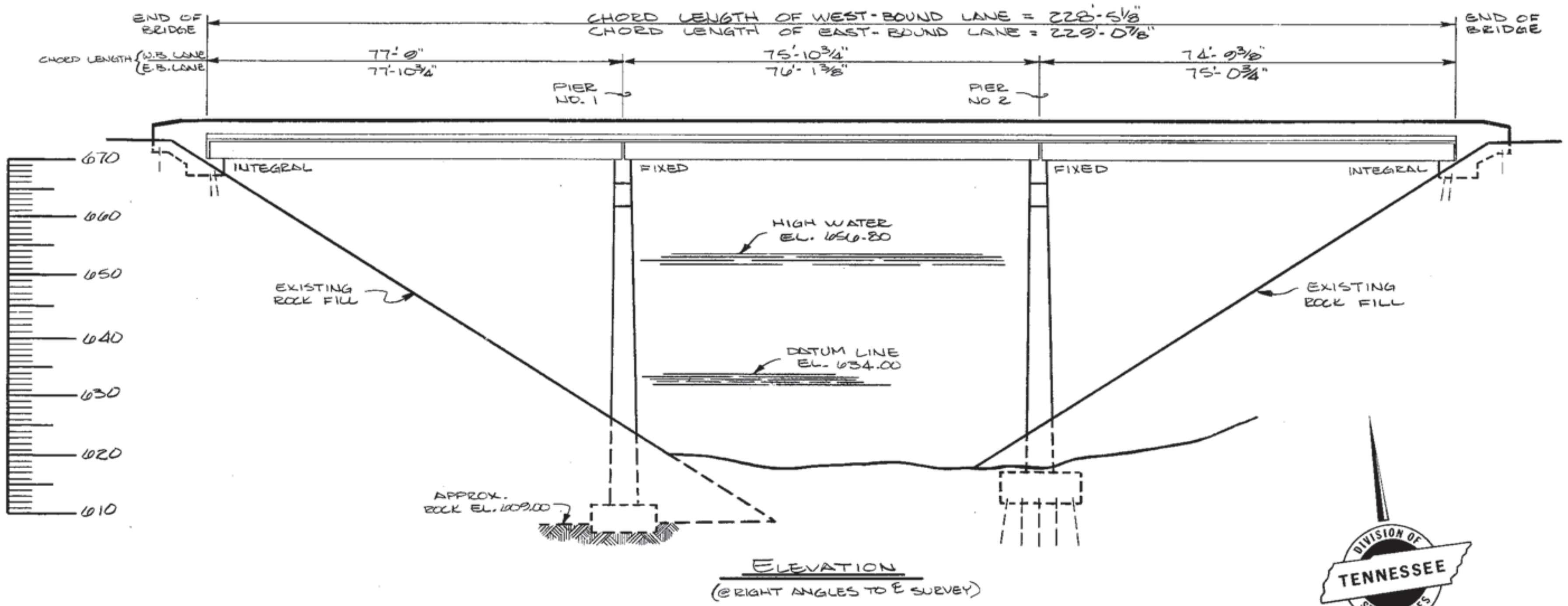


ELEVATION
(@ RIGHT ANGLES TO ℄ SURVEY)

ORIGINAL CURVE DATA

P.I. STA.	328+76.45
Δ	41° 49' 05.5"
D	3° 47' 24.9"
T	577.5239'
R	1511.6654'
L	1103.3119'
SE =	.098 FT/FT.

DRAINAGE AREA = 747.0 SQ MI.

CONST. NO. 33002-3144-44

PROJECT NO.	YEAR	SHEET NO.
IR-24-3(66)171	1983	

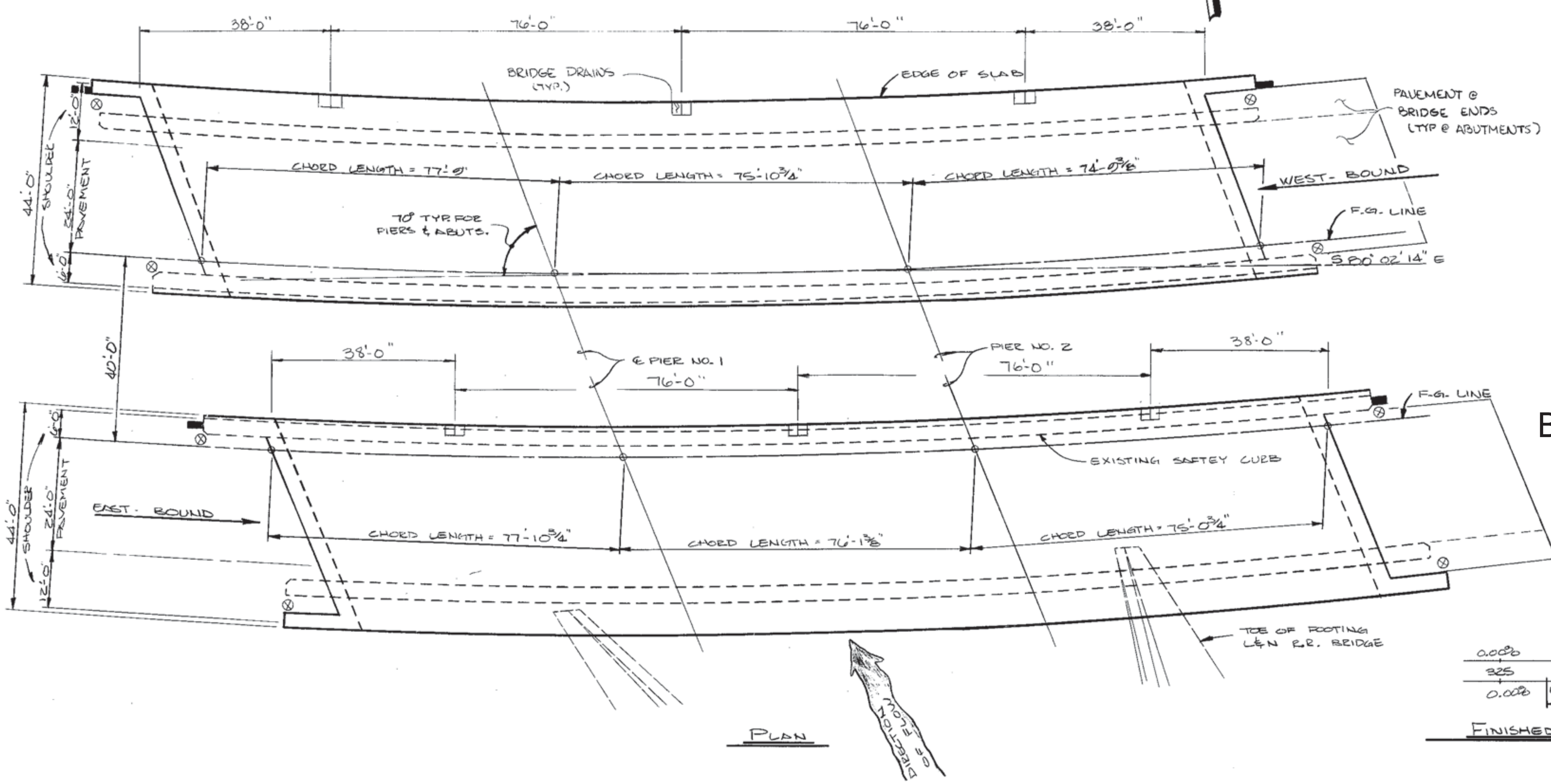
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

LIST OF DRAWINGS	DRAWING NO.	LAST REV. DATE
LAYOUT OF BRIDGE	M-115-54	
GENERAL NOTES AND ESTIMATED QUANTITIES	M-115-55	5-17-83
SUPERSTRUCTURE WEST BOUND LN.	M-115-56	5-17-83
SUPERSTRUCTURE EAST BOUND LN.	M-115-57	5-17-83
SUPERSTRUCTURE DETAILS & ABUT. NO. 1 E.B.L. & ABUT. NO 2 W.B.L.	M-115-58	5-17-83
SUPERSTUCTURE DETAILS & ABUT. NO. 2 E.B.L. & ABUT. NO 1 W.B.L.	M-115-59	5-17-83
PAVEMENT AT BRIDGE ENDS DETAILS	M-115-59A	5-17-83
BILL OF STEEL	M-115-60	5-17-83

LIST OF STD. DRAWINGS	DRAWING. NO.	LAST REV. DATE
STD. PILE DETAILS	H-S-111	11-12-82
STD. REINF. BAR SUPPORT	K-80-14	8-27-76
MISC. ABUTMENT & DRAINAGE DETAILS	K-85-150	1-9-75
BRIDGE RAILING-CONCRETE PARAPET	M-28-1	7-17-81
REINF. CO. NC. PAVEMENT AT BRIDGE ENDS	K-86-144	7-17-81

LIST OF SPECIAL PROVISIONS	PROVISION NO.	LAST REV. DATE
REGARDING EPOXY COATED REINF. STEEL	907 A	9-8-81

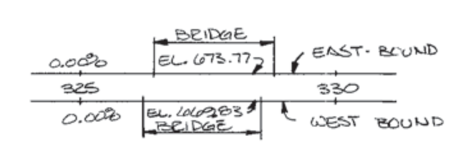


PLAN

▬ DENOTES ROADWAY DRAIN REQUIRED

⊗ DENOTES GUARDRAIL ATTACHMENT REQUIRED

BRIDGE NOS. 33I00240011 & 33I00240012



FINISHED GRADE PROFILE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

LAYOUT
WIDENING OF I-24 OVER
CHATTANOOGA CREEK
STATION 327+75.00
HAMILTON COUNTY
1983

DESIGNED BY C. PRICE DATE 8-82
DRAWN BY K. FRANKENFIELD DATE 10-82
SUPERVISED BY J. FIELDS DATE 10-82
CHECKED BY DATE

CORRECT [signature] ENGINEER OF STRUCTURES
APPROVED [signature] DIRECTOR OF HIGHWAYS

M-115-54

CLASS "A" GRADING D

CONST. NO. 33002-3144-44

PROJECT NO.	YEAR	SHEET NO.
IR-24-3(66)171	1983	

REVISIONS

NO	DATE	BY	BRIEF DESCRIPTION
1	2-15-83	JCP	ADDITION OF NOTE 8.
2	3-17-83	JCP	ESTIMATED QUANTITIES

GENERAL NOTES

SPECIFICATION: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION. (MARCH, 1981 EDITION).

LOADING: H520-44 WITH ALTERNATE MILITARY

DESIGN SPECIFICATIONS: AASHTO 1977 EDITION WITH ADDENDA.

CONCRETE: TO BE CLASS "A" (CAST-IN-PLACE). F'C = 3,000 PSI.

PILES: TO BE HP10X42 TO BE DRIVEN TO REFUSAL ON ROCK OR A MINIMUM BEARING OF 55 TONS FOR THE ABUTMENT

REINFORCING STEEL: TO BE ASTM A615 GRADE 60. STANDARD CRSI HOOK DETAILS APPLY UNLESS OTHERWISE NOTED ON BILL OF STEEL. BENDING DIMENSIONS SHOWN ARE BASED ON GRADE 60. SPACING DIMENSIONS ARE CENTER TO CENTER UNLESS OTHERWISE NOTED ON DETAIL DRAWINGS. THE SUFFIX E, FOR BARS SO MARKED, DENOTES EPOXY COATED REINFORCEMENT. SEE SPECIAL PROVISION 907A.

BRIDGE RAIL SYSTEM: BUILD PARAPETS ACCORDING TO STANDARD DRAWING M-28-1.

LINSEED OIL PROTECTIVE TREATMENT: SURFACES RECEIVING AN APPLIED TEXTURE FINISH SHALL NOT RECEIVE A LINSEED OIL TREATMENT. SEE APPLIED TEXTURE FINISH DETAIL ON THIS SHEET.

GROUTED BARS IN DRILLED HOLES: HOLES FOR GROUTED BARS ARE TO BE DRILLED 1/2 INCH IN DIAMETER LARGER THAN THE BAR. AFTER CLEANING HOLE, PACK WITH NON-SHRINK GROUT AND DRIVE BAR TO ITS SEAT.

CLASS "A" CONCRETE FOR BRIDGE DECKS SHALL BE IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATIONS EXCEPT AS FOLLOWS:

MINIMUM 28 DAY COMPRESSIVE STRENGTH	4500 psi
MAXIMUM WATER/CEMENT	5.0 gal/sack OF CEMENT
AIR CONTENT	6% ± 2%

PAYMENT WILL BE UNDER ITEM 604-01.12

ESTIMATED QUANTITIES

	ITEM	604-01.12 CLASS "A" CONCRETE (BRIDGE DECK) C.Y	204-02.01 DRY EXCAVATION (BRIDGES) C.Y. ②	604-02.03 EPOXY COATED REINFORCING STEEL ⚠ LBS.	604-03.01 CLASS "A" CONCRETE (BRIDGES) ⚠ C.Y. ③	604-03.02 STEEL BAR REINFORCEMENT (BRIDGES) LBS.	604-03.03 LINSEED OIL TREATMENT S.Y.	620-03 CONCRETE PARAPET L.F.	710-10 6" PERF. C.M. PIPE (18 GA.) WITH POROUS BACK-FILL L.F. ①	710-11 6" C.M. PIPE UNDERDRAINS (18 GA.) L.F. ⑧	606-22.03 STEEL PILES (10") (DRIVING) L.F.	606-32.03 STEEL PILES (10") (FURNISH DOMESTIC) L.F.	606-42.03 STEEL PILES (10") (FURNISH FOREIGN) L.F.	604-04.01 APPLIED TEXTURE FINISH (NEW STRUCT.) S.Y.
EASTBOUND LANE	PAVEMENT @ BRIDGE ENDS			3,286	60.0	7432								
	SUPERSTRUCTURE	191.7		82791		4,951								
	ABUTMENT NO. 1		50	95	13.5	1,786			15	10	124	124	124	
	PIER NO. 1													
	PIER NO. 2													
	ABUTMENT NO. 2		50	95	13.5	1,786			15	10	164	164	164	
	TOTAL	191.7	100	86267	87.0	15,955	1,031	512	30	20	288	288	288	441
WESTBOUND LANE	SUPERSTRUCTURE	191.2		82485		4,930								
	ABUTMENT NO. 1		50	95	13.5	1,786			15	10	212	212	212	
	PIER NO. 1													
	PIER NO. 2													
	ABUTMENT NO. 2		50	95	13.5	1,786			15	10	222	222	222	
	PAVEMENT @ BRIDGE ENDS			3286	60.0	7432								
	TOTAL	191.2	100	85961	87.0	15934	1031	512	30	20	434	434	434	441
	GRAND TOTAL	382.9	200	172228	174.0	31889	2,062	1,024	60	40	722	722	722	882

NOTES

① COST OF POLYETHYLENE SHEETING AND ALL MISCELLANEOUS ITEMS NECESSARY FOR INSTALLATION TO BE INCLUDED IN THE COST OF PERFORATED C.M. PIPE.

② EXCAVATION BASED ON EXISTING GROUND

③ COST OF 6 BRIDGE DECK DRAINS TO BE INCLUDED IN THE UNIT PRICE BID FOR CLASS "A" CONCRETE.

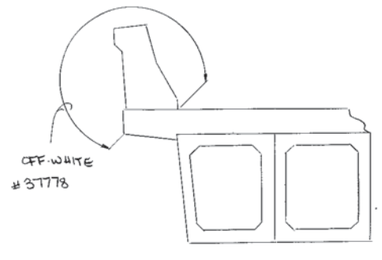
④ THE COST OF 28 THREADED STEEL INSERTS AND 28 7/8"ϕ x4" HEX HEAD BOLTS, (A307), TO BE INCLUDED IN BRIDGE ITEMS BID ON.

⑤ THE COST OF REMOVING THE EXTERIOR PORTION OF THE EXISTING SLAB, REMOVAL OF BRIDGE DECK ASPHALT AND SANDBLASTING, REMOVING PORTIONS OF THE EXISTING ABUTMENT, AND THE BRIDGE RAIL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 604-03.01. ALL SALVABLE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

⑥ ALL REINFORCING STEEL IN THE TRAFFIC FACE OF PARAPETS SHALL BE EPOXY COATED. COST TO BE INCLUDED IN THE PRICE BID FOR ITEMS 620-03.

⑦ COST OF LABOR AND MATERIALS FOR INSTALLATION ON GROUTED BARS IN DRILLED HOLES TO BE INCLUDED IN BRIDGE ITEMS BID ON.

⚠⑧ NOTE: IF DURING CONSTRUCTION AN ABUTMENT BACKFILL DRAINAGE SYSTEM IS ENCOUNTERED, IT SHALL BE CONNECTED TO THE NEW SYSTEM USING C.M. PIPE UNDERDRAINS AT THE PRICE BID PER LINEAR FOOT FOR ITEM 710-11.



TEXTURE FINISHING DETAIL

FINISHING CONCRETE SURFACES: CONCRETE FINISHING SHALL BE IN ACCORDANCE WITH SECTION 604.22 OF THE TENN. STANDARD SPECIFICATION. AN APPLIED TEXTURE FINISH SHALL BE USED IN LIEU OF A CLASS 2 FINISH. THE COLOR OF THE FINISH SHALL BE SIMILAR TO OFF-WHITE, FEDERAL SPECIFICATION NO. 37778, FEDERAL COLOR STANDARD NO. 595A, AND A COLOR SAMPLE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. NO TEXTURE FINISH SHALL BE APPLIED PRIOR TO COMPLETION OF PAVING AND HAULING OPERATIONS AT THE BRIDGE SITE. PAYMENT FOR THE APPLIED TEXTURE FINISH SHALL BE UNDER ITEM 604-04.01 IN ADDITION TO THE ABOVE REQUIREMENTS, ALL EXPOSED ABUTMENT WING SURFACES SHALL RECEIVE A TEXTURE FINISH.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

GENERAL NOTES & ESTIMATED QUANTITIES
BRIDGE WIDENING EAST & WEST BOUND LANE I-24 OVER CHATTANOOGA CREEK
STATION 327+75
HAMILTON COUNTY
1983

DESIGNED BY C. PRICE DATE 8-82
DRAWN BY J.A. HILL JR. DATE 10-82
SUPERVISED BY FIELDS & WOODS DATE 10-82
CHECKED BY _____ DATE _____

CORRECT Clellon L Loveall
ENGINEER OF STRUCTURES
APPROVED Louis Evans
DIRECTOR OF HIGHWAYS

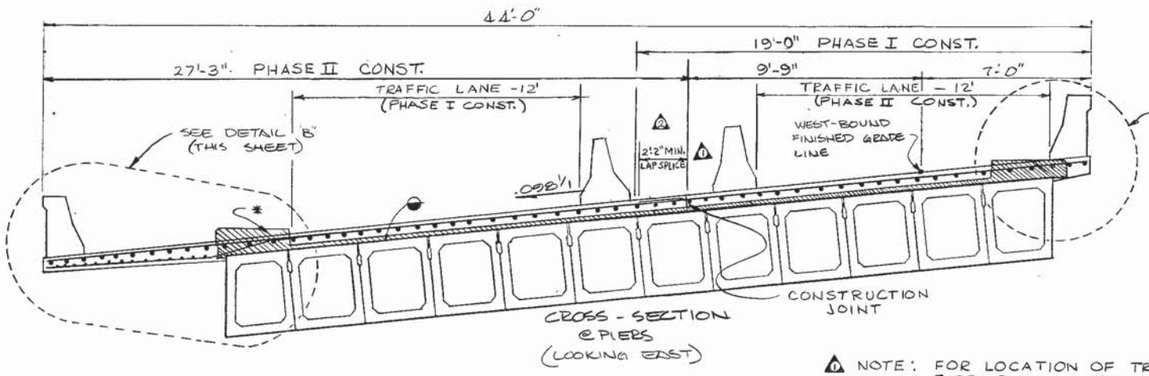
M-115-55

CONST. NO. 39002-3144-44

PROJECT NO.	YEAR	SHEET NO.
IR-24-3(66)171	1983	

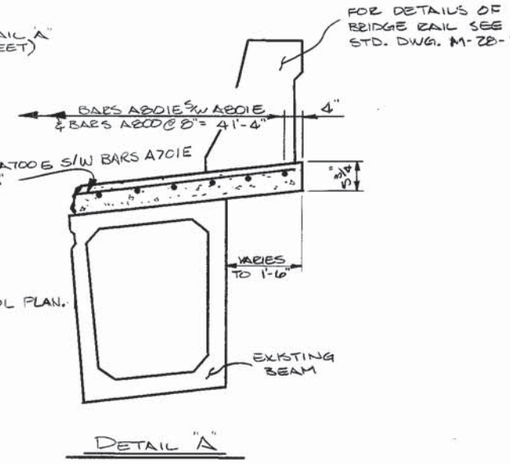
REVISIONS

NO	DATE	BY	BRIEF DESCRIPTION
1	2-15-83	V.P	ADDITION OF BARRIERS & NOTE
2	5-17-83	JCP	REVISED PHASES & ADDED CONST JOINT



⚠ NOTE: FOR LOCATION OF TRAFFIC BARRIERS SEE TRAFFIC CONTROL PLAN.

* DENOTES: CURBS OF EXISTING BRIDGE TO BE REMOVED.



DETAIL "A"

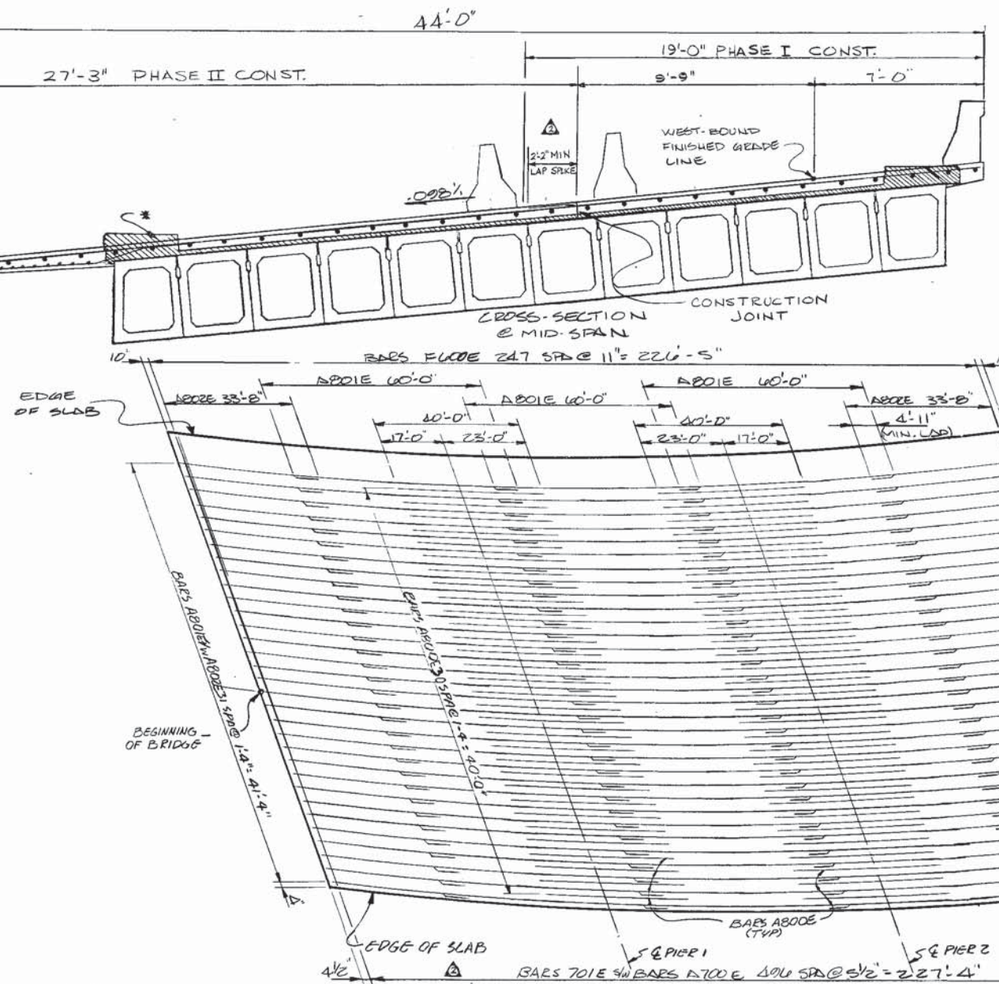
GENERAL NOTES

OUTSIDE EDGE OF SLAB AND BRIDGE RAIL TO CONFORM TO HORIZONTAL CURVE.

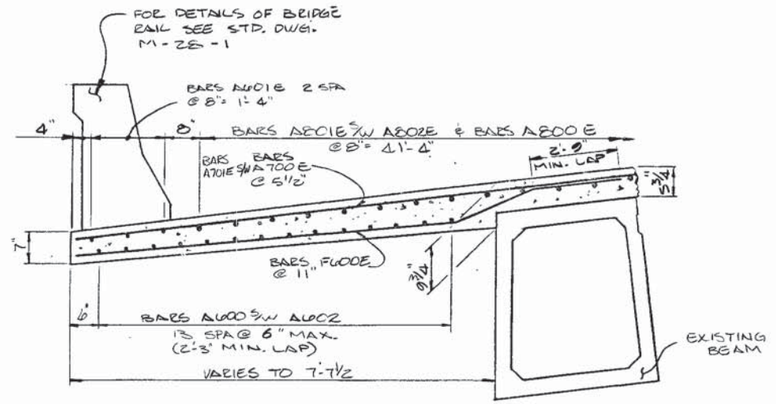
WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR BRIDGE RAIL. THE BRIDGE RAIL SHALL NOT BE POURED UNTILL THE SLAB IS POURED AND CURED.

EXISTING CURBS AND ASPHALT SHALL BE REMOVED SUCH THAT EXISTING BEAMS ARE NOT DAMAGED.

◒ NOTE: EXISTING ASPHALT IS TO BE REMOVED DOWN TO TOP CONCRETE. ALL GREASE, OIL, AND ASPHALT RESIDUE IS TO BE REMOVED. THE EXPOSED CONCRETE IS TO BE SAND-BLASTED TO NEAR THE ORIGINAL COLOR OF THE CONCRETE. COST TO BE INCLUDED IN PRICE BID FOR ITEM NO 604-03.01.



PLAN OF MAIN REINFORCING



DETAIL "B"

ITEM	CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	191.2	4,030	82,485.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPERSTRUCTURE
BRIDGE WIDENING WEST BOUND LANE
I-24 OVER CHATTANOOGA CREEK
STATION 327+75
HAMILTON COUNTY
1983

DESIGNED BY C. PRICE DATE 8-82
DRAWN BY C.E. CRINKE DATE 10-82
SUPERVISED BY FIELDS & SMITH DATE 10-82
CHECKED BY PRICE DATE 11-82

CORRECT C. Lellon L. Lovell
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

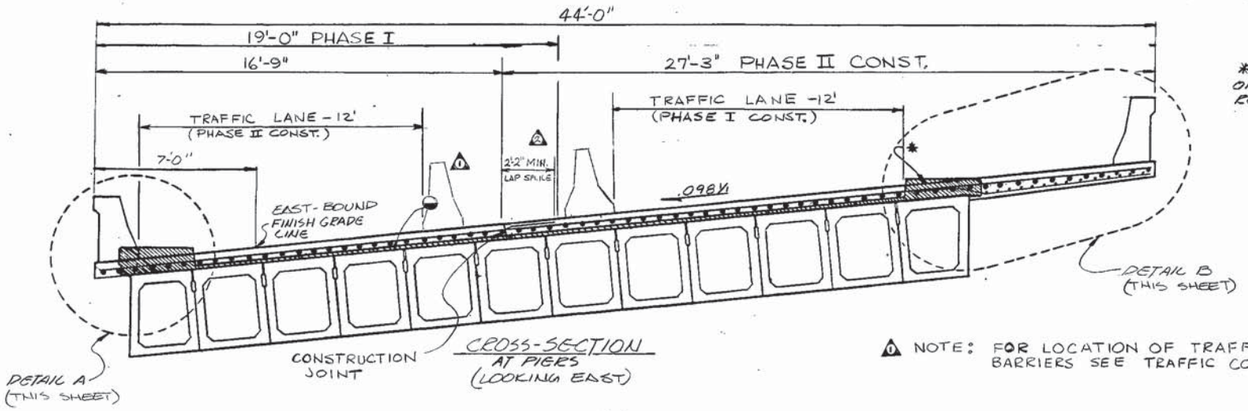
M-115-56

CONST. NO. "7002-3144-44

PROJECT NO.	YEAR	SHEET NO.
IR-24-3(66)171	1983	

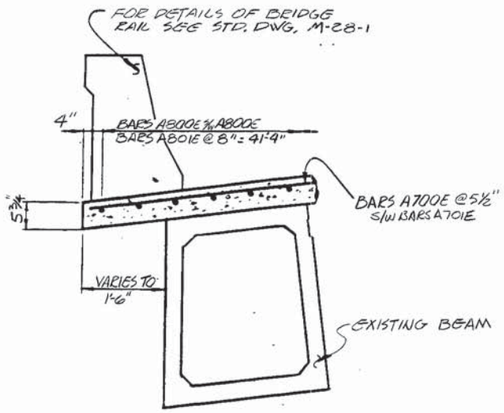
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	2-15-83	JCP	ADDITION OF BARRIERS & NOTE
2	5-17-83	JCP	REVISED PHASES & ADDED CONST. JOINT



*DENOTES: CURBS OF EXISTING BRIDGE TO BE REMOVED.

① NOTE: FOR LOCATION OF TRAFFIC BARRIERS SEE TRAFFIC CONTROL PLAN.



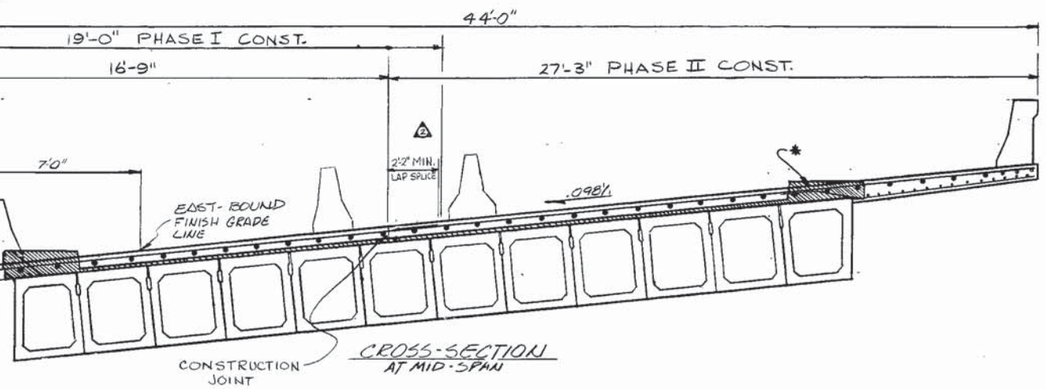
DETAIL A

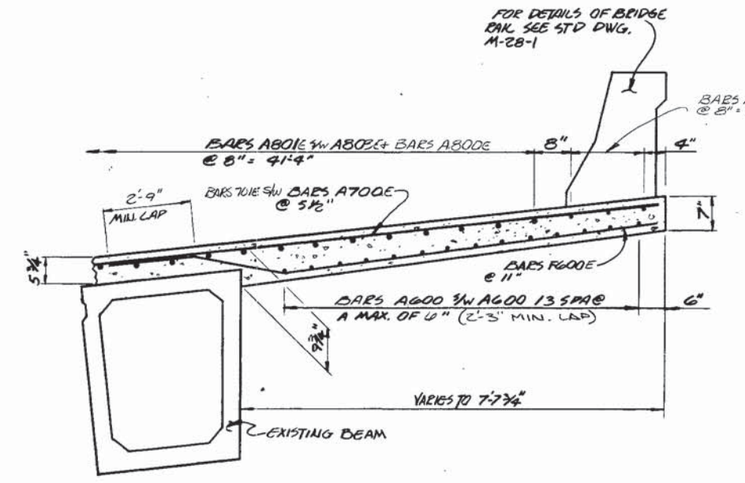
General Notes

OUTSIDE EDGE OF SLAB AND BRIDGE RAIL TO CONFORM TO HORIZONTAL CURVE. WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR BRIDGE RAIL. THE BRIDGE RAIL SHALL NOT BE POURED UNTILL THE SLAB IS POURED AND CURED.

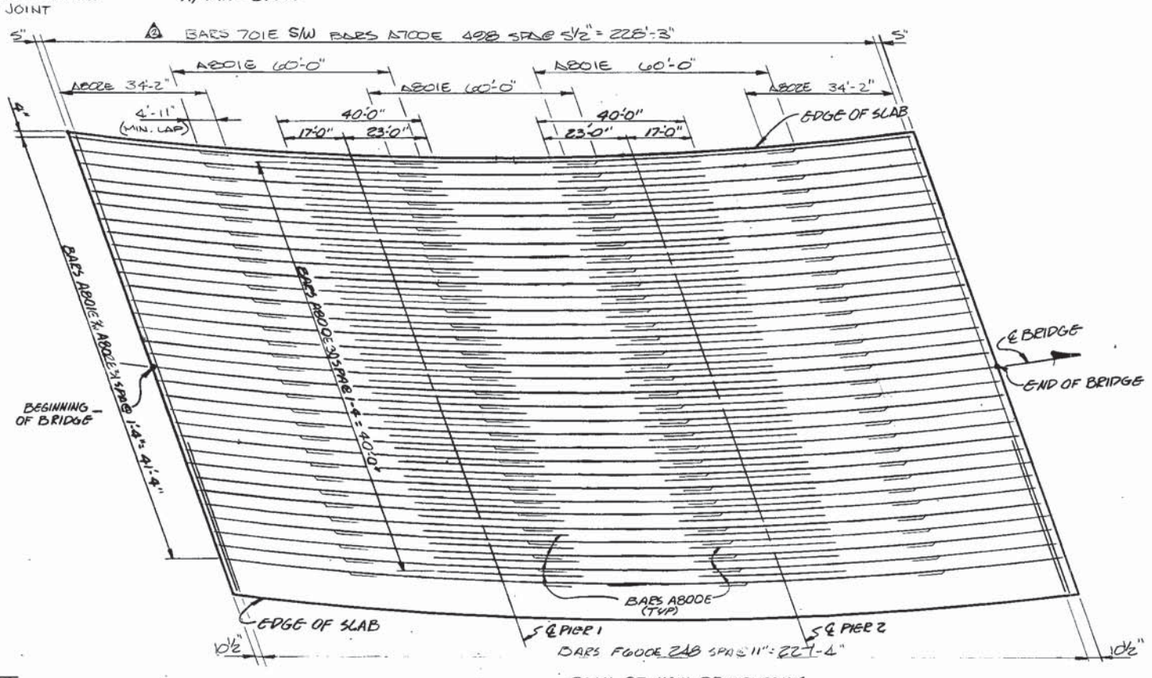
EXISTING CURBS AND ASPHALT SHALL BE REMOVED SUCH THAT EXISTING BEAMS ARE NOT DAMAGED.

● NOTE: SEE ASPHALT REMOVAL NOTE ON DRAWING M-115-56.





DETAIL B



PLAN OF MAIN REINFORCING

ITEM	CLASS "A" CONCRETE C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	191.7	40951	82,791

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPERSTRUCTURE
BRIDGE WIDENING EAST BOUND LANE
I-24 OVER CHATTANOOGA CREEK
STATION 327+75
HAMILTON COUNTY
1983

DESIGNED BY C. PRICE DATE 8-82
DRAWN BY C.E. CRANE DATE 10-82
SUPERVISED BY FIELDS & SMITH DATE 10-82
CHECKED BY PRICE DATE 11-82

CORRECT L. LeMoine L. Lovell
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

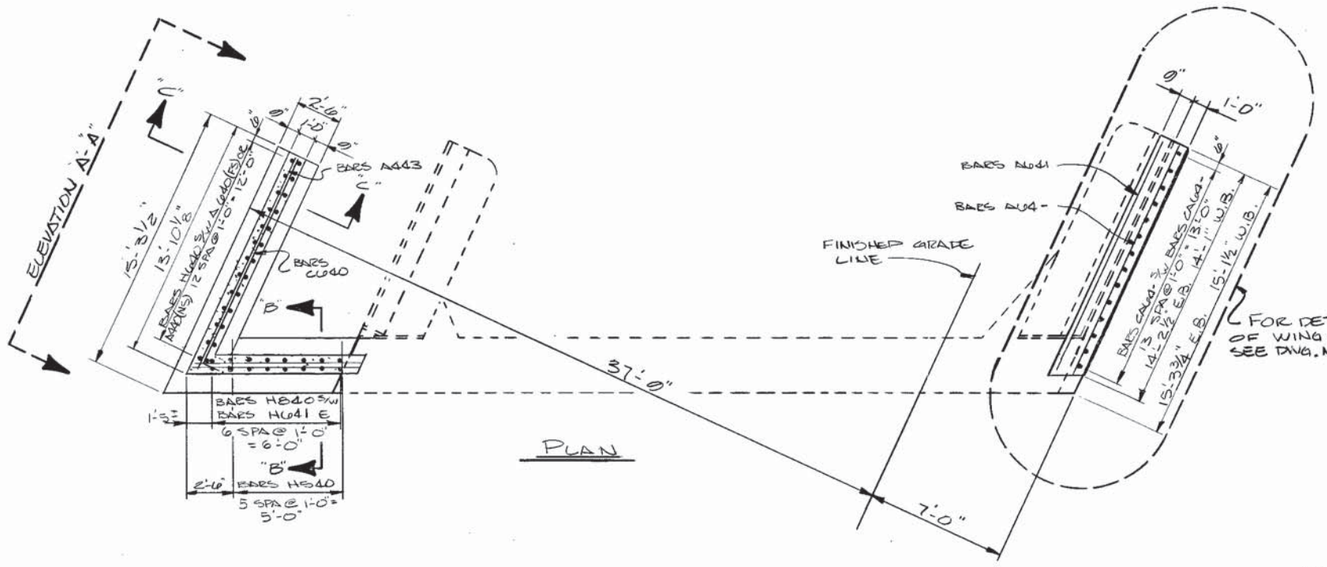
M-115-57

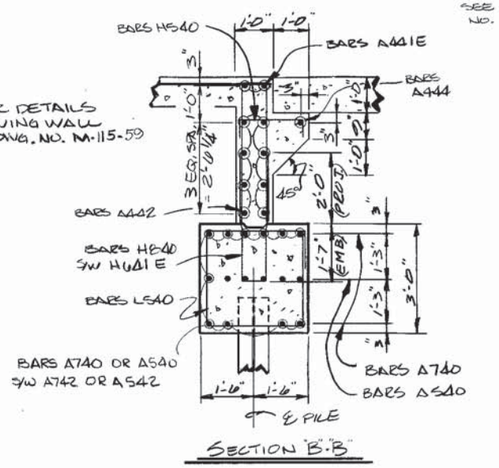
CONST. NO. 39002-3144-44

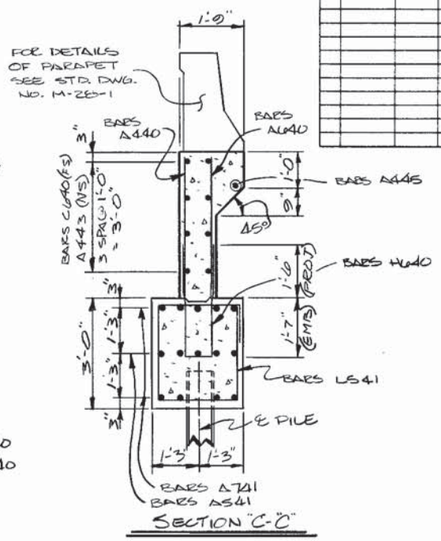
PROJECT NO.	YEAR	SHEET NO.
IR-24-3(66)171	1983	

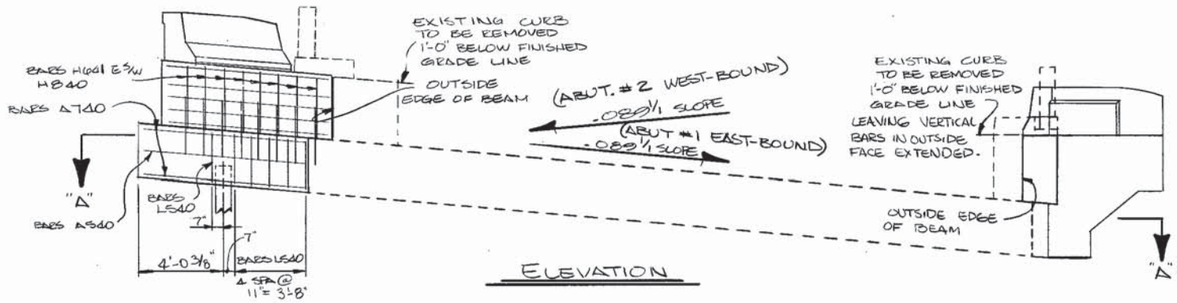
REVISIONS

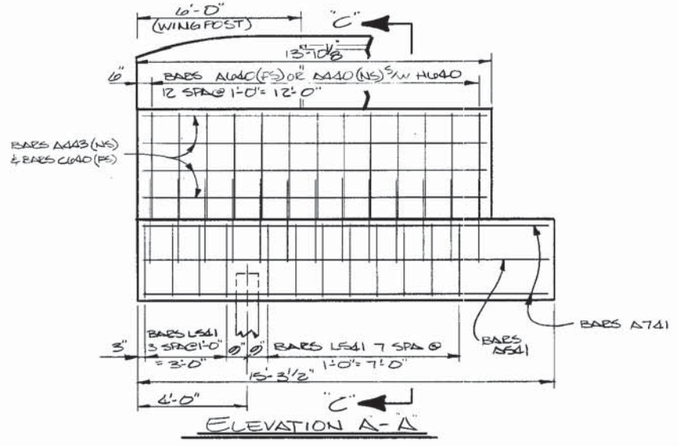
NO.	DATE	BY	BRIEF DESCRIPTION
1	5-17-83	JCP	QUANTITIES

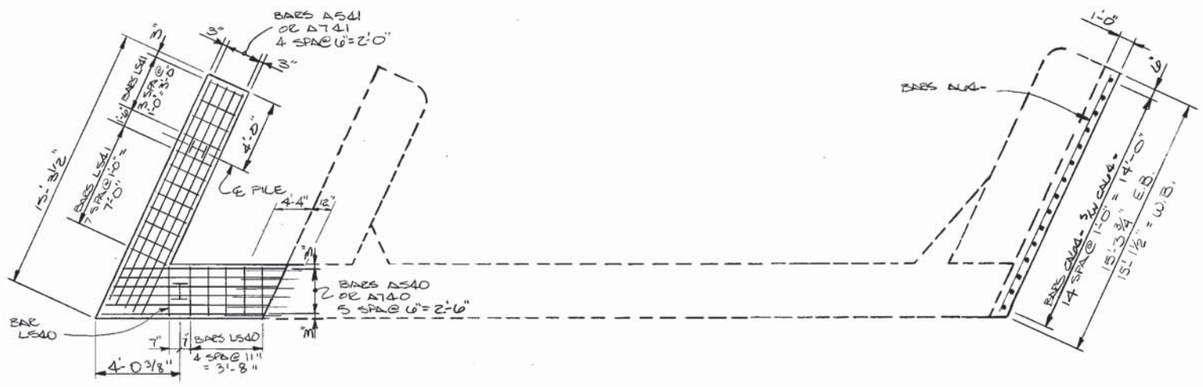












ITEMS	CONCRETE CLASS A (C.Y.)	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.	
ABUT # 1 EAST-BOUND	13.5	1786	95	1
ABUT # 2 WEST-BOUND	13.5	1786	95	1

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPERSTRUCTURE DETAILS AND ABUTMENT DETAILS OF ABUT. NO. 1 EAST-BOUND AND ABUT. NO. 2 WEST-BOUND
WIDENING OF I-24 OVER CHATTANOOGA CREEK
STATION 327+75.00
HAMILTON COUNTY
1983

CORRECT C. Leland Lowell
ENGINEER OF STRUCTURES
APPROVED Lewis Lyons
DIRECTOR OF HIGHWAYS

M-115-58

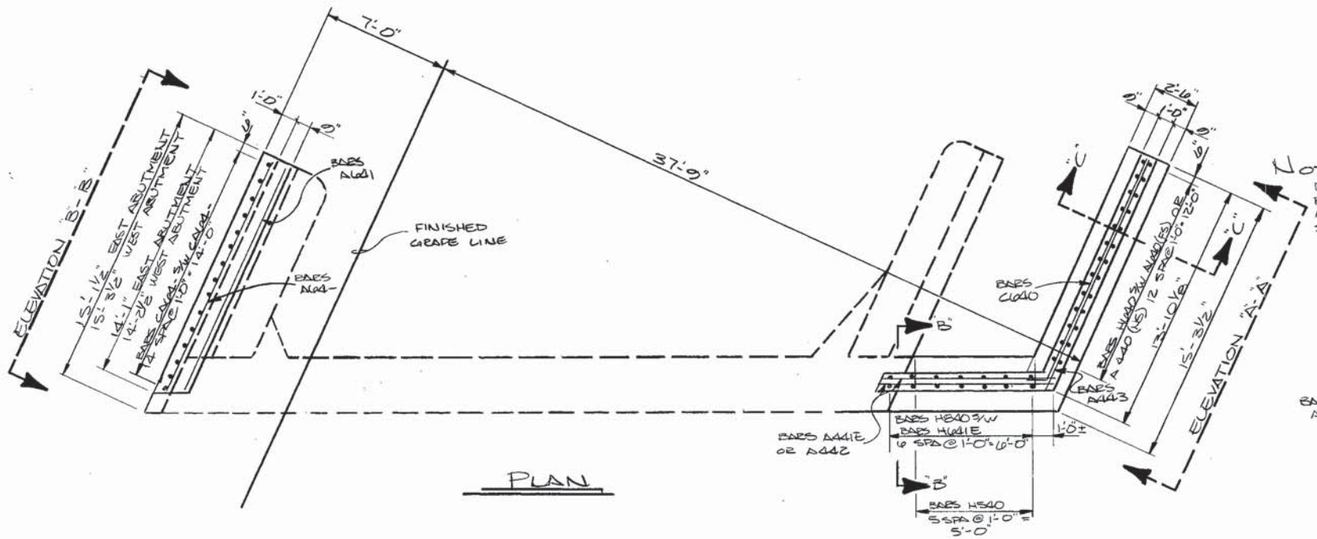
DESIGNED BY C. PRICE DATE 8-82
DRAWN BY K. FRANKENFIELD DATE 10-82
SUPERVISED BY S. FIELDS DATE 10-82
CHECKED BY PRICE DATE 11-82

CONST NO 97002-3144-44

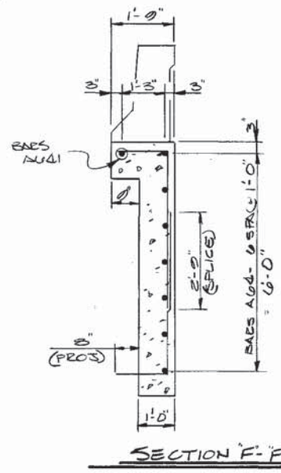
PROJECT NO.	YEAR	SHEET NO.
IR-24-3(66)171	1983	

REVISIONS

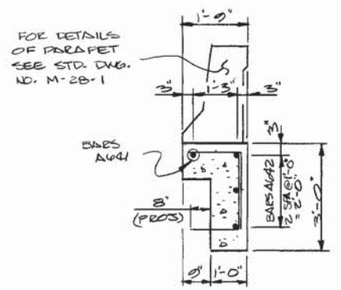
NO.	DATE	BY	BRIEF DESCRIPTION
1	5-17-83	JCP	QUANTITIES



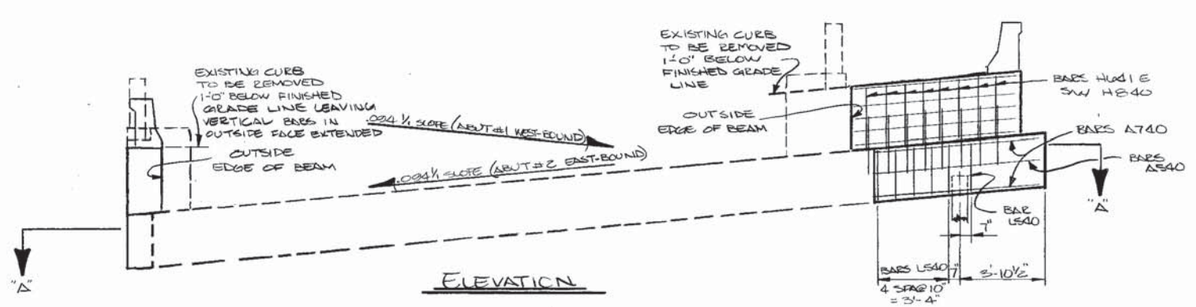
NOTE:
FOR SECTIONS B-B AND C-C AND ELEVATION A-A SEE DWG. NO. M-115-58.



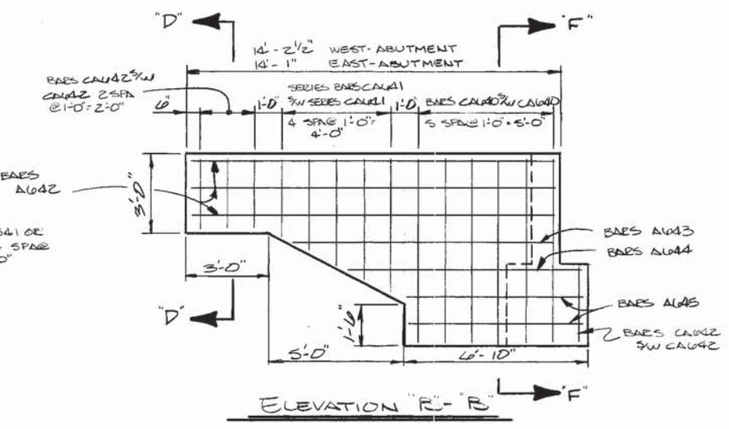
SECTION "F"-"F"



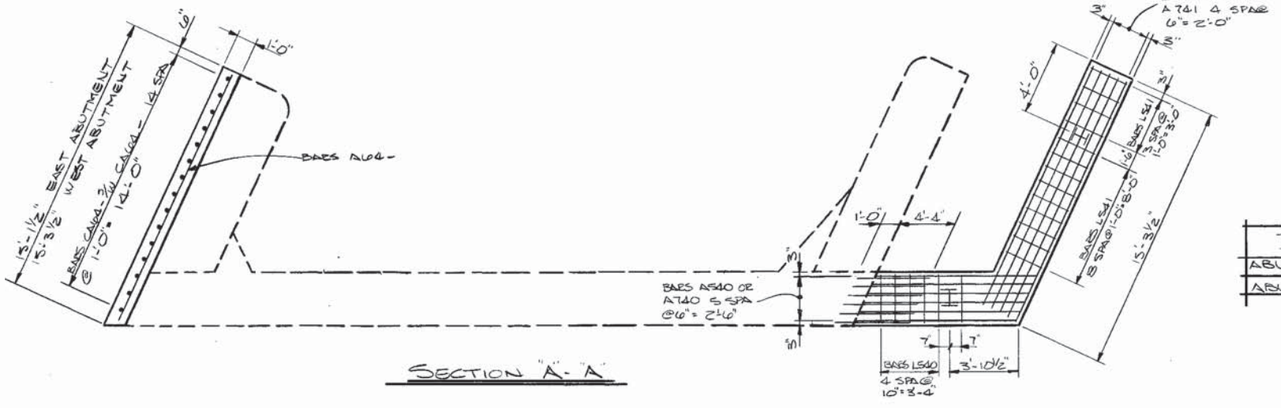
SECTION "D"-"D"



ELEVATION



ELEVATION "E"-"B"



SECTION "A"-"A"

ITEMS	CONCRETE CLASS A (C.Y.)	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.	
ABUT #1 WEST-BOUND	13.5	1786	95	⚠
ABUT #2 EAST-BOUND	13.5	1786	95	⚠

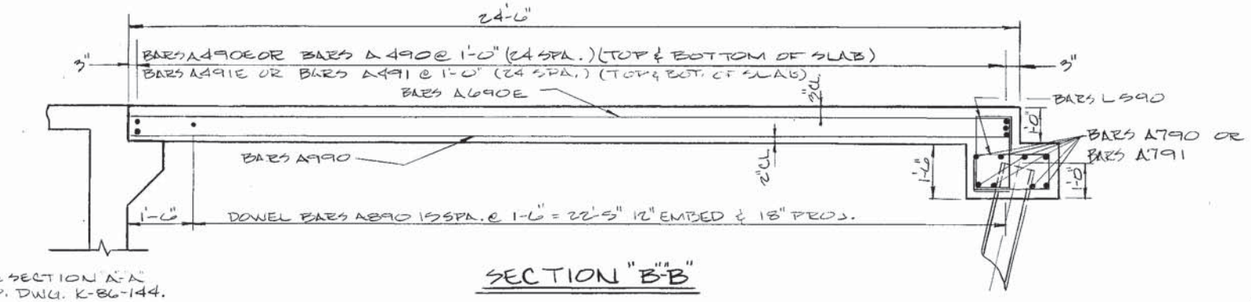
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

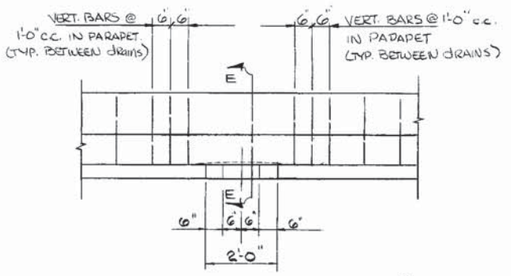
SUPERSTRUCTURE DETAILS AND ABUTMENT DETAILS OF ABUT. NO. 2 EAST-BOUND AND ABUT. NO. 1 WEST-BOUND
WIDENING OF I-24 OVER CHATTANOOGA CREEK
STATION 327+75.00
HAMILTON COUNTY
1983

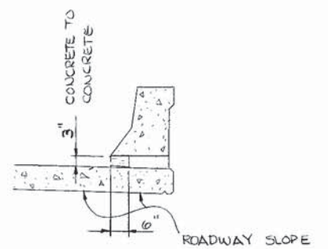
DESIGNED BY C. PRICE DATE 8-82
DRAWN BY K. FRANKENFIELD DATE 10-82
SUPERVISED BY J. FIELDS DATE 10-82
CHECKED BY PRICE DATE 11-82

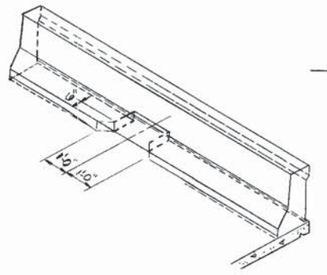
CORRECT [signature] ENGINEER OF STRUCTURES
APPROVED [signature] DIRECTOR OF HIGHWAYS

M-115-50









CONST. NO. 33002-3144-44

PROJECT NO.	YEAR	SHEET NO.
IR-24-3(66)171	1983	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	5-17-83	JCP	ADDED PHASE CONST. & DIMENSIONS

SECTION "B"-"B"

NOTE: SEE SECTION "A-A" STD. DWG. K-86-144.

NOTE: FOR FOOTING DIMENSIONS & BAR SPACING SECTION "D"-"D" SEE STD. DWG. NO. K-86-144

ELEVATION

SECTION E-E

ISOMETRIC OF DRAIN

NOTE: TYPICAL @ EAST & WEST BOUND LANES.

PLAN

ESTIMATED QUANTITIES ①

ITEM	CLASS "A" CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LBS.	REINFORCING STEEL LBS.
EAST BOUND LN. ABUT. NO. 1 & 2	60.0	3,286	7,432
WEST BOUND LN. ABUT. NO 1 & 2	60.0	3,286	7,432

SECTION A-A

NOTE: ASPHALT TO BE REMOVED SEE ASPHALT REMOVAL NOTE ON DRAWING M-115-56.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

PAVEMENT @ BRIDGE ENDS
WIDENING OF I-24 OVER
CHATTANOOGA CREEK
STATION 327+75.00
HAMILTON COUNTY
1983

DESIGNED BY C. PRICE DATE 8-82
DRAWN BY J.A. HILL JR. DATE 10-82
SUPERVISED BY FIELDS & SMITH DATE 10-82
CHECKED BY PRICE DATE 11-82

CORRECT Clelon L. Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-115-59A

CONST. NO. 33002-3144-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	IR-24-3 (66) 171	1983		

BILL OF STEEL

WEST-BOUND LANE

SUPERSTRUCTURE - EPOXY

	Bar	Location	Size	No. Req'd.	A	B	C	D	Length
	A601E	SLAB	6	9					60'-0"
	A603E	"	6	3					54'-5"
△1	A700E	SLAB	7	497					20'-0"
△1	A701E	SLAB	7	497					28'-10"
	A800E	SLAB	8	62					40'-0"
	A801E	"	8	96					60'-0"
	A802E	"	8	64					33'-8"
△1	F600E	SLAB	6	248	2'-9"	1'-6"	7'-0"	6"	10'-11"

SUPERSTRUCTURE

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A600	SLAB	6	42					60'-0"
A602	"	6	14					54'-5"

ABUTMENTS NO. 1

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A440	WINGWALL	4	13					3'-10"
A442	ENDWALL	4	8				△1	7'-8"
A443	WINGWALL	4	4					13'-6"
A444	RDWY. BKT	4	1					6'-2"
A445	PARAPET SUP.	4	1					13'-2"
A540	ABUT. BEAM	5	6					7'-6"
A541	ABUT. WING	5	5					14'-0"
A640	WING WALL	6	13					3'-10"
A641	WINGWALL	6	1					13'-11"
A642	WINGWALL	6	3					13'-9"
A643	WINGWALL	6	1					9'-8"
A644	WING WALL	6	1					8'-8"
A645	WING WALL	6	2					6'-6"
A740	ABUT. BEAM	7	10	△1				7'-6"
A741	ABUT. WING	7	9	△1				14'-0"
C640	ABUT. WING	6	4	12'-2"				13'-4"
CA640	ABUT. WING	6	12	4'-10"	1'-5"	0"		6'-4"
SERIES CA641	ABUT. WING	6	2		1'-5"	0"		23'-8"
	△1	DIM. "A" VARIES FROM 2'-10" TO 3'-10" IN INC. OF 3" (5 BARS)						
CA642	ABUT. WING	6	8 △1	2'-8"	1'-5"	0"		4'-0"
H540	RDWY. BKT	5	6	1'-8"	6"			2'-7"
H640	ABUT. WING	6	13 △1	8"	3'-1"			6'-8"
H840	ABUT. BEAM	8	7	8"	3'-7"			7'-8"
L540	ABUT. BEAM	5	6	2'-8"	1'-0"	2'-8"		11'-6"
L541	ABUT. WING	5	12	2'-2"	1'-0"	2'-8"		10'-6"
A742	ABUT BEAM	7	10	△1				5'-4"
A542	ABUT. BEAM	5	2	△1				5'-4"

ABUTMENT NO. 1 (EPOXY)

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A441E	ENDWALL	4	2 △1				△1	7'-8"
H641E	ENDWALL	6	7	8"	3'-10"			8'-0"

PAVEMENT @ BRIDGE ENDS - EPOXY

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A390E	SLAB (TOP)	3	25				△1	17'-10"
A391E	SLAB (TOP)	3	24					24'-2"
A392E	SLAB (TOP)	3	25				△1	13'-0"
A490E	SLAB (TOP)	4	25				△1	12'-0"
A491E	SLAB (TOP)	4	25				△1	5'-7"
A690E	SLAB (TOP)	6	18					24'-2"
L590E	FOOTING & SLAB	5	24	1'-2"	1'-0"	2'-2"		7'-6"

PAVEMENT @ BRIDGE ENDS

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A490	SLAB (BOT.)	4	25				△1	12'-0"
A491	SLAB (BOT.)	4	25				△1	5'-7"
A790	FOOTING & SLAB	7	8				△1	12'-0"
A791	FOOTING & SLAB	7	8				△1	5'-7"
A890	SLAB	8	32					2'-6"
A990	SLAB (BOT.)	9	34					24'-2"
A1190	SLAB (DRAIN)	11	4					6'-0"

ABUTMENT NO. 2

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A440	WINGWALL	4	13					3'-10"
A442	ENDWALL	4	8				△1	7'-8"
A443	WINGWALL	4	4					13'-6"
A444	RDWY. BKT.	4	1					6'-2"
A445	PARAPET SUP.	4	1					13'-2"
A540	ABUT. BEAM	5	6					7'-6"
A541	ABUT. WING	5	5					14'-0"
A640	WINGWALL	6	13					3'-10"
A641	WINGWALL	6	1					13'-11"
A642	WINGWALL	6	3					13'-9"
A643	WINGWALL	6	1					9'-8"
A644	WING WALL	6	1					8'-8"
A645	WINGWALL	6	2					6'-6"
A740	ABUT. BEAM	7	10	△1				7'-6"
A741	ABUT. WING	7	9	△1				14'-0"
C640	ABUT. WING	6	4	12'-2"				13'-4"
CA640	ABUT. WING	6	12	4'-10"	1'-5"	0"		6'-4"
SERIES CA641	ABUT. WING	6	2		1'-5"	0"		23'-8"
	△1	DIM. "A" VARIES FROM 2'-10" TO 3'-10" IN INC. OF 3" (5 BARS)						
CA642	ABUT. WING	6	8 △1	2'-8"	1'-5"	0"		4'-0"
H540	RDWY. BKT.	5	6	1'-8"	6"			2'-7"
H640	ABUT. WING	6	13 △1	8"	3'-1"			6'-8"
H840	ABUT. BEAM	8	7	8"	3'-7"			7'-8"
L540	ABUT. BEAM	5	6	2'-8"	1'-0"	2'-8"		11'-6"
L541	ABUT. WING	5	12	2'-2"	1'-0"	2'-8"		10'-6"
A742	ABUT BEAM	7	10	△1				5'-4"
A542	ABUT BEAM	5	2	△1				5'-4"

ABUTMENT NO. 2 (EPOXY)

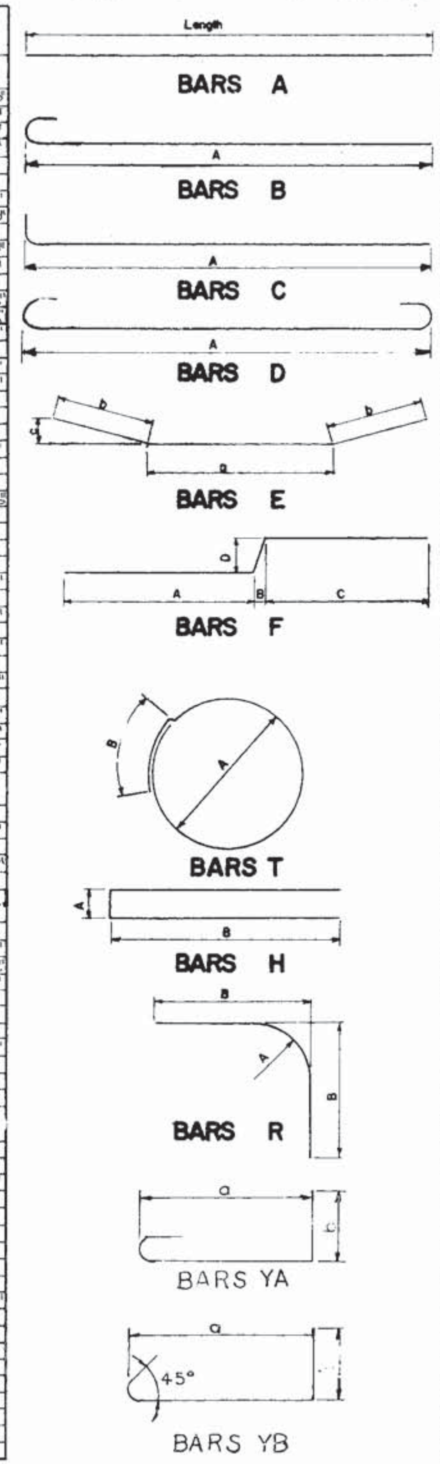
Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A441E	ENDWALL	4	2 △1				△1	7'-8"
H641E	ENDWALL	6	7	8"	3'-10"			8'-0"

PAVEMENT @ BRIDGE ENDS - EPOXY

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A390E	SLAB (TOP)	3	25				△1	17'-10"
A391E	SLAB (TOP)	3	24					24'-2"
A392E	SLAB (TOP)	3	25				△1	13'-0"
A490E	SLAB (TOP)	4	25				△1	12'-0"
A491E	SLAB (TOP)	4	25				△1	5'-7"
A690E	SLAB (TOP)	6	18					24'-2"
L590E	FOOTING & SLAB	5	24	1'-2"	1'-0"	2'-2"		7'-6"

PAVEMENT @ BRIDGE ENDS

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A490	SLAB (BOT.)	4	25				△1	12'-0"
A491	SLAB (BOT.)	4	25				△1	5'-7"
A790	FOOTING & SLAB	7	8				△1	12'-0"
A791	FOOTING & SLAB	7	8				△1	5'-7"
A890	SLAB	8	32					2'-6"
A990	SLAB (BOT.)	9	34					24'-2"
A1190	SLAB (DRAIN)	11	4					6'-0"



EAST-BOUND LANE

SUPERSTRUCTURE - EPOXY

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A601E	SLAB	6	9					60'-0"
A603E	"	6	3					55'-5"
A700E	SLAB	7	499				△1	20'-0"
A701E	SLAB	7	499				△1	28'-10"
A800E	SLAB	8	62					40'-0"
A801E	"	8	96					60'-0"
A802E	"	8	64					34'-2"
F600E	SLAB	6	249	2'-9"	1'-0"	7'-0"	6"	10'-11"

SUPERSTRUCTURE

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A600	SLAB	6	42					60'-0"
A602	"	6	14					55'-5"

ABUTMENTS NO. 1

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A440	WINGWALL	4	13					3'-10"
A442	ENDWALL	4	8				△1	7'-8"
A443	WING WALL	4	4					13'-6"
A444	RDWY. BKT.	4	1					6'-2"
A445	PARAPET SUP.	4	1					13'-2"
A540	ABUT. BEAM	5	6					7'-6"
A541	ABUT. WING	5	5					14'-0"
A640	WINGWALL	6	13					3'-10"
A641	WINGWALL	6	1					13'-11"
A642	WINGWALL	6	3					13'-9"
A643	WINGWALL	6	1					9'-8"
A644	WINGWALL	6	1					8'-8"
A645	WINGWALL	6	2					6'-6"
A740	ABUT. BEAM	7	10	△1				7'-6"
A741	ABUT. WING	7	9	△1				14'-0"
C640	ABUT. WING	6	4	12'-2"				13'-4"
CA640	ABUT. WING	6	12	4'-10"	1'-5"	0"		6'-4"
SERIES CA641	ABUT. WING	6	2		1'-5"	0"		23'-8"
	△1	DIM. "A" VARIES FROM 2'-10" TO 3'-10" IN INC. OF 3" (5 BARS)						
CA642	ABUT. WING	6	8 △1	2'-8"	1'-5"	0"		4'-0"
H540	RDWY. BKT.	5	6	1'-8"	6"			2'-7"
H640	ABUT. WING	6	13 △1	8"	3'-1"			6'-8"
H840	ABUT. BEAM	8	7	8"	3'-7"			7'-8"
L540	ABUT. BEAM	5	6	2'-8"	1'-0"	2'-8"		11'-6"
L541	ABUT. WING	5	12	2'-2"	1'-0"	2'-8"		10'-6"
A742	ABUT. BEAM	7	10	△1				5'-4"
A542	ABUT. BEAM	5	2	△1				5'-4"

ABUTMENT NO. 1 (EPOXY)

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A441E	ENDWALL	4	2 △1				△1	7'-8"
H641E	ENDWALL	6	8	8"	3'-10"			8'-0"

PAVEMENT @ BRIDGE ENDS - EPOXY

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A390E	SLAB (TOP)	3	25				△1	17'-10"
A391E	SLAB (TOP)	3	24					24'-2"
A392E	SLAB (TOP)	3	25				△1	13'-0"
A490E	SLAB (TOP)	4	25				△1	12'-0"
A491E	SLAB (TOP)	4	25				△1	5'-7"
A690E	SLAB (TOP)	6	18					24'-2"
L590E	FOOTING & SLAB	5	24	1'-2"	1'-0"	2'-2"		7'-6"

PAVEMENT @ BRIDGE ENDS

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A490	SLAB (BOT.)	4	25				△1	12'-0"
A491	SLAB (BOT.)	4	25				△1	5'-7"
A790	FOOTING & SLAB	7	8				△1	12'-0"
A791	FOOTING & SLAB	7	8				△1	5'-7"
A890	SLAB	8	32					2'-6"
A990	SLAB (BOT.)	9	34					24'-2"
A1190	SLAB (DRAIN)	11	4					6'-0"

ABUTMENT NO. 2

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A440	WINGWALL	4	13					3'-10"
A442	ENDWALL	4	8				△1	7'-8"
A443	WINGWALL	4	4					13'-6"
A444	RDWY. BKT.	4	1					6'-2"
A445	PARAPET SUP.	4	1					13'-2"
A540	ABUT. BEAM	5	6					7'-6"
A541	ABUT. WING	5	5					14'-0"
A640	WINGWALL	6	13					3'-10"
A641	WINGWALL	6	1					13'-11"
A642	WINGWALL	6	3					13'-9"
A643	WINGWALL	6	1					9'-8"
A644	WINGWALL	6	1					8'-8"
A645	WINGWALL	6	2					6'-6"
A740	ABUT. BEAM	7	10	△1				7'-6"
A741	ABUT. WING	7	9	△1				14'-0"
C640	ABUT. WING	6	4	12'-2"				13'-4"
CA640	ABUT. WING	6	12	4'-10"	1'-5"	0"		6'-4"
SERIES CA641	ABUT. WING	6	2		1'-5"	0"		23'-8"
		DIM. "A" VARIES FROM 2'-10" TO 3'-10" IN INC. OF 3" (5 BARS)						
CA642	ABUT. WING	6	8 △1	2'-8"	1'-5"	0"		4'-0"
H540	RDWY. BKT.	5		1'-8"	6"			2'-7"
H640	ABUT. WING	6	13 △1	8"	3'-1"			6'-8"
H840	ABUT. BEAM	8		8"	3'-7"			7'-8"
L540	ABUT. BEAM	5	6	2'-8"	1'-0"	2'-8"		11'-6"
L541	ABUT. WING	5	12	2'-2"	1'-0"	2'-8"		10'-6"
A742	ABUT. BEAM	7	10	△1				5'-4"
A542	ABUT. BEAM	5	2	△1				5'-4"

ABUTMENT NO. 2 (EPOXT)

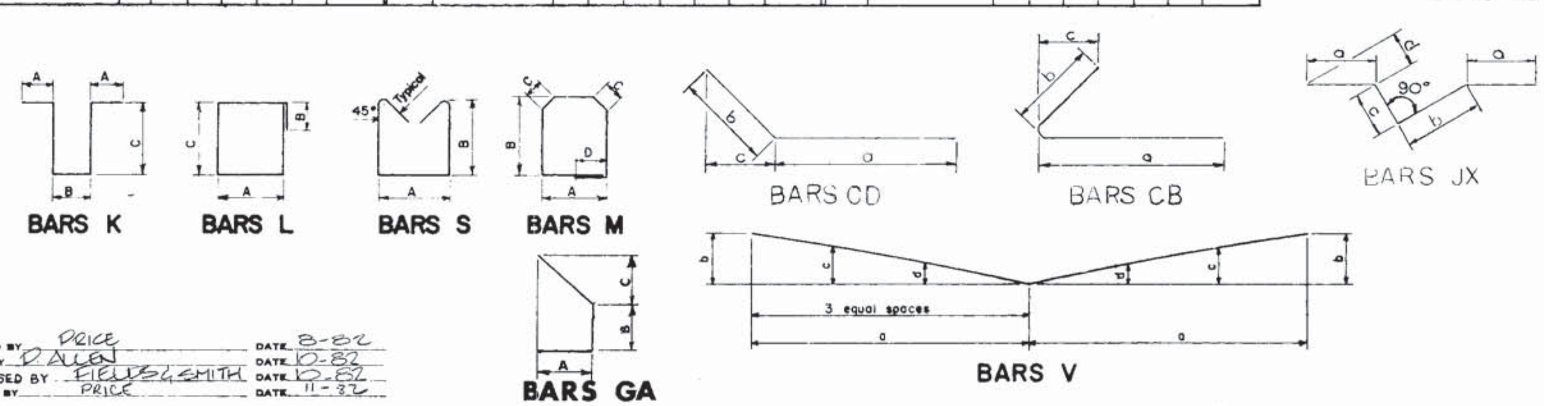
Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A441E	ENDWALL	4	2 △1				△1	7'-8"
H641E	ENDWALL	6	7	8"	3'-10"			8'-0"

PAVEMENT @ BRIDGE ENDS - EPOXY

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A390E	SLAB (TOP)	3	25				△1	17'-10"
A391E	SLAB (TOP)	3	24					24'-2"
							△1	13'-0"
A490E	SLAB (TOP)	4	25				△1	12'-0"
A491E	SLAB (TOP)	4	25				△1	5'-7"
A690E	SLAB (TOP)	6	18					24'-2"
L590E	FOOTING & SLAB	5	24	1'-2"	1'-0"	2'-2"		7'-6"

PAVEMENT @ BRIDGE ENDS

Bar	Location	Size	No. Req'd.	A	B	C	D	Length
A490	SLAB (BOT.)	4	25				△1	12'-0"
A491	SLAB (BOT.)	4	25				△1	5'-7"
A790	FOOTING & SLAB	7	8				△1	12'-0"
A791	FOOTING & SLAB	7	8				△1	5'-7"
A890	SLAB	8	32					2'-6"
A990	SLAB (BOT.)	9	34					24'-0"
A1190	SLAB (DRAIN)	11	4					6'-0"



REINFORCING STEEL CODE

Type	Size	Series
A	5	06

NOTE: Dimensions shown on this sheet are outside to outside of Bar. Standard C.R.S.I. hook details shall apply, except as noted.

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION
1	5-17-83	JCP	BAR DIMENSIONS

DESIGNED BY PRICE DATE 8-82
DRAWN BY D. ALLEN DATE 10-82
SUPERVISED BY FIELDS & SMITH DATE 10-82
CHECKED BY PRICE DATE 11-82

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BILL OF STEEL

WIDENING OF INTERSTATE 24
OVER CHATTANOOGA CREEK
STATION 327+75.00
HAMILTON COUNTY
1983

CORRECT: [signature] ENGINEER OF STRUCTURES
APPROVED: [signature] DIRECTOR OF HIGHWAYS

M-115-60

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(22)	120		76	319

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS — Tennessee Department of Highways Standard Specifications for Road and Bridge Construction, *with Supplement.*

DESIGN SPECIFICATIONS — AASHO, 1961 Edition as amended, with H20-S16-44 Live Load and Alternate Loading as per Sect. 4c of PPM 20-4.

MATERIALS

Concrete--------------------- All concrete, except that in precast concrete piling, prestressed concrete piling and precast prestressed concrete beams, shall be Class "A".
Concrete for precast concrete piling shall be Class "S" with Class "A" aggregates.
For concrete in prestressed concrete piling, see H-5-111 and Special Provisions.
For concrete in prestressed beams, see *Constr.* Specifications.
For materials, forms and finish, see Construction Specifications.

Reinforcing Steel--------------See Construction Specifications and Reinforcing Steel Schedules.

Prestressing Steel Cables----- See *Constr.* Specifications.

Structural Steel--------------- Except as noted below or shown elsewhere, all materials shall be carbon structural steel ASTM *A36-62T*
Rivets shall be ASTM A141-58.
Bolts, nuts and washers shall be ASTM *A36-62T* or A307-*61T*
Nuts shall be self-locking "Stover", or approved equal.

High-tensile-strength bolts: AASHO Specifications Article 2.10.20 with amendments thereto.

Bronze Alloy----------------- See Special Provisions and H-7-2.

Piling------------------------See Construction Specifications, H-5-111 and Special Provisions regarding Precast-Prestressed Concrete Piles.

Prefabricated Masonry Pad---- See Special Provisions and F-10-84.

Premolded Joint Filler-------- See Construction Specifications.
Joint Sealer---------------- See Special Provisions - *Class A or B.*

☒ FABRICATION (Steel) — All connections shall be riveted, bolted or welded, as shown on drawings. All rivets and bolts shall be 7/8" diameter with 15/16" diameter holes. except as noted. *All bolts* shall be high-tensile-strength bolts. General reaming is required. If beam splices are used, these splices shall be reamed while assembled in correct relative position and to proper camber and then shall be match marked. Diaphragm connections shall be reamed assembled, or to a 1" metal templet. Cover plates and shear connectors shall be welded.
☒ See Fabrication of Structural Steel Note this sheet.

PAINTING (Steel) — *Basic Lead Silico Chromate. See Special Provisions regarding Sect. 132 steel structures (painting). Splices and other field connections shall be cleaned and primed before forming slab.*

WELDING — All welding shall conform to the current "Standard Specifications for Welded Highway and Railway Bridges" of the American Welding Society, *except as noted in Special Provisions regarding Welded Structures. For Stud Shear connector welding, see Special Provisions.*

HANDRAILING — See H-5-110 and "Lighting and Handrailing" drawings.

ELECTRICAL LIGHTING — See K-2-246 and "Lighting and Handrailing" drawings.

BITUMINOUS SURFACING — See Construction Specifications.

CAMBER — See "Beam" drawings.

Revised 3/30/64-Fabrication of Structural Steel Note.
3-17-64 Revised notes and quantities.

E S T I M A T E D   Q U A N T I T I E S

ITEM NO.	17-2	17-3	17-4	17-5	104-1	104-2	104-3	105-1	105-2	105-3	132-51	135-4
					A.C.S.C.			S.A. or S.A.S.C. ***				
ITEM / BRIDGE	Dry Excav. *	Wet Excav. **	Rock Excav.	Rock Drilling	Mineral Agg.	Asphalt Cement	Tack Coat	Mineral Agg.	Asphalt Cement	Tack Coat	Steel Struct. ●	Class A Concrete ●●
	C.Y.	C.Y.	C.Y.	L.F.	Tons	Tons	Tons	Tons	Tons	Tons	Lump Sum	C.Y.
BRIDGES ACROSS TRACKS AT 24th ST. BRIDGE 1	387										Lump Sum	650.9
BRIDGES ACROSS TRACKS AT 24th ST. BRIDGE 2	463										do	680.2
BRIDGES ACROSS TRACKS AT 24th ST. BRIDGE 3	505										do	702.1
CHATTANOOGA CREEK BRIDGES EAST-BOUND FREEWAY	51	657	31	36	69.3	5.1	0.3	72.3	5.1	0.3		516.6
CHATTANOOGA CREEK BRIDGES WEST-BOUND FREEWAY	51	306	15	36	69.3	5.1	0.3	72.3	5.1	0.3		479.5
LOOKOUT CREEK BRIDGES EAST-BOUND FREEWAY	48	315	40	72	60.0	4.5	0.3	62.7	4.5	0.3		400.8
LOOKOUT CREEK BRIDGES WEST-BOUND FREEWAY	48		37	72	60.0	4.5	0.3	62.7	4.5	0.3		388.5
BROWN'S FERRY EAST BOUND	322										do	378.8
BROWN'S FERRY WEST BOUND	322										do	377.7
KELLEY'S FERRY EAST BOUND	278		18	144							do	318.4
KELLEY'S FERRY WEST BOUND	324		18	144							do	321.7
TOTALS	2,799	1,278	159	504	258.6	19.2	1.2	270.0	19.2	1.2	LUMP SUM	5,215.2

ITEM NO.	135-12	137-3	139-1	139-3	139-1A	139-3A	154-1	154-1A	154-1B	154-1C	154-1D	154-1E	154-1F	154-1G		704	104-1A
			Precast Concrete Piling †		Precast Prestressed Concrete Piling		Precast - Prestressed Concrete Beams ††										A.C.S.C.
ITEM / BRIDGE	Reinf. Steel	10BP42 Steel H-Piling	Test	Size 1	Test	Size 1	42"x3'-0" 79'± •	42"x2'-9" 79'±	42"x3'-0" 77'± •	42"x2'-9" 77'±	42"x3'-0" 75'± ••	42"x2'-9" 75'±	33"x3'-0" 66'	33"x2'-9" 66'	Lighting	Concrete Handrail	Mineral Filler
	Lbs.	L.F.	L.F.	L.F.	L.F.	L.F.	Each	Each	Each	Each	Each	Each	Each	Each	Lump Sum	L.F.	Tons
BRIDGES ACROSS TRACKS AT 24th ST. BRIDGE 1	157,623		220	3,910											Lump Sum •••	394	
BRIDGES ACROSS TRACKS AT 24th ST. BRIDGE 2	135,026		220	3,855											do •••	408	
BRIDGES ACROSS TRACKS AT 24th ST. BRIDGE 3	148,230		184	3,495											do •••	486	
CHATTANOOGA CREEK BRIDGES EAST-BOUND FREEWAY	63,268	670			80	2,320	11	1	11	1	10	2			do ⊙	456	3.0
CHATTANOOGA CREEK BRIDGES WEST-BOUND FREEWAY	58,268	710			80	2,500	11	1	11	1	10	2			do ⊙	456	3.0
LOOKOUT CREEK BRIDGES EAST-BOUND FREEWAY	51,321	1,090											30	6	do ⊙	396	2.7
LOOKOUT CREEK BRIDGES WEST-BOUND FREEWAY	49,966	1,060											30	6	do ⊙	396	2.7
BROWN'S FERRY EAST BOUND	78,834	1,630													do ⊙	274	
BROWN'S FERRY WEST BOUND	78,433	1,775													do ⊙	274	
KELLEY'S FERRY EAST BOUND	70,450	510													do ⊙	226	
KELLEY'S FERRY WEST BOUND	71,579	573													do ⊙	226	
TOTALS	962,998	8,018	624	11,260	160	4,820	22	2	22	2	20	4	60	12		3,992	11.4

* All structure excavation above El. 634, not classified as rock excavation, shall be measured and paid for as dry excavation.

** All structure excavation below El. 634, not classified as rock excavation, shall be measured and paid for as wet excavation.

*** S.A. or S.A.S.C. may be used as alternates for A.C.S.C. bituminous surface materials.

● Lump sum includes expansion dam, shear connectors, bearings for beams, complete with bronze alloy plates and anchor bolts, and painting of structural steel.

Estimated weights of structural steel are:

Bridge 1	214,000 pounds	*Brown's Ferry East Bound*	*182,400 LBS.*	*Total All Bridges*	
Bridge 2	236,500 pounds	*Brown's Ferry West Bound*	*182,400 LBS.*	*790,800 LBS.*	
Bridge 3	340,300 pounds	*Kelley's Ferry East Bound*	*112,500 LBS.*	*589,800 LBS.*	
		Kelley's Ferry West Bound	*112,500 LBS.*	*1,380,600 LBS.*	
Total	790,800 pounds	*TOTAL*	*589,800 LBS.*		

●● Cost of cofferdams and of all embedded material such as joint fillers, drains, etc. shall be included in the unit price of Class "A" concrete. Concrete and reinforcement quantities include concrete safety curbs. That part of the concrete replaced by the embedded parts of the concrete piles is not included in the estimated quantities shown.

† Alternates will be permitted for the piling only where noted on the substructure drawings.

†† Prestressed concrete members complete in place with tie-rods, dowels (and drilling for dowels), bearing pads, joint fillers, etc. but not including concrete safety curbs.

• Includes 3 taper width beams, varying in width from 3'-0" to 2'-9".

•• Includes 2 taper width beams, varying in width from 3'-0" to 2'-9".

••• Lump sum for lighting complete shall include furnishing and placing all conduits, conductors, cables, junction boxes, lighting standards (including anchor bolts) and all other accessories as shown or noted on drawings.

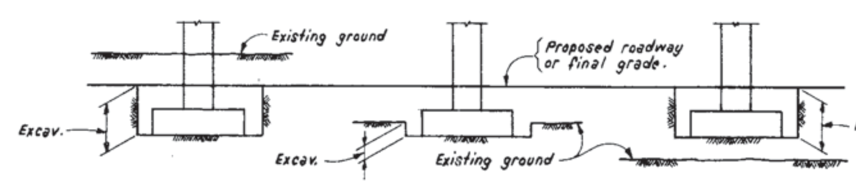
⊙ *Lump sum for lighting shall include furnishing and placing all Conduits and Junction Boxes only.*

FABRICATION OF STRUCTURAL STEEL

No fabrication shall be started until the materials involved have been approved by the Tennessee Highway Division of Test or, in the case of a railroad structure, by that company. Heat numbers on main material must be preserved or transferred during fabrication and shop painting so that they will be identifiable in the field.

NOTE:

All elevations shown for the footings on these bridges are based on best available foundation information. After the foundations are uncovered, they will be adjusted to fit actual conditions. No increase in the unit price bid for excavation will be permitted due to the raising or lowering of the footings.



EXCAVATION DETAILS

LIST OF DRAWINGS

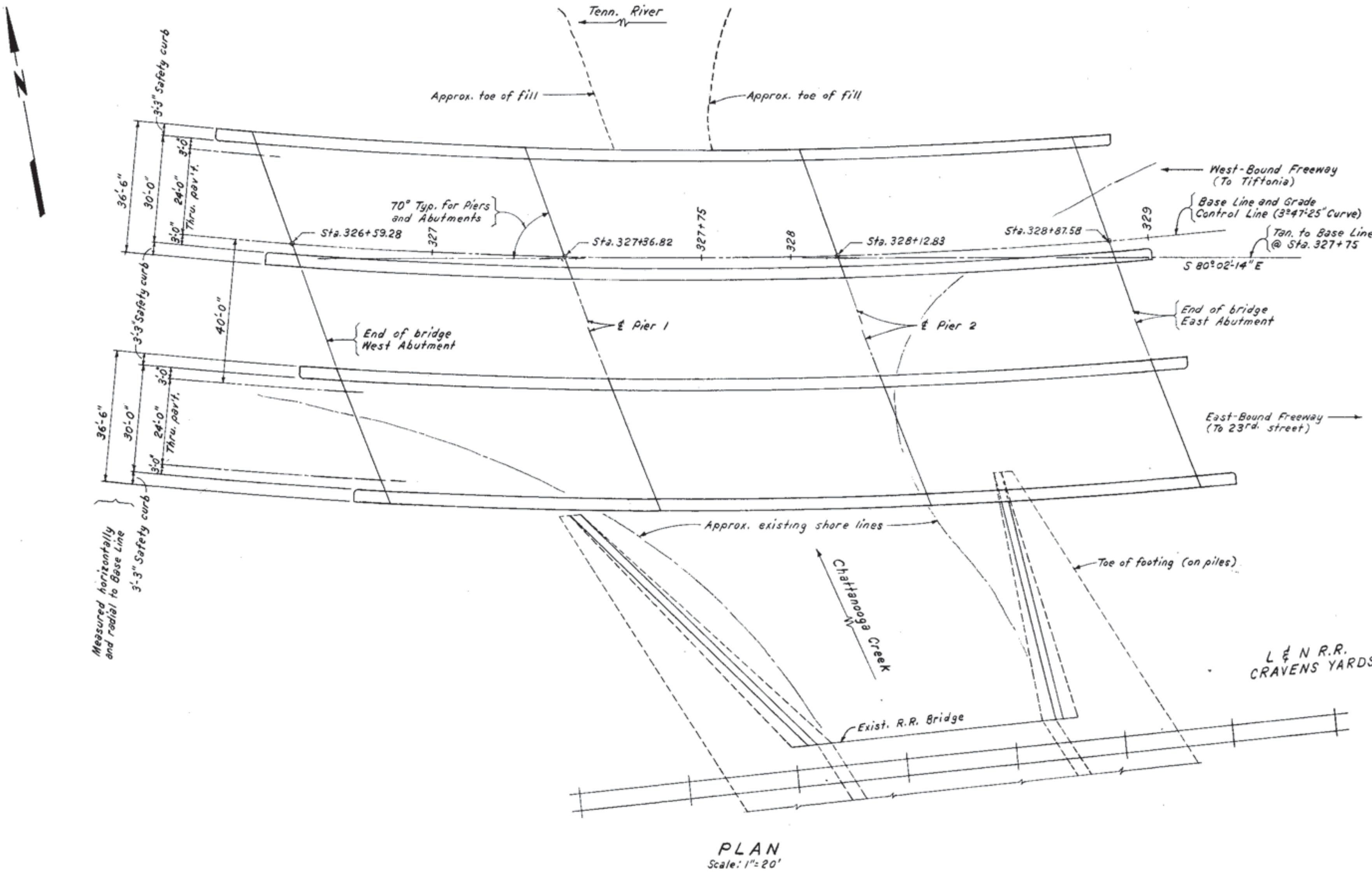
STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3( )

GENERAL NOTES AND SPECIFICATIONS

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN:	DRWN:	SCALE: NONE		DATE: 11-1-63
CHKD:	CHKD: SUPV:	FILE NO. 57.77	SHEET NO.	K-12-53

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(1) 110			123	319



PLAN
Scale: 1"=20'

ESTIMATED QUANTITIES

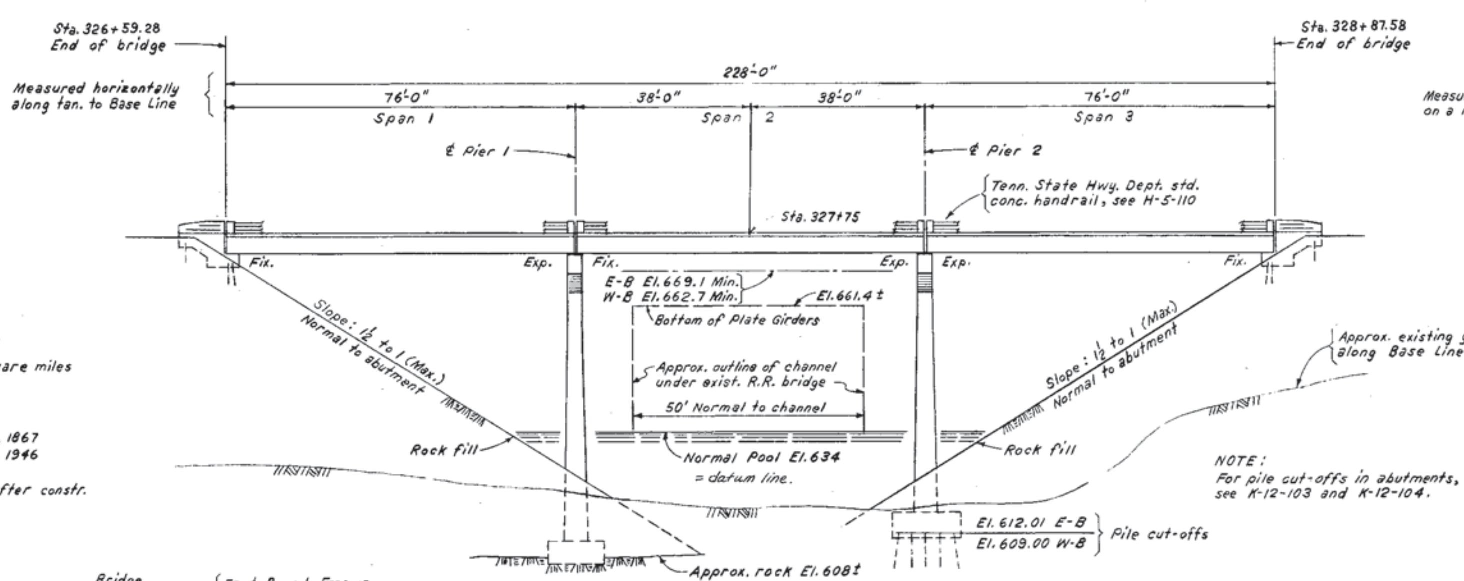
ITEM NO.	17-2	17-3	17-4	17-5	104-1	104-2	104-3	105-1	105-2	105-3	135-4	135-12	137-3	139-1A	139-3A	154-1	154-1A	154-1B	154-1C	154-1D	154-1E		704	104-1A
ITEM	Dry Excav.	Wet Excav.	Rock Excav.	Rock Drilling	A. C. S. C. Mineral Agg.	A. C. S. C. Asphalt Cement	A. C. S. C. Tack Coat	S. A. or S. A. S. C. Mineral Agg.	S. A. or S. A. S. C. Asphalt Cement	S. A. or S. A. S. C. Tack Coat	Class "A" Conc.	Reinf. Steel	10BP42 Steel H-piling	Prestr. Conc. Piling Test	Prestr. Conc. Piling Size 1	Prestr. Conc. Beams 42" deep Length 79'± 3'-0"*	Length 79'± 2'-9"	Length 77'± 3'-0"*	Length 77'± 2'-9"	Length 75'± 3'-0"†	Length 75'± 2'-9"	Lighting ⊙	Conc. Handrail	A.C.S.C. Mineral Filler
STRUCT.	C.Y.	C.Y.	C.Y.	L.F.	Ton	Ton	Ton	Ton	Ton	Ton	C.Y.	Lbs.	L.F.	L.F.	L.F.	Each	Each	Each	Each	Each	Each	Lump Sum	L.F.	Ton
West Abutment	26								△3	109.6	31.5	2,980												
Pier 1, W-B		△ 106	△	△							△ ~~203.7~~	~~[illegible]~~ △	△	19,936										
Pier 2, W-B		247									205.6	25,641												
Pier 1, E-B	66	~~[illegible]~~	~~31~~ △	~~36~~ △					△	[illegible]	~~189.2~~	~~27,427~~	23,191	△										
Pier 2, E-B		426									213.9	26,736												
East Abutment	25										30.5	2,923												
Span 1					23.1	1.7	0.1	24.1	1.7	0.1	17.5	1,071				11	1						152	1.0
Span 2					23.1	1.7	0.1	24.1	1.7	0.1	17.1	1,097						11	1				152	1.0
Span 3					23.1	1.7	0.1	24.1	1.7	0.1	16.9	1,034								10	2		152	1.0
		△							△3	372.0	△	△	54,682 △											
Total, W-B Freeway	51	353	△	△	69.3	5.1	0.3	72.3	5.1	0.3	~~203.7~~	59,721	710	80	2500	11	1	11	1	10	2	Lump Sum	456	3.0
Total, E-B Freeway	51	~~[illegible]~~ △ 492	~~31~~ △	~~36~~ △	69.3	5.1	0.3	72.3	5.1	0.3	516.6 [illegible] △	~~63,268~~ 59,032 △	670	80	2320	11	1	11	1	10	2	Lump Sum	456	3.0

* Includes 3 taper width beams, see K-12-53.
† Includes 2 taper width beams, see K-12-53.
⊙ No light standards or wiring in this structure.

BRIDGE NOS. 33I00240011 & 33I00240012

LIST OF DRAWINGS

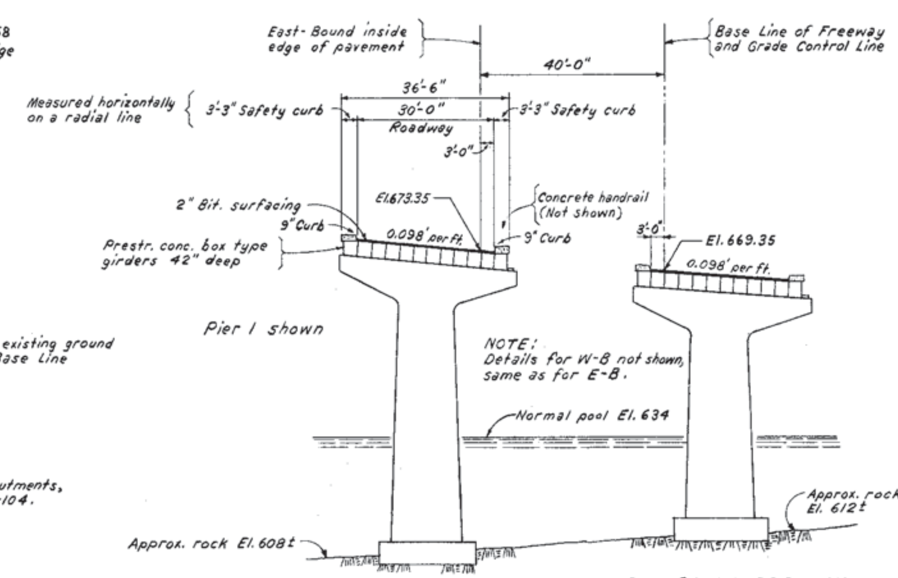
DRAWING NO.	TITLE
K-12-100	General Drawing
K-12-101	Borings and Soundings
K-12-102	Layout Plan
K-12-103	Abutments
K-12-104	Abutment Wingwalls
K-12-105	Piers - Outline
K-12-106	Pier 1 - Reinforcement
K-12-107	Pier 2 - Reinforcement
K-12-108	Deck Cross-Section and Beams
K-12-109	Safety Curbs
K-12-110	Lighting, Handrailing and Drains
K-12-111	Reinforcing Steel - Abutments & Safety Curbs
K-12-112	Reinforcing Steel - Piers



ELEVATION
LOOKING NORTH
Scale: 1"=20'

NOTE: Effect of skew not shown.

NOTE: Rock fill included in roadway quantities. Provisions shall be made so that piles will not be driven through rock fill.

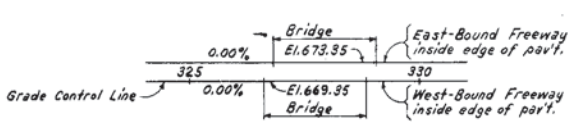


TYPICAL CROSS SECTION
LOOKING WEST
Scale: 1"=20'

DRAINAGE AREA:
At mouth - 74.7 square miles

HIGH WATER:
El. 679.0 March 11, 1867
* El. 656.8 Jan. 3, 1946

* Highest elevation after constr. of TVA dams.



FINISHED GRADE PROFILE
No Scale

12-Nov-65 Revised Quantities, W.B. Lane △
7-20-65 Revised Quantities, Pier 1 E.B. △
9-9-65 Revised Quantities Pier 1 W.B. △
3-17-64 Revised.

Abbreviations:
W-B West-Bound Freeway
E-B East-Bound Freeway

NOTES:
For General Notes and Specifications, see K-12-53.

One 30' roadway with two safety curbs, per bridge.

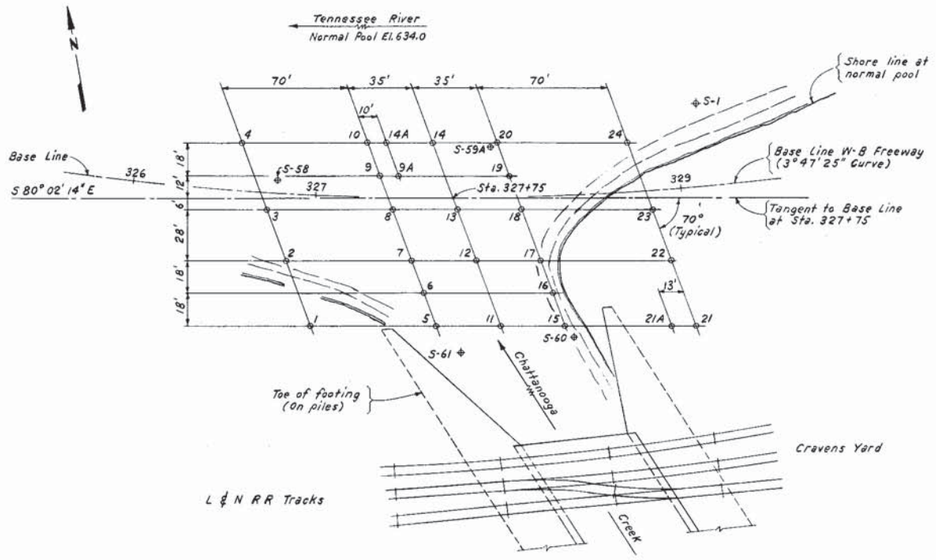
STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3( )

CHATTANOOGA CREEK BRIDGES
EAST-BOUND & WEST-BOUND FREEWAYS
GENERAL DRAWING

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: BJ	DRWN: W.F.A.	SCALE: AS NOTED	DATE:
CHKD: AC	CHKD: AC SUPV: AC	FILE NO. 57.77	SHEET NO. K-12-100

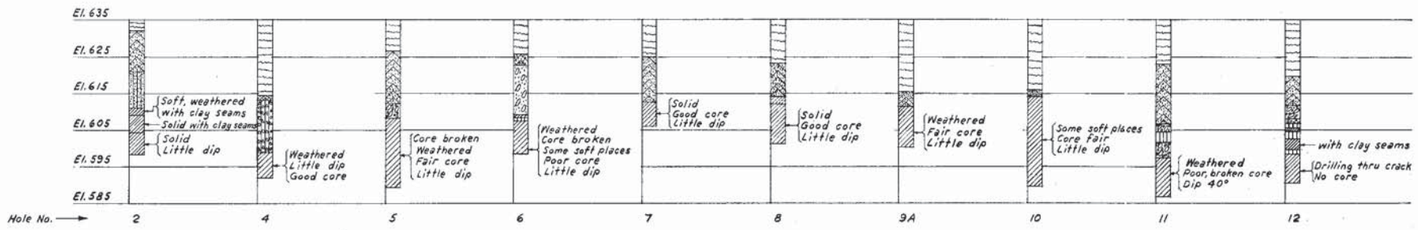
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(21)	120		124	319



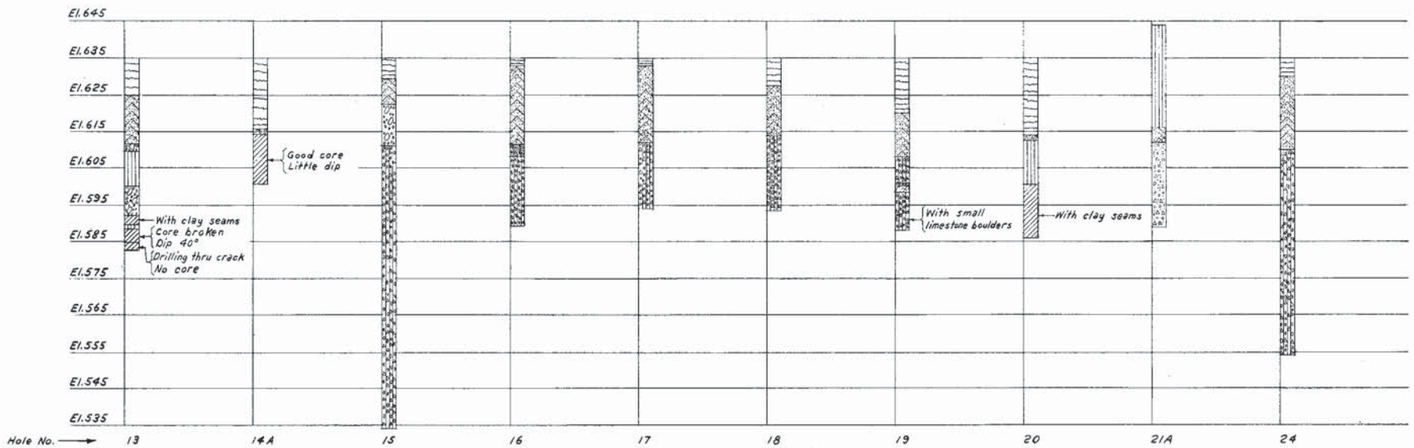
PLAN
Scale: 1" = 40'

NOTE:
Pool Elevation was 635.0 at time borings were made.

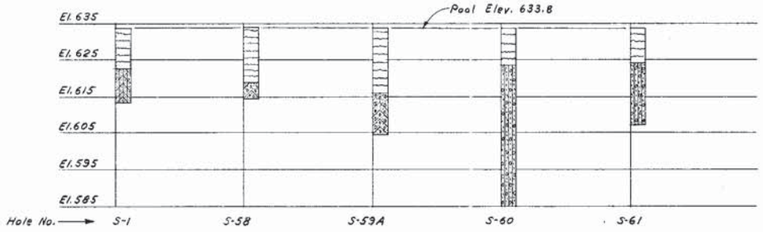
Holes 1, 3, 9, 14, 21, 22, and 23 were not drilled.



LOGS OF BORINGS
HOLES 2, 4 THRU 8, 9A AND 10 THRU 12
Vertical Scale: 1" = 20'

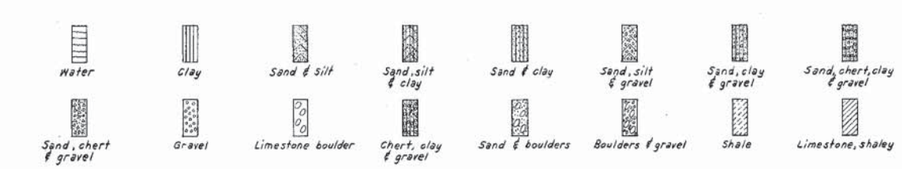


LOGS OF BORINGS
HOLES 13, 14A, 15 THRU 20, 21A AND 24
Vertical Scale: 1" = 20'



LOGS OF SOUNDINGS
HOLES S-1, S-58, S-59A, S-60 AND S-61
Vertical Scale: 1" = 20'

NOTES:
The Tenn. State Highway Dept. does not guarantee the accuracy of the description of the sub-surface explorations.
The Contractor shall satisfy himself as to the correctness of the logs by inspecting the cores stored in the Tenn. State Hwy. Departments Division office in Chattanooga, Tenn.
Holes No. S-1, S-58, S-59A, S-60 and S-61 were soundings made by the Tenn. State Hwy. Dept., August 8, 1956.



LEGEND FOR LOGS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F. A. PROJ. NO. I-24-3( )

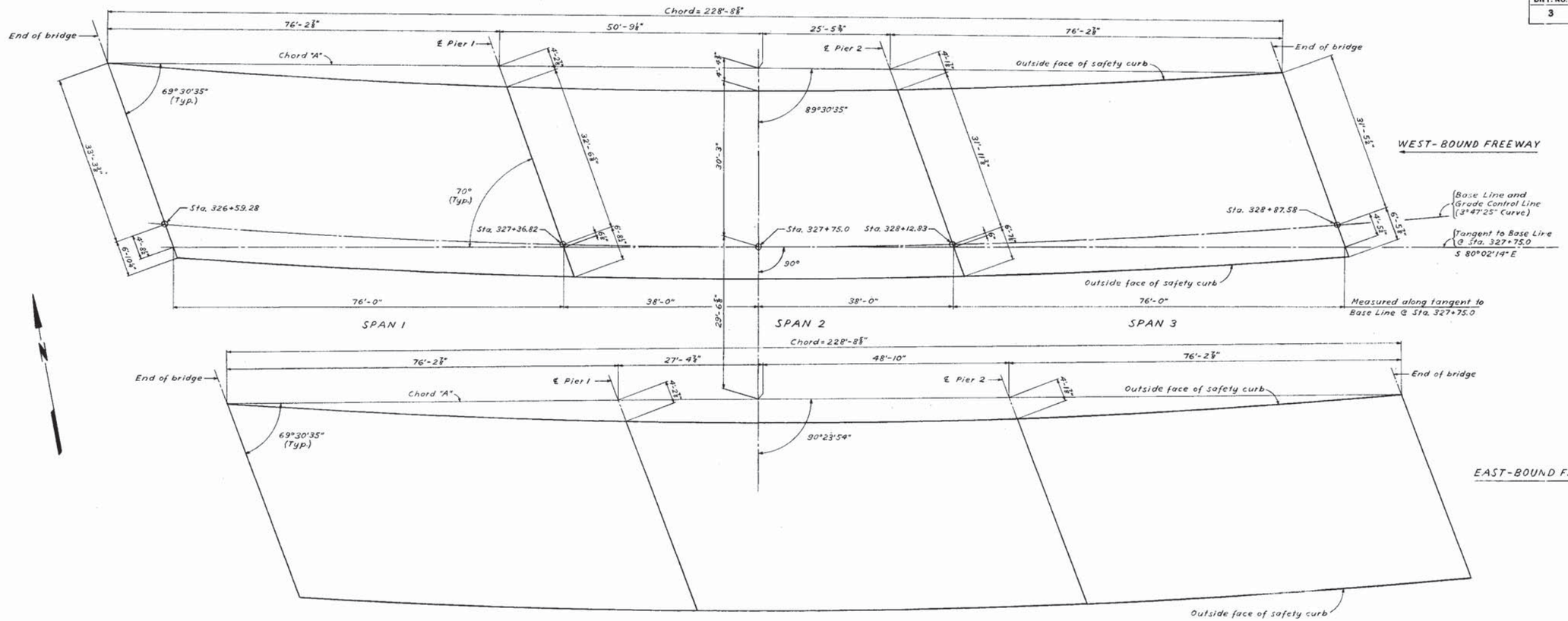
CHATTANOOGA CREEK BRIDGES
EAST-BOUND & WEST-BOUND FREEWAYS
BORINGS AND SOUNDINGS

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN:	DRWN: WRA	SCALE: AS NOTED	DATE:
CHKD:	CHKD: AC		
	SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-101

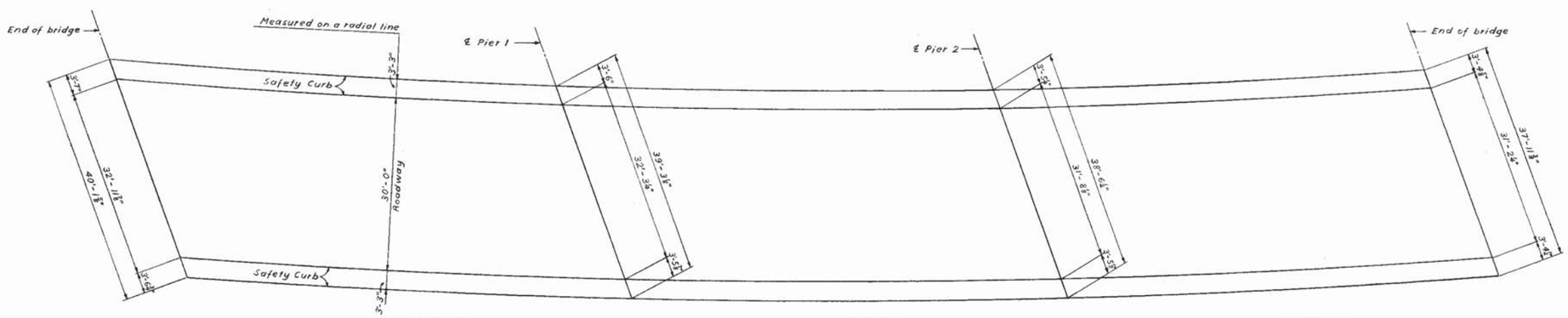
DIETZGEN NO. 1178 DRAFTEX

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(01)120			125	319



LAYOUT PLAN

Scale: 3/32"=1'-0"



DECK PLAN

Scale: 3/32"=1'-0"

NOTES:
For General Notes and Specifications, see K-12-53.
All dimensions are measured horizontally.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F. A. PROJ. NO. I-24-3( )

CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS LAYOUT PLAN

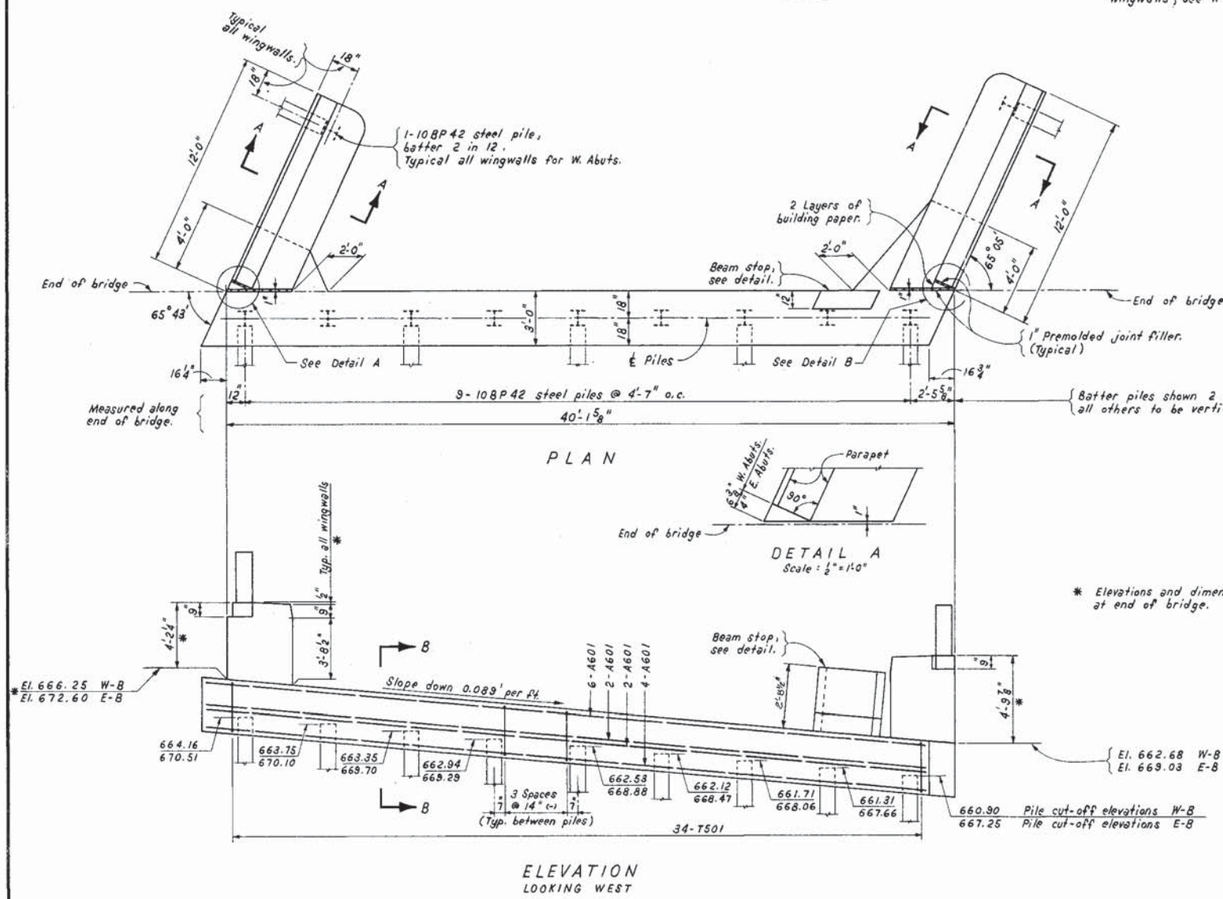
SULLIVAN & HOEBE - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

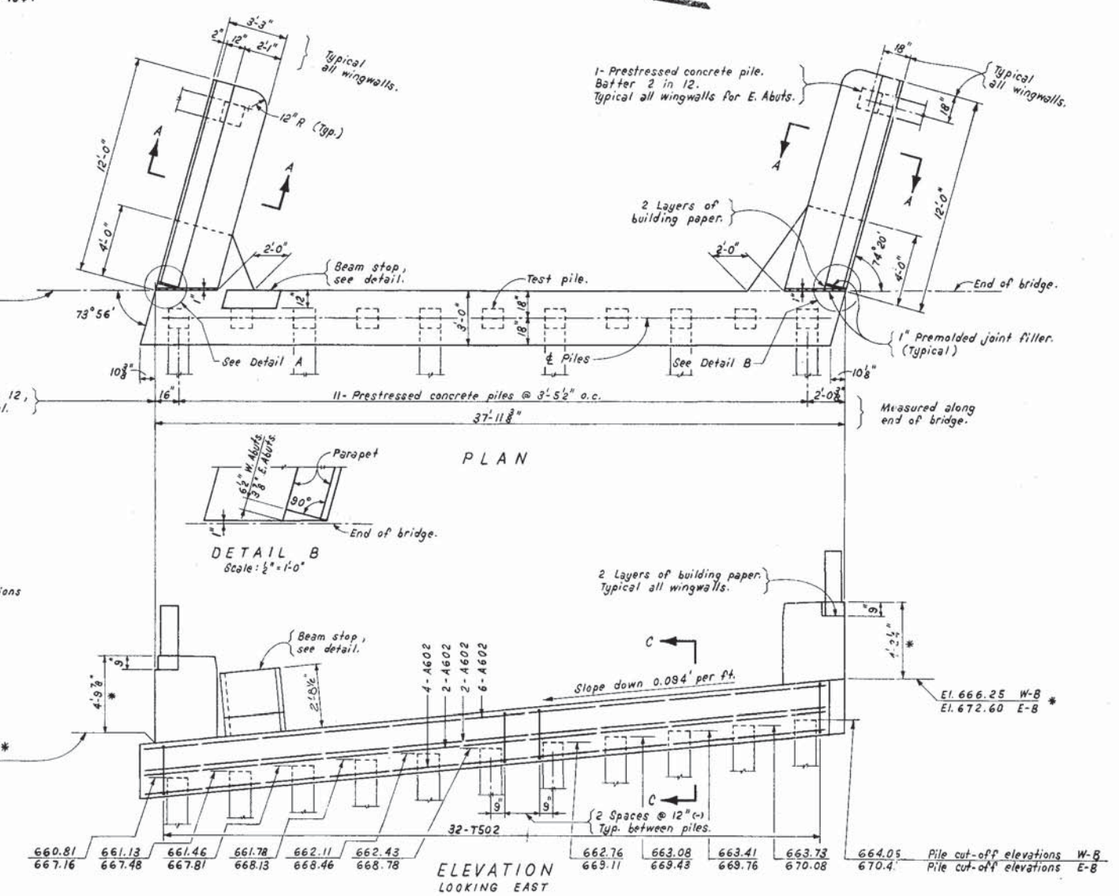
DSGN: BJ	DRWN: BJ	SCALE: AS NOTED	DATE:
CHKD: AC	CHKD: AC	FILE NO. 57.77	SHEET NO. K-12-102
	SUPV: AC		

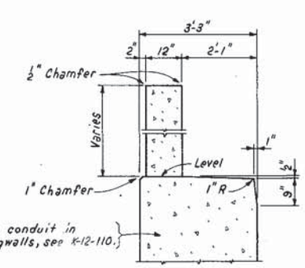
DIETZGEN NO. 1175 DRAFTEX

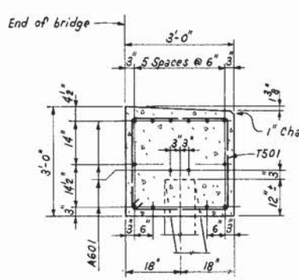
F.I.D. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(10) 120			126	319

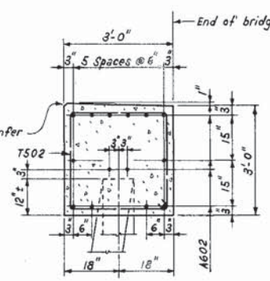
NOTE:
For additional details of wingwalls, see K-12-104.



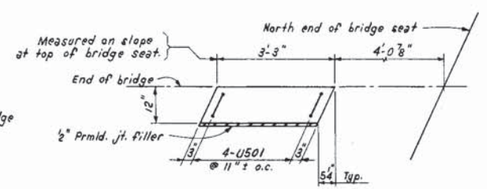


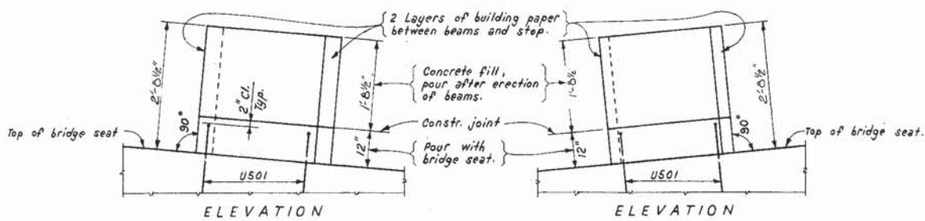






Holes are to be drilled in top of bridge seat for dowels for beams, therefore, exceptional care shall be exercised in placing longit. reinf. steel in the bridge seat as shown, to avoid possible interference with these dowels. Finish top of bridge seat to provide a smooth bearing surface for the full length of the bridge seat.





BEAM STOP DETAILS
Scale: ½"=1'-0"

ABBREVIATIONS:
W-B West-Bound Freeway
E-B East-Bound Freeway

NOTES:
For General Notes and Specifications, see K-12-58.
For notes regarding piles, see K-12-104.
For location of abutments, see K-12-102.
For wingwall details, see K-12-106.
For reinforcing steel and bending diagrams, see K-12-111.
For lighting details, see K-12-110.
Chamfer all exposed edges ¾", except as noted.
All dimensions relative to spacing of reinforcing steel are to centers of bars, except as noted.
All reinforcing steel shall have 2" minimum cover.
Marks to all reinforcing steel in the abutments shall have suffix "A", (thus: A601-A, T501-A, etc.).
Holes for beam dowels shall be drilled after erection of beams. See K-12-108 and F-10-84.
All dimensions shown in plan are measured horizontally, except as noted.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3( )

CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS ABUTMENTS

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

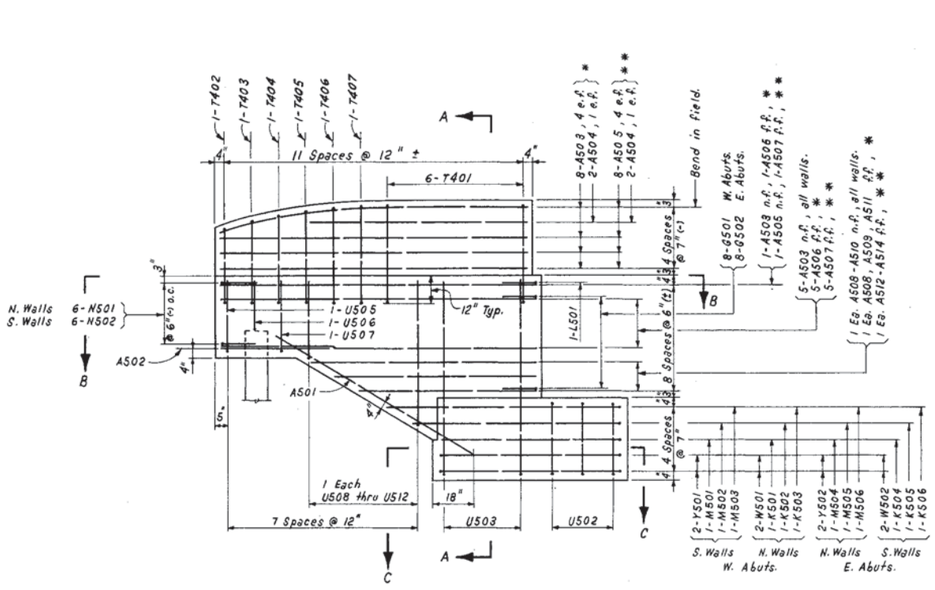
DSGN: AC	DRWN: JRP	SCALE: AS NOTED	DATE:
CHKD: BJ	CHKD: RRT		
	SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-103

Revised 1-7-65

APPROVED

DIETZGEN NO. 1078 DRAFTEX

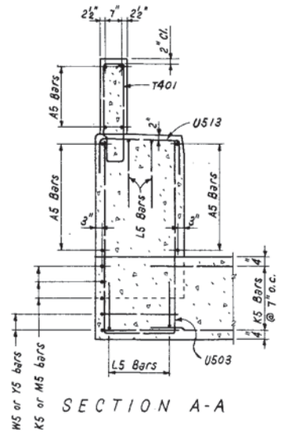
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(11)120			127	319



ELEVATION
(Looking at outside face of wall.)

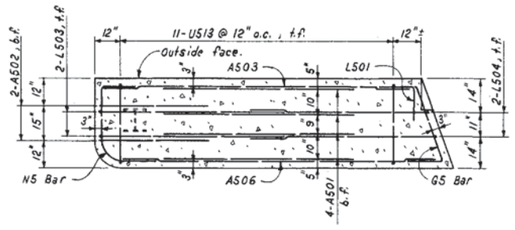
* { W. Abuts. - N. Walls
E. Abuts. - S. Walls

** { W. Abuts. - S. Walls
E. Abuts. - N. Walls

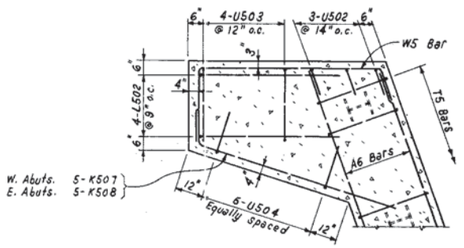


SECTION A-A

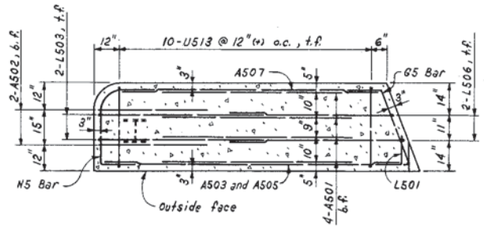
NOTE :
All reinf. steel shall have 2" min. cover, except as noted.
Minimum bar lap = 12".



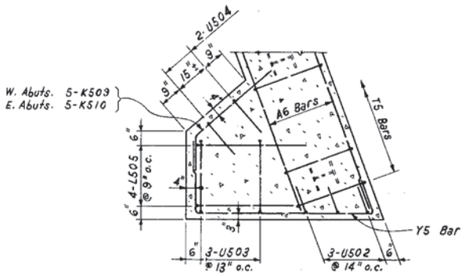
SECTION B-B *



SECTION C-C *

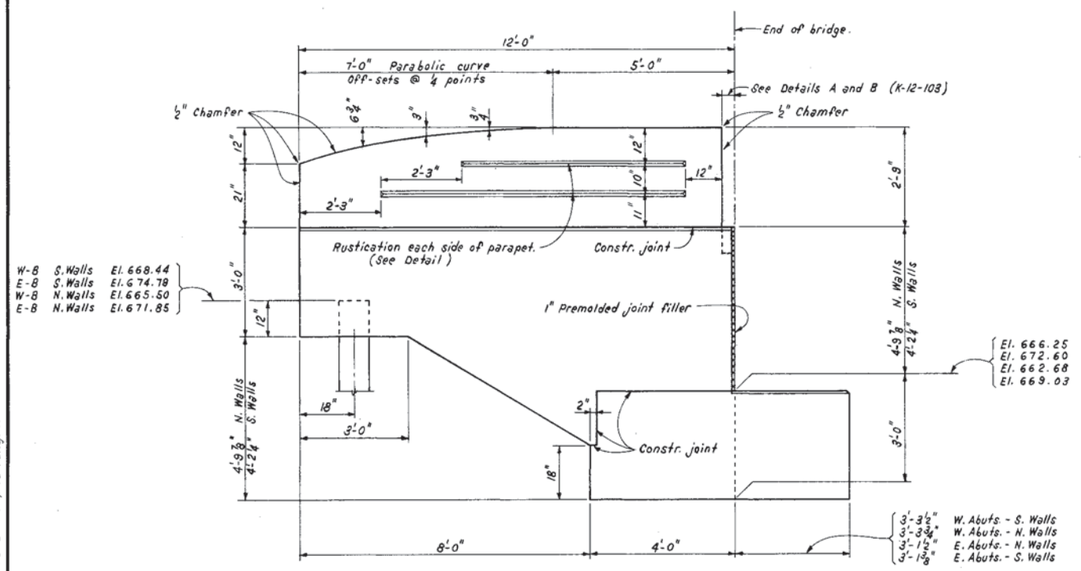


SECTION B-B **



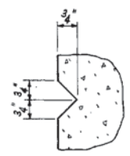
SECTION C-C **

WINGWALL REINFORCEMENT DETAILS
Scale: ⅜" = 1'-0"



TYPICAL WINGWALL ELEVATION
Scale: ½" = 1'-0"

NOTE :
For additional details of wingwalls, see K-12-103.



RUSTICATION DETAIL
No Scale

NOTES REGARDING PILES :
For details of piles, see H-5-111 and Construction Specifications.

WEST ABUTMENTS
All piles shall be 10BP42 steel piles, with no alternates.
All piles shall be driven to refusal on rock.
The maximum design load for basic unit stresses is 37 tons per pile.

EAST ABUTMENTS
All piles shall be prestressed concrete piles, with no alternates.
All piles shall be driven to obtain a minimum bearing capacity of 30 tons per pile.
The maximum design load for basic unit stresses is 30 tons per pile.
Before any piles are ordered, one test pile at each abutment shall be driven at the location noted on K-12-103. This pile shall remain in place as part of the final structure. From the results obtained, all piles shall be ordered of such lengths as to obtain the minimum bearing capacity required.
Length of test piles - 90'
See Special Provisions.

ABBREVIATIONS :
W-B West-Bound Freeway
E-B East-Bound Freeway
e.f. each face
t.f. top face
b.f. bottom face
n.f. near face
f.f. far face

NOTES :
For General Notes and Specifications, see K-12-53.
For lighting details, see K-12-110.
For reinforcing steel and bending diagrams, see K-12-111.
Chamfer all exposed edges ¾", except as noted.
All dimensions relative to spacing of reinforcing steel are to centers of bars, except as noted.
Marks to all reinforcing steel in the abutments shall have suffix "A", (thus: A501-A, U513-A, etc.).

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F. A. PROJ. NO. I-24-3( )

CHATTANOOGA CREEK BRIDGES
EAST-BOUND & WEST-BOUND FREEWAYS
ABUTMENT WINGWALLS

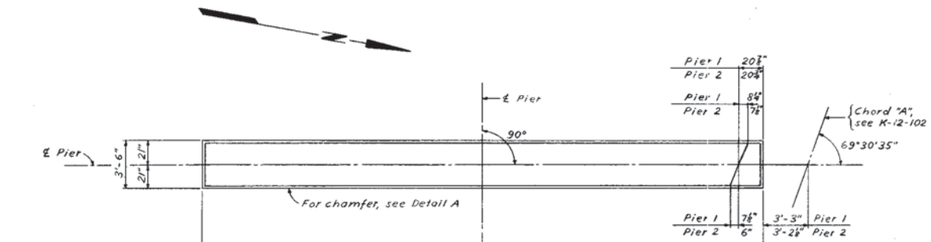
SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: BJ	DRWN: JRP	SCALE: AS NOTED	DATE:
CHKD: AC	CHKD: HRT SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-104

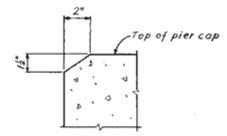
3-17-64 Revised test pile length.

DIETZGEN NO. 1078 DRAFTEX

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(23)	120		18	319

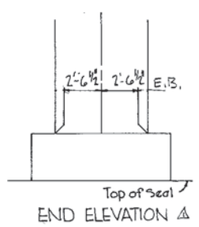


PLAN OF CAP
Scale: ¾"=1'-0"

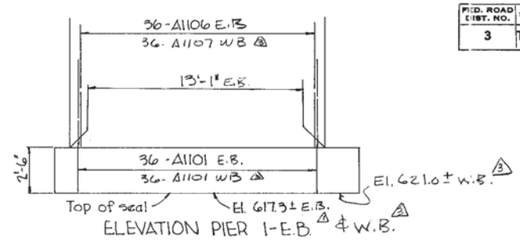


DETAIL A
SHOWING TYPICAL CHAMFER FOR TOP OF CAP
No Scale

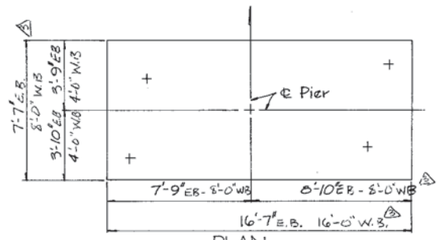
Note:
Finish top of cap to provide a smooth bearing surface for the full length of the cap. Holes for beam dowels shall be drilled after erection of beams. See F-10-84 and K-12-108.



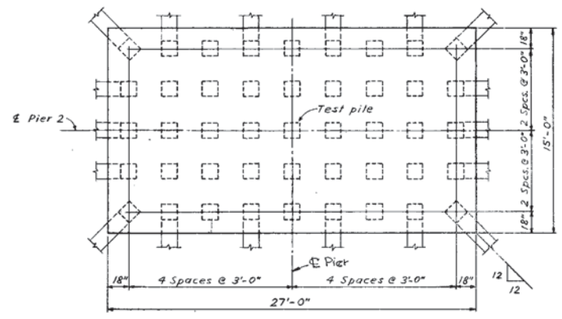
END ELEVATION △



ELEVATION PIER 1-E.B. △ & W.B. △

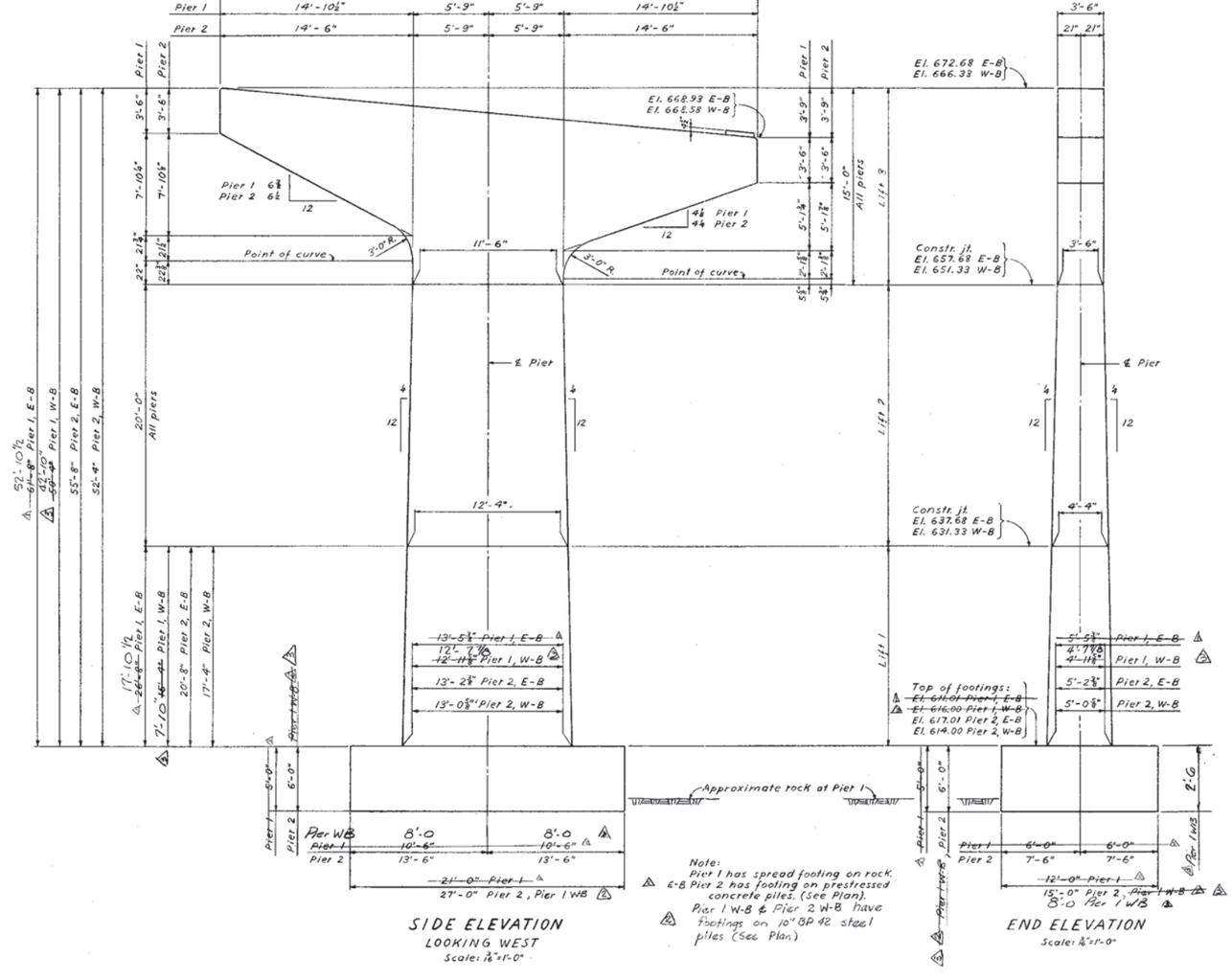


PLAN
PIER 1 E.B. △ & PIER 1 W.B △



PLAN OF FOOTING - PIER 2, PIER 1 W-B △
SHOWING LOCATION OF PILES
Scale: ¾"=1'-0"

Note:
Batter all piles indicated to be battered ½ in 12 in the direction shown



SIDE ELEVATION
LOOKING WEST
Scale: ⅜"=1'-0"

△ Note:
Pier 1 has spread footing on rock. E-B Pier 2 has footing on prestressed concrete piles. (See Plan).
Pier 1 W-B & Pier 2 W-B have footings on 10" BP 42 steel piles (See Plan)

END ELEVATION
Scale: ⅜"=1'-0"

NOTES REGARDING PILES:
All piles shall be prestressed concrete piles with no alternates permitted.
For details of piles, see H-S-III and Construction Specifications.
All piles shall be driven to obtain a minimum bearing capacity of 30 tons per pile.
Before any piles are ordered, one test pile about 40' long shall be driven at the location noted. This pile shall remain in place as part of the final structure. From the results obtained all piles shall be ordered of such lengths as to obtain the minimum bearing capacity required.
The maximum design load for basic unit stresses is 30 tons per pile.

△2 NOTE: Use 10" BP 42 Steel Piles for Pier 1 W-B and Pier 2 W-B.

FOUNDATION NOTES FOR PIER 1:
The top of footing elevations are based upon the available subsurface data furnished by the Tenn. State Highway Dept.
Footings shall be spread footing type on rock.
The maximum design bearing pressure for basic unit stresses is 12,000 pounds per square foot.
When rock is exposed during the excavation, test holes shall be drilled as directed by the Engineer to determine the soundness of the rock. Excavation shall then be continued until a foundation approved by the Engineer is secured.
The footings shall extend into rock a minimum of 6".
If the pier height is increased more than 3', the Engineer shall be notified.

Abbreviations:
E-B East-Bound Freeway
W-B West-Bound Freeway

NOTES:
For General Notes and Specifications, see K-12-53.
For location of piers, see K-12-102.
For reinforcement in piers, see K-12-106 and K-12-107.
Chamfer all exposed edges 1", except as noted.

△ 11-12-65 Revised Pier 1 W-B & Pier 2 W-B for Steel Piles. For Seal.
△ 9-9-65 Revised Pier 1 W-B & Pier 2 W-B for Steel Piles. △
7-20-65 Revised Pier 1 E-B. △
3-17-64 Revised pile and foundation notes.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F. A. PROJ. NO. I-24-3( )

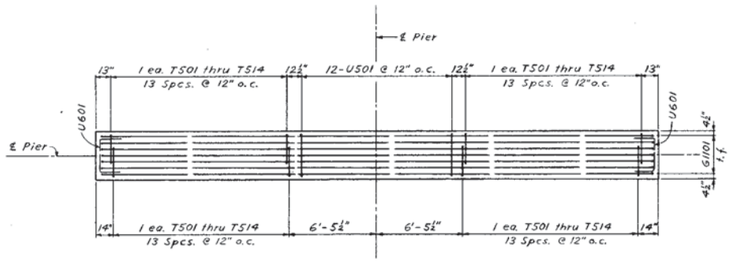
CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS PIERS-OUTLINE

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: FAM	DRWN: BJ	SCALE: AS NOTED	DATE:
CHKD: BJ-JM	CHKD: FAM SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-105

DIETZGEN NO. 1076 DRAFTEX

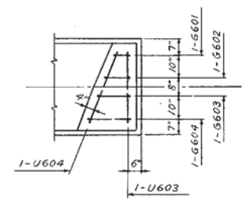
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3( )	120		129	319



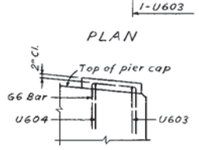
PLAN OF CAP

(Showing top layer of principal reinforcement and vertical stirrups)

Scale: 3/16"=1'-0"



PLAN

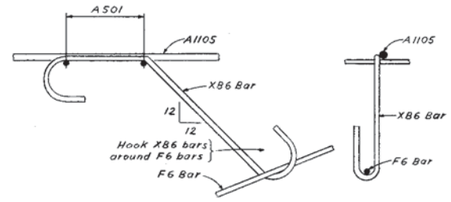


ELEVATION

DETAIL A

SHOWING REINFORCING STEEL IN STOP BLOCK

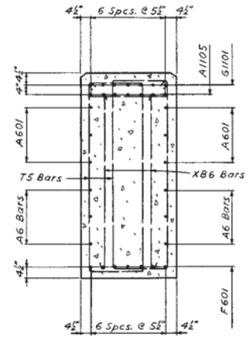
Scale: 3/8"=1'-0"



SIDE VIEW END VIEW

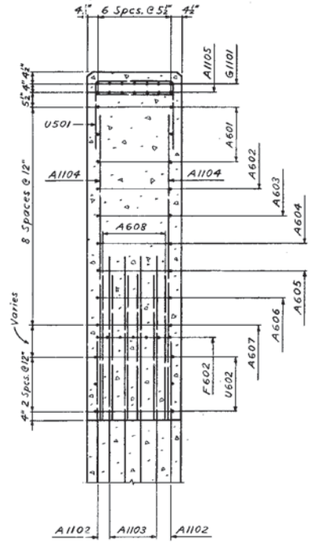
DETAIL OF INCLINED STIRRUP

No Scale



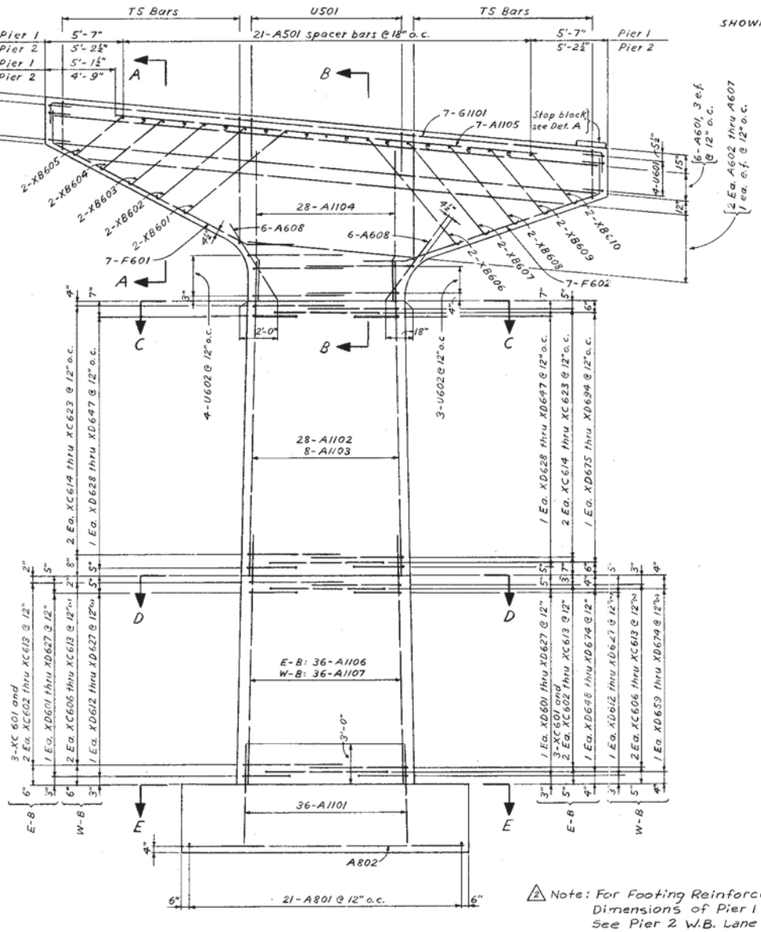
SECTION A-A

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



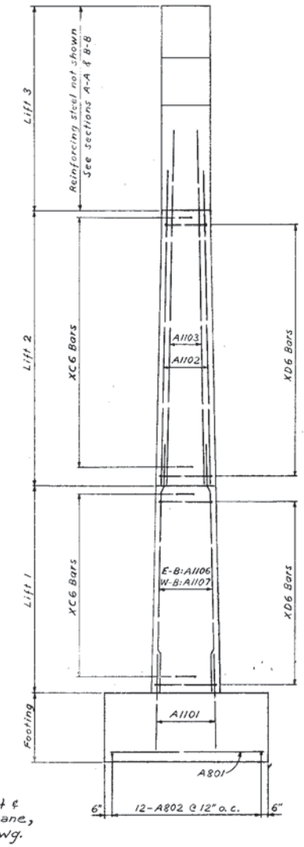
SECTION B-B

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



SIDE ELEVATION

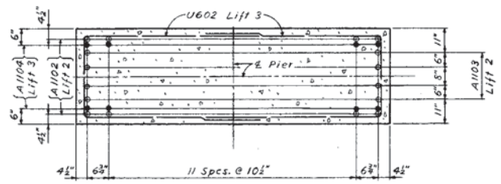
Scale: 3/16"=1'-0"



END ELEVATION

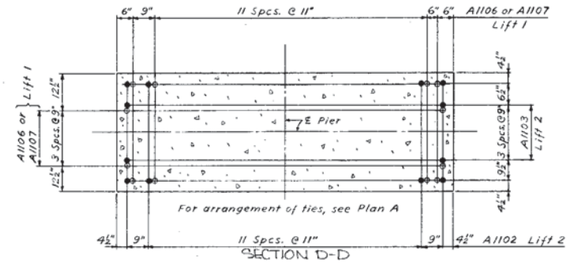
Scale: 3/16"=1'-0"

△2 Note: For Footing Reinforcement & Dimensions of Pier 1 W.B. Lane, See Pier 2 W.B. Lane on Dwg. K-12-107.

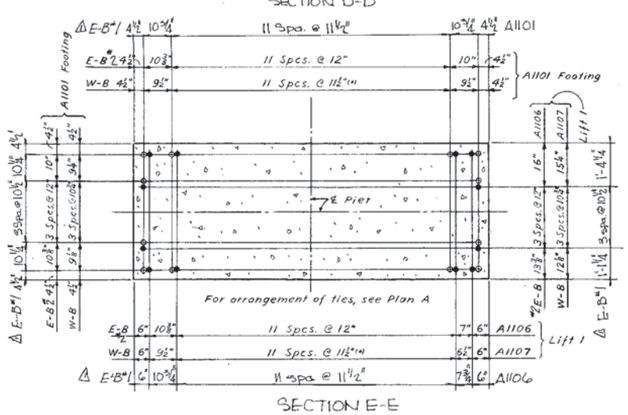


SECTION C-C

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

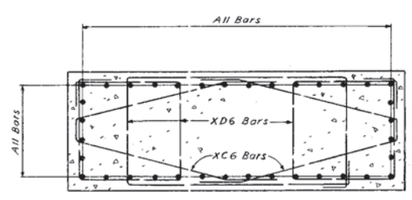


SECTION D-D



SECTION E-E

NOTE:
Holes for beam dowels shall be drilled in top of pier caps after erection of beams. Therefore exceptional care shall be exercised in placing reinforcing steel in top of caps, as shown in sections A-A and B-B, to avoid possible interference with these dowels.



PLAN A

SHOWING TYPICAL ARRANGEMENT OF TIES FOR LIFTS 1 & 2

No Scale

Abbreviations:
E-B East-Bound Freeway
W-B West-Bound Freeway
e.f. each face
t.f. top face

NOTES:
For General Notes and Specifications, see K-12-53.
For outline of piers, see K-12-105.
For reinforcing steel schedule and bending diagrams, see K-12-112.
All dimensions relative to spacing of reinforcing steel are to centers of bars, except as noted.
Marks to all reinforcing steel in piers shall have the suffix "P", (thus: G1101-P, XD602-P, etc.).

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F. A. PROJ. NO. I-24-3( )

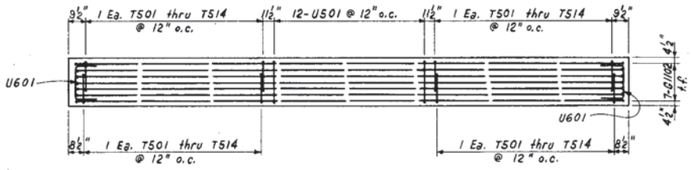
CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS PIER 1 - REINFORCEMENT

SULLIVAN & HOEEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

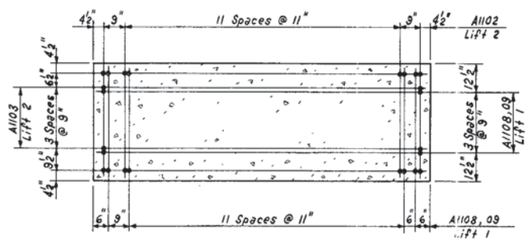
DSGN: FAM	DRWN: BJ	SCALE: AS NOTED	DATE:
CHKD: BJ-JM	CHKD: FAM		
	SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-106

△1 Revised Pier 1 W.B.
△2 Revised Pier 1 E.B.
9-9-65
7-20-65

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(12)	120		130	319

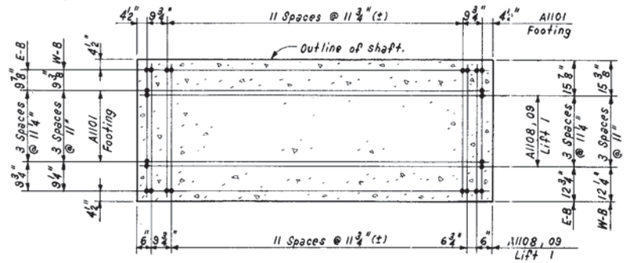


PLAN OF CAP
Scale: 3/16" = 1'-0"

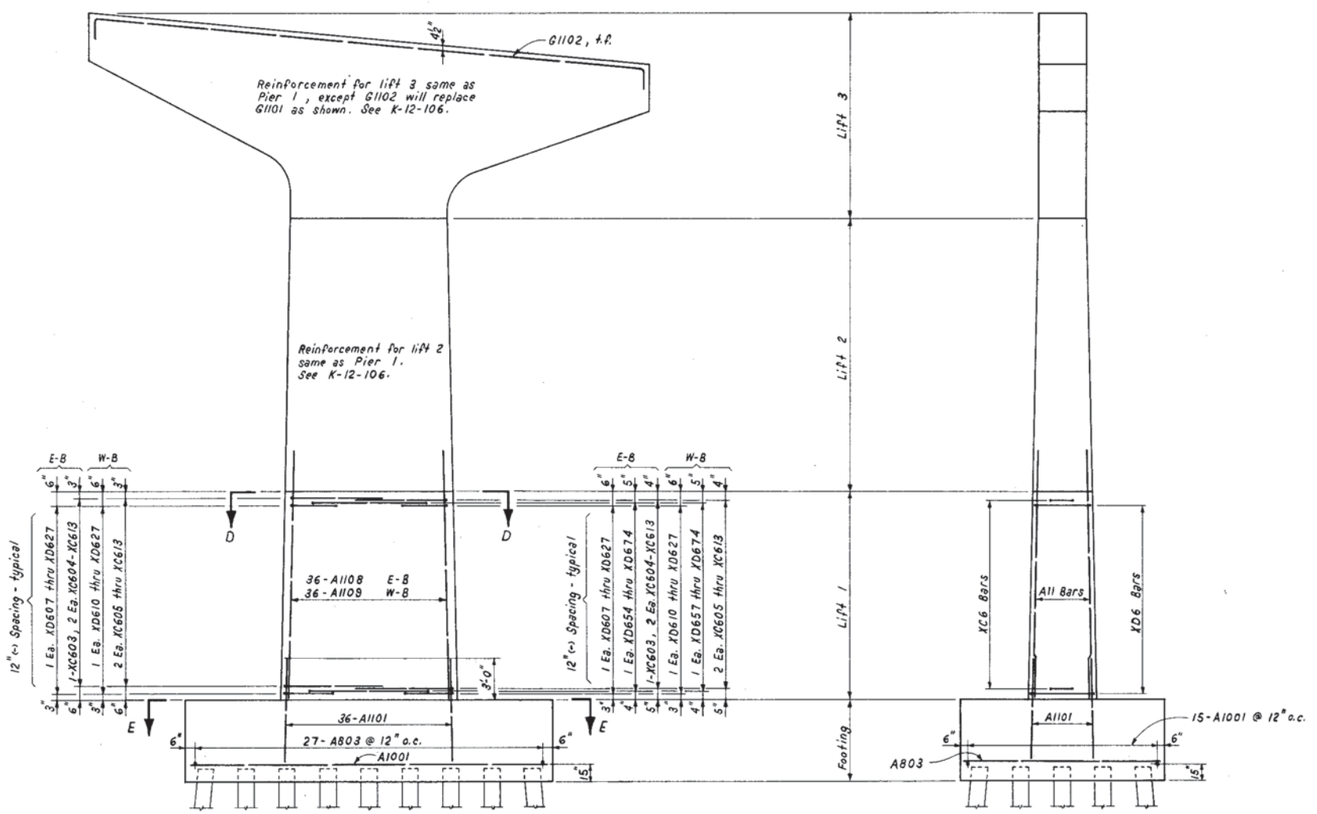


SECTION D-D
Scale: 3/8" = 1'-0"

NOTE:
For arrangement of ties, see Plan A on K-12-106.



SECTION E-E
Scale: 3/8" = 1'-0"



SIDE ELEVATION
LOOKING WEST
Scale: 3/16" = 1'-0"

END ELEVATION
Scale: 3/16" = 1'-0"

ABBREVIATIONS:
E-B East-Bound Freeway
W-B West-Bound Freeway
t.f. top face

NOTES:
For General Notes and Specifications, see K-12-53.
For pier outline details, see K-12-105.
For reinforcing steel and bending diagrams, see K-12-112.
All dimensions relative to spacing of reinforcing steel are to centers of bars.
Marks to all reinforcing steel in the piers shall have suffix "P", (thus: G1102-P, A803-P, etc.).

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F. A. PROJ. NO. I-24-3( )

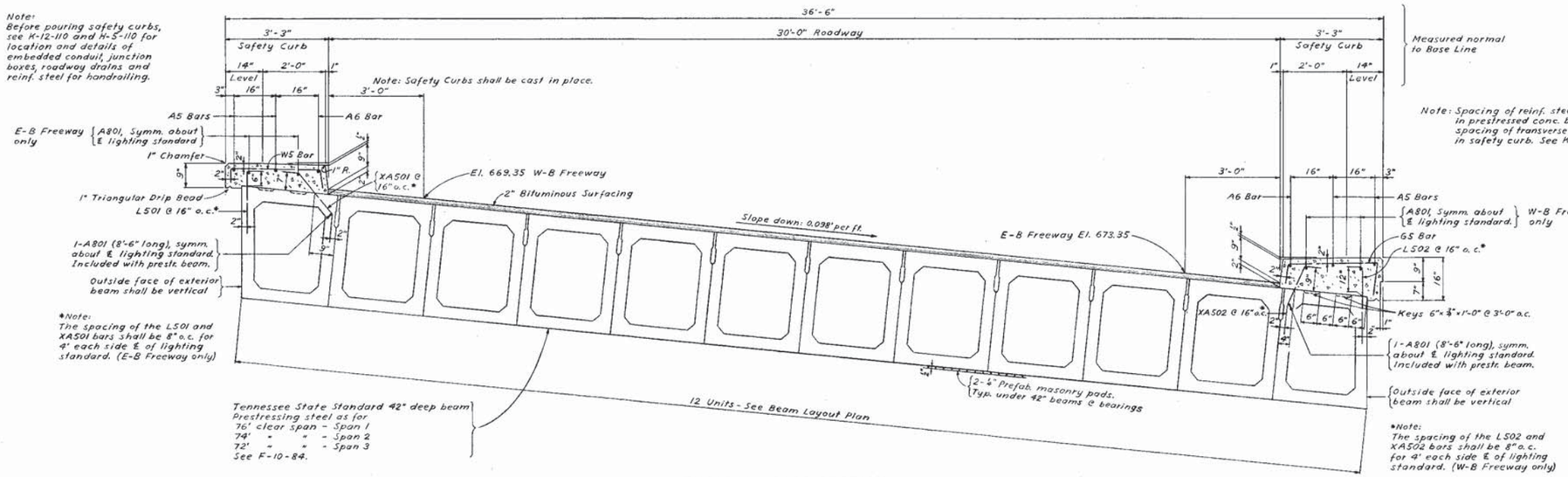
CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS PIER 2-REINFORCEMENT

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: FAM	DRWN: JRP	SCALE: AS NOTED	DATE:
CHKD: BJ-JM	CHKD: FAM		
	SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-107

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(23)120			131	319

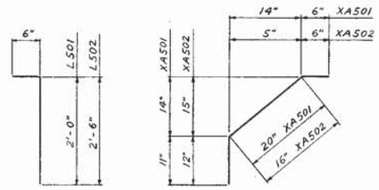
Note:
Before pouring safety curbs, see K-12-110 and H-S-110 for location and details of embedded conduit, junction boxes, roadway drains and reinf. steel for handrailing.



TYPICAL CROSS SECTION
LOOKING WEST
Scale: ½"=1'-0"

PRESTRESSED BEAM QUANTITIES			
LOCATION	CONCRETE CU. YDS.	REINFORCING STEEL LBS.	PRESTRESSING STEEL LBS.
Span 1	174.6	14,328	10,225
Span 2	170.2	14,117	9,496
Span 3	165.1	13,814	8,848
Totals	509.9	42,259	28,569

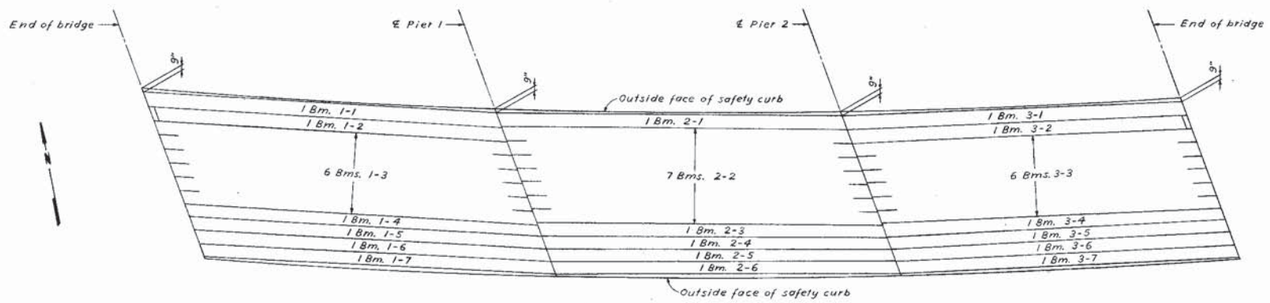
Quantities shown for one bridge only.
Two bridges req'd.



L501 and L502 XA501 and XA502

BENDING DIAGRAMS
No Scale
Reinforcing steel to be included with prestressed beams.

Note: Erection of beams shall proceed from north to south side of bridge.

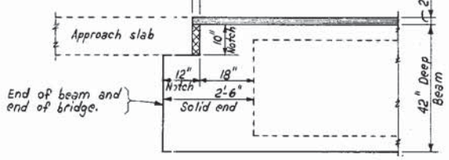


BEAM LAYOUT PLAN
Scale: 1/16"=1'-0"

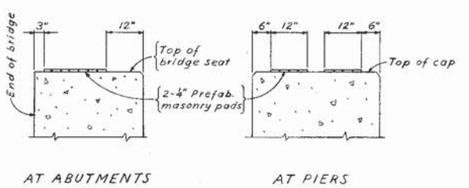
BEAM DATA							
Beam No.	Number Req'd.	Type	L	W	θ	A	B
SPAN 1							
1-1	1	1	77'-9⅛"	3'-0"	23°25'	15⅝"	
1-2	1	1	76'-7⅜"	3'-0"	23°25'	15⅝"	
1-3	6	1	77'-9⅛"	3'-0"	23°25'	15⅝"	
1-4	1	2	78'-11½"		23°19'	15½"	14¾"
1-5	1	2	78'-10⅝"		23°08'	15⅝"	14⅝"
1-6	1	2	78'-8⅝"		22°57'	15⅝"	14"
1-7	1	1	77'-5⅛"	2'-9"	22°52'	13⅞"	
SPAN 2							
2-1	1	1	76'-1⅛"	3'-0"	20°26'	13⅞"	
2-2	7	1	76'-1⅛"	3'-0"	20°26'	13⅞"	
2-3	1	2	77'-1⅜"		20°20'	13⅞"	12¾"
2-4	1	2	77'-0¼"		20°09'	13¼"	12⅛"
2-5	1	2	76'-11"		19°58'	13⅛"	12"
2-6	1	1	75'-9⅞"	2'-9"	19°52'	11⅞"	
SPAN 3							
3-1	1	1	74'-9⅞"	3'-0"	17°31'	11⅜"	
3-2	1	1	73'-8⅝"	3'-0"	17°31'	11⅜"	
3-3	6	1	74'-9⅞"	3'-0"	17°31'	11⅜"	
3-4	1	2	75'-8¾"		17°25'	11¼"	10⅜"
3-5	1	2	75'-7⅛"		17°13'	11⅛"	10¼"
3-6	1	1	74'-8"	2'-9"	17°08'	10⅝"	
3-7	1	1	74'-8"	2'-9"	17°08'	10⅝"	

Notes:
Exterior beams vary in width for all spans. Dimensions in table above are for the bottom face of these beams.
℄ Beam, Type 2, shall coincide with ℄ of void and prestressed bars.

The 2'-9" wide beams shall be the same as the standard beams except for width and voids, and shall be designed to carry the same superimposed moment and shear as the standard 3'-0" wide beam.

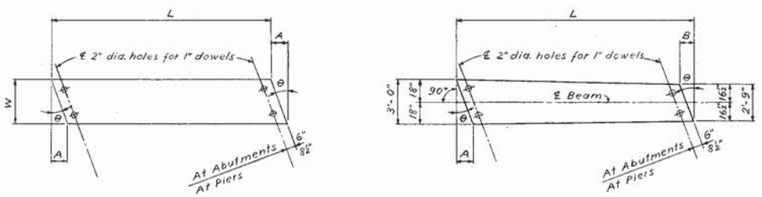


TYP. BEAM DETAIL AT ABUTMENTS
Scale: ½"=1'-0"



AT ABUTMENTS AT PIERS

DETAIL A
SHOWING LOCATION OF PREFAB. MASONRY PADS
Scale: ½"=1'-0"



PLAN OF TYPE 1 PLAN OF TYPE 2

DIAGRAM OF BEAM DIMENSIONS
No Scale

NOTES:
For General Notes and Specifications, see K-12-53.
For layout of bridges, see K-12-102.
For plan of safety curbs, see K-12-109.
For lighting, handrailing and drains, see K-12-110.
For reinforcing steel and bending diagrams for bars in safety curbs, see K-12-111.
All beams shall be standard precast prestressed concrete girders, box type as indicated and noted.
All beams shall be in accordance with the Tennessee State Highway Department's drawings F-10-84 and F-10-85, except as shown and noted on this sheet.
The outside faces of exterior beams in all spans shall line up.
All reinforcing steel shown embedded in the prestressed concrete beams shall be furnished with these beams, and the cost of the steel shall be included in the contract unit price per beam.
All dimensions relative to spacing of reinforcing steel are to centers of bars.
Chamfer all exposed edges of safety curbs ¾", except as noted.
Marks to all reinforcing steel in the Deck shall have suffix "D"; (thus: A501-D, W501-D, etc.)

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F. A. PROJ. NO. I-24-3( )

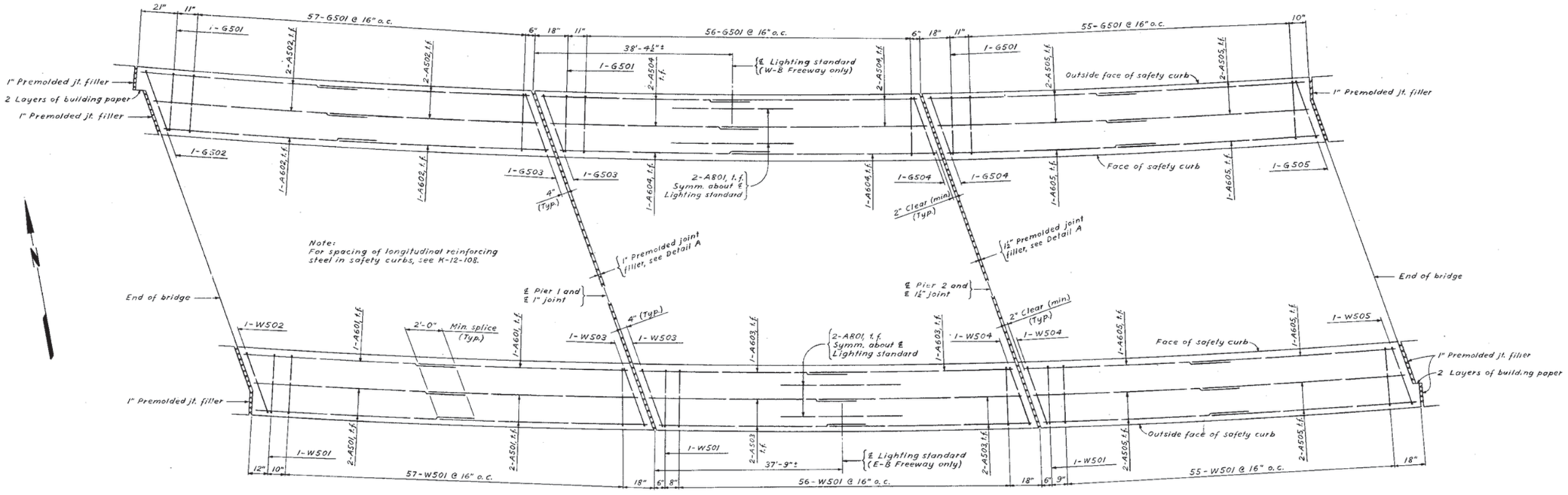
CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS DECK CROSS SECTION AND BEAMS

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: BJ	DRWN BJ	SCALE: AS NOTED	DATE:
CHKD: AC	CHKD: AC	FILE NO. 57.77	SHEET NO. K-12-108
	SUPV: AC		

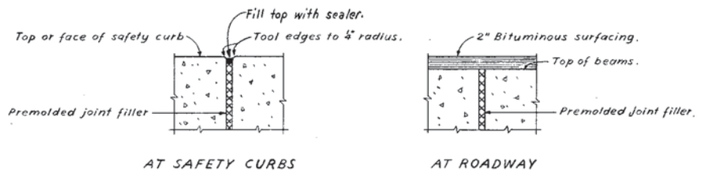
DIETZGEN NO. 1278 DRAFTEX

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(11)	120		132	319



SPAN 1 SPAN 2 SPAN 3

PLAN
Not to Scale



AT SAFETY CURBS AT ROADWAY

DETAIL A
SHOWING TYPICAL DETAILS AT JOINTS
Scale: 1" = 1'-0"

Abbreviations:
t.f. top face

NOTES:
For General Notes and Specifications, see K-12-53.
For Layout Plan, see K-12-102.
For Deck Cross Section and Beams, see K-12-108.
For Lighting, Handrailing and Drains, see K-12-110.
For reinforcing steel and bending diagrams of bars in safety curbs, see K-12-111.
All dimensions relative to spacing of reinforcing steel are to centers of bars, except as noted.
When pouring safety curbs, provisions shall be made for setting reinforcing steel for handrailing.
Chamfer all exposed edges 1", except as noted.
Marks to all reinforcing steel in the deck shall have suffix "D", (thus: A501-D, W501-D, etc.)
All dimensions shown in plan are measured horizontally.

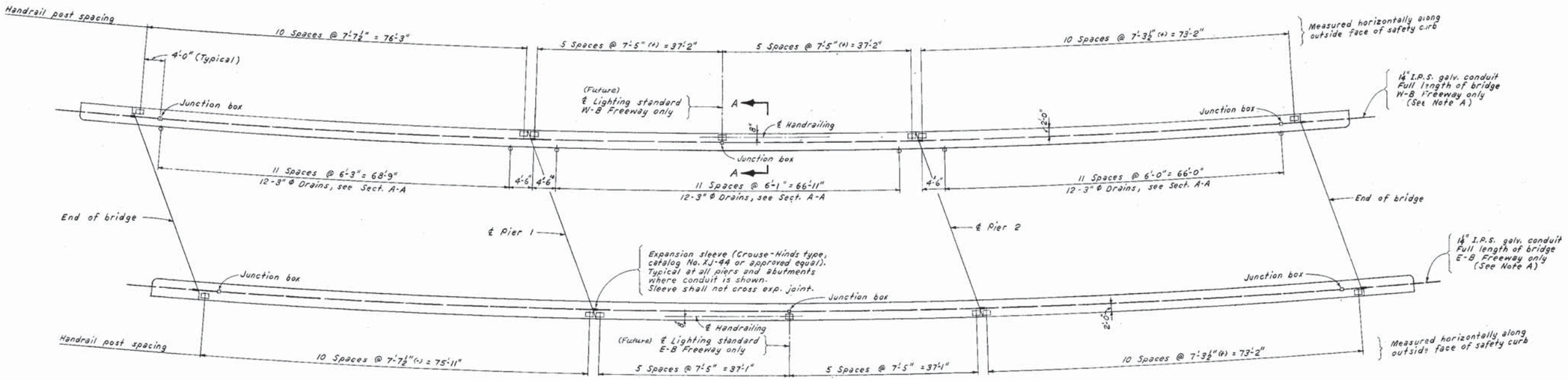
STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3( )

CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS SAFETY CURBS

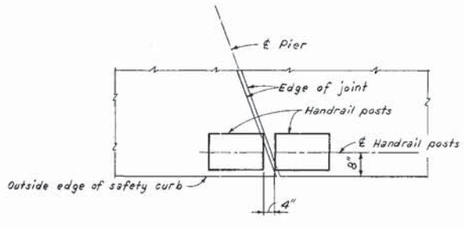
SULLIVAN & HOESEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: BJ	DRWN: BJ	SCALE: AS NOTED	DATE:
CHKD: AC	CHKD: AC SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-109

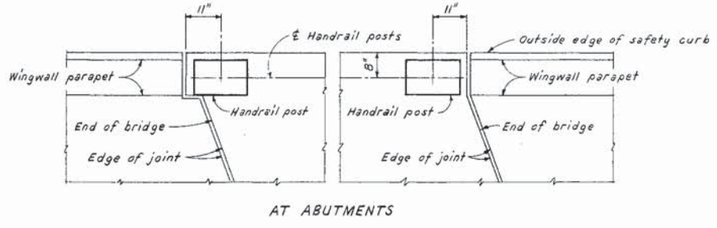
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(11)	120		133	319



PLAN
Scale: 3/32" = 1'-0"

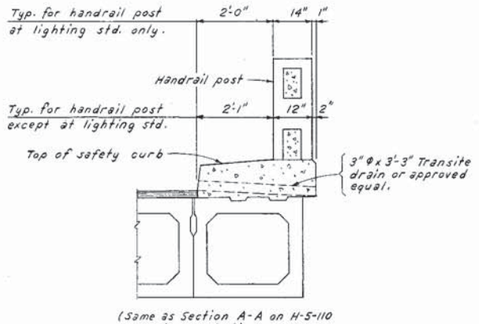


AT PIERS



AT ABUTMENTS

DETAIL SHOWING LOCATION OF END HANDRAIL POSTS
Scale: 1/8" = 1'-0"



(Same as Section A-A on H-5-110 except as noted).

SECTION A-A
Scale: ½" = 1'-0"

LIGHTING NOTES:
For lighting specifications and details, see K-2-246.
All junction boxes shall be 6"x 6"x 8" deep.
No light standards or wiring in the structure.

HANDRAILING NOTES:
All handrailing shall be Tenn. State Hwy. Dept. std. conc. handrailing, except as noted on this dwg. see H-5-110.
Handrail posts supporting lighting standard shall have vertical reinforcement consisting of 8 bars C500, 4 each face (see H-5-110). Provide 12" square level bearing area on top of post for lighting standard.

NOTE A:
Extend conduit about 5' beyond end of wingwall and cap until connection is made by others.
The 1¼" conduit shall be dropped in elevation from 6" below top of safety curb at end of bridge to about 2'-3" below top of safety curb at end of wingwall.

NOTES:
For General Notes and Specifications, see K-12-53.
All dimensions shown in plan are measured horizontally.
Location of junction boxes and drains may be shifted slightly so as to avoid interference with reinf. steel.

3-17-64 Revised lighting notes

DIETZGEN NO. 1378 DRAFTEX

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3( )

CHATTANOOGA CREEK BRIDGES EAST-BOUND & WEST-BOUND FREEWAYS LIGHTING, HANDRAILING AND DRAINS

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: BJ	DRWN: WRA	SCALE: AS NOTED	DATE:
CHKD: AC	CHKR: AC SUPV: AC	FILE NO. 57.77 SHEET NO.	K-12-110

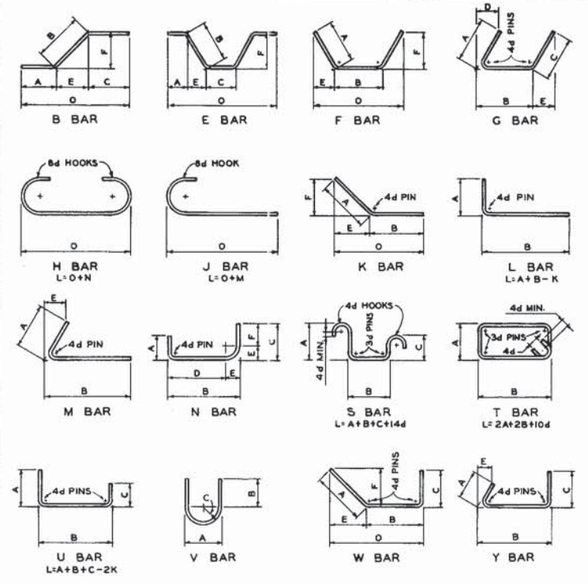
LOCATION	MARK	NO. UNITS	PER UNIT	TOTAL NO. REQ'D.	BENDING DIMENSIONS - FEET & INCHES A	B	C	D	E	F	O	LENGTH BAR FEET & INCHES	WEIGHT LBS.
WEST ABUTMENTS													
Bridge Seats	A601	2	14	28								39-6	1661
	T501	2	34	68	2-8	2-6½						11-0	780
	U501	2	4	8	2-3½	0-8	2-3½					5-0	42
S. Wingwalls	A501	2	4	8								8-6	71
	A502	2	2	4								4-0	17
	A503	2	5	10								11-6	120
	A504	2	2	4								8-3	34
	A505	2	9	18								11-0	207
	A507	2	6	12								9-3	116
	A508	2	1	2								7-6	16
	A509	2	1	2								6-9	14
	A510	2	1	2								6-0	13
	A512	2	1	2								6-3	13
	A513	2	1	2								5-6	11
	A514	2	1	2								4-3	9
	G501	2	8	16	1-6	3-1	1-6	0-7	0-7			5-9	96
	K509	2	5	10	1-3	3-3			0-11			4-6	47
	L501	2	1	2	1-1½	1-0						2-0	4
	L503	2	2	4	2-3	6-7½						8-9	37
	L505	2	4	8	2-0	4-1½						6-0	50
	L506	2	2	4	3-11	5-8½						9-6	40
	M501	2	1	2	1-4½	6-6			0-7			7-9	16
	M502	2	1	2	1-4½	7-6			0-7			8-9	18
	M503	2	1	2	1-4½	8-6			0-7			9-9	20
	N502	2	6	12	1-3	2-9½	2-0	2-0½	0-9	1-3		5-6	69
	U502	2	3	6	1-3	2-6½	1-2½					4-9	30
	U503	2	3	6	6-8	2-8	6-8					15-9	99
	U504	2	2	4	1-6	2-6	1-6					5-3	22
	U505	2	1	2	2-6	2-4	2-5					7-0	15
	U506	2	1	2	1-8	2-8	1-8					5-9	12
	U507	2	1	2	2-5	2-8	2-5					7-3	15
	U508	2	1	2	2-5½	2-8	2-4½					7-3	15
	U509	2	1	2	3-2	2-8	3-2					8-9	18
	U510	2	1	2	3-8	2-8	3-8					9-9	20
	U511	2	1	2	4-2	2-8	4-2					10-9	22
	U512	2	1	2	4-11	2-8	4-11					12-3	26
	U513	2	10	20	1-6	2-11	1-7					5-9	120
	Y501	2	2	4	1-3	6-7½	2-7½		0-6			10-3	43
	T401	2	6	12	0-8½	3-7						9-0	72
	T402	2	1	2	0-8½	2-8						7-3	10
	T403	2	1	2	0-8½	2-11						7-9	10
	T404	2	1	2	0-8½	3-1½						8-3	11
	T405	2	1	2	0-8½	3-3½						8-6	11
	T406	2	1	2	0-8½	3-5						8-9	12
	T407	2	1	2	0-8½	3-6						9-0	12
N. Wingwalls	A501	2	4	8								8-6	71
	A502	2	2	4								4-0	17
	A504	2	2	4								8-3	34
	A506	2	6	12								11-9	147
	A508	2	2	4								7-6	31
	A509	2	2	4								6-9	28
	A510	2	1	2								6-0	13
	A511	2	1	2								8-3	17
	G501	2	8	16	1-6	3-1	1-6	0-7	0-7			5-9	96
	K501	2	1	2	1-4½	6-6			0-7			7-9	16
	K503	2	1	2	1-4½	8-6			0-7			9-9	20
	K507	2	5	10	1-3	7-6			0-4			8-9	91
	L501	2	1	2	1-1½	1-0						2-0	4
	L502	2	4	8	2-0	5-1½						7-0	58
	L503	2	2	4	2-3	6-7½						8-9	37
	L504	2	2	4	3-11	7-2½						11-0	46
	N501	2	6	12	1-3	2-9½	3-0	2-0½	0-9	2-3		6-6	81
	U502	2	3	6	1-3	2-6½	1-2½					4-9	30
	U503	2	4	8	6-8	2-8	6-8					15-9	131
	U504	2	6	12	1-6	2-6	1-6					5-3	66
	U505	2	1	2	2-6	2-4	2-5					7-0	15
	U506	2	1	2	1-8	2-8	1-8					5-9	12
	U507	2	1	2	2-5	2-8	2-5					7-3	15
	U508	2	1	2	2-5½	2-8	2-4½					7-3	15
	U509	2	1	2	3-2	2-8	3-2					8-9	18
	U510	2	1	2	3-8	2-8	3-8					9-9	20
	U511	2	1	2	4-2	2-8	4-2					10-9	22
	U512	2	1	2	4-11	2-8	4-11					12-3	26
	K502	2	1	2	1-4½	7-6			0-7			8-9	18

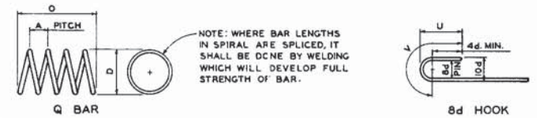
LOCATION	MARK	NO. UNITS	PER UNIT	TOTAL NO. REQ'D.	BENDING DIMENSIONS - FEET & INCHES A	B	C	D	E	F	O	LENGTH BAR FEET & INCHES	WEIGHT LBS.
WEST ABUTMENTS (Cont'd.)													
N. Wingwalls (Cont'd.)	U513	2	11	22	1-6	2-11	1-7					5-9	132
	W501	2	2	4	1-3	6-7½	2-7½		0-6			10-3	43
	T401	2	6	12	0-8½	3-7						9-0	72
	T402	2	1	2	0-8½	2-8						7-3	10
	T403	2	1	2	0-8½	2-11						7-9	10
	T404	2	1	2	0-8½	3-1½						8-3	11
	T405	2	1	2	0-8½	3-3½						8-6	11
	T406	2	1	2	0-8½	3-5						8-9	12
	T407	2	1	2	0-8½	3-6						9-0	12
					TOTAL WEIGHT - WEST ABUTMENTS								5,960
					WEST-BOUND FREEWAY								2,980
					EAST-BOUND FREEWAY								2,980
EAST ABUTMENTS													
Bridge Seats	A602	2	14	28								37-6	1578
	T502	2	32	64	2-8	2-8						11-3	751
	U501	2	4	8	2-3½	0-8	2-3½					5-0	42
N. Wingwalls	A501	2	4	8								8-6	71
	A502	2	2	4								4-0	17
	A503	2	5	10								11-6	120
	A504	2	2	4								8-3	34
	A505	2	9	18								11-0	207
	A507	2	6	12								9-3	116
	A508	2	1	2								7-6	16
	A509	2	1	2								6-9	14
	A510	2	1	2								6-0	13
	A512	2	1	2								6-3	13
	A513	2	1	2								5-6	11
	A514	2	1	2								4-3	9
	G502	2	8	16	1-6	2-11	1-6	0-5	0-5			5-9	96
	K510	2	5	10	1-3	4-0			0-9			5-3	55
	L501	2	1	2	1-1½	1-0						2-0	4
	L503	2	2	4	2-3	6-7½						8-9	37
	L505	2	4	8	2-0	4-1½						6-0	50
	L506	2	2	4	3-11	5-8½						9-6	40
	M504	2	1	2	1-4½	6-6			0-5			7-9	16
	M505	2	1	2	1-4½	7-6			0-5			8-9	18
	M506	2	1	2	1-4½	8-6			0-5			9-9	20
	N501	2	6	12	1-3	2-9½	3-0	2-0½	0-9	2-3		6-6	81
	U502	2	3	6	1-3	2-6½	1-2½					4-9	30
	U503	2	3	6	6-8	2-8	6-8					15-9	99
	U504	2	2	4	1-6	2-6	1-6					5-3	22
	U505	2	1	2	2-6	2-4	2-5					7-0	15
	U506	2	1	2	1-8	2-8	1-8					5-9	12
	U507	2	1	2	2-5	2-8	2-5					7-3	15
	U508	2	1	2	2-5½	2-8	2-4½					7-3	15
	U509	2	1	2	3-2	2-8	3-2					8-9	18
	U510	2	1	2	3-8	2-8	3-8					9-9	20
	U511	2	1	2	4-2	2-8	4-2					10-9	22
	U512	2	1	2	4-11	2-8	4-11					12-3	26
	U513	2	10	20	1-6	2-11	1-7					5-9	120
	Y502	2	2	4	1-3	6-7½	2-7½		0-4			10-3	43
	T401	2	6	12	0-8½	3-7						9-0	72
	T402	2	1	2	0-8½	2-8						7-3	10
	T403	2	1	2	0-8½	2-11						7-9	10
	T404	2	1	2	0-8½	3-1½						8-3	11
	T405	2	1	2	0-8½	3-3½						8-6	11
	T406	2	1	2	0-8½	3-5						8-9	12
	T407	2	1	2	0-8½	3-6						9-0	12
S. Wingwalls	A501	2	4	8								8-6	71
	A502	2	2	4								4-0	17
	A503	2	14	28								11-6	336
	A504	2	2	4								8-3	34
	A506	2	6	12								11-9	147
	A508	2	2	4								7-6	31
	A509	2	2	4								6-9	28
	A510	2	1	2								6-0	13
	A511	2	1	2								8-3	17
	G502	2	8	16	1-6	2-11	1-6	0-5	0-5			5-9	96

LOCATION	MARK	NO. UNITS	PER UNIT	TOTAL NO. REQ'D.	BENDING DIMENSIONS - FEET & INCHES A	B	C	D	E	F	O	LENGTH BAR FEET & INCHES	WEIGHT LBS.
EAST ABUTMENTS (Cont'd.)													
S. Wingwalls (Cont'd.)	K504	2	1	2	1-4½	6-6			0-5			7-9	16
	K505	2	1	2	1-4½	7-6			0-5			8-9	18
	K506	2	1	2	1-4½	8-6			0-5			9-9	20
	K508	2	5	10	1-3	6-6			0-5			7-9	81
	L501	2	1	2	1-1½	1-0						2-0	4
	L502	2	4	8	2-0	5-1½						7-0	58
	L503	2	2	4	2-3	6-7½						8-9	37
	L504	2	2	4	3-11	7-2½						11-0	46
	N502	2	6	12	1-3	2-9½	2-0	2-0½	0-9	1-3		5-6	69
	U502	2	3	6	1-3	2-6½	1-2½					4-9	30
	U503	2	4	8	6-8	2-8	6-8					15-9	131
	U504	2	6	12	1-6	2-6	1-6					5-3	66
	U505	2	1	2	2-6	2-4	2-5					7-0	15
	U506	2	1	2	1-8	2-8	1-8					5-9	12
	U507	2	1	2	2-5	2-8	2-5					7-3	15
	U508	2	1	2	2-5½	2-8	2-4½					7-3	15
	U509	2	1	2	3-2	2-8	3-2					8-9	18
	U510	2	1	2	3-8	2-8	3-8					9-9	20
	U511	2	1	2	4-2	2-8	4-2					10-9	22
	U512	2	1	2	4-11	2-8	4-11					12-3	26
	U513	2	11	22	1-6	2-11	1-7					5-9	132
	W502	2	2	4	1-3	6-7½	2-7½		0-4			10-3	43
	T401	2	6	12	0-8½	3-7						9-0	72
	T402	2	1	2	0-8½	2-8						7-3	10
	T403	2	1	2	0-8½	2-11						7-9	10
	T404	2	1	2	0-8½	3-1½						8-3	11
	T405	2	1	2	0-8½	3-3½						8-6	11
	T406	2	1	2	0-8½	3-5						8-9	12
	T407	2	1	2	0-8½	3-6						9-0	12
					TOTAL WEIGHT - EAST ABUTMENTS								5,846
					WEST-BOUND FREEWAY								2,923
					EAST-BOUND FREEWAY								2,923
SPAN 1													
Safety Curbs	A601	1	2	2								39-6	119
	A602	1	2	2								39-9	119
	A501	1	4	4								39-6	165
	A502	1	4	4								39-9	166
	G501	1	58	58	0-7	2-11	1-0	0-1	0-1			4-3	257
	G502	1	1	1	0-7	3-3	1-0	0-1	0-1			4-6	5
	G503	1	1	1	0-7	3-2	1-0	0-1	0-1			4-6	5
	W501	1	58	58	0-7	2-11	0-5		0-1	0-7	3-0	3-9	227
	W502	1	1	1	0-7	3-3	0-5		0-1	0-7	3-4	4-0	4
	W503	1	1	1	0-7	3-2	0-5		0-1	0-7	3-3	4-0	4
					TOTAL WEIGHT - SPAN 1								1,071
SPAN 2													
Safety Curbs	A801	1	2	2								8-6	45
	A603	1	2	2								38-9	116
	A604	1	2	2								39-0	117
	A503	1	4	4								38-9	162
	A504	1	4	4								39-0	163
	G501	1	57	57	0-7	2-11	1-0	0-1	0-1			4-3	253
	G503	1	1	1	0-7	3-2	1-0	0-1	0-1			4-6	5
	G504	1	1	1	0-7	3-1	1-0	0-1	0-1			4-6	5
	W501	1	57	57	0-7	2-11	0-5		0-1	0-7	3-0	3-9	223
	W503	1	1	1	0-7	3-2	0-5		0-1	0-7	3-3	4-0	4
	W504	1	1	1	0-7	3-1	0-5		0-1	0-7	3-2	3-9	4
					TOTAL WEIGHT - SPAN 2								1,097
SPAN 3													
Safety Curbs	A605	1	4	4								38-3	230
	A505	1	8	8								38-3	319
	G501	1	56	56	0-7	2-11	1-0	0-1	0-1			4-3	248
	G504	1	1	1	0-7	3-1	1-0	0-1	0-1			4-6	5
	G505	1	1	1	0-7	3-0½	1-0	0-1	0-1			4-6	5
	W501	1	56	56	0-7	2-11	0-5		0-1	0-7	3-0	3-9	219
	W504	1	1	1	0-7	3-1	0-5		0-1	0-7	3-2	3-9	4
	W505	1	1	1	0-7	3-0½	0-5		0-1	0-7	3-1½	3-9	4
					TOTAL WEIGHT - SPAN 3								1,034

Deck reinforcing steel shown above is for one bridge only.
Reinforcing steel required for two bridges.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(11)	120		134	319





GAIN "K" IN LENGTH FOR 1-90° BEND									
BAR NO	3	4	5	6	7	8	9	10	11
8d PIN	1"	1½"	2"	2"	2½"	3"	3½"	3½"	4"
4d PIN	1"	1"	1½"	1½"	2"	2"	2½"	2½"	3"
3d PIN	1"	1"	1"	1½"	1½"	2"	2"	2½"	2½"

8d HOOKS AND H & J BARS									
BAR NO	3	4	5	6	7	8	9	10	11
M	8"	9"	9"	11"	12"	13"	15"	17"	20"
N	13"	15"	17"	20"	23"	26"	30"	34"	38"
U	4½"	5½"	6"	7"	8"	9"	10½"	11½"	13"
V	8"	10"	11½"	14"	16"	18"	20½"	23"	26"

NOTES:

MATERIAL: REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE TENNESSEE DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS, EXCEPT THAT STRUCTURAL GRADE IS NOT PERMITTED. SPIRALS TO BE PLAIN, BUT TO SAME SPECIFICATIONS.

FABRICATION: ALL BENDS SHALL BE MADE COLD. MINIMUM PIN DIAMETER SHALL BE 8d, UNLESS SPECIFIED OTHERWISE. TOLERANCES SHALL BE ± ½", EXCEPT THAT HOOKS MAY HAVE A GREATER OVERRUN TO ABSORB CUTTING LENGTH. THE NOMINAL DIAMETER OF ANY BAR, d, IS ASSUMED TO BE THE BAR NUMBER X ⅛". LENGTHS ARE CENTER LINE LENGTHS OF BARS - DESIGNATED AS "L" ON DIAGRAMS.

GENERAL: BENDING DIAGRAMS SHOWN WITH SYMBOLS FOR VARIABLE DIMENSIONS ARE STANDARD TYPES OF BARS. SOME TYPES SHOWN MAY NOT BE BILLED IN THE SCHEDULES. ALL BARS "MARK A" ARE STRAIGHT. BARS ARE SYMMETRICAL, UNLESS OTHERWISE SHOWN. ON SLOPING BENDS, THE "F" DIMENSION IS OMITTED, EXCEPT WHERE CLEARANCES ARE LIMITED. ALL BARS ARE SPECIFIED BY NUMBERS, INSTEAD OF SIZE, AND THE BAR MARKS ARE MADE UP FROM THE FOLLOWING CODE:

(1) THE LETTER REPRESENTS THE TYPE OF BAR - A, B, L, ETC. - SPECIAL TYPE BARS ARE DESIGNATED BY LETTERS "XA", "XB", ETC.

(2) THE FIRST FIGURE TO THE RIGHT OF THE LETTER, OR LETTERS, REPRESENTS THE BAR NUMBER 4, 5, 6, 7, 8, 9, 10, OR 11.

(3) THE FIGURES TO THE RIGHT OF THE BAR NUMBER REPRESENT THE BAR MARK. THE FIRST BAR IN A GROUP OF BARS OF THE SAME BAR NUMBER AND THE SAME TYPE, BUT OTHERWISE DIFFERENT, IS MARKED 01, THE NEXT 02, ON THROUGH 09, 10, 11 AND SO ON.

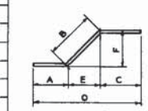
(4) FABRICATOR SHALL SUFFIX THE BAR MARKS FOR THE REINFORCING STEEL IN THE ABUTMENTS, BENTS AND DECK BY THE LETTERS "A", "B" AND "D" RESPECTIVELY. (THUS: A601-A, ETC. FOR ABUTMENTS; A601-B, ETC. FOR BENTS; AND A601-D, ETC. FOR THE DECK).

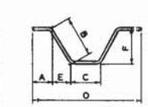
STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY F. A. PROJ. NO. I-24-3( )

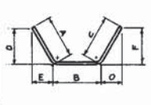
CHATTANOOGA CREEK BRIDGES
EAST-BOUND & WEST-BOUND FREEWAYS
REINF. STEEL-ABUTMENTS & SAFETY CURBS

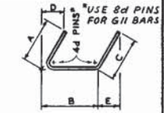
SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

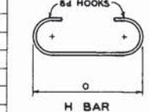
DSGN: JP-BJ	DRWN: WRA	SCALE: NONE	DATE:
CHKD: RT-AC	CHKD: JRP		
	SUPV: AC	FILE NO. 57.77	SHEET NO. K-12-111

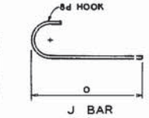


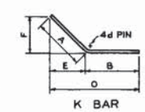


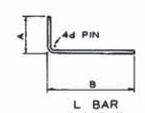


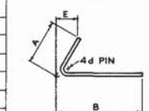


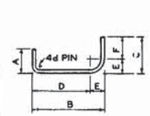


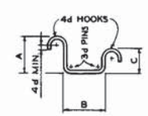


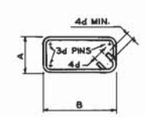


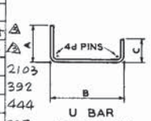


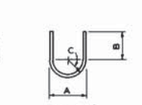


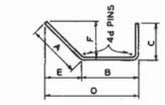


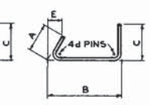


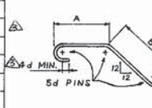


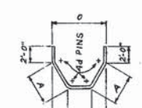


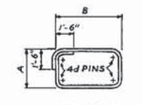


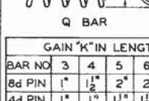


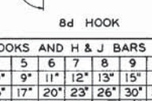












FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(22)	120		135	319

LOCATION	MARK	NO.	PER	TOTAL NO.	BENDING DIMENSIONS-FEET & INCHES							LENGTH BAR FEET & INCHES	WEIGHT LBS.
		UNITS	UNIT	REQ'D.	A	B	C	D	E	F	O		
PIER 1 EAST-BOUND FREEWAY													
Footing △	A1101	1	36	36								5'-0 ~~5-6~~	956 ~~1435~~
△	A801	1	~~24~~17	~~24~~17								7'-0 ~~11-6~~	318 ~~645~~
△	A802	1	~~12~~8	~~12~~8								16'-0 ~~20-6~~	342 ~~657~~
												1616	~~(2797)~~
												21'-0	4014
Lift 1 △	A1106	1	36	36								~~23-9~~	~~5690~~
△	~~XC601~~	~~1~~	~~6~~	~~6~~	~~6-3~~	~~1-4½~~			~~1-9½~~		~~4-11½~~	~~17-9~~	~~106~~
△	~~XC602~~	~~1~~	~~4~~	~~4~~	~~6-2~~	~~1-4~~			~~1-9~~		~~4-10~~	~~17-6~~	~~105~~
△	~~XC603~~	~~1~~	~~4~~	~~4~~	~~6-1½~~	~~1-4~~			~~1-8½~~		~~4-9~~	~~17-3~~	~~104~~
△	~~XC604~~	~~1~~	~~4~~	~~4~~	~~6-1~~	~~1-3½~~			~~1-8~~		~~4-8~~	~~17-3~~	~~104~~
△	~~XC605~~	~~1~~	~~4~~	~~4~~	~~6-0~~	~~1-3½~~			~~1-8~~		~~4-7~~	~~17-0~~	~~102~~
	XC606	1	4	4	5-11½	1-3			1-7½		4-6	17-0	102
	XC607	1	4	4	5-11	1-3			1-7		4-5	16-9	101
	XC608	1	4	4	5-10½	1-2½			1-6½		4-4	16-9	101
	XC609	1	4	4	5-10	1-2½			1-6		4-3	16-9	101
	XC610	1	4	4	5-9	1-2			1-6		4-2	16-6	99
	XC611	1	4	4	5-8½	1-2			1-5½		4-1	16-3	98
	XC612	1	4	4	5-8	1-1½			1-5		4-0	16-3	98
	XC613	1	4	4	5-7½	1-1½			1-4½		3-11	16-3	98
△	~~XD601~~	~~1~~	~~2~~	~~2~~	~~4-3~~	~~4-11½~~						~~21-0~~	~~63~~
△	~~XD602~~	~~1~~	~~2~~	~~2~~	~~4-3~~	~~4-11~~						~~20-9~~	~~62~~
△	~~XD603~~	~~1~~	~~2~~	~~2~~	~~4-3~~	~~4-10½~~						~~20-9~~	~~62~~
△	~~XD604~~	~~1~~	~~2~~	~~2~~	~~4-2½~~	~~4-10~~						~~20-6~~	~~62~~
△	~~XD605~~	~~1~~	~~2~~	~~2~~	~~4-2½~~	~~4-9½~~						~~20-6~~	~~62~~
△	~~XD606~~	~~1~~	~~2~~	~~2~~	~~4-2½~~	~~4-9~~						~~20-6~~	~~62~~
△	~~XD607~~	~~1~~	~~2~~	~~2~~	~~4-2~~	~~4-8½~~						~~20-3~~	~~61~~
△	~~XD608~~	~~1~~	~~2~~	~~2~~	~~4-2~~	~~4-8~~						~~20-3~~	~~61~~
	XD609	1	2	2	4-2	4-7½						20-0	60
	XD610	1	2	2	4-1½	4-7						20-0	60
	XD611	1	2	2	4-1½	4-6½						19-9	59
	XD612	1	2	2	4-1½	4-6						19-9	59
	XD613	1	2	2	4-1	4-5½						19-6	59
	XD614	1	2	2	4-1	4-5						19-6	59
	XD615	1	2	2	4-1	4-4½						19-6	59
	XD616	1	2	2	4-0½	4-4						19-3	58
	XD617	1	2	2	4-0½	4-3½						19-3	58
	XD618	1	2	2	4-0½	4-3						19-0	57
	XD619	1	2	2	4-0	4-2½						19-0	57
	XD620	1	2	2	4-0	4-2						18-9	56
	XD621	1	2	2	4-0	4-1½						18-9	56
	XD622	1	2	2	3-11½	4-1						18-6	56
	XD623	1	2	2	3-11½	4-0½						18-6	56
	XD624	1	2	2	3-11½	4-0						18-6	56
	XD625	1	2	2	3-11	3-11½						18-3	55
	XD626	1	2	2	3-11	3-11						18-3	55
	XD627	1	2	2	3-11	3-10½						18-0	54
△	~~XD648~~	~~1~~	~~1~~	~~1~~	~~9-4½~~	~~4-11½~~						~~31-3~~	~~47~~
△	~~XD649~~	~~1~~	~~1~~	~~1~~	~~9-4½~~	~~4-11~~						~~31-3~~	~~47~~
△	~~XD650~~	~~1~~	~~1~~	~~1~~	~~9-4~~	~~4-10½~~						~~31-0~~	~~47~~
△	~~XD651~~	~~1~~	~~1~~	~~1~~	~~9-3½~~	~~4-10~~						~~30-9~~	~~46~~
△	~~XD652~~	~~1~~	~~1~~	~~1~~	~~9-3½~~	~~4-9½~~						~~30-9~~	~~46~~
△	~~XD653~~	~~1~~	~~1~~	~~1~~	~~9-3~~	~~4-9~~						~~30-6~~	~~46~~
△	~~XD654~~	~~1~~	~~1~~	~~1~~	~~9-2½~~	~~4-8½~~						~~30-6~~	~~45~~
△	~~XD655~~	~~1~~	~~1~~	~~1~~	~~9-2½~~	~~4-8~~						~~30-3~~	~~45~~
	XD656	1	1	1	9-2	4-7½						30-0	45
	XD657	1	1	1	9-1½	4-7						30-0	45
	XD658	1	1	1	9-1½	4-6½						29-9	45
	XD659	1	1	1	9-1	4-6						29-9	45
	XD660	1	1	1	9-0½	4-5½						29-6	44
	XD661	1	1	1	9-0½	4-5						29-6	44
	XD662	1	1	1	9-0	4-4½						29-3	44
	XD663	1	1	1	8-11½	4-4						29-0	44
	XD664	1	1	1	8-11½	4-3½						29-0	44
	XD665	1	1	1	8-11	4-3						28-9	43
	XD666	1	1	1	8-10½	4-2½						28-9	43
	XD667	1	1	1	8-10½	4-2						28-6	43
	XD668	1	1	1	8-10	4-1½						28-6	43
	XD669	1	1	1	8-9½	4-1						28-3	42
	XD670	1	1	1	8-9½	4-0½						28-3	42
	XD671	1	1	1	8-9	4-0						28-0	42
	XD672	1	1	1	8-8½	3-11½						27-9	42
	XD673	1	1	1	8-8½	3-11						27-9	42
	XD674	1	1	1	8-8	3-10½						27-6	41
													~~(9839)~~
												△	(6724)
Lift 2	A1102	1	28	28								23-0	3422
	A1103	1	8	8								26-0	1105
	XC614	1	4	4	5-7	1-1			1-4½		3-10	16-0	96
	XC615	1	4	4	5-6½	1-1			1-4		3-9	16-0	96

LOCATION	MARK	NO.	PER	TOTAL NO.	BENDING DIMENSIONS-FEET & INCHES							LENGTH BAR FEET & INCHES	WEIGHT LBS.
		UNITS	UNIT	REQ'D.	A	B	C	D	E	F	O		
PIER 1 EAST-BOUND FREEWAY (Continued)													
Lift 2 (Cont.)	XC616	1	4	4	5-6	1-0½			1-3½		3-8	15-9	95
	XC617	1	4	4	5-5	1-0½			1-3½		3-7	15-9	95
	XC618	1	4	4	5-4½	1-0			1-3		3-6	15-6	93
	XC619	1	4	4	5-4	1-0			1-2½		3-5	15-6	93
	XC620	1	4	4	5-3½	0-11½			1-2		3-4	15-3	92
	XC621	1	4	4	5-2½	0-11½			1-2		3-3	15-3	92
	XC622	1	4	4	5-2	0-11			1-1½		3-2	15-0	90
	XC623	1	4	4	5-1½	0-11			1-1		3-1	15-0	90
	XD628	1	2	2	3-10½	3-10						18-0	54
	XD629	1	2	2	3-10½	3-9½						17-9	53
	XD630	1	2	2	3-10	3-9						17-9	53
	XD631	1	2	2	3-10	3-8½						17-6	53
	XD632	1	2	2	3-9½	3-8						17-6	53
	XD633	1	2	2	3-9½	3-7½						17-3	52
	XD634	1	2	2	3-9	3-7						17-3	52
	XD635	1	2	2	3-9	3-6½						17-0	51
	XD636	1	2	2	3-8½	3-6						17-0	51
	XD637	1	2	2	3-8½	3-5½						16-9	50
	XD638	1	2	2	3-8	3-5						16-9	50
	XD639	1	2	2	3-8	3-4½						16-6	50
	XD640	1	2	2	3-7½	3-4						16-6	50
	XD641	1	2	2	3-7½	3-3½						16-3	49
	XD642	1	2	2	3-7	3-3						16-3	49
	XD643	1	2	2	3-7	3-2½						16-0	48
	XD644	1	2	2	3-6½	3-2						16-0	48
	XD645	1	2	2	3-6½	3-1½						15-9	47
	XD646	1	2	2	3-6	3-1						15-9	47
	XD647	1	2	2	3-6	3-0½						15-6	47
	XD675	1	1	1	8-7½	3-10						27-6	41
	XD676	1	1	1	8-7½	3-9½						27-3	41
	XD677	1	1	1	8-7	3-9						27-3	41
	XD678	1	1	1	8-6½	3-8½						27-0	41
	XD679	1	1	1	8-6½	3-8						27-0	41
	XD680	1	1	1	8-6	3-7½						26-9	40
	XD681	1	1	1	8-5½	3-7						26-6	40
	XD682	1	1	1	8-5½	3-6½						26-6	40
	XD683	1	1	1	8-5	3-6						26-3	39
	XD684	1	1	1	8-4½	3-5½						26-3	39
	XD685	1	1	1	8-4½	3-5						26-0	39
	XD686	1	1	1	8-4	3-4½						26-0	39
	XD687	1	1	1	8-3½	3-4						25-9	39
	XD688	1	1	1	8-3½	3-3½						25-9	39
	XD689	1	1	1	8-3	3-3						25-6	38
	XD690	1	1	1	8-2½	3-2½						25-3	38
	XD691	1	1	1	8-2½	3-2						25-3	38
	XD692	1	1	1	8-2	3-1½						25-0	38
	XD693	1	1	1	8-1½	3-1						25-0	38
	XD694	1	1	1	8-1½	3-0½						24-9	37
													(7252)
Lift 3	A1104	1	28	28								11-0	1637
	A1105	1	7	7								31-3	1162
	G1101	1	7	7	1-9	40-9	1-9	0-2	0-2			43-6	1618
	A601	1	6	6								40-0	360
	A602	1	2	2								36-3	109
	A603	1	2	2								32-0	96
	A604	1	2	2								27-3	82
	A605	1	2	2								22-9	68
	A606	1	2	2								18-0	54
	A607	1	2	2								13-6	41
	A608	1	12	12								7-0	126
	F601	1	7	7	2-9	16-6	3-0	2-5	1-4	1-5	2-7½	22-3	234
	F602	1	7	7	2-9	14-9	3-0	2-7	0-10½	1-0	2-10	20-6	216
	U601	1	8	8	1-9½	2-7½	1-10					6-0	72
	U602	1	7	7	6-6	3-0	6-6					15-9	166
	XB601	1	2	2	1-9½	9-9						12-9	38
	XB602	1	2	2	1-9½	8-6						11-6	35
	XB603	1	2	2	1-9½	7-3						10-3	31
	XB604	1	2	2	1-9½	6-0						9-0	27
	XB605	1	2	2	1-9½	4-9						7-9	23
	XB606	1	2	2	1-9½	10-4						13-3	40
	XB607	1	2	2	1-9½	9-0						12-0	36
	XB608	1	2	2	1-9½	7-8						10-9	32
	XB609	1	2	2	1-9½	6-4						9-3	28
	XB610	1	2	2	1-9½	5-1						8-0	24
	A501	1	21	21								3-0	66
	T501	1	4	4	2-1	3-5½						11-6	48
	T502	1	4	4	2-1	3-11						12-6	52
	T503	1	4	4	2-1	4-4						13-3	55

LOCATION	MARK	NO.	PER	TOTAL NO.	BENDING DIMENSIONS-FEET & INCHES							LENGTH BAR FEET & INCHES	WEIGHT LBS.
		UNITS	UNIT	REQ'D.	A	B	C	D	E	F	O		
PIER 1 EAST-BOUND FREEWAY (Continued)													
Lift 3 (Cont.)	T504	1	4	4	2-1	4-9½						14-3	59
	T505	1	4	4	2-1	5-3						15-3	64
	T506	1	4	4	2-1	5-8						16-0	67
	T507	1	4	4	2-1	6-1½						17-0	71
	T508	1	4	4	2-1	6-6½						17-9	74
	T509	1	4	4	2-1	7-0						18-9	78
	T510	1	4	4	2-1	7-5½						19-6	81
	T511	1	4	4	2-1	7-10½						20-6	86
	T512	1	4	4	2-1	8-4						21-3	89
	T513	1	4	4	2-1	8-9						22-3	93
	T514	1	4	4	2-1	9-2						23-0	96
	U501	1	12	12	3-3	3-0	3-3					9-3	116
(Stop Block)	G601	1	1	1	2-0	0-7	2-0	0-2	0-2			4-3	6
	G602	1	1	1	2-0	0-11	2-0	0-2	0-2			4-9	7
	G603	1	1	1	2-0	1-2½	2-0	0-2	0-2			5-0	8
	G604	1	1	1	2-0	1-6½	2-0	0-2	0-2			5-3	8
	U603	1	1	1	2-0	2-7½	2-0					6-6	10
	U604	1	1	1	2-0	2-10	2-0					6-6	10
													(7599)
					TOTAL WEIGHT PIER 1 E-B								~~27427~~
													23,191 △
PIER 1 WEST-BOUND FREEWAY													
~~Footing~~	~~Same as for Pier 2 E-B~~ △ △												~~4190~~ △ △
Footing	A1101	1	36	36								5'-0	956 △
Lift 1	A1107	1	36	36								11'-0 ~~18-6~~	△ ~~3538~~ 2103
	4 Each XC606 610 thru XC613 Total 32 bars												△ 798 392
	2 Each XD6[illegible] 620 thru XD627 Total 32 bars												△ ~~910~~ 444
	1 Each XD6[illegible] thru XD674 Total 16 bars												△ 688 337
	For XC bars and XD bars use same bending dimensions as given for bars with the corresponding marks for Pier 1 E-B.												
Footing	A1001	1	8	8								15'-6	533 △
Lift 2	Same as for Pier 1 E-B												7252
Footing	A8	1	16	16								7'-6	320 △
Lift 3	Same as for Pier 1 E-B												7599
					TOTAL WEIGHT PIER 1 W-B								~~24,995~~ △
													19,936 △
PIER 2 EAST-BOUND FREEWAY													
Footing	A1101	1	36	36								7-6	1435
	A1001	1	15	15								26-6	1710
	A803	1	27	27								14-6	1045
													(4190)
Lift 1	A1108	1	36	36								23-9	4543
	2-XC603 Total 2 bars												52
	4 Each XC604 thru XC613 Total 40 bars												1004
	2 Each XD607 thru XD627 Total 42 bars												1211
	1 Each XD654 thru XD674 Total 21 bars												913
	For XC bars and XD bars use same bending dimensions as given for bars with the corresponding marks for Pier 1 E-B												
Lift 2	Same as for Pier 1 E-B												7252
Lift 3	Same as for Pier 1 E-B, except that G1101 bars will be replaced by G1102 bars listed below												5981
	G1102	1	7	7	1-9	40-0	1-9	0-2	0-2			42-9	1590
					TOTAL WEIGHT PIER 2 E-B								26736
PIER 2 WEST-BOUND FREEWAY													
Footing	Same as for Pier 2 E-B												4190
Lift 1	A1109	1	36	36								20-6	3921
	4 Each XC605 thru XC613 Total 36 bars												900
	2 Each XD610 thru XD627 Total 36 bars												1029
	1 Each XD657 thru XD674 Total 18 bars												778
	For XC bars and XD bars use same bending dimensions as given for bars with the corresponding marks for Pier 1 E-B												
Lift 2	Same as for Pier 1 E-B												7252
Lift 3	Same as for Pier 2 E-B												7571
					TOTAL WEIGHT PIER 2 W-B								25641

12-Nov-65 Revised Steel Pier 1 WB △
7-20-65 Revised Steel Pier 1 EB. △
9-9-65 Revised Footing Steel Weight & Total Weight Pier 1 W.B. △2

GAIN "K" IN LENGTH FOR 1-90° BEND									
BAR NO	3	4	5	6	7	8	9	10	11
8d PIN	1"	1½"	2"	2"	2½"	3"	3½"	3½"	4"
4d PIN	1"	1"	1½"	1½"	2"	2"	2½"	2½"	3"
3d PIN	1"	1"	1"	1½"	1½"	2"	2"	2½"	2½"

8d HOOKS AND H & J BARS									
BAR NO	3	4	5	6	7	8	9	10	11
M	8"	9"	9"	11"	12"	13"	15"	17"	20"
N	13"	15"	17"	20"	23"	26"	30"	34"	38"
U	4½"	5½"	6"	7"	8"	9"	10½"	11½"	13"
V	8"	10"	11½"	14"	16"	18"	20½"	23"	26"

NOTES:

MATERIAL: REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE TENNESSEE DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS, EXCEPT THAT STRUCTURAL GRADE IS NOT PERMITTED. SPIRALS TO BE PLAIN, BUT TO SAME SPECIFICATIONS.

FABRICATION: ALL BENDS SHALL BE MADE COLD. MINIMUM PIN DIAMETER SHALL BE 8d, UNLESS SPECIFIED OTHERWISE. TOLERANCES SHALL BE ± ½", EXCEPT THAT HOOKS MAY HAVE A GREATER OVERRUN TO ABSORB CUTTING LENGTH. THE NOMINAL DIAMETER OF ANY BAR, d, IS ASSUMED TO BE THE BAR NUMBER x ⅛". LENGTHS ARE CENTER LINE LENGTHS OF BARS - DESIGNATED AS "L" ON DIAGRAMS.

GENERAL: BENDING DIAGRAMS SHOWN WITH SYMBOLS FOR VARIABLE DIMENSIONS ARE STANDARD TYPES OF BARS. SOME TYPES SHOWN MAY NOT BE BILLED IN THE SCHEDULES. ALL BARS "MARK A" ARE STRAIGHT. BARS ARE SYMMETRICAL, UNLESS OTHERWISE SHOWN. ON SLOPING BENDS, THE "F" DIMENSION IS OMITTED, EXCEPT WHERE CLEARANCES ARE LIMITED. ALL BARS ARE SPECIFIED BY NUMBERS, INSTEAD OF SIZE, AND THE BAR MARKS ARE MADE UP FROM THE FOLLOWING CODE:

(1) THE LETTER REPRESENTS THE TYPE OF BAR - A, B, L, ETC. - SPECIAL TYPE BARS ARE DESIGNATED BY LETTERS "XA", "XB", ETC.

(2) THE FIRST FIGURE TO THE RIGHT OF THE LETTER, OR LETTERS, REPRESENTS THE BAR NUMBER 4, 5, 6, 7, 8, 9, 10, OR 11.

(3) THE FIGURES TO THE RIGHT OF THE BAR NUMBER REPRESENT THE BAR MARK. THE FIRST BAR IN A GROUP OF BARS OF THE SAME BAR NUMBER AND THE SAME TYPE, BUT OTHERWISE DIFFERENT, IS MARKED 01, THE NEXT 02, ON THROUGH 09, 10, 11 AND SO ON.

(4) FABRICATOR SHALL SUFFIX THE BAR MARKS FOR THE REINFORCING STEEL IN THE ABUTMENTS, PIERS AND DECK BY THE LETTERS "A", "P" AND "D" RESPECTIVELY. (THUS: A601-A, ETC. FOR ABUTMENTS; A601-P, ETC. FOR PIERS; AND A601-D, ETC. FOR THE DECK).

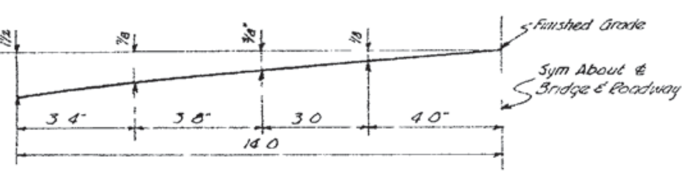
STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
CHATTANOOGA FREEWAY
HAMILTON COUNTY F. A. PROJ. NO. I-24-3( )

CHATTANOOGA CREEK BRIDGES
EAST-BOUND & WEST-BOUND FREEWAYS
REINFORCING STEEL-PIERS

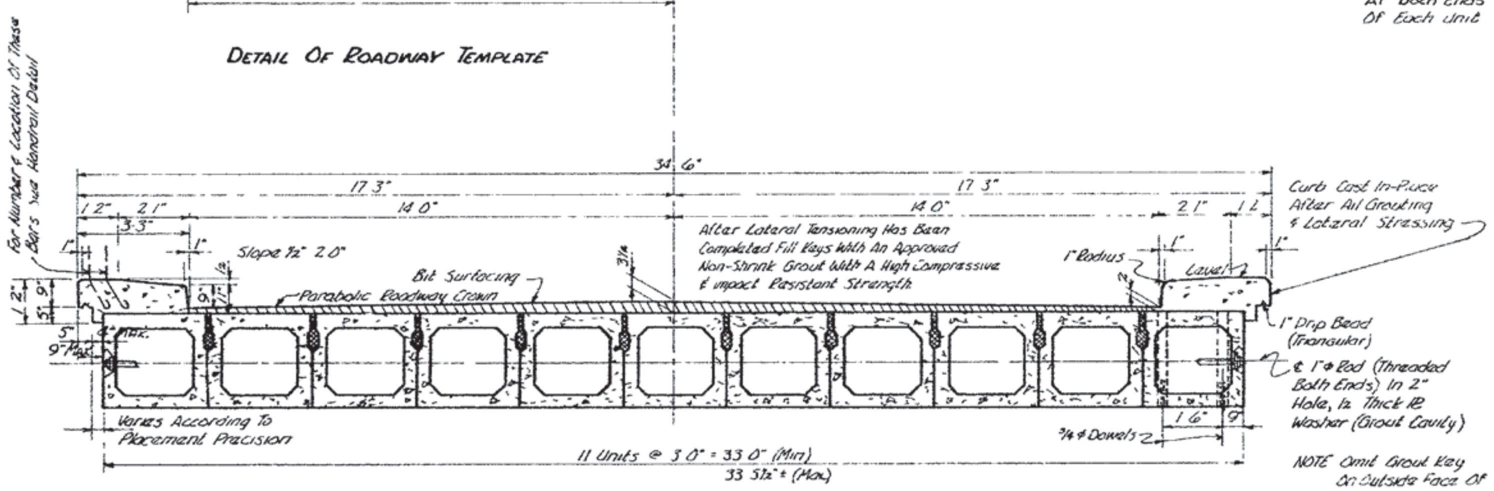
SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: FAM	DRWN: BJ	SCALE: NONE	DATE:
CHKD: BJ	CHKD: JRP SUPV: AC	FILE NO. 57.77	SHEET NO. K-12-112

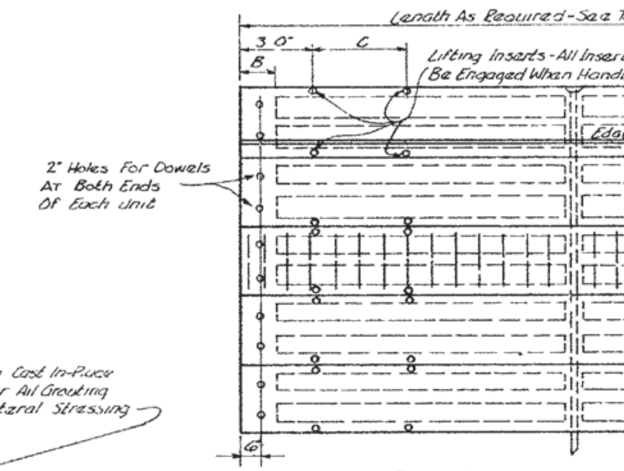
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	TENN				



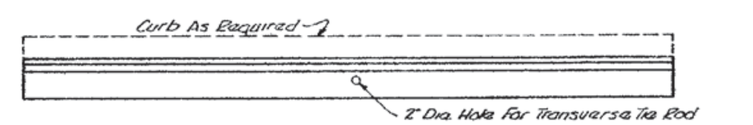
DETAIL OF ROADWAY TEMPLATE



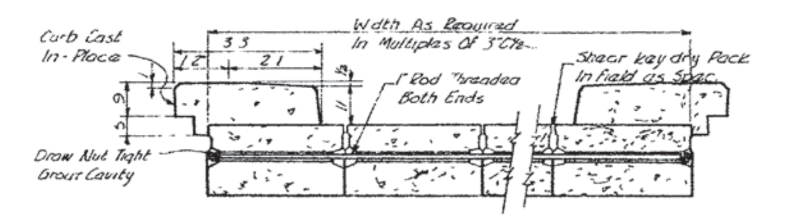
SECTION NEAR MIDSPAN — SECTION NEAR BEARINGS



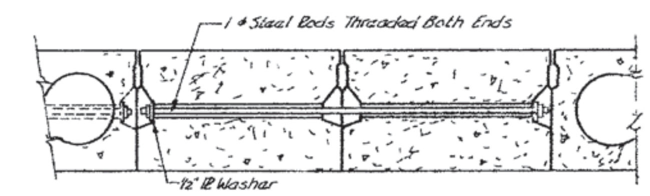
PART PLAN - 90° SKEW
(Clear Span Under 44')



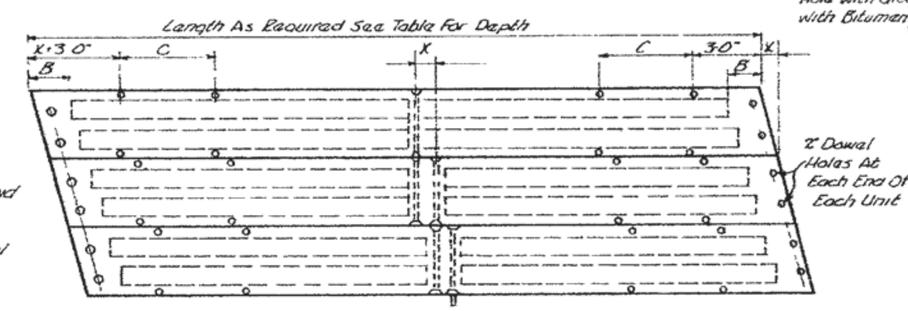
ELEVATION



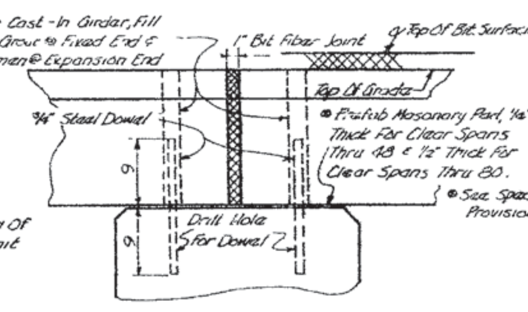
SECTION AT TRANSVERSE TIE
90° SKEW



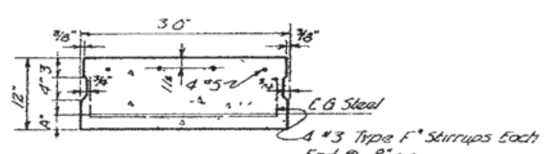
SECTION AT TRANSVERSE TIE
SKEW AS REQUIRED



PART PLAN - SKEW AS REQUIRED

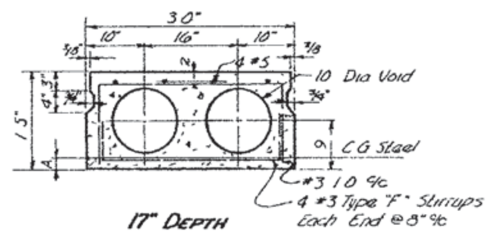


ELEVATION AT ABUTMENT - PIER OR BENT



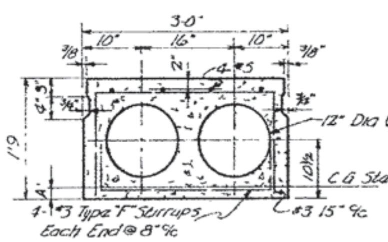
12" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STRANDS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
14	225	OMIT		0.96	12	7,050	12"
16	216	"		1.20	15	[illegible]	
18	244	"		1.52	19	8,300	
20	264	"		1.76	22	9,700	
22	284	"		2.08	26	10,600	



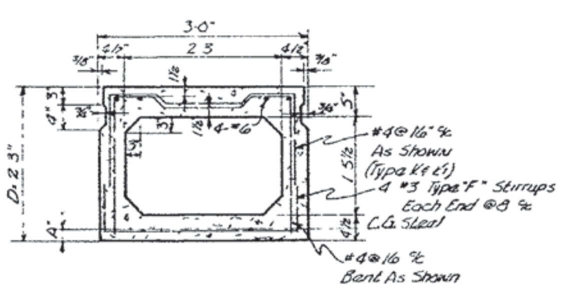
17" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STRANDS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
24	222	18		[illegible]	[illegible]	[illegible]	12"
26	220			1.36	17	13,450	
28	225			1.60	20	14,400	
30	230			1.76	22	15,350	
32	262			2.00	25	16,300	
34	275			2.16	27	17250	



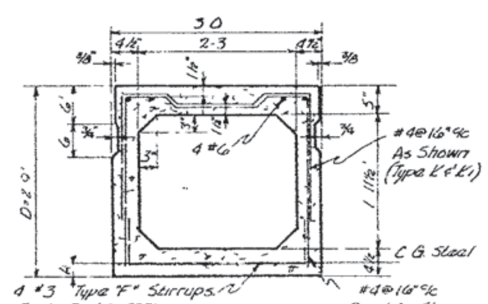
21" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STRANDS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
36	230	18		1.76	22	22,130	12"
38	231			1.92	24	23,200	
40	264			2.16	27	24350	
42	320			2.48	31	255[illegible]	



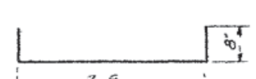
27" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STRANDS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
44	230	18		1.76	22	27100	12"
46	226			1.84	23	28,200	
48	227			2.00	25	29,300	
50	235			2.24	28	30,500	
52	263			2.40	30	31,600	
5[illegible]	293			2.56	32	32,800	
56	323			2.80	35	33,900	

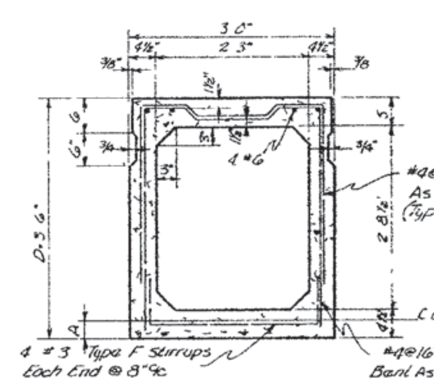


33" DEPTH

CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STRANDS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
58	247	18		2.32	29	39,900	12"
60	263			2.48	31	41,300	
62	303			2.64	33	42,600	
64	338			2.88	36	43,900	
66	363			3.04	38	45,200	
68	390			3.28	41	46,500	

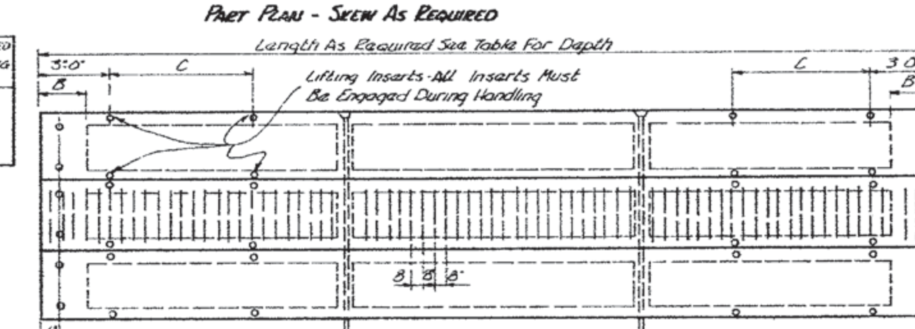


#3 TYPE "F" STIRRUP

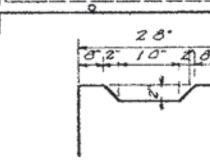


42" DEPTH

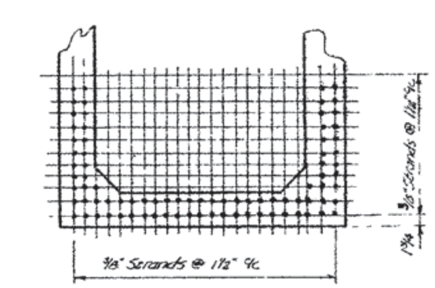
CLEAR SPAN FEET	A INCHES	B INCHES		PRESTRESSED STEEL AREA	No. 3/8" STRANDS	WEIGHT BASIC MEMBER	SUGGESTED BEARING
70	312	18		2.72	34	51300	18" 12" Min
72	328			2.88	36	52,960	
74	369			3.04	38	54,620	
76	407			3.20	40	56,280	
78	432			3.36	42	57940	
80	462			3.52	44	59,600	



PART PLAN - 90° SKEW
(Clear Span Over 44')



No.4 Bars Type K and K1



TYPICAL PATTERN FOR PRESTRESSING STEEL

GENERAL NOTES.

SPECIFICATIONS Standard Road & Bridge Specifications Of The Tennessee Department Of Highways
LOADING H20-S16-44
CONCRETE (Cast in Place) To Be Class "A"
PRECAST, PRETENSIONED CONCRETE See Specifications
REINFORCING STEEL See Specifications.
FORMS & FINISH See Specifications.
HANDLING PRE-TENSIONED DECK-UNIT See Specifications.
LATERAL TENSIONING Prior To Grouting Longitudinal, Keys Of In-Place Deck Units, The Nuts Of The Transverse Rods Shall Be Given Two Full Turns From Hand Tight Position, To Develope A Stress Of 30,000 P.S.I., In Rods
PRETENSIONING STEEL: An Initial Force Of 14,000 Lbs. Shall Be Applied To Each Strand In All Beams
The Design Is Based On Federal Bureau Criteria & Special Provision.

DESIGNED BY ______ DATE ______
DRAWN BY A. BUCKS DATE 6 26 57
TRACED BY B. BAUMAN DATE 8 30 60
CHECKED BY ______

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

STANDARD
PRESTRESSED CONCRETE BRIDGE
PRETENSIONED
CLEAR SPANS 14'-0" TO 80-0"
28'-0" ROADWAY WITH SAFETY CURBS
1957

CORRECT: Fred Greene, BRIDGE ENGINEER
APPROVED: [signature], STATE HIGHWAY ENGINEER

F-10-84

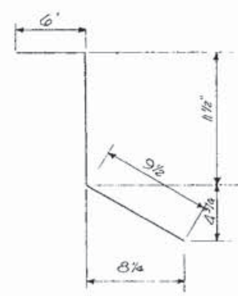
WITH STD. DWG. F-10-85 & 86

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
3	TENN		19		

QUANTITIES FOR CAST CURB BOTH SIDES

Clear Span	Concrete Cu Yds	Reinf Steel Lbs	No Of Bars D_1	No Of Bars C_2	No Of Bars C_1
14	36	206	24	22	12
16	40	235	28	26	12
18	45	265	30	28	?
20	49	294	34	32	12
22	54	324	36	34	12
24	58	353	40	38	12
26	63	38?	42	40	12
28	67	412	46	44	12
30	71	441	48	46	12
32	76	470	52	50	12
34	80	50[illegible]	54	52	12
36	85	524	58	56	12
38	89	584	60	58	12
40	94	588	62	60	[illegible]
42	98	[illegible]	66	64	12
44	103	[illegible]47	68	66	12
46	107	676	72	70	12
48	112	706	74	72	12
50	116	735	78	76	12
52	121	764	80	78	12
54	125	794	84	82	12
56	130	[illegible]	86	84	12
58	134	853	90	88	24
60	138	882	92	90	24
62	143	911	96	94	24
64	147	941	98	96	24
66	152	970	102	[illegible]	24
68	156	[illegible]	106	[illegible]	24
70	163	[illegible]	110	108	24
72	167	[illegible]	112	110	24
74	172	1088	116	114	24
76	176	1117	118	116	24
78	181	1147	122	120	24
80	185	[illegible]176	124	122	24

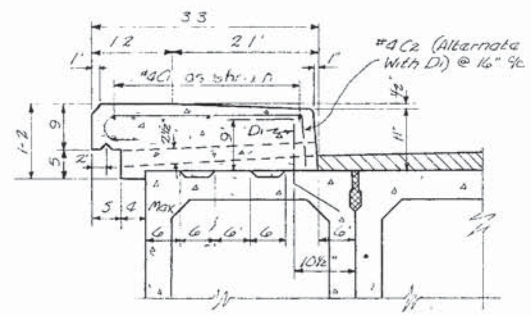
NOTE Above Quantities Apply To All Skews
* For Skewed Bridge Less Than 90° Curb Bars To Be Flared At Each End Of Span
NOTE Bars D_1 To Be Included In Unit Price Bid For Girders



BARS D_1 (To Be ½"⌀)
Total Length = 2 3

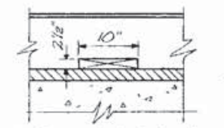
BARS C_2
Total Length 14

NOTE Length Of Longitudinal Bars C_1 To Be Total Span Length Minus 6. Also Lap Bars C_1 10" When Splice Is Required



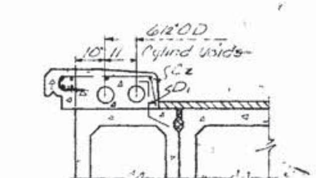
TYPICAL SECTION FOR CURB AND EXTERIOR BOX

NOTE Curb To Be Cast In Place. Provisions May Be Made In The Fascia Of Ext Units For Approved Inserts To Facilitate Forming Of Curbs



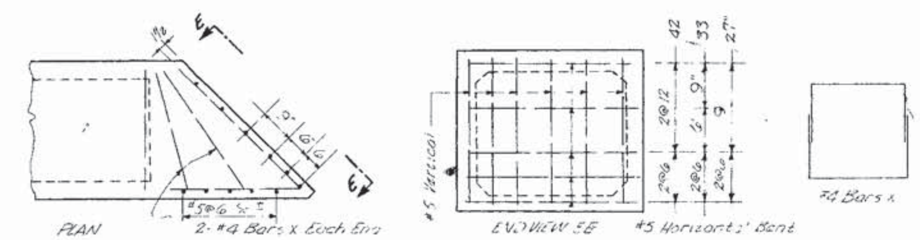
Locate Drain Slots @ Center Of Every Other Railing Panel

DRAINAGE SLOT DETAIL

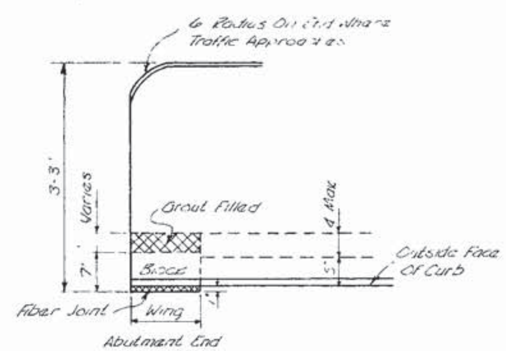


NOTE Cylind Voids To Be Continuous Except They Are Stopped @ 3" On Either Side Of Drainage Slots

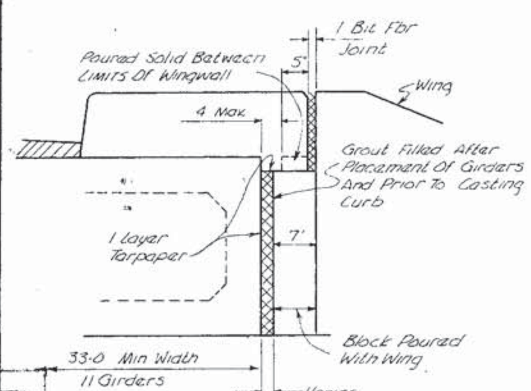
ALTERNATE CURB



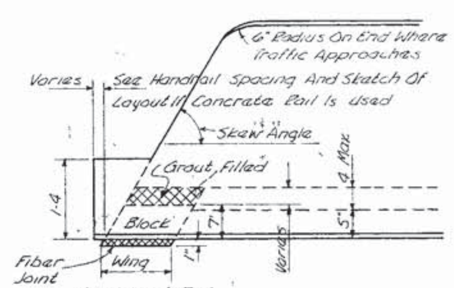
SKETCH SHOWING ADDITIONAL REINFORCEMENT TO BE PLACED IN ACUTE CORNERS OF PRESTRESSED BOX BEAM



Abutment End



SKETCH SHOWING CURB DETAIL AT ABUTMENT END



Abutment End

Revised 6-15-60 Reinf. In Acute Corner
Revised 4-17-58 Bar D_1 Deducted From Reinf Steel Quantities
Revised 3-30-61 Drip Bead Location Changed

DESIGNED BY ... DATE
DRAWN BY A. BURKE DATE 10-28-57
TRACED BY B. BAUMAN & Q. PARKER DATE 8-30-60
CHECKED BY ... DATE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS
NASHVILLE

STANDARD

PRESTRESSED CONCRETE BRIDGE

PRETENSIONED

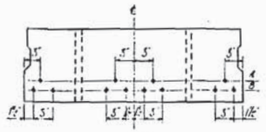
CLEAR SPANS 14'-0" - 80'-0"
28'-0" ROADWAY - WITH SAFETY CURBS
1957

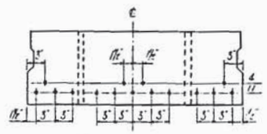
CORRECT [signature] BRIDGE ENGINEER
APPROVED [signature] STATE HIGHWAY ENGINEER

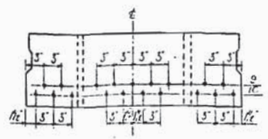
F-10-86

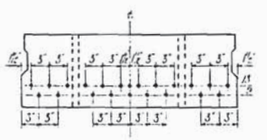
With Std. Dwg. F-10-84 & F-10-85A

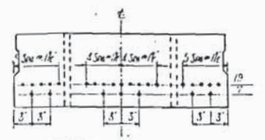
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.
8	TENN.		19	

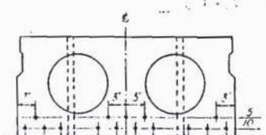

12' DEPTH – 16' CLEAR SPAN
12 STRANDS

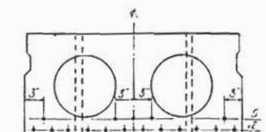

12' DEPTH – 17' CLEAR SPAN
15 STRANDS

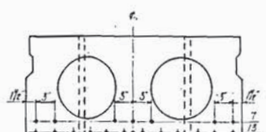

12' DEPTH – 18' CLEAR SPAN
17 STRANDS

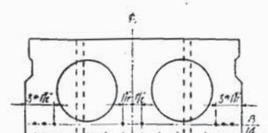

12' DEPTH – 20' CLEAR SPAN
22 STRANDS

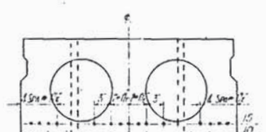

12' DEPTH – 22' CLEAR SPAN
24 STRANDS

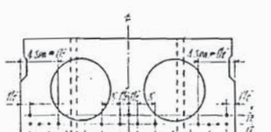

12' DEPTH – 24' CLEAR SPAN
15 STRANDS

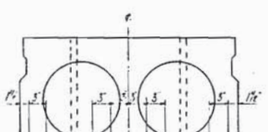

17' DEPTH – 26' CLEAR SPAN
17 STRANDS

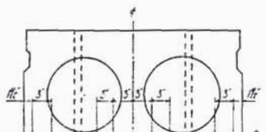

17' DEPTH – 28' CLEAR SPAN
20 STRANDS

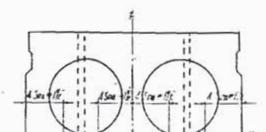

17' DEPTH – 30' CLEAR SPAN
22 STRANDS

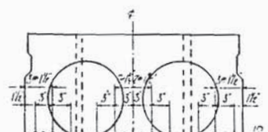

17' DEPTH – 32' CLEAR SPAN
25 STRANDS

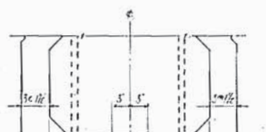

17' DEPTH – 34' CLEAR SPAN
27 STRANDS

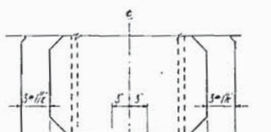

21' DEPTH – 34' CLEAR SPAN
27 STRANDS

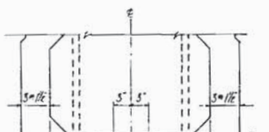

21' DEPTH – 38' CLEAR SPAN
24 STRANDS

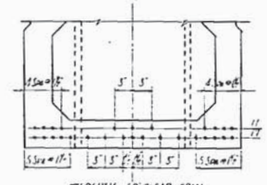

21' DEPTH – 40' CLEAR SPAN
27 STRANDS

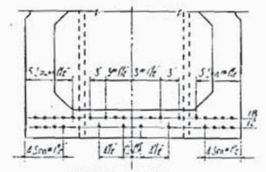

21' DEPTH – 42' CLEAR SPAN
31 STRANDS

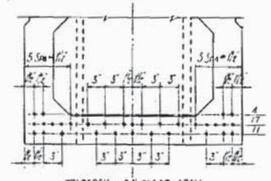

27' DEPTH – 44' CLEAR SPAN
22 STRANDS

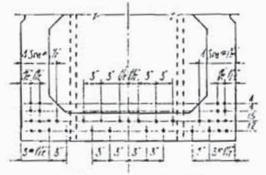

27' DEPTH – 46' CLEAR SPAN
23 STRANDS

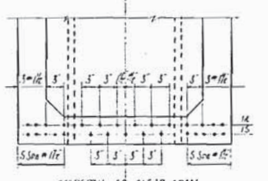

27' DEPTH – 48' CLEAR SPAN
25 STRANDS

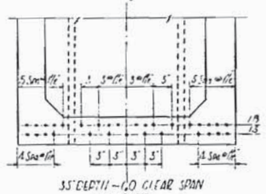

27' DEPTH – 50' CLEAR SPAN
28 STRANDS

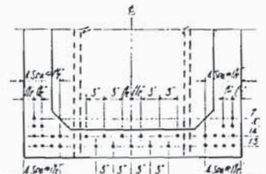

27' DEPTH – 52' CLEAR SPAN
31 STRANDS

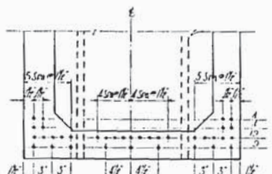

27' DEPTH – 54' CLEAR SPAN
32 STRANDS

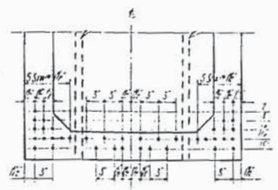

27' DEPTH – 56' CLEAR SPAN
35 STRANDS

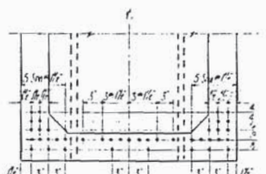

33' DEPTH – 58' CLEAR SPAN
29 STRANDS

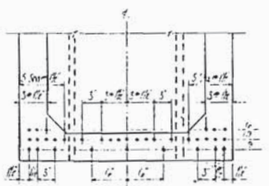

33' DEPTH – 60' CLEAR SPAN
31 STRANDS

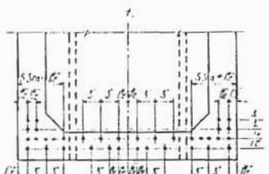

35' DEPTH – 62' CLEAR SPAN
33 STRANDS

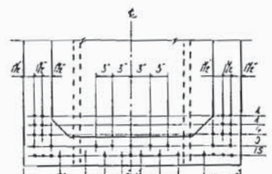

35' DEPTH – 64' CLEAR SPAN
36 STRANDS

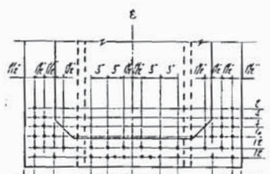

35' DEPTH – 66' CLEAR SPAN
38 STRANDS

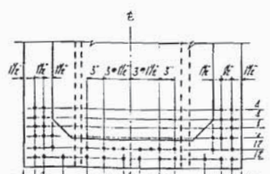

35' DEPTH – 68' CLEAR SPAN
41 STRANDS

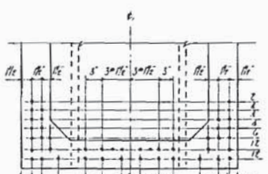

42' DEPTH – 70' CLEAR SPAN
34 STRANDS


42' DEPTH – 72' CLEAR SPAN
36 STRANDS


42' DEPTH – 74' CLEAR SPAN
38 STRANDS


42' DEPTH – 76' CLEAR SPAN
40 STRANDS


42' DEPTH – 78' CLEAR SPAN
42 STRAND


42' DEPTH – 80' CLEAR SPAN
44 STRANDS

OBSOLETE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
AND PUBLIC WORKS
NASHVILLE

STANDARD
PRESTRESSED CONCRETE BRIDGE

DETAILS FOR REQUIRED PRESTRESSING PATTERNS

CLEAR SPANS 14'-0" - 80'-0"
28'-0" ROADWAY - WITH SAFETY CURBS
1958

F-10-85A

CORRECT Fred Groves
BRIDGE ENGINEER

APPROVED Charles D. McFarland
STATE HIGHWAY ENGINEER

F-10-85A

CHECKED BY
DRAWN BY A. Burke DATE 3-13-58
TRACED BY B. Burke DATE 3-17-58
CHECKED BY DATE