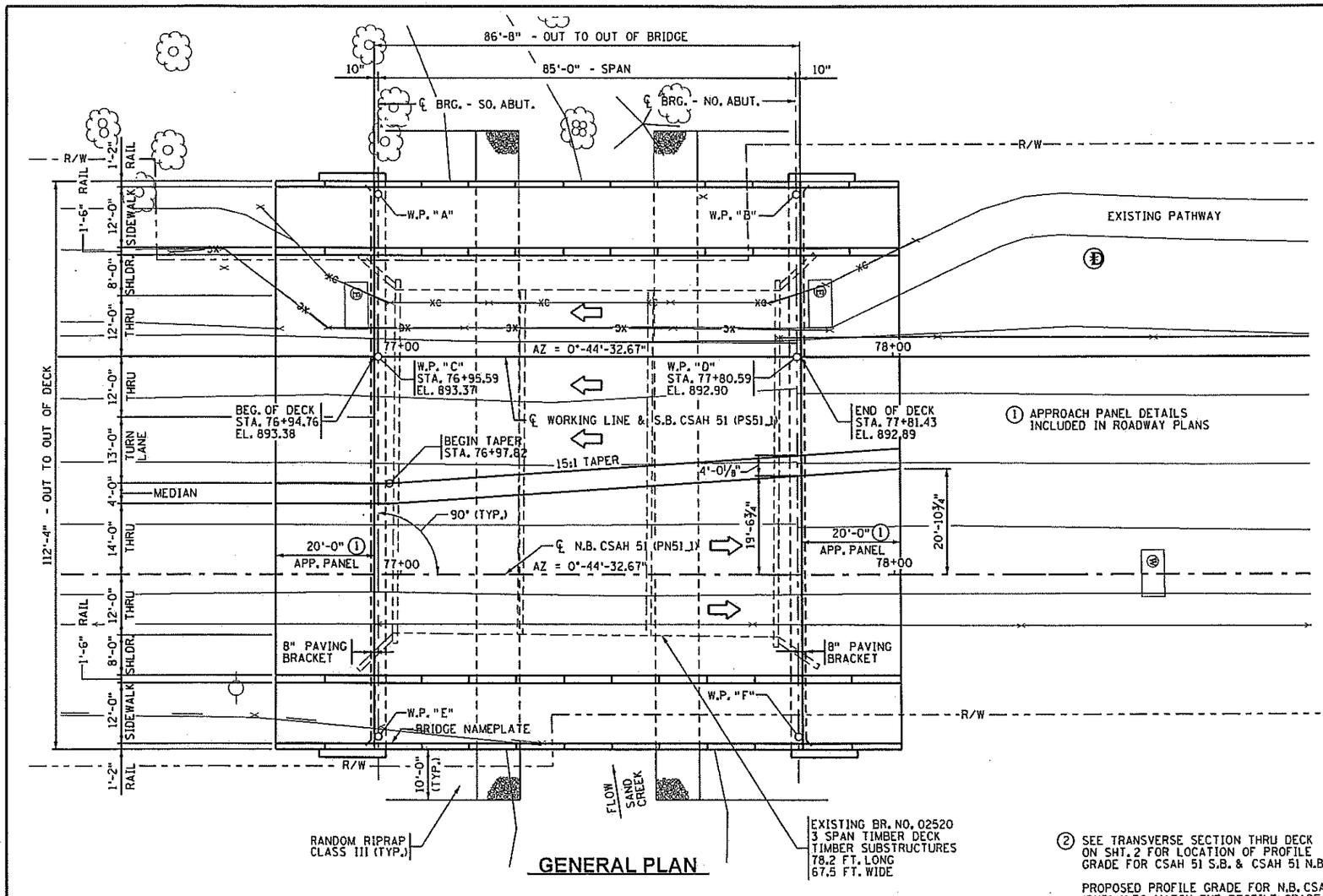
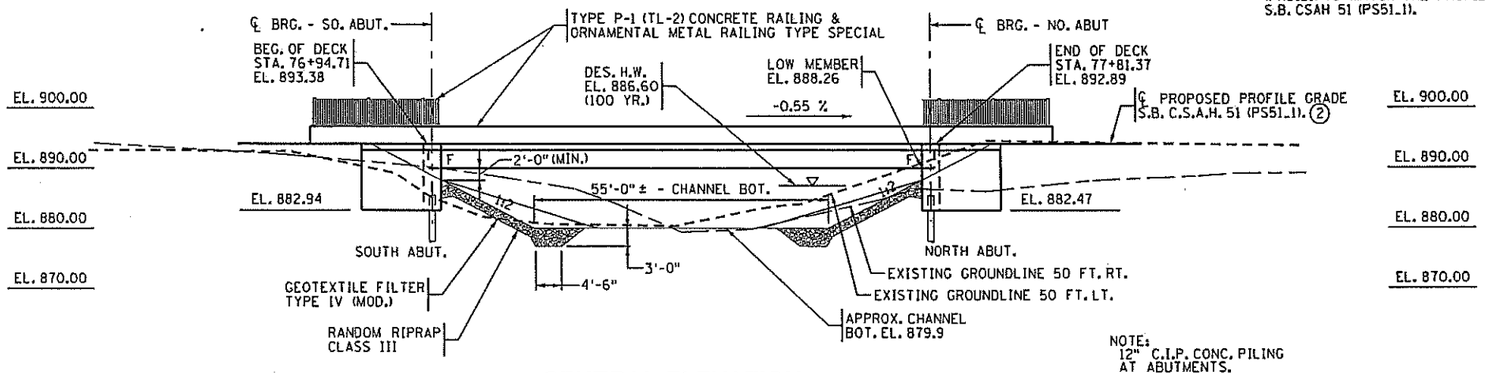


GENERAL PLAN



GENERAL ELEVATION

NOTE:
12" C.I.P. CONC. PILING AT ABUTMENTS.

DESIGN DATA

2012 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
DESIGN LOADING HL93 LIVE LOAD
LOAD AND RESISTANCE FACTOR DESIGN METHOD
DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.
MATERIAL DESIGN PROPERTIES:
- REINFORCED CONCRETE:
  - f'c = 4 ksi n = 8
  - fy = 60 ksi REINFORCEMENT
- PRESTRESSED CONCRETE:
  - f'c = 9 ksi n = 1
  - fpu = 270 ksi STRANDS LOW RELAX
  - 0.75fpu FOR INITIAL PULL
- STRUCTURAL STEEL:
  - fy = 50 ksi

DESIGN SPEED = 50 MPH
APPROXIMATE DECK AREA: = 9736 SF
OPERATING RATING FACTOR = 1.68 (LRFR)
PROJECTED ADT FOR 2034 = 23800

LIST OF SHEETS

BENCH MARK EL. 893.76
LOCATION: ELECTRIC MANHOLE IN PATHWAY N.W. QUAD OF TIMBER BRIDGE STA. 77+85.25, 55.94' LT.
VERTICAL DATUM IS NAVD 88

APPROVED: _____ ANOKA COUNTY ENGINEER
DATE: 6/13/14

WSB & Associates, Inc.
701 Xenia Avenue
Suite 300
Minneapolis, MN 55416
763-541-4800
FAX 763-541-1700
INFRASTRUCTURE - ENGINEERS - PLANNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

FINAL PLAN
Bridge No. 02585
C.S.A.H. 51 OVER SAND CREEK
1.0 MILE SOUTH OF JCT. T.H. 242 AND C.S.A.H. 51

SPAN IDENTIFICATION NO. 501

SEC. 7 TWP. 31N R. 23W
CITY OF BLAINE ANOKA COUNTY

APPROVED: _____ STATE BRIDGE ENGINEER DATE 6/18/14

NO	DATE	BY	CHK	REVISIONS

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.
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40459

C.S.A.H. 51
ANOKA COUNTY
S.P. 002-651-007

TITLE: GENERAL PLAN AND ELEVATION

DES:	BRL	DR:	DJV	02585
CHK:	AJN	CHK:	BRL	

Sheet 328 of 381 Sheets

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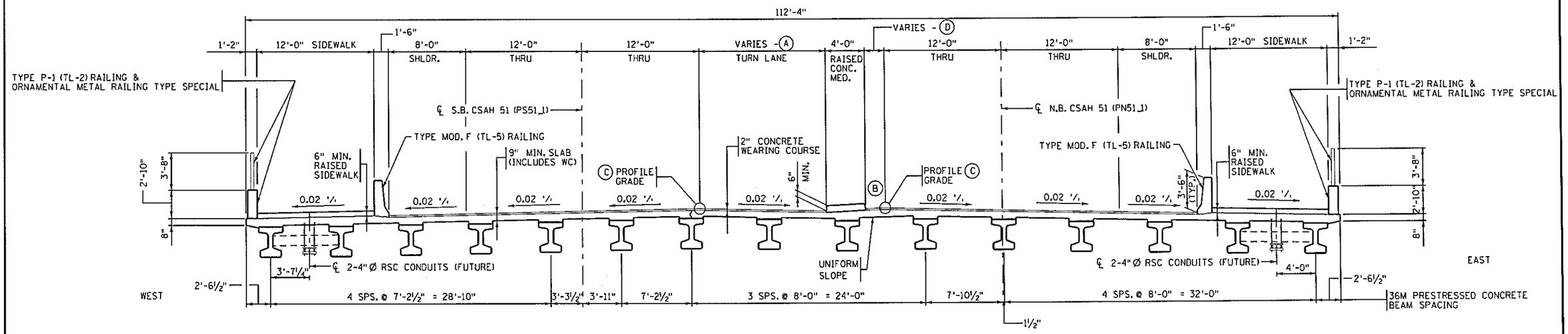

TRANSVERSE SECTION THRU DECK

(A) 7'-5⅛" TO 13'-0"
(B) ← 0.02 '/.
(C) PROFILE GRADE ELEVATIONS MATCH
(D) 2'-0" TO 7'-6¾"

SCHEDULE OF QUANTITIES FOR BRIDGE NO. 02585

	ITEM NO.	ITEM	UNIT	QUANTITY
	2011.601	VIBRATION MONITORING	LUMP SUM	1
	2021.501	MOBILIZATION	LUMP SUM	1
(2)	2104.601	REMOVE REGULATED WASTE MATERIAL (BRIDGE)	LUMP SUM	1
	2401.501	STRUCTURAL CONCRETE (3Y43)	CU. YD.	188 (P)
	2401.512	BRIDGE SLAB CONCRETE (3Y36)	SQ. FT.	9736 (P)
	2401.513	TYPE MOD F (TL-5) RAILING CONCRETE (3Y46)	LIN. FT.	254 (P)
	2401.513	TYPE P-1 (TL-2) RAILING CONCRETE (3Y46)	LIN. FT.	254 (P)
	2401.515	SIDEWALK CONCRETE (3Y46)	SQ. FT.	2081 (P)
	2401.516	RAISED MEDIAN CONCRETE (3Y46)	SQ. FT.	580 (P)
	2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	95470 (P)
	2401.541	REINFORCEMENT BARS (STAINLESS STEEL)	POUND	1140 (P)
	2401.601	SLOPE PREPARATION	LUMP SUM	1
	2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
	2401.618	BRIDGE DECK PLANING	SQ. FT.	8910 (P)
	2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL	LIN. FT.	252 (P)
	2402.590	ELASTOMERIC BEARING PAD, TYPE 1	EACH	30 (P)
	2404.501	CONCRETE WEARING COURSE (3U17A)	SQ. FT.	9755 (P)
	2405.502	PRESTRESSED CONCRETE BEAMS 36M	LIN. FT.	1294 (P)
	2405.511	DIAPHRAGMS FOR TYPE 36M PRESTR BEAMS	LIN. FT.	108 (P)
(1)	2442.501	REMOVE EXISTING BRIDGE	LUMP SUM	1
	2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN. FT.	2890
	2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN. FT.	2890
	2452.519	C-I-P CONCRETE TEST PILES 95 FT LONG 12"	EACH	6
	2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
	2511.501	RANDOM RIPRAP CLASS III	CU. YD.	430
	2511.515	GEOTEXTILE FILTER TYPE IV (MOD)	SQ. YD.	750
	2545.509	CONDUIT SYSTEM (FUTURE)	LUMP SUM	1

(1) NON-PARTICIPATING FOR BRIDGE BOND FUNDS, STA. 77+37.50

(2) NON-PARTICIPATING FUNDS

CONSTRUCTION NOTES

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

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

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.

BARS MARKED WITH THE SUFFIX "S" SHALL BE STAINLESS STEEL PER SPEC. 3312.

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

NO	DATE	BY	CHK	REVISIONS

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DATE: 8-6-13 REG NO: 40456

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C.S.A.H. 51
ANOKA COUNTY
S.P. 002-651-007

TITLE: TRANSVERSE SECTION AND QUANTITIES

DES: BRL | DR: DJV
CHK: AJN | CHK: BRL

Sheet 329 of 381 Sheets

Bridge No. 02585

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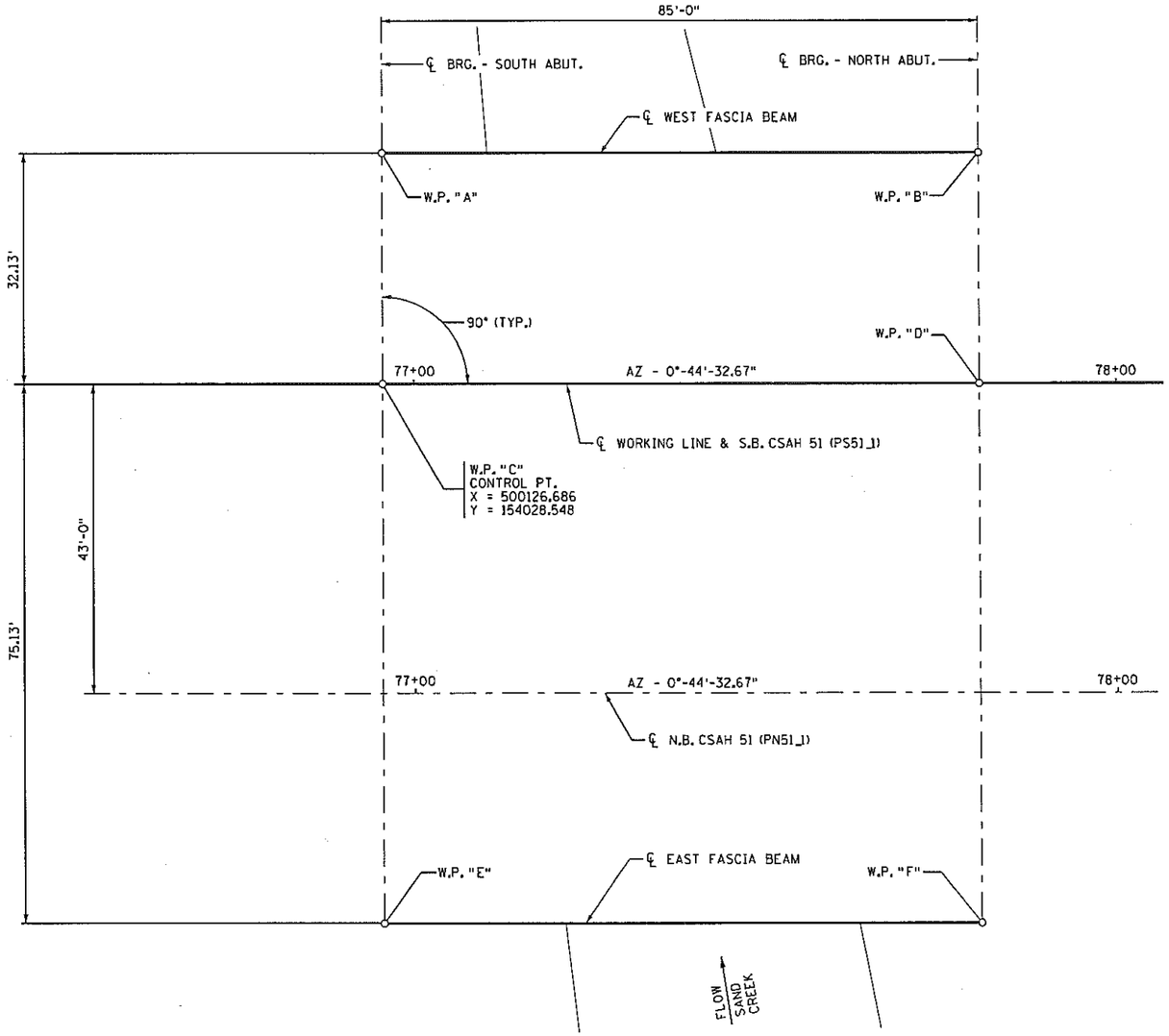
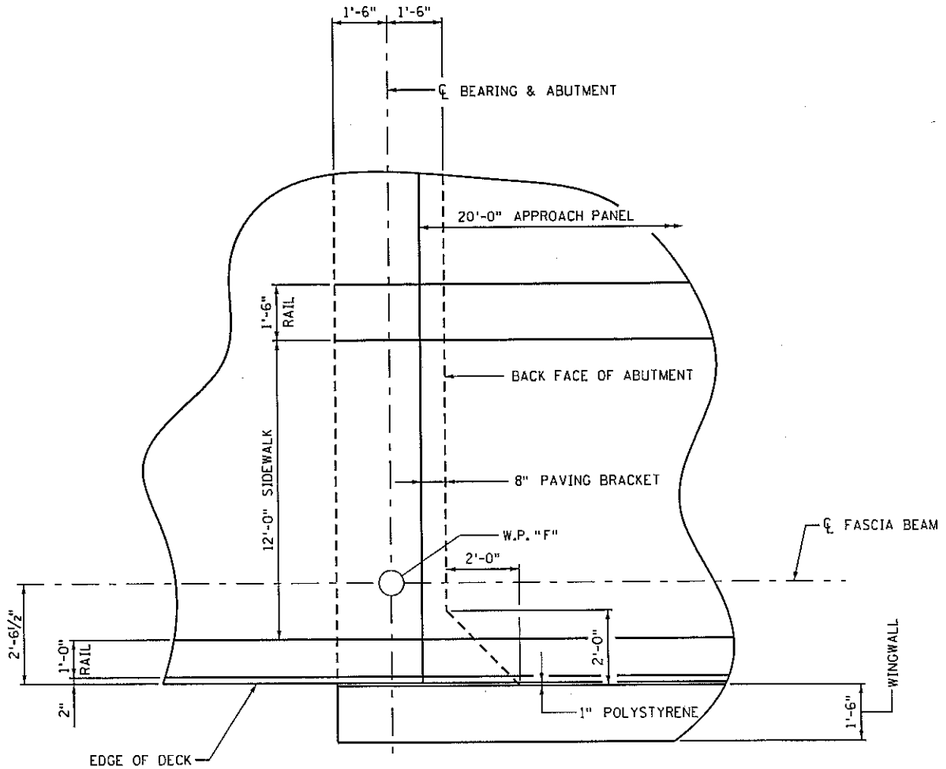


WORKING POINT LAYOUT

TOP OF ROADWAY TO BRIDGE SEAT					
	SLAB THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	TOTAL
SOUTH ABUT.	9"	3"	36"	½"	4.04'
NORTH ABUT.	9"	3"	36"	½"	4.04'

DIMENSIONS BETWEEN WORKING POINTS										ELEVATIONS			
POINT	STATION	X-COORD	Y-COORD	A	B	C	D	E	F	TOP OF DECK	TOP OF DECK TO BRIDGE SEAT	BRIDGE SEAT	POINT
A	76+95.59	500094.564	154028.964		85.00	32.13	90.87		136.85	892.73 (1)	4.04'	888.69	A
B	77+80.59	500095.665	154113.957			90.87	32.13	136.85		892.26 (1)	4.04'	888.22	B
C	76+95.59	500126.686	154028.548				85.00	75.13	113.44	893.36	-	-	C
D	77+80.59	500127.788	154113.541					113.44	75.13	892.90	-	-	D
E	76+95.59	500201.805	154027.575						85.00	892.73 (1)	4.04'	888.69	E
F	77+80.59	500202.906	154112.567							892.26 (1)	4.04'	888.22	F

(1) ELEVATIONS CORRESPOND TO TOP OF STRUCTURAL DECK OR BOTTOM OF SIDEWALK



TYPICAL CORNER DETAIL

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ANOKA COUNTY
S.P. 002-651-007

TITLE: BRIDGE LAYOUT

DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	

Sheet 330 of 381 Sheets

Bridge No. 02585

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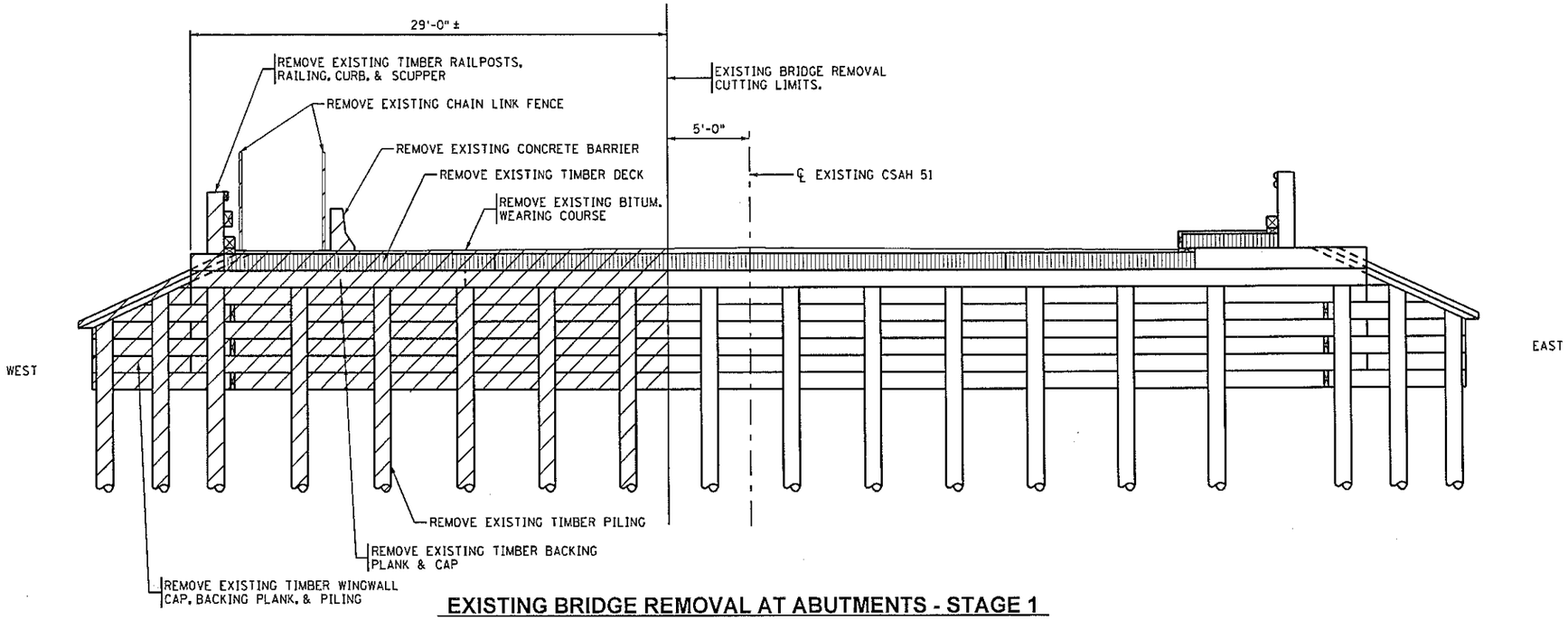
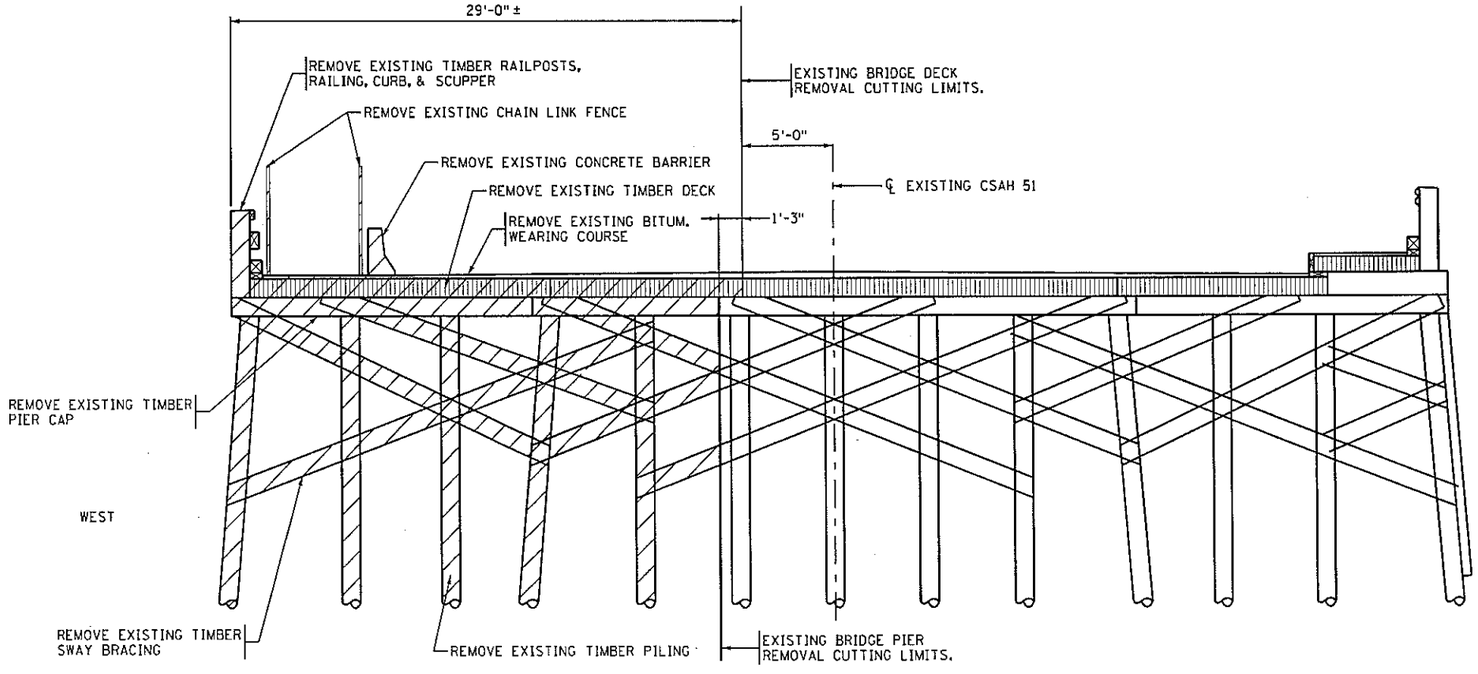


EXISTING BRIDGE REMOVAL AT ABUTMENTS - STAGE 1



EXISTING BRIDGE REMOVAL AT PIERS - STAGE 1

REMOVAL NOTES

HATCHED AREA'S INDICATE PORTIONS OF EXISTING BRIDGE TO BE REMOVED IN STAGE 1 CONSTRUCTION.

REMAINDER OF THE EXISTING BRIDGE WILL BE REMOVED AFTER TRAFFIC HAS BEEN SWITCHED OVER TO PROPOSED BRIDGE STAGE 1 CONSTRUCTION. AFTER ENTIRE EXISTING BRIDGE HAS BEEN REMOVED STAGE 2 OF THE PROPOSED BRIDGE CAN BEGIN.

NO CUTTING WILL BE PERMITTED UNTIL THE CUTTING LIMITS HAVE BEEN OUTLINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. REMOVAL SHALL CONFORM TO SPEC. 2433.

NO	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY
S.P. 002-651-007

TITLE: EXISTING BRIDGE REMOVALS - STAGE 1

DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	

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Bridge No. 02585

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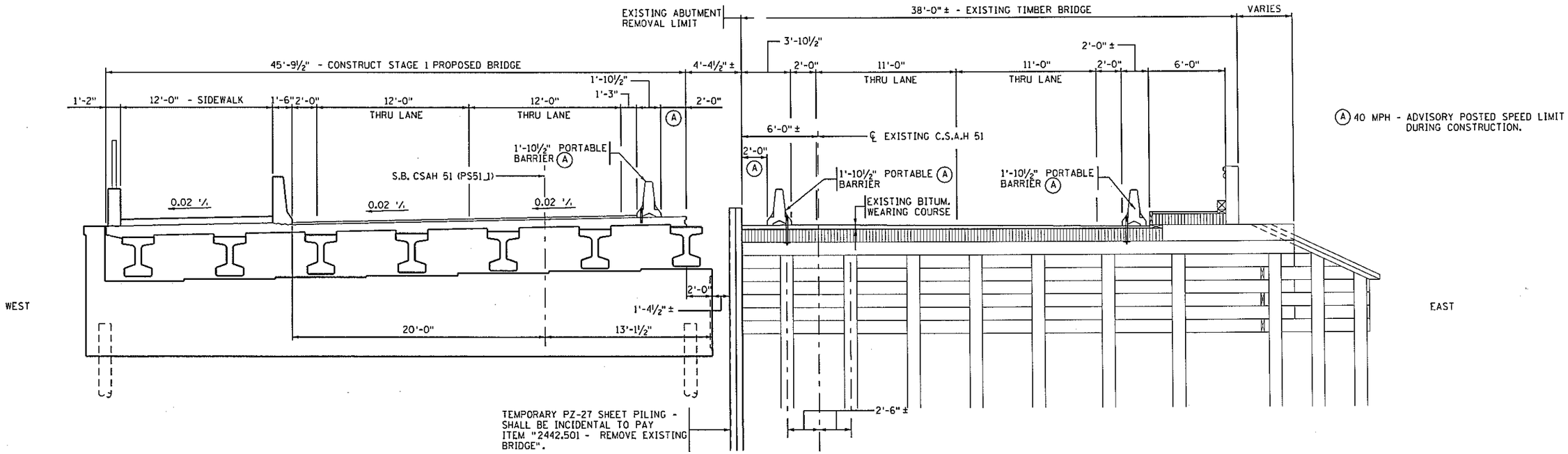
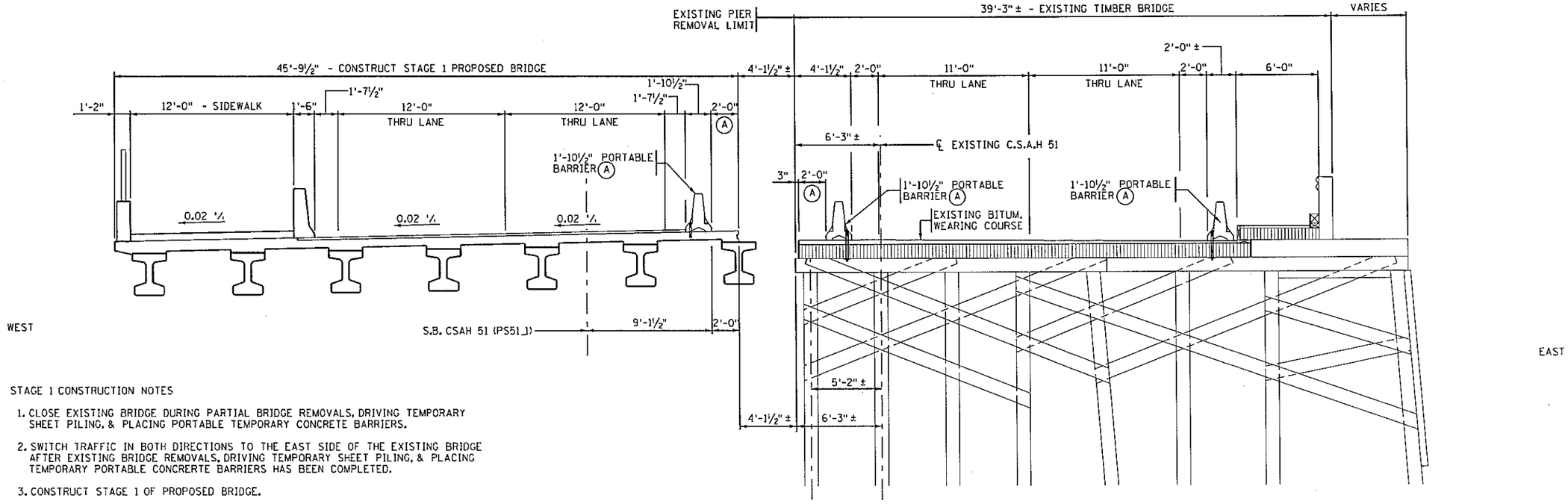


BRIDGE CONSTRUCTION AT ABUTMENTS - STAGE 1



BRIDGE CONSTRUCTION AT PIERS - STAGE 1

STAGE 1 CONSTRUCTION NOTES

1. CLOSE EXISTING BRIDGE DURING PARTIAL BRIDGE REMOVALS, DRIVING TEMPORARY SHEET PILING, & PLACING PORTABLE TEMPORARY CONCRETE BARRIERS.
2. SWITCH TRAFFIC IN BOTH DIRECTIONS TO THE EAST SIDE OF THE EXISTING BRIDGE AFTER EXISTING BRIDGE REMOVALS, DRIVING TEMPORARY SHEET PILING, & PLACING TEMPORARY PORTABLE CONCRERTE BARRIERS HAS BEEN COMPLETED.
3. CONSTRUCT STAGE 1 OF PROPOSED BRIDGE.

NO	DATE	BY	CHK	REVISIONS

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DATE: 8-8-13 REG NO: 40456

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ANOKA COUNTY
S.P. 002-651-007

TITLE: STAGING PLAN

DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	Sheet 332 of 381 Sheets

Bridge No. 02585

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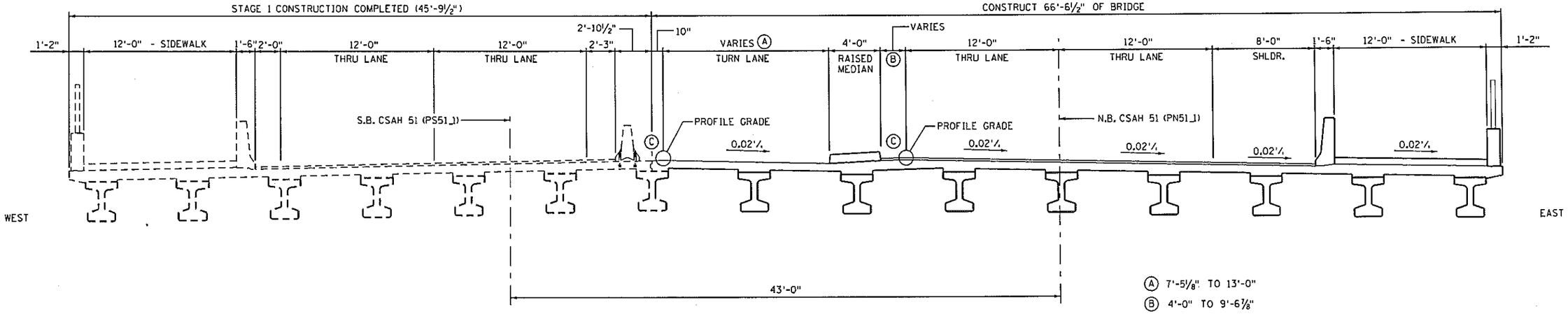
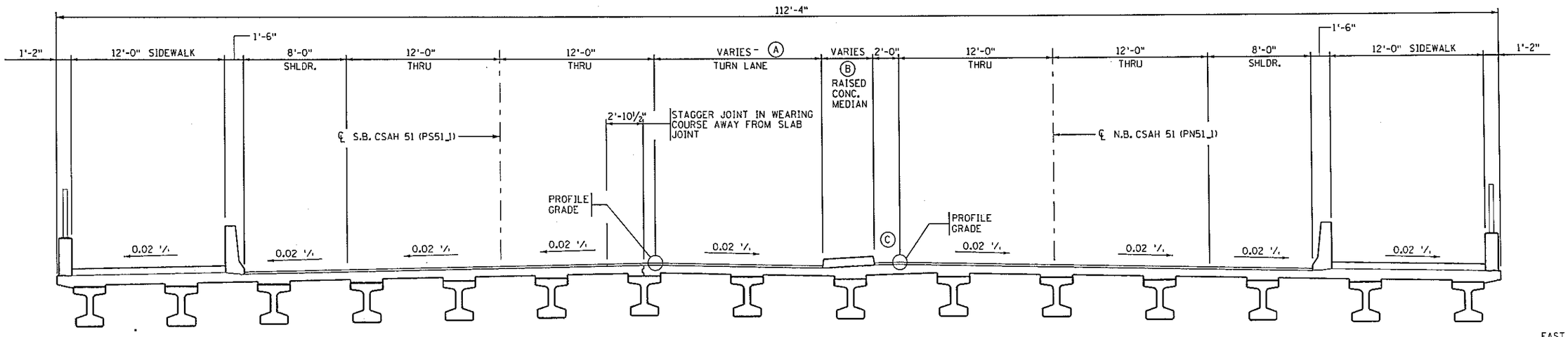


STAGE 2 CONSTRUCTION NOTES

1. SWITCH ALL TRAFFIC ONTO NEWLY CONSTRUCTED STAGE 1.
2. REMOVE REMAINDER OF EXISTING BRIDGE.
3. CONSTRUCT REMAINDER OF THE BRIDGE EAST OF STAGE 1 EXCEPT WEARING COURSE BETWEEN TEMPORARY BARRIER & 6" RAISED MEDIAN.

BRIDGE CONSTRUCTION - STAGE 2



STAGE 3 CONSTRUCTION NOTES

1. SWITCH NORTH BOUND TRAFFIC TO NORTH BOUND PERMANENT TRAFFIC LANES.
2. MOVE SOUTH BOUND TRAFFIC TO SOUTH BOUND SHOULDER AND WEST THRU LANE.
3. REMOVE TEMPORARY PORTABLE BARRIER AND COMPLETE REMAINDER OF BRIDGE.
4. SHIFT SOUTH BOUND TRAFFIC TO PERMANENT SOUTH BOUND THRU LANES.

(A) 7'-5⅛" TO 13'-0"
(B) 4'-0" TO 9'-6⅞"
(C) 0.02'/'

BRIDGE CONSTRUCTION - STAGE 3

NO	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY
S.P. 002-651-007

TITLE: STAGING PLAN

DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	

Sheet 333 of 381 Sheets

Bridge No. 02585

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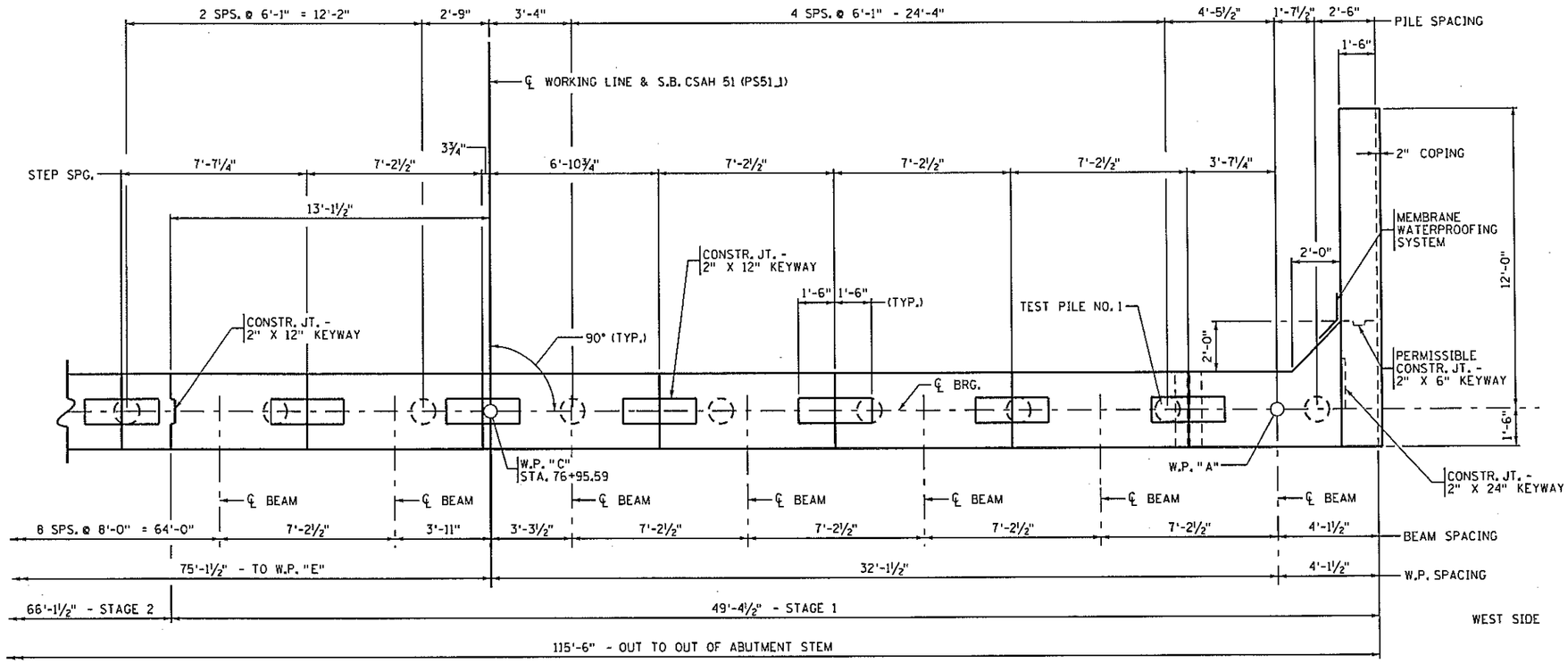


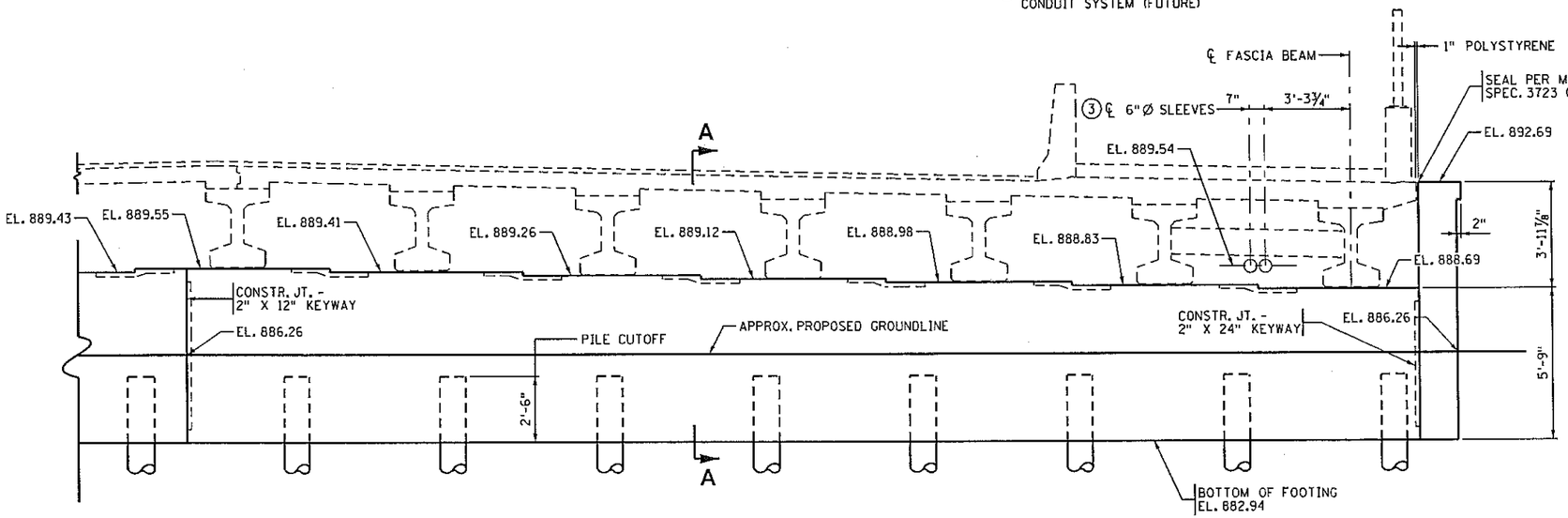
PLAN VIEW - STAGE 1

SUMMARY OF QUANTITIES - SOUTH ABUTMENT		
STRUCTURAL CONCRETE (3Y43)	94	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	11065	POUND
(1) C-I-P CONNCRETE PILING DELIVERED 12"	1445	LIN. FT.
(1) C-I-P CONCRETE PILING DRIVEN 12"	1445	LIN. FT.
(2) C-I-P CONCRETE TEST PILES 95 FT. LONG 12"	3	EACH
(2) MEMBRANE WATERPROOFING SYSTEM	155	LIN. FT.
STRUCTURE EXCAVATION	1	LUMP SUM
RANDOM RIPRAP CLASS III	215	CU. YD.
GEOTEXTILE FILTER TYPE IV MODIFIED	375	SQ. YD.
SLOPE PREPARATION	1	LUMP SUM
DRAINAGE SYSTEM TYPE (B910)	1	LUMP SUM

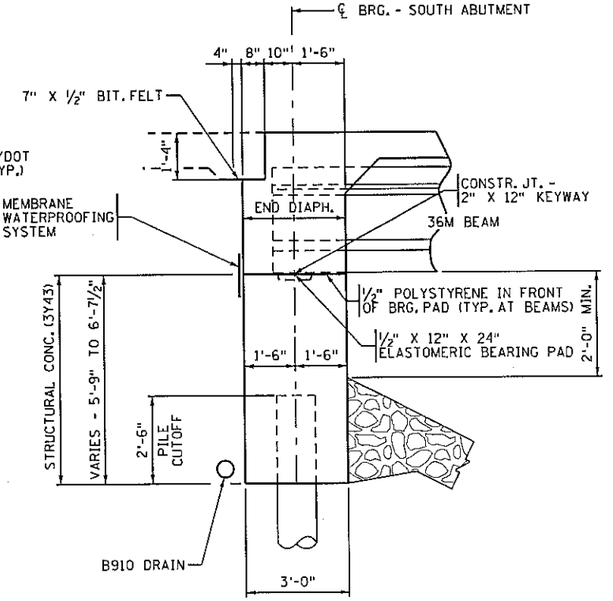
(1) DOES NOT INCLUDE TEST PILES.

(2) TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

(3) SLEEVES THRU END DIAPHRAGM ARE FOR CONDUIT SYSTEM (FUTURE)



ELEVATION VIEW - STAGE 1



SECTION A-A

NO	DATE	BY	CHK	REVISIONS

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DATE: 8-6-13 REG NO: 40456

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ANOKA COUNTY
S.P. 002-651-007

TITLE: SOUTH ABUTMENT DETAILS

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet 334 of 381 Sheets

Bridge No. 02585

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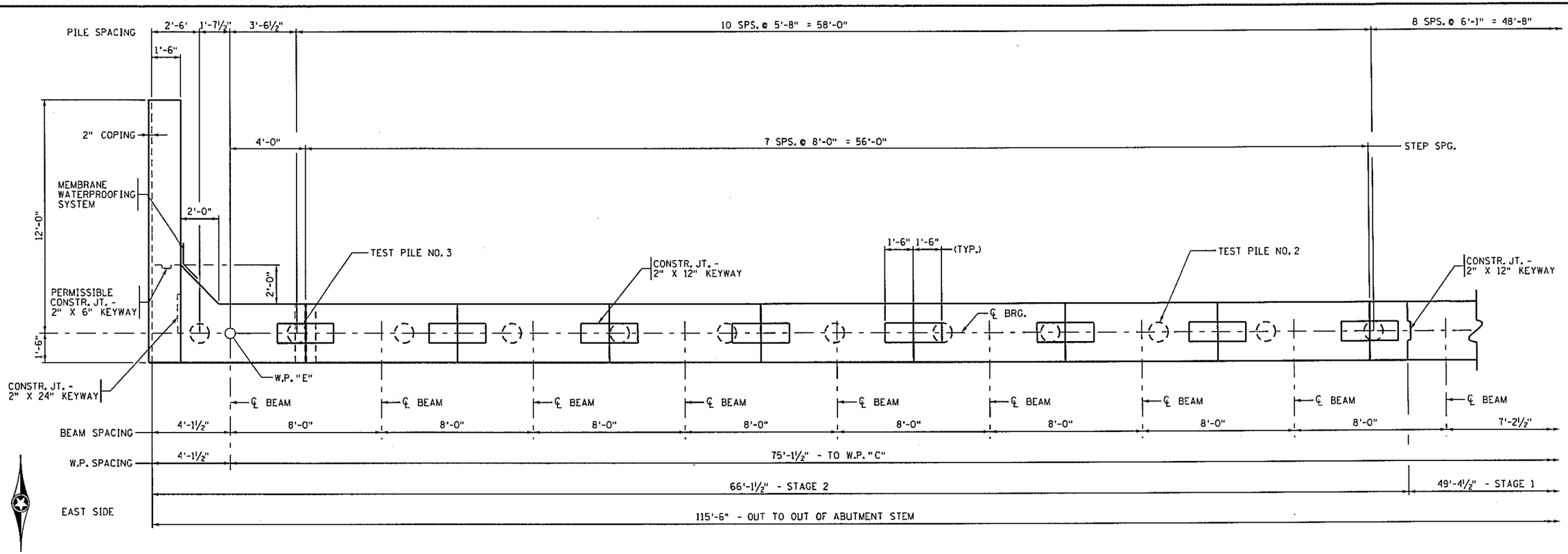
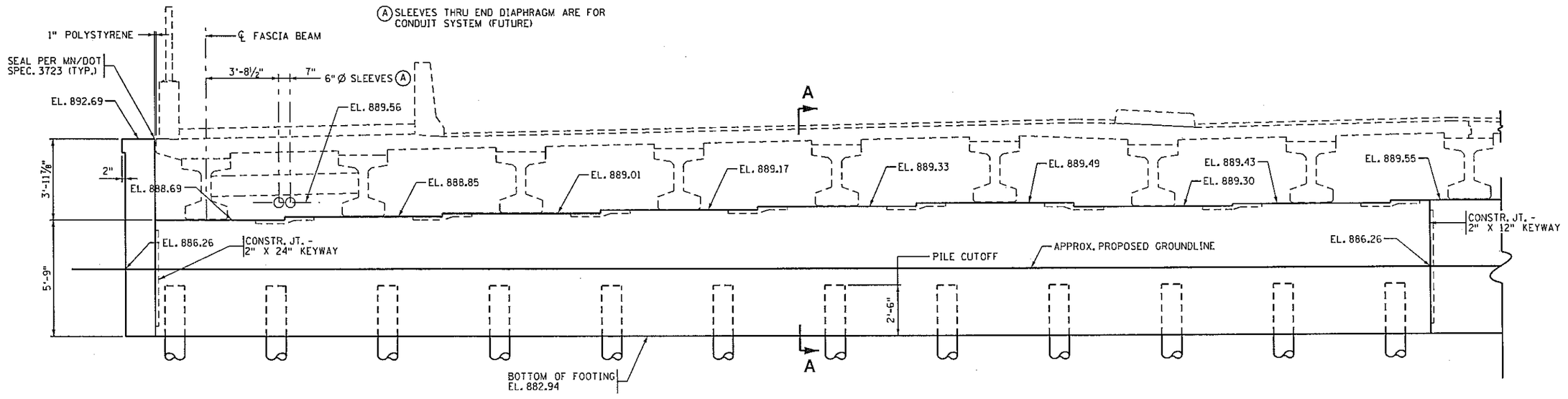


PLAN VIEW - STAGE 2



ELEVATION VIEW - STAGE 2

NO	DATE	BY	CHK	REVISIONS

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DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	
Sheet 335 of 391 Sheets		

Bridge No. 02585

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SOUTH ABUTMENT
REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES Rn - TONS/PILE

FIELD CONTROL METHOD	Φ dyn	* Rn
MN/DOT PILE FORMULA 2012 (MPF12) $Rn = 20\sqrt{\frac{W \times H}{1000}} \times \log(\frac{10}{S})$	0.50	164.6
PDA	0.65	126.6

* Rn = (FACTORED DESIGN LOAD) / Φ dyn

SOUTH ABUTMENT
COMPUTED PILE LOAD - TONS/PILE

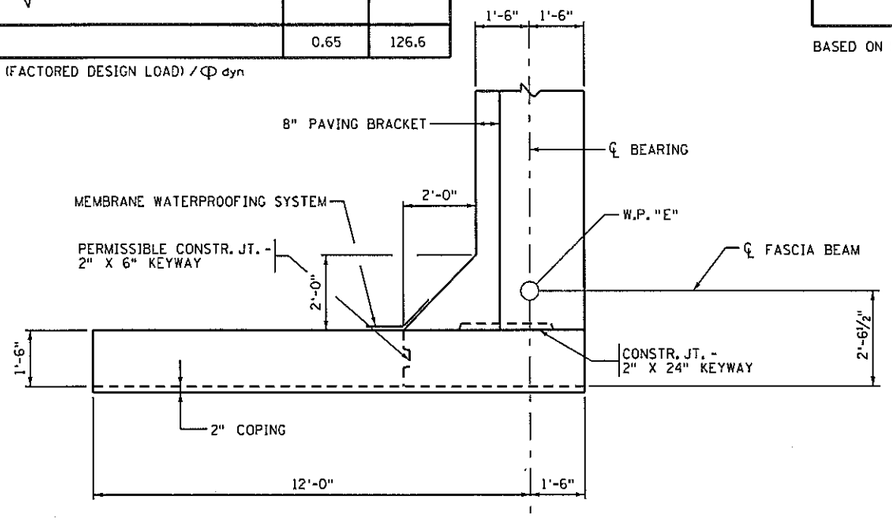
	SOUTH ABUT.
FACTORED DEAD LOAD + EARTH PRESSURE	62.1
FACTORED LIVE LOAD	20.2
FACTORED DESIGN LOAD =	82.3

BASED ON STRENGTH 1 LOAD COMBINATION.

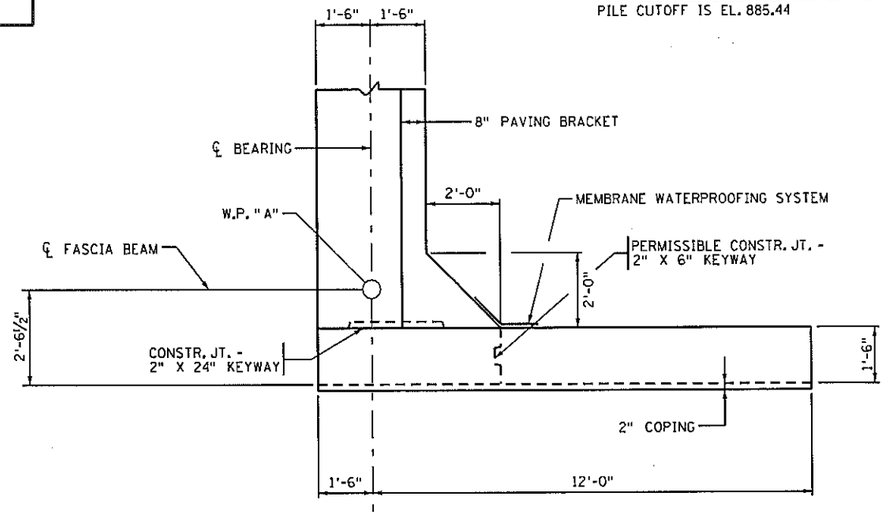
PILE NOTES

3 CAST-IN-PLACE CONC. TEST PILE 95 FT. LONG
17 CAST-IN-PLACE CONC. PILES EST. LENGTH 85 FT.
20 CAST-IN-PLACE CONC. PILES REQ'D FOR SOUTH ABUTMENT

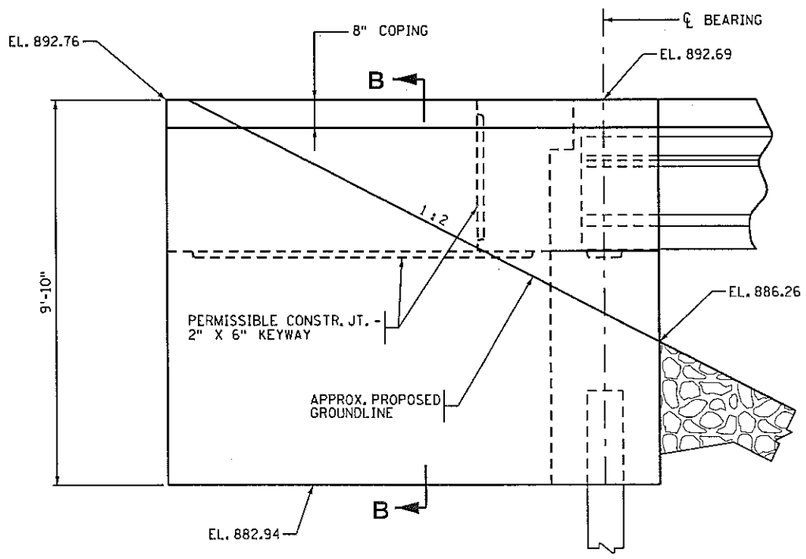
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES TO HAVE A NOMINAL DIAMETER OF 12"
FOR PILE SPLICE DETAILS SEE DETAIL B201
PILE CUTOFF IS EL. 885.44



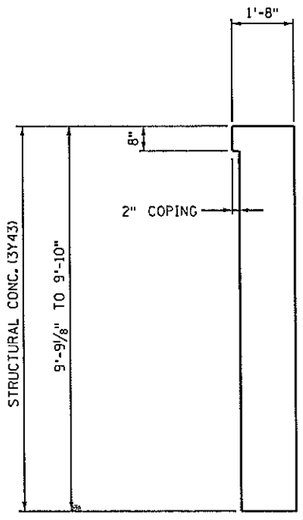
S.E. WINGWALL PLAN



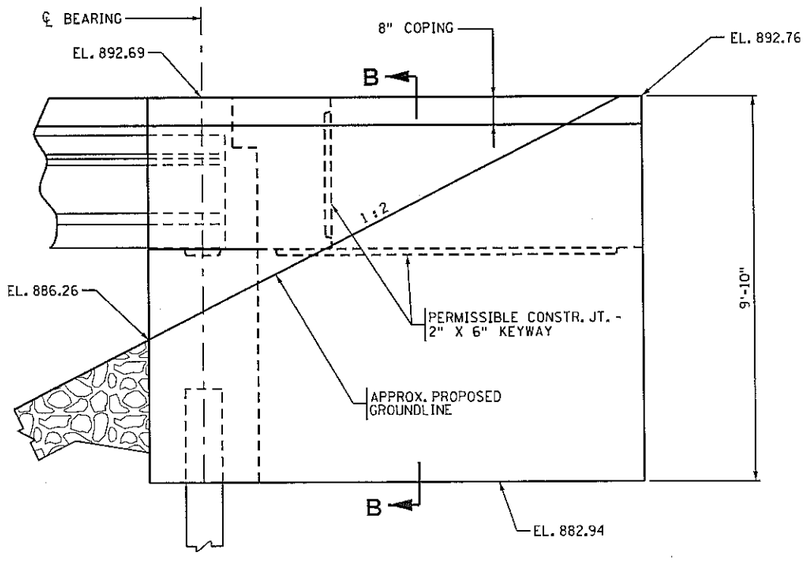
S.W. WINGWALL PLAN



S.E. WINGWALL ELEVATION



SECTION B-B



S.W. WINGWALL ELEVATION

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ANOKA COUNTY
S.P. 002-651-007

TITLE: SOUTH ABUTMENT DETAILS

DES: BRL | DR: DJV
CHK: AJN | CHK: BRL
Sheet 336 of 381 Sheets

Bridge No. 02585

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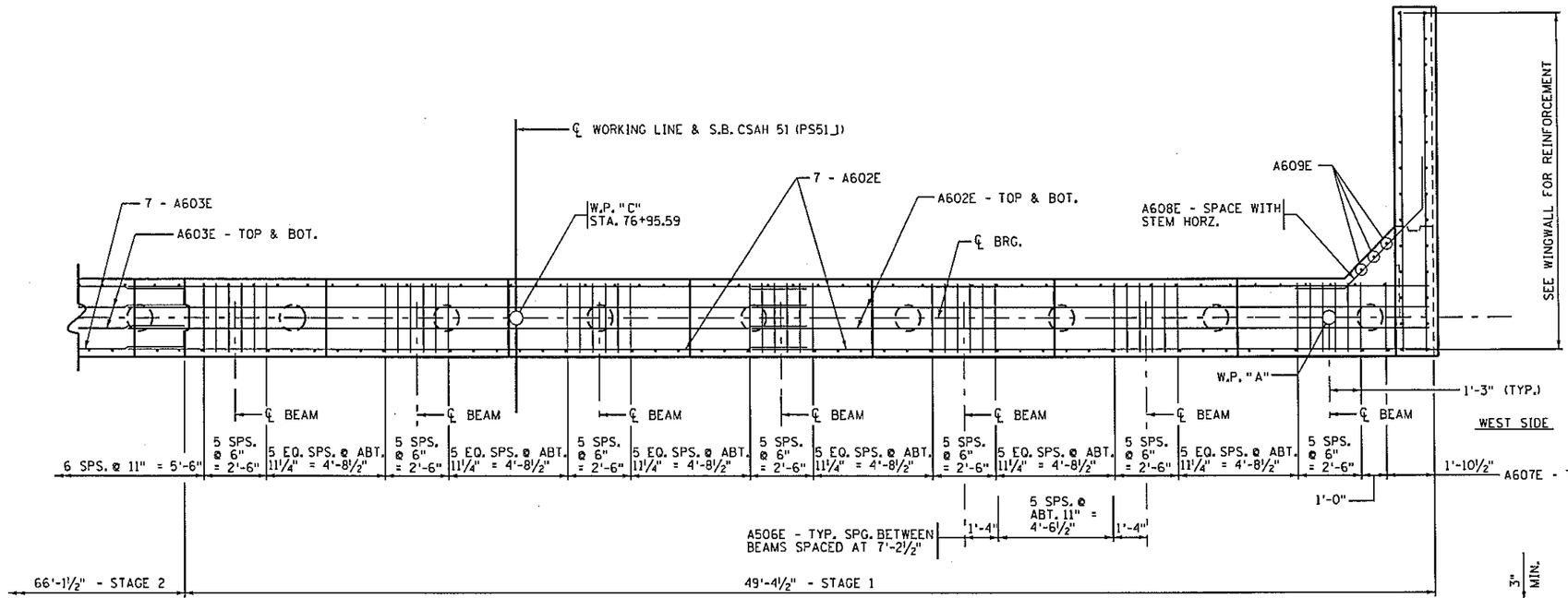
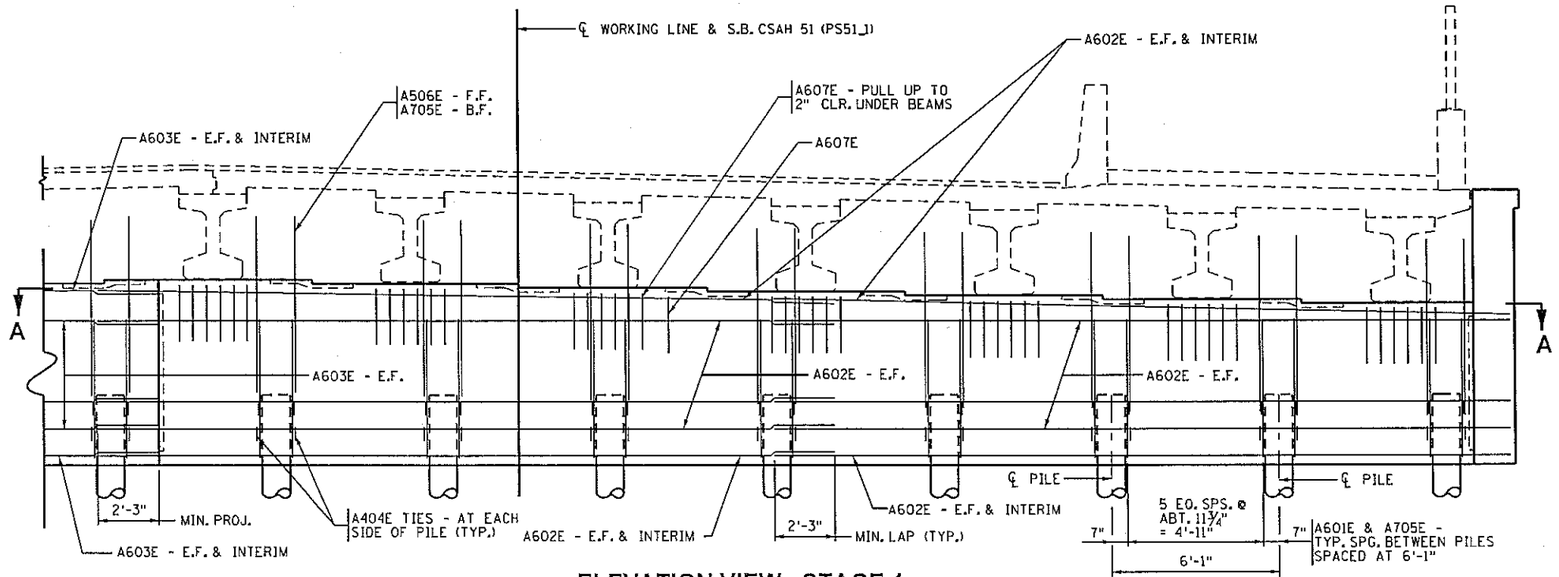
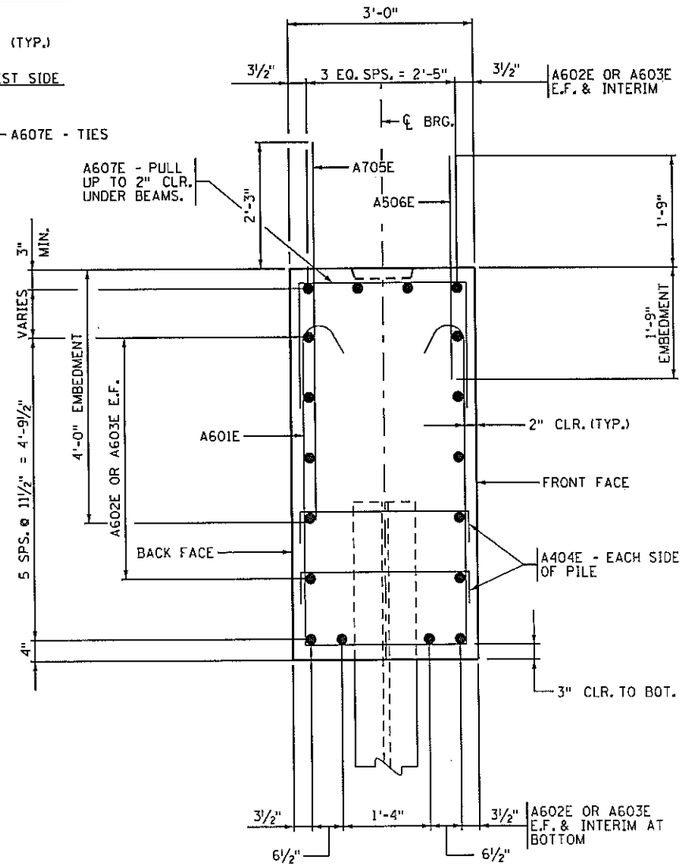


SECTION A-A - STAGE 1



ELEVATION VIEW - STAGE 1



TYPICAL SECTION THRU ABUTMENT

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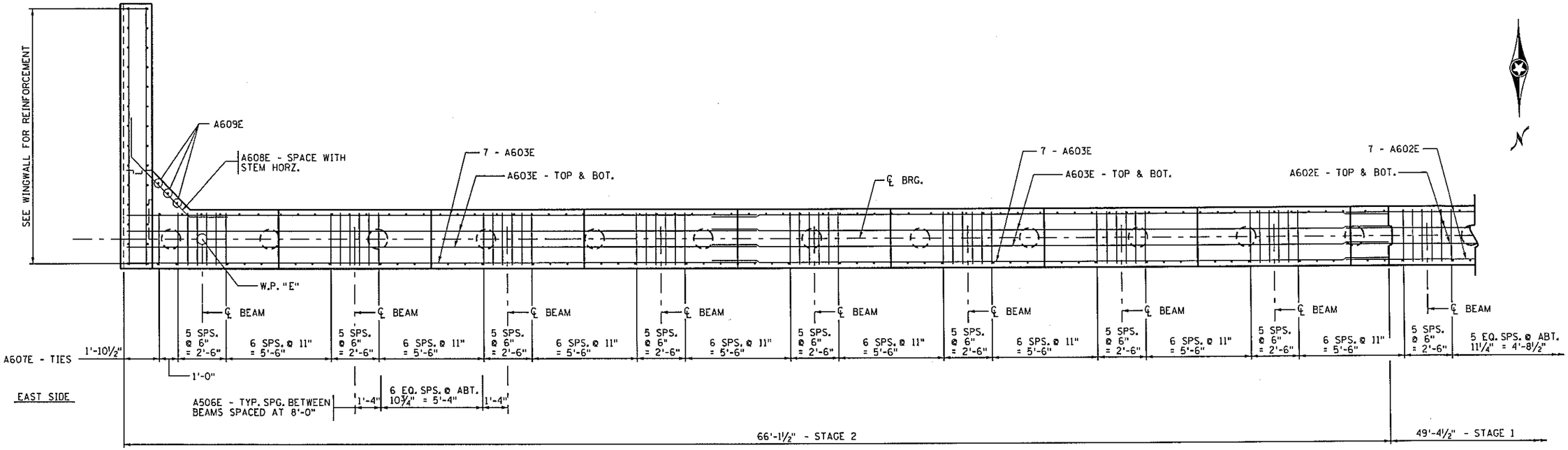

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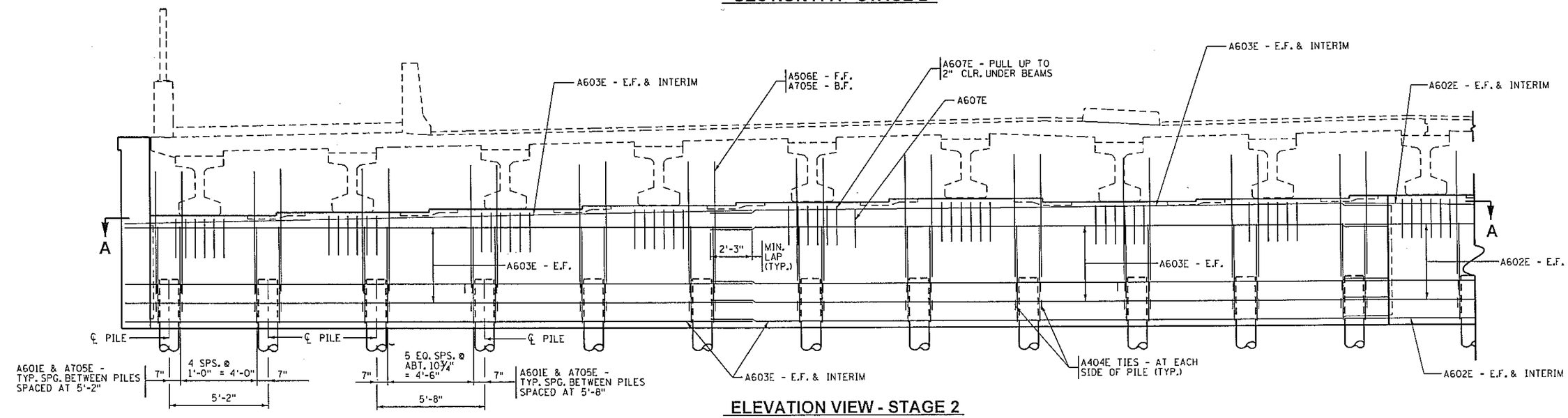

ELEVATION VIEW - STAGE 2

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Sheet 338 of 381 Sheets			

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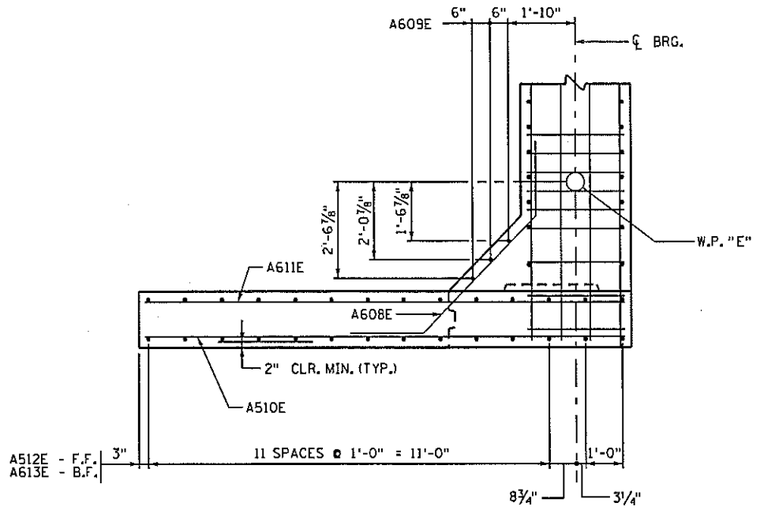

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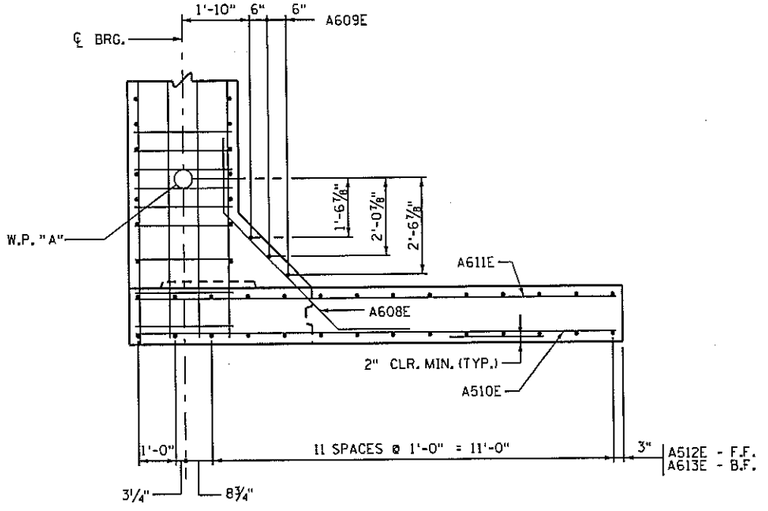

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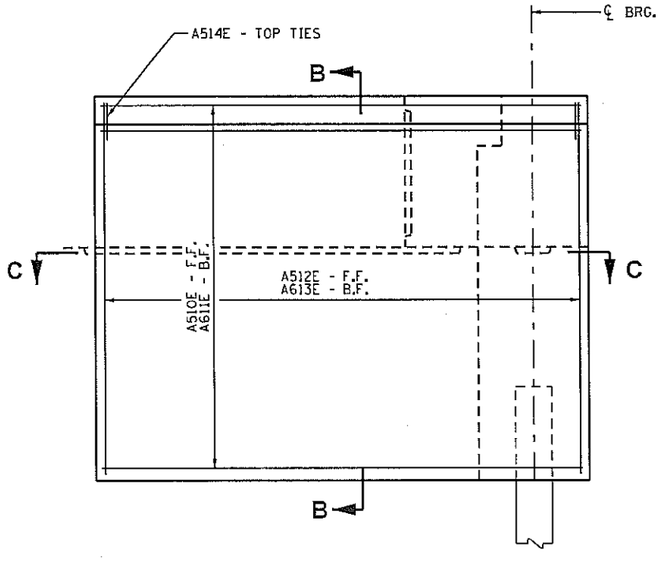
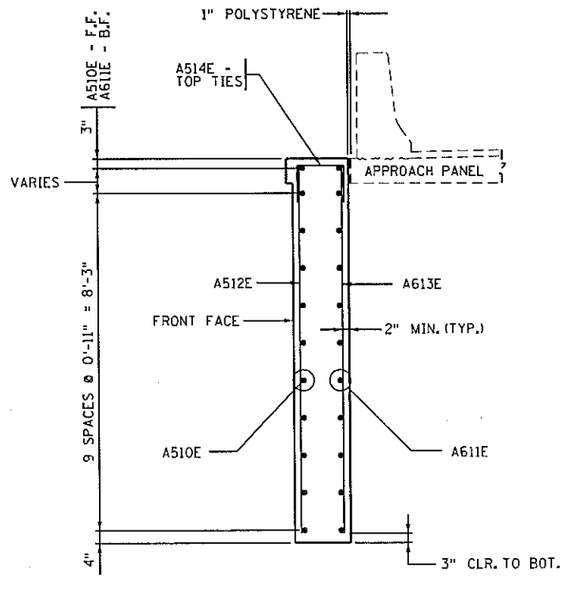


S.E. WINGWALL ELEVATION



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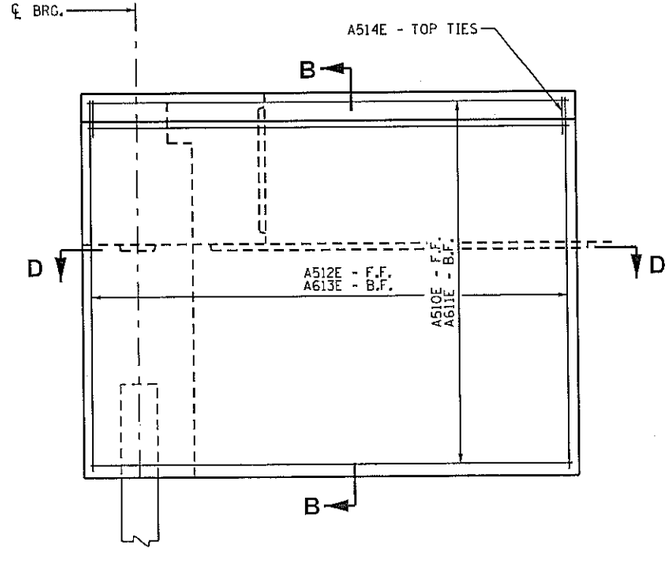

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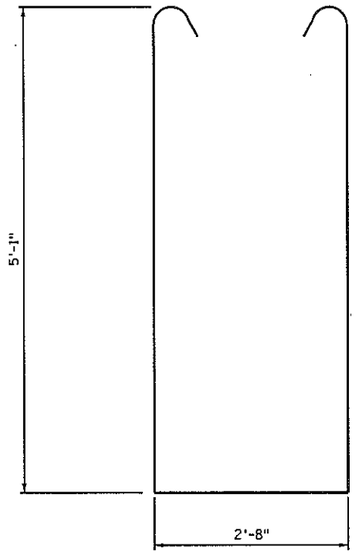

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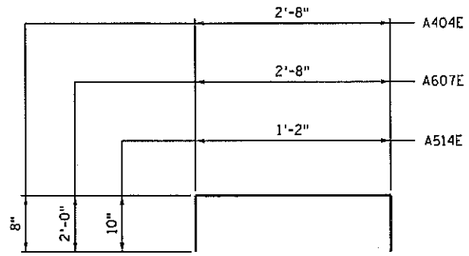

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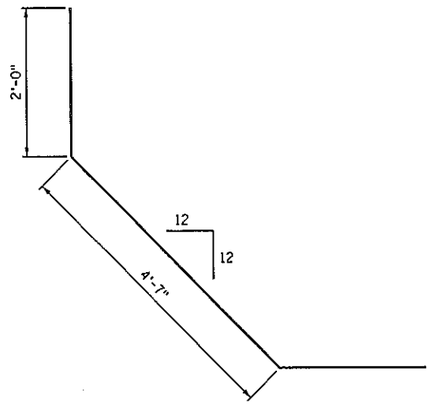

A608E

BILL OF REINFORCEMENT - SOUTH ABUTMENT

BAR	NO.	LENGTH	SHAPE	LOCATION
A601E	115	14'-2"		STEM - STIRRUPS
A602E	36	27'-0"		STEM - HORZ.
A603E	36	34'-2"		STEM - HORZ.
A404E	80	4'-0"		STEM - TIES @ PILES
A705E	115	6'-3"		STEM - B.F. DOWELS
A506E	96	3'-6"		STEM - F.F. DOWELS
A607E	156	6'-8"		STEM - BR. SEAT TIES
A608E	14	8'-7"		STEM - FILLET HORZS.
A609E	6	5'-5"		STEM - FILLET VERTS.
A510E	22	13'-2"		BOTH WINGS - F.F. HORZ.
A611E	22	13'-2"		BOTH WINGS - B.F. HORZ.
A512E	28	9'-4"		BOTH WINGS - F.F. VERT.
A613E	28	9'-4"		BOTH WINGS - B.F. VERT.
A514E	28	2'-10"		BOTH WINGS - TOP TIES

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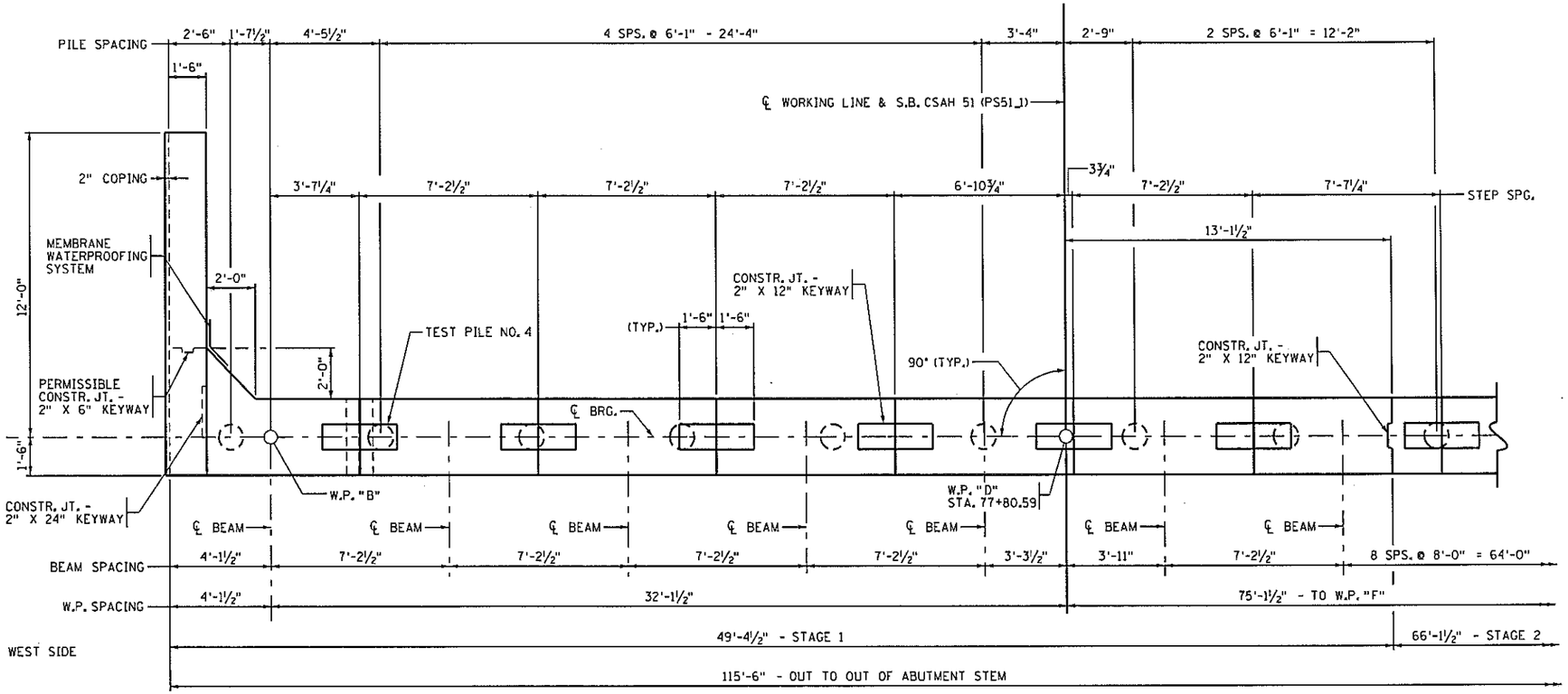


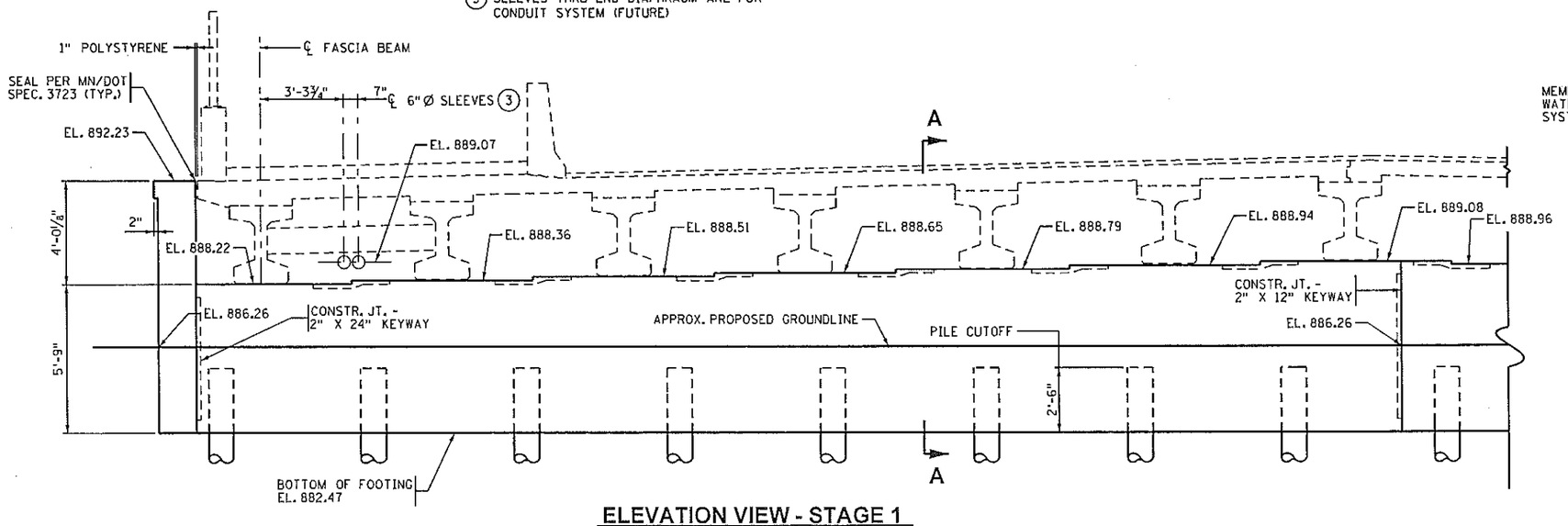
PLAN VIEW - STAGE 1

SUMMARY OF QUANTITIES - NORTH ABUTMENT		
STRUCTURAL CONCRETE (3Y43)	94	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	11065	POUND
(1) C-I-P CONNCRETE PILING DELIVERED 12"	1445	LIN. FT.
(1) C-I-P CONCRETE PILING DRIVEN 12"	1445	LIN. FT.
C-I-P CONCRETE TEST PILES 95 FT. LONG 12"	3	EACH
(2) MEMBRANE WATERPROOFING SYSTEM	155	LIN. FT.
STRUCTURE EXCAVATION	1	LUMP SUM
RANDOM RIPRAP CLASS III	215	CU. YD.
GEOTEXTILE FILTER TYPE IV MODIFIED	375	SQ. YD.
SLOPE PREPARATION	1	LUMP SUM
DRAINAGE SYSTEM TYPE (B910)	1	LUMP SUM

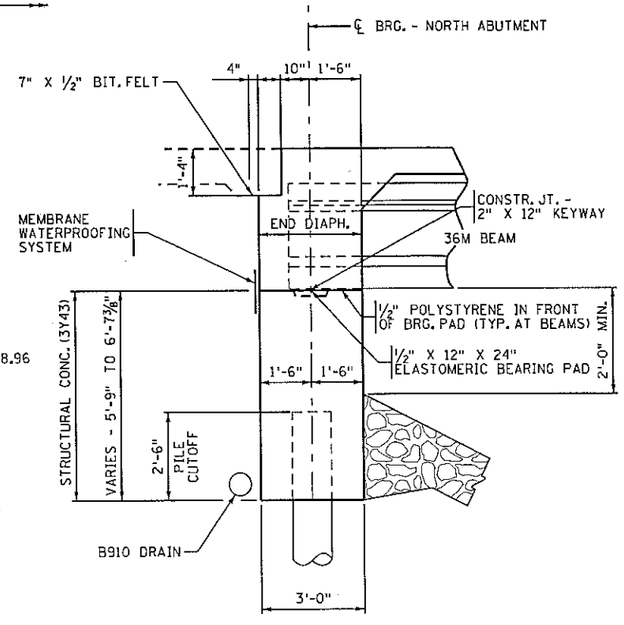
(1) DOES NOT INCLUDE TEST PILES.

(2) TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

(3) SLEEVES THRU END DIAPHRAGM ARE FOR CONDUIT SYSTEM (FUTURE)



ELEVATION VIEW - STAGE 1



SECTION A-A

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Sheet 341 of 381 Sheets

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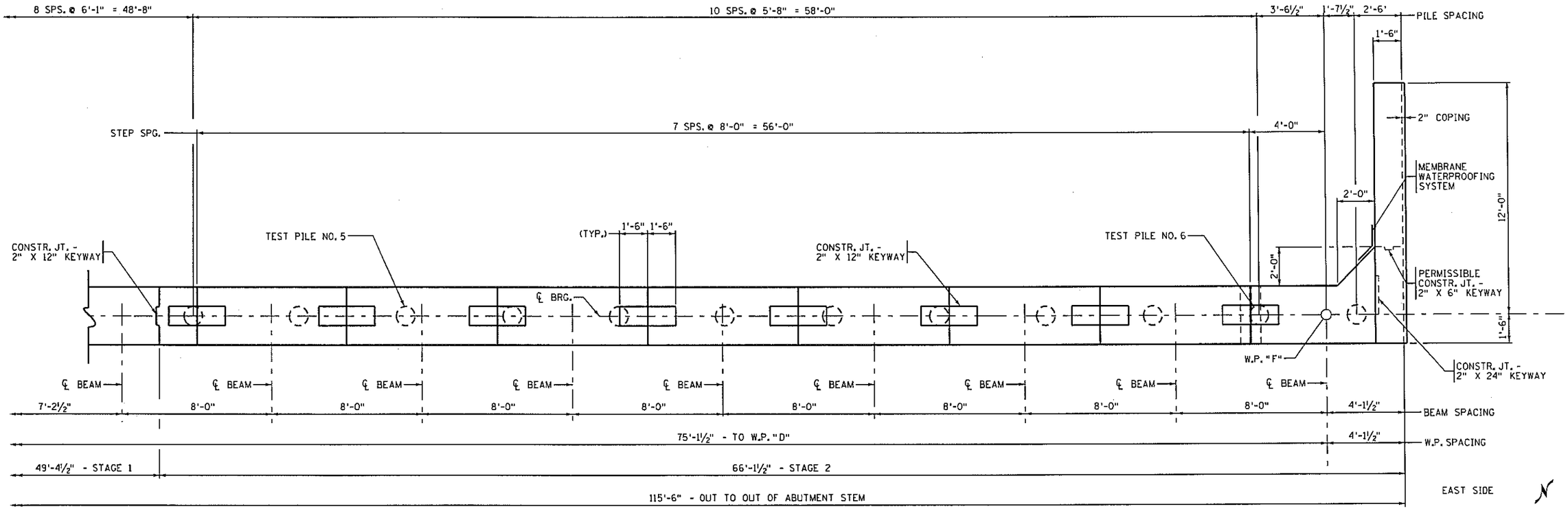
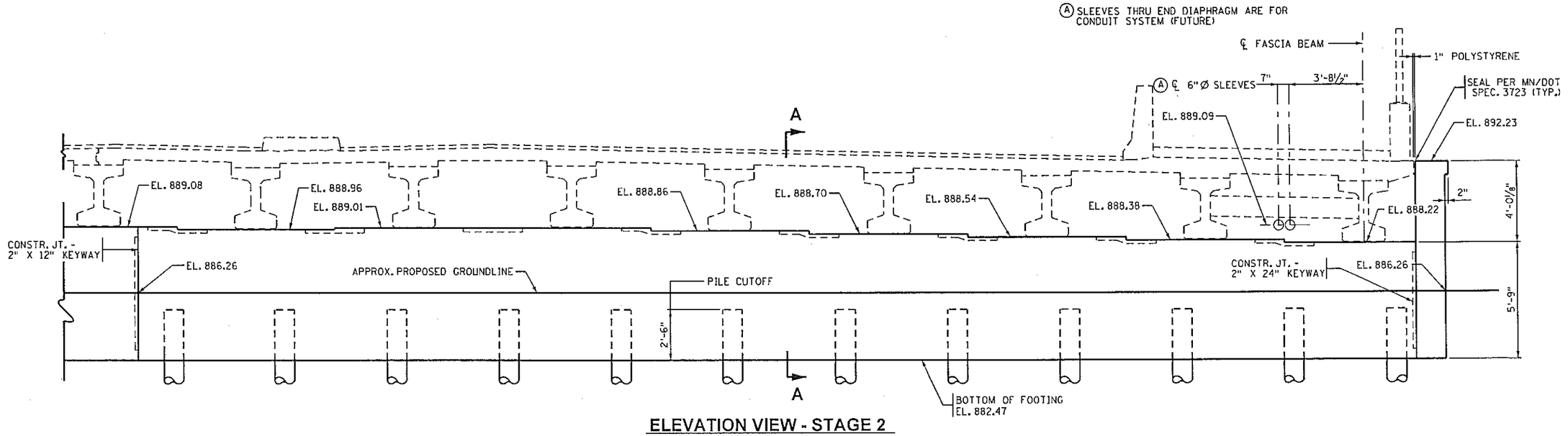


PLAN VIEW - STAGE 2



ELEVATION VIEW - STAGE 2

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NORTH ABUTMENT
REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES Rn - TONS/PILE

FIELD CONTROL METHOD	Φ dyn	* Rn
MN/DOT PILE FORMULA 2012 (MPF12) $Rn = 20\sqrt{\frac{W \times H}{1000}} \times \log(\frac{10}{S})$	0.50	164.6
PDA	0.65	126.6

* Rn = (FACTORED DESIGN LOAD) / Φ dyn

NORTH ABUTMENT
COMPUTED PILE LOAD - TONS/PILE

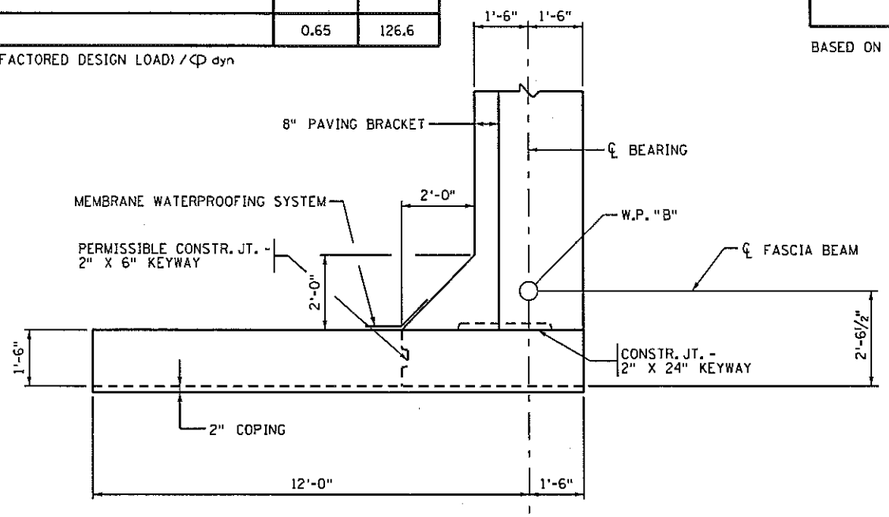
	NORTH ABUT.
FACTORED DEAD LOAD + EARTH PRESSURE	62.1
FACTORED LIVE LOAD	20.2
FACTORED DESIGN LOAD =	82.3

BASED ON STRENGTH 1 LOAD COMBINATION.

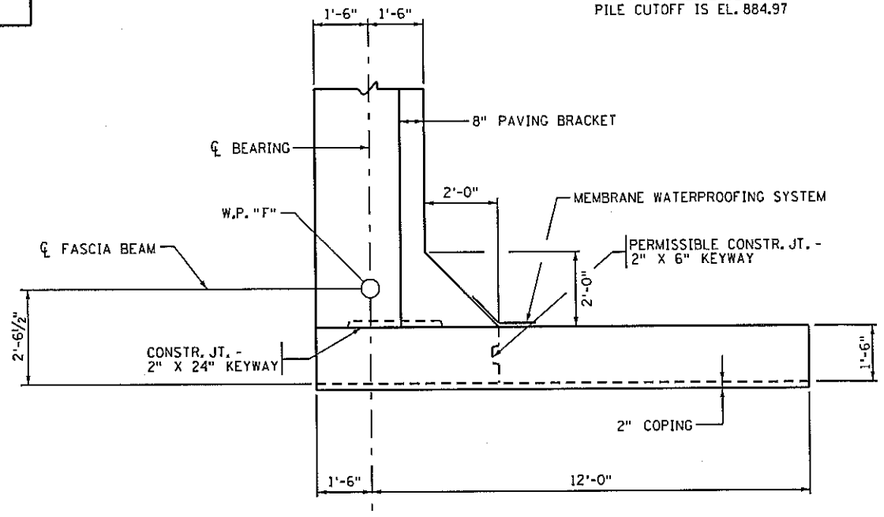
PILE NOTES

3 CAST-IN-PLACE CONC. TEST PILE 95 FT. LONG
17 CAST-IN-PLACE CONC. PILES EST. LENGTH 85 FT.
20 CAST-IN-PLACE CONC. PILES REQ'D FOR NORTH ABUTMENT

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES TO HAVE A NOMINAL DIAMETER OF 12"
FOR PILE SPLICE DETAILS SEE DETAIL B201
PILE CUTOFF IS EL. 884.97



N.W. WINGWALL PLAN



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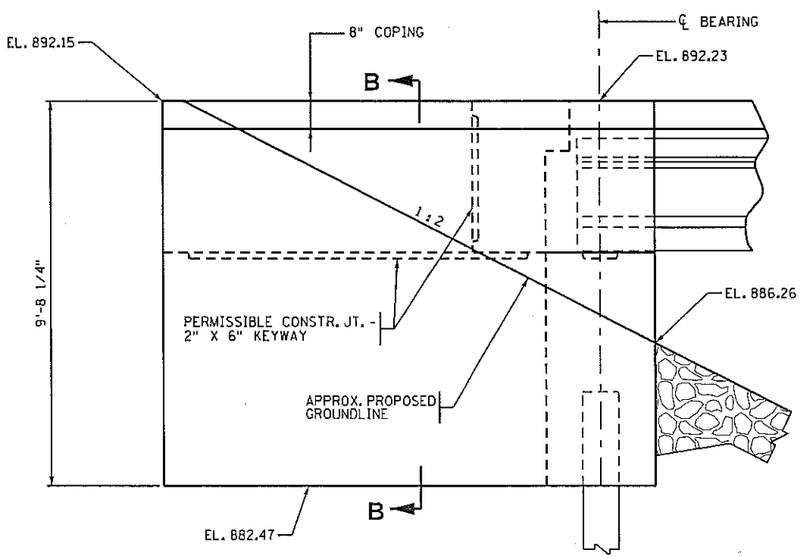

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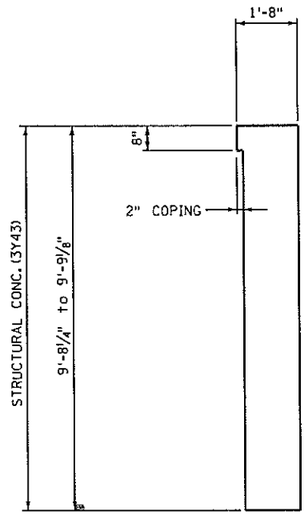
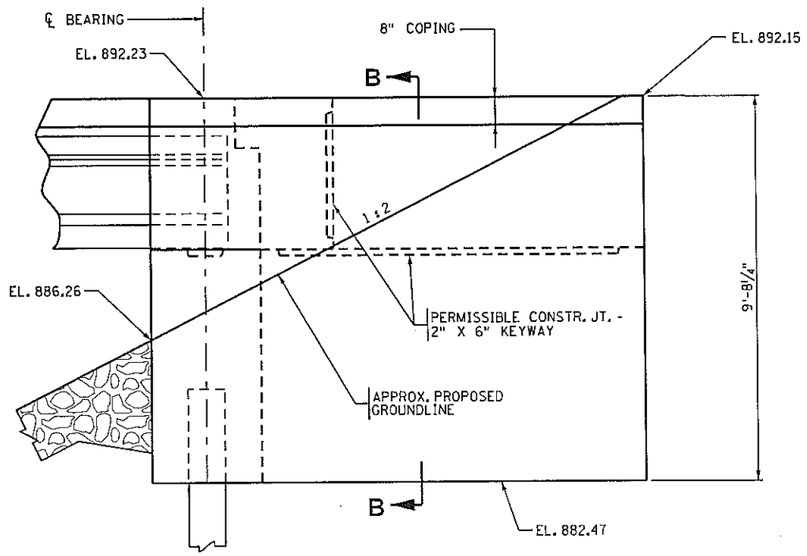


SECTION B-B



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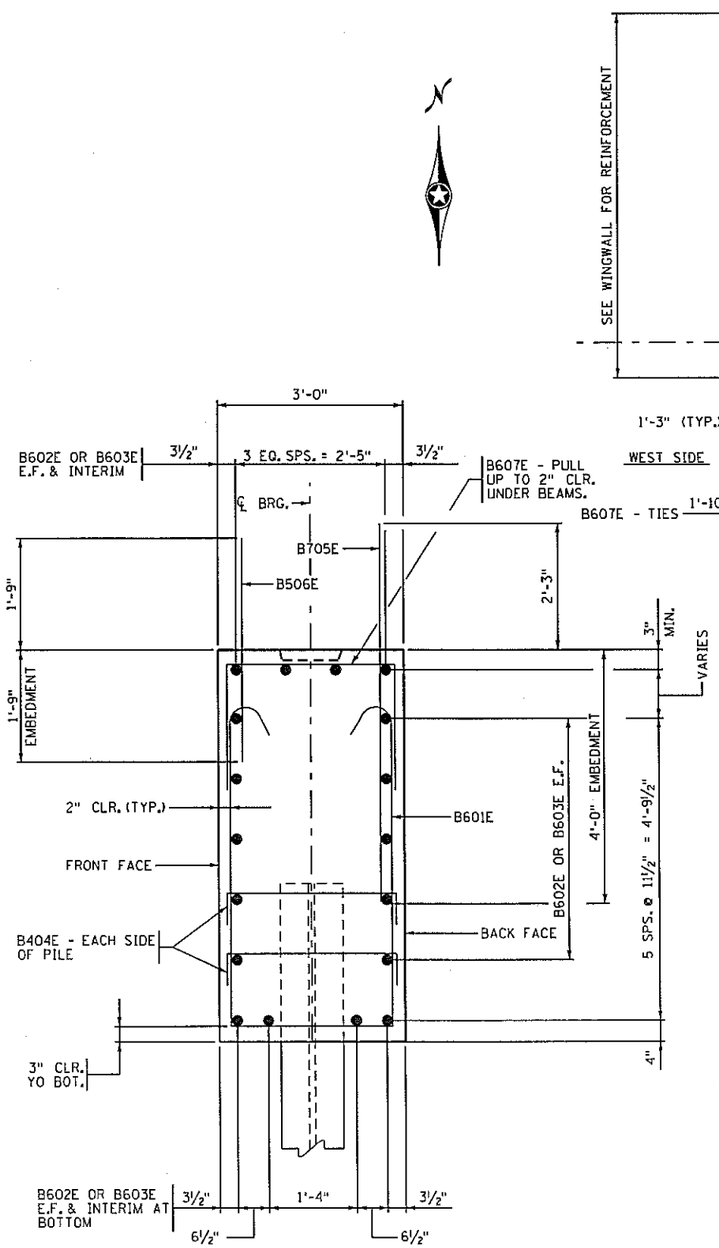
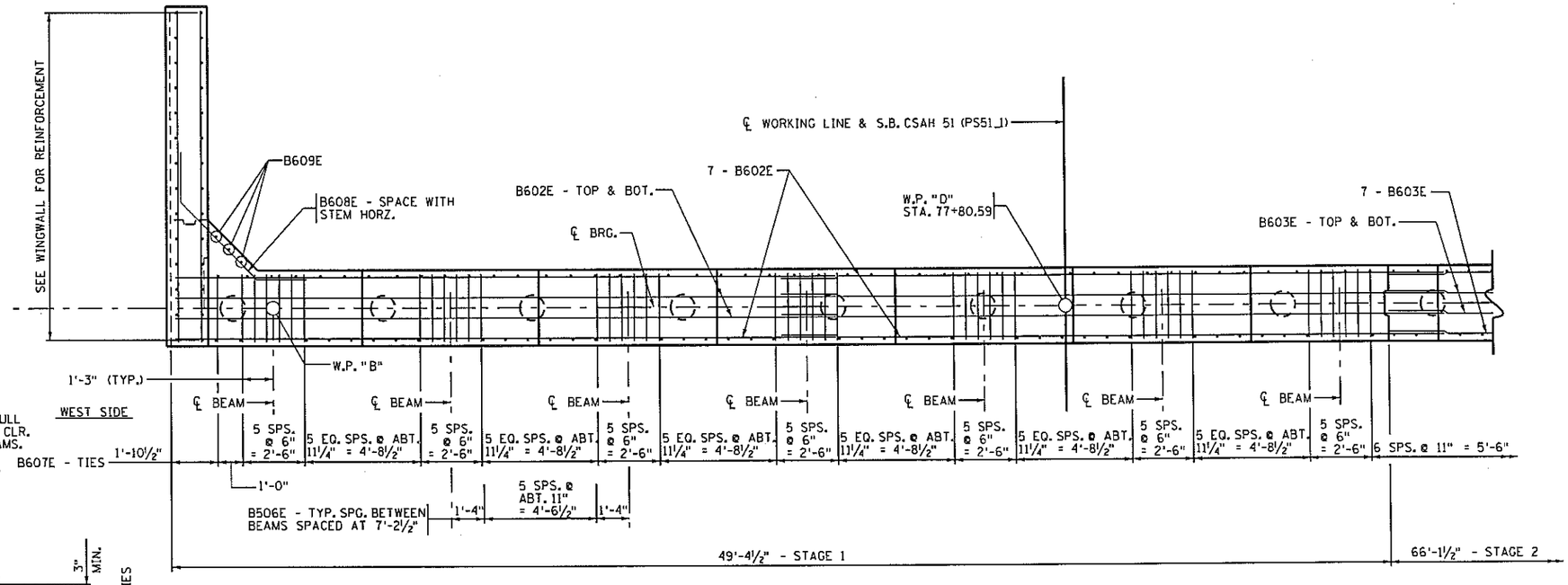
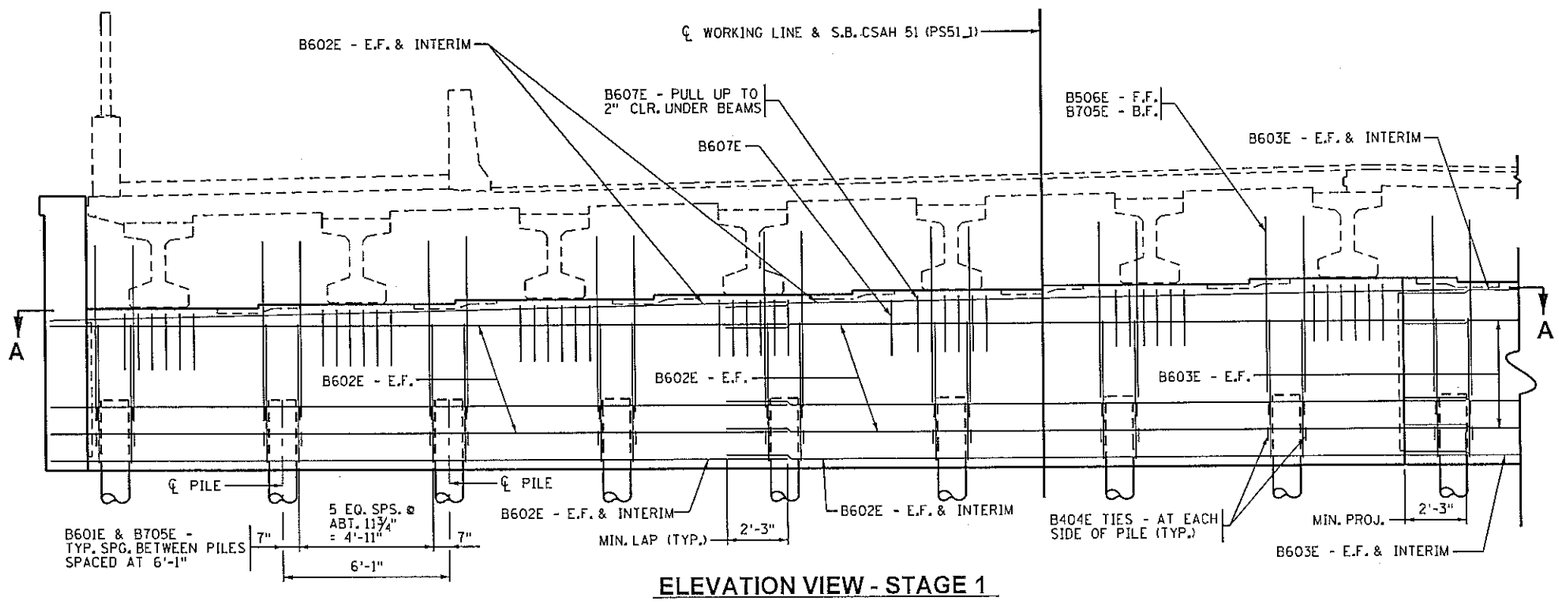


TYPICAL SECTION THRU ABUTMENT



SECTION A-A - STAGE 1



ELEVATION VIEW - STAGE 1

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DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	

Sheet 344 of 381 Sheets

Bridge No. 02585

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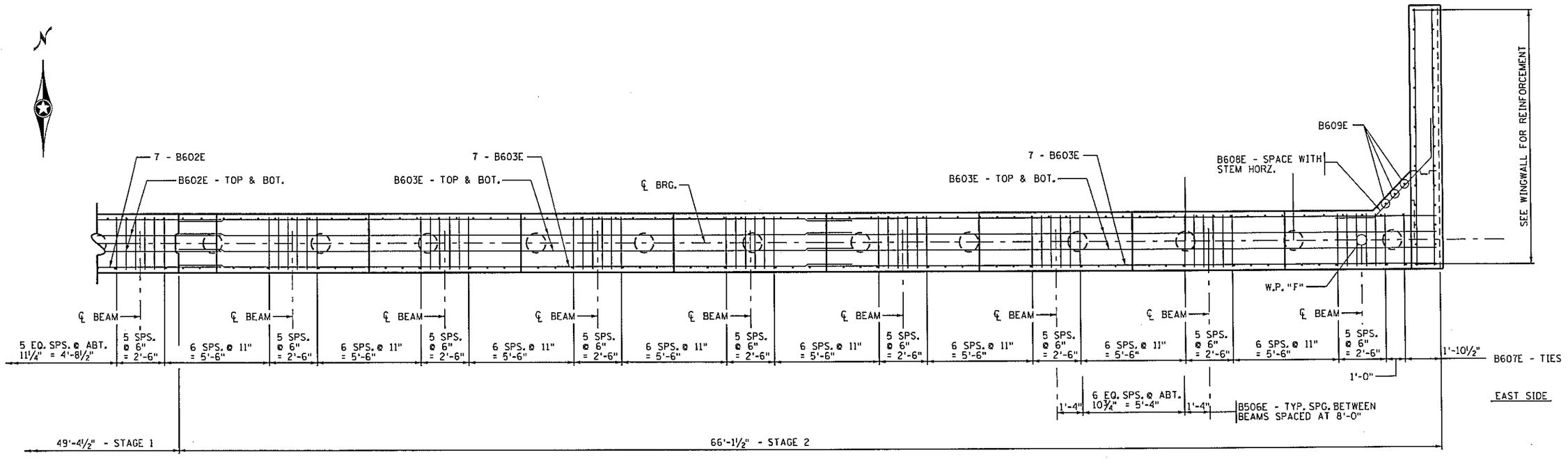
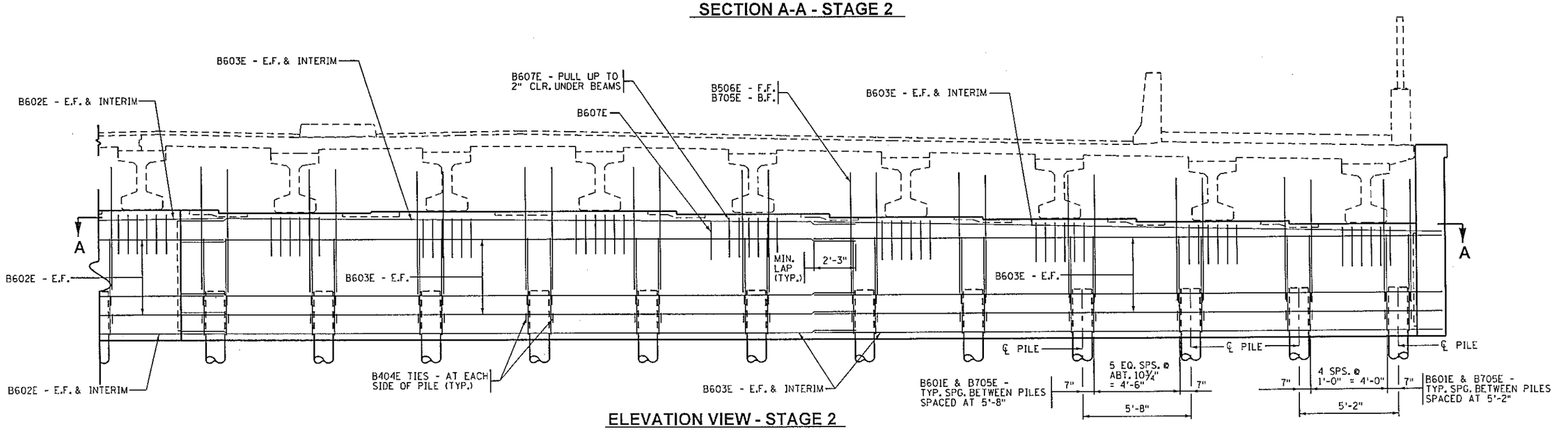


SECTION A-A - STAGE 2



ELEVATION VIEW - STAGE 2

NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40456

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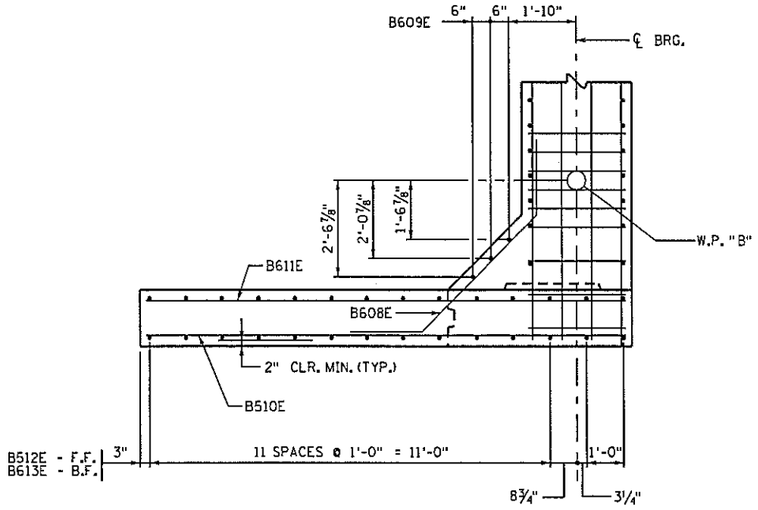

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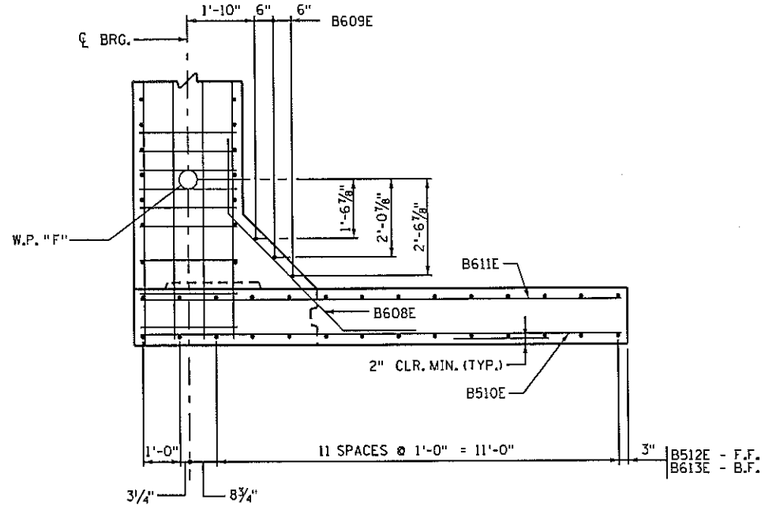

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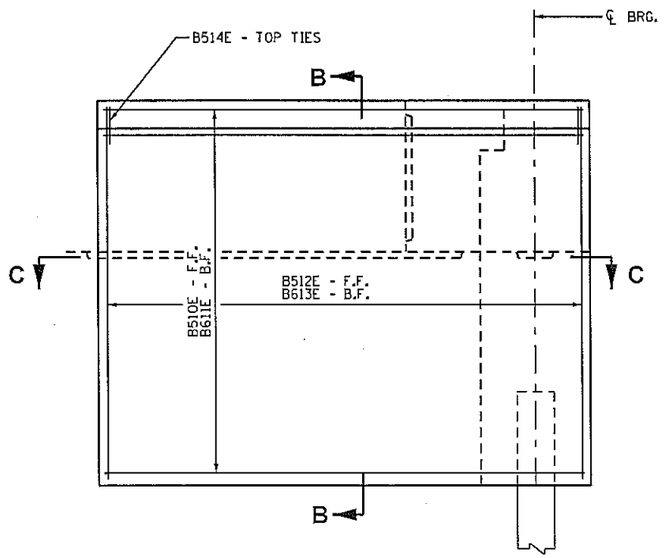
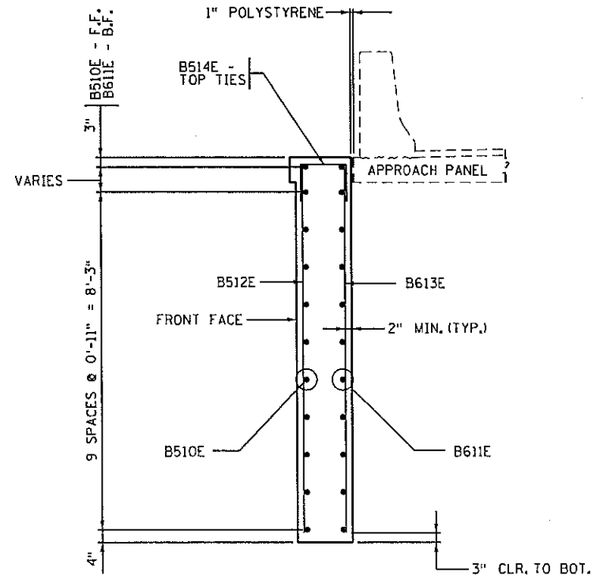


N.W. WINGWALL ELEVATION



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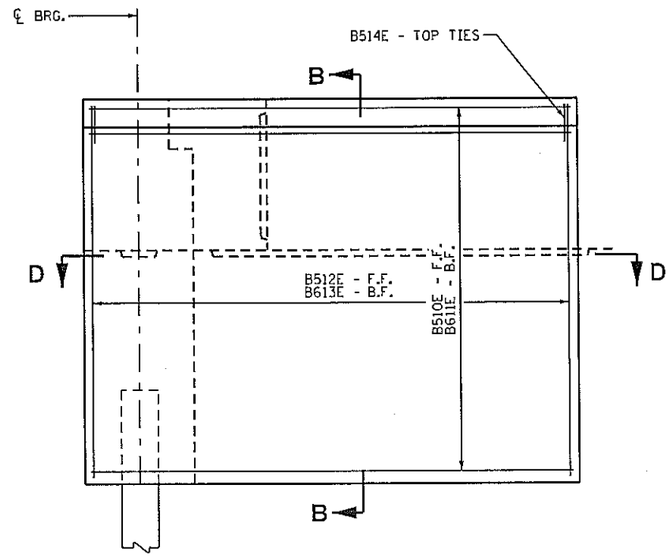

N.E. WINGWALL ELEVATION

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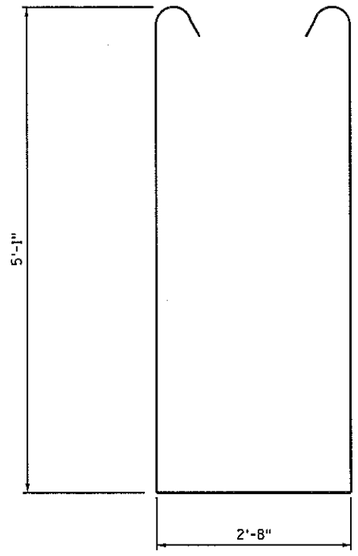

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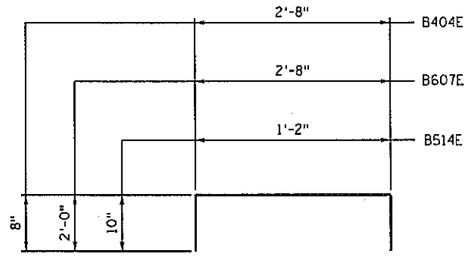
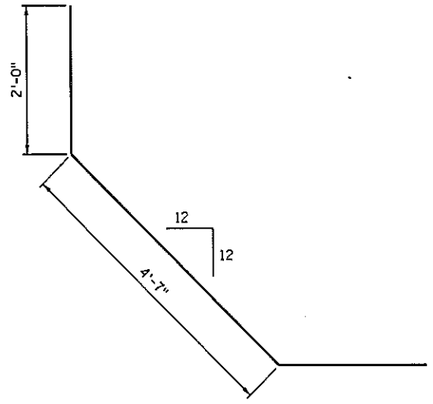


B404E, B607E, & B514E



B608E

BILL OF REINFORCEMENT - NORTH ABUTMENT

BAR	NO.	LENGTH	SHAPE	LOCATION
B601E	115	14'-2"		STEM - STIRRUPS
B602E	36	27'-0"		STEM - HORZ.
B603E	36	34'-2"		STEM - HORZ.
B404E	80	4'-0"		STEM - TIES @ PILES
B705E	115	6'-3"		STEM - B.F. DOWELS
B506E	96	3'-6"		STEM - F.F. DOWELS
B607E	156	6'-8"		STEM - BR. SEAT TIES
B608E	14	8'-7"		STEM - FILLET HORZS.
B609E	6	5'-5"		STEM - FILLET VERTS.
B510E	22	13'-2"		BOTH WINGS - F.F. HORZ.
B611E	22	13'-2"		BOTH WINGS - B.F. HORZ.
B512E	28	9'-4"		BOTH WINGS - F.F. VERT.
B613E	28	9'-4"		BOTH WINGS - B.F. VERT.
B514E	28	2'-10"		BOTH WINGS - TOP TIES

NO	DATE	BY	CHK	REVISIONS

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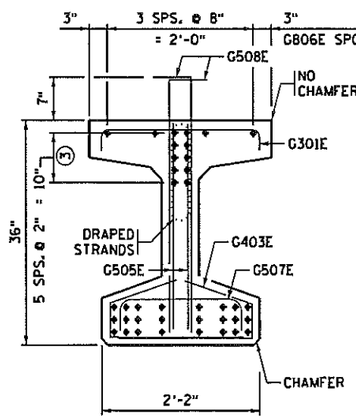
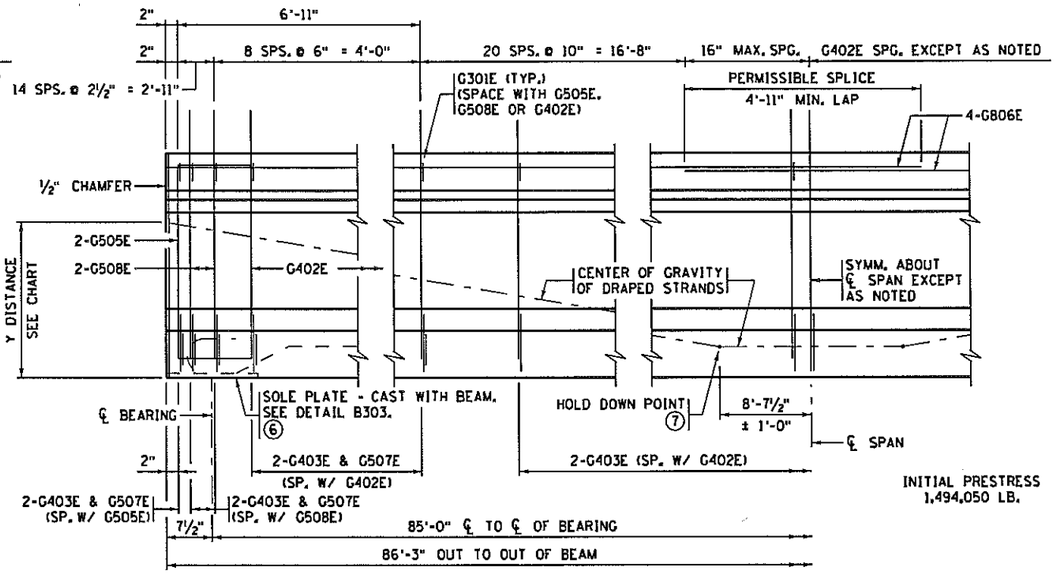


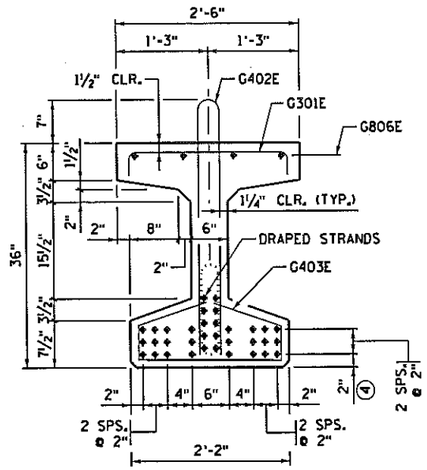
END VIEW

CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.



BEAM ELEVATION

INITIAL PRESTRESS 1,494,050 LB.

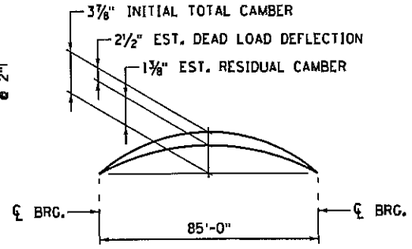


SECTION AT ℄ SPAN

Y DISTANCES (IN INCHES)			
	NO.	℄ SPAN	END
STRAIGHT STRANDS	24	4	☒
DRAPED STRANDS	10	7	29 ▫
TOTAL STRANDS	34	4.9	☒

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

INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

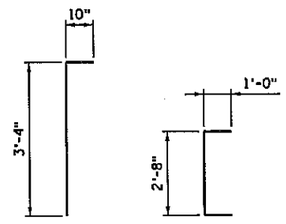
DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, RAILING, SIDEWALK AND MEDIAN WHERE APPLICABLE.

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

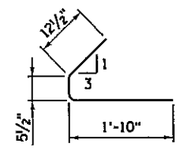
CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	20.1 KSI
LONG TERM LOSSES	23.8 KSI
TOTAL LOSSES	43.9 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'cI	② f'c
7500 KSI	9000 KSI

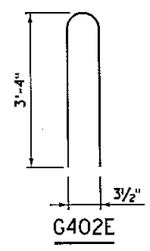
PRESTRESSING STRAND DIAMETER	
⑤	½" ☐
⑤	0.60" ☒



G508E G505E



G403E



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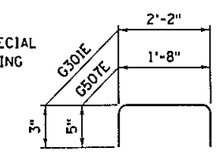


G301E & G507E

GENERAL NOTES

TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND.

PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405. SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS 26.5 TONS.

AS AN ALTERNATE TO THE 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.

① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.

② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.

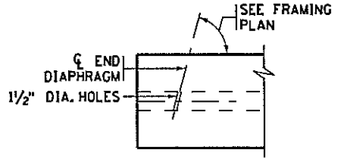
③ DRAPED STRANDS.

④ STRAIGHT STRANDS.

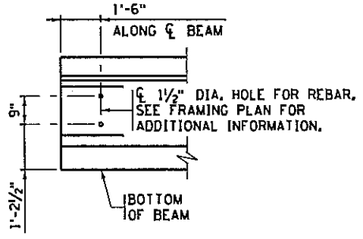
⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.

⑥ FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE.

⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

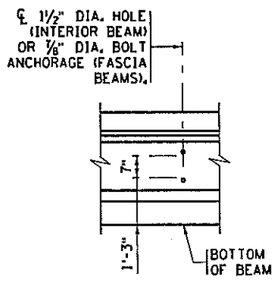


PLAN



ELEVATION

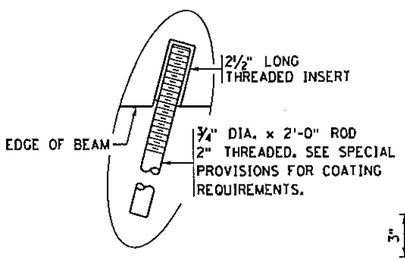
CONCRETE END DIAPHRAGM



ELEVATION

STEEL INTERMEDIATE DIAPHRAGM

(SEE DETAIL B403 FOR DIAPHRAGM DETAILS)



DETAIL "A"

SEE SUPERSTRUCTURE DETAILS AND REINFORCEMENT FOR DIAPHRAGM DETAILS.

REVISED: 10-22-2009

APPROVED: OCTOBER 26, 2005

STATE BRIDGE ENGINEER

BEAMS B1 & B2

FIG. 5-397.505

NO	DATE	BY	CHK	REVISIONS

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S.P. 002-651-007

TITLE: 36" PRESTRESSED CONCRETE BEAM (PRETENSIONED) 36M - 86

DES: BRL DR: DJV

CHK: AJN CHK: BRL

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Bridge No. 02585

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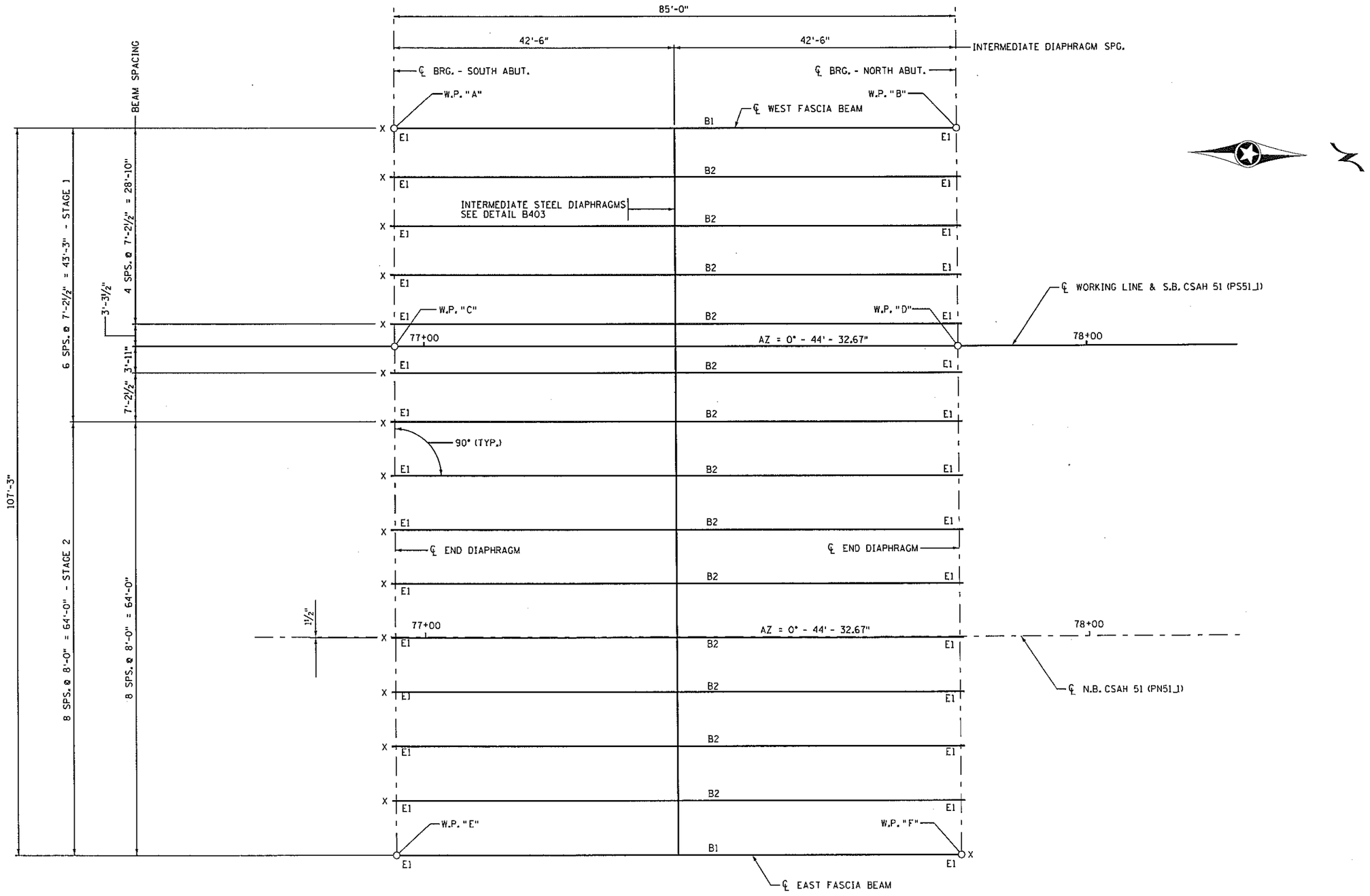

FRAMING PLAN

X = MARKS END OF BEAM

E1 = ELASTOMERIC PAD, TYPE 1

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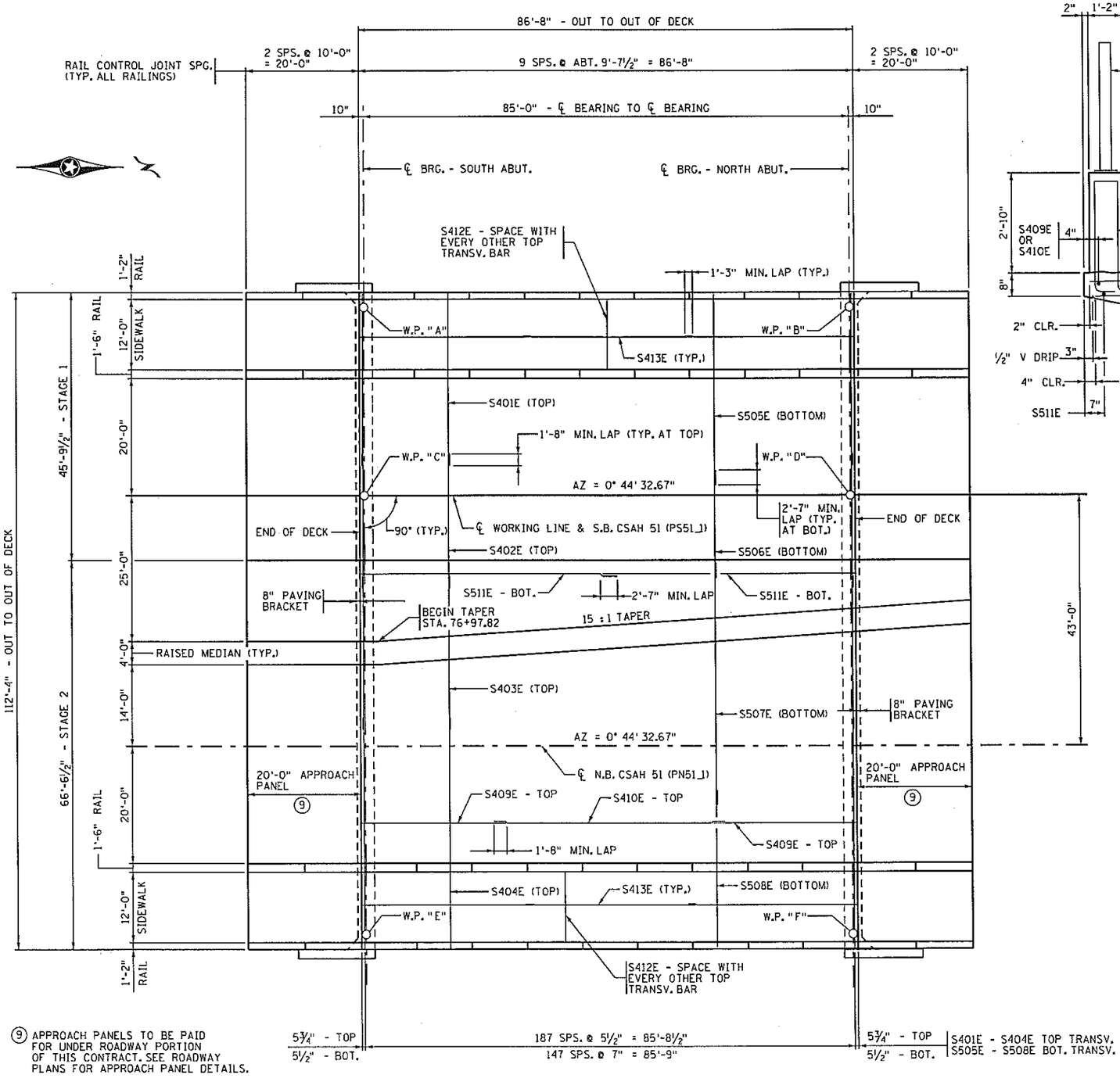
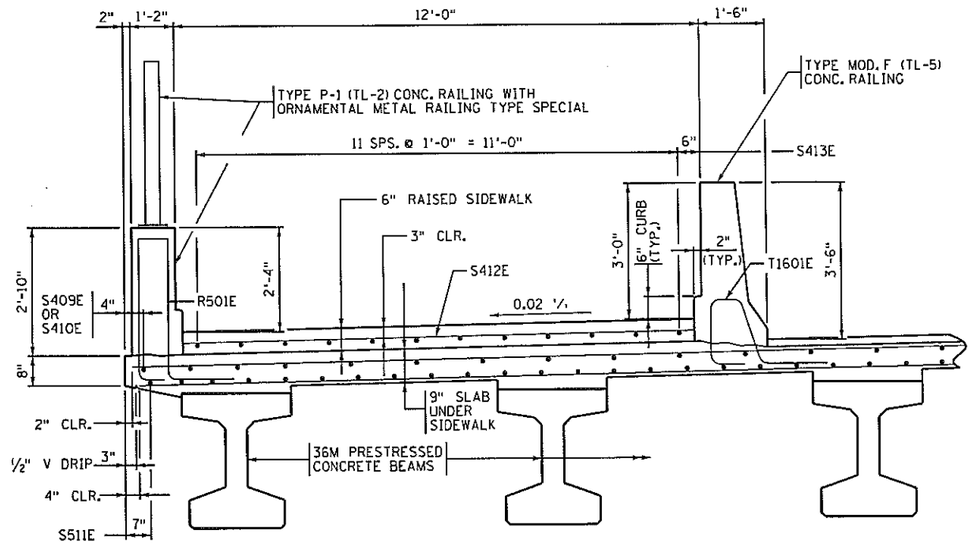


⑨ APPROACH PANELS TO BE PAID FOR UNDER ROADWAY PORTION OF THIS CONTRACT. SEE ROADWAY PLANS FOR APPROACH PANEL DETAILS.

DECK PLAN



EDGE OF DECK AND RAISED SIDEWALK DETAIL

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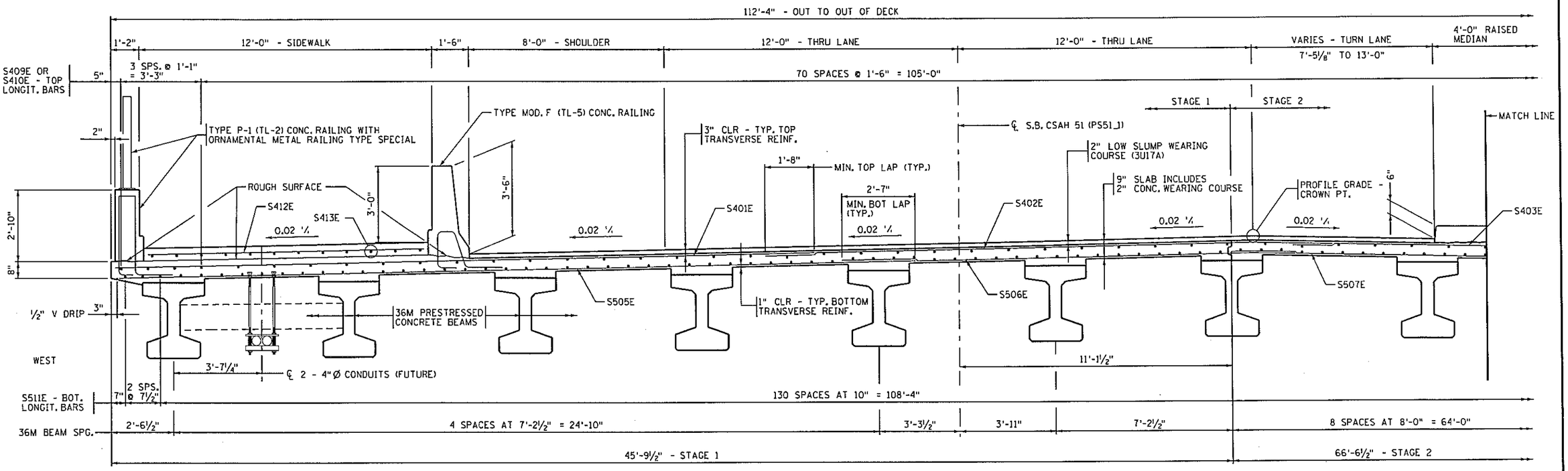
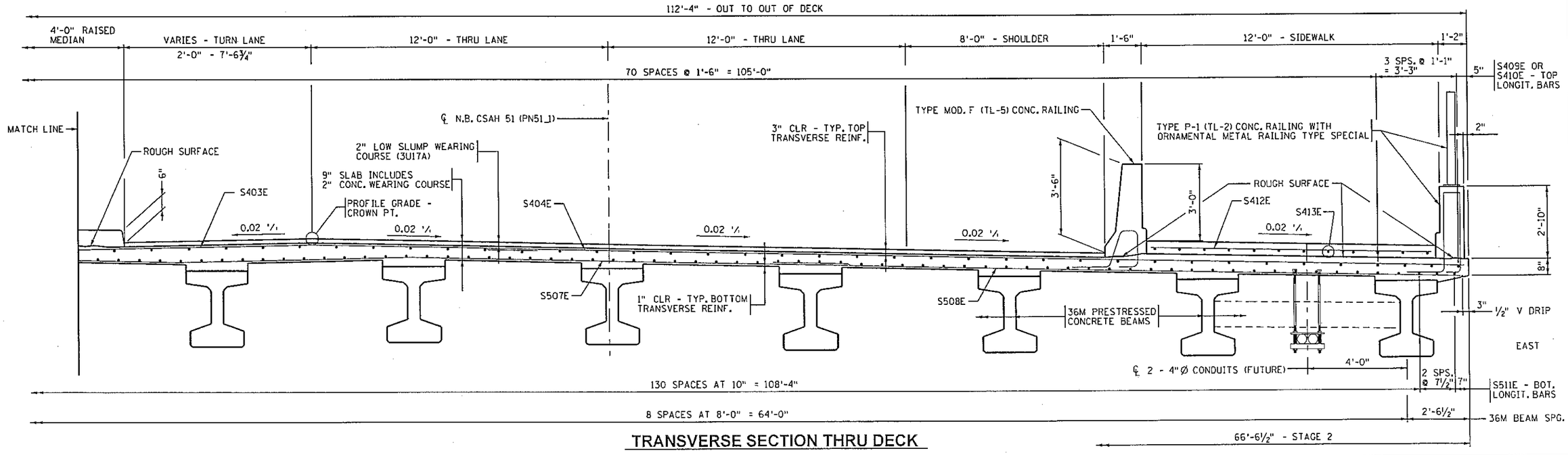


TRANSVERSE SECTION THRU DECK

NOTE:
SEE SHT. 23 FOR EDGE DECK & SIDEWALK DETAILS.



TRANSVERSE SECTION THRU DECK

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Sheet 35 of 38 Sheets

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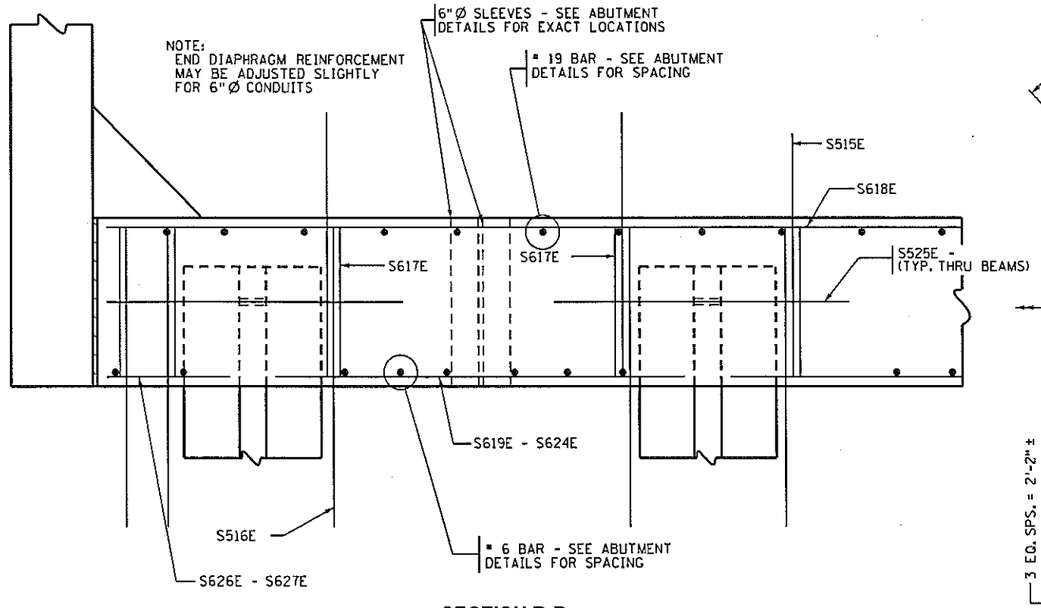
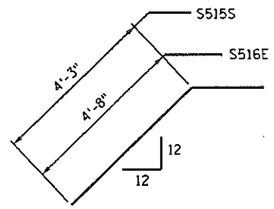
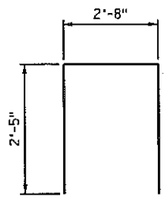


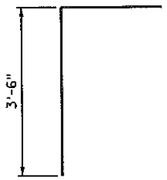
SECTION B-B



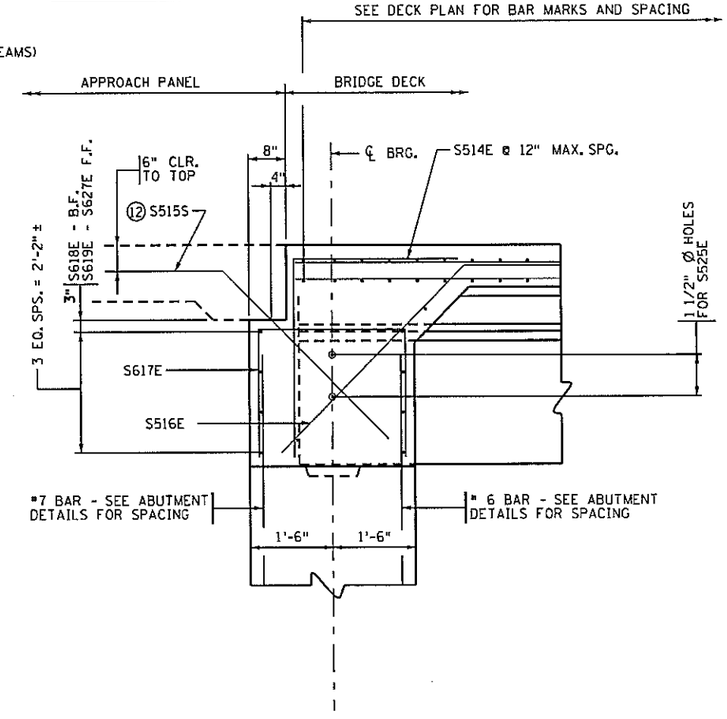
S515S & S516E



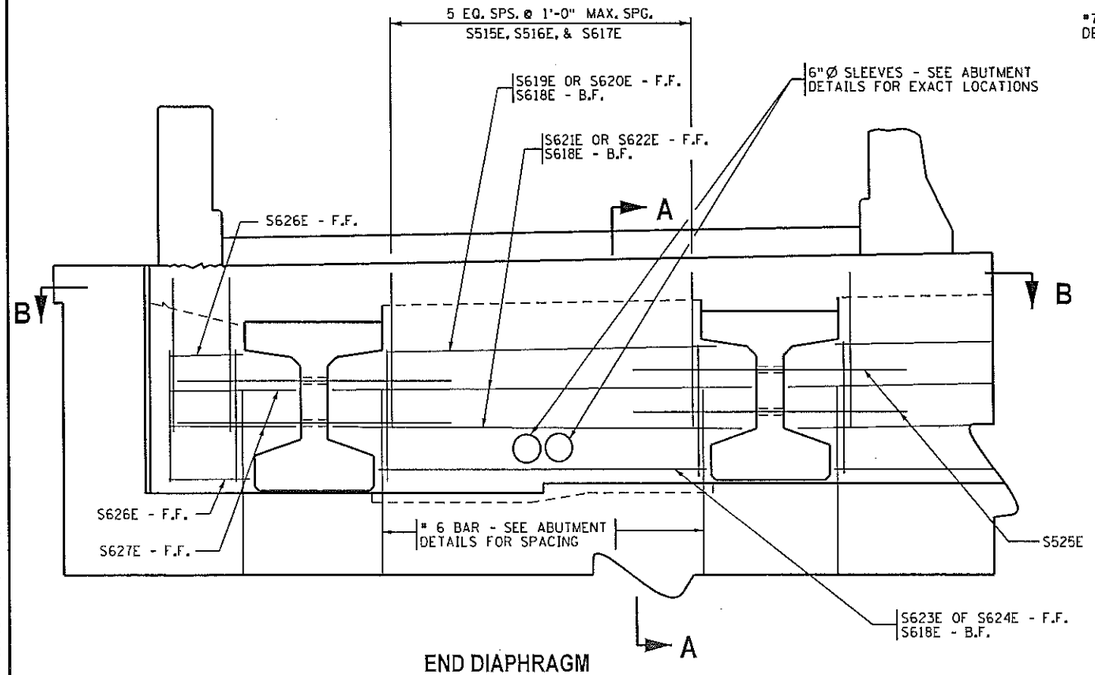
S617E



S514E



SECTION A-A



END DIAPHRAGM

BILL OF REINFORCEMENT - SUPERSTRUCTURE

	BAR	NO.	LENGTH	SHAPE	LOCATION
	S401E	188	28'-8"	——	TOP - TRANSV.
	S402E	188	23'-0"	——	TOP - TRANSV.
	S403E	188	26'-3"	——	TOP - TRANSV.
	S404E	188	39'-6"	——	TOP - TRANSV.
	S505E	148	32'-7"	——	BOT. - TRANSV.
	S506E	148	18'-6"	——	BOT. - TRANSV.
	S507E	148	41'-6"	——	BOT. - TRANSV.
	S508E	148	27'-9"	——	BOT. - TRANSV.
	S409E	154	25'-0"	——	TOP - LONGIT.
	S410E	77	40'-0"	——	TOP - LONGIT.
	S511E	270	44'-6"	——	BOT. - LONGIT.
	S412E	188	11'-4"	——	SIDEWALK - TRANSV.
	S413E	72	30'-0"	——	SIDEWALK - LONGIT.
	S514E	226	6'-6"	⌐	END DIAPH. - AT END
⑫	S515S	168	6'-6"	⟋	END DIAPH. - TO APP. PANEL
	S516E	176	7'-0"	⟋	END DIAPH. - TO DECK
	S617E	176	7'-2"	□	END DIAPH. - TIES
	S618E	32	30'-0"	——	END DIAPH. - B.F. HORZ.
	S619E	16	5'-9"	——	END DIAPH. - F.F. HORZ.
	S620E	12	5'-0"	——	END DIAPH. - F.F. HORZ.
	S621E	32	7'-4"	——	END DIAPH. - F.F. HORZ.
	S622E	24	6'-7"	——	END DIAPH. - F.F. HORZ.
	S623E	16	5'-6"	——	END DIAPH. - F.F. HORZ.
	S624E	12	4'-9"	——	END DIAPH. - F.F. HORZ.
	S525E	60	5'-0"	——	END DIAPH. - THRU BEAMS
	S626E	8	1'-1"	——	END DIAPH. - F.F. HORZ.
	S627E	8	2'-0"	——	END DIAPH. - F.F. HORZ.

SUMMARY OF QUANTITIES - SUPERSTRUCTURE

③①	BRIDGE SLAB CONCRETE (3Y36)	9736	SQ. FT.
②	TYPE MOD. F (TL-5) RAILING CONCRETE (3Y46)	254	LIN. FT.
⑧	TYPE P-1 (TL-2) RAILING CONCRETE (3Y46)	254	LIN. FT.
④	REINFORCEMENT BARS (EPOXY COATED)	73340	POUND
⑫	REINFORCEMENT BARS (STAINLESS STEEL)	1140	POUND
⑤	PRESTRESSED CONCRETE BEAMS TYPE 36M	1294	LIN. FT.
	DIAPHRAGMS FOR TYPE 36M PRESTR. BEAMS	108	LIN. FT.
⑨	CONCRETE WEARING COURSE (3U17A)	9755	SQ. FT.
	ORNAMENTAL METAL RAILING TYPE SPECIAL	252	LIN. FT.
⑩	SIDEWALK CONCRETE (3Y46)	2081	SQ. FT.
⑪	RAISED MEDIAN CONCRETE (3Y46)	580	SQ. FT.
	ELASTOMERIC BEARING PAD, TYPE 1	30	EACH
⑥	BENCH MARK DISK	1	EACH
⑦	BRIDGE NAME PLATE	1	EACH
⑦	1/2" POLYSTYRENE	60	SQ. FT.
⑦	1" POLYSTYRENE	50	SQ. FT.
	BRIDGE DECK PLANING	8910	SQ. FT.
	CONDUIT SYSTEM (FUTURE)	1	LUMP SUM

① "BRIDGE SLAB CONCRETE (3Y36)" VOLUME WAS COMPUTED USING AN AVERAGE STOOL HEIGHT OF 2 1/2" INCHES AND IS APPROXIMATELY 304 CU. YDS. INCLUDES 67 CU. YDS. FOR END DIAPHRAGMS.

② TYPE MOD. F (TL-5) RAILING CONCRETE (3Y46)" VOLUME IS APPROXIMATELY 38 CU. YDS.

③ CONCRETE END DIAPHRAGN SHALL BE POURED INTEGRALLY WITH DECK.

④ INCLUDES SLAB, END DIAPHRAGM, AND RAILING REINFORCEMENT.

⑤ PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS TYPE 36M PER LINEAR FOOT.

⑥ STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

⑦ TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

⑧ TYPE P-1 (TL-2) RAILING CONCRETE (3Y46) VOLUME IS APPROXIMATELY 29 CU. YDS.

⑨ CONCRETE WEARING COUSE (3U17A) VOLUME IS APPROXIMATELY 61 CU. YDS.

⑩ SIDEWALK CONCRETE (3Y46) VOLUME IS APPROXIMATELY 39 CU. YDS.

⑪ RAISED MEDIAN CONCRETE (3Y46) VOLUME IS APPROXIMATELY 11 CU. YDS.

⑫ BAR S515S TO BE STAINLESS STEEL. SEE SPECIAL PROVISIONS.

8/6/2013 11:44 PM
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NO	DATE	BY	CHK	REVISIONS

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LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40456

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C.S.A.H. 51
ANOKA COUNTY
S.P. 002-651-007

TITLE: SUPERSTRUCTURE DETAILS

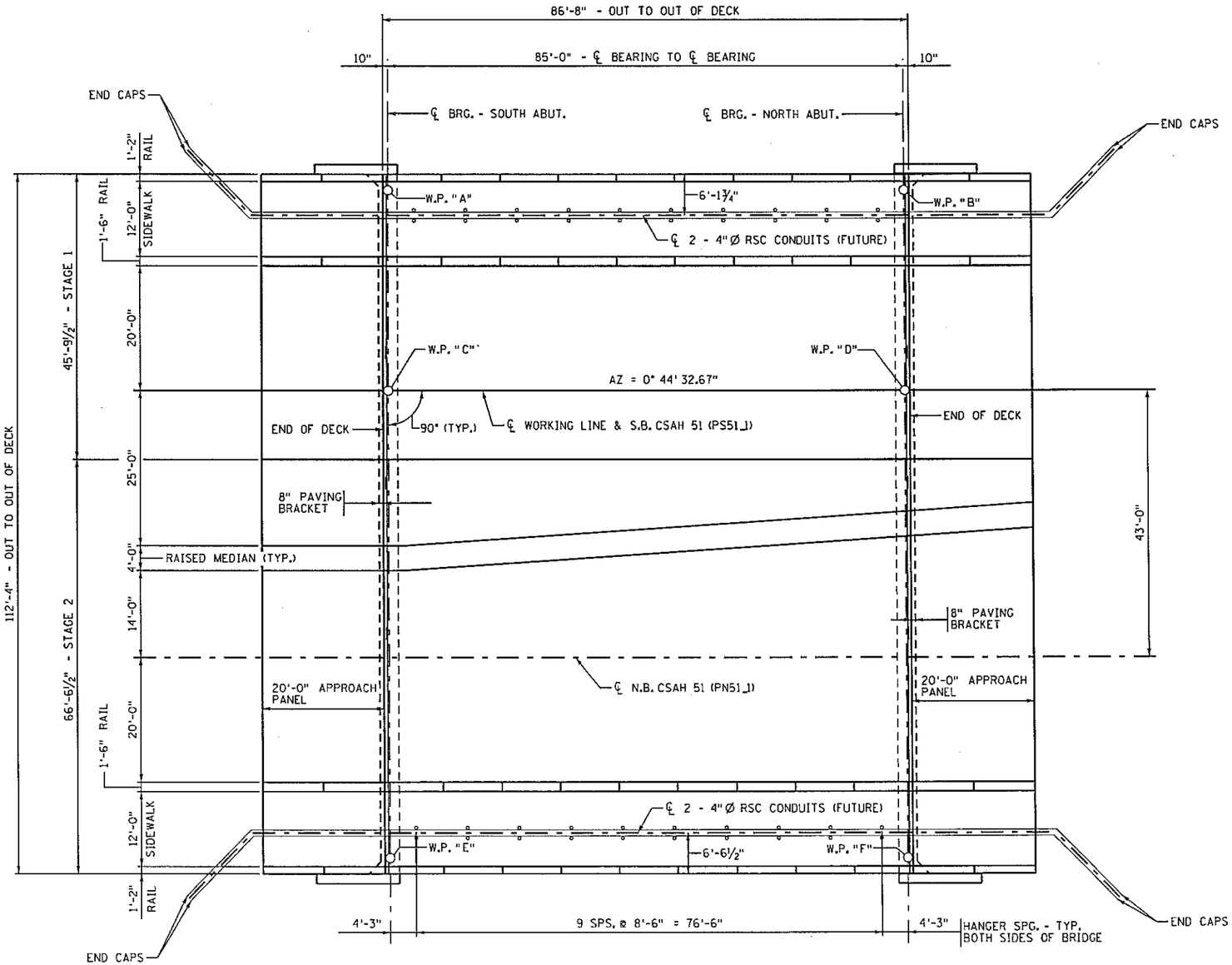
DES: BRL DR: DJV
CHK: AJN CHK: BRL

Sheet 352 of 381 Sheets

Bridge No. 02585

SUMMARY OF QUANTITIES - (FUTURE) CONDUIT SYSTEM

HANGER ASSEMBLIES	20	EACH
4"Ø R.S.C. CONDUIT	750	LIN. FT.
4"Ø R.S.C. END CAPS	8	EACH
45° ELBOWS	8	EACH
6"Ø SLEEVES	8	EACH



PLAN VIEW - CONDUIT SYSTEMS

NOTES:

RODS, EYEBOLTS AND PIPE CLAMPS SHALL COMPLY WITH MNDOT 3313 TYPE 1.

CONCRETE INSERTS SHALL BE AN APPROVED TYPE OF MALLEABLE IRON, MATERIAL AS PER MNDOT 3324 GRADE 35018. TAP AFTER GALVANIZING.

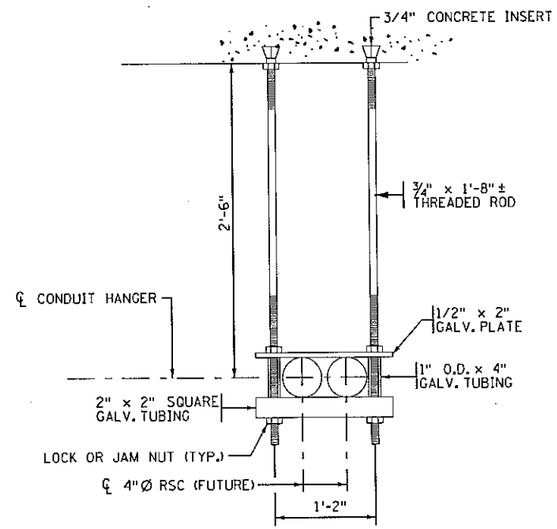
TURNBUCKLES AND EYEBOLTS SHALL COMPLY WITH ASTM A325 CLASS A MINIMUM REQUIREMENTS.

FLAT BARS AND ANCHORAGES SHALL COMPLY WITH MNDOT SPEC. 3306.

GALVANIZE NUTS, BOLTS, WASHERS, TURNBUCKLES, EYEBOLTS, RODS AND INSERTS PER MNDOT 3392. GALVANIZE OTHER MATERIAL PER MNDOT 3394 AFTER FABRICATION.

PIPE SLEEVES SHALL COMPLY WITH MNDOT 3362.

CAULK AROUND CONDUIT AND PIPES AT PIPE SLEEVES THROUGH ABUTMENT DIAPHRAGM



HANGER ASSEMBLY DETAIL

NO	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY
S.P. 002-651-007

TITLE: CONDUIT SYSTEM DETAILS

DES: BRL	DR: DJV		Bridge No. 02585
CHK: AJN	CHK: BRL		
Sheet 353 of 381 Sheets			

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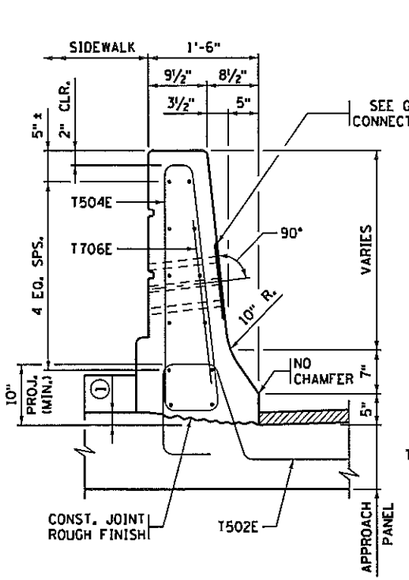

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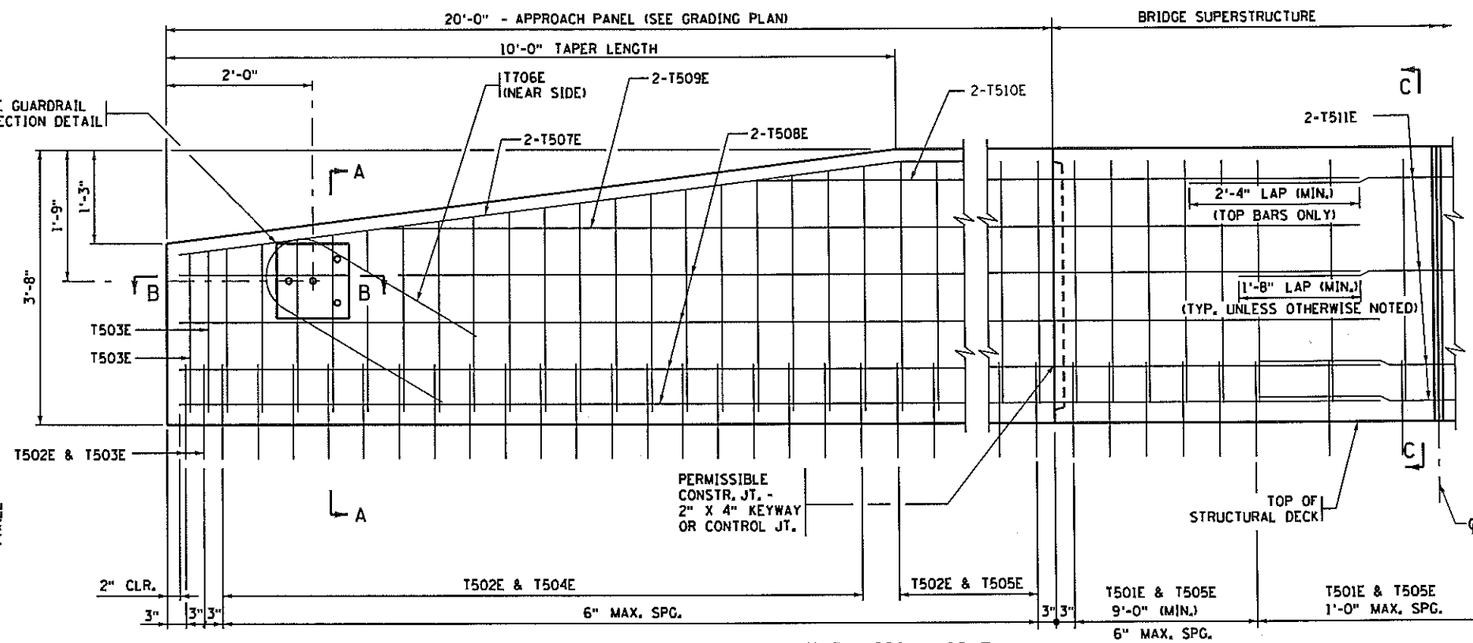


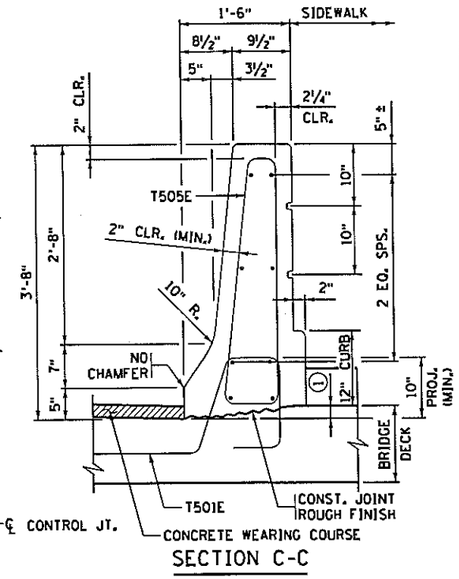
EXPANSION JOINT

EXPANSION DEVICE NOT SHOWN

INSIDE ELEVATION OF BARRIER

CONCRETE WEARING COURSE NOT SHOWN

BARRIER MEETS TEST LEVEL 5 REQUIREMENTS OF NCHRP REPORT 350



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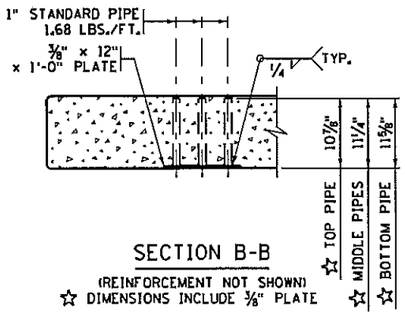
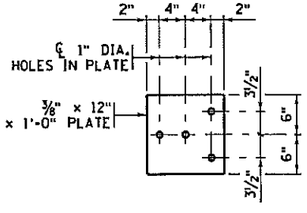


SECTION B-B

(REINFORCEMENT NOT SHOWN)

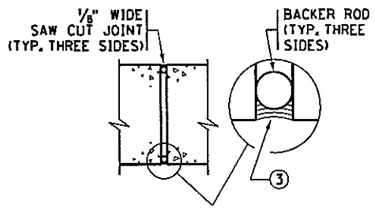
☆ DIMENSIONS INCLUDE ⅜" PLATE



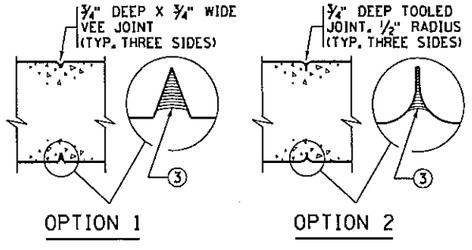
GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394

ESTIMATED WEIGHT = 22 LBS



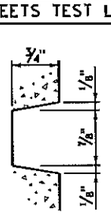
CONTROL JOINT SECTION



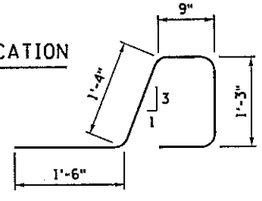
CONTROL JOINT DETAILS

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)

③ SEE SPECIAL PROVISIONS FOR JOINT SEALING REQUIREMENTS.



BARRIER RUSTICATION



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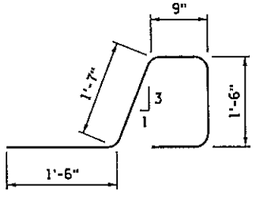

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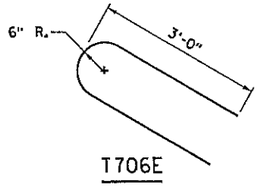
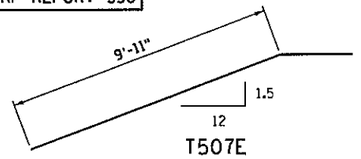
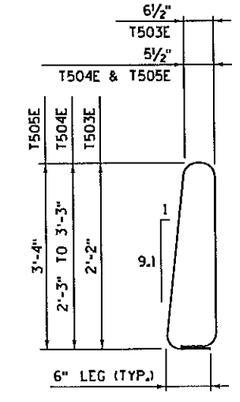


T706E



T507E



T503E, T504E, & T505E

① DIMENSIONS TO BE DETERMINED BASED ON THE BRIDGE DECK SLOPE.

BILL OF REINFORCEMENT FOR BARRIER

BAR	NO.	LENGTH	SHAPE	LOCATION
T501E	210	5'-5"		BARRIER DOWEL
T502E	164	5'-11"		BARRIER VERTICAL
T503E	8	5'-11"		BARRIER VERTICAL
T504E	4 SER. OF 18	6'-0" TO 8'-0"		BARRIER VERTICAL
T505E	294	8'-2"		BARRIER VERTICAL
T706E	4	6'-6"		BARRIER VERTICAL
T507E	8	11'-11"		BARRIER LONGIT.
T508E	32	31'-0"		BARRIER LONGIT.
T509E	8	28'-0"		BARRIER LONGIT.
T510E	8	24'-0"		BARRIER LONGIT.
② T511E	32	36'-0"		BARRIER LONGIT.

② 2 LINES - WITH 2'-4" MIN. LAP AT TOP BARS AND 1'-8" MIN. LAP BELOW TOP BARS

GENERAL NOTES

LENGTH OF "TYPE F (TL-5) RAILING CONCRETE (3Y46 OR 3Y46A)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.

CONCRETE BARRIER = 591 LBS./FT. (0.146 CU. YDS./FT.)

FINISH ALL EDGES OF BARRIER WITH ½" VEE, EXCEPT WHERE OTHERWISE NOTED.

MAXIMUM SPACING OF 1" VEE JOINTS SHALL BE 10 FT.

GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, Mn/DOT SPEC. 3306.

GUARDRAIL CONNECTION AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO "TYPE F (TL-5) RAILING CONCRETE (3Y46 OR 3Y46A)".

BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

FIG. 5-397.125

REVISED: 05-26-2006

APPROVED: JULY 25, 2005

STATE BRIDGE ENGINEER

NO	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY
S.P. 002-651-007

TITLE: TYPE MOD. F (TL-5) RAILING WITH BRIDGE SLAB SIDEWALK AND INTEGRAL END POST (WITH CONC. WEARING COURSE)

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet 354 of 381 Sheets

Bridge No. 02585

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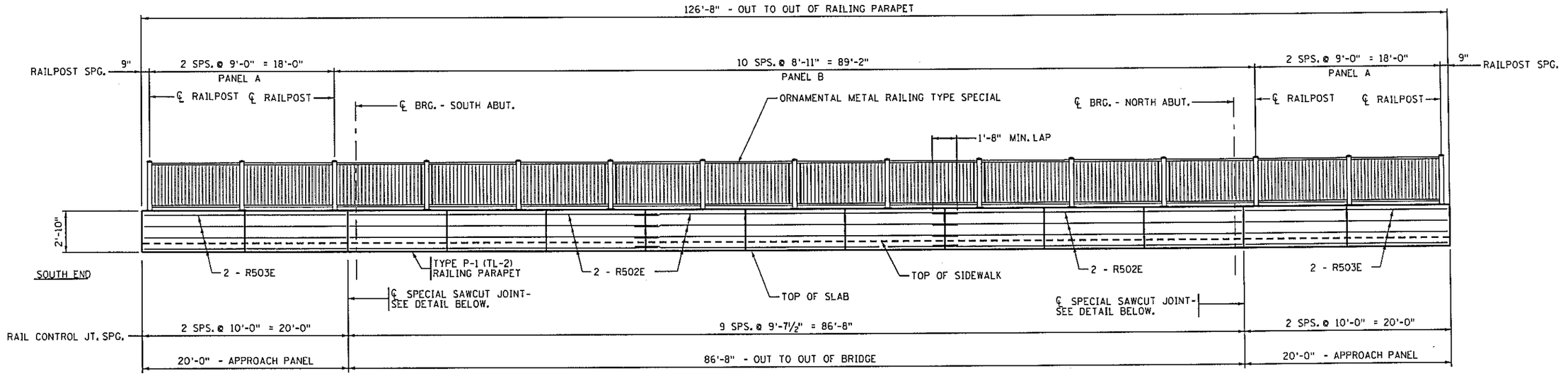
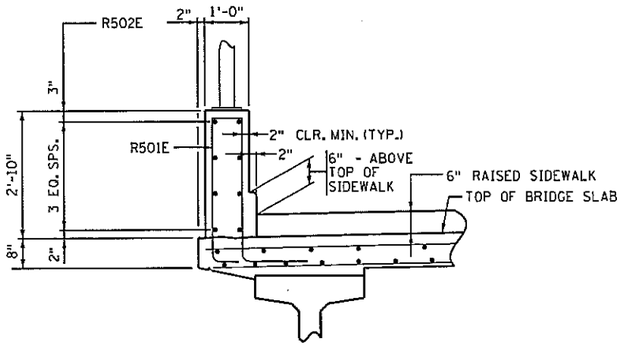


RAILING ELEVATION



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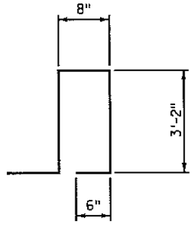
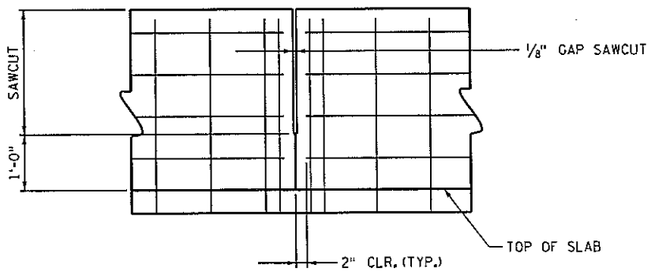
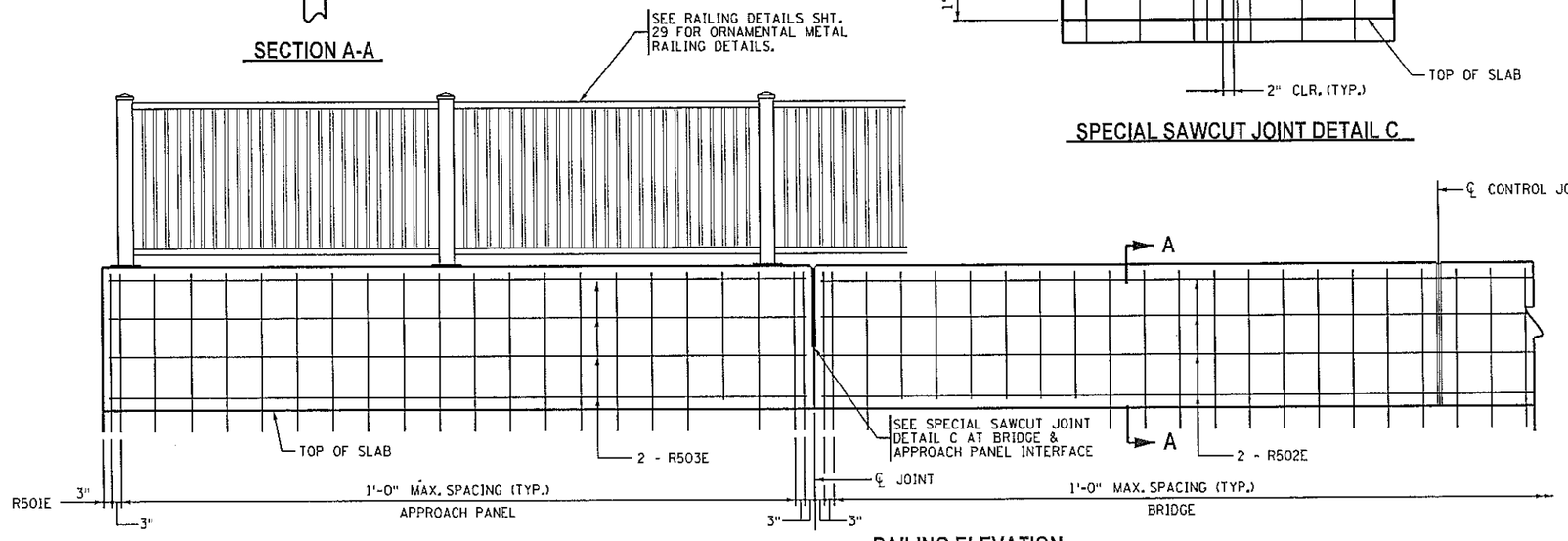


R501E



SPECIAL SAWCUT JOINT DETAIL C

BILL OF REINFORCEMENT - RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	262	8'-4"	BENT	VERT. TIES - DECK TO RAIL
① R502E	48	30'-0"	STR.	PARAPET - HORZ.
R503E	32	19'-6"	STR.	PARAPET - HORZ.



RAILING ELEVATION

GENERAL NOTES

CONCRETE PARAPET = 454 LBS./FT. (0.112 CU. YDS./FT.)

FINISH ALL EDGES OF CONCRETE PARAPET WITH ½" VEE, EXCEPT WHERE OTHERWISE NOTED.

RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

SEE SHT. 26 FOR CONTROL JOINT DETAILS

① 3 LINES WITH A 1'-8" MIN. LAP

NO	DATE	BY	CHK	REVISIONS

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ANOKA COUNTY
S.P. 002-651-007

TITLE:
TYPE P-1 (TL-2) CONCRETE RAILING
WITH BRIDGE SLAB AND 6" RAISED SIDEWALK AND INTEGRAL ENDPOST

DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	

Sheet 355 of 381 Sheets

Bridge No. 02585

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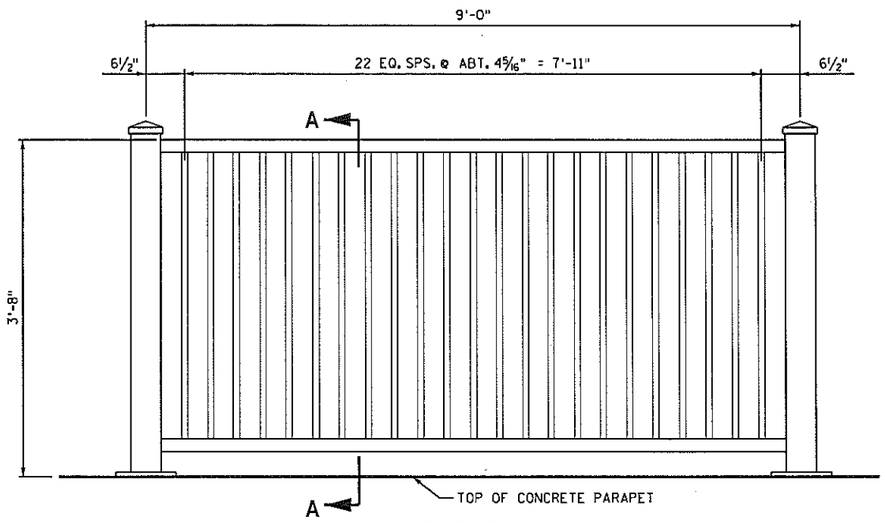
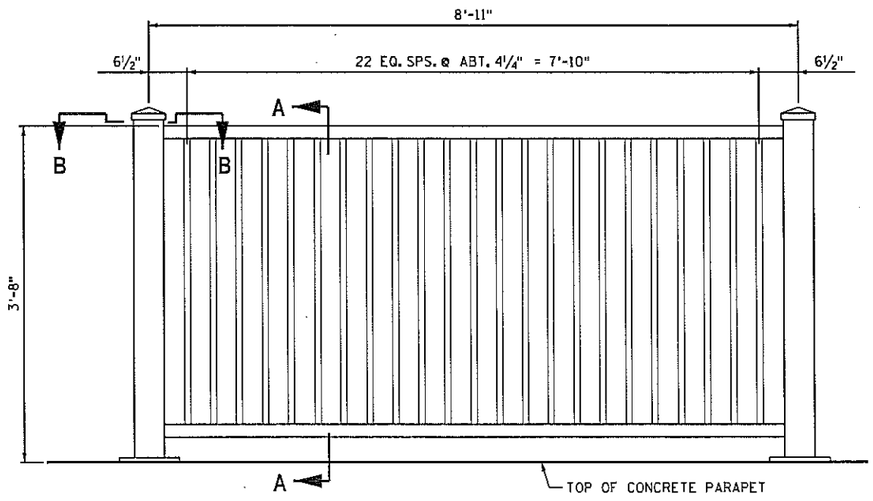
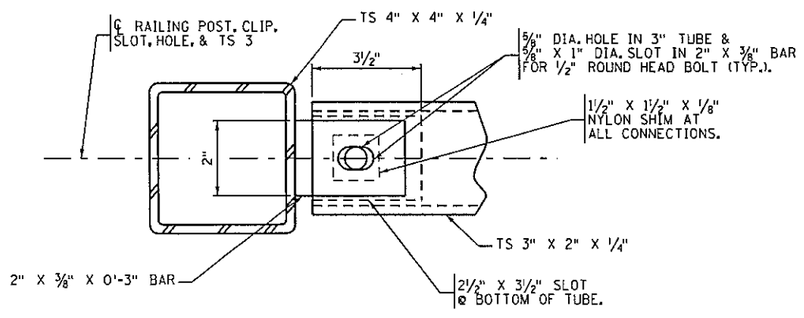


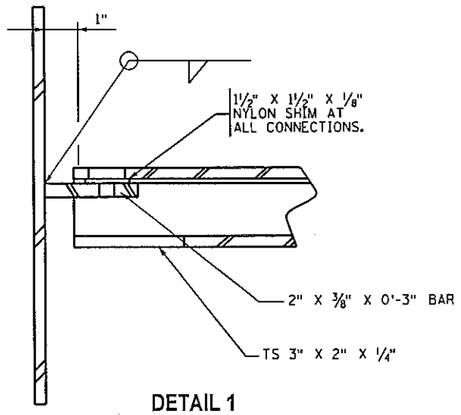
PANEL "A"



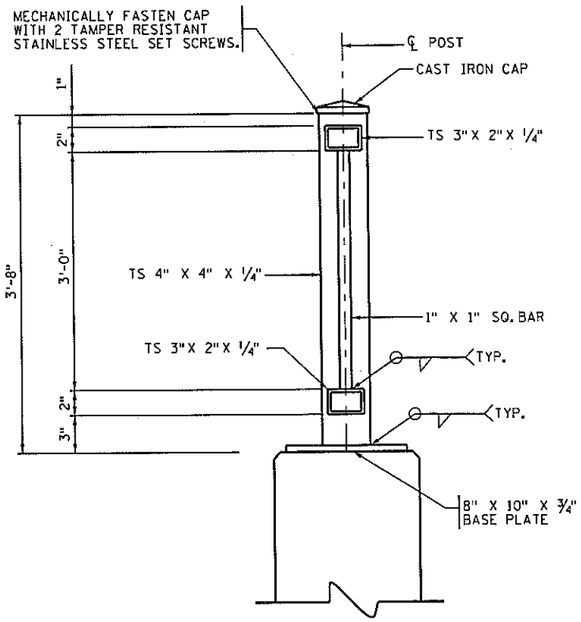
PANEL "B"



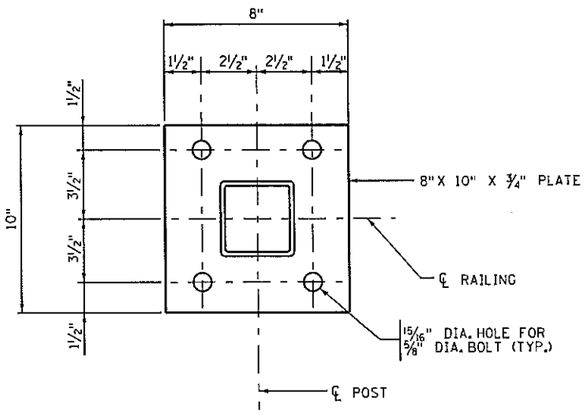
SECTION B-B



DETAIL 1



SECTION A-A



BASE PLATE DETAIL

NOTES:

LENGTH OF "ORNAMENTAL METAL RAILING TYPE SPECIAL" FOR PAYMENT WILL BE MEASURED FROM ENDPOST TO ENDPOST

ALL STRUCTURAL STEEL TUBING IN THE RAIL SHALL BE A500, GRADE B.

ALL OTHER STRUCTURAL MATERIAL SHALL CONFORM TO MN/DOT SPEC. 3306.

RAILPOSTS AND PICKETS SHALL BE PLUMB (VERTICAL).

FOR RAIL COATING, SEE SPECIAL PROVISIONS.

THE RAILING, BASE PLATES, AND PROTRUDING PORTIONS OF BOLTS, NUTS, AND WASHERS SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

FOR RAIL ANCHORAGE REQUIREMENTS, SEE THE SPECIAL PROVISIONS.

THE CONNECTION AT ONE END OF EACH PANEL SHALL ALLOW FOR EXPANSION.

RAILING SHALL BE GROUNDED WITH ⅝" DIA. COPPER ROD AS PER MN/DOT SPEC. 2557. (INCIDENTAL TO ORNAMENTAL METAL RAILING TYPE SPECIAL).

NO	DATE	BY	CHK	REVISIONS

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.

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40456

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ANOKA COUNTY
S.P. 002-651-007

TITLE: ORNAMENTAL METAL RAILING TYPE (SPECIAL) DETAILS

DES: BRL	DR: DJV	
CHK: AJN	CHK: BRL	

Sheet 356 of 381 Sheets

Bridge No. 02585

8/6/2013 11:18:15 PM
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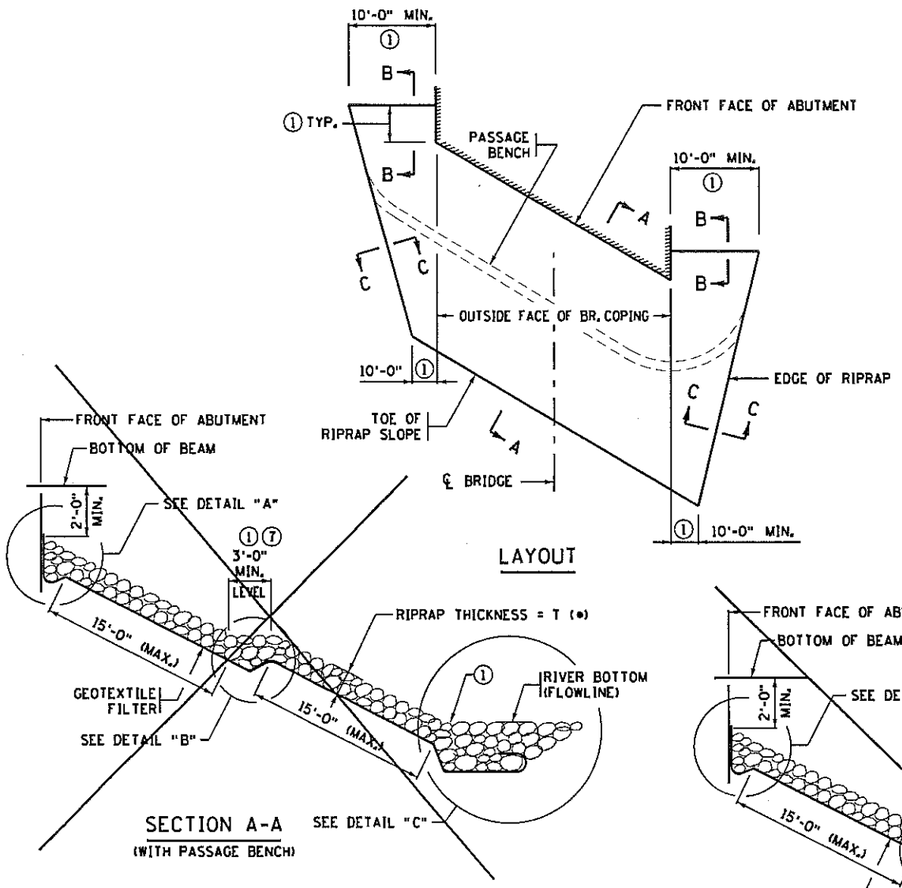
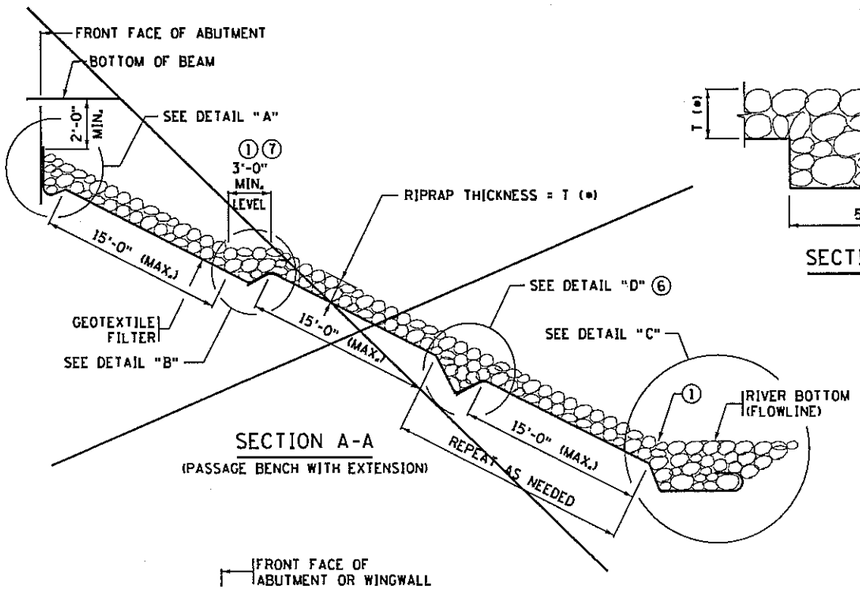


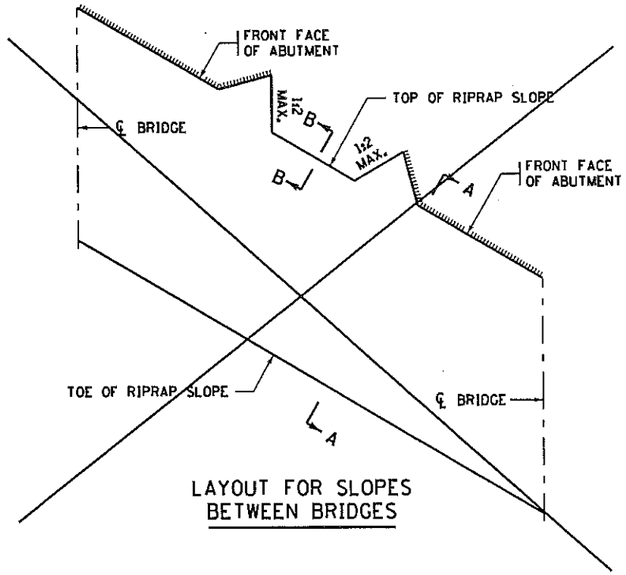
LAYOUT

SECTION A-A
(WITH PASSAGE BENCH)

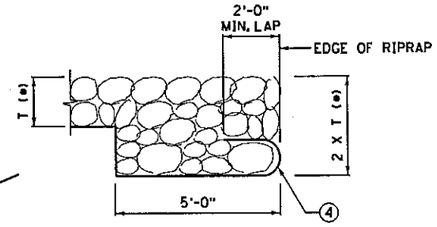
SECTION A-A
(WITHOUT PASSAGE BENCH)



SECTION A-A
(PASSAGE BENCH WITH EXTENSION)



LAYOUT FOR SLOPES BETWEEN BRIDGES



SECTION C-C

GENERAL NOTES

SEE SPECIAL PROVISIONS FOR MATERIALS, PREPARATION AND PLACEMENT.

USE GEOTEXTILE FILTER MATERIAL AS PER Mn/DOT SPECIAL PROVISION 2511.

PAYMENT WILL BE MADE UNDER ITEM 2511.515 GEOTEXTILE FILTER TYPE IV (MODIFIED) BY THE SQ. YD.

PAYMENT WILL BE MADE UNDER ITEM 2511.501 RANDOM RIPRAP CLASS III BY THE CU. YD.

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.

① SEE PLAN SHEET NO. 35 FOR DIMENSIONS, AND FOR ELEVATIONS OF RIPRAP TOE AND PASSAGE BENCHES.

② PLACE RIPRAP IN TRENCH TO HOLD THE GEOTEXTILE FABRIC IN PLACE BEFORE PLACING THE REST OF THE RIPRAP (FROM THE BOTTOM OF THE SLOPE).

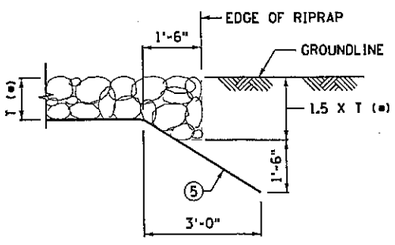
③ OVERLAP GEOTEXTILE FILTER 2'-0" MINIMUM.

④ 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.

⑤ BURY EDGES OF GEOTEXTILE FILTER TO DIRECT WATER FLOW OVER THE FABRIC WITHOUT UNDERMINING.

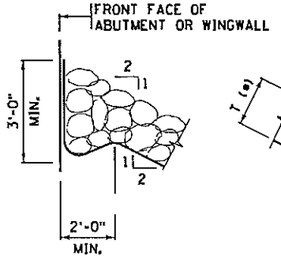
⑥ OMIT THE TRENCH SHOWN IN DETAIL "D" AND THE 15'-0" MAXIMUM SPACING BETWEEN TRENCHES FOR SLOPES 1:3 OR FLATTER.

~~⑦ SURFACE BENCHES WITH AGGREGATE CLASS 5 (INCIDENTAL TO RIPRAP), TIE BENCHES TO NATURAL GROUNDLINES OUTSIDE OF BRIDGE.~~

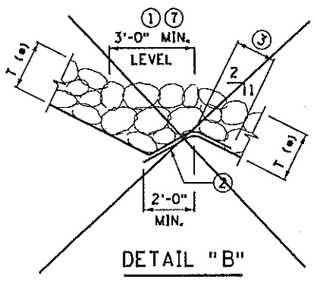


SECTION B-B

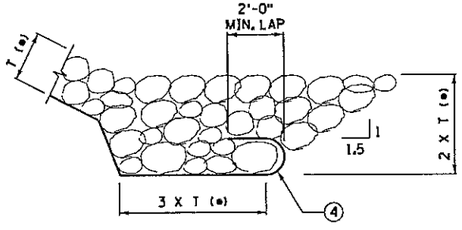
* DIMENSION T
CLASS III = 1'-6"
CLASS IV = 2'-0"



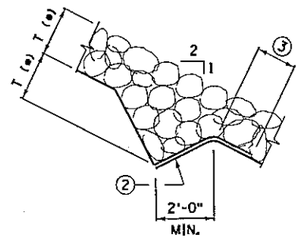
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

FIG. 5-397.309 (MOD.)

REVISED:

APPROVED: MAY 24, 2011
Nancy Daubenberger
STATE BRIDGE ENGINEER

NO	DATE	BY	CHK	REVISIONS

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.
Barritt Lovelace
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40456

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ANOKA COUNTY
S.P. 002-651-007

TITLE:
RIPRAP SLOPE WITH GEOTEXTILE FILTER (SLOPES 1:2 AND FLATTER)

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet 357 of 381 Sheets

Bridge No. 02585

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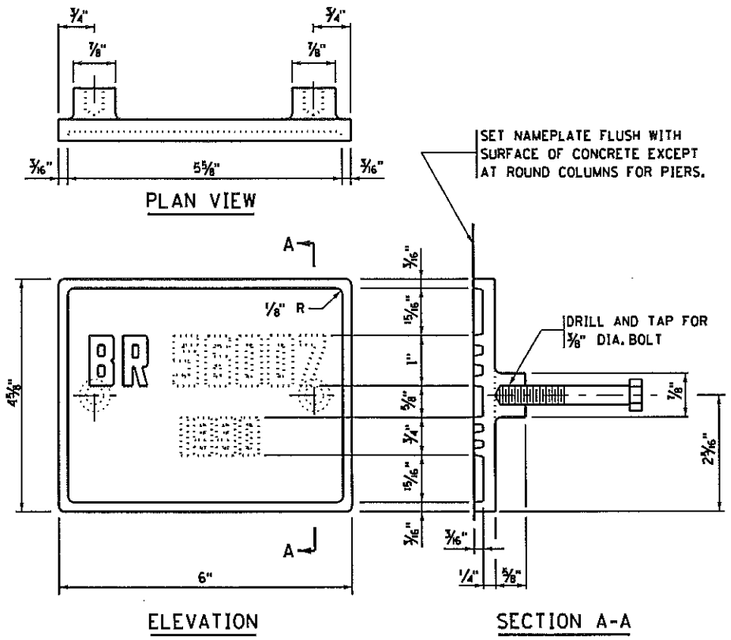
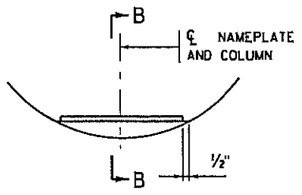


THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

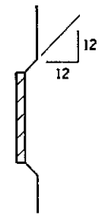
BRIDGE 02585

YEAR 2014



NAMEPLATE PLACEMENT

(ROUND CONCRETE PIER COLUMNS)



SECTION B-B

NUMBERS FOR NAMEPLATE

NOTES:

NO SHOP DRAWING REQUIRED.

MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.

LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.

DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".

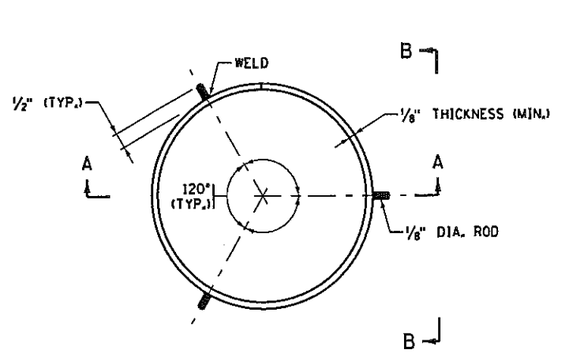
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.

FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.

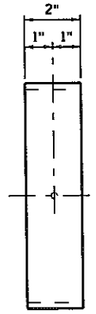
ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Daniel D Hogan STATE BRIDGE ENGINEER	BRIDGE NAMEPLATE (FOR NEW BRIDGES)		B101



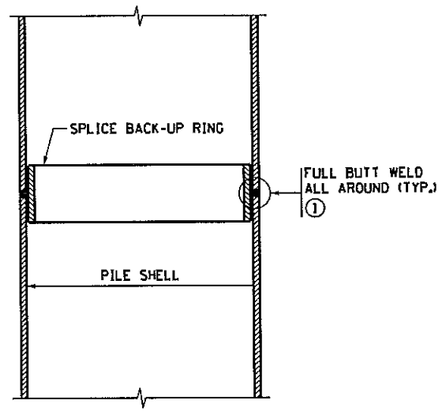
PLAN VIEW SPLICE

PILE NOT SHOWN



SECTION B-B

PILE NOT SHOWN



SECTION A-A

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	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Daniel D Hogan STATE BRIDGE ENGINEER	PILE SPLICE (CAST-IN-PLACE CONCRETE PILES)		B201

NO	DATE	BY	CHK	REVISIONS

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.

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE

DATE: 8-6-13 REG NO: 40456

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ANOKA COUNTY
S.P. 002-651-007

TITLE: BRIDGE DETAILS

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet 358 of 381 Sheets

Bridge No. 02585

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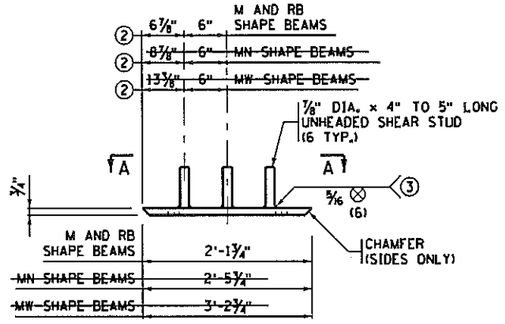
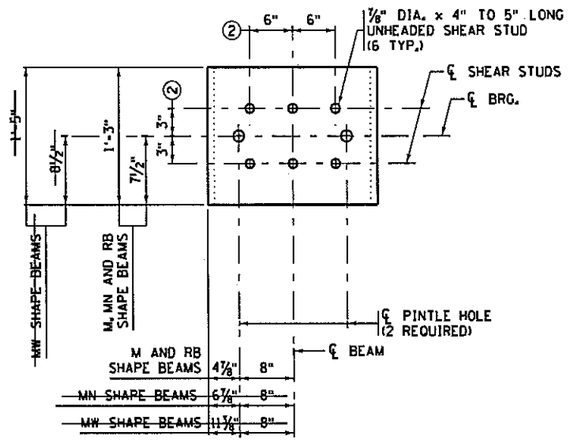
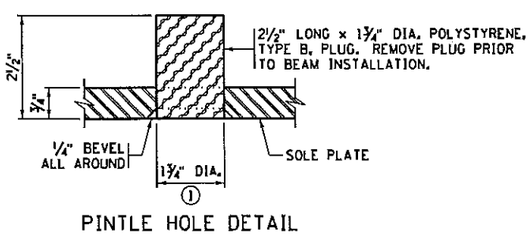


FRONT ELEVATION



SECTION A-A



PINTLE HOLE DETAIL

NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.

WELDED STUDS TO BE WELDABLE CARBON STEEL PER MnDOT SPEC. 3391.2D.

SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER MnDOT SPEC. 3394 AFTER FABRICATION.

PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

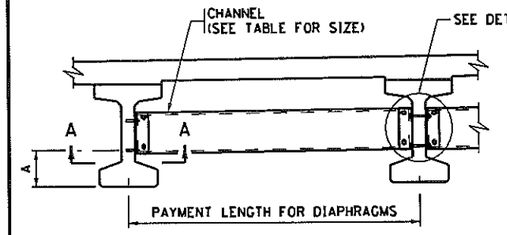
SOLE PLATES ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.

(1) FOR 1½" DIA. PINTLES.

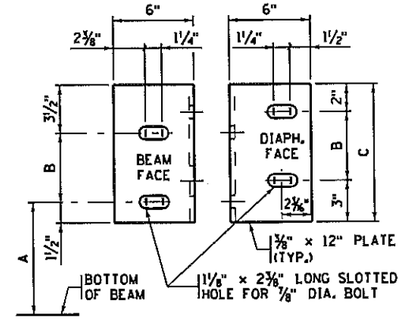
(2) THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.

(3) THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D1.1.

APPROVED: SEPTEMBER 22, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED	DETAIL NO.
Nancy Daubenberger STATE BRIDGE ENGINEER	SOLE PLATE (PRESTRESSED CONCRETE BEAMS) (FOR BEARINGS WITH PINTLES)		B303

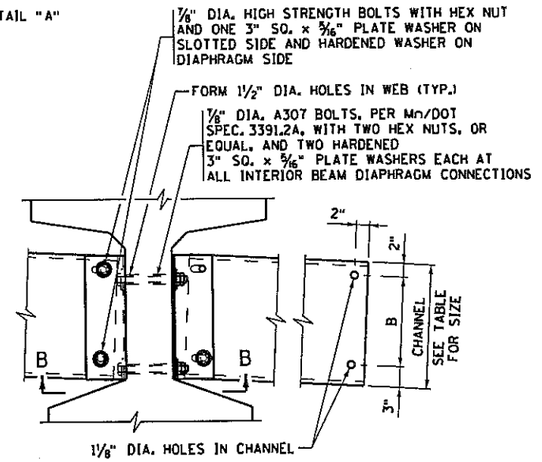


PART TRANSVERSE SECTION AT DIAPHRAGM



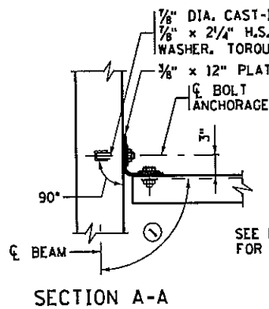
DIAPHRAGM CONNECTION

FOR 36M, 45M AND MN45 BEAMS



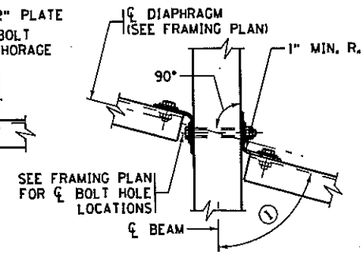
DETAIL "A"

INTERIOR BEAM WITH CONTINUOUS LINE OF DIAPHRAGMS



SECTION A-A

TYPICAL SECTION AT ALL FASCIA BEAMS



SECTION B-B

TYPICAL SECTION AT INTERIOR BEAM WITH CONTINUOUS OR STAGGERED INTERMEDIATE DIAPHRAGMS

NOTES:

ALL STEEL SHALL CONFORM TO Mn/DOT SPEC. 3306.

INSTALLATION SHALL CONFORM TO Mn/DOT SPEC. 2405.3M.

THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A ⅜" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN UNIT PRICE BID FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

BENT PLATES MAY BE USED IN PLACE OF CHANNELS. THE BENT PLATES MUST BE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, BE 5/16" IN THICKNESS, AND HAVE LEGS 5" LONG.

STEEL PLATES AND SHAPES SHALL BE GALVANIZED IN ACCORDANCE WITH Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

(1) FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.

TABLE

BEAM HEIGHT	DISTANCE A	DISTANCE B	DISTANCE C	CHANNEL SIZE
36M	1'-3"	7"	1'-0"	C12x20.7
~~45M~~	~~1'-3¾"~~	~~1'-1"~~	~~1'-6"~~	~~MC18x42.7~~
~~54M~~	~~1'-2¼"~~	~~1'-1"~~	~~2'-6"~~	~~MC18x42.7~~
~~MN45~~	~~1'-7¾"~~	~~7"~~	~~1'-0"~~	~~C12x20.7~~
~~MN54~~	~~1'-7¾"~~	~~1'-1"~~	~~1'-9"~~	~~MC18x42.7~~
~~MN63~~	~~1'-7¾"~~	~~1'-1"~~	~~2'-6"~~	~~MC18x42.7~~

APPROVED: OCTOBER 26, 2005	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 06-14-2006 10-22-2009	DETAIL NO.
Daniel J. Morgan STATE BRIDGE ENGINEER	STEEL INTERMEDIATE DIAPHRAGM (FOR 36M - 54M, MN45 - MN63 PRESTRESSED CONCRETE BEAMS)		B403

NO	DATE	BY	CHK	REVISIONS

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.
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40456

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TITLE: BRIDGE DETAILS

DES: BRL	DR: DJV		Bridge No.
CHK: AJN	CHK: BRL	Sheet 359 of 381 Sheets	02585

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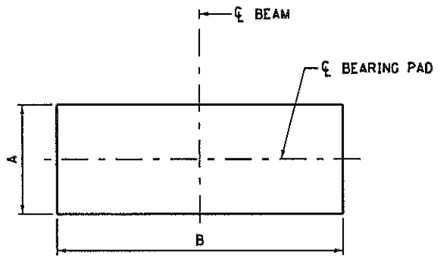
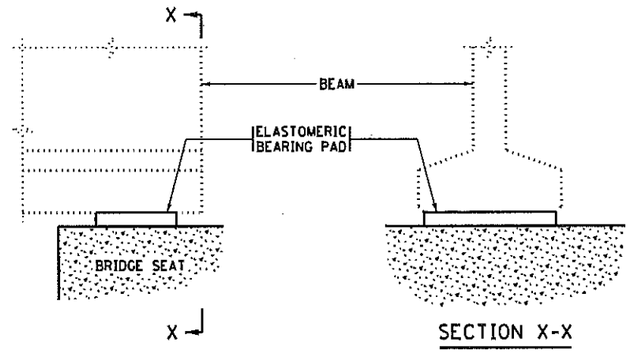


PLAN

(BEAM NOT SHOWN)



SIDE ELEVATION

SECTION X-X

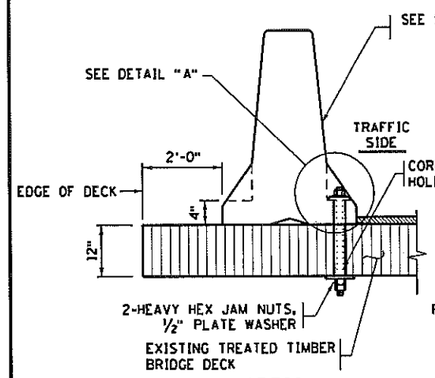
TABLE						
PAD TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE A	BEARING PAD SIZE B	BEARING PAD SIZE D ①	SHAPE FACTOR
1	ABUTMENTS	36M	12	24	½	8.0

NOTES:

ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH SPEC. 3741.

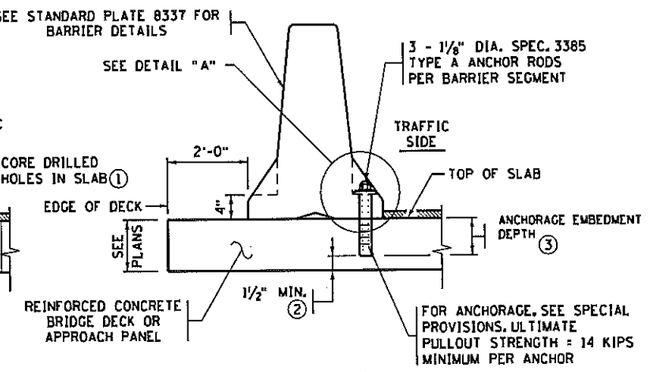
① "D" INDICATES THE THICKNESS OF THE BEARING PAD.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION 12-17-2008 05-24-2012	DETAIL NO.
Daniel T. Hogan STATE BRIDGE ENGINEER	ELASTOMERIC BEARING PAD (PRESTRESSED CONCRETE BEAMS)		B305



OPTION 1

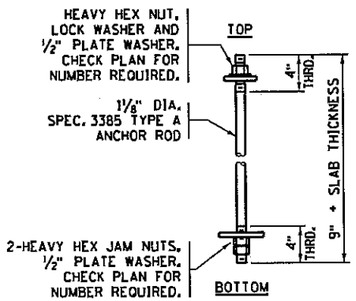
DO NOT USE ON NEW DECK



OPTION 2

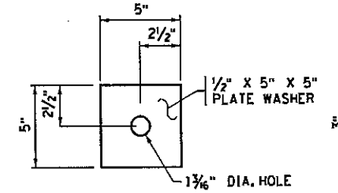
ANCHORAGE DETAILS

REINFORCEMENT NOT SHOWN



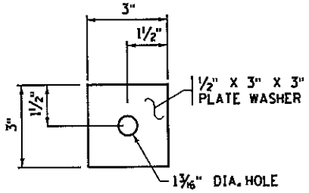
OPTION 1 ANCHOR

(3 PER BARRIER SEGMENT)

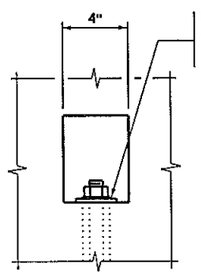


BOTTOM PLATE WASHER

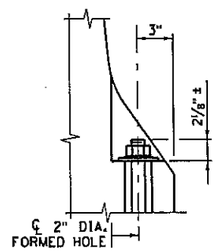
(ONLY USED FOR OPTION 1)



TOP PLATE WASHER



SIDE VIEW



DETAIL "A"

NOTES:

ALL HARDWARE TO BE GALVANIZED PER SPEC. 3392.

ALL STRUCTURAL STEEL TO BE SPEC. 3306 UNLESS OTHERWISE NOTED.

COST OF ANCHORAGE SYSTEM, ANCHOR REMOVAL AND GROUTING OF HOLE ARE INCIDENTAL TO THE COST OF PLACING THE TEMPORARY PORTABLE PRECAST BARRIER.

PIN BARRIERS TOGETHER PER STANDARD PLATE 8337.

THROUGH BOLT ANCHORS MUST BE USED IF THE DECK IS PENETRATED DURING DRILLING PROCESS.

DO NOT USE ON BRIDGES OR APPROACH PANELS WITH A BITUMINOUS OVERLAY.

REFER TO TRAFFIC CONTROL PLANS FOR DEPLOYMENT LENGTH AND BARRIER TERMINATION REQUIREMENTS.

ANCHOR ON TRAFFIC SIDE OF BARRIER ONLY.

SEE SPECIAL PROVISIONS FOR BARRIER INSTALLATION AND REMOVAL REQUIREMENTS.

① PERCUSSION DRILLING OF THESE HOLES IS NOT PERMITTED.

② 1½" MINIMUM TO PREVENT BOTTOM OF SLAB FROM SPALLING OR FRACTURING DURING DRILLING.

③ 5½" MINIMUM AND 6" MAXIMUM FOR BRIDGE DECKS WITH TOP MAT REINFORCEMENT AND SOUND CONCRETE. 9" MINIMUM AND 10½" MAXIMUM FOR SOUND CONCRETE APPROACH PANELS.

NOTE:
40 MPH - ADVISORY POSTED SPEED LIMIT DURING CONSTRUCTION.

APPROVED: DECEMBER 21, 2011	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 05-24-2012	DETAIL NO.
Nancy J. Daubenberger STATE BRIDGE ENGINEER	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER ANCHORAGE (TEMPORARY USAGE IN LIMITED BARRIER DISPLACEMENT AREAS)		B920 (MOD.)

NO	DATE	BY	CHK	REVISIONS

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.
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40456

WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
763-541-4800 • Fax 763-541-1700
INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

C.S.A.H. 51
ANOKA COUNTY
S.P. 002-651-007

TITLE: BRIDGE DETAILS

DES: BRL	DR: DJV		Bridge No.
CHK: AJN	CHK: BRL	Sheet 360 of 381 Sheets	02585

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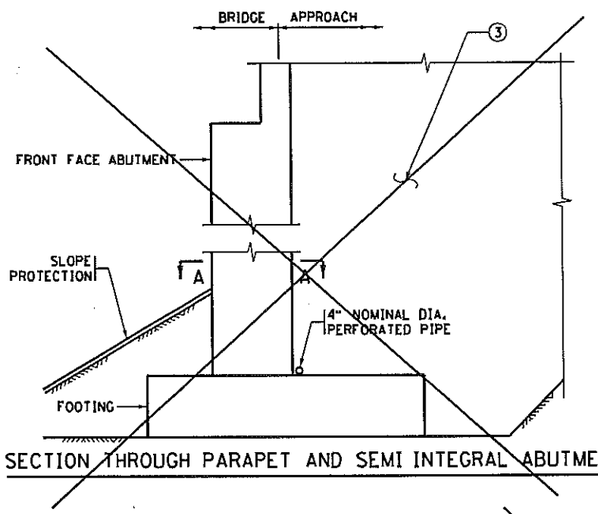
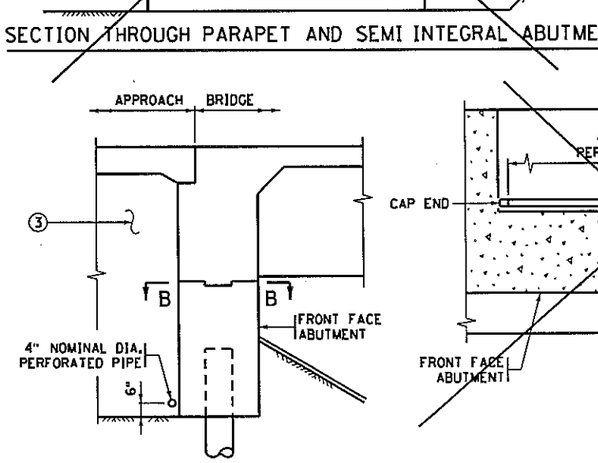


SECTION THROUGH PARAPET AND SEMI INTEGRAL ABUTMENTS

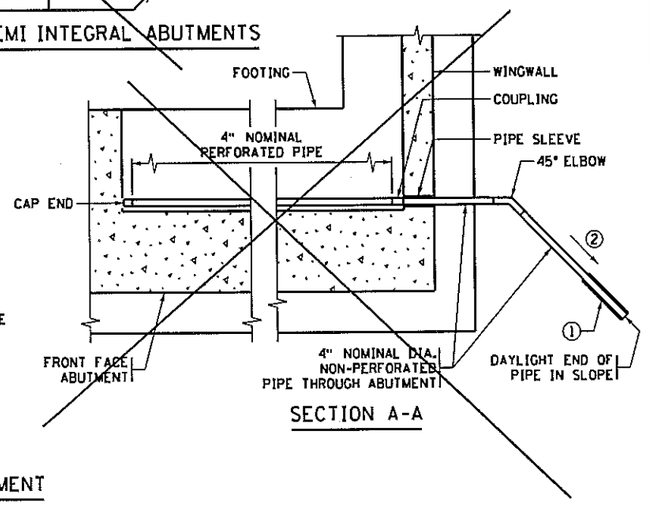
SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM	
4" DIA. PERFORATED PIPE	220 LIN. FT.
4" DIA. NON-PERFORATED PIPE	50 LIN. FT.
45° ELBOW	2 EACH
4" DIA. END CAP	2 EACH
4" DIA. COUPLING	2 EACH
PIPE SLEEVE	2 EACH
① PRECAST CONCRETE HEADWALL	2 EACH

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.

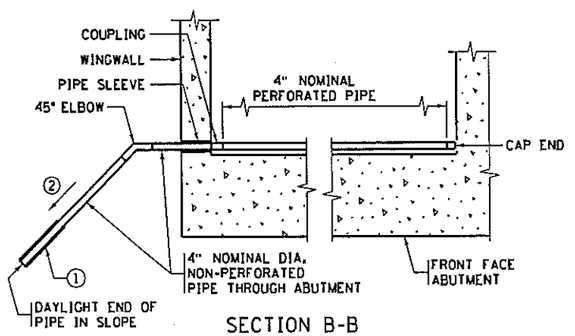
PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR ITEM 2502.502 "DRAINAGE SYSTEM TYPE (B910)".



SECTION THROUGH INTEGRAL ABUTMENT



SECTION A-A



SECTION B-B

NOTES:

ALL PIPE SHALL COMPLY WITH Mn/DOT SPEC. 3245.

WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER Mn/DOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER Mn/DOT 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 Mn/DOT SPEC. 3149.2B SELECT GRANULAR BORROW, MODIFIED SO THAT NO MORE THAN 10% PASSES A NO. 200 SIEVE. (UNDER GRADING PORTION OF CONTRACT)

APPROVED: MARCH 26, 2009	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 10-22-2009	DETAIL NO.
Daniel J. Hogan STATE BRIDGE ENGINEER	DRAINAGE SYSTEM		B910

NO	DATE	BY	CHK	REVISIONS

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.

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE
DATE: 8-6-13 REG NO: 40456

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C.S.A.H. 51
ANOKA COUNTY
S.P. 002-651-007

TITLE: BRIDGE DETAILS

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet 361 of 381 Sheets

Bridge No. 02585

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CONCRETE WEARING COURSE

☐ LOW SLUMP

☐ OTHER _____
TYPE OR MANUFACTURER

EXPANSION JOINTS

JOINT MANUFACTURER

MANUFACTURER'S IDENTIFICATION _____
MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED

GLAND MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

SIZE OF GLAND _____

MANUFACTURER'S IDENTIFICATION _____
MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED

ELASTOMERIC BEARING PADS

PAD MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

SPECIAL SURFACE FINISH

SYSTEM: _____ COLOR: _____

FINISHING ROADWAY FACES OF BARRIER RAILING

TYPE: _____ COLOR: _____

ANTI-GRAFFITI COATING

MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

PRODUCT NAME: _____ LOCATION: _____

PAINT SYSTEM

Mn/DOT SPECIFICATION NUMBER _____
2478 OR 2479 OR OTHER

MANUFACTURER _____
NAME AND ADDRESS (CITY, STATE)

PRIME COAT _____
Mn/DOT MATERIAL SPECIFICATION NUMBER

INTERMEDIATE COAT _____
Mn/DOT MATERIAL SPECIFICATION NUMBER

FINISH COAT _____ _____
Mn/DOT MATERIAL SPECIFICATION NUMBER COLOR

PLAN QUALITY

RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)

DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. _____

BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. _____

SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. _____

(SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT. _____

COMMENTS: _____

NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: _____ COST: $ _____

LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.

BRIDGE REMOVAL / BRIDGE OPENING

NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE):

BRIDGE NUMBER _____ DATE REMOVED _____

DATE NEW BRIDGE WAS OPENED TO TRAFFIC _____

NOTIFY THE BRIDGE OFFICE BRIDGE MANAGEMENT UNIT WITH THIS INFORMATION AS SOON AS POSSIBLE. (651) 366-4557

OTHER ITEMS ①

① UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.

FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES ☐ NO ☐

SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:

_____ _____
INSPECTOR(S) SIGNATURE DATE

CHECKED BY: _____ _____
PROJECT ENGINEER/SUPERVISOR SIGNATURE DATE

AT THE TIME OF THE FINAL, THIS COMPLETED AS-BUILT BRIDGE DATA SHEET MUST BE SUBMITTED TO THE BRIDGE OFFICE - ATTN: REGIONAL CONSTRUCTION ENGINEER (MS610).

AS-BUILT DETAILS
(AS NEEDED)

REVISION: 10-28-2008

APPROVED: SEPTEMBER 26, 2003
STATE BRIDGE ENGINEER

FIG. 5-397.900

NO	DATE	BY	CHK	REVISIONS

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.

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DATE: 8-6-13 REG NO: 40456

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ANOKA COUNTY
S.P. 002-651-007

TITLE:
AS-BUILT BRIDGE DATA

DES: BRL DR: DJV
CHK: AJN CHK: BRL
Sheet 362 of 381 Sheets

Bridge No.
02585

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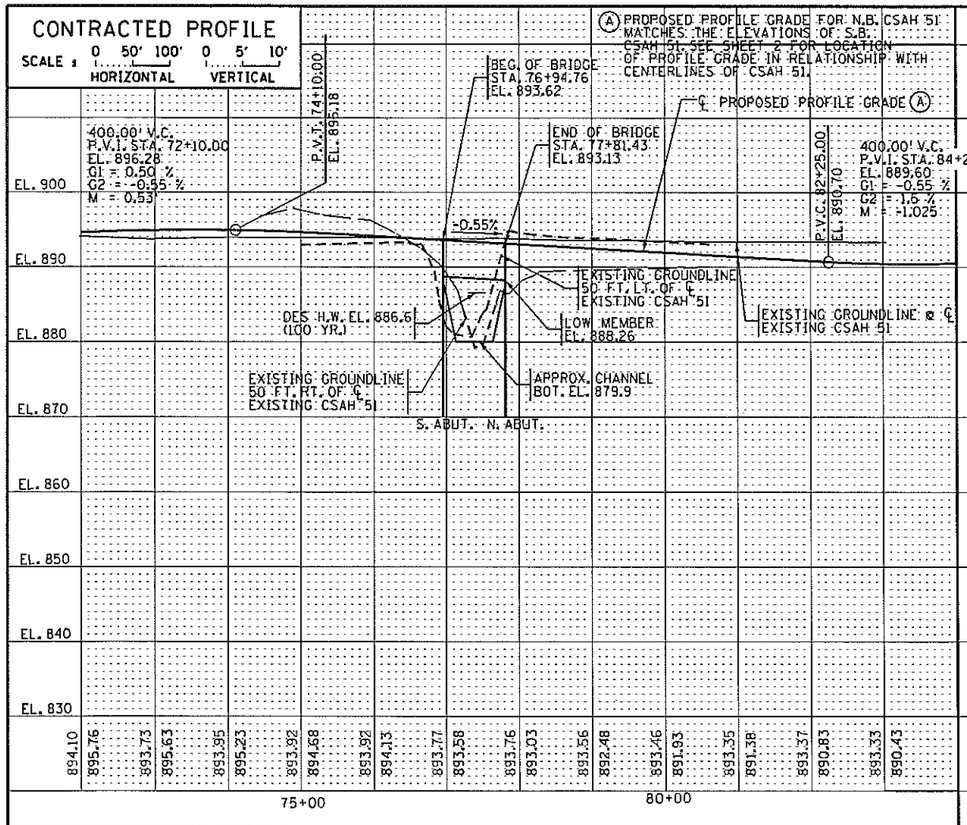
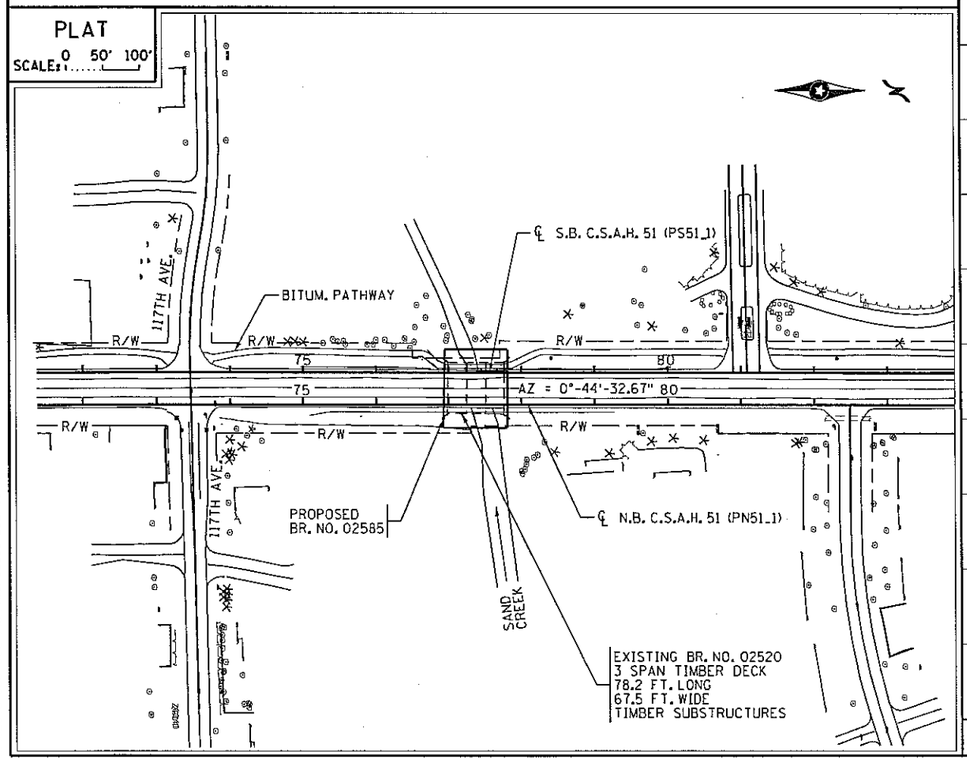
CONTRACTED PROFILE

SCALE : 0 50' 100' HORIZONTAL 0 5' 10' VERTICAL



PLAT

SCALE: 0 50' 100'



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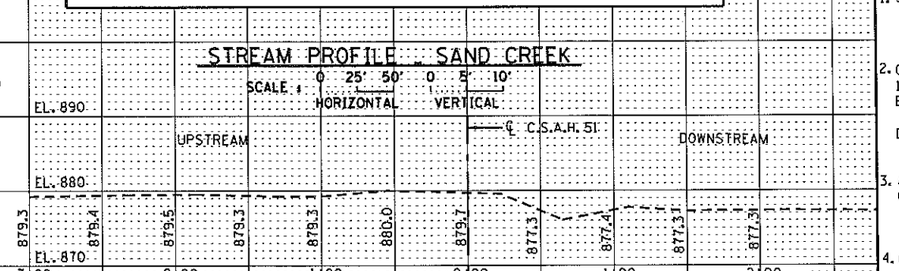
TYPICAL SECTIONS & PERTINENT DATA

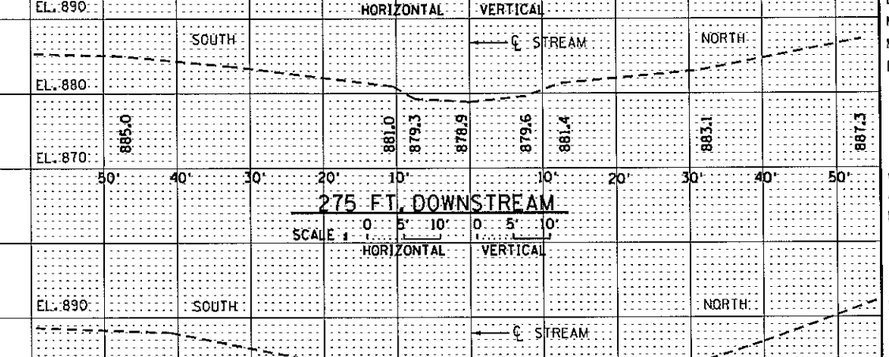
STREAM PROFILE - SAND CREEK

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



300 FT. UPSTREAM

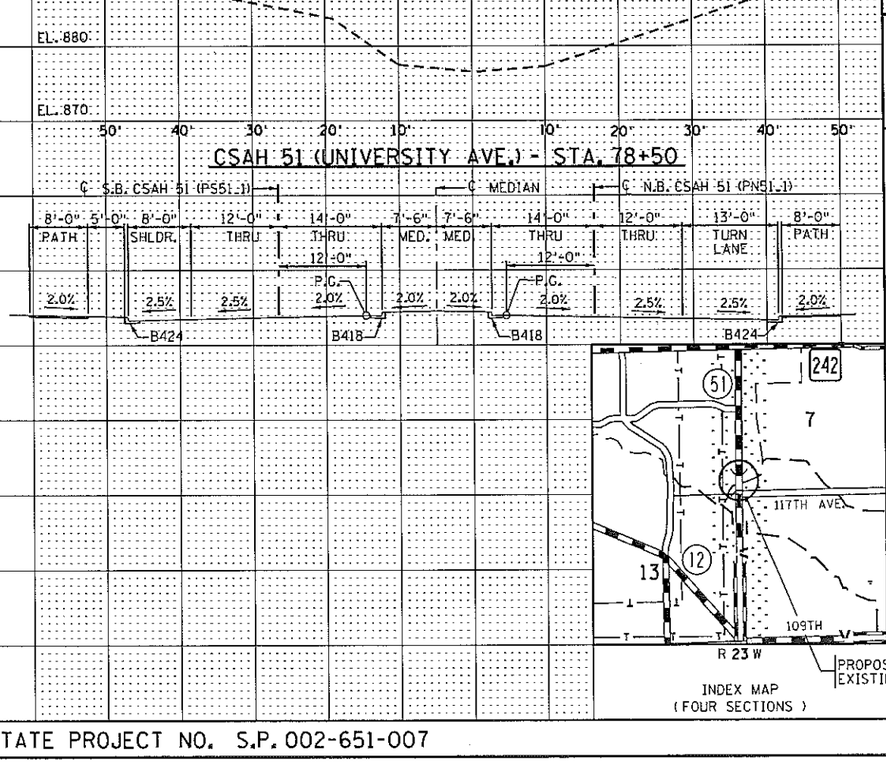
SCALE : 0 5' 10' HORIZONTAL 0 5' 10' VERTICAL



275 FT. DOWNSTREAM

SCALE : 0 5' 10' HORIZONTAL 0 5' 10' VERTICAL

CSAH 51 (UNIVERSITY AVE.) - STA. 78+50



INDEX MAP (FOUR SECTIONS)

PROPOSED BR. NO. 02585
EXISTING BR. NO. 02520

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. SPECIAL FEATURES: NONE

2. OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM
   118TH. AVENUE CULVERT - UPSTREAM
   BR. NO. 02J32

   DOWN STREAM:

3. APPARENT HIGHWATER ELEVATION: UNKNOWN
   OBTAINED FROM: N/A

4. OTHER DATA: NONE

HYDRAULIC ENGINEERS RECOMMENDATION

DATE: 08/16/2012

STREAM OR DITCH DESIGNATION: SAND CREEK
DRAINAGE AREA: 13.2 SQ. MI.
MAX. FLOOD ON RECORD: C.F.S. UNKNOWN
MAXIMUM OBSERVED HIGHWATER ELEVATION: UNKNOWN
DESIGN FLOOD (100 YR. FREQ.): 388 C.F.S.
HEADWATER ELEVATION: 886.6 FT.
-
TOTAL STAGE INCREASE: 0.1 FT.
LOW MEMBER AT OR ABOVE ELEVATION: 886.5 FT.
WATERWAY AREA REQUIRED BELOW ELEV. 886.5 FT. = 458 SQ. FT. AT RIGHT ANGLES TO CHANNEL
BASIC FLOOD (100 YR. FREQ.): 388 C.F.S.
HEADWATER ELEVATION: 886.6 FT.
TOTAL STAGE INCREASE: 0.1 FT.
MEAN VELOCITY THROUGH STRUCTURE: 0.8 F.P.S.
FLOWLINE ELEVATION: 879.9 FT. SKEW ANGLE: NONE
ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. N/A FT. (500 YR. FREQ.)

SCOUR CONFIRMATION RECOMMENDATION

DATE: N/A

TOTAL SCOUR AT PIER EL. N/A (500 YR. FREQ.)
SCOUR CODE: L

BRIDGE SURVEY SHEETS MADE FROM :
ANOKA COUNTY SURVEY ON 10/15/2011

BENCH MARK ELEVATION 893.76 (N.A.V.D. 88 ADJ.)

LOCATION: ELECTRIC MANHOLE IN PATH
N.W. QUAD OF TIMBER BRIDGE
STA. 77+85.25, 55.94' LEFT

HORIZONTAL DATUM NAD 83 (96 ADJ)
VERTICAL DATUM IS NAVD 88

BRIDGE SURVEY

PROPOSED BRIDGE LOCATED ON C.S.A.H. 51
1.0 MILE SOUTH OF JCT. TH 242
AND C.S.A.H. 51 OVER SAND CREEK.

SEC 7 T 31 N R 23 W

COUNTY: ANOKA

CITY: BLAINE

BRIDGE NO. 02585

STATE PROJECT NO. S.P. 002-651-007

EXISTING BITUMINOUS PATHWAY

R/W

TEST PILE NO. 1

EDGE OF BITUMINOUS

45'-0" (TYP.)

TEST PILE NO. 4

EXISTING BITUMINOUS PATHWAY

EDGE OF BITUMINOUS

76+00

AZ. = 0°-44'-32.67"

77+00

78+00

79+00

W.P. "C"
STA. 76+95.59

90° (TYP.)

W.P. "D"
STA. 77+80.59

℄ S.B. CSAH 51 (PS51_1) & WORKING LINE

EXISTING BR. NO. 02520
3-SPAN TIMBER DECK
TIMBER SUBSTRUCTURES
78.2 FT. LONG
67.5 FT. WIDE

TEST PILE NO. 2

TEST PILE NO. 5

1:2 SLOPE

1:2 SLOPE

STA. 76+89.00
39.0' RT.

B2

B1

STA. 77+84.00
38.7' RT.

℄ N.B. CSAH 51 (PN51_1)

76+00

AZ. = 0°-44'-32.67"

77+00

78+00

79+00

EDGE OF BITUMINOUS

EDGE OF BITUMINOUS

RANDOM RIPRAP CLASS III
1'-6" THICK (TYP.)

RANDOM RIPRAP CLASS III
3'-0" THICK (TYP.)

NOTE:
LIMITS OF RANDOM RIPRAP ARE APPROXIMATE ONLY. EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD. CONTRACTOR SHALL DRESS SLOPES & PLACE GEOTEXTILE FILTER & RIPRAP IN APPROX. AREA'S AS DIRECTED BY THE ENGINEER.

TEST PILE NO. 3

SAND CREEK

45'-0" (TYP.)

TEST PILE NO. 6

R/W

R/W

.xxx.xx

BEG. OF BRIDGE
STA. 76+94.76
EL. 893.62

℄ SOUTH ABUTMENT

℄ NORTH ABUTMENT

END OF BRIDGE
STA. 77+81.43
EL. 893.13

℄ PROPOSED PROFILE GRADE S.B. CSAH 51

EXISTING GROUNDLINE @ ℄ EXISTING CSAH 51

LOW MEMBER
EL. 888.26

-0.55 % GRADE

2'-0" MIN. (TYP.)

EL. 900.00

EL. 890.00

EL. 880.00

EL. 870.00

EL. 860.00

EL. 850.00

EL. 840.00

EL. 830.00

1:2

9'-0"

1:2

3'-0"

4'-6"

EXISTING GROUNDLINE 50 FT. RT.

EXISTING GROUNDLINE 50 FT. LT.

DES. H.W. EL. 886.6
(100 YR.)

RANDOM RIPRAP CLASS III (TYP.)

APPROX. CHANNEL
BOTTOM EL. 879.9

GEOTEXTILE FILTER TYPE IV (TYP.)

12" CONC. C.I.P. TEST
PILE 95 FT. LONG

12" CONC. C.I.P. TEST
PILE 95 FT. LONG

NOTE:
SEE SHT. 36 FOR BORING LOGS

76+00

77+00

78+00

79+00

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BRIDGE SURVEY - PLAN AND PROFILE

DR: DJV CHK: BRL

STATE PROJECT NO. S.P. 002-651-007

SHEET NO. 364 OF 391 SHEETS

BRIDGE NO. 02585

℄ BRG. - SOUTH ABUTMENT

PROPOSED PROFILE GRADE AT S.B. CSAH 51 (PS51_1)

EXISTING GROUNDLINE ℄ EXISTING CSAH 51

℄ BRG. - NORTH ABUTMENT

EXISTING GROUNDLINE 50 FT. RT.

EXISTING GROUNDLINE 50 FT. LT.

EL. 890.00

EL. 880.00

EL. 870.00

EL. 860.00

EL. 850.00

EL. 840.00

EL. 830.00

EL. 820.00

EL. 810.00

8.75" Bituminous pavement

9.5" FILL, mostly silty sand with gravel, brown, frozen (A-1-b)

FILL, mostly silty sand, dark brown, frozen (A-2-4)

FILL, mixture of silty sand and sand with silt, a little gravel, brown and dark brown, a little black, frozen to about 3' (A-2-4)

FILL, mostly silty sand, a little sand with silt and organic silt, trace roots, dark brown, a little brown and black (A-2-4)

SAND WITH SILT, fine grained, light grayish brown, a little brown, moist, medium dense (SP-SM) (A-3)

SAND, fine grained, light grayish brown to gray, moist to about 13' then waterbearing, medium dense (SP) (A-3)

SAND WITH SILT, fine grained, gray, waterbearing, medium dense (SP-SM) (A-3)

SILT, brownish gray, wet, medium dense (ML) (A-4)

CLAYEY SAND, a little gravel, gray (SC) (A-6)

SAND WITH SILT, fine grained, brown, waterbearing, medium dense to dense (SP-SM) (A-3)

SILT WITH SAND, brown, wet, dense (ML) (A-4)

SAND, fine grained, brown, waterbearing, very dense to dense (SP) (A-3)

SANDY LEAN CLAY, a little gravel, brown, hard, laminations of lean clay with sand (CL) (A-6)

CLAYEY SAND WITH GRAVEL, brown, hard (SC) (A-6)
#18/0.5 + 100/0.3

END OF BORING EL. 795.8 (B2)

12" CONC. C.I.P. TEXT PILE 95 FT. LONG

12" CONC. C.I.P. TEXT PILE 80 FT. LONG

MATCH LINE

CLAYEY SAND, a little gravel, apparent boulder at about 96'-97', brown, hard (SC) (A-6)

FAT CLAY, brown, hard (CH) (A-7-6)

END OF BORING EL. 792.7 (B1)

MATCH LINE

4.75" Bituminous pavement

FILL, mostly gravelly sand with silt, brown, frozen (A-1-b)

FILL, mostly silty sand with gravel, a little sand with silt, pieces of concrete, frozen to 3'

FILL, mostly silty sand, dark brown (A-2-4)

FILL, mostly sand with silt, a little silty sand, light grayish brown and brown, a little dark brown (A-3)

SAND, fine grained, light grayish brown, a little brown, moist, a lens of sand with silt (SP) (A-3)

SAND WITH SILT, fine grained, light grayish brown, a little brown, moist, loose, laminations of sandy silt (SP-SM) (A-3)

SAND, fine grained, brownish gray, moist, loose (SP) (A-3)

SAND WITH SILT, fine grained, brownish gray, waterbearing, loose to very loose (SP-SM) (A-3)

SAND, fine grained, brownish gray to gray, a little brown, waterbearing, very loose to very dense (SP) (A-3)

SAND, fine grained, brownish gray to gray, a little brown, waterbearing, very loose to very dense (SP) (A-3) (continued)

SILT, light brownish gray and brownish gray, wet, medium dense, laminations of lean clay (ML) (A-4)

SANDY LEAN CLAY, brownish gray, very stiff (CL) (A-6)

CLAYEY SAND, a little gravel, brownish gray, stiff to firm (SC) (A-6)
#2/0.5 + 4/0.5 + 18/0.5

SAND, fine grained, brown, waterbearing, medium dense to dense (SP) (A-3)

SANDY SILT, brown, wet, dense (ML) (A-4)

SAND, fine grained, brown, waterbearing, dense (SP) (A-3)

SANDY LEAN CLAY, a little gravel, brown, very stiff (CL) (A-6)

LEAN CLAY WITH SAND, brown, hard (CL) (A-7-6)

76+00

77+00

78+00

79+00

BRIDGE SURVEY - BORING LOGS

DR: DJV

CHK: BRL

BRIDGE NO. 02585

STATE PROJECT NO. S.P. 002-651-007

SHEET NO. 365 OF 381 SHEETS

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