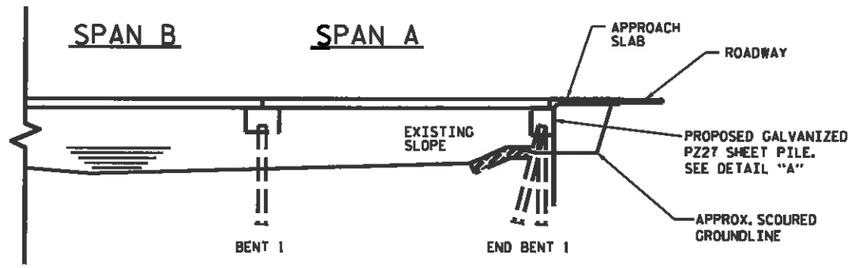
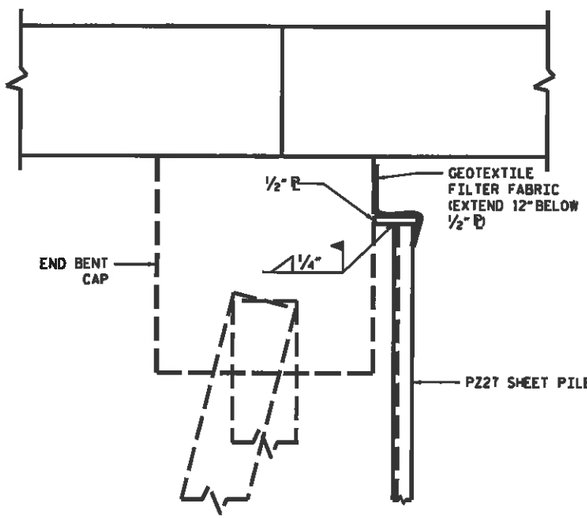


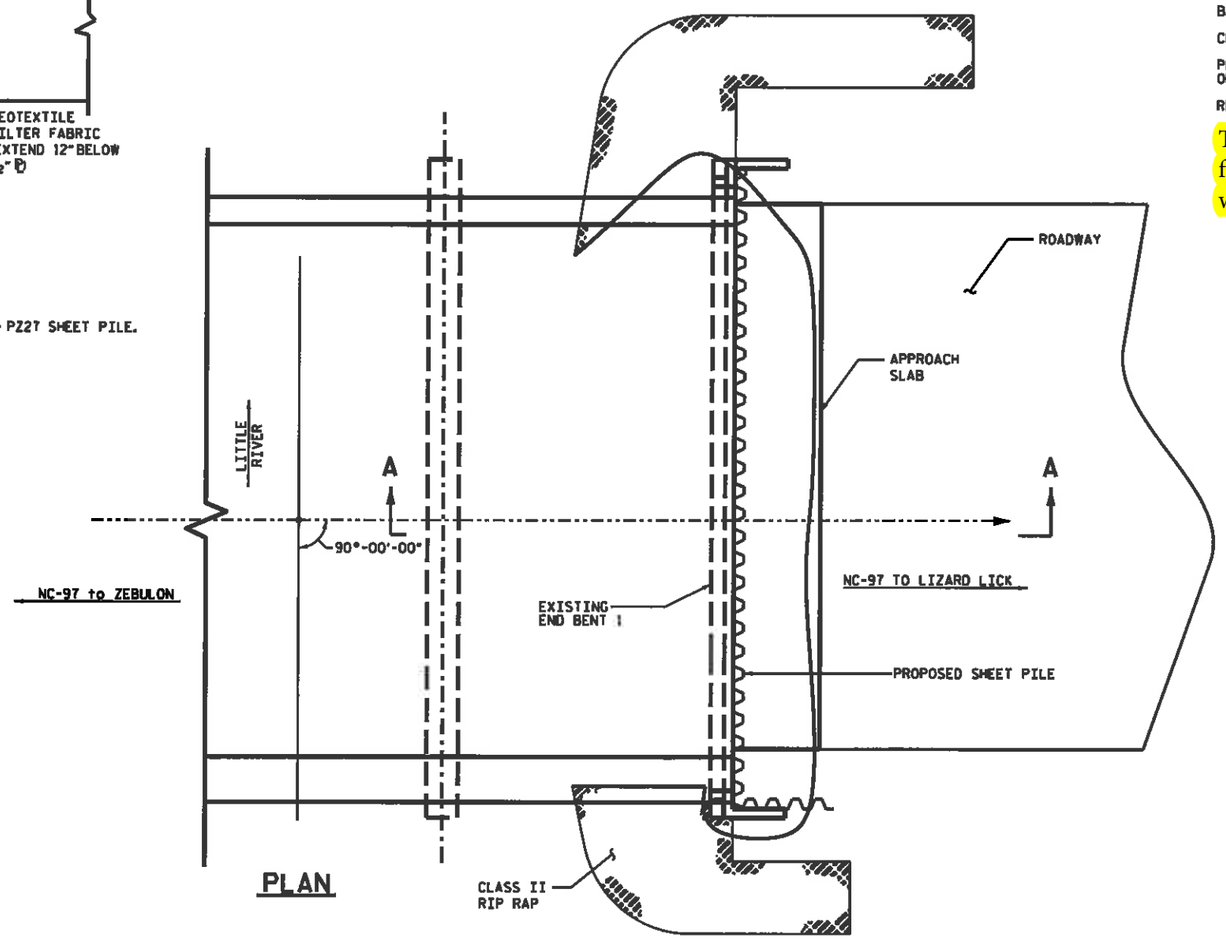
SECTION A-A

(GROUND LINE SHOWN ALONG ℄)



DETAIL A

NOTE: CUT SHEET PILE NEAR MID-HEIGHT OF END BENT CAP.



PLAN

NOTES

END BENT 1 SHOWN; EXTENT OF SCOUR DAMAGE IS APPROXIMATE. REPLACE REINFORCED CONCRETE APPROACH SLAB PER ATTACHED ASBUILT PLAN SHEETS. ADJUST QUATITIES AS NECESSARY, BASED ON EXTENT OF DAMAGE.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORM WORK SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

WORK, MATERIALS, AND ALL OTHER TO BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, JANUARY 2012, UNLESS NOTED OTHERWISE.

PROPOSED SEQUENCE

BRIDGE IS CLOSED BY THE DEPARTMENT.

SHUT OFF AND REMOVE OR RELOCATE UTILITIES AS NECESSARY.

REMOVE APPROACH SLAB AT END BENT 1.

EXCAVATE IN SCOUR HOLE AS NECESSARY TO REMOVE LOOSE SOIL.

PLACE RIP RAP (CLASS I) INTO THE SCOUR HOLE AND PUSH RIP RAP WEST BETWEEN PILE OF END BENT 1, IN AN EFFORT TO PROVIDE ARMORING OF THE SLOPE. HANDWORK TO DISTRIBUTE RIP RAP LIKELY NECESSARY.

DRIVE PZ27 SHEET PILE ON EAST SIDE OF END BENT 1, AS CLOSE AS POSSIBLE TO THE FILL FACE OF THE CAP. SHEET PILE TO EXTEND FROM WING WALL TO WING WALL. TURN SHEET PILE ALONG WING WALLS AND EXTEND AS FAR AS NECESSARY. ADJUST AS NECESSARY AND ADD SHEET PILING FOR SHORING OF ROADWAY AS NECESSARY.

BACKFILL SCOUR HOLE ON NORTH SIDE OF SHEET PILE WITH COMPACTED ABC.

CUT TOP OF SHEET PILE JUST BELOW THE TOP OF ENDBENT 1 CAP.

PLACE ½" ℙ ON TOP OF CUT SHEET PILE. WELD WITH 6" STITCH WELDS ON EACH FACET OF SHEET PILE.

REPLACE APPROACH SLAB, ASPHALT PAVING, PAVEMENT MARKINGS AS NECESSARY.

The steps listed above have been performed by state forces up to replacement of approach slab, which will be performed by Contractor.

PROJECT NO. _____

WAKE COUNTY

BRIDGE NO. 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SCOUR REPAIR

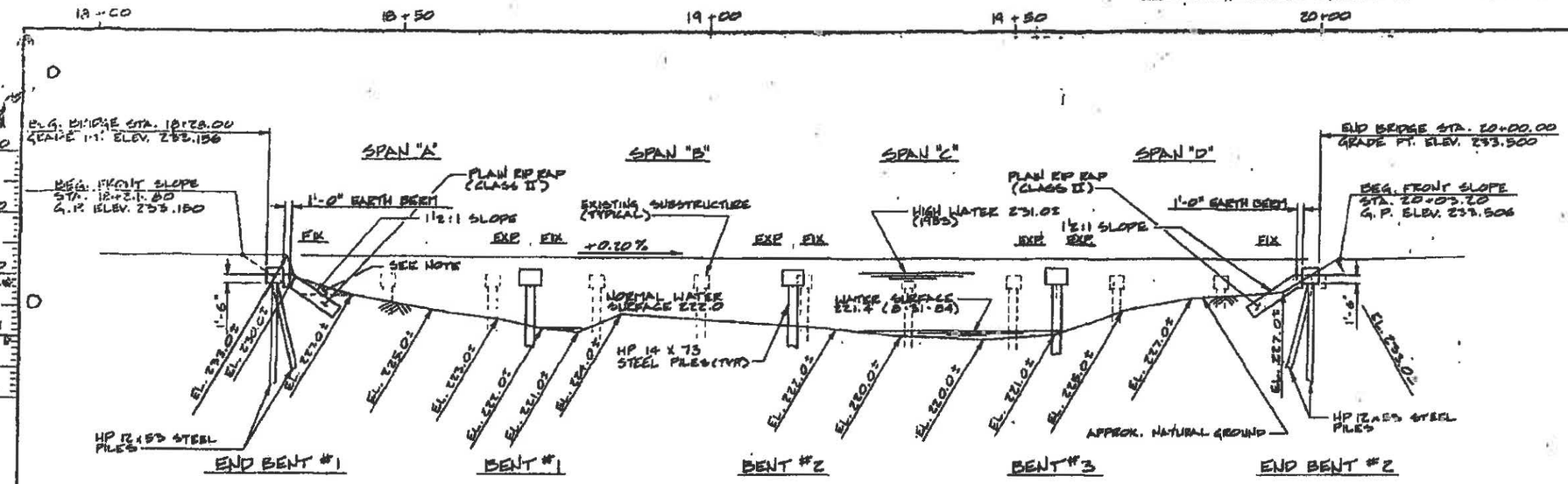
EXISTING BRIDGE OVER
LITTLE RIVER
ON NC-97 BETWEEN
WATER PLANT RD AND CURRIN PERRY

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

DRAWN BY : MODIFIED BY WRB DATE : 10/2016
CHECKED BY : T. SHERILL DATE : 10/2016

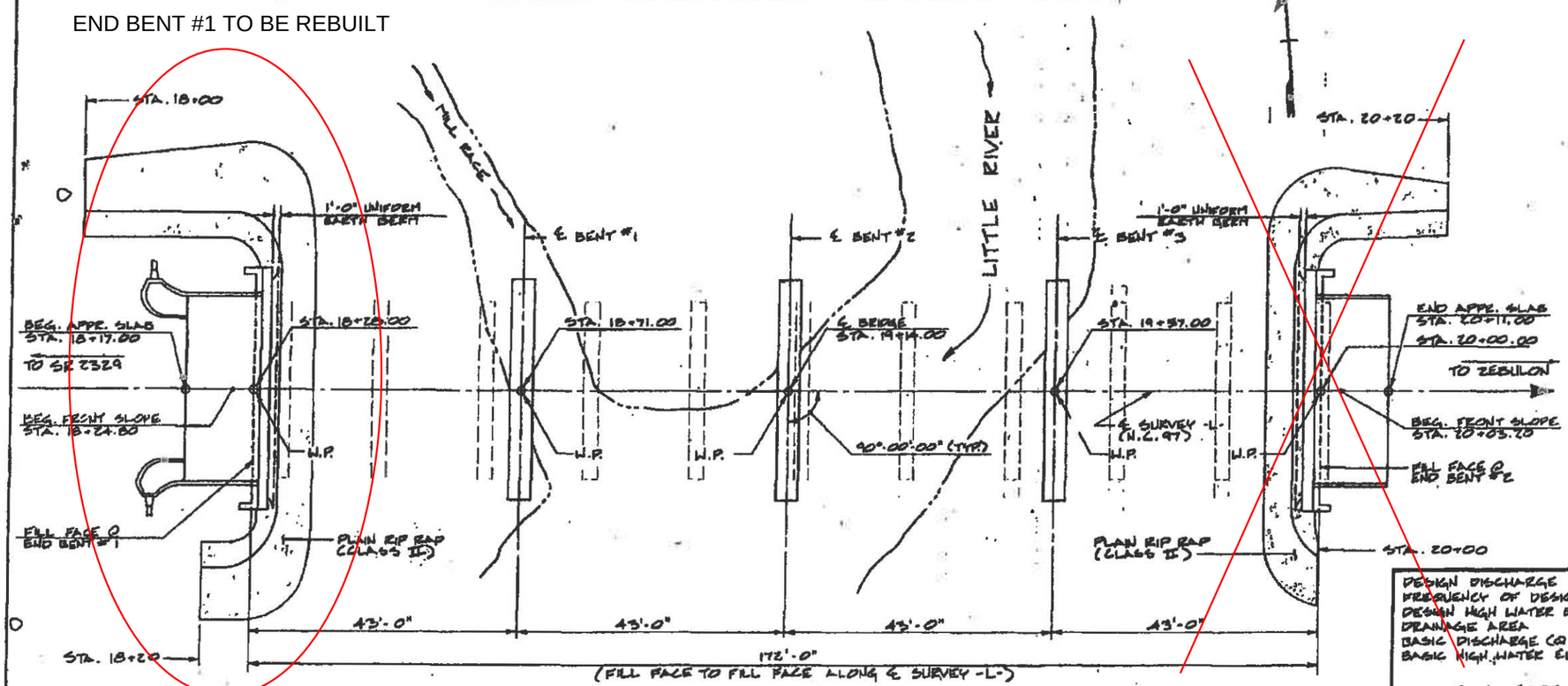
=====SYSTIME=====
=====DGN=====
====USERNAME====

FEDERAL AID PROJ. # BRS-6673(1)



SECTION ALONG ℄ SURVEY -L-

END BENT #1 TO BE REBUILT



PLAN

NOTES

ASSUMED LIVE LOAD = HS 20-44 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-M.

PILES FOR BENTS NO. 1, 2, & 3 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONS EACH.

PILES FOR END BENTS NO. 1 & 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 45 TONS EACH.

ALL REINFORCING STEEL SHALL BE GRADE 60.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY CROSSING AT STA. 18 + 80.00 DETOUR FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. SEE SPECIAL PROVISIONS.

FOR SAND SEAL, SEE SPECIAL PROVISIONS.

BITUMINOUS WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THE EXISTING STRUCTURE CONSISTING OF 10 SPANS @ 17'-0" COMPOSITE CREOSOTED TIMBER SPAN WITH A CLEAR ROADWAY WIDTH OF 26 FEET ON R.C. CAPS WITH CREOSOTED TIMBER PILES LOCATED AT THE PROPOSED CONSTRUCTION SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THE LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

FOR PRINTING PILES FOR BENTS NO. 1, 2, & 3. - SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 10 FEET EACH SIDE OF CENTERLINE OF ROADWAY AS DIRECTED BY THE ENGINEER. NO SEPARATE PAYMENT WILL BE MADE FOR THIS EXCAVATION. PAYMENT WILL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE PLAIN RIP RAP.

NORTH CAROLINA PROFESSIONAL SEAL 10773 ENGINEER EDWARD G. WETHERILL

PROJECT NO. 8.1400801
WAKE COUNTY
STATION: 19+14.00 -L-
REPLACES BRIDGE NO. 3

DESIGN DISCHARGE	=	7800 CFS
FREQUENCY OF DESIGN FLOOD	=	50 YR.
DESIGN HIGH WATER ELEVATION	=	230.8
DRAINAGE AREA	=	55 SQ. MI.
BASIC DISCHARGE (Q 100)	=	9800 CFS
BASIC HIGH WATER ELEVATION	=	231.9

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	± 16000 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	± 500 YR
OVERTOPPING FLOOD ELEVATION	=	233.0

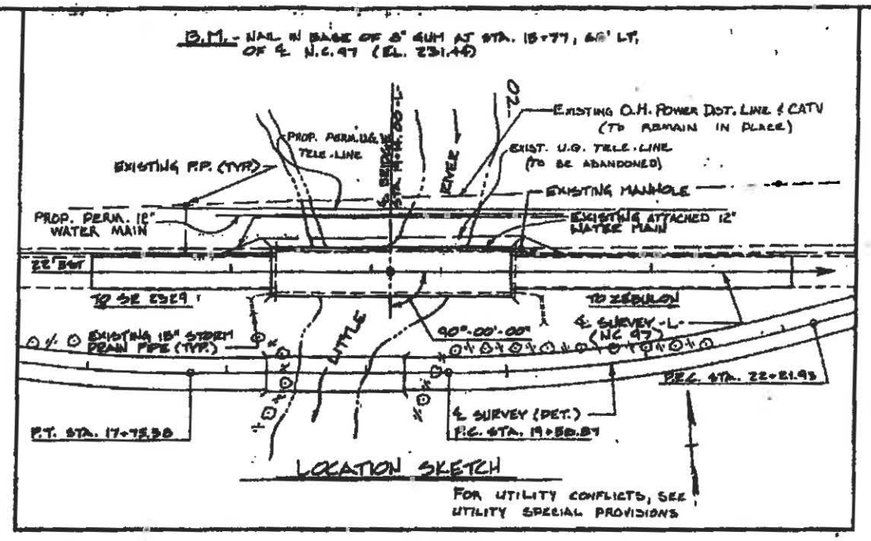
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE OVER LITTLE RIVER ON N.C. 97 BETWEEN SR 2329 & ZEBULON.

OCT. 1984

REVISIONS							
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. S-1
1			3			TOTAL SHEETS 18
2			4			

DRAWN BY J.H. ALEXANDER DATE 10-84
CHECKED BY E.G.W. DATE 10/84



LOCATION SKETCH

FOR UTILITY CONFLICTS, SEE UTILITY SPECIAL PROVISIONS

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP. CROSSING @ STA. 18+80.00 DETOUR	REMOVAL OF EXISTING STRUCTURE @ STA. 19+14.00 -L-	CLASS "A" CONCRETE	REINF. STEEL	HP 12 x 53 STEEL PILES		HP 14 x 73 STEEL PILES		CONCRETE BARRIER RAIL	BRIDGE APPROACH SLABS	ELASTOMERIC BEARINGS	PLAIN RIP RAP CLASS II (2'-0" THICK)	3'-0" x 1'-6" PRESTR. CONC. CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	LUMP SUM	LUMP SUM	SQ. YDS.	NO.	LIN. FT.
SUPERSTRUCTURE									339.67		L.S.		44	1864.04
END BENT NO. 1			11.5	1904	6	240				L.S.		180		
BENT NO. 1			9.9	1900			6	300						
BENT NO. 2			9.9	1900			6	300						
BENT NO. 3			9.9	1850			6	270						
END BENT NO. 2			11.5	1904	6	240				L.S.		110		
DETOUR STRUCTURE												200		
TOTAL	LUMP SUM	LUMP SUM	52.7	9458	12	480	18	870	339.67	LUMP SUM	LUMP SUM	490	44	1864.04

DRAWN BY: J.M. ALEXANDER DATE: 10-84
CHECKED BY: [illegible] DATE: [illegible]

PROJECT NO. 8.1400501
WAKE COUNTY
STATION: 19+14.00-L-

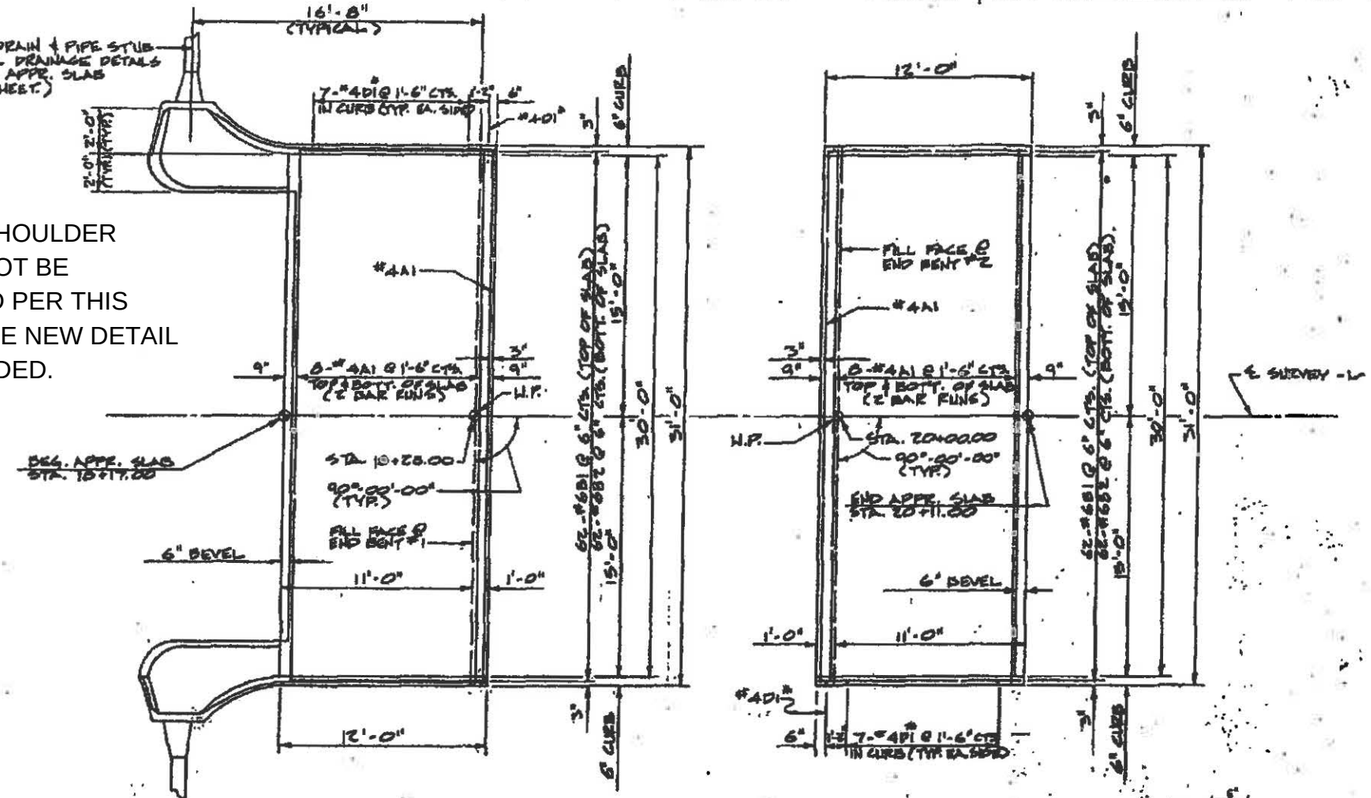
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH & TOTAL BILL OF MATERIAL

OCT. 1984

REVISIONS						SHEET NO. S-2
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS 18
1			3			
2			4			

FLUME AND SHOULDER DRAIN WILL NOT BE RE-INSTALLED PER THIS DRAWING. SEE NEW DETAIL SHEET PROVIDED.



APPROACH SLAB @ END BENT #1

APPROACH SLAB @ END BENT #2

NOTES

FOR SKEWED APPROACH SLABS, SEE SPECIAL PROVISIONS.

THE ENGINEER WILL BE RESPONSIBLE FOR ESTABLISHING ELEVATIONS ON THE APPROACH SLABS.

THE 6" COMP. A.B.C. IS TO EXTEND 10'-0" BEYOND THE SLAB AS SHOWN AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB. IF SPECIAL DRAINAGE IS USED, THE 6" COMP. A.B.C. SHALL ALSO EXTEND UNDER THE CONCRETE FLUME AND 1'-0" OUTSIDE OF EACH EDGE OF CURB.

SUBDRAIN FINE AGGREGATE IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL AND END BENT FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

THE CONTRACTOR, AT HIS OPTION, MAY USE 6" BITUMINOUS CONCRETE BASE COURSE, TYPE HB IN LIEU OF 6" A.B.C.. ANY ADDITIONAL COST DUE TO THE USE OF THIS OPTION WILL BE PAID FOR BY THE CONTRACTOR.

THE 1" EXPANSION JOINT MATERIAL IS TO BE HELD IN PLACE WITH GALVANIZED NAILS.

DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER THE SLAB HAS BEEN SCREEDED AND FLOAT FINISHED EXCEPT AS NOTED ON THE PLANS.

NO DIRECT PAYMENT WILL BE MADE FOR THE TEMPORARY DRAINAGE AS SUCH WORK WILL BE CONSIDERED INCIDENTAL TO OTHER WORK BEING PAID FOR BY THE VARIOUS ITEMS IN THE CONTRACT.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE.

* THESE DOWELS ARE NOT INCLUDED IN THE BILL OF MATERIAL AND SHALL BE USED ONLY WHEN A CONST. JT. IS USED BETWEEN THE SLAB AND CURB. ANY ADDITIONAL COST FOR FURNISHING AND PLACING THESE DOWELS SHALL BE PAID FOR BY THE CONTRACTOR.

● INCLUDES 2.0 C.Y. FOR CONCRETE FLUMES.

BILL OF MATERIAL

FOR 1 APPR. SLAB (2 REQ'D)

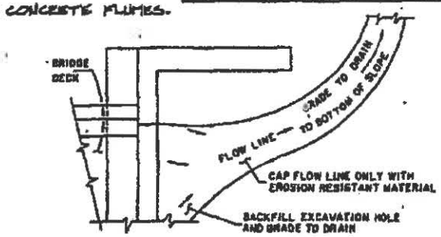
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	36	#4	STR.	15'-11"	383
B1	62	#6	STR.	11'-2"	1040
B2	62	#6	STR.	11'-8"	1086

REINF. STEEL - LBS. - 2509

CLASS "AA" CONCRETE

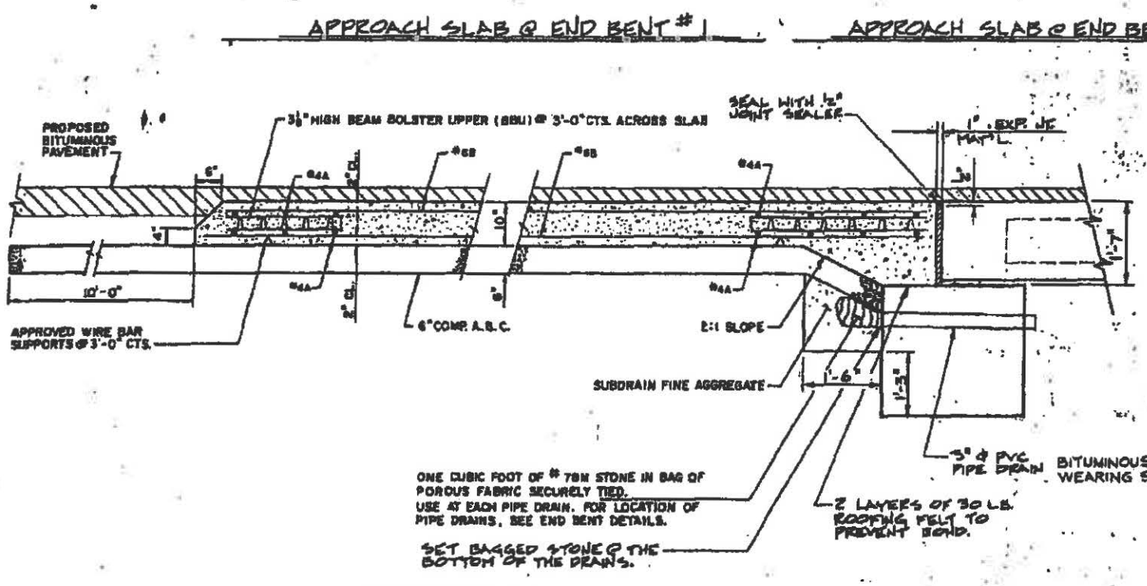
END BENT #1 - CU. YDS. - 13.1 ●

END BENT #2 - CU. YDS. - 13.1

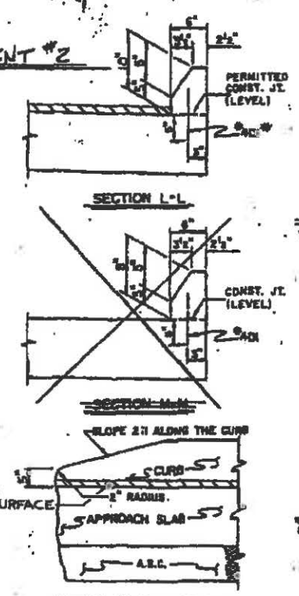


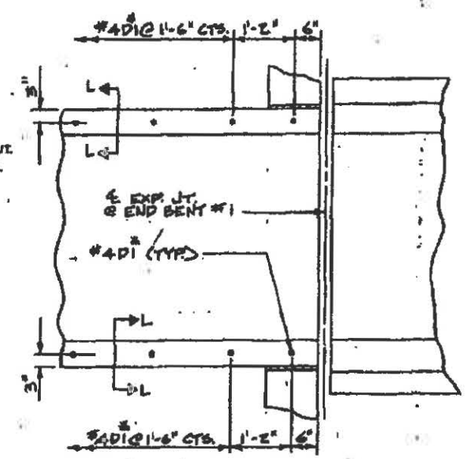
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAILS



SECTION THRU SLAB





PLAN

CURB DETAILS

PROJECT NO. 8.1400801

WAKE COUNTY

STATION: 19+14.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT

JULY 1978

REVISIONS								SHEET NO.
NO.	BY	DATE	NO.	BY	DATE			5-15
1			3					TOTAL SHEETS
2			4					18

STD. NO. BA52

STD. DRAWN BY: K.G.P. DATE: 1-71 CHECKED BY: J.A.H.
DRAWN BY: J.P. ALEXANDER DATE: 11-84
CHECKED BY: E.G.W. DATE: 12/84

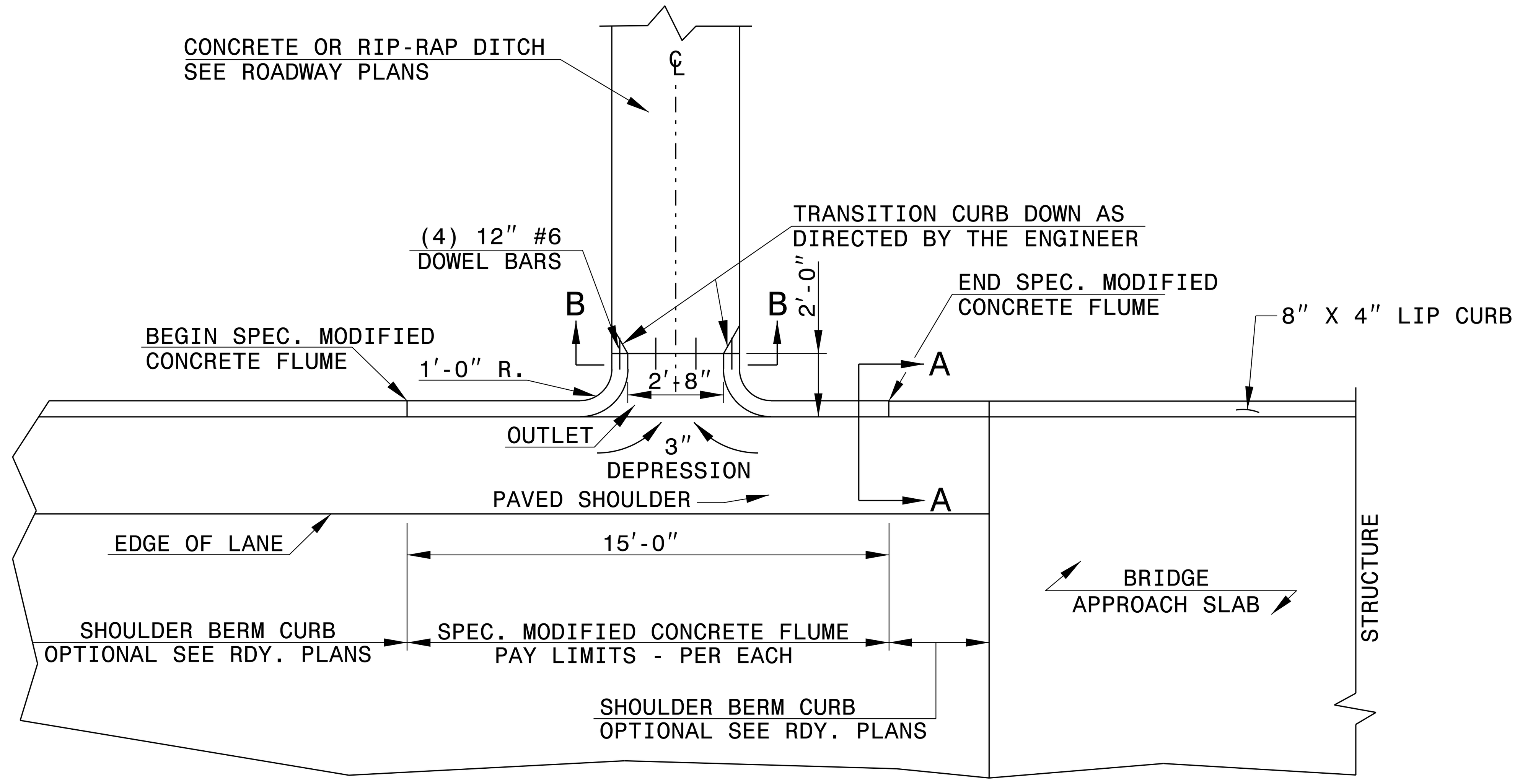
REVISED 3-27-91 BY: R.D.J. / CHK. BY: R.D.J.
REVISED 9-20-79 BY: R.D.J. / CHK. BY: F.C.W.
REVISED 4-1-79 BY: E.C.M. CHECKED BY: R.D.J.
REVISED 7-31-78 BY: R.E.K. CHECKED BY: R.D.J.

PROJECT REFERENCE NO.	SHEET NO.

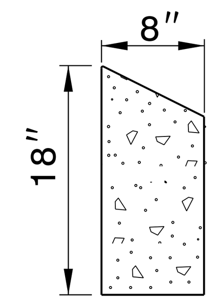
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
SPEC. MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

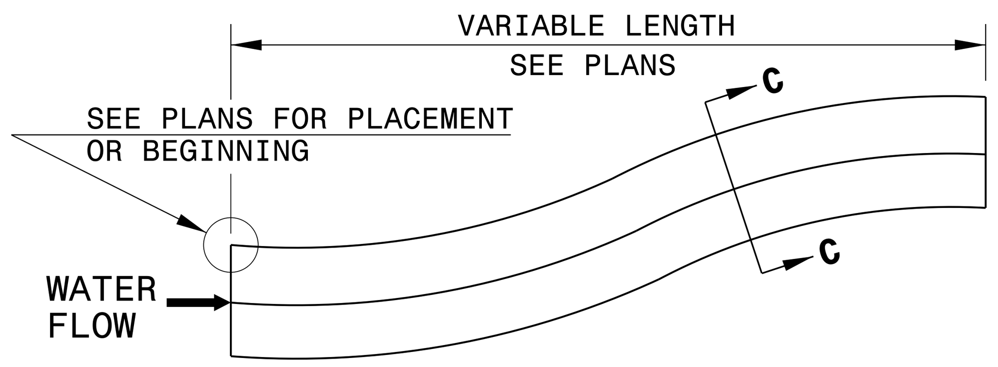
SHEET 1 OF 1
MODFLMDTCH



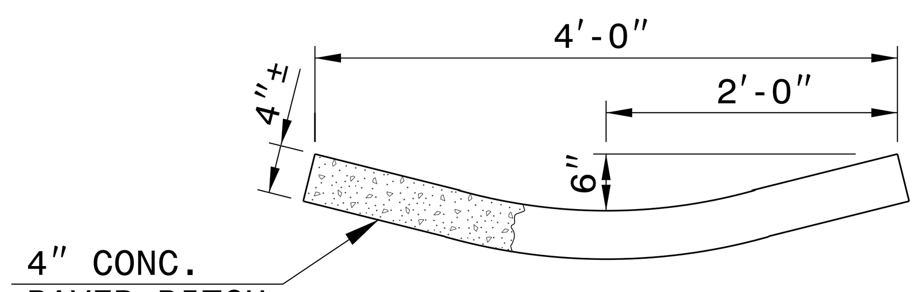
PLAN VIEW



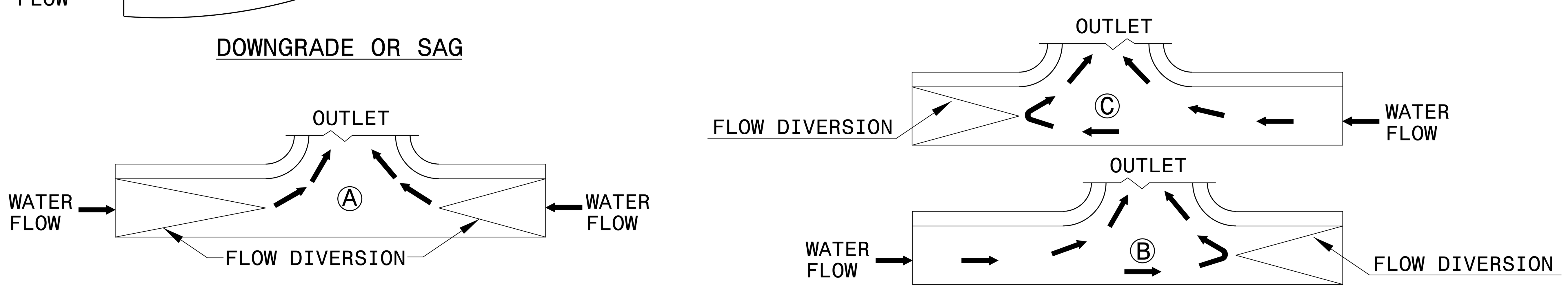
SECTION A-A



DOWNGRADE OR SAG



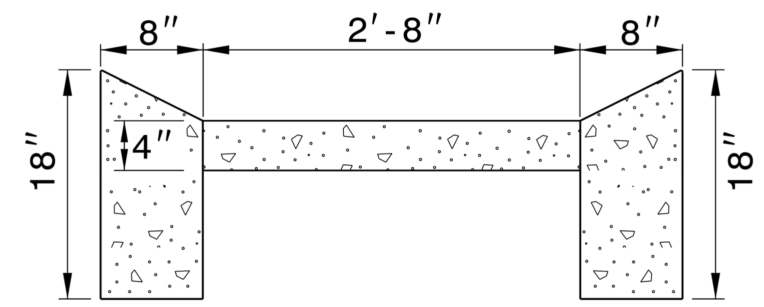
SECTION C-C



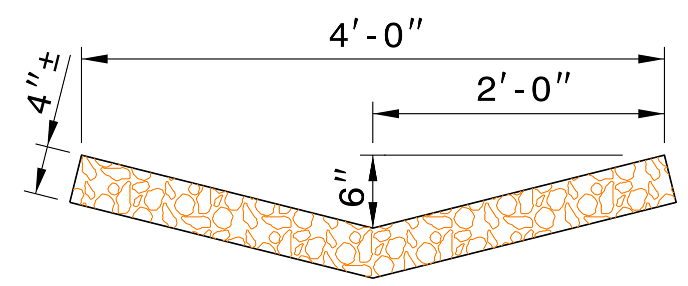
SAG

DOWN GRADE

FLOW DIVERSION EXAMPLES



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM CURB IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
SPEC. MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

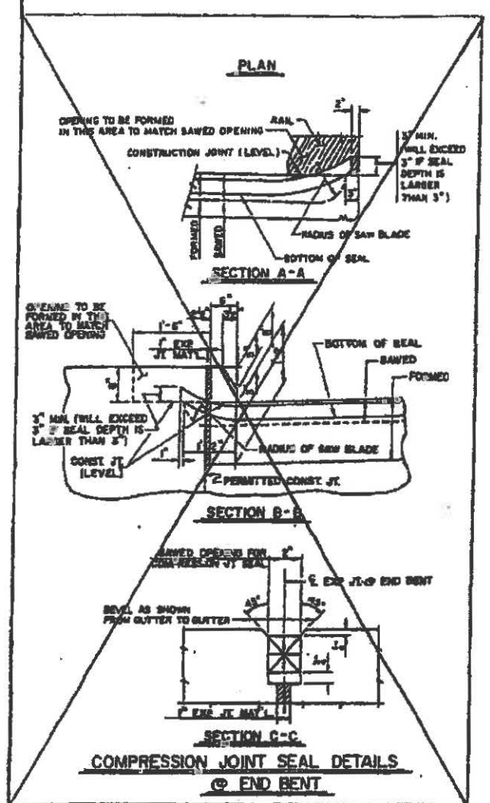
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

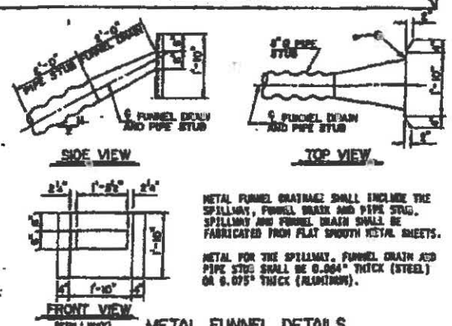
SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: E.E. Ward DATE: July 2004
CHECKED BY: DATE:
FILE SPEC.: w:details\stand\modifiedflume.dgn

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

RIGHT SIDE FLUME SHOWN
LEFT SIDE SIMILAR.



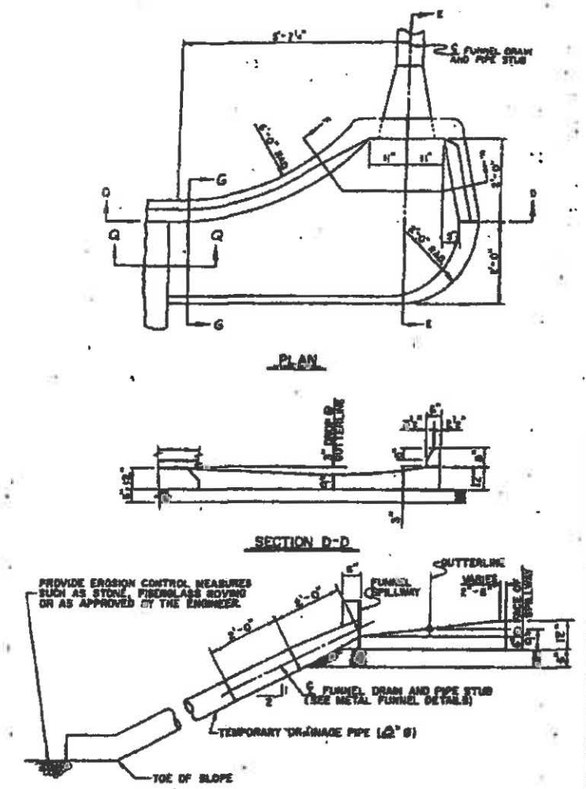


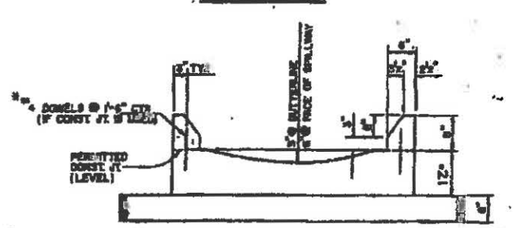
METAL FUNNEL DRAINAGE SHALL INCLUDE THE SPILLWAY, FUNNEL DRAIN AND PIPE STUB. SPILLWAY AND FUNNEL DRAIN SHALL BE FABRICATED FROM FLAT SMOOTH METAL SHEETS.

METAL FOR THE SPILLWAY, FUNNEL DRAIN AND PIPE STUB SHALL BE 0.064" THICK (STEEL) OR 0.075" THICK (ALUMINUM).

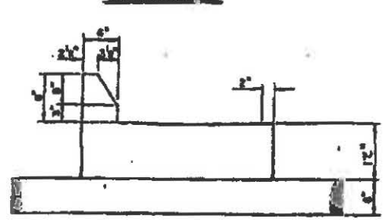
METAL FUNNEL DETAILS

ASSEMBLED BY J.M. ALEXANDER DATE 11-84		SPECIAL
CHECKED BY EGW DATE 12/84		
DRAWN BY	DATE	STANDARD
CHECKED BY	DATE	

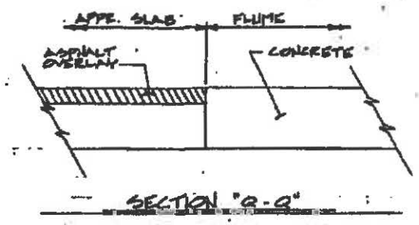


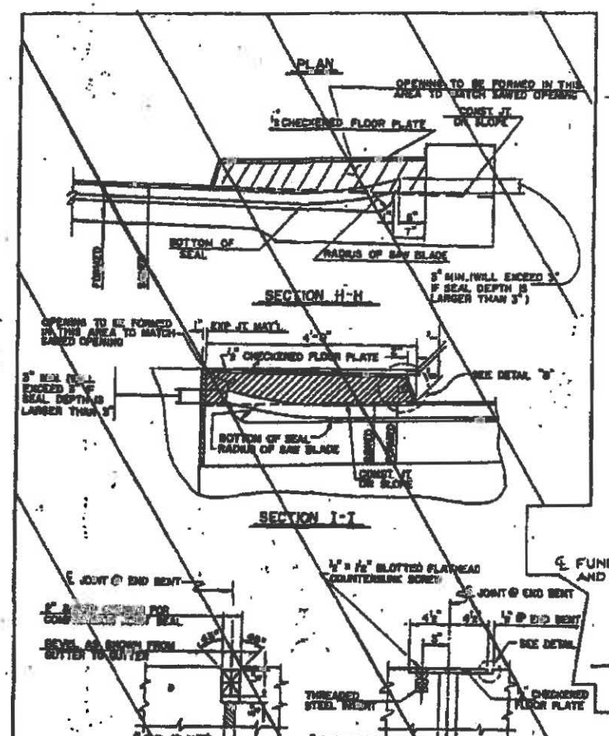


"THESE DOWELS ARE NOT INCLUDED IN THE BILL OF MATERIAL. ANY ADDITIONAL COST FOR FURNISHING AND PLACING THE DOWELS SHALL BE PAID FOR BY THE CONTRACTOR.

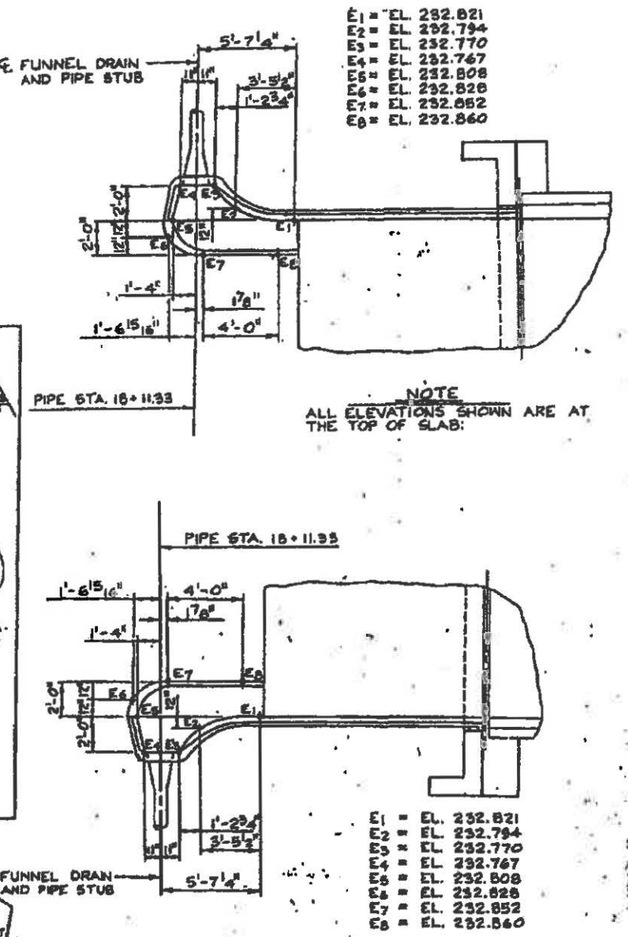


SPECIAL DRAINAGE DETAILS





COMPRESSION JOINT SEAL DETAILS
@ END BENT



E_1 = EL. 232.821
E_2 = EL. 232.794
E_3 = EL. 232.770
E_4 = EL. 232.767
E_5 = EL. 232.808
E_6 = EL. 232.828
E_7 = EL. 232.852
E_8 = EL. 232.860

NOTE
ALL ELEVATIONS SHOWN ARE AT THE TOP OF SLAB.

CONSTRUCTION ELEVATIONS FOR CONCRETE FLUME

PROJECT NO. 8.1400801
WAKE COUNTY
STATION 19+14.00-L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH
SLAB DETAILS

MARCH 1984

REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		S-16
1			2				TOTAL SHEETS
3			4				18

STD. NO. BAS3

SEE SHEET 1-A FOR INDEX OF SHEETS

N.C.	8.1400801	1
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
8.1400801	BRS-6673(1)	P.E., R/W, CONST.

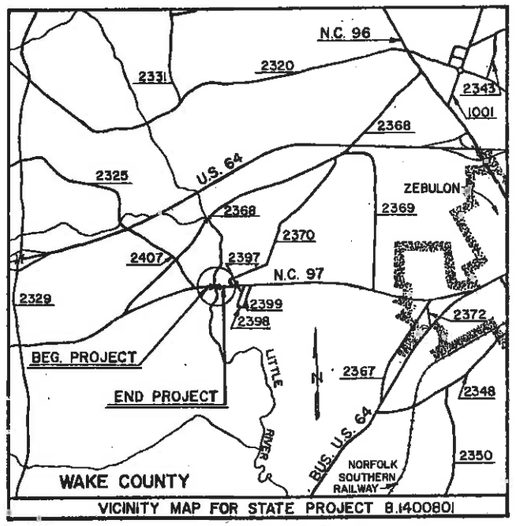
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

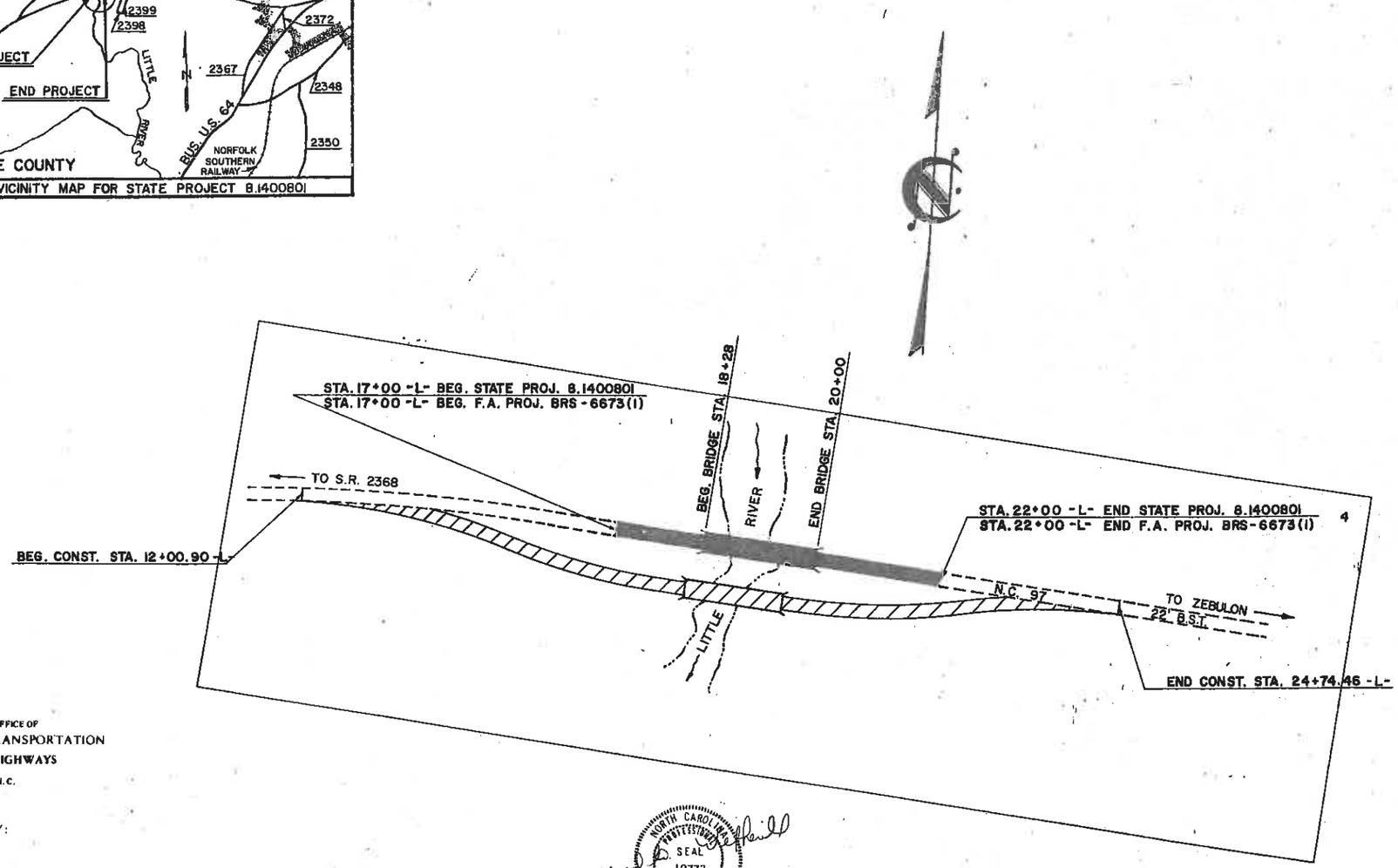
WAKE COUNTY

LOCATION: BRIDGE OVER LITTLE RIVER AND APPROACHES ON N.C. 97 APPROX. 1.5 MILES WEST OF ZEBULON, NC.

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE.



VICINITY MAP FOR STATE PROJECT 8.1400801



CONVENTIONAL SYMBOLS

County Line
City or Town Line
Exist. Right of Way Line & Marker
Prop. Right of Way Line & Marker
Survey Line
Property Line
Exist. Fence
Proposed Road
Existing Road
Railroad
Control of Access Line
Slope Stake Line
Bridge
Culvert
Woods
Telephone or Telegraph Pole (EXISTING) (PROPOSED)
Tower Pole and Line
Power Pole (EXISTING) (PROPOSED)
Easement Line
Temporary Silt Fence
Guard Rail
Sanitary Sewer Line
Water Line
Gas Line
Proposed Woven Wire Fence
Proposed Chain Link Fence
Temporary Silt Ditch

GRAPHIC SCALES

PLANS: 50' 0' 50' 100'
PROFILE (HORIZONTAL): 50' 0' 50' 100'
PROFILE (VERTICAL): 10' 0' 10' 20'

DESIGN DATA

ADT	1984	= 4600
ADT	2004	= 8100
DHV		= 60 %
D		= 10 %
T		= 4 %
V		= 55 MPH

PREPARED IN OFFICE OF
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

PLANS PREPARED BY:
Mariktald Associates, P.C.
RALEIGH, NORTH CAROLINA

CONTACT: C.E. KISTLER, P.E. ENGINEER COORDINATOR, N.C.D.O.T.

LETTING DATE: June 18, 1985

1984 STANDARD SPECIFICATIONS

NORTH CAROLINA PROFESSIONAL SEAL 10773 ENGINEER EDWARD G. WETHERILL

LENGTH OF ROADWAY F.A. PROJECT BRS-6673(1) = 0.062 MI.
LENGTH OF STRUCTURE F.A. PROJECT BRS-6673(1) = 0.033 MI.
TOTAL LENGTH STATE PROJECT 8.1400801 = 0.095 MI.

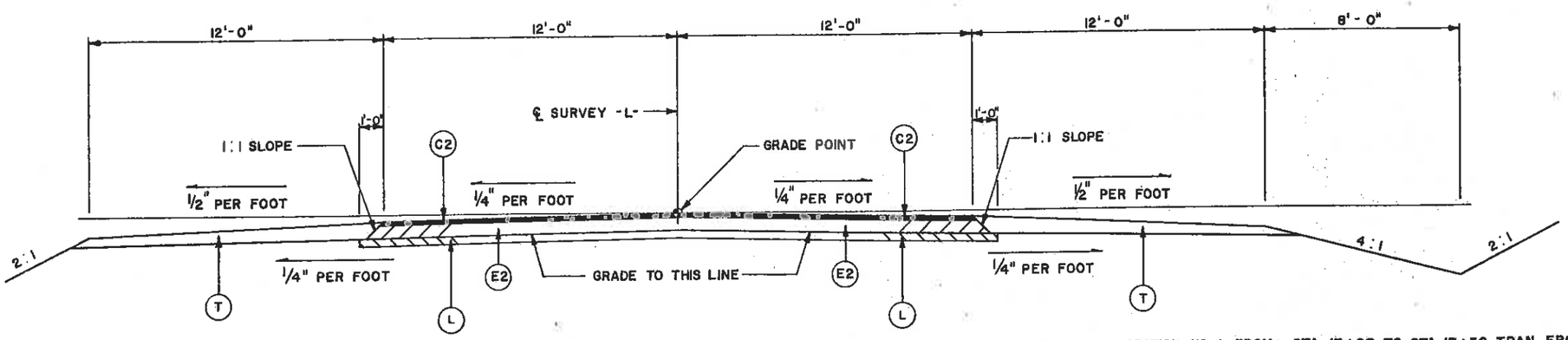
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
APPROVED: William G. Marley, Jr. P.E.
MANAGER, HIGHWAY DESIGN BRANCH
APPROVED: R. J. Coleman P.E.
CHIEF ENGINEER - OPERATIONS

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED:
DIVISION ADMINISTRATOR — DATE

PROJECT: 8.1400801

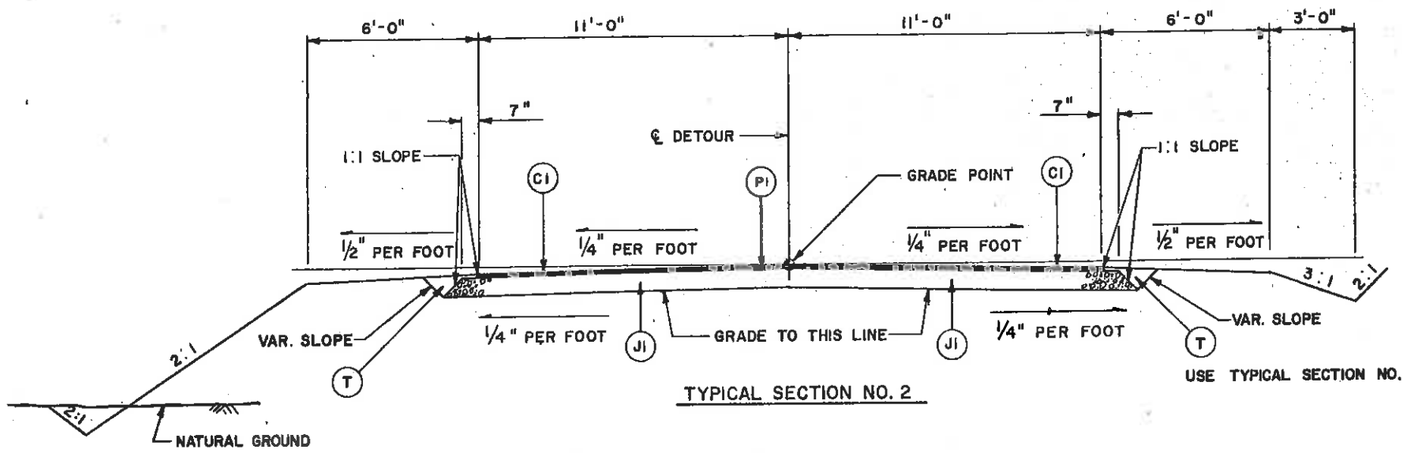
B-1411

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
8.1400801	2	



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FROM: STA. 17+00 TO STA. 17+50 TRAN. FROM EXISTING WIDTH TO PROPOSED 24'-0" WIDTH
STA. 17+50 TO STA. 18+28
STA. 20+00 TO STA. 21+50
STA. 21+50 TO STA. 22+00 TRAN. FROM PROPOSED 24'-0" WIDTH TO EXISTING WIDTH

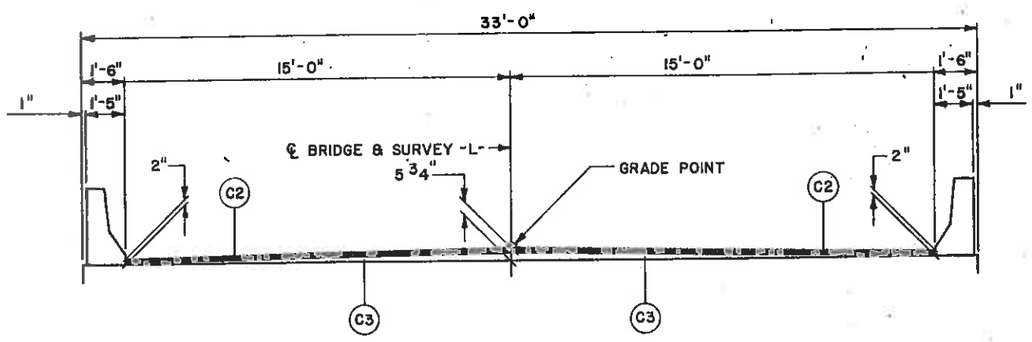


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FROM: STA. 14+65± TO STA. 22+90± ON DETOUR

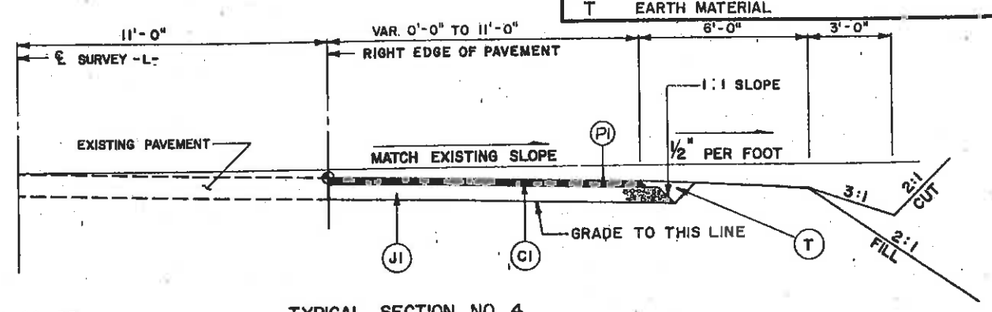
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1" BIT. CONC. SURFACE COURSE, TYPE I-1, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" BIT. CONC. SURFACE COURSE, TYPE I-1, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH BIT. CONC. SURFACE COURSE, TYPE I-1, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E2	PROP. APPROX. 6" BIT. CONC. BASE COURSE, TYPE HB, AT AN AVERAGE RATE OF 330 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
J1	PROP. 8" AGGREGATE BASE COURSE
L	SUBGRADE TO BE STABILIZED WITH 200 LBS. PER SQ. YD. OF STABILIZER AGGREGATE MIXED WITH THE TOP 3" OF SUBGRADE SOIL AT LOCATIONS DIRECTED BY THE ENGINEER.
P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL



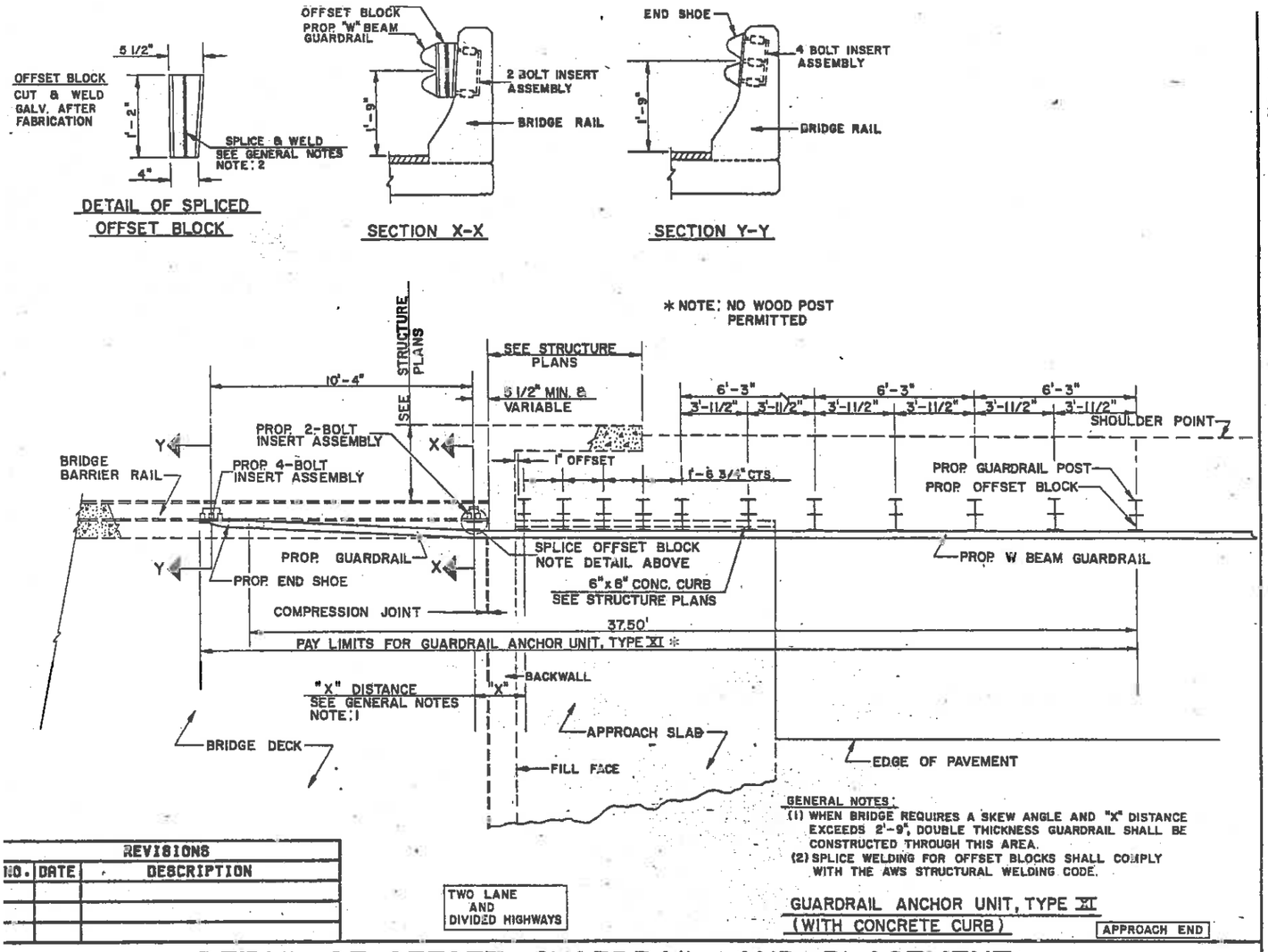
TYPICAL SECTION NO. 3

USE TYPICAL SECTION, NO. 3 FROM: STA. 18+28 TO STA. 20+00



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 FROM:
STA. 12+00.90 TO STA. 14+65±
STA. 22+90± TO STA. 24+74.46
ON DETOUR



GENERAL NOTES:
(1) WHEN BRIDGE REQUIRES A SKEW ANGLE AND "X" DISTANCE EXCEEDS 2'-9", DOUBLE THICKNESS GUARDRAIL SHALL BE CONSTRUCTED THROUGH THIS AREA.
(2) SPLICE WELDING FOR OFFSET BLOCKS SHALL COMPLY WITH THE AWS STRUCTURAL WELDING CODE.

REVISIONS		
NO.	DATE	DESCRIPTION

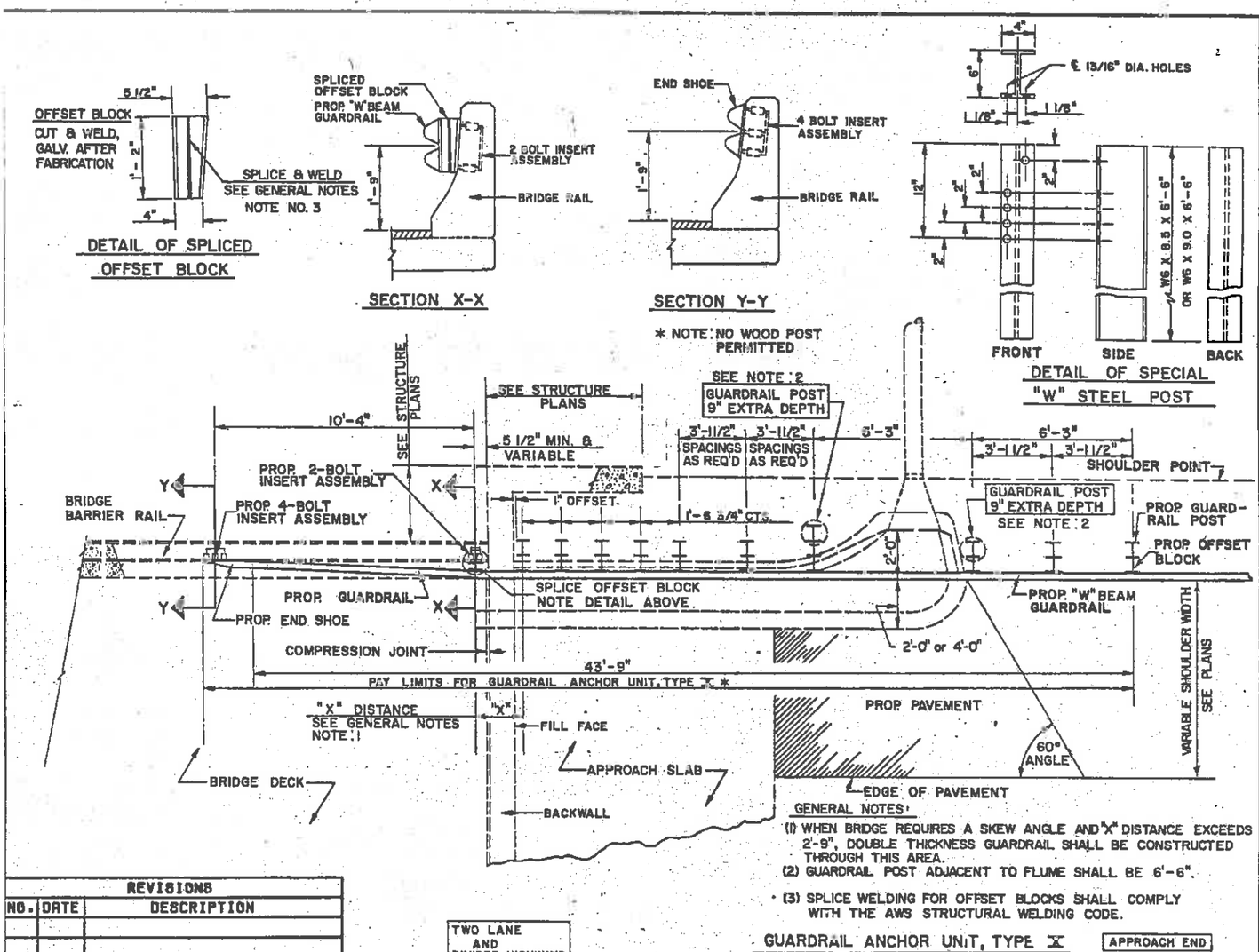
TWO LANE AND DIVIDED HIGHWAYS

GUARDRAIL ANCHOR UNIT, TYPE XI (WITH CONCRETE CURB) — APPROACH END

DETAIL OF OFFSET GUARDRAIL AND PLACEMENT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
RALEIGH, N. C.

STD. NO.	REV.



GENERAL NOTES:
(1) WHEN BRIDGE REQUIRES A SKEW ANGLE AND "X" DISTANCE EXCEEDS 2'-9", DOUBLE THICKNESS GUARDRAIL SHALL BE CONSTRUCTED THROUGH THIS AREA.
(2) GUARDRAIL POST ADJACENT TO FLUME SHALL BE 6'-6".
(3) SPLICE WELDING FOR OFFSET BLOCKS SHALL COMPLY WITH THE AWS STRUCTURAL WELDING CODE.

REVISIONS		
NO.	DATE	DESCRIPTION

TWO LANE AND DIVIDED HIGHWAYS

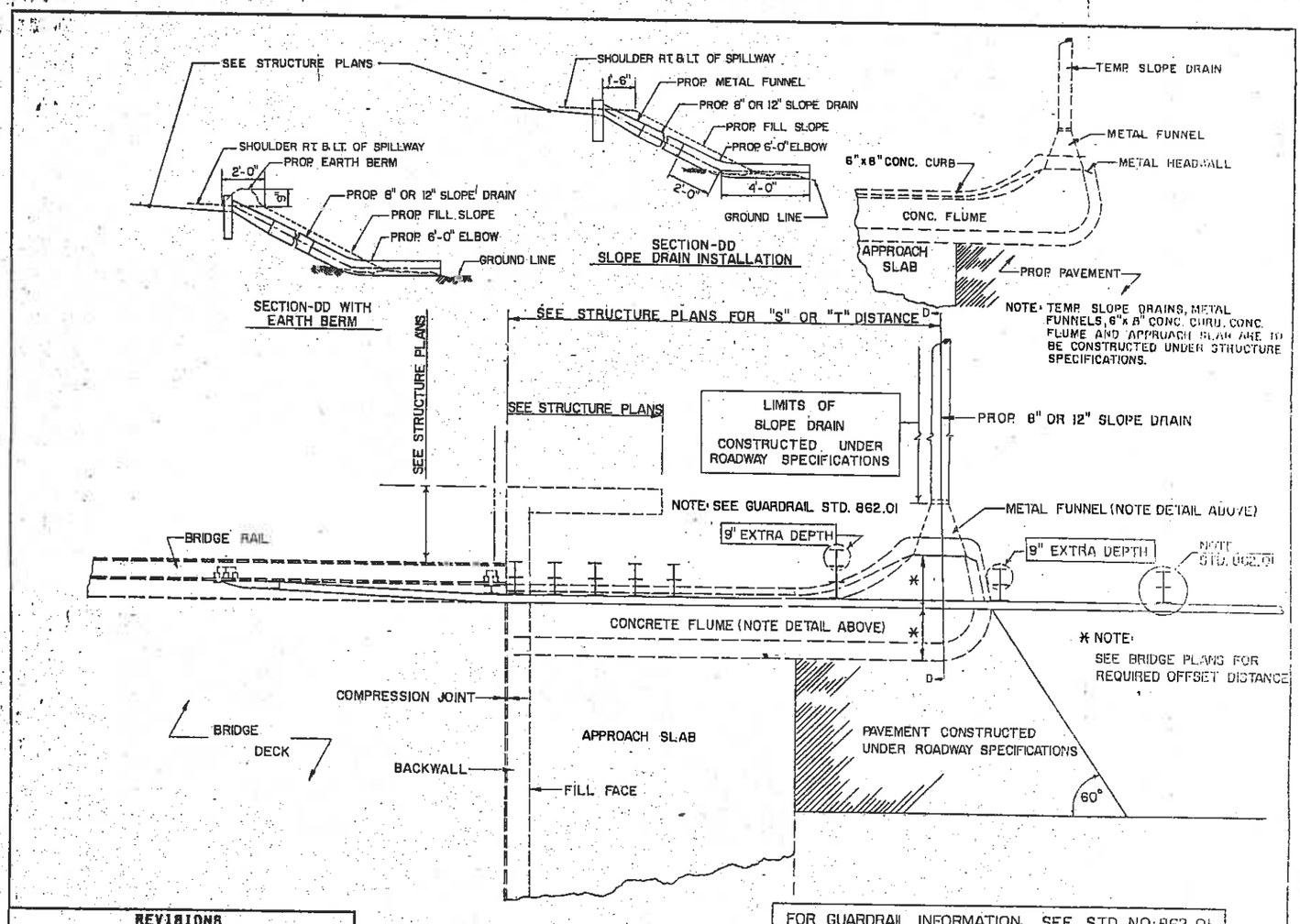
GUARDRAIL ANCHOR UNIT, TYPE X (WITH CONCRETE FLUME & CONCRETE CURB) — APPROACH END

DETAIL OF OFFSET GUARDRAIL AND PLACEMENT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
RALEIGH, N. C.

STD. NO.	REV.

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
8.14.10801	24	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION



REVISIONS		
NO.	DATE	DESCRIPTION

DETAIL OF FUNNEL DRAIN INSTALLATION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
RALEIGH, N. C.

STD. NO.	REV.

8.100801
2B

COMPUTED BY: ______ DATE: ______
CHECKED BY: ______ DATE: ______

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
8.1400801	3-	

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING LT.	AREA REMAINING RT.	CONST. EASE	PERMAN. DRAINAGE EASE.	TEMP. DRAINAGE EASE.
1	Lillian BUNN, Et Al	8			8	0.82AC		
2	W.H. BULLOCK & WIFE	12.84			12.84	1068 SF		

SUMMARY OF QUANTITIES

DESC. NO.	SECT. NO.	QUANTITY	UNIT	ITEM DESCRIPTION
1	800	LUMP	SUM	MOBILIZATION
	SP	LUMP	SUM	GRADING
6	200	1	AC.	SUPPLEMENTAL CLEARING & GRUBBING
34	240	360	C.Y.	DRAINAGE DITCH EXCAVATION
42	245	135	C.Y.	CLEANING OUT SILT BASINS
554	510	45	TONS	STABILIZER AGGREGATE
556	520	1220	TONS	AGGREGATE BASE COURSE
580	545	100	TONS	INCIDENTAL STONE BASE
589	600	830	GALS	PRIME COAT
591	615	LUMP	SUM	FIELD LAB. RENTAL, BIT. PLANT MIX
593	620	33	TONS	ASPHALT CEMENT FOR PLANT MIX
597	630	280	TONS	BIT. CONC. BASE COURSE, TYPE HB
604	645	360	TONS	BIT. CONC. SURFACE COURSE, TYPE I-1
611	654	10	TONS	BIT. PLANT MIX PAVEMENT REPAIRS
709	820	30	L.F.	8" FUNNEL DRAIN PIPE
712	820	2	EA.	8" FUNNEL DRAIN PIPE ELBOWS

DESC. NO.	SECT. NO.	QUANTITY	UNIT	ITEM DESCRIPTION
899	862	213	L.F.	STEEL BM GUARDRAIL
917	SP	2	EA.	GUARDRAIL ANCHOR UNITS, TYPE X
917	SP	2	EA.	GUARDRAIL ANCHOR UNITS, TYPE XI
938	862	4	EA.	GUARDRAIL ANCHOR UNITS, TYPE BCT-1
1039	851	200	S.Y.	FIBERGLASS ROVING LINER FOR DRAINAGE DITCH
1064	880	7	AC.	SEEDING & MULCHING
1067	880	3.75	AC.	MOWING
1068	881	50	LBS.	SEED FOR TEMPORARY SEEDING
1069	881	0.25	TONS	FERTILIZER FOR TEMPORARY SEEDING
1070	882	50	LBS.	SEED FOR REPAIR SEEDING
1071	882	0.25	TONS	FERTILIZER FOR REPAIR SEEDING
1072	883	175	LBS.	SEED FOR SUPPLEMENTAL SEEDING
1077	886	1.5	TONS	FERTILIZER TOPDRESSING
1084	889	0.50	AC.	TEMPORARY MULCHING
1085	890	120	L.F.	TEMPORARY SLOPE DRAINS
1089	892	6	EA.	ROCK SILT CHECK DAM

DESC. NO.	SECT. NO.	QUANTITY	UNIT	ITEM DESCRIPTION
1090	893	1460	L.F.	TEMPORARY SILT FENCE
2037	SP	296	S.F.	STATIONARY CONSTRUCTION SIGNS
2040	SP	96	L.F.	TYPE III BARRICADES
2046	862	125	L.F.	TEMPORARY STEEL BM GUARDRAIL
2052	862	4	EA.	GUARDRAIL ANCHOR UNITS, TYPE VIII (TEMP.)
2058	862	4	EA.	GUARDRAIL ANCHOR UNITS, TYPE BCT-1 (TEMP.)
2067	SP	2049	L.F.	TEMP. PAV'T MARKING LINES (4" WHITE)
2070	SP	1903	L.F.	TEMP. PAV'T MARKING LINES (4" YELLOW)
2075	SP	2468	L.F.	TEMP. PAV'T MARKING LINES (4" WHITE PAINT)
2076	SP	2468	L.F.	TEMP. PAV'T MARKING LINES (4" YELLOW PAINT)
2085	SP	420	L.F.	TEMP. PAV'T MARK LINES (4" WHITE TAPE, REM.)
2091	SP	284	L.F.	TEMP. PAV'T MARK LINES (4" YELLOW TAPE, REM.)
2100	SP	704	L.F.	REMOVAL OF PAV'T MARKING LINES
2152	SP	36	EA.	NON-METALLIC DRUMS
2167	SP	LUMP	SUM	PORTABLE TEMP. TRAFFIC CONTROL DEVICES
1323	SP	14	LF	12" D.I. WATER PIPE, CLASS 50, 350 # WP
1364	SP	440	LB	DUCTILE IRON WATER PIPE FITTINGS, 250 # MIN WP
1401	SP	1	EA	12" GATE VALVE AND VALVE BOX, 200 # WP
1427	SP	1	EA	1" AIR RELEASE VALVE AND MANHOLE
1484	SP	21	TONS	FOUNDATION CONDITIONING MATERIAL
	SP	424	LF	12" D.I. RESTRAINED JOINT WATER PIPE, CLASS 52, 350 # WP
	SP	440	LB	D.I. RESTRAINED JOINT WATER PIPE FITTINGS, 250 # WP
	SP	1	EA	4' SECTION OF 12" D.I. WATER PIPE (PE X RJ BELL), CLASS 52, 350 # WP
	SP	1	EA	10' SECTION OF 12" D.I. WATER PIPE (RJ PE X MJ), CLASS 52, 350 # WP
	SP	1.5	CY	CLASS B CONCRETE FOR ANCHOR BLOCKS

LIST OF PIPE, ENDWALLS, ETC. (FOR PIPE 48" & UNDER)

* TOTAL LIN. FT. FOR PAY BE COL. "A" + (1.3 X COL.

STATION / SIZE	SKEW	STRUCTURE Nº	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B UNLESS NOTED 15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	SHOP ELONGATED	DRAINAGE AREA (ACRES)	DESIGN FREQUENCY (Q__)	Q-100	HW/D 50	HW/D 100	ENDWALLS CU. YDS. CONC. USING R.C.P.	CONC. USING C.S.P.	BRICK USING R.C.P.	BRICK USING C.S.P.	C.B. STD. 840.01 OR 840.02	FRAME, GRATES & HOOD STANDARD 840.03 TYPE GRATE E	F	G	C.B. STD. 840.04 OR 840.05	ELONG. THROAT C.B. STD. 840.06	FRAME & COVER STD. 840.07	N.D.I. STD. 840.11 OR 840.12	N.D.I. GRATE & FRAME STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. GRATES & FRAME STD. 840.16	M.D.I. TYPE "A" STD. 840.17	M.D.I. TYPE "B" STD. 840.18	M.D.I. TYPE "D" STD. 840.19	M.D.I. GRATE & FRAME STD. 840.21	M.D.I. GRATES & FRAME STD. 840.22	M.D.I. (N.S.) GRATE & FRAME STD. 840.23	M.D.I. (N.S.) GRATE & FRAME STD. 840.24	M.D.I. TYPE "A" STD. 840.26	M.D.I. TYPE "B" STD. 840.27	M.D.I. TYPE "D" STD. 840.28	BRIDGE APPROACH D.I. STD. 840.30	J.B. STD. 840.31 OR 840.32	SPRING BOX STD. 840.41	M.H. STD. 840.51, 840.52, 840.53	M.H. FRAME & COVER STD. 840.54	CONC. & BRICK PIPE PLUG CY STD. 840.71	CONC. COLLARS CL."A" CY STD. 840.72	FOR EACH (0' THRU 5.0')	LIN. FT. A 5.1' THRU 10.0'	LIN. FT. B 10.1' AND ABOVE	TYPE CONST. PERMITTED BRICK	BLOCK	CONCRETE	PRECAST	REINF. CONC. FLARED END SECT. Nº & SIZE	CORR. STEEL FLARED END SECT. Nº & SIZE	R.C. FLARED END SECTION WITH Nº & SIZE	HINGED GRATE FOR EXISTING FLARED END SECTION Nº	RESET EXIST. CONC. FLARED SECTION Nº & SIZE	REINF. CONC. ELBOWS Nº	CORR. STEEL ELBOWS Nº	PIPE REMOVAL LIN. FT.	REMARKS

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	NORM DIST. FROM E.O.P.	SHOULDER WIDTH	DITCH WIDTH	CUT SLOPE	ANCHORS BCT-1	ANCHORS X	ANCHORS XI	ANCHORS VIII	TERMINAL SECTION	EXTRA WIDTH FILL (APPROACH END BEG. / END; TRAILING END BEG. / END)
-L-	17+28	18+28	LT.	100			BRIDGE			37.5			10	12			1	1				ANCHOR DEDUCTIONS
-L-	17+28	18+28	RT.	100				BRIDGE	37.5				10	12			1	1				4 BCT-1 X 6.25 = 25.0 LF
-L-	20+00	21+00	LT.	100				BRIDGE	37.5				10	12			1		1			2 X X 43.75 = 87.5 LF
-L-	20+00	21+00	RT.	100			BRIDGE			37.5			10	12			1		1			2 XI X 75.00 = 75.0 LF
				400																		187.5 LF
			LESS ANCHORS	187.5													4	2	2			
			TOTAL	212.5																		
~ TEMPORARY ~																						
DETOUR	17+67.5	18+30	LT.	62.5			BRIDGE			37.5			4	6			1			1		
DETOUR	17+67.5	18+30	RT.	62.5				BRIDGE	37.5				4	6			1			1		4 BCT-1 X 6.25 = 25.0 LF
DETOUR	19+20	19+82.5	LT.	62.5				BRIDGE	37.5				4	6			1			1		4 VIII X 25.0 = 100.0 LF
DETOUR	19+20	19+82.5	RT.	62.5			BRIDGE			37.5			4	6			1			1		125.0 LF
				250.0																		
			LESS ANCHORS	125.0													4			4		
			TOTAL	125.0																		

LIST OF SIDE DRAIN PIPE (FOR PIPE 24" & UNDER)

STATION / SIZE	PLAIN CONCRETE PIPE CULVERTS 15"	18"	24"		REINF. CONC. FLARED END SECTIONS NO.	SIZE	CORRUGATED STEEL PIPE CULVERTS THICKNESS .064 15"	18"	24"		C.S. FLARED END SECTIONS THICKNESS .064 NO.	SIZE	PIPE REMOVAL (LIN. FT.)