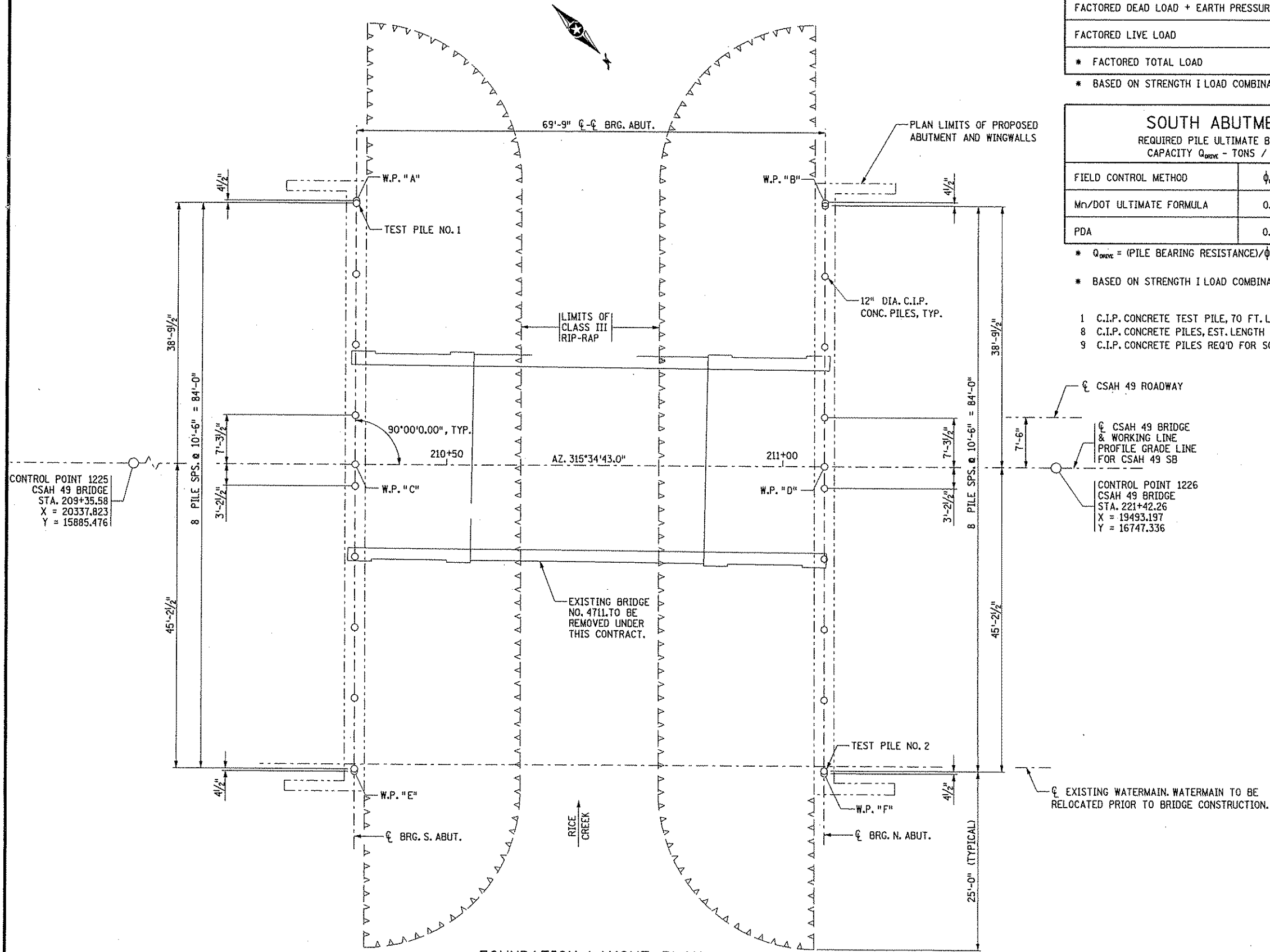


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SOUTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	92.4
FACTORED LIVE LOAD	23.5
* FACTORED TOTAL LOAD	115.9
* BASED ON STRENGTH I LOAD COMBINATION	

NORTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	92.4
FACTORED LIVE LOAD	23.5
* FACTORED TOTAL LOAD	115.9
* BASED ON STRENGTH I LOAD COMBINATION	

SOUTH ABUTMENT REQUIRED PILE ULTIMATE BEARING CAPACITY Q_{DRIVE} - TONS / PILE		
FIELD CONTROL METHOD	ϕ_{DRIVE}	* Q_{DRIVE}
Mn/DOT ULTIMATE FORMULA	0.40	289.8
PDA	0.60	193.2

NORTH ABUTMENT REQUIRED PILE ULTIMATE BEARING CAPACITY Q_{DRIVE} - TONS / PILE		
FIELD CONTROL METHOD	ϕ_{DRIVE}	* Q_{DRIVE}
Mn/DOT ULTIMATE FORMULA	0.40	289.8
PDA	0.60	193.2

- * $Q_{DRIVE} = (\text{PILE BEARING RESISTANCE}) / \phi_{DRIVE}$
- * BASED ON STRENGTH I LOAD COMBINATION
- 1 C.I.P. CONCRETE TEST PILE, 70 FT. LONG
- 8 C.I.P. CONCRETE PILES, EST. LENGTH 60 FT.
- 9 C.I.P. CONCRETE PILES REQ'D FOR SOUTH ABUTMENT

- * $Q_{DRIVE} = (\text{PILE BEARING RESISTANCE}) / \phi_{DRIVE}$
- * BASED ON STRENGTH I LOAD COMBINATION
- 1 C.I.P. CONCRETE TEST PILE, 70 FT. LONG
- 8 C.I.P. CONCRETE PILES, EST. LENGTH 60 FT.
- 9 C.I.P. CONCRETE PILES REQ'D FOR NORTH ABUTMENT

PILE NOTES:
 PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
 PILES TO HAVE A NOMINAL DIAMETER OF 12" WITH A MINIMUM WALL THICKNESS OF 0.3125". (ASTM A252, GRADE 3 OR BETTER).
 FOR PILE SPLICE DETAILS SEE STANDARD DETAIL B201.

NO.	DATE	BY	DESCRIPTION OF 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.
 SIGNED: *Matthew J. Christensen*
 DATE: 6-5-2006
 MATTHEW J. CHRISTENSEN
 REG. NO. 43076

TKDA
 ENGINEERS • ARCHITECTS • PLANNERS
 1500 PIPER JAFFRAY PLAZA
 444 CEDAR STREET
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

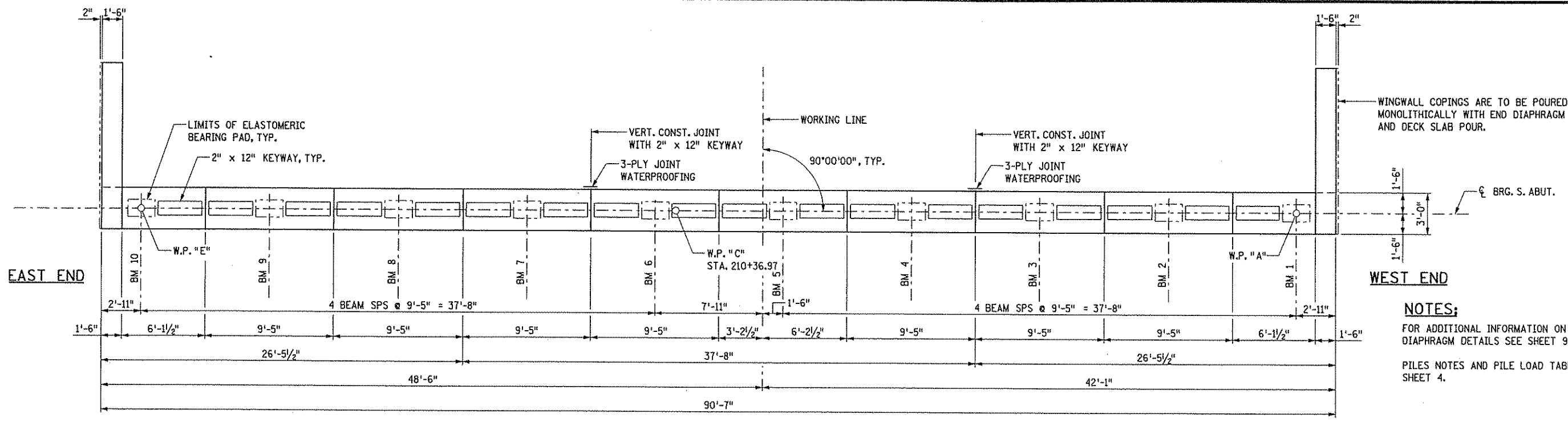
TITLE:
FOUNDATION LAYOUT PLAN

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

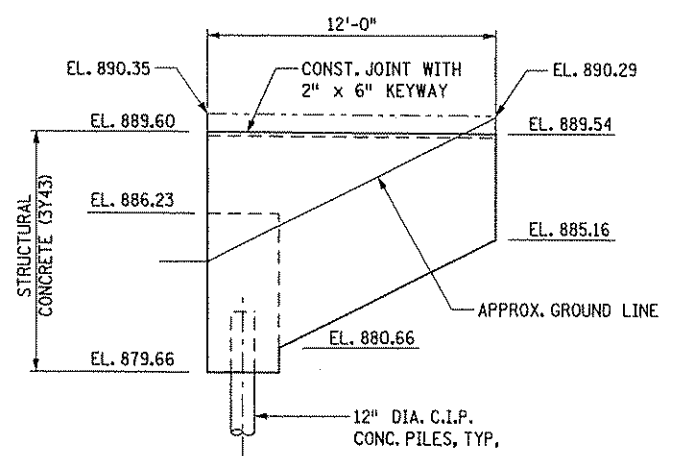
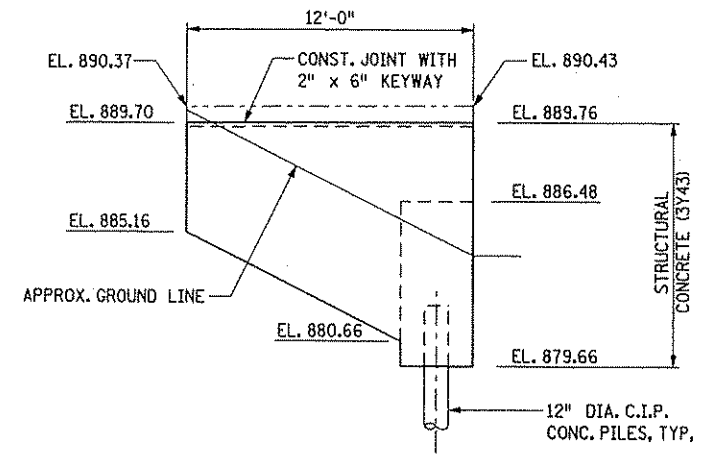
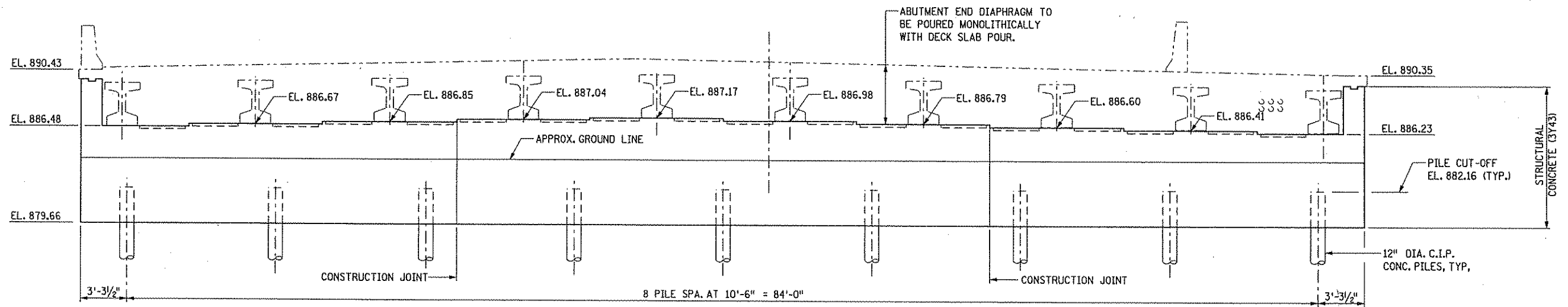
Sheet No. B4 of B26 Sheets

Bridge No.
 02563

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NOTES:
 FOR ADDITIONAL INFORMATION ON ABUTMENT AND END DIAPHRAGM DETAILS SEE SHEET 9.
 PILES NOTES AND PILE LOAD TABLES ARE SHOWN ON SHEET 4.



NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

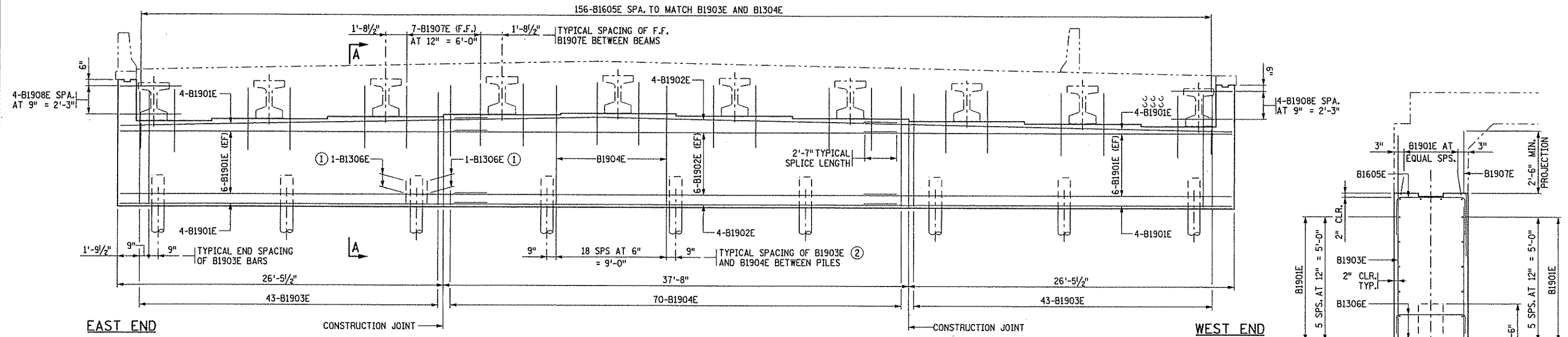
TITLE:
**SOUTH ABUTMENT
 PLAN AND ELEVATION**

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B5 of B26 Sheets

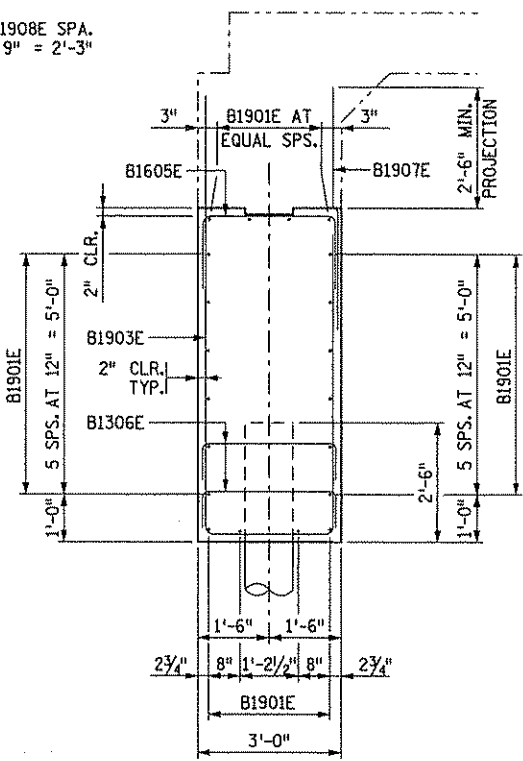
Bridge No.
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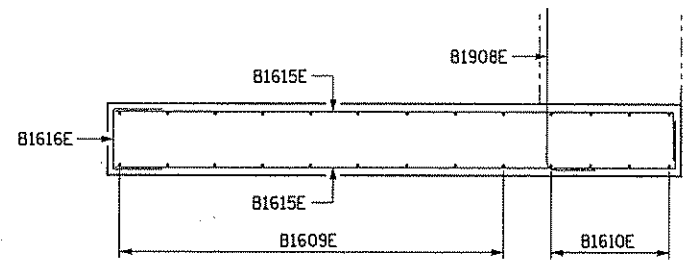


SOUTH ABUTMENT REINFORCEMENT

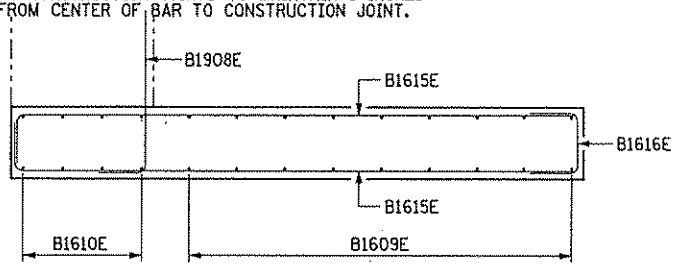
- ① TYPICAL PLACEMENT OF B1306E AT ALL PILES
- ② ADJUST PLACEMENT OF B1903E AND B1904E BARS AT CONSTRUCTION JOINTS TO MAINTAIN 3 INCHES FROM CENTER OF BAR TO CONSTRUCTION JOINT.



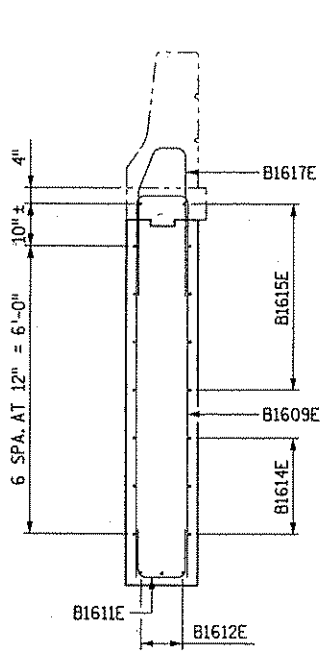
SECTION A-A



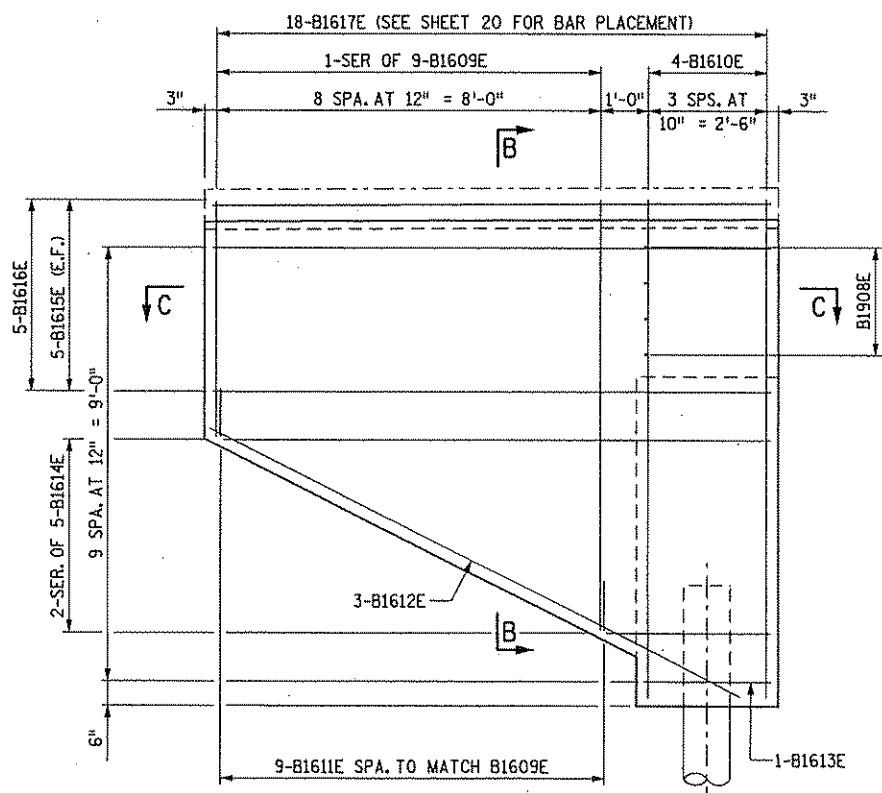
SECTION C-C



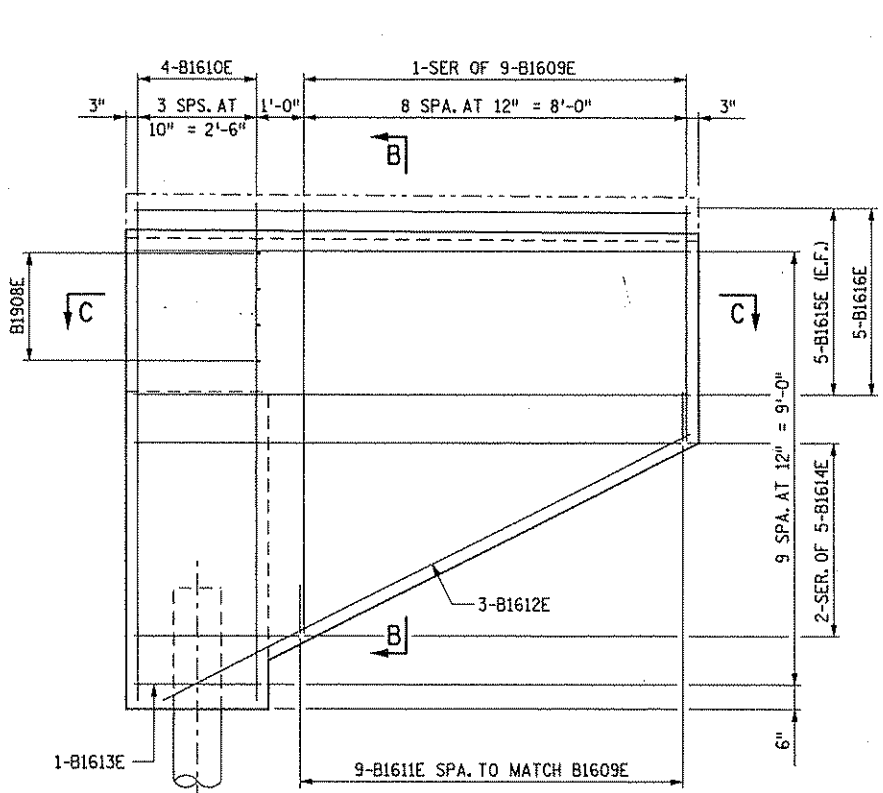
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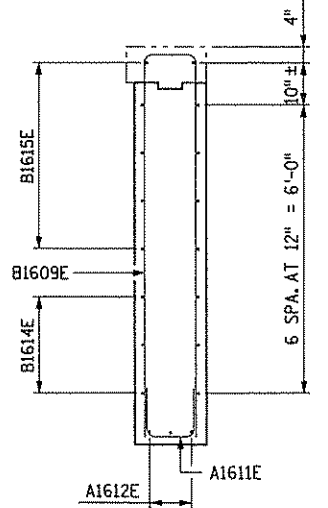
SECTION B-B



SOUTHEAST WINGWALL REINFORCEMENT



SOUTHWEST WINGWALL REINFORCEMENT



SECTION B-B

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 DATE: 5-8-2006 REG. NO. 43076

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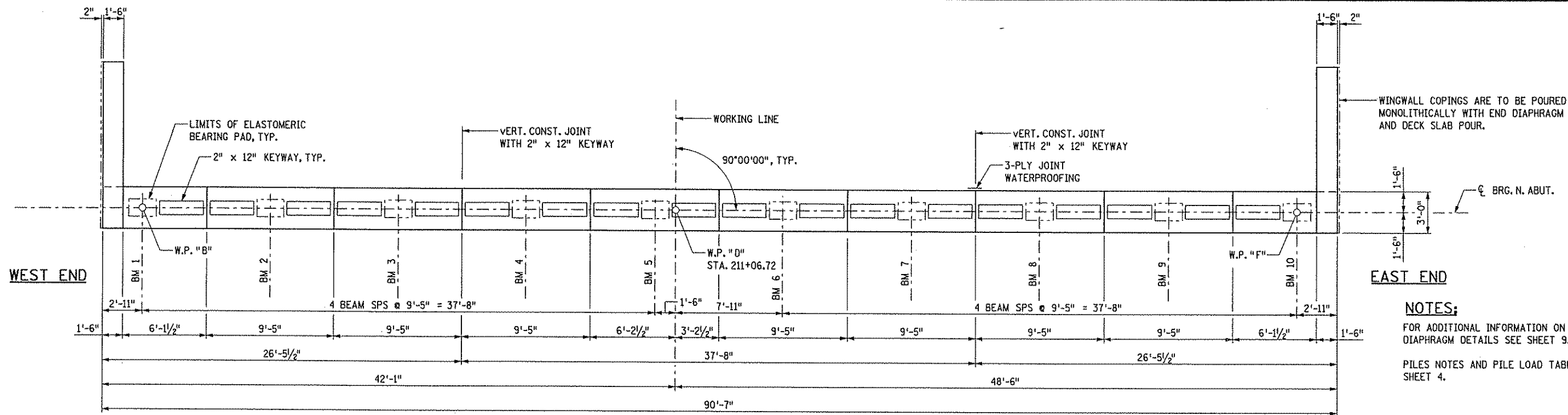
CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

TITLE: **SOUTH ABUTMENT REINFORCEMENT**

DES: MJC DR: MJC APPROVED
 CHK: GM CHK: GM
 Sheet No. B6 of B26 Sheets

Bridge No. 02563

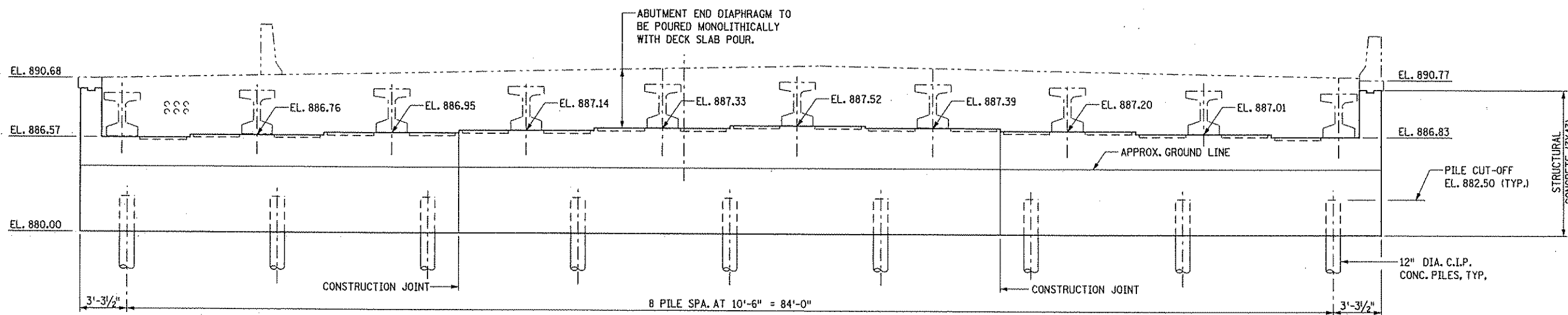
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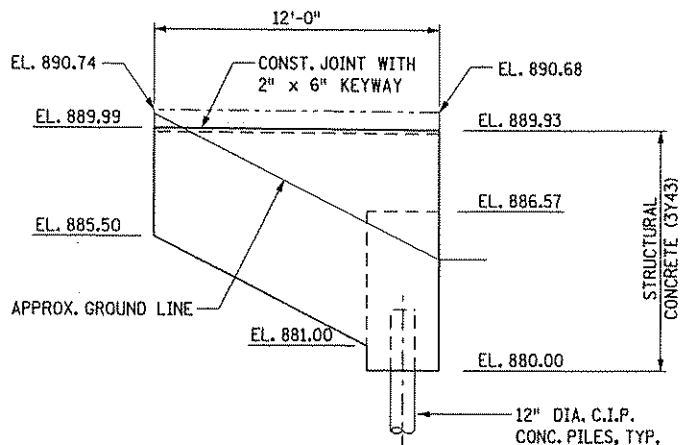
PLAN VIEW

WINGWALL COPINGS ARE TO BE POURED MONOLITHICALLY WITH END DIAPHRAGM AND DECK SLAB POUR.

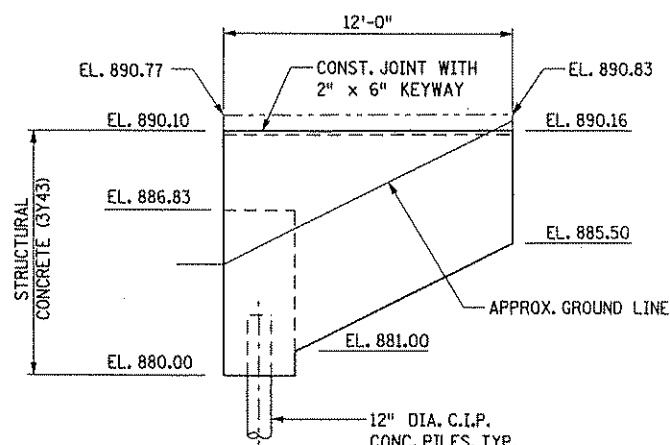
NOTES:
 FOR ADDITIONAL INFORMATION ON ABUTMENT AND END DIAPHRAGM DETAILS SEE SHEET 9.
 PILES NOTES AND PILE LOAD TABLES ARE SHOWN ON SHEET 4.



ELEVATION VIEW



NORTHWEST WINGWALL



NORTHEAST WINGWALL

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

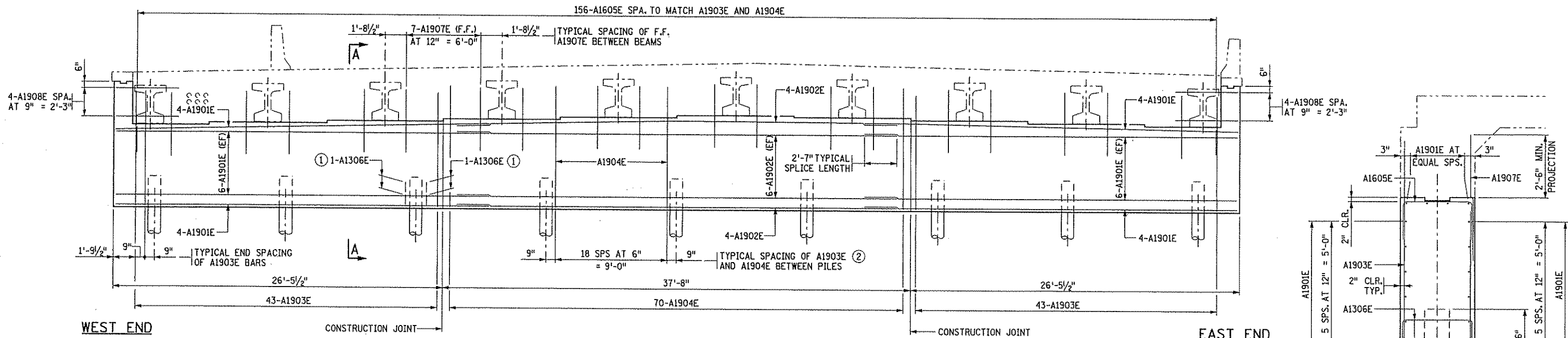
TITLE:
**NORTH ABUTMENT
 PLAN AND ELEVATION**

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B7 of B26 Sheets

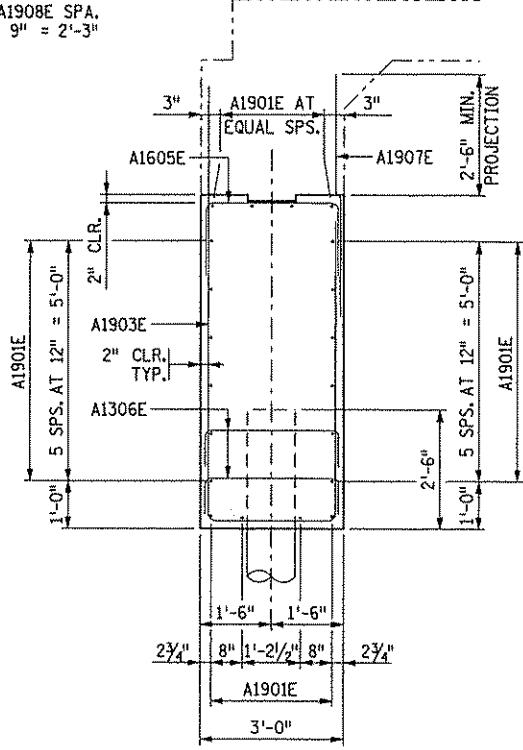
Bridge No.
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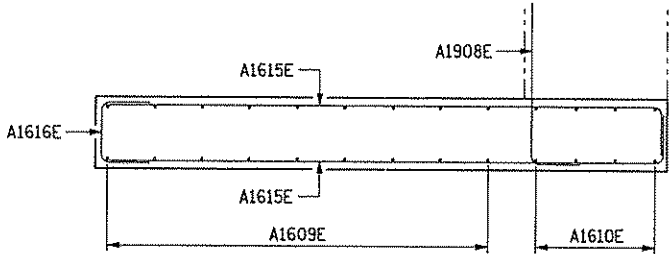


NORTH ABUTMENT REINFORCEMENT

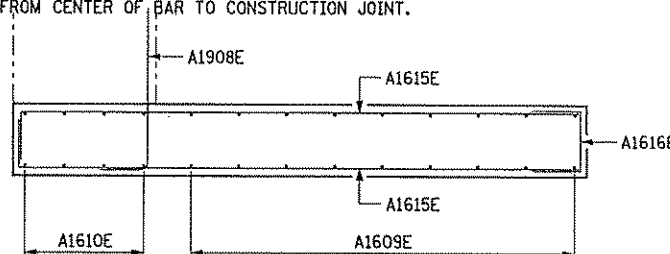
- ① TYPICAL PLACEMENT OF A1306E AT ALL PILES
- ② ADJUST PLACEMENT OF A1903E AND A1904E BARS AT CONSTRUCTION JOINTS TO MAINTAIN 3 INCHES FROM CENTER OF BAR TO CONSTRUCTION JOINT.



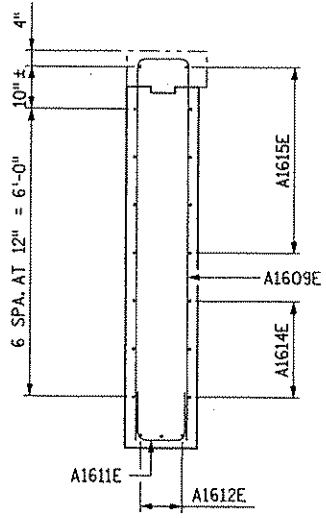
SECTION A-A



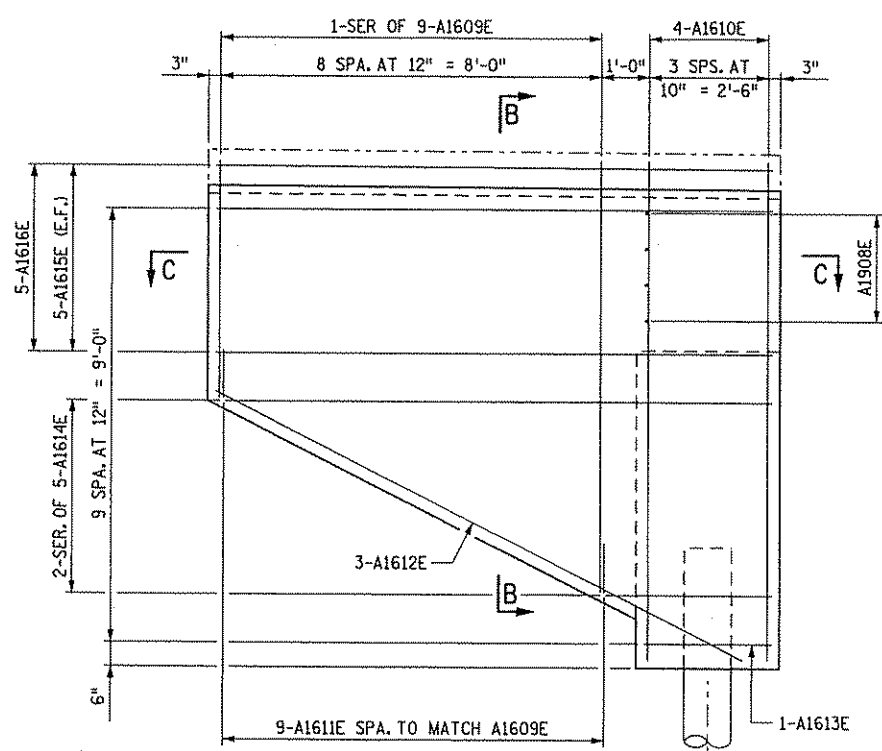
SECTION C-C



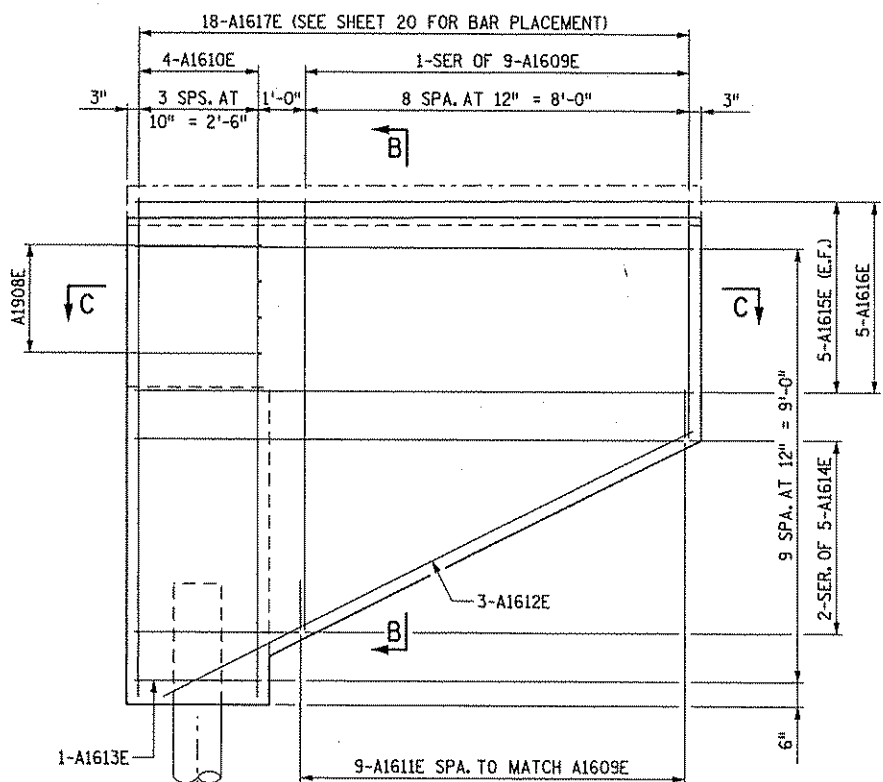
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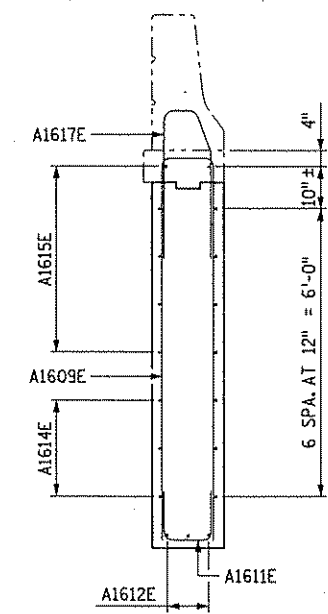
SECTION B-B



NORTHWEST WINGWALL REINFORCEMENT



NORTHEAST WINGWALL REINFORCEMENT



SECTION B-B

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 DATE: 5-8-2006

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CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
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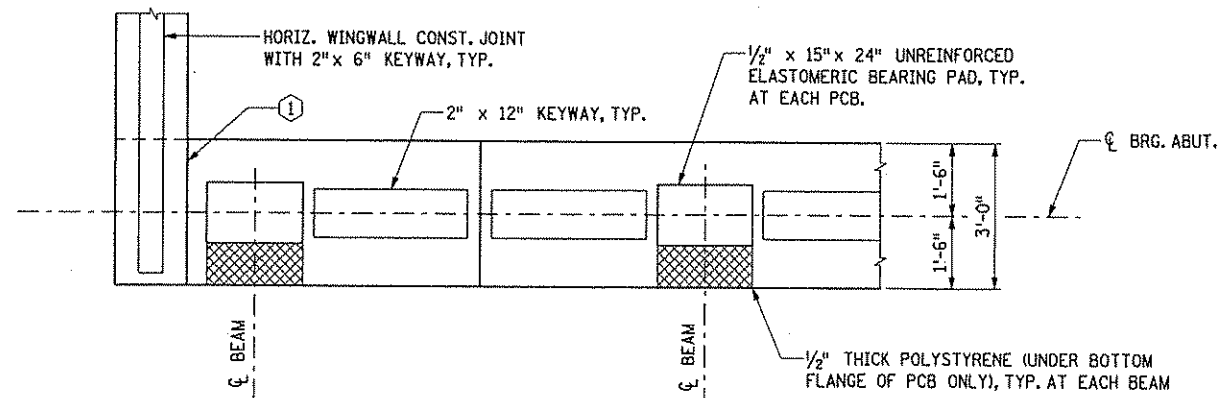
TITLE: **NORTH ABUTMENT REINFORCEMENT**

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B8 of B26 Sheets

Bridge No. 02563

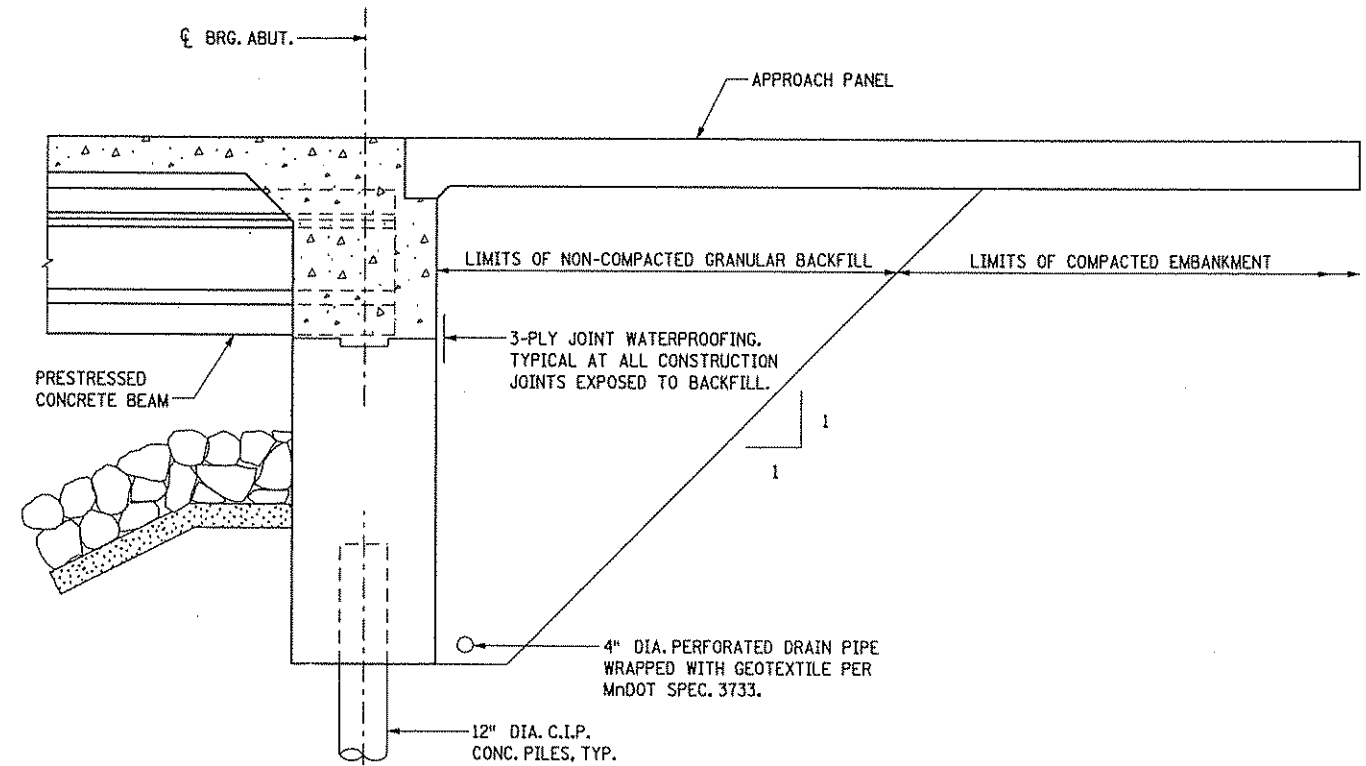
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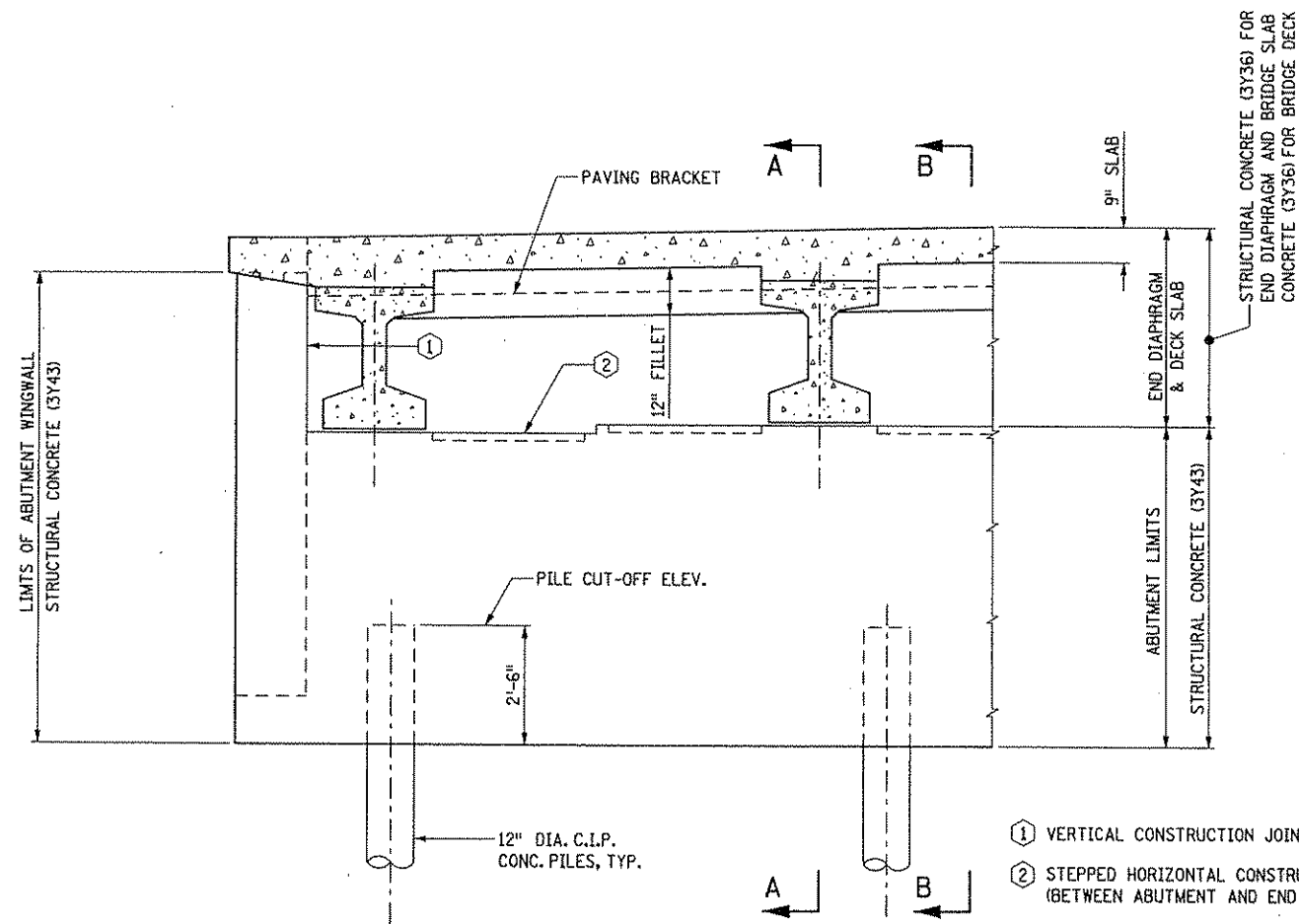
TYPICAL BRIDGE SEAT DETAIL

REQUIRED CONSTRUCTION SEQUENCE:

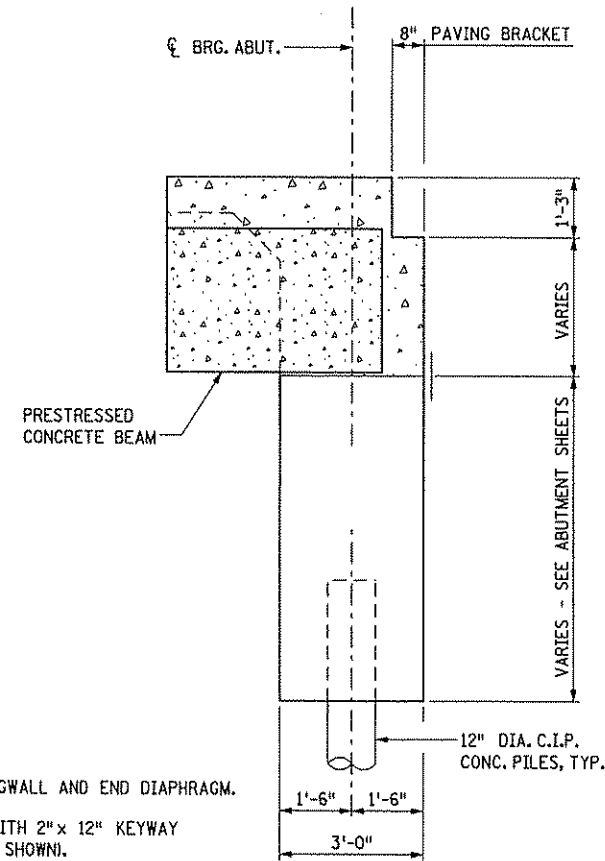
- ① CONSTRUCT ABUTMENT AND WINGWALLS UP TO THE CONSTRUCTION JOINTS IDENTIFIED ON THIS PLAN.
- ② AFTER PLACING BEARING PADS AND POLYSTYRENE, ERECT PRESTRESSED CONCRETE BEAMS.
- ③ CONCRETE FOR BRIDGE DECK SLAB, END DIAPHRAGMS AND WINGWALL COPINGS IS TO BE POURED IN ONE MONOLITHIC POUR.
- ④ APPROACH PANELS, RAISED CONCRETE MEDIAN, CONCRETE RAILINGS AND CONCRETE WEARING COURSE MAY BE POURED IN ANY LOGICAL SEQUENCE.



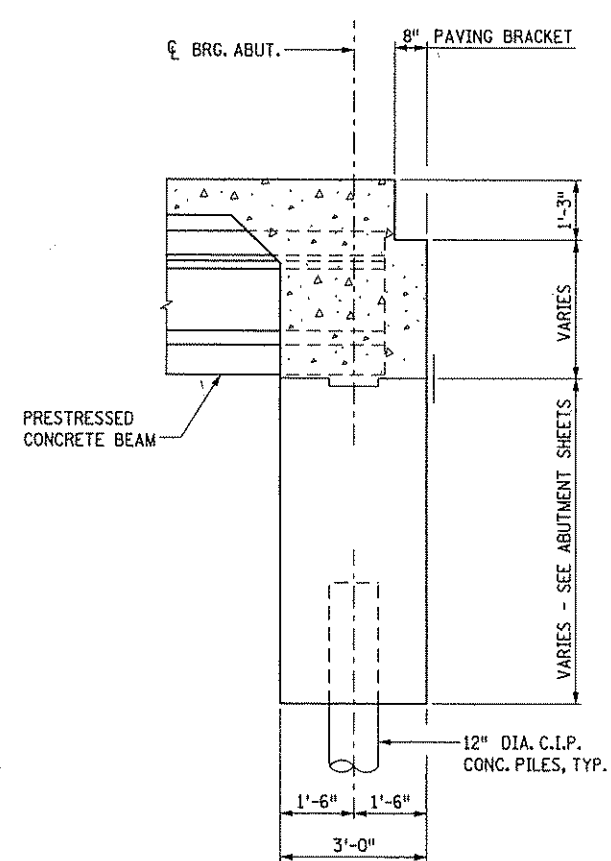
BACKFILL AND DRAINAGE DETAILS



(END DIAPHRAGM NOT SHOWN)
TYPICAL ABUTMENT ELEVATION DETAIL



TYPICAL SECTION A-A



TYPICAL SECTION B-B

- ① VERTICAL CONSTRUCTION JOINT BETWEEN WINGWALL AND END DIAPHRAGM.
- ② STEPPED HORIZONTAL CONSTRUCTION JOINT WITH 2" x 12" KEYWAY (BETWEEN ABUTMENT AND END DIAPHRAGM AS SHOWN).

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN
 DATE: 5-8-2006 REG. NO. 43076

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1500 PIPER JAFFRAY PLAZA
 444 CEDAR STREET
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

TITLE:
 ABUTMENT DETAILS

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B9 of B26 Sheets

Bridge No.
 02563

FILENAME: k:\a-f\anoka\15920\hwy-brdg\brdg\dgn\abuts\subbar.dgn
 DATE: 5/8/2006 TIME: 9:42:31 AM

SUMMARY OF QUANTITIES FOR ABUTMENTS

NOTE	ITEM	UNIT	SOUTH ABUTMENT	NORTH ABUTMENT	TOTAL
	STRUCTURAL CONCRETE (3Y43)	CU. YD.	80	80	160
	REINFORCEMENT BARS (EPOXY COATED)	LB	10350	10350	20700
	STRUCTURE EXCAVATION	LS	(PART)	(PART)	1
1	C-I-P CONCRETE PILING DELIVERED 12"	LIN. FT.	480	480	960
1	C-I-P CONCRETE PILING DRIVEN 12"	LIN. FT.	480	480	960
	C-I-P CONCRETE TEST PILE 70 FT. LONG	EACH	1	1	2
	REMOVE OLD BRIDGE	LUMP SUM	---	---	1
2	PREFORMED JOINT FILLER	(PART)	(PART)	(PART)	---

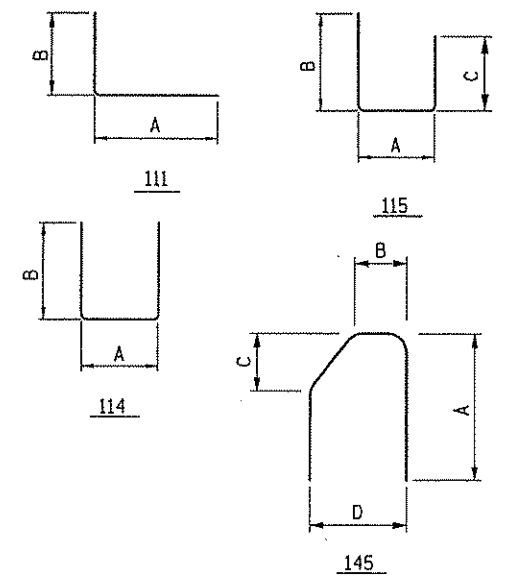
NOTES:

- DOES NOT INCLUDE TEST PILES.
- TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

BARLISTS

BAR MARK	NO.	SERIES NO.	NO. OF	LENGTH FT	IN	SIZE	TYPE	DIMENSIONS				LOCATION
								A	B	C	D	
SOUTH ABUTMENT												
B1901E	40			30	0	19	STR					ABUTMENT, HORIZ.
B1902E	20			35	9	19	STR					ABUTMENT, HORIZ.
B1903E	48			17	10	19	115	2'-8"	9'-0"	6'-2"		ABUTMENT STIRRUPS
B1904E	36			19	0	19	115	2'-8"	9'-7"	6'-9"		ABUTMENT STIRRUPS
B1605E	86			7	8	16	114	2'-8"	2'-6"			ABUTMENT SEAT TIES
B1306E	36			4	8	13	114	2'-8"	1'-0"			TIES AT PILES
B1907E	63			5	6	19	STR					VERT. DOWELS (F.F.)
B1908E	8			6	0	19	111	5'-0"	1'-0"			HORIZ. DOWELS
B1609E		2	SER	10	10	16	114	1'-0"	4'-11"			WINGWALL, VERT.
		OF	9	18	10				8'-11"			
B1610E	8			21	8	16	114	1'-0"	10'-4"			WINGWALL, VERT.
B1611E	18			3	0	16	114	1'-0"	1'-0"			WINGWALL TIE, BOTT.
B1612E	6			12	4	16	STR					WINGWALL, BOTTOM
B1613E	2			4	8	16	114	2'-8"	1'-0"			ABUTMENT END
B1614E		4	SER	4	5	16	111	3'-5"	1'-0"			WINGWALL, HORIZ.
		OF	5	12	5	16		11'-5"				
B1615E	20			12	8	16	111	11'-8"	1'-0"			WINGWALL, HORIZ.
B1616E	10			3	2	16	114	1'-2"	1'-0"			WINGWALL TIE, HORIZ.
B1617E	18			7	6	16	145	3'-4"	9"	10"	1'-0"	RAILING, VERT.
NORTH ABUTMENT												
A1901E	40			30	0	19	STR					ABUTMENT, HORIZ.
A1902E	20			35	9	19	STR					ABUTMENT, HORIZ.
A1903E	48			17	10	19	115	2'-8"	9'-0"	6'-2"		ABUTMENT STIRRUPS
A1904E	36			19	0	19	115	2'-8"	9'-7"	6'-9"		ABUTMENT STIRRUPS
A1605E	84			7	8	16	114	2'-8"	2'-6"			ABUTMENT SEAT TIES
A1306E	36			4	8	13	114	2'-8"	1'-0"			TIES AT PILES
A1907E	63			5	6	19	STR					VERT. DOWELS (F.F.)
A1908E	8			6	0	19	111	5'-0"	1'-0"			HORIZ. DOWELS
A1609E		2	SER	10	10	16	114	1'-0"	4'-11"			WINGWALL, VERT.
		OF	9	18	10				8'-11"			
A1610E	8			21	8	16	114	1'-0"	10'-4"			WINGWALL, VERT.
A1611E	18			3	0	16	114	1'-0"	1'-0"			WINGWALL TIE, BOTT.
A1612E	6			12	4	16	STR					WINGWALL, BOTTOM
A1613E	2			4	8	16	114	2'-8"	1'-0"			ABUTMENT END
A1614E		4	SER	4	5	16	111	3'-5"	1'-0"			WINGWALL, HORIZ.
		OF	5	12	5	16		11'-5"				
A1615E	20			12	8	16	111	11'-8"	1'-0"			WINGWALL, HORIZ.
A1616E	10			3	2	16	114	1'-2"	1'-0"			WINGWALL TIE, HORIZ.
A1617E	18			7	6	16	145	3'-4"	9"	10"	1'-0"	RAILING, VERT.

BAR BENDING DIAGRAMS



NOTES:

BENT BAR DIMENSIONS GIVEN ARE OUT-TO-OUT ACTUAL BAR LENGTHS SHALL BE DETERMINED BASED ON THE DETAIL DIMENSIONS SHOWN IN THE BAR BENDING DIAGRAMS. TOTAL BAR LENGTHS ARE SHOWN FOR USE IN COMPUTING REINFORCEMENT BAR WEIGHTS FOR PAYMENT ONLY

* DENOTES STANDARD STIRRUP HOOK DIMENSIONS PER CRSI.

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SIGNED: *Matthew J. Christensen*
 DATE: 5-8-2006

MATTHEW J. CHRISTENSEN
 REG. NO. 43076

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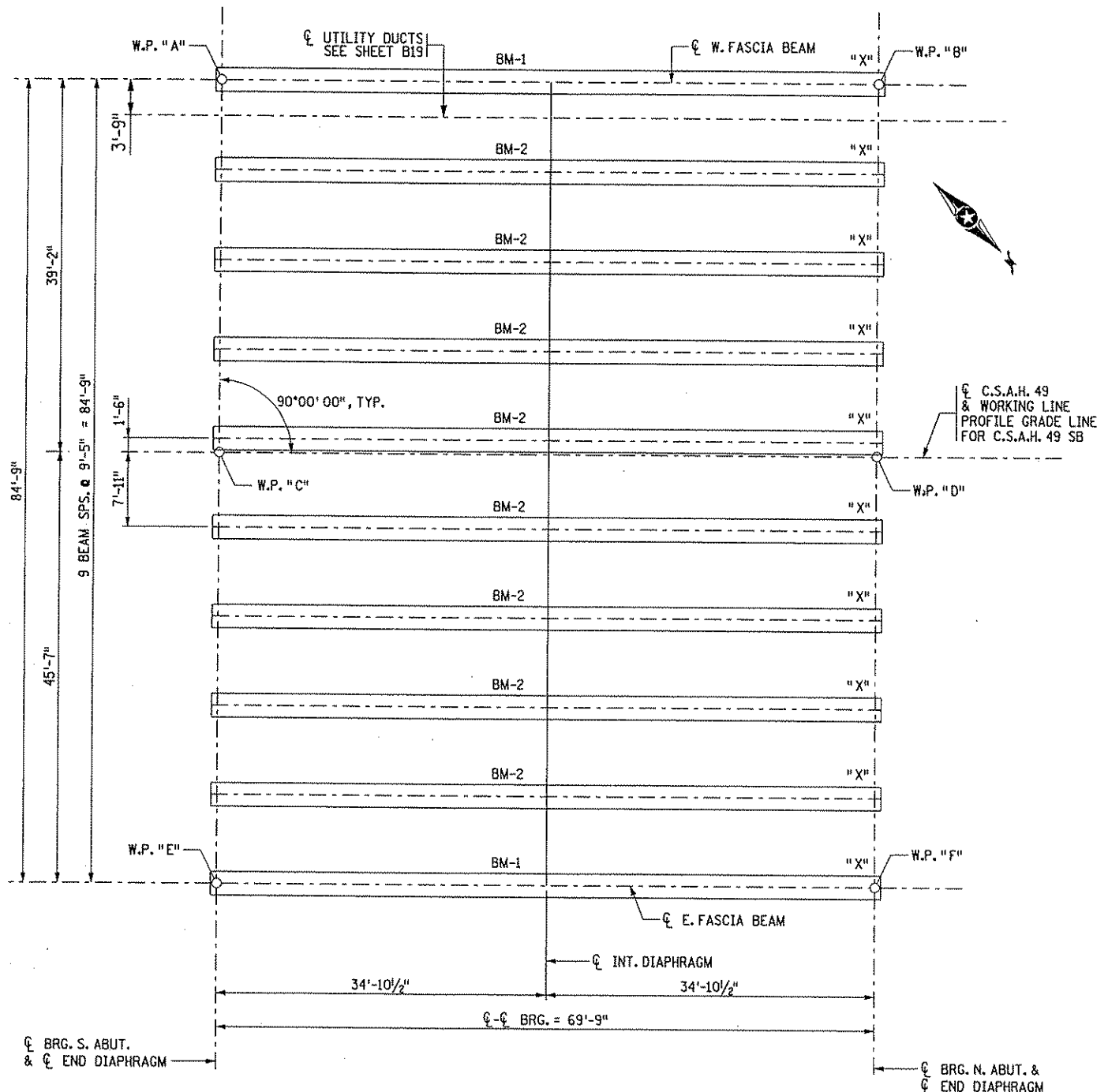
TITLE: **ABUTMENT BARLISTS AND QUANTITIES**

DES: MJC DR: MJC APPROVED
 CHK: GM CHK: GM

Sheet No. B10 of B26 Sheets

Bridge No. 02563

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 DATE: 5/8/2006 TIME: 9:42:33 AM



FRAMING NOTES:

ALL BEAMS ARE PRESTRESSED CONCRETE BEAMS, TYPE 36M.
 BEAMS ARE TO BE SET ON 1/2" THICK ELASTOMERIC BEARING PADS. PLACE 1/2" THICK POLYSTYRENE AS SHOWN IN BRIDGE SEAT DETAIL.

☐ C.S.A.H. 49
 & WORKING LINE
 PROFILE GRADE LINE
 FOR C.S.A.H. 49 SB

FRAMING PLAN

NO.	DATE	BY	DESCRIPTION OF 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
 SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN
 DATE: 5-8-2006 REG. NO. 43076

TKDA
 ENGINEERS • ARCHITECTS • PLANNERS
 1500 PIPER JAFFRAY PLAZA
 444 CEDAR STREET
 SAINT PAUL, MINNESOTA

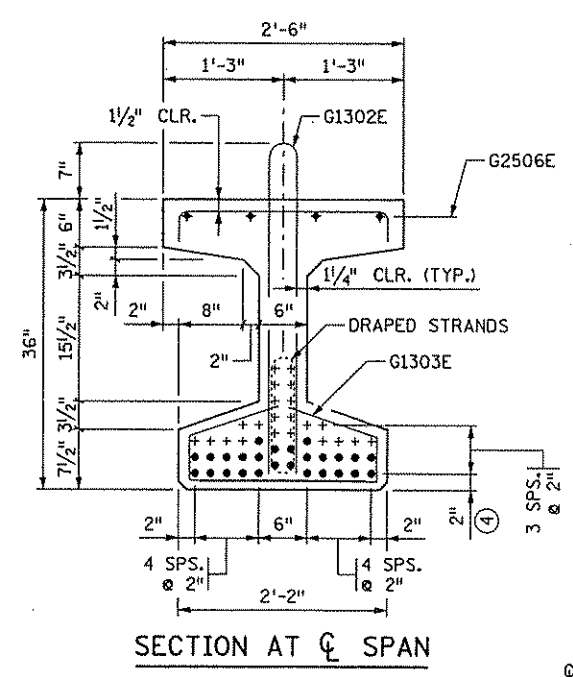
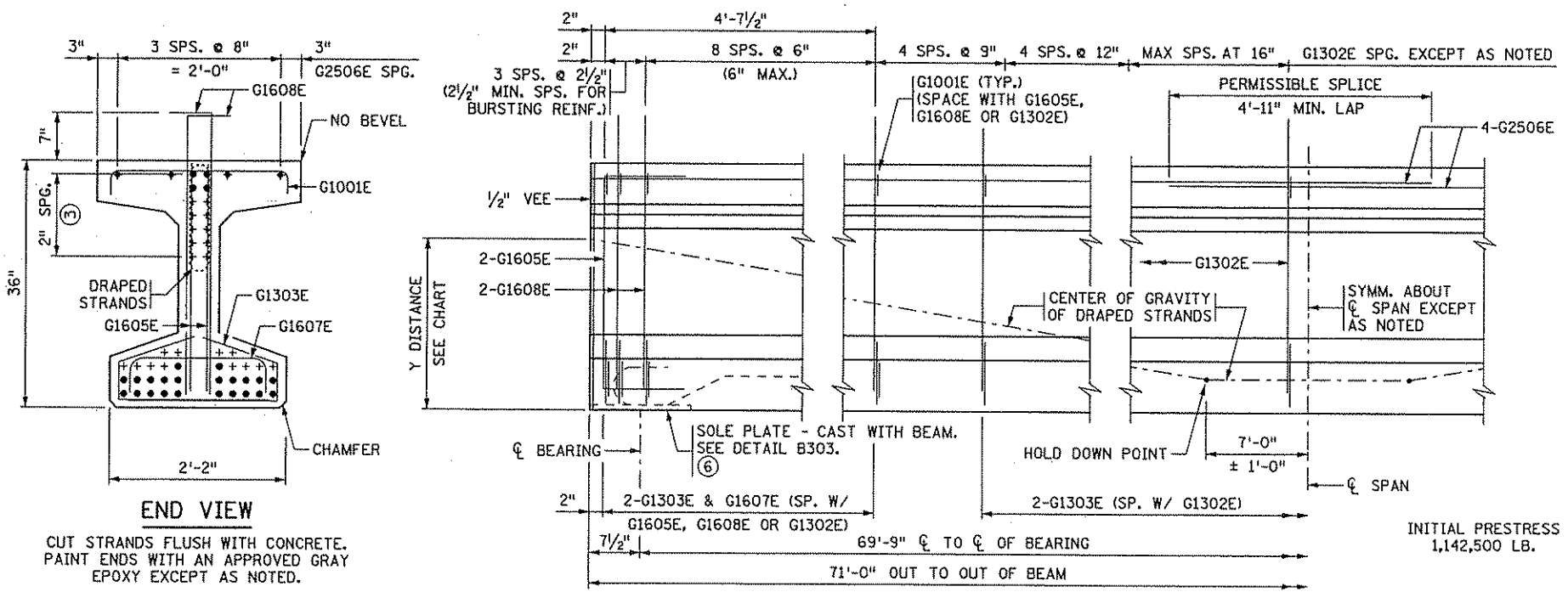
CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

TITLE: **FRAMING PLAN**

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Bridge No. 02563
 Sheet No. B11 of B26 Sheets

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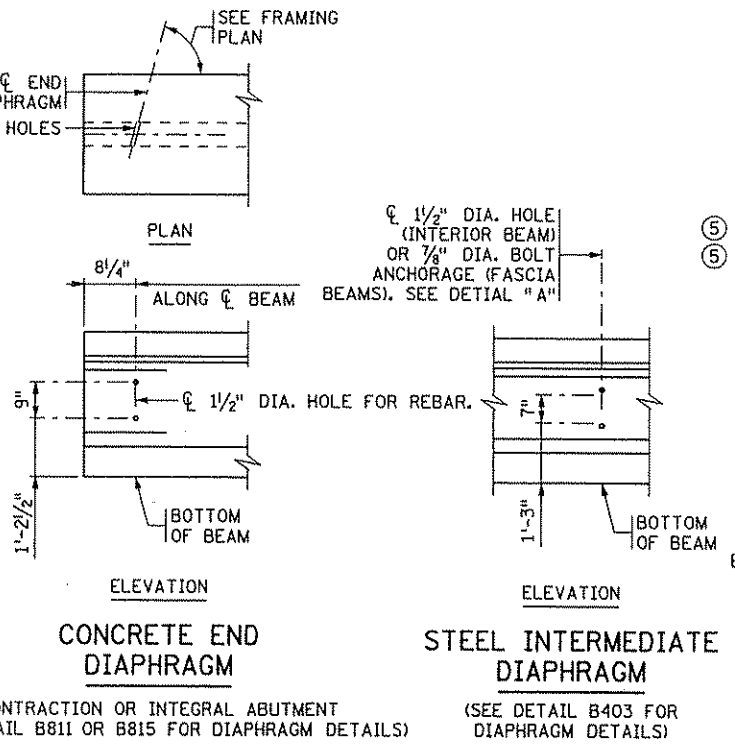
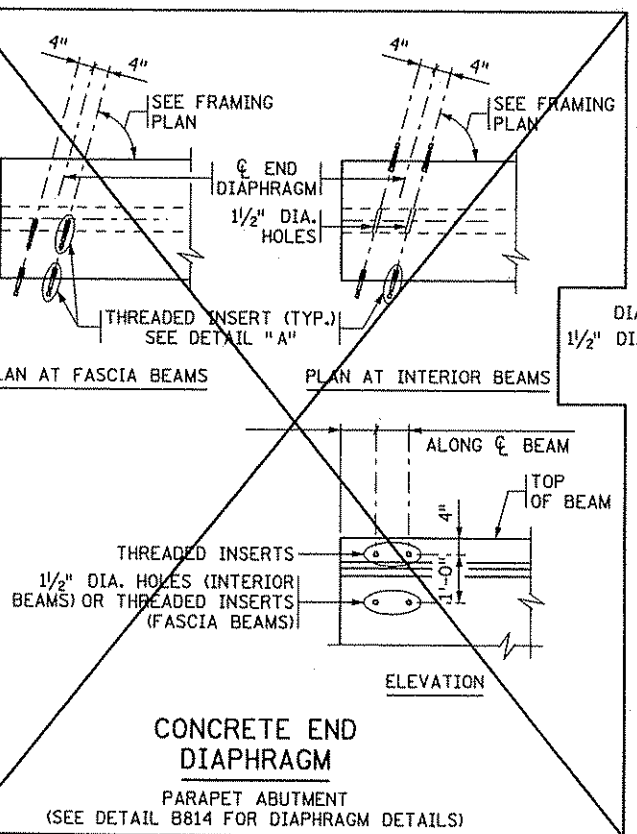
Y DISTANCES (IN INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	22	3.27	
DRAPED STRANDS	4	4.00	33.00
TOTAL STRANDS	26	3.38	

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.

END VIEW

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



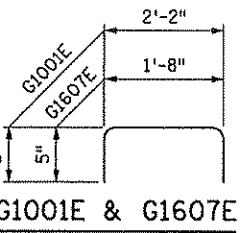
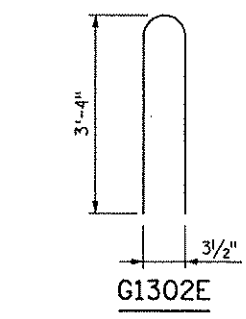
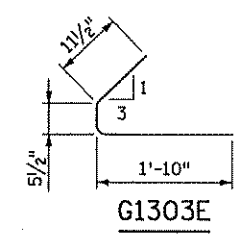
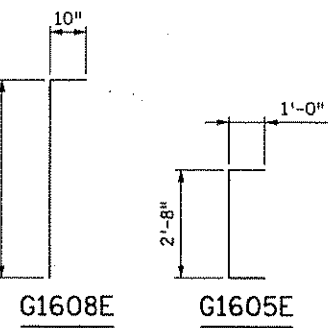
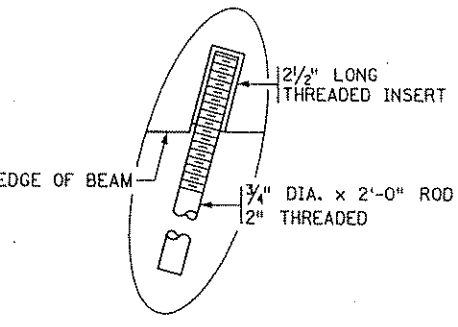
MINIMUM CONCRETE STRENGTH - P.S.I.

① f'cl	② f'c
7500	9000

PRESTRESSING STRAND DIAMETER

⑤	⑥
1/2" □	0.60" ☒

PLACE AN "X" IN THE APPROPRIATE BOX TO INDICATE THE STRAND DIAMETER USED FOR THE DESIGN.



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 22 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 BE REPLACED WITH APPROVED PROTECTED PLATE.

REVISED:
APPROVED: APRIL 29, 2003
STATE BRIDGE ENGINEER

NO.	DATE	BY	DESCRIPTION OF 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

SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN REG. NO. 43076

TKDA
ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA
444 CEDAR STREET
SAINT PAUL, MINNESOTA

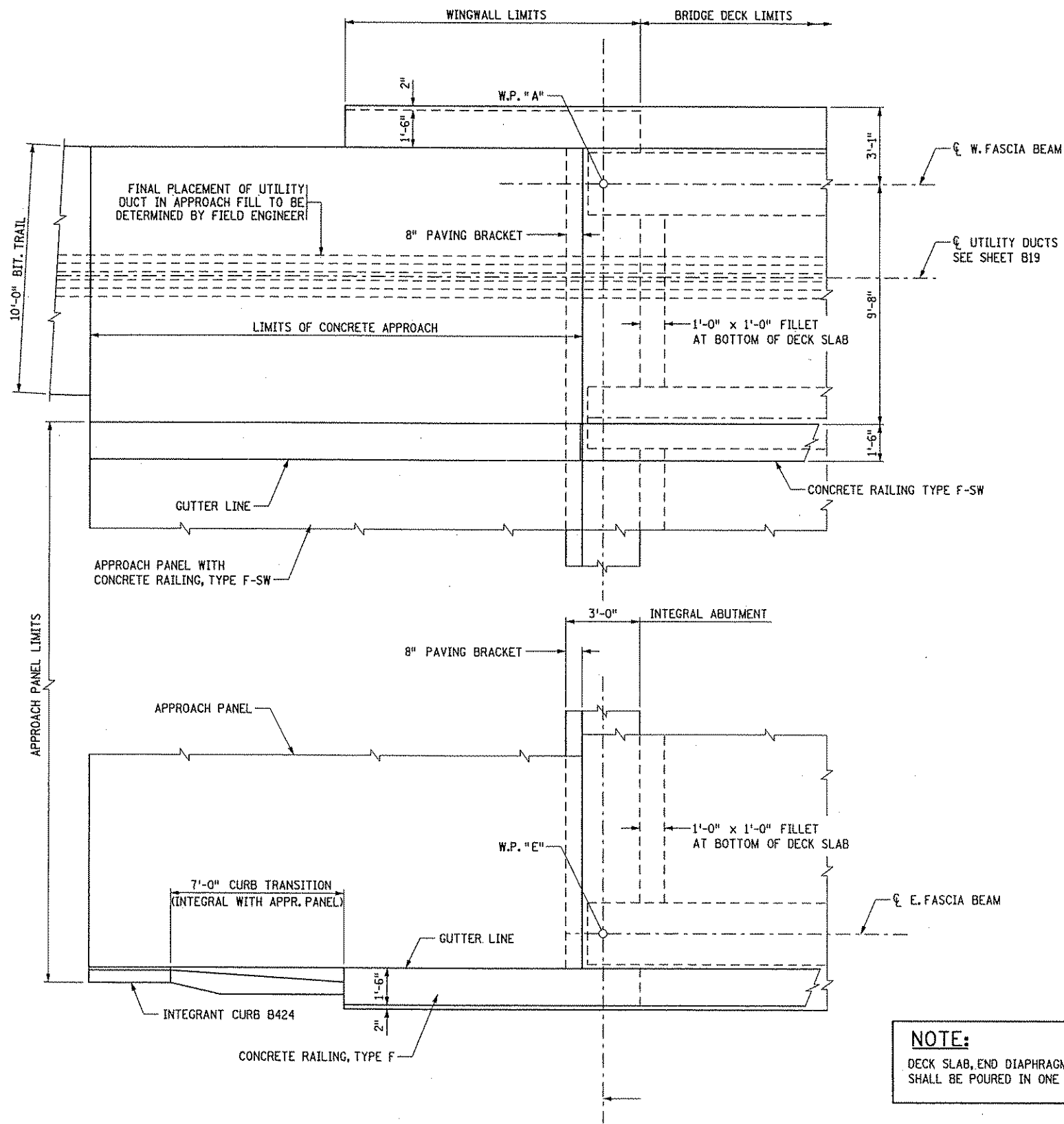
CSAH 49 OVER RICE CREEK
ANOKA COUNTY, MINNESOTA
S.A.P. 02-649-01

TITLE: **36" PRESTRESSED CONCRETE BEAM (PRETENSIONED) 36M-71**

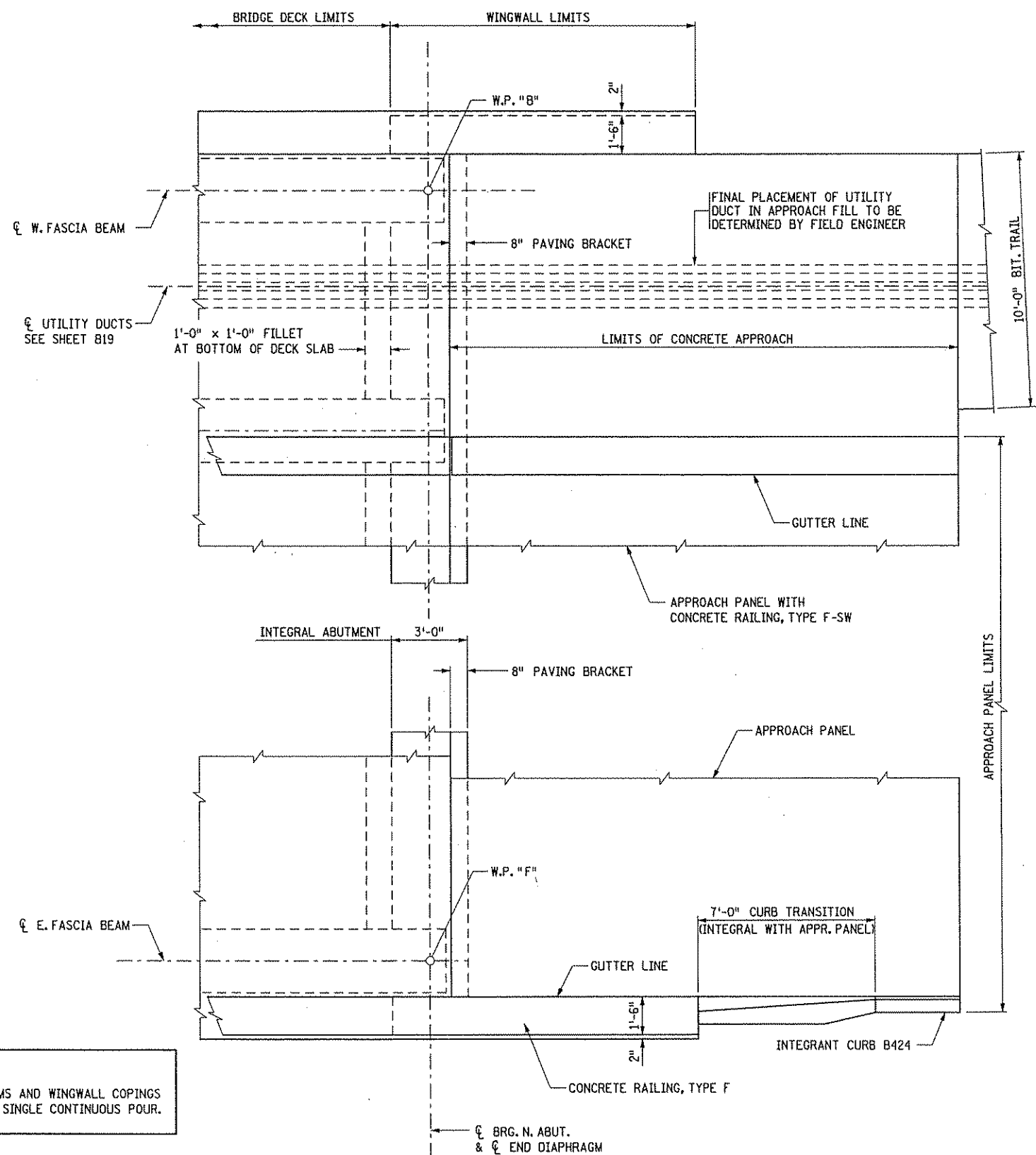
DES: MJC DR: MJC APPROVED
CHK: GM CHK: GM

BEAM BM-1 & BM-2
FIG. 5-397.505
Bridge No. 02563
Sheet No. B12 of B26 Sheets

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SOUTH ABUTMENT CORNER DETAILS



NORTH ABUTMENT CORNER DETAILS

NOTE:
 DECK SLAB, END DIAPHRAGMS AND WINGWALL COPINGS SHALL BE POURED IN ONE SINGLE CONTINUOUS POUR.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED *Matthew J. Christensen* MATTHEW J. CHRISTENSEN REG. NO. 43076
 DATE 5-8-2006

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 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

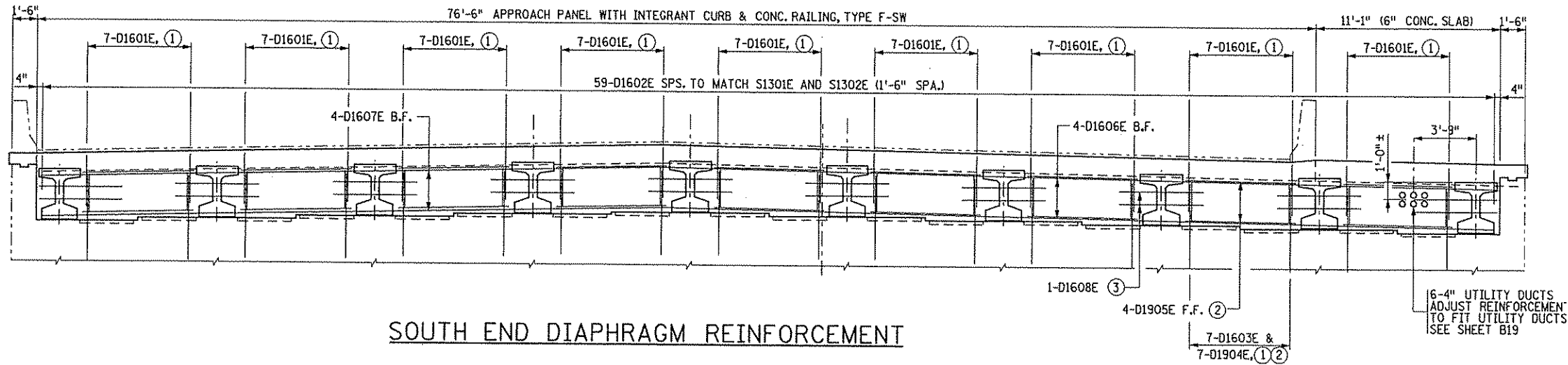
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 ABUTMENT CORNER DETAILS

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B13 of B26 Sheets

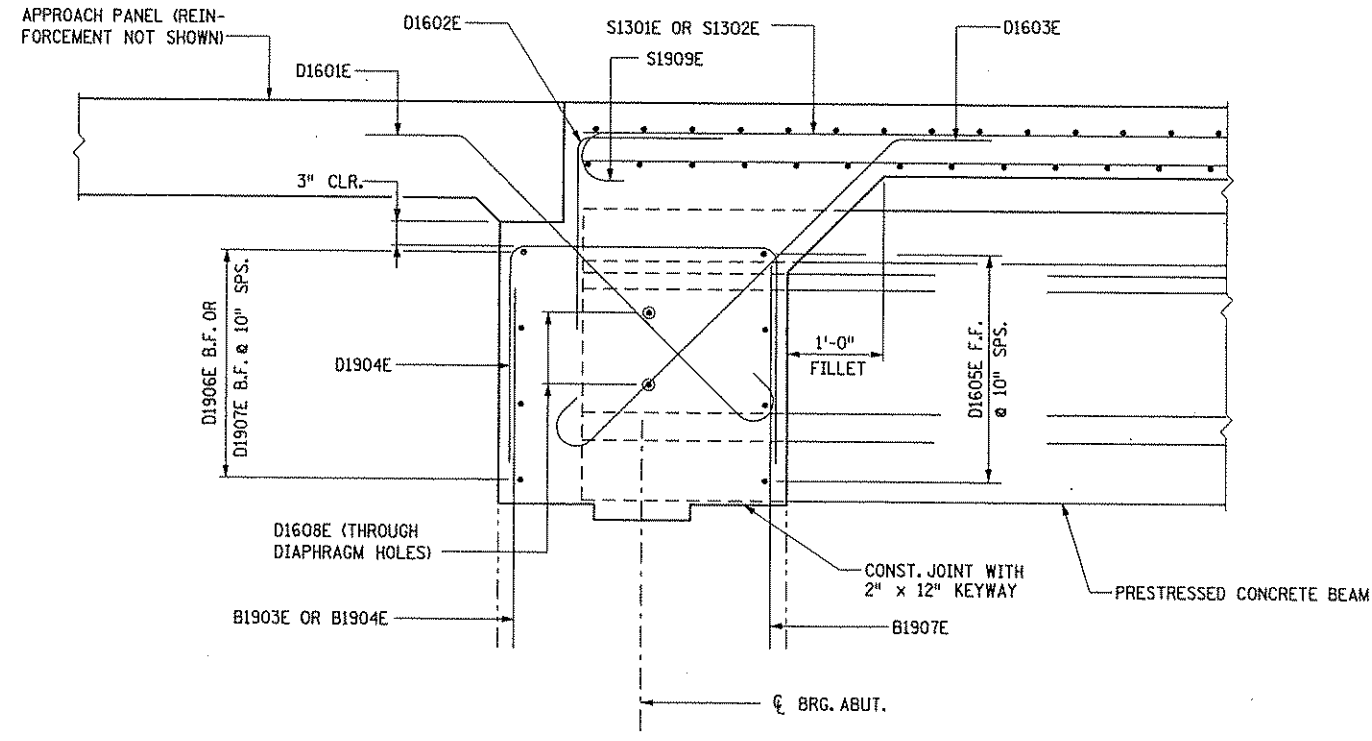
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SOUTH END DIAPHRAGM REINFORCEMENT

- ① BAR SPACING TO MATCH B1907E (VERTICAL ABUTMENT BARS, F.F.)
- ② TYPICAL FOR 9 (NINE) BEAM BAYS
- ③ THREAD THROUGH DIAPHRAGM HOLES. TYPICAL AT ALL BEAM ENDS.



TYPICAL SECTION

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 REG. NO. 43076

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 S.A.P. 02-649-01

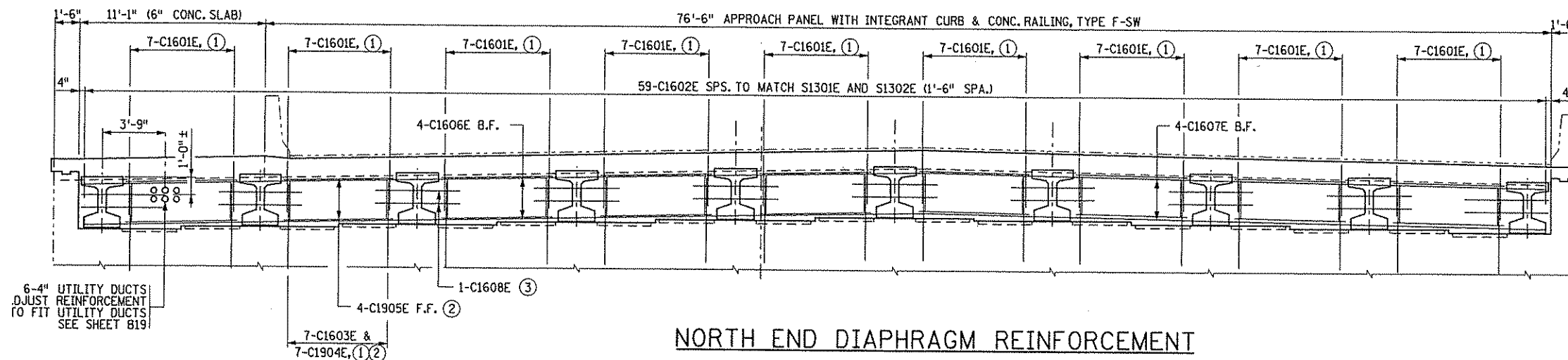
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DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B14 of B26 Sheets

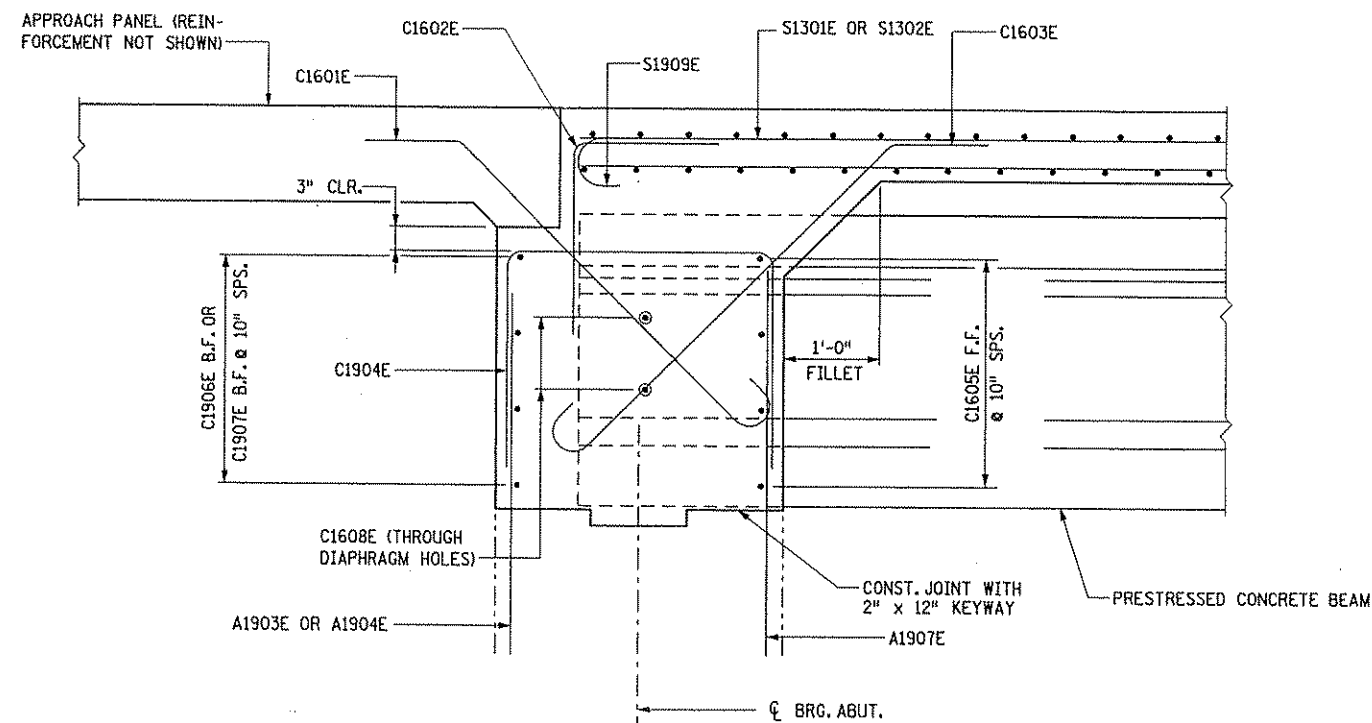
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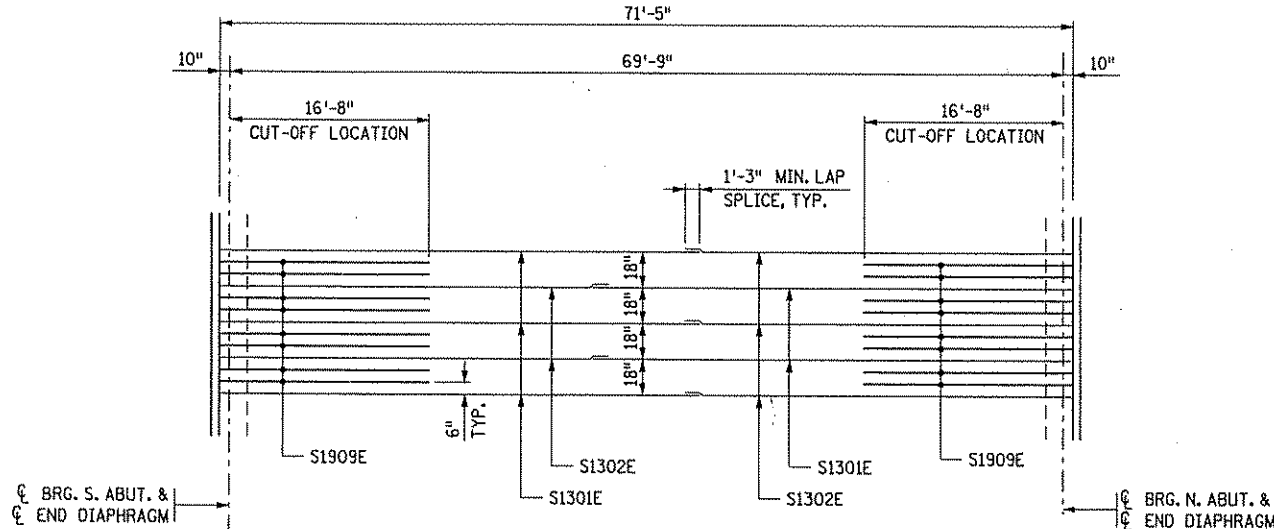


NORTH END DIAPHRAGM REINFORCEMENT

- ① BAR SPACING TO MATCH A1907E (VERTICAL ABUTMENT BARS, F.F.)
- ② TYPICAL FOR 9 (NINE) BEAM BAYS
- ③ THREAD THROUGH DIAPHRAGM HOLES. TYPICAL AT ALL BEAM ENDS.



TYPICAL SECTION



SCHEMATIC LAYOUT OF LONGITUDINAL TOP DECK REINFORCEMENT

(SCHEMATIC - NOT TO SCALE)

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 DATE: 5-8-2006 REG. NO. 43076

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 S.A.P. 02-649-01

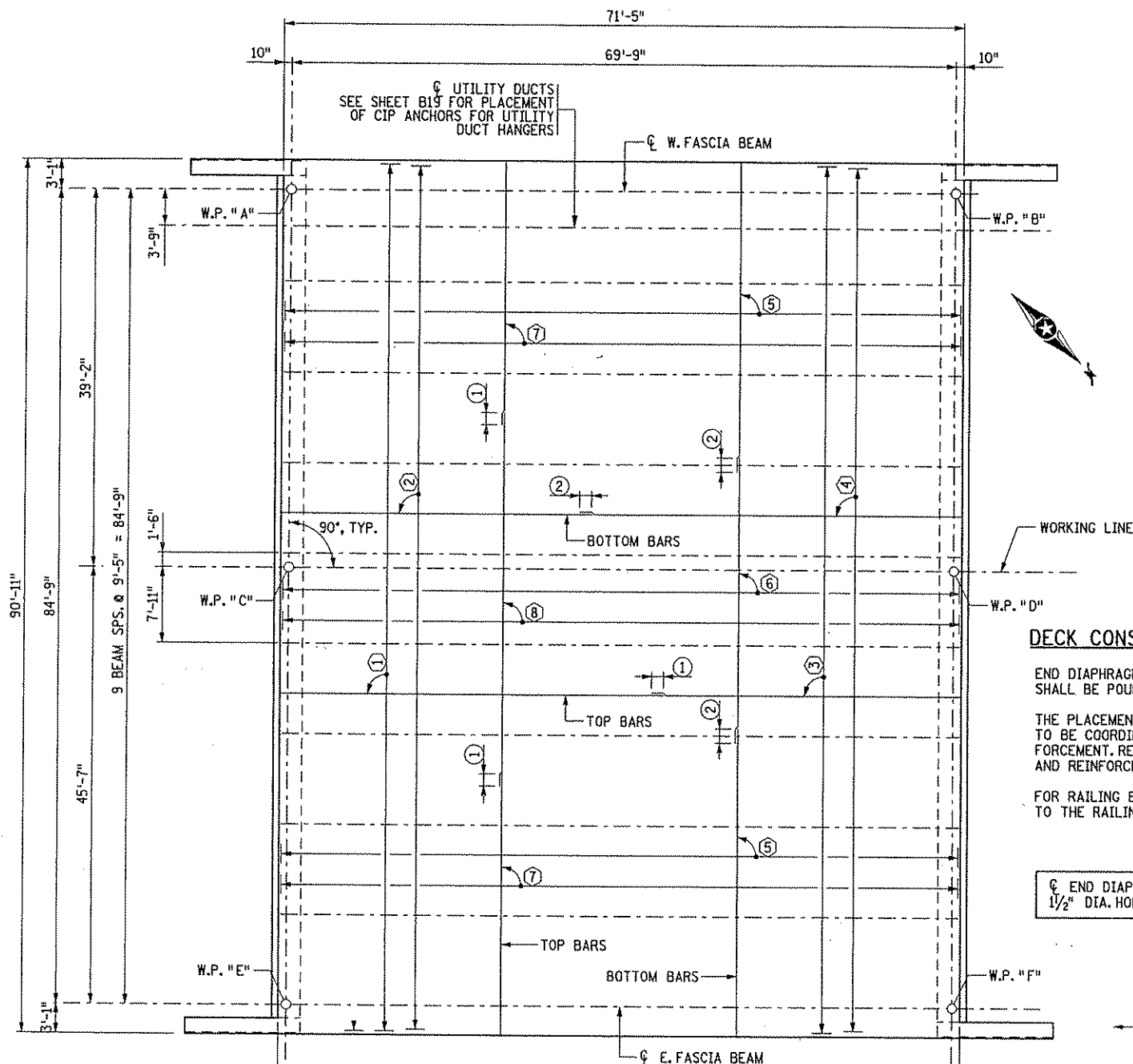
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DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B15 of B26 Sheets

Bridge No. 02563

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 DATE: 5/8/2006 TIME: 10:04:24 AM



DECK REINFORCEMENT

BAR CALL-OUTS:

- ① 31-S1301E ALT. WITH 30-S1302E AND 60-S1909E (TOP) SEE SCHEMATIC LAYOUT ON SHEET 15.
- ② 55-S1603E AND 54-S1604E ALTERNATE S1603E AND S1604E SPS. AT 10" = 89'-9" (BOTTOM)
- ③ 31-S1302E ALT. WITH 30-S1301E AND 60-S1909E (TOP) SEE SCHEMATIC LAYOUT ON SHEET 15.
- ④ 55-S1604E AND 54-S1603E ALTERNATE S1604E AND S1603E SPS. AT 10" = 89'-9" (BOTTOM)
- ⑤ 132-S1605E SPS. AT 6 1/2" MAX. = 70'-11" (BOTTOM)
- ⑥ 132-S1606E SPS. AT 6 1/2" MAX. = 70'-11" (BOTTOM)
- ⑦ 143-S1307E SPS. AT 6" MAX. = 70'-11" (TOP)
- ⑧ 143-S1308E SPS. AT 6" MAX. = 70'-11" (TOP)
- ⑨ 60-S1609E SPS. BETWEEN S1301E AND S1302E (9" SPS. BETWEEN BARS.)

BAR SPLICES:

- ① 1'-3" MIN. LAP #13 TOP BAR
- ② 1'-6" MIN. LAP #16 BOTTOM BAR

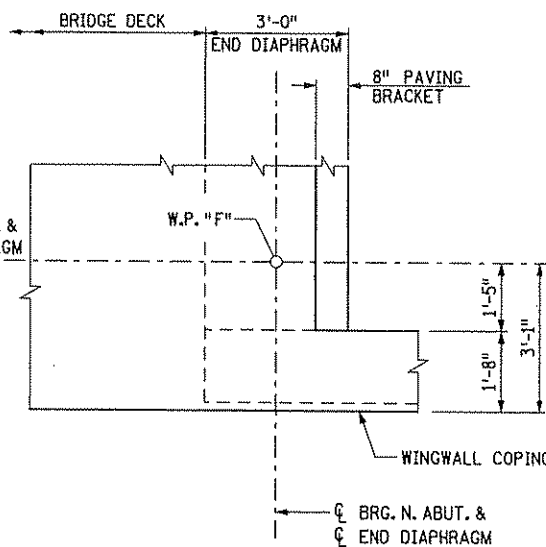
DECK CONSTRUCTION NOTES:

END DIAPHRAGMS, WINGWALL COPINGS AND DECK SLAB SHALL BE POURED IN ONE SINGLE CONTINUOUS POUR.

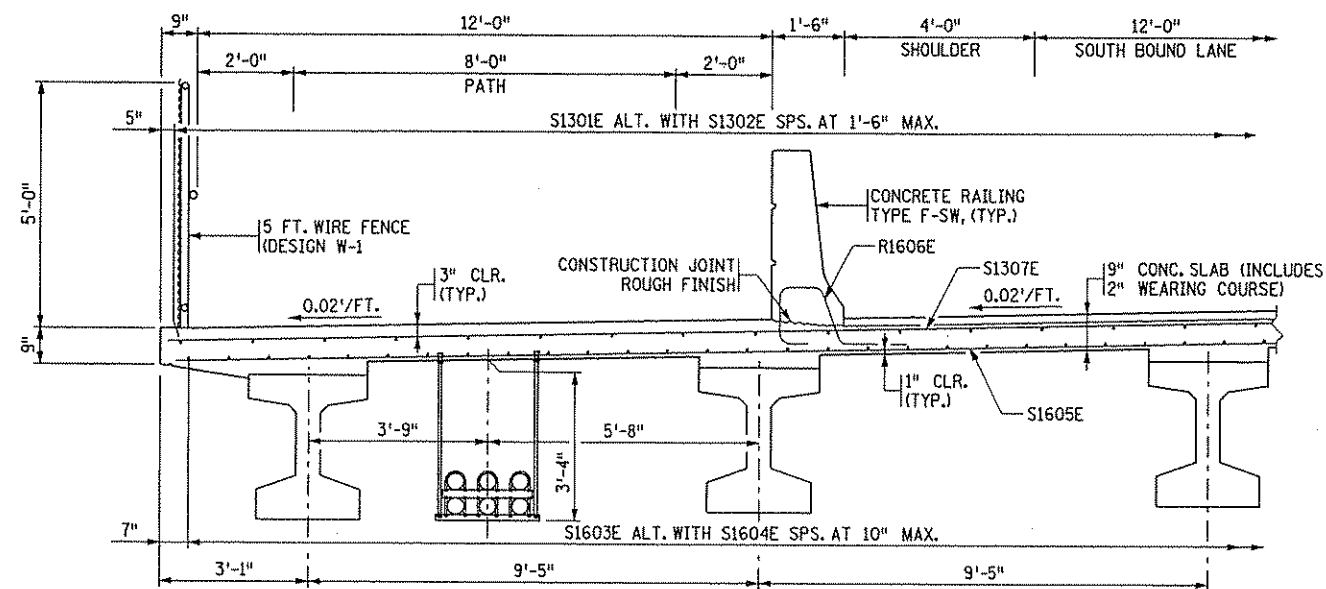
THE PLACEMENT OF THE DECK REINFORCEMENT NEEDS TO BE COORDINATED WITH THE END DIAPHRAGM REINFORCEMENT. REFER TO END DIAPHRAGM DETAILS AND REINFORCEMENT.

FOR RAILING BARS EMBEDDED IN THE DECK SLAB, REFER TO THE RAILING SHEETS.

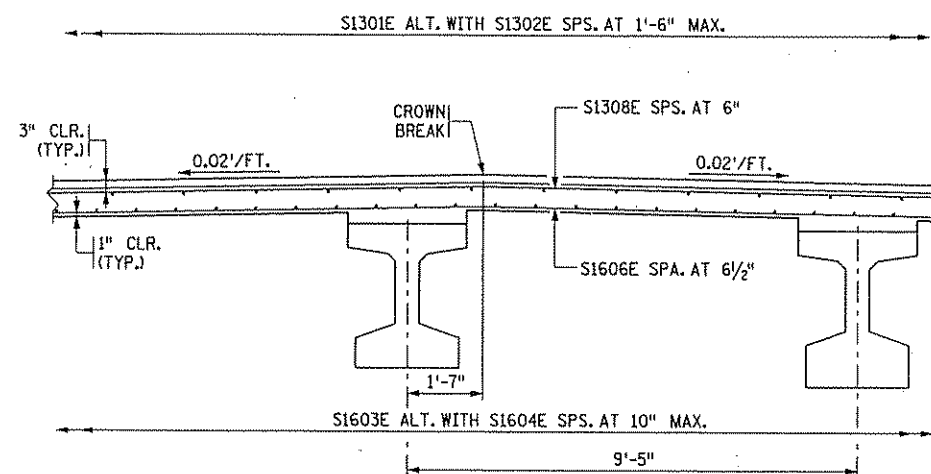
END DIAPHRAGM AND CL OF 1/2" DIA. HOLES DO NOT COINCIDE.



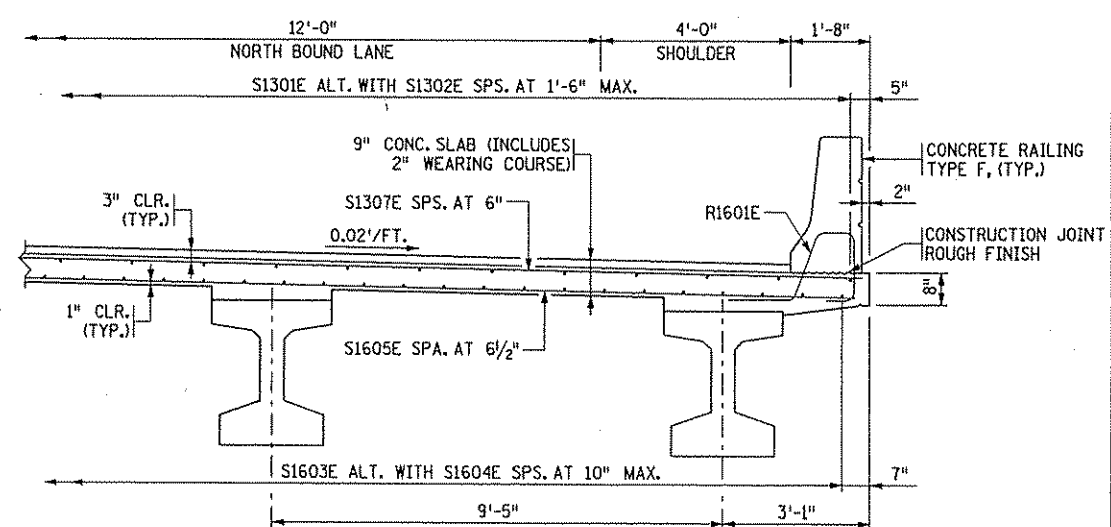
SLAB CORNER GEOMETRY
 NORTHEAST CORNER SHOWN, ALL OTHERS SIMILAR



WEST END



CROWN BREAK



EAST END
TYPICAL SECTION

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 SIGNED: *Matthew J. Christensen*
 DATE: 5-8-2006
 MATTHEW J. CHRISTENSEN
 REG. NO. 43076

TKDA
 ENGINEERS • ARCHITECTS • PLANNERS

1500 PIPER JAFFRAY PLAZA
 444 CEDAR STREET
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

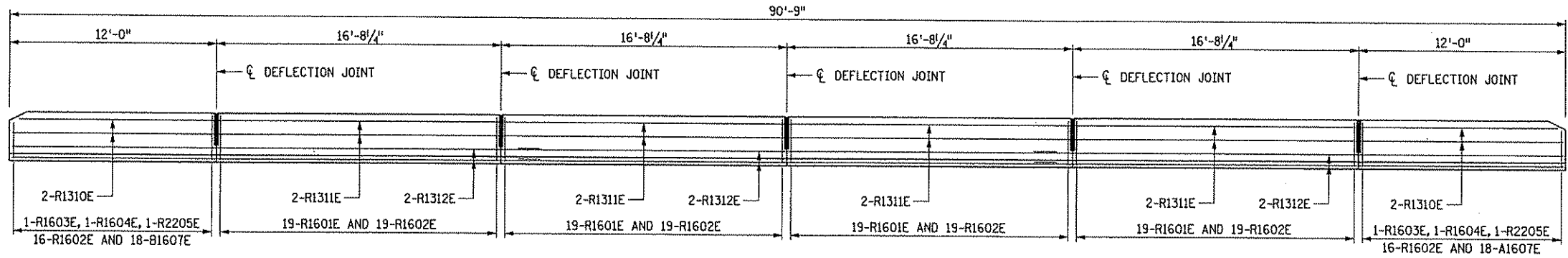
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DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

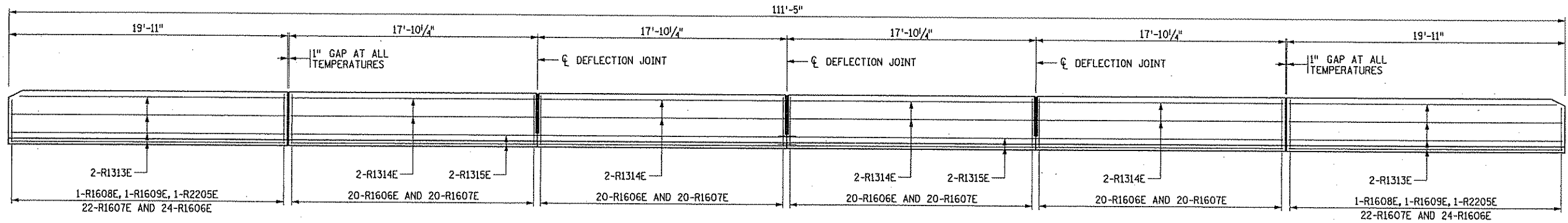
Sheet No. B16 of B26 Sheets

Bridge No. 02563

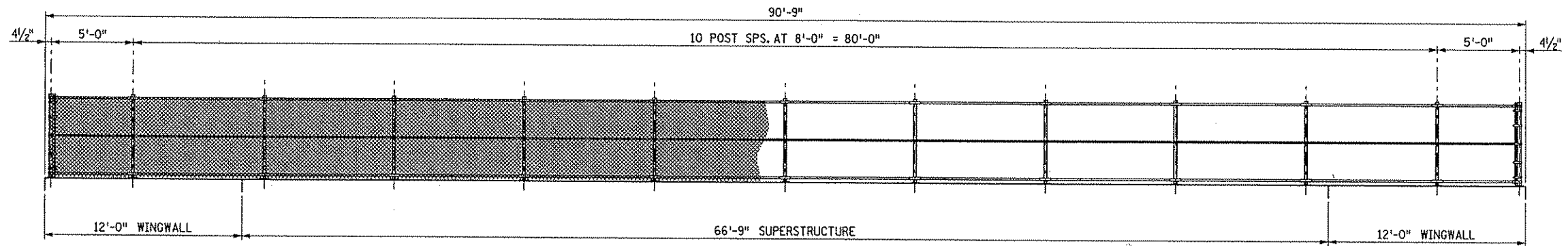
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 DATE: 5/8/2006 TIME: 9:42:45 AM



ELEVATION VIEW OF RAILING, TYPE F
 FRONT FACE OF RAILING SHOWN



ELEVATION VIEW OF CONCRETE RAILING, TYPE F-SW
 FRONT FACE OF RAILING SHOWN



ELEVATION VIEW OF WIRE FENCE (DESIGN W-1)

NOTE:

FOR ADDITIONAL DETAILS AND INFORMATION ON BAR PLACEMENT, REFER TO THE APPROPRIATE PLAN SHEET.

NO.	DATE	BY	DESCRIPTION OF REVISIONS

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 444 CEDAR STREET
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CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

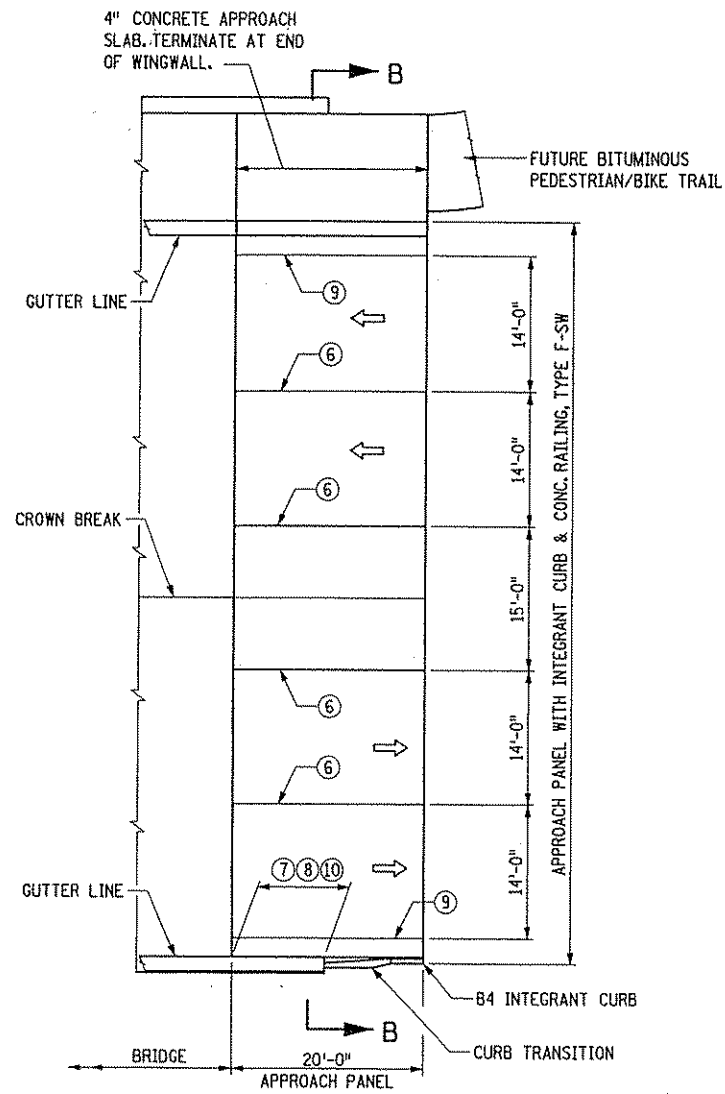
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DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Sheet No. B17 of B26 Sheets

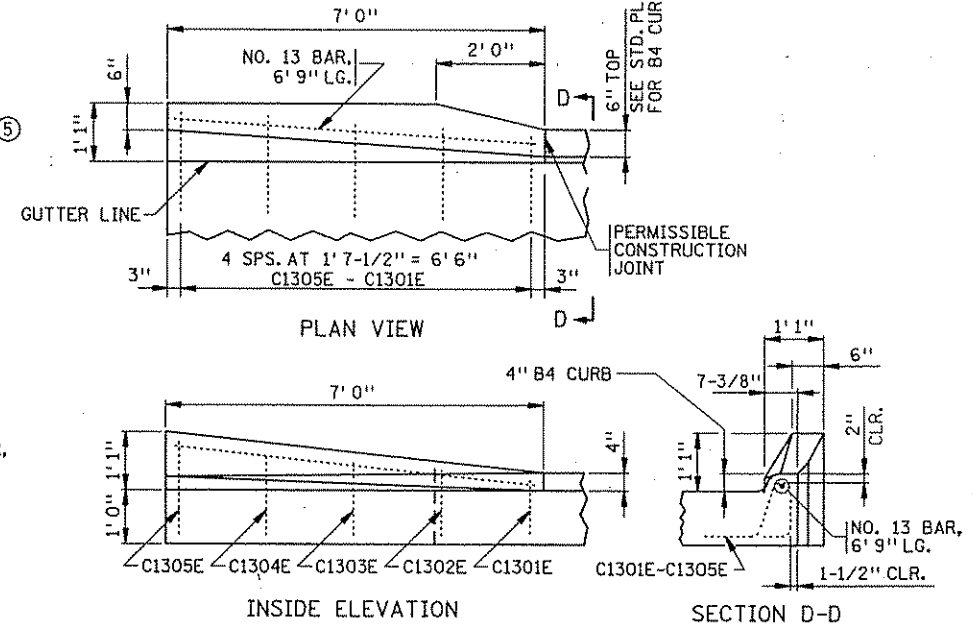
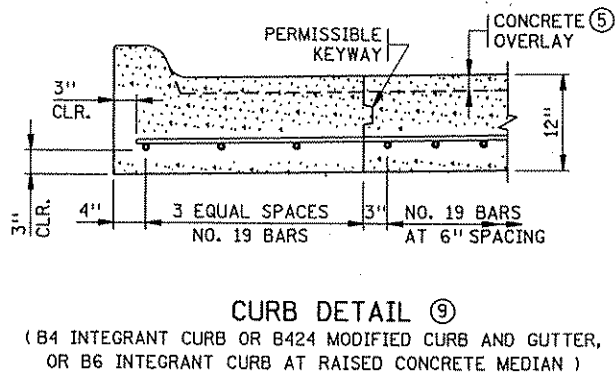
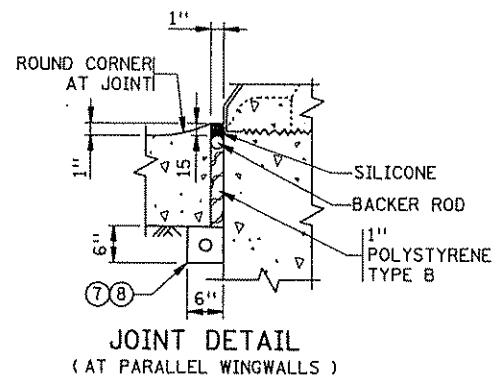
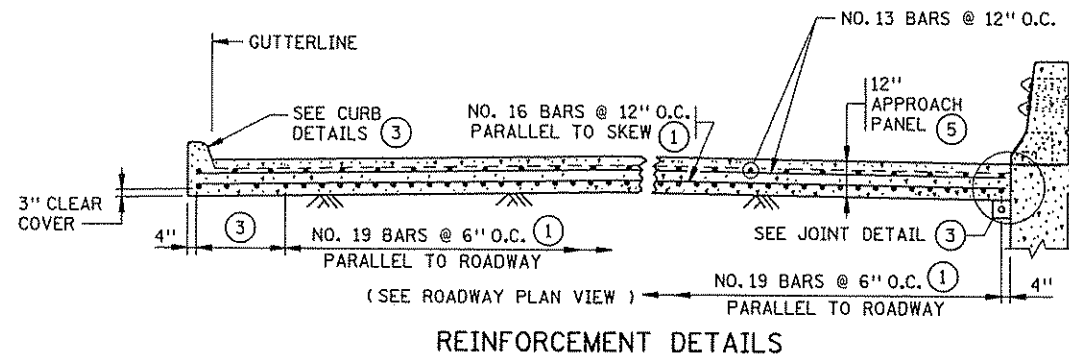
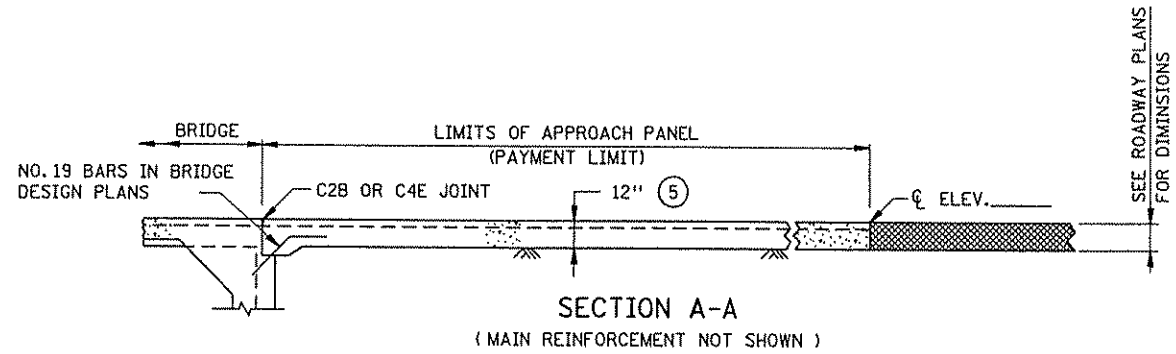
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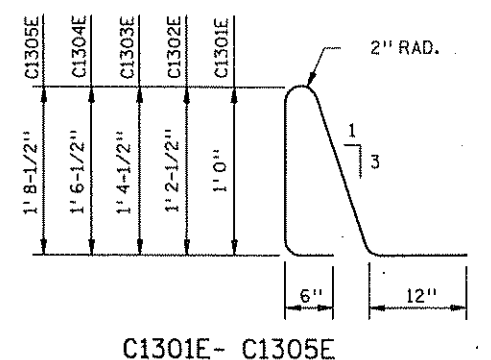
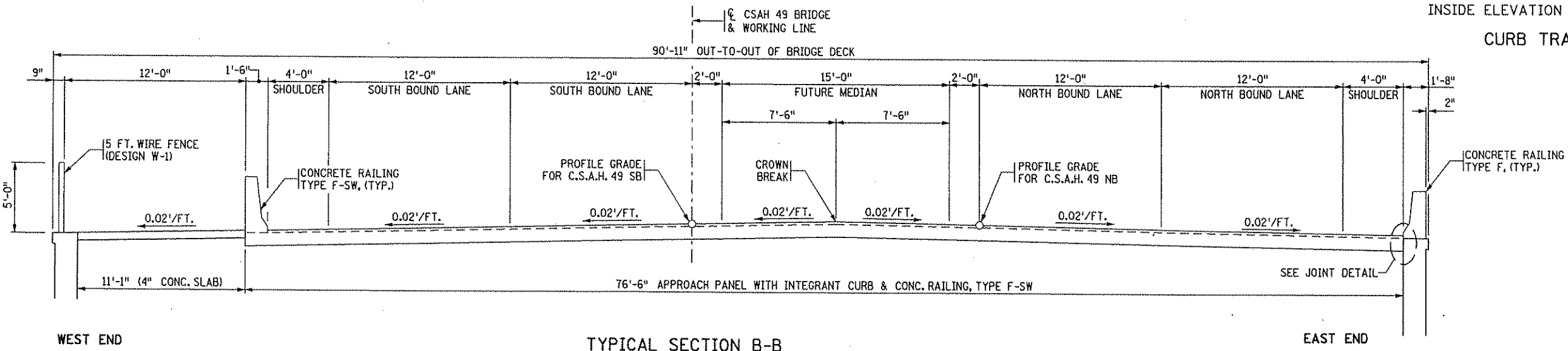


APPROACH PANEL PLAN

ALL WORK BEYOND THE APPROACH PANEL LIMITS (CATCH BASINS, CURBS, MEDIAN NOSE AND BITUMINOUS APPROACH PAVEMENT) IS COVERED IN THE ROADWAY PLANS.



CURB TRANSITION DETAILS

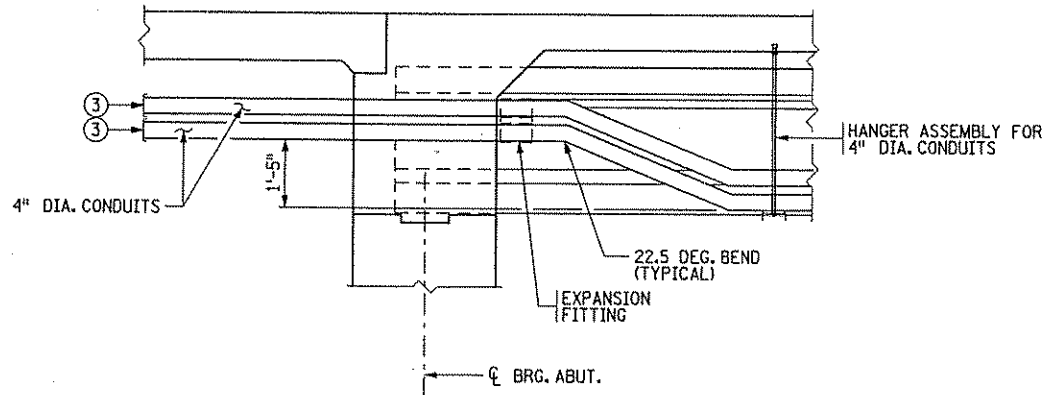
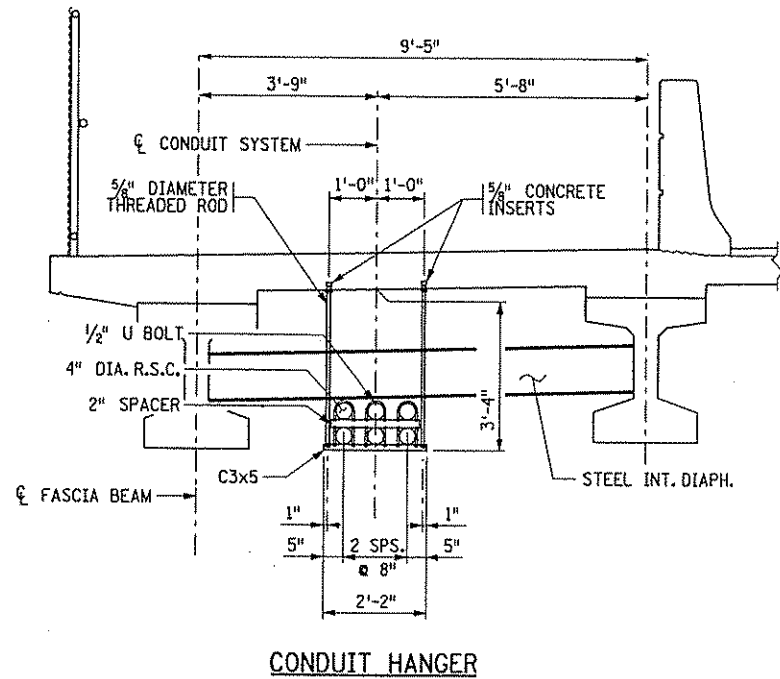


NOTES:

- 1 ALL REINFORCEMENT IN APPROACH PANEL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.
- 2 TRANSITION FACE OF 4" CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAILS.
- 3 SEE CURB TRANSITION DETAILS ON THIS SHEET.
- 4 LOCATE CATCH BASINS BETWEEN GUARD RAIL POSTS OR AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL, CHAPTER 7 FOR CATCH BASIN INFORMATION.
- 5 APPROACH SLAB THICKNESS SHOWN INCLUDES CONCRETE WEARING COURSE. CONCRETE WEARING COURSE IS INCLUDED IN BRIDGE QUANTITIES AND IS TO BE DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.
- 6 L2KT OR L1T LONGITUDINAL JOINT IS REQUIRED. SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.
- 7 2" NOMINAL DIA. THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. FURNISHING AND INSTALLING DRAIN SYSTEM SHALL BE INCIDENTAL, WITH NO DIRECT PAYMENT. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8" PER 12" MINIMUM SLOPE.
- 8 BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0-3% PASSING A NO. 200 SIEVE.
- 9 SEE CURB DETAIL ON THIS SHEET.
- 10 LIMITS OF JOINT DETAIL. ALSO REFER TO NOTES 7 & 8.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA SIGNED: <i>Matthew J. Christensen</i> MATTHEW J. CHRISTENSEN REG. NO. 43076 DATE: 5-8-2006				TKDA ENGINEERS • ARCHITECTS • PLANNERS 1500 PIPER JAFFRAY PLAZA 444 CEDAR STREET SAINT PAUL, MINNESOTA		CSAH 49 OVER RICE CREEK ANOKA COUNTY, MINNESOTA S.A.P. 02-649-01		TITLE: BRIDGE APPROACH PANEL DETAILS		DES: GM CHK: MJC		DR: GM CHK: MJC		APPROVED _____		Bridge No. 02563	
NO. DATE BY DESCRIPTION OF REVISIONS														Sheet No. B18 of B26 Sheets			

FILENAME: k:\a-f\anoka\115920\hwy-brdg\brdg\dgn\super\super.bar.dgn
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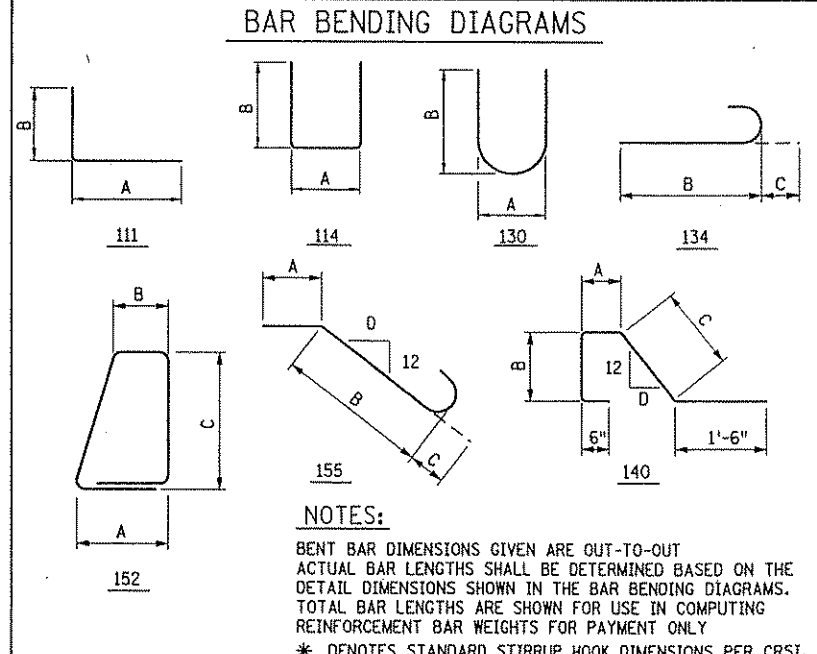
SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE

NOTE	ITEM	UNIT	QUANTITY
	BRIDGE APPROACH PANELS	EACH	2
1	STRUCTURAL CONCRETE (3Y36)	CU. YD.	72
2	BRIDGE SLAB CONCRETE (3Y36)	SQ. FT.	6493
3	TYPE F RAILING CONCRETE (3Y46)	LIN. FT.	91
4	TYPE F-SW RAILING CONCRETE (3Y46)	LIN. FT.	112
5	REINFORCEMENT BARS (EPOXY COATED)	LB	45950
	ELASTOMERIC BEARING PADS	EACH	20
6	CONCRETE WEARING COURSE (3U17A)	SQ. FT.	8356
7	PRESTRESSED CONCRETE BEAMS, TYPE 36-71	EACH	10
	DIAPHRAGMS FOR TYPE 36M PRESTRESSED BEAMS	LIN. FT.	85
8	6" CONCRETE WALK	SQ. FT.	976
	CONDUIT SYSTEM	LUMP SUM	1
	WIRE FENCE (DESIGN W-1)	LIN. FT.	91
9	BENCH MARK DISK	EACH	1
10	BRIDGE NAME PLATE	EACH	1

- NOTES:**
- REPRESENTS QUANTITY FOR END DIAPHRAGMS, SLAB FILLETS AND WINGWALL COPINGS.
 - BRIDGE SLAB CONCRETE (3Y36) VOLUME IS APPROXIMATELY 154 CU. YD.
 - TYPE F RAILING CONCRETE (3Y46) VOLUME IS APPROXIMATELY 11 CU. YD.
 - TYPE F-SW RAILING CONCRETE (3Y46) VOLUME IS APPROXIMATELY 16 CU. YD.
 - REINFORCEMENT QUANTITY INCLUDES SLAB, END DIAPHRAGMS AND RAILING REINFORCEMENT.
 - CONCRETE WEARING COURSE (3U17A) VOLUME IS APPROXIMATELY 52 CU. YD. AND INCLUDES THE QUANTITY FOR 2 APPROACH PANELS.
 - PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS 36M" PER LINEAL FOOT.
 - 6" CONCRETE WALK VOLUME IS APPROXIMATELY 21 CU. YD.
 - STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACEMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
 - TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

BARLISTS

BAR MARK	NO.	SERIES NO.	LENGTH FT	IN	SIZE	TYPE	DIMENSIONS				LOCATION
							A	B	C	D	
SOUTH ABUTMENT END DIAPHRAGM											
D1601 E	63		5	11	16	155	1'-0"	4'-4"	0'-7"	12	APPR. PANEL DOWEL
D1602 E	59		4	0	16	111	2'-0"	2'-0"			APPR. PANEL CORNER
D1603 E	63		6	4	16	155	1'-0"	4'-9"	0'-7"	12	FILLET
D1904 E	63		7	8	19	114	2'-8"	2'-6"			VERT. TIE
D1905 E	36		6	4	19	STR					HORIZ. F.F
D1906 E	4		50	0	19	STR					HORIZ. B.F
D1907 E	4		40	0	19	STR					HORIZ. B.F
D1608 E	20		5	0	16	STR					DIAPHRAGM HOLES
NORTH ABUTMENT END DIAPHRAGM											
C1601 E	63		5	11	16	155	1'-0"	4'-4"	0'-7"	12	APPR. PANEL DOWEL
C1602 E	59		4	0	16	111	2'-0"	2'-0"			APPR. PANEL CORNER
C1603 E	63		6	4	16	155	1'-0"	4'-9"	0'-7"	12	FILLET
C1904 E	63		7	8	19	114	2'-8"	2'-6"			VERT. TIE
C1905 E	36		6	4	19	STR					HORIZ. F.F
C1906 E	4		50	0	19	STR					HORIZ. B.F
C1907 E	4		40	0	19	STR					HORIZ. B.F
C1608 E	20		5	0	16	STR					DIAPHRAGM HOLES
DECK SLAB REINFORCEMENT											
S1301 E	61		40	0	13	STR					TOP LONGITUDINAL
S1302 E	61		32	4	13	STR					TOP LONGITUDINAL
S1603 E	109		32	7	16	STR					BOTTOM LONGITUDINAL
S1604 E	109		40	0	16	STR					BOTTOM LONGITUDINAL
S1605 E	264		31	9	16	STR					BOTTOM TRANSVERSE
S1606 E	132		30	0	16	STR					BOTTOM TRANSVERSE
S1307 E	286		26	9	13	STR					TOP TRANSVERSE
S1308 E	143		40	0	13	STR					TOP TRANSVERSE
S1909 E	120		13	2	13	134	12'-6"	0'-8"			TOP LONG AT BRIDGE ENDS
CONCRETE RAILING, TYPES F & F-SW											
R1601 E	76		5	5	16	140	9"	1'-3"	1'-4"	4	VERTICAL
R1602 E	108		6	7	16	152	9 1/2"	6"	2'-6"		VERTICAL
R1603 E	2		6	1	16	152	9 1/2"	6 1/2"	2'-3"		VERTICAL
R1604 E	2		5	11	16	152	9 1/2"	6 1/2"	2'-2"		VERTICAL
R2205 E	4		6	6	22	130	1'-0"	3'-0"			GUARD RAIL CONNECTION
R1606 E	128		5	4	16	140	9"	1'-2"	1'-3"	4	VERTICAL
R1607 E	124		8	4	16	152	8"	5 1/2"	3'-4"		VERTICAL
R1608 E	2		7	10	16	152	8"	6"	3'-1"		VERTICAL
R1609 E	2		7	8	16	152	8"	6"	3'-0"		VERTICAL
R1310 E	8		11	7	13	STR					HORIZONTAL
R1311 E	16		16	2	13	STR					HORIZONTAL
R1312 E	12		31	0	13	STR					HORIZONTAL
R1313 E	16		19	6	13	STR					HORIZONTAL
R1314 E	16		17	5	13	STR					HORIZONTAL
R1315 E	8		36	2	13	STR					HORIZONTAL



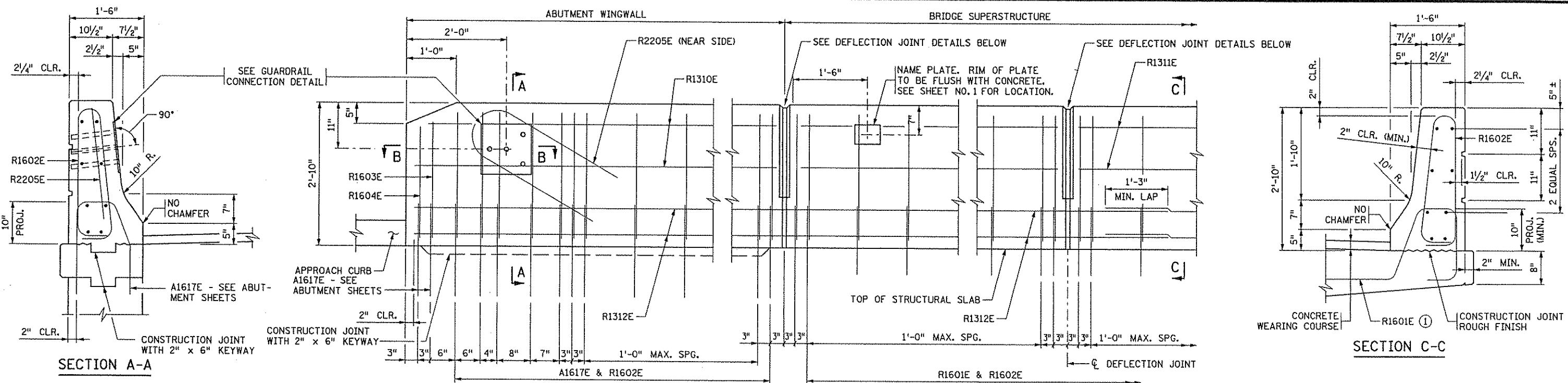
SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM

ITEM	UNIT	QUANTITY
HANGER ASSEMBLY	EACH	12
CONDUIT CAP	EACH	12
EXPANSION FITTING	EACH	12
4" DIAMETER RIDIG STEEL CONDUIT	LIN. FT.	900

GENERAL NOTES

- RODS SHALL COMPLY WITH Mn/DOT SPEC. 3313, TYPE I.
- FLAT BARS AND ANCHORAGES SHALL COMPLY WITH Mn/DOT SPEC. 3306.
- CONCRETE INSERTS SHALL BE APPROVED TYPE MALLEABLE IRON. MATERIAL AS PER Mn/DOT SPEC. 3324, GRADE 35018. TAP AFTER GALVANIZING.
- GALVANIZE BOLTS, NUTS, WASHERS, RODS, AND INSERTS AS PER Mn/DOT SPEC. 3392. GALVANIZE OTHER MATERIAL AS PER Mn/DOT SPEC. 3394 AFTER FABRICATION.
- PIPE SLEEVES SHALL COMPLY WITH Mn/DOT SPEC. 3362.
- SPACE INSERTS AT 10'-0" MAXIMUM CENTERS.
- CAP ENDS.

- ALL MATERIAL LISTED ABOVE IS INCLUDED IN PRICE BID FOR "CONDUIT SYSTEM"
- LENGTH OF R.S.C. EXTENDS 20 FEET BEYOND END OF BOTH APPROACH PANELS. BID PRICE TO INCLUDE ALL BENDS AND FITTINGS NEEDED TO PLACE CONDUIT AS PER THE DIRECTION OF THE FIELD ENGINEER.



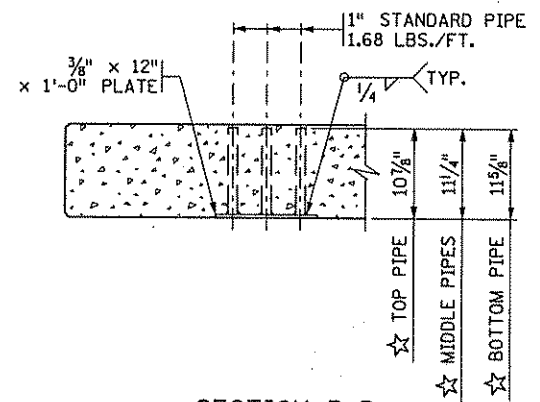
SECTION C-C

DEFLECTION JOINT AT WINGWALL DEFLECTION JOINT

INSIDE ELEVATION OF RAILING

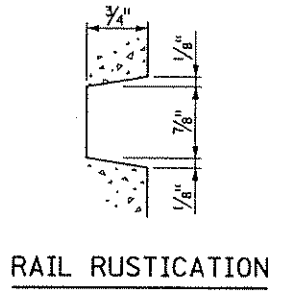
(CONCRETE WEARING COURSE NOT SHOWN)

RAIL MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350.

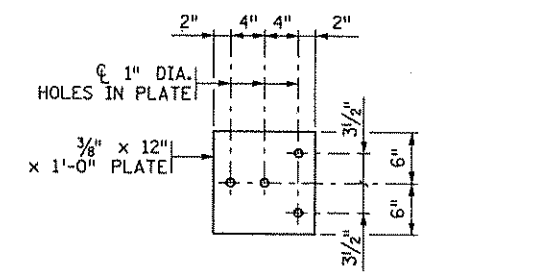


SECTION B-B

(REINFORCEMENT NOT SHOWN)
☆ DIMENSIONS INCLUDE 3/8" PLATE

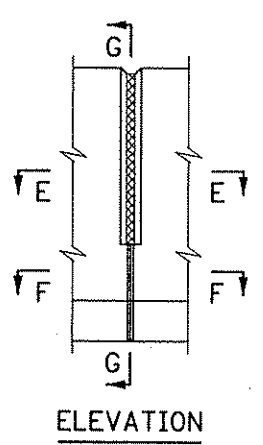


RAIL RUSTICATION

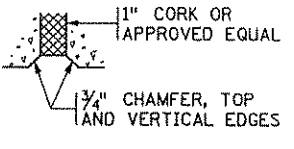


GUARDRAIL CONNECTION DETAIL

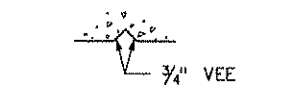
GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394
ESTIMATED WEIGHT = 22 LBS



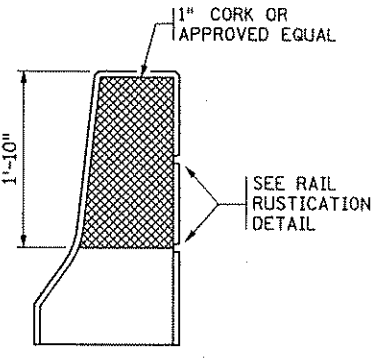
ELEVATION



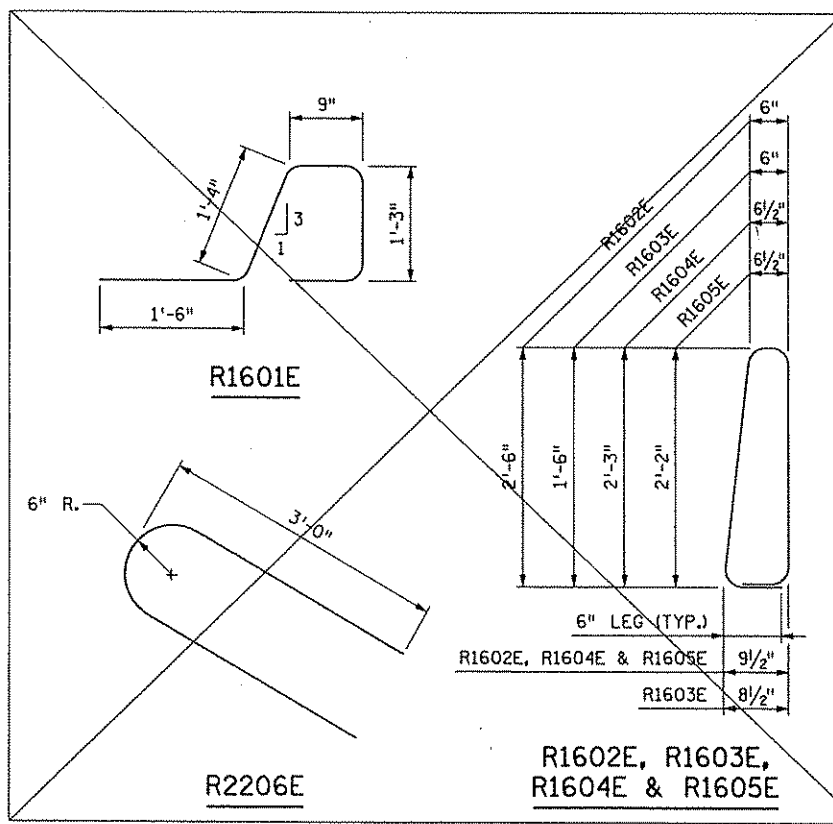
SECTION E-E



SECTION F-F



SECTION G-G



BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R1601E		5'-5"		RAIL DOWEL
R1602E		6'-7"		RAIL VERTICAL
R1603E		4'-7"		RAIL VERTICAL
R1604E		6'-1"		RAIL VERTICAL
R1605E		5'-11"		RAIL VERTICAL
R2206E		6'-6"		RAIL VERTICAL
R1307E				RAIL LONGITUDINAL
R1308E				RAIL LONGITUDINAL
R1309E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL
R13 E				RAIL LONGITUDINAL

GENERAL NOTES

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

CONCRETE RAILING = 477 LBS./FT. (0.117 CU. YDS./FT.)

FINISH ALL EDGES OF RAIL 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, Mn/DOT SPEC. 3306.

GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT.

REVISED:
APPROVED: DECEMBER 18, 2003
Matthew J. Christensen
STATE BRIDGE ENGINEER

NO.	DATE	BY	DESCRIPTION OF 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
SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN
DATE: 12-8-2006 REG. NO. 43076

TKDA
ENGINEERS • ARCHITECTS • PLANNERS
1500 PIPER JAFFRAY PLAZA
444 CEDAR STREET
SAINT PAUL, MINNESOTA

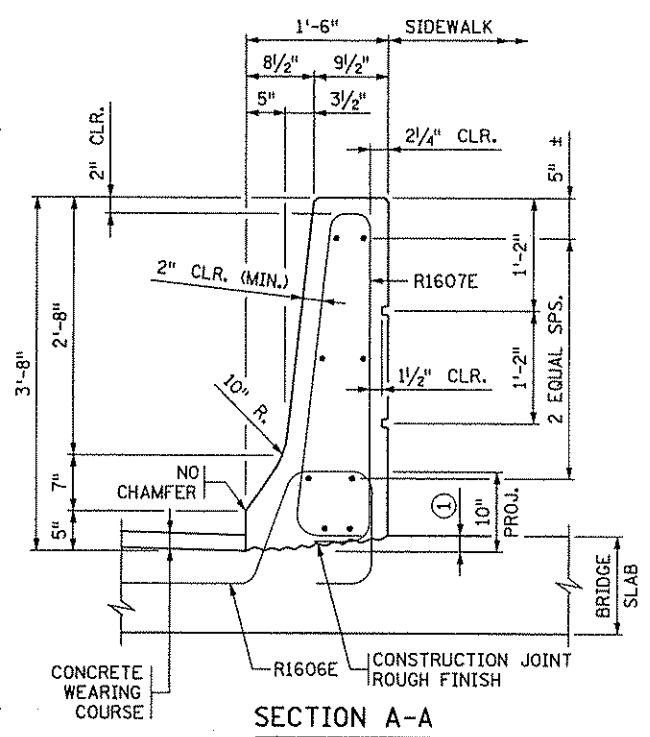
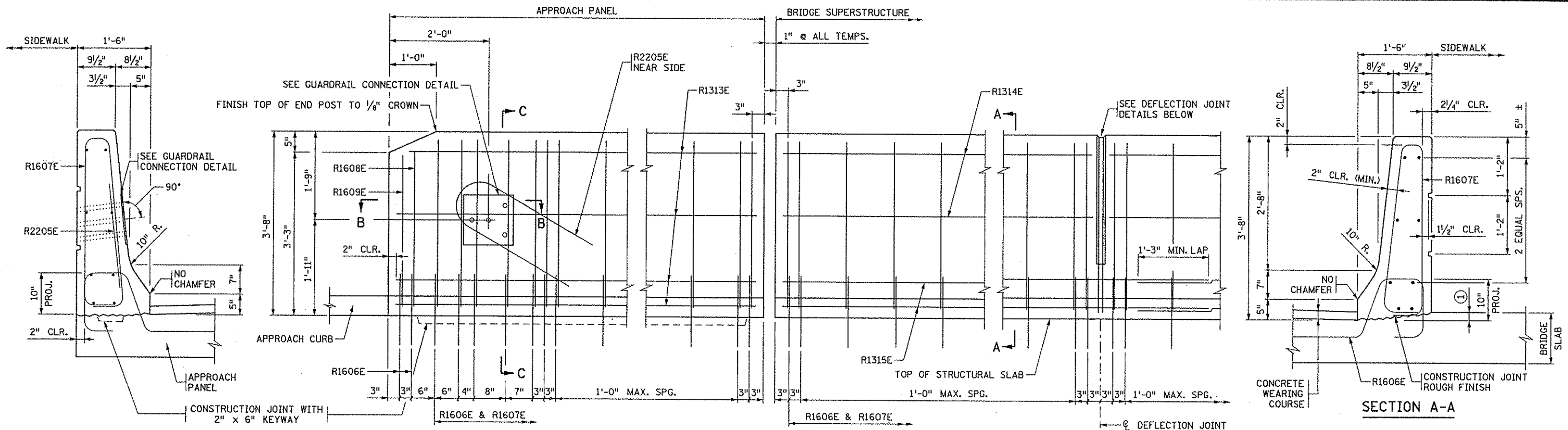
CSAH 49 OVER RICE CREEK
ANOKA COUNTY, MINNESOTA
S.A.P. 02-649-01

TITLE: **CONCRETE RAILING (TYPE F)**
WITH INTEGRAL END POST
(WITH CONCRETE WEARING COURSE)

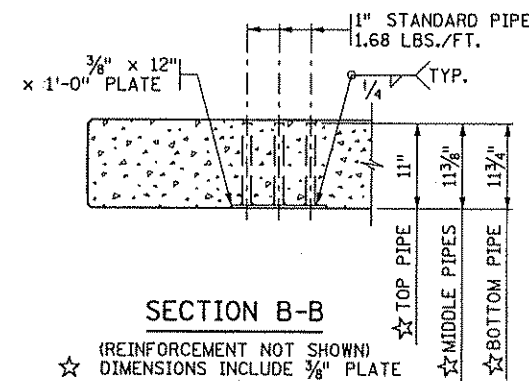
DES: GM DR: GM APPROVED
CHK: MJC CHK: MJC
MODIFIED FIG. 5-397.117
Sheet No. B20 of B26 Sheets Bridge No. 02563

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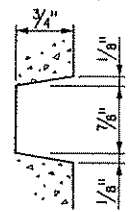
SECTION C-C



SECTION B-B

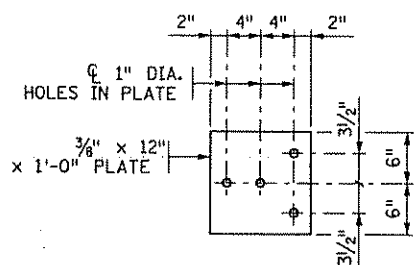
(REINFORCEMENT NOT SHOWN)
 ☆ DIMENSIONS INCLUDE 3/8" PLATE

RAIL RUSTICATION



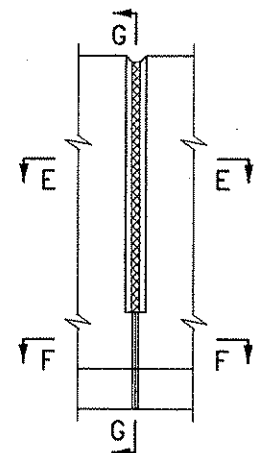
INSIDE ELEVATION OF RAILING

(CONCRETE WEARING COURSE NOT SHOWN)

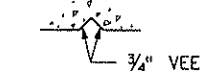


GUARDRAIL CONNECTION DETAIL

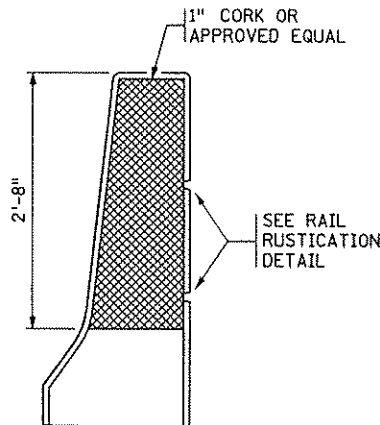
GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394
 ESTIMATED WEIGHT = 22 LBS



SECTION E-E

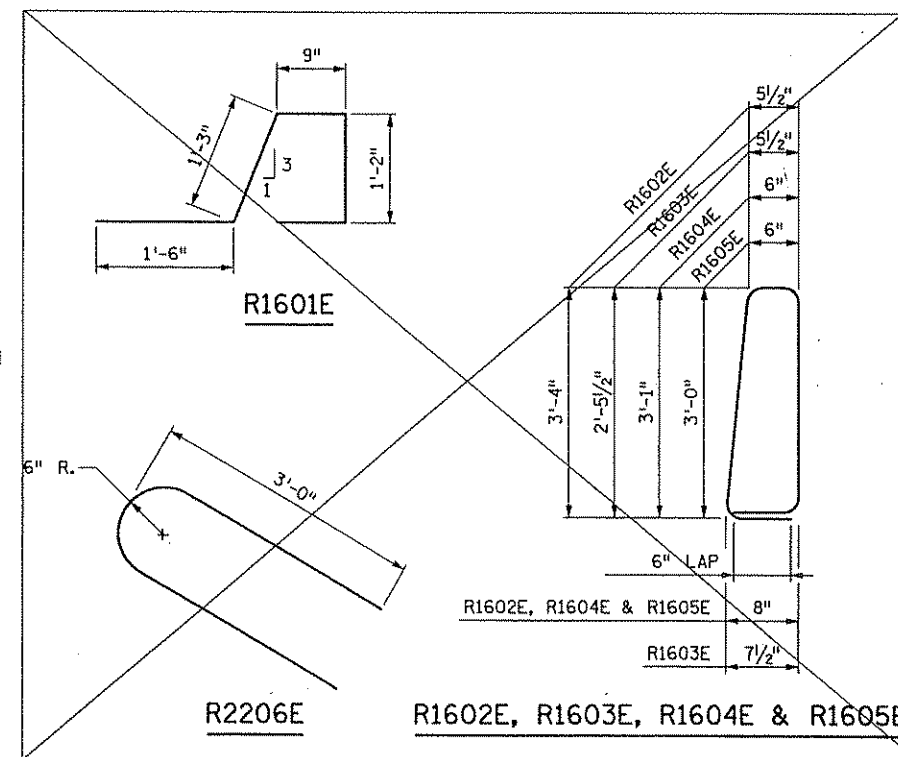


SECTION F-F



SECTION G-G

DEFLECTION JOINT DETAILS



BILL OF REINFORCEMENT FOR RAILING

BAR NO.	LENGTH	SHAPE	LOCATION
R1601E	5'-4"	[Symbol]	RAIL DOWEL
R1602E	8'-4"	[Symbol]	RAIL VERTICAL
R1603E	6'-6"	[Symbol]	RAIL VERTICAL
R1604E	7'-10"	[Symbol]	RAIL VERTICAL
R1605E	7'-8"	[Symbol]	RAIL VERTICAL
R2206E	6'-7"	[Symbol]	RAIL VERTICAL
R1307E		[Symbol]	RAIL LONGITUDINAL
R1308E		[Symbol]	RAIL LONGITUDINAL
R1309E		[Symbol]	RAIL LONGITUDINAL

GENERAL NOTES

LENGTH OF "TYPE F-SW RAILING CONCRETE (3Y46)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE RAIL. CONCRETE RAILING = 580 LBS./FT. (0.143 CU. YDS./FT.) FINISH ALL EDGES OF RAIL 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, Mn/DOT SPEC. 3306. GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

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

REVISION: 03-04-03
 APPROVED: NOVEMBER 26, 1985
 KEITH V. BENTHIN
 STATE BRIDGE ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
 SIGNED: [Signature] MATTHEW J. CHRISTENSEN
 DATE: 1.5-8-2006 REG. NO. 43076

TKDA
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1500 PIPER JAFFRAY PLAZA
 444 CEDAR STREET
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

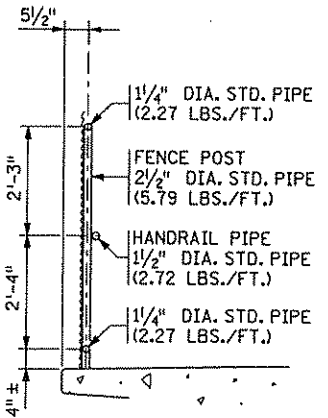
TITLE: CONCRETE RAILING (TYPE F-SW)
 WITH BRIDGE SLAB SIDEWALK AND INTEGRAL END POST (WITH CONCRETE WEARING COURSE)

DES: GM DR: GM APPROVED
 CHK: MJC CHK: MJC

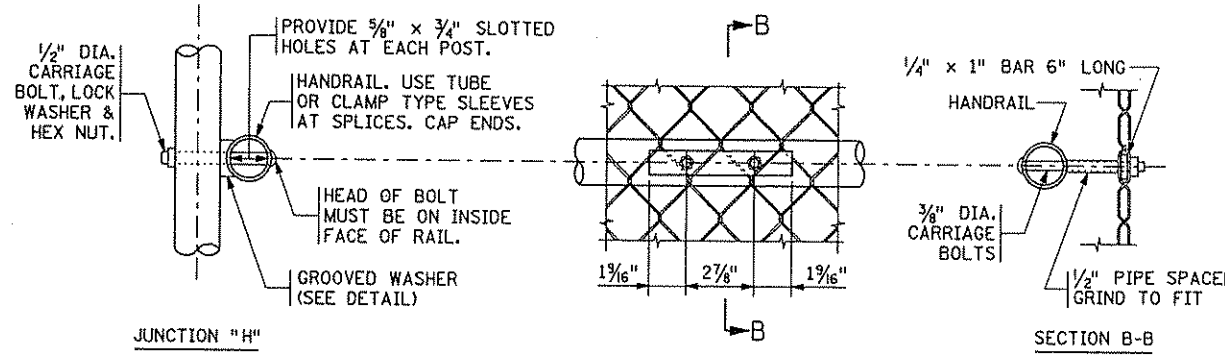
Bridge No. 02563

Sheet No. B21 of B26 Sheets

FIG. 5-397.122



TYPICAL SECTION THROUGH WALKWAY



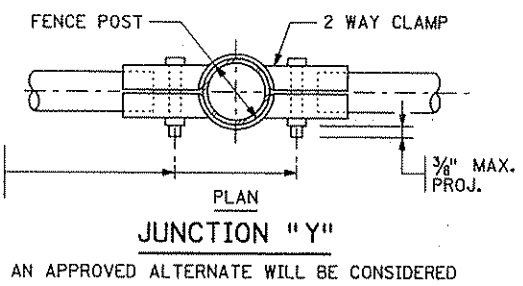
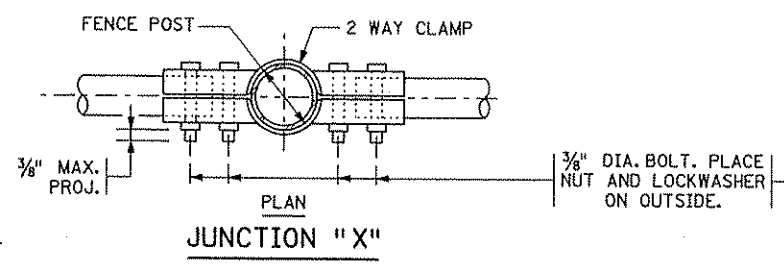
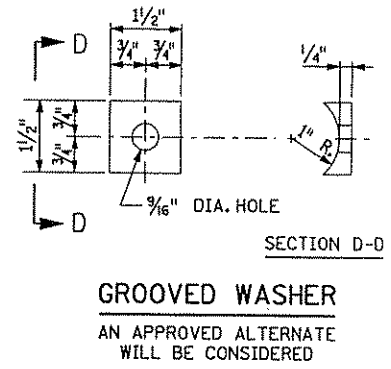
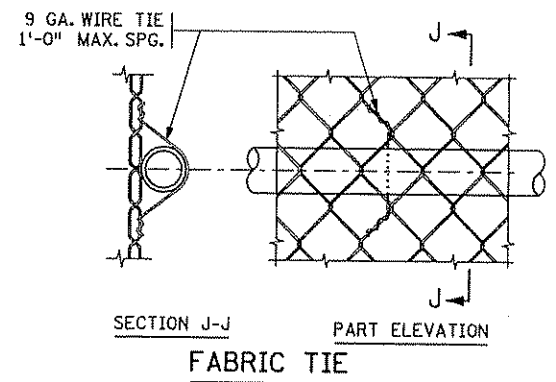
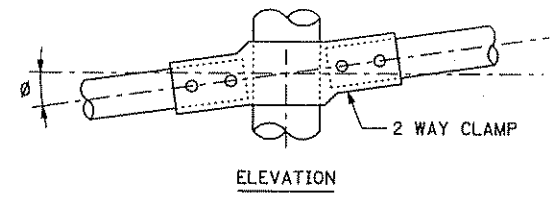
HANDRAIL

GENERAL NOTES

LENGTH OF "WIRE FENCE, DESIGN W-1" FOR PAYMENT SHALL BE MEASURED BETWEEN THE CENTERS OF THE END RAILPOSTS.
 MAXIMUM SPACING FOR 2 1/2" STANDARD PIPE POSTS IS 8 FT.
 ALL PIPE DIAMETERS ARE NOMINAL.
 FENCE POSTS AND ANCHORAGES SHALL BE SET VERTICAL UNLESS OTHERWISE NOTED. AT BOLT TYPE ANCHORAGES, PACK SPACE BETWEEN BASE PLATE AND CONCRETE WITH APPROVED MORTAR AFTER NUTS HAVE BEEN ADJUSTED AND TIGHTENED.
 FOR POST SPACING AND LOCATION, SEE SHEET NO. 17.
 SEE DETAIL B905 "FENCE POST ANCHORAGE"

2 WAY CLAMP BENDING TABLE

GRADE OF FENCE	Ø
0° TO 2°	0"
2° TO 6°	4"
6° TO 10°	8"



FILENAME: k:\a\anoka\15920\hwy-brdg\brdg\standards\w\references\standard.dgn
 DATE: 5/8/2006 TIME: 9:42:55 AM

REVISION: 04-23-2003
 APPROVED: NOVEMBER 26, 1985
 State Bridge Engineer

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
 SIGNED: *Matthew J. Christensen*
 DATE: 6-5-2006
 MATTHEW J. CHRISTENSEN
 REG. NO. 43076

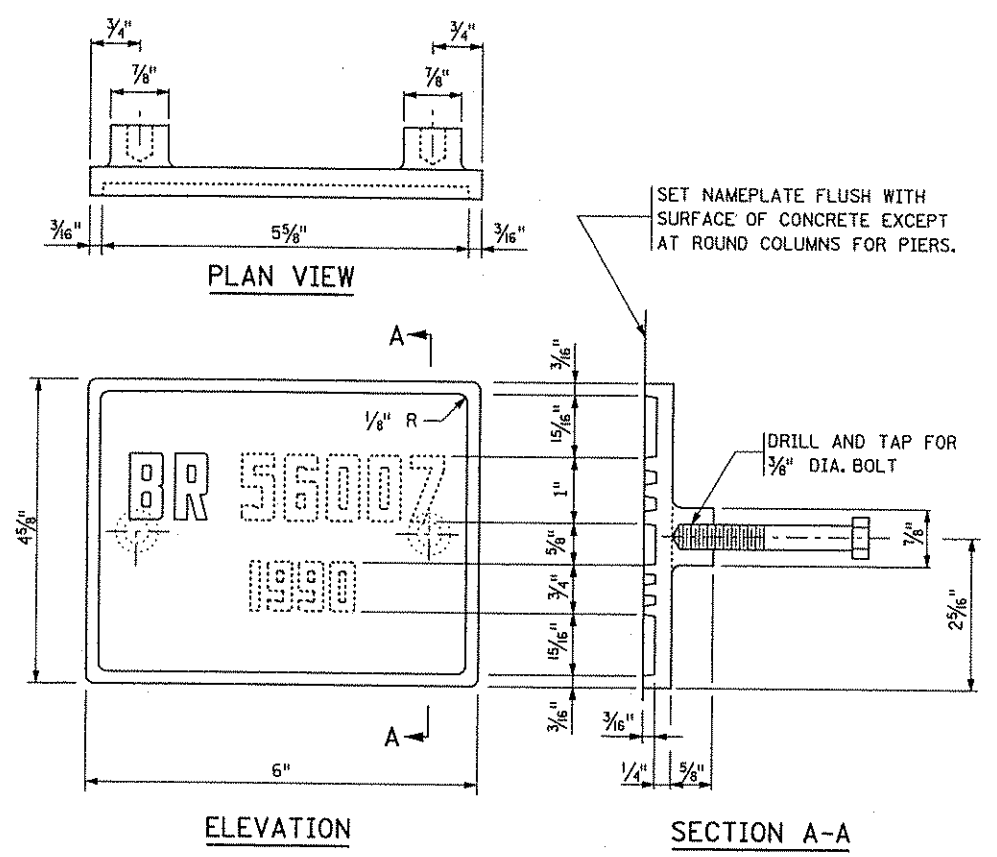
TKDA
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 1500 PIPER JAFFRAY PLAZA
 444 CEDAR STREET
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

TITLE:
 5 FT. WIRE FENCE (DESIGN W-1)
 FOR PEDESTRIAN BRIDGES

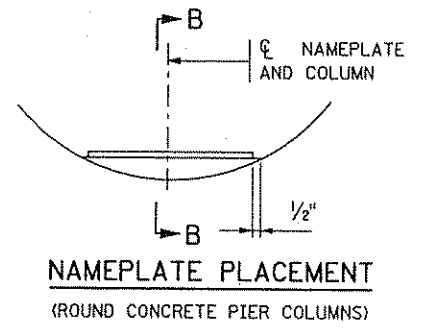
DES: GM DR: GM APPROVED
 CHK: MJC CHK: MJC
 Sheet No. B22 of B26 Sheets

FIG. 5-397.202
 Bridge No. 02563

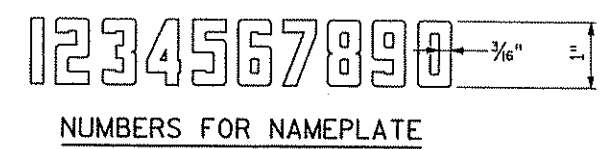


THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 02563
YEAR 2006



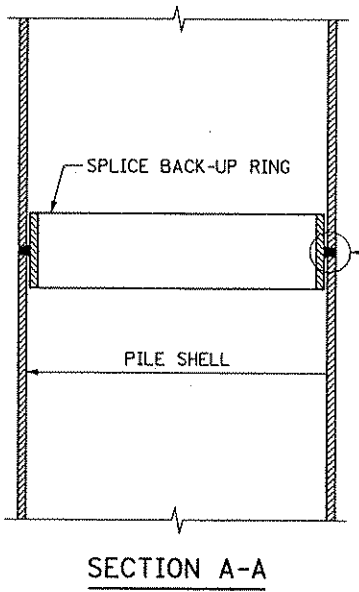
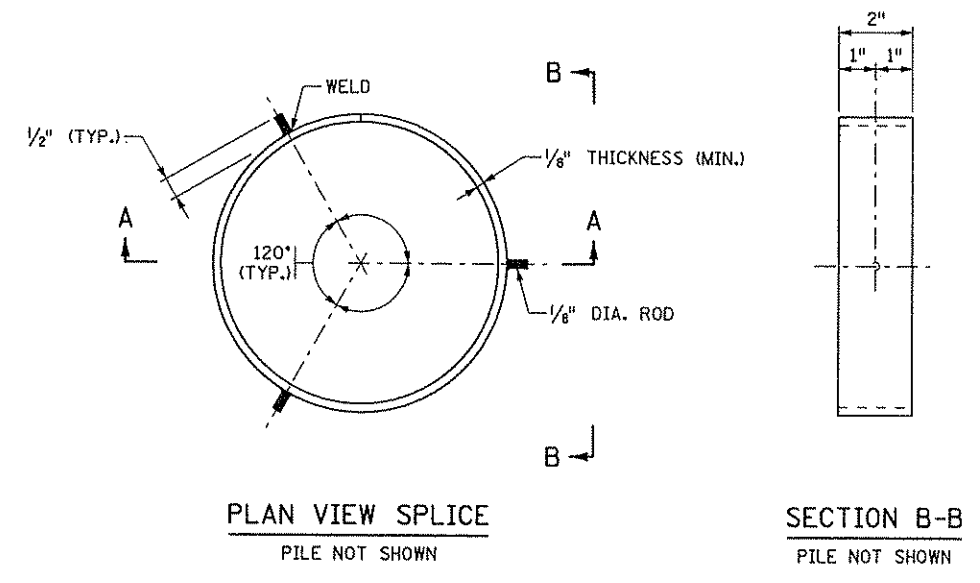
NAMEPLATE PLACEMENT
(ROUND CONCRETE PIER COLUMNS)



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.
<i>Daniel J. Morgan</i> STATE BRIDGE ENGINEER	BRIDGE NAMEPLATE (FOR NEW BRIDGES)		B101



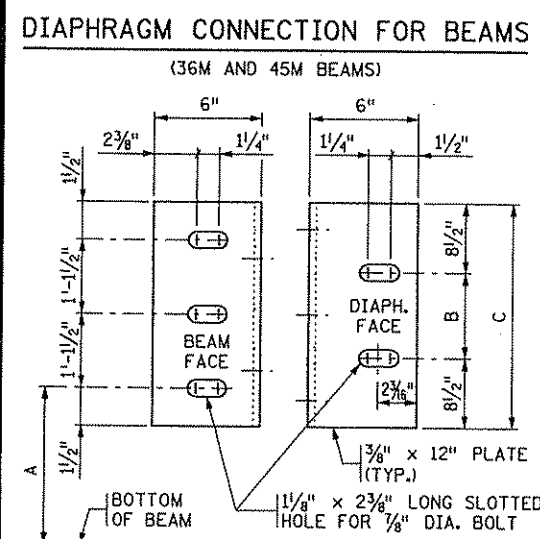
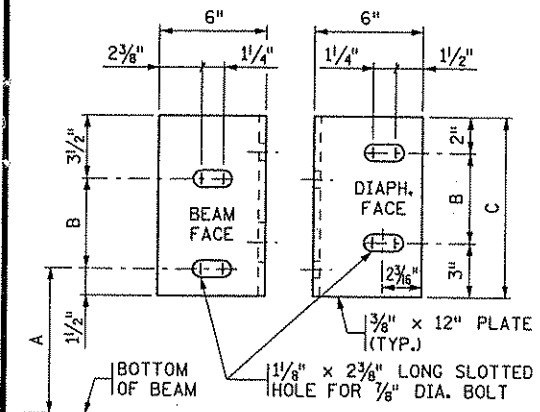
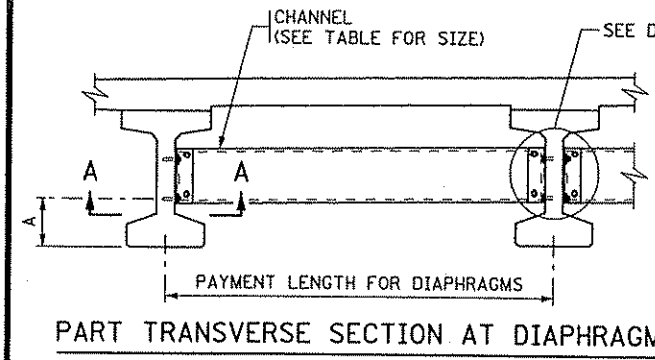
SECTION A-A

- 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-U4g WELD CONFIGURATION.

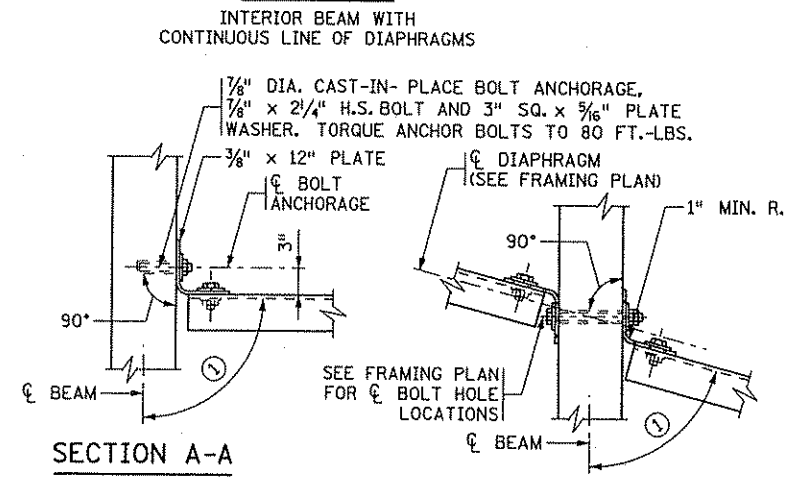
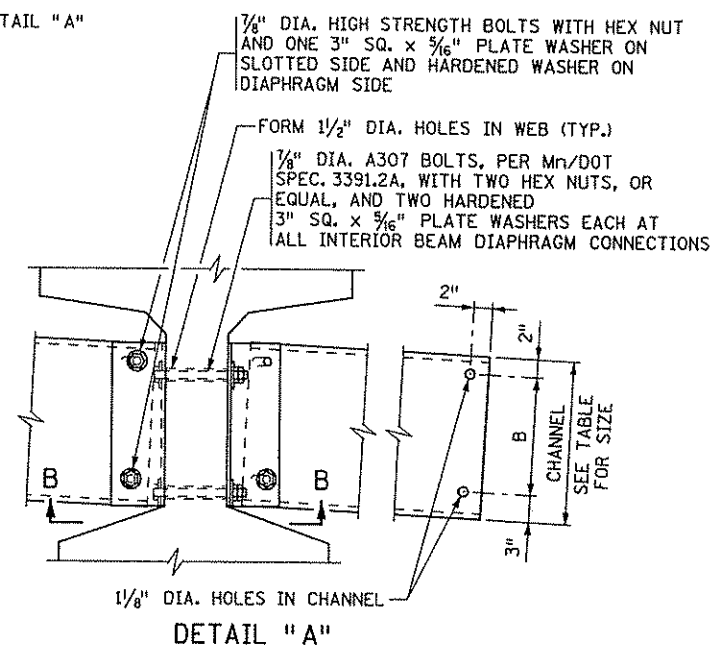
APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
<i>Daniel J. Morgan</i> STATE BRIDGE ENGINEER	PILE SPLICE (CAST-IN-PLACE CONCRETE PILES)		B201

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 DATE: 5/8/2006 TIME: 9:42:59 AM



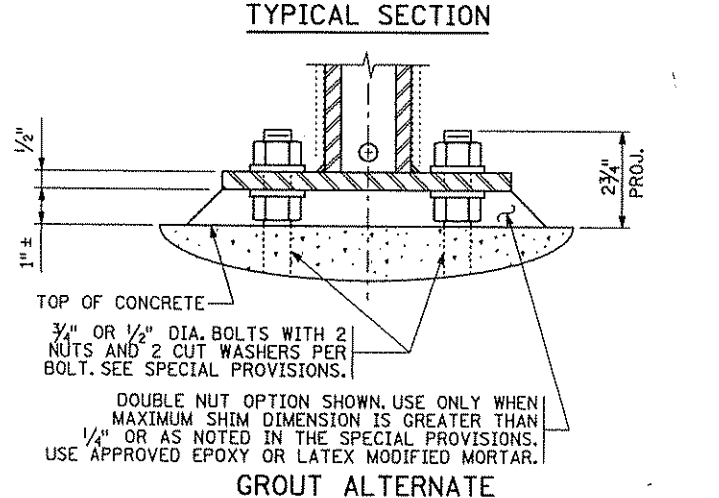
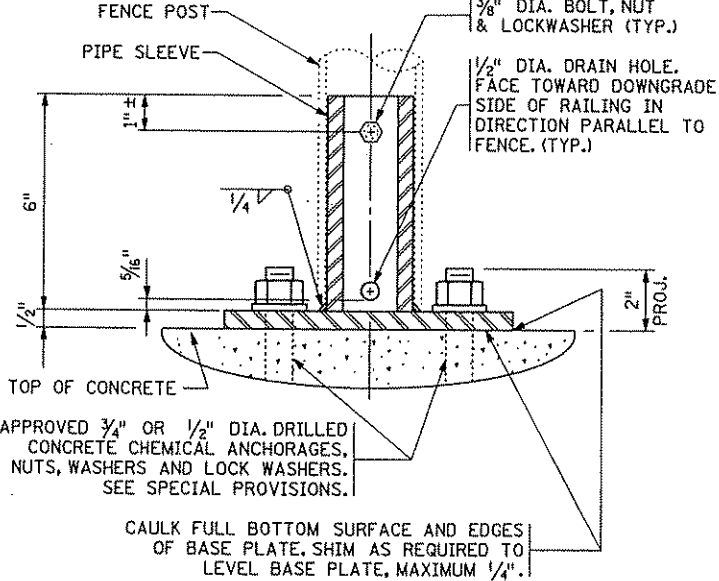
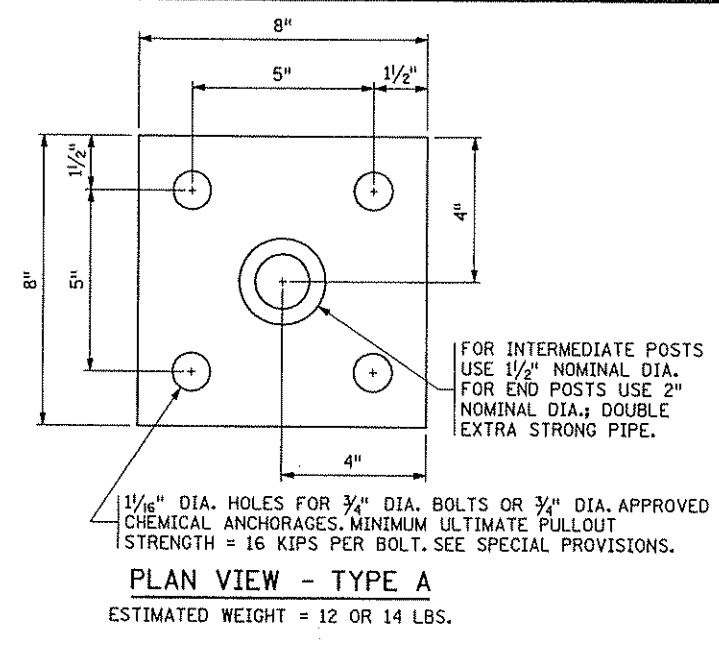
BEAM HEIGHT	DISTANCE			CHANNEL SIZE
	A	B	C	
36M	1'-3"	7"	1'-0"	C12x20.7
45M	1'-3 3/4"	1'-1"	1'-6"	MC18x42.7
54M	1'-2 1/4"	1'-1"	2'-6"	MC18x42.7



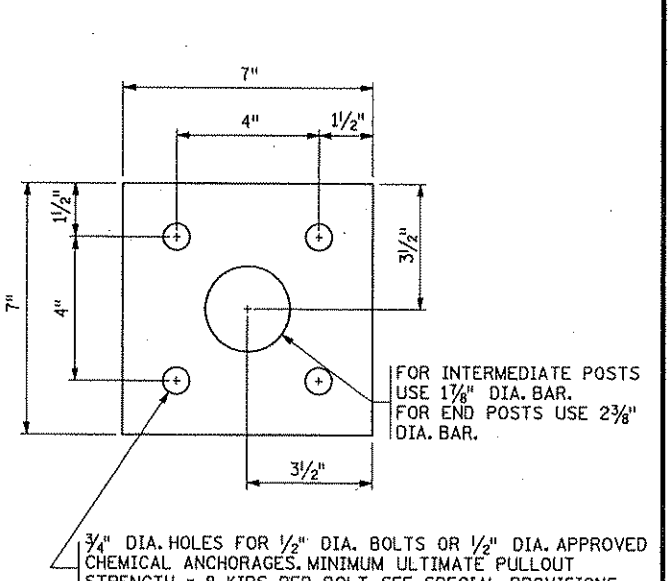
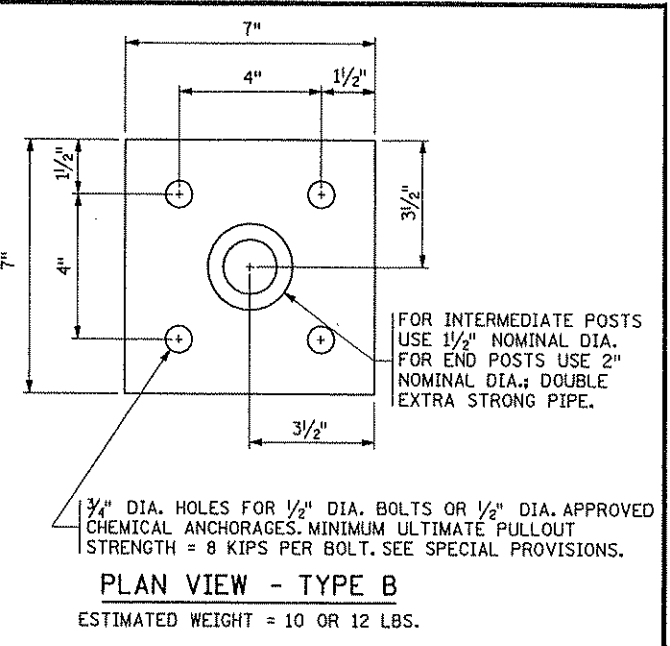
SECTION A-A TYPICAL SECTION AT ALL FASCIA BEAMS
 SECTION B-B TYPICAL SECTION AT CONTINUOUS OR STAGGERED INTERIOR DIAPHRAGMS

NOTES:
 ALL STEEL SHALL CONFORM TO Mn/DOT SPEC. 3306.
 SEE Mn/DOT SPEC. 2405.3M FOR INSTALLATION.
 THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A 3/8" 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 THE PAYMENT 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.
 (1) FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.

APPROVED: NOVEMBER 22, 2002
 STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION
 STEEL INTERMEDIATE DIAPHRAGM (FOR 36M - 54M PRESTRESSED CONCRETE BEAMS)
 REVISION 09-09-2003
 DETAIL NO. MODIFIED
 B403



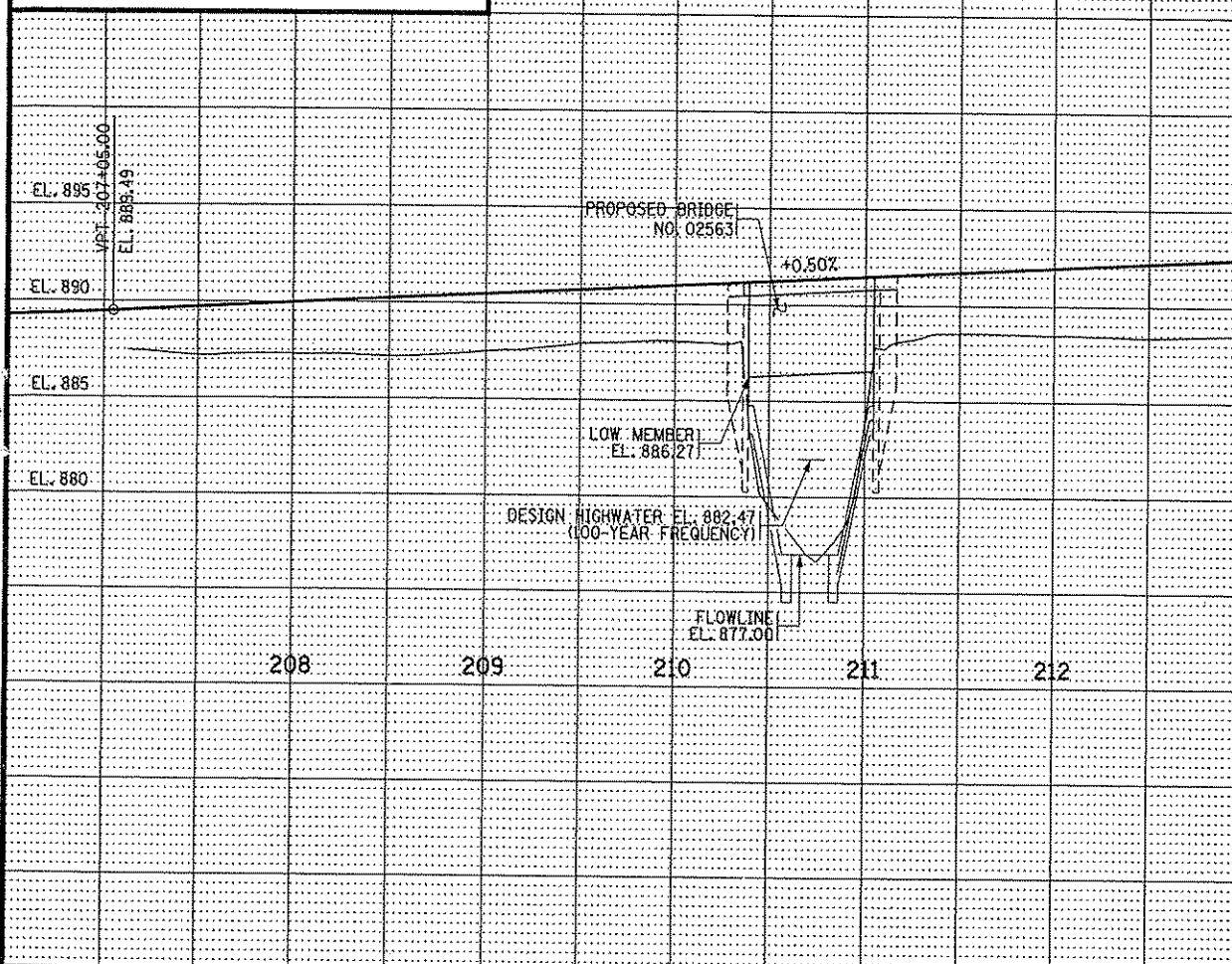
APPROVED: NOVEMBER 22, 2002
 STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION
 FENCE POST ANCHORAGE
 REVISION
 DETAIL NO. B905



NOTES:
 STRUCTURAL STEEL PER Mn/DOT SPEC. 3306
 STRUCTURAL PIPE PER Mn/DOT SPEC. 3362
 GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER Mn/DOT SPEC. 3394. GALVANIZE THE FASTENERS PER Mn/DOT SPEC. 3392.
 DOUBLE EXTRA STRONG PIPE WEIGHTS:
 1 1/2" NOMINAL DIA. = 6.41 LBS./FT.
 2" NOMINAL DIA. = 9.03 LBS./FT.

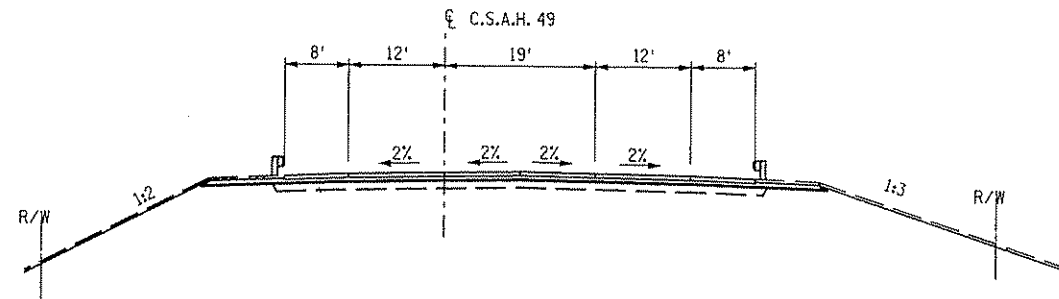
CONTRACTED PROFILE

SCALE: HORIZ: 1"=50' VERT: 1"=5'



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



TYPICAL APPROACH SECTION

FED. PROJ. SP 02-649-01

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
2. 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.
3. Apparent highwater elevation: Obtained from
4. Other data: Approx. velocity of water at time of survey

HYDRAULIC ENGINEER'S RECOMMENDATION
DATE: 10/12/2004

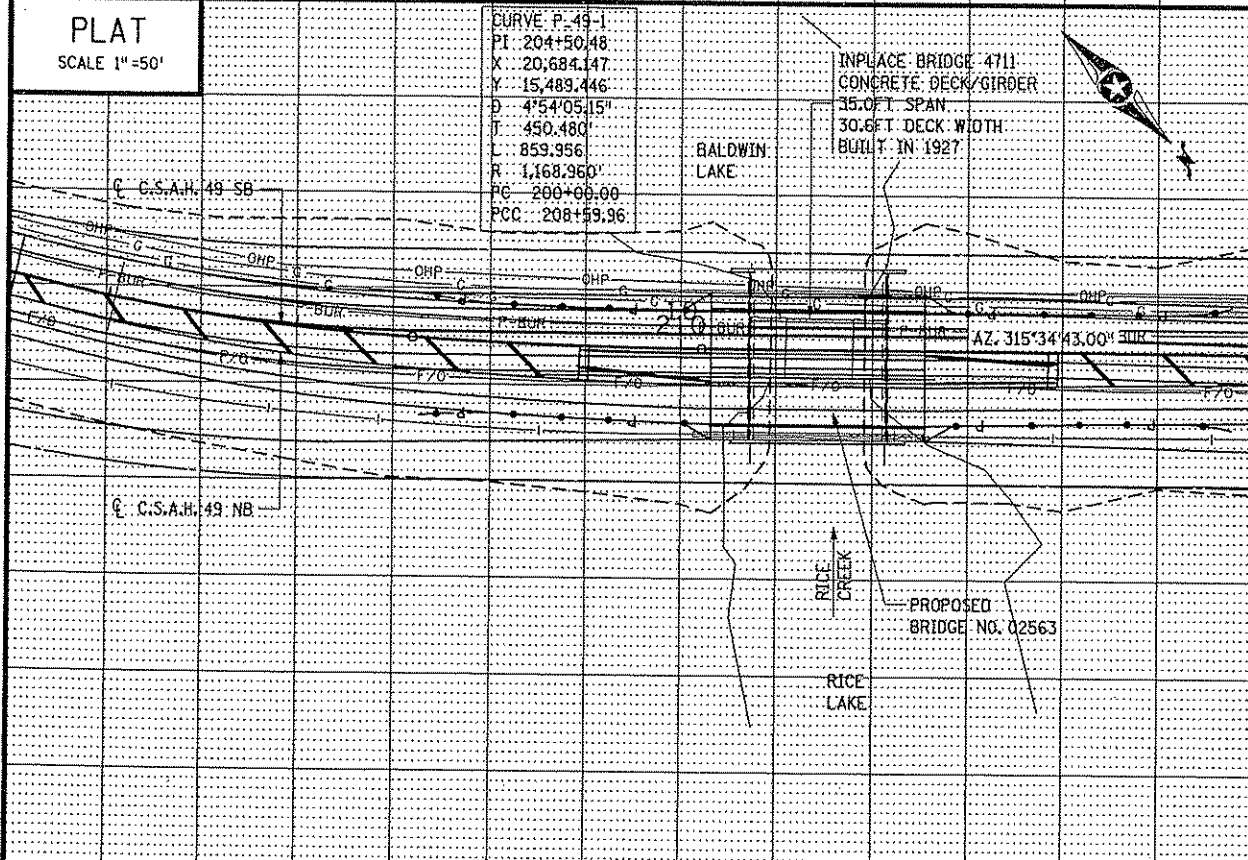
Stream or ditch designation: RICE CREEK
 Drainage area: 127 SQ. MI.
 Max. flood on record: 1450 CFS Design flood (100 yr. freq.) 733 C.F.S.
 Max. observed highwater elevation: 885.2'
 Design highwater elevation: 882.83'
 Design mean velocity through structure ...3.0... F.P.S.
 Low superstructure at or above elevation: 882.7'
 Flowline elevation: 877.0' Skew angle: 0°
 Waterway area req'd. below elevation 882.6 = 284 Sq. Ft. at Rt. angles to channel.
 In the interest of flood plain zoning the regional flood (10-day snow melt or 100 yr. + freq.) is 1511 C.F.S. at stage 886.1 and mean velocity of 3.1 F.P.S. with 0.23 Ft. swellhead.
 The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources and Rice Creek Watershed District.

PLAT

SCALE 1"=50'

CURVE P-49-1
 PT. 204+50.48
 X: 20,684.147
 Y: 15,489.446
 D: 4°54'05.15"
 T: 450.480
 L: 859.956
 R: 1,168.960
 PC: 200+00.00
 PCC: 208+59.96

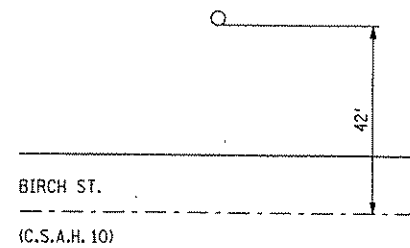
INPLACE BRIDGE 4711
 CONCRETE DECK/GIRDER
 35.0 FT. SPAN
 30.0 FT. DECK WIDTH
 BUILT IN 1927



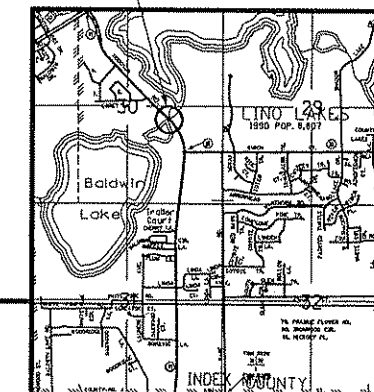
CERTIFICATE OF BENCHMARK LOCATION

ANOKA COUNTY SURVEYORS OFFICE, ANOKA, MN

LOCATION: SOUTHWEST QUARTER SECTION: 29 TOWNSHIP: 31 RANGE: 22
 VERTICAL ELEVATION NGVD 29: 900.537
 DESCRIPTION: SECOND ORDER BENCHMARK SET IN COVERED TUBE, STAMPED ON TOP BENCHMARK #45 ANOKA COUNTY SURVEYORS OFFICE



PROPOSED BR. NO. 02563



FOUNDATION ENGINEER'S RECOMMENDATION

SEE SOIL REPORT FROM BRAUN INTERTEC
 DATE: JUNE 12, 1998

Bridge survey sheets made from:

Bench mark elevation ...900.537... (M.S.L. 1929 Adj.)
 Location: ON WARE ROAD, 42 FEET NORTH OF BIRCH ST.
 (C.A.S.H. 10)

MINNESOTA
 DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

C.S.A.H. 49 (HODGSON ROAD)
 PROPOSED BRIDGE LOCATED 0.2 MILES N. OF
 JCT. OF CASH 49 (HODGSON ROAD)
 & CSAH 10 (BIRCH STREET)

SEC. 30 TWP 31 N R 22 W
 CITY: LINO LAKES COUNTY: ANOKA COUNTY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
 SIGNED: *Mark Christensen*
 DATE: 12-8-2006 REG. NO. 43076

TKDA

ENGINEERS ARCHITECTS PLANNERS SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

TITLE:

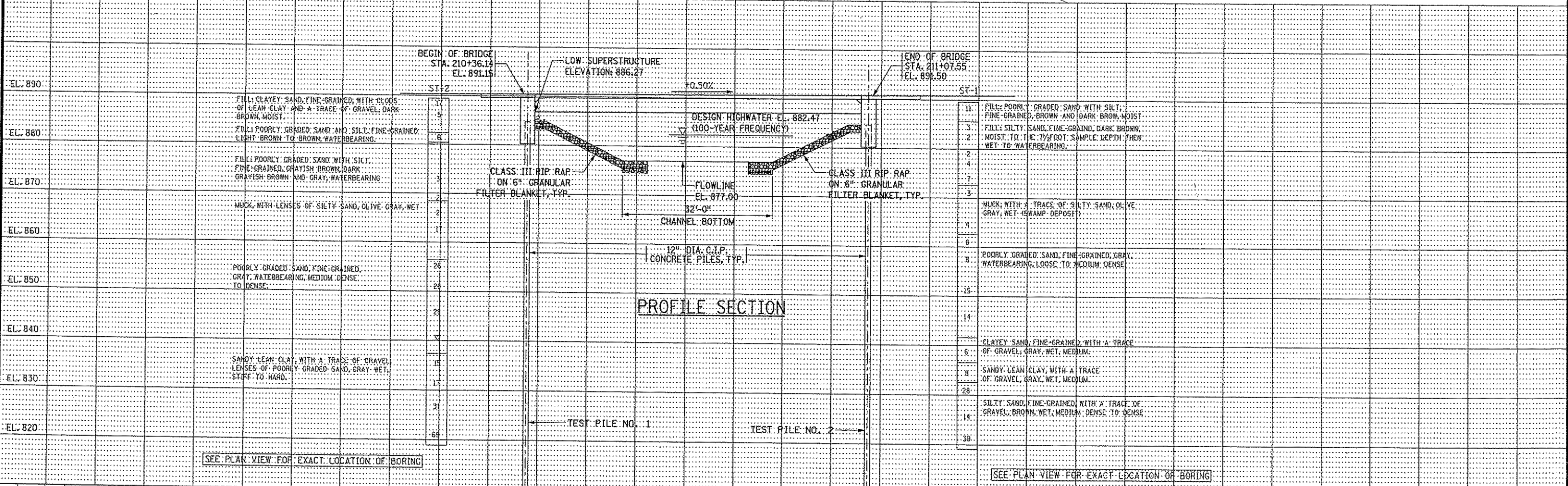
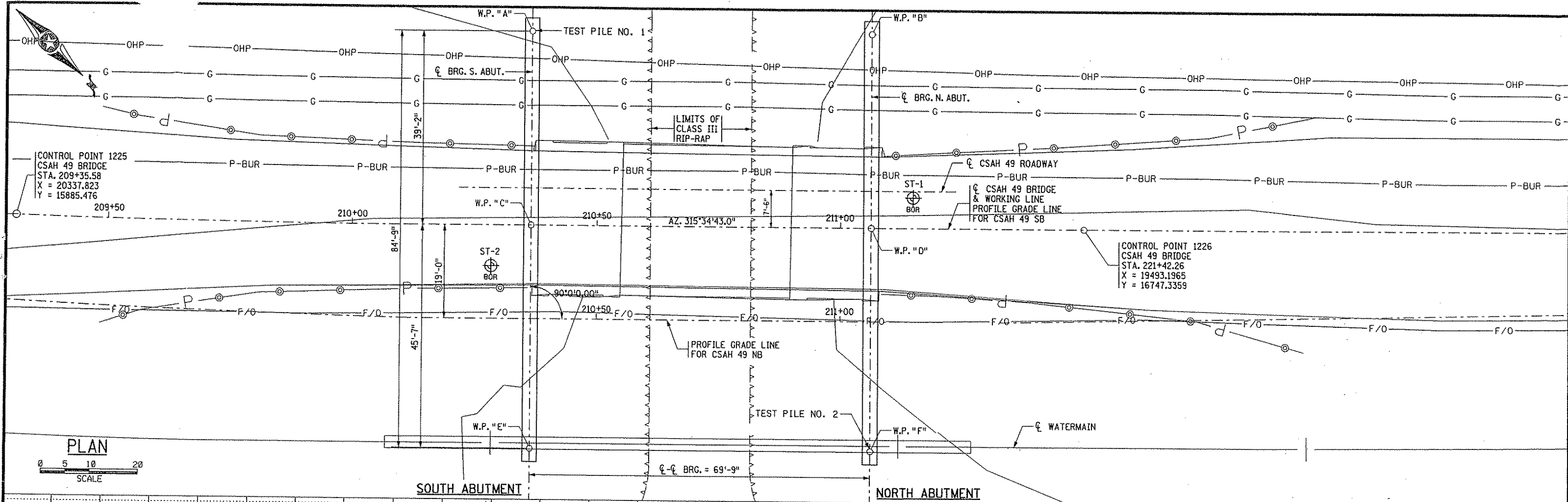
BRIDGE SURVEY

DES: MJC DR: MJC APPROVED
 CHK: GM CHK: GM
 Sheet No. B25 of B26 Sheets

Bridge No.
 02563

FILENAME: K:\a-f\AnokaCity\15920\hwy-brdg\brdg.dgn General\PCBSurvey.dgn
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 DATE: 5/18/2006 TIME: 2:57:24 PM



NO.	DATE	BY	DESCRIPTION OF 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
 SIGNED: *Matthew J. Christensen* MATTHEW J. CHRISTENSEN REG. NO. 43076
 DATE: 5-8-2006

TKDA
 ENGINEERS • ARCHITECTS • PLANNERS
 1500 PIPER JAFFRAY PLAZA
 444 CEDAR STREET
 SAINT PAUL, MINNESOTA

CSAH 49 OVER RICE CREEK
 ANOKA COUNTY, MINNESOTA
 S.A.P. 02-649-01

TITLE:
BRIDGE SURVEY AND PROFILE

DES: MJC	DR: MJC	APPROVED
CHK: GM	CHK: GM	

Bridge No. 02563
 Sheet No. B26 of B26 Sheets