STATE OF MINNESOTA

DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR GRADING & BRIDGE

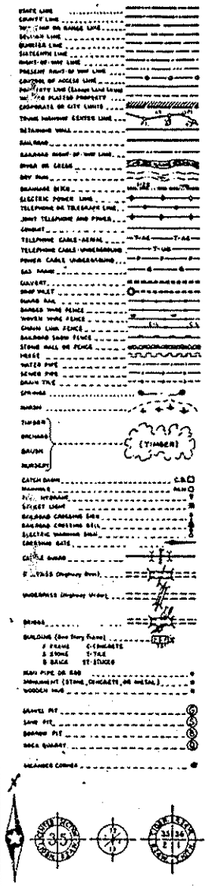
County State Aid Highway No. 1

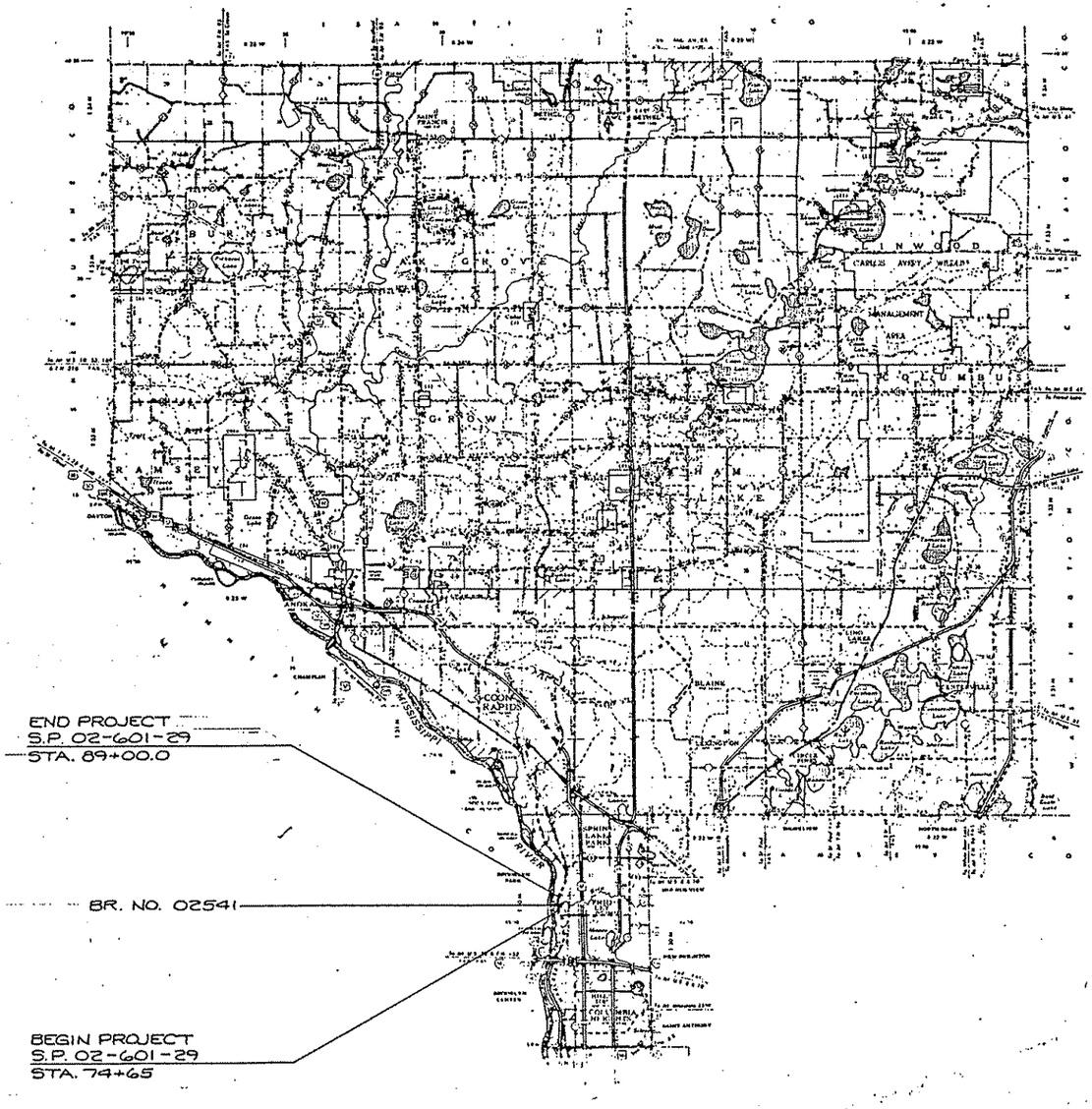
Between C.S.A.H. 6 And LOCKE LAKE RD.

GROSS LENGTH 1435.00 FEET 0.272 MILES
BRIDGES-LENGTH 56.07 FEET 0.011 MILES
EXCEPTIONS-LENGTH ____ FEET ____ MILES
NET LENGTH 1435.00 FEET 0.272 MILES

INDEX OF SHEETS

CONVENTIONAL SIGNS





SCALE

INDEX MAP		2 MI.
PLAN & PROFILE	HORIZ.	50'
	VERT.	5'
CROSS SECTIONS		10'
SIGNAL		30'

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH, IN THE CONSTRUCTION OF THIS PROJECT.

RECOMMENDED FOR APPROVAL Paul K. Kind DATE 1/30/87
COUNTY ENGINEER

ANOKA COUNTY

RECOMMENDED FOR APPROVAL C.C. Weichselbaum 10/15, 1987
DISTRICT STATE AID ENGINEER

RECOMMENDED FOR APPROVAL Orin D. Stallman 4/11 1988
STATE AID PLANS & SPECS. ENGR.

APPROVED 4-11 1988 L. Roy Altmann
STATE AID ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE: 3-30-88 Robert A. Tonegard
REG. NO. 6924

RECOMMENDED FOR APPROVAL Loren H. Hayland for BRIDGE ENGINEER 4-4-88

DESIGN DESIGNATION

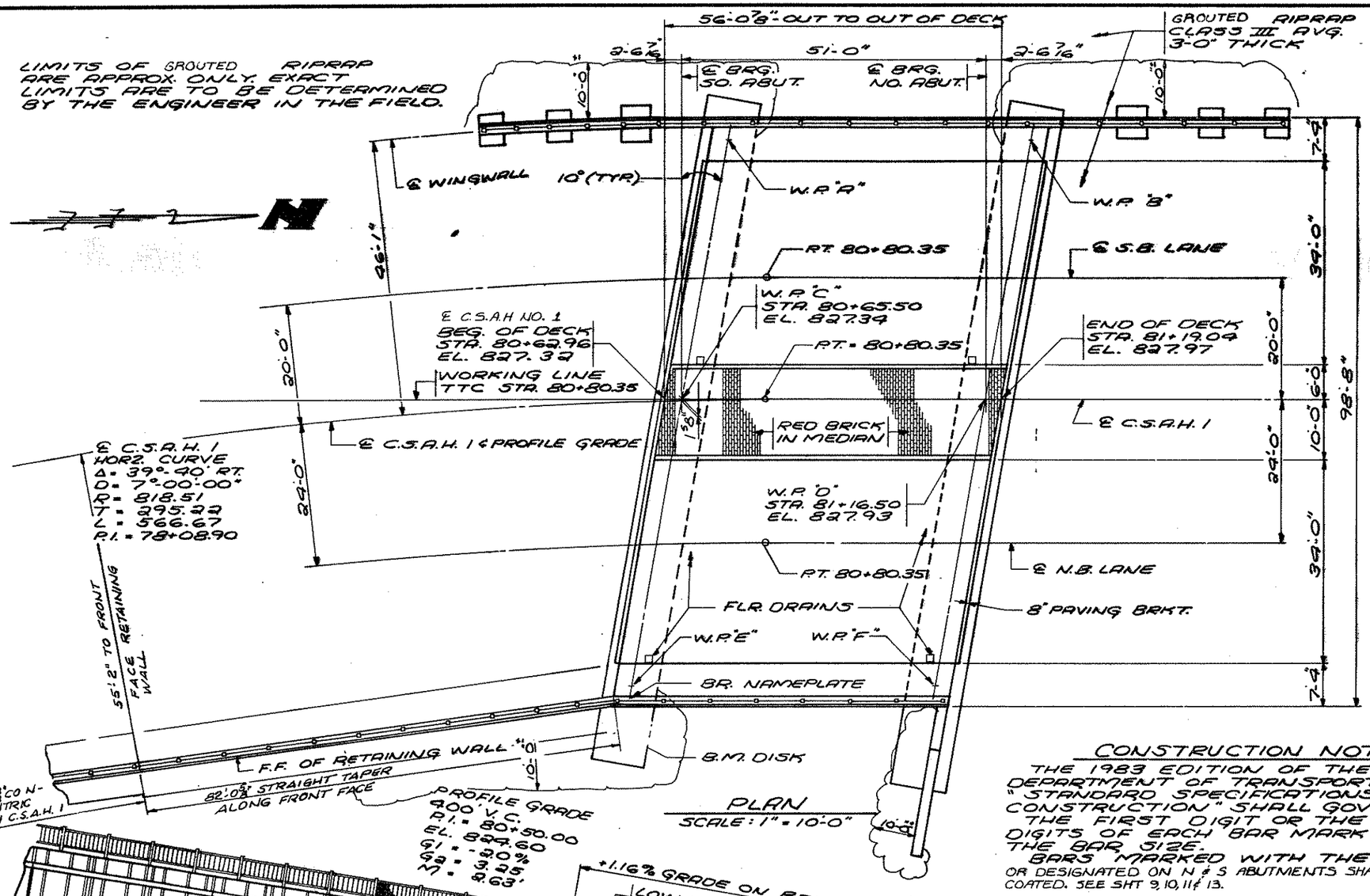
ADT (CURRENT YEAR) 27261 (1987)
ADT (FUTURE YEAR) 43618 (2007) 4 TRAFFIC LANES - NO PARKING
T (HEAVY COMMERCIAL) 1300 (FUTURE) $\leq N18 = 3,600,000$
10 Ton Design SOIL FACTOR A-3.50% R-62
Design Speed 40 MPH BASED ON STOPPING SIGHT DIST., HGT. OF EYE 3.50', HGT. OF OBJECT 0.50'
Design Speed not achieved at:
STA. ____ TO STA. ____ MPH ____
STA. ____ ____ MPH ____

GOVERNING SPECIFICATIONS

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY CURRENT SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

S.P. ____ S.A.P. 02-601-29 C.P. ____ Sheet No. 1 of 63 Sheets

LIMITS OF GROUTED RIPRAP ARE APPROX. ONLY. EXACT LIMITS ARE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.



NOTE:
12" ϕ C.I.P. CONC. PILING TO BE USED IN ABUTMENTS & RETAINING WALL

CONSTRUCTION NOTES

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

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

BARS MARKED WITH THE SUFFIX "E" OR DESIGNATED ON N & S ABUTMENTS SHALL BE EPOXY COATED. SEE SHT 9, 10, 11 & 13.

B.M. EL. 834.09 (MSL 1929 ADJ.) TOP NUT OF HYDRANT S.E. QUAD EAST RIVER ROAD & RICE CREEK WAY.

DESIGN DATA

1983 & INTERIM A.A.S.H.T.O. DESIGN SPECS. LOAD FACTOR DESIGN METHOD HS-20 LOADING - INCLUDES 17 P.S.F. DEAD LOAD ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.

REINFORCED CONCRETE:
f'c = 4000 P.S.I. n = 8
fy = 60000 P.S.I. REINFORCEMENT

STRUCTURAL STEEL:
fy = 36000 P.S.I. SPEC. 3306
fy = 50000 P.S.I. SPEC. 3309

PRESTRESSED CONCRETE:
fy = 270,000 P.S.I. (LOW RELAXATION STRANDS)
fc = 4000 P.S.I. n = 6

DECK AREA = 3533 SQ. FT.
PROJECTED ART IS OVER 20,000

LIST OF SHEETS

APPROVED: Paul K. Lund
ANOKA CO. ENGINEER
DATE: Jan. 23, 1987

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION & THAT I AM A DULY REGISTERED PROFFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
Robert R. Erickson
REG. NO. 6924
DATE: 1-15-87

ANOKA CO. C.S.A.H. 1
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02541

0.25 MILES NO. OF C.S.A.H. 6 ON C.S.A.H. 1 OVER RICE CREEK
51'-0" SIMPLE STEEL BM. SPAN
2 - 34'-0" ROADWAY
7° CURVE 10° SKEW
SPAN IDENT. NO. 501

GENERAL PLAN & ELEVATION

SEC. 15 TWP. 30N R. 24W
ANOKA COUNTY
APPROVED: Darwin A. England
7/15/88 for BRIDGE ENGINEER

SCHEDULE OF QUANTITIES FOR PRESTRESSED CONC. BM. ALTERNATE

ITEM NO.	2405.501	2405.511	0402.606	0402.607			0011.601	
ITEM	PRESTRESSED CONC. BMS. TYPE 36 - 53	DIAPHRAGMS FOR TYPE 36 PREST. BEAMS	FIXED CURVED PLATE BRG. ASSEMBLY TYPE 1	EXPANSION CURVED PLATE BRG. ASSEMBLY TYPE 1			REVISED BRIDGE PLANS	
UNIT	EACH	LIN. FT.	EACH	EACH			LUMP SUM	
QUANTITY	10	92	10	10			1	

PRESTRESSED CONC. BM. SCHEDULE

BEAM TYPE	36 - 53		
NO. OF STRAIGHT STRANDS	16		
NO. OF DRAPED STRANDS	8		
TOTAL NO. OF STRANDS	24		
① f'ci	5780		
② f'c	6000		
BEAM SPACING	10'-3"		
INT. DIAPH. DETAIL	8403, 8802, 1 SPECIAL		

CURVED PLATE BEARING ASSEMBLY SCHEDULE

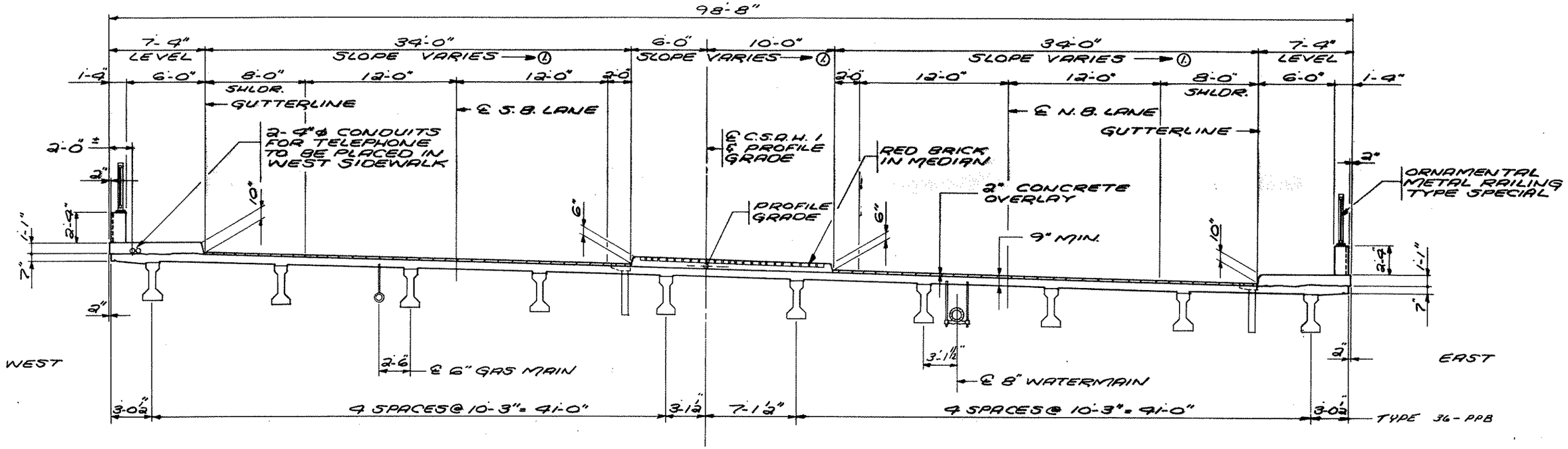
BEARING ASS'Y. TYPE	FIXED TYPE 1	EXPANSION TYP 1	
DETAIL NO.	8310	8311	
MAXIMUM MOVEMENT	———	5/8"	
DESIGN DEAD LOAD	53 KIPS	53 KIPS	
DES. DEAD & LIVE LOAD	123 KIPS	123 KIPS	

PRESTRESSED CONC. BM. ALTERNATE

DES. | DR. | CHK. | CHK. | APR 7-15-88

Sheet No. 1AR of 45 Sheets

Bridge No. 02541



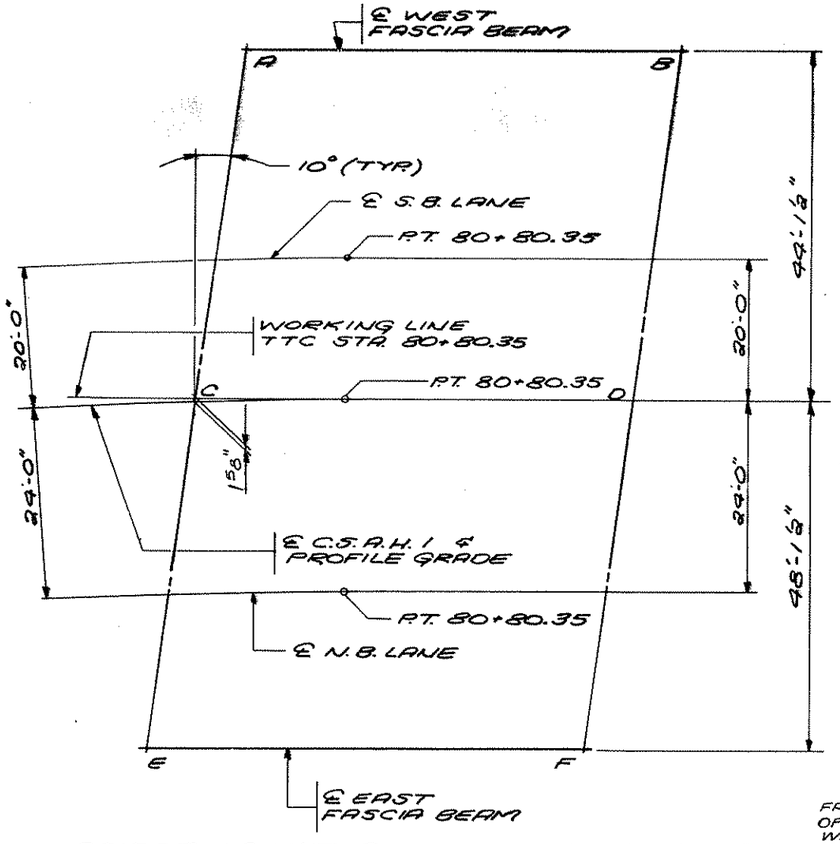
① TRANS. SLOPE ACROSS THE DECK HAVE BEEN SET USING VERTICAL CURVES AT PROFILE GRADE AND BOTH GUTTERLINES. SEE VERTICAL CURVES BELOW

TRANSVERSE SECTION THRU DECK

SCALE: 4" = 1'-0"

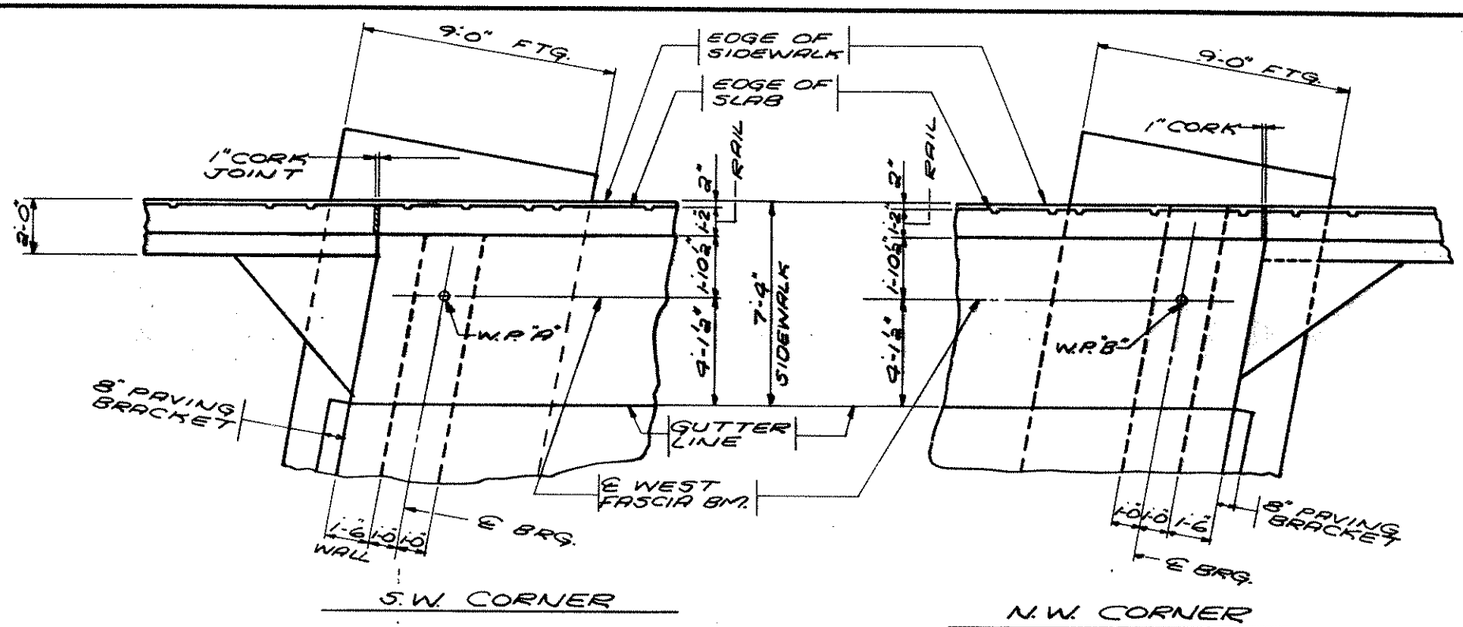
WEST GUTTER	PROFILE GRADE	EAST GUTTER
400' V.C.	400' V.C.	400' V.C.
P.I. = 80+50.00	P.I. = 80+50.00	P.I. = 80+50.00
EL. 826.50	EL. = 829.60	EL. = 822.27
G1 = -1.83%	G1 = -3.0%	G1 = -2.00%
G2 = 2.00%	G2 = 3.25%	G2 = 2.61%
M = 1.92'	M = 2.63'	M = 3.31'

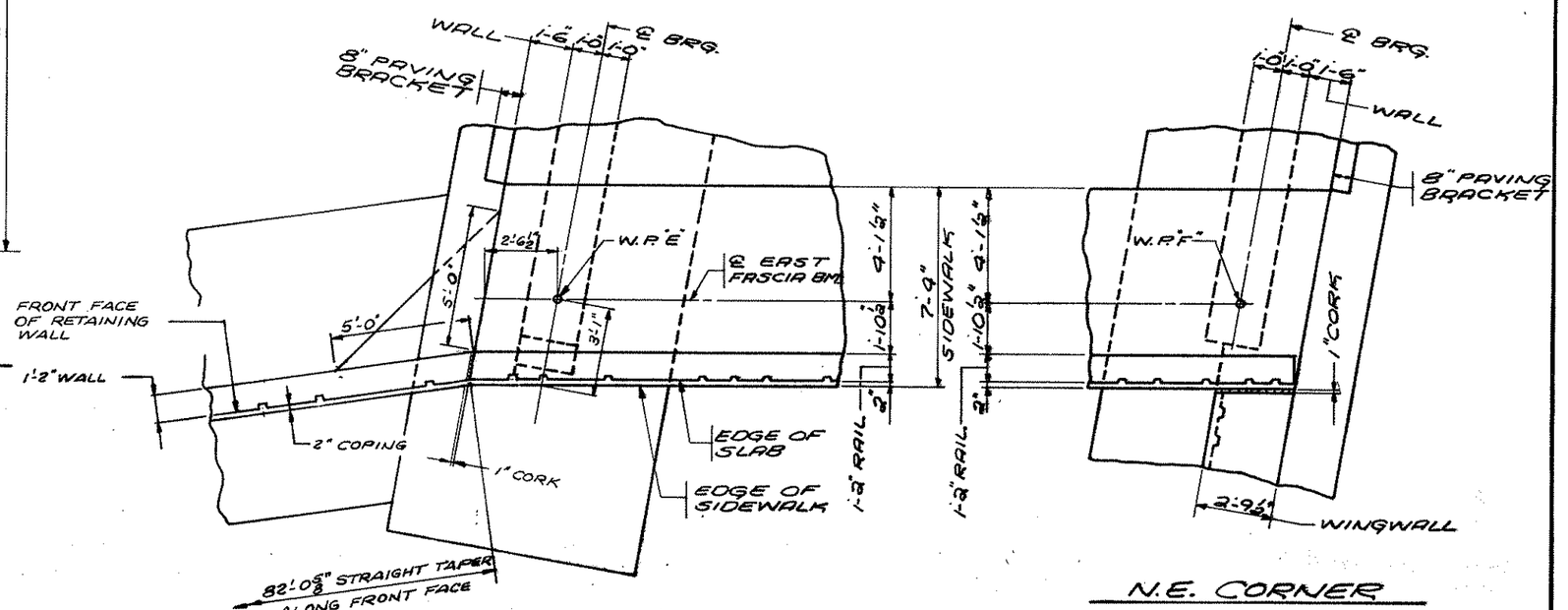
TRANSVERSE SECTION THRU DECK	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 28 OF 45 SHEETS			



BRIDGE LAYOUT SHOWING WORKING POINTS
NO SCALE

TOP OF SLAB TO BRIDGE SEAT		
	S. ABUT.	N. ABUT.
SLAB THICKNESS	9"	9"
STOOL HEIGHT	1 5/8"	1 3/4"
BEAM HEIGHT	36"	36"
BEARING HEIGHT	3 3/4"	4 3/8"
TOTAL	4'-2 3/8"	4'-3 1/8"



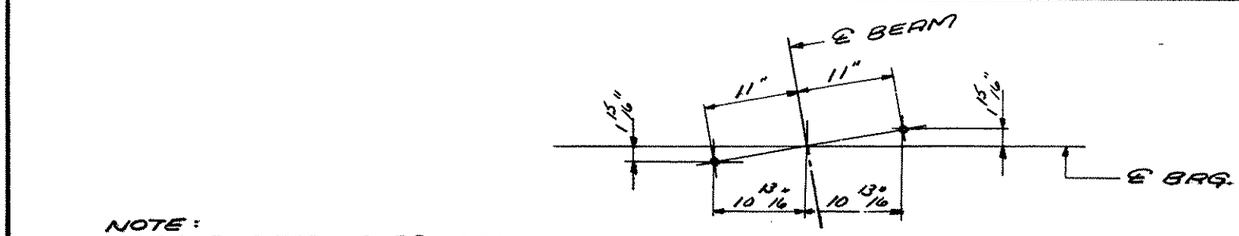


DIMENSIONS BETWEEN WORKING POINTS								ELEVATIONS			
POINT	STATION	A	B	C	D	E	F	TOP OF WR. CR.	W.C. TO BR. SEAT	BRIDGE SEAT	POINT
A	80+73.64		51.00	44.81	61.77		98.57	828.46	4.20	824.26	A
B	81+24.28			73.50	44.81	114.17		828.74	4.26	824.48	B
C	80+65.50				51.00	48.87	64.21	827.34	——	——	C
D	81+16.50					76.51	48.81	827.93	——	——	D
E	80+55.56						51.00	825.67	4.20	821.47	E
F	81+08.01							826.61	4.26	822.35	F

CORNER DETAILS
SCALE: 3/8" = 1'-0"

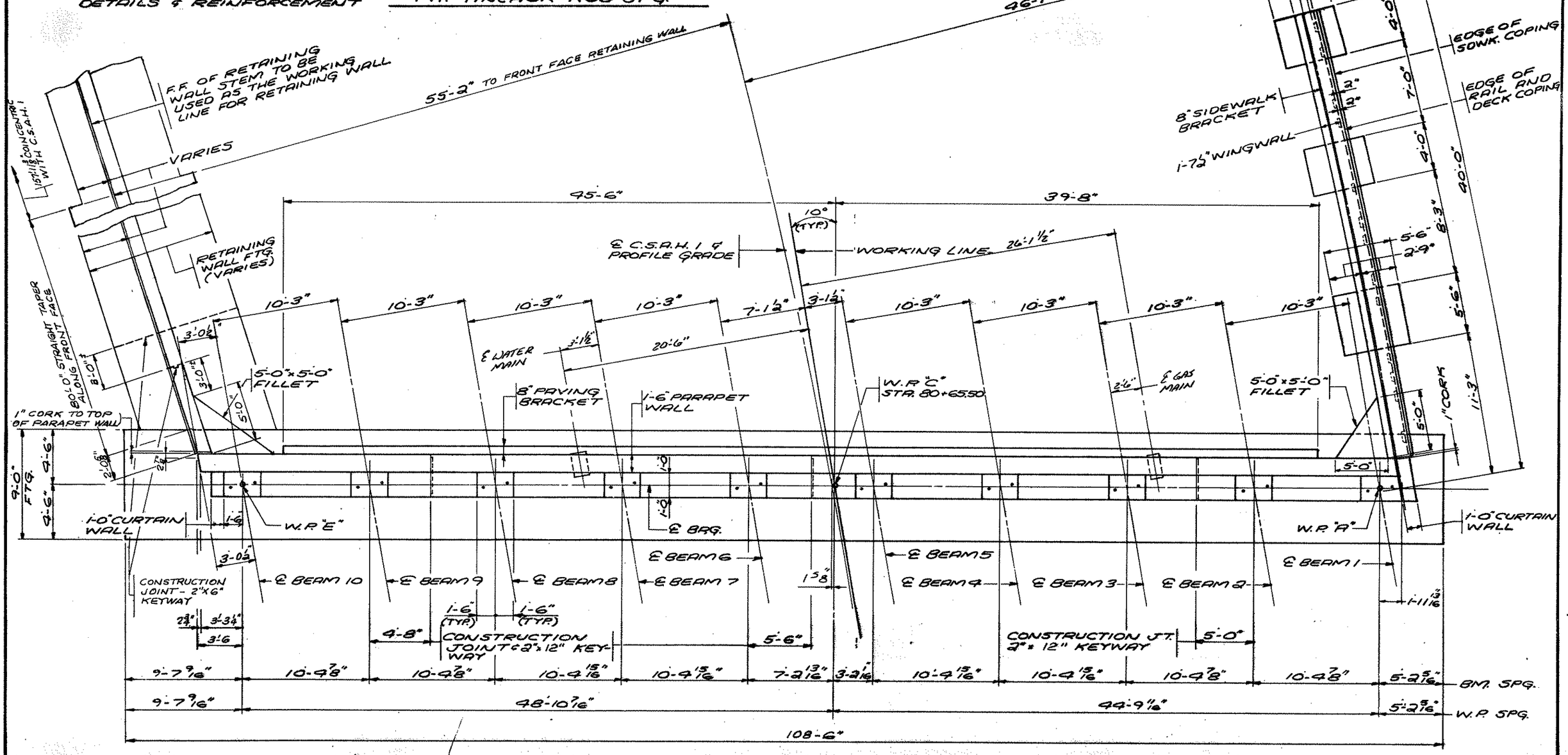
S.A.P. 02-601-29

BRIDGE LAYOUT & CORNER DETAILS	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-98	BRIDGE NUMBER 02541
	SHEET 3A OF 45 SHEETS			



TYP. ANCHOR ROD SPG.

NOTE:
SEE SHEETS 25-29 FOR RETAINING WALL DETAILS & REINFORCEMENT

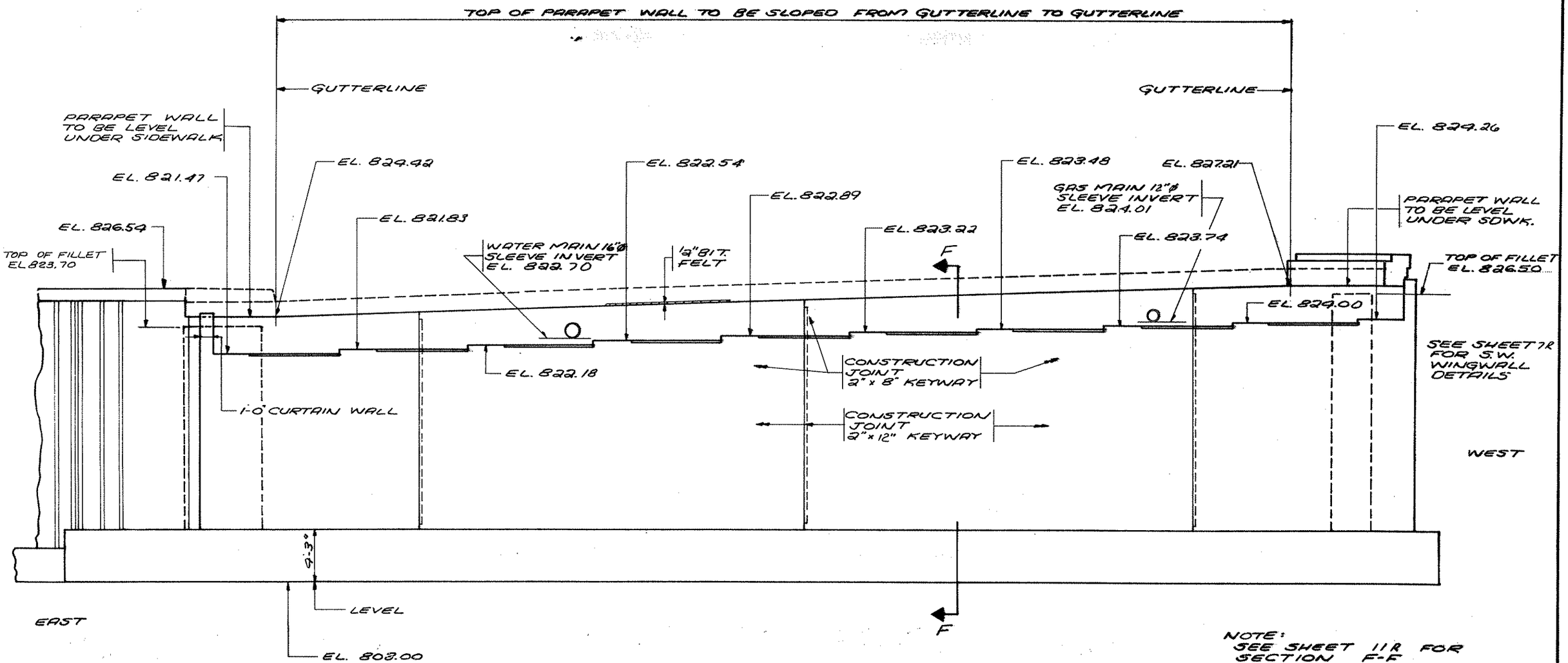


PLAN
SCALE: 1/4"=1'-0"

S.D.P. 02-601-29

30. ABUTMENT DETAILS	DRAWN: O.J.V.	CHECKED R.R.T.	APPROVED 7-15-88	BRIDGE NUMBER 02541
	SHEET 48 OF 95 SHEETS			

NOTE:
SEE SHEETS 25-29
FOR RETAINING
WALL DETAILS



NOTE:
SEE SHEET 11R FOR
SECTION F-F

SOUTH ABUTMENT ELEVATION
SCALE: ¼" = 1'-0"

S.A.P. 02-601-89

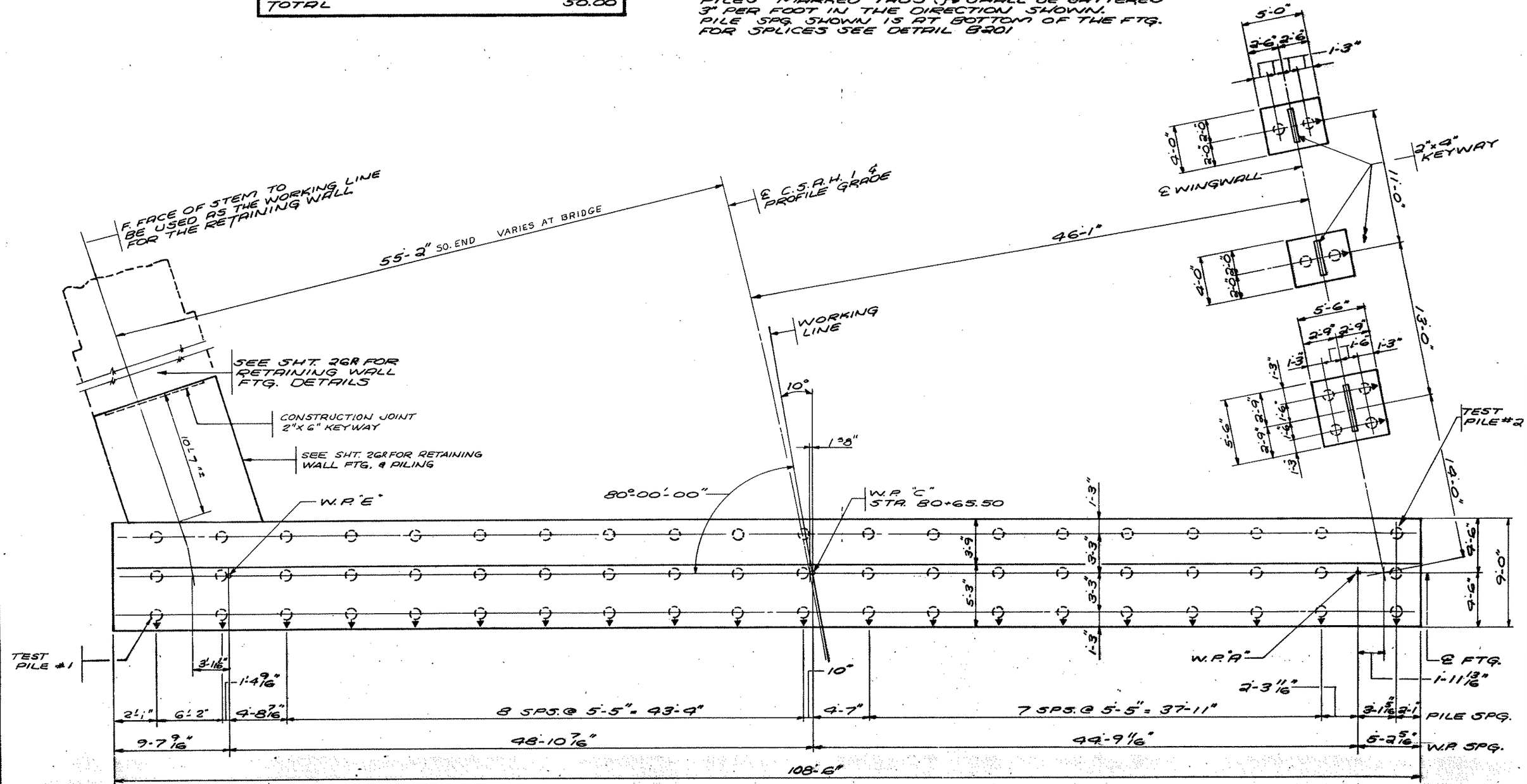
SO. ABUTMENT DETAILS	DRAWN: O.J.V.	APPROVED: 7-15-98	CHECKED: R.R.T.	BRIDGE NUMBER 02541
	SHEET 5R OF 95 SHEETS			

COMPUTED PILE LOADS - TONS PER PILE	
DEAD LOAD + EARTH PRESSURE =	42.6
LIVE LOAD	7.4
TOTAL	50.00

PILE NOTES

2 - C.I.P. CONC. TEST PILES 35 FT. LONG
58 - C.I.P. CONC. PILES EST. LENGTH 25 FT.
4 - C.I.P. CONC. WINGWALL PILES EST. LENGTH 25 FT.
4 - C.I.P. CONC. WINGWALL PILES EST. LENGTH 35 FT.
68 - C.I.P. CONC. PILES REQ'D. FOR THE SO. ABUT. FOOTING.

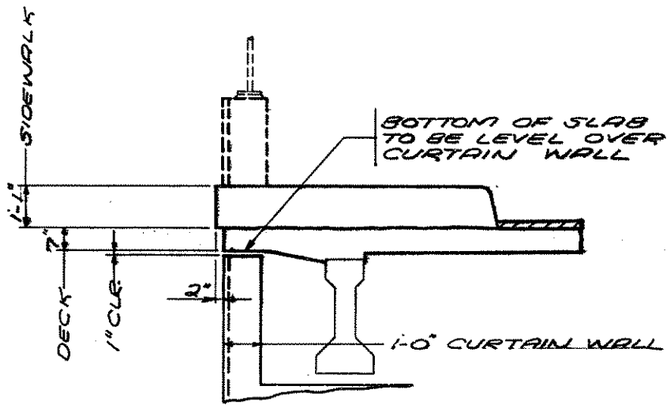
ALL PILES TO BE 12"ϕ C.I.P. CONC. PILES
PILES MARKED THUS ⊙→ SHALL BE BATTERED 3" PER FOOT IN THE DIRECTION SHOWN.
PILE SPG. SHOWN IS AT BOTTOM OF THE FTG.
FOR SPLICES SEE DETAIL B201



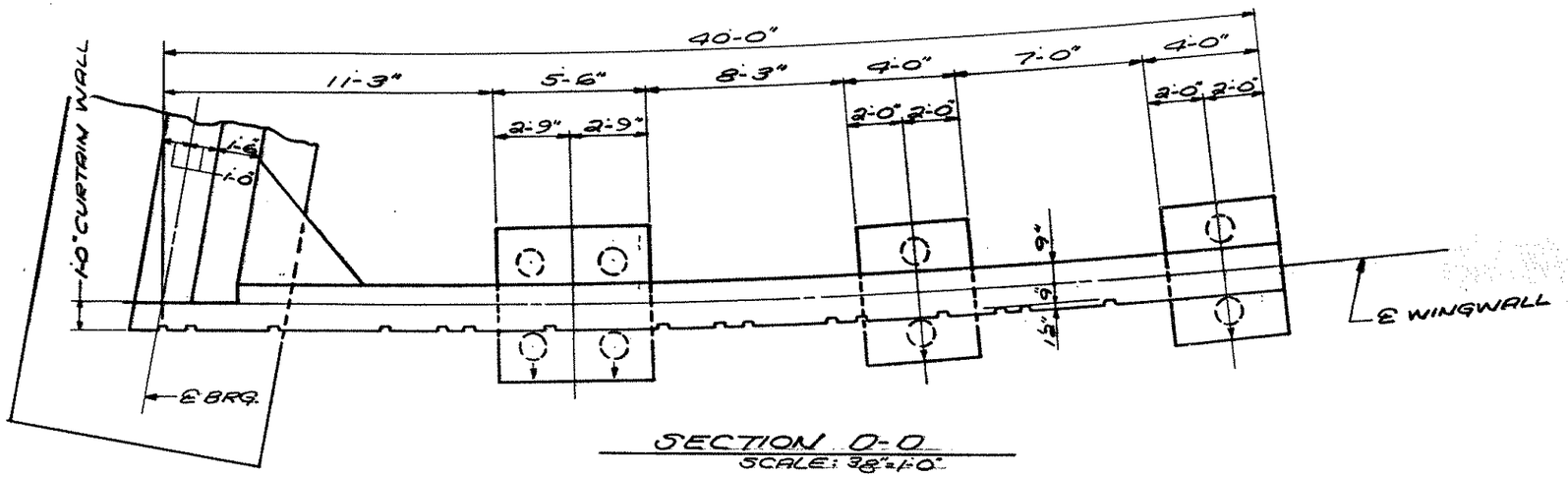
FOOTING PLAN
SCALE: 1/4" = 1'-0"

S.P.# 02-601-29

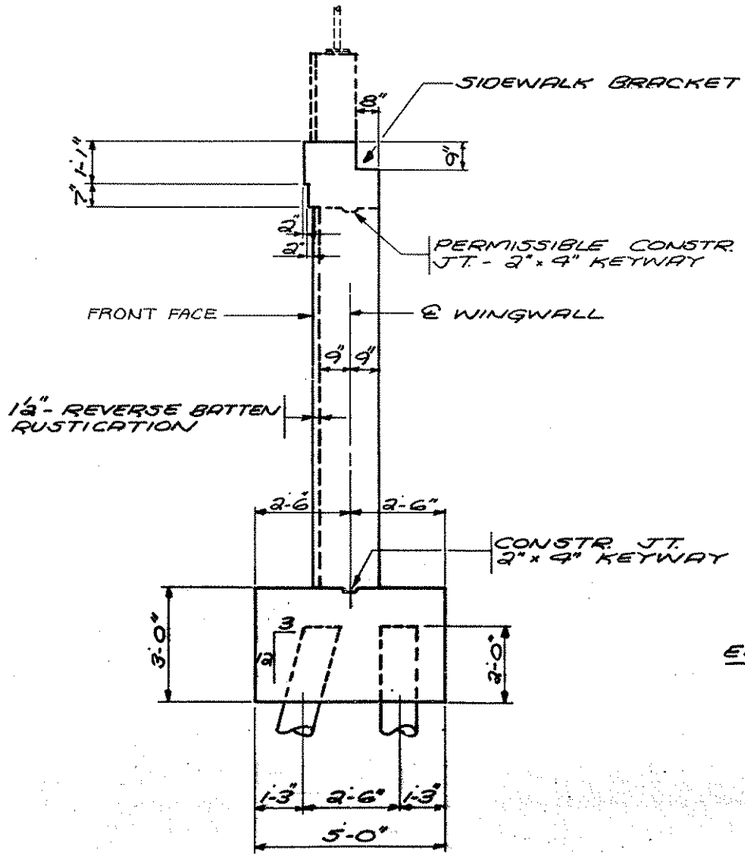
SO. ABUTMENT FTG. DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-98	BRIDGE NUMBER 02541
	SHEET 6R OF 45 SHEETS			



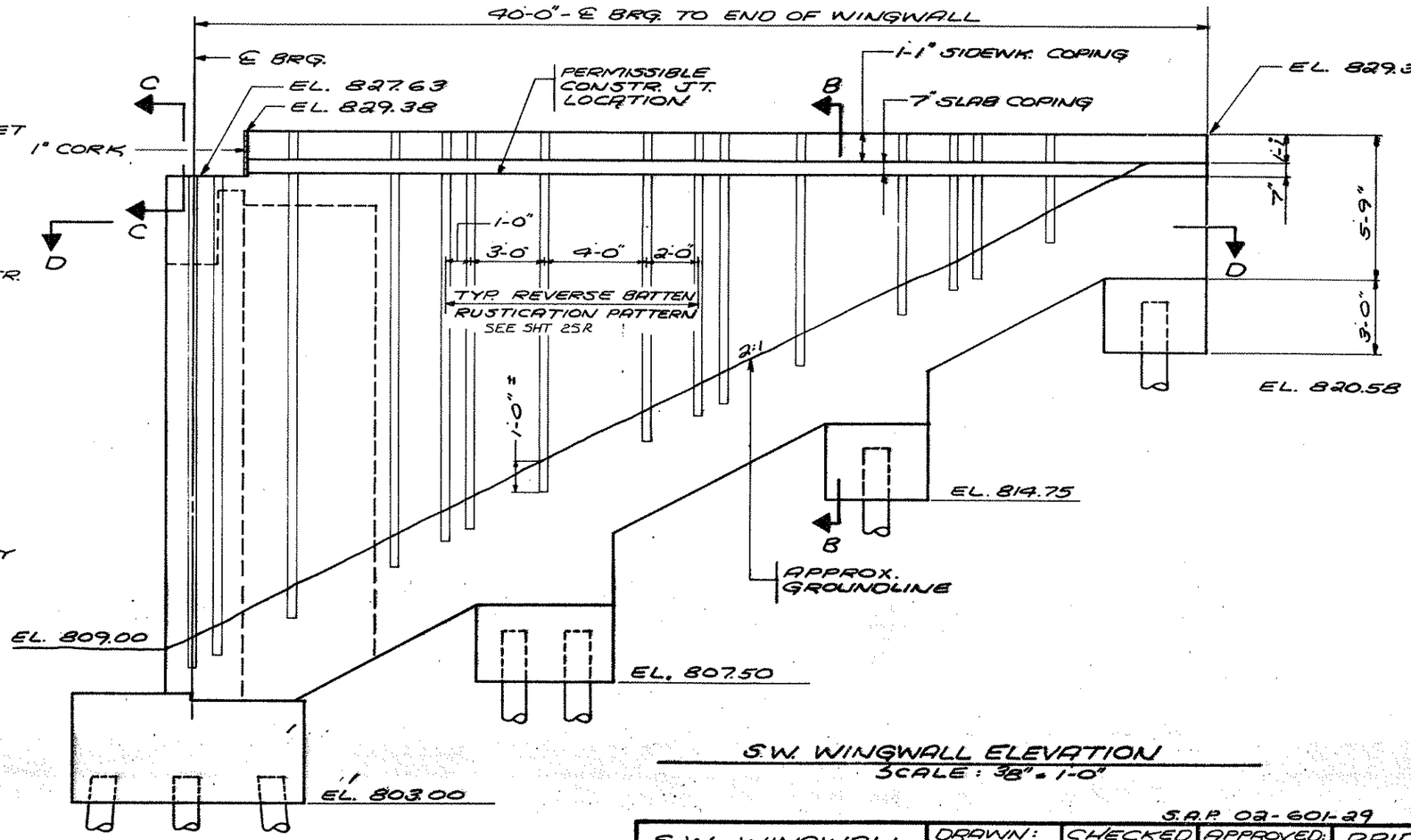
SECTION C-C



SECTION O-O
SCALE: 3/8"=1'-0"



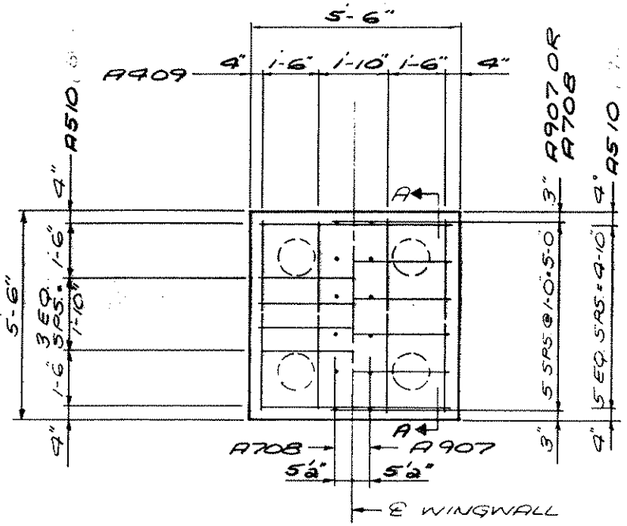
SECTION B-B
SCALE: 1"=1'-0"



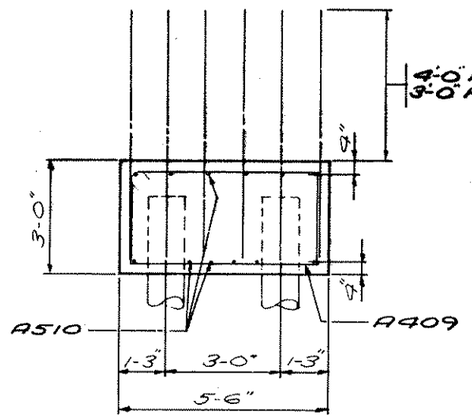
S.W. WINGWALL ELEVATION
SCALE: 3/8" = 1'-0"

S.A.P. 02-601-29

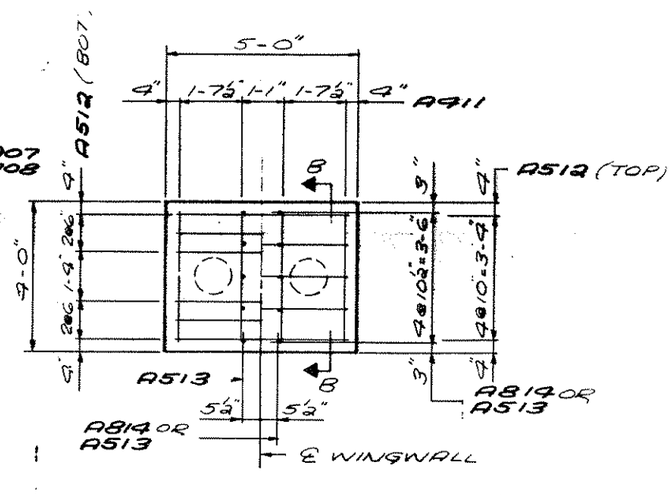
S.W. WINGWALL DETAILS	DRAWN: D.J.V.	CHECKED R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02591
	SHEET 7R OF 45 SHEETS			



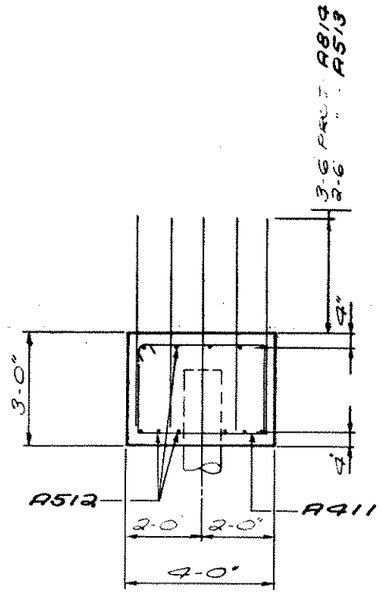
WINGWALL FTG. PLAN
SCALE: ½" = 1'-0"



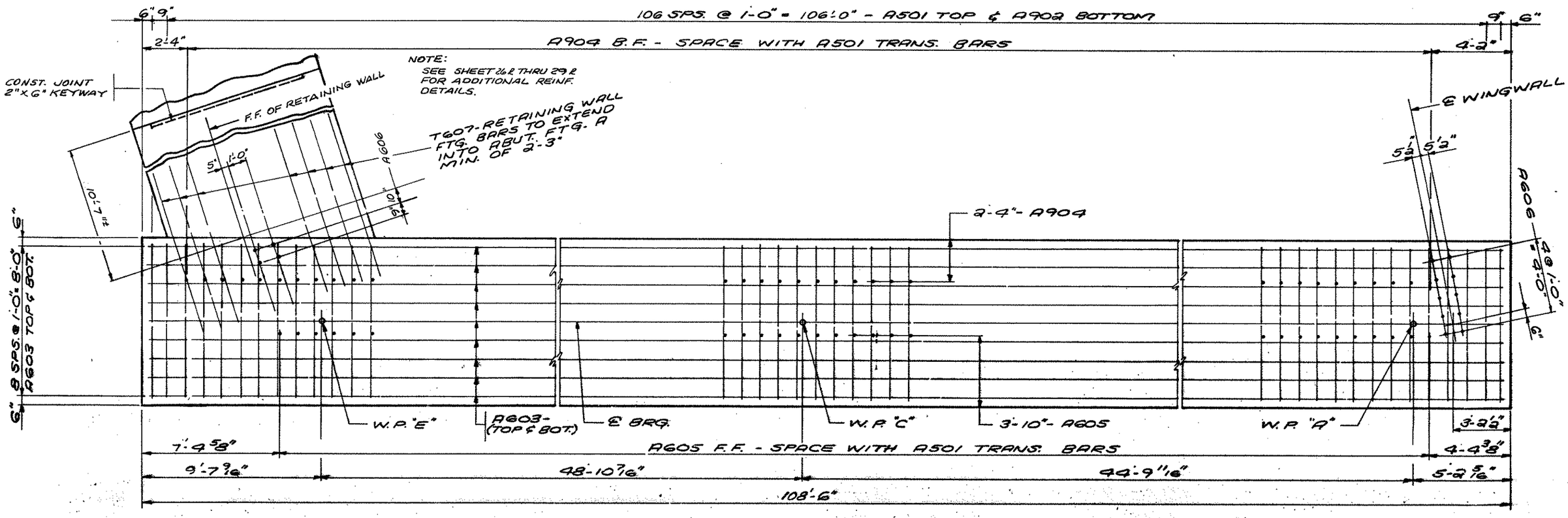
SECTION A-A



WINGWALL FTG. PLAN



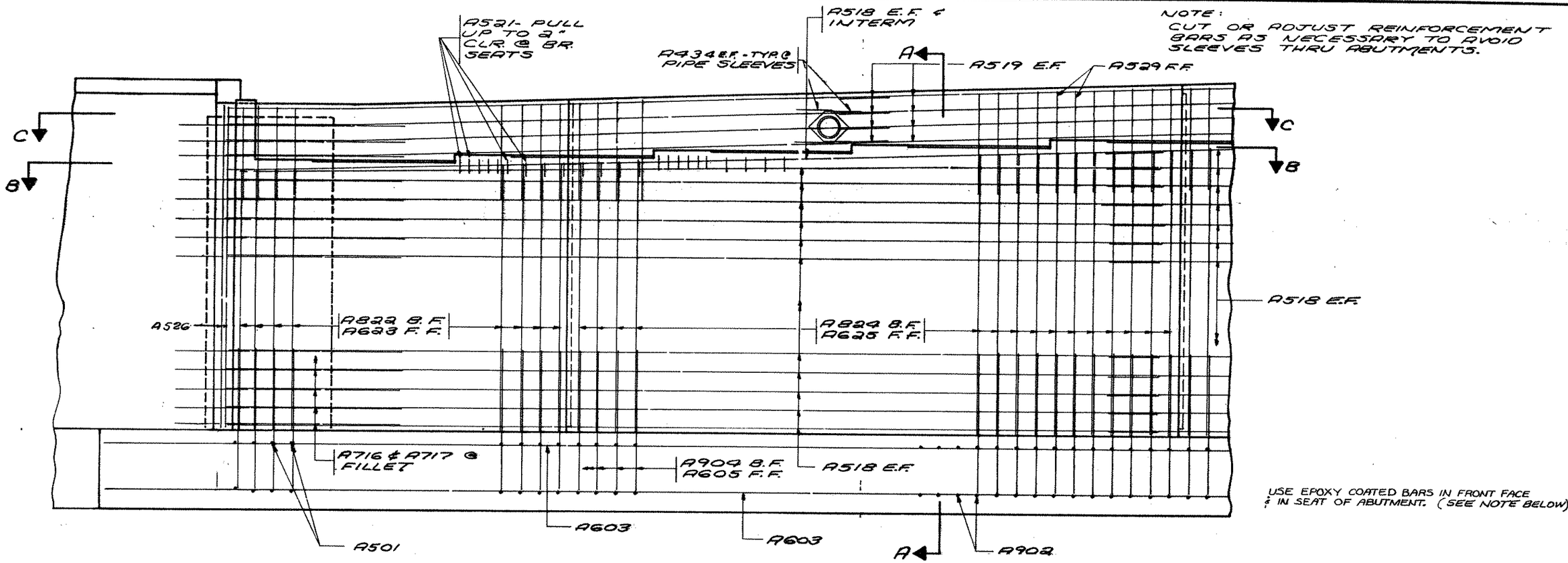
SECTION B-B



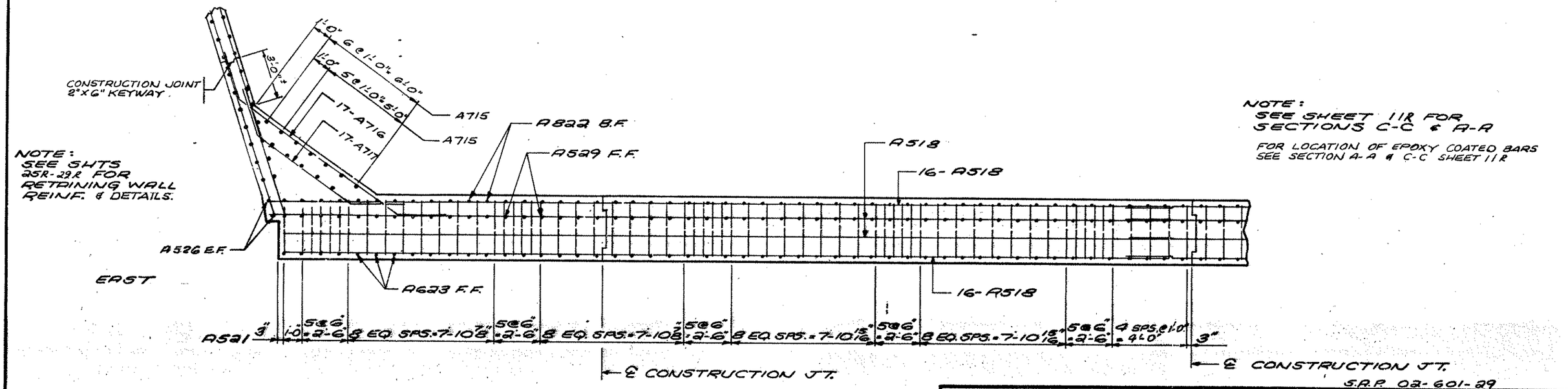
SQ. ABUT. FOOTING REINFORCEMENT

S.B.R 02-601-29

SQ. ABUTMENT FTG REINF.	DRAWN: D.J.V.	CHECKED R.P.T.	APPROVED 7-15-88	BRIDGE NUMBER 02541
	SHEET BR OF 45			



ELEVATION
SCALE: 3/8" = 1'-0"



NOTE:
SEE SHTS 25R-29R FOR RETAINING WALL REINF. & DETAILS.

NOTE:
SEE SHEET 11R FOR SECTIONS C-C & A-A

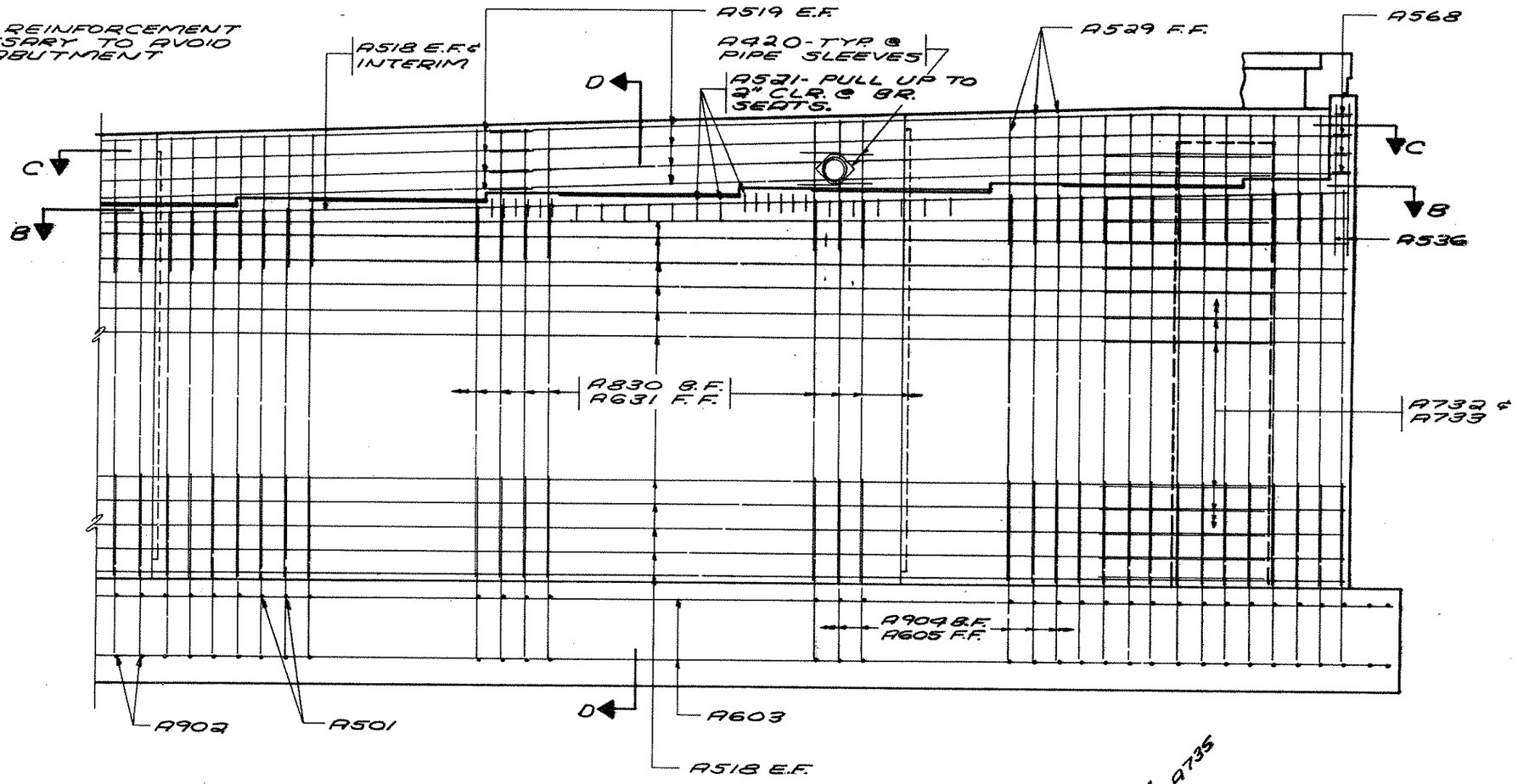
FOR LOCATION OF EPOXY COATED BARS SEE SECTION A-A & C-C SHEET 11R

SECTION B-B
SCALE: 3/8" = 1'-0"

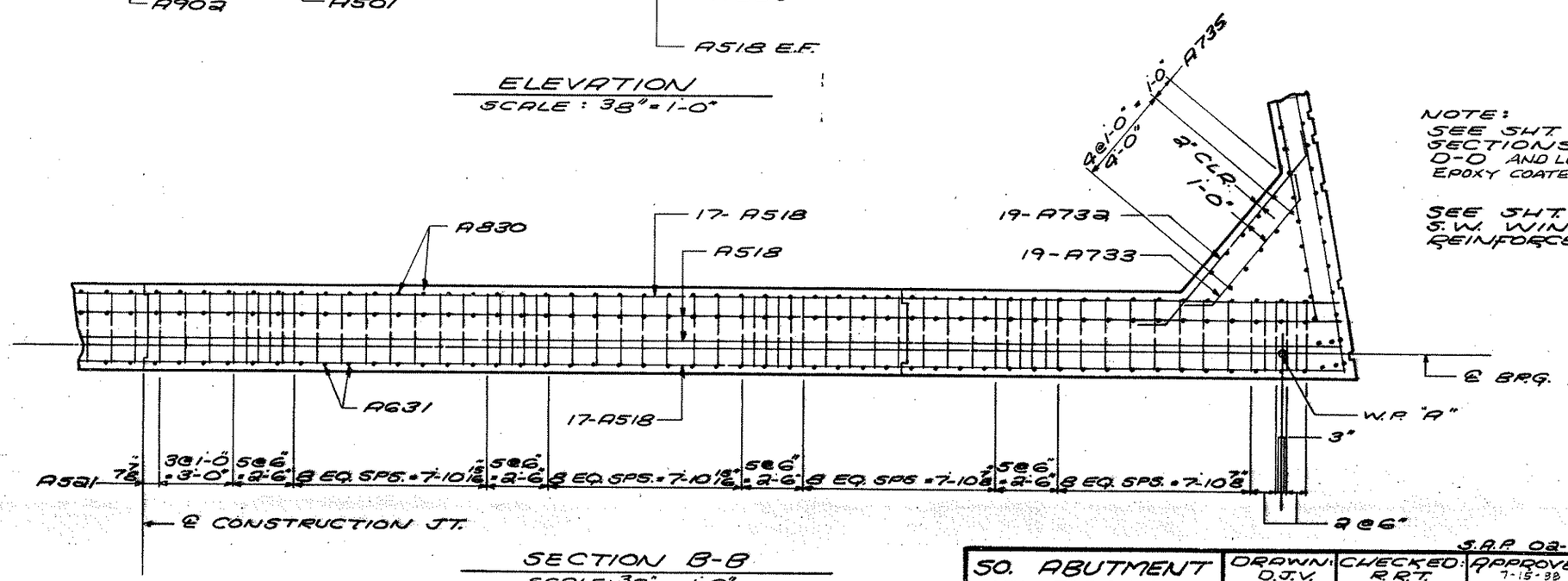
S.A.P. 02-601-29

SO. ABUTMENT REINFORCEMENT	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 9R OF 45 SHEETS			

NOTE:
CUT OR ADJUST REINFORCEMENT BARS AS NECESSARY TO AVOID SLEEVES THRU ABUTMENT



ELEVATION
SCALE : 3/8" = 1'-0"



SECTION B-B
SCALE: 3/8" = 1'-0"

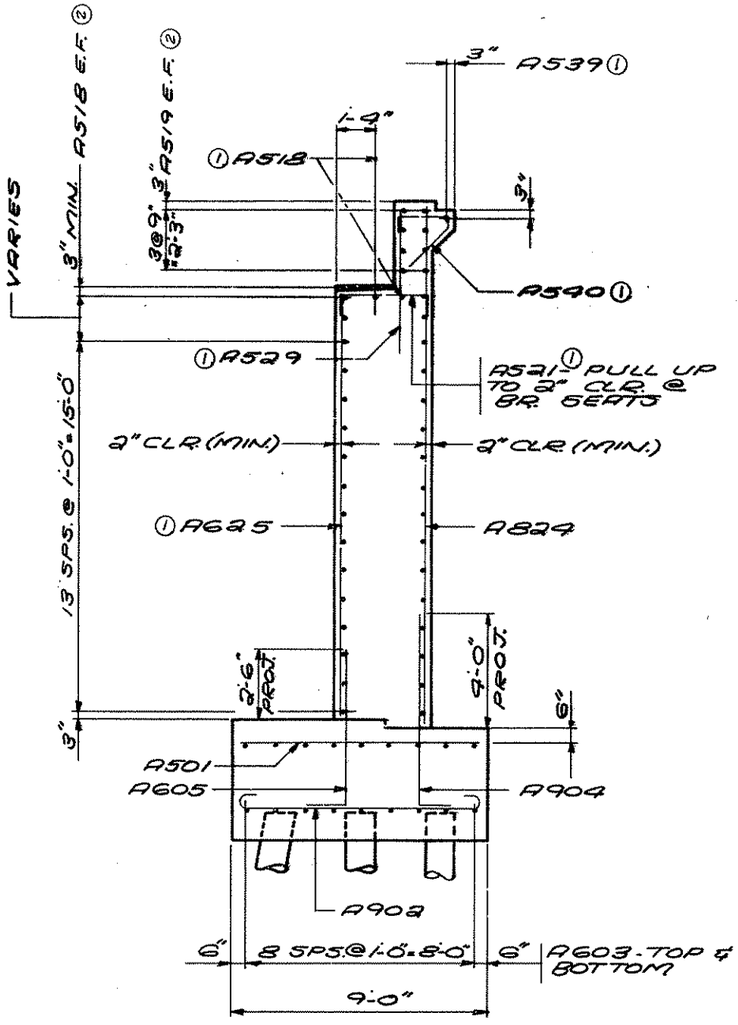
NOTE:
SEE SHT. 11R FOR SECTIONS C-C & D-D AND LOCATION OF EPOXY COATED BARS

SEE SHT. 12R FOR S.W. WINGWALL REINFORCEMENT

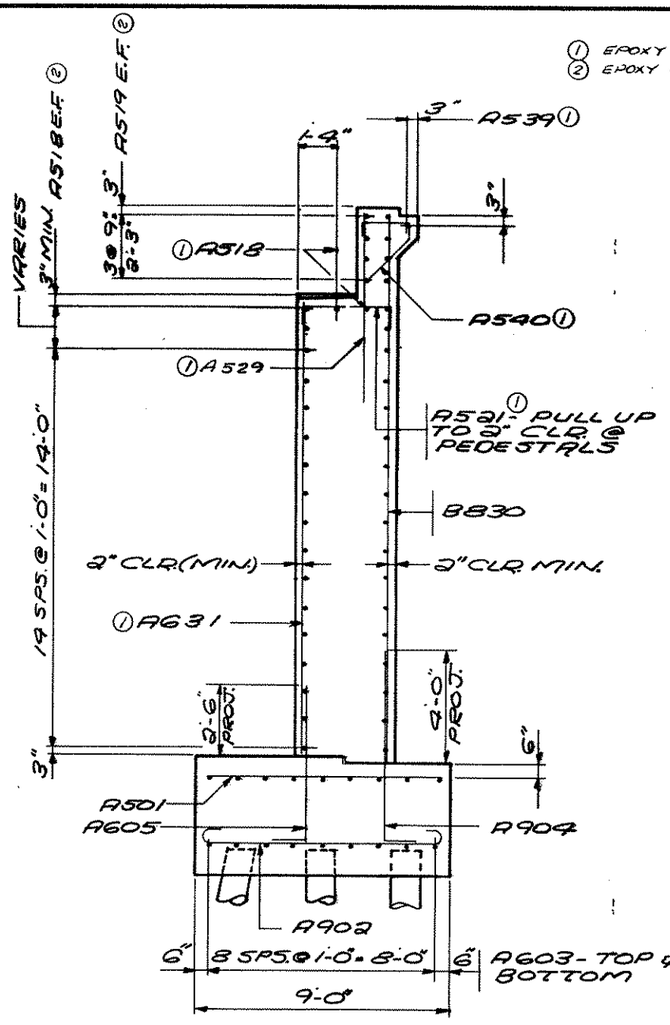
S.A.P. 02-601-29

50. ABUTMENT REINFORCEMENT	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-98	BRIDGE NUMBER 02541
	SHEET 10R OF 45 SHEETS			

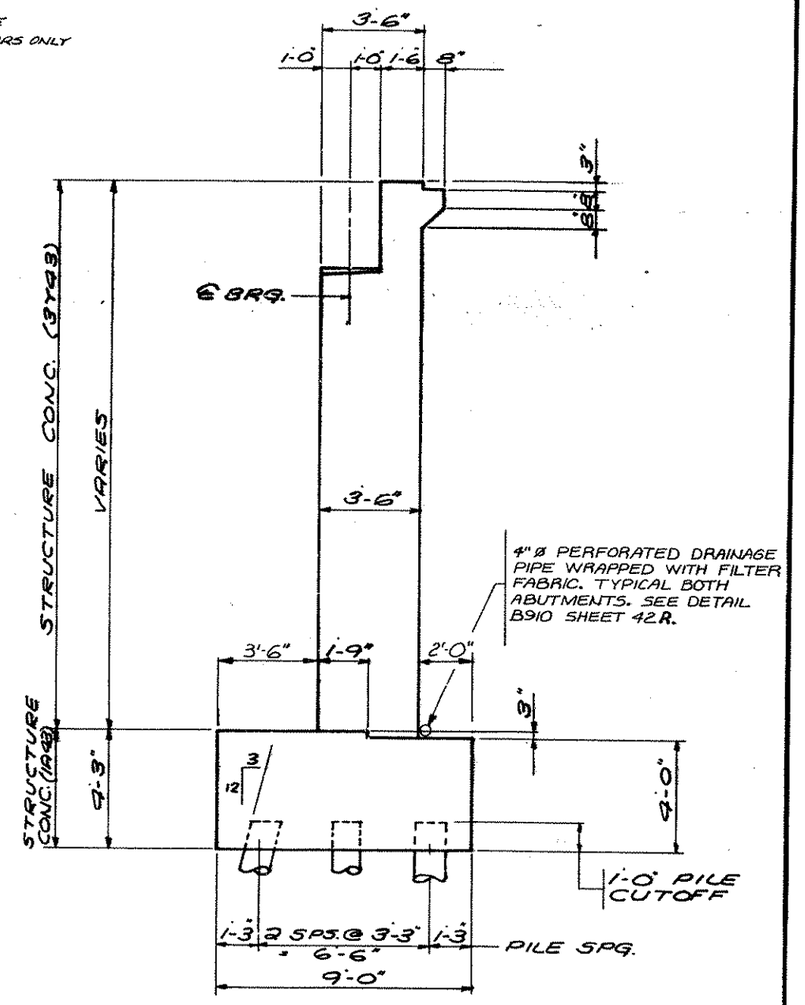
① EPOXY COATED REINF.
② EPOXY COATED F.F. BARS ONLY



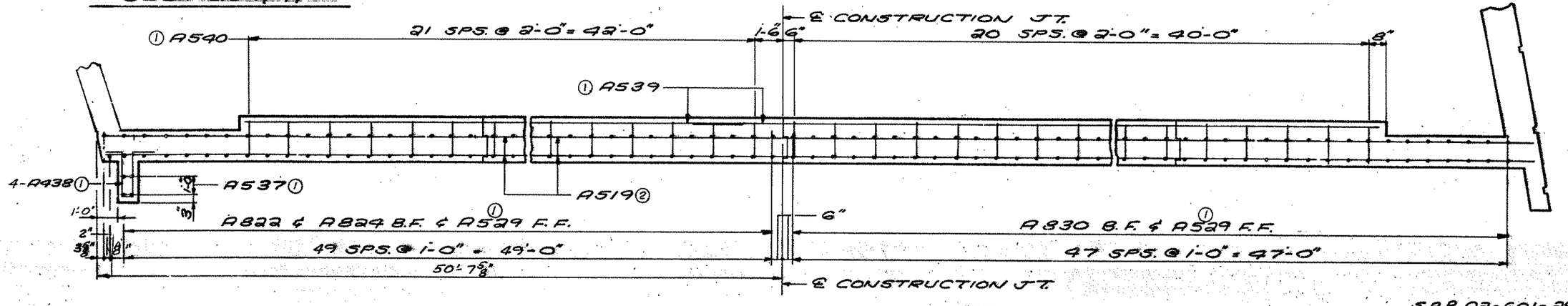
SECTION A-A



SECTION D-D



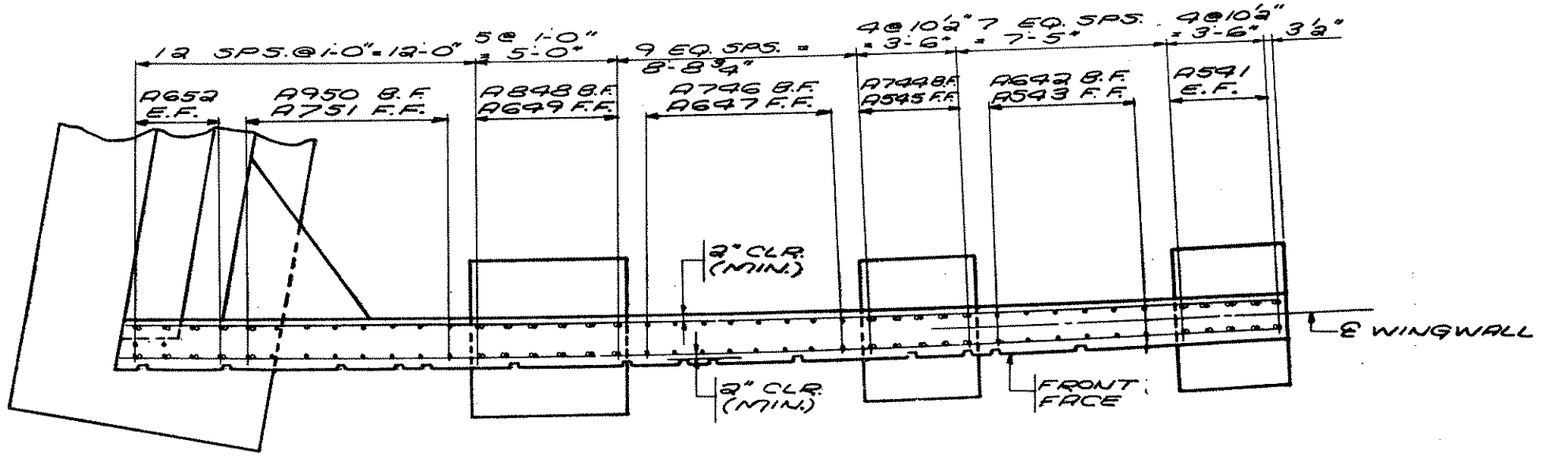
SECTION F-F



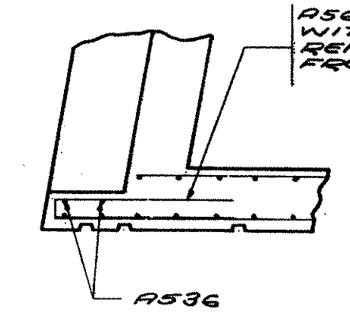
SECTION C-C

S.A.P. 02-601-29

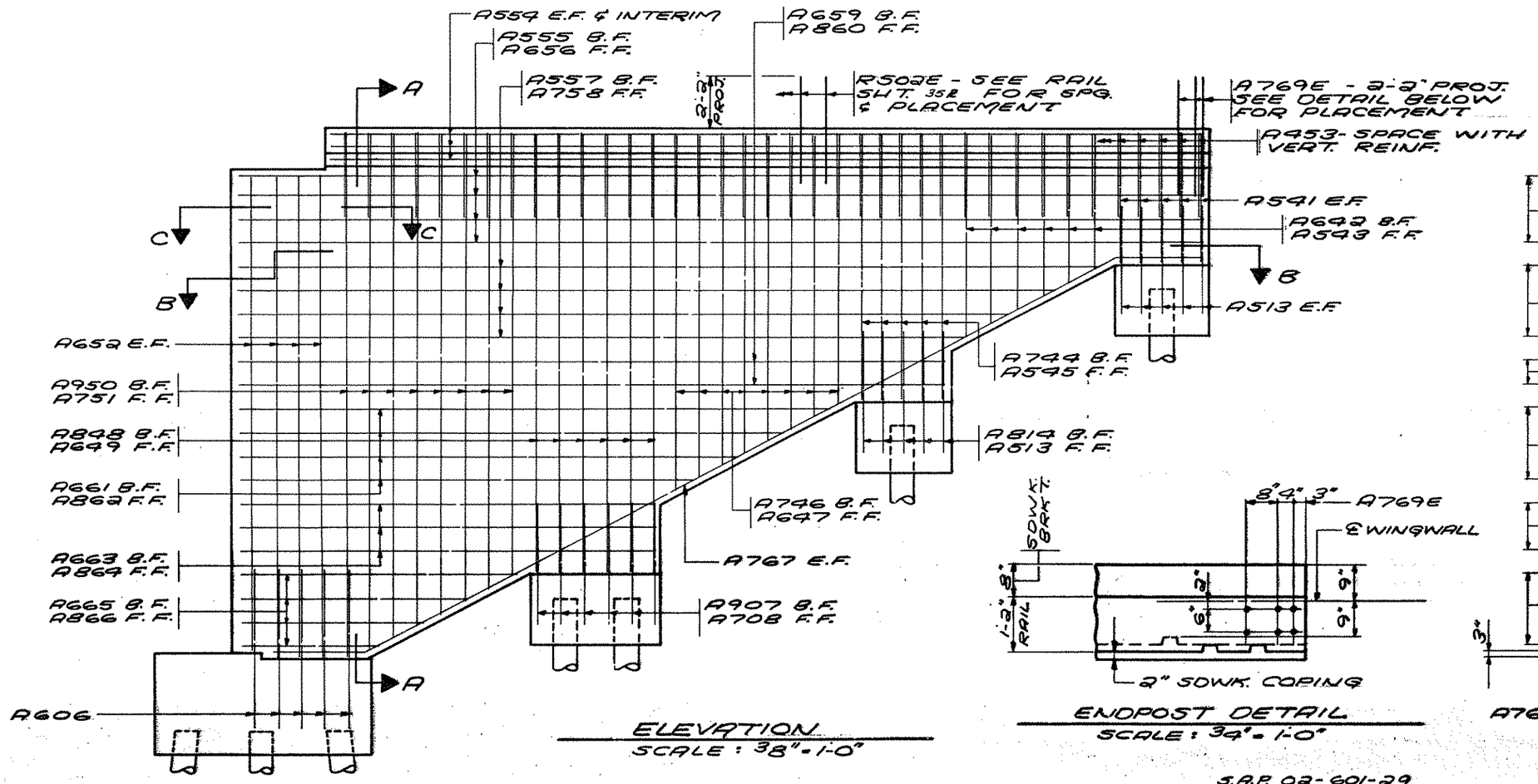
SO. ABUTMENT REINFORCEMENT	DRAWN O.J.V.	CHECKED R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 11 OF 45 SHEETS			



SECTION B-B

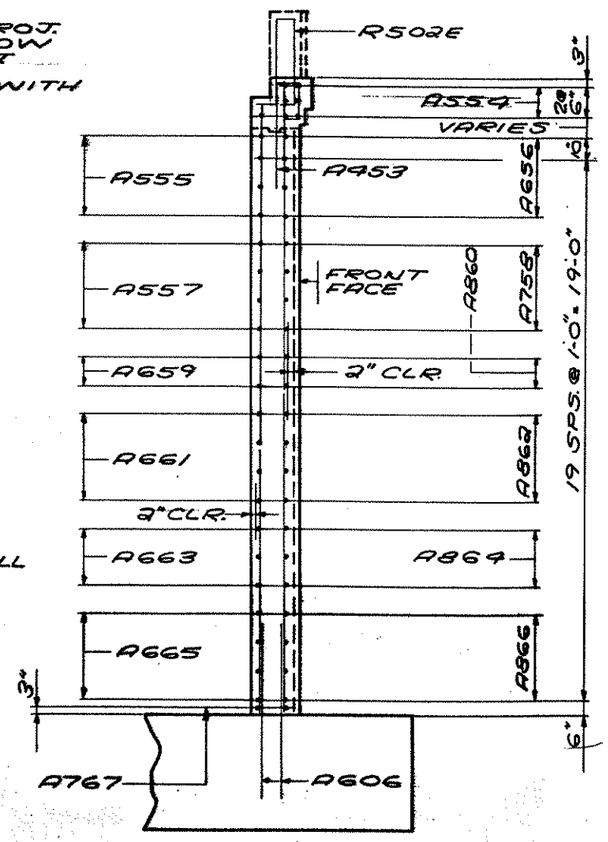


SECTION C-C



ELEVATION
SCALE : 3/8" = 1'-0"

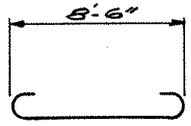
ENDPOST DETAIL
SCALE : 3/4" = 1'-0"



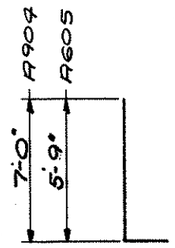
SECTION A-A

S.A.P. 02-601-29

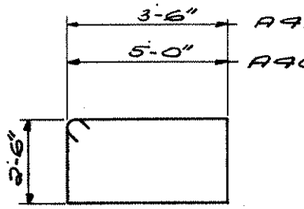
S.W. WINGWALL REINFORCEMENT	DRAWN: D.J.V.	CHECKED: E.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 12R OF 45 SHEETS			



A902

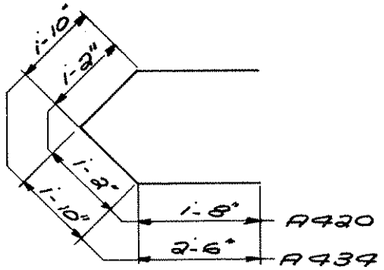


A904 & A605

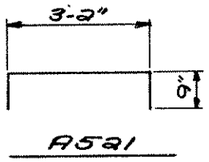


A409 & A411

BILL OF REINFORCEMENT - 30. ABUT.				
BAR	NO.	LEN.	SHAPE	LOCATION
A862	1 SER. OF 4	19'-3" to 25'-0"	STR.	S.W. WINGWALL
A863	3	17'-5"	"	" "
A864	3	17'-5"	"	" "
A665	1 SER. OF 4	5'-10" to 11'-7"	"	" "
A866	1 SER. OF 4	5'-10" to 11'-7"	"	" "
A767	2	43'-8"	BENT	" "
⑤ A568	4	8'-6"	"	" "
A769E	6	6'-0"	STR.	S.W. - ENDPOST



A420 & A434



A521

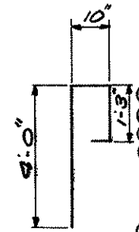
① 3 LINES WITH 2'-3" MIN. LAP

② 2 LINES WITH 1'-11" MIN. LAP

⑤ EPOXY COATED

⑥ EPOXY COAT BARS IN F.F. @ INTERM. - SEE SHEET 11R.

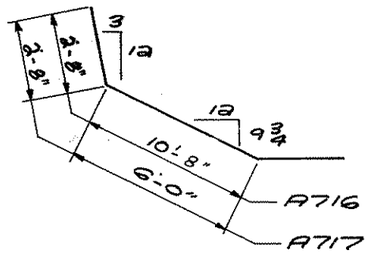
SUMMARY OF QUANTITIES FOR SOUTH ABUTMENT		
STRUCTURE CONCRETE (1A43)	158	CU. YD.
STRUCTURE CONCRETE (3Y43)	271	CU. YD.
REINFORCEMENT BARS	27050	POUND
REINFORCEMENT BARS (EPOXY COATED)	6420	POUND
C.I.P. CONC. TEST PILES 35 FT. LONG	2	EACH
③ C.I.P. CONC. PILING DELIVERED	1690	LIN. FT.
③ C.I.P. CONC. PILING DRIVEN	1690	LIN. FT.
④ DRAINAGE SYSTEM - SEE SHEET 29.		
④ FOUNDATION PREPARATION	1	LUMP SUM



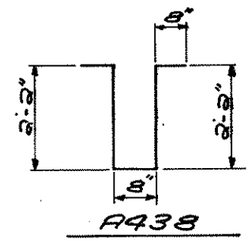
A453

③ DOES NOT INCLUDE TEST PILES

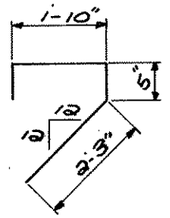
④ SEE SPECIAL PROVISIONS



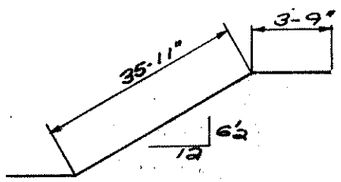
A716 & A717



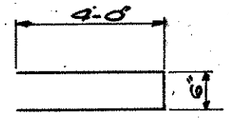
A438



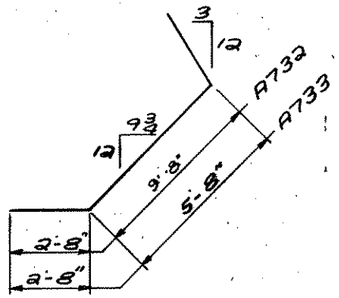
A540



A767



A568

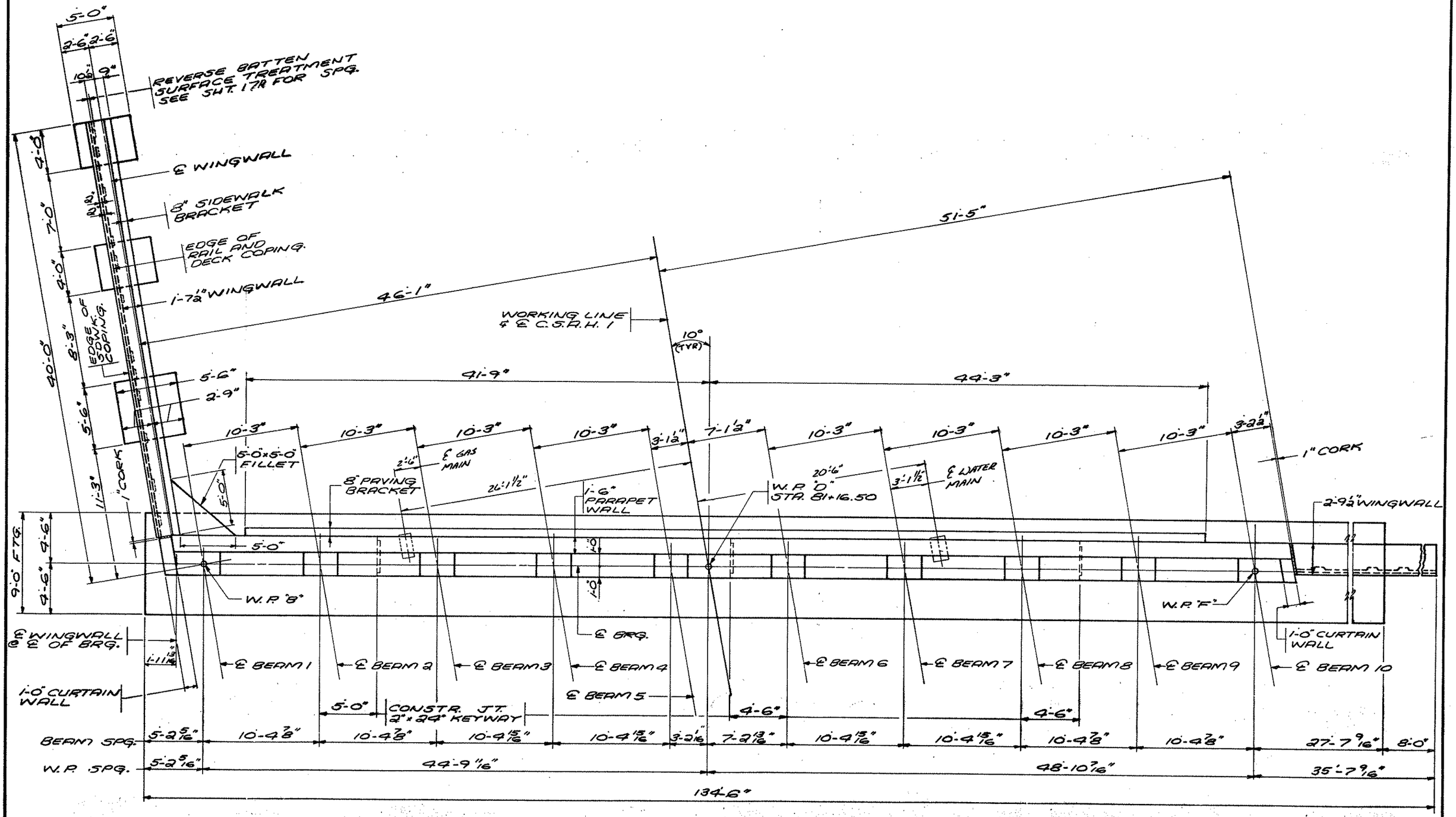


A732 & A733

BILL OF REINFORCEMENT - 30. ABUT.				
BAR	NO.	LEN.	SHAPE	LOCATION
A501	109	8'-6"	STR.	FTG. - TOP TRANS.
A902	109	11'-0"	BENT	" - BOT. "
① A603	54	37'-8"	STR.	" - LONGIT.
A904	103	8'-0"	BENT	" - DOWELS
A605	98	6'-9"	"	" - "
A606	14	5'-6"	STR.	" "
A907	6	6'-6"	"	" - WING DOWELS
A708	8	5'-6"	"	" "
A909	4	15'-9"	BENT	" " - STIRRUPS
A510	12	5'-0"	STR.	" " - TRANS.
A911	8	12'-9"	BENT	" " - STIRRUPS
A512	28	4'-6"	STR.	" " - TRANS.
A513	15	5'-0"	"	" " - DOWELS
A814	5	6'-0"	"	" " - "
A715	11	16'-3"	"	FILLET - VERT.
A716	17	16'-0"	BENT	" - HOR'Z.
A717	17	11'-4"	"	" - "
⑥ A518	70	51'-2"	STR.	BR. ST. - LONGIT.
⑤ ① A519	24	36'-0"	"	PARR. WALL - VERT.
⑤ A420	4	5'-8"	BENT	" " @ SLEEVE
⑤ A521	137	4'-8"	BENT	BR. ST. - TIES
A822	1 SER. OF 19	17'-0" to 17'-3"	STR.	" " - VERT.
⑤ A623	1 SER. OF 19	14'-0" to 14'-3"	"	" " "
A824	1 SER. OF 32	17'-3" to 18'-3"	"	" " "
⑤ A625	1 SER. OF 32	14'-3" to 15'-3"	"	" " "
A526	2	17'-0"	"	" " "
A528	2	3'-4"	"	" " - HOR'Z.
⑤ A529	98	6'-0"	"	PARR. WALL - VERT.
A830	1 SER. OF 48	18'-3" to 19'-8"	"	BR. ST. - VERT.
⑤ A631	1 SER. OF 48	15'-3" to 16'-6"	"	" " "
A732	19	15'-0"	BENT	FILLET - HOR'Z.
A733	19	11'-0"	"	" "
⑤ A434	4	8'-8"	"	PARR. WALL - SLEEVE
A735	10	18'-3"	STR.	FILLET - VERT.
⑤ A536	2	6'-0"	"	CURTAIN WALL
⑤ A537	4	6'-0"	"	" "
⑤ A438	4	6'-4"	BENT	" "
⑤ A539	2	43'-6"	STR.	PAVING BRK'T.
⑤ A540	93	4'-11"	BENT	" "
A541	10	5'-6"	STR.	S.W. WINGWALL
A642	1 SER. OF 6	5'-9" to 8'-8"	"	" "
A543	1 SER. OF 6	5'-9" to 8'-8"	"	" "
A744	5	11'-3"	"	" "
A545	5	11'-3"	"	" "
A746	1 SER. OF 8	11'-6" to 15'-2"	"	" "
A647	1 SER. OF 8	11'-6" to 15'-2"	"	" "
A848	6	18'-8"	"	" "
A649	6	18'-8"	"	" "
A950	1 SER. OF 8	18'-9" to 22'-0"	"	" "
A751	1 SER. OF 8	18'-9" to 22'-0"	"	" "
A652	8	20'-6"	"	" "
A953	38	6'-5"	BENT	" "
A554	7	37'-0"	STR.	" "
A555	4	40'-8"	"	" "
A656	4	40'-8"	"	" "
A557	1 SER. OF 9	30'-8" to 36'-6"	"	" "
A758	1 SER. OF 9	30'-8" to 36'-6"	"	" "
A659	2	30'-0"	"	" "
A860	2	30'-0"	"	" "
A661	1 SER. OF 4	19'-3" to 25'-0"	"	" "

S.A.P. 02-601-29

SOUTH ABUTMENT REINFORCEMENT	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 13R OF 45 SHEETS			

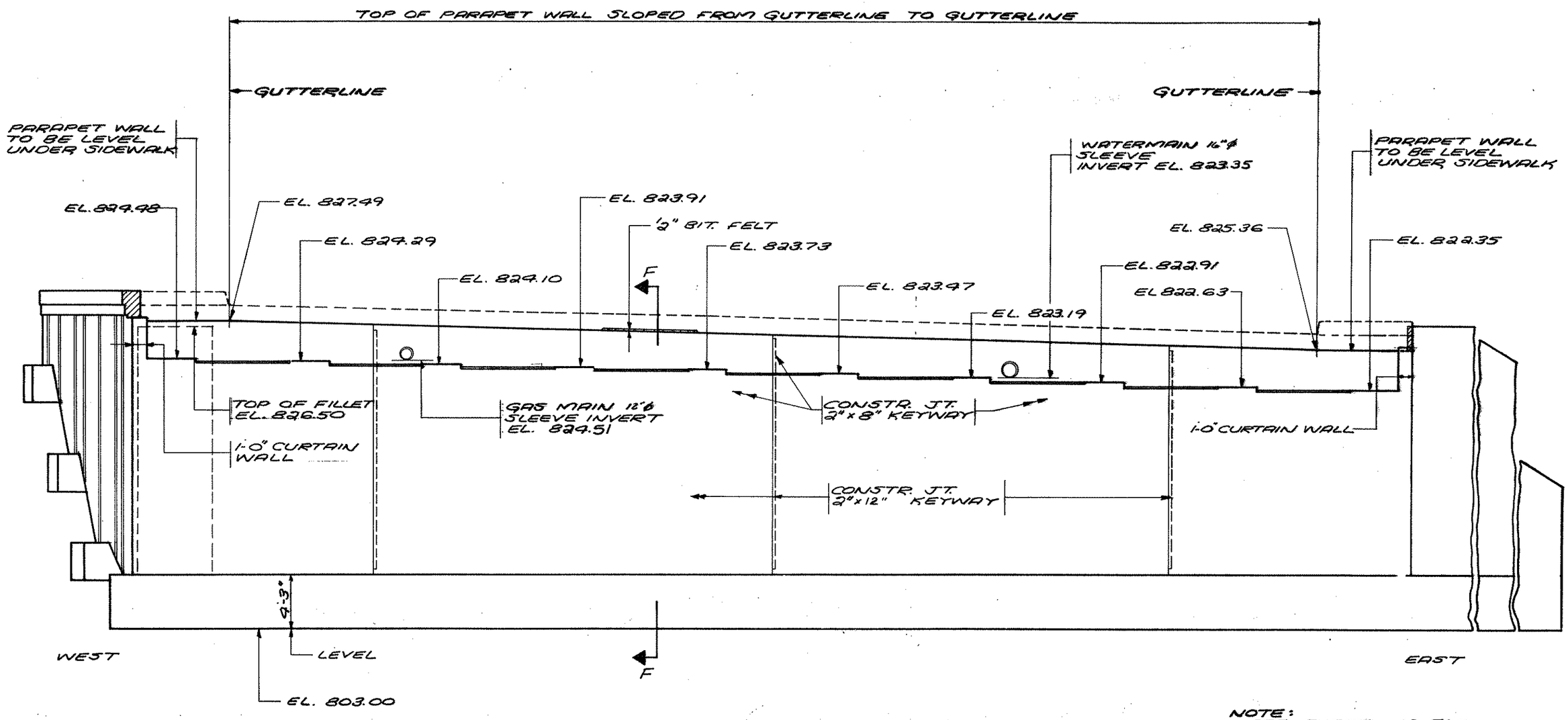


PLAN

SCALE: 4" = 1'-0"

S.A.P. 02-601-29

NO. ABUTMENT DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-98	BRIDGE NUMBER 02591
	SHEET 14R OF 95 SHEETS			



NOTE:
SEE SHEET 17R FOR N.W. WINGWALL DETAILS.

NORTH ABUTMENT ELEVATION

NOTE:
SEE SHEET 18R FOR N.E. WINGWALL DETAILS
SEE SHEET 11R FOR SECTION F-F

S.A.P. 02-601-89

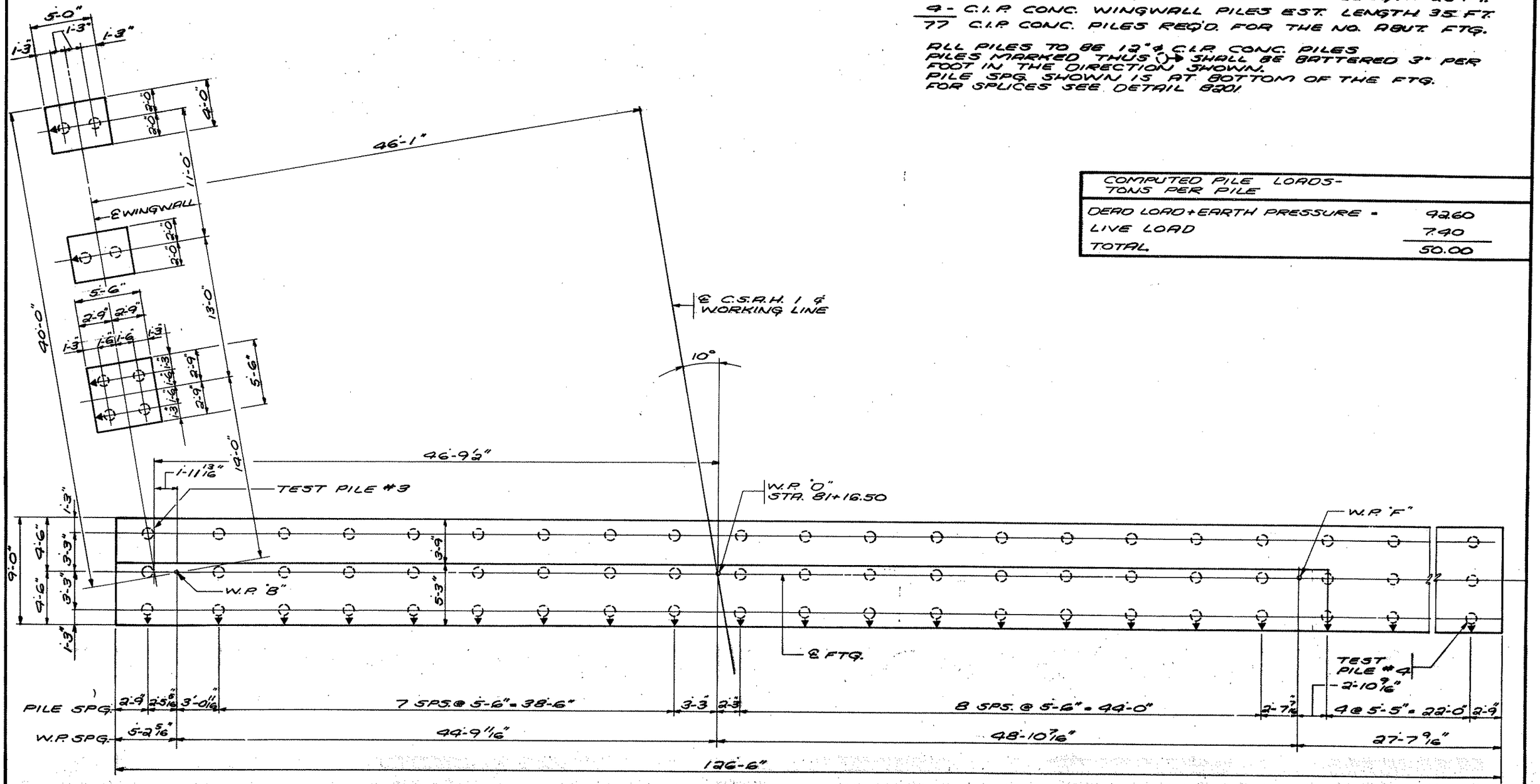
NORTH ABUTMENT DETAILS	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-98	BRIDGE NUMBER 02591
	SHEET 15R OF 45 SHEETS			

PILE NOTES

2 - C.I.P. CONC. TEST PILES 35 FT. LONG
67 - C.I.P. CONC. PILES EST. LENGTH 25 FT.
4 - C.I.P. CONC. WINGWALL PILES EST. LENGTH 25 FT.
4 - C.I.P. CONC. WINGWALL PILES EST. LENGTH 35 FT.
77 C.I.P. CONC. PILES REQ'D. FOR THE NO. ABUT. FTG.

ALL PILES TO BE 12"ϕ C.I.P. CONC. PILES
PILES MARKED THUS (1)→ SHALL BE BATTERED 3" PER FOOT IN THE DIRECTION SHOWN.
PILE SPG. SHOWN IS AT BOTTOM OF THE FTG.
FOR SPLICES SEE DETAIL B201

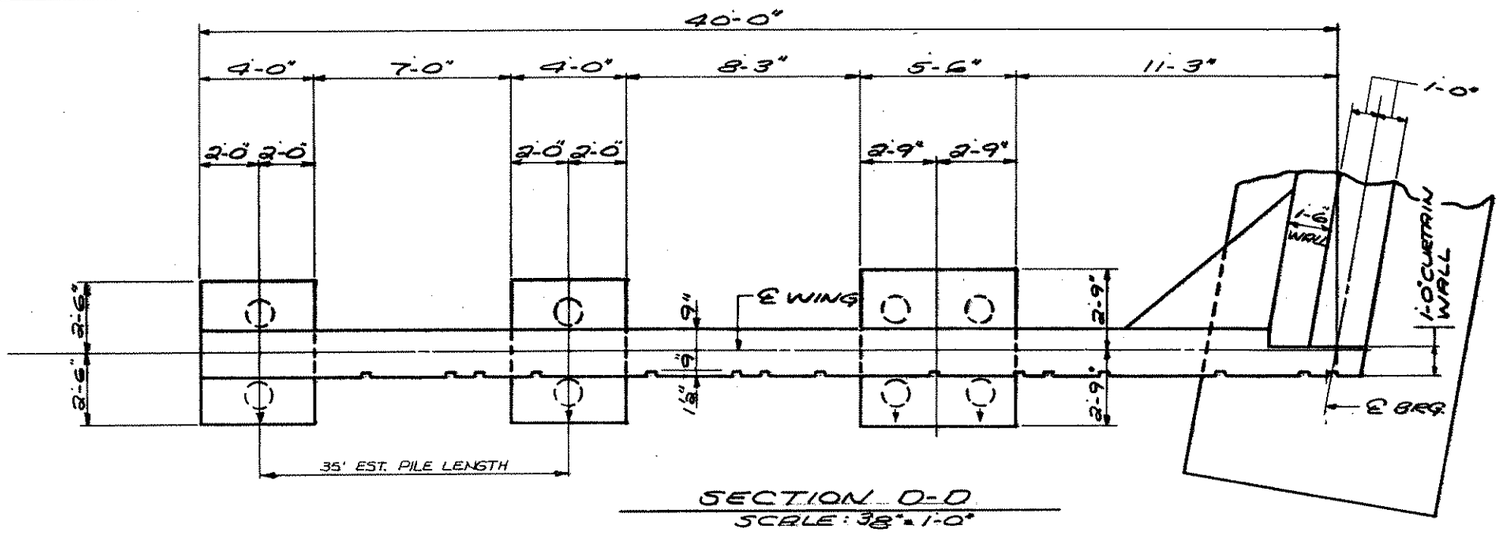
COMPUTED PILE LOADS- TONS PER PILE	
DEAD LOAD + EARTH PRESSURE =	92.60
LIVE LOAD	7.40
TOTAL	50.00



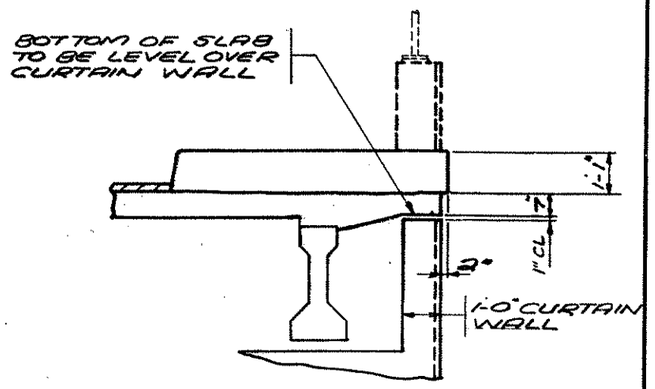
FOOTING PLAN
SCALE: 1/4" = 1'-0"

S.A.P. 02-601-29

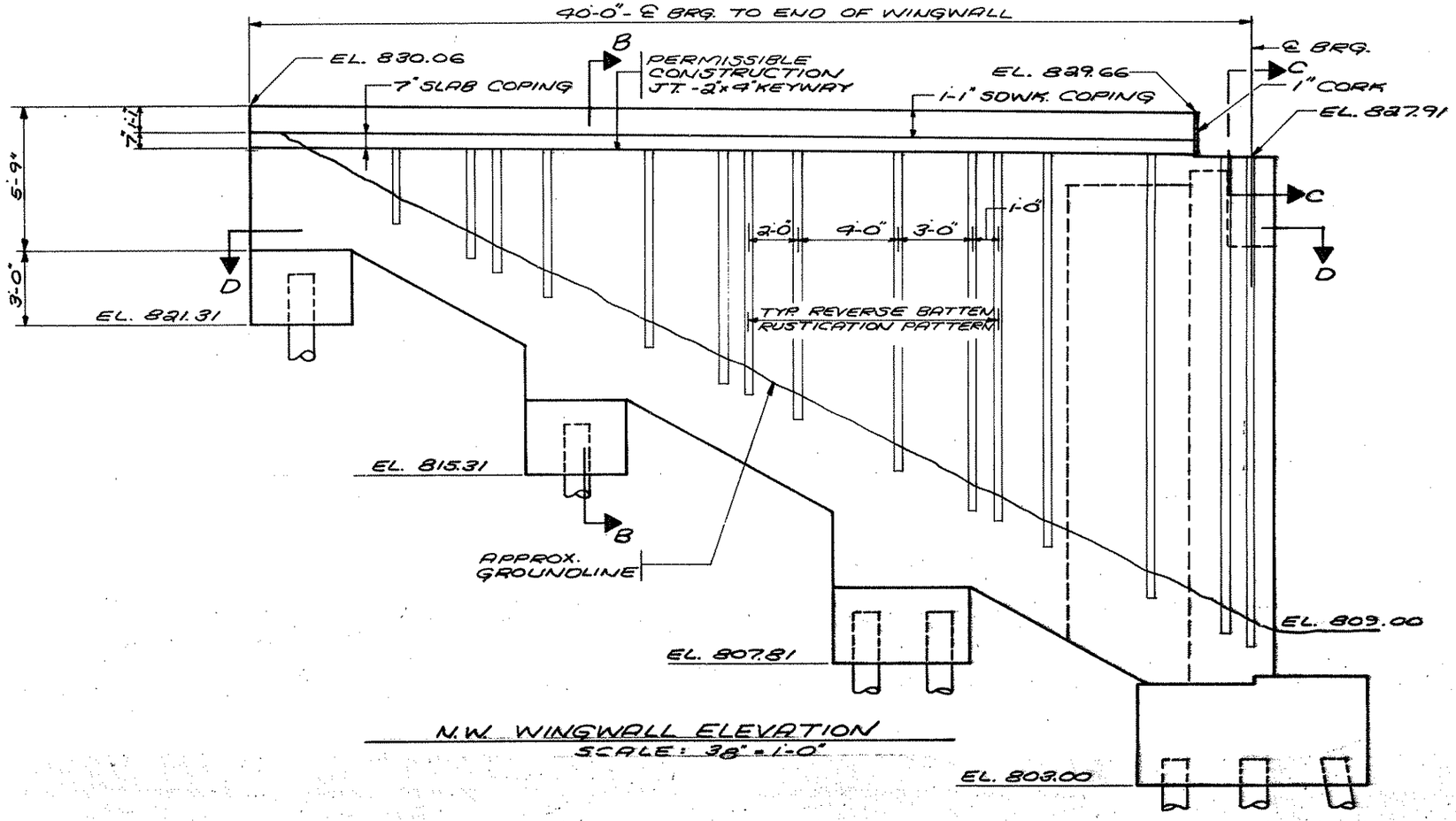
NO. ABUTMENT FTG. DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED 7-15-98	BRIDGE NUMBER 02541
	SHEET 16R OF 45 SHEETS			



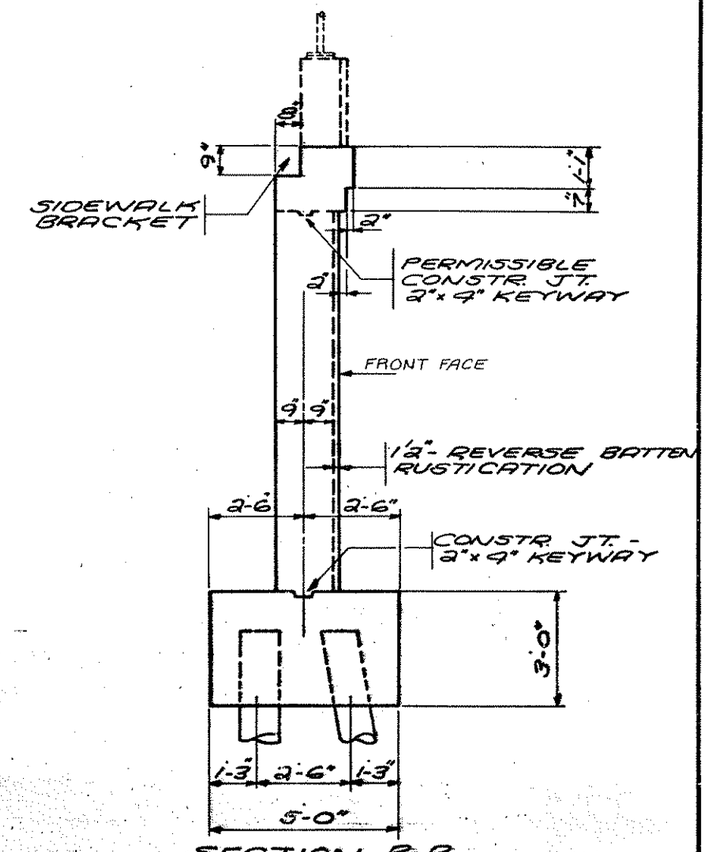
SECTION O-O
SCALE: 3/8" = 1'-0"



SECTION C-C
SCALE: 1/2" = 1'-0"



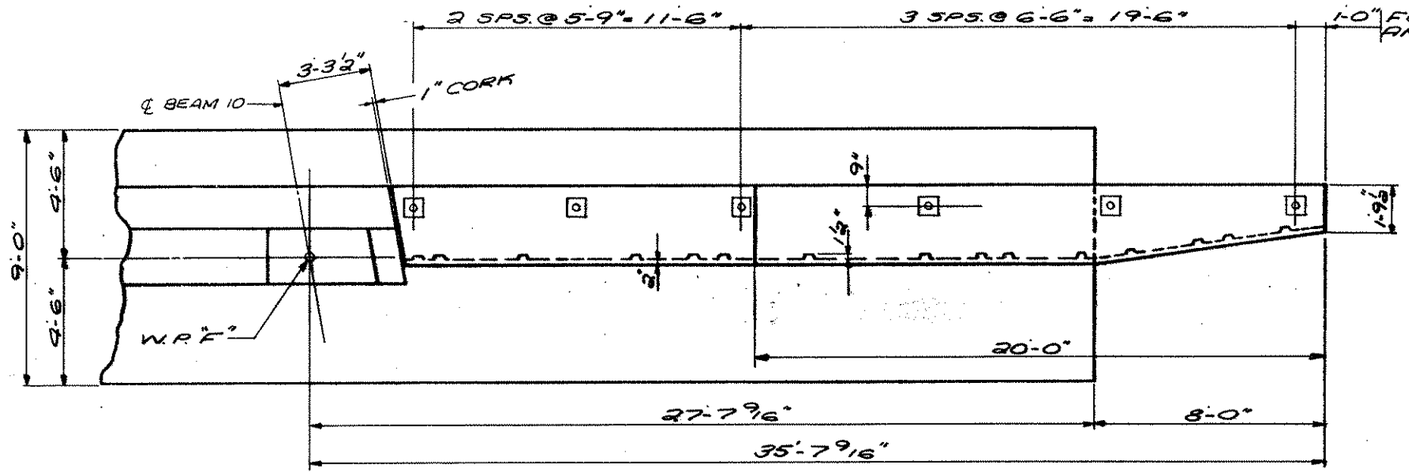
N.W. WINGWALL ELEVATION
SCALE: 3/8" = 1'-0"



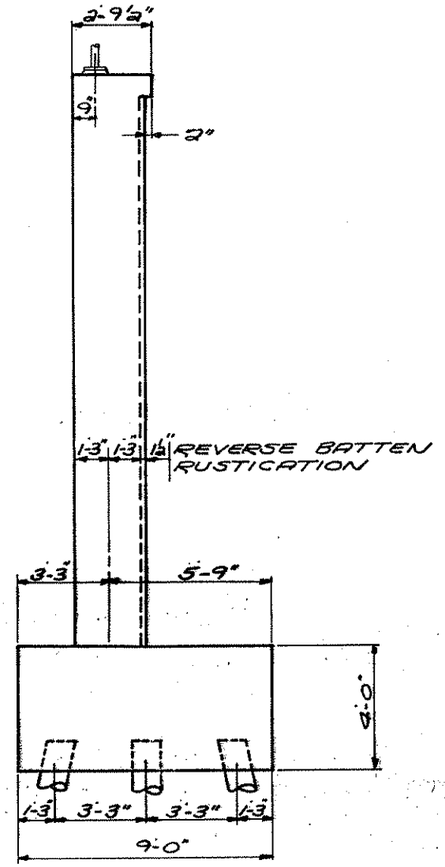
SECTION B-B

S.A.P. 02-601-29

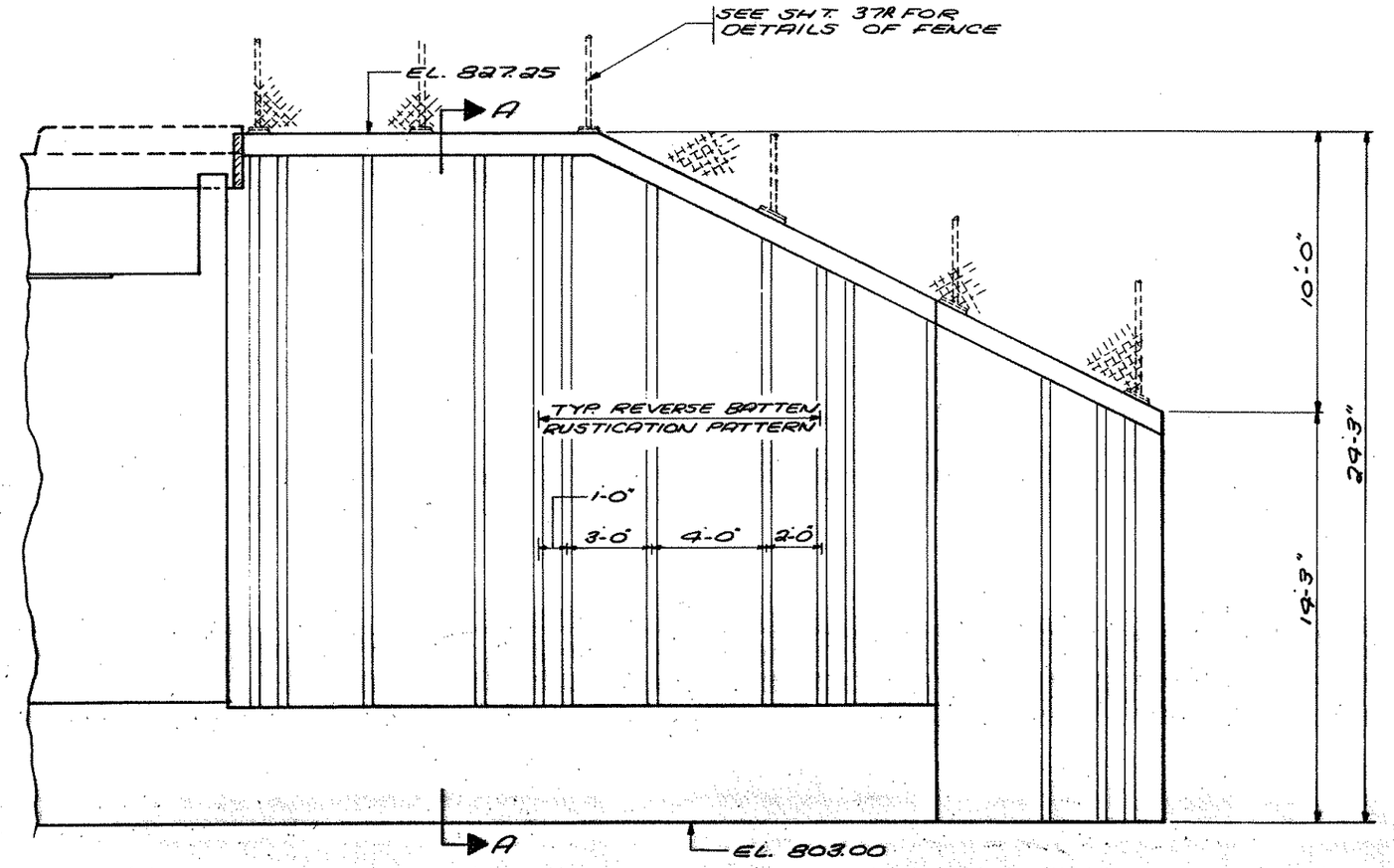
N.W. WINGWALL DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED 7-15-88	BRIDGE NUMBER 02541
	SHEET 17R OF 45 SHEETS			



PLAN
SCALE: 3/8" = 1'-0"



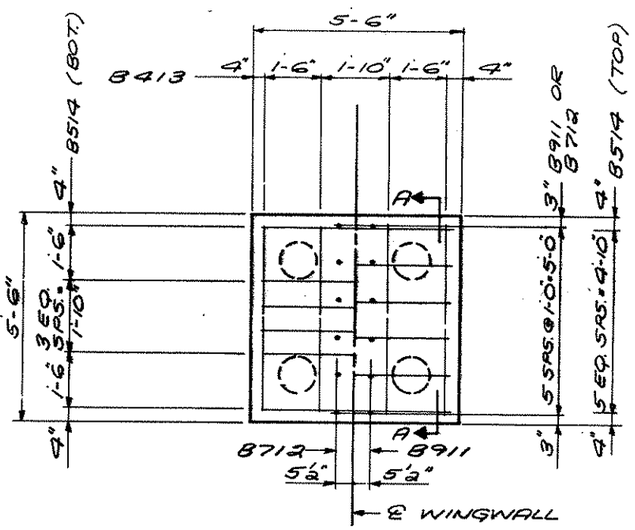
SECTION A-A



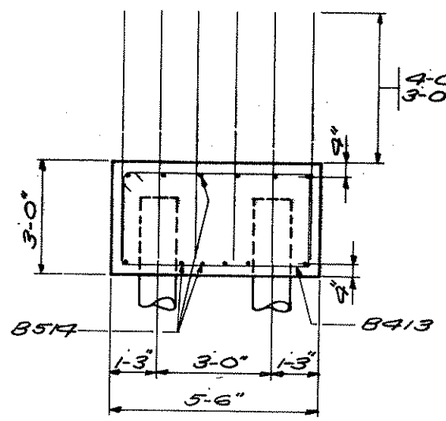
ELEVATION

S.A.P. 02-601-39

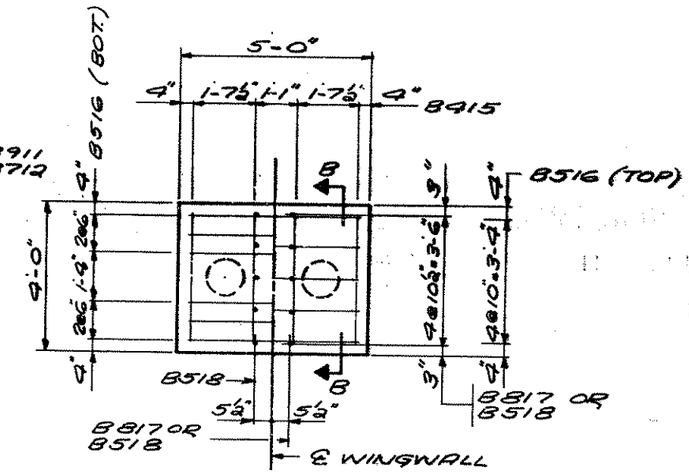
N.E. WINGWALL DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 18 OF 45 SHEETS			



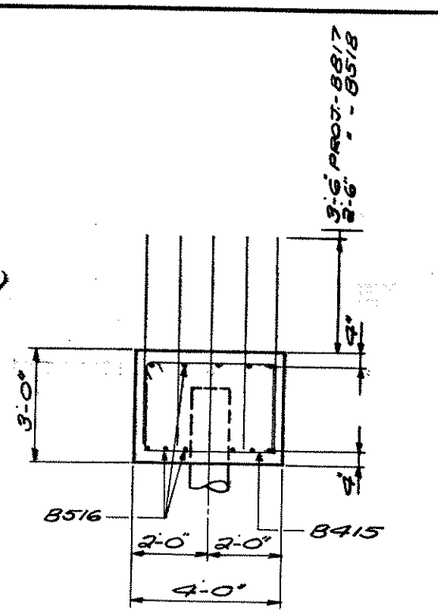
WINGWALL FTG. PLAN
SCALE: ½" = 1'-0"



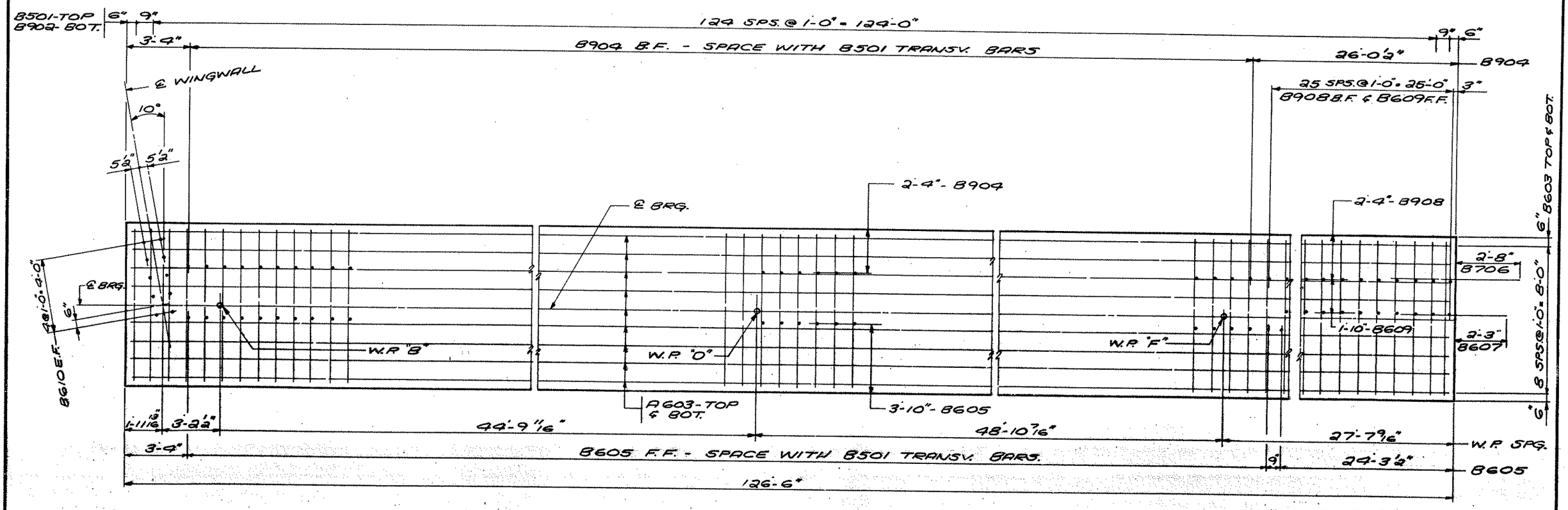
SECTION A-A



WINGWALL FTG. PLAN



SECTION B-B



S.A.P. 02-601-29

NO. ABUTMENT FTG. DETAILS	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-98	BRIDGE NUMBER 02541
	SHEET 19 OF 45 SHEETS			

NOTE:
CUT OR ADJUST REINFORCEMENT BARS AS NECESSARY TO AVOID SLEEVES THRU ABUTMENT.

8519 E.F. & INTERIM

8525 F.F.

8523 E.F.

8522-PULL UP TO 2" CLR @ BR. SEATS

A

8435 E.F. TYP @ PIPE SLEEVES.

C

B

C

B

8519 E.F.

8820 B.F.
8621 F.F.

8727 & 8728-SPACE WITH 8519 & 8523

8829 B.F.
8630 F.F.

USE EPOXY COATED BARS ON FRONT FACE & SEAT OF ABUTMENT. (SEE NOTE BELOW)

8904 B.F.
8605 F.F.

8519 E.F.

A

B501

B603

B603

B902

ELEVATION
SCALE: 3/8"=1'-0"

NOTE:
SEE SHEET 22R FOR SECTIONS C-C & A-A

FOR LOCATION OF EPOXY COATED REINF. - SEE SECTIONS A-A & C-C ON SHEET 22R.

SEE SHEET 17R FOR N.W. WINGWALL REINFORCEMENT

WEST

1'-0" 5@1'-0" 5'-0"

2" CLR.

1'-0" 2@1'-0"

1'-0"

8726

8726

18-8727

18-8728

8820 B.F.

8525

8829 B.F.

8519

17-8519

8621 F.F.

8630 F.F.

17-8519

8522

1'-0" 5@6" = 2'-6" 8 EQ. SPS. = 7'-10 7/8" 5@6" = 2'-6" 3@1'-0" = 3'-0" 1'-0" 3 EQ. SPS. = 2'-10 15/16" 5@6" = 2'-6" 8 EQ. SPS. = 7'-10 15/16" 5@6" = 2'-6" 8 EQ. SPS. = 7'-10 15/16" 5@6" = 2'-6" 4 EQ. SPS. = 3'-9 7/8" 6" 4"

℄ CONSTRUCTION JT.

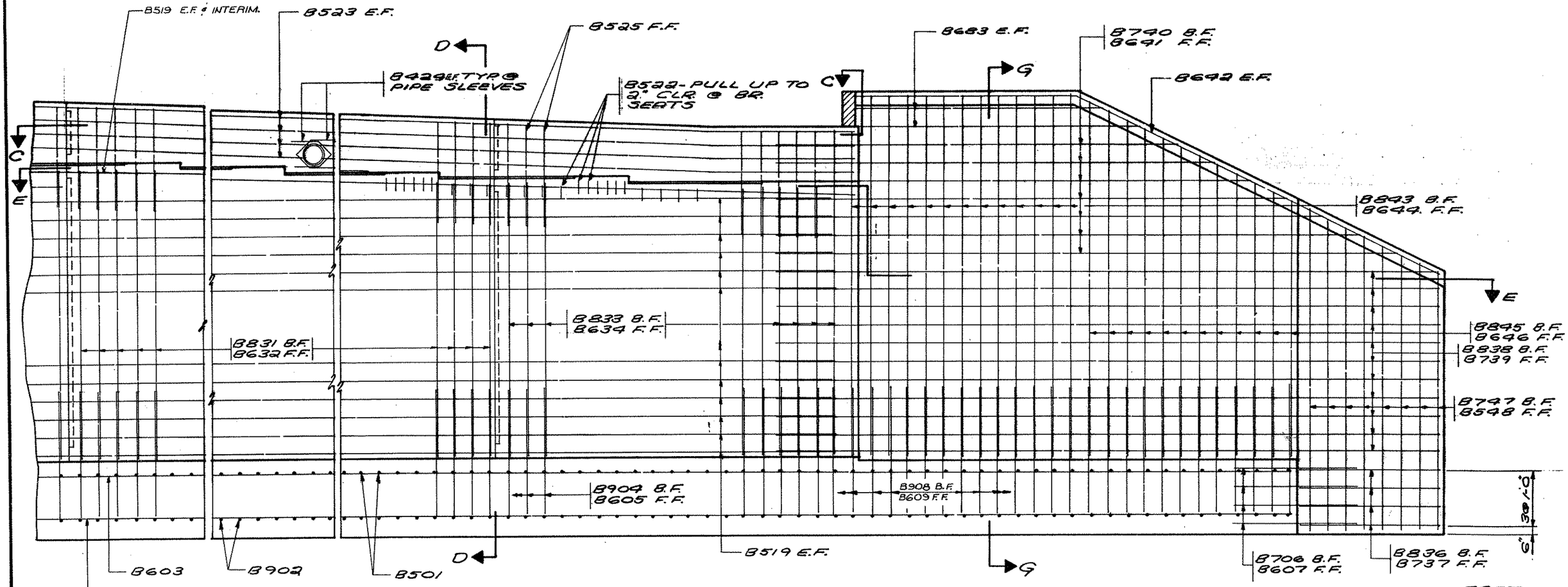
℄ CONSTRUCTION JT.

SECTION B-B
SCALE: 3/8"=1'-0"

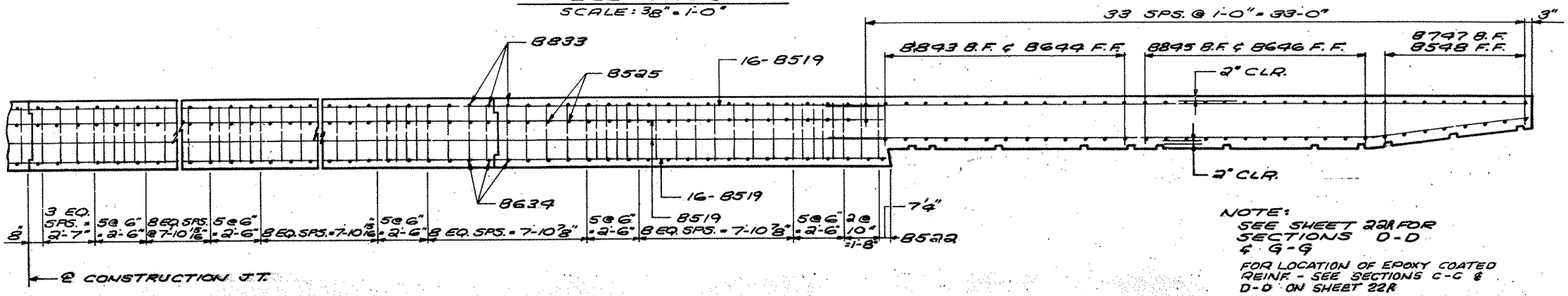
S.A.P. 02-601-39

NO ABUTMENT REINFORCEMENT	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 20R OF 45 SHEETS			

NOTE:
CUT OR ADJUST REINFORCEMENT BARS AS NECESSARY TO AVOID SLEEVES THRU ABUTMENTS.



ELEVATION
SCALE: 3/8" = 1'-0"



SECTION E-E

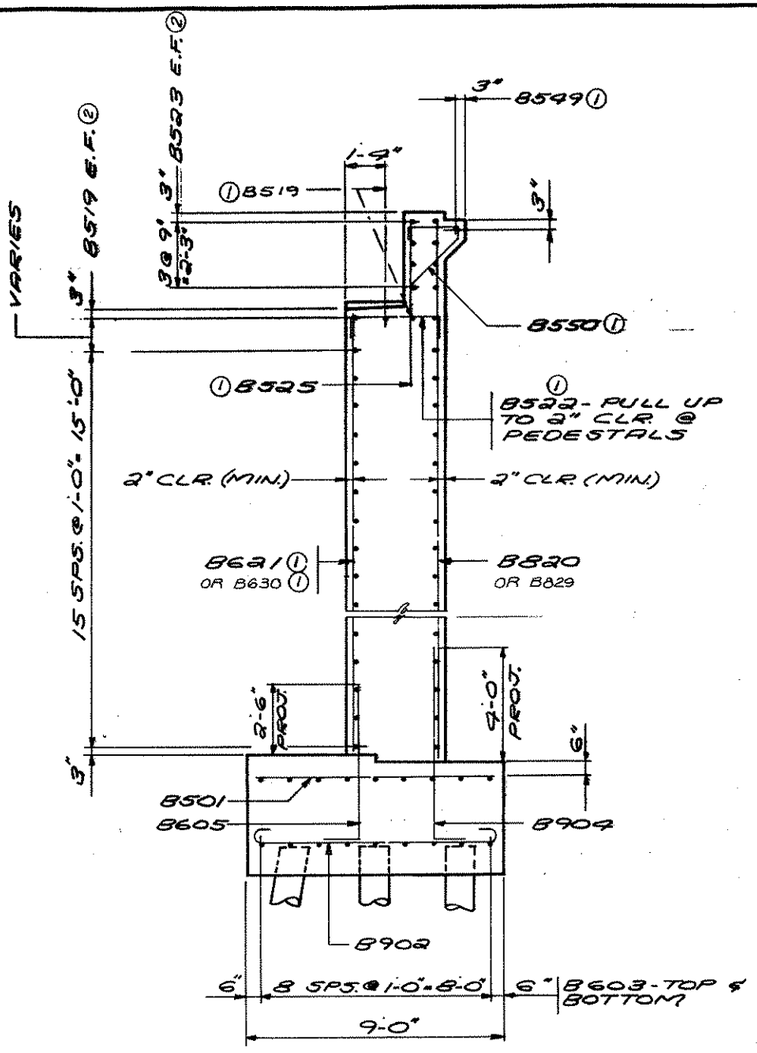
NOTE:
SEE SHEET 22R FOR SECTIONS D-D & G-G

FOR LOCATION OF EPOXY COATED REINF. - SEE SECTIONS C-C & D-D ON SHEET 22R

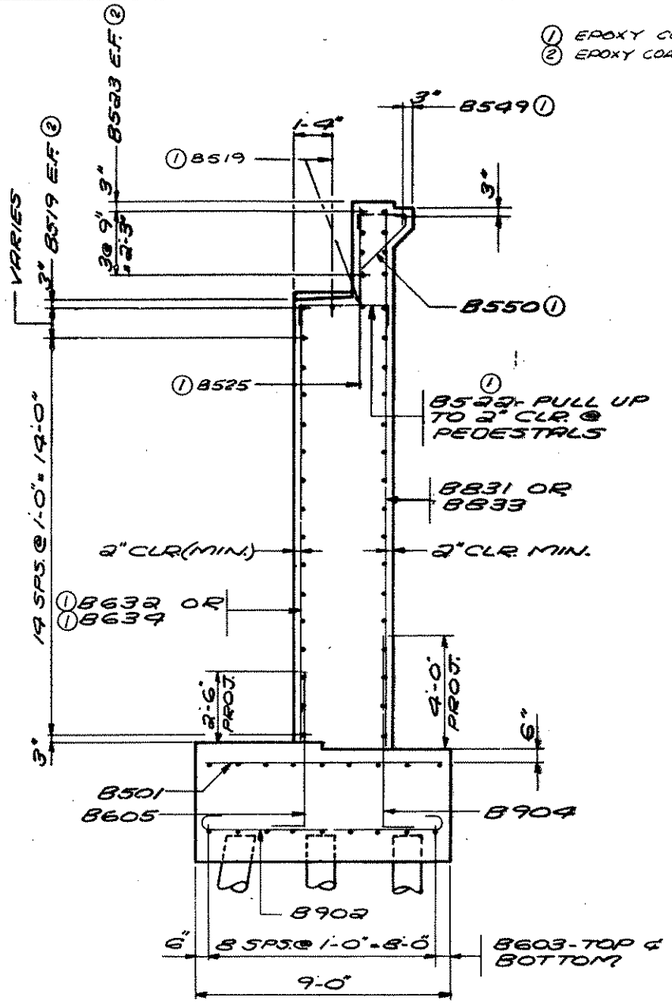
S.A.P. 02-601-29

NO. ABUTMENT REINFORCEMENT	DRAWN: D.J.Y.	CHECKED R.E.T.	APPROVED 7-15-98	BRIDGE NUMBER 02541
	SHEET 21R OF 45 SHEETS			

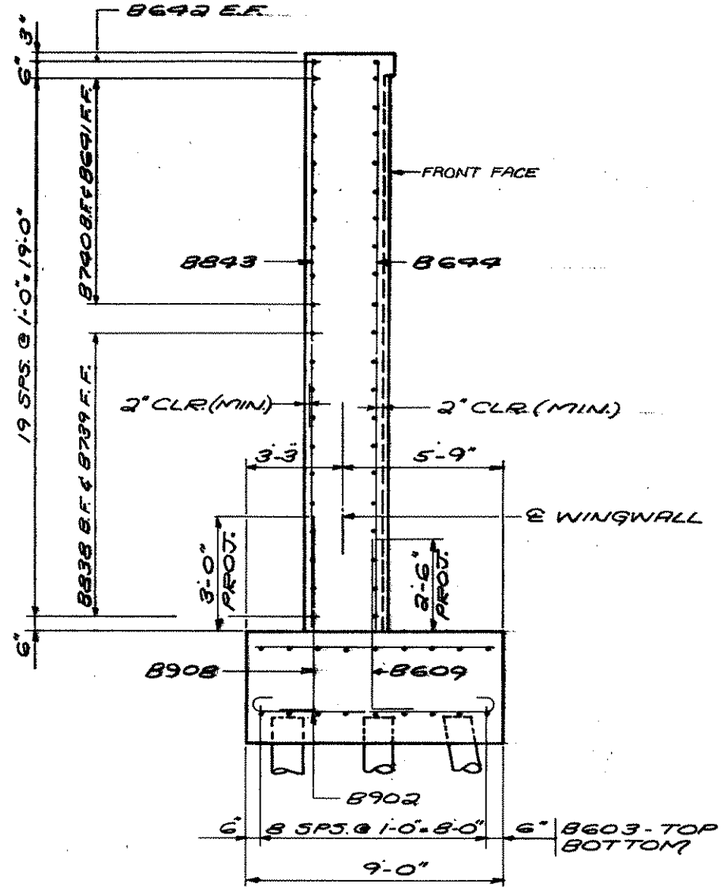
① EPOXY COATED REINF.
② EPOXY COATED F.F. BARS ONLY



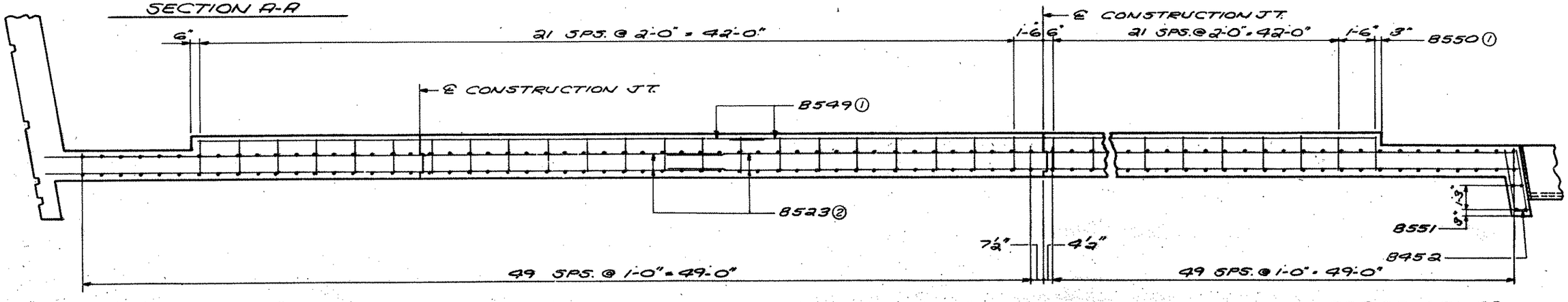
SECTION A-A



SECTION D-D



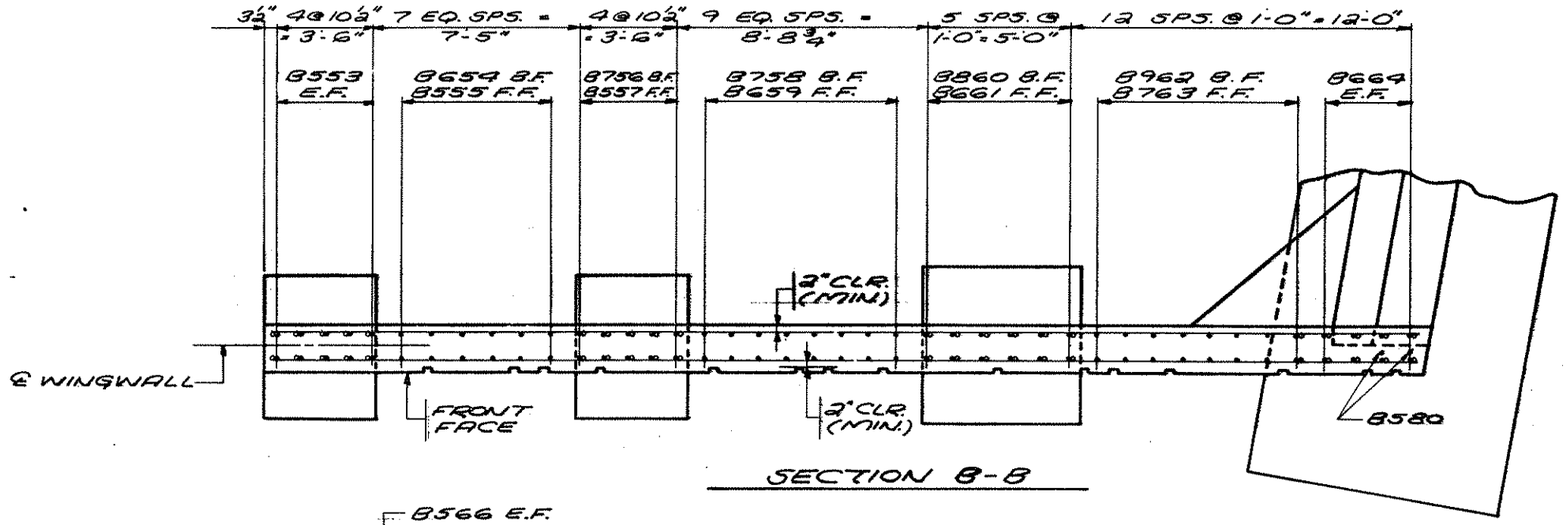
SECTION G-G



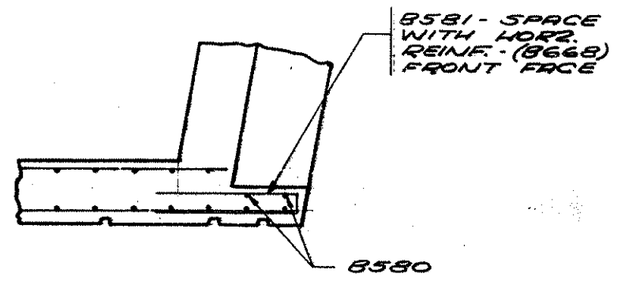
SECTION C-C

S.A.P. 02-601-29

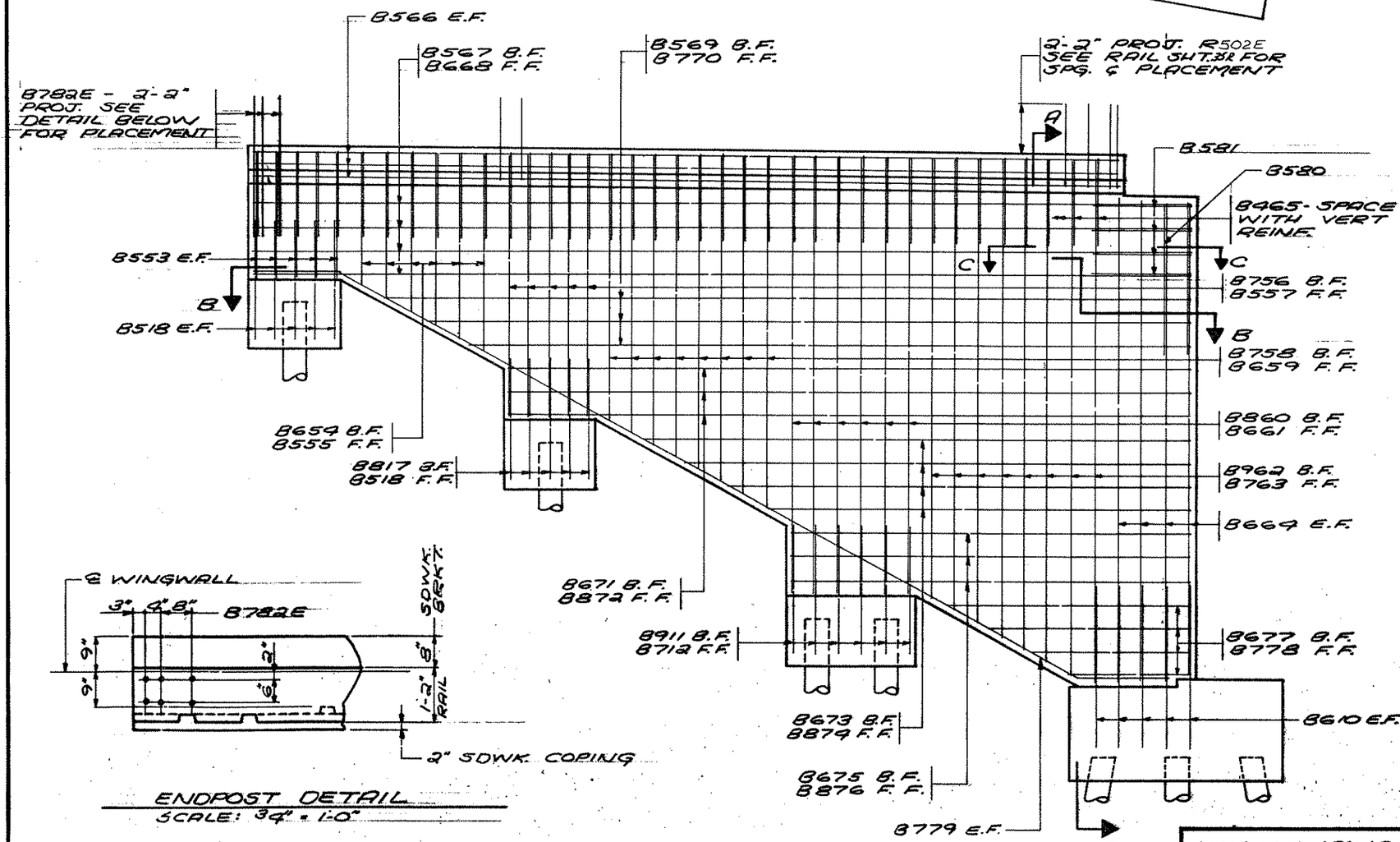
NO. ABUTMENT REINFORCEMENT	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 22R OF 45 SHEETS			



SECTION B-B

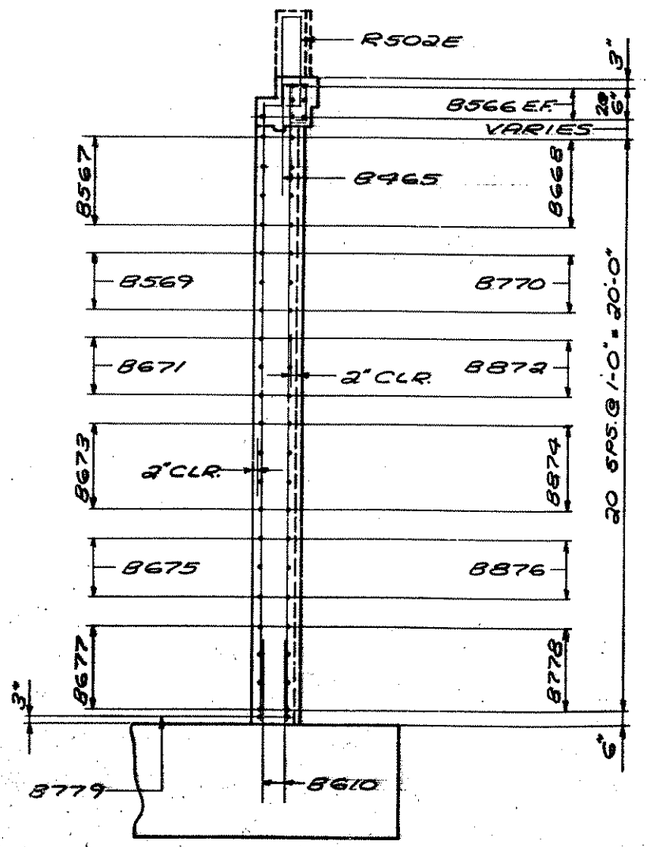


SECTION C-C



ELEVATION
SCALE: 3/8" = 1'-0"

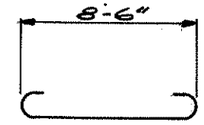
ENDPOST DETAIL
SCALE: 3/4" = 1'-0"



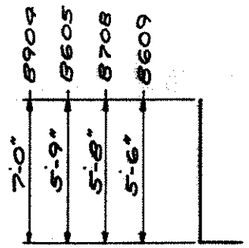
SECTION A-A

S.B.P. 02-601-29

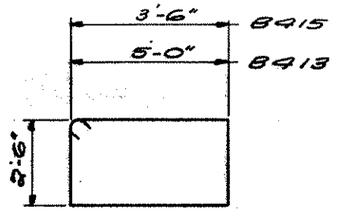
N.W. WINGWALL REINFORCEMENT	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED 7-15-85	BRIDGE NUMBER 02541
	SHEET 23R OF 45 SHEETS			



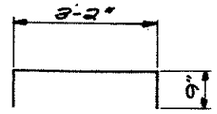
B902



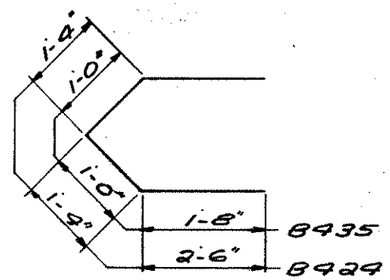
B904, B605, B708 & B609



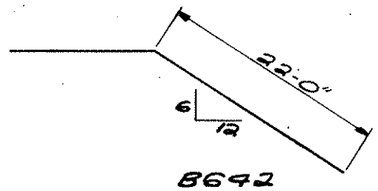
B413 & B415



B522



B424 & B435



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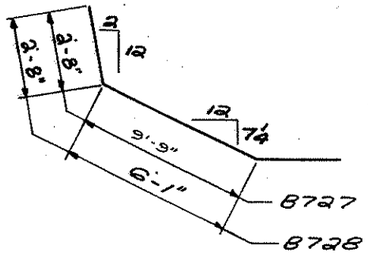
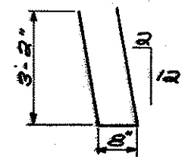
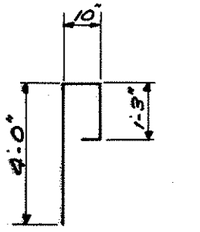


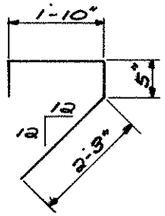
B727 & B728



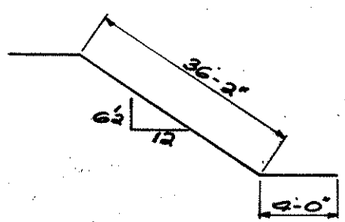
B452



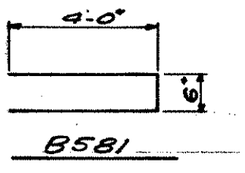
B465



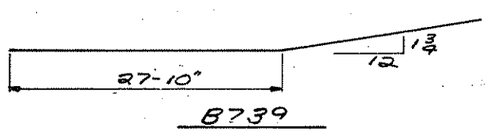
B550



B779



B581



B739

BILL OF REINFORCEMENT - NO. ABUT.

	BAR	NO.	LEN.	SHAPE	LOCATION
	B659	1 SER. OF 8	11-5" to 15-1"	STR.	N.W. WING-VERT.
	B660	6	18-8"	"	" " "
	B661	6	18-8"	"	" " "
	B662	1 SER. OF 8	18-9" to 22-5"	"	" " "
	B763	1 SER. OF 8	18-9" to 22-5"	"	" " "
	B664	8	20-3"	"	" " "
	B465	38	6'-5"	BENT	" " "
	B566	7	37-0"	STR.	" " - HORZ.
	B567	4	40-8"	"	" " "
	B668	4	40-8"	"	" " "
	B569	1 SER. OF 3	30-9" to 34-6"	"	" " "
	B770	1 SER. OF 3	30-9" to 34-6"	"	" " "
	B671	3	29-4	"	" " "
	B872	3	29-4"	"	" " "
	B673	1 SER. OF 4	18-0" to 23-5"	"	" " "
	B874	1 SER. OF 4	18-0" to 23-5"	"	" " "
	B675	3	17-0"	"	" " "
	B876	3	17-0"	"	" " "
	B677	1 SER. OF 4	5-2" to 10'-6"	"	" " "
	B778	1 SER. OF 4	5-2" to 10'-6"	"	" " "
	B779	2	43'-11"	BENT	" " "
	B580	2	6'-0"	STR.	CURTAIN WALL
	B581	4	8'-6"	BENT	" "
	B782E	6	6'-0"	STR.	END POST
③	B683	2	29-4"	"	N.E. WING-HORZ.

① 3 LINES WITH 2'-3" MIN. LAP
② 2 LINES WITH 2'-3" MIN. LAP
③ CUT 2 FROM 1
⑥ BEND IN FIELD
⑦ EPOXY COATED

⑨ EPOXY COAT BARS IN F.F. & INTERM. - SEE SHEET 22R

SUMMARY OF QUANTITIES FOR NORTH ABUTMENT

	STRUCTURE CONCRETE (1P43)	182	CU. YD.
	STRUCTURE CONCRETE (3Y43)	327	CU. YD.
	REINFORCEMENT BARS	34160	POUND
	REINFORCEMENT BARS (EPOXY COATED)	5880	POUND
	C.I.P. CONC. TEST PILES 35 FT. LONG	2	EACH
④	C.I.P. CONC. PILING DELIVERED	1915	LIN. FT.
④	C.I.P. CONC. PILING DRIVEN	1915	LIN. FT.
⑤	DRAINAGE SYSTEM - SEE SHEET 29		
	WIRE FENCE DES S-1	32	LIN. FT.
⑤	FOUNDATION PREPARATION.	1	LUMP SUM

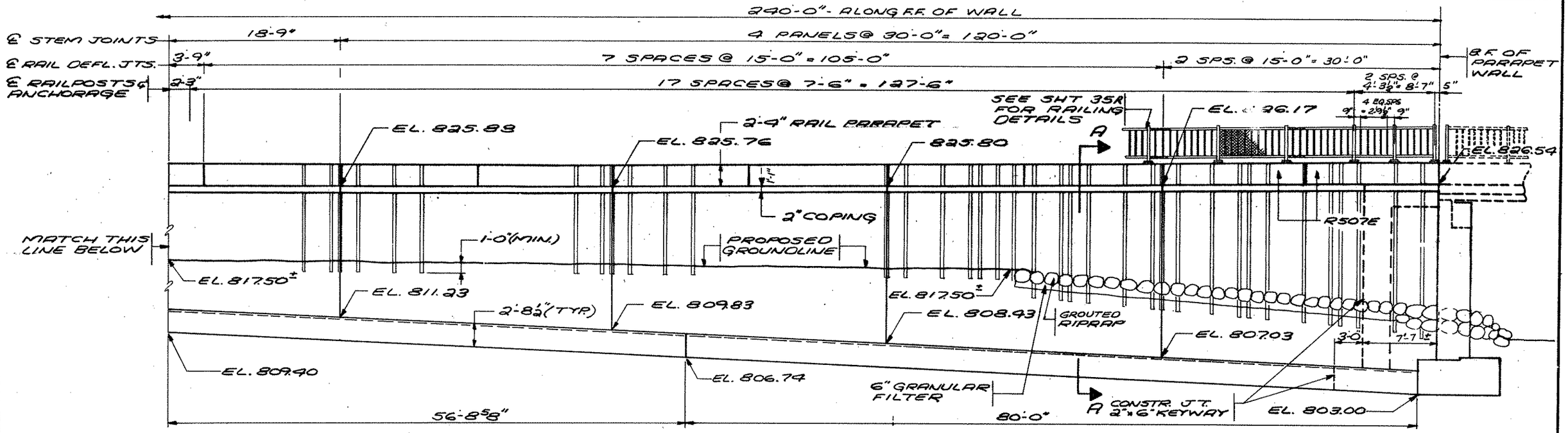
④ DOES NOT INCLUDE TEST PILES
⑤ SEE SPECIAL PROVISIONS

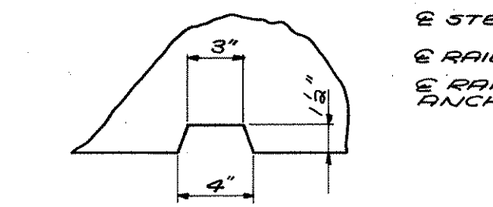
BILL OF REINFORCEMENT - NO. ABUT.

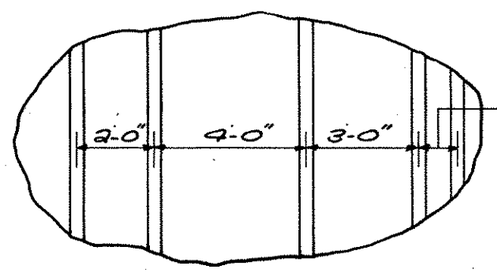
	BAR	NO.	LEN.	SHAPE	LOCATION
	B501	127	8'-6"	STR.	FTG. - TOP TRANS.
	B902	127	11'-0"	BENT	" - BOT. "
①	B603	54	43'-6"	STR.	" - T. & B. LONGIT.
	B904	98	8'-0"	BENT	" - DOWELS
	B605	100	6'-9"	"	" "
	B706	4	5'-8"	STR.	" - WING DOWELS
	B607	4	4'-9"	"	" " "
	B908	26	6'-8"	BENT	" " "
	B609	26	6'-6"	"	" " "
	B610	10	5'-6"	STR.	" " "
	B911	6	6'-6"	"	" " "
	B712	6	5'-6"	"	" " "
	B413	4	15'-9"	BENT	" " - STIRRUP
	B514	12	5'-0"	STR.	" " - HORZ.
	B415	8	12'-9"	BENT	" " - STIRRUP
	B516	22	4'-6"	STR.	" " - HORZ.
	B817	5	6'-0"	"	" " - DOWELS
	B518	15	5'-0"	"	" " "
⑨②	B519	70	52'-0"	"	BR. ST. - HORZ.
	B820	1 SER. OF 18	19-10" to 20-1"	"	" " - VERT.
⑦	B621	1 SER. OF 18	16'-8" to 16'-10"	"	" " "
⑦	B522	128	4'-8"	BENT	" " - TIES
⑦①	B523	24	35'-0"	STR.	PARR. WALL - HORZ.
	B424	4	7'-8"	BENT	" " @ SLEEVE
	B525	100	6'-0"	STR.	" " VERT.
	B726	9	19'-3"	"	FILLET - VERT.
	B727	20	15'-1"	BENT	" - HORZ.
	B728	20	11'-5"	"	" - "
	B829	1 SER. OF 32	19-2" to 19-10"	STR.	BR. ST. - VERT.
⑦	B630	1 SER. OF 32	16-0" to 16-7"	"	" " "
	B831	1 SER. OF 31	18-5" to 19-5"	"	" " "
⑦	B632	1 SER. OF 31	15'-1" to 16'-0"	"	" " "
	B833	1 SER. OF 19	18'-0" to 18'-4"	"	" " "
⑦	B634	1 SER. OF 20	14'-11" to 15'-2"	"	" " "
	B435	4	5'-9"	BENT	PARR. WALL - SLEEVE
	B836	4	7'-9"	STR.	N.E. WING - HORZ.
	B737	4	7'-9"	"	" " "
	B838	11	35'-8"	"	" " "
	B739	11	35'-8"	BENT	" " "
	B740	1 SER. OF 7	21'-9" to 34'-0"	STR.	" " "
⑥	B641	1 SER. OF 7	21'-9" to 34'-0"	BENT	" " "
	B642	2	34'-2"	BENT	" " "
	B843	13	20'-0"	STR.	" " - VERT.
	B644	13	20'-0"	"	" " "
	B845	1 SER. OF 12	19'-2" to 19'-8"	"	" " "
	B646	1 SER. OF 12	19'-2" to 19'-8"	"	" " "
	B747	1 SER. OF 8	14'-2" to 17'-9"	"	" " "
	B548	1 SER. OF 8	14'-2" to 17'-9"	"	" " "
⑦	B549	2	44'-8"	"	PAVING BRK'T.
⑦	B550	45	9'-11"	BENT	" "
	B351	4	6'-0"	STR.	CURTAIN WALL
	B452	4	7'-0"	BENT	" "
	B553	10	5'-6"	STR.	N.W. WING - VERT.
	B654	1 SER. OF 6	5'-9" to 8'-6"	"	" " "
	B555	1 SER. OF 6	5'-9" to 8'-6"	"	" " "
	B756	5	11'-9"	"	" " "
	B557	5	11'-9"	"	" " "
	B758	1 SER. OF 8	11'-5" to 15'-1"	"	" " "

S.A.P. 02-601-29

NORTH ABUTMENT REINFORCEMENT	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED 7-15-88	BRIDGE NUMBER 02541
	SHEET 24R OF 45 SHEETS			

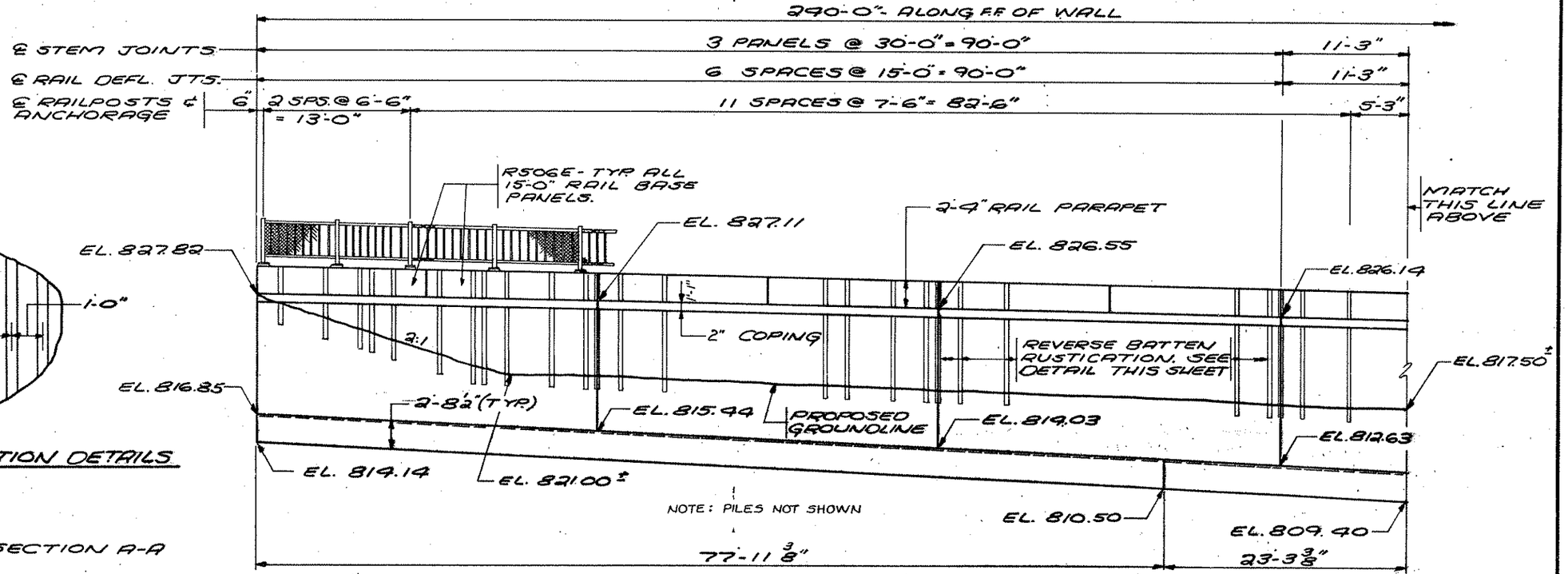






REVERSE BATTEN RUSTICATION DETAILS

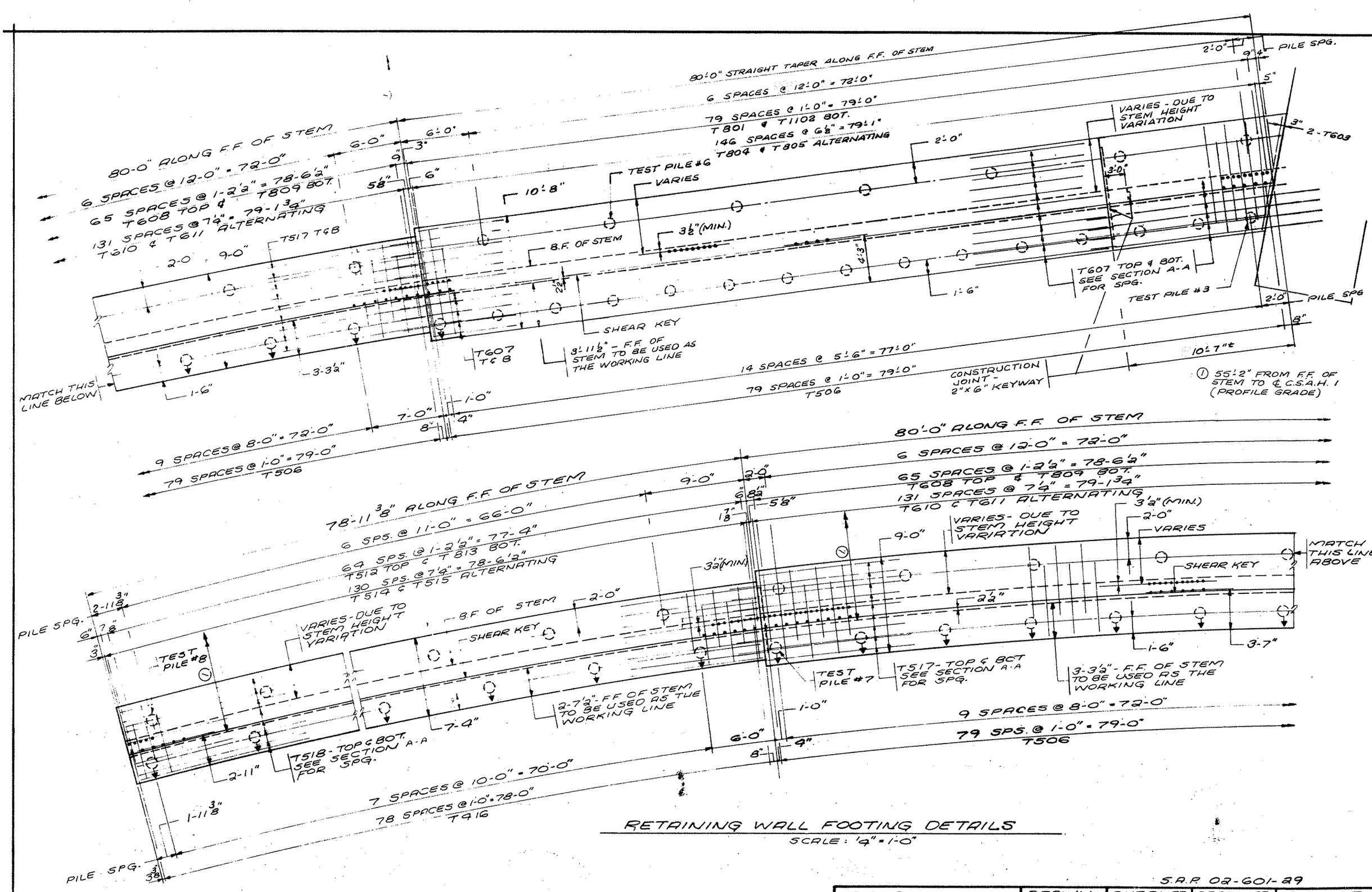
NOTE: SEE SHT. 28R FOR SECTION A-A



RETAINING WALL ELEVATION
SCALE 3/16" = 1'-0"
(LOOKING WEST)

S.A.P. 02-601-89

RETAINING WALL DETAILS	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 25R OF 45 SHEETS			

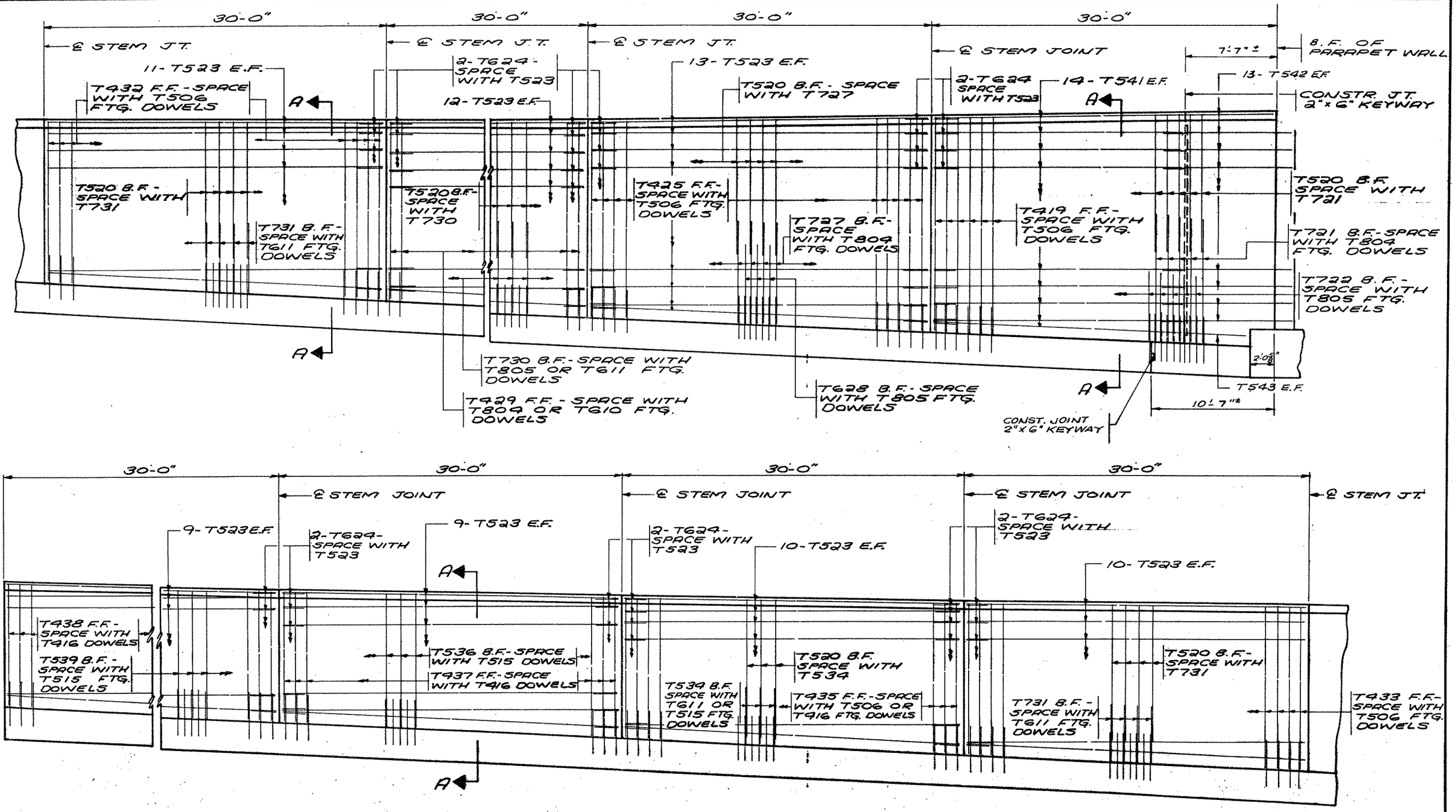


RETAINING WALL FOOTING DETAILS

SCALE: 1/4" = 1'-0"

S.A.P. 02-601-89

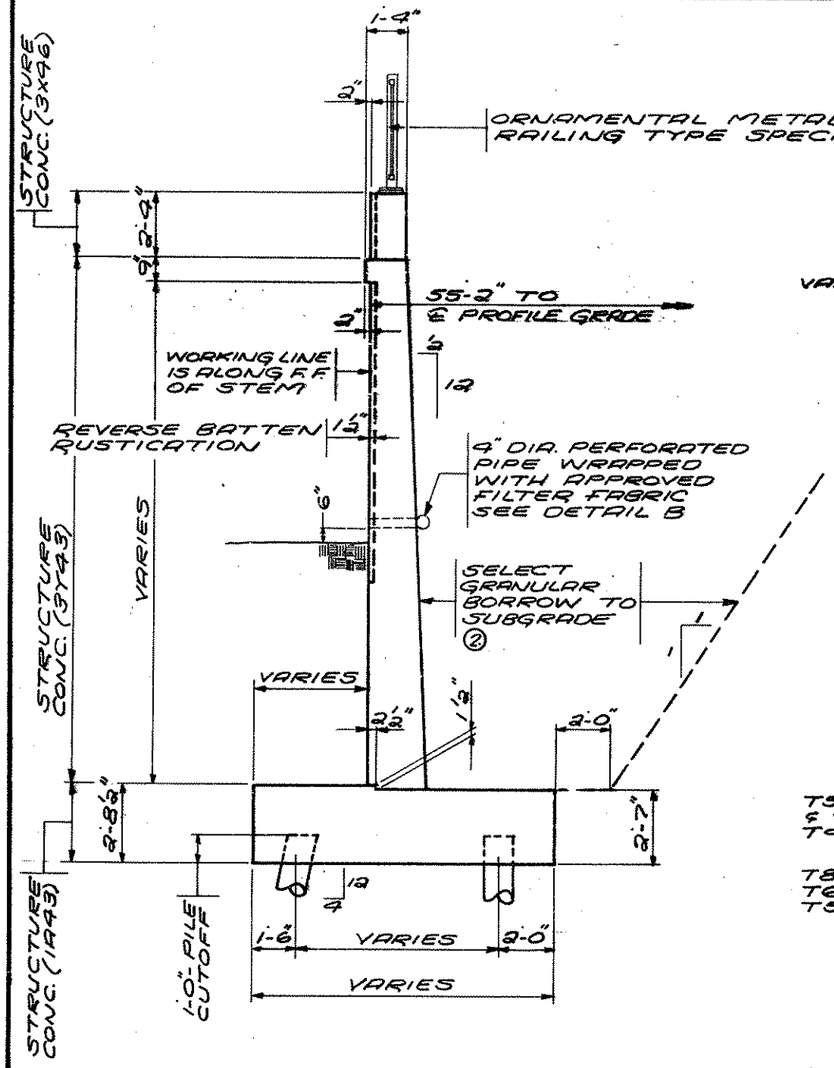
RETAINING WALL DETAILS	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02591
	SHEET 38 OF 45 SHEETS			



RETAINING WALL REINFORCEMENT

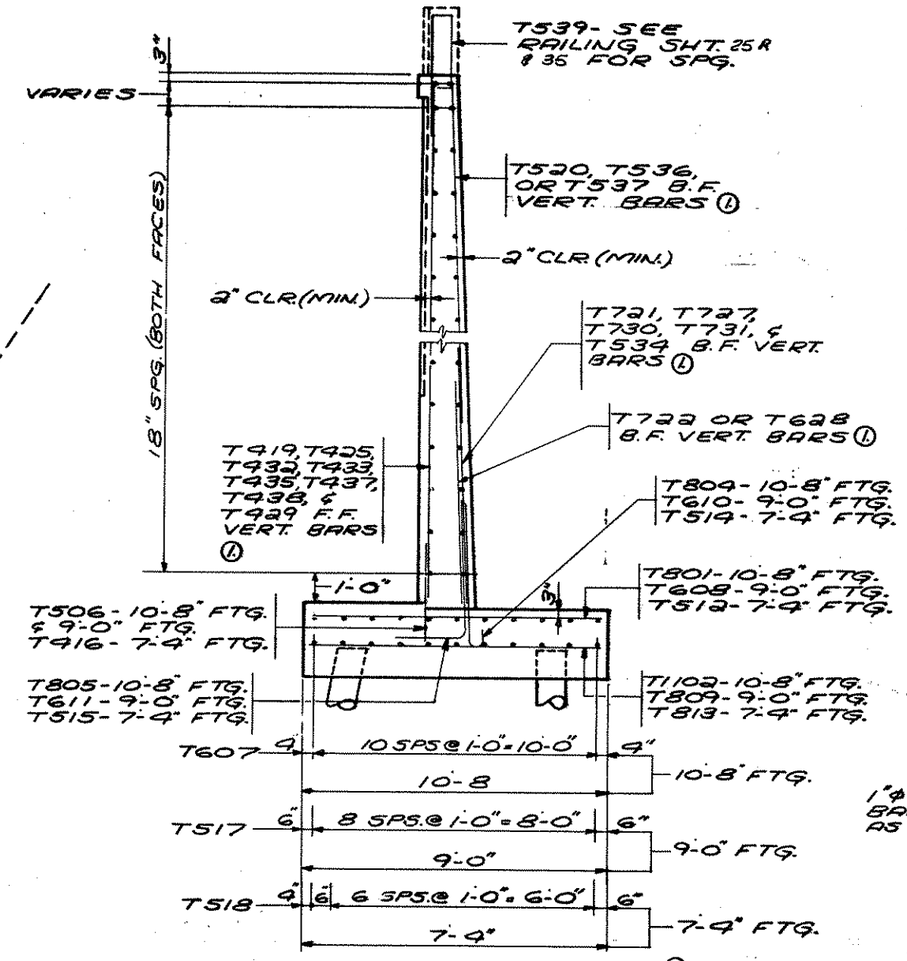
S.A.P. 02-601-29

RETAINING WALL REINFORCEMENT	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED 7-15-98	BRIDGE NUMBER 02541
	SHEET 27R OF 45 SHEETS			



TYPICAL SECTION THRU STEM

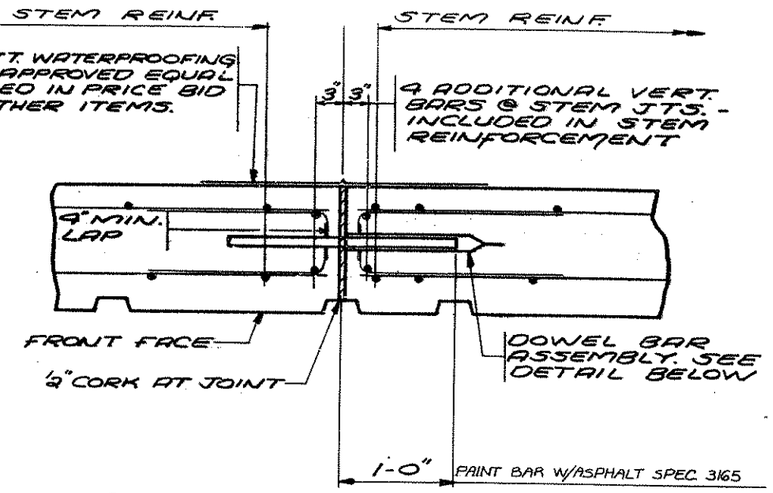
SCALE: 3/8" = 1'-0"



① SEE SHT. 27R FOR EXACT LOCATIONS

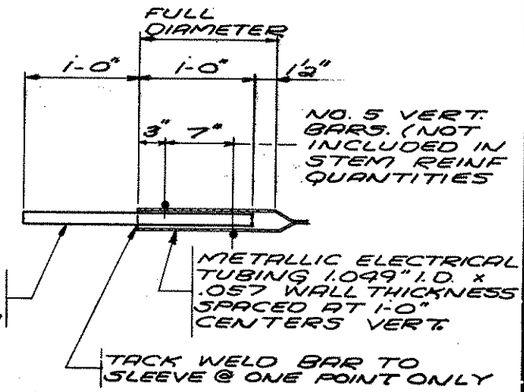
SECTION A-A

SHOWING REINF.



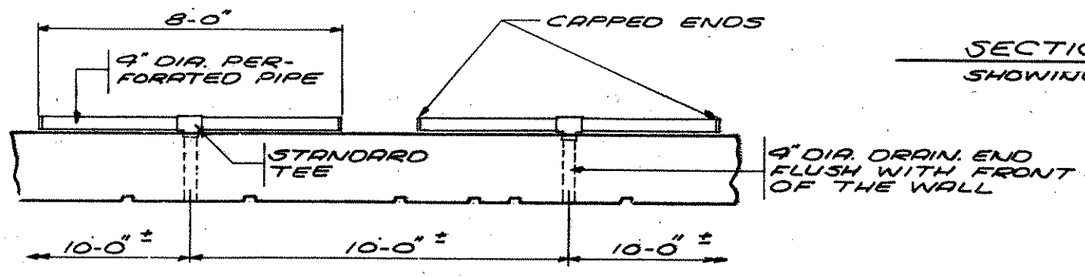
CORK SHALL COMPLY WITH SPEC. 3702. SECURE CORK WITH 2½" COPPER NAILS AT ABOUT 18" CTRS. CORK AND NAILS INCLUDED IN PRICE BID FOR OTHER ITEMS.

TYPICAL SECTION THRU STEM JOINT



DOWEL BAR ASSEMBLY

MATERIAL AND PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS



THERMOPLASTIC PIPE PER SPEC. 3295

DETAIL B

SCALE: ½" = 1'-0"

② SELECT GRANULAR MATERIAL TO BE UNDER GRADING PORTION OF THE CONTRACT.

S.A.P. 02-601-29

RETAINING WALL DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02591
	SHEET 28R OF 45 SHEETS			

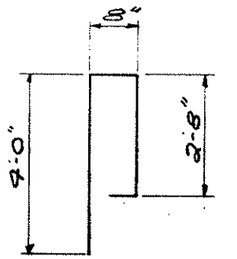
PILE NOTES

4 - C.I.P. CONC. TEST PILES 35 FT. LONG
50 - C.I.P. CONC. PILING EST. LENGTH 25 FT.
54 - C.I.P. CONC. PILES REQ'D FOR RETAINING WALL

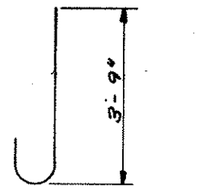
ALL PILES TO BE 12"ϕ C.I.P. PILES
PILES MARKED THUS ⊖ TO BE BATTERED 4" PER FOOT IN THE DIRECTION SHOWN.
PILE SPG. SHOWN IS AT BOTTOM OF FOOTING
FOR SPLICES SEE DETAIL 8201
DESIGN LOAD = 50 TONS PER PILE

⑨ SUMMARY OF QUANTITIES FOR DRAINAGE SYS.

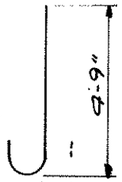
4" ϕ PERFORATED PIPE	420 LIN. FT.
FILTER FABRIC	490 SQ. FT.
4" STANDARD TEE	23 EA.
COARSE FILTER AGGREGATE (CV)	15 CU. YD.



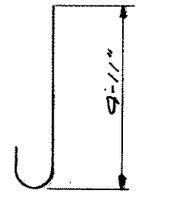
T590E



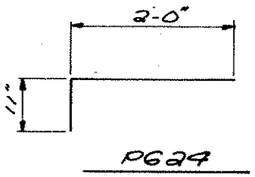
P514



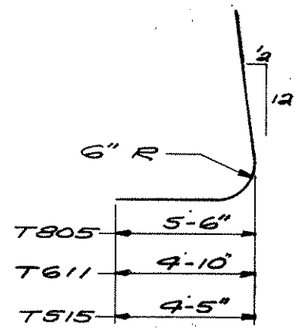
P610



P804



P624



T805, T611, & T515

BILL OF REINFORCEMENT - RETAIN. WALL

	BAR	NO.	LEN.	SHAPE	LOCATION
	T801	81	8'-0"	STR.	FTG. - TRANS.
	T1102	81	8'-0"	"	" "
	T603	9	10'-4"	"	" "
	T804	74	5'-10"	BENT	" - DOWELS
	T805	74	10'-2"	"	" "
	T506	160	9'-0"	STR.	" "
②①	T607	44	44'-6"	"	" - LONGIT.
	T608	66	7'-3"	"	" - TRANS.
	T809	66	7'-3"	"	" "
	T610	66	5'-5"	BENT	" - DOWELS
	T611	66	8'-10"	"	" "
	T512	66	5'-8"	STR.	" - TRANS.
	T813	66	5'-8"	"	" "
	T514	66	9'-9"	BENT	" - DOWELS
	T515	65	7'-11"	STR.	" "
	T416	79	3'-0"	"	" "
③	T517	36	91'-0"	"	" - LONGIT.
③	T518	32	40'-6"	"	" "
	T419	1 SER. OF 30	18'-10" to 20'-6"	"	STEM - VERT.
	T520	157	12'-0"	"	" "
	T721	28	11'-0"	"	" "
	T722	28	7'-0"	"	" "
	T523	148	29'-8"	"	" - HORZ.
②	T624	324	2'-11"	BENT	" @ JTS.
	T425	1 SER. OF 30	17'-1" to 18'-9"	STR.	" - VERT.
	T727	28	9'-0"	"	" "
	T628	28	7'-0"	"	" "
	T429	1 SER. OF 30	15'-8" to 17'-0"	"	" "
	T730	28	8'-0"	"	" "
	T731	50	6'-0"	"	" "
	T432	1 SER. OF 30	14'-4" to 15'-7"	"	" "
	T433	1 SER. OF 30	13'-3" to 14'-3"	"	" "
	T534	25	5'-0"	"	" "
	T435	1 SER. OF 30	12'-3" to 13'-7"	"	" "
	T536	1 SER. 25	11'-5" to 12'-3"	"	" "
	T437	1 SER. OF 30	11'-5" to 12'-3"	"	" "
	T438	1 SER. OF 30	10'-8" to 11'-5"	"	" "
	T539	1 SER. OF 25	10'-8" to 11'-5"	"	" "
	T540E	308	7'-10"	BENT	RAIL - TIES
	T541	28	22'-5"	STR	STEM - HORIZ.
	T542	26	11'-0"	"	" - "
	T543	2	9'-7"	"	" - "

① 2 LINES WITH 2'-3" MIN. LAP
② CUT TO FIT IN THE FIELD
③ 2 LINES WITH 1'-11" MIN. LAP

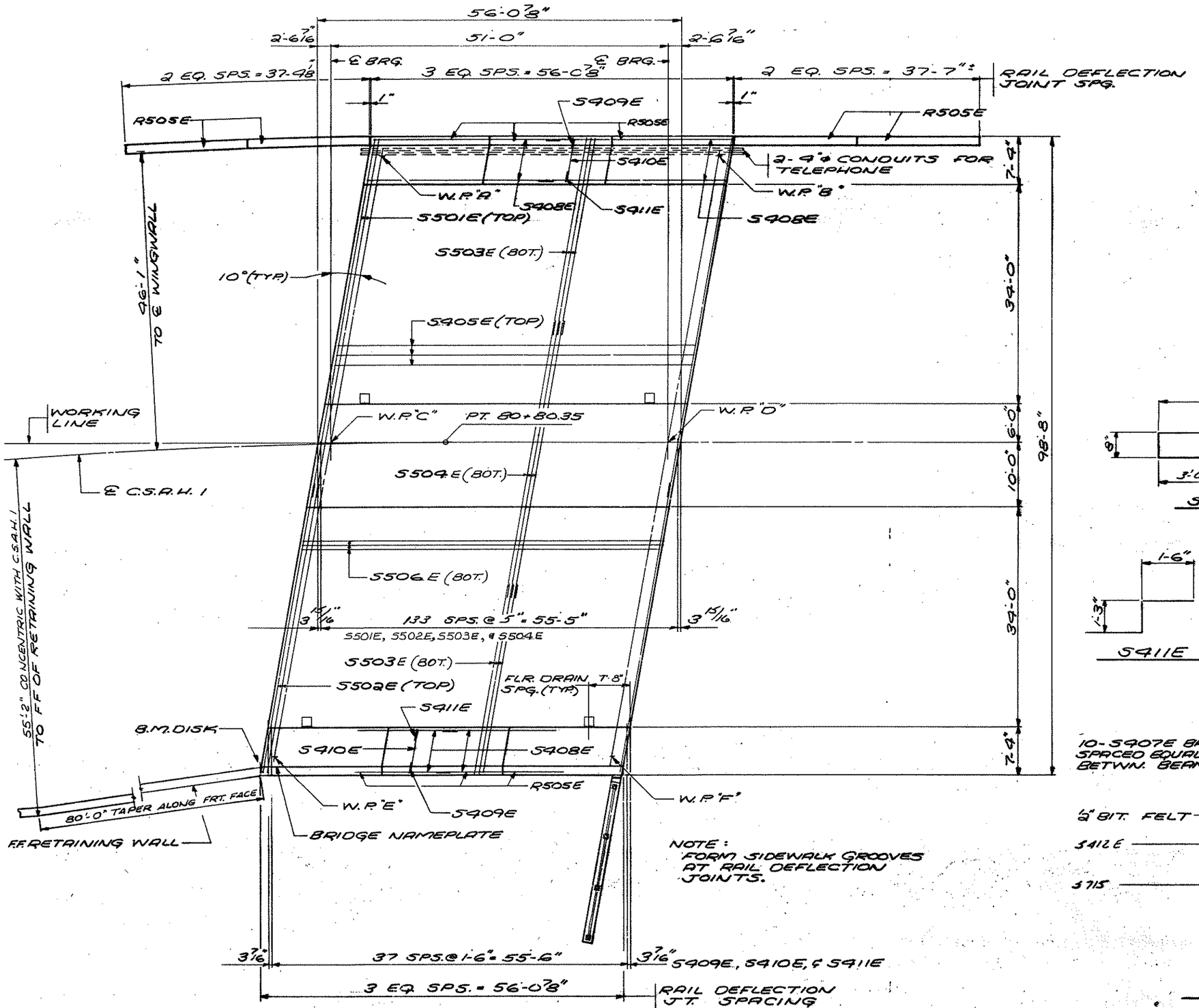
SUMMARY OF QUANTITIES FOR RETAINING WALL

	STRUCTURE CONCRETE (1A93)	211 CU. YDS.
	STRUCTURE CONCRETE (3Y43)	203 CU. YDS.
	REINFORCEMENT BARS	35,600 POUND
	REINFORCEMENT BARS (EPOXY COATED)	2520 POUND
④	C.I.P. CONC. PILING DELIVERED	1250 LIN. FT.
④	C.I.P. CONC. PILING DRIVEN	1250 LIN. FT.
	C.I.P. CONC. TEST PILES 35 FT. LONG	4 EA.
⑤	STRUCTURE EXCAVATION	1 LUMP SUM
⑥	TYPE SPECIAL RAILING CONCRETE (3X46)	292 LIN. FT.
	ORNAMENTAL METAL RAILING, TYPE SPECIAL	240 LIN. FT.
⑦	DOWEL BAR ASSEMBLIES	103 EACH
⑨⑤	DRAINAGE SYSTEM	1 LUMP SUM

⑨ INCLUDES DRAINGE SYSTEM QUANTITIES FOR BOTH ABUTMENTS. & RETAINING WALL.
⑧ CUT T607 BARS IN FIELD LEAVING 2'-3" PROJ. BEYOND PERMISSIBLE CONSTR. JT. LAP ONTO PROJECTING T607 BARS WITH CUT T607 BARS WHEN RETAINING WALL OPERATION CONTINUES.
⑦ INCLUDED IN PRICE BID FOR OTHER ITEMS.
④ DOES NOT INCLUDE TEST PILES
⑤ SEE SPECIAL PROVISIONS
⑥ APPROX. QUANTITY = 25 CU. YDS.

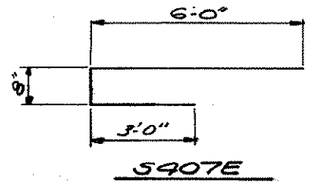
S.A.P. 0a-601-29

RETAINING WALL DETAILS	DRAWN: O.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-98	BRIDGE NUMBER 02591
	SHEET 29R OF 45 SHEETS			

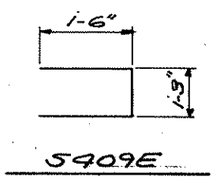


DECK PLAN
SCALE: 1/8" = 1'-0"

BILL OF REINFORCEMENT - SUPERSTR.				
BAR	NO.	LEN.	SHAPE	LOCATION
S501E	134	56'-0"	STR.	TOP TRANS. - SLAB
S502E	134	45'-6"	"	" " - "
S503E	268	30'-0"	"	BOT. " "
S504E	134	44'-0"	"	" " "
S405E	73	55'-8"	"	TOP LONGIT. "
S506E	117	55'-8"	"	BOT. " "
S407E	180	9'-8"	BENT	END OF SLAB
S408E	32	28'-8"	STR.	SIDEWALK - LONGIT.
S409E	76	9'-3"	BENT	" - TIES
S410E	76	6'-10"	STR.	" - TRANS.
S411E	76	9'-3"	BENT	" - TIES
S412E	126	6'-0"	"	END DIAPHRAGM
S413	36	8'-10"	STR.	" "
S714E	18	16'-0"	BENT	" "
S715	36	9'-3"	STR.	" "
S716	32	5'-0"	"	" "



S407E



S409E

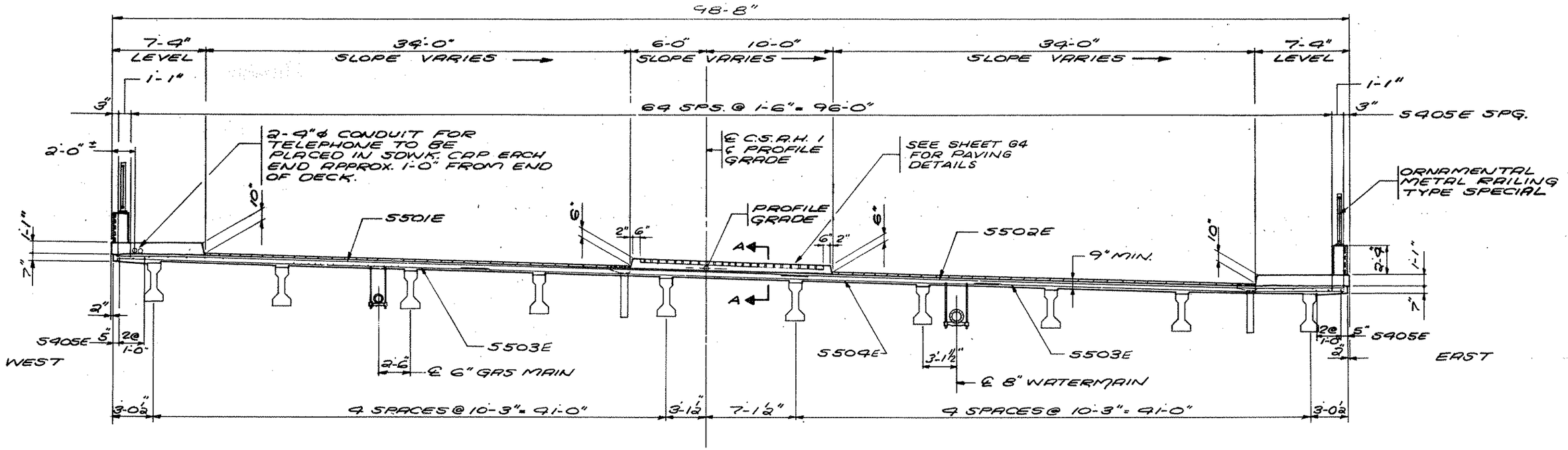
S411E

SECTION THRU ABUTMENT
SCALE: 3/4" = 1'-0"

NOTE:
FORM SIDEWALK GROOVES AT RAIL DEFLECTION JOINTS.

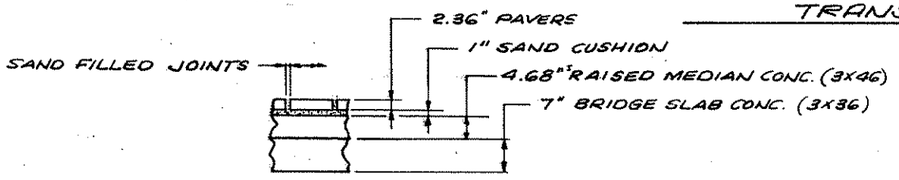
S.A.P. 02-601-29

SUPERSTRUCTURE DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED 7-15-88	BRIDGE NUMBER 02541
	SHEET 30 OF 45 SHEETS			

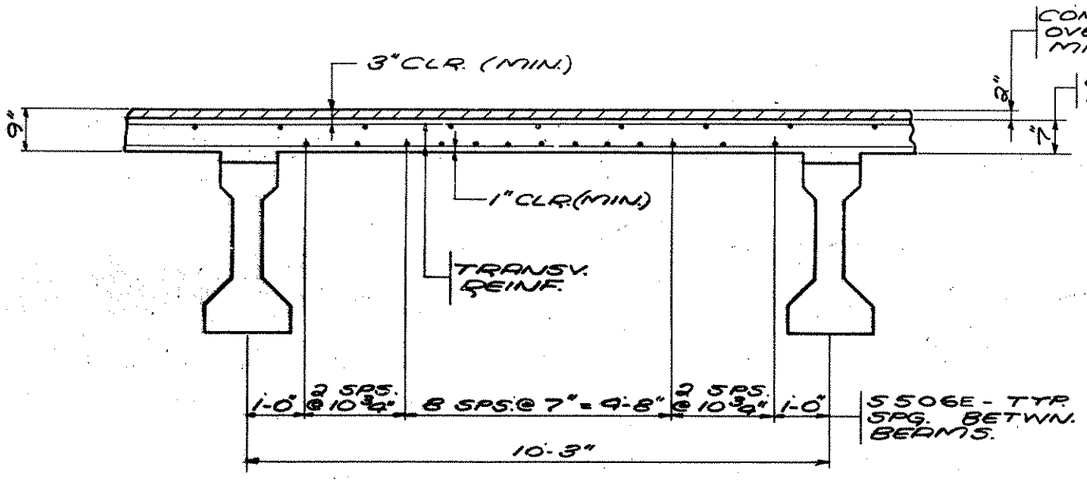


TRANSVERSE SECTION THRU DECK

SCALE : ¼" = 1'-0"

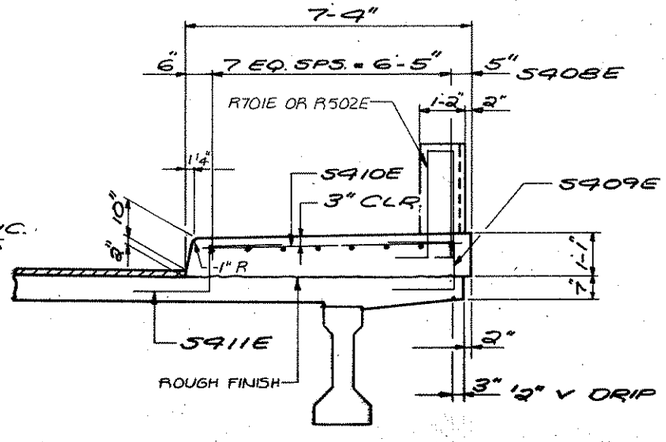


SECTION A-A



PART SECTION THRU DECK

SCALE : ¾" = 1'-0"

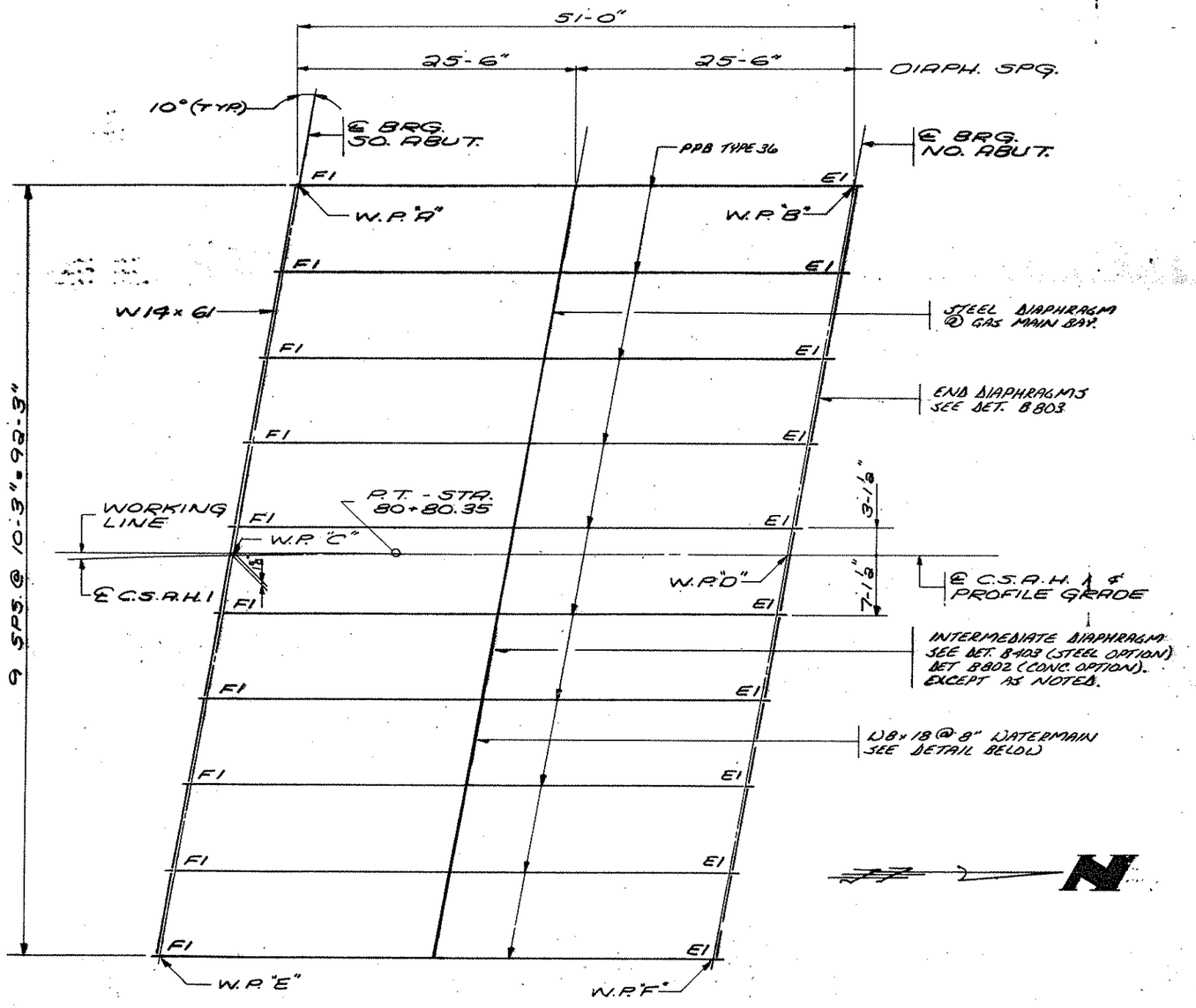


TYPICAL SECTION THRU SIDEWALK

SCALE : ½" = 1'-0"

S.A.P. 02-601-29

SUPERSTRUCTURE DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED: 7-15-88	BRIDGE NUMBER 02541
	SHEET 31R OF 45 SHEETS			



F1 = CURVED ℝ BRG. ASSEMBLY (FIXED)

E1 = CURVED ℝ BRG. ASSEMBLY (EXP.)

FRAMING PLAN

	SUMMARY OF QUANTITIES - SUPERSTRUCTURE		
2 3	BRIDGE SLAB CONCRETE 3X36	5514	SQ. FT.
4	SIDEWALK CONCRETE (3X96)	823	SQ. FT.
5	TYPE SPECIAL RAILING CONCRETE (3X96)	192	LIN. FT.
8	CONCRETE OVERLAY, 3U17A	3813	SQ. FT.
11	STRUCTURE CONCRETE 3W43	16	CU. YD.
	REINFORCEMENT BARS (EPOXY COATED)	41,890	POUND
2	EXP. CURVED ℝ BRG. ASSEMBLIES, TYPE 1	10	EACH
2	FIXED CURVED ℝ BRG. ASSEMBLIES, TYPE 1	10	EACH
	ORNAMENTAL METAL RAILING, TYPE SPECIAL	185	LIN. FT.
	FLOOR DRAINS, TYPE B701	4	EACH
6	NAMEPLATE	1	UNIT
	PRESTRESSED CONCRETE BEAMS TYPE 36-53	10	EACH
	REINFORCEMENT BARS	1220	POUND
7	B.M. D13K		
2 6 4	CORK		
2 6 9	BIT. FELT		
2	CONDUIT SYSTEM (TELEPHONE)	1	LUMP SUM
7	BRICK MEDIAN	92	SQ. YD.
10	RAISED MEDIAN CONCRETE (3X96)	898	SQ. FT.
	DIAPHR. FOR PRESTR. CONC. BEAMS, TYPE 36	92	LIN. FT.

(1) INCLUDES ALL RAILING QUANTITIES

(2) SEE SPECIAL PROVISIONS

(3) APPROX. VOLUME = 136 CU. YDS. BASED ON AVERAGE STOOL HEIGHT OF 1'2"

(4) APPROX. VOLUME = 32 CU. YDS.

(5) APPROX. VOLUME = 20 CU. YDS.

(6) INCLUDED IN PRICE BID FOR OTHER ITEMS.

(7) COUNTY WILL FURNISH D13K. PAYMENT FOR PLACING IS TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STANDARD PL. NO. 9301 FOR PLACING.

(8) APPROX. VOLUME = 24 CU. YDS.

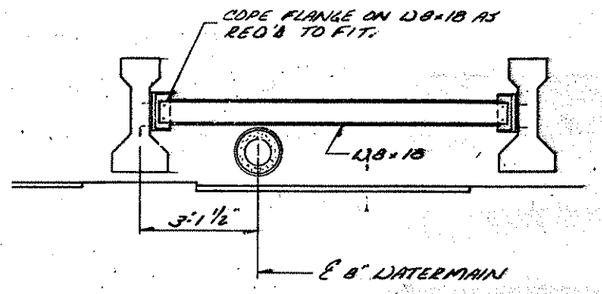
(9) SEE SCHEDULE BELOW

(10) APPROX. VOLUME = 14 CU. YDS.

(11) END DIAPHRAGM CONCRETE

LIST OF PREFORMED CORK JOINT FILLER
1- 1" x 1-7" x 2-9" - S.E. WINGWALL
1- 1" x 1-11" x 2-0" - N.W. WINGWALL
2- 1" x 2'-0" x 2'-0" - N.E. & S.W. WINGWALLS
23- 1" x 1-2" x 2-9" - RAILING DEFLECT. JTS.

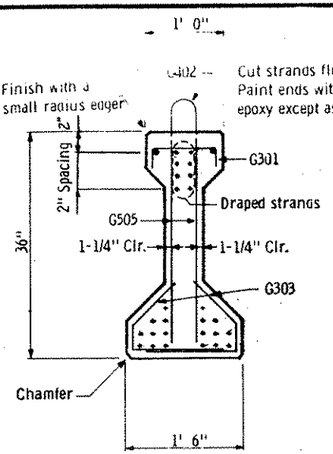
LIST OF PREFORMED BITUM. FELT JOINT FILLER
2- ½" x 1-6" x 100-0" - TOP OF PARAPET WALL



DIAPHRAGM @ WATERMAIN (INTERMEDIATE DIAPH.)

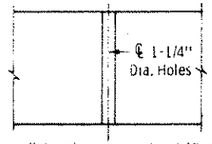
S.A.P. 02-601-29

SUPERSTRUCTURE DETAILS	DRAWN: D.J.V.	CHECKED: R.R.T.	APPROVED 7-15-88	BRIDGE NUMBER 02541
	SHEET 32R OF 45 SHEETS			



Details not shown are the same as the SECTION AT ℄ BEAM

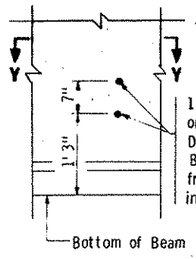
END VIEW



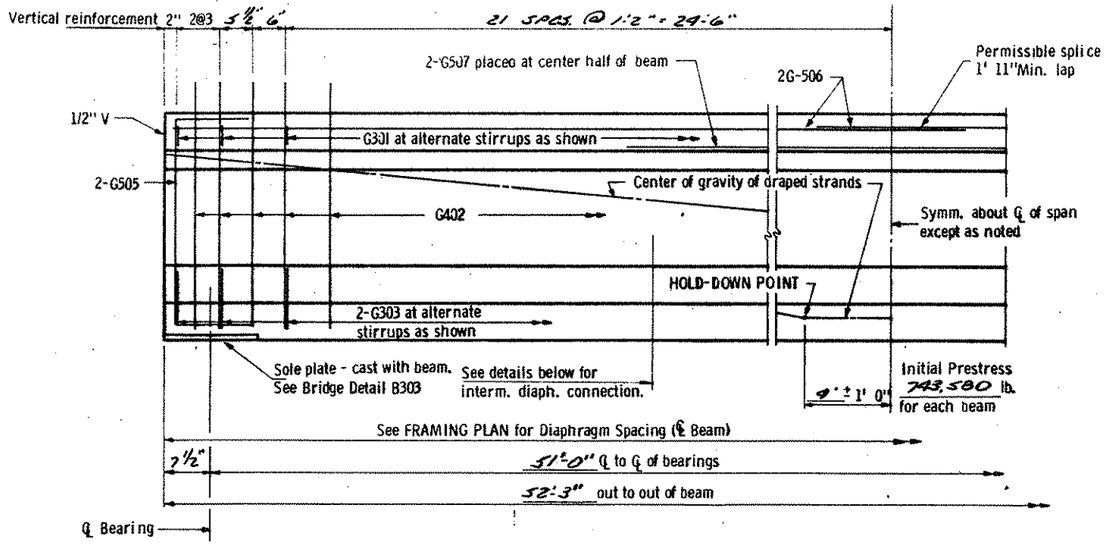
Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION Y-Y

USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM



FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM

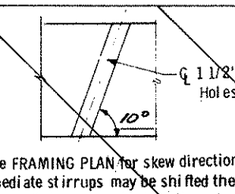


HALF ELEVATION

Bar	Wt.
G 301	.44 lb.
G 402	3.56 lb.
G 303	.78 lb.
G 505	4.87 lb.
G 506	
G 507	

Girder Section Data
Wt./Ft. = 385 lbs.
Cross sec. area at ℄ of span = 369 in.²
C. G. (from bottom) = 15.83 in.
I = 50,980 in.⁴
S_B = 3,221 in.³
1/2" ϕ 270k strand wt./ft. = .525 lb.
1/2" ϕ 270k strand area = .1531 sq. in.

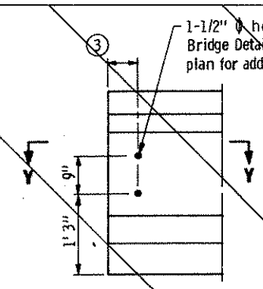
LOW RELAXATION STRANDS



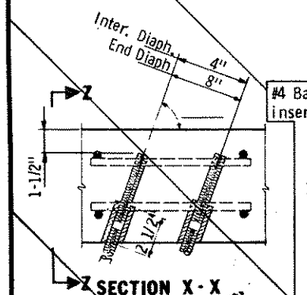
See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION Y-Y

FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS

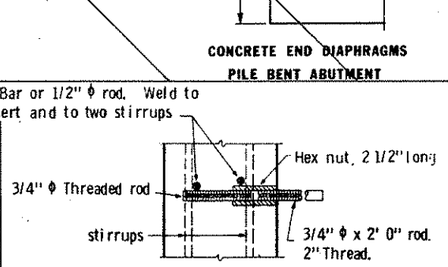


CONCRETE END DIAPHRAGMS PILE BENT ABUTMENT



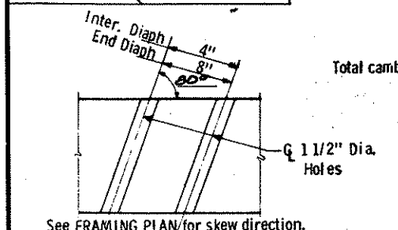
SECTION X-X

USE AT FASCIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



Nuts and rods per Spec. 3306. No paint

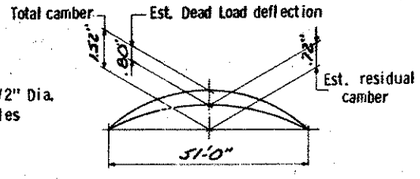
SECTION Z-Z



See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

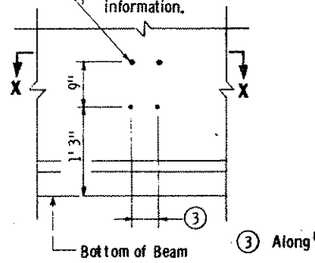
SECTION X-X

USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



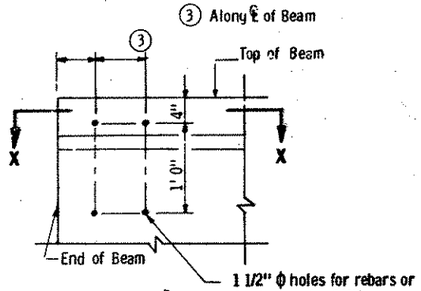
Deflections shown are for weight of slab, wearing course, railing, sidewalk, median and diaphragms only. Engineer will take elevations at top of beams after erection and will allow for deflections shown to enable contractor to build forms to correct grade and specified slab thickness.

CAMBER DIAGRAM

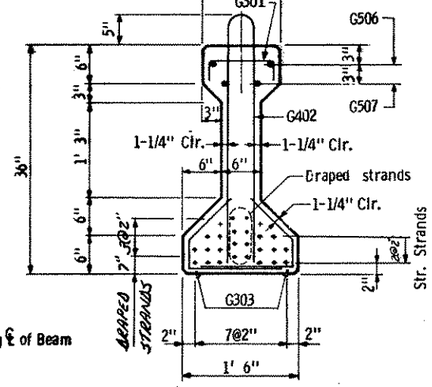


③ Along ℄ of Beam

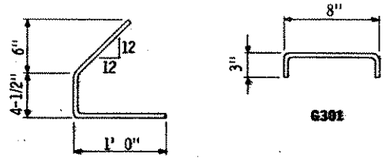
FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM



CONCRETE END DIAPHRAGMS PARAPET ABUTMENT

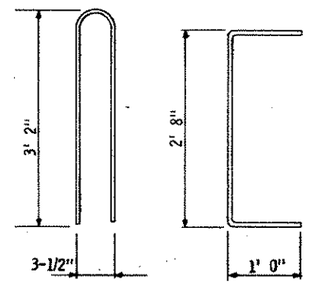


SECTION AT ℄ BEAM



G301

G303



G402 **G505**

First digit of bar mark indicates bar size. All bar dimensions are out-to-out.

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' 0" 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.

A post-tensioned beam may be used as an alternate for the pretensioned design shown. Mn/DOT will provide plans for the post-tensioned alternate on request.

Each beam shall be marked, showing bridge number, casting date, and individual identification letters and numbers. Markings shall be made on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Fascia beams shall be marked on an inside face. All markings shall be stencilled and be clearly legible. For location of beams, see framing plan.

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

See framing plan for beam ends marked "X".

Approximate weight of beam 10.03 tons.

As an alternate to the diaphragm anchorages shown, the contractor may submit details of a cast-in-place anchorage to the engineer for approval. Anchorage must provide an ultimate pull out strength of 15 kips per anchorage.

Y DISTANCES (IN INCHES)			
	NO.	℄ SPAN	END
Straight strands	16	3.75	
Draped strands	8	10.00	31.00*
Total strands	24	5.83	

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" ϕ 270 kip, ultimate strength.

*A tolerance of ± 2" will be permitted in this dimension.

MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'ci	② f'c
Required min. Concrete Strength	5780	6000

① Minimum concrete strength at time of prestress transfer.

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

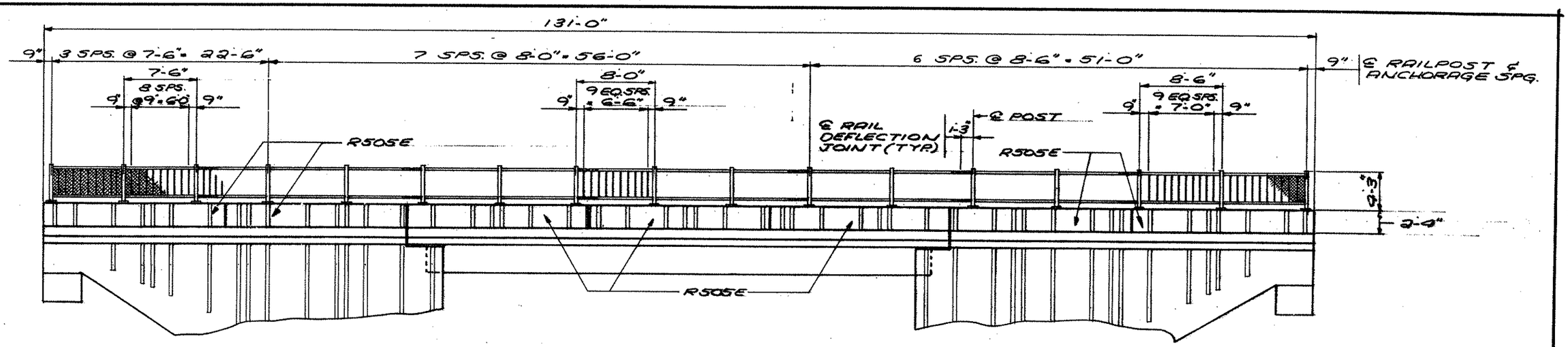
Fig. 5-397.502

Revised: January 22, 1980 Approved: May 18, 1977

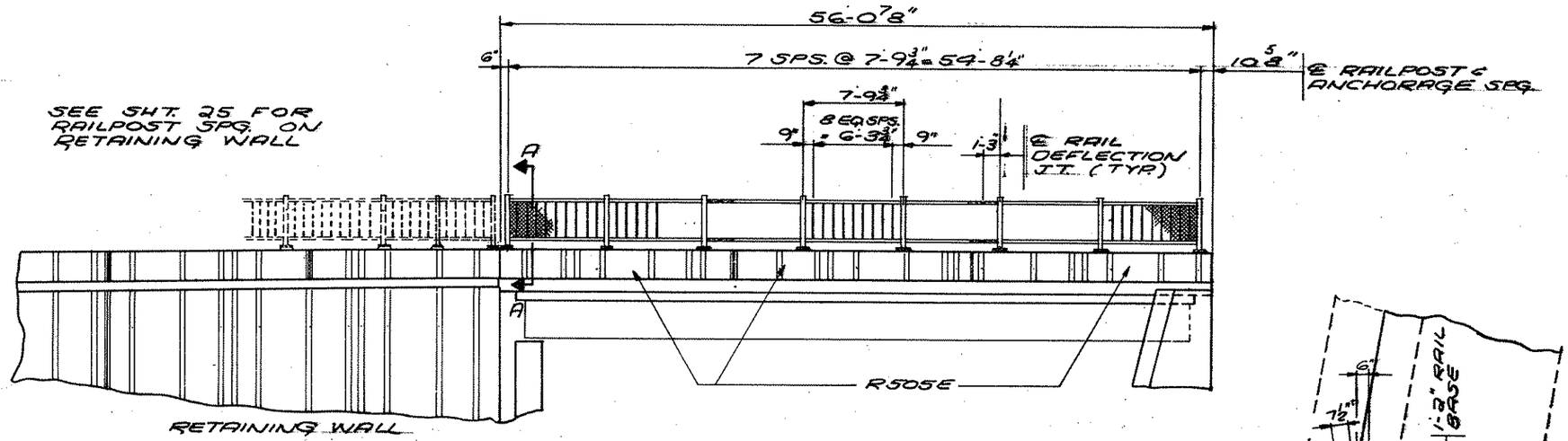
S.A.P. 02-601-29

BEAMS B1-B10

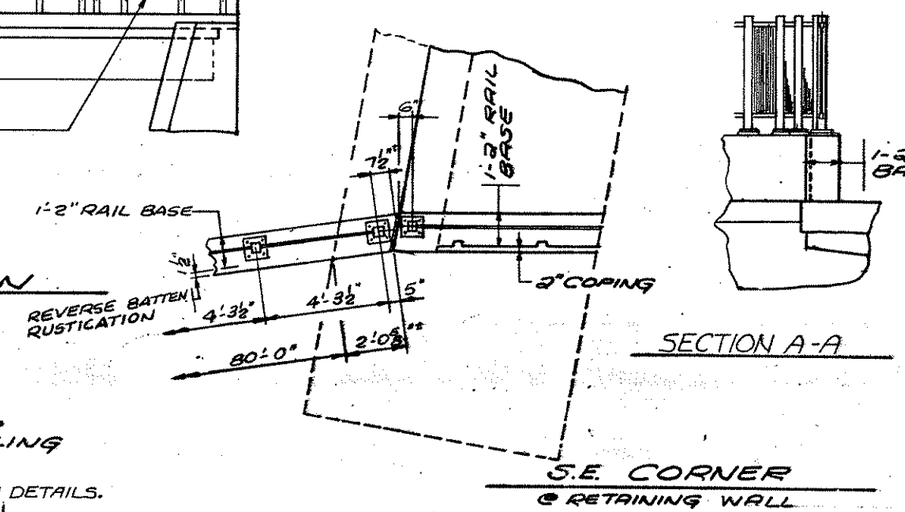
TITLE:	DES:	DR:	APPROVED:	Bridge No.
36" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 36-53	CHK:	CHK:	7-15-88	02541
	Sheet No. 33 of 45 Sheets			



WEST RAILING ELEVATION
SCALE: 3/16" = 1'-0"



EAST RAILING ELEVATION
SCALE: 3/16" = 1'-0"



S.E. CORNER
@ RETAINING WALL

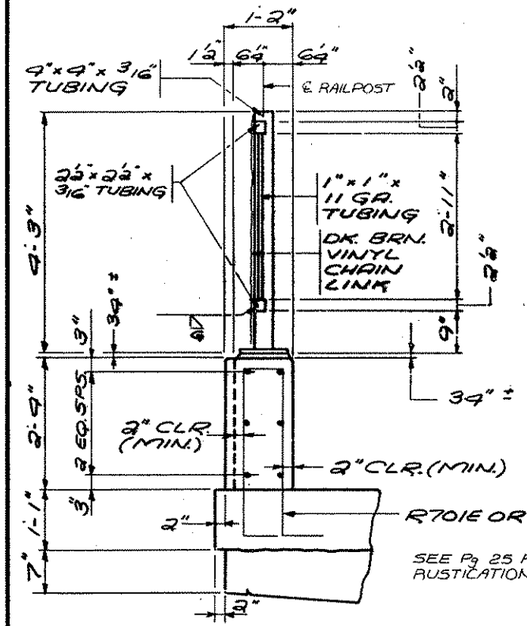
SECTION A-A

NOTE:
SEE SHT. 35 FOR TYPE SPECIAL RAILING DETAILS.

SEE SHT 25 FOR RUSTICATION DETAILS.

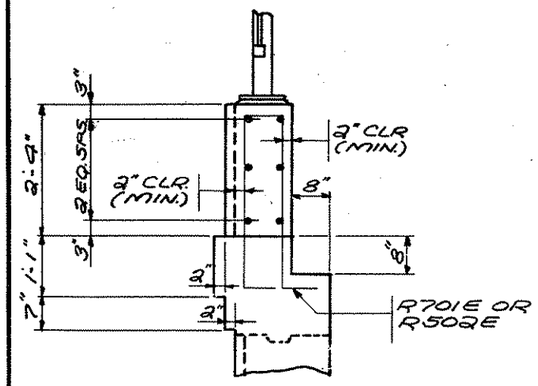
S.A.P. 02-601-29

RAILING DETAILS	DRAWN: O.J.Y.	CHECKED: R.R.T.	APPROVED 7-15-88	BRIDGE NUMBER 02541
	SHEET 34 OF 45 SHEETS			

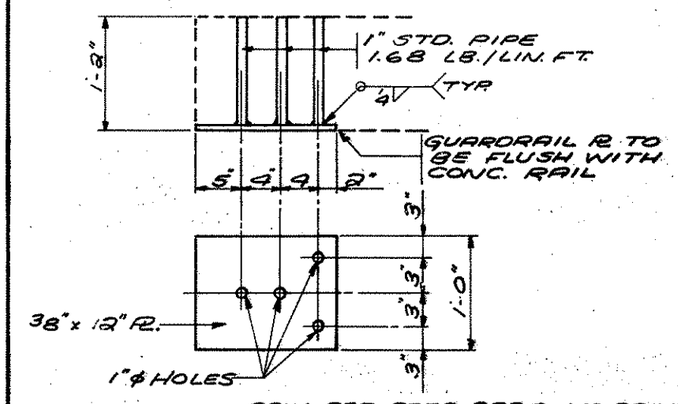


SEE Pg 25 FOR RUSTICATION DETAILS.

SECTION @ DECK



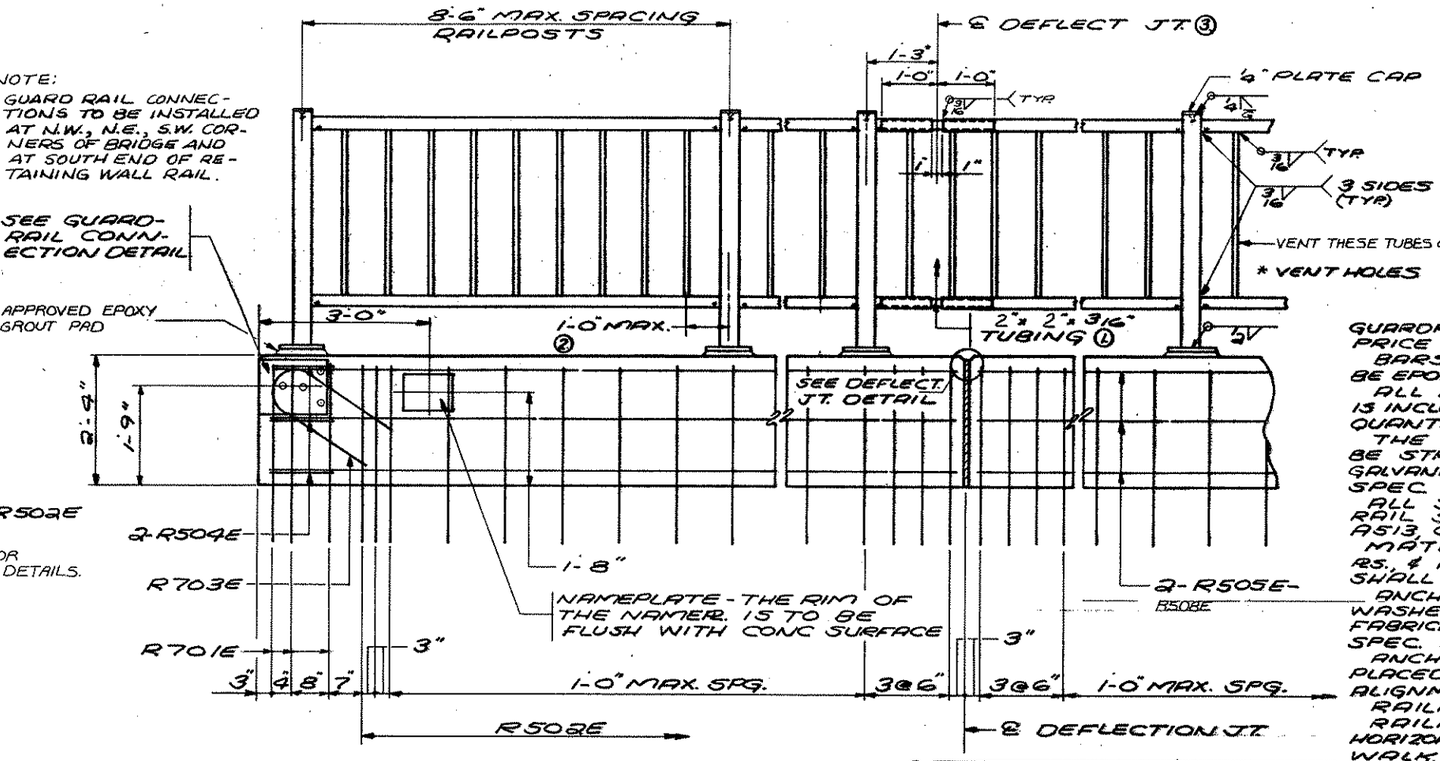
SECTION @ WINGWALL

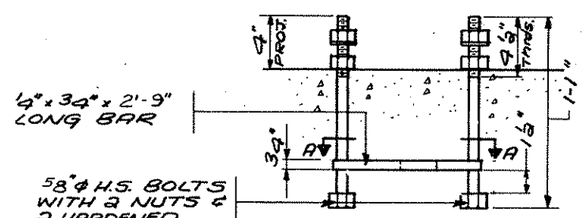


GALV. PER SPEC. 3394. NO PAINT STEEL PER SPEC. 3306

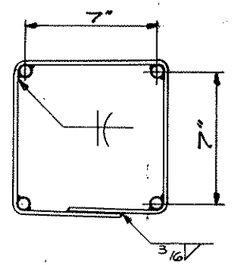
GUARDRAIL CONNECTION DETAIL

NOTE:
GUARD RAIL CONNECTIONS TO BE INSTALLED AT N.W., N.E., S.W. CORNERS OF BRIDGE AND AT SOUTH END OF RETAINING WALL RAIL.

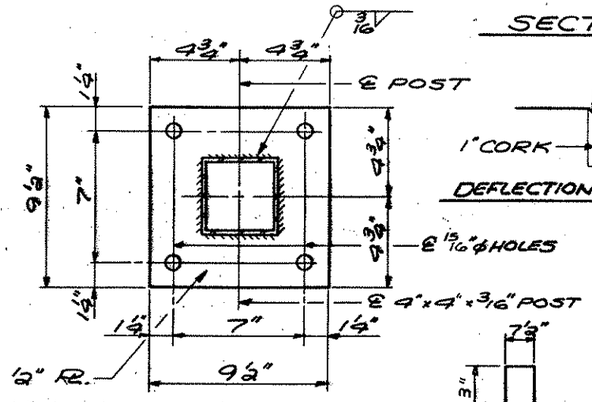




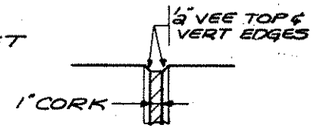
RAILPOST ANCHORAGE



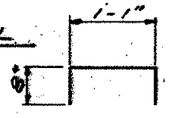
SECTION A-A



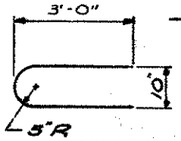
BASE PLATE DETAILS
SCALE: 3" = 1'-0"



DEFLECTION JT. DETAIL



R504E



R703E

R701E OR R502E

① BEFORE GALV. GRIND AS NECESSARY TO PRODUCE SMOOTH WORKING JT. SHIM AS NECESSARY

② DIMENSION VARIES WITH POST SPG. SEE SHTS 25 & 34 FOR 1"x 1" VERT POST SPG.

③ RAIL DEFLECTION JTS. SHALL BE LOCATED IN THE PANEL DIRECTLY ABOVE CORK DEFLECTION JTS. IN RAIL BASE (24 FT. MAX.)

⑨ BILL OF REINFORCEMENT - RAILING

BAR	NO.	LEN.	SHAPE	LOCATION
R701E	12	8'-0"	BENT	ENDPOST
R502E	239	8'-0"	"	VERT.
R703E	9	5'-0"	"	ENPOST
R504E	24	2'-5"	"	"
R505E	60	18'-3"	STR.	HORZ.
R506E	84	14'-7"	"	"
R507E	12	16'-4"	"	"
R508E	6	5'-0"	"	"

⑨ INC. W/SUPERSTRUCTURE QUANTITIES.

NOTES:

GUARDRAIL CONNECTION IS INCLUDED IN PRICE BID FOR OTHER ITEMS.

BARS MARKED WITH SUFFIX "E" SHALL BE EPOXY COATED

ALL MATERIAL IN THE CONC. RAIL BASE IS INCLUDED IN SUPERSTRUCTURE QUANTITIES.

THE GUARDRAIL CONNECTION SHALL BE STRUCTURAL STEEL SPEC. 3306. & GALVANIZED AFTER FABRICATION PER SPEC. 3394

ALL STRUCTURAL STEEL TUBING IN RAIL SHALL BE A500, GRADE B AND A513, GRADE 2

MATERIAL FOR CLOSURE RS, BASE RS, & ANCHOR BOLT ASSEMBLIES SHALL CONFORM TO SPEC. 3306.

ANCHOR BOLT ASSEMBLIES, NUTS & WASHERS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SPEC. 3392 & SPEC. 3394.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT FOR THE RAILING.

RAILPOSTS SHALL BE VERTICAL

RAILPOST SPACING IS MEASURED HORIZONTALLY ALONG TOP OF SIDEWALK, WINGWALLS & RETAINING WALL.

GRINDING WILL NOT BE PERMITTED AFTER MATERIAL IS GALVANIZED.

PRICE BID FOR TYPE SPECIAL RAILING INCLUDES MATERIALS FOR AND PLACING OF RAILPOST ANCHORS POSTS, RAILING, ELECTRICAL GROUNDS AND ALL OTHER MATERIAL ABOVE TOP OF SIDEWALK, WINGWALLS, OR RETAINING WALL.

GALVANIZE ALL HARDWARE PER SPEC. 3392 STRUCTURAL SHAPES PER SPEC. 3394.

CONC. IN RAIL BASE SHALL BE MIX NO. 3X46.

THE CHAIN LINK FABRIC SHALL BE VINYL COATED & CONFORM TO SPEC. 3376. THE COLOR SHALL BE DARK BROWN.

STEEL TUBING SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE RAILING BASE RS., PROTUDING PORTIONS OF BOLTS, NUTS & WASHERS SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

⑧ SUMMARY OF QUANTITIES - TYPE SPECIAL RAILING

	ORNAMENTAL METAL RAILING, TYPE SPECIAL	425 L.F.
⑦⑥④	STEEL IN RAILING	10565 POUND
⑦⑥⑤	ANCHOR ASSEMBLIES	59 EACH
⑥⑦	DK. BRN. VINYL CHAIN LINK FABRIC 4 FT. WIDE	425 L.F.

④ INCLUDES ALL RAILING MEMBERS & BASE PLATES
⑤ INCLUDES ANCHOR BOLTS, SPACER BAR, NUTS & WASHERS.
⑥ INCLUDED IN PRICE BID FOR TYPE SPECIAL RAILING
⑦ INCLUDED FOR CONTRACTORS CONVENIENCE ONLY.
⑧ INCLUDES RETAINING WALL, WINGWALL & SUPERSTRUCTURE QUANTITIES. SEE SHT 29 & 32.

TYPE SPECIAL RAILING

DRAWN: | CHECKED: | APPROVED: 7-15-08

SHEET 35R OF 95 SHEETS

BRIDGE NUMBER 02541

SAP 03-601-89

NOTES

④ ALL ITEMS AS LISTED ARE TO BE INCLUDED IN THE PRICE BID FOR WATERMAIN SYSTEM. ANY ADDITIONAL MINOR ITEMS REQUIRED SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

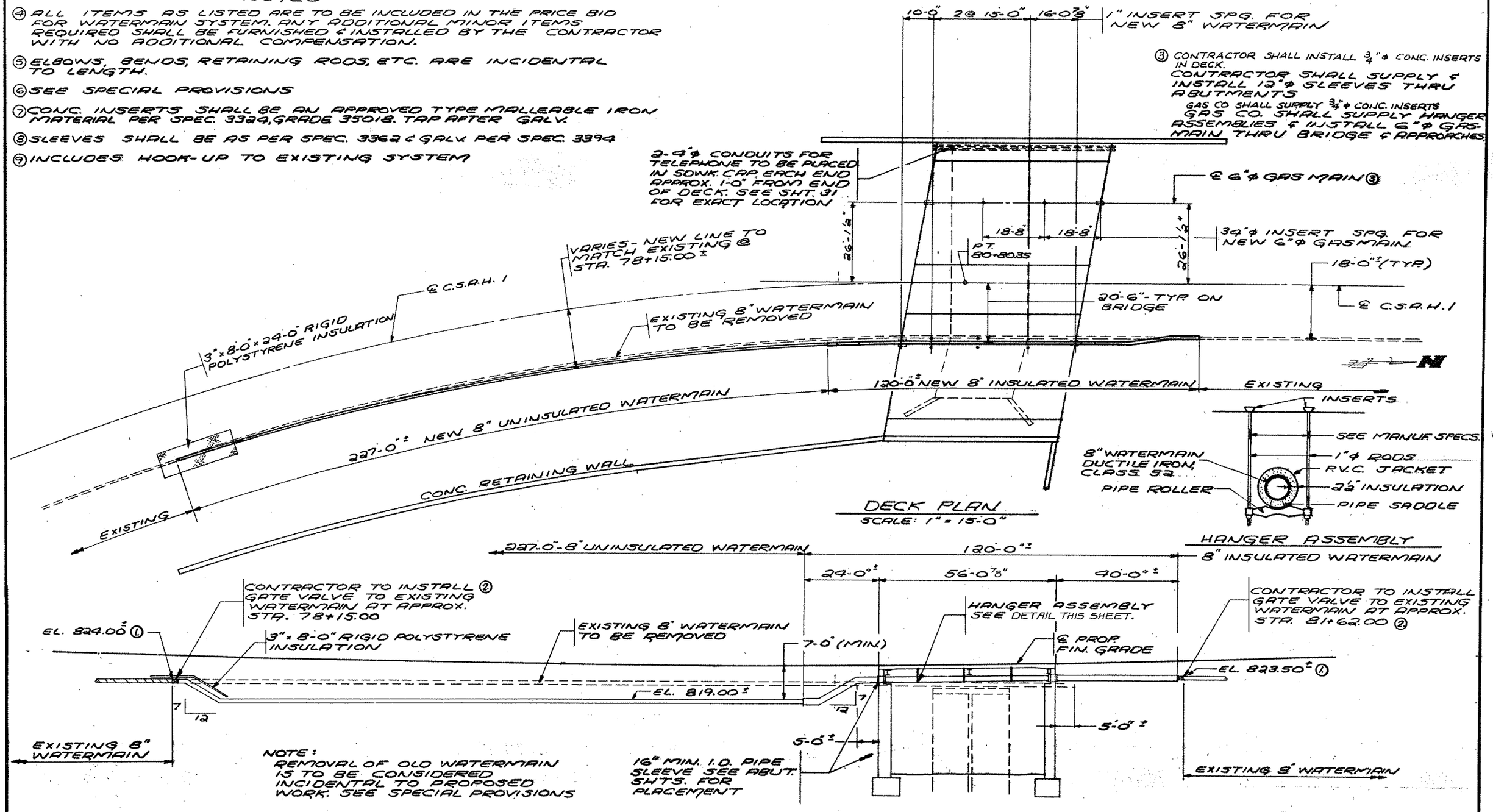
⑤ ELBOWS, BENDS, RETRAINING RODS, ETC. ARE INCIDENTAL TO LENGTH.

⑥ SEE SPECIAL PROVISIONS

⑦ CONC. INSERTS SHALL BE AN APPROVED TYPE MALLEABLE IRON MATERIAL PER SPEC. 3324, GRADE 35018. TAP AFTER GALV.

⑧ SLEEVES SHALL BE AS PER SPEC. 3362 & GALV. PER SPEC. 3394

⑨ INCLUDES HOOK-UP TO EXISTING SYSTEM



WATERMAIN ELEVATION

④⑥⑨	SUMMARY OF QUANTITIES-WATERMAIN SYSTEM		
⑤	8" WATERMAIN & JACKET	120	LIN. FT.
⑤	8" UNINSULATED WATERMAIN	227	LIN. FT.
⑦	1" THREADED INSERTS	6	EACH
⑧	SLEEVES THR ABUTS., 16" I.D.	2	EACH
⑥	HANGER & ROLLER ASSEMBLIES	3	EACH
	REMOVE EXISTING WATERMAIN	347	LIN. FT.
	3"x 8'x 24' RIGID POLYSTYRENE INSULATION	192	SQ. FT.

⑤	QUANTITIES-GAS MAIN (PROVISIONS)		
⑧	SLEEVES THRU ABUTMENTS, 12"ϕ	2	EACH
⑦	3/4"ϕ - THREADED INSERTS	2	EACH

⑤	QUANTITIES- CONDUIT SYSTEM (TELEPHONE)		
⑥	4"ϕ CONDUITS	116	LIN. FT
	END CAPS	4	EACH

① ALL ELEVATIONS TO BE VERIFIED IN THE FIELD

② CONTRACTOR SHALL VERIFY EXACT LOCATION OF GATE VALVES WITH THE ENGINEER IN THE FIELD.

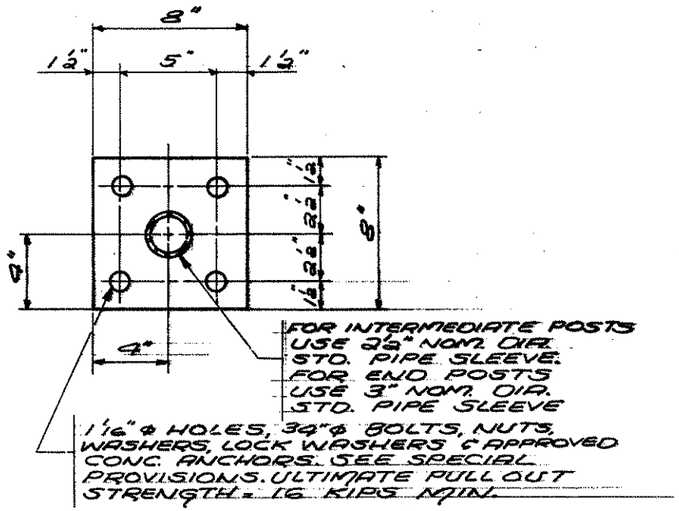
S.A.P. 02-601-29

UTILITY DETAILS

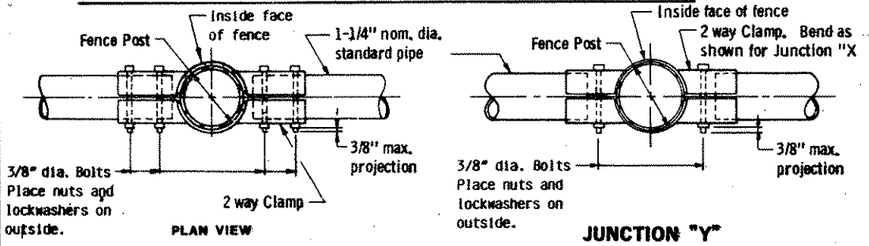
DRAWN: D.J.V. | CHECKED: R.R.T. | APPROVED 7-15-80

SHEET 36R OF 45 SHEETS

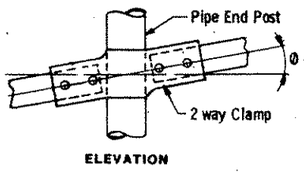
BRIDGE NUMBER 02541



TYPE A FENCE POST ANCHORAGE



JUNCTION "Y"

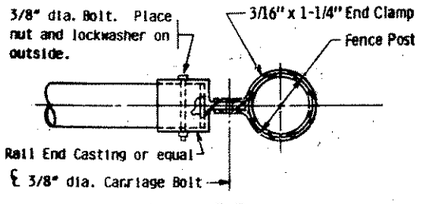


ELEVATION

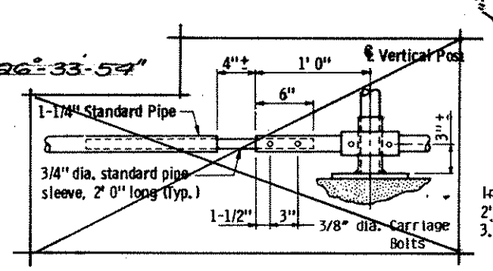
JUNCTION "X"

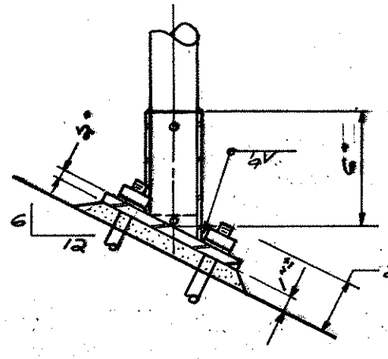
2-WAY CLAMP BENDING TABLE

Grade of Fence	θ
0° to 2°	0°
2° to 6°	4°
6° to 10°	8°

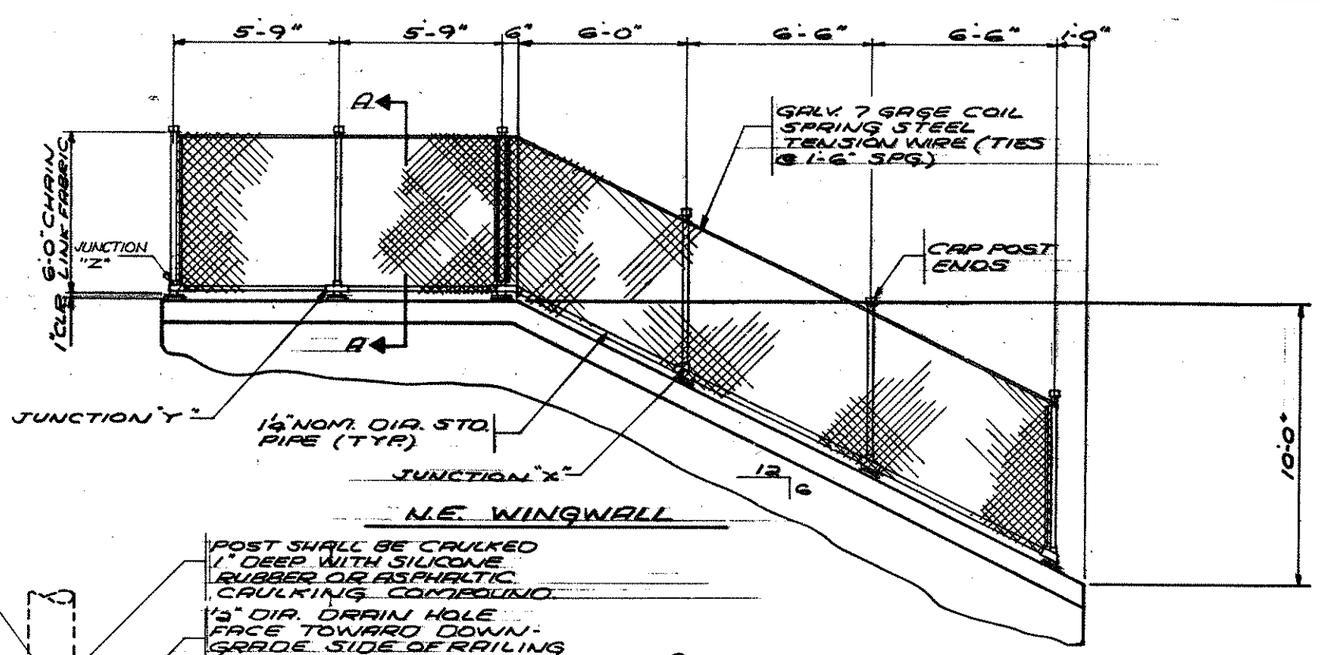


JUNCTION "Z"

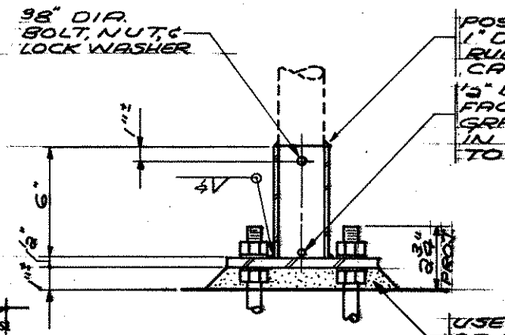




FENCE POST ANCHORAGE

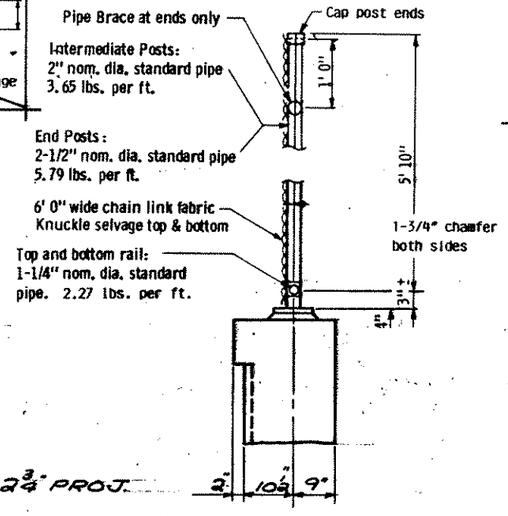


N.E. WINGWALL

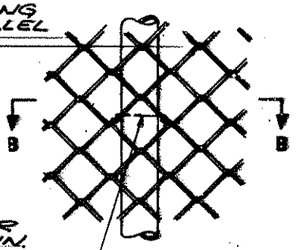


FENCE POST ANCHORAGE

EST. WT. = 12 LBS.

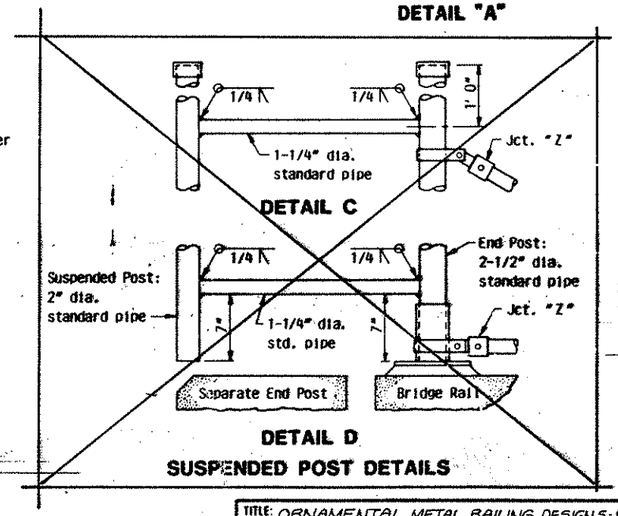


SECTION A-A



SECTION B-B

DETAIL "A"



Fence post anchorages shall be Type A. ~~See Standard Detail 8005 "Fence Post Anchorage".~~

~~Bars marked with the suffix "E" shall be epoxy coated in accordance with Spec. 3301.~~

All posts shall have a means to securely hold the top tension wire in position and allow for the removal and replacement of a post without damaging the top wire.

Wire ties may be 9 gage galvanized steel or 0.179" minimum aluminum alloy conforming to ASTM B211, Alloy 1100-H18. Use 12-1/2 gage galvanized hog rings for tension wire ties.

End posts and bracing shall be at 500 ft. maximum intervals.

~~Concrete in the rail base and the end posts shall be Mix No. 3X46~~

~~For spacing of fence post, joints and electrical grounds, see superstructure sheets.~~

~~All material in the concrete base and end posts is included in the superstructure quantities.~~

See special provisions for requirements not included on this sheet and for basis of payment.

℄ of fence post anchorage shall be a minimum of 6" from joints.

Fence posts and fence post anchorages shall be set vertical, unless otherwise noted.

~~The guard rail connection is included in the price bid for other items.~~

~~Maximum spacing of deflection joints shall be 20' 0".~~

~~The length of railing concrete shall be measured for payment between the outside faces of the end posts or the ends of the concrete rail base.~~

~~Guardrail connection shall be Structural Steel, Spec. 3306 and galvanized after fabrication per Spec. 3394.~~

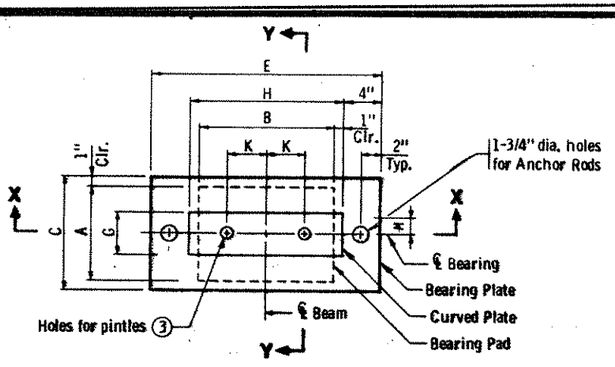
STRUCTURAL STEEL 3306
STRUCTURAL PIPE 3362
GALV. THE FENCE POST ANCHORAGE AFTER PER SPEC. 3394
GALV. THE FASTENERS PER SPEC. 3392.
2" NOM. DIA. PIPE = 3.65 LBS./FT.
2½" " " " = 5.79 LBS./FT.
3" " " " = 7.58 LBS./FT.

S.A.P. 02-601-29

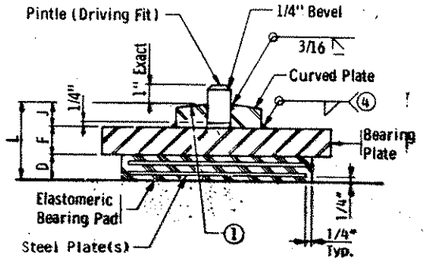
REVISED:	APPROVED: Nov. 26, 1985	FIG. 5-397.120

TITLE: ORNAMENTAL METAL RAILING DESIGN 5-1
CONCRETE & FENCE RAILING
(TYPE F)

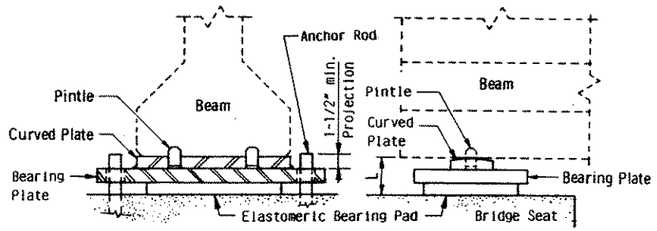
DES:	DR:	APPROVED: 7-15-88	Bridge No.
CHK:	CHK:	Sheet No. 37R of 45 Sheets	02591



PLAN

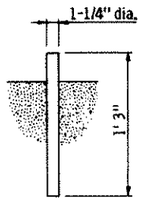


SECTION Y-Y
(ENLARGED BEARING ASSEMBLY)



SECTION X-X

END ELEVATION
(Anchor Rods Not Shown)



ANCHOR ROD DETAIL

PINTLE SPACING TABLE

BEAM SIZE	K
28"	4"
36"	6"
40", 45M 54M, 63" 72" & 81"	8"
Bulb Tee	9"

TABLE ②

Beam Size	Bearing Pad Size A	B	D	Steel Plates No.	Thick.	Laminates No.	Thick.	Shape Factor	Bearing Plate Size C	E	F	Curved Plate Size G	H	J	Pintle Dia.	Pintle Spacing K	Anchor Rod Offset M	Assy. Height L	Assembly Type
36-PPB	12"	16"	1 1/4"	2	1/8"	1	1/2"	6.9	14"	26"	1 1/4"	4 1/2"	18"	1 1/4"	1 1/4"	6"	0"	3 3/4"	F1

NOTES:

For elastomeric materials & pad construction, see Spec. 3741 and special provisions, except as noted.

All steel plates & anchor rods shall comply with Spec. 3306, except as noted.

All plates shall be flat after fabrication and galvanizing. Welding distortion of bearing plates shall be straightened to within 1/16" of flatness by mechanical means without damage to the zinc coating.

Pintles shall comply with Spec. 3314, Type II

Galvanize anchor rods and structural steel bearing assembly after fabrication per Spec. 3394, except as noted.

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

① 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.

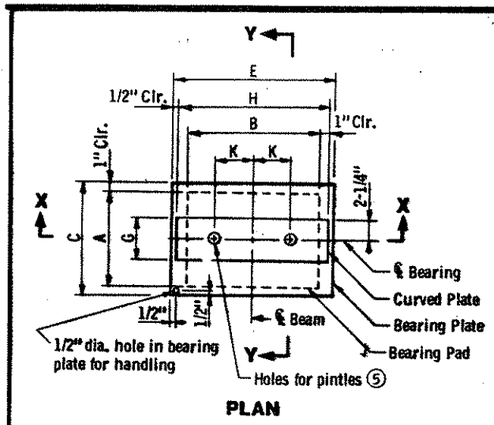
② See Bridge Design Manual for design requirements.

③ 1-1/4" dia. pintle for total loads to 200 Kips. 1-1/2" dia. pintle for total loads over 200 Kips.

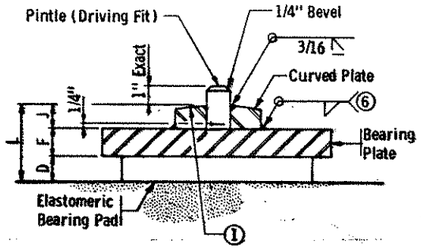
④ For bearing plate thicknesses up to 1-1/2" use 5/16" fillet welds; for thicknesses over 1-1/2" to 2-1/4" use 3/8" fillet welds; for thicknesses over 2-1/4" use 1/2" fillet welds with minimum preheat of 300°.

SOUTH ABUTMENT

APPROVED: Aug 4, 1987	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS and BRIDGES & STRUCTURES	**CURVED PLATE BEARING ASSEMBLY** PRESTRESSED CONCRETE BEAMS (FIXED)		**B310**
Issued by: ENGINEERING STANDARDS			



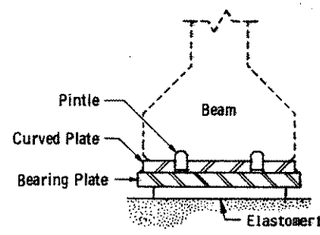
PLAN



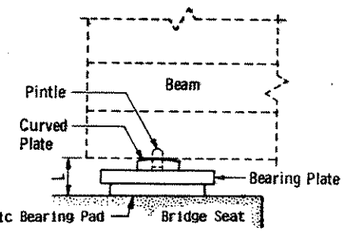
SECTION Y-Y
(ENLARGED BEARING ASSEMBLY)

PINTLE SPACING TABLE

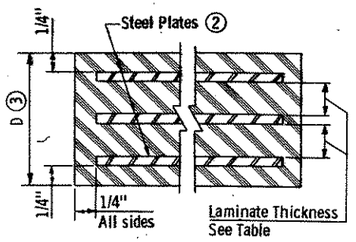
BEAM SIZE	K
28"	4"
36"	6"
40", 45M 54M, 63" 72" & 81"	8"
Bulb Tee	9"



SECTION X-X



END ELEVATION



SECTION THRU BEARING PAD

TABLE ④

Beam Size	Bearing Pad Size A	B	D	Steel Plates No.	Thick.	Laminates No.	Thick.	Shape Factor	Bearing Plate Size C	E	F	Curved Plate Size G	H	J	Pintle Dia.	Pintle Spacing K	Assy. Height L	Assembly Type
36-PPB	12"	16"	1 1/8"	3	1/8"	2	1/2"	6.9	14"	19"	1 1/4"	4 1/2"	18"	1 1/4"	1 1/4"	6"	4 3/8"	E1

NOTES:

For elastomeric materials & pad construction, see Spec. 3741 and special provisions, except as noted.

All steel plates shall comply with Spec. 3306, except as noted.

All plates shall be flat after fabrication and galvanizing. Welding distortion of bearing plates shall be straightened to within 1/16" of flatness by mechanical means without damage to the zinc coating.

Pintles shall comply with Spec. 3314, Type II

Galvanize structural steel bearing assembly after fabrication per Spec. 3394, except as noted.

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

① 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.

② Do not galvanize these plates.

③ The total thickness shown includes the steel plates.

④ See Bridge Design Manual for design requirements.

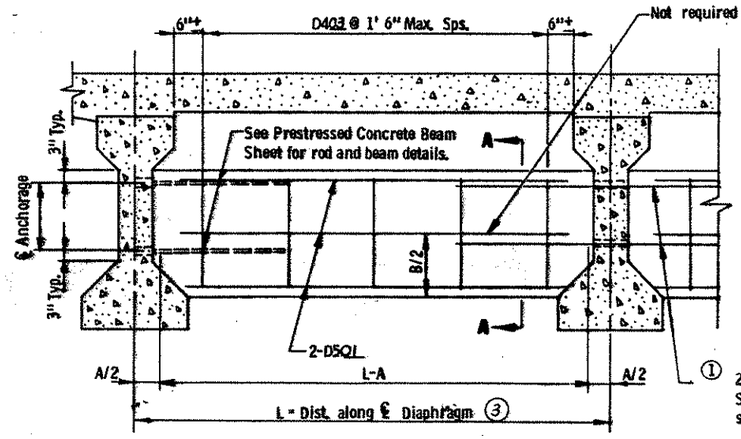
⑤ 1-1/4" dia. pintle for total loads to 200 Kips. 1-1/2" dia. pintle for total loads over 200 Kips.

⑥ For sole plate or bearing plate thicknesses up to 1-1/2", use 5/16" fillet welds; for thicknesses over 1-1/2" to 2-1/4", use 3/8" fillet welds; for thicknesses over 2-1/4", use 1/2" fillet welds with minimum preheat of 300°.

NORTH ABUTMENT

APPROVED: Aug 4, 1987	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES	**CURVED PLATE BEARING ASSEMBLY** PRESTRESSED CONCRETE BEAMS (EXPANSION)		**B311**
Issued by: OFFICE OF ENGINEERING STANDARDS			

APR. 7-15-88

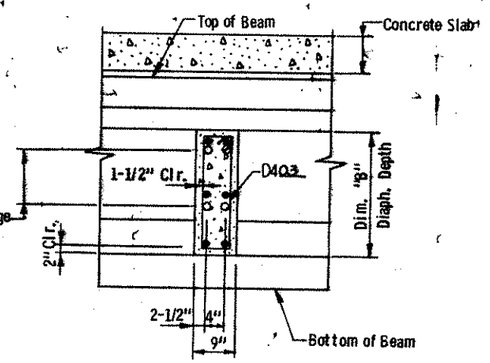


PART TRANSVERSE SECTION

Bm. Ht.	Dim. "A" For comp. volume	Diaph. Dim. "B"	D4Q3 Length
28"	7-1/2"	1'-4"	3'-9"
36"	7-3/4"	1'-9"	4'-7"
40"	8-3/4"	1'-11"	4'-11"
45"	9"	2'-2 1/2"	5'-6"
54"	10-1/2"	2'-8"	6'-5"

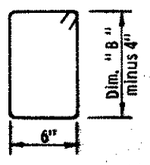
Concrete volume per diaphragm

$$\frac{(L - A) \times B \times .75}{27} = (\text{Cu. yd.})$$



SECTION A-A

BAR	NO	LENGTH	SHAPE	LOCATION
D501	108	9'0"	STR.	DIAPH. HORIZ.
D502	64	5'2"	STR.	DIAPH. HORIZ
D403	126	4'7"	BENT	DIAPH. VERT.



D403

GENERAL NOTES

(1) For Diaphragms 20° and over, use threaded rods as shown on standard prestressed concrete beam sheet.

(2) 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.

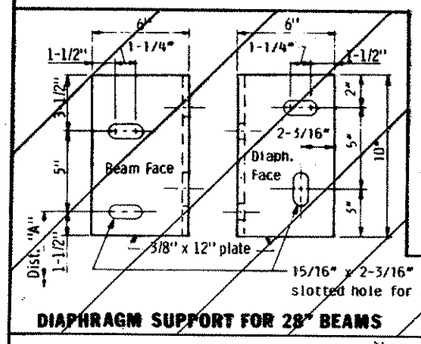
(3) PAYMENT LENGTH FOR DIAPHRAGMS

APPROVED: MARCH 27, 1979	MINNESOTA DEPARTMENT OF TRANSPORTATION		DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**CONCRETE INTERMEDIATE DIAPHRAGM**		**B802**
Issued by: OFFICE OF ENGINEERING STANDARDS	**(FOR 28"-54" PRESTRESSED CONCRETE BEAM SPANS)**		

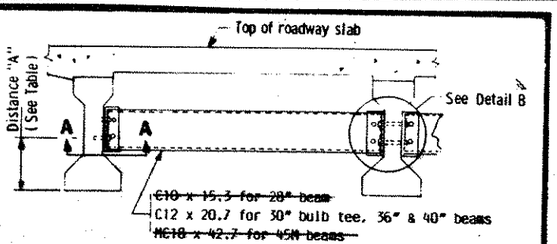
TABLE

Beam Ht.	Distance "A"
28"	1' 0"
30"	1' 2"
36"	1' 3"
40"	1' 5½"
45M	1' 3-3/4"

Bulb Tee

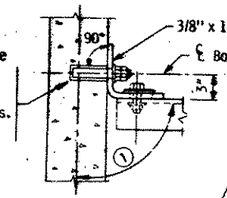


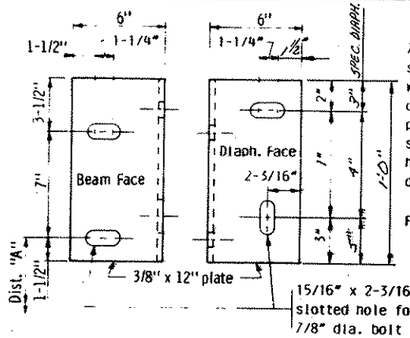
DIAPHRAGM SUPPORT FOR 28" BEAMS



PART TRANSVERSE SECTION AT DIAPHRAGM

7/8" dia. cast-in-place bolt anchor with one 5" sq. x 5/16" plate washer and two hex nuts. Torque anchor bolts to 80 ft.-lbs.

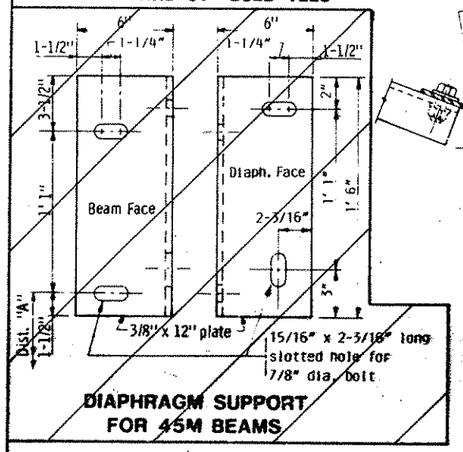




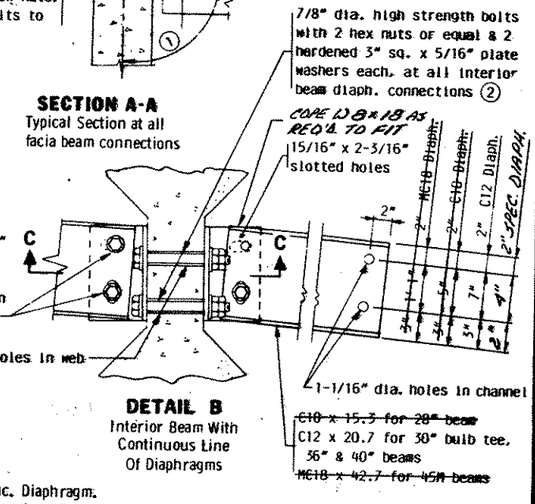
7/8" dia. high strength bolts with hex nut and one 5" sq. x 5/16" plate washer on slotted side and hardened washer on diaphragm side

Form 1-1/4" dia. holes in web

DIAPHRAGM SUPPORT FOR 36" & 40" BEAMS AND 30" BULB TEES

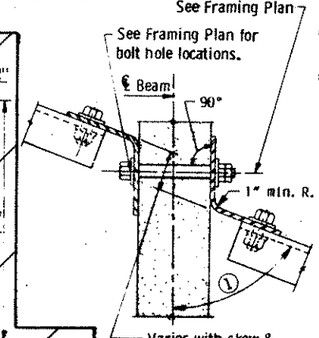


DIAPHRAGM SUPPORT FOR 45M BEAMS



SECTION A-A
Typical Section at all facia beam connections

DETAIL B
Interior Beam With Continuous Line Of Diaphragms



SECTION C-C
Typical Section at interior diaphragms

(1) For skew angles under 20°, use 90° less the skew angle. For skew angles over 20°, use 90°.

(2) As an alternative to the 7/8" bolt connection, the contractor may submit details of a cast-in-place anchorage to the engineer for approval.

GENERAL NOTES:

See Spec. 2405.3M for installation.

The leg of the 12" plate shall be shop bent to conform to the diaphragm. A 3/8" x 6" x6" angle may be used for diaphragms perpendicular to beams

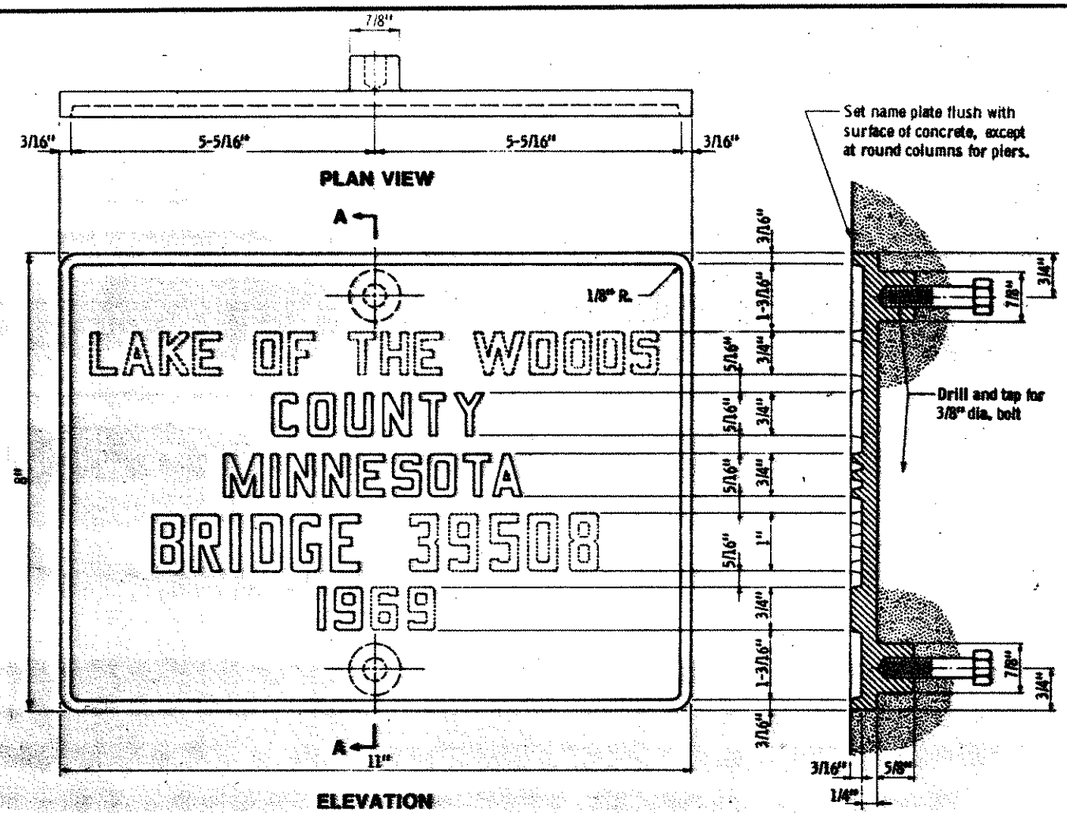
For bolt lengths greater than 9", use high strength bolts per Spec. SAE Grade 5 or better.

All structural steel shown on this detail, including bolts and washers, shall be included in the payment for diaphragms for prestressed beams.

Diaphragms over the piers are considered to be intermediate if the slab is continuous.

APPROVED September 24, 1987	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES	**STEEL INTERMEDIATE DIAPHRAGM**		**B403**
Issued by OFFICE OF ENGINEERING STANDARDS	**(FOR 28"-45M PRESTRESSED CONC. BEAM SPANS AND 30" BULB TEE BEAMS)**		

APR. 7-15-88



ELEVATION

SECTION A-A

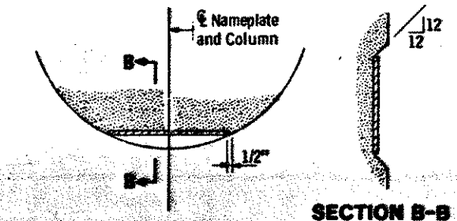
The dotted letters & numbers shown above are for illustration.
Data to be shown on name plate is as follows:

COUNTY ANOKA
BRIDGE 02541
YEAR 1987

1234567890 3/16"

ABCDEFGHIJKLMNOPQRSTUVWXYZ 3/16"

LETTERS & NUMBERS FOR NAMEPLATES



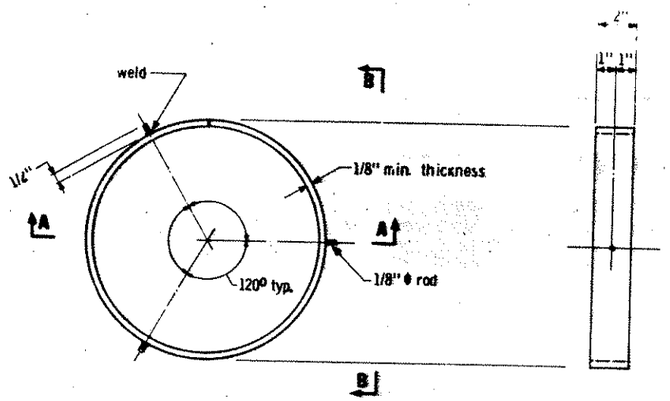
SECTION B-B

NAMEPLATE PLACEMENT
(Round Concrete Pier Columns)

NOTES:

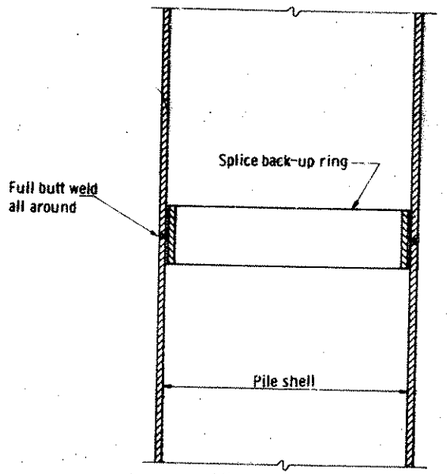
No shop drawing required.
Material shall comply with Spec. 3327
Letters and numbers shall conform to those shown.
Draft on letters and numbers shall not be more than 3° in 12".
Horizontal spacing of letters and numbers shall produce a balanced layout in proportion to spacing shown.
Top surface of letters, numbers and frames shall be burnished.
Furnish 2 steel bolts 3/8" dia. x 3" long with each plate.
All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for the 1" high letters and numbers.

APPROVED: May 1, 1985	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES	**BRIDGE NAMEPLATE**		**B103**
Issued by: OFFICE OF ENGINEERING STANDARDS	**COUNTY BRIDGES**		



PLAN VIEW
(Pile not shown)

SECTION B - B
(Pile not shown)



SECTION A - A

NOTES:

Approved commercial pile splice back-up ring may be used in lieu of the type detailed. Back-up ring shall have a tight fit.

Welding electrodes shall be A.W.S. Type E7016 or E7018 (low-hydrogen).

Low-hydrogen electrodes shall be supplied 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.

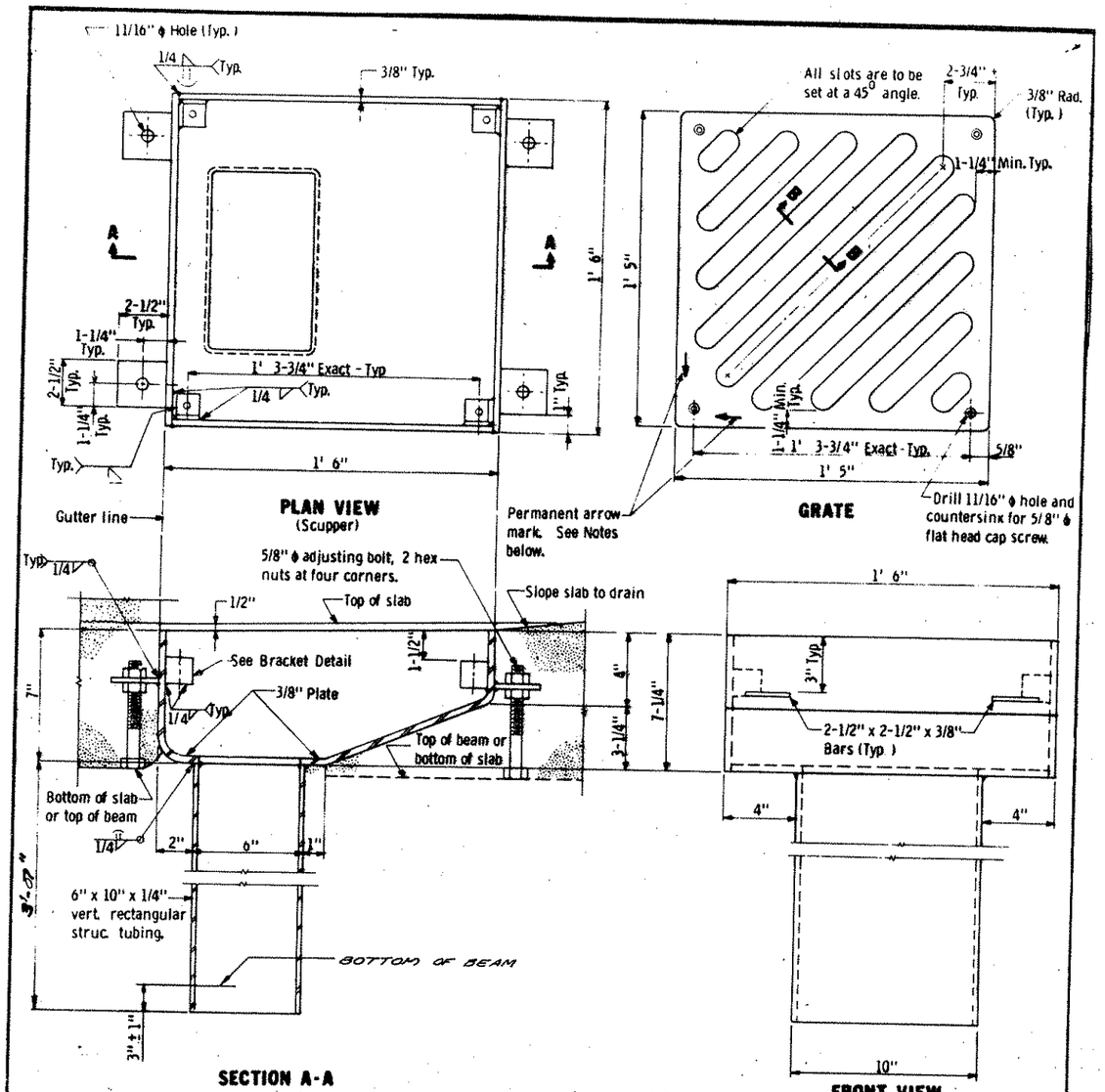
Electrodes which have become wet, soiled or damaged shall not be used.

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.

APPROVED July 21, 1972	MINNESOTA DEPARTMENT OF TRANSPORTATION		DETAIL NO.
Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	**PILE SPLICE** CAST-IN-PLACE CONCRETE PILES		**B201**

APR. 7-15-88

SHEET 40 OF 45 SHEETS	S.A.P. 02-601-29	DETAILS	02541



NOTES

All steel plates per Spec. 3306. Fabricate grate using automatically controlled cutting torch.

Malleable iron grate alternate per Spec. 3324 Grade 35018.

Workmanship and fabrication per Spec. 2471.

Blast clean scupper and grate after fabrication.

Galvanize scupper and grate per Spec. 3394.

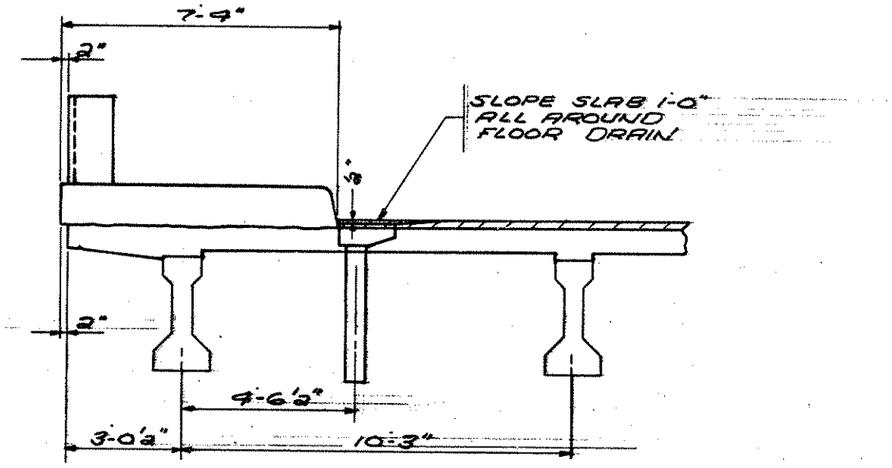
Galvanize hardware per Spec. 3392.

Install grate with arrow on curb side and in direction of flow.

Payment for Floor Drain, Type B701 shall include all material shown on this detail.

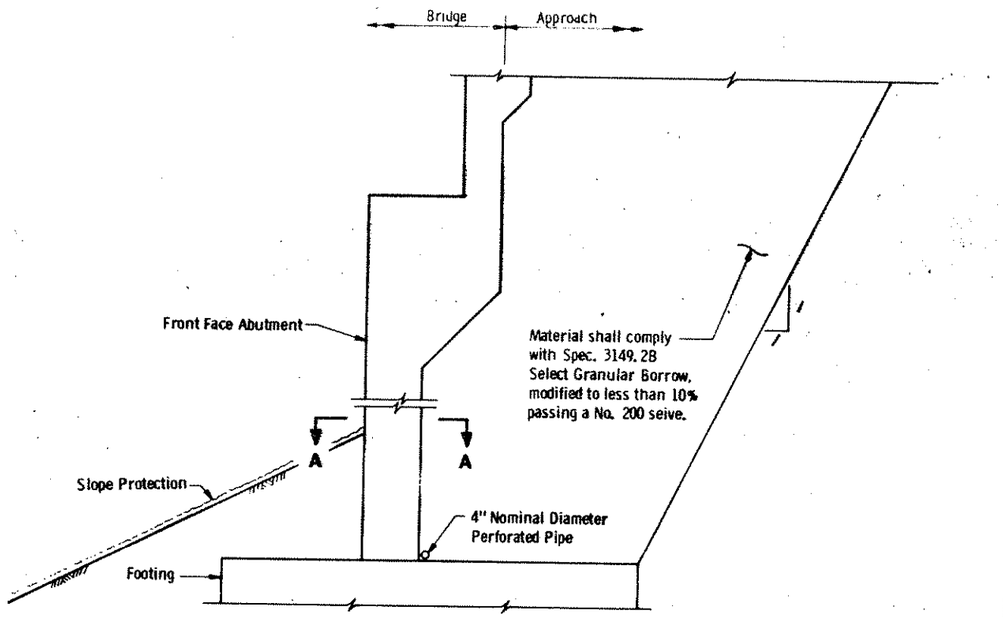
Grate opening area 110 sq. in.

APPROVED: Aug. 12, 1975 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION **BRIDGE FLOOR DRAIN** **WELDED BOX**	REVISION Feb. 13, 1979	DETAIL NO. **B701**

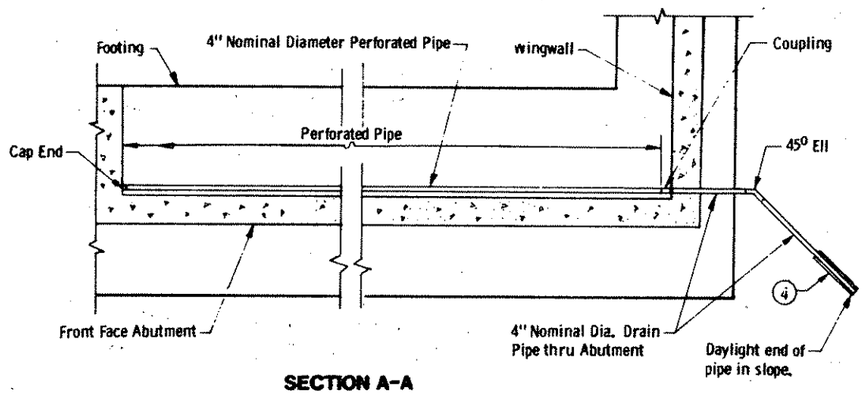


SECTION THRU DECK SHOWING FLR. DRAINS

SCALE: ½" = 1-0"



SECTION THRU ABUTMENT
(TYPICAL BOTH ABUTMENTS)



SECTION A-A

NOTES:

1. All pipe shall be as per Spec. 3245
2. Wrap perforated pipe with Geotextile as per Spec. 3733, Type I. Attach to pipe as per Spec. 2502
3. See bridge plans for notes and "Summary of Quantities". *(SEE SHEET 62)*

(4) 5 ft. long corrugated metal oversleeve with rodent screen on end, or a Precast Concrete Headwall.

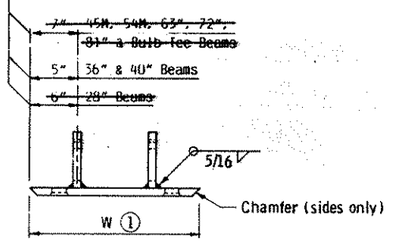
5. *SEE SHT 29 FOR QUANTITIES.*

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**	REVISION	DETAIL NO. **B910**

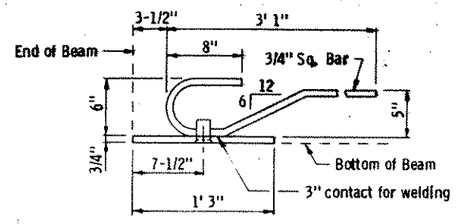
APR 7-15-88

SHEET 42 OF 45 SHEETS	S.A.P. 02-601-89	DETAILS	02541

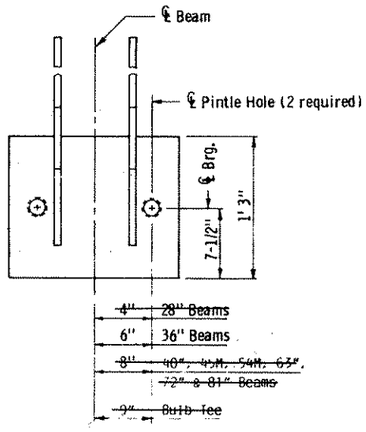
These dimensions may be modified to clear prestressed strands. However, changes must be approved by the Engineer.



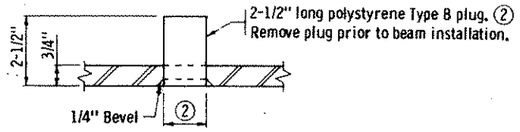
FRONT VIEW



SIDE VIEW



TOP VIEW



PINTLE HOLE DETAIL

NOTES:

Material to be structural steel per Spec. 3306

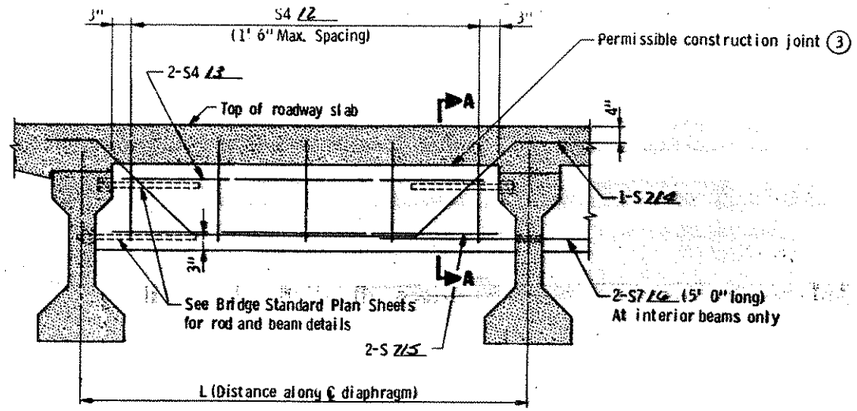
Sole plate for Bearing Assembly to be hot dipped galvanized per Spec. 3394 after fabrication.
Pintle holes shall be free of zinc build up from galvanizing.

Payment for sole plates to be included in price bid for Prestressed Concrete Beams.

(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. pintles.
1-3/4" dia. for 1-1/2" dia. pintles.
Check bearing assemblies for pintle size used.

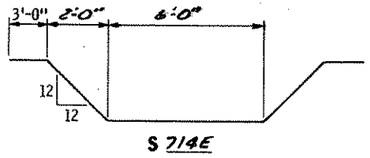
APPROVED: March 12, 1987	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS and BRIDGES & STRUCTURES	**SOLE PLATE** **PRESTRESSED CONCRETE BEAMS** **(FOR BEARINGS WITH PINTLES)**		**B303**
Issued by: ENGINEERING STANDARDS			



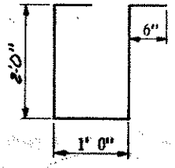
PART TRANSVERSE SECTION AT END DIAPHRAGM

LONGITUDINAL REINFORCEMENT IN BOTTOM OF DIAPHRAGM

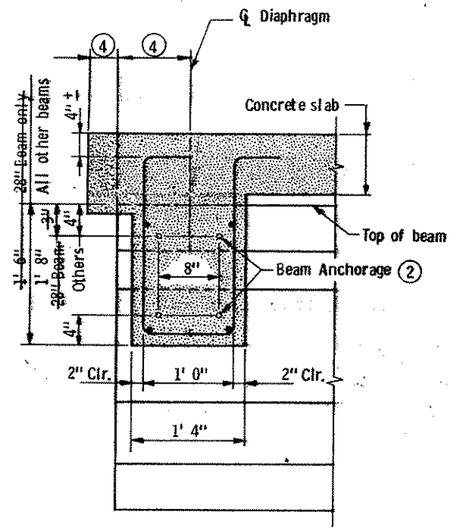
BEAM SPACING ℄ TO ℄ (1)	BARS REQUIRED			
	STRAIGHT		BENT	
	NO.	SIZE	NO.	SIZE
Up to 8'	2	6	1	5
Over 8' to 11'	2	7	1	6
Over 11' to 13'	2	8	1	8
Over 13' to 15'	2	9	1	10
Over 15' to 18'	2	11	1	11



S 714E



S412E



SECTION A-A

NOTE:

(1) Distance measured along ℄ of diaphragm.

(2) BEAM ANCHORAGES
Fascia beams only: four 3/4" dia. threaded rods.
Interior beams: Two 3/4" dia. threaded rods on top two No. 7 bars on bottom.

(3) When construction joint is used at this location, diaphragm falsework shall remain in place until completion of slab curing period.

(4) See plans for dimensions.

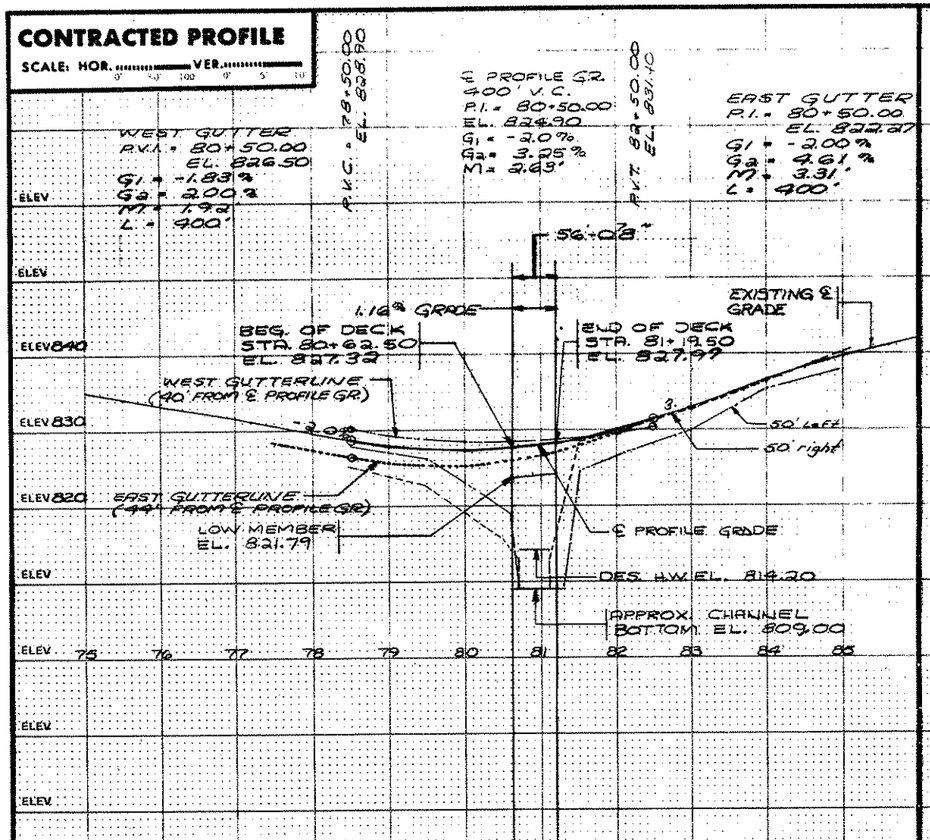
(5) All diaphragm bars shown are listed with the superstructure reinforcement. Diaphragm concrete and reinforcement quantities are included in superstructure quantites (except threaded rods are included in payment for prestressed beams).

APPROVED: March 3, 1977	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION AUG. 29, 1978	DETAIL NO.
Developed by: ENGINEERING STANDARDS, AND BRIDGES AND STRUCTURES	**END DIAPHRAGM** **(28"-54" PRESTRESSED CONCRETE BEAM SPAN WITH PARAPET ABUTS.)**		**B803**
Issued by: ENGINEERING STANDARDS			

APR 7-15-88

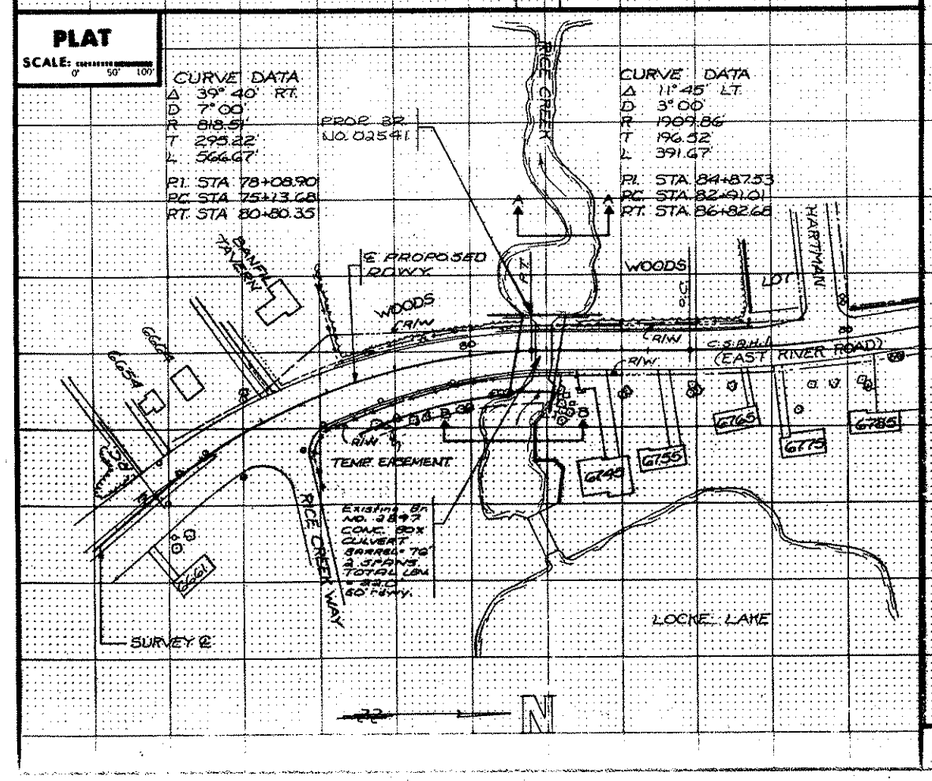
CONTRACTED PROFILE

SCALE: HOR. ..... VER. .....



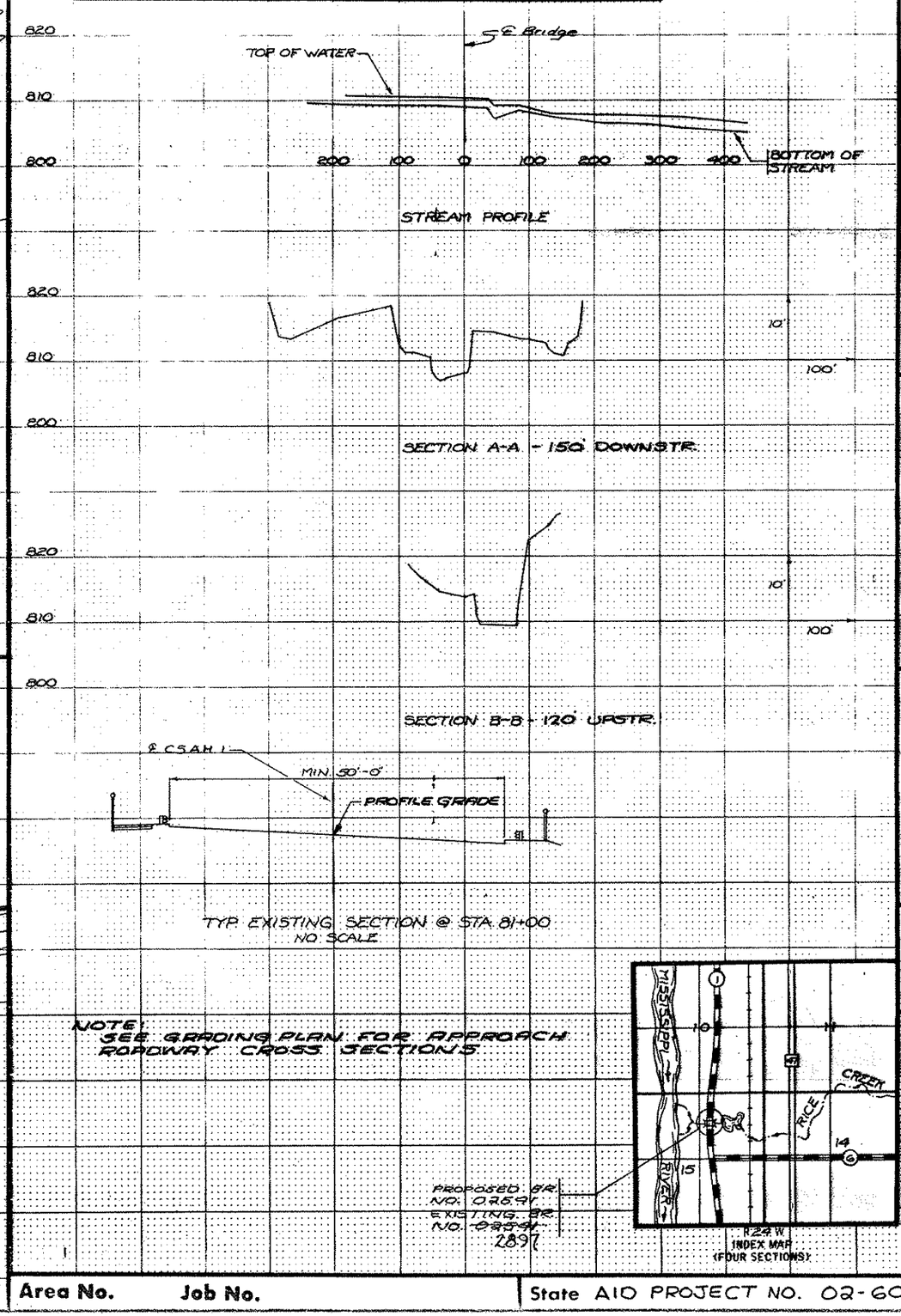
PLAT

SCALE: 0' 50' 100'



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



TYP. EXISTING SECTION @ STA. 81+00
NO SCALE

NOTE:
SEE GRADING PLAN FOR APPROACH ROADWAY CROSS SECTIONS.

PROPOSED BR. NO. 02691
EXISTING BR. NO. ~~02554~~ 2897

Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating. DROP INLET @ LOCKE LAKE
2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway) :Given location, type, length, height above high water, cross-sectional area etc.
3. Apparent highwater elevation..... Obtained from.....
4. Other data: Approx. velocity of water at time of survey.....

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 1-2-85

Stream or ditch designation RICE CREEK
Drainage area 164 SQ. MILES
Max. flood on record UNKN. Design flood (50 yr. freq.) 1955 C.F.S.
Max. observed highwater elevation UNKN. Design highwater elevation 815.70
Design mean velocity through structure 7.8 F.P.S.
Low superstructure at or above elevation 820.20
Flowline elevation 809.00 Skew angle NONE
Waterway area req'd. below elevation 814.2 = 250 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 2390 C.F.S. at stage 815.7 and mean velocity of 8.7 F.P.S. with 1.0 Ft. freeboard.
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 .....

51'-0" SIMPLE PRECAST CONC. BEAM SPAN
2 - 34'-0" ROADWAYS
16'-0" CENTER MEDIAN
2 - 7'-4" SIDEWALKS
10° SKEW

Bridge survey sheets made from: ERICKSON ENGINEERING SURVEY NOTES

Bench mark elevation 834.09 (M.S.L. 1929 Adj.)
Location: T.N.H. S.E. QUAD. E.Rr. Ro. & R.Cr. WAY

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT..... ON C.S.A.H. 1 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 0.25 MILES NORTH OF C.S.A.H. 6
SEC. 15 TWP. 30 N R. 24 W
CITY FRIDLEY COUNTY ANOKA
BRIDGE NO. 02541
APR. 7-15-88

Area No. Job No. State AID PROJECT NO. 02-601-29 Sheet No. 44 of 45 Sheets

N

6" STEEL GAS MAIN (EXISTING)

TEST PILE #5

EXIST. TIMBER SIDEWALK

FLOW

TEST PILE #3

EXISTING SHEET PILE WALLS

EXISTING CHAIN LINK FENCE

10° (TYR)

℄ BRG. - SO. ABUT.
STA. 80+65.50
EL. 827.34

P.T. 80+80.35

T-485

EXISTING R. BM. GUARDRAIL

℄ BRG. - NO. ABUT.
STA. 81+16.50
EL. 827.93

C.S.A.H. 1

80+00

81+00

82+00

79+00

SURVEY ℄

HORZ. CURVE DATA
Δ = 39°-40' RT.
D = 7°-00'
R = 818.51'
T = 295.22
L = 566.67
P.I. = 78+08.90
P.C. = 75+13.68
P.T. = 80+80.35

T-984

8" C.I.P. (Exist)

EXISTING R. BM. GUARDRAIL

55'-0"

EXISTING CHAIN LINK FENCE

Existing Br. No. 2897 to Be Removed.

3" SAN. SERV. (Exist.)

TEST PILE #1

TEST PILE #4

F.F. OF RETAINING WALL

400' V.C.
P.I. = 80+50.00
EL. 824.90
G1 = -2.0 %
G2 = 3.25 %
M = 2.63°

51'-0"

35" CONC. ENCASED 8" INSULATED WATER MAIN (EXISTING)

APPROACH GRADING BY THE COUNTY

LOW MEMBER EL. 821.79

Existing Br. No. 2897

℄ BRG. - NO. ABUT.
STA. 81+16.50
827.93

℄ BRG. - SO. ABUT.
STA. 80+65.50
EL. 827.32

℄ PROFILE GRADE (PROPOSED)

+1.16 % GRADE ON BRIDGE

EXISTING ℄ PROFILE

830

820

810

50' LT.

50' RT.

8" WATERMAIN (EXISTING)

8" WATERMAIN (EXISTING)

Br. Rdwy.
Loamy S. & G.
Brn. Moist Fill
Loamy S. trace
Moist Fill
Loamy S. & lk. brn.
Loamy S. tan Moist Fill
Very Loamy S. blk. moist
Clay Loam till gn
Moist firm
Cretaceous Wood
& Lignite
Plastic S. Loam fill
Red moist Firm
Sand & Gravel
brn. Wet

Lo. Sandy brn. moist fill
Cr. S. & Gr. slightly Org. Wet
Cl. till gn Moist firm
SOUTH ABUT.
Loamy S. brn. Wet
Plastic S.L. brn. moist firm
Fine S. brn. Wet
Gn. Plastic Cl. Red Moist Firm
Gravel brn. Wet

DES. H.W. EL. 814.20

NORTH ABUT.

APPROX. CHANNEL BOTTOM EL. 809.00

EL. 766.00

EL. 767.75

T-484

T-485

12"ø CONC. CAST-IN-PLACE TEST PILES 35 FT. LONG.

NOTE:
BURIED GAS MAIN ELEVATION TO BE FIELD VERIFIED.
BURIED TELEPHONE LINES ELEVATION TO BE FIELD VERIFIED.

BORINGS SHOWN T
TAKEN WITH STD. 140 LB HAMMER
30" DROP
2" O.D. SAMPLER

APR. 715-88

State Proj. No. S.A.P. 02-601-29

Sheet No. 45 of 45 Sheets