FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	F. A. PROJ. NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CLARENDON	14.361	F-330(5)	301	1	33

INDEX OF SHEETS

SOUTH CAROLINA
STATE HIGHWAY DEPARTMENT
COLUMBIA

PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

FED. AID PROJ. NO. F-330(5)
DOCKET NO. 14.361
ROUTE 301
CLARENDON COUNTY
WIDENING BRIDGE OVER BLACK RIVER
AND
EXTENDING 13 CULVERTS

SINGLE 6'x4' R.C. CULVERT STA. 81+00
EXTEND 9'-0" LT. & 4'-0" RT. SKEWED 45°

SINGLE 6'x5' R.C. CULVERT STA. 27+55
EXTEND 5'-0" LT. & RT.

SINGLE 4'x4' R.C. CULVERT STA. 17+50
EXTEND 6'-6" LT. & RT.

SINGLE 10'x8" R.C. CULVERT STA. 4+30
EXTEND 10'-6" LT. & 16'-0" RT. SKEWED 45°

PLACE CONSTRUCTION IDENTIFICATION SIGN AT
APPROX. STA. 3+30 AS DIRECTED BY ENGINEER

SINGLE 5'x3' R.C. CULVERT STA. 107+77
EXTEND 8'-6" LT. & 13'-6" RT.

SINGLE 6'x5' R.C. CULVERT STA. 108+14
EXTEND 11'-6" LT. & RT.

SINGLE 6'x5' R.C. CULVERT STA. 125+93
EXTEND 4'-0" LT. & RT.

SINGLE 5'x3' R.C. CULVERT STA. 132+15
EXTEND 9'-6" LT. & RT.

SINGLE 6'x5' R.C. CULVERT STA. 132+44.5
EXTEND 8'-6" LT. & RT.

SINGLE 6'x4' R.C. CULVERT STA. 170+10
EXTEND 8'-6" LT. & 7'-0" RT.

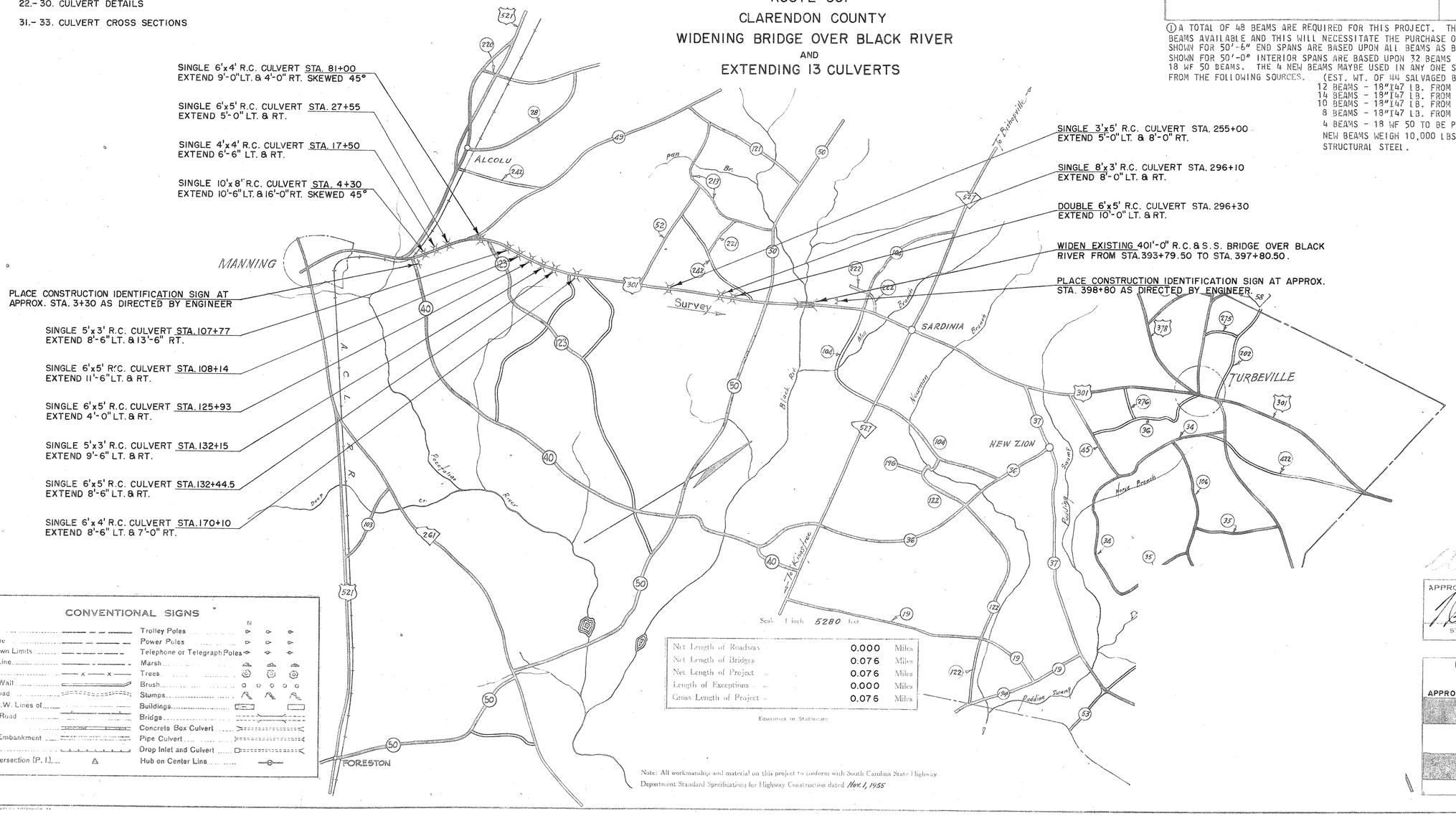
SINGLE 3'x5' R.C. CULVERT STA. 255+00
EXTEND 5'-0" LT. & 8'-0" RT.

SINGLE 8'x3' R.C. CULVERT STA. 296+10
EXTEND 8'-0" LT. & RT.

DOUBLE 6'x5' R.C. CULVERT STA. 296+30
EXTEND 10'-0" LT. & RT.

WIDEN EXISTING 401'-0" R.C. & S.S. BRIDGE OVER BLACK
RIVER FROM STA. 393+79.50 TO STA. 397+80.50.

PLACE CONSTRUCTION IDENTIFICATION SIGN AT APPROX.
STA. 398+80 AS DIRECTED BY ENGINEER.



Net Length of Roadway	0.000	Miles
Net Length of Bridges	0.076	Miles
Net Length of Project	0.076	Miles
Length of Exceptions	0.000	Miles
Gross Length of Project	0.076	Miles

Equations in Stationing

CONVENTIONAL SIGNS

State Line	Trolley Poles	Marsh	Pipe Culvert
County Line	Power Poles	Trees	Drop Inlet and Culvert
City or Town Limits	Telephone or Telegraph Poles	Brush	Hub on Center Line
Property Line		Stumps	
Fence		Buildings	
Retaining Wall		Bridges	
Existing Road		Concrete Box Culvert	
℄ and R.O.W. Lines of			
Proposed Road			
Railroad			
Levee or Embankment			
Guard Rail			
Point of Intersection (P. I.)			

SUMMARY OF ESTIMATED QUANTITIES

	BRIDGE	CULVERTS	TOTAL	
UNCLASSIFIED EXCAVATION	———	340	340	C.Y.
CONCRETE CLASS "A"	379.4	238.5	618.9	C.Y.
REINFORCING STEEL	67,912	35,578	103,490	LBS.
① STRUCTURAL STEEL (NEW) 27,500	22,800	———	22,800 (+27,500)	LBS.
① ERECTING AND PAINTING SALVAGED STRUCTURAL STEEL	NECESSARY	———	NECESSARY	L.S.
14" SQUARE PRESTRESSED PILING	2,180	———	2,180	L.F.
8" PIPE SLOPE DRAINS	75	———	75	L.F.
INTAKE SPILLWAY ASSEMBLY	4	———	4	EACH

① A TOTAL OF 48 BEAMS ARE REQUIRED FOR THIS PROJECT. THE S.C.H.D. HAS ONLY 44 SALVAGED 18"I47 LB. BEAMS AVAILABLE AND THIS WILL NECESSITATE THE PURCHASE OF 4 NEW (18WF50) BEAMS. THE QUANTITIES SHOWN FOR 50'-6" END SPANS ARE BASED UPON ALL BEAMS AS BEING SALVAGED 18"I47 LB. THE QUANTITIES SHOWN FOR 50'-0" INTERIOR SPANS ARE BASED UPON 32 BEAMS AS BEING SALVAGED 18"I47 LB., AND 4 NEW 18 WF 50 BEAMS. THE 4 NEW BEAMS MAYBE USED IN ANY ONE SPAN. THE 48 BEAMS WILL BE OBTAINED FROM THE FOLLOWING SOURCES. (EST. WT. OF 44 SALVAGED BEAMS 103,400 LBS. — SEE SPECIAL PROVISIONS)

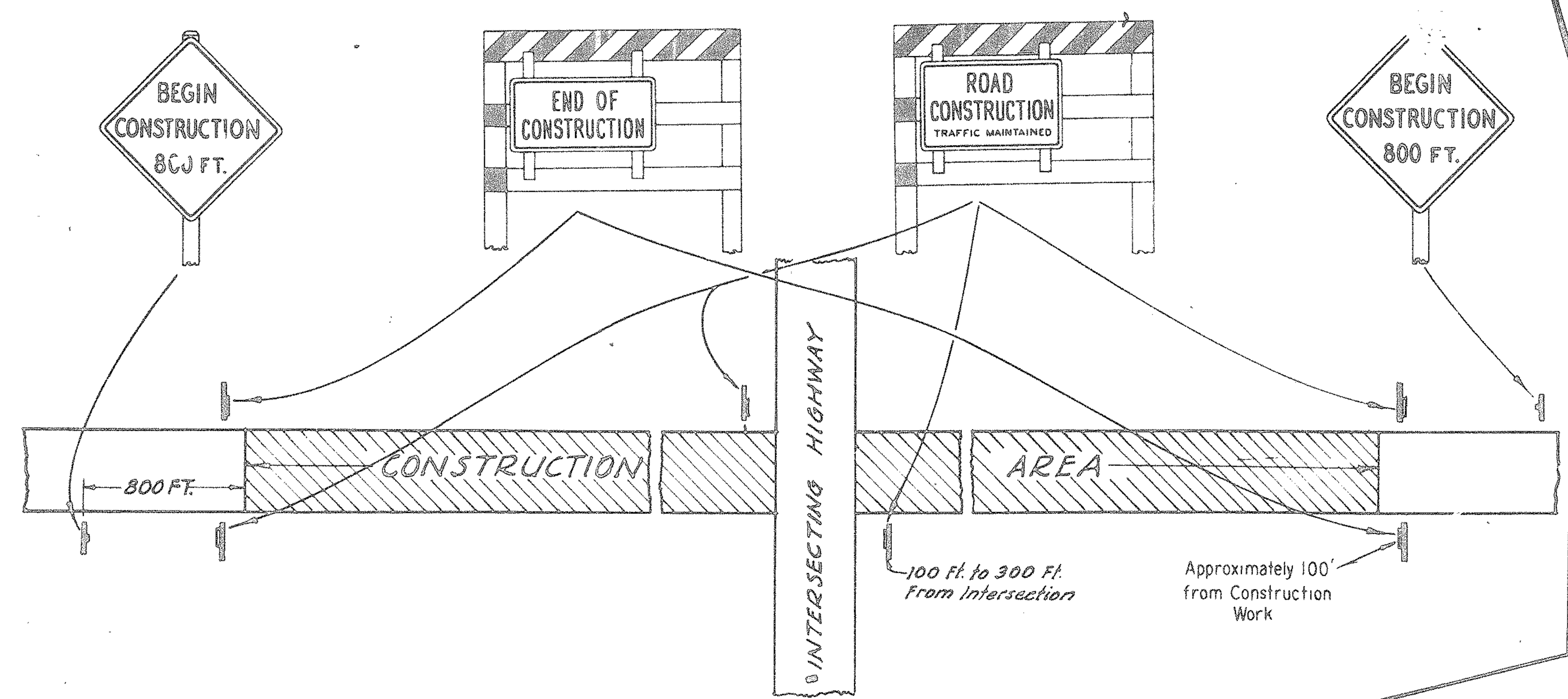
12 BEAMS - 18"I47 LB. FROM MARION MAINTENANCE SHOP
14 BEAMS - 18"I47 LB. FROM WALTERBORO MAINTENANCE SHOP
10 BEAMS - 18"I47 LB. FROM CAMDEN MAINTENANCE SHOP
8 BEAMS - 18"I47 LB. FROM FLORENCE MAINTENANCE SHOP.
4 BEAMS - 18 WF 50 TO BE PURCHASED BY THE CONTRACTOR. THESE 4 NEW BEAMS WEIGH 10,000 LBS. AND ARE INCLUDED IN QUANTITY FOR (NEW) STRUCTURAL STEEL.

Note: All workmanship and material on this project to conform with South Carolina State Highway Department Standard Specifications for Highway Construction dated Nov. 1, 1955

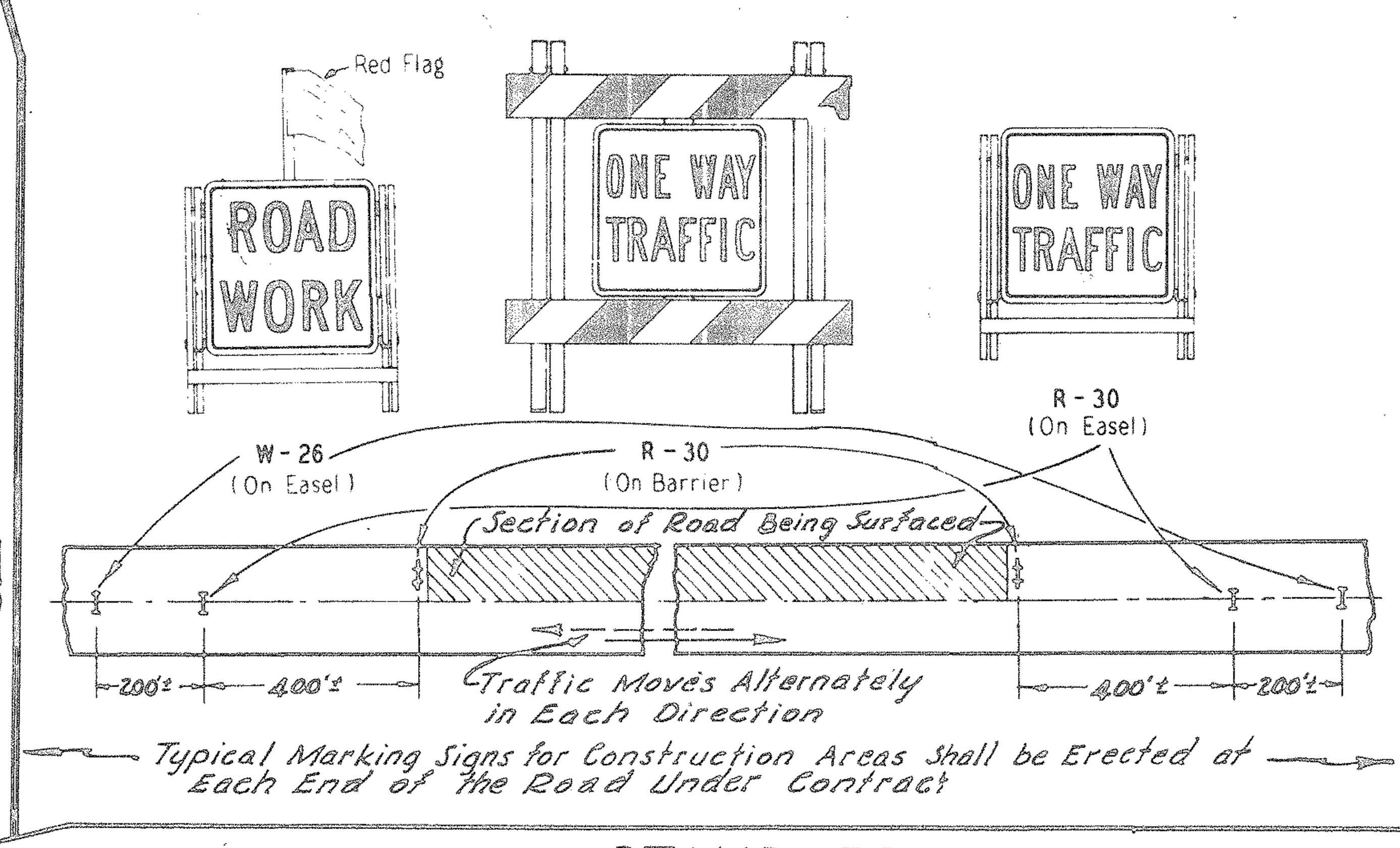
APPROVED
R. Sanders 11/29/63
STATE HIGHWAY ENGINEER — DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED:
DISTRICT ENGINEER — DATE

TYPICAL MARKING FOR CONSTRUCTION AREAS

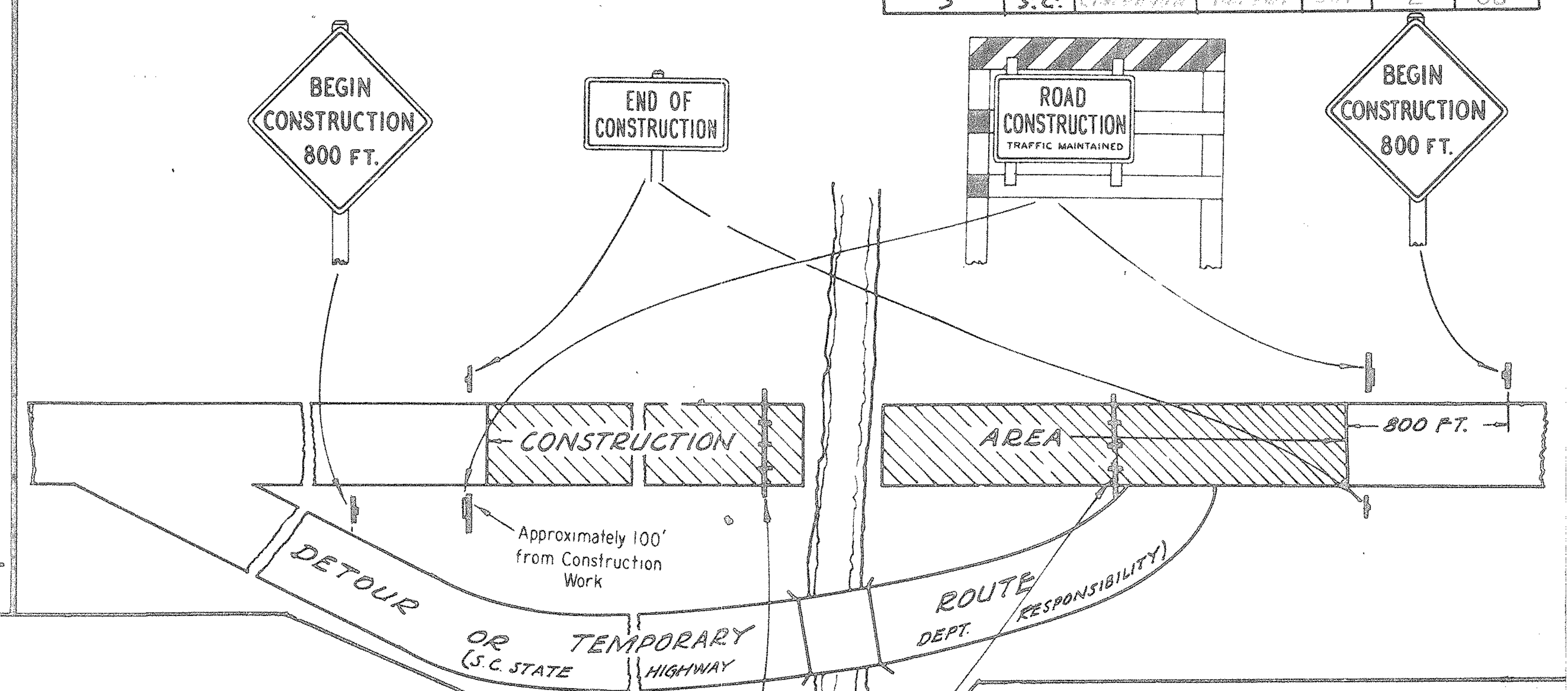


APPLICATION OF STANDARD SIGNS WHEN ROADWAY IS BEING SURFACED

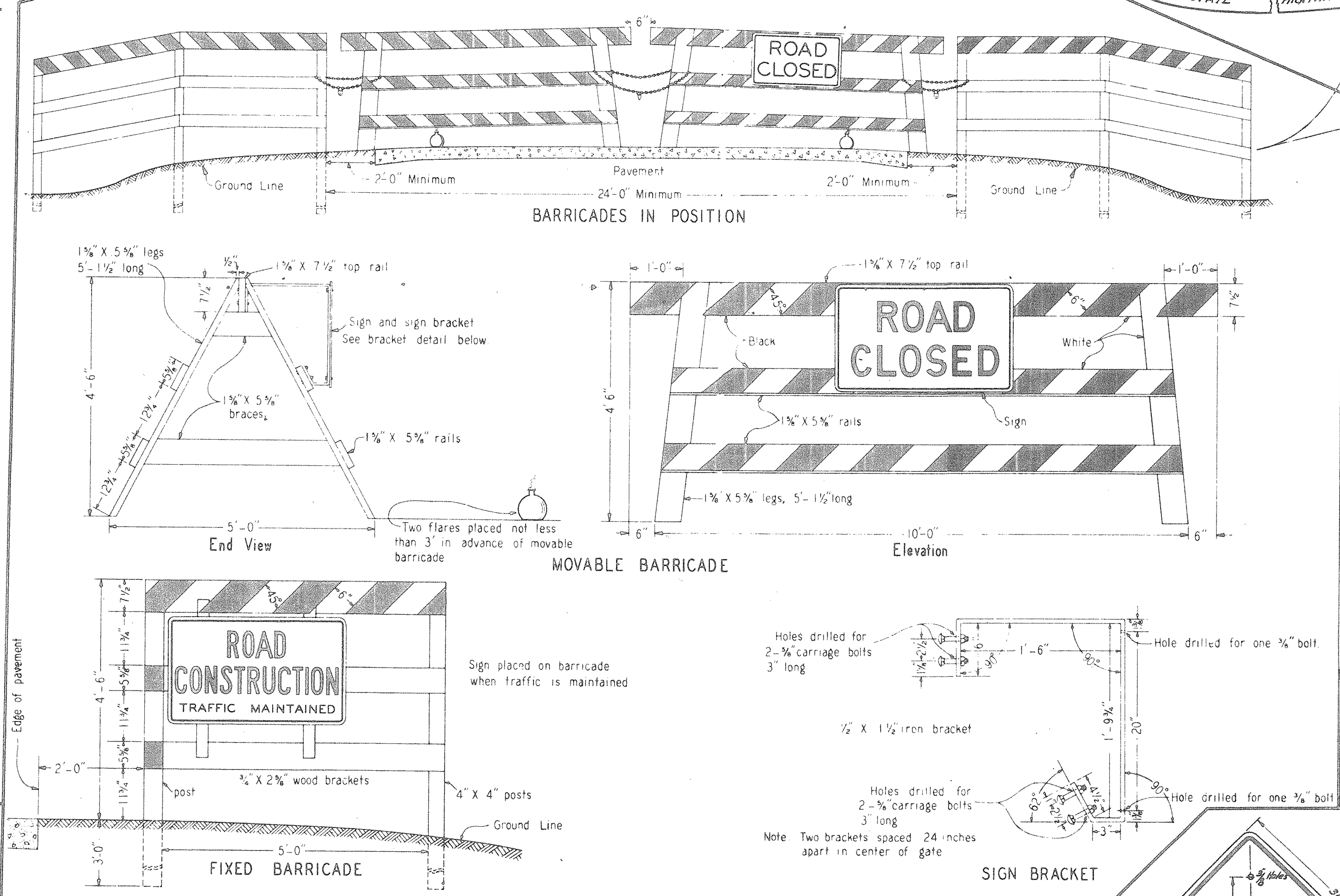


TYPICAL MARKING FOR CONSTRUCTION AREAS

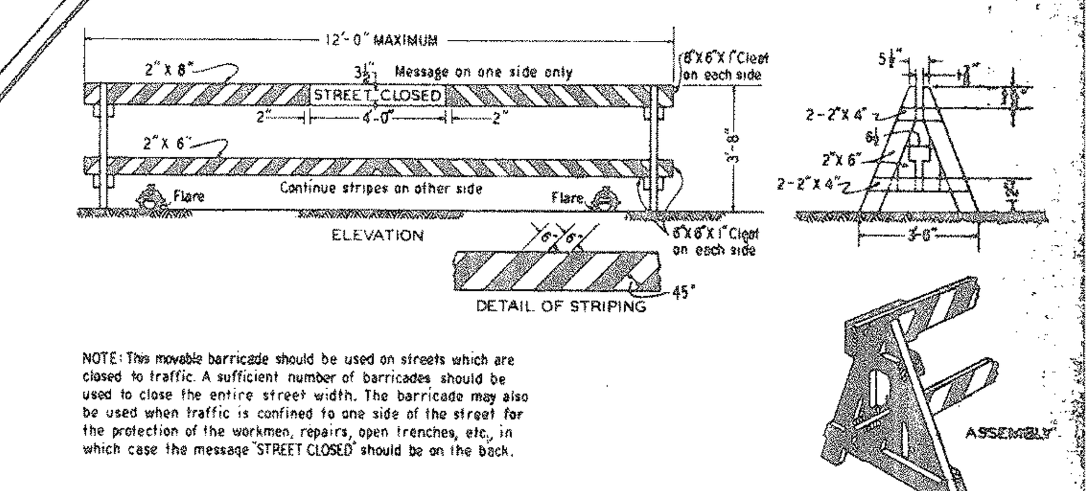
Fed Road Div. No.	State	County	Dock'd No.	Route No.	Sheet No.	Total Sheets
3	S.C.	Clarendon	14,261	301	2	33



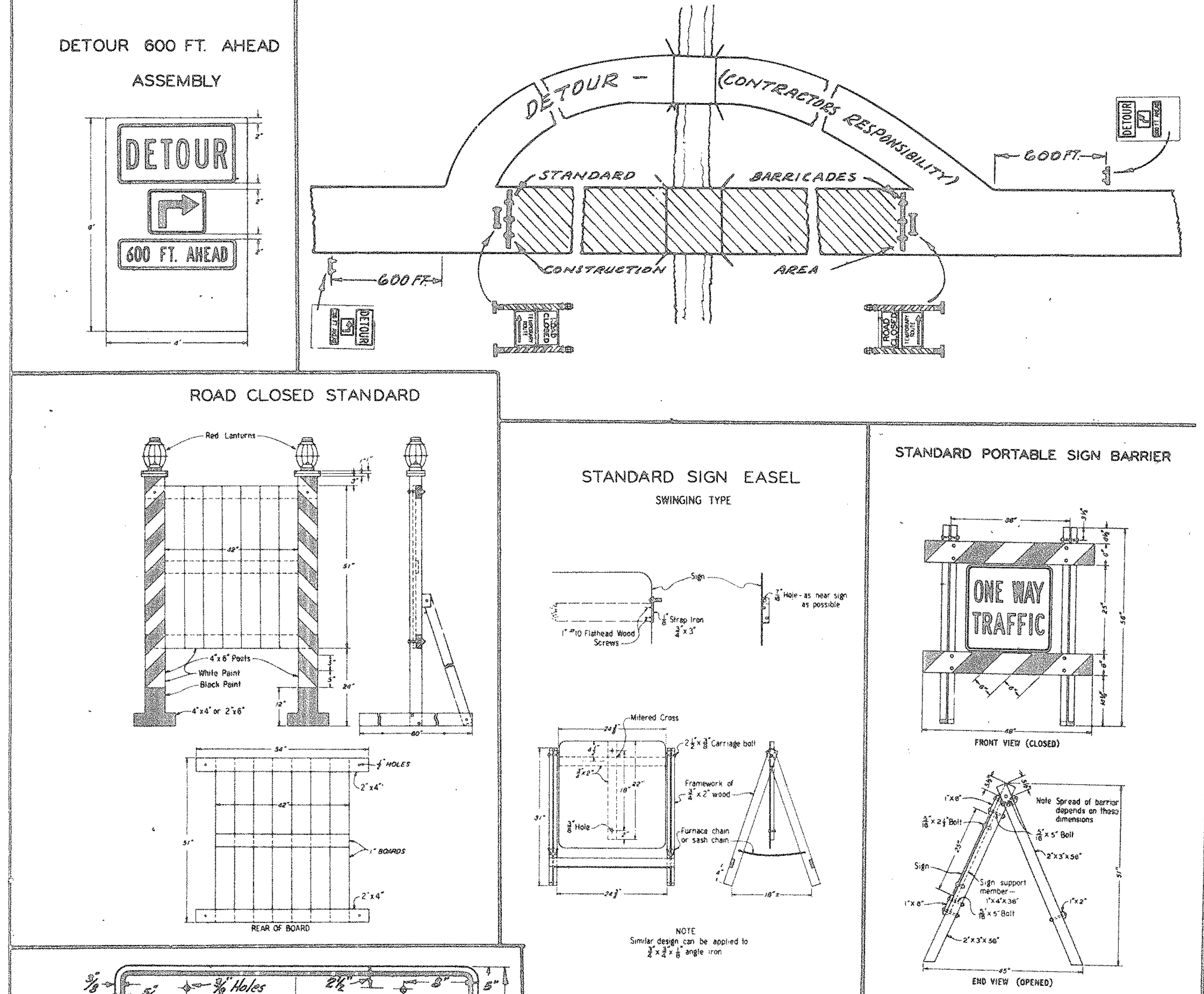
STANDARD BARRICADES



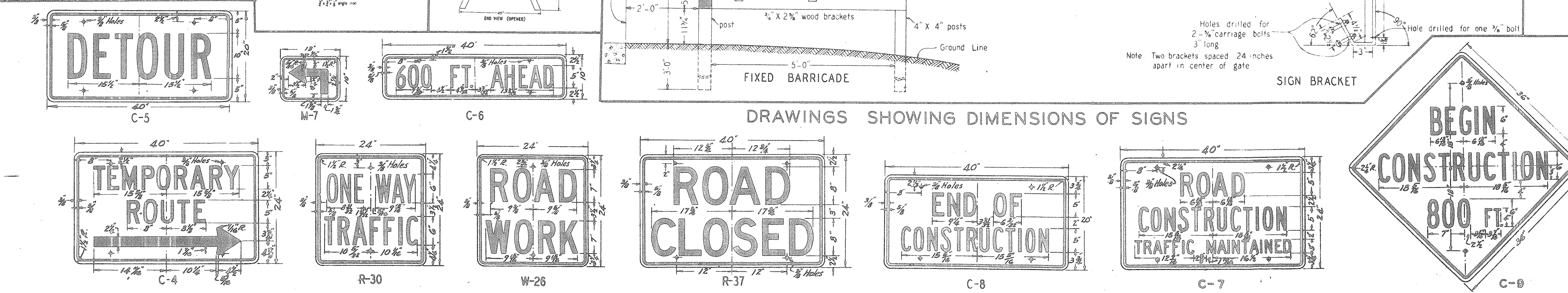
MOVABLE BARRICADE FOR USE IN CITIES



NOTE: The movable barricade should be used on streets which are closed to traffic. A sufficient number of barricades should be used to close the entire street width. The barricade may also be used when traffic is confined to one side of the street for the protection of the workmen, repairs, open trenches, etc., in which case the message "STREET CLOSED" should be on the back.



DRAWINGS SHOWING DIMENSIONS OF SIGNS



NOTES

ANY CONDITIONS NOT COVERED BY DETAILS AND SIGNS ON THIS DRAWING SHALL CONFORM TO THE LATEST S. C. STANDARD SPECIFICATIONS AND TO THE LATEST S. C. STANDARDS AND SPECIFICATIONS FOR UNIFORM TRAFFIC CONTROL DEVICES. THE LOCATION OF TYPICAL MARKINGS SHOWN HEREON MAY BE VARIED TO CONFORM TO FIELD CONDITIONS.

THE CONTRACTOR SHALL PROVIDE AND ERECT APPROPRIATE SIGNS AND BARRICADES THE FIRST DAY ANY WORK IS PERFORMED OR AT THE TIME HE MOVES ANY MATERIAL OR EQUIPMENT ON TO THE PROJECT, WHICHEVER IS FIRST. HE SHALL MAINTAIN THESE SIGNS THROUGHOUT THE LIFE OF THE PROJECT UNTIL FINAL ACCEPTANCE OF THE CONTRACT, AT WHICH TIME THEY SHALL BE REMOVED.

WHEREVER SURFACING WORK IS BEING PERFORMED ON THE ROADWAY AND ONE-WAY TRAFFIC IS BEING MAINTAINED THROUGH THE SECTION BEING SURFACED, THE STANDARD SIGNS SHALL BE PLACED AND, ALSO, FLAGMEN SHALL BE POSTED AT EACH END OF THE SECTION OF ROAD BEING SURFACED EXCEPT IN CASES WHERE TRAFFIC VOLUME IS LIGHT AND HIGH SPEEDS DO NOT PREVAIL; OR IN CASES WHERE THE SECTION OF ROAD BEING SURFACED IS NOT MORE THAN 100 FEET IN LENGTH AND THE SIGNS ARE CLEARLY VISIBLE FOR A DISTANCE OF 500 FEET.

THE DEPARTMENT WILL ERECT AND MAINTAIN PROPER SIGNS IN ACCORDANCE WITH THE MANUAL FOR UNIFORM CONTROL DEVICES ON ALL DETOURS OR TEMPORARY ROUTES THAT THE CONTRACTOR IS NOT REQUIRED TO MAINTAIN. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE AND MAINTAIN PROPER DETOUR SIGNS AT AND ALONG ALL DETOURS FOR WHICH HE IS RESPONSIBLE.

THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN AND RELOCATE, WHERE NECESSARY, ALL REGULATORY, WARNING AND GUIDE SIGNS IN PLACE, OR THOSE THAT MAY BE ERECTED BY THE DEPARTMENT, WITHIN THE LIMITS OF HIS CONTRACT.

BETWEEN THE HOURS OF SUNSET AND SUNRISE, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TWO FLARES OR RED LANTERNS AT EACH BARRICADE, "ROAD CLOSED" SIGN, OBSTRUCTION OR AT SUCH OTHER POINTS AS ARE NECESSARY TO PROTECT THE TRAVELING PUBLIC.

ALL SIGNS SHALL BE REFLECTORIZED EXCEPT THOSE TEMPORARY SIGNS THAT ARE USED ONLY DURING DAYLIGHT HOURS. DRAWINGS SHOWING SIZES OF SIGNS, LETTERS AND NUMERALS ARE DETAILED HEREON. ALL SIGNS SHALL HAVE BLACK LETTERS OR NUMERALS ON A WHITE BACKGROUND EXCEPT THE "ROAD WORK" (W-26), "BEGIN CONSTRUCTION - 800 FT." (C-9) AND "DETOUR" (C-5) SIGNS WHICH SHALL HAVE A YELLOW BACKGROUND.

THE "ROAD CONSTRUCTION - TRAFFIC MAINTAINED" (C-7) SIGN SHALL BE MOUNTED ON A BARRICADE ON EACH SIDE OF THE INTERSECTION FACING TRAFFIC AT ALL IMPORTANT ROAD INTERSECTIONS. ON MAJOR ROUTES BEING CONSTRUCTED, THE BARRICADE SHALL BE ON BOTH SIDES OF THE ROAD AT THE EXTREME LIMITS OF THE PROJECT BUT THE SIGN MAY BE OMITTED ON THE BARRICADE ON THE LEFT SIDE OF ROAD FACING TRAFFIC. THE "END OF CONSTRUCTION" (C-8) SIGN MAY BE PLACED ON THE BACK OF THIS BARRICADE INSTEAD OF ON A POST.

WHEN A BRIDGE IS UNDER CONSTRUCTION AND TRAFFIC IS MAINTAINED, THE WORD "BRIDGE" SHALL BE SUBSTITUTED FOR "ROAD" ON THE "ROAD CONSTRUCTION - TRAFFIC MAINTAINED" SIGN AND THE SIGN ERECTED IN A LIKE MANNER.

DETAILS
SHOWING
STANDARD SIGNS, BARRIERS, LIGHTS, AND BARRICADES TO BE FURNISHED, ERECTED, AND MAINTAINED BY THE CONTRACTOR WHERE APPLICABLE ON ALL ROAD OR BRIDGE CONTRACTS

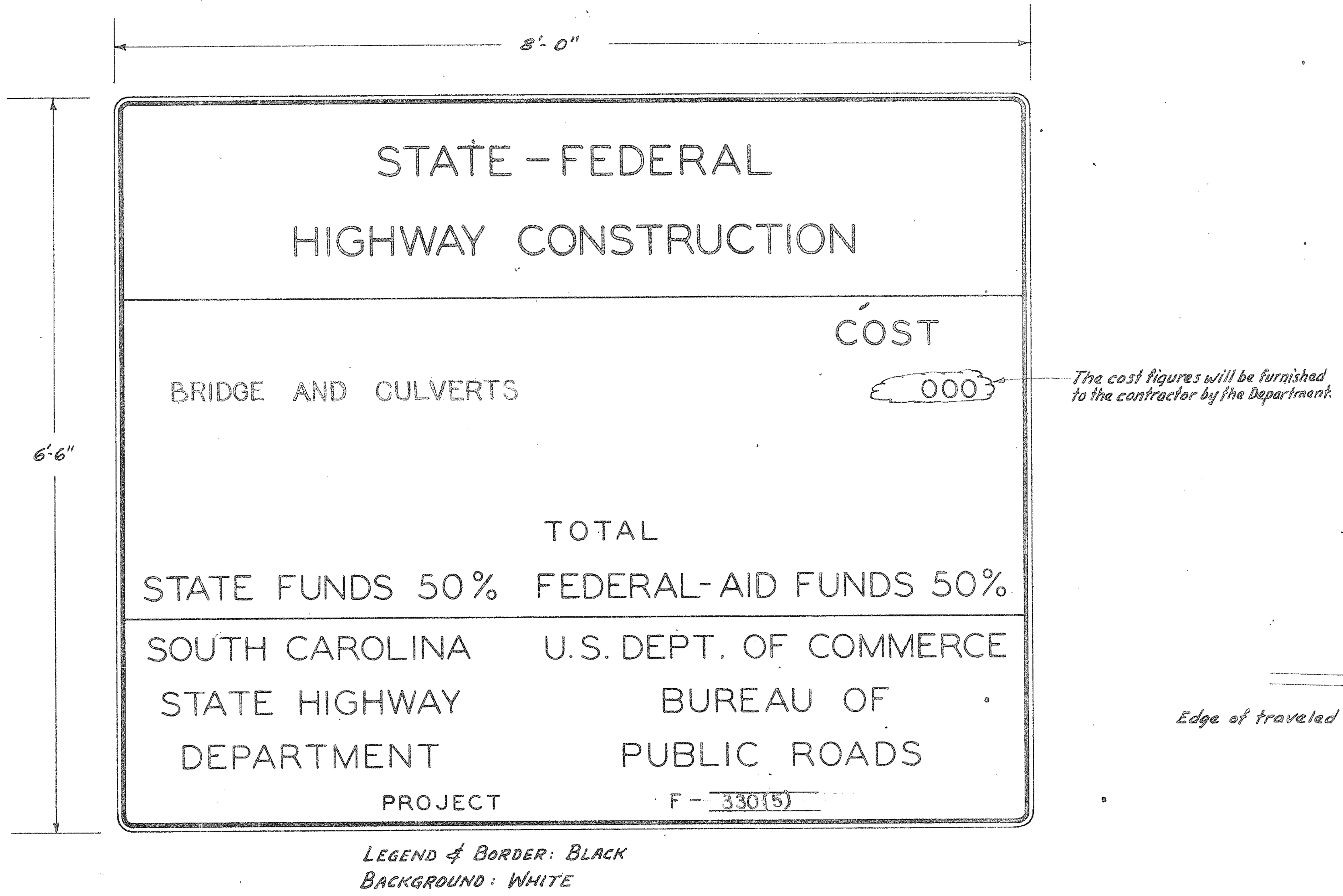
APPROVED: S. M. Pearman — STATE HIGHWAY ENGINEER
DATE: 2/4/60

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14,361	F-330(5)	301	2A	33

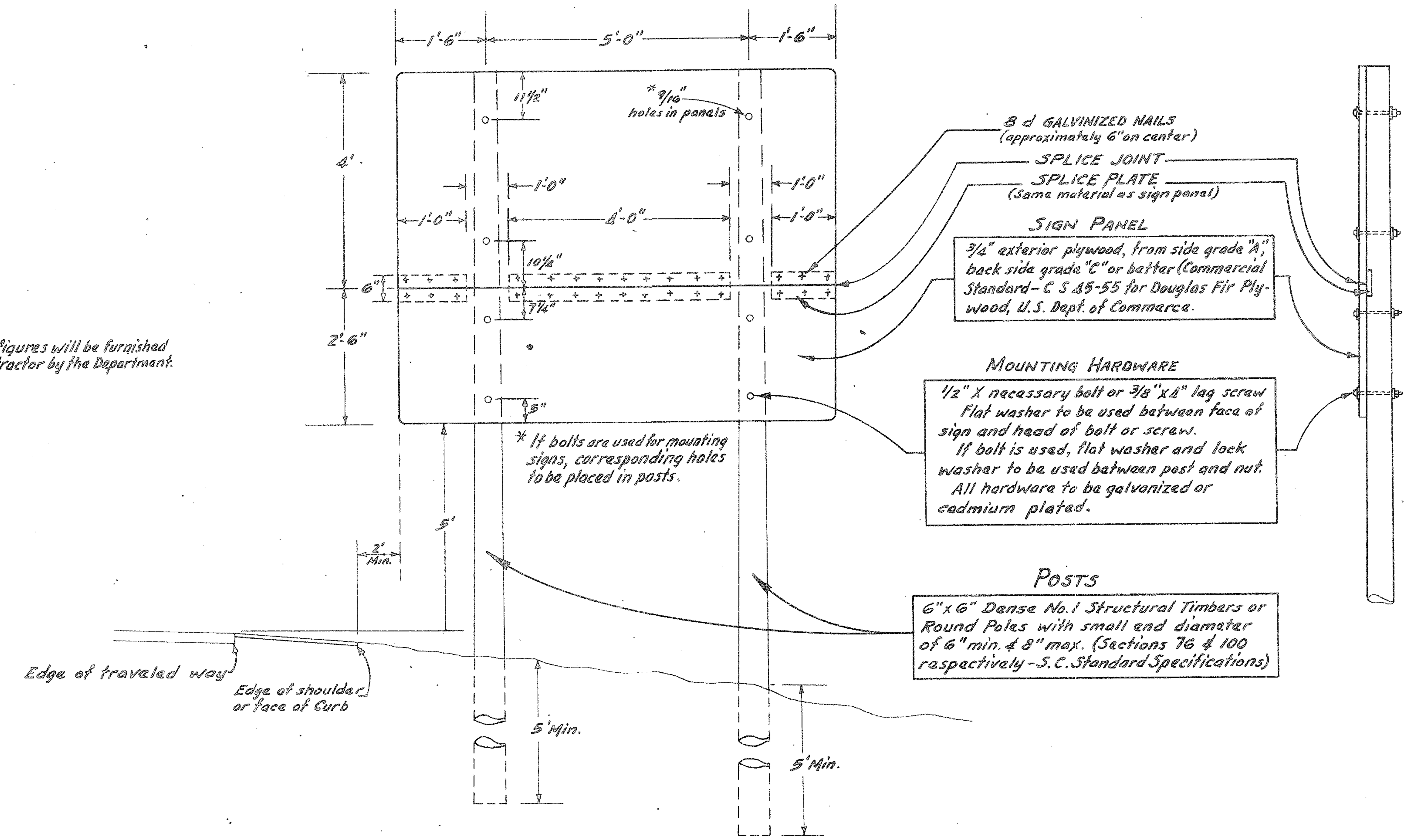
S. C. STATE HIGHWAY DEPARTMENT
COLUMBIA, S. C.

CONSTRUCTION IDENTIFICATION SIGN

FEDERAL-AID PRIMARY SYSTEM



LEGEND & BORDER: BLACK
BACKGROUND: WHITE



SIGNS REQUIRED

_2_ Signs will be required for this contract. See title sheets _No. 1._

FABRICATION

Only one horizontal joint, at the location shown above, and no vertical joints will be permitted. Panels shall be cut to size and mounting holes bored before painting is begun. Care should be exercised in sawing and drilling to avoid splintering. After cutting, all panels shall receive the following treatment:

1. Paint fronts, backs and all edges with a coat of "Outside White Paint" (Section 80, S. C. Standard Specifications), applying a heavy coat to edges. Allow panels to air-dry with good air circulation for at least 24 hours, longer if necessary, to assure that the panels are throughly dry.
2. Repeat step 1.
3. Abrade face of panel lightly with fine sandpaper or steel wool.
4. Repeat step 1.
5. Apply legend and border as shown on drawings at a rate necessary to assure a full cover and uniform copy. Paints for legends shall be a high quality exterior silk screen enamel for screen application and a high quality exterior bulletin lettering enamel for brush application.

LEGEND

Letters and numerals shall correspond to the "Standard Alphabet for Highway Signs" as published by the Bureau of Public Roads, U. S. Department of Commerce. Drawings showing layout of the legends and spacings between characters will be available to the contractor from the Department's Offices at 1100 Senate Street, Columbia, South Carolina, and sign legends shall correspond with those drawings.

ERECTION

Sign panels shall be assembled into a single unit, using splice plates and nails as shown above. The nails shall be cleated at the rear of the splice plate.

Posts shall be set as indicated, throughly tamping the replaced soil in six inch layers. The posts shall be painted with two coats of "Outside White Paint", allowing at least 24 hours after each coat, or untill the paint is throughly dry. The signs shall be mounted as indicated above.

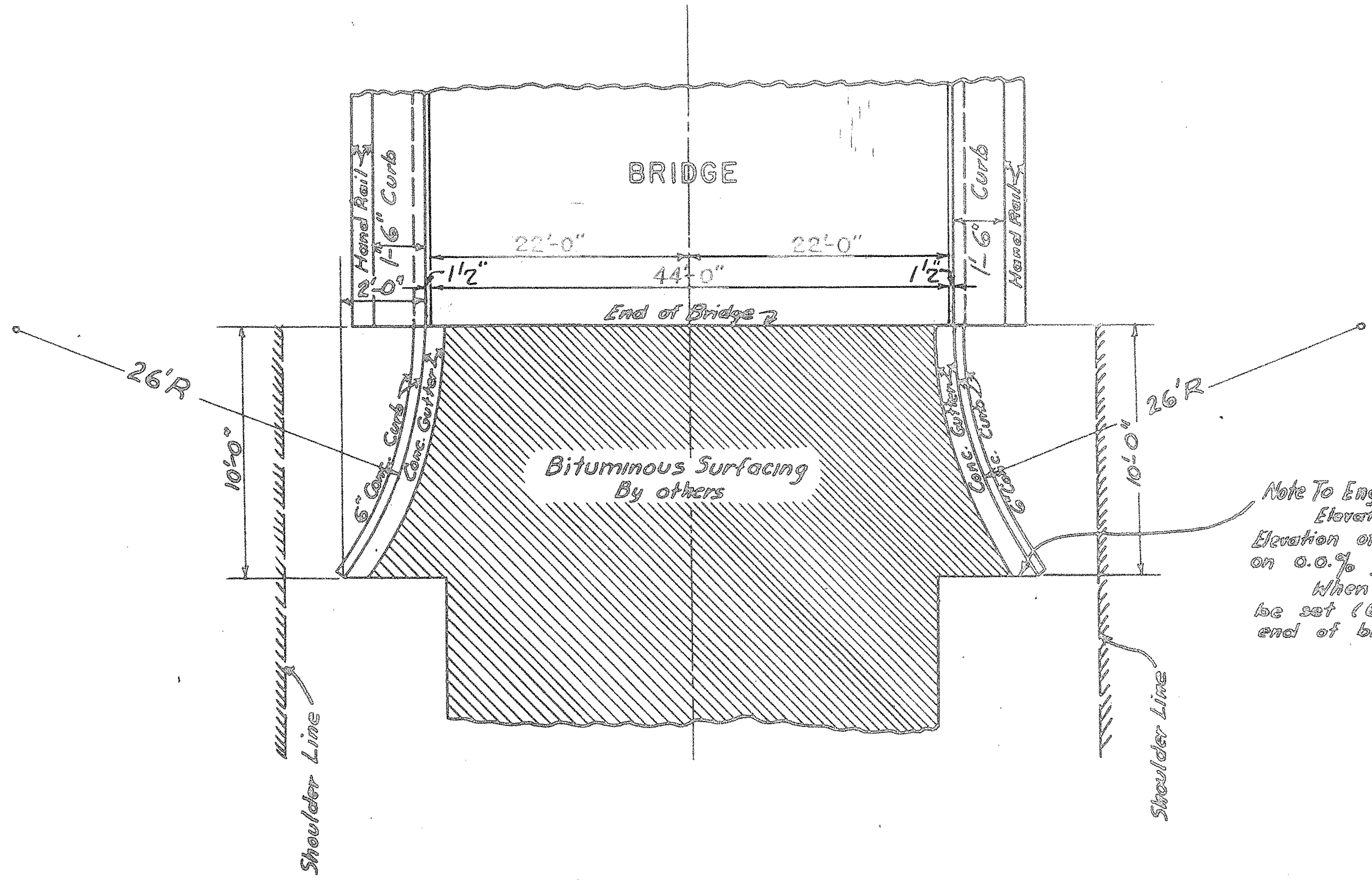
REMOVAL AND OWNERSHIP

The signs _shall_ be removed by the Contractor and shall _be the_ property of the _Contractor_ upon completion of the contract.

Approved

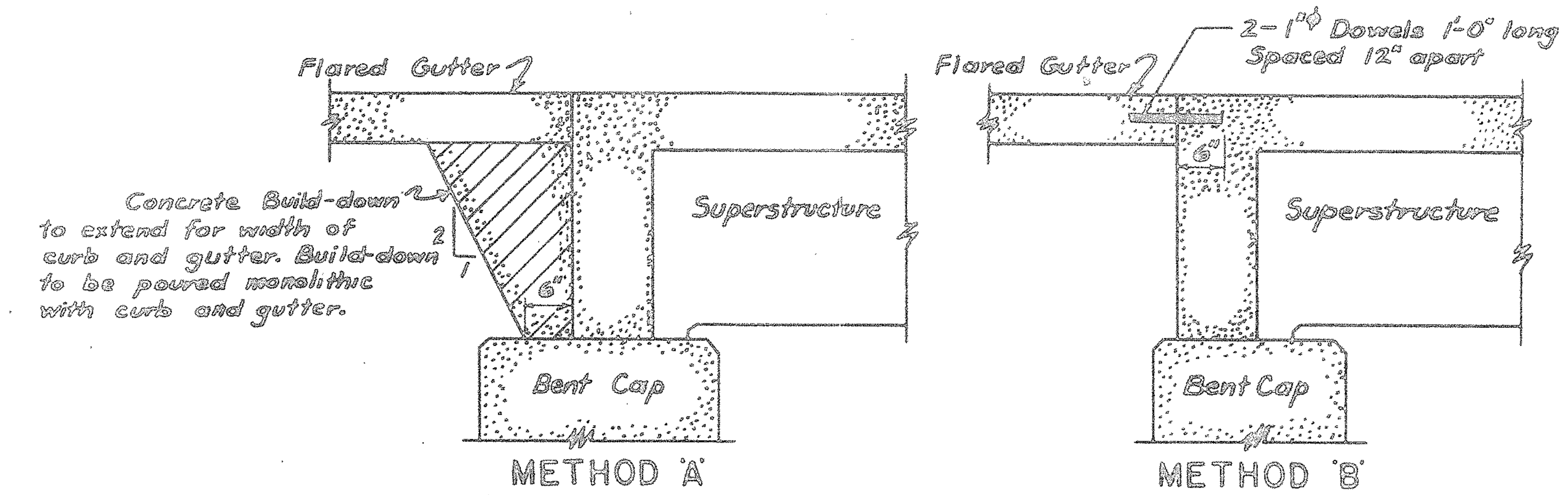
[signature] 4-9-62
State Highway Engineer — Date

Fed Road Div. No.	State	County	Docket No.	Route No.	Sheet No.	Total Sheets
3	S.C.	CLARENDON	14.361	301	3	33



PLAN OF FLARED CURBS
SCALE 1"=5'-0"

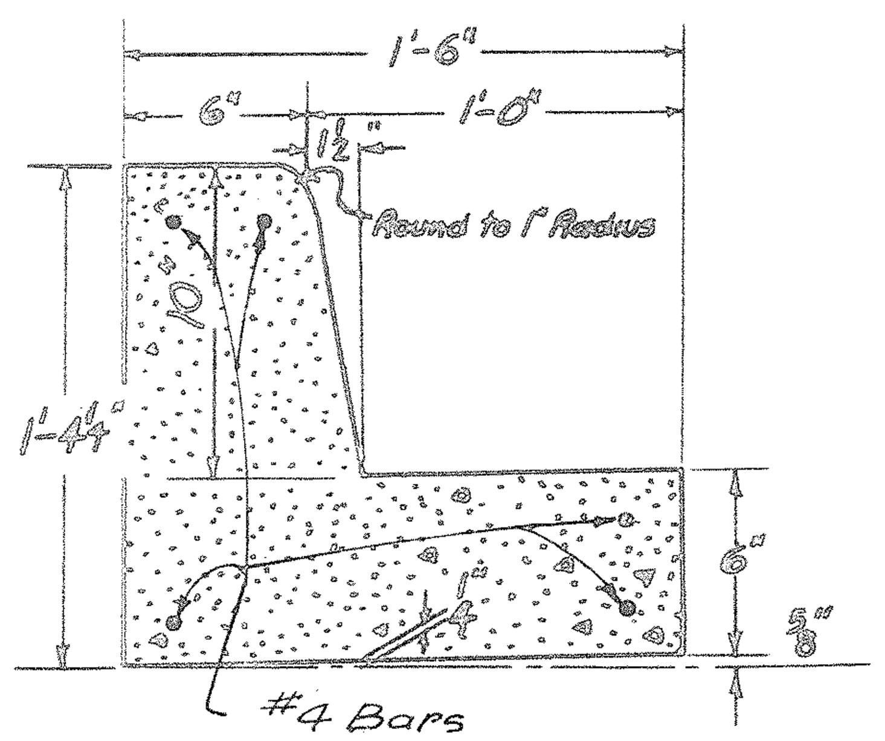
Note To Engineers
Elevation of this point to be set 6" below Elevation of gutter at end of bridge where approach is on 0.0% grade.
When the approach is on a grade this point should be set (6" ± % of grade × 16') below elevation of gutter at end of bridge.



METHOD 'A' METHOD 'B'

Note:- Ends of Curb and Gutter adjacent to bridge to be supported by one of the methods shown above.
Use Method "A" when there is sufficient width and length of bent cap to support concrete build-down. Otherwise, use Method "B".
The quantity of concrete or reinforcing steel involved shall be computed by the Engineer and added to the quantities shown on this sheet.

CURB AND GUTTER SUPPORT
SCALE ¾"= 1'-0"



DETAIL OF CONC. CURB AND GUTTER
SCALE 1"=6"

CURB AND GUTTER QUANTITIES-ONE END ONE BRIDGE

CLASS A CONCRETE FOR ONE END OF BRIDGE - 0.9 C.Y.
REINFORCING STEEL - 65 LBS.
Reinf. consists of [illegible] #4 Bars [illegible] long

All costs of constructing the concrete curb and gutter at the ends of the bridge will be included in payment for the concrete and steel involved of the Unit Price Bid for those items.

Rev.	26B	G.K.B.	6-58
	for Reinf.		
Quant.			
Tr.	J.L.B.	R.A.B.	
Dn.			
Des.			
	Ckd.	By	Date

S. C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S.C.

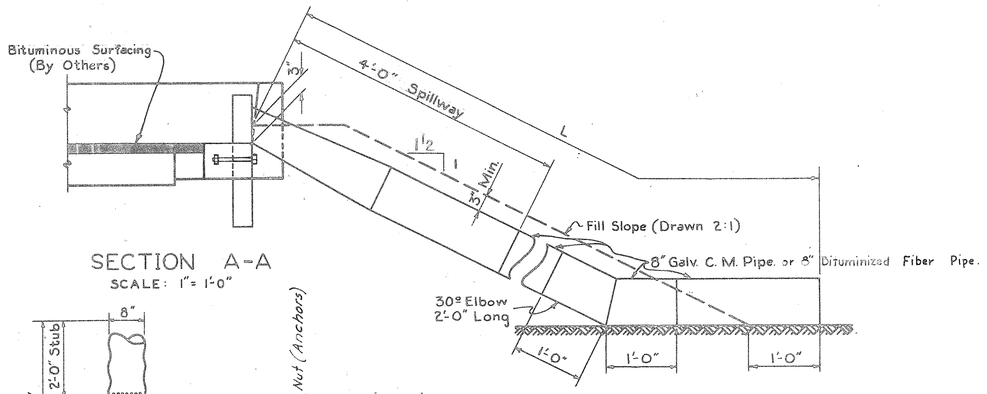
DETAILS OF
FLARED CURB & GUTTER
AT ENDS OF BRIDGE

REV.			
REV.			
REV.	CDK	RBP	1-63
REV.	GKB	WEB	6-58
	FOR REINF.		
REVIEWED	HDL	IN CHARGE	
QUAN.			
TR.	RAB	JLB	
DR.			
DES.			
	BY	CHKD	DATE

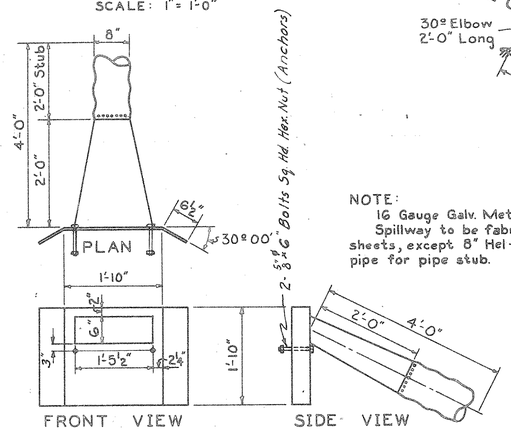
DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	CLARENDON	301	1-63

APPROVED BY W. E. Quinn — BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY [signature] — BRIDGE ENGINEER

FED. RD. DIV. NO	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CLARENDON	14.361	301	4	33

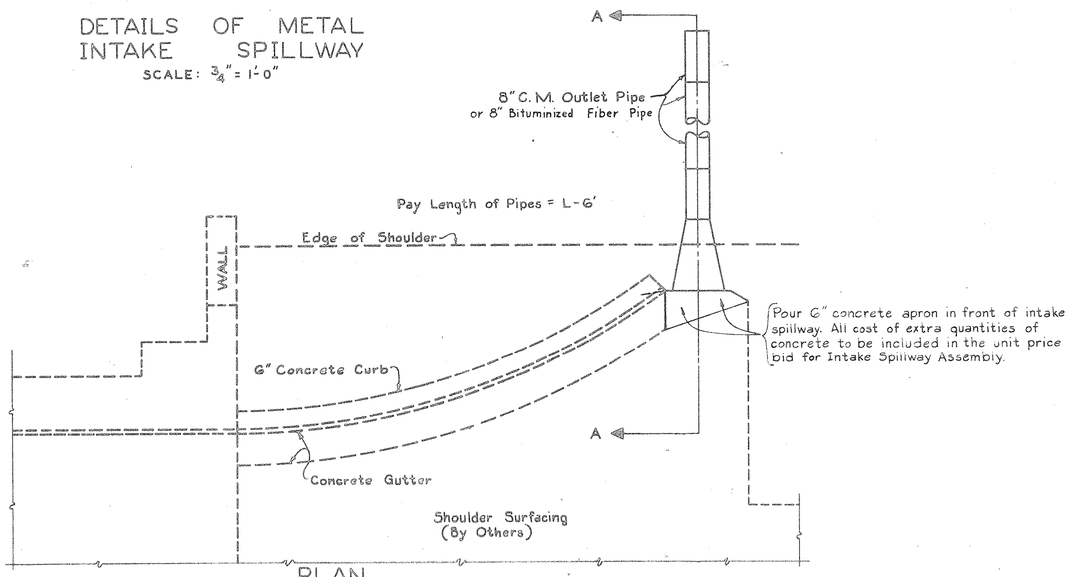


SECTION A-A
SCALE: 1"= 1'-0"



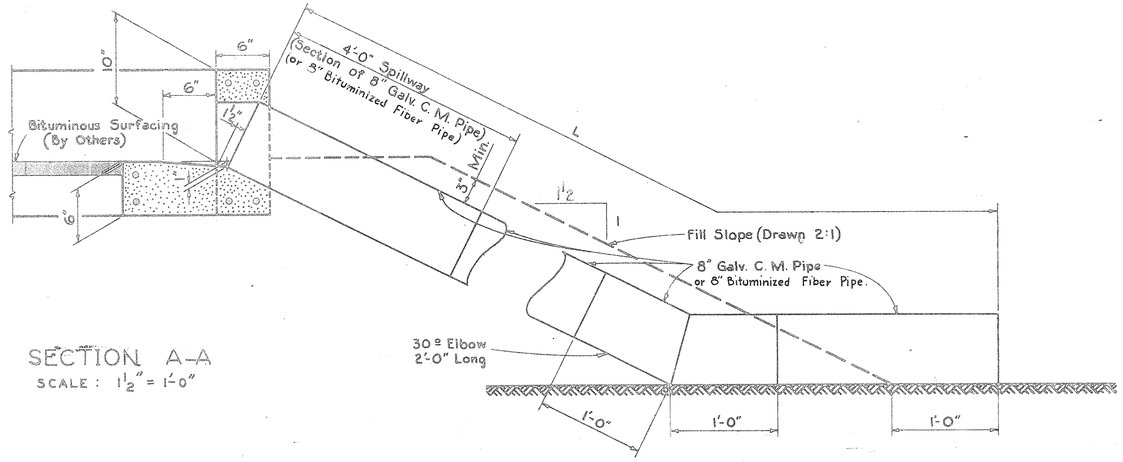
NOTE:
16 Gauge Galv. Metal to be used thruout.
Spillway to be fabricated from flat smooth sheets, except 8" Hel-Cor or equal non-perforated pipe for pipe stub.

DETAILS OF METAL INTAKE SPILLWAY
SCALE: ¾" = 1'-0"

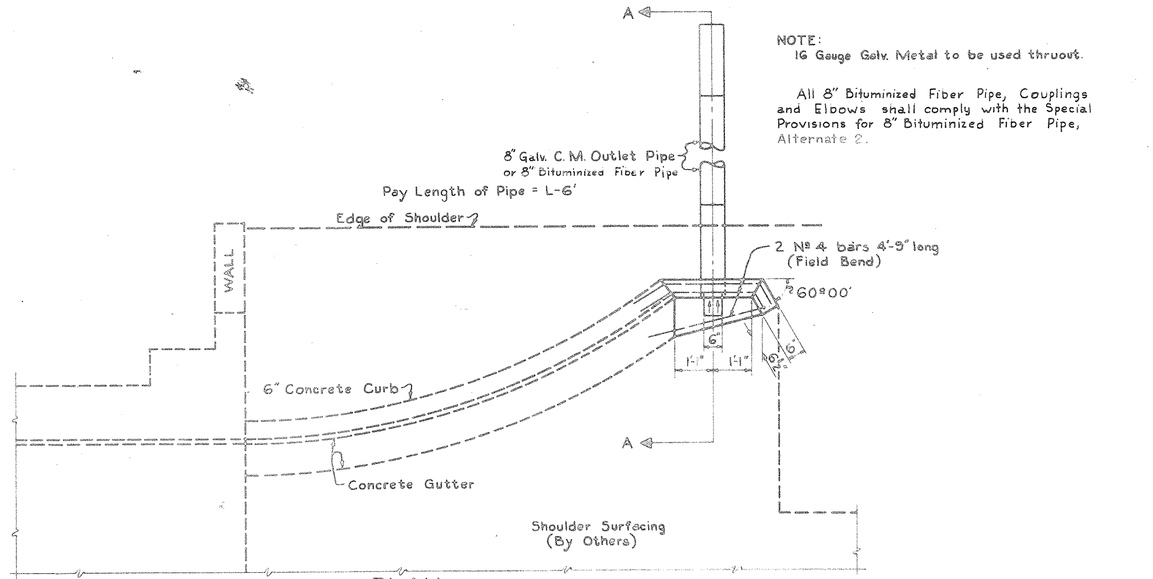


PLAN
SCALE: ½" = 1'-0"

METAL INTAKE OPTION



SECTION A-A
SCALE: 1½" = 1'-0"



PLAN
SCALE: ½" = 1'-0"

CONCRETE INTAKE OPTION

BID ITEMS	
Intake Spillway Assembly (Includes one 4'-0" Spillway Intake and one 30º Elbow 2'-0" long)	4 Each
8" Galv. C. M. Pipe Slope Drain - Alternate 1. 8" Bituminized Fiber Pipe Slope Drain - Alternate 2.	75 L.F. 75 L.F.

REV.			
REV.	CDK	MDF	3-63
REV.	WFL	LEW	1-62
	Anchor Bolts added		
REV.	W.A.E.	WFL	7-62
	Apron Added		
REVIEWED	MDF		
IN CHARGE			
QUAN.			
TR.			
DR.	W.A.E.	WFL	12/60
DES.			
	BY	CK'D	DATE

S. C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA, S.C.

DETAILS OF METAL PIPE SLOPE DRAINS

DOCKET NO	COUNTY	ROUTE NO.	DATE
14.361	CLARENDON	301	1-63

APPROVED BY: [signature] SR. DESIGN & PLANS ENGR.
APPROVED BY: [signature] BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CLARENDON	14.361	301	5	33

WIDENING EXISTING CONCRETE STRUCTURES

Existing structure is indicated on the plans by light lines, new structure by heavy lines.

All dimensions of new construction are subject to existing conditions.

Connecting surfaces of the old concrete shall be thoroughly roughened, cleaned of loose material, wetted and flushed with 1:2 cement mortar immediately before pouring new concrete, except as noted on other sheets of these plans.

All reinforcing steel protruding beyond surface after chipping shall be left in place and imbedded in new concrete if feasible. Reinforcing steel which can not be imbedded in new concrete shall be cut off flush with surface of concrete where asphalt surfacing will cover. Where exposed the old reinforcing shall be cut off 1½" below the exposed concrete surface and the hole patched with dry 1:3 mortar to the satisfaction of the Engineer.

The Contractor shall repair or replace at his own expense, and in a manner satisfactory to the Engineer, any portion of the existing structure damaged as a result of his carelessness or negligence.

The entire cost of the above work including all drilling and chipping, and removing and disposing of portions of old structure necessary to construct new structure, shall be included in the unit price bid for Class "A" Concrete.

If expansion anchor bolts are called for they shall be similar and equal to Rawl's Multi-Calk Anchor or American Exp. Bolt and shall be installed in accordance with the manufacturer's directions.

Expansion anchor bolts will be paid for at unit price bid for reinforcing steel.

Unless otherwise specified in these plans or Special Provisions the Contractor shall provide necessary temporary supports for utilities attached to the bridge to maintain service during construction.

The owner will make all necessary changes in alignment and elevation of the utility and furnish permanent supports which shall be placed in the concrete by the Contractor.

All costs of the work to be performed by the Contractor shall be included in the unit price bid for Class "A" Concrete.

SPECIAL NOTE

Generally, in case of discrepancy, this standard sheet of notes shall govern over the Specifications, but the remainder of the plans shall govern over notes hereon, and Special Provisions shall govern over all. See Standard Specifications paragraph 5.04.

EXCAVATION FOR PILE TYPE END BENT

All cost of excavation necessary to construct end bents and to remove material under superstructure to an elevation 1'-0" below tops of end bent caps shall be included in the unit price bid for Class "A" Concrete.

EXCAVATION FOR CONCRETE FTG. END BENT

If a concrete footing is used for the end bent, the excavation below that included for the cap and berm in the above paragraph will be paid for at the unit price bid for excavation. Excavation above this shall be included in the unit price bid for Class "A" Concrete.

DRIVING PILES THROUGH FILL

Where piles occur in fill exceeding 10 ft. in height, the fill shall be in place before piles are driven.

HAMMER FOR STEEL PILES

Steel piles where required bearing exceeds 37 Tons shall be driven with a diesel, steam or air hammer having a minimum energy of 14,000 ft.-lbs.

HAMMER FOR CONCRETE PILES

Concrete Piles shall be driven with steam, or air single-acting hammer or Diesel hammer of suitable size. The drop hammer allowed in Parag. 101.05 of the Standard Specifications may not be used.

ALLOWANCE FOR DEAD LOAD DEFLECTION AND SETTLEMENT

Bridges shall be built on the grade or vertical curve shown on plans. Handrails, slabs and curbs shall conform to the grade or curve.

In setting forms for structural steel or ~~prestressed concrete beam~~ bridges, an allowance shall be made for dead load deflections in addition to the elevations shown.

In setting falsework and forms for reinforced concrete spans an allowance shall be made for dead load deflections, settlement of falsework, and permanent camber which shall be provided for in addition to the elevations shown. After removal of the falsework, the finished structure shall conform to the elevations shown plus the allowance for permanent camber specified by the Engineer.

BRONZE EXPANSION PLATES

Bronze Pl's to be self-lubricating Exp. Pl's Manufactured from rolled bronze alloy complying with A.S.T.M. B100 - Alloy I, or A.S.T.M. B22 - Gr. B casting, and to have special inserts consisting of graphite and metallic substances with a lubricating binder in top face only. Installation of Pl's to be in accord with manufacture's directions. The Coef. of friction shall not exceed 0.1 The Bronze Pl's shall be similar to those manufactured by Merriman Bros., Inc., 183 Amory St., Boston 30, Mass., or Spadone - Alta Corp., South Norwalk, Conn., or an approved equal.

STRUCTURAL STEEL

Beams shall be cambered for vertical curve and dead load deflection either in mill or shop.

Layout dimensions and standard lengths of beams shown are horizontal dimensions and must have the additional lengths added for lengths along grade.

All rivets shall be ⅞" φ unless noted.

All high-tensile-strength bolts shall be ⅞" φ unless noted.

All holes shall be 15/16" φ unless noted.

Holes in all main member splices shall be sub-punched, the connecting members shop assembled in their proper positions, and the holes reamed to full size while assembled.

Floor beam connections shall be reamed to a metal template.

All stiffeners at floor beams and at pier reactions shall have fills. All interior stiffeners between floor beams shall be crimped or filled.

Shims shall be placed between beam flange and rocker plate where required and shall be adjusted to bring top of beam to theoretical grade.

Bearing plates ~~and rocker plates~~ to be rolled steel.

Nuts on Anchor Bolts at Expansion Ends to be tightened 1/16" clear to allow for movement.

Anchor bolt assemblies will be paid for as reinforcing steel and are included in the bent quantities unless specifically stated elsewhere as included in the structural steel quantities.

Mill and shop inspection of the structural steel will be performed by Froehling & Robertson, Inc., 814 West Cary St., Richmond, Virginia. The contractor shall notify that company of the name and address of the fabricator of the structural steel as soon as the fabricator has been given the contract to fabricate so that the inspection procedure can be set up. The contractor shall also stipulate in his order to the fabricator that Froehling & Robertson, Inc., will perform the mill and shop inspection of the structural steel.

COMPOSITE BEAMS

A 5 day interval shall be allowed between time of pouring slab and sidewalk.

Tops of beam flanges shall not be painted.

All equipment, materials and workmanship for electric arc welded stud shear connectors shall be in accordance with the recommendations of the manufacturer and Special Provisions.

Alternate for welded studs: an approved alternate method of securing composite action between beams and slab may be used, at no additional cost to the Dept. Details must be submitted for approval in advance of making the change.

⅞" φ studs may be substituted for ¾" φ studs. The ⅞" φ studs shall be placed with the same number in each transverse row as the ¾" φ studs. The pitch of the ⅞" φ studs shall be equal to 1.36 times the pitch of the ¾" φ studs. The ⅞" φ studs must be welded within the recommended area of an approved arc stabilizer cart.

PRESTRESSED BEAMS

Tops of beams shall be rough floated. At the approximate time of initial set, entire top of beam shall be scrubbed with a coarse wire brush to remove all laitance, and to produce a roughened surface for bonding slab.

Membrane curing compound shall not be used on tops or ends of beams.

Concrete in prestressed beams shall be class "X" as described in the Special Provisions.

The prestressing strands, wire or bars must be thoroughly cleaned of any loose rust, dirt, grease, form lubricant or other deleterious substances, to the satisfaction of the Engineer, before the concrete is placed.

Beams shall not be transported to the bridge site until concrete has cured for at least 6 days.

CONCRETE

All concrete shall be Class "A" unless noted below or on other sheets of these plans.

Build-ups on bent caps shall be cast monolithic with cap unless shown or noted elsewhere on these plans.

Top of each build-up shall be level.

Payment for Concrete in slab will be based on theoretical plan quantity.

Any necessary adjustment for Camber shall be at the Contractor's expense.

All exposed edges shall be chamfered ¾" unless otherwise noted.

For simple spans over 70 Ft. in length, the center portion (approximately 2/3 of the length) of the slab shall be poured first and allowed to cure for not less than 4 days before the remaining end sections are poured. However, when the temperature permits (in the opinion of the engineer) the entire slab may be poured provided a suitable retarding agent is used in such amounts that the slab concrete shall not have had its initial set prior to the completion of the casting of the slab concrete.

BEARINGS

For concrete beams bearing on concrete, the top of caps, or tops of build-ups, under bearing areas of beams shall receive a steel trowel finish to insure a smooth and level bearing surface. See Standard Specifications paragraph 71.022.

DESIGN DATA

SPECIFICATIONS: A.A.S.H.O. 1961 with rev. thru. 1962.

LIVE LOAD: H15-S12-44 ~~Includes provision for alternate loading of 2 axles 4' apart with each axle weighing 75% of rear loading for spans under 40'.~~

UNIT STRESSES:

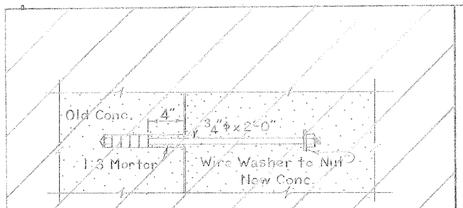
STRUCTURAL STEEL & REINFORCED CONCRETE:
fs (Struct) = [illegible] psi New; 16,000 psi Old
fs (Reinf) = 20,000 psi
CLASS "A" CONCRETE
[illegible]
~~CLASS "X" CONCRETE~~
~~[illegible]~~
PRESTRESSED CONCRETE
[illegible]
PRESTRESSING STEEL
fs' = 250,000 psi, fs = [illegible] psi

MATERIAL AND WORKMANSHIP

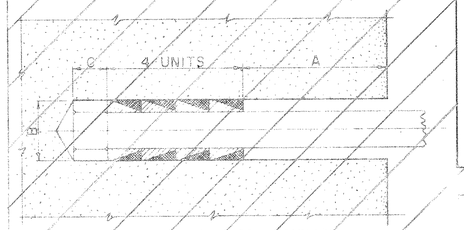
Except as may otherwise be specified on plans or in the Special Provisions all material and workmanship shall be in accordance with the South Carolina Highway Department Standard Specifications for Highway Construction dated November 1, 1955.

REV.		S.C. STATE HIGHWAY DEPARTMENT BRIDGE DIVISION COLUMBIA, S. C.
REV.		STANDARD NOTES
REV.		
REV.	CDK RBP 1-63	
REVIEWED: HPL IN CHARGE		
QUAN.		DOCKET NO. 14.361 / COUNTY CLARENDON / ROUTE NO. 301 / DATE 1-63
TR. APD.	RWH 4-61	APPROVED BY: [signature] / APPROVED BY: [signature]
DR. APD.	RWH 4-61	
DES.		
BY	CKD. DATE	BRIDGE DESIGN & PLANS ENGR. / BRIDGE ENGINEER

Fed. Rd. Div. No.	State	County	Docket No.	Route No.	Sheet No.	Total Sheets
3	S.C.	Clarendon	14.361	301	6	38



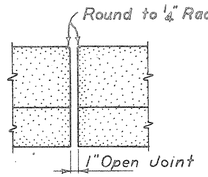
ANCHOR BOLT ASSEMBLY
SCALE: 1½" = 1'-0"



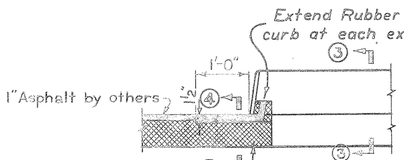
DETAIL OF EXPANSION ANCHOR
SCALE: 6" = 1'-0"

EXPANSION ANCHOR MAY BE EITHER PLAIN STANDARD "CINCH" ANCHOR, TYPE 1A PLAIN STANDARD "RAM" ANCHOR TYPE 1A, "RAWL MULTI-CALK" ANCHOR, "STAR SLUGIN" ANCHOR OR AN EQUAL TYPE EXPANSION ANCHOR.

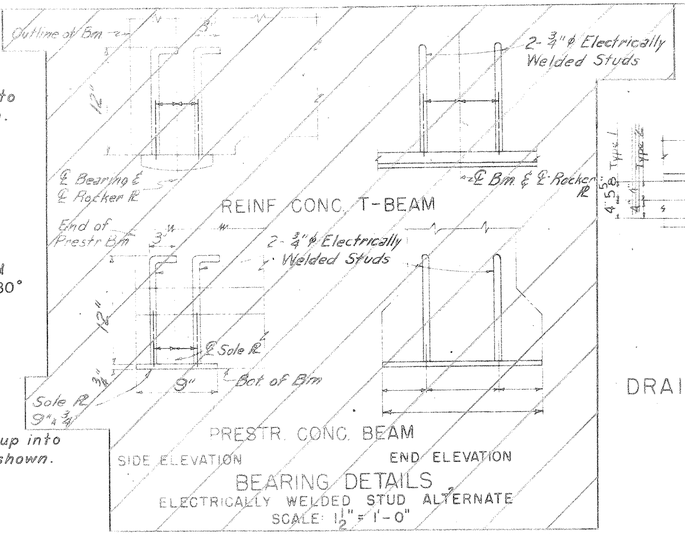
BOLT DIAMETER	A	B	C
¾"	4"	3⅜"	HEIGHT OF HEAD
1"	4"	5⅛"	HEIGHT OF HEAD



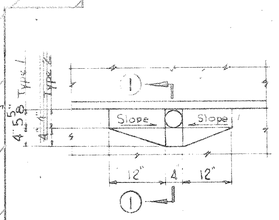
SECTION ③-③
SCALE: 1"=1'-0"



SECTION ALONG EXP. JT.
SCALE: ¾" = 1'-0"



BEARING DETAILS
ELECTRICALLY WELDED STUD ALTERNATE
SCALE: 1½" = 1'-0"

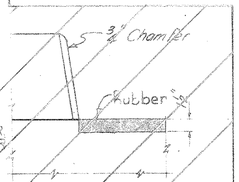


PLAN

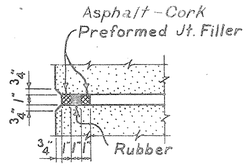
DRAIN DETAILS
SCALE: ¾" = 1'-0"

SECTION ①-①

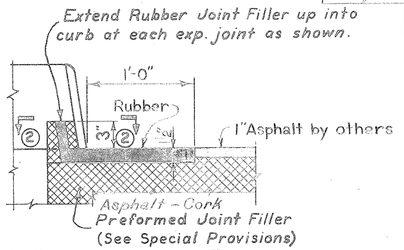
4" I.D. Metal (3/16" Min. Thickness) or Asbestos Cement Drain Pipe. Pipe to be unpainted before placing.



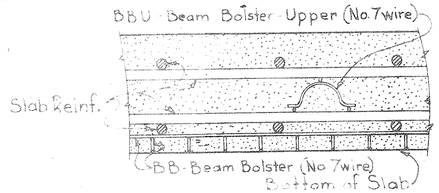
SECT. ALONG CONSTR. OR CONTR. JT.
SCALE: ½" = 1'-0"



SECTION ②-②
SCALE: 1½" = 1'-0"



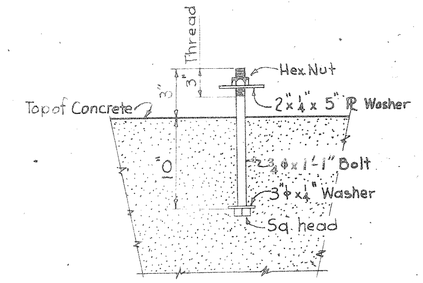
SECTION ALONG EXP. JT.
SCALE: 1½" = 1'-0"



SECTION PARALLEL TO ℄ RDWY.

BOLSTER DETAIL
SCALE: 3" = 1'-0"

Note:
Bolsters shall be spaced so that they provide adequate support for the slab reinforcing steel. The BBU bolsters shall be spaced at approx 3'-0" ctrs. The BB bolsters shall be placed with one near each edge of slab & with a max. spacing of approx. 3'-0" between.
Bolsters shall be equal to beam bolsters BB and BBU as Mfg'd by Meadow Steel Co. or Erico and Screw Anchor Co.
The lengths of bolsters shown in reinforcing steel schedules are approximate. Weights are included in the reinforcing steel quantities and payment will be made at the unit price bid for Reinforcing Steel.



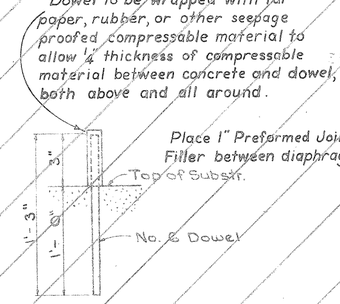
DETAIL OF ANCHOR BOLT
SCALE: 1½" = 1'-0"

ANCHOR BOLT SCHEDULE

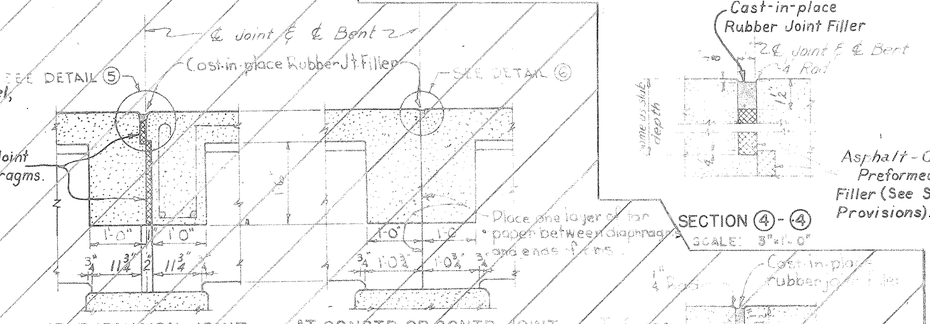
Bent No.	No. per Bent	Size	Length	*Wt. per Bent, Lbs.
1,2,4,6&8#10	12	¾"ϕ	1'-1"	32
12,14,16&#17	12	¾"ϕ	1'-1"	32
3,5,7,&9	24	¾"ϕ	1'-1"	64
11,13,& 15	24	¾"ϕ	1'-1"	64

* Complete Assembly

Note:
Anchor bolt assemblies will be paid for as reinforcing steel and are included in the bent quantities, unless specifically stated elsewhere as included in the structural steel quantities.



DOWEL DETAIL
SCALE 1½" = 1'-0"

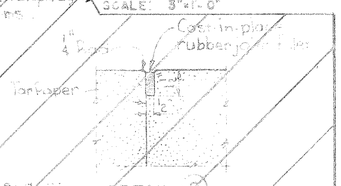


AT EXPANSION JOINT
AT CONSTR. OR CONTR. JOINT

SECTIONS THRU JOINT
(LOOKING IN DIRECTION PARALLEL TO JOINT)
SCALE: 3" = 1'-0"

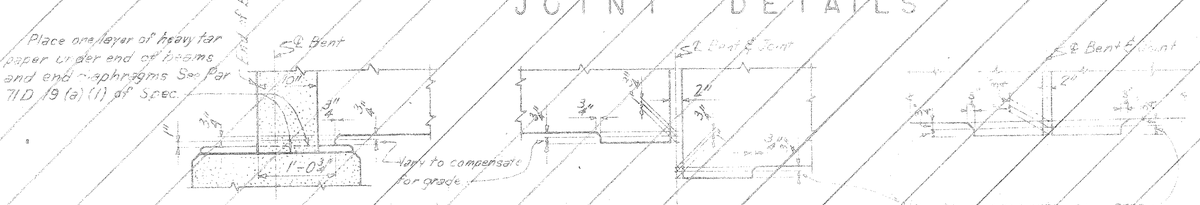
Place one layer of heavy tar paper under field and construction joints of beams and two layers under expansion ends. Place one layer under end diaphragms. See paragraph 711.D.19 (a)(1) of the Specifications.

SECTION ④-④
SCALE: 3"=1'-0"



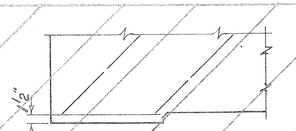
DETAIL ⑥
SCALE: 3"=1'-0"

JOINT DETAILS

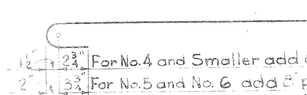


AT END OF BRIDGE (SECTION NORMAL TO CAP)
AT BENT
AT BENT

BEAM BUILD-DOWN DETAILS
SCALE: 1"=1'-0"



DETAIL SHOWING LOCATION OF INCLINED STIRRUPS AT ENDS OF CONCRETE BEAMS (OTHER REINFORCING NOT SHOWN)
SCALE: 1½"=1'-0"



HOOK DETAILS
FOR STEEL REINFORCING BARS

REV	AMZ	H.D.L.	4-59	Bearing Detail
REV	WEB	MDS	1258	Drain Detail
REV	AMZ	RWH	1-58	Build-down Detail
	RWH	ALH	7-57	Add Dowel Detail
REVIEWED H.D.L. IN CHARGE				

REV	C.D.K.	EAS.	4-62	TR	WCF	EAS	12-56
	Jt Details & New Foil			DR.	JCW	EAS	12-56
REV	C.D.K.	MDS	4-60	DES.			
	Exp. Anchor Detail			BY.	CHK'D	DATE	

S. C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA, S.C.

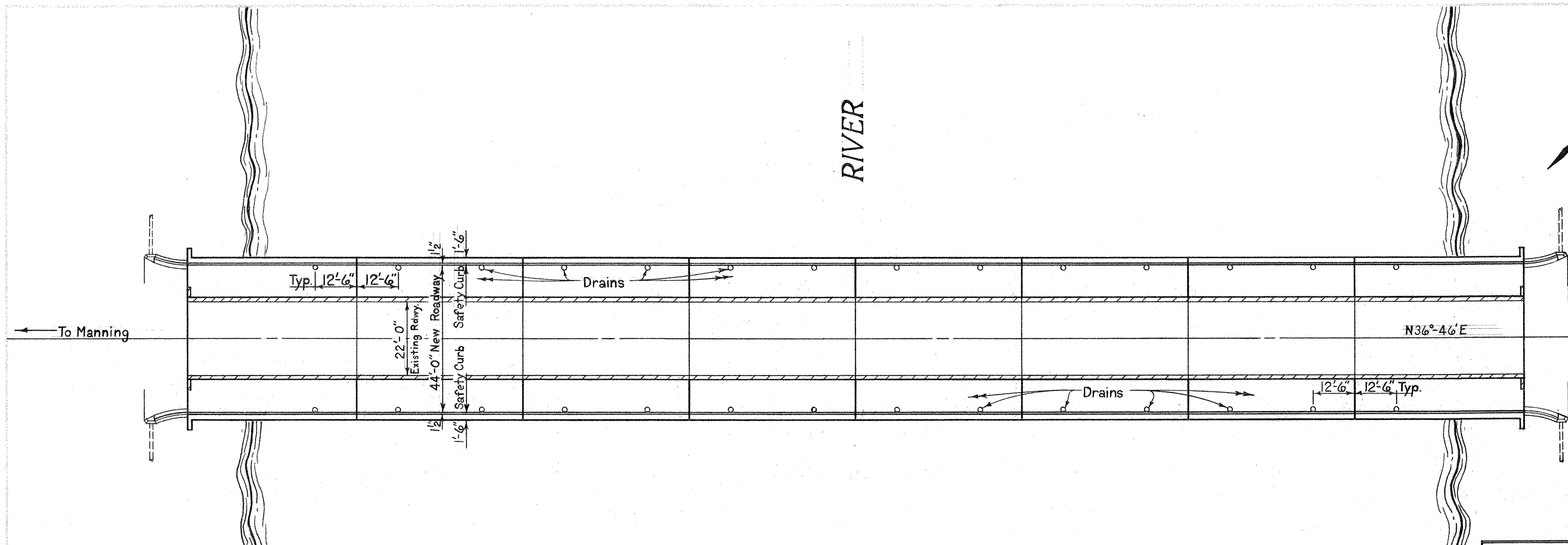
STANDARD DETAILS

DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	CLARENDON	301	1-65

APPROVED BY: W. E. Baum — BRIDGE DESIGN & PLANS ENG.
APPROVED BY: L. J. Lindsay — BRIDGE ENGINEER

190a

FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	7	33



SUMMARY OF QUANTITIES

Item	No.	Concrete Class "A" C.Y.	Reinforcing Steel Lbs.	Structural Steel (New) Lbs.	Structural Steel (Salvaged) Lbs.	14" Square Prestr. Piling L.F.	8" Pipe Slope Drains L.F.	Intake Spillway Assemblies Each
Bents	17	78.2	13,056	—	—	2,180	—	—
50'-6" End Spans	2	78.6	13,992	* 3,200	* 28,200	—	—	—
50'-0" Int. Spans	6	220.8	40,734	* 19,600	* 75,200	—	—	—
Flared Curb & Gutter	2	1.8	130	—	—	—	75	4
				23,800	3,700			
Total		379.4	67,912	* 22,800 (27,500)	* 103,400	2,180	75	4

Notes:

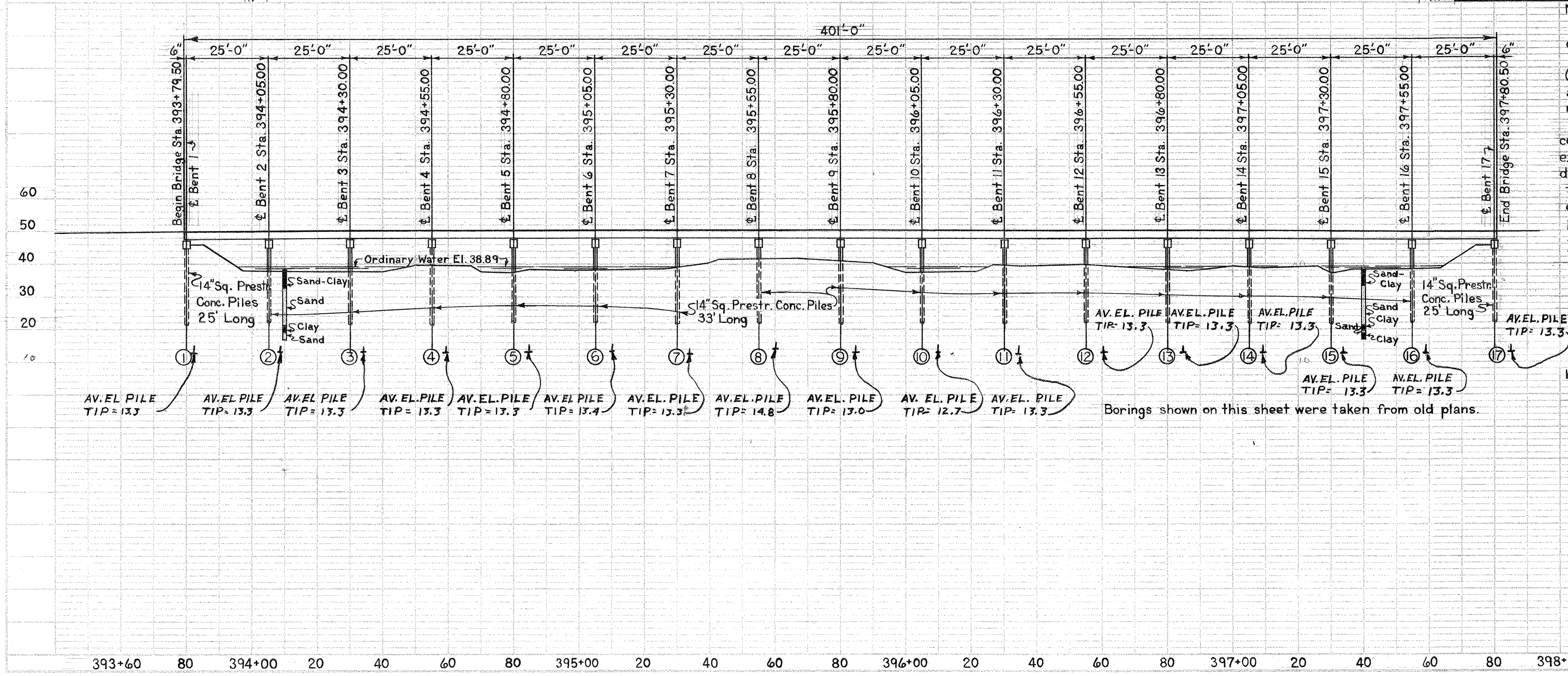
Construct flared curb and gutter and slope drains on both sides of roadway at each end of Bridge.

The Engineer shall obtain existing F.G. Elevations on the Bridge and adjacent roadway (at 25' intervals for about 100' from each end of Bridge) for the purpose of establishing a new Finished Grade. The new F.G. shall be set so as to assure a minimum of 1" of new surfacing on the existing Bridge. All new surfacing will be done by S.C.H.D. Forces.

The Contractor shall not interfere with traffic. The widening and new rail shall be completed on one side of roadway before the old railing is removed on that side. The existing bridge roadway shall not be used at any time to support the Contractors pile driving equipment.

* A total of 48 beams are required for this project. The S.C.H.D. have only 44 salvaged 18" I 47 lbs. beams available and this will necessitate the purchase of 4 new (18 WF 50) Beams. The quantities shown for 50'-6" End Spans are based upon all beams as being salvaged 18" I 47 lb. The quantities shown for 50'-0" Interior Spans are based upon 32 beams as being salvaged 18" I 47 lb., and 4 new 18 WF 50 beams. The 4 new beams maybe used in any one span. The 48 beams will be obtained from the following scource:

- 12 Beams - 18" I 47 lb. from Marion Maintenance Shop.
- 14 Beams - 18" I 47 lb. from Walterboro Maintenance Shop.
- 10 Beams - 18" I 47 lb. from Camden Maintenance Shop.
- 8 Beams - 18" I 47 lb. from Florence Maintenance Shop.
- 4 Beams - 18 WF 50 to be purchased by the Contractor. These 4 new beams weigh 10,000 lbs. and is included in quantity for (new) Structural Steel.



S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S.C.

PLAN AND PROFILE

FOR WIDENING BRIDGE OVER

BLACK RIVER

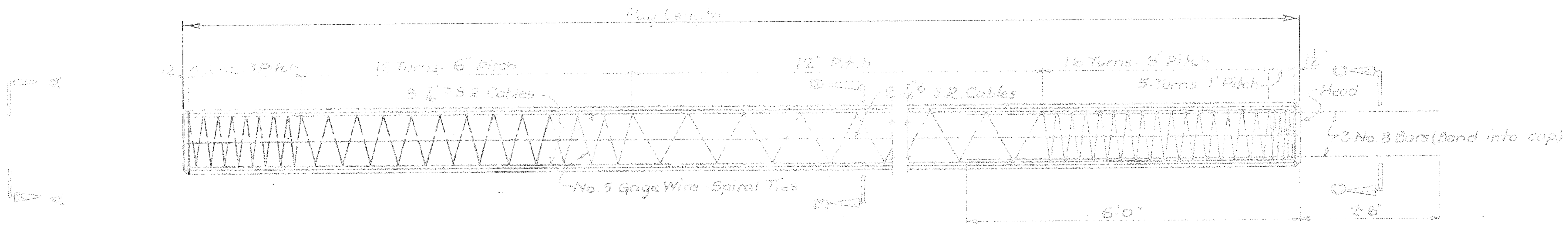
DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	CLARENDON	301	1-63

	BY	CHKD	DATE
REVIEWED	HDL		
IN CHARGE			
QUAN.			
TR.			
DR.	CDK	RBP	1-63
DES.			

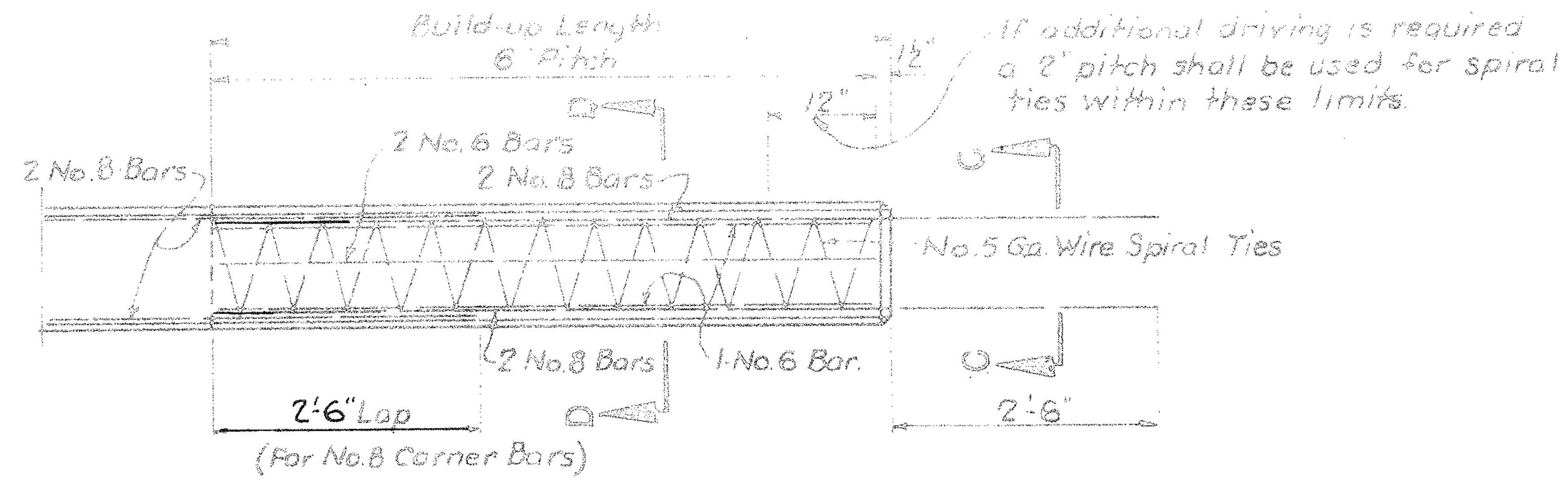
APPROVED BY [signature] BRIDGE DESIGN & PLANS ENGR.

APPROVED BY [signature] BRIDGE ENGINEER

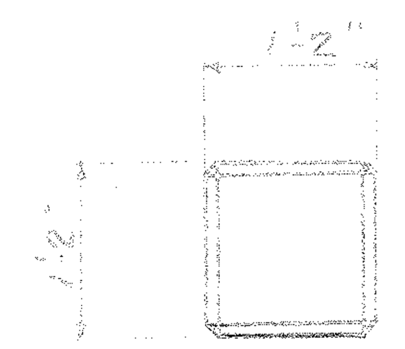
FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	8	33



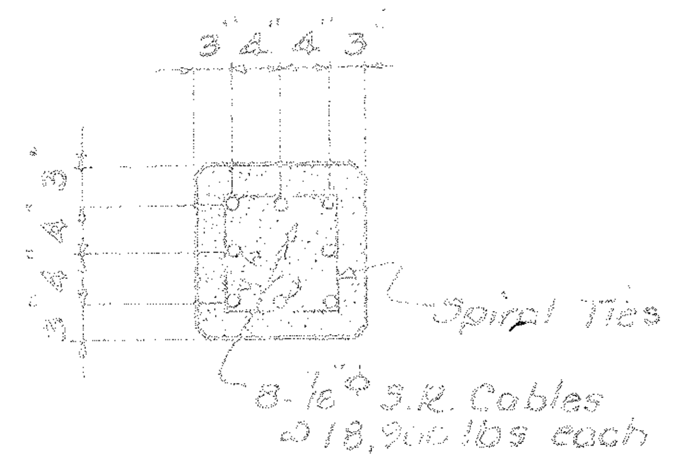
14" SQUARE PRESTRESSED COMPOSITE PILE



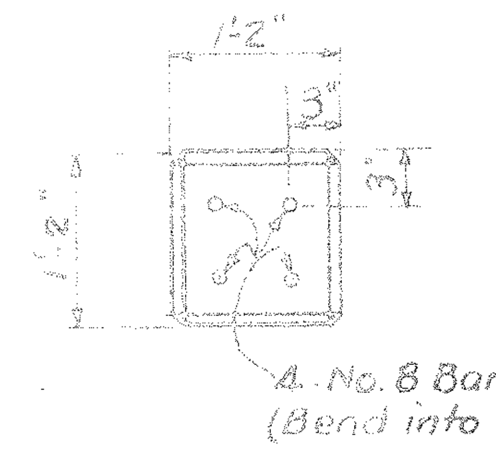
BUILD-UP



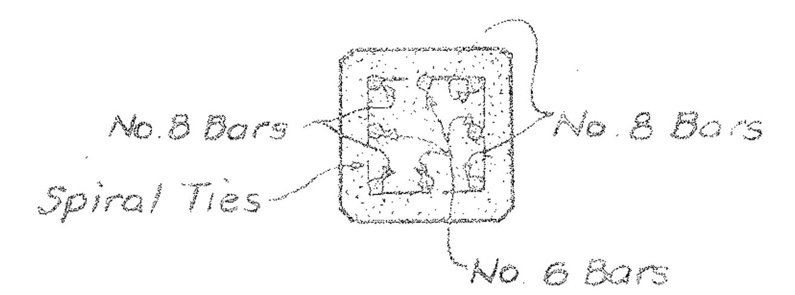
ELEVATION A-A



SECTION B-B

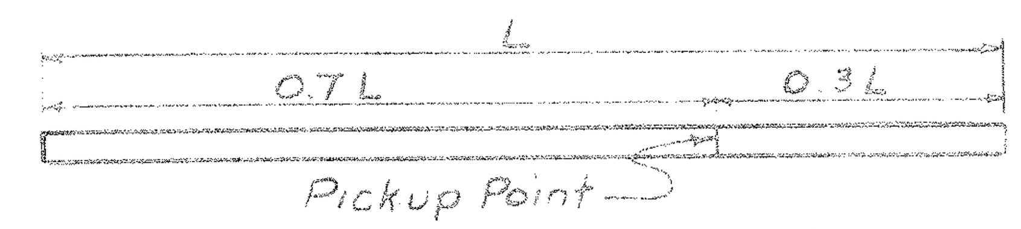


SECTION C-C

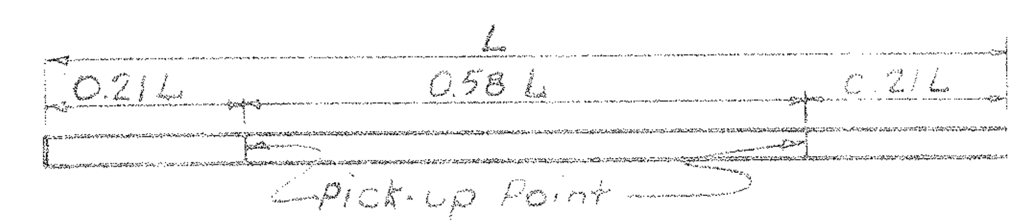


SECTION D-D

Concrete Quantity per pile = 0.0504 C.Y./L.F.



SINGLE POINT PICK-UP



DOUBLE POINT PICK-UP

Note: Piles shall be marked at Pick-up Points to indicate proper points for attaching handling lines

NOTES:

Spiral ties shall be tied to all corner cables and reinf. bars

All dimensions relative to reinforcing steel are to centers of bars

Chamfer all exposed edges ¾" unless otherwise noted.

All concrete shall be Class "X".

-See Special Provisions.

Prestressed piles shall not be transported to the bridge site or driven until the concrete has cured for at least 6 days.

In case it is necessary to cut off a prestressed concrete pile and the remaining embedment of the reinforcing bars projecting from the pile head is 20" or less, the point of cutting prestressing strands shall be 24" above the cut-off so that the prestressing strands may be embedded in the pile cap for 24".

S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA, S.C.

14" SQ. PRESTRESSED CONCRETE PILES

DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	CLARENDON	301	1-63

REV. — Remove Pick-up Point

REVIEWED — IN CHARGE

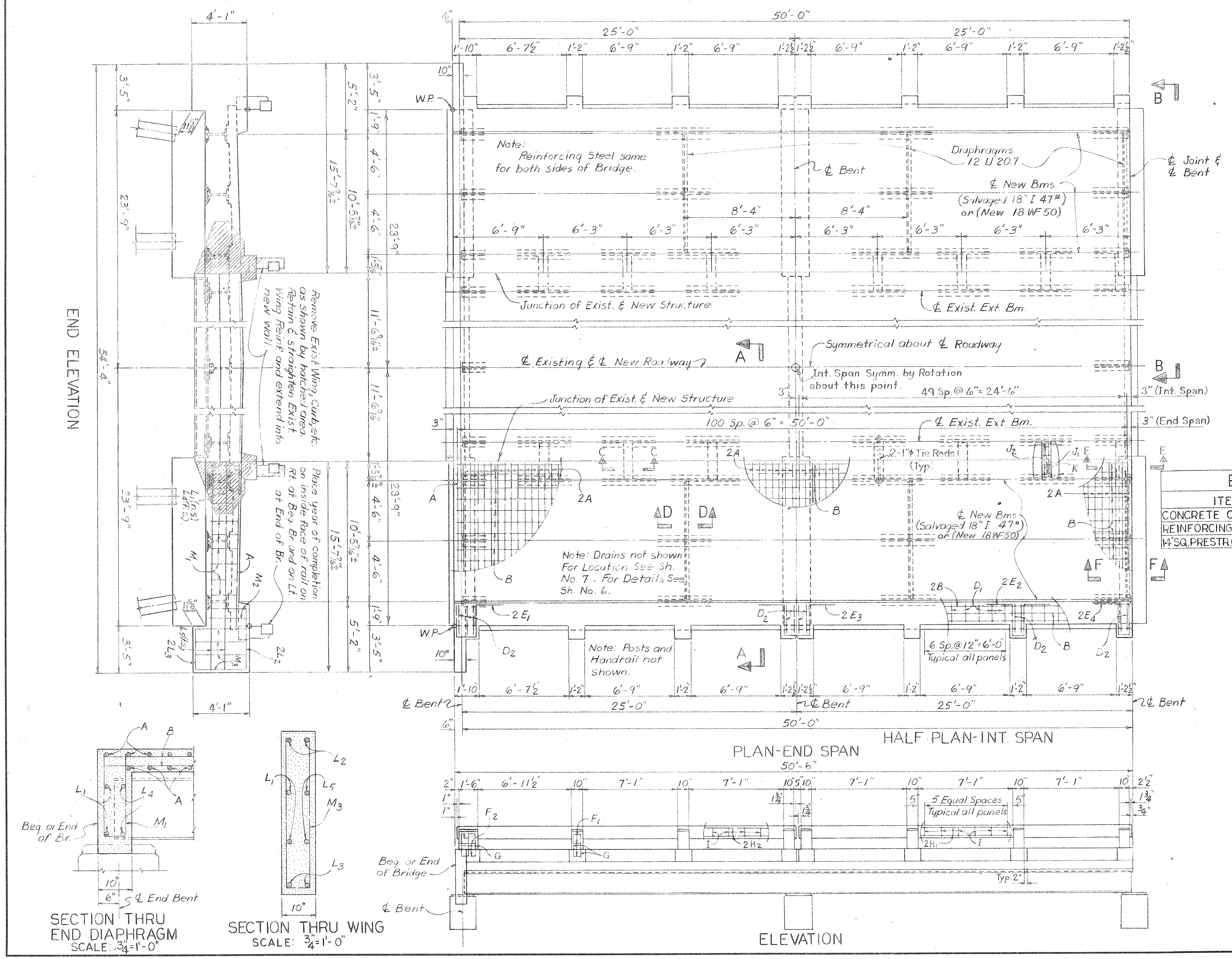
	BY	CHK'D	DATE
QUAN.			
TR.		TED	
DR.	EHS	F.M.O.	2-56
DES.			

APPROVED BY — BRIDGE DESIGN & PLANS ENG.

APPROVED BY — BRIDGE ENG.

f'_c = 5000 psi
f_{ci} = 4,000 psi
f_t = 500 psi
f_s = 150,000 psi
f_{si} = 175,000 psi

FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CLARENDON	14.361	301	9	33



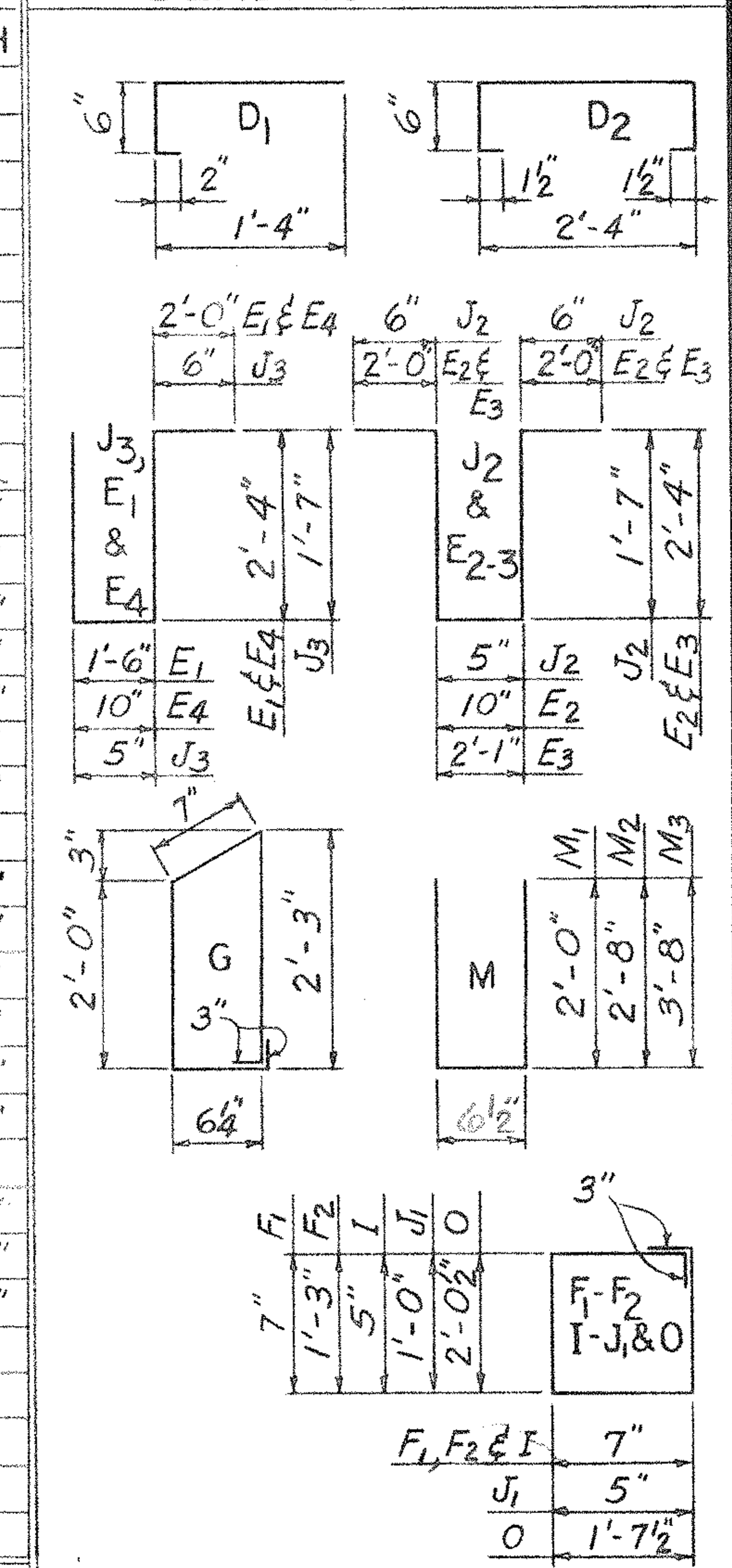
REINFORCING STEEL SCHEDULE (BOTH SIDES RDWY.)

MARK	SIZE NO.	D	ONE INT. SPAN REQ'D.	ONE INT. SPAN LENGTH
A	4	S	400	12'-0"
B	4	S	58	49'-8"
C	5	S	100	0'-10"
D_1	3	B	84	2'-0"
D_2	4	B	32	3'-7"
E_2	4	B	16	9'-6"
E_3	4	B	4	10'-9"
E_4	4	B	8	7'-6"
F_1	2	B	48	2'-10"
G	4	B	32	5'-10"
H_1	4	S	16	24'-6"
I	2	B	72	2'-6"
J_1	4	B	32	3'-4"
J_2	4	B	24	4'-7"
J_3	4	B	8	4'-1"
K	4	S	32	2'-5"
BB	1" Ht.	—	—	500'
BBU	2" Ht.	—	—	410'
Tie Rod	1"φ	S	32	3'-3"

MARK	SIZE NO.	D	ONE END SPAN REQ'D	ONE END SPAN LENGTH
A	4	S	402	12'-0"
B	4	S	58	50'-2"
C	5	S	104	0'-10"
D_1	3	B	84	2'-0"
D_2	4	B	34	3'-7"
E_1	4	B	4	8'-2"
E_2	4	B	16	9'-6"
E_3	4	B	4	10'-9"
E_4	4	B	4	7'-6"
F_1	2	B	42	2'-10"
F_2	2	B	6	4'-2"
G	4	B	34	5'-10"
H_1	4	S	8	24'-6"
H_2	4	S	8	25'-0"
I	2	B	72	2'-6"
J_1	4	B	28	3'-4"
J_2	4	B	24	4'-7"
K	4	S	28	2'-5"
L_1	4	S	4	15'-1"
L_2	4	S	4	4'-7"
L_3	4	S	4	3'-0"
L_4	4	S	8	4'-2"
L_5	4	S	4	4'-9"
M_1	4	B	20	4'-7"
M_2	4	B	4	5'-11"
M_3	4	B	8	7'-11"
BB	1" Ht.	—	—	500'
BBU	2" Ht.	—	—	410'
J_3	4	B	4	4'-1"
Tie Rod	1"φ	—	28	3'-3"

MARK	SIZE NO.	D	ONE BENT (1 Thru 17) REQ'D	ONE BENT (1 Thru 17) LENGTH
N	8	S	16	12'-1"
O	4	B	34	7'-10"
P	4	S	4	12'-1"
Lag Screw	3/4"φ	—	4	1'-4"

BENDING DETAILS



BENT QUANTITIES

ITEM	UNIT	ONE BENT
CONCRETE CLASS "A"	C.Y.	4.6
REINFORCING STEEL	LBS.	② 768
14" SQ. PRESTR. CONC. PILES	L.F.	See Summary - Sh. 7

SUPERSTRUCTURE QUANTITIES

ITEM	UNIT	1 END SPAN	1 INT. SPAN
CONCRETE CLASS "A"	C.Y.	39.3	36.8
REINFORCING STEEL	LBS.	① 6,996	③ 6,789
NEW STRUCTURAL STEEL	LBS.	See Summary Sh. No. 7	
SALVAGED STEEL BEAMS	LBS.	See Summary Sh. No. 7	

① Includes 296 Lbs for Bolsters & 269 Lbs for Tie Rod Assemblies.
② " 32 " " Anchor Bolts & 10 Lbs for Lag Screws. For Bents 3,5,7,9,11,13,&15 add 32 Lbs. for 12 more Anchor Bolts - See Summary of Quantities - Sh. No. 7.

③ Includes 296 Lbs. for Bolsters & 308 Lbs. for Tie Rod Assemblies.
For Standard Notes See Sh. No. 5.
For Standard Details See Sh. No. 6.

THIS SHEET TO ACCOMPANY SHEET NO. 10.
SCALE: 1/4" = 1'-0" OR AS NOTED

S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S.C.

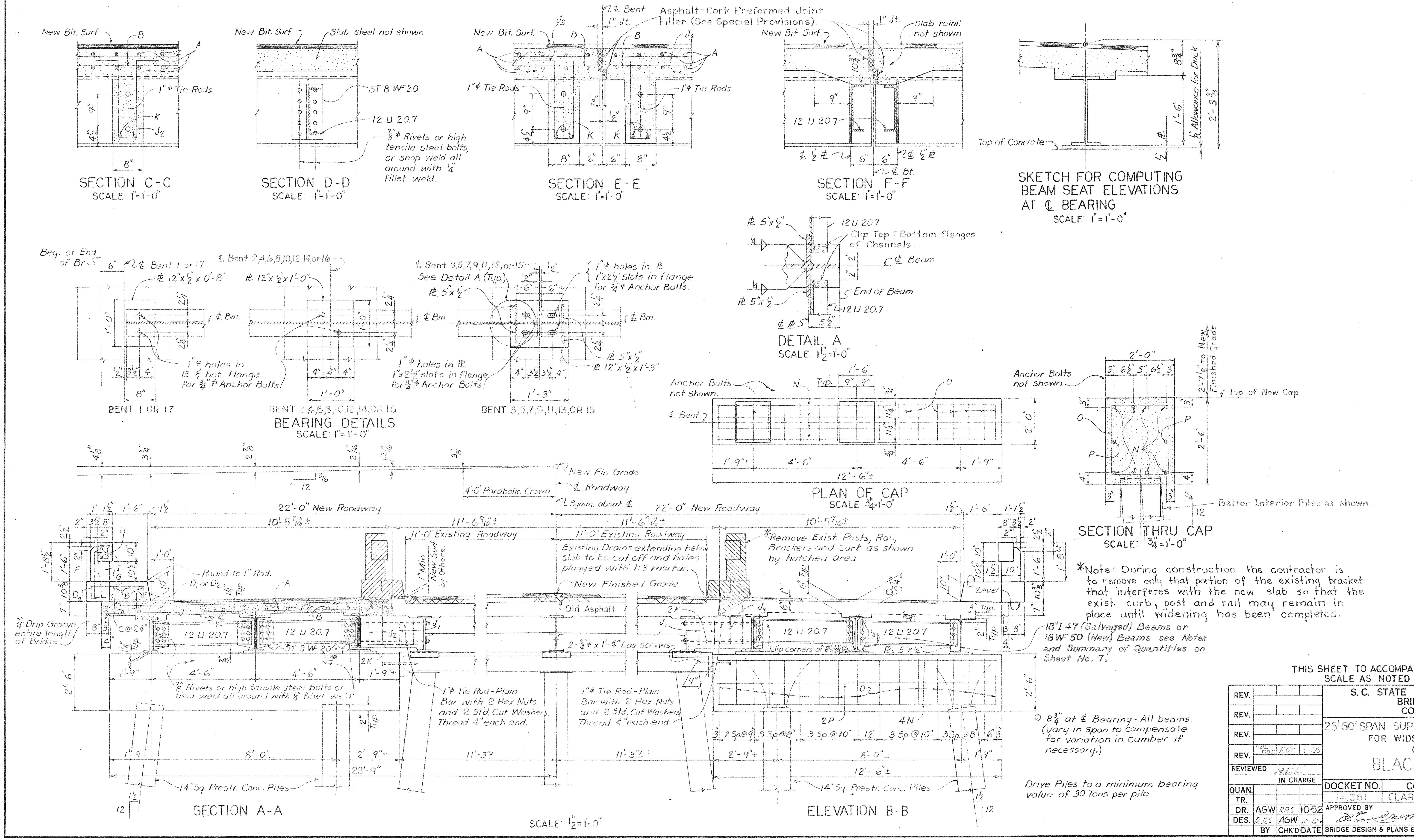
25'-50' SPAN SUPERSTRUCTURE
FOR WIDENING BRIDGE
OVER
BLACK RIVER

	BY	CHK'D	DATE
REV.	HBL CDK	RBP	1-63
REVIEWED	HDL		
QUAN.	AGW	RRS	10-62
TR.			
DR.	AGW	RRS	10.62
DES.	RRS	AGW	10-62

DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	CLARENDON	301	1-63

APPROVED BY [signature] BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY [signature] BRIDGE ENGINEER

FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CLARENDON	14.361	301	10	33



*Note: During construction the contractor is to remove only that portion of the existing bracket that interferes with the new slab so that the exist. curb, post and rail may remain in place until widening has been completed.

① 8 3/4" at ℄ Bearing - All beams. (vary in span to compensate for variation in camber if necessary.)

Drive Piles to a minimum bearing value of 30 Tons per pile.

THIS SHEET TO ACCOMPANY SHEET NO. 9.
SCALE AS NOTED

S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S.C.

25'-50' SPAN SUPERSTRUCTURE DETAILS
FOR WIDENING BRIDGE
OVER
BLACK RIVER

DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	CLARENDON	301	1-65

DR.	AGW	RRS	10-62
DES.	RRS	AGW	10-62
	BY	CHK'D	DATE

APPROVED BY — BRIDGE DESIGN & PLANS ENGINEER
APPROVED BY — BRIDGE ENGINEER

FED. ROAD DIV. No.	STATE	COUNTY	DOCKET No.	ROUTE No	SHEET No	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	11	33

GABLE SCHOOL DISTRICT No 35
By: OFFICIALS
D. 4.15.32
(75'R/W)

16 lin ft of Guard Rail in place each side Reset as shown on sheet no 2-A

16 lin ft of Guard Rail in place each side Reset as shown on sheet no 2-A

16 lin ft of Guard Rail in place each side Salvage

BRIDGE No 5
Construct 401 Ft. S-319 Bridge
Sta. 393+79.5 to Sta. 397+80.5
as shown on sheet no. 10

16 lin ft of Guard Rail in place each side Salvage and Reset at end of New Bridge
16 lin ft of Guard Rail in place each side Salvage
* as shown on sheet no 2A

16 lin ft of Guard Rail in place each side Reset as shown on sheet no 2-A

16 lin ft of Guard Rail in place each side Salvage

16 lin ft of Guard Rail in place each side Salvage

Exception to Project Sta. 401+35 to Sta. 408+19

Standing Water

BLACK RIVER

SWAMP

BLACK RIVER

Standing Water

N. 36° 46' E.

S.C. Continental Tel. Co.

75'R/W

75' ROW

BRIDGE No 3
Widen 29 Ft Treated Timber Bridge - Sta. 380+77 to Sta. 381+06
as shown on sheet no 9

BRIDGE No 4
Widen 43 Ft. Treated Timber Bridge Sta. 383+90 to Sta. 384+33
as shown on sheet no. 9

Salvage 29 Ft. Treated Timber Bridge - Sta. 392+16 to Sta. 392+45

Salvage 324 Ft. Treated Timber Bridge Sta. 392+17 to Sta. 397+41

Salvage 43 Ft. Treated Timber Bridge Sta. 399+69 to Sta. 400+12

BRIDGE No 6
Widen 57 Ft. Treated Timber Bridge Sta. 401+35 to Sta. 401+92
as shown on sheet no. 9

16 lin ft of Guard Rail in place each side Reset as shown on sheet no 2-A

Salvage 16 Ft. Treated Timber Bridge Sta. 408+17 to Sta. 408+32

EXCEPTION TO PROJECT Sta. 408+32, To Sta. 421+87

16 lin ft of Guard Rail in place each side Reset as shown on sheet no 2-A

16 lin ft of Guard Rail in place each side Reset as shown on sheet no 2-A

16 lin ft of Guard Rail in place each side Salvage

16 lin ft of Guard Rail in place each side Salvage and Reset at end of New Bridge
* as shown on sheet no 2-A

16 lin ft of Guard Rail in place each side Salvage

Survey Sta. 390+25.0 Bay 1 Mag of N.R.H. Proj. No. 320-3 Sec. 1

GABLE SCHOOL DISTRICT No. 35
By: OFFICIALS
D. 4.15.32
(75'R/W)

B.M. #20 Nail in Root 10 Bay 36 Ft. Sta. 393+00 El. 193.11

B.M. #21 Nail in Top 36 Gum Stump 30 Ft. Sta. 402+21 El. 184.72

B.M. #22 Nail in Top 18 Gum Stump 30 Ft. Sta. 408+07 El. 184.96

EXC. = 734 EMB = 612 70% = 122 TOT = 734 TOT = 734 OVERHAUL = 240 C.Y.s

EXC. = 0 EMB = 345 201 1146 TOT = 1491 TOT = 1146 * OVERHAUL = 1146

EXC. = EMB = 17 FOR 1406 767 234 TOT. 1406 TOT. 1406

EXC. = 0 EMB = 1276

BRIDGE No. 3
WIDEN 99 FT. TREATED TIMBER BRIDGE
STA. 380+77 To STA. 381+06
Yardage and Surfacing Omitted

BRIDGE No. 4
WIDEN 43 FT. TREATED TIMBER BRIDGE
STA. 383+90 To STA. 384+33
Yardage and Surfacing Omitted

BRIDGE No. 5
CONSTRUCT 401 FT. S-319 BRIDGE
STA. 393+79.5 TO STA. 397+80.5
YARDAGE AND SURFACING OMITTED

BRIDGE No. 6
WIDEN 57 FT. TREATED TIMBER BRIDGE
STA. 401+35 To STA. 401+92
Yardage and Surfacing Omitted

EXCEPTION TO PROJECT Sta. 401+35 to Sta. 408+19

EXCEPTION TO PROJECT Sta. 408+32 TO Sta. 421+87

Subgrade

Water level = 182.7

HIGH WATER EL. = 188.8 (1928)

0.00%

+2.31%

-2.31%

+0.30%

-0.30%

100' V.C.

150' V.C.

Toe of Fill 188

Toe of Fill 172

Slope 1.8 to 1

℄ Bent #1 Sta. 393+80

℄ Bent #7 Sta. 397+80

393+05 El=192.10

395+80 El=192.93

398+55 El=192.10

380+75 El=186.79

400+85 El=186.79

Water Level = 182.8

Water Level = 182.8

Construct Low Conf Ends Sides Sta. 385+00 to Sta. 388+00 Drill at Bridge

No attempt has been made to show probable pile penetration. Old piles under new bridge to be removed to elevation of original ground and shall be paid for as "Channel Excavation". The earth shall be removed before driving piles and shall be placed in the new fill as directed by the Engineer.

Use 110 tons of Rip-rap on toes of fill at Bridge

FINISH GRADE ELEV OVER BENTS

BENTS		
1	& 17 =	193.00
2	& 16 =	193.07
3	& 15 =	193.13
4	& 14 =	193.18
5	& 13 =	193.22
6	& 12 =	193.26
7	& 11 =	193.28
8	& 10 =	193.29
9	=	193.30

For Information Only

PLAN: SURVEYED, TRACED, GRADES CHECKED, R. W.S. NOTED, STRUCTURE NOTATIONS CHKD, PT. OF WAY CHECKED, PLOTTED, DRAWING CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE: SURVEYED, TRACED, GRADES CHECKED, R. W.S. NOTED, STRUCTURE NOTATIONS CHKD, NOTE BOOK, NO., BY, DATE

PLATE 1 PLAN-PROFILE O.P.R. & E. STANDARD KEUFFEL & ESSER CO. NEW YORK

FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	12	33

Galvanized Iron Strips shall comply with S.C.H.D. Specifs. for corrugated metal culverts except that the minimum spelter coating shall be 1½ oz. per sq. ft. instead of 2 oz. per sq. ft.

HALF PLAN All bituminous felt shall be held in place by cementing to concrete already placed. Cement used to be approved by the Engineer. After the felt is cemented to the concrete in place, the exposed sides of the joints in the felt are to be covered with two layers of Tar Paper so that no mortar will enter the joints.

Date of completion to be placed on right hand rail at each end of bridge.

The Contractor shall be responsible for proper lengths of Sway Braces. Lengths given here are for basis of bids only.

NOTES- COPPER FLASHING

Nails not to be placed in flashing until forms are complete and reinforcing steel is in place. If necessary, the Contractor is to use suitable means of keeping nails in position while pouring concrete. Contractor to exercise extreme care in placing concrete so that flashing is not bent or moved out of place.

¾"x8" Lag Screws

Edge of cap to be battered to give full bearing on channel flange

Galvanized iron strips shall comply with the S.C.H.D. Specifications for corrugated metal culverts except that the minimum spelter coating shall be 1½ Oz. per sq. ft. instead of 2 Oz.

NOTES—

Specifications: S.C.H.D. for Bridges, issued July 1, 1933, with subsequent revisions.

All concrete to class "A". Maximum aggregate in rails to be 1½". Diaphragms, wings, curbs and paving rests to be poured monolithic with slab. All exposed surfaces are to be brought to a smooth, neat finish by rubbing with a carborundum brick.

The roadway slab shall be finished in accordance with Section 59 of the Specifications. Exposed edges are to be chamfered ¾" unless otherwise shown.

All forms shall be made of dressed lumber. Lumber of 1¼" minimum thickness after dressing shall be used for forms except that 1" minimum ... lumber may be used under the roadway slab between beams.

All dimensions relating to reinforcing steel are to centers of bars.

Paint: First coat of red lead and oil to be applied before placing beams. Two additional coats of an approved paint to be applied as field paint. All three coats must be applied to that portion of the I-beams in contact with the concrete before concrete is poured. Beams to be straightened so as to bear thruout on caps.

Cost of galvanized strips, flashing, drains, expansion materials, tar paper, etc. shall be included in price bid for concrete.

The top of each pile shall be covered with ... tar paper before placing bearing plate. The tar paper shall extend beyond the pile at least 1" and the edges nailed securely to the side of pile.

Holes in I-beams for "D" bars may be burned in the field.

Bearing plates to be painted with 3 coats of paint before placing on pile heads.

QUANTITIES 4 SPAN BRIDGE

REINFORCING STEEL

MARK	NO.	SIZE	LENGTH	DETAIL
A	101	⅝"φ	24'-4"	B
B₁	101	"	27'-1"	B
B₂	101	"	23'-8"	B
C₁	152	½"□	25'-8"	S
C₃	16	¾"φ	26'-1"	S
D₁	12	1"φ	12'-5"	B
D₂	12	"	16'-5"	B
E	68	½"□	10'-9"	B
F₁	16	"	7'-1"	B
F₂	4	"	5'-1"	B
F₃	4	"	5'-9"	B
F₄	4	"	8'-4"	B
G	68	"	10'-4"	B
H₁	56	#4 WIRE	2'-11"	B
H₂	8	"	4'-3"	B
J	32	½"□	24'-7"	S
K	34	"	5'-10"	B
L	4	"	22'-6"	S
M	24	"	7'-0"	S
N	120	#4 WIRE	2'-10"	B

HARDWARE

NO.	DESCRIPTION	SIZE	LBS.
24	BOLTS	¾"x18"	62.3
3	"	¾"x27"	11.1
54	OGEE WASHERS	¾"	45.9
25	DRIFT PINS	¾"x21"	64.4
60	LAG SCREWS	¾"x8"	64.5

STRUCTURAL STEEL

NO.	DESCRIPTION	LBS.
4	18"WF @47#I-49'-10½"	9376.5
6	18"WF @50#I-49'-10½"	14,963.4
15	15"@33.9#[-1'-3"	635.6
25	12"x16"x⅝" PLATES	850.0
10	15@33.9#[1'-3	423.8

TREATED LUMBER

NO.	DESCRIPTION	SIZE	FT. B.M.
5	CAPS *	10"x12"x22'-6"	1125
6	SWAY BRACES	3"x8"x15'-0"	180
6	" "	3"x8"x17'-0"	204

TOTAL REINF. STEEL 15,294 LBS.
" HARDWARE 248.2 LBS.
" STRUCTURAL STEEL 25,248 LBS.
" TREATED LUMBER 1.509 M.B.M.
" CONCRETE 76.[illegible] C.Y.
25 PILES LIN. FT.

QUANTITIES 3 SPAN BRIDGE

REINFORCING STEEL

MARK	NO.	SIZE	LENGTH	DETAIL
A	76	⅝"φ	24'-4"	B
B₁	76	"	27'-1"	B
B₂	76	"	23'-8"	B
C₁	76	½"□	25'-8"	S
C₂	38	"	24'-8"	S
C₃	8	¾"φ	26'-1"	S
C₄	4	"	24'-8"	S
D₁	10	1"φ	12'-5"	B
D₂	10	"	16'-5"	B
E	52	½"□	10'-9"	B
F₁	12	"	7'-1"	B
F₂	4	"	5'-1"	B
F₃	4	"	5'-9"	B
F₄	2	"	8'-4"	B
G	52	"	10'-4"	B
H₁	40	#4 WIRE	2'-11"	B
H₂	8	"	4'-3"	B
J	24	½"□	24'-7"	S
K	34	"	5'-10"	B
L	4	"	22'-6"	S
M	24	"	7'-0"	S
N	90	#4 WIRE	2'-10"	B

HARDWARE

NO.	DESCRIPTION	SIZE	LBS.
16	BOLTS	¾"x18"	41.5
2	"	¾"x27"	7.4
36	OGEE WASHERS	¾"	30.6
20	DRIFT PINS	¾"x21"	51.5
50	LAG SCREWS	¾"x8"	53.8

STRUCTURAL STEEL

NO.	DESCRIPTION	LBS.
6	⅜"x8¾"x6¾" SHIMS	[illegible]
5	¼"x7½"x6¾" SHIMS	17.9
2	18"WF @47#I-49'-10½"	4,686.3
3	18"WF @50#I-49'-10½"	7,481.2
2	15"WF @55#I-24'-10½"	2,736.5
3	18"WF @64#I-24'-10½"	4776.0
10	15@33.9#[1'-3"	423.7
10	15@33.9#[1'-3"	423.7
20	12"x16"x⅝" PLATES	680.0

TREATED LUMBER

NO.	DESCRIPTION	SIZE	FT. B.M.
4	CAPS *	10"x12"x22'-6"	900
4	SWAY BRACES	3"x8"x15'-0"	120
4		3"x8"x17'-0"	136

TOTAL REINF. STEEL 11,644 LBS.
" HARDWARE 184.8 LBS.
" STRUCT. STEEL 21,205 LB.
TREATED LUMBER 1.156 M.B.M.
CONCRETE 58.[illegible] C.Y.
20 PILES LIN. FT.

QUANTITIES 2 INT. SPANS

REINFORCING STEEL

MARK	NO.	SIZE	LENGTH	DETAIL
A	50	⅝"φ	24'-4"	B
B₁	50	"	27'-1"	B
B₂	50	"	23'-8"	B
C₁	76	½"□	25'-8"	S
C₃	8	¾"φ	26'-1"	S
D₁	6	1"φ	12'-5"	B
D₂	6	"	16'-5"	B
E	32	½"□	10'-9"	B
F₁	8	"	7'-1"	B
F₂	4	"	5'-1"	B
F₄	2	"	8'-4"	B
G	32	"	10'-4"	B
H₁	32	#4 WIRE	2'-11"	B
J	16	½"□	24'-7"	S
N	60	#4 WIRE	2'-10"	B

HARDWARE

NO.	DESCRIPTION	SIZE	LBS.
16	BOLTS	¾"x18"	41.5
2	"	¾"x27"	7.4
36	OGEE WASHERS	¾"	30.6
10	DRIFT PINS	¾"x21"	25.8
30	LAG SCREWS	¾"x8	32.2

STRUCTURAL STEEL

NO.	DESCRIPTION	LBS.
2	18"WF @47#I-49'-10½"	[illegible]
3	18"WF @50#I-49'-10½"	7,481.2
10	15"@33.9#[- 1'-3"	423.7
10	12"x16"x⅝" PLATES	340.0

TREATED LUMBER

NO.	DESCRIPTION	SIZE	FT. B.M.
2	CAPS *	10"x12"x22'-6"	450
4	SWAY BRACES	3"x8"x15'-0"	120
4		3"x8"x17'-0"	136

TOTAL REINF. STEEL 7376 LBS.
" HARDWARE 137.5 LBS.
TOTAL STRUCT. STEEL 12,939 LBS.
" TREATED LUMBER 706 M.B.M.
" CONCRETE [illegible] C.Y.
10 PILES LIN. FT.

QUANTITIES 1 INT. SPAN

REINFORCING STEEL

MARK	NO.	SIZE	LENGTH	DETAIL
A	25	⅝"φ	24'-4"	B
B₁	25	"	27'-1"	B
B₂	25	"	23'-8"	B
C₂	38	½"□	24'-8"	S
C₄	4	¾"φ	24'-8"	S
D₁	4	1"φ	12'-5"	B
D₂	4	"	16'-5"	B
E	16	½"□	10'-9"	B
F₁	4	"	7'-1"	B
F₂	4	"	5'-1"	B
G	16	"	10'-4"	B
H₁	16	#4 WIRE	2'-11"	B
J	8	½"□	24'-7"	S
N	30	#4 WIRE	2'-10"	B

HARDWARE

NO.	DESCRIPTION	SIZE	LBS.
8	BOLTS	¾"x18"	20.8
1		¾"x27"	3.7
18	OGEE WASHERS	¾"	15.3
5	DRIFT PINS	¾"x21"	12.9
20	LAG SCREWS	¾"x8"	21.5

STRUCTURAL STEEL

NO.	DESCRIPTION	LBS.
2	15"WF @55#I-24'-10½"	2,736.5
3	18"WF @64#I-24'-10½"	4,176.0
5	15"@33.9#[- 1'-3"	211.9
5	12"x16"x⅝" PLATES	170.0
5	¼"x7½"x6¾" SHIMS	17.9
6	⅜"x8¾"x6¾" "	37.7

TREATED LUMBER

NO.	DESCRIPTION	SIZE	FT. B.M.
1	CAP *	10"x12"x22'-6"	225
2	SWAY BRACES	3"x8"x15'-0"	60
2	"	3"x8"x17'-0"	68

TOTAL REINF. STEEL 3727 LBS.
" HARDWARE 74.2 LBS.
" STRUCT. STEEL 7,95[illegible] LBS.
" TREATED LUMBER .353 M.B.M.
" CONCRETE 15.3[illegible] C.Y.
5 PILES LIN. FT.

* Caps to be sized to constant depth but not less than 9½" after dressing.

DESIGN DATA—
H-15 Loading
fs=18,000 with Single L

S.C. STATE HIGHWAY DEPARTMENT
COLUMBIA, S.C.
DETAILS
OF
25-50 FT. SPAN BRIDGE
OVER
[redacted]
[redacted]
FED. NO. [redacted] [redacted] COUNTY
STA. [redacted] [redacted] SPANS
SCALE ⅜"=1'-0" [redacted] DATE

S-219

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14-361	301	13	33

NOTE TO RESIDENT ENGINEER:—

Changes involving increased cost of project or changes in alignment must be specifically authorized by the State Highway Engineer in advance of being made. Division Engineers, with consent of the Federal Representative, may authorize minor alterations not in conflict with the standard practices of the Department and not involving increases in cost.

Keep a record on your set of plans of all changes made during construction and forward each month to Columbia office information necessary to check monthly estimates.

All ditches will be paid for at the unit price bid per cu. yd. for common excavation in accordance with section 13 of the Roadway Specifications.

All curves of one degree and over are to be superelevated as shown on sheet no. 5. Elevations shown are normal elevations, before superelevation is added.

All buildings, etc. are to be moved from the Right-of-way so as to secure an unobstructed Right-of-way for the width shown on the plans.

All Telephone and Power poles are to be moved from the roadway.

Make proper grade connection with existing road at beginning and end of project.

All guard rail in place to be retained.

The Resident Engineer is to have the contractor exercise care so as not to damage present guard rail during construction.

All Berm ditches are to be constructed on the right-of-way line through out project.

Excavation necessary in cleaning out, widening, deepening or re-shaping existing ditches or digging new ditches will be measured and paid for at the contract unit price for Common Excavation or Solid Rock Excavation as the case may be. Material obtained from said ditches may be used in roadway, widening fills, or disposed of as directed by the Engineer.

The department reserves the right to increase or decrease the length of road on which stabilizer material is to be used, also to increase or decrease the quantity of stabilizer to be used per square yard.

This project was originally graded for thirty-four (34) foot cuts. It will be noted that the typical section for the new work calls for a minimum of thirty-six (36) foot cuts.

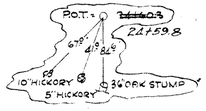
The existing back slopes in cut section will be shaped at the direction and in the manner prescribed by the Engineer. The material thus obtained will be used in roadway, widening fills, or disposed of as directed by the Engineer.

Grades shown hereon represent the approximate grades as constructed under a previous grading contract.

Lump sum bid will cover Clearing and Grubbing of entire R/W including that at bridges and proposed bridge sites unless otherwise noted.

FOR INFORMATION ONLY

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	14	33



MRS. E. C. NETTLES ALSBROOK
D.6.4.31
(75' DEED)

~~Iron 14 Foot Timber Bridge~~
~~66.6 Skew on Sta 23+73.66~~

~~MRS. E. C. NETTLES ALSBROOK~~

~~30 Inch 30 in C.I.~~
~~Pipe in Ditch.~~

~~30-16 14 Foot Timber Bridge~~
~~66.6 Skew on Sta 40.66~~

MISS VIRGINIA L. THOMPSON
(75' COND.)
R.E. THOMPSON, (GUAR.)

V. B. HUGGINS
(75' DEED)
D.7.11.31

In Place 6'x5'x42' RC Box Culvert Sta. 27+55
Extend 5'-0" Left & Right

P.O.T. 24+59.8

BRICK HOUSE 50' Lt.

NEGRO HOUSE 52' Lt.

37½' R.O.W.

R.O.W. 37½'

N. 13° 49' E

P.I. +86

+70

20 25 30 35 40 45 50

B.M.#1 A NAIL IN ROOT 12" WALNUT
82' RT. STA 23+82 EL = 195.73

B.M.#2 A NAIL IN ROOT 18" OAK
30' RT. STA 26+00 EL = 196.51
B.M. NAIL IN ROOT 14" PINE
50' RT. STA. 45+90 EL. 196.12

4+22 EIC = 678 BOR = — TOT = 678 EMB = 566 20% = 113 TOT = 679 4+10

7+68 EIC = 2153 BOR = — TOT = 2153 EMB = 2011 20% = 409 TOT = 2253

4+13

11+54 EIC = 1342 BOR = 450 TOT = 1610 EMB = 1342 20% = 268 TOT = 1610

7+00 EIC = 697 BOR = — TOT = 697 EMB = 581 20% = 116 TOT = 697 7+00

Right Berm Ditch Elevations

192.40 192.23 191.89 191.89 +58

78+21
EL. 195.39

Subgrade

+0.44%

-0.34%

Berm Ditch Left side

Berm Ditch Right Side
DA = 375 ac
C = 40

400 VC

+0.16%

6 ft. bottom berm ditch

+0.00%

+0.00%

Berm Ditch Both Sides
Berm Ditch Elevations

200
190
180

187.01 187.41 187.81 188.21 188.61 189.01 189.41 189.81 190.12 190.28 190.43 190.60 190.76 190.92 191.08 191.24 191.40 191.56 191.72 191.88 192.04 192.10 192.16 192.22 192.28 192.34 192.40 192.46 192.52 192.58 192.64

191.78 192.22 192.66 193.10 193.54 193.98 194.42 194.81 194.84 194.83 195.00 195.15 195.20 195.27 195.37 195.45 195.50 195.51 195.56 195.62 195.68 195.74 195.80 195.86 195.92 195.98 196.04 196.10 196.16 196.22 196.28 196.34 196.40 196.46 196.52 196.58 196.64 196.70

20 1 2 3 4 5 6 7 8 9 30 1 2 3 4 5 6 7 8 9 40 1 2 3 4 5 6 7 8 9 50

FOR INFORMATION ONLY

PLATE 1—PLAN PROFILE O.P.R. & R.E.S. STANDARD

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14·361	301	15	33

PLATE 1—PLAN PROFILE O.P.R.&R.E. STANDARD
J. H. WEIL & CO., PHILADELPHIA

FED ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	16	33

PLAN
NOTE BOOK
No.
SURVEYED
PLOTTED
AS IS MAY CHECKED
DATE
BY

PROFILE
NOTE BOOK
No.
SURVEYED
PLOTTED
GRADES CHECKED
ALIGNMENT CHECKED
STRUCTURE DETAILS CHECKED
DATE

D.W. ALDERMAN SONS CO.

P.I. = 90+03.0
79°
82°
23°
18" Pine Stump
7" Oak
12" Pine

P.I. = 90+03.0
Δ = 5°-12'-Lt.
D = 0°-30'
T = 520.2'
L = 1040.0'
E = 11.8'

P.C. = 84+82.6

+59 R.C.

80
85
90
95

N.-65°-60'-E

PRESENT ROAD R.L.

16½
16½
23½
24
37½ R.O.W.

P.T. = 95+22.6

S.C. Continental Tel. Co.

37½ R.O.W.

Tenant House

P.I. = 97+

R.F. DuBOSE C. 7/16/31
(75' COND.)

Telephone Pole

POT. = 97+87.0

J.B. LEE D. 1-20-32
(75' DEED)

POT. = 97+82.0

N

N.-60°-38'-E

In Place 18ft. of 18in. R.C. Pipe. No headwalls. Retain

In Place 22ft. of 18in. R.C. Pipe. No headwalls. Retain

5'-3"x4'-5" R.C. Box Culvert IN Place
Extend 8'-6" Left & 13'-6" Right Sta. 107+77

(75' DEED) D. 6-9-31

D.W. ALDERMAN SONS CO.

In Place 6'-5"x3'-6" R.C. Box Culvert
Sta. 108+14
Extend 11'-6" Left & Right

BRANCH

R.C.P.

Cut outfall ditch on Right Sta. 800 Centers

R.C.P.

MANNING'S BANK
D.6-3-31
(75' DEED)

BM. NO. 5 NAIL IN ROOT IN OAK TREE
18 FT. AT STA 90+52 EL. = 215.22

SUBGRADE

-0.60%

+0.82%

+0.90%

-1.00%

0.00%

+1.06%

1000 V.C.

400 V.C.

400 V.C.

98+049
EL. 223.44

105+50
EL. 215.99

High water El. 213.6 (1928)

Berm ditch both sides

Berm ditch elevations

Berm ditch both sides

Berm ditch elevations

Note To Resident Engineer
Open Berm Ditch on left.

226.0 High water El. 7/16/d (1929)

DS = 500 Ac.

I.N.C. 7+805
BOT. = 7+805
TOT. = 7+805

I.N.B. 1+804
20ft. 301
TOT. = 1+805

FOR INFORMATION ONLY

PLATE 1—PLAN & PROFILE TO P.R. & R.E. STANDARD
J. H. WEIS & CO. PHILADELPHIA

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	17	33

PLAN
NOTE BOOK
No.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
DATE

PROFILE
NOTE BOOK
No.
SURVEYED
PLOTTED
GRADES CHECKED
B. M.'s NOTED
STRUCTURE NOTATIONS CHECKED
DATE

FOR INFORMATION ONLY

PLATE 1–PLAN PROFILE O. P. R. & R. F. STANDARD

FED. RJAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	SC.	CLARENDON	14.361	301	18	33

PLAN — SURVEYED / PLOTTED / NOTE BOOK / No. — DATE / BY / CHECKS CHECKED / R/W MAPS CHECKED

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / No. — DATE / BY / CHECKS CHECKED / R/W MAPS NOTED / STRUCTURE MITIATIONS CHECKED

Tel. Pole
40.5
POT.= 1177+80.9
56.8
to Floor

D.W. ALDERMAN SONS CO. (75' DEED)

FEDERAL LAND BANK.

MRS. E.J. BROWN (75' DEED)

J. MILTON GRAHAM (75' DEED)

T.H.

Set to Receive S.
Return

Ditch +30 Rt.

+62 Rt.

RECEIVED 2
B.B. ODUM, JR. (75' DEED)

+62 Rt.

T.H.

+62 Rt.

110 | 115 | 120 | 125 | 130 | 135 | 140

37½ R.O.W.

37½ R.O.W.

N 60°-38'-E

S.C. Continental Tel. Co.

Small Poor Trees

Tobacco Barn Shed 55'x

T.H.

Set to Receive S.
Return

MANNING BANK (75' DEED)

R.C. 142

Broken Pipe

Culvert Elevation
Pipe Elevation

Superelevation begins
on curve Sta. 130+28.6

J. MILTON GRAHAM. (75' DEED)

In Place 6'x5'x37' R.C. Box Culvert
Extend 8'-6" Left & Right Sta. 132+44.5

In Place 5'x3'x40' R.C. Box Culvert
Extend 9'-6" Left & Right - Sta. 132+15

B.M. #6 NAIL IN ROOT 30' RT. STA. 112+28 EL. 215.76

B.M. NAIL IN ROOT & CHERRY. 45' RT. STA. 112+35 EL. 215.64

B.M. #7 NAIL IN ROOT 12" ORK 43' LT. STA. 135+98 EL. 216.65

ETC = 1826 EMB = 1522
BOR = 20% = 304
TOT = 1826 TOT = 1826
OVERHAUL = 2293 CU. YD. STA.

ETC = 2790 EMB = 1825
BOR = 20% = 365
TOT = 2190 TOT = 2190
NO OVERHAUL

700 ETC = 1064 EMB = 887
BOR = 20% = 177
TOT = 1064 TOT = 1064

220
210

400' V.C.

+4.00%

+0.36%

+1.28%

Sta. 113+00
EL. 215.99

Berm ditch both sides

Sta. 120+25
EL. 222.95

600' V.C.

-0.32%

-0.57%

Berm ditch both sides

800' V.C.

+4.66%

+1.04%

High Water Elev. 216.5 (1928)

Sta. 133+50
EL. 216.58
D = 525.9°
C = .30

Berm ditch both sides

Sta. 140+00
EL. 221.33

400' V.C.

Berm ditch elevations

Berm ditch elevations

FOR INFORMATION ONLY

110 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 120 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 130 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 140

PLATE 1—PLAN PROFILE O. P. R. & R. E. STANDARD

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	19	33

PLAN
NOTE BOOK No.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT OF WAY CHECKED
DATE
BY

PROFILE
NOTE BOOK No.
SURVEYED
PLOTTED
GRADES CHECKED
B. M.'s NOTED
STRUCTURE NOTATIONS CHECKED
DATE

PLATE 1—PLAN PROFILE, O. P. R. & R. E. STANDARD
J. H. WEIL & CO., PHILADELPHIA

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	20	33

FOR INFORMATION ONLY

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14361	301	21	33

8" Pine. 19.8 — 18" Pine. 35.9 — P.O.T. 311+65.3

D.W. ALDERMAN SONS CO. (75' DEED)

R. H. FLEMING (75' DEED)

A.S. RAWLINSON (75' DEED)

~~Remove 21" RCP~~
~~Pipe in place~~

P.O.T. 311+65.3

P.O.T. 314+15.3 Lt. 284

R.O.W. 37½

N/- 37° 11' E

S.C. Continental Tel. Co.

GARDEN

Barn

~~Remove~~

~~Remove 2 Pipes~~

~~Pipe to Remain~~

~~Remove & Replace~~

~~Pipe in place~~

In Place Double 6'x5'x32' R.C. Boxculvert Sta. 296+30
Extend 10'-0" Left & Right

8'x3'x40' R.C. Box culvert in place Sta. 296+10
Extend 8'-0" Left & Right

D.W. ALDERMAN SONS CO. (75' DEED)

E.L. ARD (75' DEED)

ROBERT ARD (75' DEED)

Rt. 135

Rt. 127

Rt. 92

Rt. 127

Rt. 135

BM. NAIL IN ROOT 12" BLACK GUM 60'Lt. STA. 312+40 EL. 203.42

EIC = 758 BOR = 1535 TOT = 2293 — EMB 1911 20% 382 TOT 2293

EIC = 363 BOR = 1459 TOT = 1822 — EMB 1478 20% 296 TOT = 1774

EIC = 445 BOR = — TOT = 445 — EMB 371 20% 74 TOT = 445

EIC = 206 BOR = — TOT = 206 — EMB 172 20% 34 TOT = 206

SUBGRADE

0.00%

-0.12%

+0.16%

+0.40%

+0.18%

-0.39%

400' V.C.

400' V.C.

Weld Water EL. 202.4 (1928)

Berm ditch both sides

Berm ditch elevations

306+50 EL. 203.20

Berm Ditch Both Sides

318+00 EL. 203.27

Berm ditch both sides

Berm ditch elevations

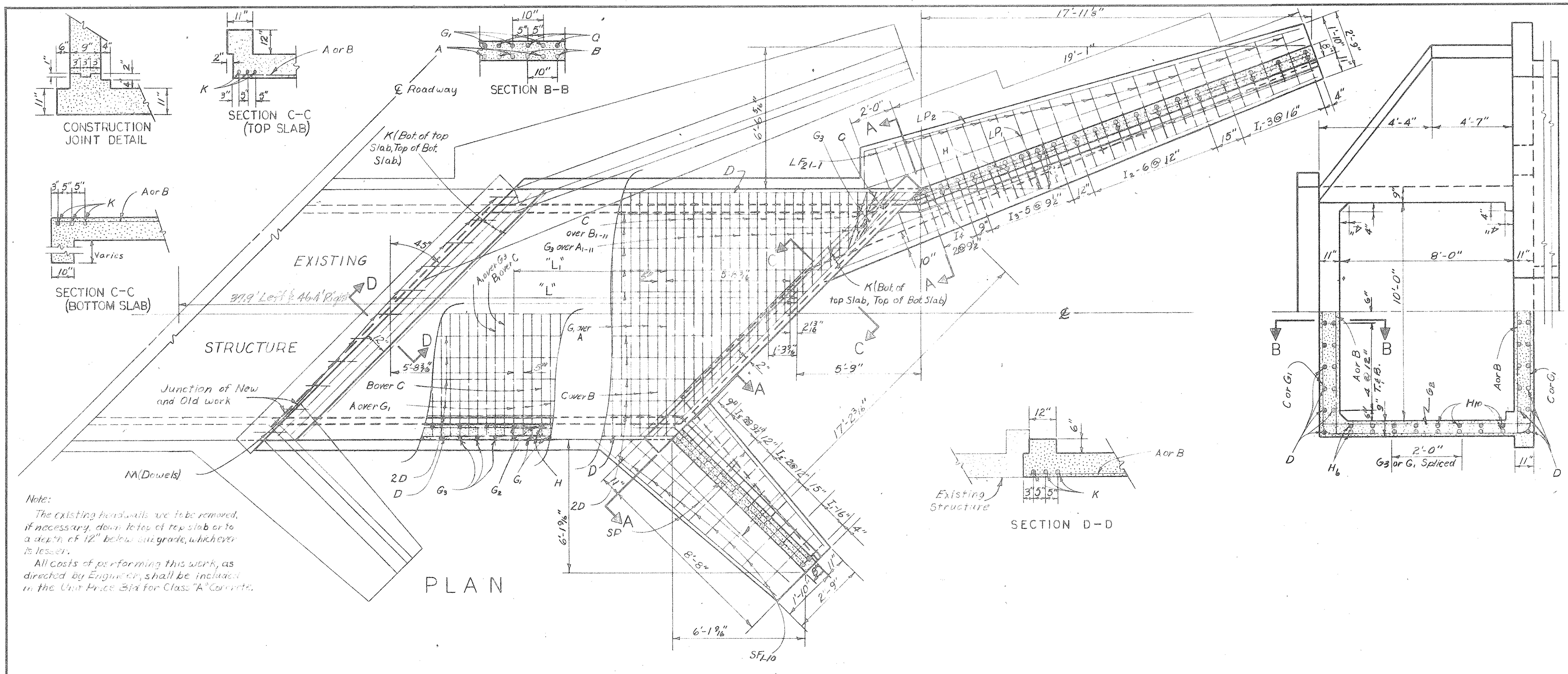
198.49 198.35 198.21 198.07 197.93 197.79 197.65 197.64+10 197.78 197.92 198.10 198.26 198.47 198.58 198.74 198.90 199.06 199.14+46 199.36 199.76 200.16 200.56 200.96 201.36 201.76 202.16 202.56 202.96 201.44 201.26 201.08

203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.20 203.21 203.22 203.25 203.29 203.34 203.40 203.48 203.56 BT. 203.65 203.83 204.01 204.19 204.37 204.55 204.73 204.91 P.C. 204.88 205.02 205.02 204.99 204.92 204.84 204.83 204.69 P.T.

FOR INFORMATION ONLY

PLATE 1—PLAN PROFILE - O.P.R. & R.E. STANDARD
J. H. WEIL & CO., PHILADELPHIA

FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	Clarendon	14.361	301	22	33



Note:
The existing headwalls are to be removed, if necessary, down to top of top slab or to a depth of 12" below subgrade, whichever is lesser.
All costs of performing this work, as directed by Engineer, shall be included in the Unit Price Bid for Class "A" Concrete.

STEEL SCHEDULE

MARK	SIZE NO.	*NO.	*LENGTH	SPACING	LOCATION
A	7	(L₁/10+1)2	11'-2"	10" C. to C.	T. & B. Slabs
A₁₋₁₁	7	4 ea.	10'-2" to 1'-10" Vary by 10"	"	"
B	6	(L₁/10)2	11'-2"	"	"
B₁₋₁₁	6	4 ea.	10'-7" to 2'-3" Vary by 10"	"	"
C	4	(L/18)4	6'-0"	"	Corners
D	4	44	L - 5"	12" C. to C.	T. & B. Slabs
SF₁₋₁₀	4	1 ea.	2'-8" to 4'-9" Vary by 2¾"	As Shown	Short Wing Footing
LF₁₋₂₁	4	1 ea.	2'-6" to 4'-6" Vary by 1³⁄₁₆"	"	Long Wing Footing
G₁	6	(L₁/10+1)2	22'-3"	10" C. to C.	S. Walls & Slabs
G₂	4	(L/15+1)2	9'-6"	15" C. to C.	Sidewalls
G₃	6	48	7'-9"	10" C. to C.	Corners & S. Walls
H₁₋₄	4	2 ea.	L+5'-3" to L+18'-3" Vary by 4'-4"	12" C. to C.	Sidewalls & Long Wing
H₅	4	8	L + 18'-9"	"	"
H₆₋₉	4	2 ea.	L+2'-3" to L+8'-3" Vary by 2'-0"	"	Sidewalls & Short Wing
H₁₀	4	8	L + 8'-4"	"	"
I₁	4	9	5'-11"	16" C. to C.	Wings & Footings
I₂	4	16	7'-3"	12" C. to C.	"
I₃	4	13	9'-2"	9½" C. to C.	"
I₄	4	6	10'-5"	"	"
J₁	5	2	21'-6"	As Shown	Long Wing
J₂	5	2	11'-6"	"	Short Wing
K	8	12	15'-9"	"	T. & B. Slabs
M	6	32	1'-6"	"	Dowels
SP	4	5	12'-0"	"	S. Wing Footing
LP₁	4	4	26'-0"	"	L. Wing Footing
LP₂	4	1	23'-3"	"	"

* "L" or "L₁" in inches. Disregard fractions.
Use "L₁" for figuring No. of A, B and G₁ Bars.
Use "L" for figuring No. of C, and G₂ Bars and lengths of D and H Bars.

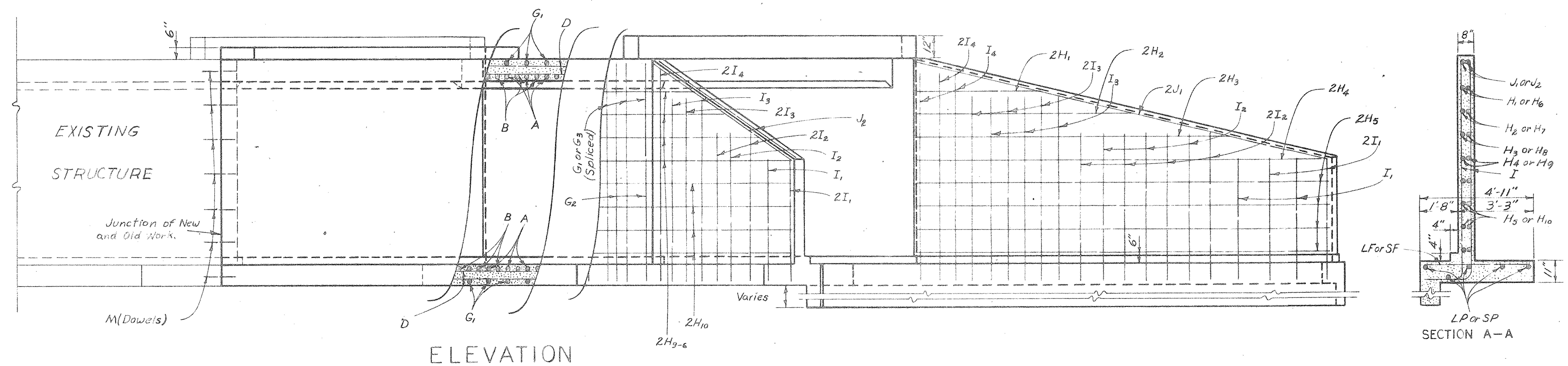
UNCLASSIFIED EXCAVATION <Both Ends> - 50 C.Y.

QUANTITIES

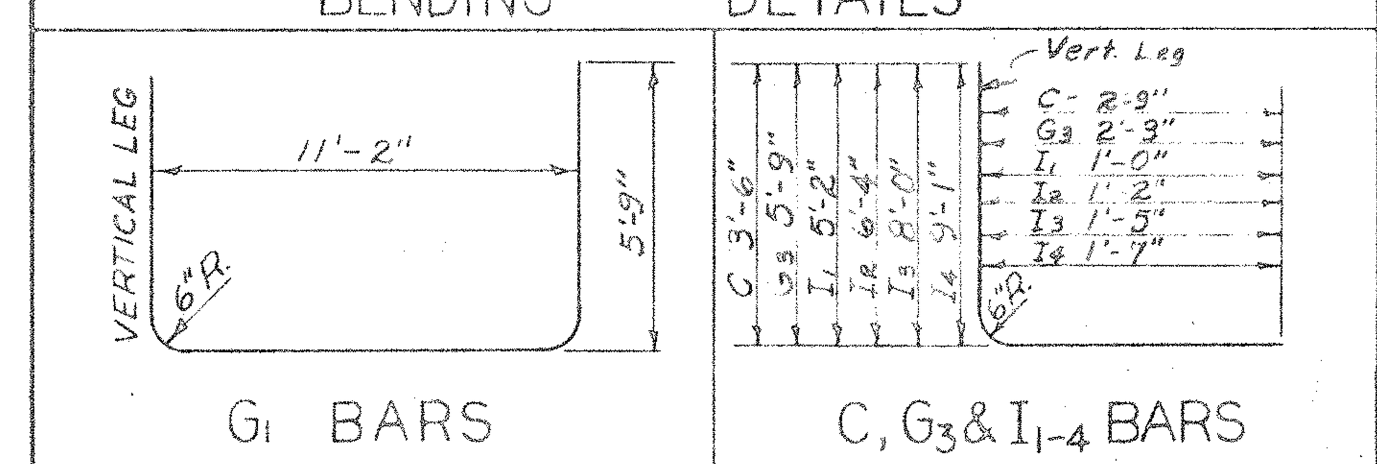
STATION	LENGTH "L"	REINFORCING STEEL	CLASS "A" CONCRETE
4130	10'-6" Lt.	3559 LBS.	23.1 CY.
4130	16'-0" Rt.	4963 LBS.	30.1 CY.
		LBS.	CY.
		LBS.	CY.
TOTAL		8522 LBS.	53.2 CY.

Note:
Method used in figuring quantities.
Reinforcing Steel = 877 + 255.4L*
Class "A" Concrete = 9.736 + 1.272 L*

* in feet



BENDING DETAILS



Notes:

Design Specifications: "Standard Specifications for Highway Bridges" A.A.S.H.O. - 1961 - fs = 20,000 psi, fc = 1,200 psi, n = 10, v = 90 psi, u = 300 psi. H20 Loading, 10' Earth fill (max.) and also meets the requirements of alternate interstate tandem axle live load.

Center of main reinforcing steel shall be 2" from the surface of the Concrete.

All concrete shall be Class "A" Concrete.

Chamfer all exposed edges ¾".

Spacing of bars is from center to centers.

Depth of Cut-off walls shall be determined by the Engineer in the field and quantities added to those shown.

Notes (cont'd)

Work to be done consists of removing that portion of the existing structure interfering with construction of new structure and extension in accordance with these plans.

The holes for dowels are to be drilled 9" into the concrete and dowels firmly set in a 1:3 mortar.

All costs of removing and disposing of portions of old structure, drilling and chipping, whether shown or not, necessary to construct new structure, shall be included in the Unit Price Bid for Class "A" Concrete.

The contractor shall replace or repair, at his own expense and to the satisfaction of the Engineer any portion of the existing structure damaged due to his carelessness or negligence.

Concrete P.F.L. Barrel	1.272 C.Y.
Concrete P.F.L. Cut-Off Wall (1 end)	1.309 C.Y.
Excavation P.F.L., P.F.D. Barrel	0.6111 C.Y.
Reinforcing Steel P.F.L. Barrel	255.40 lbs.

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.

REV.			
REV.			
REV.			
REV.	GmP	WBB	4-63 DKT. 14.361
REVIEWED		IN CHARGE	
QUAN.	H.B.W.	WBB GmP	4-63
TR.			
DR.	H.B.W.	WBB GmP	4-63
DES.	NEW	STD.	
	BY	CHK'D	DATE

S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S.C.

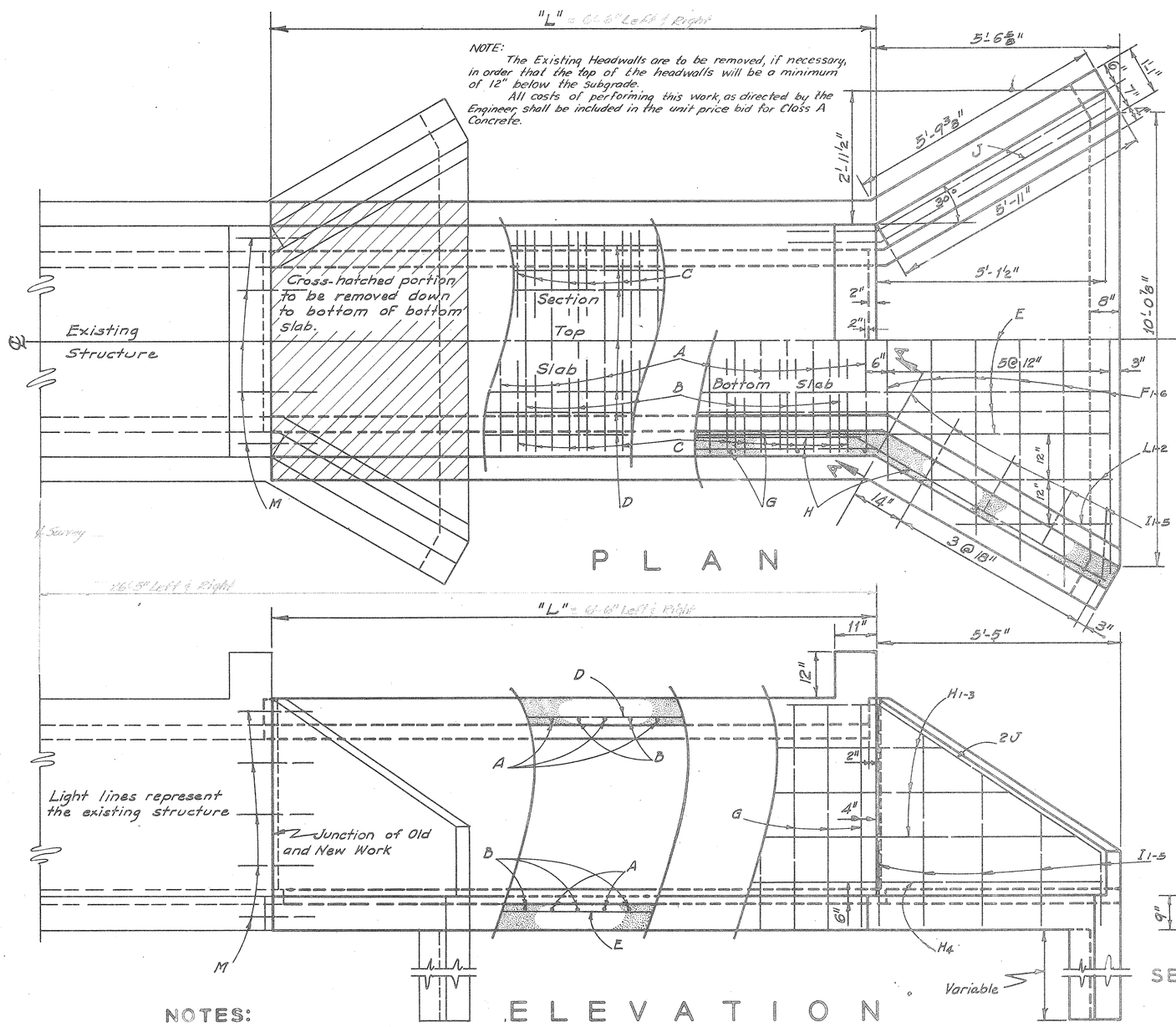
CONCRETE CULVERT REINFORCED BOX TYPE SINGLE 10'X 8' SK. 45° EXTENSION

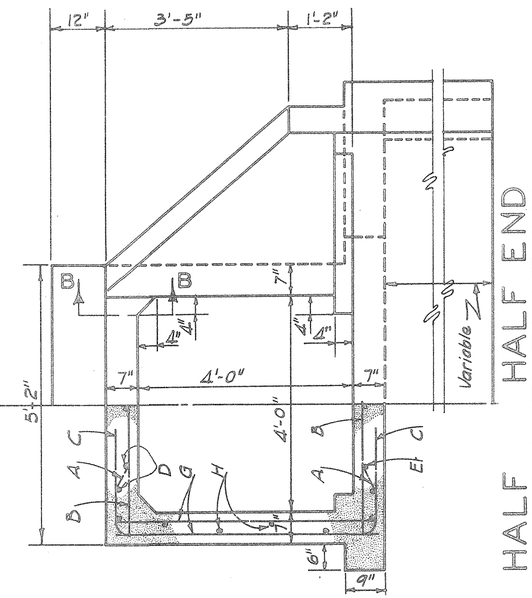
DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	Clarendon	301	4-63

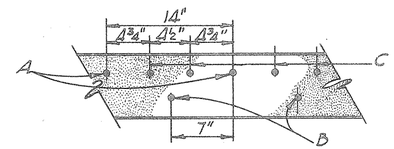
APPROVED BY [signature] BRIDGE DESIGN & PLANS ENGINEER

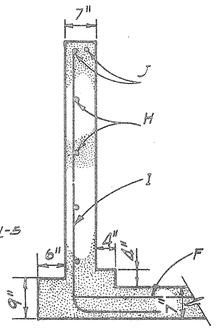
APPROVED BY [signature] BRIDGE ENGINEER

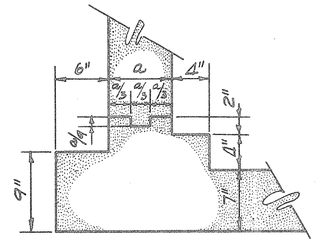
FED ROAD DIV. NO.	STATE	COUNTY	DOCKET No.	ROUTE No.	SHEET No.	TOTAL SHEETS
3	S.C.	Clarendon	14.361	301	23	33

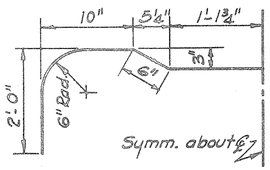


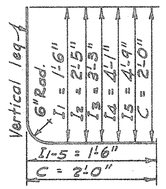












STEEL SCHEDULE ONE END

MARK	No. (Length in inches)	SIZE	LENGTH	SPACING	LOCATION
A	(1-1/4)2	½"ϕ	8'-6"	14" c to c.	T & B. Slabs
B	(1-1/4)2	½"ϕ	4'-10"	"	"
C	(1-1/4) 8	⅜"ϕ	3'-9"	As Shown	Corners
D	7	½"ϕ	L+(0'-4")	"	Top Slab
E	7	½"ϕ	L+(3'-1")	"	Bot. Slab
F1	1	½"ϕ	10'-4"	12" c to c	Apron
F2	1	½"ϕ	10'-10"	"	"
F3	1	½"ϕ	9'-8"	"	"
F4	1	½"ϕ	8'-6"	"	"
F5	1	½"ϕ	7'-4"	"	"
F6	1	½"ϕ	6'-2"	"	"
G	(1-1/4) 2	½"ϕ	4'-10"	9" Stag'd	Sidewalls
H1	2	½"ϕ	L+(1'-6")	12" "	S.W. & Wings
H2	2	½"ϕ	L+(3'-2")	12" "	"
H3	2	½"ϕ	L+(5'-0")	12" "	"
H4	2	½"ϕ	L+(5'-8")	12" "	"
I1	2	½"ϕ	2'-9"	As Shown	Wings & Apron
I2	2	½"ϕ	3'-8"	"	"
I3	2	½"ϕ	4'-6"	"	"
I4	2	½"ϕ	5'-4"	"	"
I5	2	½"ϕ	6'-0"	"	"
J	4	⅝"ϕ	9'-0"	"	Wings
L1	2	½"ϕ	5'-0"	"	Top & Apron
L2	2	½"ϕ	3'-0"	"	"
M	16	¾"ϕ	1'-6"	"	Dowels

✳ Disregard Fractions.

Concrete R.F.L. Bbl. ____ 0.4362 C.Y.
Concrete R.F.D Cut-Off Wall (1 end) ____ 0.2934 C.Y.
Excavation R.F.L., R.F.D. Bbl. ____ 0.3766 C.Y.
Reinforcing Steel R.F.L. Bbl. ____ 77.2 Lbs

QUANTITIES

STATION	LENGTH "L"	REINFORCING STEEL	CLASS "A" CONCRETE
17+50	6'-6" Left	694 LBS.	4.85 C.Y.
17+50	6'-6" Right	694 LBS.	4.85 C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
TOTAL		1388 LBS.	9.9 C.Y.

NOTE:
Method used in figuring Quantities
Reinf. Steel = 192.0 + 77.2 L
Class "A" Concrete = 2.119 + 0.4362 L

UNCLASSIFIED EXCAVATION (Both Ends) - 15 C.Y.

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961.

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.

NOTES:

Design Specifications: "Standard Specifications for Highway Bridges", A.A.S.H.O.-1941 (except fs) fs = 20,000 #/in², fc = 1,000 #/in², n = 10, v = 90 #/in², u = 165 #/in², H15 Loading, 10' earth fill (Max.)

Work to be done consists of removing the designated portions of the existing structure and extending in accordance with these plans.

The holes for the dowels to be drilled 9" into old concrete and the dowels firmly set in a 1:3 mortar.

The Contractor shall replace or repair at his own expense, and to the satisfaction of the Engineer, any portion of the Existing Structure damaged, due to his carelessness or negligence.

Structural grade reinforcing steel not permitted.

Center of main reinforcing steel shall be 2" from the surface of the concrete.

All concrete shall be Class "A".

Chamfer all exposed edges ¾".

Depth of cut-off wall shall be determined by the Engineer and quantities added to those shown.

All the costs of removing the designated portions of existing structure, drilling and chipping, are to be included in unit price bid for Class "A" Concrete.

Rev.		Date	3-19
Quant	G.K.B.	W.B.B.	7-45
Tr.	W.R.T.	W.B.B.	8-45
Dr.	G.K.B.	W.B.B.	7-45
Des.	G.K.B.	W.B.B.	7-45
	BY	CHKD	DATE

S.C. STATE HIGHWAY DEPARTMENT
COLUMBIA

CONCRETE CULVERT

REINFORCED BOX TYPE

SINGLE 4' x 4' EXTENSION

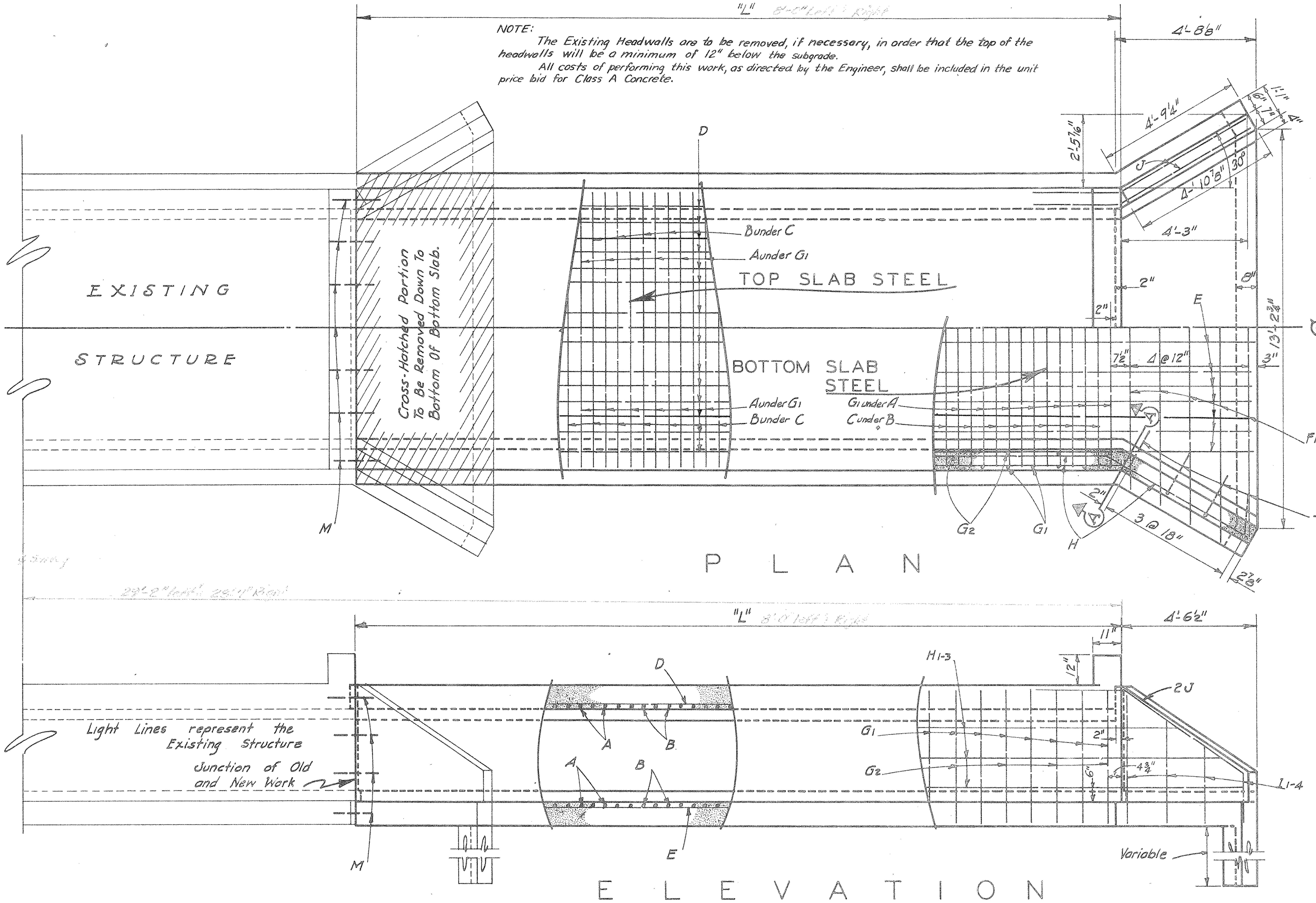
S.C. DOCKET NO. 14.361 Clarendon COUNTY

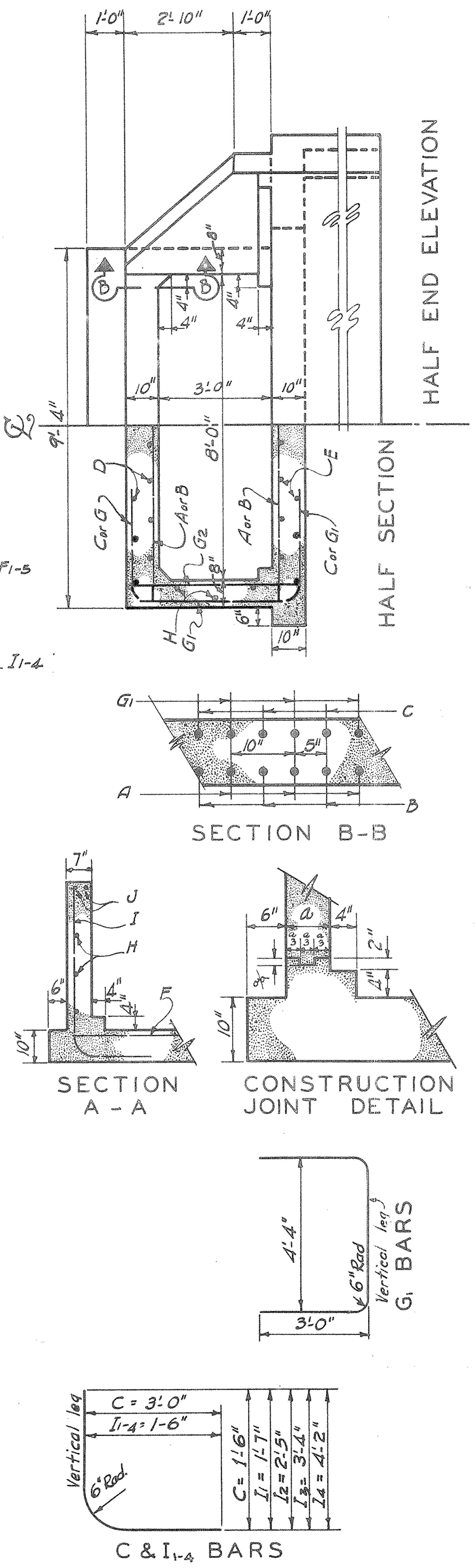
ROUTE NO. 301 DATE 3-1963

B 1.44 EXT.

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	Clarendon	14.361	301	24	33

NOTE:
The Existing Headwalls are to be removed, if necessary, in order that the top of the headwalls will be a minimum of 12" below the subgrade.
All costs of performing this work, as directed by the Engineer, shall be included in the unit price bid for Class A Concrete.





STEEL SCHEDULE 1 END					
MARK	* NO. "L" in Inches	SIZE	LENGTH	SPACING	LOCATION
A	(L/10) 2	3/4" φ	9'-0"	10" c. to c.	T & B Slabs.
B	(L/10) 2	1/2" φ	9'-0"	"	"
C	(L/10) 4	5/8" φ	4'-3"	"	Corners.
D	14	1/2" φ	L - (0'-4")	As Shown	Top Slab.
E	14	1/2" φ	L + (4'-2")	"	Bot. Slab.
F_1	1	1/2" φ	13'-4"	12" c. to c.	Apron.
F_2	1	1/2" φ	13'-10"	"	"
F_3	1	1/2" φ	12'-8"	"	"
F_4	1	1/2" φ	11'-6"	"	"
F_5	1	1/2" φ	10'-4"	"	"
G_1	(L/10) 2	3/4" φ	9'-10"	10" c. to c.	S.W. & Slabs.
G_2	(L/20) 2	1/2" φ	4'-4"	20" c. to c.	Side Walls.
H_1	2	1/2" φ	L + (2'-0")	12" Stag'd.	S.W. & Wings.
H_2	2	2" φ	L + (3'-7")	"	"
H_3	2	1/2" φ	L + (4'-8")	"	"
I_1	2	1/2" φ	2'-10"	18" c. to c.	Wings & Apron.
I_2	2	1/2" φ	3'-8"	"	"
I_3	2	1/2" φ	4'-7"	"	"
I_4	2	1/2" φ	5'-5"	"	"
J	4	5/8" φ	8'-0"	As Shown	Wings.
M	18	3/4" φ	1'-6"	"	Dowels.

* Disregard Fractions

Concrete P.F.L. Barrel .... 0.7675 C.Y.
Concrete P.F.D. Cut-Off Wall (1 end) ... 0.3713 C.Y.
Excavation P.F.L., P.F.D. Barrel ... 0.5309 C.Y.
Reinforcing Steel P.F.L. Barrel ... 129.8 LBS.

QUANTITIES			
STATION	LENGTH "L"	REINFORCING STEEL	CLASS "A" CONCRETE
[illegible]	8'-0" Left	1,226 LBS.	8.85 C.Y.
[illegible]	8'-0" Right	1,226 LBS.	8.85 C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
TOTAL		2,452 LBS.	17.7 C.Y.

NOTE:-
Method used in figuring Quantities
Reinforcing Steel = 187.1 + 129.8 L
Class "A" Concrete = 2.717 + 0.7675 L

UNCLASSIFIED EXCAVATION <Both Ends> - 30 C.Y.

NOTES:-
Design Specifications: "Standard Specifications for Highway Bridges", A.A.S.H.O.-1941 (except fs) fs = 20,000#/in.², fc = 1000#/in.², n = 10, v = 90#/in., u = 165#/in., H15 loading, 10' earth fill (max).
Work to be done consists of removing the designated portions of the existing structure and extending in accordance with these plans.
The holes for dowels to be drilled 9" into old concrete and the dowels firmly set in a 1:3 mortar.
All costs of removing the designated portions of the existing structure, drilling and chipping, are to be included in the unit price bid for Class "A" Concrete.
The Contractor shall replace or repair at his own expense, and to the satisfaction of the Engineer, any portion of the existing structure damaged, due to his carelessness or negligence.
Structural grade reinforcing steel not permitted.
Center of main reinforcing steel shall be 2" from the surface of the Concrete.
All concrete shall be Class "A".
Chamfer all exposed edges 3/4".
Depth of Cut-Off wall shall be determined by the Engineer and quantities added to those shown.

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961.

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.

	BY	CHK'D	DATE
Rev.	[illegible]	G.K.B.	3-63
Quant.	G.K.B.	W.B.B.	9-45
Tr.	W.R.T.	W.B.B.	9-45
Dr.	G.K.B.	W.B.B.	9-45
Des.	G.K.B.	W.B.B.	9-45

S. C. STATE HIGHWAY DEPARTMENT
COLUMBIA

CONCRETE CULVERT

REINFORCED BOX TYPE

SINGLE 8' x 3' EXTENSION

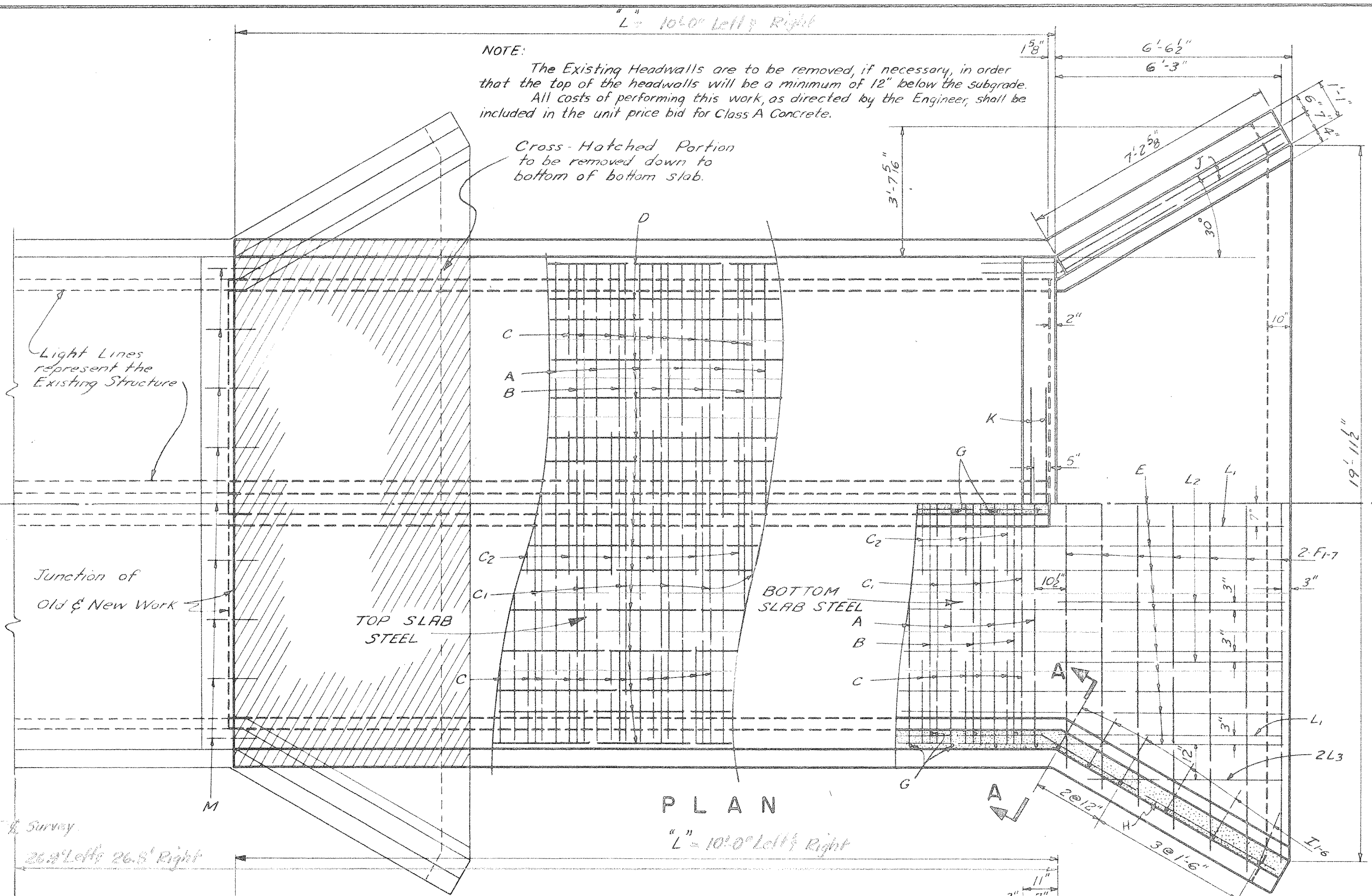
S.C. DOCKET NO. 14.361 Clarendon COUNTY

ROUTE NO. 301 DATE 3-1963

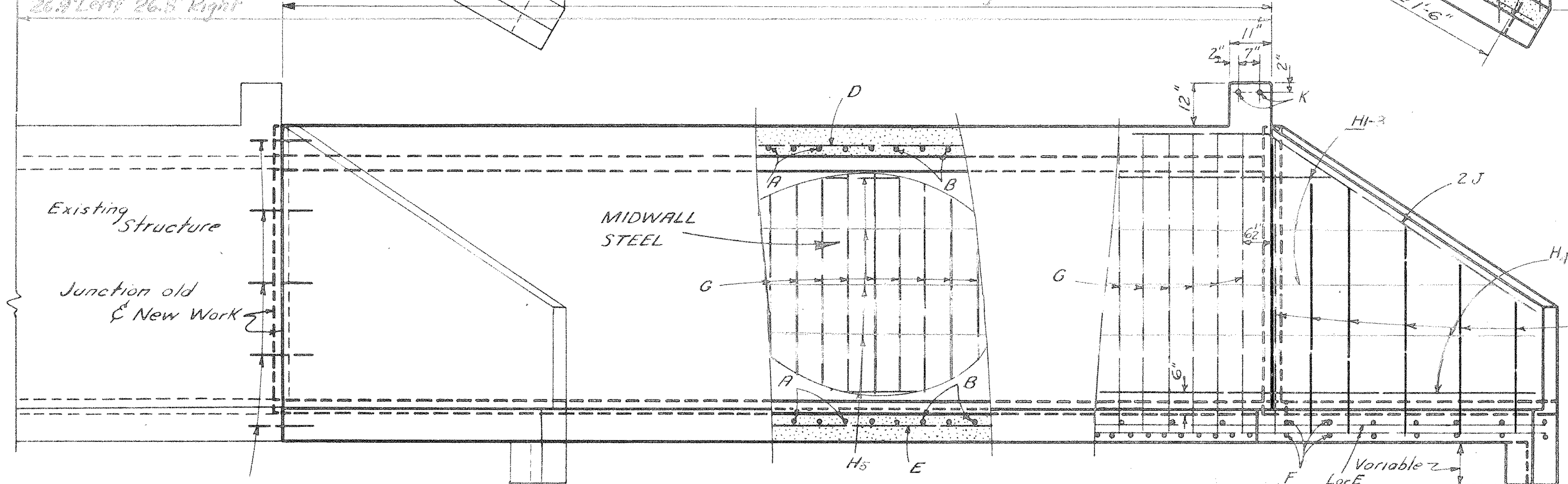
B 1.83 EXT.

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	Clarendon	14-351	301	25	33

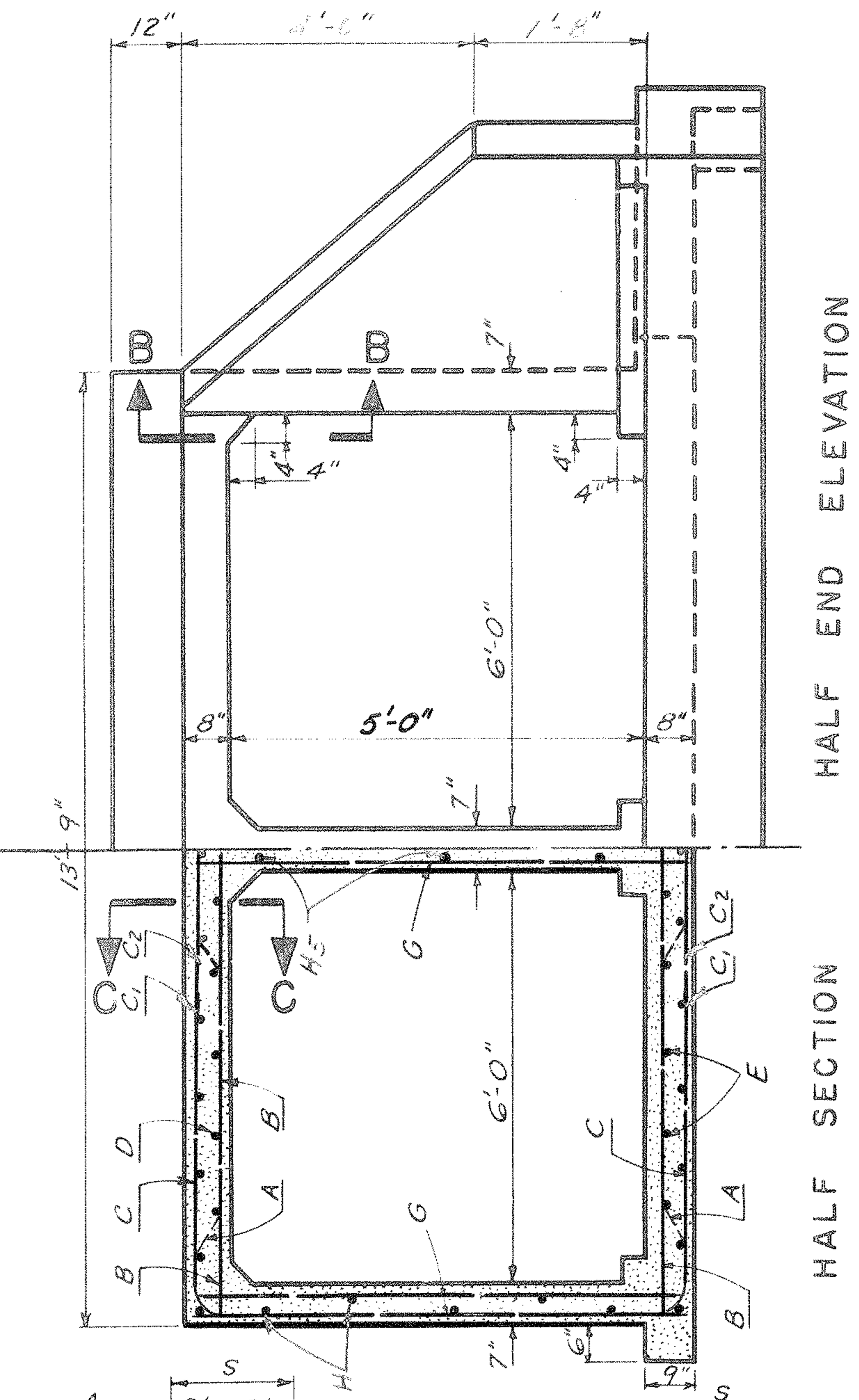
NOTE:
The Existing Headwalls are to be removed, if necessary, in order that the top of the headwalls will be a minimum of 12" below the subgrade.
All costs of performing this work, as directed by the Engineer, shall be included in the unit price bid for Class A Concrete.



PLAN

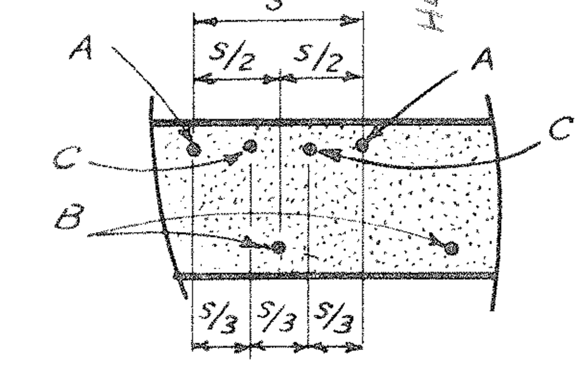


ELEVATION

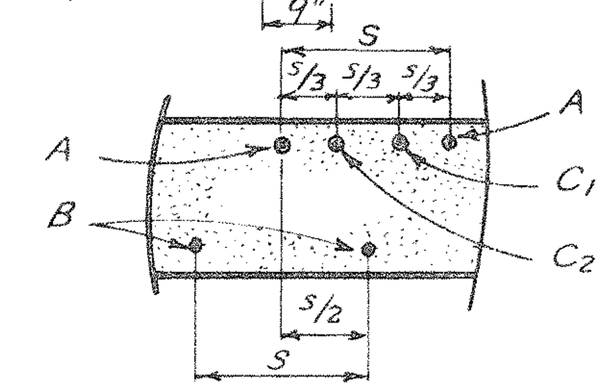


HALF END ELEVATION

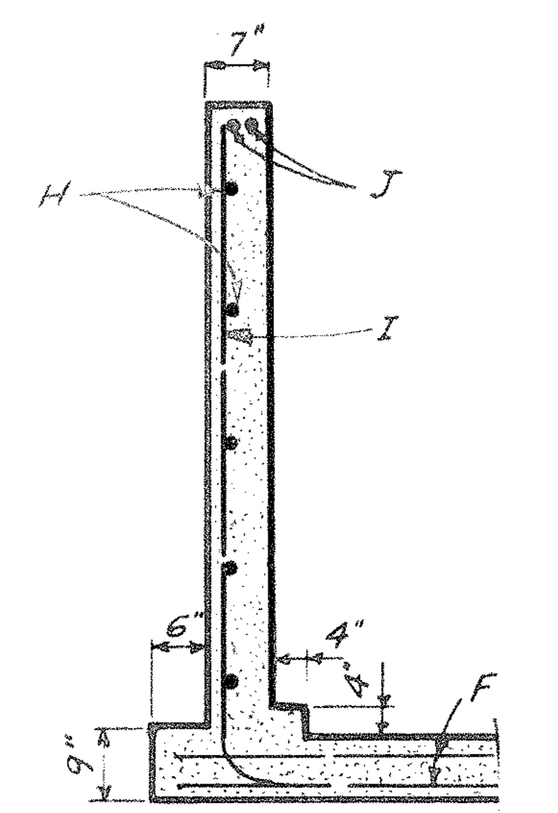
HALF SECTION



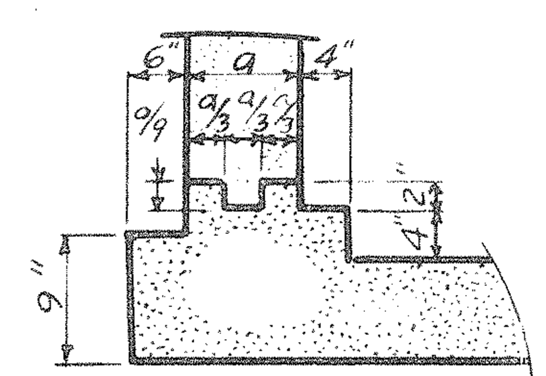
SECTION B-B



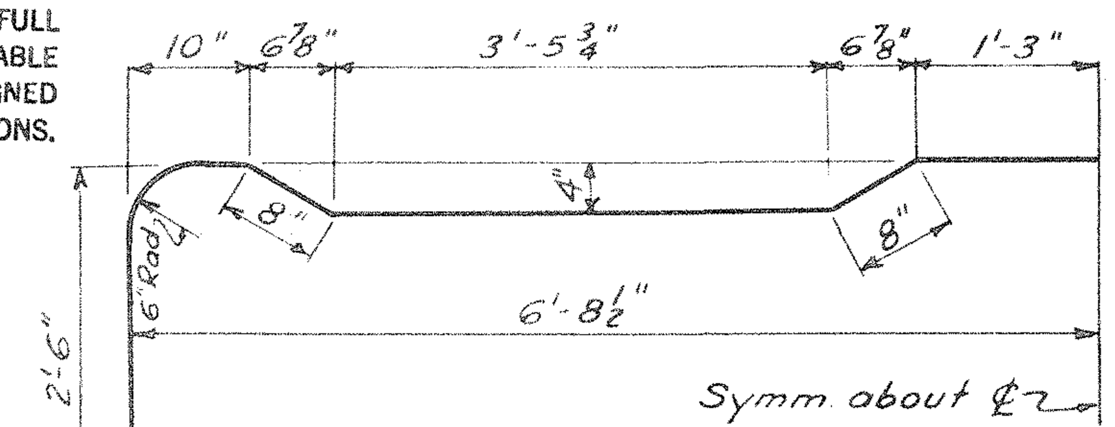
SECTION C-C



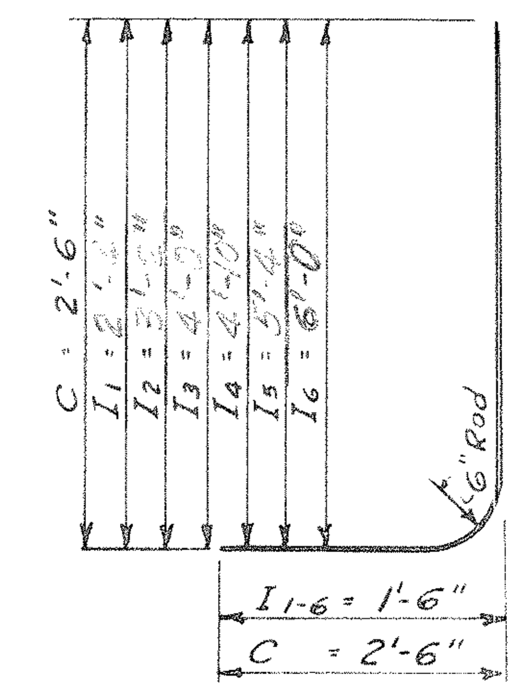
SECTION A-A



CONSTRUCTION JOINT DETAIL
(MAKE MIDWALL JOINT SIMILAR)



A BARS



C & I1-6 BARS

NOTES:
Design Specifications: "Standard Specifications Highway Bridges", A.A.S.H.O.-1941 (except fs) fs = 20,000 psi, fc = 1,000 psi, n = 10, v = 90 psi, u = 165 psi, H15 loading, 10' earth fill (max.)
Work to be done consists of removing the designated portions of the existing structure and extending in accordance with these plans.
The holes for dowels to be drilled 9" into old concrete and dowels firmly set in a 1:3 mortar.
All costs of removing the designated portions of the existing structure, drilling and chipping, are to be included in the Unit Price Bid for Class "A" Concrete.
The Contractor shall replace or repair at his own expense, and to the satisfaction of the Engineer, any portion of the existing structure damaged due to his carelessness or negligence.
Structural grade reinforcing steel not permitted.
Center of main reinforcing steel shall be 2" from the surface of the concrete.
All concrete shall be class "A".
Chamfer all exposed edges 3/4".
Depth of Cut-Off Wall shall be determined by the Engineer and quantities added to those shown.
All dimensions relative to reinforcing steel are to center of bars.

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961.

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.

REV	GMP From B2.66	GRB	3-68
QUANT	R.R.S.	W.B.B.	9-54
TR	CHE EMQ	W.B.B.	9-54
DR	R.R.S.	W.B.B.	9-54
DES	D.F.D.	W.B.B.	9-43
	BY	CHKD	DATE

STEEL SCHEDULE ONE END

MARK	* No. "L" in Inches	SIZE NO.	LENGTH	SPACING	LOCATION
A	(L/14) 2	5	18'-4"	14" C to C	T & B Slabs
B	(L/14) 2	5	13'-5"	"	"
C	(L/14) 8	4	4'-9"	As Shown	Corners
C1	(L/14) 2	6	8'-1"	"	T & B Slabs
C2	(L/14) 2	6	5'-4"	"	"
D	23	4	L-(0'-4")	"	Top Slab
E	23	4	L+(6'-2")	"	Bot. Slab
F1	2	4	20'-1"	12" C to C	Apron
F2	2	4	20'-7"	"	"
F3	2	4	19'-5"	"	"
F4	2	4	18'-3"	"	"
F5	2	4	17'-1"	"	"
F6	2	4	15'-11"	"	"
F7	2	4	14'-9"	"	"
G	(L/7) 3	4	6'-0"	7" Stg'd	Walls
H1 to H3	2-ea.	4	L+(1'-8") to L+(5'-4") Vary by 1'-10"	12" Stg'd	S.W. & Wings
H4	4	4	L+(7'-0")	"	"
H5	5	4	L-(0'-4")	"	Mid Wall
I1	2	4	3'-7"	As Shown	Wings
I2	2	4	[illegible]	"	"
I3	2	4	[illegible]	"	"
I4	2	4	[illegible]	"	"
I5	2	4	[illegible]	"	"
I6	2	4	7'-3"	"	"
J	4	5	10'-6"	"	"
K	2	5	6'-6"	"	Headwall
L1	4	4	6'-3"	"	Top of Apron
L2	4	4	6'-3"	"	Bot. of Apron
L3	4	4	5'-7"	"	T & B Apron
M	27	6	1'-6"	"	Dowels

* Disregard Fractions.

Concrete P.F.L. Barrel __________ 1.0556 C.Y.
Concrete P.F.D. Cut-Off Wall (1-End) __ 0.6689 C.Y.
Excavation P.F.L., P.F.D. Barrel ____ 0.6944 C.Y.
Reinforcing Steel P.F.L. Barrel ____ 175.1 Lbs.

QUANTITIES

STATION	LENGTH "L"	REINFORCING STEEL	CLASS "A" CONCRETE
296+30	10'-0" Left	2,252 LBS.	15.3 C.Y.
296+30	10'-0" Right	2,252 LBS.	15.3 C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
TOTAL		4,504 LBS.	30.6 C.Y.

NOTE:
Method used in figuring Quantities
Reinforcing Steel = 500.7 + 175.1 L
Class "A" Concrete = 4.737 + 1.0556 L

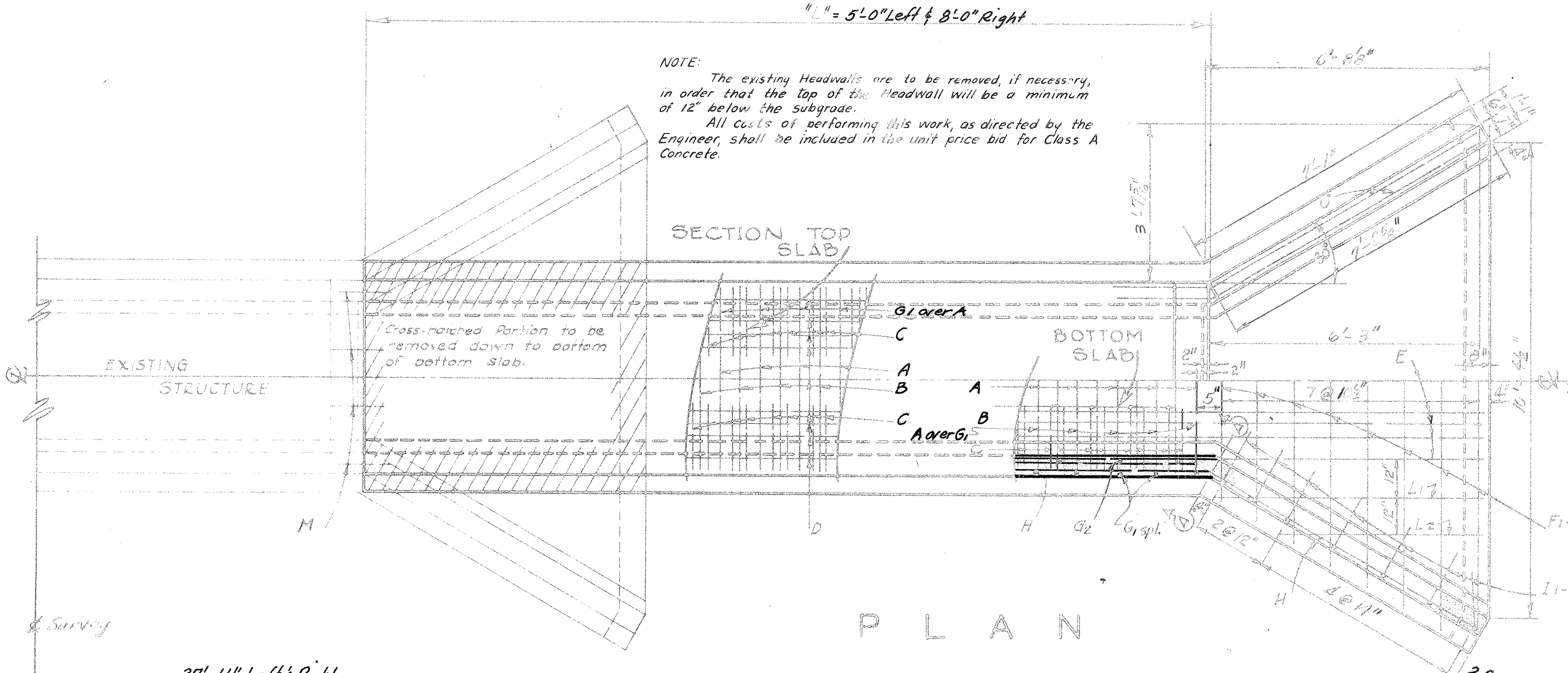
UNCLASSIFIED EXCAVATION {Both Ends} - 65 C.Y.

S. C. STATE HIGHWAY DEPARTMENT
COLUMBIA

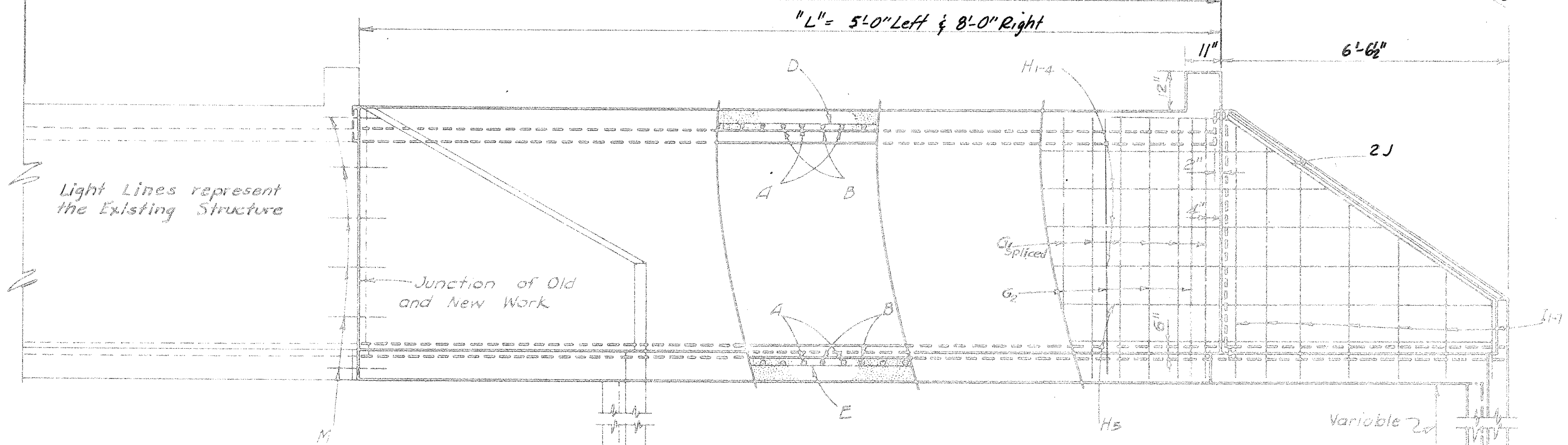
CONCRETE CULVERT
REINFORCED BOX TYPE
DOUBLE 6'X5' EXT.

S.C. DOCKET NO. 14.351 Clarendon COUNTY
ROUTE NO. 301 DATE 4-1963

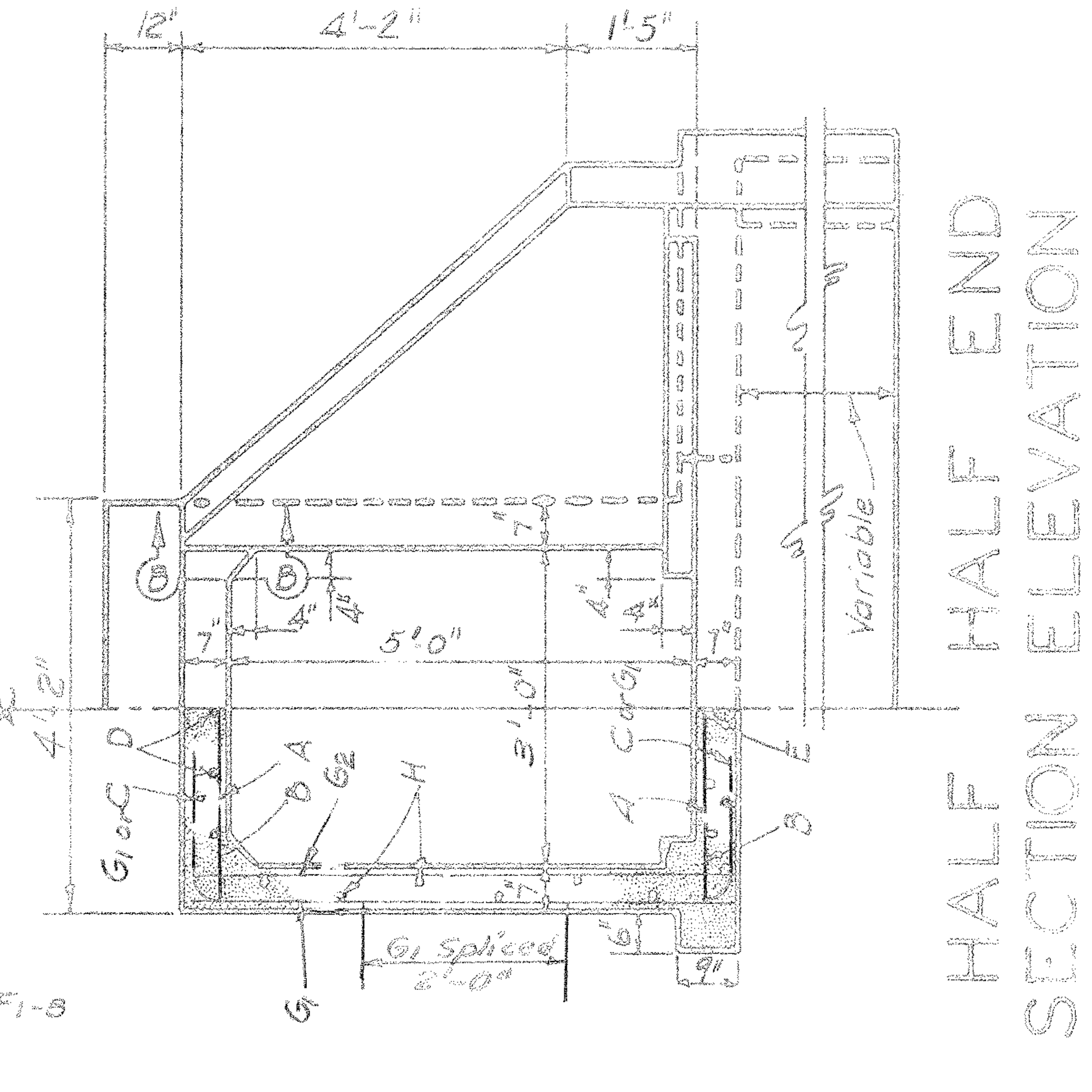
B 2.65 EXT.



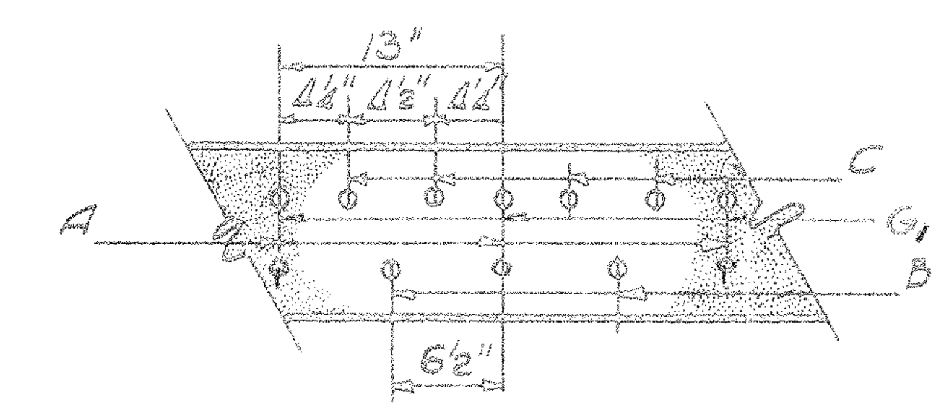
PLAN



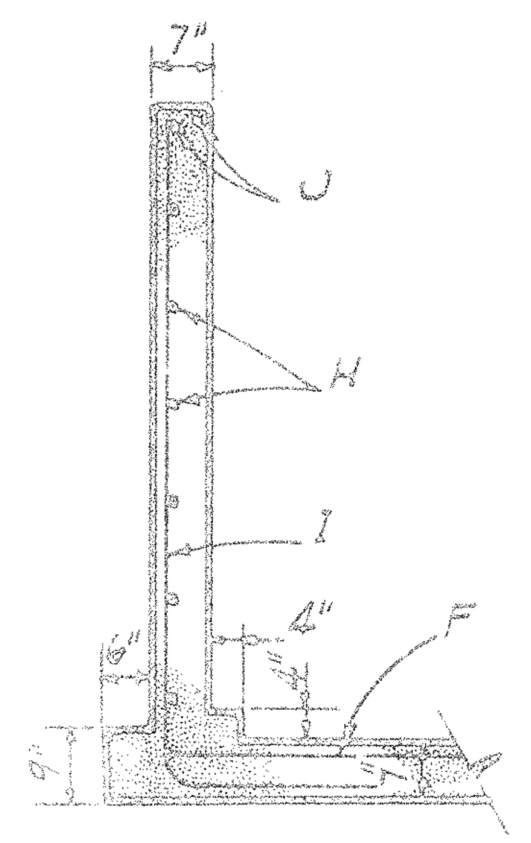
ELEVATION



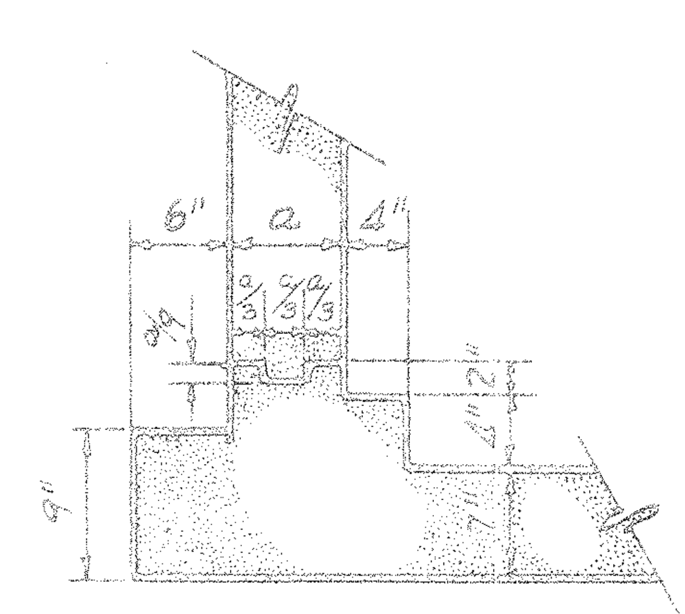
HALF END / HALF SECTION ELEVATION



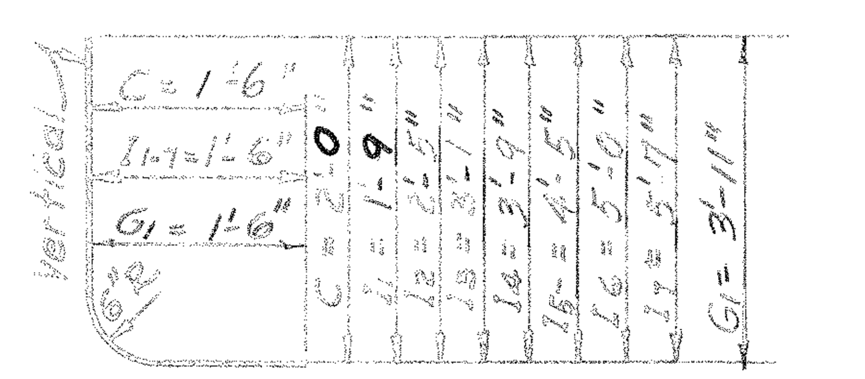
SECTION B-B



SECTION A-A



CONSTRUCTION JOINT DETAIL



C, G1 & I1-7 BARS

NOTES:

Design Specifications: "Standard Specifications for Highway Bridges," A.A.S.H.O.-1941 (except S.) fs = 20,000#/in², fc = 1000#/in², n = 10, v = 90#/in², u = 165#/in², H15 loading, 10' earth fill (Max).

Work to be done consists of removing the designated portions of the existing structure and extending in accordance with these plans.

The holes for the dowels to be drilled 9" into old concrete and the dowels firmly set in a 1:3 Mortar.

All costs of removing the designated portions of existing structure, drilling and chipping, are to be included in the unit price bid for Class "A" Concrete.

The Contractor shall replace or repair at his own expense, and to the satisfaction of the Engineer, any portion of the existing structure damaged, due to his carelessness or negligence.

Structural grade reinforcing steel not permitted.

Center of main reinforcing steel shall be 2" from the surface of the concrete.

All Concrete shall be Class "A".

Chamfer all exposed edges ¾".

Depth of Cut-Off Wall shall be determined by the Engineer and quantities added to those shown.

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961.

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361	301	26	33

STEEL SCHEDULE ONE END

MARK	* NO. (in inches)	SIZE	LENGTH	SPACING	LOCATION
A	(L/13) 2	½" ɸ	3'-10"	13" c. to c.	T & B Slabs
B	(L/13) 2	½" ɸ	3'-10"	"	"
C	(L/13) 8	⅝" ɸ	3'-3"	As Shown	Corners
D	9	½" ɸ	L-(0'-4")	"	Top Slab
E	9	½" ɸ	L+(6'-1")	"	Bot. Slab
F1	1	½" ɸ	10'-8"	10½" c. to c.	Apron
F2 to F8	1 ea.	½" ɸ	11'-1" to 5'-1" Vary by 1'-0"	"	"
G2	(L/19½) 2	½" ɸ	5'-10"	19½" c. to c.	Side Walls
H1 to H4	2 ea.	½" ɸ	L+(0'-9") to L+(5'-2") Vary by 1'-6"	10½" Stag'd.	S.W. & Wings
H5	4	½" ɸ	L+(6'-10")	"	"
I1 to I5	2 ea.	½" ɸ	3'-0" to 5'-8" Vary by 8"	As Shown	Wings & Apron
I6	2	½" ɸ	6'-3"	"	"
I7	2	½" ɸ	6'-10"	"	"
J	4	⅝" ɸ	10'-0"	"	Wings
L1	2	½" ɸ	5'-6"	"	Apron
L2	2	½" ɸ	3'-9"	"	"
M	16	¾" ɸ	1'-6"	"	Dowels.
G1	(L/13) 4	½" ɸ	5'-2"	13" C. to C.	S.W. & Corners

* Disregard Fractions

Concrete P.F.L. Barrel ——— 0.4362 C.Y.
Concrete P.F.D. cut-off wall (1 end) 0.3008 C.Y.
Excavation P.F.L., P.F.D. Barrel ——— 0.3395 C.Y.
Reinforcing Steel P.F.L. Barrel ——— 72.1 LBS.

QUANTITIES

STATION	LENGTH "L"	REINFORCING STEEL	CLASS "A" CONCRETE
255+00	5'-0" Left	610 LBS.	4.8 C.Y.
255+00	8'-0" Right	827 LBS.	6.2 C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
TOTAL		1,437 LBS.	11.0 C.Y.

NOTE:

Method used in figuring Quantities
Rein. Steel = 249.9 + 72.1 L
Class "A" Concrete = 2.643 + 0.4362 L

UNCLASSIFIED EXCAVATION (Both Ends) — 15 C.Y.

S.C. STATE HIGHWAY DEPARTMENT
COLUMBIA

CONCRETE CULVERT

REINFORCED BOX TYPE

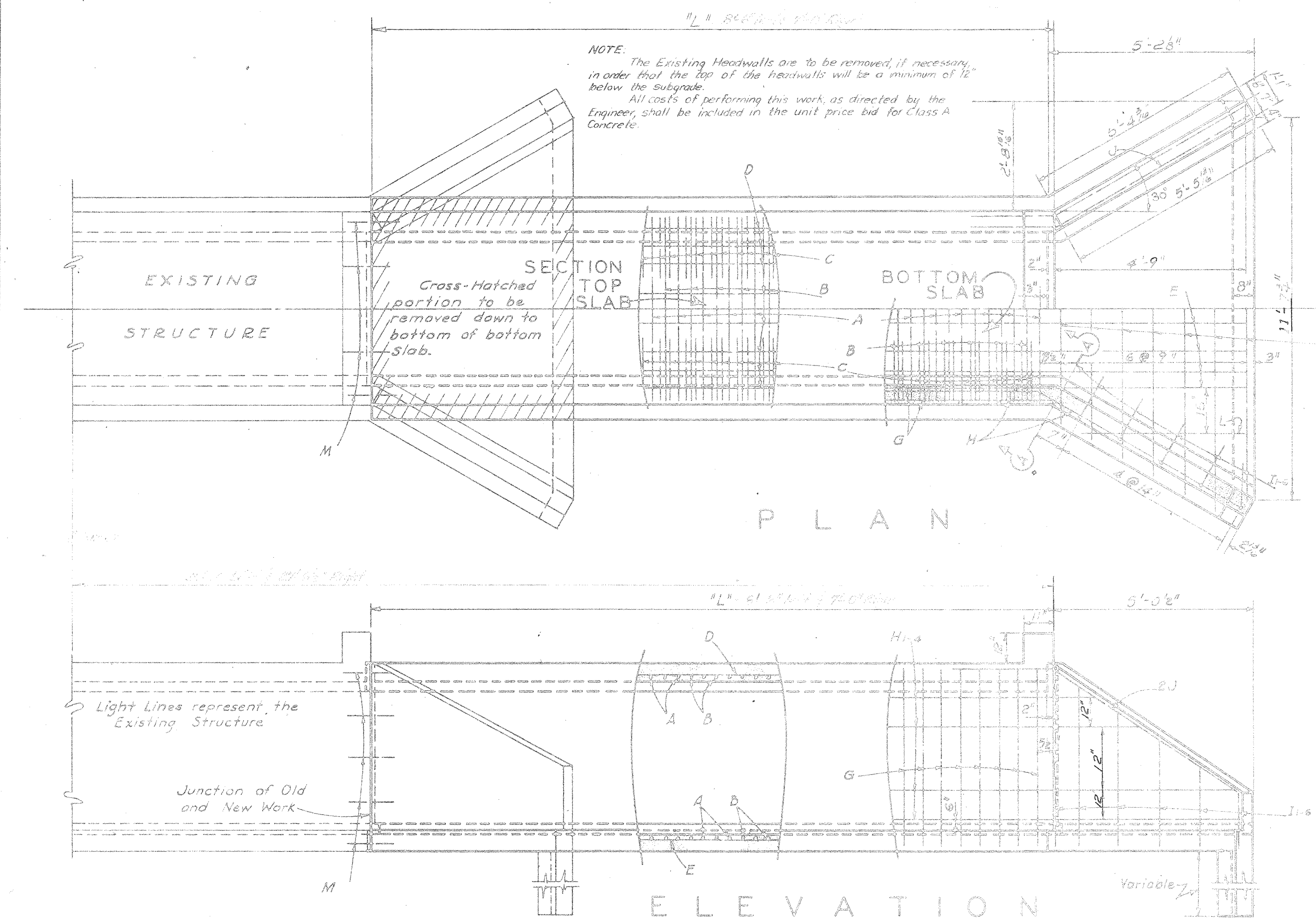
SINGLE 3' x 5' EXTENSION

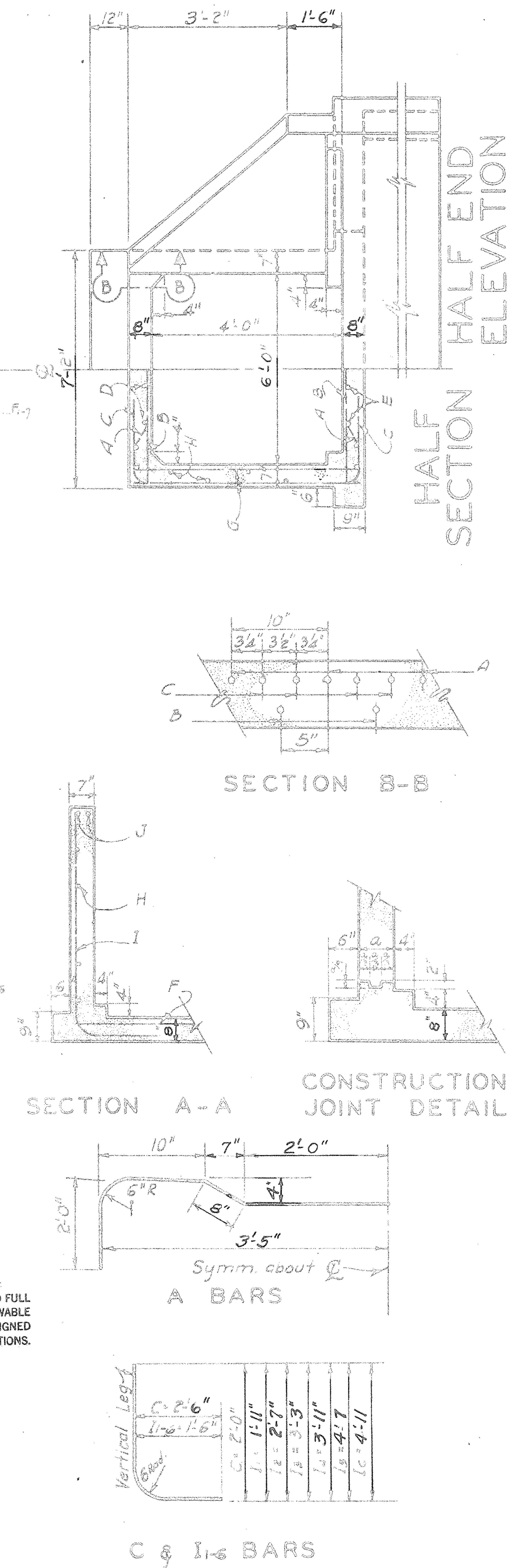
S.C. DOCKET NO. 14.361 CLARENDON COUNTY

ROUTE NO. 301 DATE 4-1963

B 1.35 EXT.

FED. ROAD DIV. NO	STATE	COUNTY	DOCKET NO.	ROUTE NO	SHEET NO	TOTAL SHEETS
3	S.C.	[illegible]	[illegible]	[illegible]	27	[illegible]





STEEL SCHEDULE 1 END

MARK	✻ No Lin. Inch	SIZE	LENGTH	SPACING	LOCATION
A	(L/10) 2	½" ϕ	10'-6"	10" C. to C.	T. & B. Slabs
B	(L/10) 2	⅝" ϕ	6'-10"	"	"
C	(L/10) 8	⅝" ϕ	4'-3"	As Shown	Corners
D	8	½" ϕ	L-(0'-4")	"	Top Slab
E	8	½" ϕ	L+(4'-8")	"	Bot. Slab
F1	1	½" ϕ	11'-10"	9" c. to c.	Apron
F2	1	½" ϕ	12'-7"	"	"
F3	1	½" ϕ	11'-9"	"	"
F4	1	½" ϕ	10'-11"	"	"
F5	1	½" ϕ	10'-1"	"	"
F6	1	½" ϕ	9'-5"	"	"
F7	1	½" ϕ	8'-3"	"	"
G	(L/7½) 2	⅝" ϕ	5'-0"	7½" Stag'd	Side Walls
H1	2	½" ϕ	L+(1'-5")	12" Stag'd	S.W. & Wings
H2	2	½" ϕ	L+(3'-2")	"	"
H3	2	½" ϕ	L+(4'-11")	"	"
H4	2	½" ϕ	L+(5'-4")	"	"
I1	2	½" ϕ	3'-2"	As Shown	Wings & Apron
I2	2	½" ϕ	3'-10"	"	"
I3	2	½" ϕ	4'-6"	"	"
I4	2	½" ϕ	5'-2"	"	"
I5	2	½" ϕ	5'-10"	"	"
I6	2	½" ϕ	6'-2"	"	"
J	4	⅝" ϕ	8'-6"	"	Wings
L	2	½" ϕ	4'-2"	"	Top of Apron
M	16	¾" ϕ	1'-6"	"	Dowels

✻ Disregard Fractions

Concrete P.F.L. Barrel .... 0.5669 C.Y.
Concrete P.F.D. Cut-Off wall (One End) .... 0.3322 C.Y.
Excavation P.F.L., P.F.D Barrel .... 0.4506 C.Y.
Reinforcing Steel P.F.L. Barrel .... 109.2 Lbs.

QUANTITIES

STATION	LENGTH "L"	REINFORCING STEEL	CLASS "A" CONCRETE
[illegible]	[illegible]	[illegible] LBS.	[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS.	6.4 C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
TOTAL		[illegible] LBS.	[illegible] C.Y.

NOTE:
Method used in figuring Quantities
Reinf. Steel = 208.2 + 109.2 L
Class "A" Concrete = 2.450 + 0.5669 L

UNCLASSIFIED EXCAVATION ‹Both Ends› - 20 C.Y.

NOTES:

Design Specifications: "Standard Specifications for Highway Bridges," A.A.S.H.O.-1941 (except fs) fs = 20,000 #/in², fc = 1,000 #/in², n=10, v=90 #/in², u=165 #/in², H15 loading, 10' Earth fill (Max).

Work to be done consists of removing the designated portions of the existing structure and extending in accordance with these plans.

The holes for the dowels to be drilled 9" into old concrete and the dowels firmly set in a 1:3 Mortar.

All costs of removing the designated portions of existing structure, drilling and chipping, are to be included in unit price bid for class "A" Concrete.

The Contractor shall replace or repair at his own expense, and to the satisfaction of the Engineer, any portion of the existing structure damaged, due to his carelessness or negligence.

Structural grade reinforcing steel not permitted.

Center of main reinforcing steel shall be 2" from the surface of the concrete.

All concrete shall be class "A".

Chamfer all exposed edges ¾".

Depth of Cut-Off wall shall be determined by the Engineer and quantities added to those shown.

All dimensions relative to reinforcing steel are to center of bars.

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961.

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.

Rev.	[illegible]	G.K.B.	[illegible]
Rev.	G.K.B.	G.M.P.	12-59
	B1.64 Ext.		
Rev.	R.C.F.	W.B.B.	7-58
	Copied on Foil		
Rev.	[illegible]	[illegible]	[illegible]
Quan.	G.K.B.	W.B.B.	7-45
Tr.	W.R.T.	W.B.B.	8-45
Dr.	GKB	W.B.B.	7-45
Des.	GKB	W.B.B.	7-45
	By	Chk'd	Date

S. C. STATE HIGHWAY DEPARTMENT
COLUMBIA

CONCRETE CULVERT

REINFORCED BOX TYPE

SINGLE 6'x4' EXTENSION

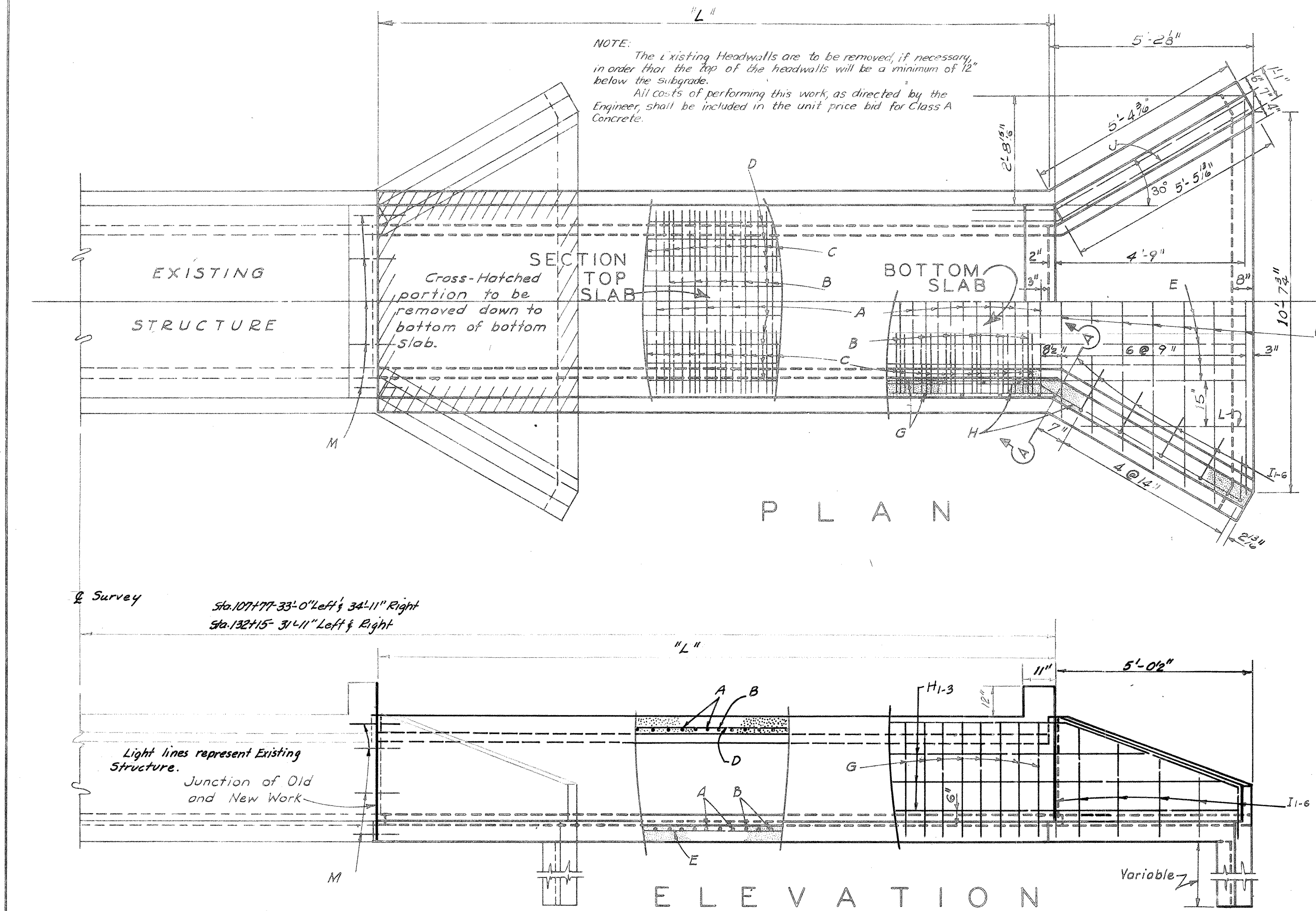
S. C. DOCKET NO. 14.341 [illegible] COUNTY

ROUTE NO. 301 DATE [illegible]

B1.64 EXT.

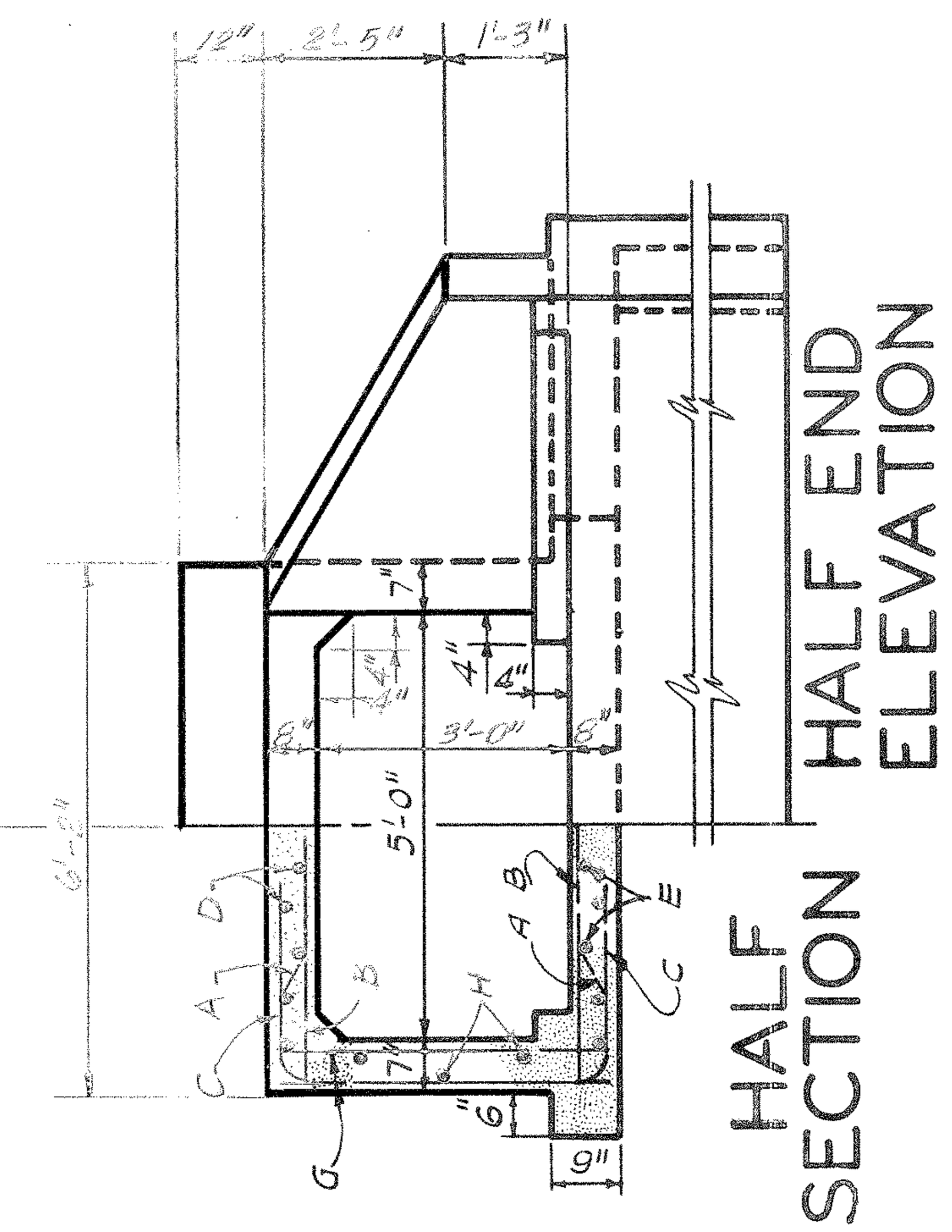
FED ROAD DIV. NO	STATE	COUNTY	DOCKET NO.	ROUTE NO	SHEET NO	TOTAL SHEETS
3	S.C.	Clarendon	14.361	301	28	33

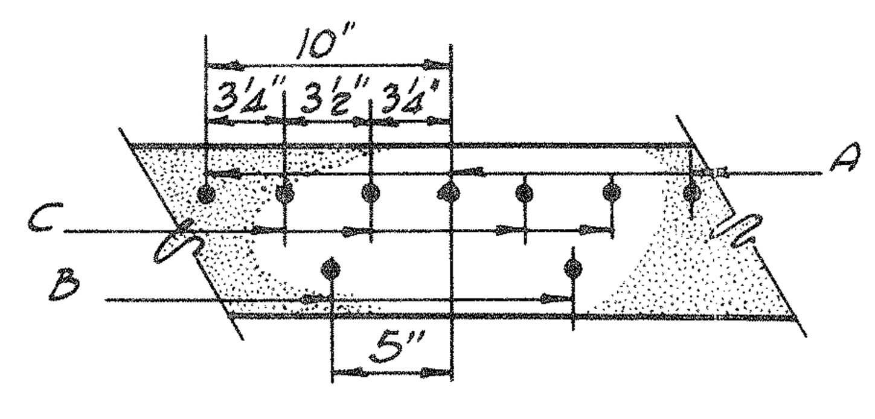
NOTE:
The existing Headwalls are to be removed, if necessary, in order that the top of the headwalls will be a minimum of 12" below the subgrade.
All costs of performing this work, as directed by the Engineer, shall be included in the unit price bid for Class A Concrete.



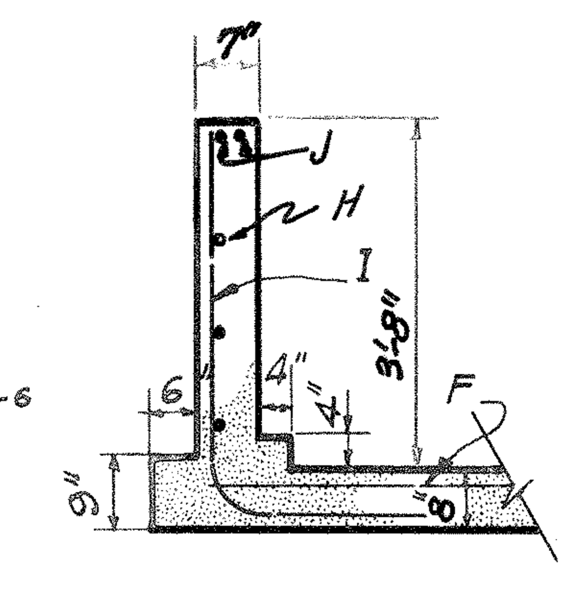
PLAN

ELEVATION

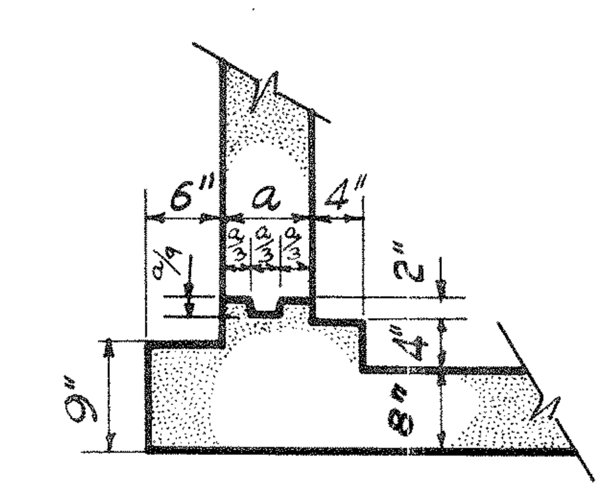




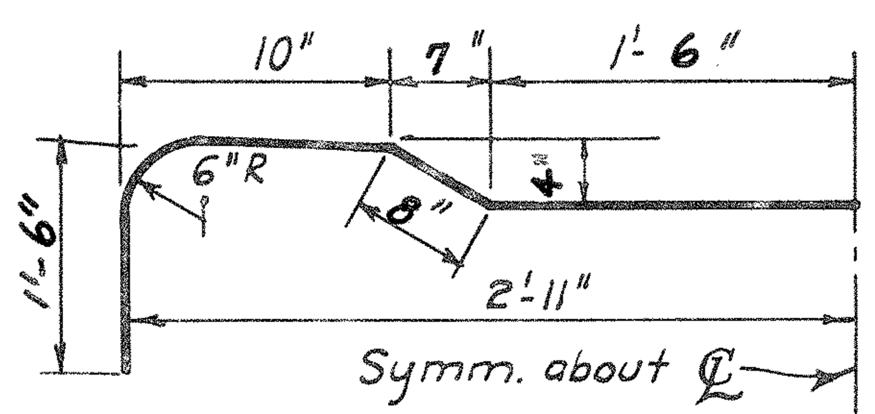
SECTION B-B



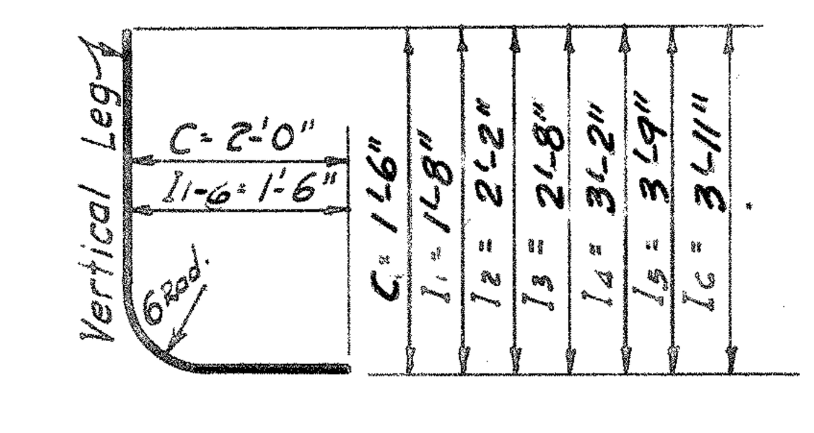
SECTION A-A



CONSTRUCTION JOINT DETAIL



A BARS



C & I1-6 BARS

STEEL SCHEDULE 1 END

MARK	* No Lin. Inch	SIZE	LENGTH	SPACING	LOCATION
A	(L/10)2	⅝" φ	8'-7"	10" C. to C.	T.&B. Slabs
B	(L/10)2	⅝" φ	5'-10"	"	"
C	(L/10)8	⅝" φ	3'-3"	As Shown	Corners
D	10	½" φ	L-(0'-4")	"	Top Slab
E	10	½" φ	L+(4'-8")	"	Bot. Slab
F1	1	½" φ	10'-10"	9" c.to c.	Apron
F2	1	½" φ	11'-7"	"	"
F3	1	½" φ	10'-9"	"	"
F4	1	½" φ	9'-11"	"	"
F5	1	½" φ	9'-1"	"	"
F6	1	½" φ	8'-3"	"	"
F7	1	½" φ	7'-3"	"	"
G	(L/7½)2	⅝" φ	4'-0"	7½" Stag'd	Side Walls
H1	2	½" φ	L+(2'-1")	12" Stag'd	S.W & Wings
H2	2	½" φ	L+(4'-4")	"	"
H3	2	½" φ	L+(5'-2")	"	"
I1	2	½" φ	2'-11"	As Shown	Wings & Apron
I2	2	½" φ	3'-5"	"	"
I3	2	½" φ	3'-11"	"	"
I4	2	½" φ	4'-5"	"	"
I5	2	½" φ	5'-0"	"	"
I6	2	½" φ	5'-2"	"	"
J	4	⅝" φ	8'-0"	"	Wings
L	2	½" φ	4'-2"	"	Top of Apron
M	14	¾" φ	1'-6"	"	Dowels

*Disregard Fractions
Concrete P.F.L. Barrel ______ 0.4743 C.Y.
Concrete P.F.D. Cut-Off wall (One End) ______ 0.3075 C.Y.
Excavation P.F.L., P.F.D. Barrel ______ 0.4136 C.Y.
Reinforcing Steel P.F.L. Barrel ______ 99.3 Lbs.

QUANTITIES

STATION	LENGTH "L"	REINFORCING STEEL	CLASS "A" CONCRETE
107+77	8'-6" Left	1,037 LBS.	6.2 C.Y.
107+77	13'-6" Right	1,534 LBS.	8.5 C.Y.
132+15	9'-6" Left	1,137 LBS.	6.6 C.Y.
132+15	9'-6" Right	1,137 LBS.	6.6 C.Y.
		LBS.	C.Y.
		LBS.	C.Y.
TOTAL		4,845 LBS.	27.9 C.Y.

NOTE:
Method used in figuring Quantities
Reinf. Steel = 193.3 + 99.3 L
Class "A" Concrete = 2.1330 + 0.4743L

UNCLASSIFIED EXCAVATION (Both Ends) - Sta. 107+77 - 20 C.Y.
Sta. 132+15 - 20 C.Y.

NOTES:
Design Specifications: "Standard Specifications for Highway Bridges," A.A.S.H.O.-1941 (except fs.) fs = 20,000 #/in.², fc = 1,000 #/in.², n=10, v = 90 #/in.², u = 165 #/in.², H15 loading, 10' Earth fill (Max).

Work to be done consists of removing the designated portions of the existing structure and extending in accordance with these plans.

The holes for the dowels to be drilled 9" into old concrete and the dowels firmly set in a 1:3 Mortar.

All costs of removing the designated portions of existing structure, drilling and chipping, are to be included in unit price bid for class "A" Concrete.

The Contractor shall replace or repair at his own expense, and to the satisfaction of the Engineer, any portion of the existing structure damaged, due to his carelessness or negligence.

Structural grade reinforcing steel not permitted.

Center of main reinforcing steel shall be 2" from the surface of the concrete.

All concrete shall be class "A".

Chamfer all exposed edges ¾".

Depth of Cut-Off Wall shall be determined by the Engineer and quantities added to those shown.

All dimensions relative to reinforcing steel are to center of **bars.**

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961.

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.

Rev.	G.M.	G.K.B.	3-63
Rev.	R.D.F.	W.B.B.	7-58
	Copied on Foil		
Rev.	H.G.W.	R.J.P.	2-5?
	From B1.5 Ext.		
Quan.	GKB	WBB	7-45
Tr.	W.R.T.	W.B.B.	8-45
Dr	GKB	W.B.B	7-45
Des	GKB	W.B.B	7-45
	By	CHK'D	DATE

S.C. STATE HIGHWAY DEPARTMENT
COLUMBIA

CONCRETE CULVERT

REINFORCED BOX TYPE

SINGLE 5' x 3' EXTENSION

S.C. DOCKET NO. 14.361 Clarendon COUNTY

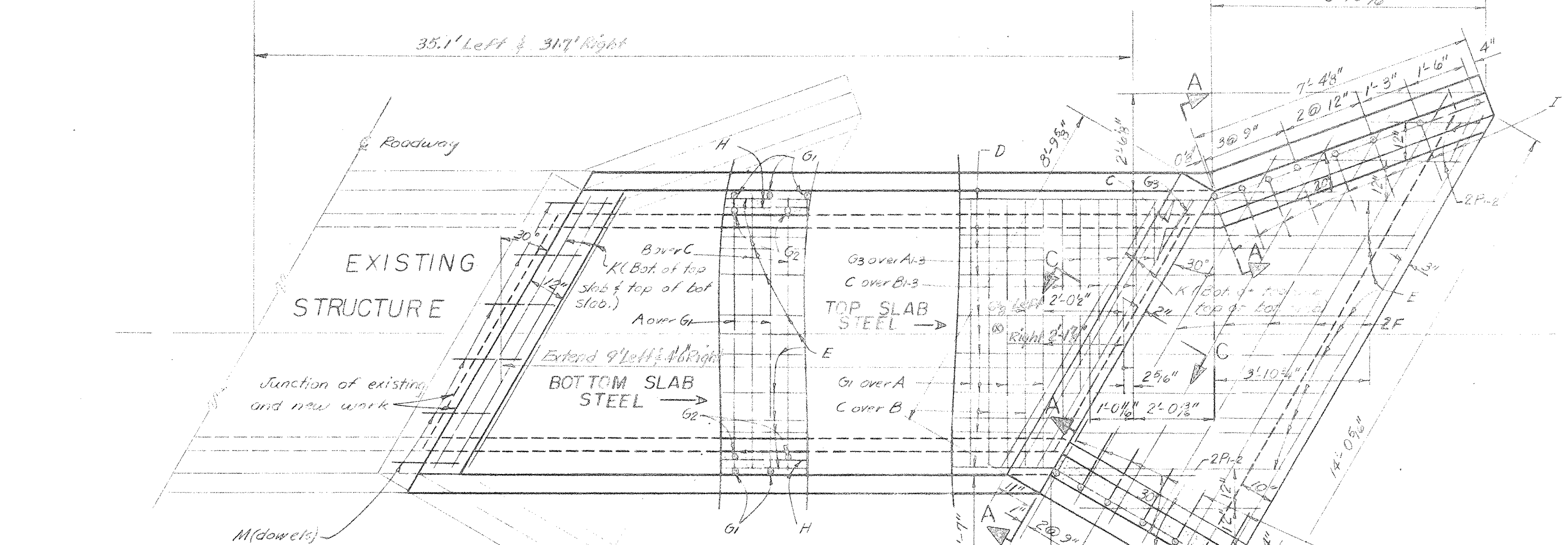
ROUTE NO. 301 DATE 4-1963

B1.53 EXT.

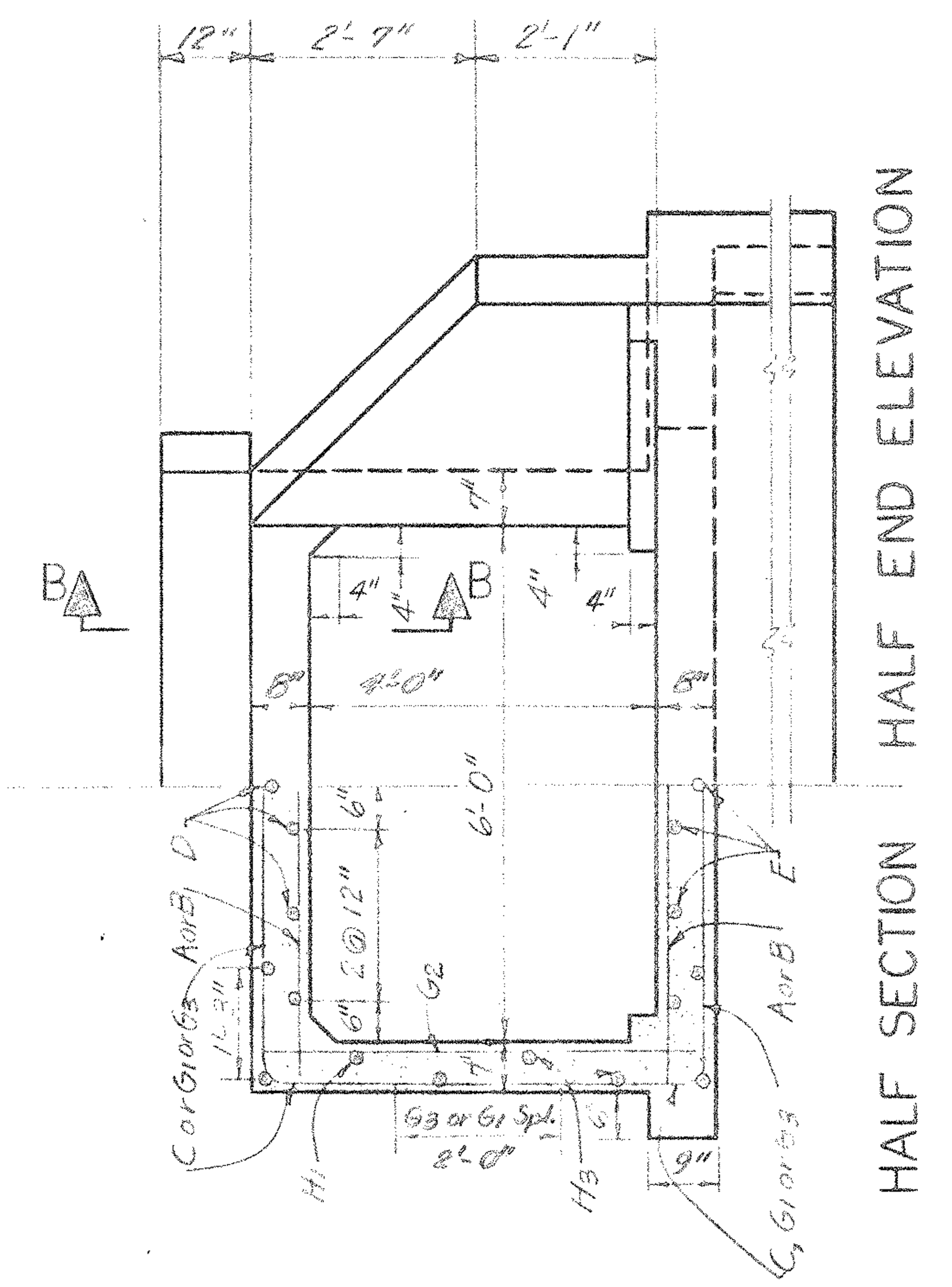
NOTES:-

The existing headwalls are to be removed, if necessary, down to the top of the top slab or to a depth of 12" below subgrade, whichever is the lesser.

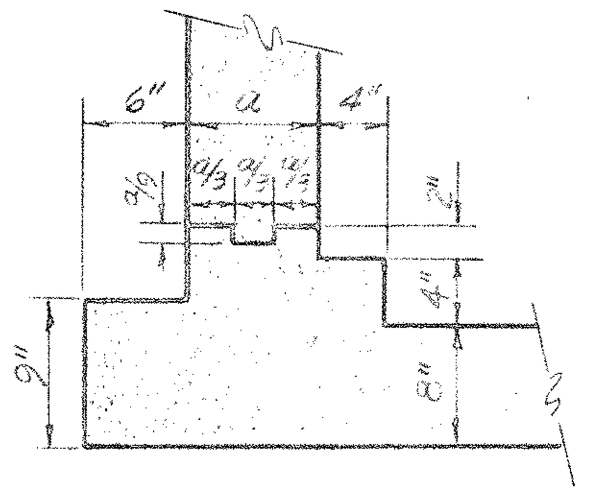
All costs of performing this work, as directed by the Engineer shall be included in the Unit Price Bid for Class "A" Concrete.



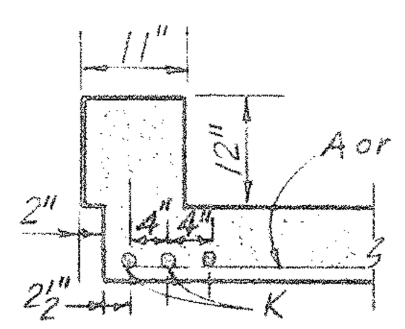
PLAN



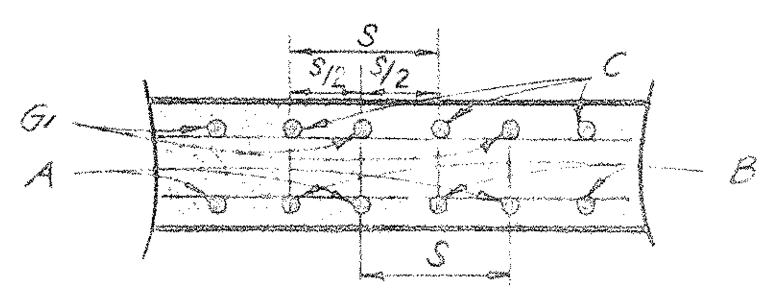
HALF SECTION HALF END ELEVATION



CONSTRUCTION JOINT DETAIL

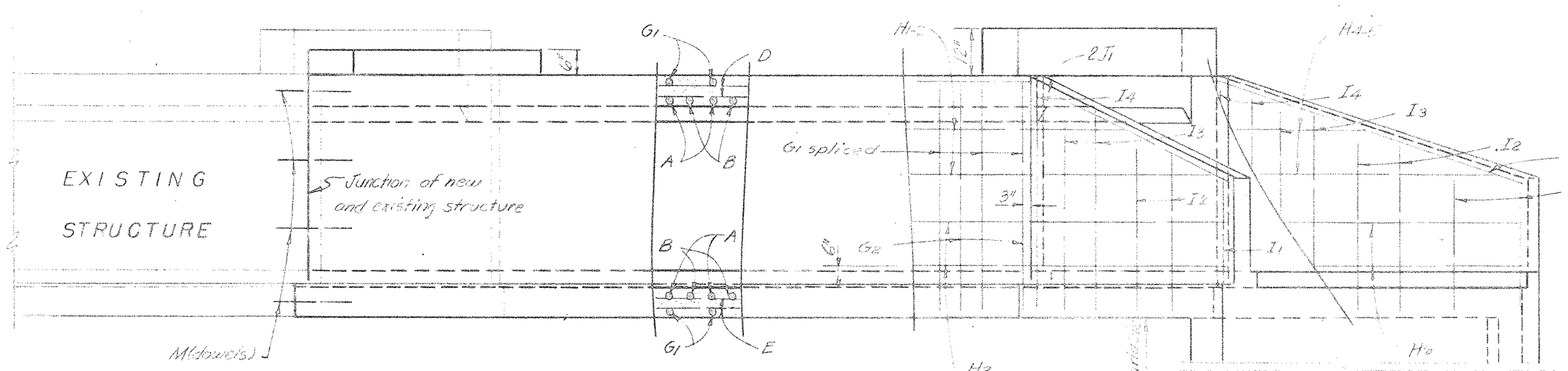


SECTION C-C

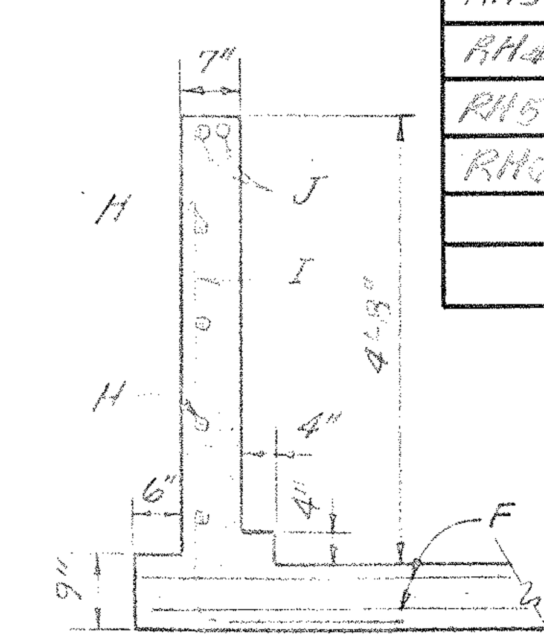


SECTION B-B

® Left or Right denotes Left or Right Extension. There are no "B" bars in the right extension.



ELEVATION



SECTION A-A

FED. RD. DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	Clarendon	14.361	301	29	33

STEEL SCHEDULE Both Ends

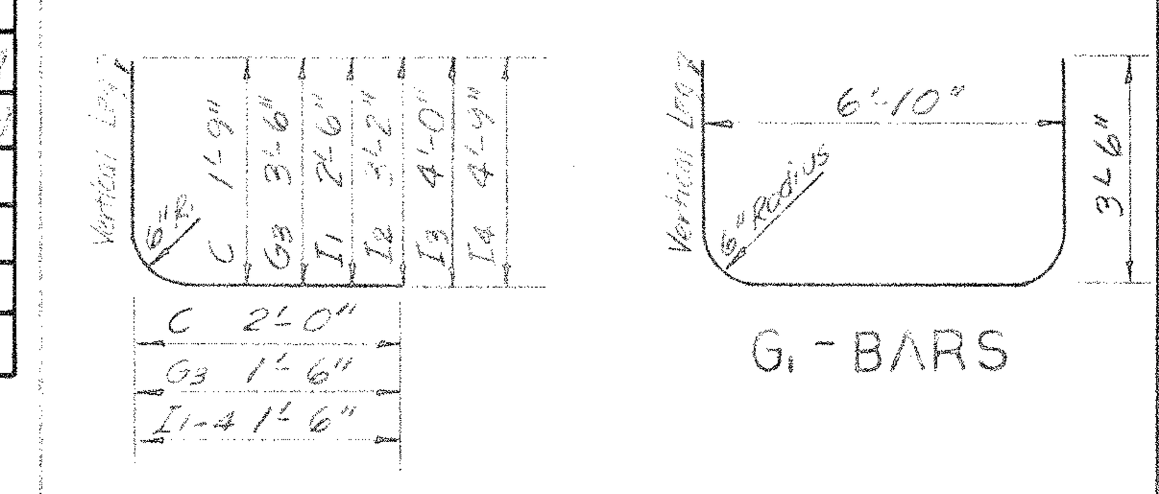
MARK	SIZE NO.	NO.	LENGTH	SPACING	LOCATION
A	6	14	6'-10"	11" C. to C.	T.& B. Slabs
A1	6	8	5'-0"	"	"
A2	6	8	3'-5"	"	"
A3	6	8	1'-10"	"	"
B	5	10	6'-10"	"	"
B1	5	3	5'-10"	"	"
B2	5	8	4'-3"	"	"
B3	5	2	2'-8"	"	"
C	4	52	3'-6"	"	Corners
*LD	4	11	8'-6"	As Shown	Top Slab
LE	4	11	11'-6"	"	Bottom Slab
F1	4	4	13'-9"	12" C. to C.	Apron
F2 to F5	4	4 ea.	13'-10" to 10'-1" Vary by 1'-3"	"	"
G1	5	14	13'-5"	11" C. to C.	Slabs & Walls
G2	4	22	5'-0"	16½" C. to C.	Sidewalls
G3	5	32	4'-9"	11" C. to C.	Corners & S.W.
LH1	4	1	10'-9"	12" Stagg.	Wall & Short Wing
LH2	4	1	12'-9"	"	"
LH3	4	2	13'-10"	"	"
LH4	4	1	11'-8"	"	Wall & Long Wing
LH5	4	1	14'-6"	"	"
LH6	4	2	[illegible]'-0"	"	"
I1	4	6	3'-9"	As Shown	Wings & Apron
I2	4	8	4'-5"	"	"
I3	4	8	5'-3"	"	"
I4	4	6	6'-0"	"	"
J1	5	4	7'-9"	"	Short Wing
J2	5	4	9'-9"	"	Long Wing
K	6	24	7'-10"	"	T.& B. Slabs
M	6	32	1'-6"	"	Dowels
P1	4	8	4'-5"	"	Apron
P2	4	6	2'-3"	"	"
RD	4	11	4'-0"	"	Top Slab
RE	4	11	10'-0"	"	Bottom Slab
RH1	4	1	6'-4"	12" Stagg'd.	Wall & Short Wing
RH2	4	1	8'-4"	"	"

STEEL SCHEDULE CONTINUED

MARK	SIZE NO.	NO.	LENGTH	SPACING	LOCATION
RH3	4	2	9'-6"	12" Stagg'd.	Wall & Short Wing
RH4	4	1	7'-4"	"	Wall & Long Wing
RH5	4	1	10'-2"	"	"
RH6	4	2	11'-8"	"	"

* Notes:- Prefix "L" denotes bar in left extension only and prefix "R" denotes bar in right extension only.

BENDING DETAILS



C, G_3, & I_{1-4} BARS

G_1 - BARS

TOTAL QUANTITIES (Both Ends)

CLASS A CONCRETE	13.7	C.Y.
REINFORCING STEEL	2,071	LBS.
UNCLASSIFIED EXCAVATION <BOTH ENDS>	20	C.Y.
Concrete P.F.L. Barrel	0.5670	C.Y.
Excavation P.F.L., P.F.D. Barrel	0.4506	C.Y.
Concrete P.F.D. Cut-off Wall (1-End)	0.3650	C.Y.

Notes:-

Design Specifications:- "Standard Specifications for Highway Bridges", A.A.S.H.O. - 1961 - fs = 20,000 psi., fc = 1,200 psi., n = 10, v = 90 psi., u = 300 psi., H20 Live Load, 10' Earth Fill (max.), and also meets the requirements of alternate interstate tandem axle live load.

Center of main reinforcing steel shall be 2" from the surface of the concrete.

All concrete shall be Class "A" Concrete.

Chamfer all exposed edges ¾".

Spacing of bars is the perpendicular distance from center to center.

Depth of cut-off walls shall be determined by the Engineer in the field and quantities added to those shown.

Work to be done consists of removing that portion of the existing structure interfering with construction of new structure and extending in accordance with these plans.

The holes for dowels to be drilled 9" into old concrete and dowels firmly set in a 1:2 mortar.

All costs of removing and disposing of portions of old structure, drilling and chipping whether shown or not, necessary to construct new structure, shall be included in the Unit Price Bid for Class "A" Concrete.

The contractor shall replace or repair, at his own expense and to the satisfaction of the Engineer any portion of the existing structure damaged due to his carelessness or negligence.

REV.			
REV.			
REV.			
REV.	GMP for Dkt. 14.361	G.K.B.	3-63
REVIEWED	G.K.B. IN CHARGE		
QUAN.	GMP	G.K.B.	11-62
TR.			
DR.	GMP	G.K.B.	11-62
DES.	STD.		
	BY	CHK'D	DATE

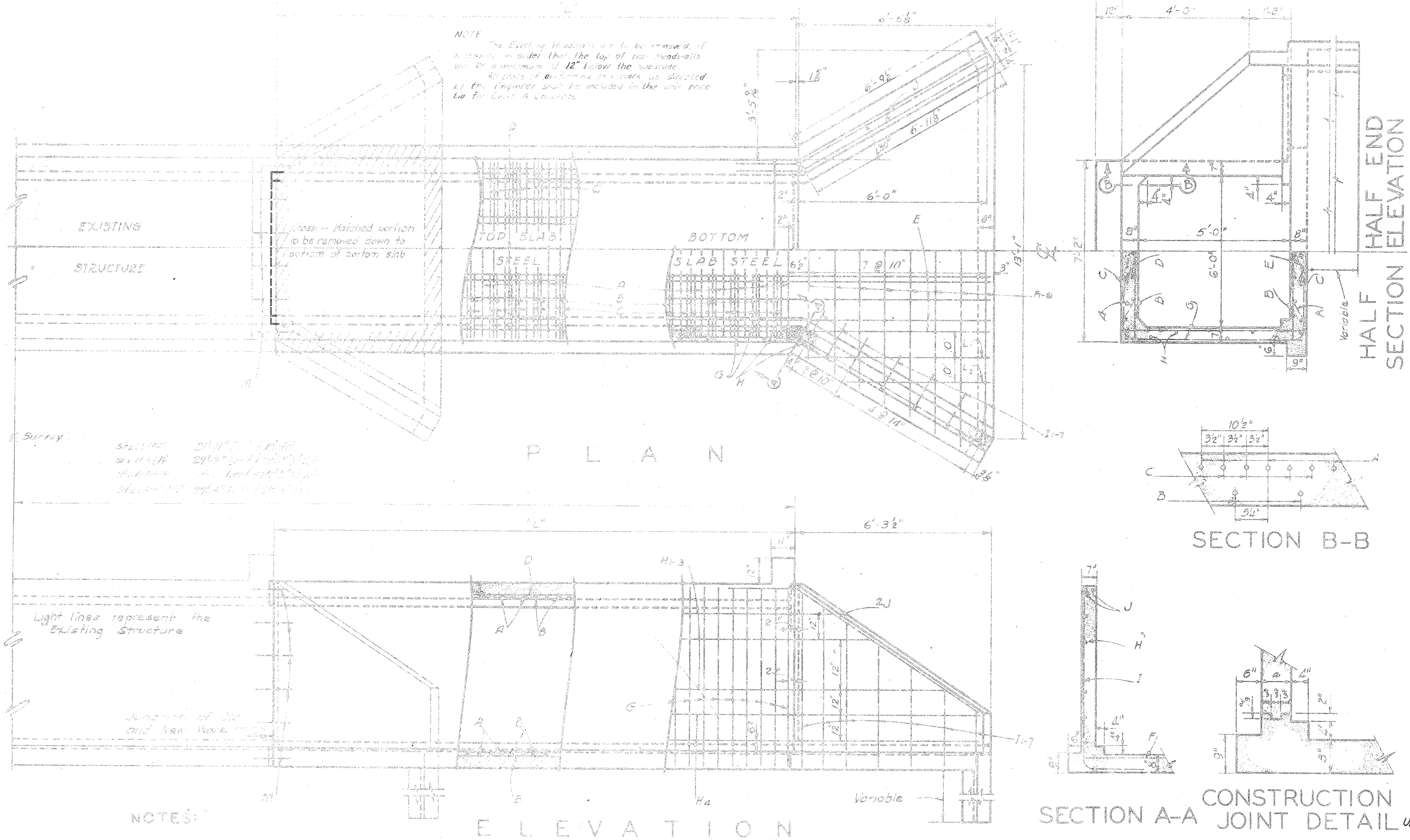
S.C. STATE HIGHWAY DEPARTMENT
BRIDGE DIVISION
COLUMBIA S.C.

CONCRETE CULVERT
REINFORCED BOX TYPE
SINGLE 6' X 4' SKEW 30° EXTENSION
EXTEND 9'-0" LEFT & 4'-6" RIGHT
STA. 31 + 00

DOCKET NO.	COUNTY	ROUTE NO.	DATE
14.361	Clarendon	301	3-63

APPROVED BY [signature] BRIDGE DESIGN & PLANS ENGINEER

APPROVED BY [signature] BRIDGE ENGINEER



FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	[illegible]	14.3[illegible]	301	30	33

STEEL SCHEDULE 1 END

MARK	NO.	SIZE	LENGTH	SPACING	LOCATION
A	[illegible]	⅝" ϕ	[illegible]	10½" C.to C.	T.& B. SLABS
B	(L/10½)2	½" ϕ	6'-10"	"	"
C	(L/10½)8	½" ϕ	4'-9"	As Shown	CORNERS
D	11	½" ϕ	L+(0'-4")	"	TOP SLAB
E	11	½" ϕ	L+(5'-11")	"	BOT. SLAB
F_1	1	½" ϕ	13'-3"	10" C.to C.	APRON
F_2 to F_8	1 ea.	½" ϕ	13'-11" to 8'-2" Vary by 1½"	"	"
G	(L/6½)2	½" ϕ	6'-0"	6½" Stag'd	SIDE WALLS
H_1 to H_3	2 ea.	½" ϕ	L+(1'-7") to L+(5'-1") Vary by 1'-9"	12" "	S.W. & WINGS
H_4	4	½" ϕ	L+(6'-8")	"	"
I_1 to I_5	2 ea.	½" ϕ	3'-4" to 6'-0" Vary by 8"	As Shown	WING & APRON
I_6	2	½" ϕ	6'-6"	"	"
I_7	2	½" ϕ	7'-0"	"	"
J	4	⅝" ϕ	10'-0"	"	WINGS
L_1	2	½" ϕ	6'-0"	"	TOP OF APRON
L_2	2	½" ϕ	4'-7"	"	"
M	20	¾" ϕ	1'-6"	"	DOWELS

* Disregard Fractions

Concrete P.F.L. Barrel ______ 0.6101 C.Y.
Concrete P.F.D. Cut-Off Wall (1 end) ___ 0.3683 C.Y.
Excavation P.F.L., P.F.D. Barrel ___ 0.4506 C.Y.
Reinforcing Steel P.F.L. Barrel ___ 103.2 LBS.

QUANTITIES

STATION	LENGTH "L"	REINFORC'G STEEL	CLASS "A" CONCRETE
[illegible]	[illegible]	[illegible] LBS	[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS	[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS	[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS	[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS	[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS	[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS	8.4[illegible] C.Y.
[illegible]	[illegible]	[illegible] LBS	8.4[illegible] C.Y.
TOTAL		[illegible] LBS	61.8 C.Y.

Method used in figuring Quantities
Reinforcing Steel 282.8 + 103.2 L
Class "A" Concrete 3.300 + 0.6101 L

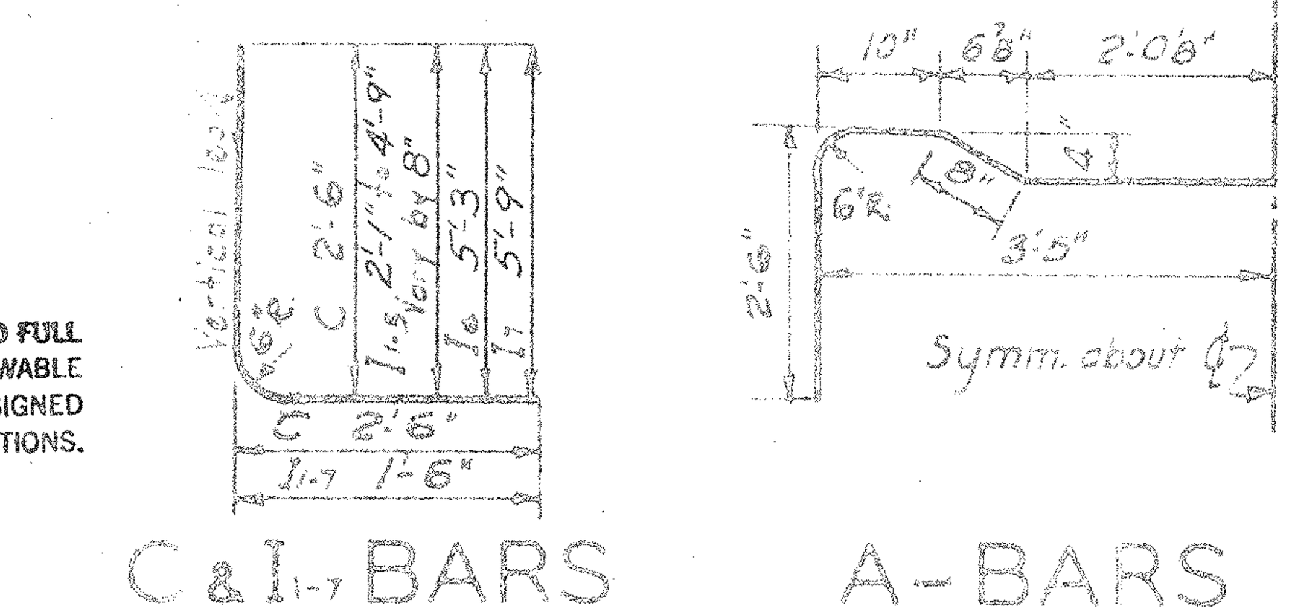
UNCLASSIFIED EXCAVATION (Both Ends) - Sta. 27+55 - 20 C.Y.
Sta. 108+14 - 25 C.Y.
Sta. 125+93 - 15 C.Y.
Sta. 132+44.5 - 25 C.Y.

NOTES:

All dimensions relative to reinforcing steel are to center of bars.

THIS CULVERT DESIGNED FOR H15-S12 LIVE LOAD AND FULL DEAD LOAD. THE STRESSES ARE WITHIN THE ALLOWABLE UNIT STRESSES FOR H20-S16 LIVE LOAD WHEN DESIGNED IN ACCORDANCE WITH THE 1957 A.A.S.H.O. SPECIFICATIONS. WITH REVISIONS THROUGH 1961.

AND ALSO MEETS REQUIREMENTS OF ALTERNATE INTERSTATE TANDEM AXLE LIVE LOAD.



S.C. STATE HIGHWAY DEPARTMENT
COLUMBIA

CONCRETE CULVERT

REINFORCED BOX TYPE

SINGLE 6' x 5' EXTENSION

S.C. DOCKET NO. 14.3[illegible] COUNTY

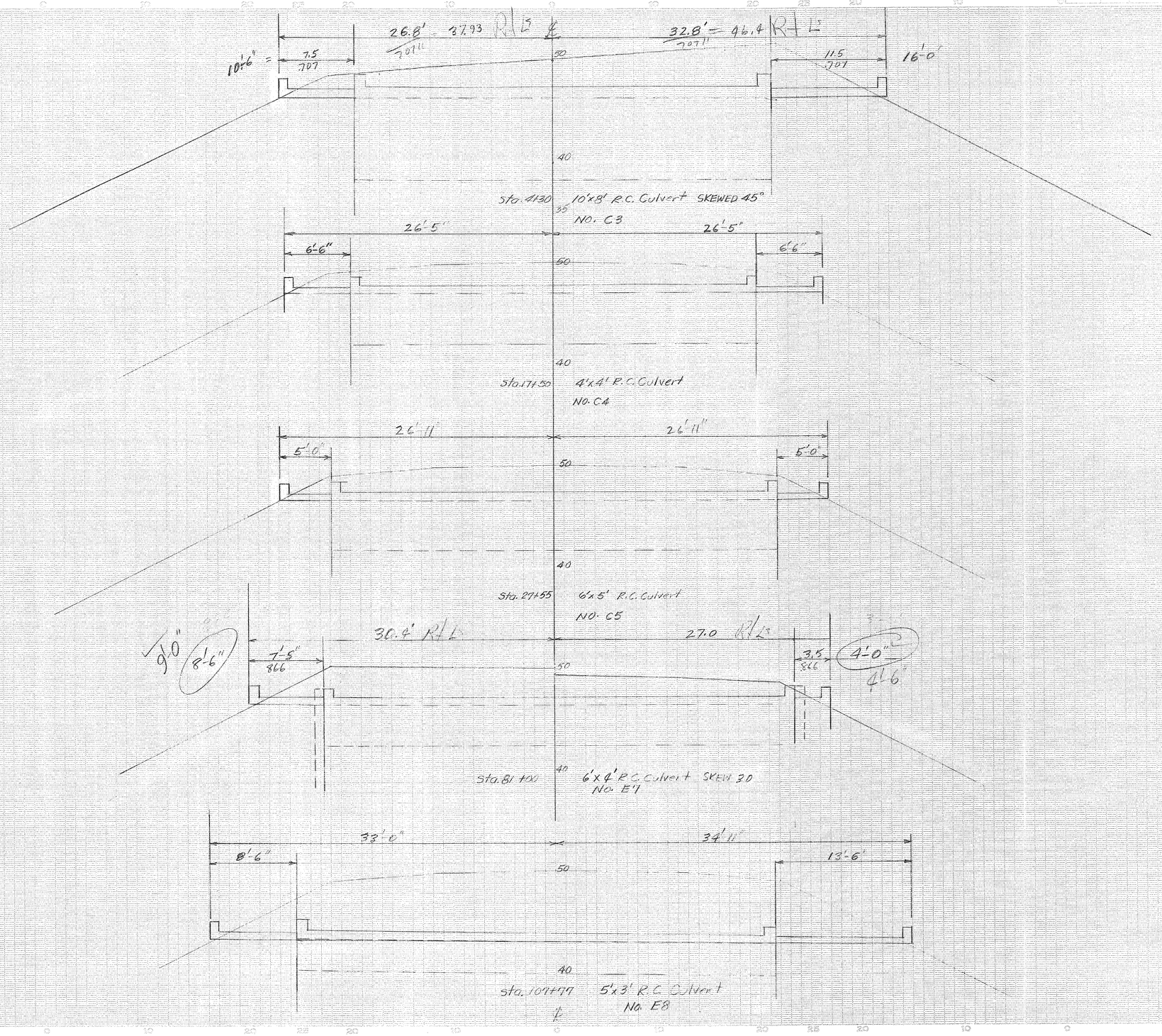
ROUTE NO. 301 DATE 3-1963

B1.65 EXT.

CROSS SECTIONS

Scale 1 inch = 5 feet

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	1A.361		301	31	33



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Template Sections Platted by _____

" " Checked by _____

Areas by _____

" Checked by _____

Plate Sections Revised by _____

" Checked by _____

_____

_____ked by _____

CROSS SECTIONS

Scale: 1 inch = 5 feet

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CLARENDON	14.361		301	32	33

Sta. 103+14 6'x5' R.C. Culvert
NO. E9

Sta. 125+93 6'x5' R.C. Culvert
NO. E10

Sta. 132+15 5'x3' R.C. Culvert
NO. E11

Sta. 132+44.5 6'x5' R.C. Culvert
NO. E12

Sta. 170+10 6'x4' R.C. Culvert
NO. F13

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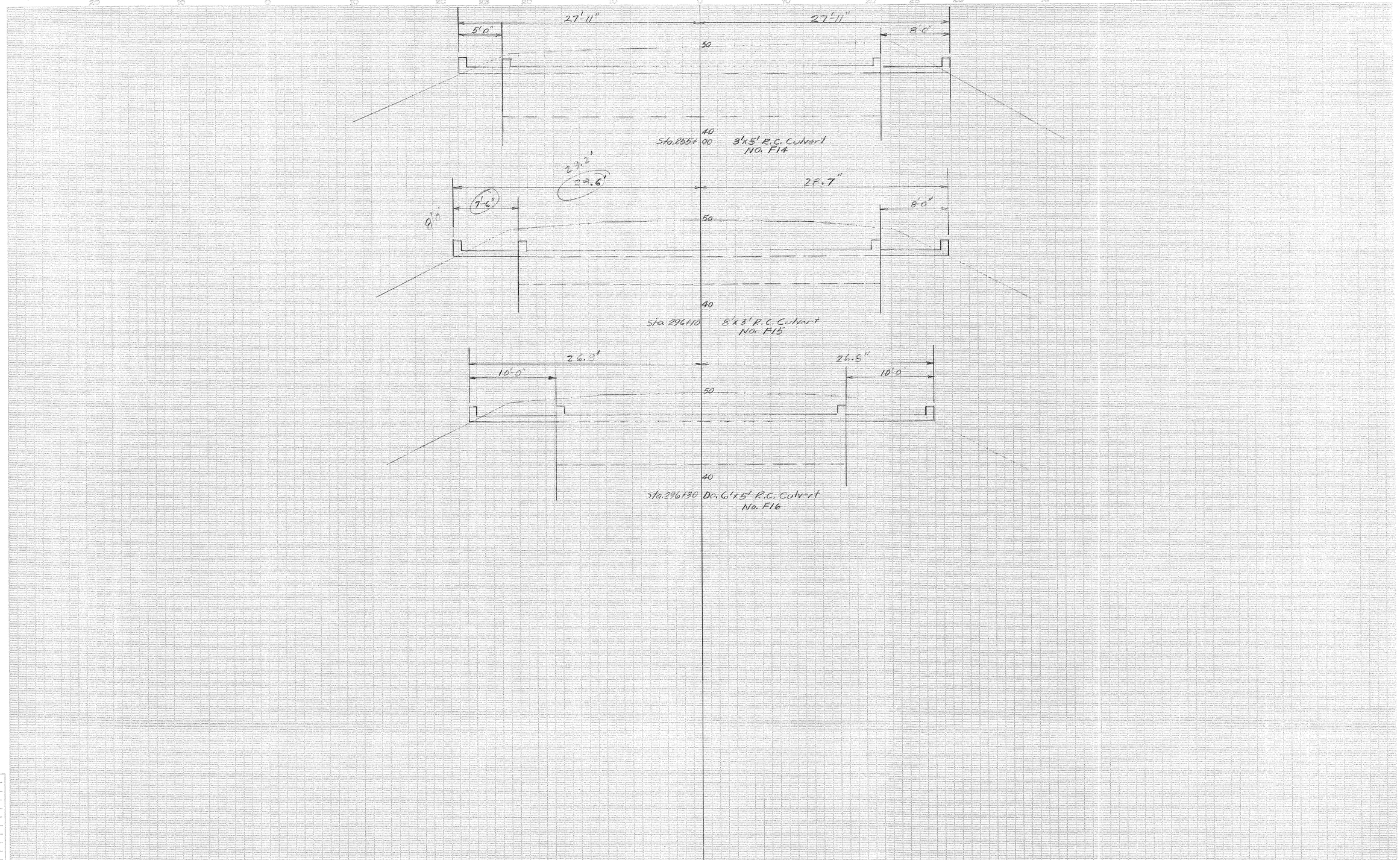
" " Checked by .....
Template Sections Plotted by .....
" " Checked by .....
Areas by .....
Checked by .....
Sections Revised by .....
Checked by .....

CROSS SECTIONS

Scale 1 inch = 5 feet

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S. C.	CLARENDON	14.361		301	33	33



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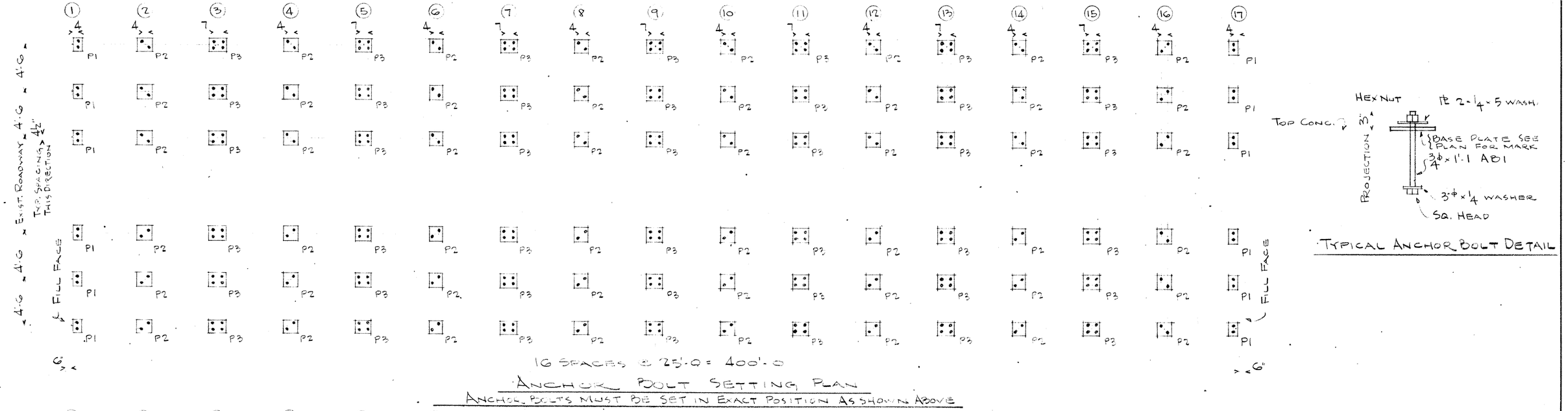
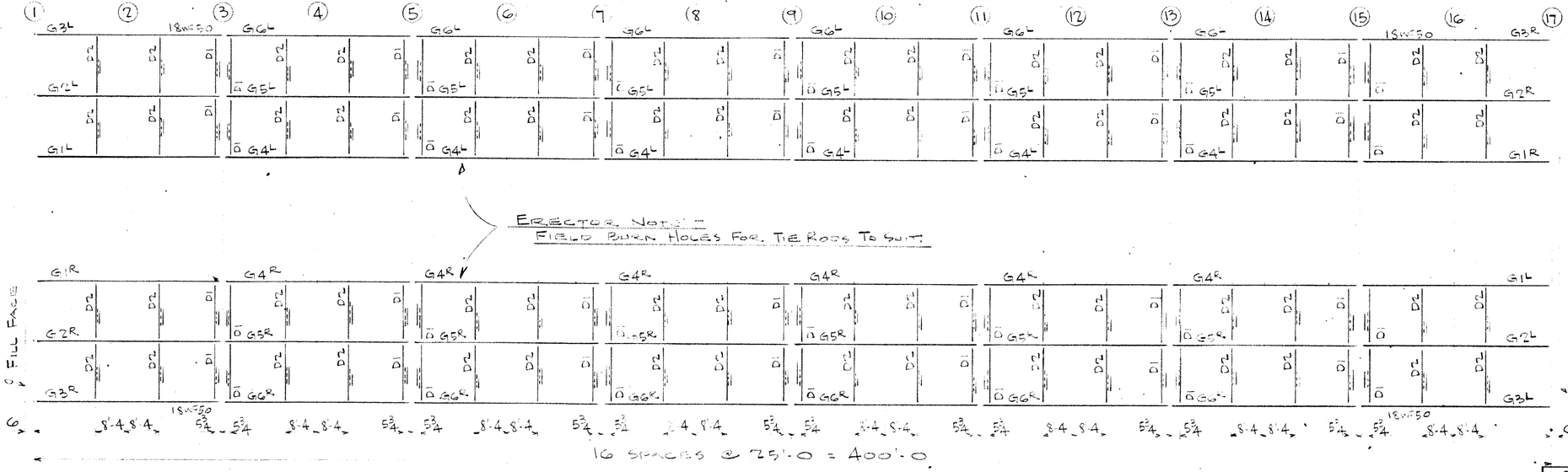


ANCHOR BOLT SETTING PLAN

ANCHOR BOLTS MUST BE SET IN EXACT POSITION AS SHOWN ABOVE

TYPICAL ANCHOR BOLT DETAIL



ERECTOR NOTE:-
FIELD BURN HOLES FOR TIE RODS TO SUIT.

DECK FRAMING PLAN

ALL GIRDERS REVISED 18I47 UNLESS NOTED

ALL DIAPHRAGMS 12C20.7

U.S. 301 BETWEEN MANNINGE TURBEVILLE

BRIDGE OVER BLACK RIVER

SHOP PAINT: S.C.H.D. RED LEAD				SHOP COPY	1 6-22
				FIELD USE	2 6-19
				APPROVAL	5 6-1
	REVISION	DATE	DESCRIPTION	PRINTS	NO. DATE

SHOP CONNECTIONS: WELDED

FIELD CONNECTIONS: 7/8" H.S. BOLTS

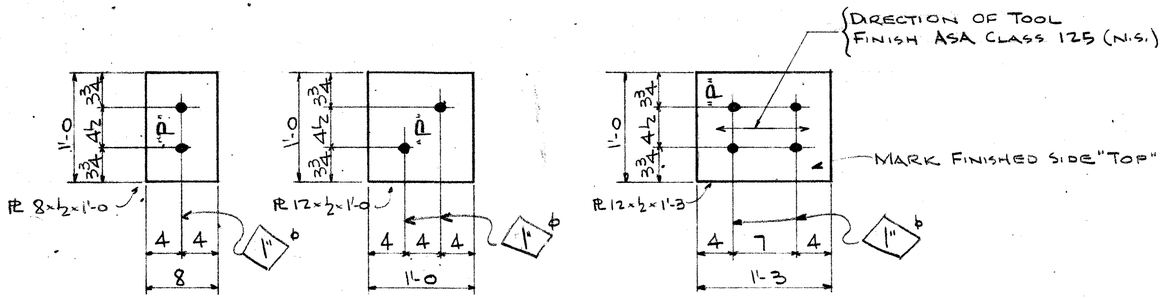
HOLES UNLESS NOTED

EDGE DISTANCE UNLESS NOTED

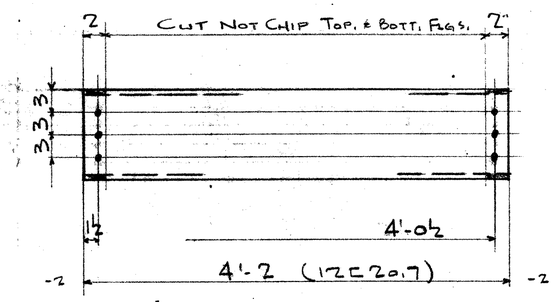
OWEN STEEL COMPANY
COLUMBIA, S.C.

JOB S.C. DOCKET 14.361
LOCATION CLARENDON COUNTY, S.C.
DRWG. COVERS BRIDGE ERECTION PLAN
ARCH. OR ENG'R S.C. HIGHWAY DEPT.
CONTRACTOR DICKERSON INC.
DETAILS BY JRB DATE 5-29-64
CHECKED BY N.C.S. DATE 6-19-64
JOB NO. 64-81
DRWG. NO. E1 OF

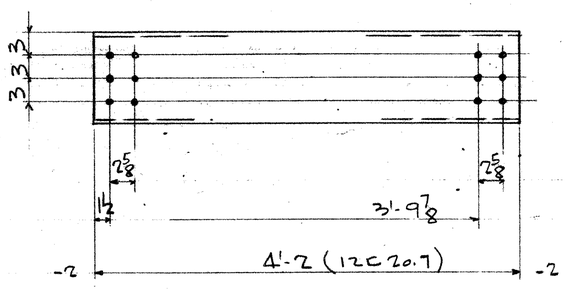
6-19



12-PLATES P1 | 48-PLATES P2 | 42-PLATES P3



56-DIAPHRAGMS D1



64-DIAPHRAGMS D2

SHOP NOTE:
NO PAINT WITHIN 3 INCHES OF ANY OPEN HOLES UNLESS NOTED "P"

SCHEDULE OF MATERIAL

MILL ORD.	NO.	SIZE	LENGTH	MARK	REMARK	PUNCH
	12	PL 8×½	1'-0	P1	(ASTM A7)	
	48	PL 12×½	1'-0	P2	do	
	42	PL 12×½	1'-3	P3	FIN. 1 SIDE do	
	56	12C20.7	4'-2	D1	ASTM A7	
	64	do	4'-2	D2	ASTM A7	
	~~336~~	⅞ H.S. BOLTS × 2½"				
	~~768~~	⅞ H.S. BOLTS × 2				

U.S. 301 OVER BLACK RIVER

SHOP PAINT S.C.H.D. RED LEAD SEE NOTE				SHOP COPY	32	6-22	
				FIELD USE	2	6-19	
				APPROVAL	5	6-1	6-19
	REVISION	DATE	DESCRIPTION	PRINTS	NO.	DATE	

SHOP CONNECTIONS

FIELD CONNECTIONS ⅞" ϕ H.S. BOLTS

HOLES UNLESS NOTED 15/16 ϕ

EDGE DISTANCE UNLESS NOTED

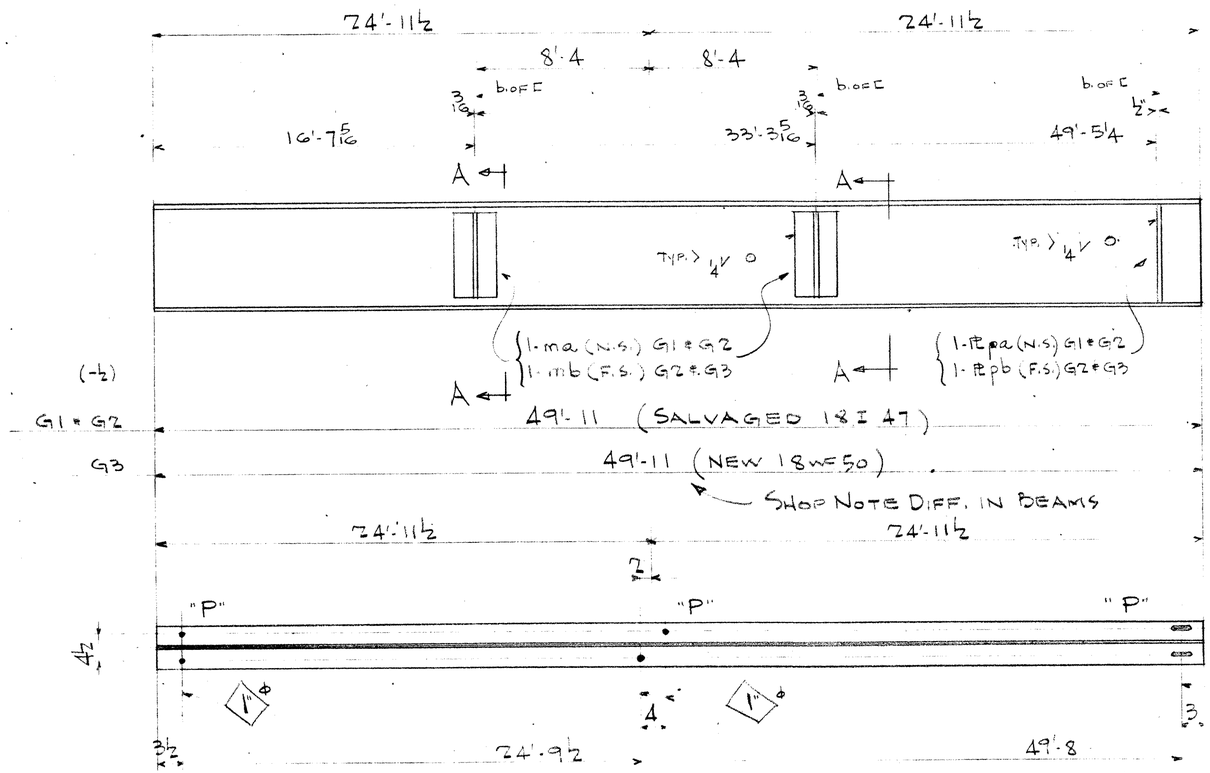
OWEN STEEL COMPANY
COLUMBIA, S. C.

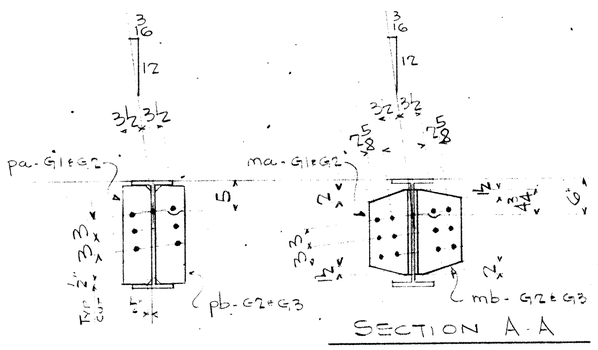
JOB S.C. DOCKET # 14,361
LOCATION CLARENDON COUNTY, S.C.
DRWG. COVERS BEARING PL's & DIAPHRAGMS
ARCH. OR ENG'R S.C. BRIDGE DEPT.
CONTRACTOR DICKERSON INC.

DETAILS BY JRB DATE 5-29
CHECKED BY N.E.S. DATE 6-19-64

JOB NO. 64-81

DRWG. NO. 1 OF





(-½)

SHOP NOTE:
NO PAINT WITHIN 3 INCHES OF ANY OPEN HOLES UNLESS NOTED "P"

1×2-7/8 SLOTS

7 - GIRDERS G1R (AS SHOWN)

7	⏚	G2R	(⏚)
7	⏚	G3R	(⏚)

7 - GIRDERS G1L (OPP. HAND)

7	⏚	G2L	(⏚)
7	⏚	G3L	(⏚)

SCHEDULE OF MATERIAL

MILL ORD.	NO.	SIZE	LENGTH	MARK	REMARK	PUNCH
	7	18I47	49'-11	G1R	SALVAGED MATERIAL	
	7		49'-11	G1L		
	7		49'-11	G2R		
	7	⏚	49'-11	G2L	⏚ ⏚	
	7	18WF50	49'-11	G3R	NEW A36 STEEL	
	7	18WF50	49'-11	G3L	" " "	
	8	PL 5×½	1'-4⅞	pa		
	8	PL 5×½	1'-4⅞	pb		
	16	ST 8WF20	1'-3½	ma		
	16	⏚	1'-3½	mb		

U.S. 301 BETWEEN MANNING & TURBEVILLE
BRIDGE OVER BLACK RIVER

SHOP PAINT	REVISION	DATE	DESCRIPTION	SHOP COPY	3½	6-22
S.C.H.D. RED LEAD UNLESS NOTED				FIELD USE	2	6-9
				APPROVAL	5	6-1
				PRINTS	NO.	DATE

6-9

SHOP CONNECTIONS: WELDED

FIELD CONNECTIONS: ⅞ø H.S. BOLTS

HOLES UNLESS NOTED 15/16 ø

EDGE DISTANCE UNLESS NOTED

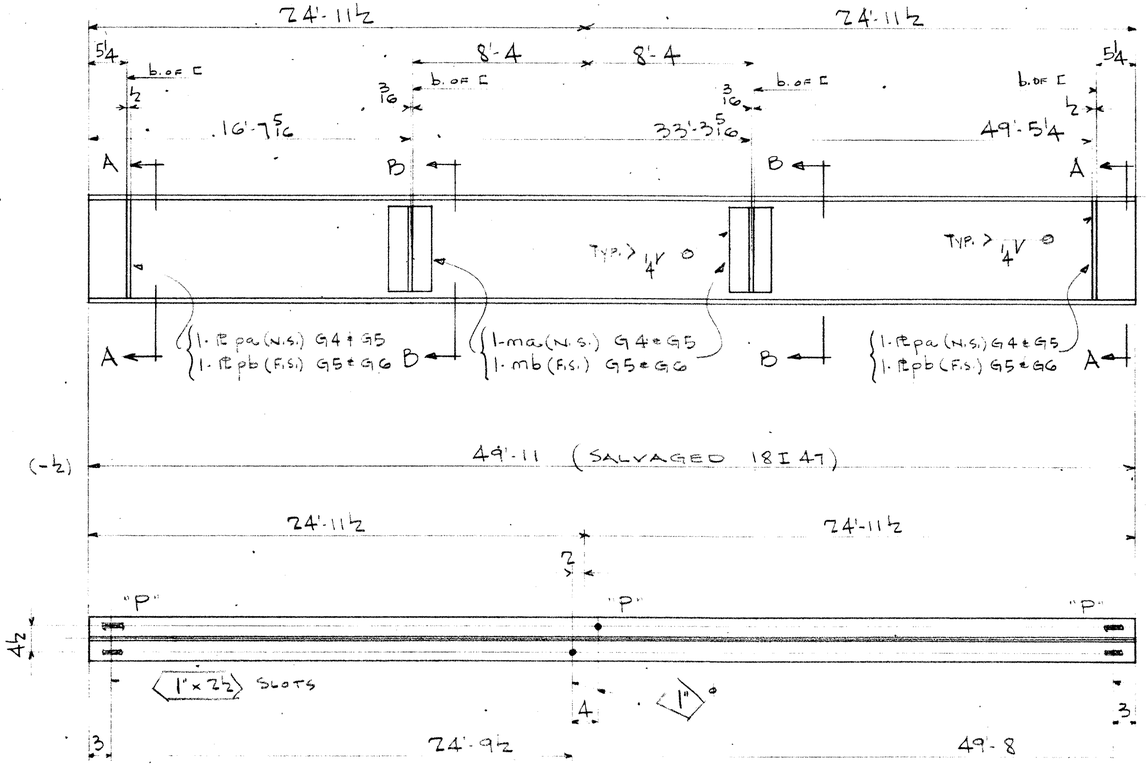
OWEN STEEL COMPANY
COLUMBIA, S. C.

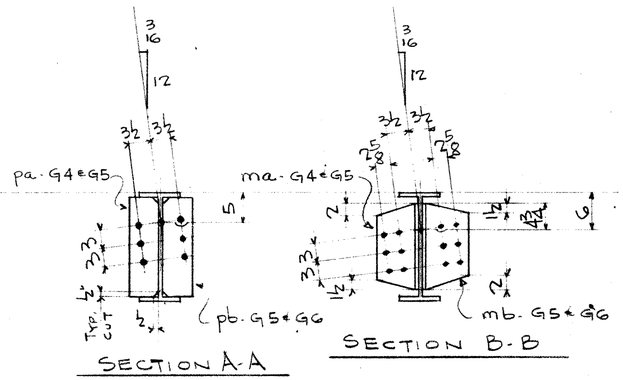
JOB S.C. DOCKET 14,361
LOCATION CLARENDON COUNTY, S.C.
DRWG. COVERS GIRDER DETAILS
ARCH. OR ENG'R S.C. HIGHWAY DEPT.
CONTRACTOR DICKERSON, INC.

DETAILS BY TRB DATE 5-1-64
CHECKED BY N.E.S. DATE 6-12-64

JOB NO. 64-81

DRWG. NO. 2 OF





SHOP NOTE:

NO PAINT WITHIN 3 INCHES OF ANY OPEN HOLES UNLESS NOTED "P"

6 - GIRDERS G4R (AS SHOWN)				6 - GIRDERS G4L (OPP. HAND)			
6	do	G5R	(do)	6	do	G5L	(do)
6	do	G6R	(do)	6	do	G6L	(do)

SCHEDULE OF MATERIAL

MILL ORD.	NO.	SIZE	LENGTH	MARK	REMARK	PUNCH
	6	18I47	49'-11	G4R	SALVAGED MATERIAL	
	6		49'-11	G4L		
	6		49'-11	G5R		
	6		49'-11	G5L		
	6		49'-11	G6R		
	6		49'-11	G6L		
	48	PL 5 x ½	1'-4⅞	pa		
	48	PL 5 x ½	1'-4⅞	pb		
	48	ST 8WF20	1'-3½	ma		
	48	do	1'-3½	mb		

U.S. 301 BETWEEN MANNING & TURBEVILLE
BRIDGE OVER BLACK RIVER

	REVISION	DATE	DESCRIPTION	PRINTS	NO.	DATE
				SHOP COPY	3½	6-22
				FIELD USE	2	6-19
				APPROVAL	5	6-1

6-19

SHOP PAINT: S.C. H.D. RED LEAD UNLESS NOTED

SHOP CONNECTIONS: WELDED

FIELD CONNECTIONS: ⅞ø H.S. BOLTS

HOLES UNLESS NOTED 15/16 ø

EDGE DISTANCE UNLESS NOTED

OWEN STEEL COMPANY
COLUMBIA, S. C.

JOB S.C. DOCKET 14.361
LOCATION CLARENDON COUNTY, S.C.
DRWG. COVERS GIRDER DETAILS
ARCH. OR ENG'R S.C. HIGHWAY DEPT.
CONTRACTOR DICKERSON, INC.

DETAILS BY JRP DATE 5-1-64
CHECKED BY M.E.S. DATE 5-19-64

JOB NO. 64-91

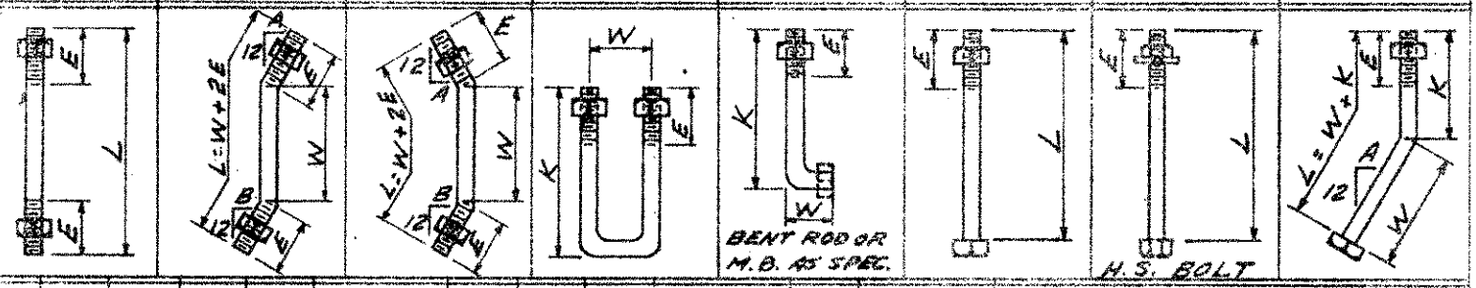
DRWG. NO. 3 OF

U.S. 301 OVER BLACK RIVER — SHOP 6-22-64

OWEN STEEL CO.

JOB S.C. DOCKET 14,361	DRWG. BY J.R.B.	SHEET B1 OF
LOCATION CLARENDON Co., S.C.	CHK'D BY M.E.S.	JOB NO. 64-81
CONTRACTOR DICKERSON INC.	REVISED	DATE 5-29-64

TYPE "A" | TYPE "B" | TYPE "C" | TYPE "D" | TYPE "E" | TYPE "F" | TYPE "H" | TYPE "K"



ITEM	QUAN.	MARK	TYPE	DIAM.	LGTH. L FT.	LGTH. L IN.	K	W	E	BEVEL A	BEVEL B	STOCK	ORDERED JOB	ORDERED WHSE.	LOCATION & REMARKS
1															
2	288	A81	F	3/4	1	1									Sq. Hd., 3" ϕ × 1/4 R WASHER,
3															2" × 1/4 × 5 Sq. WASHER
4															& HEX NUT (13/16 HOLES)
5															
6															
7	350		H	7/8	0	2½									
8	800		H	7/8	0	2									
9	1150	HARDENED WASHERS								For 7/8" H.S. BOLTS					
10															
11															
12															
13															
14															
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