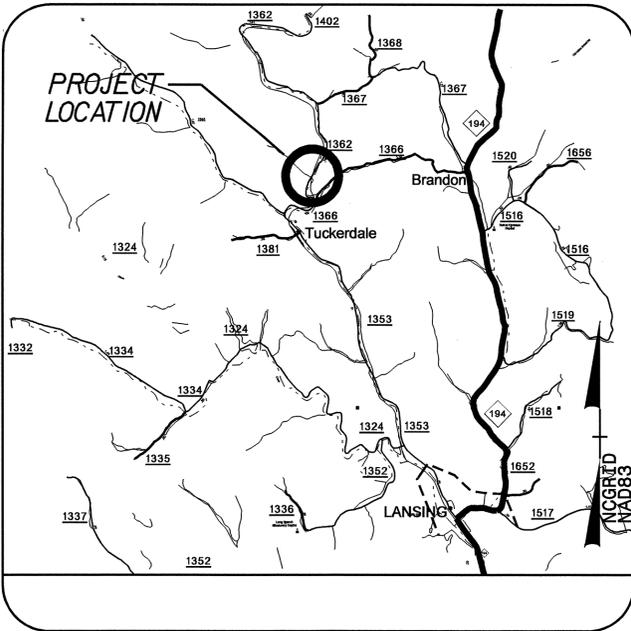


CONTRACT: C202037 TIP PROJECT: B-4015

STRUCTURE

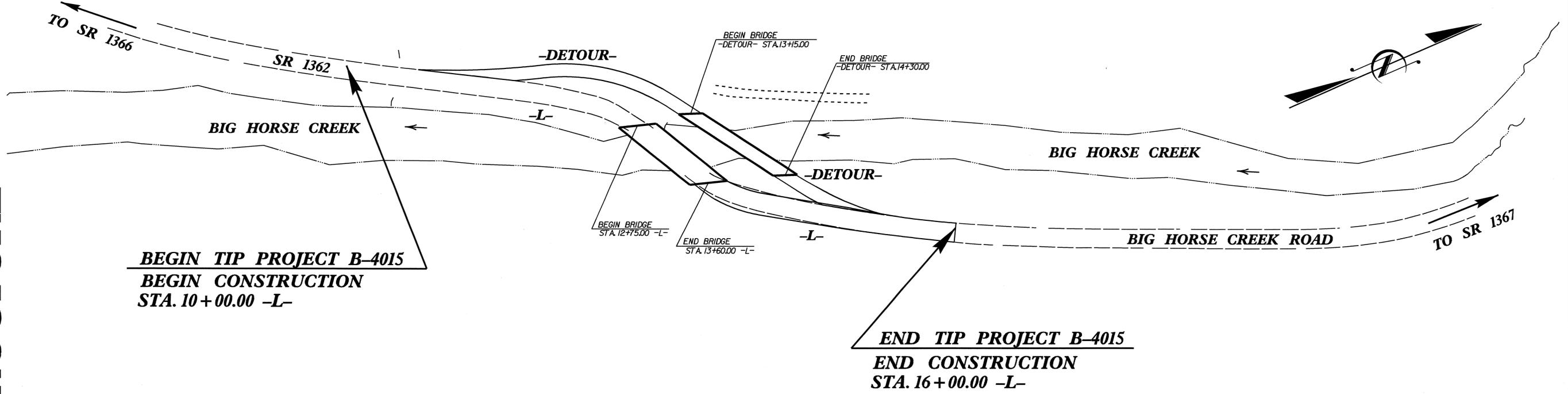


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ASHE COUNTY

**LOCATION: BRIDGE NO. 165 OVER BIG HORSE CREEK
ON SR 1362 (BIG HORSE CREEK RD)**

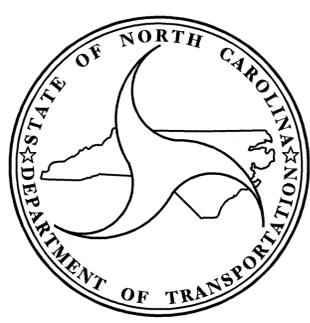
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4015		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33383.1.1	BRZ-1362(1)	PE	
33383.2.1	BRZ-1362(1)	UTIL. & RW	
33383.3.1	BRZ-1362(1)	CONST.	



**BEGIN TIP PROJECT B-4015
BEGIN CONSTRUCTION
STA. 10+00.00 -L-**

**END TIP PROJECT B-4015
END CONSTRUCTION
STA. 16+00.00 -L-**



DESIGN DATA

ADT 2008	=	685
ADT 2028	=	940
DHV	=	12 %
D	=	60 %
T	=	3 % *
V	=	40 MPH
* TTST 1%	DUAL 2%	
FUN. CLASS	=	LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4015	=	0.098 MI
LENGTH STRUCTURE TIP PROJECT B-4015	=	0.016 MI
TOTAL LENGTH TIP PROJECT B-4015	=	0.114 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

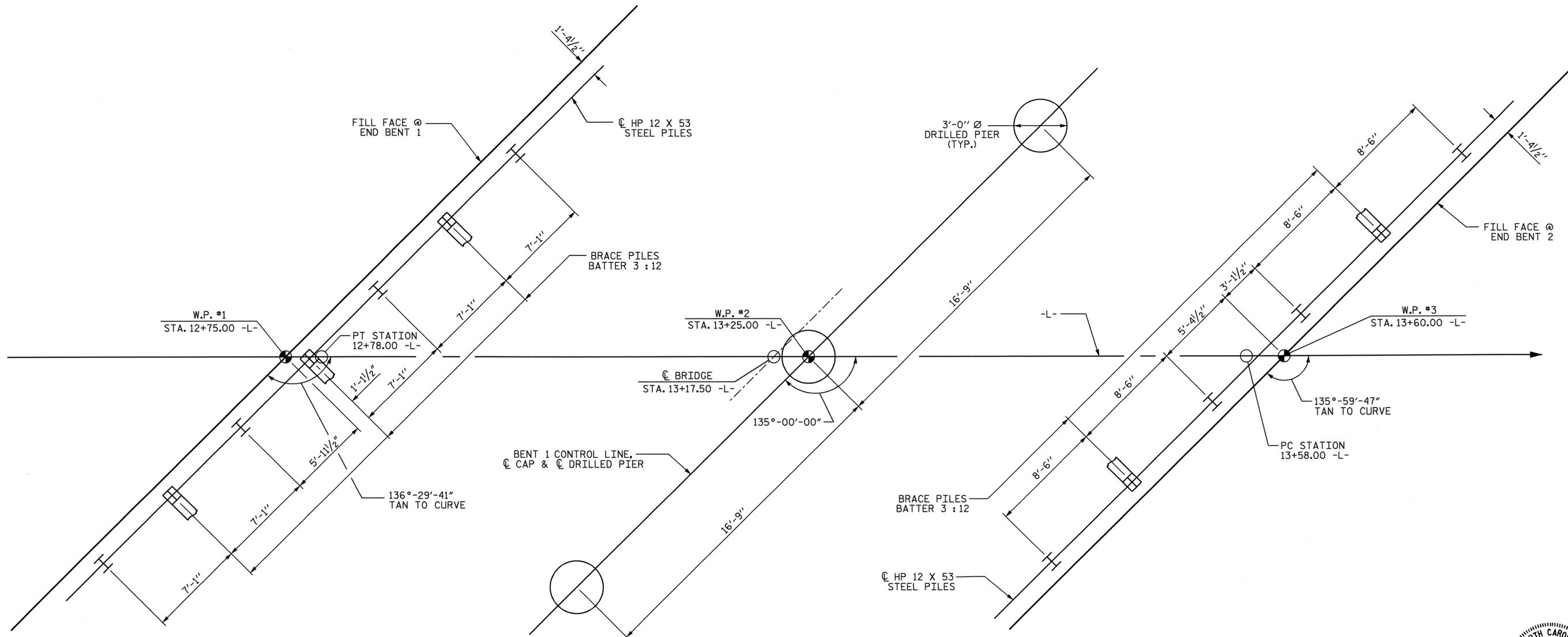
LETTING DATE :	J. C. FRYE, P.E. PROJECT ENGINEER
DECEMBER 16, 2008	W.A. DAVIS, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR



END BENT 1

BENT 1

END BENT 2

FOUNDATION LAYOUT

DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO DRILLED PIER CENTERLINE
 DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE

NOTES

THE DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR BOTH SKIN FRICTION AND END BEARING. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY OF 30 TSF.

DRILLED PIERS AT BENT NO.1 ARE DESIGNED FOR AN APPLIED LOAD OF 172 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO.1. IF REQUIRED, THE CASING SHALL NOT EXTEND BELOW ELEVATION 2708.0 WITHOUT THE ENGINEER'S PERMISSION. THE NEED FOR PERMANENT STEEL CASING WILL BE DETERMINED BY THE ENGINEER.

FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISIONS FOR DRILLED PIERS.

DRILLED PIER AT BENT NO.1 PIER #1 MUST EXTEND TO AN ELEVATION NO HIGHER THAN 2705.0 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIER AT BENT NO.1 PIER #2 MUST EXTEND TO AN ELEVATION NO HIGHER THAN 2703.2 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

DRILLED PIER AT BENT NO.1 PIER #3 MUST EXTEND TO AN ELEVATION NO HIGHER THAN 2702.1 FT. AND SATISFY THE REQUIRED END BEARING CAPACITY.

SID INSPECTIONS ARE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT NO.1. SEE DRILLED PIERS SPECIAL PROVISION.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 2706.5 FT. BRIDGE MAINTENANCE USES SCOUR CRITICAL ELEVATIONS TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

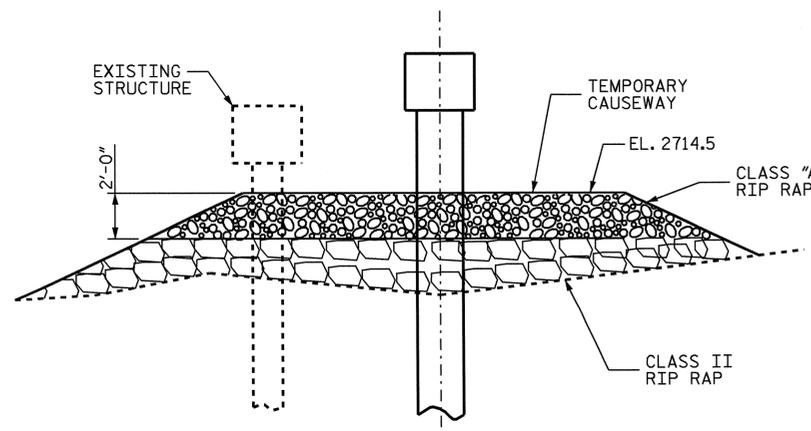
DO NOT USE SLURRY CONSTRUCTION FOR THIS PROJECT.

SPT TESTING MAY BE REQUIRED TO DETERMINE THE END BEARING CAPACITY OF THE DRILLED PIERS AT BENT NO.1. SEE DRILLED PIERS SPECIAL PROVISION.

FOR DRILLED PIERS, SEE DRILLED PIERS SPECIAL PROVISION.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. SEE CROSSHOLE SONIC LOGGING SPECIAL PROVISION.

DO NOT DEWATER THE DRILLED PIER EXCAVATIONS AT BENT NO.1. CLEAN THE BOTTOM OF THE EXCAVATIONS WITH A SUBMERSIBLE PUMP OR AN AIRLIFT. WET PLACEMENT OF CONCRETE IS REQUIRED. SEE DRILLED PIER SPECIAL PROVISION.



SECTION A-A



PROJECT NO. B-4015

ASHE COUNTY

STATION: 13+17.50 -L-

SHEET 2 OF 3

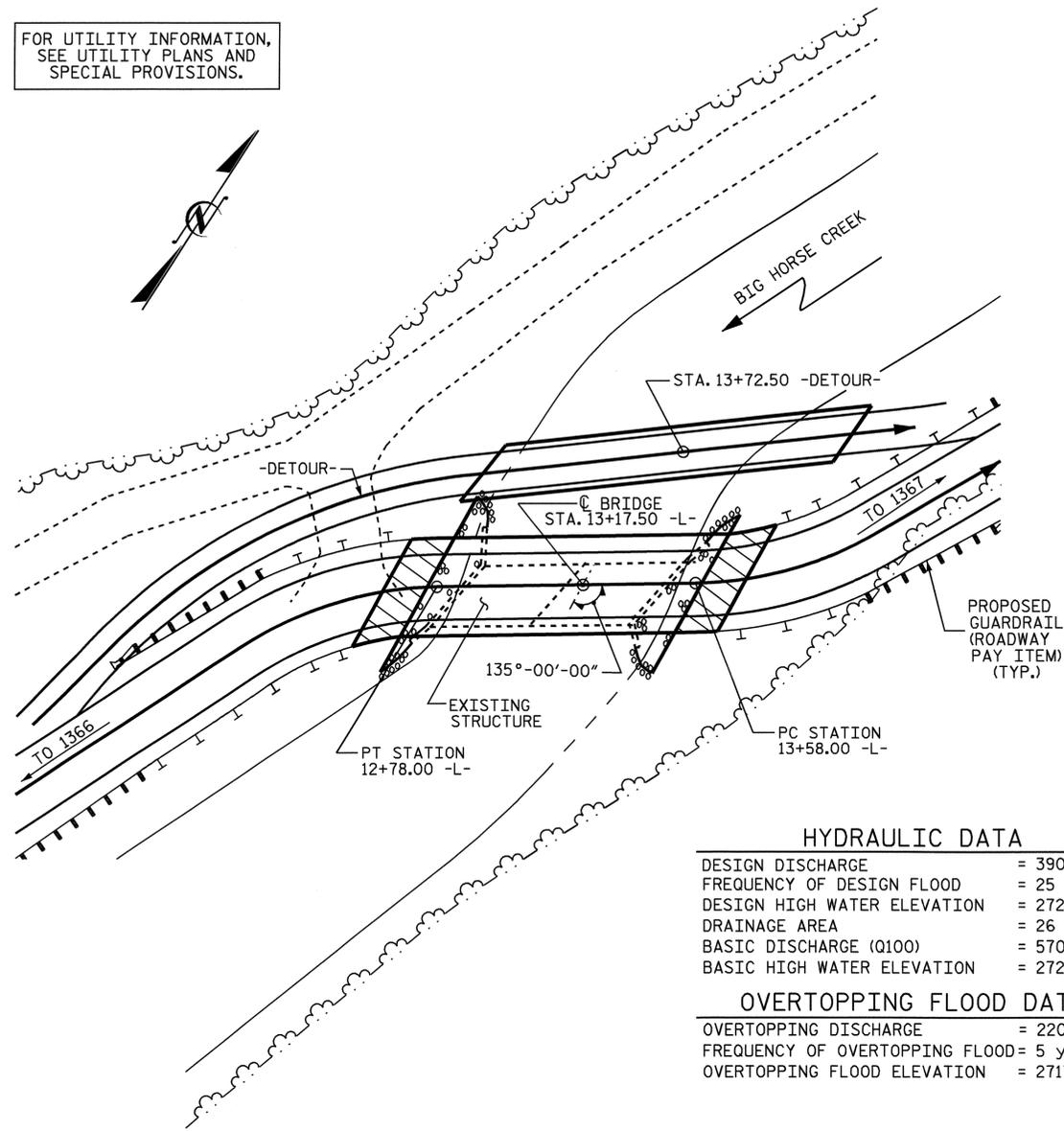
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER BIG HORSE
 CREEK ON SR 1362
 BETWEEN
 SR 1366 AND SR 1367

REVISIONS						SHEET NO. S-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			

DRAWN BY : Q.T. NGUYEN DATE : 10-07
 CHECKED BY : J.L. WALTON DATE : 1-08

BM# 1: RAILROAD SPIKE IN 8" MAPLE, -L- STA. 12+99.63, 77.74' LEFT, EL. 2726.45'.

FOR UTILITY INFORMATION,
SEE UTILITY PLANS AND
SPECIAL PROVISIONS.



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 3900 cfs
FREQUENCY OF DESIGN FLOOD	= 25 yrs.
DESIGN HIGH WATER ELEVATION	= 2722.2
DRAINAGE AREA	= 26 sq. mi.
BASIC DISCHARGE (Q100)	= 5700 cfs
BASIC HIGH WATER ELEVATION	= 2724.2

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 2200 cfs
FREQUENCY OF OVERTOPPING FLOOD	= 5 yrs.
OVERTOPPING FLOOD ELEVATION	= 2717.6

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 31'-6" 19.1 CLEAR ROADWAY WIDTH, SUPERSTRUCTURE: TIMBER FLOORS ON I-BEAMS AND SUBSTRUCTURE: REINFORCED CONCRETE ABUTMENTS AND PIER SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

ABUTMENTS SHALL BE REMOVED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 13+72.50 -DETOUR- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. RIGHT & 15 FT. LEFT OF CENTERLINE ROADWAY @ END BENTS 1 AND 2, AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR 'REMOVAL OF EXISTING STRUCTURE AT STATION 13+17.50 -L-.'

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 13+17.50 -L-.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION MAINTENANCE & REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.



PROJECT NO. B-4015

ASHE COUNTY

STATION: 13+17.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

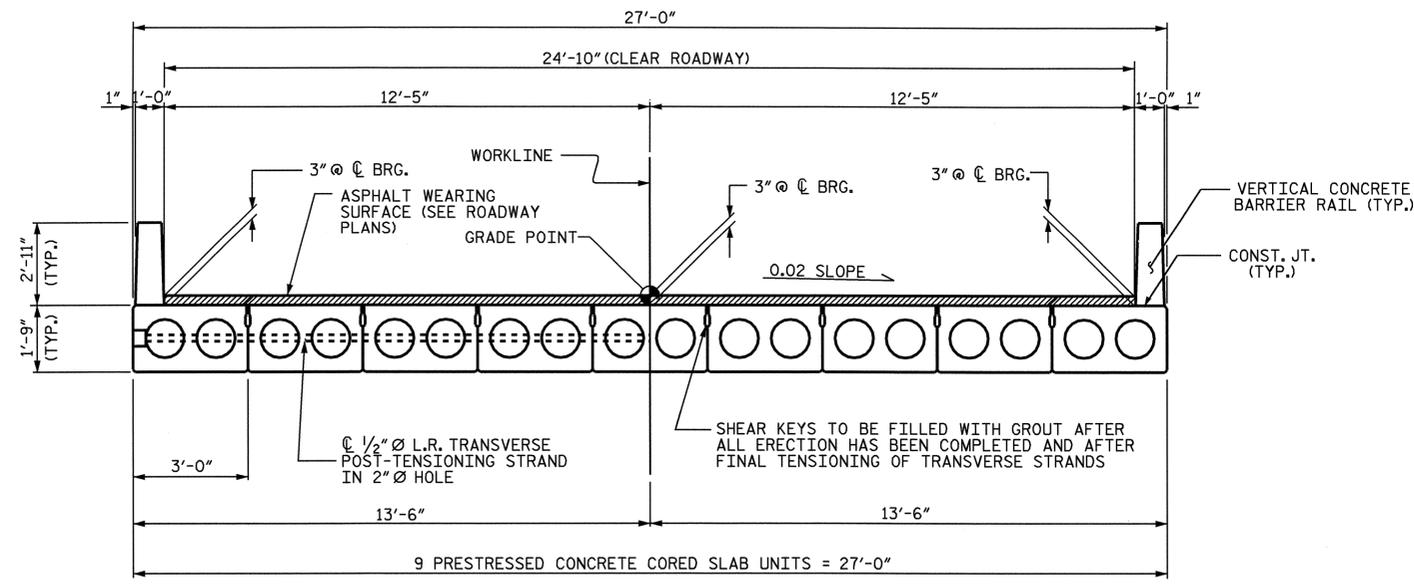
GENERAL DRAWING
BRIDGE OVER BIG HORSE
CREEK ON SR 1362
BETWEEN
SR 1366 AND SR 1367

TOTAL BILL OF MATERIAL

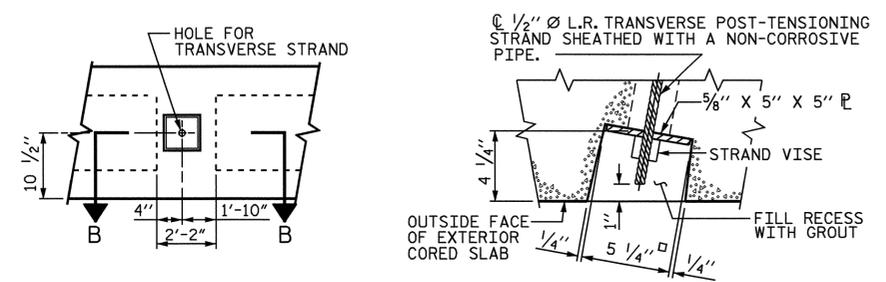
	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY STRUCTURE	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	3'-0" Ø DRILLED PIERS IN SOIL	3'-0" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIER	SID INSPECTION	SPT TESTING	CROSSHOLE SONIC LOGGING	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 X 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LINE FT.	LINE FT.	LINE FT.	EA.	EA.	EA.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LINE FT.	LINE FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LINE FT.
SUPERSTRUCTURE												LUMP SUM				163.17			LUMP SUM	18	734.25	
END BENT 1											14.9		2267		7	70		38	42			
BENT 1					24.2	10.0	20.5						4643	656								
END BENT 2											14.9		2232		6	60		39	43			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	24.2	10.0	20.5	3	3	1	51.3	LUMP SUM	9142	656	13	130	163.17	77	85	LUMP SUM	18	734.25

DRAWN BY : QT NGUYEN DATE : 10-07
CHECKED BY : J.L. WALTON DATE : 1-08

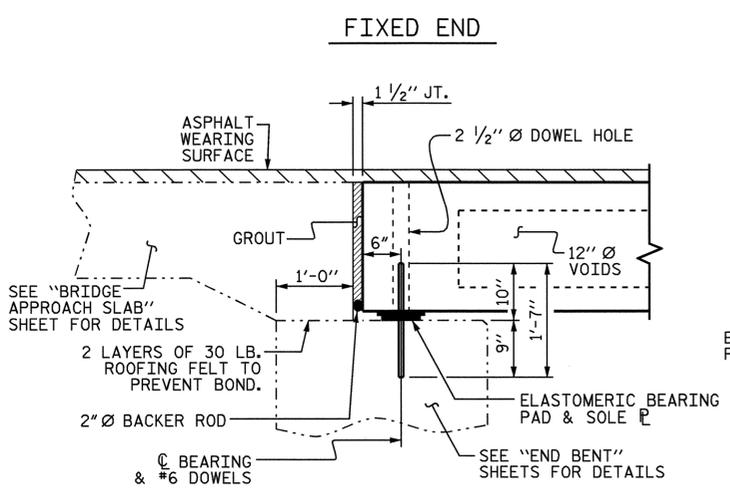
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			22



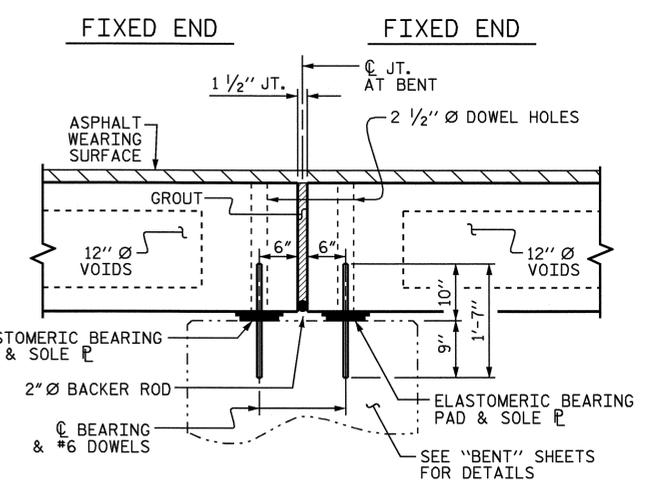
TYPICAL SECTION



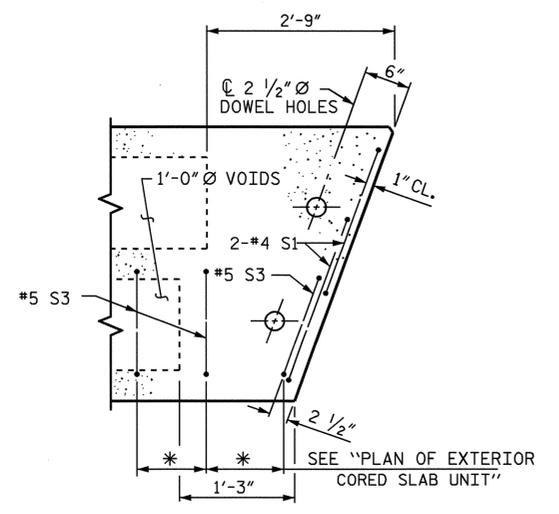
ELEVATION VIEW SECTION B-B
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



SECTION AT END BENT

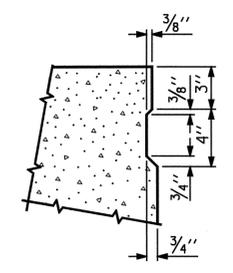


SECTION AT BENT

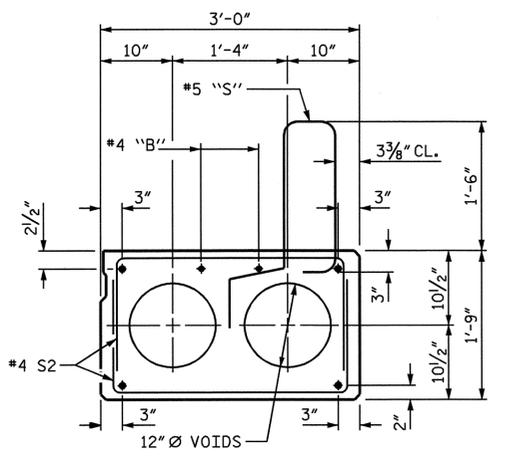


PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.
* SEE CORED SLAB UNIT DETAIL SHEETS FOR DIMENSIONS.

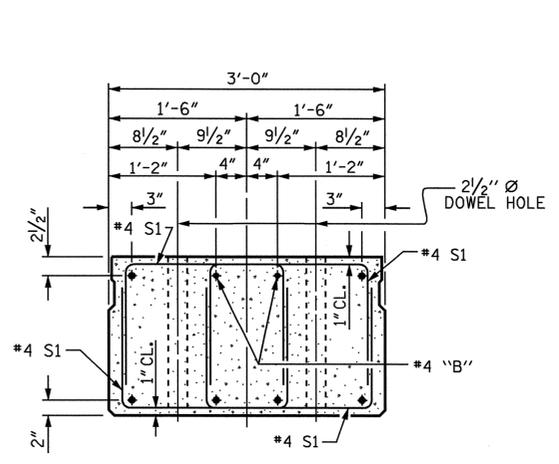


SHEAR KEY DETAIL
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



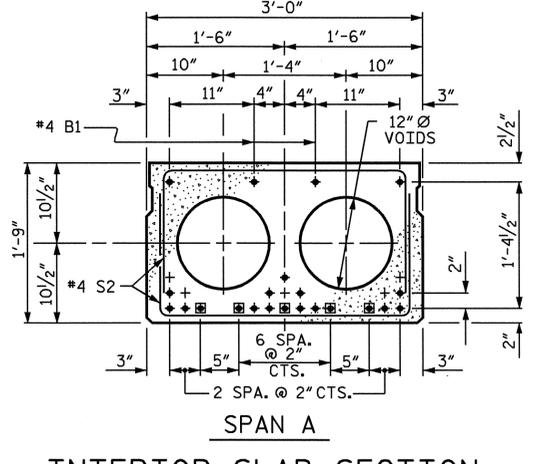
EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



END ELEVATION

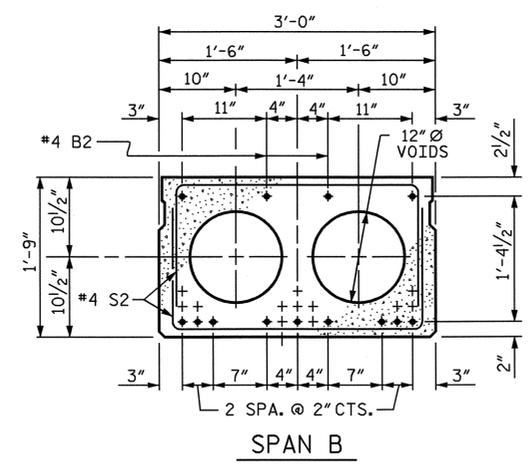
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN).
INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.



INTERIOR SLAB SECTION

1/2" Ø LOW RELAXATION STRAND LAY OUT

(20 STRANDS 5 SHEATHED)



INTERIOR SLAB SECTION

1/2" Ø LOW RELAXATION STRAND LAY OUT

(11 STRANDS)



PROJECT NO. B-4015
ASHE COUNTY
STATION: 13+17.50 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT

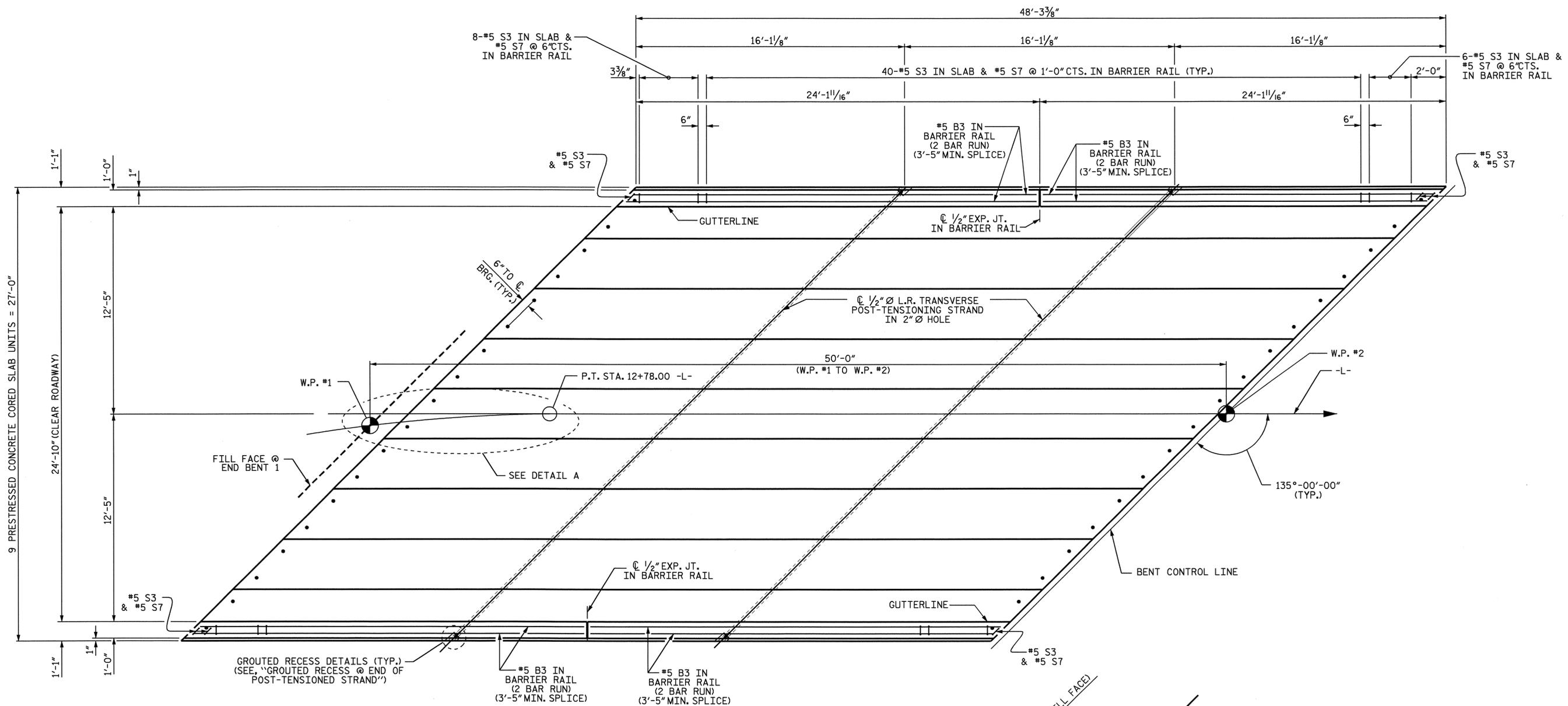
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4	
1			3			TOTAL SHEETS	
2			4			22	

DRAWN BY: H.B. SHAH DATE: 6/08
CHECKED BY: QT NGUYEN DATE: 8/08

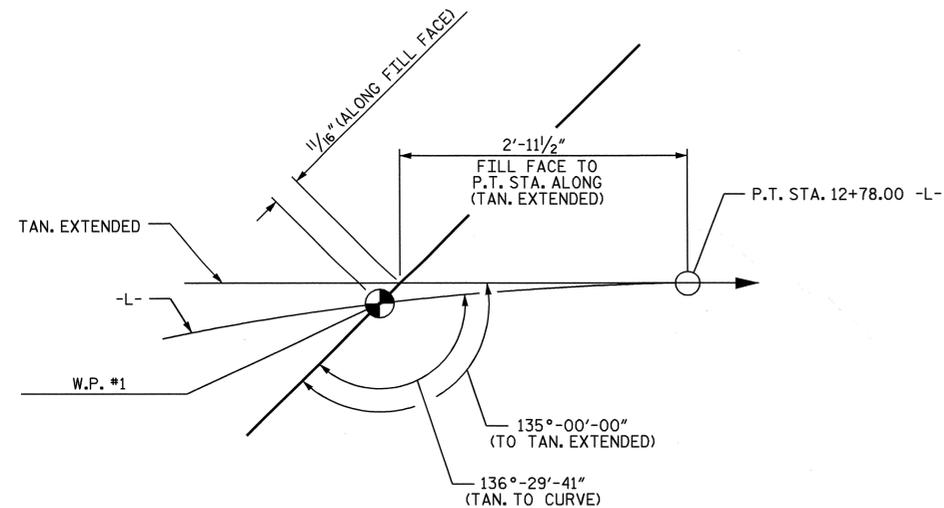
03-NOV-2008 15:13
W:\Structures\B4015\FINAL PLANS\B-4015.sd.os.1.dgn
Kpnewton

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

STD. No. PCS2



PLAN OF SPAN A



DETAIL A



PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

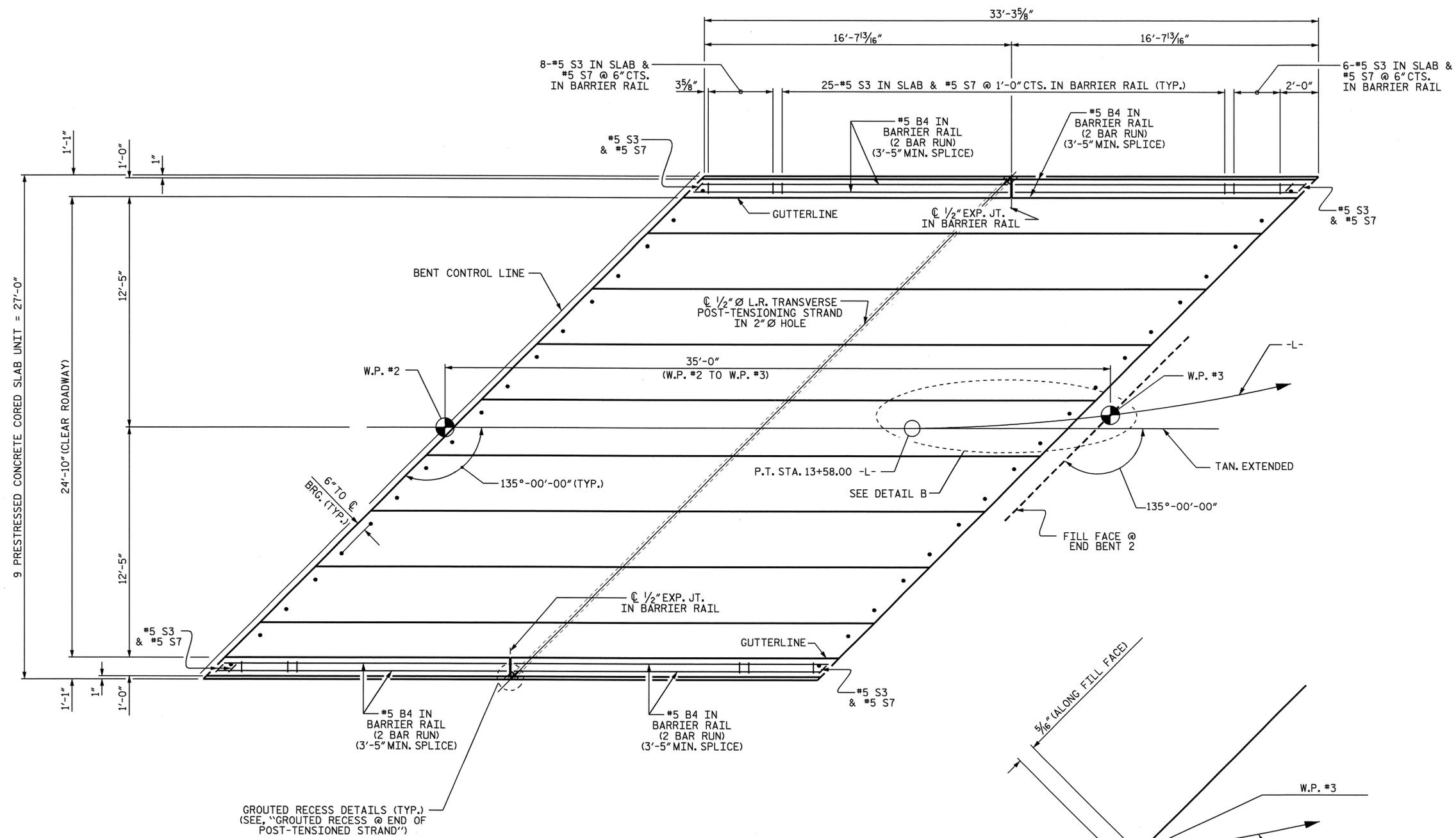
SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

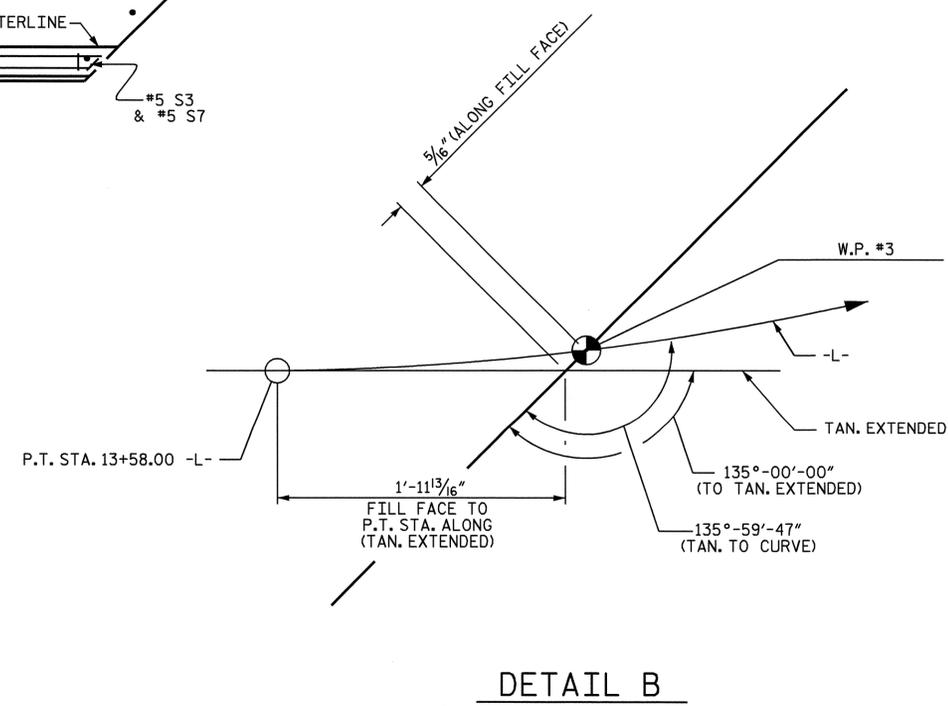
SUPERSTRUCTURE
 PLAN OF SPAN
 SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			22

DRAWN BY: J.L. WALTON/HBS DATE: 12-05/6-08
 CHECKED BY: QT NGUYEN DATE: 8/08



PLAN OF SPAN B



DETAIL B

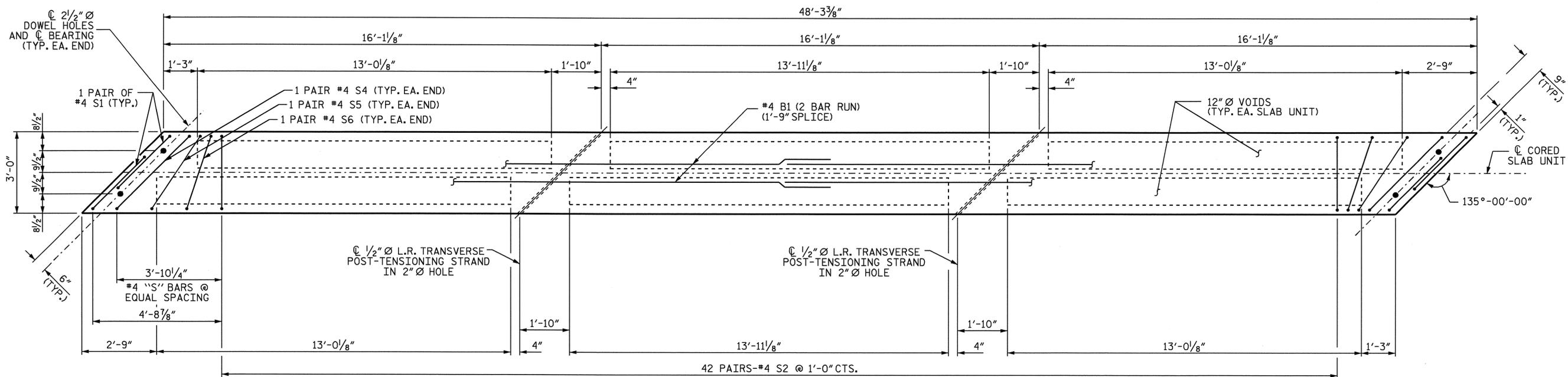


PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-
 SHEET 3 OF 6

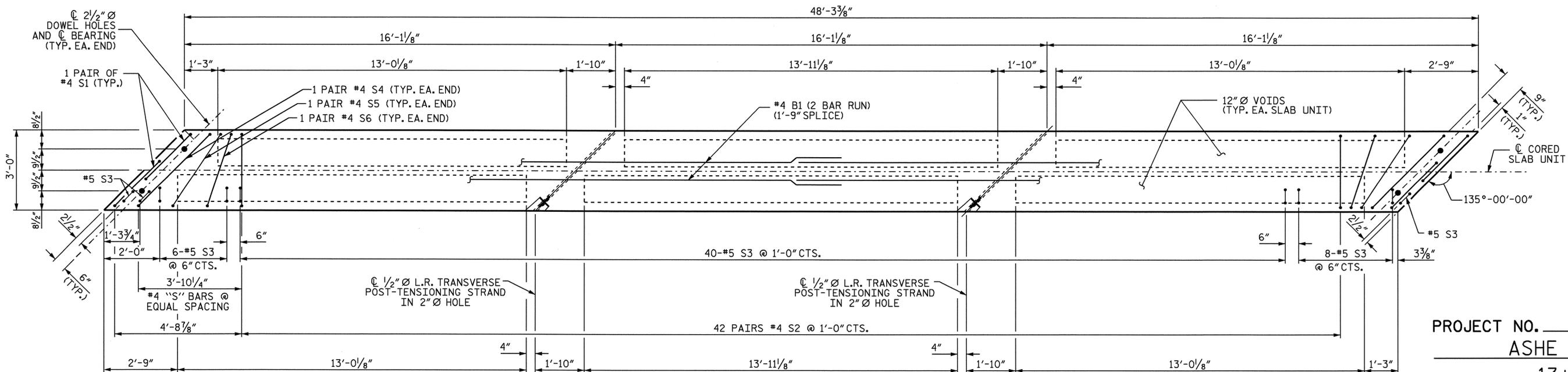
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 SPAN B

DRAWN BY: J.L. WALTON DATE: 12-05
 CHECKED BY: QT NGUYEN DATE: 8-08

REVISIONS						SHEET NO. S-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			



PLAN OF INTERIOR CORED SLAB UNIT



PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

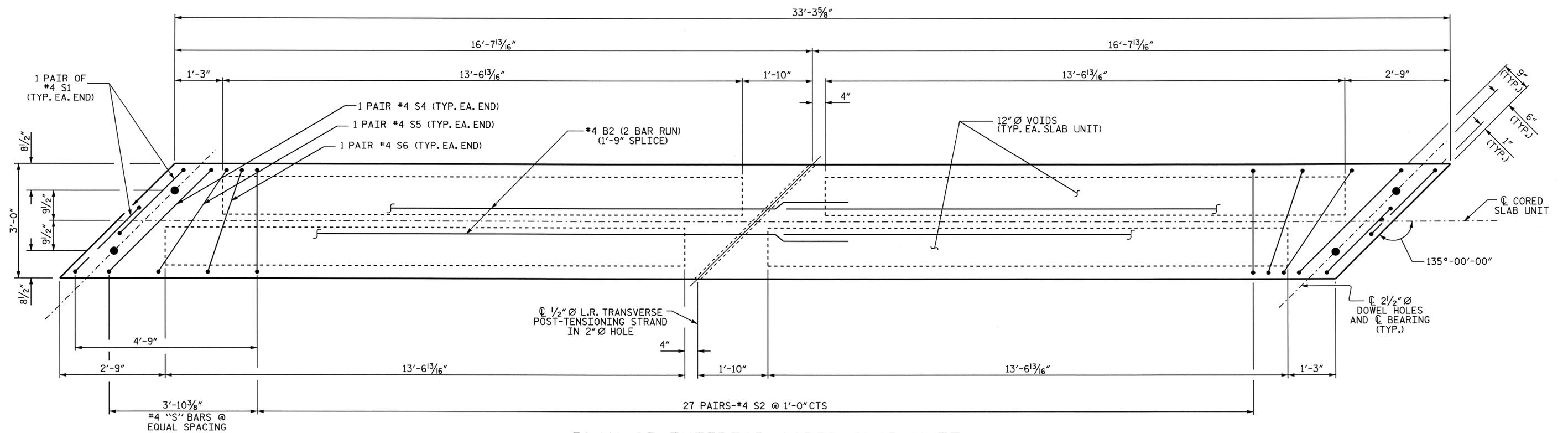
SHEET 4 OF 6



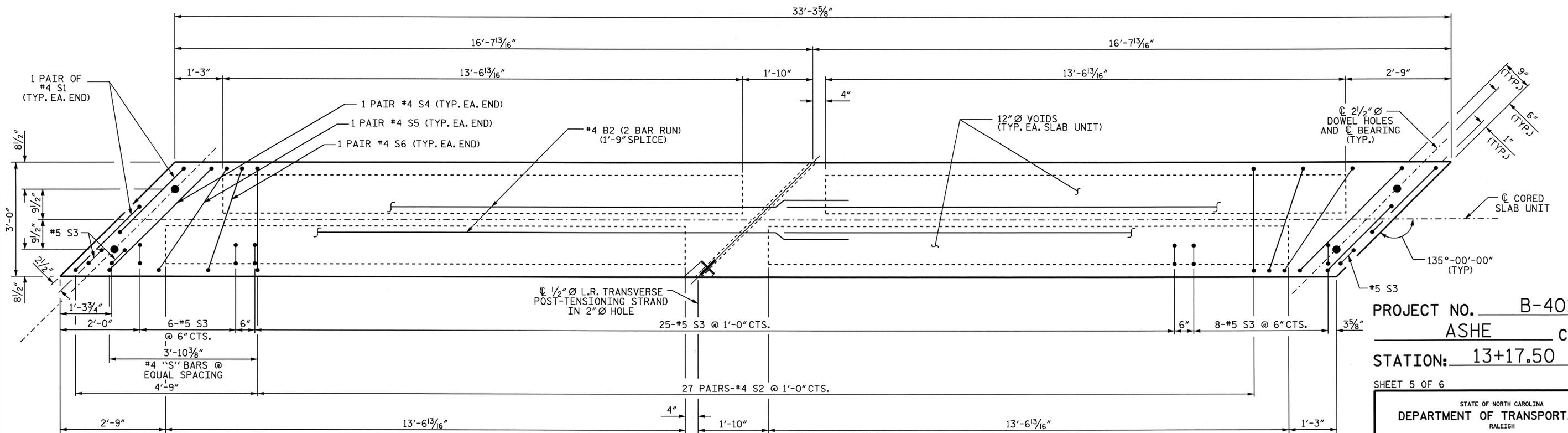
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS FOR SPAN A

DRAWN BY: J. L. WALTON DATE: 12/05
 CHECKED BY: QT NGUYEN DATE: 8/08

REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			



PLAN OF INTERIOR CORED SLAB UNIT



PLAN OF EXTERIOR CORED SLAB UNIT

PROJECT NO. B-4015
 ASHE COUNTY
 STATION: 13+17.50 -L-
 SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS FOR SPAN B



DRAWN BY: J. L. WALTON DATE: 9/05
 CHECKED BY: QT NGUYEN DATE: 8/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			22

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

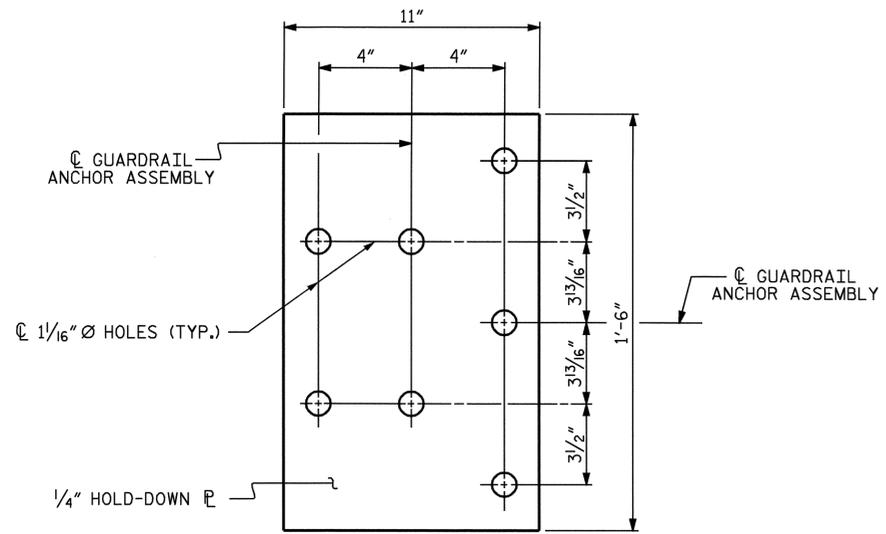
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

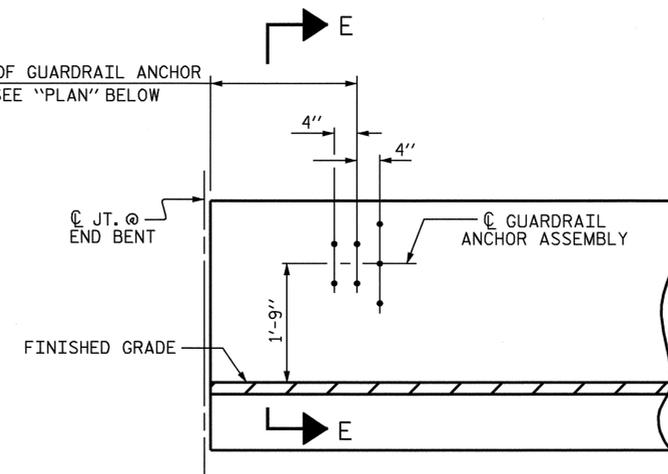
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

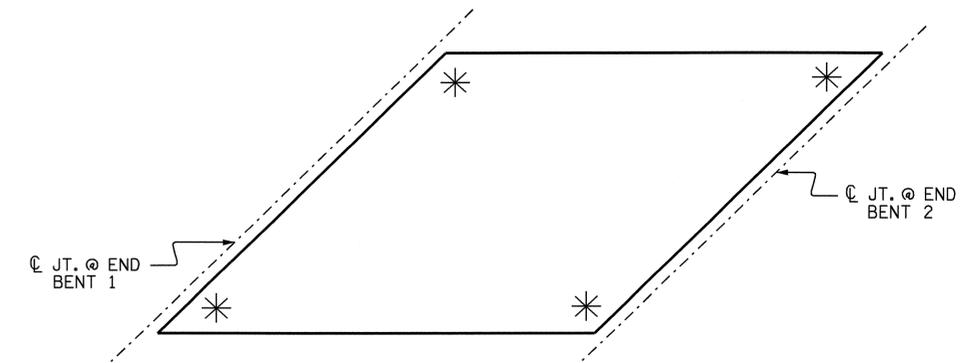
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

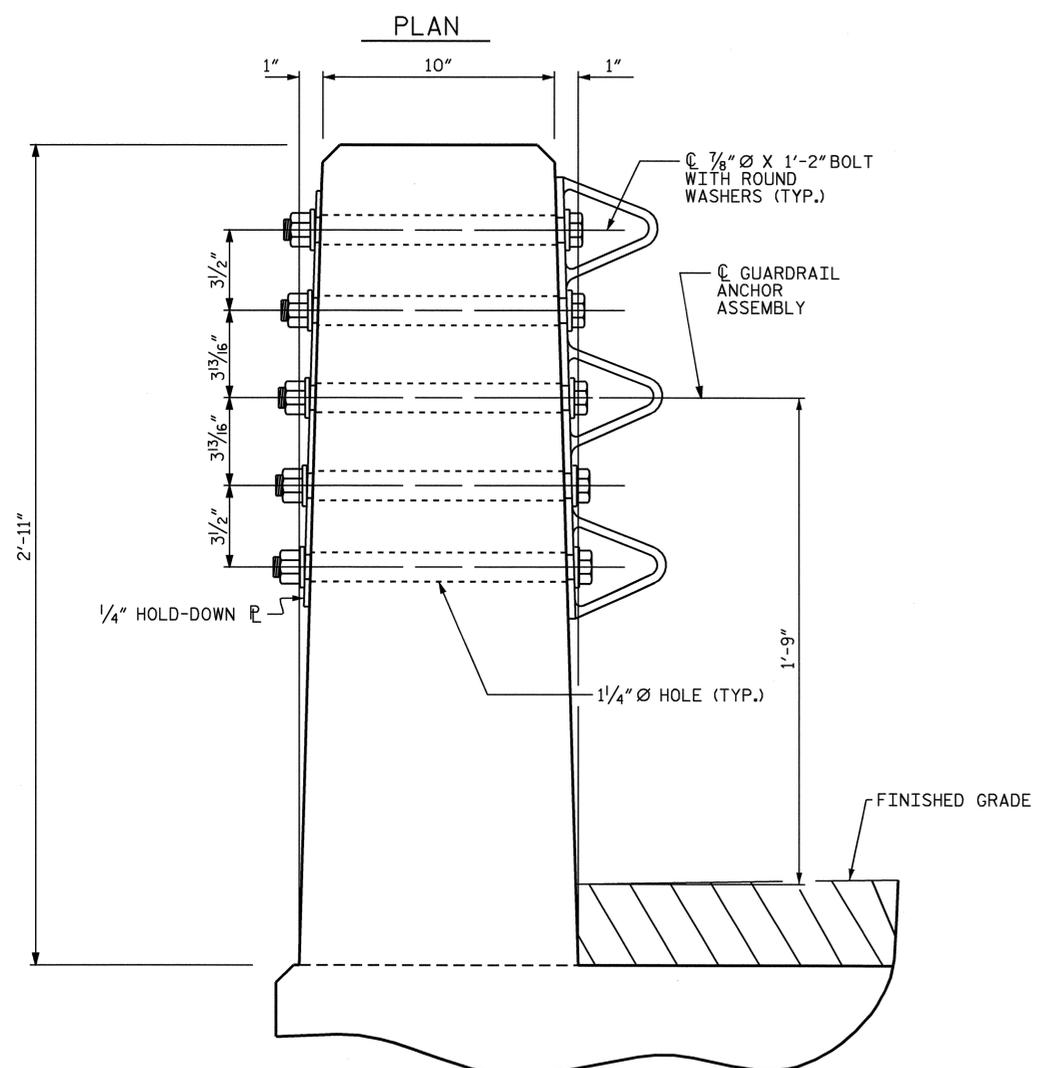


ELEVATION

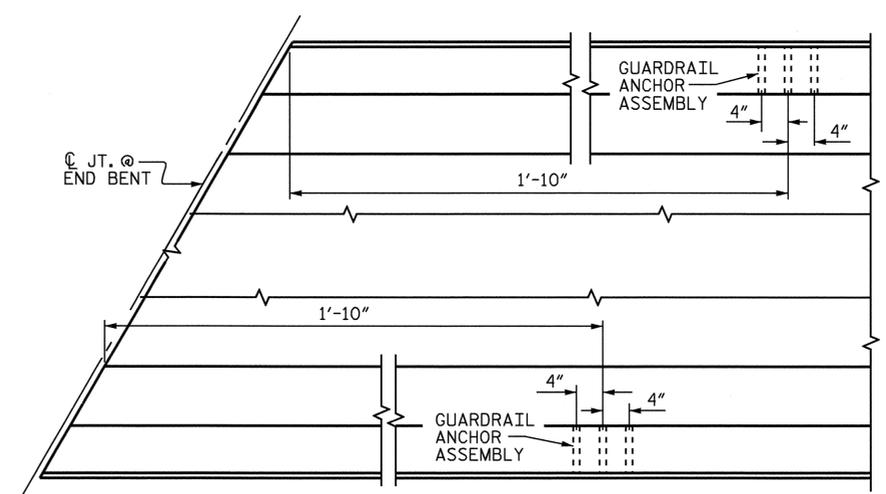


SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY



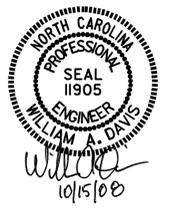
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



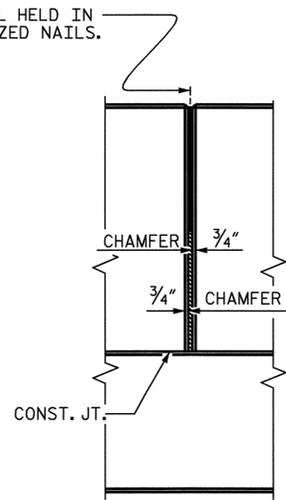
PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL

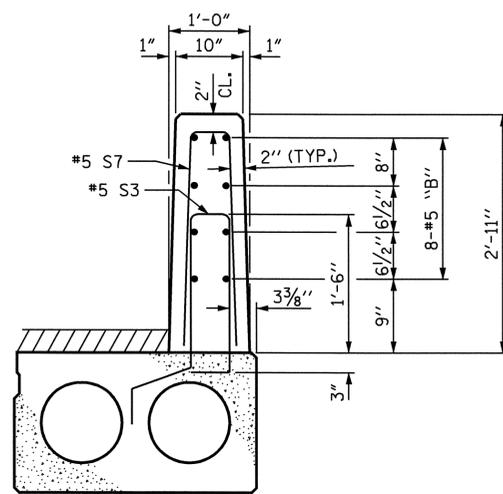
ASSEMBLED BY : QT NGUYEN	DATE : 7/31/08
CHECKED BY : PK NEWTON	DATE : 10/13/08
DRAWN BY : MAA 12/06	ADDED 12/15/06
CHECKED BY : GM 12/06	

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			22	

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.

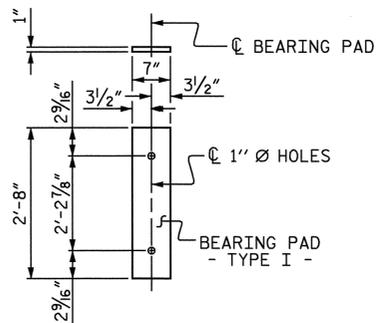


ELEVATION AT EXPANSION JOINTS



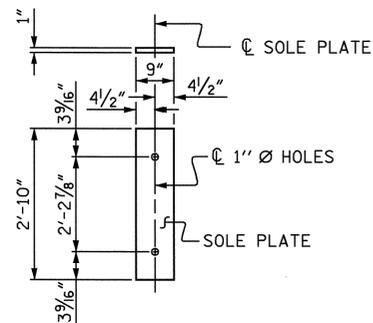
SECTION THRU RAIL

VERTICAL CONCRETE BARRIER RAIL DETAILS



FIXED END (TYPE I - 36 REQ'D)

ELASTOMERIC BEARING DETAILS



FIXED END (36 REQ'D)

SOLE PLATE DETAILS

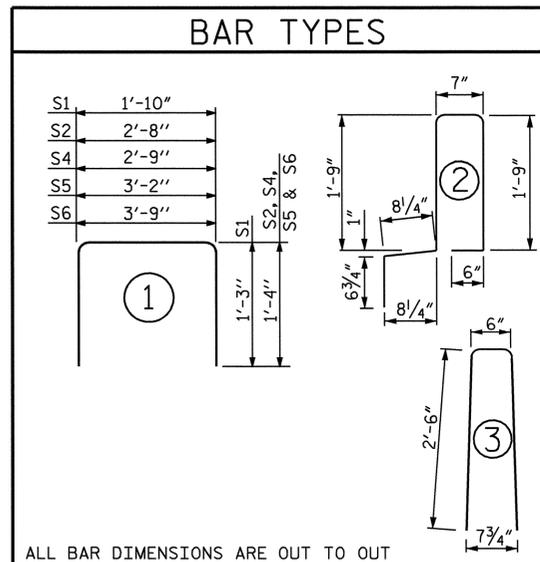
GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

DEAD LOAD DEFLECTION AND CAMBER	
SPAN A	
CAMBER (SLAB ALONE IN PLACE)	↑ 1 1/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	↓ 1/4"
FINAL CAMBER	↑ 1 1/16"
SPAN B	
CAMBER (SLAB ALONE IN PLACE)	↑ 7/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	↓ 1/16"
FINAL CAMBER	↑ 3/8"

BILL OF MATERIAL FOR ONE CORED SLAB UNIT							
SPAN A							
BAR	NUMBER	SIZE	TYPE	INTERIOR UNIT		EXTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	24'-10"	66	24'-10"	66
S1	8	#5	1	4'-4"	36	4'-4"	36
S2	84	#4	1	5'-4"	299	5'-4"	299
*S3	57	#5	2	-	-	5'-10"	347
S4	4	#4	1	5'-5"	14	5'-5"	14
S5	4	#4	1	5'-10"	16	5'-10"	16
S6	4	#4	1	6'-5"	17	6'-5"	17
REINFORCING STEEL				LB.	448	448	
* EPOXY COATED REINF. STEEL				LB.	-	347	
5,000 PSI CONCRETE				CU. YDS.	6.9	6.9	
1/2" L.R. STRANDS				No.	20	20	

BILL OF MATERIAL FOR ONE CORED SLAB UNIT							
SPAN B							
BAR	NUMBER	SIZE	TYPE	INTERIOR UNIT		EXTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	17'-4"	46	17'-4"	46
S1	8	#5	1	4'-4"	36	4'-4"	36
S2	54	#4	1	5'-4"	192	5'-4"	192
*S3	42	#5	2	-	-	5'-10"	256
S4	4	#4	1	5'-5"	14	5'-5"	14
S5	4	#4	1	5'-10"	16	5'-10"	16
S6	4	#4	1	6'-5"	17	6'-5"	17
REINFORCING STEEL				LB.	321	321	
* EPOXY COATED REINF. STEEL				LB.	-	256	
5,000 PSI CONCRETE				CU. YDS.	4.8	4.8	
1/2" L.R. STRANDS				No.	11	11	

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*B3	64	#5	STR	14'-0"	935
*B4	64	#5	STR	10'-3"	684
*S7	198	#5	3	5'-6"	1113
* EPOXY COATED REINFORCING STEEL				2732	
CLASS AA CONCRETE				16.1 CU.YDS.	
TOTAL LIN. FT. OF VERTICAL CONCRETE BARRIER RAIL				163.17 LIN. FT.	



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF BARRIER RAILS IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

STEEL SOLE PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE COST OF THE STEEL SOLE PLATES WILL BE INCLUDED IN THE LUMP SUM PRICE FOR ELASTOMERIC BEARINGS.

CORED SLABS REQUIRED				
SPAN A				
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH	
INTERIOR	7	48'-3 3/8"	337'-11 5/8"	
EXTERIOR	2	48'-3 3/8"	96'-6 3/4"	
TOTAL NUMBER	9	48'-3 3/8"	434'-6 3/8"	
SPAN B				
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH	
INTERIOR	7	33'-3 3/8"	233'-1 3/8"	
EXTERIOR	2	33'-3 3/8"	66'-7 1/4"	
TOTAL NUMBER	9	33'-3 3/8"	299'-8 3/8"	
				TOTAL LENGTH 734'-3"

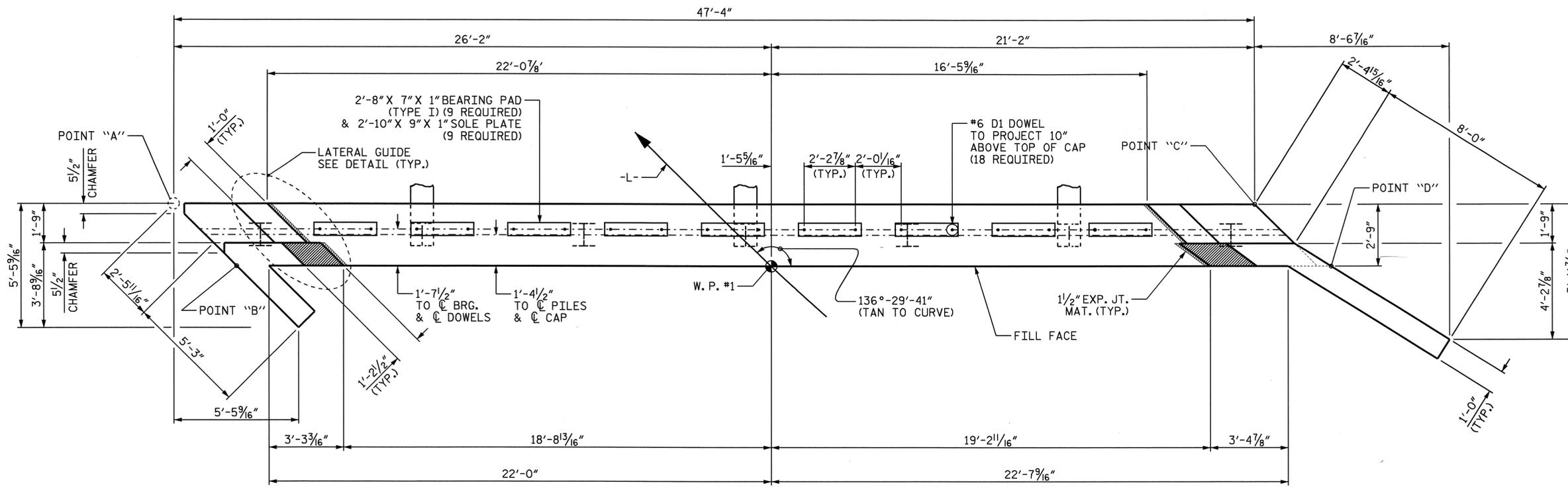
PROJECT NO. B-4015
 ASHE COUNTY
 STATION: 13+17.50 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT



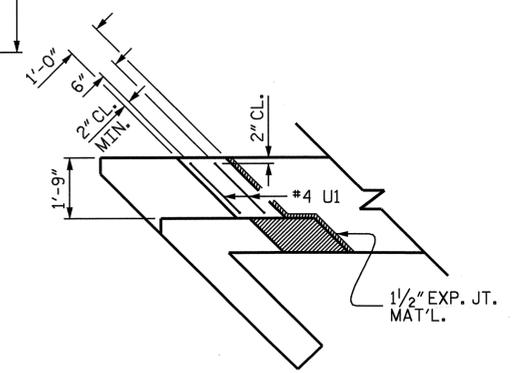
ASSEMBLED BY :	J.L. WALTON	DATE :	9-07
CHECKED BY :	QT NGUYEN	DATE :	8-08
DRAWN BY :	WJH 4/89	REV. 7/10/01	RWW/LES
CHECKED BY :	FCJ 5/89	REV. 5/7/03RRR	RWW/JTE
		REV. 5/1/06	TLA/GM



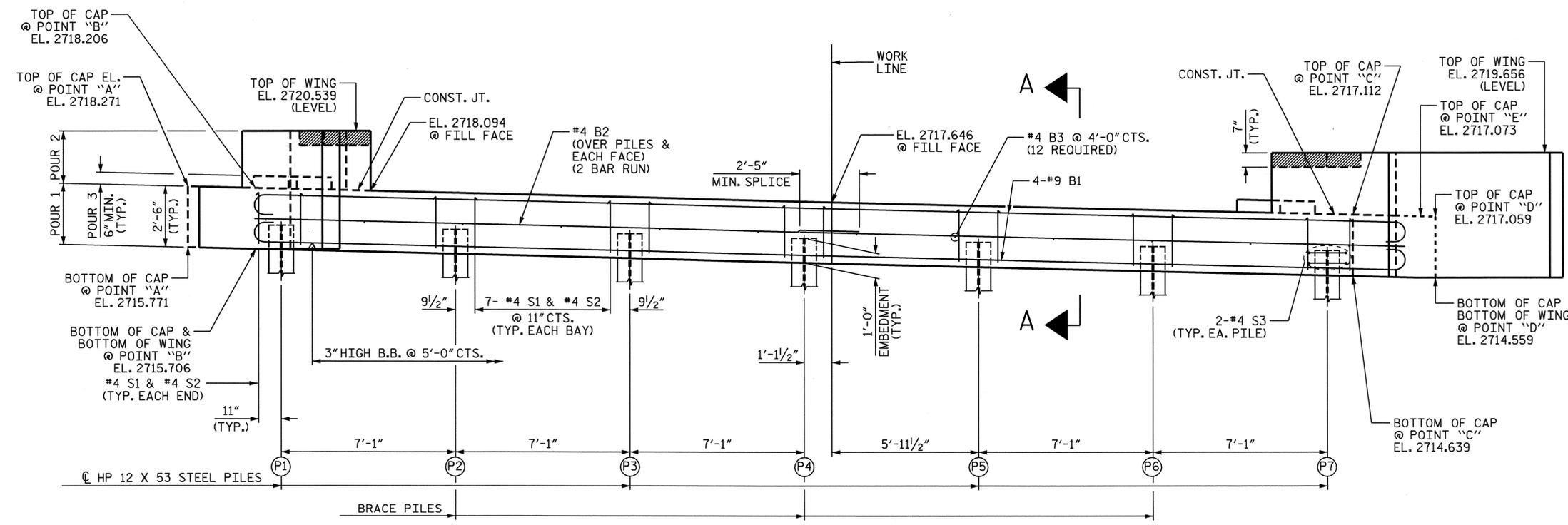
PLAN

NOTES

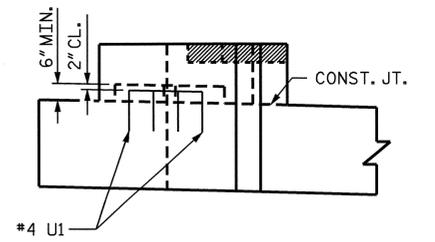
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE CONCRETE RAIL IS CAST IF SLIP FORMING IS USED.



PLAN



ELEVATION



ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)

PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

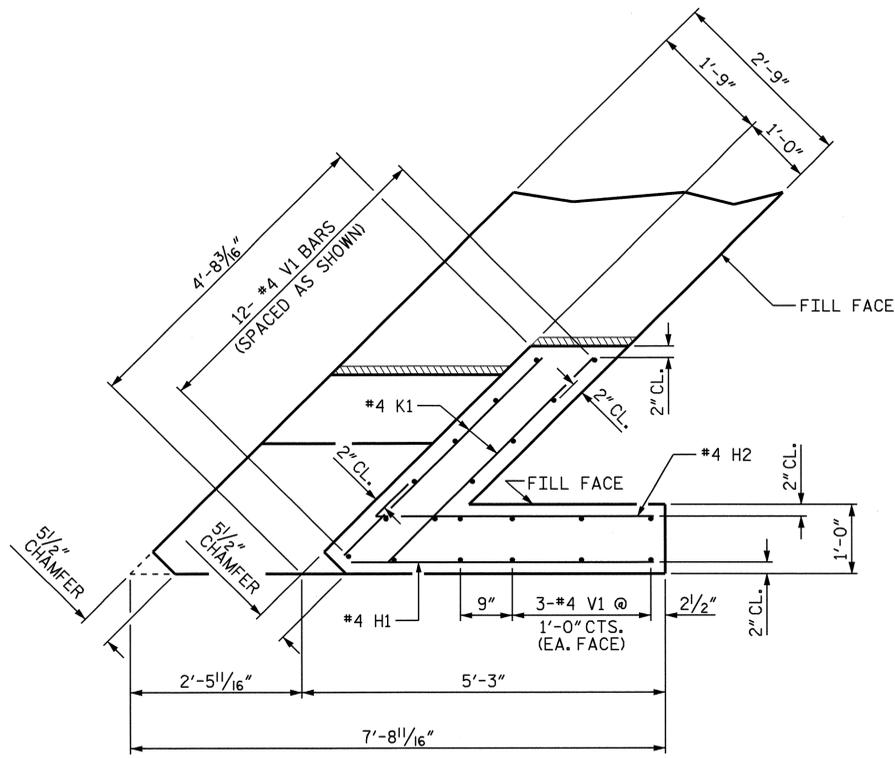
SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS 22
2			4			

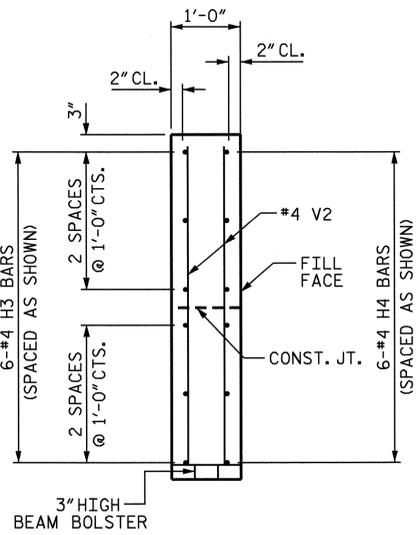
PILE	ELEVATION
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2	2716.448
3	2716.278
4	2716.109
5	2715.939
6	2715.770
7	2715.601



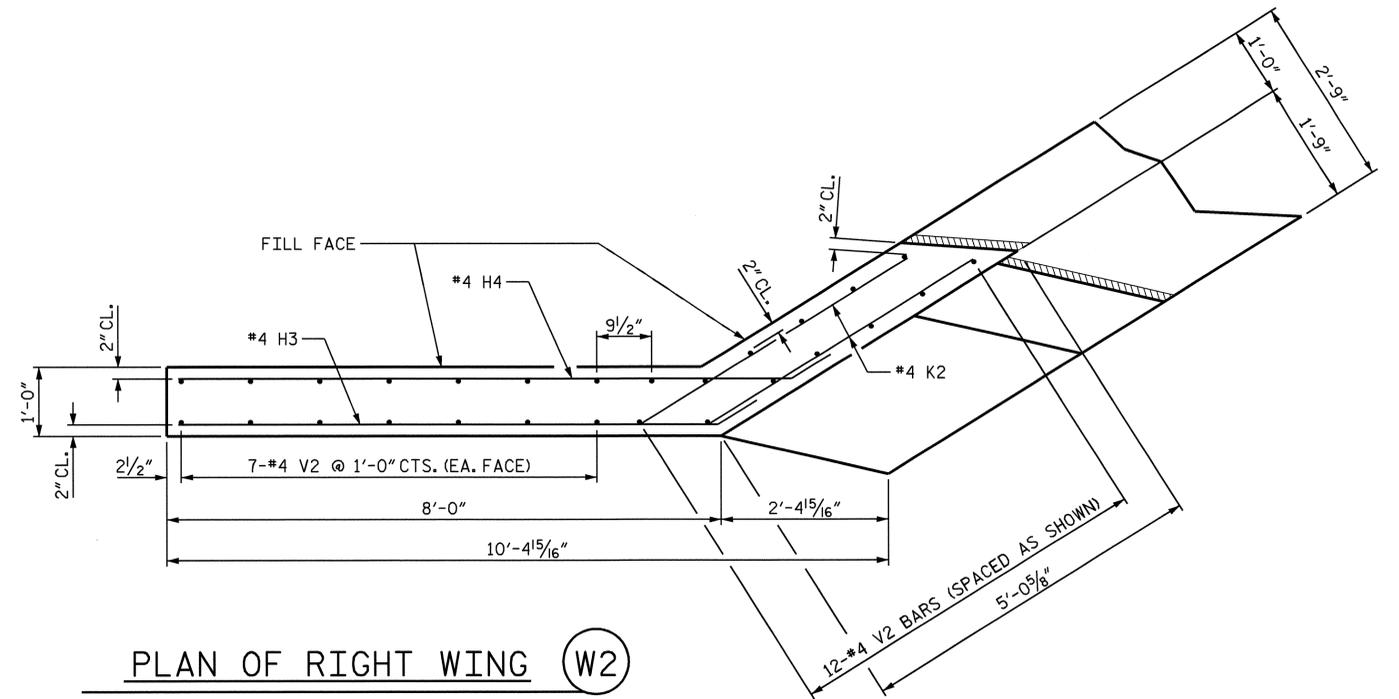
DRAWN BY: P. K. NEWTON DATE: 7/3/08
 CHECKED BY: QT NGUYEN DATE: 7-08



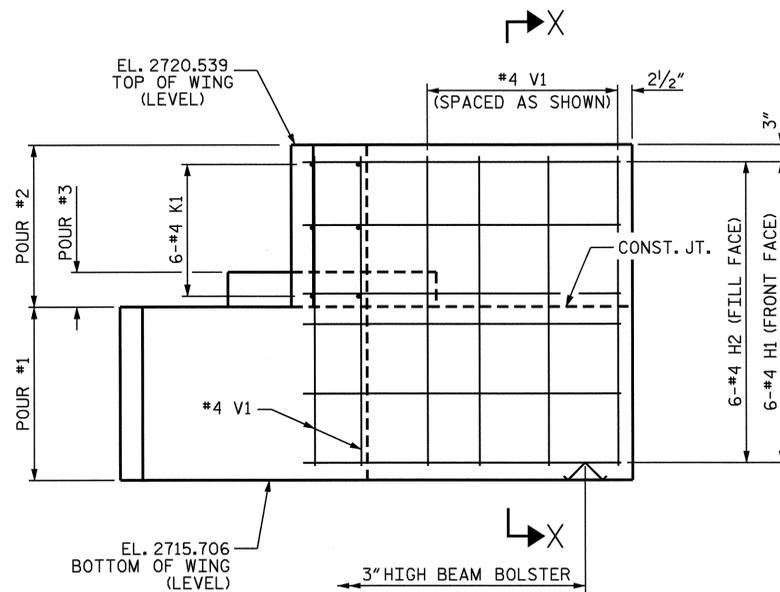
PLAN OF LEFT WING (W1)



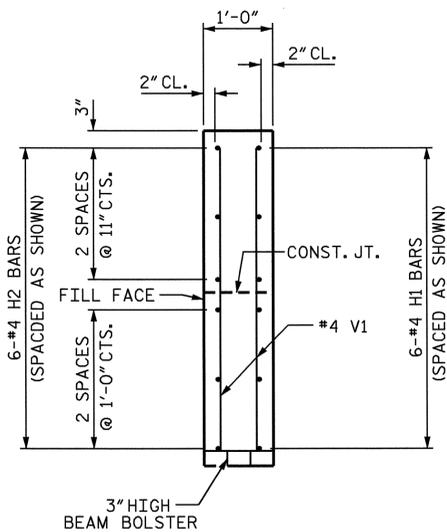
SECTION Y-Y



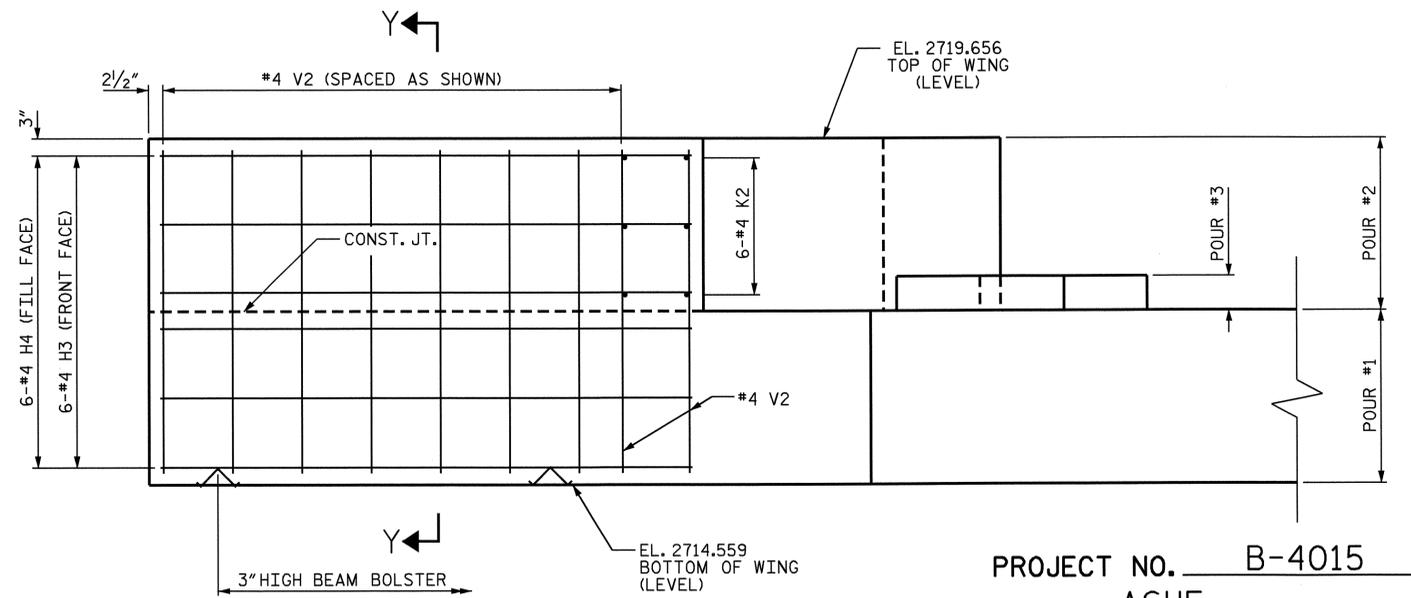
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



SECTION X-X



ELEVATION OF RIGHT WING (W2)

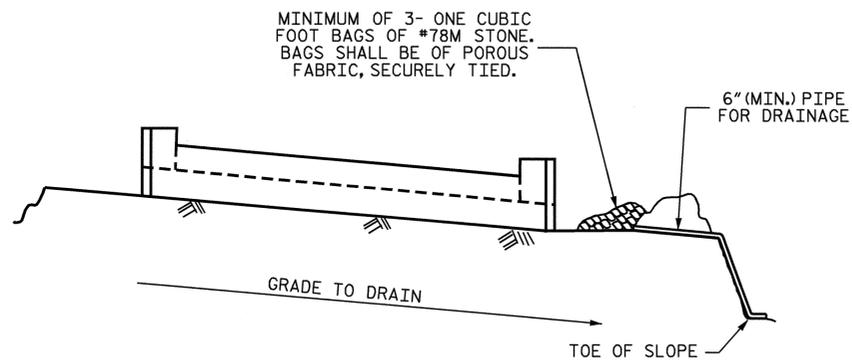
PROJECT NO. B-4015
ASHE COUNTY
STATION: 13+17.50 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-12
SUBSTRUCTURE END BENT 1						
REVISIONS						TOTAL SHEETS 22
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY: P. K. NEWTON DATE: 7/7/08
CHECKED BY: QT NGUYEN DATE: 7-08

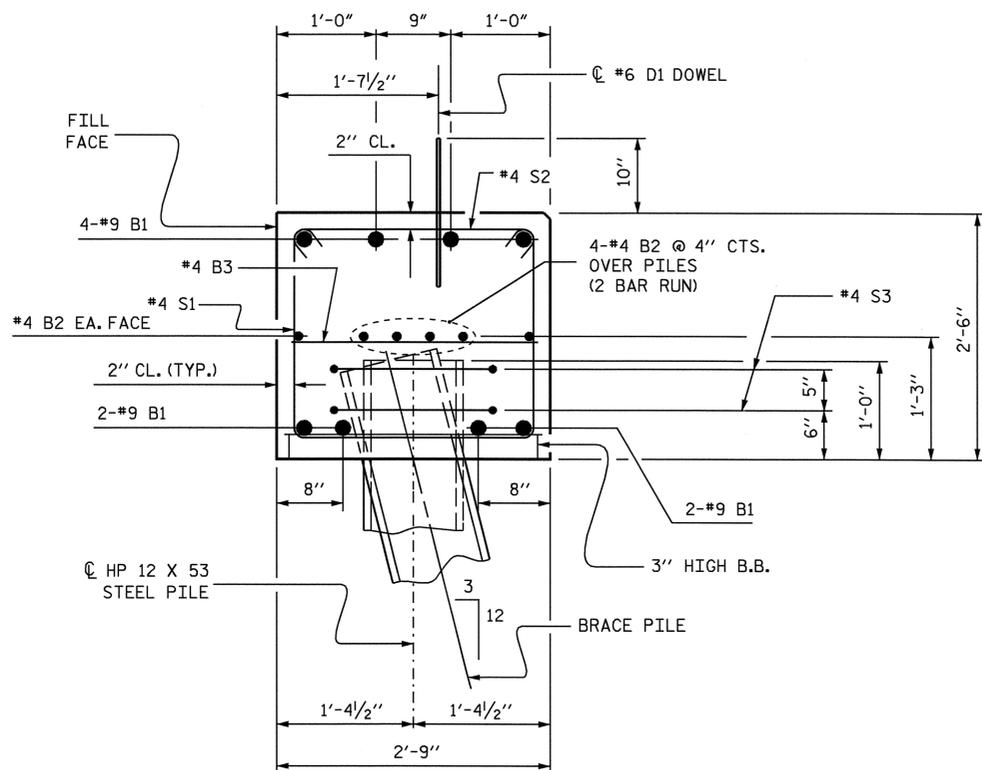


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

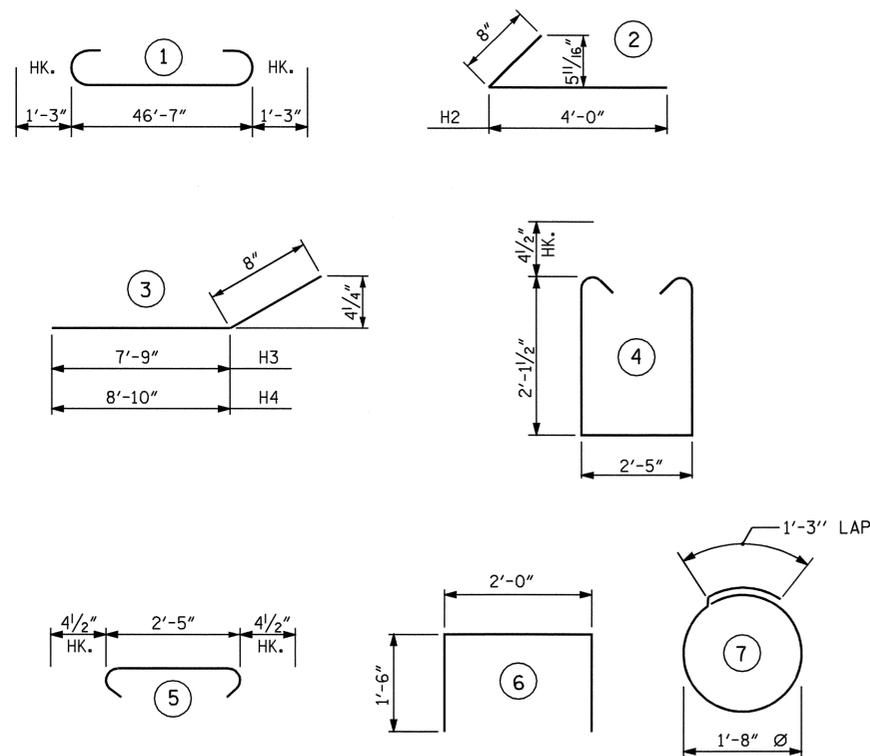


SECTION A-A

DRAWN BY : P. K. NEWTON DATE : 7/10/08
 CHECKED BY : QT NGUYEN DATE : 7-08

03-NOV-2008 15d5
 W:\Structures\B4015\FINAL PLANS\B4015.sd.E*.dgn
 kpnewton

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	49'-1"	1335
B2	12	#4	STR	24'-7"	197
B3	12	#4	STR	2'-5"	19
D1	18	#6	STR	1'-7"	43
H1	6	#4	STR	4'-4"	17
H2	6	#4	2	4'-8"	19
H3	6	#4	3	8'-5"	34
H4	6	#4	3	9'-6"	38
K1	6	#4	STR	4'-1"	16
K2	6	#4	STR	4'-6"	18
S1	44	#4	4	7'-5"	218
S2	44	#4	5	3'-2"	93
S3	14	#4	7	6'-6"	61
U1	4	#4	6	5'-0"	13
V1	20	#4	STR	4'-6"	60
V2	27	#4	STR	4'-9"	86
REINFORCING STEEL				=	2267 LBS
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS					13.0
C.Y.					
POUR #2 UPPER PART OF WINGS					1.8
C.Y.					
POUR #3 LATERAL GUIDES					0.1
C.Y.					
TOTAL CLASS A CONCRETE					14.9
C.Y.					
HP 12 X 53 STEEL PILES					
NO. 7					LIN. FT. 70

PROJECT NO. B-4015
 ASHE COUNTY
 STATION: 13+17.50 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			22

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

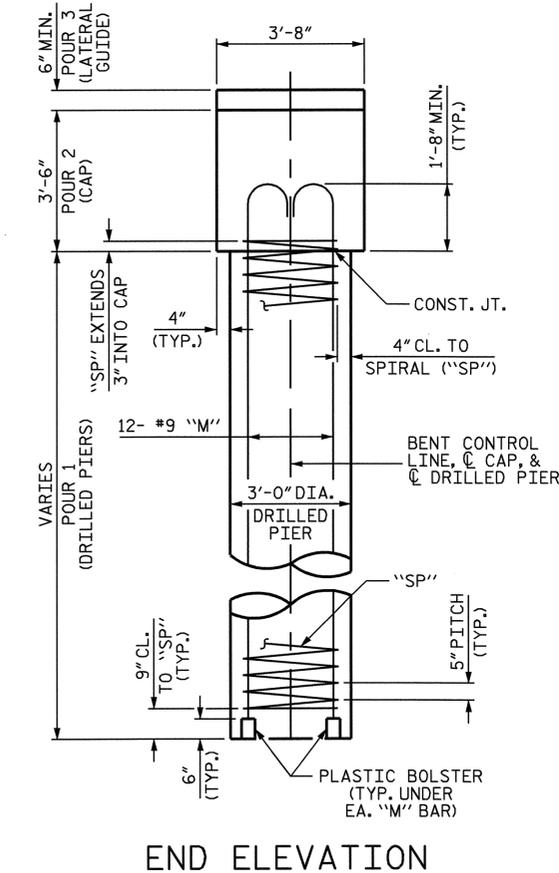
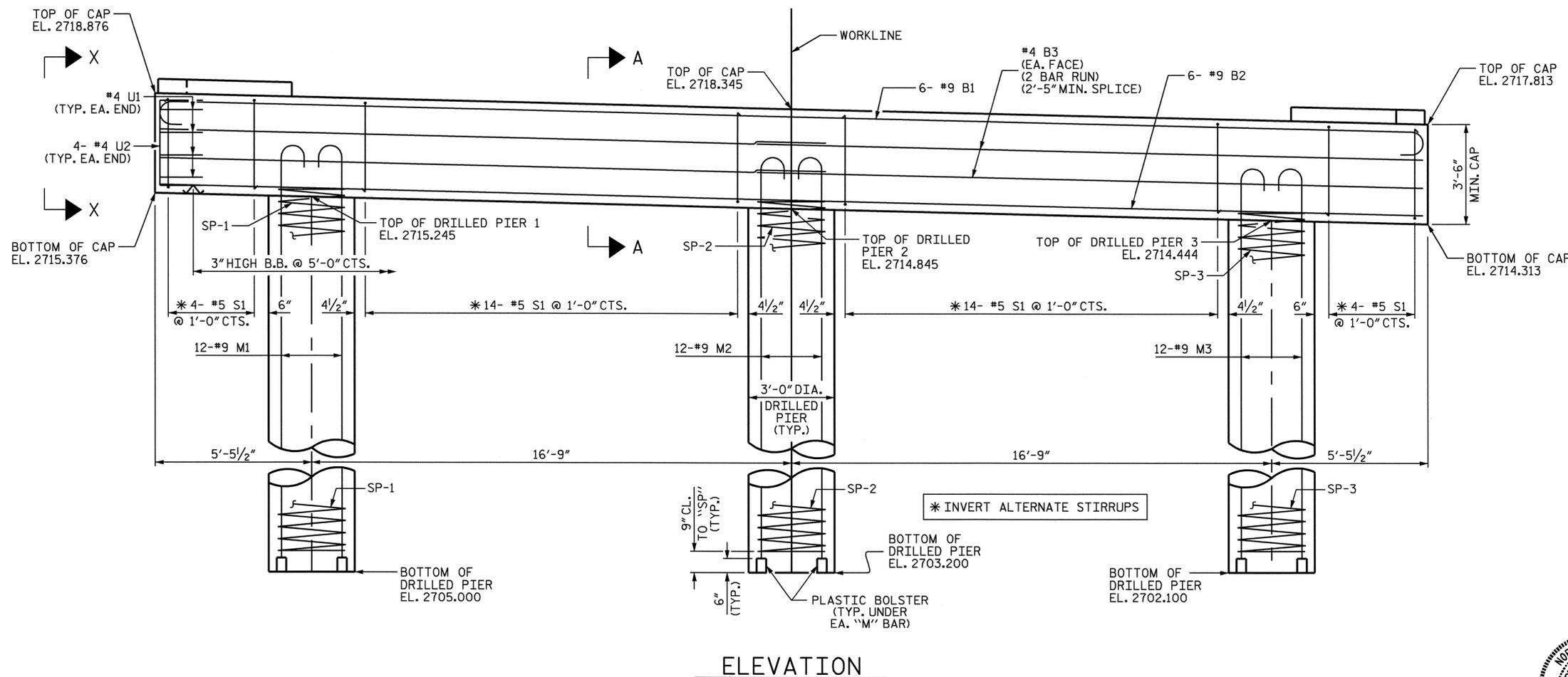
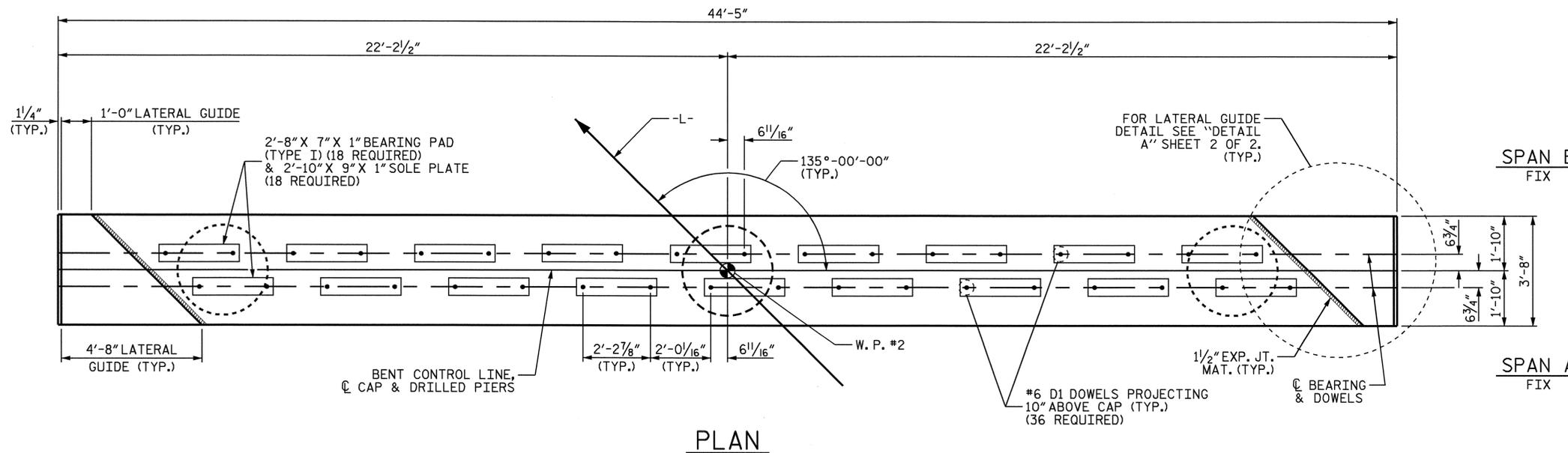
HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

THE LATERAL GUIDE AT EACH END OF THE CAP SHALL NOT BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIERS WILL NOT BE PERMITTED.



PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

SHEET 1 OF 2

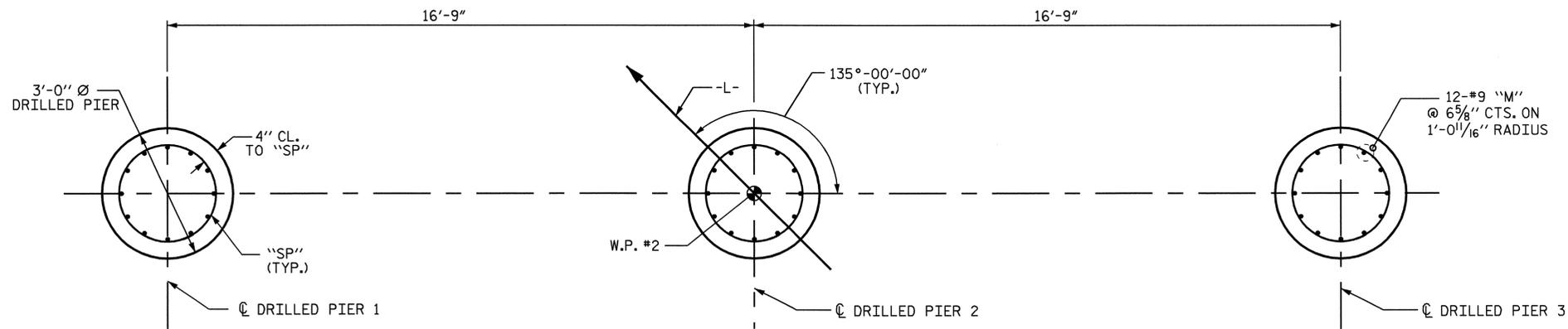


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

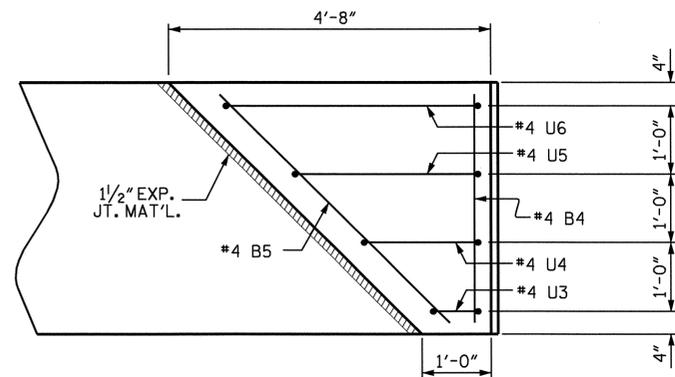
SUBSTRUCTURE
 BENT 1

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			

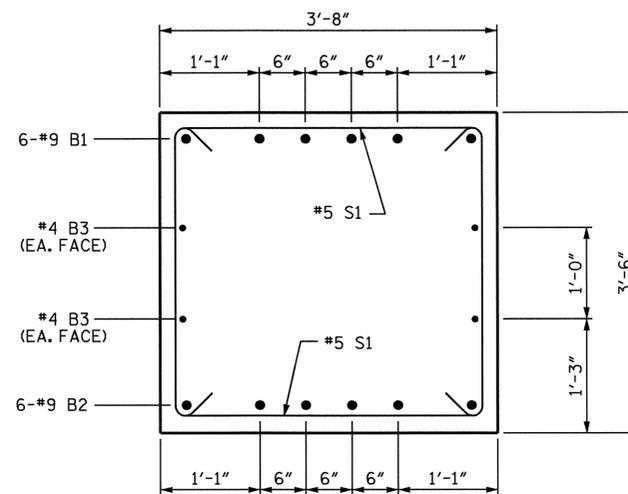
DRAWN BY: P. K. NEWTON DATE: 9/15/08
 CHECKED BY: S. F. DOMBROWSKI DATE: 9/19/08



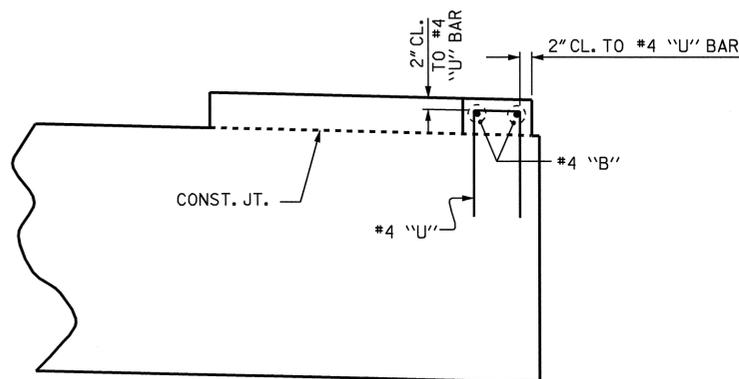
PLAN OF DRILLED PIERS
(DIMENSIONS AND REINFORCING STEEL ARE TYPICAL FOR EACH DRILLED PIER)



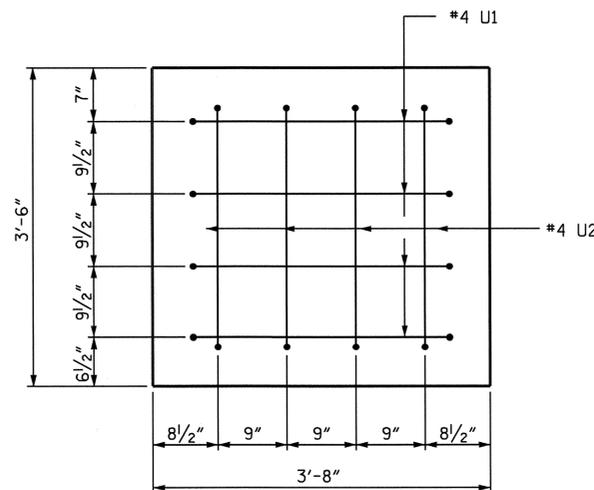
PLAN



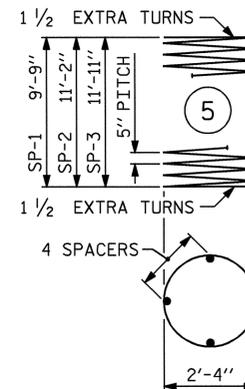
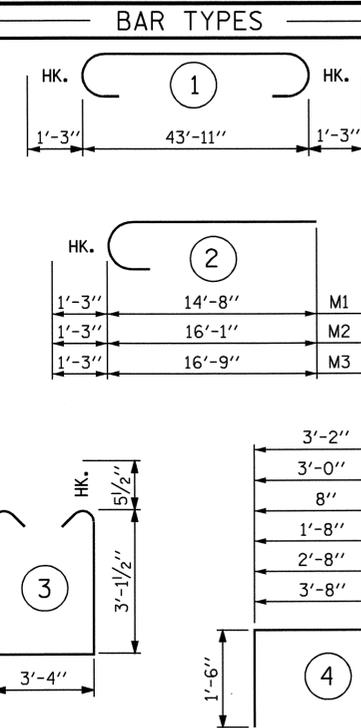
SECTION A-A



**ELEVATION
DETAIL A**



VIEW X-X



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#9	1	46'-5"	947
B2	6	#9	STR	44'-1"	899
B3	8	#4	STR	23'-3"	124
B4	2	#4	STR	3'-4"	4
B5	2	#4	STR	4'-8"	6
D1	36	#6	STR	1'-7"	86
M1	12	#9	2	15'-11"	649
M2	12	#9	2	17'-4"	707
M3	12	#9	2	18'-0"	734
S1	36	#5	3	10'-6"	394
U1	8	#4	4	6'-2"	33
U2	8	#4	4	6'-0"	32
U3	2	#4	4	3'-8"	5
U4	2	#4	4	4'-8"	6
U5	2	#4	4	5'-8"	8
U6	2	#4	4	6'-8"	9

REINFORCING STEEL				LBS	4643
SP-1	1	**	5	189'-2"	197
SP-2	1	**	5	213'-6"	223
SP-3	1	**	5	226'-5"	236

TOTAL SPIRAL				COLUMN REINFORCING STEEL	LBS	656
--------------	--	--	--	--------------------------	-----	-----

CLASS "A" CONCRETE BREAKDOWN			
POUR #2 (CAP)	C.Y.	21.1	
POUR #3 (LATERAL GUIDES)	C.Y.	0.4	
TOTAL	C.Y.	21.5	

DRILLED PIER QUANTITIES

DRILLED PIER CONCRETE		
POUR #1 (DRILLED PIERS)	C.Y.	9.0
3'-0" Ø DRILLED PIER IN SOIL	FT.	24.2
3'-0" Ø DRILLED PIER NOT IN SOIL	FT.	10.0

PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIERS		
	LIN. FT.	20.5

CSL TUBES	LIN. FT.	167.0
SPT TESTING	EA.	3
SID INSPECTION	EA.	3

** THE "SP" SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

SHEET 2 OF 2

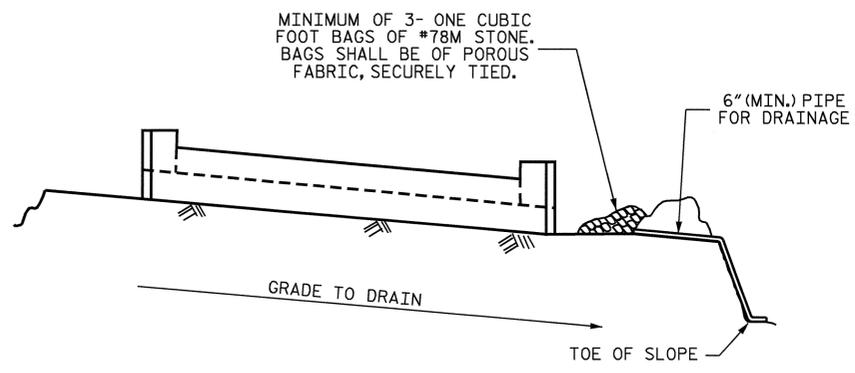
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 1



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			22

DRAWN BY : P. K. NEWTON DATE : 9/15/08
 CHECKED BY : S. F. DOMBROWSKI DATE : 9/19/08



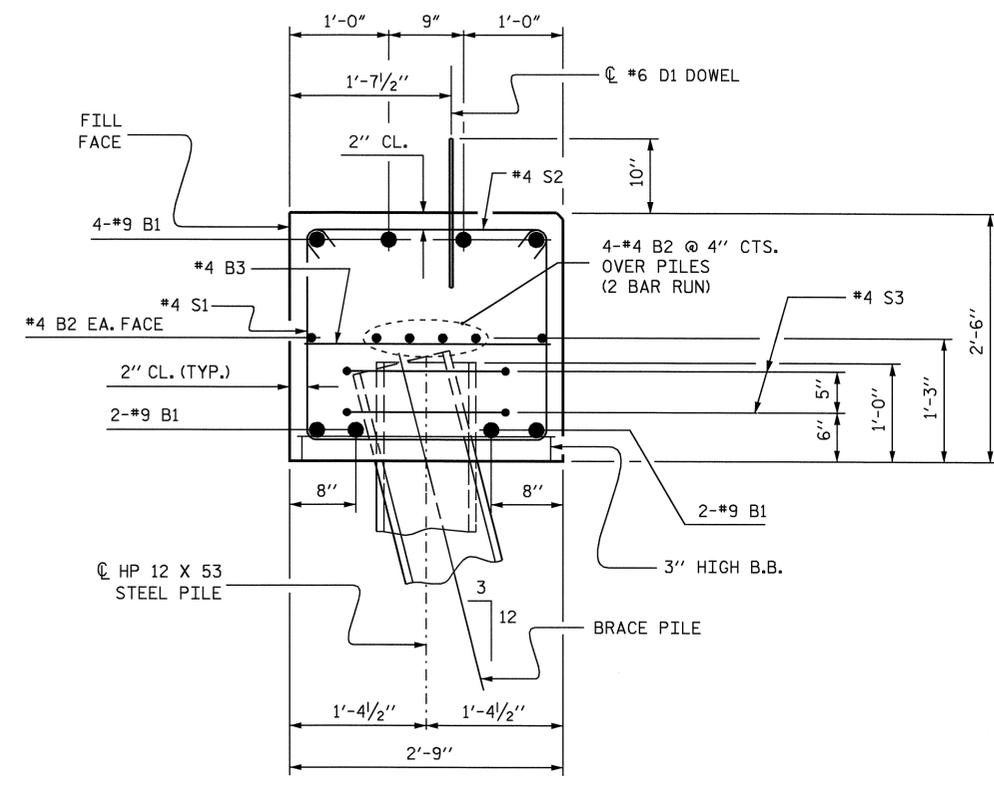
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

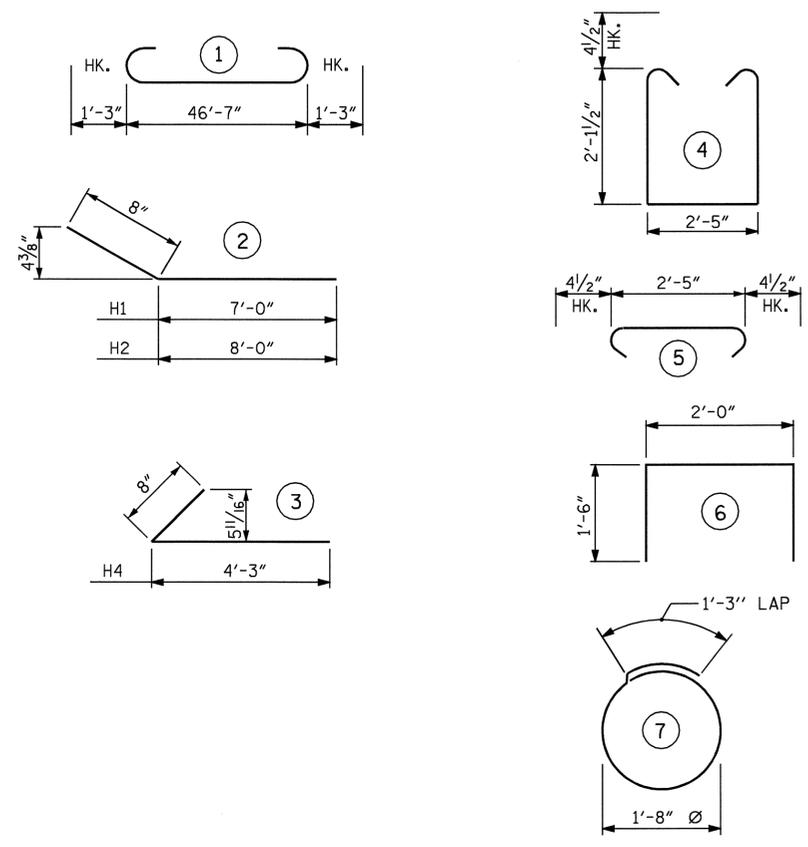


SECTION A-A

DRAWN BY: P. K. NEWTON DATE: 7/10/08
 CHECKED BY: QT. NGUYEN DATE: 7-08

03-NOV-2008 15:16
 W:\Structures\B4015\FINAL PLANS\B4015.sd.E*.dgn
 kpnewton

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

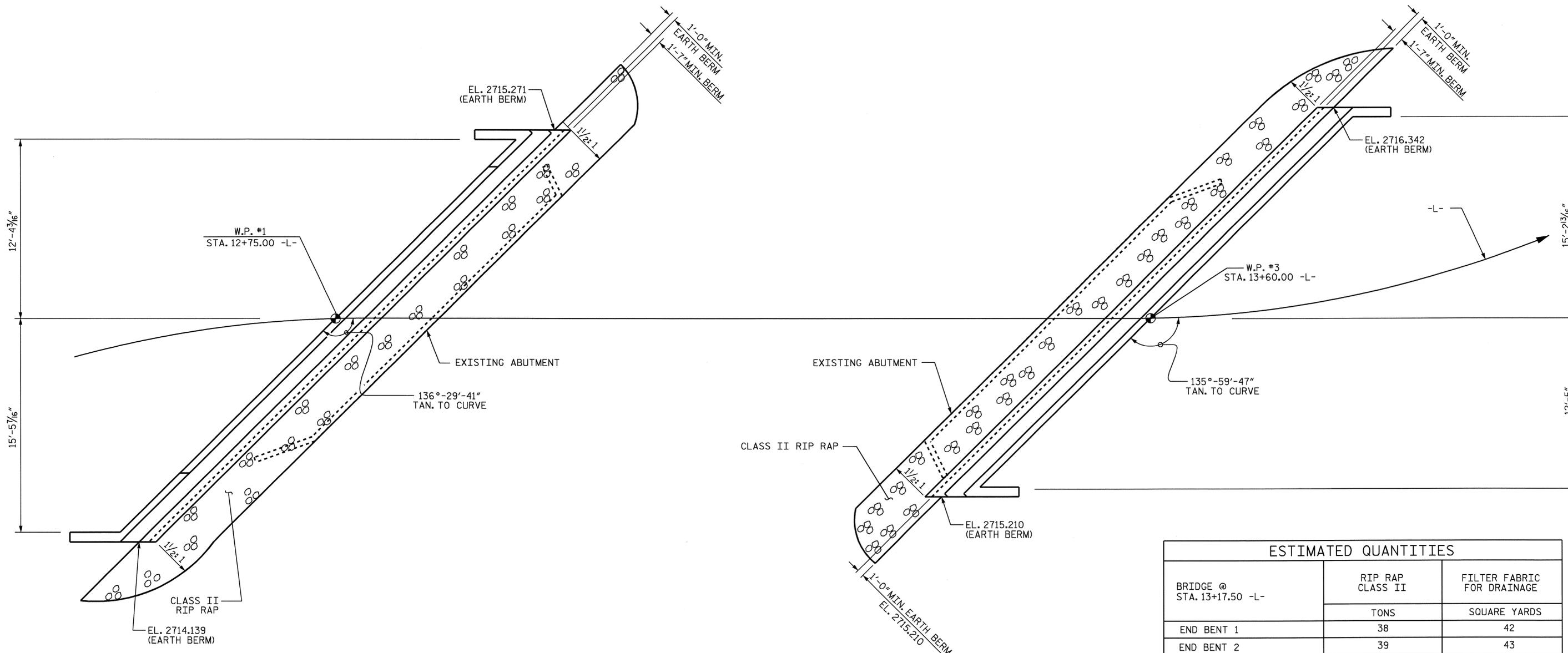
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		49'-1"	1335
B2	12	#4	STR	24'-7"	197
B3	12	#4	STR	2'-5"	19
D1	18	#6	STR	1'-7"	43
H1	6	#4	2	7'-8"	31
H2	6	#4	2	8'-8"	35
H3	6	#4	STR	4'-7"	18
H4	6	#4	3	4'-11"	20
K1	6	#4	STR	4'-6"	18
K2	6	#4	STR	4'-1"	16
S1	42	#4	4	7'-5"	208
S2	42	#4	5	3'-2"	89
S3	12	#4	7	6'-6"	52
U1	4	#4	6	5'-0"	13
V1	25	#4	STR	4'-6"	75
V2	20	#4	STR	4'-9"	63
REINFORCING STEEL				=	2232 LBS
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS				C.Y.	13.0
POUR #2 UPPER PART OF WINGS				C.Y.	1.8
POUR #3 LATERAL GUIDES				C.Y.	0.1
TOTAL CLASS A CONCRETE				C.Y.	14.9
HP 12 X 53 STEEL PILES				NO. 6	LIN. FT. 60

PROJECT NO. B-4015
 ASHE COUNTY
 STATION: 13+17.50 -L-
 SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

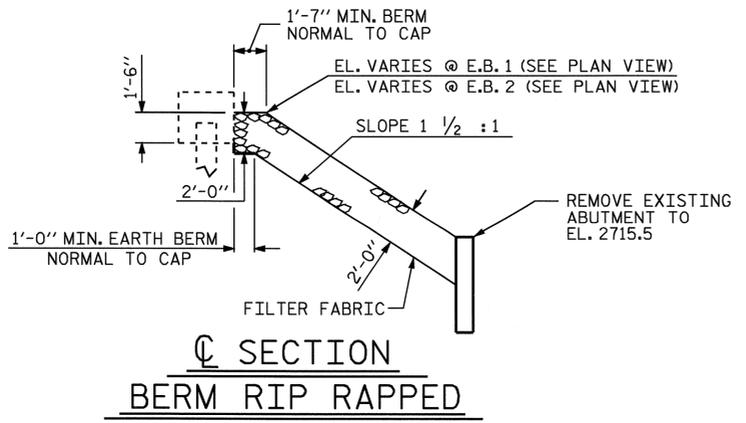
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			22



ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+17.50 -L-	RIp RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	38	42
END BENT 2	39	43

END BENT 1

END BENT 2



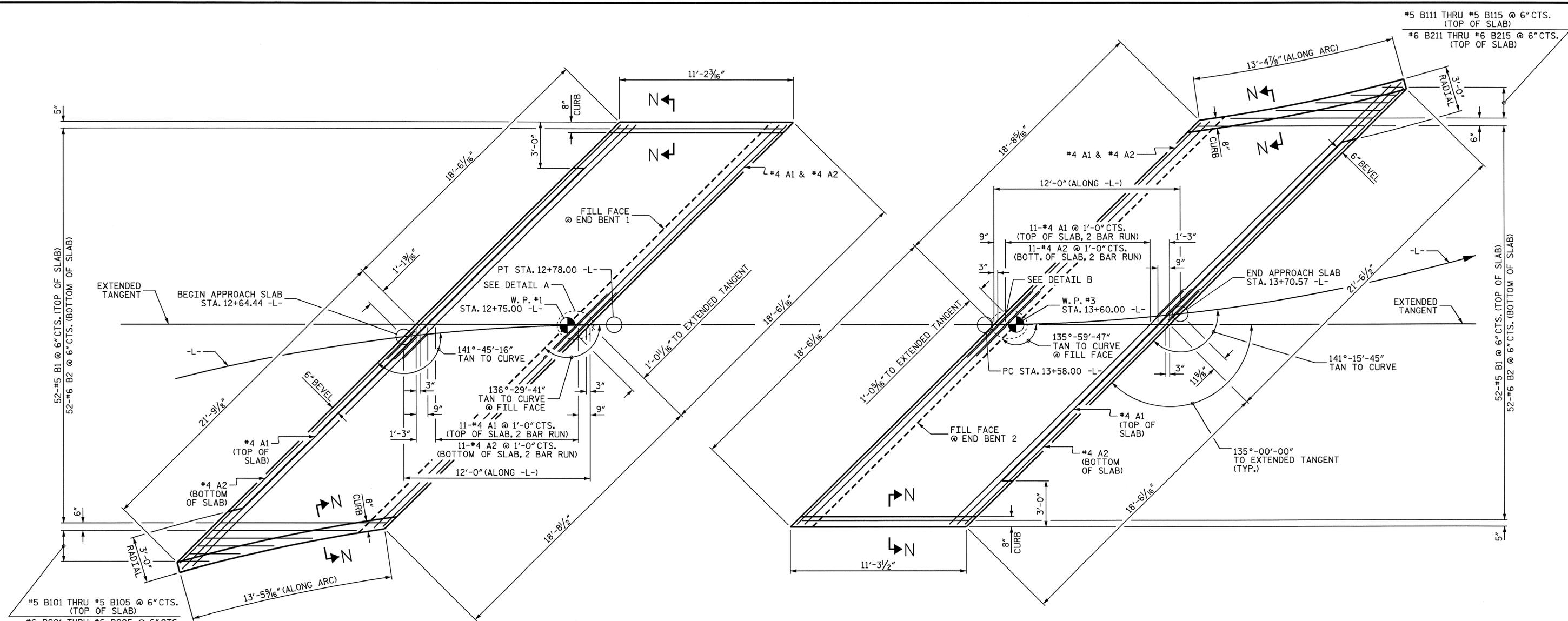
PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS

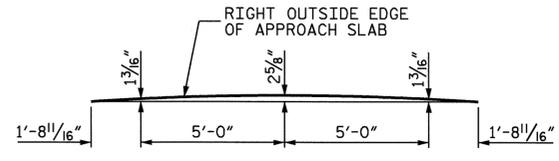
ASSEMBLED BY : J.L. WALTON	DATE : 10-07
CHECKED BY : QT NGUYEN	DATE : 8-08
DRAWN BY : REK 1/84	REV. 8/16/99 RWW/LES
CHECKED BY : RDU 1/84	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			22
2			4			

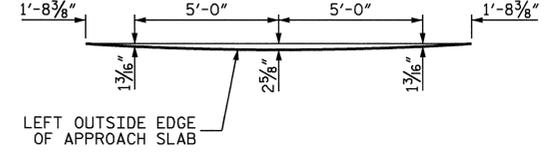


PLAN @ END BENT 1

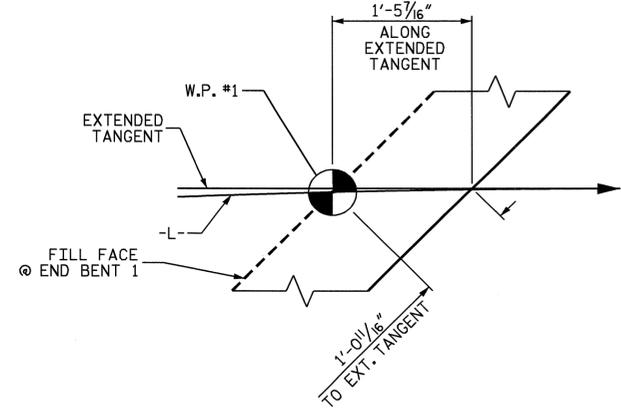
PLAN @ END BENT 2



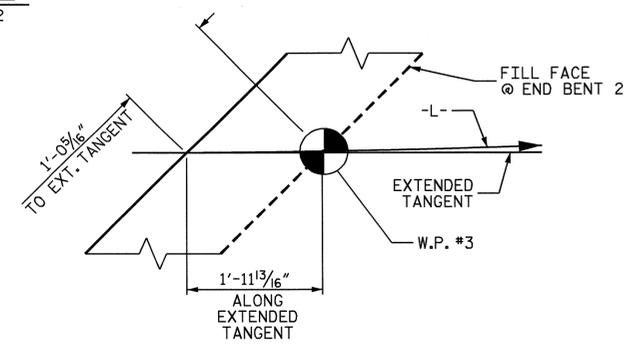
ARC OFFSET DETAIL
APPROACH SLAB @ END BENT 1



ARC OFFSET DETAIL
APPROACH SLAB @ END BENT 2



DETAIL A



DETAIL B



PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH
 SLAB DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			TOTAL SHEETS	
2			4			22	

DRAWN BY : P. K. NEWTON DATE : 8-08
 CHECKED BY : A. R. CHESSON DATE : 9-08

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

APPROACH SLABS SHALL NOT BE CONSTRUCTED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

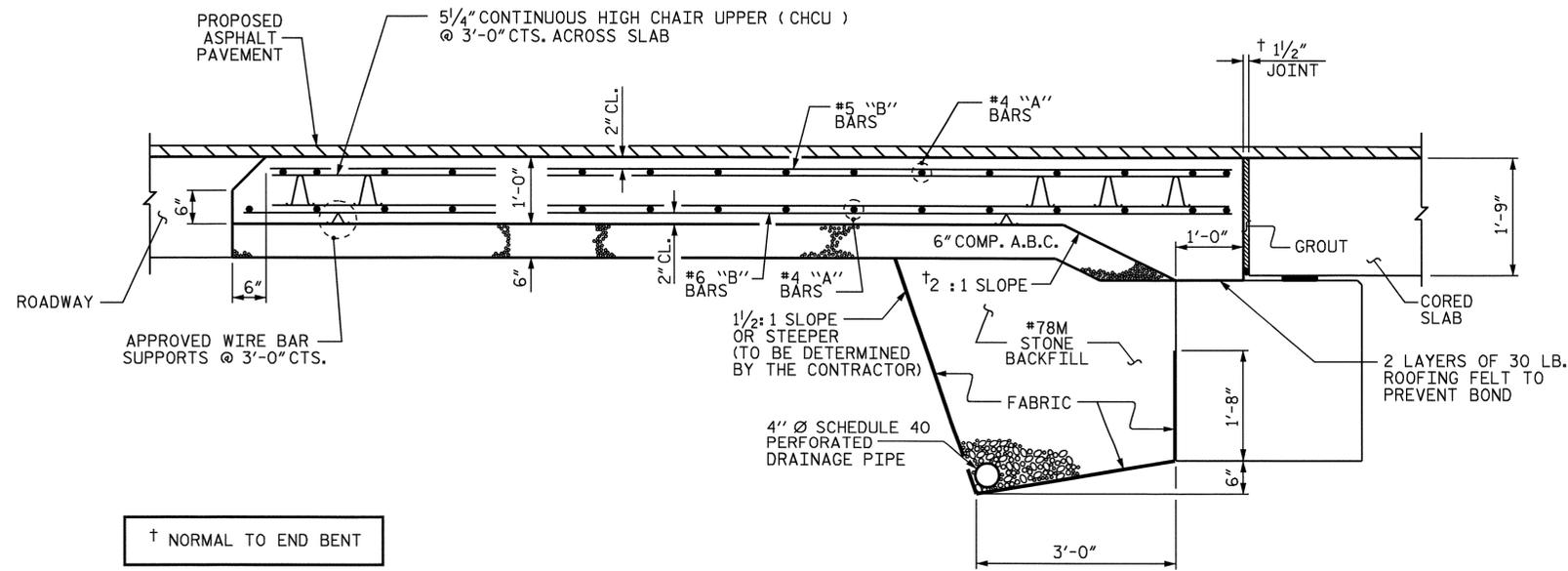
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

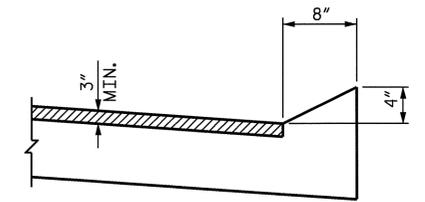
APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

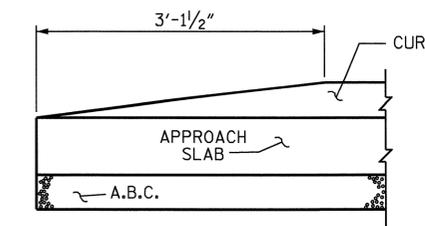
APPROACH SLAB AT EBT 1						APPROACH SLAB AT EBT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	28	#4	STR	21'-4"	399	*A1	28	#4	STR	21'-4"	399
A2	28	#4	STR	21'-3"	397	A2	28	#4	STR	21'-3"	397
*B1	52	#5	STR	10'-0"	542	*B1	52	#5	STR	10'-0"	542
B2	52	#6	STR	10'-8"	833	B2	52	#6	STR	10'-8"	833
*B101	1	#5	STR	9'-3"	10	*B111	1	#5	STR	9'-2"	10
*B102	1	#5	STR	6'-11"	7	*B112	1	#5	STR	6'-9"	7
*B103	1	#5	STR	4'-11"	5	*B113	1	#5	STR	4'-8"	5
*B104	1	#5	STR	3'-3"	3	*B114	1	#5	STR	2'-11"	3
*B105	1	#5	STR	1'-9"	2	*B115	1	#5	STR	1'-4"	1
B201	1	#6	STR	9'-3"	14	B211	1	#6	STR	9'-9"	15
B202	1	#6	STR	6'-11"	10	B212	1	#6	STR	7'-0"	11
B203	1	#6	STR	4'-11"	7	B213	1	#6	STR	4'-10"	7
B204	1	#6	STR	3'-3"	5	B214	1	#6	STR	3'-0"	5
B205	1	#6	STR	1'-9"	3	B215	1	#6	STR	1'-4"	2
REINFORCING STEEL LBS. 1269						REINFORCING STEEL LBS. 1270					
*EPOXY COATED REINFORCING STEEL LBS. 968						*EPOXY COATED REINFORCING STEEL LBS. 967					
CLASS AA CONCRETE C. Y. 13.8						CLASS AA CONCRETE C. Y. 13.9					



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



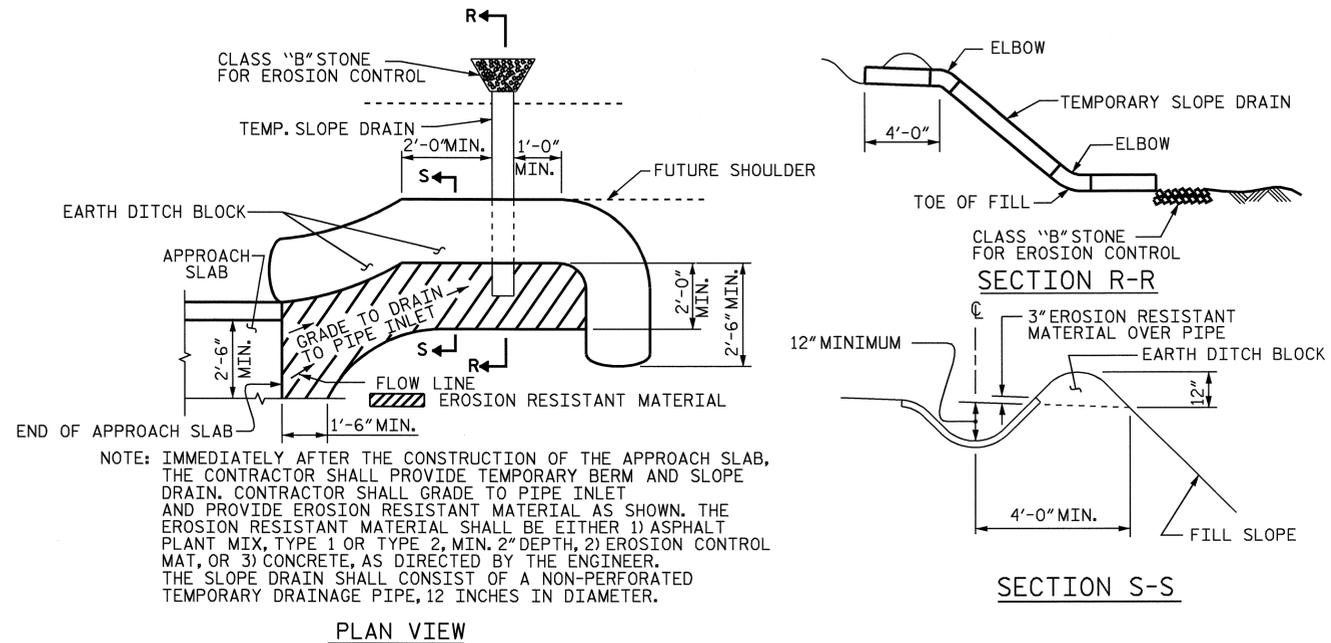
PROJECT NO. B-4015
ASHE COUNTY
 STATION: 13+17.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)

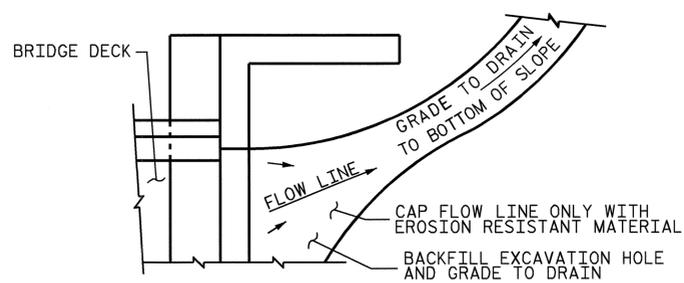
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	22
2			4				

ASSEMBLED BY: P. K. NEWTON	DATE: 8-08
CHECKED BY: A. R. CHESSON	DATE: 9-08
DRAWN BY: KMM	3-08
CHECKED BY: GM	3-08



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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 DETAIL



PROJECT NO. B-4015
ASHE COUNTY
STATION: 13+07.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-22
STANDARD						TOTAL SHEETS 22
BRIDGE APPROACH SLAB DETAILS						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : P. K. NEWTON	DATE : 8-08
CHECKED BY : A. R. CHESSON	DATE : 9-08
DRAWN BY : FCJ	11/88
CHECKED BY : ARB	11/88
REV. 10/17/00	RWW/LES
REV. 5/7/03	RWW/JTE
REV. 5/1/06R	MAA/KMM

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

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 2002 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

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 STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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 SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN