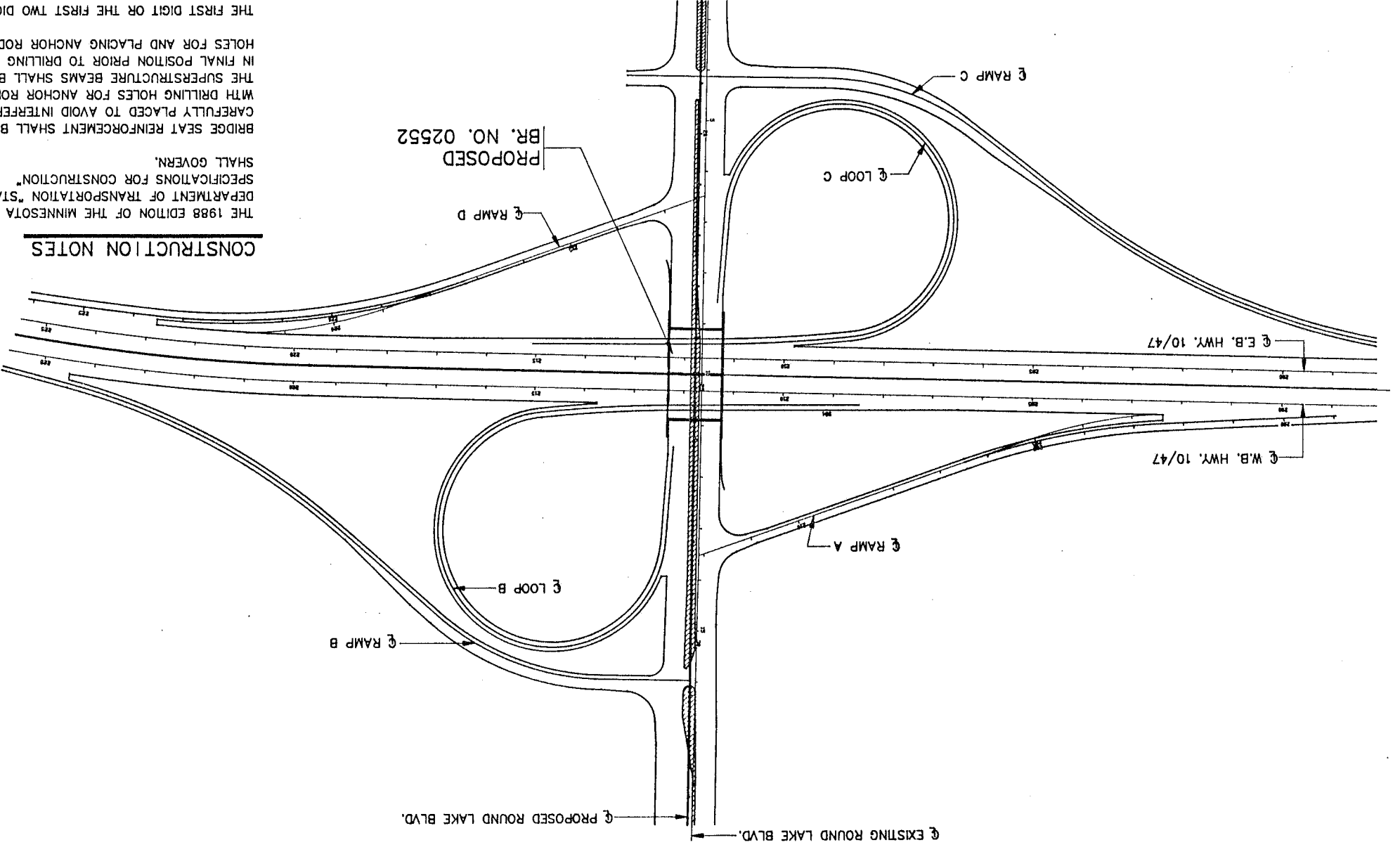


ROUND LAKE BLVD. OVER HWY. 10/47



CONSTRUCTION NOTES

THE 1988 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 BEAMS SHALL BE ERRECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE.

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

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE NO. 02552

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
0401.601	EXCAVATION	LUMP SUM	1
2401.512	BRIDGE SLAB CONCRETE (3X36)	SQ. FT.	19316 (p)
2401.513	RAILING CONCRETE (3X46)	LN. FT.	480 (p)
2404.501	CONCRETE OVERLAY SPECIAL TYPE	SQ. FT.	15571 (p)
2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	28605 (p)
2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	238401 (p)
2405.502	PRESTR. CONC. BMS. TYPE 54M	LN. FT.	1904 (p)
2402.591	EXPANSION JOINT DEVICE TYPE 4	LN. FT.	216 (p)
2402.595	BEARING ASSEMBLY	EACH	44
2401.501	STRUCTURE CONCRETE (1443)	CU. YD.	444 (p)
2452.507	CAST-IN-PLACE CONCRETE	LN. FT.	5850
2452.508	CAST-IN-PLACE CONCRETE	LN. FT.	5850
2452.519	CAST-IN-PLACE CONCRETE	LN. FT.	5850
2514.501	CONCRETE PAVING	SQ. YD.	327
0502.603	DRAINAGE SYSTEM	LUMP SUM	1
0401.603	REVERSE BATTEN SURFACE TREATMENT	LN. FT.	2172
2405.511	DIAPHS. FOR TYPE 54M PRESTR. BEAMS	LN. FT.	410
2401.516	RAISED MEDIAN CONCRETE (3X46)	SQ. FT.	3156 (p)
2442.501	REMOVE OLD BRIDGE	LUMP SUM	1

BRIDGE NO. 02552
TITLE SHEET
 ROUND LAKE BLVD. OVER HIGHWAY 10/47
 IN THE CITY OF COON RAPIDS
 0.5 MILES NORTH OF C.S.A.H. 14 IN THE
 CITY OF COON RAPIDS
 86'-86' PRESTRESSED CONC. BEAM SPANS
 106'-0" ROADWAY, 0'-26'-11" SKEW
 SPAN IDENTIFICATION NO. 501
 SEC 5 T31N R24W
 CITY OF COON RAPIDS
 ANOKA COUNTY

RECOMMENDED FOR APPROVAL:
 COUNTY ENGINEER: *[Signature]* DATED: 8/10/89
 CITY ENGINEER: *[Signature]* DATED: 8/19/89
 MINNESOTA DEPARTMENT OF TRANSPORTATION
 REG. NO. 8/9/89

DESIGN DATA

1983 (AND CURRENT INTERIM) A.S.A.H.T.O. DESIGN SPECIFICATIONS
 DESIGN LOADING HS20 LIVE LOAD
 LOAD FACTOR DESIGN METHOD
 DEAD LOAD INCLUDES 17 PSF ALLOWANCE FOR FUTURE WEARING COURSE
 REINFORCED CONCRETE:
 $f_c = 4000$ PSI $N=8$
 $f_y = 60000$ PSI (REINFORCEMENT)
 PRESTRESSED CONCRETE:
 $f_c = 6000$ PSI $N=6$
 $f_s = 270$ KSI 270K STRANDS (LOW RELAXATION)
 STRUCTURAL STEEL: $f_y = 36,000$ PSI SPEC (3306)
 DECK AREA: 19,316 SQ. FT.
 ADT FOR YEAR 2010 = 59,000
 OPERATING RATING HS39

SHEET INDEX

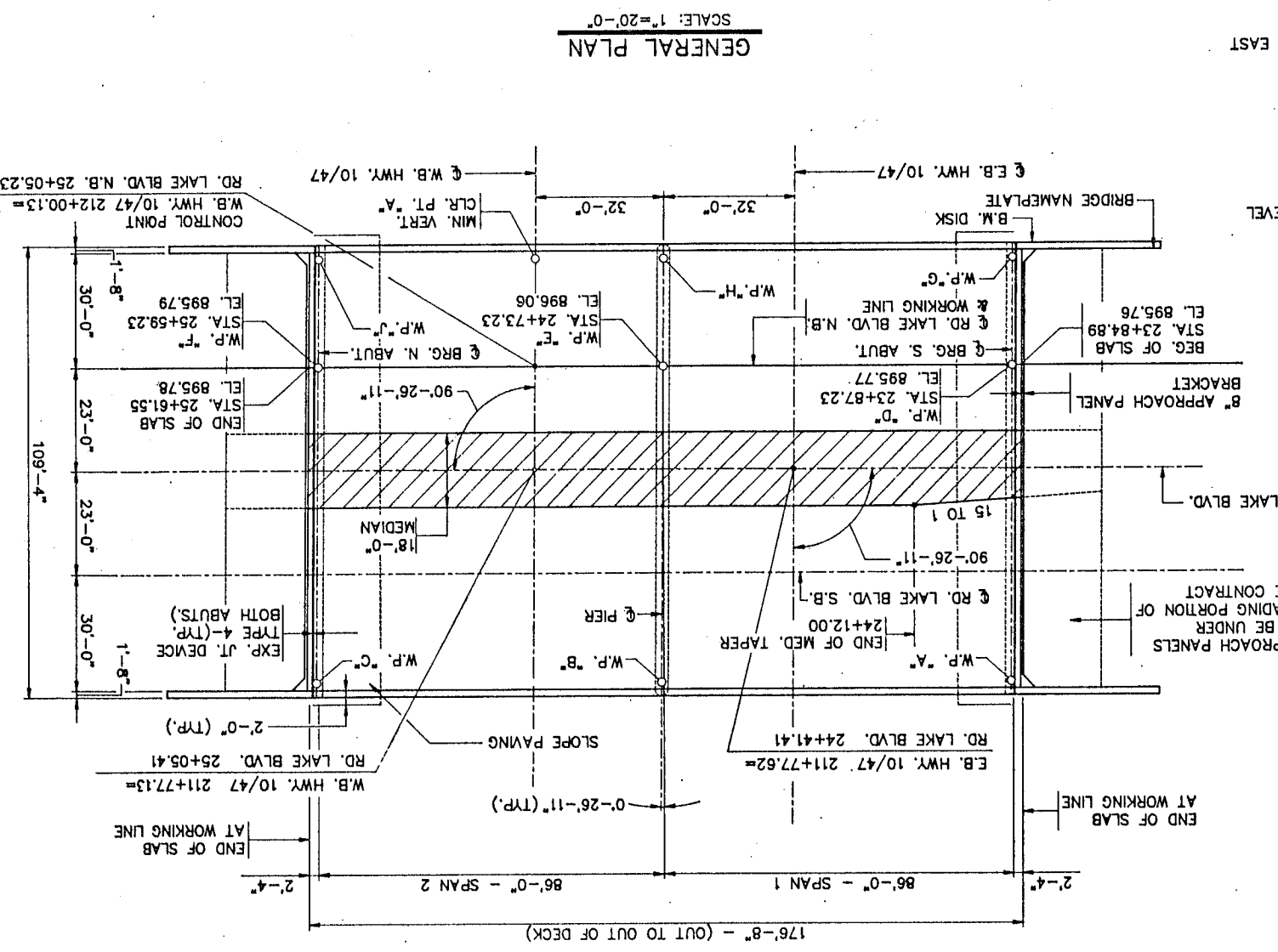
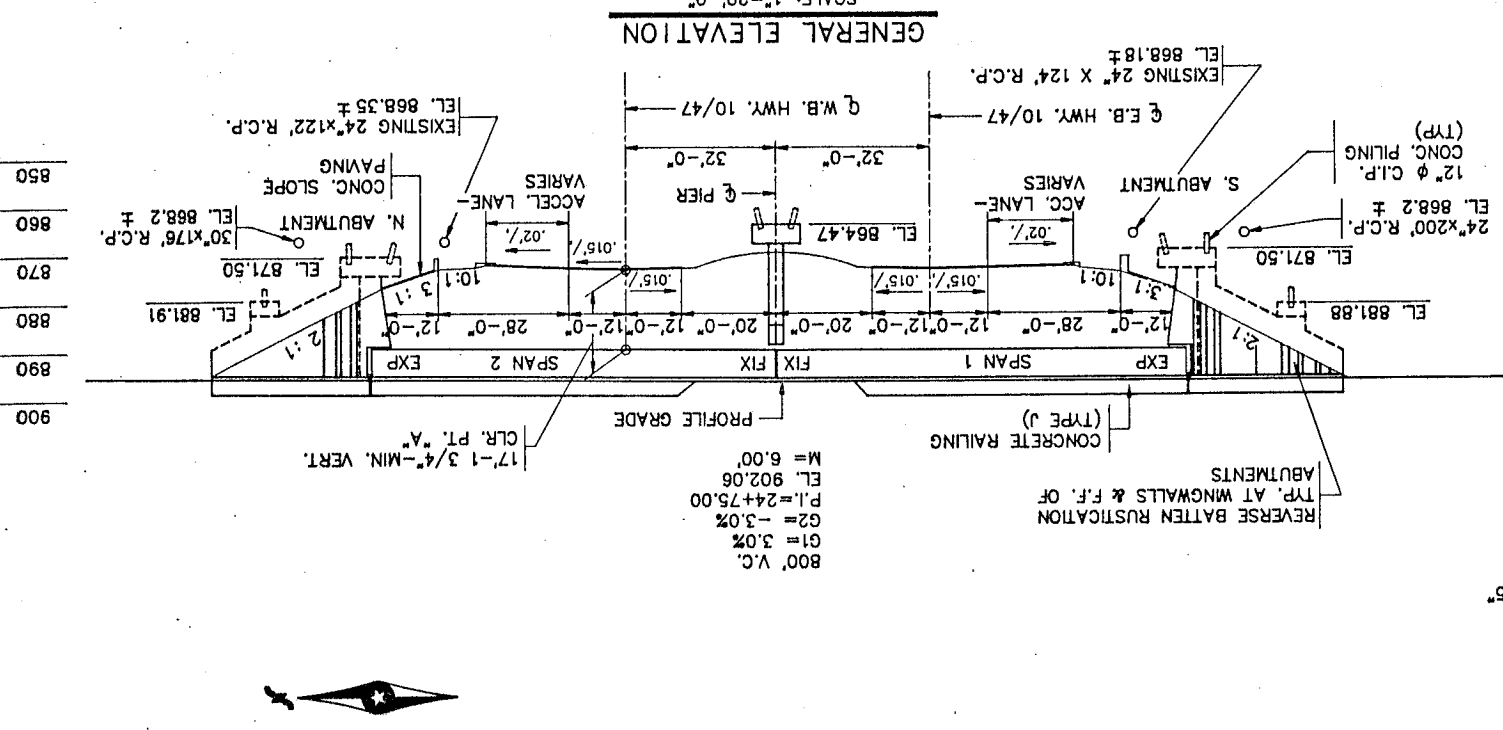
NO.	TITLE
1	TITLE SHEET
2	GENERAL PLAN & ELEVATION
3	BRIDGE LAYOUT
4	FOUNDATION PLAN
5 & 6	NORTH ABUTMENT DETAILS
7 - 10	NORTH ABUTMENT REINFORCEMENT
11 & 12	SOUTH ABUTMENT DETAILS
13 - 16	SOUTH ABUTMENT REINFORCEMENT
17	PIER DETAILS
18	PIER REINFORCEMENT
19	FRAMING PLAN
20 & 21	SUPERSTRUCTURE DETAILS
22	PRESTRESSED BEAM DETAILS
23	TYPE J CONC. RAILING DETAILS
24 & 25	WATERPROOF EXP. DEVICE DETAILS
26 - 31	BRIDGE DETAILS
32	BRIDGE SURVEY - PLAN PROFILE
33	BRIDGE SURVEY

BRW
 PLANNING
 TRANSPORTATION
 ENGINEERING
 URBAN DESIGN
 BRW, INC.
 THRESHER SQUARE, 700 THIRD STREET SOUTH, MINNEAPOLIS, MN 55415

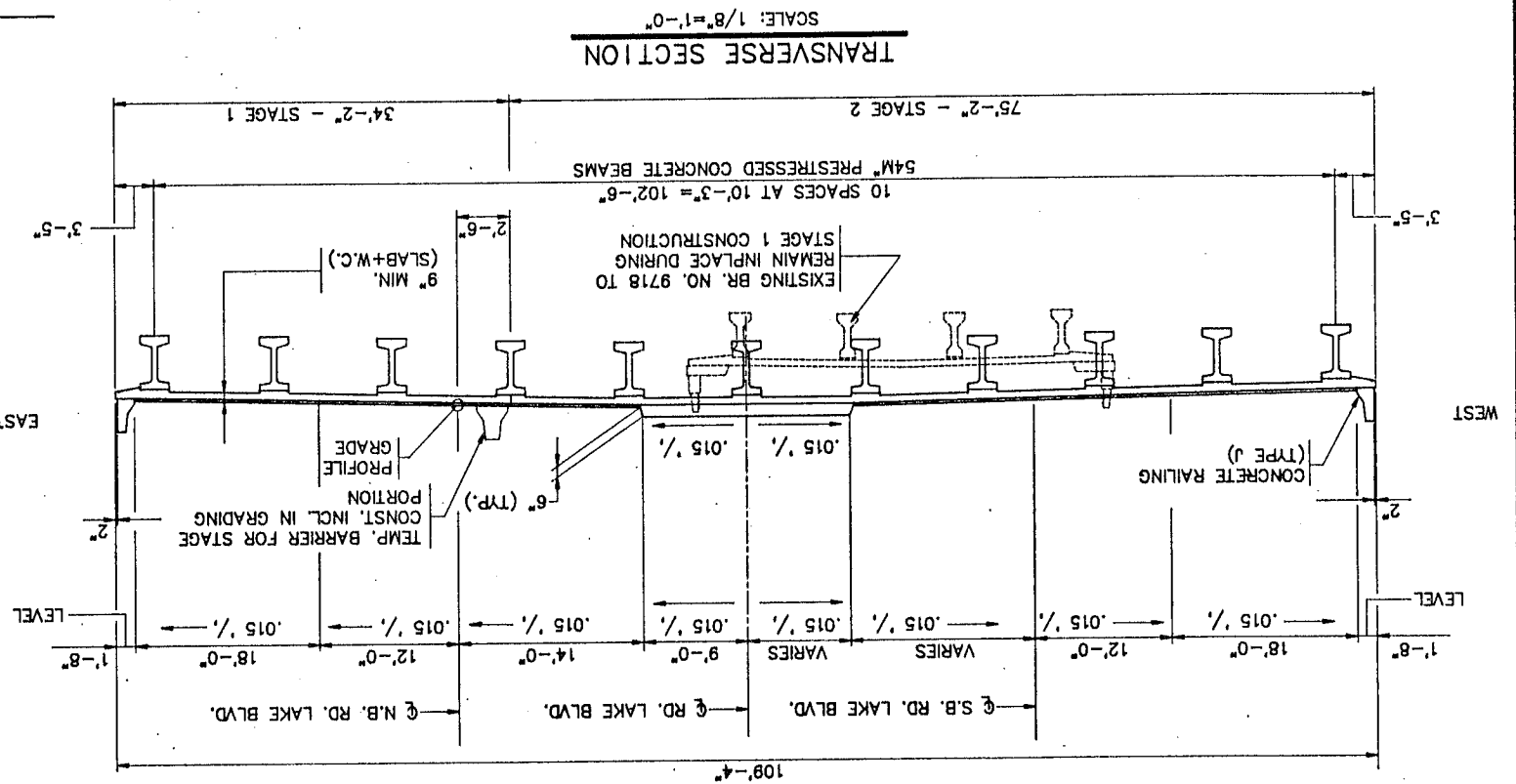
SP 0215-02552

DES: DJV
CHK: MKM
APPROVED:

DRW: DJV
CHK: MKM



NOTE:
INPLACE BRIDGE NO. 9718 TO BE REMOVED UNDER BRIDGE PORTION OF THE CONTRACT
PLANS FOR INPLACE BRIDGE CAN BE OBTAINED AT THE OFFICE OF THE ENGINEER.
BRIDGE APPROACH EMBANKMENTS TO BE PLACED TO THE FULL HEIGHT AND CROSS SECTION OF THE APPROACH EMBANKMENTS UNDER THE GRADING CONTRACT.

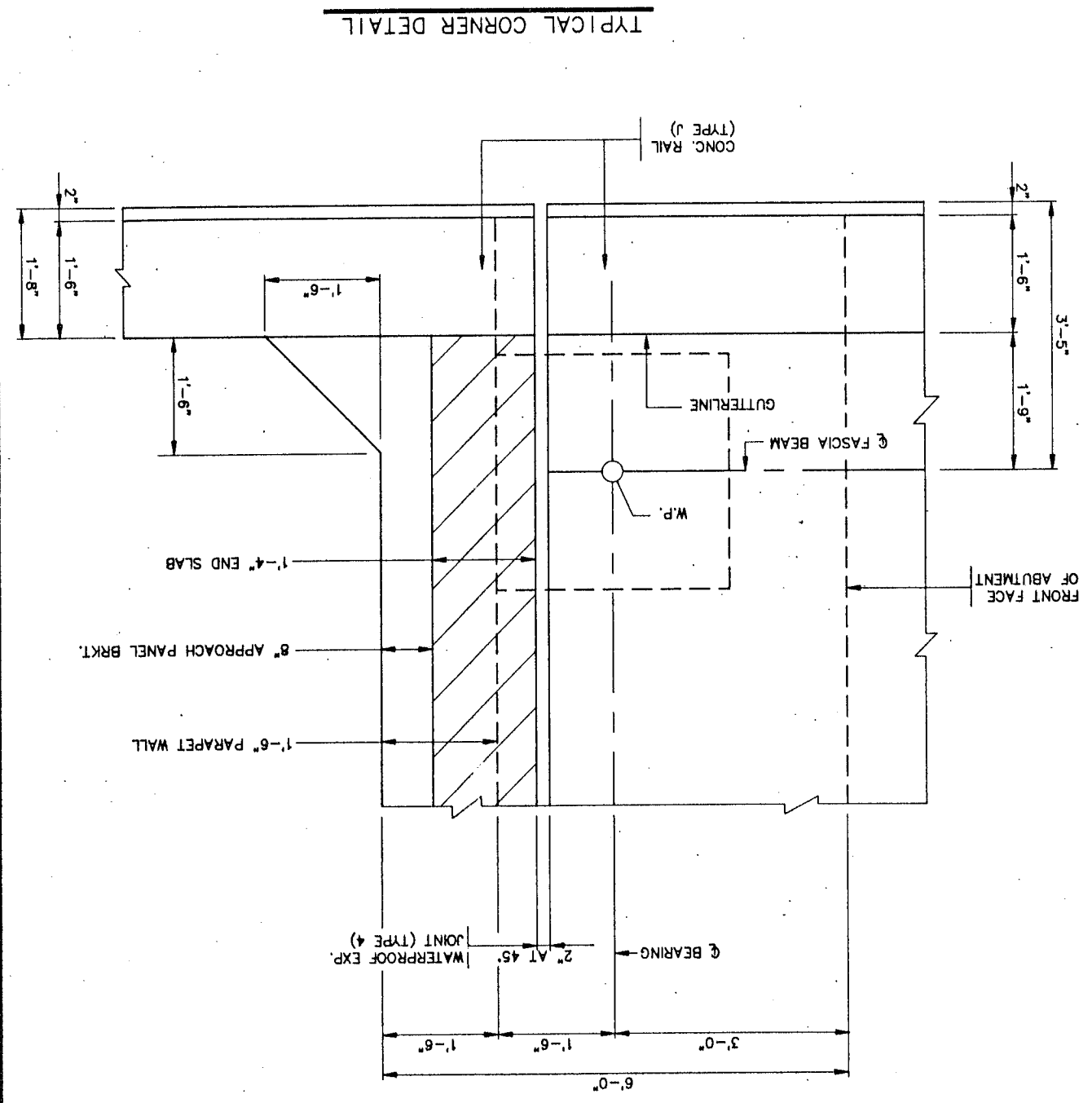




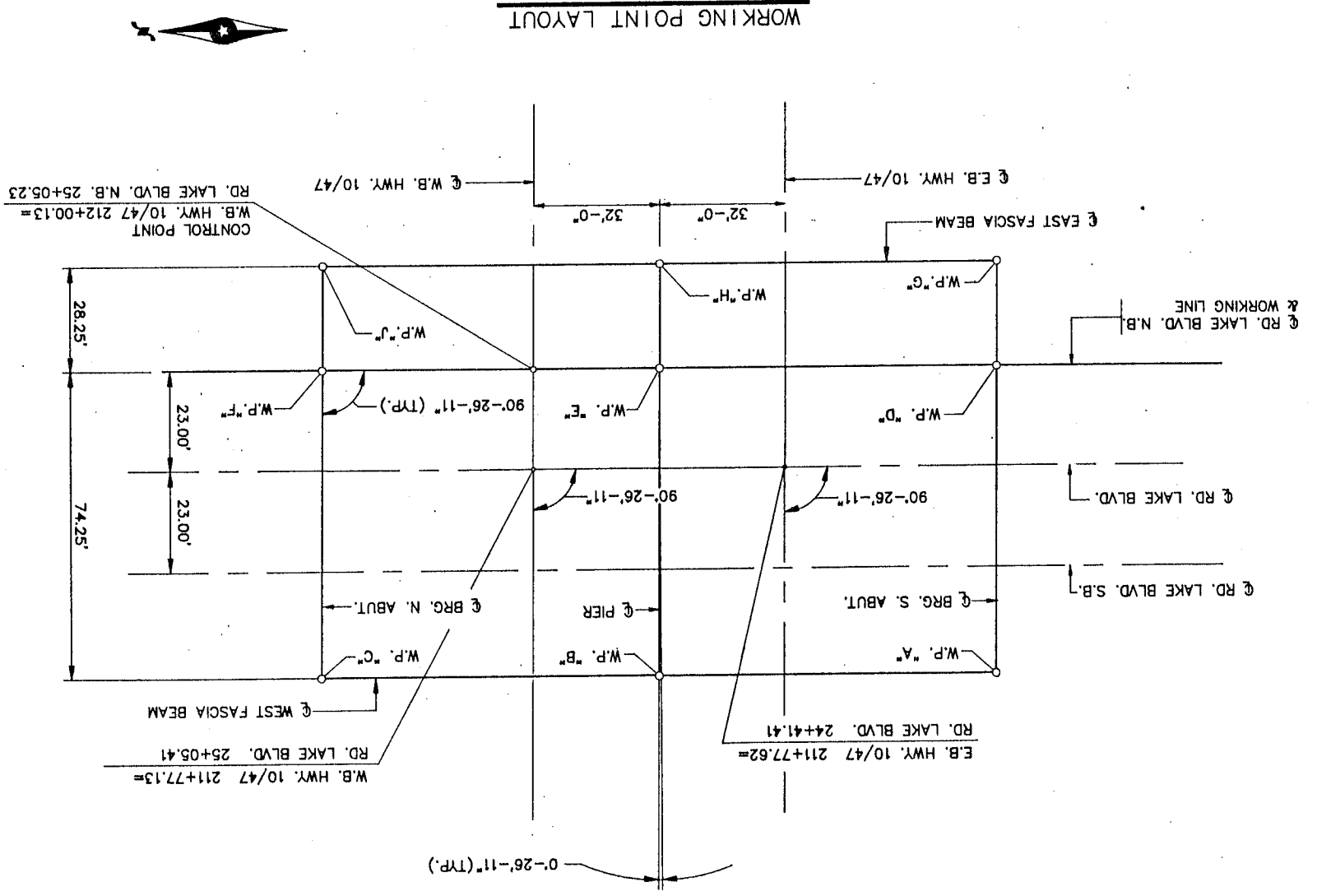
SP 0215-02552

DES: DJV
CHK: MKM
APPROVED: 8-14-89

TOP OF ROADWAY TO BRIDGE SEAT				
SOUTH ABUT. PIER	9"	9"	9"	9"
NORTH ABUT. PIER	3"	3"	3"	3"
SLAB THICKNESS	54"	54"	54"	54"
STOOL HEIGHT	4 1/2"	4 1/2"	4 1/2"	4 1/2"
BEAM HEIGHT	5.88	5.88	5.88	5.88
TOTAL				



DIMENSIONS BETWEEN WORKING POINTS		COORDINATES		ELEVATIONS	
POINT	STATION	POINT	X-COORD.	POINT	Y-COORD.
A	23+87.80	A	6724.2493	A	889.47
B	24+73.80	B	6726.7875	B	889.87
C	25+59.80	C	6727.3258	C	889.49
D	23+87.23	D	6798.4773	D	895.77
E	24+73.23	E	6800.0155	E	896.06
F	25+59.23	F	6801.5538	F	895.79
G	23+87.02	G	6826.7189	G	889.47
H	24+73.02	H	6828.2572	H	889.87
J	25+59.02	J	6829.7954	J	889.49



LOCATION	DEAD LOAD + EARTH PRESSURE	DEAD LOAD	LIVE LOAD	OVER-TURNING	DESIGN LOAD	REDUCTION PER AASHTO 3.22 GROUP LOADING
S. ABUTMENT	55.9	4.00	59.9		59.9	
N. ABUTMENT	55.9	4.00	59.9		59.9	
PIER	33.6	11.8	26.8		57.7	IX (REDUCED BY 1.25)

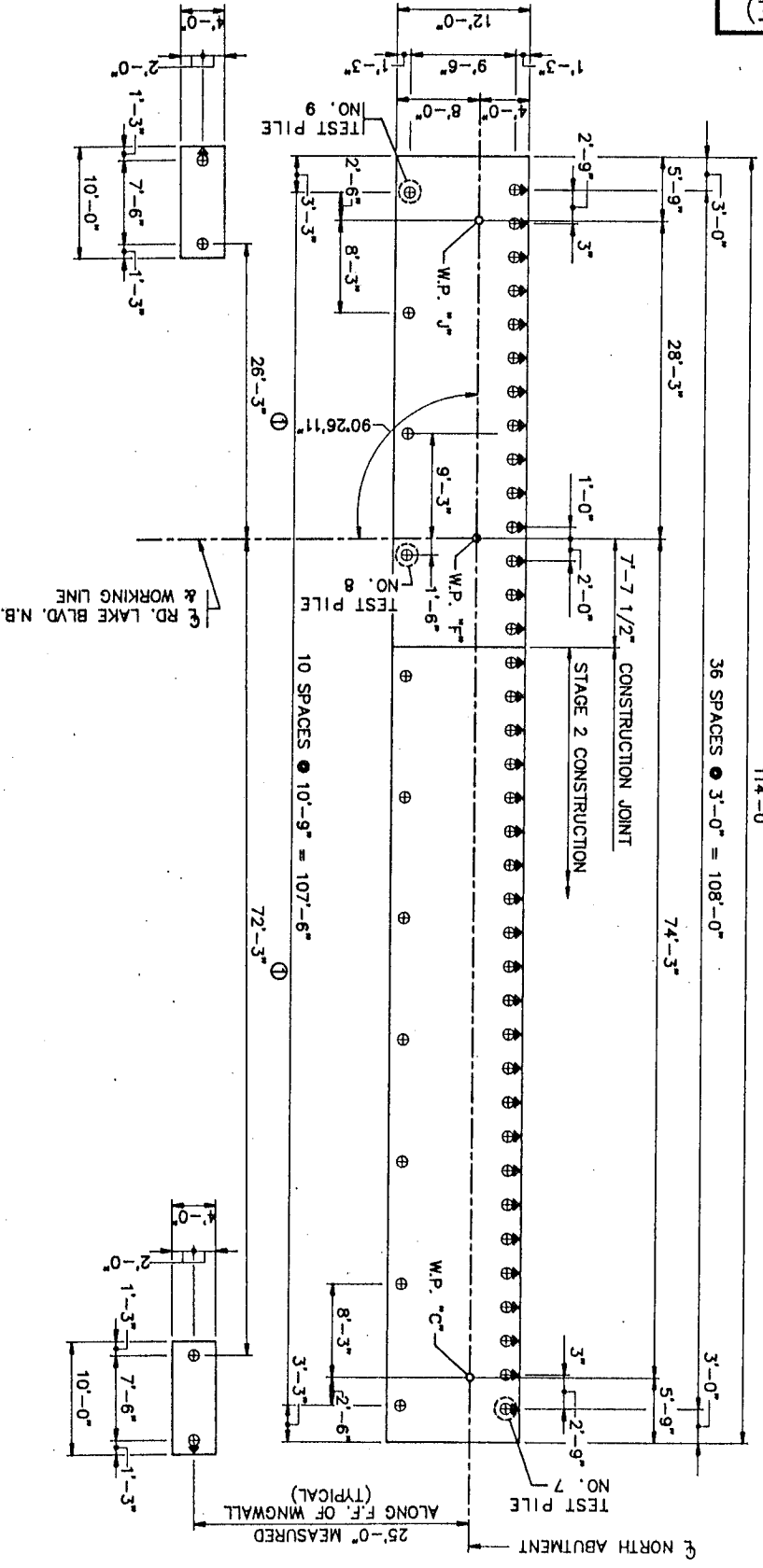
COMPUTED PILE LOAD (TONS PER PILE)

DESIGN LOAD	COMPUTED PILE LOAD (TONS PER PILE)
42.0	S.W. WINGWALL FOOTING
42.0	S.E. WINGWALL FOOTING
42.0	N.W. WINGWALL FOOTING
42.0	N.E. WINGWALL FOOTING

FOUNDATION LAYOUT



NORTH ABUTMENT

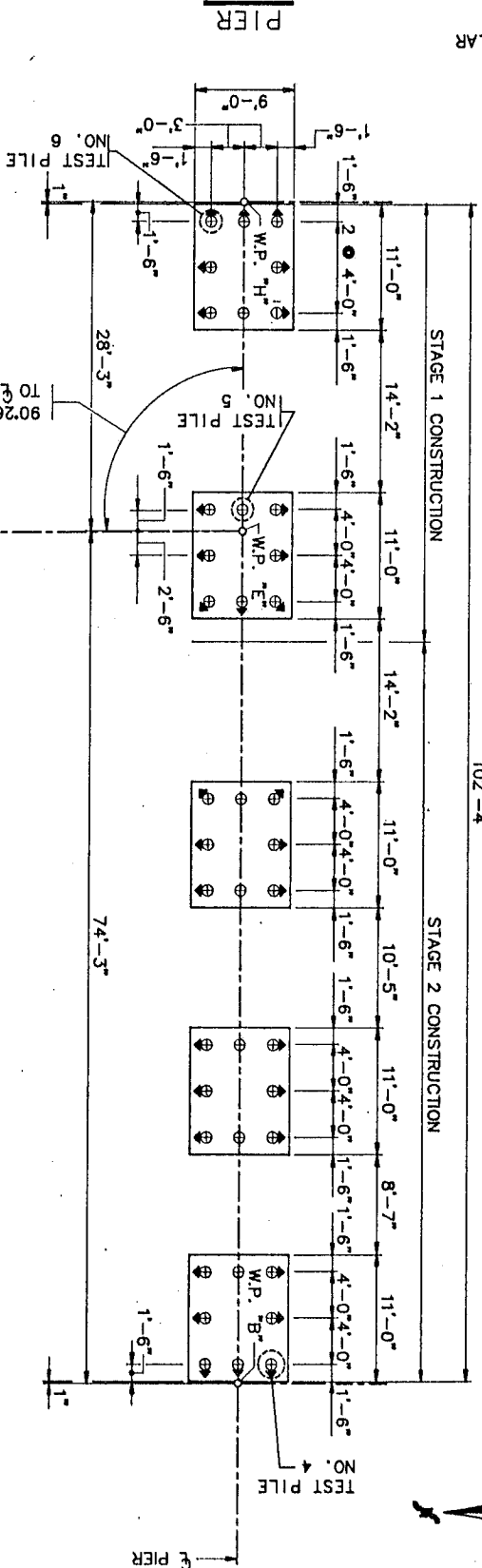
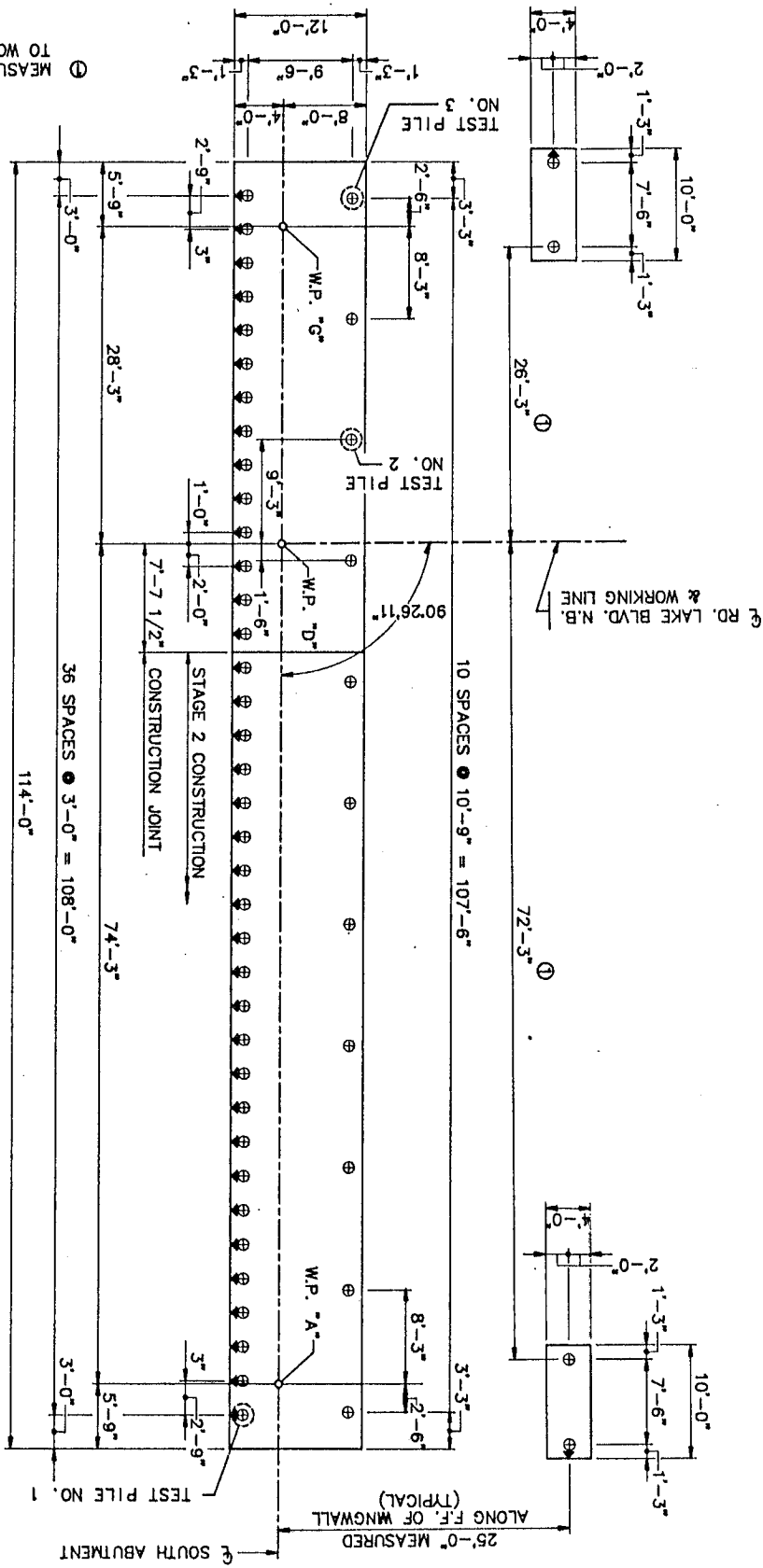


PILE NOTES:

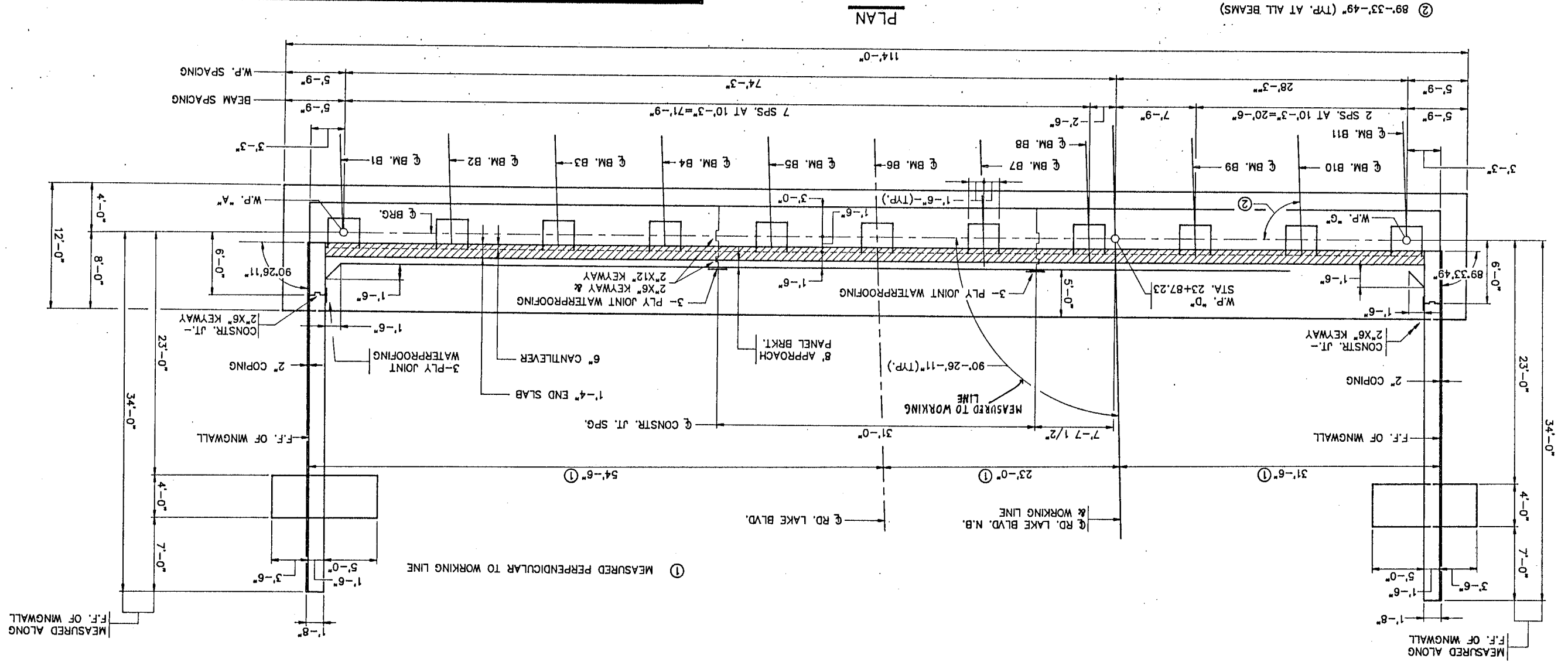
- 1) PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
- 2) PILES MARKED THUS ⊕ MUST BE BATTERED IN DIRECTION SHOWN: 2" PER FOOT FOR PIER PILES, 3" PER FOOT FOR ABUTMENT PILES.
- 3) ALL PILES TO BE CAST-IN-PLACE CONCRETE PILES.
- 4) PILES ARE TO HAVE A NOMINAL DIAMETER OF 12".
- 5) FOR PILE SPLICE SEE SHEET NO. 30

SOUTH ABUTMENT
 3 CAST-IN-PLACE CONCRETE TEST PILES 40 FT. LONG.
 45 CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 30 FT.
 4 CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 40 FT.
NORTH ABUTMENT
 3 CAST-IN-PLACE CONCRETE TEST PILES 60 FT. LONG.
 45 CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 50 FT.
 4 CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 60 FT.
PIER
 3 CAST-IN-PLACE CONCRETE TEST PILES 60 FT. LONG.
 37 CAST-IN-PLACE CONCRETE PILES, EST. LENGTH 50 FT.

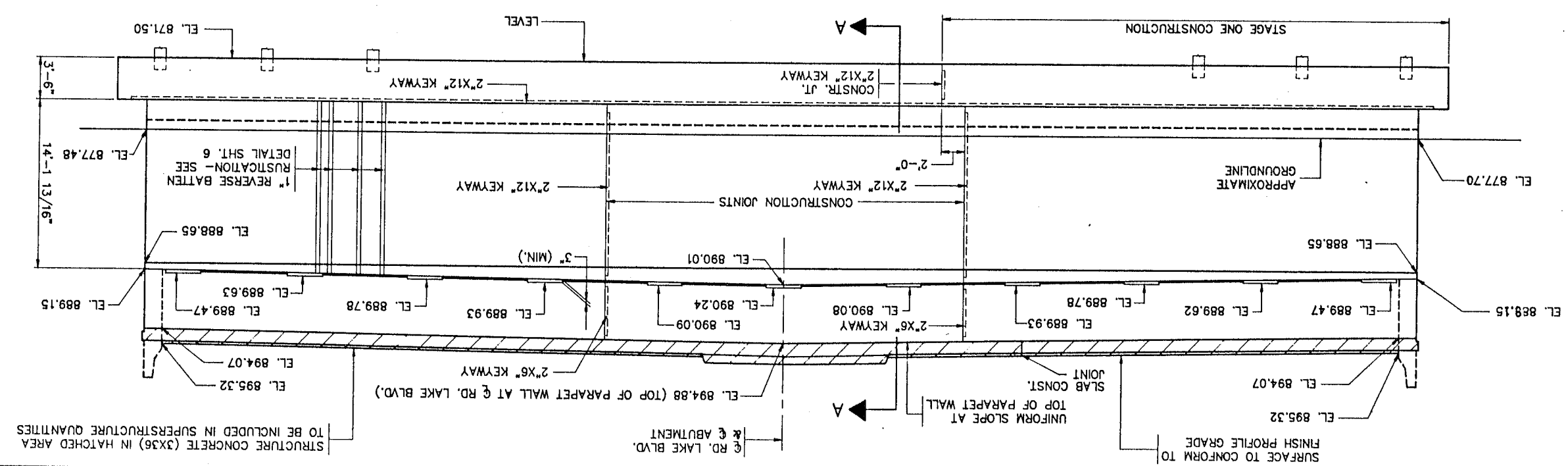
SOUTH ABUTMENT



SP 0215-02552



ELEVATION



NOTE:
 SEE SHIT. 6 FOR SECTION A-A

STRUCTURE CONFORM TO (3X36) IN HATCHED AREA TO BE INCLUDED IN SUPERSTRUCTURE QUANTITIES

SURFACE TO CONFORM TO FINISH PROFILE GRADE TO UNIFORM SLOPE AT TOP OF PARAPET WALL

RD. LAKE BLVD. & ABUTMENT

SLAB CONST. JOINT

RD. LAKE BLVD. AT TOP OF PARAPET WALL

APPROXIMATE GROUNDLINE

CONSTRUCTION JOINTS

1" REVERSE BATTEN RUSTICATION - SEE DETAIL SHIT. 6

STAGE ONE CONSTRUCTION

ELEVATION

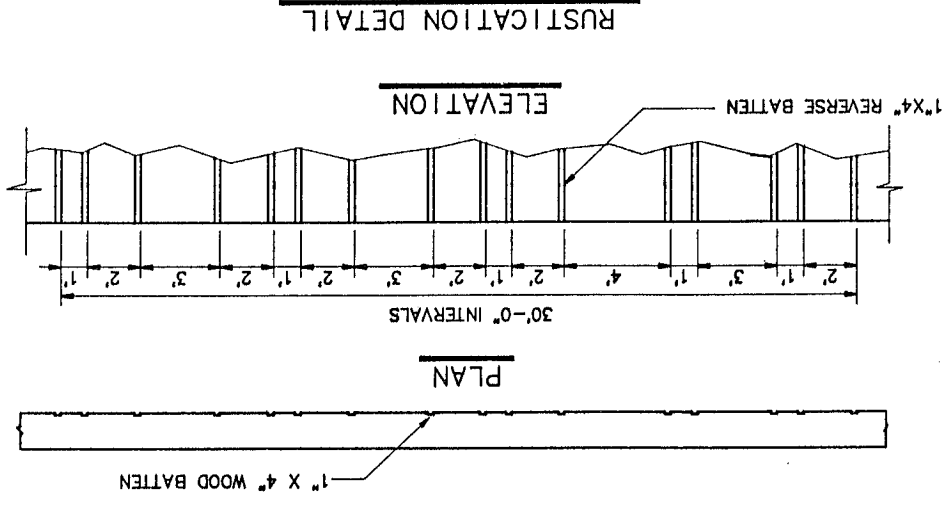
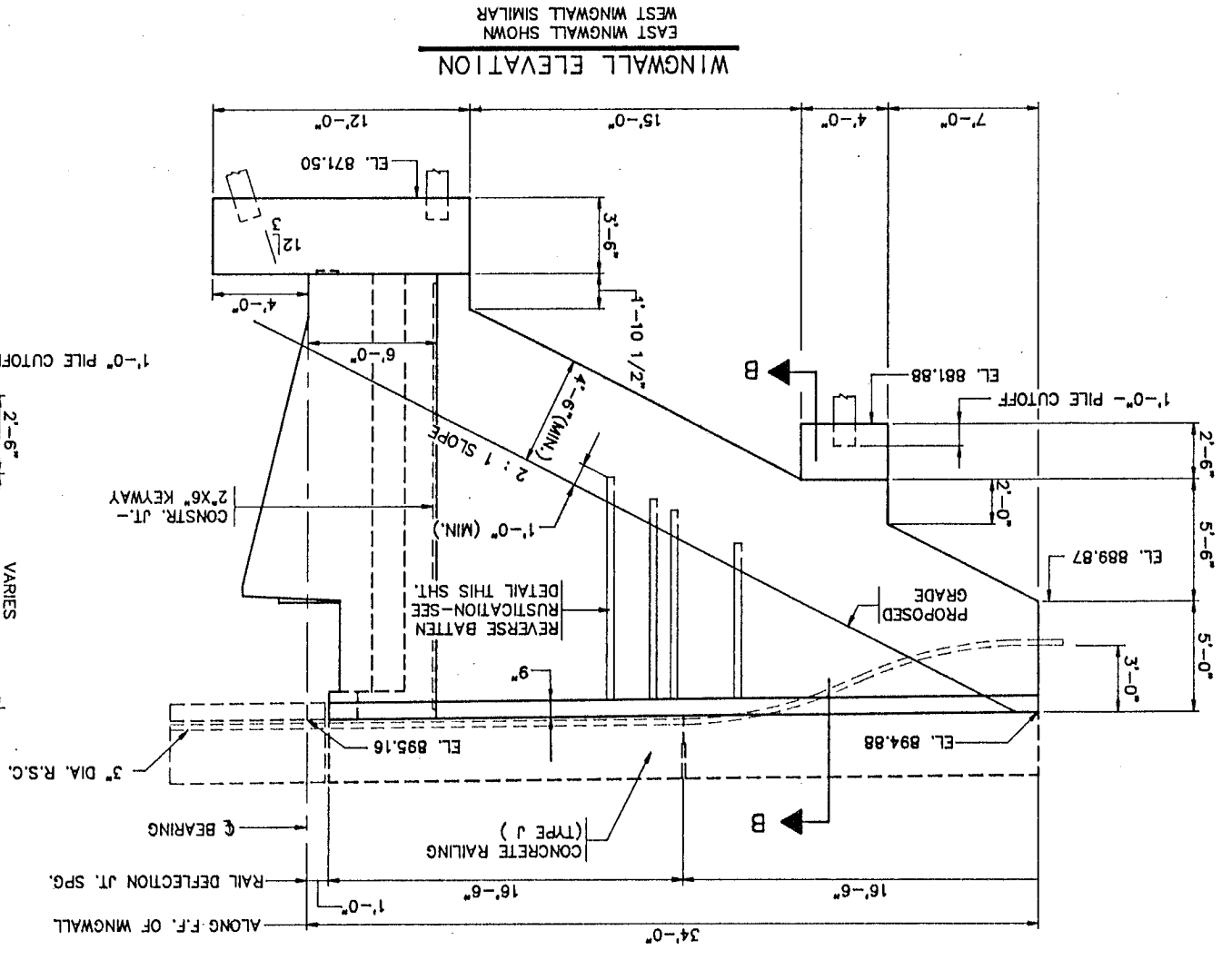
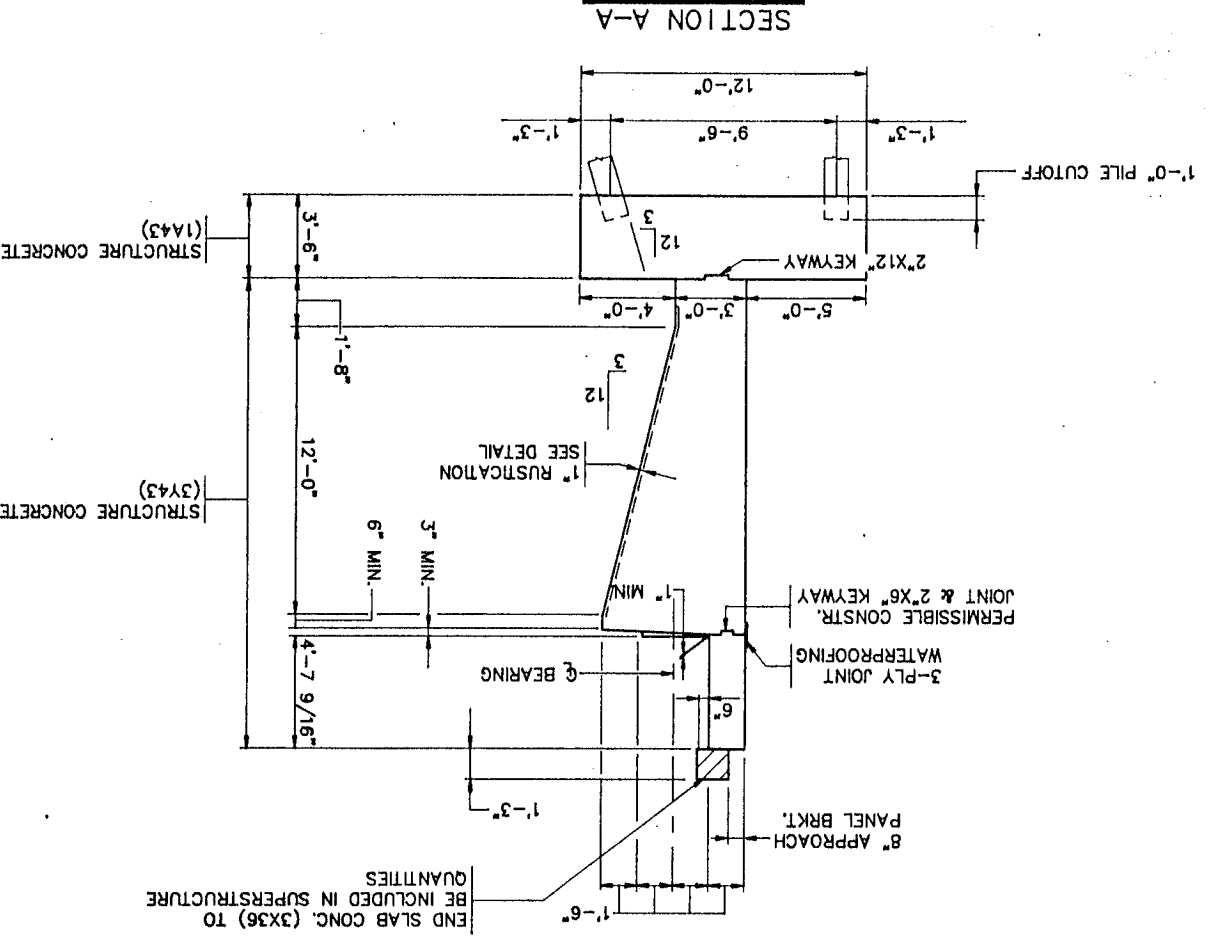
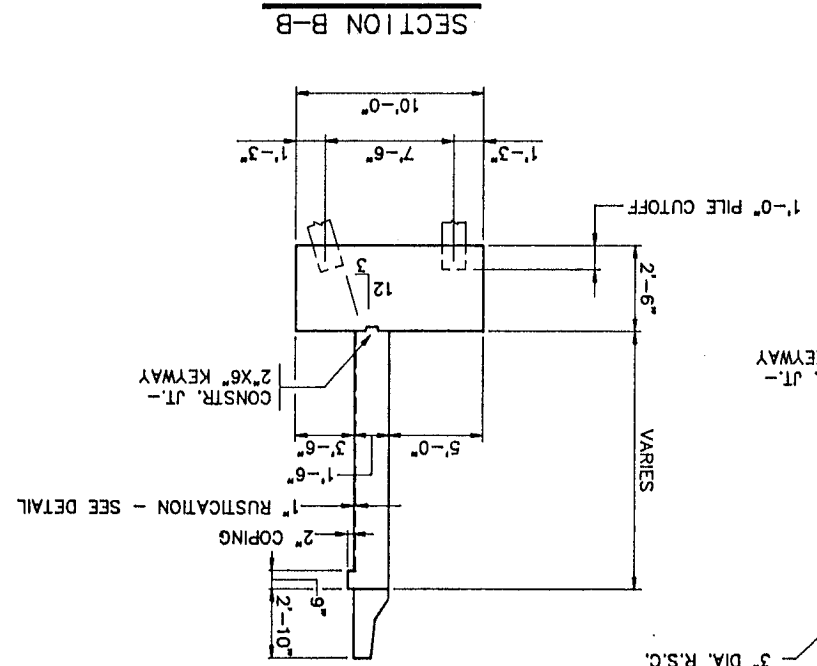
PLAN

89-33-49 (TRP. AT ALL BEAMS)

SUMMARY OF QUANTITIES - SOUTH ABUTMENT

QUANT.	UNIT	ITEM
185	CU. YD.	STRUCTURE CONCRETE (1A43)
332	CU. YD.	STRUCTURE CONCRETE (3Y43)
12075	POUND	REINFORCEMENT BARS
38085	POUND	REINFORCEMENT BARS (EPOXY COATED)
100	LN. FT.	3-PLY JOINT WATERPROOFING
3	EACH	C.I.P. CONCRETE TEST PILES 40 FT. LONG (12"Ø)
1510	LN. FT.	C.I.P. CONCRETE PILING DRIVEN (12"Ø)
1510	LN. FT.	C.I.P. CONCRETE PILING DELIVERED (12"Ø)
1	LUMP SUM	STRUCTURE EXCAVATION
1	LUMP SUM	DRAINAGE SYSTEM
1	EACH	BENCH MARK DISK

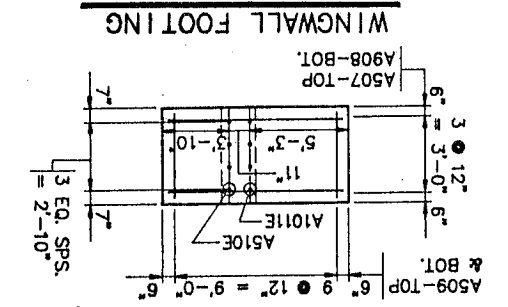
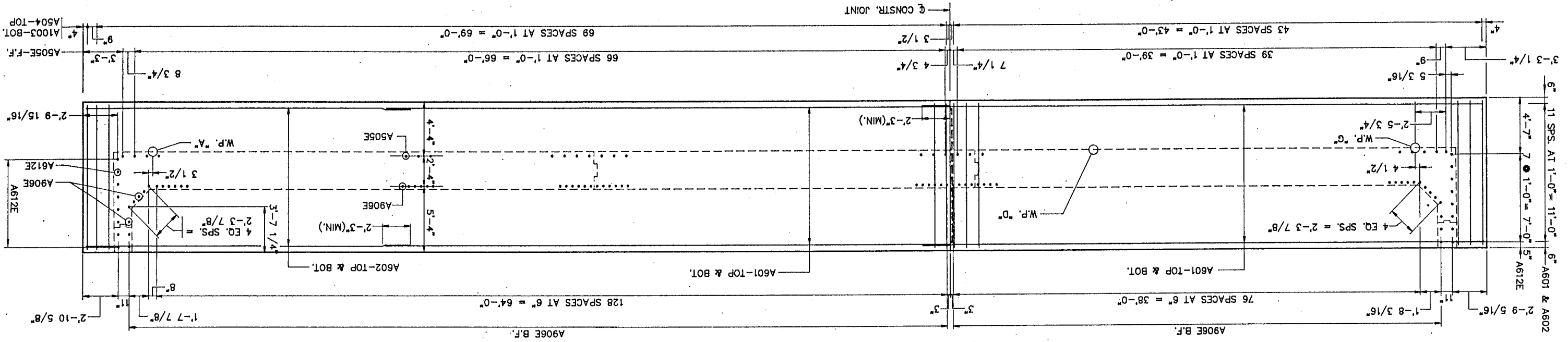
- ① COMPUTED QUANTITY = 390 CU. YDS. FOR INFORMATIONAL PURPOSES ONLY.
- ② SEE SPECIAL PROVISIONS
- ③ TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ④ STATE WILL FURNISH DISK. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STANDARD PLATE NO. 93018
- ⑤ FOR PLACING OF DISK IN CONCRETE.
- ⑥ SEE SHEET 31 FOR DETAILS AND LIST OF MATERIALS INCLUDED IN DRAINAGE SYSTEM. (LUMP SUM)



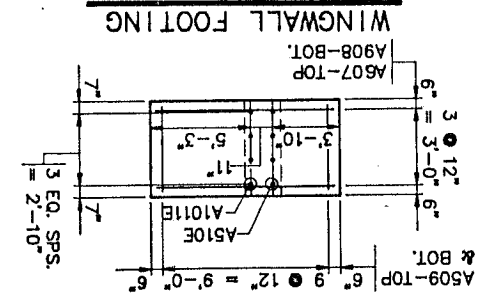
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 CHK: SCA
 APPROVED: 8-14-89
 DRW: DJV
 CHK: MKM
 SP 0215-02552



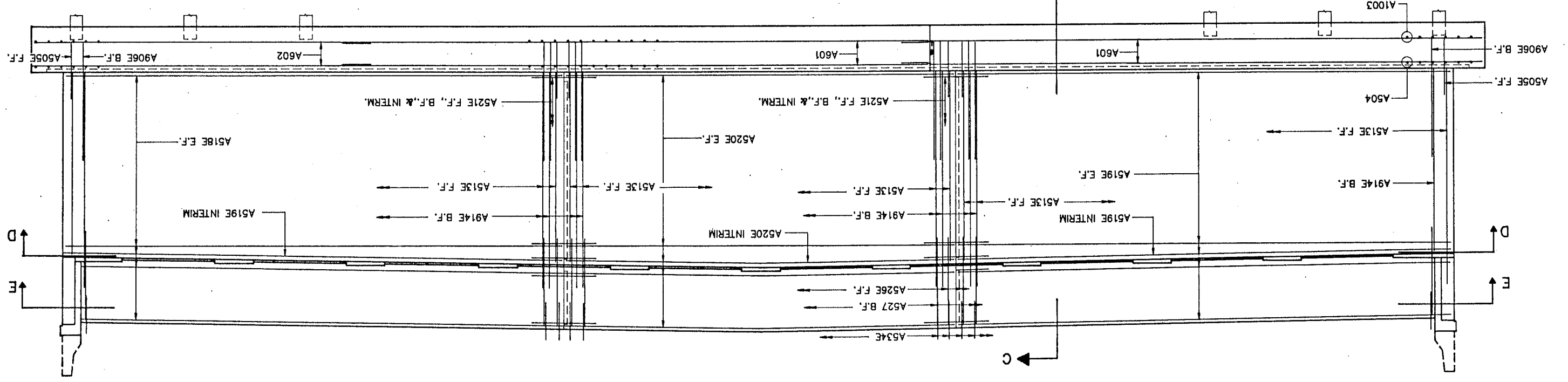
FOOTING REINFORCEMENT



NOTE:
 F.F. DENOTES FRONT FACE
 B.F. DENOTES BACK FACE
 E.F. DENOTES EACH FACE
 SEE SHEET 8 FOR SECTIONS D-D & E-E
 SEE SHEET 10 FOR SECTION C-C

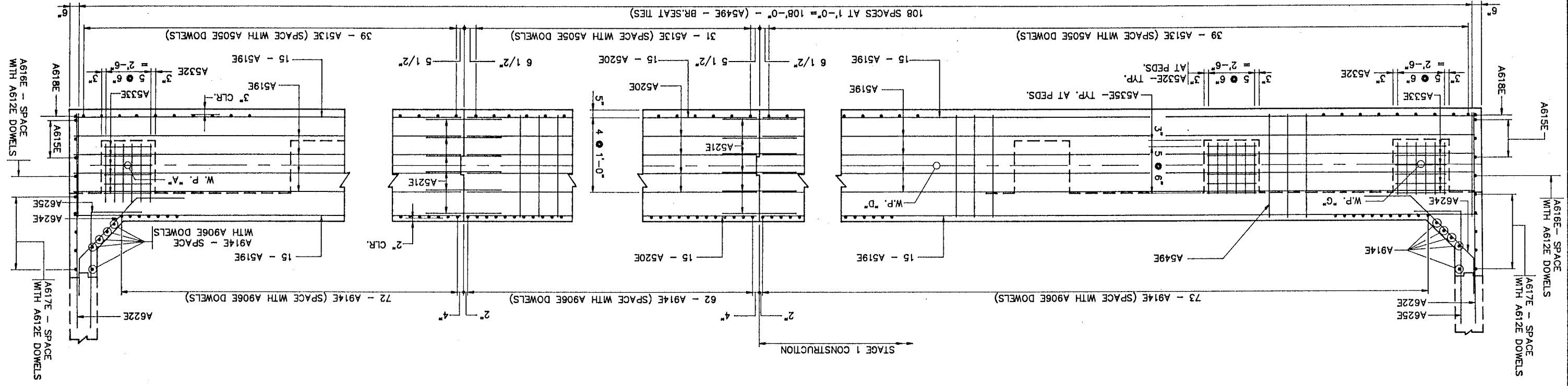


ELEVATION

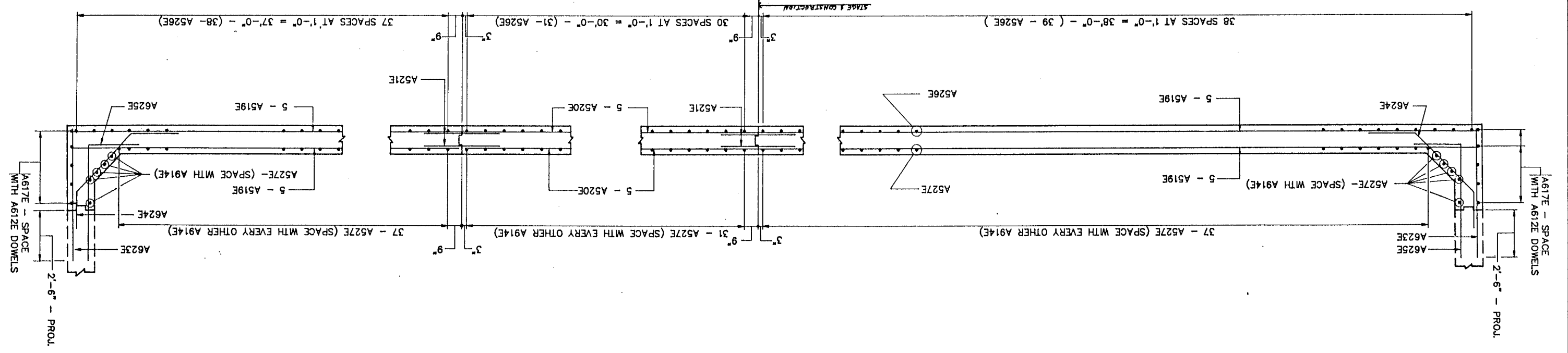




SECTION D-D



SECTION E-E



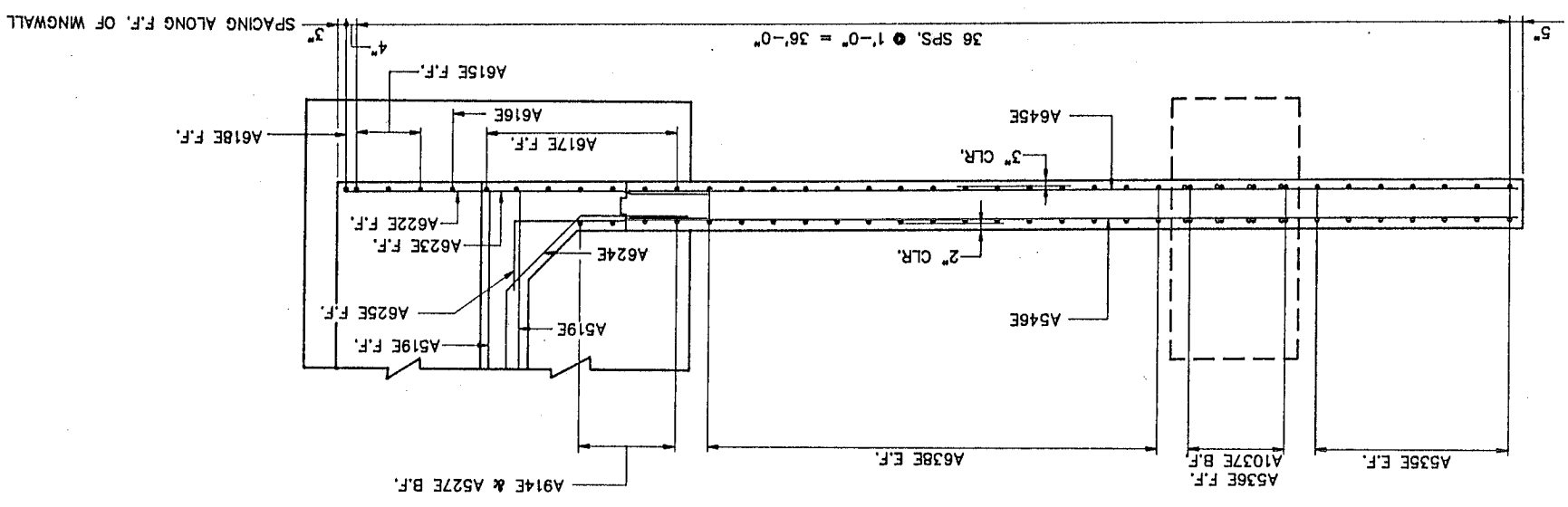


DES: MKM
CHK: SCA
APPROVED: 5-14-89

DRW: DJV
CHK: MKM

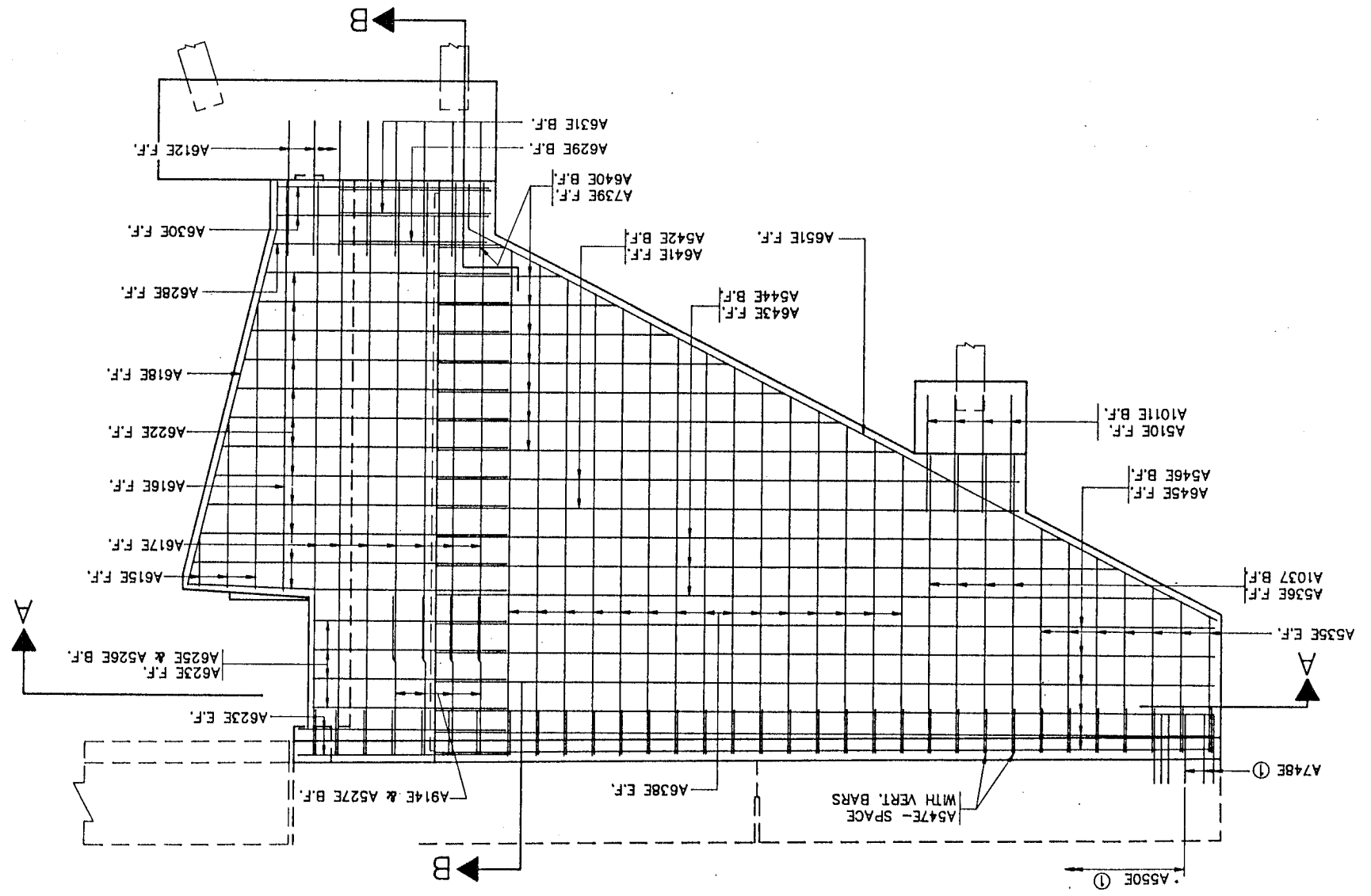
SP 0215-02552

SECTION A-A



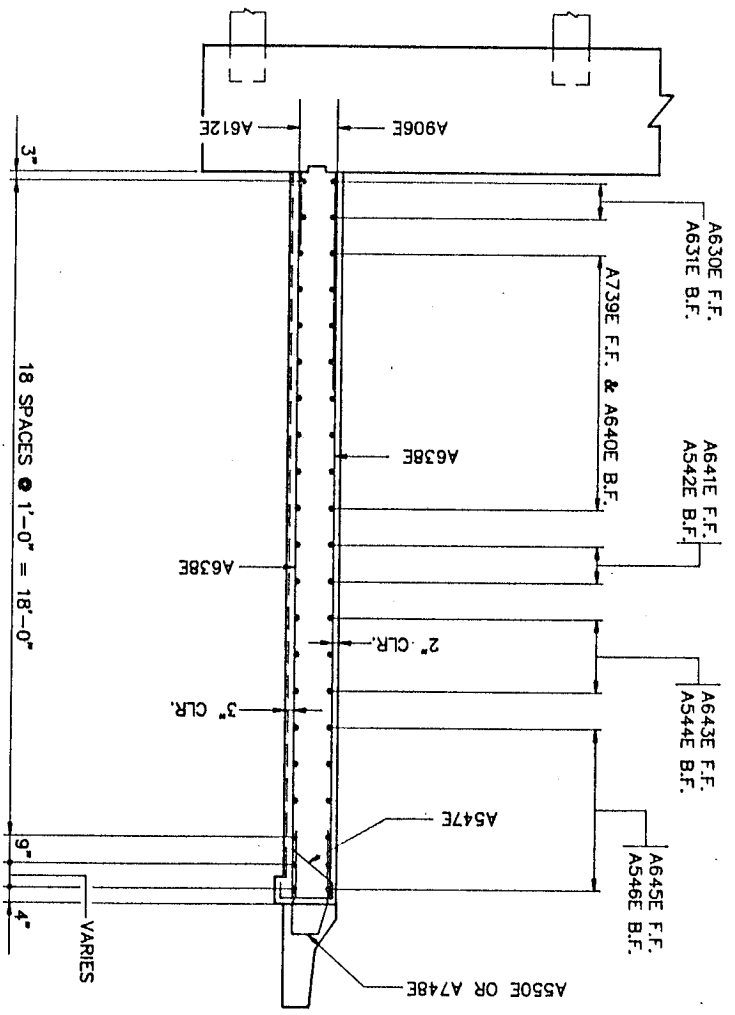
NOTES:
EAST WINGWALL SHOWN, WEST WINGWALL IS SIMILAR
F.F. DENOTES FRONT FACE
B.F. DENOTES BACK FACE
E.F. DENOTES EACH FACE

WINGWALL REINFORCEMENT



① SEE RAIL SHEET 23 FOR BAR SPACING.

SECTION B-B



BILL REINFORCEMENT - SO. ABUTMENT

MARK	NO.	LENGTH	SHAPE	LOCATION
A601	48	45'-8"	STR	FOOTING-LONGIT.
A602	24	26'-10"	STR	FOOTING-LONGIT.
A1003	115	11'-6"	STR	FOOTING-TRANSVERSE
A504	115	11'-6"	STR	FOOTING-TRANSVERSE
A505E	109	5'-0"	BENT	FOOTING-DOWELS
A906E	221	9'-6"	BENT	FOOTING-DOWELS
A507	8	9'-6"	STR	WNG FOOTING-LONGIT.
A908	8	9'-6"	STR	WNG FOOTING-LONGIT.
A509	40	3'-6"	STR	WNG FOOTING-TRANSV.
A510E	8	4'-0"	STR	WNG FOOTING-DOWELS
A1011	8	7'-6"	STR	WNG FOOTING-DOWELS
A612E	16	5'-0"	STR	WNG FOOTING-DOWELS
A513E	109	14'-1"	BENT	BR. SEAT - VERT.
A914E	221	17'-3"	STR	BR. SEAT - VERT.
A615E	6	1'-3"	STR	BR. SEAT - VERT.
A616E	2	14'-2"	STR	BR. SEAT - VERT.
A617E	14	19'-11"	STR	BR. SEAT - VERT.
A618E	2	14'-1"	BENT	BR. SEAT - VERT.
A519E	88	38'-10"	STR	BR. SEAT - HORZ.
A520E	44	30'-8"	STR	BR. SEAT - HORZ.
A521E	88	5'-0"	STR	BR. SEAT - JOINTS
A622E	24	11'-0"	STR	BR. SEAT - CORNERS
A623E	12	7'-6"	STR	BR. SEAT - CORNERS
A624E	38	9'-4"	BENT	BR. SEAT - CORNERS
A625E	38	8'-3"	BENT	BR. SEAT - CORNERS
A526E	108	7'-6"	STR	PARA. WALL - VERT.
A527E	115	4'-6"	STR	PARA. WALL - VERT.
A628E	2	8'-2"	STR	WNG WALL - HORZ.
A629E	2	7'-11"	BENT	WNG WALL - HORZ.
A630E	4	7'-7"	STR	WNG WALL - HORZ.
A631E	4	7'-0"	BENT	WNG WALL - HORZ.
A532E	66	4'-3"	BENT	BR. SEAT - TIES
A533E	66	2'-8"	STR	BR. SEAT - TIES
A534E	106	5'-0"	BENT	END SLAB - VERT.
A535E	28	10'-4"	STR	WNG WALL - VERT.
A536E	8	10'-4"	STR	WNG WALL - VERT.
A1037E	8	10'-4"	STR	WNG WALL - VERT.
A638E	60	6'-0"	STR	WNG WALL - VERT.
A739E	16	16	STR	WNG WALL - HORZ.
A640E	16	16	STR	WNG WALL - HORZ.
A641E	4	20'-9"	STR	WNG WALL - HORZ.
A542E	4	20'-9"	STR	WNG WALL - HORZ.
A643E	6	6	STR	WNG WALL - HORZ.
A544E	6	6	STR	WNG WALL - HORZ.
A645E	12	27'-9"	STR	WNG WALL - HORZ.
A546E	12	27'-9"	STR	WNG WALL - HORZ.
A547E	66	3'-8"	BENT	WNG WALL - TOP
A748E	6	6'-1"	BENT	WNG WALL - TO RAIL
A549E	109	7'-2"	BENT	BR. SEAT - TIES
A550E	72	6'-1"	BENT	WNG WALL - TO RAIL
A651E	4	31'-2"	BENT	WNG WALL - HORZ.

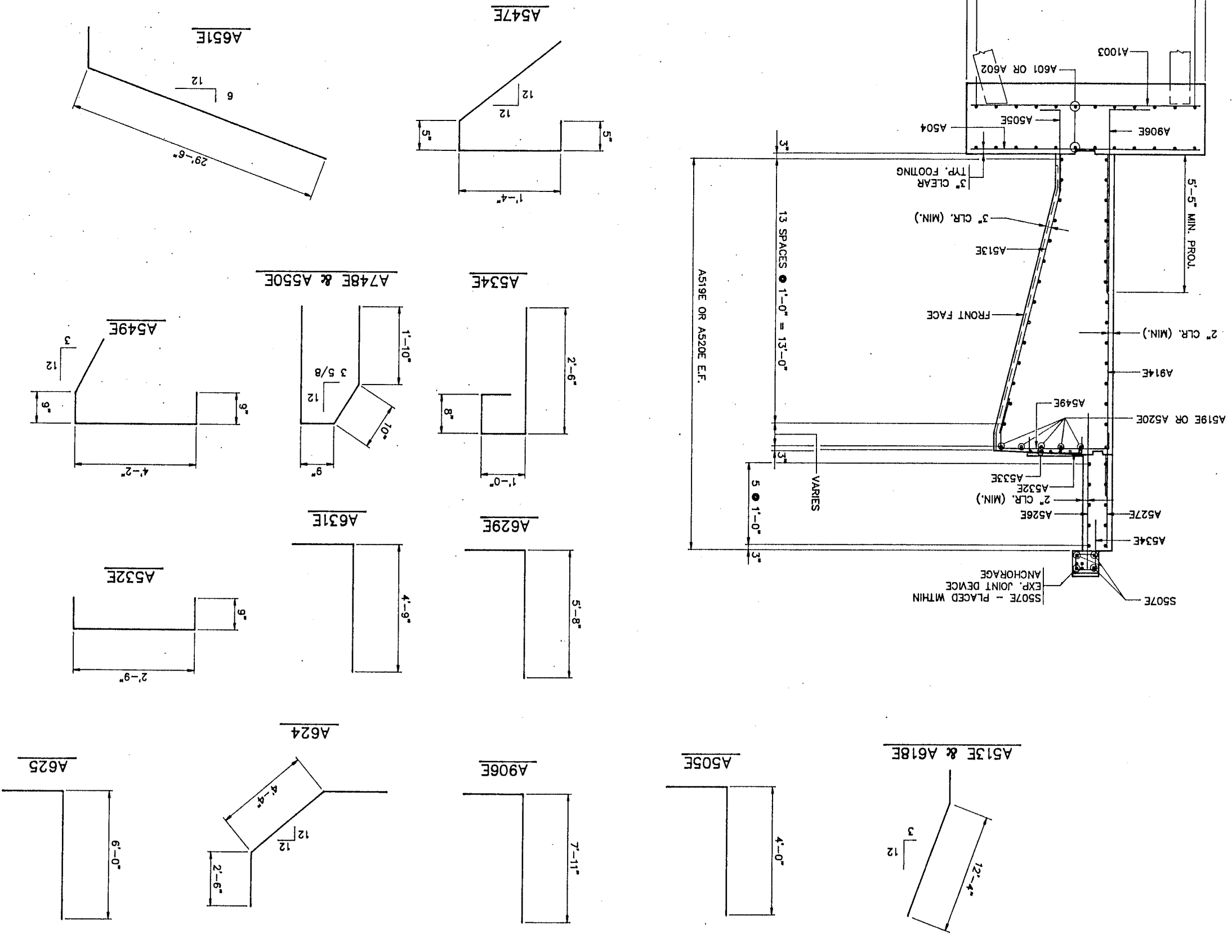
BRIDGE NO. 02552
 SHEET NO. 10 OF 33 SHEETS
 DES: MKM
 CHK: SCA
 DRW: DJV
 CHK: MKM
 APPROVED: 8-14-89

SOUTH ABUTMENT REINFORCEMENT

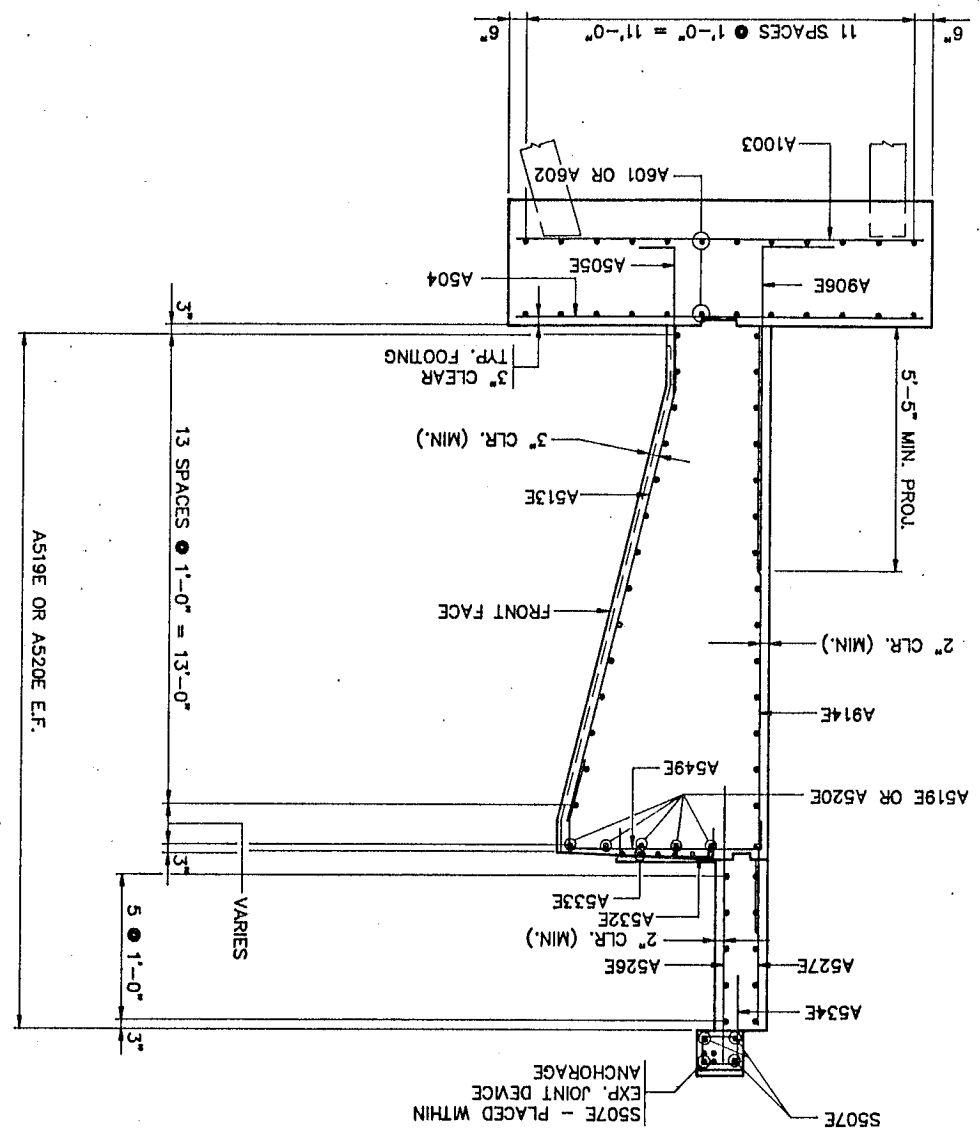


S.P. 0215-02552

- ① 2 SETS OF 3 BARS (1'-9" TO 9'-11")
- ② 4 SETS OF 7 BARS (4'-9" TO 7'-10")
- ③ 4 SETS OF 15 BARS (10'-5" TO 17'-5")
- ④ 2 SETS OF 8 BARS (2'-6" TO 16'-5")
- ⑤ 2 SETS OF 3 BARS (22'-5" TO 26'-5")



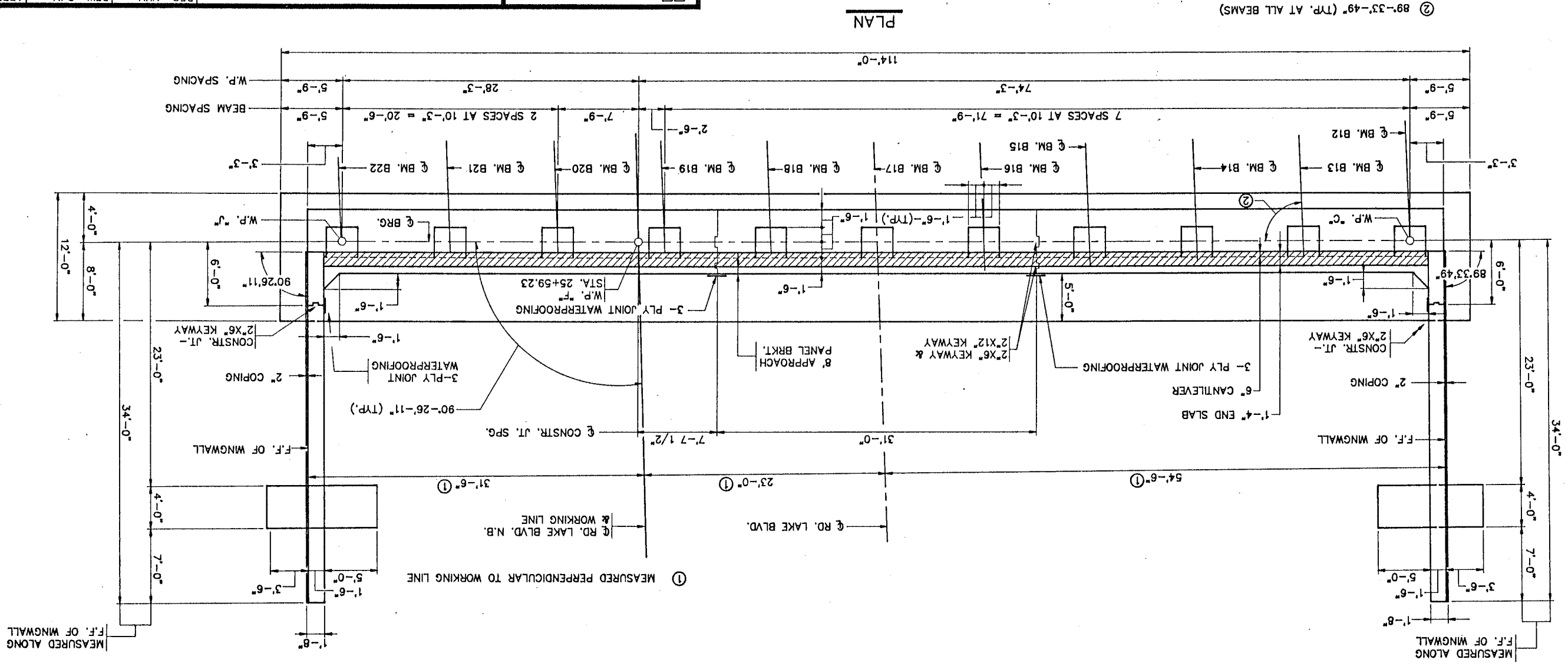
SECTION C-C





SP 0215-02552

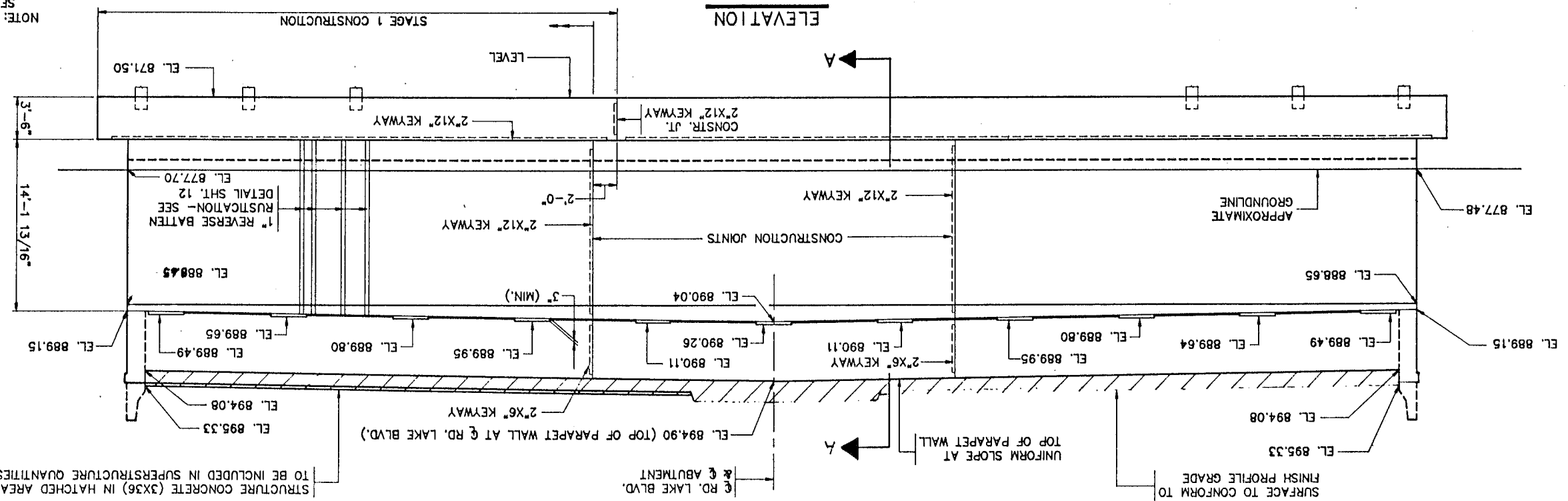
DES: MKM
CHK: SCA
APPROVED: 8-14-89



② 89'-33'-49" (TYP. AT ALL BEAMS)

PLAN

NOTE: SEE SHIT. 12 FOR SECTION A-A



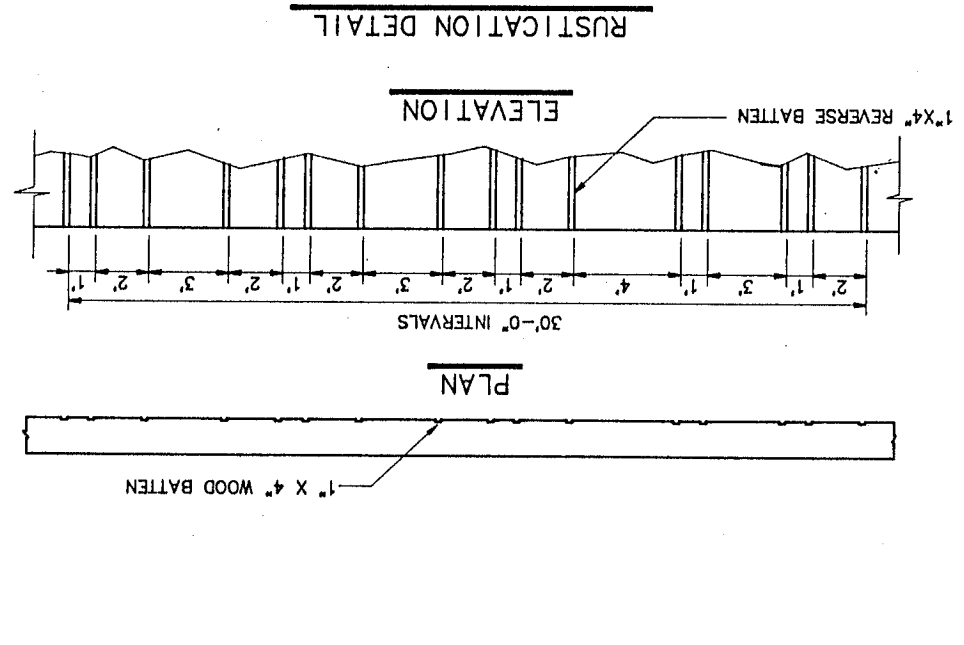
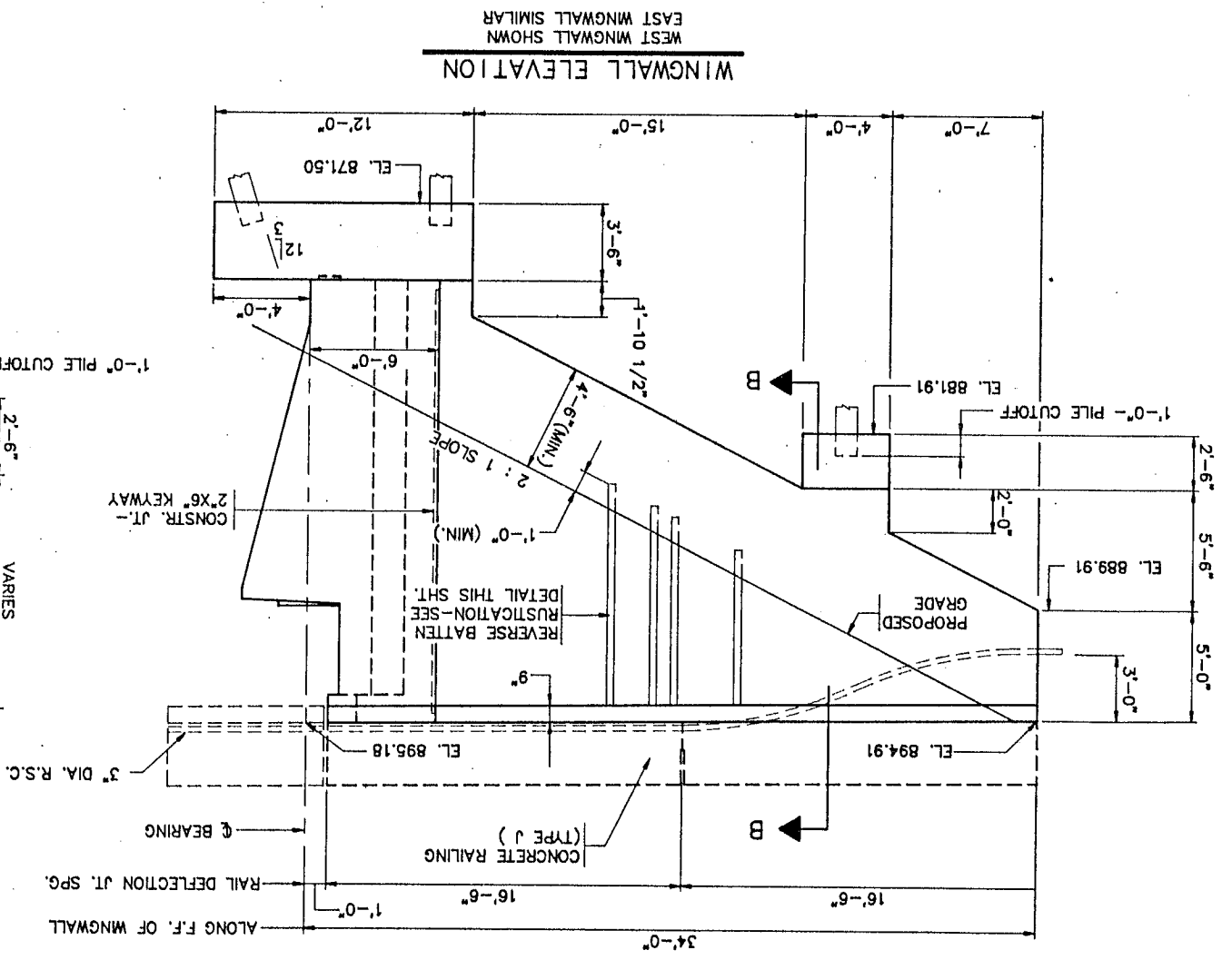
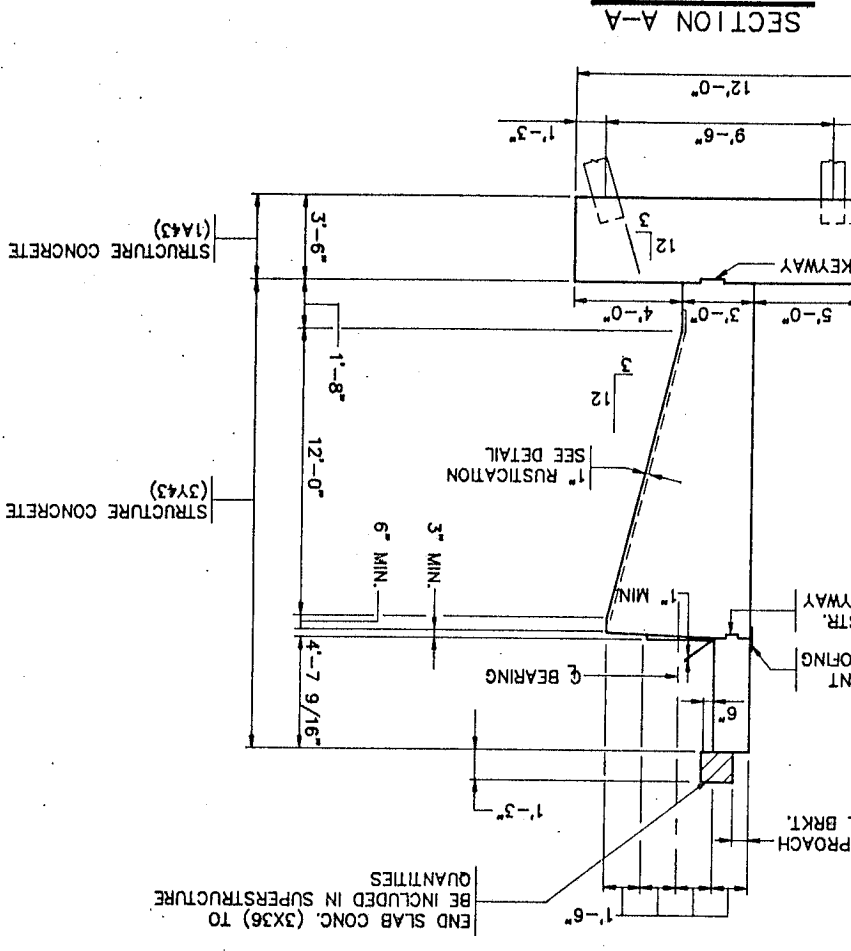
ELEVATION

STRUCTURE CONCRETE (3X36) IN HATCHED AREA TO BE INCLUDED IN SUPERSTRUCTURE QUANTITIES

SUMMARY OF QUANTITIES - NORTH ABUTMENT

ITEM	UNIT	QUANT.
STRUCTURE CONCRETE (1A43)	CU. YD.	185
STRUCTURE CONCRETE (3Y43)	CU. YD.	332
REINFORCEMENT BARS	POUND	12075
REINFORCEMENT BARS (EPOXY COATED)	POUND	38085
3-PLY JOINT WATERPROOFING	LN. FT.	100
C.I.P. CONCRETE TEST PILES 60 FT. LONG (12"Ø)	EACH	3
C.I.P. CONCRETE PILING DRIVEN (12"Ø)	LN. FT.	2490
C.I.P. CONCRETE PILING DELIVERED (12"Ø)	LN. FT.	2490
STRUCTURE EXCAVATION	LUMP SUM	1
DRAINAGE SYSTEM	LUMP SUM	1

- ① COMPUTED QUANTITY = 390 CU. YDS. FOR INFORMATIONAL PURPOSES ONLY.
- ② SEE SPECIAL PROVISIONS
- ③ TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ④ SEE SHEET 31 FOR DETAILS AND LIST OF MATERIALS INCLUDED IN DRAINAGE SYSTEM. (LUMP SUM)



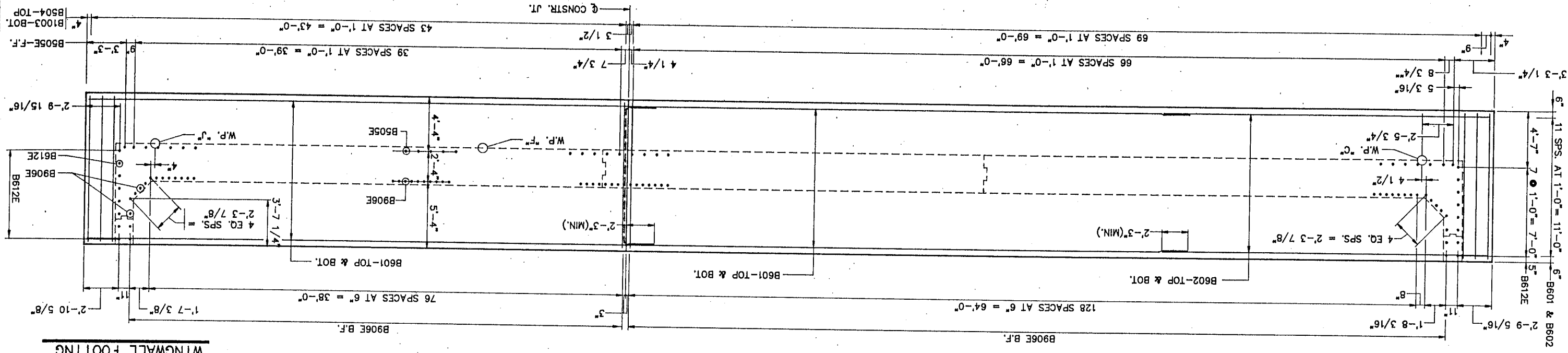
NORTH ABUTMENT
DETAILS

SP 0215-02552

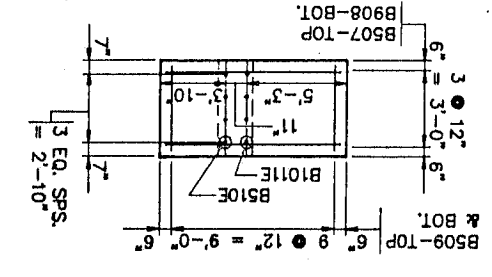


DES: MKM
CHK: SCA
APPROVED: B-14-87

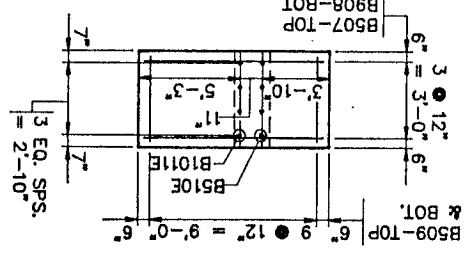
DRW: DJV
CHK: MKM



WINGWALL FOOTING

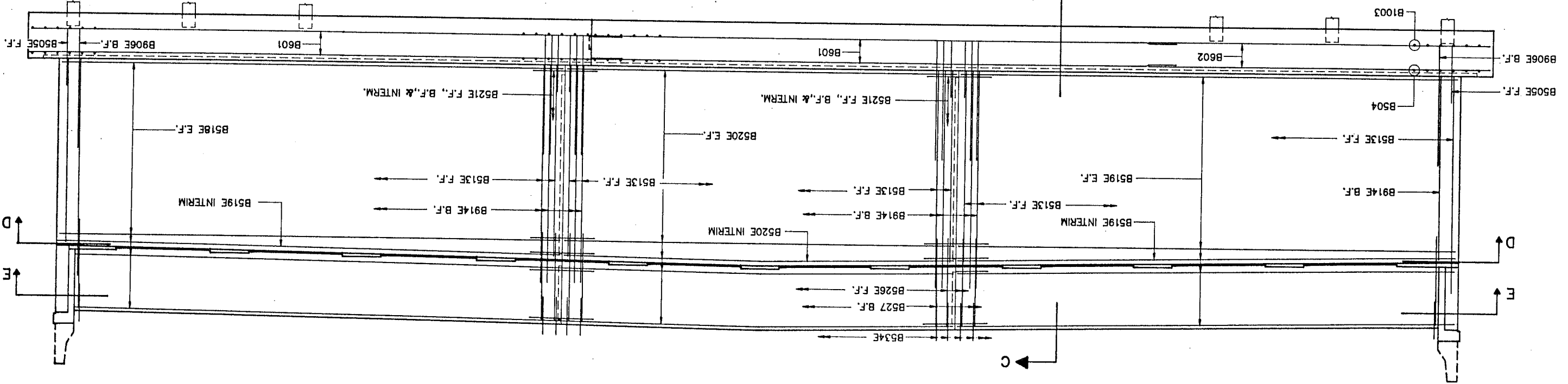


WINGWALL FOOTING



NOTE:
F.F. DENOTES FRONT FACE
B.F. DENOTES BACK FACE
E.F. DENOTES EACH FACE
SEE SHEET 14 FOR SECTIONS D-D & E-E
SEE SHEET 16 FOR SECTION C-C

ELEVATION





NORTH ABUTMENT REINFORCEMENT

SHEET NO. 14 OF 33 SHEETS

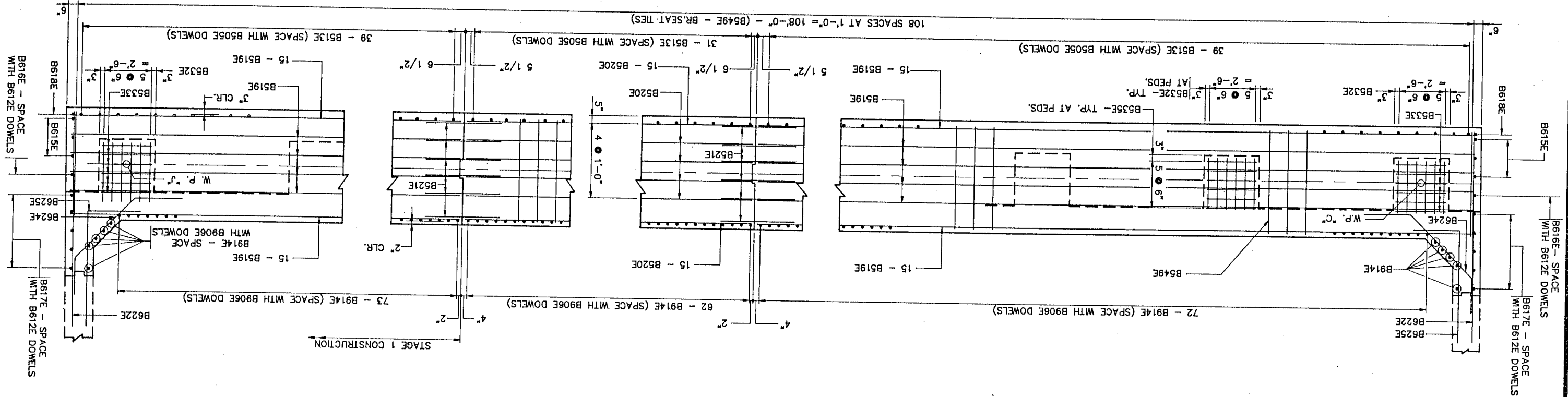
BRIDGE NO. 02552

SP 0215-02552

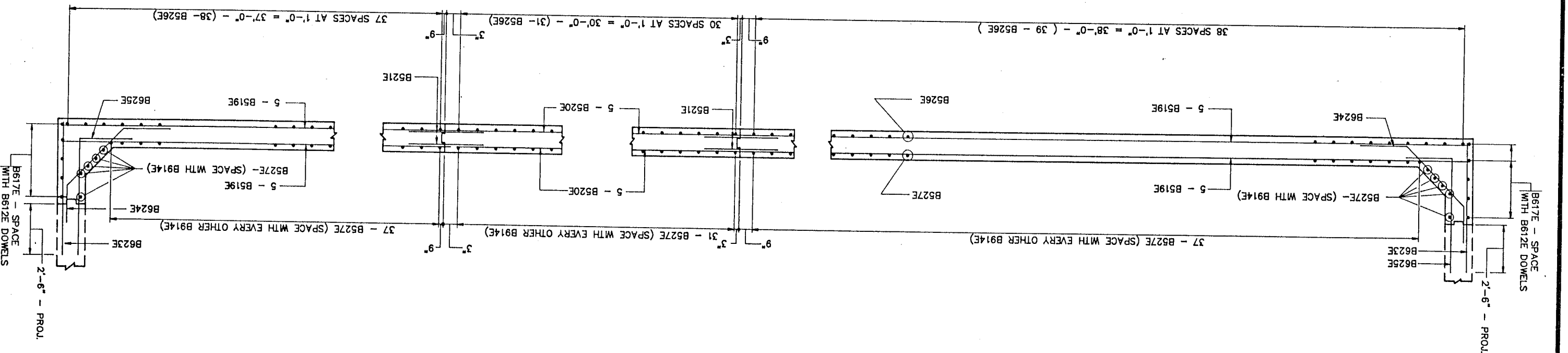
DES: MKM
CHK: SCA
APPROVED: B-14-84

DRW: DJV
CHK: MKM

SECTION D-D



SECTION E-E



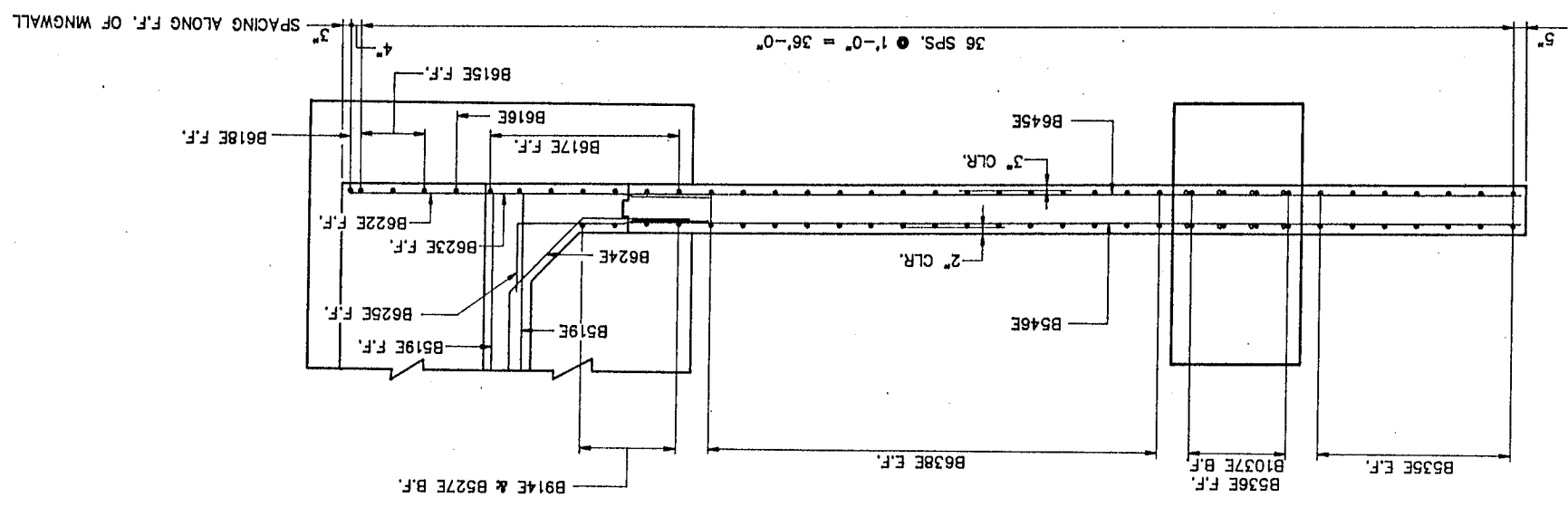


DES: MKM
CHK: SCA
APPROVED: B-14-89

DRW: DJV
CHK: MKM

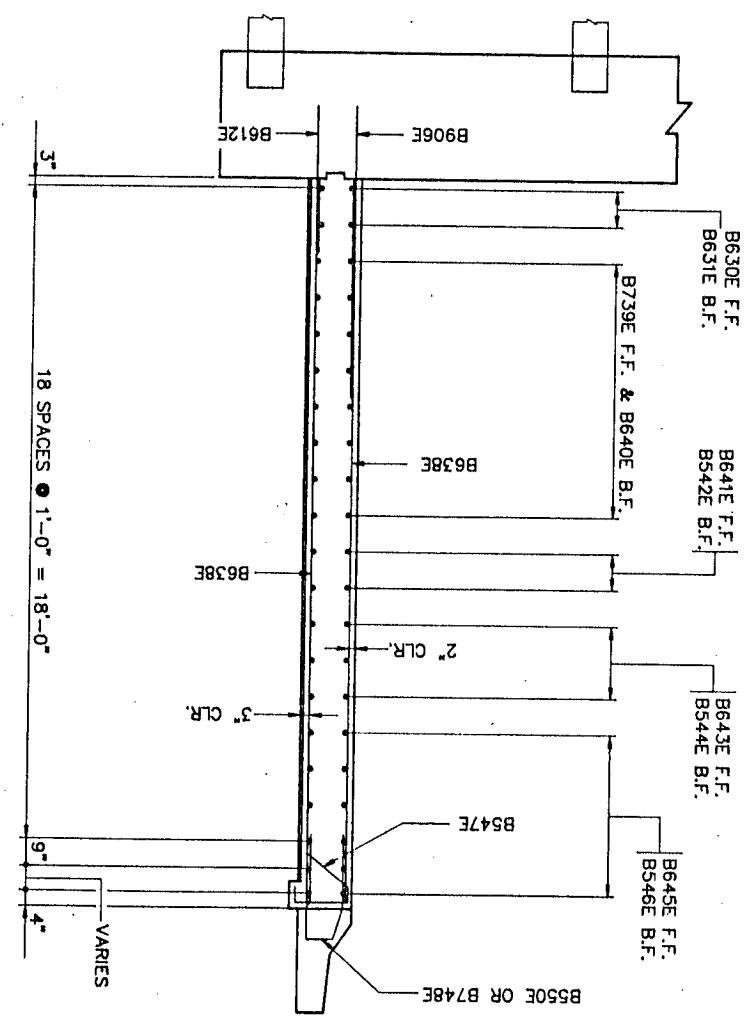
SP 0215-02552

SECTION A-A

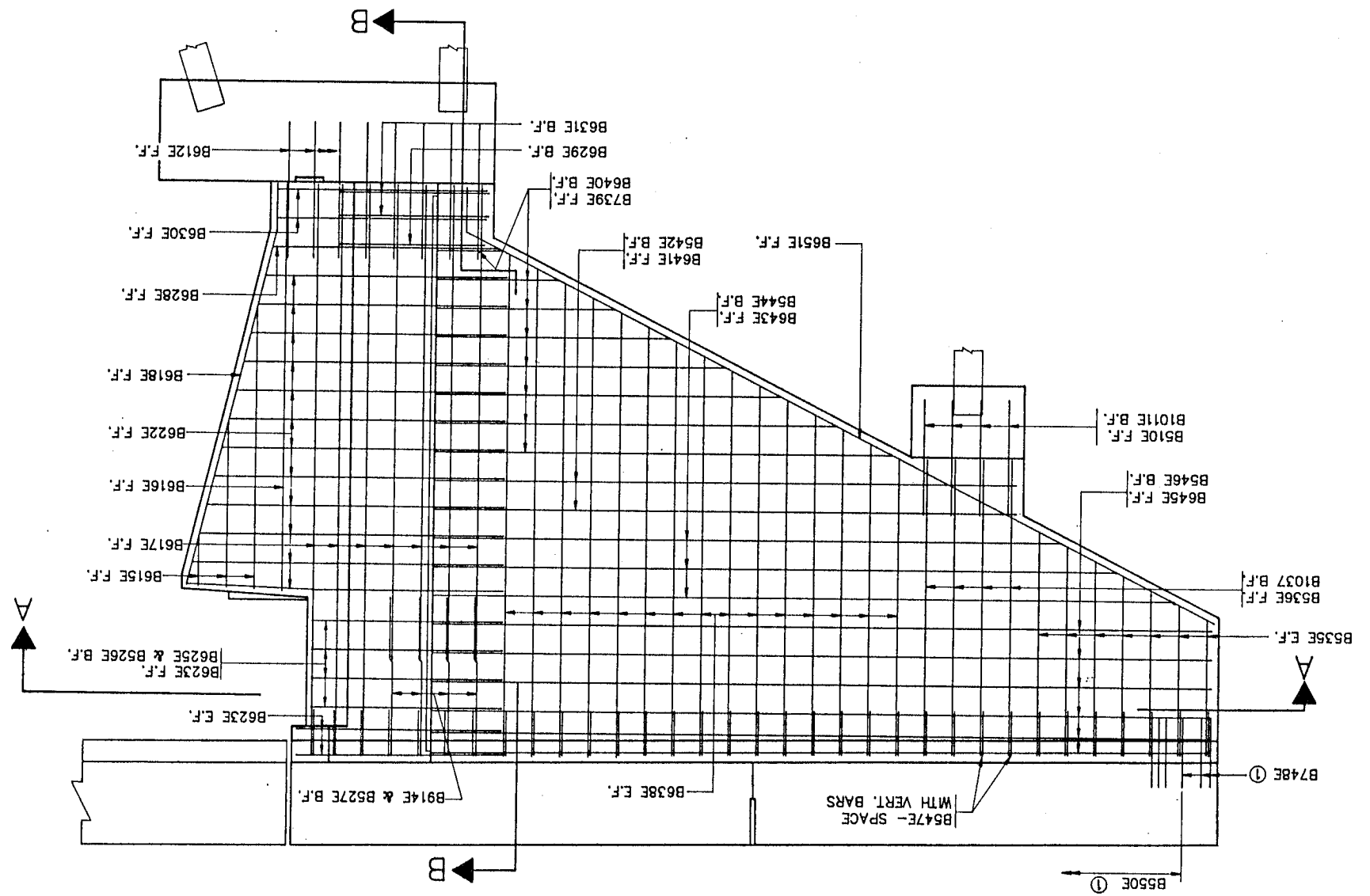


NOTES:
WEST WINGWALL SHOWN, EAST WINGWALL IS SIMILAR
F.F. DENOTES FRONT FACE
B.F. DENOTES BACK FACE
E.F. DENOTES EACH FACE

SECTION B-B



WINGWALL REINFORCEMENT



① SEE RAIL SHEET 23 FOR BAR SPACING.

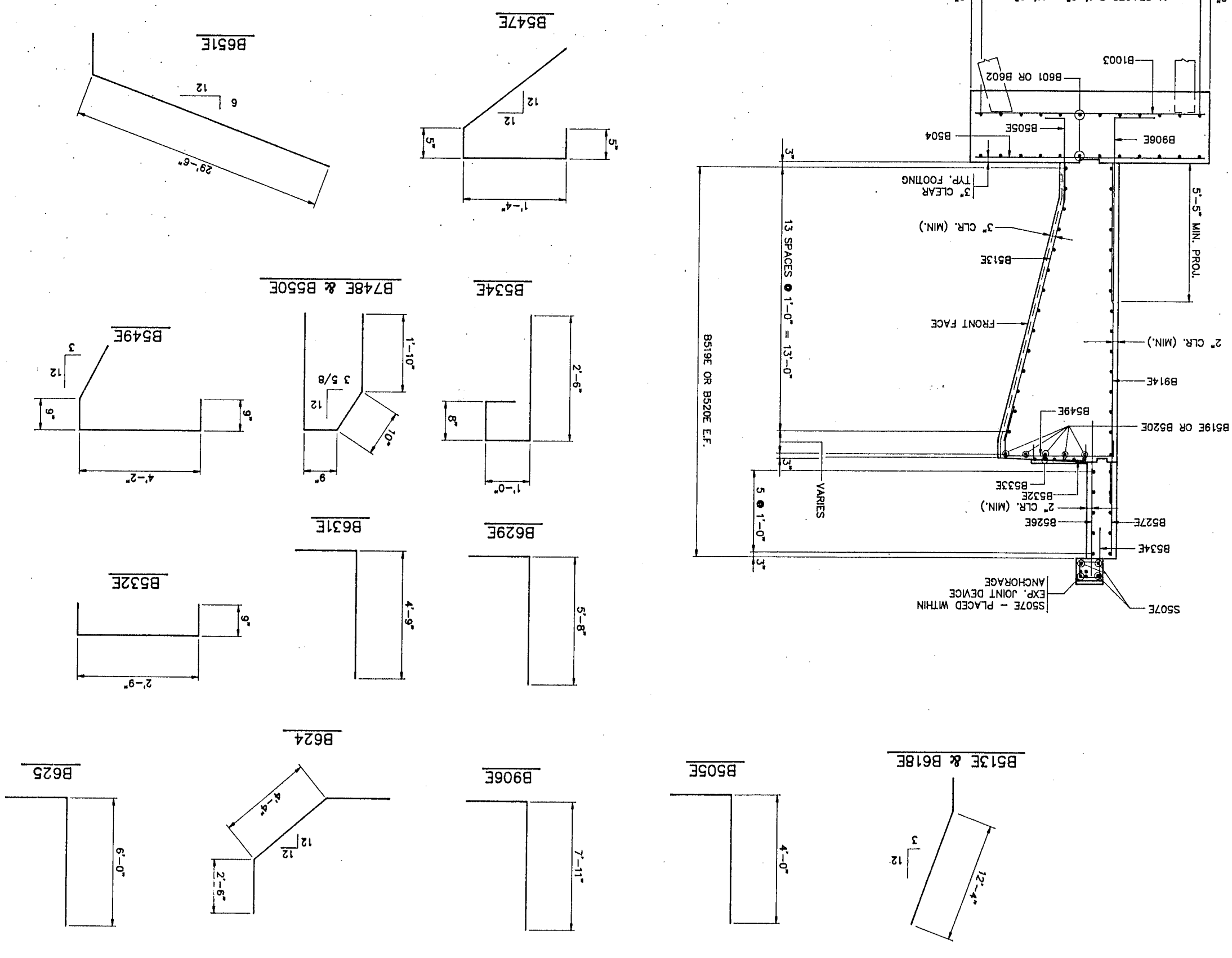
BILL REINFORCEMENT- NO. ABUTMENT

MARK	NO.	LENGTH	SHAPE	LOCATION
B601	48	45'-8"	STR	FOOTING- LONGIT.
B602	24	26'-10"	STR	FOOTING- LONGIT.
B1003	115	11'-6"	STR	FOOTING- TRANSVERSE
B504	115	11'-6"	STR	FOOTING- TRANSVERSE
B505E	109	5'-0"	BENT	FOOTING- DOWELS
B906E	221	9'-6"	BENT	FOOTING- DOWELS
B507	8	9'-6"	STR	WNG FOOTING- LONGIT.
B908	8	9'-6"	STR	WNG FOOTING- LONGIT.
B509	40	3'-6"	STR	WNG FOOTING- TRANSV.
B510E	8	4'-0"	STR	WNG FOOTING- DOWELS
B1011	8	7'-6"	STR	WNG FOOTING- DOWELS
B612E	16	5'-0"	STR	WNG FOOTING- DOWELS
B513E	109	14'-1"	BENT	BR. SEAT - VERT.
B914E	221	17'-3"	STR	BR. SEAT - VERT.
B615E	6	14'-2"	STR	BR. SEAT - VERT.
B616E	2	14'-2"	STR	BR. SEAT - VERT.
B617E	14	19'-11"	STR	BR. SEAT - VERT.
B618E	2	14'-1"	BENT	BR. SEAT - VERT.
B519E	88	38'-10"	STR	BR. SEAT - HORIZ.
B520E	44	30'-8"	STR	BR. SEAT - HORIZ.
B521E	88	5'-0"	STR	BR. SEAT - JOINTS
B622E	24	11'-0"	STR	BR. SEAT - CORNERS
B623E	12	7'-6"	STR	BR. SEAT - CORNERS
B624E	38	9'-4"	BENT	BR. SEAT - CORNERS
B625E	38	8'-3"	BENT	BR. SEAT - CORNERS
B526E	108	7'-6"	STR	PARA. WALL - VERT.
B527E	115	4'-6"	STR	PARA. WALL - VERT.
B628E	2	8'-2"	STR	WNG WALL - HORIZ.
B629E	2	7'-11"	BENT	WNG WALL - HORIZ.
B630E	4	7'-7"	STR	WNG WALL - HORIZ.
B631E	4	7'-0"	BENT	WNG WALL - HORIZ.
B532E	66	4'-3"	BENT	BR. SEAT - TIES
B533E	66	2'-8"	STR	BR. SEAT - TIES
B534E	106	5'-0"	BENT	END SLAB - VERT.
B535E	28	2	STR	WNG WALL - VERT.
B536E	8	10'-4"	STR	WNG WALL - VERT.
B1037E	8	10'-4"	STR	WNG WALL - VERT.
B638E	60	6	STR	WNG WALL - HORIZ.
B739E	16	16	STR	WNG WALL - HORIZ.
B640E	16	20'-9"	STR	WNG WALL - HORIZ.
B641E	4	20'-9"	STR	WNG WALL - HORIZ.
B642E	4	20'-9"	STR	WNG WALL - HORIZ.
B643E	6	20'-9"	STR	WNG WALL - HORIZ.
B644E	6	20'-9"	STR	WNG WALL - HORIZ.
B645E	12	27'-9"	STR	WNG WALL - HORIZ.
B546E	12	27'-9"	STR	WNG WALL - HORIZ.
B547E	66	3'-8"	BENT	WNG WALL - TOP
B748E	6	6'-1"	BENT	WNG WALL - TO RAIL
B549E	109	7'-2"	BENT	BR. SEAT - TIES
B550E	72	6'-1"	BENT	WNG WALL - TO RAIL
B651E	4	31'-2"	BENT	WNG WALL - HORIZ.

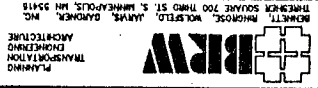
DES: MKM
CHK: SCA
APPROVED: 8-14-94
BRIDGE NO. 02552
SHEET NO. 16 OF 33 SHEETS

NORTH ABUTMENT REINFORCEMENT
S.P. 0915-08552
BRW
PLANNING
TRANSPORTATION
CONSULTING
URBAN DESIGN
100 THIRD STREET SOUTH, SUITE 200, DENVER, CO 80202

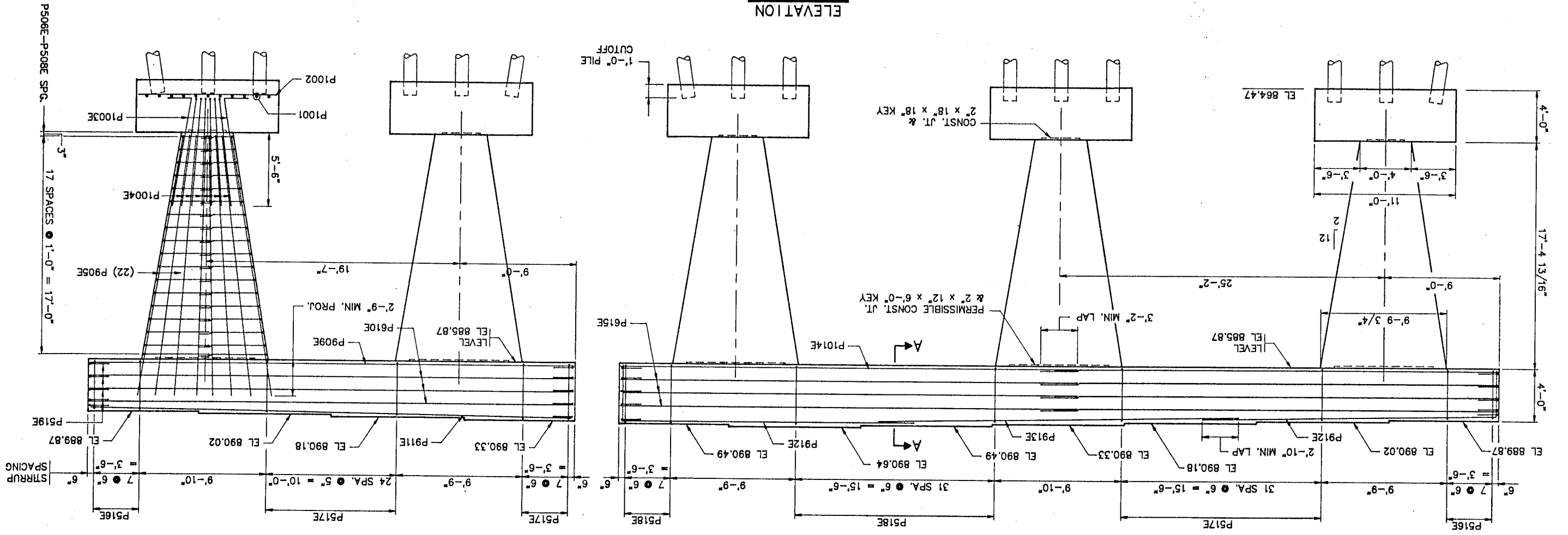
- ① 2 SETS OF 3 BARS (1'-9" TO 9'-11")
- ② 4 SETS OF 7 BARS (4'-9" TO 7'-10")
- ③ 4 SETS OF 15 BARS (10'-5" TO 17'-5")
- ④ 2 SETS OF 8 BARS (2'-6" TO 16'-5")
- ⑤ 2 SETS OF 3 BARS (22'-5" TO 26'-5")



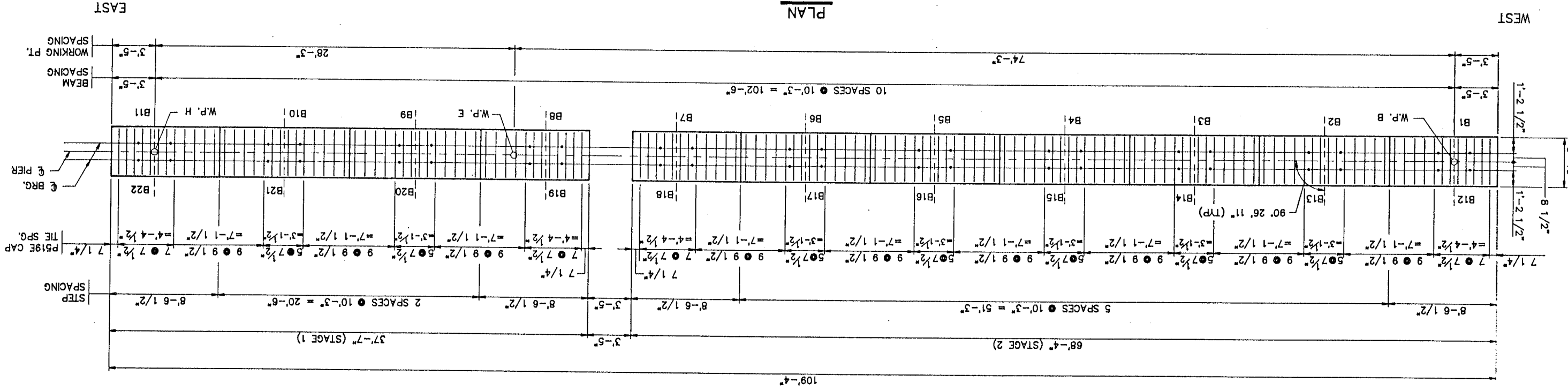
PIER DETAILS



ELEVATION

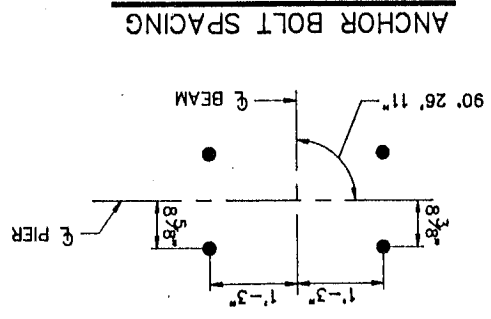
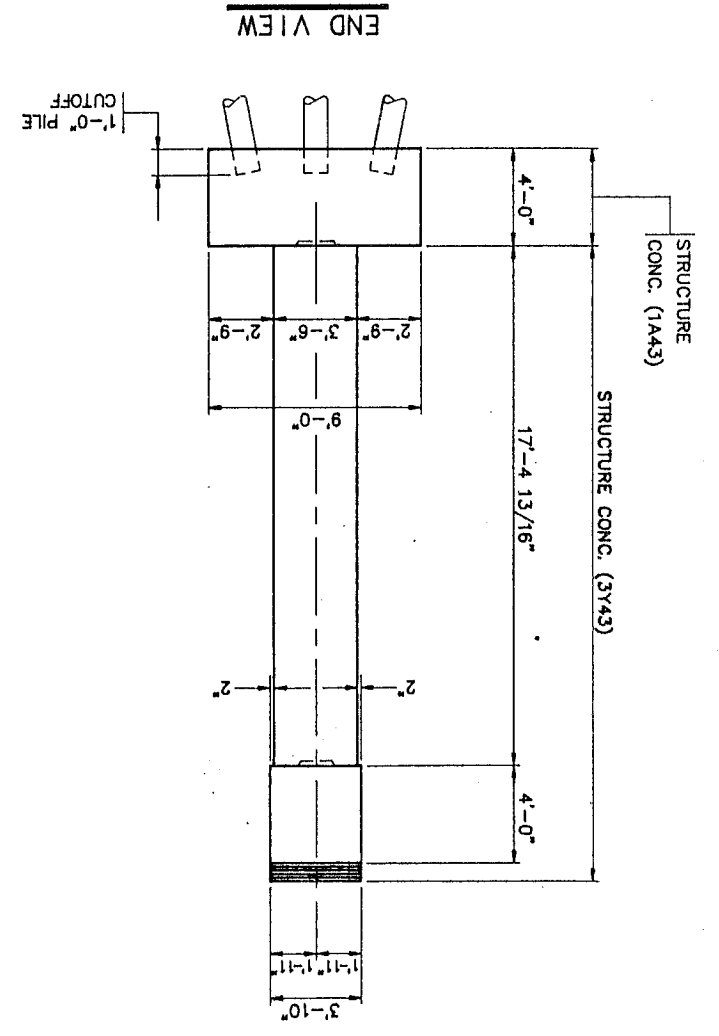
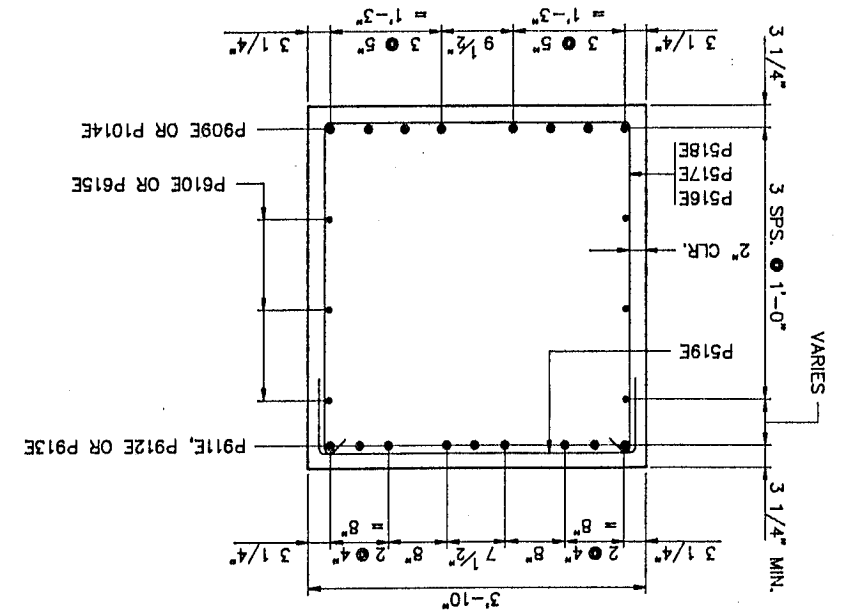


PLAN

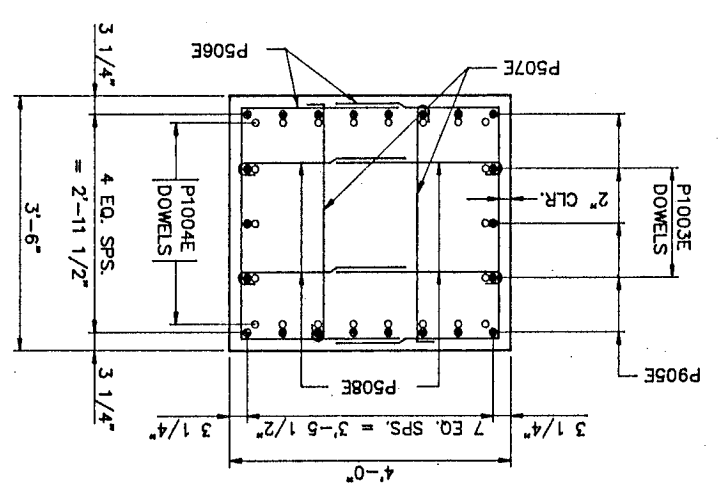


SP 0216-02552

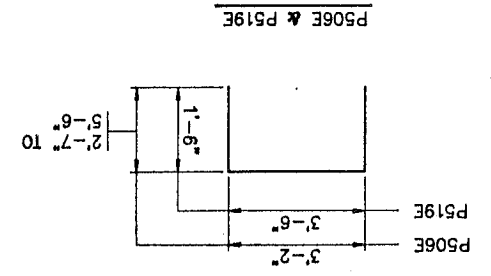
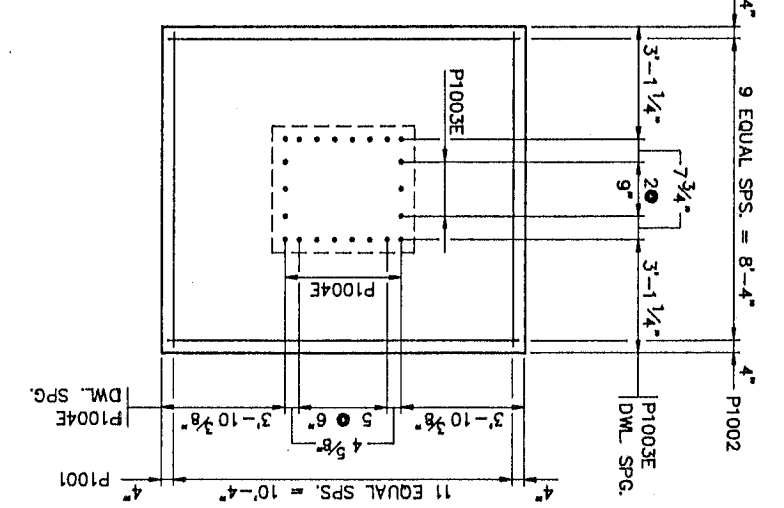
SECTION A-A



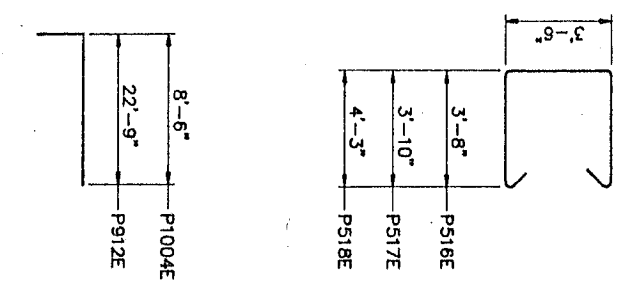
COLUMN SECTION
(AT TOP OF FOOTING)



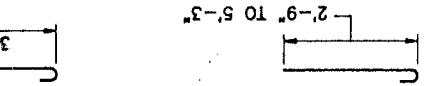
FOOTING PLAN



P516E, P517E & P518E



P508E



- ③ 10 SETS OF 18 BARS - 8'-4" TO 14'-1"
- ④ 20 SETS OF 18 BARS - 3'-4" TO 5'-10"

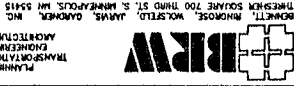
ITEM	UNIT	QUANT.
STRUCTURE CONCRETE (1A43)	CU. YD.	74
STRUCTURE CONCRETE (3Y43)	CU. YD.	144
REINFORCEMENT BARS	POUND	4455
REINFORCEMENT BARS (EPOXY COATED)	POUND	27,920
CIP CONC. PILING DRIVEN	LIN. FT.	1850
CIP CONC. PILING DELIVERED	LIN. FT.	1850
CIP CONC. PILING TEST PILES 60 FT. LONG 12"	EACH	3
STRUCTURE EXCAVATION	LUMP SUM	1

② COMPUTED QUANTITY = 125 CU. YDS. FOR INFORMATIONAL PURPOSES ONLY. SEE SPECIAL PROVISIONS.

BAR	NUMBER	LENGTH	SHAPE	LOCATION
P1001	60	8'-6"	STR.	FOOTING (TRANS.)
P1002	50	10'-6"	STR.	FOOTING (LONGIT.)
P1003E	30	10'-4"	BENT	FOOTING (DOWL.)
P1004E	80	10'-4"	BENT	FOOTING (DOWL.)
P905E	110	20'-6"	STR.	SHAFT (VERT.)
P506E	180	③	BENT	SHAFT (TIES)
P507E	180	4'-3"	BENT	SHAFT (TIES)
P508E	360	④	BENT	SHAFT (TIES)
P909E	8	37'-3"	STR.	CAP (LONGIT.)
P610E	6	37'-3"	STR.	CAP (LONGIT.)
P911E	9	37'-3"	STR.	CAP (LONGIT.)
P912E	18	28'-3"	BENT	CAP (LONGIT.)
P913E	9	28'-0"	STR.	CAP (LONGIT.)
P1014E	16	35'-8"	BENT	CAP (LONGIT.)
P615E	12	35'-8"	STR.	CAP (LONGIT.)
P515E	16	11'-9"	BENT	CAP (STIRRUPS)
P516E	16	11'-9"	BENT	CAP (STIRRUPS)
P517E	65	12'-1"	BENT	CAP (STIRRUPS)
P518E	40	12'-11"	BENT	CAP (STIRRUPS)
P519E	166	6'-6"	BENT	CAP (TIES)

BILL OF REINFORCEMENT

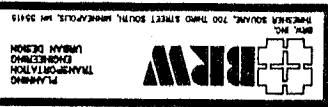
SUMMARY OF QUANTITIES



DES: MKM
CHK: SCA
APPROVED: 8-14-87

BRIDGE NO. 02552

FRAMING PLAN

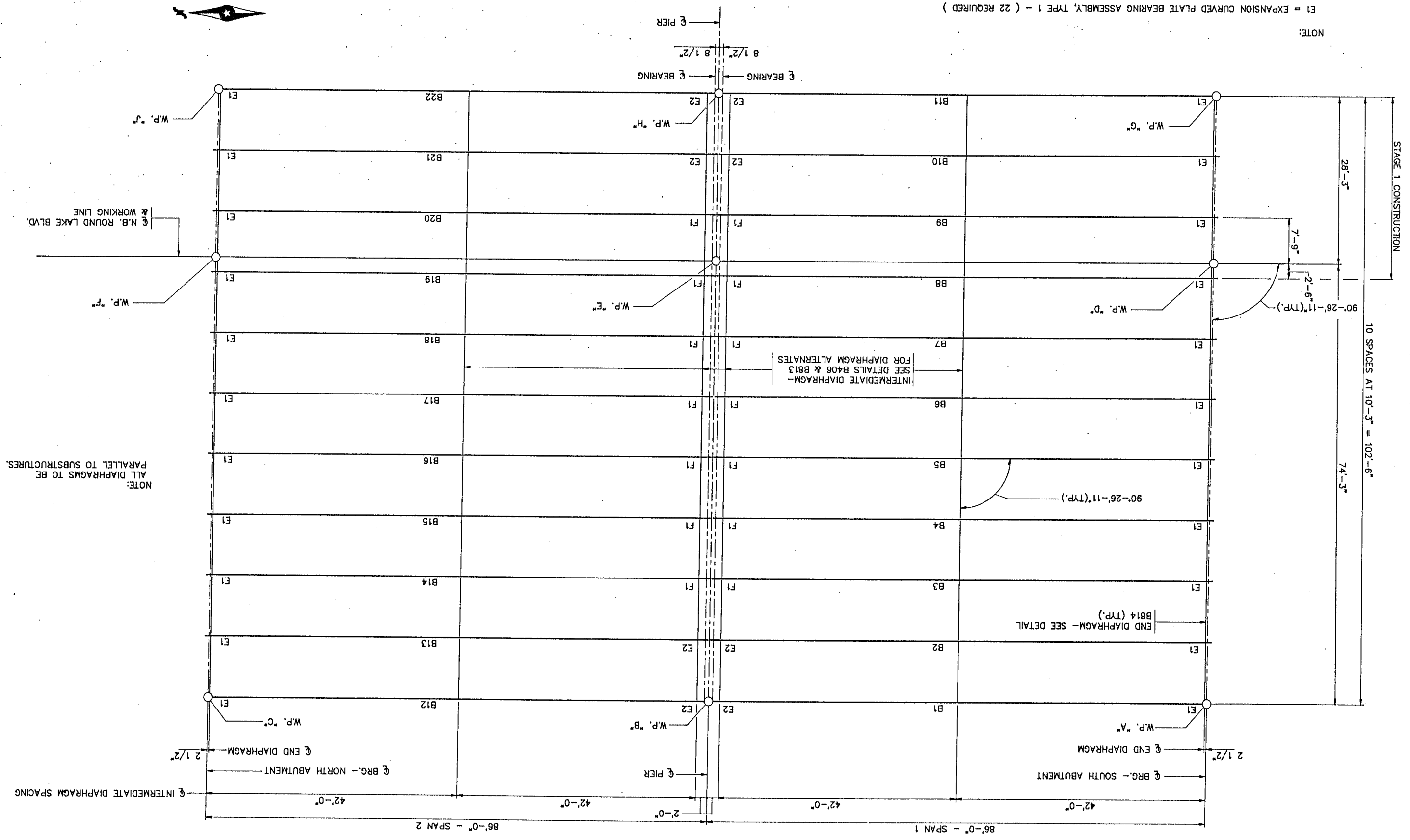


SP 0215-02552

DES: DJV
CHK: MKM
APPROVED: B-14-89

NOTE:
E1 = EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE 1 - (22 REQUIRED)
F1 = FIXED CURVED PLATE BEARING ASSEMBLY, TYPE 1 - (22 REQUIRED)

FRAMING PLAN



NOTE:
ALL DIAPHRAGMS TO BE PARALLEL TO SUBSTRUCTURES.

INTERMEDIATE DIAPHRAGM - SEE DETAILS B406 & B813 FOR DIAPHRAGM ALTERNATES

END DIAPHRAGM - SEE DETAIL B814 (TYP.)

90'-26'-11" (TYP.)

90'-26'-11" (TYP.)

7'-9"

28'-3"

10 SPACES AT 10'-3" = 102'-6"

STAGE 1 CONSTRUCTION

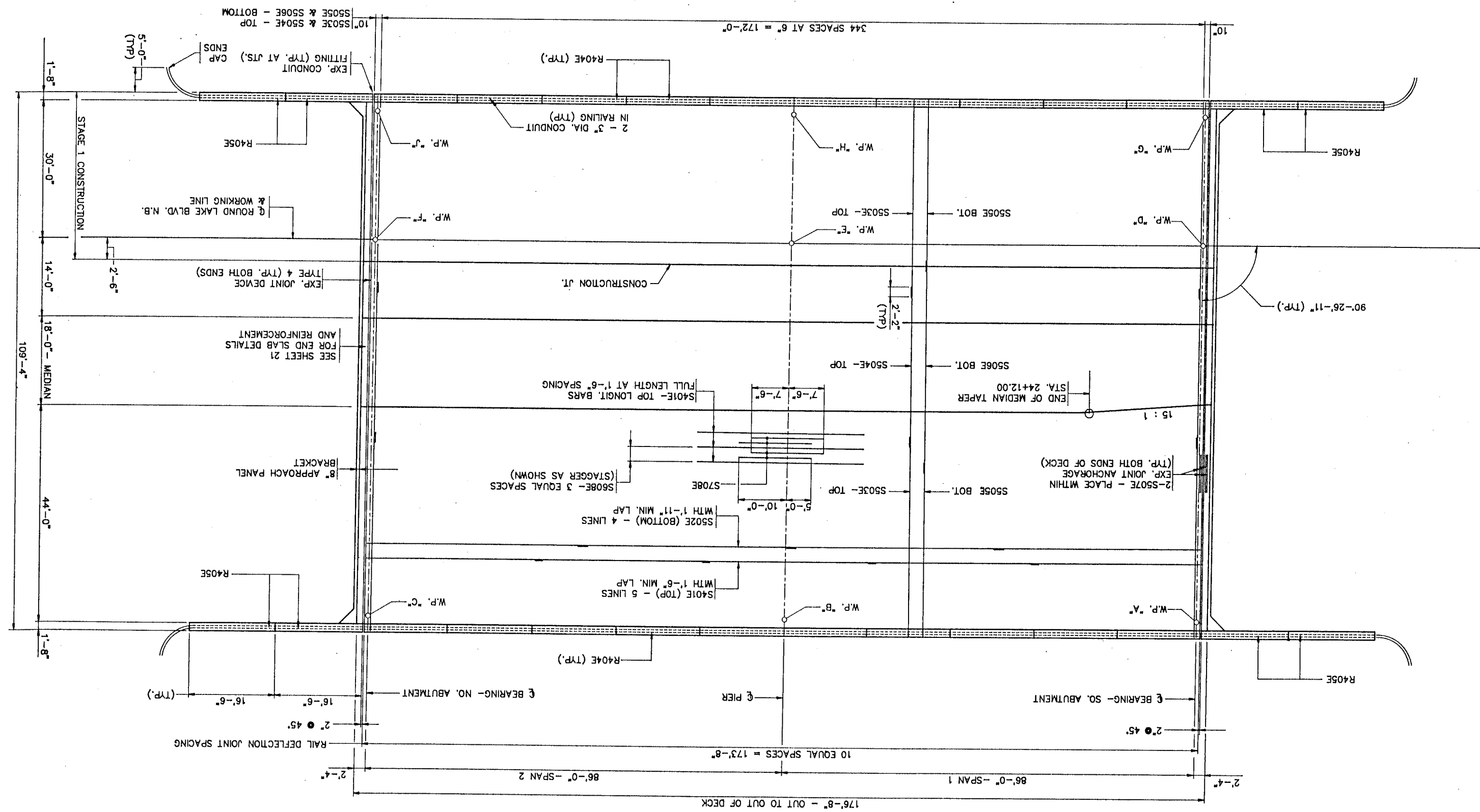


SUPERSTRUCTURE
 DETAILS



SP 0215-02552

DECK PLAN





DES: DJV CHK: MKM
 DRW: DJV CHK: MKM
 APPROVED: 8-14-84

ITEM	UNIT	QUANTITY
3" DIA. CONDUIT	LIN. FT.	1040
COMBINATION EXP. DEFL. FITTING	EACH	8
END CAPS	EACH	8

- CONDUIT SYSTEM (POWER)
- ① APPROXIMATE VOLUMES:
 - BRIDGE SLAB CONCRETE (3X36) (USING 2" AVE. STOOL HEIGHT) 472 CU. YDS.
 - 2" WEARING COURSE ALTERNATE 499 CU. YDS.
 - 1 1/2" WEARING COURSE ALTERNATE 53 CU. YDS.
 - TYPE J RAILING CONC. (3X46) 53 CU. YDS.
 - CONC. OVERLAY TYPE SPECIAL (2") 97 CU. YDS.
 - LATEX WEARING COURSE OPTION (1 1/2") 73 CU. YDS.
 - RAISED MEDIAN CONCRETE (3X46), LOW SLUMP 78 CU. YDS.
 - ② SEE SPECIAL PROVISIONS.
 - ③ INCLUDED IN PRICE BID FOR OTHER ITEMS.
 - ④ 1"x11"x1"-7" CORK RAIL DEFLECTION JOINTS.
 - ⑤ PAYMENT FOR BEARINGS INCLUDED IN ITEM "BEARING ASSEMBLY PER EACH."
 - ⑥ FOR BEARING ASSEMBLY DETAILS, SEE SHIT. 27
 - ⑦ INCLUDES RAILING QUANTITIES
 - ⑧ INCLUDES END DIAPHRAGM CONCRETE
 - ⑨ PAYMENT FOR BEAMS INCLUDED IN ITEM PRESTRESSED CONC. BEAM TYPE 54M PER LINEAR FT.

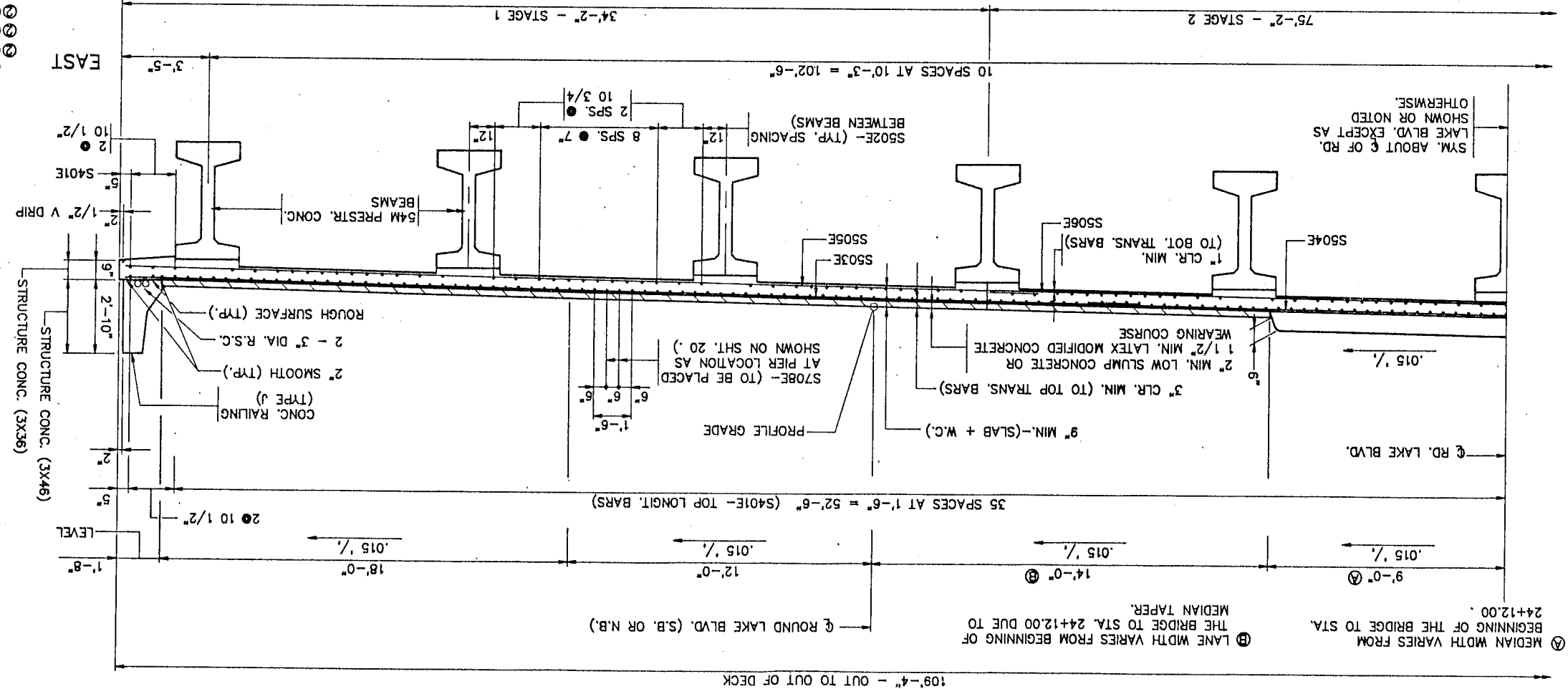
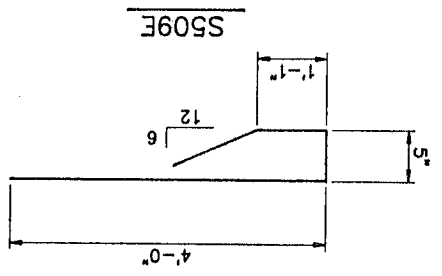
ITEM	UNIT	QUANTITY
BRIDGE SLAB CONCRETE (3X36)	SQ. FT.	19,316
TYPE J RAILING CONCRETE (3X46)	LIN. FT.	480
CONCRETE OVERLAY TYPE SPECIAL	SQ. FT.	15,571
REINFORCEMENT BARS (EPOXY COATED)	LB.	134,311
EXPANSION JOINT DEVICE (TYPE 4)	LIN. FT.	216
BRIDGE NAMEPLATE (SEE DETAIL B101)	EACH	1
PERFORMED JOINT FILLER	EACH	22
FIXED CURVED PL. BRG. ASSY. TYPE 1	EACH	14
EXP. CURVED PL. BRG. ASSY. TYPE 1	EACH	22
EXP. CURVED PL. BRG. ASSY. TYPE 2	EACH	8
RAISED MEDIAN CONCRETE (3X46)	SQ. FT.	3156
PRESTR. CONC. BEAMS TYPE 54M	EACH	22
DIAPHS. FOR TYPE 54M BEAMS	LIN. FT.	410
PRESTR. CONC. BEAMS, TYPE 54M	LIN. FT.	1904
BEARING ASSEMBLY	EACH	44
CONDUIT SYSTEM (POWER)	LUMP SUM	1

SUMMARY OF QUANTITIES

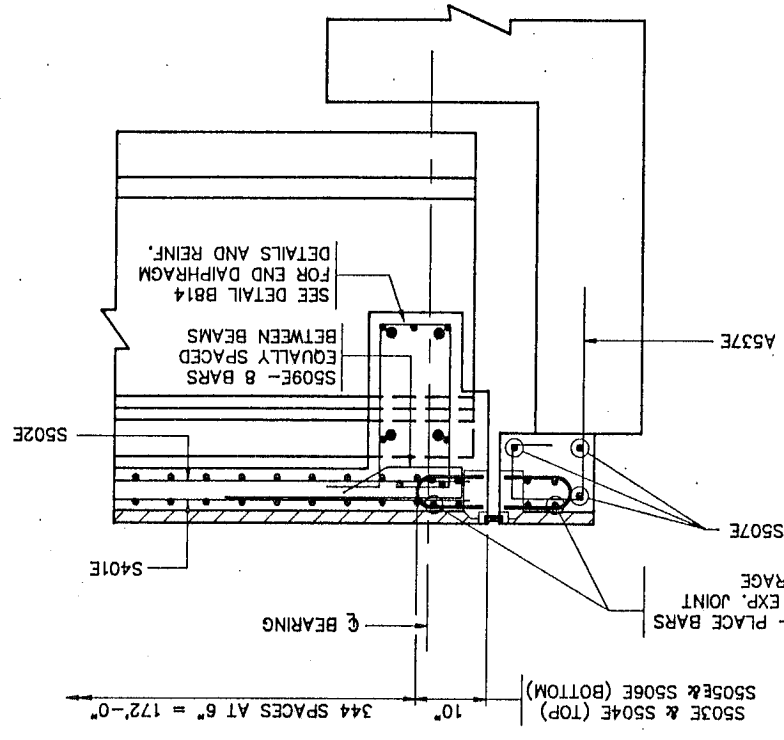
SEE DETAIL B814 FOR BAR SPACING AND BAR BENDING DETAILS

MARK	NO.	LENGTH	SHAPE	LOCATION
S401E	405	36'-0"	STR	DECK-LONGIT. (TOP)
S502E	520	45'-0"	STR	DECK-LONGIT. (BOT)
S503E	690	40'-0"	STR	DECK-TRANS. (TOP)
S504E	345	33'-0"	STR	DECK-TRANS. (TOP)
S505E	690	36'-3"	STR	DECK-TRANS. (BOT)
S506E	345	41'-0"	STR	DECK-TRANS. (BOT)
S507E	66	37'-8"	STR	DECK-TRANS. (TOP)
S508E	142	15'-0"	STR	DECK-LONGIT. OVER PIER
S509E	160	6'-6"	BENT	DECK-AT ENDS
S710E	40	9'-5"	STR	END DIAPHRAGM
S411E	40	9'-5"	STR	END DIAPHRAGM
S612E	16	20'-0"	BENT	END DIAPHRAGM
S613E	4	18'-0"	BENT	END DIAPHRAGM
S714E	44	7'-0"	STR	END DIAPHRAGM
S415E	120	7'-2"	BENT	END DIAPHRAGM
S716E	36	5'-0"	STR	END DIAPHRAGM

BILL OF REINFORCEMENT - SUPERSTRUCTURE



SECTION THRU DECK AT EXP. JOINT DEVICE



TRANSVERSE SECTION

① MEDIAN WIDTH VARIES FROM THE BRIDGE TO STA. 24+12.00. LANE WIDTH VARIES FROM BEGINNING OF THE BRIDGE TO STA. 24+12.00 DUE TO MEDIAN TAPER.

109'-4" - OUT TO OUT OF DECK

TITLE: 54" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 54M-87

DESIGN: M/DOT
 DATE: 8-14-84
 APPROVED: [Signature]
 REVISED: [Signature]
 FIG. 5-397.515

MINIMUM CONCRETE STRENGTH - P.S.I.

Required min. Concrete Strength	5500
① f'ci	5900
② f'c	

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 prestressing transfer.
 ② Minimum concrete strength when curing can be discontinued and beam transported and installed.

See framing plan for beam ends marked "X".
 Approximate weight of beam 32.5 tons.

All material and work shown or noted on this sheet shall be included in unit price bid for prestressed concrete beams. See Spec. 2405.

For location of beams, see framing plan.
 After the end diaphragms have been cast, fascia beams shall be marked on an inside face. All markings shall be stencilled and be clearly legible.

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.

Provide handling hooks or devices as required by Contractor. Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4" of the end of beam.

A modified strand pattern or a bundled strand pattern which does not change center of gravity of strands may be submitted to the Engineer for approval.

Tops of beams shall be rough floated and broomed transversely for bond.

GENERAL NOTES:
 Tops of beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by Contractor. Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4" of the end of beam.

A modified strand pattern or a bundled strand pattern which does not change center of gravity of strands may be submitted to the Engineer for approval.

For location of beams, see framing plan.
 After the end diaphragms have been cast, fascia beams shall be marked on an inside face. All markings shall be stencilled and be clearly legible.

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.

Provide handling hooks or devices as required by Contractor. Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4" of the end of beam.

Tops of beams shall be rough floated and broomed transversely for bond.

GENERAL NOTES:
 Tops of beams shall be rough floated and broomed transversely for bond.

Additional C402 bars are required when vertical reinforcement spacing is greater than 1'-9". Space additional C402 bars midway between G301 & G403 bars.

LOW RELAXATION STRANDS
 ALL BARS TO BE EPOXY COATED.

Girder Section Data

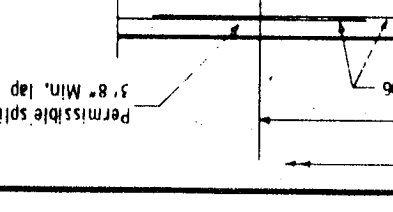
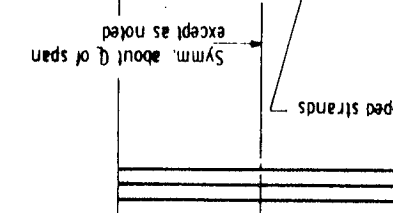
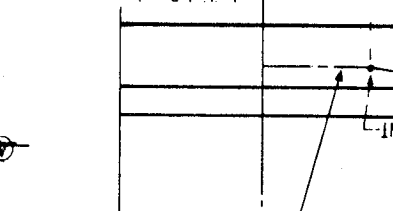
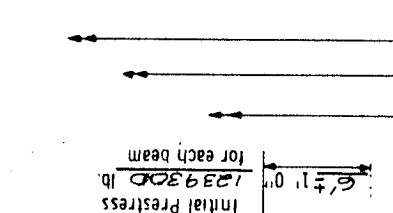
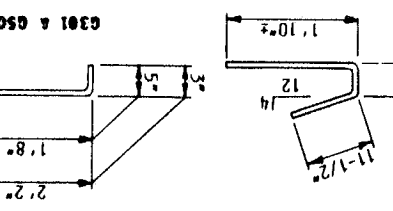
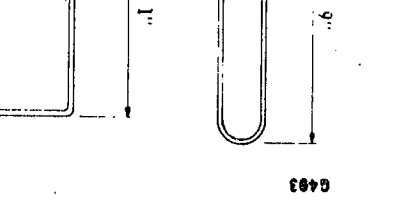
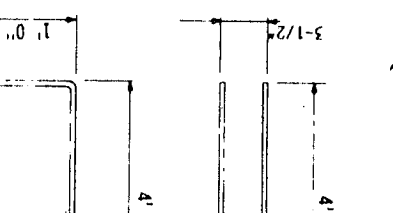
Bar	Wt.
G501	1.00 lb.
G402	6.46 lb.
G403	2.17 lb.
G505	9.34 lb.
G506	9.957 in. ³
G507	2.61 lb.

Wt./ft. = 706 lbs.
 Cross sec. area at \bar{c} of span = 678 in.²
 C.G. (from bottom) = 26.75 in.
 I = 265,828 in.⁴
 S_x = 9,957 in.³
 1/2" dia. 270K strand w.t. = .525 lb.
 1/2" dia. 270K strand area = .1531 sq. in.

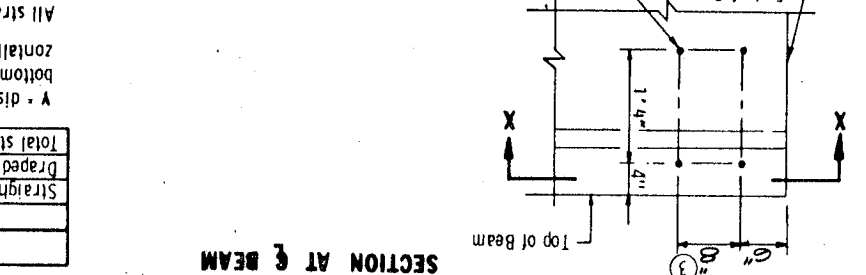
Y DISTANCES (IN INCHES)

NO.	Q SPAN	END
Straight strands	36	3.69
Draped strands	19	9.00
Total strands	40	5.55

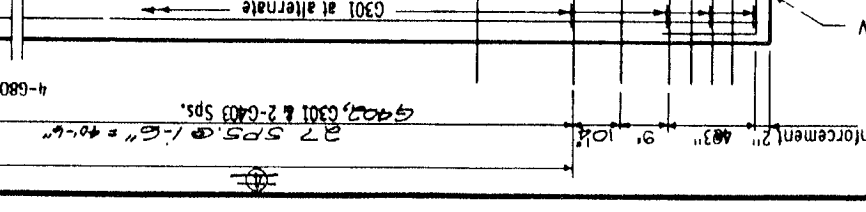
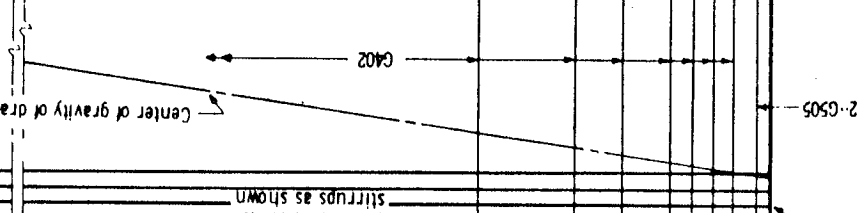
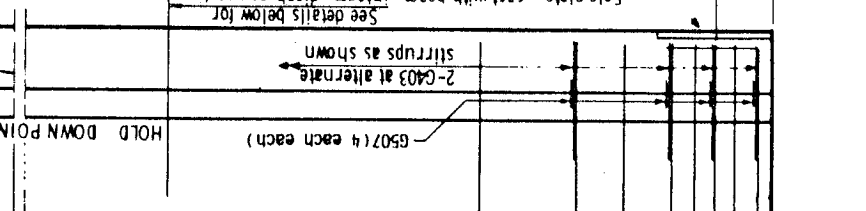
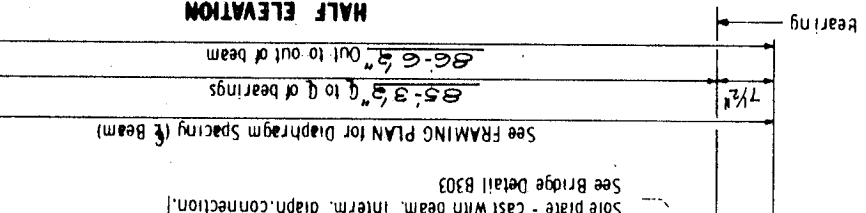
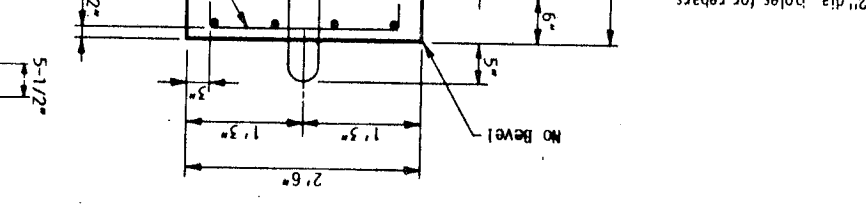
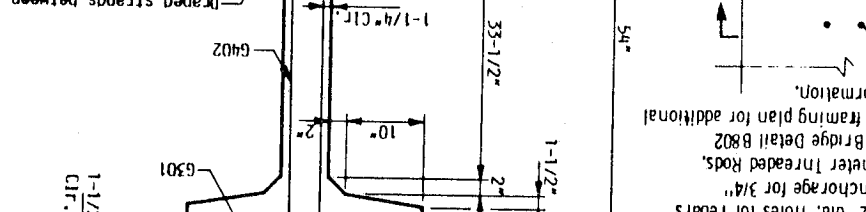
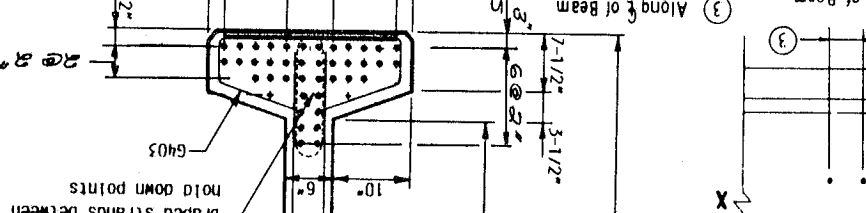
Y = distance of center of gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.
 All strands 1/2" dia. 270 kip, ultimate strength.
 A tolerance of ± 2" will be permitted in this dimension.



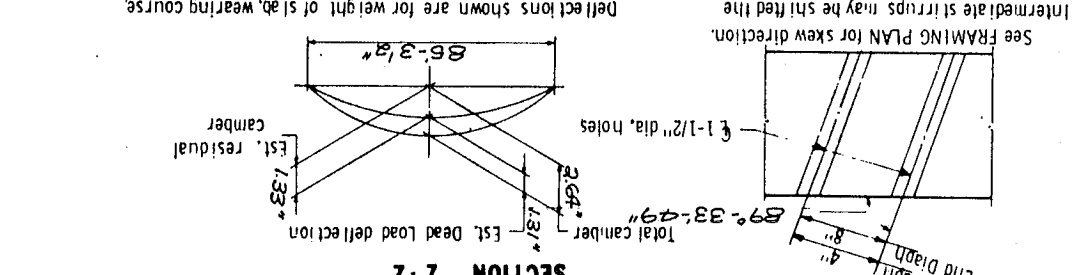
PARAPET ABUTMENT
 CONCRETE END DIAPHRAGMS
 Diameter Threaded Rods,
 Anchorage for 3/4"
 1-1/2" dia. holes for rebars or
 See Bridge Detail B812
 for additional information.



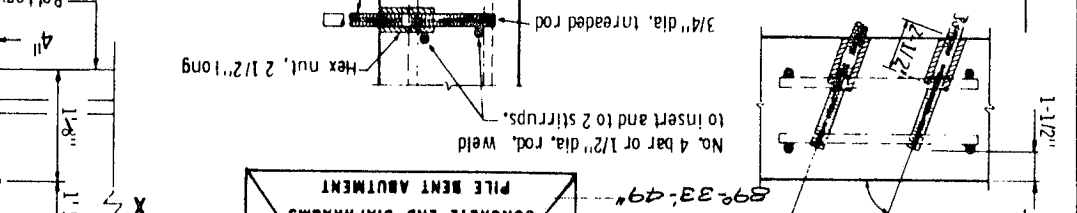
FOR USE WITH CONCRETE
 INTERMEDIATE DIAPHRAGM
 1-1/2" dia. holes for rebars
 or anchorage for 3/4"
 See Bridge Detail B802
 and framing plan for additional
 information.



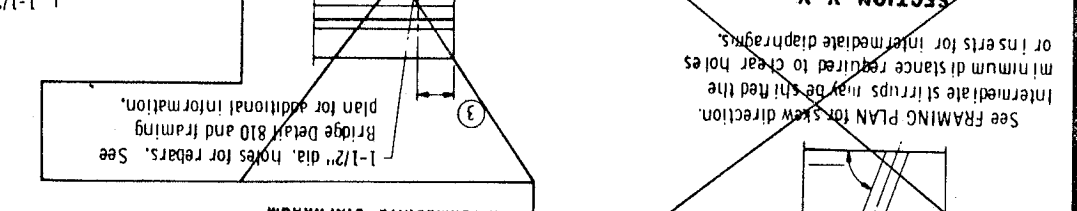
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM
 SECTION X-X
 Deflections shown are for weight of slab, wearing course, railing, sidewalk, median and diaphragms only. Engineer will take elevations at top of beams after erection and will allow for deflections shown to intermediate strips may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.



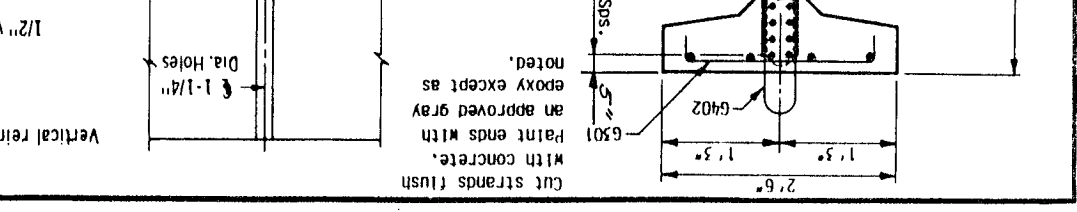
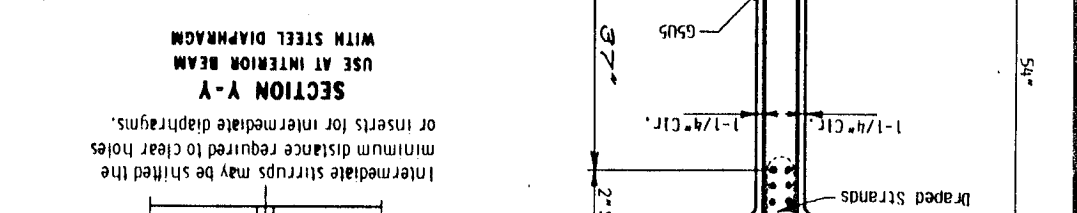
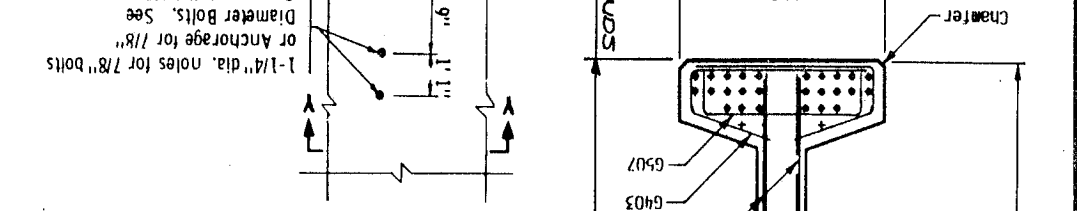
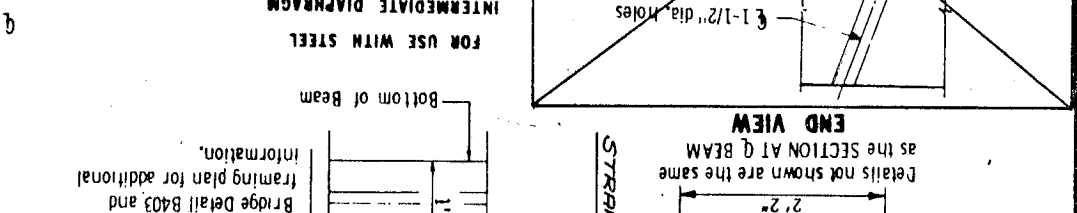
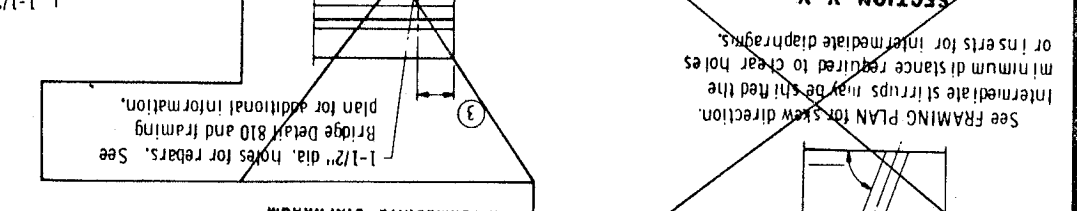
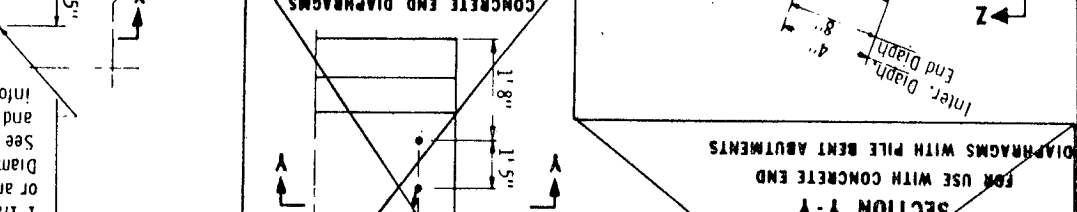
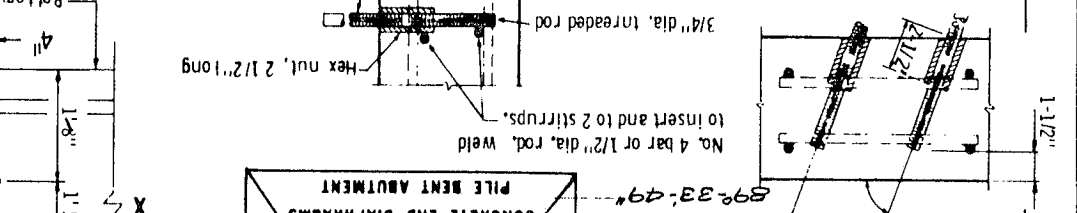
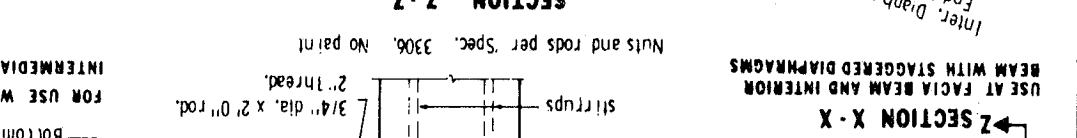
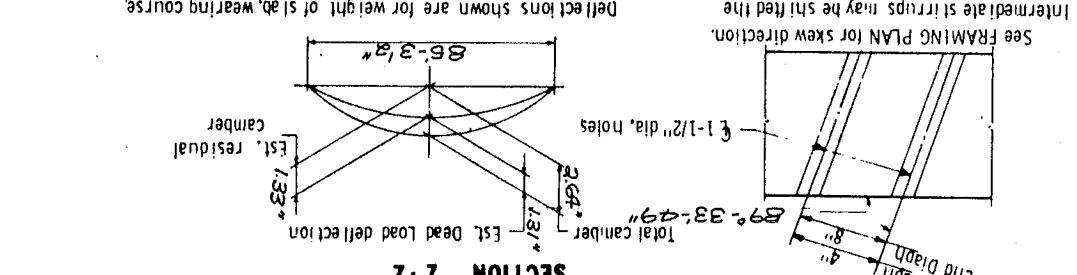
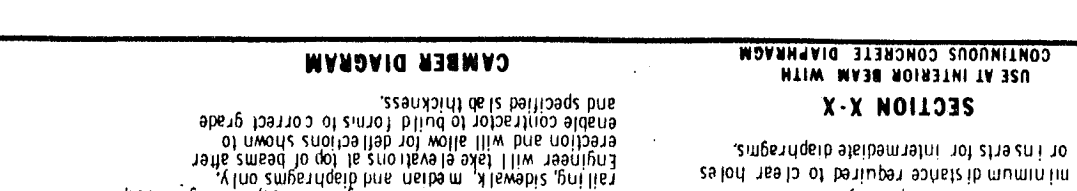
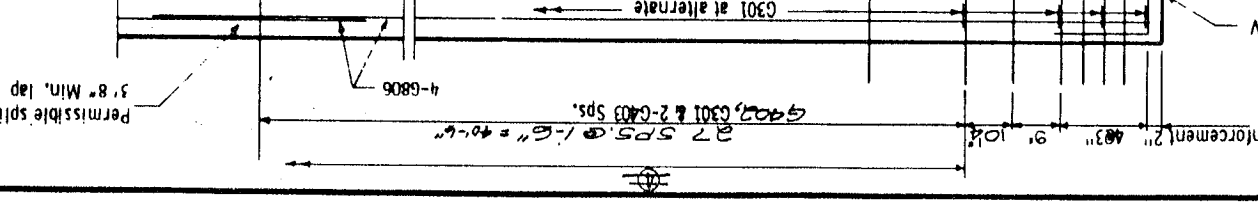
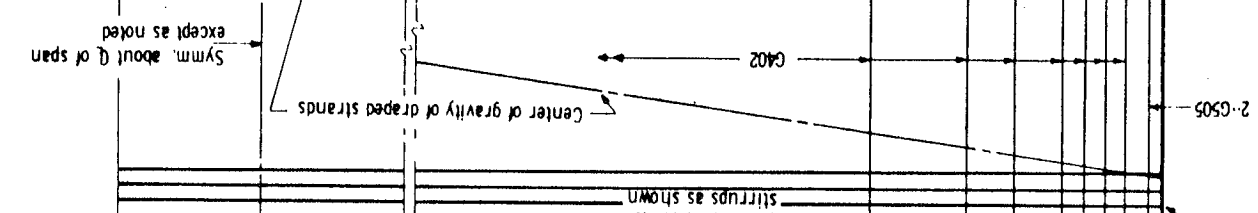
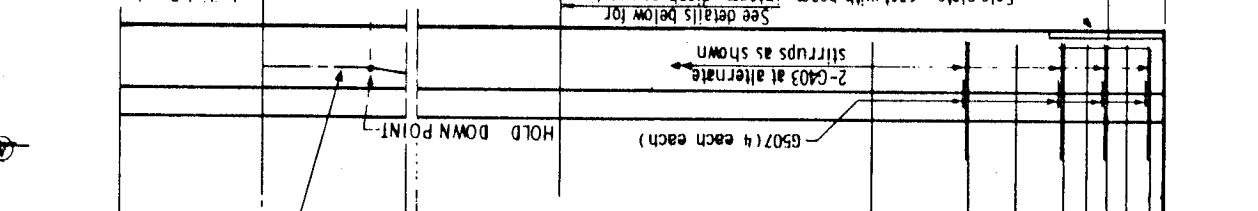
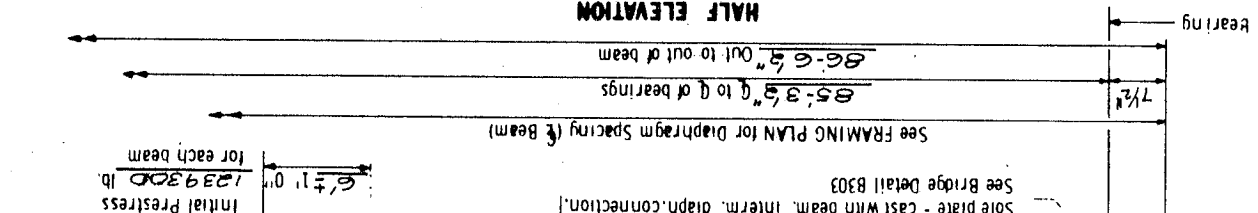
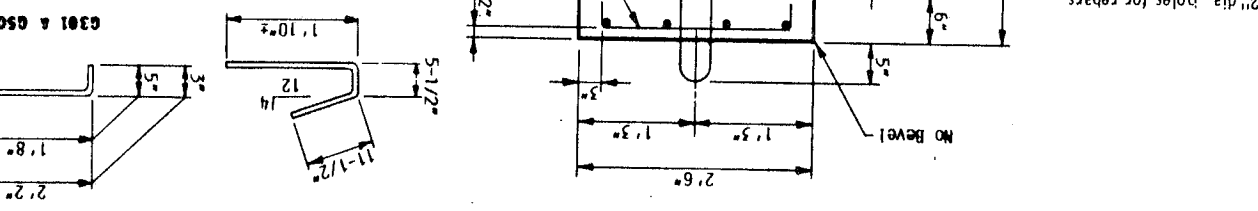
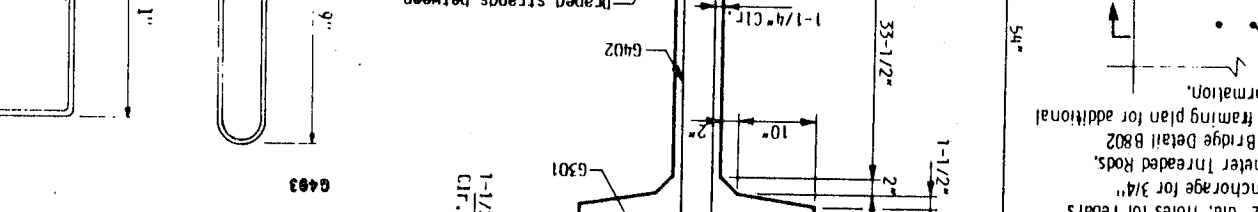
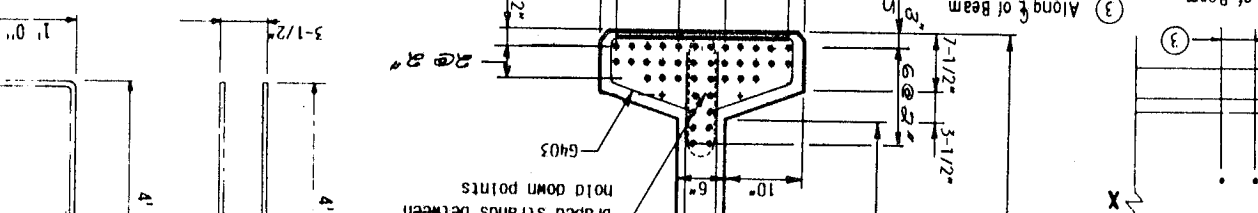
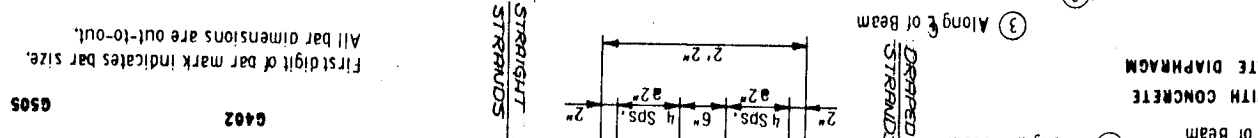
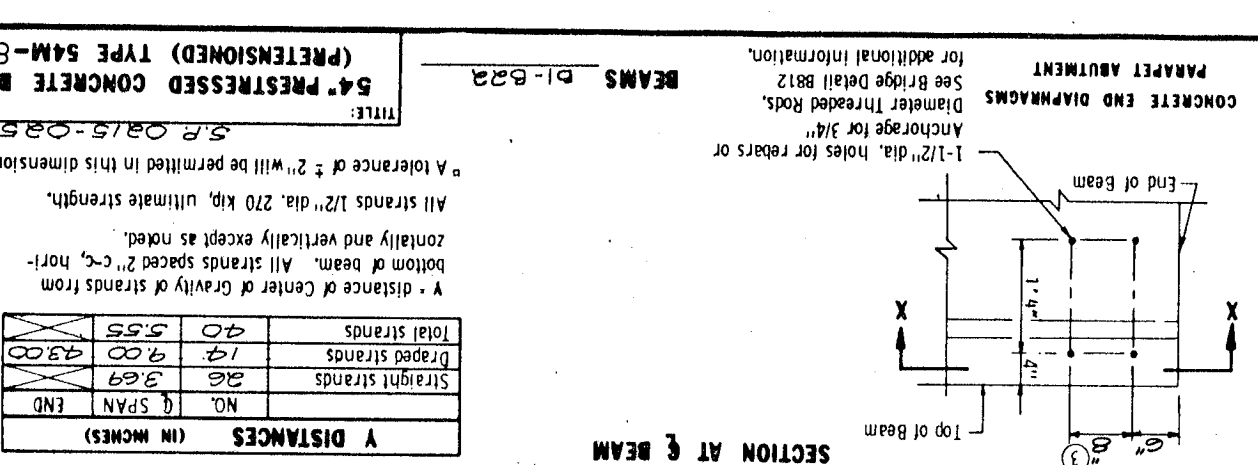
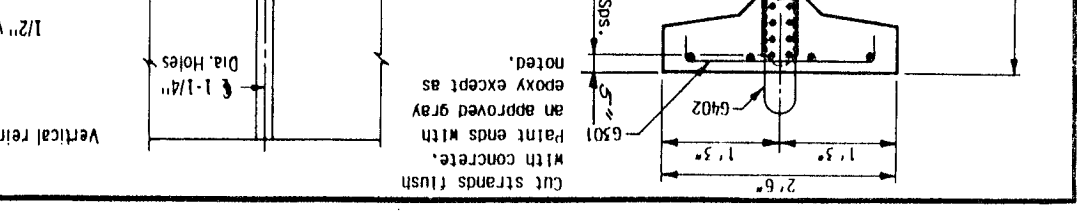
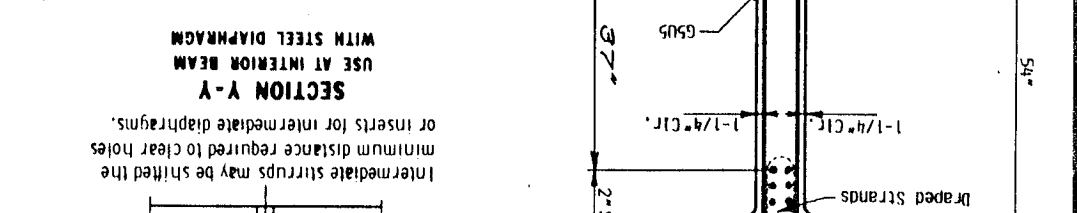
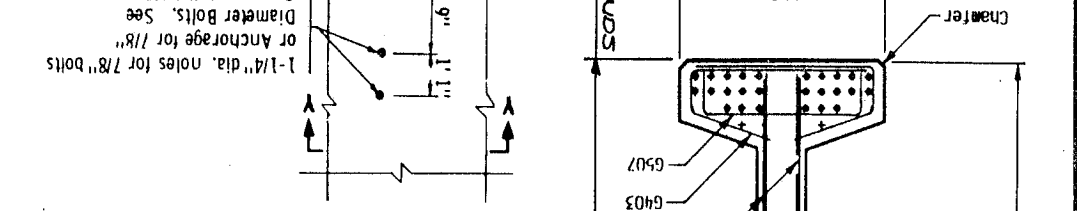
USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS
 SECTION X-X
 No. 4 bar or 1/2" dia. rod, weld to insert and to 2 stirrups.
 3/4" dia. threaded rod, stirrups
 Nuts and rods per Spec. 3306. No paint.



DIAPHRAGMS WITH PILE BENT ABUTMENTS
 SECTION Y-Y
 FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS
 1-1/2" dia. holes for rebars. See Bridge Detail B10 and framing plan for additional information.



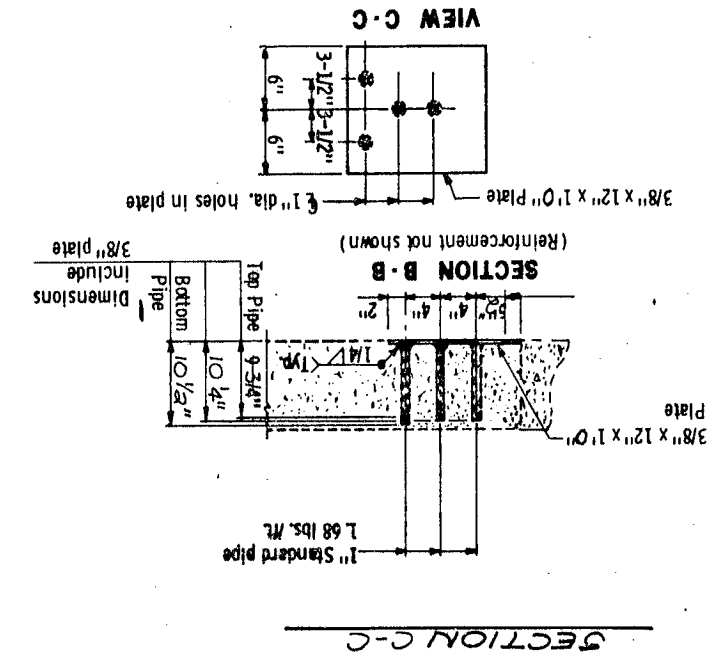
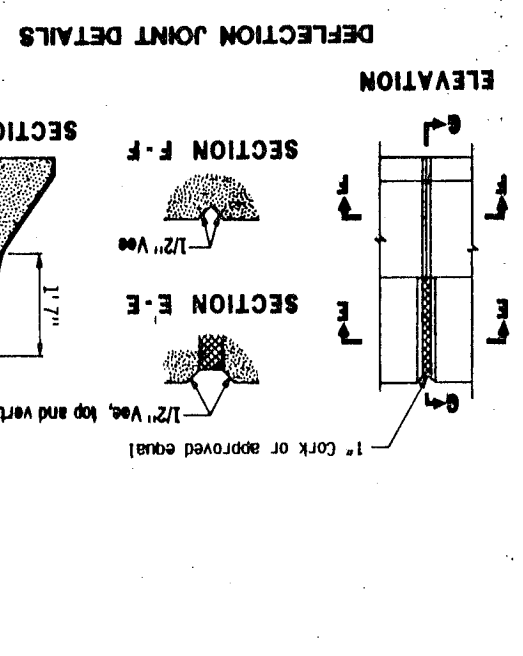
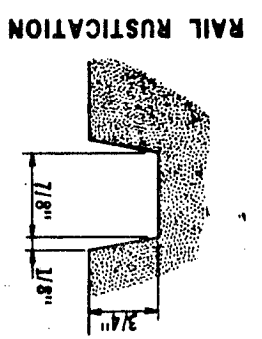
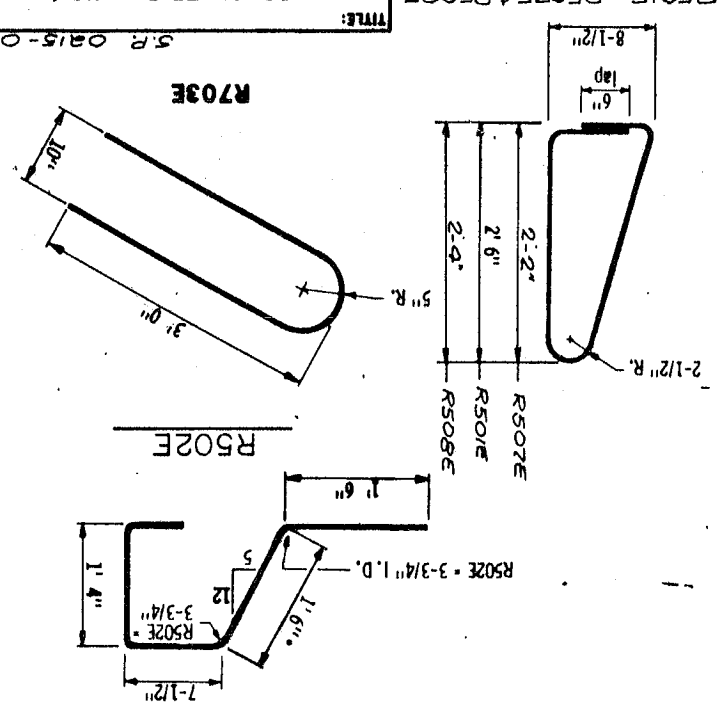
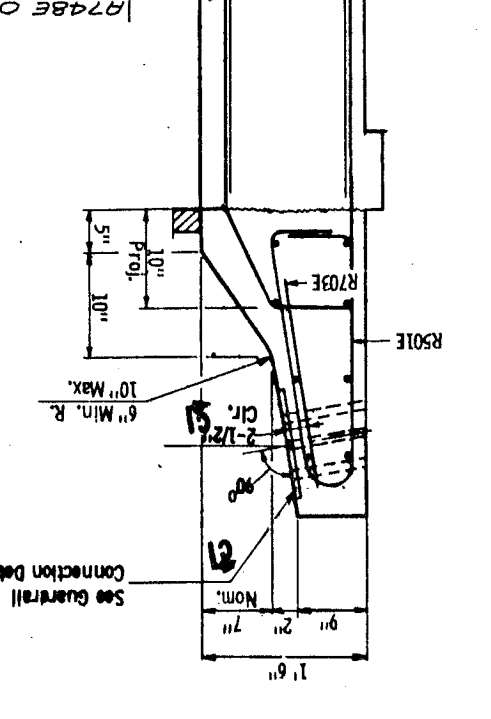
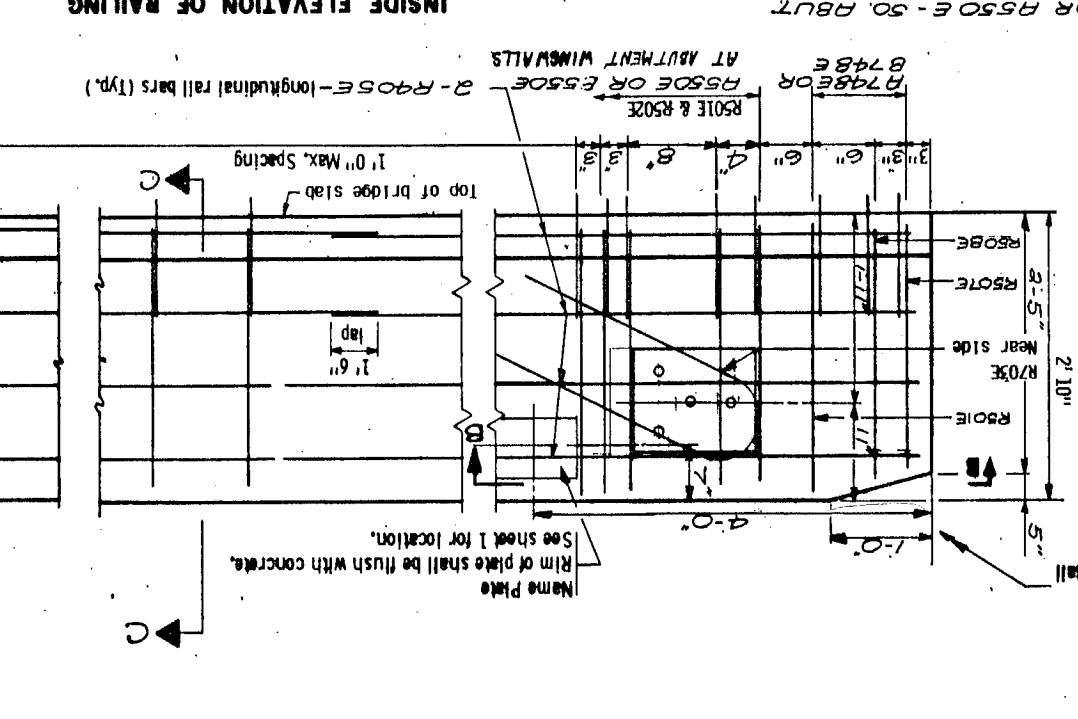
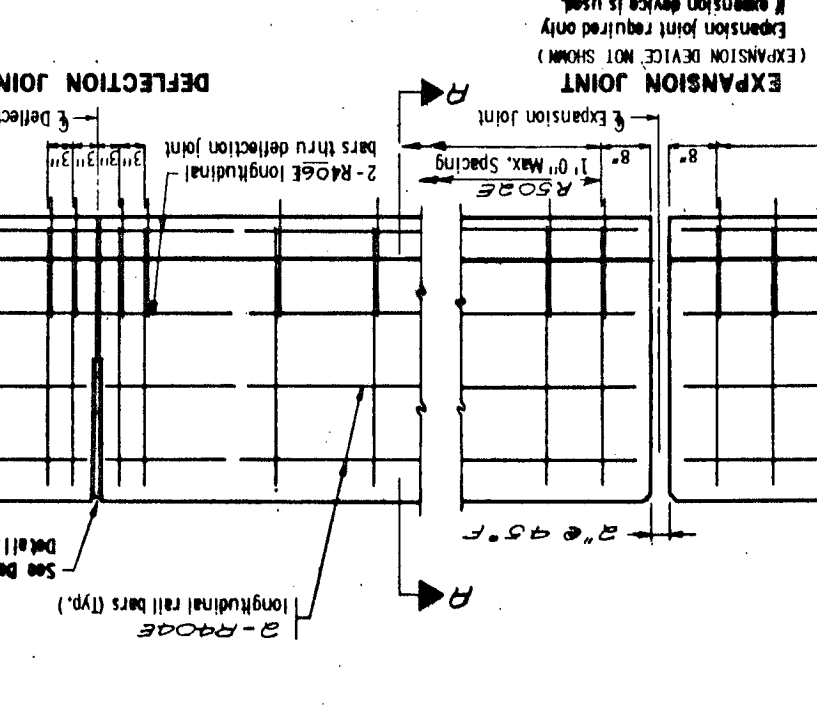
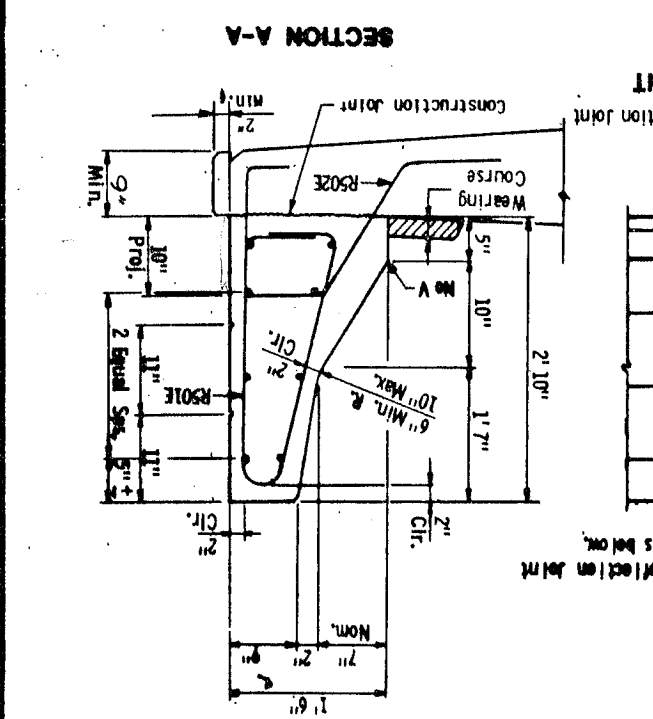
FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM
 SECTION Y-Y
 USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM
 Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.



GENERAL NOTES:
 Bars marked with the suffix "E" shall be epoxy coated in accordance with Spec. 3301
 Conc. Railing = 440 lbs./M.
 Conc. Railing = .109 cu. yds./ft.
 Rail and end post to be Concrete Mix No. 3X46
 Guardrail connection shall be Structural Steel, Spec. 3306
 Finish all edges of rail and end post with 1/2" vee except where otherwise noted.
 See superstructure sheet for joint spacing.
 Maximum spacing of concrete deflection joints shall be 20' 0"
 Guardrail connection to be included in price bid for other items.
 Rail quantities are included in summary of quantities for superstructure.
 Length of railing concrete to be measured for payment between outside faces of railing.

① 5 LINES WITH 1/8" MIN. LRP

BAR NO.	LENGTH	SHAPE	LOCATION
R501E	5.6'	BENT	RAIL VERTICAL
R502E	5.6'	BENT	RAIL VERTICAL
R703E	4	BENT	RAIL-LONG
R406E	20	STR.	RAIL-LONG
R406E	16	STR.	"
R406E	40	STR.	"
R507E	4	BENT	RAIL-VERT.
R507E	4	BENT	RAIL-VERT.

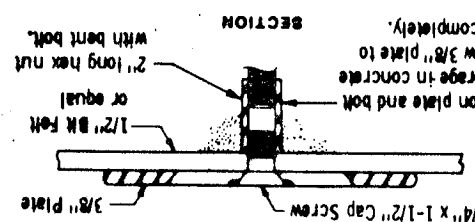
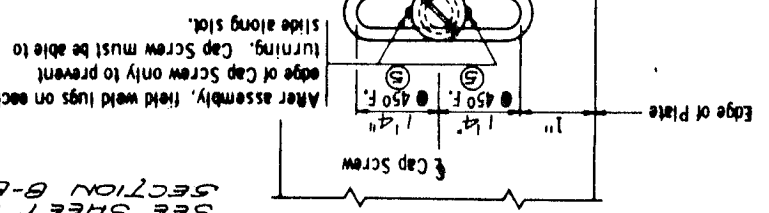
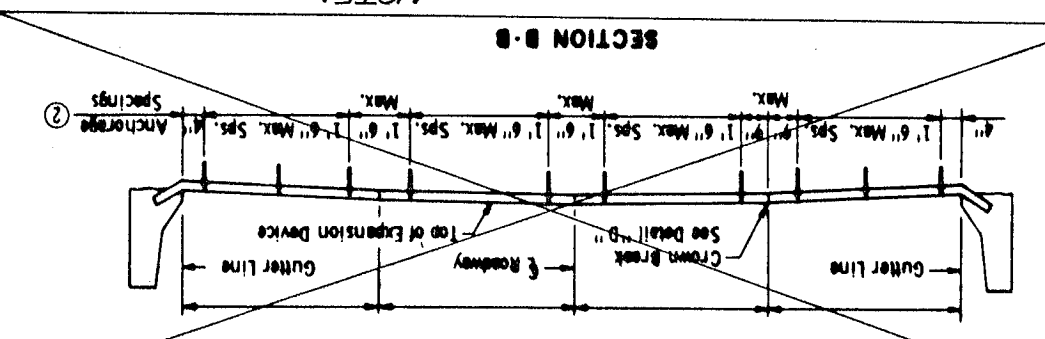
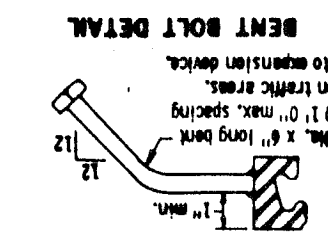
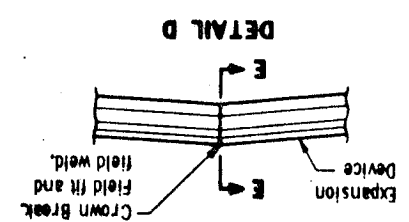
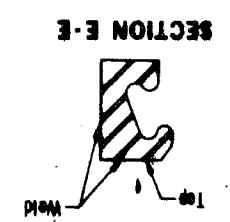


GUARDRAIL CONNECTION DETAIL
 Galvanize after fabrication per Spec. 3394
 Estimated Weight = 24 lbs.

Revised: October 15, 1982 Approved: July 16, 1982 FIG. 9-307.827

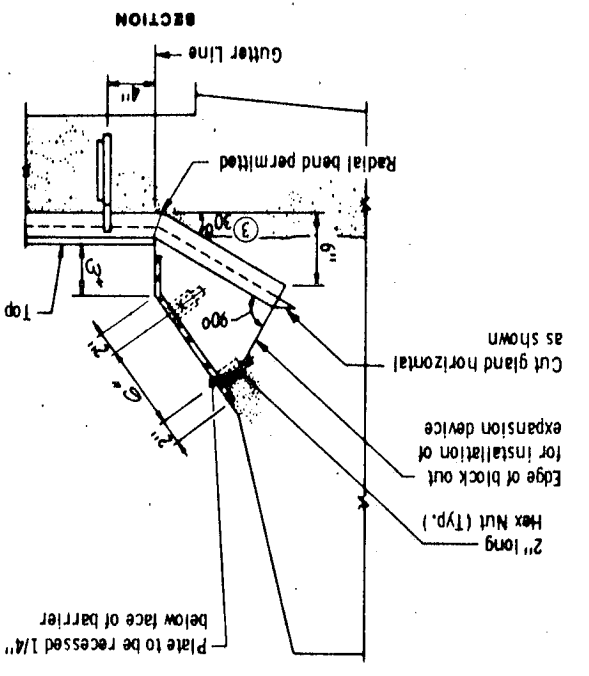
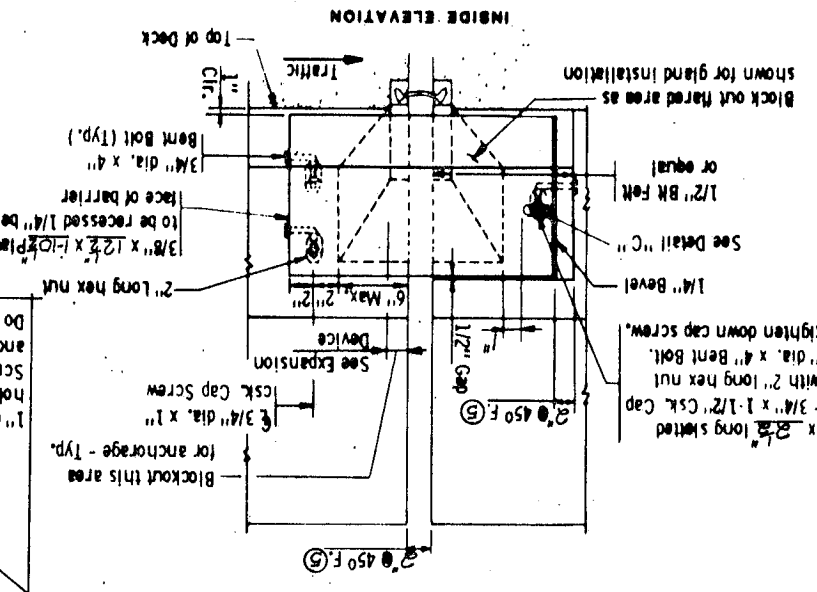
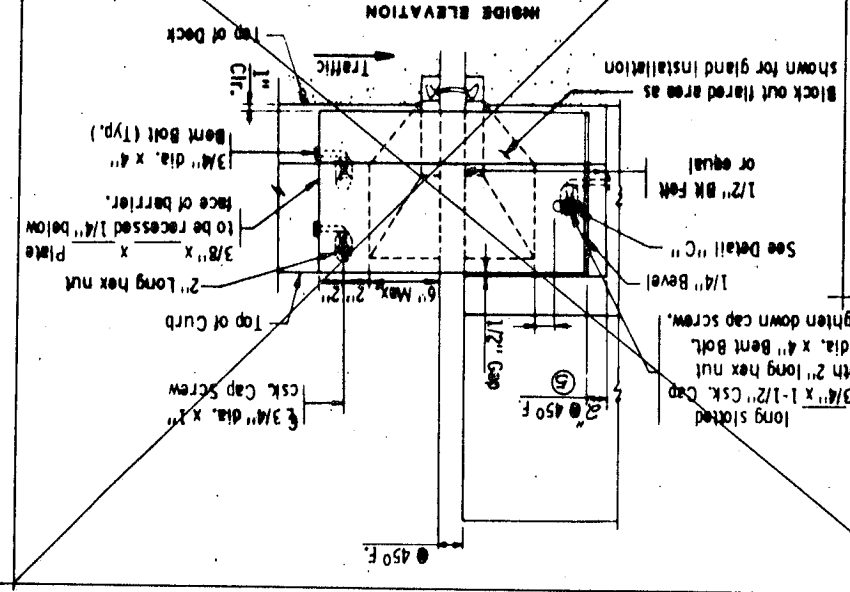
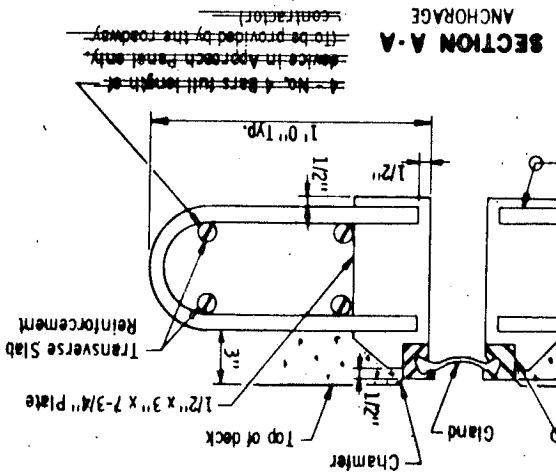
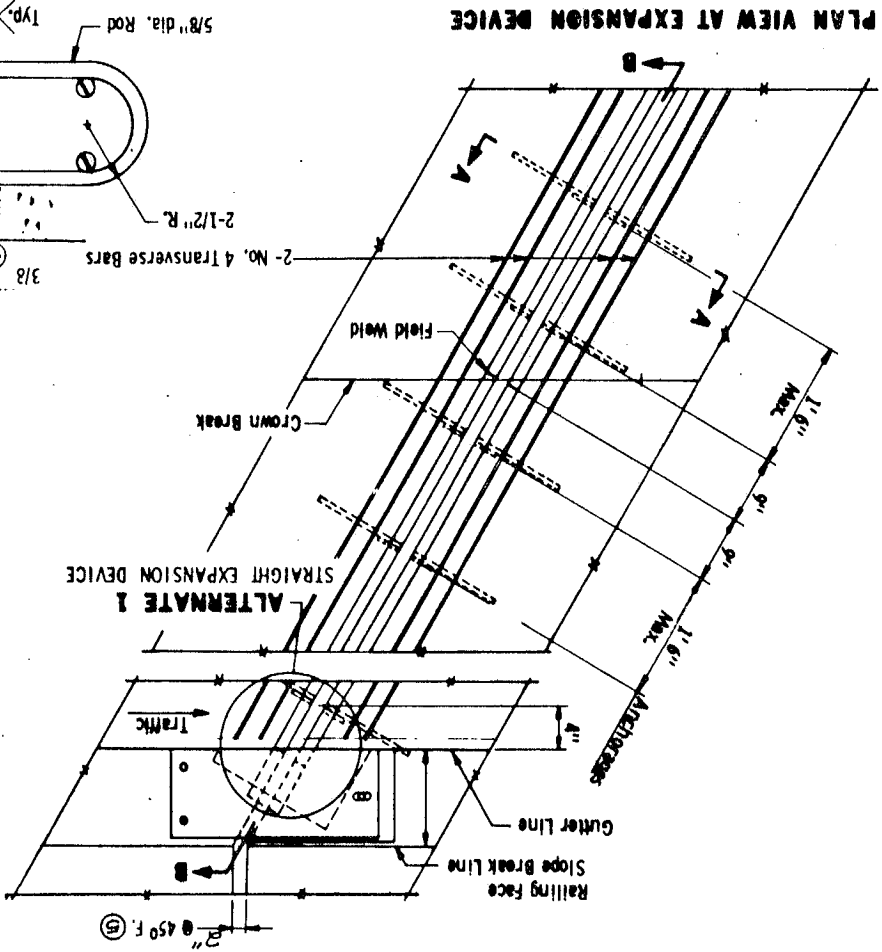
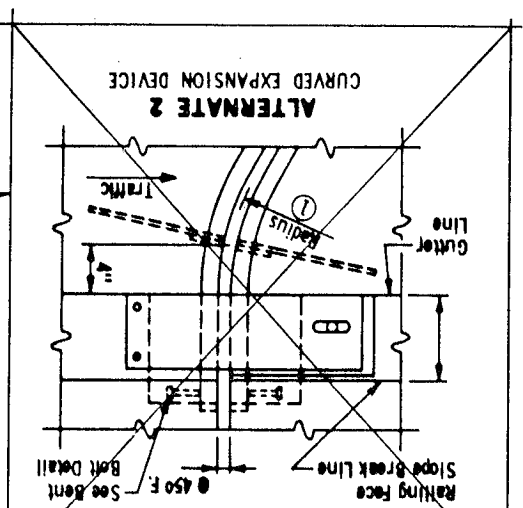
- ① Varies 18" to 24"
- ② Dimension along centerline of joint.
- ③ For roadway slabs over 25' use 45°
- ④ 5/8" max. when 5-nut fingers are used. Use 1/8" (with 1/4" max.) when 3-nut fingers are used. (are not used.)

Notes:
 Galvanize structural steel after fabrication as per Spec. 3394.
 Joints in roadway plate or extension shall be located at breaks in transverse profile and as otherwise required. Joints shall be close fit and welded. Repair after welding as per Spec. 2471.3L.
 Structural steel shall comply with Spec. 3306, Spec. 3307 & Spec. 3309.
 Expansion device shall be straightened to a tolerance of 1/8" in 10 ft.
 Cap screws shall be countersunk 1/16" below top of plate.
 Galvanize screws and nuts as per Spec. 3392.
 See superstructure sheets for expansion device alternate at railing.



DETAIL C SLOTTED HOLE & CAP SCREW

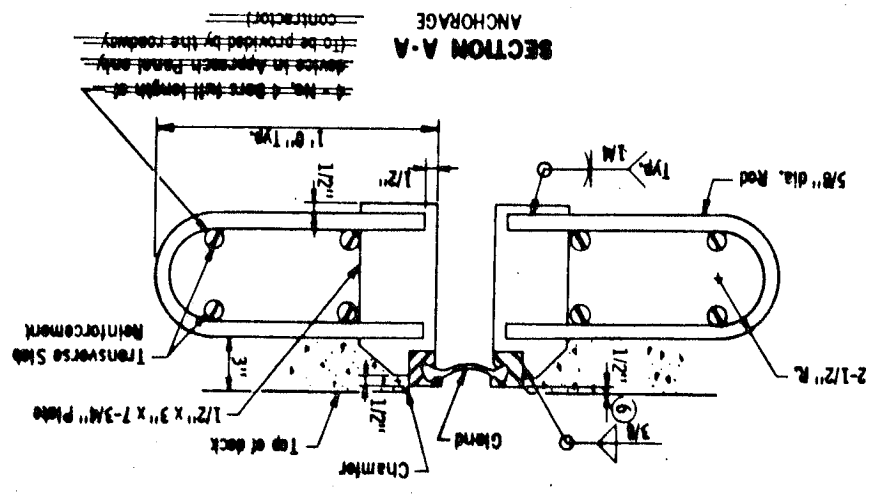
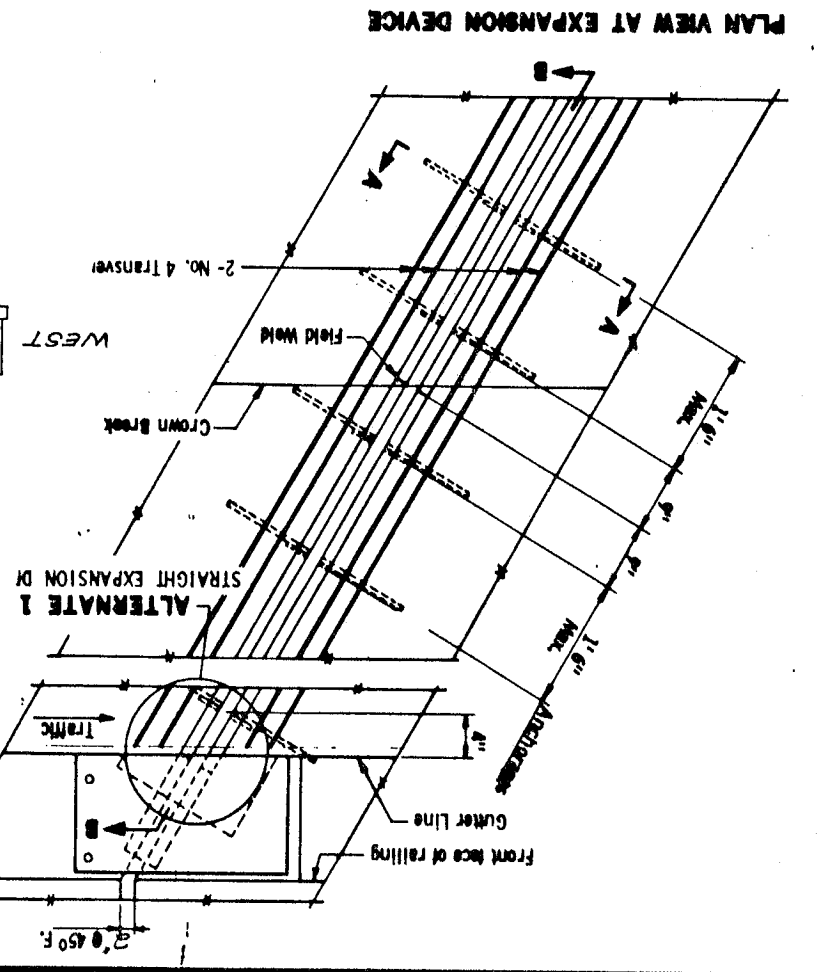
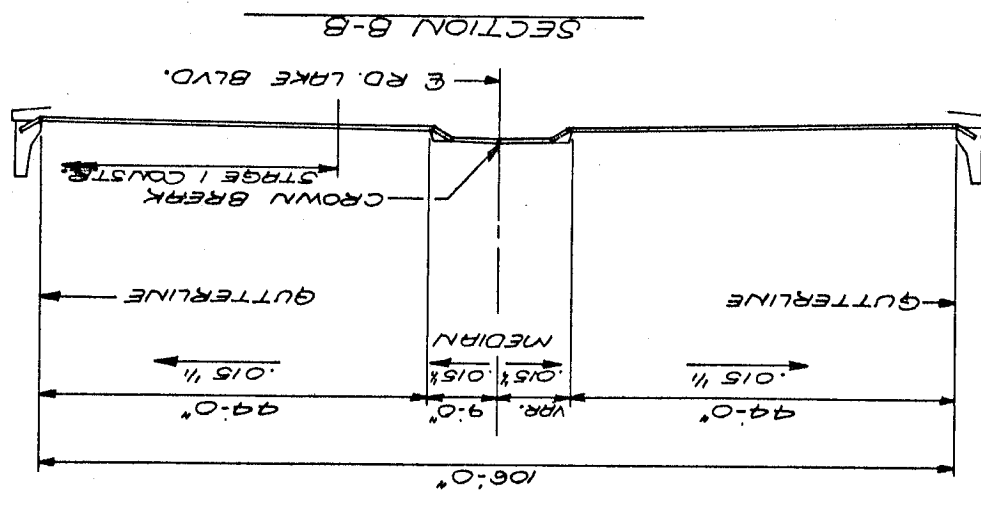
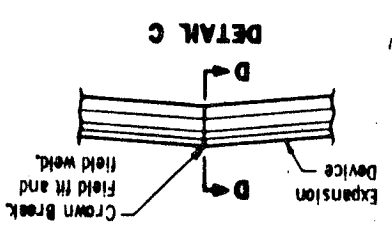
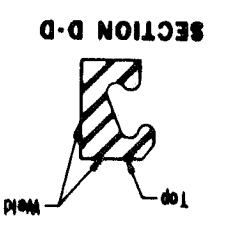
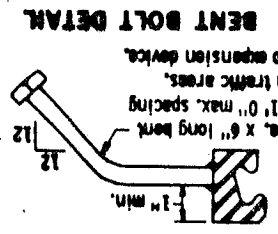
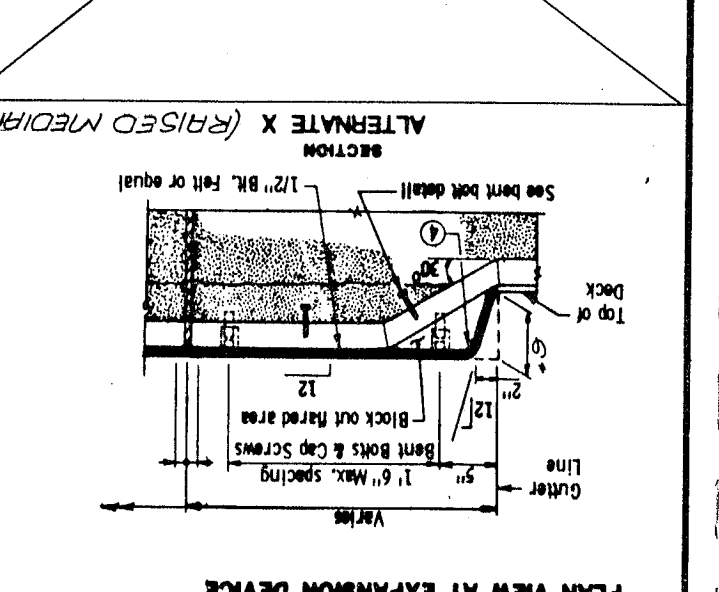
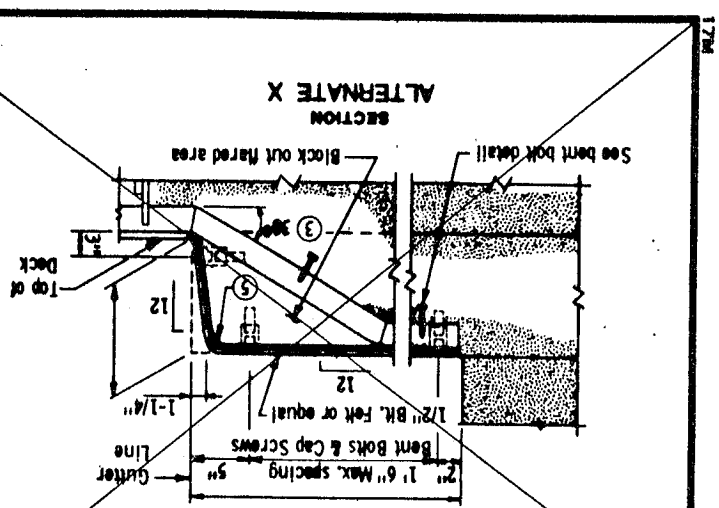
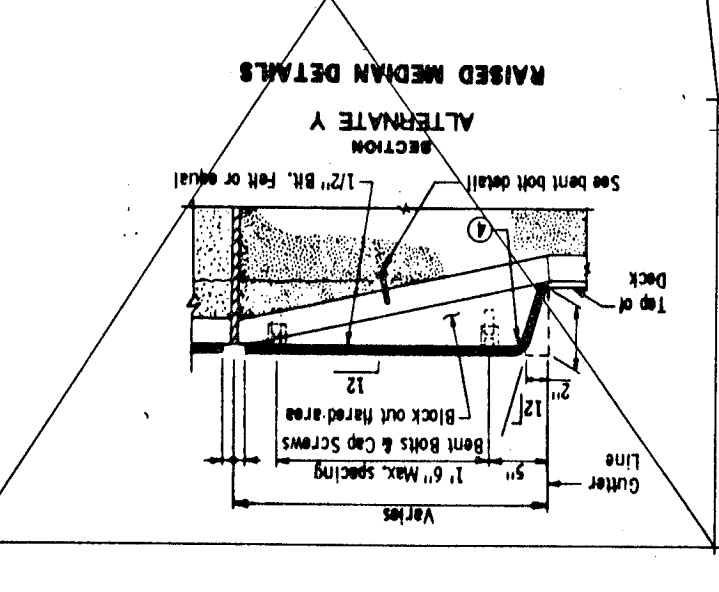
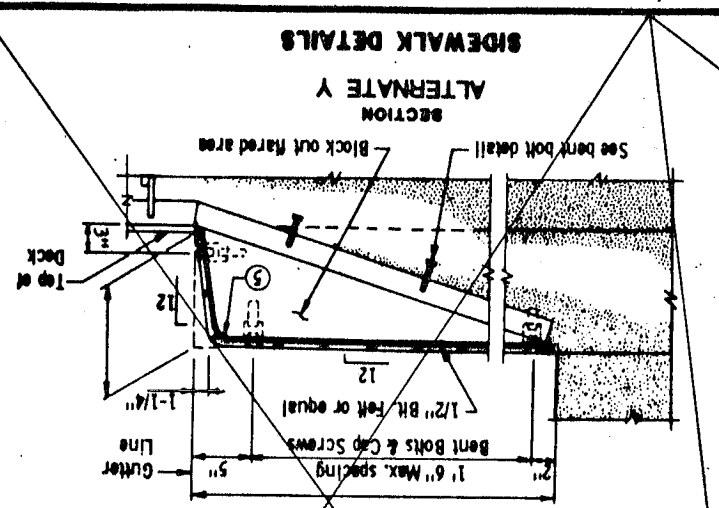
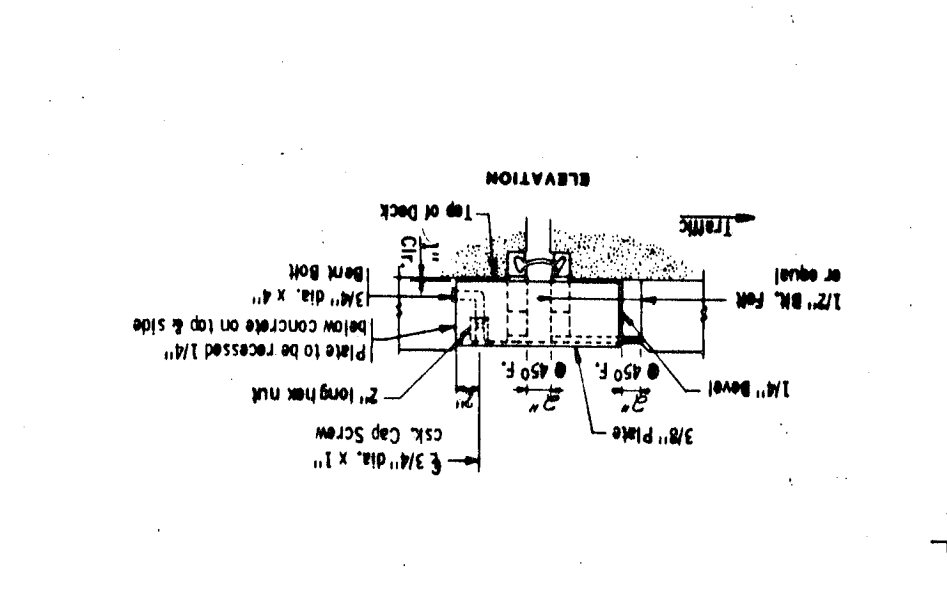
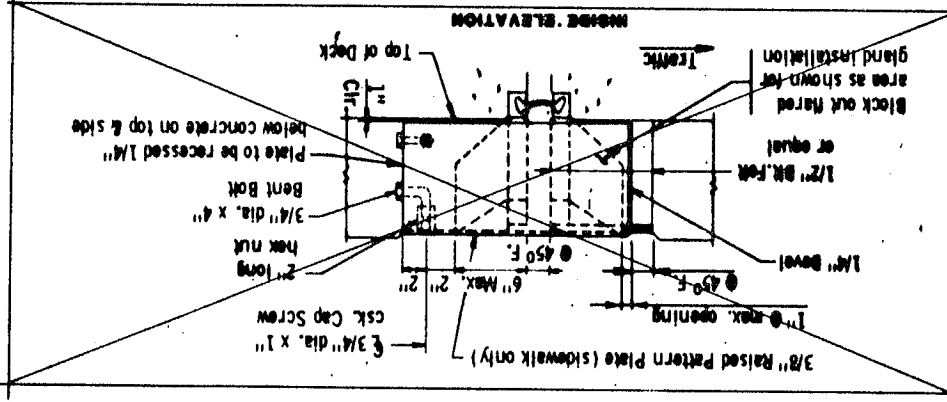
⑤ 1 9/16" @ 90°



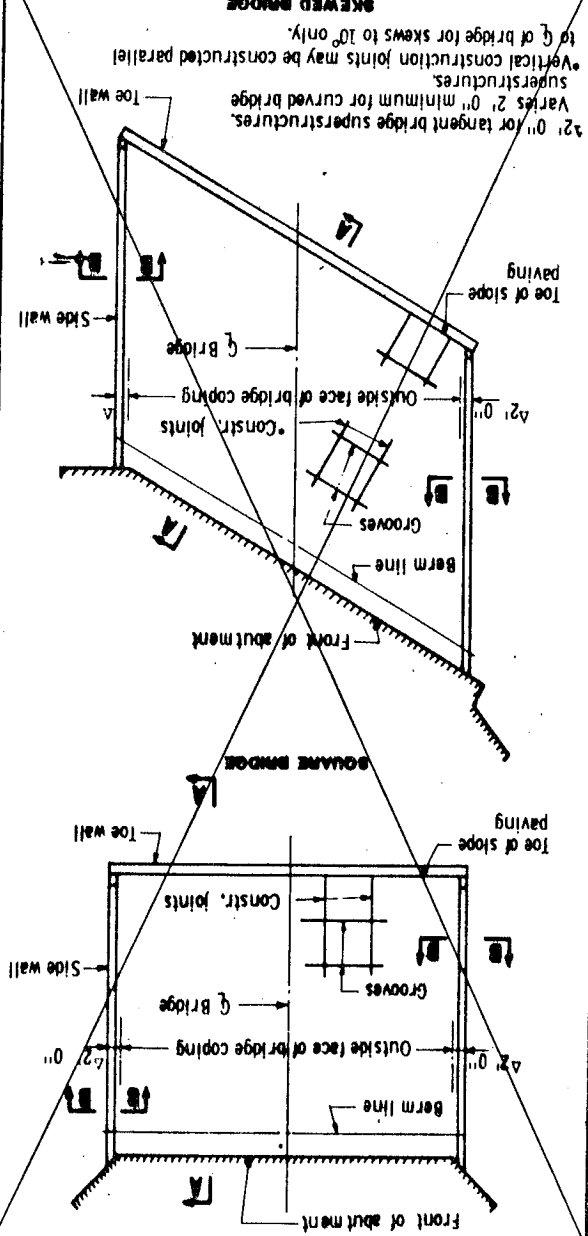
RAILING OR MEDIAN SQUARE BRIDGE APPLICATION

- Notes:
- ① Varies 18" to 24"
 - ② Dimension along centerline of joint.
 - ③ For roadway shows over 25° use 45°.
 - ④ 2-3/4" outside radius of steel plate.
 - ⑤ 3/4" outside radius of steel plate.
 - ⑥ 5/8" max. when S-shaped fingers are used. Use 1/2" (with 1/4" max.) when S-shaped fingers are not used.

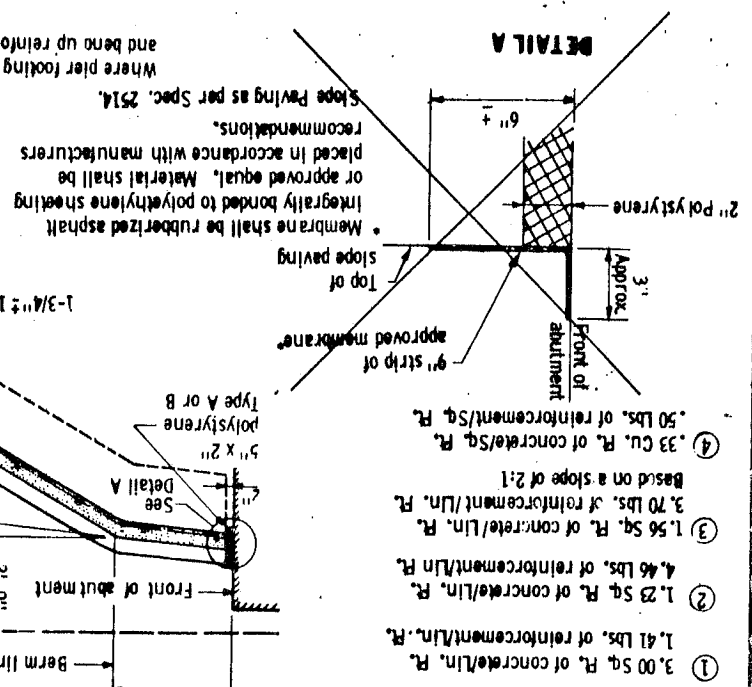
Galvanize structural steel after fabrication as per Spec. 339d.
 Joints in roadway plate or extension shall be located at breaks in transverse profile and as otherwise required. Joints shall be close fit and welded. Repair after welding as per Spec. 287L.3L.
 Structural steel shall comply with Spec. 330a, Spec. 3307 & Spec. 3309.
 Expansion device shall be straightened to a tolerance of 1/8" in 10 ft.
 Cap screws shall be countersunk 1/16" below top of plate.
 Galvanize screws and nuts as per Spec. 339c. See superstructure sheets for expansion device alternate at railing.
 When expansion devices are used at ends of bridge, the bridge contractor shall furnish expansion device and gland. The roadway contractor shall install the part of the expansion device which includes the gland as shown on this sheet.



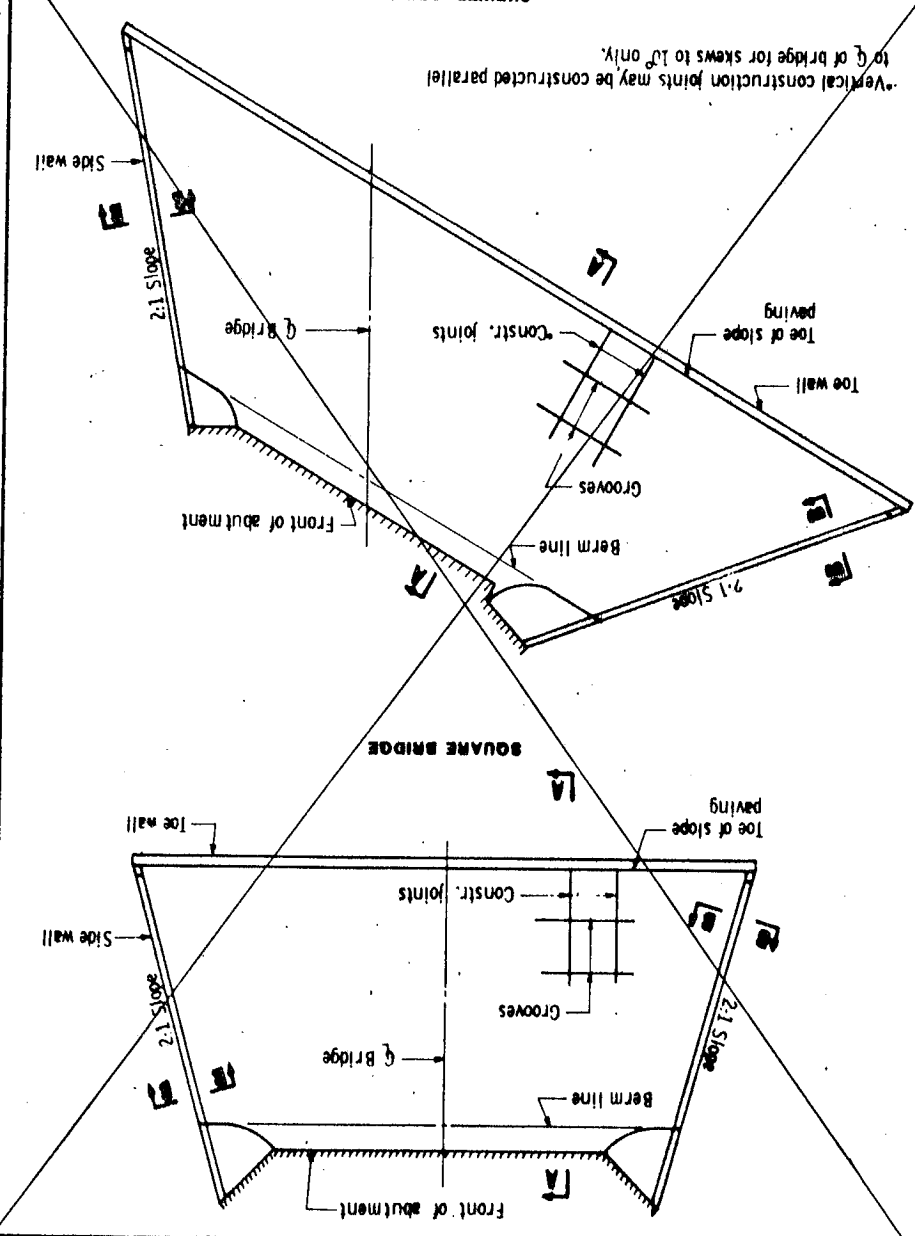
LAYOUTS FOR SLOPES 2:1 OR FLATTER



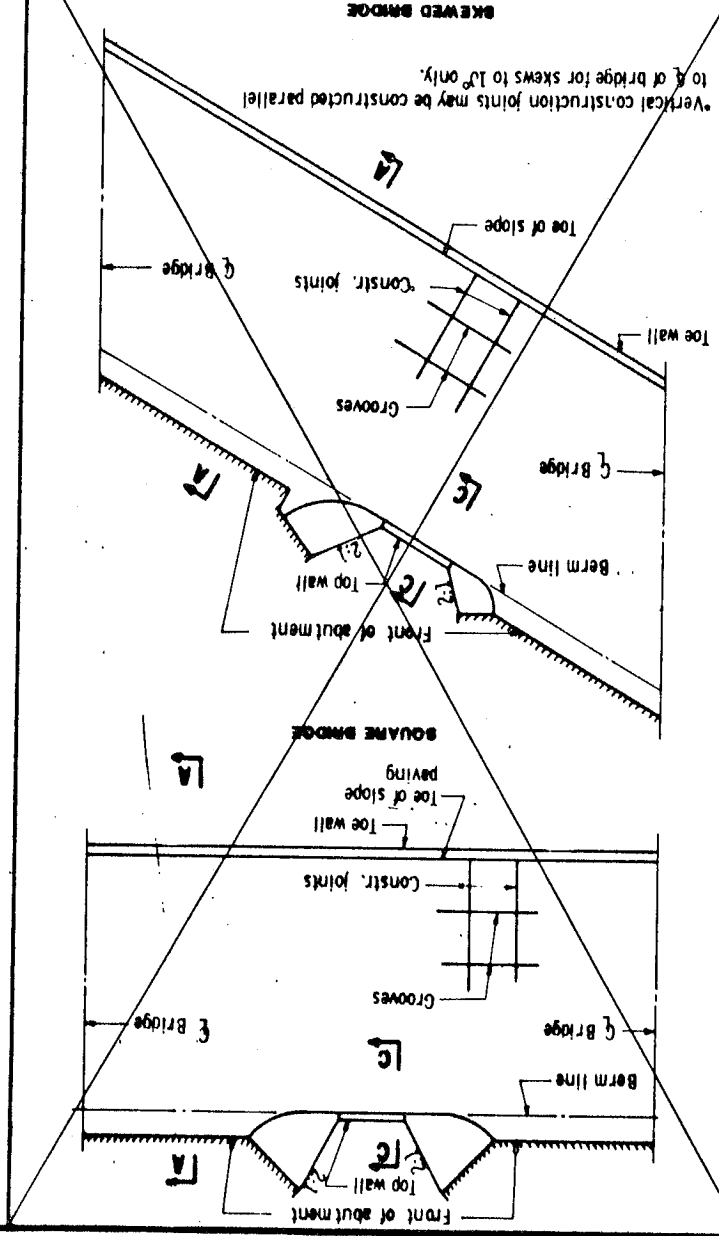
UNIT QUANTITIES
 ① 3.00 Sq. Ft. of concrete/Lin. Ft.
 ② 1.41 Lbs. of reinforcement/Lin. Ft.
 ③ 4.46 Lbs. of reinforcement/Lin. Ft.
 ④ 1.56 Sq. Ft. of concrete/Lin. Ft.
 ⑤ 3.70 Lbs. of reinforcement/Lin. Ft.
 ⑥ Based on a slope of 2:1
 ⑦ 3.30 Cu. Ft. of concrete/Sq. Ft.
 ⑧ .50 Lbs. of reinforcement/Sq. Ft.



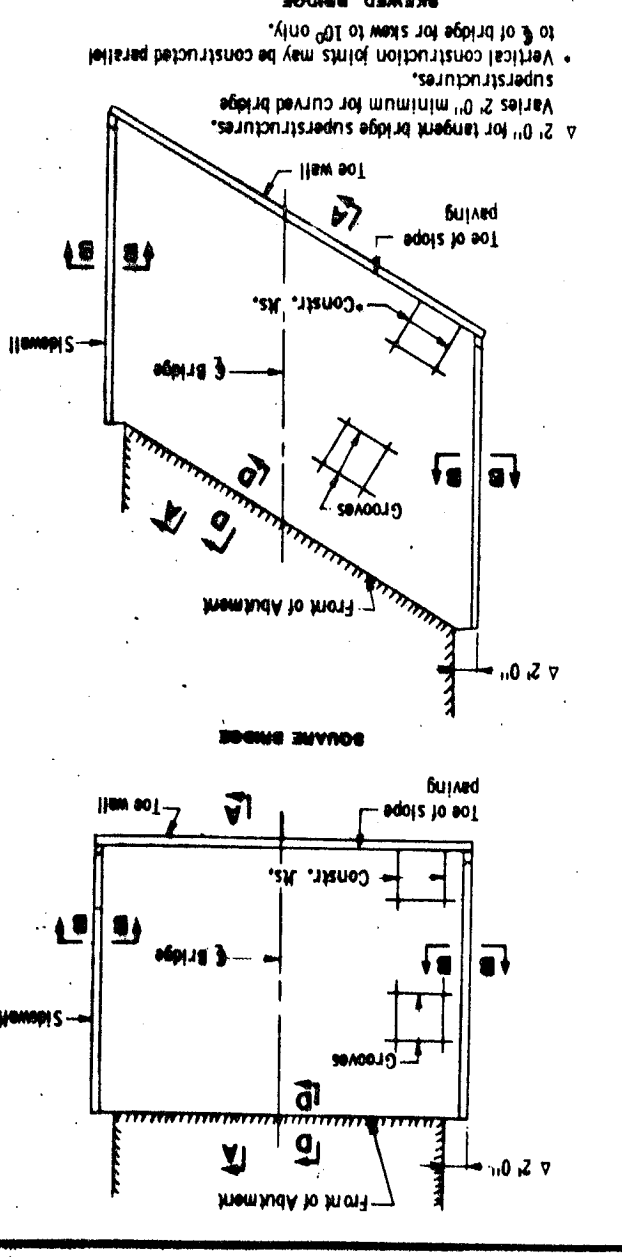
LAYOUTS FOR SLOPES STEEPER THAN 2:1



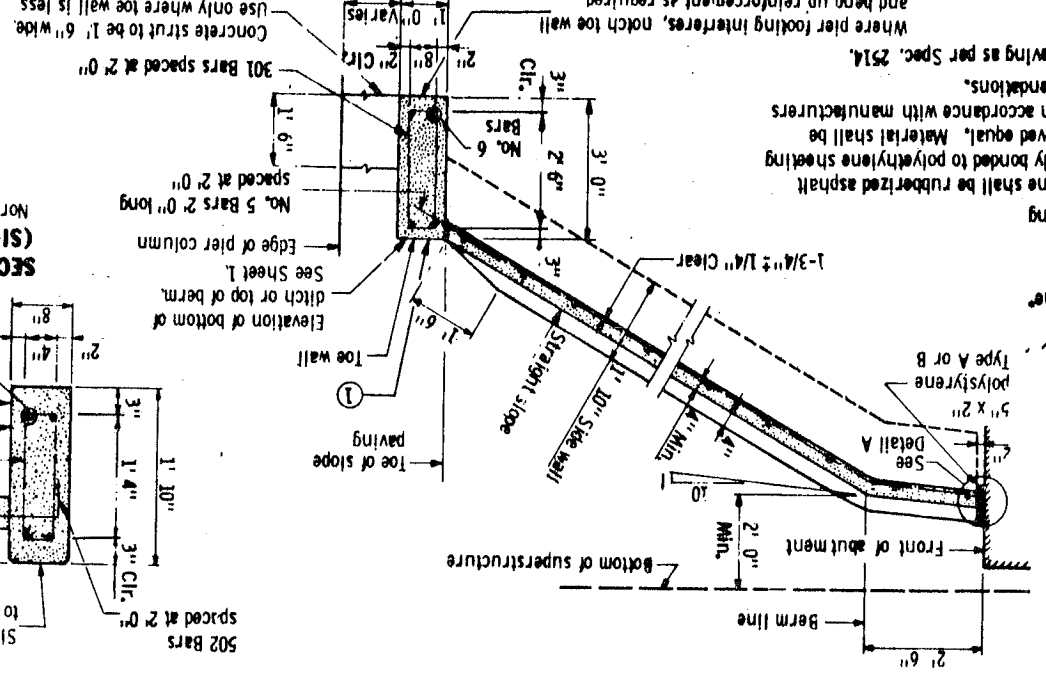
LAYOUTS FOR SLOPES STEEPER THAN 2:1



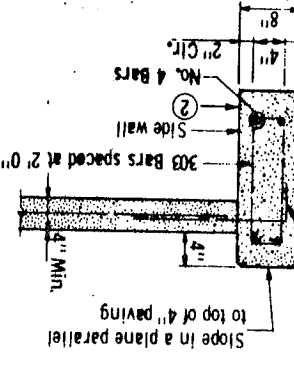
LAYOUTS FOR SLOPES AT HIGH ABUTMENTS



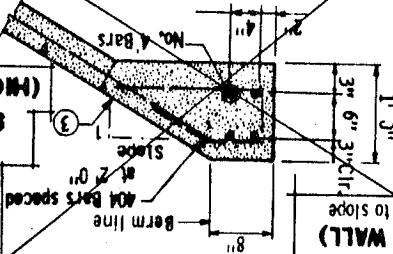
SECTION A-A



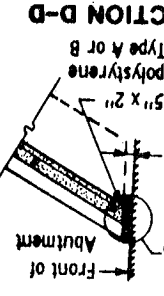
SECTION B-B (SIDE WALL)



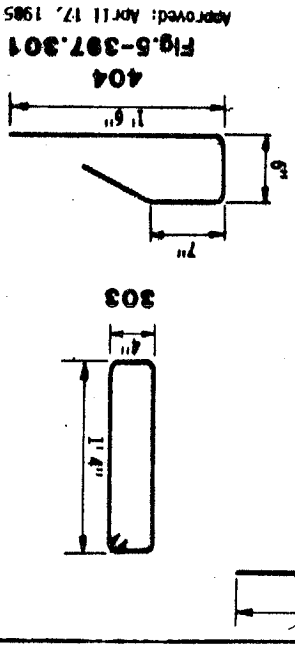
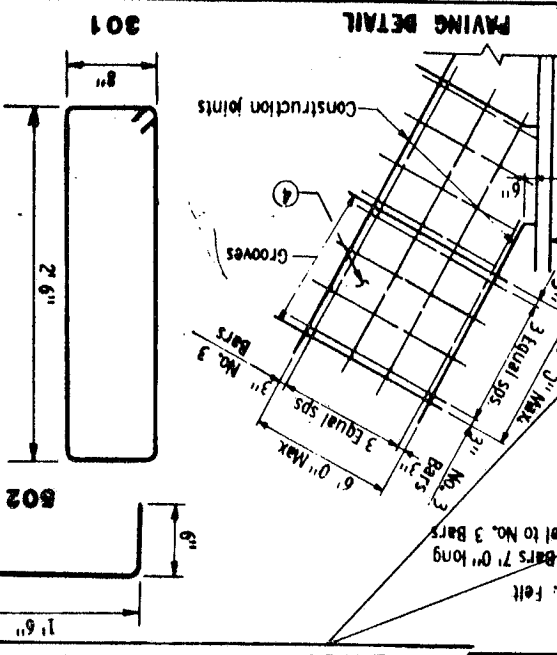
SECTION C-C (STEEPER THAN 2:1)



SECTION D-D (HIGH ABUTMENTS)



CONCRETE SLOPE PAVING UNDER BRIDGES



B311
 CURVED PLATE BEARING ASSEMBLY
 (EXPANSION)
 DEPARTMENT OF TRANSPORTATION
 STATE OF MINNESOTA

APPROVED: March 12, 1987
 Issued by: ENGINEERING STANDARDS
 Developed by: ENGINEERING STANDARDS
 and BRIDGES & STRUCTURES

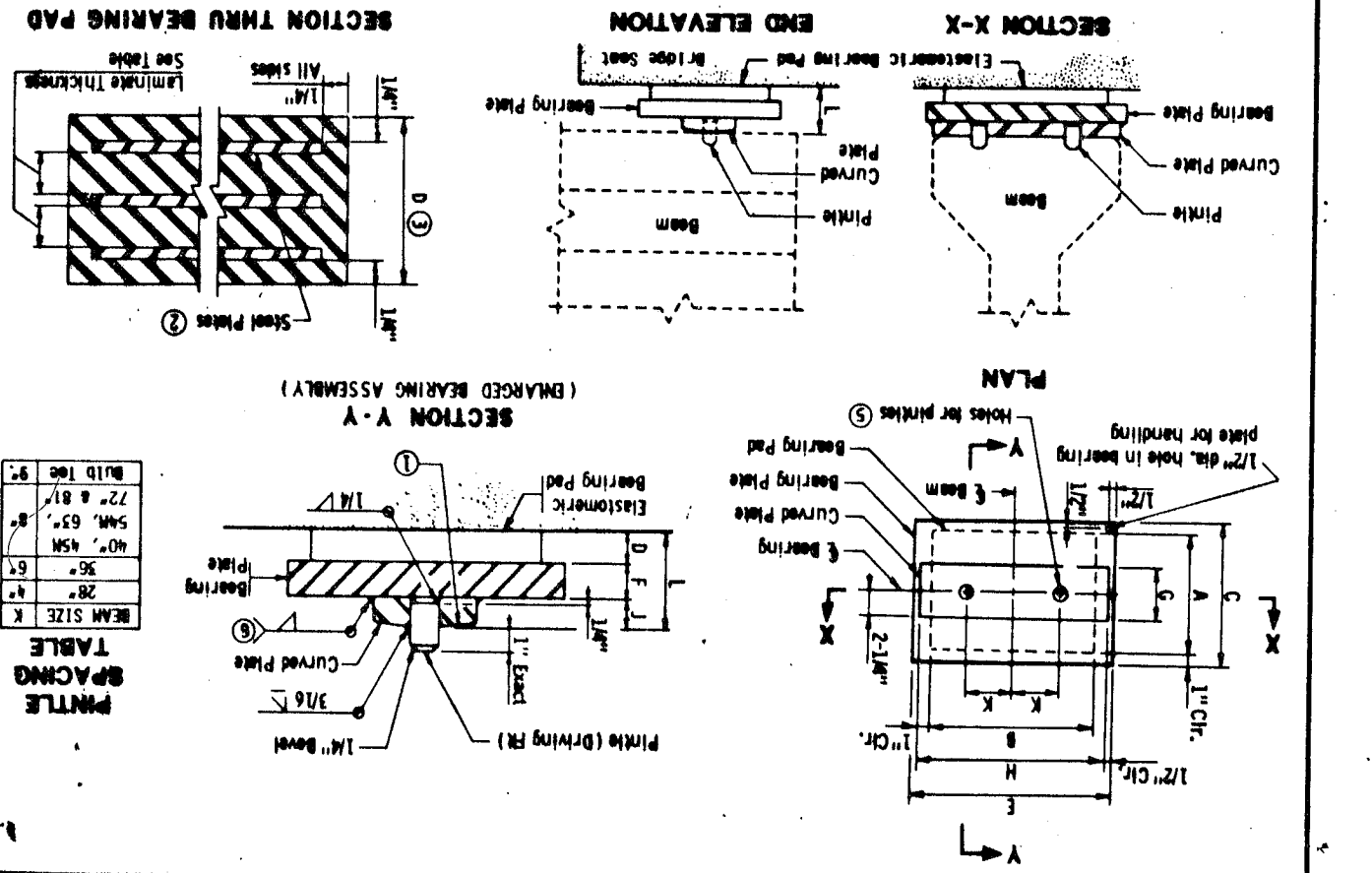
NOTES:

- The radius of the curved plate shall be 1' 0" min. & 1' 6" max. Finish to 250 Micro. The finished thickness of the plate may be 1/16" less than shown.
- Do not galvanize these plates.
- The total thickness shown includes the steel plates.
- See Bridge Design Manual for design requirements.
- 1-1/4" dia. pintle for total loads to 200 Kips.
- 1-1/2" dia. pintle for total loads over 200 Kips.
- For bearing plate thicknesses up to 1-1/2" use 5/16" fillet welds; for thicknesses over 1-1/2" to 2-1/4" use 5/8" fillet welds; for thicknesses over 2-1/4" use 1/2" fillet welds with minimum preheat of 300°.

Payment for bearing assembly shall include all material on this detail.

TABLE 1

Beam Size	Bearing Pad		Steel Plates		Laminates		Shape Factor	Bearing Plate		Curved Plate		Pintle Spacing	Pintle Dia.	Assembly Type	
	A	B	C	D	E	F		G	H	I	J				
54M	10"	24"	1/4"	2	1/8"	1	1/2"	2.1	1/2"	1"	4 1/2"	26"	1"	1 1/4"	B
54M	10"	24"	1/4"	2	1/8"	1	1/2"	2.1	1/2"	1"	4 1/2"	26"	1"	1 1/4"	B
54M	10"	24"	1/4"	2	1/8"	1	1/2"	2.1	1/2"	1"	4 1/2"	26"	1"	1 1/4"	B



PIN TLE SPACING TABLE

BEAM SIZE	K	4"	6"	8"	10"
28"	4"	6"	8"	10"	12"
36"	6"	8"	10"	12"	14"
40"	8"	10"	12"	14"	16"
54M, 63"	10"	12"	14"	16"	18"
72" & 81"	12"	14"	16"	18"	20"

B310
 CURVED PLATE BEARING ASSEMBLY
 (FIXED)
 DEPARTMENT OF TRANSPORTATION
 STATE OF MINNESOTA

APPROVED: March 12, 1987
 Issued by: ENGINEERING STANDARDS
 Developed by: ENGINEERING STANDARDS
 and BRIDGES & STRUCTURES

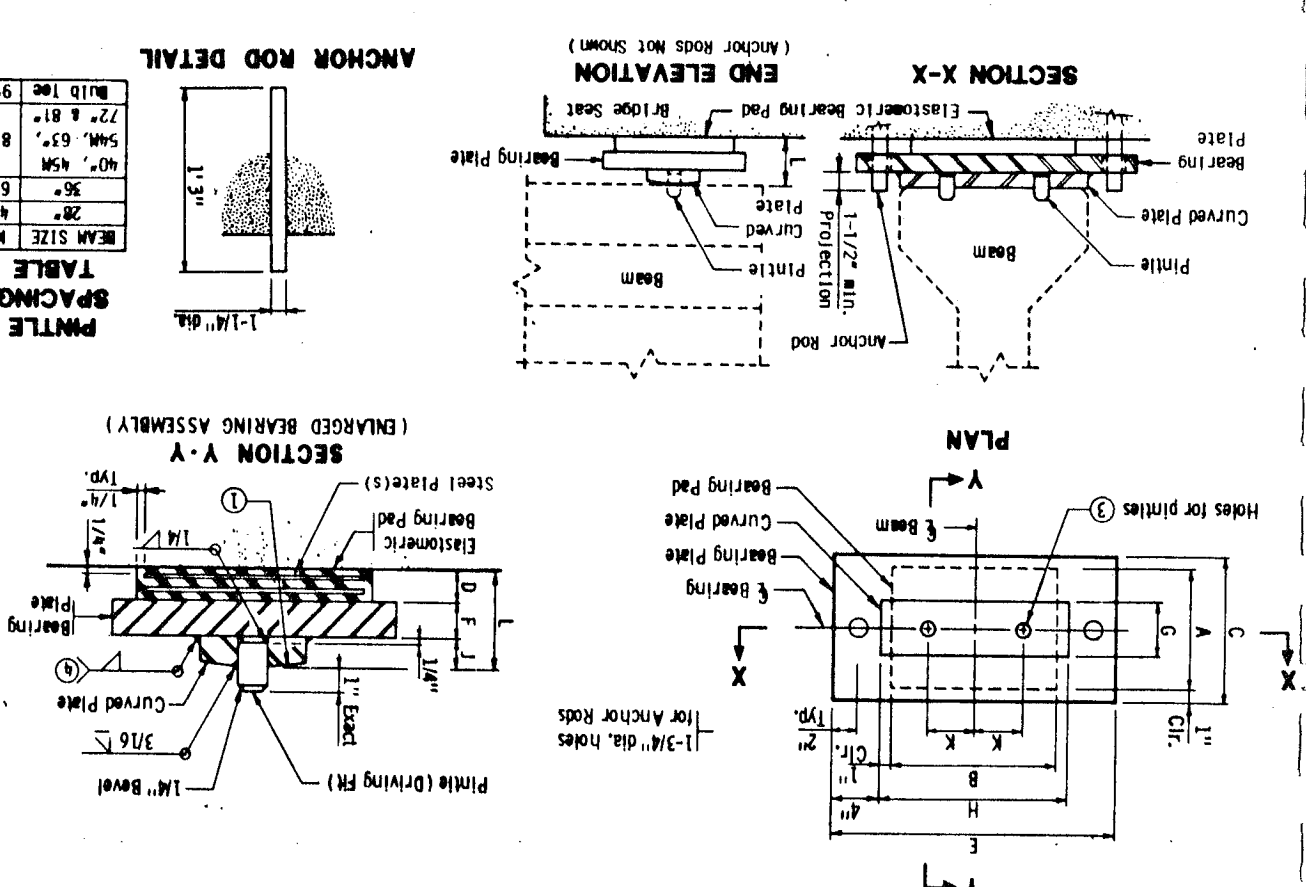
NOTES:

- The radius of the curved plate shall be 1' 0" min. & 1' 6" max. Finish to 250 Micro. The finished thickness of the plate may be 1/16" less than shown.
- See Bridge Design Manual for design requirements.
- 1-1/4" dia. pintle for total loads to 200 Kips.
- 1-1/2" dia. pintle for total loads over 200 Kips.
- For bearing plate thicknesses up to 1-1/2" use 5/16" fillet welds; for thicknesses over 1-1/2" to 2-1/4" use 5/8" fillet welds; for thicknesses over 2-1/4" use 1/2" fillet welds with minimum preheat of 300°.

Payment for bearing assembly shall include all material on this detail.

TABLE 2

Beam Size	Bearing Pad		Steel Plates		Laminates		Shape Factor	Bearing Plate		Curved Plate		Pintle Spacing	Pintle Dia.	Assembly Type	
	A	B	C	D	E	F		G	H	I	J				
54M	10"	24"	1/4"	2	1/8"	1	1/2"	2.1	1/2"	1"	4 1/2"	26"	1"	1 1/4"	B
54M	10"	24"	1/4"	2	1/8"	1	1/2"	2.1	1/2"	1"	4 1/2"	26"	1"	1 1/4"	B
54M	10"	24"	1/4"	2	1/8"	1	1/2"	2.1	1/2"	1"	4 1/2"	26"	1"	1 1/4"	B

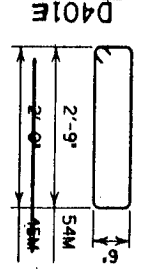


PIN TLE SPACING TABLE

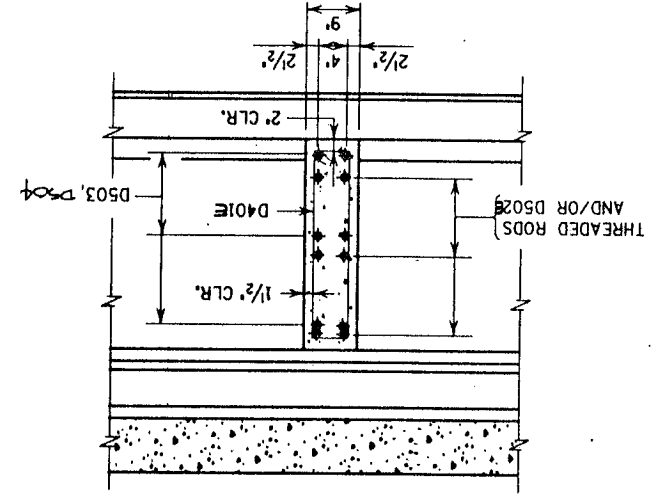
BEAM SIZE	K	4"	6"	8"	10"
28"	4"	6"	8"	10"	12"
36"	6"	8"	10"	12"	14"
40"	8"	10"	12"	14"	16"
54M, 63"	10"	12"	14"	16"	18"
72" & 81"	12"	14"	16"	18"	20"

BEAM/ HEIGHT	DIM. 'A'	DIM. 'B'	VOLUME DIAPHRAGM DEPTH	COMP. LENGTH
54M-54'	6 3/8"	3'-1"	7'-3"	4'-9"
45M-45'	7 7/8"	2'-4"	7'-3"	4'-9"

CONCRETE VOLUME PER DIAPHRAGM
 $\frac{(L-A) \times B \times 0.75}{27} = \text{CUBIC YARDS}$



SECTION A-A



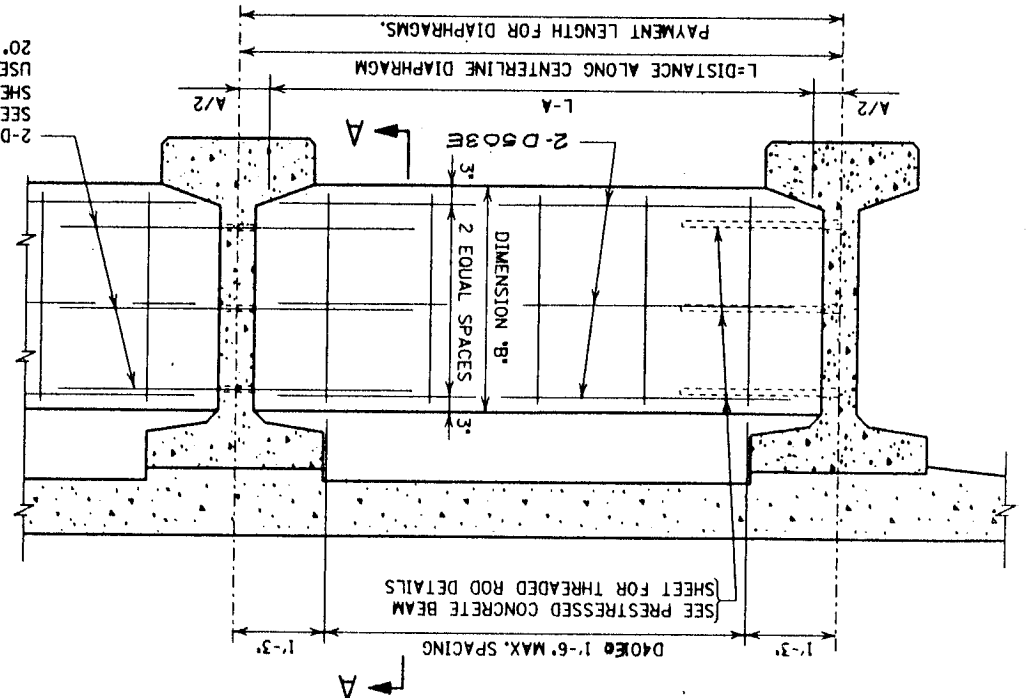
GENERAL NOTES

ALL DIAPHRAGM CONCRETE AND REINFORCEMENT BARS SHOWN ON THIS DETAIL TO BE INCLUDED IN PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS. THREADED RODS ARE INCLUDED IN PAYMENT FOR PRESTRESSED CONCRETE BEAMS.

BILL OF REINFORCEMENT FOR DIAPHRAGMS

BAR NO.	LENGTH	SHAPE	LOCATION
D401E	140	7-3"	TIE-VERTICAL
D502E	108	5'-0"	HORIZONTAL-THRU BEAM
D503E	120	8'-11"	HORIZONTAL

PART TRANSVERSE SECTION



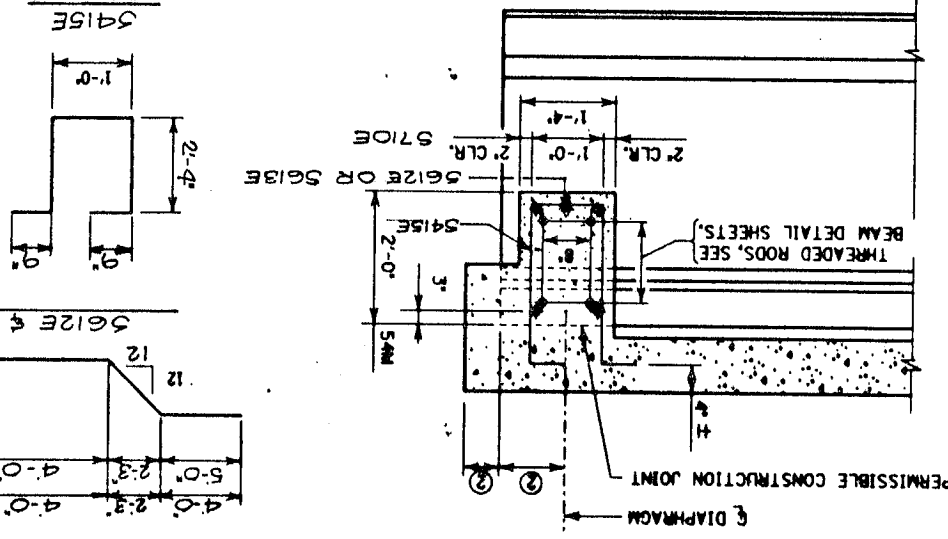
2-D502 (SKEWS LESS THAN 20°)
SEE PRESTRESSED CONCRETE BEAM SHEET FOR LOCATION OF HOLES.
USE THREADED RODS FOR SKEWS 20° AND OVER.

BEAM SPACING %	ALONG CENTERLINE	STRAIGHT	BENT
OVER 8' TO 11'	2	7	1
OVER 11' TO 15'	2	7	1
OVER 15' TO 19'	2	7	1
OVER 19' TO 23'	2	7	1

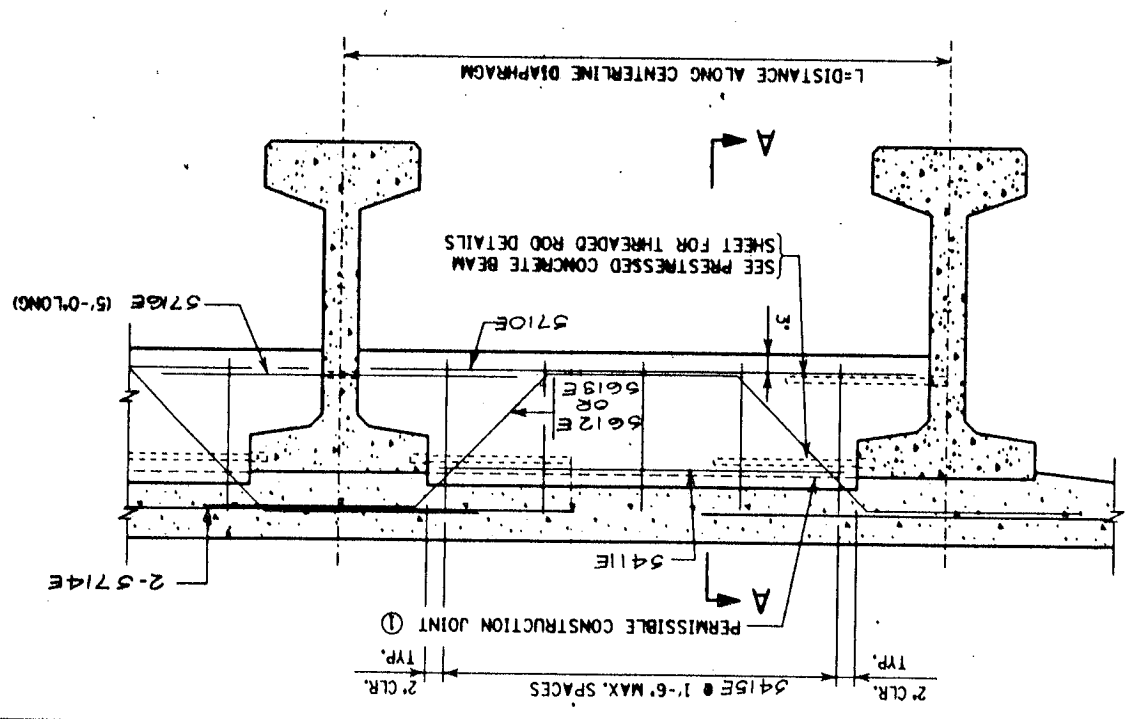
GENERAL NOTES

ALL DIAPHRAGM CONCRETE AND REINFORCEMENT BARS SHOWN ON THIS DETAIL TO BE INCLUDED IN PAYMENT FOR SUPERSTRUCTURE QUANTITIES. THREADED RODS ARE INCLUDED IN PAYMENT FOR PRESTRESSED CONCRETE BEAMS. WHEN CONSTRUCTION JOINT IS USED AT THIS LOCATION, DIAPHRAGM FASCIA SHALL REMAIN IN PLACE UNTIL COMPLETION OF SLAB CURING PERIOD. SEE SUPERSTRUCTURE DETAIL SHEETS FOR THIS DIMENSION.

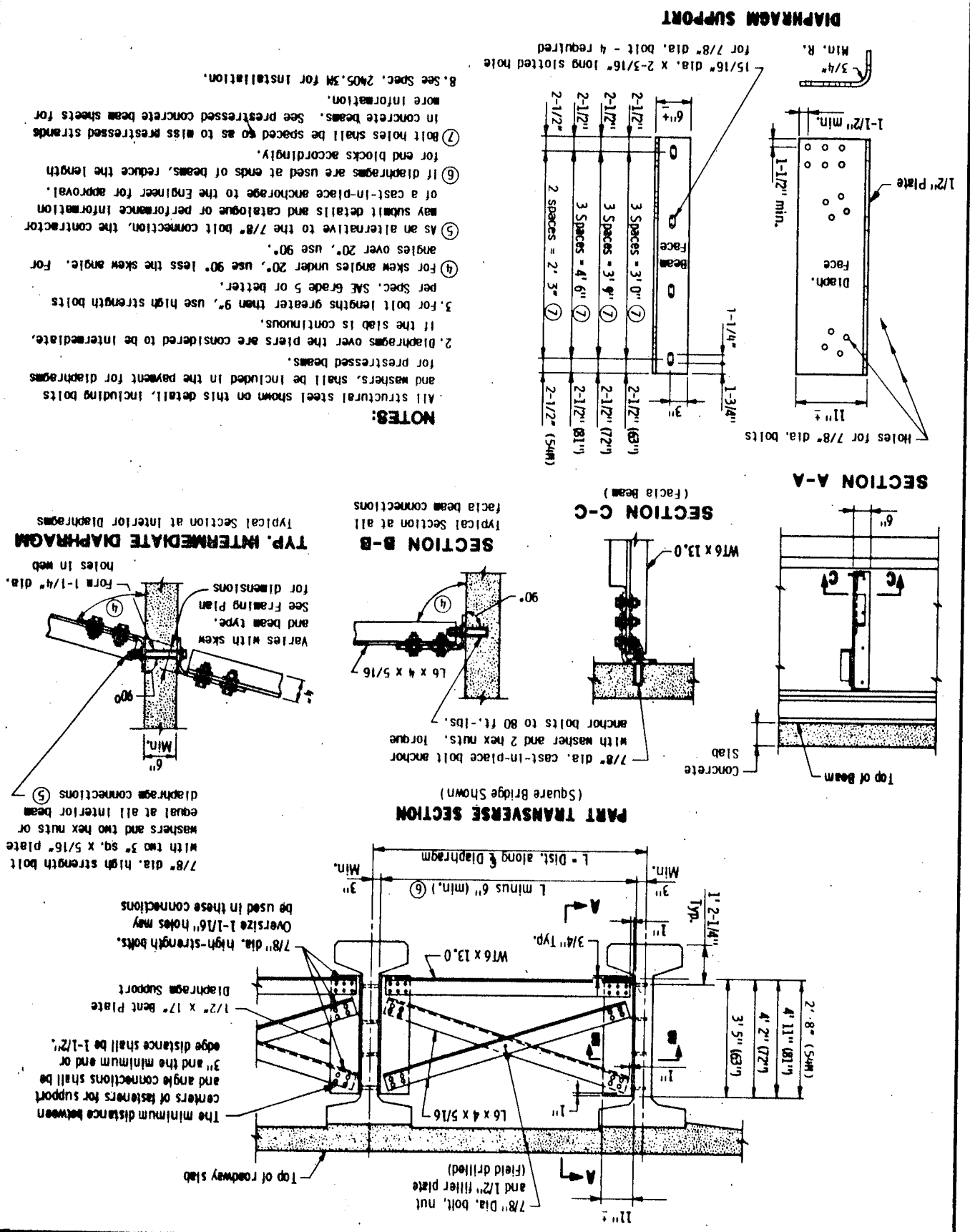
SECTION A-A



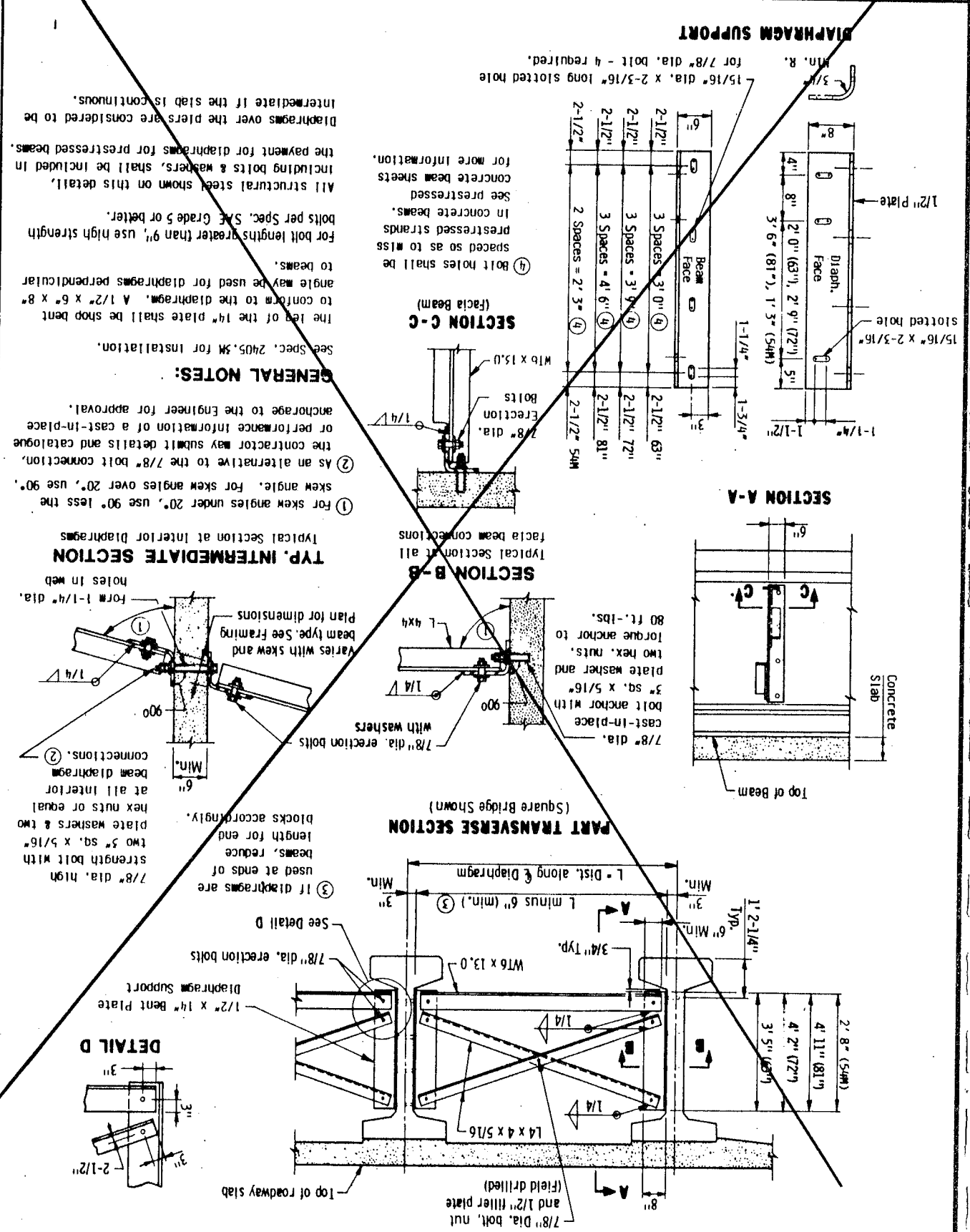
PART TRANSVERSE SECTION



B406	DETAIL NO.	STATE OF MINNESOTA	DEPARTMENT OF TRANSPORTATION	FOR 54M & 63"-81" PRESTRESSED CONC. BEAMS	STEEL INTERMEDIATE BOLTED DIAPHRAGM
		DES	DR. D.J.V.	CHK: B-14-89	APPROVED:
		Approved: September 24, 1987 Developed by: ENGINEERING STANDARDS and BRIDGES & STRUCTURES Issued by: ENGINEERING STANDARDS			



B405	DETAIL NO.	STATE OF MINNESOTA	DEPARTMENT OF TRANSPORTATION	FOR 54M & 63"-81" PRESTRESSED CONC. BEAMS	STEEL INTERMEDIATE WELDED DIAPHRAGM
		DES	DR. D.J.V.	CHK: B-14-89	APPROVED:
		Approved: September 24, 1987 Developed by: ENGINEERING STANDARDS and BRIDGES & STRUCTURES Issued by: ENGINEERING STANDARDS			

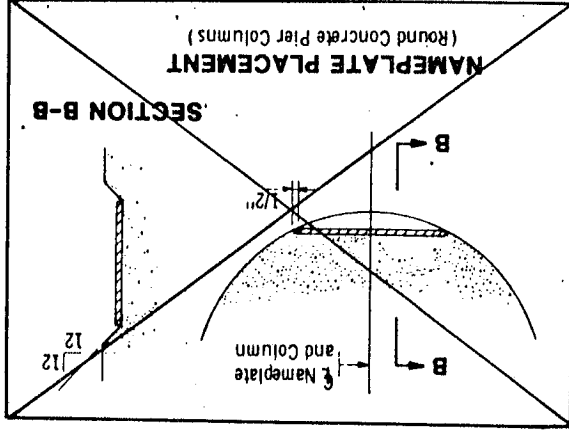


APPROVED: May 1, 1985
 DEPARTMENT OF ENGINEERING STANDARDS
 & BRIDGES AND STRUCTURES OFFICES
 Issued by: OFFICE OF ENGINEERING STANDARDS

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
BRIDGE NAMEPLATE
 TRUNK HIGHWAY BRIDGES

B101

REVISION
 DETAIL NO.

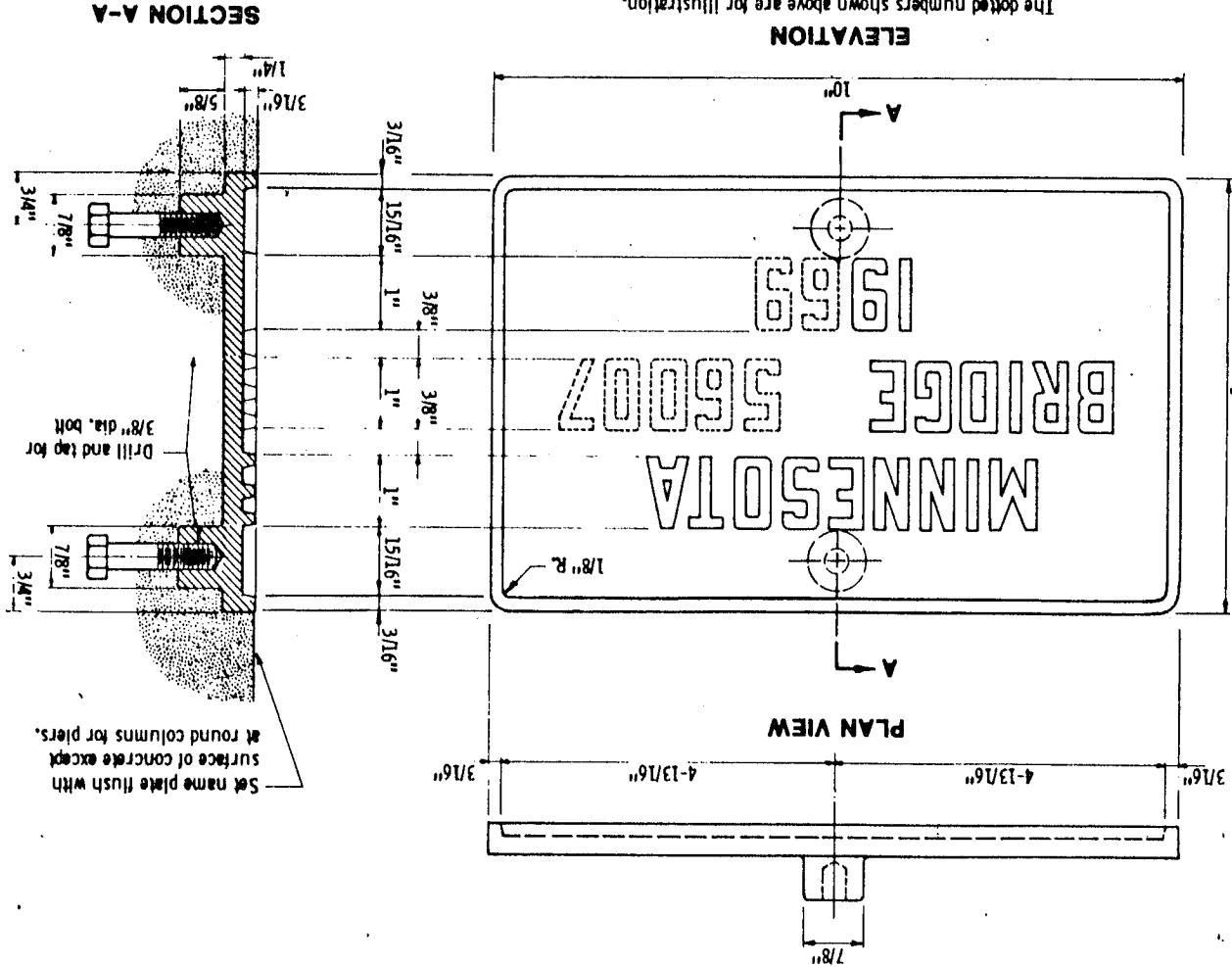


NOTES:
 No shop drawing required.
 Letters and numbers shall conform to those shown.
 Material shall comply with Spec. 3327.
 Draft on letters and numbers shall not be more than 3" in 12".
 Horizontal spacing of letters and numbers shall produce a balanced layout in proportion to spacing shown.
 Top surface of letters, numbers and frames shall be burrished.
 Furnish 2 steel bolts 3/8" dia. x 3" long with each plate.

NUMBERS FOR NAMEPLATES

1234567890
 3/16"

BRIDGE 02552
 YEAR 1989
 The dotted numbers shown above are for illustration.
 Data to be shown on name plate is as follows:



Set name plate flush with surface of concrete except at round columns for piers.
 Drill and tap for 3/8" dia. bolt.
 3/16" 7/8" 3/16" 1" 15/16" 3/16" 1" 3/8" 1" 3/8" 15/16" 3/16" 1/4" 5/8"

DETAILS

Sheet No. 30 of 33 Sheets
 Bridge No. 02552

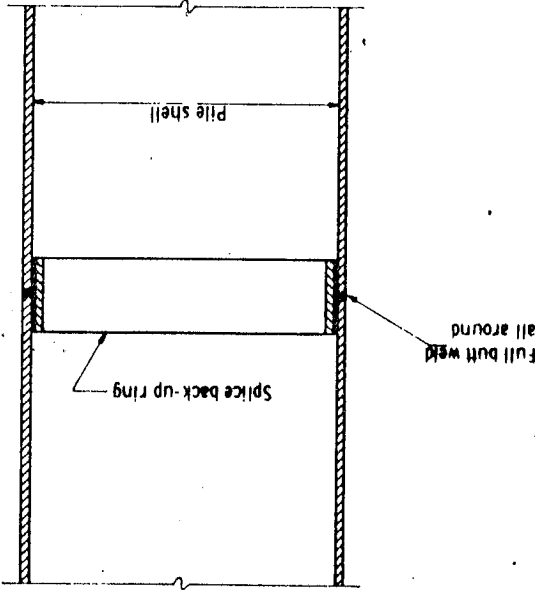
STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
PILE SPICE
 CAST-IN-PLACE CONCRETE PILES

APPROVED July 21, 1972
 Engineering Standards Engineer
 RESEARCH AND STANDARDS DIVISION

B201

REVISION
 DETAIL NO.

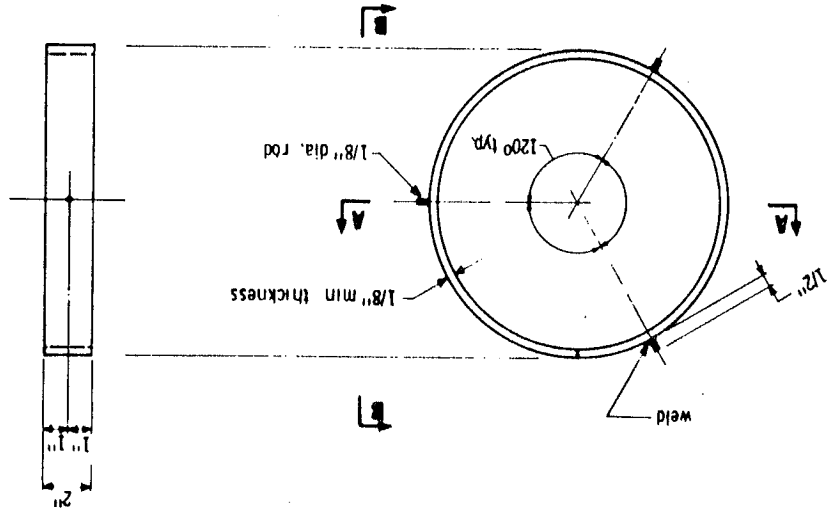
SECTION A-A



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 A. W. S. Type E7016 or E7018 (low-hydrogen).
 Low-hydrogen electrodes shall be stored in hermetically (air-tight) sealed containers.
 Low-hydrogen electrodes shall be stored in holding ovens at a temperature of not less than 250° F.
 Low-hydrogen electrodes shall be placed in a holding oven for at least 8 hours, after having been exposed to the atmosphere for more than 2 hours.
 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.

NOTES:

SECTION B-B
 (Pile not shown)



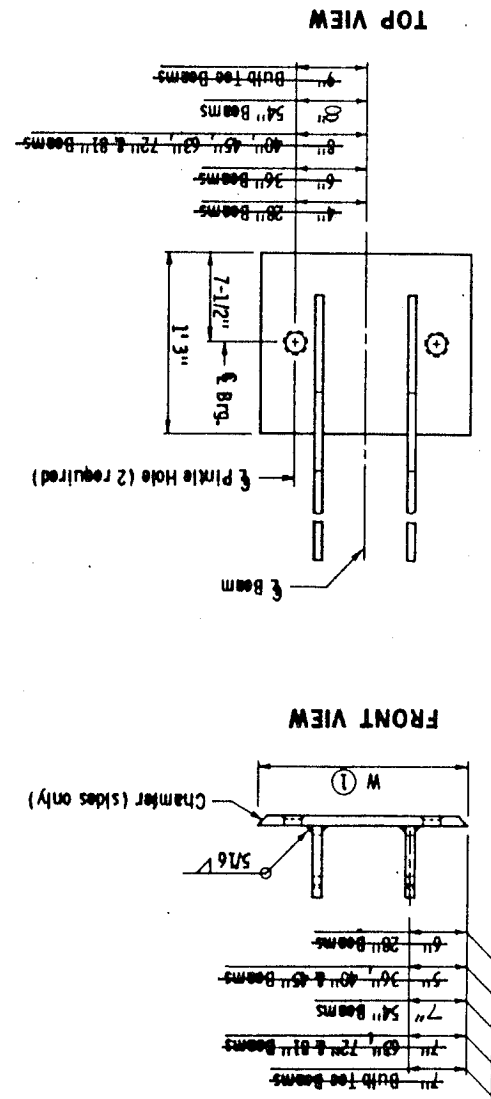
APPROVED: October 11, 1982
 DEVELOPED BY: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES
 ISSUED BY: OFFICE OF ENGINEERING STANDARDS

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
SOLE PLATE
(FOR BEARINGS WITH PINILES)
PRESSED CONCRETE BEAMS

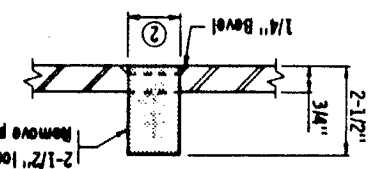
B303
 DETAIL NO.

NOTES:
 ① Dimension "W" to be the width at the bottom flange of the beam minus 1/4".
 ② 1-1/2" dia. for 1-1/4" dia. piniles.
 1-3/4" dia. for 1-1/2" dia. piniles.
 Check bearing assemblies for pinile size used.

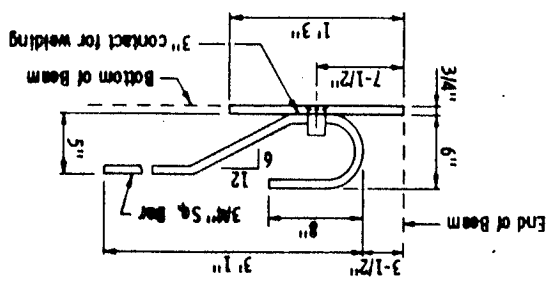
Material to be structural steel per Spec. 3306
 Sole plate for Bearing Assembly to be hot dipped galvanized per Spec. 3394 after fabrication.
 Pinile holes shall be free of zinc build up from galvanizing.
 Payment for sole plates to be included in price bid for Prestressed Concrete Beams.



PINILE HOLE DETAIL



SIDE VIEW



These dimensions may be modified to clear prestressed strands. However, changes must be approved by the Engineer.

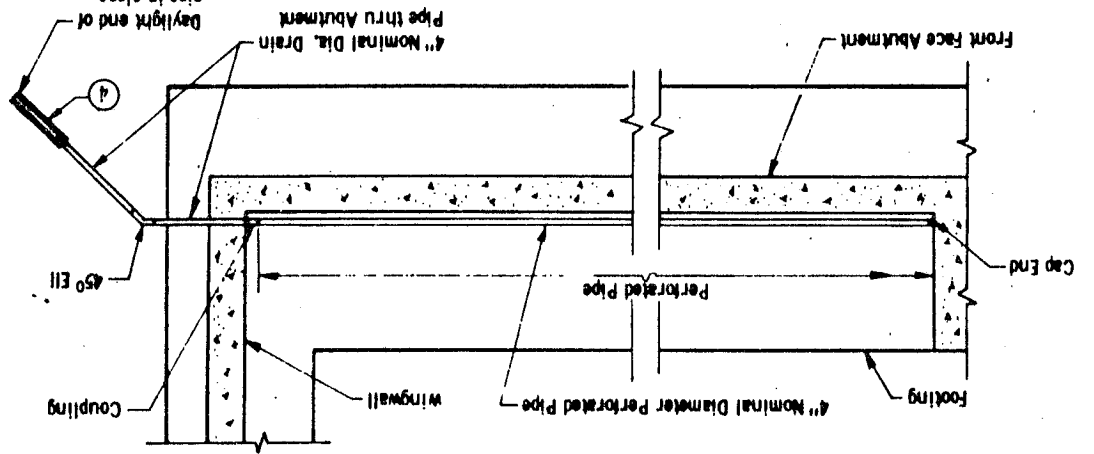
APPROVED: March 13, 1985
 DEVELOPED BY: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES
 ISSUED BY: OFFICE OF ENGINEERING STANDARDS

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
DRAINAGE SYSTEM
FOR HIGH ABUTMENTS

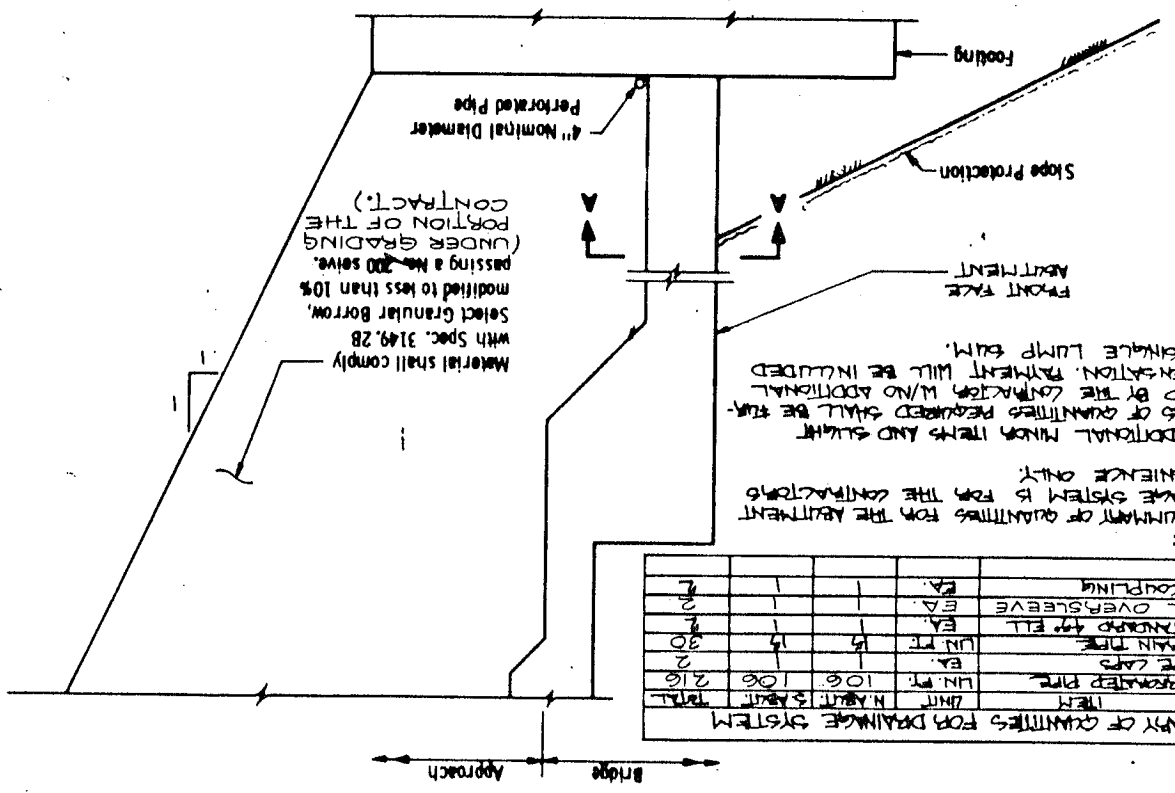
B910
 DETAIL NO.

NOTES:
 1. All pipe shall be as per Spec. 3245
 2. Wrap perforated pipe with geotextile as per Spec. 3735, Type I.
 Attach to pipe as per Spec. 2502
 3. See bridge plans for notes and "Summary of Quantities"
 4. 5 ft. long corrugated metal overseave with rodent screen on end, or a Precast Concrete Headwall.

SECTION A-A



SECTION THRU ABUTMENT



SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM

ITEM	UNIT	AMOUNT	TOTAL
4" ID PERFORATED PIPE	LN. FT.	106	216
4" ID PIPE CAPS	EA.	1	2
4" ID DRAIN TIE	LN. FT.	15	30
4" ID BRINDARD 472 ELL	EA.	1	2
METAL OVERSLEEVE	EA.	1	2
4" ID COUPLING	EA.	1	2
TOTAL			

NOTE:
 - THE SUMMARY OF QUANTITIES FOR THE ABUTMENT DRAINAGE SYSTEM IS FOR THE CONTRACTOR'S CONVENIENCE ONLY.
 - ANY ADDITIONAL MINOR ITEMS AND SLIGHT CHANGES OF QUANTITIES REQUIRED SHALL BE PAID BY THE CONTRACTOR W/NO ADDITIONAL COMPENSATION. PAYMENT WILL BE INCLUDED IN A SINGLE LUMP SUM.
 - MATERIAL SHALL COMPLY WITH SPEC. 3149.2B Select Granular Borrow, modified to less than 10% passing a No. 200 sieve. (UNDER GRADING CONTRACT.)

TITLE: DETAILS
 RES: MN/DOT
 DES: MN/DOT
 CM: MN/DOT
 APPR: B-14-B9
 SHEET NO. 31 OF 33 SHEETS
 BRIDGE NO. 02552

CONTRACTED PROFILE

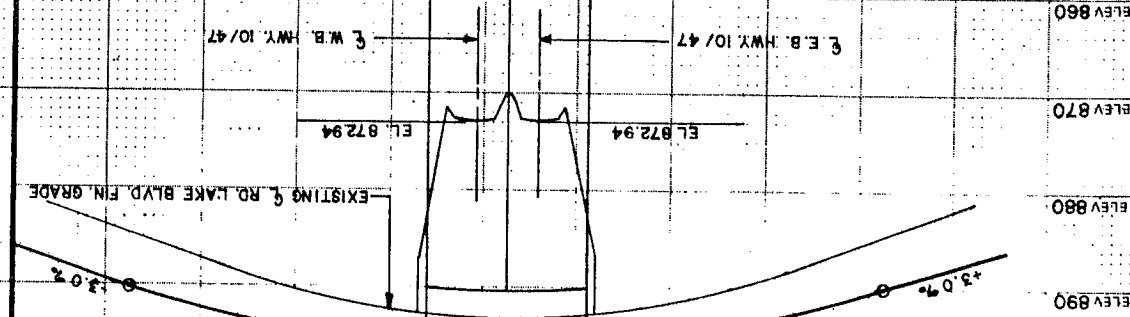
SCALE, HOR. VER. 1" = 100' 1" = 10'

800' V.C.
 R1 = 24+75.06
 EL. 902.06
 G1 = 3.0%
 G2 = 3.0%
 M = 6.00'

END OF DECK
 STA. 25+61.55
 EL. 895.78

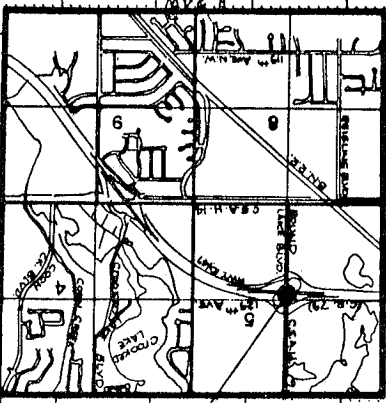
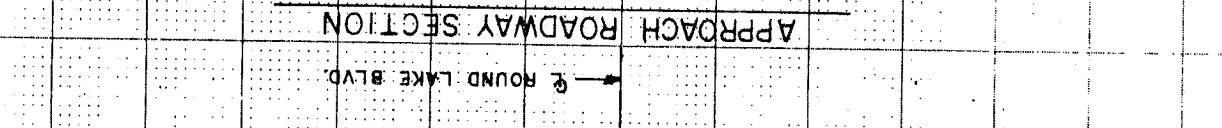
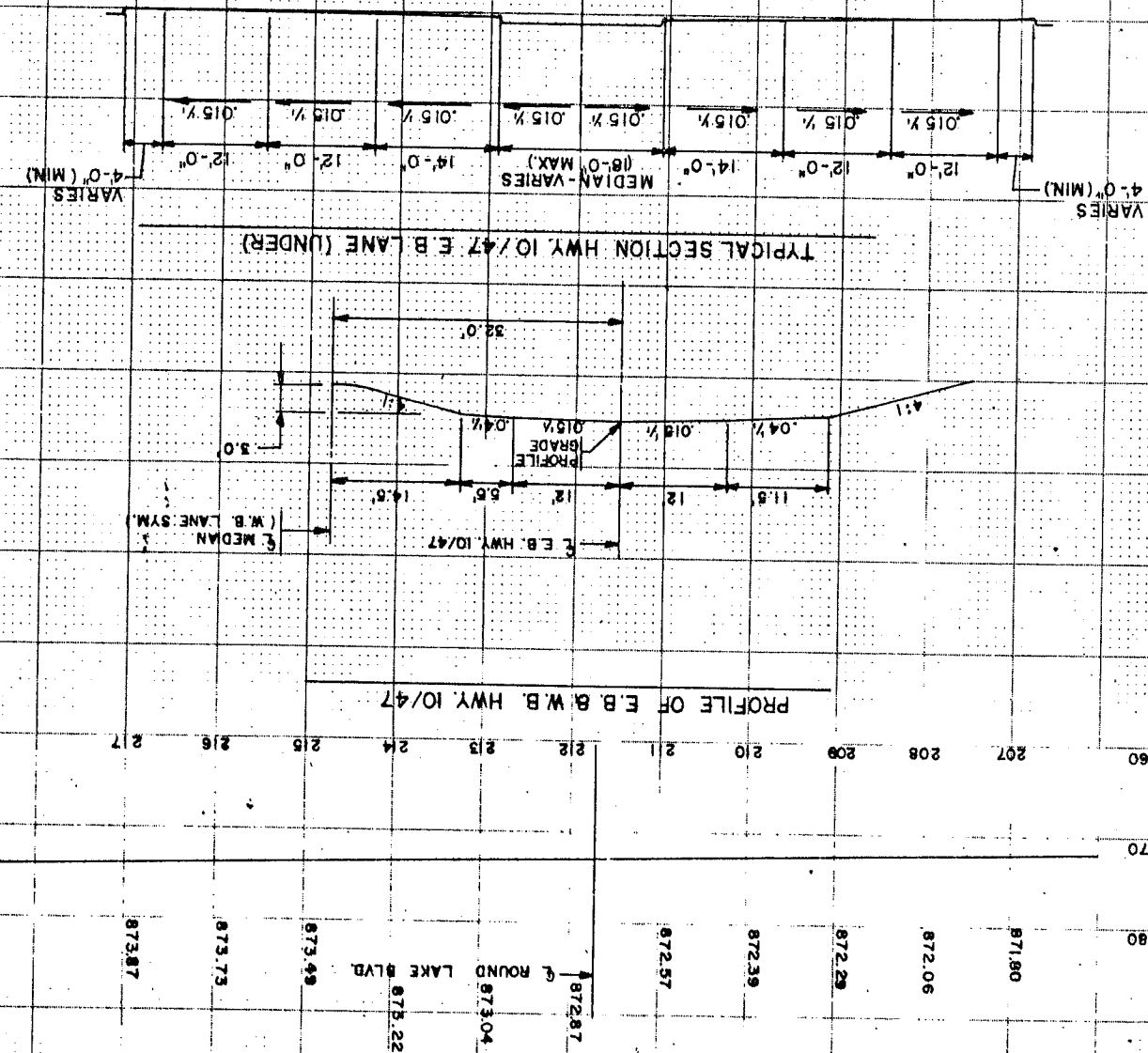
BEG. OF DECK
 STA. 23+84.89
 EL. 895.76

PROPOSED E. RD. LAKE BLVD. FIN. GRADE
 PVI 20+75 EL. 890.06

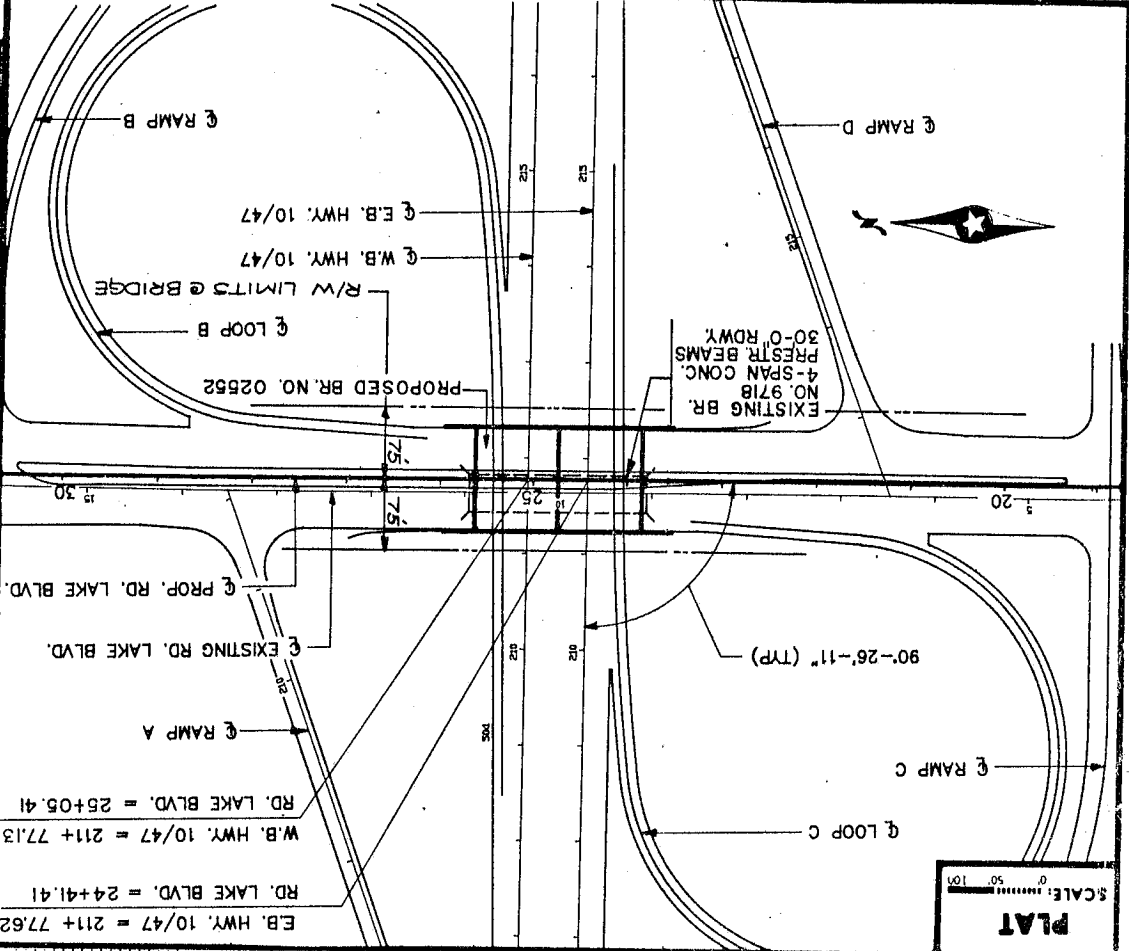


TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



EXISTING BR. 9718
 PROP BR NO. 02552



SCALE: 1" = 50' 10'

PLAN

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 (structure, type, length, height, height above high water without overflow of roadway): (Given location, type, length, height, height above high water, cross-sectional area etc.)
 3. Apparent highwater elevation: Observed from:
 4. Other data: Approx. velocity of water at time of survey

HYDRAULIC ENGINEERS RECOMMENDATION

Stream or ditch designation:
 Drainage area:
 Flood on record: Design flood (yr. freq.):
 Max. observed highwater elevation: Design highwater elevation:
 Design mean velocity through structure: F.F.S.
 Low superstructure at or above elevation:
 Flowline elevation:
 Pierway was rev'd, below elevation:
 In the interest of flood plain zoning the regional flood (100 yr. freq.) is: C.F.S.
 at stage: and mean velocity of: F.F.S. with: F.T. withstand:
 The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEERS RECOMMENDATION

DATE:
 Bridge survey sheets made from:
 B. R. W. SURVEY NOTES

Location: S.E. COR. EXISTING BR. NO. 9718
 Bench mark elevation: (M.S.L. 1885 Adj.) 893.361
 Bridge survey sheets made from:

MINNESOTA
 DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY
 AT MILE POINT: ON C.S.A.H. 9
 (T.H. C.S.A.H. CR. NO.)
 PROPOSED BRIDGE LOCATED: 0.8 MILES NO. OF
 C.S.A.H. 14 IN THE CITY OF COON RAPIDS
 SEC. 5 TWP. 31N R. 24W
 COUNTY ANOKA

BRIDGE NO. 02552
 ACB B-14-89
 SHEET NO. 32 OF 33 SHEETS

Area No. Job No. State Proj. No. 0215-02552