

CONSTRUCTION NOTES

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE GIRDERS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR NUMBER WHICH APPROXIMATES THE NOMINAL DIAMETER OF THE BAR IN MILLIMETERS.

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

CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES AND EXERCISE CARE IN ADJACENT CONSTRUCTION.

AREMA DESIGN DATA

2003 AREMA DESIGN SPECIFICATIONS

COOPER E 80 LIVE LOAD WITH DIESEL IMPACT FOR FLOOR BEAMS
 COOPER E 80 LIVE LOAD WITH DIESEL IMPACT FOR THRU GIRDERS

WORKING STRESS DESIGN METHOD

MAXIMUM ALLOWABLE DESIGN STRESSES:

REINFORCED CONCRETE:
 $f_c = 1,600$ PSI
 $n = 8$
 $f'_c = 4,000$ PSI

REINF.
 $f_s = 24,000$ PSI
 $f_y = 60,000$ PSI

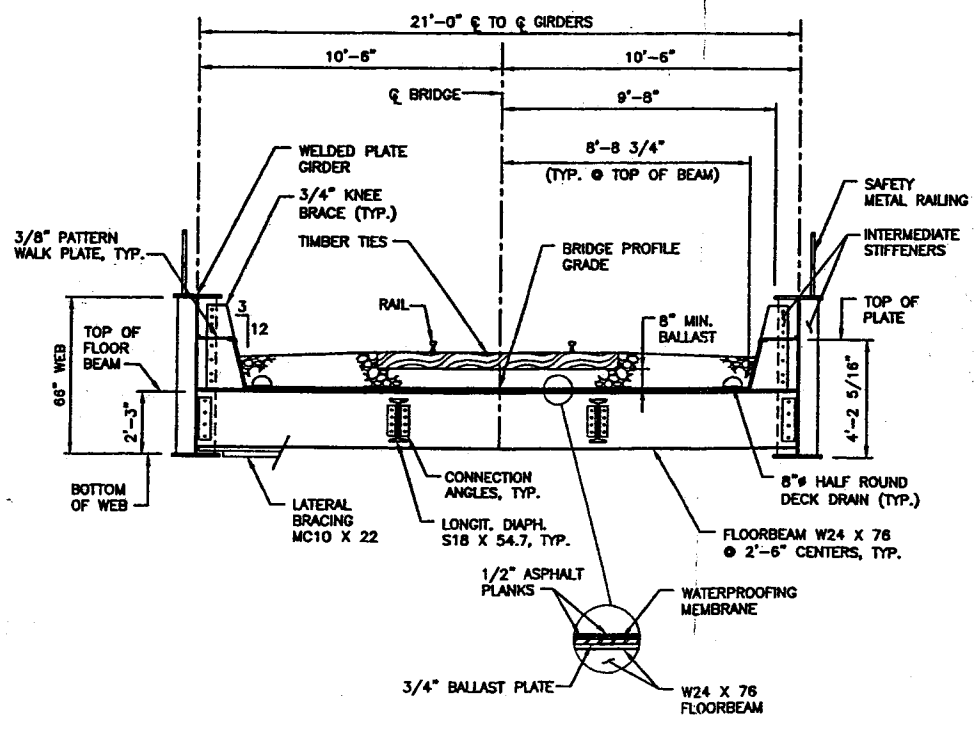
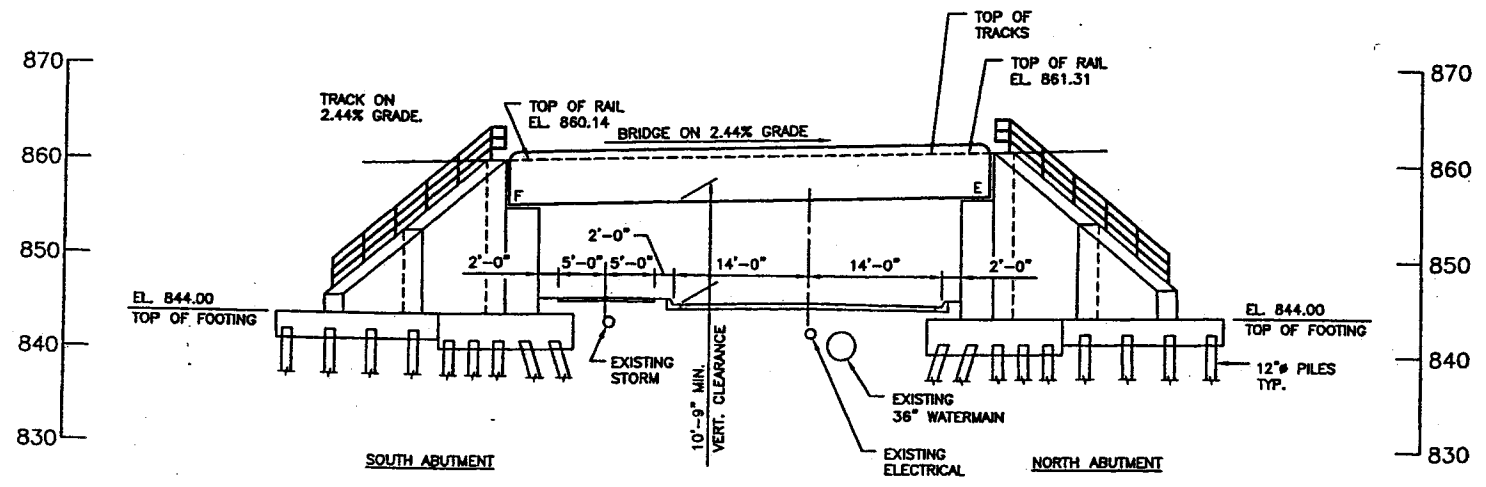
STRUCTURAL STEEL
 $f_y = 50,000$ PSI, $f_s = 27,000$ PSI
 ASTM A709 GRADE 50WT3, GRADE 50WF3

DESIGN SPEED UNDER BRIDGE 30 MPH

DECK AREA = 1152 SQ. FT.

LIST OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL PLAN AND ELEVATION
3, 7	ABUTMENT LAYOUT
4, 8	ABUTMENT PILE PLAN & BILL OF REINF.
5, 9	ABUTMENT ELEVATION & DETAILS
6, 10	ABUTMENT REINF. & DETAILS
11	RAILING DETAILS
12	FRAMING PLAN
13	FLOOR BEAM DETAILS
14	CROSS BRACING DETAILS
15	STEEL DETAILS
16-17	BALLAST PLATE DETAILS
18-19	WALK PLATE DETAILS
20	DRAINAGE DETAILS
21	BEARING DETAILS
22-23	DETAILS
24	BRIDGE SURVEY



APPROVED:

PROJECT ENGINEER: ST. PAUL REGIONAL WATER SERVICES PROJECT ENGINEER

DATE: _____

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.

PRINT NAME: GARY W. MORIEN

SIGNED: *[Signature]*

DATE: 4/12/04 REG. NO. 25552

PLANS PREPARED BY:
 BONESTROO, ROSENE, ANDERLIK & ASSOC., INC.
 Engineers & Architects
 St. Paul, Minnesota

B.M. ELEV. 864.66 (M.S.L. 1929 ADJ.)
 SEE BRIDGE SURVEY SHEET

ENTRANCE DRIVE SAINT PAUL
 REGIONAL WATER SERVICES

BRIDGE NO. 62618

GP RAILROAD SPUR OVER SPRWS/MCCARRONS ENTRANCE RD. AND COUNTY TRAIL

48' STEEL THROUGH GIRDER SPAN, 0' SKEW.

GENERAL PLAN AND ELEVATION

SEC. 18 T. 29 N. R. 22 W.
 CITY ST. PAUL COUNTY RAMSEY

APPROVED:
 N/A
 STATE BRIDGE ENGINEER DATE

DES: MDJ DR: PHH
 CHK: GWM CHK: GWM

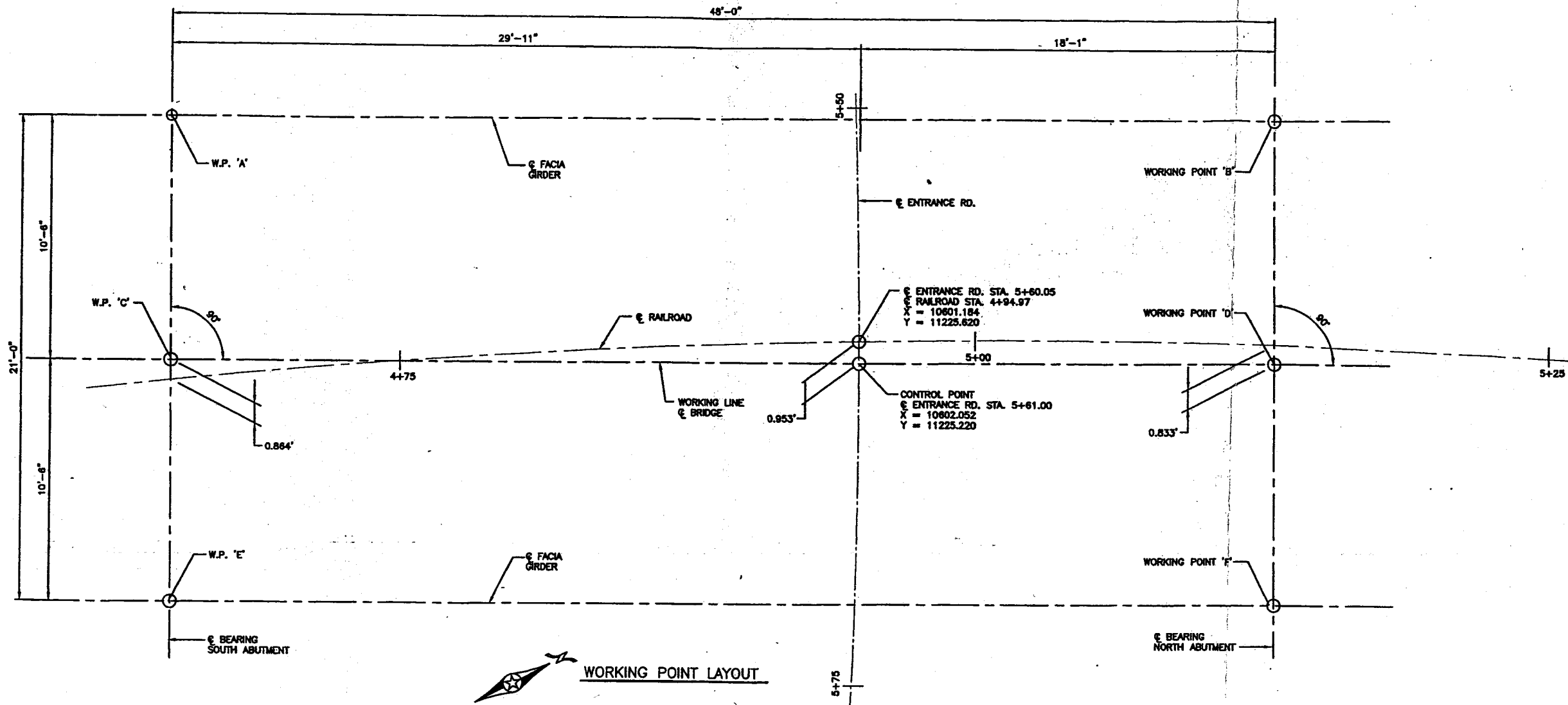
62618

Sheet No. 1 of 24 Sheets

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

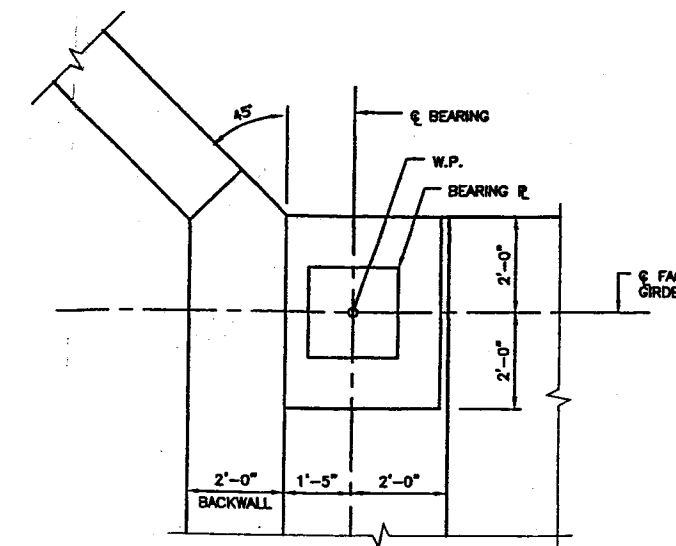
ITEM NO.	2021.501	2104.501	2104.521	2104.601	2401.501	2401.501	2401.541	2401.541	2401.601	2402.521	2402.585	2402.585
ITEM	MOBILIZATION	REMOVE BALLAST AND TIES	SALVAGE RAIL	TRACK RESTORATION	STRUCTURAL CONCRETE (1A43)	STRUCTURAL CONCRETE (3Y43)	REINFORCEMENT BARS	REINFORCEMENT BARS (EPOXY COATED)	STRUCTURE EXCAVATION	STRUCTURAL STEEL (3309)	PIPE RAILING (TYPE A)	PIPE RAILING (TYPE B)
UNIT	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	CU. YD.	CU. YD.	LB.	LB.	LUMP SUM	LB.	LIN. FT.	CU. YD.
QUANTITY	1	180	180	180	230	203	27900	21865	1	130105	120	100
ITEM NO.	2402.601	2402.602	2442.501	2452.507	2452.508	2452.519	2452.519	2478.502	2478.503	2481.602	2481.603	2502.601
ITEM	DRAINAGE SYSTEM	POT-TYPE BEARING ASSEMBLY	REMOVE OLD BRIDGE	C.I.P. CONCRETE PILES DELIVERED 12"	C.I.P. CONCRETE PILES DRIVEN 12"	C.I.P. CONC. TEST PILE 45' LONG 12"	C.I.P. CONC. TEST PILE 35' LONG 12"	EPOXY ZINC-RICH PAINT SYSTEM (SHOP)	EPOXY ZINC-RICH PAINT SYSTEM (FIELD)	DAMPPOOFING	ONE PLY MEMBRANE WATERPROOFING	DRAINAGE SYSTEM (TYPE B910)
UNIT	LUMP SUM	EACH	LUMP SUM	LIN. FT.	LIN. FT.	EA.	EA.	S.F.	LUMP SUM	S.F.	S.F.	LUMP SUM
QUANTITY	1	4	1	3640	3640	4	4	6400	1	1770	300	1

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POINT	DIMENSIONS BETWEEN WORKING POINTS									ELEVATIONS (NOTE 1)			POINT
	STATION	X-COORDINATE	Y-COORDINATE	A	B	C	D	E	F	TOP OF RAIL	TOP OF RAIL TO BR. SEAT	BRIDGE SEAT	
A	4+65.05	10579.953	11202.486		48.00	10.50	49.14		52.39	860.14	4.99	855.15	A
B	5+13.05	10600.122	11246.042				10.50	52.39		861.31	4.99	856.32	B
C	4+65.05	10589.481	11198.074				48.00	10.50	49.14	880.14			C
D	5+13.05	10609.651	11241.630					10.50		861.31			D
E	4+65.05	10599.009	11193.662					48.00		880.14	4.99	855.15	E
F	5+13.05	10619.179	11237.218							861.31	4.99	856.32	F

NOTES:
 1. FINAL CONSTRUCTION ELEVATIONS FOR BRIDGE SEATS SHALL BE DETERMINED BASED ON THE ACTUAL HEIGHT OF POT BEARING ASSEMBLIES FURNISHED BY THE CONTRACTOR. ANY REQUIRED ADJUSTMENT OF SEAT ELEVATIONS SHALL BE MADE BY THE CONTRACTOR AT NO COST TO THE OWNER.



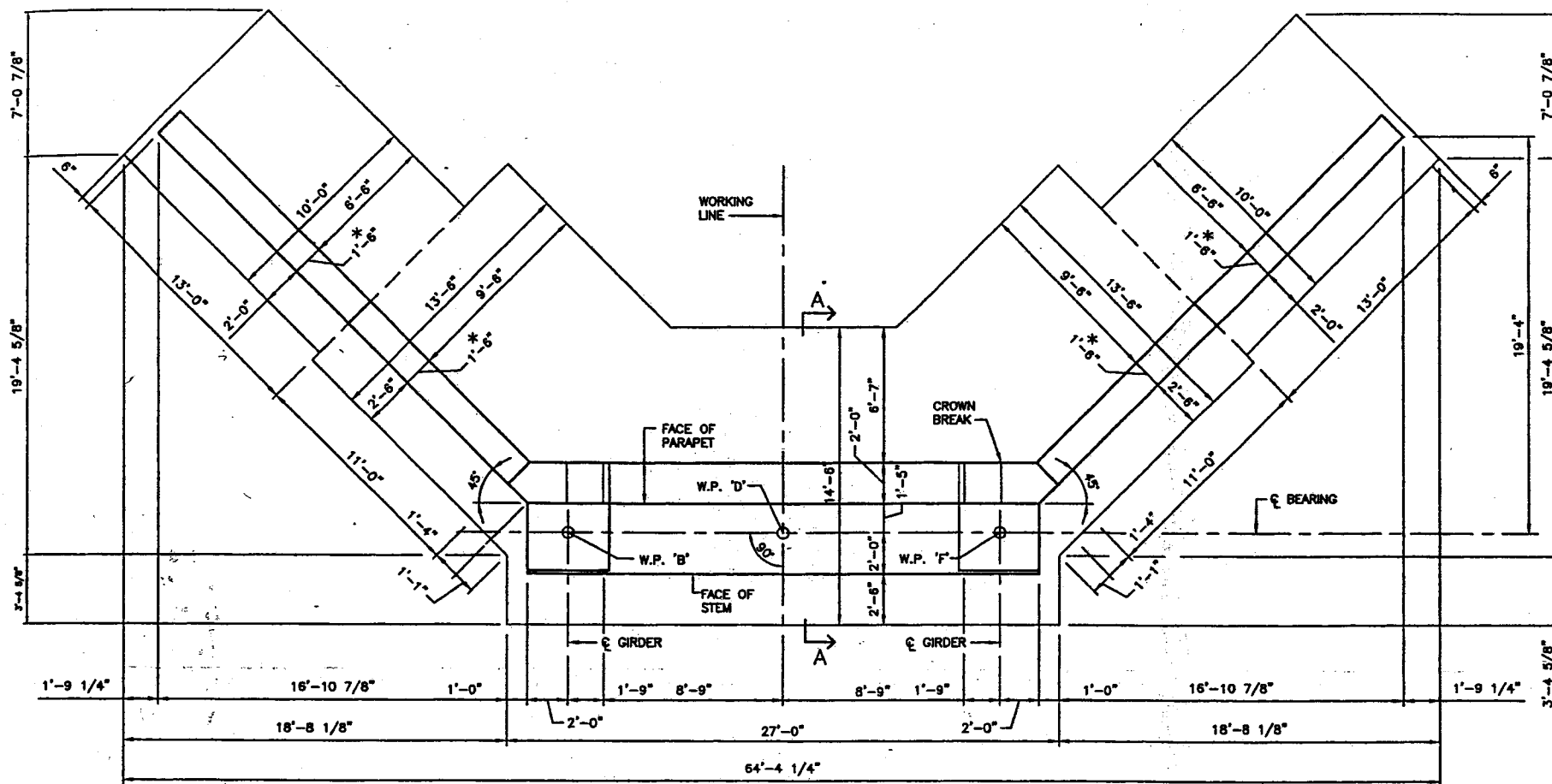
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CERTIFIED BY Gary W. Morien 4/12/04
LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY W. MORIEN LIC. NO. 25552

Title: **BRIDGE LAYOUT**

DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM
 Sheet No. 2 of 24 Sheets

Bridge No. **62618**



ABUTMENT PLAN

NOTE:
* DIMENSION AT TOP OF WALL.

SUMMARY OF QUANTITIES FOR NORTH ABUTMENT

ITEM	QUANTITY	UNIT
STRUCTURE CONCRETE MIX NO. 1A43	115	CU. YD.
STRUCTURE CONCRETE MIX. NO. 3Y43	105	CU. YD.
REINFORCEMENT BARS	13950	LB.
REINFORCEMENT BARS (EPOXY COATED)	11250	LB.
STRUCTURE EXCAVATION	0.5	LUMP SUM
C.I.P. CONC. PILING DELIVERED, 12"	1820	LIN. FT.
C.I.P. CONC. PILING DRIVEN, 12"	1820	LIN. FT.
C.I.P. TEST PILE, 45 FT. LG. 12"	2	EACH
C.I.P. TEST PILE, 35 FT. LG. 12"	2	EACH
1" THICK CORK	36	SQ. FT.
DAMPPOOFING	930	SQ. FT.
3-PLY JOINT WATERPROOFING	95	LIN. FT.
PROTECTIVE EPOXY COATING	92	SQ. FT.
PIPE RAILING (TYPE A)	60	LIN. FT.

- ① DOES NOT INCLUDE TEST PILES.
- ② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ③ SEE SPECIAL PROVISIONS.

- NOTES:
- FOR ANCHOR BOLT LOCATIONS, SEE SHEET 21.
 - FOR BILL OF REINFORCEMENT, SEE SHEET 4
 - FOR PILE NOTES, SEE SHEET 4
 - DAMPPOOFING SHALL BE APPLIED TO BACK FACES OF THE ABUTMENTS AND WINGWALLS FROM THE TOP OF FOOTING TO WITHIN 6" OF TOP OF BALLAST OR GROUND.
 - BRIDGE SEAT REINFORCEMENT MUST BE PLACED CAREFULLY TO AVOID OBSTRUCTING THE FUTURE DRILLING OF ANCHOR BOLTS HOLES. A523E BARS SHALL BE PLACE WITH THE NEAREST A532E BAR IN THE BRIDGE SEAT.
 - PLACE PROTECTIVE EPOXY COATING ON BRIDGE SEAT AND 3" UP PARAPET WALLS, SEE SPECIAL PROVISIONS.

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CERTIFIED BY Gary W. Morien 4/12/04
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY W. MORIEN LIC. NO. 25552

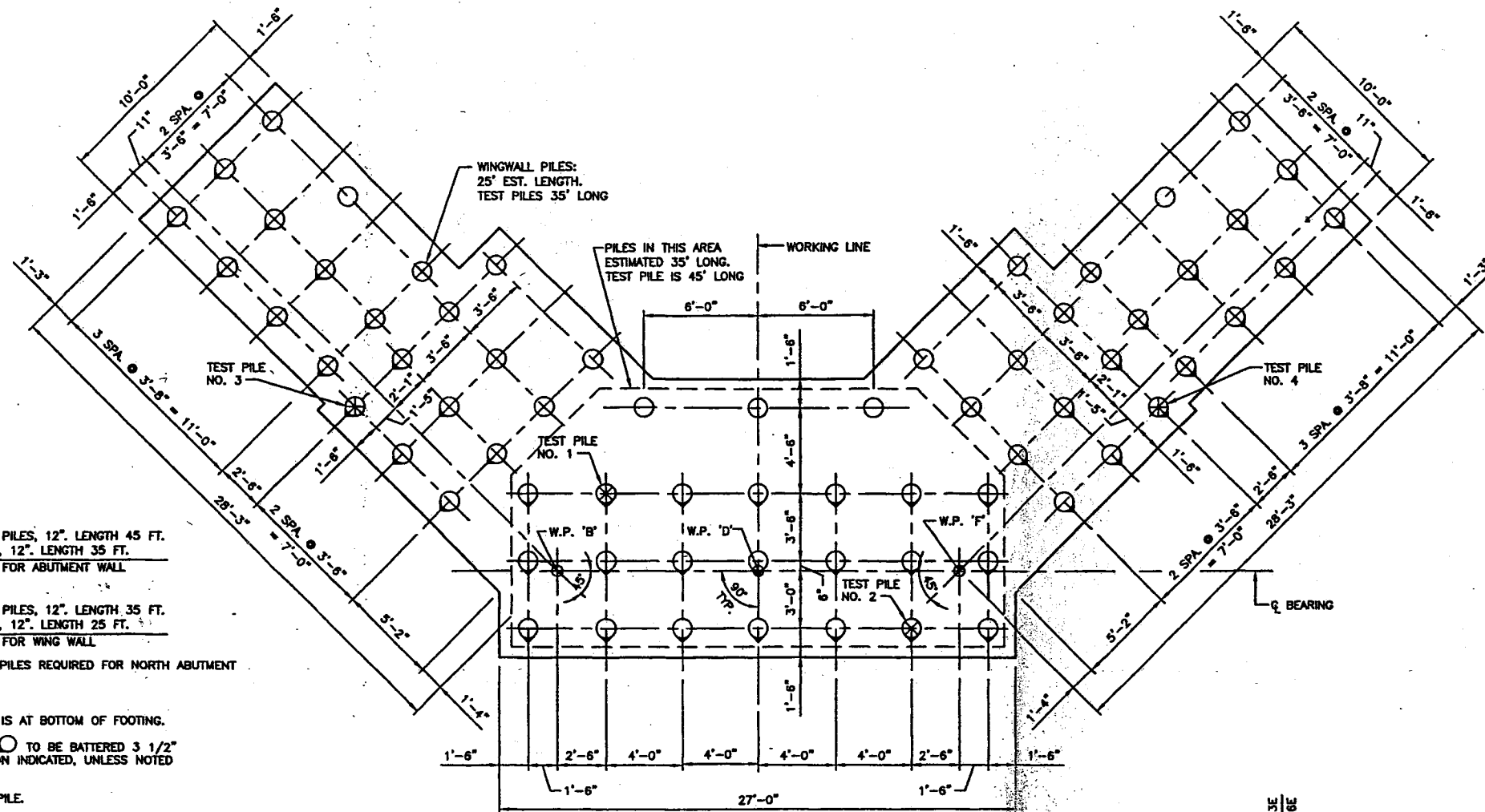
Title: NORTH ABUTMENT LAYOUT

DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM
 Sheet No. 3 of 24 Sheets

Bridge No. 62618

BILL OF REINFORCEMENT FOR NORTH ABUTMENT

MARK	NO.	LENGTH	BENT	LOCATION
A901	53	17'-8"	X	FOOTING-LONGITUDINAL, TOP
A702	53	16'-6"	X	FOOTING-LONGITUDINAL, BOTTOM
A703	30	26'-8"		FOOTING-TRANSVERSE, TOP & BOTTOM
A904	40	16'-8"	X	FOOTING-TRANSVERSE, TOP & BOTTOM
A705	28	15'-6"	X	FOOTING-LONGITUDINAL, PANEL 1, BOTTOM
A706	42	12'-0"	X	FOOTING-LONGITUDINAL, PANEL 2, TOP
A807	28	11'-6"	X	FOOTING-LONGITUDINAL, PANEL 2, BOTTOM
A708	56	15'-5"		FOOTING-TRANSVERSE, PANEL 1, TOP & BOTTOM
A809	40	15'-2"		FOOTING-TRANSVERSE, PANEL 2, TOP & BOTTOM
A610E	84	6'-2"	X	STEM-DOWELS, F.F.
A711E	24	8'-5"	X	STEM-DOWELS, B.F.
A712E	24	10'-5"	X	STEM-DOWELS, B.F.
A713E	46	10'-11"	X	WINGWALL-DOWELS, B.F., PANEL 1
A714E	26	7'-11"	X	WINGWALL-DOWELS, B.F., PANEL 2
A615E	26	11'-10"		STEM-VERTICAL, F.F.
A716E	24	11'-10"		STEM-VERTICAL, B.F.
A517E	26	9'-0"	X	STEM-TIES, TOP
A618E	18	12'-2"	X	PARAPET-TIES, INTERIOR
A619E	8	16'-6"	X	PARAPET-TIES, EXTERIOR
A620E	10	17'-0"		STEM-VERTICAL, F.F.
A621E	18	24'-6"		STEM-HORIZONTAL, F.F.
A622E	17	24'-8"		STEM-HORIZONTAL, B.F.
A523E	26	9'-1"	X	STEM-END TIE
A524E	6	7'-0"	X	PARAPET-HORIZONTAL
A525E	18	6'-11"	X	BRIDGE SEAT-TIES
A526E	14	7'-8"	X	BRIDGE SEAT-TIES
A727E	2 SER. OF 12	10'-6" TO 16'-11"		WINGWALL-VERTICAL, PANEL 1, B.F.
A628E	2 SER. OF 11	10'-6" TO 16'-6"		WINGWALL-VERTICAL, PANEL 1, F.F.
A729E	2 SER. OF 14	2'-9" TO 10'-2"		WINGWALL-VERTICAL, PANEL 2, B.F.
A630E	2 SER. OF 14	2'-9" TO 10'-2"		WINGWALL-VERTICAL, PANEL 2, F.F.
A531E	44	15'-9"		WINGWALL-HORIZONTAL, PANEL 1, F.F. & B.F.
A632E	4 SER. OF 2	13'-3" TO 14'-10"		WINGWALL-HORIZONTAL, PANEL 1, F.F. & B.F.
A633E	2	11'-11"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
A634E	2	10'-5"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
A635E	2	8'-11"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
A636E	2	7'-8"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
A637E	2	5'-11"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
A638E	4	12'-5"		WINGWALL-HORIZONTAL, PANEL 1, SLOPED, F.F. & B.F.
A639E	2	10'-7"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
A640E	2	9'-1"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
A641E	2	7'-8"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
A642E	2	6'-2"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
A643E	2	4'-7"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
A544E	4 SER. OF 11	1'-2" TO 1'-5"	X	WINGWALL-END TIES, PANEL 1
A645E	12	12'-8"		WINGWALL-HORIZONTAL, PANEL 2, F.F. & B.F.
A646E	4 SER. OF 6	3'-10" TO 11'-11"		WINGWALL-HORIZONTAL, PANEL 2, F.F. & B.F.
A547E	4 SER. OF 10	3'-5" TO 3'-8"		WINGWALL-END TIES, PANEL 2
A648E	4	14'-8"		WINGWALL-HORIZONTAL, PANEL 2, SLOPED, F.F. & B.F.



PILE NOTES:

ABUTMENT WALL PILES

- 2 C.I.P. CONC. TEST PILES, 12". LENGTH 45 FT.
- 22 C.I.P. CONC. PILES, 12". LENGTH 35 FT.
- 24 C.I.P. CONC. PILES FOR ABUTMENT WALL

WING WALL PILES

- 2 C.I.P. CONC. TEST PILES, 12". LENGTH 35 FT.
- 42 C.I.P. CONC. PILES, 12". LENGTH 25 FT.
- 44 C.I.P. CONC. PILES FOR WING WALL

TOTAL 68 C.I.P. CONC. PILES REQUIRED FOR NORTH ABUTMENT

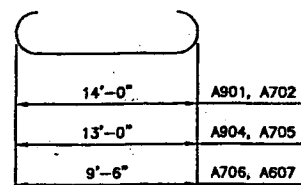
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THIS \circ TO BE BATTERED $3\ 1/2$ " PER FOOT IN DIRECTION INDICATED, UNLESS NOTED OTHERWISE.

\otimes INDICATES TEST PILE.

ALL PILES TO BE CAST-IN-PLACE CONCRETE PILE, 12".

PILE LOADS		
COMPUTED PILE LOADS - TONS/PILE		
	ABUTMENT	WINGWALL
DEAD LOAD + EARTH PRESSURE	24.4	19.6
LIVE LOAD	25.2	10.5
DESIGN LOAD	49.6	30.1



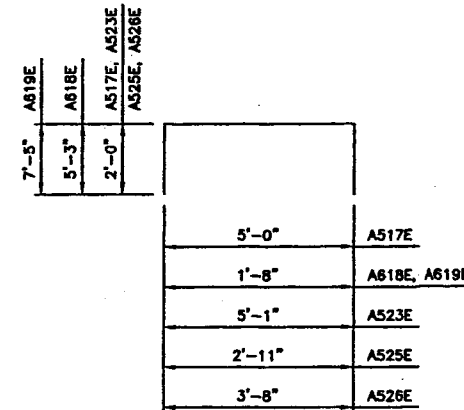
A901, A702, A904
A705, A706, A607

PILE PLAN

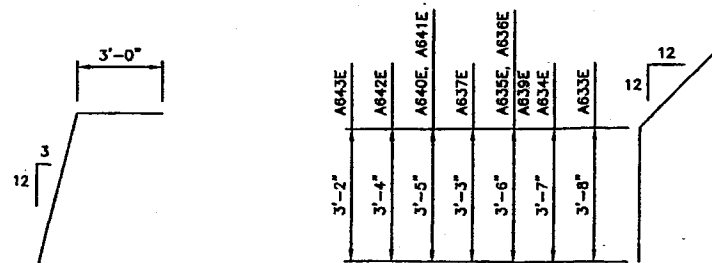


A610E, A711E, A712E

A713E, A714E



A517E, A618E, A619E
A523E, A525E, A526E



A524E

A633E, A634E, A635E, A636E, A637E,
A639E, A640E, A641E, A642E, A643E

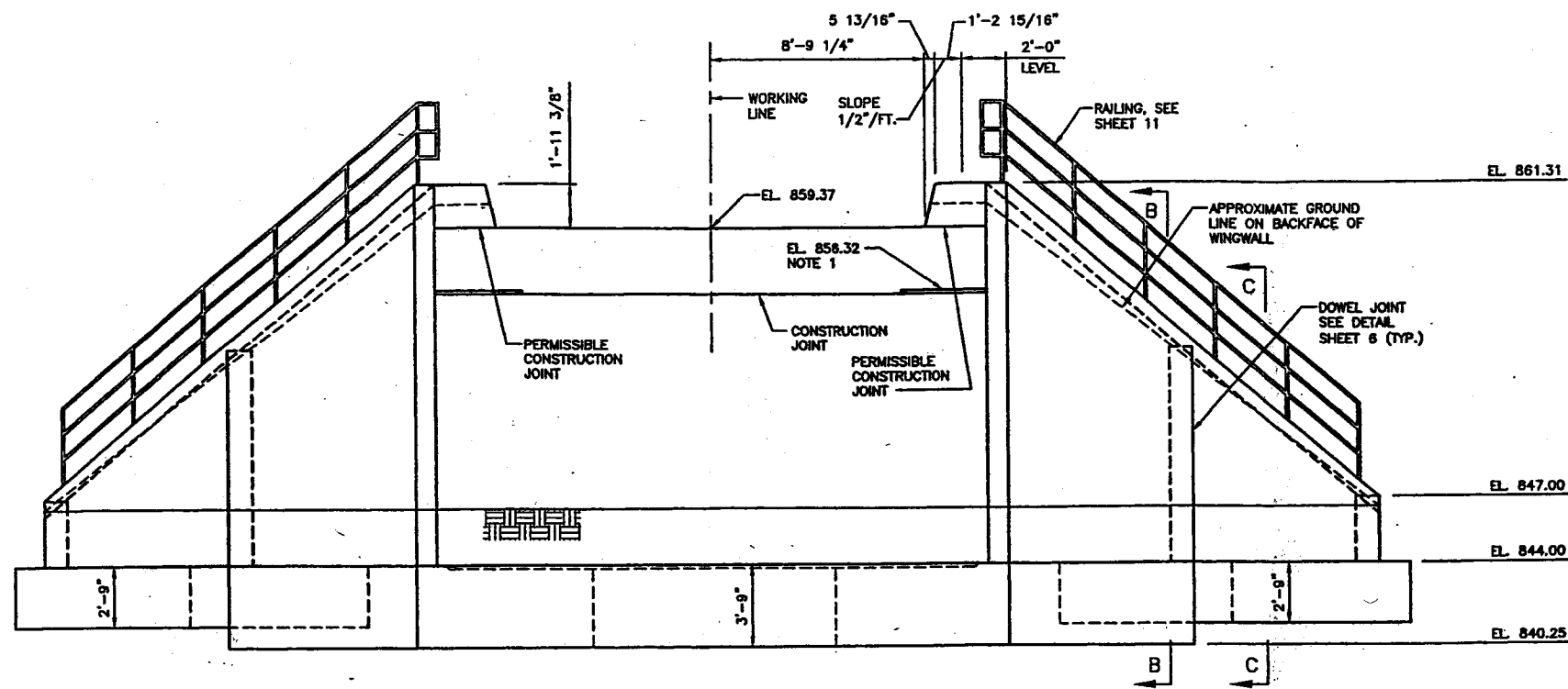
A544E, A547E

CERTIFIED BY Gary W. Morien 4/12/04
LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY W. MORIEN LIC. NO. 25552

Title: NORTH ABUT. PILE PLAN
 & BILL OF REINFORCEMENT

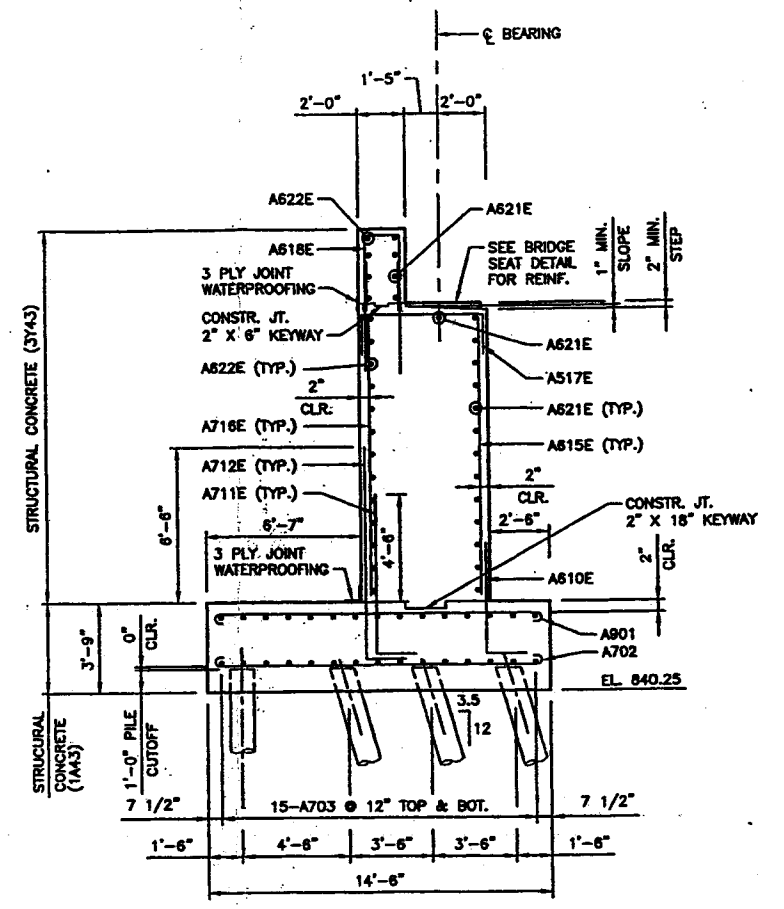
DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM
 Sheet No. 4 of 24 Sheets

Bridge No.
 62618

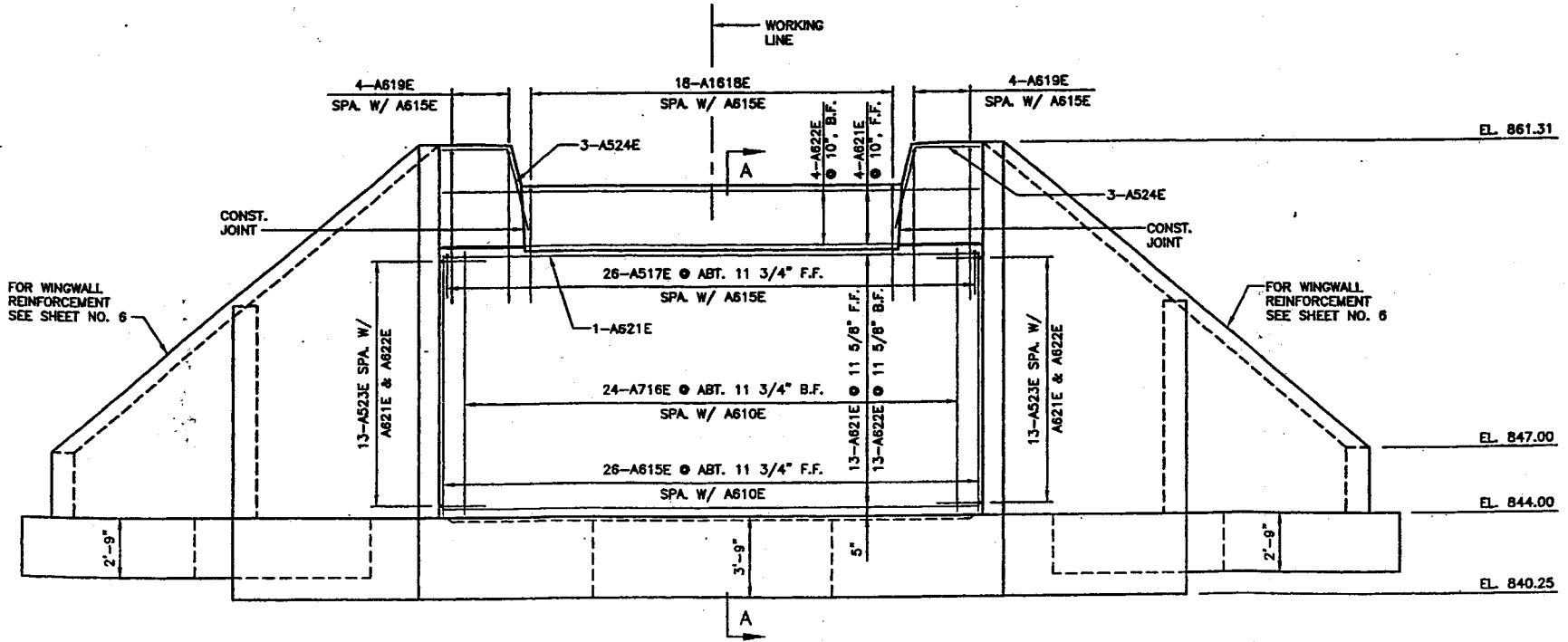


ABUTMENT ELEVATION

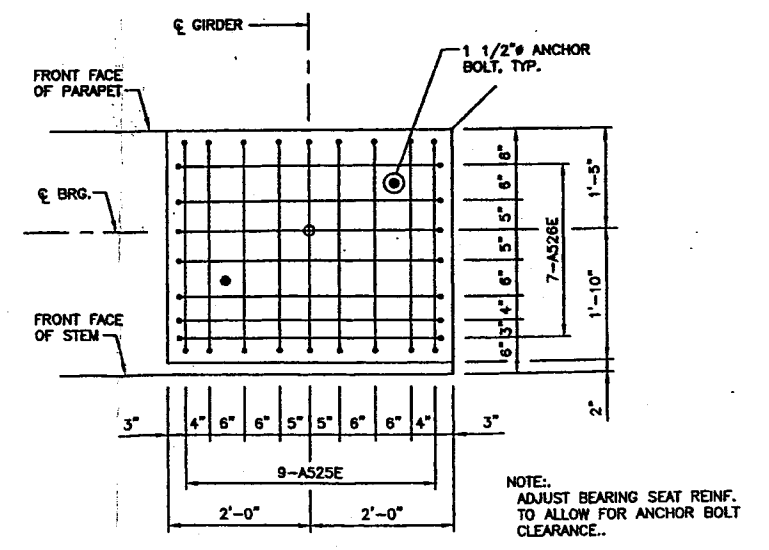
NOTES:
1. FINAL CONSTRUCTION ELEVATIONS FOR BRIDGE SEATS SHALL BE DETERMINED BASED ON THE ACTUAL HEIGHT OF POT BEARING ASSEMBLIES FURNISHED BY THE CONTRACTOR. ANY REQUIRED ADJUSTMENT OF SEAT ELEVATIONS SHALL BE MADE BY THE CONTRACTOR AT NO COST TO THE OWNER.



SECTION A-A



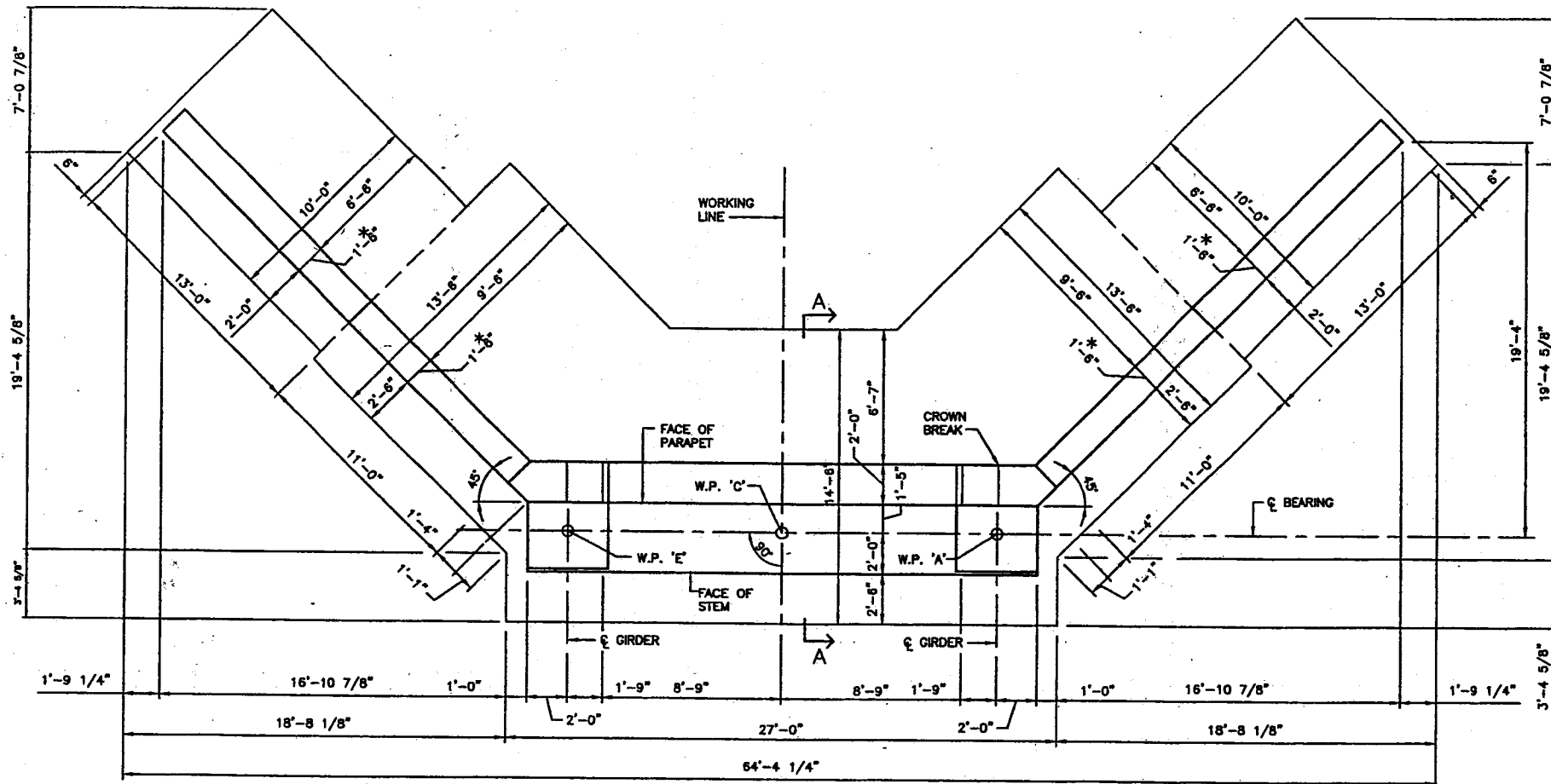
ABUTMENT ELEVATION



BRIDGE SEAT REINFORCEMENT

CERTIFIED BY <i>Gary W. Morien</i> 11/2/04 LICENSED PROFESSIONAL ENGINEER NAME: GARY W. MORIEN LIC. NO. 25552	Title: NORTH ABUT. ELEVATIONS AND DETAILS			DES: MDJ CHK: GWM	DR: PHH CHK: GWM	APPROVED:	Bridge No. 62618
	Sheet No. 5 of 24 Sheets						

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ABUTMENT PLAN

NOTE:
* DIMENSION AT TOP OF WALL

SUMMARY OF QUANTITIES FOR SOUTH ABUTMENT

ITEM	QUANTITY	UNIT
STRUCTURE CONCRETE MIX NO. 1A43	115	CU. YD.
STRUCTURE CONCRETE MIX. NO. 3Y43	98	CU. YD.
REINFORCEMENT BARS	13950	LB.
REINFORCEMENT BARS (EPOXY COATED)	10615	LB.
③ STRUCTURE EXCAVATION	0.5	LUMP SUM
③ ① C.I.P. CONC. PILING DELIVERED, 12"	1820	LIN. FT.
③ ① C.I.P. CONC. PILING DRIVEN, 12"	1820	LIN. FT.
③ C.I.P. TEST PILE, 45 FT. LG. 12"	2	EACH
③ C.I.P. TEST PILE, 35 FT. LG. 12"	2	EACH
② 1" THICK CORK	36	SQ. FT.
③ DAMPPROOFING	930	SQ. FT.
③ ② 3-PLY JOINT WATERPROOFING	95	LIN. FT.
② PROTECTIVE EPOXY COATING	92	SQ. FT.
PIPE RAILING (TYPE A)	60	LIN. FT.

- ① DOES NOT INCLUDE TEST PILES.
- ② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ③ SEE SPECIAL PROVISIONS.

NOTES:

1. FOR ANCHOR BOLT LOCATIONS, SEE SHEET 19
2. FOR BILL OF REINFORCEMENT, SEE SHEET 8
3. FOR PILE NOTES, SEE SHEET 8
4. DAMPPROOFING SHALL BE APPLIED TO BACK FACES OF THE ABUTMENTS AND WINGWALLS FROM THE TOP OF FOOTING TO WITHIN 6" OF TOP OF BALLAST OR GROUND.
5. BRIDGE SEAT REINFORCEMENT MUST BE PLACED CAREFULLY TO AVOID OBSTRUCTING THE FUTURE DRILLING OF ANCHOR BOLTS HOLES. A523E BARS SHALL BE PLACED WITH THE NEAREST A532E BAR IN THE BRIDGE SEAT.
6. PLACE PROTECTIVE EPOXY COATING ON BRIDGE SEAT AND 3" UP PARAPET WALLS, SEE SPECIAL PROVISIONS.

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CERTIFIED BY *Gary W. Morien* 4/12/04
LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY W. MORIEN LIC. NO. 25552

Title: SOUTH ABUTMENT LAYOUT

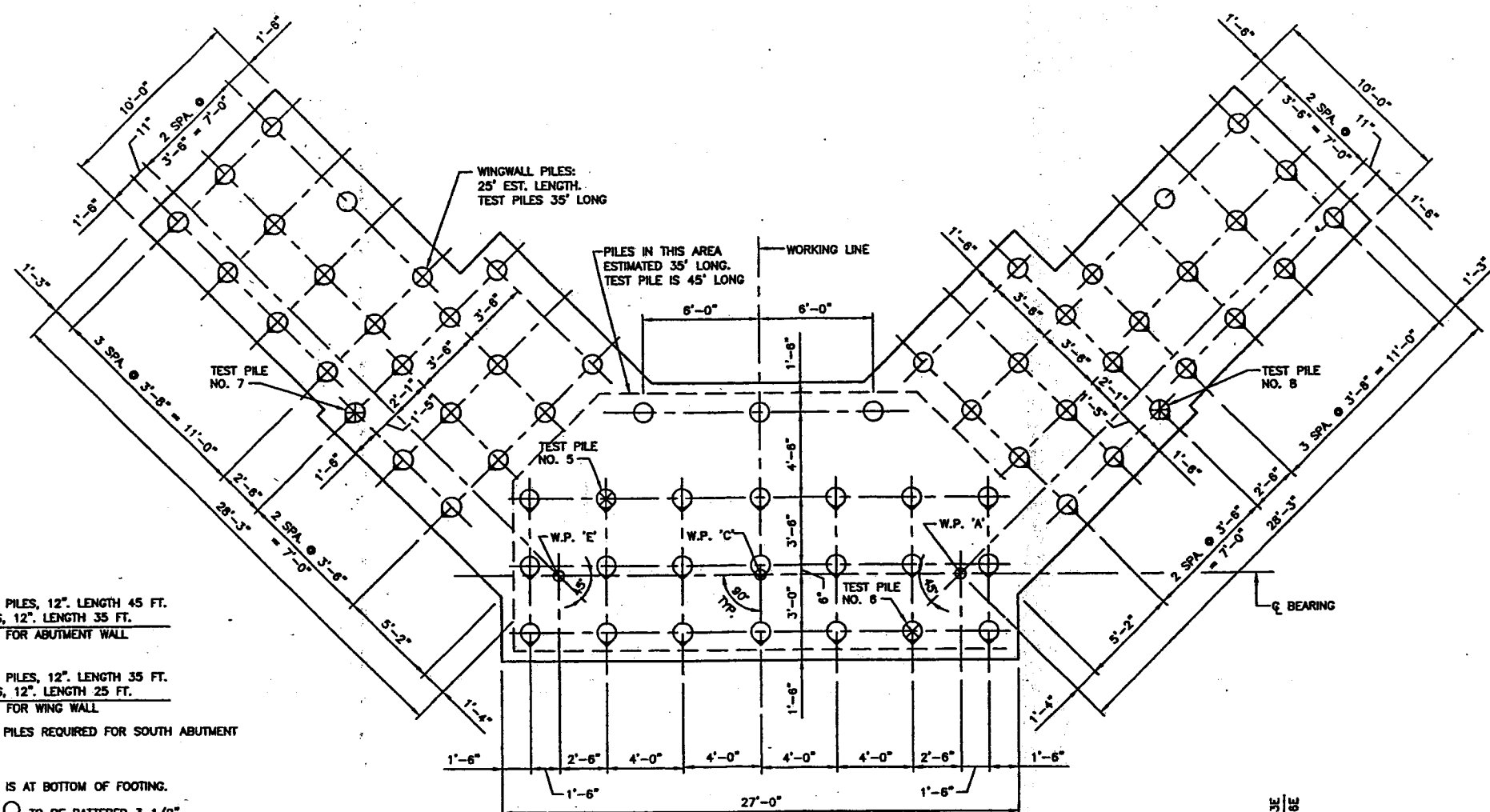
DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM

Sheet No. 7 of 24 Sheets

Bridge No. 62618

BILL OF REINFORCEMENT FOR SOUTH ABUTMENT

MARK	NO.	LENGTH	BENT	LOCATION
B901	53	17'-8"	X	FOOTING-LONGITUDINAL, TOP
B702	53	16'-6"	X	FOOTING-LONGITUDINAL, BOTTOM
B703	30	26'-8"		FOOTING-TRANSVERSE, TOP & BOTTOM
B904	40	16'-8"	X	FOOTING-TRANSVERSE, TOP & BOTTOM
B705	28	15'-6"	X	FOOTING-LONGITUDINAL, PANEL 1, BOTTOM
B706	42	12'-0"	X	FOOTING-LONGITUDINAL, PANEL 2, TOP
B607	28	11'-6"	X	FOOTING-LONGITUDINAL, PANEL 2, BOTTOM
B708	56	15'-5"		FOOTING-TRANSVERSE, PANEL 1, TOP & BOTTOM
B609	40	15'-2"		FOOTING-TRANSVERSE, PANEL 2, TOP & BOTTOM
B610E	84	6'-2"	X	STEM-DOWELS, F.F.
B711E	24	8'-5"	X	STEM-DOWELS, B.F.
B712E	24	10'-5"	X	STEM-DOWELS, B.F.
B713E	46	10'-11"	X	WINGWALL-DOWELS, B.F., PANEL 1
B714E	26	7'-11"	X	WINGWALL-DOWELS, B.F., PANEL 2
B615E	26	10'-8"		STEM-VERTICAL, F.F.
B716E	24	10'-8"		STEM-VERTICAL, B.F.
B517E	26	9'-0"	X	STEM-TIES, TOP
B618E	18	12'-2"	X	PARAPET-TIES, INTERIOR
B619E	8	16'-2"	X	PARAPET-TIES, EXTERIOR
B620E	10	15'-10"		STEM-VERTICAL, F.F.
B621E	17	24'-8"		STEM-HORIZONTAL, F.F.
B622E	16	24'-8"		STEM-HORIZONTAL, B.F.
B523E	24	9'-1"	X	STEM-END TIE
B524E	6	7'-0"	X	PARAPET-HORIZONTAL
B525E	18	6'-11"	X	BRIDGE SEAT-TIES
B526E	14	7'-8"	X	BRIDGE SEAT-TIES
B727E	2 SER. OF 12	9'-4" TO 15'-9"		WINGWALL-VERTICAL, PANEL 1, B.F.
B628E	2 SER. OF 11	9'-4" TO 15'-4"		WINGWALL-VERTICAL, PANEL 1, F.F.
B729E	2 SER. OF 14	1'-7" TO 9'-0"		WINGWALL-VERTICAL, PANEL 2, B.F.
B630E	2 SER. OF 14	1'-7" TO 9'-0"		WINGWALL-VERTICAL, PANEL 2, F.F.
B631E	40	15'-9"		WINGWALL-HORIZONTAL, PANEL 1, F.F. & B.F.
B632E	4 SER. OF 2	13'-3" TO 14'-10"		WINGWALL-HORIZONTAL, PANEL 1, F.F. & B.F.
B633E	2	11'-11"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
B634E	2	10'-5"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
B635E	2	8'-11"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
B636E	2	7'-6"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
B637E	2	5'-11"	X	WINGWALL-HORIZONTAL, PANEL 1, F.F.
B638E	4	12'-5"		WINGWALL-HORIZONTAL, PANEL 1, SLOPED, F.F. & B.F.
B639E	2	10'-7"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
B640E	2	9'-1"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
B541E	2	7'-8"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
B642E	2	6'-2"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
B643E	2	4'-7"	X	WINGWALL-HORIZONTAL, PANEL 1, B.F.
B544E	4 SER. OF 10	1'-2" TO 1'-5"	X	WINGWALL-END TIES, PANEL 1
B645E	8	12'-8"		WINGWALL-HORIZONTAL, PANEL 2, F.F. & B.F.
B646E	4 SER. OF 6	3'-10" TO 11'-11"		WINGWALL-HORIZONTAL, PANEL 2, F.F. & B.F.
B547E	4 SER. OF 9	3'-5" TO 3'-8"		WINGWALL-END TIES, PANEL 2
B648E	4	14'-8"		WINGWALL-HORIZONTAL, PANEL 2, SLOPED, F.F. & B.F.

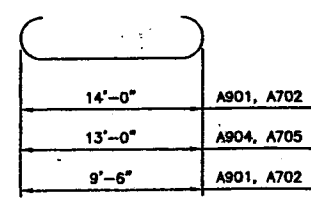


PILE NOTES:
 ABUTMENT WALL PILES
 2 C.I.P. CONC. TEST PILES, 12" LENGTH 45 FT.
 22 C.I.P. CONC. PILES, 12" LENGTH 35 FT.
 24 C.I.P. CONC. PILES FOR ABUTMENT WALL
 WING WALL PILES
 2 C.I.P. CONC. TEST PILES, 12" LENGTH 35 FT.
 42 C.I.P. CONC. PILES, 12" LENGTH 25 FT.
 44 C.I.P. CONC. PILES FOR WING WALL
 TOTAL 68 C.I.P. CONC. PILES REQUIRED FOR SOUTH ABUTMENT

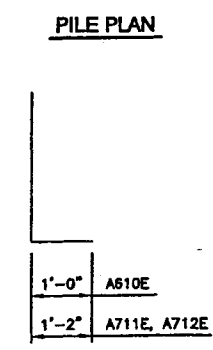
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
 PILES MARKED THIS \odot TO BE BATTERED $3\frac{1}{2}$ " PER FOOT IN DIRECTION INDICATED, UNLESS NOTED OTHERWISE.

\otimes INDICATES TEST PILE.
 ALL PILES TO BE CAST-IN-PLACE CONCRETE PILE, 12"

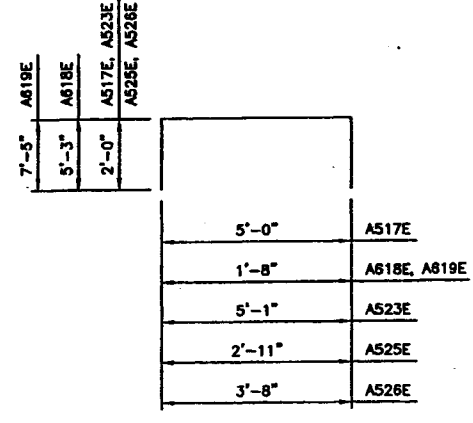
PILE LOADS		
COMPUTED PILE LOADS - TONS/PILE		
	ABUTMENT	WINGWALL
DEAD LOAD + EARTH PRESSURE	24.4	19.6
LIVE LOAD	25.2	10.5
DESIGN LOAD	49.6	30.1



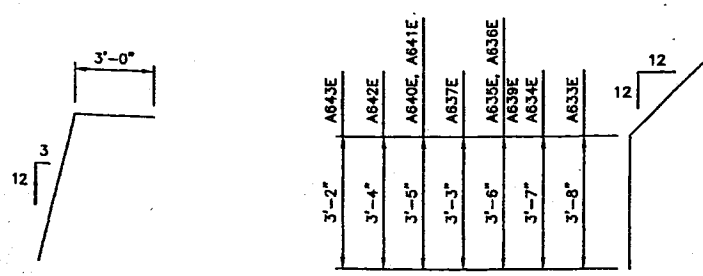
**B901, B702, B904
B705, A607, A706**



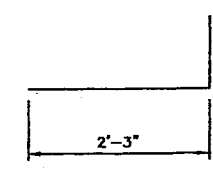
**B610E, B711E, B712E
B713E, B714E**



**A517E, A618E, A619E
A523E, A525E, A526E**



**B524E
B633E, B634E, B635E, B636E, B637E,
B639E, B640E, B641E, B642E, B643E**

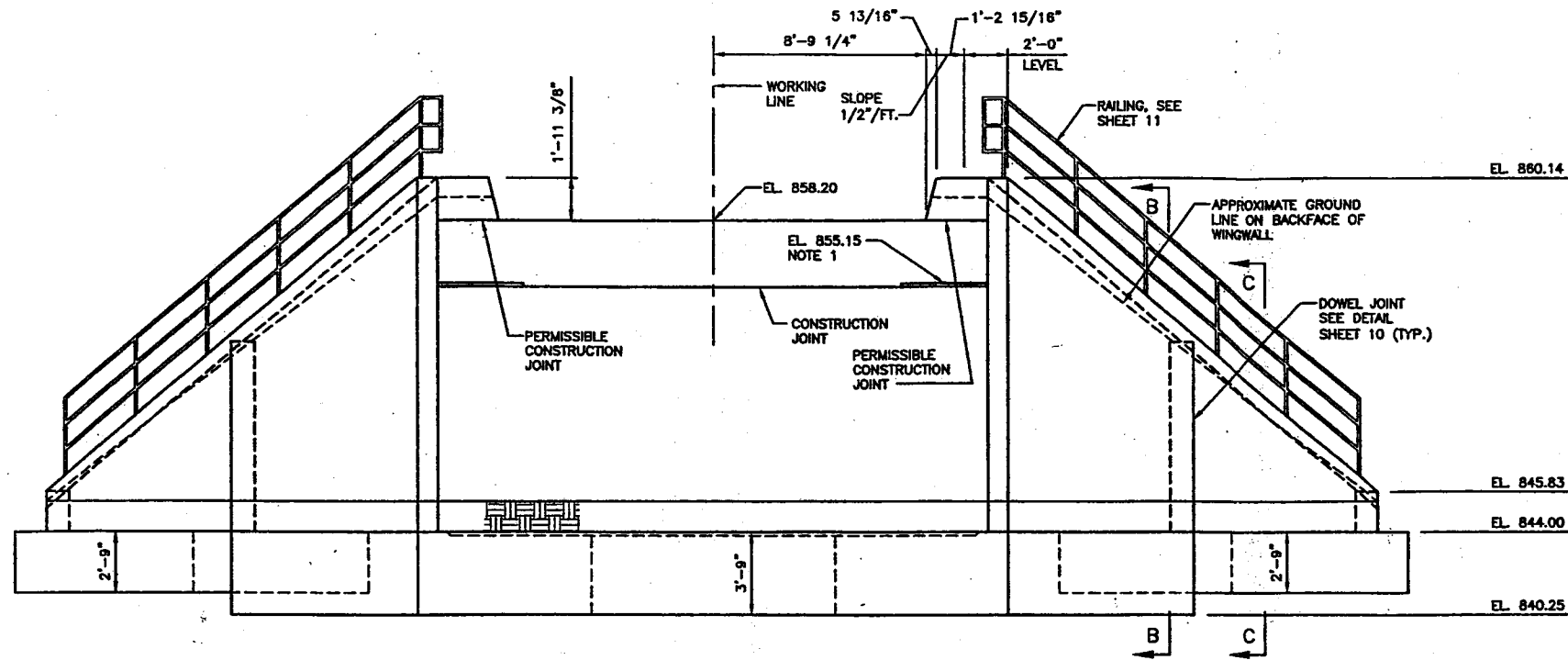


B544E, B547E

CERTIFIED BY: *Gary W. Morien*
 LICENSED PROFESSIONAL ENGINEER
 NAME: GARY W. MORIEN LIC. NO. 25552

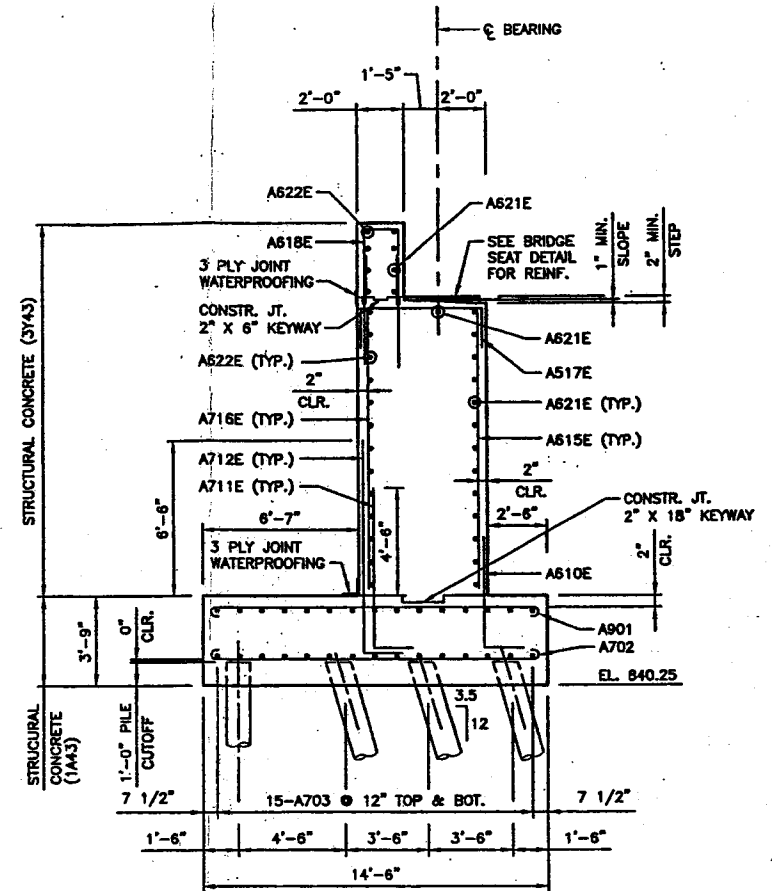
Title: SOUTH ABUT. PILE PLAN & BILL OF REINFORCEMENT

DES: MDJ DR: PHH APPROVED: *[Signature]*
 CHK: GWM CHK: GWM
 Sheet No. 8 of 24 Sheets
 Bridge No. 62618

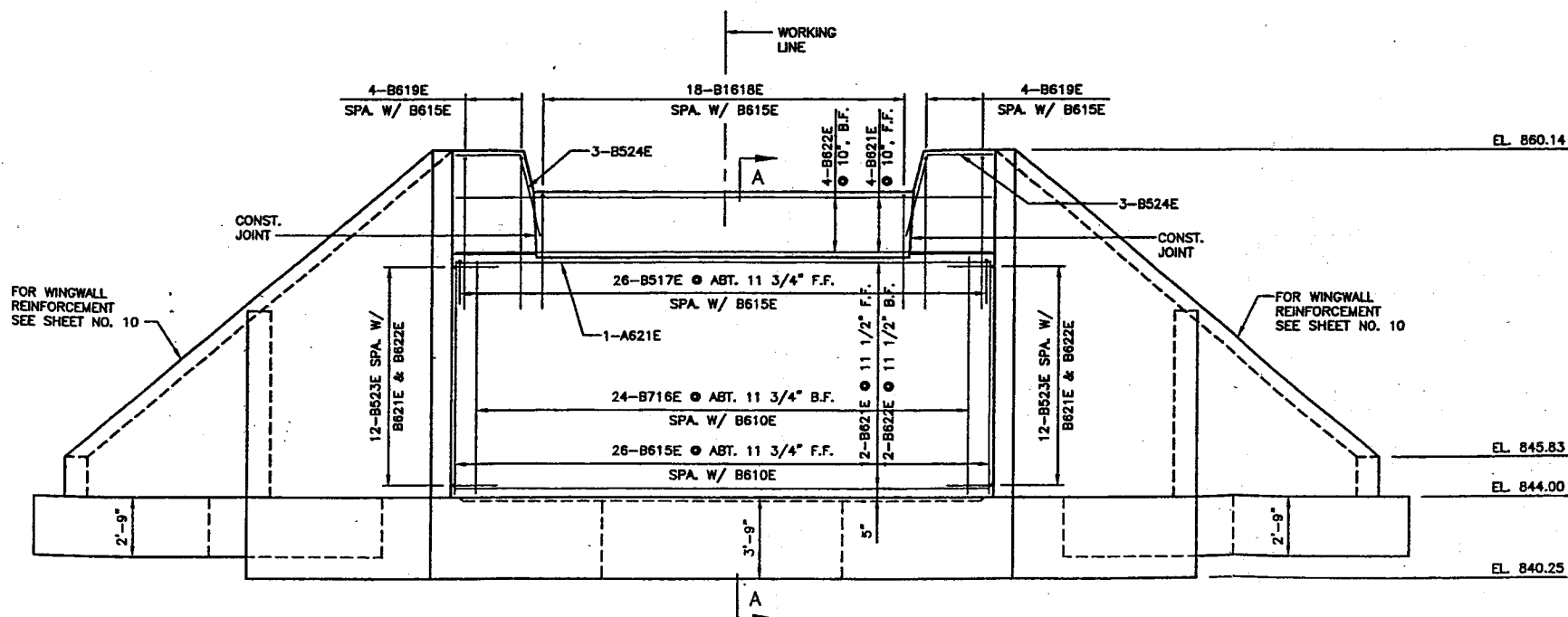


ABUTMENT ELEVATION

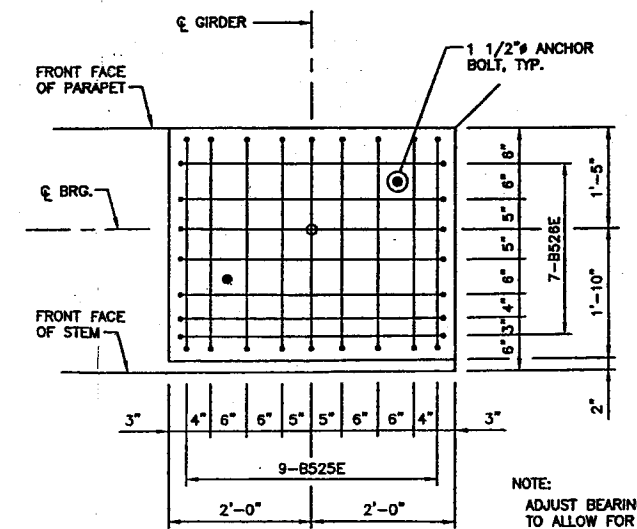
NOTES:
 1. FINAL CONSTRUCTION ELEVATIONS FOR BRIDGE SEATS SHALL BE DETERMINED BASED ON THE ACTUAL HEIGHT OF POT BEARING ASSEMBLIES FURNISHED BY THE CONTRACTOR. ANY REQUIRED ADJUSTMENT OF SEAT ELEVATIONS SHALL BE MADE BY THE CONTRACTOR AT NO COST TO THE OWNER.



SECTION A-A



ABUTMENT ELEVATION



BRIDGE SEAT REINFORCEMENT

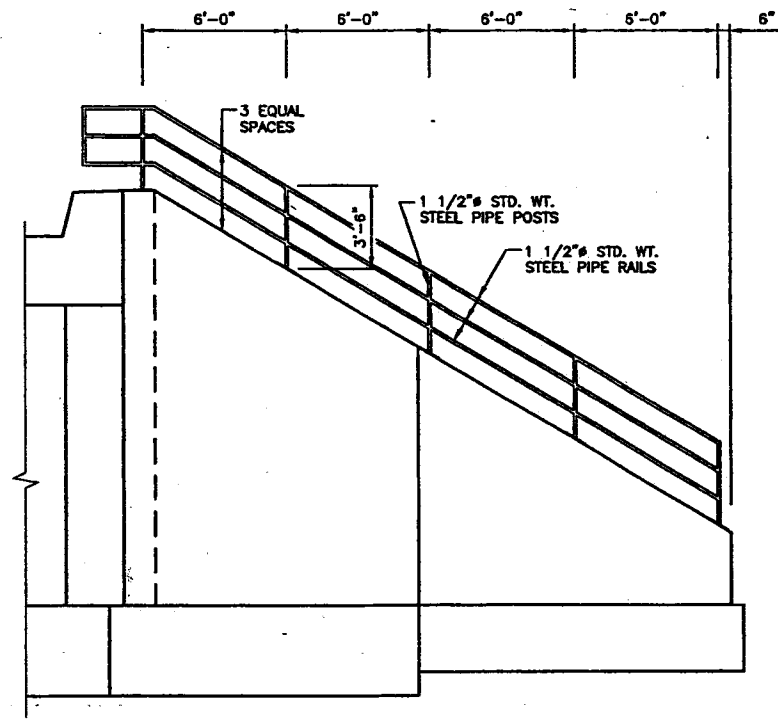
D:\1426\14260310\IN\CA\DWG\4280210\05A.DWG

CERTIFIED BY *Gary W. Morien* 4/12/04
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY W. MORIEN LIC. NO. 25552

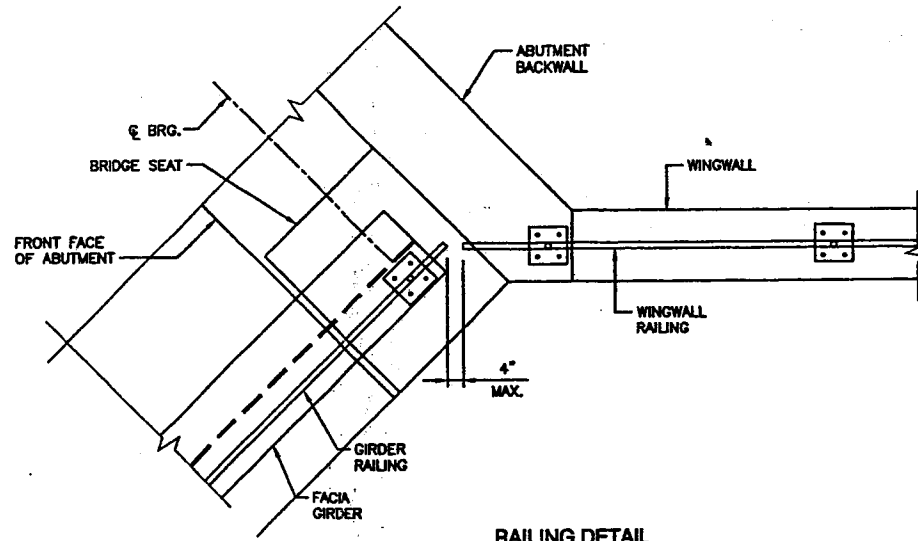
Title: SOUTH ABUT. ELEVATIONS AND DETAILS

DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM
 Sheet No. 9 of 24 Sheets

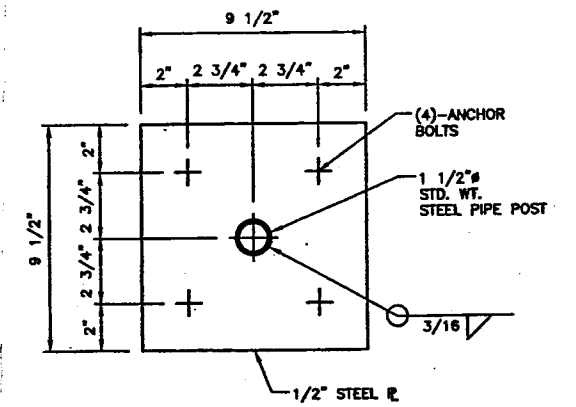
Bridge No. 62618



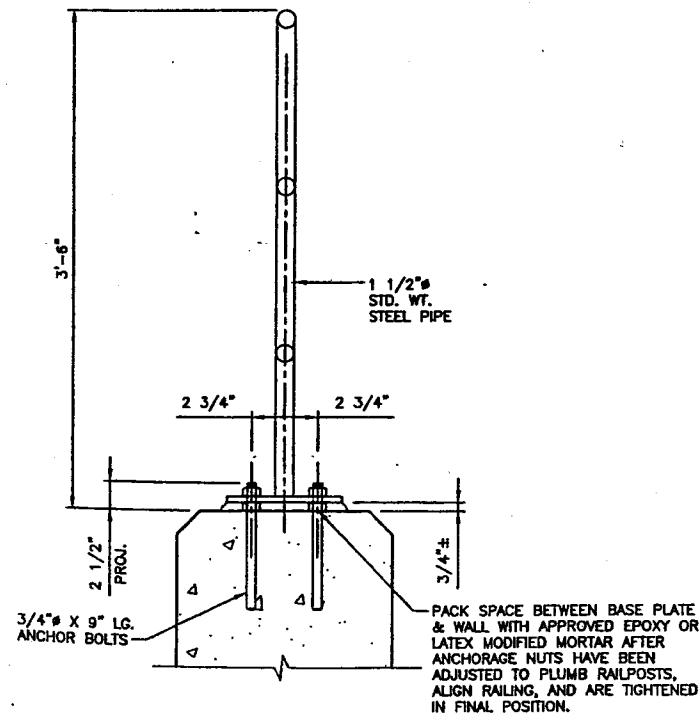
RAILING ELEVATION



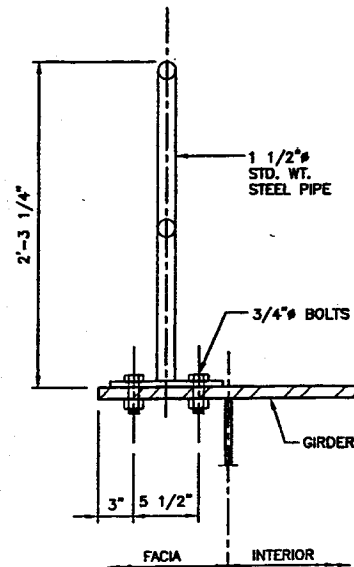
RAILING DETAIL
(● THRU-GIRDER/
WINGWALL INTERFACE)



RAILPOST BASE PLATE
(ON GIRDER & WINGWALL)



TYPICAL RAILPOST
(ON WINGWALL)



TYPICAL RAILPOST
(ON THRU GIRDER)

GENERAL NOTES:

- LENGTH OF METAL RAILING FOR PAYMENT IS MEASURED FROM END TO END OF RAILS AT WING WALLS AND GIRDERS.
- ALL RAIL POSTS ARE TO SET VERTICALLY.
- ANCHORAGES SHALL BE SET VERTICALLY.
- ALL STRUCTURAL STEEL MATERIAL SHALL COMPLY WITH SPEC 3306.
- GALVANIZE BOLTS, NUTS, AND WASHERS PER SPEC. 3392.
- GALVANIZE ALL OTHER STRUCTURAL STEEL PER SPEC. 3394 AFTER FABRICATION.
- PRICE BID FOR METAL RAILING INCLUDES ANCHORAGE AND ALL MATERIAL ABOVE TOP OF SUPPORTING MEMBER.
- COORDINATE LOCATION OF ANCHOR BOLTS ON THRU GIRDER METAL RAILING WITH GIRDER FABRICATION.

A:\1428\14280310\ACAD\DWG\14280310\1507.DWG

CERTIFIED BY *Gary V. Morien* 4/12/04
LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY V. MORIEN LIC. NO. 25552

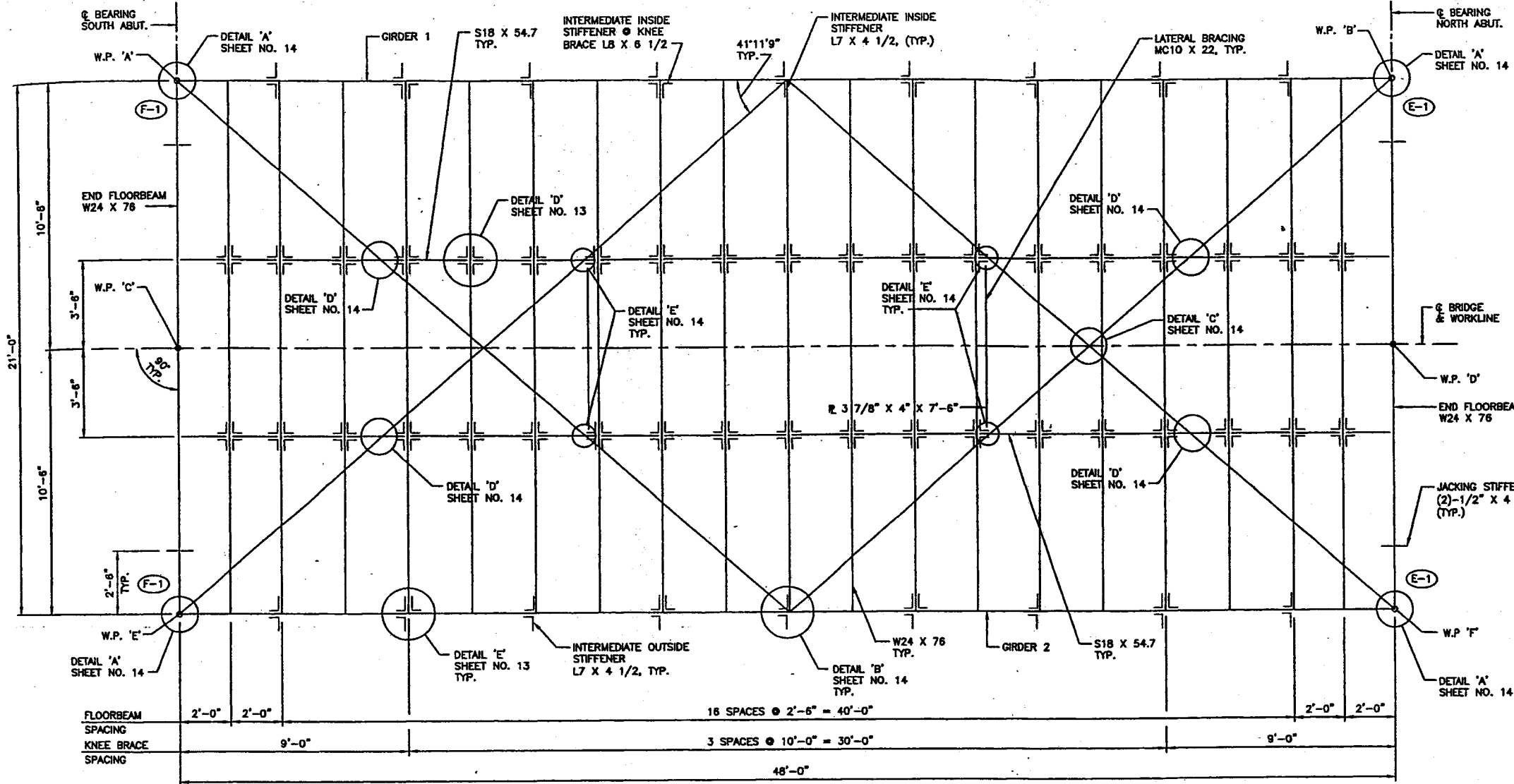
Title: **RAILING DETAILS**

DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM

Sheet No. 11 of 24 Sheets

Bridge No.

62618



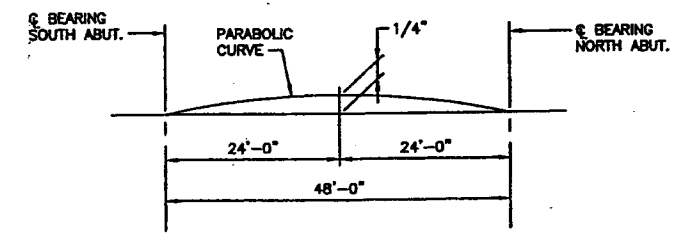
FRAMING PLAN

SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE		
ITEM	QUANTITY	UNIT
STRUCTURAL STEEL (3309)	130105	LB.
FIXED DISC BEARING ASSEMBLY, TYPE 1	2	EACH
EXPANSION DISC BEARING ASSEMBLY, TYPE 1	2	EACH
EPOXY ZINC-RICH PAINT SYSTEM (SHOP)	6400	SQ. FT.
EPOXY ZINC-RICH PAINT SYSTEM (FIELD)	1	LUMP SUM
ONE PLY MEMBRANE WATERPROOFING	1215	SQ. FT.
DRAINAGE SYSTEM	1	LUMP SUM
PIPE RAIL (TYPE B)	100	L.F.

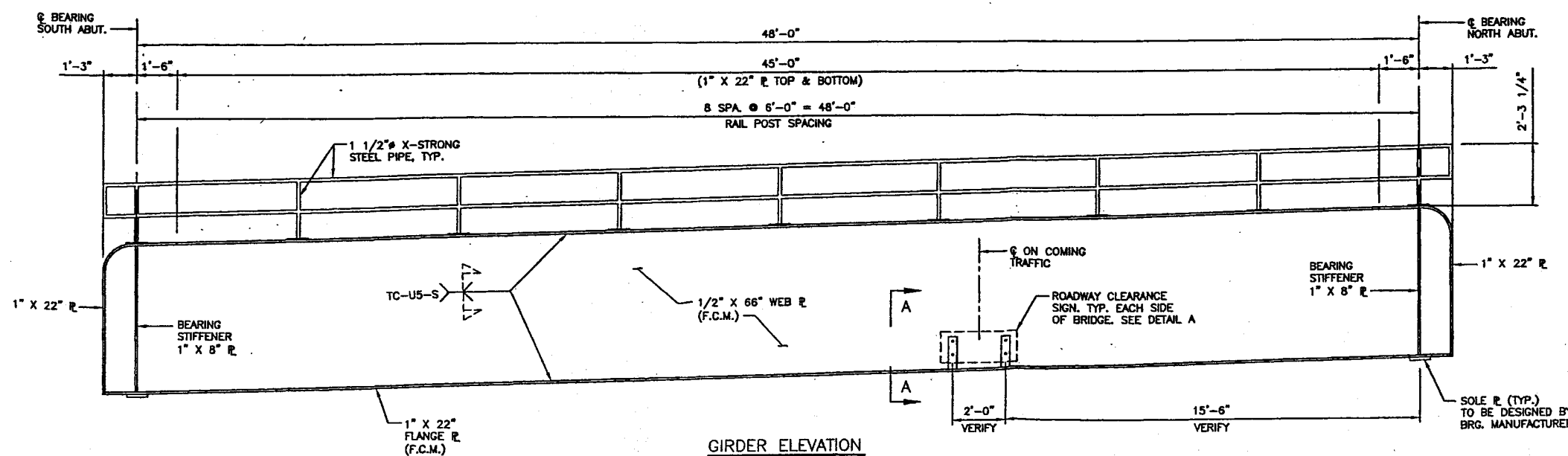
- ① INCLUDES MEMBRANE WATERPROOFING AND ASPHALT PLANK PROTECTION.
- ② SEE SPECIAL PROVISIONS.

NOTES:

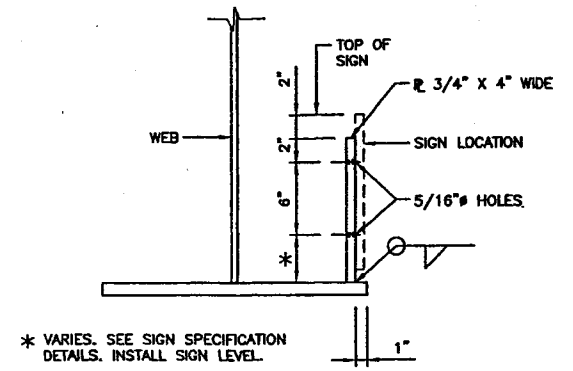
1. (F-1) DENOTES FIXED BEARING ASSEMBLY TYPE 1, SEE SHEET NO. 22.
2. (E-1) DENOTES EXPANSION BEARING ASSEMBLY TYPE 1, SEE SHEET NO. 22.
3. SEE SHEET NO. 15 FOR STRUCTURAL STEEL NOTES.
4. CENTER OF RAILPOST TO LINE UP WITH CENTER OF PROTRUDING LEG OF STIFFENER.
5. RAILING DETAILS TO BE SIMILAR TO RAILING ON WINGWALL, SEE SHEET 11.



CAMBER DIAGRAM

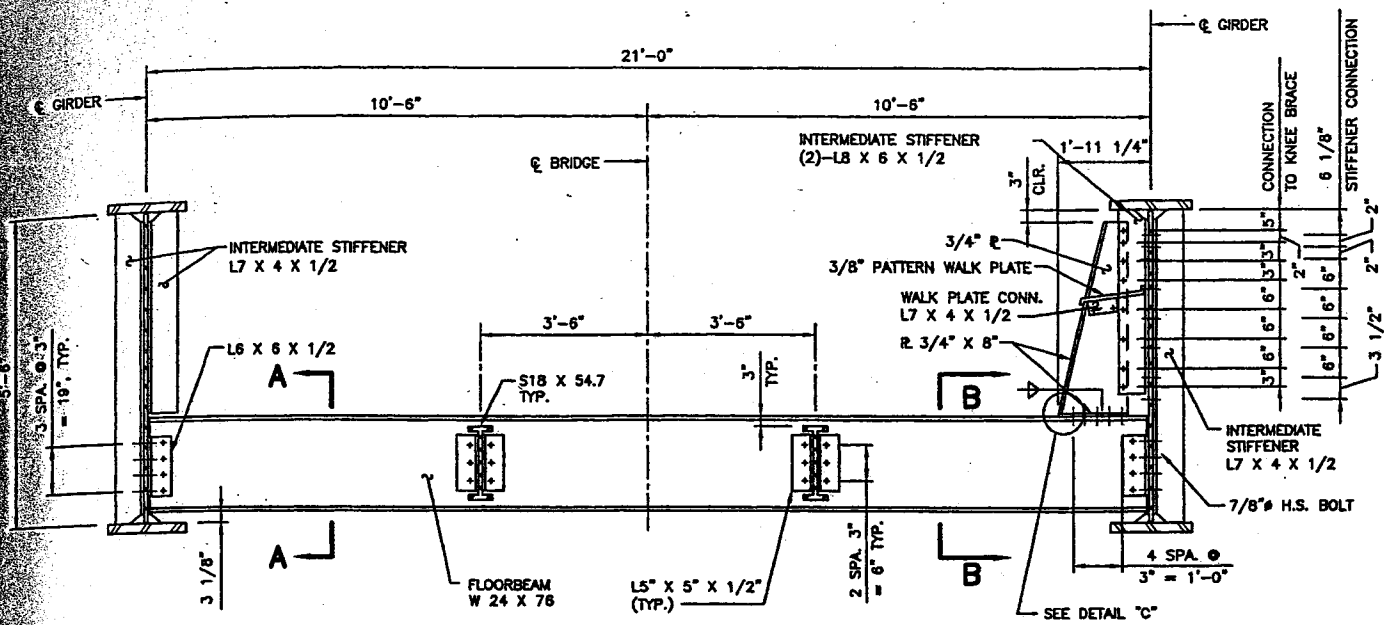


GIRDER ELEVATION



DETAIL A

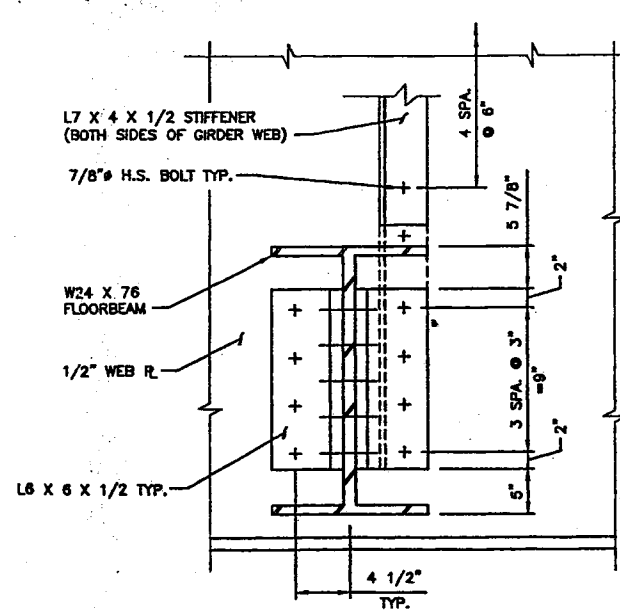
CERTIFIED BY <i>Gary W. Morien</i> 4/12/09 LICENSED PROFESSIONAL ENGINEER DATE NAME: GARY W. MORIEN LIC. NO. 25552	Title: FRAMING PLAN	DES: MDJ	DR: PHH	APPROVED:	Bridge No. 62618
		CHK: GWM	CHK: GWM		



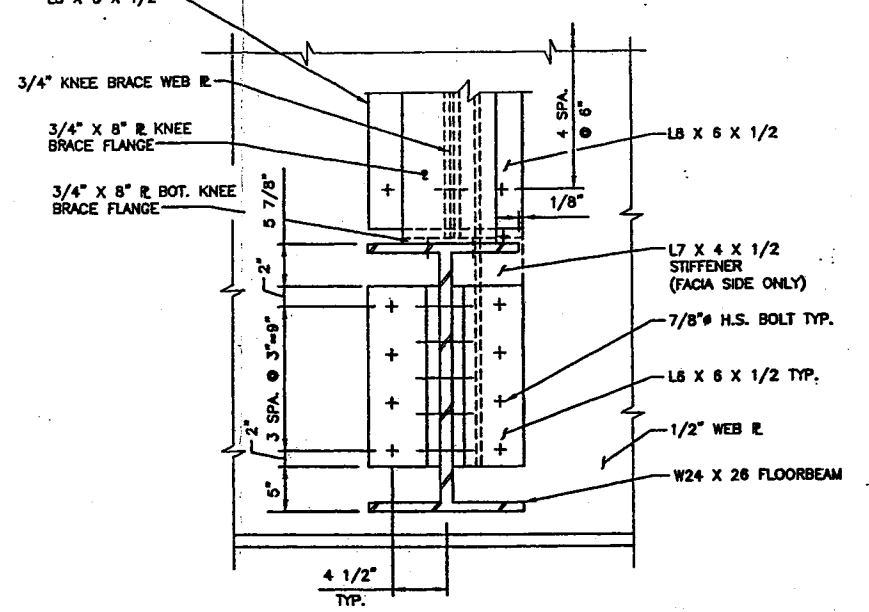
HALF SECTION BETWEEN KNEE BRACES
(WALK PLATE NOT SHOWN)

INTERMEDIATE FLOOR BEAM

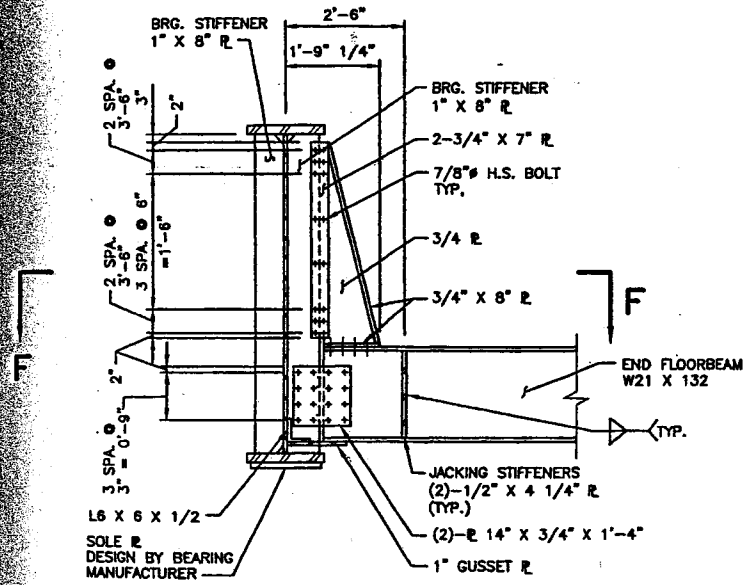
HALF SECTION AT KNEE BRACES



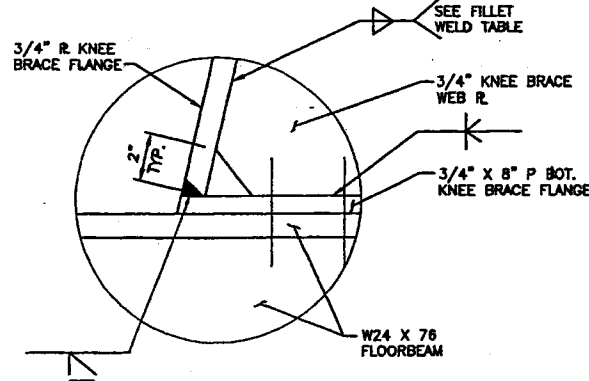
SECTION A-A



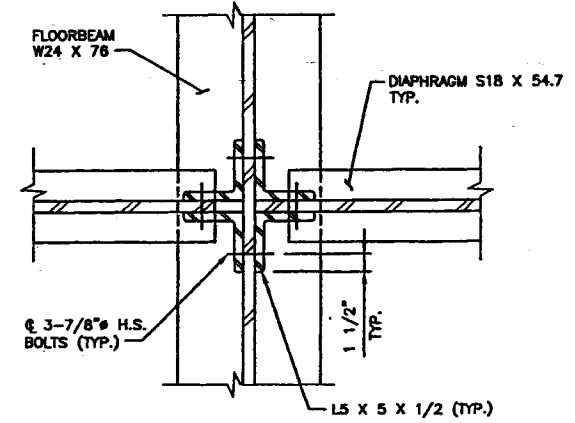
SECTION B-B



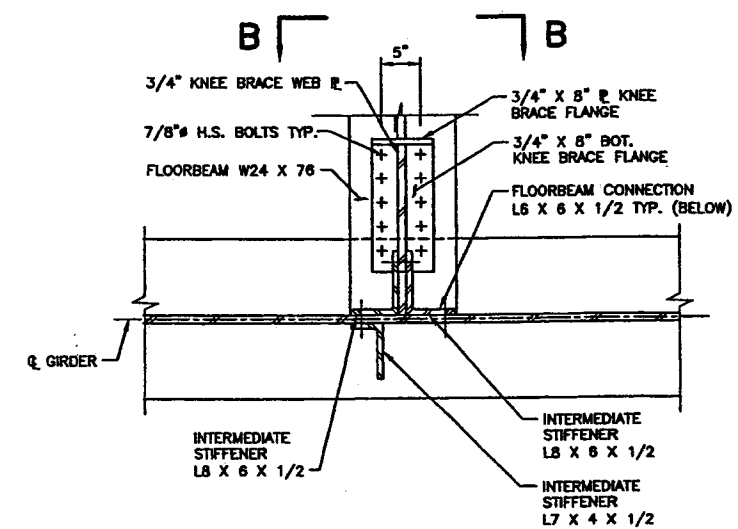
END FLOOR BEAM



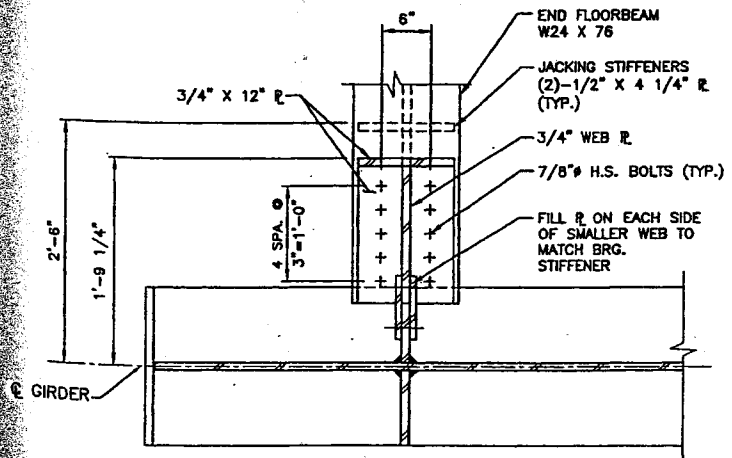
DETAIL "C"



DETAIL "D"
DIAPHRAGM TO INTERMEDIATE FLOORBEAM CONNECTION



DETAIL "E"
INTERMEDIATE STIFFENER AT KNEE BRACE



SECTION F-F

NOTES:
SEE SHEET NO. 15 FOR STRUCTURAL STEEL NOTES.
FOR FILLET WELD SIZES SEE TABLE, SHEET NO. 15.

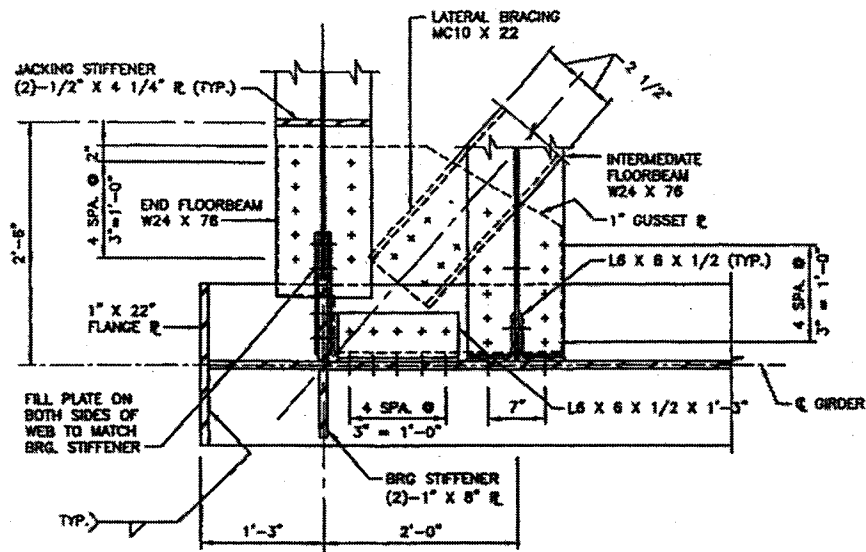
CERTIFIED BY *Gary W. Morien* 4/12/04
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GARY W. MORIEN LIC. NO. 25552

Title:
FLOORBEAM DETAILS

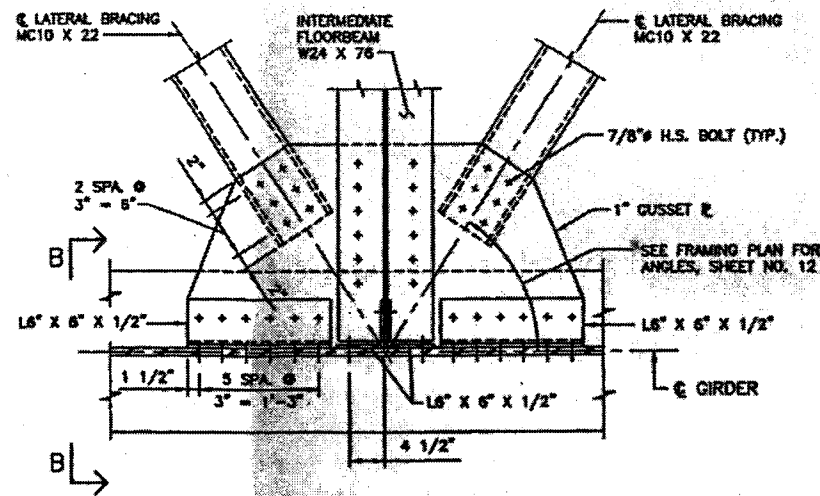
DES: MDJ	DR: PHH	APPROVED:
CHK: GWM	CHK: GWM	

Sheet No. 13 of 24 Sheets

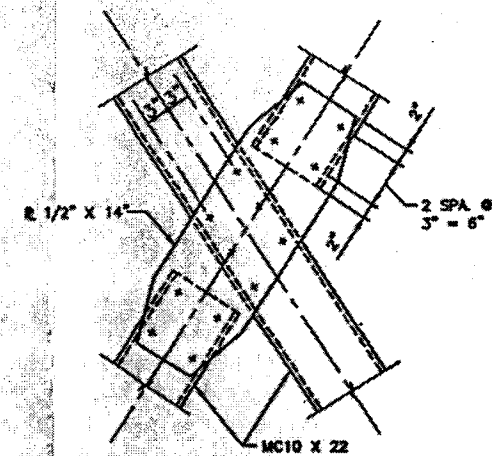
Bridge No.
62618



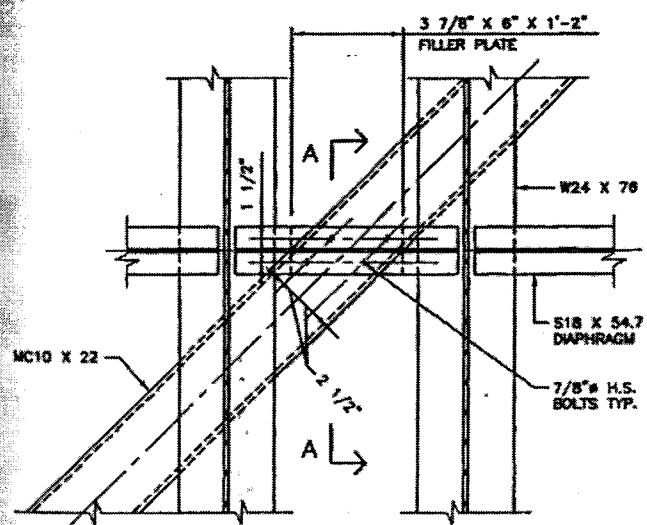
DETAIL 'A'
END FLOORBEAM CONNECTION



DETAIL 'B'
LATERAL BRACING TO GIRDER CONNECTION
(INTERMEDIATE STIFFENERS NOT SHOWN, SEE SECTIONS A-A & B-B SHEET NO. 13)

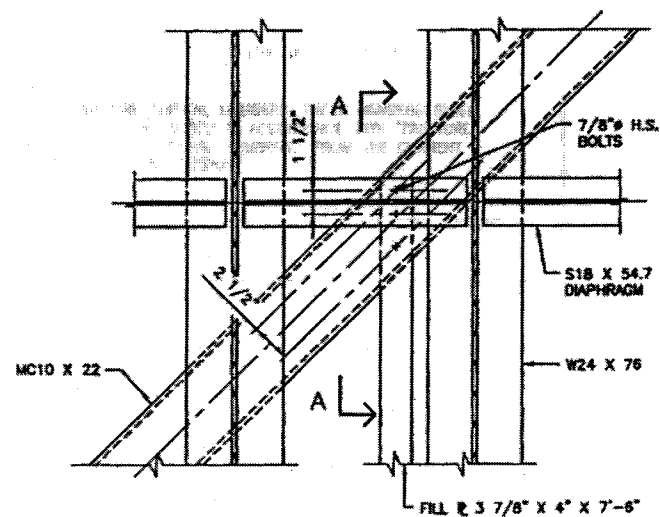


DETAIL 'C'



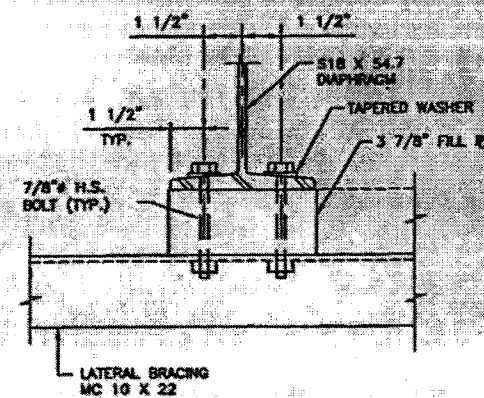
ATTACH EACH LATERAL BRACE TO 2 DIAPHRAGMS
(MIN.) 10 FT. MAX. SPACING BETWEEN ATTACHMENTS

DETAIL 'D'
LATERAL BRACING TO DIAPHRAGM CONNECTION

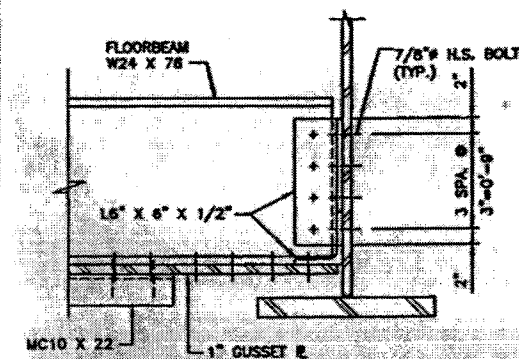


ATTACH EACH LATERAL BRACE TO 2 DIAPHRAGMS
(MIN.) 10 FT. MAX. SPACING BETWEEN ATTACHMENTS

DETAIL 'E'
LATERAL BRACING TO DIAPHRAGM CONNECTION



SECTION A-A



SECTION B-B

CERTIFIED BY *Gary W. Morien*
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GARY W. MORIEN LIC. NO. 25552

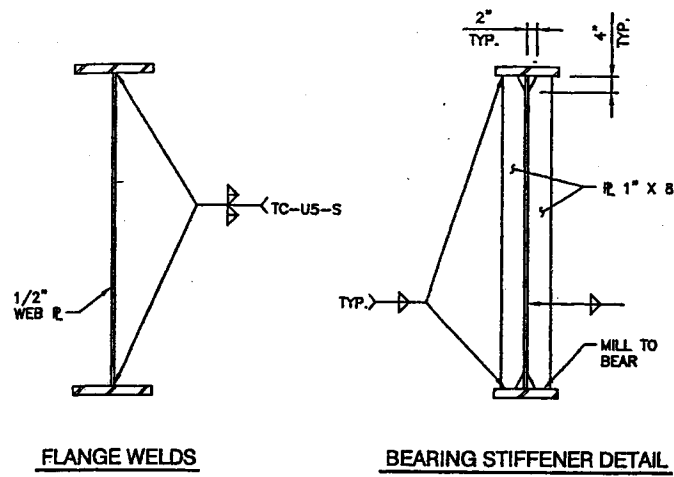
Title:
CROSS BRACING DETAILS

DES: MDJ DR: PHH APPROVED:
CHK: GWM CHK: GWM
Sheet No. 14 of 24 Sheets

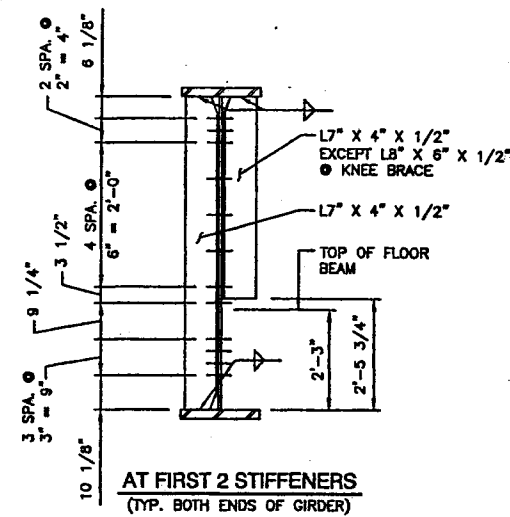
Bridge No.
62618

STRUCTURAL STEEL NOTES

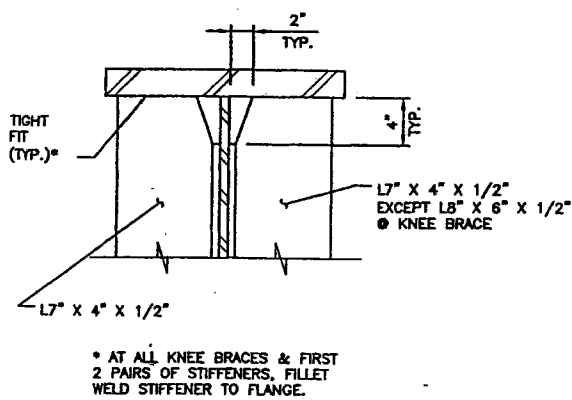
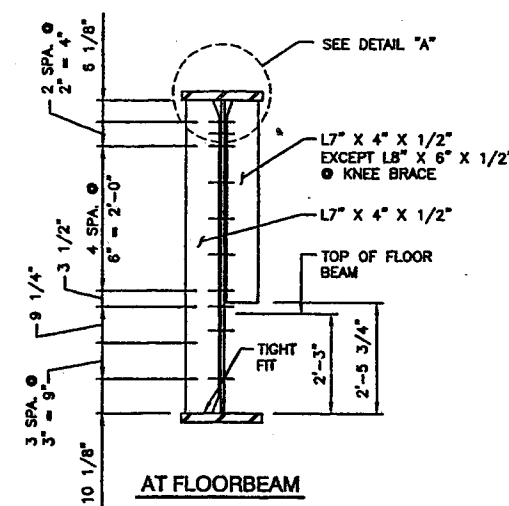
- DESIGN AND WORKMANSHIP SHALL CONFORM TO CURRENT AREMA SPECIFICATIONS FOR STEEL RAILWAY BRIDGES, EXCEPT AS MODIFIED BY NOTES BELOW.
- FRACTURE CRITICAL STRUCTURAL STEEL MEMBERS SHALL CONFORM TO ASTM A709 GRADE 50WF3, TYPE B, INCLUDING CHARPY TESTING PER CURRENT AREMA SPECS. THE REMAINING STEEL ELEMENTS SHALL CONFORM TO ASTM A709 GRADE WT3, TYPE B.
- PATTERN PLATE FOR WALKWAYS SHALL BE STRUCTURAL STEEL MN/DOT 3306 (ASTM A36) AND SHALL BE GALVANIZED IN ACCORDANCE WITH MN/DOT 3394 (ASTM A123).
- FIELD CONNECTIONS SHALL BE MADE WITH 7/8" HIGH STRENGTH BOLTS CONFORMING TO ASTM A325, UNLESS OTHERWISE NOTED. BOLTS SHALL HAVE HEAVY HEX NUT AND ONE HARDENED WASHER UNDER THE NUT. HOLES FOR 7/8" BOLTS SHALL BE 15/16" DIAMETER UNLESS OTHERWISE NOTED.
- PLACE NUT AND WASHER ON INSIDE OF GIRDER FOR ALL BOLTS THROUGH GIRDER WEB. PLACE NUT AND WASHER ON LOWEST END OF ALL BOLTS INSTALLED VERTICALLY.
- WEB PLATES SHALL BE FURNISHED IN AVAILABLE MILL LENGTHS WITH A MINIMUM NUMBER OF WEB SPLICES. LOCATION OF SPLICES SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER AND SHALL BE A MINIMUM OF 1'-0" FROM STIFFENERS AND 3'-0" FROM FLANGE SPLICES.
- FLANGE SPLICES WILL NOT BE PERMITTED EXCEPT AS SHOWN ON THE DRAWINGS.
- INTERMEDIATE STIFFENERS AND FLOOR BEAMS SHALL BE PERPENDICULAR TO THE GIRDER FLANGES. BEARING STIFFENERS AND ENDS OF BEAMS SHALL BE VERTICAL.
- WELDING SHALL CONFORM TO THE LATEST A.W.S. STRUCTURAL WELDING CODE D1.5. ALL WELD METAL MUST BE EQUIVALENT TO BASE METAL IN STRENGTH, CORROSION RESISTANCE AND PAINTABILITY.
- SOLE PLATES SHALL BE SHOP WELDED TO THE BEAMS.
- SOLE PLATES AT BEARINGS TO BE INCLUDED IN WEIGHT OF STRUCTURAL STEEL.
- AFTER CUTTING THE WEB FOR CAMBERING AND PRIOR TO WELDING THE FLANGES TO WEB, THE EDGE SURFACE VALUES FOR BOTH FLANGE AND WEB PLATES SHALL NOT EXCEED 1000 AS DEFINED BY ANSI B46.1 SURFACE TEXTURE.
- WEB TO FLANGE WELDS AND BUTT WELDED SPLICES FOR FLANGE AND WEB PLATES SHALL BE MADE BY THE SUBMERGED ARC AUTOMATIC WELDING PROCESS. SEE DETAIL FOR WELD.
- ALL BUTT SPLICES SHALL BE FULL PENETRATION BUTT WELDS USING LOW HYDROGEN PROCESS AND SHALL BE GROUND FLUSH IN THE DIRECTION OF STRESS ON 4 SIDES. 100 PERCENT RADIOGRAPHIC TESTING REQUIRED. COPIES OF WELD TESTS SHALL BE SUBMITTED TO THE ENGINEER.
- ENGINEER SHALL SELECT COLOR OF EPOXY ZINC RICH PAINT SYSTEM. SEE SPECIAL PROVISIONS.
- STEEL GIRDERS ARE FRACTURE CRITICAL MEMBERS. THESE MEMBERS SHALL BE FABRICATED, TESTED AND INSPECTED IN ACCORDANCE WITH "FRACTURE CONTROL PLAN FOR FRACTURE CRITICAL MEMBERS," FROM THE CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING.
- THE STRUCTURAL STEEL FABRICATOR SHALL BE CERTIFIED UNDER THE A.I.S.C. QUALITY CERTIFICATION PROGRAM, CATEGORY III, MAJOR STEEL BRIDGES.



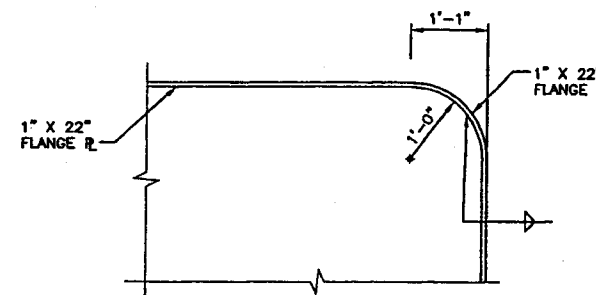
GIRDER DETAILS



INTERMEDIATE STIFFENER DETAILS



DETAIL "A"



END GIRDER DETAIL

FILLET WELD TABLE	
THICKER PLATE THICKNESS	MINIMUM WELD SIZE
TO 3/4" INCL.	1/4"
OVER 3/4" TO 1 1/2" INCL.	5/16"
OVER 1 1/2" TO 2 1/4" INCL.	3/8"
OVER 2 1/4"	1/2"

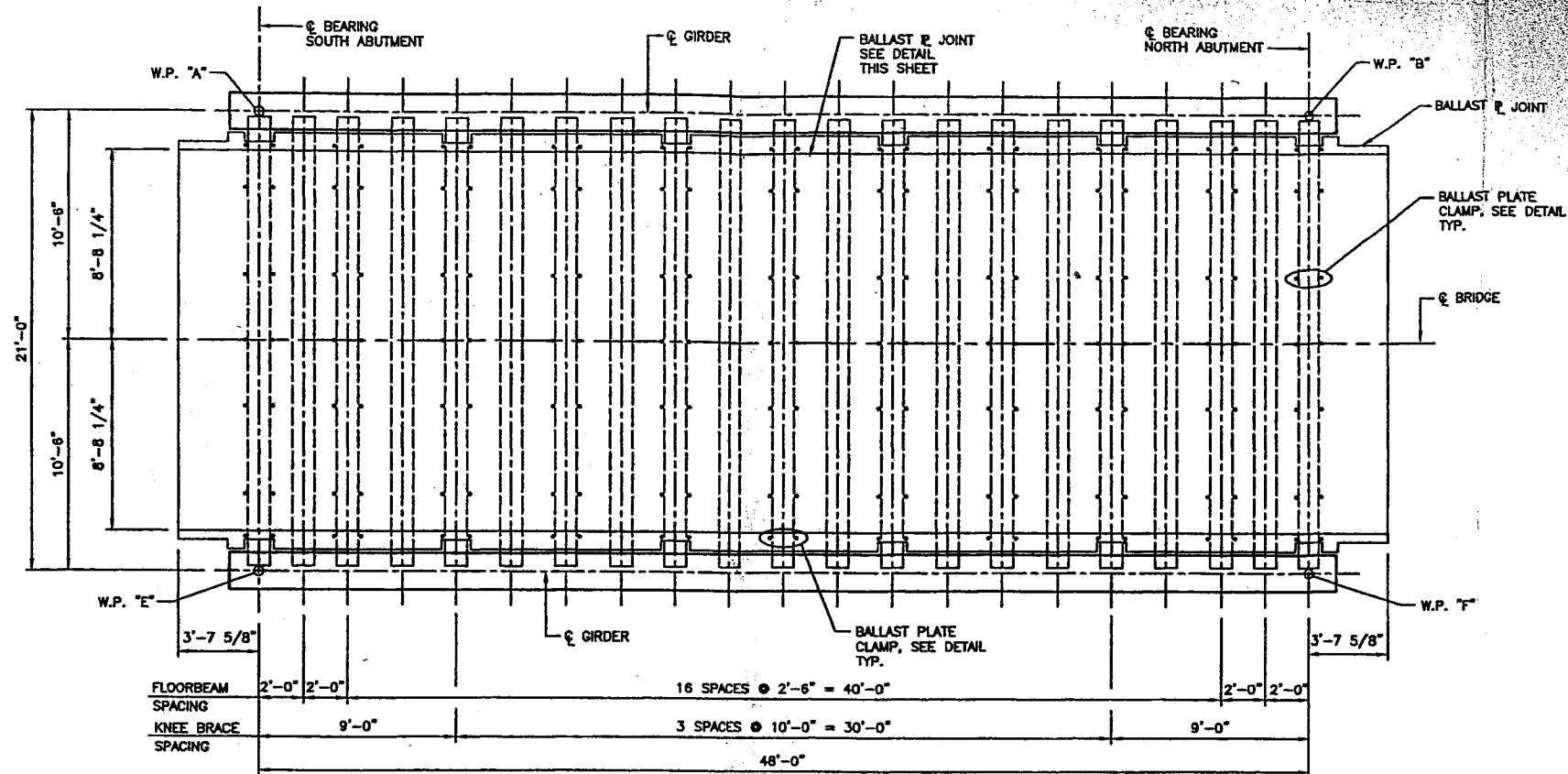
CERTIFIED BY *Gary W. Morien* 11/2/04
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY W. MORIEN LIC. NO. 25552

Title: STEEL DETAILS

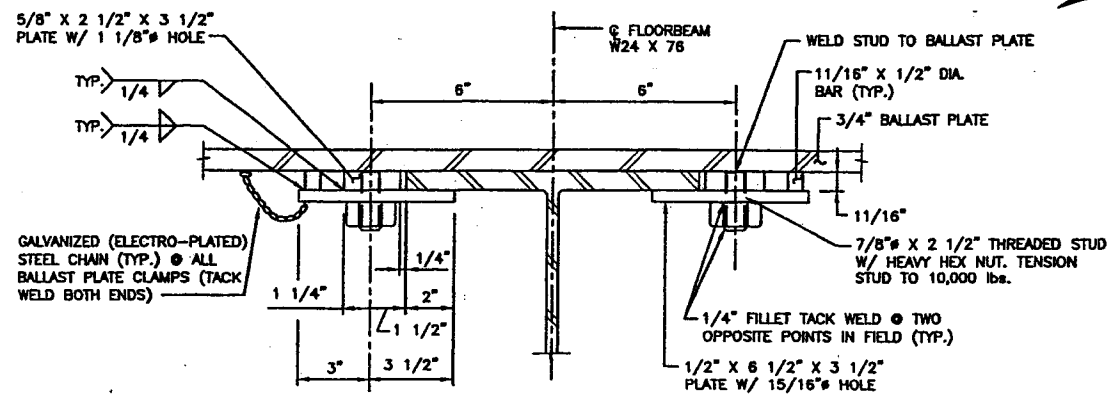
DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM
 Sheet No. 15 of 24 Sheets

Bridge No. 62618

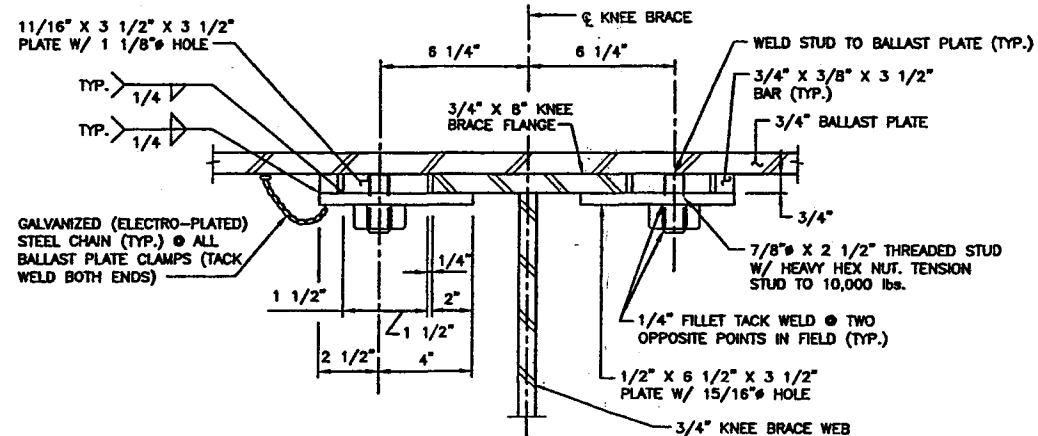
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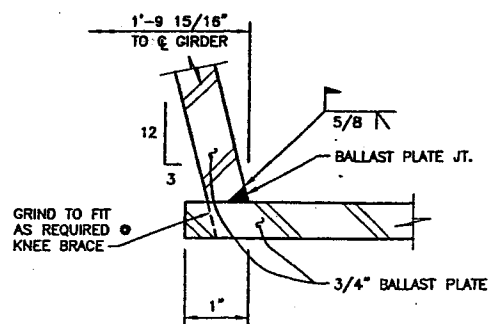
BALLAST PLATE PLAN



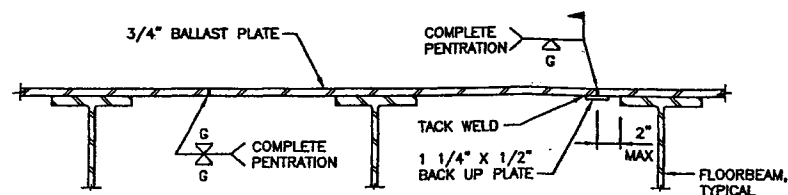
BALLAST PLATE CLAMP @ FLOORBEAM



BALLAST PLATE CLAMP @ KNEE BRACE
(FOR SECTION, SEE SHEET NO. 18)



BALLAST PLATE WELD DETAIL



TYPICAL SHOP SPICE **TYPICAL FIELD SPICE**

PROVIDE A COPPER SHIELD IN PLACE OF BACK UP PLATE WHERE SPICES CROSS END FLOORBEAMS OR ABUTMENT BACKWALLS.

NOTE:
FOR BALLAST PLATE NOTES, SEE SHEET 17.

BALLAST PLATE SPICES

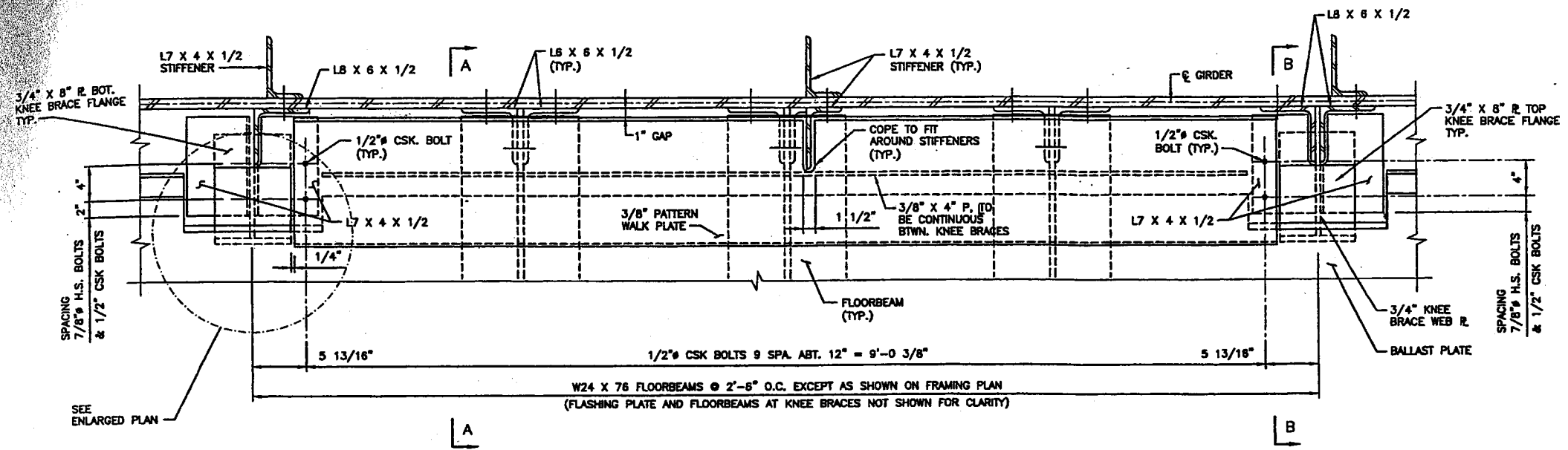
CERTIFIED BY *Gary W. Morien* 11/2/04
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY W. MORIEN LIC. NO. 25552

Title: **BALLAST PLATE DETAILS**

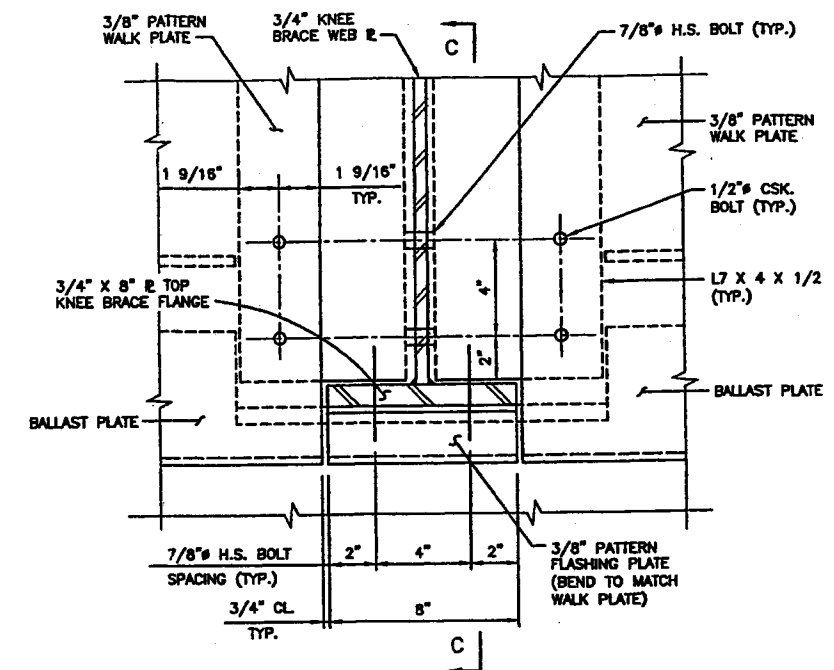
DES: MDJ DR: PHH APPROVED:
 CHK: GWM CHK: GWM
 Sheet No. 16 of 24 Sheets

Bridge No. **62618**

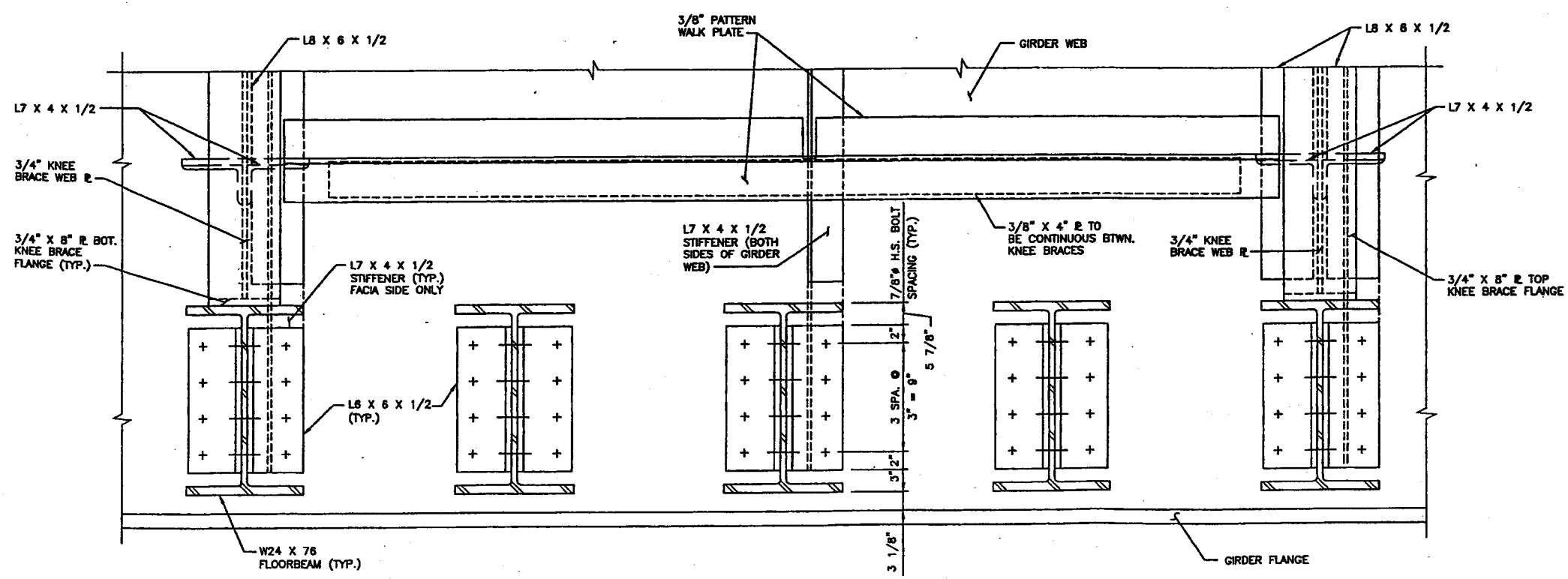
I:\488\142803\01\CAJ\DWG\142803101S12.DWG



PLAN

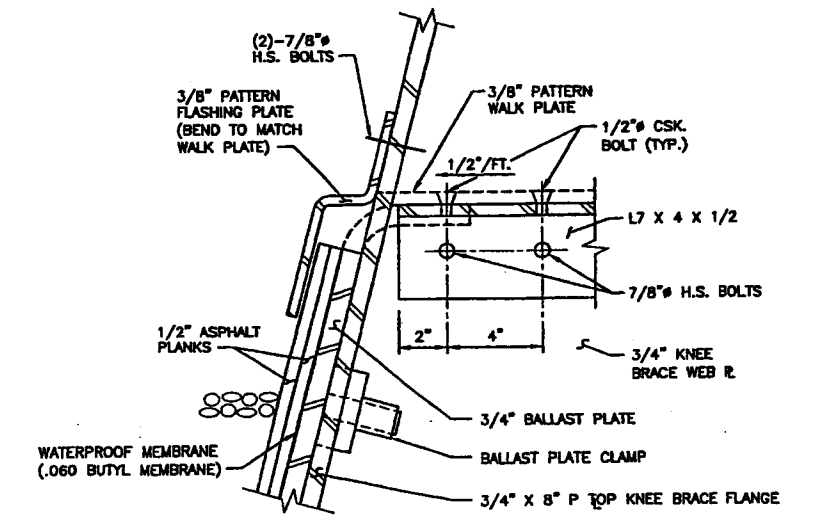


ENLARGED PLAN



PARTIAL ELEVATION
(BALLAST PLATE NOT SHOWN FOR CLARITY)

WALKWAY DETAILS



SECTION C-C
FLASHING PLATE DETAIL

NOTE:
FOR SECTION A-A AND SECTION B-B
SEE SHEET NO. 19.

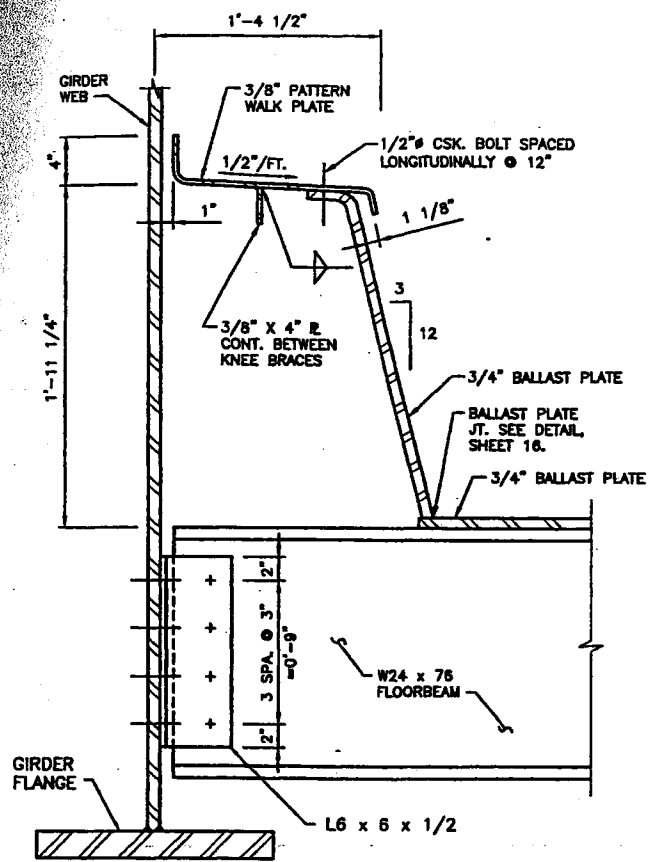
CERTIFIED BY *Gary W. Morien*
LICENSED PROFESSIONAL ENGINEER DATE
NAME: GARY W. MORIEN LIC. NO. 25552

Title:
WALK PLATE DETAILS

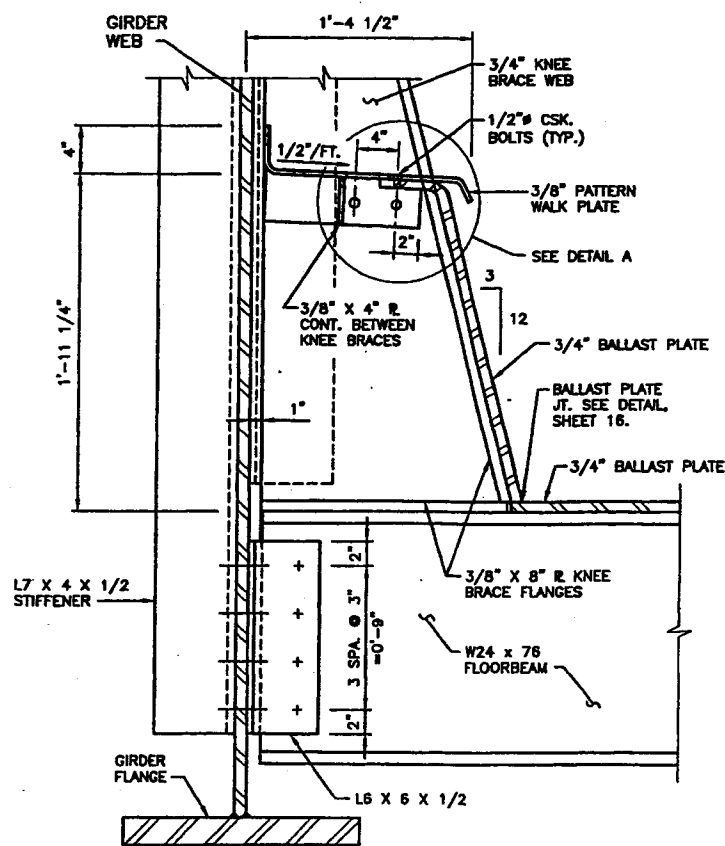
DES: MDJ DR: PHH APPROVED:
CHK: GWM CHK: GWM
Sheet No. 18 of 24 Sheets

Bridge No.
62618

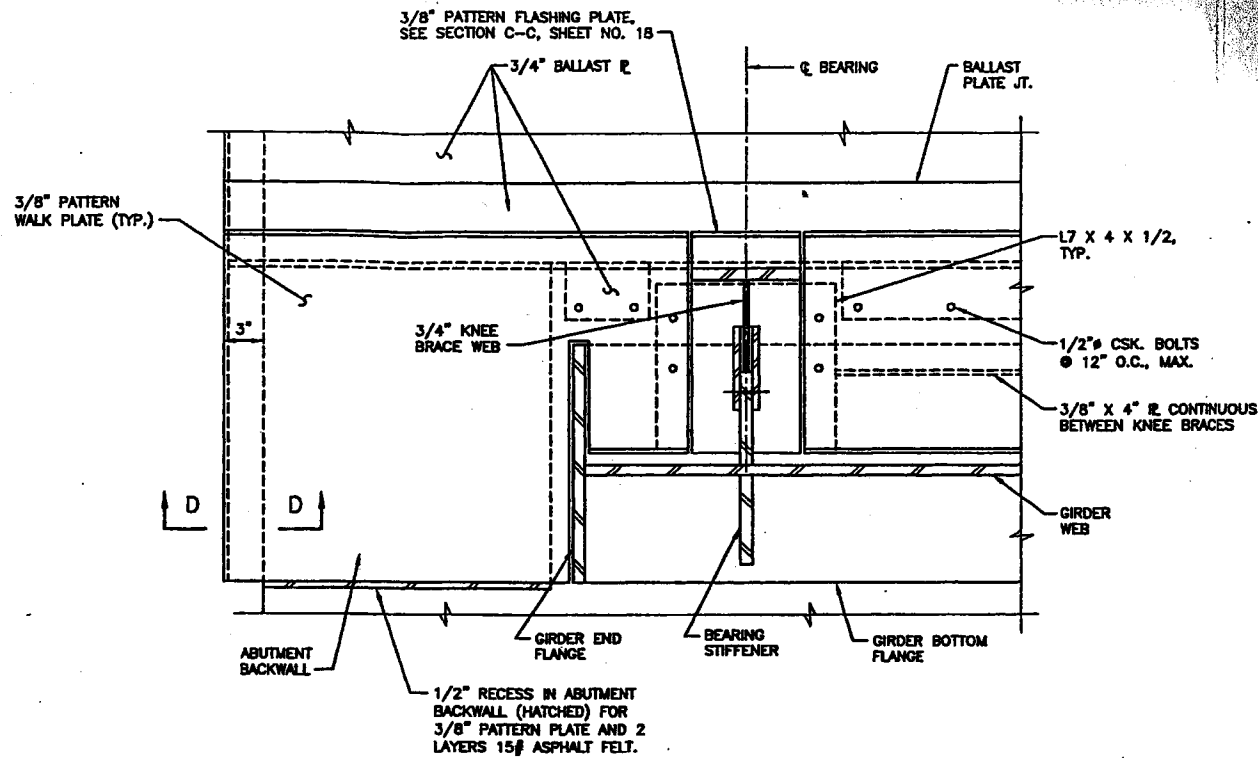
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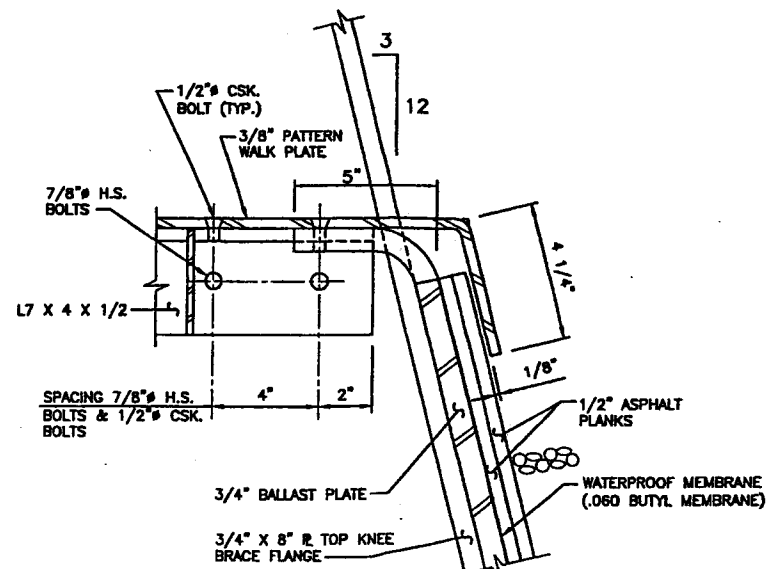
SECTION A-A



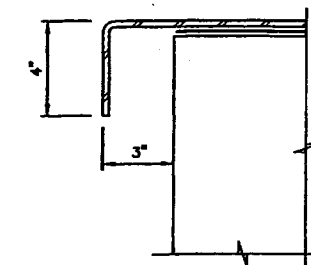
SECTION B-B



WALK PLATE DETAIL AT ABUTMENT CORNER
FLOORBEAMS NOT SHOWN FOR CLARITY



DETAIL A



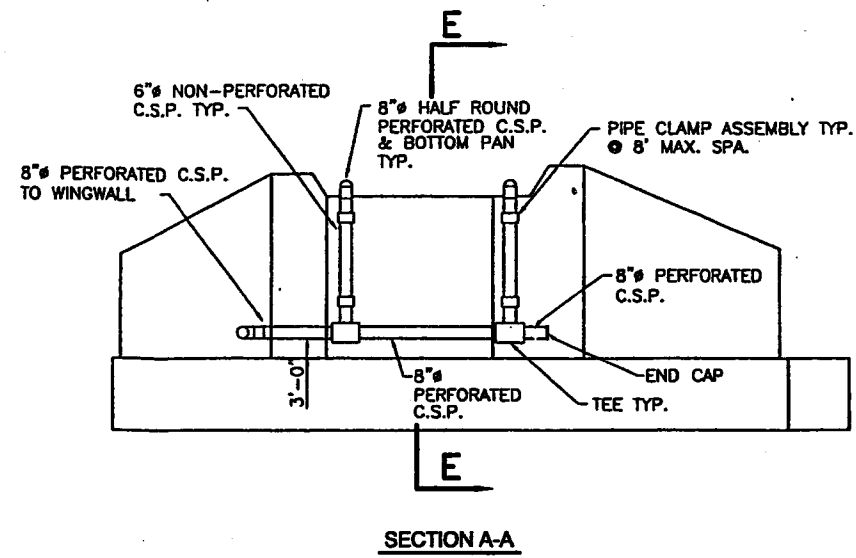
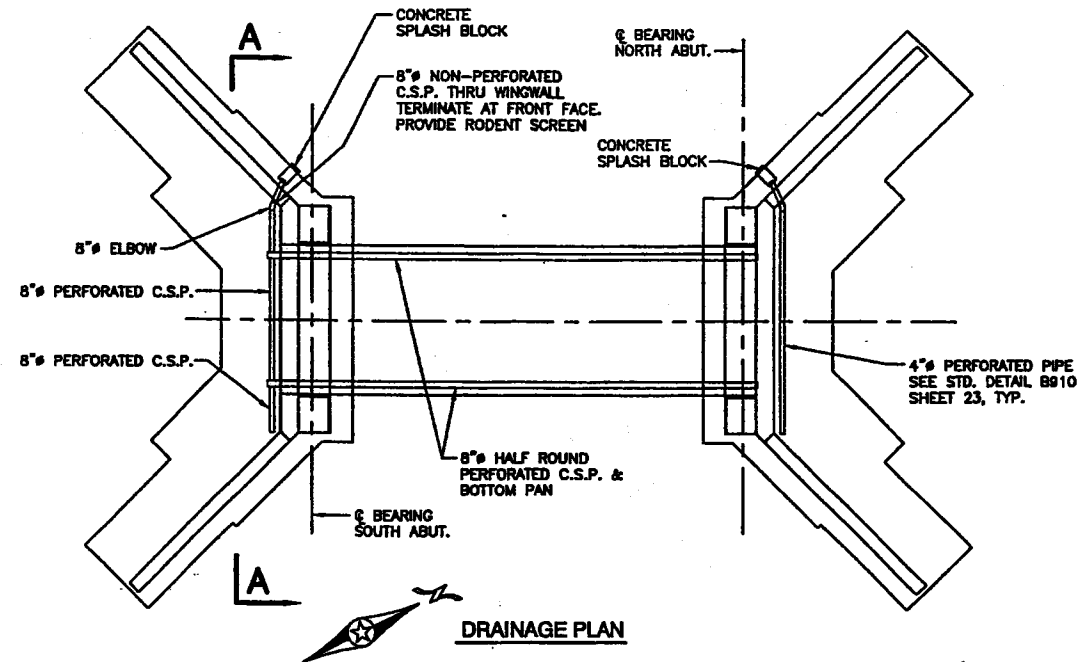
SECTION D-D

CERTIFIED BY *Gary V. Morien* 1/2/04
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: GARY V. MORIEN LIC. NO. 25552

Title: WALK PLATE DETAILS

DES: MDJ	DR: PHH	APPROVED:	Bridge No. 62618
CHK: GWM	CHK: GWM		
Sheet No. 19 of 24 Sheets			

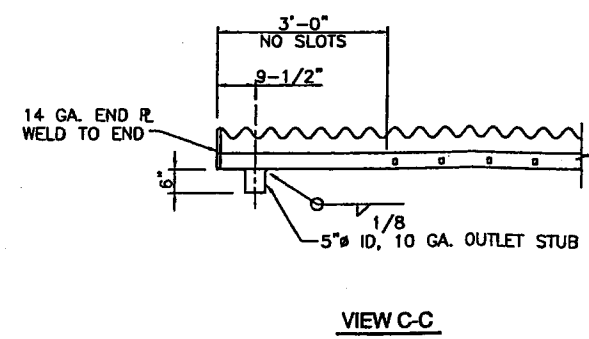
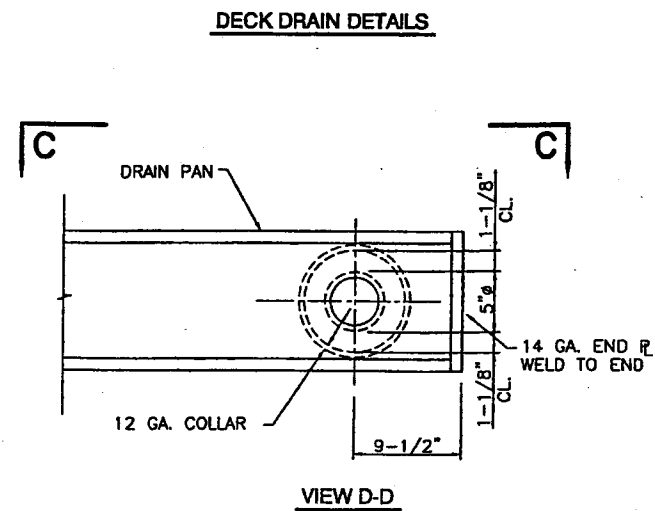
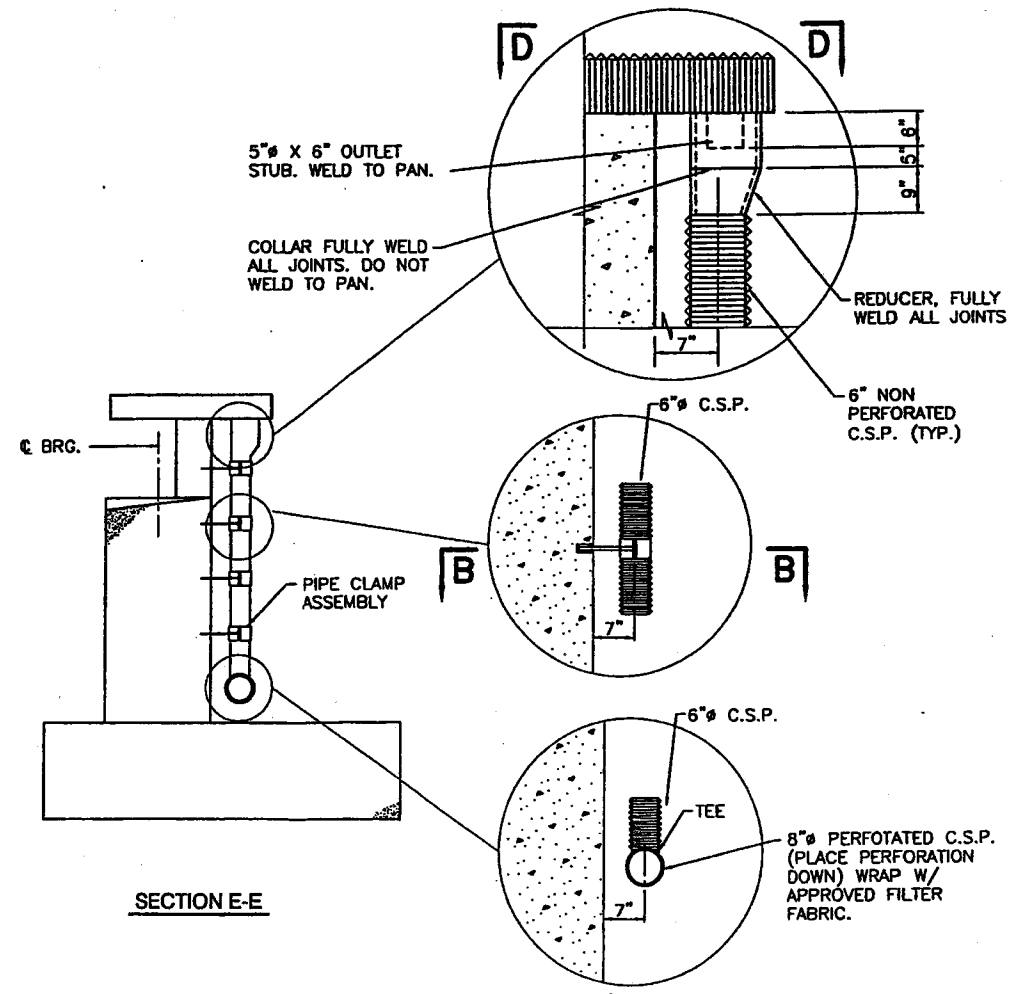
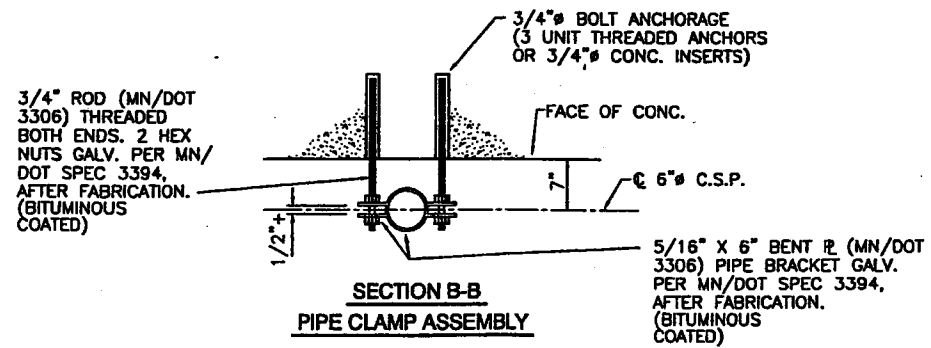
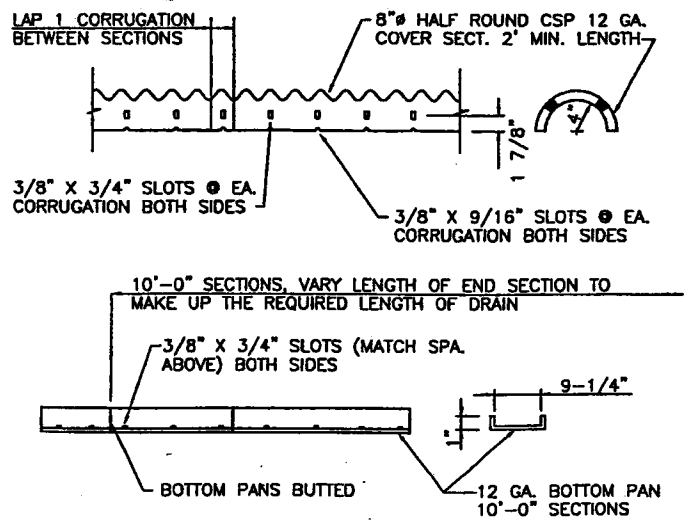
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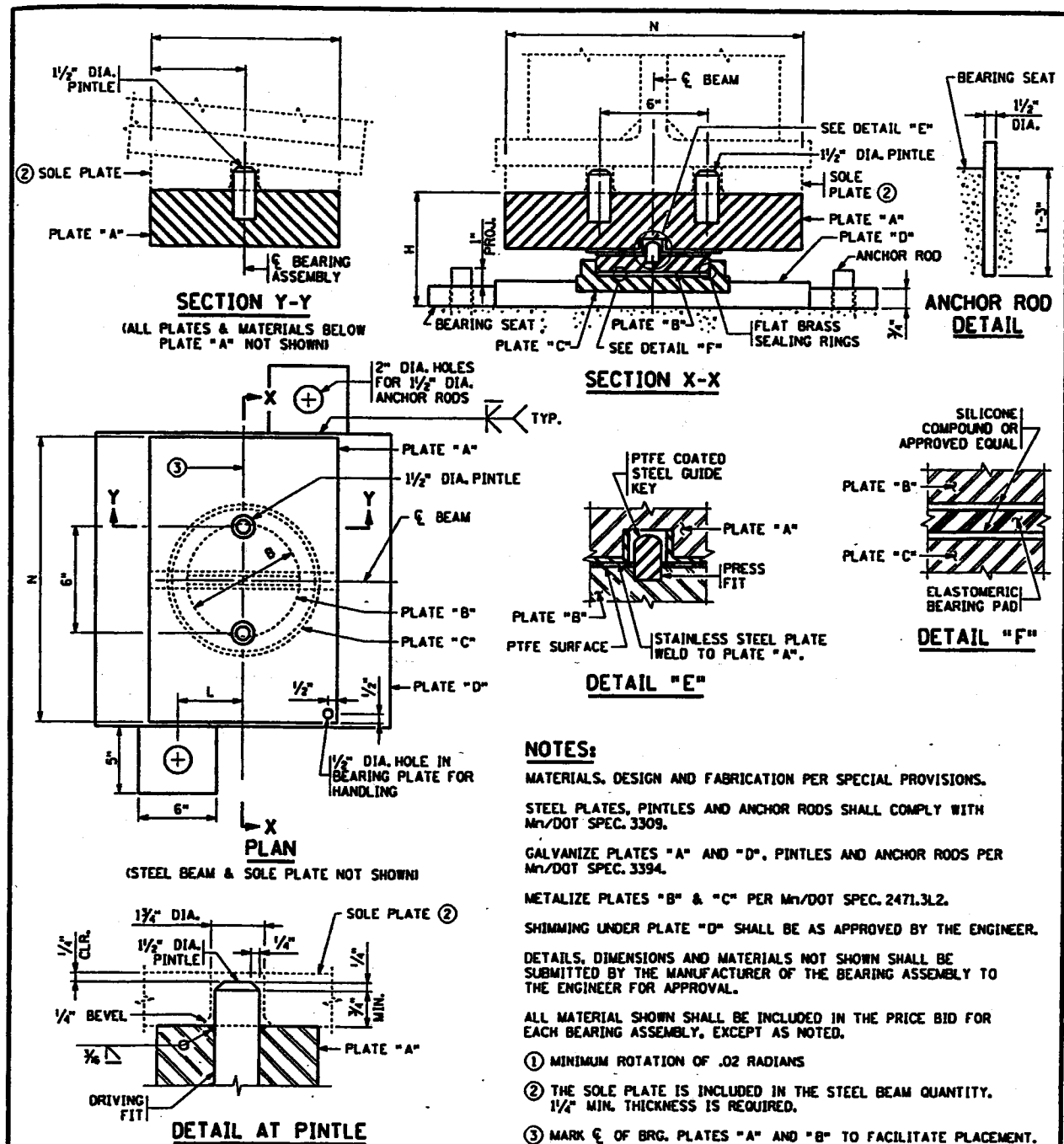


SUMMARY OF QUANTITIES FOR DECK DRAINAGE SYSTEM

ITEM	QUANTITY	UNIT
8" HALF ROUND PERFORATED C.S.P.	110	LINEAL FEET
8" PERFORATED C.S.P.	25	LINEAL FEET
6" C.S.P.	24	LINEAL FEET
8" C.S.P.	12	LINEAL FEET
REDUCER 8" TO 6"	2	EACH
END PLATE	4	EACH
COLLAR	2	EACH
BOTTOM PAN	110	LINEAL FEET
TEE CONNECTION	2	EACH
OUTLET STUB	1	EACH
8" ELBOW	1	EACH
8" PIPE COUPLING	2	EACH
PIPE CLAMP ASSEMBLIES	4	EACH
8" END CAP	1	EACH
THREE - PIECE 45° ELBOW, 8"	1	EACH
PRECAST CONC. SPLASH BLOCK	2	EACH

NOTES:
 ALL HALF ROUND CORRUGATED METAL PIPE COVER SECTIONS, BOTTOM PANS, OUTLET STUBS, CORRUGATED METAL PIPE AND FITTINGS, AND END PLATES SHALL BE GALVANIZED AND BITUMINOUS COATED IN ACCORDANCE WITH MN/DOT 3394 AND MN/DOT 3227 TYPE A.
 THE SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM IS AS SHOWN. ANY ADDITIONAL MINOR ITEMS AND SLIGHT CHANGES OF QUANTITIES REQUIRED SHALL BE FURNISHED BY CONTRACTOR WITH NO ADDITIONAL COMPENSATION. PAYMENT SHALL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR ITEM 2402.601 DRAINAGE SYSTEM.





NOTES:
 MATERIALS, DESIGN AND FABRICATION PER SPECIAL PROVISIONS.
 STEEL PLATES, PINTLES AND ANCHOR RODS SHALL COMPLY WITH Mn/DOT SPEC. 3309.
 GALVANIZE PLATES "A" AND "D", PINTLES AND ANCHOR RODS PER Mn/DOT SPEC. 3394.
 METALIZE PLATES "B" & "C" PER Mn/DOT SPEC. 2471.3L2.
 SHIMMING UNDER PLATE "D" SHALL BE AS APPROVED BY THE ENGINEER.
 DETAILS, DIMENSIONS AND MATERIALS NOT SHOWN SHALL BE SUBMITTED BY THE MANUFACTURER OF THE BEARING ASSEMBLY TO THE ENGINEER FOR APPROVAL.
 ALL MATERIAL SHOWN SHALL BE INCLUDED IN THE PRICE BID FOR EACH BEARING ASSEMBLY, EXCEPT AS NOTED.

① MINIMUM ROTATION OF .02 RADIAN
 ② THE SOLE PLATE IS INCLUDED IN THE STEEL BEAM QUANTITY. 1/4" MIN. THICKNESS IS REQUIRED.
 ③ MARK ξ OF BRG. PLATES "A" AND "B" TO FACILITATE PLACEMENT.

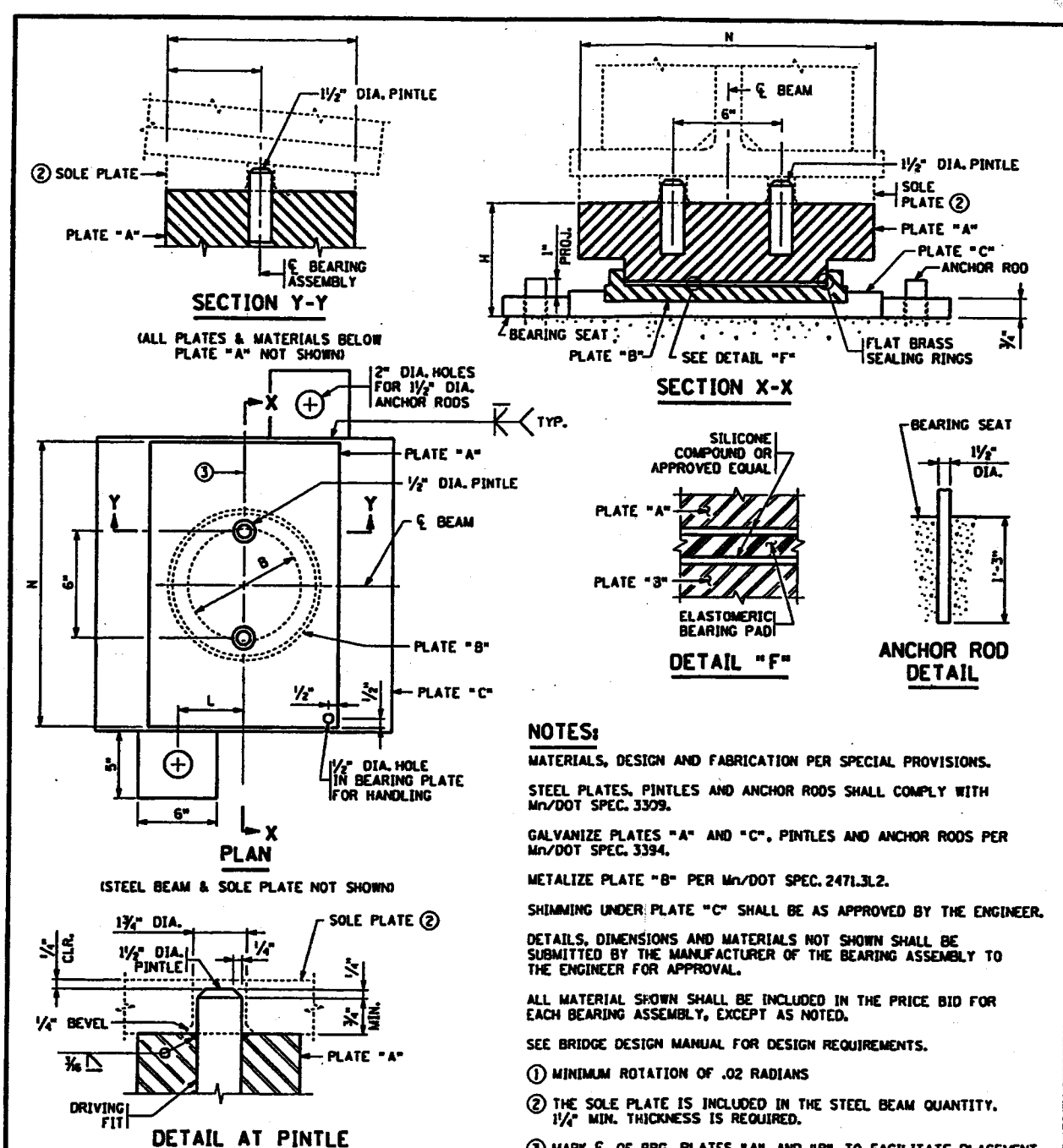
BEARING ASSEMBLY DIMENSIONS										
ASSEMBLY TYPE	ROTATION ①	TOTAL LOAD (KIPS)	TOTAL MOVEMENT (INCHES)	PLATE "A"	PLATE "B" (DIA.)	PLATE "C" (DIA.)	PLATE "D" (MAXIMUM)	DIMENSION "H"	DIMENSION "L"	DIMENSION "N"
E-1	0.02	350	0.4						8"	21"

DIMENSION "N" = BOTTOM FLANGE WIDTH - 1".

APPROVED: NOVEMBER 22, 2002
 STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 POT TYPE BEARING ASSEMBLY
 (STEEL BEAMS)
 UNI-DIRECTIONAL GUIDED EXPANSION

REVISION
 DETAIL NO. B314

Daniel J. Morien
 STATE BRIDGE ENGINEER



NOTES:
 MATERIALS, DESIGN AND FABRICATION PER SPECIAL PROVISIONS.
 STEEL PLATES, PINTLES AND ANCHOR RODS SHALL COMPLY WITH Mn/DOT SPEC. 3309.
 GALVANIZE PLATES "A" AND "C", PINTLES AND ANCHOR RODS PER Mn/DOT SPEC. 3394.
 METALIZE PLATE "B" PER Mn/DOT SPEC. 2471.3L2.
 SHIMMING UNDER PLATE "C" SHALL BE AS APPROVED BY THE ENGINEER.
 DETAILS, DIMENSIONS AND MATERIALS NOT SHOWN SHALL BE SUBMITTED BY THE MANUFACTURER OF THE BEARING ASSEMBLY TO THE ENGINEER FOR APPROVAL.
 ALL MATERIAL SHOWN SHALL BE INCLUDED IN THE PRICE BID FOR EACH BEARING ASSEMBLY, EXCEPT AS NOTED.
 SEE BRIDGE DESIGN MANUAL FOR DESIGN REQUIREMENTS.

① MINIMUM ROTATION OF .02 RADIAN
 ② THE SOLE PLATE IS INCLUDED IN THE STEEL BEAM QUANTITY. 1/4" MIN. THICKNESS IS REQUIRED.
 ③ MARK ξ OF BRG. PLATES "A" AND "B" TO FACILITATE PLACEMENT.

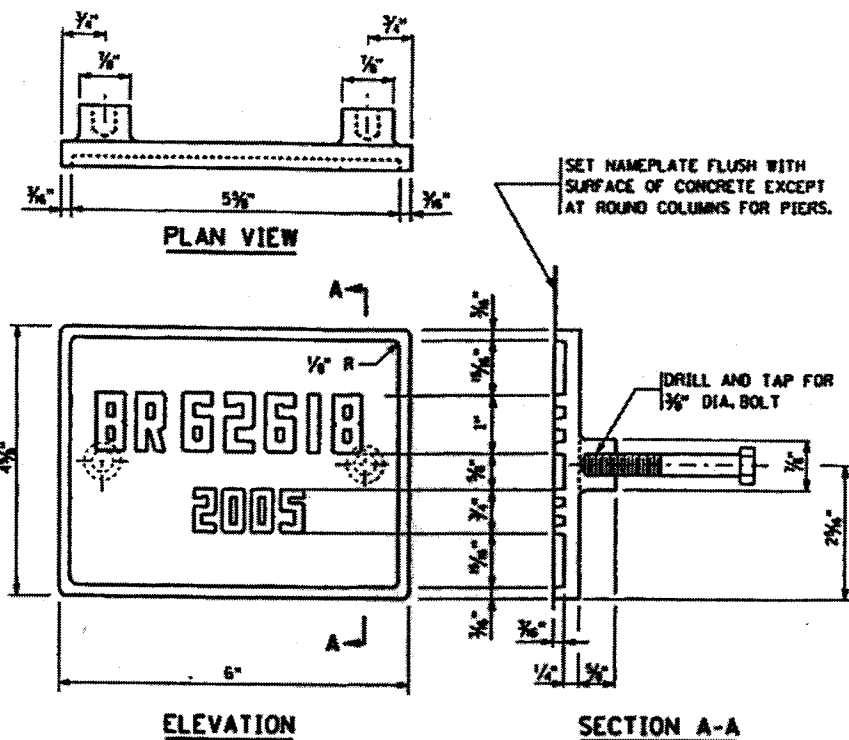
BEARING ASSEMBLY DIMENSIONS									
ASSEMBLY TYPE	ROTATION ①	TOTAL LOAD (KIPS)	PLATE "A"	PLATE "B" (DIA.)	PLATE "C" (MAXIMUM)	DIMENSION "H"	DIMENSION "L"	DIMENSION "N"	
F-1	0.02	350					8"	21"	

DIMENSION "N" = BOTTOM FLANGE WIDTH - 1".

APPROVED: NOVEMBER 22, 2002
 STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 POT TYPE BEARING ASSEMBLY
 (STEEL BEAMS)
 (FIXED)

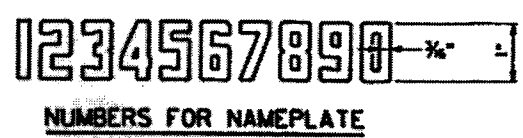
REVISION
 DETAIL NO. B316

Daniel J. Morien
 STATE BRIDGE ENGINEER

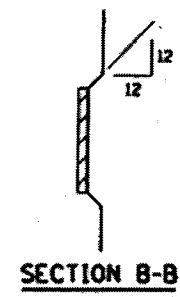
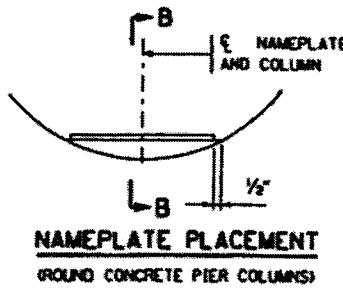


THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

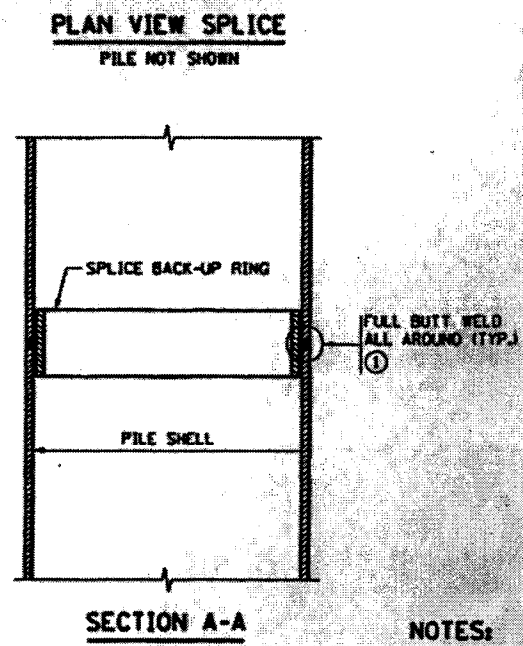
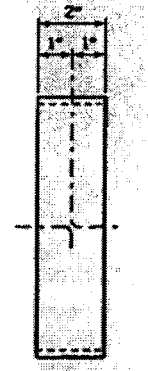
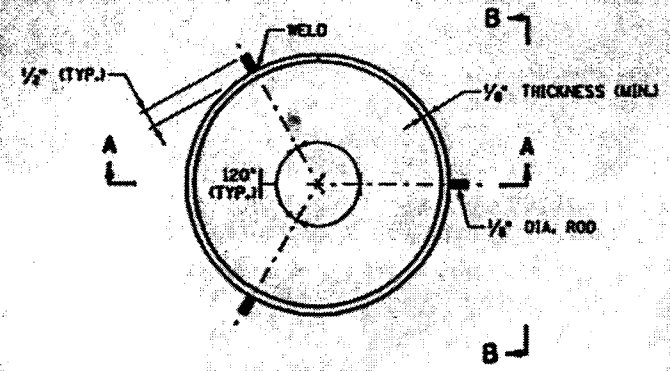
BRIDGE 62618
YEAR 2005



- 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 3/8" 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>David W. Morrison</i> STATE BRIDGE ENGINEER	BRIDGE NAMEPLATE (FOR NEW BRIDGES)		B101



- 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-140 WELD CONFIGURATION.

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

SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM

4" DIA. PERFORATED PIPE	25	LIN. FT.
4" DIA. NON-PERFORATED PIPE	6	LIN. FT.
45° ELBOW	1	EACH
4" DIA. END CAP	1	EACH
4" DIA. COUPLING	5	EACH
PIPE SLEEVE	1	EACH
PRECAST CONCRETE SPLASH BLOCK	1	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 2902.601 "DRAINAGE SYSTEM TYPE 8910".

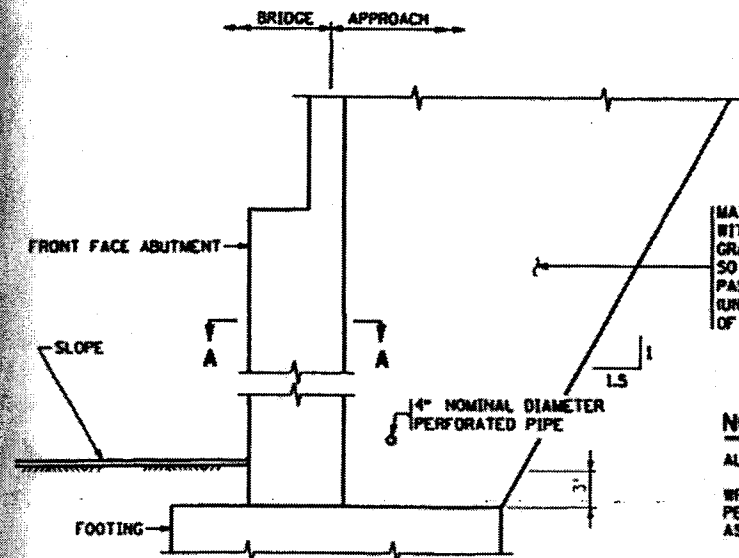
MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3149.2B SELECT GRANULAR BORROW, MODIFIED SO THAT NO MORE THAN 10% PASSES A NO. 200 SIEVE. (UNDER EXCAVATION PORTION OF CONTRACT)

NOTES:

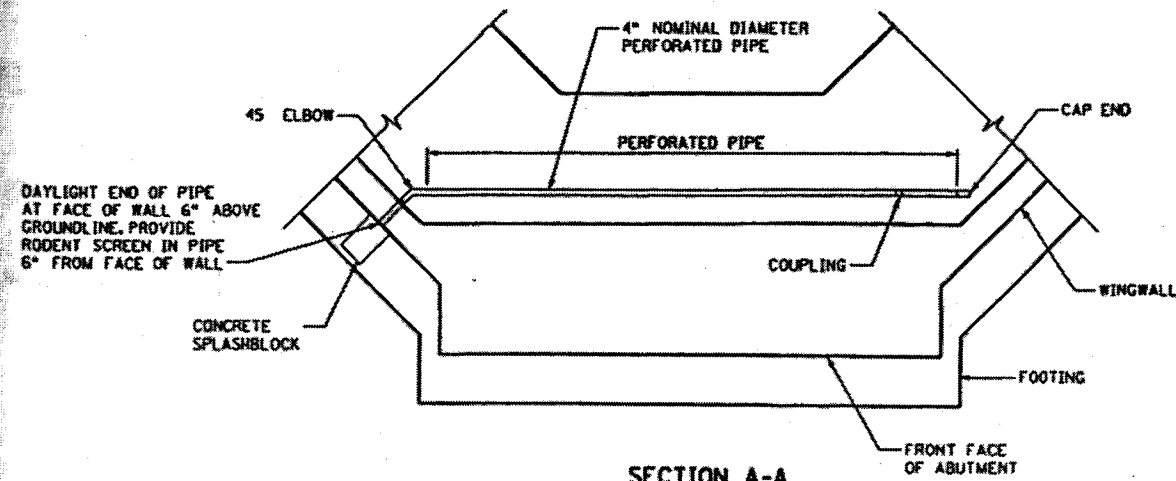
ALL PIPE SHALL BE AS PER Mn/DOT SPEC. 3245.

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

4" DRAINAGE SYSTEM AS SHOWN ONLY AT NORTH ABUTMENT. DRAINAGE SYSTEM @ SOUTH ABUTMENT, SEE SHEET 20, DECK DRAINAGE.



SECTION THROUGH NORTH ABUTMENT



SECTION A-A

APPROVED: NOVEMBER 22, 2002

Daniel J. Horgan
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

DRAINAGE SYSTEM
(FOR HIGH ABUTMENTS)

REVISION

DETAIL NO.

8910
(MODIFIED)

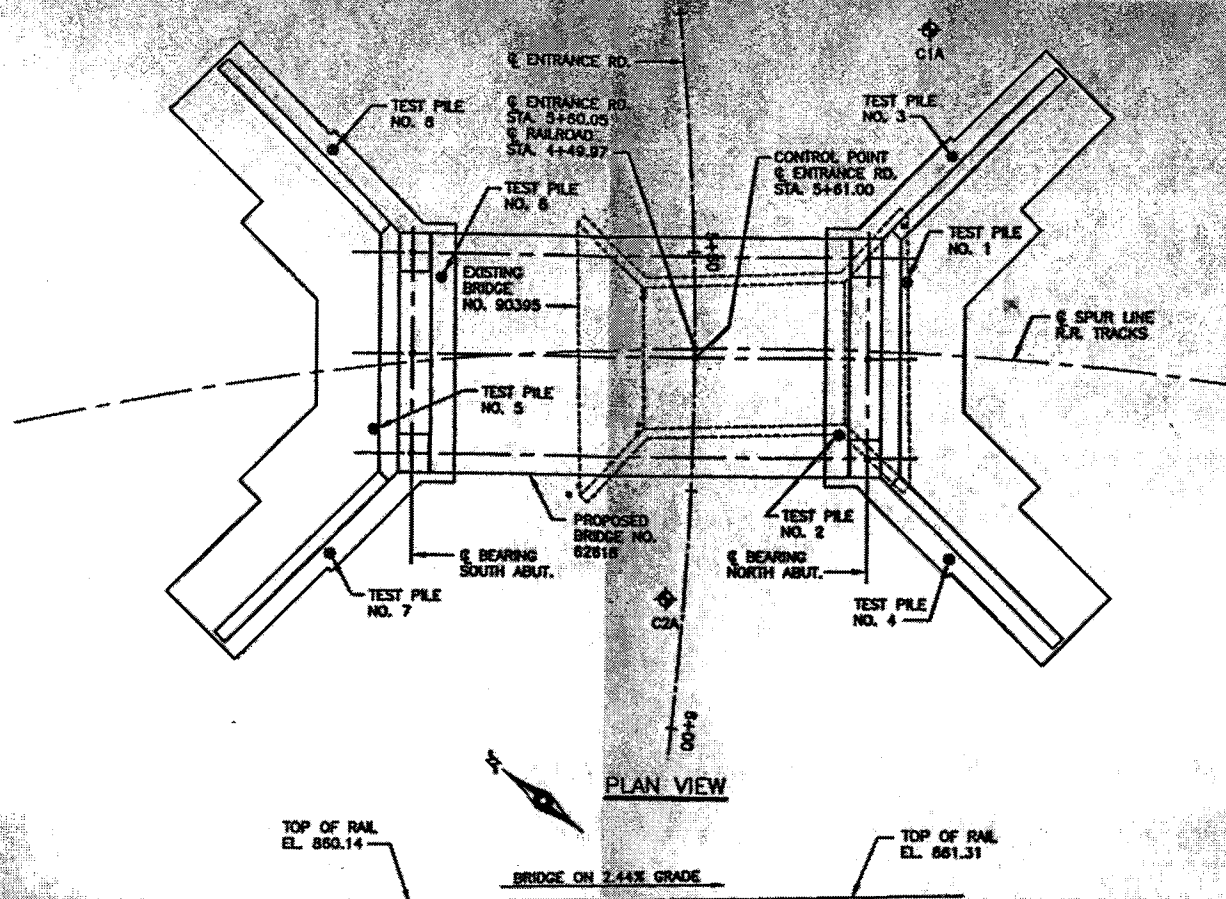
CERTIFIED BY *Gary W. Morten* DATE *11/20/04*
LICENSED PROFESSIONAL ENGINEER
NAME: GARY W. MORTEN LIC. NO. 25552

TITLE: **DETAILS**

DES: MDJ	DR: PHH	APPROVED: MODIFIED
CHK: GWM	CHK: GWM	

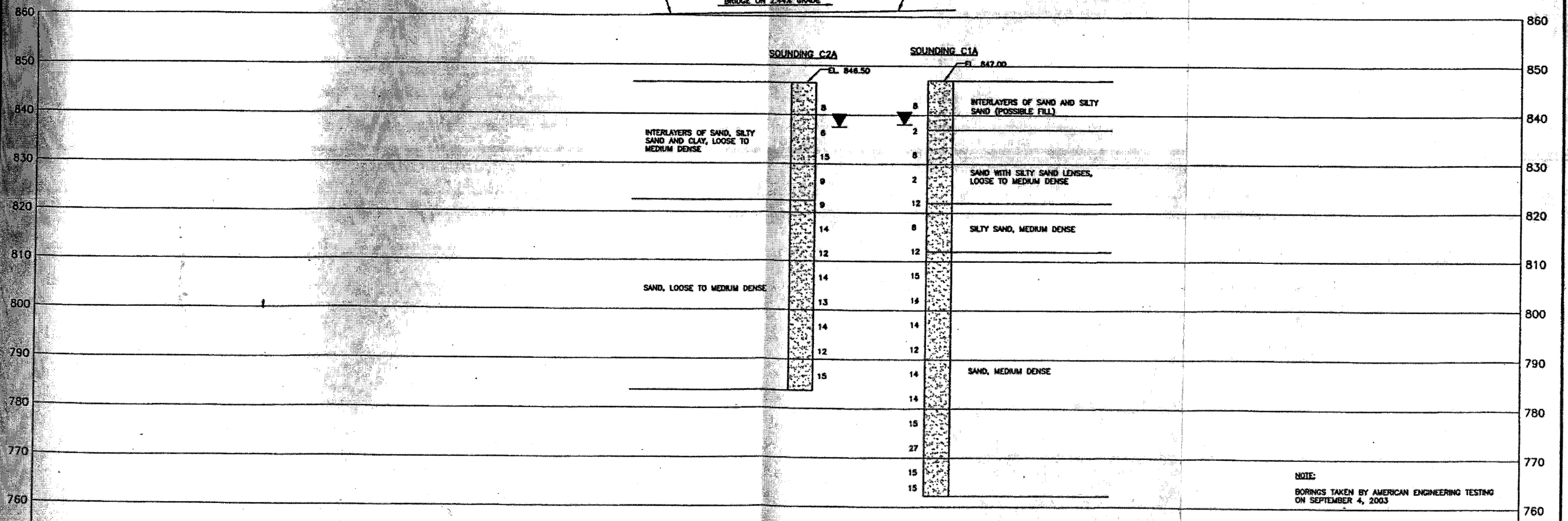
SHEET NO. 23 OF 24 SHEETS

BRIDGE NO. 62618



NOTES:
 BENCHMARK ELEV. 864.09 (M.S.L. 1929 ADJ.)
 HUB N.E. OF EXISTING BRIDGE AT R.R. SWITCH
 BORINGS SHOWN (C1A)
 BLOWS PER FOOT WITH 140 LB. HAMMER
 AND A STANDARD ENERGY OF 210 LBS/FT.

TOP OF RAIL EL. 860.14
 BRIDGE ON 2.44% GRADE
 TOP OF RAIL EL. 861.31



NOTE:
 BORINGS TAKEN BY AMERICAN ENGINEERING TESTING
 ON SEPTEMBER 4, 2003

CERTIFIED BY <i>Gary W. Morien</i> LICENSED PROFESSIONAL ENGINEER NAME: GARY W. MORIEN	DATE 25552	TITLE: BRIDGE SURVEY	DES: MDJ CHK: GWM	DR: PHH CHK: GWM	APPROVED:	BRIDGE NO. 62618
SHEET NO. 24 OF 24 SHEETS						

J:\EGON\600119\EGAD.D\MEV2600119S21.DWG