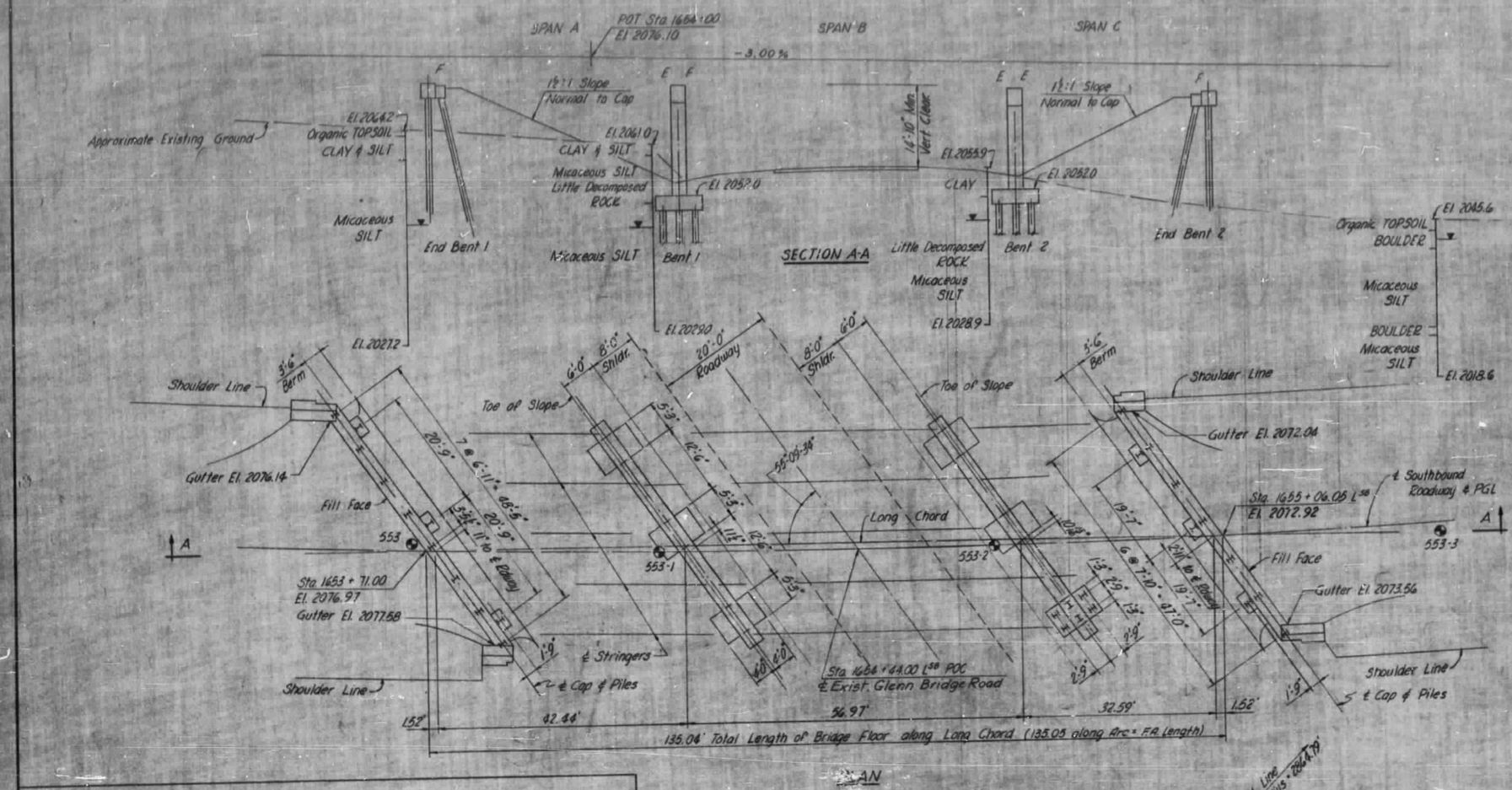
FED. ROAD DIST. NO.	STATE	PROJECT NO.
9	N. C.	8.19002
FED. AID PROJ.	I-26-1(10)	



PLAN

NOTES

Loading: AASHO H20-S16-44 and BPR Modified Loading for Military Vehicles.

Future Surfacing: 20 lbs. per sq. ft.

Roadway width: 38'-0" curb to curb.

For other design data and general notes, see General Notes Sheet.

Concrete surfaces shall be given a surface finish in accordance with the specifications.

The contractor will be required to drive one 12BP53 steel test pile in place at Bent 2. The test pile shall be paid for as linear feet of 12BP53 Steel Piles. The order lengths for all piles shall be given after the test pile has been driven. The test pile at Bent 2 shall be was 30' long.

All piles at End Bents shall be driven through the roadway fill.

Piles for all Bents and End Bents shall be driven to a minimum bearing capacity of 30 tons.

Indicates 2½" cased hole boring

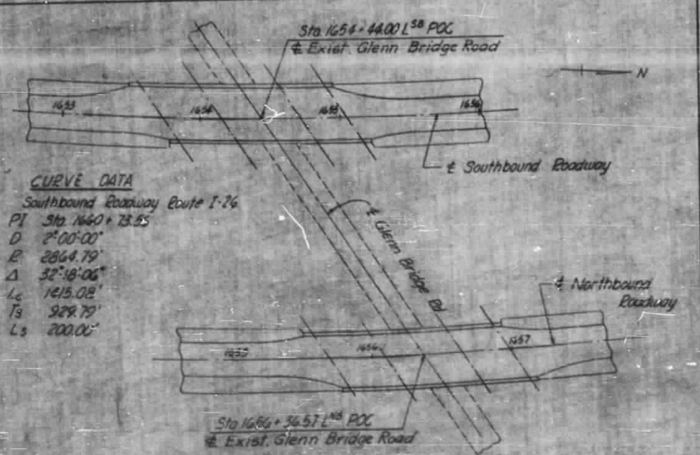
Indicates ground water

Benchmark: R.R. Spike in Pole #44 60'Lt. Sta. 1654+20 L^SB; Elevation 2053.04

Traffic on Glenn Bridge Road shall be maintained at all times during construction of the proposed structure. See Special Provisions.

I Hereby Certify that this structure was built according to plans.

SIGNED, _____
RES. ENGR.



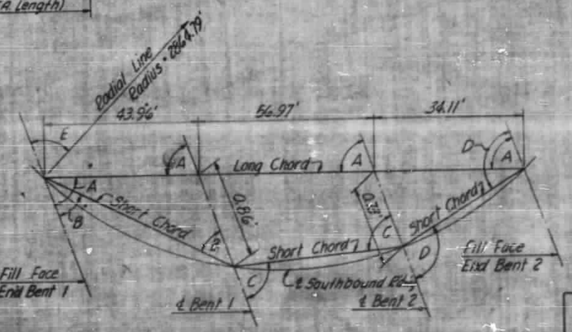
LOCATION SKETCH

CURVE DATA
Southbound Roadway Route I-26

PI	Sta. 1660+73.85
D	2°00'00"
R	2864.79'
Δ	32°18'06"
L_c	1615.08'
T_s	929.79'
L_s	200.00'

TOTAL BILL OF MATERIAL

	Class "A" Concrete Cu. Yds.	Reinf. Steel Lbs.	Structural Steel Approx. lbs.	12 BP 53 Steel Piles No.	12 BP 53 Steel Piles Lin. Ft.	Unclass. Str. Excav. Cu. Yds.	Metal Rails Lin. Ft.
Superstructure	178.1	47,535	106,300		380.55		268.55
End Bent 1	25.2	4,165		11	297	1134.1	
Bent 1	43.3	6,969		16	300	1147.7	
Bent 2	42.2	6,760		15	225	1000.0	
End Bent 2	28.8	4,084		10	278	1139.7	
Approach Curbs	3.2	76					
Total	316.8	63,616	106,300	51	1480.55	16,701.7	268.55



A = 55°-09'-34"
B = 54°-15'-15"
C = 55°-14'-00"
D = 56°-10'-21"
E = 36°-11'-28"

BRIDGE LAYOUT DETAIL

PROJECT NO. 8.19002
HENDERSON - BUNCOMBE COUNTY
STATION 1654+44 L^SB

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

GENERAL DRAWING
BRIDGE OVER
GLENN BRIDGE ROAD
ON PROPOSED SOUTHBOUND
INTERSTATE ROUTE 26

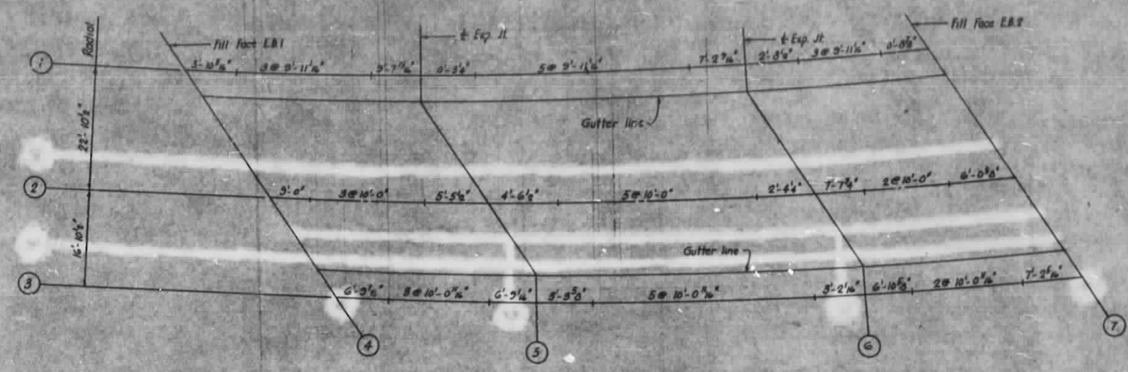
FED. ROAD DIV. NO.	STATE	PROJECT NO.
9	N. C.	8.19002
F. A. PROJECT	I-26-1(10)6	

GRADE DATA

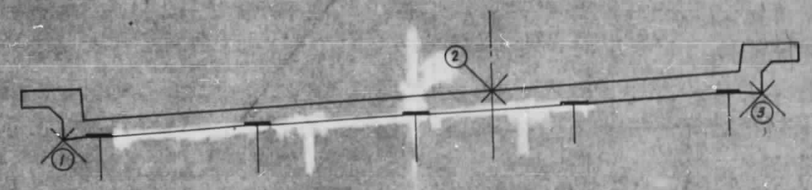
-3.00%

P.O.T. Sta. 1654 + 00
Elev. 2076.10
G_1 = -3.00%

Column ① Bottom of overhang			Column ② ℄ of Roadway			Column ③ Bottom of overhang		
Dist.	Elev.		Dist.	Elev.		Dist.	Elev.	
	2075.459	Fill Face		2076.910	Fill Face		2076.739	Fill Face
3'-10⅝"	2075.246	1653+60	9'-0"	.700	1653+80	6'-3⅞"	.537	1653+30
3'-11⅛"	2076.985	+70	10'-0"	.600	1653+90	10'-0⅝"	2076.237	1654+00
3'-11⅛"	.685	+80	10'-0"	2076.100	1654+00	10'-0⅝"	2075.987	+10
3'-11⅛"	.384	1653+30	10'-0"	2075.800	1654+10	10'-0⅝"	.687	1654+20
3'-7⅞"	.080	℄ Exp. Jt.	5'-5⅛"	.636	℄ Exp. Jt.	6'-3⅞"	.486	℄ Exp. Jt.
6'-3⅞"	2076.082	1654+00	4'-6½"	.500	1654+20	8'-8⅞"	.337	1654+30
3'-11⅛"	2075.782	+10	10'-0"	2075.200	+30	13'-2⅝"	2075.087	+40
3'-11⅛"	.482	+20	10'-0"	2074.900	+40	10'-11⅝"	2074.787	+50
3'-11⅛"	.182	+30	10'-0"	.600	+50	10'-8⅝"	.487	+60
3'-11⅛"	2075.182	+40	10'-0"	.300	+60	10'-0⅝"	2074.187	+70
3'-11⅛"	2072.882	+50	10'-0"	2074.000	1654+70	10'-0⅝"	2072.887	1654+80
3'-11⅛"	.582	1654+30	3'-6¼"	2073.929	℄ Exp. Jt.	3'-2⅛"	.743	℄ Exp. Jt.
7'-2⅝"	.364	℄ Exp. Jt.	7'-7⅞"	.700	1654+80	6'-10⅝"	.587	1654+90
2'-8⅝"	2072.282	1654+60	10'-0"	.400	1654+90	10'-0⅝"	2073.287	1655+00
3'-11⅛"	2071.982	+70	10'-0"	2073.100	1655+00	10'-0⅝"	2072.987	1655+10
3'-11⅛"	.682	+80	6'-0⅝"	2072.319	Fill Face	7'-2⅝"	2072.788	Fill Face
3'-11⅛"	.382	1654+90						
0'-0⅝"	2071.859	Fill Face						



PLAN



TYPICAL SECTION

HEADERS

Column ④ Fill Face E.B.1		Column ⑤ ℄ Bent 1		Column ⑥ ℄ Bent 2		Column ⑦ Fill Face		Column ⑧ ℄ Bent 4		Column ⑨ ℄ Bent 3		Column ⑩ ℄ Bent 6		Column ⑪ Fill Face E.B.2	
Dist.	Elev.	Dist.	Elev.	Dist.	Elev.	Dist.	Elev.	Dist.	Elev.	Dist.	Elev.	Dist.	Elev.	Dist.	Elev.
Lt. Gutter	2076.158	Lt. Gutter	2074.788	Lt. Gutter	2073.[illegible]	[illegible]	2073.532	Lt. Gutter		Lt. Gutter		Lt. Gutter		Lt. Gutter	
2'-5⅝"	.018	2'-5⅛"	.365	2'-5⅛"	.140	2'-6⅝"	.119								
2'-5⅝"	.018		2074.949	2'-5⅛"	.219		.170								
2'-5⅝"	.364		2075.013	2'-5⅛"	.232		.236								
	.682		.035		.376	2'-6⅝"	.356								
	.519	2'-5⅝"	.178		.435	2'-6⅝"	.498								
	.591	2'-5⅝"	.250		.584		.518								
2'-5⅝"	.664		.327		.618		.596								
2'-5⅝"	.742		.406	2'-5⅛"	.694		.678								
	.818		.481	2'-5"	.771		.758								
	.894		.559		.850		.835								
℄	2076.970	℄ 2'-5⅛"	.636	℄	2073.929	℄ 2'-6⅝"	.919								
	2077.046	2'-5⅝"	.714		2076.009	2'-6⅝"	2073.995								
2'-5⅝"	.188		.791		.088		2073.079								
2'-5⅝"	.135		.869		.168		.160								
	.235		2073.947	2'-5"	.247		.240								
	.331		2076.025	2'-6⅝"	.327		.321								
	.428	2'-5⅝"	.103	2'-6⅝"	.406		.402								
2'-5⅝"	.505	2'-5⅝"	.181	2'-6⅝"	.486	2'-6⅝"	.482								
Rt. Gutter	2077.581	Rt. Gutter	2076.339	Rt. Gutter	2076.566	Rt. Gutter	2073.563								

Elevations shown in columns 1 thru 7 are final required elevations of the completed structure. In setting up the form and screed elevations provisions must be made for deflections where required.

For columns 4 thru 7 given elevations are at 2.0' intervals normal to ℄ of roadway from the left gutter line to the right gutter line.

SUPERIMPOSED DEAD LOAD DEFLECTION (inches)

	SPAN A	SPAN B	SPAN C
INT.	5/16"	5/8"	3/8"
EXT.	5/16"	7/8"	1/8"

PROJECT No. 8.19002
HENDERSON - BUNCOMBE **COUNTY**
STATION: 1654 + 44 (S.B.)

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

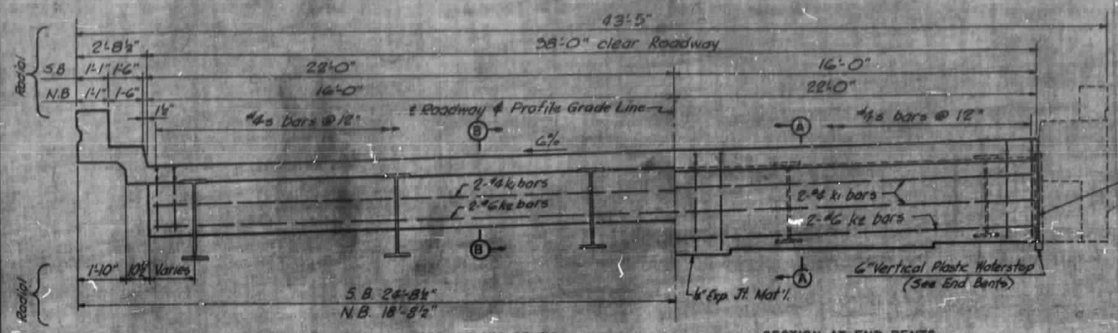
ELEVATIONS
FOR
SETTING UP
FORMS AND SCREEDS

August 1962

REVISIONS: DATE | BY

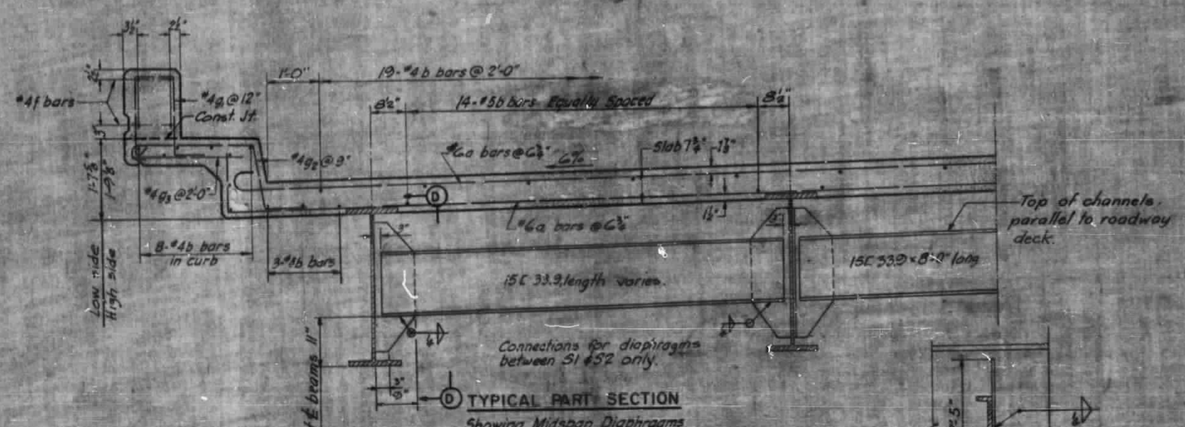
SHEET NO. 16-P
S-55A
TOTAL SHEETS
E-208

DRAWN BY G.C. PARRISH DATE JULY, 1964
CHECKED BY [illegible] DATE July 1964



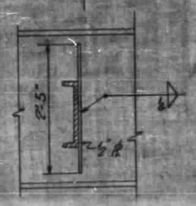
SECTION AT INTERMEDIATE BENTS

SECTION AT END BENTS

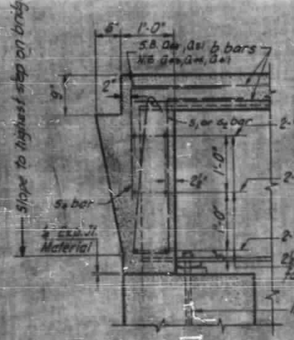


TYPICAL PART SECTION

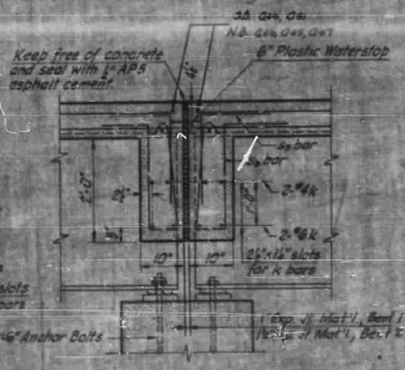
Showing Midspan Diaphragms



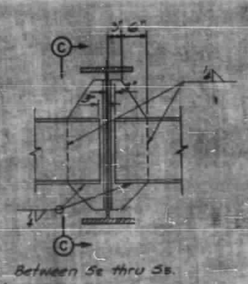
SECTION D-D



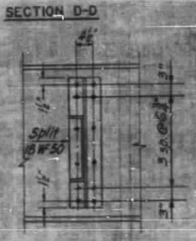
SECTION A-A



SECTION B-B



DETAIL OF DIAPHRAGM CONNECTIONS



SECTION C-C

BILL OF MATERIALS — SPAN A S.B.

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
a1	25	6	2	40'-9"	1,530	f1	8	4	Str.	22'-2"	118
a2	26		3	41'-9"	1,505	f2	8	4	Str.	21'-0"	112
a3	6		1	39'-2"	353						
a4	6		4	39'-8"	358						
a5	4		1	37'-7"	226	g1	84	4	6	5'-7"	313
a6				36'-0"	216	g2	115	4	5	5'-5"	416
a7				34'-5"	207	g3	43	4	Str.	2'-4"	67
a8				32'-10"	197						
a9				31'-8"	188						
a10				29'-9"	179	h1	12	4	Str.	24'-0"	192
a11				28'-2"	169	h2	8	6	Str.	24'-4"	292
a12				26'-7"	160						
a13				25'-1"	151						
a14				23'-6"	141	j1	13	4	6	8'-7"	75
a15				21'-11"	132	j2	30	4	6	8'-1"	162
a16				20'-8"	122	j3	22	4	6	6'-5"	189
a17				18'-10"	113	j4	46	4	6	3'-5"	105
a18				17'-3"	104	j5	46	4	6	3'-1"	95
a19				15'-8"	94						
a20				14'-1"	85						
a21				12'-7"	76						
a22				11'-0"	66						
a23				9'-5"	57						
a24				7'-10"	47						
a25				6'-4"	38						
a26			1	4'-9"	29						
a27	4		1	3'-2"	19						
a28	4		4	38'-7"	232						
a29			1	36'-9"	221						
a30				35'-3"	212						
a31				33'-8"	202						
a32				32'-2"	193						
a33				30'-7"	184						
a34				29'-1"	175						
a35				27'-7"	166						
a36				26'-0"	156						
a37				24'-5"	147						
a38				22'-11"	138						
a39				21'-9"	129						
a40				19'-10"	119						
a41				18'-4"	110						
a42				16'-8"	100						
a43				15'-1"	91						
a44				13'-7"	82						
a45				12'-0"	72						
a46				10'-5"	63						
a47				8'-10"	53						
a48				7'-4"	44						
a49				5'-9"	35						
a50	1	6	4	4'-2"	25						
a51	4	5	Str.	25'-0"	100						
b1	124	5	Str.	22'-11"	2,361						
b2	16	4	Str.	21'-0"	224						
b3	54	4	Str.	22'-8"	818						

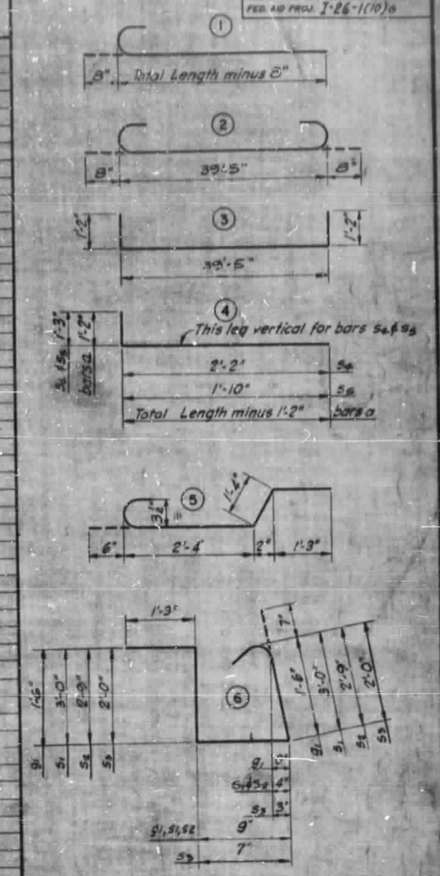
Reinforcing Steel 15,760 lbs.

Class "A" Concrete C.Y. 58.0

Note: In lieu of the welding procedure for shop and field welds indicated for the intermediate diaphragm connections, the contractor may, at his option, shop weld the connector plates to the beam webs and field weld the channels to the connector plates. Special care in handling the beams must be observed if connector plates are shop welded to the beam webs.

FED. ROAD DIV. NO.	STATE	PROJECT NO.
3	N. C.	8.19002

FED. AID PROJ. I-26-1(10)6



BENT BAR TYPES

(All dimensions are out-to-out of bar)

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

STATION N54+46 L SB; N56+97 L NB

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
CROSS SECTIONS

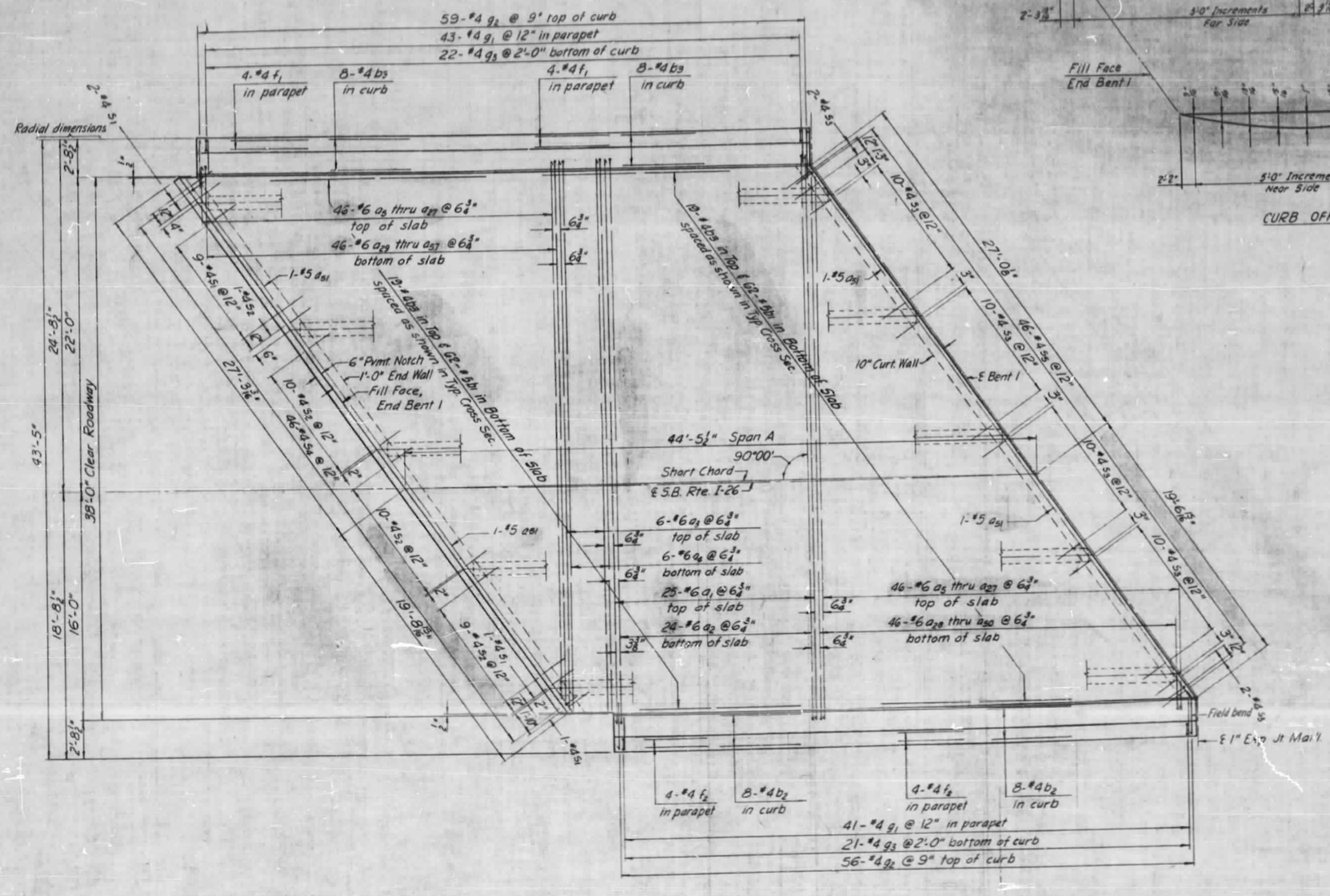
SHEET 554

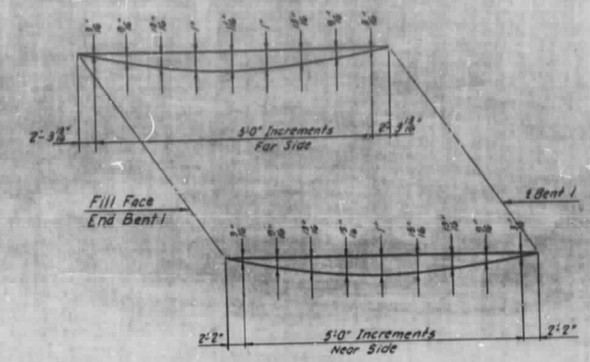
REVISIONS: DATE | BY | NO.

Revision No. 1 occasioned to show back up dimensions and to show more bars on end bars. 9-26-63 by C.R.K. (by RFB)

FED. ROAD DIST. NO.	STATE	PROJECT NO.
9	N. C.	B 19002

FED. AID PROJ. I-26-1(10)





PROJECT NO. B 19002

HENDERSON-BUNCOMBE COUNTY

STATION 1654+44 ℄ S.B.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
SPAN A

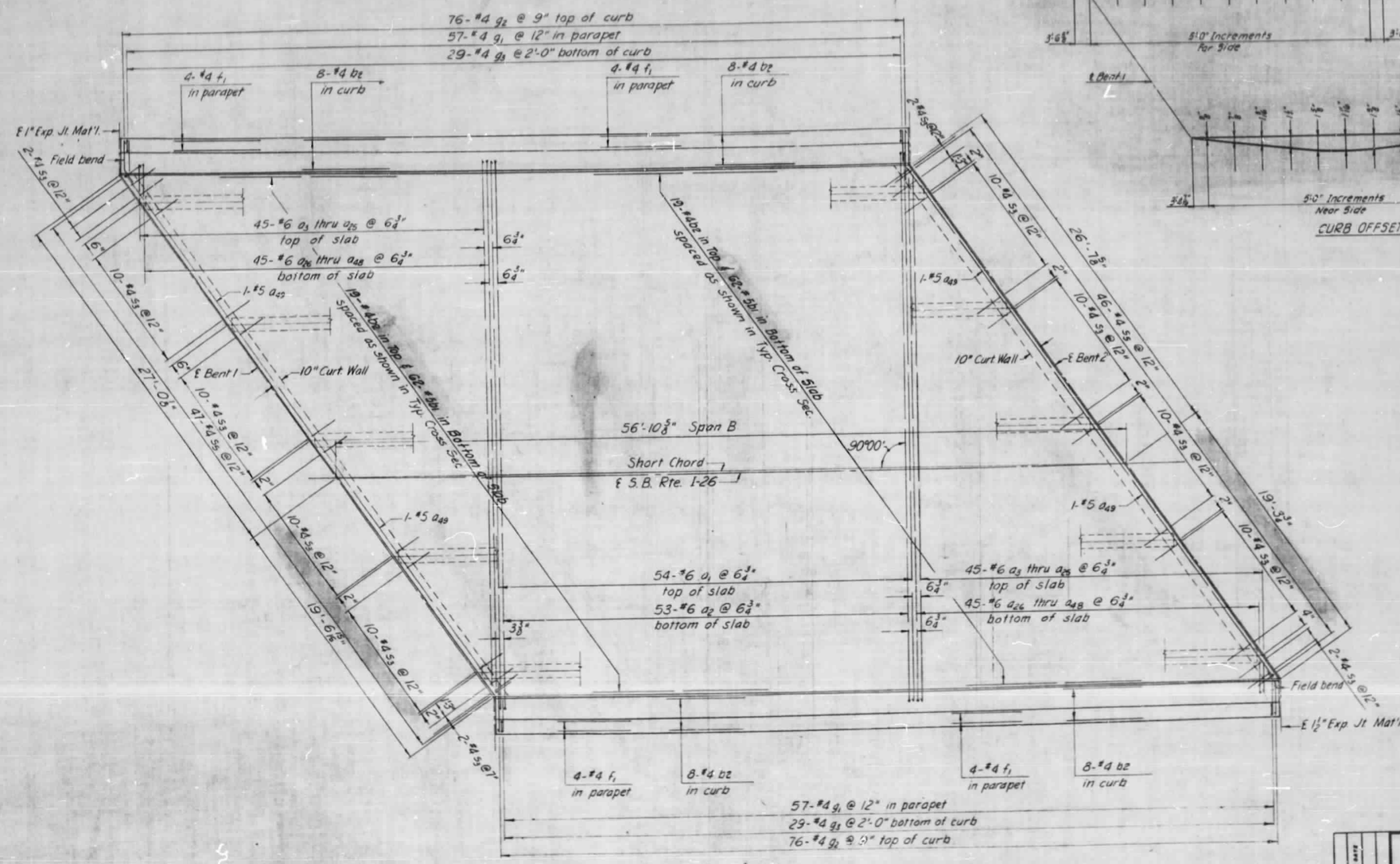
REVISIONS

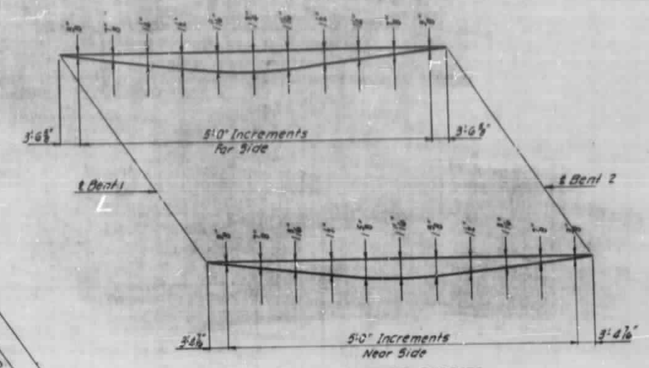
SHEET NO. S59

TOTAL SHEETS 67

FED. ROAD DIST. NO.	STATE	PROJECT NO.
8	N. C.	B-19002

FED. AID PROJ. I-26-1(10)6





CURB OFFSETS

PROJECT NO. B-19002

HENDERSON-BUNCOMBE COUNTY

STATION 1654+44 L.S.B.

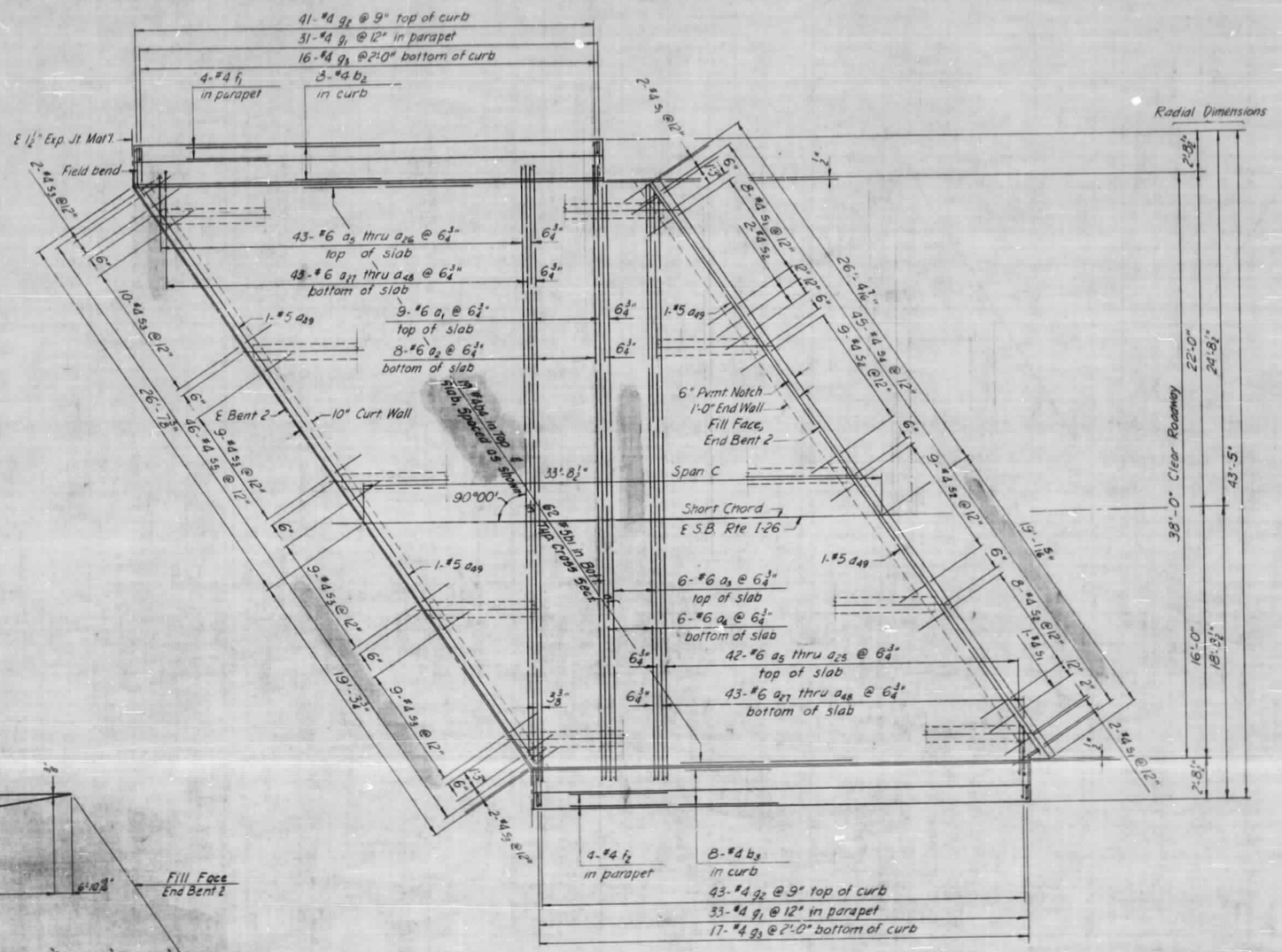
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

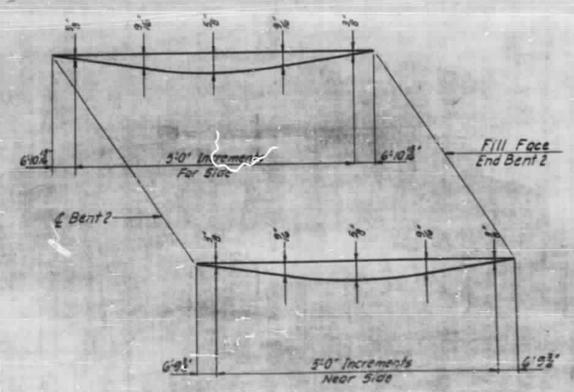
SUPERSTRUCTURE
SPAN B

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	

SHEET NO. S-56

FED. ROAD DIST. NO.	STATE	PROJECT NO.
8	N. C.	819002
FED. AID PROJ. I-26-1(10)6		





CURB OFFSETS

PROJECT NO. 819002

HENDERSON-BUNCOMBE COUNTY

STATION 1654+44 ℄ S.B.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
SPAN C

SHEET NO. 857

BILL OF MATERIALS —— SPAN B S.B.

BAR	NO. BARS	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO. BARS	SIZE	TYPE	LENGTH	WEIGHT
01	54	6	2	40'-9"	3,303	91	114	4	6	5'-7"	425
02	50	6	3	41'-9"	3,324	92	152	4	5	5'-5"	550
03	4		1	37'-7"	226	93	38	4	Str	2'-6"	90
04	1		1	35'-11"	216						
05				34'-4"	206						
06				32'-8"	196	94	8	4	Str	23'-8"	189
07				31'-1"	187	95	8	6	Str	36'-0"	288
08				29'-5"	177						
09				27'-10"	167						
010				26'-2"	157	96	88	4	6	2'-5"	377
011				24'-7"	148	97	93	6	4	3'-1"	191
012				22'-11"	138						
013				21'-4"	128						
014				19'-8"	118						
015				18'-1"	109						
016				16'-5"	99						
017				14'-10"	89						
018				13'-2"	79						
019				11'-7"	69						
020				9'-11"	60						
021				8'-4"	50						
022				6'-8"	40						
023	1			5'-1"	31						
024	4		1	3'-5"	21						
025	2		1	2'-7"	7						
026	4		4	38'-7"	232						
027	1		1	36'-11"	222						
028				35'-4"	212						
029				33'-8"	202						
030				32'-1"	193						
031				30'-5"	183						
032				28'-10"	173						
033				27'-2"	163						
034				25'-7"	154						
035				23'-11"	144						
036				22'-8"	136						
037				20'-8"	124						
038				19'-1"	115						
039				17'-5"	105						
040				15'-10"	95						
041				14'-2"	85						
042				12'-7"	76						
043				10'-11"	66						
044				9'-4"	56						
045				7'-8"	46						
046				6'-1"	37						
047	4	4	4	4'-5"	27						
048	2	6	4	3'-7"	11						
049	4	5	Str	2'-6"	33						
A	122	5	Str	29'-3"	2,703						
B	70	4	Str	28'-0"	1,596						
F	16	4	Str	20'-0"	310						

Reinforcing Steel 15,816 lbs.

Class "A" Concrete C.Y. 72.1

BILL OF MATERIALS —— SPAN C S.B.

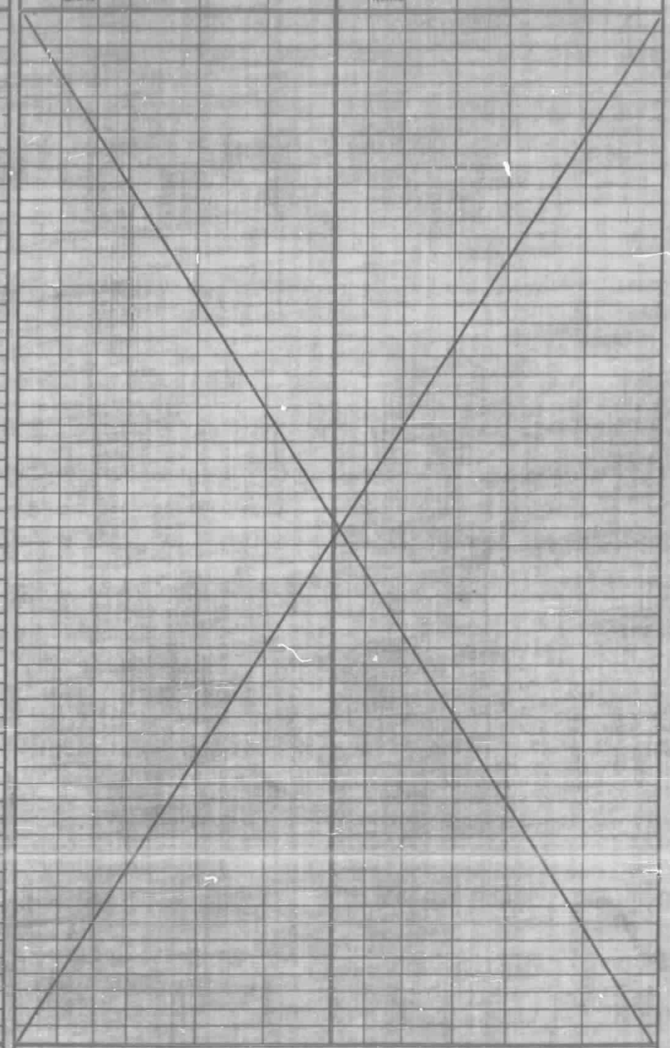
BAR	NO. BARS	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO. BARS	SIZE	TYPE	LENGTH	WEIGHT
01	9	6	2	40'-9"	551	91	64	4	6	5'-7"	239
02	8		3	41'-9"	501	92	68	4	5	5'-5"	304
03	6		1	39'-2"	353	93	33	4	Str	2'-6"	82
04	6		4	38'-8"	350						
05	2		1	37'-7"	226	94	12	4	Str	23'-6"	188
06	1		1	35'-11"	216	95	8	6	Str	28'-8"	229
07				34'-6"	206						
08				32'-6"	195						
09				30'-10"	185	96	13	4	6	18'-7"	75
010				29'-2"	175	97	28	1	6	8'-1"	151
011				27'-5"	164	98	41	1	6	6'-5"	176
012				25'-9"	155	99	48	1	4	3'-5"	103
013				24'-1"	145	100	46	4	4	3'-1"	93
014				22'-4"	134						
015				20'-8"	124						
016	1			19'-0"	114						
017				17'-3"	104						
018				15'-7"	94						
019				13'-11"	84						
020				12'-2"	73						
021				10'-6"	63						
022				8'-10"	53						
023				7'-1"	43						
024	1			5'-5"	33						
025	4		1	3'-8"	23						
026	1		1	2'-11"	4						
027	4		4	38'-7"	232						
028	1		1	36'-11	222						
029				35'-3"	212						
030				33'-6"	201						
031				31'-10"	191						
032				30'-2"	181						
033				28'-5"	171						
034				26'-9"	161						
035				25'-1"	151						
036				23'-8"	140						
037				21'-8"	130						
038				20'-0"	120						
039				18'-3"	110						
040				16'-7"	100						
041				14'-11"	90						
042				13'-2"	79						
043				11'-6"	69						
044				9'-10"	59						
045				8'-1"	49						
046	1			6'-5"	39						
047	4	1	1	4'-0"	29						
048	2	6	4	3'-11"	12						
049	4	5	Str	2'-6"	33						
A	62	5	Str	33'-3"	2,150						
B	8	4	Str	20'-2"	161						
D	8	4	Str	21'-0"	171						
D1	18	4	Str	23'-3"	488						
F	4	4	Str	20'-2"	81						
F1	4	4	Str	20'-0"	80						

Reinforcing Steel 11,381 lbs.

Class "A" Concrete C.Y. 43.0

BILL OF MATERIALS —— SPAN

BAR	NO. BARS	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO. BARS	SIZE	TYPE	LENGTH	WEIGHT



Note:
For Span 'A' S.B. and for Bent Bar Types and dimensions see Superstructure Cross Sections sheet

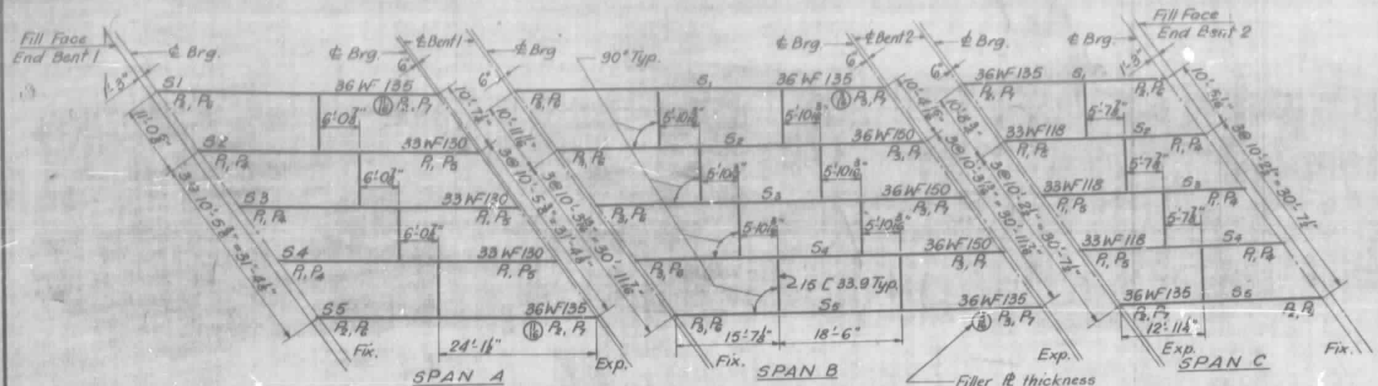
PROJECT NO. B 19002
HENDERSON-BUNCOMBE COUNTY
STATION 16+04 + 4 ≠ 1.58

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
BAR LISTS

FED. ROAD DIST. NO.	STATE	PROJECT NO.
8	N. C.	8.19002

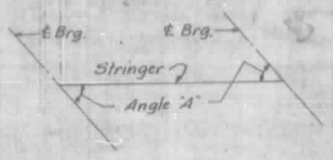
FED. AID PROJ. I-26-1(10)6

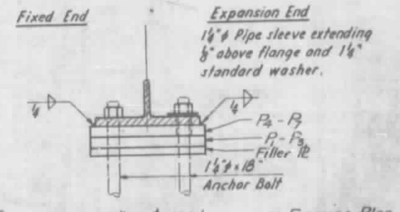


FRAMING PLAN

Note: All dimensions are horizontal

ANGLE "A"	SPAN A	SPAN B	SPAN C
S1	53°57'46"	54°59'16"	55°54'09"
S2-S5	54°27'24"	55°27'48"	56°21'44"

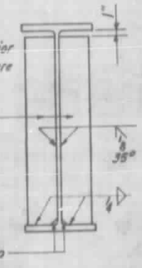




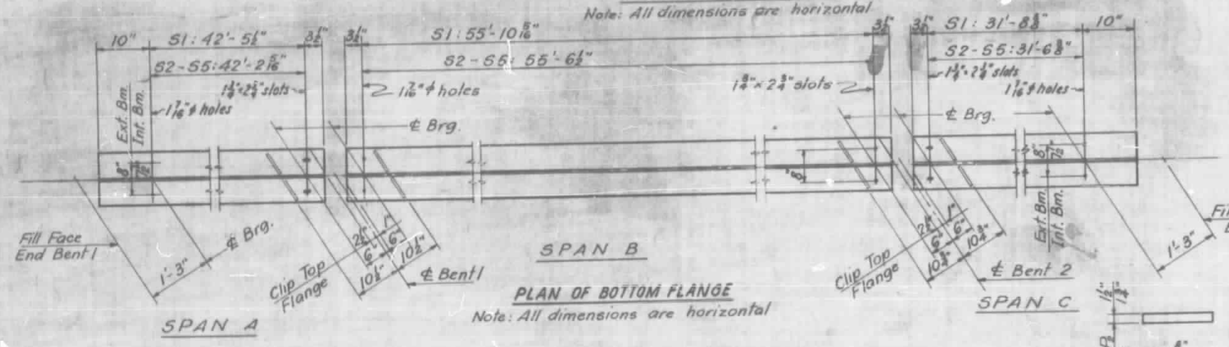
Note: For Filler ℙ thickness, see Framing Plan

SECTION THRU BEARING

Note: Omit stiffeners on outside of exterior beams & at End Bents. Stiffeners are to be normal to beam flange.

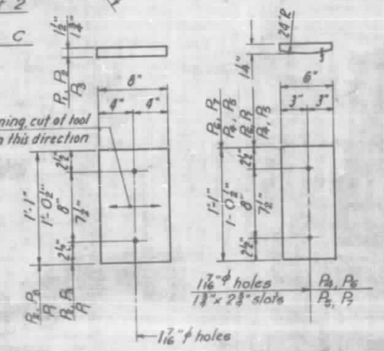


STIFFENER DETAIL



PLAN OF BOTTOM FLANGE

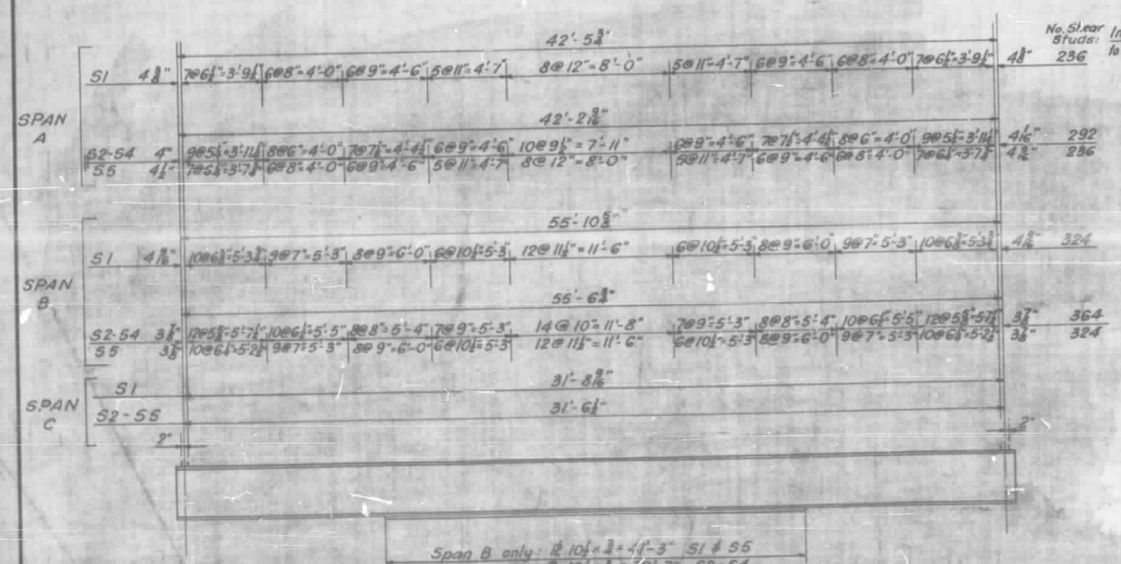
Note: All dimensions are horizontal



BEARING PLATE DETAILS

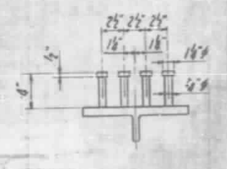
DEFLECTION TABLE	SPAN "A" Ext. Bm.	SPAN "A" Int. Bm.	SPAN "B" Ext. Bm.	SPAN "B" Int. Bm.	SPAN "C" Ext. Bm.	SPAN "C" Int. Bm.
Steel	1/16	1/16	1/8	1/8	—	—
Concrete	5/16	5/16	5/8	5/8	1/8	3/16
Total D.L. Defl.	3/8	3/8	1	3/4	1/8	3/16
Vertical Curve	—	—	—	—	—	—
Total Camber	3/8	3/8	1	3/4	1/8	3/16

Note: All beams and cover plates shall be of A36 or ASTM A373 grade structural steel.
Stress in extreme fiber of structural steel = 18,000 psi.
See Standard Notes sheet for further requirements.

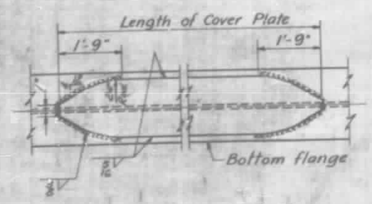


SHEAR STUD SPACING AND COVER PLATE LENGTH

Note: All dimensions are along beam grade



SHEAR STUD DETAILS



COVER PLATE DETAIL

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

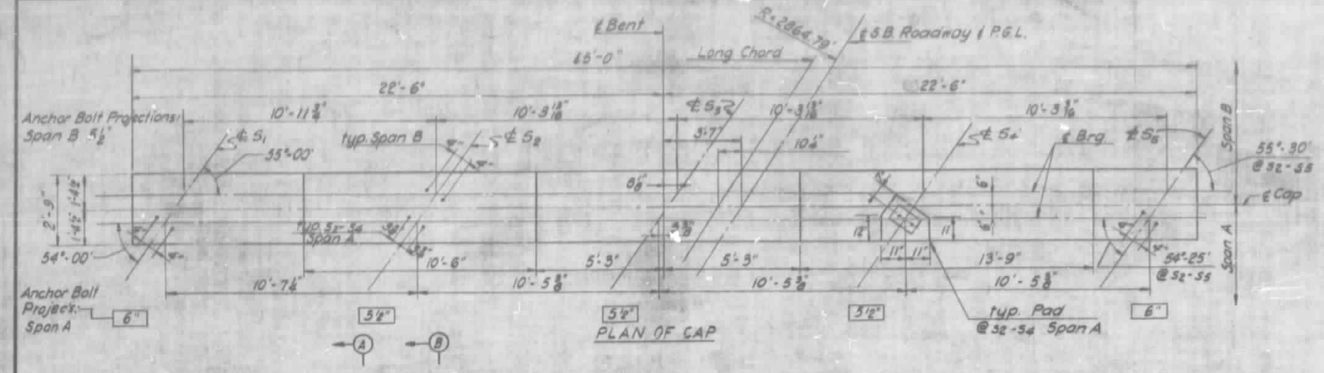
STATION 1654+44 L SB

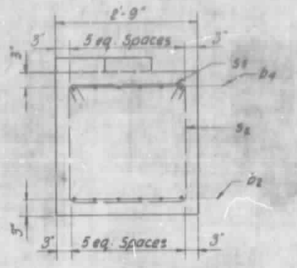
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

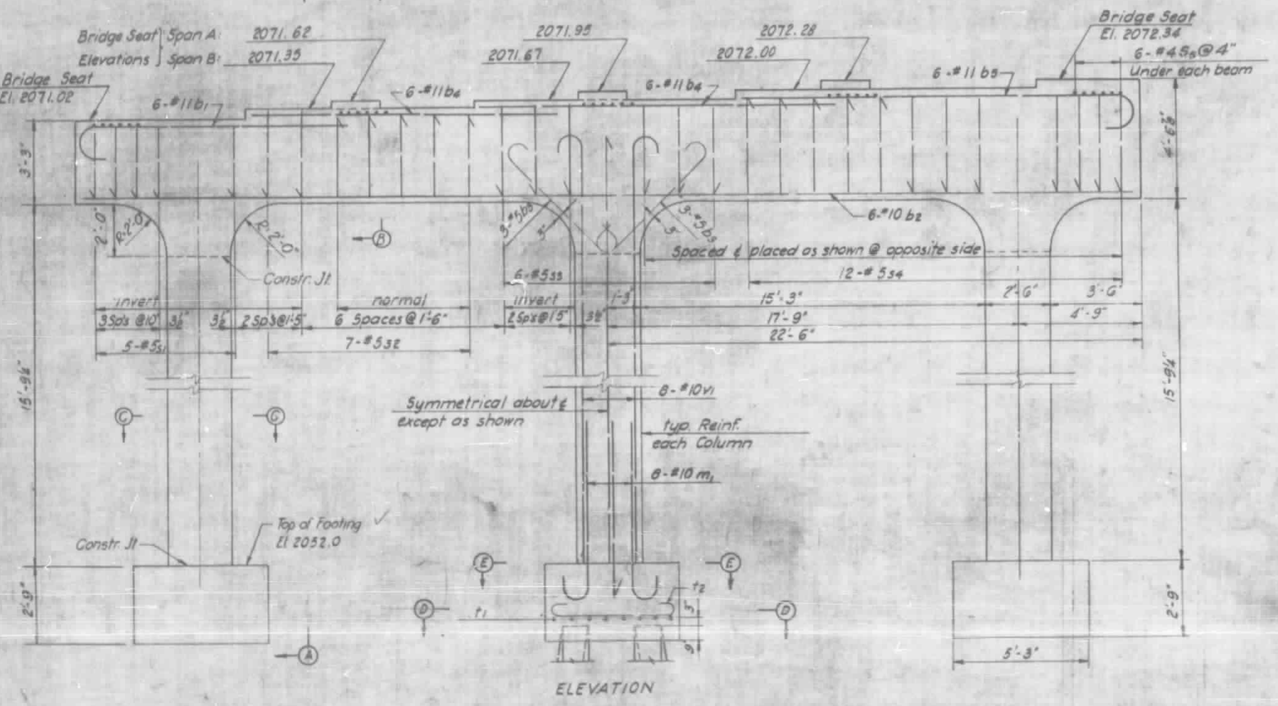
STRUCTURAL STEEL

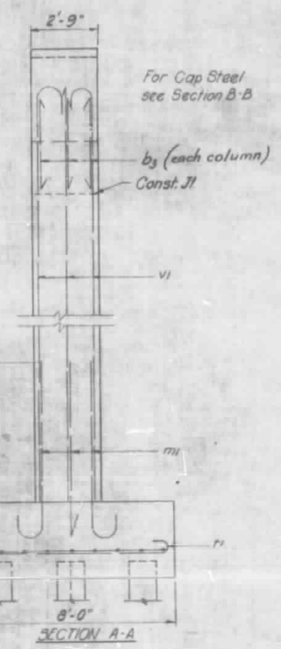
REVISIONS

FED. ROAD DIST. NO.	STATE	PROJECT NO.
9	N. C.	B 190002

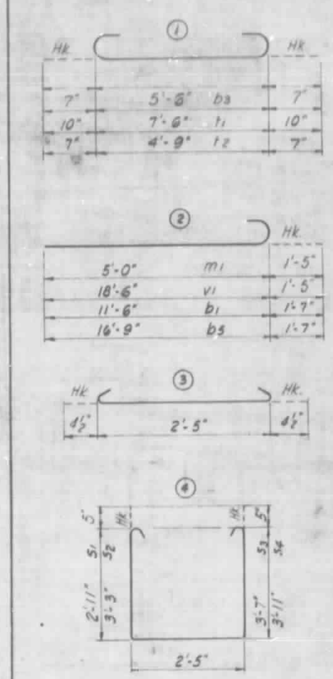








BAR DETAILS



NOTE: All bar dimensions are out to out.

Note: Reinforcing in Top of Cap may be shifted as necessary to clear Anchor Bolts.

BILL OF MATERIAL

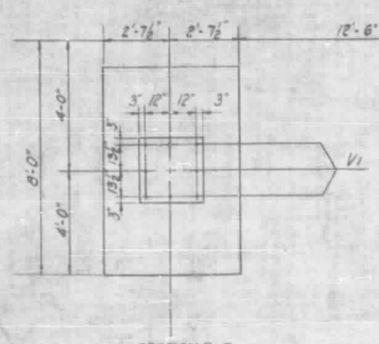
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	6	#11	2	13'-1"	417
b2	6	#10	Str.	44'-6"	1149
b3	18	#5	1	6'-8"	125
b4	12	#11	Str.	15'-3"	972
b5	6	#11	2	18'-4"	584
m1	24	#10	2	6'-5"	603
s1	5	#5	4	9'-1"	47
s2	7	#5	4	9'-9"	71
s3	6	#5	4	10'-5"	65
s4	12	#5	4	11'-1"	138
s5	30	#4	3	3'-2"	64
t1	24	#7	1	9'-2"	450
t2	27	#5	1	5'-11"	167
v1	24	#10	2	19'-11"	1037

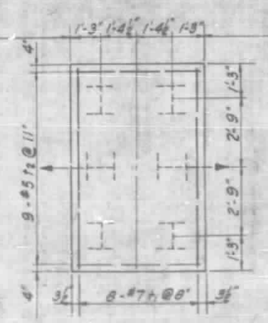
Reinforcing Steel Lbs. 6,969

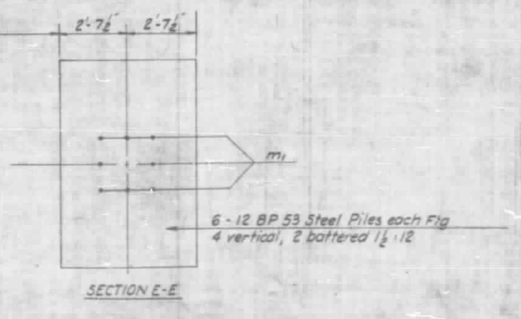
Class "A" Concrete Cu. Yds. 49.8

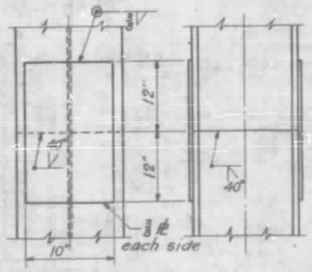
12 BP 53 Steel Piles No. 18

12 BP 53 Steel Piles Lin. Ft. 360









PROJECT NO. B 190002

HENDERSON-BUNCOMBE COUNTY

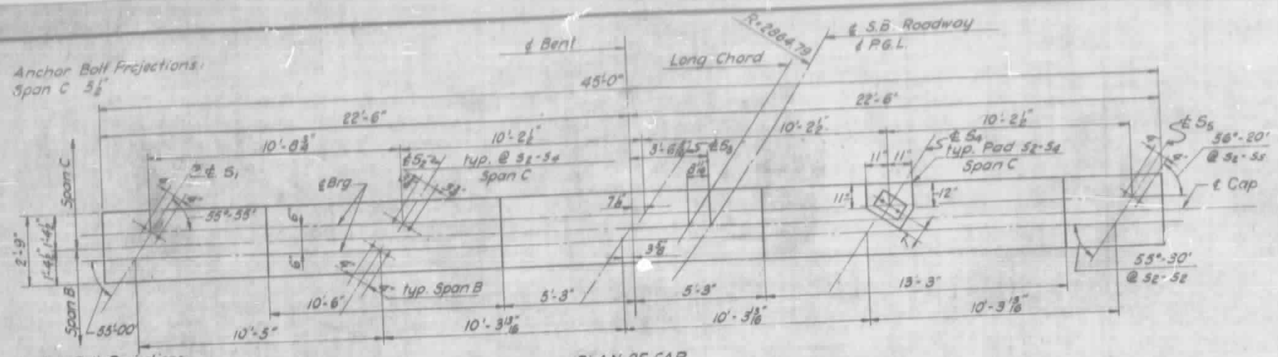
STATION 1654 + 44 L SB

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

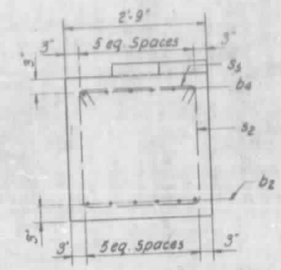
BENT 1

REVISIONS

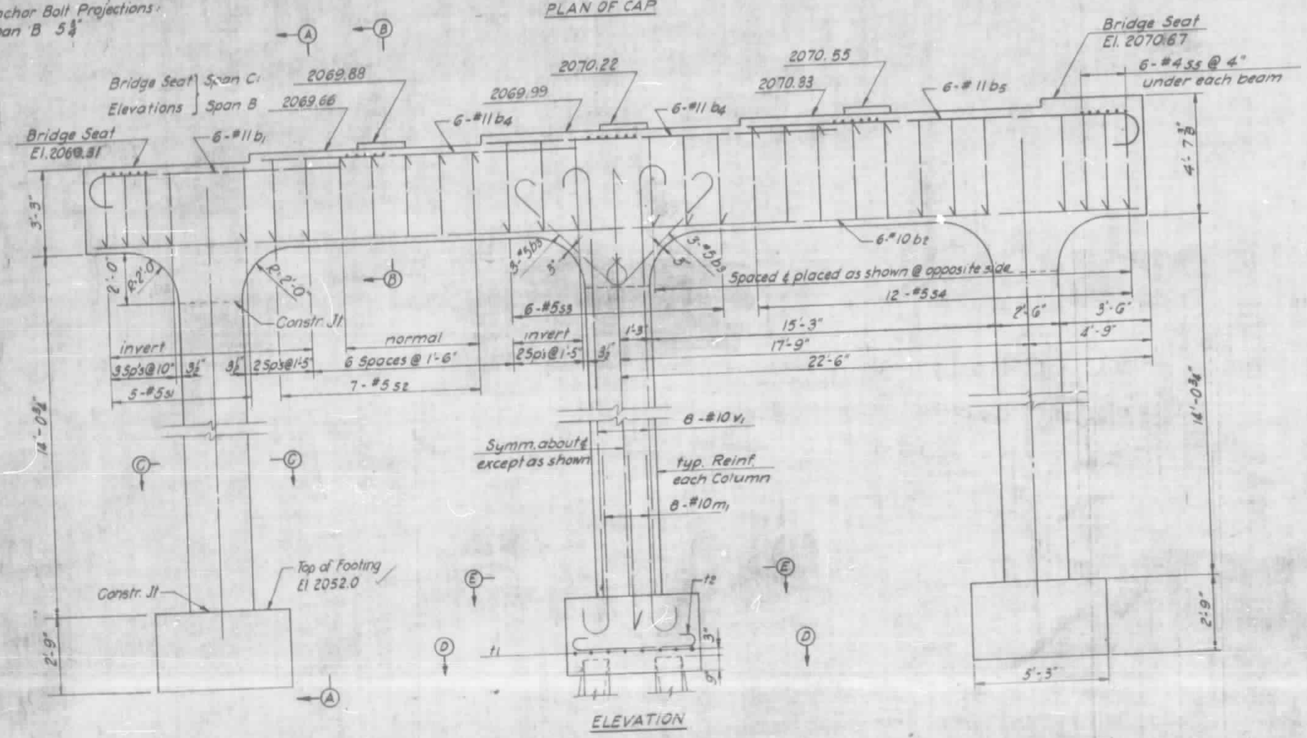
FED. ROAD PROJ. NO.	STATE	PROJECT NO.
3	N. C.	B-190012
FED. AID PROJ. I-26-1(5)4		



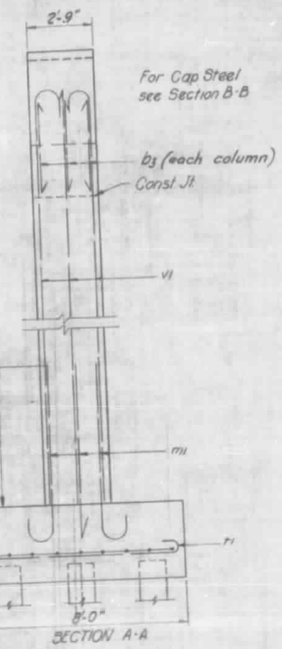
PLAN OF CAP



SECTION B-B

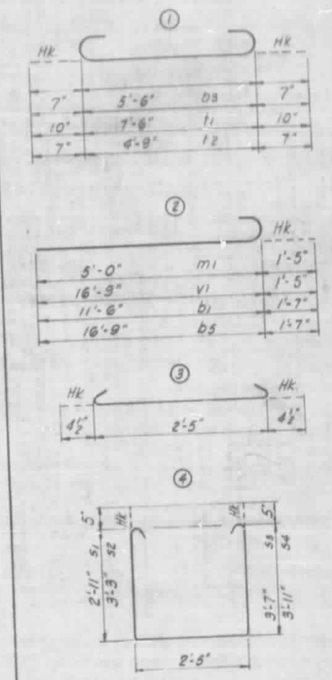


ELEVATION



SECTION A-A

BAR DETAILS



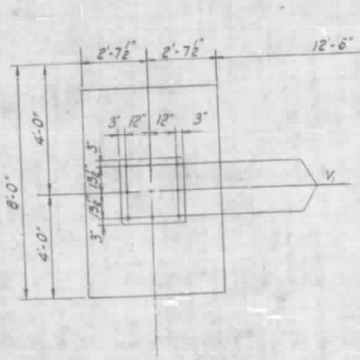
NOTE: All bar dimensions are out-to out.

Note: Reinforcing in Top of Cap may be shifted as necessary to clear Anchor Bolts.

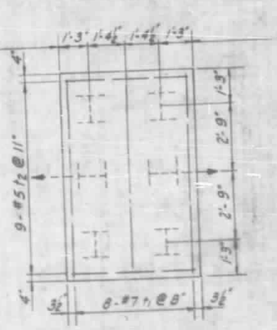
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	6	#11	2	19'-1"	417
b2	8	#10	Str	44'-8"	1149
b3	10	#5	1	6'-8"	125
b4	12	#11	Str	15'-3"	972
b5	6	#11	2	18'-4"	584
m1	24	#10	2	6'-5"	663
S1	5	#5	4	9'-1"	47
S2	7	#5	4	9'-9"	71
S3	8	#5	4	10'-5"	65
S4	12	#5	4	11'-1"	138
S5	30	#4	3	3'-2"	64
t1	24	#7	1	9'-2"	450
t2	27	#5	1	5'-11"	167
V1	24	#10	2	18'-2"	1876
Reinforcing Steel Lbs.					6,782
Class "A" Concrete Cu. Yds.					42.2
12 BP 53 Steel Piles No.					18
12 BP 53 Steel Piles Lin. Ft.					455
					301.83

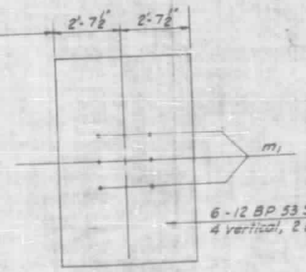
PROJECT NO. B-190012
HENDERSON-BUNCOMBE COUNTY
STATION 1654+44 L SB



SECTION C-C



SECTION D-D

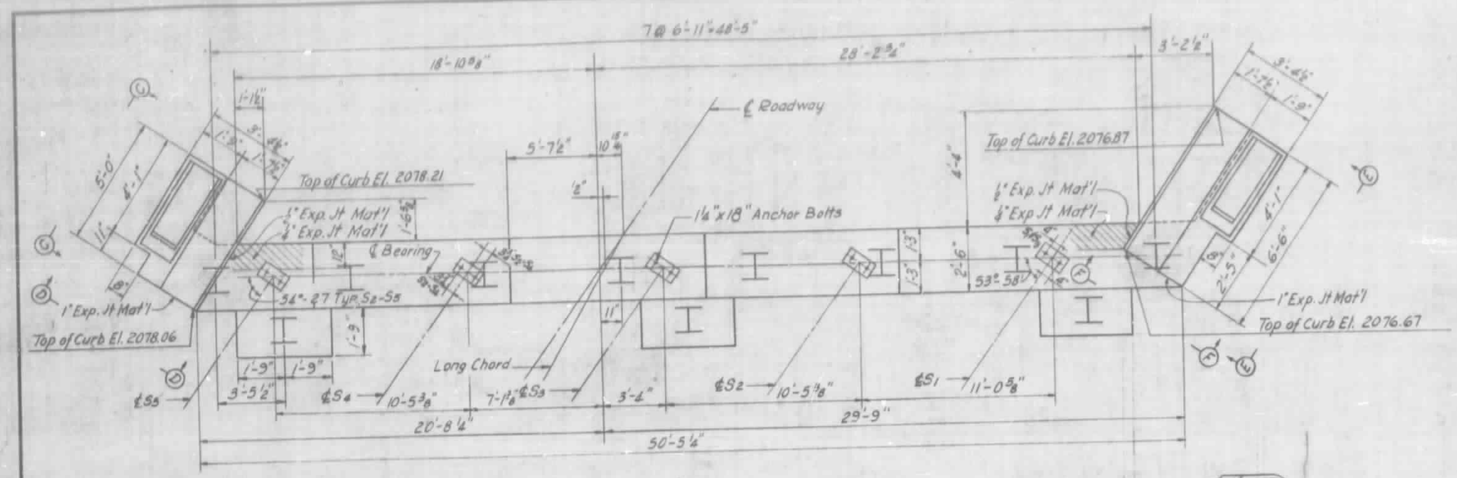


SECTION E-E

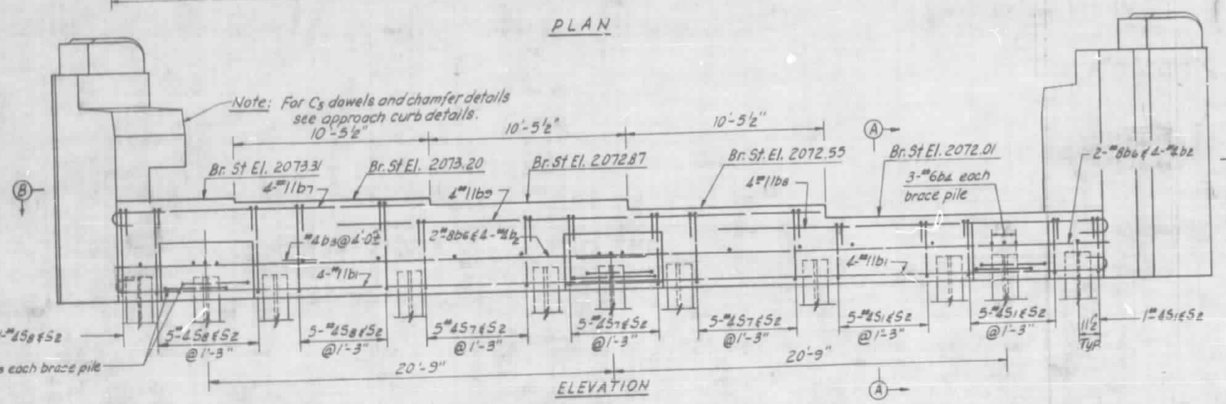
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

BENT 2

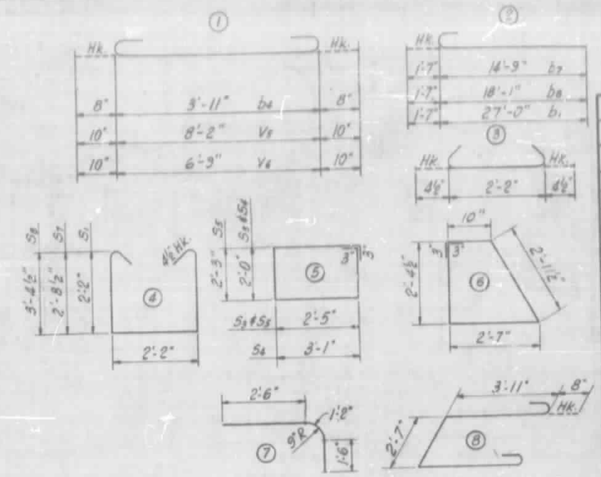
REVISIONS



PLAN

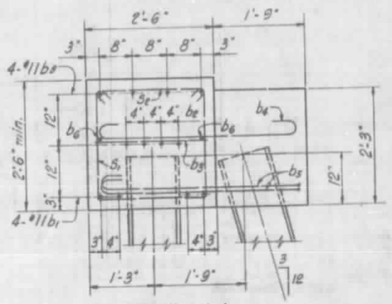


ELEVATION

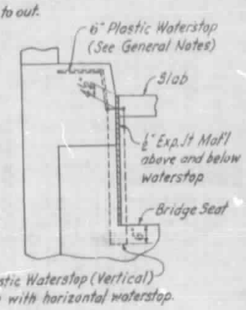


BAR TYPES

All dimensions are out to out.



SECTION A-A



VIEW G-G

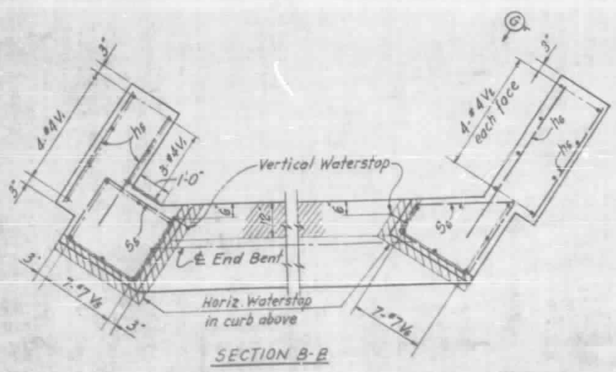
BILL OF MATERIAL

END BENT #1

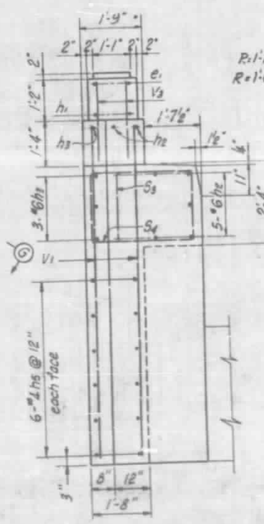
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	8	#11	2	28'-7"	1215
b2	8	#4	Str.	25'-11"	139
b3	10	#4	Str.	2'-2"	15
b4	9	#6	1	5'-3"	71
b5	6	#6	8	11'-9"	106
b6	4	#8	Str.	26'-6"	283
b7	4	#11	2	16'-4"	347
b8	4	#11	2	19'-8"	418
b9	4	#11	Str.	24'-6"	521
e1	4	#4	7	5'-2"	14
h1	4	#4	Str.	3'-5"	9
h2	7	#6	Str.	4'-8"	49
h3	8	#6	Str.	3'-9"	45
h4	10	#6	Str.	6'-2"	93
h5	17	#4	Str.	5'-9"	65
h6	9	#4	Str.	5'-3"	18
s1	11	#4	4	7'-3"	53
s2	37	#4	3	2'-11"	72
s3	3	#4	5	9'-4"	19
s4	6	#4	5	10'-8"	48
s5	5	#4	5	9'-10"	33
s6	4	#4	6	9'-3"	25
s7	15	#4	4	8'-4"	83
s8	11	#4	4	9'-8"	71
V1	7	#4	Str.	9'-7"	45
V2	8	#4	Str.	8'-2"	42
V3	12	#4	Str.	2'-3"	18
V4	7	#4	Str.	2'-6"	12
V5	7	#7	1	9'-10"	121
V6	7	#7	1	8'-5"	120

Reinforcing Steel	lbs. 4165
Class "A" Concrete	cu. yds. 25.2
12 BP53 Steel Piles	No. 11
12 BP53 Steel Piles	lin. ft. 317.3

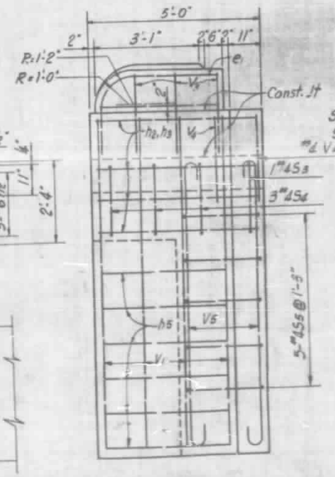
* Concrete displaced by pile heads has been deducted.



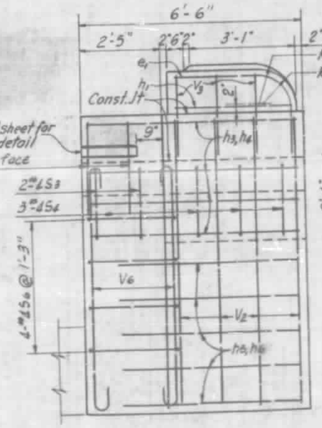
SECTION B-B



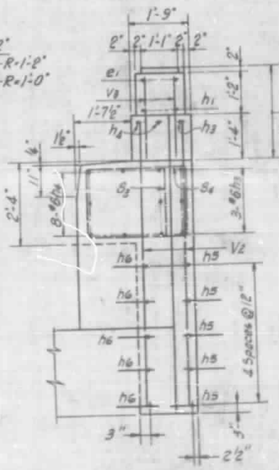
VIEW D-D



VIEW C-C



VIEW E-E



VIEW F-F

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

STATION 1654 + 44 L SB

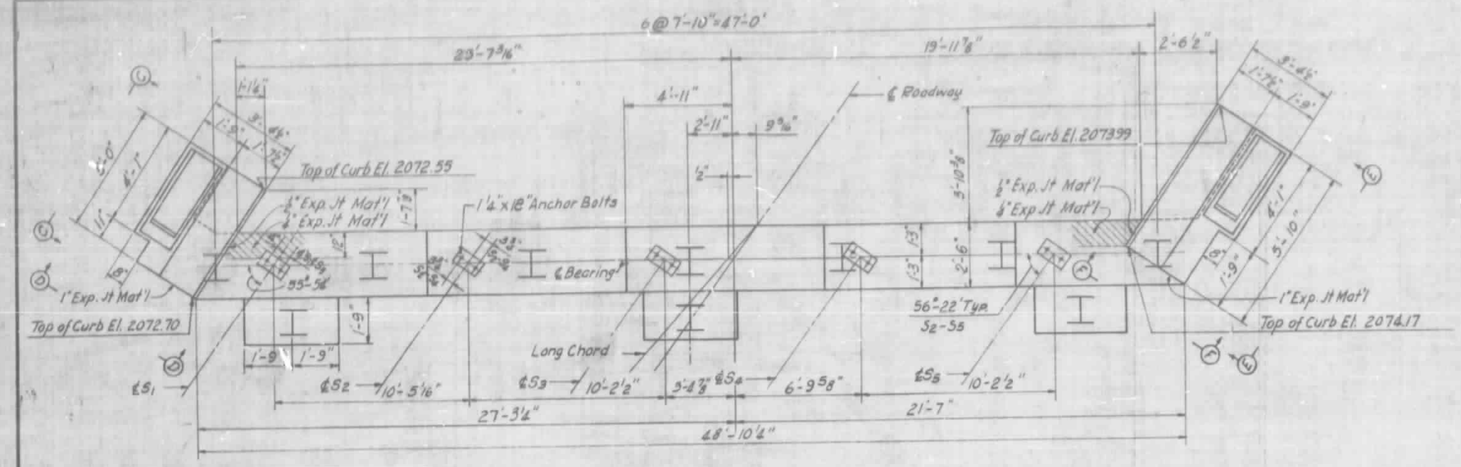
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

END BENT 1

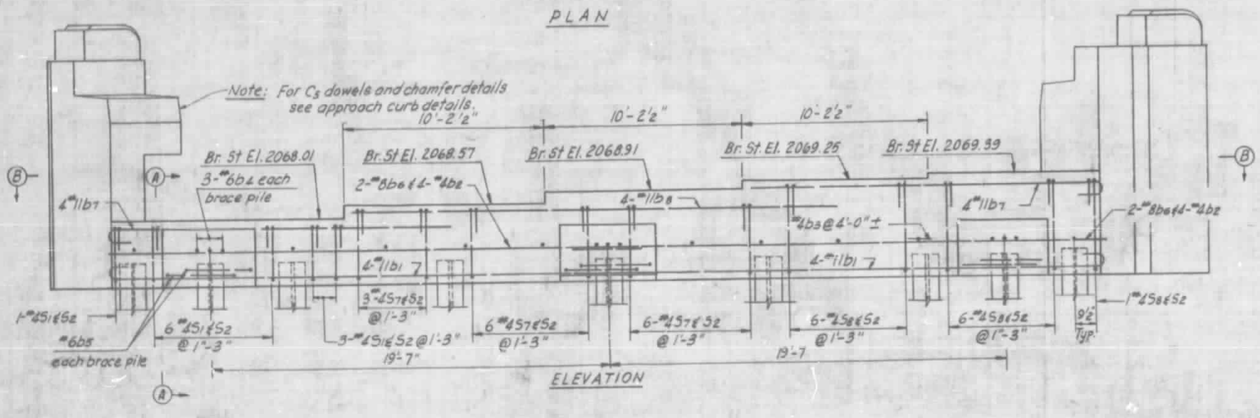
SHEET NO. 562

FED. ROAD DIST. NO.	STATE	PROJECT NO.
5	N. C.	B-19002

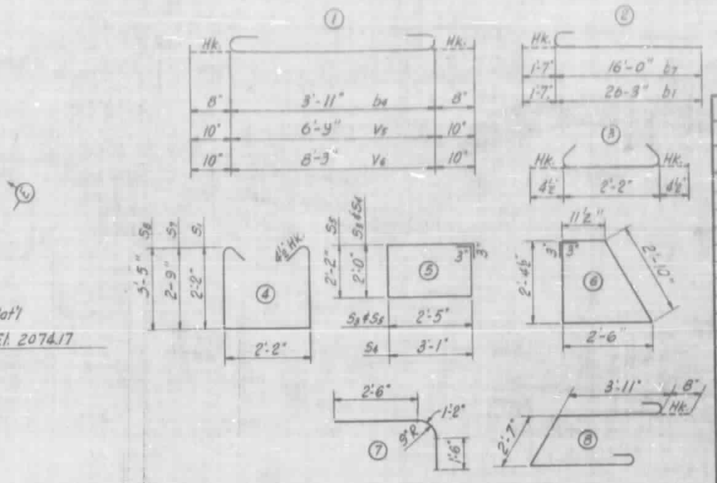
FED. AID PROJ. I-26-1(10)9



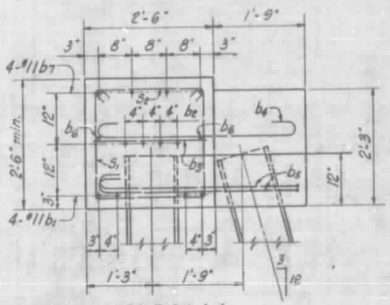
PLAN



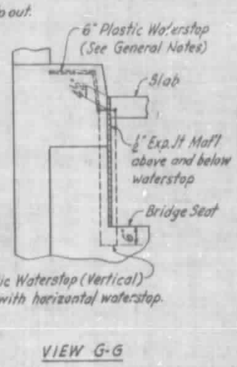
ELEVATION



BAR TYPES
All dimensions are out to out.



SECTION A-A

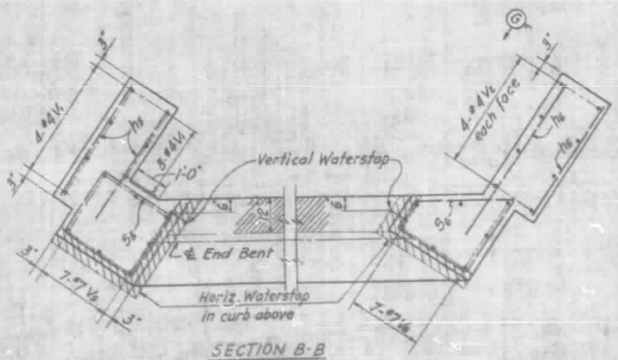


VIEW G-G

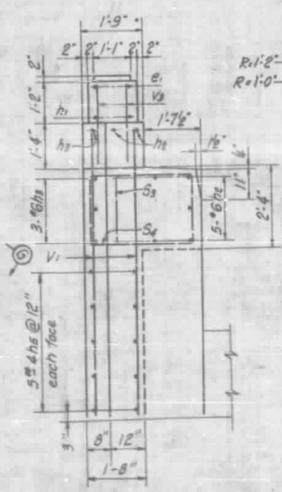
BILL OF MATERIAL
END BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
b1	8	#11	2	27'-10"	1188
b2	8	#4	Str.	25'-1"	134
b3	10	#4	Str.	2'-2"	15
b4	9	#6	1	5'-8"	77
b5	6	#6	8	11'-9"	106
b6	4	#8	Str.	25'-8"	274
b7	8	#11	2	17'-7"	747
b8	4	#11	Str.	24'-0"	510
e1	4	#4	7	5'-2"	14
h1	4	#4	Str.	3'-5"	9
h2	7	#6	Str.	4'-8"	49
h3	8	#6	Str.	3'-9"	45
h4	10	#6	Str.	5'-6"	83
h5	16	#4	Str.	3'-9"	40
h6	6	#4	Str.	4'-6"	18
S1	10	#4	4	7'-3"	48
S2	38	#4	3	2'-11"	74
S3	3	#4	5	9'-4"	19
S4	6	#4	5	10'-8"	43
S5	4	#4	5	9'-8"	26
S6	5	#4	6	9'-2"	31
S7	13	#4	4	8'-5"	84
S8	13	#4	4	9'-9"	85
V1	7	#4	Str.	6'-1"	28
V2	8	#4	Str.	9'-6"	51
V3	12	#4	Str.	2'-3"	18
V4	7	#4	Str.	2'-6"	12
V5	7	#7	1	8'-5"	120
V6	7	#7	1	9'-11"	142
Reinforcing Steel				lbs.	4089
* Class "A" Concrete				cu.yds.	24.8
12 BP53 Steel Piles				No.	10
12 BP53 Steel Piles				lin. ft.	570

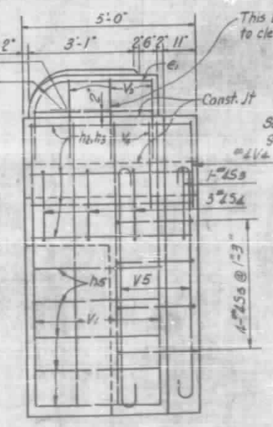
* Concrete displaced by pile heads has been deducted.



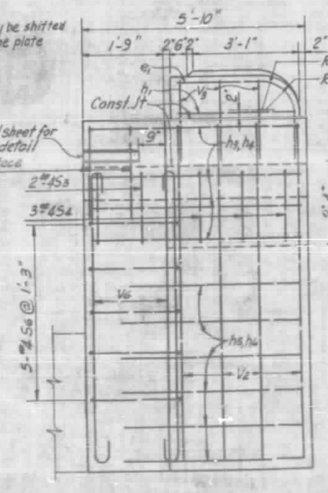
SECTION B-B



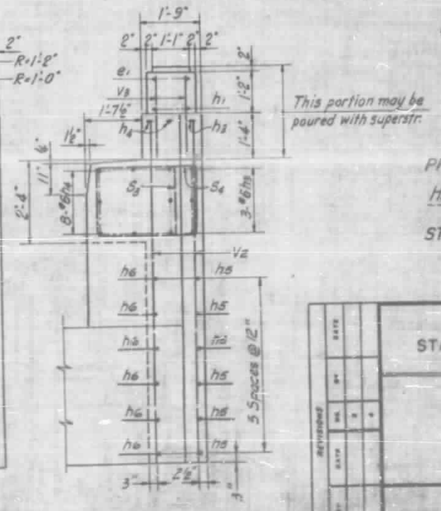
VIEW D-D



VIEW C-C



VIEW E-E



VIEW F-F

PROJECT NO. B-19002
HENDERSON-BUNCOMBE COUNTY
STATION 1654+44 L SB

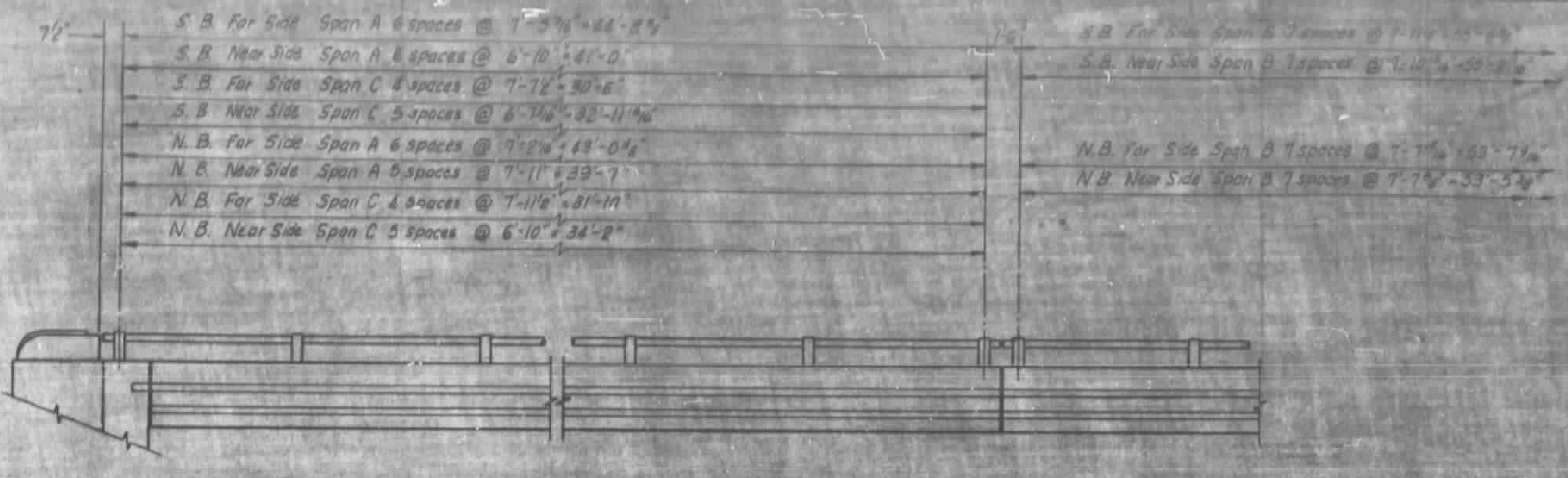
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

END BENT 2

REVISIONS

SOUTHERLAND BLUEPRINT CO., CHARLOTTE, N. C.

FED. ROAD DIST. NO.	STATE	PROJECT NO.
5	N.C.	8.19002
FED. AID PROJ.	I-26-1(10)6	



PARAPET AND RAILING ELEVATION

Note: Railing post spacing given at ℄ parapet and parallel to grade.

NOTES:

Unless noted on the plans, maximum length of rail section to be one panel plus "stick thru".

End of rail to clear face of concrete End Post by 1½"±.

For double panel runs of rail, set screws shall be set tight at center post and snug at ends to allow for expansion.
For single panel runs, set screw to be tight at one end snug at the other end.

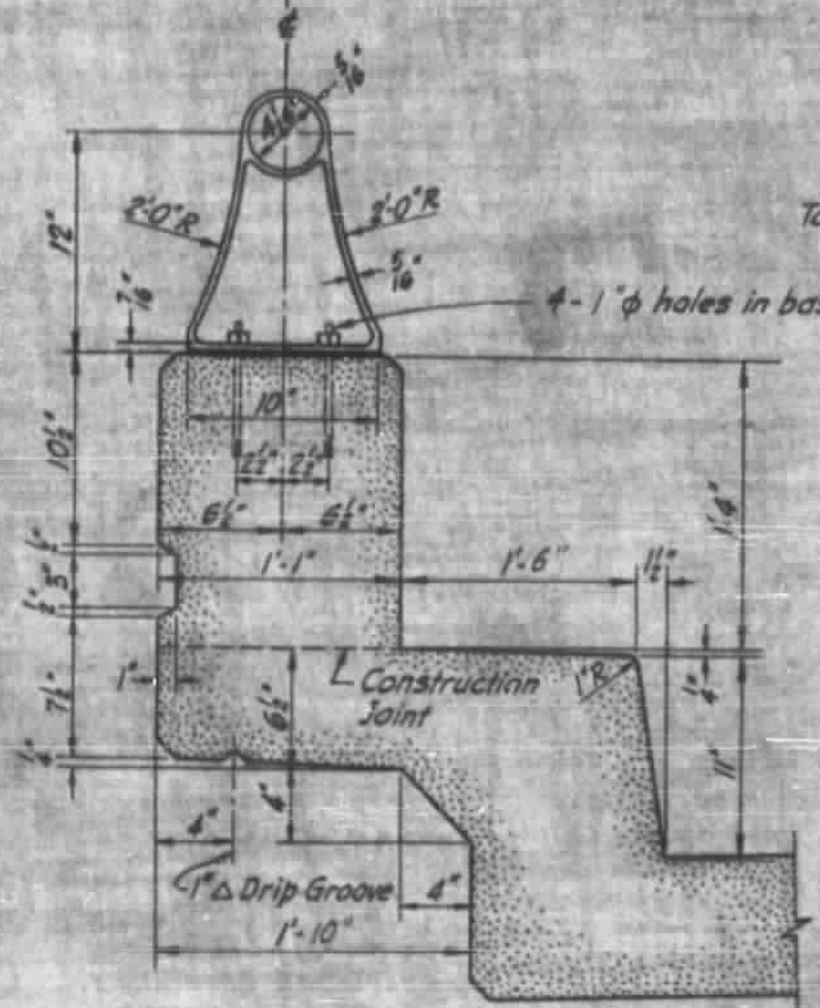
¾" Anchor bolts - hex. nuts and washers to be steel galvanized in accordance with ASTM A-153 and painted with 2 coats of aluminum paint after erection.

Cast posts to be as shown or an approved equal.

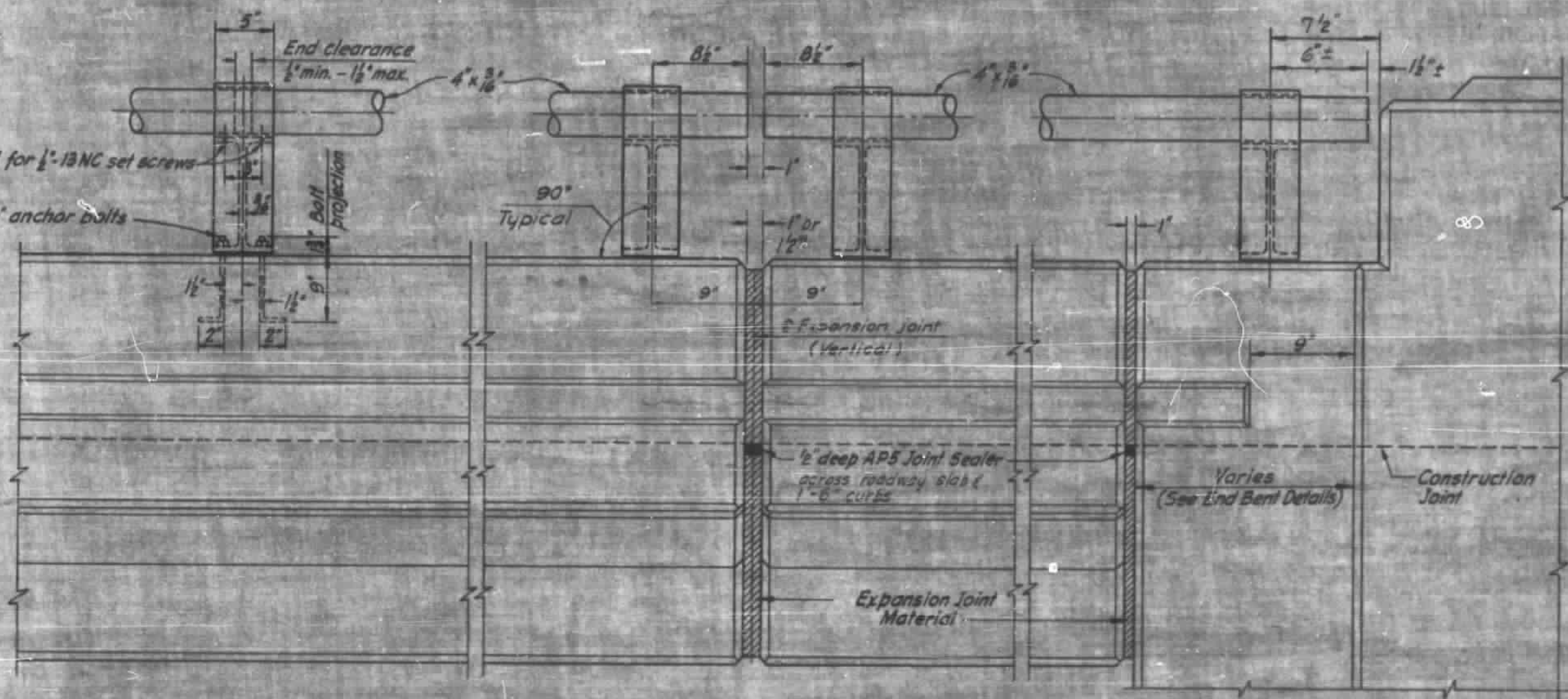
Certified Mill reports are required for rails and posts. Shop inspection is not required.

Metal Rail Posts to be set normal to curb grade.

Method of measurement for Metal Rails:
Unless otherwise stated, the length of Metal rails to be paid for shall be the continuous horizontal length measured from end to end of rail, excepting concrete posts, but without deductions for spaces between rail sections.



TYPICAL SECTION



ELEVATION

JOINT DETAILS AT BENTS

JOINT DETAILS AT END BENTS

PARAPET AND RAILING DETAILS

At the Contractor's option, metal rail may be either Aluminum or Galvanized Steel in accordance with the requirements of the general notes and the following specifications for the alternate materials; however, the Contractor will be required to use the same rail material on all structures on the project for which metal rail is designated.

ALUMINUM RAILS

Aluminum alloys are to be as follows:

Cast Rail Post	A356-T6
Round Tubular Rail	6061-T6 or 6062-T6
Set Screws	2024-T4
Closure Plates	6061-T6 or 6062-T6

Round Tubular Rails are to be of 4" O.D. with ⅜" minimum wall thickness.

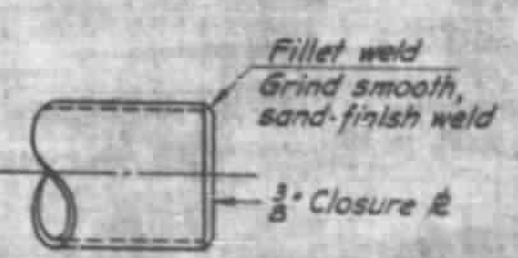
The base of rail posts or any other aluminum surface in contact with concrete shall be thoroughly coated with an aluminum impregnated caulking compound of approved quality.

GALVANIZED STEEL RAILS

Material and galvanizing are to conform to the following specifications

Cast Rail Post	Malleable cast iron, ASTM A47 Grade 35018, Galvanized to ASTM A123.
or	Cast Steel, AASHO M192-60 Class 70, Galvanized to ASTM A123.
4" O.D. Rail	Standard 3½" Galvanized Steel Pipe, ASTM A-53.
Closure Plates & Shims	Steel, ASTM A-245 Grade C, Galvanized to ASTM A123.
Set Screws	Standard Steel Cap Screws Galvanized to ASTM A-153.

The cut ends of galvanized pipe railing, the end closure plate weld after grinding smooth and areas adjacent to the weld where spelter coating has been burned by welding shall be thoroughly cleaned by wire brushing to remove all traces of welding flux and loose or cracked spelter after which these cleaned areas shall be given two coats of zinc paint meeting the requirements of Federal Specification MIL-P-26915(USAF) Type I.



DETAIL END CLOSURE

Note: Aluminum posts are to be furnished with test coupons attached and are to be in accordance with the requirements of AASHO Specification M 193-60.

PROJECT NO. 8.19002

HENDERSON-BUNCOMBE COUNTY

STATION 1654+44 L SB
1656+37 L NB

STATE OF NORTH CAROLINA
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PARAPET AND RAILING DETAILS

SHEET NO. S-14