GENERAL NOTES:

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

LOADING: HS20-44 WITH ALTERNATE MILITARY.

DESIGN SPECIFICATIONS: AASHTO 1977. EDITION WITH ADDENDA.

(1) SPECIAL NOTE FOR CONCRETE BRIDGE DECK: CLASS A CONCRETE FOR BRIDGE DECKS SHALL BE IN ACCORDANCE WITH SECTION 604 EXCEPT AS FOLLOWS: MINIMUM 28 DAY COMPRESSIVE STRENGTH = 4500 psi. MAXIMUM WATER/CEMENT = 5.0 GAL./SACK OF CEMENT. AIR CONTENT = 6% ± 2%.

(1) CONCRETE: TO BE CLASS "A". F'C = 3,000 PSI. (SUBSTRUCTURE AND PARAPETS).

BRIDGE DECK FORMS: BRIDGE DECK FORMS FOR CONCRETE DECKS SHALL BE CONSTRUCTED USING EITHER REMOVAL FORMS OR PERMANENT FORMS. PERMANENT FORMS MAY BE EITHER REMAIN-IN-PLACE STEEL OR PRECAST, PRESTRESSED CONCRETE PANELS. IN EITHER CASE, FORMS SHALL BE ATTACHED BY MEANS OTHER THAN WELDING TO SUPPORT MEMBERS. THE CONTRACTOR SHALL TAKE STEPS TO ASSURE THE STABILITY OF THE EXTERIOR GIRDER AGAINST TWISTING OR OVERTURNING DURING SLAB POURING OPERATIONS.

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.

SPECIAL NOTE - FOOTINGS FOR BENTS: AFTER EXCAVATION TO ROCK FOR FOOTING HAS BEEN COMPLETED, HOLES 6 FT. DEEP SHALL BE DRILLED AT POINTS DESIGNATED BY THE ENGINNEER. FROM THE RESULTS OBTAINED, THE ENGINNER SHALL DETERMINE THE FINAL FOOTING ELEVATIONS. NO REINFORCING STEEL FOR THE PIER COLUMNS SHALL BE ORDERED UNTIL FINAL FOOTING ELEVATIONS HAVE BEEN DETERMINED.

PILES: TO BE HP10×42 DRIVEN TO REFUSAL ON ROCK OR A MINIMUM BEARING OF 55 TONS FOR THE ABUTMENTS.

NOTE: ALL FILL SHALL BE IN PLACE PRIOR TO EXCAVATING FOR PIER FOOTINGS. AFTER CONSTRUCTING THE PIER, EXTREME CARE SHALL BE TAKEN WHEN BACKFILLING SO AS NOT TO DAMAGE OR MISALIGN THE PIER.

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

SPECIAL NOTE FOR RAILROAD CROSSING: THE CONTRACTOR SHALL CONDUCT HIS WORK SO AS TO PROTECT THE RAILROAD TRACKS AND PROPERTIES FROM ANY DAMAGE. THE WORK SHALL BE DONE IN ACCORDANCE WITH THE REGULATIONS STIPULATED BY THE L.&N. RAILROAD SO AS TO MAINTAIN CLEARANCE AND NOT INTERRUPT TRAFFIC.

ERECTION: THE CONTRACTOR SHALL SUBMIT TO THE BRIDGE ENGINEER COMPLETE DETAILS OF HIS ERECTION SEQUENCE AND PROCEDURE FOR APPROVAL. HOWEVER NO FORMS OR FALSEWORK, FOR ANY BRIDGE, SHALL BE SUPPORTED FROM ANOTHER STRUCTURE.

SHOP DRAWINGS: SEE SPECIAL PROVISION NO. 105A.

LINSEED OIL PROTECTIVE TREATMENT: SURFACES RECEIVING AN APPLIED TEXTURE FINISH (AND DECKS WITH LSDC AND PMC ALT.) SHALL NOT RECEIVE A LINSEED OIL TREATMENT. SEE APPLIED TEXTURE FINISH DETAIL, THIS SHEET.

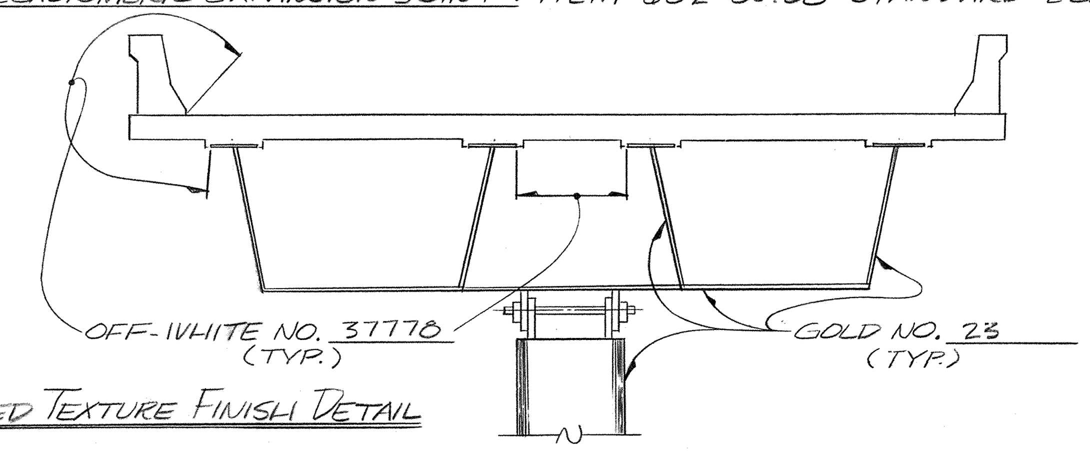
WELDING: SEE SPECIAL PROVISION NO. 602 AND STRUCTURAL STEEL NOTES THIS SHEET.

PAINT: SYSTEM B - INORGANIC ZINC - VINYL SYSTEM - GOLD TOP COAT - FOR PREPARATION OF SURFACES SEE TENNESSEE STANDARD SPECIFICATIONS 603.05B.

RADIOGRAPHIC, ULTRASONIC AND MAGNETIC INSPECTION: SEE SPECIAL PROVISION NO. 602 AND STRUCTURAL STEEL NOTES THIS SHEET.

STEEL STRUCTURES: SEE TENNESSEE STANDARD SPECIFICATIONS SECTION 602 AND STRUCTURAL STEEL NOTES THIS SHEET.

STANDARD ELASTOMERIC EXPANSION JOINT: ITEM 602-05.08 STANDARD ELASTOMERIC EXPANSION JOINT.



APPLIED TEXTURE FINISH DETAIL

FINISHING CONCRETE SURFACES: CONCRETE FINISHING SHALL BE IN ACCORDANCE WITH SECTION 604.22 OF THE TENNESSEE STANDARD SPECIFICATIONS. A 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.

STRUCTURAL STEEL GENERAL NOTES:

APPROVAL OF MATERIALS: NO FABRICATION SHALL BE STARTED UNTIL THE MATERIALS INVOLVED HAVE BEEN APPROVED BY THE TENNESSEE DEPARTMENT OF TRANSPORTATION DIVISION OF MATERIALS AND TESTS.

IDENTITY OF MAIN MATERIALS: SEE SPECIAL PROVISION NO. 602.

(1) FIELD CONNECTIONS: SHALL BE 7/8"Φ UNLESS OTHERWISE NOTED, HIGH TENSILE STRENGTH BOLTS ASTM-A325. ALL HIGH STRENGTH BOLTED CONNECTIONS ARE FRICTION TYPE EXCEPT AS NOTED.

ADDITIONAL SHOP SPLICE NOTE: SHOP SPLICES NECESSARY DUE TO LENGTHS OR SIZE OF MATERIAL INVOLVED MAY BE LOCATED BY THE FABRICATOR SUBJECT TO APPROVAL BY THE ENGINEER.

WELDING: AWS D1.1-80 STRUCTURAL WELDING CODE, AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES, THIRD EDITION, 1981, AND SPECIAL PROVISION NO. 602.

ADDITIONAL FIELD SPLICE NOTE: FIELD SPLICES NECESSARY DUE TO LENGTHS INVOLVED MAY BE LOCATED BY THE FABRICATOR SUBJECT TO APPROVAL BY THE ENGINEER. DESIGNATED SPLICE LOCATIONS MAY BE ELIMINATED BY THE CONTRACTOR SUBJECT TO APPROVAL BY THE ENGINEER.

NOTE: UNLESS OTHERWISE NOTED, SEE AASHTO SPECIFICATIONS ART 1.7.21 FOR MINIMUM SIZE OF FILLET WELD.

SHOP ASSEMBLY: PROGRESSIVE SHOP ASSEMBLY WILL BE ALLOWED. SEE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, ART. 2.10.14 (B).

STRUCTURAL STEEL: STRUCTURAL STEEL SHALL CONFORM TO; ASTM A36 (AASHTO M183), ASTM A572 (AASHTO M223), ASTM A588 (AASHTO M222).

SPECIAL STEEL ERECTION NOTE: TEMPORARY STRUCTURE WILL BE REQUIRED IN THE MEDIAN AREA BETWEEN FRANKLIN ROAD AND INTERSTATE 65 TO ACCOMODATE THE STEEL ERECTION FOR SPAN THREE OF STRUCTURES 166 AND 167. THE TEMPORARY STRUCTURE MUST MEET THE REQUIREMENTS OF AASHTO ART. 2.10.54. THE BOX GIRDER FIELD SPLICE AS SHOWN FOR SPAN THREE OF STRUCTURES 166 AND 167 MUST BE MADE IN THE FINAL POSITION. THE FIRST SEGMENT OF EACH BOX GIRDER MUST LAND ON AND BE SUPPORTED BY THE TEMPORARY STRUCTURE AND THE SECOND SEGMENT OF THE SAME GIRDER LINE MUST BE IN PLACE AND AT LEAST ONE HALF THE HOLES FILLED WITH BOLTS AND CYLINDRICAL ERECTION PINS, (HALF BOLTS AND HALF PINS), BEFORE THE FIRST SEGMENT OF ANOTHER GIRDER LINE IS PLACED. TRAFFIC MUST BE MAINTAINED ON FRANKLIN ROAD OR INTERSTATE 65 AT ALL TIMES. STEEL WILL NOT BE ALLOWED TO SWING OR BE HELD BY THE CRANE OVER MOVING TRAFFIC AT ANY TIME. SEE ROADWAY TRAFFIC CONTROL PLAN FOR ADDITIONAL INFORMATION. THE COST OF TEMPORARY ERECTION STRUCTURE IS TO BE INCLUDED IN ITEM NOS. 602-14.05 AND 602-14.06, (STEEL STRUCTURES ERECTION).

DESIGNED BY	C.M. HILES	DATE	
DRAWN BY	MIKE CHILDRESS	DATE	01-82
SUPERVISED BY	HARRISON-HILES	DATE	01-82
CHECKED BY	HILES	DATE	

LIST OF DRAWINGS

	TITLE OF DRAWING	DRAWING NO.
	GENERAL NOTES	M-15-55
	ESTIMATE QUANTITIES	M-15-56
	LAYOUT	M-15-57
	CONTOURS	M-15-58
	PROFILES	M-15-59
BRIDGE NO. 162	LAYOUT OF BRIDGE NO. 162	M-15-60
	SUPERSTRUCTURE	M-15-61
	FRAMING PLAN	M-15-62
	SUPPORT DIAPHRAGM	M-15-63
	ABUTMENT NO. 1	M-15-64
	ABUTMENT NO. 1 DETAILS	M-15-65
	ABUTMENT NO. 2	M-15-66
	ABUTMENT NO. 2 DETAILS	M-15-67
	PIERS NO. 1, 2 AND 3	M-15-68
	BILL OF STEEL	M-15-69
BRIDGE NO. 163	LAYOUT OF BRIDGE NO. 163	M-15-70
	SUPERSTRUCTURE	M-15-71
	FRAMING PLAN	M-15-72
	SUPPORT DIAPHRAGM	M-15-73
	ABUTMENT NO. 1	M-15-74
	ABUTMENT NO. 1 DETAILS	M-15-75
	ABUTMENT NO. 2	M-15-76
	ABUTMENT NO. 2 DETAILS	M-15-77
	PIERS NO. 1 AND 2	M-15-78
	BILL OF STEEL	M-15-79
BRIDGE NO. 164	LAYOUT OF BRIDGE NO. 164	M-15-80
	SUPERSTRUCTURE	M-15-81
	FRAMING PLAN	M-15-82
	SUPPORT DIAPHRAGM	M-15-83
	ABUTMENT NO. 1	M-15-84
	ABUTMENT NO. 2	M-15-85
	ABUTMENTS NO. 1 AND 2 DETAILS	M-15-86
	PIERS NO. 1, 2, 3 AND 4	M-15-87
	BILL OF STEEL	M-15-88
BRIDGE NO. 165	LAYOUT OF BRIDGE NO. 165	M-15-89
	SUPERSTRUCTURE	M-15-90
	FRAMING PLAN	M-15-91
	SUPPORT DIAPHRAGM	M-15-92
	ABUTMENT NO. 1	M-15-93
	ABUTMENT NO. 2	M-15-94
	ABUTMENTS NO. 1 AND 2 DETAILS	M-15-95
	PIERS NO. 1, 2 AND 3	M-15-96
	BILL OF STEEL	M-15-97
BRIDGES NO. 166 AND 167	LAYOUT OF BRIDGES NO. 166 AND 167	M-15-98
	SUPERSTRUCTURE - BRIDGE NO. 166	M-15-99
	SUPERSTRUCTURE - BRIDGE NO. 167	M-15-100
	FRAMING PLAN - BRIDGES NO. 166 AND 167	M-15-101
	BOX GIRDER ELEVATIONS BRIDGE NO. 166	M-15-102
	BOX GIRDER ELEVATIONS BRIDGE NO. 167	M-15-103
	DEAD LOAD CORRECTION CURVES BRIDGES NO. 166 AND 167	M-15-104
	SUPPORT DIAPHRAGM BRIDGES NO. 166 AND 167	M-15-105
	ABUTMENTS NO. 1 BRIDGES NO. 166 AND 167	M-15-106
	ABUTMENTS NO. 1 DETAILS BRIDGES NO. 166 AND 167	M-15-107
	ABUTMENTS NO. 2 BRIDGES NO. 166 AND 167	M-15-108
	ABUTMENTS NO. 2 DETAILS BRIDGES NO. 166 AND 167	M-15-109
	PIERS NO. 1, 2, 3, 4 AND 5 - BRIDGES NO. 166 AND 167	M-15-110
	BILL OF STEEL	M-15-111
	CRASHWALL @ PIER NO. 5 BRIDGE NO. 166	M-15-112
	STRUCTURAL STEEL DETAILS BRIDGES NO. 162, 166 AND 167	M-15-113
	STRUCTURAL STEEL DETAILS BRIDGES NO. 163, 164 AND 165	M-15-114
	STRUCTURAL STEEL DETAILS (FIELD CONNECTIONS)	M-15-115
	FIELD SPLICES BRIDGES NO. 162, 166 AND 167	M-15-116
	FIELD SPLICES BRIDGES NO. 163, 164 AND 165	M-15-117
	BEARING DEVICES	M-15-118

		LATEST REVISION DATE
STANDARD ELASTOMERIC EXPANSION JOINT	K-86-1, 2, & 6	12-02-71

DRAWING TITLE	DRAWING NO.(S)	LATEST REVISION DATE
BRIDGE RAILING - CONCRETE PARAPET	M-28-1	07-17-81
STANDARD REINFORCING BAR SUPPORT DETAILS	K-80-14	08-27-76
REINFORCED CONCRETE PAVEMENT AT BRIDGE ENDS	K-86-144	07-17-81
MISCELLANEOUS ABUTMENT AND DRAINAGE DETAILS	K-85-150	01-09-75
STANDARD PILE DETAILS	H-5-111	11-27-73
(2) TENNESSEE STANDARD PRECAST PRESTRESSED BRIDGE DECK PANELS	K-80-15A	
PORTABLE BARRIER RAIL	M-38-158	07-17-81

LIST OF SPECIAL PROVISIONS

NO.	DESCRIPTION OF:	LATEST REVISION DATE
105A	REGARDING APPROVAL OF SHOP DRAWINGS	07-02-79
602	REGARDING STEEL STRUCTURES	09-08-81
602A	REGARDING STEEL STRUCTURES	07-05-79
907A	REGARDING EPOXY COATED REINFORCING STEEL	09-08-81

CONSTRUCTION NO. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	4-21-82	CMH.	ADDED NOTE CLASS A CONCRETE (BRIDGE DECK) REV. FIELD CONNECTION NOTE.
2	9-14-82	CMH	GENERAL REVISION

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

GENERAL NOTES
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

CORRECT Clellon L Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-55

MICROFILMED

CONSTRUCTION NO. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
△1	4-21-82	CMH.	REV. ITEM NO. 604-03.01
			ADDED ITEM NO. 604-01.12
			DELETED ITEM NO. 712-02
△2	9-14-82	C.M.H.	GENERAL REVISION
3	1-24-83	F. Co	LIGHTING
4	5/20/83	C.M.H	ADDED BARS ABOVE.
5	7/21/87	CMH	REV. CONC. QUANT.

	ITEM NO.	204-02.01	204-04.01	204-05	602-05.05	△4 604-02.03	△1 604-03.01	604-03.02	604-03.03	604-04.01	606-22.03	606-32.03	606-42-03	620-03	709-04	710-10	710-11	△1 604-01.12
	ITEM	DRY ③ EXCAVATION (BRIDGES)	ROCK ③ EXCAVATION (BRIDGES)	ROCK DRILLING (BRIDGES)	STD. ELASTOMERIC EXPANSION DEVICE	EPOXY COATED REINFORCING STEEL	CLASS 'A' CONCRETE (BRIDGES)	STEEL BAR REINFORCEMENT (BRIDGES)	LINSEED OIL TREATMENT	APPLIED TEXTURE FINISH (NEW STRUCTURES)	STEEL PILES (10-INCH) (DRIVING)	STEEL PILES (10-INCH) (FURNISH DOMESTIC)	STEEL PILES (10-INCH) (FURNISH FOREIGN)	CONCRETE PARAPET	REINFORCED CONCRETE SLOPE PAVEMENT	6" PERF. C.M. PIPE (18 GA.) WITH ② POROUS BACKFILL	6" C.M. PIPE UNDERDRAINS (18 GA)	CLASS A CONCRETE (BRIDGE DECK)
	UNIT OF MEASUREMENT	C.Y.	C.Y	L.F.	L.F.	LBS.	C.Y	LBS.	S.Y.	S.Y.	L.F.	L.F.	L.F.	L.F.	C.Y	L.F.	L.F.	C.Y.
STRUCTURE 162 S-W ROADWAY	SUPERSTRUCTURE					205,767												668.4
	ABUTMENT NO. 1	118.0	9.3	12		2,655	79.8	7728								52	26	
	PIER NO. 1		293.9	12			126.0	28897										
	PIER NO. 2		124.1	12			119.2	26959										
	PIER NO. 3		98.0	12			100.4	21464										
	ABUTMENT NO. 2	71.7				2,655	62.8	5388			194	194	194		24.1	52	26	
	PAVEMENT @ BRIDGE ENDS					21,464	80.6				100	100	100					
	TOTALS	189.7	525.3	48	87 △2	232,541	568.8	90437	2533	2,063	294	294	294	1062	24.1	104	52	668.4
STRUCTURE 163 N-E ROADWAY	SUPERSTRUCTURE					136,445												385.1
	ABUTMENT NO. 1	61.6				1866	50.9	4484			190	190	190		21.3	40	26	
	PIER NO. 1	106.2	12.3	12			77.3	17,743										
	PIER NO. 2		92.5	12			85.4	20,819										
	ABUTMENT NO. 2	97.1	9.3	12		1866	66.0	6,578							8.8	40	26	
	PAVEMENT @ BRIDGE ENDS					14,894	55.5				80	80	80					
	TOTALS	264.9	114.1	36	63 △2	155,071	335.1	49,624	1619	1668	270	270	270	958	30.1	80	52	385.1
STRUCTURE 164 E-S ROADWAY	SUPERSTRUCTURE					206,273												581.8
	ABUTMENT NO. 1	68.9				2,212	56.1	4888			208	208	208		17.3	43	27	
	PIER NO. 1		98.0	12			93.9	24,070										
	PIER NO. 2		92.5	12			108.8	32,555										
	PIER NO. 3		87.1	12			102.9	30,320										
	PIER NO. 4	204.2	8.2	12			103.1	27,546										
	ABUTMENT NO. 2	68.9				2,212	56.1	4,888			361	361	361		40.0	43	28	
	PAVEMENT @ BRIDGE ENDS					14,894	55.5				80	80	80					
	TOTALS	342.0	285.8	48	63 △2	225,591	576.4	124,267	2364	2483	649	649	649	1435	57.3	86	55	581.8
STRUCTURE 165 W-N ROADWAY	SUPERSTRUCTURE					209,593												596.8
	ABUTMENT NO. 1	71.5				1,939	57.0	5,077			442	442	442		63.5	44	28	
	PIER NO. 1		103.4	12			101.3	29,670										
	PIER NO. 2		98.0	12			106.8	31,778										
	PIER NO. 3	49.0		12			84.6	20,503										
	ABUTMENT NO. 2	71.5				1939	57.0	5077			186	186	186		31.7	44	25	
	PAVEMENT @ BRIDGE ENDS					15,149	55.5				80	80	80					
	TOTALS	192.0	201.4	36	63 △2	228,620	462.2	92,105	2,388	2,515	708	708	708	1452	95.2	88	56	596.8
STRUCTURE 166 INTERSTATE 440 (LEFT LANE)	SUPERSTRUCTURE					407,716												1419.5
	ABUTMENT NO. 1	92.4				2891	78.2	6,608			721	721	721		126.5	60	30	
	PIER NO. 1	612.6	62.3	12			284.3	117,933										
	PIER NO. 2	404.9	93.4	12			287.4	119,778										
	PIER NO. 3		498.4	12			281.1	116,125										
	PIER NO. 4	384.2	62.3	12			252.6	92,695										
	PIER NO. 5	269.9	41.5	12			260.2	96,770										
	CRASHWALL						26.1	5,729		46								
	ABUTMENT NO. 2	92.4				2891	78.3	6,608			609	609	609		97.0	60	30	
	PAVEMENT @ BRIDGE ENDS					21,591	80.6				100	100	100					
	TOTALS	1856.4	757.9	60	87 △2	435,089	1628.8	562,246	4803	4 152	1,430	1,430	1,430	2087	223.5	120	60	△5 1419.5
STRUCTURE 167 INTERSTATE 440 (RIGHT LANE)	SUPERSTRUCTURE					415,191												1447.1
	ABUTMENT NO. 1	92.4				2891	78.1	6,608			726	726	726		141.9	60	30	
	PIER NO. 1	612.6	62.3	12			286.7	119,409										
	PIER NO. 2	404.9	93.4	12			289.8	121,146										
	PIER NO. 3		498.4	12			283.6	117,431										
	PIER NO. 4	384.2	62.3	12			255.1	94,001										
	PIER NO. 5	269.9	41.5	12			262.6	98,331										
	ABUTMENT NO. 2	92.4				2,891	78.3	6,608			604	604	604		98.1	60	30	
	PAVEMENT @ BRIDGE ENDS					21,591	80.6				100	100	100					
	TOTALS	1856.4	757.9	60	△2 87	442,564	1,614.8	563,534	4895	4,184	1430	1,430	1,430	2128	240.0	120	60	△5 3 1447.1
GRAND TOTALS		4701.4	2642.4	288	△2 450	1,719,476	5,186.1	1,482,212	18,602	17,065	4,781	4.781	4,781	9,122	670.2	598	335	△5 5098.7

① NOTE: THE COST OF BITUMINOUS FIBERBOARD AND ALL MISCELLANEOUS JOINT MATERIAL TO BE INCLUDED IN BRIDGE ITEMS BID ON.

② NOTE: THE COST OF POLYETHYLENE SHEETING AND ALL MISCELLANEOUS ITEMS NECESSARY FOR INSTALLATION TO BE INCLUDED IN COST OF PERFORATED C.M. PIPE.

③ NOTE: EXCAVATION BASED ON LOWER ROAD PROFILE.

④ NOTE: THE COST OF 60 THREADED STEEL INSERTS AND 60 7/8" Ø x 4" HEX HEAD BOLTS, (A307), TO BE INCLUDED IN BRIDGE ITEMS BID ON.

ITEM NO.	602-14.01	602-18.01	602-46.01	602-14.02	602-18.02	602-46.02	602-14.03	602-18.03	602-46.03	602-14.04	602-18.04	602-46.04	602-14.05	602-18.05	602-46.05	602-14.06	602-18.06	602-46.06
ITEM	STEEL ⑤ STRUCTURES (ERECTION)	STEEL ⑤ STRUCTURES (FURNISH DOMESTIC)	STEEL ⑤ STRUCTURES (FURNISH FOREIGN)	STEEL ⑥ STRUCTURES (ERECTION)	STEEL ⑥ STRUCTURES (FURNISH DOMESTIC)	STEEL ⑥ STRUCTURES (FURNISH FOREIGN)	STEEL ⑦ STRUCTURES (ERECTION)	STEEL ⑦ STRUCTURES (FURNISH DOMESTIC)	STEEL ⑦ STRUCTURES (FURNISH FOREIGN)	STEEL ⑧ STRUCTURES (ERECTION)	STEEL ⑧ STRUCTURES (FURNISH DOMESTIC)	STEEL ⑧ STRUCTURES (FURNISH FOREIGN)	STEEL ⑨ STRUCTURES (ERECTION) ⑪	STEEL ⑨ STRUCTURES (FURNISH DOMESTIC)	STEEL ⑨ STRUCTURES (FURNISH FOREIGN)	STEEL ⑩ STRUCTURES (ERECTION) ⑪	STEEL ⑩ STRUCTURES (FURNISH DOMESTIC)	STEEL ⑩ STRUCTURES (FURNISH FOREIGN)
DESCRIPTION	STRUCTURE 162 - STATION AT BEGINNING OF BRIDGE STA. 146+41.51			STRUCTURE 163 - STATION AT BEGINNING OF BRIDGE, STA. 47+44.02			STRUCTURE 164 - STATION AT BEGINNING OF BRIDGE - STA 247+31.28			STRUCTURE 165 - STATION AT BEGINNING OF BRIDGE - STA 447+60.85			STRUCTURE 166 - STATION AT BEGINNING OF BRIDGE - STA. 345+16.69			STRUCTURE 167 - STATION AT BEGINNING OF BRIDGE - STA. 345+16.69		
STRUCTURE 162	1	1	1															
STRUCTURE 163				1	1	1												
STRUCTURE 164							1	1	1									
STRUCTURE 165										1	1	1						
STRUCTURE 166													1	1	1			
STRUCTURE 167																1	1	1

ITEM NO.	△3 714-01.01	△3 714-01.02	△3 714-01.03	△3 714-01.04	△3 714-01.05	△3 714-01.06
ITEM	⑫ STRUCTURE LIGHTING (S-W ROADWAY OVER I-65)	⑬ STRUCTURE LIGHTING (N-E ROADWAY OVER I-65)	⑭ STRUCTURE LIGHTING (S-E ROADWAY OVER S-W & N-E ROADWAYS)	⑮ STRUCTURE LIGHTING (W-N ROADWAY OVER S-W & N-E ROADWAYS)	⑯ STRUCTURE LIGHTING (EASTBOUND I-440 OVER S-E & W-N)	⑰ STRUCTURE LIGHTING (WESTBOUND I-440 OVER S-E & W-N)
STRUCTURE 162	1					
STRUCTURE 163		1				
STRUCTURE 164			1			
STRUCTURE 165				1		
STRUCTURE 166					1	
STRUCTURE 167						1

⑤ NOTE: LUMP SUM: TOTAL ESTIMATED WEIGHT OF 976,172 LBS. STRUCTURAL STEEL INCLUDES
856,476 LBS. A36
119,696 LBS. A572

⑥ NOTE: LUMP SUM: TOTAL ESTIMATED WEIGHT OF 667,307 LBS. STRUCTURAL STEEL INCLUDES
472,902 LBS. A36
194,405 LBS. A572

⑦ NOTE: LUMP SUM: TOTAL ESTIMATED WEIGHT OF 1,192,888 LBS. STRUCTURAL STEEL INCLUDES
874,100 LBS. A36
318,788 LBS. A572

⑧ NOTE: LUMP SUM: TOTAL ESTIMATED WEIGHT OF 1,155,015 LBS. STRUCTURAL STEEL INCLUDES
863,764 LBS. A36
291,251 LBS. A572

⑨ NOTE: LUMP SUM: TOTAL ESTIMATED WEIGHT OF 2,418,032 LBS. STRUCTURAL STEEL INCLUDES
1,737,175 LBS. A36
565,231 LBS. A572
115,626 LBS. A588

⑩ NOTE: LUMP SUM: TOTAL ESTIMATED WEIGHT OF 2,427,998 LBS. STRUCTURAL STEEL INCLUDES
1,743,714 LBS A36
568,658 LBS. A572
115,626 LBS. A588

⑫ NOTE: LUMP SUM FOR STRUCTURE LIGHTING, ITEM NO. 714-01.01 INCLUDES 430 FT. 1"Ø CONDUIT WITH PULL WIRES, 4-4"x4"x3" JUNCTION BOXES AND ALL NECESSARY MATERIALS FOR INSTALLATION OF STRUCTURE LIGHTING.

NOTE: ESTIMATED WEIGHT OF A36 INCLUDES LEAD PLATES, SELF LUBRICATED BRONZE PLATES, SHEAR CONNECTORS, BOLTS, ANCHOR BOLTS, BEARING PINS, ETC... ALSO SEE TENNESSEE STANDARD SPECIFICATIONS.

⑪ NOTE: SEE SPECIAL STEEL ERECTION NOTE - GENERAL NOTES DWG. NO. M-15-55.

⑬ NOTE: LUMP SUM FOR STRUCTURE LIGHTING, ITEM NO. 714-01.02 INCLUDES 425 FT. 1"Ø CONDUIT WITH PULL WIRES, 4-4"x4"x3" JUNCTION BOXES AND ALL NECESSARY MATERIALS FOR INSTALLATION OF STRUCTURE LIGHTING.

⑭ NOTE: LUMP SUM FOR STRUCTURE LIGHTING, ITEM NO. 714-01.03 INCLUDES 475 FT. 1"Ø CONDUIT WITH PULL WIRES, 2-4"x4"x3" JUNCTION BOXES AND ALL NECESSARY MATERIALS FOR INSTALLATION OF STRUCTURE LIGHTING.

⑮ NOTE: LUMP SUM FOR STRUCTURE LIGHTING, ITEM NO. 714-01.04 INCLUDES 290 FT. 1"Ø CONDUIT WITH PULL WIRES, 4-4"x4"x3" JUNCTION BOXES AND ALL NECESSARY MATERIALS FOR INSTALLATION OF STRUCTURE LIGHTING.

⑯ NOTE: LUMP SUM FOR STRUCTURE LIGHTING, ITEM NO. 714-01.05 INCLUDES 530 FT. 1"Ø CONDUIT WITH PULL WIRES, 2-4"x4"x3" JUNCTION BOXES AND ALL NECESSARY MATERIALS FOR INSTALLATION OF STRUCTURE LIGHTING.

⑰ NOTE: LUMP SUM FOR STRUCTURE LIGHTING, ITEM NO. 714-01.06 INCLUDES 420 FT. 1"Ø CONDUIT WITH PULL WIRES, 2-4"x4"x3" JUNCTION BOXES AND ALL NECESSARY MATERIALS FOR INSTALLATION OF STRUCTURE LIGHTING.

DESIGNED BY	C.M. HILES	DATE	81
DRAWN BY	MIKE CHILDRESS	DATE	01-82
SUPERVISED BY	HARBISON / HILES	DATE	01-82
CHECKED BY	C.M. HILES	DATE	01-82

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

ESTIMATED QUANTITIES
INTERSTATE 440 / INTERSTATE 65
DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

CORRECT Eldon L. Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

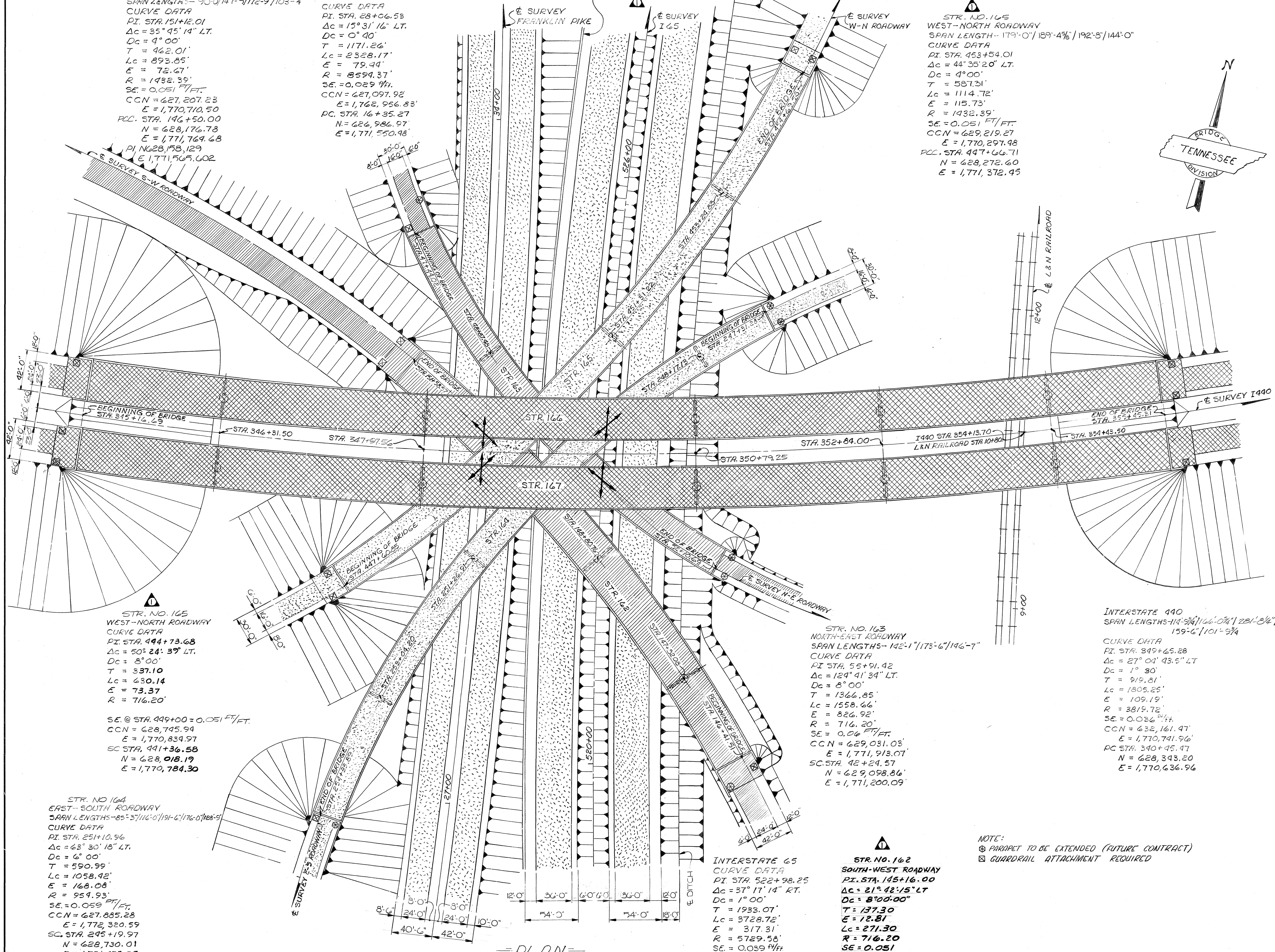
M-15-56

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9-14-82	C.M.H.	GENERAL REVISION



=PLAN=

STR. NO. 162
SOUTH-WEST ROADWAY
SPAN LENGTHS– 90'-0"/147'-9"/172'-9"/103'-4"
CURVE DATA
PI. STA. 151+12.01
Δc = 35° 45' 14" LT.
Dc = 4° 00'
T = 462.01'
Lc = 893.85'
E = 72.67'
R = 1432.39'
SE. = 0.051 FT/FT.
CCN = 627,207.23
E = 1,770,710.50
PCC. STA. 146+50.00
N = 628,176.78
E = 1,771,764.68
PI. N628,158.129
E 1,771,565.602

FRANKLIN PIKE
CURVE DATA
PI. STA. 28+06.53
Δc = 15° 31' 16" LT.
Dc = 0° 40'
T = 1171.26'
Lc = 2328.17'
E = 79.44'
R = 8594.37'
SE. = 0.029 ft/ft.
CCN = 627,097.92
E = 1,762,956.83'
PC. STA. 16+35.27
N. = 626,986.97
E = 1,771,550.98'

(1) STR. NO. 165
WEST-NORTH ROADWAY
SPAN LENGTH– 179'-0"/189'-4⅝"/192'-8"/144'-0"
CURVE DATA
PI. STA. 453+54.01
Δc = 44° 35' 20" LT.
Dc = 4° 00'
T = 587.31'
Lc = 1114.72'
E = 115.73'
R = 1432.39'
SE. = 0.051 FT/FT.
CCN = 629,219.27
E = 1,770,297.48
PCC. STA. 447+66.71
N = 628,272.60
E = 1,771,372.45

(1) STR. NO. 165
WEST-NORTH ROADWAY
CURVE DATA
PI. STA. 444+73.68
Δc = 50° 24' 39" LT.
Dc = 8° 00'
T = 337.10
Lc = 630.14
E = 73.37
R = 716.20'

SE. @ STA. 449+00 = 0.051 FT/FT.
CCN = 628,745.94
E = 1,770,839.97
SC STA. 441+36.58
N = 628,018.19
E = 1,770,784.30

STR. NO 164
EAST-SOUTH ROADWAY
SPAN LENGTHS–85'-3"/116'-0"/191'-6"/176'-0"/128'-9"
CURVE DATA
PI. STA. 251+10.96
Δc = 63° 30' 18" LT.
Dc = 6° 00'
T = 590.99'
Lc = 1058.42'
E = 168.08'
R = 954.93'
SE. = 0.059 FT/FT.
CCN = 627,885.28
E = 1,772,320.59
SC. STA. 295+19.97
N = 628,730.01
E = 1,771,875.25

STR. NO. 163
NORTH-EAST ROADWAY
SPAN LENGTHS– 142'-1"/173'-6"/146'-7"
CURVE DATA
PI STA. 55+91.42
Δc = 124° 41' 34" LT.
Dc = 8° 00'
T = 1366.85'
Lc = 1558.66'
E = 826.92'
R = 716.20'
SE. = 0.06 FT/FT.
CCN = 629,031.03'
E = 1,771,913.07'
SC. STA. 42+24.57
N = 629,098.86'
E = 1,771,200.09'

INTERSTATE 440
SPAN LENGTHS–114'-9¾"/166'-0¼"/281'-8¼"/204'-9"/
159'-6"/101'-9¾
CURVE DATA
PI. STA. 349+65.28
Δc = 27° 04' 43.5" LT
Dc = 1° 30'
T = 919.81'
Lc = 1805.25'
E = 109.19'
R = 3819.72'
SE. = 0.036 ft/ft.
CCN = 632,161.47'
E = 1,770,741.96'
PC STA. 340+45.47
N = 628,343.20
E = 1,770,636.96

INTERSTATE 65
CURVE DATA
PI. STA. 522+98.25
Δc = 37° 17' 14" RT.
Dc = 1° 00'
T = 1933.07'
Lc = 3728.72'
E = 317.31'
R = 5729.58'
SE. = 0.039 ft/ft
CCN = 629,357.08'
E = 1,777,226.25'
PC STA. 503+65.18
N = 626,596.49'
E = 1,772,205.57

(1) STR. NO. 162
SOUTH-WEST ROADWAY
PI. STA. 145+16.00
Δc = 21° 42' 15" LT
Dc = 8°00'00"
T = 137.30
E = 12.81
Lc = 271.30
R = 716.20
SE = 0.051
CCN = 627,692.01
E = 1,771,237.69
SC STA. 143+78.70
N = 627,947.44
E = 1,771,906.78

NOTE:
⊗ PARAPET TO BE EXTENDED (FUTURE CONTRACT)
⊠ GUARDRAIL ATTACHMENT REQUIRED

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall — BRIDGE ENGINEER
APPROVED Lewis Evans — STATE HIGHWAY ENGINEER

M-15-57

DESIGNED BY	C.M. HILES	DATE	MAY 81
DRAWN BY	M.D.	DATE	MAY 81
TRACED BY		DATE	
CHECKED BY	C.M. HILES	DATE	

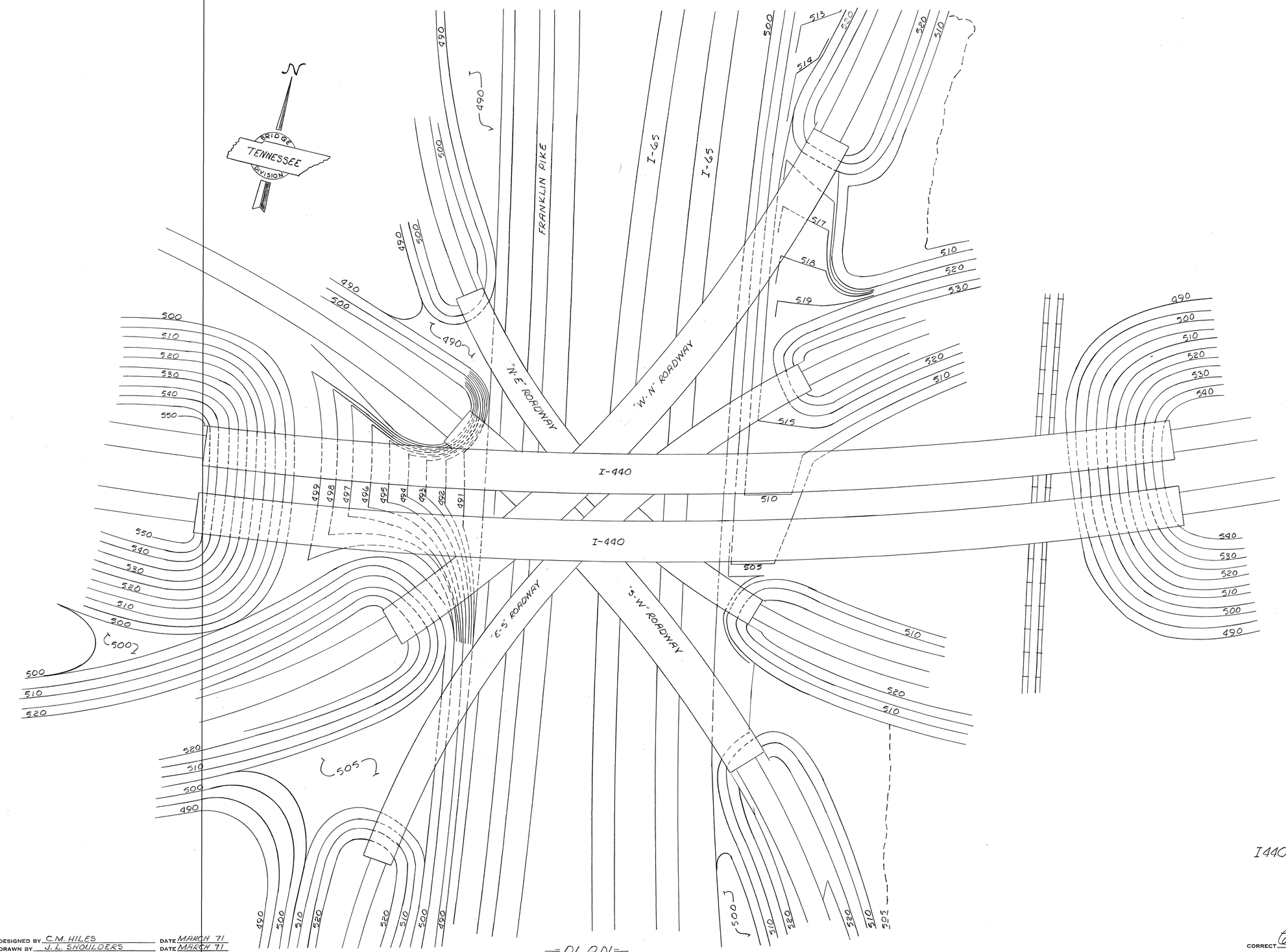
MICROFILMED

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N685.4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4( )209 I-65-8(67)80	1971		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



—PLAN—

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

CONTOURS
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1971

CORRECT Clellon L. Loveall
BRIDGE ENGINEER

APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

11-15-58

DESIGNED BY C.M. HILES DATE MARCH 71
DRAWN BY J.L. SHOULDERS DATE MARCH 71
TRACED BY DATE
CHECKED BY C.M. HILES DATE MARCH 71

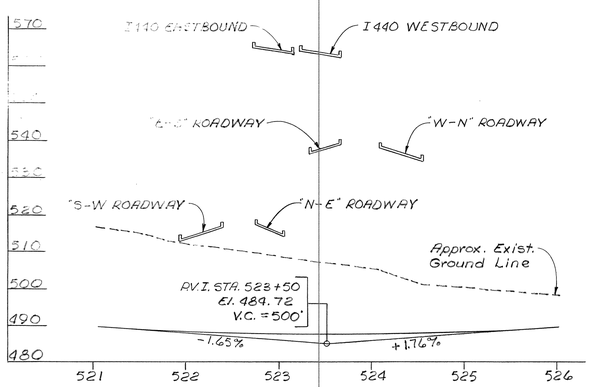
MICROFILMED

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N685.4

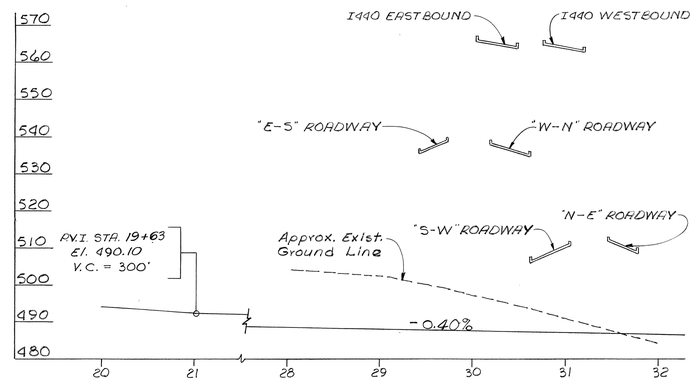
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(1)209 I-65-2(27)80	1971		

REVISIONS

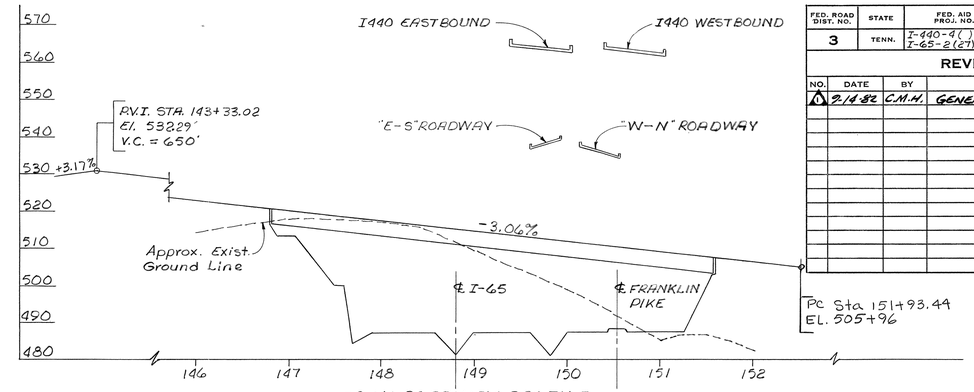
NO.	DATE	BY	BRIEF DESCRIPTION
1	9-14-82	C.M.H.	GENERAL REVISION



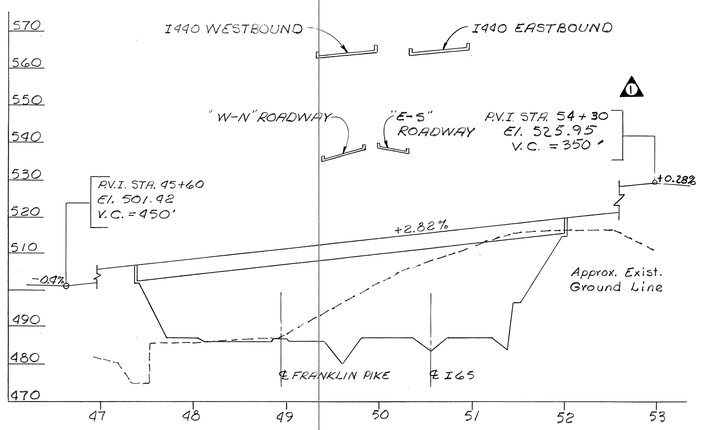
I 65 PROFILE



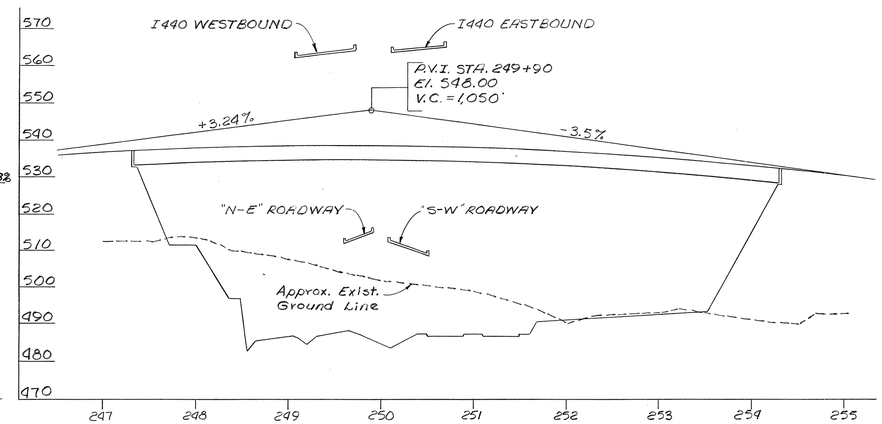
FRANKLIN PIKE PROFILE



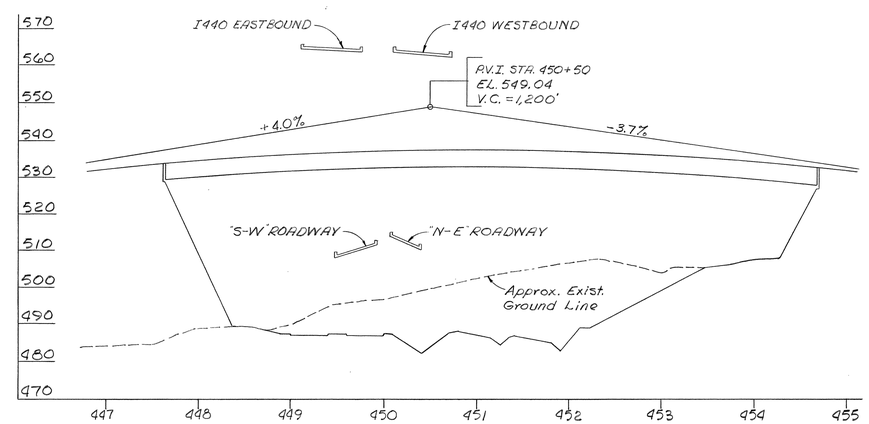
S-W ROADWAY PROFILE



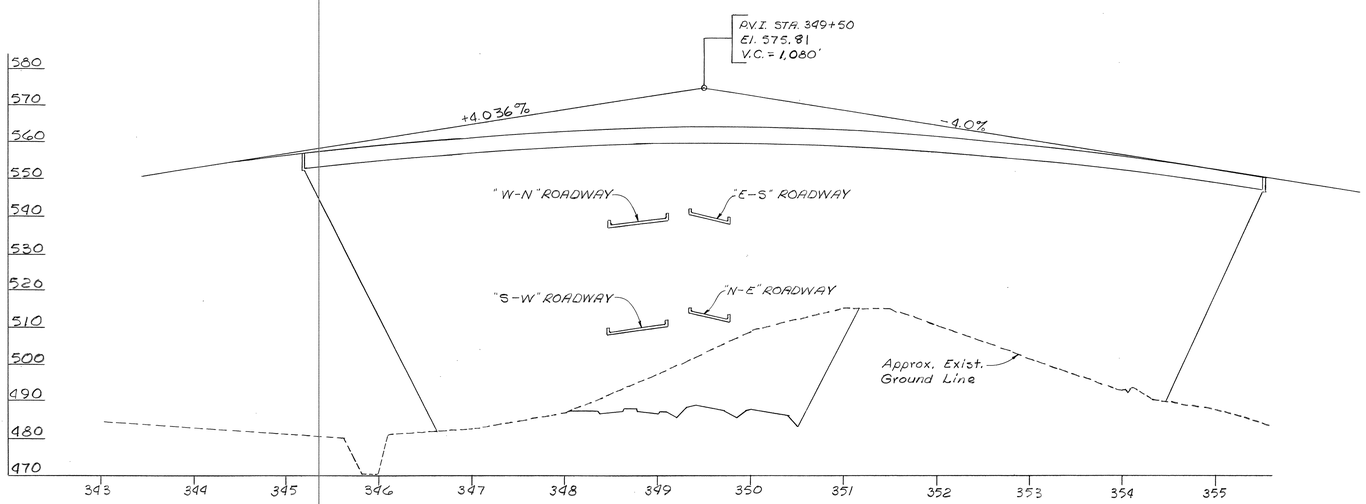
N-E ROADWAY PROFILE



E-S ROADWAY PROFILE



W-N ROADWAY PROFILE



I 440 PROFILE

L & N RAILROAD PROFILE

STATION	SOUTHBOUND TRK.		NORTHBOUND TRK.	
	W. RAIL	E. RAIL	W. RAIL	E. RAIL
9+00	495.45	495.38	496.01	495.92
9+50	494.97	494.89	495.46	495.49
10+00	494.47	494.40	494.93	494.86
10+50	493.96	493.91	494.49	494.35
11+00	493.45	493.40	493.94	493.85
11+50	492.94	493.88	493.43	493.36
12+00	492.41	492.36	492.92	492.85
12+50	491.85	491.80	492.38	492.29
13+00	491.37	491.31	491.82	491.77

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

PROFILES
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1971

DESIGNED BY C.M. HILES DATE MARCH 71
DRAWN BY J.L. SHOULDERS DATE MARCH 71
TRACED BY DATE
CHECKED BY C.M. HILES DATE MARCH 71

CORRECT Clellon L Loveall
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-59

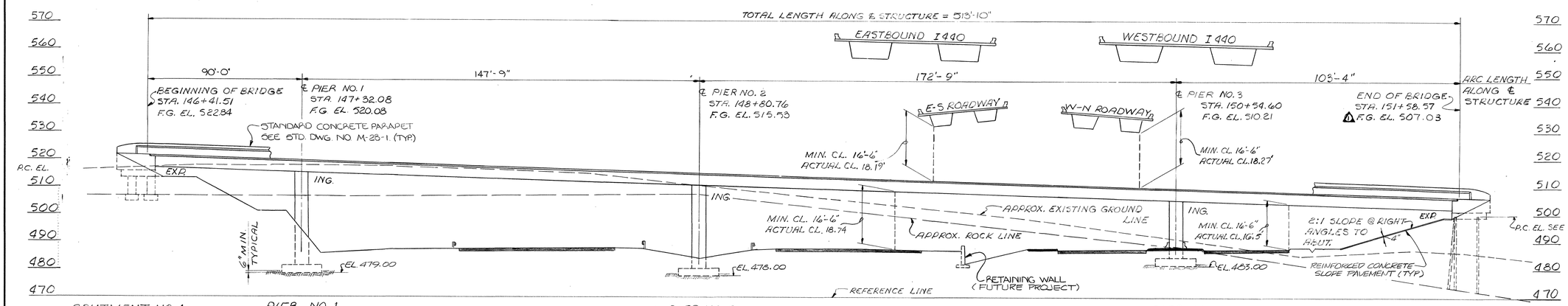
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605-4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9-16-82	C.M.H.	GENERAL REVISION
2	1-5-83	C.M.H.	LIGHTING

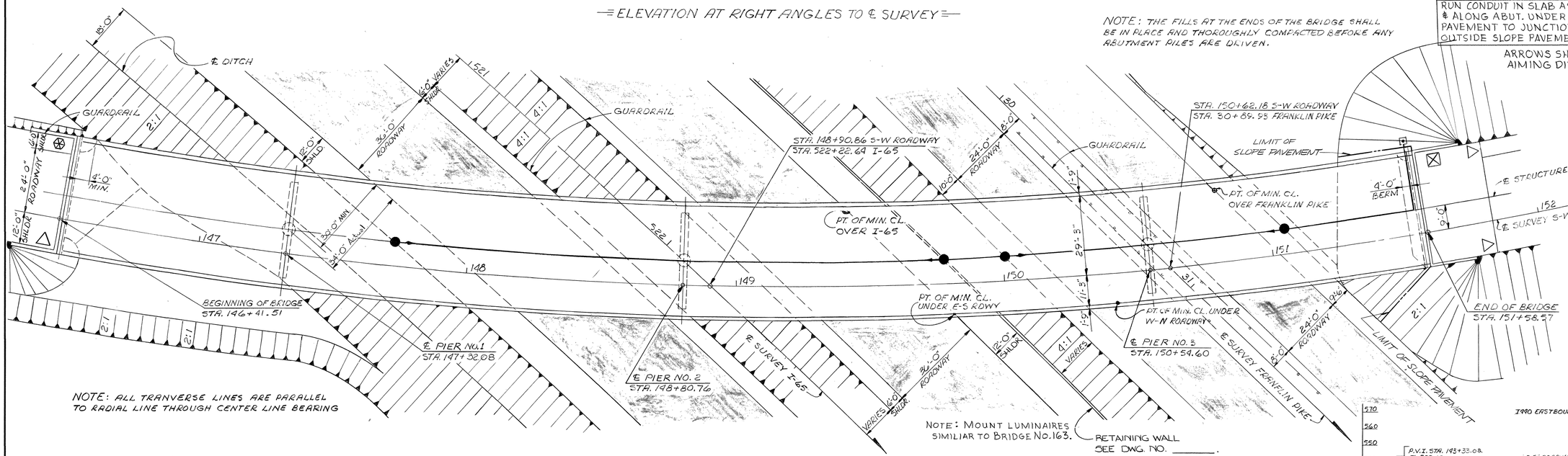


ELEVATION AT RIGHT ANGLES TO ℄ SURVEY

NOTE: THE FILLS AT THE ENDS OF THE BRIDGE SHALL BE IN PLACE AND THOROUGHLY COMPACTED BEFORE ANY ABUTMENT PILES ARE DRIVEN.

RUN CONDUIT IN SLAB AS SHOWN, & ALONG ABUT. UNDER SLOPE PAVEMENT TO JUNCTION BOX JUST OUTSIDE SLOPE PAVEMENT.

ARROWS SHOW AIMING DIRECTION



NOTE: ALL TRANVERSE LINES ARE PARALLEL TO RADIAL LINE THROUGH CENTER LINE BEARING

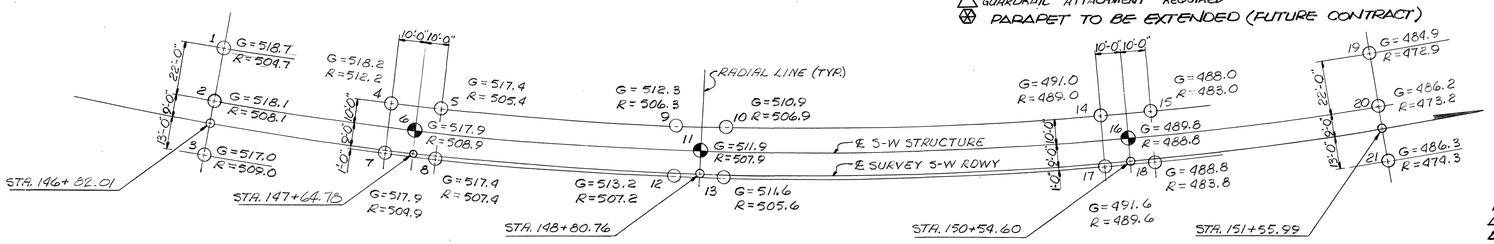
NOTE: ALL SUBSTRUCTURE UNITS RADIAL TO ℄ SURVEY.

NOTE: MOUNT LUMINAIRES SIMILIAR TO BRIDGE NO. 163.

RETAINING WALL SEE DWG. NO. _____.

PLAN

⊠ DENOTES DRAINS REQUIRED
△ GUARDRAIL ATTACHMENT REQUIRED
⊗ PARAPET TO BE EXTENDED (FUTURE CONTRACT)



SOUNDING SKETCH
(STRUCTURE NO. 162)

○ = ROCK SOUNDING
◐ = CORE 10'-0" INTO ROCK
G = GROUND ELEVATION
R = ROCK ELEVATION

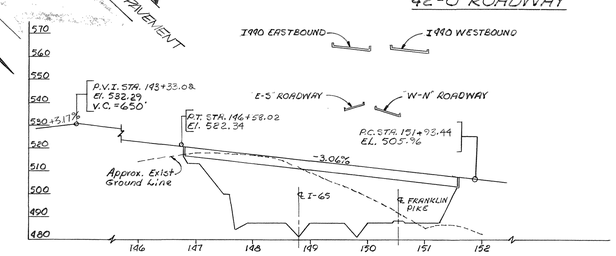
S-W ROADWAY CURVE DATA
P.I. STA. 145+16.00
Δc = 21°42'15" LT
Dc = 8°00'00"
T = 137.30
E = 12.81
Lc = 271.30
R = 716.20
SE = 0.051
CCN = 627,692.01
E = 1,771,237.69
SC STA. 143+78.70
N = 627,947.44
E = 1,771,906.78

I-65 CURVE DATA
P.I. STA. 522+98.25
Δc = 37°17'14" RT.
Dc = 1°00'
T = 1,933.07'
Lc = 3728.72'
E = 517.31'
R = 5729.58'
S.E. = 0.039 ft/ft
C.C.N = 629,357.08'
E = 1,777,226.25'
P.C. STA. 505+65.18
N = 626,596.49'
E = 1,772,205.57'

FRANKLIN PIKE CURVE DATA
P.I. STA. 28+06.53
Δc = 15°31'16" LT.
Dc = 0°40'
T = 1,171.26'
Lc = 2,328.17'
E = 79.94
R = 8594.37'
SE = 0.029 ft/ft.
C.C.N = 627,097.98'
E = 1,762,956.83'
P.C. STA. 16+35.27
N = 626,986.97
E = 1,771,550.48

S-W ROADWAY CURVE DATA
P.I. STA. 151+12.01
Δc = 35°45'14" LT.
Dc = 4°00'
T = 462.01'
Lc = 893.85'
E = 72.67'
R = 1,432.39'
S.E. = 0.051 ft/ft.
C.C.N = 627,207.23
E = 1,770,710.50
PCC. STA. 146+50.00
N = 628,176.78
E = 1,771,764.68

42'-0" ROADWAY



S-W ROADWAY PROFILE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT OF BRIDGE NO. 162
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
S-W ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clifton L. Forrael
BRIDGE ENGINEER

APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-60

DESIGNED BY C.M. HILES DATE MARCH
DRAWN BY DATE
SUPERVISED BY DATE
CHECKED BY C.M. HILES DATE

CLASS "A" GRADING "D" 19 C.Y.

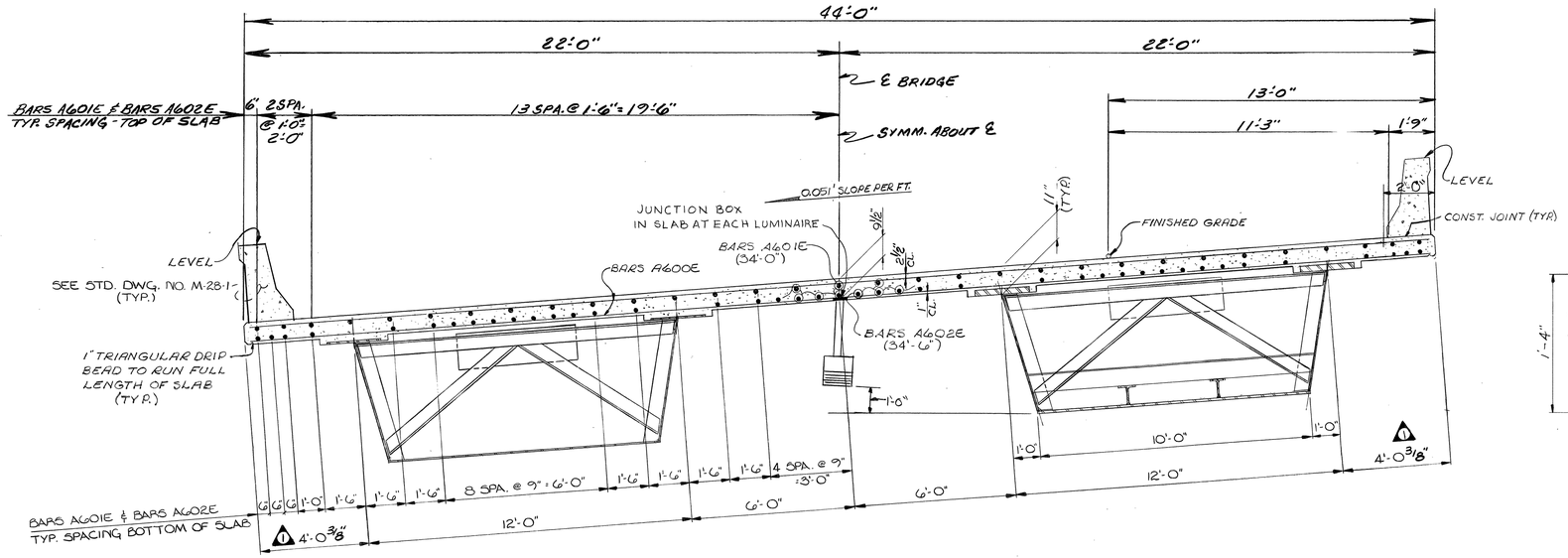
GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605.4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

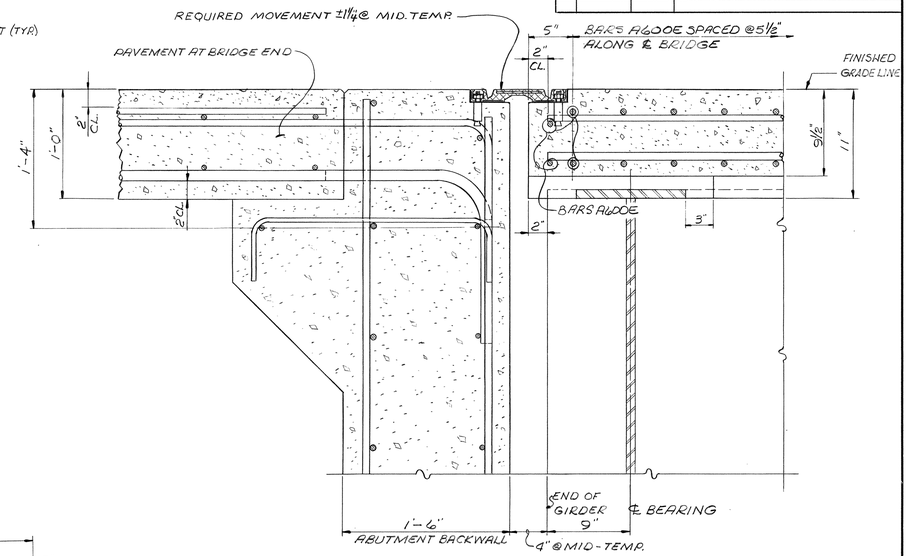
NO.	DATE	BY	BRIEF DESCRIPTION
1	9-14-82	C.M.H.	GENERAL REVISION
2	1/24/83	F.G.	LIGHTING
3	5-20-83	C.M.H.	ADDED END BEAM @ ENDS OF SLAB.



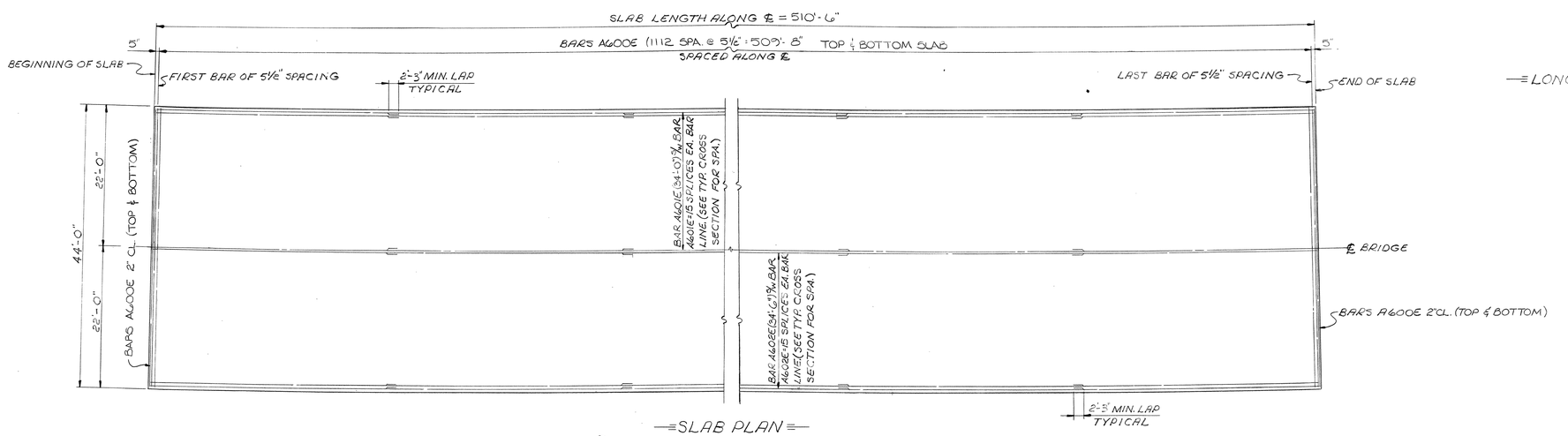
HALF CROSS SECTION NEAR MID-SPAN 1 2 HALF CROSS SECTION NEAR SUPPORT

—≡ TYPICAL CROSS SECTION ≡—

LOOKING FORWARD ON SURVEY



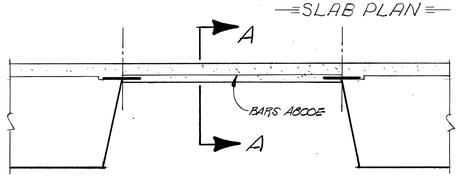
—≡ LONGITUDINAL SECTION AT BRIDGE END ≡—



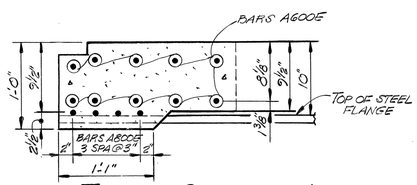
—≡ SLAB PLAN ≡—

NOTE

1. OUTSIDE EDGE OF SLAB AND BRIDGE RAIL TO CONFORM TO HORIZONTAL CURVE.
2. THE CONCRETE DECK SHALL NOT BE POURED UNTIL ALL STRUCTURAL STEEL IS ERECTED AND ALL WELDING AND/OR BOLTING COMPLETE.
3. WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED.



PART CROSS SECTION 3



3 TYPICAL SECTION A-A

BETWEEN STEEL BOXES

ESTIMATED QUANTITIES 3

Item	CLASS 'A' CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	668.4	205,767

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

SUPERSTRUCTURE BRIDGE NO. 162
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
S-IV ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE 19
DRAWN BY J.L.S. & M.M.D. DATE MAY 1981
TRACED BY DATE
CHECKED BY C.M. HILES DATE MARCH 19

CORRECT Colellen L. Lovegal
BRIDGE ENGINEER

APPROVED Louis Evans
STATE HIGHWAY ENGINEER

M-15-61

MICROFILMED

GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605.4

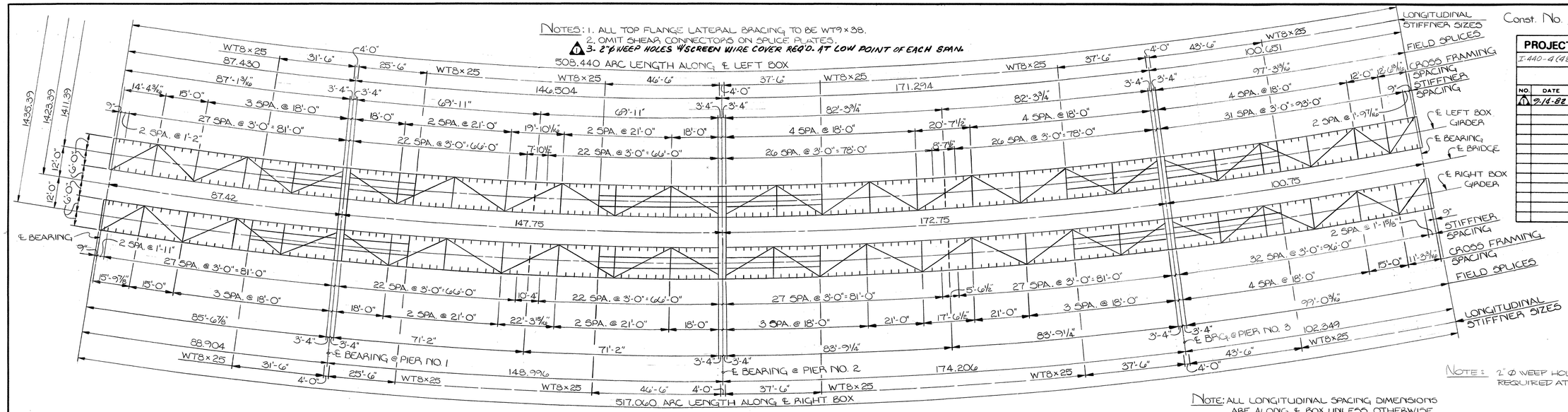
Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(98)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9-14-82	C.M.H.	GENERAL REVISION

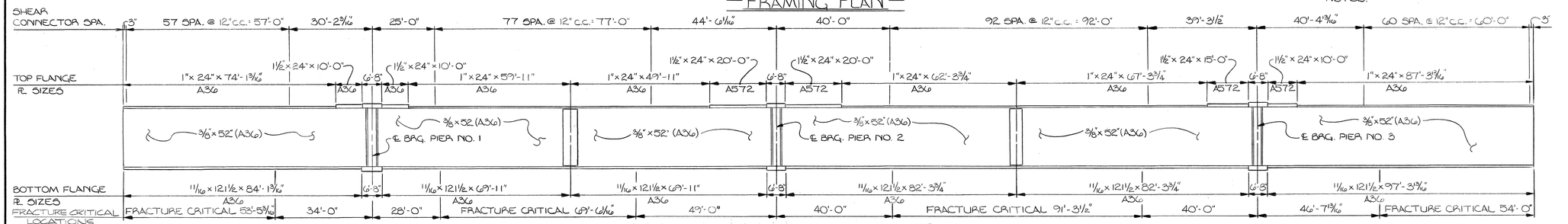
NOTES: 1. ALL TOP FLANGE LATERAL BRACING TO BE WT9 × 38.
2. OMIT SHEAR CONNECTORS ON SPLICE PLATES.
3. 2" ϕ WEEP HOLES W/SCREEN WIRE COVER REQ'D. AT LOW POINT OF EACH SPAN.



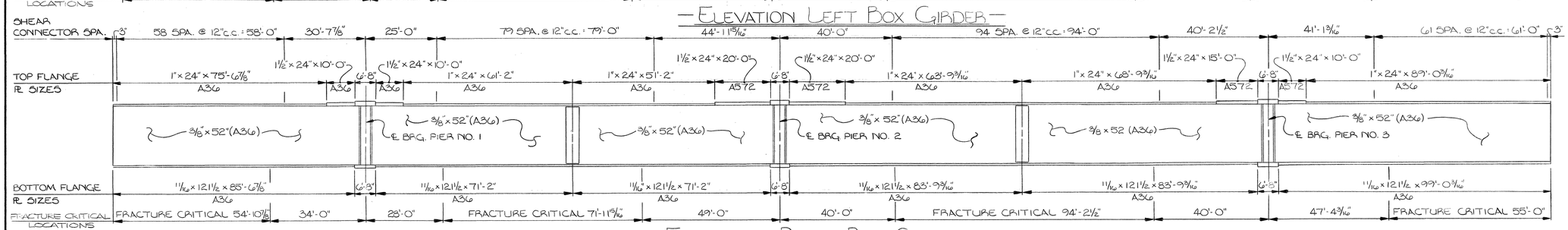
FRAMING PLAN

NOTE: ALL LONGITUDINAL SPACING DIMENSIONS ARE ALONG ℄ BOX UNLESS OTHERWISE NOTED.

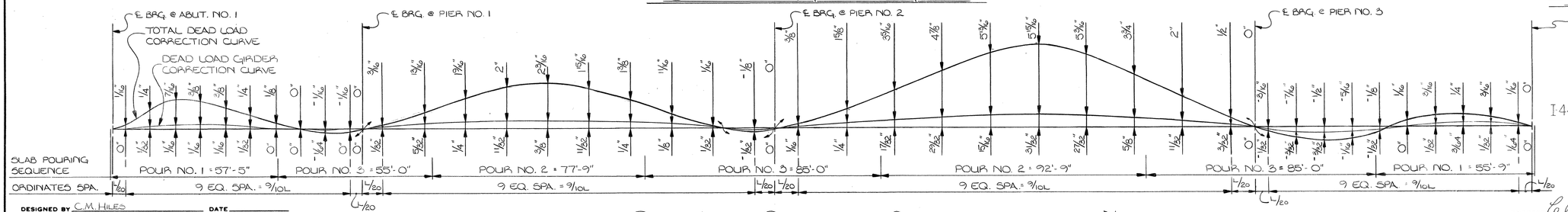
NOTE: 2" ϕ WEEP HOLES WITH SCREEN WIRE COVER REQUIRED AT LOW POINT OF EACH SPAN.



ELEVATION LEFT BOX GIRDER



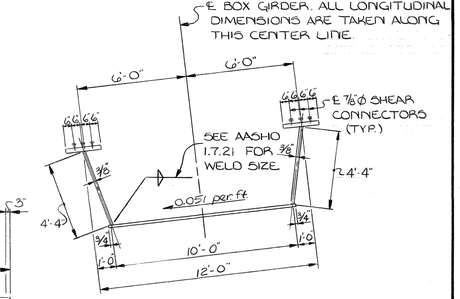
ELEVATION RIGHT BOX GIRDER



DEAD LOAD CORRECTION CURVE

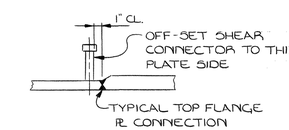
(TYPICAL EACH GIRDER)

NOTE: SLAB POURING SEQUENCE DIMENSIONS ARE TAKEN ALONG THE CENTER LINE OF BRIDGE.



BOX GIRDER CROSS SECTION

(TYPICAL)



TYPICAL SHEAR CONNECTOR OFF-SET

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FRAMING PLAN BRIDGE NO. 162
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
5-W ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 7-81
SUPERVISED BY C.M. HILES DATE
CHECKED BY DATE

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

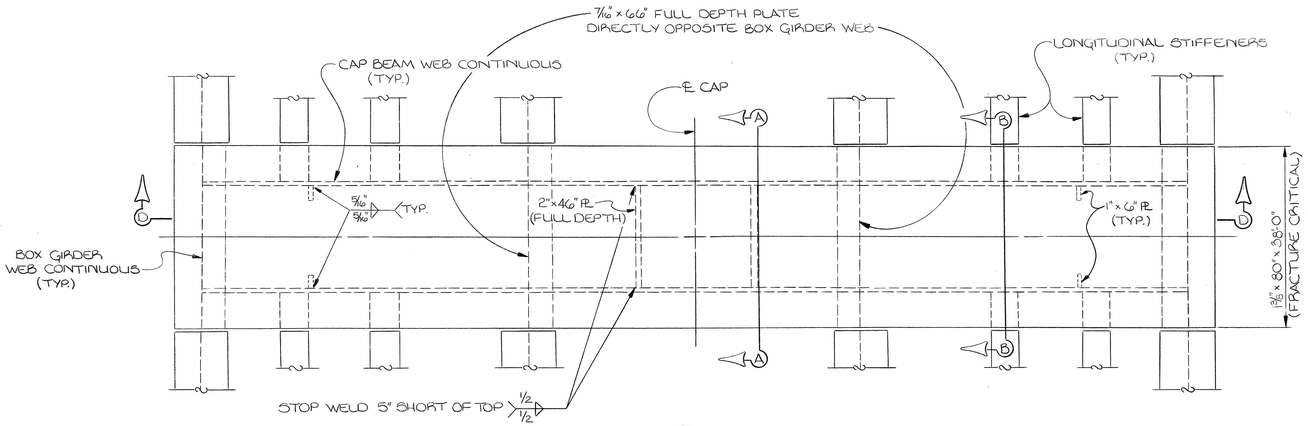
M-15-62

Const. No. 19015-3113-44

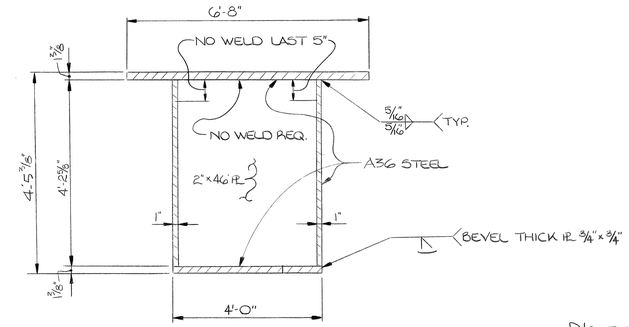
PROJECT NO.	YEAR	SHEET NO.
I 440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9-14-82	C.M.H.	GENERAL REVISION

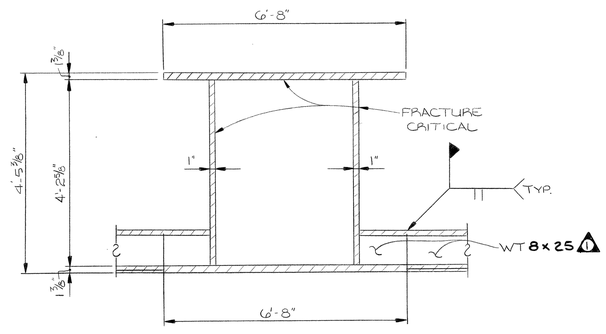


— PLAN —

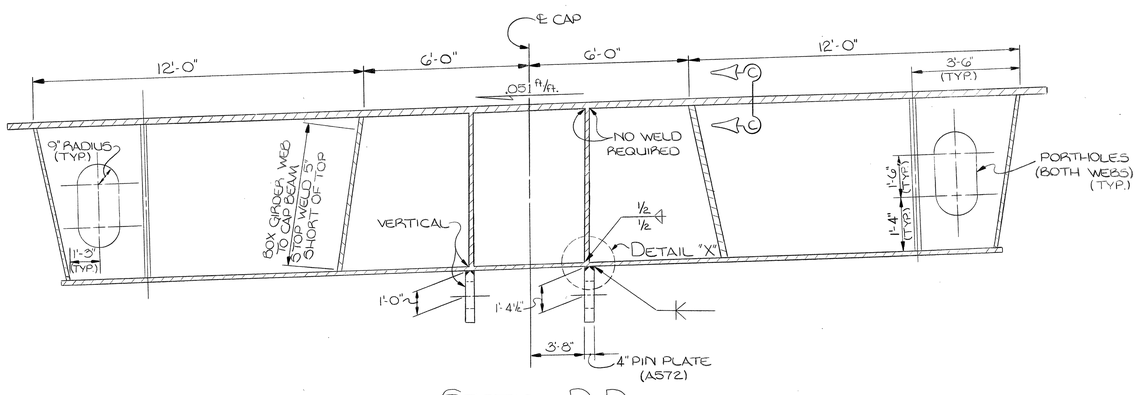


— SECTION A-A —

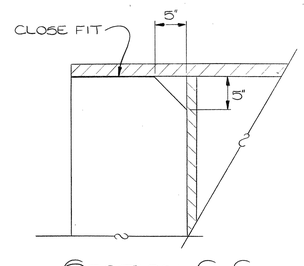
NOTE: FOR STRUCTURAL STEEL GENERAL NOTES SEE DWG. NO. M-15-55.



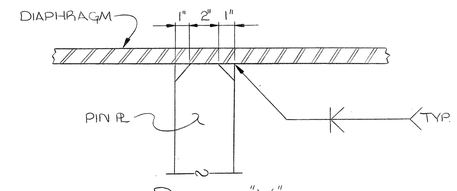
— SECTION B-B —



— SECTION D-D —



— SECTION C-C —
(TYPICAL BOX GIRDER WEB TO DIAPHRAGM WEB CONNECTION)



— DETAIL "X" —

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPPORT DIAPHRAGM BRIDGE NO. 162
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
S-W ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Edelton L. Foreall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-63

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 11-81
SUPERVISED BY C.M. HILES DATE 11-81
CHECKED BY DATE

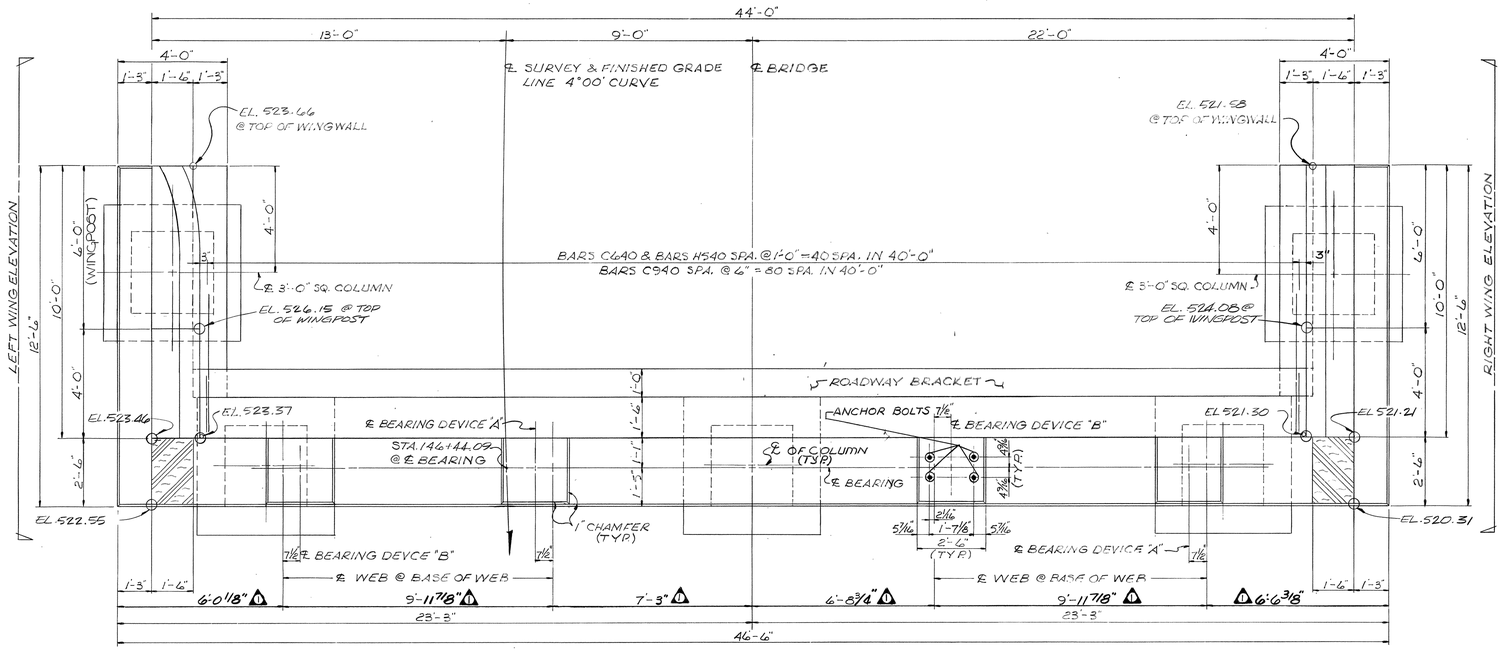
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

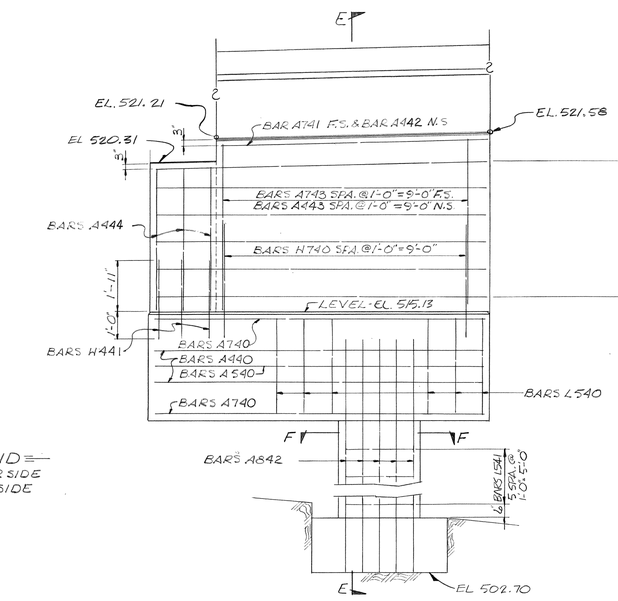
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	2-14-82	C.M.H.	GENERAL REVISION



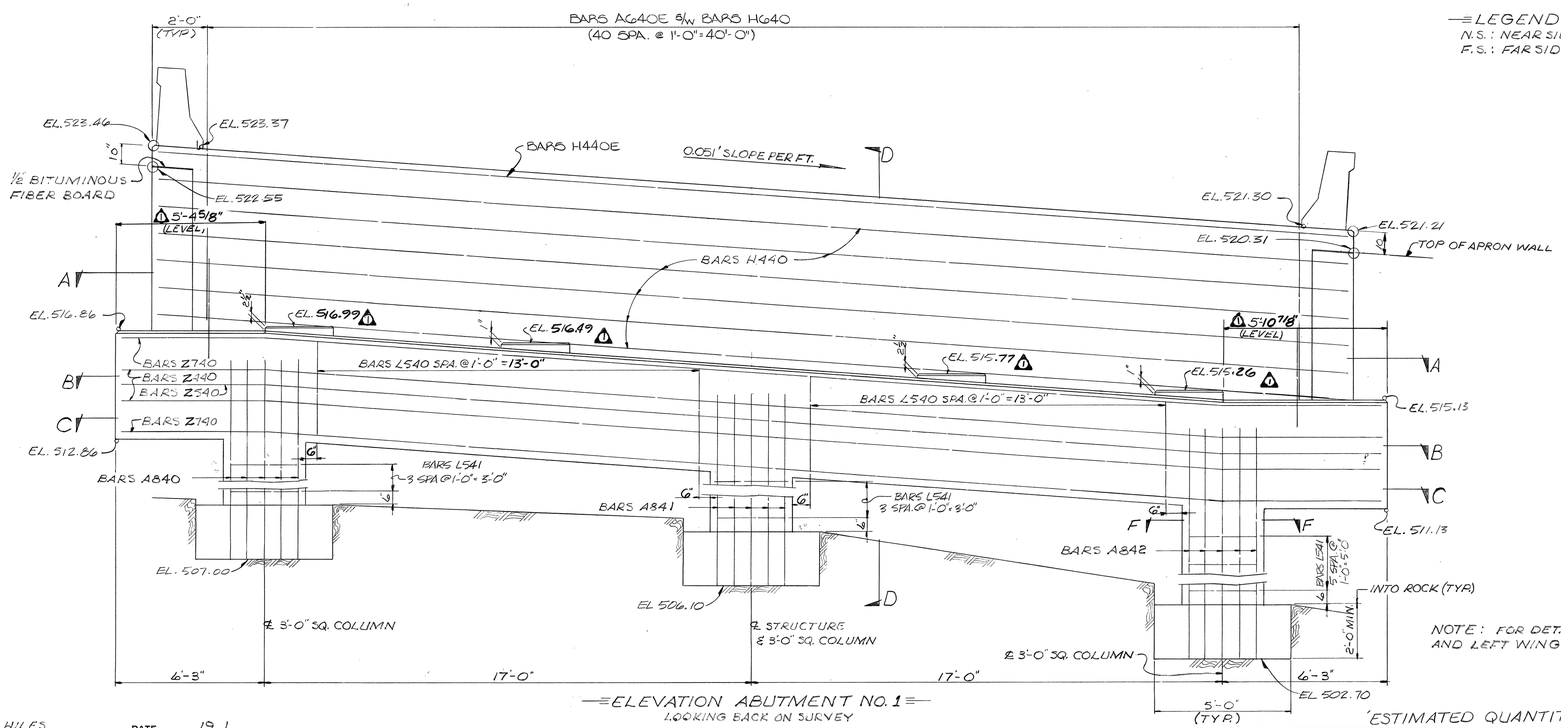
—≡PLAN≡—

ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10 1/2"



—≡RIGHT WING ELEVATION≡—

—≡LEGEND≡—
N.S.: NEAR SIDE
F.S.: FAR SIDE



—≡ELEVATION ABUTMENT NO. 1≡—
LOOKING BACK ON SURVEY

NOTE: FOR DETAILS OF SECTIONS A-A THRU F-F AND LEFT WING ELEVATION SEE DWG. NO. M-15-65

NOTE:
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS, THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
5. WHEN POURING WINGWALL PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STD. DWG. NO. M-28-1.
6. NO REINFORCING STEEL FOR COLUMNS SHALL BE ORDERED UNTIL FINAL FOOTING ELEVATIONS HAVE BEEN DETERMINED.
7. CARE SHALL BE TAKEN WHEN EXCAVATING ROCK FOR FOOTING SO AS NOT TO DAMAGE VERTICAL FACE OF ROCK CUT. ALL LAITANCE SHALL BE REMOVED FROM VERTICAL FACES AND BOTTOM OF EXCAVATED AREA PRIOR TO PLACING CONCRETE.
8. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
9. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.

'ESTIMATED QUANTITIES'

ITEM	CONCRETE CLASS "A" C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUTMENT NO. 1	79.8	7,728	2,655

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 1 BRIDGE NO. 162
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
S-IV ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Foreall
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-64

DESIGNED BY C. M. HILES DATE 19 1
DRAWN BY DATE 19
SUPERVISED BY C. M. HILES DATE 19
CHECKED BY C. M. HILES DATE 19

MICROFILMED

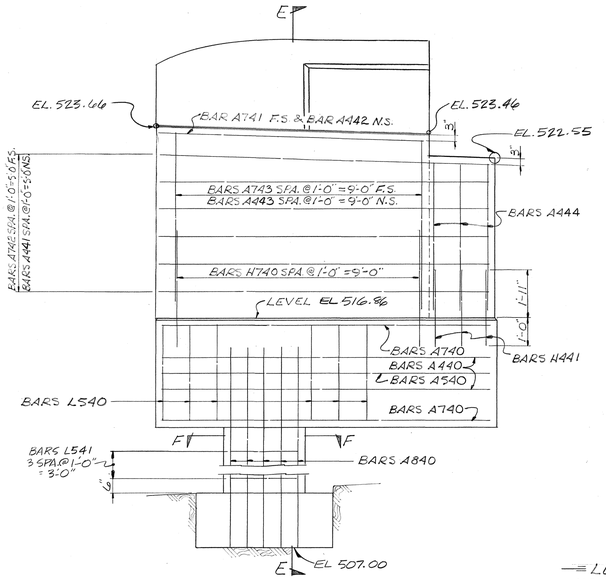
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

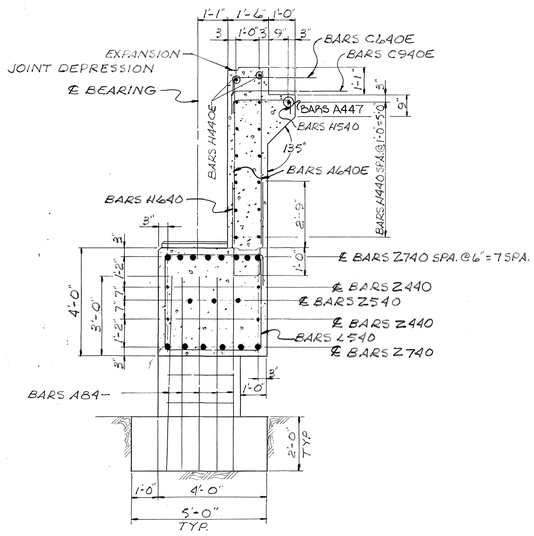
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

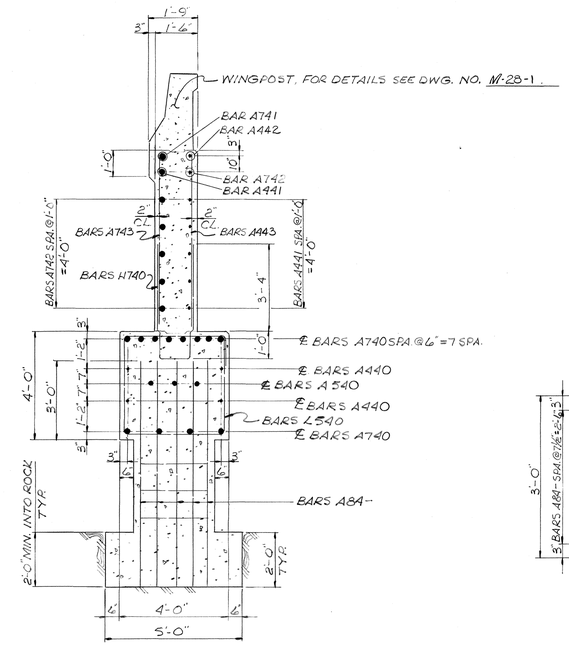


LEFT WING ELEVATION

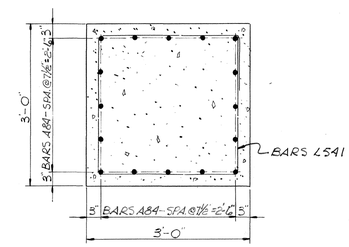
LEGEND
N.S. : NEAR SIDE
F.S. : FAR SIDE



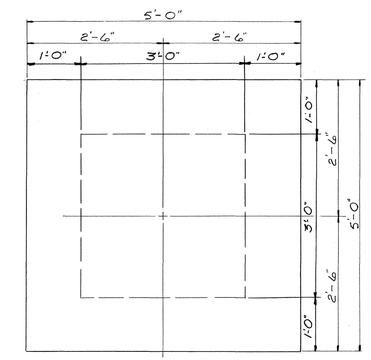
SECTION D-D



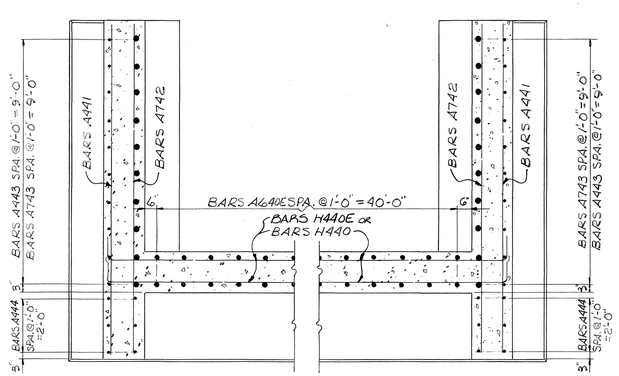
SECTION E-E



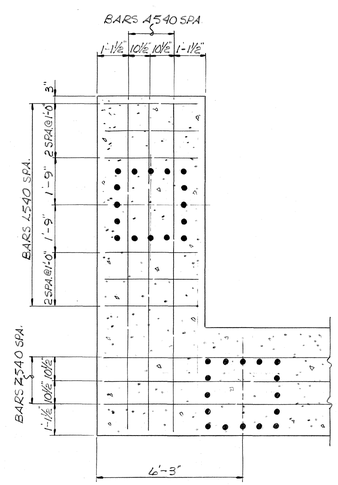
SECTION F-F
(TYPICAL)



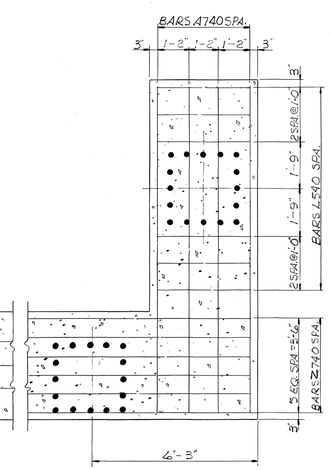
FOOTING PLAN
TYPICAL



SECTION A-A



SECTION B-B
TYPICAL



SECTION C-C
TYPICAL

NOTE: FOR LOCATION OF CUTTING-PLANE LINE OF SECTIONS A-A THRU F-F SEE DWG. NO. M-15-64.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 1 DETAILS BRIDGE NO. 162
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
S-IV ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C. M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C. M. HILES DATE 19 1
CHECKED BY C. M. HILES DATE 19

CORRECT Clellon L. Loveall
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-65

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

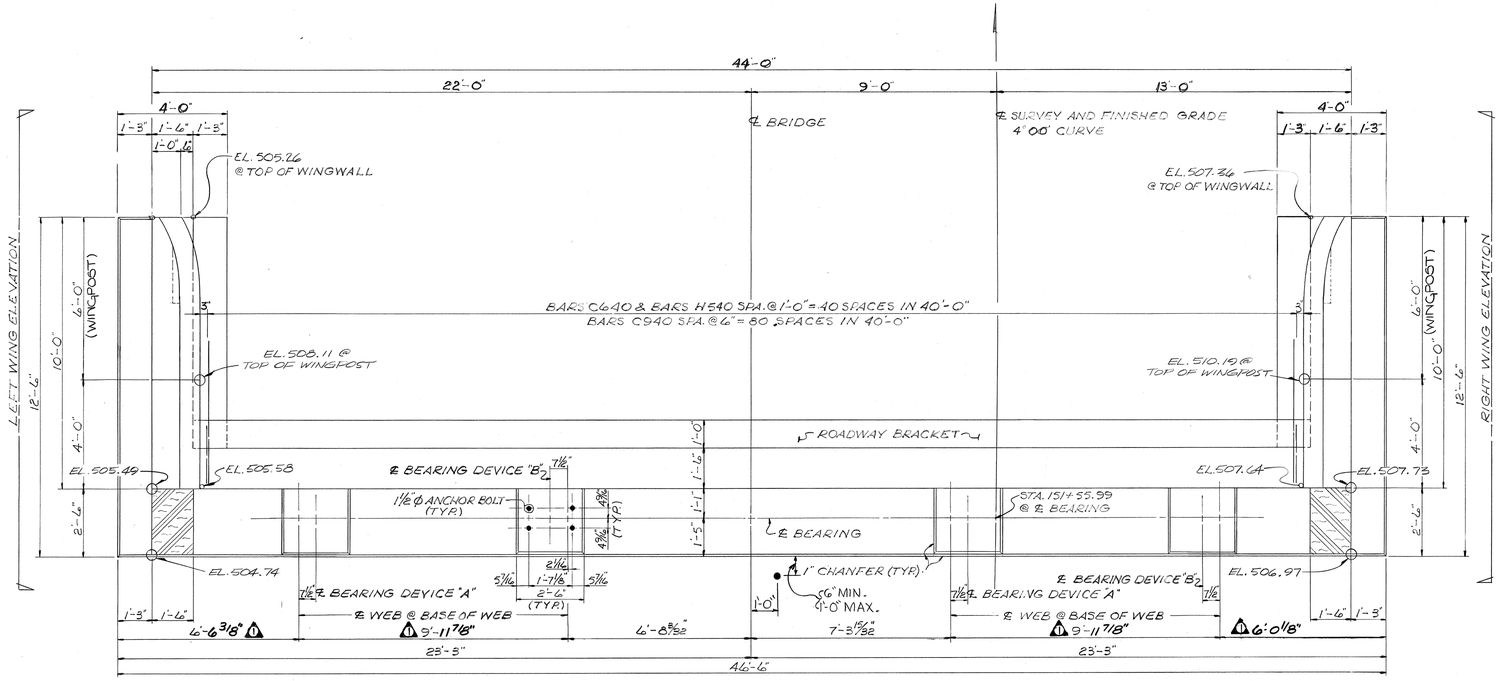
CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9-14-82	C.M.H.	GENERAL REVISIONS
2	1-25-83	F.C.	CONDUIT

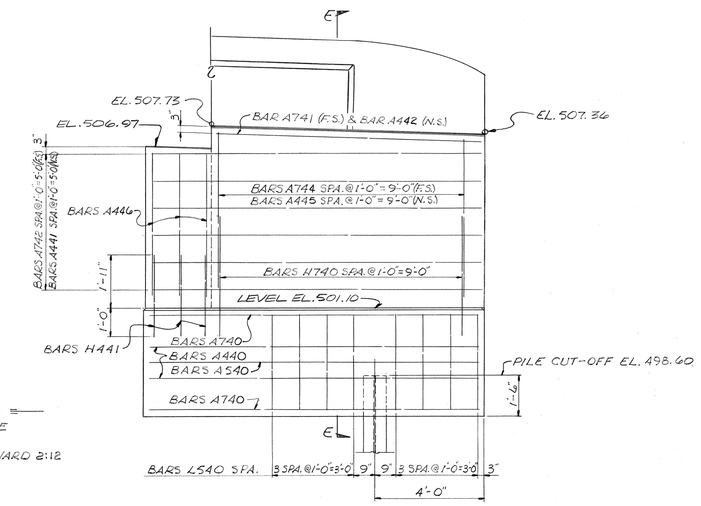
NOTE:
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS, THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STANDARD DRAWING NO. M-28-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.



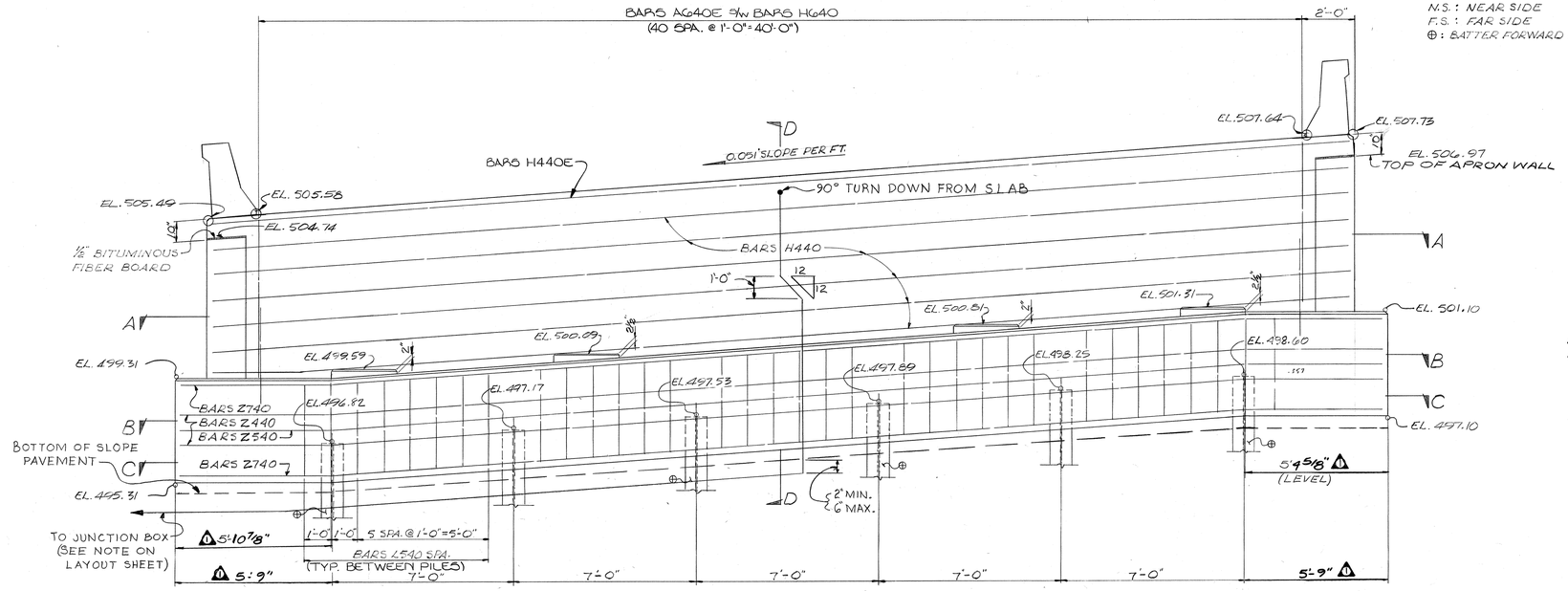
PLAN

ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10½"

LEGEND
N.S.: NEAR SIDE
F.S.: FAR SIDE
⊕: BATTER FORWARD 2:12



RIGHT WING ELEVATION



ELEVATION ABUTMENT NO. 2
LOOKING FORWARD ON SURVEY

NOTE: FOR DETAILS OF SECTION A-A THRU E-E AND LEFT WING ELEVATION SEE DWG. NO. M-15-6T.

ESTIMATED QUANTITIES

ITEM	CONCRETE CLASS "A" C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUTMENT NO. 2	62.8	5388	2655

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 2 BRIDGE NO. 162
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
S-IV ROADWAY STRUCTURE
DAVIDSON COUNTY
198

DESIGNED BY C. M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C. M. HILES DATE 19 1
CHECKED BY C. M. HILES DATE 19

CORRECT Colelton L. Lovegall BRIDGE ENGINEER
APPROVED Louis Evans STATE HIGHWAY ENGINEER

M-15-66

MICROFILMED

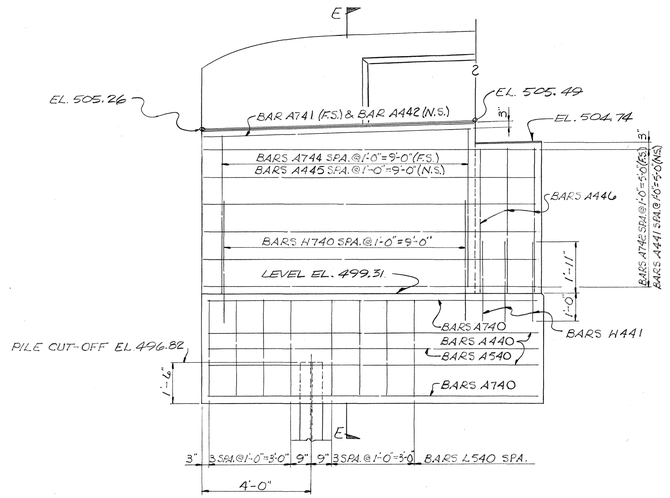
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

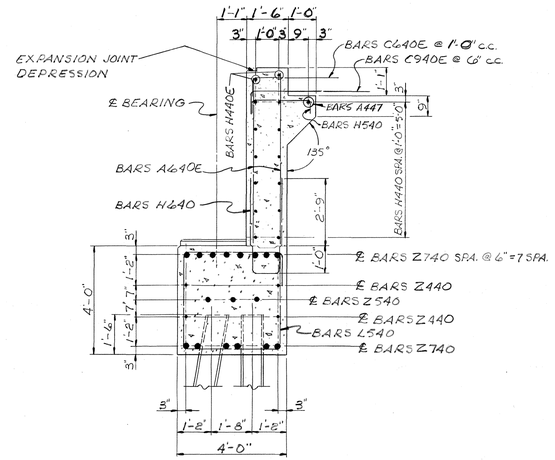
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

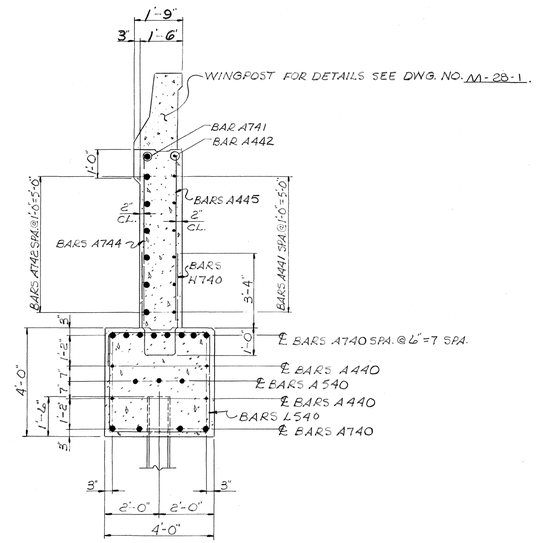
NO.	DATE	BY	BRIEF DESCRIPTION
1	9-14-82	C.M.H.	GENERAL REVISION



LEFT WING ELEVATION

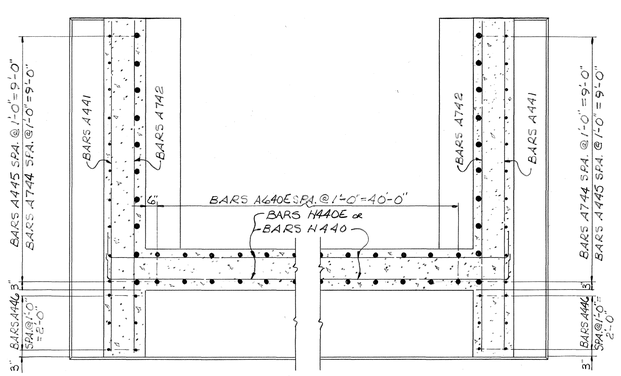


SECTION D-D

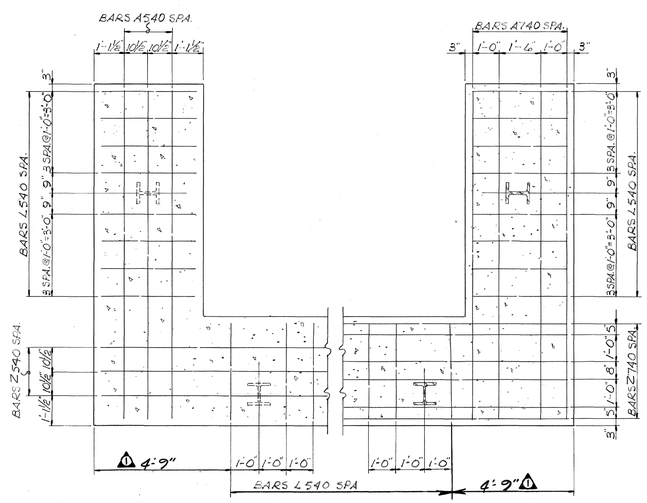


SECTION E-E

LEGEND
N.S.: NEAR SIDE
F.S.: FAR SIDE

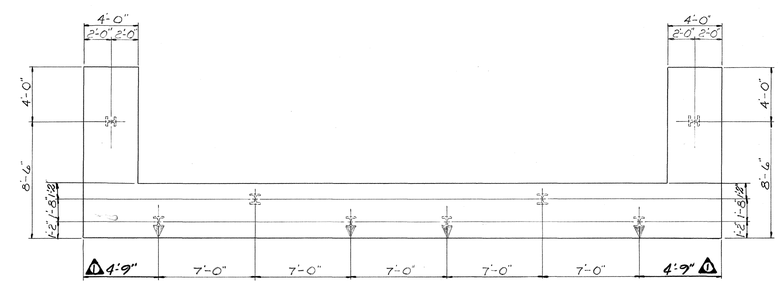


SECTION A-A



SECTION B-B
TYPICAL

SECTION C-C
TYPICAL



PLAN
SHOWING PILE ARRANGEMENT

NOTE: FOR LOCATION OF CUTTING-PLANE LINE OF SECTIONS A-A THRU E-E AND LEFT WING ELEVATION SEE DWG. NO. M-15-66

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 2 DETAILS BRIDGE NO. 162
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
S-W ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C. M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C. M. HILES DATE 19 1
CHECKED BY C. M. HILES DATE 19

CORRECT Clellon L. Loveall
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-67

MICROFILMED

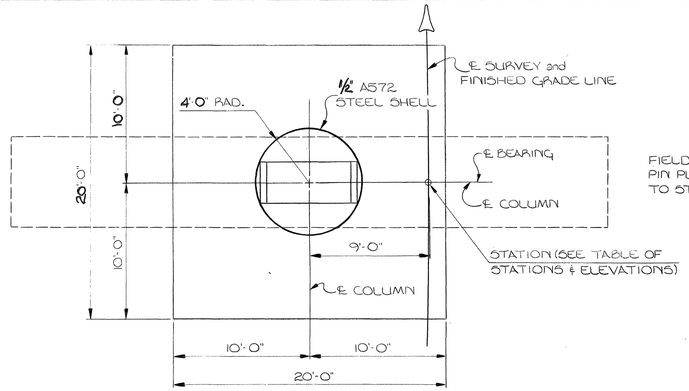
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

Const. No. 19015-3113-44

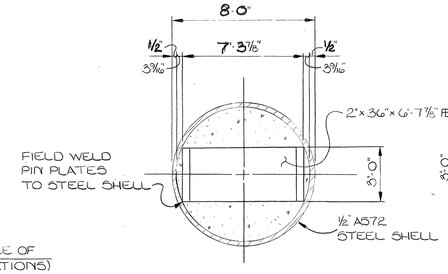
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

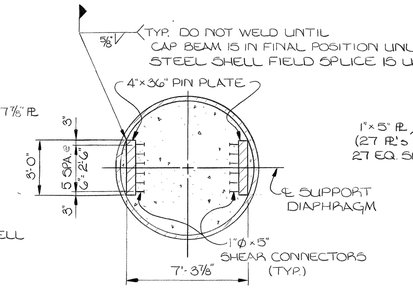
NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	OPTIONAL STEEL SHELL FIELD SPLICE; REINF STEEL CUT.
2	6-19-82	C.M.H.	GENERAL REVISION



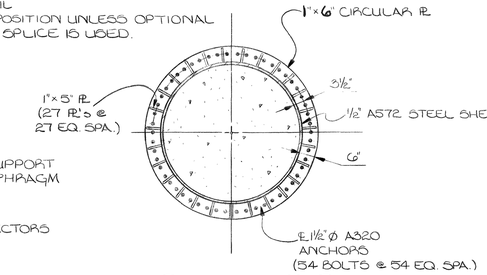
— PLAN —



— SECTION A-A —



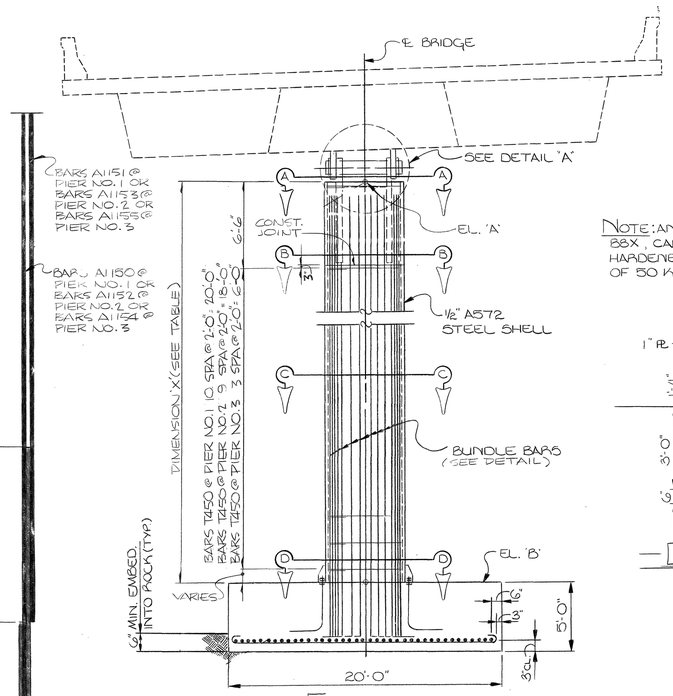
— SECTION B-B —



— SECTION D-D —

TABLE OF ELEVATIONS, DIMENSIONS AND STATIONS

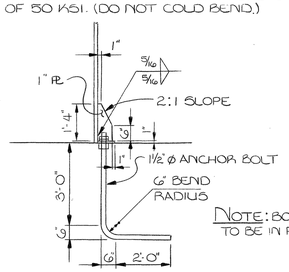
	STATION	EL 'A'	EL 'B'	DIMENSION 'X'
PIER NO. 1	147+32.08	512.19	454.00	28'-2¼"
PIER NO. 2	148+80.76	507.64	483.00	24'-7 11/16"
PIER NO. 3	150+54.60	502.32	488.00	14'-3 15/16"



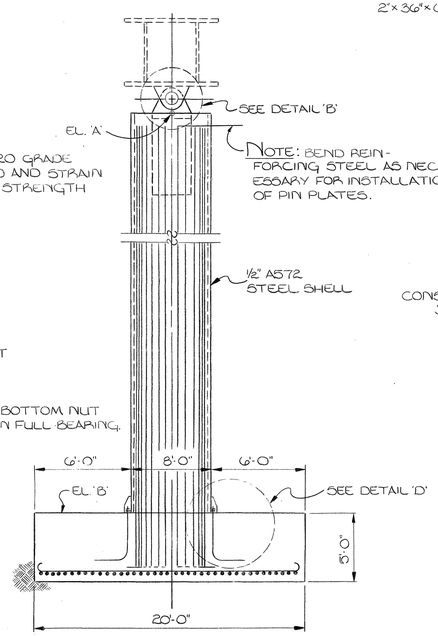
— ELEVATION —
(LOOKING FORWARD ON SURVEY)

BUNDLE SPLICE DETAIL

NOTE: ANCHOR BOLT MATERIAL A-320 GRADE 88X, CARBIDE SOLUTION TREATED AND STRAIN HARDENED WITH A MINIMUM YIELD STRENGTH OF 50 KSI. (DO NOT COLD BEND.)



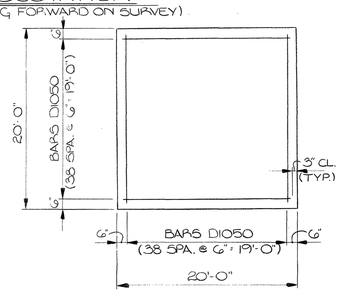
— DETAIL 'D' —



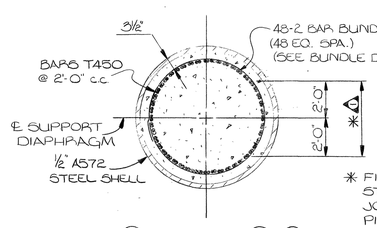
— END ELEVATION —

NOTE: BEND REINFORCING STEEL AS NECESSARY FOR INSTALLATION OF PIN PLATES.

NOTE: BOTTOM NUT TO BE IN FULL BEARING.

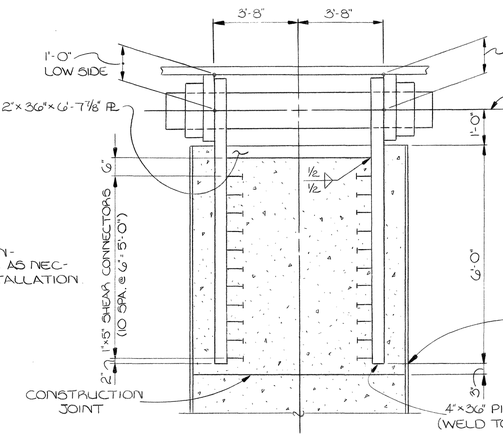


— PLAN OF FOOTING —



— SECTION C-C —

* FIELD CUT VERTICAL REINFORCING STEEL 2 IN. ABOVE CONSTRUCTION JOINT THIS AREA SO AS TO ALLOW PIN PLATE PLACEMENT.

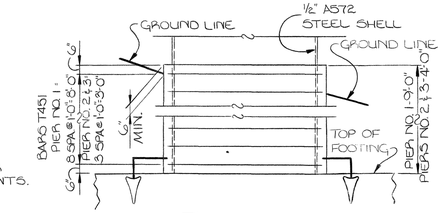


— DETAIL A —

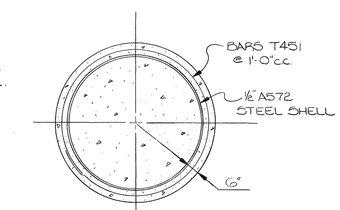
NOTE: SEE AASHTO ARTICLE 1.7.1.(B) AND 1.7.27 FOR PIN AND/OR PIN NUT REQUIREMENTS.

△1 OPTIONAL STEEL SHELL FIELD SPLICE WHEN PIN PLATES ARE SHOP WELDED TO STEEL SHELL.

NOTE: CAP BEAM MUST BE IN PLACE AND IN PROPER POSITION PRIOR TO WELDING LOWER PIN PLATES TO STEEL SHELL.

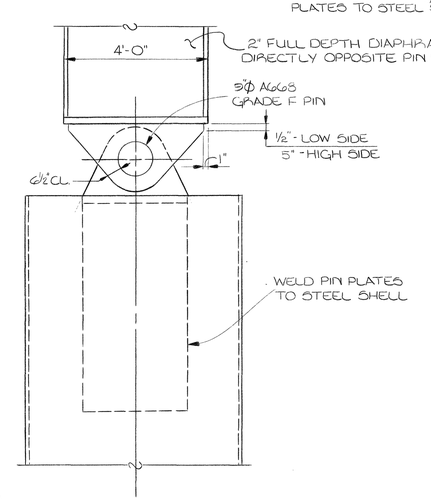


ELEVATION



SECTION

— GROUND LINE INTERSECT COLLAR DETAIL —



— DETAIL B —

ESTIMATED QUANTITIES

ITEM	CLASS 'A' CONCRETE (BRIDGES) C.Y.	STEEL BAR REINFORCEMENT (BRIDGES) LBS.
PIER NO. 1	126.0	28,897
PIER NO. 2	119.2	26,959
PIER NO. 3	100.4	21,464

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

PIERS 1, 2 AND 3 BRIDGE NO. 162
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
5-W ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-68

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 12-81
SUPERVISED BY C.M. HILES DATE
CHECKED BY DATE

MICROFILMED

BILL OF STEEL

CONST. NO. 19015-3113-44.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.			SHEETS
3	TENN.	I-440-4(48)211	1982		

SUPERSTRUCTURE

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A600E	SLAB	6	2230					43'-8"
A601E	SLAB	6	592					34'-0"
A602E	SLAB	6	560					34'-6
1 A800E	SLAB	8	8					12'-0"

PAVEMENT @ BRIDGE ENDS

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A490E	SLAB	4	100					40'-2"
A690E	SLAB	6	82					24'-2"
A790E	SLAB	7	16					40'-2"
A990E	SLAB	9	162					24'-2"
A1190E	SLAB	11	4					6'-0"
L590E	SLAB	5	136	1'-2"	1'-0"	2'-2"		7'-5"

ABUTMENT No. 1

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A440	WING BEAMS	4	8					12'-2"
A441	WING WALLS	4	12					12'-2"
A442	WING WALLS	4	2					9'-8"
A443	WING WALLS	4	20					6'-2"
A444	APRON WALLS	4	12					5'-5"
A447	RDWY. BRKT.	4	1					43'-0"
A540	WING BEAMS	5	6					12'-2"
A640E	ENDWALL	6	82					6'-0"
A740	WING BEAMS	7	24					12'-2"
A741	WING WALLS	7	2					9'-8"
A742	WING WALLS	7	12					12'-2"
A743	WING WALLS	7	20					6'-2"
A840	FOOTING-COL.	8	32					8'-10"
A841	FOOTING-COL.	8	16					9'-11"
A842	FOOTING-COL.	8	32					11'-5"
C640E	ENDWALL	6	41	3'-6"				4'-5"
C940E	ENDWALL	9	81	4'-6"				5'-9"
H440E	ENDWALL	4	2	43'-9"	8"			45'-0"
H440	ENDWALL	4	12	43'-9"	8"			45'-0"
H441	APRON WALL	4	6	1'-2"	2'-11"			6'-11"
H540	RDWY. BRKT.	5	41	2'-2"	7"			3'-4"
H640	ENDWALLS	6	41	1'-2"	3'-9"			8'-7"
H740	WING WALLS	7	20	1'-2"	4'-4"			9'-8"
L540	BEAM	5	40	3'-8"	1'-0"	3'-8"		15'-6"
L541	COLUMNS	5	24	2'-8"	1'-0"	2'-8"		11'-6"
Z440	BEAM	4	4	5'-9"	35'-2"	5'-3"	1'-5"	46'-3"
Z540	BEAM	5	3	5'-9"	35'-2"	5'-3"	1'-5"	46'-3"
Z740	BEAM	7	14	5'-9"	35'-2"	5'-3"	1'-5"	46'-3"

ABUTMENT No. 2

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A440	WING BEAMS	4	8					12'-2"
A441	WING WALLS	4	12					12'-2"
A442	WING WALLS	4	2					9'-8"
A445	WING WALLS	4	20					5'-9"
A446	APRON WALLS	4	12					5'-3"
A447	RDWY. BRKT.	4	1					43'-0"
A540	WING BEAMS	5	6					12'-2"
A640E	ENDWALL	6	82					6'-0"
A740	WING BEAMS	7	24					12'-2"
A741	WING WALLS	7	2					9'-8"
A742	WING WALLS	7	12					12'-2"
A744	WING WALLS	7	20					5'-9"
C640E	ENDWALL	6	41	3'-6"				4'-5"
C940E	ENDWALL	9	81	4'-6"				5'-9"
H440E	ENDWALL	4	2	43'-9"	8"			45'-0"
H440	ENDWALL	4	12	43'-9"	8"			45'-0"
H441	APRON WALL	4	6	1'-2"	2'-11"			6'-11"
H540	RDWY. BRKT.	5	41	2'-2"	7"			3'-3"
H640	ENDWALL	6	41	1'-2"	3'-9"			8'-7"
H740	WING WALLS	7	20	1'-2"	4'-4"			9'-8"
L540	WING BEAMS	5	48	3'-8"	1'-0"	3'-8"		15'-6"
Z440	BEAM	4	4	5'-9"	35'-2"	5'-3"	1'-10"	46'-3"
Z540	BEAM	5	3	5'-9"	35'-2"	5'-3"	1'-10"	46'-3"
Z740	BEAM	7	14	5'-9"	35'-2"	5'-3"	1'-10"	46'-3"

PIER No. 1

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1150	COLUMN	11	48					27'-9"
A1151	COLUMN	11	48					20'-5"
C1150	FOOTING-COL.	11	48	11'-10"				13'-9"
C1151	FOOTING-COL.	11	48	19'-2"				21'-1"
D1050	FOOTING	10	78	19'-6"				22'-0"
T450	COLUMN	4	11	7'-5"	1'-0"			24'-4"
T451	COLLAR	4	9	8'-6"	1'-0"			27'-9"

PIER No. 2

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1152	COLUMN	11	48					24'-2"
A1153	COLUMN	11	48					16'-10"
C1150	FOOTING-COL.	11	48	11'-10"				13'-9"
C1151	FOOTING-COL.	11	48	19'-2"				21'-1"
D1050	FOOTING	10	78	19'-6"				22'-0"
T450	COLUMN	4	10	7'-5"	1'-0"			24'-4"
T451	COLLAR	4	4	8'-6"	1'-0"			27'-9"

PIER No. 3

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1154	COLUMN	11	48					13'-11"
A1155	COLUMN	11	48					6'-7"
C1150	FOOTING-COL.	11	48	11'-10"				13'-9"
C1152	FOOTING-COL.	11	48	18'-6"				20'-5"
D1050	FOOTING	10	78	19'-6"				22'-0"
T450	COLUMN	4	4	7'-5"	1'-0"			24'-4"
T451	COLLAR	4	4	8'-6"	1'-0"			27'-9"

REVISIONS

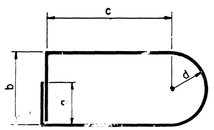
NO.	DATE	BY	BRIEF DESCRIPTION
1	5-20-83	C.M.H.	ADDED BARS A800E

NOTE: THE SUFFIX 'E' DENOTES EPOXY COATED REINFORCING STEEL.

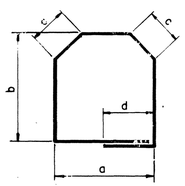
REINFORCING STEEL CODE

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.



BARS X



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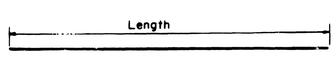
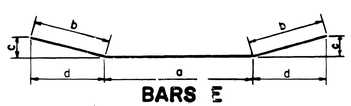


BARS A



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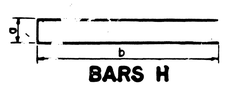

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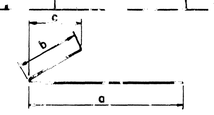
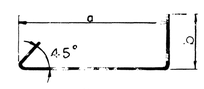
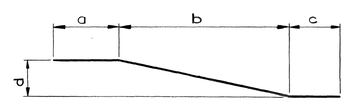


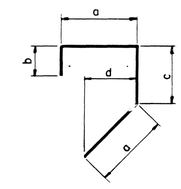
BARS CB



BARS YB



BARS Z



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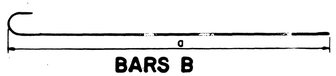
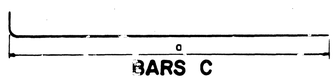


BARS B



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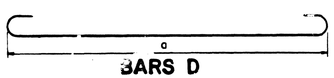

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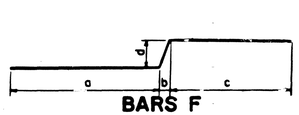

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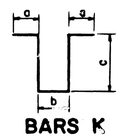

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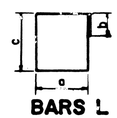
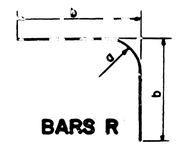
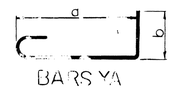


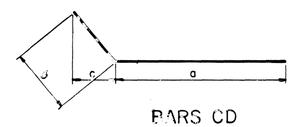
BARS L



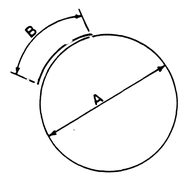
BARS R



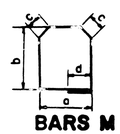
BARS YA



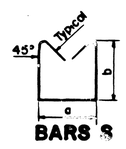
BARS CD



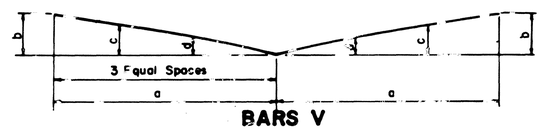
BARS T



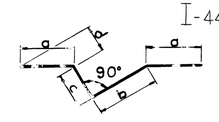
BARS M



BARS S



BARS V



BARS JX

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BILL OF STEEL - BRIDGE No. 162
I-440 - I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
5-W ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

11-15-69

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 1-82
SUPERVISED BY DATE
CHECKED BY DATE

MICROFILMED

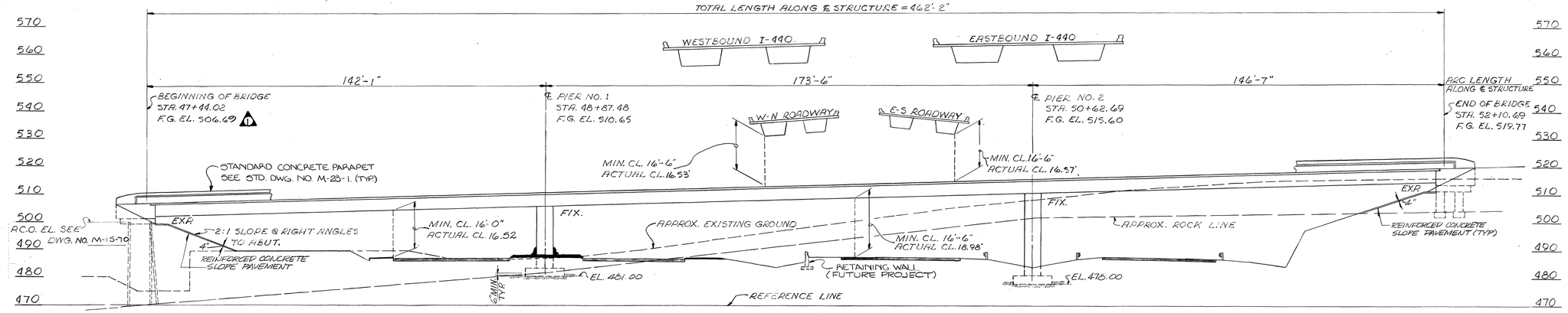
5-0-2

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(18)211	1982		

REVISIONS

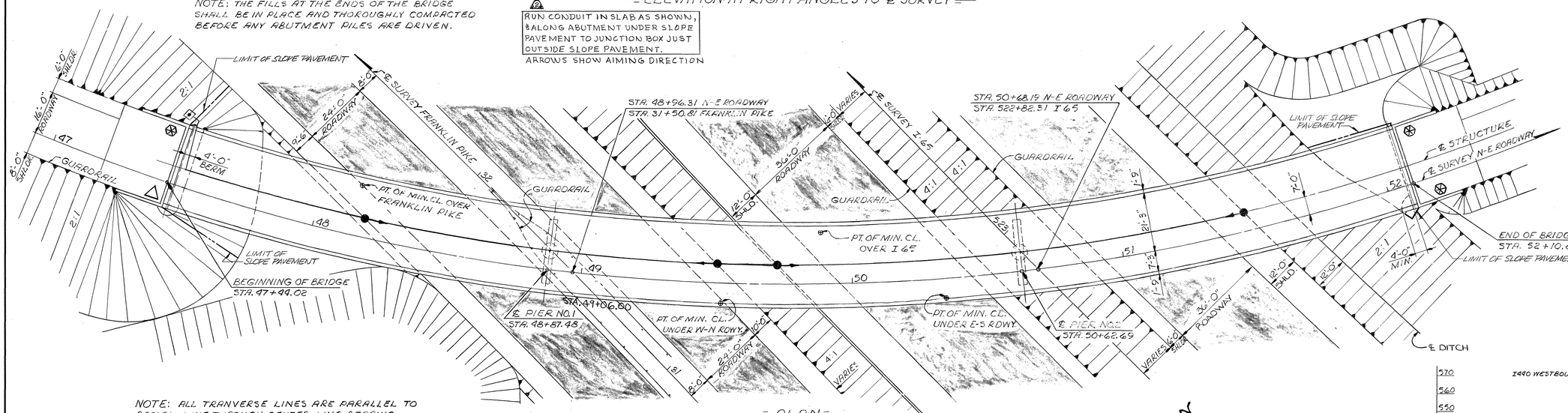
NO.	DATE	BY	BRIEF DESCRIPTION
1	3/1/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	LIGHTING



NOTE: THE FILLS AT THE ENDS OF THE BRIDGE SHALL BE IN PLACE AND THOROUGHLY COMPACTED BEFORE ANY ABUTMENT PILES ARE DRIVEN.

2 RUN CONDUIT IN SLAB AS SHOWN, & ALONG ABUTMENT UNDER SLOPE PAVEMENT TO JUNCTION BOX JUST OUTSIDE SLOPE PAVEMENT. ARROWS SHOW AIMING DIRECTION

ELEVATION AT RIGHT ANGLES TO ℄ SURVEY



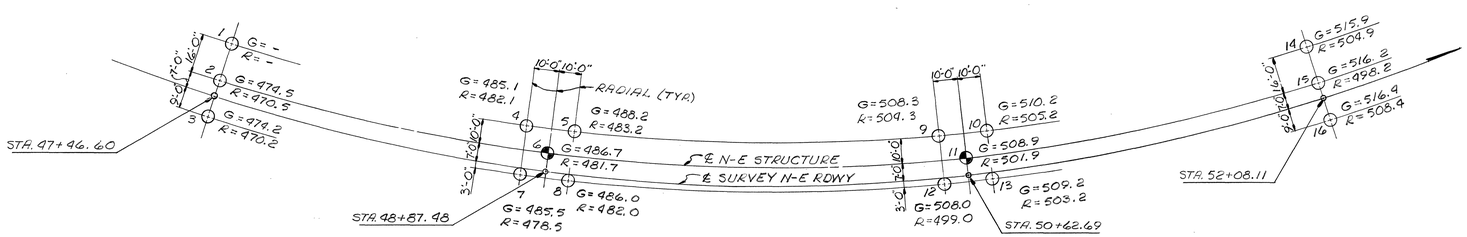
NOTE: ALL TRANVERSE LINES ARE PARALLEL TO RADIAL LINE THROUGH CENTER LINE BEARING.

PLAN

⊛ PARAPET TO BE EXTENDED (FUTURE CONTRACT)

NOTE: ALL SUBSTRUCTURE UNITS RADIAL TO ℄ STRUCTURE

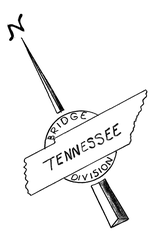
△ GUARDRAIL ATTACHMENT REQUIRED



SOUNDING SKETCH
(STRUCTURE NO. 163)

○ = ROCK SOUNDING
⊕ = CORE 10'-0" INTO ROCK

G = GROUND ELEVATION
R = ROCK ELEVATION



I-65 CURVE DATA

P.I. STA. 522+98.25
Δc = 37° 17' 14 RT.
Dc = 1° 00'
T = 1,933.07'
Lc = 3,728.72'
E = 317.31
R = 5,729.58'
S.E. = 0.089 ft/ft.
C.C. N = 629,357.08
E = 1,777,226.25
P.C. STA. 503+65.18
N = 626,596.49
E = 1,772,205.57

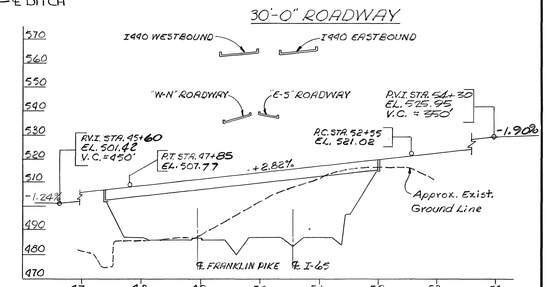
FRANKLIN PIKE CURVE DATA

P.I. STA. 28+06.58
Δc = 15° 31' 16" LT.
Dc = 0° 40'
T = 1,171.26
Lc = 2,328.17'
E = 79.44
R = 8,594.37'
S.E = 0.029 ft/ft
C.C.N. = 627,097.92
E = 1,762,956.83
P.C. STA. 16+35.27
N = 626,986.97
E = 1,771,550.48

1 N-E ROADWAY CURVE DATA

P.I. STA. 55+91.42
Δc = 124° 41' 34" LT.
Dc = 8° 00' 00"
T = 1366.85
Lc = 1558.66
E = 826.92
R = 716.20'
S.E = 0.06 ft/ft.
C.C.N = 629,031.03'
E = 1,771,913.07'
S.C. STA. 42+24.57
N = 629,098.86'
E = 1,771,200.09'

30'-0" ROADWAY



1 N-E ROADWAY PROFILE

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT OF BRIDGE NO. 163
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C. M. HILES DATE APRIL 18
DRAWN BY _____ DATE 19
TRACED BY _____ DATE 19
CHECKED BY C. M. HILES DATE 19

CORRECT Clellon L. Forrest
BRIDGE ENGINEER

APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

11-15-70

CLASS "A" GRADING "D" 14 C.Y.

DT-1390V

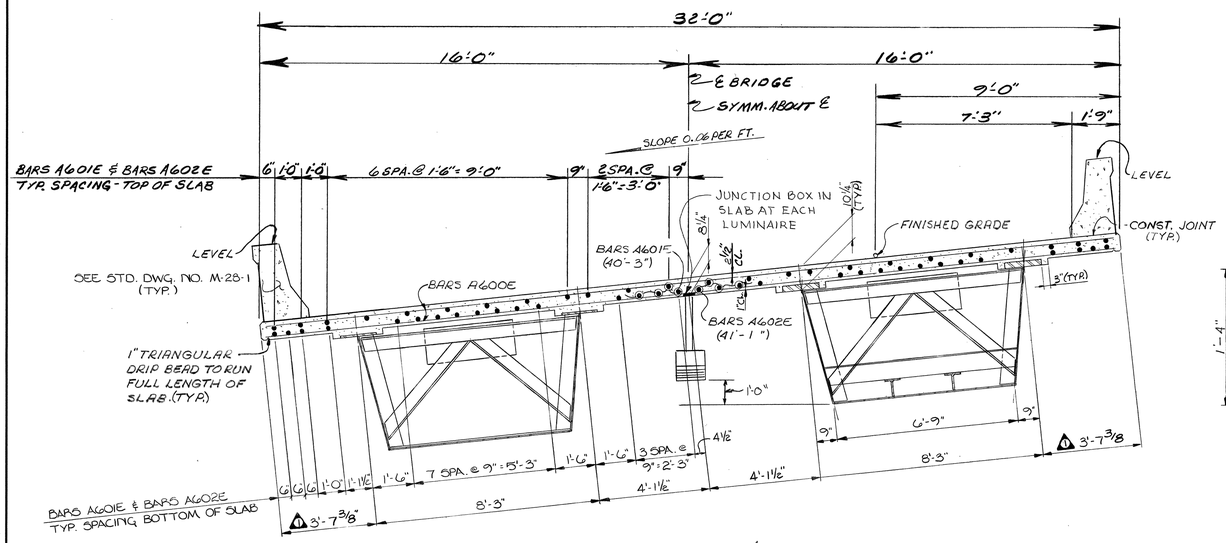
MICROFILMED
GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed U.S.A. ASTROFILM N695.4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

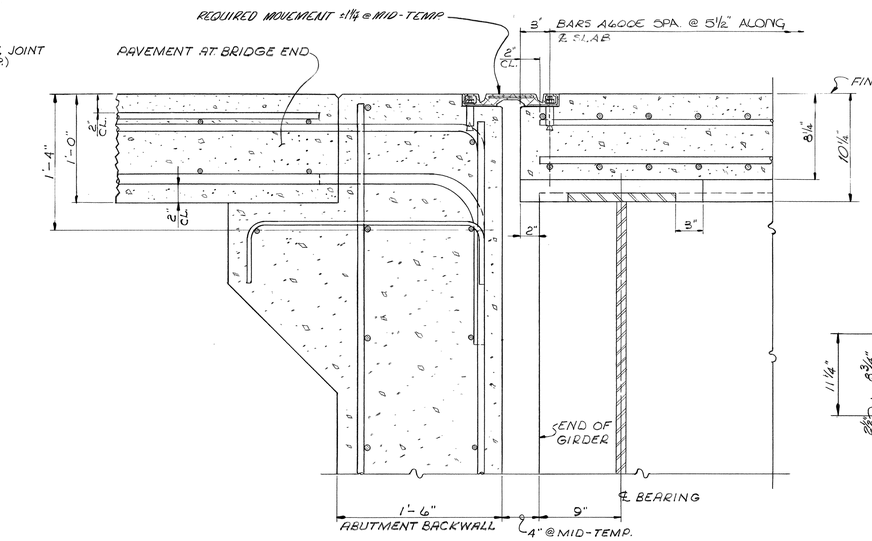
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H	GENERAL REVISION
2	1/24/83	F.C.	LIGHTING
3	5/20/83	C.M.H	ADDED END BEAM @ ENDS OF SLAB

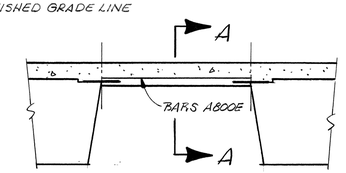


HALF CROSS SECTION NEAR MID-SPAN 1 2 HALF CROSS SECTION NEAR SUPPORT

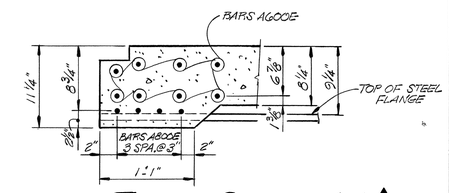
—TYPICAL CROSS SECTION—
LOOKING FOWARD ON SURVEY



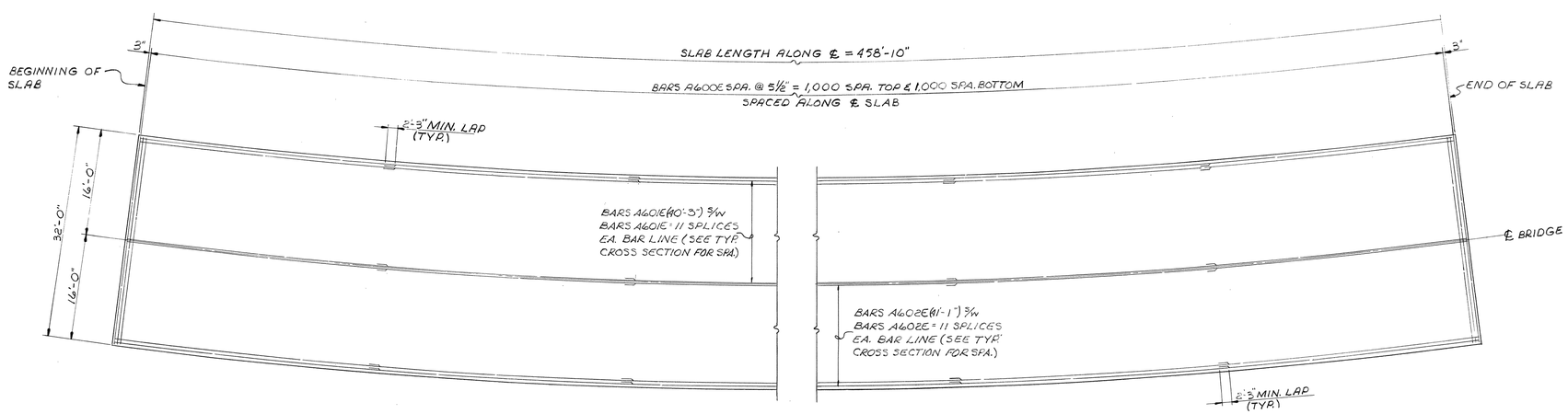
—LONGITUDINAL SECTION AT BRIDGE END—



PART CROSS SECTION 3



TYPICAL SECTION A-A 3
BETWEEN STEEL BOXES



—SLAB PLAN—

NOTE:

1. OUTSIDE EDGE OF SLAB AND PARAPET TO CONFORM TO HORIZONTAL CURVE.
2. THE CONCRETE DECK SHALL NOT BE POURED UNTIL ALL STRUCTURAL STEEL IS ERECTED AND ALL WELDING AND/OR BOLTING COMPLETE.
3. WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED.

ESTIMATED QUANTITIES 3

Item	CLASS "A" CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	385.1	136,445

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

SUPERSTRUCTURE BRIDGE NO. 163
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE MAY 19 1
DRAWN BY J.L.S. DATE JUNE 1981
TRACED BY DATE
CHECKED BY C.M. HILES DATE MARCH 15

CORRECT Colelton L. Lovell BRIDGE ENGINEER
APPROVED Lewis Evans STATE HIGHWAY ENGINEER

11-15-71

MICROFILMED

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605-4

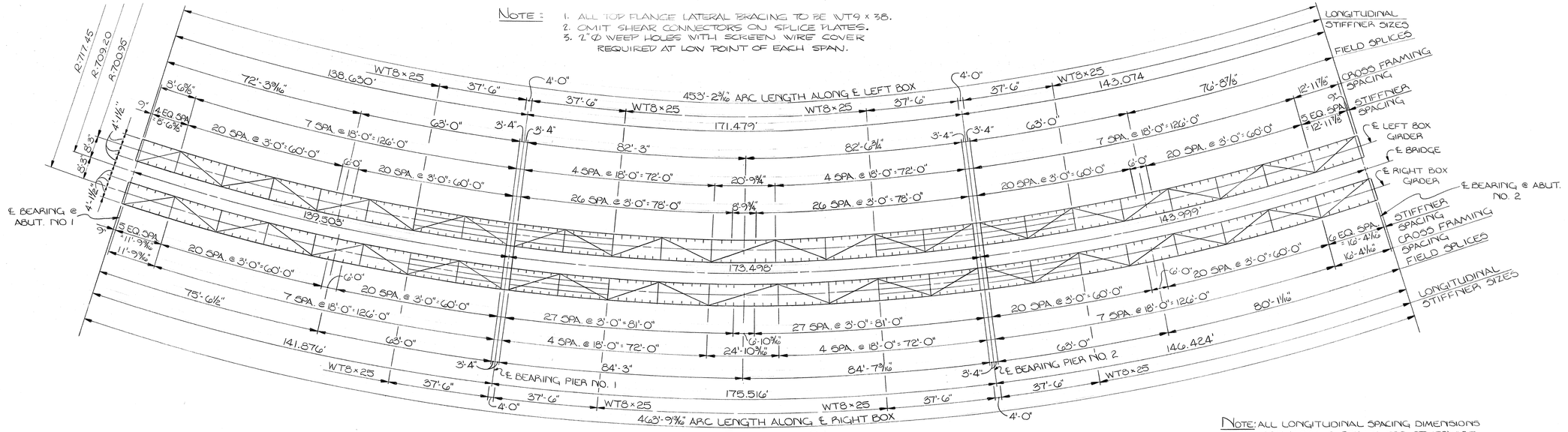
Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

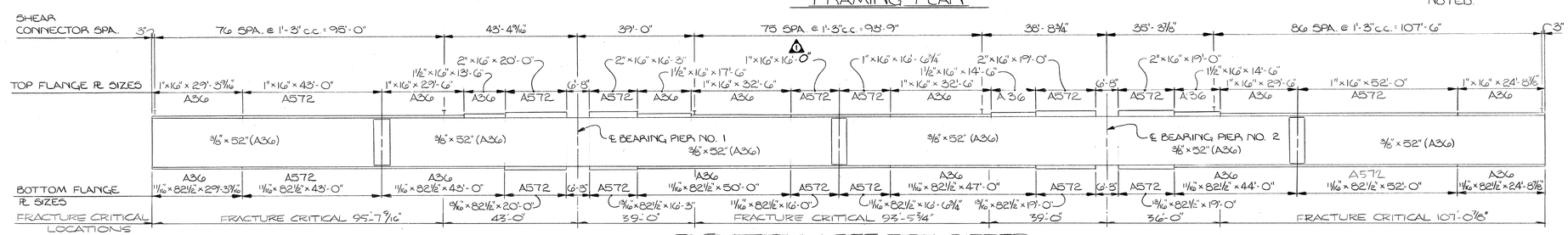
NO.	DATE	BY	BRIEF DESCRIPTION
1	9/14/82	C.M.H.	GENERAL REVISION

NOTE:
1. ALL TOP FLANGE LATERAL BRACING TO BE WT9 x 38.
2. OMIT SHEAR CONNECTORS ON SPLICE PLATES.
3. 2" Φ WEEP HOLES WITH SCREEN WIRE COVER REQUIRED AT LOW POINT OF EACH SPAN.

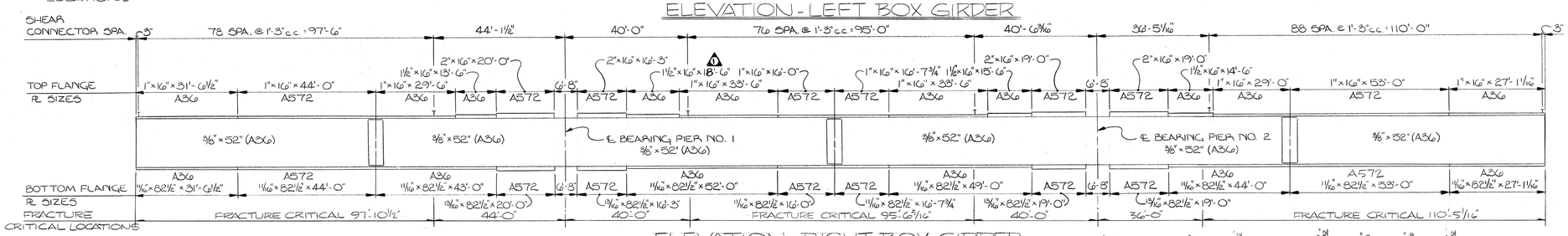


FRAMING PLAN

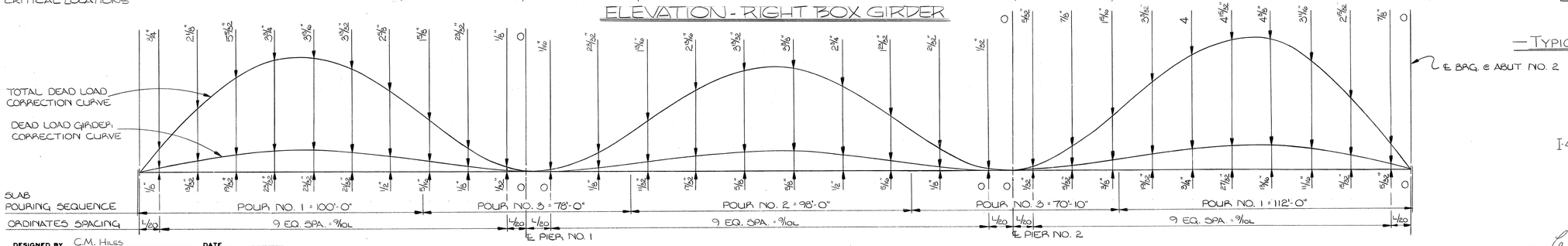
NOTE: ALL LONGITUDINAL SPACING DIMENSIONS ARE ALONG ℄ BOX UNLESS OTHERWISE NOTED.



ELEVATION - LEFT BOX GIRDER



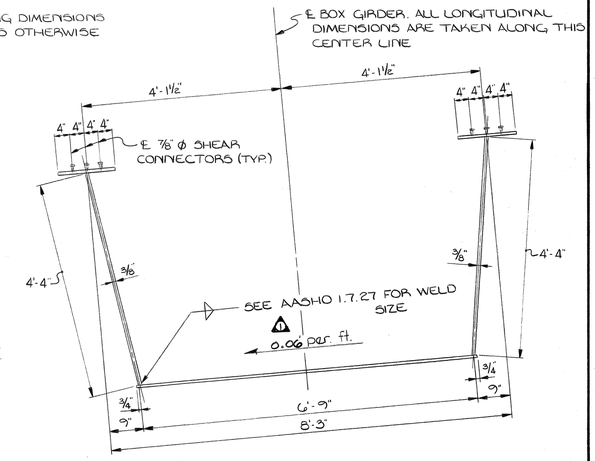
ELEVATION - RIGHT BOX GIRDER



DEAD LOAD CORRECTION CURVE

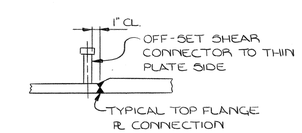
(TYPICAL EACH GIRDER)

NOTE: SLAB POURING SEQUENCE DIMENSIONS ARE TAKEN ALONG THE CENTER LINE OF BRIDGE.



BOX GIRDER CROSS SECTION

(TYPICAL)



TYPICAL SHEAR CONNECTOR OFF-SET

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FRAMING PLAN BRIDGE NO. 163
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. Hiles DATE
DRAWN BY MD DATE 7-81
SUPERVISED BY C.M. Hiles & B.L. Harbison DATE 7-81
CHECKED BY DATE

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

11-15-72

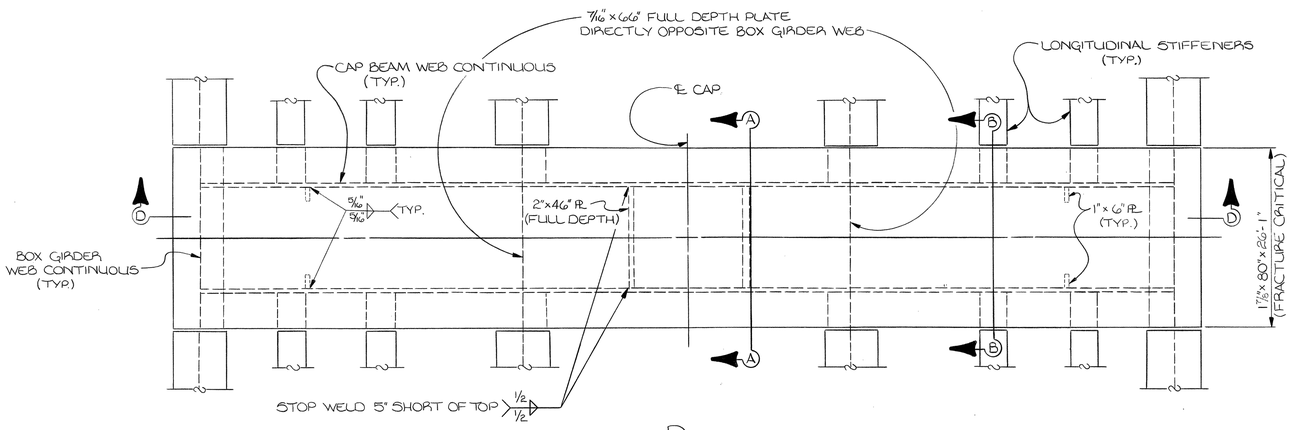
MICROFILMED

Const. No. 19015-3113-44

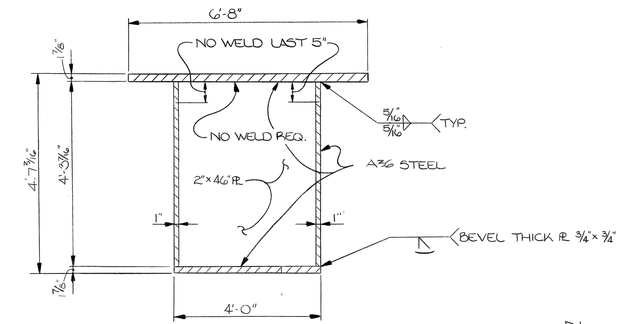
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/14/82	CMH.	GENERAL REVISION

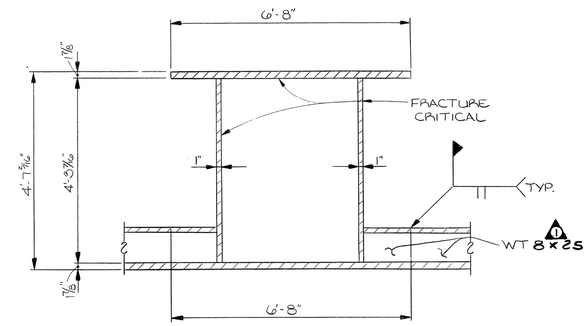


— PLAN —

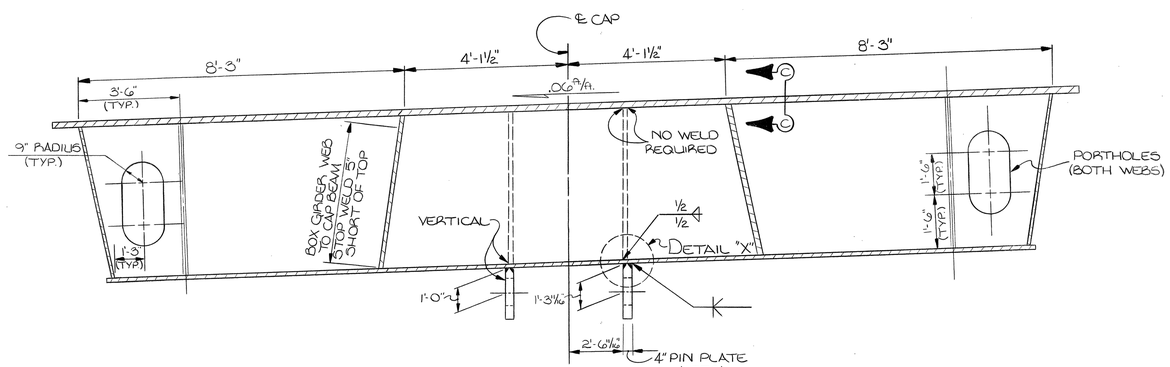


— SECTION A-A —

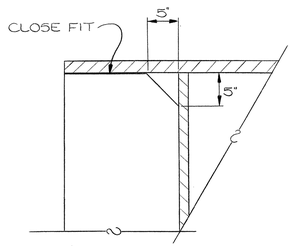
NOTE: FOR STRUCTURAL STEEL GENERAL NOTES SEE DWG. NO. M-15-55.



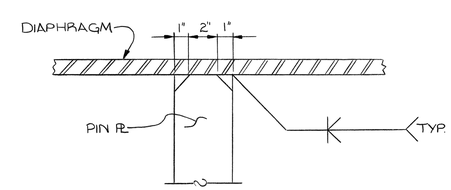
— SECTION B-B —



— SECTION D-D —



— SECTION C-C —
(TYPICAL BOX GIRDER WEB TO DIAPHRAGM WEB CONNECTION)



— DETAIL "X" —

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPPORT DIAPHRAGM BRIDGE NO. 163
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-73

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 10-81
SUPERVISED BY C.M. HILES DATE 10-81
CHECKED BY DATE

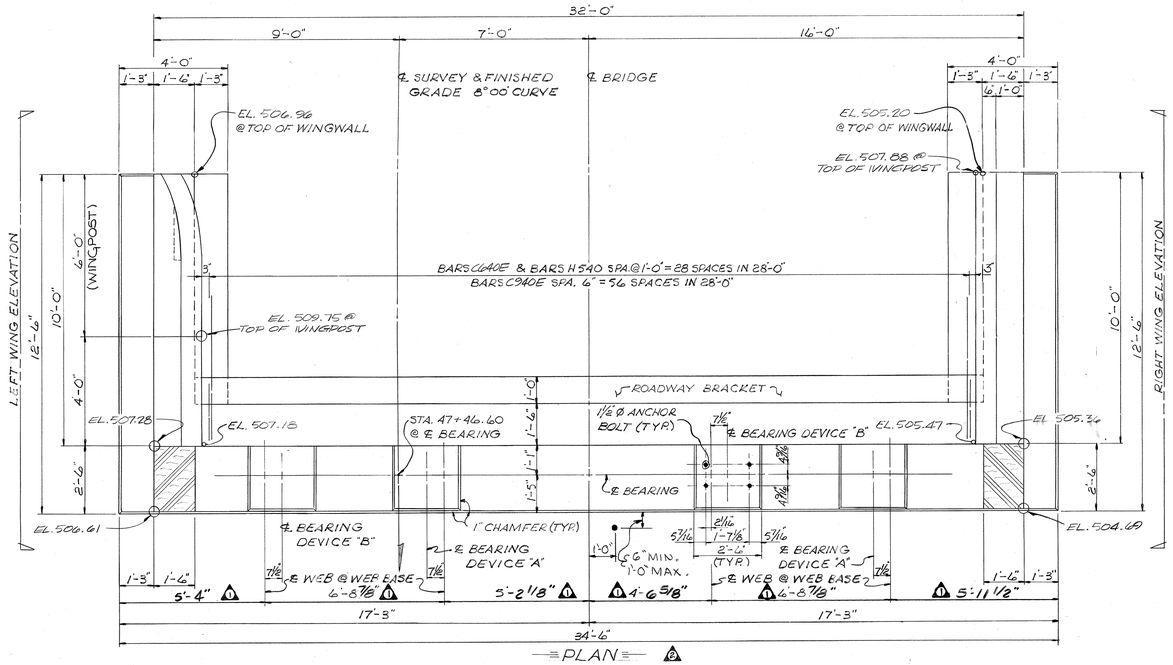
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

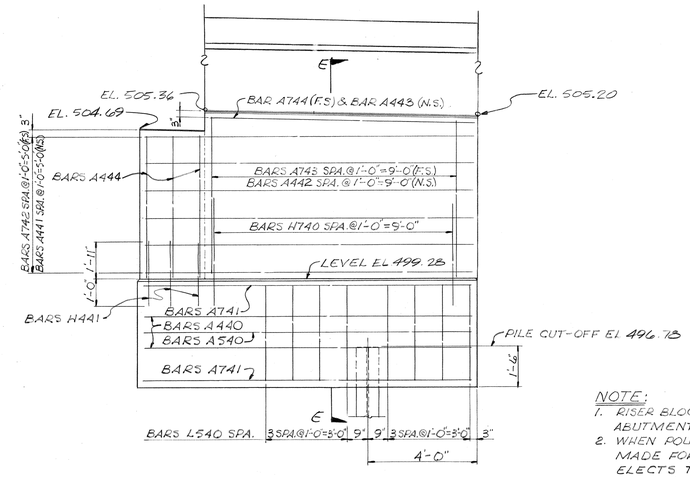
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	2-15-82	C.M.H.	GENERAL REVISIONS
2	1/24/83	F.C.	LIGHTING



PLAN

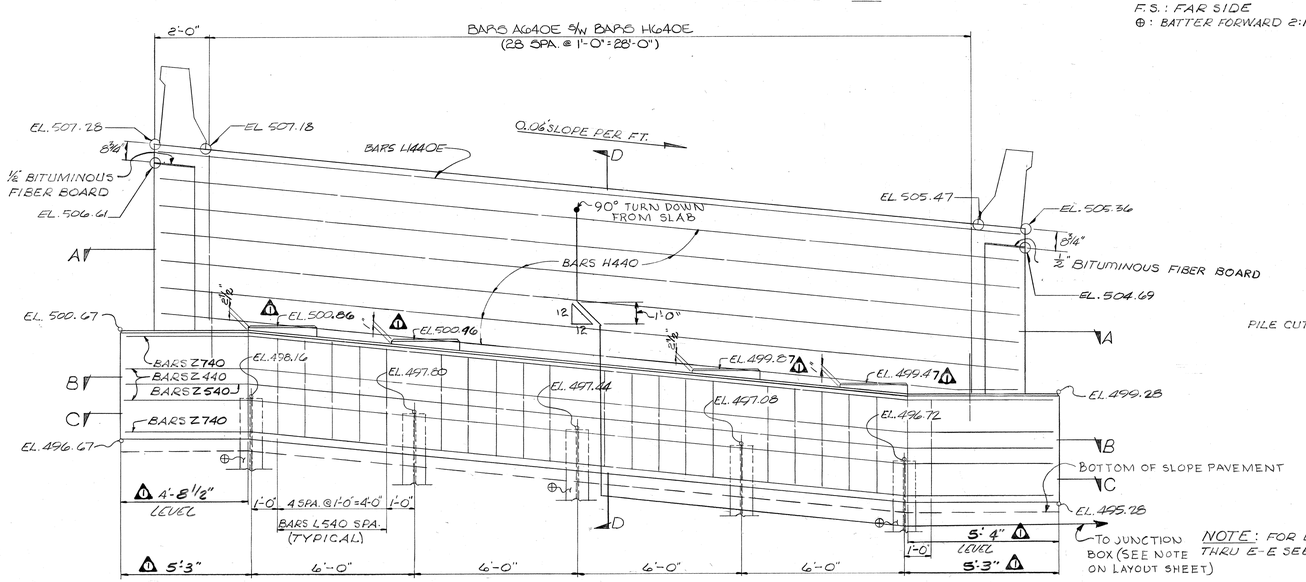
ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10¾"



RIGHT WING ELEVATION

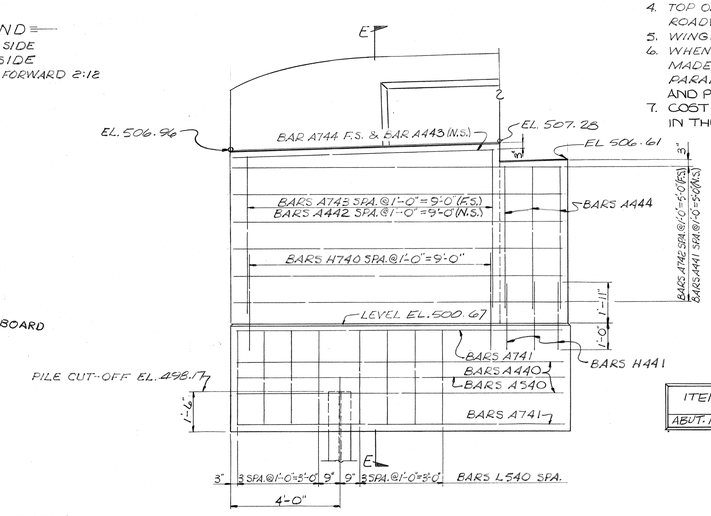
NOTE:
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPER-STRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF WINGPOST AND PARAPET SEE STANDARD DRAWING NO. M-28-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.

LEGEND
N.S. : NEAR SIDE
F.S. : FAR SIDE
⊕ : BATTER FORWARD 2:12



ELEVATION ABUTMENT NO. 1
LOOKING BACK ON SURVEY

NOTE: FOR DETAILS OF SECTION A-A THRU E-E SEE DWG. NO. M-15-75



LEFT WING ELEVATION

"ESTIMATED QUANTITIES"

ITEM	CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUT. NO. 1	50.9	4,484	1,866

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 1 BRIDGE NO. 163
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Forrael
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-74

DESIGNED BY C. M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C. M. HILES DATE 19 1
CHECKED BY C. M. HILES DATE 19

MICROFILMED

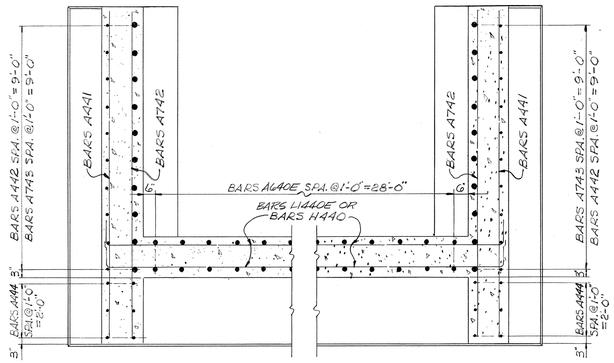
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

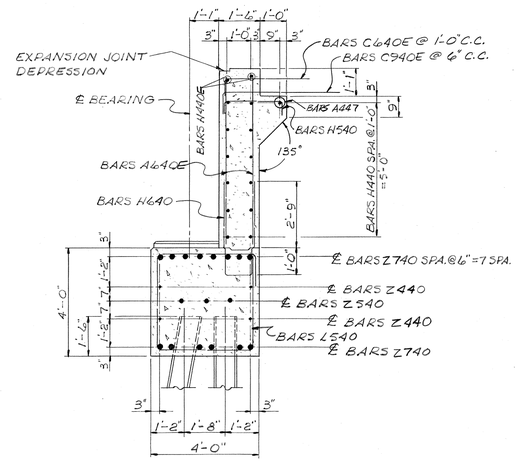
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

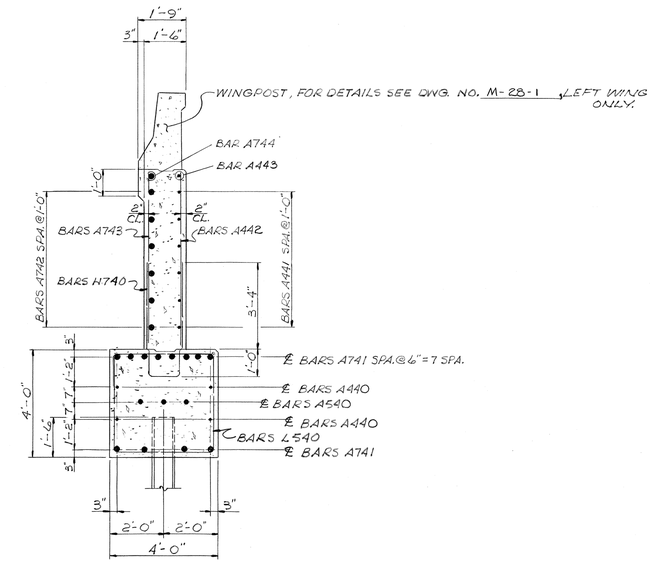
NO.	DATE	BY	BRIEF DESCRIPTION
1	7/15/82	C.M.H.	GENERAL REVISION



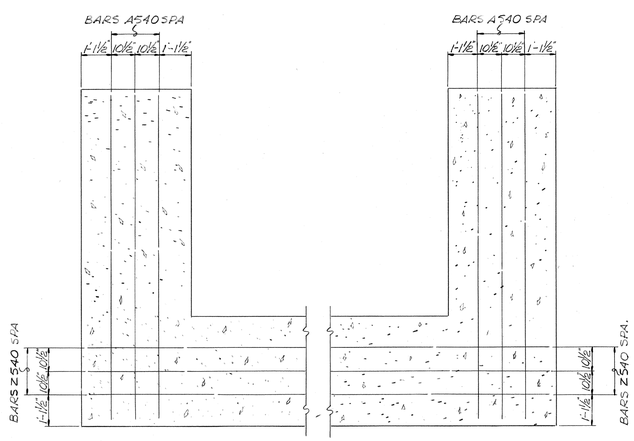
SECTION A-A



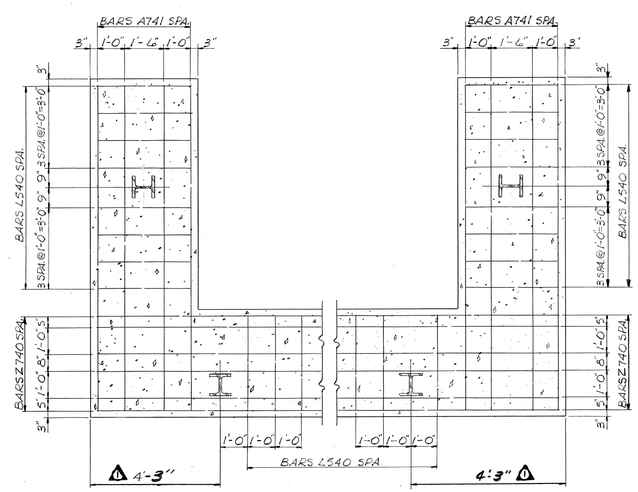
SECTION D-D



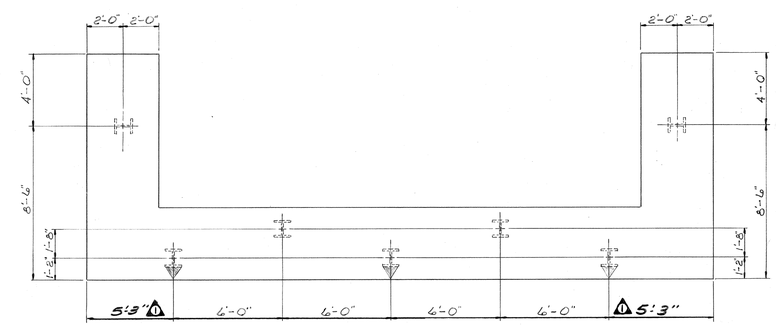
SECTION E-E



SECTION B-B



SECTION C-C



PLAN
SHOWING PILE ARRANGEMENT

NOTE: FOR LOCATION OF CUTTING-PLANE LINE OF SECTIONS A-A THRU E-E SEE DWG. NO. M-15-74

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 1 DETAILS BRIDGE NO. 163
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L Loveall
BRIDGE ENGINEER

APPROVED Lewis Guard
STATE HIGHWAY ENGINEER

M-15-75

DESIGNED BY	C.M. HILES	DATE	19
DRAWN BY		DATE	19
SUPERVISED BY	C.M. HILES	DATE	19
CHECKED BY	C.M. HILES	DATE	19

MICROFILMED

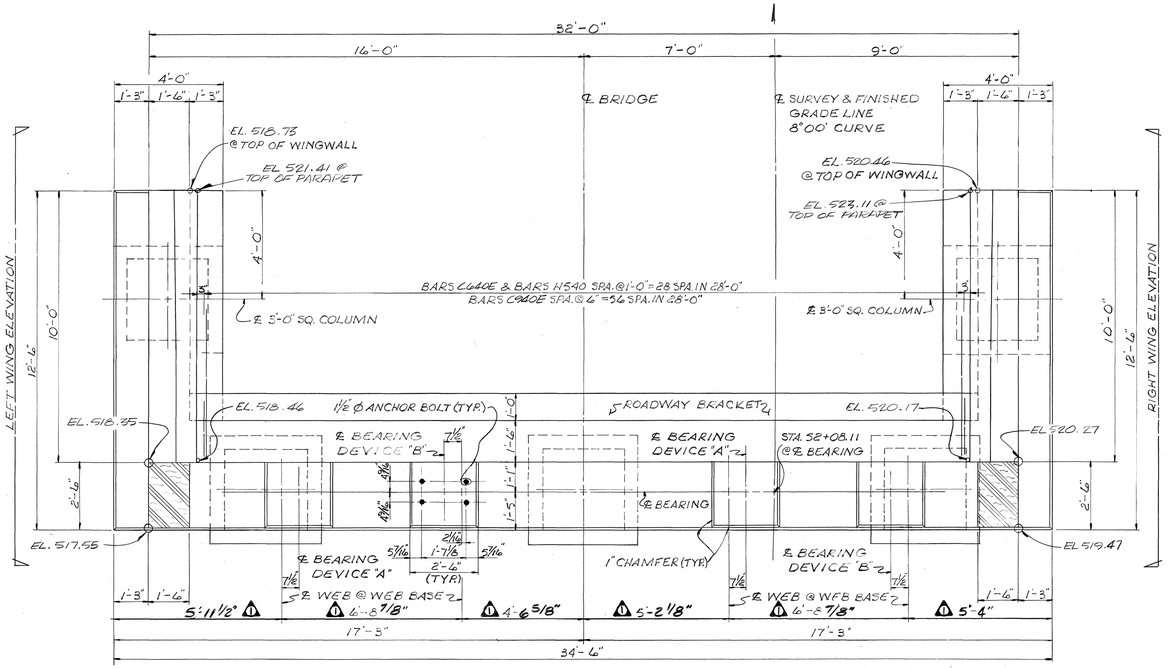
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

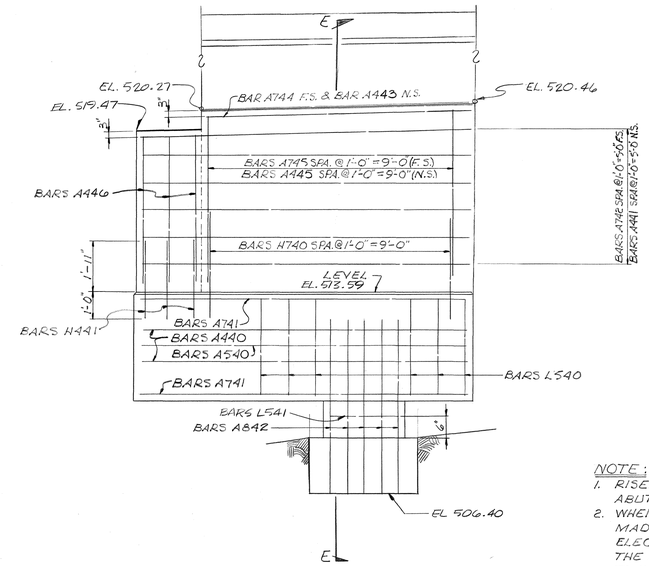
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISIONS



PLAN

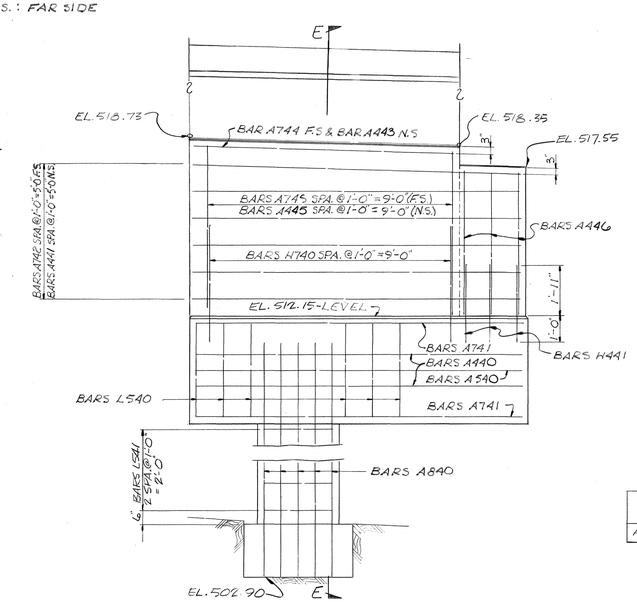
ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10½"



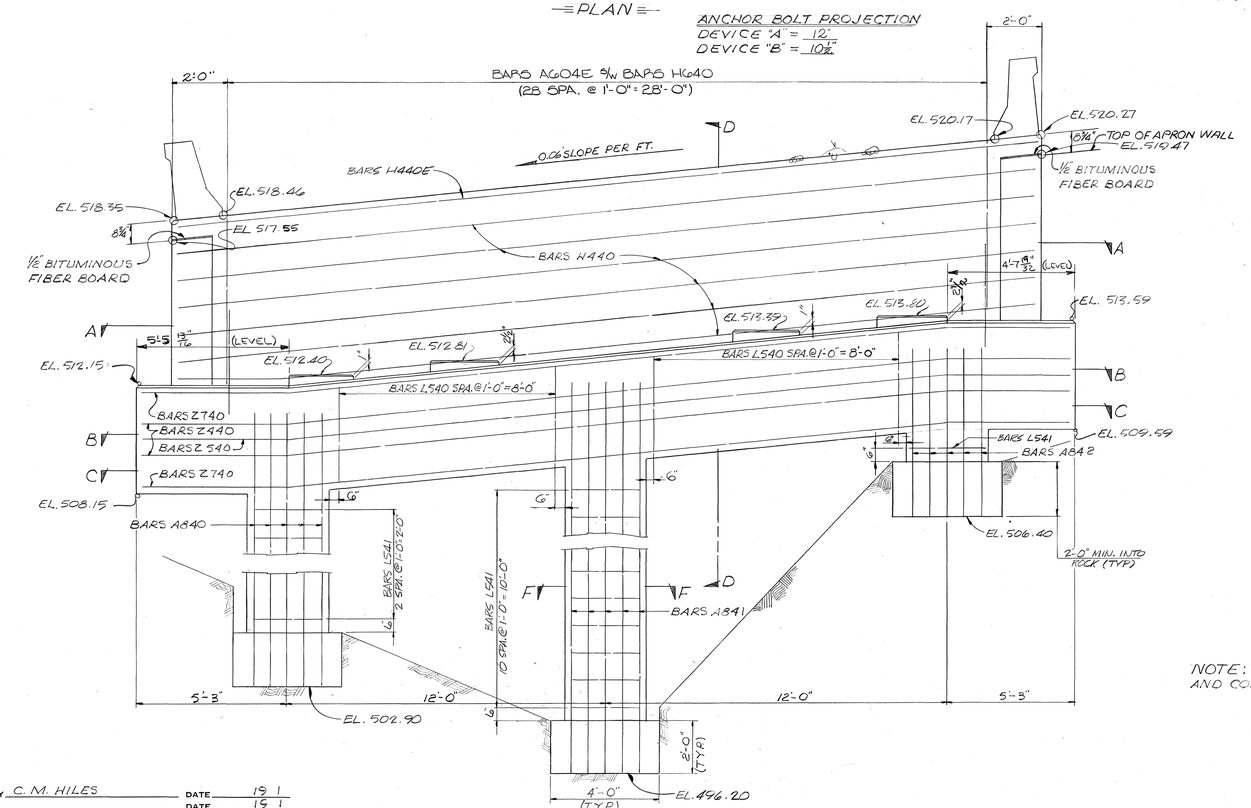
RIGHT WING ELEVATION

LEGEND
N.S.: NEAR SIDE
F.S.: FAR SIDE

NOTE:
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STD. DWG. NO. M-28-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.
8. CARE SHALL BE TAKEN WHEN EXCAVATING ROCK FOR FOOTING SO AS NOT TO DAMAGE THE VERTICAL FACE OF ROCK CUT, ALL LAITANCE SHALL BE REMOVED FROM VERTICAL FACES AND BOTTOM OF EXCAVATED AREA PRIOR TO PLACING CONCRETE.
9. NO REINFORCING STEEL FOR COLUMNS SHALL BE ORDERED UNTIL FINAL FOOTING ELEVATIONS HAVE BEEN DETERMINED.



LEFT WING ELEVATION



ELEVATION ABUTMENT NO. 2
(LOOKING FORWARD ON SURVEY)

NOTE: FOR DETAILS OF SECTION A-A THRU F-F AND COLUMN FOOTING PLAN SEE DWG. NO. M-15-77

"ESTIMATED QUANTITIES"

ITEM	CLASS 'A' CONCRETE CY	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS
ABUT. NO. 2	66.0	6,578	1,866

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 2 BRIDGE NO. 163
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N.E. ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C. M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C. M. HILES DATE 19 1
CHECKED BY C. M. HILES DATE 19

CORRECT Clelton L. Loveall
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

11-15-76

MICROFILMED

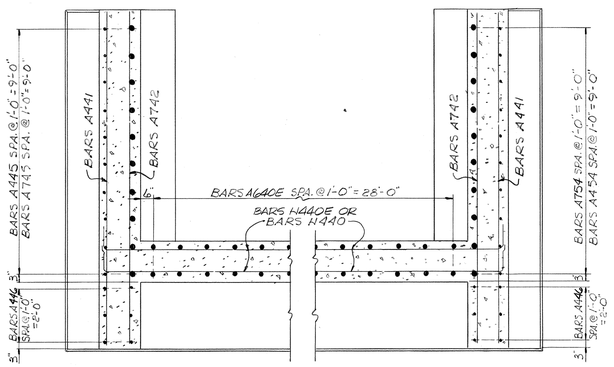
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

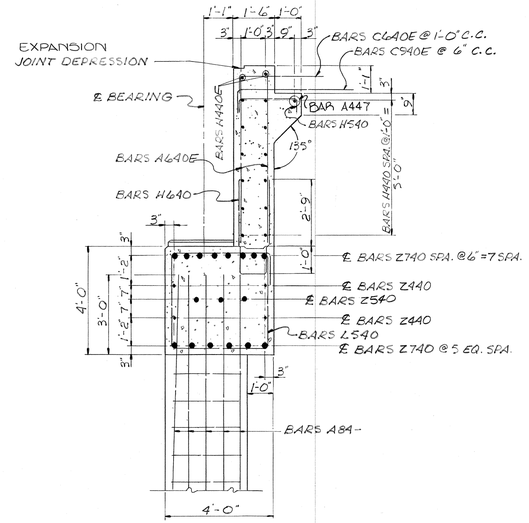
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

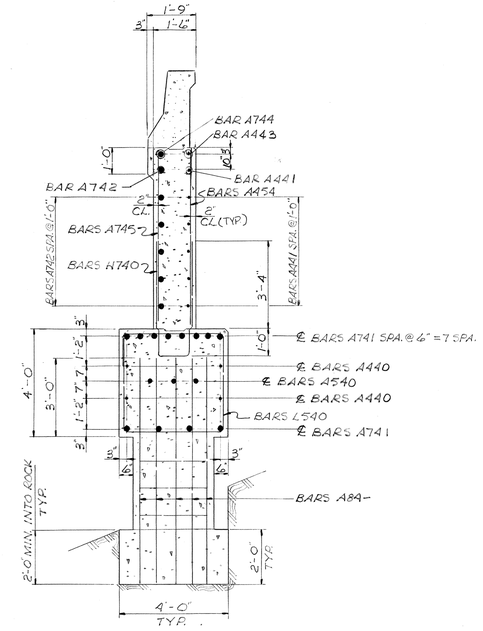
NO.	DATE	BY	BRIEF DESCRIPTION



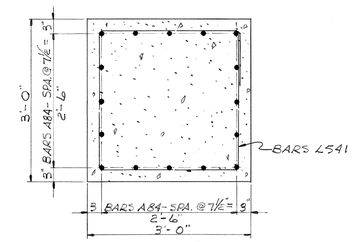
SECTION A-A



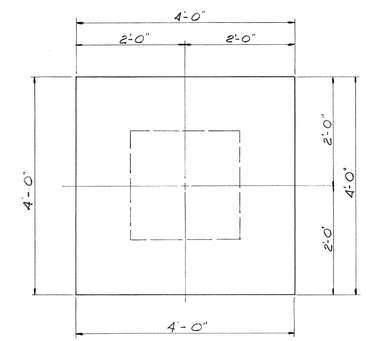
SECTION D-D



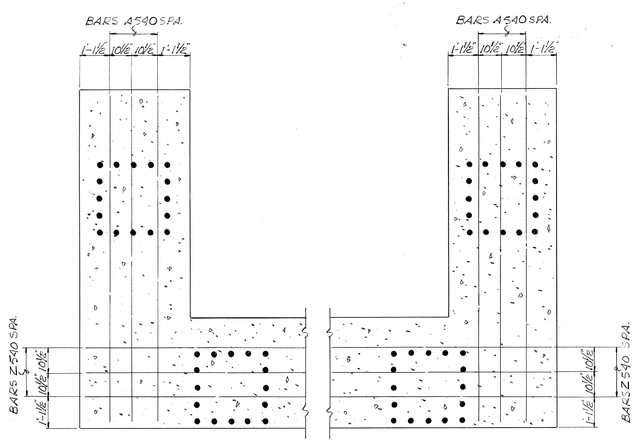
SECTION E-E



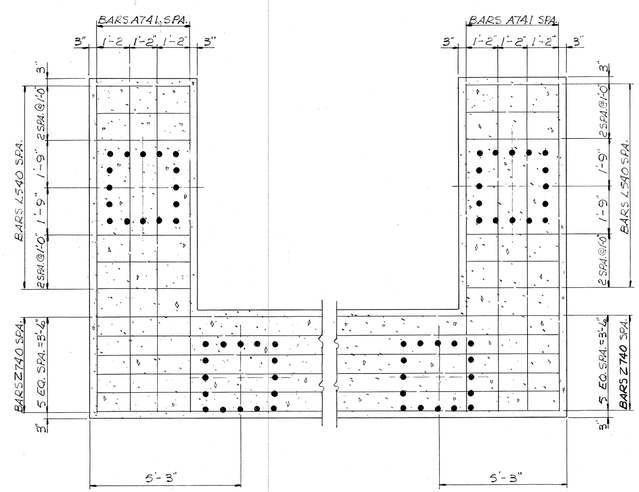
SECTION F-F
TYPICAL



FOOTING PLAN
TYPICAL



SECTION B-B



SECTION C-C

NOTE: FOR LOCATION OF CUTTING-PLANE LINE OF SECTIONS A-A THRU F-F SEE DWG. NO. M-15-76.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 2 DETAILS BRIDGE NO. 165
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall
BRIDGE ENGINEER

APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-77

DESIGNED BY C.M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C.M. HILES DATE 19 1
CHECKED BY C.M. HILES DATE 19

MICROFILMED

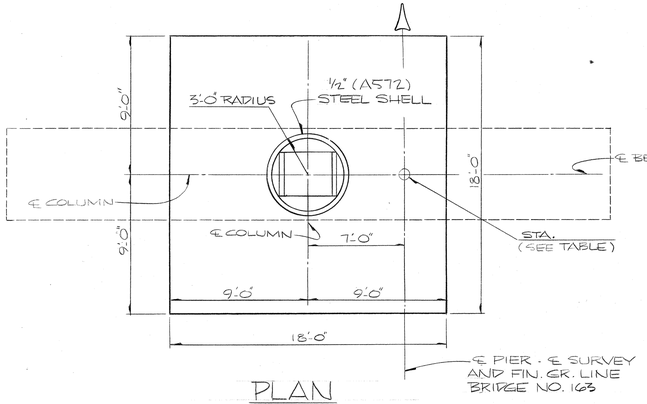
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

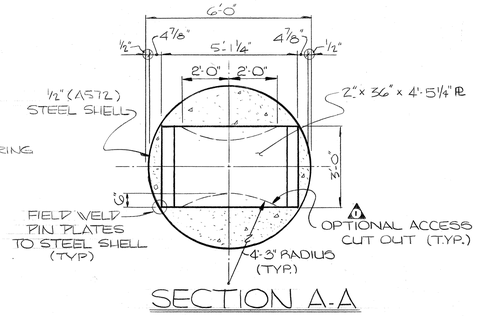
PROJECT NO.	YEAR	SHEET NO.
I-440-4(43)7.11	1982	

REVISIONS

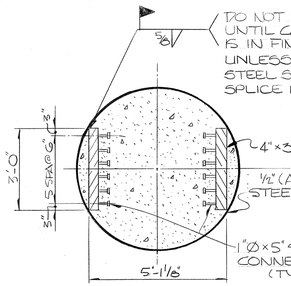
NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	OPTIONAL ACCESS & STEEL SHELL FIELD SPLICE, REINF. STEEL CUT
2	9/5/82	C.M.H.	GENERAL REVISION



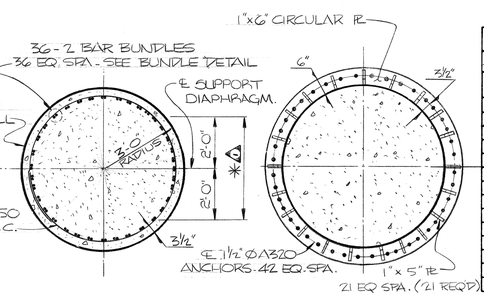
PLAN



SECTION A-A



SECTION B-B

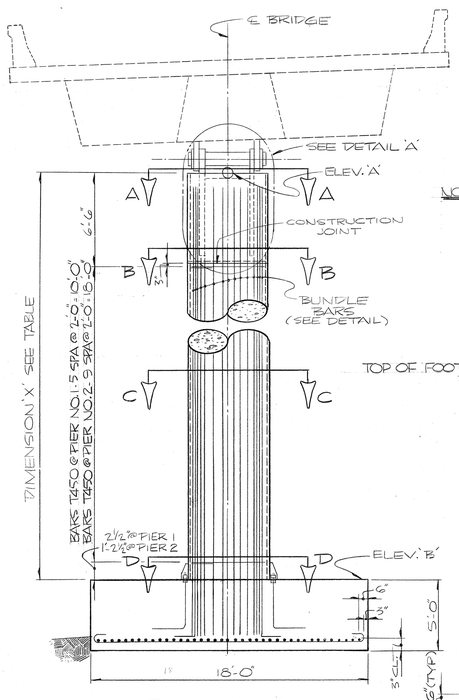


SECTION C-C

SECTION D-D

* FIELD CUT VERTICAL REINFORCING STEEL 2 IN. ABOVE CONSTRUCTION JOINT THIS AREA SO AS TO ALLOW PIN PLATE PLACEMENT.

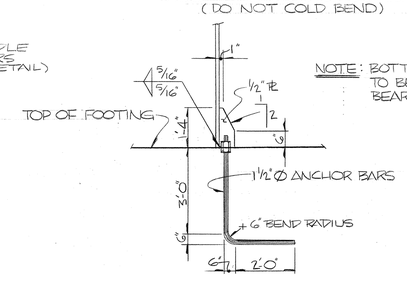
NOTE: FOR STRUCTURAL STEEL NOTES SEE DRAWING NO. _____



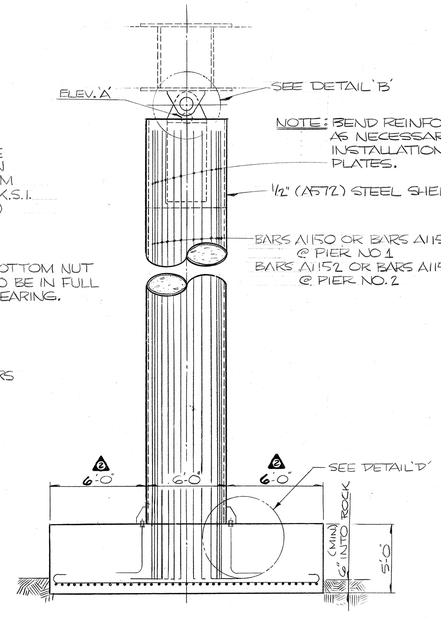
ELEVATION
LOOKING FORWARD ON SURVEY

NOTE: ANCHOR BOLT MATERIAL, A320, GRADE B8X, CARBIDE SOLUTION TREATED STRAIN HARDENED WITH A MINIMUM YIELD STRENGTH OF 50 K.S.I. (DO NOT COLD BEND)

NOTE: BOTTOM NUT TO BE IN FULL BEARING.



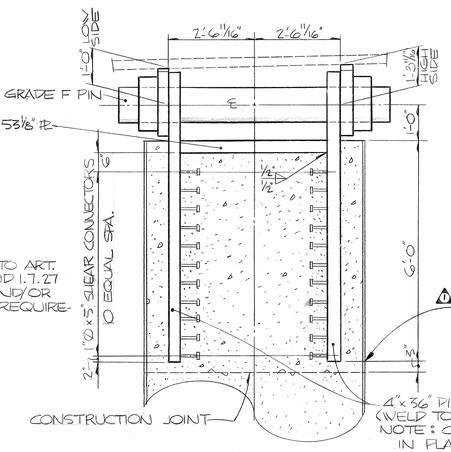
DETAIL 'D'



END ELEVATION

NOTE: BEND REINFORCING AS NECESSARY FOR INSTALLATION OF PIN PLATES.

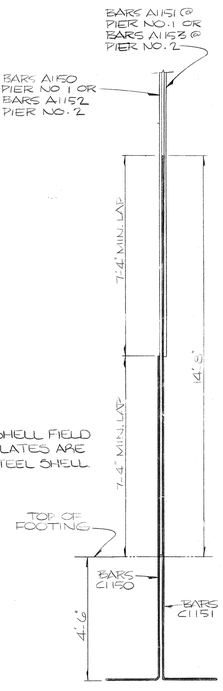
NOTE: SEE AASHTO ART. 1.7.1 (B) AND 1.7.27 FOR PIN AND/OR PIN NUT REQUIREMENTS.



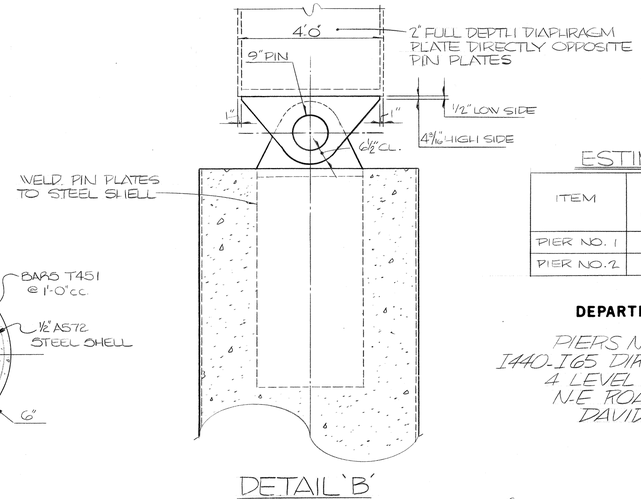
DETAIL 'A'

OPTIONAL STEEL SHELL FIELD SPLICE WHEN PIN PLATES ARE SHOP WELDED TO STEEL SHELL.

4" x 36" PIN PLATE (A588) (WELD TO COLUMN SHIELD)
NOTE: CAP BEAM MUST BE IN PLACE AND IN PROPER POSITION PRIOR TO WELDING PIN PLATES TO STEEL SHELL



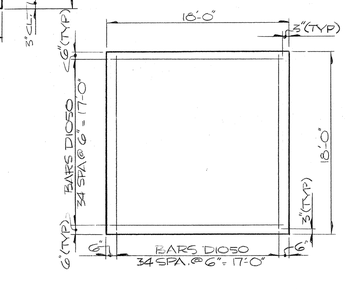
BUNDLE PATTERN DETAIL



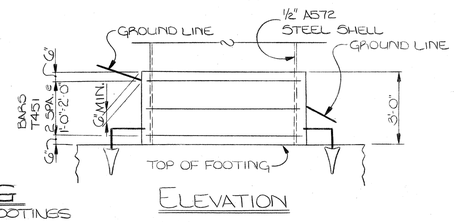
DETAIL 'B'

TABLE OF ELEVATIONS, DIMENSIONS, AND STATIONS

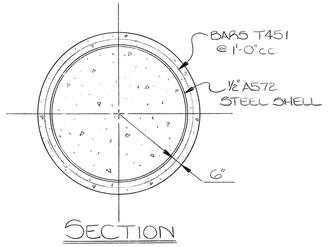
ITEM	STATION	EL. 'A'	EL. 'B'	DIMENSION 'X'
PIER NO. 1	48+87.48	502.79	486.00	16'-9 1/2"
PIER NO. 2	50+62.69	507.74	483.00	24'-8 7/8"



PLAN OF FOOTING
REINFORCEMENT (TYP.) ALL PIER FOOTINGS



ELEVATION



SECTION

— GROUND LINE INTERSECT COLLAR DETAIL —

ESTIMATED QUANTITIES

ITEM	CLASS 'A' CONCRETE (BRIDGES) C.Y.	STEEL BAR REINFORCEMENT (BRIDGES) LBS.
PIER NO. 1	77.3	17,743
PIER NO. 2	85.4	20,819

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

PIERS NO. 1 AND 2 BRIDGE NO. 163
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
N-E ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY MIKE CHILDRESS DATE 12-81
SUPERVISED BY HILES / HARBISON DATE 12-81
CHECKED BY HILES DATE

CORRECT Odell W. Forsell
ENGINEER OF STRUCTURES
APPROVED Lewis Johnson
DIRECTOR OF HIGHWAYS

M-15-78

BILL OF STEEL

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I440-4(48)211	19 82		

SUPERSTRUCTURE

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A600E	SLAB	6	2002					31'-8"
A601E	SLAB	6	336					40'-3"
A602E	SLAB	6	336					41'-1"
A800E	SLAB	8	8					8'-8"

PAVEMENT @ BRIDGE ENDS

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A490E	SLAB	4	100					28'-2"
A690E	SLAB	6	58					24'-2"
A790E	FOOTING	7	16					28'-2"
A990E	SLAB	9	114					24'-2"
L590E	FOOTING/SLAB	5	80	1'-2"	1'-0"	2'-2"		7'-5"

ABUTMENT NO. 1

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A440	BEAM WINGS	4	8					12'-2"
A441	WINGWALLS	4	12					12'-2"
A442	WINGWALLS	4	20					5'-9"
A443	WINGWALLS	4	2					9'-8"
A444	APRON WALLS	4	12					5'-3"
A447	RDWY. BRKT.	4	1					28'-0"
A540	BEAM WINGS	5	6					12'-2"
A640E	ENDWALLS	6	58					5'-11"
A741	BEAM WINGS	7	24					12'-2"
A742	WINGWALLS	7	12					12'-2"
A743	WINGWALLS	7	20					5'-9"
A744	WINGWALLS	7	2					9'-8"
C640E	APPROACH SLAB	6	29	3'-6"	1'-0"			4'-5"
C940E	APPROACH SLAB	9	57	4'-6"	1'-4"			5'-9"
H440E	ENDWALL	4	2	31'-9"	8"			33'-0"
H440	ENDWALL	4	12	31'-9"	8"			33'-0"
H441	APRON WALLS	4	6	1'-2"	2'-11"			6'-11"
H540	RDWY. BRKT.	5	29	2'-2"	7"			3'-4"
H640	ENDWALLS	6	29	1'-2"	3'-9"			8'-7"
H740	WINGWALLS	7	20	1'-2"	4'-4"			9'-8"
L540	BEAM/WINGS	5	37	3'-8"	1'-0"	3'-8"		15'-6"
Z440	BEAM	4	4	4'-5"	24'-5"	5'-4"	1'-5"	33'-10"
Z540	BEAM	5	3	4'-5"	24'-5"	5'-4"	1'-5"	33'-10"
Z740	BEAM	7	14	4'-5"	24'-5"	5'-4"	1'-5"	33'-10"

ABUTMENT NO. 2

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A440	WINGWALLS	4	8					12'-2"
A441	WINGWALLS	4	12					12'-2"
A443	WINGWALLS	4	2					9'-8"
A445	WINGWALLS	4	20					6'-0"
A446	APRON WALLS	4	12					5'-2"
A447	RDWY. BRKT.	4	1					28'-0"
A540	BEAM WINGS	5	6					12'-2"
A640E	ENDWALLS	6	58					5'-11"
A741	BEAM WINGS	7	24					12'-2"
A742	WINGWALLS	7	12					12'-2"
A744	WINGWALLS	7	2					9'-8"
A745	WINGWALLS	7	20					6'-0"
A840	FOOTING COLUMN	8	32					8'-3"
A841	FOOTING COLUMN	8	16					15'-8"
A842	FOOTING COLUMN	8	32					6'-2"
C640E	APPROACH SLAB	6	29	3'-6"	1'-0"			4'-5"
C940E	APPROACH SLAB	9	57	4'-6"	1'-4"			5'-9"
H440E	ENDWALL	4	2	31'-9"	8"			33'-0"
H440	ENDWALL	4	12	31'-9"	8"			33'-0"
H441	APRON WALLS	4	6	1'-2"	2'-11"			6'-11"
H540	RDWY. BRKT.	5	29	2'-2"	7"			3'-4"
H640	ENDWALLS	6	29	1'-2"	3'-9"			8'-7"
H740	WINGWALLS	7	20	1'-2"	4'-4"			9'-8"
L540	BEAM/WINGS	5	30	3'-8"	1'-0"	3'-8"		15'-6"
L541	FOOTING COLUMN	5	19	2'-8"	1'-0"	2'-8"		11'-6"
Z440	BEAM	4	4	5'-4"	24'-5"	4'-6"	1'-5"	33'-10"
Z540	BEAM	5	3	5'-4"	24'-5"	4'-6"	1'-5"	33'-10"
Z740	BEAM	7	14	5'-4"	24'-5"	4'-6"	1'-5"	33'-10"

PIER NO. 1

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1150	COLUMN	11	36					16'-7"
A1151	COLUMN	11	36					9'-3"
C1150	COL./FOOTING	11	36	11'-10"	2'-0"			13'-9"
C1151	COL./FOOTING	11	36	19'-2"	2'-0"			21'-1"
D1050	FOOTING	10	70	17'-6"	1'-3"			20'-0"
T450	COLUMN	4	6	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	3	6'-6"	1'-0"			21'-5"

PIER NO. 2

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1152	COLUMN	11	36					24'-6"
A1153	COLUMN	11	36					17'-2"
C1150	COL./FOOTING	11	36	11'-10"	2'-0"			13'-9"
C1151	COL./FOOTING	11	36	19'-2"	2'-0"			21'-1"
D1050	FOOTING	10	70	17'-6"	1'-3"			20'-0"
T450	COLUMN	4	10	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	3	8'-6"	1'-0"			21'-5"

REVISIONS

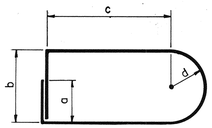
NO.	DATE	BY	BRIEF DESCRIPTION
1	5/20/83	C.M.H.	ADDED BARS A800E

REINFORCING STEEL CODE

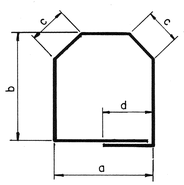
TYPE	SIZE	SERIES
A	5	06

NOTE Dimensions shown on this sheet are outside to outside of bar. Standard C R S. I. Hook Details Shall Apply, Except As Noted.

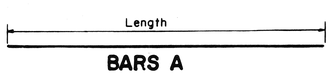
NOTE: THE SUFFIX 'E' DENOTES EPOXY COATED REINFORCEMENT.



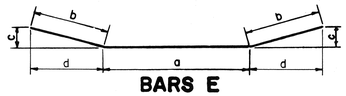
BARS X



BARS M



BARS A



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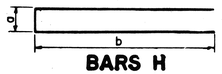

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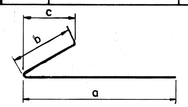

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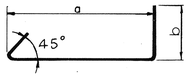

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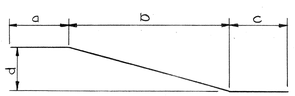

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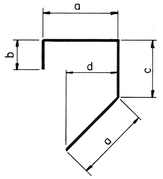

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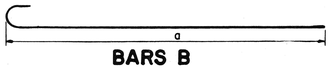

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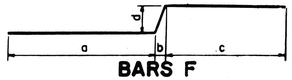

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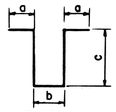

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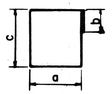

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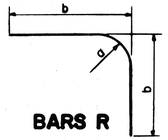

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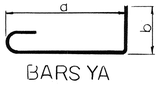

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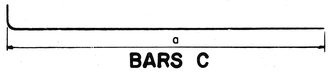

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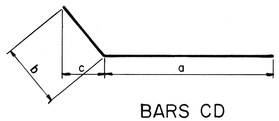

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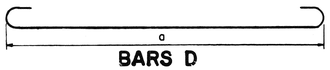

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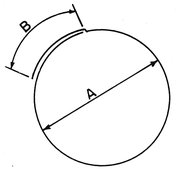

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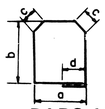

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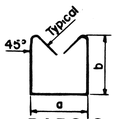

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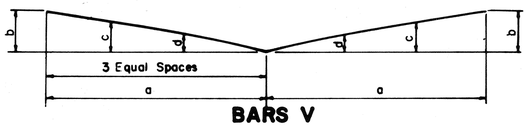

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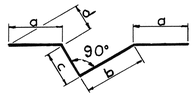


BARS JX

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BILL OF STEEL
BRIDGE NO. 163
I440/I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
NE ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY	C.M. HILES	DATE	81
DRAWN BY	MIKE CHILDRESS	DATE	01-81
SUPERVISED BY	HILES / HARBISON	DATE	01-81
CHECKED BY	HILES	DATE	81

CORRECT Robert L. Lovell
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-79

5-0-2

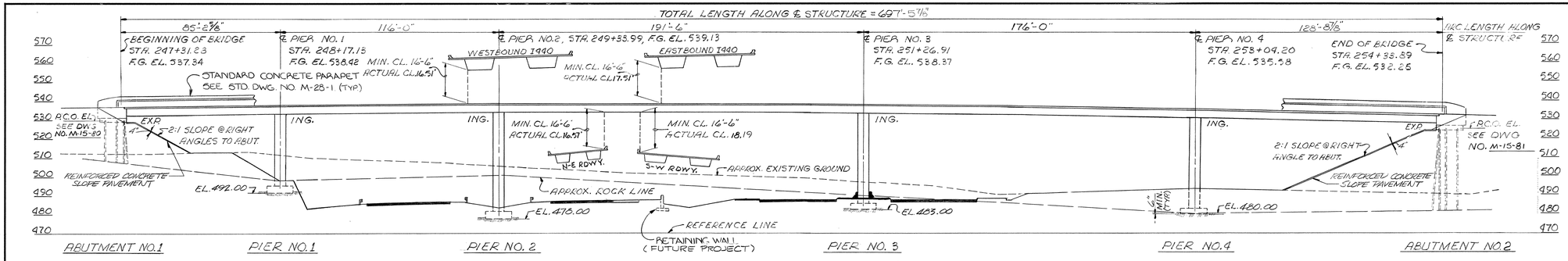
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

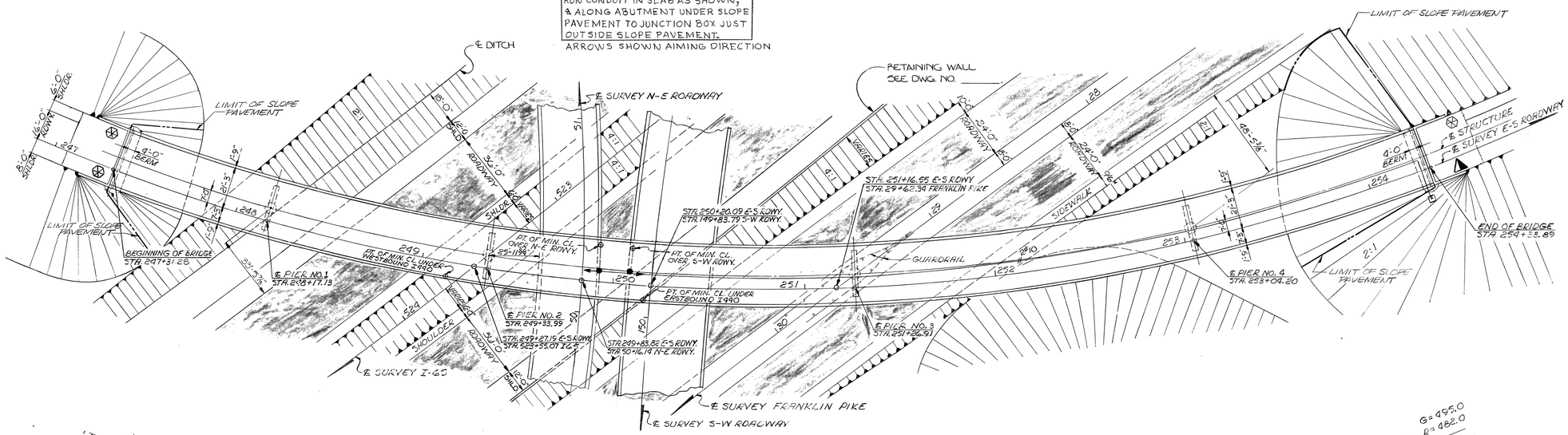
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	LIGHTING



ELEVATION AT RIGHT ANGLES TO ℄ SURVEY

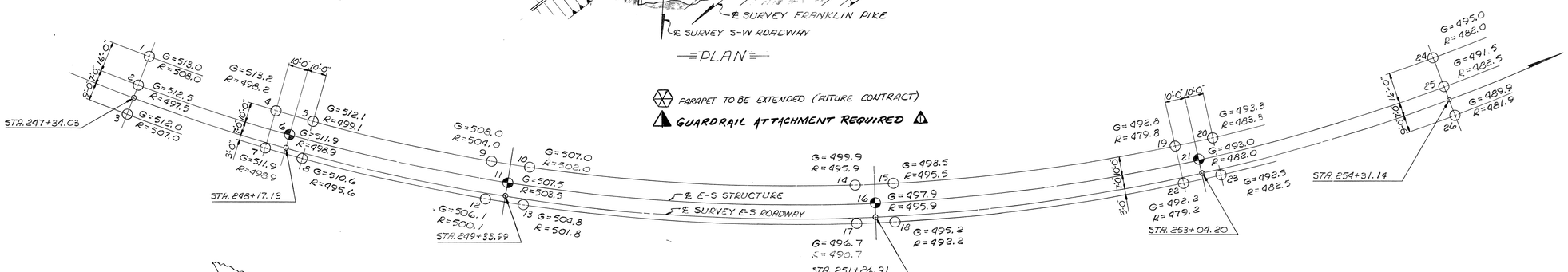
RUN CONDUIT IN SLAB AS SHOWN, & ALONG ABUTMENT UNDER SLOPE PAVEMENT TO JUNCTION BOX JUST OUTSIDE SLOPE PAVEMENT.
ARROWS SHOWN AIMING DIRECTION



PLAN

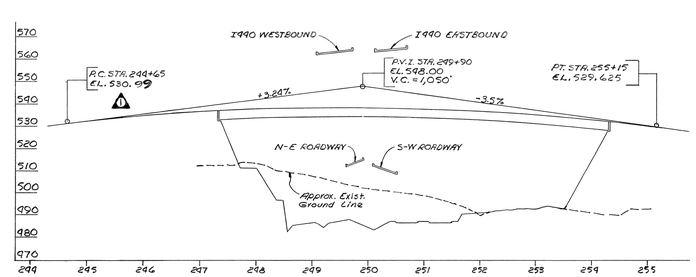
PARAPET TO BE EXTENDED (FUTURE CONTRACT)

GUARDRAIL ATTACHMENT REQUIRED



SOUNDING SKETCH
(STRUCTURE NO. 164)

○ = ROCK SOUNDING
◐ = CORE 10'-0" INTO ROCK
G = GROUND ELEVATION
R = ROCK ELEVATION



E-S ROADWAY PROFILE

E-S ROADWAY CURVE DATA

P.I. STA. 251+10.96
Δc = 63° 30' 18" LT.
D_c = 6° 00'
T = 590.99'
L_c = 1,058.42'
E = 168.08'
R = 954.93'
S.E = 0.059 ft/ft
C.C. N = 627,885.28
E = 1,772,380.59
S.C. STA. 245+19.97
N = 628,730.01
E = 1,771,875.25

NOTE: THE FILLS AT THE ENDS OF THE BRIDGE SHALL BE IN PLACE AND THOROUGHLY COMPACTED BEFORE ANY ABUTMENT PILES ARE DRIVEN.

NOTE: ALL SUBSTRUCTURE UNITS RADIAL TO CENTER LINE OF SURVEY.

NOTE: ALL TRANSVERSE LINES ARE PARALLEL TO RADAL LINE THROUGH CENTER LINE BEARING.

30'-0 ROADWAY

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT OF BRIDGE NO. 164
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall — BRIDGE ENGINEER
APPROVED Lewis Evans — STATE HIGHWAY ENGINEER

M-15-80

DESIGNED BY C.M. HILES DATE APRIL 1981
DRAWN BY M.D. DATE MAY 1981
SUPERVISED BY R.L.H. and C.M.H. DATE MAY 1981
CHECKED BY C.M. HILES DATE 15

CLASS "A" GRADING "D" 15 C.Y.

MICROFILMED

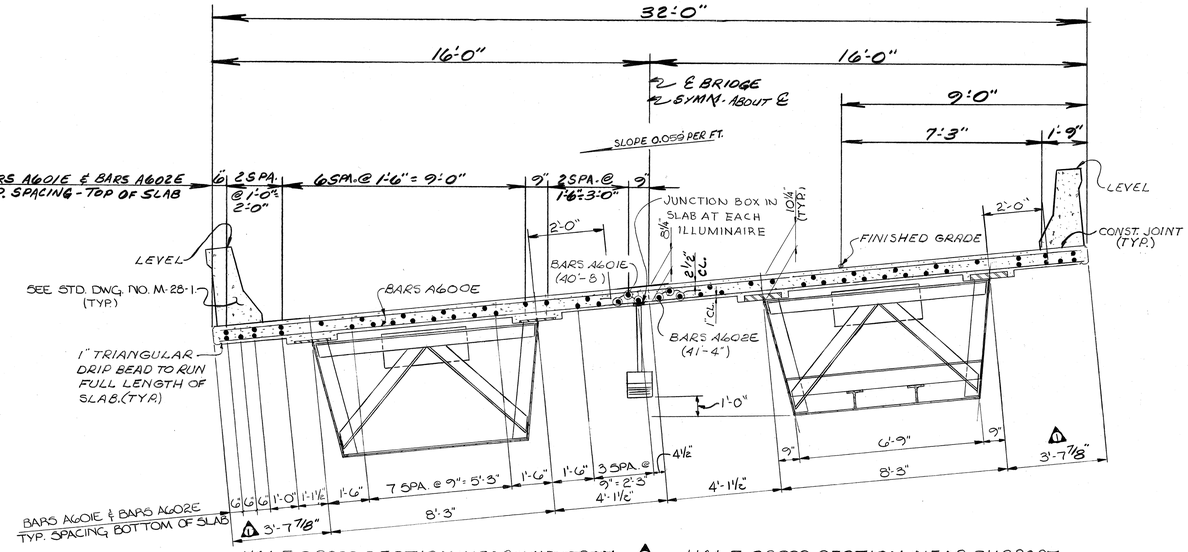
DIAZOFOLD GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605.4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

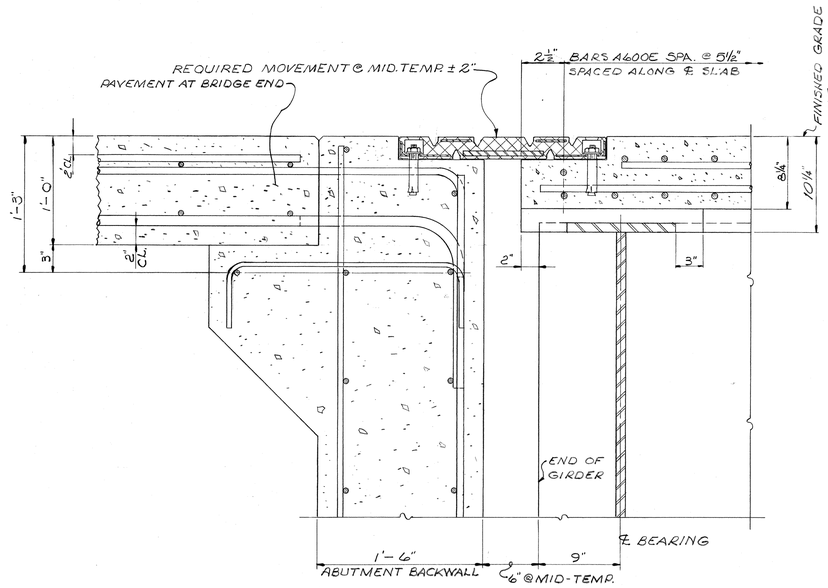
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	LIGHTING
3	5/20/83	C.M.H.	ADDED END BEAM @ ENDS OF SLAB

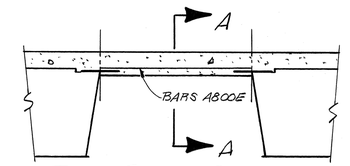


HALF CROSS SECTION NEAR MID-SPAN ⓐ HALF CROSS SECTION NEAR SUPPORT

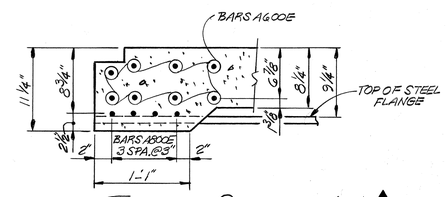
—= TYPICAL CROSS SECTION =—
(LOOKING FOWARD ON SURVEY)



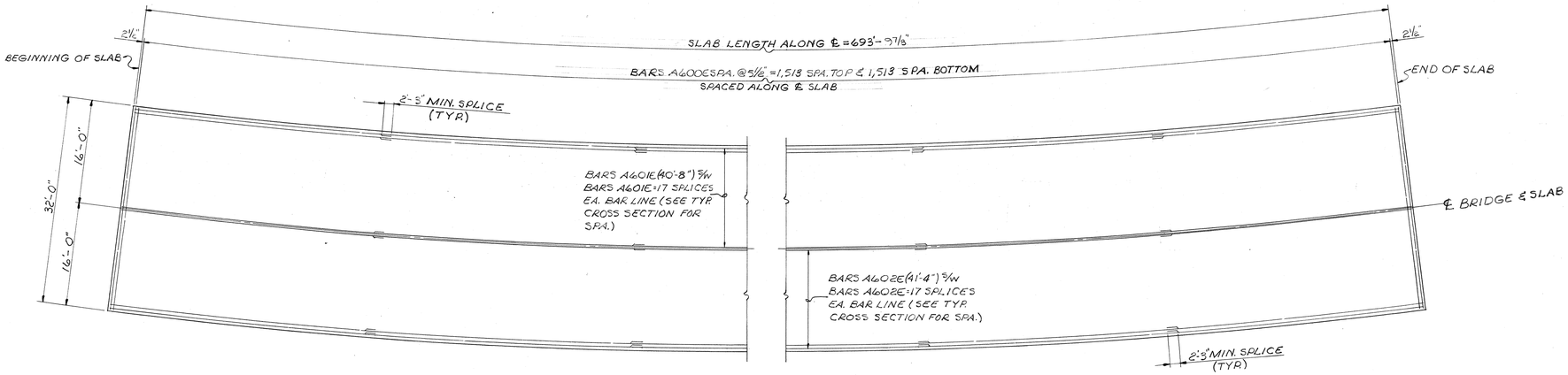
—= LONGITUDINAL SECTION AT BRIDGE END =—



PART CROSS SECTION ⓑ



TYPICAL SECTION A-A ⓒ
BETWEEN STEEL BOXES



—= SLAB PLAN =—

NOTE:

1. OUTSIDE EDGE OF SLAB AND PARAPET TO CONFORM TO HORIZONTAL CURVE.
2. THE CONCRETE DECK SHALL NOT BE POURED UNTIL ALL STRUCTURAL STEEL IS ERECTED AND ALL WELDING AND/OR BOLTING COMPLETE.
3. WHEN POURING SLAB PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED.

ESTIMATED QUANTITIES ⓐ

Item	CLASS 'A' CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	581.8	206,273

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

SUPERSTRUCTURE BRIDGE NO. 164
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Sheldon L. Stovall
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-81

DESIGNED BY C.M. HILES DATE MAY 19 1
DRAWN BY J.L.S. & M.M.D. DATE JULY 1981
TRACED BY DATE
CHECKED BY C.M. HILES DATE MARCH 19

MICROFILMED

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605.4

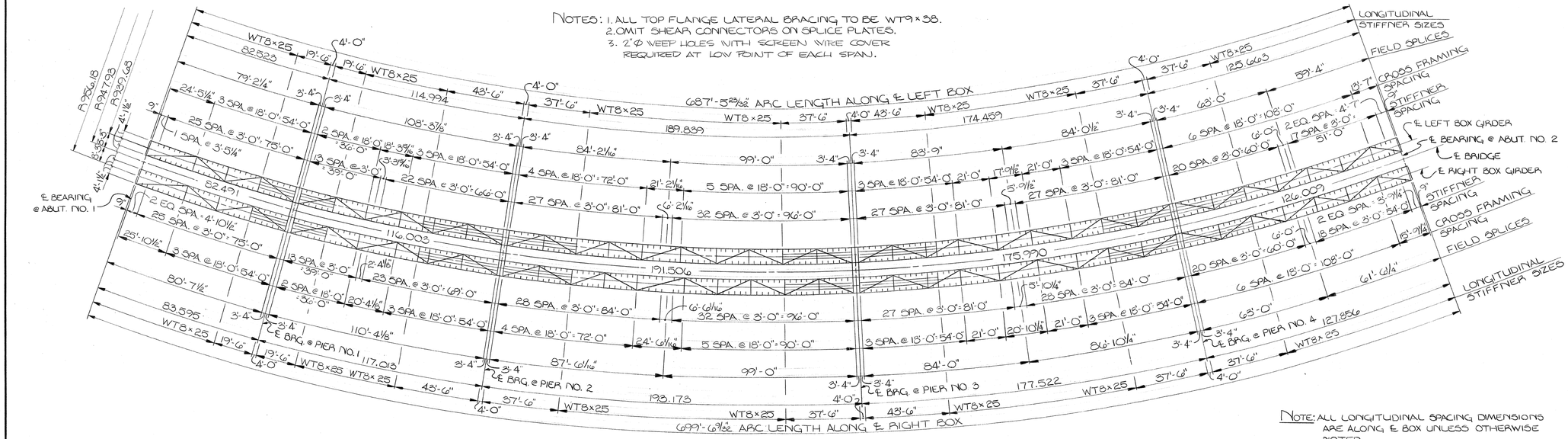
Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1981	

REVISIONS

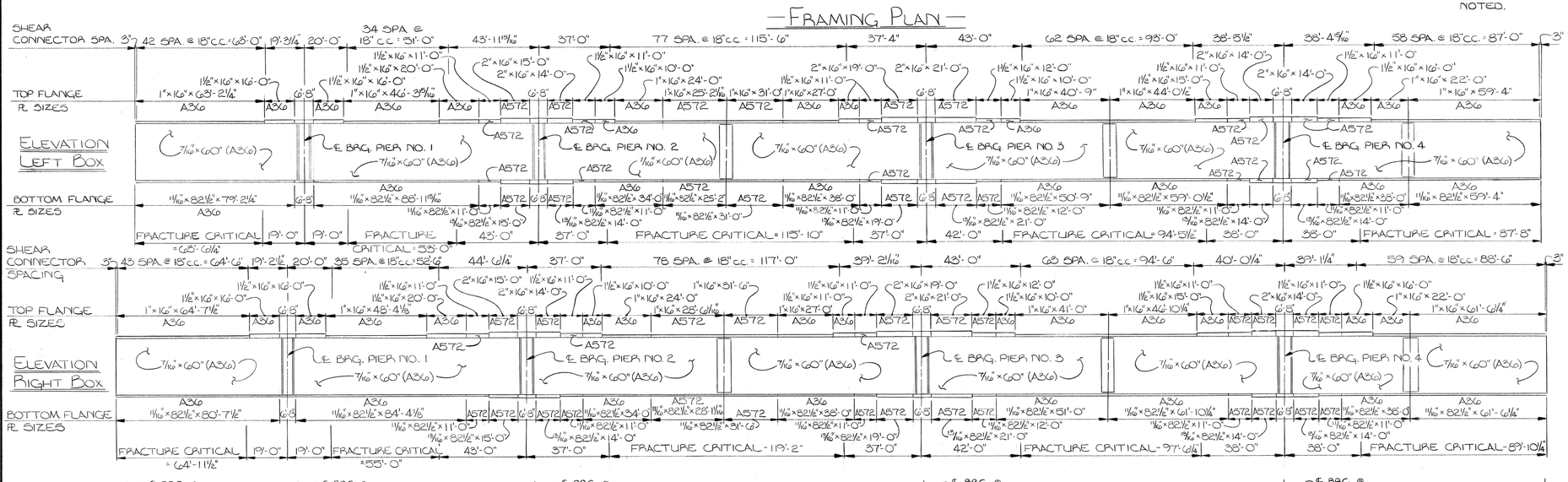
NO.	DATE	BY	BRIEF DESCRIPTION

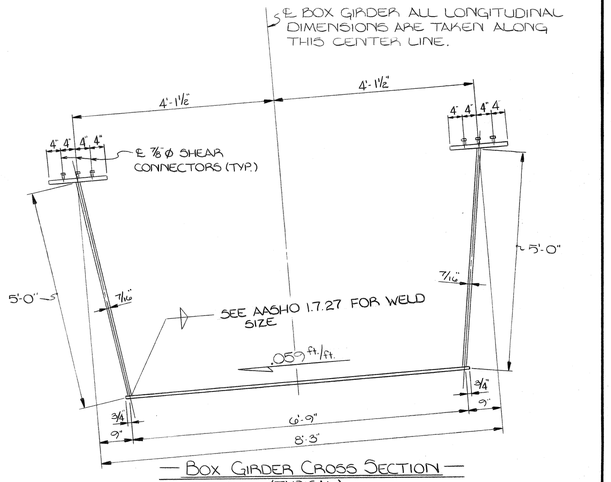
NOTES: 1. ALL TOP FLANGE LATERAL BRACING TO BE WT9×38.
2. OMIT SHEAR CONNECTORS ON SPLICE PLATES.
3. 2" Φ WEEP HOLES WITH SCREEN WITH COVER REQUIRED AT LOW POINT OF EACH SPAN.



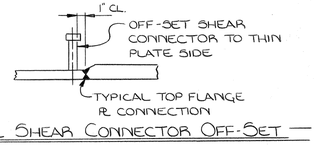
NOTE: ALL LONGITUDINAL SPACING DIMENSIONS ARE ALONG ℄ BOX UNLESS OTHERWISE NOTED.

FRAMING PLAN

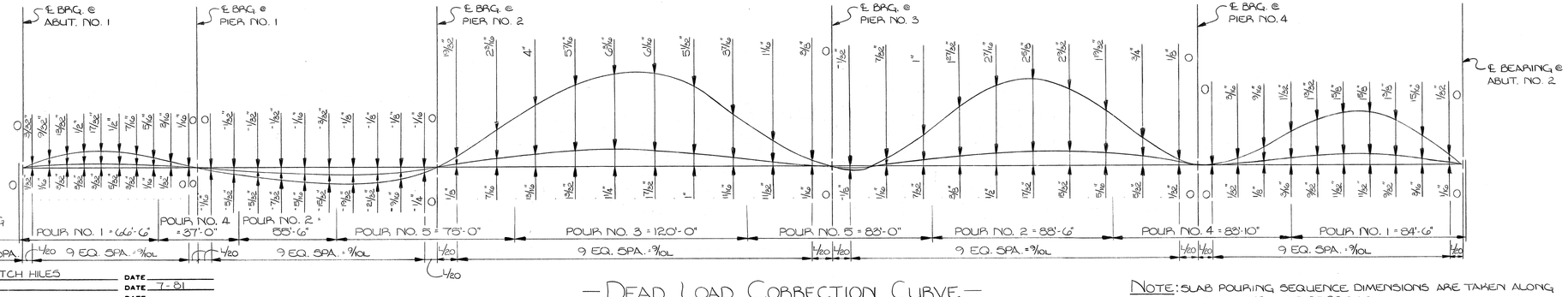




BOX GIRDER CROSS SECTION
(TYPICAL)



TYPICAL SHEAR CONNECTOR OFF-SET



DEAD LOAD CORRECTION CURVE
(TYPICAL EACH GIRDER)

NOTE: SLAB POURING SEQUENCE DIMENSIONS ARE TAKEN ALONG THE CENTER LINE OF BRIDGE.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FRAMING PLAN BRIDGE NO. 164
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY MITCH HILES DATE
DRAWN BY M.D. DATE 7-81
SUPERVISED BY DATE
CHECKED BY DATE

CORRECT Clellon L. Loveall — ENGINEER OF STRUCTURES
APPROVED Lewis Evans — DIRECTOR OF HIGHWAYS

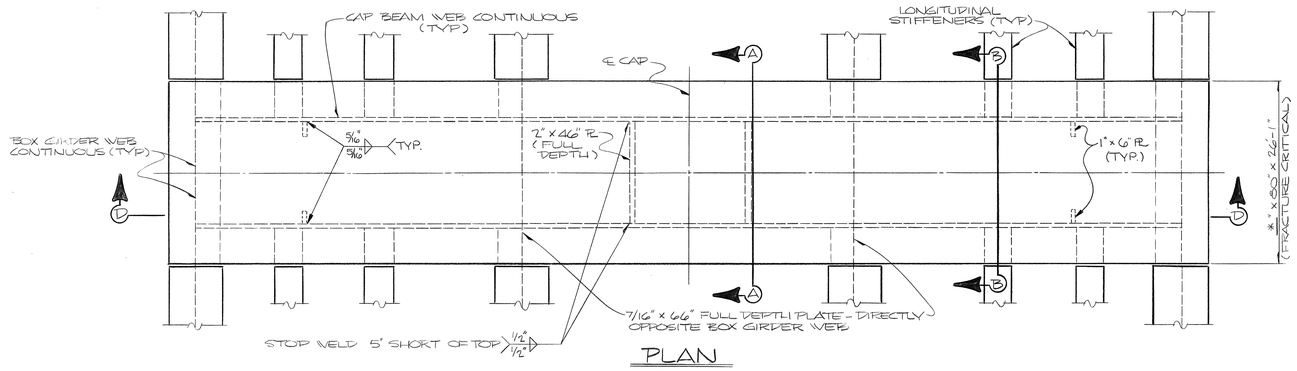
M-15-82

CONSTRUCTION NO. 19015-3113-44

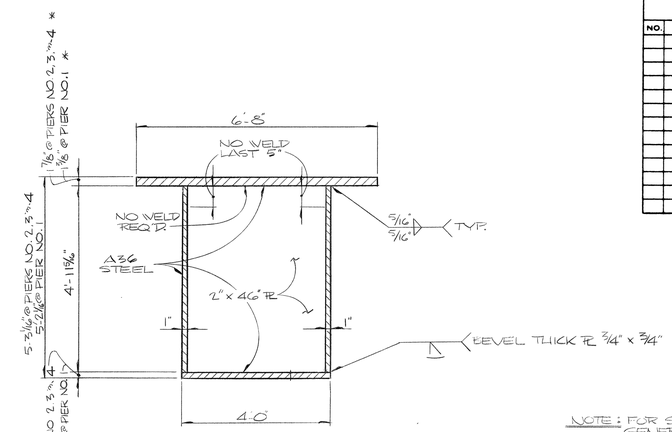
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	198	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

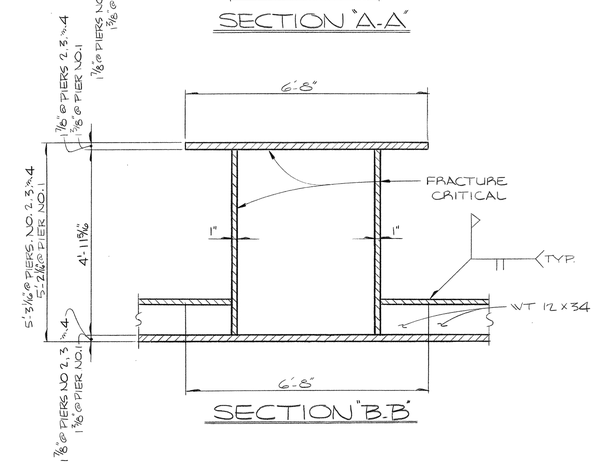


PLAN

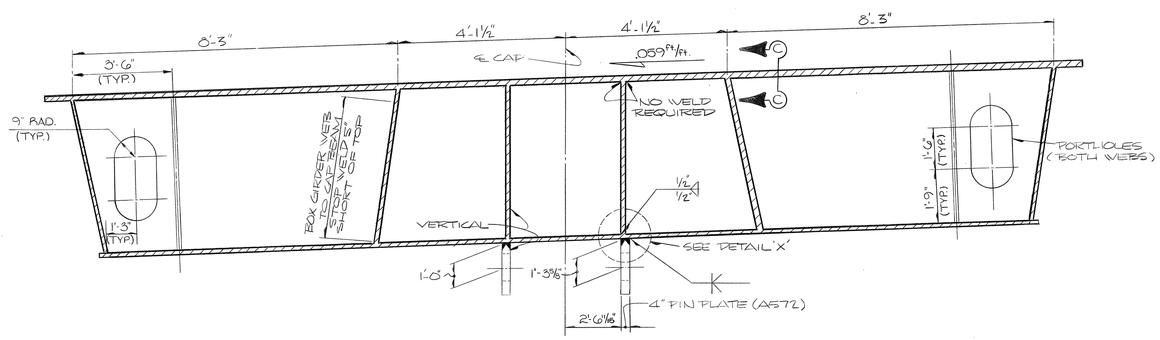


SECTION "A-A"

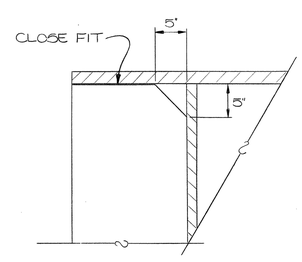
NOTE: FOR STRUCTURAL STEEL GENERAL NOTES SEE DWG. NO. M-15-55.



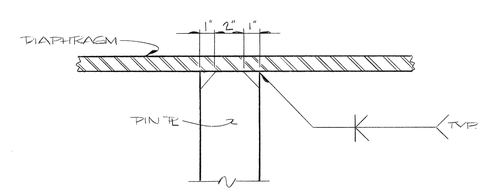
SECTION "B-B"



SECTION "D-D"



SECTION C-C
(TYPICAL BOX GIRDER WEB TO DIAPHRAGM WEB CONNECTION)



DETAIL "X"

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPPORT DIAPHRAGM BRIDGE NO. 164
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Colleen L. Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-83

DESIGNED BY C.M. HILES DATE
DRAWN BY MIKE CHILDRESS DATE 11-81
SUPERVISED BY HARRISON-HILES DATE 11-81
CHECKED BY HILES DATE

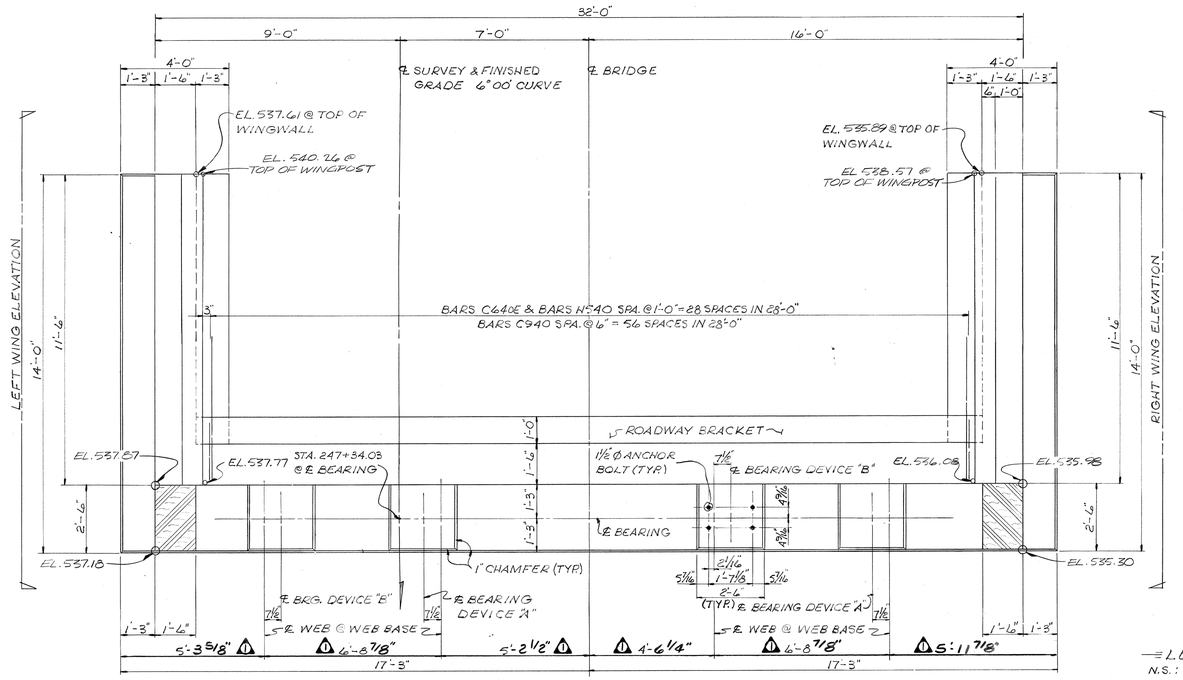
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(98)211	1982		

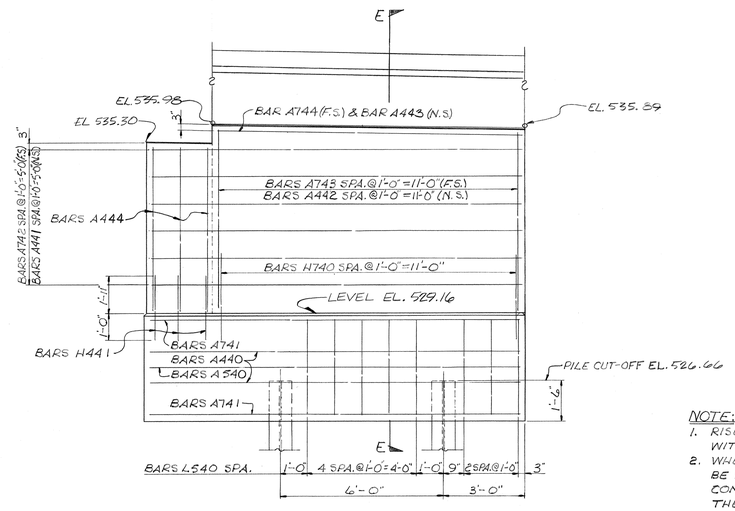
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISION



PLAN

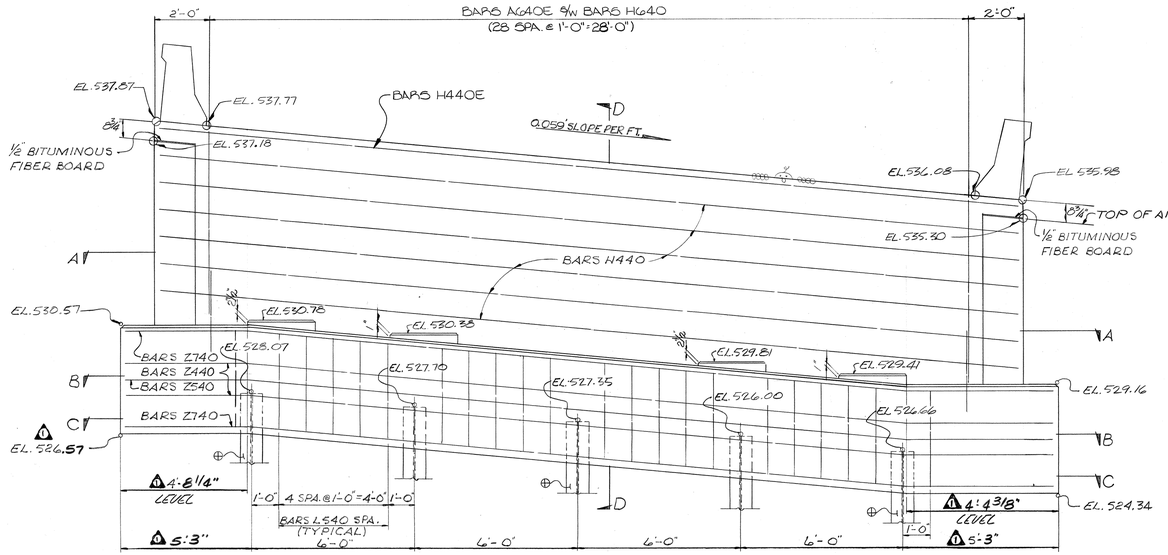
ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10½"



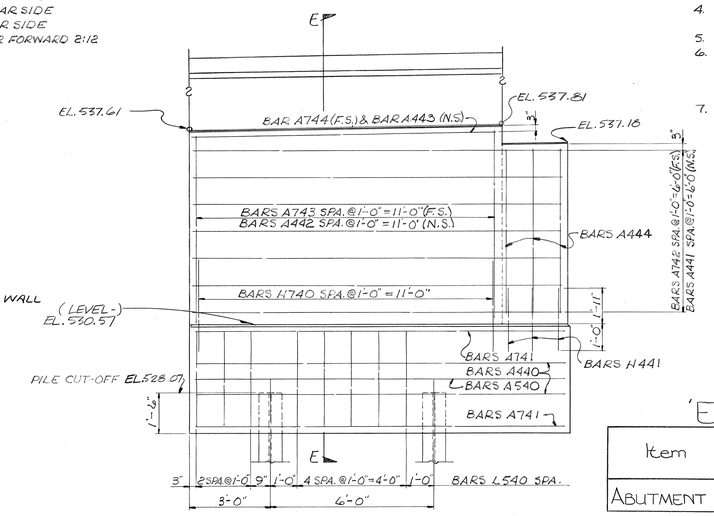
RIGHT WING ELEVATION

LEGEND
N.S.: NEAR SIDE
F.S.: FAR SIDE
⊕: BATTER FORWARD 2:12

NOTE:
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STANDARD DRAWING NO. M-28-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.



ELEVATION ABUTMENT NO. 1
LOOKING BACK ON SURVEY



LEFT WING ELEVATION

NOTE: FOR DETAILS OF SECTION A-A THRU E-E SEE DWG. NO. M-15-82

'ESTIMATED QUANTITIES'

Item	CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUTMENT NO. 1	56.1	4888	2212

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 1 BRIDGE NO. 164
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clifton L. Forrest
BRIDGE ENGINEER
APPROVED Louis Evans
STATE HIGHWAY ENGINEER

M-15-84

DESIGNED BY	C. M. HILES	DATE	19 1
DRAWN BY		DATE	19 1
SUPERVISED BY	C. M. HILES	DATE	19 1
CHECKED BY	C. M. HILES	DATE	19

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.A

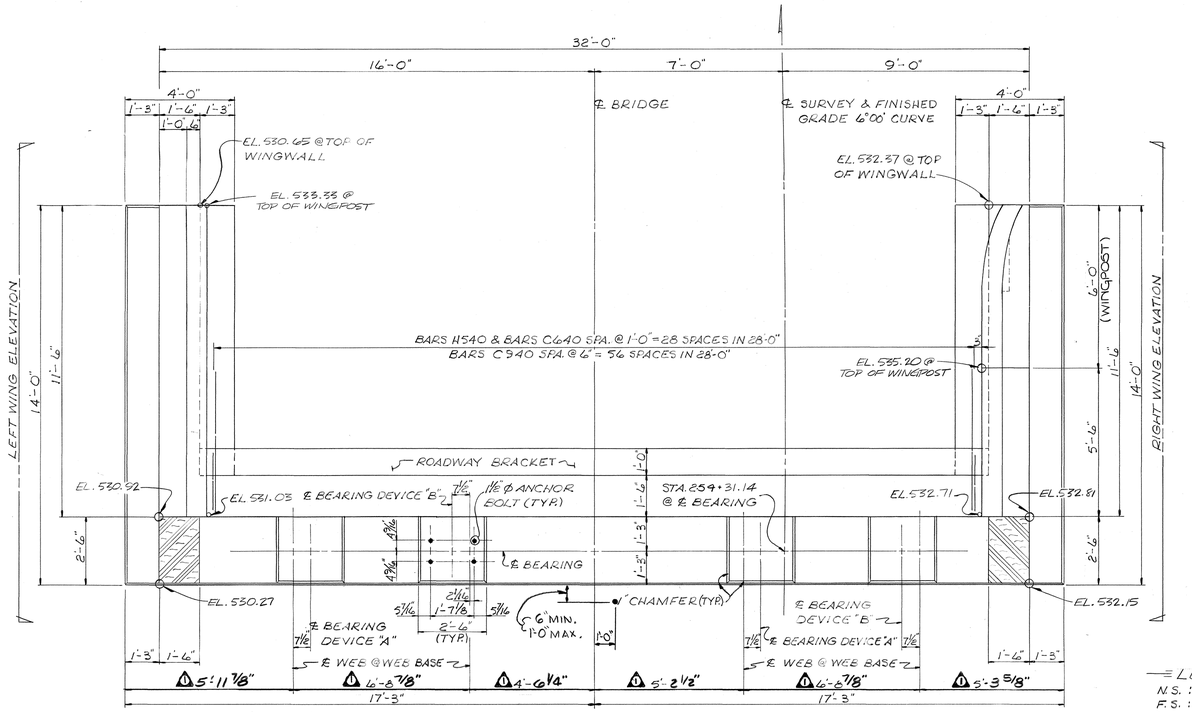
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(42)211	1982		

REVISIONS

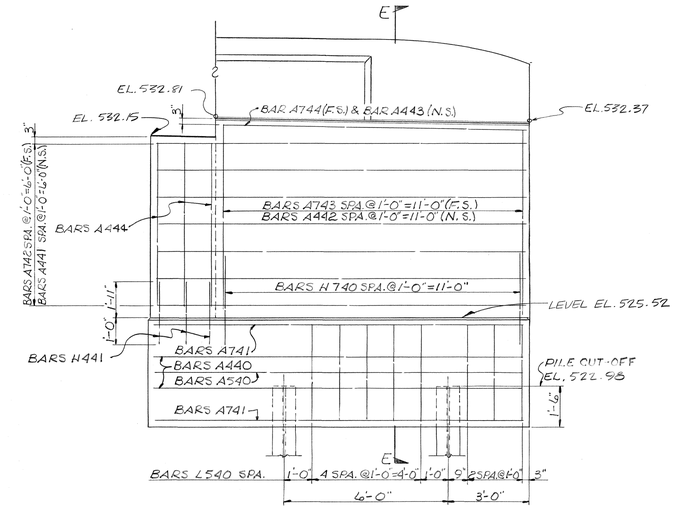
NO.	DATE	BY	BRIEF DESCRIPTION
1	7/15/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	CONDUIT



—= PLAN =— ②

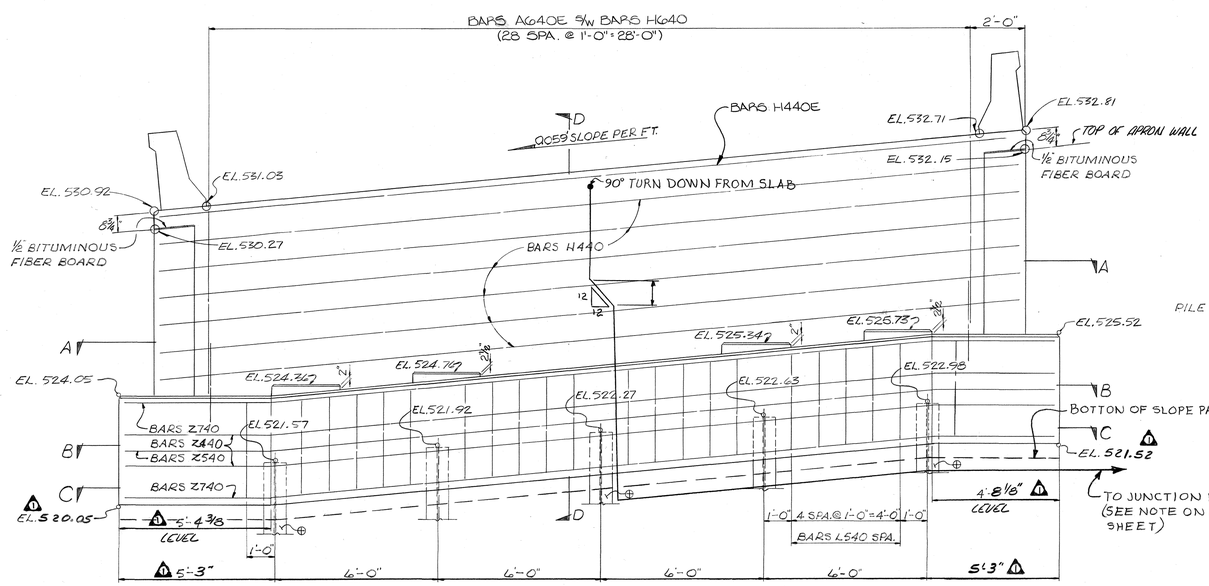
ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10 1/2"

—= LEGEND =—
N.S. : NEAR SIDE
F.S. : FAR SIDE
⊕ : BATTER FORWARD 2:12



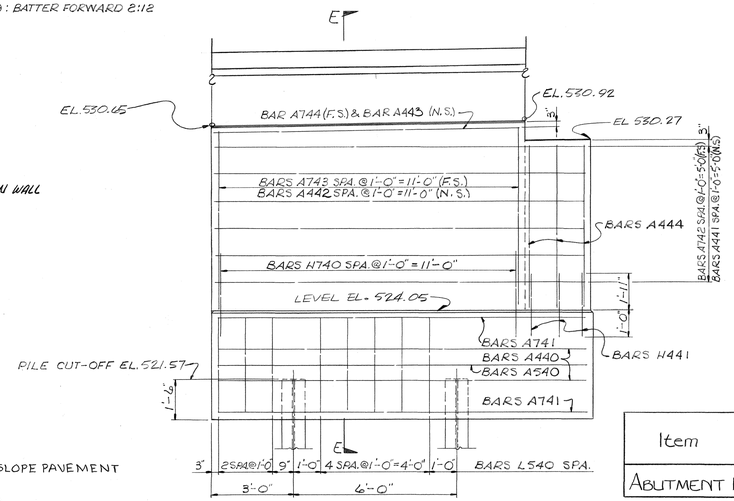
—= RIGHT WING ELEVATION =—

NOTE:
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STD. DWG NO. M-22S-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.



—= ELEVATION ABUTMENT NO. 2 =— ②
LOOKING FORWARD ON SURVEY

NOTE: FOR DETAILS OF SECTIONS A-A THRU E-E SEE DWG. NO. M-15-82



—= LEFT WING ELEVATION =—

Item	CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUTMENT NO. 2	56.1	4,888	2212

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 2 BRIDGE NO. 164
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Fowler
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-85

DESIGNED BY C.M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C.M. HILES DATE 19 1
CHECKED BY C.M. HILES DATE 19

MICROFILMED

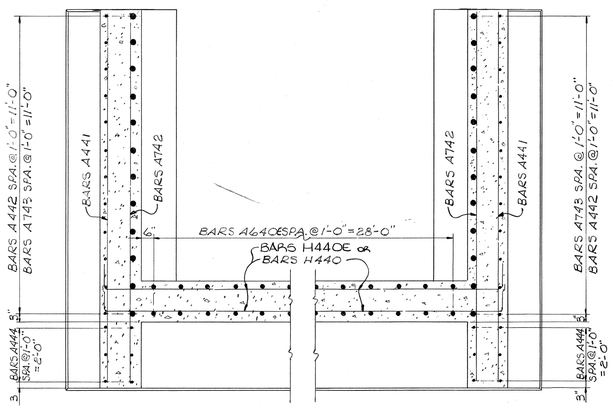
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

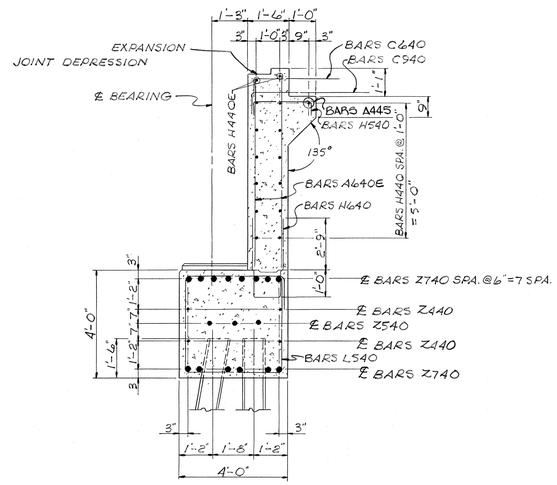
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

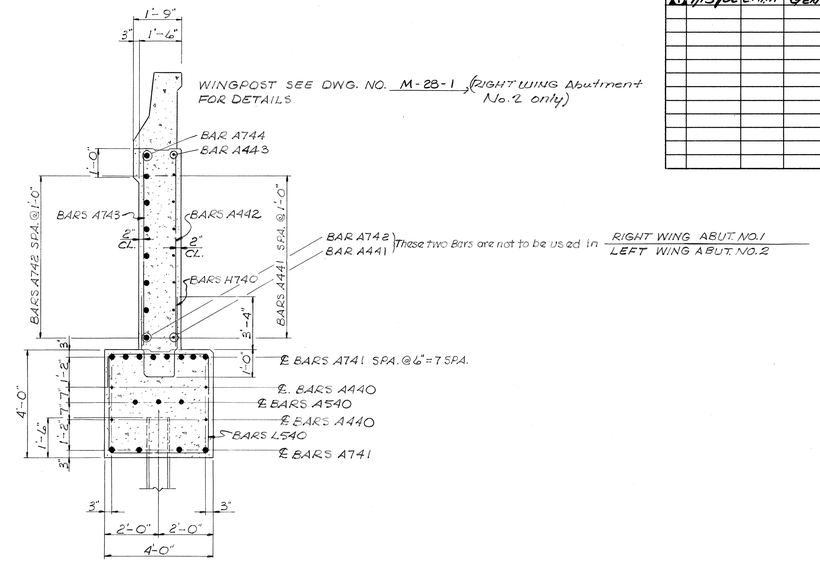
NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISION



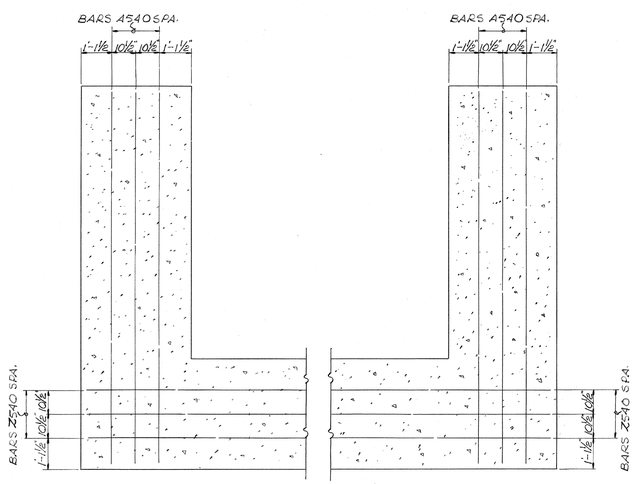
SECTION A-A



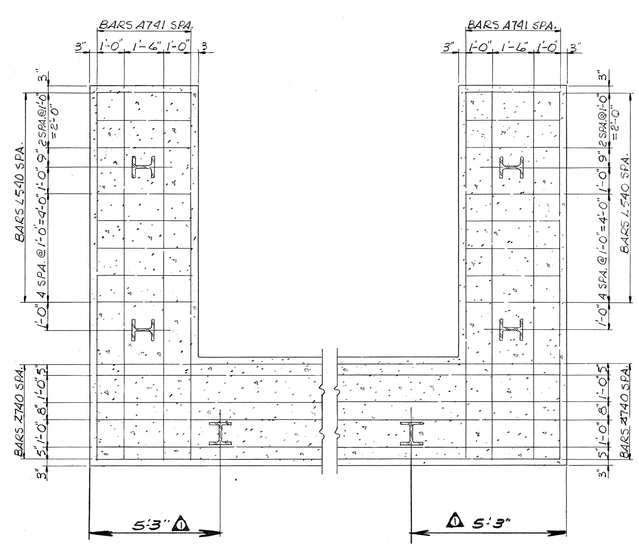
SECTION D-D



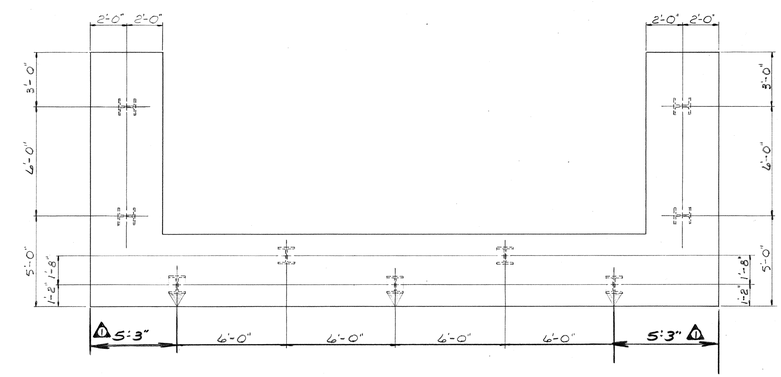
SECTION E-E



SECTION B-B



SECTION C-C



PLAN
SHOWING PILE ARRANGEMENT

NOTE: FOR LOCATION OF CUTTING-PLANE LINE OF SECTION A-A THRU E-E SEE DWG. NO. M-15-84 & M-15-85

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENTS NO. 1 & 2 DETAILS
BRIDGE NO. 164
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall
BRIDGE ENGINEER

APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-86

DESIGNED BY	C. M. HILES	DATE	19 1
DRAWN BY		DATE	19 1
SUPERVISED BY	C. M. HILES	DATE	19 1
CHECKED BY	C. M. HILES	DATE	19

MICROFILMED

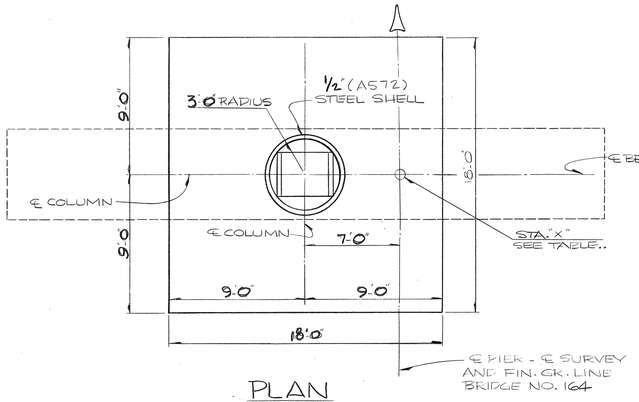
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

construction no. 19015-3113-44

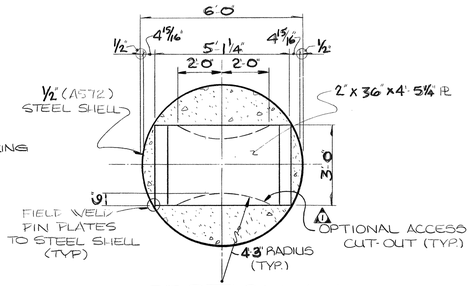
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

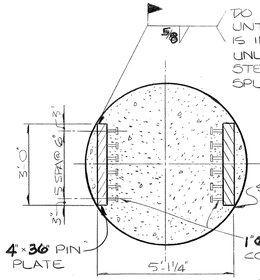
NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	OPTIONAL ACCESS & STEEL SHELL FIELD SPLICE, REINF. STEEL CUT.
2	9/15/82	C.M.H.	GENERAL REVISION



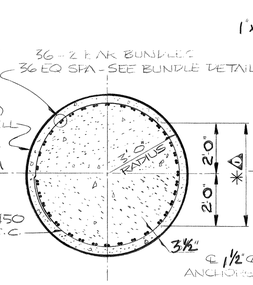
PLAN



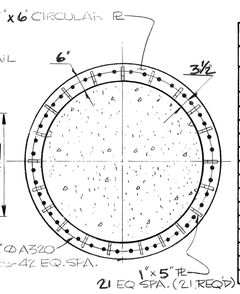
SECTION A-A



SECTION B-B



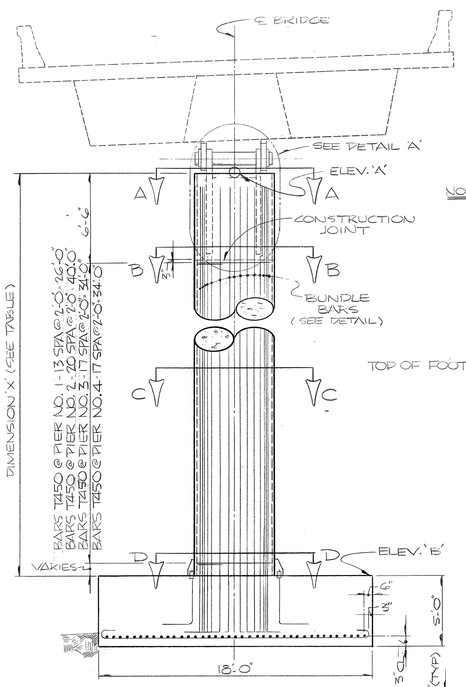
SECTION C-C



SECTION D-D

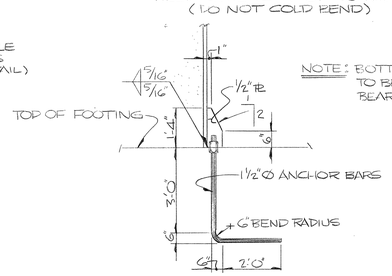
* FIELD CUT VERTICAL REINFORCING STEEL 2 IN. ABOVE CONSTRUCTION JOINT THIS AREA SO AS TO ALLOW PIN PLATE PLACEMENT.

NOTE: FOR STRUCTURAL STEEL NOTES SEE DRAWING NO._____



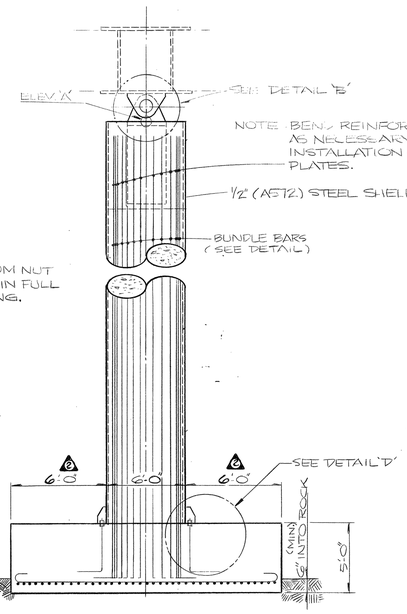
ELEVATION
LOOKING FORWARD ON SURVEY

NOTE: ANCHOR BOLT MATERIAL A320. GRADE B8X, CARBIDE SOLUTION TREATED STRAIN HARDENED WITH A MINIMUM YIELD STRENGTH OF 50 K.S.I. (DO NOT COLD BEND)



DETAIL 'D'

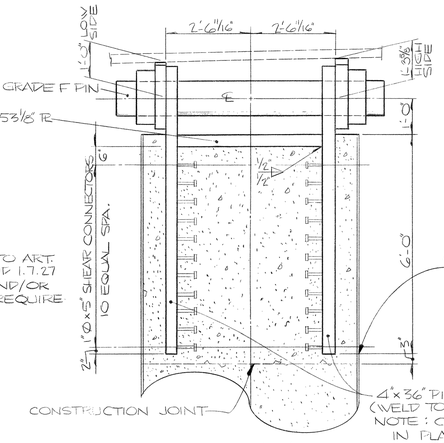
NOTE: BOTTOM NUT TO BE IN FULL BEARING.



END ELEVATION

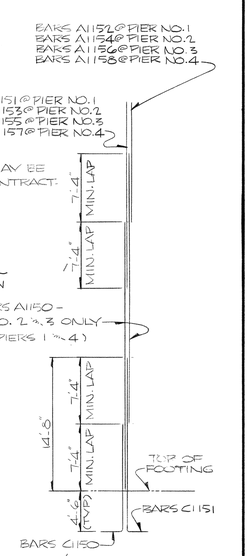
NOTE: BEND REINFORCING AS NECESSARY FOR INSTALLATION OF PIN PLATES.

NOTE: SEE AASHTO ART. 1.7.1 (B) AND 1.7.27 FOR PIN AND/OR PIN NUT REQUIREMENTS.



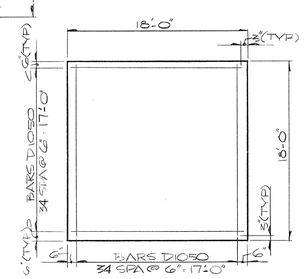
DETAIL 'A'

OPTIONAL STEEL SHELL FIELD SPLICE WHEN PIN PLATES ARE SHOP WELDED TO STEEL SHELL

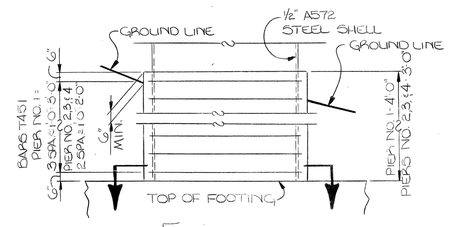


NOTE: SPLICES MAY BE LOCATED AT CONTRACTOR'S OPTION.

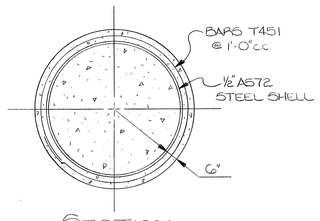
BUNDLE PATTERN DETAIL



PLAN OF FOOTING
REINFORCEMENT (TYP) ALL PIER FOOTINGS

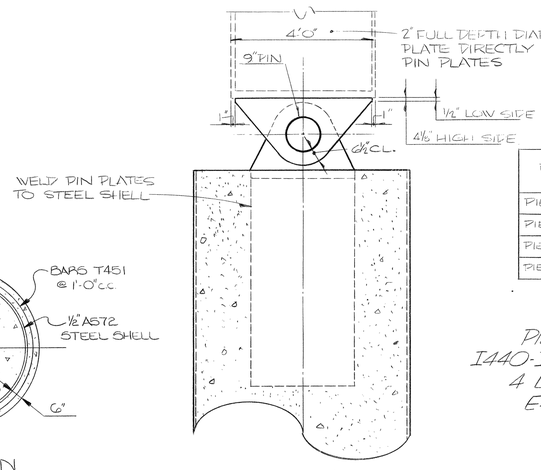


ELEVATION



SECTION

— GROUND LINE INTERSECT COLLAR DETAIL —



DETAIL 'B'

TABLE OF ELEVATIONS, DIMENSIONS, AND STATIONS

	STATION	EL 'A'	EL 'B'	DIMENSION 'X'
PIER NO. 1	248+17.13	530.09	497.00	33'-1 1/8"
PIER NO. 2	249+53.99	530.75	483.00	47'-9"
PIER NO. 3	251+26.91	529.99	480.00	41'-11 7/8"
PIER NO. 4	253+04.20	527.20	485.00	42'-2 3/8"

ITEM	CLASS A CONCRETE (BRIDGES) C.Y.	STEEL BAR REINFORCEMENT (BRIDGES) LBS.
PIER NO. 1	93.9	24,070
PIER NO. 2	108.8	32,555
PIER NO. 3	102.9	30,320
PIER NO. 4	103.1	27,546

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

PIERS NO. 1 THRU 4 BRIDGE NO. 164
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-S ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY MIKE CHILDRESS DATE 12-81
SUPERVISED BY HILES/HARMSON DATE 12-81
CHECKED BY HILES DATE

CORRECT Colleen L. Foxwell
ENGINEER OF STRUCTURES
APPROVED Lewis Grimes
DIRECTOR OF HIGHWAYS

M-15-87

MICROFILMED

BILL OF STEEL

CONST. NO. 19015-3113-44.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)21	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	5/20/83	C.M.H.	ADDED BARS A800E

SUPERSTRUCTURE

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A600E	SLAB	6	3028					31'-8"
A601E	SLAB	6	504					40'-8"
A602E	SLAB	6	504					41'-4"
A800E	SLAB	8	8					8'-3"

PAVEMENT @ BRIDGE ENDS

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A490E	SLAB	4	100					28'-2"
A690E	SLAB	6	58					24'-2"
A790E	FOOTING	7	16					28'-2"
A990E	SLAB	9	114					24'-2"
L590E	FOOTING-SLAB	5	80	1'-2"	1'-0"	2'-2"		7'-5"

ABUTMENTS 1 AND 2 (EACH)

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A440	WING BEAMS	4	8					13'-8"
A441	WING WALLS	4	13					13'-8"
A442	WING WALLS	4	24					6'-7"
A443	WING WALLS	4	2					11'-2"
A444	APRON WALLS	4	12					6'-2"
A445	RDWY. BRKT.	4	1					28'-0"
A540	WING BEAMS	5	6					13'-8"
A640E	ENDWALL	6	86					6'-8"
A741	WING BEAMS	7	24					13'-8"
A742	WING WALLS	7	13					13'-8"
A743	WING WALLS	7	24					6'-7"
A744	WING WALLS	7	2					11'-2"
C640E	ENDWALL	6	29	3'-6"				4'-5"
C940E	ENDWALL	9	57	4'-6"				5'-9"
H440E	ENDWALL	4	2	31'-9"	8"			33'-0"
H440	ENDWALL	4	12	31'-9"	8"			33'-0"
H441	APRON WALLS	4	6	1'-2"	2'-11"			6'-11"
H540	RDWY. BRKT.	5	29	2'-2"	7"			3'-4"
H640	ENDWALL	6	29	1'-2"	3'-9"			8'-7"
H740	WING WALLS	7	24	1'-2"	4'-4"			9'-8"
L540	WING BEAMS	5	38	3'-8"	1'-0"	3'-8"		15'-6"
Z440	BEAM	4	4	4'-5"	24'-5	5'-4"	1'-5"	33'-10"
Z540	BEAM	5	3	4'-5"	24'-5	5'-4"	1'-5"	33'-10"
Z740	BEAM	7	14	4'-5"	24'-5	5'-4"	1'-5"	33'-10"

PIER NO. 1

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1151	COLUMN	11	36					32'-10"
A1152	COLUMN	11	36					25'-6"
C1150	FOOTING-COL.	11	36	11'-10"				13'-9"
C1151	FOOTING-COL.	11	36	19'-2"				21'-1"
D1050	FOOTING	10	70	17'-6"				20'-0"
T450	COLUMN	4	14	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	4	6'-6"	1'-0"			21'-5"

PIER NO. 2

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1150	COLUMN	11	72					30'-0"
A1153	COLUMN	11	36					24'-10"
A1154	COLUMN	11	36					17'-6"
C1150	FOOTING-COL.	11	36	11'-10"				13'-9"
C1151	FOOTING-COL.	11	36	19'-2"				21'-1"
D1050	FOOTING	10	70	17'-6"				20'-0"
T450	COLUMN	4	21	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	3	6'-6"	1'-0"			21'-5"

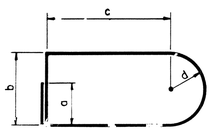
PIER NO. 3

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1150	COLUMN	11	72					30'-0"
A1155	COLUMN	11	36					19'-1"
A1156	COLUMN	11	36					11'-9"
C1150	FOOTING-COL.	11	36	11'-10"				13'-9"
C1151	FOOTING-COL.	11	36	19'-2"				21'-1"
D1050	FOOTING	10	70	17'-6"				20'-0"
T450	COLUMN	4	18	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	3	6'-6"	1'-0"			21'-5"

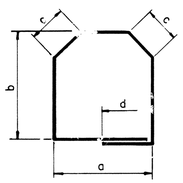
PIER NO. 4

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1157	COLUMN	11	36					41'-10"
A1158	COLUMN	11	36					34'-6"
C1150	FOOTING-COL.	11	36	11'-10"				13'-9"
C1151	FOOTING-COL.	11	36	19'-2"				21'-1"
D1050	FOOTING	10	70	17'-6"				20'-0"
T450	COLUMN	4	18	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	3	6'-6"	1'-0"			21'-5"

NOTE: THE SUFFIX 'E' DENOTES EPOXY COATED REINFORCEMENT.



BARS X



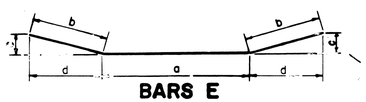
BARS M

REINFORCING STEEL CODE

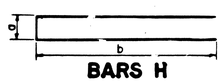
TYPE	SIZE	SERIES
A	5	06

NOTE Dimensions shown on this sheet are outside to outside of bar. Standard C.R.S.I. Hook Details Shall Apply, Except As Noted.

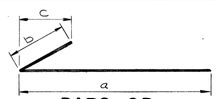
BARS A



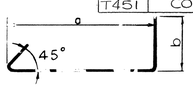
BARS E



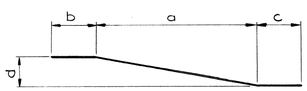
BARS H



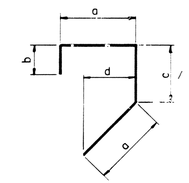
BARS CB



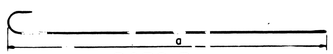
BARS YB



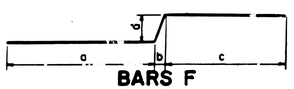
BARS Z



BARS J



BARS B



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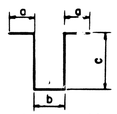

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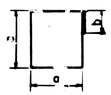
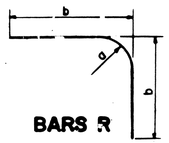


BARS L



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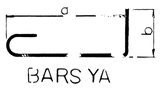
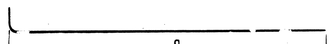


BARS YA



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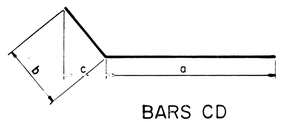
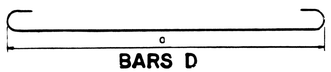
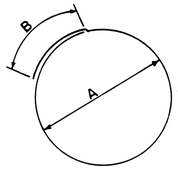


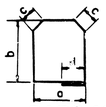
BARS CD



BARS D



BARS T



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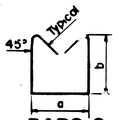

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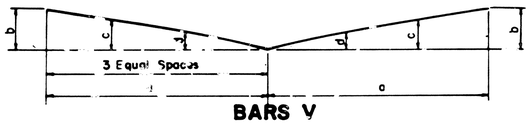

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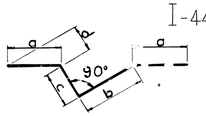


BARS JX

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BILL OF STEEL - BRIDGE NO. 164
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
E-5 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

11-15-88

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 1-82
SUPERVISED BY DATE
CHECKED BY DATE

MICROFILMED

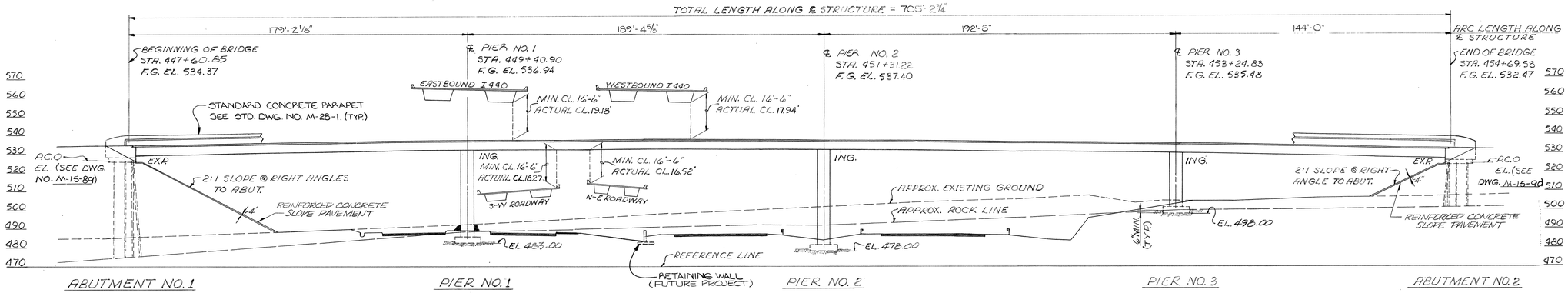
5-0-2

CONSTRUCTION NO. 19015-3113-44

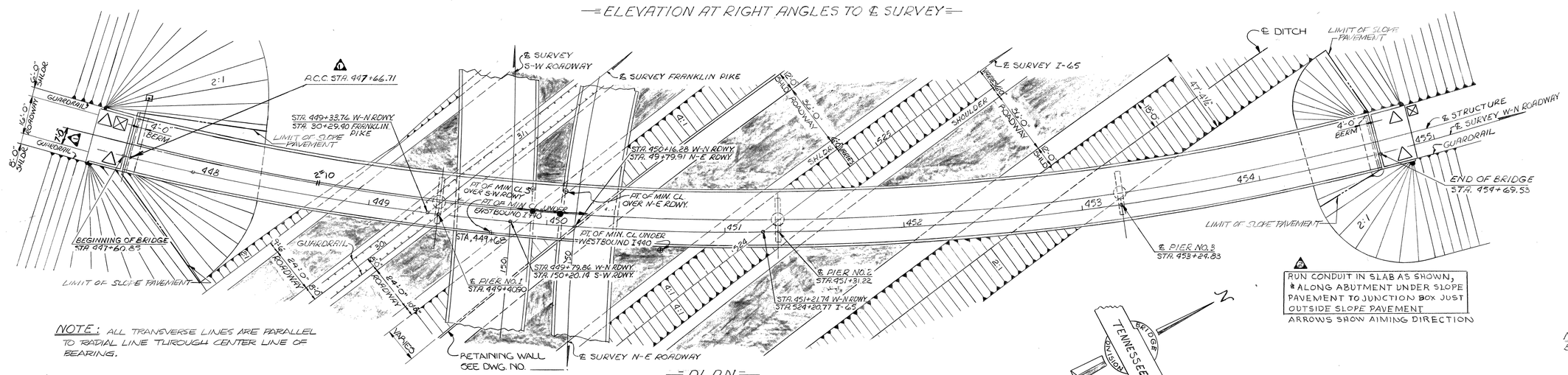
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(18)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISION
2	1/4/83	C.M.H.	LIGHTING



—ELEVATION AT RIGHT ANGLES TO ℄ SURVEY—



—PLAN—

NOTE: ALL TRANSVERSE LINES ARE PARALLEL TO RADIAL LINE THROUGH CENTER LINE OF BEARING.

⊠ DENOTES DRAINS REQUIRED

⊗ PARAPET TO BE EXTENDED (FUTURE CONTRACT)

△ GUARDRAIL ATTACHMENT REQUIRED

RUN CONDUIT IN SLAB AS SHOWN, & ALONG ABUTMENT UNDER SLOPE PAVEMENT TO JUNCTION BOX JUST OUTSIDE SLOPE PAVEMENT

ARROWS SHOW AIMING DIRECTION

NOTE: THE FILLS AT THE ENDS OF THE BRIDGE SHALL BE IN PLACE AND THOROUGHLY COMPACTED BEFORE ANY ABUTMENT PILES ARE DRIVEN.

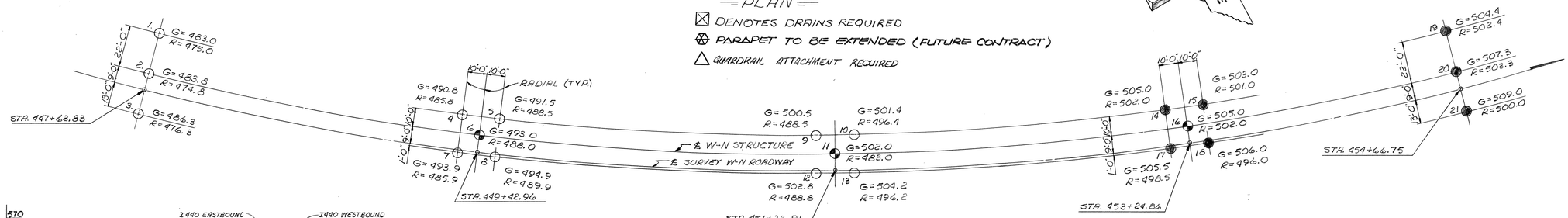
1 W-N ROADWAY CURVE DATA

R.I. STA. 444+73.68
Δc = 50° 24' 39" LT.
Dc = 8° 00'
T = 337.10'
Lc = 630.14'
E = 73.37'
R = 716.20'
C.C. N = 628,745.94
E = 1,770,839.97
SC. STA. 441+36.58
N = 628,018.19
E = 1,770,784.30

1 W-N ROADWAY CURVE DATA

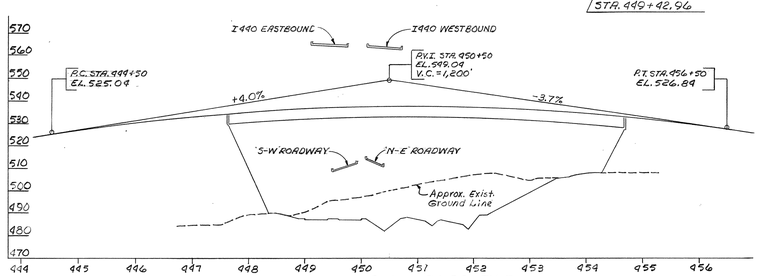
R.I. STA. 453+54.01
Δc = 44° 35' 20" LT.
Dc = 4° 00'
T = 587.31'
Lc = 1114.72'
E = 115.73'
R = 1432.39'
S.E. = 0.051 ft
C.C. N = 629,219.27
E = 1,770,297.48
PCC. STA. 447+66.71
N = 628,247.31
E = 1,771,349.64

NOTE: ALL BRIDGE GEOMETRY BASED ON 4° CURVE.



—SOUNDING SKETCH—

○ = ROCK SOUNDING
◐ = CORE 10'-0" INTO ROCK
G = GROUND ELEVATION
R = ROCK ELEVATION



—W-N ROADWAY PROFILE—

30'-0" ROADWAY

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT OF BRIDGE NO. 165
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
W-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY	C.M. HILES	DATE	MAY 1981
DRAWN BY	MD	DATE	MAY 1981
TRACED BY		DATE	
CHECKED BY	C.M. HILES	DATE	19

CORRECT Clellon L. Loveall — BRIDGE ENGINEER

APPROVED Lewis Evans — STATE HIGHWAY ENGINEER

M-15-89

CLASS "A" GRADING "D" 16 C.Y.

MICROFILMED

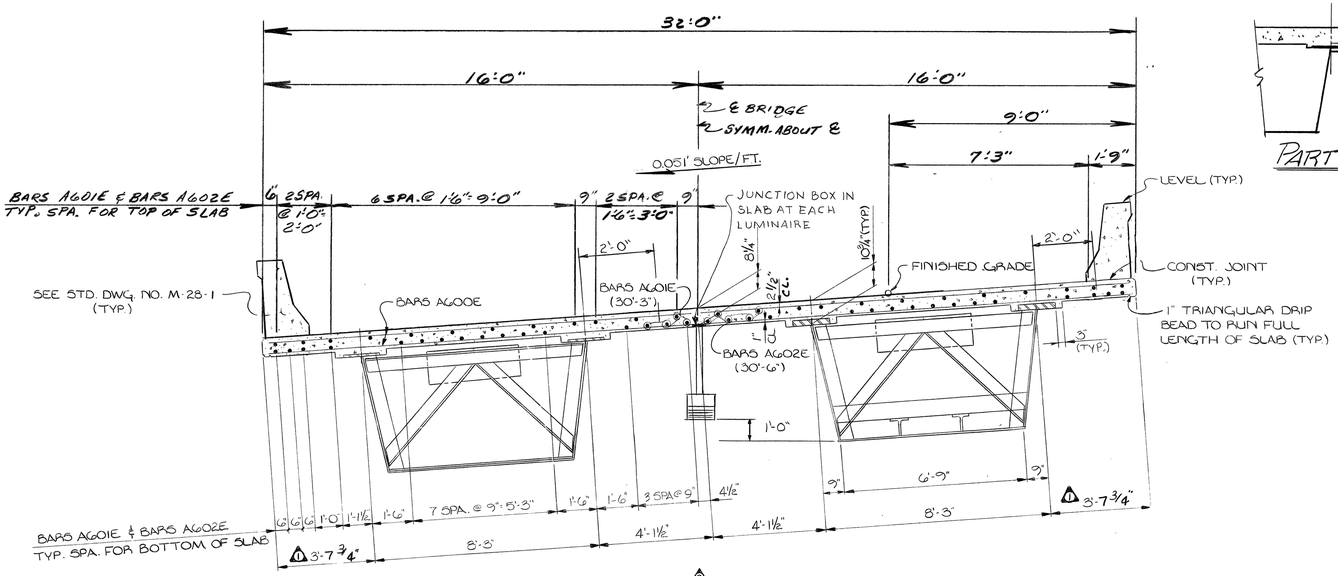
DRAFTFOR MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605.4

Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

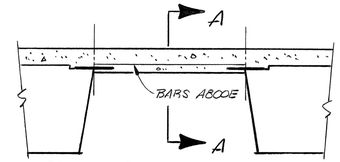
NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	LIGHTING
3	5/20/83	C.M.H.	ADDED END BEAM @ ENDS OF SLAB.



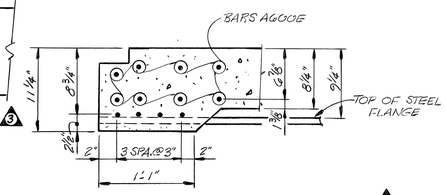
HALF CROSS SECTION NEAR MID-SPAN 3 HALF CROSS SECTION NEAR SUPPORT 1

—TYPICAL CROSS SECTION—

(LOOKING FORWARD ON SURVEY)

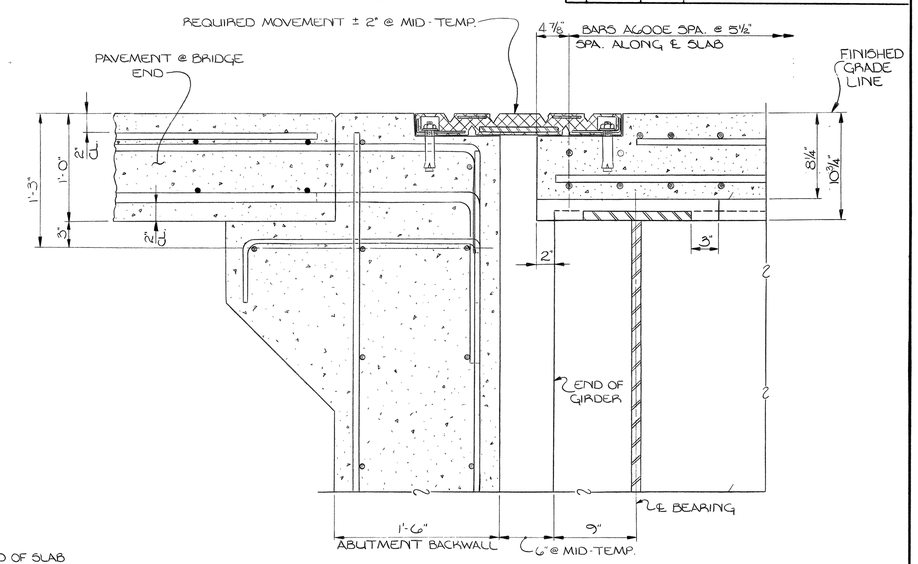


PART CROSS SECTION 3

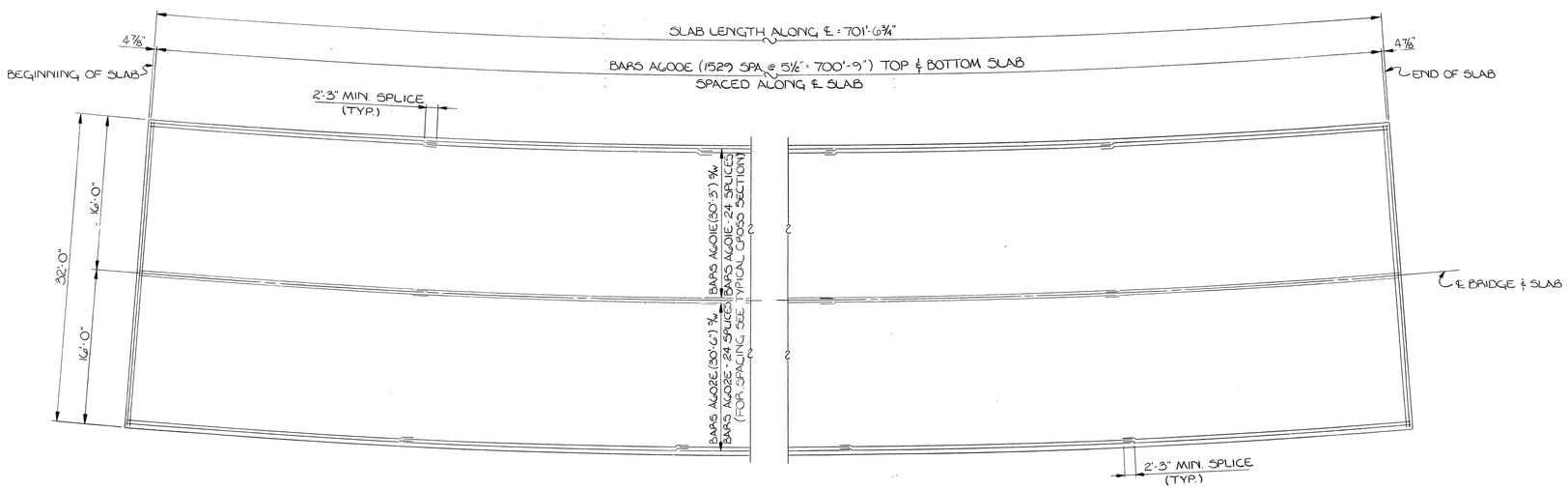


TYPICAL SECTION A-A 3

BETWEEN STEEL BOXES



—LONGITUDINAL SECTION AT BRIDGE END—



—SLAB PLAN—

NOTE: OUTSIDE EDGE OF SLAB AND PARAPET TO CONFORM TO HORIZONTAL CURVE.

NOTE: THE CONCRETE DECK SHALL NOT BE POURED UNTIL ALL STRUCTURAL STEEL IS ERECTED AND ALL WELDING AND/OR BOLTING COMPLETE.

NOTE: WHEN POURING SLAB, PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED. WHEN POURING PARAPET, PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS FOR PARAPET RAILS.

ESTIMATED QUANTITIES 3

Item	CLASS 'A' CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	5966.8	209,593

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPERSTRUCTURE BRIDGE NO. 165
I440 I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
IV-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE July, '81
SUPERVISED BY DATE
CHECKED BY DATE

CORRECT Gilellon L. Loveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-90

MICROFILMED

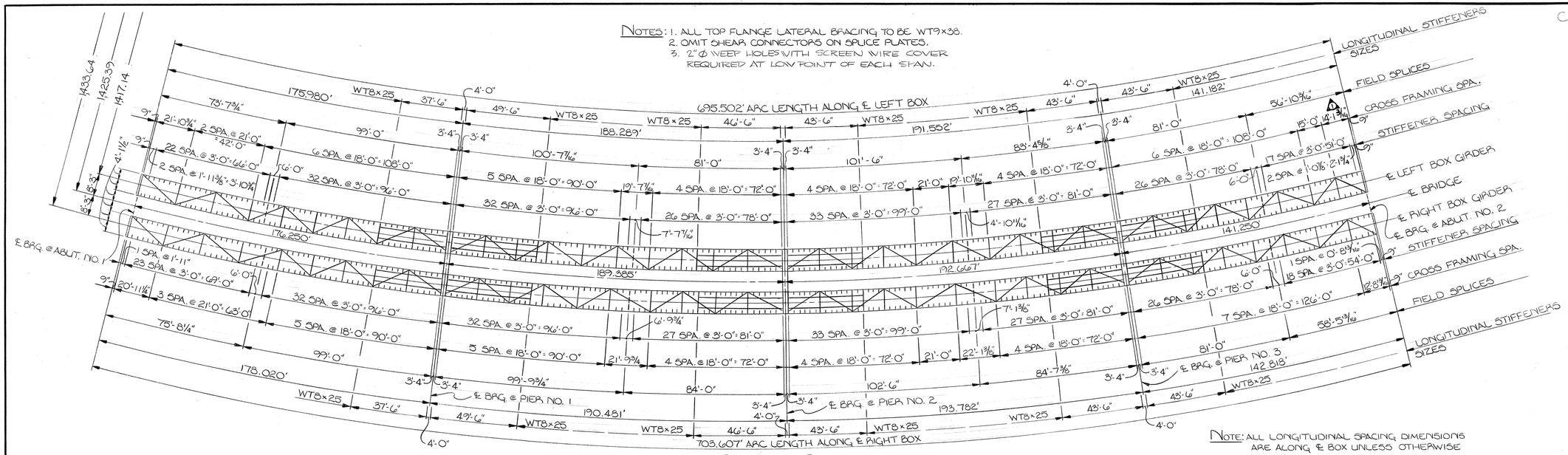
Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1981	

REVISIONS

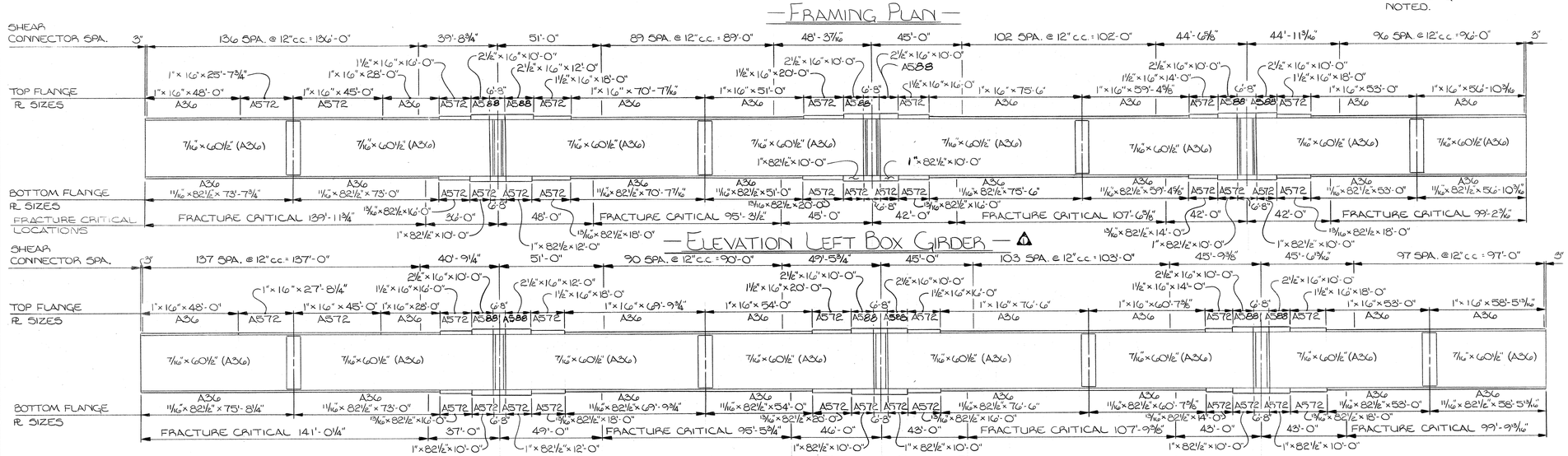
NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	CMH	GENERAL REVISIONS

NOTES: 1. ALL TOP FLANGE LATERAL BRACING TO BE WT9×38.
2. OMIT SHEAR CONNECTORS ON SPLICE PLATES.
3. 2" Ø WEEP HOLES WITH SCREEN WIRE COVER REQUIRED AT LOW POINT OF EACH SPAN.



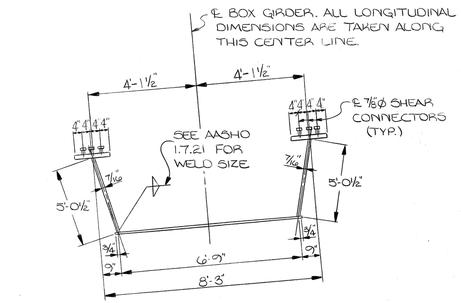
NOTE: ALL LONGITUDINAL SPACING DIMENSIONS ARE ALONG ℄ BOX UNLESS OTHERWISE NOTED.

— FRAMING PLAN —

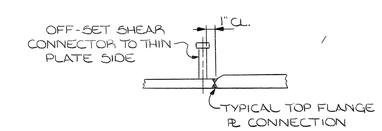


— ELEVATION LEFT BOX GIRDER —

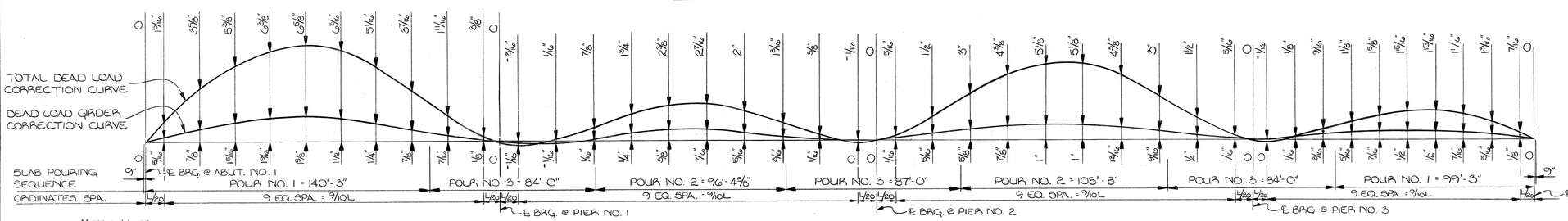
— ELEVATION RIGHT BOX GIRDER —



— BOX GIRDER CROSS SECTION —
(TYPICAL)



— TYPICAL SHEAR CONNECTOR OFF-SET —



— DEAD LOAD CORRECTION CURVE —
(TYPICAL EACH GIRDER)

NOTE: SLAB POURING SEQUENCE DIMENSIONS ARE TAKEN ALONG THE CENTER LINE OF BRIDGE.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FRAMING PLAN BRIDGE NO. 165
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
W-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY MITCH HILES DATE
DRAWN BY M.D. DATE 7-81
SUPERVISED BY DATE
CHECKED BY DATE

CORRECT Edelton L. Sowell
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-91

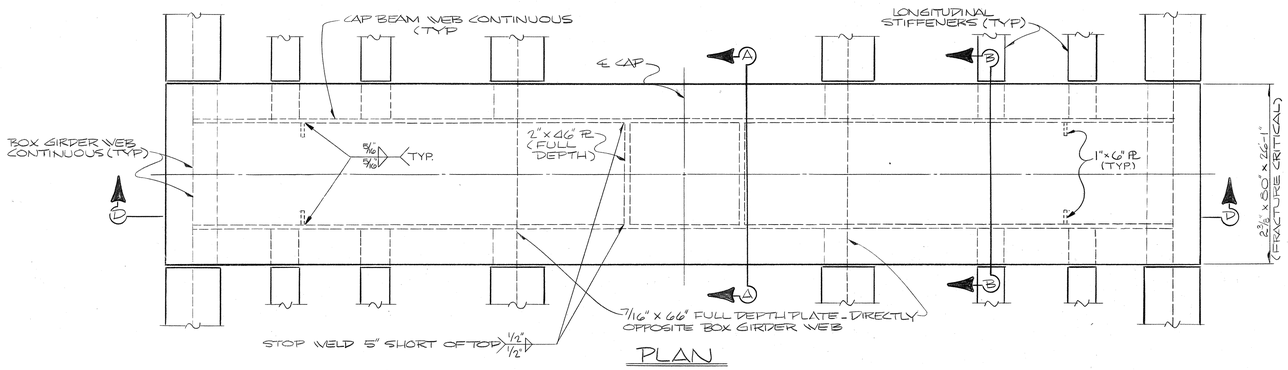
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

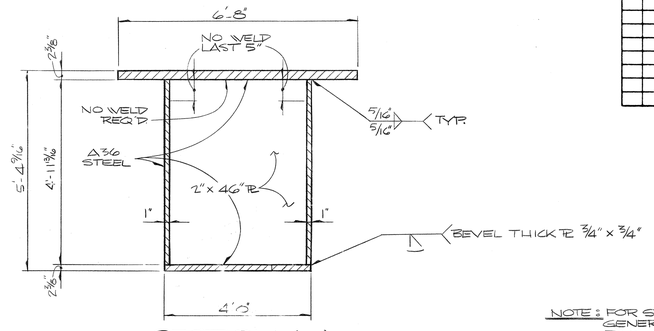
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	CMH	GENERAL REVISION

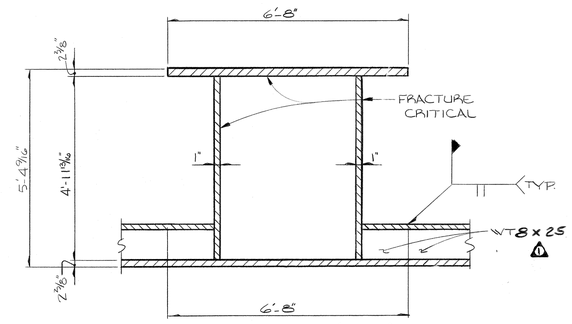


PLAN

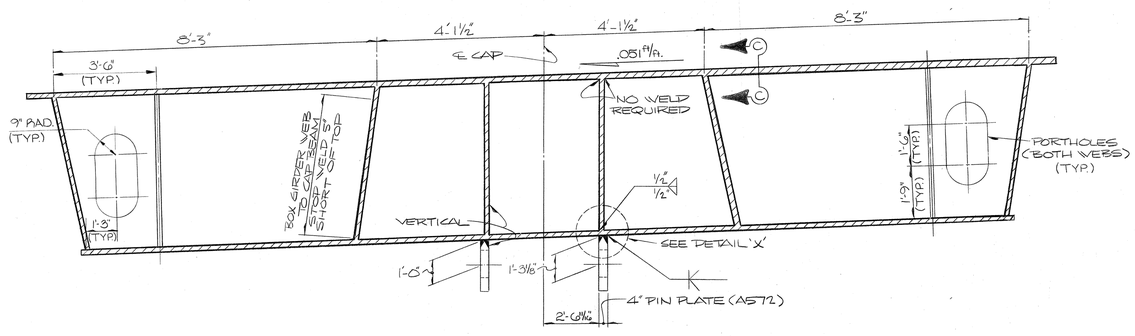


SECTION A-A

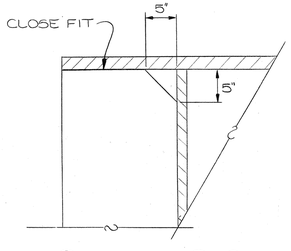
NOTE: FOR STRUCTURAL STEEL GENERAL NOTES SEE DWG. NO. M-15-55



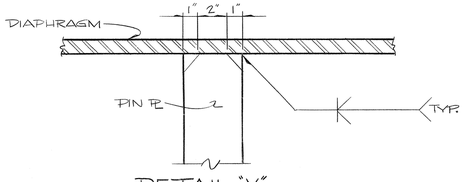
SECTION "B-B"



SECTION "D-D"



— SECTION C-C —
(TYPICAL BOX GIRDER WEB TO DIAPHRAGM WEB CONNECTION)



DETAIL "X"

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPPORT DIAPHRAGMS BRIDGE NO. 165
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
W-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY MIKE CHILDRESS DATE 11-81
SUPERVISED BY HARBISON-HILES DATE 11-81
CHECKED BY HILES DATE

CORRECT Lehllen L. Foveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-92

MICROFILMED

CONSTRUCTION NO. 19015-3113-44

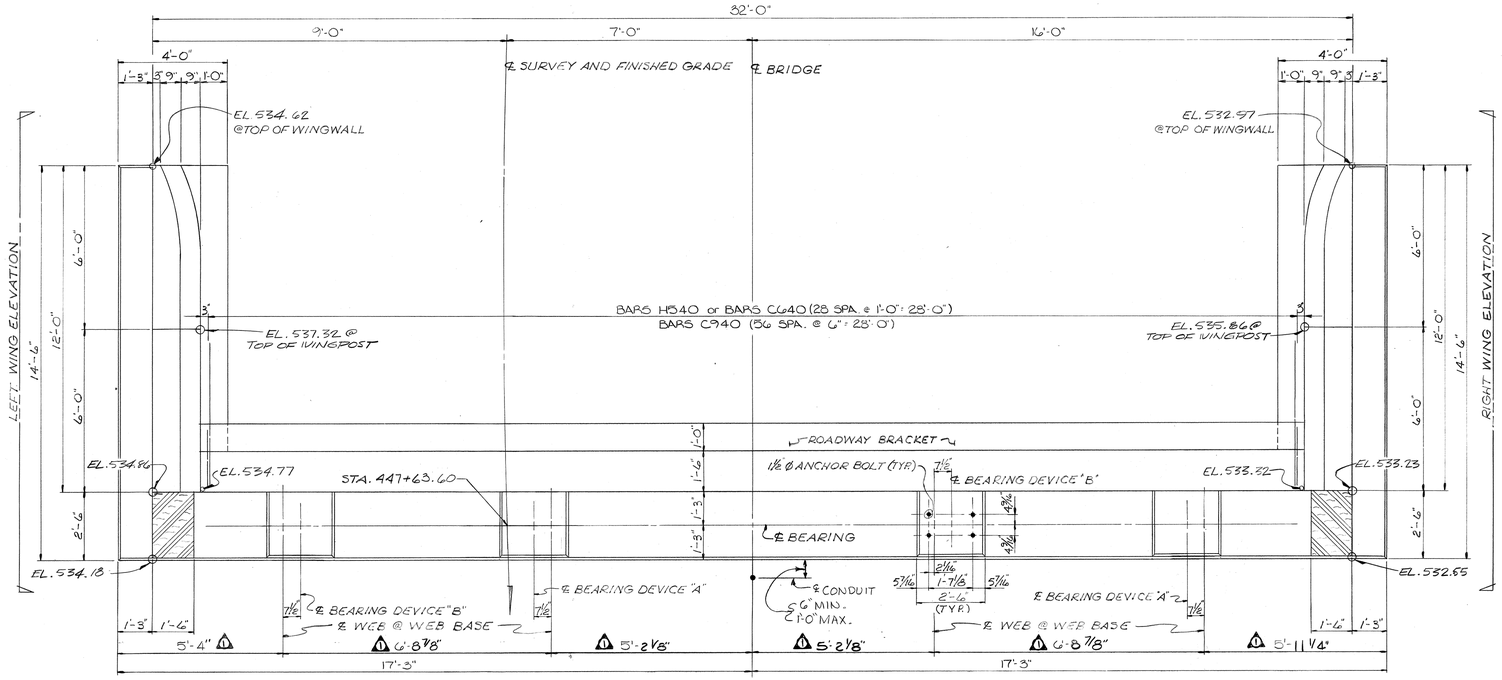
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(18)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7/15/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	CONDUIT

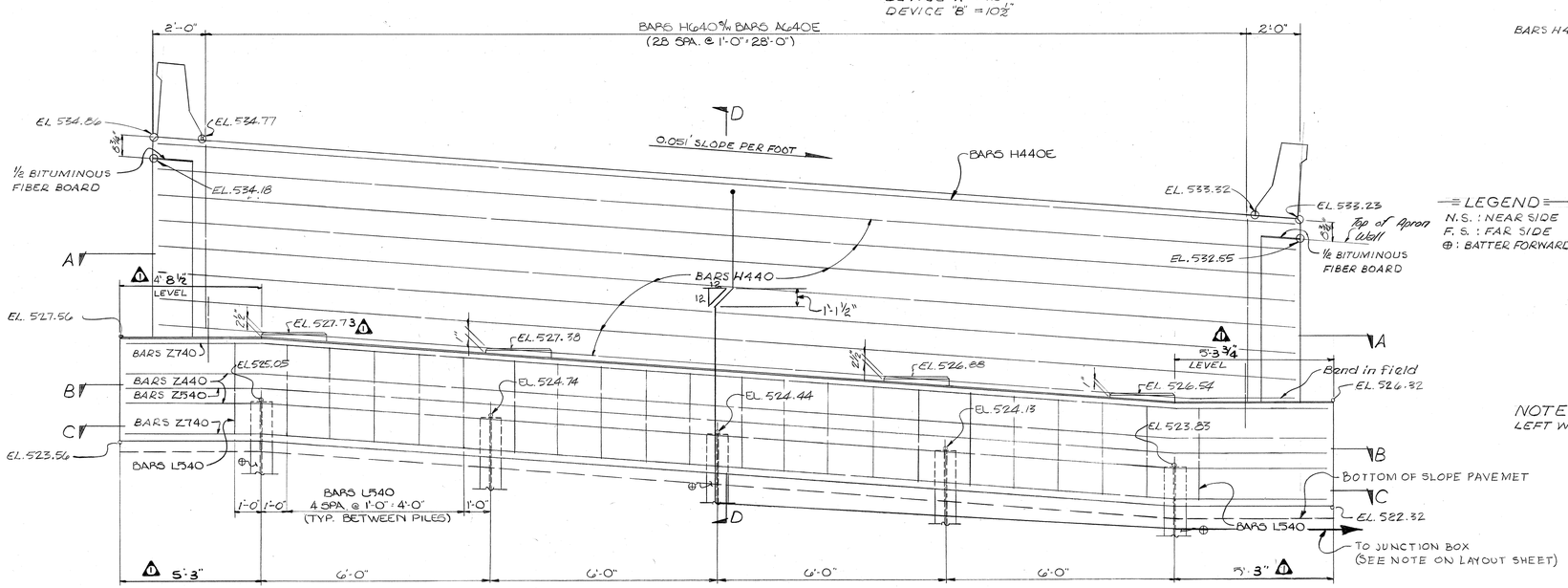
NOTE:

1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS, THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST, FOR DETAILS OF THE WINGPOST AND PARAPET SEE STANDARD DRAWING NO M-28-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.



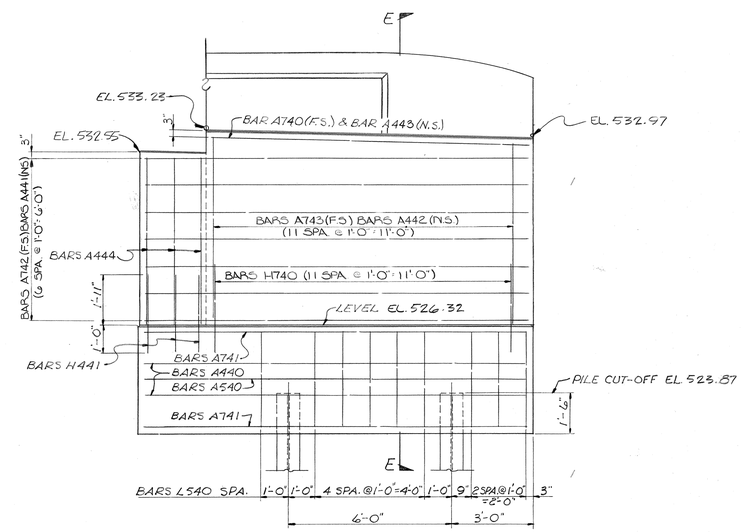
—= PLAN =—

ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10¾"



—= ELEVATION ABUTMENT NO. 1 =—
(LOOKING BACK ON SURVEY)

—= LEGEND =—
N.S. : NEAR SIDE
F.S. : FAR SIDE
⊕ : BATTER FORWARD 2:12



—= RIGHT WING ELEVATION =—

ESTIMATED QUANTITIES

Item	CLASS 'A' CONCRETE C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUTMENT NO. 1	57.0	5,077	1,939

NOTE: FOR DETAILS OF SECTION A-A THRU E-E AND LEFT WING ELEVATION SEE DWG. NO. M-15-95

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 1 BRIDGE NO. 165
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
IV-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY	C. M. HILES	DATE	OCT. 19 1
DRAWN BY		DATE	19 1
SUPERVISED BY	C. M. HILES	DATE	19 1
CHECKED BY	C. M. HILES	DATE	APRIL 19

CORRECT Clellon L. Loveall
BRIDGE ENGINEER

APPROVED Louis Evans
STATE HIGHWAY ENGINEER

11-15-93

MICROFILMED

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

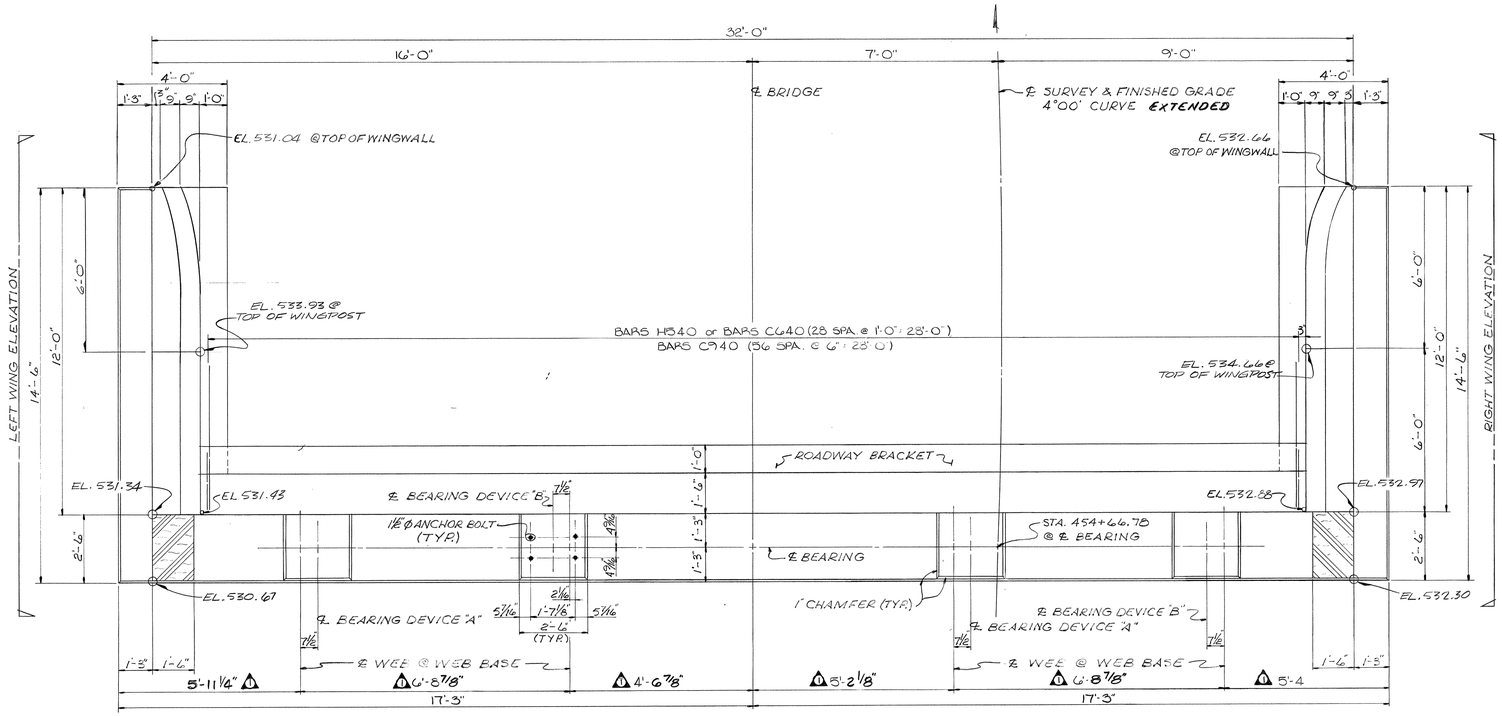
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7/16/82	C.M.H.	GENERAL REVISION

NOTE:

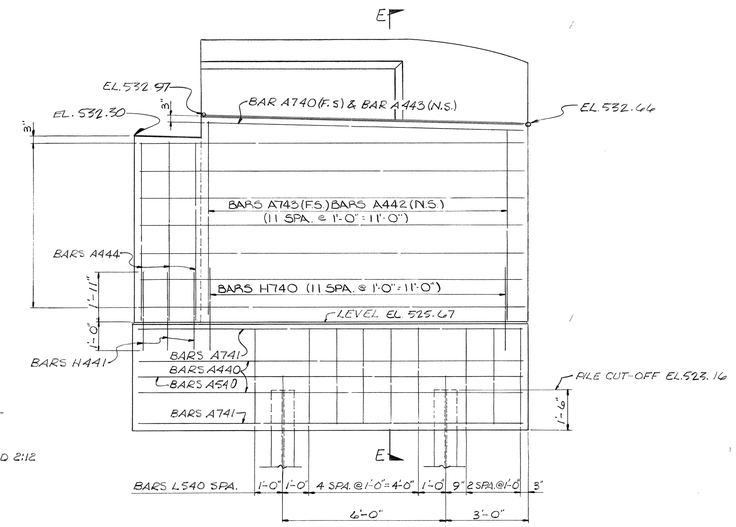
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS, THE REINFORCING STEEL SHALL PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STANDARD DRAWING M-28-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.



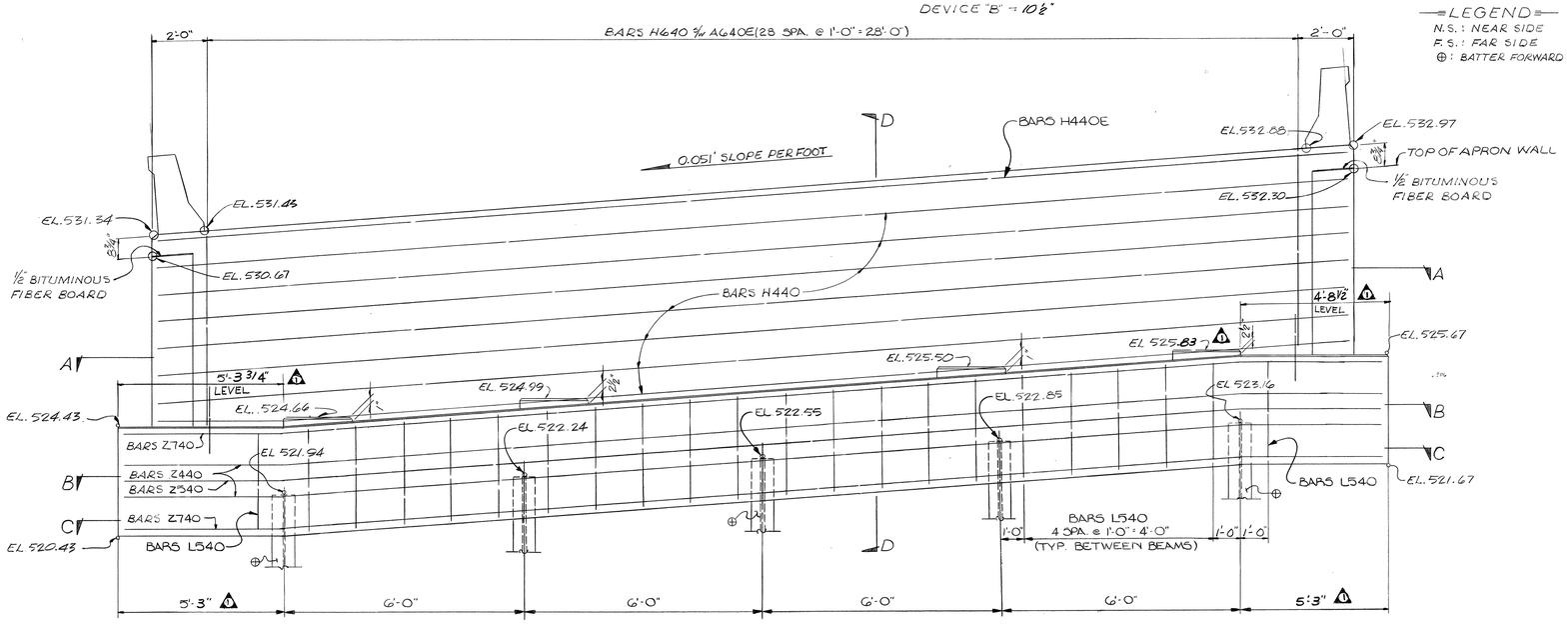
—PLAN—

ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10½"

—LEGEND—
N.S.: NEAR SIDE
F.S.: FAR SIDE
⊕: BATTER FORWARD 2:12



—RIGHT WING ELEVATION—



—ELEVATION ABUTMENT NO. 2—
(LOOKING FORWARD ON SURVEY)

ESTIMATED QUANTITIES

Item	CLASS "A" CONCRETE C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUT. NO. 2	57.0	5,077	1,939

NOTE: FOR DETAILS OF SECTIONS A-A THRU E-E AND LEFT WING ELEVATION SEE DWG. NO. M-15-95

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENT NO. 2 BRIDGE NO. 165
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
IV-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Edellon L. Loveall
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-94

DESIGNED BY C.M. HILES DATE 19
DRAWN BY DATE 19
SUPERVISED BY C.M. HILES DATE 19
CHECKED BY C.M. HILES DATE 19

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

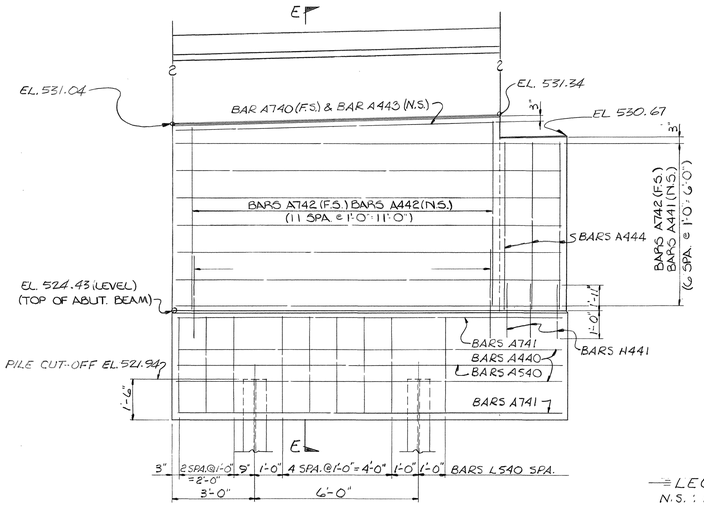
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(42)211	1982		

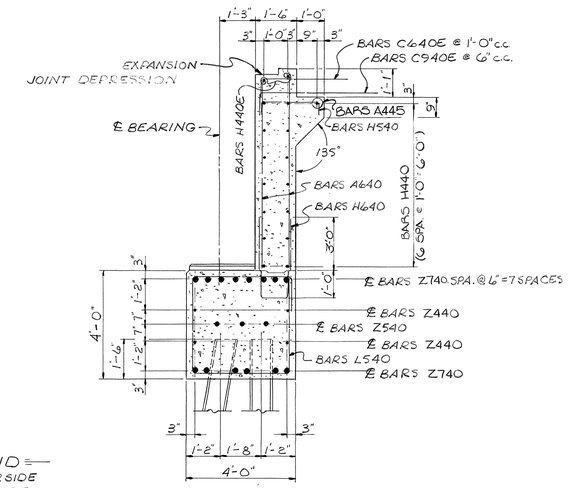
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/14/82	C.M.H.	GENERAL REVISION

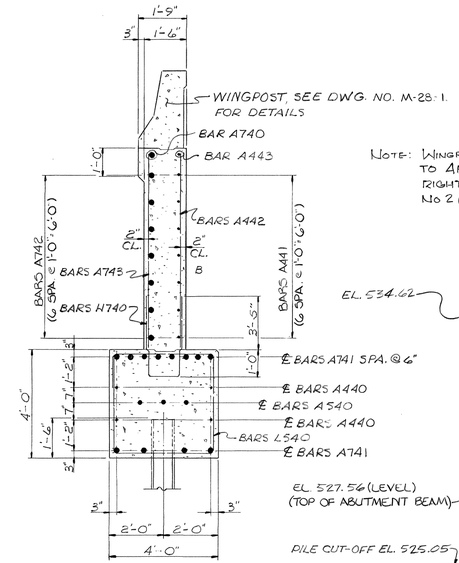


LEFT WING ELEVATION ABUTMENT NO. 2

LEGEND
N.S. : NEARSIDE
F.S. : FAR SIDE

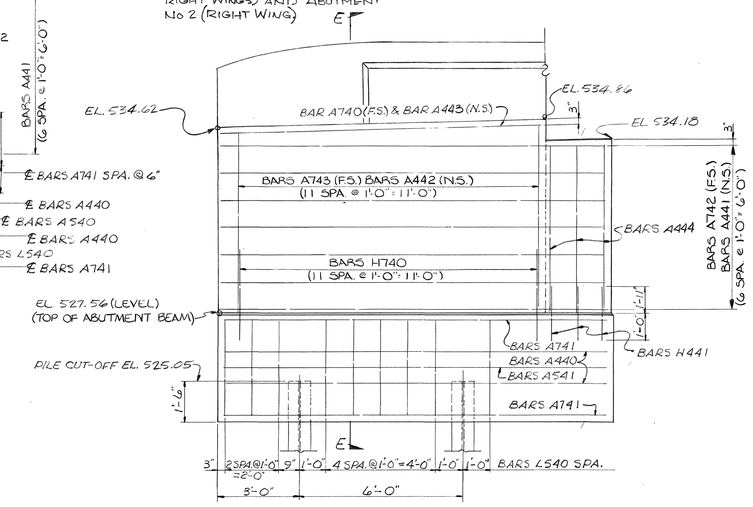


SECTION D-D

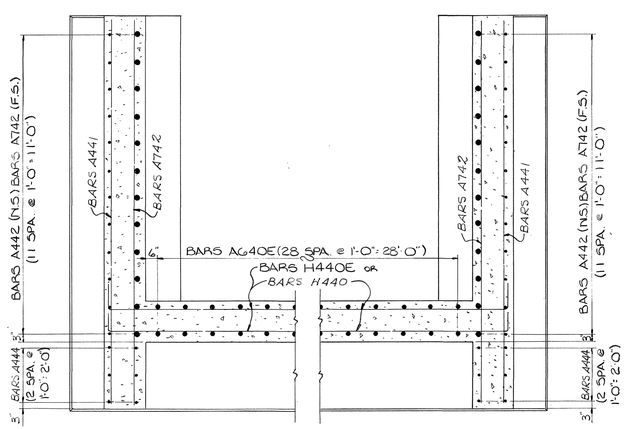


SECTION E-E

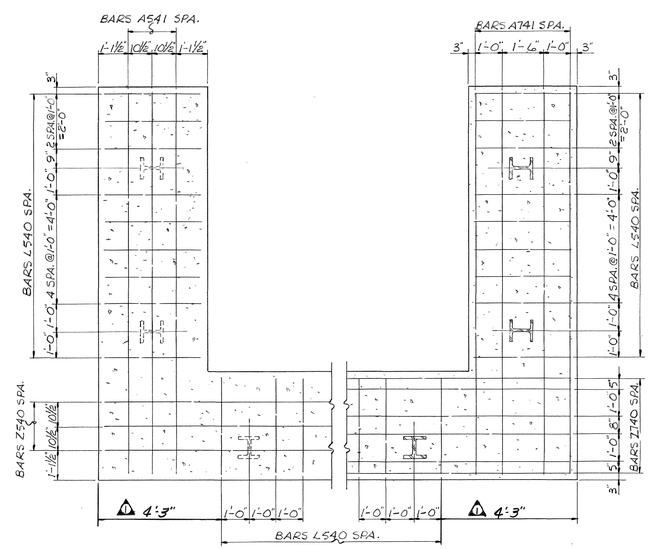
NOTE: WINGPOST DETAILS APPLY ONLY TO ABUTMENT NO. 1 (LEFT AND RIGHT WINGS) AND ABUTMENT NO. 2 (RIGHT WING)



LEFT WING ELEVATION ABUTMENT NO. 1

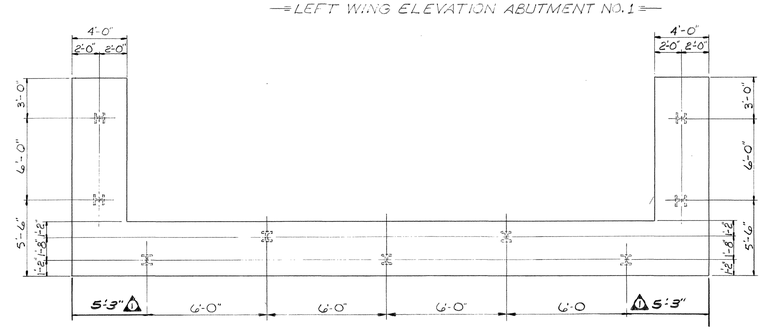


SECTION A-A



SECTION B-B
(TYPICAL)

SECTION C-C
(TYPICAL)



PLAN
SHOWING PILE ARRANGEMENT

NOTE: FOR LOCATION OF CUTTING-PLANE LINE OF SECTIONS A-A THRU E-E SEE DWG. NO. M-15-93 & M-15-94

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENTS NO. 1 & 2 DETAILS
BRIDGE NO. 165
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C.M. HILES DATE 19 1
CHECKED BY C.M. HILES DATE 19

CORRECT Edelton L. Lovell
BRIDGE ENGINEER
APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-95

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

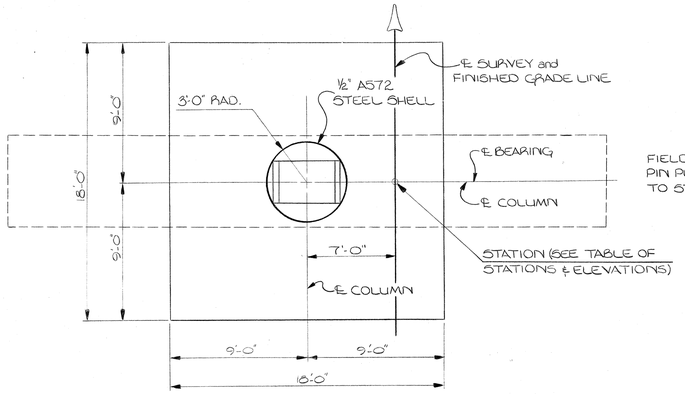
MICROFILMED

Const. No. 19015-3113-44

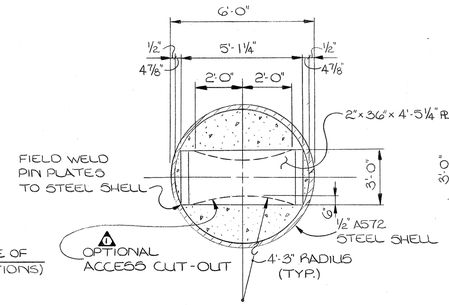
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

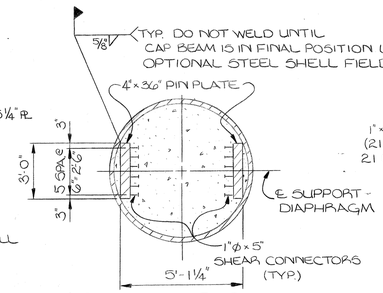
NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	OPTIONAL ACCESS & STEEL SHELL FIELD SPLICE; REINF. STEEL CUT
2	9/15/82	C.M.H.	GENERAL REVISION



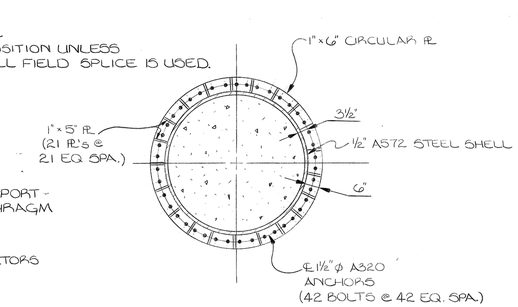
— PLAN —



— SECTION A-A —



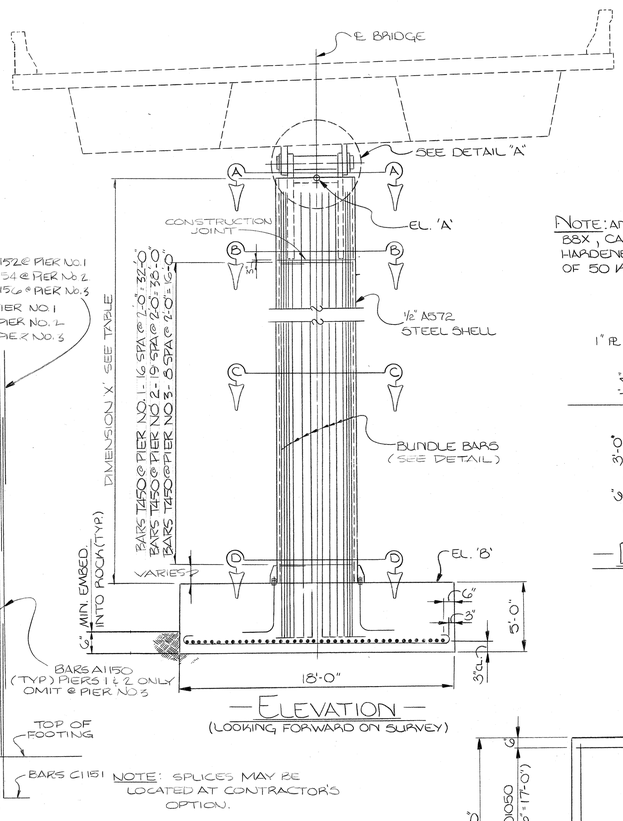
— SECTION B-B —



— SECTION D-D —

TABLE OF ELEVATIONS, DIMENSIONS AND STATIONS

	STATION	EL. 'A'	EL. 'B'	DIMENSION 'X'
PIER NO. 1	449+40.90	528.37	485.00	40'-4 7/16"
PIER NO. 2	451+31.22	528.83	483.00	45'-9 15/16"
PIER NO. 3	453+24.83	526.91	503.09	23'-10 15/16"

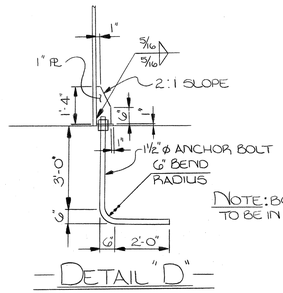


— ELEVATION —
(LOOKING FORWARD ON SURVEY)

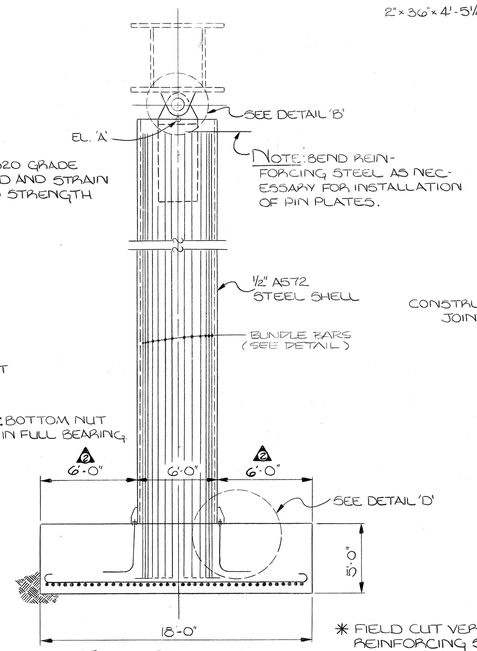
NOTE: SPLICES MAY BE LOCATED AT CONTRACTOR'S OPTION.

BUNDLE PATTERN DETAIL

NOTE: ANCHOR BOLT MATERIAL A-320 GRADE 88X, CARBIDE SOLUTION TREATED AND STRAIN HARDENED WITH A MINIMUM YIELD STRENGTH OF 50 KSI. (DO NOT COLD BEND.)



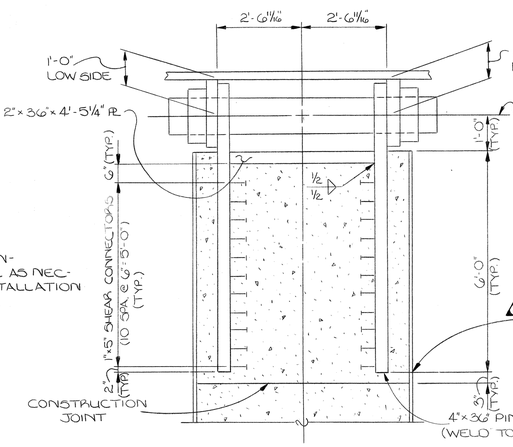
— DETAIL "D" —



NOTE: BEND REINFORCING STEEL AS NECESSARY FOR INSTALLATION OF PIN PLATES.

— END ELEVATION —

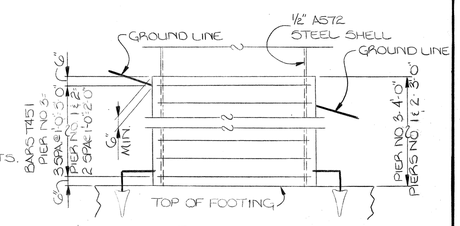
* FIELD CUT VERTICAL REINFORCING STEEL 2 IN. ABOVE CONSTRUCTION JOINT THIS AREA SO AS TO ALLOW PIN PLATE PLACEMENT.



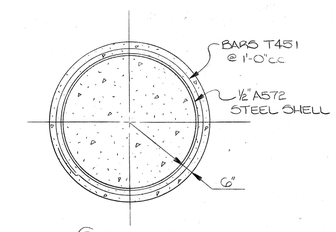
NOTE: SEE AASHTO ARTICLE 1.7.1.(B) AND 1.7.27 FOR PIN AND/OR PIN NUT REQUIREMENTS.

— DETAIL "A" —

NOTE: CAP BEAM MUST BE IN PLACE AND IN PROPER POSITION PRIOR TO WELDING LOWER PIN PLATES TO STEEL SHELL.

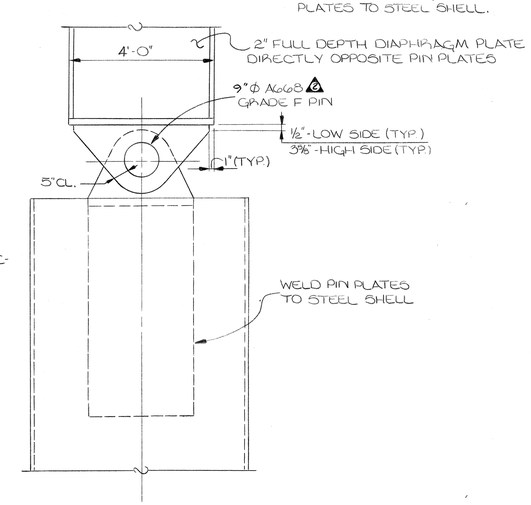


ELEVATION

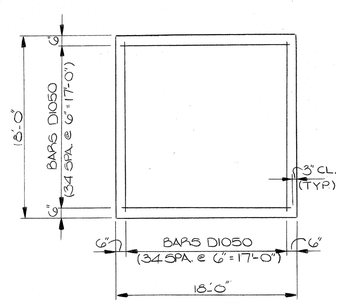


SECTION

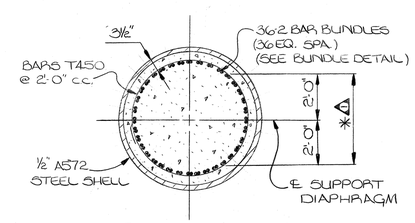
— GROUND LINE INTERSECT COLLAR DETAIL —



— DETAIL 'B' —



— PLAN OF FOOTING —



— SECTION C-C —

ESTIMATED QUANTITIES

	CLASS 'A' CONCRETE (BRIDGES) C.Y.	STEEL BAR REINFORCEMENT (BRIDGES) LBS.
PIER NO. 1	101.3	29,670
PIER NO. 2	106.8	31,778
PIER NO. 3	84.6	20,503

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

PIERS NO. 1, 2 AND 3 BRIDGE NO. 165
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
W-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT: Clifton L. Lovead
ENGINEER OF STRUCTURES

APPROVED: Lewis Lyons
DIRECTOR OF HIGHWAYS

M-15-96

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 12-81
SUPERVISED BY C.M. HILES DATE
CHECKED BY DATE

BILL OF STEEL

CONST. No. 19015-3113-44

FED. ROAD DIST. NO	STATE	FED. AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	5/20/83	C.M.H.	ADDED BARS A800E

SUPERSTRUCTURE

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A600E	SLAB	6	3060					31'-8"
A601E	SLAB	6	700					30'-3"
A602E	SLAB	6	700					30'-6"
A800E	SLAB	8	8					8'-3"

PAVEMENT @ BRIDGE ENDS

BAR	LOCATION	SIZE	NO. REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A490E	SLAB	4	100					28'-2"
A690E	SLAB	6	58					24'-2"
A790E	FOOTING	7	16					28'-2"
A990E	SLAB	9	114					24'-2"
A1190E	SLAB (DRAINS)	11	8					6'-0"
L590E	FOOTING-SLAB	5	80	1'-2"	1'-0"	1'-2"		7'-5"

ABUTMENTS No. 1 AND 2 (EACH)

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A440	WING BEAMS	4	8					14'-2"
A441	WING WALLS	4	14					14'-2"
A442	WING WALLS	4	24					6'-6"
A443	WING WALLS	4	2					11'-8"
A444	APRON WALLS	4	12					6'-1"
A445	RDWY. BRKT.	4	1					28'-0"
A540	WING BEAMS	5	6					14'-2"
A640E	ENDWALL	6	58					6'-9"
A740	WING WALLS	7	2					11'-8"
A741	WING BEAMS	7	24					14'-2"
A742	WING WALLS	7	14					14'-2"
A743	WING WALLS	7	24					6'-6"
C640E	ENDWALL	6	29	3'-6"				4'-5"
C940E	ENDWALL	9	57	4'-6"				5'-9"
H440E	ENDWALL	4	2	31'-9"	8"			33'-0"
H440	ENDWALL	4	14	31'-9"	8"			33'-0"
H441	APRON WALL	4	6	1'-2"	2'-11"			6'-11"
H540	RDWY. BRKT.	5	29	2'-2"	7"			3'-4"
H640	ENDWALL	6	29	1'-2"	4'-0"			9'-1"
H740	WING WALLS	7	24	1'-2"	4'-5"			9'-10"
L540	WING BEAMS	5	40	3'-8"	1'-0"	3'-8"		15'-6"
Z440	BEAM	4	4	4'-5"	24'-2"	5'-4"	1'-3"	33'-10"
Z540	BEAM	5	3	4'-5"	24'-2"	5'-4"	1'-3"	33'-10"
Z740	BEAM	7	14	4'-5"	24'-2"	5'-4"	1'-3"	33'-10"

PIER No. 1

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1150	COLUMN	11	72					30'-0"
A1151	COLUMN	11	36					17'-5"
A1152	COLUMN	11	36					10'-1"
C1150	FOOTING-COL.	11	36	11'-10"				13'-9"
C1151	FOOTING-COL.	11	36	19'-2"				21'-1"
D1050	FOOTING	10	70	17'-6"				20'-0"
T450	COLUMN	4	17	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	3	6'-6"	1'-0"			21'-5"

PIER No. 2

BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1150	COLUMN	11	72					30'-0"
A1153	COLUMN	11	36					22'-10"
A1154	COLUMN	11	36					15'-6"
C1150	FOOTING-COL.	11	36	11'-10"				13'-9"
C1151	FOOTING-COL.	11	36	19'-2"				21'-1"
D1050	FOOTING	10	70	17'-6"				20'-0"
T450	COLUMN	4	20	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	3	6'-6"	1'-0"			21'-5"

PIER No. 3

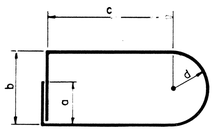
BAR	LOCATION	SIZE	NO REQ'D	BENDING DIMENSIONS a	b	c	d	LENGTH
A1155	COLUMN	11	36					23'-8"
A1156	COLUMN	11	36					16'-4"
C1150	FOOTING-COL.	11	36	11'-10"				13'-9"
C1151	FOOTING-COL.	11	36	19'-2"				21'-1"
D1050	FOOTING	10	70	17'-6"				20'-0"
T450	COLUMN	4	9	5'-5"	1'-0"			18'-0"
T451	COLLAR	4	4	6'-6"	1'-0"			21'-5"

NOTE: THE SUFFIX 'E' DENOTES EPOXY COATED REINFORCEMENT.

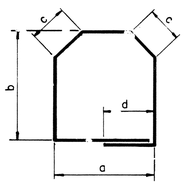
REINFORCING STEEL CODE

TYPE	SIZE	SERIES
A	5	06

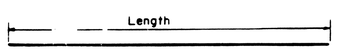
NOTE Dimensions shown on this sheet are outside to outside of bar. Standard C R S I. Hook Details Shall Apply, Except As Noted.



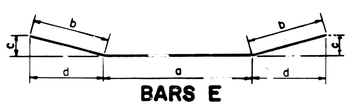
BARS X



BARS M



BARS A



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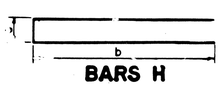
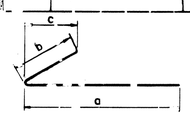
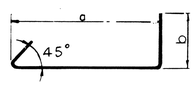


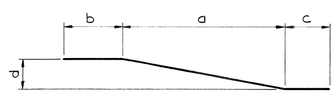
BARS H



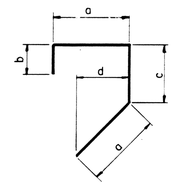
BARS CB



BARS YB

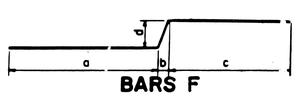


BARS Z



BARS J

BARS B



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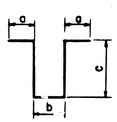

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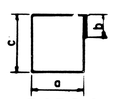
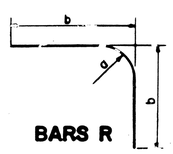
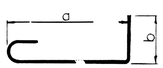


BARS L



BARS R



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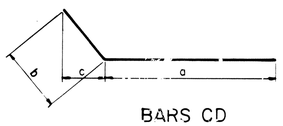

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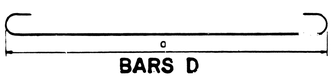

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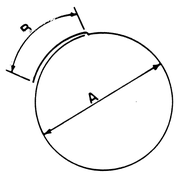

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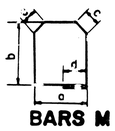
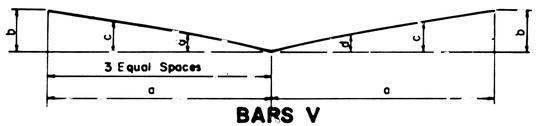


BARS M

BARS S



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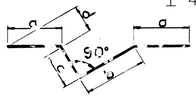


BARS JX

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BILL OF STEEL - BRIDGE No. 165
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
W-N ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT: Coleton L. Loveall
ENGINEER OF STRUCTURES

APPROVED: Lewis Evans
DIRECTOR OF HIGHWAYS

11-15-97

DESIGNED BY C.M. HILES DATE
DRAWN BY MARK D. DATE 1-82
SUPERVISED BY DATE
CHECKED BY DATE

MICROFILMED

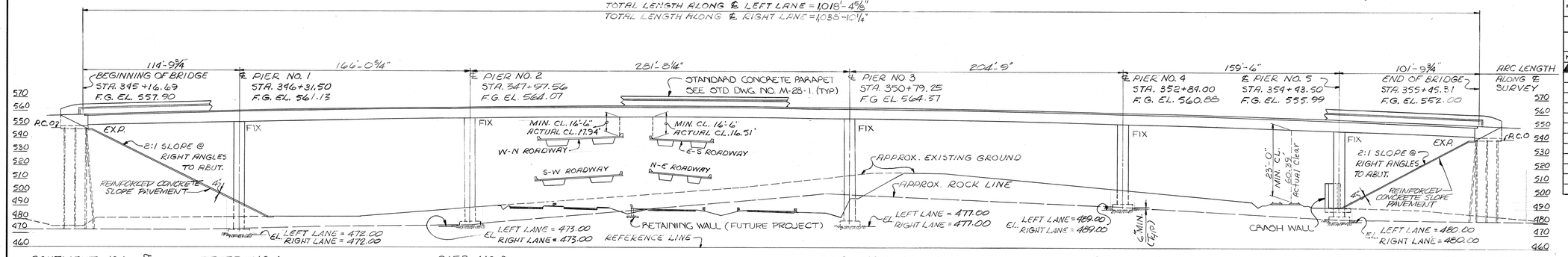
5-0-2

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

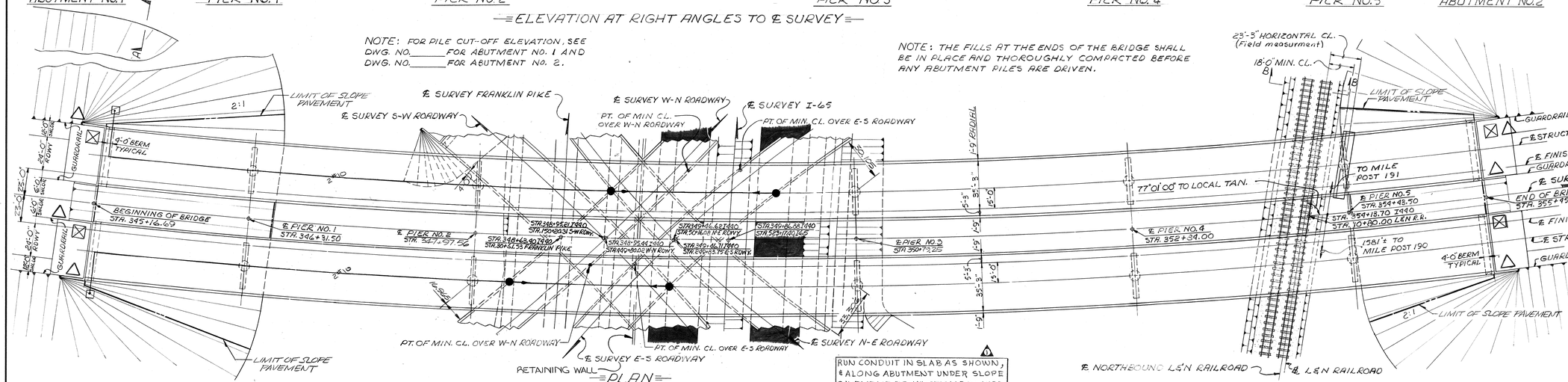
NO.	DATE	BY	BRIEF DESCRIPTION
1	1/4/83	C.M.H.	LIGHTING



—ELEVATION AT RIGHT ANGLES TO ℄ SURVEY—

NOTE: FOR PILE CUT-OFF ELEVATION, SEE DWG. NO._____ FOR ABUTMENT NO. 1 AND DWG. NO._____ FOR ABUTMENT NO. 2.

NOTE: THE FILLS AT THE ENDS OF THE BRIDGE SHALL BE IN PLACE AND THOROUGHLY COMPACTED BEFORE ANY ABUTMENT PILES ARE DRIVEN.



—PLAN—

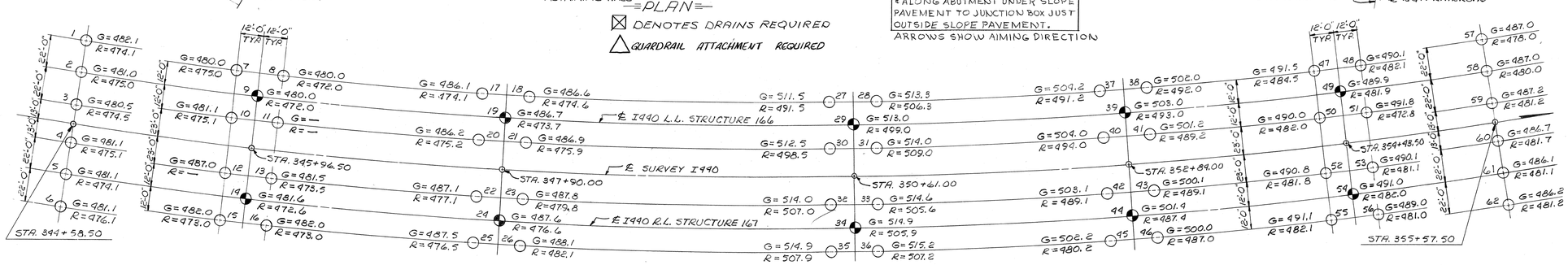
☒ DENOTES DRAINS REQUIRED

△ GUARDRAIL ATTACHMENT REQUIRED

RUN CONDUIT IN SLAB AS SHOWN, & ALONG ABUTMENT UNDER SLOPE PAVEMENT TO JUNCTION BOX JUST OUTSIDE SLOPE PAVEMENT.
ARROWS SHOW AIMING DIRECTION

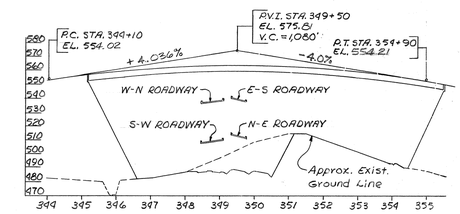
I-440 CURVE DATA

P.I. STA. 349+65.28
$\Delta c = 27° 09' 43.5$ LT
$D_c = 1° 30'$
$T = 919.81'$
$L_c = 1,805.25'$
$E = 109.19'$
$R = 3819.72$
$S.E = 0.036\ ft/ft$
$C.C.N = 632,161.47'$
$E = 1,770,791.96'$
P.C. STA. 340+45.47
$N = 628,393.20$
$E = 1,770,636.96'$

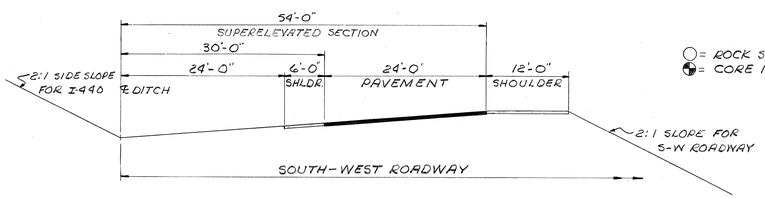


—SOUNDING SKETCH—
(STRUCTURES NO. 166 & 167)

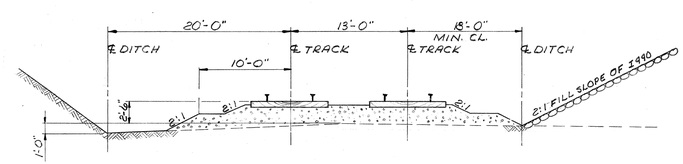
○ = ROCK SOUNDING
◐ = CORE 10'-0" INTO ROCK
G = GROUND ELEVATION
R = ROCK ELEVATION



—I440 PROFILE—



—SECTION A-A—
SHOWING CRITERIA USED TO DETERMINE INTERSECTION OF SIDE SLOPES OF I-440 AND S-W ROADWAY



—SECTION B-B—
SHOWING MINIMUM ALLOWABLE CLEARANCE FROM RAILROAD TO ENDFILL.

2-42'-0" ROADWAYS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT OF BRIDGE NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
I440 STRUCTURES
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE 1981
DRAWN BY M.D. DATE MAY 1981
TRACED BY DATE
CHECKED BY C.M. HILES DATE 198

CORRECT Clellon L. Loveall — BRIDGE ENGINEER
APPROVED Harold Evans — STATE HIGHWAY ENGINEER

M-15-98

CLASS "A" GRADING "D" 44 C.Y.

MICROFILMED

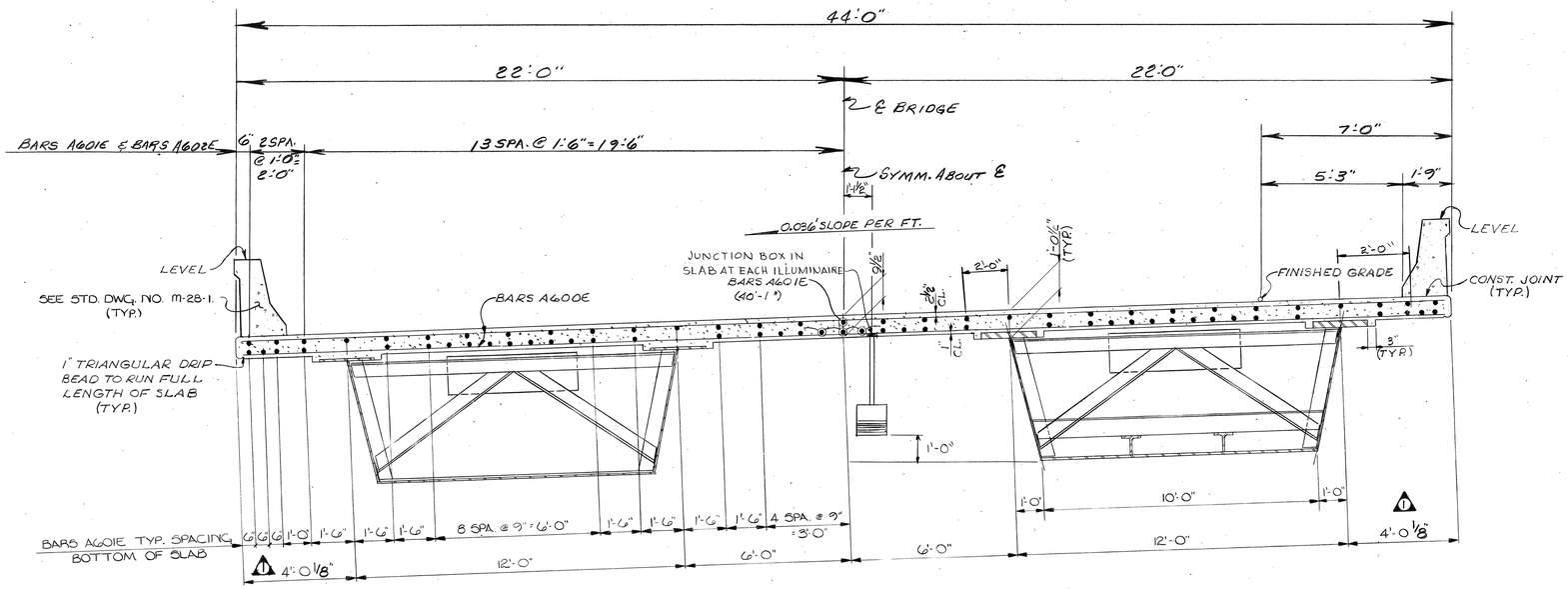
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605.4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

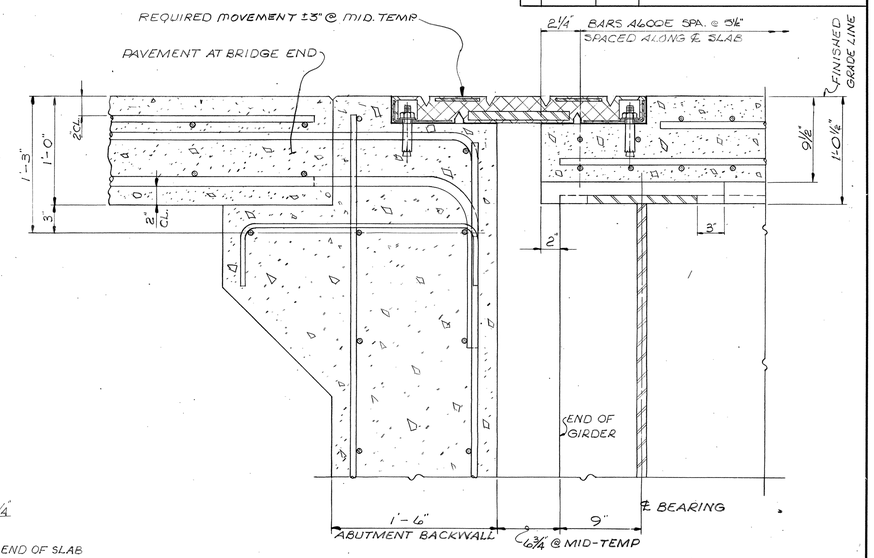
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	LIGHTING
3	5/20/83	C.M.H.	ADDED END BEAM @ ENDS OF SLAB

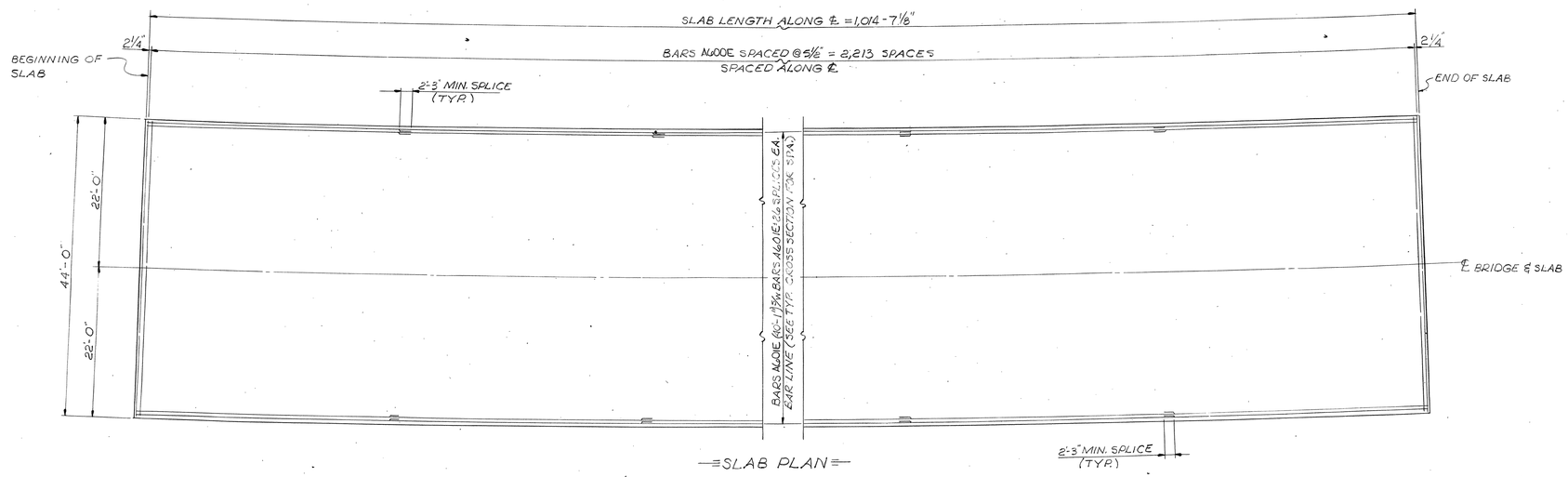


HALF CROSS SECTION NEAR MID-SPAN — HALF CROSS SECTION NEAR SUPPORT

—TYPICAL CROSS SECTION—
(LOOKING FOWARD ON SURVEY)



—LONGITUDINAL SECTION AT BRIDGE END—



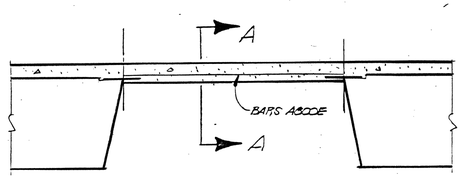
—SLAB PLAN—

NOTE:

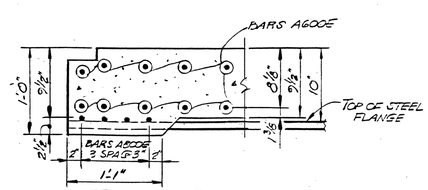
1. OUTSIDE EDGE OF SLAB AND PARAPET TO CONFORM TO HORIZONTAL CURVE.
2. THE CONCRETE DECK SHALL NOT BE POURED UNTIL ALL STRUCTURAL STEEL IS ERECTED AND ALL WELDING AND/OR BOLTING COMPLETE.
3. WHEN POURING SLAB PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED.

ESTIMATED QUANTITIES

Item	CLASS 'A' CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	1,369.5	407,716



PART CROSS SECTION



TYPICAL SECTION A-A
BETWEEN STEEL BOXES

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

SUPERSTRUCTURE BRIDGE NO. 166
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
LEFT LANE I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY	C.M. HILES	DATE	MAY 19
DRAWN BY	J. L. SHOULDERS	DATE	JULY 1981
TRACED BY		DATE	
CHECKED BY	C.M. HILES	DATE	MARCH 19

CORRECT Edelton L. Loveall
BRIDGE ENGINEER

APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

11-15-82

MICROFILMED

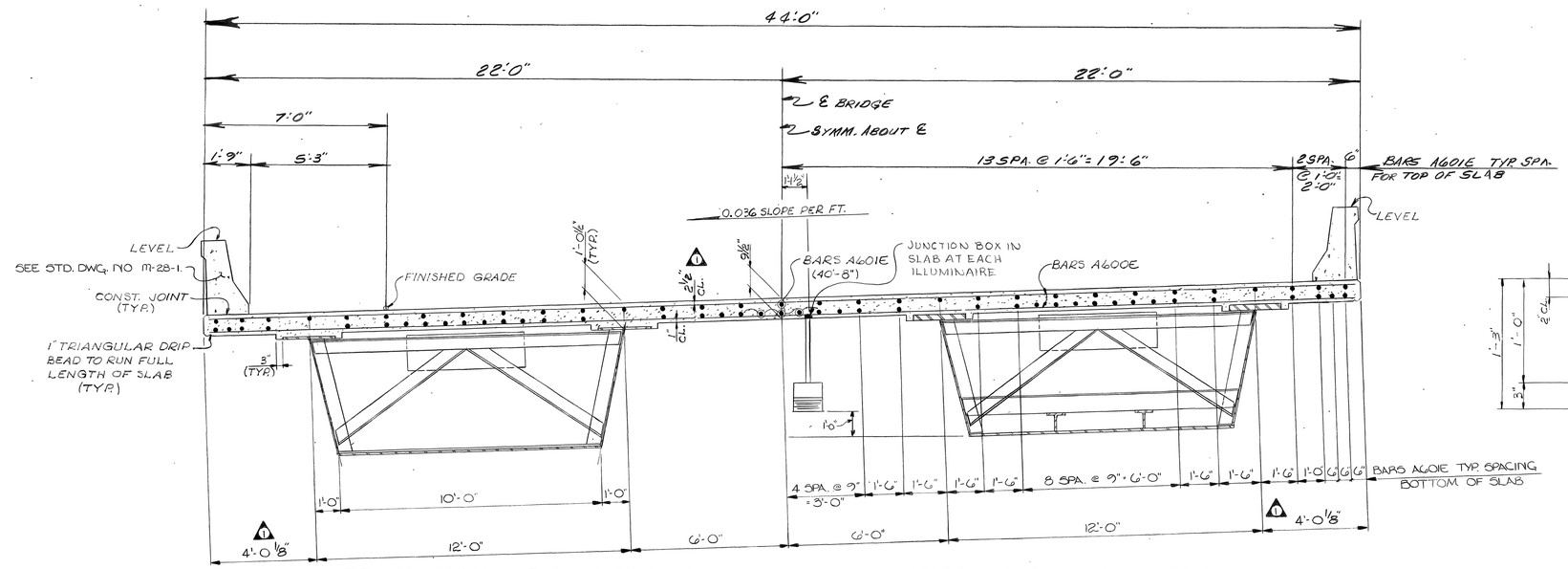
DRAFTING ARENA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605-4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

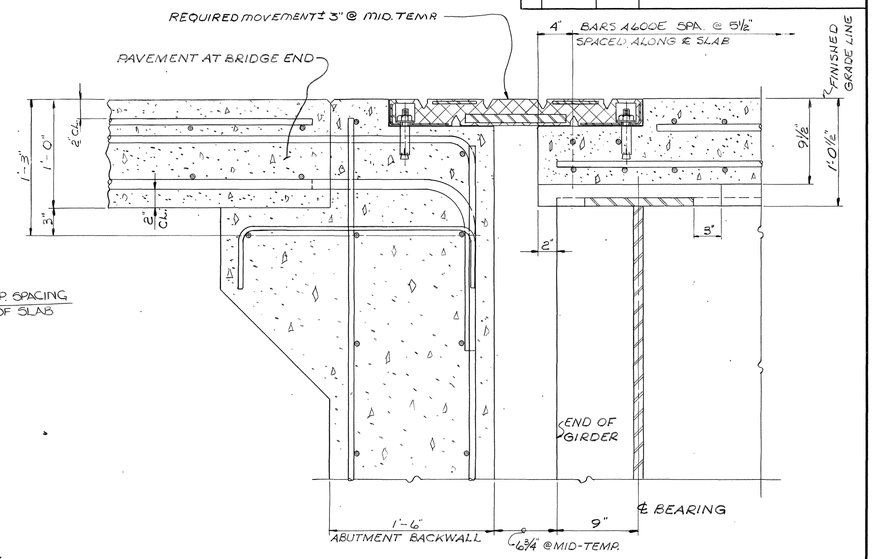
NO.	DATE	BY	BRIEF DESCRIPTION
1	7/16/82	C.M.H.	GENERAL REVISION
2	1/24/83	F.C.	LIGHTING
3	5/20/83	C.M.H.	ADDED END BEAM @ ENDS OF SLAB.



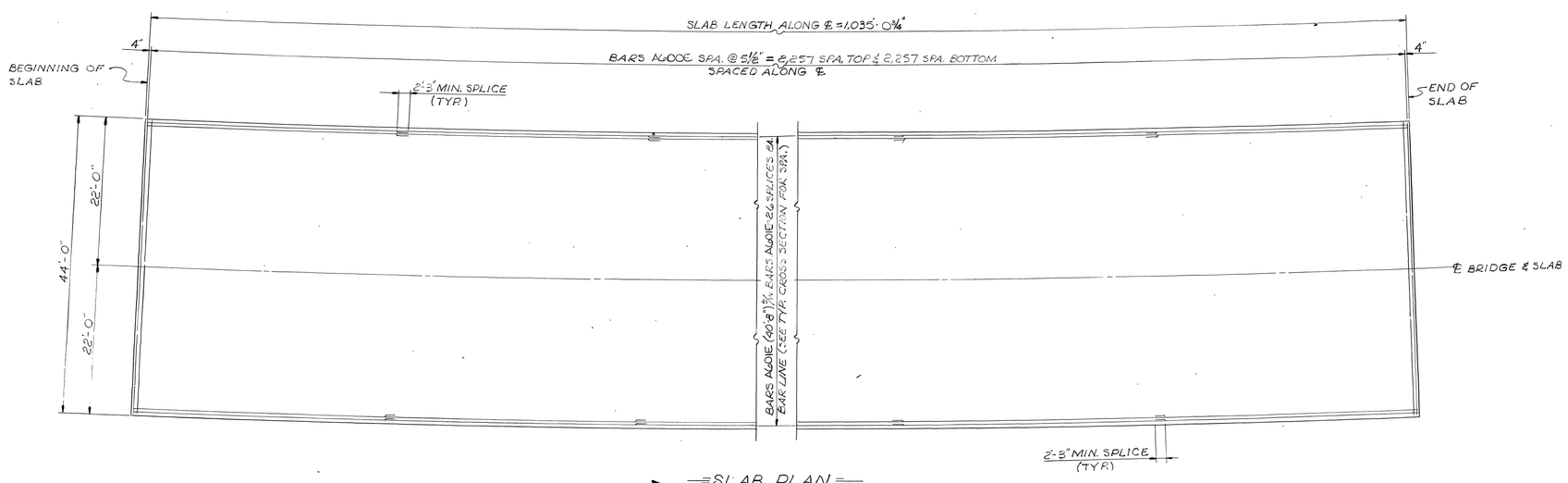
HALF CROSS SECTION NEAR MID-SPAN — HALF CROSS SECTION NEAR SUPPORT

TYPICAL CROSS SECTION

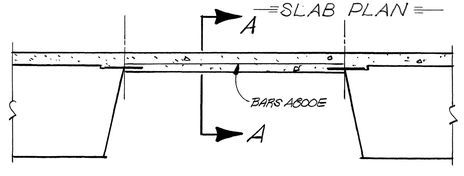
LOOKING FORWARD ON SURVEY



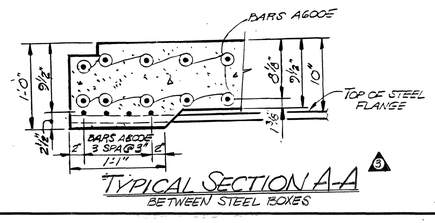
LONGITUDINAL SECTION AT BRIDGE END



SLAB PLAN



PART CROSS SECTION



TYPICAL SECTION A-A

BETWEEN STEEL BOXES

NOTE:

1. OUTSIDE EDGE OF SLAB AND BRIDGE RAIL TO CONFORM TO HORIZONTAL CURVE.
2. THE CONCRETE DECK SHALL NOT BE POURED UNTIL ALL STRUCTURAL STEEL IS ERECTED AND ALL WELDING AND/OR BOLTING COMPLETE.
3. WHEN POURING SLAB PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET. THE PARAPET SHALL NOT BE POURED UNTIL THE SLAB IS POURED AND CURED.

ESTIMATED QUANTITIES

Item	CLASS 'A' CONCRETE C.Y.	EPOXY COATED REINFORCING STEEL LBS.
SUPERSTRUCTURE	1,397.1	415,191

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

SUPERSTRUCTURE BRIDGE NO. 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
RIGHT LANE I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY	C.M. HILES	DATE	MAY 1971
DRAWN BY	J.L. SHOULDERS	DATE	AUG. 1981
SUPERVISED BY	C.M. HILES	DATE	AUG. 1981
CHECKED BY	C.M. HILES	DATE	MARCH 19

CORRECT Odellon L. Lovegett
BRIDGE ENGINEER

APPROVED Louis Burns
STATE HIGHWAY ENGINEER

M-15-100

MICROFILMED

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

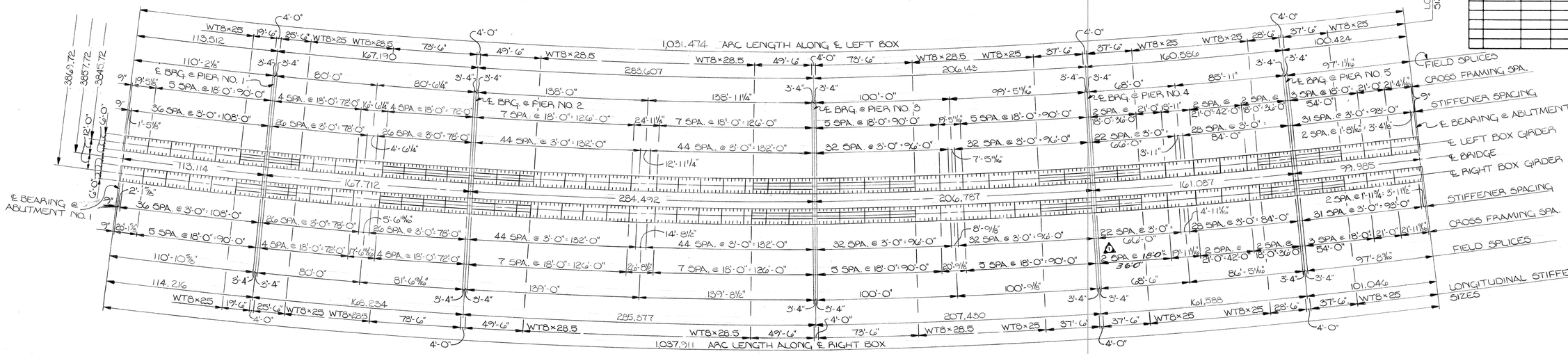
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H.	GENERAL REVISION

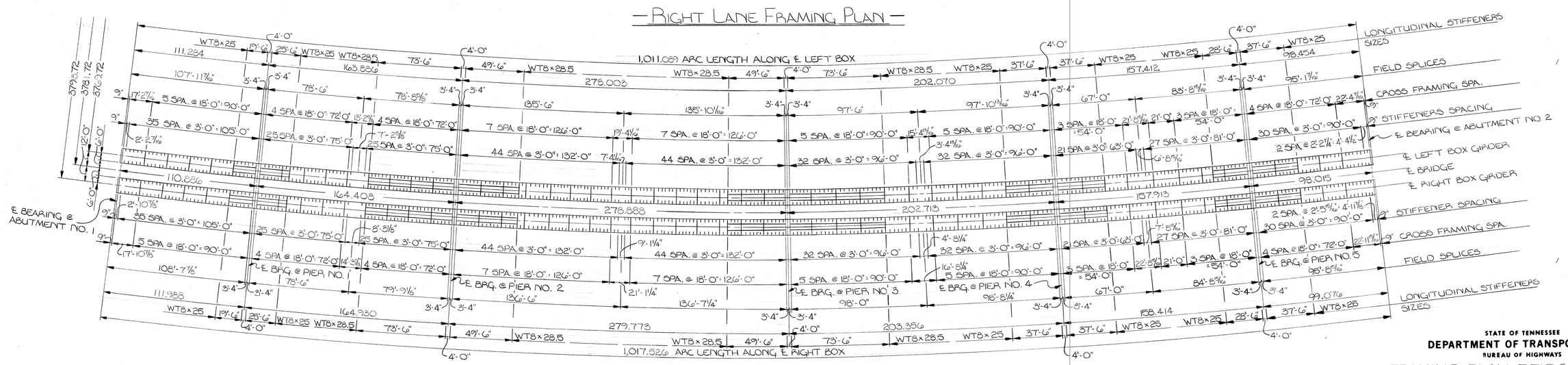
NOTE: 2"Ø WEEP HOLES WITH SCREEN WIRE COVER REQUIRED AT LOW POINT OF EACH SPAN.

NOTE: OMIT SHEAR CONNECTORS ON SPLICE PLATES.

NOTE: ALL LONGITUDINAL SPACING DIMENSIONS ARE ALONG ℄ BOX UNLESS OTHERWISE NOTED.



— RIGHT LANE FRAMING PLAN —



— LEFT LANE FRAMING PLAN —

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FRAMING PLAN BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
RIGHT AND LEFT LANES
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. Hiles DATE
DRAWN BY M.D. DATE 10-81
SUPERVISED BY C.M. Hiles DATE
CHECKED BY DATE

CORRECT Edellon L. Forrest
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-101

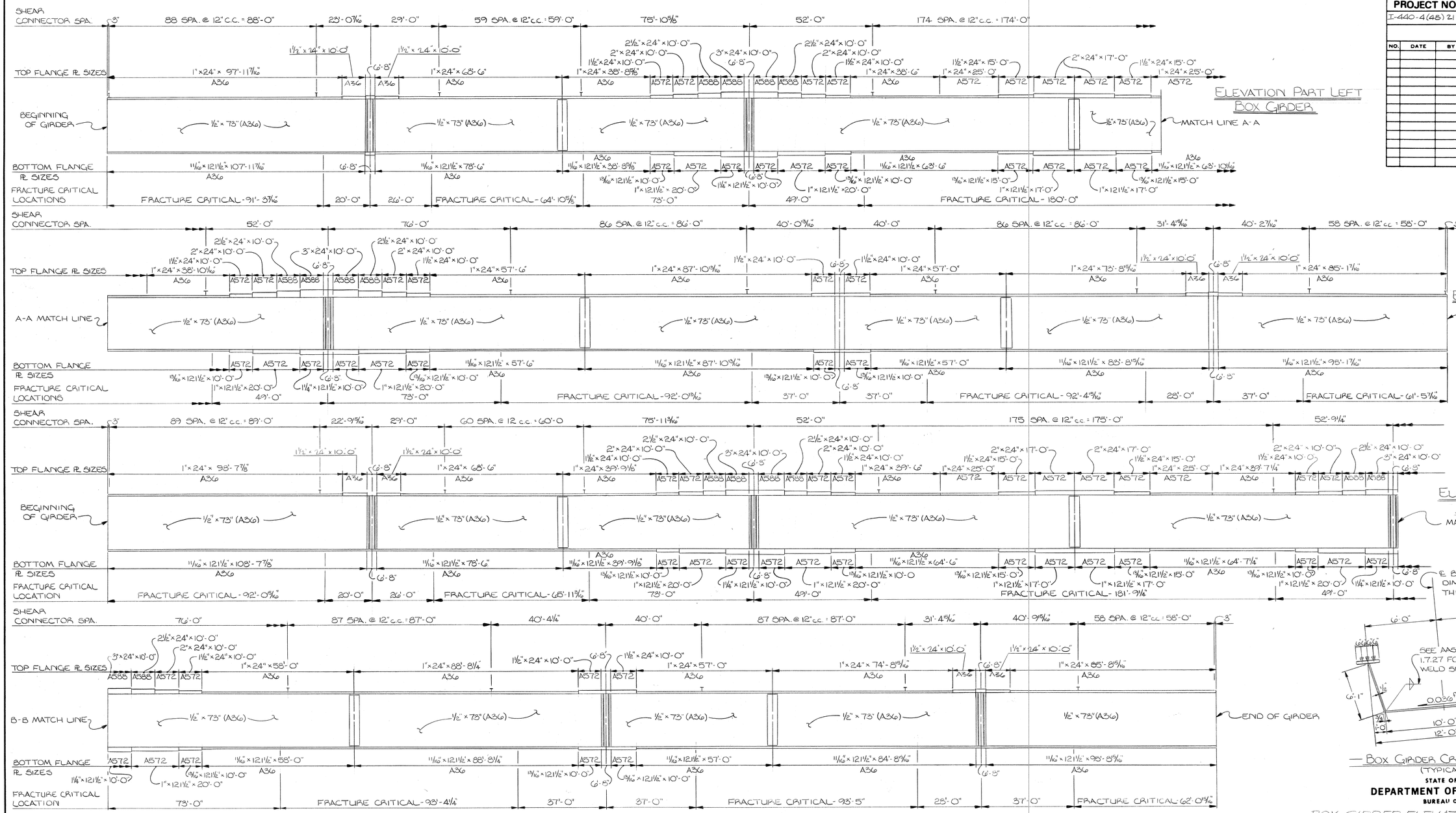
MICROFILMED

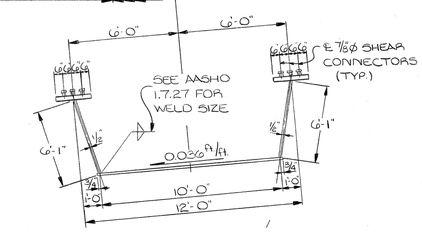
Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48) 211	1982	

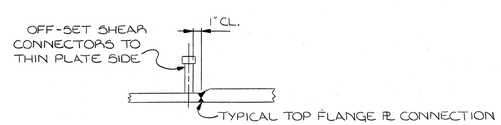
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION





— BOX GIRDER CROSS SECTION —
(TYPICAL)



— TYPICAL SHEAR CONNECTOR OFF-SET —

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BOX GIRDER ELEVATIONS BRIDGE NO. 166
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
LEFT LANE I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 10-81
SUPERVISED BY C.M. HILES & R.L. HARRISON DATE 10-81
CHECKED BY DATE

CORRECT Colelon L. Loveard
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-102

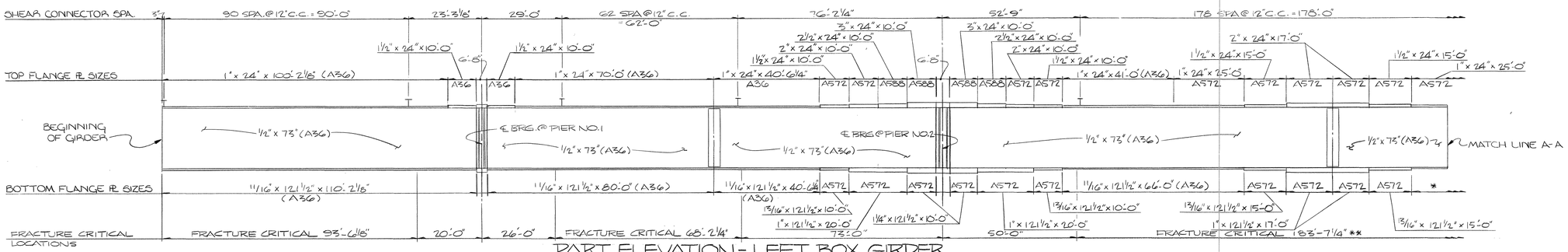
MICROFILMED

Const. No. 19015-3113-44

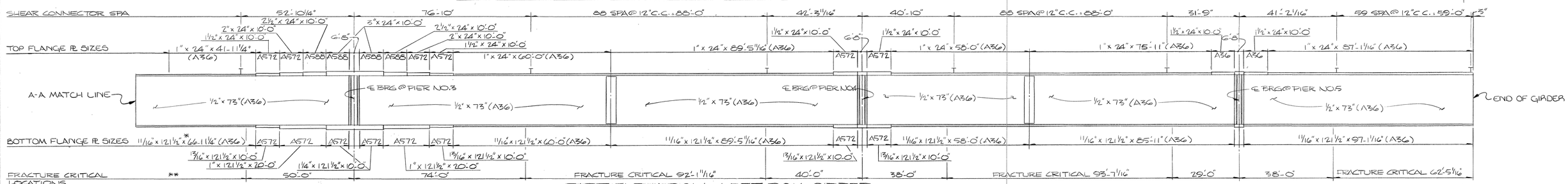
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

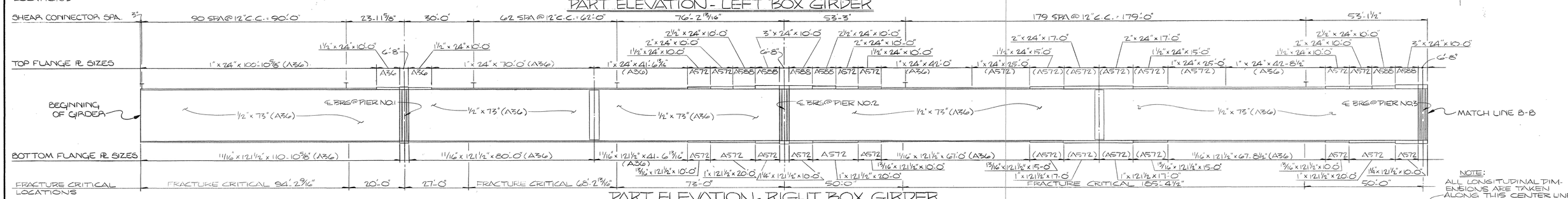
NO.	DATE	BY	BRIEF DESCRIPTION



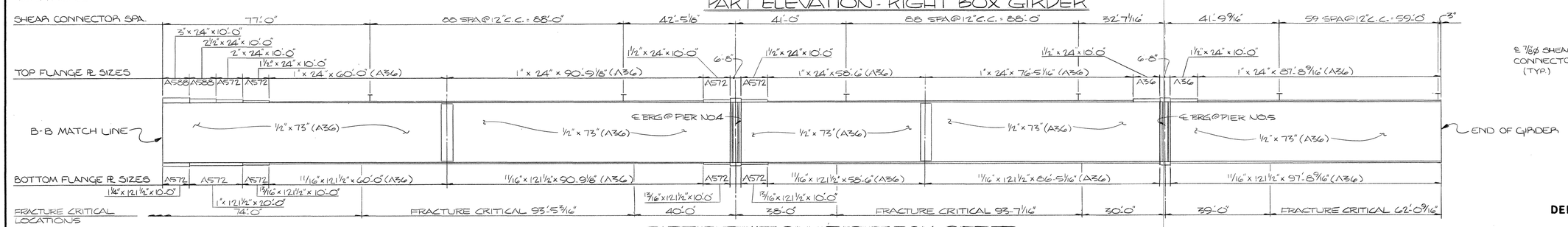
PART ELEVATION - LEFT BOX GIRDER



PART ELEVATION - LEFT BOX GIRDER



PART ELEVATION - RIGHT BOX GIRDER



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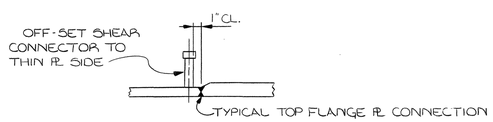
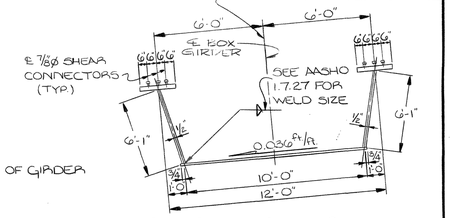


— TYPICAL SHEAR CONNECTOR OFF-SET —

NOTE: ALL LONGITUDINAL DIMENSIONS ARE TAKEN ALONG THIS CENTER LINE



— BOX GIRDER CROSS SECTION —
(TYPICAL)

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BOX GIRDER ELEVATIONS BRIDGE NO. 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
RIGHT LANE I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY DYE / CHILDRESS DATE 10-81
SUPERVISED BY C.M. HILES DATE
CHECKED BY C.M. HILES DATE

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-103

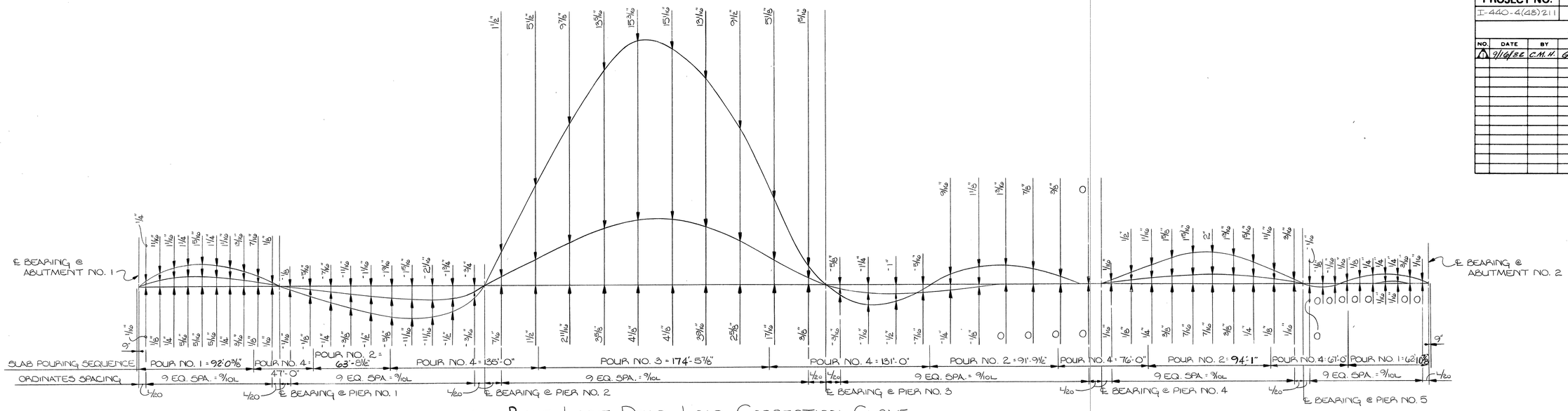
MICROFILMED

Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

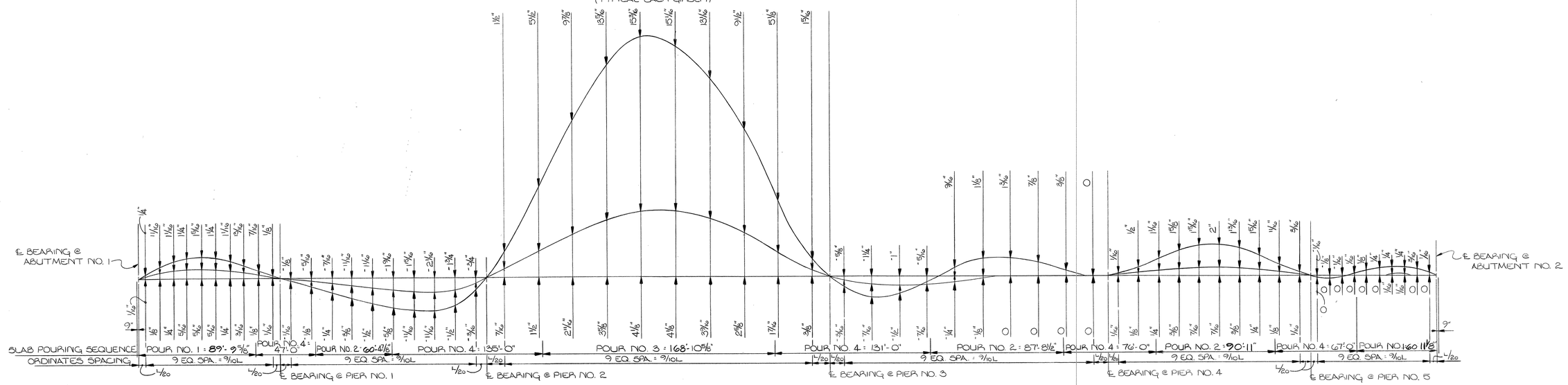
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H.	GENERAL REVISION



1 — RIGHT LANE DEAD LOAD CORRECTION CURVE —

(TYPICAL EACH GIRDER)



1 — LEFT LANE DEAD LOAD CORRECTION CURVE —

(TYPICAL EACH GIRDER)

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

DEAD CORRECTION CURVES
BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
RIGHT AND LEFT LANES
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Gilbert L. Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-104

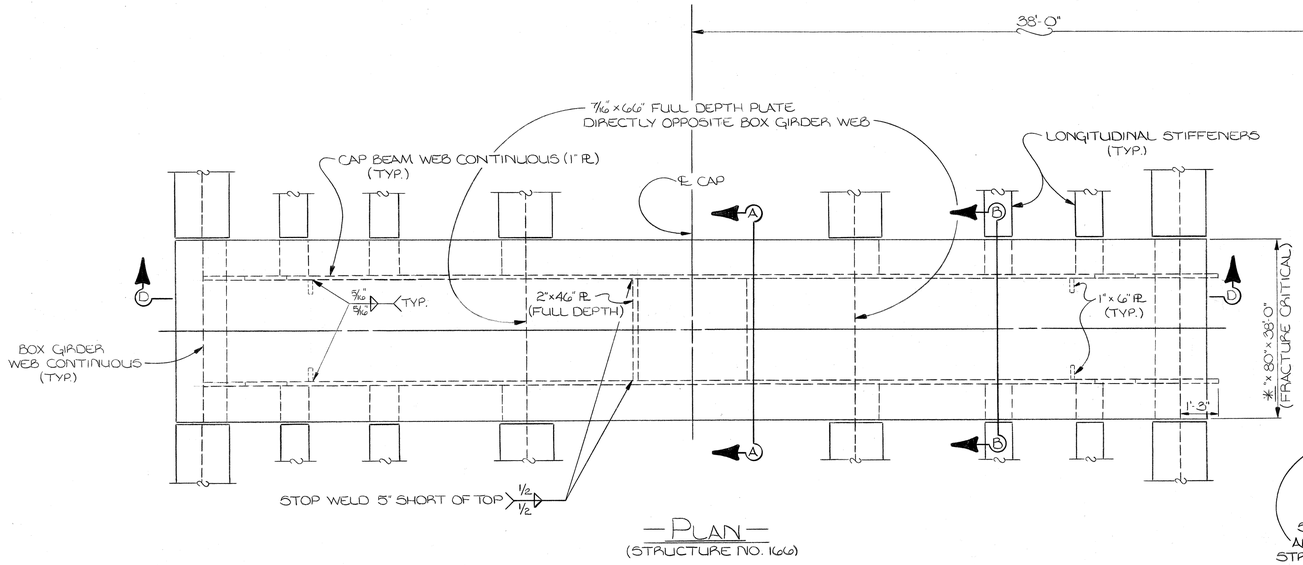
DESIGNED BY C.M. Hiles DATE
DRAWN BY M.D. DATE 10-81
SUPERVISED BY C.M. Hiles DATE
CHECKED BY DATE

Const. No. 19015-3113-44.

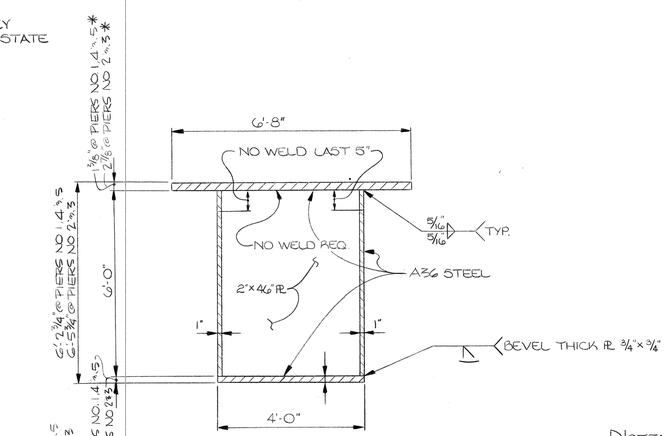
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H.	GENERAL REVISION

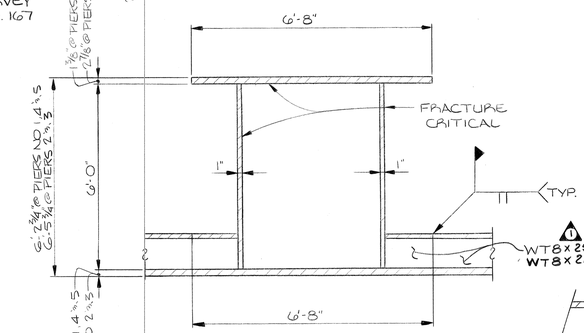


— PLAN —
(STRUCTURE NO. 166)

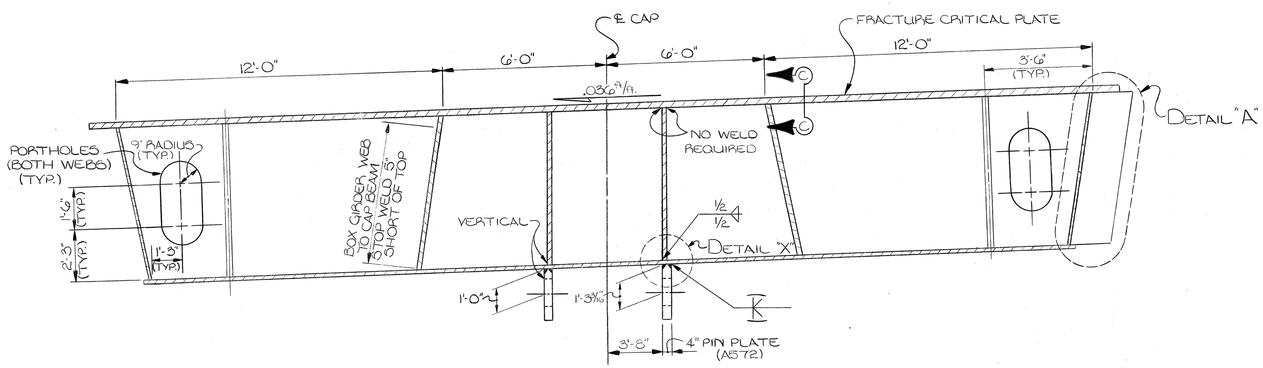


— SECTION A-A —

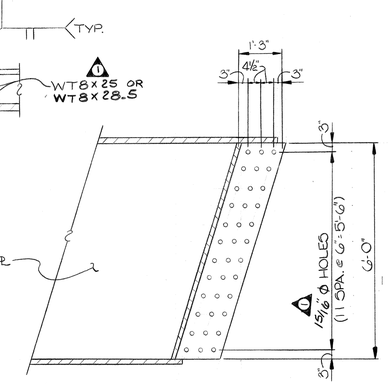
NOTE: FOR STRUCTURAL STEEL GENERAL NOTES SEE DWG. NO. M-15-55.



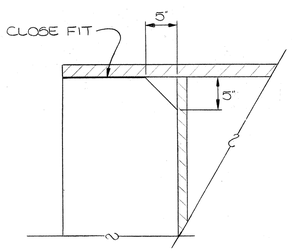
— SECTION B-B —



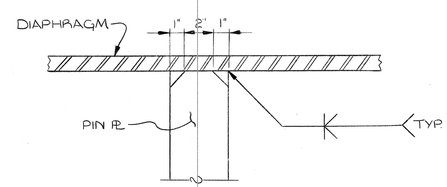
— SECTION D-D —



— DETAIL "A" —



— SECTION C-C —
(TYPICAL BOX GIRDER WEB TO DIAPHRAGM WEB CONNECTION)



— DETAIL "X" —

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

SUPPORT DIAPHRAGMS BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
LEFT AND RIGHT LANES
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

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

M-15-105

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 10-81
SUPERVISED BY C.M. HILES DATE 10-81
CHECKED BY C.M. HILES DATE

MICROFILMED

CONSTRUCTION NO. 19015-3113-44

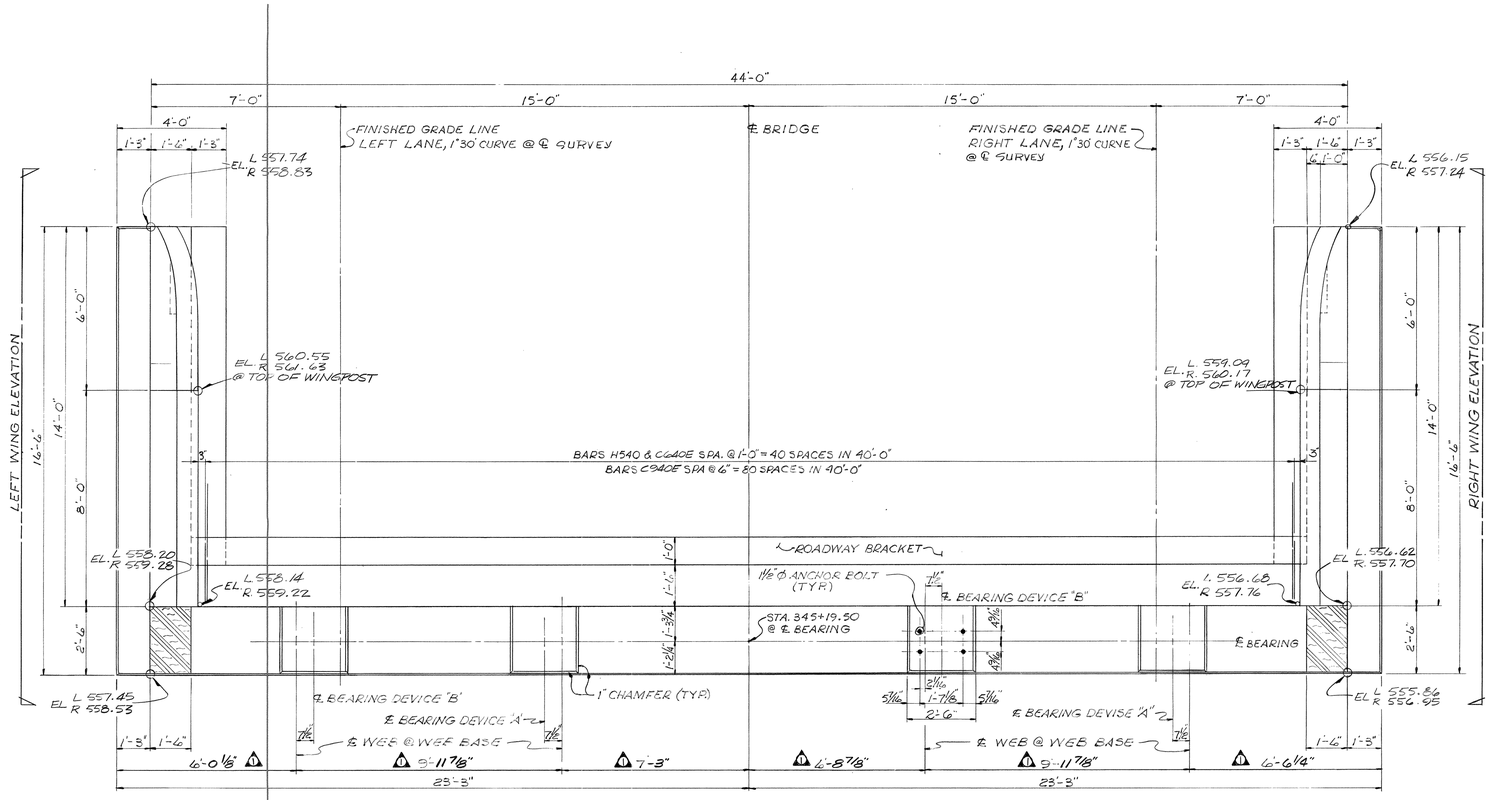
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(42)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H	GENERAL REVISIONS

NOTES:

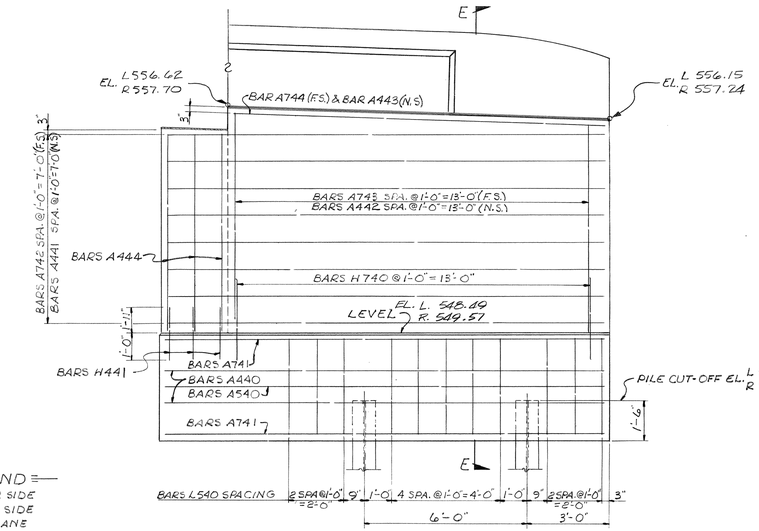
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS, THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPER-SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STD. DWG. NO. M-23-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN COST OF BRIDGE RAIL SYSTEM.



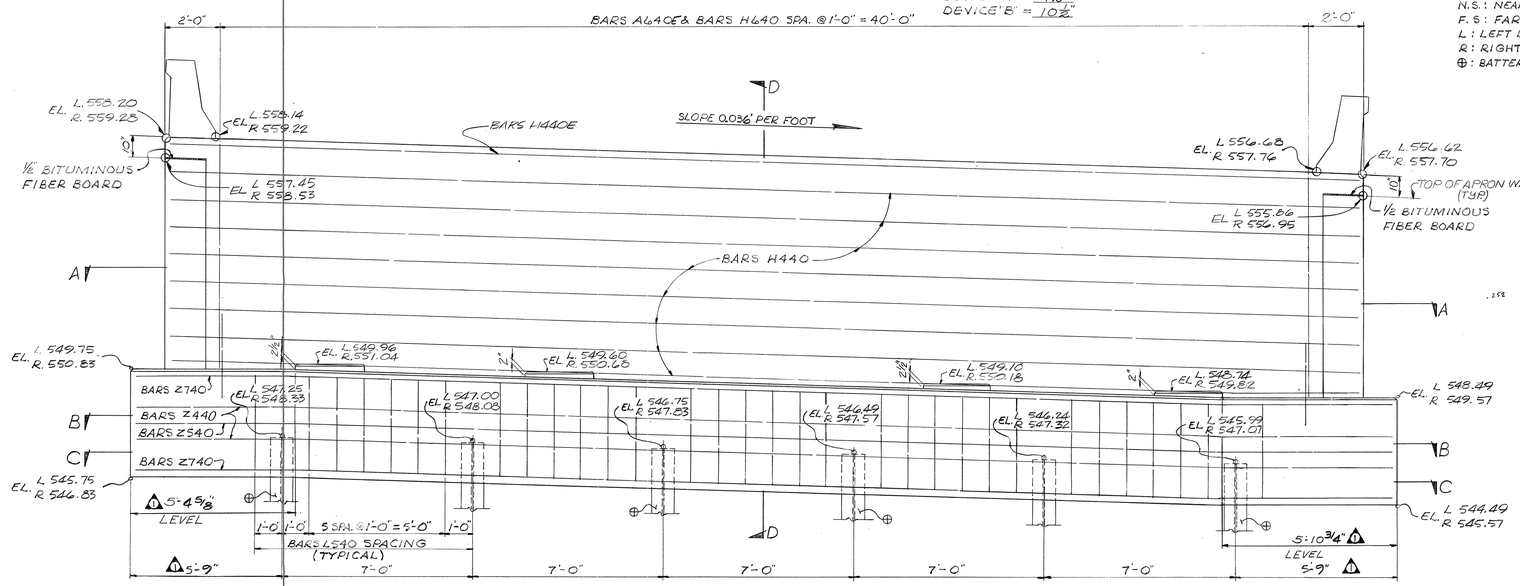
—PLAN—

ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10 1/2"

—LEGEND—
N.S.: NEAR SIDE
F.S.: FAR SIDE
L: LEFT LANE
R: RIGHT LANE
⊕: BATTER FORWARD 2:12



—RIGHT WING ELEVATION—



—ELEVATION ABUTMENTS NO. 1—
LOOKING BACK ON SURVEY

"ESTIMATED QUANTITIES"

ITEM	CONCRETE CLASS "A" C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUT. NO. 1 LEFT LANE	78.2	6,608	2,891
ABUT. NO. 1 RIGHT LANE	78.1	6,608	2,891

NOTE: FOR DETAILS OF SECTION A-A THRU E-E AND LEFT WING ELEVATION SEE DWG. NO. M-15-107.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENTS NO. 1 BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGES
4 LEVEL GRADE SEPARATION
LEFT AND RIGHT LANES
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Lellon L Lovegall
BRIDGE ENGINEER
APPROVED
STATE HIGHWAY ENGINEER

M-15-106

DESIGNED BY C. M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C. M. HILES DATE 19 1
CHECKED BY C. M. HILES DATE 19

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685-4

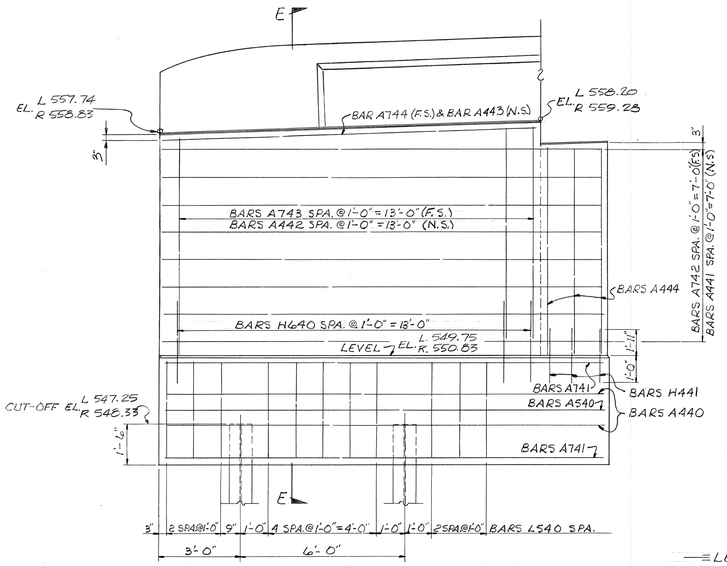
MICROFILMED

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

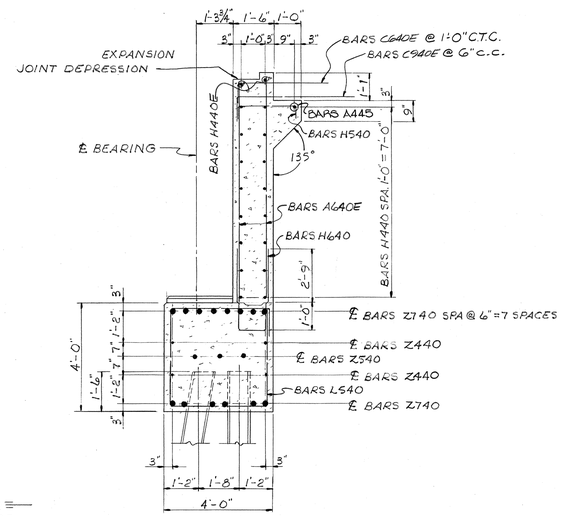
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/15/82	C.M.H.	GENERAL REVISIONS

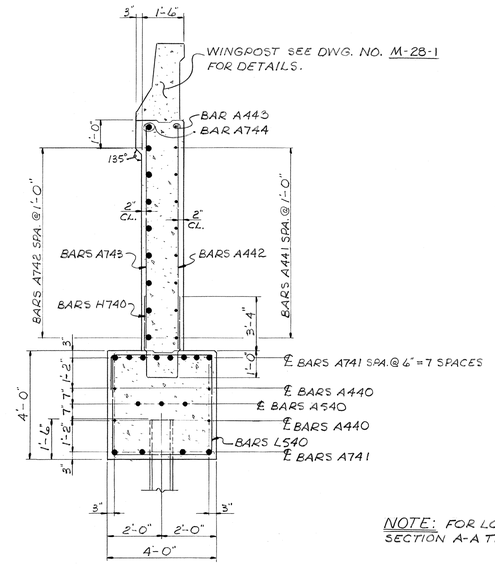


LEFT WING ELEVATION

LEGEND
N.S: NEAR SIDE
F.S: FAR SIDE
L: LEFT LANE
R: RIGHT LANE

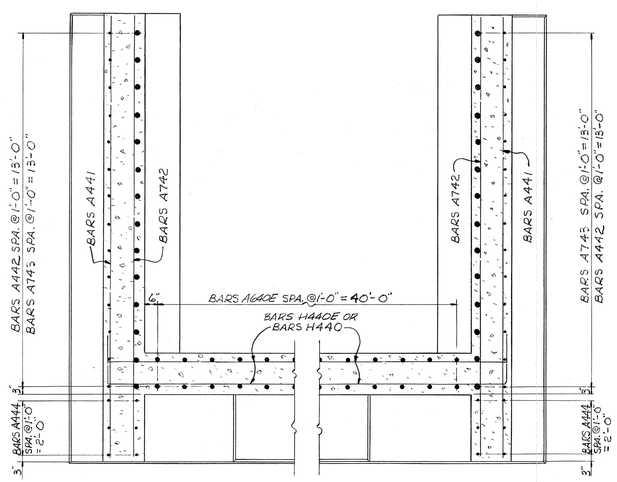


SECTION D-D

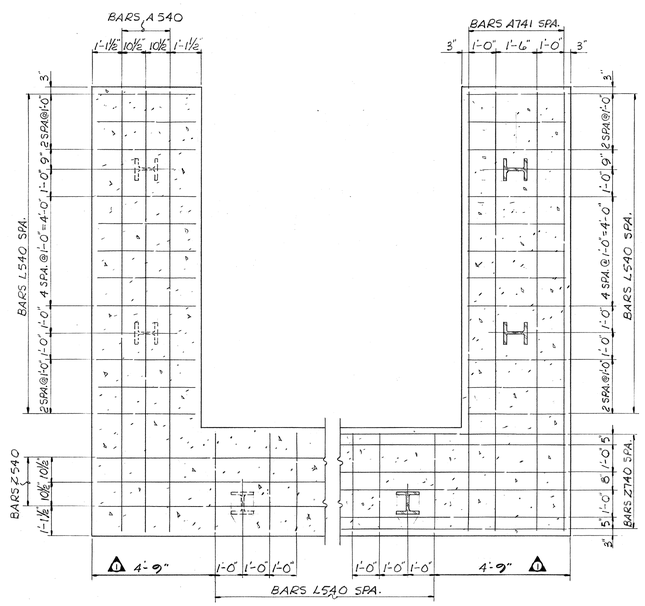


SECTION E-E

NOTE: FOR LOCATION OF CUTTING-PLANE LINE OF SECTION A-A THRU E-E SEE DWG. NO. M-15-106a.

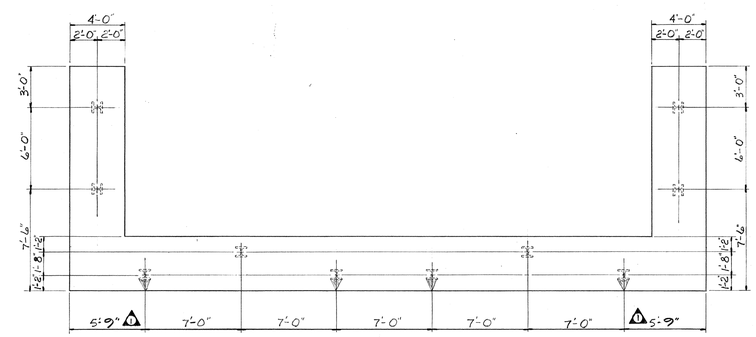


SECTION A-A



SECTION B-B (TYPICAL)

SECTION C-C (TYPICAL)



PLAN
SHOWING PILE ARRANGEMENT

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENTS NO. 1 DETAILS BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
LEFT AND RIGHT LANES
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Edellon L. Loveall
BRIDGE ENGINEER

APPROVED Lewis Evans
STATE HIGHWAY ENGINEER

M-15-107

DESIGNED BY C.M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C.M. HILES DATE 19 1
CHECKED BY C.M. HILES DATE 19

MICROFILMED

DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N665.4

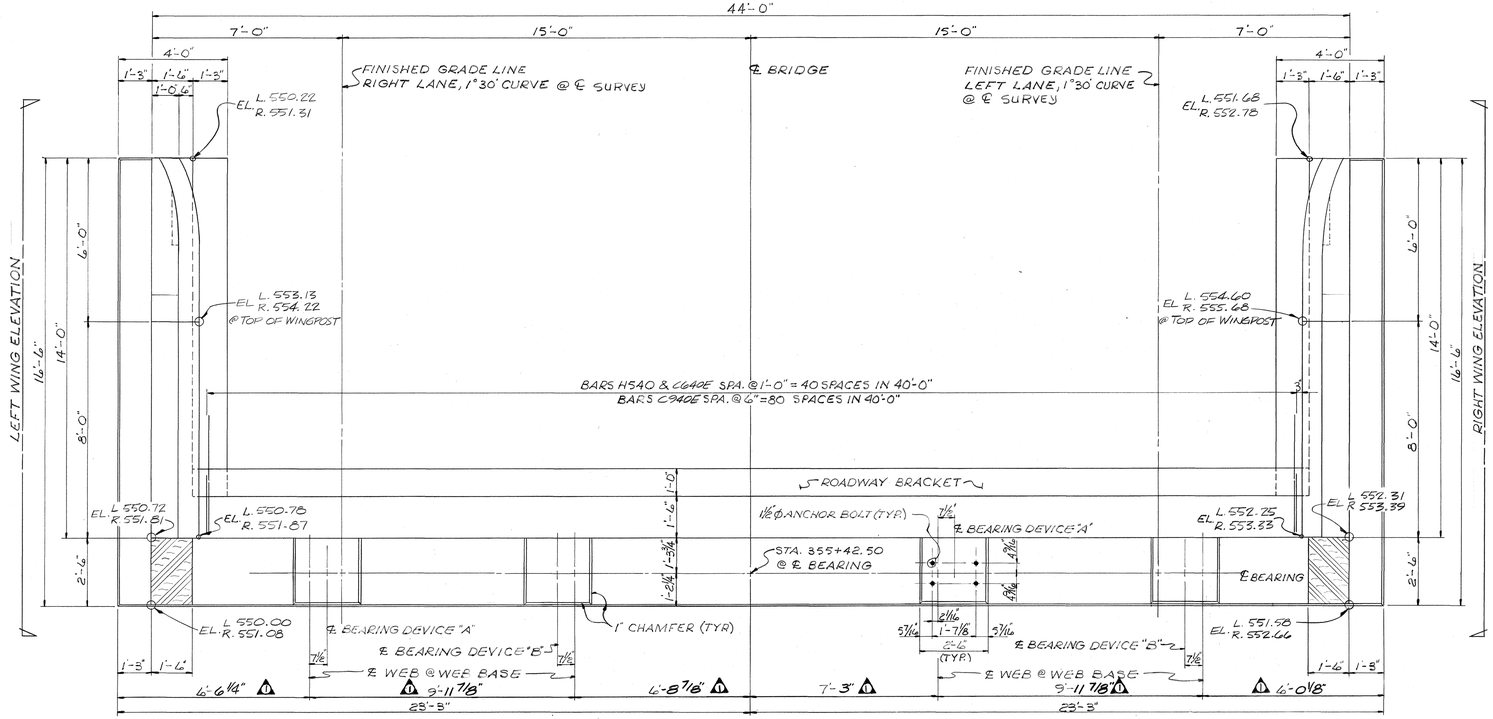
CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/6/82	C.M.H.	GENERAL REVISION

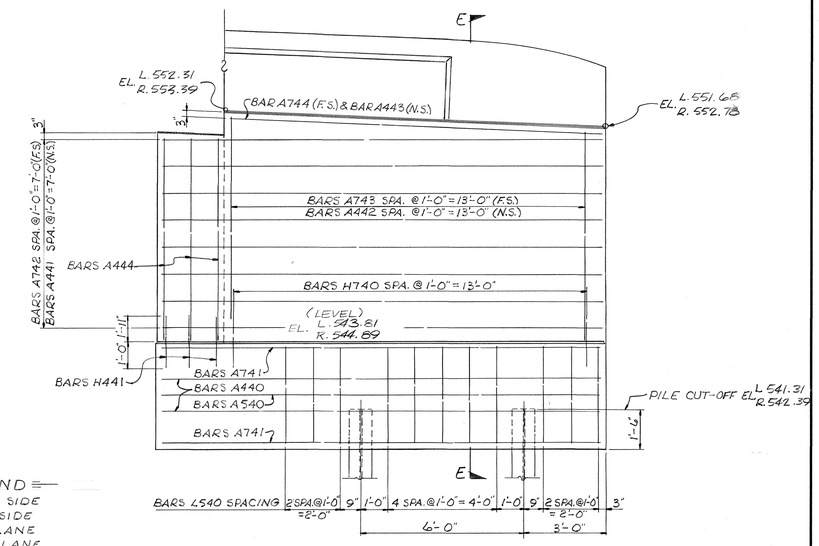
NOTE:
1. RISER BLOCKS TO BE POURED MONOLITHICALLY WITH ABUTMENT BEAM.
2. WHEN POURING ABUTMENT BEAM PROVISIONS SHALL BE MADE FOR SETTING ANCHOR BOLTS. IF THE CONTRACTOR ELECTS TO DRILL THE HOLES FOR THE ANCHOR BOLTS, THE REINFORCING STEEL SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE DRILLING.
3. THE BACKWALL SHALL NOT BE POURED UNTIL THE SUPERSTRUCTURE GIRDERS ARE IN PLACE.
4. TOP OF APRON WALL TO CONFORM TO BOTTOM OF ROADWAY SLAB.
5. WINGWALLS TO CONFORM TO HORIZONTAL CURVE.
6. WHEN POURING WINGWALLS PROVISIONS SHALL BE MADE FOR SETTING REINFORCING STEEL FOR PARAPET AND WINGPOST. FOR DETAILS OF THE WINGPOST AND PARAPET SEE STANDARD DRAWING NO. M-28-1.
7. COST OF BRIDGE RAIL AND POST IS TO BE INCLUDED IN THE COST OF BRIDGE RAIL SYSTEM.



—≡ PLAN ≡—

ANCHOR BOLT PROJECTION
DEVICE "A" = 12"
DEVICE "B" = 10 1/2"

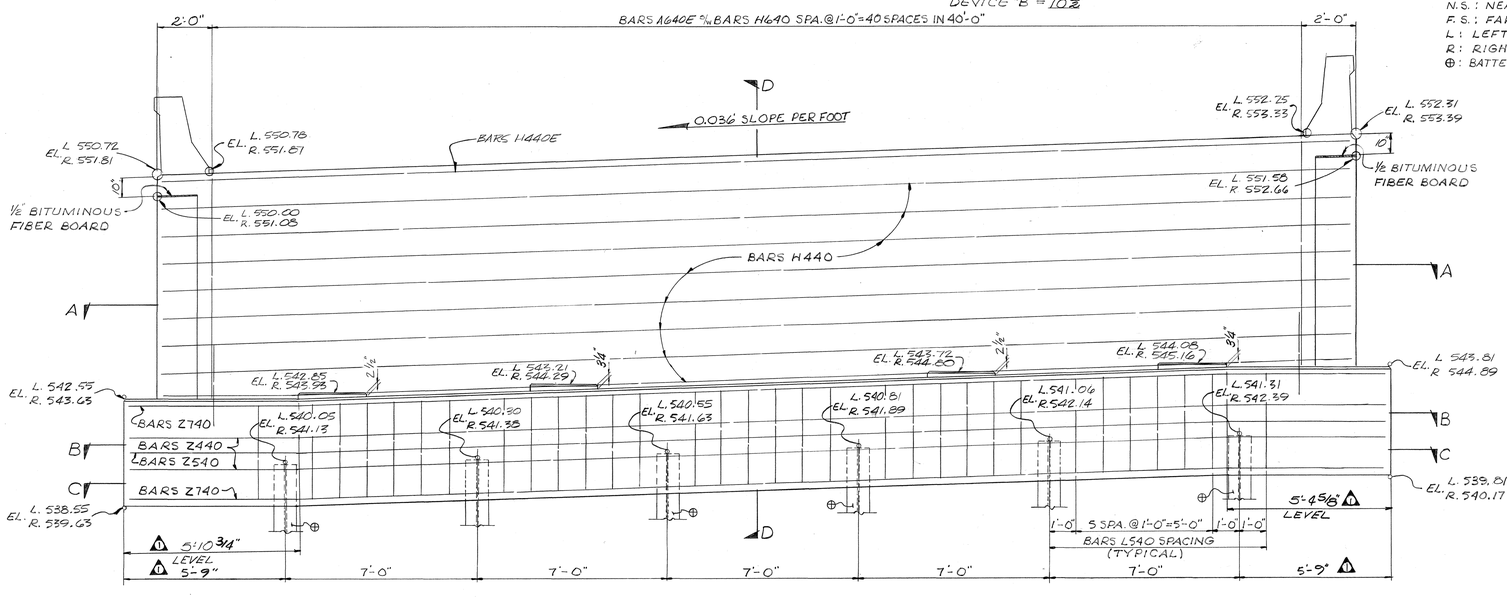
—≡ LEGEND ≡—
N.S. : NEAR SIDE
F.S. : FAR SIDE
L : LEFT LANE
R : RIGHT LANE
⊕ : BATTER FORWARD 2:12



—≡ RIGHT WING ELEVATION ≡—

"ESTIMATED QUANTITIES"

ITEM	CONCRETE CLASS "A" C.Y.	REINFORCING STEEL LBS.	EPOXY COATED REINFORCING STEEL LBS.
ABUT. NO. 2 LEFT LANE	78.3	6,608	2,891
ABUT. NO. 2 RIGHT LANE	78.3	6,608	2,891



—≡ ELEVATION ABUTMENTS NO. 2 ≡—
(LOOKING FORWARD ON SURVEY)

NOTE: FOR DETAILS OF SECTIONS A-A THRU E-E AND LEFT WING ELEVATION SEE DWG. NO. M-15-109.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENTS NO. 2 BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
LEFT AND RIGHT LANES
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Ellellon L. Loveall — BRIDGE ENGINEER
APPROVED Lewis Evans — STATE HIGHWAY ENGINEER

M-15-108

DESIGNED BY C.M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C.M. HILES DATE 19 1
CHECKED BY C.M. HILES DATE 19

MICROFILMED

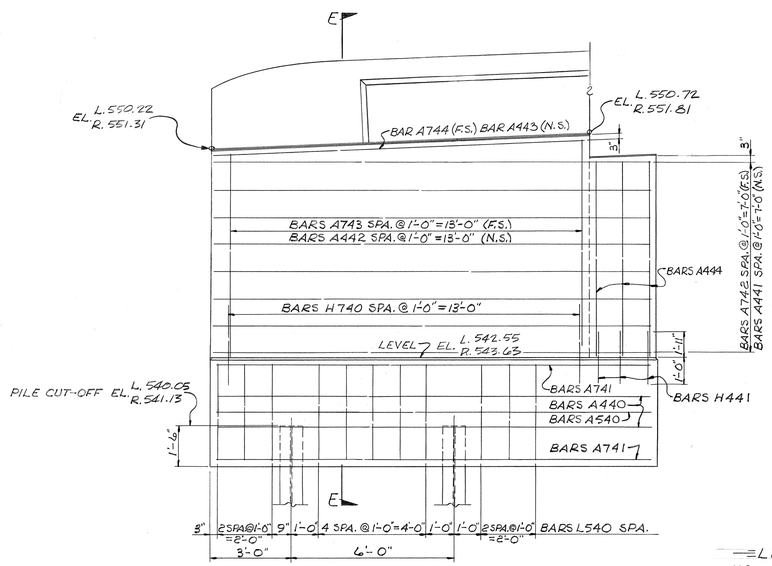
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685.4

CONSTRUCTION NO. 19015-3113-44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

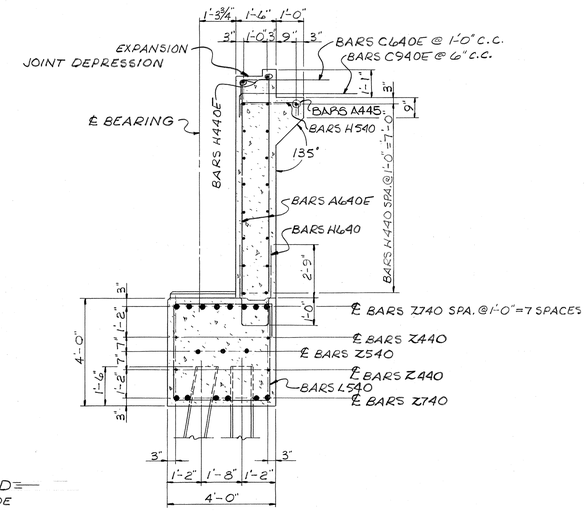
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H.	GENERAL REVISIONS

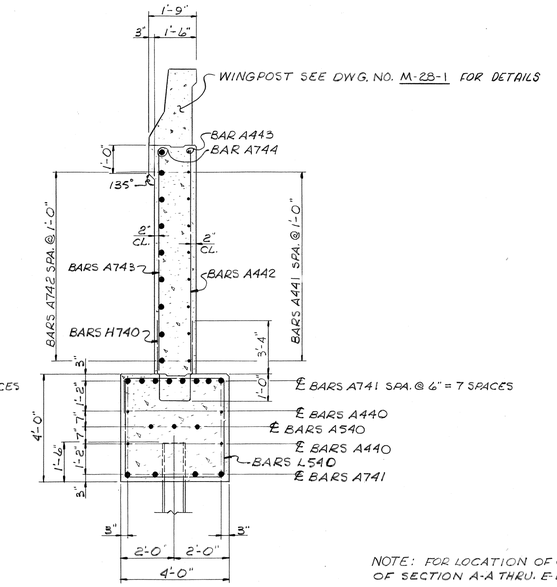


LEFT WING ELEVATION

LEGEND
N.S.: NEAR SIDE
F.S.: FAR SIDE
L: LEFT LANE
R: RIGHT LANE

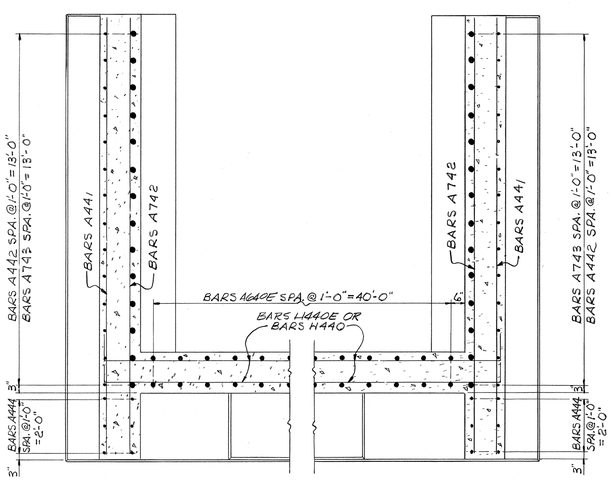


SECTION D-D

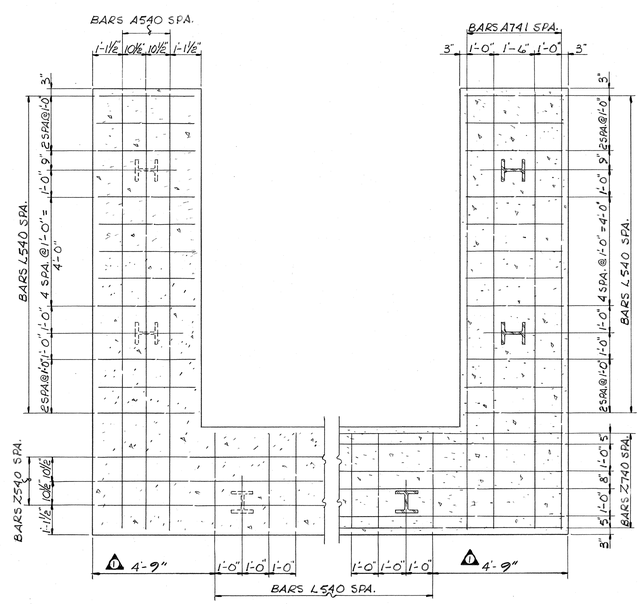


SECTION E-E

NOTE: FOR LOCATION OF CUTTING PLANE LINE OF SECTION A-A THRU. E-E SEE DWG. NO. M-15-105

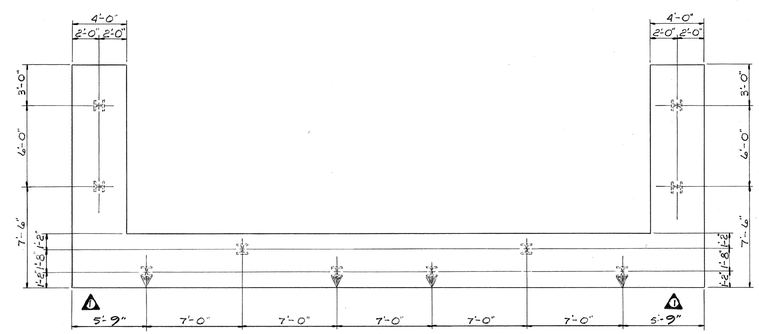


SECTION A-A



SECTION B-B (TYPICAL)

SECTION C-C (TYPICAL)



PLAN
SHOWING PILE ARRANGEMENT

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

ABUTMENTS NO. 2 DETAILS BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
LEFT AND RIGHT LANES
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Clellon L. Hoveall — BRIDGE ENGINEER
APPROVED Lewis Evans — STATE HIGHWAY ENGINEER

M-15-109

DESIGNED BY C.M. HILES DATE 19 1
DRAWN BY DATE 19 1
SUPERVISED BY C.M. HILES DATE 19 1
CHECKED BY C.M. HILES DATE 19

MICROFILMED

CHARTING MEDIA GRAPHIC CONTROLS CORPORATION Buffalo, New York Printed in U.S.A. ASTROFILM® N685-4

Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	OPTIONAL STEEL SHELL FIELD SPLICE; REINF. STEEL CUT.
2	9/16/82	C.M.H.	GENERAL REVISIONS

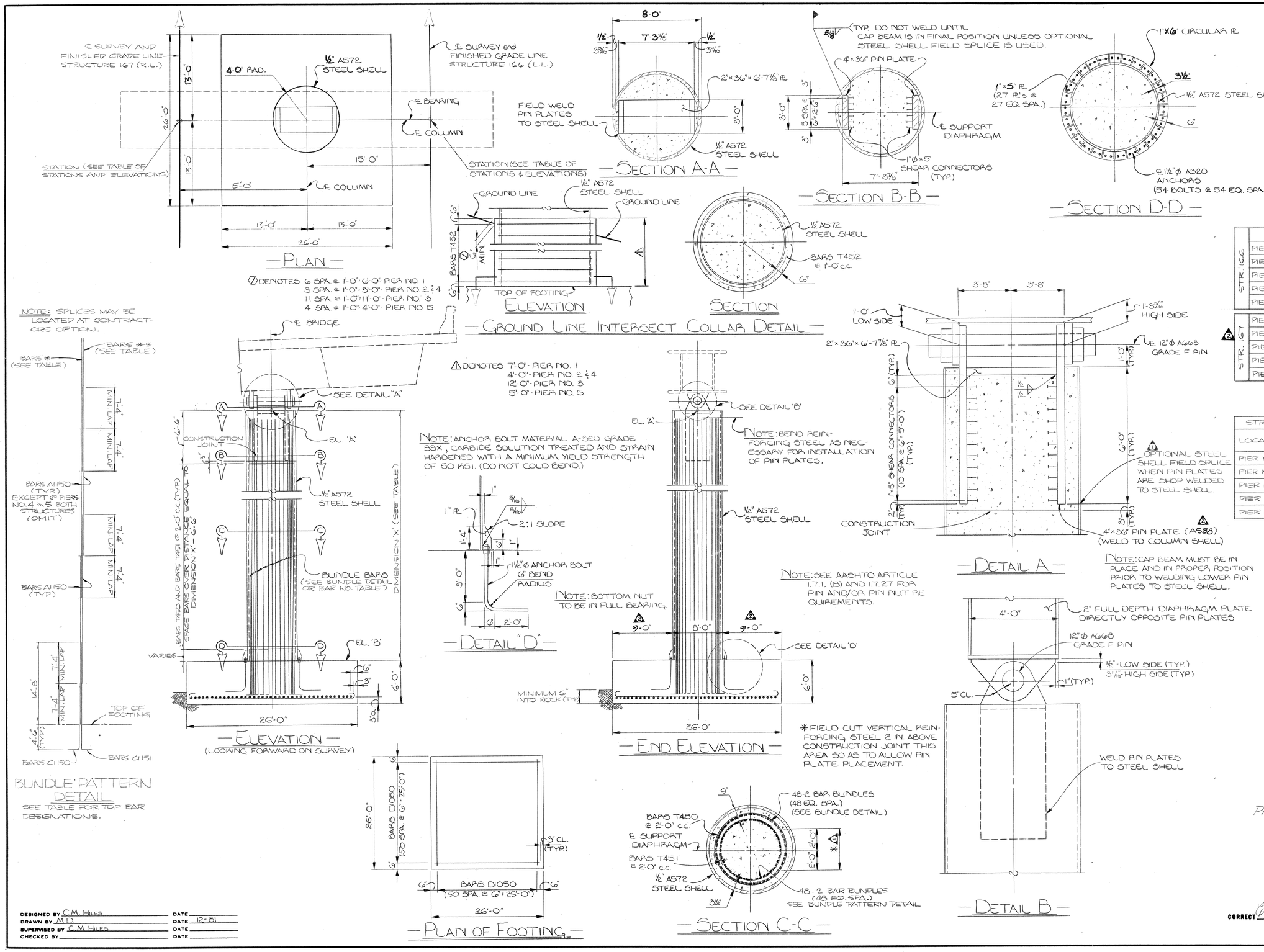


TABLE OF ELEVATIONS, DIMENSIONS AND STATIONS

		STATION	EL 'A'	EL 'B'	DIMENSION 'X'
STR. 166	PIER NO. 1	346+31.50	551.30	478.00	73'-3 5/16"
	PIER NO. 2	347+97.56	554.11	479.00	75'-1 5/16"
	PIER NO. 3	350+79.25	554.41	483.00	71'-4 5/16"
	PIER NO. 4	352+84.00	551.05	495.00	56'-0 9/16"
	PIER NO. 5	354+43.50	546.16	486.00	60'-1 15/16
STR. 167	PIER NO. 1	346+31.50	552.37	478.00	74'-4 5/8"
	PIER NO. 2	347+97.56	555.19	479.00	76'-2 3/8"
	PIER NO. 3	350+79.25	555.49	483.00	72'-6"
	PIER NO. 4	352+84.00	552.12	495.00	57'-1 1/2"
	PIER NO. 5	354+43.50	547.25	486.00	61'-3"

TABLE FOR DETERMINING COLUMN BAR DESIGNATIONS

STRUCTURE 166			STRUCTURE 167		
LOCATION	SYMBOLS USED BARS *	SYMBOLS USED BARS **	LOCATION	SYMBOLS USED BARS *	SYMBOLS USED BARS **
PIER NO. 1	A1151	A1152	PIER NO. 1	A1161	A1162
PIER NO. 2	A1153	A1154	PIER NO. 2	A1163	A1164
PIER NO. 3	A1155	A1156	PIER NO. 3	A1165	A1166
PIER NO. 4	A1157	A1158	PIER NO. 4	A1167	A1168
PIER NO. 5	A1159	A1160	PIER NO. 5	A1169	A1170

ESTIMATED QUANTITIES

	ITEM	CLASS 'A' CONCRETE (BRIDGES) C.Y.	STEEL BAR REINFORCEMENT (BRIDGES) LBS.
STRUCTURE 166	PIER NO. 1	284.3	117,933
	PIER NO. 2	287.4	119,778
	PIER NO. 3	281.1	116,125
	PIER NO. 4	252.6	92,695
	PIER NO. 5	260.2	96,770
STRUCTURE 167	ITEM	CLASS 'A' CONCRETE (BRIDGES) C.Y.	STEEL BAR REINFORCEMENT (BRIDGES) LBS.
	PIER NO. 1	286.7	119,409
	PIER NO. 2	289.8	121,146
	PIER NO. 3	283.6	117,431
	PIER NO. 4	255.1	94,001
	PIER NO. 5	262.6	98,331

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

PIERS NO. 1 THRU 5 BRIDGES NO. 166 & 167
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
I440 STRUCTURES
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 12-81
SUPERVISED BY C.M. HILES DATE
CHECKED BY DATE

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

M-15-110

MICROFILMED

CONSTRUCTION NO. 19015-3113-44					
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-440-4(48)211	1982		

BILL OF STEEL

BRIDGE No. 166 LEFT LANE

SUPERSTRUCTURE

Bar	Location	Size	No. Req'd.	Bending Dimensions A	B	C	D	Length
A600E	SLAB	6	442B					43'-8"
A601E	SLAB	6	1944					40'-1"
A800E	SLAB	8	8					12'-0"
PAVEMENT @ BRIDGE ENDS								
A490E	SLAB	4	100					40'-2"
A490E	SLAB	4	82					24'-2"
A790E	FOOTING	7	16					40'-2"
A990E	SLAB	9	162					24'-2"
A1190E	SLAB @ DRAINS	11	8					6'-0"
L590E	FOOTING/SLAB	5	136					7'-5"

ABUTMENTS NO. 1 & 2 (EACH)

Bar	Location	Size	No. Req'd.	Bending Dimensions A	B	C	D	Length
A440	BEAM WINGS	4	8					16'-2"
A441	WINGWALLS	4	16					16'-2"
A442	WINGWALLS	4	28					7'-6"
A443	WINGWALLS	4	2					13'-8"
A444	APRON WALLS	4	12					7'-2"
A445	RDWY. BRKT.	4	1					43'-0"
								22'-1"
A540	BEAM WINGS	5	6					16'-2"
A640E	ENDWALLS	6	82					7'-11"
A741	BEAM WINGS	7	24					16'-2"
A742	WINGWALLS	7	16					16'-2"
A743	WINGWALLS	7	28					7'-6"
A744	WINGWALLS	7	2					13'-8"
C640E	APPROACH SLAB	6	41					4'-5"
C990E	APPROACH SLAB	9	81					5'-9"
H440E	ENDWALLS	4	2	43'-9"				45'-1"
H440	ENDWALLS	4	16	43'-9"				45'-1"
H441	ENDWALLS	4	6	1'-2"	2'-11"			6'-11"
H540	RDWY. BRKT.	5	41	2'-2"	7"			3'-9"
H640	ENDWALLS	6	41	1'-2"	3'-9"			8'-7"
H740	WINGWALLS	7	28	1'-2"	4'-4"			9'-8"
L540	BEAM & WINGS	5	54	3'-8"	1'-0"	3'-8"		15'-6"
Z440	BEAM	4	4	5'-3"	35'-3"	5'-8"	1'-3"	46'-2"
Z540	BEAM	5	2	5'-3"	35'-3"	5'-8"	1'-3"	46'-2"
Z740	BEAM	7	14	5'-3"	35'-3"	5'-8"	1'-3"	46'-2"

PIERS

Bar	Location	Size	No. Req'd.	Bending Dimensions A	B	C	D	Length
PIER NO. 1								
A1150	COLUMN	11	384					30'-0"
A1151	COLUMN	11	96					27'-8"
A1152	COLUMN	11	96					20'-4"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	33	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	33	6'-6	1'-0"			21'-5"
T452	COLLAR	4	12	8'-6	1'-0"			27'-9"
PIER NO. 2								
A1150	COLUMN	11	384					30'-0"
A1153	COLUMN	11	96					29'-6"
A1154	COLUMN	11	96					22'-2"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	35	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	35	6'-6	1'-0"			21'-5"
T452	COLLAR	4	4	8'-6	1'-0"			27'-9"
PIER NO. 3								
A1150	COLUMN	11	384					30'-0"
A1155	COLUMN	11	96					25'-10
A1156	COLUMN	11	96					18'-6
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	33	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	33	6'-6	1'-0"			21'-5"
T452	COLLAR	4	12	8'-6	1'-0"			27'-9"
PIER NO. 4								
A1150	COLUMN	11	192					30'-0"
A1157	COLUMN	11	96					33'-3"
A1158	COLUMN	11	96					25'-11"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	25	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	25	6'-6	1'-0"			21'-5
T452	COLLAR	4	4	8'-6	1'-0"			27'-9"
PIER NO. 5								
A1150	COLUMN	11	192					30'-0"
A1159	COLUMN	11	96					37'-2"
A1160	COLUMN	11	96					29'-10
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	27	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	27	6'-6	1'-0"			21'-5"
T452	COLLAR	4	5	8'-6"	1'-0"			27'-9"

BRIDGE No. 167 RIGHT LANE

SUPERSTRUCTURE

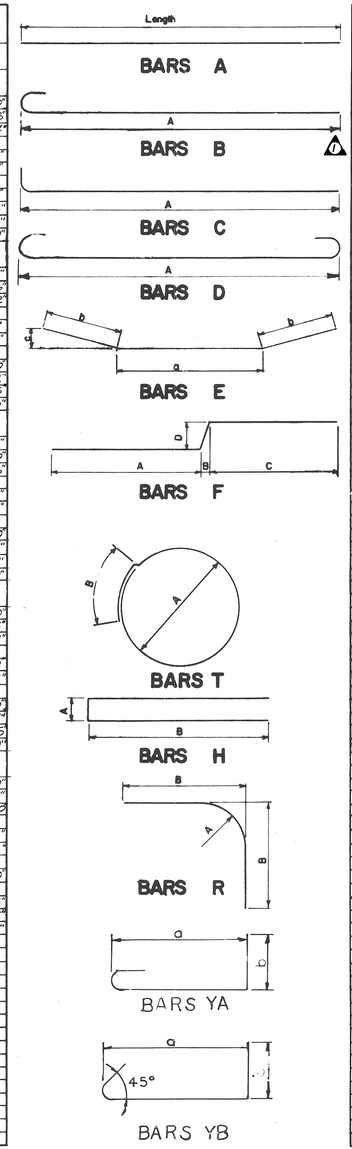
Bar	Location	Size	No. Req'd.	Bending Dimensions A	B	C	D	Length
A600E	SLAB	6	451G					43'-8"
A601E	SLAB	6	1944					40'-8"
A800E	SLAB	8	8					8'-3"
PAV'M'NT @ BRIDGE ENDS	SAME AS BRIDGE NO. 166							

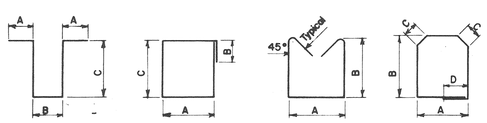
ABUTMENTS NO. 1 & 2 (EACH)

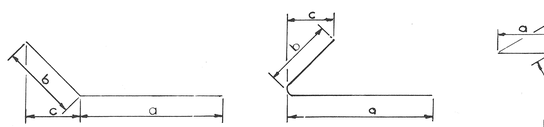
SAME AS BRIDGE No. 166

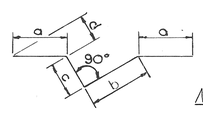
PIERS

Bar	Location	Size	No. Req'd.	Bending Dimensions A	B	C	D	Length
PIER NO. 1								
A1150	COLUMN	11	384					30'-0"
A1161	COLUMN	11	96					29'-1"
A1162	COLUMN	11	96					21'-9"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	35	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	35	6'-6	1'-0"			21'-5"
T452	COLLAR	4	7	8'-6	1'-0"			27'-9"
PIER NO. 2								
A1150	COLUMN	11	384					30'-0"
A1163	COLUMN	11	96					30'-11"
A1164	COLUMN	11	96					23'-7"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	35	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	35	6'-6	1'-0"			21'-5"
T452	COLLAR	4	4	8'-6	1'-0"			27'-9"
PIER NO. 3								
A1150	COLUMN	11	384					30'-0"
A1165	COLUMN	11	96					27'-1"
A1166	COLUMN	11	96					19'-9"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	34	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	34	6'-6	1'-0"			21'-5"
T452	COLLAR	4	12	8'-6	1'-0"			27'-9"
PIER NO. 4								
A1150	COLUMN	11	192					30'-0"
A1167	COLUMN	11	96					34'-6
A1168	COLUMN	11	96					27'-2"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	26	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	26	6'-6	1'-0"			21'-5
T452	COLLAR	4	4	8'-6	1'-0"			27'-9
PIER NO. 5								
A1150	COLUMN	11	192					30'-0"
A1169	COLUMN	11	96					38'-8"
A1170	COLUMN	11	96					31'-4"
C1150	COL./FOOTING	11	96	12'-10	2'-0"			14'-9"
C1151	COL./FOOTING	11	96	20'-2	2'-0"			22'-1"
D1050	FOOTING	10	102	25'-6	1'-3"			28'-0"
T450	COLUMN	4	28	7'-5"	1'-0"			24'-4"
T451	COLUMN	4	28	6'-6	1'-0"			21'-5"
T452	COLLAR	4	5	8'-6	1'-0"			27'-9"

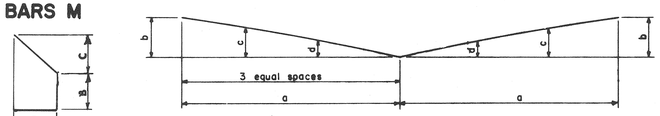


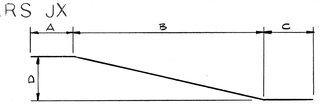






NOTE: THE SUFFIX 'E' DENOTES EPOXY-COATED REINFORCEMENT.





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	5/20/83	C.M.H.	ADDED BARS A800E.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BILL OF STEEL

BRIDGES NO. 166 AND 167
I440/I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
I440 ROADWAY STRUCTURE
DAVIDSON COUNTY
1982

CORRECT Charles L. Truwell
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-111

DESIGNED BY C.M. HILES DATE 81
DRAWN BY M. CHILDRESS DATE 01-81
SUPERVISED BY HILES/HARBISON DATE 01-81
CHECKED BY HILES DATE -81

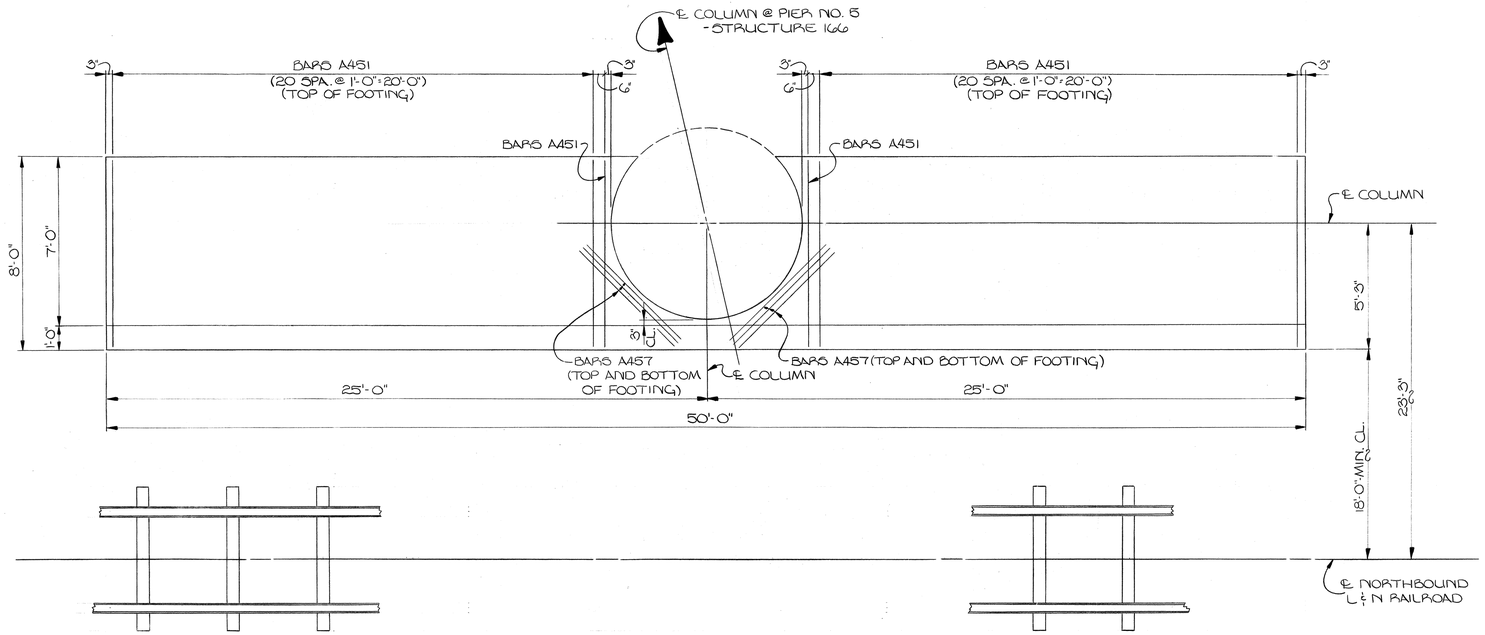
MICROFILMED

Const. No. 19015-3113-44 .

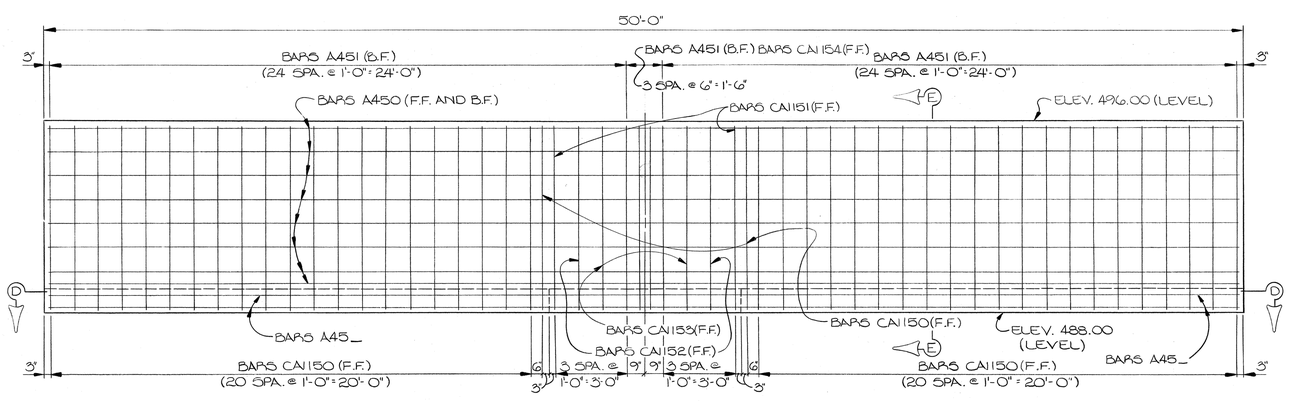
PROJECT NO.	YEAR	SHEET NO.
I-440-4(46)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



—PLAN—



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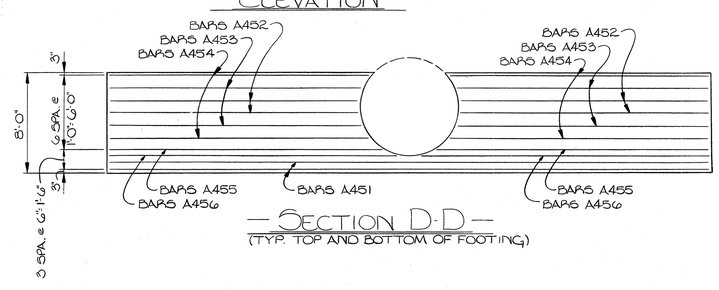
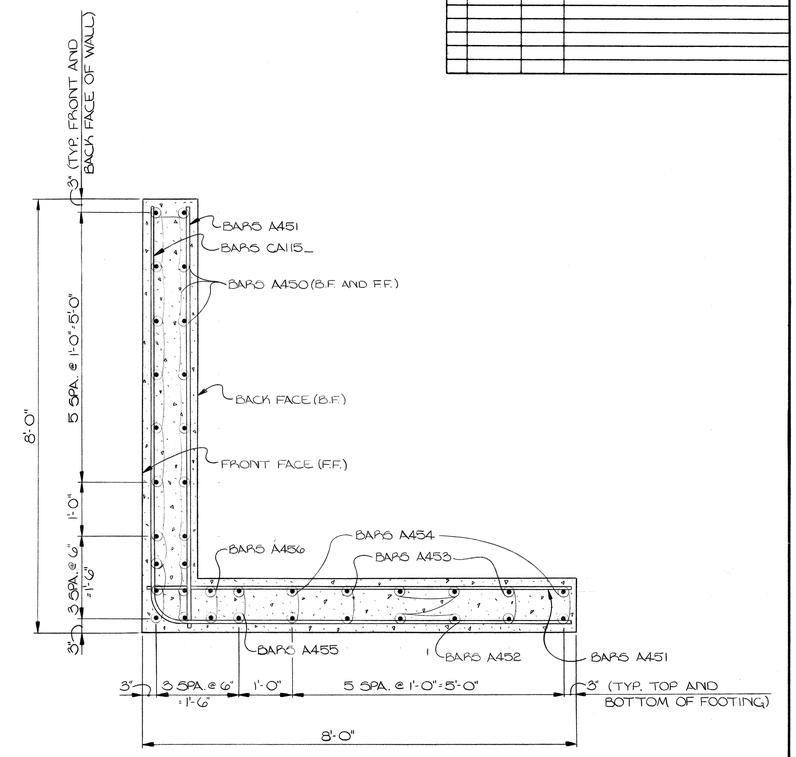


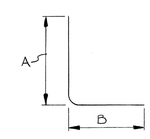
—SECTION D-D—
(TYP. TOP AND BOTTOM OF FOOTING)



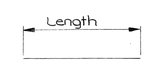
—SECTION E-E—

BILL OF STEEL

Bars	Location	Size	No. Req'd	Bending Dimensions A	B	C	D	Length
A450	WALL	4	20					49'-8"
A451	WALL & FOOTING	4	96					7'-8"
A452	FOOTING	4	8					20'-9"
A453	FOOTING	4	8					21'-0"
A454	FOOTING	4	8					21'-7"
A455	FOOTING	4	4					22'-9"
A456	FOOTING	4	4					24'-0"
A457	FOOTING	4	12					5'-6"
CA150	WALL & FOOTING	11	44	7'-8"	7'-8"			15'-3"
CA151	WALL & FOOTING	11	2	7'-8"	3'-3"			11'-3"
CA152	WALL & FOOTING	11	2	7'-8"	2'-1"			9'-9"
CA153	WALL & FOOTING	11	2	7'-8"	1'-5"			8'-11"
CA154	WALL & FOOTING	11	4	7'-8"	1'-1"			8'-8"



BARS CA



BARS A

ESTIMATED QUANTITIES

ITEM NO.	604-03.01	604-03.02	604-04.01
ITEM	CLASS "A" CONCRETE (BRIDGES) CY.	STEEL BAR REINFORCEMENT (BRIDGES) LBS.	APPLIED TEXTURED FINISH (NEW STRUCTURES) SY.
CRASH WALL	26.1	5729	46.2

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

CRASH WALL
BRIDGE NO. 166-PIER NO. 5
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

CORRECT Clellon L. Loveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-112

DESIGNED BY C.M. HILES DATE 11-81
DRAWN BY M. DYE DATE 1-82
SUPERVISED BY HILES & HARRISON DATE 1-82
CHECKED BY DATE

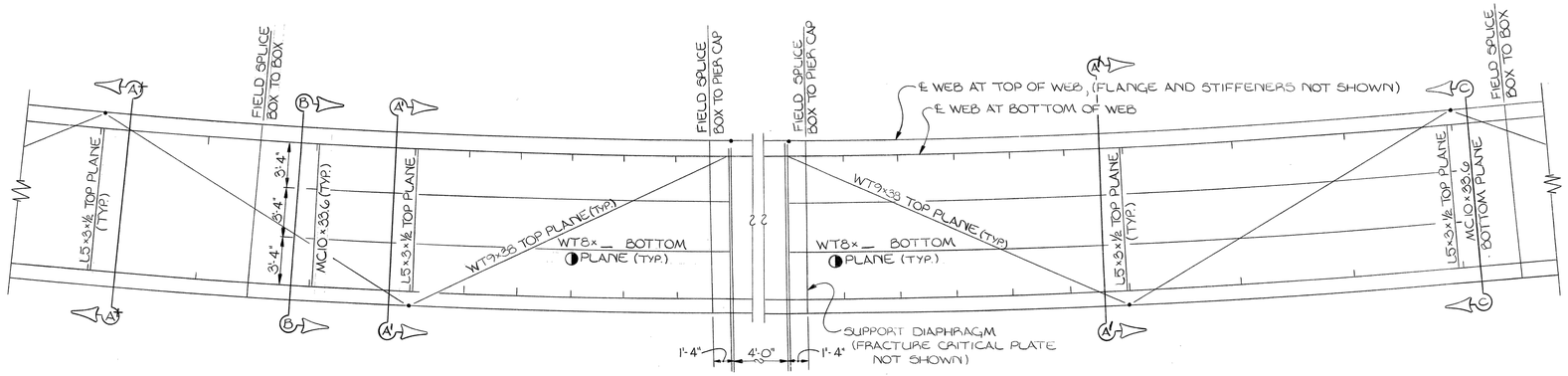
MICROFILMED

Const. No. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	WELDS ALTERED.



◑ FOR LOCATION OF WT8×25 AND WT8×28.5 SEE FRAMING PLANS DWG. NO. M-15-101.

LONGITUDINAL STIFFENERS NOT TERMINATING AT CROSS FRAME

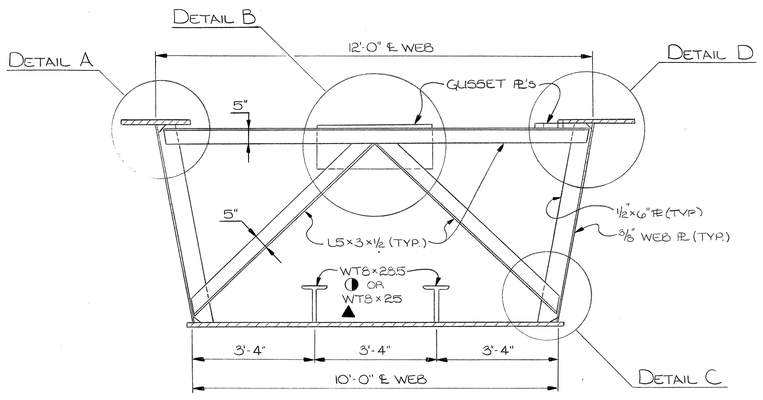
LONGITUDINAL STIFFENERS TERMINATING AT CROSS FRAME

— TYPICAL FRAMING DETAILS —

NOTE: CROSS-FRAME WELDED CONNECTIONS MAYBE BOLTED CONNECTIONS.

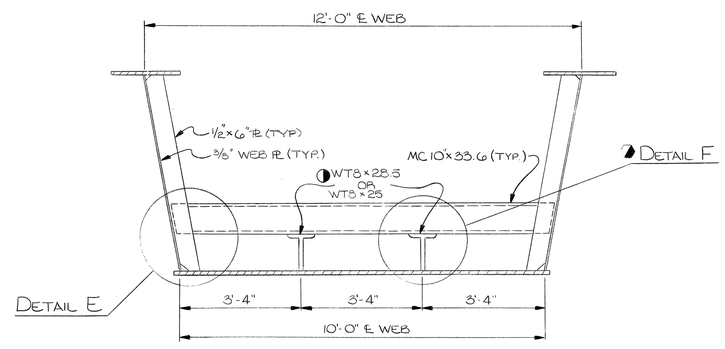
NOTE: LATERAL BRACING AND RELATED DETAILS NOT REQUIRED FOR BRIDGES NO. 166 AND NO. 167.

NOTE: FOR STRUCTURAL STEEL NOTES SEE DRAWING NO. M-15-55.

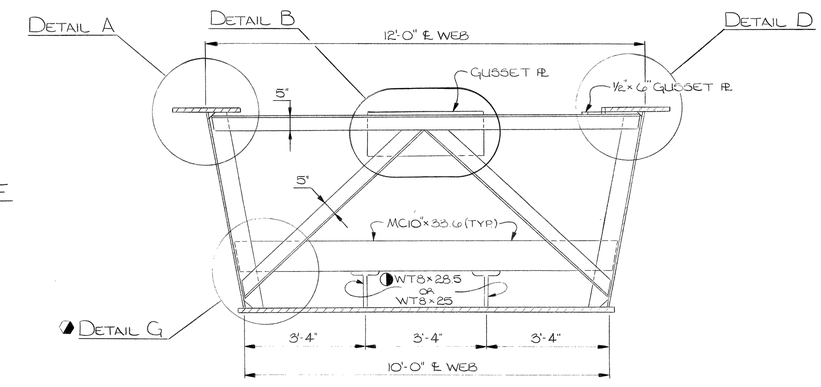


— SECTION A'A' and SECTION A+A+ —

▲ DENOTES WT8×25 OR WT8×28.5 NOT REQUIRED IN SECTION A+A+

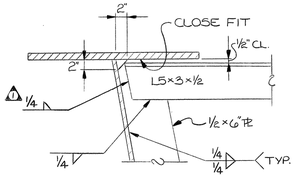


— SECTION B-B —

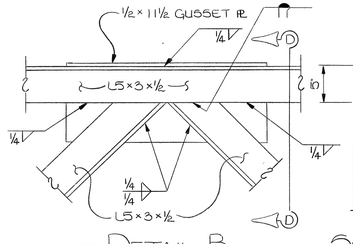


— SECTION C-C —

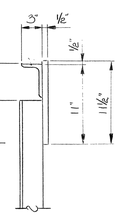
◑ NOTE: FOR DETAILS F AND G SEE DRAWING NO. _____.



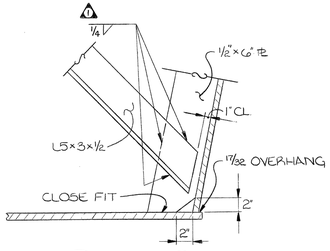
— DETAIL A —



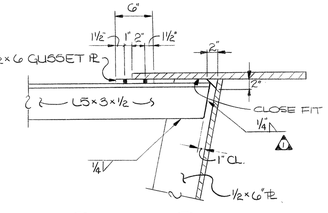
— DETAIL B —



— SECTION D-D —

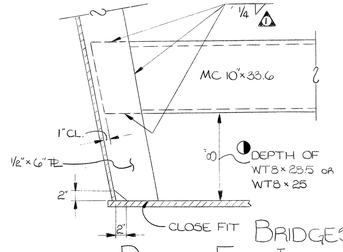


— DETAIL C —



— DETAIL D —

(LATERAL BRACING NOT SHOWN)



— DETAIL E —

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

STRUCTURAL STEEL DETAILS
BRIDGES NO. 162, NO. 166 AND NO. 167
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

CORRECT Gilbert L. Sweat
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

DESIGNED BY	C.M. HILES	DATE	
DRAWN BY	M.D.	DATE	11-81
SUPERVISED BY	C.M. HILES	DATE	11-81
CHECKED BY	C.M. HILES	DATE	

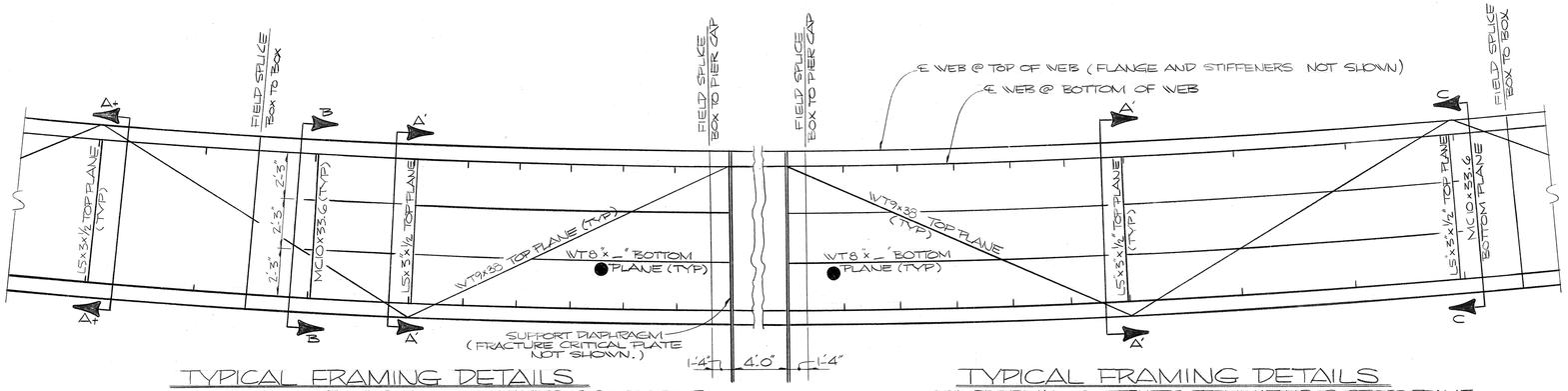
M-15-113

CONSTRUCTION NO. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	WT8×28.5 REMOVED; WELDS ALTER.



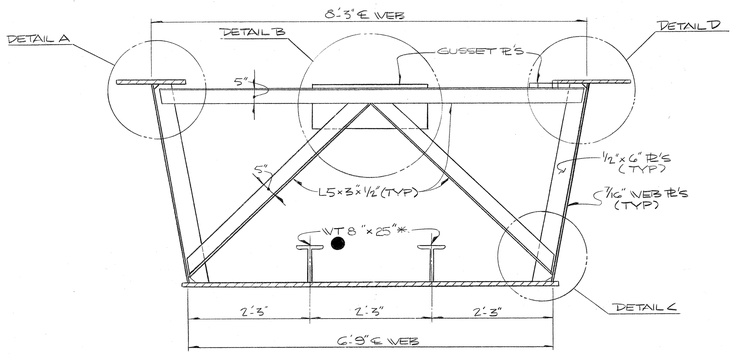
TYPICAL FRAMING DETAILS
LONGITUDINAL STIFFENERS NOT TERMINATING @ CROSS FRAME

TYPICAL FRAMING DETAILS
LONGITUDINAL STIFFENERS TERMINATING @ CROSS FRAME

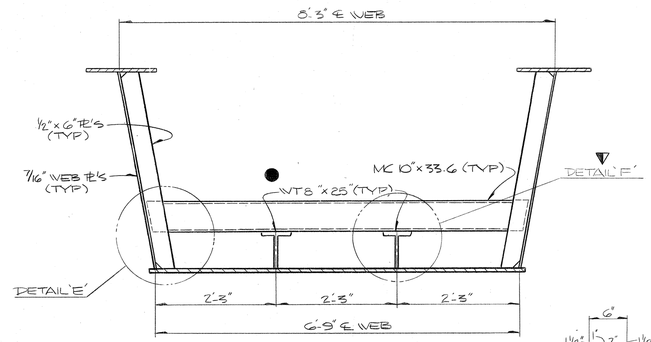
NOTE: FOR STRUCTURAL STEEL NOTES SEE DRAWING NO. M-15-55.

NOTE: CROSS-FRAME WELDED CONNECTIONS MAYBE BOLTED CONNECTIONS.

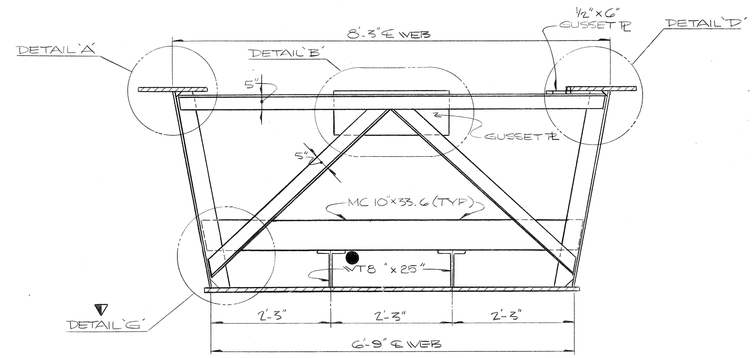
▽ NOTE: FOR DETAILS F & G SEE DRAWING NO. M-15-115.



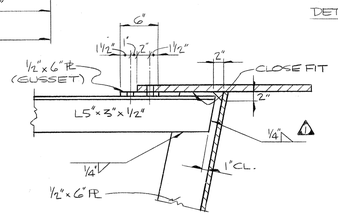
SECTION A+-A+ AND SECTION A'-A'
*DENOTES: WT8×25 NOT REQUIRED IN SECTION A+ A+



SECTION "B-B"

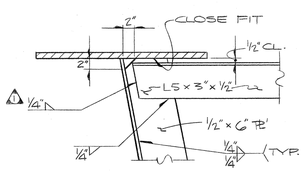


SECTION "C-C"

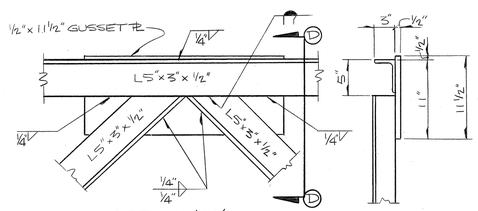


DETAIL "D"
LATERAL BRACING NOT SHOWN

● FOR LOCATION OF WT8×25 SEE FRAMING PLANS DWG. NO.'S M-15-72, M-15-82, AND M-15-91.

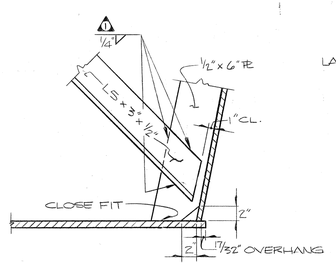


DETAIL "A"

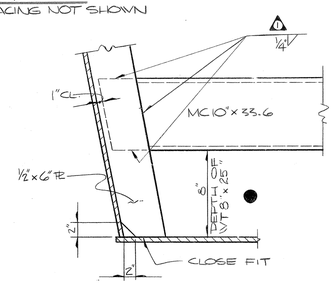


DETAIL "B"

SECTION D-D



DETAIL "C"



DETAIL "E"

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

STRUCTURAL STEEL DETAILS
BRIDGES NO. 163, 164 AND 165
I-440/I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

DESIGNED BY	C.M. HILES	DATE	
DRAWN BY	M. CHILDRESS	DATE	11-81
SUPERVISED BY	R.L.H. & C.M.H.	DATE	11-81
CHECKED BY	C.M. HILES	DATE	11-81

CORRECT William L. Foxwell
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-114

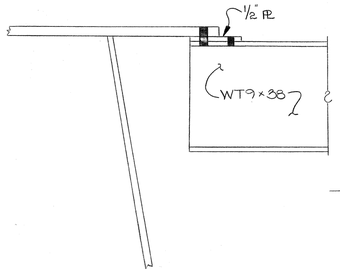
MICROFILMED

Const. No. 19015-3113-44.

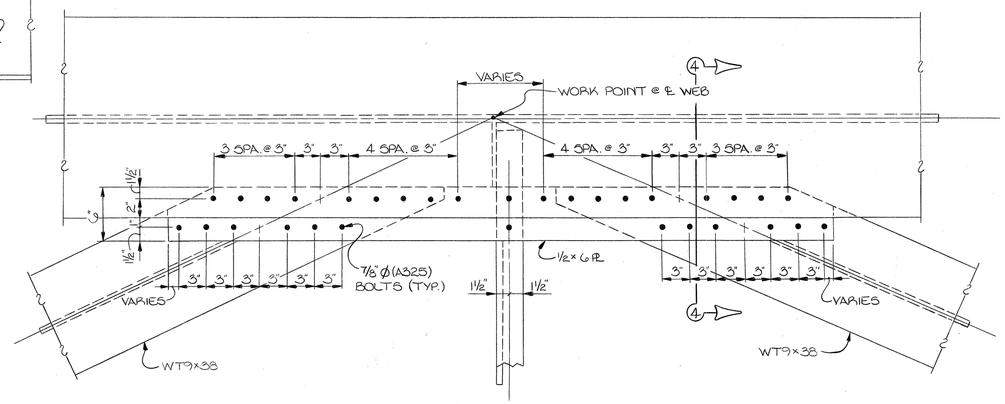
PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	4-12-82	C.M.H.	WELD ATERED

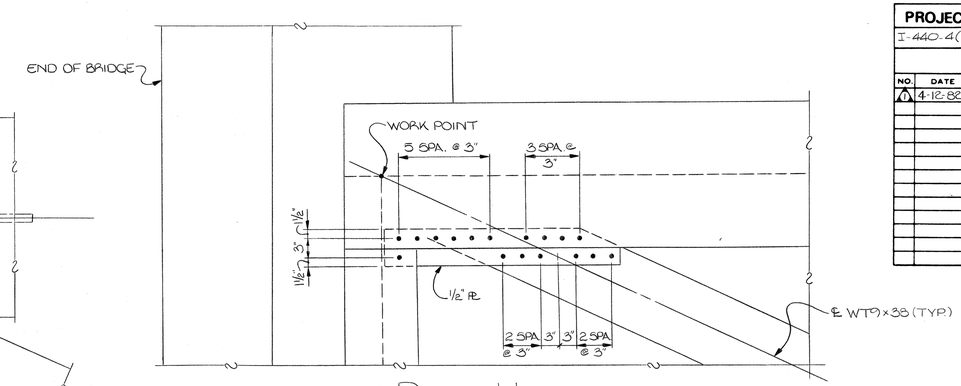


— SECTION 4-4 —



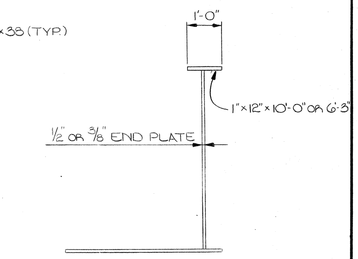
— PLAN VIEW —
(TYPICAL LATERAL CONNECTION, EXCEPT @ PIER CAPS AND ABUTMENTS)

NOTE: CROSS-FRAME WELDED CONNECTIONS MAYBE BOLTED CONNECTIONS.

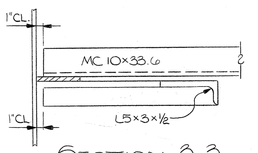


— DETAIL H —

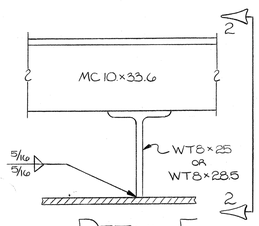
NOTE: LATERAL BRACING AND RELATED DETAILS NOT REQUIRED FOR BRIDGES NO. 166 AND NO. 167.



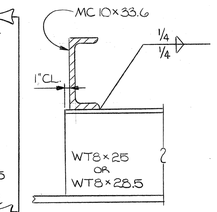
— SECTION 6-6 —



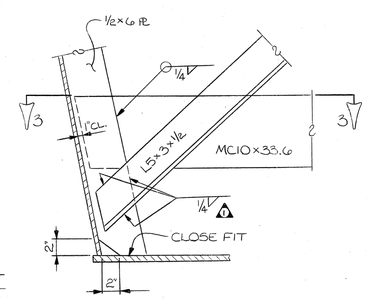
— SECTION 3-3 —



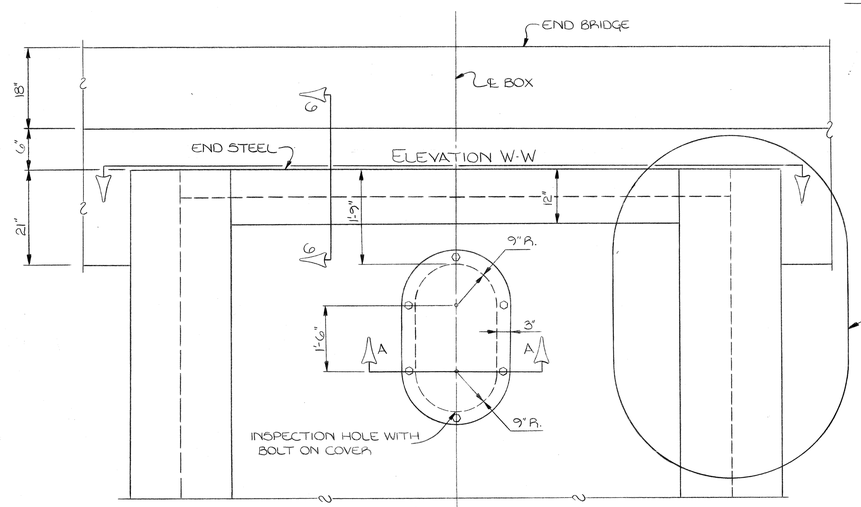
— DETAIL F —



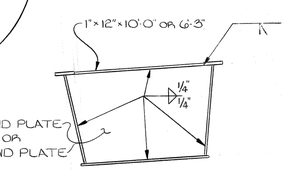
— SECTION 2-2 —



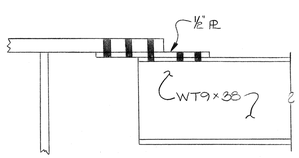
— DETAIL G —



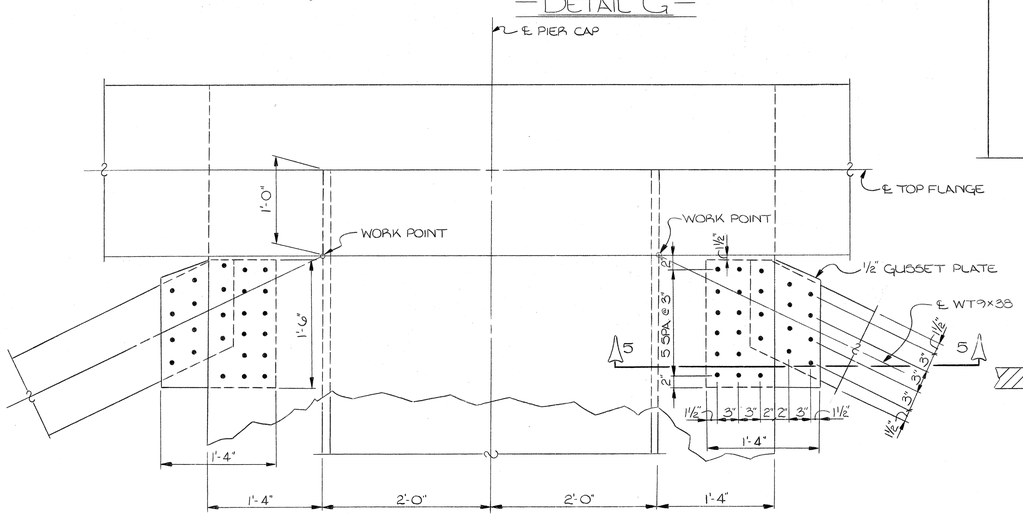
— INSPECTION HOLE DETAIL —
(TYPICAL EACH BOX ENDS)



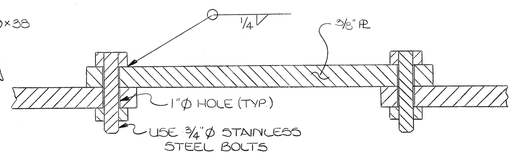
— ELEVATION W-W —



— SECTION 5-5 —



— TYPICAL PLAN VIEW LATERAL CONNECTION @ PIER —



— SECTION A-A —

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

STRUCTURAL STEEL DETAILS
I-440-I-65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1982

DESIGNED BY C.M. HILES DATE
DRAWN BY M.D. DATE 10-81
SUPERVISED BY C.M. HILES DATE 10-81
CHECKED BY DATE

CORRECT Edelton L. Foreall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-115

MICROFILMED

CONSTRUCTION NO. 19015-3113-44

PROJECT NO.	YEAR	SHEET NO.
I-440-4(48)211	1982	

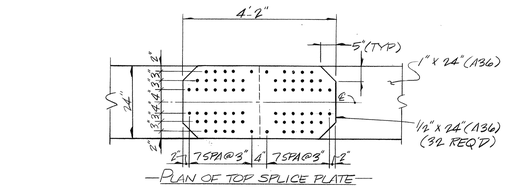
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

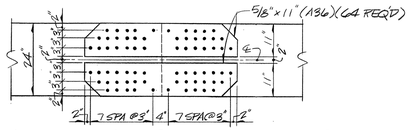
NOTE: STR.S 162, 166 & 167 TOP FLANGE SPLICE BOLTS ARE 7/8"Φ A325.

NOTE:
1. STR. 162 WEB SPLICE BOLTS ARE 7/8"Φ A325.
2. STR.S 166 & 167 WEB SPLICE BOLTS ARE 1"Φ A325.

NOTE A: CAUTION: "SNUG TIGHT" AS DEFINED BY AASHTO ART. 2.10.20(D)(4).

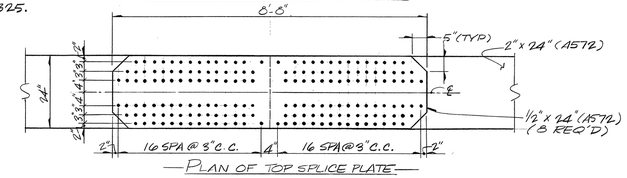


PLAN OF TOP SPLICE PLATE

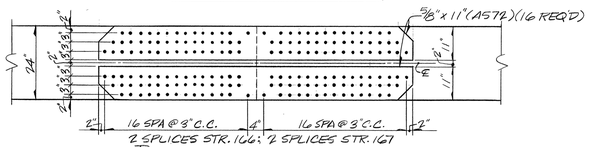


4 SPLICES STR. 162; 6 SPLICES STR. 166; 6 SPLICES STR. 167

PLAN OF INSIDE TOP SPLICE PLATE

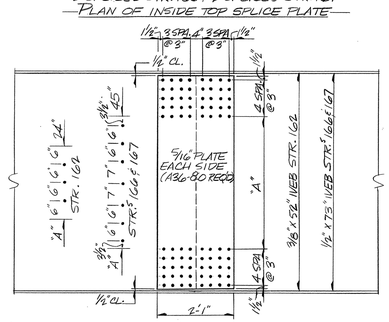


PLAN OF TOP SPLICE PLATE



2 SPLICES STR. 166; 2 SPLICES STR. 167

PLAN OF INSIDE TOP SPLICE PLATE



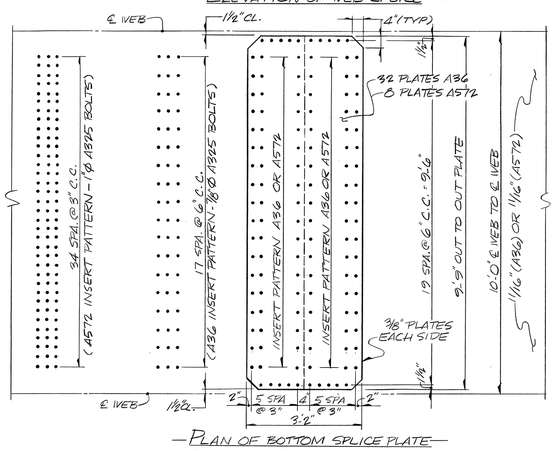
4 SPLICES STR. 162; 8 SPLICES STR. 166; 8 SPLICES STR. 167

ELEVATION OF WEB SPLICE

NOTE: A36 SPLICE PLATE BOLTS ARE 7/8"Φ A325
A572 SPLICE PLATE BOLTS ARE 1"Φ A325

A36 SPLICE LOCATIONS:
4 SPLICES STR. 162
6 SPLICES STR. 166
6 SPLICES STR. 167

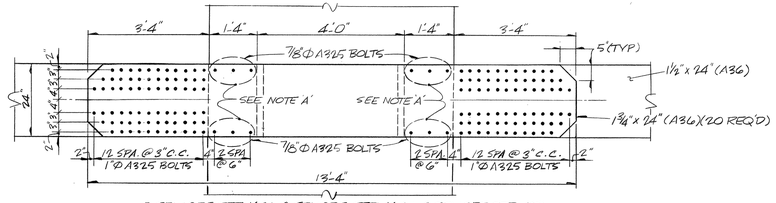
A572 SPLICE LOCATIONS
2 SPLICES STR. 166
2 SPLICES STR. 167



PLAN OF BOTTOM SPLICE PLATE

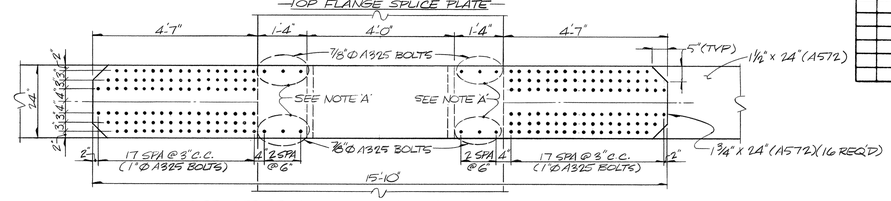
TYPICAL BOX TO BOX SPLICES

FOR 42'-0" ROADWAYS



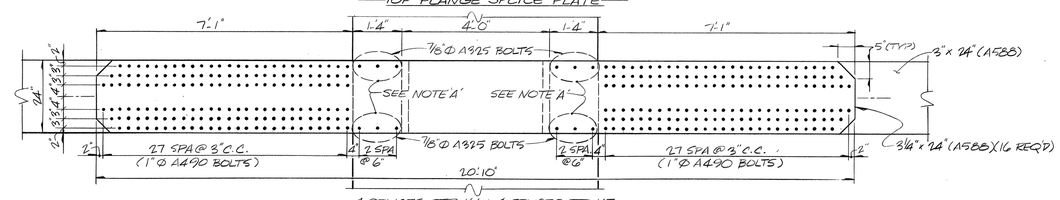
2 SPLICES STR. 162; 4 SPLICES STR. 166; 4 SPLICES STR. 167

TOP FLANGE SPLICE PLATE



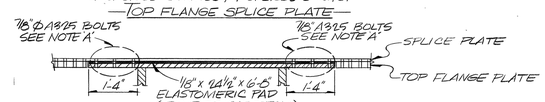
4 SPLICES STR. 162; 2 SPLICES STR. 166; 2 SPLICES STR. 167.

TOP FLANGE SPLICE PLATE

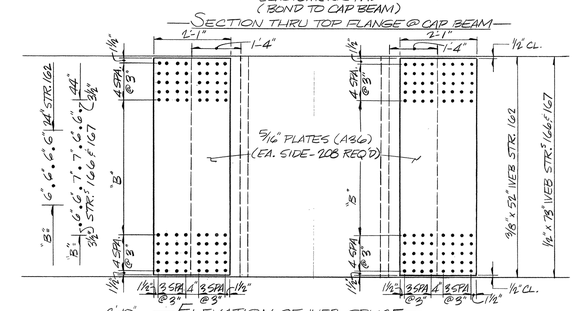


4 SPLICES STR. 166; 4 SPLICES STR. 167

TOP FLANGE SPLICE PLATE



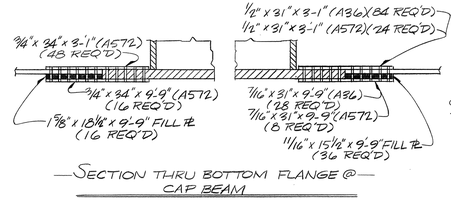
SECTION THRU TOP FLANGE @ CAP BEAM



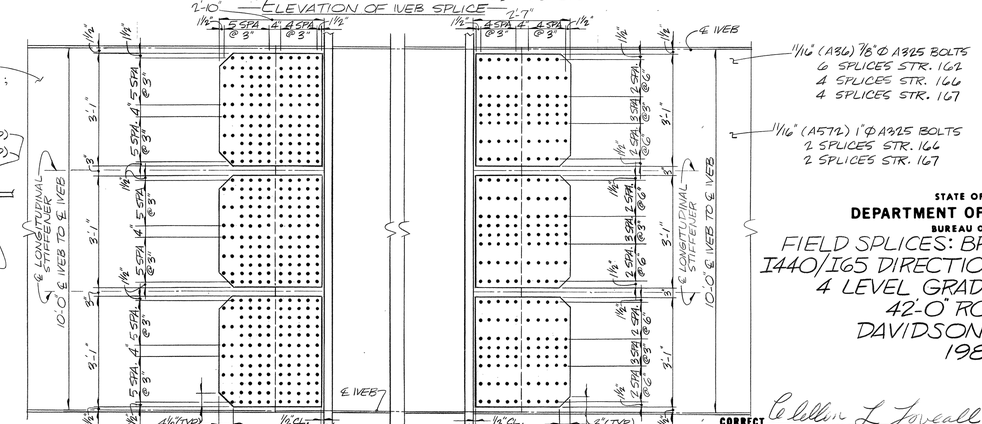
ELEVATION OF WEB SPLICE

NOTE:
1. STR. 162 WEB SPLICE BOLTS ARE 7/8"Φ A325.
2. STR.S 166 & 167 WEB SPLICE BOLTS ARE 1"Φ A325.

6 SPLICES STR. 162
10 SPLICES STR. 166
10 SPLICES STR. 167



SECTION THRU BOTTOM FLANGE @ CAP BEAM



TYPICAL BOX TO CAP SPLICES

FOR 42'-0" ROADWAYS

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FIELD SPLICES: BRIDGES NO. 162, 166 & 167
I440/I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
42'-0" ROADWAYS
DAVIDSON COUNTY
1982

DESIGNED BY	C.M. HILES	DATE	
DRAWN BY	MIKE CHILDRESS	DATE	02-82
SUPERVISED BY	HILES / HARBISON	DATE	02-82
CHECKED BY	HILES	DATE	-82

CORRECT Cellin L. Loveall
ENGINEER OF STRUCTURES

APPROVED Lewis Grimes
DIRECTOR OF HIGHWAYS

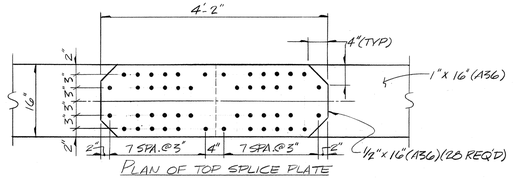
M-15-116

CONSTRUCTION NO. 19015-3113-44

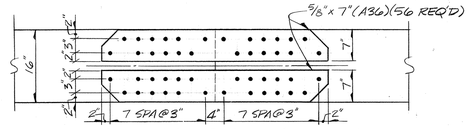
PROJECT NO.	YEAR	SHEET NO.
I440-4(48)211	1982	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	9/16/82	C.M.H.	GENERAL REVISIONS

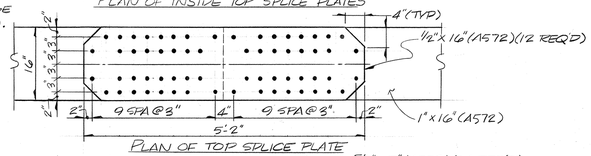


PLAN OF TOP SPLICE PLATE

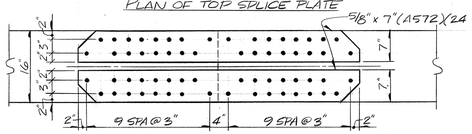


4 SPLICES STR. 163; 4 SPLICES STR. 164; 6 SPLICES STR. 165
PLAN OF INSIDE TOP SPLICE PLATES

NOTE: STR. 163, 164 & 165 TOP FLANGE SPLICE BOLTS ARE 7/8" Ø (A325).

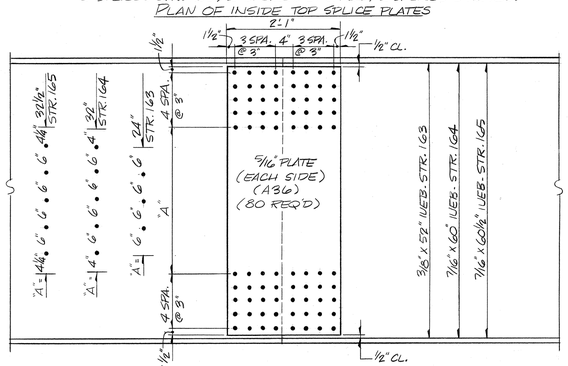


PLAN OF TOP SPLICE PLATE



2 SPLICES STR. 163; 2 SPLICES STR. 164; 2 SPLICES STR. 165.
PLAN OF INSIDE TOP SPLICE PLATES

NOTE: STR. 163, 164 & 165 IWEB SPLICE BOLTS ARE 7/8" Ø (A325)

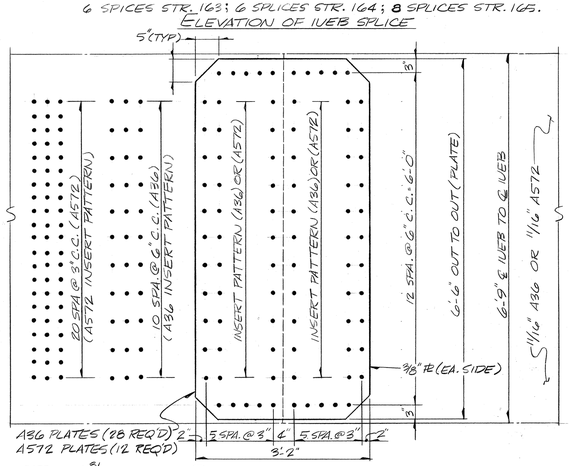


6 SPLICES STR. 163; 6 SPLICES STR. 164; 8 SPLICES STR. 165.
ELEVATION OF IWEB SPLICE

NOTE: STR. 163, 164 & 165 BOTTOM FLANGE SPLICE BOLTS ARE 7/8" Ø (A325)

(A36) SPLICE LOCATIONS:
4 SPLICES STR. 163
4 SPLICES STR. 164
6 SPLICES STR. 165

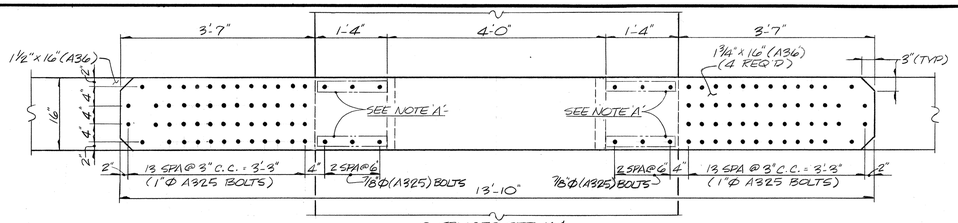
(A572) SPLICE LOCATIONS:
2 SPLICES STR. 163
2 SPLICES STR. 164
2 SPLICES STR. 165



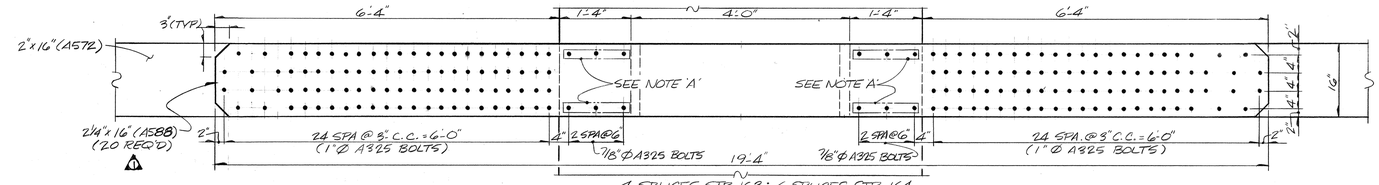
PLAN OF BOTTOM SPLICE PLATE

TYPICAL BOX TO BOX SPLICES
FOR 30'-0" ROADWAYS

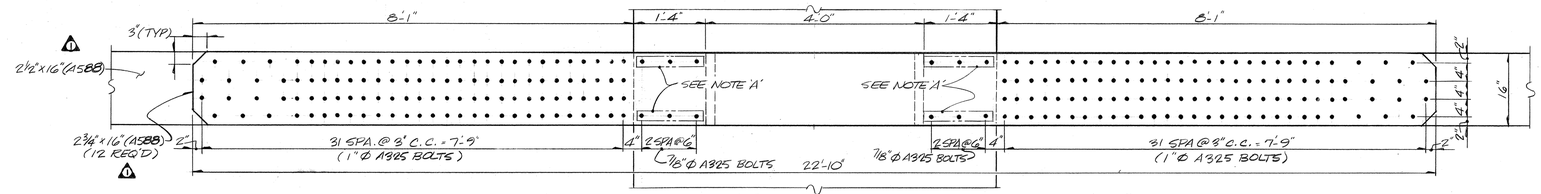
NOTE 'A': CAUTION: "SNUG TIGHT" AS DEFINED BY AASHTO ART. 2.10.20(D)(4).



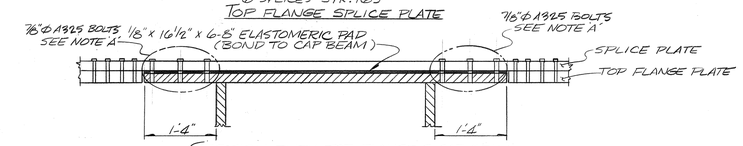
2 SPLICES STR. 164
TOP FLANGE SPLICE PLATE



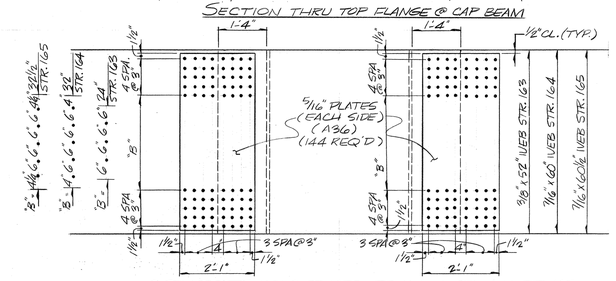
4 SPLICES STR. 163; 6 SPLICES STR. 164
TOP FLANGE SPLICE PLATE



6 SPLICES STR. 165
TOP FLANGE SPLICE PLATE

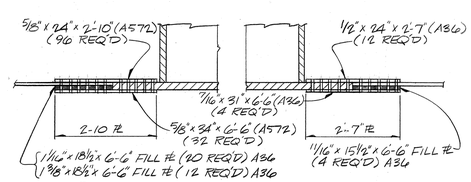


SECTION THRU TOP FLANGE @ CAP BEAM

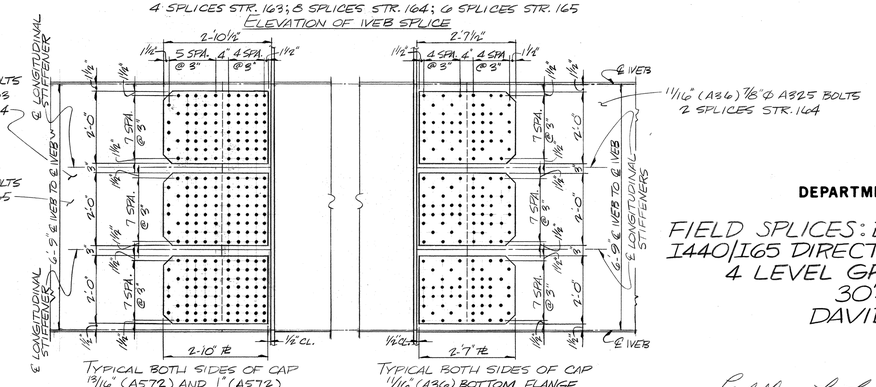


4 SPLICES STR. 163; 8 SPLICES STR. 164; 6 SPLICES STR. 165
ELEVATION OF IWEB SPLICE

NOTE: ALL IWEB SPLICE BOLTS ARE 7/8" Ø A325.



SECTION THRU BOTTOM FLANGE @ CAP BEAM
NOTE: FILL ⅊ THICKNESS EQUALS, TOP FLANGE THICKNESS, MINUS 1/8", MINUS BOTTOM FLANGE THICKNESS.



TYPICAL BOTH SIDES OF CAP 1 3/16" (A572) AND 1" (A572) BOTTOM FLANGE.

TYPICAL BOTH SIDES OF CAP 1 11/16" (A36) BOTTOM FLANGE

TYPICAL BOX TO CAP SPLICES
FOR 30'-0" ROADWAYS

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

FIELD SPLICES: BRIDGES NO. 163, 164 & 165
I440/I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
30'-0" ROADWAYS
DAVIDSON COUNTY
1982

CORRECT Clifton L. Foveall
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

M-15-117

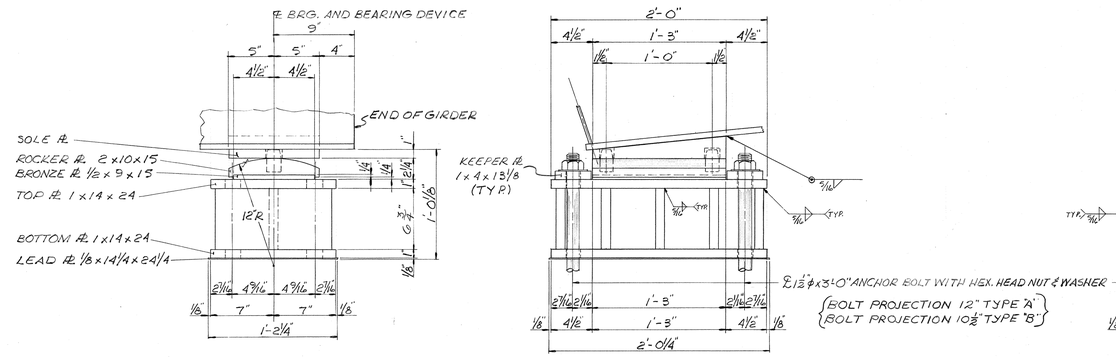
DESIGNED BY	C.M. HILES	DATE	-81
DRAWN BY	MIKE CHILDRESS	DATE	01-82
SUPERVISED BY	HILES / HARBISON	DATE	01-82
CHECKED BY	HILES	DATE	-82

MICROFILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I440-4(1)209 I65-2(27)80	1971		

REVISIONS

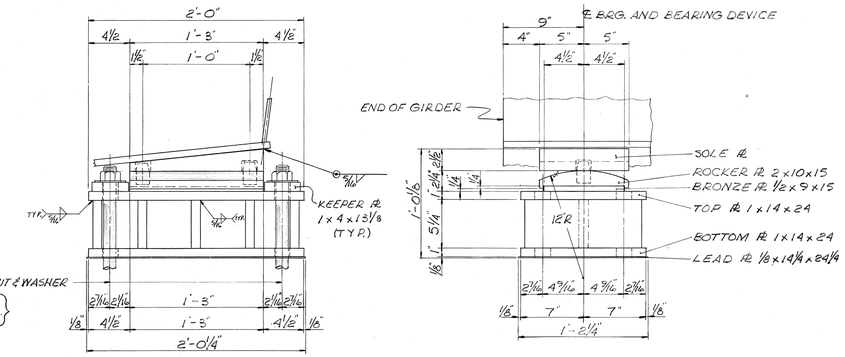
NO.	DATE	BY	BRIEF DESCRIPTION



"END ELEVATION"
KEEPER PL'S AND ANCHOR BOLTS NOT SHOWN

"ELEVATION"

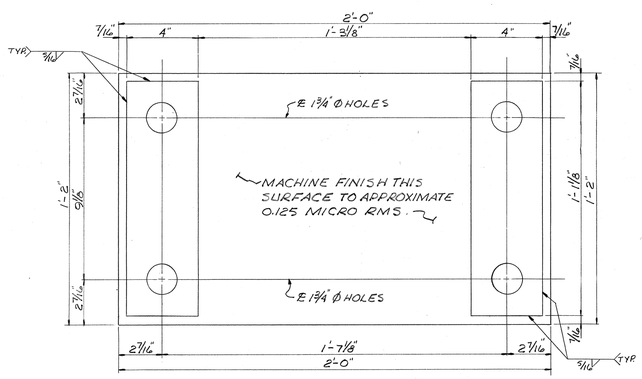
BEARING DEVICE "A"
(A36 STEEL)



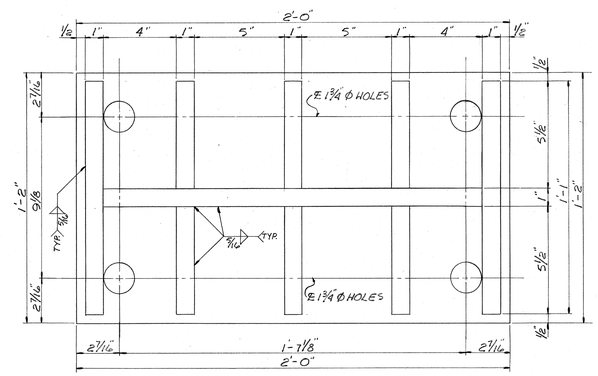
"ELEVATION"

"END ELEVATION"
KEEPER PL'S AND ANCHOR BOLTS NOT SHOWN

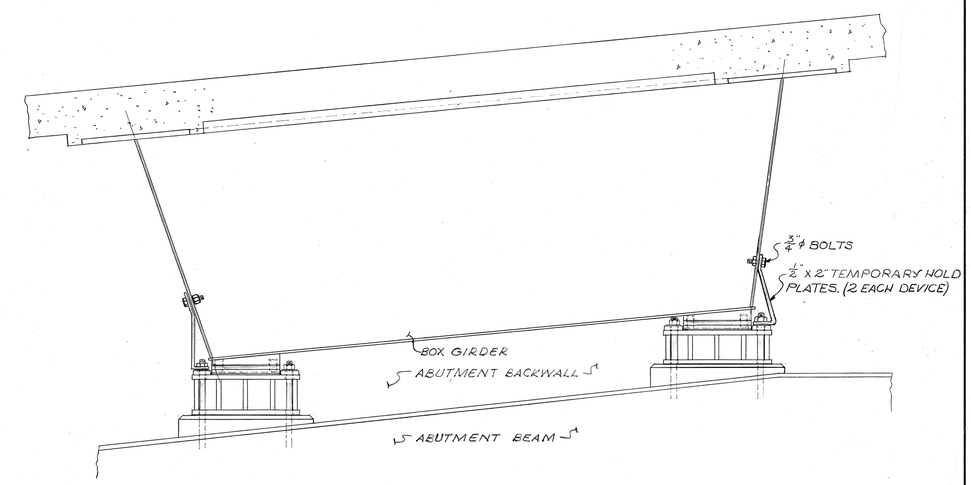
BEARING DEVICE "B"
(A36 STEEL)



PLAN TOP PLATES
SHOWN WITH 1x4x13 1/8 KEEPER PLATES



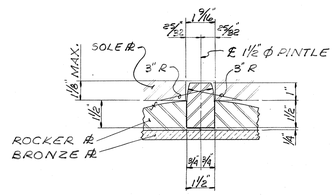
PLAN BOTTOM PLATES



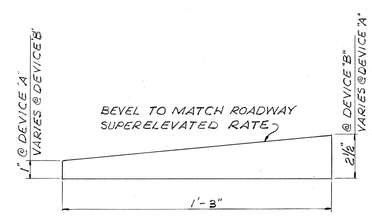
"LOCATION BEARING DEVICE "A"" "LOCATION BEARING DEVICE "B""

PARTIAL CROSS SECTION NEAR ABUTMENTS

NOTE: TEMPORARY HOLD DOWN PLATES SHALL REMAIN IN PLACE UNTIL THE END SPAN POSITIVE MOMENT CONCRETE DECK POUR IS COMPLETED. TEMPORARY HOLD DOWN PLATES ARE TO BE REMOVED AND ANCHOR BOLTS RE-TOURQED PRIOR TO PLACING CONCRETE IN ANY ADDITIONAL POURING SEHEDULES.



TYPICAL CROSS SECTION @ PINTLE
f = FASA 125 MICRO INCH R.M.S



ELEVATION SOLE PL

SUPERELEVATION RATES

SOUTH WEST ROADWAY = 0.051'
NORTH EAST ROADWAY = 0.06'
EAST SOUTH ROADWAY = 0.059'
WEST NORTH ROADWAY = 0.051'
I440 ROADWAYS = 0.036'

FINISH NOTE: SURFACES OF THE STEEL PLATES OPPOSING MOVEMENT OF SELF LUBRICATED BRONZE PLATES TO BE GIVEN A PLAIN MACHINE FINISH OF APPROXIMATELY 125 MICRO INCH R.M.S. NO PAINT OR GREESE SHALL BE ON THESE SURFACES OR ON THE SURFACES OF THE EXPANSION PLATE AT THE TIME OF ASSEMBLY. THESE SURFACES OF THE STEEL PLATE SHALL BE COATED WITH A LUBRICANT FURNISHED BY THE MANUFACTURER OF THE EXPANSION PLATE. SELF LUBRICATED BRONZE PLATES TO BE ASTM B22 ALLOY "A" OR ASTM B100 ALLOY 1.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

BEARING DEVICES
I440-I65 DIRECTIONAL INTERCHANGE
4 LEVEL GRADE SEPARATION
DAVIDSON COUNTY
1972

CORRECT _____ BRIDGE ENGINEER
APPROVED _____ STATE HIGHWAY ENGINEER

M-15-118

DESIGNED BY	C. M. HILES	DATE	JAN. 1972
DRAWN BY	J. L. SHOULDERS	DATE	FEB. 1972
SUPERVISED BY	C. M. HILES	DATE	FEB. 1972
CHECKED BY	C. M. HILES	DATE	

MICROFILMED

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