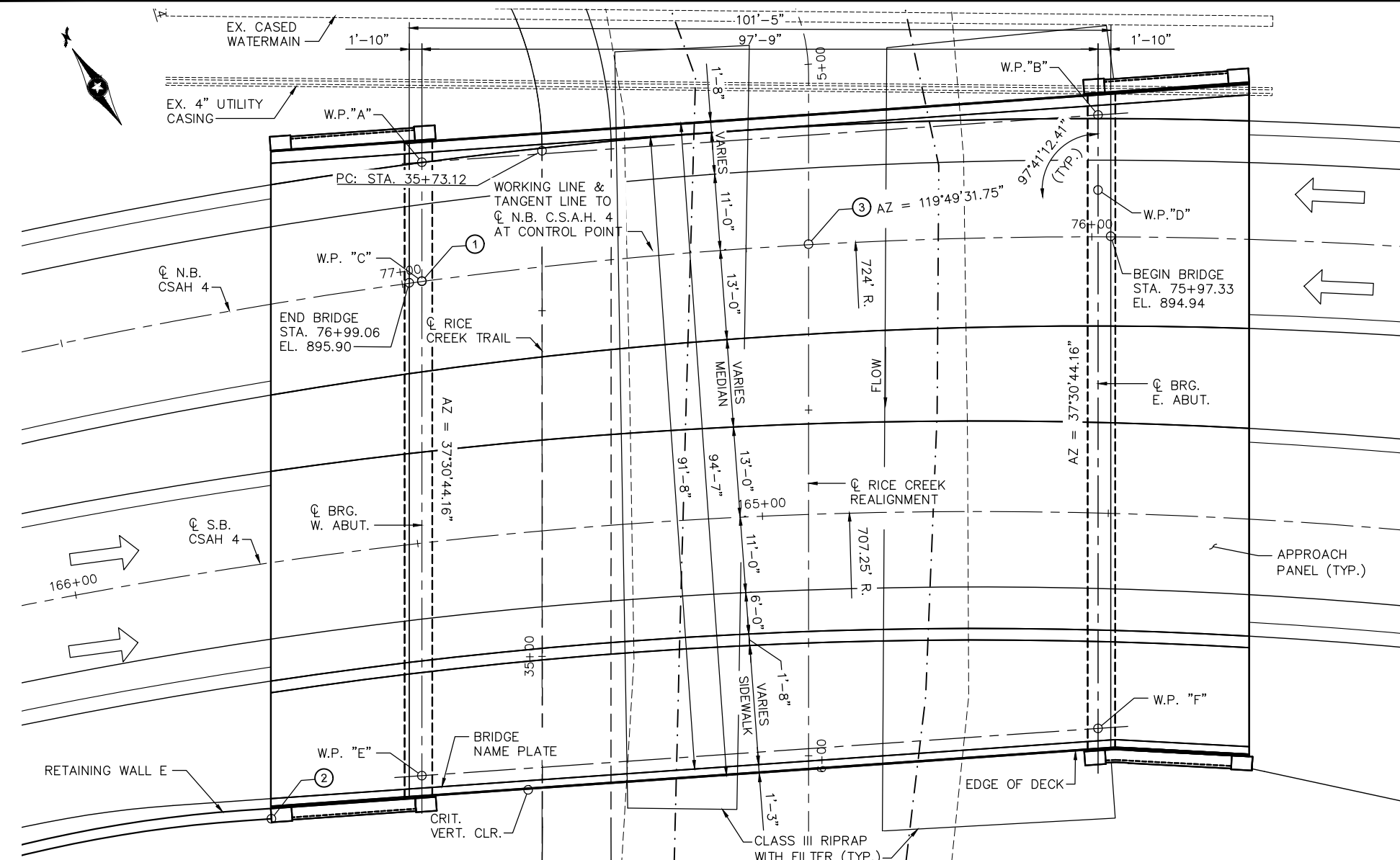


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**NOTES**

- ① CONTROL POINT  
 C N.B. CSAH 4  
 STA. 76+97.21  
 $\Delta$  82°18'47.59"  
 X = 551222.945  
 Y = 210822.439
- ② RETAINING WALL E  
 TIE-IN C N.B. CSAH 4  
 STA. 77+32.77  
 X = 551158.35  
 Y = 210774.01
- ③ C N.B. CSAH 4  
 P.O.T. STA. 76+41.05  
 C RICE CREEK REALIGNMENT  
 P.O.T. STA. 5+26.02  
 X = 551270.537  
 Y = 210792.645

NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET DURING FINAL DESIGN.

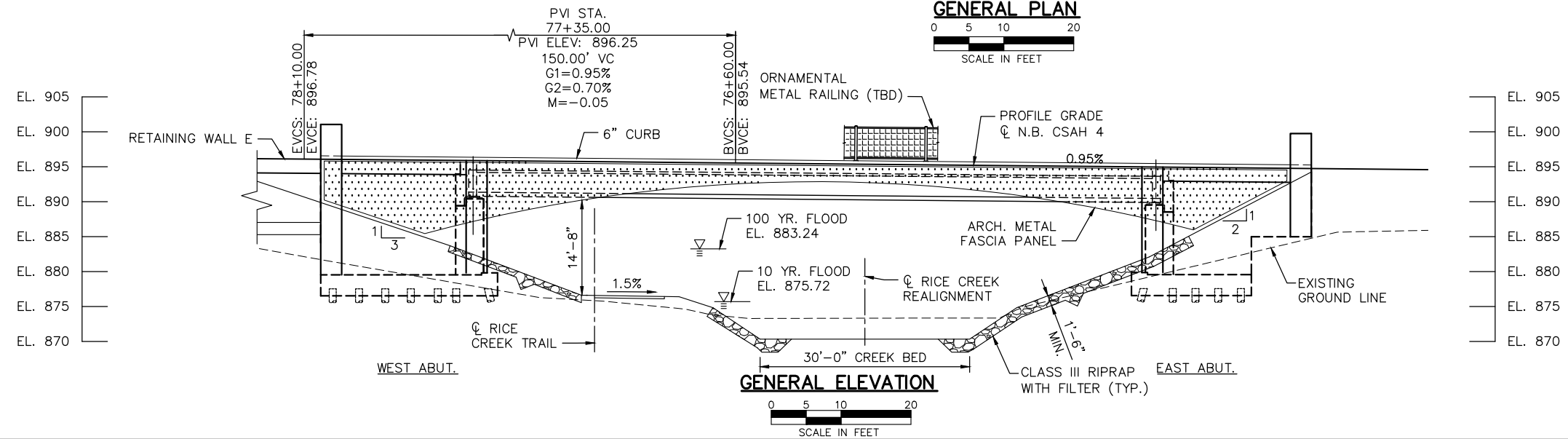
APPROXIMATELY 800 SQ. FT. OF WATERWAY AREA IS AVAILABLE BELOW EL 883.24.

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".

DESIGN DATA	
DESIGNED IN ACCORDANCE WITH 2018 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS	
HL-93 LIVE LOAD	
MATERIAL DESIGN PROPERTIES: REINFORCED CONCRETE: $f'_c$ = 4 KSI CONCRETE $f_y$ = 60 KSI PLAIN AND EPOXY COATED BARS $f_y$ = 75 KSI STAINLESS STEEL BARS $n$ = 8 FOR REINFORCEMENT BARS	
PRETENSIONED CONCRETE: $f'_c$ = 8.5 KSI CONCRETE $f_{pu}$ = 270 KSI LOW RELAXATION STRANDS $N$ = 1 FOR PRETENSIONING STRANDS 0.75 $f_{pu}$ FOR INITIAL PRESTRESS	
DESIGN SPEED: OVER = 40 MPH	
DECK AREA = 9640 SQUARE FEET	

2039 PROJECTED TRAFFIC VOLUMES	
19,500 A.A.D.T.	
1,950 D.H.V.	
1,000 H.C.A.A.D.T.	

LIST OF SHEETS	
	DESCRIPTION
BR1	GENERAL PLAN AND ELEVATION
BR2	BRIDGE LAYOUT
BR3	TRANSVERSE SECTION
BR4-BR6	ABUTMENT DETAILS
BR7-BR8	BRIDGE SURVEY
BR9-BR10	BORINGS
BR12-BR15	DETAILS



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_GPE.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

# Kimley»Horn

767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114  
 PHONE: 651-645-4197  
 WWW.KIMLEY-HORN.COM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT 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.

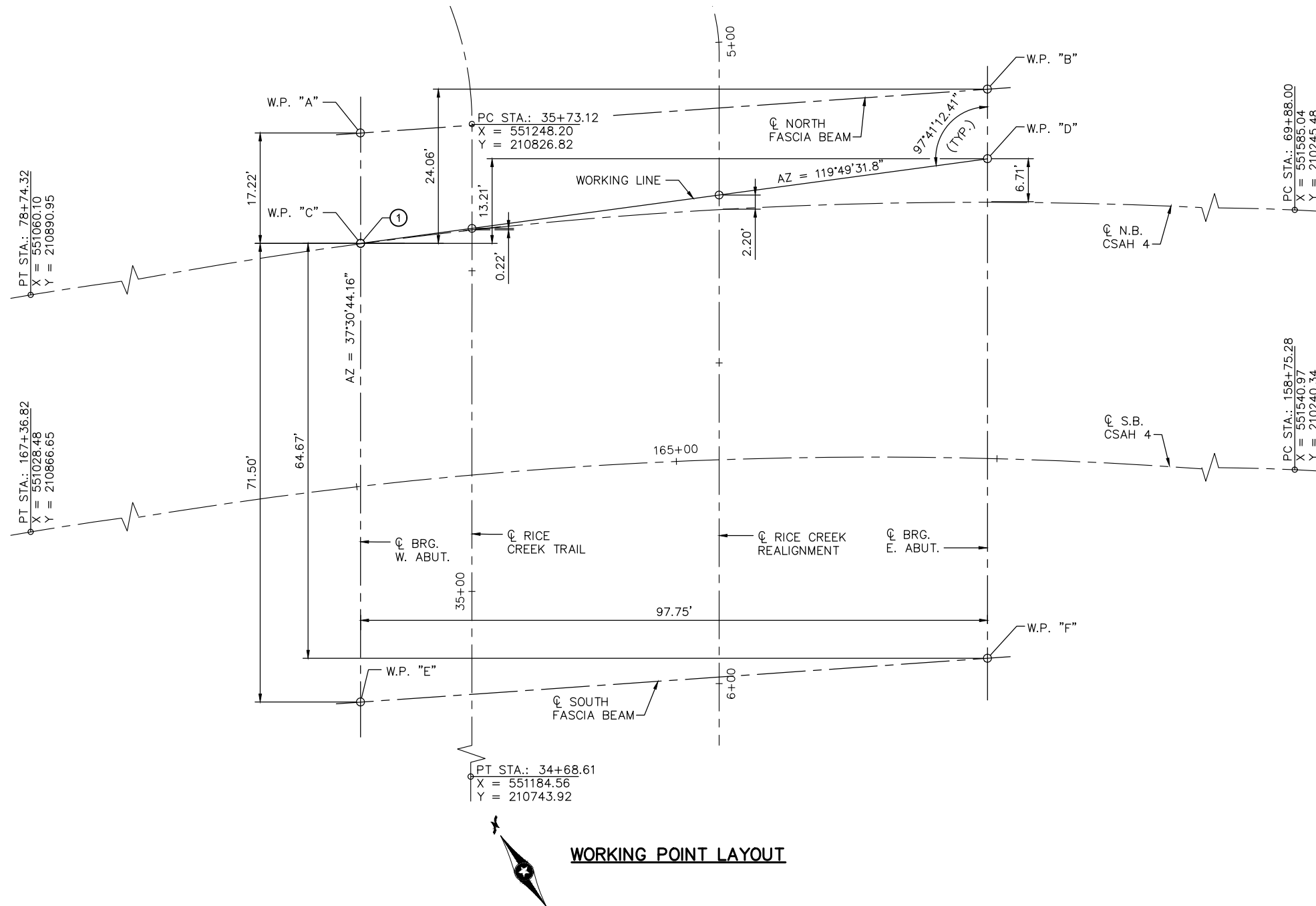
KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

## RAMSEY COUNTY

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 GENERAL PLAN AND ELEVATION

CITY PROJECT	SHEET NO. <b>BR1</b>  <b>BR15</b>
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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**WORKING POINT LAYOUT**

POINT	STATION	DIMENSIONS BETWEEN WORKING POINTS						COORDINATES		ELEVATIONS			POINT
		A	B	C	D	E	F	X	Y	TOP OF DECK	DECK TO BRIDGE SEAT	BRIDGE SEAT	
A	76+94.96	--	97.99	--	97.83	88.71	127.51	551233.422	210836.087	895.52			A
B	75+99.19	--	--	100.67	--	136.69	88.72	551315.124	210781.985	894.61			B
C	76+97.21	--	--	--	--	--	117.21	551222.945	210822.439	895.88			C
D	75+99.17	--	--	--	--	129.34	--	551308.518	210773.381	894.82			D
E	77+07.81	--	--	--	--	--	97.99	551179.401	210765.716	895.86			E
F	75+99.07	--	--	--	--	--	--	551261.102	210711.614	894.80			F

**NOTES**

- ① CONTROL POINT  
 C N.B. CSAH 4  
 STA. 76+97.21  
 Δ 82'18"47.59"  
 X = 551222.945  
 Y = 210822.439

No.	Date	Revisions	App.

DRAWING NAME  
TCAAP\_SPINERD\_BRID\_SUP01.dwg  
 DESIGNED BY: SSB  
 DRAWN BY: PHH  
 CHECKED BY:  
 DATE: 01/04/19  
 PROJECT NO. 160553004

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 KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**  
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 BRIDGE LAYOUT

CITY PROJECT	SHEET NO. <b>BR2</b>  <b>BR15</b>
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

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**CONSTRUCTION NOTES**

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

SEE SPECIAL PROVISIONS FOR ALL XXX.6XX SERIES 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".

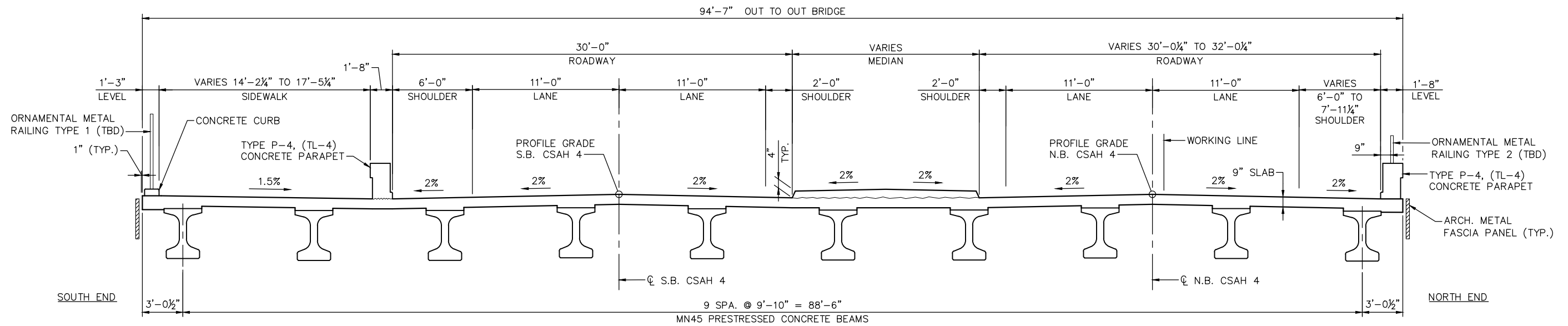
THE PILE LOADS SHOWN IN THE PLANS AND CORRESPONDING NOMINAL PILE BEARING RESISTANCE (Rn) WERE COMPUTED USING LRFD MEHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

NUMBER AND SPACING OF BEAMS IS APPROXIMATE AND WILL BE SET IN FINAL DESIGN.

**NOTES:**

① DOES NOT INCLUDE TEST PILES.

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE			
ITEM NO.	ITEM	UNIT	QUANTITY
2401.503	TYPE CURB BARRIER CONCRETE (3S52)	LIN. FT.	105
2401.503	TYPE P-4 (TL-4) BARRIER CONCRETE (3S52)	LIN. FT.	285
2401.507	STRUCTURAL CONCRETE (1G52)	CU. YD.	305
2401.507	STRUCTURAL CONCRETE (3B52)	CU. YD.	315
2401.508	REINFORCEMENT BARS	POUND	45570
2401.508	REINFORCEMENT BARS (EPOXY COATED)	POUND	47000
2401.508	REINFORCEMENT BARS (STAINLESS-60KSI)	POUND	660
2401.518	RAISED MEDIAN CONCRETE (3S52)	SQ. FT.	1815
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
2401.618	BRIDGE DECK PLANING	SQ. FT.	8660
2401.618	BRIDGE SLAB CONCRETE (3YHPC-M)	SQ. FT.	9250
2402.502	BEARING ASSEMBLY	EACH	20
2402.503	ORNAMENTAL METAL RAILING TYPE 1 (TBD)	LIN. FT.	145
2402.503	ORNAMENTAL METAL RAILING TYPE 2 (TBD)	LIN. FT.	105
2405.503	PRESTRESSED CONCRETE BEAMS MN45	LIN. FT.	990
2405.503	DIAPHRAGMS FOR TYPE MN 45 PREST BEAMS	LIN. FT.	180
2406.504	BRIDGE APPROACH PANELS	SQ. YD.	435
2411.618	ANTI-GRAFFITI COATING	SQ. FT.	640
2411.618	ARCH SURFACE FINISH (SINGLE COLOR)	SQ. FT.	2600
2411.618	ARCH CONC. TEXTURE (TBD)	SQ. FT.	480
2411.618	ARCH METAL FASCIA PANEL	SQ. FT.	1850
2452.502	C-I-P CONC TEST PILE 85 FT. LONG 12"	EACH	4
① 2452.603	C-I-P CONCRETE PILING 12"	LIN. FT.	11250
2502.501	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
2511.507	RANDOM RIPRAP CLASS III	CU. YD.	215
2511.504	GEOTEXTILE FILTER TYPE 3	SQ. YD.	430



**TRANSVERSE SECTION**

No.	Date	Revisions	App.

DRAWING NAME	TCAAP_SPINERD_BRID_TNVS.dwg
DESIGNED BY:	SSB
DRAWN BY:	PHH
CHECKED BY:	
DATE:	01/04/19
PROJECT NO.	160553004

**Kimley»Horn**  
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114  
 PHONE: 651-645-4197  
 WWW.KIMLEY-HORN.COM

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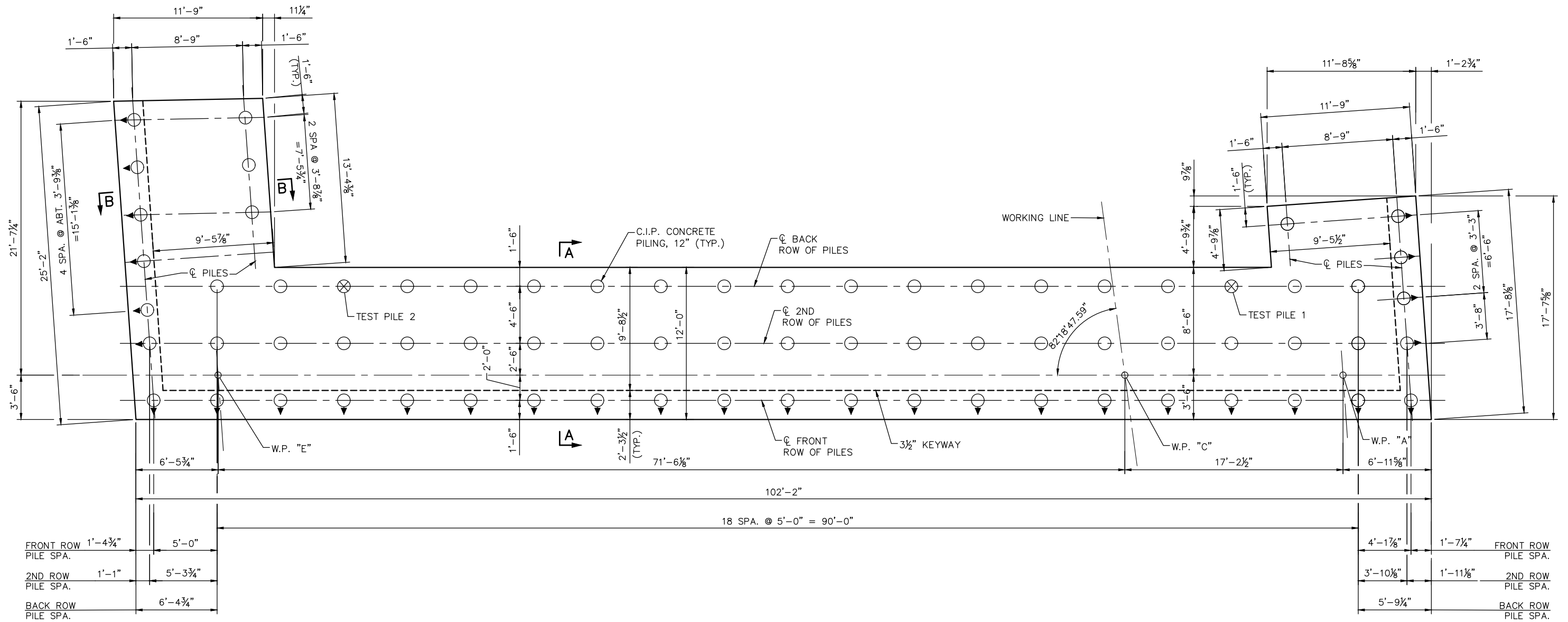
KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**  
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 TRANSVERSE SECTION

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.  
**BR3**  
**BR15**

K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridg\TCAAP\_SPINERD\_BRID\_ABUT01.dwg West Abut January 08, 2019 - 1:01pm



**WEST ABUTMENT  
FOOTING PLAN**

**GENERAL PILE NOTES:**

- 2 C-I-P CONCRETE TEST PILES 85 FT. LONG
  - 74 C-I-P CONCRETE PILES EST. LENGTH 75 FT.
  - 76 C-I-P CONCRETE PILES REQ'D FOR WEST ABUTMENT
- PILE SPACING IS SHOWN AT BOTTOM OF FOOTING
- PILES MARKED THIS TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.
- PILES TO HAVE A NOMINAL DIAMETER OF 12" AND MINIMUM WALL THICKNESS OF 1/4".
- FOR PILE SPLICE DETAILS SEE DETAIL B201.
- SEE SHEET BR6 FOR SECTIONS A-A AND B-B.

No.	Date	Revisions	App.	DRAWING NAME
				CAAP_SPINERD_BRID_ABUT01.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

**Kimley»Horn**

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KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**

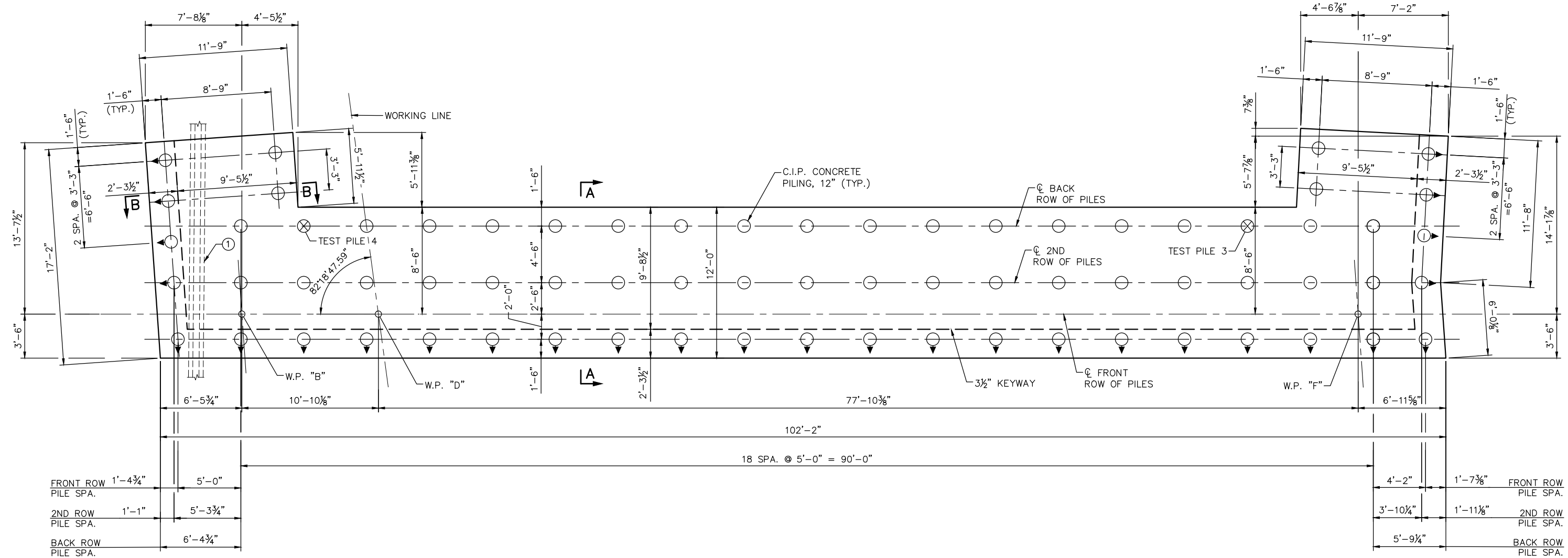
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 WEST ABUTMENT DETAILS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.  
**BR4**

**BR15**

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**EAST ABUTMENT FOOTING PLAN**

**GENERAL PILE NOTES:**

- 2 C-I-P CONCRETE TEST PILES 85 FT. LONG
  - 74 C-I-P CONCRETE PILES EST. LENGTH 75 FT.
  - 76 C-I-P CONCRETE PILES REQ'D FOR EAST ABUTMENT
- PILE SPACING IS SHOWN AT BOTTOM OF FOOTING
- PILES MARKED THUS  $\odot \rightarrow$  TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.
- PILES TO HAVE A NOMINAL DIAMETER OF 12" AND MINIMUM WALL THICKNESS OF 1/4".
- FOR PILE SPLICE DETAILS SEE DETAIL B201.
- SEE SHEET BR6 FOR SECTIONS A-A AND B-B.
- ① EXISTING 4" UTILITY CASING

No.	Date	Revisions	App.	DRAWING NAME
				CAAP_SPINERD_BRID_ABUT01.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

**Kimley»Horn**

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KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 EAST ABUTMENT DETAILS

CITY PROJECT	SHEET NO. <b>BR5</b>
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

**BR15**

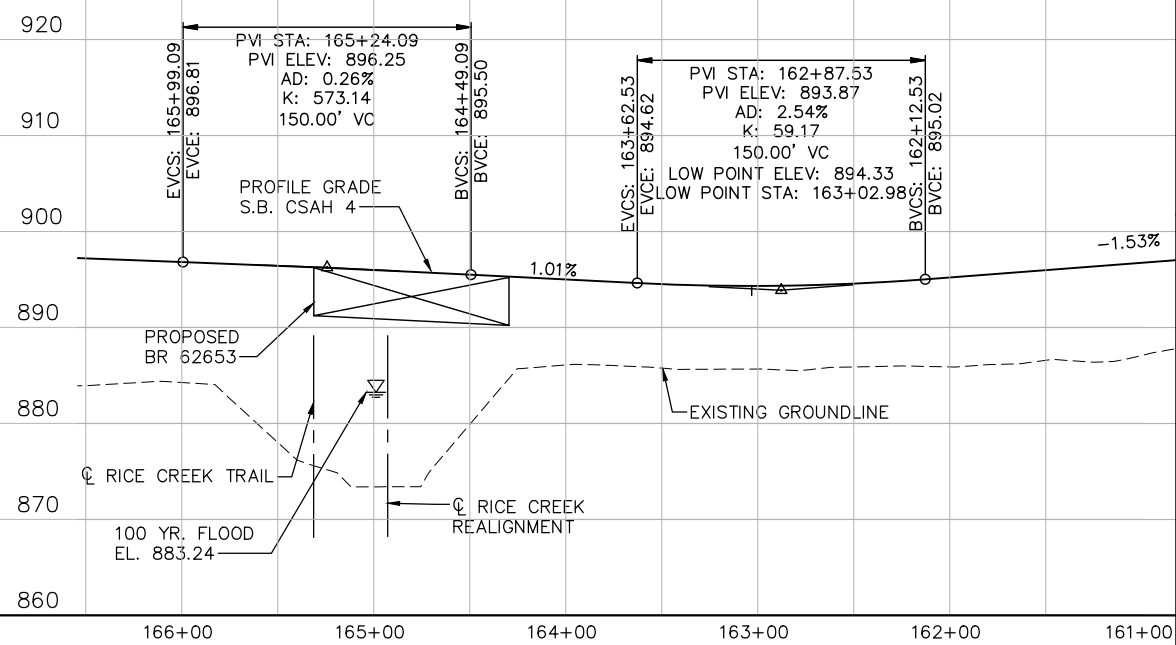
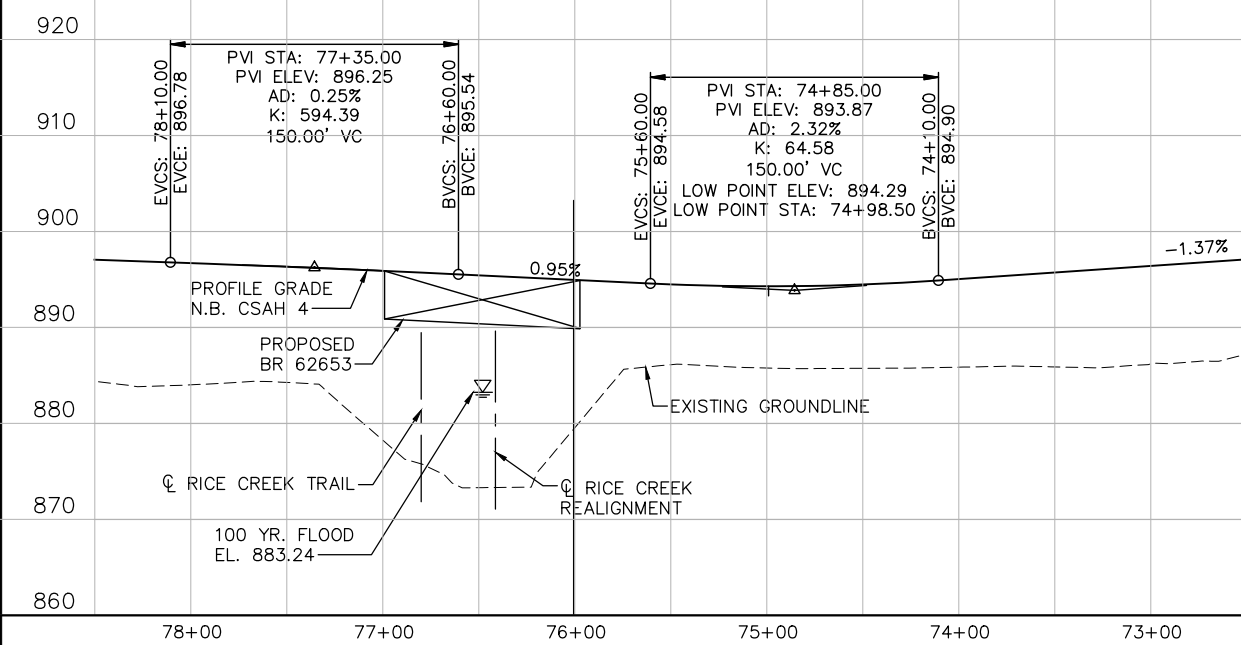




**CONTRACTED PROFILE**  
 SCALE: 0 25' 50' 0 5' 10'  
 HORIZONTAL VERTICAL

**N.B. CSAH 4 PROFILE**

**S.B. CSAH 4 PROFILE**



**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 (PARTICULARY 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.

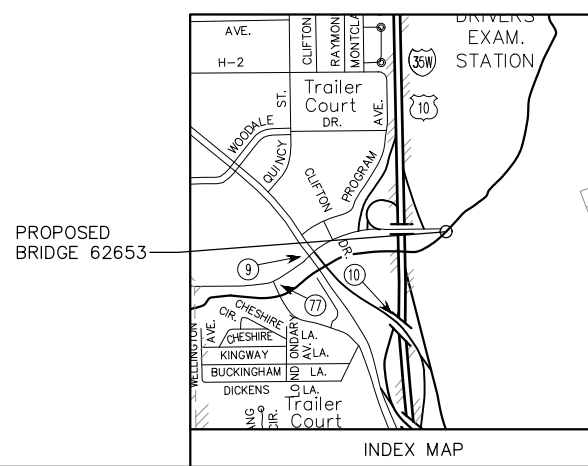
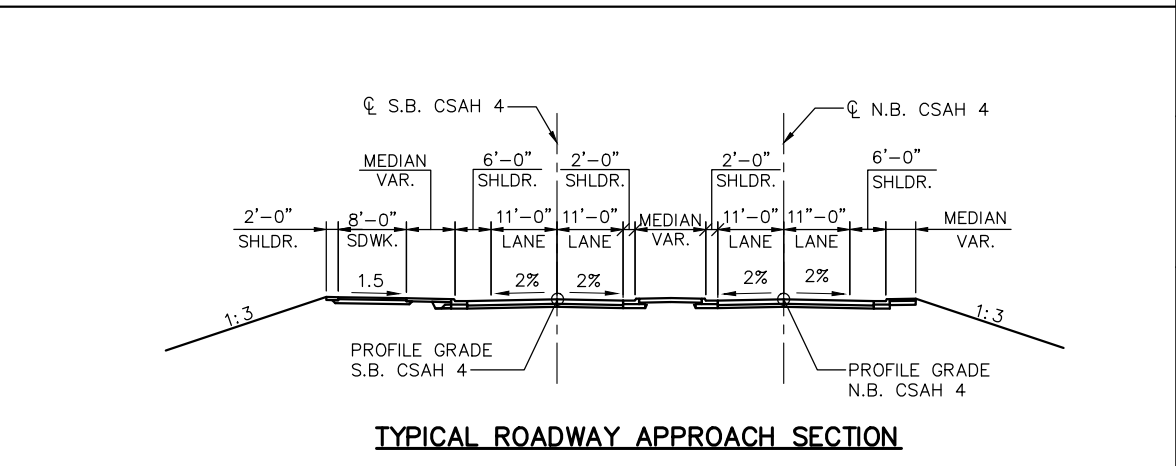
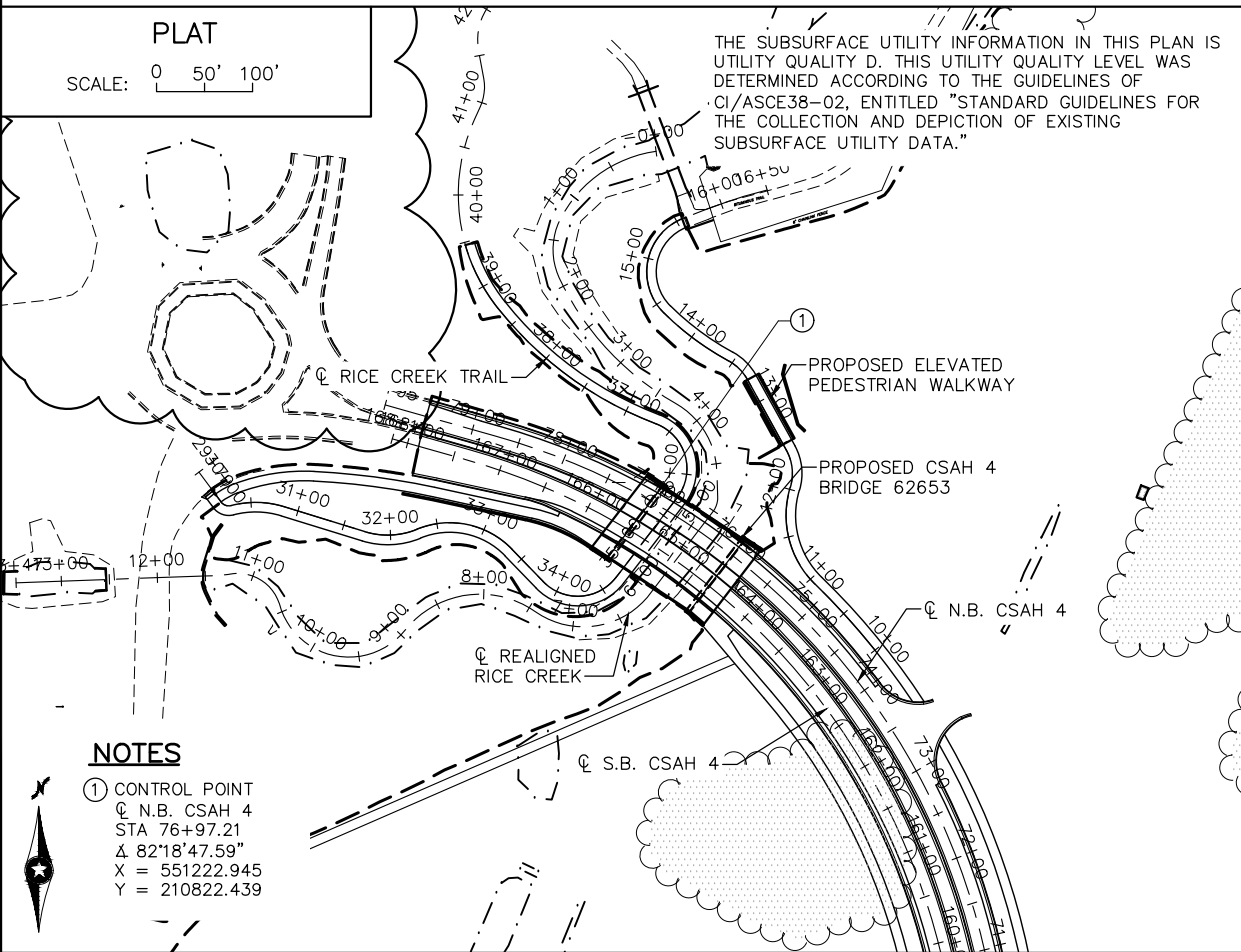
**HYDRAULIC ENGINEERS RECOMMENDATION**

DATE: 6-25-2015  
 STREAM OR DITCH DESIGNATION: RICE CREEK  
 DRAINAGE AREA: APPROX 153.1 SQ. MI.  
 MAX. FLOOD ON RECORD: XX.X C.F.S. UNKNOWN  
 MAXIMUM OBSERVED HIGHWATER ELEVATION: UNKNOWN FT.  
 DESIGN FLOOD (100 YR. FREQ.): 819.0 C.F.S.  
 HEADWATER EL.: 883.24 FT.  
 DESIGN MEAN VELOCITY THROUGH STRUCTURE: 1.5 F.P.S.  
 TOTAL STAGE INCREASE: 0.0 FT.  
 LOW MEMBER AT OR ABOVE ELEVATION: 889.96 FT.  
 WATERWAY AREA REQUIRED BELOW ELEV. 883.24 = NA SQ. FT. AT RIGHT ANGLES TO CHANNEL  
 BASIC FLOOD (100 YR. FREQ.): 819.0 C.F.S.  
 HEADWATER ELEVATION: 883.24 FT.  
 TOTAL STAGE INCREASE: 0.0 FT.  
 MEAN VELOCITY THROUGH STRUCTURE: 1.5 F.P.S.  
 FLOWLINE ELEVATION: 870.4 FT. SKEW ANGLE: 0°  
 ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. N/A (500 OR OT YR. FREQ.)

**SCOUR CONFIRMATION RECOMMENDATION**

DATE:  
 TOTAL SCOUR AT PIER EL. (500 OR OT YR. FREQ.)  
 SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM: WENCK ASSOCIATES DATA:  
 BENCH MARK ELEVATION: 900.126 (N.A.V.D. 88 ADJ.)  
 LOCATION: 0.11 MILES EAST ON COUNTY ROAD H (RICE CREEK NORTH REGIONAL TRAIL PARKING LOT ENTRANCE), 0.05 MILE NORTH-NORTHEAST OF HIGHWAY 10 AND EXISTING RICE CREEK INTERSECTION.



**NOTES**  
 ① CONTROL POINT  
 N.B. CSAH 4  
 STA 76+97.21  
 Δ 82°18'47.59"  
 X = 551222.945  
 Y = 210822.439

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_SUR01.dwg
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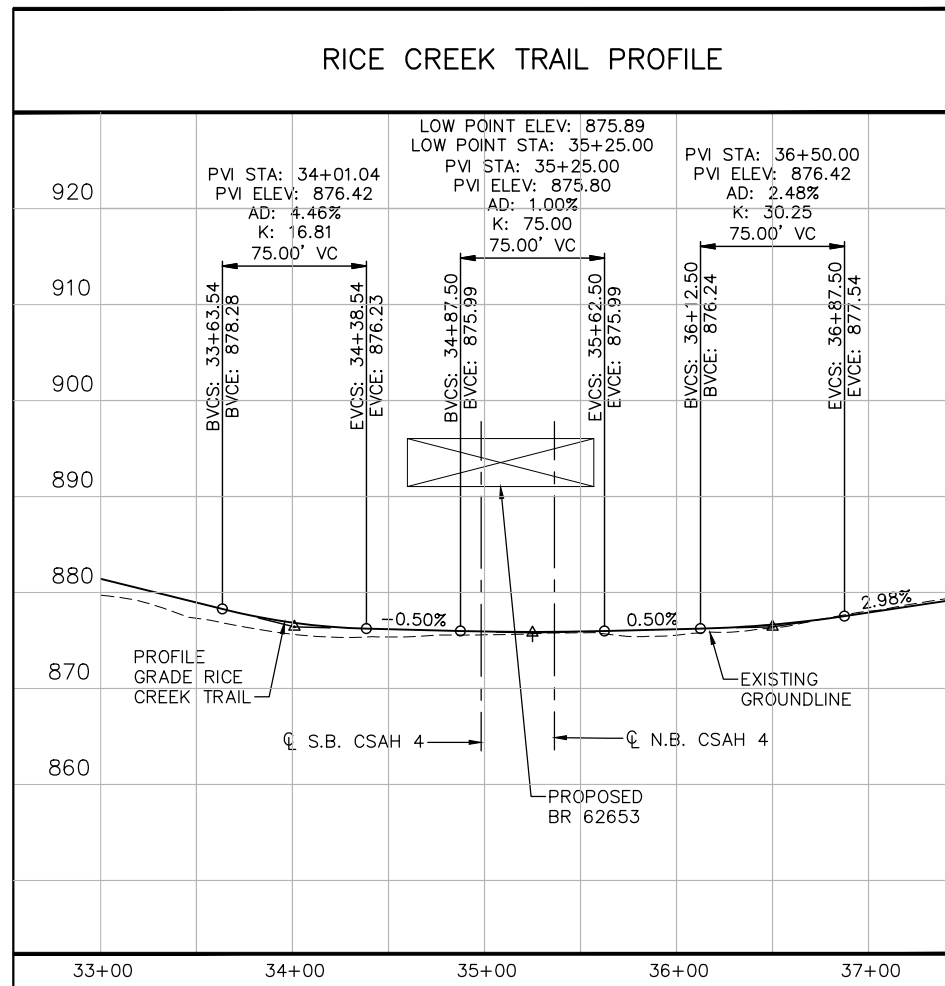
**RAMSEY COUNTY**  
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 BRIDGE SURVEY

CITY PROJECT	SHEET NO. <b>BR7</b>
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	
<b>BR15</b>	

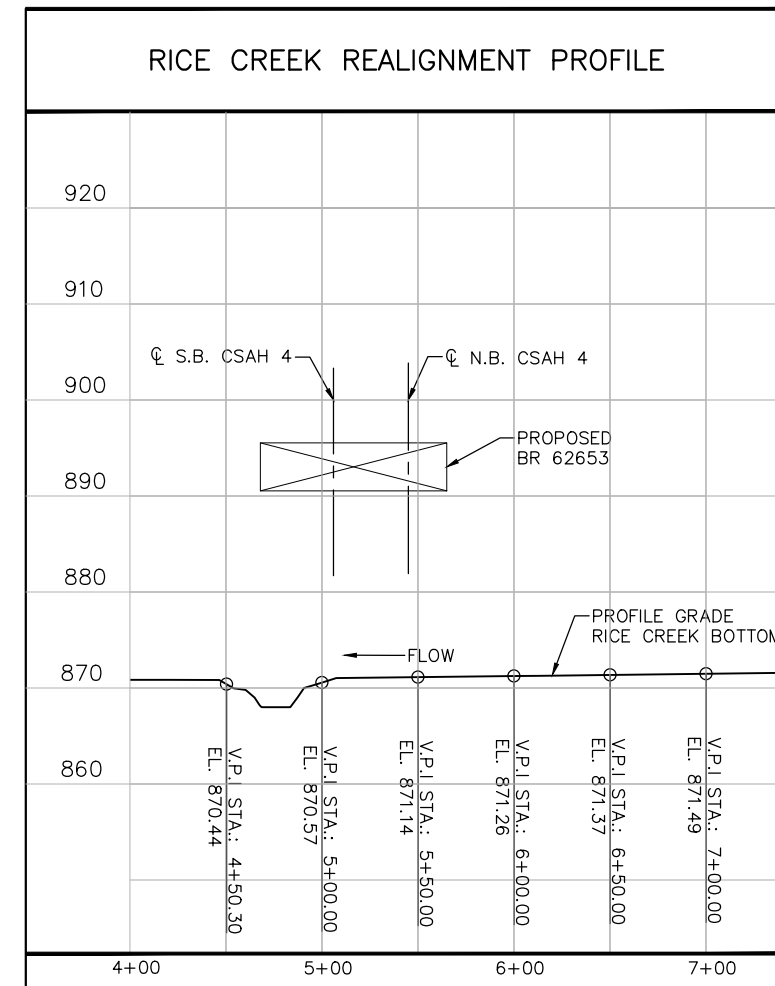
K:\TWC\Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridges\TCAAP\_SPINERD\_BRID\_SUR01.dwg SUR01 January 08, 2019 - 1:02pm

CONTRACTED PROFILE  
 SCALE: 0 25' 50' 0 5' 10'  
 HORIZONTAL VERTICAL

RICE CREEK TRAIL PROFILE



RICE CREEK REALIGNMENT PROFILE



K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP\_SPINERD\_BRID\_SUR02.dwg SUR02 January 08, 2019 - 1:02pm

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_SUR02.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
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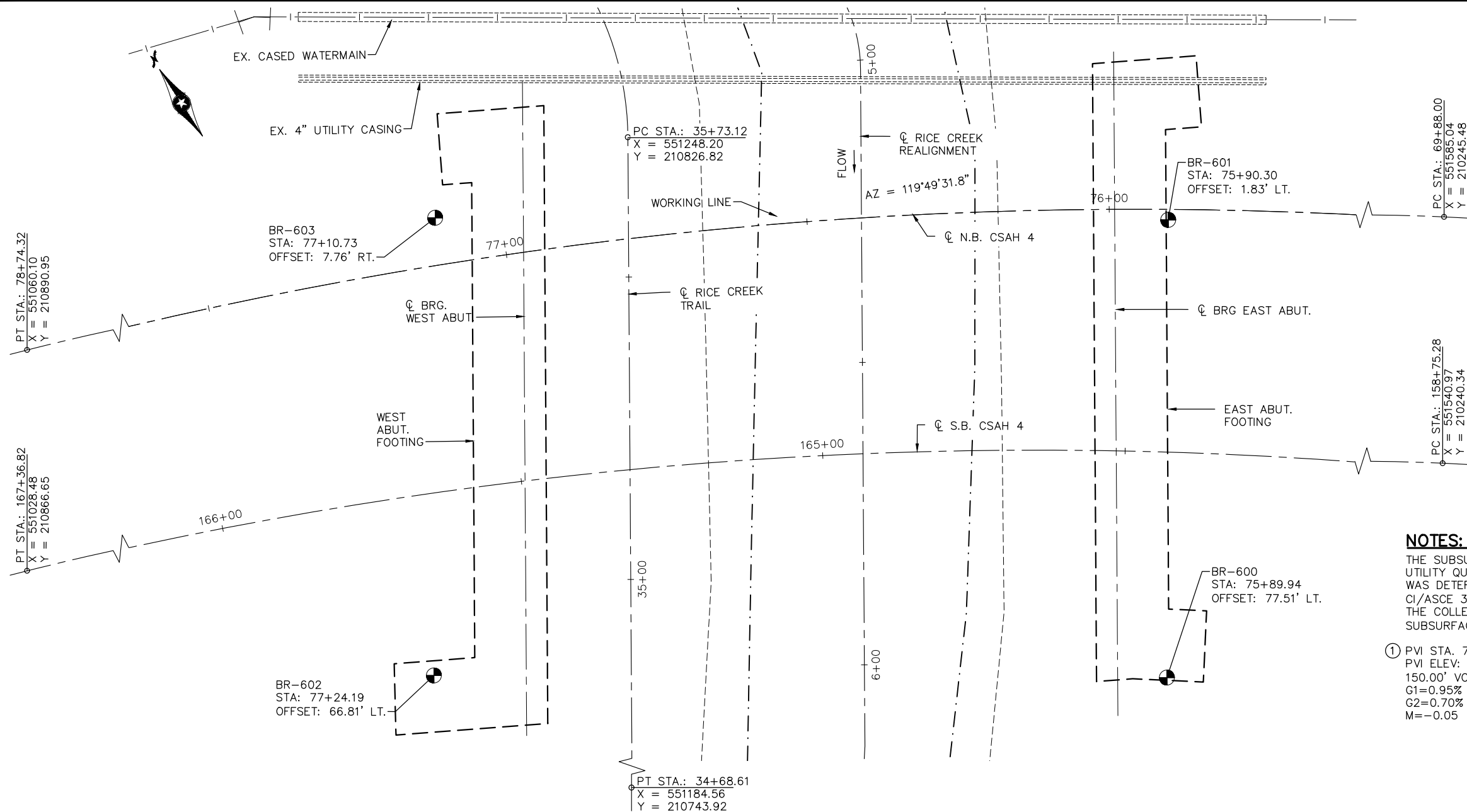
**RAMSEY COUNTY**  
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 BRIDGE SURVEY

CITY PROJECT  
 COUNTY PROJECT  
 S.A.P. 062-593-004  
 S.A.P.

SHEET NO.  
**BR8**  
**BR15**

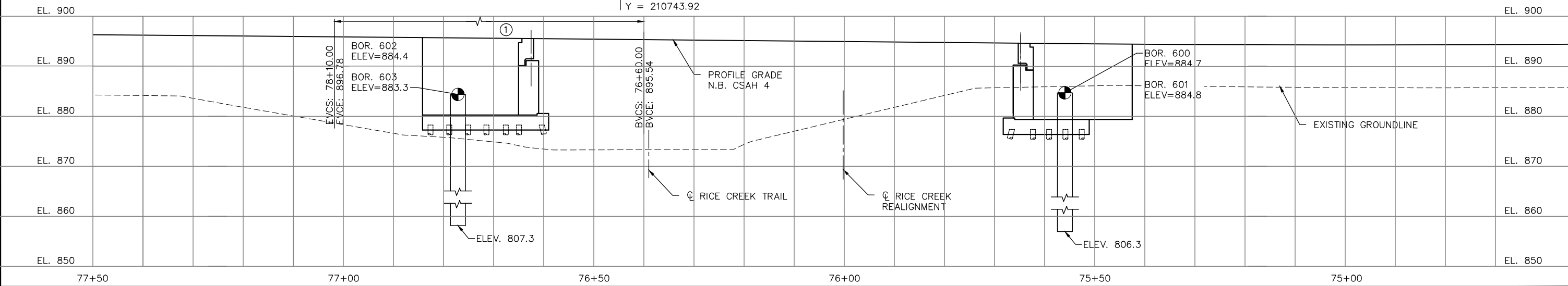


K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP\_SPINERD\_BRID\_BOR01.dwg PLAN & ELEV January 08, 2019 - 1:03pm



**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 PVI STA. 77+35.00  
 PVI ELEV: 896.25  
 150.00' VC  
 G1=0.95%  
 G2=0.70%  
 M=-0.05



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_BRID_BOR01.dwg	
DESIGNED BY:	SSB
DRAWN BY:	PHH
CHECKED BY:	
DATE:	01/04/19
PROJECT NO.	160553004

**Kimley»Horn**

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 PHONE: 651-645-4197  
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KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

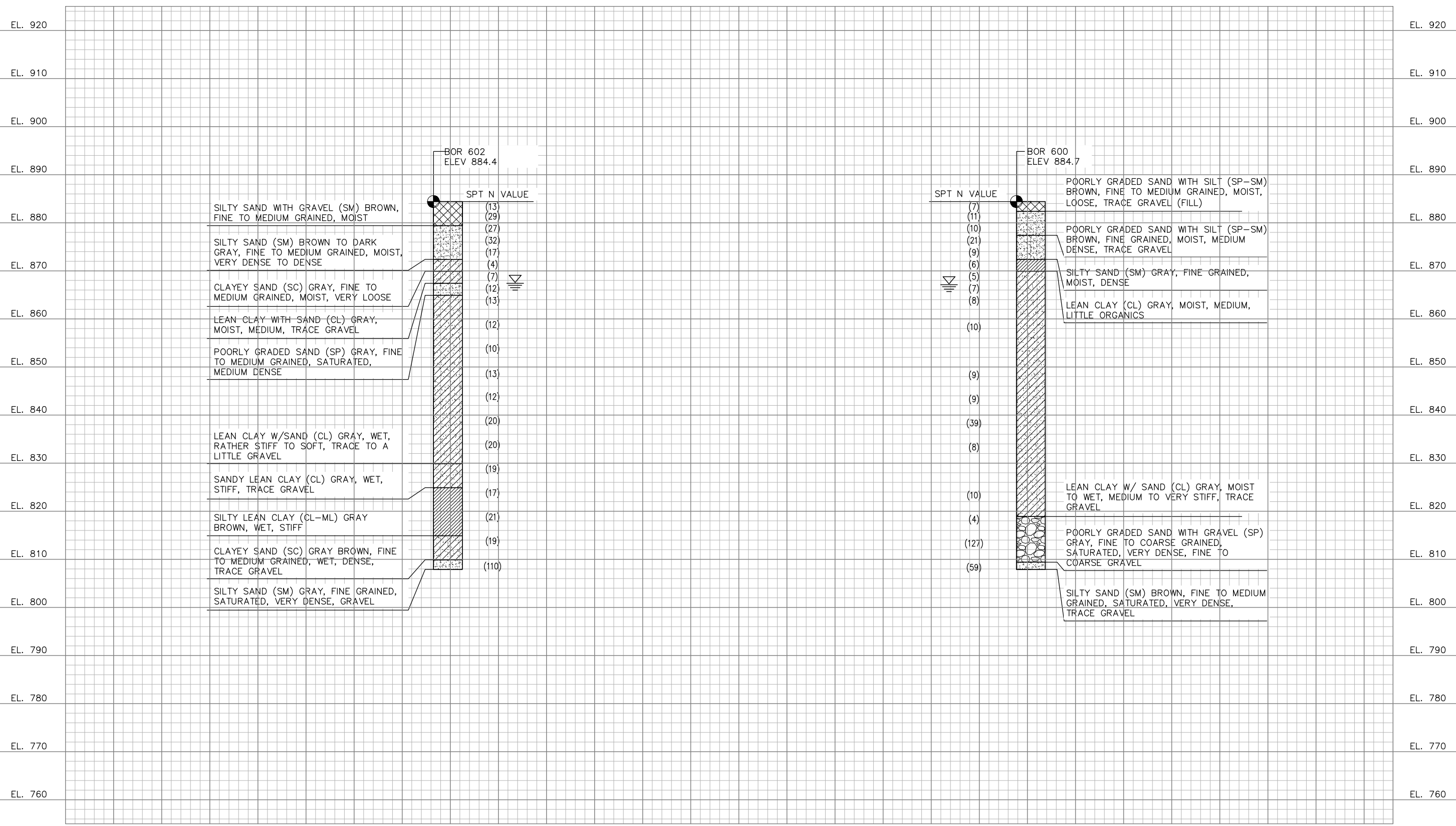
**RAMSEY COUNTY**

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 BORINGS

CITY PROJECT	SHEET NO. <b>BR9</b>
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

**BR15**

K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridges\TCAAP\_SPINERD\_BRID\_BOR02.dwg BORING PLAN 602 & 600 January 08, 2019 - 1:03pm



No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_BRID_BOR02.dwg	
DESIGNED BY:	SSB
DRAWN BY:	PHH
CHECKED BY:	
DATE:	01/04/19
PROJECT NO.	160553004

**Kimley»Horn**

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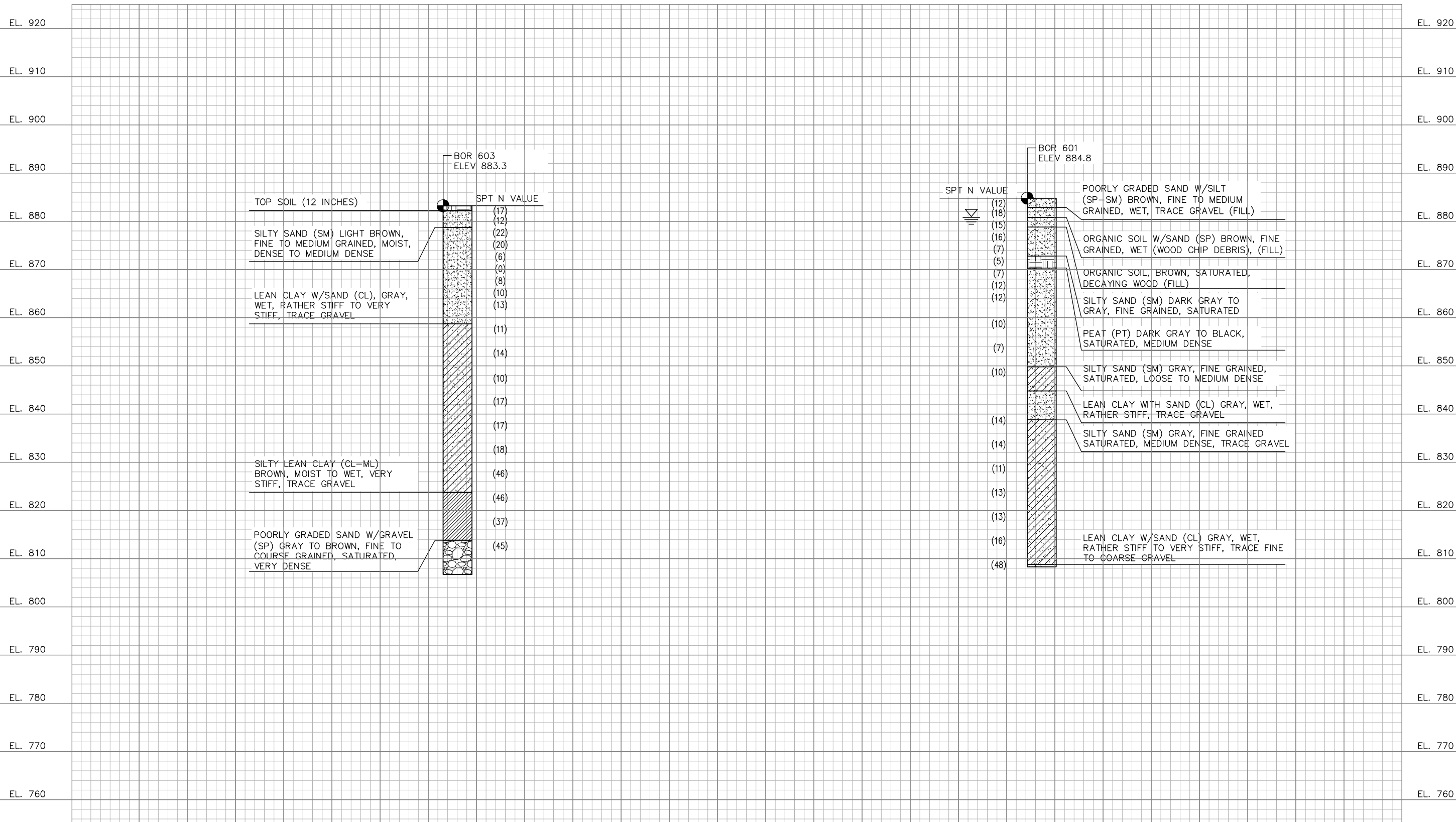
KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 BORINGS

CITY PROJECT	SHEET NO. <b>BR10</b> <b>BR15</b>
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP\_SPINERD\_BRID\_BOR03.dwg BORING PLAN 603 & 601 January 08, 2019 - 1:03pm



No.	Date	Revisions	App.	DRAWING NAME
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				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

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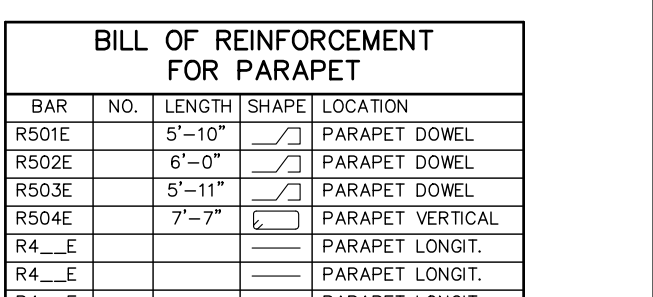
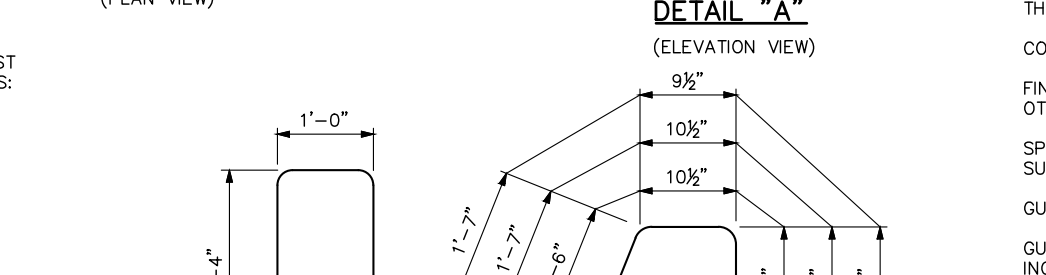
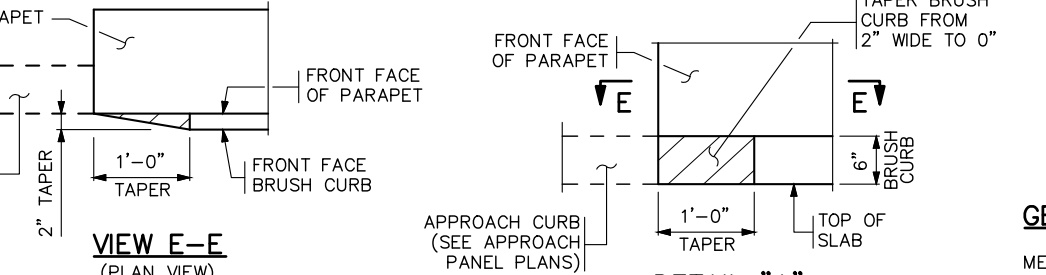
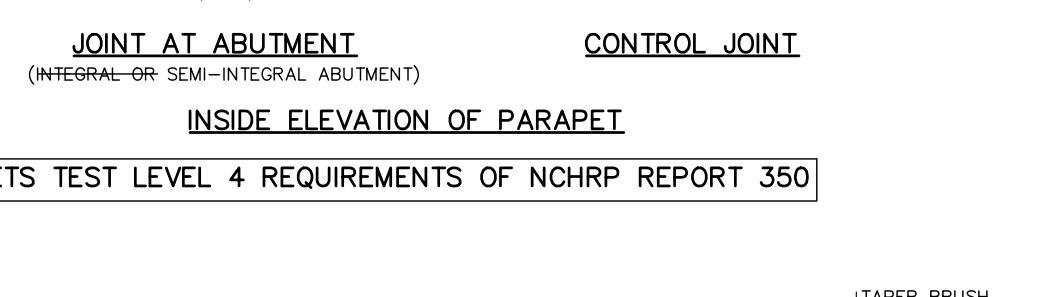
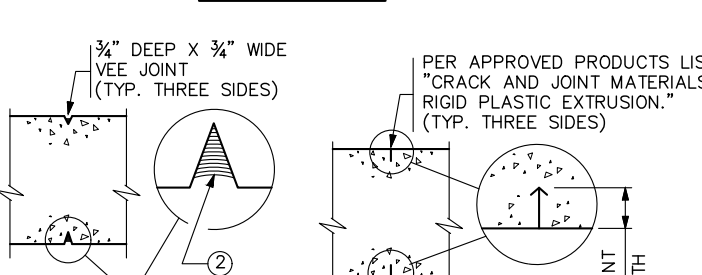
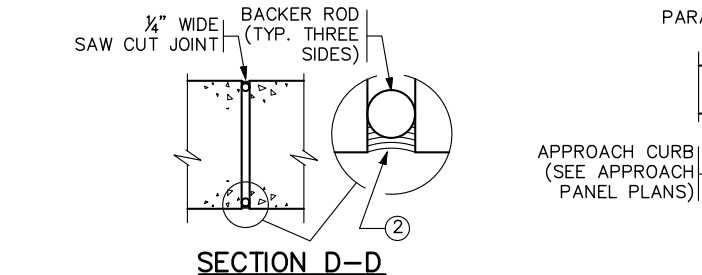
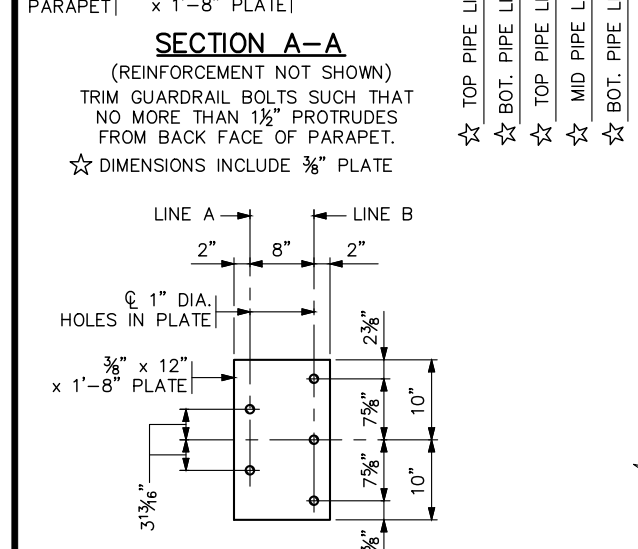
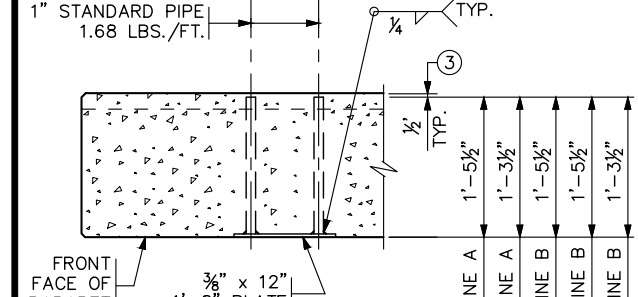
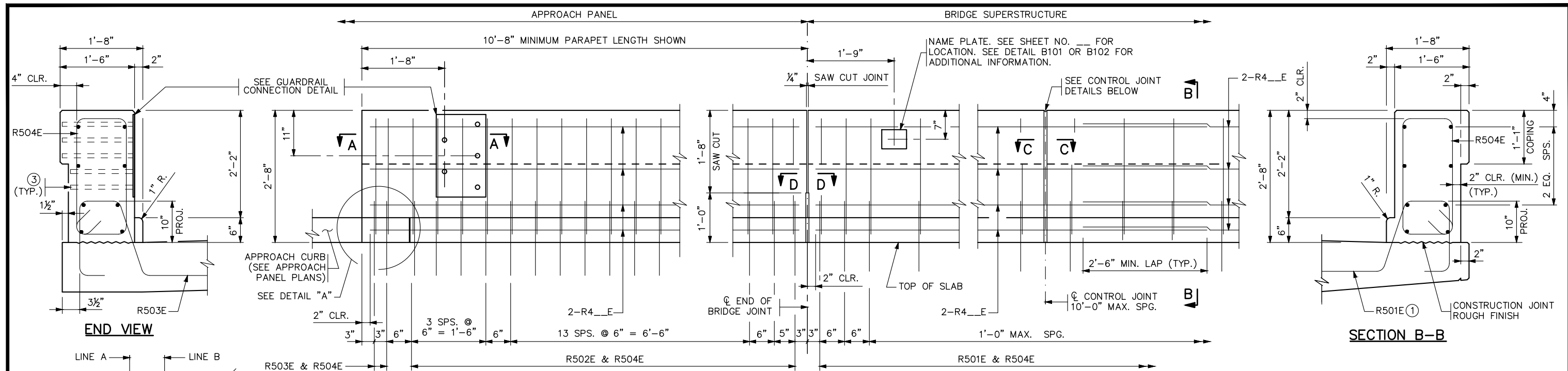
KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**  
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 BORINGS

CITY PROJECT	
COUNTY PROJECT	
S.A.P.	062-593-004
S.A.P.	

SHEET NO.  
**BR11**  
**BR15**

K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP\_SPINERD\_BRID\_BAR01.dwg P-4 PARAPET January 08, 2019 - 1:03pm



**BILL OF REINFORCEMENT FOR PARAPET**

BAR	NO.	LENGTH	SHAPE	LOCATION
R501E		5'-10"		PARAPET DOWEL
R502E		6'-0"		PARAPET DOWEL
R503E		5'-11"		PARAPET DOWEL
R504E		7'-7"		PARAPET VERTICAL
R4__E			---	PARAPET LONGIT.
R4__E			---	PARAPET LONGIT.
R4__E			---	PARAPET LONGIT.
R4__E			---	PARAPET LONGIT.
R4__E			---	PARAPET LONGIT.
R4__E			---	PARAPET LONGIT.

- GENERAL NOTES**
- MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE FACES OF THE PARAPET.
  - CONCRETE PARAPET = 572 LBS./FT. (0.141 CU. YDS./FT.)
  - FINISH ALL EDGES OF PARAPET WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.
  - SPACE CONTROL JOINTS AT 10 FT. MAXIMUM. REFER TO SUPERSTRUCTURE SHEET FOR SPECIFIC SPACING INFORMATION.
  - GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306.
  - GUARDRAIL CONNECTION AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO PARAPET.
  - PARAPET QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
- PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT IN DECK.
  - JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
  - REMOVE CONCRETE FROM PIPE ENDS AFTER SLIPFORMING OR FORM REMOVAL.

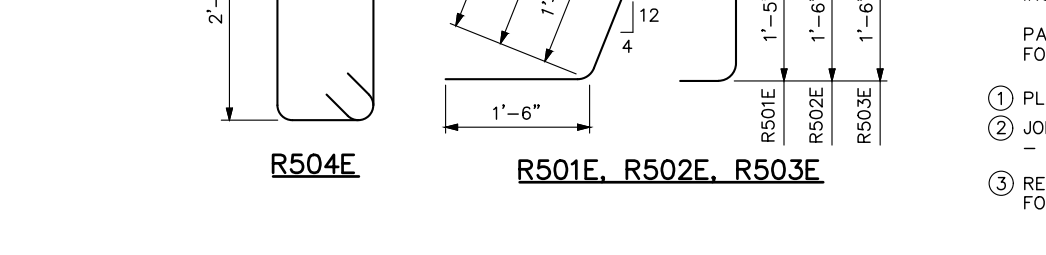
REVISED:

APPROVED: FEBRUARY 22, 2018

*Kevin Westrom*  
STATE BRIDGE ENGINEER

**CONTROL JOINT DETAILS**

FOR SLIPFORM CONSTRUCTION: IMMEDIATELY AFTER CONCRETE IS PLACED AND WHILE IT IS STILL WET, CREATE A ONE INCH STRAIGHT GROOVE USING A TROWEL. INSERT RIGID PLASTIC EXTRUSION INTO GROOVE TO A DEPTH 1/8" BELOW THE SURFACE; FINISH OVER GROOVE COMPLETELY HIDING THE EXTRUSION.



No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_BAR01.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

**Kimley»Horn**

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KATHRYN ELLIS, P.E.  
DATE: 01/04/19 MN LIC. NO. 55462

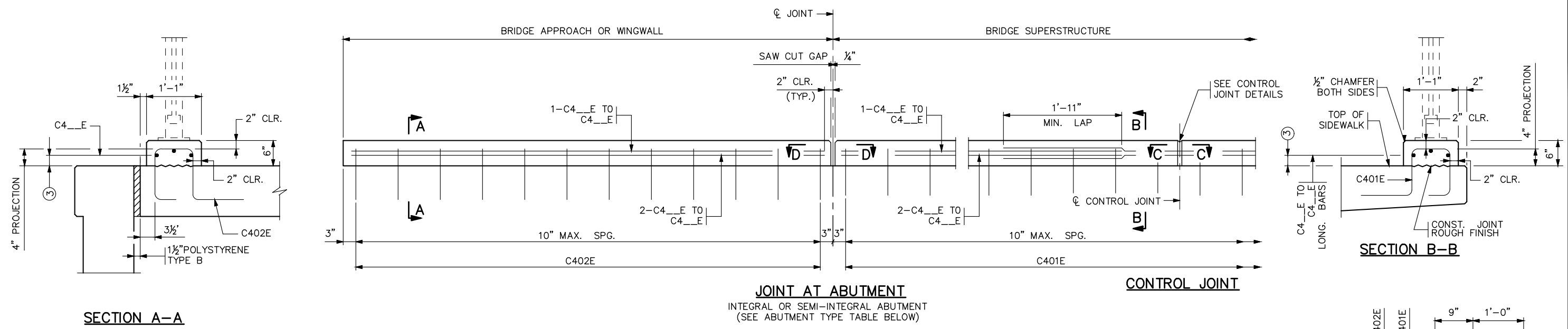
**RAMSEY COUNTY**

TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
BRIDGE 62653  
CONCRETE PARAPET

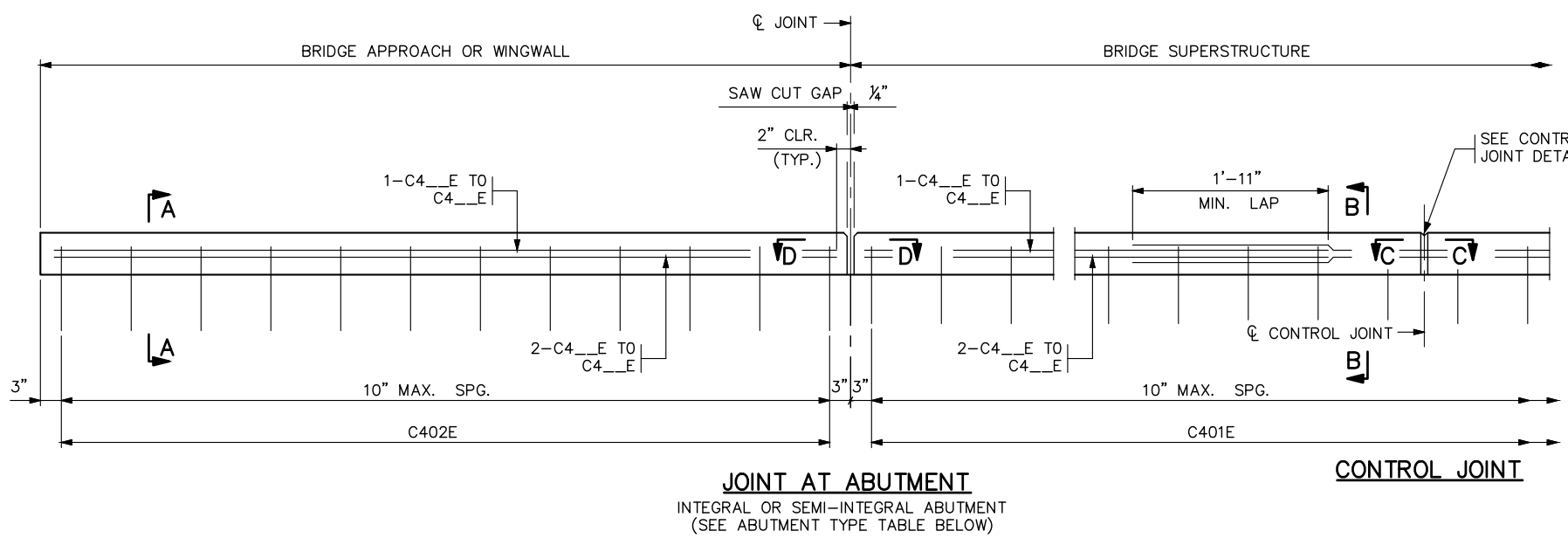
CITY PROJECT	BR12	SHEET NO.
COUNTY PROJECT		
S.A.P. 062-593-004	BR15	
S.A.P.		

FIG. 5-397.173(A)

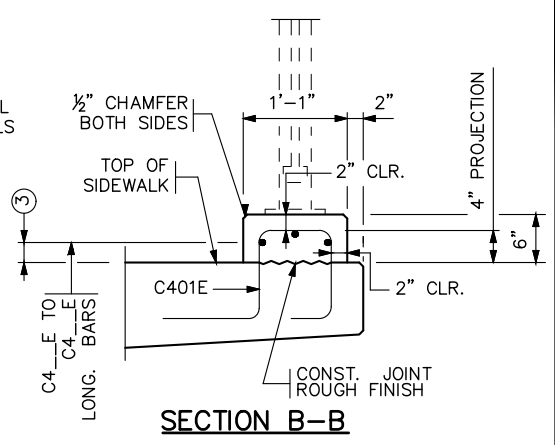
K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan\_Sheets\Bridges\SPINERD\_BRID\_BAR01.dwg CONCRETE CURB January 08, 2019 - 1:03pm



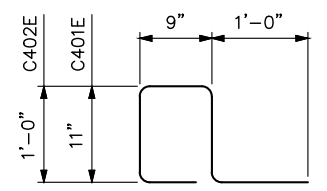
**SECTION A-A**



**INSIDE ELEVATION OF CONCRETE CURB**

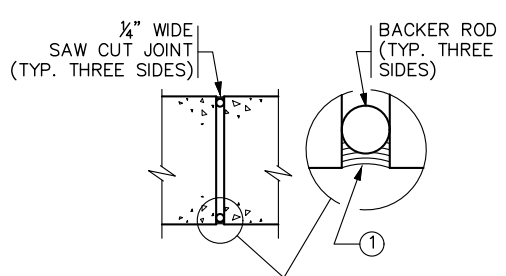


**SECTION B-B**

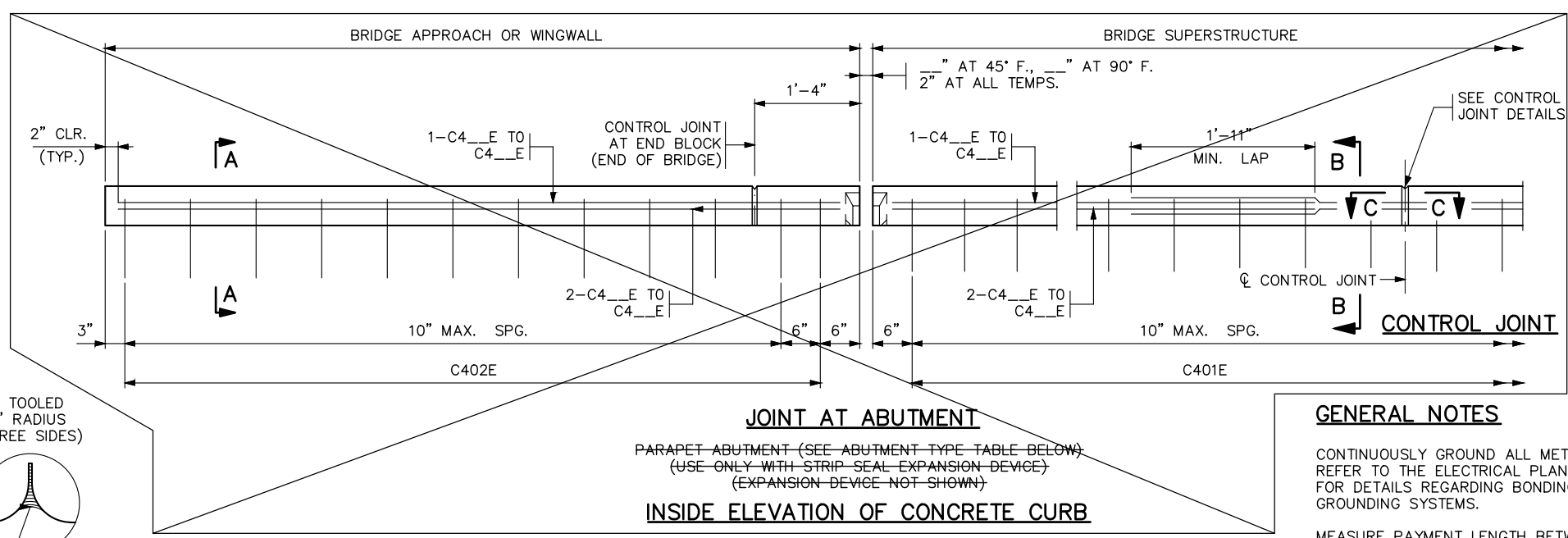


**C401E, C402E**

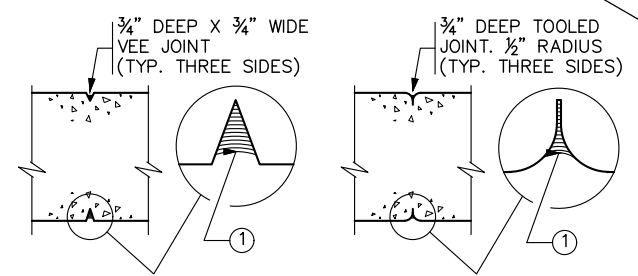
BILL OF REINFORCEMENT FOR CURB				
BAR	NO.	LENGTH	SHAPE	LOCATION
C401E		4'-2"		CURB BASE VERTICAL
C402E		4'-4"		CURB BASE VERTICAL
C4__E				CURB BASE LONGIT.
C4__E				CURB BASE LONGIT.
C4__E				CURB BASE LONGIT.



**SECTION D-D**



**INSIDE ELEVATION OF CONCRETE CURB**



**SECTION C-C**

**SECTION C-C**

**CONTROL JOINT DETAILS**

WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP. THREE SIDES)

ABUTMENT TYPE
INTEGRAL OR SEMI-INTEGRAL ABUTMENT <input checked="" type="checkbox"/>
PARAPET ABUTMENT <input type="checkbox"/>

**CURB DOES NOT MEET CRASH TEST REQUIREMENTS OF NCHRP REPORT 350 OR MASH**

**GENERAL NOTES**

- CONTINUOUSLY GROUND ALL METAL RAILINGS; SEE THE SPECIAL PROVISIONS. REFER TO THE ELECTRICAL PLANS AND ELECTRICAL SPECIAL PROVISIONS FOR DETAILS REGARDING BONDING MULTIPLE ELECTRICAL GROUNDING SYSTEMS.
- MEASURE PAYMENT LENGTH BETWEEN THE OUTSIDE ENDS OF THE CONCRETE CURB.
- CONCRETE CURB = 81 LBS./FT. (0.020 CU. YDS./FT.)
- FINISH ALL EDGES OF CURB WITH 1/2" CHAMFER, EXCEPT WHERE OTHERWISE NOTED.
- MAXIMUM SPACING OF CONTROL JOINTS ON SUPERSTRUCTURE, APPROACH AND WINGWALL IS 10 FT. SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.
- CONCRETE CURB QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.
- ① JOINT SEALANT PER MnDOT APPROVED/QUALIFIED PRODUCTS LIST - CRACK AND JOINT MATERIALS - SILICONE JOINT SEALERS.
- ② REFER TO STANDARD FIGURE 5-397.632 FOR COVER PLATE DETAILS.
- ③ TO MAXIMIZE CLEARANCES FOR ANCHORAGES, PLACE TOP OF OUTSIDE LONGITUDINAL BARS 2" FROM DECK SURFACE (TYP.).

REVISION: 08-24-2016  
 APPROVED: NOVEMBER 6, 2013  
*Kevin Weston*  
 STATE BRIDGE ENGINEER

**FIG. 5-397.167**

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_BAR01.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

**Kimley»Horn**  
 767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114  
 PHONE: 651-645-4197  
 WWW.KIMLEY-HORN.COM

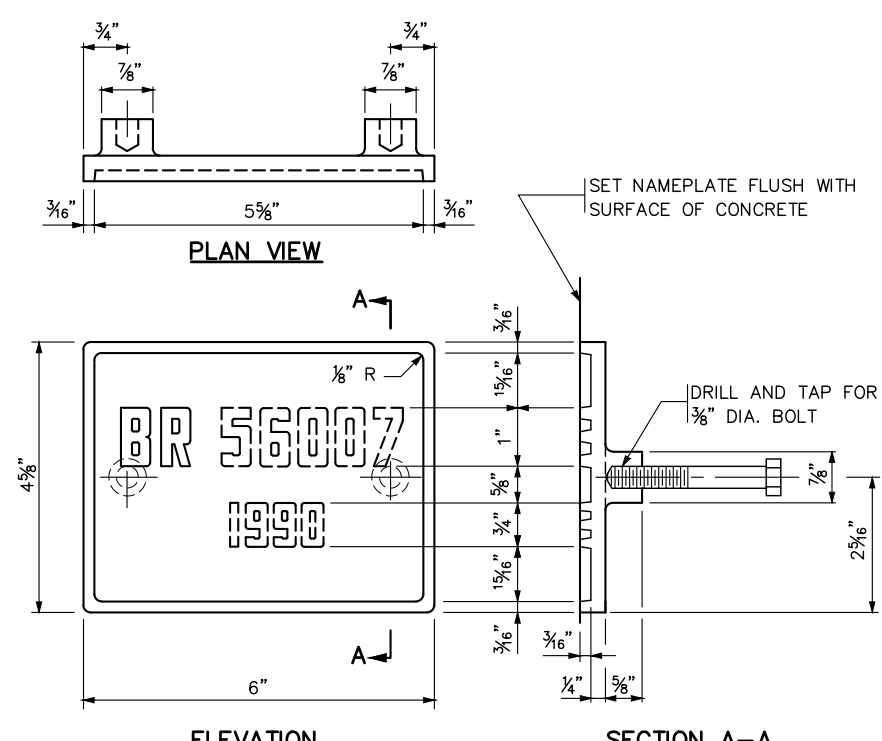
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 KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**  
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 CONCRETE CURB

CITY PROJECT	SHEET NO.
COUNTY PROJECT	BR13
S.A.P. 062-593-004	
S.A.P.	BR15

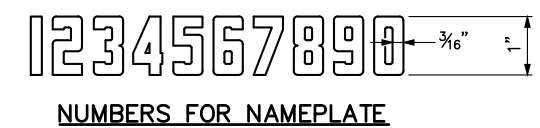


K:\TWC\_Civil\County\RAMSEY\TCAAP\_Spine Rd BP2\CAD\Plan Sheets\Bridge\TCAAP\_SPINERD\_BRID\_DET.dwg B101 & B201 January 08, 2019 -- 1:03pm



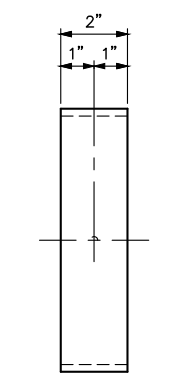
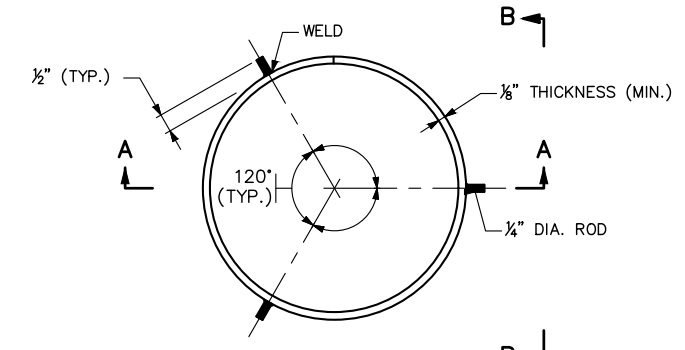
THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 62653  
YEAR 20XX

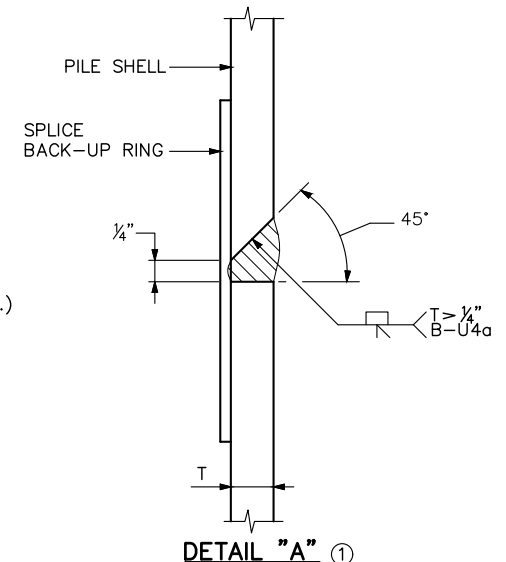
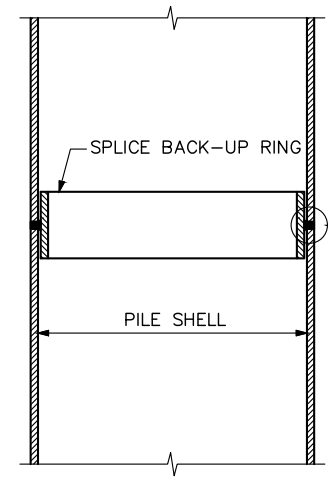


**NOTES:**  
MATERIAL SHALL COMPLY WITH SPEC. 3327.  
LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.  
DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".  
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.  
TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.  
FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.  
ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION 09-11-2014	DETAIL NO.
<i>Daniel A. Johnson</i> STATE BRIDGE ENGINEER	<b>BRIDGE NAMEPLATE</b> (FOR NEW BRIDGES)		<b>B101</b>



PLAN VIEW - SPLICE BACK-UP RING  
PILE NOT SHOWN



SECTION A-A

DETAIL "A" ①

**NOTES:**  
APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED, PROVIDED THAT 1/4" ROOT IS MAINTAINED. BACK-UP RING SHALL HAVE A TIGHT FIT.  
WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.  
ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.  
WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

① FOR PILE SHELL THICKNESSES GREATER THAN 1/4", USE A B-U4a WELD CONFIGURATION. SEE DETAIL "A".

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION: 11-06-2013	DETAIL NO.
<i>Daniel A. Johnson</i> STATE BRIDGE ENGINEER	<b>PILE SPLICE</b> (CAST-IN-PLACE CONCRETE PILES)		<b>B201</b>

No.	Date	Revisions	App.

DRAWING NAME TCAAP_SPINERD_BRID_DET.dwg
DESIGNED BY: SSB
DRAWN BY: PHH
CHECKED BY:
DATE: 01/04/19
PROJECT NO. 160553004

**Kimley»Horn**  
767 EUSTIS STREET, SUITE 100, ST. PAUL, MN 55114  
PHONE: 651-645-4197  
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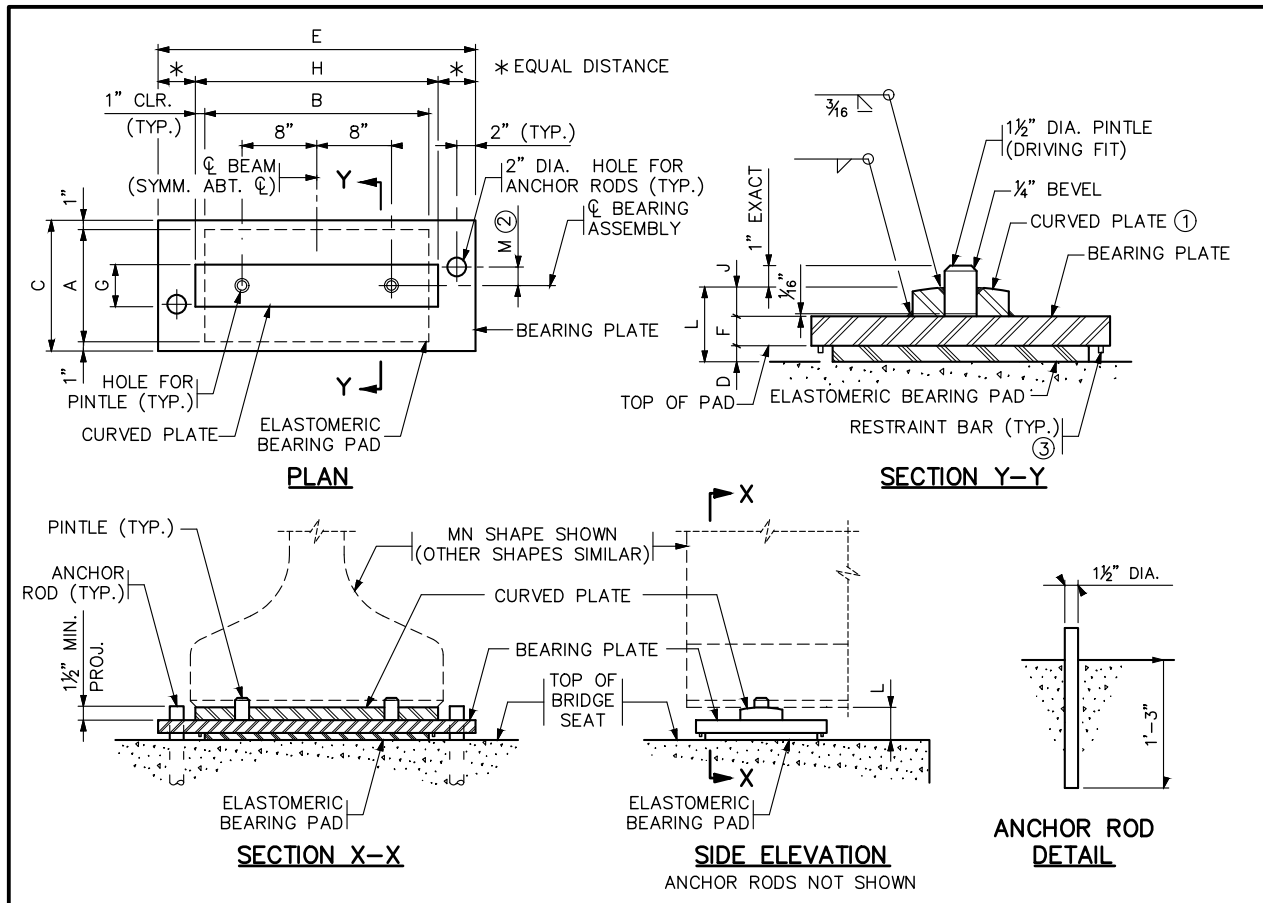
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KATHRYN ELLIS, P.E.  
DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**  
TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
BRIDGE 62653  
B-DETAILS

CITY PROJECT	SHEET NO. <b>BR14</b>
COUNTY PROJECT	
S.A.P. 062-593-004	
S.A.P.	

**BR15**

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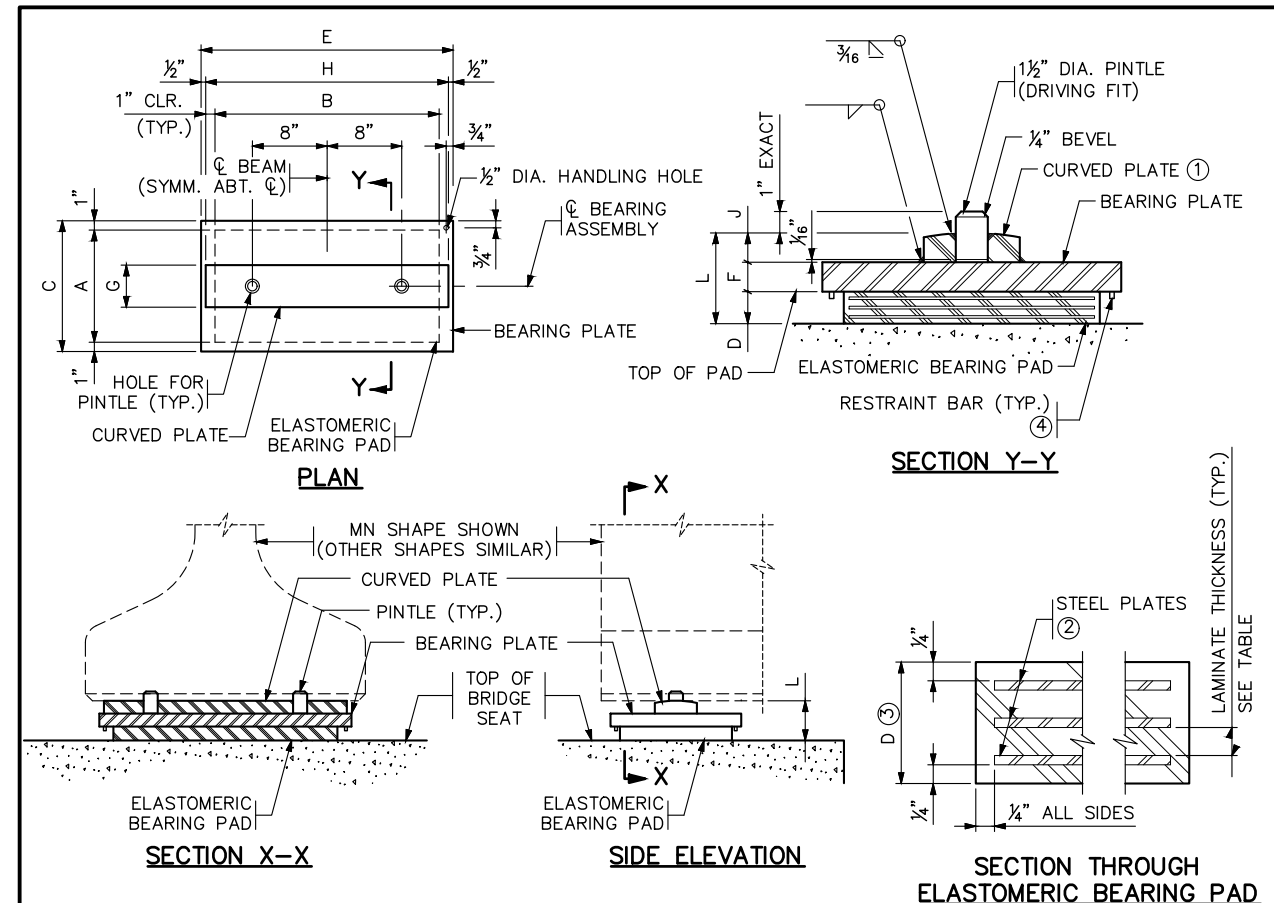
ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE				CURVED PLATE SIZE				ANCHOR ROD OFFSET			ASSY. HEIGHT L	RESTRAINT PATTERN ③
			A	B	D		C	E	F	G	H	J	R ①	+/- ②	M				

**NOTES:**  
 PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER SPEC. 3741. ③ REFER TO BEARING PAD RESTRAINT B-DETAIL FOR ADDITIONAL INFORMATION AND DETAILS.  
 PROVIDE STEEL PLATES PER SPEC. 3306.  
 PROVIDE ANCHOR RODS PER SPEC. 3306. GALVANIZE PER SPEC. 3394.  
 PROVIDE PINTLES PER SPEC. 3309.  
 GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.  
 PAYMENT FOR BEARING ASSEMBLY INCLUDES ALL MATERIAL ON THIS DETAIL.

① THE MIN. RADIUS IS 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.  
 ② "+." DENOTES OFFSET AS SHOWN. "-." DENOTES OFFSET OPPOSITE OF SHOWN.

**DESIGN DATA:**  
 MAX. FACTORED SHEAR RESISTANCE:  
 - 50.3 KIPS PER 1 1/2" DIA. PINTLE  
 - 36.2 KIPS PER 1 1/2" DIA. ANCHOR ROD

APPROVED: SEPTEMBER 22, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 11-06-2013 11-03-2015 01-05-2017 11-02-2017 11-08-2018	DETAIL NO. <b>B310</b>
<b>CURVED PLATE BEARING ASSEMBLY</b> (PRESTRESSED CONCRETE BEAMS) (FIXED)			



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			STEEL PLATES NO. THICK.	LAMINATES NO. THICK.	SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE				ASSY. HEIGHT L	RESTRAINT PATTERN ④
			A	B	D				C	E	F	G	H	J	R ①		

**NOTES:**  
 PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER SPEC. 3741. ② THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.  
 PROVIDE STEEL PLATES PER SPEC. 3306. ③ DO NOT GALVANIZE THESE PLATES.  
 PROVIDE PINTLES PER SPEC. 3309. ④ REFER TO BEARING PAD RESTRAINT B-DETAIL FOR ADDITIONAL INFORMATION AND DETAILS.  
 GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.  
 PAYMENT FOR BEARING ASSEMBLY INCLUDES ALL MATERIAL ON THIS DETAIL.

① THE MIN. RADIUS IS 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

**DESIGN DATA:**  
 MAX. FACTORED SHEAR RESISTANCE:  
 - 50.3 KIPS PER 1 1/2" DIA. PINTLE

APPROVED: SEPTEMBER 22, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 11-03-2015 11-02-2017 11-08-2018	DETAIL NO. <b>B311</b>
<b>CURVED PLATE BEARING ASSEMBLY</b> (PRESTRESSED CONCRETE BEAMS) (EXPANSION)			

No.	Date	Revisions	App.	DRAWING NAME
				TCAAP_SPINERD_BRID_DET.dwg
				DESIGNED BY: SSB
				DRAWN BY: PHH
				CHECKED BY:
				DATE: 01/04/19
				PROJECT NO. 160553004

**Kimley»Horn**  
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 KATHRYN ELLIS, P.E.  
 DATE: 01/04/19 MN LIC. NO. 55462

**RAMSEY COUNTY**  
 TCAAP PUBLIC INFRASTRUCTURE IMPROVEMENTS  
 BRIDGE 62653  
 B-DETAILS

CITY PROJECT	SHEET NO. <b>BR15</b>
COUNTY PROJECT	
S.A.P. 062-593-004	<b>BR15</b>
S.A.P.	