

MINNESOTA DEPARTMENT OF TRANSPORTATION LYON COUNTY

CONSTRUCTION PLAN FOR BRIDGE NO. 42568

LOCATED 1.0 MILES N. OF JCT. C.S.A.H. 8 ON C.R. 67 OVER THREE MILE CREEK,
6.7 MILES N. OF MARSHALL, MN (Geographical Description)

SEC. 2 TWP. 112 N R 41 W (Legal Description)
STATE AID PROJ. NO. 042-598-043

GROSS LENGTH	82.67 FEET	0.016 MILES
BRIDGES-LENGTH	82.67 FEET	0.016 MILES
EXCEPTIONS-LENGTH	FEET	MILES
NET. LENGTH	82.67 FEET	0.016 MILES

GOVERNING SPECIFICATIONS
THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

LIST OF SHEETS

NO.	TITLE
1	TITLE SHEET
2	GENERAL PLAN & ELEVATION
3	TYPICAL SECTION & QUANTITIES
4	BRIDGE LAYOUT
5-6	ABUTMENT
7-8	PIER
9-11	SUPERSTRUCTURE
12	CONCRETE BARRIER (TYPE F, TL-4)
13-16	MISC. BRIDGE DETAILS
17	BRIDGE SURVEY
18	BRIDGE SURVEY ~ PLAN & PROFILE

THIS PLAN CONTAINS 18 SHEETS.

- PLAN SYMBOLS**
- COUNTY LINE
 - TOWNSHIP OR RANGE LINE
 - SECTION LINE
 - QUARTER LINE
 - SIXTEENTH LINE
 - EXISTING R/W
 - NEW R/W
 - TEMP EASE
 - RAILROAD R/W
 - UNSURFACED RD. OR SHLD.
 - EDGE OF LAKE
 - SWAMP BOUNDARY
 - MISCELLANEOUS BOUNDARY
 - CORPORATE OR CITY LIMITS
 - VACATED PLATTED PROPERTY
 - RECREATIONAL TRAIL
 - ALIGNMENT STATIONS
 - ALIGNMENT POINTS
 - RIVER OR CREEK
 - DRAINAGE DITCH
 - BRIDGE
 - RAILROAD (SINGLE TRACK)
 - RR CROSSING PAVEMENT MARKING
 - RR CROSSING GATE
 - RR CROSSBUCK SIGN
 - RR CROSSBUCK SIGN W/LIGHTS
 - BARBED WIRE FENCE
 - CHAIN LINK FENCE
 - WOVEN WIRE, COMBINATION WOVEN AND BARB
 - WOOD FENCE
 - BILLBOARD
 - RETAINING WALL
 - GUARDRAIL (CABLE)
 - GUARDRAIL (PLATE BEAM)
 - DRAIN TILE
 - CULVERT
 - CULVERT WITH APRONS
 - WOODS OR BRUSH, NURSERY
 - DECIDUOUS TREES
 - CONIFER (EVERGREEN) TREES
 - HEDGE
 - BUSH OR SHRUB
 - STUMP
 - SWAMP OR MARSH
 - MONUMENT (CLACT,ACP,BCP,...)
 - CONCRETE OR STONE MONUMENT
 - IRON PIPE
 - IRON PIN OR REBAR
 - IRON PIN WITH BRASS DISK
 - NAIL, PK NAIL, SPIKE, SFP, T-BAR, ...
 - VERTICAL CONTROL
 - HORIZONTAL CONTROL
 - POWER POLE
 - LIGHT POLE
 - LIGHT AND TELEPHONE POLE
 - LIGHT, TELEPHONE AND POWER POLE
 - GUY POLE
 - POLE ANCHOR
 - TELEPHONE POLE
 - TELEPHONE AND POWER POLE
 - UNDERGROUND CABLE PEDESTAL
 - TELEPHONE MANHOLE (VAULT)
 - ELECTRIC CABLE IN CONDUIT
 - TELEPHONE CABLE IN CONDUIT
 - BURIED ELECTRIC CABLE
 - BURIED TELEPHONE CABLE
 - GAS LINE
 - WATER LINE
 - VALVE
 - FIRE HYDRANT
 - WATER MANHOLE
 - WELL
 - LAWN SPRINKLER HEAD
 - MANHOLE
 - CATCH BASIN
 - SEPTIC TANK
 - FORCE MAIN LIFT STA.
 - SEWER LINE
 - PERMANENT BARRICADE
 - TRAFFIC SIGNAL LIGHT
 - HAND HOLE
 - ENTRANCE
 - BUILDING
 - SATELLITE DISH
 - STEEL TOWER
 - FLAG POLE

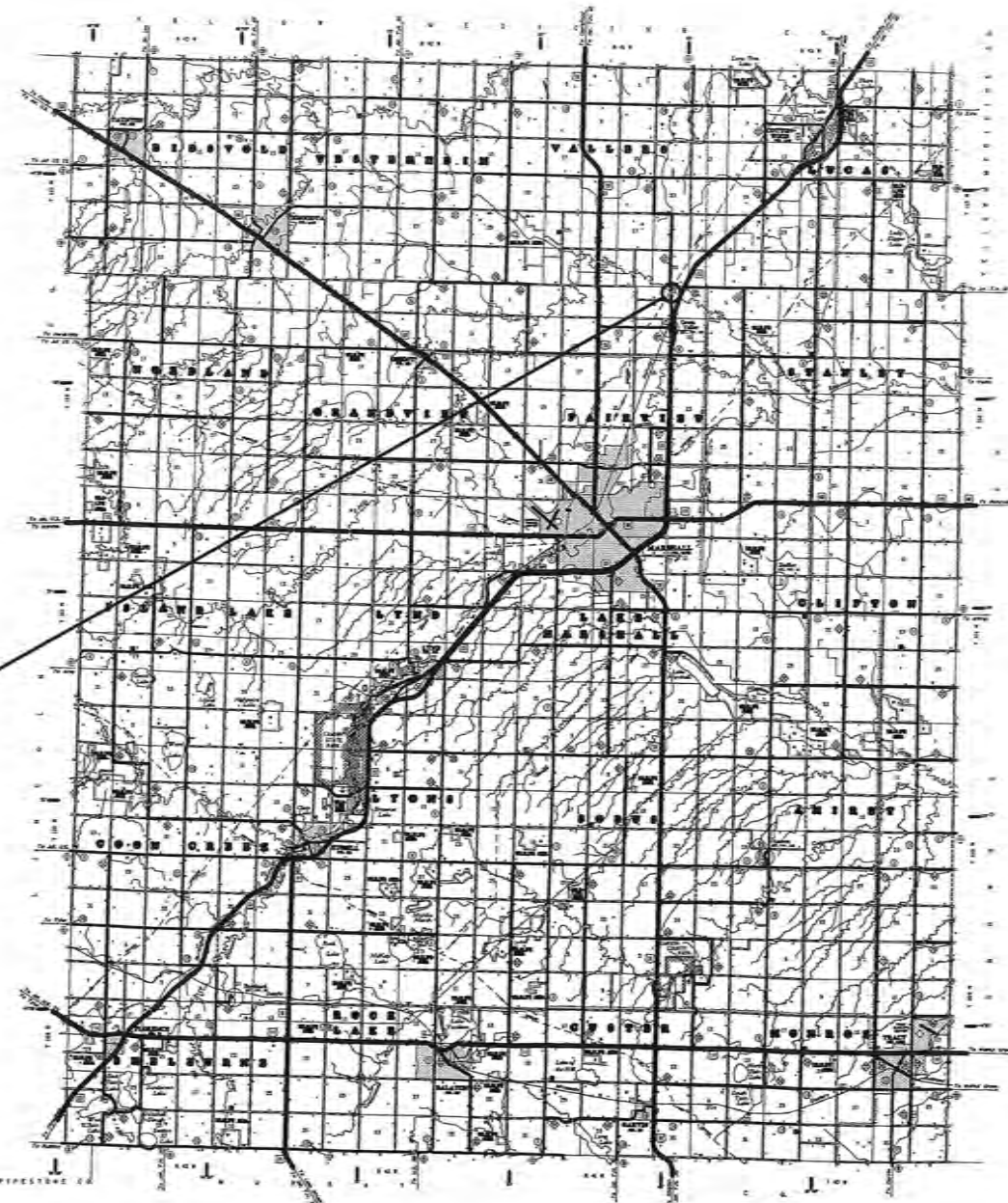


PROP. BRIDGE NO. 42568
S.A.P. 042-598-043
BEG. PROJ. STA. 45+04.67
END PROJ. STA. 45+87.33
EXIST. BRIDGE NO. 5101B
STEEL LOW TRUSS
LENGTH: 61.3'
ROAD WIDTH: 28.0'
YEAR BUILT: 1931
YEAR REMODELED: 1989

PROJECT LOCATION
Outline Map of Minnesota showing location of the County within the State.



SUBSURFACE UTILITY NOTE
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 DESIGNATION FOR:

FUNCTIONAL CLASSIFICATION	C.R. 67
NO. OF TRAFFIC LANES	2
NO. OF PARKING LANES	N/A
DRIVING LANE WIDTH	11'
SHOULDER WIDTH	3'
ADT (CURRENT YEAR) 2013	<50
ADT (PROJECTED YEAR) 2033	<50
PAVEMENT DESIGN	N/A
ESALS (20)	N/A
R=VALUE	N/A
SOIL FACTOR	130%
DESIGN SPEED	55 MPH
BASED ON SIGHT DISTANCE	495'
HEIGHT OF EYE / HEIGHT OF OBJECT	3.5' / 2.0'
DESIGN SPEED NOT ACHIEVED AT:	N/A

Ronald L. Dokken RONALD L. DOKKEN
DESIGN ENGINEER: I HEREBY CERTIFY THAT THIS PLAN (SHEETS 1-18) 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.

DATE 6/27/13 LICENSE NUMBER 13931

Alan Carlson DATE 7/12/13
APPROVED: COUNTY ENGINEER

Nancy Damberger DATE 7/25/13
RECOMMENDED FOR APPROVAL: STATE BRIDGE ENGINEER

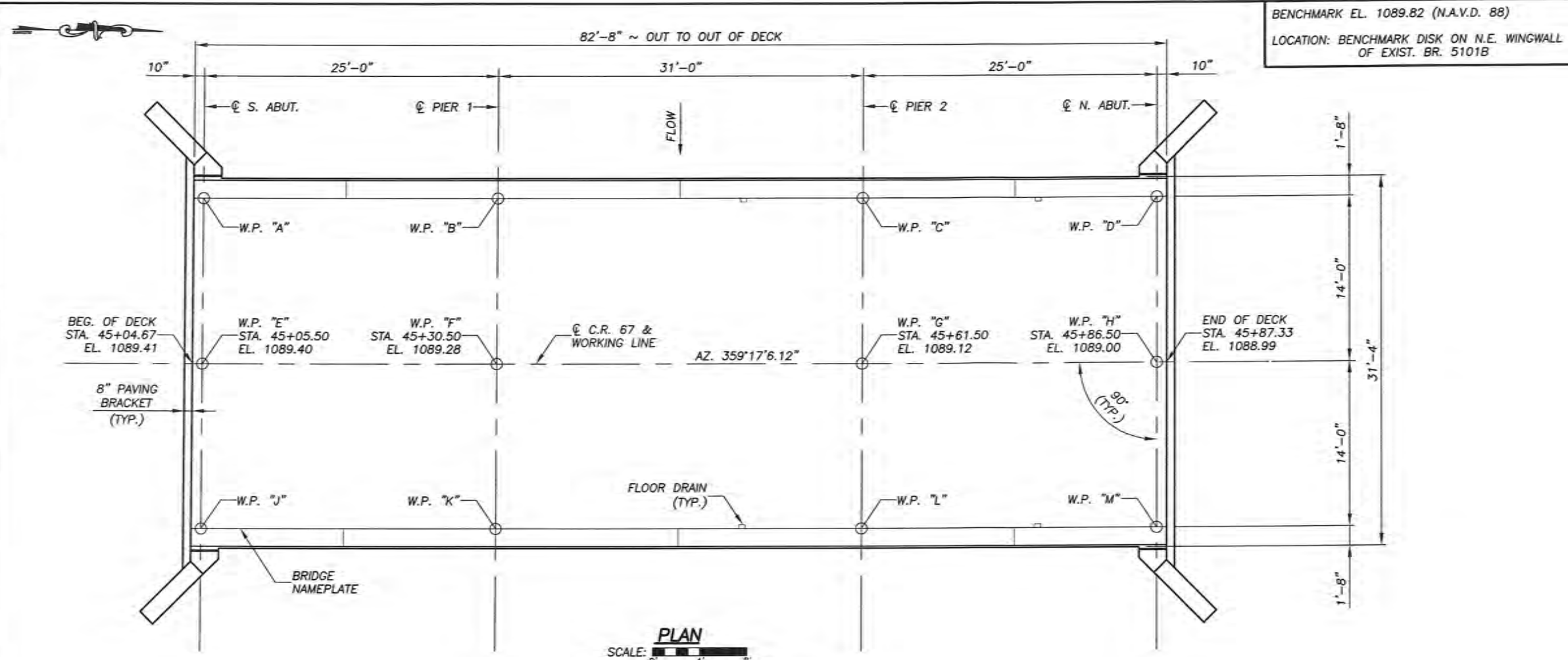
Tom O'Rourke DATE 9/4/13
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY

Tom O'Rourke DATE 1/27/15
APPROVED FOR STATE-AID FUNDING: STATE-AID ENGINEER

ERICKSON ENGINEERING
WWW.ERICKSON-ENG.COM 1-800-545-8020

STATE AID PROJECT NO. 042-598-043
SHEET NO. 1 OF 18 SHEETS

BRIDGE NO. 42568



BENCHMARK EL. 1089.82 (N.A.V.D. 88)
 LOCATION: BENCHMARK DISK ON N.E. WINGWALL OF EXIST. BR. 5101B

DESIGN DATA
 2012 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
 LOAD AND RESISTANCE FACTOR DESIGN METHOD
 HL-93 LIVE LOAD
 DEAD LOAD INCLUDES 20 POUND PER SQUARE FOOT ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE
 $f'_c = 4$ KSI $n = 8$
 $F_y = 60$ KSI REINFORCEMENT
STRUCTURAL STEEL
 $F_y = 36$ KSI SPEC. 3306

DECK AREA = 2,591 SQ. FT. CURRENT ADT (2013) <50
 DESIGN SPEED = 55 MPH PROJ. ADT (2033) <50
 HL 93 LRFR OPERATING RATING RF = 1.69

LIST OF SHEETS

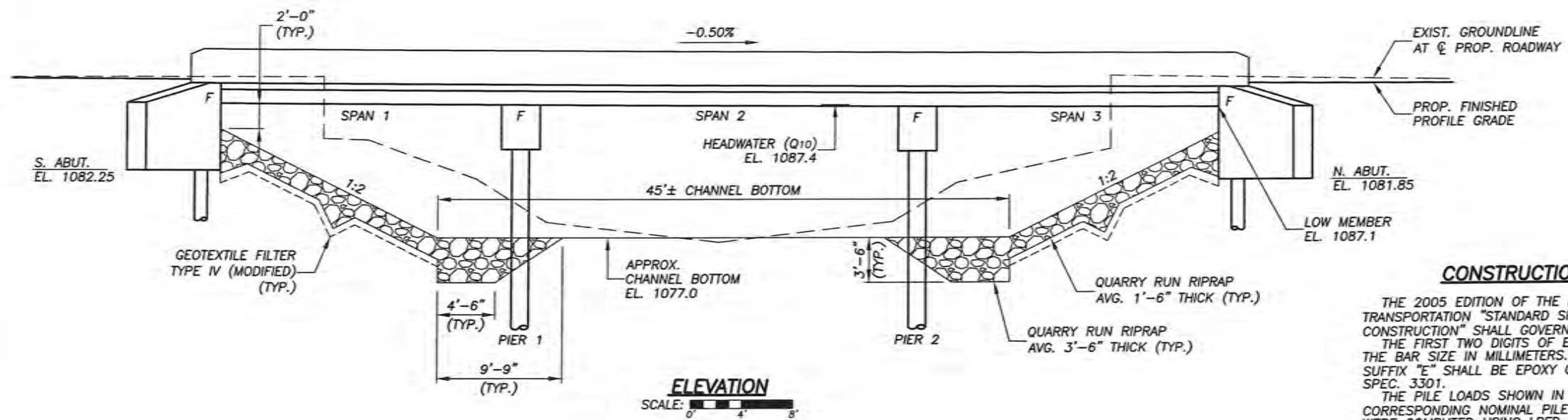
NO.	TITLE
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3	TYPICAL SECTION & QUANTITIES
4	BRIDGE LAYOUT
5-6	ABUTMENT
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9-11	SUPERSTRUCTURE
12	CONCRETE BARRIER (TYPE F, TL-4)
13-16	MISC. BRIDGE DETAILS
17	BRIDGE SURVEY
18	BRIDGE SURVEY ~ PLAN & PROFILE

PLAN
 SCALE: 0" = 4' = 8'

APPROVED: *Han Carter*
 LYON COUNTY ENGINEER
 DATE: 7/12/13

I HEREBY CERTIFY THAT THIS PLAN (SHEETS 1-18) 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.

Ronald L. Dokken
 RONALD L. DOKKEN
 DATE: 4/27/13 LIC. NO. 13931



ELEVATION
 SCALE: 0" = 4' = 8'

CONSTRUCTION NOTES

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
 THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE IN MILLIMETERS. BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.
 THE PILE LOADS SHOWN IN THE PLANS AND 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.
 THE SURVEY USED IN DEVELOPING THIS BRIDGE PLAN MUST BE VERIFIED WITH THE ACTUAL STREAM LOCATION AT THE TIME OF CONSTRUCTION STAKING. IF THE BRIDGE POSITION IS NOT COMPATIBLE WITH THE STREAM, THE ENGINEER SIGNING THESE PLANS SHALL BE NOTIFIED.
 IT IS THE CONTRACTOR'S RESPONSIBILITY TO DISPOSE OF ALL EXCESS EXCAVATED MATERIAL OFF SITE.

NOTE:
 ABUTMENT PILES ARE TO BE 12" C-I-P CONCRETE PILES WITH PILE POINTS.
 PIER PILES ARE TO BE 16" C-I-P CONCRETE PILES WITH PILE POINTS.

ERICKSON ENGINEERING
 9330 JAMES AVENUE SOUTH
 BLOOMINGTON, MN 55431

C.R. 67 LYON COUNTY
 MINNESOTA DEPARTMENT OF TRANSPORTATION

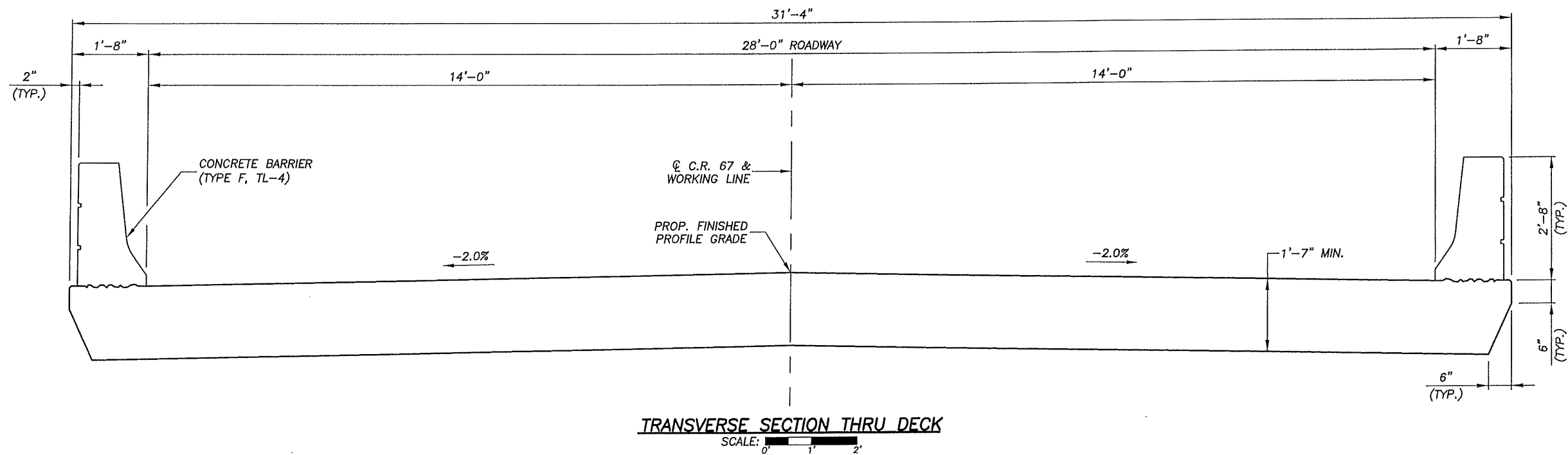
BRIDGE NO. 42568
 LOCATED 1.0 MILES NORTH OF JCT. C.S.A.H. 8 ON C.R. 67 OVER THREE MILE CREEK
 25'-31'-25' CONTINUOUS CONC. SLAB SPANS
 28' ROADWAY ~ 0' SKEW
 SPAN IDENTIFICATION NO. 209

GENERAL PLAN & ELEVATION
 SEC. 2 TWP. 112 N R 41 W

TOWNSHIP: FAIRVIEW
 COUNTY: LYON

APPROVED: *Nancy Daubinger*
 STATE BRIDGE ENGINEER
 DATE: 7/25/13

DES.: DSN	DRN.: CJA	BRIDGE NO. 42568
CHK.: SWE	CHK.: DSN	
S.A.P. 042-598-043		
SHEET 2 OF 18 SHEETS		



SCHEDULE OF QUANTITIES FOR THE ENTIRE BRIDGE				
KEYNOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
	2021.501	MOBILIZATION	LUMP SUM	1
	2401.501	STRUCTURAL CONCRETE (3Y43)	CU. YD.	77 (P)
	2401.512	BRIDGE SLAB CONCRETE (3Y33)	SQ. FT.	2591 (P)
	2401.513	TYPE F (TL-4) RAILING CONCRETE (3Y46)	LIN. FT.	166 (P)
	2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	35950 (P)
	2401.601	SLOPE PREPARATION	LUMP SUM	1
	2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
	2402.521	STRUCTURAL STEEL (3306)	POUND	464 (P)
	2402.546	FLOOR DRAIN TYPE B702 MODIFIED	EACH	4
A, B	2442.501	REMOVE EXISTING BRIDGE	LUMP SUM	1
	2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN. FT.	450
	2452.507	C-I-P CONCRETE PILING DELIVERED 16"	LIN. FT.	560
	2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN. FT.	450
	2452.508	C-I-P CONCRETE PILING DRIVEN 16"	LIN. FT.	560
	2452.519	C-I-P CONCRETE TEST PILE 85 FT. LONG 12"	EACH	2
	2452.519	C-I-P CONCRETE TEST PILE 80 FT. LONG 16"	EACH	2
	2452.529	PILE POINTS 12"	EACH	8
	2452.529	PILE POINTS 16"	EACH	10
	2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
C	2511.504	QUARRY RUN RIPRAP	TON	550

SCHEDULE OF QUANTITIES KEYNOTES:

- A. BR. 5101B ~ STA. 45+46
- B. NON-PARTICIPATING
- C. GEOTEXTILE FILTER TYPE IV (MODIFIED) SHALL BE INCIDENTAL TO "QUARRY RUN RIPRAP", QUARRY RUN RIPRAP SHALL BE CLASS III.

Ronald L. Dokken
 CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN
 LIC. NO. 13931
 3/17/15

DES.: DSN
 CHK.: SWE
 DRN.: CJA
 CHK.: DSN

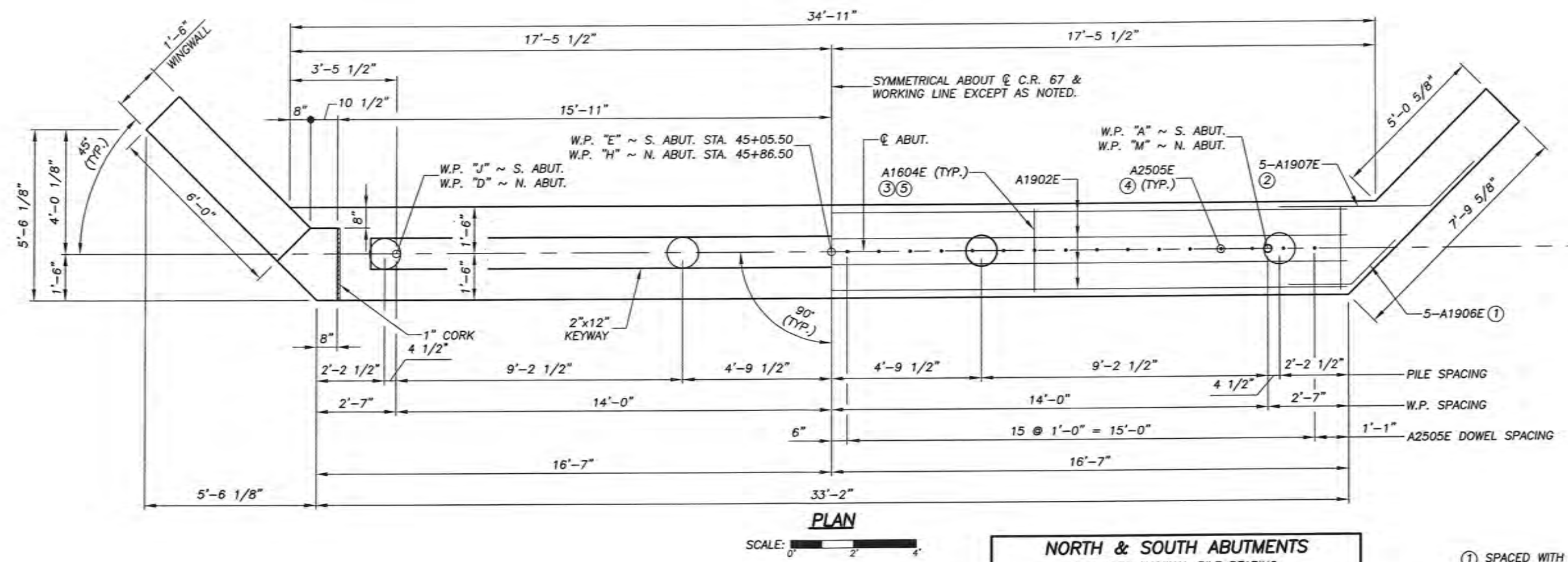
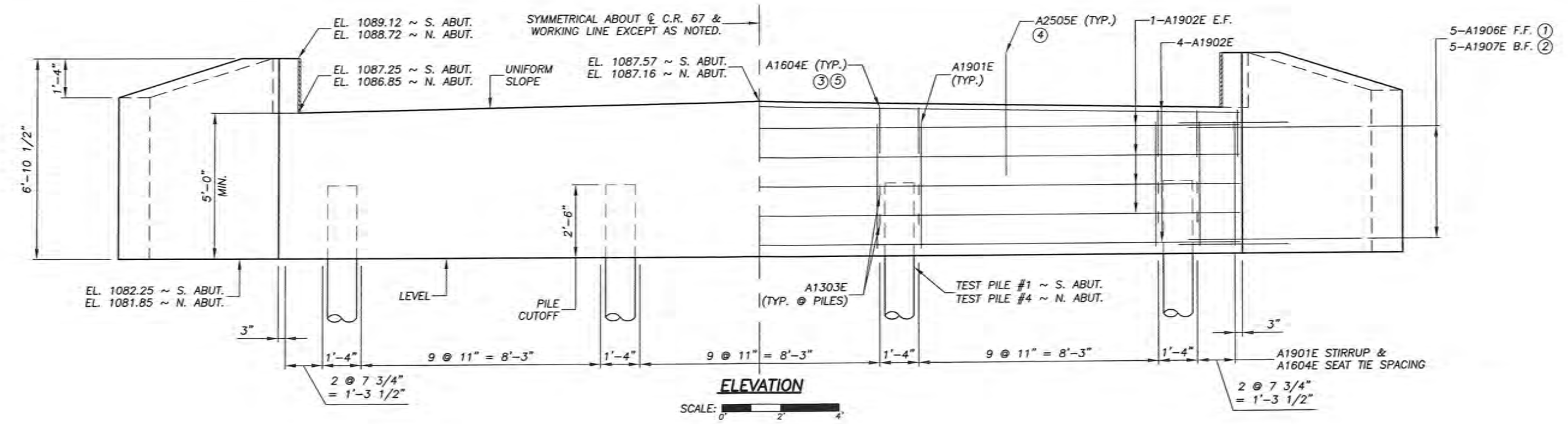
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TYPICAL SECTION
 & QUANTITIES

S.A.P. 042-598-043
 SHEET NO. 3 OF 18 SHEETS

APPROVED:

BRIDGE NO.
 42568



PILE NOTES

- 2 - CAST-IN-PLACE CONCRETE TEST PILES, 85 FT. LONG
- 6 - CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 75 FT.
- 8 - CAST-IN-PLACE CONCRETE PILES REQUIRED FOR TWO ABUTMENTS

ABUTMENT PILES TO HAVE A NOMINAL DIAMETER OF 12".
 FOR PILE SPLICE DETAILS SEE B-DETAIL (B201).
 ALL PILES TO HAVE PILE POINTS.
 PILE SPACING SHOWN IS AT BOTTOM OF CAP.
 SEE SURVEY SHEET FOR TEST PILE LOCATIONS.

NOTE:
 F.F. = FRONT FACE
 B.F. = BACK FACE
 E.F. = EACH FACE

NORTH & SOUTH ABUTMENTS	
COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD	36.7
FACTORED LIVE LOAD	22.9
*FACTORED DESIGN LOAD	59.6

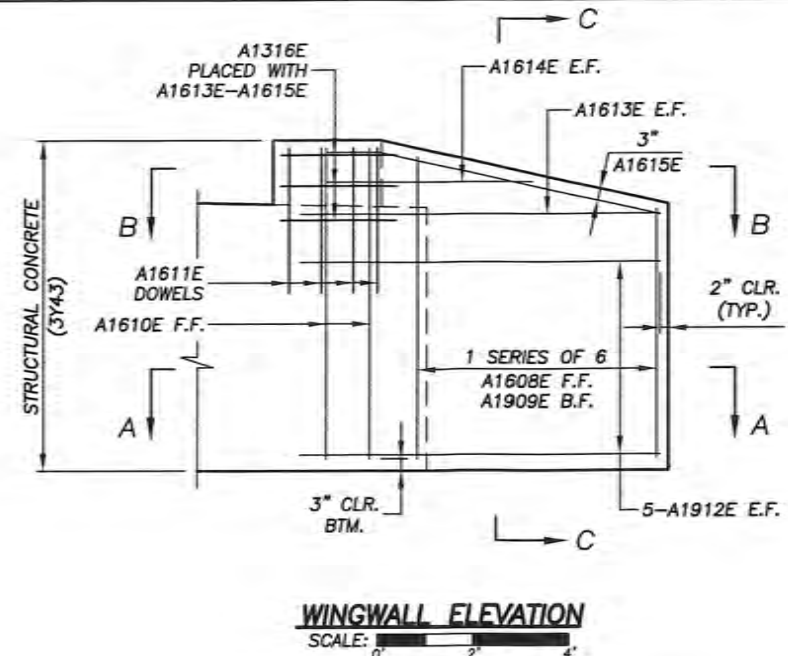
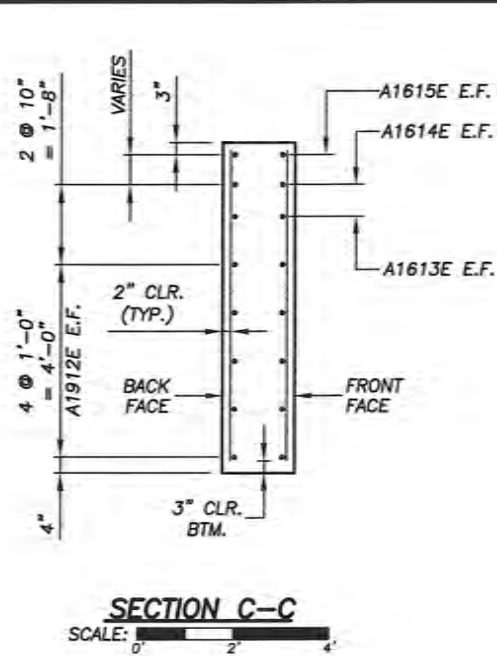
*BASED ON STRENGTH I LOAD COMBINATION.

NORTH & SOUTH ABUTMENTS		
REQUIRED NOMINAL PILE BEARING		
RESISTANCE FOR CIP PILES R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{pn}	* R_n
MnDOT PILE FORMULA 2012 (MPF12)	0.50	119.3
$R_n = 20 \sqrt{\frac{WxH}{1000}} \times \log\left(\frac{10}{S}\right)$		
PDA	0.65	91.7

* $R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{pn}$

- ① SPACED WITH A1902E F.F.
- ② SPACED WITH A1902E B.F.
- ③ PULL UP 2" CLEAR BELOW BEARINGS.
- ④ PLACE HORIZONTAL LEG PARALLEL TO ϕ ROADWAY.
- ⑤ SPACED WITH A1901E

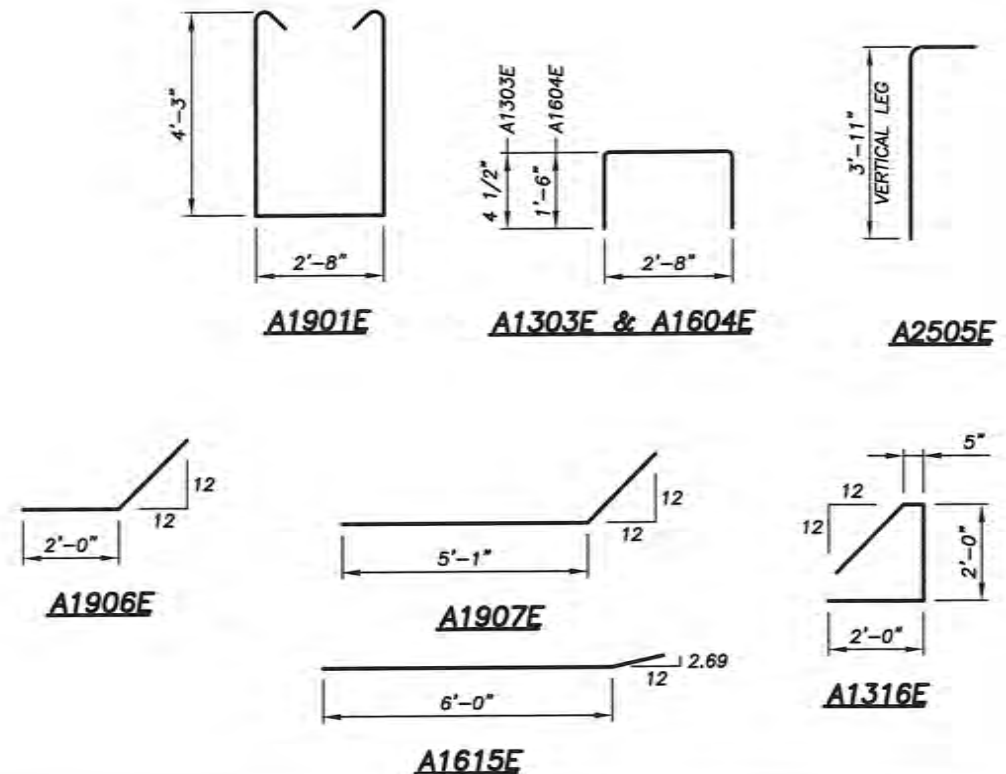
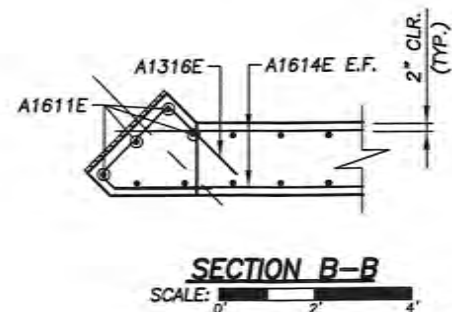
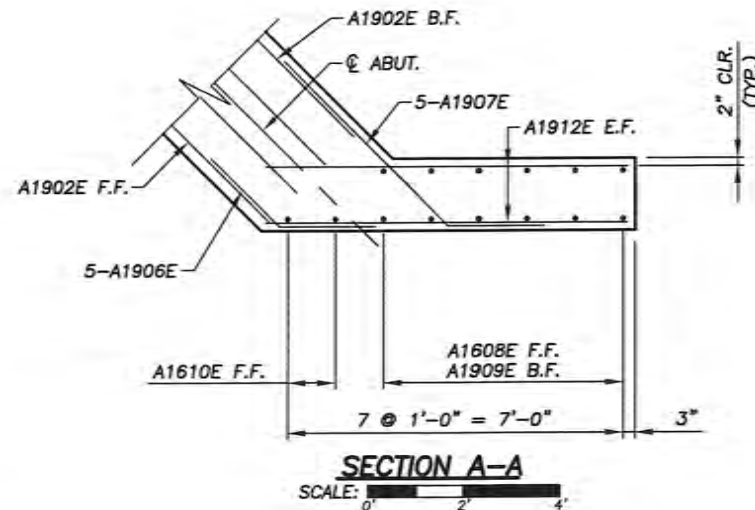
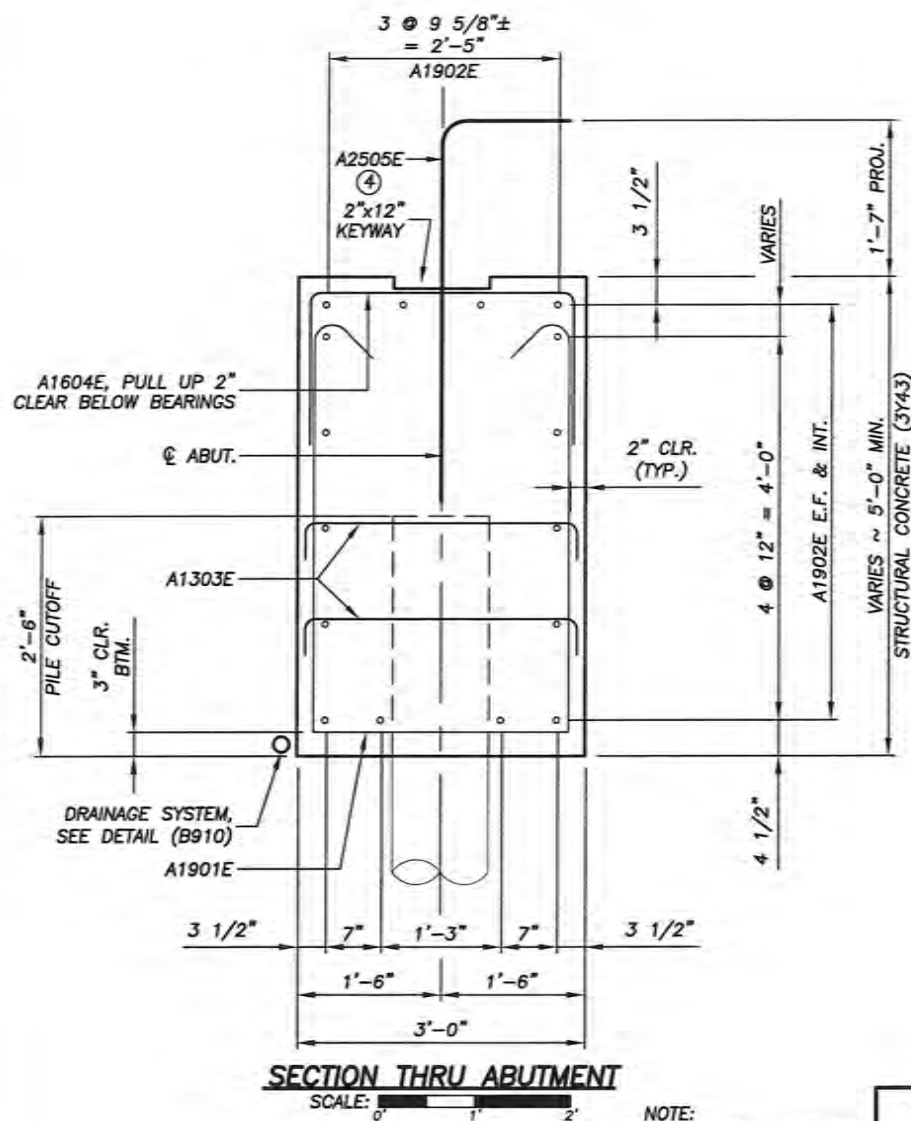
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN LIC. NO. 13931 6/27/13	DES.: DSN CHK.: SWE DRN.: CJA CHK.: DSN	 ERICKSON ENGINEERING WWW.ERICKSON-ENG.COM 1-800-545-8020	ABUTMENT DETAILS	S.A.P. 042-598-043	APPROVED:	BRIDGE NO. 42568
	SHEET NO. 5 OF 18 SHEETS					



BILL OF REINFORCEMENT ~ 2 ABUTMENTS				
BAR	NO.	LENGTH	SHAPE	LOCATION
A1901E	72	12'-6"	BENT	CAP ~ STIRRUP
A1902E	32	33'-1"	STRT.	CAP ~ HORIZONTAL
A1303E	32	3'-5"	BENT	CAP ~ PILE TIE
A1604E	72	5'-8"	BENT	CAP ~ SEAT TIE
A2505E	64	5'-3"	BENT	CAP ~ DOWEL
A1906E	20	4'-0"	BENT	CAP ~ F.F. TIE @ CORNERS
A1907E	20	7'-1"	BENT	CAP ~ B.F. TIE @ CORNERS
A1608E	4 SER. OF 6	FROM 5'-2" TO 6'-3"	STRT.	WINGWALL ~ VERTICAL F.F.
A1909E	4 SER. OF 6	FROM 5'-2" TO 6'-3"	STRT.	WINGWALL ~ VERTICAL B.F.
A1610E	8	6'-5"	STRT.	WINGWALL ~ VERTICAL F.F.
A1611E	16	3'-4"	STRT.	WINGWALL ~ DOWEL
A1912E	40	7'-4"	STRT.	WINGWALL ~ HORIZONTAL
A1613E	8	7'-4"	STRT.	WINGWALL ~ HORIZONTAL
A1614E	8	4'-4"	STRT.	WINGWALL ~ HORIZONTAL
A1615E	8	7'-1"	BENT	WINGWALL ~ DIAGONAL
A1316E	12	6'-5"	BENT	WINGWALL ~ TIE

SUMMARY OF QUANTITIES ~ 2 ABUTMENTS	
STRUCTURAL CONCRETE (3Y43)	49 CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	5810 POUND
①② STRUCTURE EXCAVATION	1 LUMP SUM
③ C.I.P. CONCRETE PILING DELIVERED 12"	450 LIN. FT.
③ C.I.P. CONCRETE PILING DRIVEN 12"	450 LIN. FT.
C.I.P. CONCRETE TEST PILE 85 FT. LONG 12"	2 EACH
① PILE POINTS 12"	8 EACH
① DRAINAGE SYSTEM TYPE (B910)	1 LUMP SUM

- ① SEE SPECIAL PROVISIONS.
- ② BACKFILL BEHIND ABUTMENTS SHALL BE SELECT GRANULAR BORROW, PER SPEC. 3149.2B2 MODIFIED TO LESS THAN 10% PASSING THE #200 SIEVE. SEE SURVEY SHEET FOR PLACEMENT LIMITS. APPROXIMATE QUANTITY (CY) IS 195 CU. YD. INCLUDED IN PRICE BID FOR STRUCTURE EXCAVATION. BACKFILL DENSITY SHALL BE ATTAINED BY THE QUALITY COMPACTION METHOD IN ACCORDANCE WITH SPEC. 2105.3F2.
- ③ DOES NOT INCLUDE TEST PILES.
- ④ PLACE HORIZONTAL LEG PARALLEL TO & ROADWAY.



NOTE:
 F.F. = FRONT FACE
 B.F. = BACK FACE
 E.F. = EACH FACE

Ronald L. Dokken
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
 LIC. NO. 13931

DES.: DSN
 CHK.: SWE
 DRN.: CJA
 CHK.: DSN

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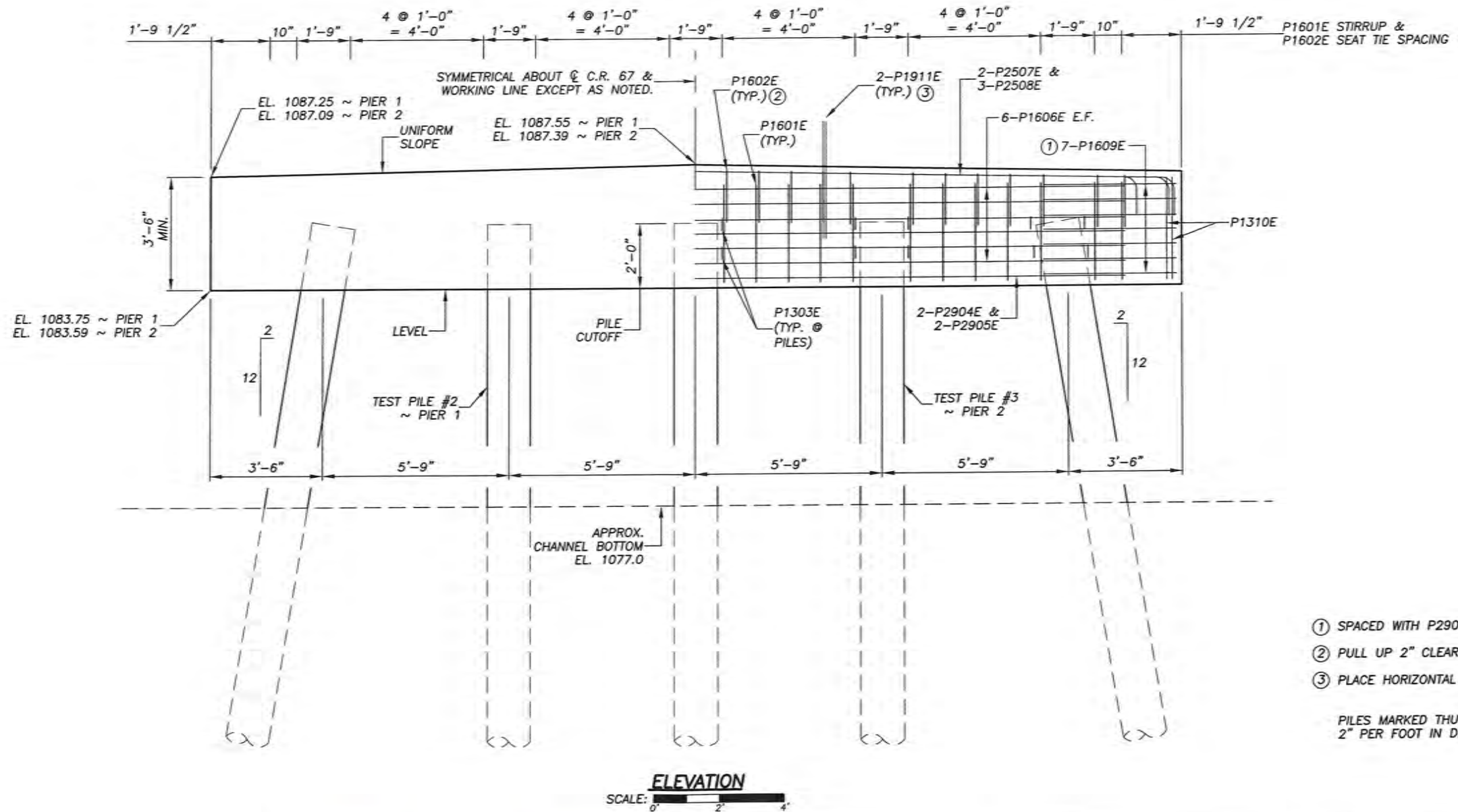
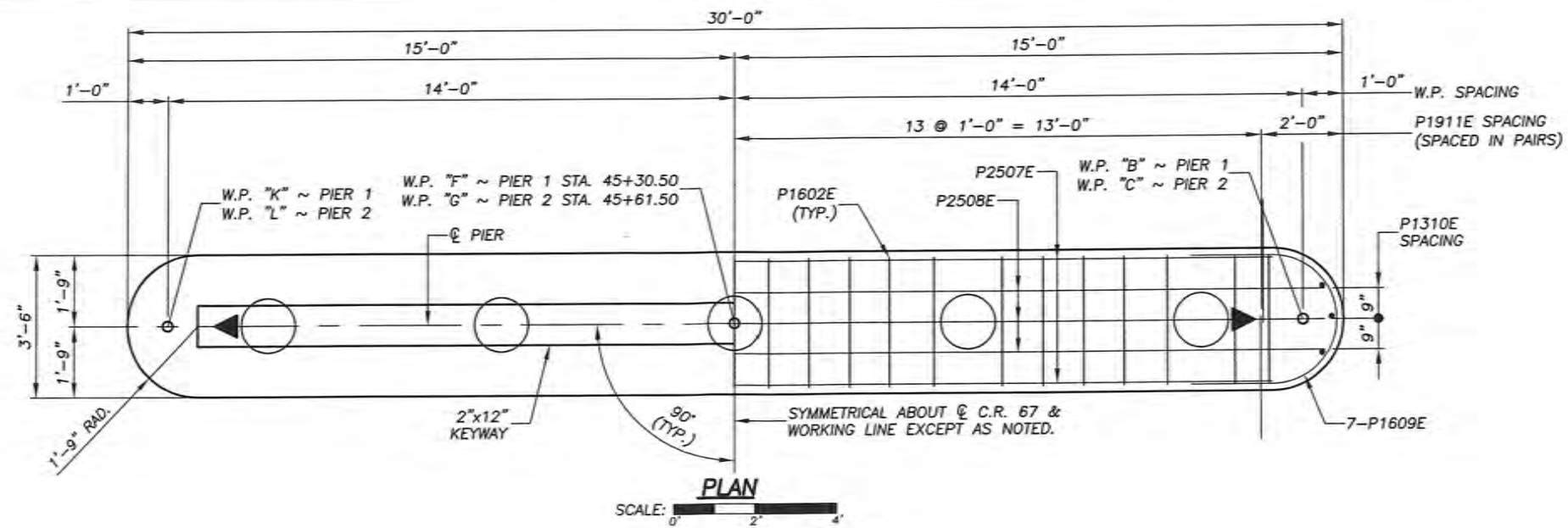
ABUTMENT DETAILS

S.A.P. 042-598-043

APPROVED:

SHEET NO. 6 OF 18 SHEETS

BRIDGE NO.
 42568



- ① SPACED WITH P2904E & P1606E.
- ② PULL UP 2" CLEAR BELOW BEARINGS.
- ③ PLACE HORIZONTAL LEG PARALLEL TO C ROADWAY.

PILES MARKED THIS TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.

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Ronald L. Dokken
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
 LIC. NO. 13931

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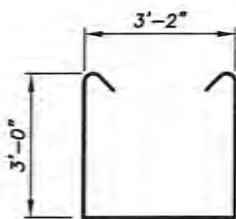
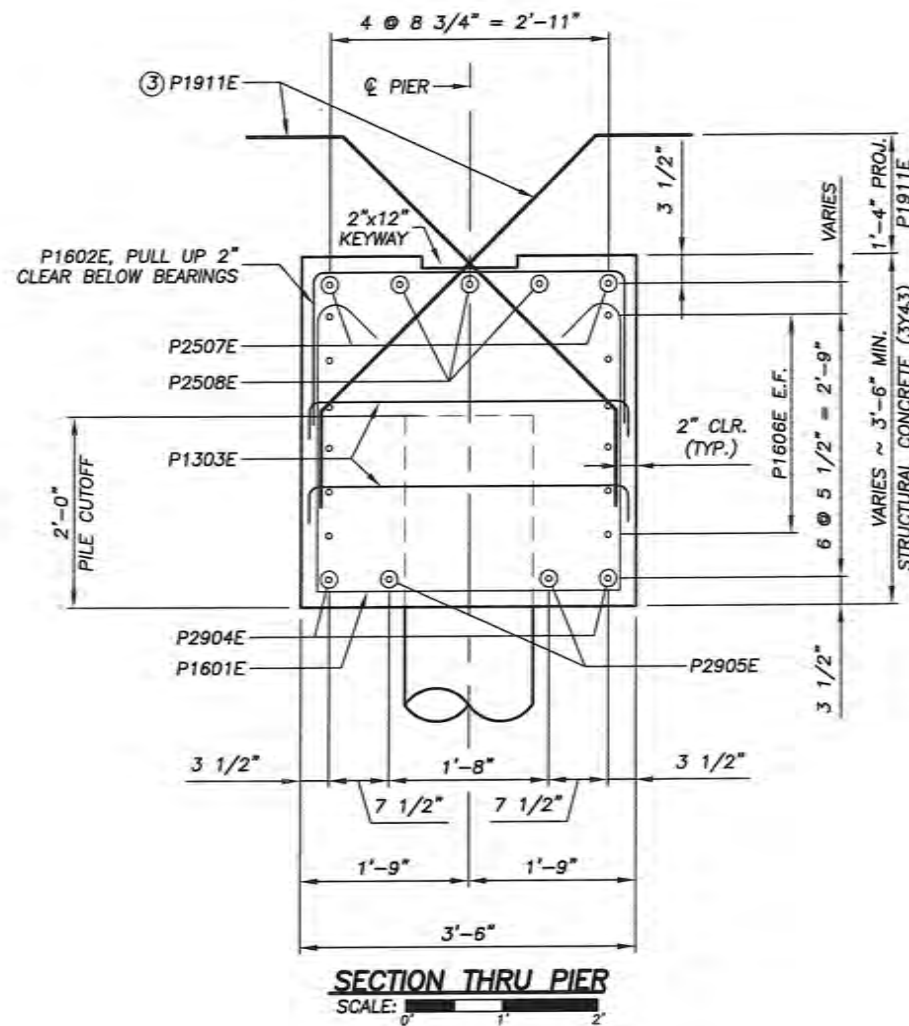
PIER DETAILS

S.A.P. 042-598-043

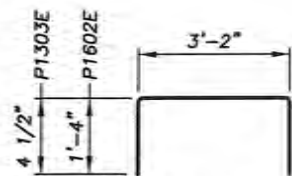
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SHEET NO. 7 OF 18 SHEETS

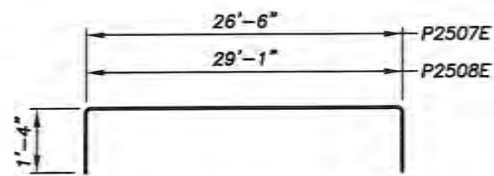
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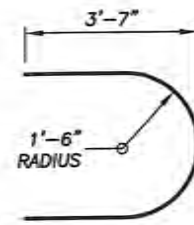
P1601E



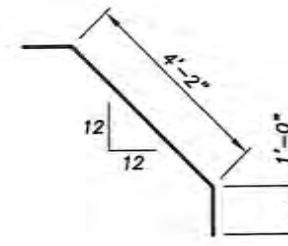
P1602E & P1303E



P2507E & P2508E



P1609E



P1911E

BILL OF REINFORCEMENT ~ 2 PIERS

BAR	NO.	LENGTH	SHAPE	LOCATION
P1601E	48	10'-1"	BENT	CAP ~ STIRRUP
P1602E	48	5'-10"	BENT	CAP ~ SEAT TIE
P1303E	40	3'-11"	BENT	CAP ~ PILE TIE
P2904E	4	26'-6"	STRT.	CAP ~ BOT. LONGITUDINAL
P2905E	4	29'-1"	STRT.	CAP ~ BOT. LONGITUDINAL
P1606E	24	26'-6"	STRT.	CAP ~ SIDE LONGITUDINAL
P2507E	4	29'-2"	BENT	CAP ~ TOP LONGITUDINAL
P2508E	6	31'-9"	BENT	CAP ~ TOP LONGITUDINAL
P1609E	28	8'-11"	BENT	CAP ~ END TIE
P1310E	12	3'-1"	STRT.	CAP ~ END VERTICAL
P1911E	108	6'-2"	BENT	CAP ~ DOWEL

SUMMARY OF QUANTITIES ~ 2 PIERS

STRUCTURAL CONCRETE (3Y43)	28 CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	4430 POUND
② C.I.P. CONCRETE PILING DELIVERED 16"	560 LIN. FT.
② C.I.P. CONCRETE PILING DRIVEN 16"	560 LIN. FT.
① C.I.P. CONCRETE TEST PILE 80 FT. LONG 16"	2 EACH
① PILE POINTS 16"	10 EACH

- ① SEE SPECIAL PROVISIONS.
- ② DOES NOT INCLUDE TEST PILES.
- ③ PLACE HORIZONTAL LEG PARALLEL TO @ ROADWAY.

PIERS EAST & WEST

COMPUTED PILE LOAD - TONS/PILE

FACTORED DEAD LOAD	42.3
FACTORED LIVE LOAD	44.0
*FACTORED DESIGN LOAD	86.3

*BASED ON STRENGTH I LOAD COMBINATION.

PIERS EAST & WEST

REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R_n - TONS/PILE

FIELD CONTROL METHOD	ϕ_{ψ_m}	* R_n
MnDOT PILE FORMULA 2012 (MPF12)	0.50	172.6
$R_n = 20 \sqrt{\frac{WxH}{1000}} \times \log\left(\frac{10}{S}\right)$		
PDA	0.65	132.8

* $R_n = (\text{FACTORED DESIGN LOAD}) / \phi_{\psi_m}$

PILE NOTES

- 2 - CAST-IN-PLACE CONCRETE TEST PILES, 80 FT. LONG
- 8 - CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 70 FT.
- 10 - CAST-IN-PLACE CONCRETE PILES REQUIRED FOR TWO PIERS

ABUTMENT PILES TO HAVE A NOMINAL DIAMETER OF 16".

FOR PILE SPLICE DETAILS SEE B-DETAIL (B201).

ALL PILES TO HAVE PILE POINTS.

PILE SPACING SHOWN IS AT BOTTOM OF CAP.

END PILES SHALL BE BATTERED 2" PER FOOT IN DIRECTION SHOWN ON SHEET 7.

ALL PIER PILES SHALL BE DRIVEN TO THE REQUIRED NOMINAL PILE BEARING RESISTANCE, R_n , AS INDICATED IN THE TABLE AND TO ELEVATION 1059.3 OR BELOW.

SEE SURVEY SHEET FOR TEST PILE LOCATIONS.

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

DESIGNED BY: *Ronald L. Dokken*
CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
LIC. NO. 13931

DES.: DSN
CHK.: SWE
DRN.: CJA
CHK.: DSN

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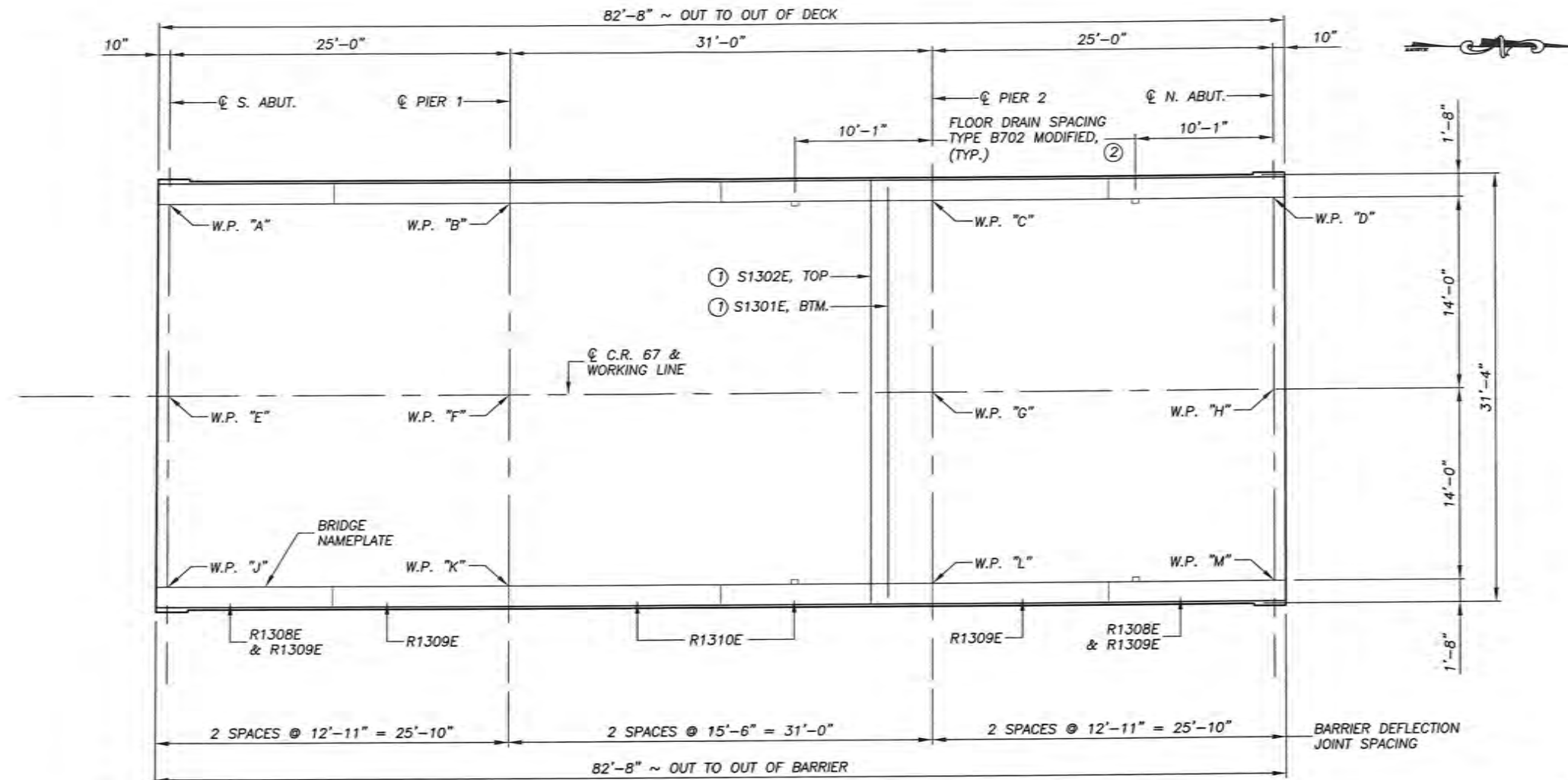
PIER DETAILS

S.A.P. 042-598-043

APPROVED:

SHEET NO. 8 OF 18 SHEETS

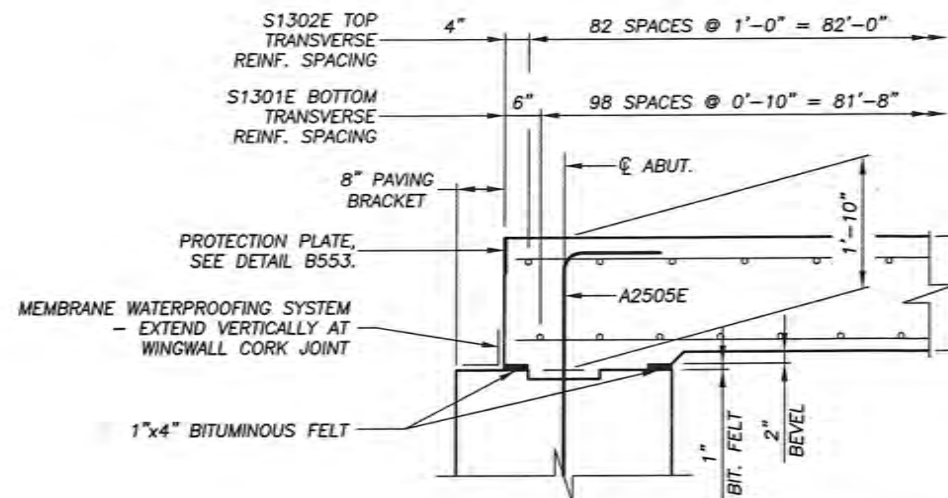
BRIDGE NO. 42568



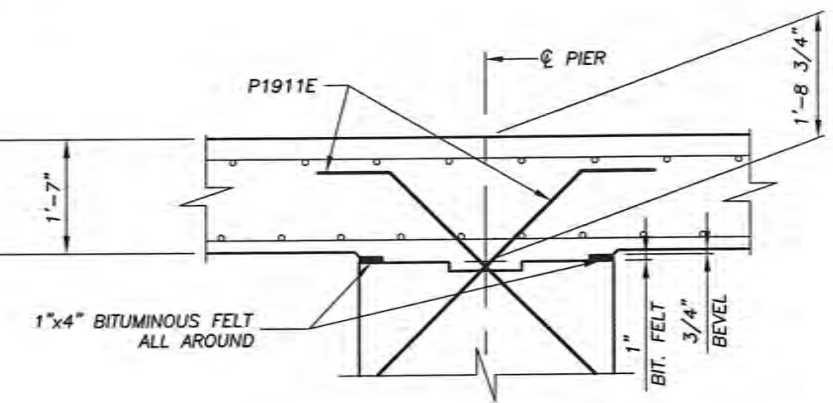
DECK PLAN
SCALE: 0" 4" 8"

NOTES

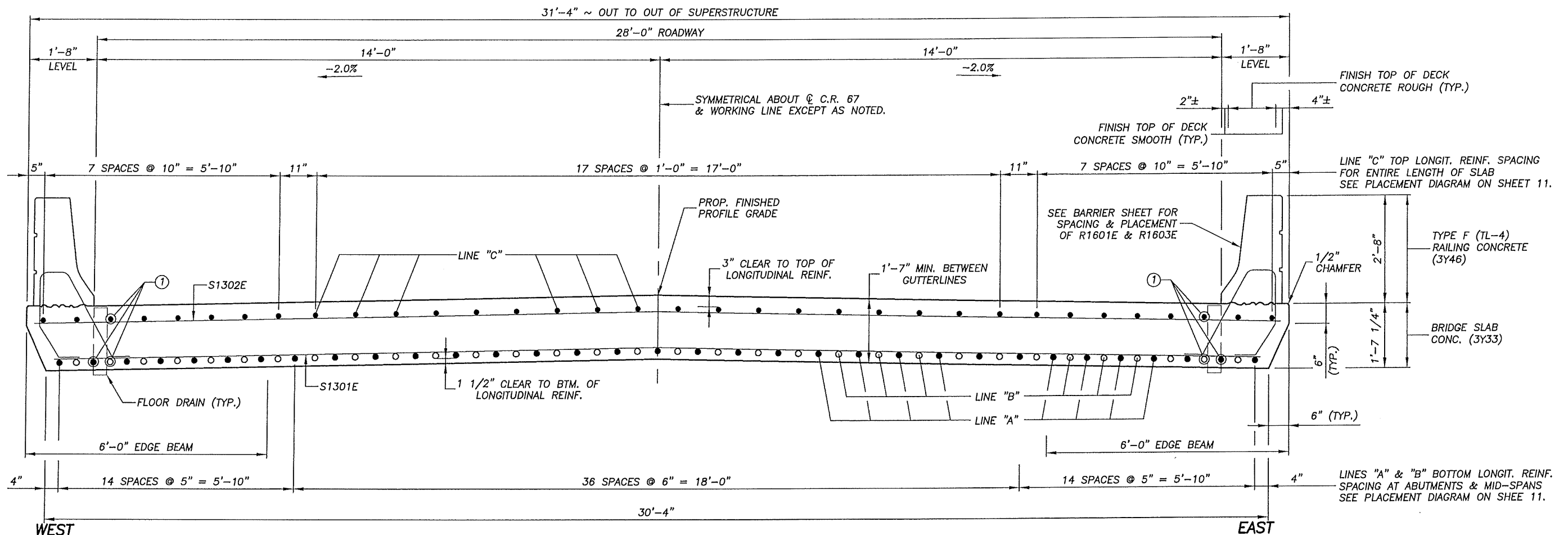
- ① ADJUST S1301E & S1302E LOCATION A MINIMAL AMOUNT AS NEEDED TO MAINTAIN 2" CLEAR FROM FLOOR DRAINS. SEE THIS SHEET FOR SPACING AND SEE SHEET 10 FOR PLACEMENT OF LONGITUDINAL REINFORCEMENT.
- ② SEE DETAIL B702 (MODIFIED) FOR FLOOR DRAIN DETAILS.



LONGITUDINAL SECTION AT ABUTMENT
SCALE: 0" 1" 2"



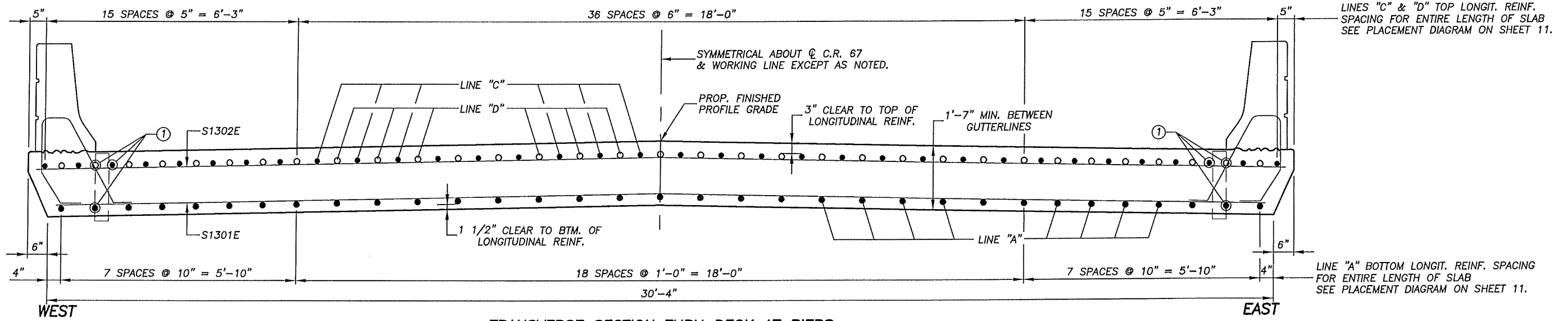
LONGITUDINAL SECTION AT PIER
SCALE: 0" 1" 2"



TRANSVERSE SECTION THRU DECK AT ABUTMENTS & MID-SPAN

SCALE: 0 1 2

① TRANSVERSELY SHIFT BARS A MINIMAL AMOUNT NEEDED TO MAINTAIN 2" CLEAR FROM FLOOR DRAINS.



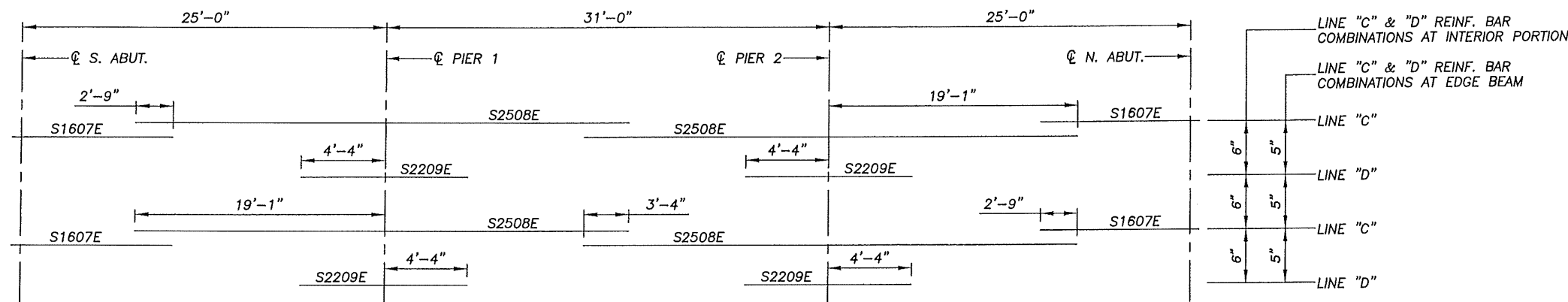
TRANSVERSE SECTION THRU DECK AT PIERS

SCALE: 0 1 2

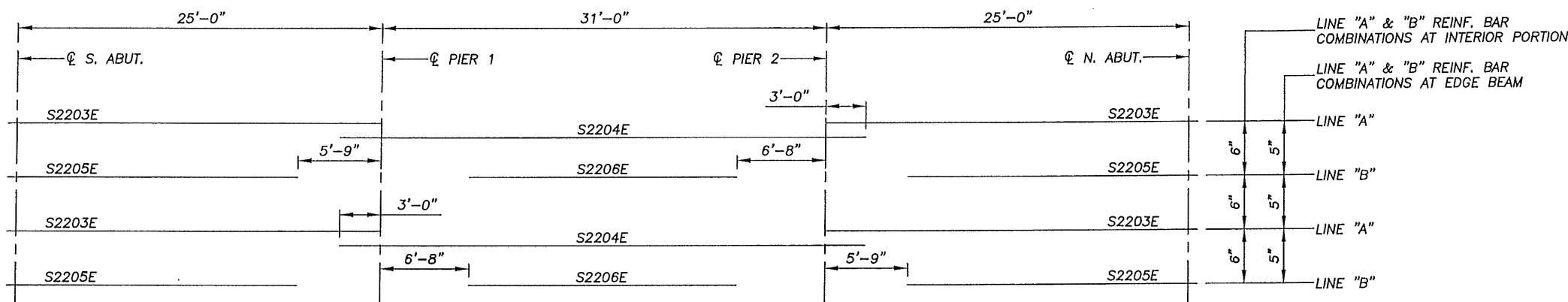
LINE "A" REINF. CONSISTS OF: 2-S2203E & 1-S2204E
 LINE "B" REINF. CONSISTS OF: 2-S2205E & 1-S2206E
 LINE "C" REINF. CONSISTS OF: 2-S1607E & 2-S2508E
 LINE "D" REINF. CONSISTS OF: 2-S2209E

NOTE: RAILING CONCRETE SHALL NOT BE PLACED WHILE SLAB IS SUPPORTED ON FALSEWORK.

 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN LIC. NO. 13931 3/17/15	DES.: DSN CHK.: SWE DRN.: CJA CHK.: DSN	 ERICKSON ENGINEERING WWW.ERICKSON-ENG.COM 1-800-545-8020	SUPERSTRUCTURE DETAILS	S.A.P. 042-598-043	APPROVED:	BRIDGE NO. 42568
	SHEET NO. 10 OF 18 SHEETS					

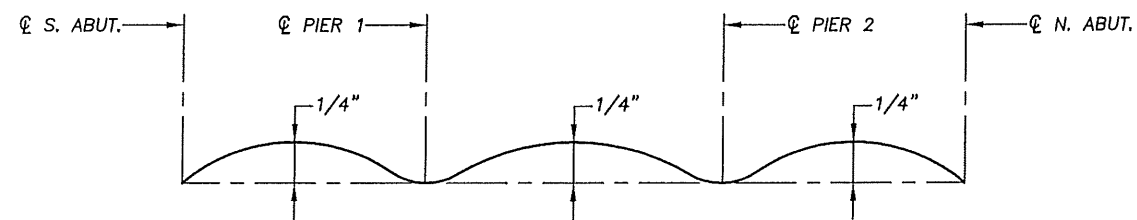


TOP LONGITUDINAL REINFORCEMENT



BOTTOM LONGITUDINAL REINFORCEMENT

PLACEMENT DIAGRAMS FOR TOP & BOTTOM LONGITUDINAL REINFORCEMENT



NOTE: THE ABOVE DIAGRAM SHOWS THE CAMBER REQUIRED FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION AND DOES NOT ACCOUNT FOR SETTLEMENT OF FORMS.

CAMBER DIAGRAM

BILL OF REINFORCEMENT ~ SUPERSTRUCTURE				
BAR	NO.	LENGTH	SHAPE	LOCATION
S1301E	99	30'-0"	STRT.	SLAB ~ BOTTOM TRANSVERSE
S1302E	83	30'-11"	STRT.	SLAB ~ TOP TRANSVERSE
S2203E	66	25'-8"	STRT.	SLAB ~ BOTTOM LONGITUDINAL
S2204E	33	37'-0"	STRT.	SLAB ~ BOTTOM LONGITUDINAL
S2205E	64	19'-11"	STRT.	SLAB ~ BOTTOM LONGITUDINAL
S2206E	32	17'-8"	STRT.	SLAB ~ BOTTOM LONGITUDINAL
S1607E	68	9'-4"	STRT.	SLAB ~ TOP LONGITUDINAL
S2508E	68	36'-3"	STRT.	SLAB ~ TOP LONGITUDINAL
S2209E	66	8'-8"	STRT.	SLAB ~ TOP LONGITUDINAL

LIST OF PREFORMED JOINT FILLERS			
TYPE	LIN. FT.	SIZE	LOCATION
②③ BIT. FELT	128	1"x4"	PIER SEAT
②③ BIT. FELT	128	1"x4"	ABUTMENT SEAT
②③ CORK	8	1"x28"	ABUTMENT RECESS
②④ CORK	19	1"x13"	BARRIER DEFLECTION JOINTS

SUMMARY OF QUANTITIES ~ SUPERSTRUCTURE	
⑤ BRIDGE SLAB CONCRETE (3Y33)	2591 SQ. FT.
⑥ TYPE F (TL-4) RAILING CONCRETE (3Y46)	166 LIN. FT.
REINFORCEMENT BARS (EPOXY COATED)	25710 POUND
STRUCTURAL STEEL (3306)	464 POUND
⑦ PROTECTION PLATE (SEE DETAIL B553)	
FLOOR DRAIN TYPE B702 (MODIFIED)	4 EACH
④ BRIDGE NAMEPLATE (SEE DETAIL B101)	1 EACH
③ MEMBRANE WATERPROOFING SYSTEM	72 LIN. FT.

- ① INCLUDES BARRIER QUANTITIES.
- ② SEE SPECIAL PROVISIONS.
- ③ PAYMENT SHALL BE CONSIDERED INCIDENTAL TO "BRIDGE SLAB CONCRETE (3Y33)".
- ④ PAYMENT SHALL BE CONSIDERED INCIDENTAL TO "TYPE F (TL-4) RAILING CONCRETE (3Y46)".
- ⑤ "BRIDGE SLAB CONCRETE (3Y33)" VOLUME IS APPROXIMATELY 153 CUBIC YARDS.
- ⑥ "TYPE F (TL-4) RAILING CONCRETE (3Y46)" VOLUME IS APPROXIMATELY 18 CU. YDS.
- ⑦ INCLUDED IN WEIGHT OF "STRUCTURAL STEEL (3306)".

DESIGNED BY: *Ronald L. Dokken*
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
 LIC. NO. 13931 3/17/15

DES.: DSN
 CHK.: SWE
 DRN.: CJA
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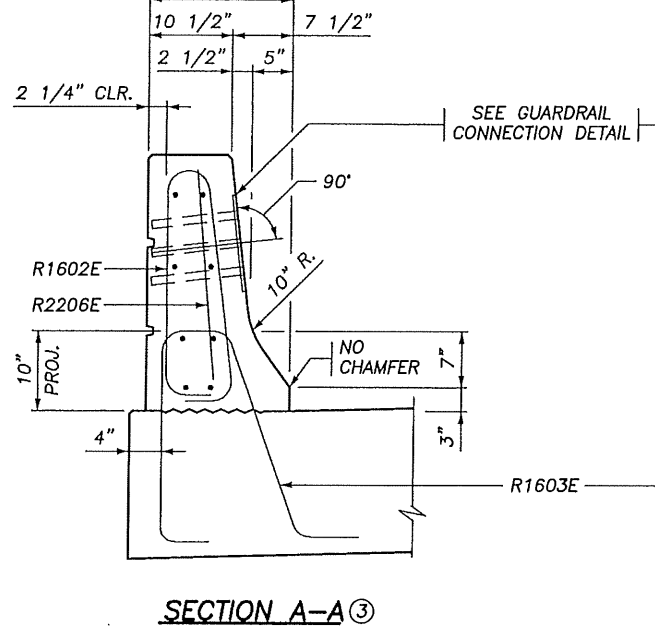
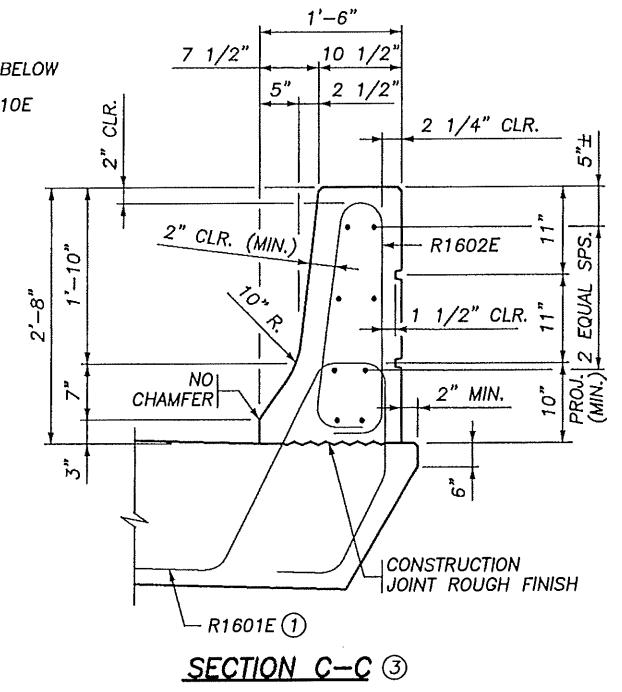
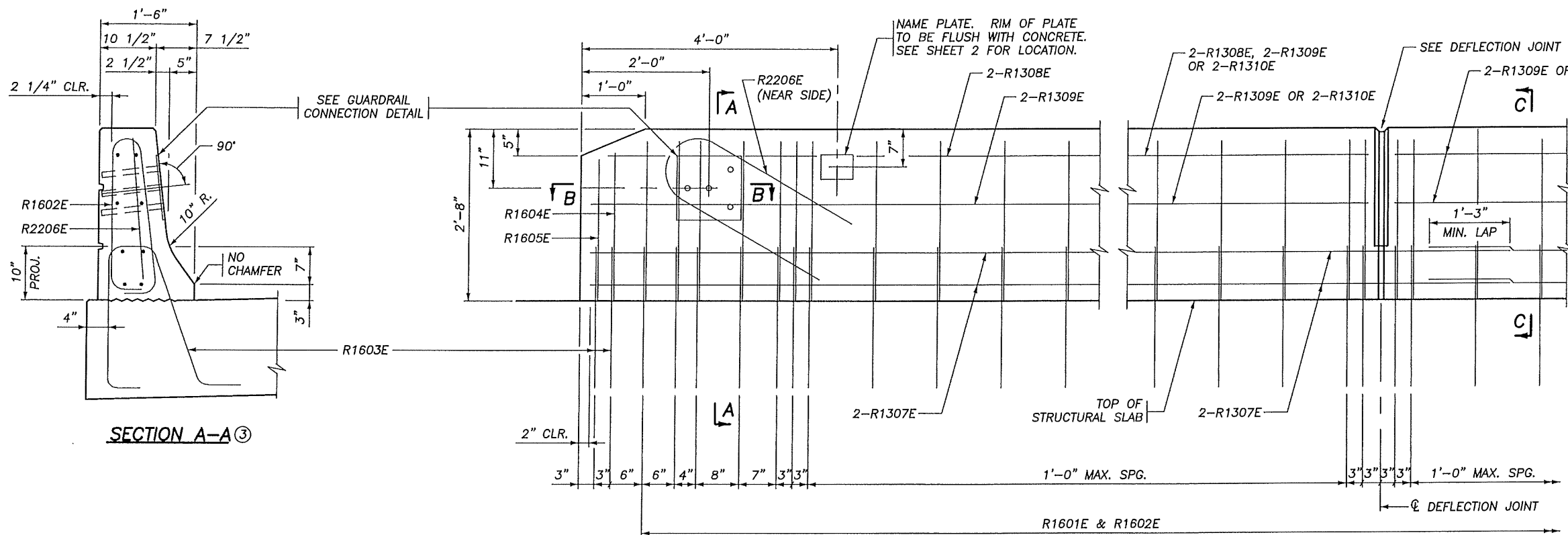
SUPERSTRUCTURE DETAILS

S.A.P. 042-598-043

APPROVED:

SHEET NO. 11 OF 18 SHEETS

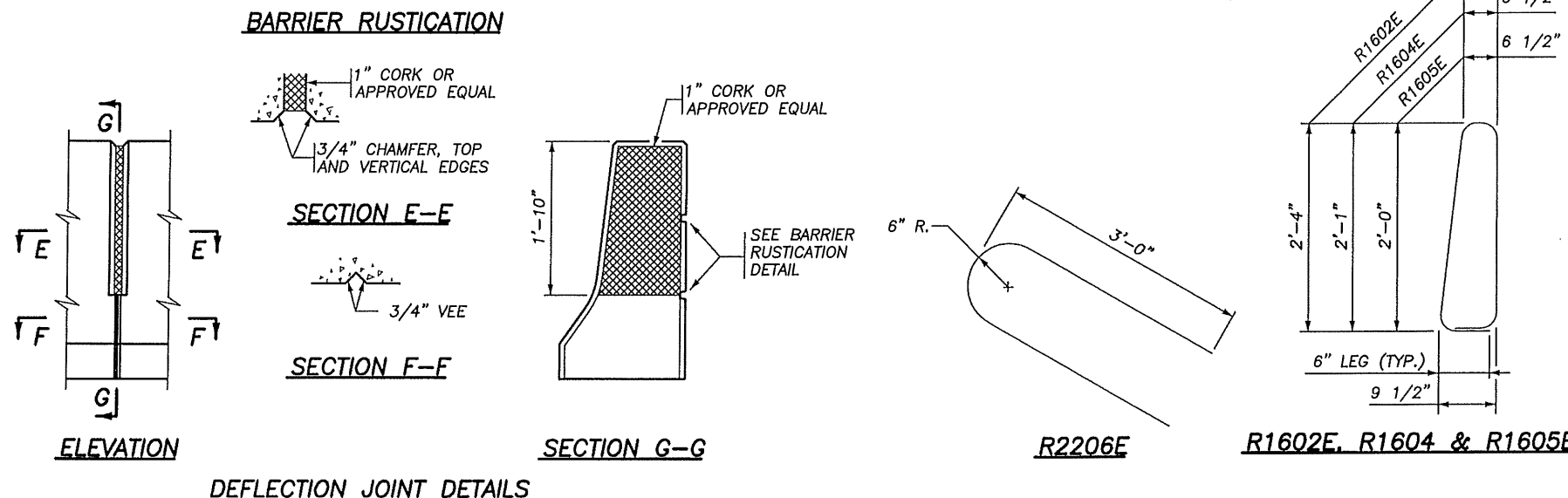
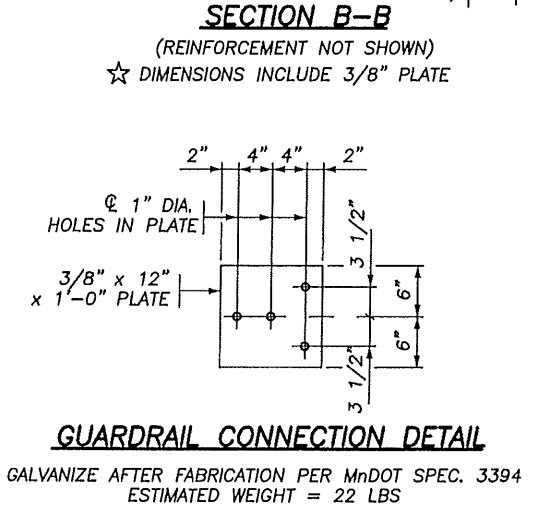
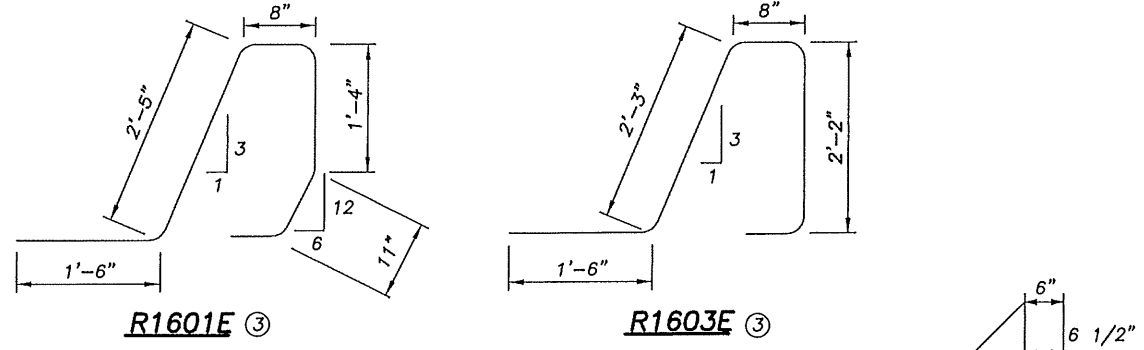
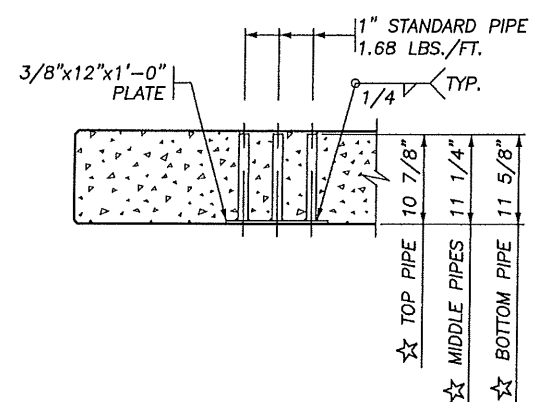
BRIDGE NO. 42568



BILL OF REINFORCEMENT FOR BARRIER

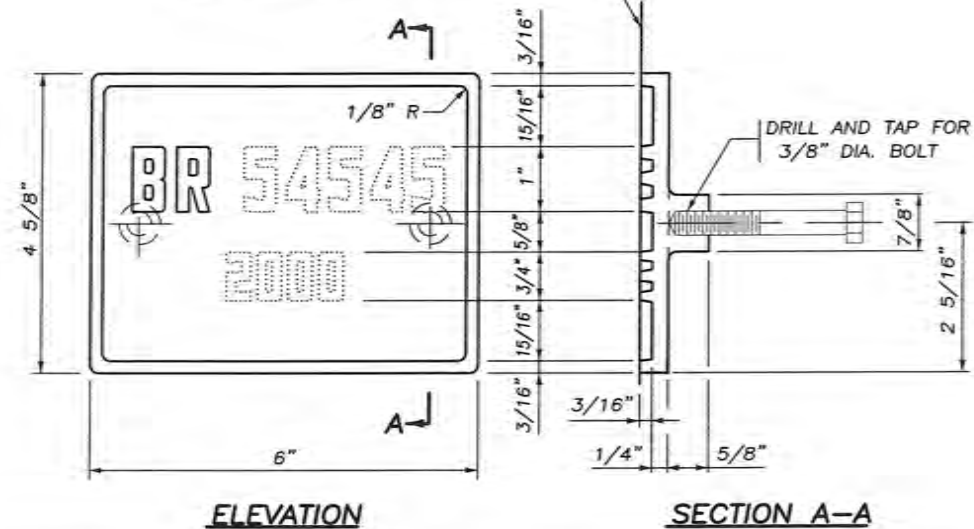
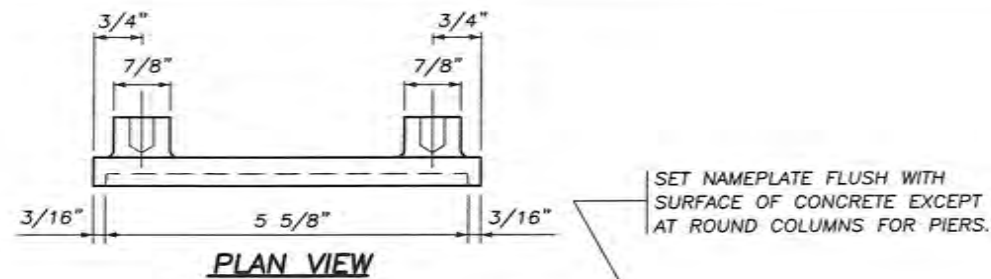
BAR	NO.	LENGTH	SHAPE	LOCATION
R1601E	200	7'-4"		BARRIER DOWEL
R1602E	200	6'-3"		BARRIER VERTICAL
R1603E	8	7'-1"		BARRIER DOWEL
R1604E	4	5'-9"		BARRIER VERTICAL
R1605E	4	5'-7"		BARRIER VERTICAL
R2206E	4	6'-6"		BARRIER VERTICAL
R1307E	24	28'-4"		BARRIER LONGIT.
R1308E	8	12'-1"		BARRIER LONGIT.
R1309E	24	12'-6"		BARRIER LONGIT.
R1310E	16	15'-1"		BARRIER LONGIT.

INSIDE ELEVATION OF BARRIER
 BARRIER MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350



GENERAL NOTES
 LENGTH OF "TYPE F (TL-4) RAILING CONCRETE (3Y46)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.
 CONCRETE BARRIER = 439 LBS./FT. (0.108 CU. YDS./FT.)
 FINISH ALL EDGES OF BARRIER WITH 1/2" VEE, EXCEPT WHERE OTHERWISE NOTED.
 MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20 FT.
 SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.
 GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, MNDOT SPEC. 3306.
 GUARDRAIL CONNECTION, CORK, AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO "TYPE F (TL-4) RAILING CONCRETE (3Y46)".
 BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

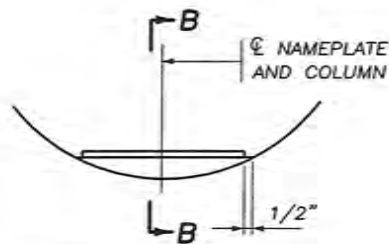
- ① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT.
- ② 3 BARS PER LINE WITH 1'-3" MIN. LAP
- ③ DETAIL MODIFIED



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

BRIDGE **42568**

YEAR **2014**



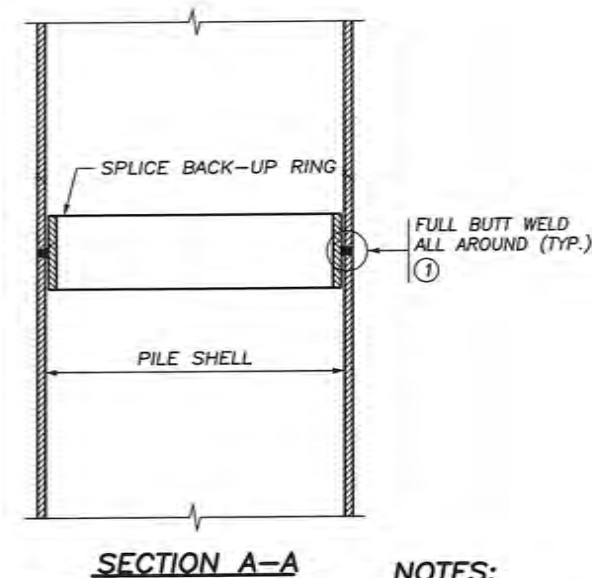
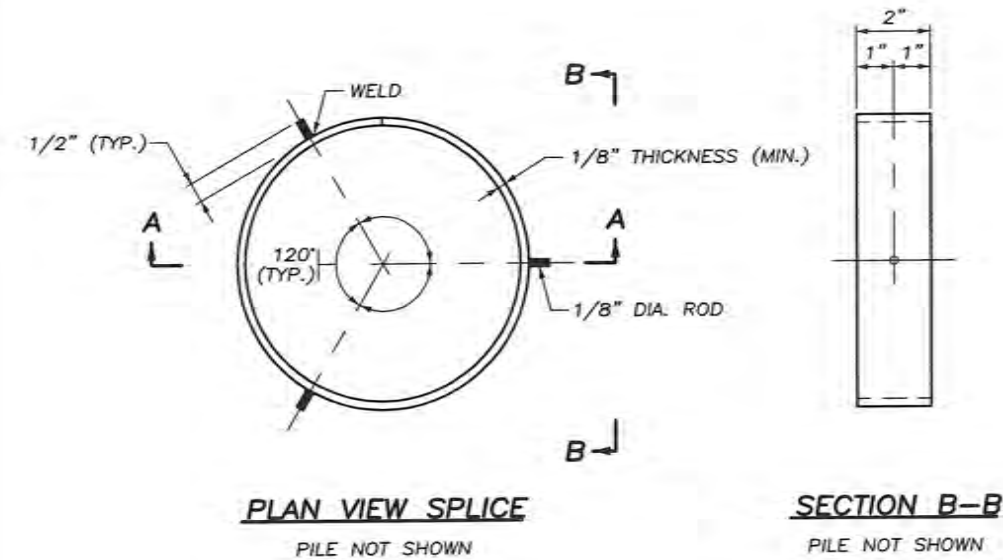
NAMEPLATE PLACEMENT
(ROUND CONCRETE PIER COLUMNS)



NOTES:

- NO SHOP DRAWING REQUIRED.
- MATERIAL SHALL COMPLY WITH MnDOT 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.

SECTION B-B



NOTES:

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. 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 1/2", USE A B-U4a WELD CONFIGURATION.

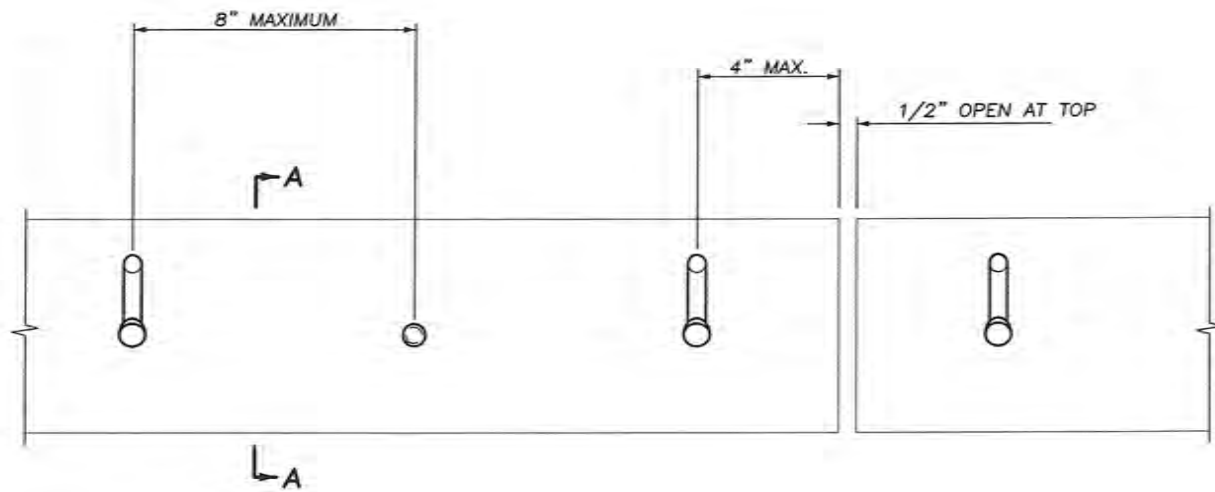
APPROVED: NOVEMBER 22, 2002 <i>Daniel J. Johnson</i> STATE BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE NAMEPLATE (FOR NEW BRIDGES)	REVISION	DETAIL NO. B101
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APPROVED: NOVEMBER 22, 2002 <i>Daniel J. Johnson</i> STATE BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION PILE SPLICE (CAST-IN-PLACE CONCRETE PILES)	REVISION	DETAIL NO. B201
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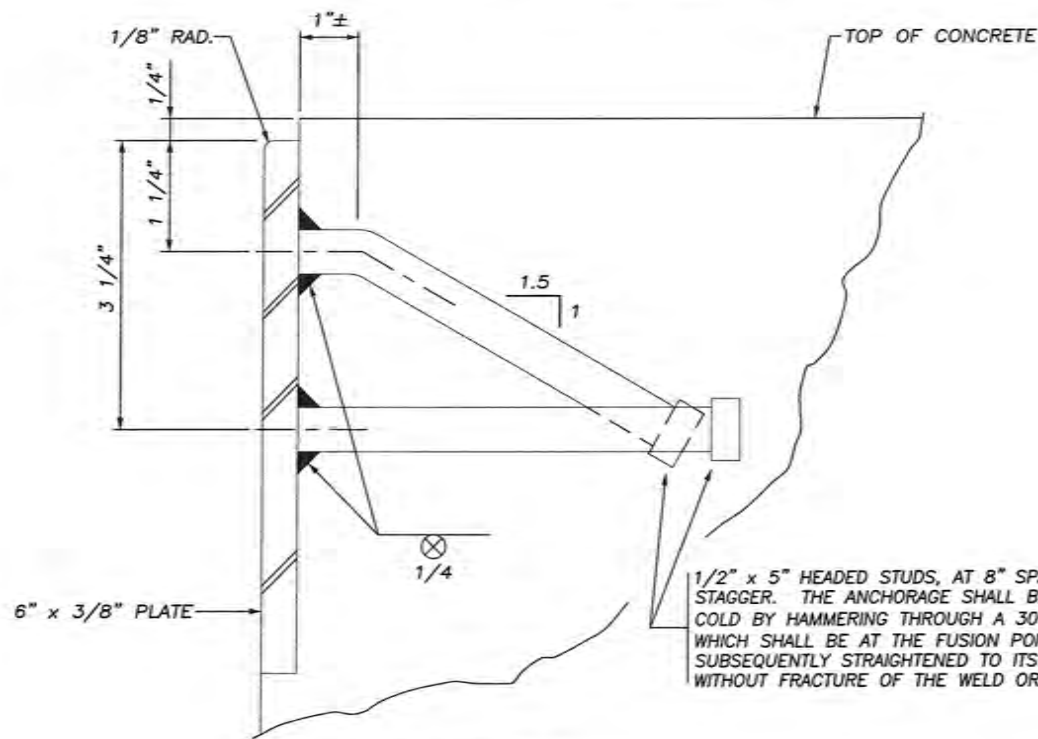
Ronald L. Dokken
CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
LIC. NO. 13931
6/27/13

DES.: DSN
CHK.: SWE
DRN.: CJA
CHK.: DSN
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MISC. BRIDGE DETAILS
S.A.P. 042-598-043
SHEET NO. 13 OF 18 SHEETS
BRIDGE NO. 42568



ELEVATION
CONCRETE NOT SHOWN



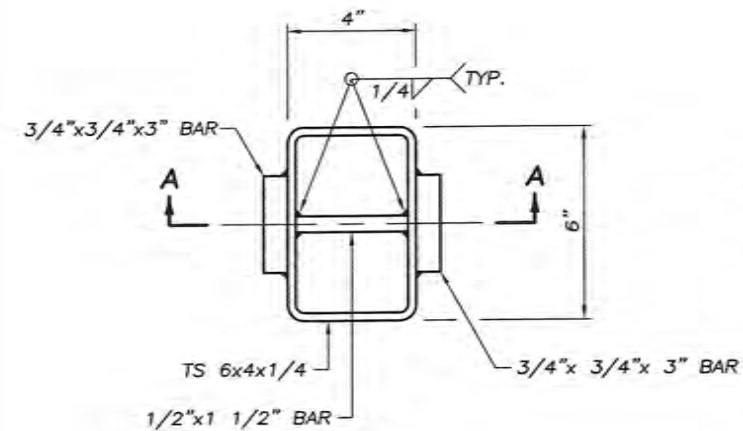
SECTION A-A

NOTES:

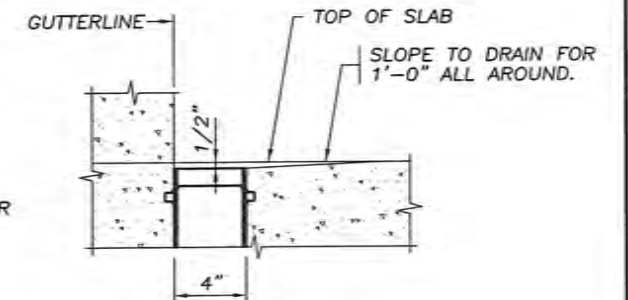
PLATES SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN GUTTER LINES WITH A 1/2" OPEN JOINT AT EACH BREAK IN CROWN PROFILE. MAX. LENGTH 22 FT.

MATERIALS: STRUCTURAL STEEL PER MnDOT SPEC. 3306. GALVANIZE AFTER FABRICATION PER MnDOT SPEC. 3394

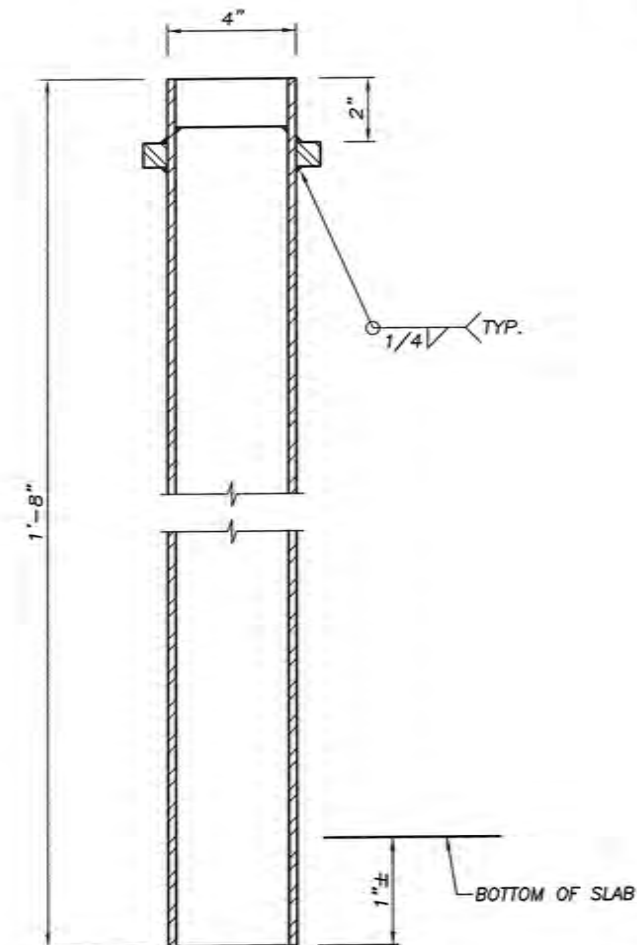
SET PLATE TO PROPER GRADE AND CROWN.



PLAN VIEW ①



PLACEMENT DIAGRAM ①



SECTION A-A ①

NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.

GALVANIZE MATERIALS PER MnDOT SPEC. 3394 AFTER FABRICATION.

PAYMENT FOR FLOOR DRAIN TYPE 702 MOD. SHALL INCLUDE ALL MATERIAL SHOWN ON THIS DETAIL.

① MODIFIED

APPROVED: NOVEMBER 22, 2002

Daniel J. Worsman
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

PROTECTION PLATE
(FOR END OF SLAB)

REVISION

DETAIL NO.

B553

APPROVED: NOVEMBER 22, 2002

Daniel J. Worsman
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE FLOOR DRAIN
(STRUCTURAL TUBE)

REVISED
01-13-2004

DETAIL NO.

**B702
MODIFIED**

DES.: DSN
CHK.: SWE
DRN.: CJA
CHK.: DSN

**ERICKSON
ENGINEERING**
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MISC. BRIDGE DETAILS

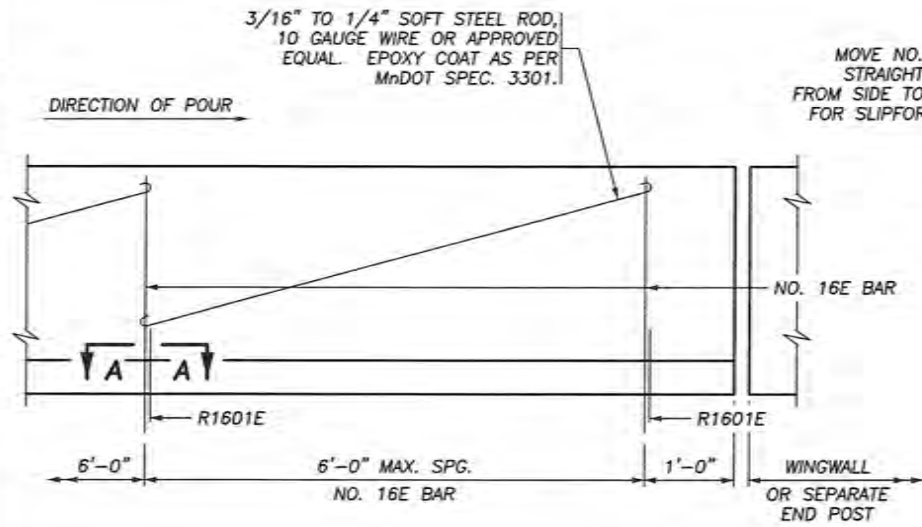
S.A.P. 042-598-043

APPROVED:

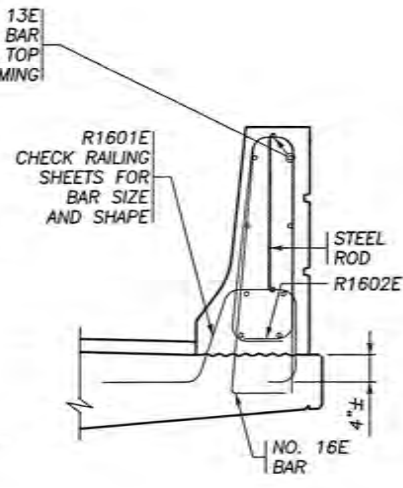
BRIDGE NO.
42568

SHEET NO. 14 OF 18 SHEETS

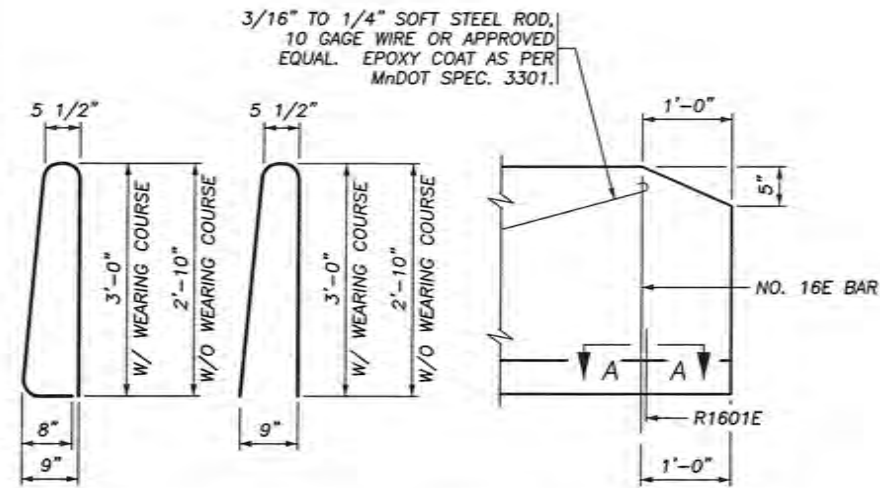
Ronald L. Dokken
CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
LIC. NO. 13931
6/27/13



INSIDE ELEVATION OF RAILING

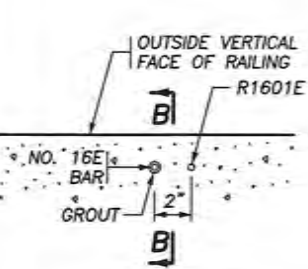


RAILING SECTION

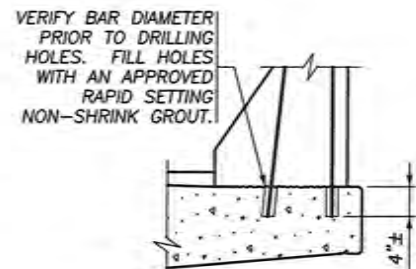


NO. 16E BAR NO. 16E BAR INSIDE ELEVATION OF RAILING

DRILLED IN ALTERNATE AT END OF WINGWALL



SECTION A-A



SECTION B-B

INSTALLATION DETAILS FOR NO. 16E (DRILLED IN ALTERNATE)

NOTES:

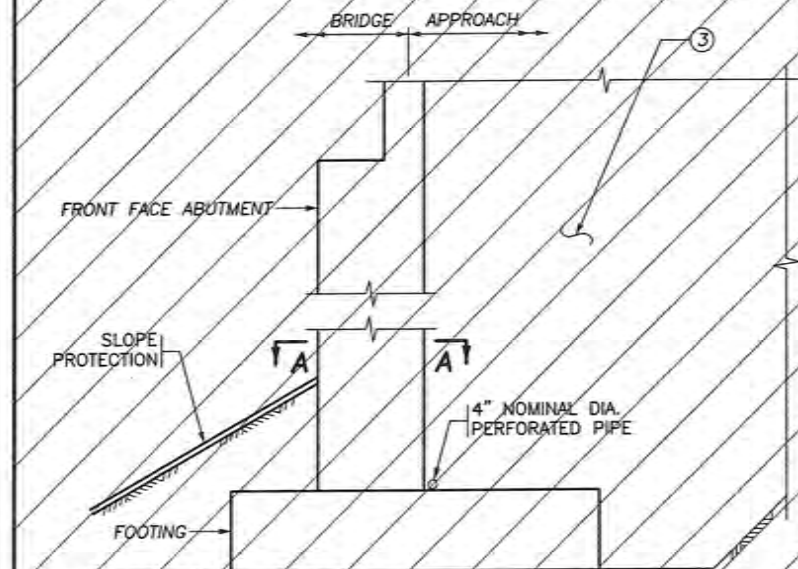
CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILING SHEET.

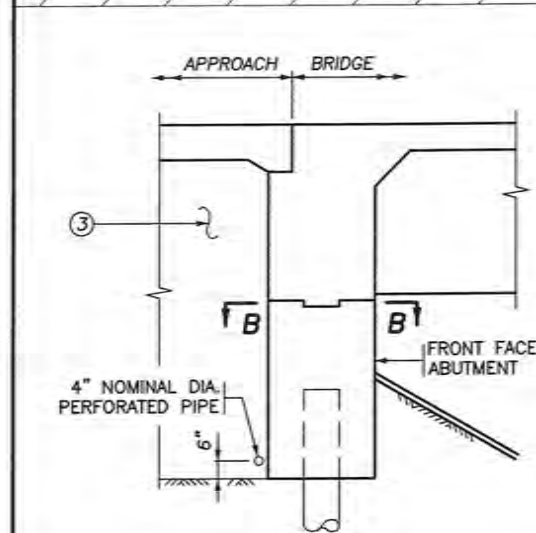
FORM RAIL FOR A MINIMUM OF 2' ON EACH SIDE OF EXPANSION DEVICES, LIGHT STANDARDS AND DECK DRAIN BOX OUTS.

PAY QUANTITIES WILL NOT BE ADJUSTED AS A RESULT OF SELECTING THIS ALTERNATE.

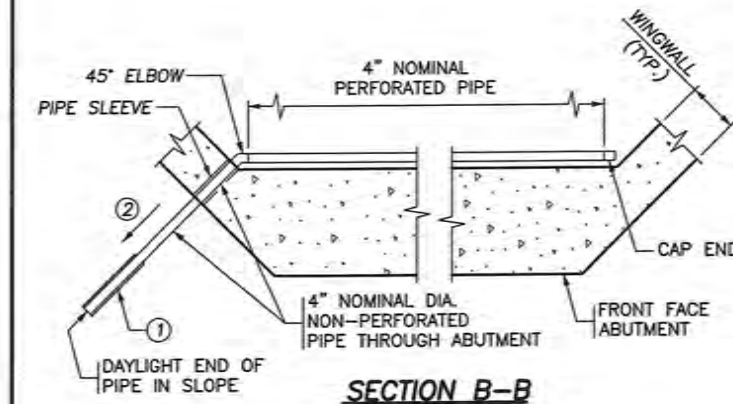
USE A SIMILAR METHOD FOR TALLER RAILINGS OR MODIFIED VERSIONS OF THIS RAILING.



SECTION THROUGH PARAPET AND SEMI INTEGRAL ABUTMENTS



SECTION THROUGH INTEGRAL ABUTMENT



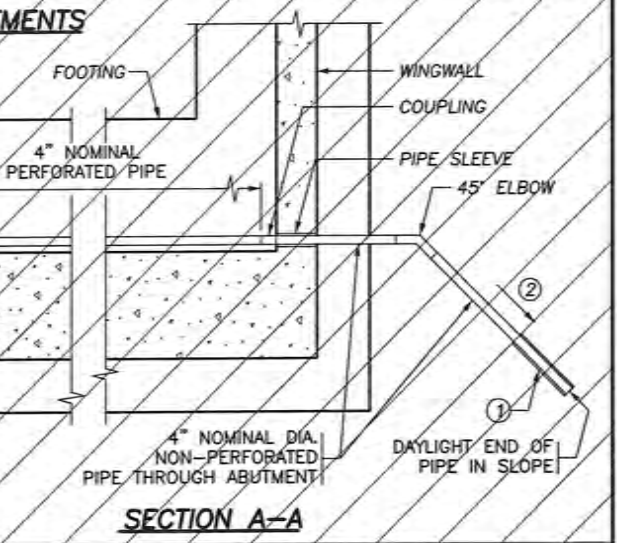
SECTION B-B

SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM

4" DIA. PERFORATED PIPE	68 LIN. FT.
4" DIA. NON-PERFORATED PIPE	30 LIN. FT.
45° ELBOW	2 EACH
4" DIA. END CAP	2 EACH
PIPE SLEEVE	2 EACH
PRECAST CONCRETE HEADWALL	2 EACH

THE SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM IS AS SHOWN ABOVE. ANY ADDITIONAL MINOR ITEMS OR SLIGHT CHANGES OF QUANTITIES REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR ITEM 2502.502 "DRAINAGE SYSTEM TYPE (B910)".



SECTION A-A

NOTES:

ALL PIPE SHALL COMPLY WITH MnDOT SPEC. 3245.

WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER MnDOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER MnDOT SPEC. 2502.

- ① PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.
- ② 1/8" PER FT. MINIMUM SLOPE.
- ③ MATERIAL SHALL COMPLY WITH MnDOT SPEC. 3149.2B SELECT GRANULAR BORROW, MODIFIED SO THAT NO MORE THAN 10% PASSES A NO. 200 SIEVE. (INCLUDED IN PRICE BID FOR "STRUCTURE EXCAVATION")

APPROVED: NOVEMBER 22, 2002

Daniel J. Morgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
CONCRETE RAILING (TYPE F)
(SLIPFORM ALTERNATE)

REVISION

DETAIL NO.

B830

APPROVED: MARCH 26, 2009

Daniel J. Morgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

DRAINAGE SYSTEM

REVISED
10-22-2009

DETAIL NO.

B910

DES.: DSN
CHK.: SWE
DRN.: CJA
CHK.: DSN

ERICKSON ENGINEERING
WWW.ERICKSON-ENG.COM 1-800-545-8020

MISC. BRIDGE DETAILS

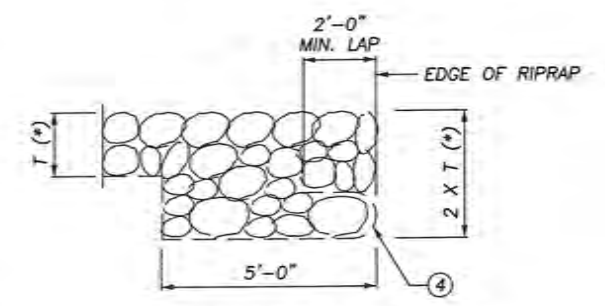
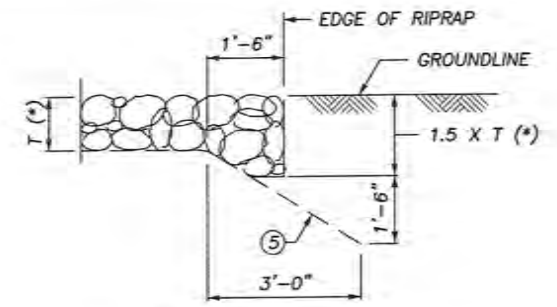
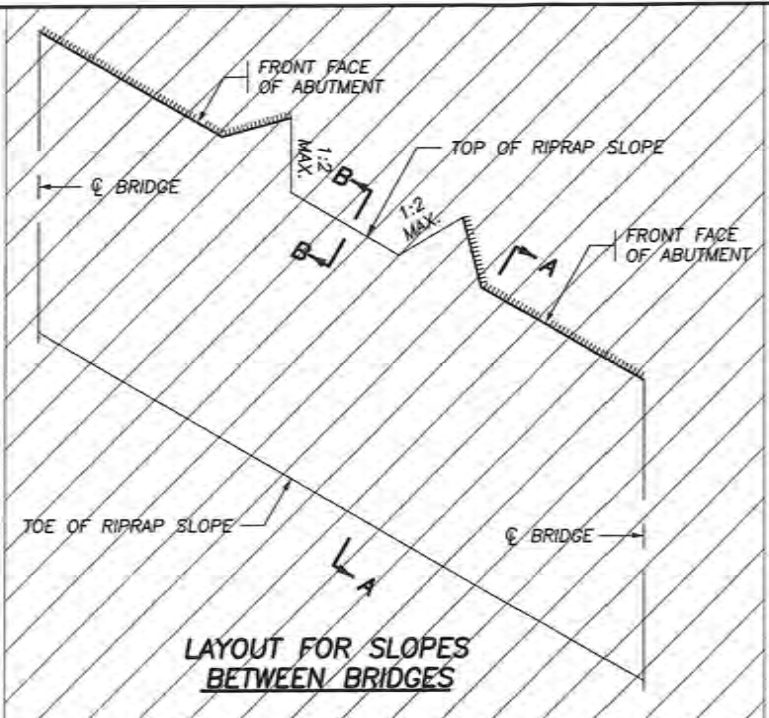
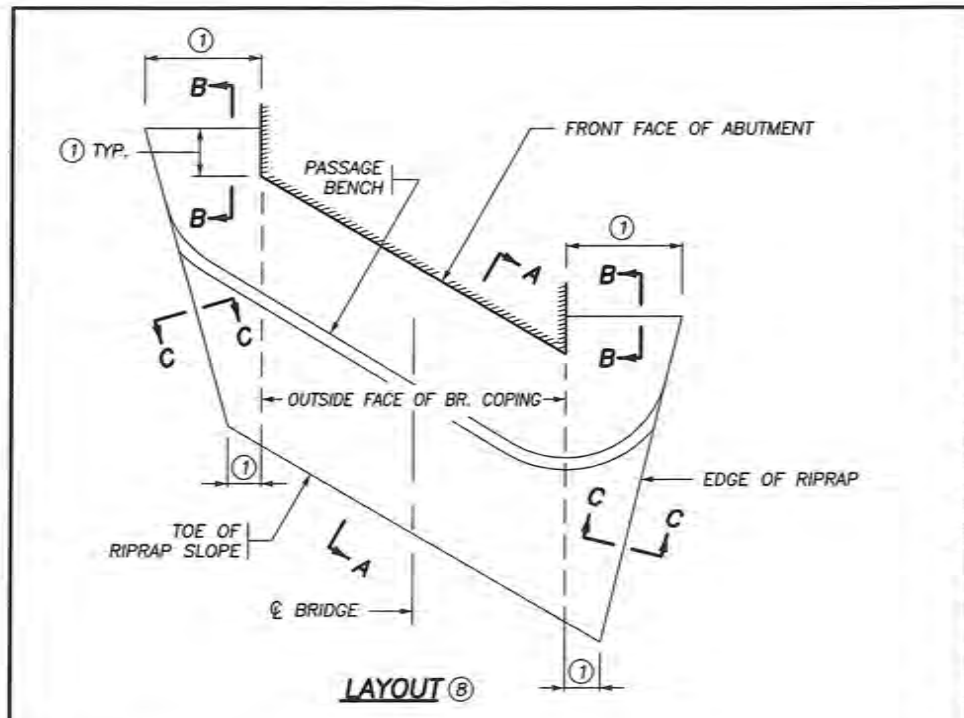
S.A.P. 042-598-043

APPROVED:

SHEET NO. 15 OF 18 SHEETS

BRIDGE NO.
42568

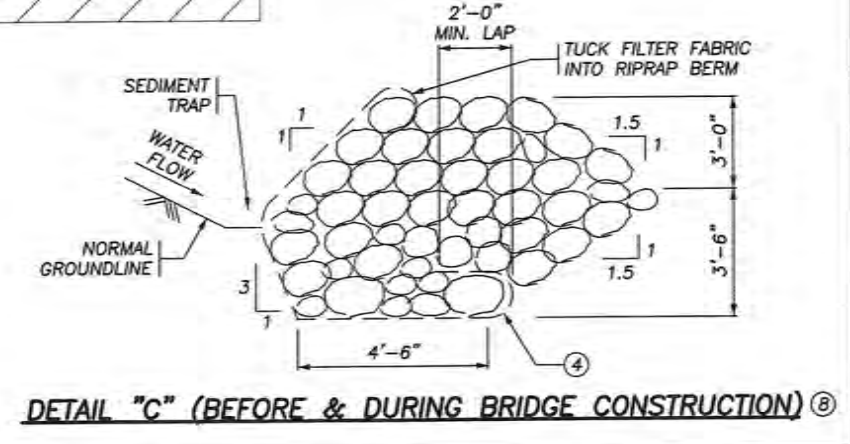
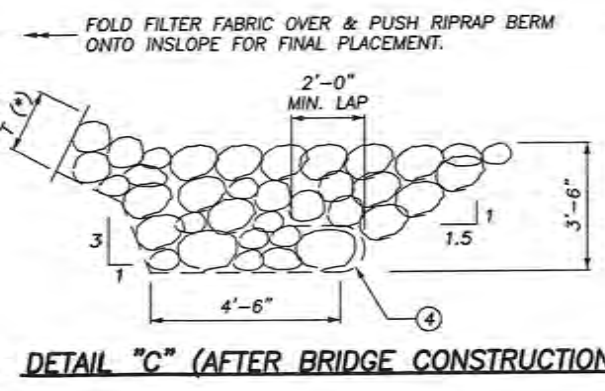
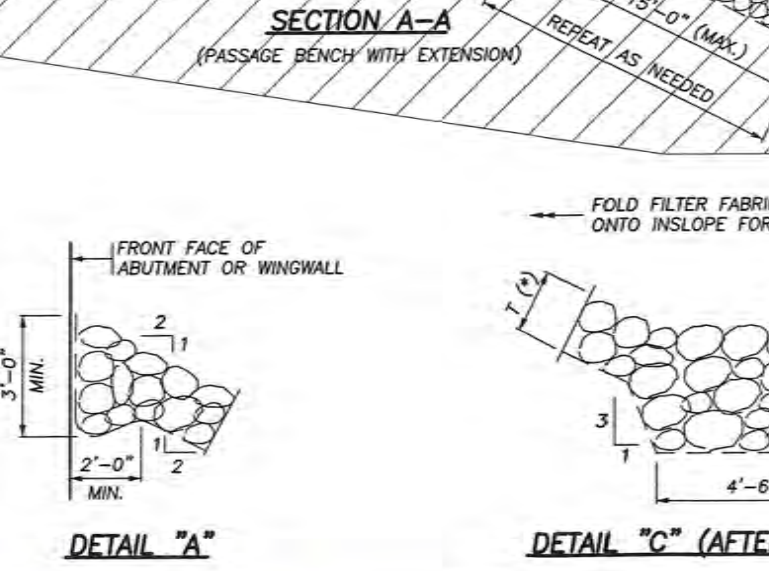
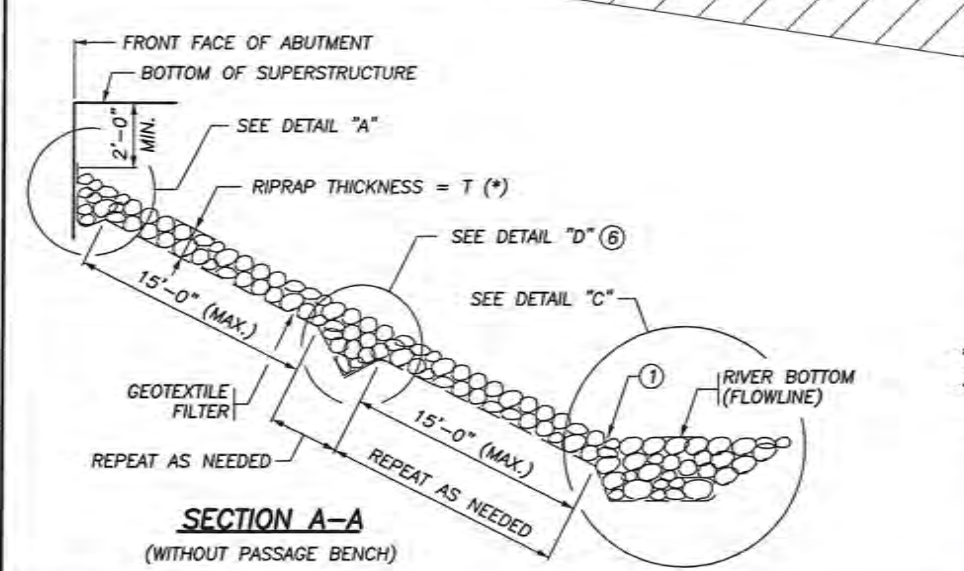
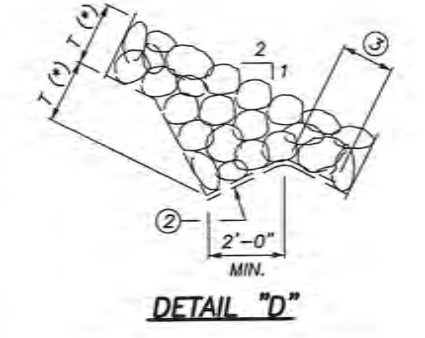
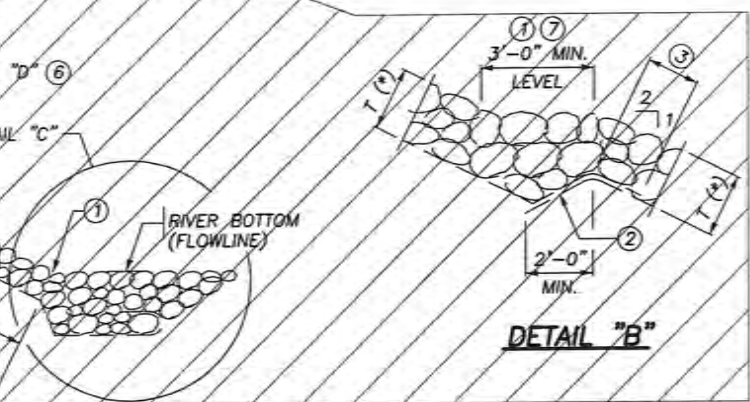
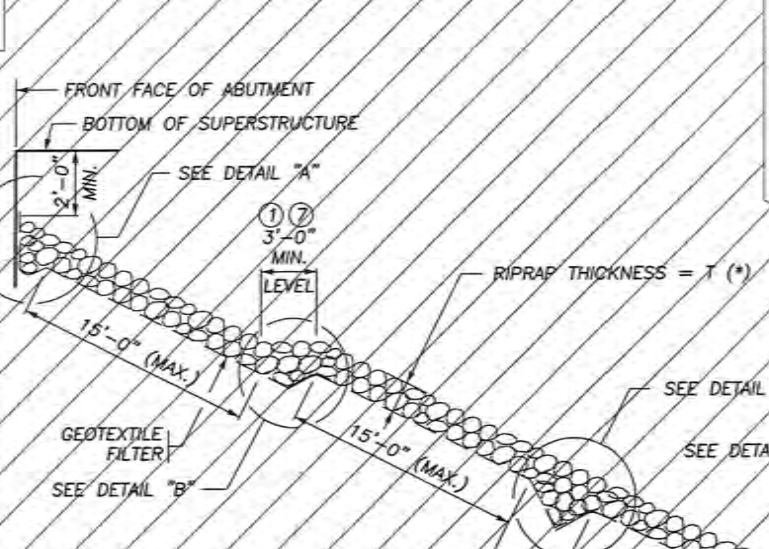
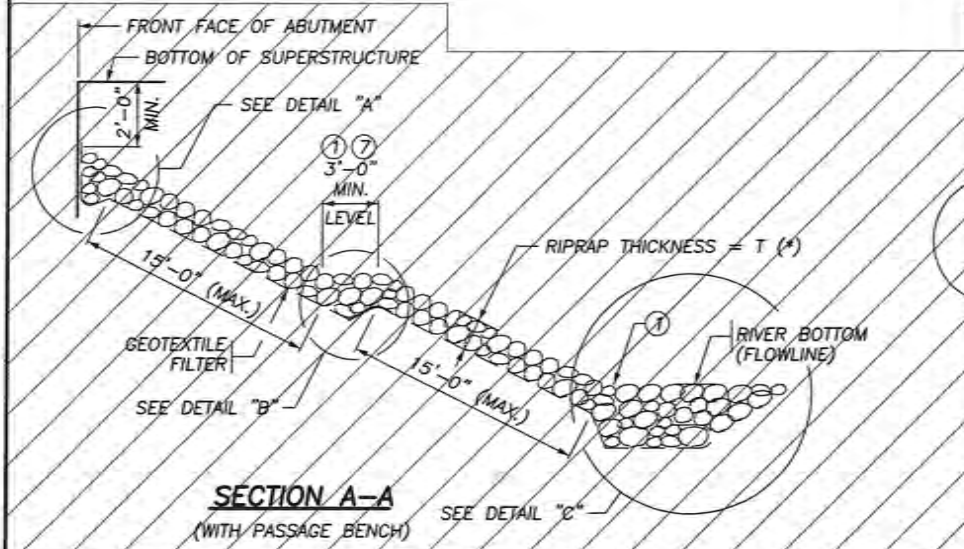
Ronald L. Dokken
CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
LIC. NO. 13931



*** DIMENSION T**

CLASS III	= 1'-6"
CLASS IV	= 2'-0"
CLASS V	= 2'-6" ⑧

- GENERAL NOTES**
 SEE SPECIAL PROVISIONS FOR MATERIALS, PREPARATION AND PLACEMENT.
 USE GEOTEXTILE FILTER MATERIAL AS PER MnDOT SPECIAL PROVISION 2511.
 ALL WORK FOR RIPRAP BERM CONSTRUCTION, GEOTEXTILE PLACEMENT, AND FINAL RIPRAP PLACEMENT AS SHOWN IS INCLUDED IN PRICE BID FOR "QUARRY RUN RIPRAP". ⑧
 THE RIPRAP BERM WILL BE PLACED PRIOR TO ANY BRIDGE CONSTRUCTION ACTIVITY, INCLUDING, BUT NOT LIMITED TO, ANY EXCAVATION OR EMBANKMENT AND AS DIRECTED BY THE ENGINEER IN THE FIELD. ⑧
 SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE : HORIZONTAL DISTANCE.
 SLOPE BOTTOM OF TRENCHES 1:20 PARALLEL TO ABUTMENT FACE TO PROVIDE POSITIVE DRAINAGE.
- SEE PLAN SHEET 18 FOR DIMENSIONS AND ELEVATIONS OF RIPRAP TOE AND PASSAGE BENCHES.
 - PLACE RIPRAP IN TRENCH TO HOLD THE GEOTEXTILE FABRIC IN PLACE BEFORE PLACING THE REST OF THE RIPRAP (FROM THE BOTTOM OF THE SLOPE).
 - OVERLAP GEOTEXTILE FILTER 2'-0" MINIMUM.
 - WRAP GEOTEXTILE FILTER AROUND TOE, OVERHANG BETWEEN 1ST AND 2ND LAYER OF RIPRAP. USE HAND PLACEMENT OR SIMILAR METHODS TO ESTABLISH PROFILE AND PLACE FABRIC IF UNDER WATER.
 - BURY EDGES OF GEOTEXTILE FILTER TO DIRECT WATER FLOW OVER THE FABRIC WITHOUT UNDERMINING.
 - OMIT THE TRENCH SHOWN IN DETAIL "D" AND THE 15'-0" MAXIMUM SPACING BETWEEN TRENCHES FOR SLOPES 1:3 OR FLATTER.
 - SURFACE BENCHES WITH AGGREGATE CLASS 5 (INCIDENTAL TO RIPRAP). TIE BENCHES TO NATURAL GROUNDLINES OUTSIDE OF BRIDGE.
 - DETAIL MODIFIED



REVISED:
 APPROVED: MAY 24, 2011
Nancy A. Oberberger
 STATE BRIDGE ENGINEER

STANDARD SHEET NO.:
 5-397.309 MODIFIED
 STANDARD APPROVED:
 MAY 24, 2011

Ronald L. Dokken
 CERTIFIED BY: PROFESSIONAL ENGINEER/ RONALD L. DOKKEN
 LIC. NO. 13931
 6/27/13

DES.: DSN
 CHK.: SWE
 DRN.: CJA
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ERICKSON ENGINEERING
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RIPRAP SLOPE WITH GEOTEXTILE FILTER (SLOPES 1:2 AND FLATTER)

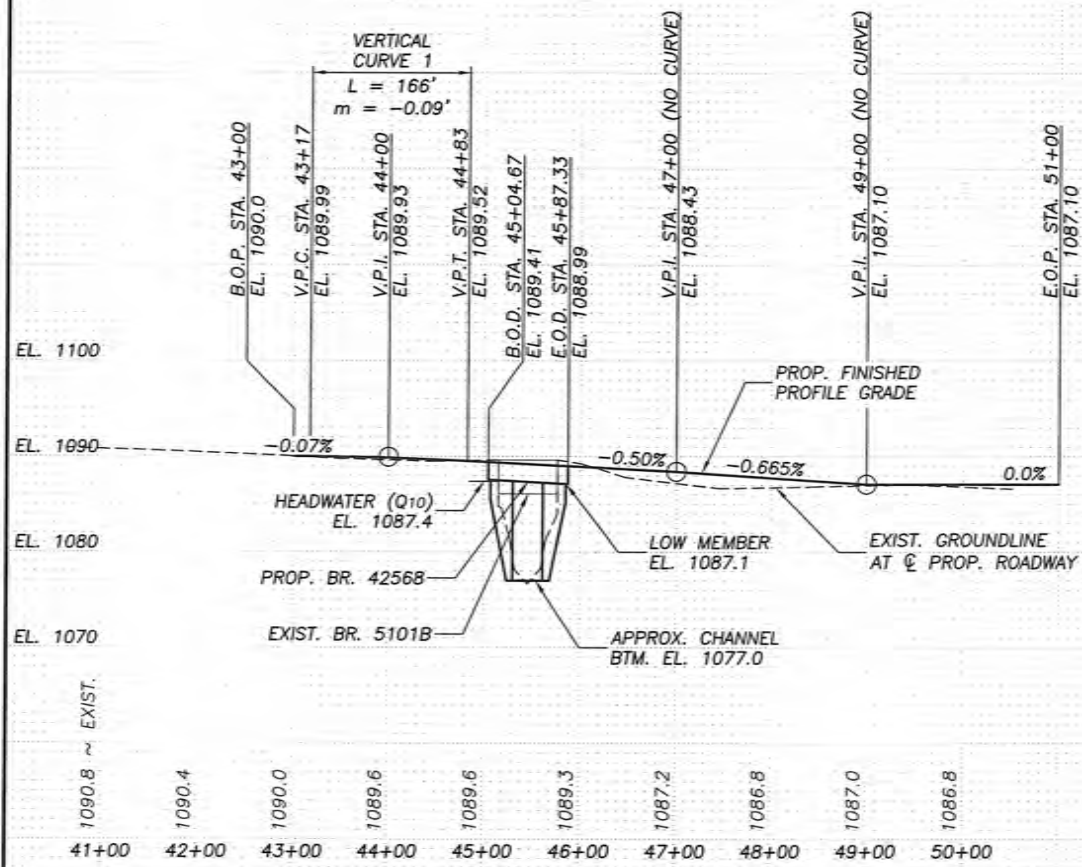
S.A.P. 042-598-043
 SHEET NO. 16 OF 18 SHEETS

APPROVED:
 BRIDGE NO. 42568

CONTRACTED PROFILE

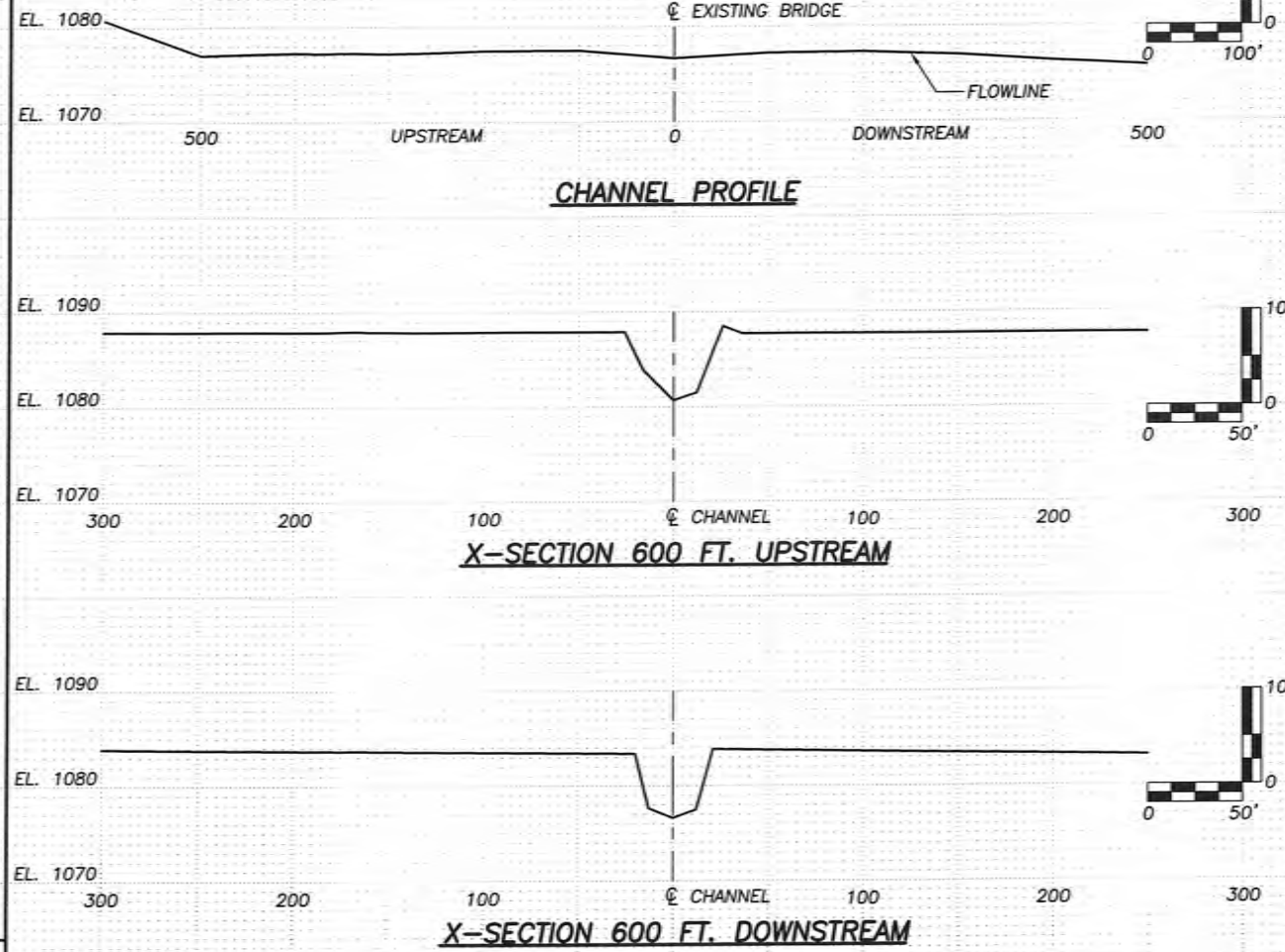
SCALE: HOR. 1"=100' VER. 1"=10'

NOTE: SEE GRADING PLANS (BY OTHERS) FOR COMPLETE VERTICAL PROFILE DETAILS.



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATION AT BRIDGE SITE
DATE _____

- Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, rec. boats.
- 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.
UPSTREAM BR. 97159: 3-LINES 12'x10' PRECAST CONC. BOX CULVERT, 360 SQ. FT. WATERWAY OPENING
DOWNSTREAM BR. 42007: 49.7'x150.3' PRESTRESSED CONC. BEAM SPAN, 1300 SQ. FT. WATERWAY OPENING
- Apparent Highwater Elevation _____ Feet
Obtained From _____
- Other Data: Approx. velocity of water at time of survey _____

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 12/3/2012

Stream or Ditch Designation THREE MILE CREEK

Drainage Area 112 SQ. MI.

Max. Flood on Record UNKN C.F.S.

Max. Observed Highwater Elev. UNKN Feet

Design Flood (10 yr. freq.) 3000 C.F.S.

Headwater Elevation 1087.4 Feet

Design Mean Velocity Through Structure 4.7 F.P.S.

Total Stage Increase 0.3 Feet

Low Member At or Above Elevation 1087.1 Feet

Waterway area req'd below elev. 1087.1 = 642 SQ. FT. (at right angles to channel)

Basic Flood (100 yr. freq.) 6600 C.F.S.

Headwater Elevation 1089.9 Feet

Total Stage Increase <0.1 Feet

Mean Velocity Through Structure 1.0 F.P.S.

Flowline Elevation 1077.0 Skew Angle 0°

Estimated Preliminary Total Scour At Pier Elevation 1069.3 Feet (10 yr. freq.)

SCOUR CONFIRMATION RECOMMENDATION

DATE 1-3-2013

Total Scour At Pier Elevation 1069.3 Feet (10 yr. freq.)

Scour Code L

ENGINEER'S RECOMMENDATION

DATE 12/3/2012

25'-31'-25' CONTINUOUS CONCRETE SLAB SPANS

28' ROADWAY ~ 0' SKEW

Bridge Survey Sheets made from SURVEY NOTES FROM LYON COUNTY HIGHWAY DEPARTMENT (SUMMER 2012)

Benchmark Elevation 1089.82 (N.A.V.D. 88)
Location: BENCHMARK DISK ON N.E. WINGWALL OF EXIST. BR. 5101B

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

ON C.R. 67 (270th AVENUE)

PROPOSED BRIDGE LOCATED 1.0 MILES NORTH OF JCT. C.S.A.H. 8 OVER THREE MILE CREEK

SEC. 2 TWP. 112 N R. 41 W

TOWNSHIP FAIRVIEW COUNTY LYON

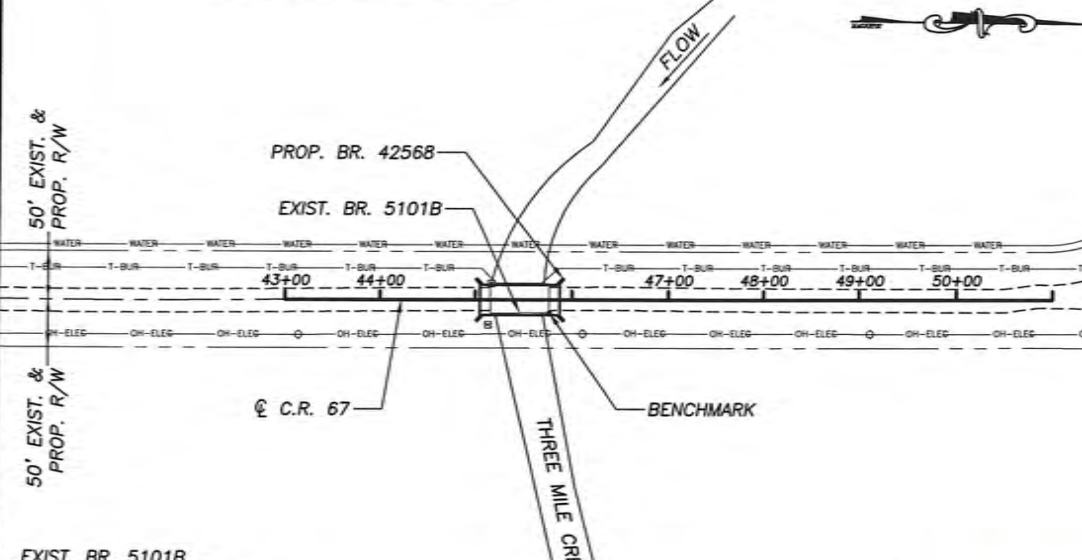
EXIST. BRIDGE NO. 5101B

PLAT
SCALE: 1"=100'

UTILITY INFORMATION
WARNING: DIAL GOPHER STATE ONE CALL AT 1-800-252-1166 A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS TO OBTAIN COMPLETE UTILITY PROPERTY OWNERSHIP AND LOCATION INFORMATION.

UTILITY INFO AVAILABLE FOR PLAN PREPARATION:
LINCOLN-PIESTONE WATER (BURIED WATER MAIN) 507-368-4248
QWEST (BURIED TELEPHONE) 800-283-4237
ARVIG COMMUNICATION SYSTEMS
MAGELLAN MIDSTREAM PARTNERS

NOTE: FIELD VERIFY ALL UTILITIES.



EXIST. BR. 5101B
STEEL LOW TRUSS SPAN
LENGTH: 61.3'
ROAD WIDTH: 28.0'
YEAR BUILT: 1931
YEAR REMODELED: 1989

NOTE: SEE GRADING PLANS (BY OTHERS) FOR COMPLETE HORIZONTAL ALIGNMENT DETAILS.

Ronald L. Dokken
CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN
LIC. NO. 13931

DES.: DSN
CHK.: SWE
DRN.: CJA
CHK.: DSN

ERICKSON ENGINEERING
WWW.ERICKSON-ENG.COM 1-800-545-8020

BRIDGE SURVEY

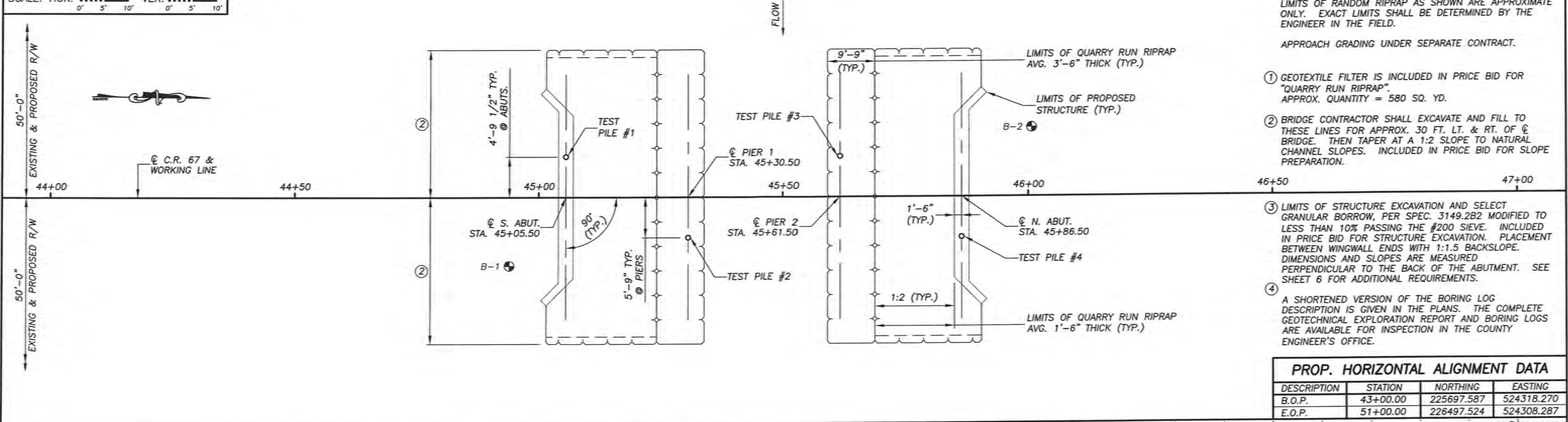
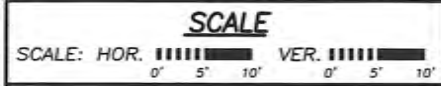
S.A.P. 042-598-043
SHEET NO. 17 OF 18 SHEETS

APPROVED: _____
BRIDGE NO. 42568

LIMITS OF RANDOM RIPRAP AS SHOWN ARE APPROXIMATE ONLY. EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

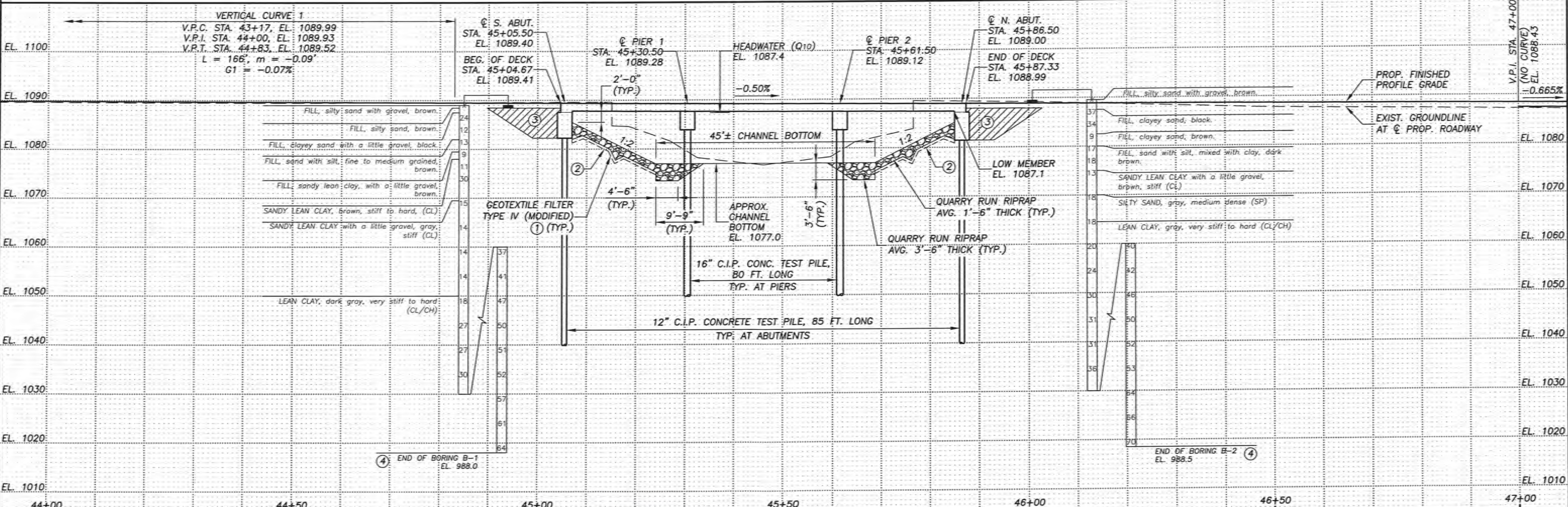
APPROACH GRADING UNDER SEPARATE CONTRACT.

- ① GEOTEXTILE FILTER IS INCLUDED IN PRICE BID FOR "QUARRY RUN RIPRAP". APPROX. QUANTITY = 580 SQ. YD.
- ② BRIDGE CONTRACTOR SHALL EXCAVATE AND FILL TO THESE LINES FOR APPROX. 30 FT. LT. & RT. OF BRIDGE. THEN TAPER AT A 1:2 SLOPE TO NATURAL CHANNEL SLOPES. INCLUDED IN PRICE BID FOR SLOPE PREPARATION.
- ③ LIMITS OF STRUCTURE EXCAVATION AND SELECT GRANULAR BORROW, PER SPEC. 3149.2B2 MODIFIED TO LESS THAN 10% PASSING THE #200 SIEVE. INCLUDED IN PRICE BID FOR STRUCTURE EXCAVATION. PLACEMENT BETWEEN WINGWALL ENDS WITH 1:1.5 BACKSLOPE. DIMENSIONS AND SLOPES ARE MEASURED PERPENDICULAR TO THE BACK OF THE ABUTMENT. SEE SHEET 6 FOR ADDITIONAL REQUIREMENTS.
- ④ A SHORTENED VERSION OF THE BORING LOG DESCRIPTION IS GIVEN IN THE PLANS. THE COMPLETE GEOTECHNICAL EXPLORATION REPORT AND BORING LOGS ARE AVAILABLE FOR INSPECTION IN THE COUNTY ENGINEER'S OFFICE.



PROP. HORIZONTAL ALIGNMENT DATA

DESCRIPTION	STATION	NORTHING	EASTING
B.O.P.	43+00.00	225697.587	524318.270
E.O.P.	51+00.00	226497.524	524308.287



BORINGS SHOWN: B-1 & B-2 TAKEN WITH: STANDARD 140 LB HAMMER 30 INCH DROP 2 INCH O.D. SAMPLER	 CERTIFIED BY: PROFESSIONAL ENGINEER/RONALD L. DOKKEN LIC. NO. 13931	DES.: DSN CHK.: SWE DRN.: CJA CHK.: DSN	 ERICKSON ENGINEERING WWW.ERICKSON-ENG.COM 1-800-545-8020
BRIDGE SURVEY PLAN & PROFILE		S.A.P. 042-598-043	BRIDGE NO. 42568
SHEET NO. 18 OF 18 SHEETS		APPROVED:	