.04	448934.287	272871.653	119.33						32.83	123.77						130.37	269.01						878.49	6.25	872.24	A	
B	17+63.37	449033.089	272938.576		144.50					32.83	148.18						130.37	153.74	256.43						876.13			B
C	19+07.87	449152.727	273019.612				106.50				32.83	111.45				269.01	153.74		118.74	219.37					871.65			C
D	20+14.37	449240.903	273079.338					106.50			32.83	111.45				256.43	118.74		118.74	255.70					867.21			D
E	21+20.87	449329.079	273139.064						143.75			147.45				219.37	118.74		118.74	153.04					862.42			E
F	22+64.63	449448.097	273219.680									32.83							255.70	153.04					855.95	6.16	849.79	F
G	16+44.04	448952.700	272844.468										119.33			19.67	120.94								879.12			G
H	17+63.37	449051.502	272911.391									144.50				19.67	145.83								876.76			H
J	19+07.87	449171.140	272992.428										106.50				19.67	108.30							872.27			J
K	20+14.37	449259.316	273052.154											106.50					19.67	108.30					867.84			K
L	21+20.87	449347.493	273111.880											143.75					19.67	145.09					863.05			L
M	22+64.63	449466.510	273192.496																19.67	856.58					862.42			M
N	16+44.04	448963.729	272828.186														119.33								878.73	6.25	872.48	N
P	17+63.37	449062.531	272895.109														144.50								876.36			P
Q	19+07.87	449182.169	272976.145																106.50						871.88			Q
R	20+14.37	449270.346	273035.871																	106.50					867.45			R
S	21+20.87	449358.522	273095.597																		143.75				862.66			S
T	22+64.63	449477.539	273176.213																						856.19	6.17	850.02	T

TABLE A ELEVATIONS

②	TOP OF ROADWAY	TOP OF RDWY TO BR. SEAT	BRIDGE SEAT	POINT
PIER 1 WEST	876.15	5.73	870.42	B
PIER 1 EAST	876.11	5.68	870.43	B
PIER 2 WEST	871.67	5.68	865.99	C
PIER 2 EAST	871.62	5.73	865.89	C
PIER 3 WEST	867.25	5.73	861.52	D
PIER 3 EAST	867.18	5.85	861.33	D
PIER 4 WEST	862.45	5.85	856.60	E
PIER 4 EAST	862.39	5.79	856.60	E
PIER 1 WEST	876.38	5.73	870.65	P
PIER 1 EAST	876.34	5.67	870.67	P
PIER 2 WEST	871.91	5.68	866.23	Q
PIER 2 EAST	871.85	5.67	866.18	Q
PIER 3 WEST	867.48	5.67	861.81	R
PIER 3 EAST	867.41	5.78	861.63	R
PIER 4 WEST	862.69	5.78	856.91	S
PIER 4 EAST	862.62	5.79	856.83	S

Unit: Feet
6/5/2012 AM
3/29/2012

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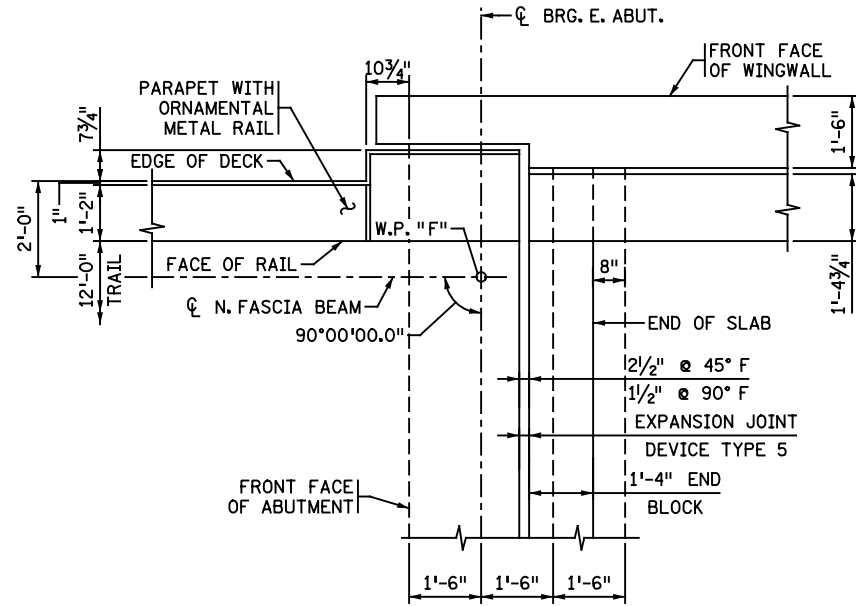
NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



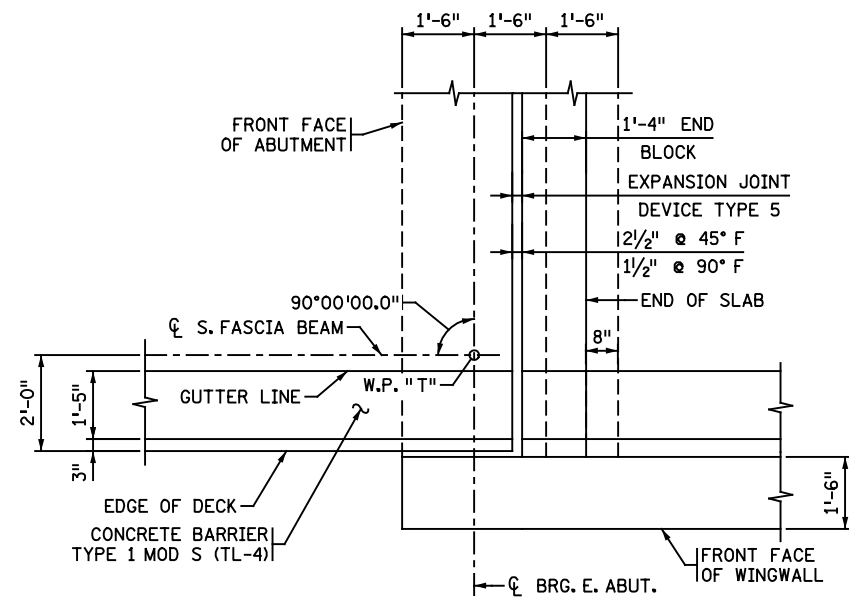
CERTIFIED BY: _____ DATE _____
NAME: _____ LIC. NO. _____
LICENSED PROFESSIONAL ENGINEER

TITLE: BRIDGE LAYOUT

DES: DJR	DR: DJR	APPROVED: _____
CHK: BAP	CHK: BAP	STATE PROJECT NO. 0804-08017
SHEET NO. 5 OF 82 SHEETS		BRIDGE NO. 08017



NORTHEAST CORNER DETAIL
NORTHWEST CORNER SIMILAR



SOUTHEAST CORNER DETAIL
SOUTHWEST CORNER SIMILAR

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

CERTIFIED BY: _____

LICENSED PROFESSIONAL ENGINEER DATE

NAME: _____ LIC. NO. _____

TITLE: **CORNER DETAILS**

DES: BAP	DR: DJR	APPROVED:
CHK: DRS	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 6 OF 82 SHEETS		

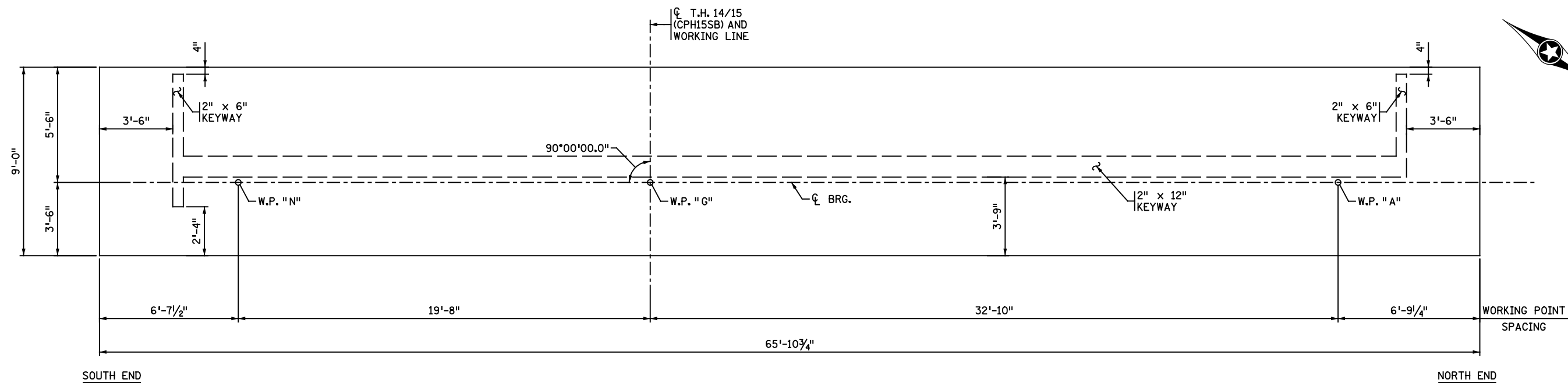
BRIDGE NO. 08017

SUMMARY OF QUANTITIES FOR WEST ABUTMENT

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
REINFORCEMENT BARS (STAINLESS-60KSI)	0	POUND
ANTI GRAFFITI COATING	0	SQ FT
ARCHITECTURAL SURFACE FINISH (MULTI COLOR)	0	SQ FT
ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE)	0	SQ FT
AGGREGATE BACKFILL (CV)	0	CU YD
GEOGRID	0	SQ YD
GEOTEXTILE FABRIC TYPE V	0	SQ YD

WEST ABUTMENT SPREAD FOOTING LOAD DATA	
*SERVICE DESIGN BEARING PRESSURE	2.1 TONS/SQ.FT.
EFFECTIVE WIDTH B'	7.8 FT.
SERVICE BEARING RESISTANCE $\phi_b \cdot q_n$	8.0 TONS/SQ.FT.

*BASED ON SERVICE LOAD COMBINATION



FOOTING PLAN

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

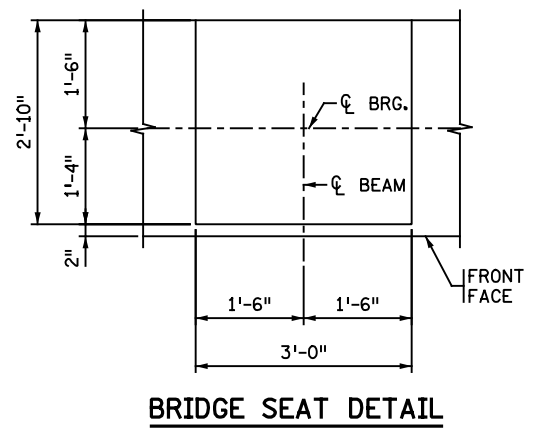
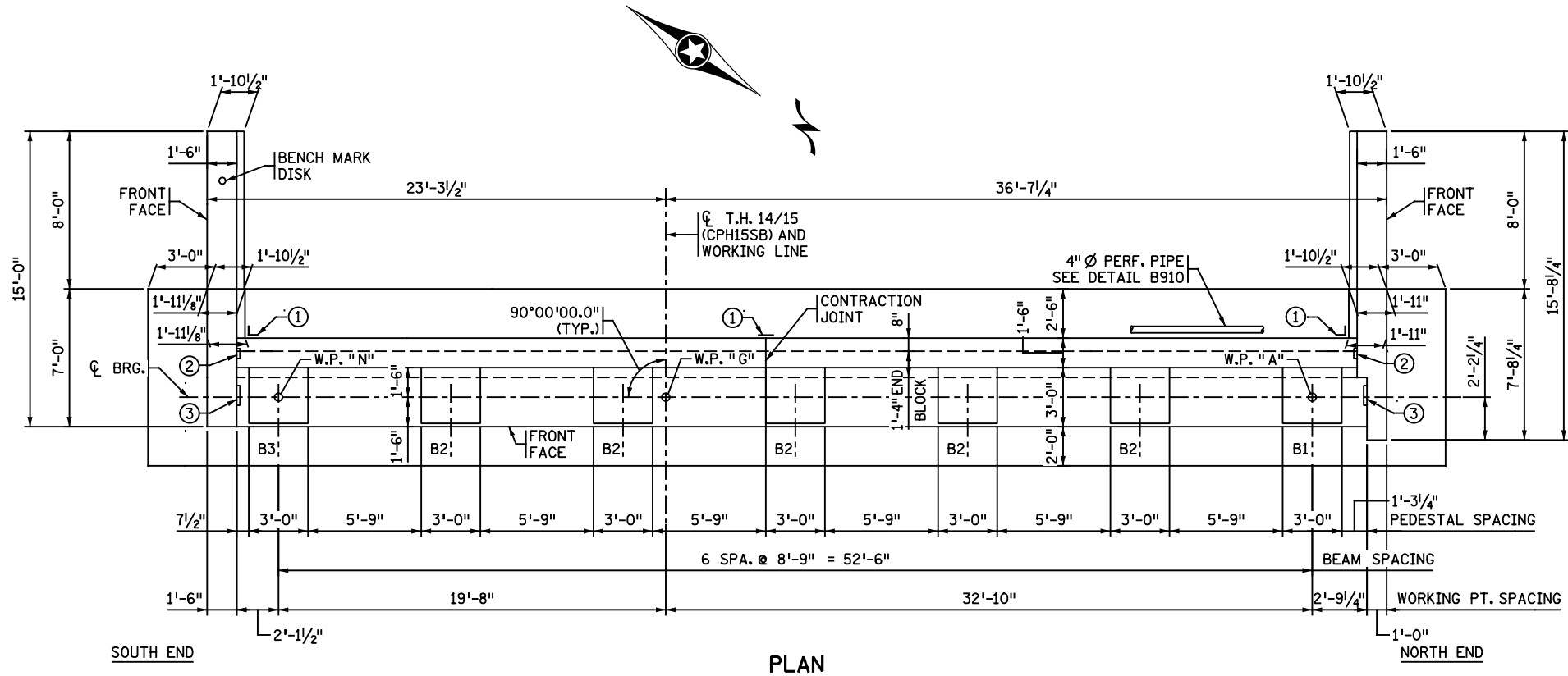


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 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: _____ LIC. NO. _____

TITLE: **WEST ABUTMENT DETAILS 1**

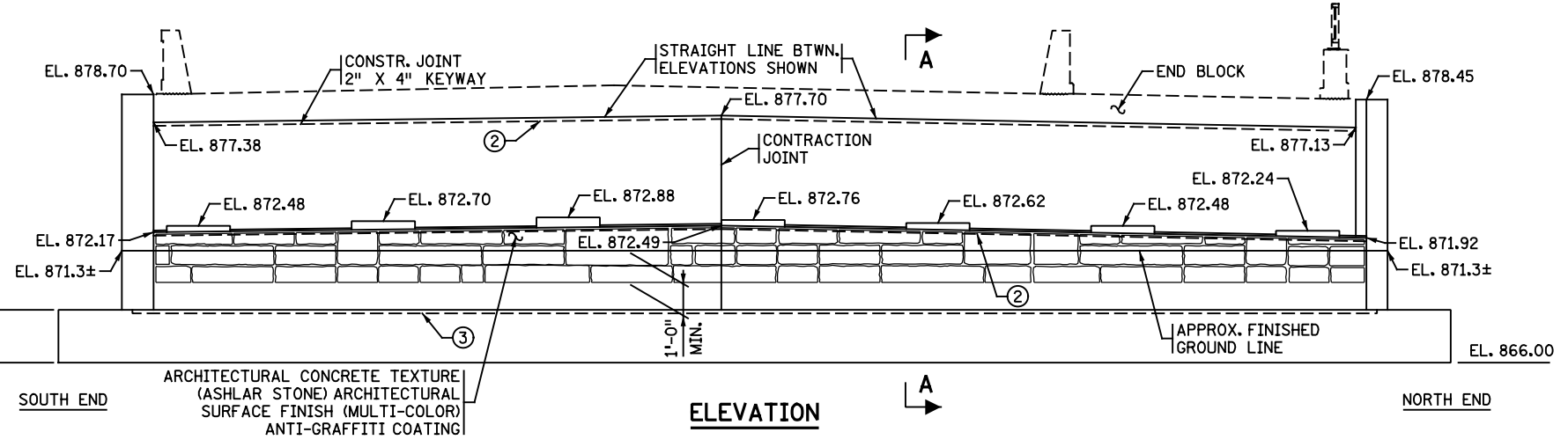
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 CHK: DRS CHK: DRS
 STATE PROJECT NO. 0804-08017
 SHEET NO. 7 OF 82 SHEETS

BRIDGE NO.
08017



SOUTH END NORTH END

PLAN



SOUTH END NORTH END

ELEVATION

NOTES:

- FOR WINGWALL ELEVATIONS, SEE SHEET 9.
- ARCHITECTURAL CONCRETE TEXTURE SHALL BE MATCHED ACROSS CONSTRUCTION JOINTS TO PROVIDE THE APPEARANCE OF A CONTINUOUS PATTERN.
- SEE SPECIAL PROVISIONS FOR SPECIAL SURFACE FINISH COLORS AND LOCATIONS.
- FOR SECTION A-A SEE SHEET 9.
- PROVIDE A 72 HOUR MINIMUM TIME DELAY BETWEEN CONCRETE POURS ON ADJACENT ABUTMENT AND WINGWALL SECTIONS.
- VERTICAL KEYWAYS SHALL STOP 1'-0" ± FROM EXPOSED SURFACE.
- SEE DETAIL B801 FOR CONTRACTION JOINT DETAILS.
- ① MEMBRANE WATERPROOFING SYSTEM PER MDOT 2481.3B. TO BE INCLUDED IN PRICE BID FOR STRUCTURAL CONCRETE (3B52).
- ② CONSTRUCTION JOINT 2" X 6" KEYWAY.
- ③ CONSTRUCTION JOINT 2" X 12" KEYWAY

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REVISION				
NO.	DATE	DESCRIPTION	DR.	CHK.

CERTIFIED BY: _____

LICENSED PROFESSIONAL ENGINEER DATE _____

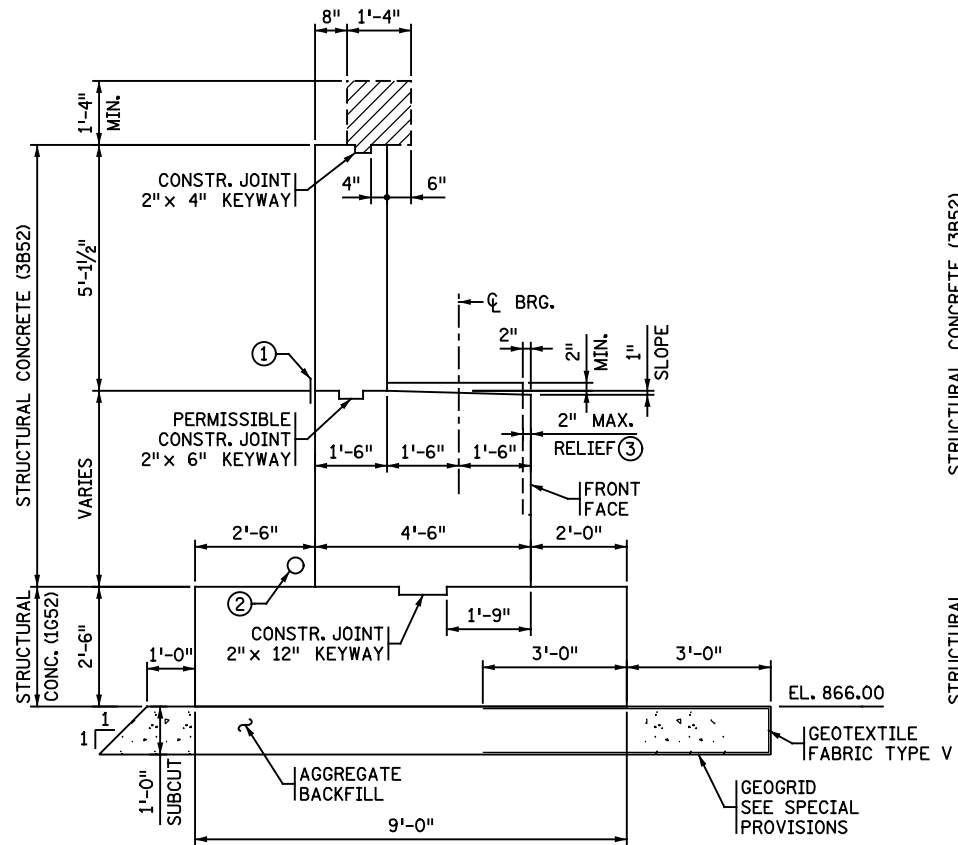
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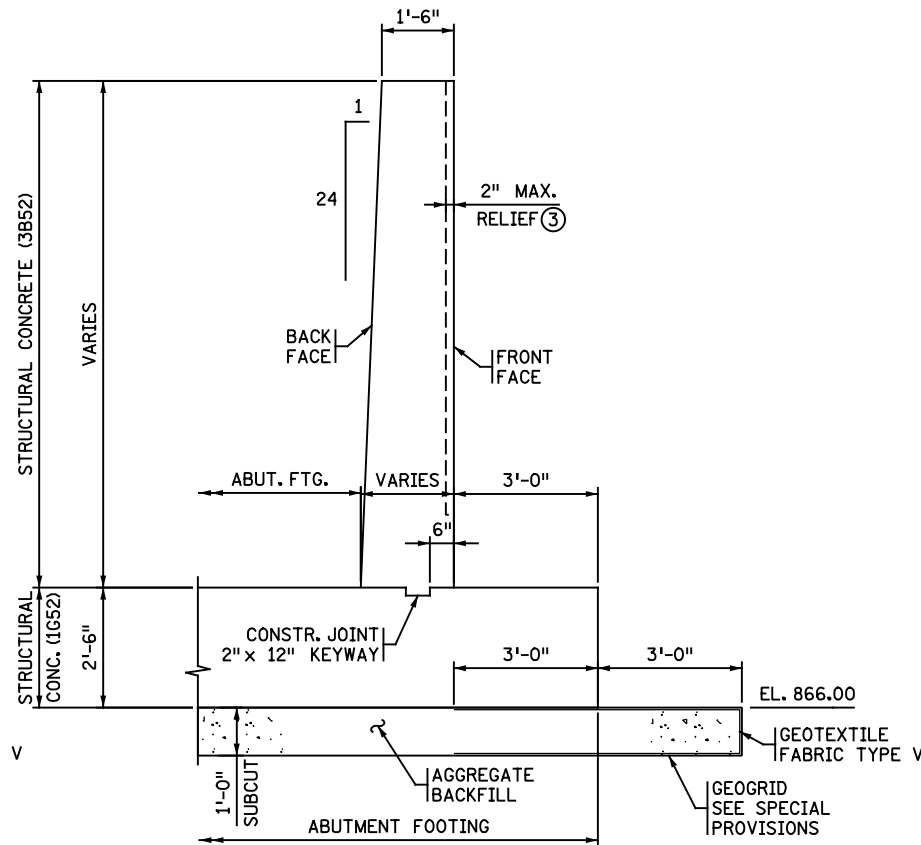
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CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-08017		
SHEET NO. 8 OF 82 SHEETS		

BRIDGE NO. **08017**

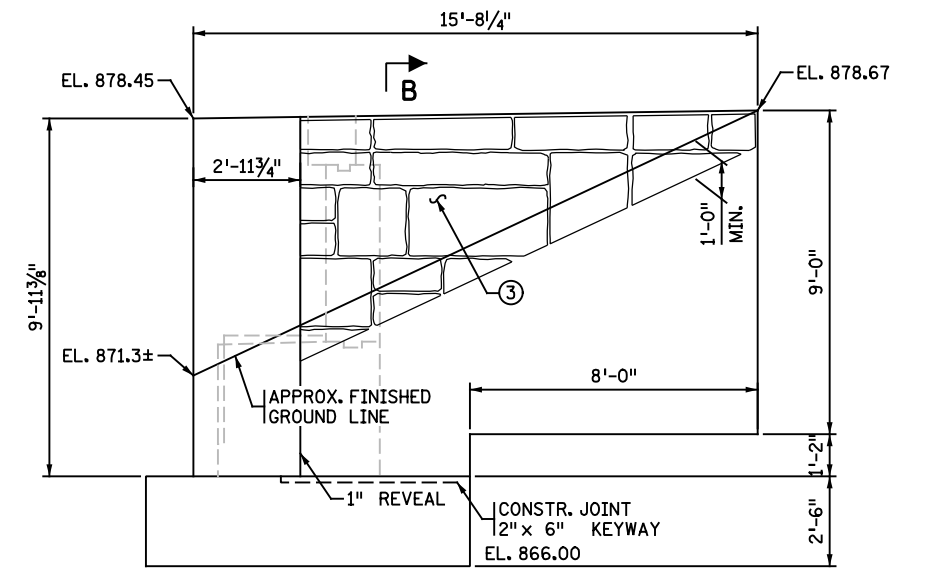
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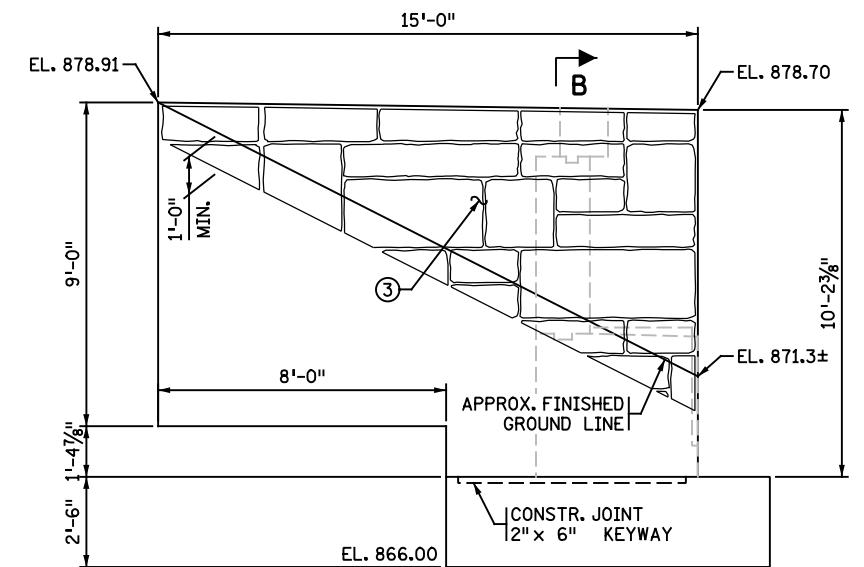
SECTION A-A



SECTION B-B



NORTHWEST WINGWALL ELEVATION



SOUTHWEST WINGWALL ELEVATION

NOTES:

- ① MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2481.3B, TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ② 4" Ø PERFORATED PIPE. SEE DETAIL B910 FOR DETAILS.
- ③ ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE) ARCHITECTURAL SURFACE FINISH (MULTI-COLOR) ANTI-GRAFFITI COATING

REVISION		DR.	CHK.	APP'D.
NO.	DATE			



CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: _____
WEST ABUTMENT DETAILS 3

DES: RJR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-08017		
SHEET NO. 9 OF 82 SHEETS		

BRIDGE NO.
 08017

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EAST ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR H-PILES R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	** R_n
MNDOT PILE FORMULA 2012 (MPF12) $R_n = 20 \sqrt{\frac{W \times H}{1000}} \times \log\left(\frac{10}{S}\right)$	0.60	213.4
PDA	0.65	197.0

** R_n = (FACTORED DESIGN LOAD) / ϕ_{dyn}

EAST ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	111.2
FACTORED LIVE LOAD	16.8
*FACTORED DESIGN LOAD	128.0

*BASED ON STRENGTH I LOAD COMBINATION

PILE NOTES

- 1 STEEL H TEST PILES 40 FT. LONG
- 21 STEEL H PILES EST. LENGTH 35 FT.
- 22 STEEL H PILES REQ'D FOR EAST ABUTMENT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

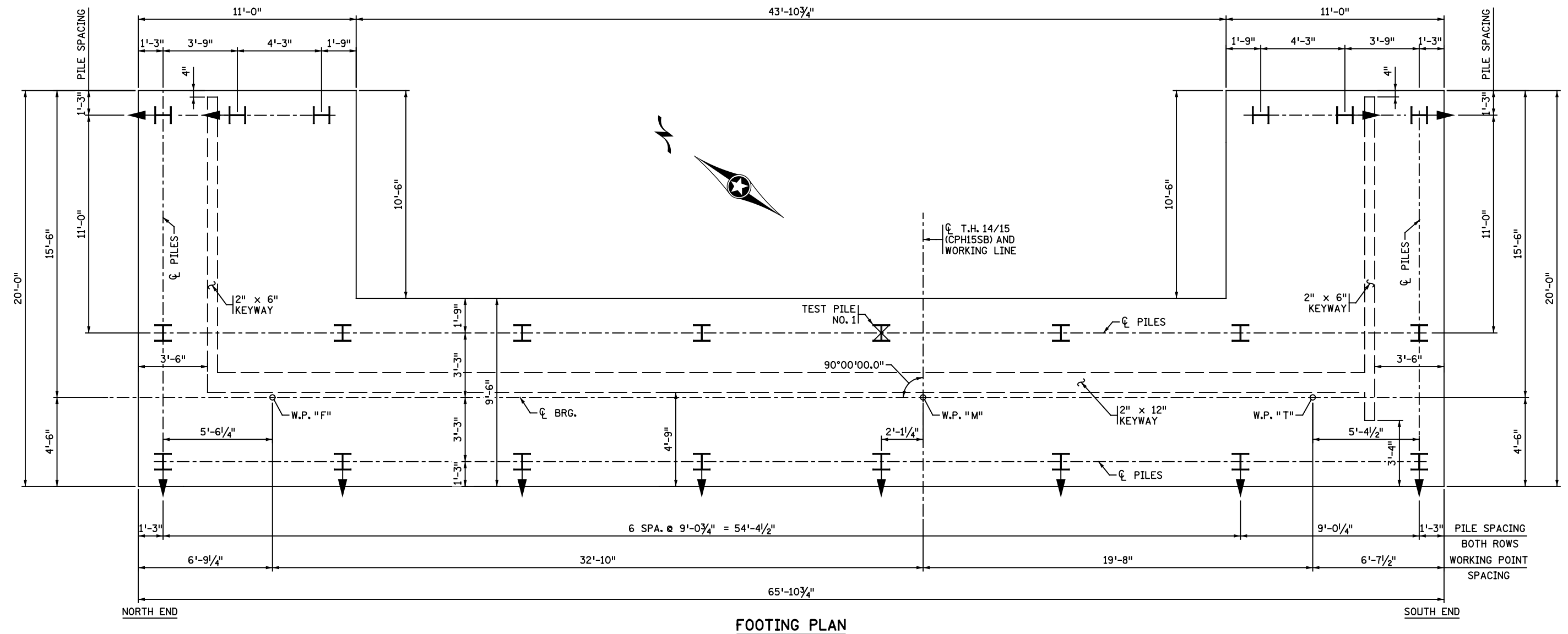
PILES MARKED THUS H- TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.

PILES TO BE HP-10x57.

FOR PILE SPLICE DETAILS SEE DETAIL B202.

SUMMARY OF QUANTITIES FOR EAST ABUTMENT

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
REINFORCEMENT BARS (STAINLESS-60KSI)	0	POUND
ANTI GRAFFITI COATING	0	SQ FT
ARCHITECTURAL SURFACE FINISH (MULTI COLOR)	0	SQ FT
ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE)	0	SQ FT
STEEL H-TEST PILE 40FT LONG 10"	0	EACH
STEEL H-PILING 10"	0	LIN FT
PILE TIP PROTECTION 10"	0	EACH



FOOTING PLAN

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

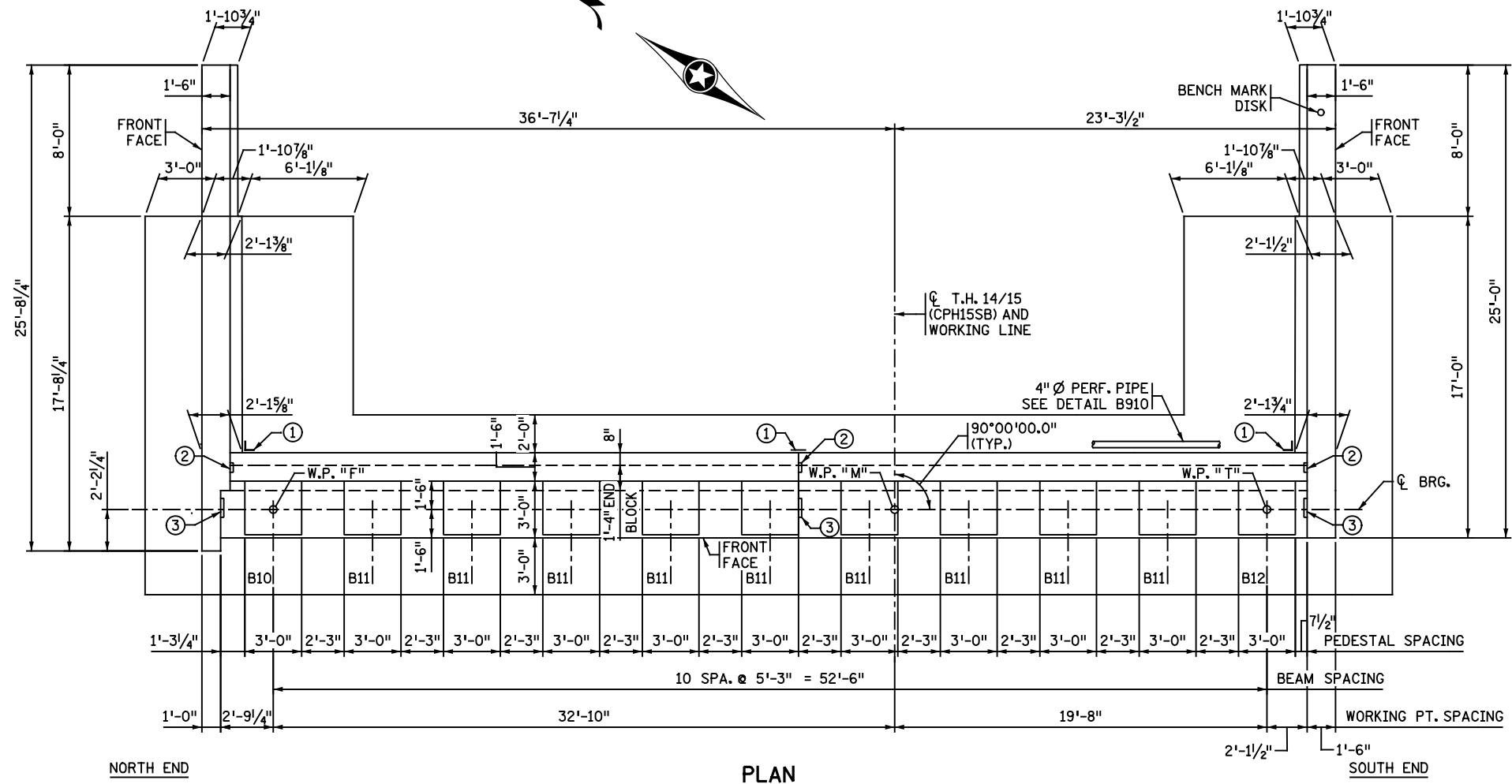


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 NAME: _____ LIC. NO. _____

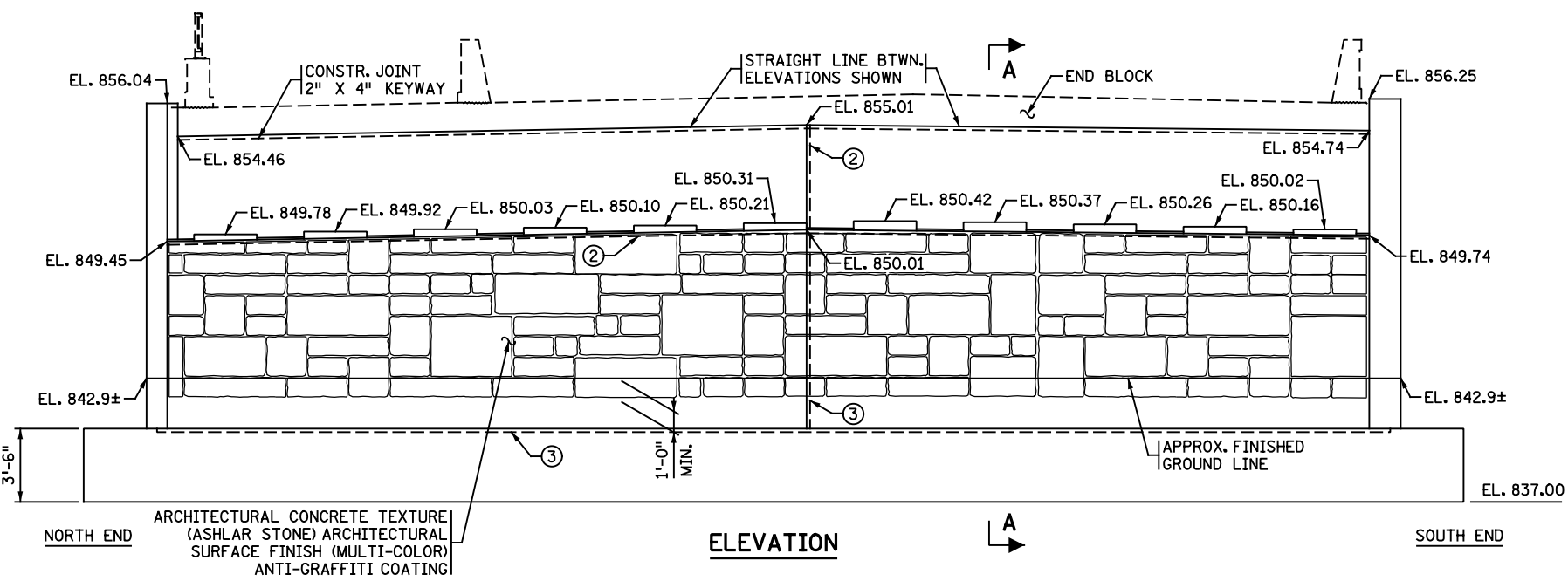
TITLE: **EAST ABUTMENT DETAILS 1**

DES: RJR DR: DJR APPROVED: _____
 CHK: DRS CHK: DRS
 STATE PROJECT NO. 0804-08017
 SHEET NO. 15 OF 82 SHEETS

BRIDGE NO. 08017



NORTH END PLAN SOUTH END



NORTH END ELEVATION SOUTH END

- NOTES:**
- FOR ADDITIONAL ABUTMENT NOTES, SEE SHEET 8 .
 - FOR WINGWALL ELEVATIONS, SEE SHEET 17.
 - FOR SECTION A-A SEE SHEET 17.
 - FOR BRIDGE SEAT DETAIL, SEE SHEET 8 .
 - PILING NOT SHOWN FOR CLARITY.
 - ① MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2481.3B. TO BE INCLUDED IN PRICE BID FOR STRUCTURAL CONCRETE (3B52).
 - ② CONSTRUCTION JOINT 2" X 6" KEYWAY.
 - ③ CONSTRUCTION JOINT 2" X 12" KEYWAY

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

CERTIFIED BY: _____

NAME: _____ LIC. NO. _____

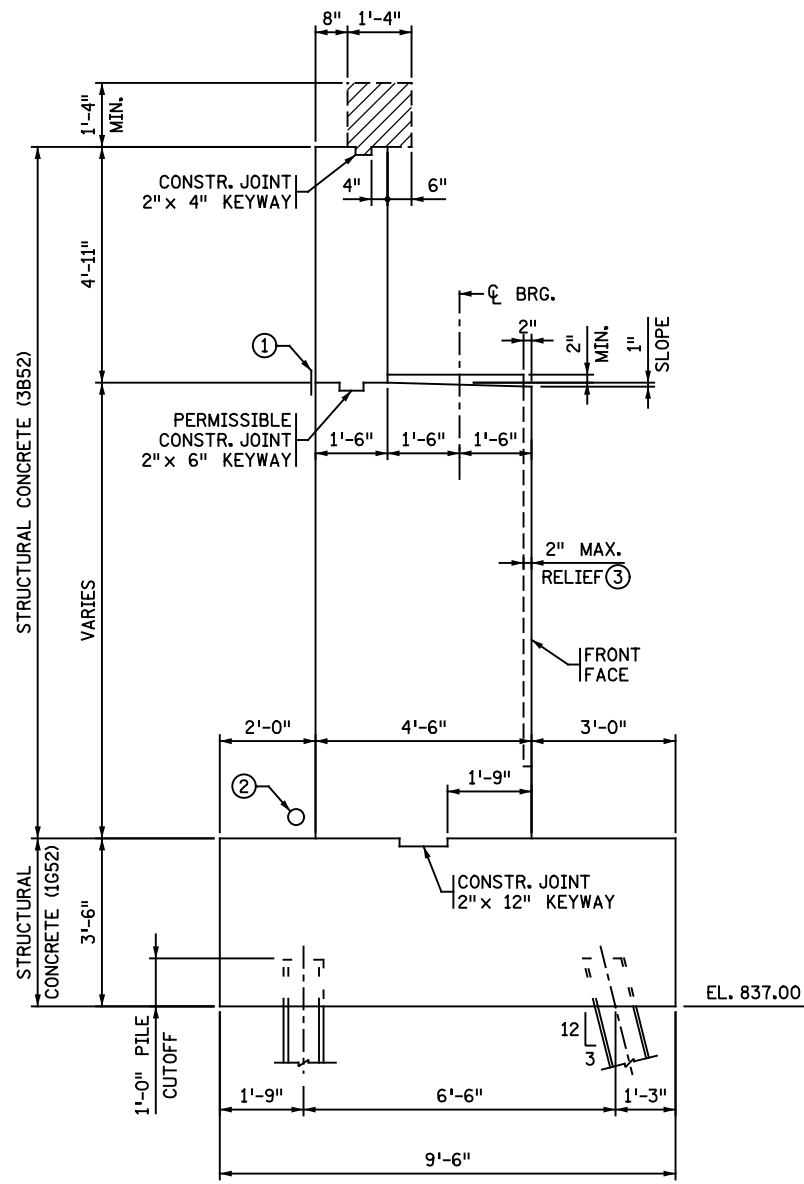
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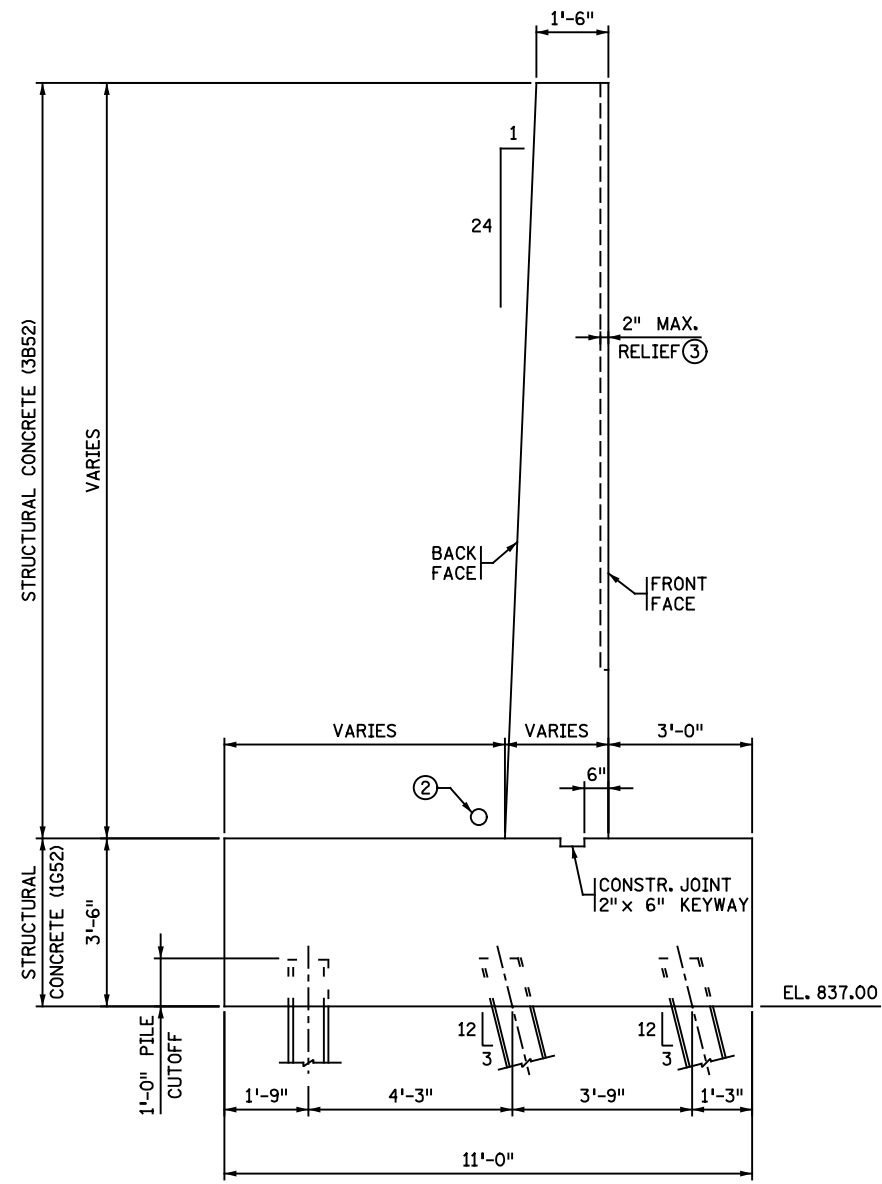
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CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-08017		
SHEET NO. 16 OF 82 SHEETS		

BRIDGE NO. **08017**

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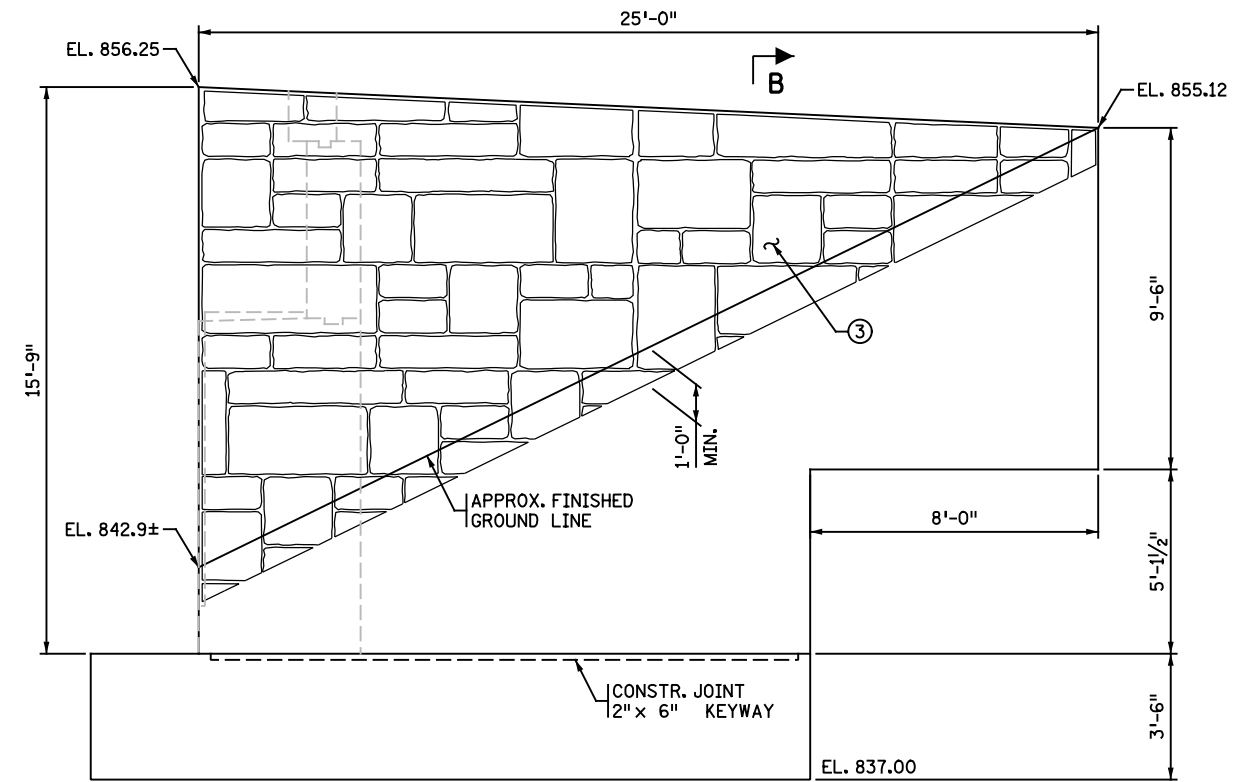


SECTION A-A



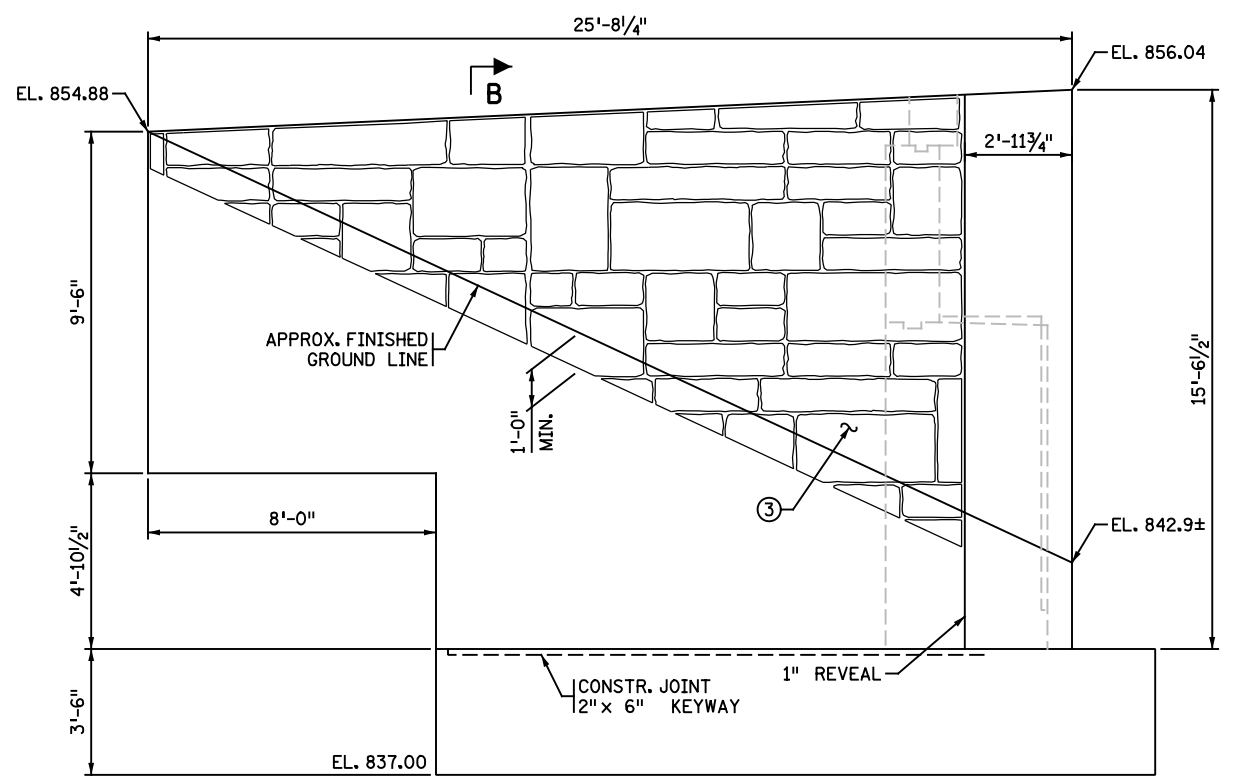
SECTION B-B

- NOTES:**
- ① MEMBRANE WATERPROOFING SYSTEM PER MDOT 2481.3B, TO BE INCLUDED IN PRICE BID FOR STRUCTURAL CONCRETE (3B52).
 - ② 4" Ø PERFORATED PIPE, SEE DETAIL B910 FOR DETAILS.
 - ③ ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE) ARCHITECTURAL SURFACE FINISH (MULTI-COLOR) ANTI-GRAFFITI COATING



SOUTHEAST WINGWALL ELEVATION

PILING NOT SHOWN FOR CLARITY



NORTHEAST WINGWALL ELEVATION

PILING NOT SHOWN FOR CLARITY

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: **EAST ABUTMENT DETAILS 3**

DES: RJR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-08017		
SHEET NO. 17 OF 82 SHEETS		

BRIDGE NO.
08017

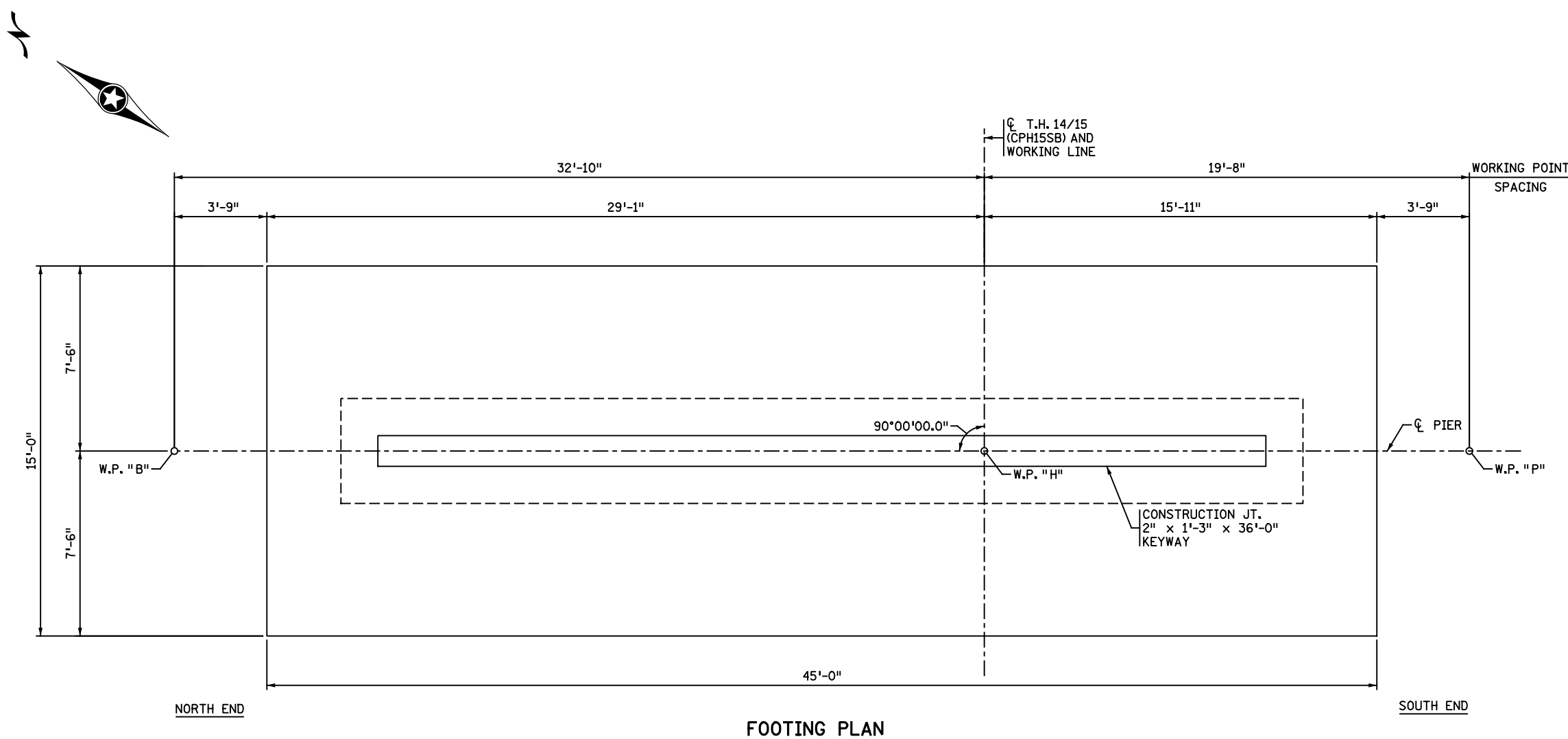
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SUMMARY OF QUANTITIES FOR PIER 1

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	0	SQ FT
AGGREGATE BACKFILL (CV)	0	CU YD
GEOGRID	0	SQ YD
GEOTEXTILE FABRIC TYPE V	0	SQ YD

PIER 1 SPREAD FOOTING LOAD DATA	
*FACTORED DESIGN BEARING PRESSURE	5.5 TONS/SQ.FT.
EFFECTIVE WIDTH B' (PERPENDICULAR TO PIER)	11.5 FT.
EFFECTIVE LENGTH L' (PARALLEL TO PIER)	43.1 FT.
FACTORED BEARING RESISTANCE $\phi_b \cdot q_n$	21.2 TONS/SQ.FT.

*BASED ON STR I LOAD COMBINATION



FOOTING PLAN

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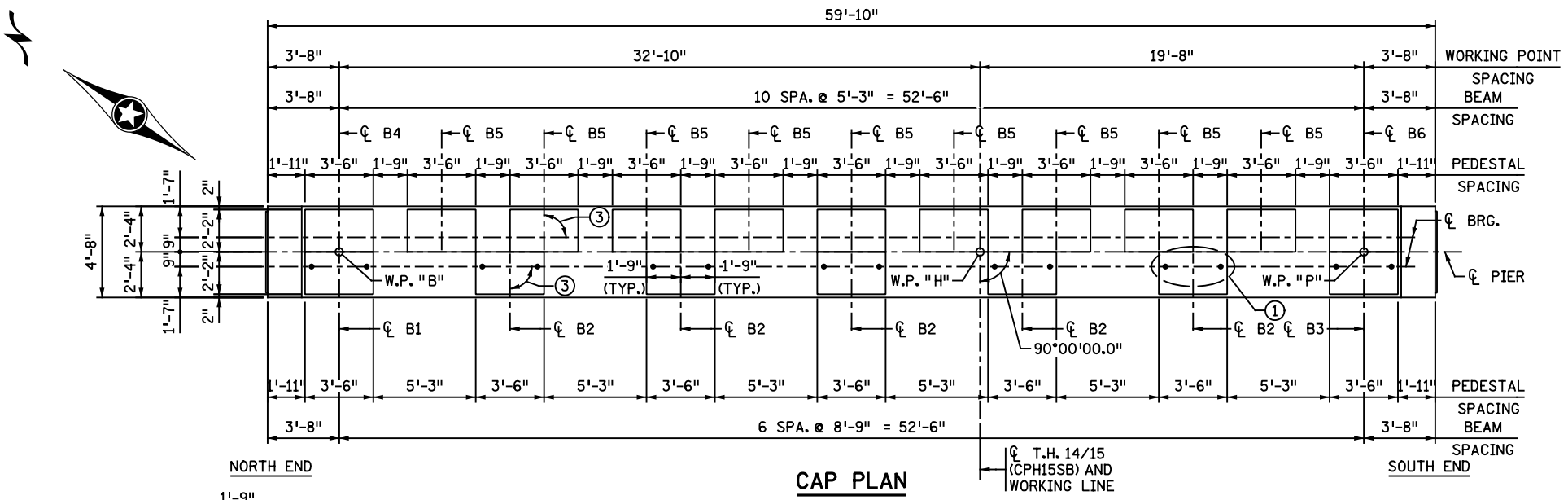


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 NAME: _____ LIC. NO. _____

TITLE: **PIER 1 DETAILS 1**

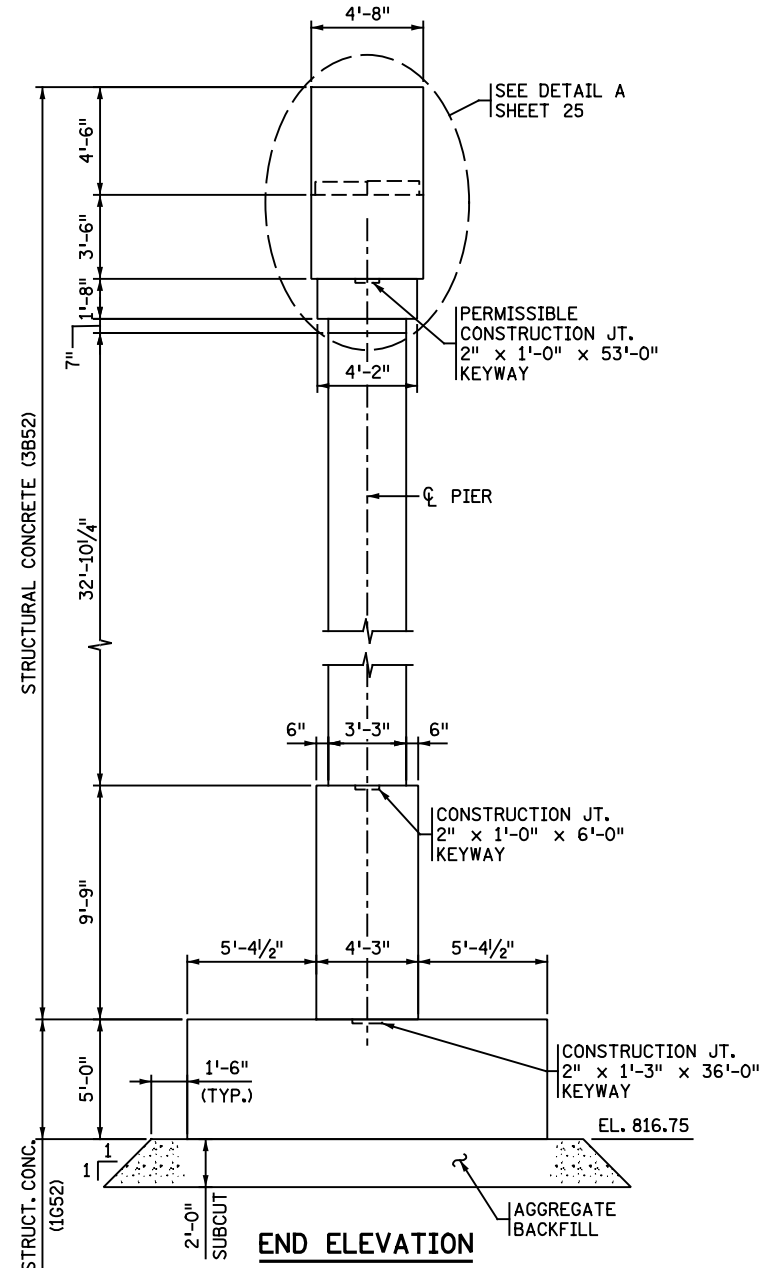
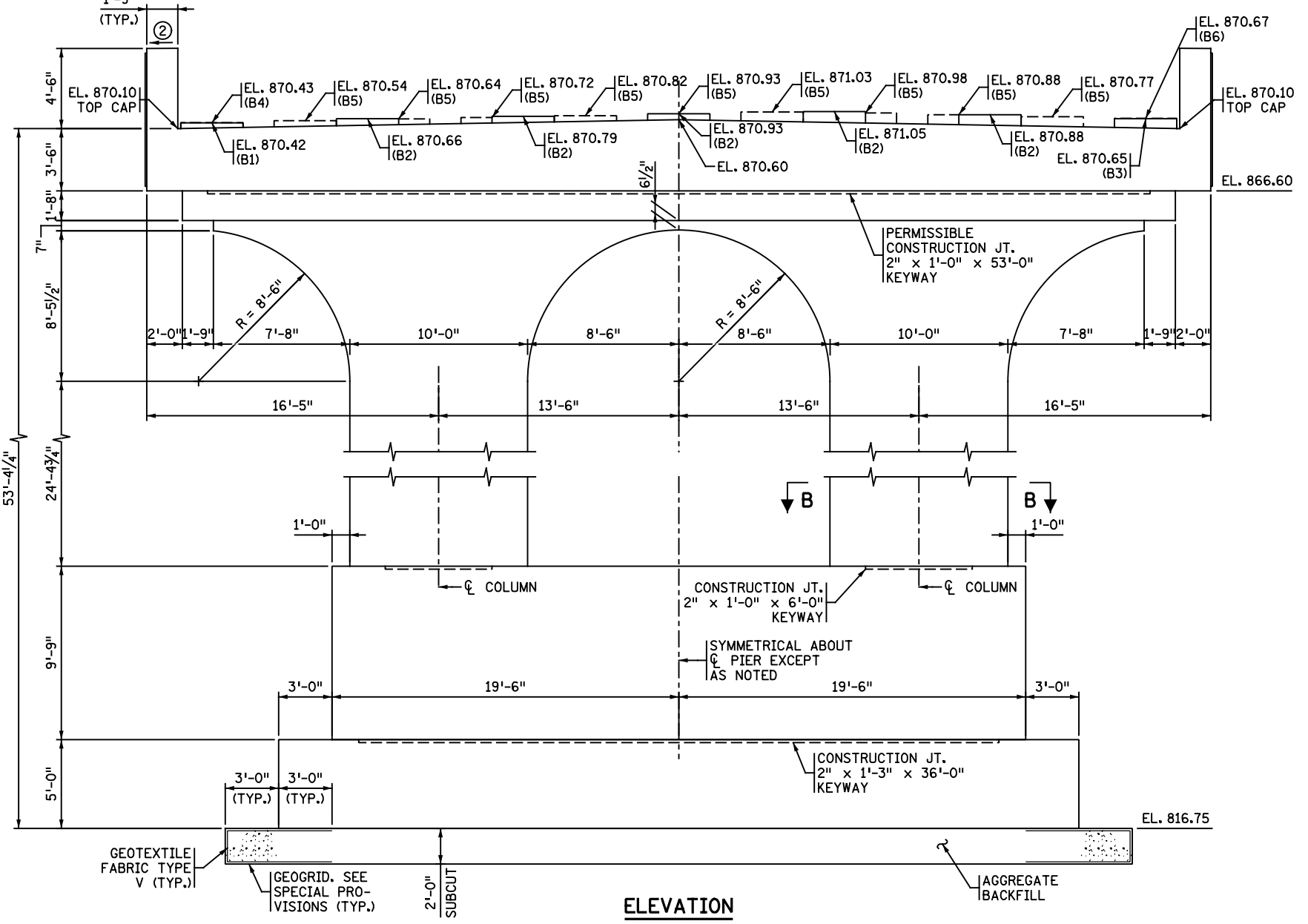
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CHK: REM	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 23 OF 82 SHEETS		

BRIDGE NO.
08017



NOTES:

- FOR SECTIONS B-B AND CAP SECTION, SEE SHEET 25.
- ① FOR ANCHOR ROD DETAILS, SEE SHEET 25.
- ② SLOPE TO DRAIN (TYP.)
- ③ 90°00'00.0" (TYP.)



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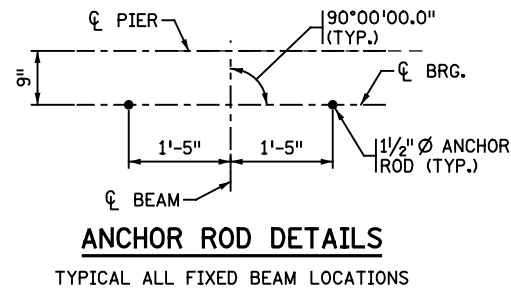
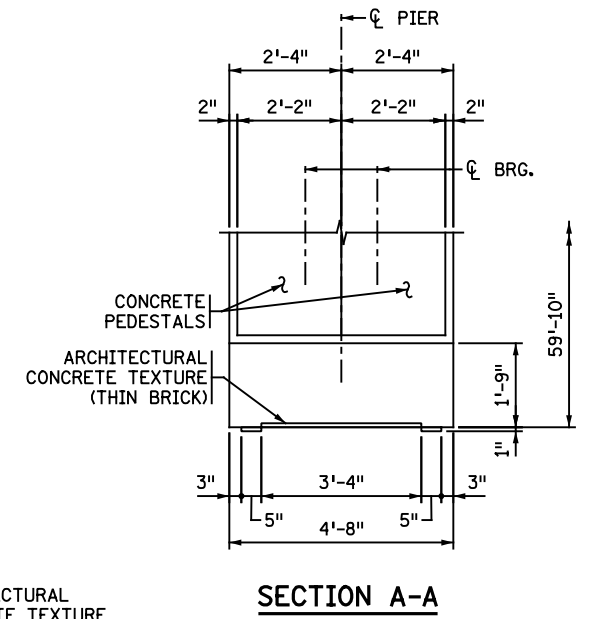
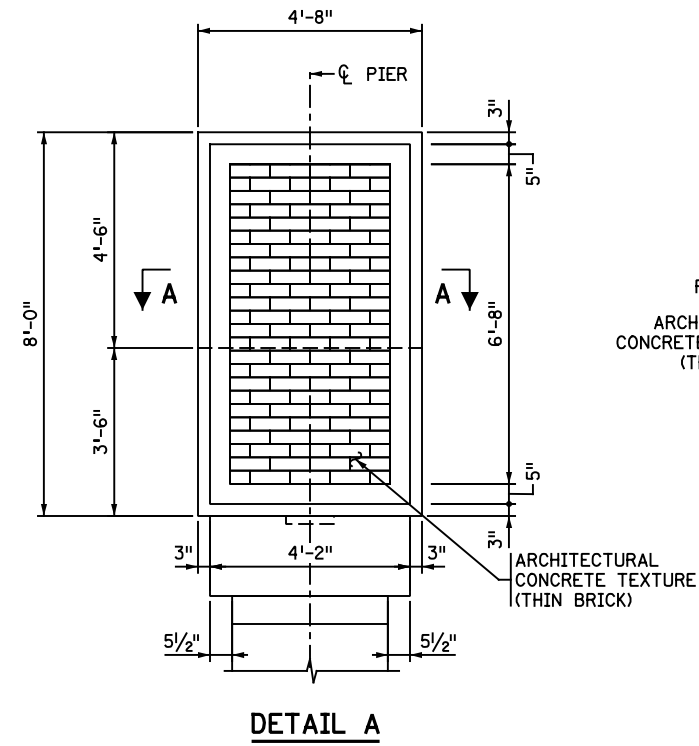
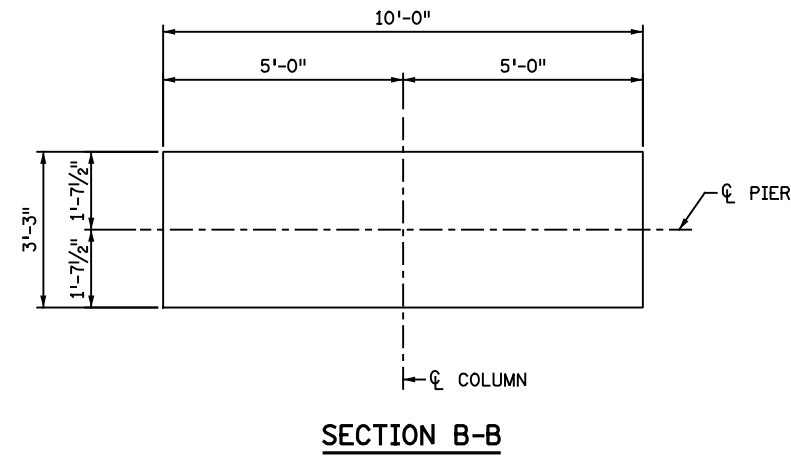
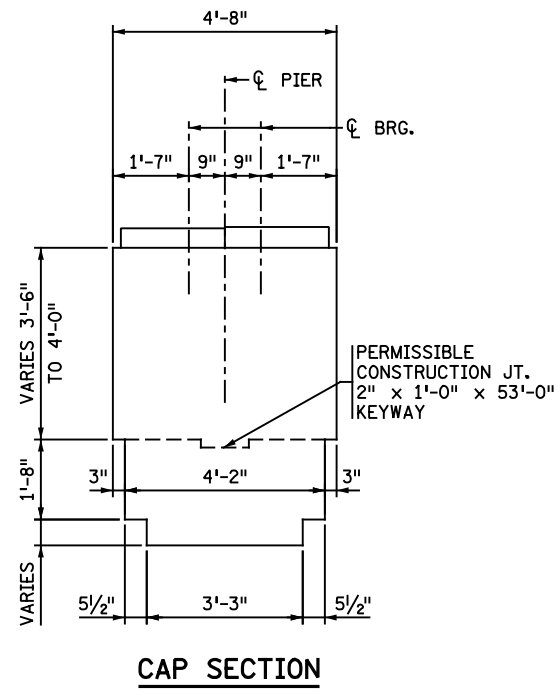


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 NAME: _____ LIC. NO. _____

TITLE: **PIER 1 DETAILS 2**

DES: RJR DR: DJR APPROVED: _____
 CHK: REM CHK: BAP
 STATE PROJECT NO. 0804-08017
 SHEET NO. 24 OF 82 SHEETS

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NO.	DATE			



CERTIFIED BY: _____
LICENSED PROFESSIONAL ENGINEER DATE

NAME: _____ LIC. NO. _____

TITLE: _____

PIER DETAILS

DES: RJR	DR: DJR	APPROVED:
CHK: REM	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 25 OF 82 SHEETS		

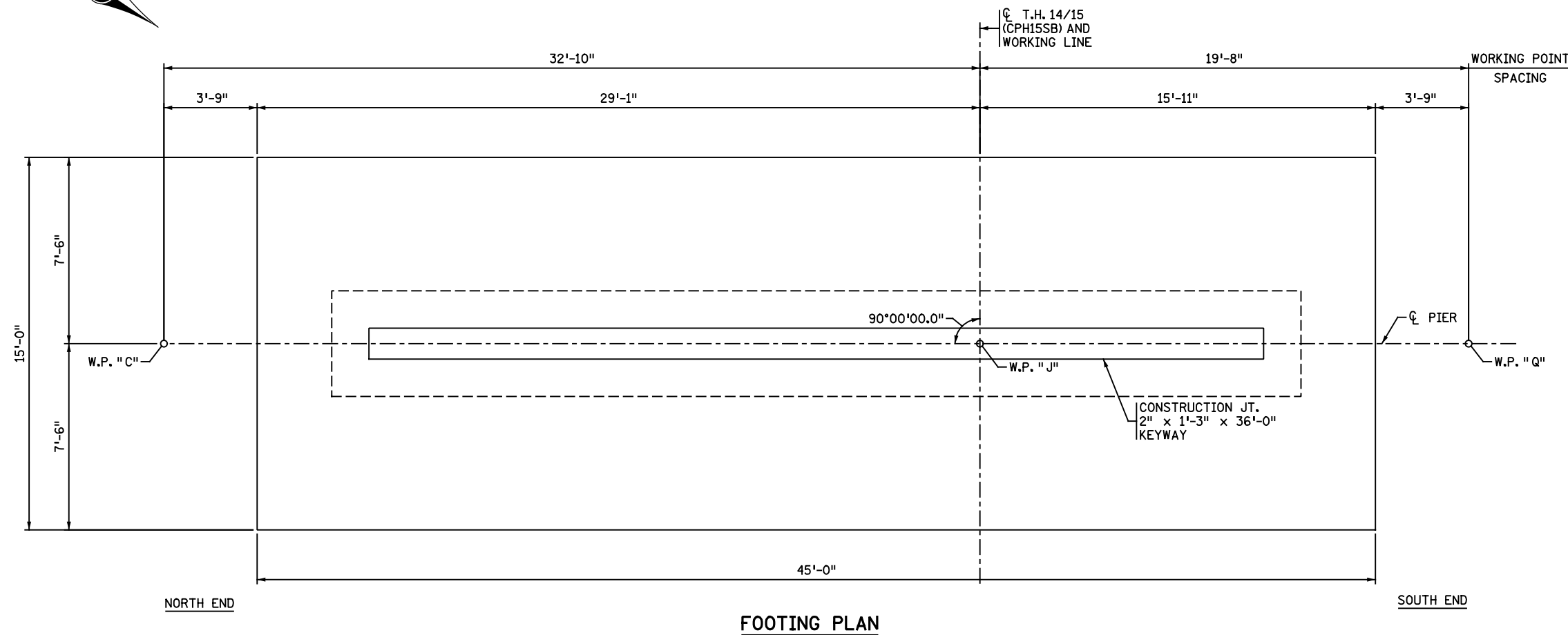
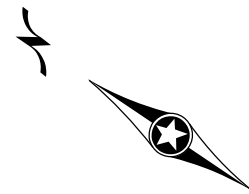
BRIDGE NO.
08017

SUMMARY OF QUANTITIES FOR PIER 2

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	0	SQ FT
AGGREGATE BACKFILL (CV)	0	CU YD
GEOGRID	0	SQ YD
GEOTEXTILE FABRIC TYPE V	0	SQ YD

PIER 2 SPREAD FOOTING LOAD DATA	
*FACTORED DESIGN BEARING PRESSURE	4.7 TONS/SQ.FT.
EFFECTIVE WIDTH B' (PERPENDICULAR TO PIER)	12.9 FT.
EFFECTIVE LENGTH L' (PARALLEL TO PIER)	42.5 FT.
FACTORED BEARING RESISTANCE $\phi_b \cdot q_n$	21.8 TONS/SQ.FT.

*BASED ON STR V LOAD COMBINATION



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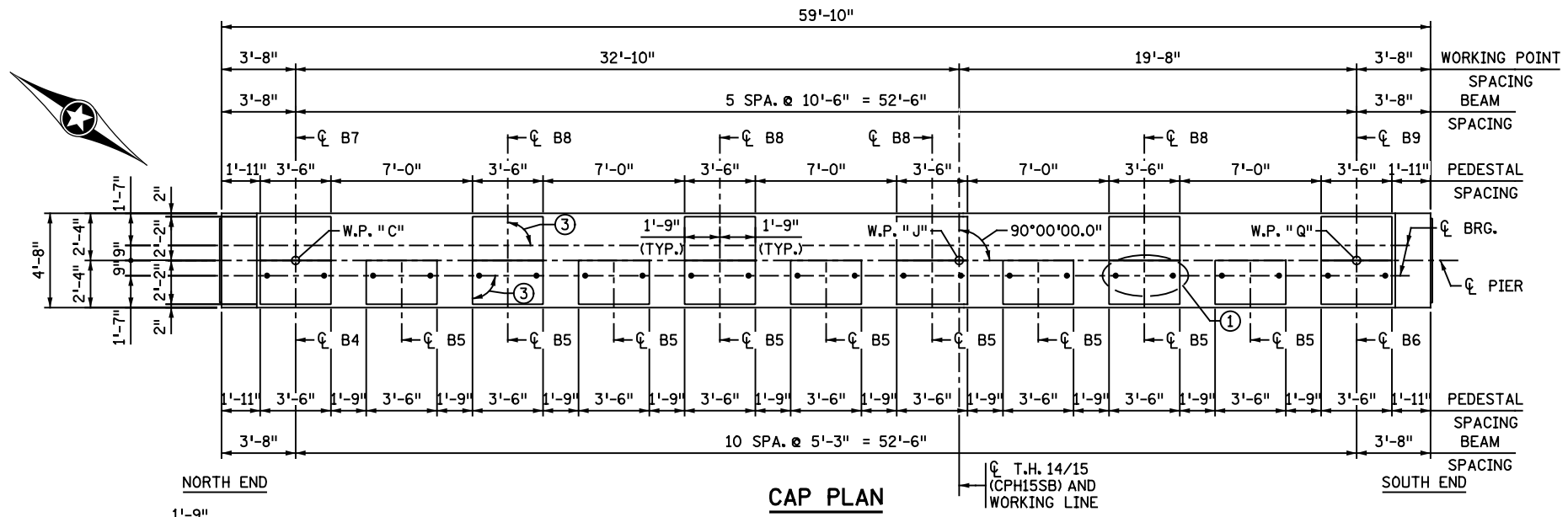


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 NAME: _____ LIC. NO. _____

TITLE: PIER 2 DETAILS 1

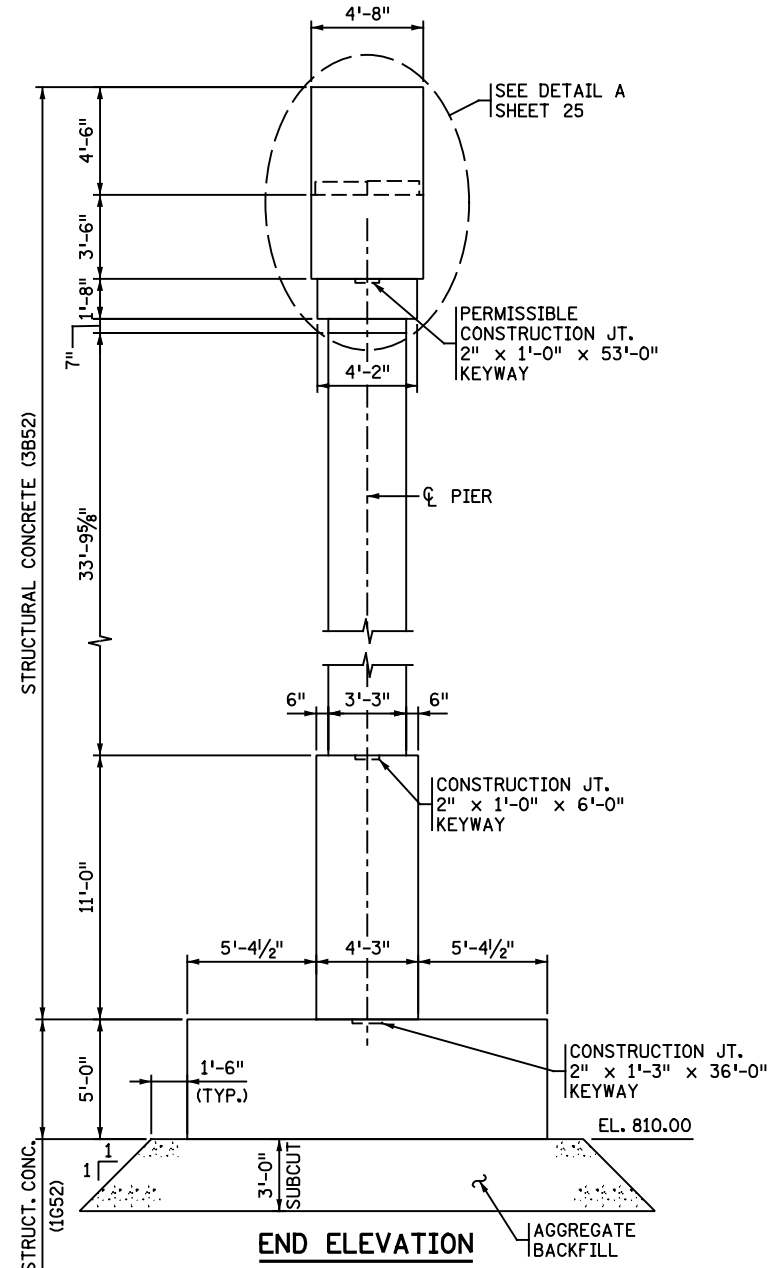
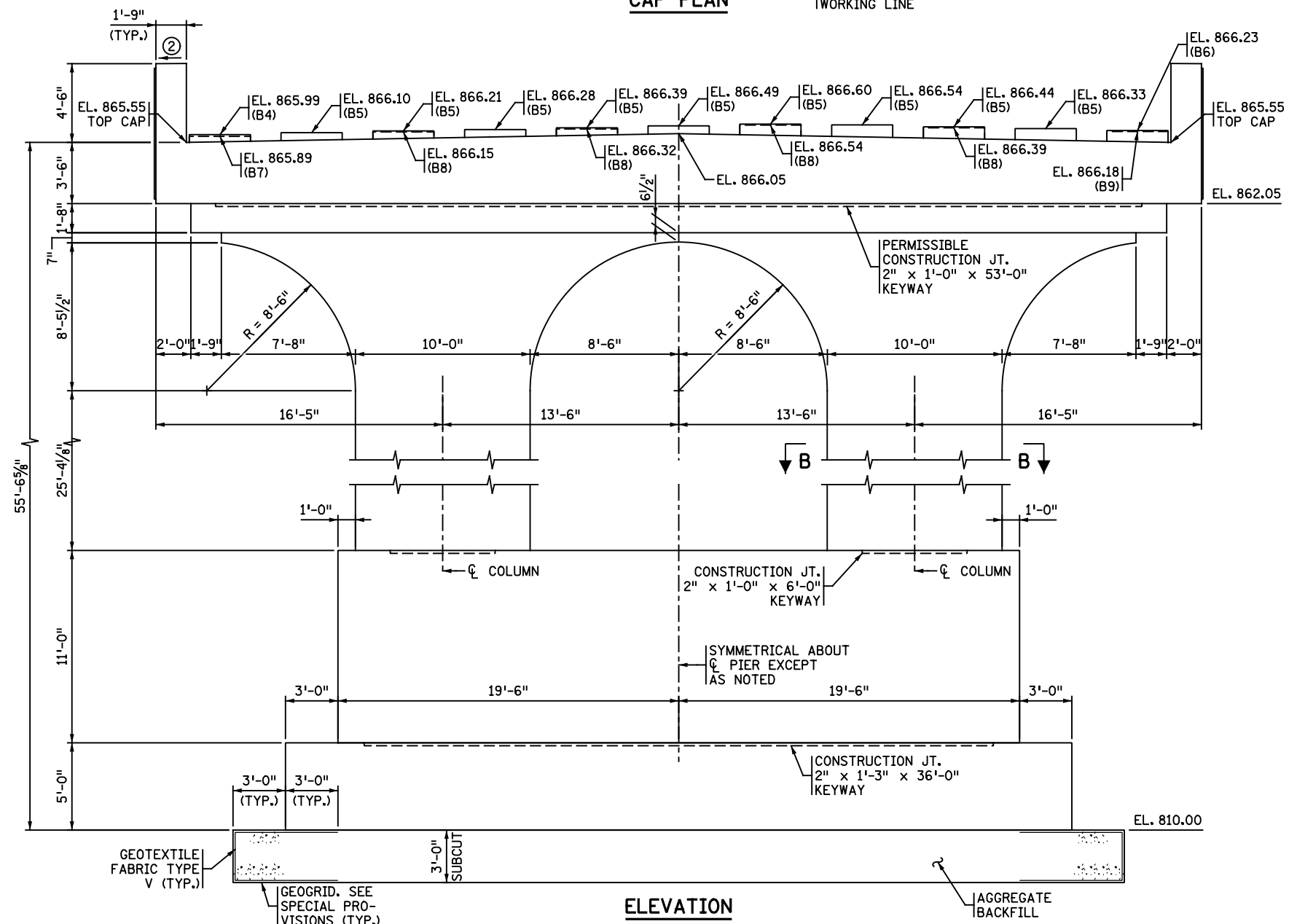
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CHK: REM	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 30 OF 82 SHEETS		

BRIDGE NO. 08017



NOTES:

- FOR SECTIONS B-B AND CAP SECTION, SEE SHEET 25.
- ① FOR ANCHOR ROD DETAILS, SEE SHEET 25.
- ② SLOPE TO DRAIN (TYP.)
- ③ 90°00'00.0" (TYP.)



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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

HDR

CERTIFIED BY: _____

LICENSED PROFESSIONAL ENGINEER DATE _____

NAME: _____ LIC. NO. _____

TITLE: **PIER 2 DETAILS 2**

DES: RJR	DR: DJR	APPROVED:
CHK: REM	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 31 OF 82 SHEETS		

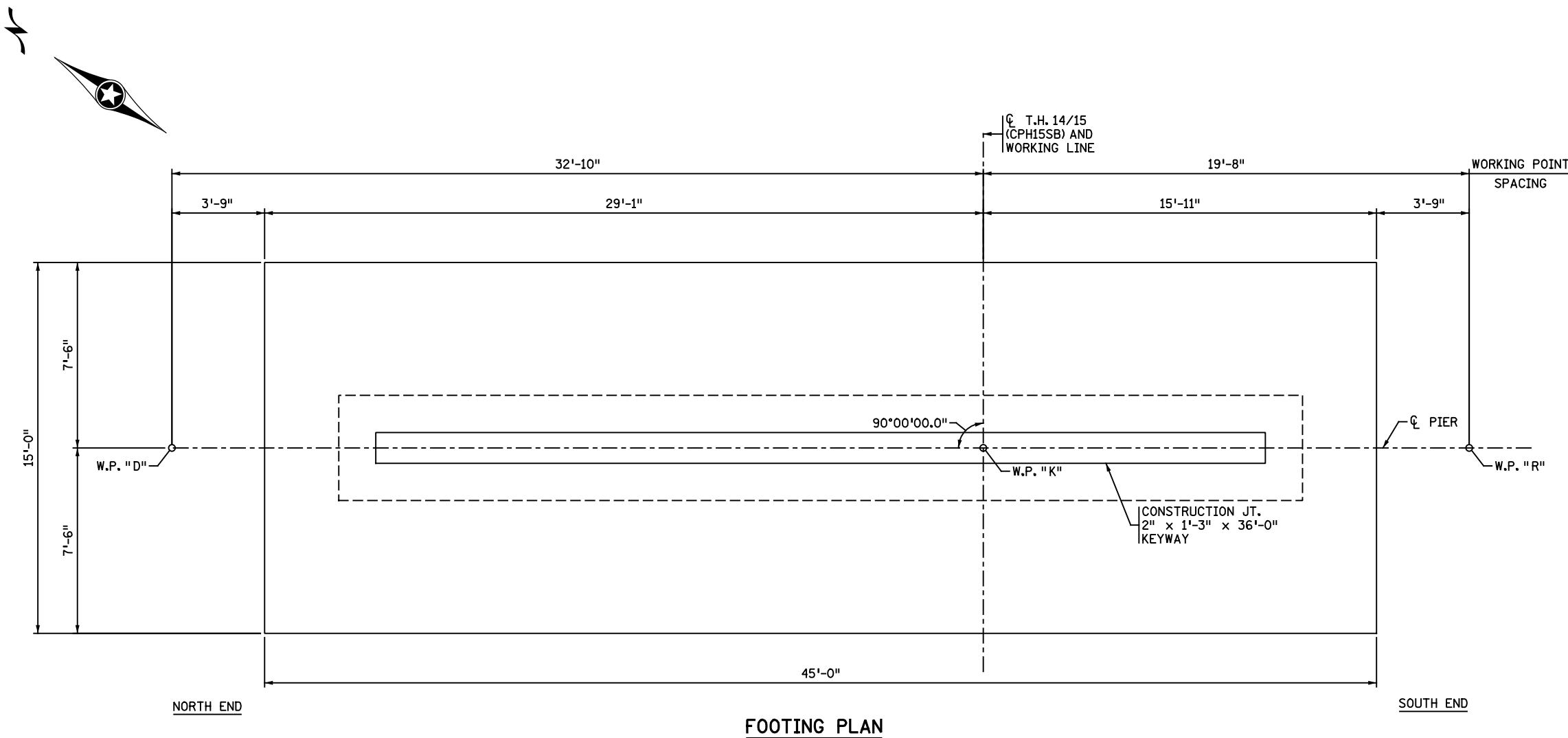
BRIDGE NO. **08017**

SUMMARY OF QUANTITIES FOR PIER 3

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	0	SQ FT
AGGREGATE BACKFILL (CV)	0	CU YD
GEOGRID	0	SQ YD
GEOTEXTILE FABRIC TYPE V	0	SQ YD

PIER 3 SPREAD FOOTING LOAD DATA	
*FACTORED DESIGN BEARING PRESSURE	3.7 TONS/SQ.FT.
EFFECTIVE WIDTH B' (PERPENDICULAR TO PIER)	13.3 FT.
EFFECTIVE LENGTH L' (PARALLEL TO PIER)	42.3 FT.
FACTORED BEARING RESISTANCE $\phi_b \cdot q_n$	20.7 TONS/SQ.FT.

*BASED ON STR V LOAD COMBINATION



FOOTING PLAN

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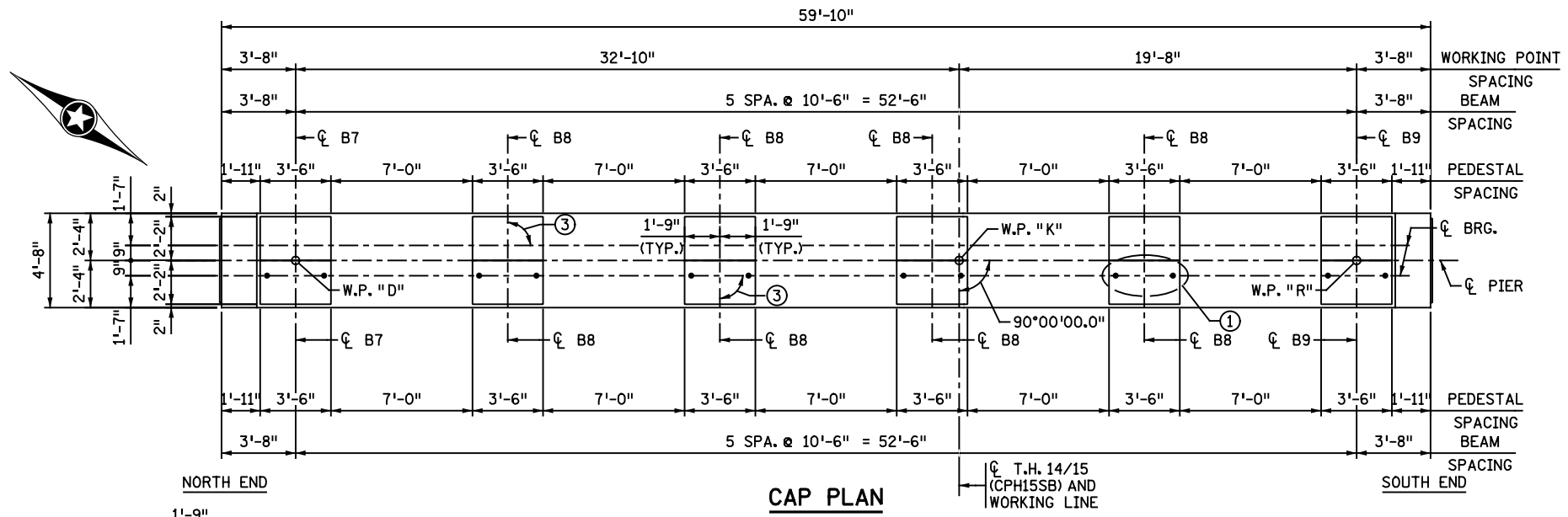


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 NAME: _____ LIC. NO. _____

TITLE: _____
PIER 3 DETAILS 1

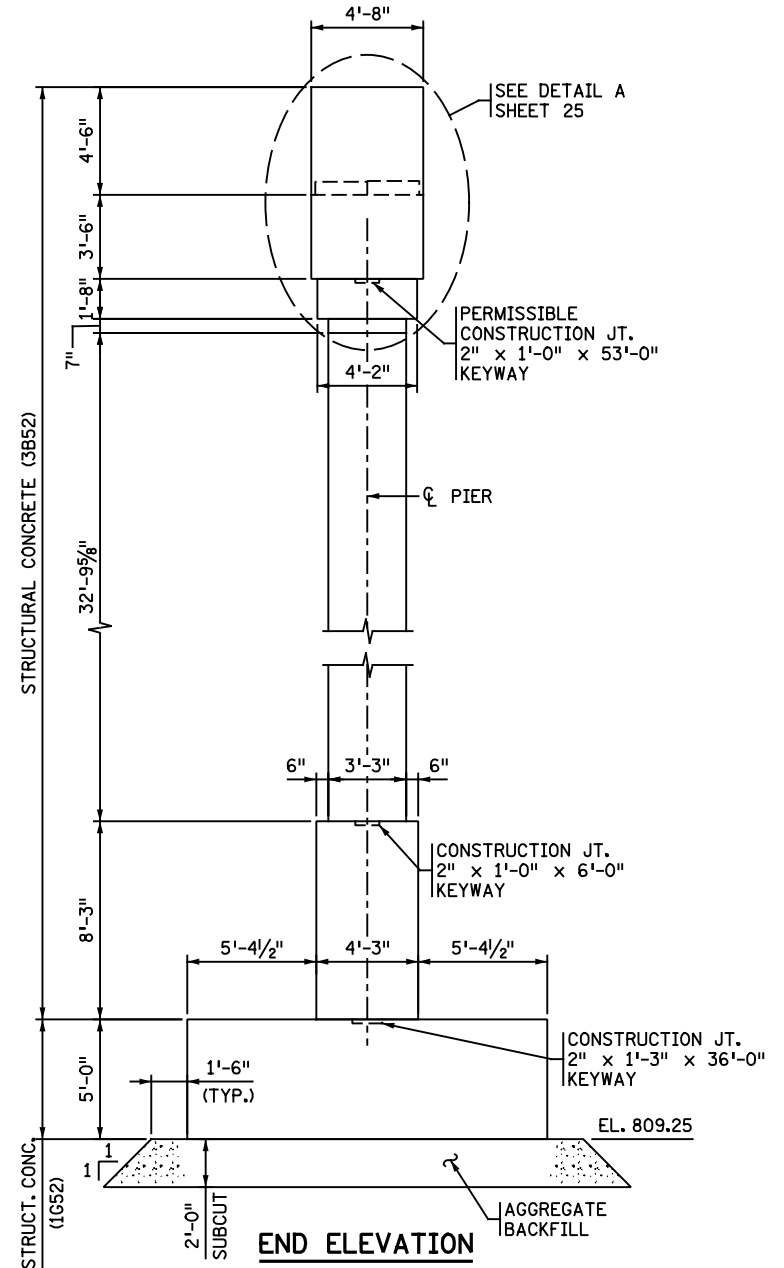
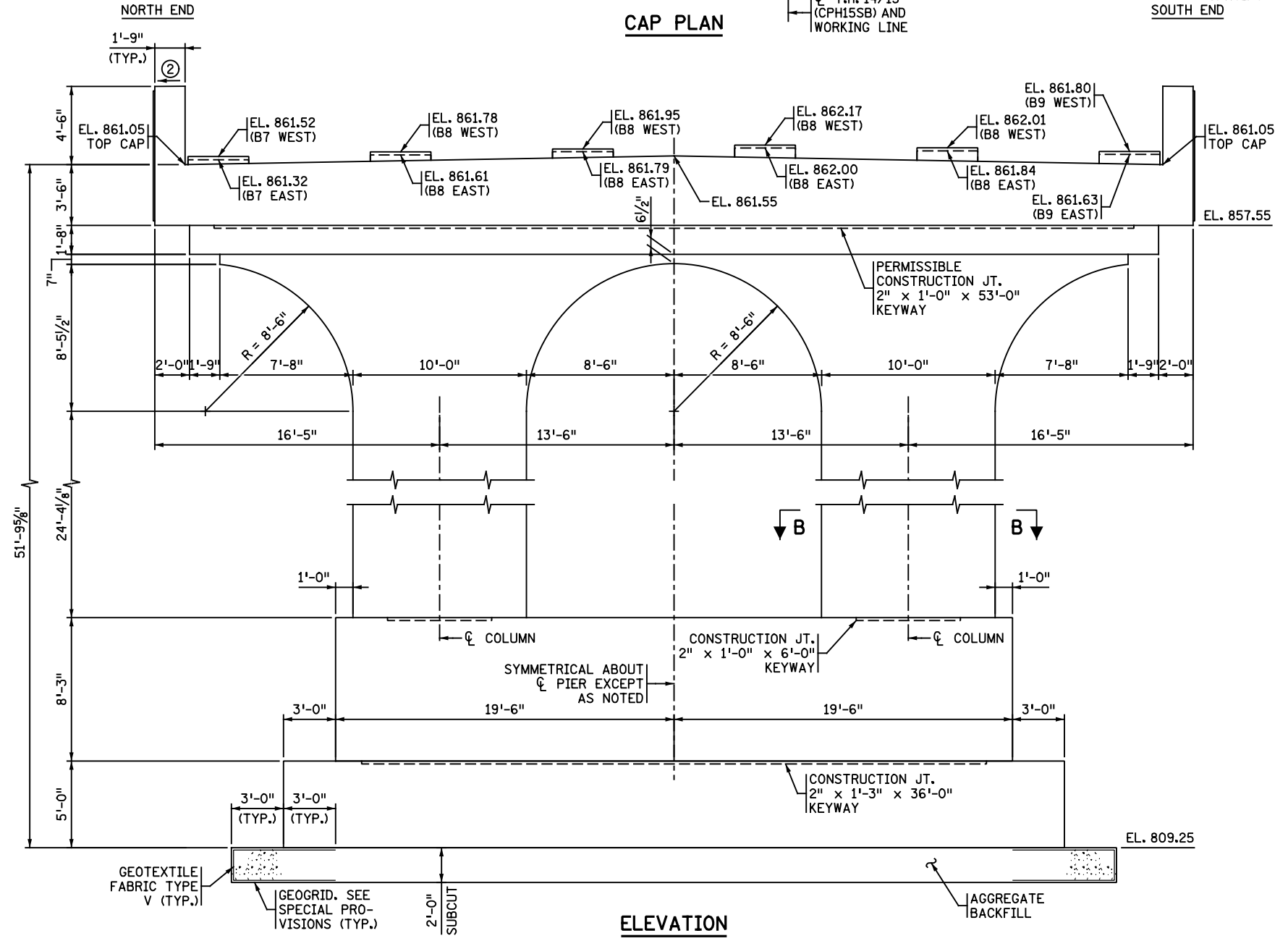
DES: RJR	DR: DJR	APPROVED:
CHK: REM	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 36 OF 82 SHEETS		

BRIDGE NO.
08017



NOTES:

- FOR SECTIONS B-B AND CAP SECTION, SEE SHEET 25.
- ① FOR ANCHOR ROD DETAILS, SEE SHEET 25.
- ② SLOPE TO DRAIN (TYP.)
- ③ 90°00'00.0" (TYP.)



Untitled 7:04:16 AM 3/29/2017
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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

HR

CERTIFIED BY: _____

LICENSED PROFESSIONAL ENGINEER DATE _____

NAME: _____ LIC. NO. _____

TITLE: **PIER 3 DETAILS 2**

DES: RJR	DR: DJR	APPROVED:
CHK: REM	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 37 OF 82 SHEETS		

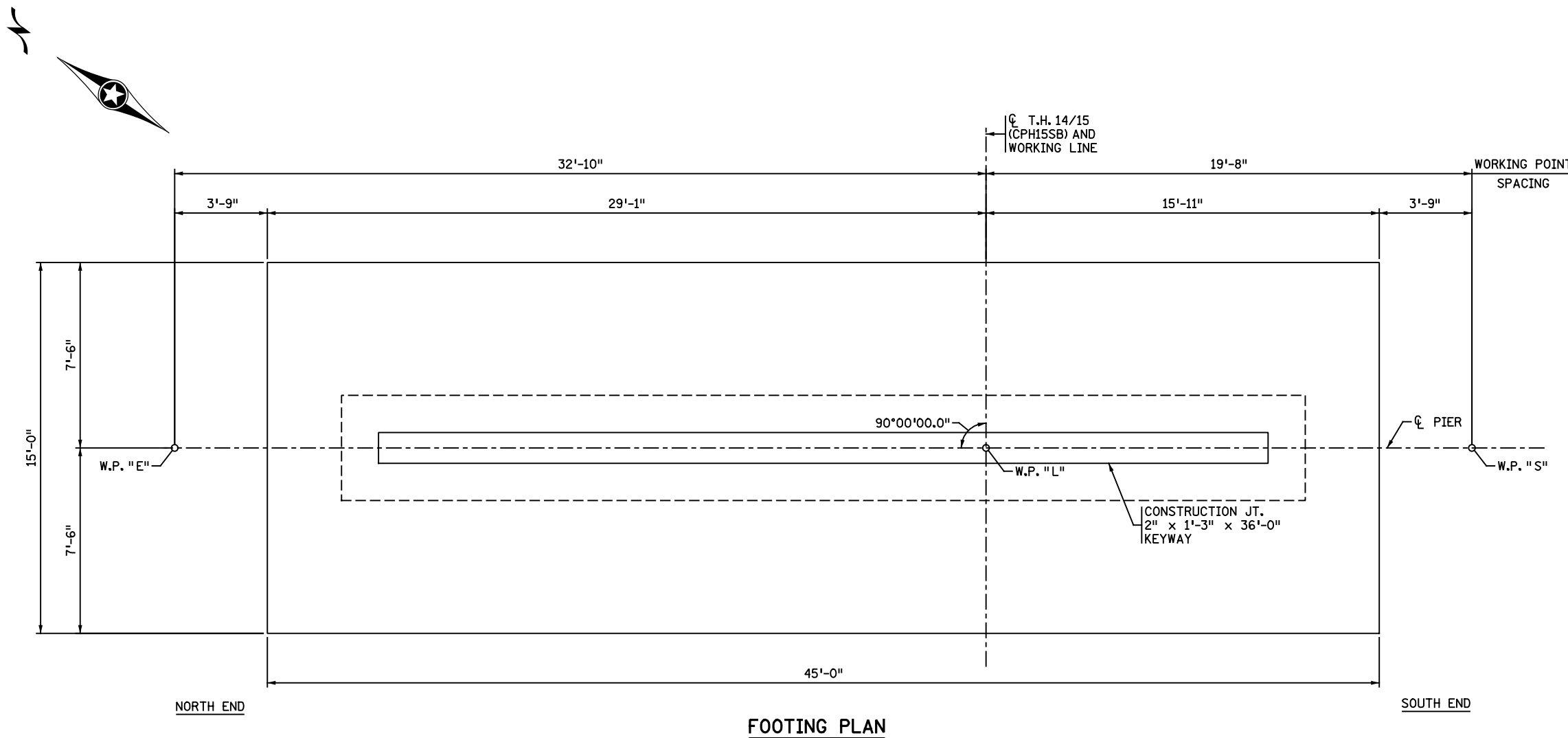
BRIDGE NO. **08017**

SUMMARY OF QUANTITIES FOR PIER 4

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	0	SQ FT
AGGREGATE BACKFILL (CV)	0	CU YD
GEOGRID	0	SQ YD
GEOTEXTILE FABRIC TYPE V	0	SQ YD

PIER 4 SPREAD FOOTING LOAD DATA	
*FACTORED DESIGN BEARING PRESSURE	5.0 TONS/SQ.FT.
EFFECTIVE WIDTH B' (PERPENDICULAR TO PIER)	12.3 FT.
EFFECTIVE LENGTH L' (PARALLEL TO PIER)	42.3 FT.
FACTORED BEARING RESISTANCE $\phi_b \cdot q_n$	20.3 TONS/SQ.FT.

*BASED ON STR I LOAD COMBINATION



FOOTING PLAN

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 3/29/2017

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: _____ LIC. NO. _____

TITLE: PIER 4 DETAILS 1

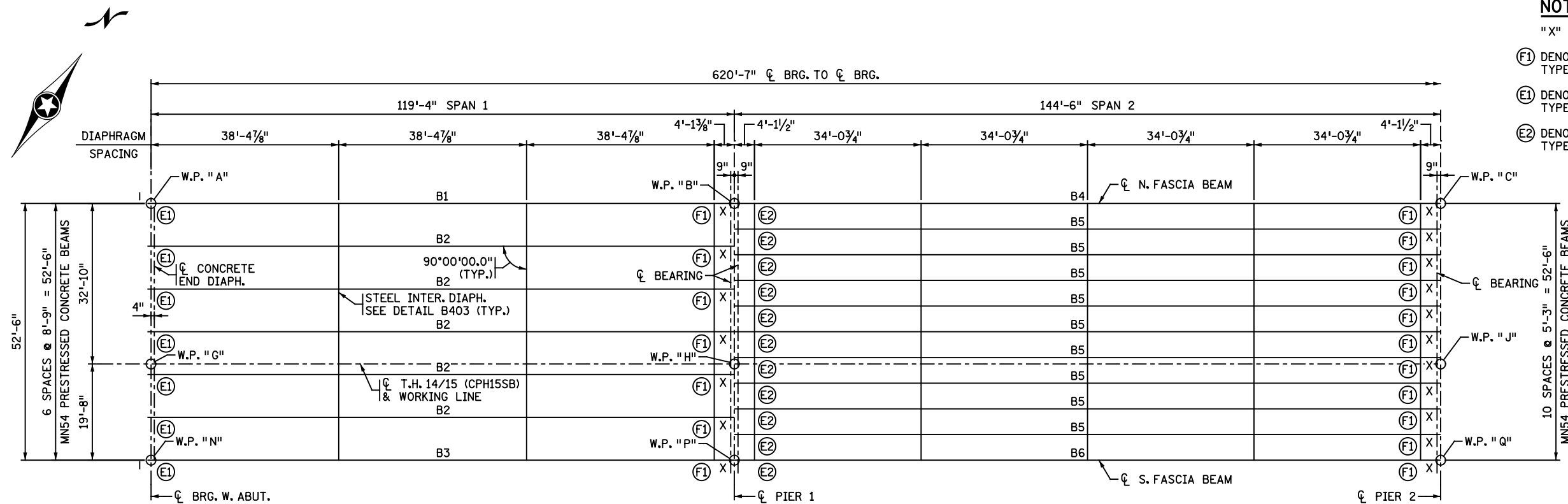
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CHK: REM	CHK: BAP	
STATE PROJECT NO. 0804-08017		
SHEET NO. 42 OF 82 SHEETS		

BRIDGE NO. 08017

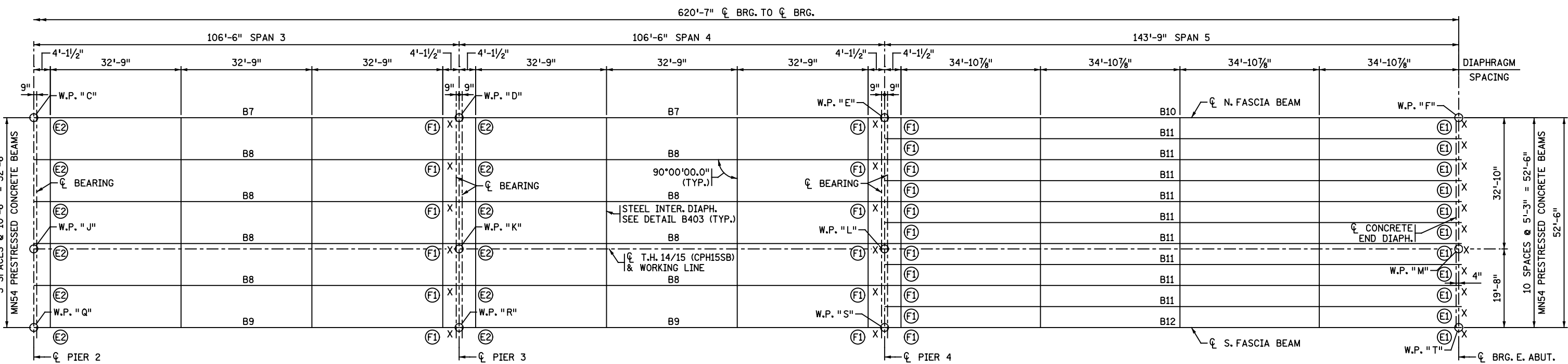
NOTES:

"X" DENOTES X END OF BEAM.

- (F1) DENOTES FIXED CURVE PLATE BEARING ASSEMBLY TYPE F1. SEE DETAIL B310.
- (E1) DENOTES EXPANSION CURVE PLATE BEARING ASSEMBLY TYPE E1. SEE DETAIL B311.
- (E2) DENOTES EXPANSION CURVE PLATE BEARING ASSEMBLY TYPE E2. SEE DETAIL B311.



FRAMING PLAN



FRAMING PLAN

p:\1\pdr\user\011\HDR_US_Centrd\1_01\Documents\39661004305\6.0_CAD_BIM\6.2_Work_In_Progress\Bridges\Sheets\B08017_Over_Front & RR\3000
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 3/29/2017

REVISION		DESCRIPTION	DR.	CHK.	APP'D.
NO.	DATE				

CERTIFIED BY: _____

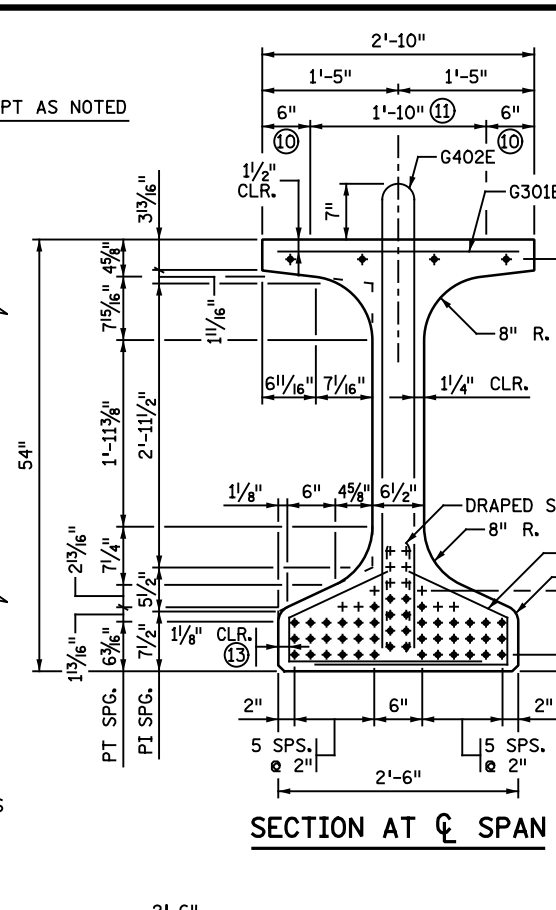
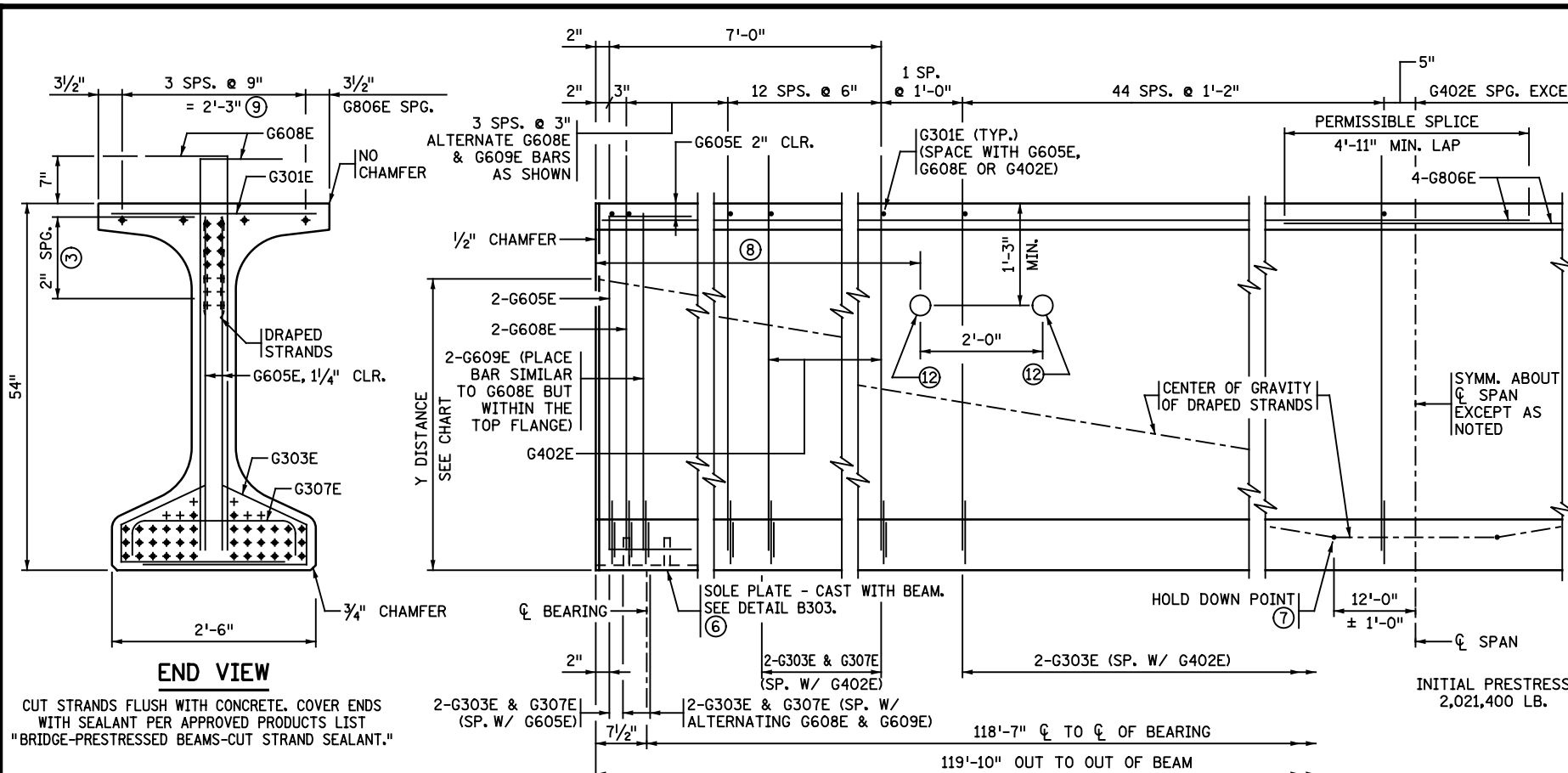
LICENSED PROFESSIONAL ENGINEER DATE _____

NAME: _____ LIC. NO. _____

TITLE: **FRAMING PLAN**

DES: DRS	DR: DJR	APPROVED:
CHK: BAP	CHK: RJR	
STATE PROJECT NO. 0804-08017		
SHEET NO. 48 OF 82 SHEETS		

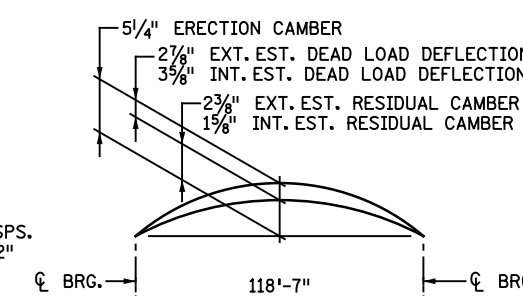
BRIDGE NO.
08017



Y DISTANCES (INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	38	4.21	
DRAPED STRANDS	8	6.0	48.0
TOTAL STRANDS	46	4.52	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

□ A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



CAMBER DIAGRAM

ERECTION CAMBER SHOWN IS AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, BARRIER, SIDEWALK AND MEDIAN WHERE APPLICABLE.

CONTRACTOR WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE BUILDING FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS. PROVIDE COPY OF ELEVATIONS TO THE ENGINEER.

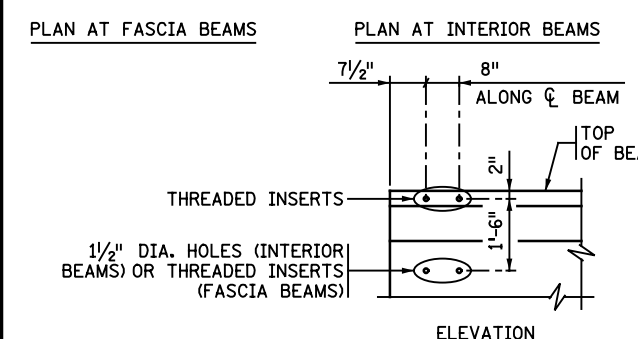
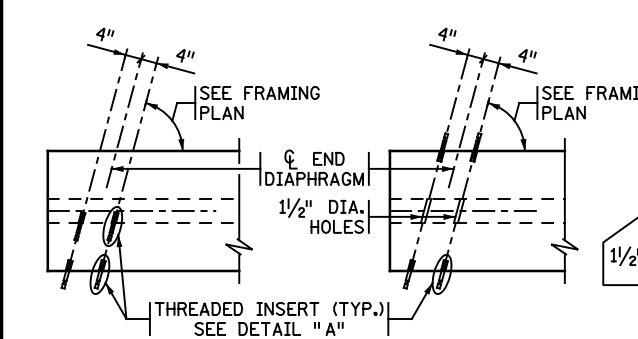
END VIEW
CUT STRANDS FLUSH WITH CONCRETE. COVER ENDS WITH SEALANT PER APPROVED PRODUCTS LIST "BRIDGE-PRESTRESSED BEAMS-CUT STRAND SEALANT."

INITIAL PRESTRESS 2,021,400 LB.

BEAM ELEVATION

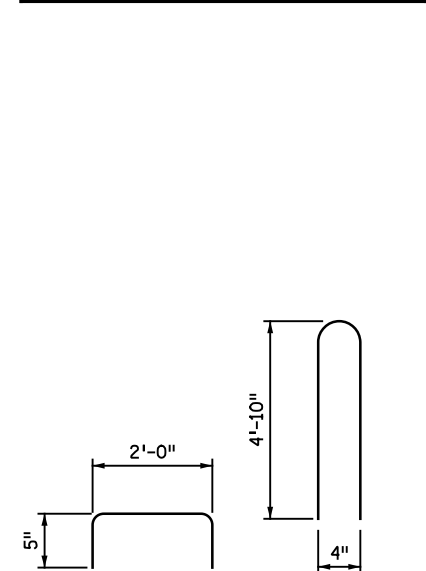
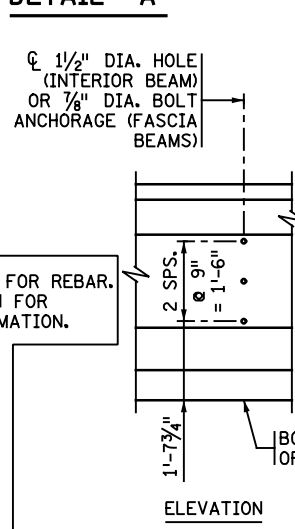
CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	23.7 KSI
LONG TERM LOSSES	24.7 KSI
TOTAL LOSSES	48.4 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f' _{cl}	② f' _c
7.5 KSI	9.0 KSI



CONCRETE END DIAPHRAGM PARAPET ABUTMENT (SEE DETAIL B814 FOR DIAPHRAGM DETAILS)

DETAIL "A"



STEEL INTERMEDIATE DIAPHRAGM (SEE DETAIL B403 FOR DIAPHRAGM DETAILS)

GENERAL NOTES

- PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.
- MARK EACH BEAM SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. MARK FASCIA BEAMS ON THE INSIDE FACE. ENSURE ALL MARKINGS ARE STENCILED AND CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET IS INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE SPEC. 2405.
- SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.
- AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.
- APPLY AN APPROVED SEALER TO THE SIDES OF THE BEAM NEAR EACH END PER THE SPECIAL PROVISIONS.
- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ USE 0.6" DIA. 7-WIRE LOW RELAXATION PRESTRESSING STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE. BEAMS DETAILED TO INCLUDE A TAPERED PLATE PER STANDARD FIGURE B309 MUST INCLUDE SOLE PLATE.
- ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.
- ⑧ DIMENSION DETERMINED BY CONTRACTOR. MAINTAIN 2" MINIMUM CLEAR FROM STRANDS.
- ⑨ TWO INSIDE BARS MAY BE PLACED ADJACENT TO VERTICAL STIRRUP FOR TYING CONVENIENCE.
- ⑩ STEEL TROWEL TO SMOOTH FINISH AND APPLY BOND BREAKER PER APPROVED PRODUCTS LIST.
- ⑪ ROUGH FLOAT AND BROOM TRANSVERSELY FOR BOND PER SPEC. 2405.3.D.
- ⑫ OPTIONAL: 3" MAX. DIA. SLEEVE FOR HAULING (AFTER INSTALLATION, COAT WITH APPROVED EPOXY BONDING AGENT & FILL WITH APPROVED NON-SHRINK GROUT).
- ⑬ TYP. CLR. FOR ENTIRE BOTTOM FLANGE.

REVISED: DECEMBER 02, 2015

APPROVED: JANUARY 13, 2015

Nancy Dubenberger
STATE BRIDGE ENGINEER

BEAMS B1-B3

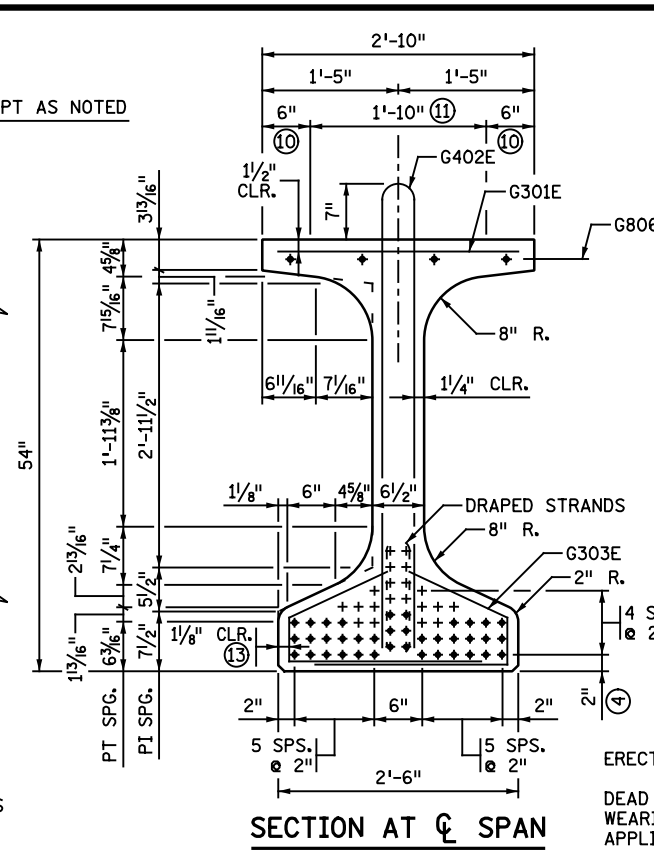
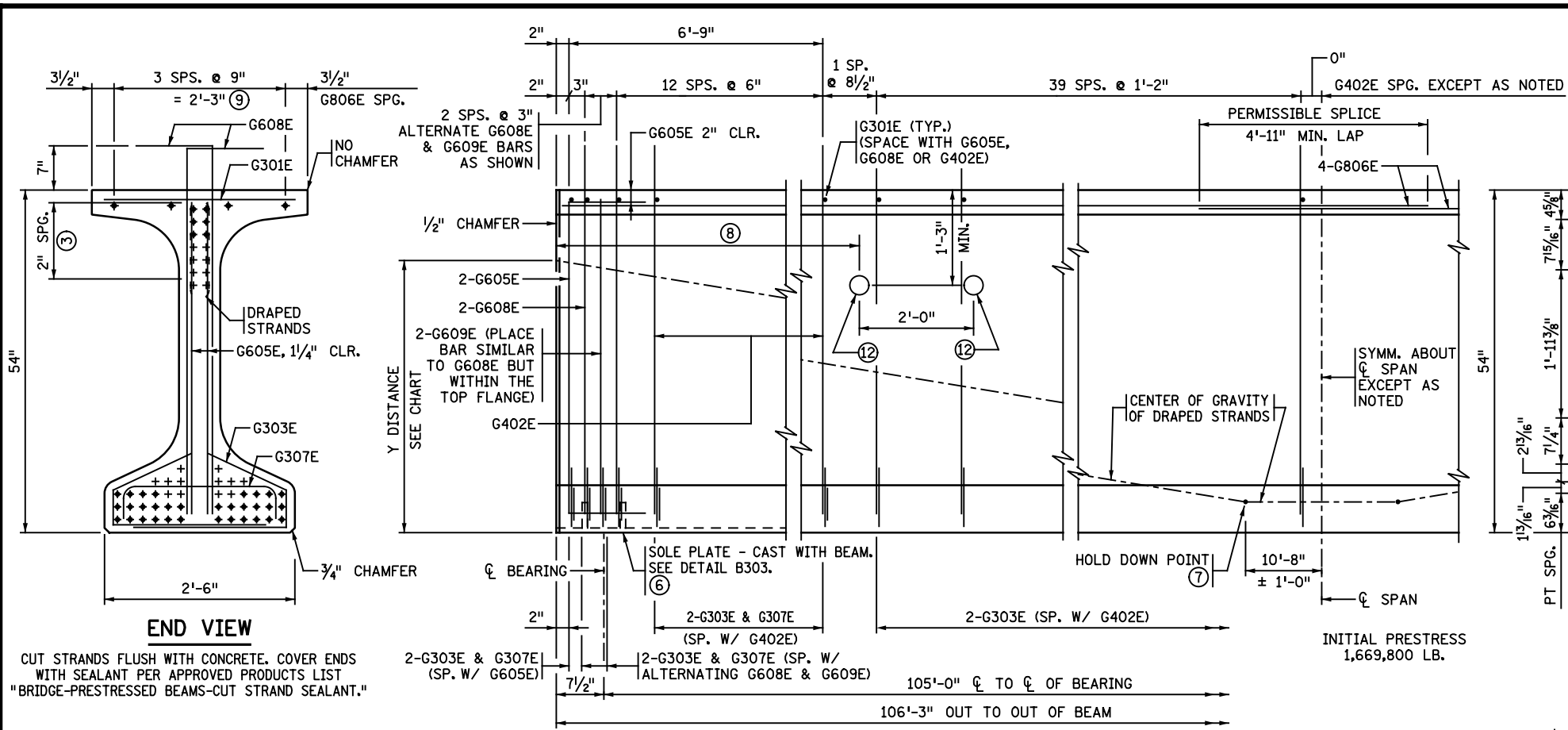
DES: DRS	DR: JN	APPROVED:
CHK: BAP	CHK: DRS	SHEET NO. 49 OF 82 SHEETS

FIG. 5-397.508
BRIDGE NO. 08017

CERTIFIED BY _____ DATE _____
LICENSED PROFESSIONAL ENGINEER

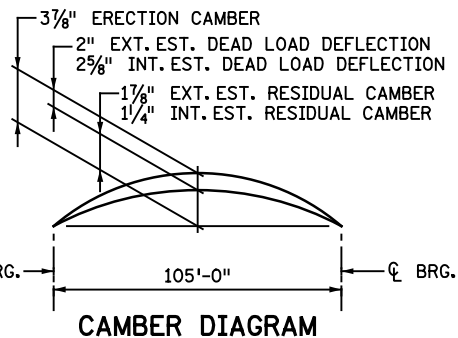
NAME: _____ LIC. NO. _____

TITLE: **MN54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) MN54-120**



Y DISTANCES (INCHES)			
	NO.	Q SPAN	END
STRAIGHT STRANDS	32	3.75	
DRAPED STRANDS	6	5.0	49.0
TOTAL STRANDS	38	3.95	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.
 A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



ERECTION CAMBER SHOWN IS AFTER DIAPHRAGMS ARE IN PLACE.
 DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, BARRIER, SIDEWALK AND MEDIAN WHERE APPLICABLE.
 CONTRACTOR WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE BUILDING FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS. PROVIDE COPY OF ELEVATIONS TO THE ENGINEER.

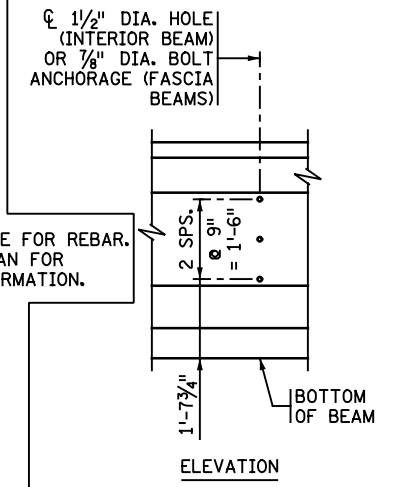
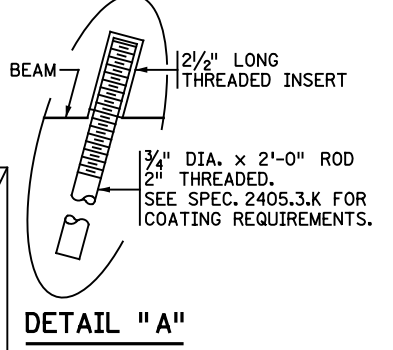
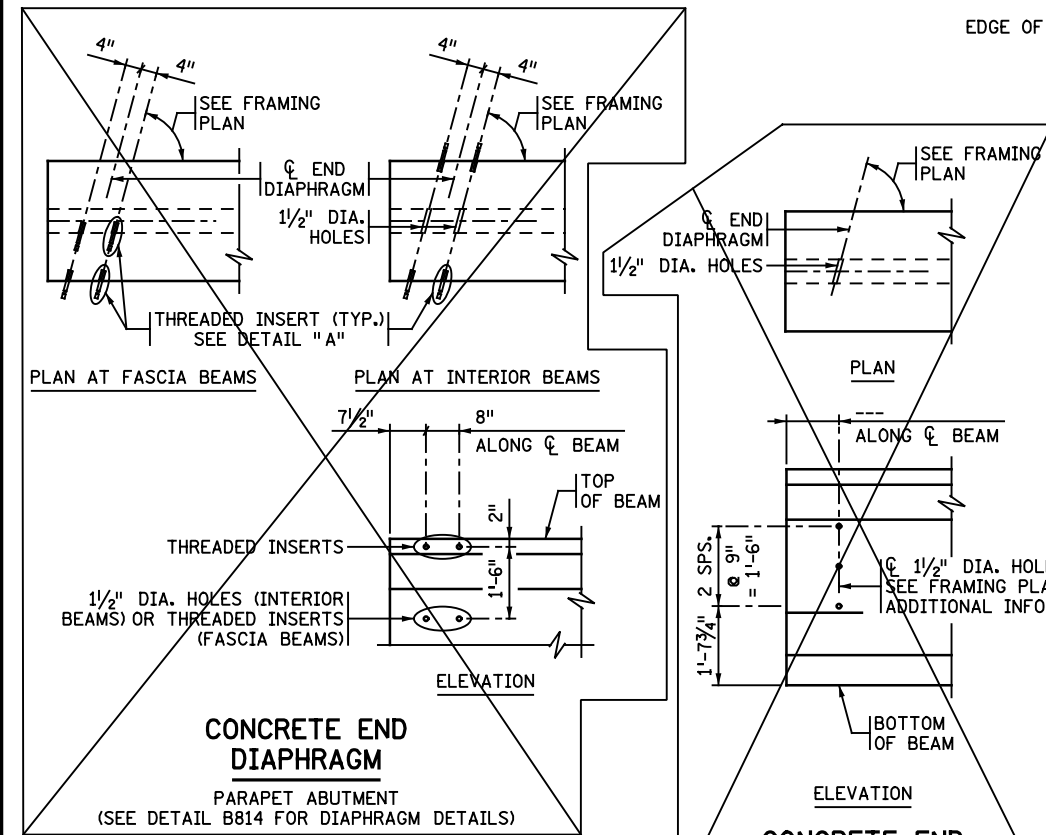
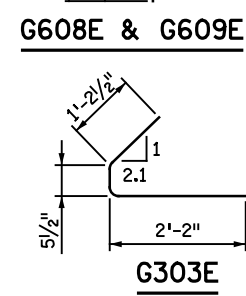
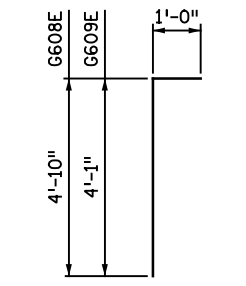
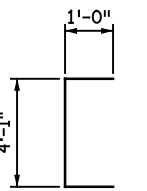
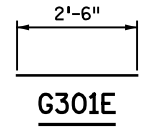
CUT STRANDS FLUSH WITH CONCRETE. COVER ENDS WITH SEALANT PER APPROVED PRODUCTS LIST "BRIDGE-PRESTRESSED BEAMS-CUT STRAND SEALANT."

CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	20.9 KSI
LONG TERM LOSSES	22.0 KSI
TOTAL LOSSES	42.9 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'ci	② f'c
7.5 KSI	9.0 KSI

GENERAL NOTES

- PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.
- MARK EACH BEAM SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. MARK FASCIA BEAMS ON THE INSIDE FACE. ENSURE ALL MARKINGS ARE STENCILLED AND CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET IS INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE SPEC. 2405.
- SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.
- AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.
- APPLY AN APPROVED SEALER TO THE SIDES OF THE BEAM NEAR EACH END PER THE SPECIAL PROVISIONS.
- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ USE 0.6" DIA. 7-WIRE LOW RELAXATION PRESTRESSING STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE. BEAMS DETAILED TO INCLUDE A TAPERED PLATE PER STANDARD FIGURE B309 MUST INCLUDE SOLE PLATE.
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- ⑪ ROUGH FLOAT AND BROOM TRANSVERSELY FOR BOND PER SPEC. 2405.3.D.
- ⑫ OPTIONAL: 3" MAX. DIA. SLEEVE FOR HAULING (AFTER INSTALLATION, COAT WITH APPROVED EPOXY BONDING AGENT & FILL WITH APPROVED NON-SHRINK GROUT).
- ⑬ TYP. CLR. FOR ENTIRE BOTTOM FLANGE.



REVISED: DECEMBER 02, 2015

APPROVED: JANUARY 13, 2015

Nancy Rubenberger
STATE BRIDGE ENGINEER

CONCRETE END DIAPHRAGM
SEE SUPERSTRUCTURE DETAILS AND REINFORCEMENT FOR DIAPHRAGM DETAILS.

STEEL INTERMEDIATE DIAPHRAGM
(SEE DETAIL B403 FOR DIAPHRAGM DETAILS)

CERTIFIED BY _____ DATE _____
 LICENSED PROFESSIONAL ENGINEER
 NAME: _____ LIC. NO. _____

TITLE: **MN54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) MN54-107**

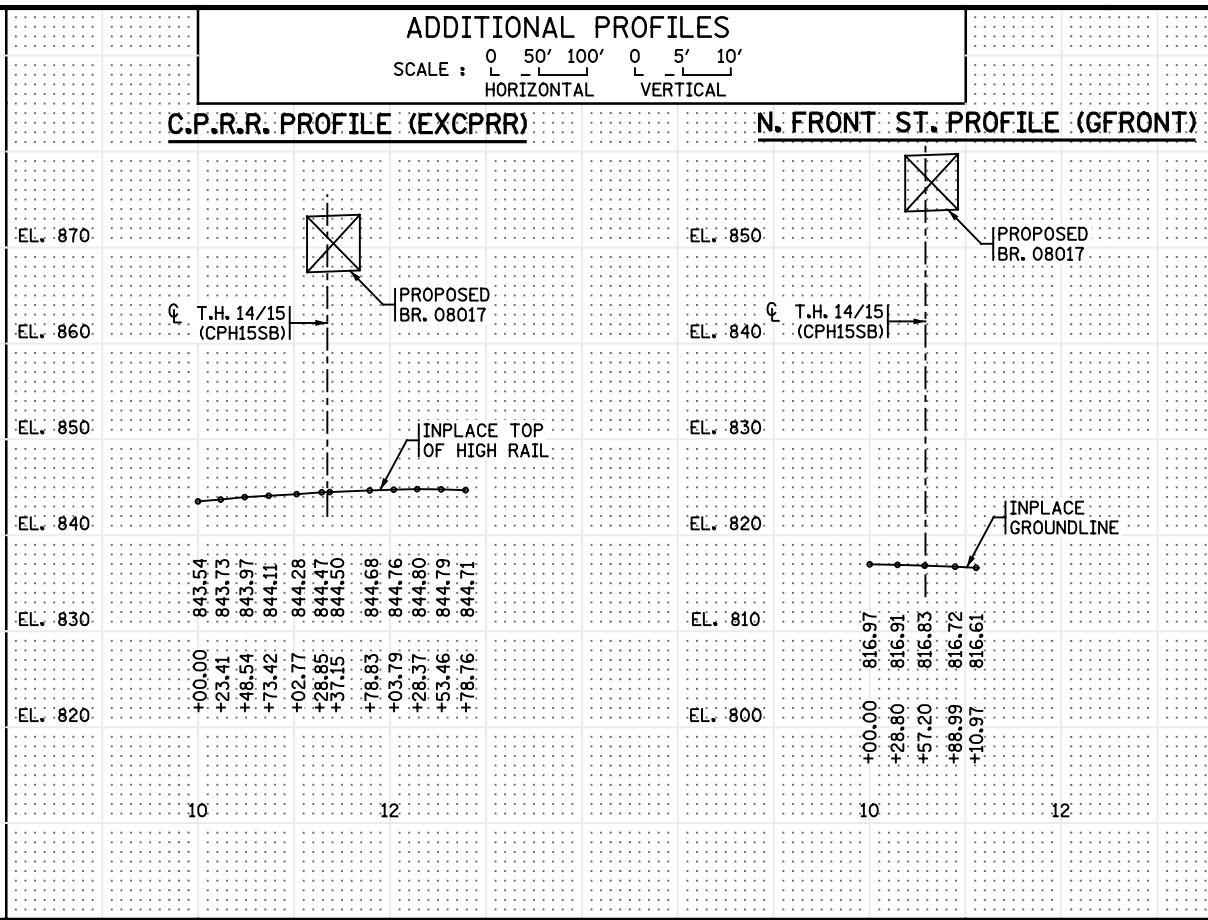
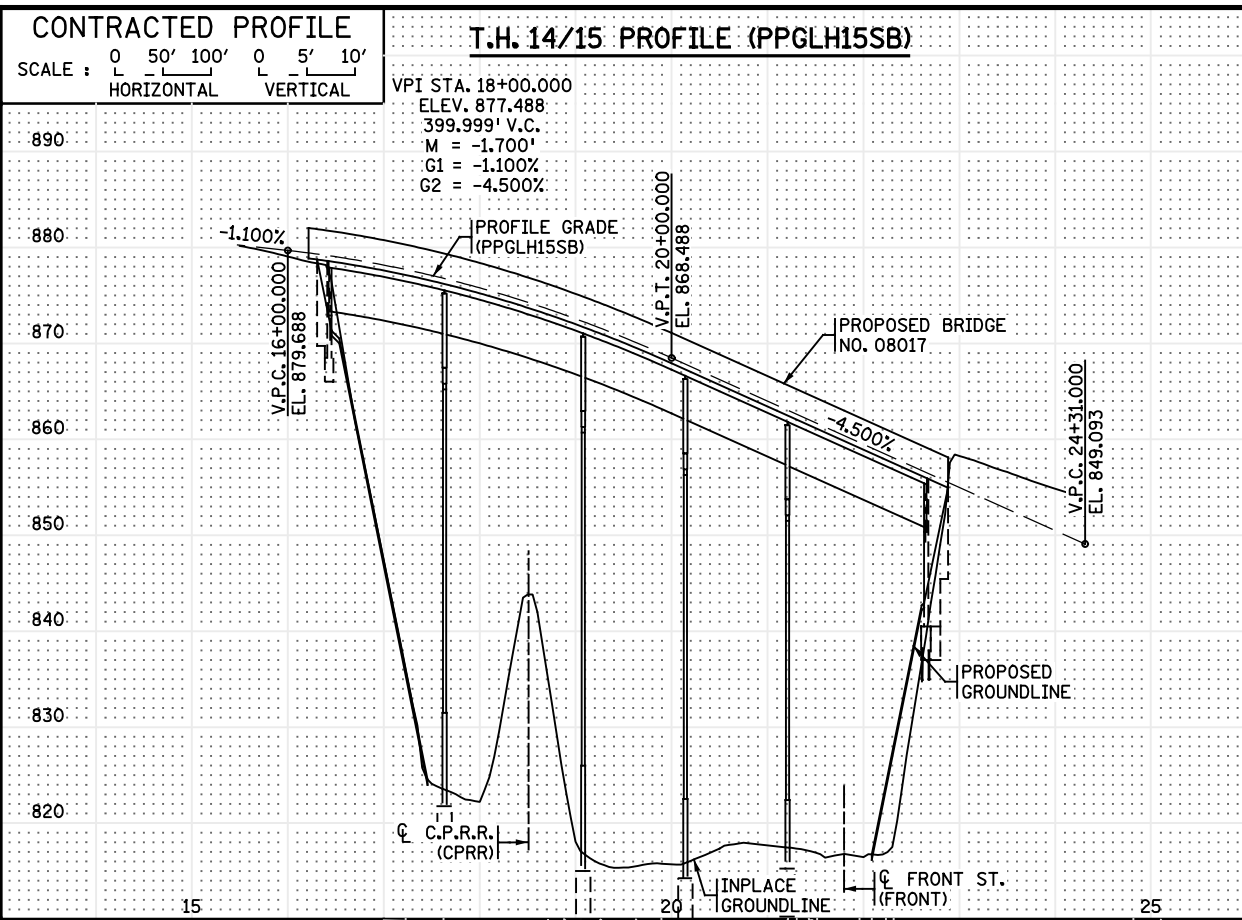
BEAMS B7-B9

DES: DRS	DR: JN
CHK: BAP	CHK: DRS

FIG. 5-397.508

APPROVED: _____
 SHEET NO. 51 OF 82 SHEETS
 BRIDGE NO. 08017

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LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
- OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY): GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
- APPARENT HIGHWATER ELEVATION OBTAINED FROM:
- OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: XX-XX-XX

STREAM OR DITCH DESIGNATION: XXX
DRAINAGE AREA: XXX SQ. MI.
MAX. FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)
MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.
DESIGN FLOOD (XX YR. FREQ.): XXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
TOTAL STAGE INCREASE: XX.X FT.
LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT.
WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL
BASIC FLOOD (100 YR. FREQ.): XXXX C.F.S.
HEADWATER ELEVATION: XXX.X FT.
TOTAL STAGE INCREASE: X.X FT.
MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
FLOWLINE ELEVATION: XXX.X FT. SKEW ANGLE: XX
ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR 0T YR. FREQ.)

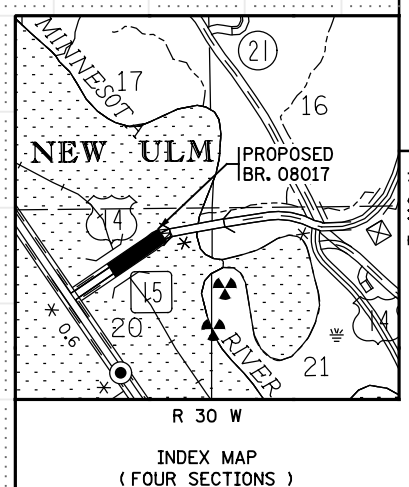
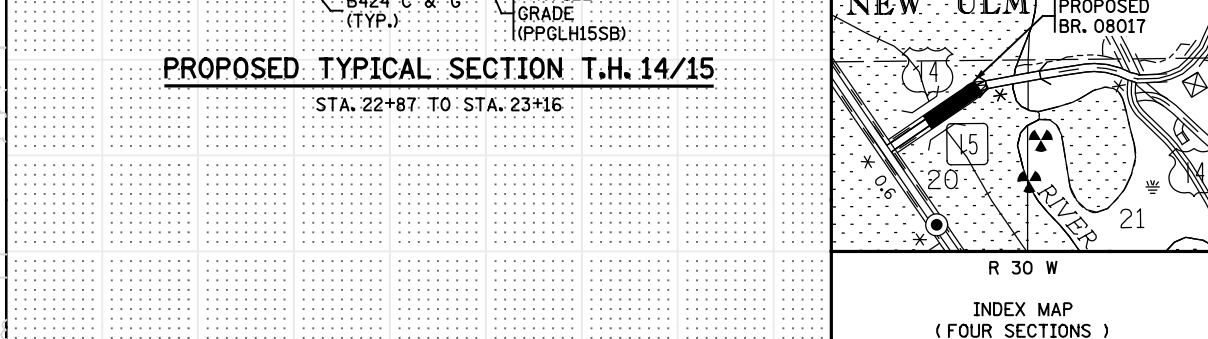
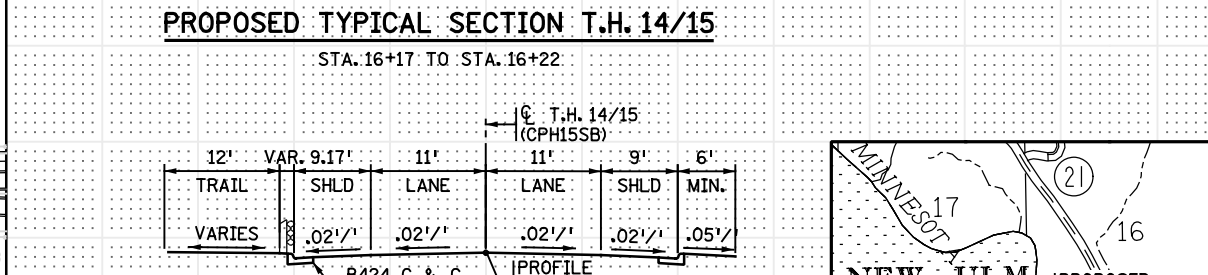
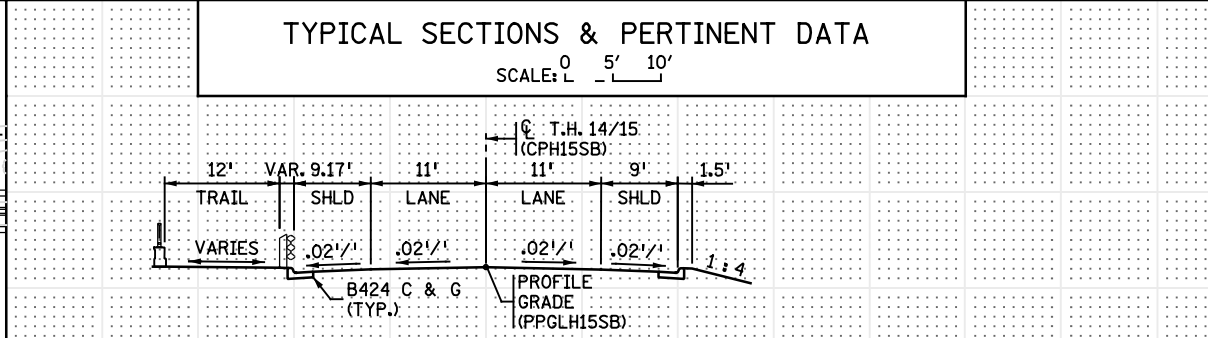
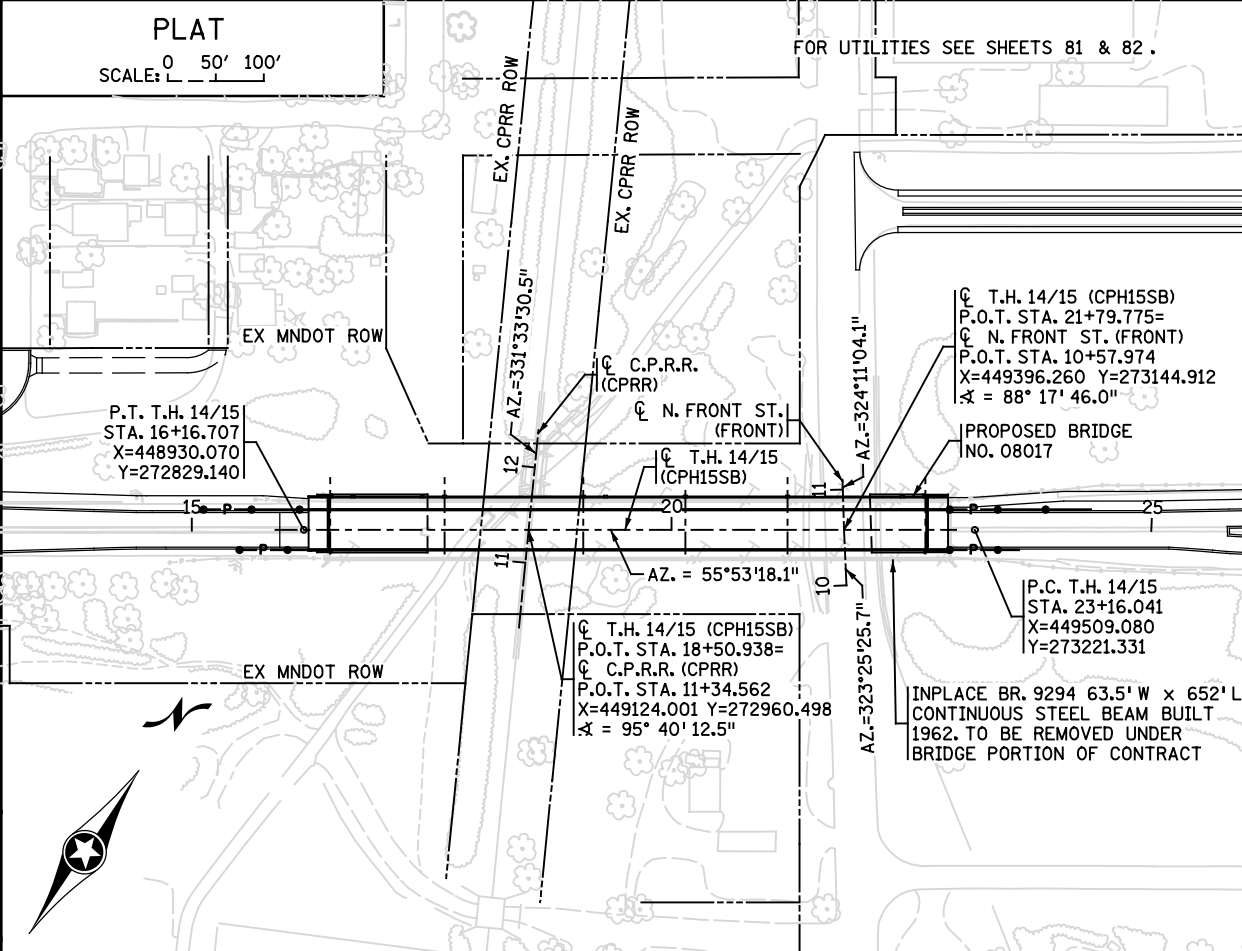
SCOUR CONFIRMATION RECOMMENDATION

DATE: XX-XX-XX

TOTAL SCOUR AT PIER EL. XXX.XX (500 OR 0T YR. FREQ.)
SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM:
FILES:
JOBDB81.GPK, 080481.ALL.TIN, CD080481.AL100.DGN,
CD080481.CP.DGN, CD080481.PR.DGN, CD080481.TPO.DGN

BENCH MARK ELEVATION 847.751 (NAVD 88)
GSID STATION #94068, MNDOT NAME: 5202 C RESET
X=454924.270, Y=273986.045 NICOLLET COUNTY COORDS. (1996 ADJ.)



MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

T.H. 14/15 OVER C.P.R.R. AND N. FRONT ST.
0.4 MILES NORTHEAST OF
JCT. T.H. 14 AND T.H. 15

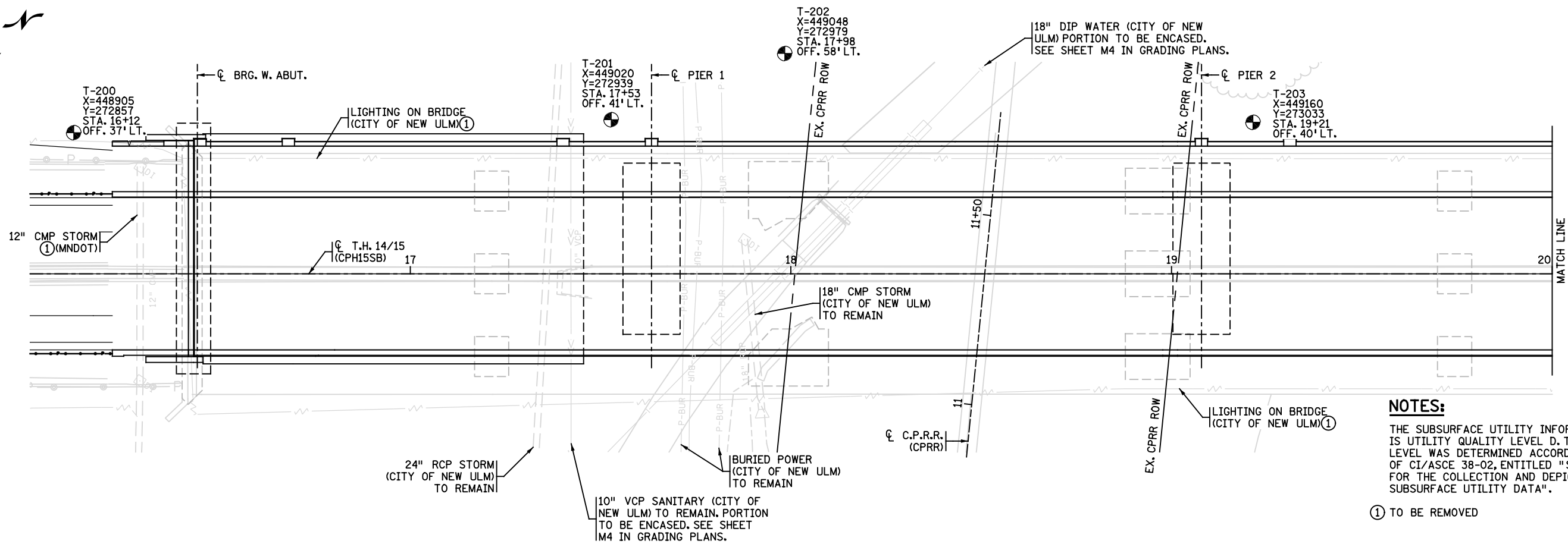
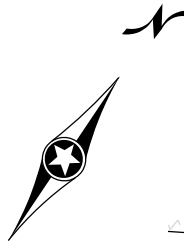
SEC. 20 TWP. 110 N. R. 30 W.
CITY OF NEW ULM BROWN COUNTY, MN

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

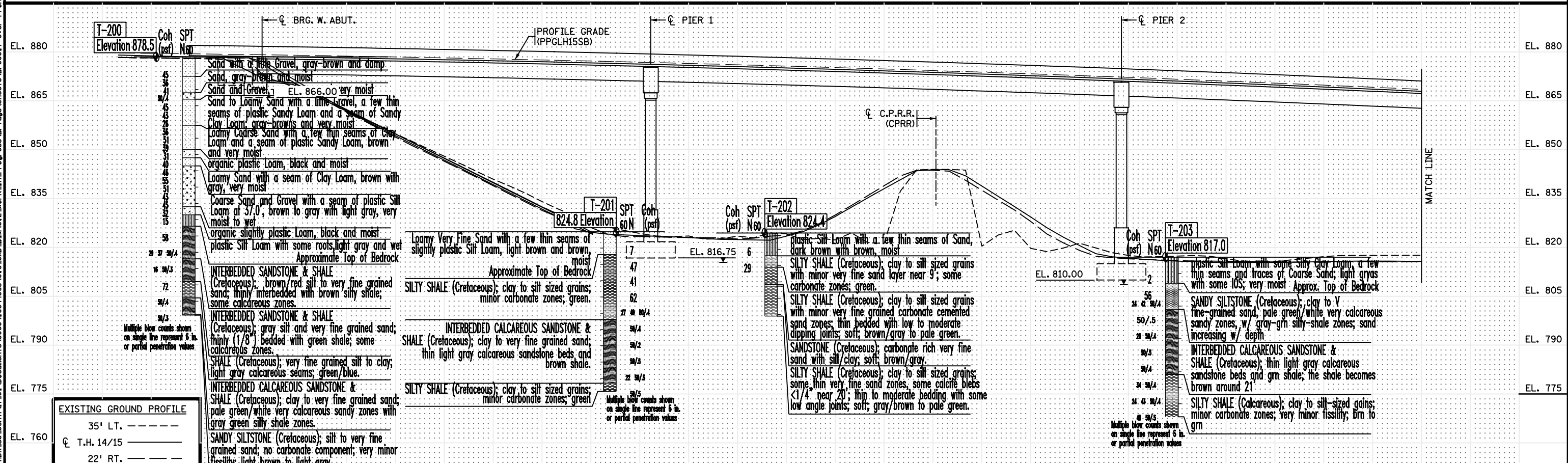
TITLE: BRIDGE SURVEY

DES: DJR	DR: DJR	APPROVED:	BRIDGE NO. 08017
CHK: TAL	CHK: BAP	STATE PROJECT NO. 0804-81	
SHEET NO. 80 OF 82 SHEETS			

Untitled
7:06:28 AM
3/29/2017
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NOTES:
 THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
 ① TO BE REMOVED

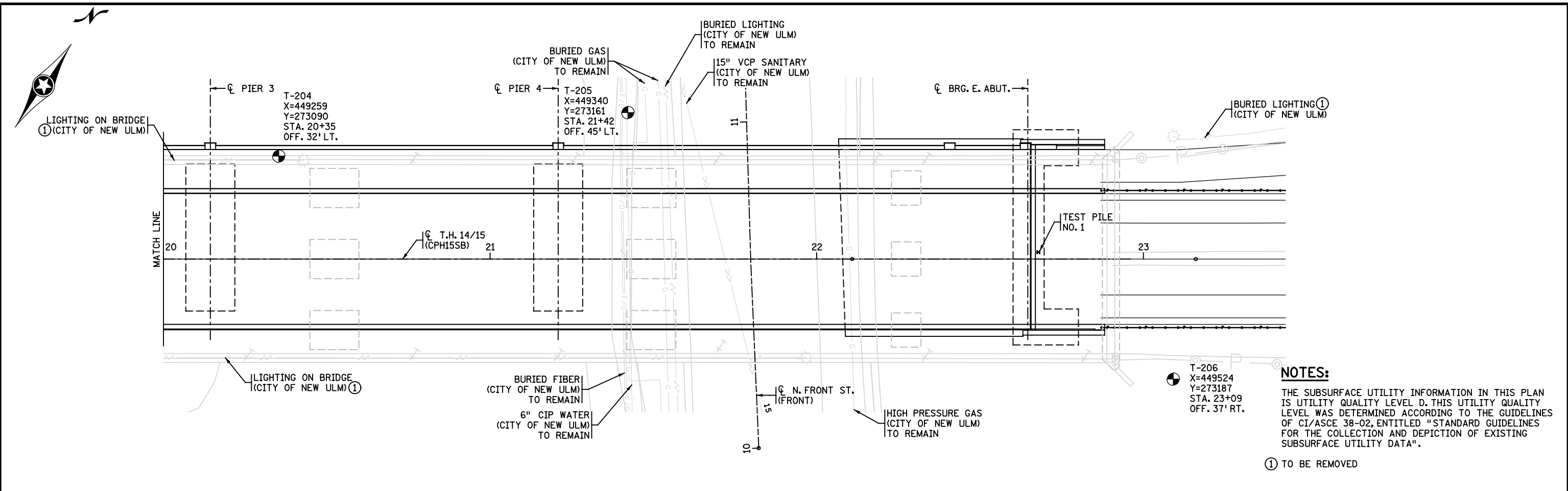


NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

TITLE: **BORINGS 1**

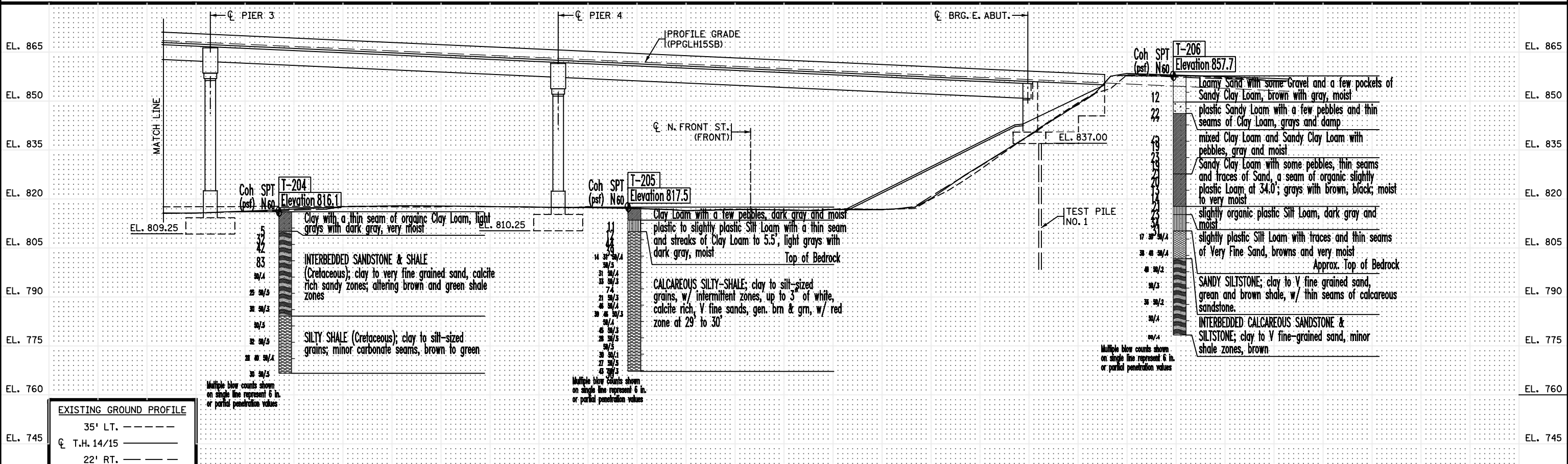
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CHK: RJR	CHK: RJR		
STATE PROJECT NO. 0804-08017 SHEET NO. 81 OF 82 SHEETS			

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NOTES:
 THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

① TO BE REMOVED



EXISTING GROUND PROFILE
 35' LT. - - - -
 T.H. 14/15 - - - -
 22' RT. - - - -

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



TITLE: **BORINGS 2**

DES: DJR	DR: DJR	APPROVED:	BRIDGE NO. 08017
CHK: RJR	CHK: RJR	STATE PROJECT NO. 0804-08017	
SHEET NO. 82 OF 82 SHEETS			

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