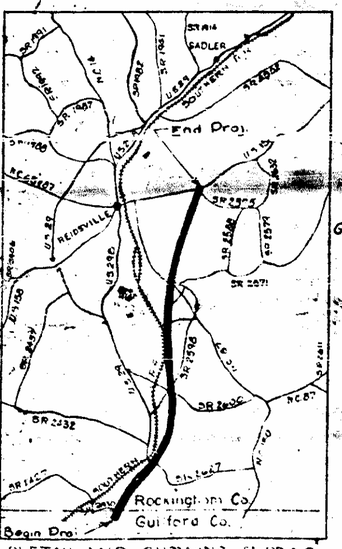
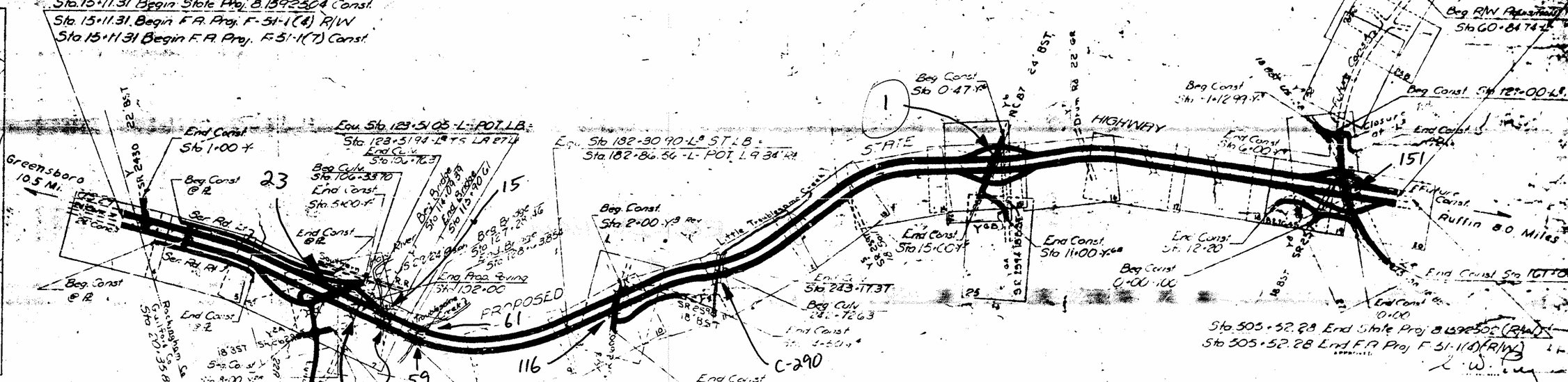




INDEX OF SHEETS
See Sheet Nº 2

Project Reference Nº	Fiscal Year	Sheet Nº
8.1592504		2

State Project Nº	F.A. Project Nº	Descrip
8.1592501	F-51-1(2)	P.E.
8.1592502	F-51-1(4)	R/W
8.1592504	F-51-1(7)	Const.

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

GUILFORD-ROCKINGHAM COUNTIES

Beginning at Sta. 15+11.31, a point in the ℄ of U.S. 29 approx. 500' South of the Guilford-Rockingham County Line, and running in a Northeasterly direction along or near the ℄ of present U.S. 29 to Sta. 90+52.66 and thence cross-country to Sta. 505+52.28 North of the intersection of U.S. 158, End of Project.
This contract includes grading, drainage surfacing, fencing and culverts.

THESE PLANS MICRO-FILMED BY NORTH CAROLINA STATE HIGHWAY COMMISSION REPRODUCTION DEPT.

Conventional Signs
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Chain Link Fence (1" Mesh)
- County Line
- Township Line
- City or Town Line
- Right of Way Line
- Survey Line
- Property or Exist. Right of Way Line
- Fence
- Proposed Road
- Existing Road
- Railroad
- Control of Access Line
- Slope Stake Line
- Bridge
- Culvert
- Woods
- Telephone or Telegraph Pole
- Tower Pole and Line
- Power Pole
- Proposed Right of Way Marker ▲
- Existing Right of Way Marker △
- Prop. Guard Rail
- Future Guard Rail

DESIGN DATA
1967 ADT 7400
1987 ADT 15,200
DHV 12%
D 60%
T ~~29%~~ 30%
V 70 MPH

Sta. 500+00 End State Proj. 8.1592504 (Const.)
Sta. 500+00 End F.A. Proj. F-51-1(7) (Const.)

Sta. 15+11.31 Begin State Proj. 8.1592502 R/W
Sta. 15+11.31 Begin State Proj. 8.1592504 Const.
Sta. 15+11.31 Begin F.A. Proj. F-51-1(4) R/W
Sta. 15+11.31 Begin F.A. Proj. F-51-1(7) Const.

Sta. 505+52.28 End State Proj. 8.1592502 (R/W)
Sta. 505+52.28 End F.A. Proj. F-51-1(4) (R/W)

SKETCH MAP SHOWING SHIPPING POINTS IN VICINITY OF STATE PROJ. 8.1592504

Equ. Sta. 182+74.07 -L- ST LB =
Sta. 182+74.07 -L- POT L 9 34'

GRAPHIC SCALES
0 100 200
PLANS
0 100 200
PROFILE (HORIZONTAL)
0 20
PROFILE (VERTICAL)
0 2000 4000
LAYOUT (TITLE SHEET)
10 20
CROSS-SECT. (HOR-VER)

Equ. Sta. 123+95 -L- POT LB =

Length of Roadway F.A. Proj. F-51-1(7) 9.205 Miles
Length of Structures F.A. Proj. F-51-1(7) .072 Miles
Total Length State Proj. 8.1592504 9.277 Miles

Note:
Access is controlled on the following portions of this project:
Lt. of project - Sta. 37+36.71 to Sta. 404+16.28
Rt. of project - Sta. 33+ to Sta. 505+52.28

The Right of Way on this Project is as shown on the plans.

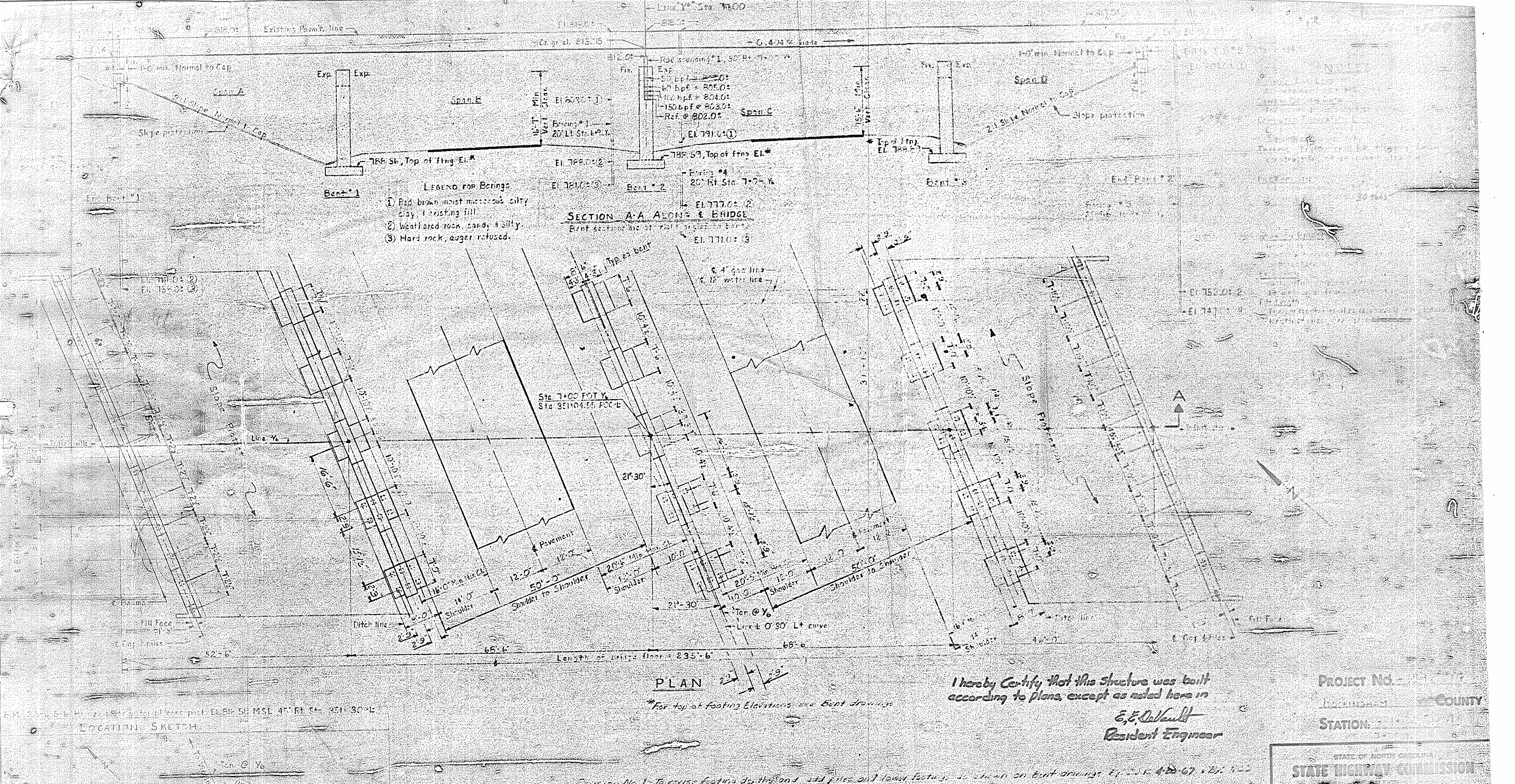
Prepared in Office of
STATE HIGHWAY COMMISSION
RALEIGH, N.C.

Surveyed by R. G. Petree
Plans Prepared by R. M. WALKER
Date July 1966

1965 Revised
State Standard Specifications.
Approved by Bureau Control.

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED
[redacted]
DIVISION ENGINEER DATE



Line Y6 Sta. 7+00
Existing Pavm't. line
0.404% Grade
1'-0" min. Normal to Cap
Span A
Span B
Span C
Span D
Exp.
Fix.
Slope protection
Rod sounding #1, 30' Rt. Sta. 7+10 Y6
El. 803.0± (1)
El. 788.0± (2)
El. 781.0± (3)
El. 791.0± (1)
788.56, Top of Ftng. El.*
788.59, Top of Ftng. El.*
Boring #4 20' Rt. Sta. 7+25 Y6
El. 777.0± (2)
El. 771.0± (3)
Bent #1
Bent #2
Bent #3
End Bent #1
End Bent #2
LEGEND FOR BORINGS
(1) Red brown moist micaceous silty clay, existing fill.
(2) Weathered rock, sandy & silty.
(3) Hard rock, auger refused.
SECTION A-A ALONG ℄ BRIDGE
Bent sections are at right angles to bent.
Sta. 7+00 POT Y6
Sta. 351+04.55 POC -L-
Line Y6
21°-30'
16'-6"
Pavement
Shoulder
50'-0" Shoulder to Shoulder
16'-0" Min. Vert. Cl.
12'-0"
Slope Protection
Ditch line
Fill Face
℄ 4" gas line
℄ 12" water line
Tan @ Y6
-L- Lt. 0°30' Lt. curve
52'-6"
68'-6"
68'-6"
Length of bridge floor = 235'-6"
PLAN
*For top of footing Elevations see Bent drawings
LOCATION SKETCH
To Reidsville
To Burlington
I hereby Certify that this structure was built according to plans, except as noted here in
E. E. DeVault
Resident Engineer
PROJECT NO.
COUNTY
STATION
STATE HIGHWAY COMMISSION
GENERAL DRAWING
Revision No. 1 - To revise footing depths and add piles and lower footings as shown on bent drawings.

TOTAL BILL OF MATERIAL

	Class "A" Concrete Cu. Yd.	Reinf. Steel Lb.	Struct. Steel Approx. Lb.	12" Precast Conc. Piles No.	Lin. Ft.	Exc. Cu. Yd.	I-Bar Lin. Ft.	4" Conc. Slope Protection
Superstructure	517.2	115549	412,300				458.63	427.44
End Bent No. 1	26.5	559		13	390'0"	110.38		
Bent No. 1	[illegible]	2357		12	138'9"	113.15		
Bent No. 2	[illegible]	2213		12	155'10"	117.94		364.67
Bent No. 3	66.1	2213		30	623'2"			
End Bent No. 2	26.5	559			360'0"			
	[illegible]				1733'3"	350.61	458.63	792.11

*For top of footing Elevations see Bent drawings.

B.M. ... El. 816.58 MSL 45' Rt. Sta. 351+30 -L-

LOCATION SKETCH

I hereby Certify that this structure was built according to plans, except as noted here in

E. E. DeVault
Resident Engineer

PROJECT NO.

Rockingham COUNTY

STATION:

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

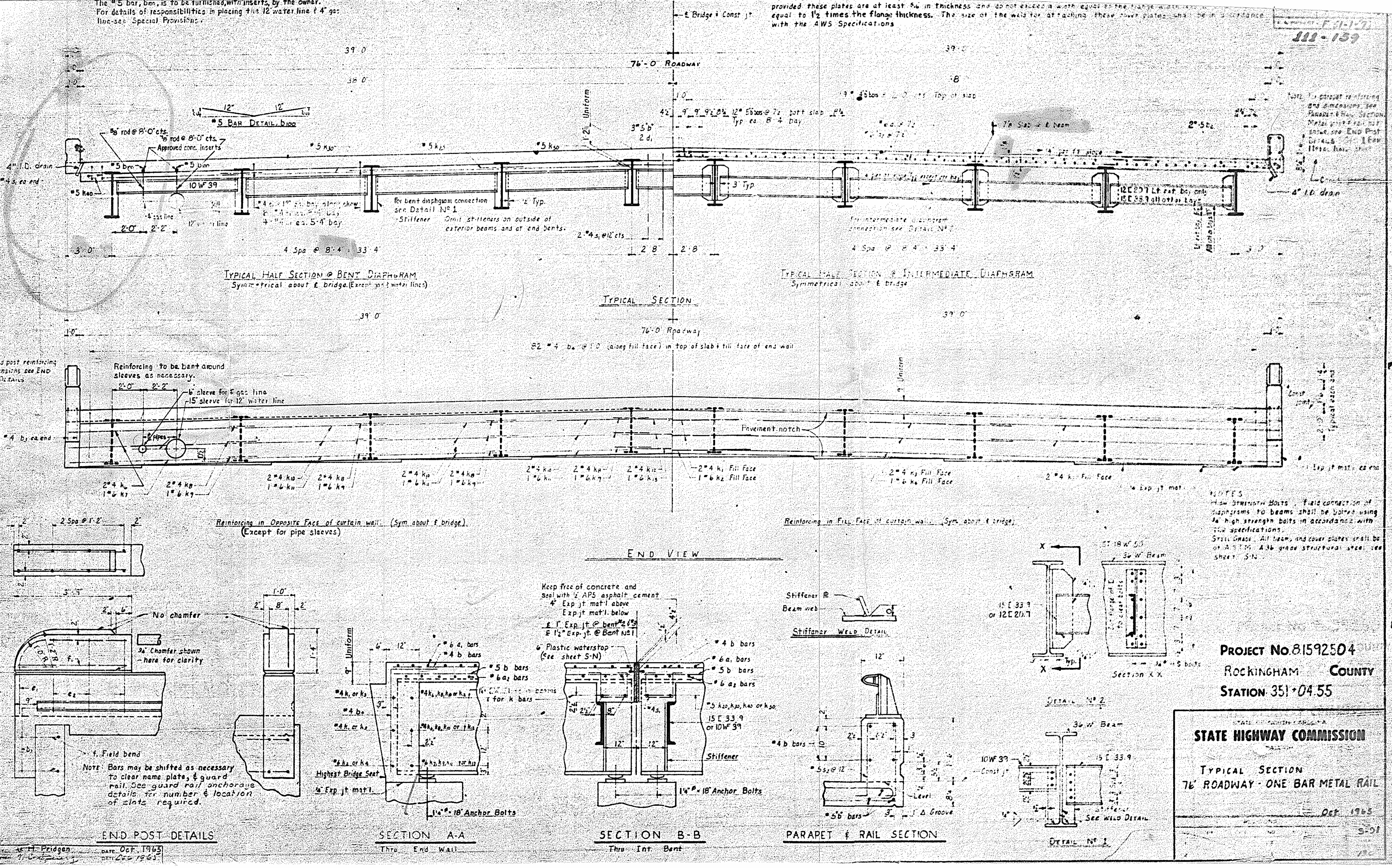
GENERAL DRAWING
FOR

REVISIONS

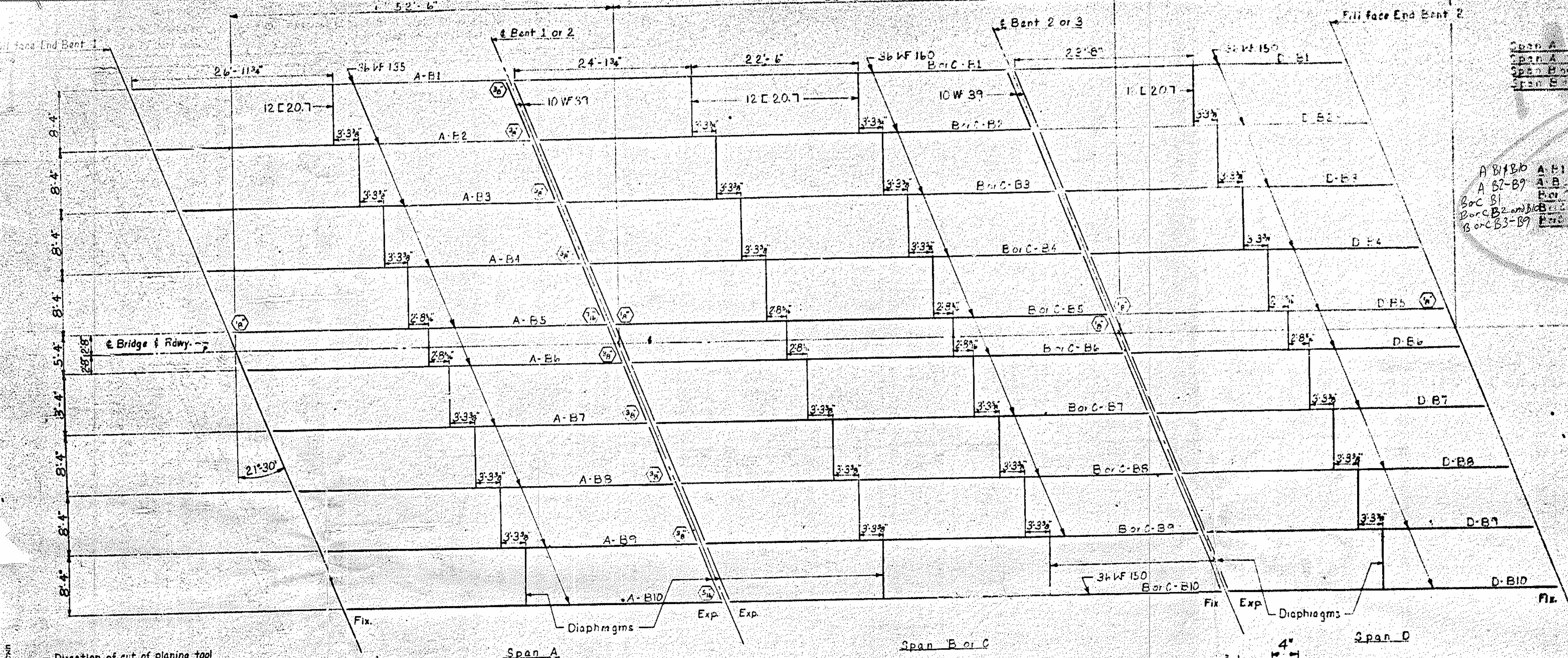
Revision No 1: To revise footing depths and add piles and lower footings as shown on Bent drawings. By: ... 4-20-67 ... By: ...

TOTAL BILL OF MATERIAL

	Class "A" Concrete Cu. Yd.	Reinf. Steel Lbs.	Struct. Steel Approx. lb.	12" Prestr. Conc. Piles No.	12" Prestr. Conc. Piles Lin. Ft.		Uncl. Str. Excav. Cu. Yd.	1-Bar Metal Rail Lin. Ft.	4" Conc. Slope Protection
Superstructure	517.2	140543	442,300					433.67	42.7.44
End Bent No 1	26.5	555		13	~~[illegible]~~ 390'0"				
Bent No 1	[illegible]	2787		12	~~144~~ 134'5"		110.55		
Bent No 2	[illegible]	1215		12	~~162~~ 155'10"		113.15		

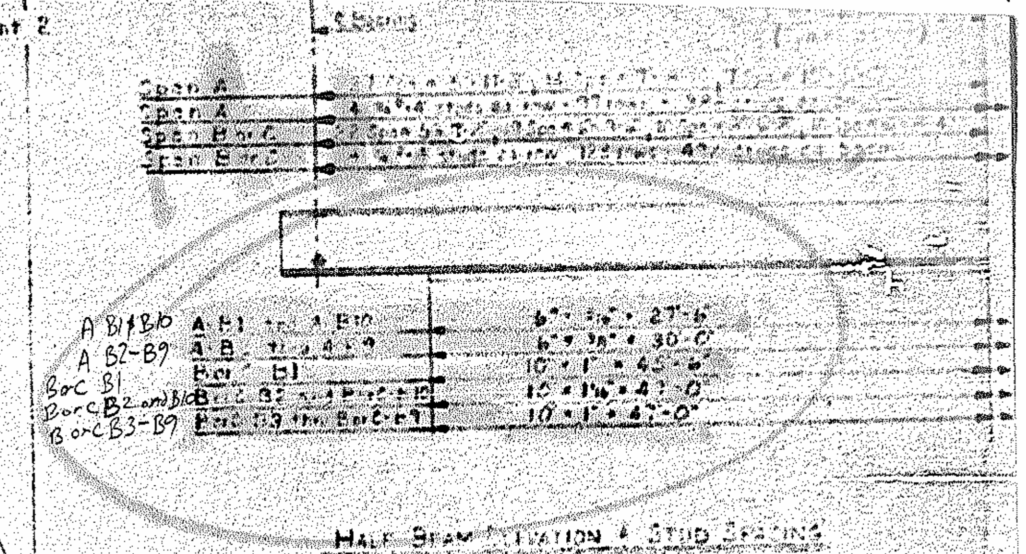


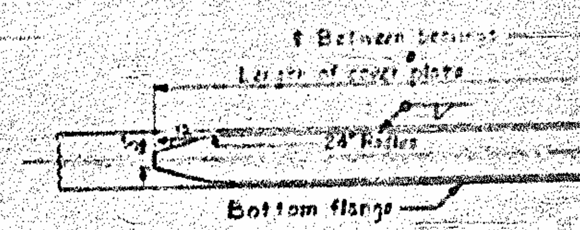
The #5 bar, b100, is to be furnished, with inserts, by the owner.
For details of responsibilities in placing the 12" water line & 4" gas line-see Special Provisions.
provided these plates are at least 3/4 in thickness and do not exceed a width equal to the flange width ... equal to 1½ times the flange thickness. The size of the weld for attaching these cover plates shall be in accordance with the AWS Specifications
76'-0" Roadway
#5 Bar Detail, b100
Approved conc. inserts
4" I.D. drain
10 WF 39
For bent diaphragm connection see Detail No 1
Stiffener - Omit stiffeners on outside of exterior beams and at end bents.
For intermediate diaphragm connection see Detail No 2
4 Spa @ 8'-4" = 33'-4"
Typical Half Section @ Bent Diaphragm
Symmetrical about ℄ bridge. (Except gas & water lines)
Typical Half Section @ Intermediate Diaphragm
Symmetrical about ℄ bridge
Typical Section
82 #4 b4 @ 1'-0" (along fill face) in top of slab & fill face of end wall
Reinforcing to be bent around sleeves as necessary.
6" sleeve for ℄ gas line
15" sleeve for 12" water line
Pavement notch
Reinforcing in Opposite Face of curtain wall (Sym about ℄ bridge)
(Except for pipe sleeves)
Reinforcing in Fill Face of curtain wall (Sym about ℄ bridge)
End View
Notes
High Strength Bolts: Field connection of diaphragms to beams shall be bolted using ¾" high strength bolts in accordance with the specifications.
Steel Grade: All beams and cover plates shall be of A.S.T.M. A36 grade structural steel. See sheet S-N.
No chamfer
¾" Chamfer shown here for clarity
f. Field bend
Note: Bars may be shifted as necessary to clear name plate, & guard rail. See guard rail anchorage details for number & location of slots required.
End Post Details
Highest Bridge Seat
1¼" Φ × 18" Anchor Bolts
Section A-A
Thru End Wall
Keep free of concrete and seal with ½" APS asphalt cement
6" Plastic waterstop (See sheet S-N)
15 [33.9 or 10 WF 39
Stiffener
Section B-B
Thru Int. Bent
Stiffener ℞
Beam web
Stiffener Weld Detail
Parapet & Rail Section
36 W Beam
Section X-X
Detail No 2
10 WF 39
15 [33.9
See Weld Detail
Detail No 1
Project No. 8.1592504
Rockingham County
Station 351+04.55
State Highway Commission
Typical Section
76' Roadway - One Bar Metal Rail
Oct 1965
S-01
Pridgen
Oct 1965



BEAM, DIAPHRAGM AND BEARING PLATE LAYOUT

Diaphragm dimensions are from € bearing to back of channel
(⁵⁄₁₆) denotes fill plate
Diaphragms are 15[33.9 except as noted





COVER PLATE WELD DETAIL

Note: Cover plate lengths are symmetrical about € between bearings for bottom flange only.

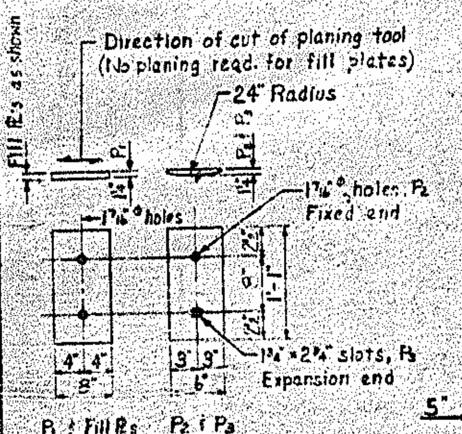
NOTES:

End stiffeners to be parallel to ends of beam web. No stiffeners are required at end bents or on outside of exterior beams.

Field connections of diaphragms to beams shall be bolted using ¾"ø H.S. bolts in accordance with the specs.

At the contractor's option fill plates, when used, may be combined with masonry plates.

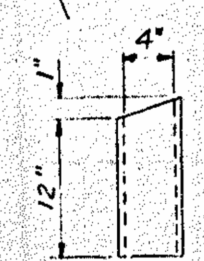
At the contractor's option he may substitute for the cover plates designated on the plans cover plates of equivalent area provided these plates are at least ⅝" thick and do not exceed a width equal to the flange width less 2" or a thickness equal to 1½ time the flange thickness. The size of the weld for attaching these cover plates shall be in accordance with the AWS specifications.



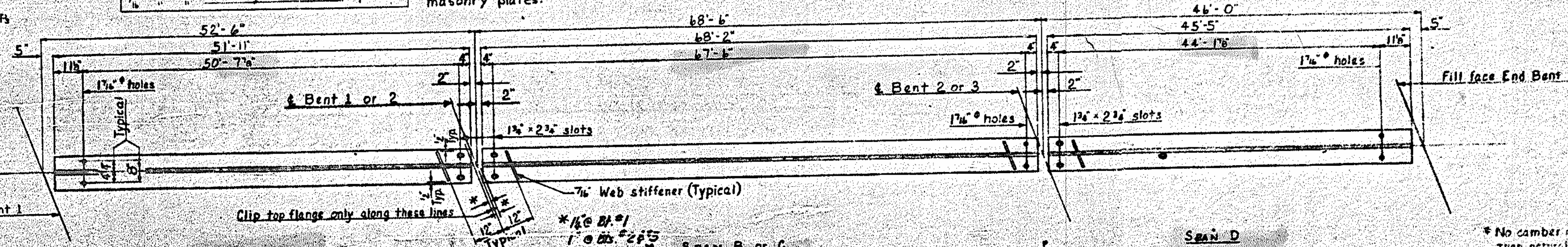
BEARING PLATE DETAILS

BEARING PLATES REQUIRED	
P₁	80
P₂	40
P₃	40
⅛" fill plate	7
⁵⁄₁₆" " "	1
⅜" " "	8
⁷⁄₁₆" " "	1

Note: Fill plates may be combined with masonry plates.



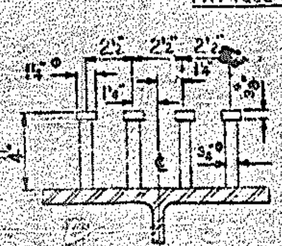
Drains to be std. wt. galv. steel and shall receive 2 field coats of aluminum paint. Set tops of drains ⅜" below top surface of slab.



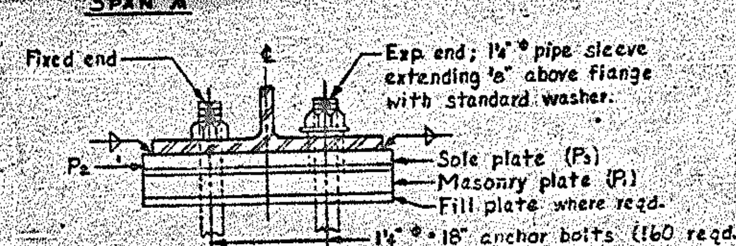
BOTTOM FLANGE DETAIL

Top flange noted

Note: For location of "K" bar slots, see Section A-A or B-B of Typical Section



¾" STUD DETAIL



DETAIL AT BEARING

* No camber required other than natural mill camber.

DEAD LOAD DEFLECTIONS and BEAM CAMBER	A-B1 thru A-B10	B or C-B1, B2 & B10	B or C-B3 thru B or C-B9	D-B1	D-B2 thru D-B10
Deflection Due to Weight of Beam	⅛"	¼"	¼"	¹⁄₁₆"	¹⁄₁₆"
Deflection Due to Superimposed Dead Load	½"	1¼"	1⅛"	⅜"	⁵⁄₁₆"
Total Dead Load Deflection	⅝"	1½"	1⅜"	⁷⁄₁₆"	⅜"
Camber	*	1½"	1⅜"	*	*

PROJECT NO. 81592504
Rockingham **COUNTY**
STATION: 351+04.55 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

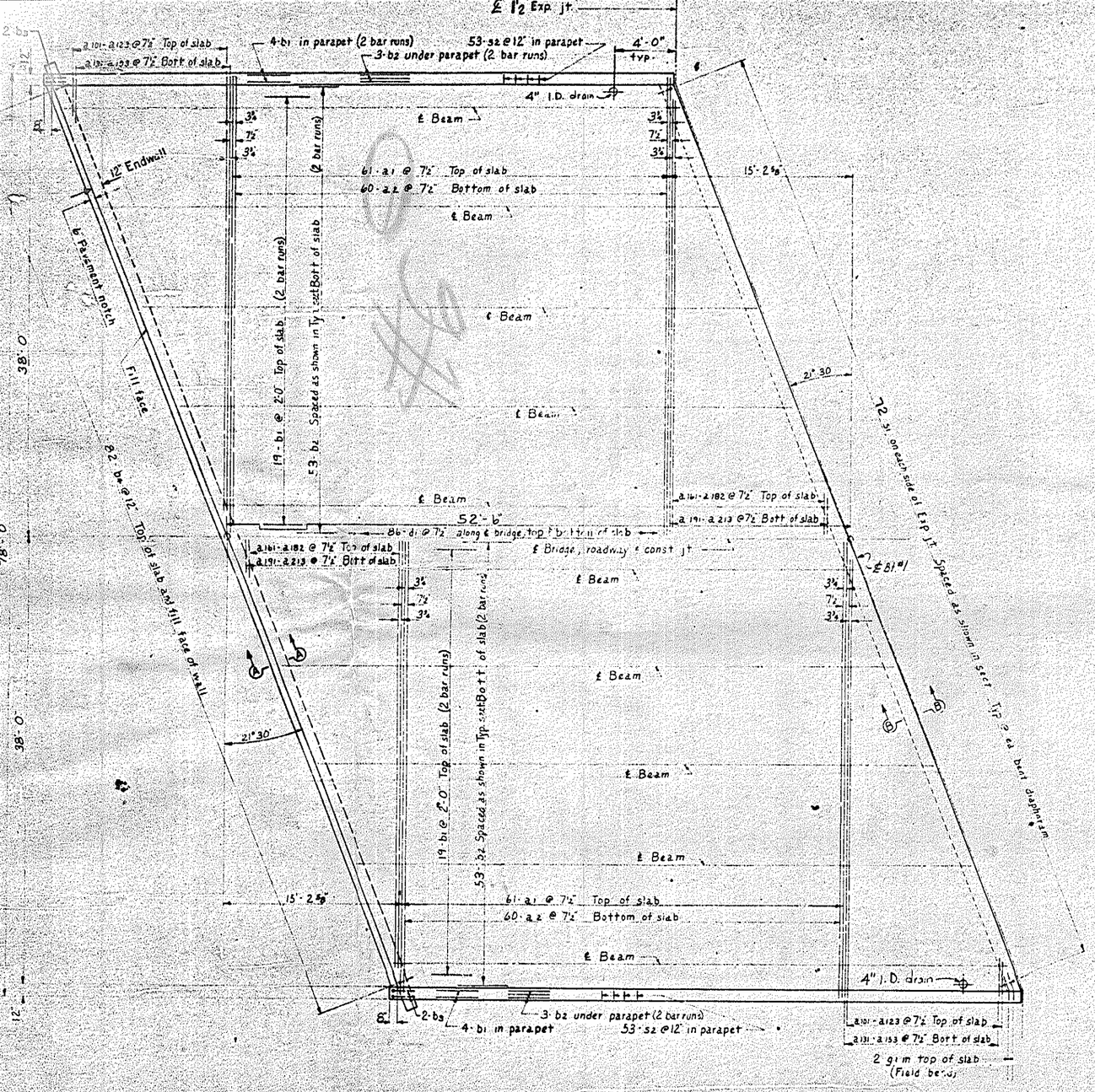
STRUCTURAL STEEL
Beam, Diaphragm & Bearing Plate Layout
Bottom Flange Detail

November 1965

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-92
TOTAL SHEETS 130

DRAWN BY J.H. Pridgen DATE Dec. 1965
CHECKED BY V.C. Spruill DATE Dec 1965



SPAN A
Length of span 52'-6"

Class A Conc in Span A		
Pour No	Far Side	Near Side
1	56.1 cuyd	56.1 cuyd
2	2.9 "	2.9 "
3	2 "	2 "
Total	61.0 "	61.0 "
Total in span 122 cuyd		

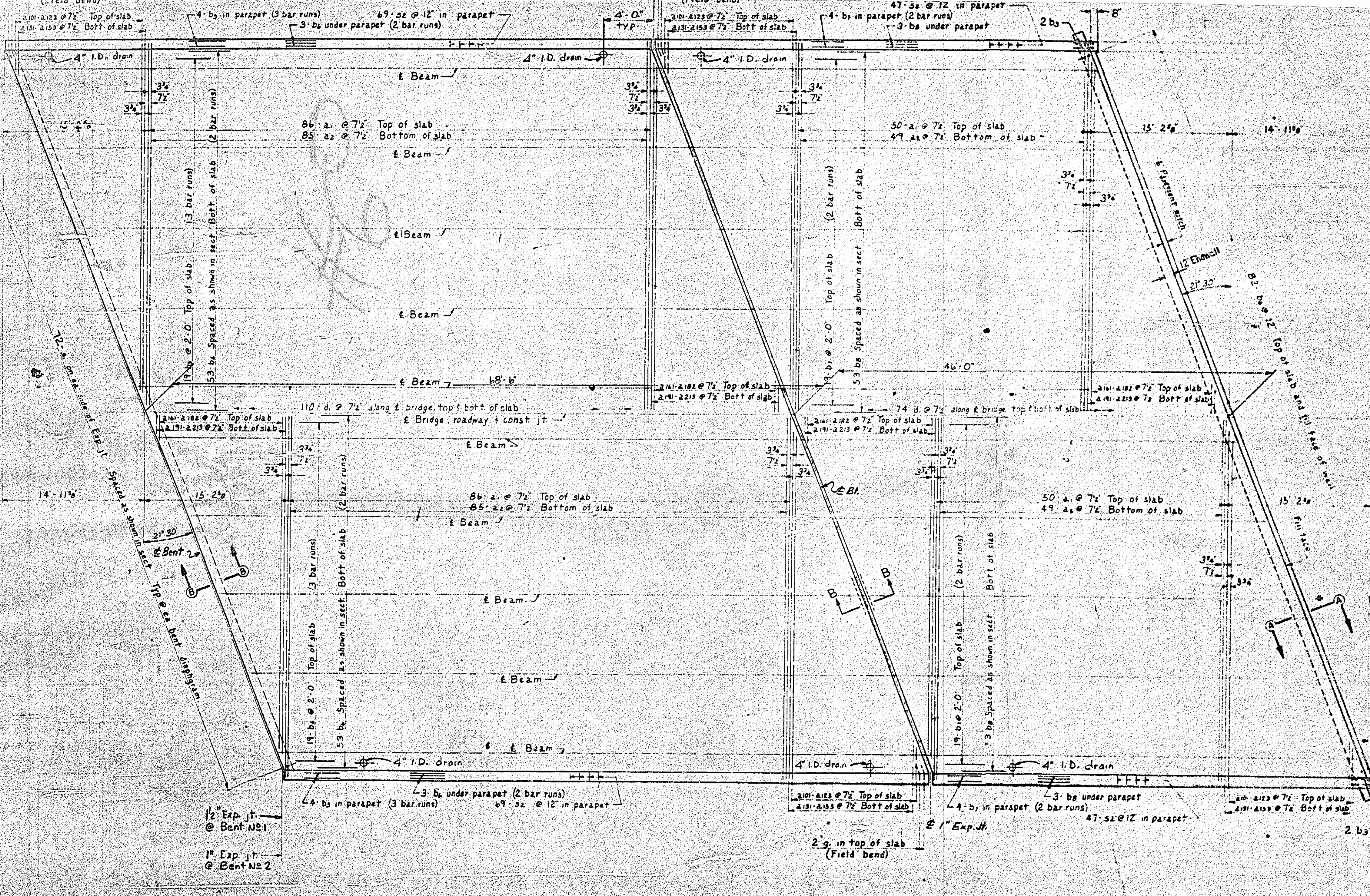
DATE Oct 1965
DATE Dec 1965

113-157

PROJECT NO. 8.1592504
ROCKINGHAM COUNTY
STATION 351+04.55 ℄

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
SUPERSTRUCTURE
PLAN OF SPAN A

S-73


2101-2123 @ 7½" Top of slab
2131-2153 @ 7½" Bott. of slab
4-b₅ in parapet (3 bar runs)
3-b₆ under parapet (2 bar runs)
69-s₂ @ 12" in parapet
4'-0" typ.
4" I.D. drain
℄ Beam
86-a₁ @ 7½" Top of slab
85-a₂ @ 7½" Bottom of slab
19-b₈ @ 2'-0" Top of slab
53-b₈ Spaced as shown in sect. Bott. of slab
(3 bar runs)
(2 bar runs)
68'-6"
110-d₁ @ 7½" along ℄ bridge, top & bott. of slab
℄ Bridge, roadway & const. jt.
2161-2182 @ 7½" Top of slab
2191-2213 @ 7½" Bott. of slab
72-a₃ on ea. side of Exp. jt. Spaced as shown in sect.
Typ. @ ea. bent diaphragm
℄ Bent 2
21°30'
14'-11⅝"
15'-2⅝"
4-b₇ in parapet (2 bar runs)
3-b₈ under parapet
47-s₂ @ 12" in parapet
2 b₃
8"
50-a₁ @ 7½" Top of slab
49-a₂ @ 7½" Bottom of slab
74-d₁ @ 7½" along ℄ bridge top & bott. of slab
46'-0"
6" Pavement notch
12" Endwall
82-b₄ @ 12" Top of slab and fill face of wall
Fill face
38'-0"
1½" Exp. jt. @ Bent No 1
1" Exp. jt. @ Bent No 2
℄ 1" Exp. jt.
2-g₁ in top of slab (Field bend)

SPAN B OR C
Length of span: 68'-6"

SPAN D
Length of span: 46'-0"

Class 'A' Conc. in Span B or C		
Pour No	Far Side	Near Side
1	67.5 cu.yd.	67.5 cu.yd.
2	3.8 " "	3.8 " "
Total	71.3 " "	71.3 " "
Total in span = 142.6 cu.yd.		

Class 'A' Conc. in Span D		
Pour No	Far Side	Near Side
1	51.4 cu.yd.	51.4 cu.yd.
2	2.6 " "	2.6 " "
3	.2 " "	.2 " "
Total	54.2 " "	54.2 " "
Total in span = 108.4 cu.yd.		

PROJECT NO. 8.1592504
ROCKINGHAM COUNTY
STATION: 351+04.55 -L-

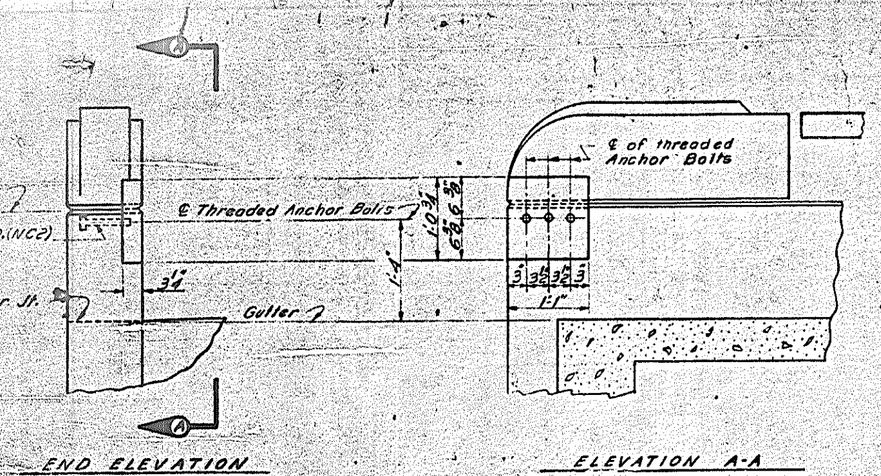
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPAN B OR C

OCTOBER 1965

NO	BY	DATE

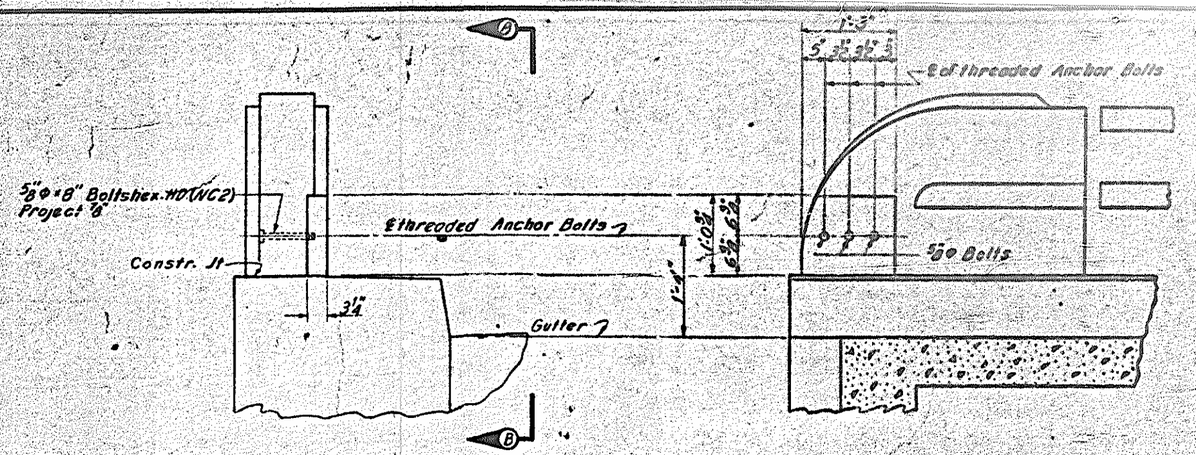
Det. Jim Pridgen DATE Oct. 1965
Ch. DATE DEC 1965



END ELEVATION

ELEVATION A-A

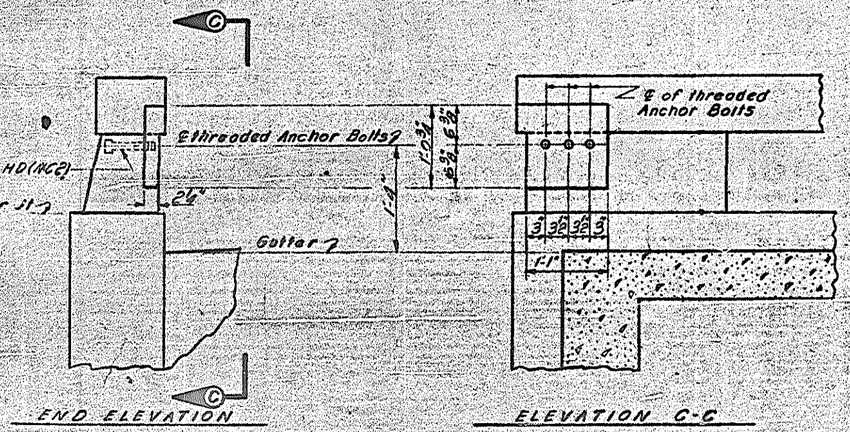
GUARD RAIL ANCHORAGE ~ TYPE 1



END ELEVATION

ELEVATION B-B

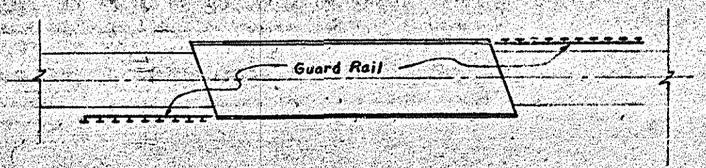
GUARD RAIL ANCHORAGE ~ TYPE 2



END ELEVATION

ELEVATION C-C

GUARD RAIL ANCHORAGE ~ TYPE 3



PLAN

GUARD RAIL LOCATION

NOTE

Cost of guard rail anchor bolts complete in place shall be included in the unit contract price bid for class 'A' concrete.

Nuts and bolts are to conform to the requirements of ASTM A-307 and are to be galvanized to conform to the requirements of ASTM A153.
Nuts to be regular hexagon.

PROJECT NO. 8.1592504

ROCKINGHAM COUNTY

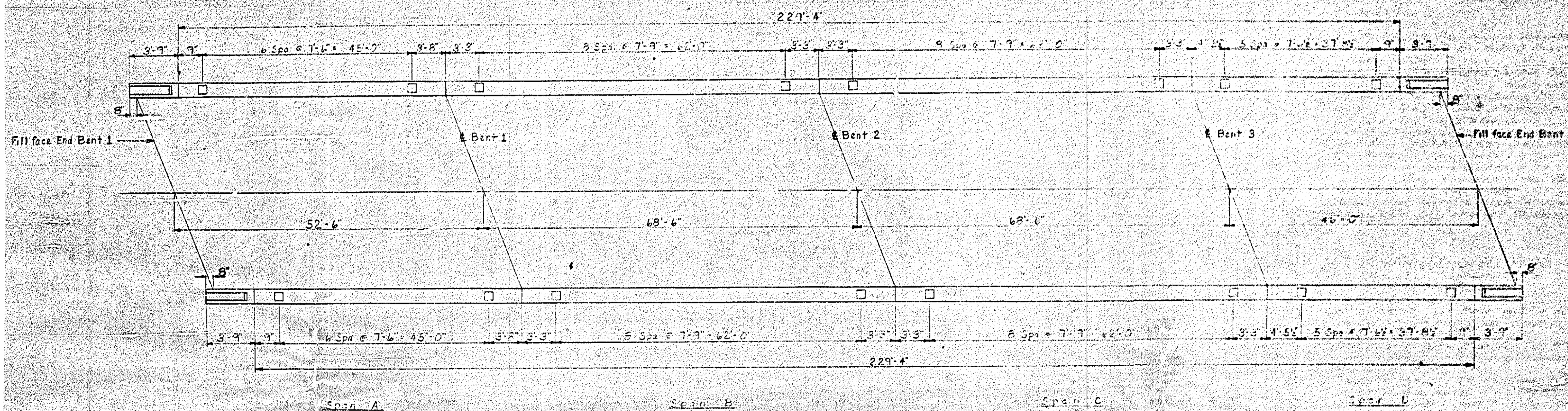
STATION: 351+04.55

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

GUARD RAIL ANCHORAGE AT END POST.

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

S-21



PLAN SHOWING
RAIL POST SPACING
Pay length = 458.67'

116-159

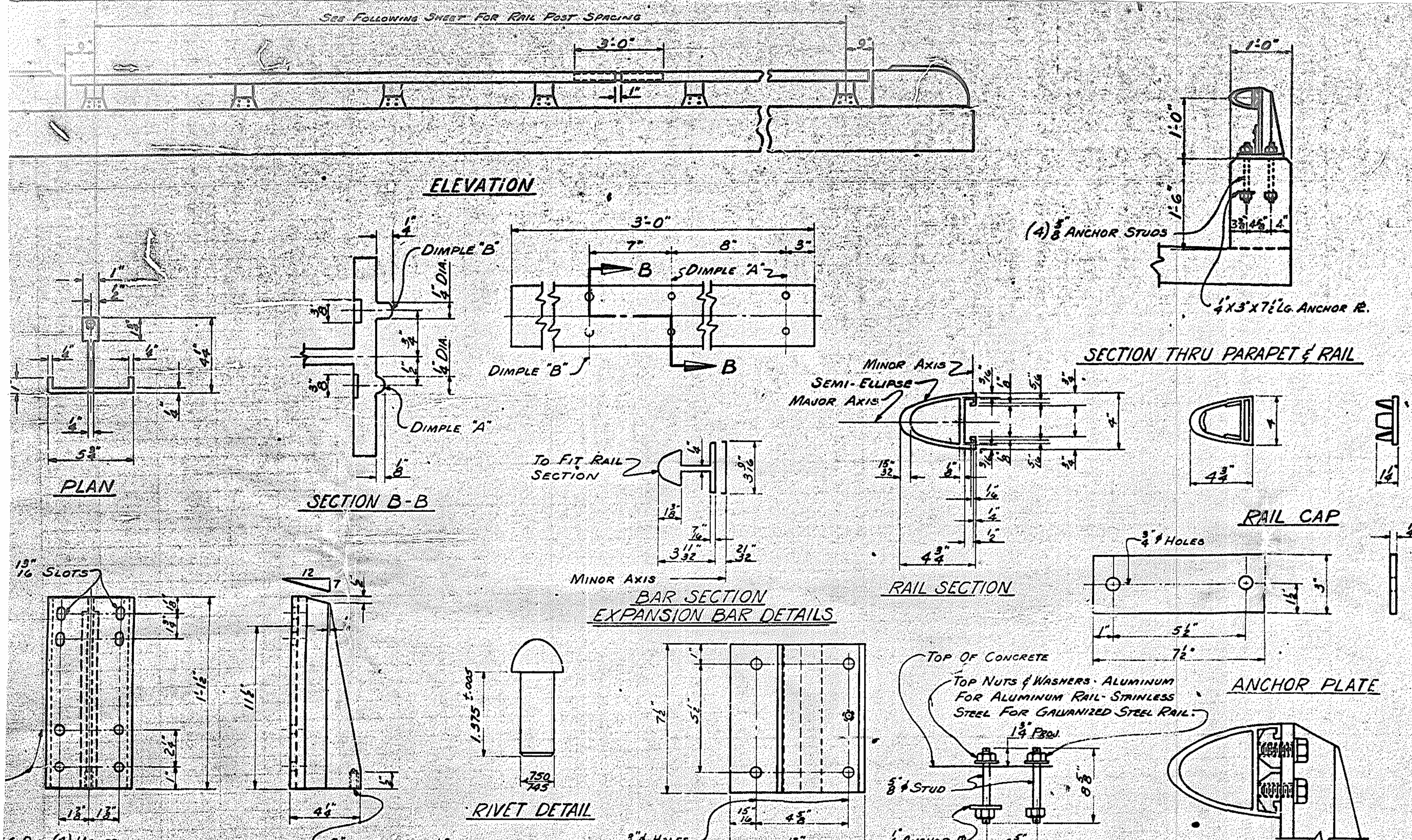
PROJECT No. 8.15932504
ROCKINGHAM COUNTY
STATION: 351+04.55 -L-

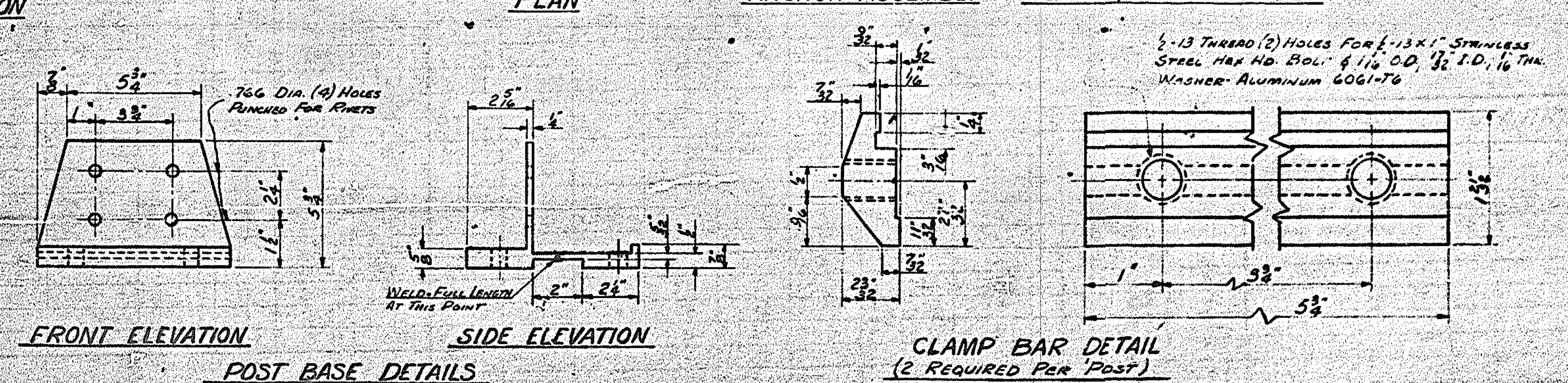
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

SUPERSTRUCTURE
PLAN SHOWING RAIL POST SPACING

November 1955

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		





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 Of The Project For Which Metal Rail Is Designated.

ALUMINUM RAILS

Material For Posts, Bases & Rails, Expansion Bars, & Clamp Bars Shall Be A.S.T.M. B-221 Alloy 6061 Or 6062-T6.

Material For Aluminum Washer Shall Be A.S.T.M. B-209 Alloy Alclad 2024-T3.

Material For Rivets Shall Be A.S.T.M. B316 Alloy 6061 Or 6062-T6. Rivets Shall Be St. Button Head & Cone Point Cold Driven As Per Drawing.

Material For Aluminum Nuts Shall Be A.S.T.M. B-211 Alloy 6061 or 6062-T6.

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

Materials And Galvanizing Are To Conform To The Following Specifications.

Rail Post & Post Base: A.S.T.M. A36 Grade Structural Steel - Galvanized To A.S.T.M. A-123.

Rail & Expansion Bar: A.S.T.M. A36 Grade Structural Steel Galvanized To A.S.T.M. A-123.

Closure Plates & Shims: Steel A285 Grade C - Galvanized To A.S.T.M. A123

Nuts & Washers For Top End Of Anchor Assembly For Steel Rail Shall Be Type 430 Stainless Steel.

The Cut Ends Of Galvanized Steel Railing, After Grinding Smooth, Shall Be Given Two Coats Of Zinc Paint Meeting The Requirements Of Federal Specification MIL-P-26915 USAF Type 1.

GENERAL NOTES

1- Railing Shall Be Continuous From End Post To End Post Of Bridge. Each Joint In Rail Length Shall Be Spliced As Detailed. Panel Lengths Of Rail Shall Be Attached To A Minimum Of Four Posts.

2- End Of Rail To Clear Face Of Concrete End Post By 1 1/2".

3- Material For Anchor Studs Shall Be Type 430 Stainless Steel With Minimum 70,000 P.S.I. Ultimate Strength. Threads To Be Rolled & Not Cut. Studs To Be Embedded 7" In Concrete. Nuts Shall Be American Standard Finished Hexagon Thick Nuts, Class 2B Thread. Anchor Plates Shall Be A.S.T.M. A7 Or A36. Machine Screws For Rail Attachment Shall Be Stainless Steel.

4- Certified Mill Reports Are Required For Rails & Posts. Shop Inspection Is Not Required.

5- Metal Rail Posts To Be Set Normal To Curb Grade.

6- 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 Inside To Inside Of Concrete Posts.

7- Curved Rail Usage: Where Rails Are To Be Used On Bridges On Horizontal And/Or Vertical Curvature, The Contractor May At His Option Have The Required Curvature In The Rail Formed In The Shop Or In The Field. In Either Event The Rail Shall Conform Without Buckling Or Kinking To The Required Curvature In A Uniform Manner Acceptable To The Engineer.

Pay Length:

PROJECT NO. 8.1592504

ROCKINGHAM **COUNTY**

STATION: 351+04.55 -L- = 7+00 Y6

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STANDARD
1 BAR
METAL RAIL

JULY 1964

S-9C

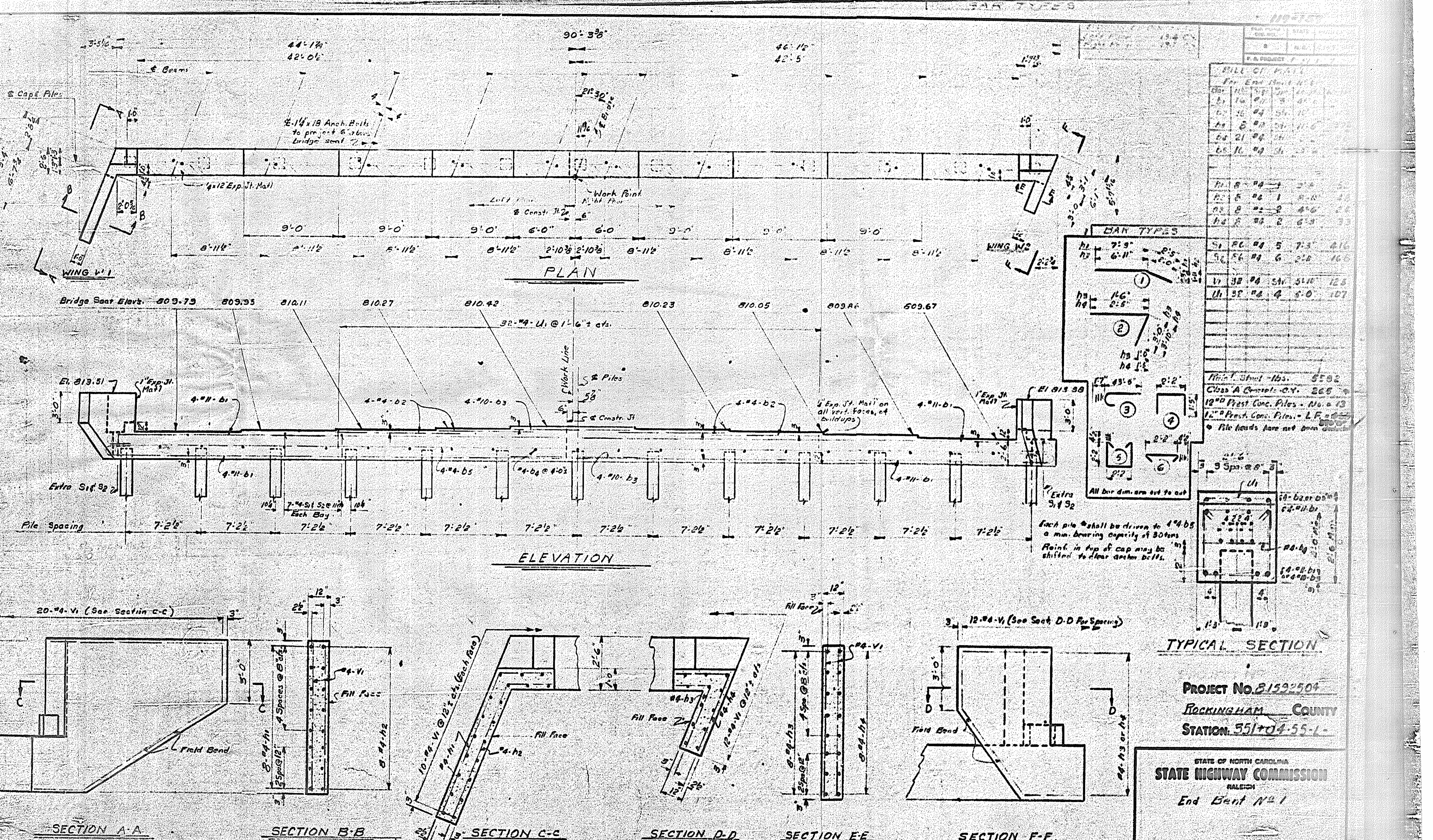
13C

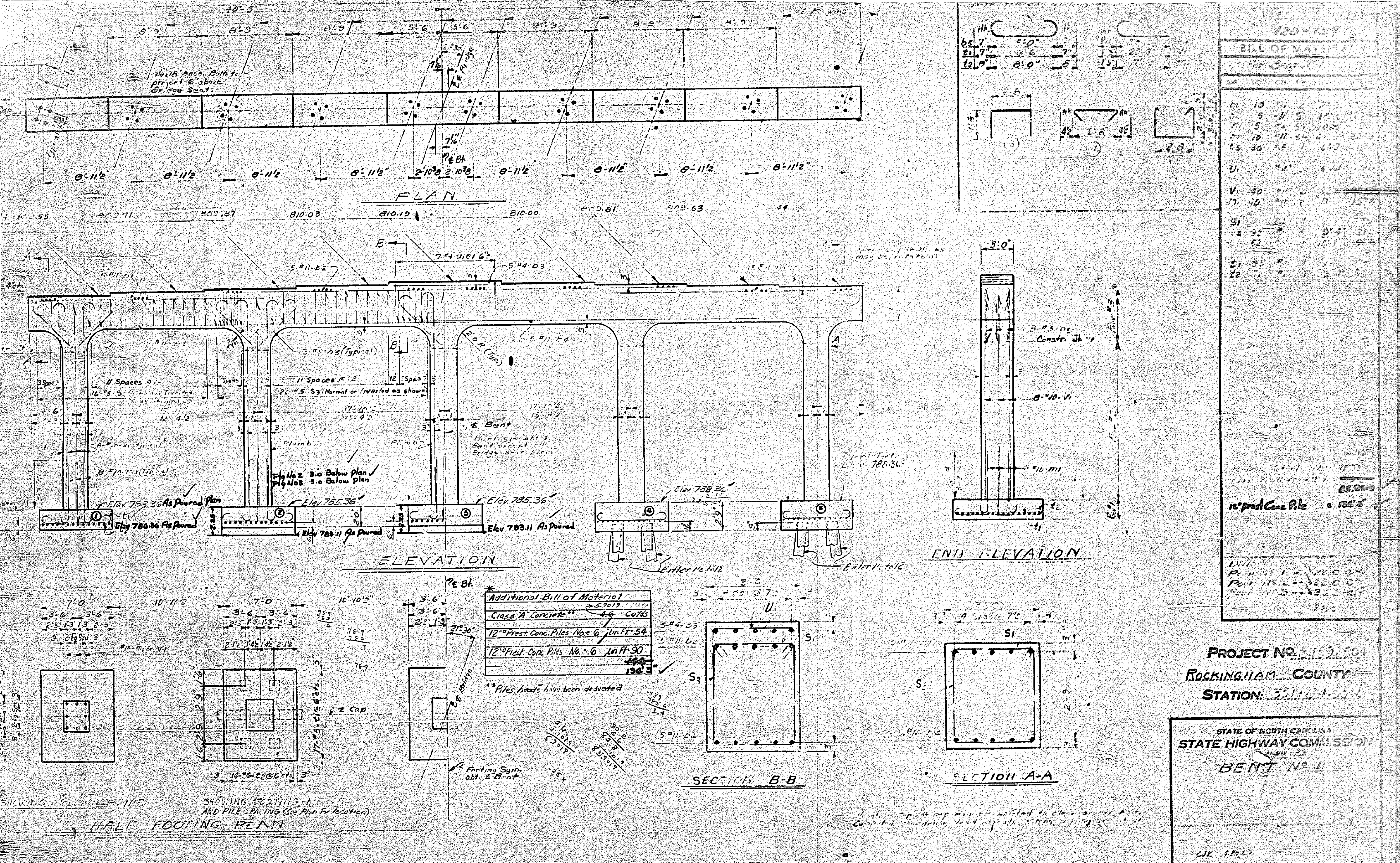
REVISIONS | NO. | BY | DATE

C. Stanley DATE 6-7-66
Jerry Page DATE 6-7-66

Revised to show Anchor Stud location in parapet section. By: C.J.K. (5-21-65) / By: A. B.

| | | |


PLAN
ELEVATION
WING W1
WING W2
90'-3 3/8"
44'-1 7/8"
42'-0 1/2"
46'-1 1/2"
42'-5"
℄ Beams
℄ Caps. Piles
2-1 1/4" x 18 Anch. Bolts to project 6" above bridge seat
1/2" x 12 Exp. Jt. Mat'l
Work Point
℄ Constr. Jt.
8'-11 1/2"
9'-0"
6'-0"
2'-10 3/8"
Bridge Seat Elev's. 809.79 809.95 810.11 810.27 810.42 810.23 810.05 809.86 809.67
32-#4-U1 @ 1'-6" cts.
Work Line
℄ Piles
El. 813.51
El. 813.38
1" Exp. Jt. Mat'l
4-#11-b1
4-#4-b2
4-#10-b3
4-#4-b5
#4-b4 @ 4-0"
1/2" Exp. Jt. Mat'l on all vert. faces of buildups
Extra S1 & S2
7-#4-S1 Size 11th Each Bay
Pile Spacing 7'-2 1/2"
Each pile shall be driven to a min. bearing capacity of 30 tons
Reinf. in top of cap may be shifted to clear anchor bolts.
BAR TYPES
All bar dim. are out to out
TYPICAL SECTION
9 Spa. @ 8"
U1
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION F-F
20-#4-V1 (See Section C-C)
12-#4-V1 (See Sect. D-D For Spacing)
Fill Face
Field Bend
10-#4-V1 @ 12" cts. (Each Face)
12-#4-V1 @ 12" cts.
BILL OF MAT'L
For End Bent No. 1
h1 8 #4 2'-6
h2 8 #4 1 4'-6
h3 8 #4 2 4'-6
h4 8 #4 2 6'-3
S1 86 #4 5 7'-3" 416
S2 56 #4 6 2'-6 166
V1 32 #4 Str. 5'-10" 125
U1 32 #4 4 6'-0" 107
Reinf. Steel - lbs. 5592
Class A Concrete - C.Y. 26.5
12" Prest. Conc. Piles - No. = 13
12" Prest. Conc. Piles - L.F.
Pile heads have not been deducted
PROJECT No. 8.1592504
ROCKINGHAM COUNTY
STATION 551+04.55-L-
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH
End Bent No. 1



* Additional Bill of Material	
Class "A" Concrete **	~~4.6~~ 5.7019 Cu.Yds
12" □ Prest. Conc. Piles No. = 6	Lin.Ft. = 54
12" □ Prest. Conc. Piles No. = 6	Lin.Ft. = 90
	~~144~~ 134'3

** Piles heads have been deducted

PROJECT NO. [illegible]

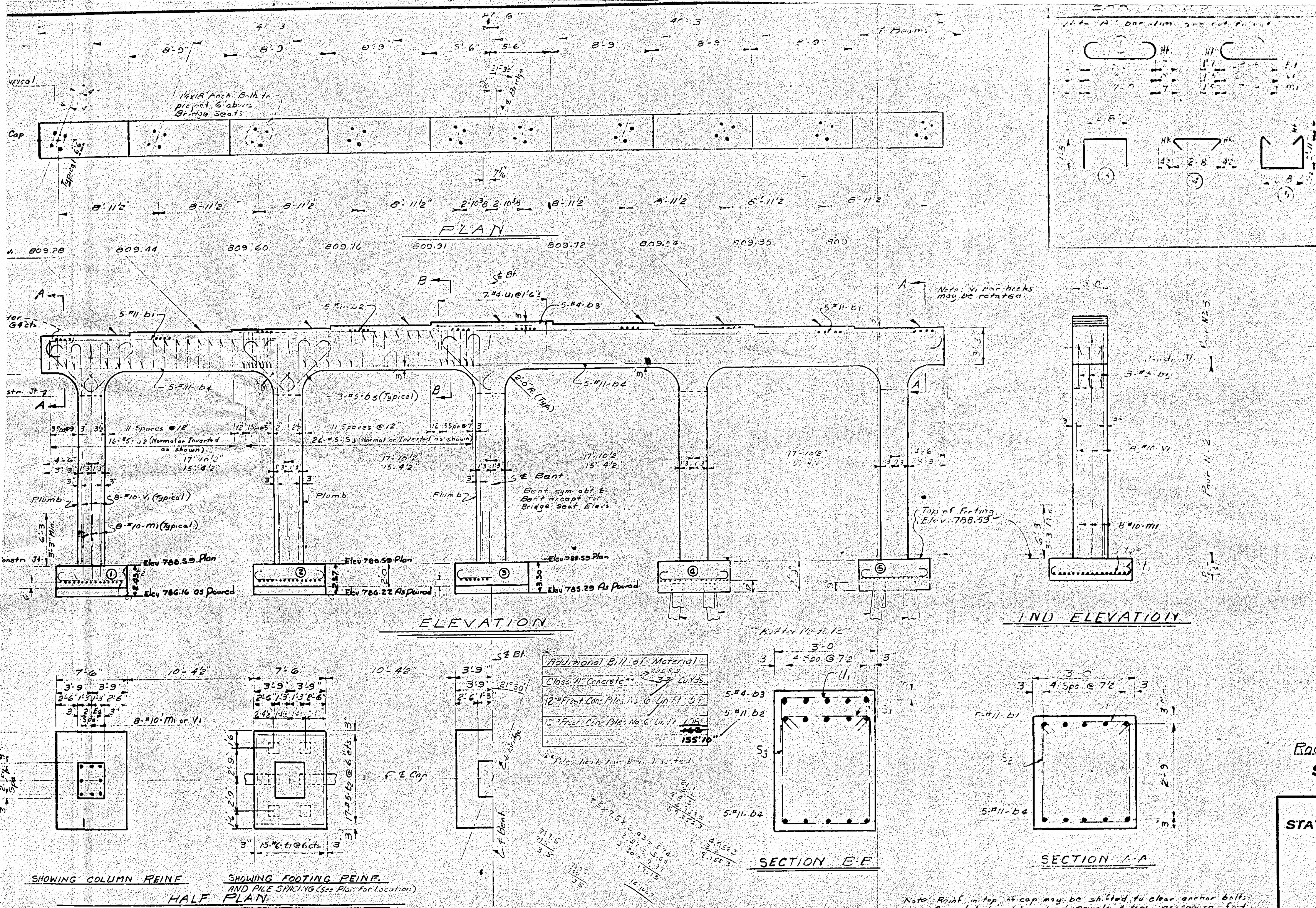
ROCKINGHAM COUNTY

STATION: [illegible]

STATE OF NORTH CAROLINA

STATE HIGHWAY COMMISSION

BENT No 1



'121-139

BILL OF MATERIAL

Bent № 2

BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
b1	10	#11	2	25'-0"	1328
b2	[illegible]	#11	Str.	45'-6"	1209
b3	5	#4	Str.	10'-6"	[illegible]
b4	10	#11	Str.	41'-9"	2218
b5	30	#5	1	6'-2"	193
u1	7	#4	3	6'-0"	28
v1	40	#10	2	21'-6"	3701
m1	40	#10	2	9'-2"	1578
s1	[illegible]	#4	4	3'-5"	31
s2	32	#5	5	9'-4"	312
s3	[illegible]	#5	5	10'-1"	547
t1	75	#6	1	9'-4"	1051
t2	65	#5	1	8'-2"	784

Reinf. Steel - lbs. - 13015
Class "A" Conc. - C.Y. 89.2583
12" Prest. Conc. Pile - 155'10"

DIVISION OF CONCRETE
Pour № 1 ---- 23.6 C.Y.
Pour № 2 ---- 21.3 C.Y.
Pour № 3 ---- 36.2 C.Y.

Note: Reinf. in top of cap may be shifted to clear anchor bolts. Computed foundation load equals 3 tons per square foot.

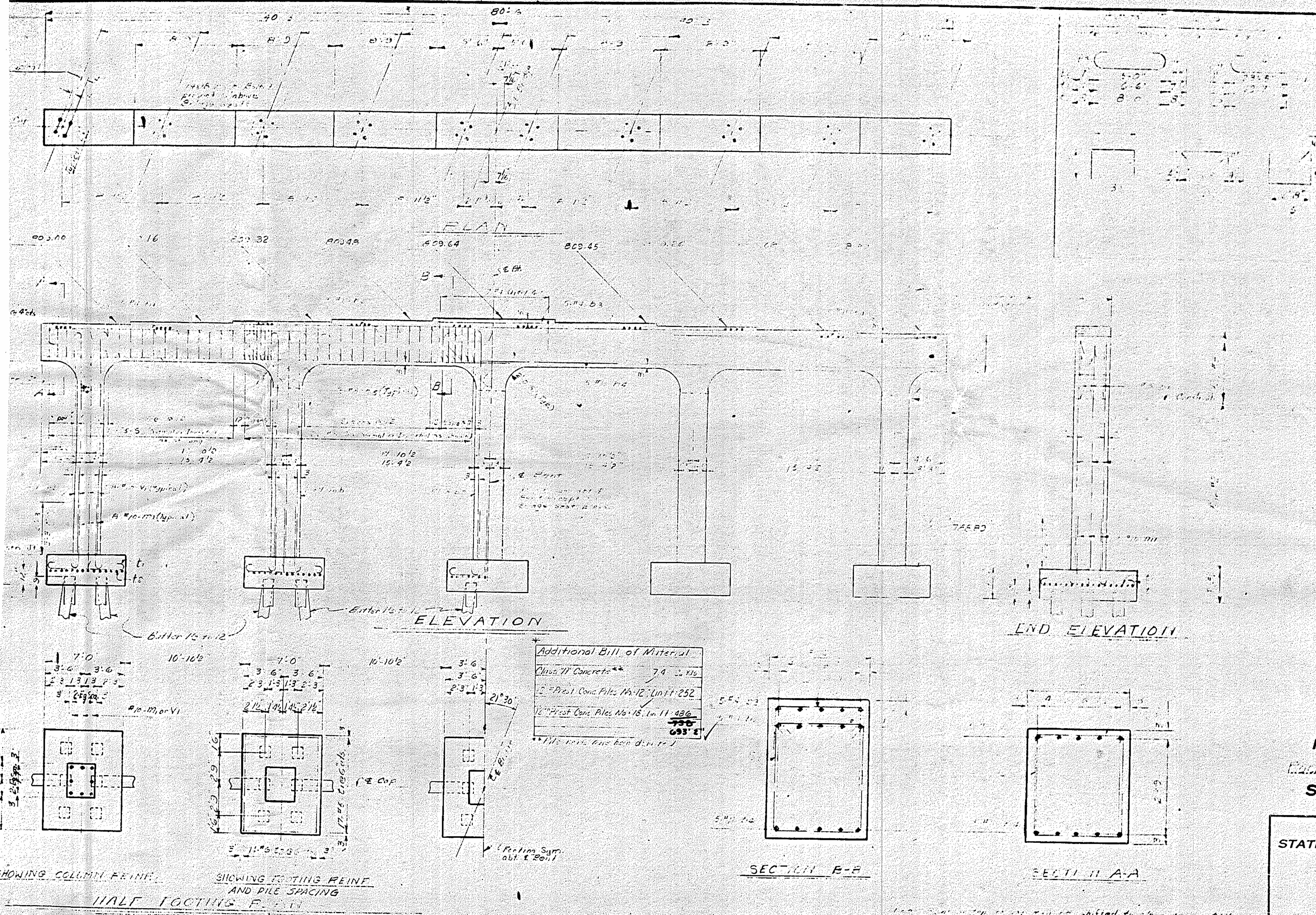
PROJECT № 8.159250[4]
ROCKINGHAM COUNTY
STATION: 351+04.55-L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

BENT № 2

November 1965

NO	BY	DATE	NO	BY	DATE	SHEET NO.
						S-11



122-139

BILL OF MATERIAL

?	5	11		1209
53	5			35
b	10		4	2218
5	30			133
				28
	40			3615
				1578
S	40			9
2	32		2' 4"	312
	52		10' 1"	547
t1	55	#5	7' 8"	590
t	70	#6	3' 4"	951

DIVISION OF CONCRETE
Pour No. 1 — 22.0 C.Y.
Pour No. 2 — 20.5 C.Y.
Pour No. 3 — 26.2 C.Y.

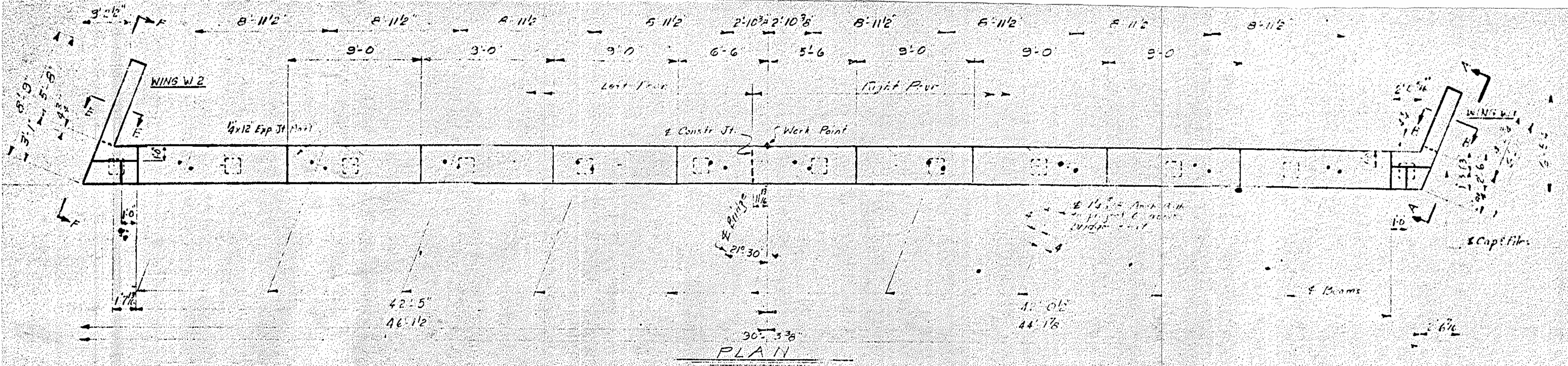
PROJECT No. 1592504

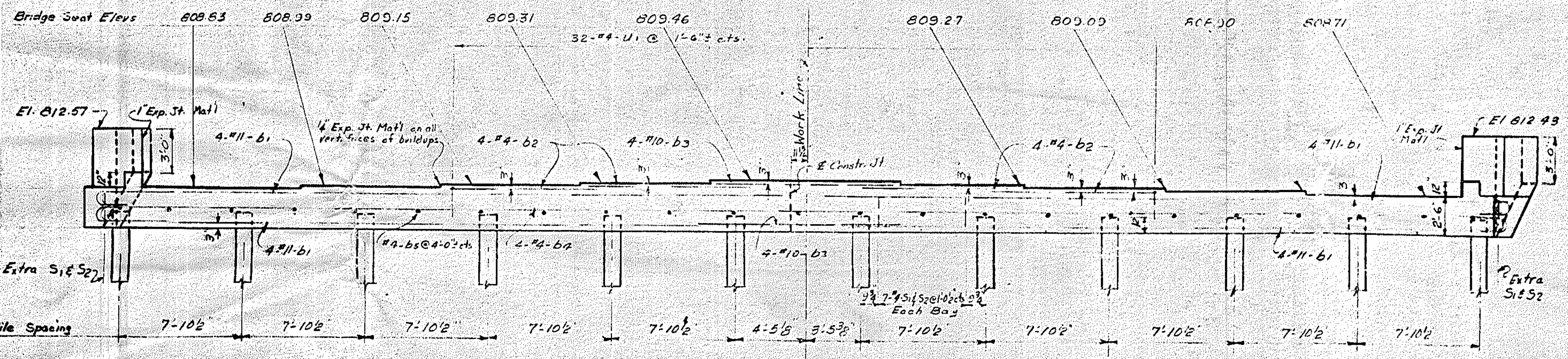
COUNTY

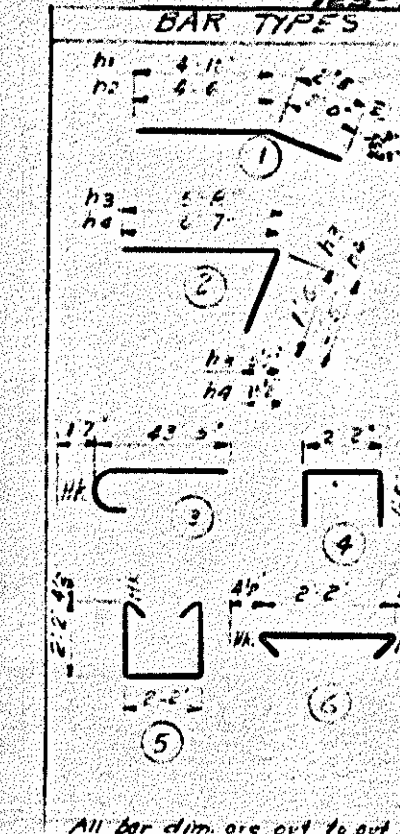
STATION: 351+04.55 L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION

BENT No. 3







Bar	No.	Size	Type	Length	Weight
b1	4	#11	3	45'-6"	3625
b2	11	#4	Str.	10'-[illegible]	[illegible]
b3	8	#10	Str.	11'-6"	396
b4	21	#3	Str.	2'-2"	3[illegible]
b5	16	#4	Str.	[illegible]	251
h1	8	#8	1	7'-3"	53
h2	8	#4	1	6'-6"	35
h3	8	#4	2	7'-2"	39
h4	8	#4	2	9'-0"	48
S1	73	#4	5	7'-3"	353
S2	79	#4	6	2'-11"	154
V1	32	#4	Str.	5'-10"	125
U1	32	#4	4	5'-8"	12[illegible]

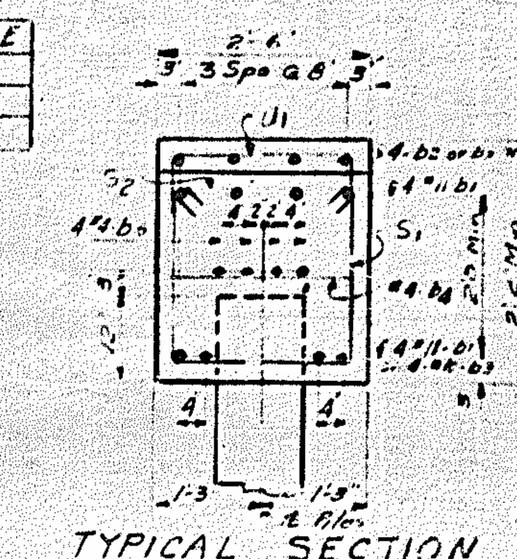
Reinf. Steel lbs.	5542
Class A Concrete C.Y.	26.[illegible] ★
12" □ Prest. Conc. Piles - No.	12
12" □ Prest. Conc. Piles - L.F.	360

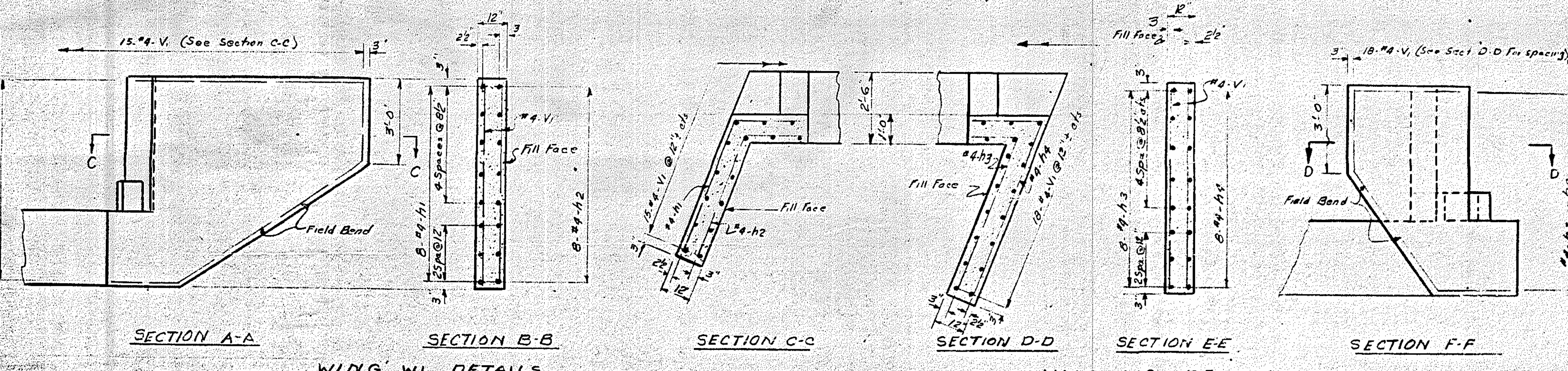
★ Pile heads have not been deducted.

Reinf. in top of cap may be shifted to clear anchor bolts.

Each pile shall be driven to a min. bearing capacity of 30 tons.

DIVISION OF CONCRETE	
Left Pour --	13.4 C.Y.
Right Pour --	13.2 C.Y.





PROJECT NO. 8.1592504

ROCKINGHAM **COUNTY**

STATION: 351+04.55-L-

STATE OF NORTH CAROLINA

STATE HIGHWAY COMMISSION

RALEIGH

End Bent No. 2

OCTOBER 1965

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

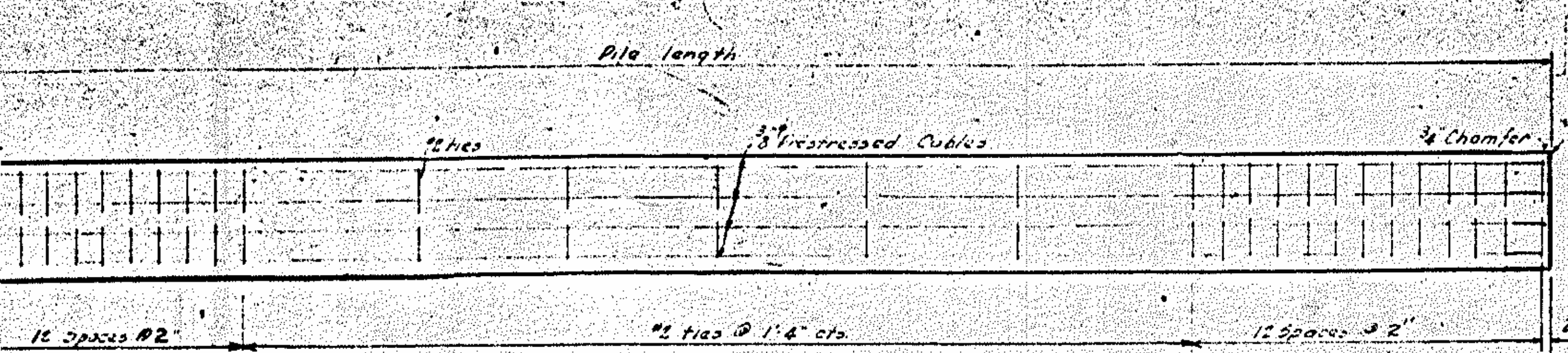
SHEET NO. S-103

TOTAL SHEETS 130

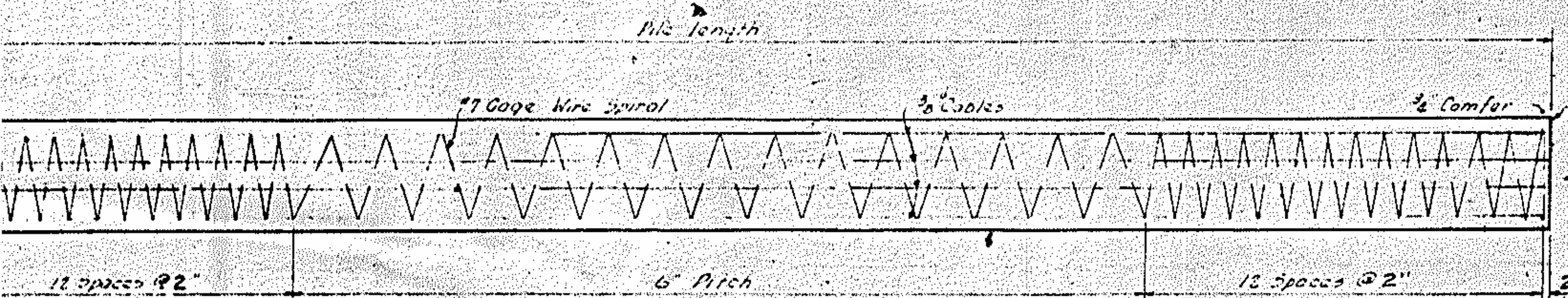
123-159

DRAWN BY: [illegible] DATE: Oct. 29, 1965

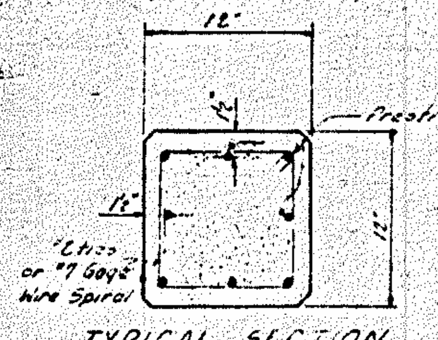
CHECKED BY: [illegible] DATE: Nov. 1965



PILE

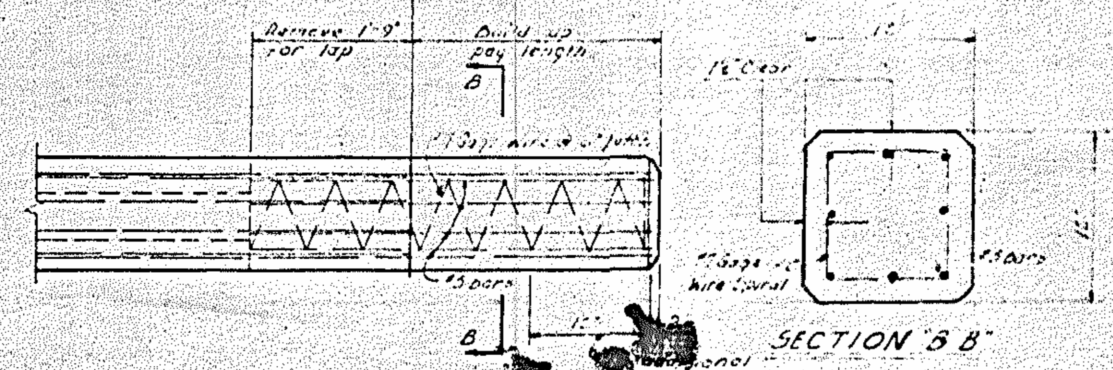


ALTERNATE PILE



TYPICAL SECTION

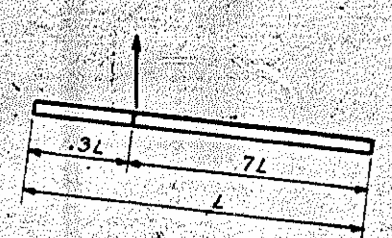
Wt. of Pile = 150 Lbs. per foot length



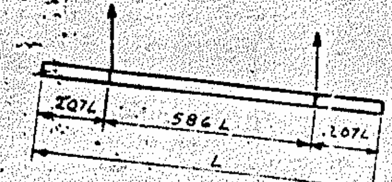
PILE BUILD-UP

SECTION "B-B"

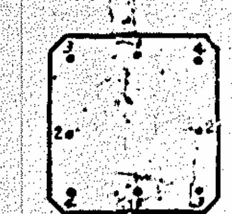
Devices for lifting the piles from the casting beds shall be approved by the Engineer. Where piles will be exposed to view in the structure, inserts set in the piles to receive threaded eye-bolts or similar approved devices shall be used. Loops of cable cast in the pile will not be permitted except for piles for end bents and foundations which will not be exposed to view. The use of satisfactory clamps or slings will be permitted where this is practicable without the use of lifting devices cast in the piles. After eye-bolts or other attachments have been removed, the openings shall be repaired in a satisfactory manner before delivery to the bridge site in order to obtain a uniform appearance. It will not be necessary to remove loops of cable or other lifting devices in piles for end bents and foundations which will not be exposed to view.



Method of picking up piles up to 51 feet
1 pick up point



Method of picking up Piles 52 feet to 70 feet
2 pick up points



TYPICAL PATTERN FOR BURNING CABLES

If cable stress is to be relieved by burning, the cables shall be burned in opposite pairs as indicated in the pattern shown above. Cables 1-1 to be burned before 2-2 etc.
Not more than 4 cables, say 1-1 and 2-2, may be burned at any one section before these same pairs of cables are burned at both ends of the bed and between each pair of piles in the bed.

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	
3	N.C.	8.1592504	S-109	[illegible]

F.A.Proj. F-81-1 (9)

124-159

Design Data:
Concrete: f'c = 5,000 p.s.i.
fc = 2,000 p.s.i.
Impact in handling = 50%

In driving piles, a method approved by the Engineer shall be used, whereby the head of the piles is not damaged.

All material and workmanship as per the Specifications of North Carolina State Highway Commission.

The contractor may use either #2 ties or #7 Gage Wire Spiral as shown.

Build up where necessary shall be done in accordance with the specifications, except that the reinforcing steel required in the build ups shall be included in the contract unit price per foot for the pile and will not be paid for as reinforcing steel.

All prestressing strand shall be 7 wire stress relieved cables in accordance with the Specifications. The contractor may, at his option, use either of the two types of cable listed below; however, all cables in a pile shall be of the same type.

Type	Area	Ultimate Strength	Applied Prestress
3/8" High Strength	0.0860"	23,000# per cable	16,100# per cable
7/16" Standard	0.1080"	27,000# per cable	18,900# per cable

All prestressing strand shall meet the requirements of ASTM A416.

	No.	Size	Length	Lin Ft	
End Bent No. 1	13	12"□	36'	468	
End Bent No. 2	12	12"□	36'	432	
Bent No. 1	6	12"□	9'	54	
" " "	6	12"□	15'	90	
Bent No. 2	6	12"□	9'	54	
" " "	6	12"□	18'	108	
Bent No. 3	12	12"□	21'	252	
" " "	18	12"□	27'	486	
TOTALS	79	—	—	1944	

Revised to all piles for Bents 1, 2, & 3 Ex. Ch. 4-20-67 & B.[illegible]

PROJECT NO. 8.1592504

ROCKINGHAM COUNTY

STATION: 351+04.55 -L- = 7+00 Y6

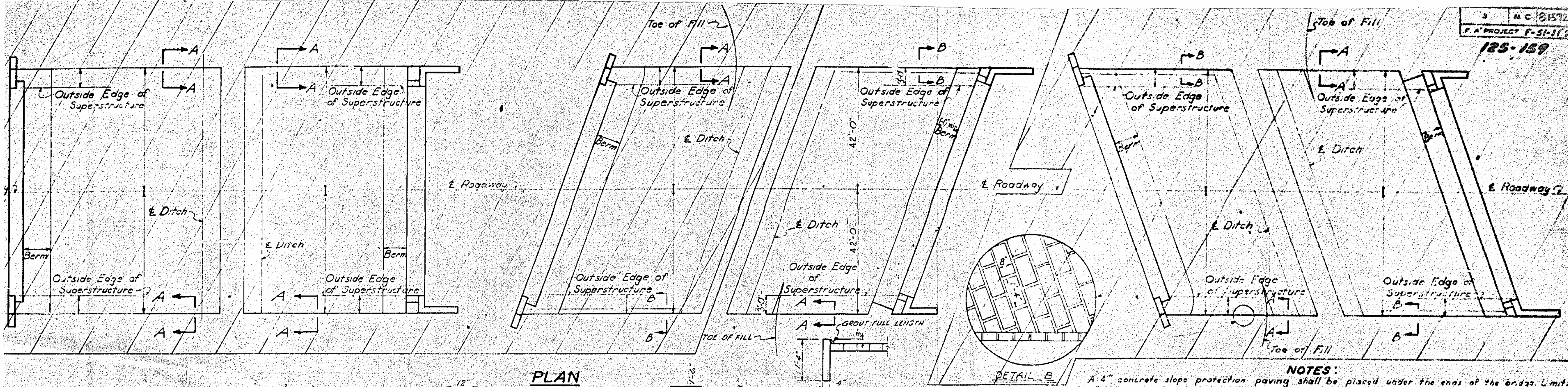
STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

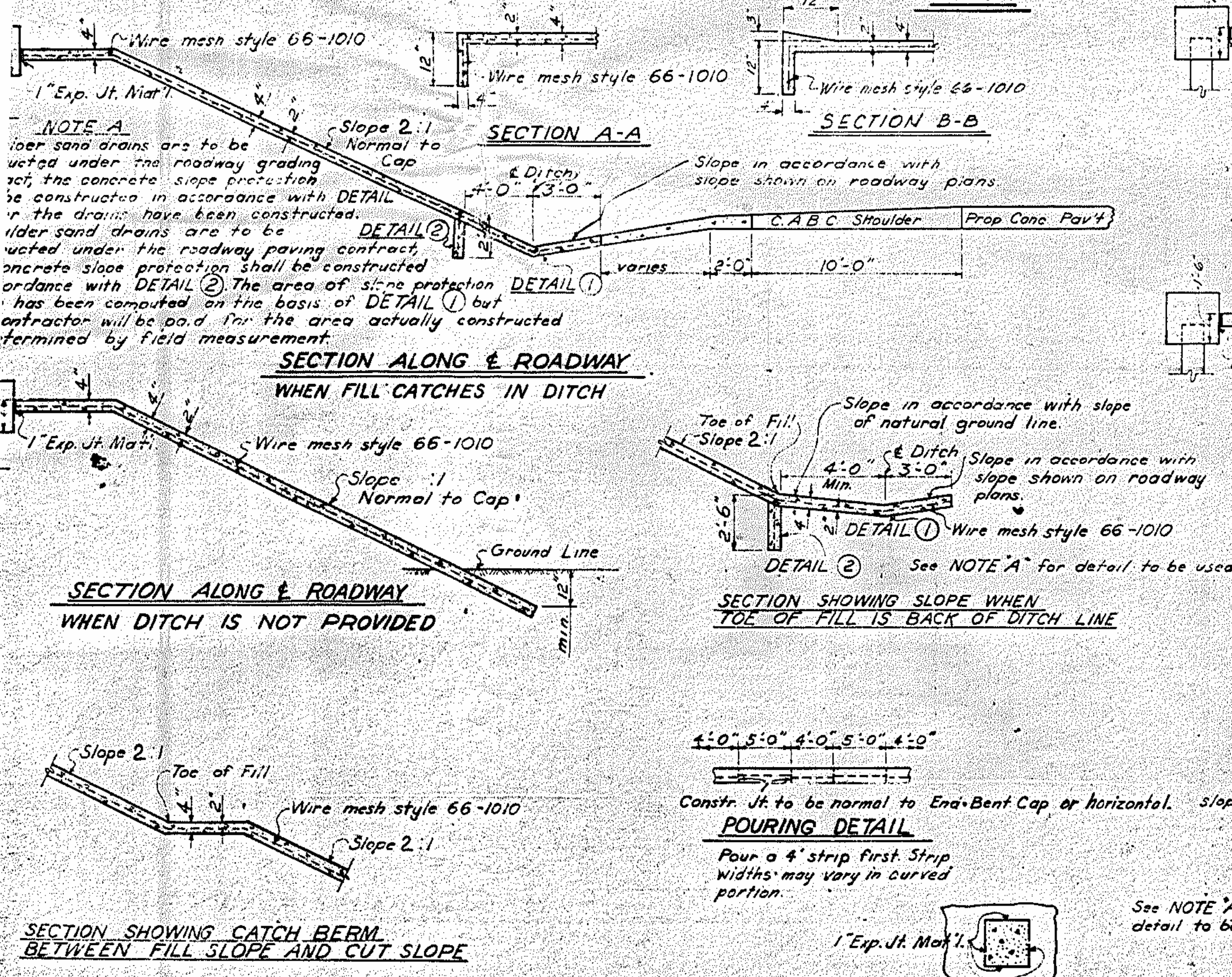
STANDARD
12" PRESTRESSED CONC. PILES

MARCH, 1957

H.C. Stanley, Jr.	DATE	6-7-66
Gerry Page	DATE	6-7-66
	DATE	
[illegible]	DATE	3-11-57
[illegible]	DATE	3-11-57

Rev. Sept. 24, 1963 to show prestressing strand to meet requirements of ASTM A416 by W.J.R. / A.L.E.
Revised to change number of strands & [illegible] regarding cables 75-62 JLB / [illegible] | Revised to clarify buildup detail by M.S.B. / B.A.T.
Revised to show sodium for act. | Revised for spacing of wire spiral at ends. | Revised to change spacing of strands | Revised for note concerning [illegible] | Revised for pick up points.

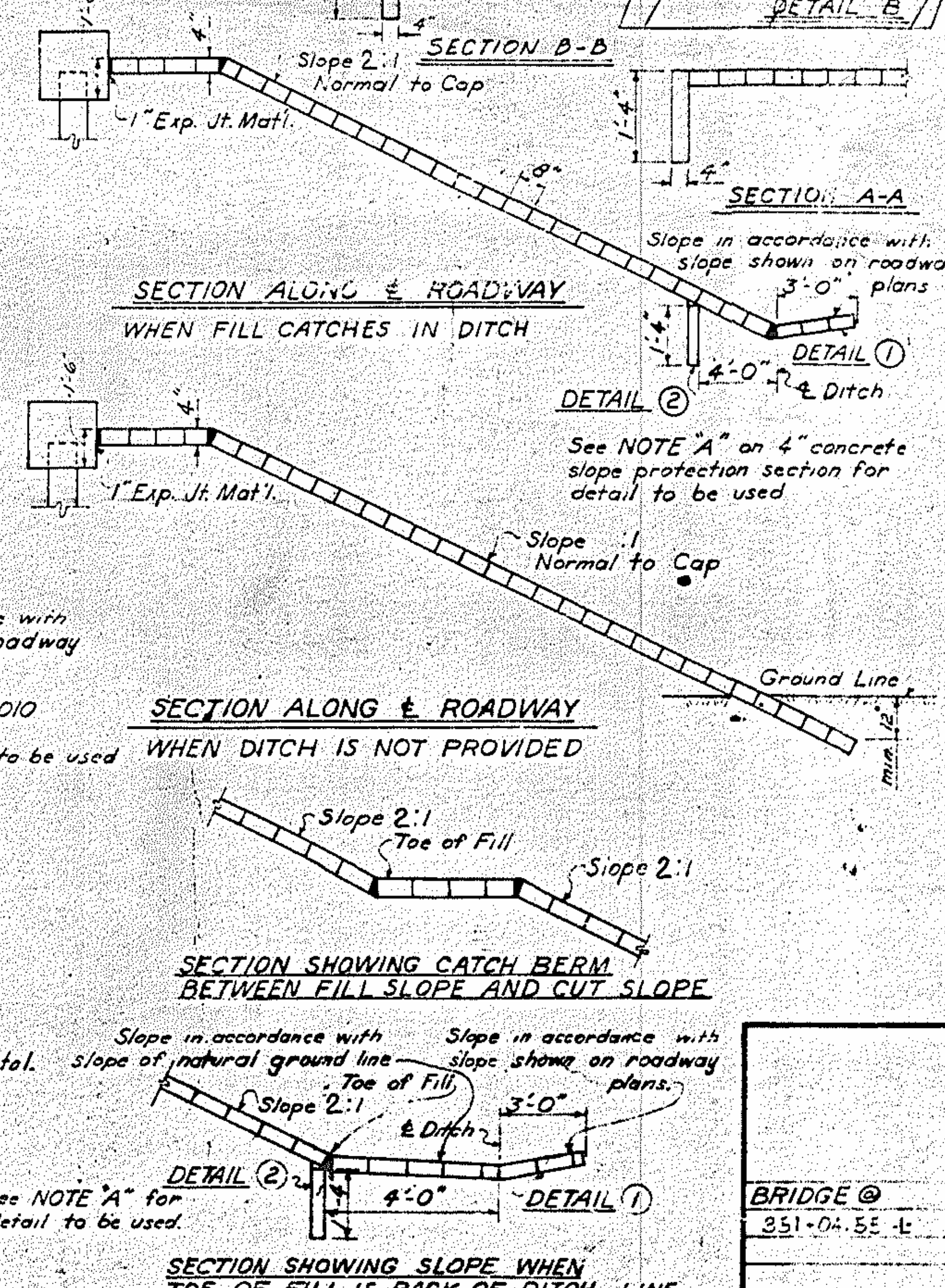




DETAILS FOR ALTERNATE "A"

REV. 1 & 2. TO ELIMINATE 30° CORNER AT TOE OF SLOPE FOR SKEWED V.G.T.P. CROSSES, ADD SECT. B-B, AND TO ALLOW ALTERNATE FOR CONSTRUCTION JTS.

PLAN WHERE CONC. OR CONC. BLOCK SLOPE PROTECT. MUST BE PLACED AROUND A BENT COLUMN



DETAILS FOR ALTERNATE "B"

REV. No. 3. TO TAKE OUT DIMENSIONS FROM OUTSIDE EDGE OF SUPERSTRUCTURE TO OUTSIDE SLOPE PROTECTION.

REV. No. 1. TO SHOW BERM 1'-6" ABOVE BOTTOM OF CAP.

NOTES:

A 4" concrete slope protection paving shall be placed under the ends of the bridge. Limits of the protection shall be as shown in the details. The contractor, at his option, may place either type, Alternate "A" or "B", as described below. Immediately before placing the paving, the slope shall be properly shaped and firmly compacted so that it conforms to the lines and grades shown. The finished surface shall be reasonably smooth and uniform and shall not vary from lines, grades, and sections shown by more than ½" along a 10' straight edge.

ALTERNATE "A"

Alternate "A" shall consist of 4" poured in place concrete paving as shown in details on this sheet. Concrete shall be Class B. The concrete surface shall be floated with a wooden float and finished.

The quantity to be paid for under this item shall be the number of square yards of slope protection measured in place complete and accepted, including the area of the toe walls below 4" thickness of protection (For example 8" pay area for toe wall 1'-0" deep.)

The quantity measured as provided for above, shall be paid for at the contract unit price per square yard for mesh excavation, backfilling, preparation of slopes, and all materials, labor, equipment, tools and incidentals necessary to complete the work.

ALTERNATE "B"

Alternate "B" shall consist of solid concrete blocks 4"×8"×16" laid in horizonal courses such that those in successive courses will break joints with units in the preceding one. Blocks are to be laid with their long axis parallel to the end bent cap with grouted joints preferably ¾" but not less than ½" nor more than 1¼" wide between successive courses and ends of blocks. Joints shall be grouted by pouring a mixture of one part Portland cement to three parts sand mixed with sufficient water to enable the mixture to be poured through a spout.

The concrete blocks shall be cast to accurate dimensions, shall have uniform surface color and texture, and shall be manufactured of materials to produce a compressive strength of not less than 3,000 p.s.i. at age of 28 days. No broken blocks shall be used except in constructing a straight line along each side of the paving down the slope. Care shall be taken to frame the blocks so as to give a uniform workmanlike joint and surface.

Method of measurement and basis of payment shall be as prescribed above under Alternate "A".

ALTERNATE "A" wire mesh reinforcing to be style 66-1010 60" wide. Adjacent runs of wire mesh to lap at least 6". Slope Protection to be poured in alternate 4' & 5' strips as shown in Pouring Detail. The cost of wire mesh to be included in the contract unit price bid per square yard for 4" concrete slope protection.

The same type of slope protection shall be used under both ends of any one bridge.

PROJECT NO. 8.1572504

Rockingham **COUNTY**

STATION: 351+04.55-L

SHEET 1 of 2

	4" Conc. Slope Protection or 4" Conc. Block Slope Protection		Wire Mesh 60" Wide
	S.Y.		
	E.B. 1	E.B. 2	Approx. L.F.
BRIDGE @ 351+04.55-L	~~[illegible]~~ 427.64 ✓	~~[illegible]~~ 364.47 ✓	1808
Total	~~[illegible]~~	~~[illegible]~~	1808

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

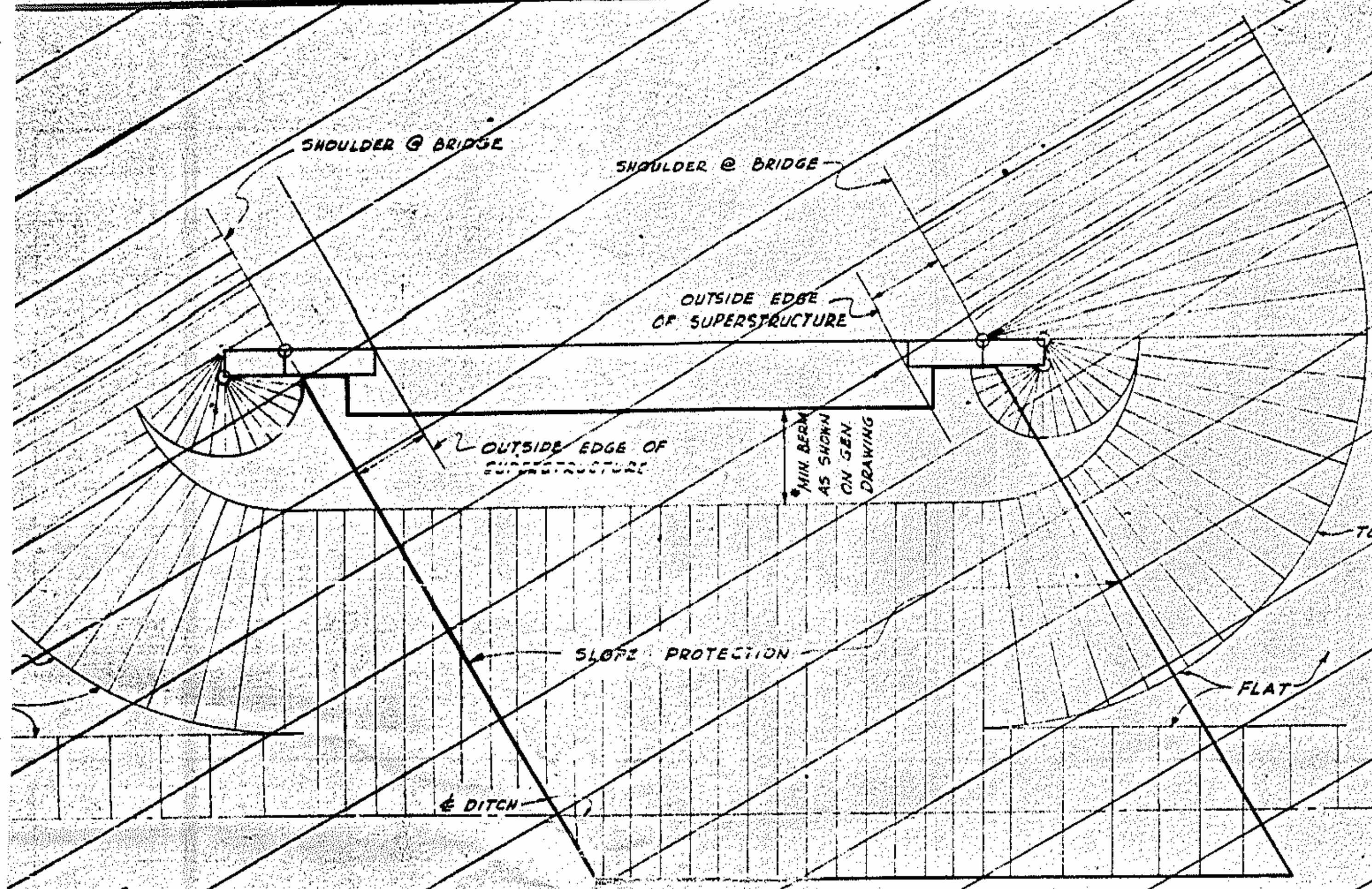
STANDARD
SLOPE PROTECTION
PAVING DETAILS

March 1964

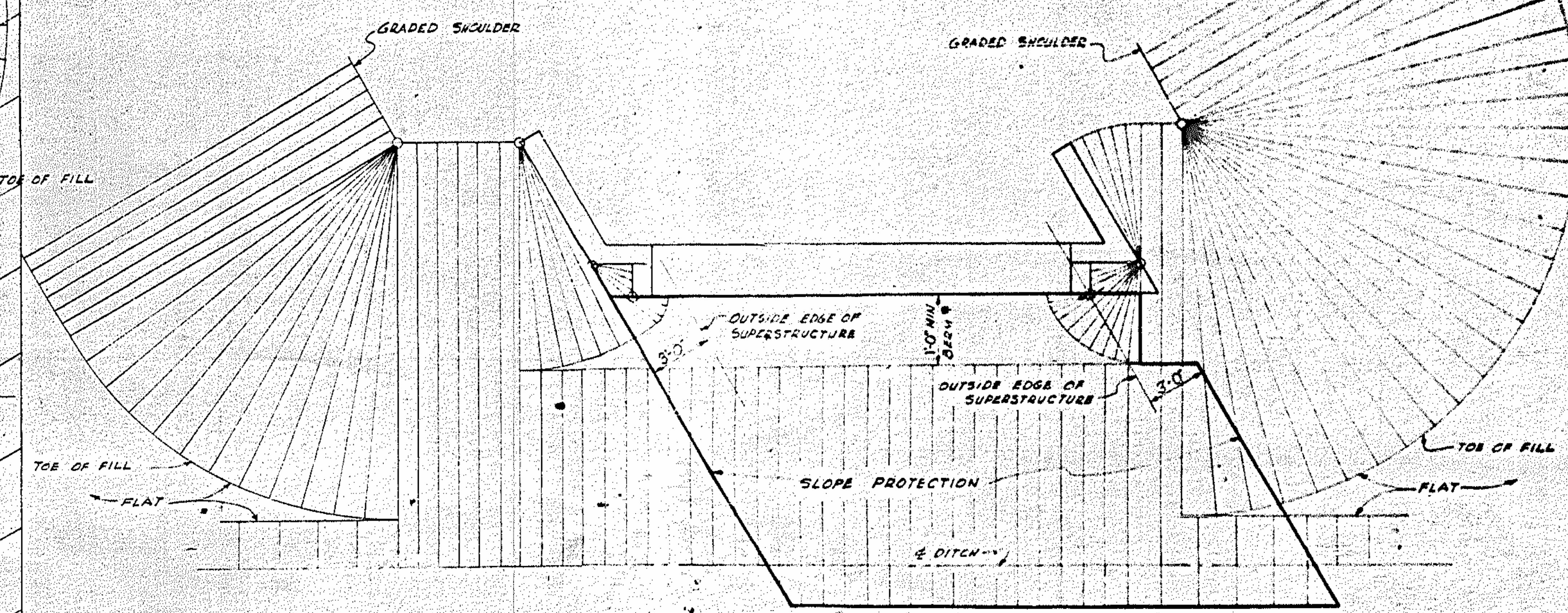
[illegible]	DATE 12-65
M.C. [illegible]	DATE Nov. 1965
J. Baldwin	DATE Mar. 9, '64
G.T. PHILLIPS	DATE MAR. 10, '64

3	N.C.	8.1592504
F.A. PROJECT F-51-1 (7)		

126-159

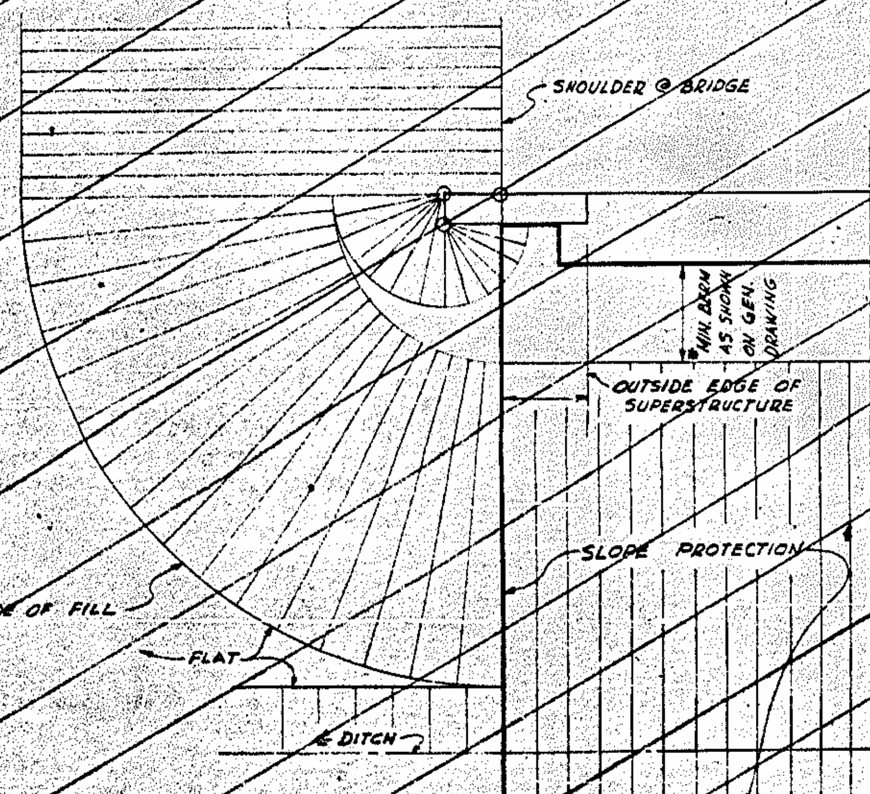


END BENT WITH EAR WALLS - SKEWED



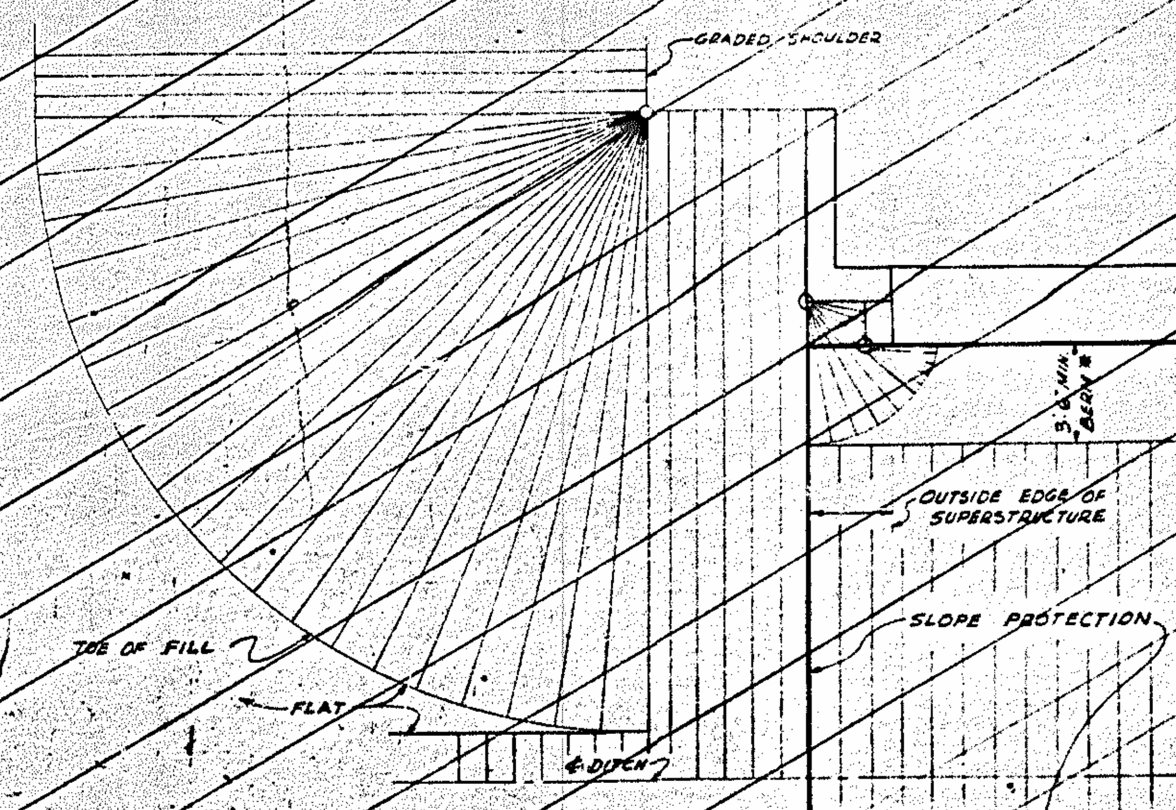
END BENT WITH SWEPT BACK WINGS - SKEWED

* NOTE: VARY BERM WIDTH AS NECESSARY TO FIT DITCH ALIGNMENT.



HALF PLAN END BENT WITH EAR WALLS - 90°

NOTE: OTHER SIDE SIMILAR.



HALF PLAN END BENT WITH SWEPT BACK WINGS - 90°

PROJECT NO. 8.1592504
Rockingham COUNTY
STATION: 351+04.55 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
STANDARD
SLOPE PROTECTION PAVING
DETAILS
FEBRUARY 1964

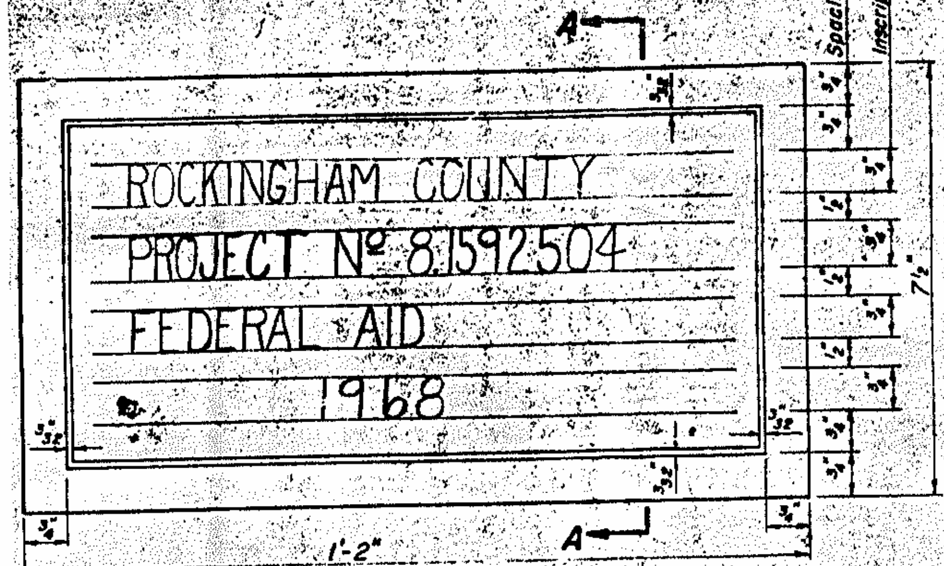
S-106

BY J.H. Pridgen DATE Dec. 1965
Dec. 1965

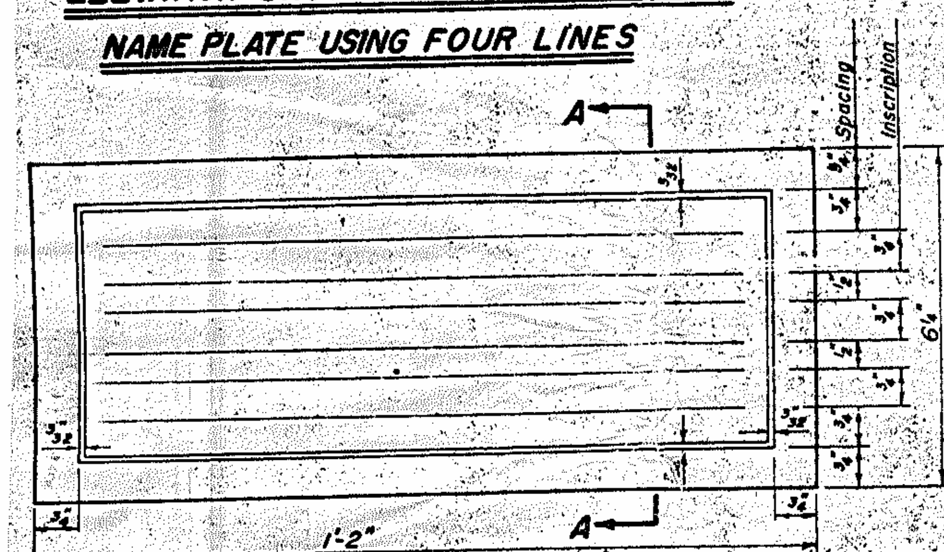
REV. No. 2 TO ELIMINATE 90° CORNER AT TOE OF SLOPE FOR SKEWED BRIDGES. G.T.P.

F. A. PROJECT F-51-1(7)

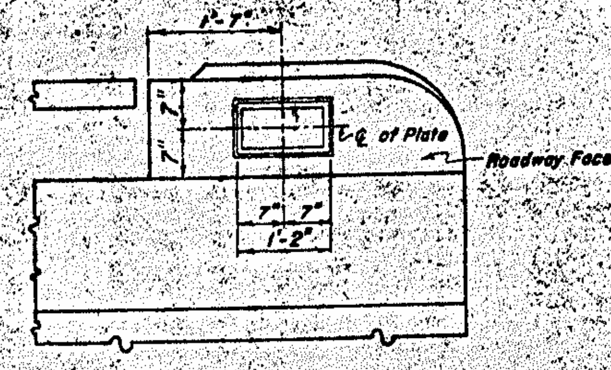
127-159



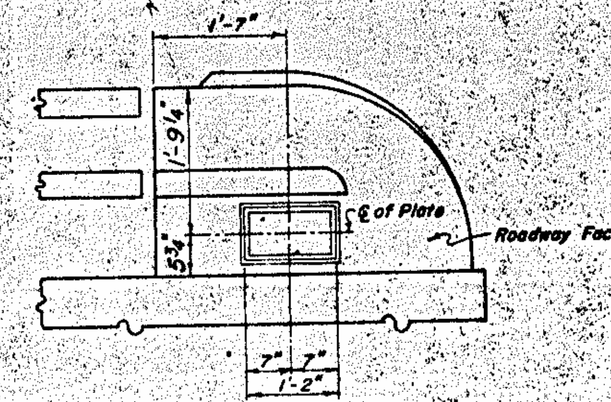
ELEVATION SHOWING CORRECT WORDING NAME PLATE USING FOUR LINES



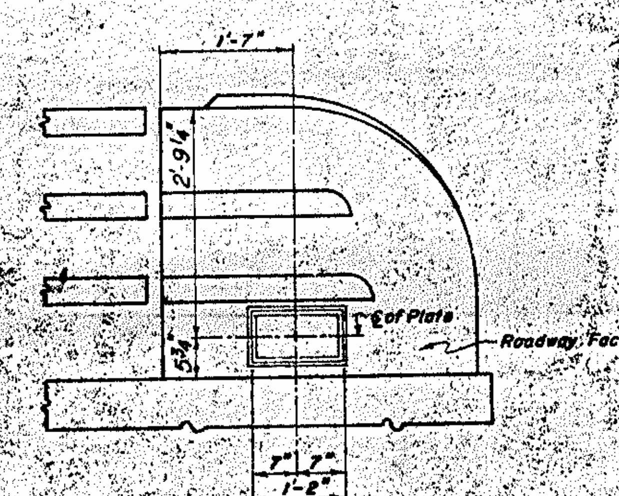
ELEVATION SHOWING CORRECT WORDING NAME PLATE USING THREE LINES



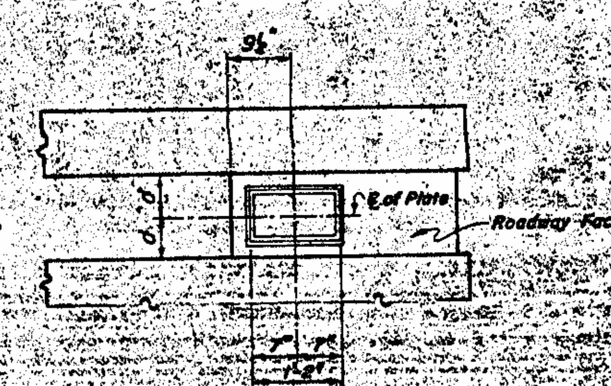
FOR ONE BAR METAL RAIL



FOR TWO BAR METAL RAIL



FOR THREE BAR METAL RAIL



FOR CONCRETE BAR TYPE RAIL

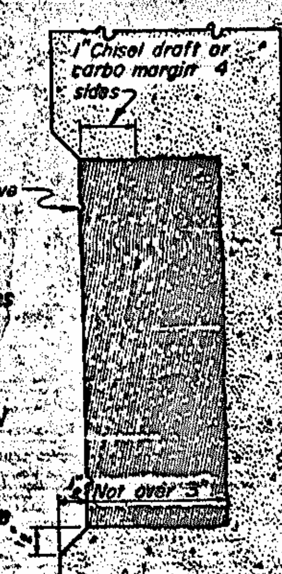
GENERAL NOTES

idges on which there will be two way traffic, two name are required for each bridge. For bridges on which will be one way traffic, one name plate is required for ridge. Name plate to be placed on the right hand end post ching the bridge, and shall be placed parallel to grade b. See "LOCATION DETAIL".

me plates are to be made of granite. Granite shall be light ine or medium grained, sound in quality and free from s that would mar its appearance. Exposed face of plates e a fine rubbed finish.

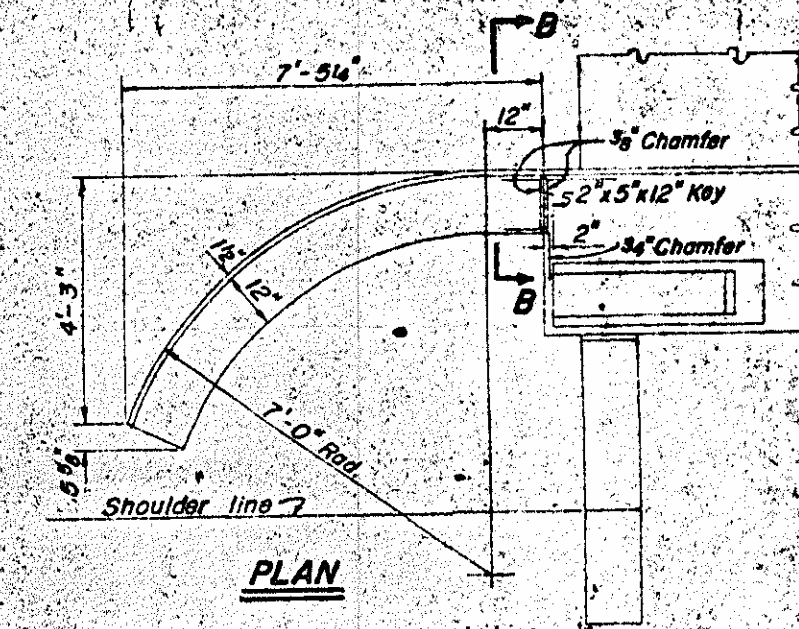
ing shall be sandblast sunk, ½" high, vertical, Modern style. The wording shall be as shown in the "ELEVATION NG CORRECT WORDING."

ntire cost of the name plates, complete in place, shall be ed in the contract price bid for Class "A" Concrete.



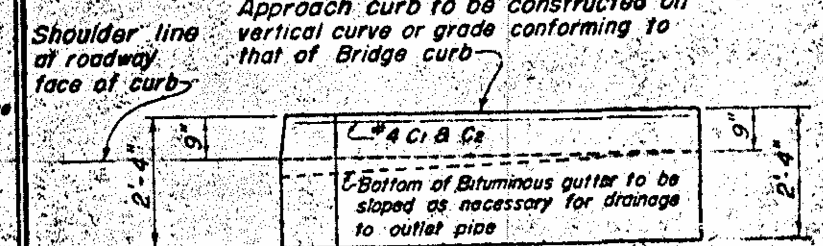
SECTION A-A

NAME PLATES



PLAN

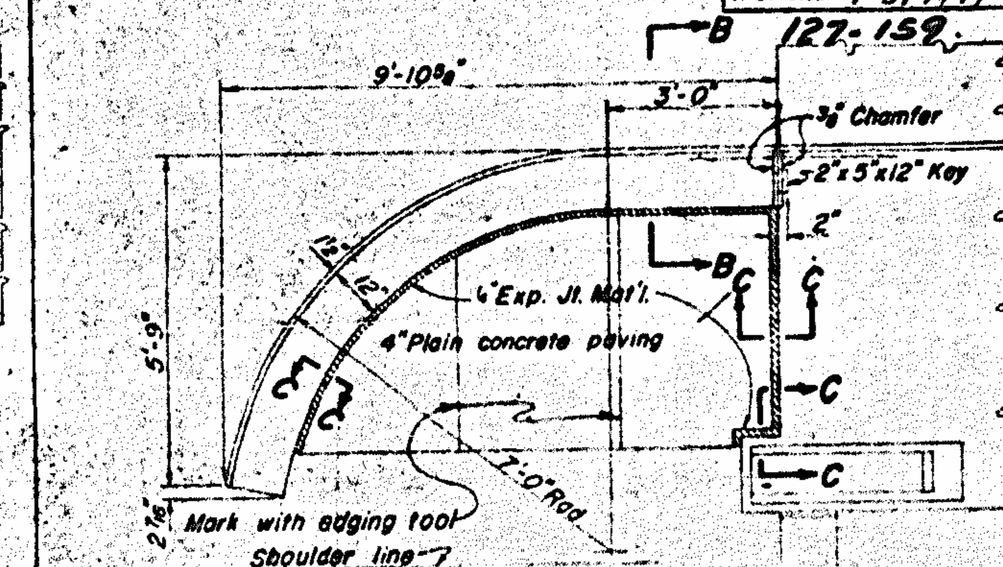
Approach curb to be constructed on vertical curve or grade conforming to that of Bridge curb



ELEVATION

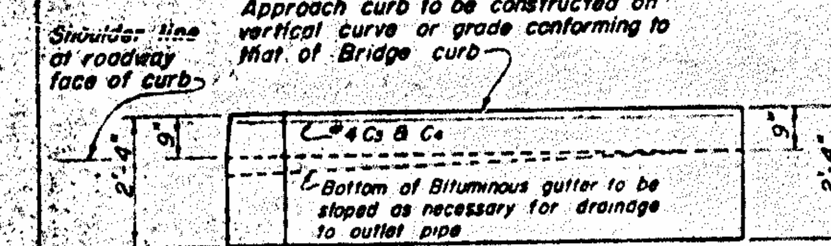
BILL OF MATERIAL FOR 4 CURBS				
Bar	No.	Size	Length	Weight
C₁	4	#4	7'-9"	21
C₂	4	#4	8'-6"	23
C₅	16	#4	3'-0"	32
Reinforcing Steel				76 Lbs.
Class "A" Concrete				3.2 C.Y.

TO BE USED WITH 18" CURBS

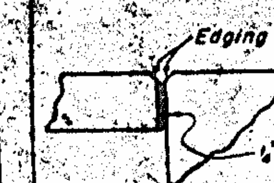


PLAN

Approach curb to be constructed on vertical curve or grade conforming to Mat. of Bridge curb



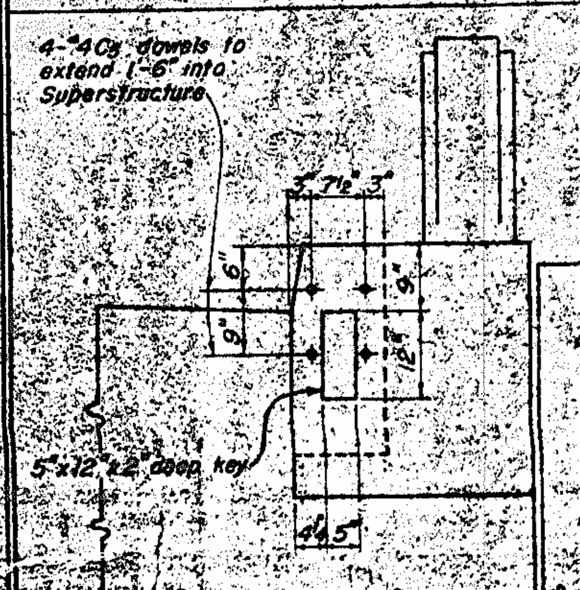
ELEVATION



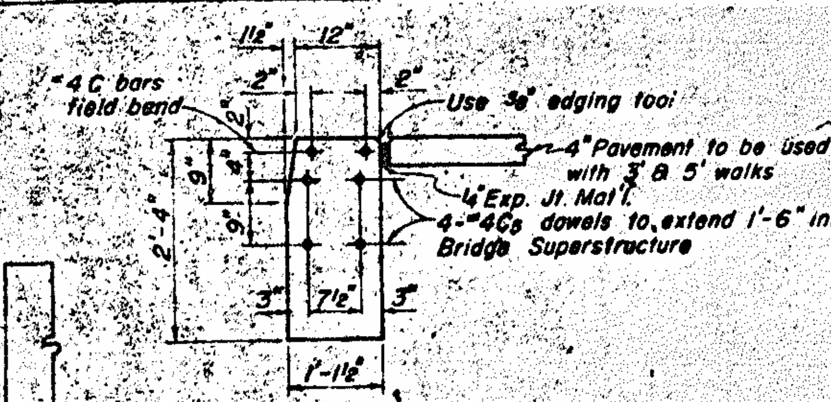
SECTION C-C

BILL OF MATERIAL FOR 4 CURBS & PAVING				
Bar	No	Size	Length	Weight
C₃	4	#4	11'-0"	29
C₄	4	#4	12'-0"	32
C₅	16	#4	3'-0"	32
Reinforcing Steel				93 Lbs
For 3' Walks — Class "A" Concrete				5.1 C.Y.
For 5' Walks — Class "A" Concrete				5.8 C.Y.

TO BE USED WITH 3' & 5' WALKS



END ELEVATION SHOWING KEY IN SUPERSTRUCTURE



SECTION B-B

NOTE: The excavation for curbs will not be measured or paid for as a separate item. The entire cost for same is to be included in the unit price bid for Class "A" Concrete.

Drains and Bituminous surfacing at ends of Bridge to be furnished and placed by the Roadway Contractor.

APPROACH CURBS

PROJECT No. 8.1592504

Rockingham COUNTY

STATION: 351+04.55 -L-

STATE OF NORTH CAROLINA
STATE HIGHWAY COMMISSION
RALEIGH

STANDARD NAME PLATES AND APPROACH CURBS

AUGUST 1965

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-107.
1			3			TOTAL SHEETS
2			4			130

SPECIAL

Jim Pedsen DATE Dec' 1965
M C [illegible] DATE Oct 1965

STANDARD

Aug. 6, 1965