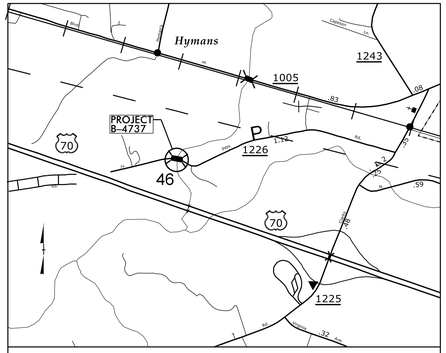
09/08/99

TIP PROJECT: B–4737

CONTRACT:

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

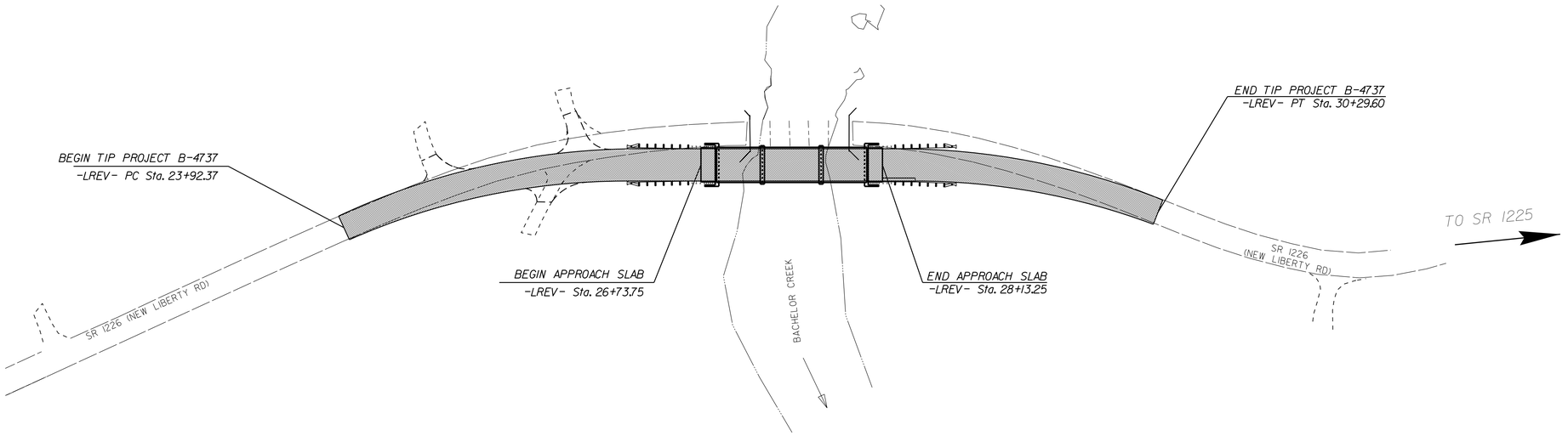
CRAVEN COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4737	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38510.1.1	BRZ–1226(6)	PE
38510.2.1	BRZ–1226(6)	RW
38510.3.1	BRZ–1226(6)	CONST

LOCATION: BRIDGE #46 OVER BACHELOR CREEK ON SR 1226 (NEW LIBERTY RD)

TYPE OF WORK: BRIDGE REPLACEMENT, ROADWAY REALIGNMENT, GUARDRAIL, PAVING, GRADING AND DRAINAGE



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4737 = 0.095 MILES
LENGTH STRUCTURE TIP PROJECT B–4737 = 0.026 MILES
TOTAL LENGTH TIP PROJECT B–4737 = 0.121 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1704 N. Greene St. Greenville, NC 27834

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 2012

LETTING DATE:
APRIL 2013

DWAYNE ALLIGOOD, P.E.
PROJECT ENGINEER

LANG JONES
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD
Dwayne H. Alligood, P.E.
SIGNATURE: 04/05/2013

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD
Dwayne H. Alligood, P.E.
SIGNATURE: 04/05/2013

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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PROJECT REFERENCE NO.	SHEET NO.
B-4737	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLCOOD
04/05/2013

INDEX OF SHEETS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this projectand by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

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PROJECT REFERENCE NO.	SHEET NO.
B-4737	1B

8/13/08

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign (S)
- Well (W)
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Wetland Boundary (WLB)
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line (R/W)
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access (C/A)
- Proposed Control of Access (C/A)
- Existing Easement Line (E)
- Proposed Temporary Construction Easement (E)
- Proposed Temporary Drainage Easement (TDE)
- Proposed Permanent Drainage Easement (PDE)
- Proposed Permanent Utility Easement (PUE)
- Proposed Temporary Utility Easement (TUE)
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole (HH)
- H-Frame Pole
- Recorded U/G Power Line (P)
- Designated U/G Power Line (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Booth
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- Recorded U/G Telephone Cable (T)
- Designated U/G Telephone Cable (S.U.E.*) (T)
- Recorded U/G Telephone Conduit (TC)
- Designated U/G Telephone Conduit (S.U.E.*) (TC)
- Recorded U/G Fiber Optics Cable (T FO)
- Designated U/G Fiber Optics Cable (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line (W)
- Designated U/G Water Line (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:

- TV Satellite Dish
- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- Recorded U/G TV Cable (TV)
- Designated U/G TV Cable (S.U.E.*) (TV)
- Recorded U/G Fiber Optic Cable (TV FO)
- Designated U/G Fiber Optic Cable (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line (G)
- Designated U/G Gas Line (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- Recorded SS Forced Main Line (FSS)
- Designated SS Forced Main Line (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line (?UTL)
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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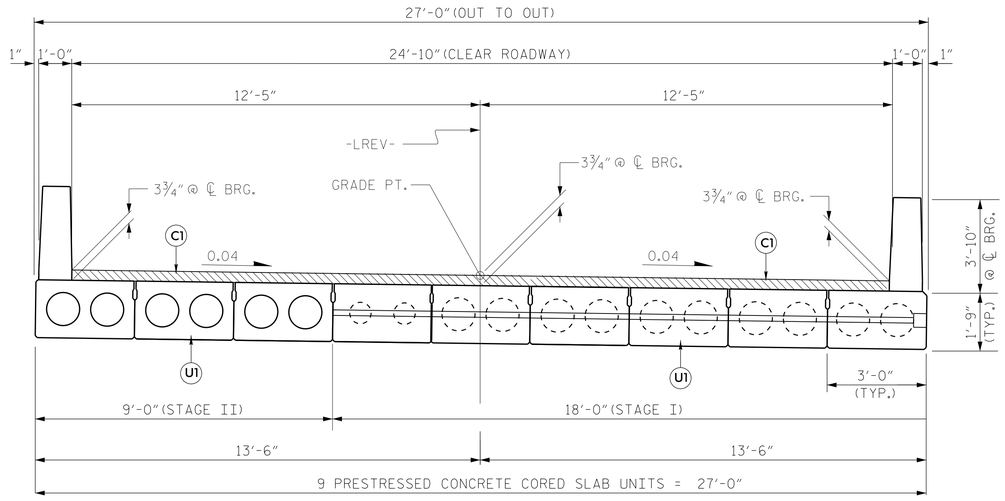
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 336 LBS. PER SQ.YD.
D1	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
U1	CONCRETE CORED SLABS

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL BRIDGE SECTION (NTS)

-LREV- STA 26+84.75 TO -LREV- STA 28+02.25

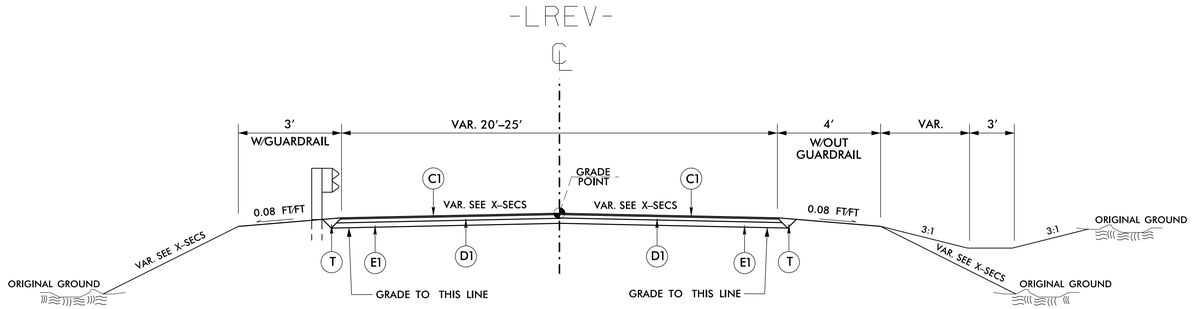
PROJECT REFERENCE NO.	SHEET NO.
B-4737	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD 04/05/2013

PAVEMENT DESIGN ENGINEER

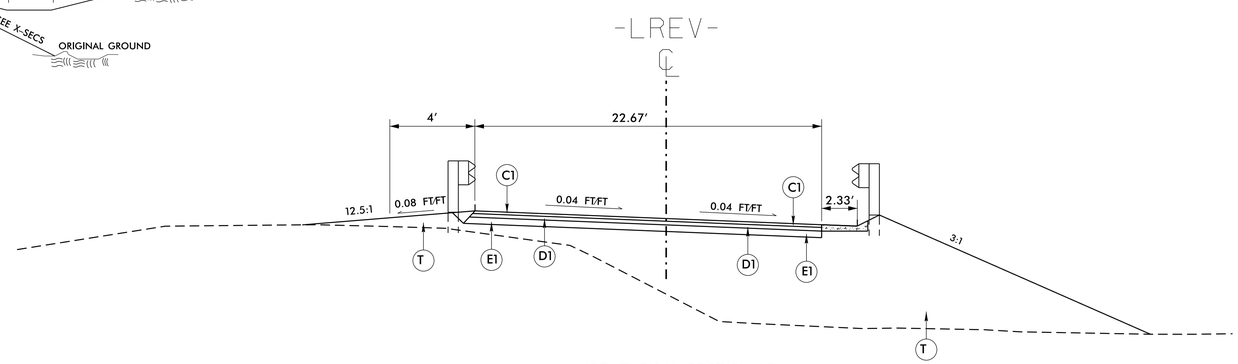
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD 04/05/2013



USE TYPICAL SECTION #1

-LREV- 23+92.37 - 26+73.75

-LREV- 28+38.64 - 30+29.60



USE TYPICAL SECTION #2

-LREV- 28+13.25 - 28+38.64

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PROJECT REFERENCE NO.	SHEET NO.
B-4737	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

ITEM	SECT	QUANTITY	UNIT	ITEM DESCRIPTION
1	800	1	LS	MOBILIZATION
2	801	1	LS	CONSTRUCTION SURVEYING
3	SP	1	LS	REINFORCED BRIDGE APPROACH FILL, -LREV- STA 27+43.50
4	226	1	LS	GRADING
5	226	3700	CY	UNDERCUT EXCAVATION
6	SP	2000	CY	SELECT GRANULAR MATERIAL, CLASS III
7	265	1000	CY	SELECT GRANULAR MATERIAL
8	270	2000	SY	GEOTEXTILE FOR SOIL STABILIZATION
9	SP	2100	SF	TEMPORARY SHORING
10	SP	400	SY	GEOTEXTILE FOR EMBANKMENT STABILIZATION
11	300	10	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
12	300	30	SY	FOUNDATION CONDITIONING GEOTEXTILE
13	310	60	LF	15" DRAINAGE PIPE
14	310	12	LF	15" R.C. PIPE CULVERTS, CLASS III
15	505	100	CY	SHALLOW UNDERCUT
16	505	200	TON	CLASS IV SUBGRADE STABILIZATION
17	610	320	TON	ASPHALT CONCRETE BASE COURSE, TYPE B25.0B
18	610	245	TON	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B
19	610	330	TON	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
20	620	50	TON	ASPHALT BINDER FOR PLANT MIX
21	815	112	CY	SUBDRAIN EXCAVATION
22	815	500	SY	GEOTEXTILE FOR SUBSURFACE DRAINS
23	815	84	CY	SUBDRAIN COARSE AGGREGATE
24	815	500	LF	6" PERFORATED SUBDRAIN PIPE
25	815	1	EA	SUBDRAIN PIPE OUTLET
26	815	6	LF	6" OUTLET PIPE
27	840	1	EA	MASONRY DRAINAGE STRUCTURES
28	840	1	EA	FRAME WITH GRATE, STD 840.29
29	846	26	LF	SHOULDER BERM GUTTER
30	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
31	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
32	862	110	LF	TEMPORARY STEEL BEAM GUARDRAIL
33	862	2	EA	TEMPORARY STEEL BEAM GUARDRAIL TERMINAL SECTIONS
34	876	5	TON	RIP RAP, CLASS I
35	876	5	TON	RIP RAP, CLASS B
36	876	20	SY	GEOTEXTILE FOR DRAINAGE
37	1605	1500	LF	TEMPORARY SILT FENCE
38	1610	5	TON	STONE FOR EROSION CONTROL, CLASS B
39	1610	2	TON	SEDIMENT CONTROL STONE
40	1615	1	ACRE	TEMPORARY MULCHING
41	1620	50	LB	SEED FOR TEMPORARY SEEDING
42	1620	0.2	TON	FERTILIZER FOR TEMPORARY SEEDING
43	1622	200	LF	TEMPORARY SLOPE DRAINS
44	SP	350	LF	SAFETY FENCE
45	1630	5	CY	SILT EXCAVATION
46	1631	2000	SY	MATTING FOR EROSION CONTROL
47	1632	40	LF	1/4" HARDWARE CLOTH
48	SP	120	SY	FLOATING TURBIDITY CURTAIN
49	SP	210	LF	WATTLE
50	SP	10	LB	POLYACRYLAMIDE (PAM)
51	1660	1	ACRE	SEEDING AND MULCHING
52	1661	50	LB	SEED FOR REPAIR SEEDING
53	1661	0.2	TON	FERTILIZER FOR REPAIR SEEDING
54	402	1	LS	REMOVAL OF EXISTING STRUCTURE AT -L- STA 26+84.50
55	450	1	EA	PDA TESTING
56	412	1	LS	UNCLASSIFIED STRUCTURE EXCAVATION
57	420	55.6	CY	CLASS A CONCRETE (BRIDGE)
58	422	1	LS	BRIDGE APPROACH SLABS
59	425	8202	LB	REINFORCING STEEL (BRIDGE)
60	450	600	LF	HP 12 X 53 STEEL PILES
61	450	840	LF	HP 14 X 73 GALVANIZED STEEL PILES
62	450	12	EA	STEEL PILE POINTS
63	450	504	LF	PREDRILLING FOR PILES
64	450	10	EA	PILE REDRIVES
65	460	230.75	LF	VERTICAL CONCRETE BARRIER RAIL
66	876	278	TON	RIP RAP, CLASS II (2'-0" THICK)
67	876	308	SY	GEOTEXTILE FOR DRAINAGE
68	430	1	LS	ELASTOMETRIC BEARINGS
69	430	1035	LF	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS

REVISIONS

8/17/99

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CHECKED BY: LJ	DATE: 3-15-11

PROJECT REFERENCE NO.	SHEET NO.
B-4737	3A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-LREV- 25+50.94	RT	1			13.00	10.00			60										
-LREV- 28+32.80	RT	2		14.08	11.08														
-LREV- 28+32.80	RT	2	OUT		11.08	10.80													
TOTALS									60										

STATION	CORRUGATED ALUMINUM PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE
-LREV- 25+50.94																											
-LREV- 28+32.80																											
-LREV- 28+32.80								12																			
TOTALS								12																			

STATION	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET		G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	T.B.D.I. STD. 840.35	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-LREV- 25+50.94																							
-LREV- 28+32.80			1													1		1					
-LREV- 28+32.80																							
TOTALS			1													1		1					

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I. (N.S.) GRATED DROP INLET (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (WITH ANCHOR DEDUCTIONS) STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS TYPE 350	TYPE III	CAT-1							IMPACT ATTENUATOR TYPE 350 NO.	PERMITTED G	NG	SINGLE FACED GUARDRAIL	REMOVE AND RESET EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-LREV-	26+21.84	26+90.59	LT	0	0			26+90.59	2.4	5.33		50		1.0	1	1														
-LREV-	26+21.84	26+90.59	RT	0	0		26+90.59		2.4	5.33	50		1.0		1	1														
-LREV-	27+90.59	28+58.66	LT	0	0		27+90.59		2.4	5.33	50		1.0		1	1														
-LREV-	27+90.59	28+59.98	RT	0	0			27+90.59	2.4	5.33		50		1.0	1	1														
-LREV-	26+85.75	28+01.25	LT	110	0																									TEMPORARY STEEL BEAM GUARDRAIL W/ TERMINAL SECTIONS
TOTAL				110	0										4	4														

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-LREV- 24+00.00 - 26+78.60	133		876	743	
-LREV- 28+02.59 - 30+29.00	141		884	743	
-LREV- 26+25.00 - 29+25.00		1500	1950	1950	1500
STRUCTURE EXCAVATION	460				460
ADDITIONAL UNDERCUT		2200	2860	2860	2200
SELECT GRANULAR MATERIAL IN LIEU OF BORROW			-3000	-3000	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				165	
TOTAL	734	3700	3570	3461	4160
SAY	740	3700	3570	3470	4160

PAVEMENT REMOVAL SUMMARY
IN SQUARE YARDS

LINE	STATION - STATION	LOCATION	REMOVAL (SY)
-LREV-	23+92 - 27+09	CL	665
-LREV-	27+90 - 30+29	CL	510
TOTAL			1175
		SAY	1180

NOTE:

APPROXIMATE QUANTITIES ONLY, UNCLASSIFIED EXCAVATION, STRUCTURE EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

EARTHWORK QUANTITIES ARE CALCULATED BY DIVISION 2. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

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PROJECT REFERENCE NO.	SHEET NO.
B-4737	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD 04/03/2013	NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD 04/03/2013

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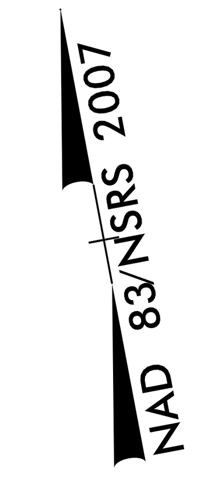
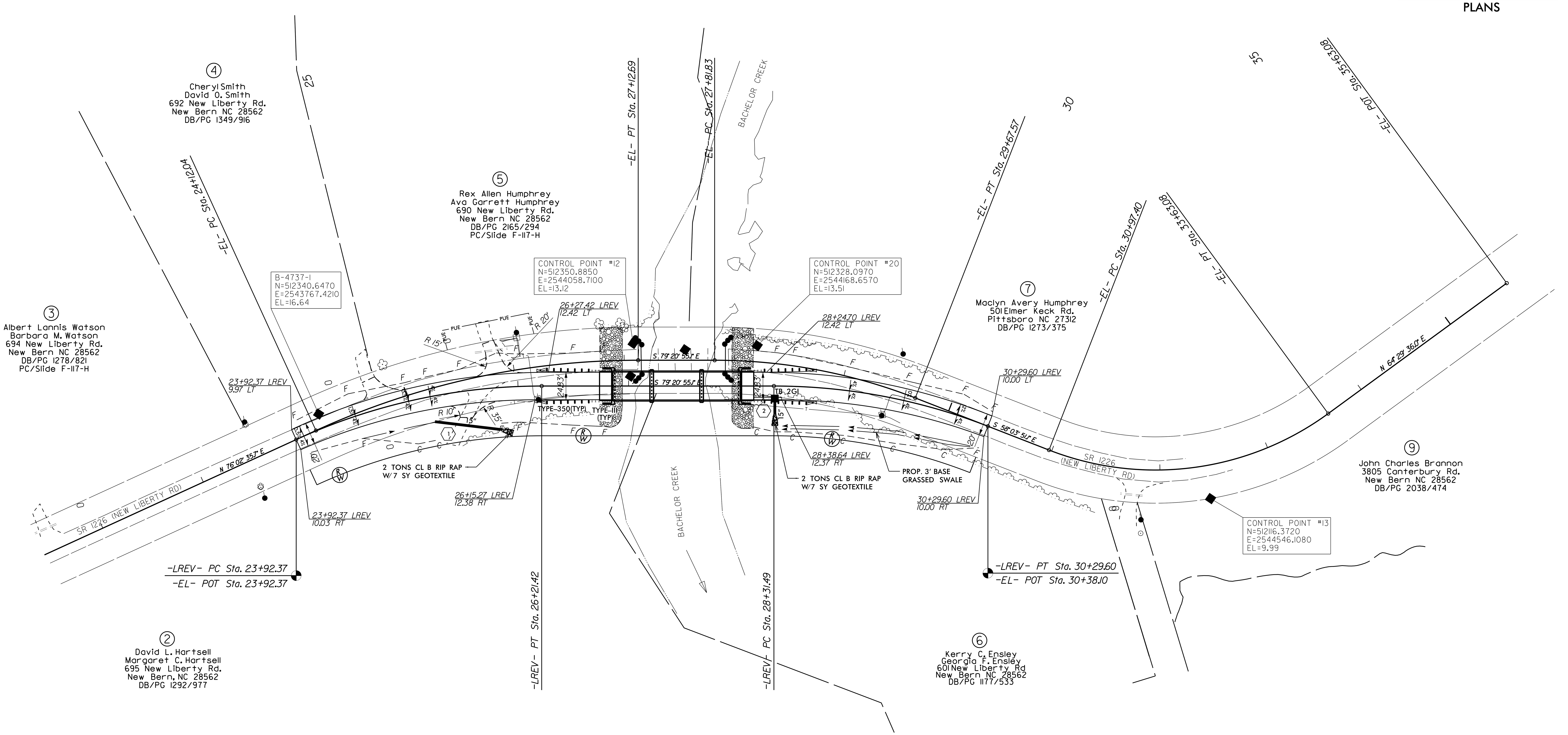
PLANS



REVISIONS



④ Cheryl Smith
David O. Smith
692 New Liberty Rd.
New Bern NC 28562
DB/PG 1349/916
⑤ Rex Allen Humphrey
Ava Garrett Humphrey
690 New Liberty Rd.
New Bern NC 28562
DB/PG 2165/294
PC/Slide F-117-H
③ Albert Lonnis Watson
Barbara M. Watson
694 New Liberty Rd.
New Bern NC 28562
DB/PG 1278/821
PC/Slide F-117-H
⑦ Maclyn Avery Humphrey
501 Elmer Keck Rd.
Pittsboro NC 27312
DB/PG 1273/375
⑨ John Charles Brannon
3805 Canterbury Rd.
New Bern NC 28562
DB/PG 2038/474
② David L. Hartsell
Margaret C. Hartsell
695 New Liberty Rd.
New Bern, NC 28562
DB/PG 1292/977
⑥ Kerry C. Ensley
Georgia F. Ensley
601 New Liberty Rd
New Bern NC 28562
DB/PG 1177/533
B-4737-1
N=512340.6470
E=2543767.4210
EL=16.64
CONTROL POINT #12
N=512350.8850
E=2544058.7100
EL=13.12
CONTROL POINT #20
N=512328.0970
E=2544168.6570
EL=13.51
CONTROL POINT #13
N=512116.3720
E=2544546.1080
EL=9.99
-EL- PC Sta. 24+12.04
-EL- PT Sta. 27+12.69
-EL- PC Sta. 27+81.83
-EL- PT Sta. 29+67.57
-EL- PC Sta. 30+97.40
-EL- PT Sta. 33+63.08
-EL- POT Sta. 35+63.08
BACHELOR CREEK
26+27.42 LREV
12.42 LT
28+24.70 LREV
12.42 LT
23+92.37 LREV
9.97 LT
23+92.37 LREV
10.03 RT
26+15.27 LREV
12.38 RT
28+38.64 LREV
12.37 RT
30+29.60 LREV
10.00 LT
30+29.60 LREV
10.00 RT
N 76°02' 35.7" E
S 79°20' 55.1" E
S 58°03' 51.1" E
N 64°29' 36.0" E
SR 1226 (NEW LIBERTY RD)
TYPE-350 (TYP)
TYPE-III (TYP)
TB-2GI
2 TONS CL B RIP RAP
W/7 SY GEOTEXTILE
PROP. 3' BASE
GRASSED SWALE
-LREV- PC Sta. 23+92.37
-EL- POT Sta. 23+92.37
-LREV- PT Sta. 26+21.42
-LREV- PC Sta. 28+31.49
-LREV- PT Sta. 30+29.60
-EL- POT Sta. 30+38.10

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4737-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 512340.647(ft) EASTING: 2543767.421(ft)
ELEVATION: 16.639(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987935
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4737-1" TO -LREV- STATION 23+92.37 IS
S 52°07'17" W 30.8011'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

-LREV- CURVE DATA

PI Sta 25+08.69 -LREV-	PI Sta 29+31.70 -LREV-
△ = 24° 36' 29.2" (RT)	△ = 21° 17' 04.0" (RT)
D = 10° 44' 37.1"	D = 10° 44' 37.1"
L = 229.05'	L = 198.11'
T = 116.32'	T = 100.21'
R = 533.30'	R = 533.30'

-EL- CURVE DATA

PI Sta 25+64.72 -EL-	PI Sta 28+75.79 -EL-	PI Sta 32+42.61 -EL-
△ = 24° 36' 29.2" (RT)	△ = 21° 17' 04.0" (RT)	△ = 57° 26' 32.9" (LT)
D = 8° 11' 06.4"	D = 11° 27' 33.0"	D = 21° 37' 15.8"
L = 300.64'	L = 185.74'	L = 265.68'
T = 152.68'	T = 93.95'	T = 145.21'
R = 700.00'	R = 500.00'	R = 265.00'

SHOULDER BERM GUTTER
-LREV- STA 28+13.25 - 28+38.64 RT

WORK POINT DESCRIPTION	
WORK POINT #1	-LREV- STA. 26+84.75 CL
WORK POINT #2	-LREV- STA. 27+20.94 CL
WORK POINT #3	-LREV- STA. 27+66.06 CL
WORK POINT #4	-LREV- STA. 28+02.25 CL

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PROJECT REFERENCE NO.	SHEET NO.
B-4737	4A

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 16710, NORTH CAROLINA PROFESSIONAL ENGINEER, DWAYNE H. ALLIGOOD, 04/03/2013

HYDRAULICS ENGINEER — SEAL 16710, NORTH CAROLINA PROFESSIONAL ENGINEER, DWAYNE H. ALLIGOOD, 04/03/2013

RIGHT OF WAY AREA SUMMARY

PARCEL NO.	PROPERTY OWNER NAME	LOCATION	TOTAL PARCEL AREA [ACRES]	AREA TO BE DEDICATED (UTILITY EASEMENT) [ACRES]	AREA TO BE PURCHASED (RIGHT OF WAY) [ACRES]	PARCEL AREA REMAINING [ACRES]
2	DAVID L. HARTSELL	RT -LREV-	16.44	0	0.19	16.25
6	KERRY C. ENSLEY	RT -LREV-	2.33	0	0.20	2.13
5	REX ALLEN HUMPHREY	LT -LREV-	4.74	0.03	0.00	4.71

NAD 83/NSRS 2007

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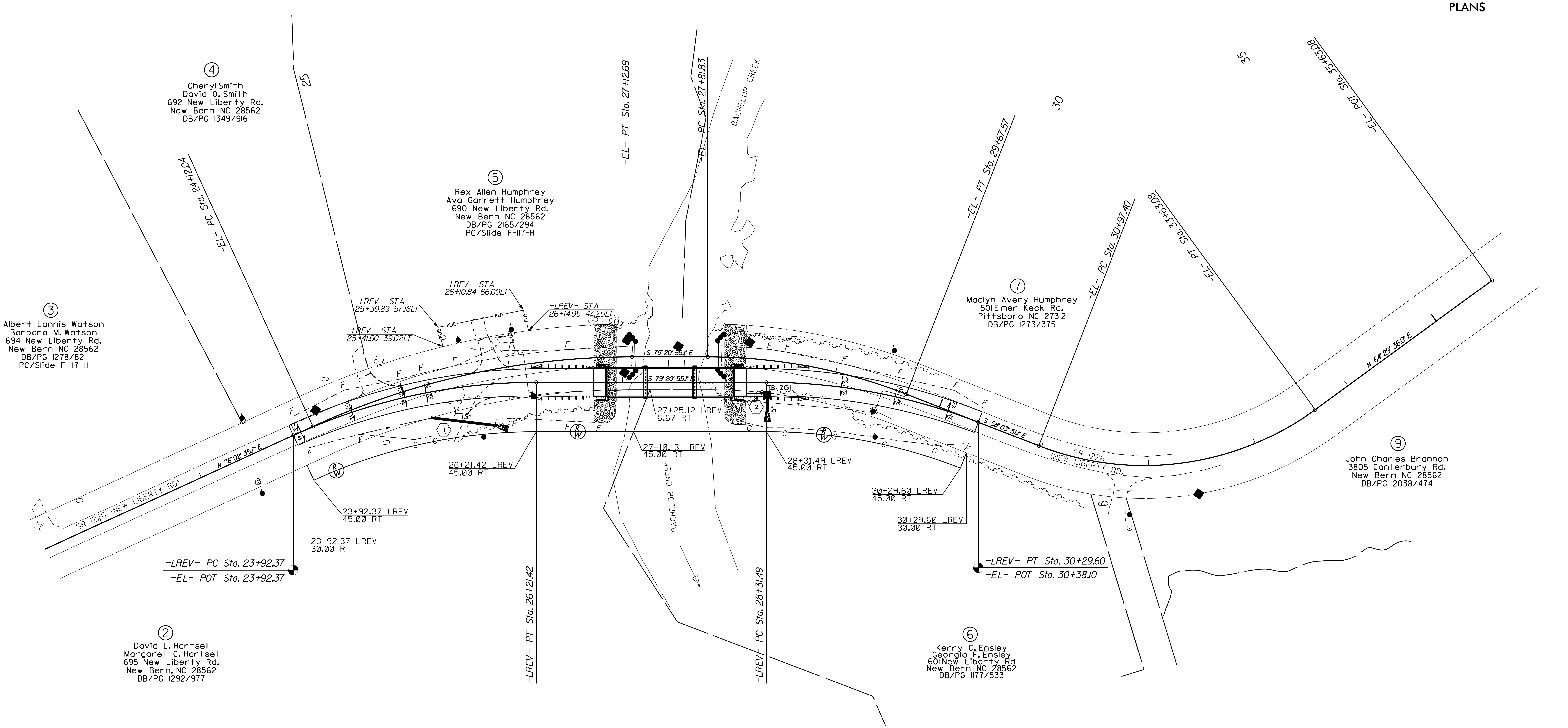
PLANS



REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
B-4737	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLICOOD
04/05/2013

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLICOOD
04/05/2013

–LREV– PROFILE

SCALE: 1" = 50' HORIZ.
1" = 10' VERT.

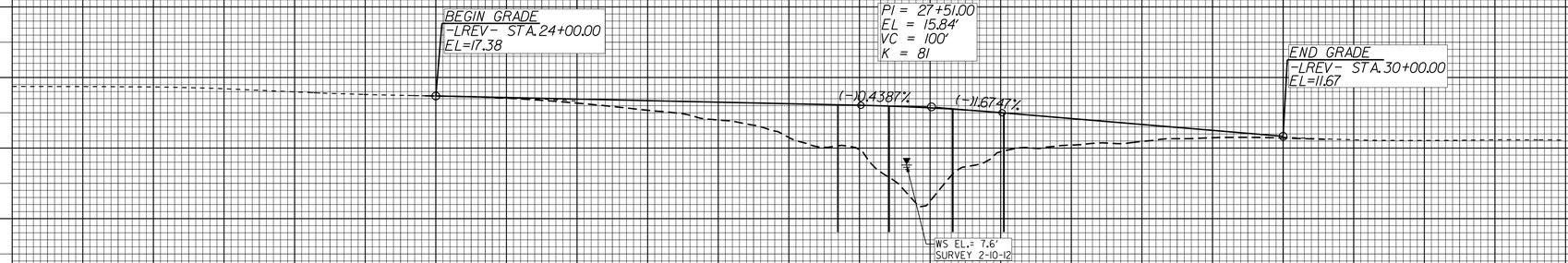
HYDRAULIC DATA

Design:	Discharge	1700	c.f.s.	Frequency	10 YR.	Elev. 10.0'
Base Flood:	Discharge	3400	c.f.s.	Frequency	100 YR.	Elev. 12.17'
Overtopping:	Discharge	2300	c.f.s.	Frequency	25 YR.	Elev. 11.0'

* OVERTOPPING OCCURS @ –LREV– STA. 33+87 +/– AT ROADWAY CENTERLINE

B-4737-1
-LREV- STA. 24+19.86
13.22' LT
N=512340.6470
E=2543767.4210
EL=16.64

CONTROL POINT #12
-LREV- STA. 27+04.12
38.54' LT
N=512350.8850
E=2544058.7100
EL=13.12



CONTROL POINT #20
-LREV- STA. 28+16.39
36.47' LT
N=512328.0970
E=2544168.6570
EL=13.51

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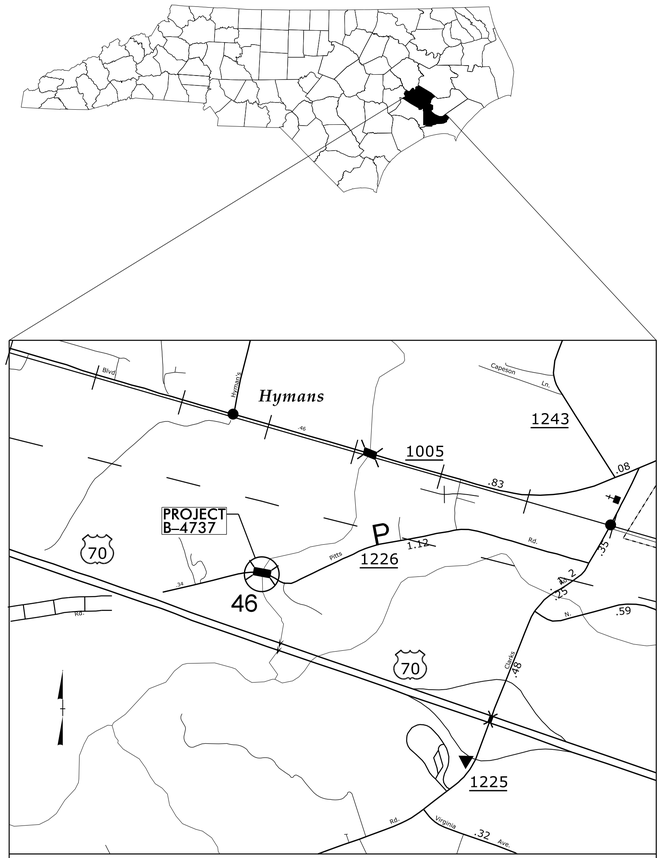
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CRAVEN COUNTY



VICINITY MAP
(NOT TO SCALE)

INDEX OF SHEETS

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-HIGHWAY DESIGN BRANCH-N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C. DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY - DRUM

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT.
- EXIST. PVMT.
- WORK AREA
- TEMPORARY SHORING (LOCATION PURPOSES ONLY)

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN

SHEET NO.
TMP-1

B-4737

TIP PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
P.O. BOX 1587, GREENVILLE, NC 27835
105 PACTOLUS HWY. (NC 33), GREENVILLE, NC 27835
PHONE: (252) 830-3490 FAX: (252) 830-3352

STEVEN HAMILTON, PE — TRAFFIC ENGINEER
D. H. ALLIGOOD, PE — TRAFFIC CONTROL PROJECT ENGINEER
LANG JONES — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
VAN TRAN — TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

APPROVED: Dwayne H. Alligood
DATE: 04/03/2013

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD

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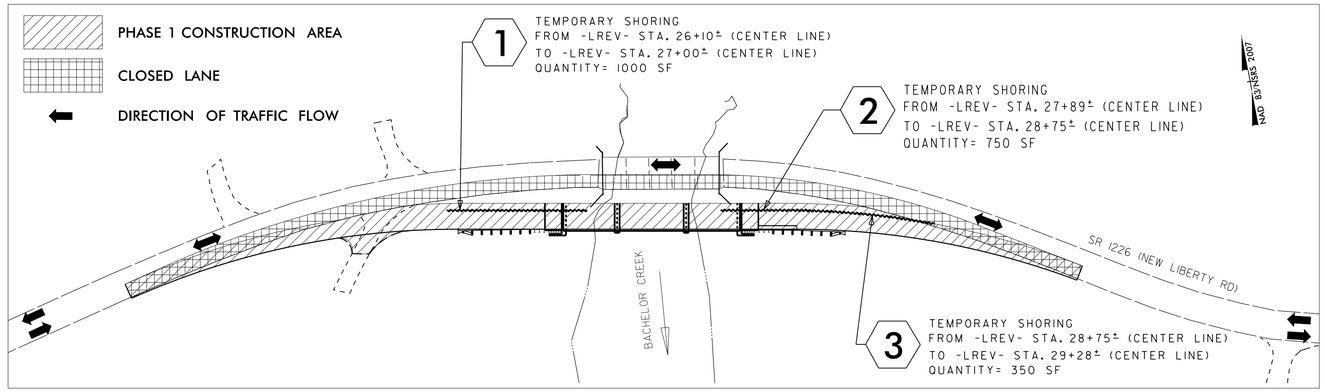
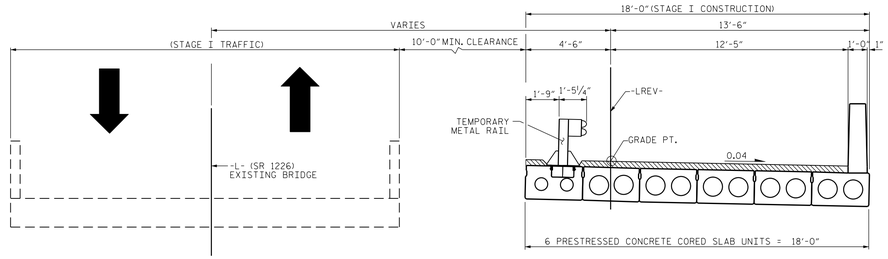
PROJ. REFERENCE NO.	SHEET NO.
B-4737	TMP-2

PHASE 1

1. CONSTRUCT STAGE 1 OF PROPOSED BRIDGE.
2. CLOSE SECTION OF EXISTING EAST BOUND LANE ON EXISTING ROAD ALIGNMENT -EL-. USE STANDARD NO. 1101.02 FOR LANE CLOSURE.
3. CONSTRUCT PROPOSED EAST BOUND LANE ON ROAD ALIGNMENT -LREV- WITHIN LIMITS OF CLOSURE. COMPLETE ALL WORK ACCORDING TO PLANS.

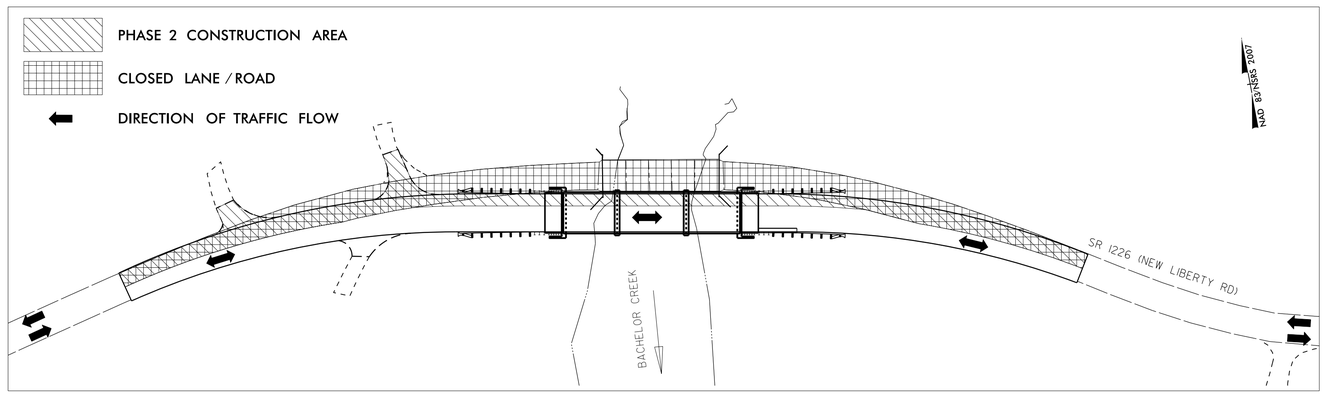


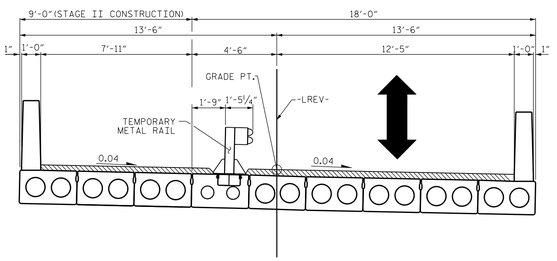


STAGE I CONSTRUCTION (N.T.S.)

PHASE 2

1. OPEN PROPOSED EAST BOUND LANE ON ROAD ALIGNMENT -LREV-.
2. CLOSE SECTION OF EXISTING WEST AND EAST BOUND LANES ON EXISTING ROAD ALIGNMENT -EL-. (STD. NO. 1101.02 / 1101.03)
3. REMOVE EXISTING BRIDGE AND CONSTRUCT STAGE 2 OF PROPOSED BRIDGE. CONSTRUCT PROPOSED WEST BOUND LANE ON ROAD ALIGNMENT -LREV- WITHIN LIMITS OF CLOSURE. COMPLETE ALL WORK ACCORDING TO PLANS.





STAGE II CONSTRUCTION (N.T.S.)

GENERAL NOTES

STATE FORCES SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THE SIGNING AND DEVICES BOTH ON AND OFF THE PROJECT LIMITS TO BOTH CLOSE THE ROAD AND SHIFT TRAFFIC.

STATE FORCES WILL INSTALL PAINT AND MARKERS ON THE FINISHED PROJECT. CALL JIM EVANS AT 252-830-3493 FOR COORDINATION.

APPROVED: Dwayne H. Alligood 04/03/2013

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD

PROJECT NOTES, DETOUR AND PLANS

SCALE:	N.T.S.
DATE:	3/26/13
DWG. BY:	VT
DESIGN BY:	VT
REVIEWED BY:	DA

REVISIONS

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PROJ. REFERENCE NO.	SHEET NO.
B-4737	TMP-3

TEMPORARY SHORING NOTES

TEMPORARY SHORING NO. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

ANCHORED SHORING MAY BE REQUIRED FOR TEMPORARY SHORINGS NO. 1 AND SHOULD BE DESIGNED BY CONTRACTOR USING THE SOIL PARAMETERS AND GROUNDWATER ELEVATION PROVIDED HEREIN.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 26+10± –LREV– TO STATION 27+00± –LREV– FOR THE FOLLOWING SOIL PARAMETERS AND GROUNDWATER ELEVATION:

GROUNDWATER ELEVATION = 8 FT

FOR SOIL LAYER ABOVE ELEVATION -1 FT:
UNIT WEIGHT (γ) = 100 LB/CF
FRICTION ANGLE (ϕ) = 0 DEGREES
COHESION (c) = 300 LB/SF

FOR SOIL LAYER BETWEEN ELEVATIONS -1 FT AND -14 FT:
UNIT WEIGHT (γ)= 105 LB/CF
FRICTION ANGLE (ϕ) = 27 DEGREES
COHESION (c) = 0 LB/SF

FOR VERY SOFT TO MODERATELY HARD SANDY LIMESTONE LAYER BELOW ELEVATION -14 FT:
UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 34 DEGREES
COHESION (c) = 0 LB/SF

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 26+10± –LREV– TO STATION 27+00± –LREV– MAY NOT PENETRATE BELOW ELEVATION -14 FT DUE TO PRESENCE OF VERY SOFT TO MODERATELY HARD SANDY LIMESTONE LAYER.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 26+10± –LREV– TO STATION 27+00± –LREV–.

TEMPORARY SHORING NO. 2, AND 3

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 27+89± –LREV– TO STATION 28+75± –LREV–, AND FROM STATION 28+75± –LREV– TO STATION 29+28± –LREV– WITH PZ-27 OR EQUIVALENT SECTION MODULUS. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION STATION 27+89± –LREV– TO STATION 28+75± –LREV–, AND FROM STATION 28+75± –LREV– TO STATION 29+28± –LREV–.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE DIV. 2 DDC UNIT ON 2/11/2013 AND SEALED BY A PROFESSIONAL ENGINEER, MAJID KHAZAEI, LICENSE # 036278.

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TEMPORARY SHORING NOTES

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PROJECT REFERENCE NO.	SHEET
B-4737	TMP-4

GEOTECHNICAL ENGINEER	ENGINEER
SIGNATURE DATE	SIGNATURE DATE

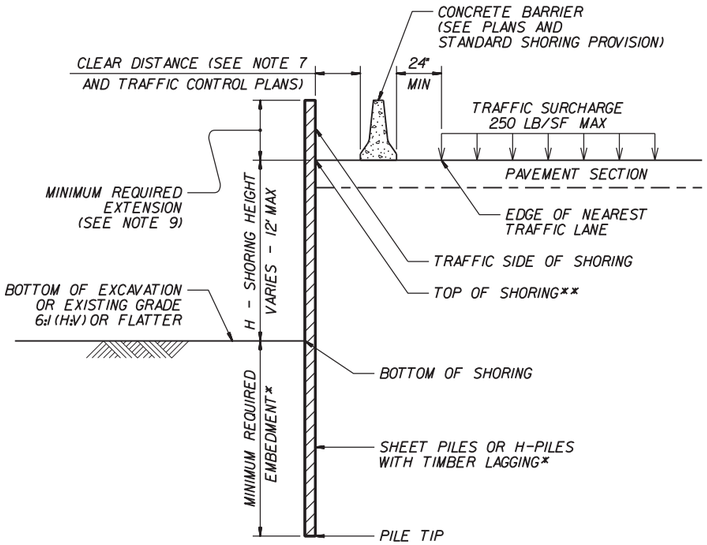
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

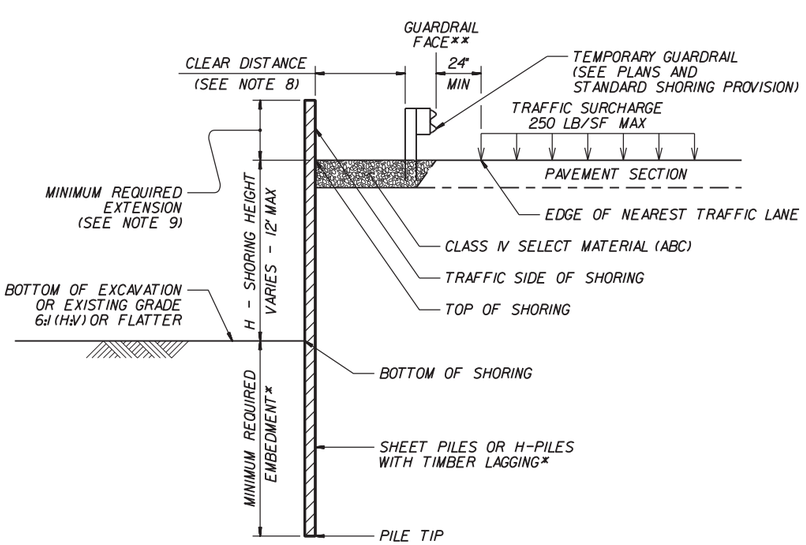
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM.
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



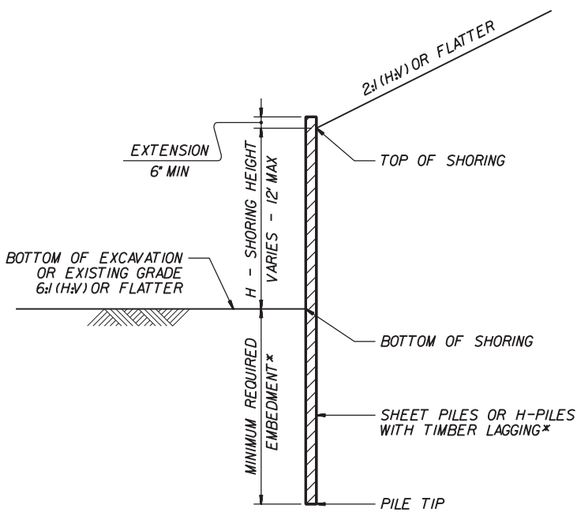
CONCRETE BARRIER

**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)
*SEE TABLE ABOVE.

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

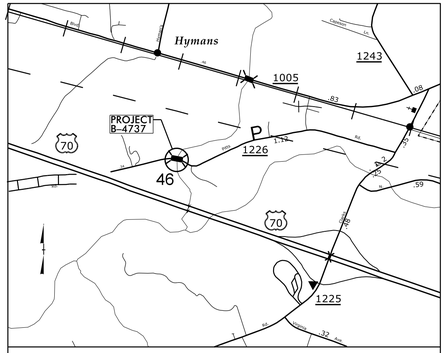
DATE: 11-20-12

09/08/99

TIP PROJECT: B-4737

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CRAVEN COUNTY

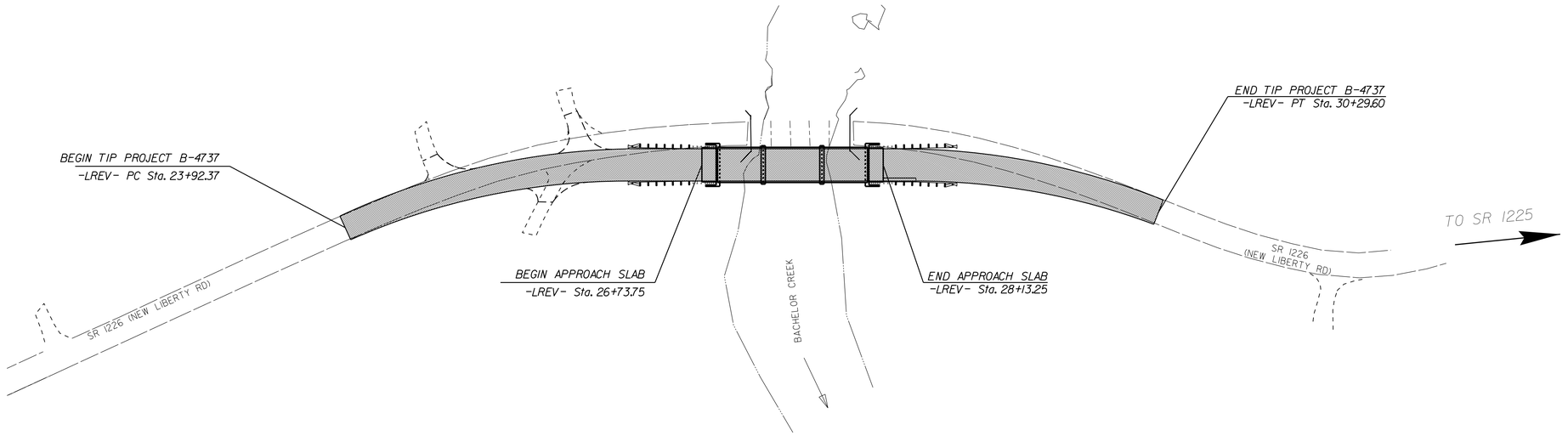
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4737	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38510.1.1	BRZ-1226(6)	PE
38510.2.1	BRZ-1226(6)	RW
38510.3.1	BRZ-1226(6)	CONST

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	High Vis Temporary Silt Fence	
1632.03	Rock Inlet Sediment Trap Type C	
SP	Wattle with Polyacrylamide	
SP	Wattle	



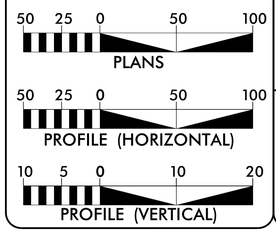
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

GRAPHIC SCALES



PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4737 = 0.095 MILES
LENGTH STRUCTURE TIP PROJECT B-4737 = 0.026 MILES
TOTAL LENGTH TIP PROJECT B-4737 = 0.121 MILES

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:

DIVISION OF HIGHWAYS

1704 N. Greene St. Greenville, NC 27834

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 2012

LETTING DATE:
APRIL 2013

DWAYNE ALLIGOOD
PROJECT ENGINEER

LANG JONES (#276)
PROJECT DESIGN ENGINEER

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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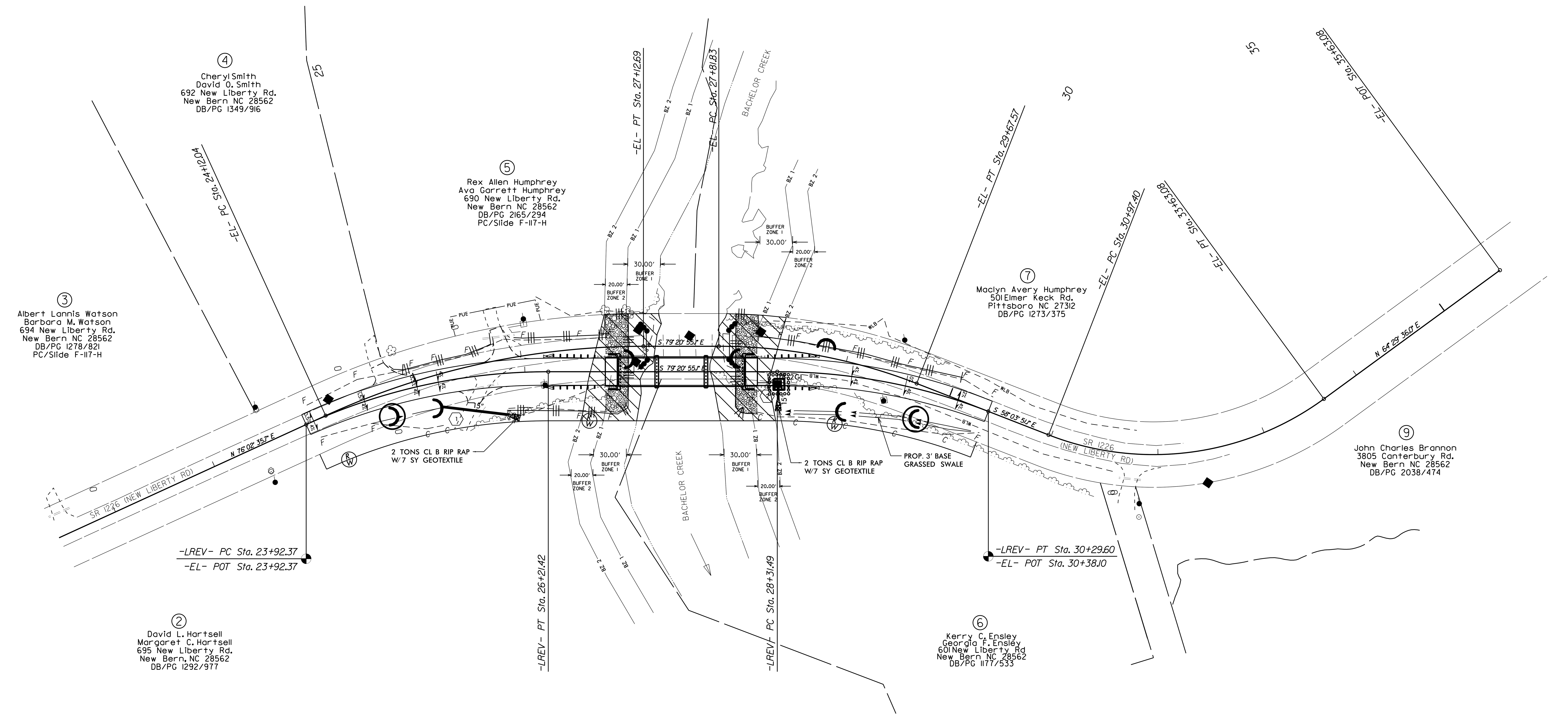
Std. #	Description	Symbol
1605.01	High Vis Temporary Silt Fence	
1632.03	Rock Inlet Sediment Trap Type C	
SP	Wattle with Polyacrylamide	
SP	Wattle	
	Ditch Flow Line	

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NAD 83/NSRS 2007

50 25 0 50 100
PLANS



SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AS NEEDED OR DIRECTED BY THE ENGINEER.

REVISIONS

8/17/99

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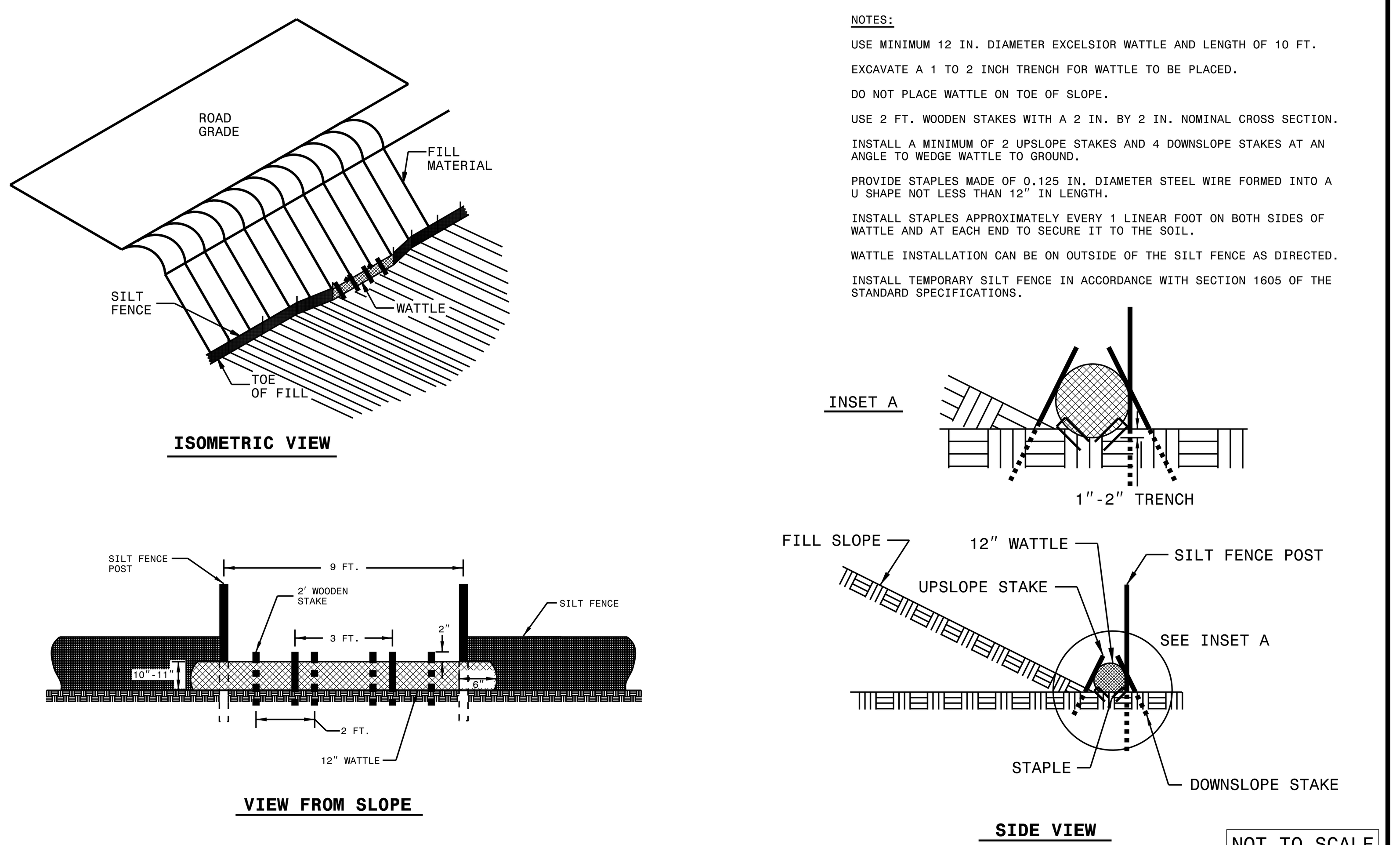
REVISIONS

SILT FENCE WATTLE BREAK DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

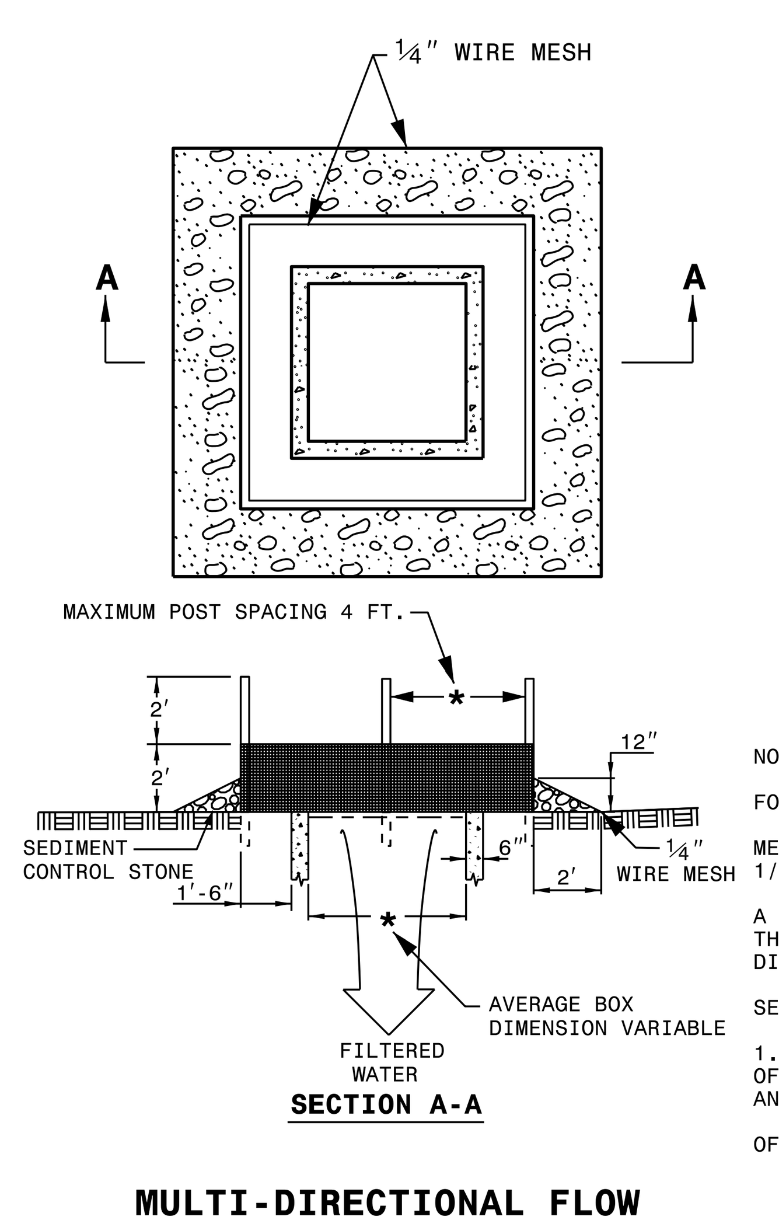
WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

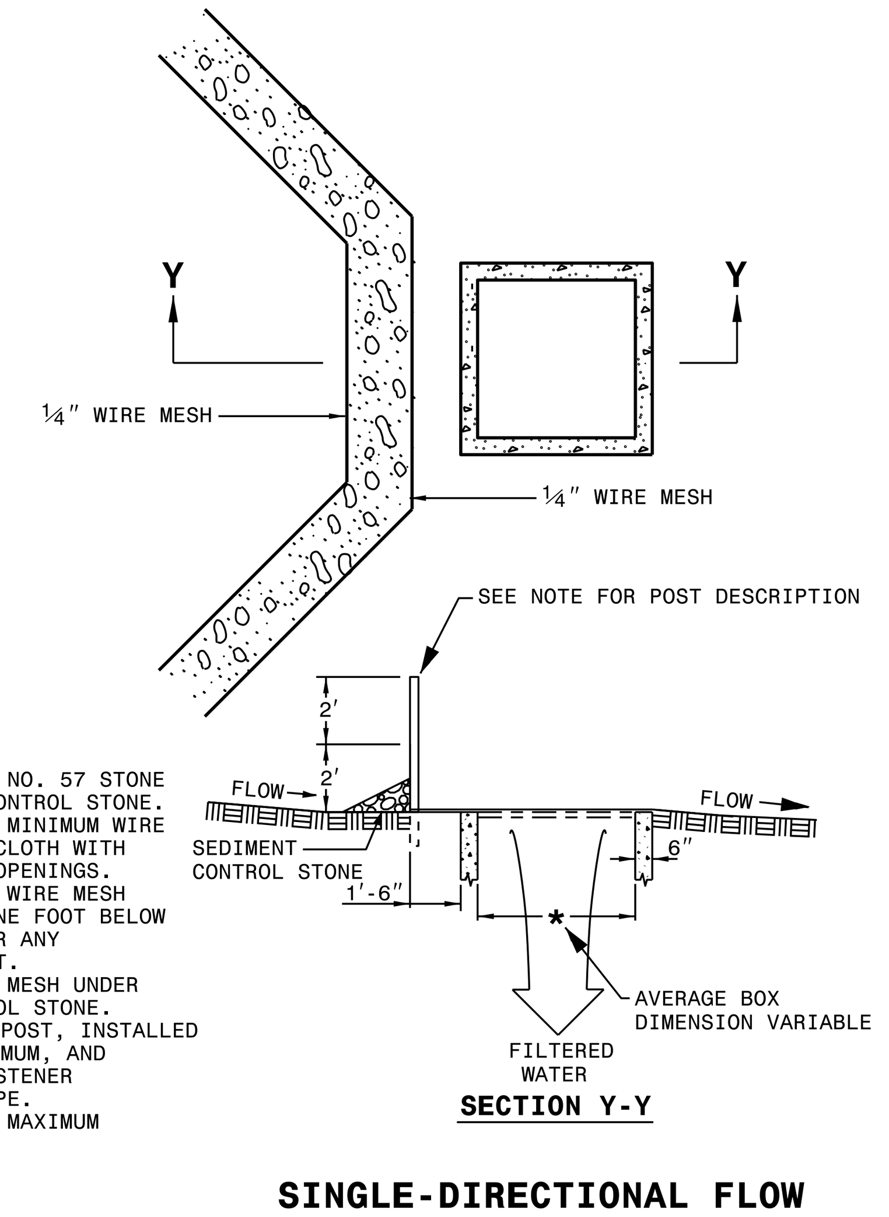
NOT TO SCALE

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

ENGLISH STANDARD DRAWING FOR
ROCK INLET SEDIMENT TRAP TYPE 'C'



NOTE
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.
USE 24 GAUGE MINIMUM WIRE MESH HARDWARE CLOTH WITH 1/4 INCH MESH OPENINGS.
PLACE TOP OF WIRE MESH A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
INSTALL WIRE MESH UNDER SEDIMENT CONTROL STONE.
USE 5' STEEL POST, INSTALLED 1.5' DEEP MINIMUM, AND OF THE SELF-FASTENER ANGLE STEEL TYPE.
SPACE POST A MAXIMUM OF 4'.



NOT TO SCALE

SHEET 1 OF 1
1632.03

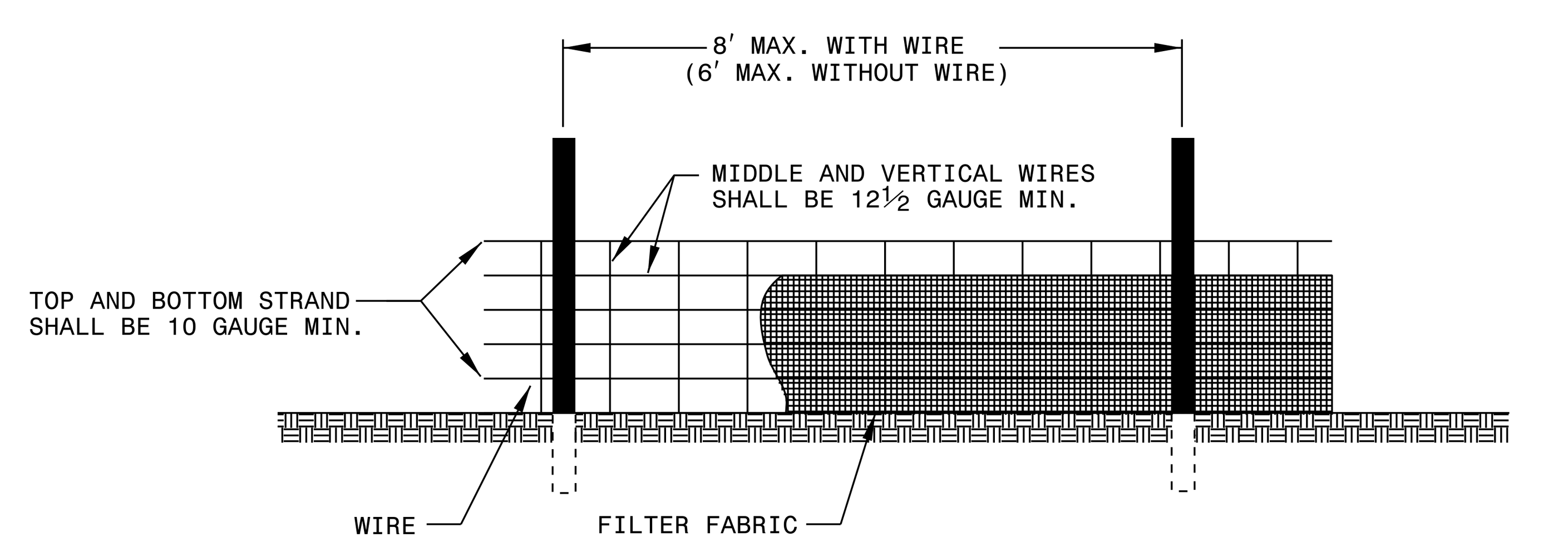
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
ROCK INLET SEDIMENT TRAP TYPE 'C'

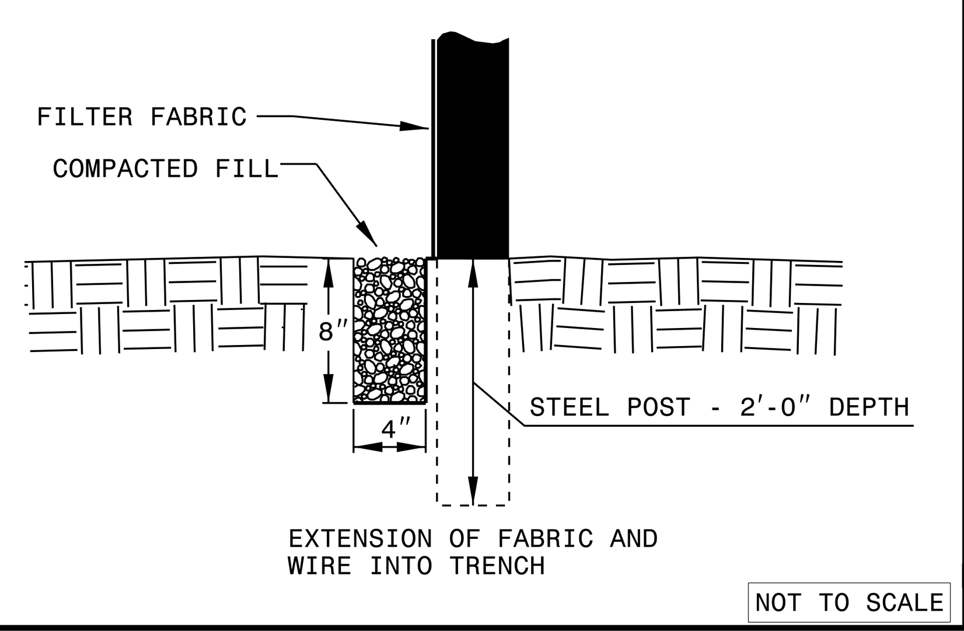
SHEET 1 OF 1
1632.03

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

ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE



NOTES
USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
USE FILTER FABRIC A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.
PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.



NOT TO SCALE

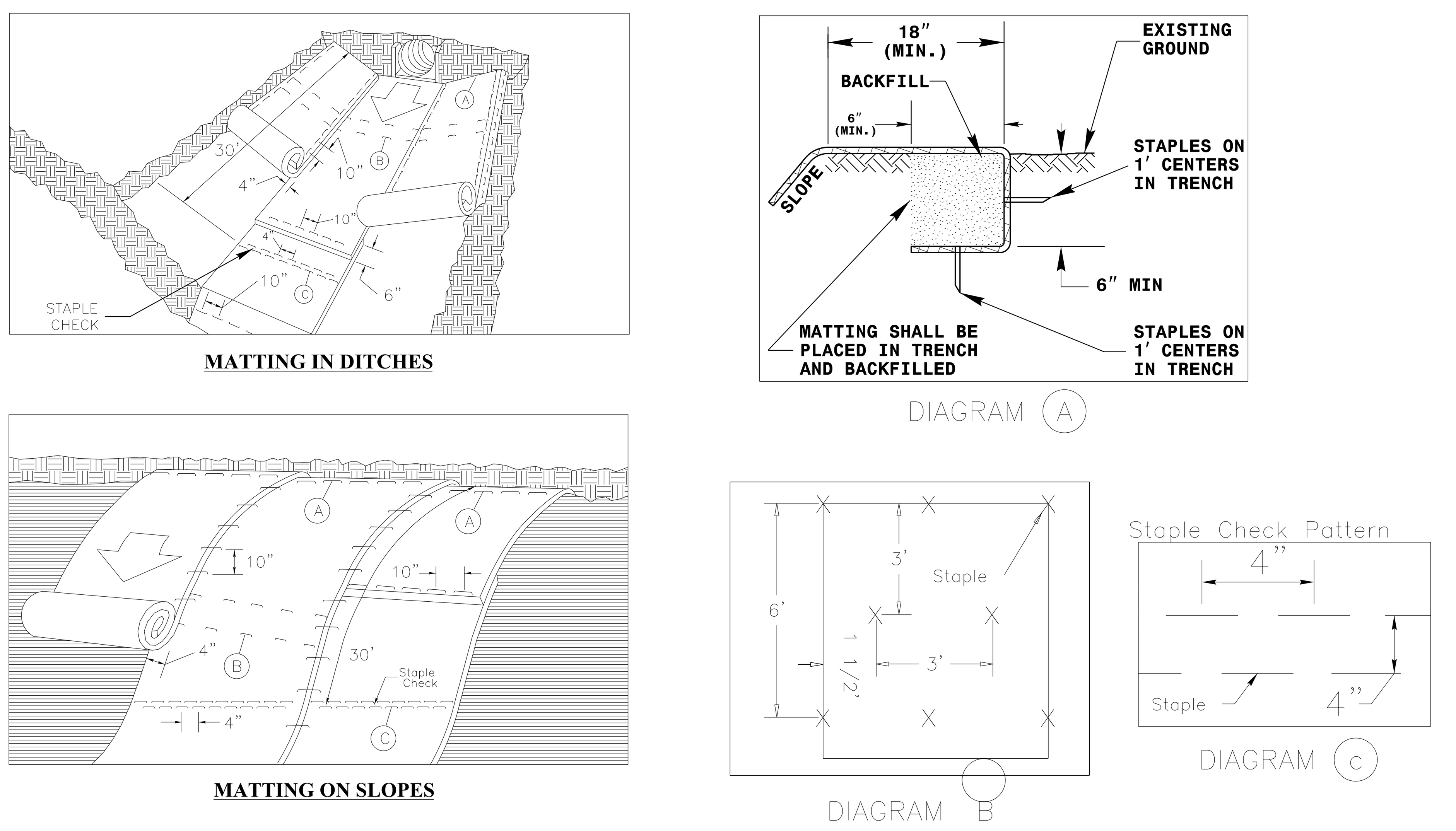
SHEET 1 OF 1
1605.01

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

ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE

SHEET 1 OF 1
1605.01

MATTING INSTALLATION DETAIL



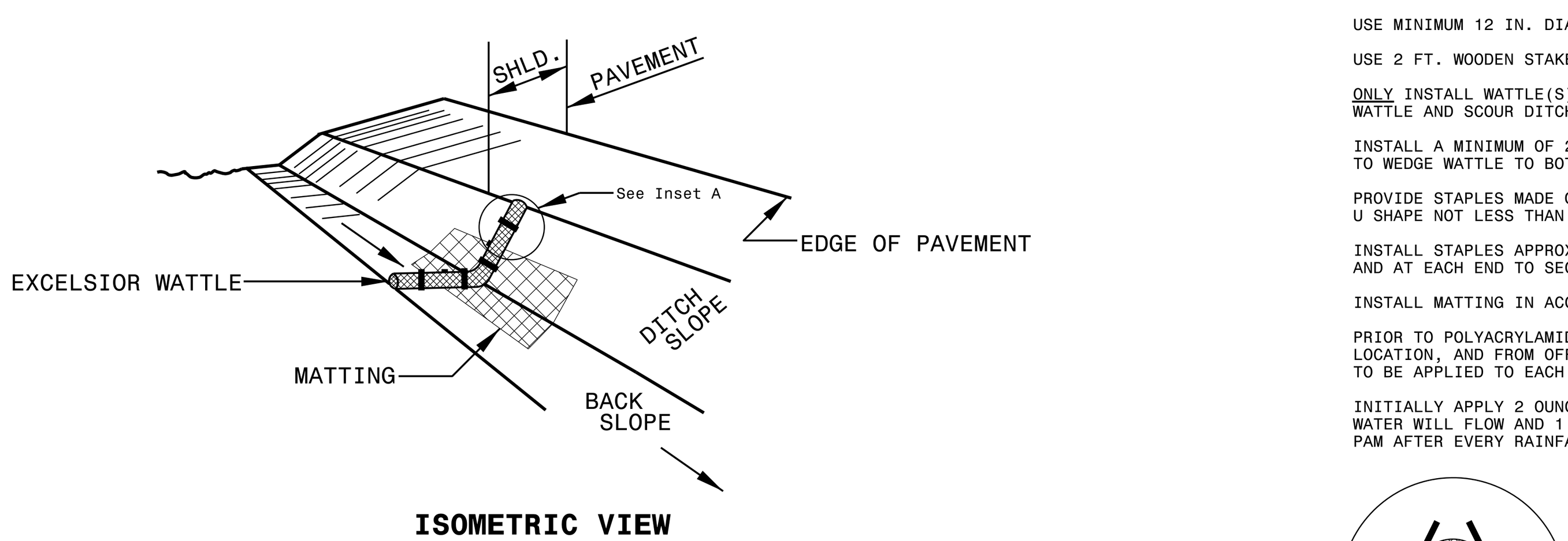
NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

<u>ONLY</u> INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

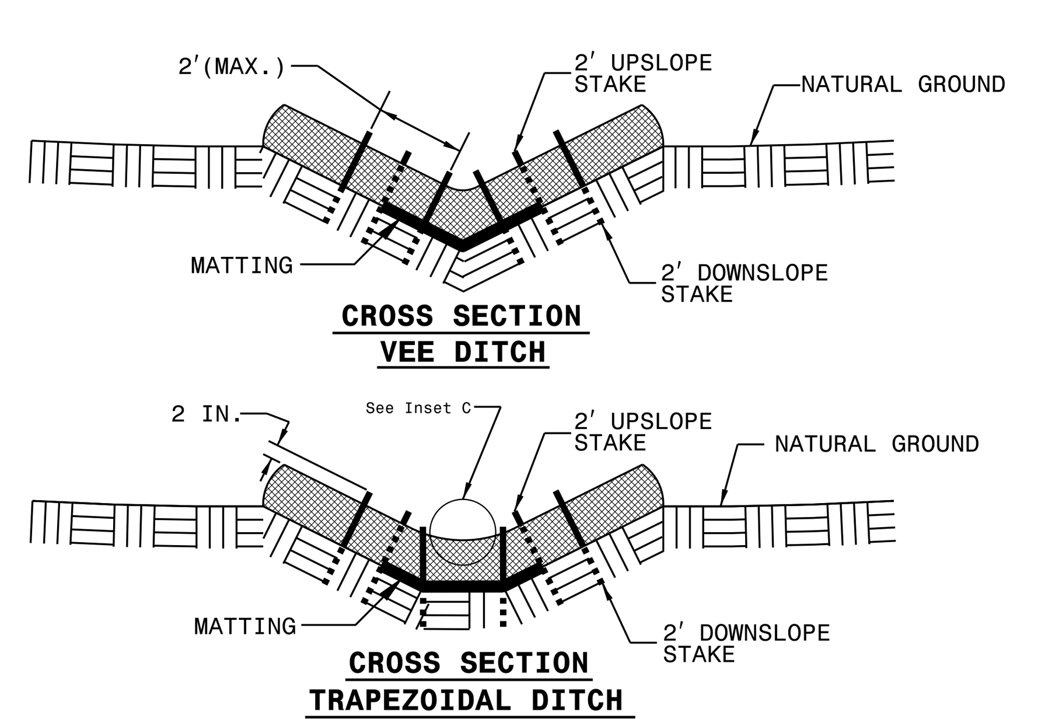
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

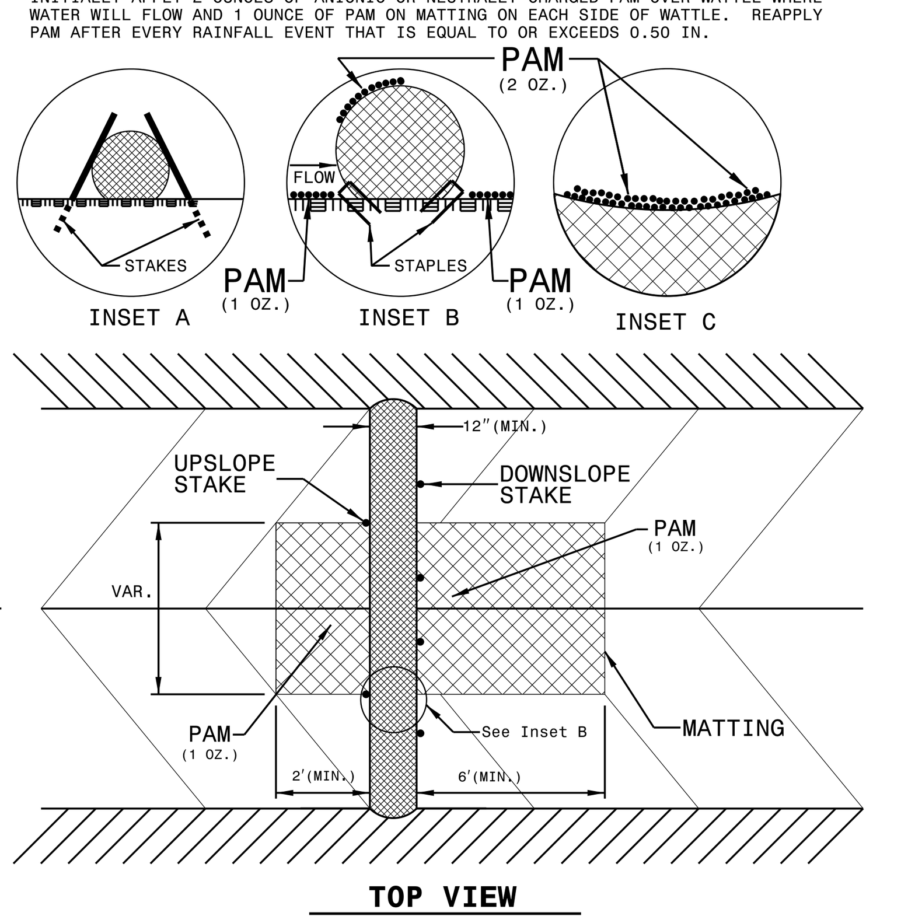
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.





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PROJ. REFERENCE NO.	SHEET NO.
B-4737	X-1A

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract Lump Sum price for "Grading".

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

CROSS–SECTION SUMMARY

IN CUBIC YARDS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

UNDERCUT RECOMMENDATIONS PER GEOTECHNICAL REPORT:
1500 CY – SLOPE /EMBANKMENT STABILITY
200 CY – CONTINGENCY FOR SLOPE /EMBANKMENT STABILITY
2000 CY – CONTINGENCY FOR SUBGRADE STABILITY

LOCATION (–LREV–)	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT
24+00.00	*0*	*0*	*0*
24+50.00	*31*	*0*	*7*
25+00.00	*56*	*0*	*22*
25+19.90	*28*	*0*	*16*
25+50.00	*18*	*0*	*23*
25+82.52	*0*	*0*	*57*
26+00.00	*0*	*0*	*59*
26+50.00	*0*	*290*	*267*
26+78.60	*0*	*–*	*223*
BRIDGE			
28+13.00	*0*	*–*	*0*
28+32.80	*1*	*200*	*143*
28+34.33	*0*	*–*	*10*
28+50.00	*2*	*112*	*98*
29+00.00	*15*	*293*	*239*
29+50.00	*46*	*0*	*128*
30+00.00	*56*	*0*	*51*
30+29.00	*21*	*0*	*11*

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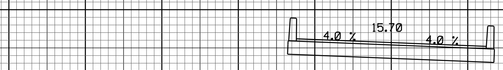
-LREV-



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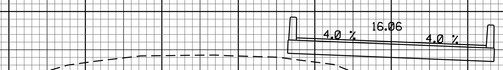

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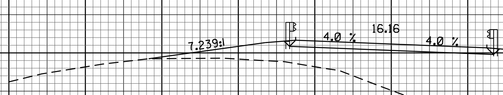

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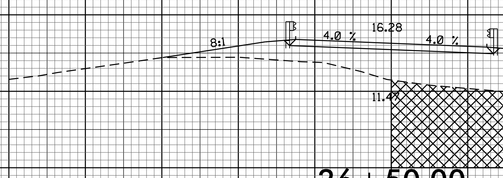
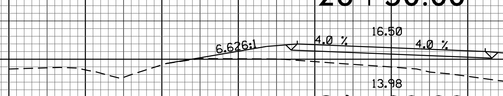


BEGIN UNDERCUT -LREV- STA. 26+25
END UNDERCUT -LREV- STA. 26+95

26+50.00



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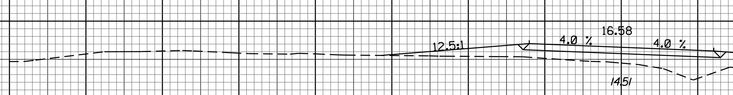

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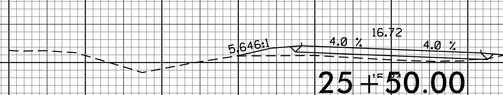

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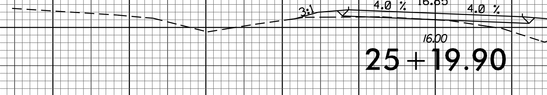

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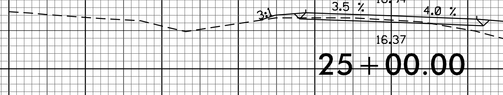

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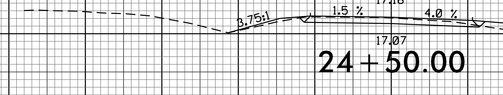

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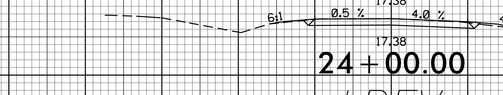

24+00.00

-LREV-

UNDERCUT

0 5 10

PROJ. REFERENCE NO. B-4737

SHEET NO. X-1

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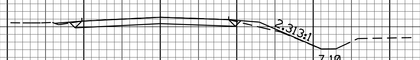

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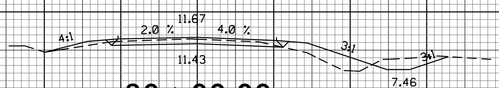

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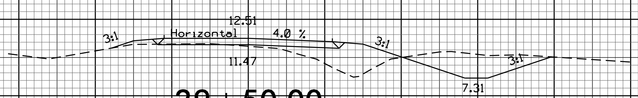

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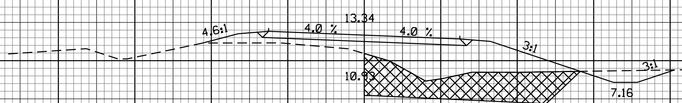

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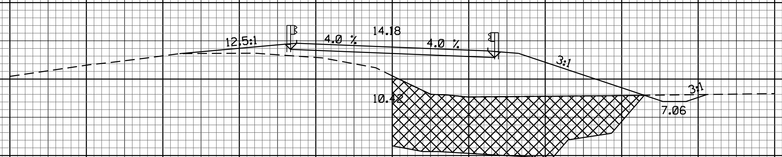
END UNDERCUT -LREV- STA. 29+25



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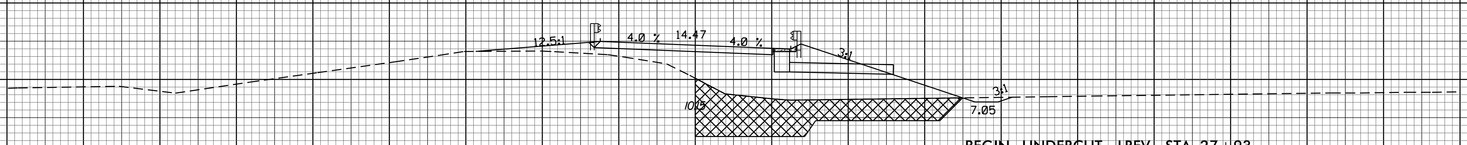
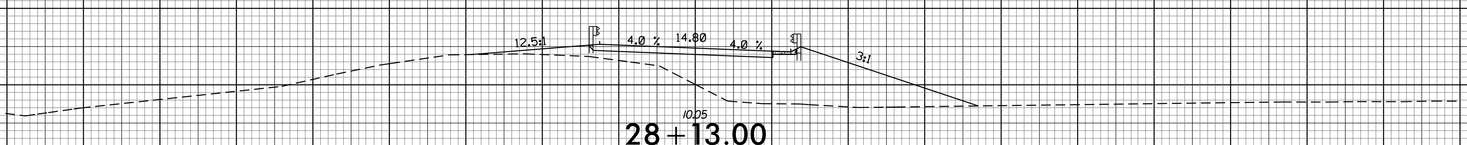


BEGIN UNDERCUT -LREV- STA. 27+93

28+32.80



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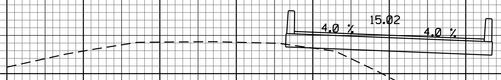

28+00.00

-LREV-

UNDERCUT

0 5 10

PROJ. REFERENCE NO. B-4737

SHEET NO. X-2

F.A.PROJ. NO. BRZ-1226(6)

26+75 27+00 27+25 27+50 27+75 28+00

20
10

FILL FACE @ END BENT 1
STA. 26+84.75 -LREV-
GRADE POINT EL. 16.13

FIX.

BEGIN FRONT SLOPE
STA. 26+79.75 -LREV-
GRADE PT. EL. 16.15

1'-6" (TYP.)

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

1½:1 SLOPE NORMAL TO CAP (TYP.)

SPAN A

EL. 8.0±

EL. 7.0±

EL. 5.0±

EL. 2.0±

EL. 2.0±

HIGH WATER
EL. 19.8
(SEPT. 1999)

FIX.

EXISTING STRUCTURE

SPAN B

NWS
EL. 8.2'

℄ HP 14 X 73 GALVANIZED STEEL PILES
(TYP. EA. BENT)

GRADE DATA

(-)0.4387% (-)1.6747%

PI = 27+51.00 -L-
EL = 15.84'
VC = 100'

FIX.

EL. 7.0±

EL. 7.0±

SPAN C

1'-6" (TYP.)

FIX.

FILL FACE @ END BENT 2
STA. 28+02.25 -LREV-
GRADE PT. EL. 14.92

BEGIN FRONT SLOPE
STA. 28+06.09 -LREV-
GRADE PT. EL. 14.92

APPROXIMATE NATURAL GROUND LINE

EL. 8.0±

CLASS II RIP RAP
2'-0" THICK (TYP.)

EL. 9.0±

℄ HP 12 X 53 STEEL PILES
(TYP. EA. END BENT)

END BENT 1 BENT 1 BENT 2 END BENT 2

SECTION ALONG -LREV-

STAGE II

STAGE I

FILL FACE @ END BENT 1

W.P. #1
STA. 26+84.75 -LREV-

TO DEAD END

BEGIN APPROACH SLAB
STA 26+73.75 -LREV-

BEGIN FRONT SLOPE
STA 26+79.75 -LREV-

4'-6"

EXISTING STRUCTURE

BACHELOR CREEK

BRIDGE ID
STA. 27+43.50 -LREV-

W.P. #2
STA. 27+20.94 -LREV-

-LREV-

90°-00'-00" (TYP.)

W.P. #3
STA. 27+66.06 -LREV-

W.P. #4
STA. 28+02.25 -LREV-

TO SR 1225

END APPROACH SLAB
STA 28+13.25 -LREV-

BEGIN FRONT SLOPE
STA 28+06.09 -LREV-

FILL FACE @ END BENT 2

BENT 1 CONTROL LINE

BENT 2 CONTROL LINE

1'-0" MIN. EARTH BERM. EL. 10.98

1'-0" MIN. EARTH BERM. EL. 9.86

22'-6¾" 22'-6¾"

36'-2¼" (SPAN A) 45'-1½" (SPAN B) 36'-2¼" (SPAN C)

117'-6" TOTAL LENGTH OF BRIDGE (FILL FACE TO FILL FACE)

CLASS II RIP RAP, (TYP.)

NAD 83/95

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PLAN
(PILES NOT SHOWN FOR CLARITY)

NORTH CAROLINA PROFESSIONAL SEAL 22274 ENGINEER OMAR R. AZIZI 3/28/13

NORTH CAROLINA PROFESSIONAL SEAL 22065 ENGINEER KEITH PASCHAL 3.28.13

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 1 OF 3 REPLACES BRIDGE NO. 46

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER BACHELOR CREEK ON SR 1226 (NEW LIBERTY RD.)

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

DRAWN BY : B.N.BARODAWALA DATE : 1-22-13
CHECKED BY : N.D'AIUTO DATE : 3-7-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

28-MAR-2013 10:05
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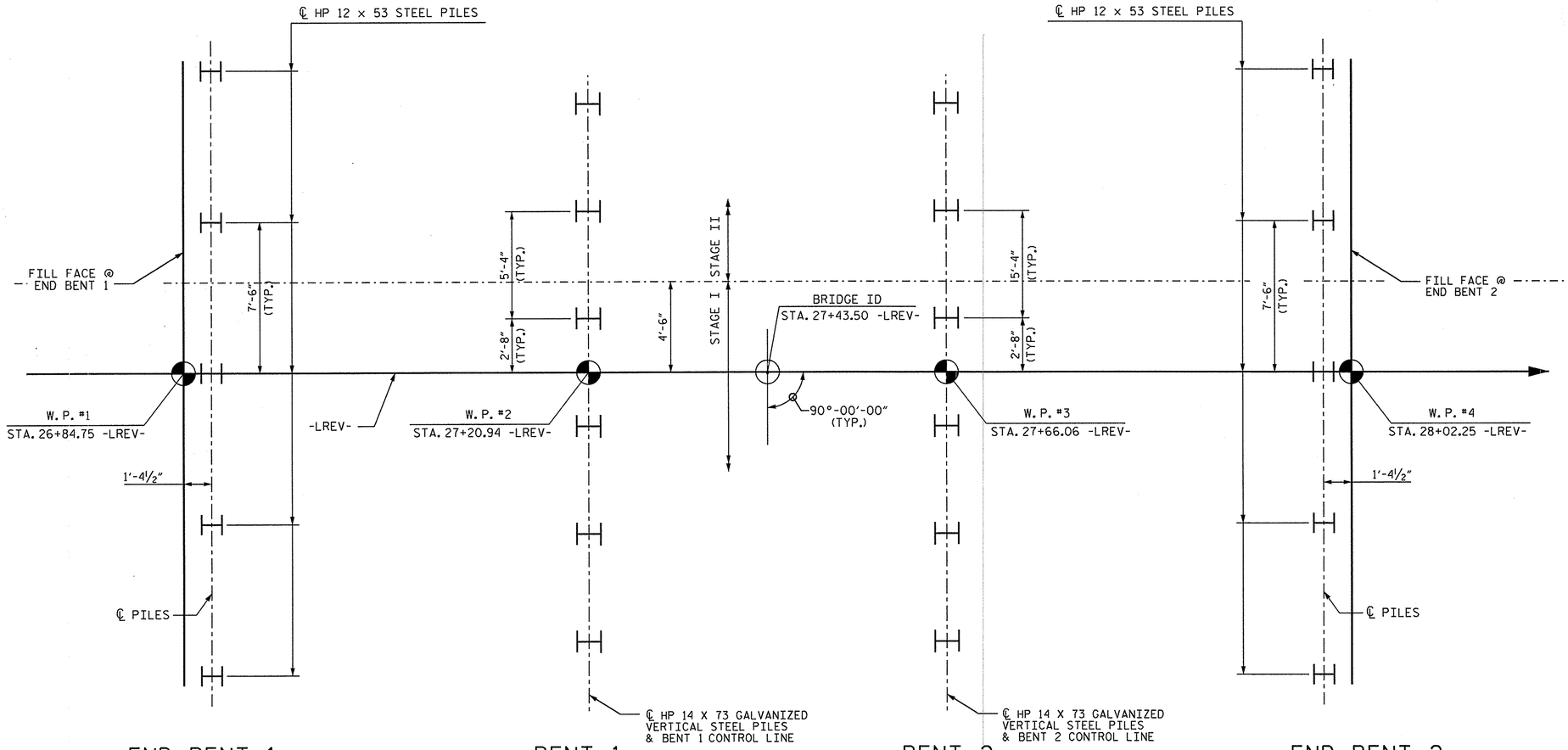
kpaschal



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 65 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 110 TONS PER PILE.

PILES AT BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE.

DRIVE PILES AT BENT 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

INSTALL PILES AT BENT 1 AND BENT 2 A TO TIP ELEVATION NO HIGHER THAN -31.0 FT.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT BENT 1 AND BENT 2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT 1 AND 2 IS ELEVATION -11.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 30 TO 45 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BOTH END BENT NO. 1 AND 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40 TO 60 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BOTH BENT 1 AND 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. SEE SECTION 450 OF THE STANDARD SPECIFICATIONS AND FOR PILE DRIVING CRITERIA. SEE PILE DRIVING CRITERIA PROVISIONS.

IF NECESSARY, PREDRILL PILE LOCATIONS AT BENT 1 AND 2 TO ELEVATION -31 FT. WITH EQUIPMENT THAT WILL RESULT IN A MAXIMUM PREDRILLING DIAMETER OF 18". FOR PREDRILLING FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

SPUDDING MAY BE USED INSTEAD OF PREDRILLING AT BENT 1 AND 2.

NORTH CAROLINA PROFESSIONAL SEAL 24085 ENGINEER A. KEITH PASCHAL

3.28.13

DRAWN BY : B.N.BARODAWALA DATE : 1-22-13
CHECKED BY : N.D'AIUTO DATE : 3-6-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

27-MAR-2013 13:17
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ndaluto

PROJECT NO. B-4737
CRAVEN COUNTY
STATION: 27+43.50 -LREV-

SHEET 2 OF 3

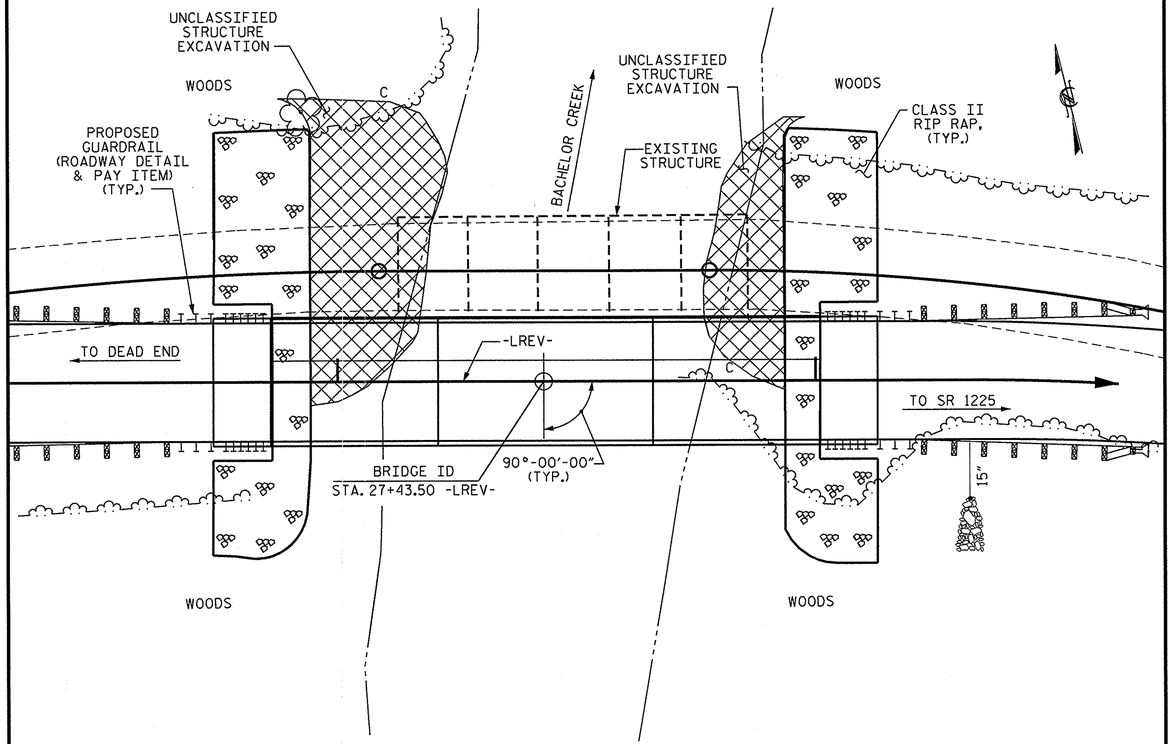
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER BACHELOR CREEK ON SR 1226 (NEW LIBERTY RD.)

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

REBAR AND CAP AT 15+11.20 -L-, 9.77 FT. LEFT. ELEV. 39.35'



LOCATION SKETCH

NOTES:

ASSUMED LIVE LOAD = HS-93 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

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

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 16'-0", 1 SPAN @ 15'-0" 2 SPANS @ 14'-10" AND 1 SPAN @ 15'-10" WITH A CLEAR ROADWAY WIDTH OF 19'-3", A TIMBER DECK ON TIMBER JOIST SUPPORTED BY TIMBER CAPS AND TIMBER PILES AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE 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.

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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 60 FT. LEFT SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SPECIAL PROVISIONS.

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

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

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 SAMPLE 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.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	=	17000 C.F.S.
FREQUENCY OF DESIGN FLOOD	=	10 YR.
DESIGN HIGH WATER ELEVATION	=	10.0'
DRAINAGE AREA	=	28.2 SQ. MI.
BASIC DISCHARGE (Q100)	=	3400 C.F.S.
BASIC HIGH WATER ELEVATION	=	12.17'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	2300 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	=	25 YR.
OVERTOPPING FLOOD ELEVATION	=	11.0'

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 GALVANIZED STEEL PILES		STEEL PILE POINTS	PREDRILLING FOR PILES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB	
	LUMP SUM	EA.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	EA.	LIN.FT.	EA.	LIN.FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE					LUMP SUM									230.75			LUMP SUM	27	1035.0
END BENT 1			LUMP SUM	18.9		2300	5	300					2		141	156			
BENT 1				8.9		1801			6	420	6	252	3						
BENT 2				8.9		1801			6	420	6	252	3						
END BENT 2			LUMP SUM	18.9		2300	5	300					2		137	152			
TOTAL	LUMP SUM	1	LUMP SUM	55.6	LUMP SUM	8202	10	600	12	840	12	504	10	230.75	278	308	LUMP SUM	27	1035.0

3-28-13

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER BACHELOR CREEK ON SR 1226 (NEW LIBERTY RD.)

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

DRAWN BY : B.N.BARODAWALA DATE : 1-22-13
CHECKED BY : N.D'AIUTO DATE : 3-7-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

28-MAR-2013 10:05
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LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.2	--	1.75	0.28	1.57	B	EL	22	0.561	**1.2**	A	EL	**1.7**	0.80	0.28	1.24	B	EL	22	
		HL-93(Opr)	N/A	--	1.56	--	1.35	0.28	2.04	B	EL	22	0.561	1.56	A	EL	1.7	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.39	49.880	1.75	0.28	1.93	B	EL	22	0.561	**1.39**	A	EL	**1.7**	0.80	0.28	1.52	B	EL	22	
		HS-20(Opr)	36.000	--	1.8	64.659	1.35	0.28	2.5	B	EL	22	0.561	1.8	A	EL	1.7	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.97	40.024	1.4	0.28	4.6	A	EL	17	0.561	3.57	A	EL	1.7	0.80	0.28	2.96	B	EL	22	
		SNGARBS2	20.000	--	2.39	47.874	1.4	0.28	3.8	B	EL	17.6	0.561	2.7	A	EL	1.7	0.80	0.28	2.39	B	EL	22	
		SNAGRIS2	22.000	--	2.34	51.384	1.4	0.28	3.67	B	EL	17.6	0.561	2.57	A	EL	1.7	0.80	0.28	2.34	B	EL	22	
		SNCOTTS3	27.250	--	1.48	40.337	1.4	0.28	2.3	A	EL	17	0.561	1.8	A	EL	1.7	0.80	0.28	1.48	B	EL	22	
		SNAGGRS4	34.925	--	1.31	45.621	1.4	0.28	2.08	B	EL	22	0.561	1.61	A	EL	1.7	0.80	0.28	1.31	B	EL	22	
		SNS5A	35.550	--	1.27	45.235	1.4	0.28	2.02	B	EL	22	0.561	1.7	A	EL	1.7	0.80	0.28	1.27	B	EL	22	
		SNS6A	39.950	--	1.2	47.884	1.4	0.28	1.9	B	EL	22	0.561	1.59	A	EL	1.7	0.80	0.28	1.20	B	EL	22	
		SNS7B	42.000	3	1.14	47.990	1.4	0.28	1.82	B	EL	22	0.561	1.63	A	EL	1.7	0.80	0.28	**1.14**	B	EL	**22**	
	TTST	TNAGRIT3	33.000	--	1.47	48.547	1.4	0.28	2.34	B	EL	22	0.561	1.86	A	EL	1.7	0.80	0.28	1.47	B	EL	22	
		TNT4A	33.075	--	1.49	49.168	1.4	0.28	2.36	B	EL	22	0.561	1.76	A	EL	1.7	0.80	0.28	1.49	B	EL	22	
		TNT6A	41.600	--	1.25	51.900	1.4	0.28	1.98	B	EL	22	0.561	1.73	A	EL	1.7	0.80	0.28	1.25	B	EL	22	
		TNT7A	42.000	--	1.27	53.412	1.4	0.28	2.02	B	EL	22	0.561	1.6	A	EL	1.7	0.80	0.28	1.27	B	EL	22	
		TNT7B	42.000	--	1.32	55.606	1.4	0.28	2.1	B	EL	22	0.561	1.55	A	EL	1.7	0.80	0.28	1.32	B	EL	22	
		TNAGRIT4	43.000	--	1.26	54.222	1.4	0.28	2.0	B	EL	22	0.561	1.49	A	EL	1.7	0.80	0.28	1.26	B	EL	22	
		TNAGT5A	45.000	--	1.17	52.801	1.4	0.28	1.86	B	EL	22	0.561	1.57	A	EL	1.7	0.80	0.28	1.17	B	EL	22	
		TNAGT5B	45.000	--	1.15	51.555	1.4	0.28	1.82	B	EL	22	0.561	1.41	A	EL	1.7	0.80	0.28	1.15	B	EL	22	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

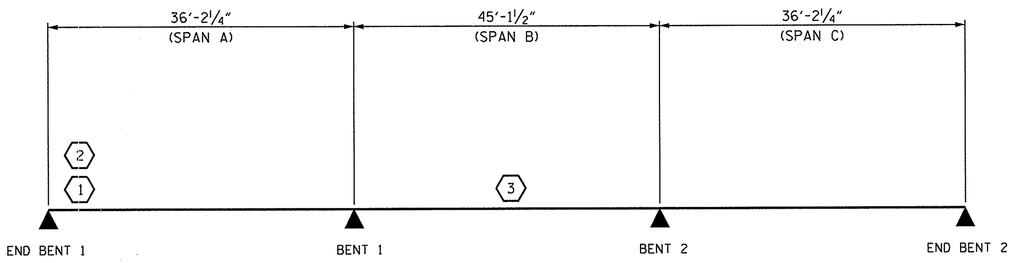
1.

2.

3.

4.

(#) CONTROLLING LOAD RATING
(1) DESIGN LOAD RATING (HL-93)
(2) DESIGN LOAD RATING (HS-20)
(3) LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE
GIRDER LOCATION
I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 42805 ENGINEER KEITH PASCHAL

3.28.13

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

DRAWN BY : K. P. SEDAI DATE : 3-19-13
CHECKED BY : M. M. AHMED DATE : 3-19-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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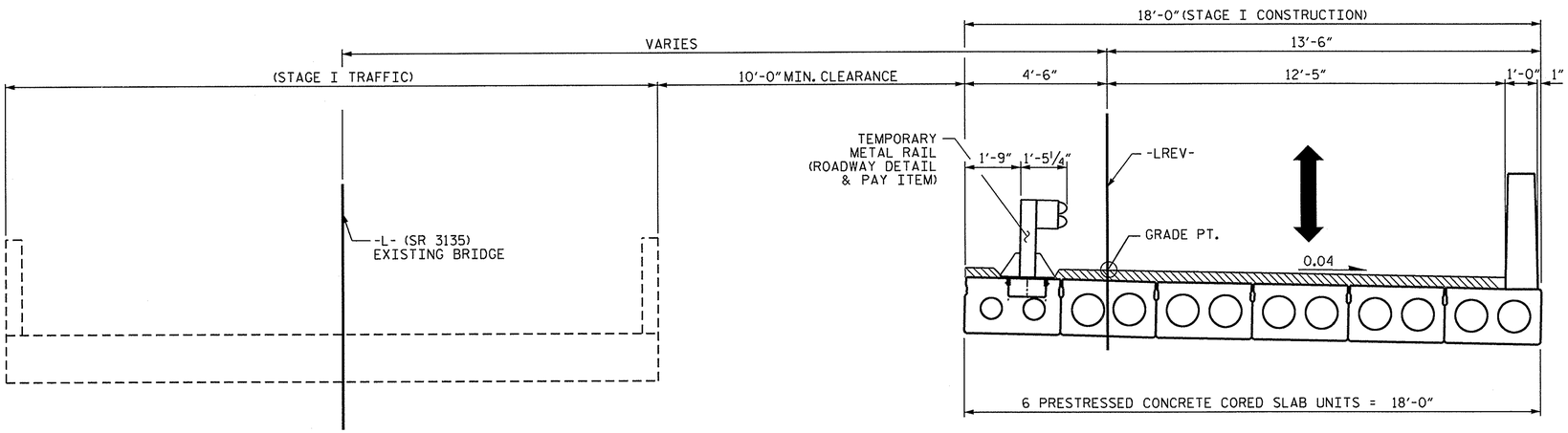
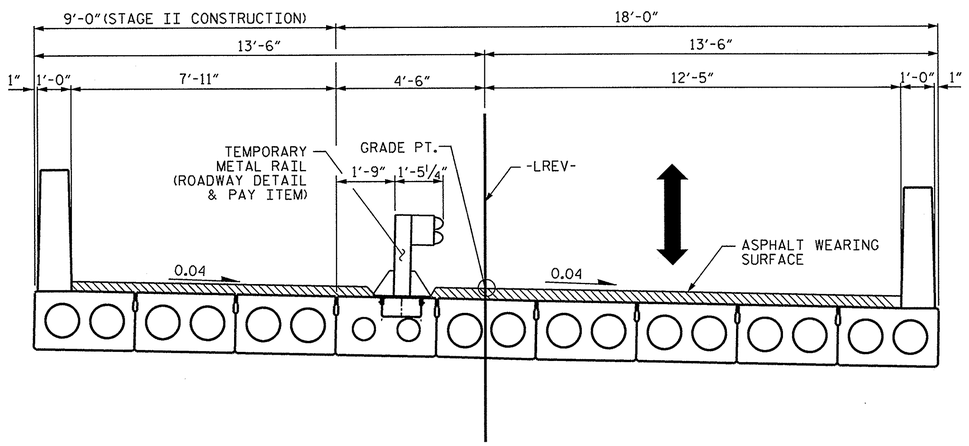
STD. NO. LRFR1



STAGE I CONSTRUCTION



STAGE II CONSTRUCTION

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION SEQUENCE

NORTH CAROLINA PROFESSIONAL SEAL 22605 ENGINEER A. KEITH PASCHAL

3-28-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 1-14-13
CHECKED BY : B.N. BARODAWALA DATE : 1-15-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

28-MAR-2013 10:37
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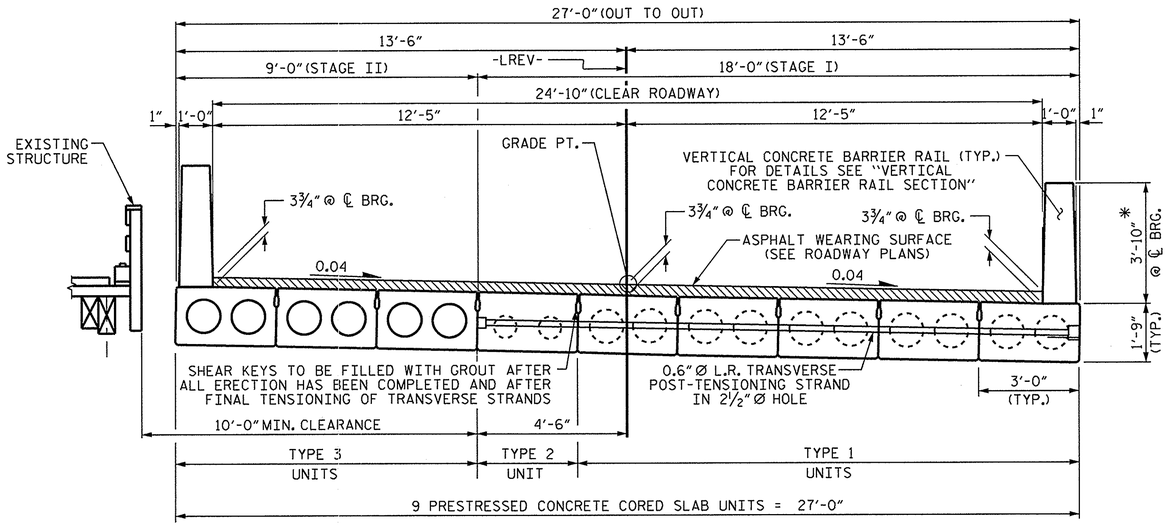
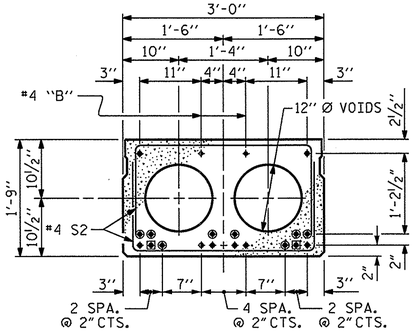
kpaschal



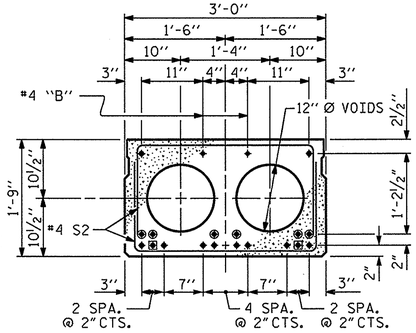
TYPICAL SECTION

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



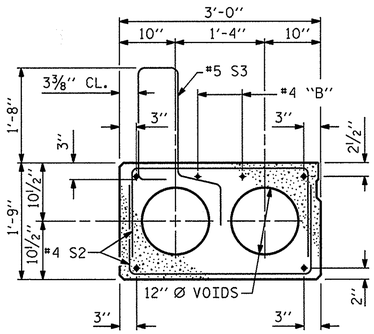
INTERIOR SLAB SECTION (35' UNIT)

(10 STRANDS REQUIRED)
(TYPES 1 & 3)



INTERIOR SLAB SECTION (45' UNIT)

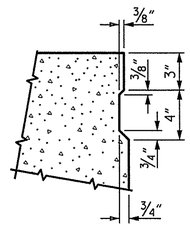
(14 STRANDS REQUIRED)
(TYPES 1 & 3)



EXT. SLAB SECTION

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

0.6" Ø LOW RELAXATION STRAND LAYOUT



SHEAR KEY DETAIL

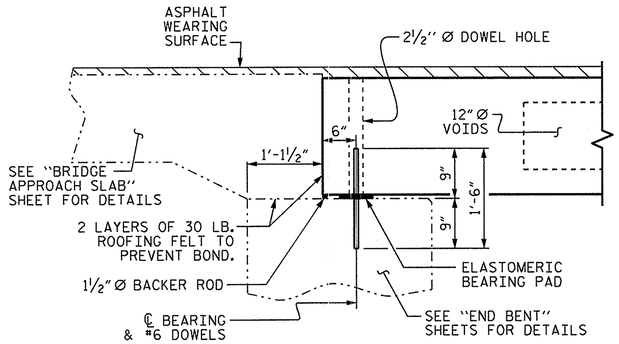
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

◉ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

◉ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

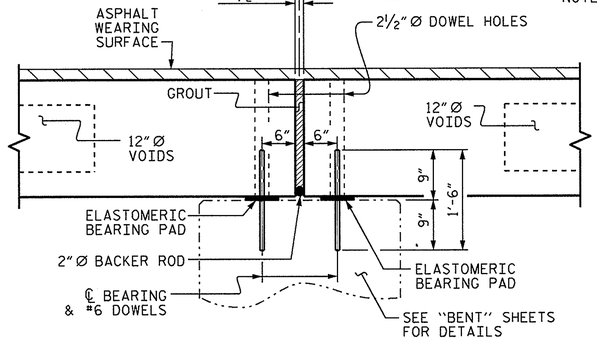
DEBONDING LEGEND

FIXED END

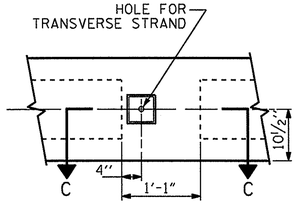


SECTION AT END BENT

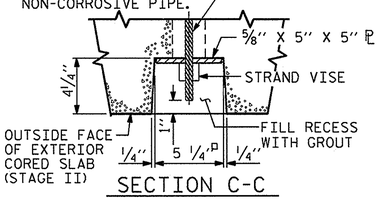
FIXED END FIXED END



SECTION AT BENT



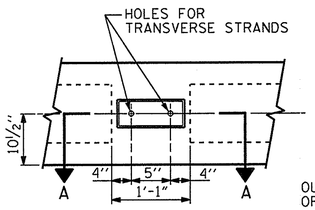
ELEVATION VIEW



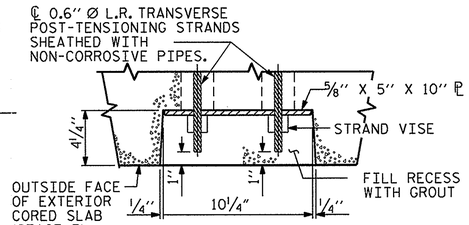
SECTION C-C

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(TYPE 3)



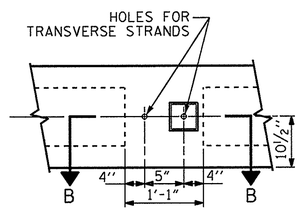
ELEVATION VIEW



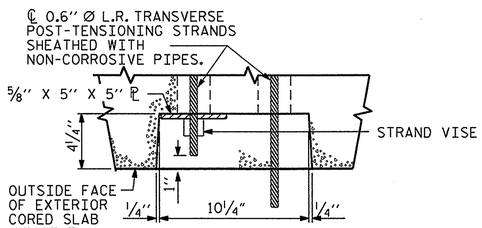
SECTION A-A

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(TYPE 1)



ELEVATION VIEW



SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(TYPE 2)

PROJECT NO. B-4737
CRAVEN COUNTY
STATION: 27+43.50 -LREV-

SHEET 1 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL
3.28.13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			21

DRAWN BY :	M.M. AHMED	DATE : 10-31-12
CHECKED BY :	B.N. BARODAWALA	DATE : 12-28-12
DESIGN ENGINEER OF RECORD:	A. K. PASCHAL	DATE : 3-25-13

27-MAR-2013 12:19
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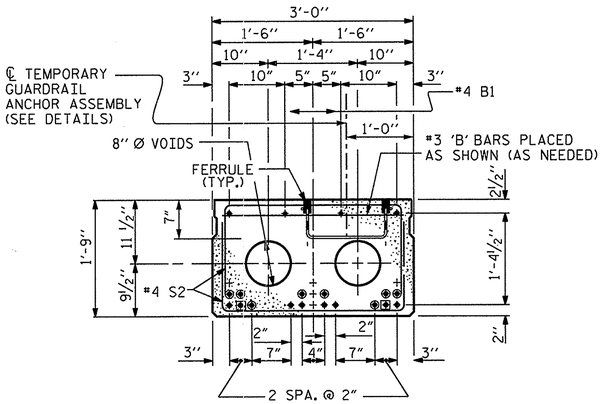
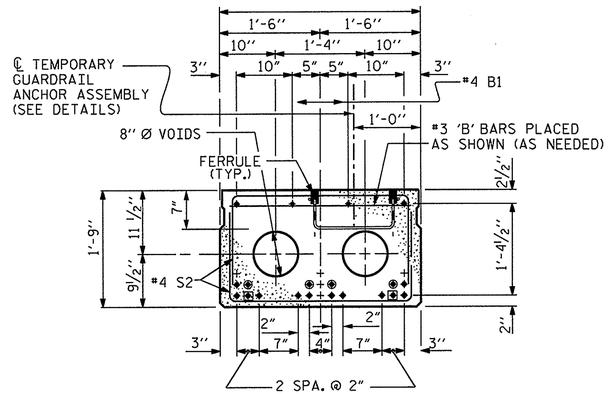
ndaluto

STD. NO. 21"PCS2_27_90S



INTERIOR SLAB SECTION
(35' UNIT)
(10 STRANDS REQUIRED)
(TYPE 2)



INTERIOR SLAB SECTION
(45' UNIT)
(14 STRANDS REQUIRED)
(TYPE 2)

◉ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

NOTES

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR ¾" FERRULES.

B. 4 - ¾" Ø X 2½" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø X 2½" GALVANIZED BOLTS 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.

C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

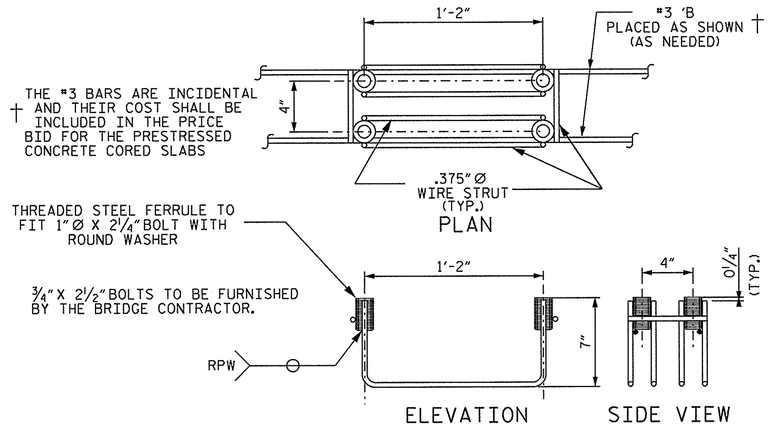
TEMPORARY GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE TEMPORARY GUARDRAIL ANCHOR ASSEMBLY COMPLETE IN PLACE SHALL BE INCLUDED IN THE UNIT CONTRACT BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

TEMPORARY GUARDRAIL IS A ROADWAY DETAIL AND PAY ITEM.



TEMPORARY GUARDRAIL ANCHOR ASSEMBLY

21 ASSEMBLIES REQUIRED IN THE CORED SLABS
(7 FOR SPANS A & C, 7 FOR SPAN B)

PROJECT NO. B-4737
CRAVEN COUNTY
STATION: 27+43.50 -LREV-

SHEET 2 OF 7

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-7
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 12005 ENGINEER ANKETH PASCHAL
3.28.13

DRAWN BY : N. D'AIUTO DATE : 3-19-13
CHECKED BY : M.M. AHMED DATE : 3-26-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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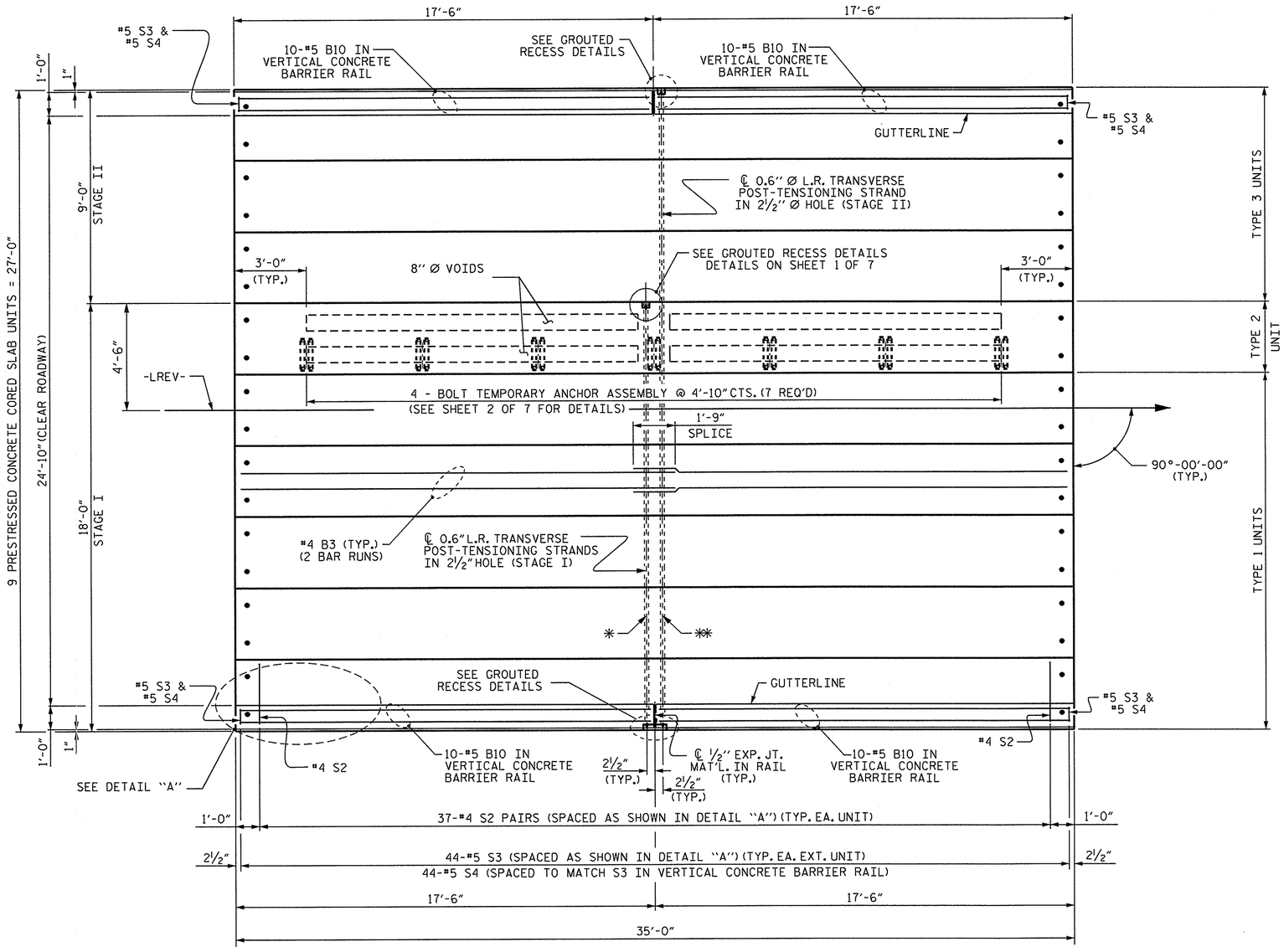
(SHT 2) STD. NO. PCS2

NOTES:

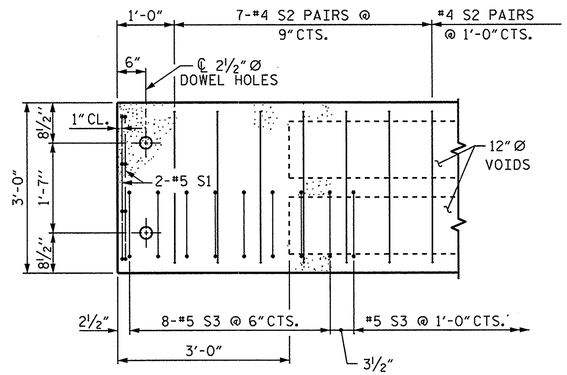
* STRAND GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION).

** STRAND GOES THRU ALL 9 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION).



SPANS A & C

NO DECK DRAINS REQUIRED



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 35' UNIT 24'-10" CLEAR ROADWAY 90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

7.20.13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 10-31-12
CHECKED BY : B.N. BARODAWALA DATE : 12-28-12
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

27-MAR-2013 12:18
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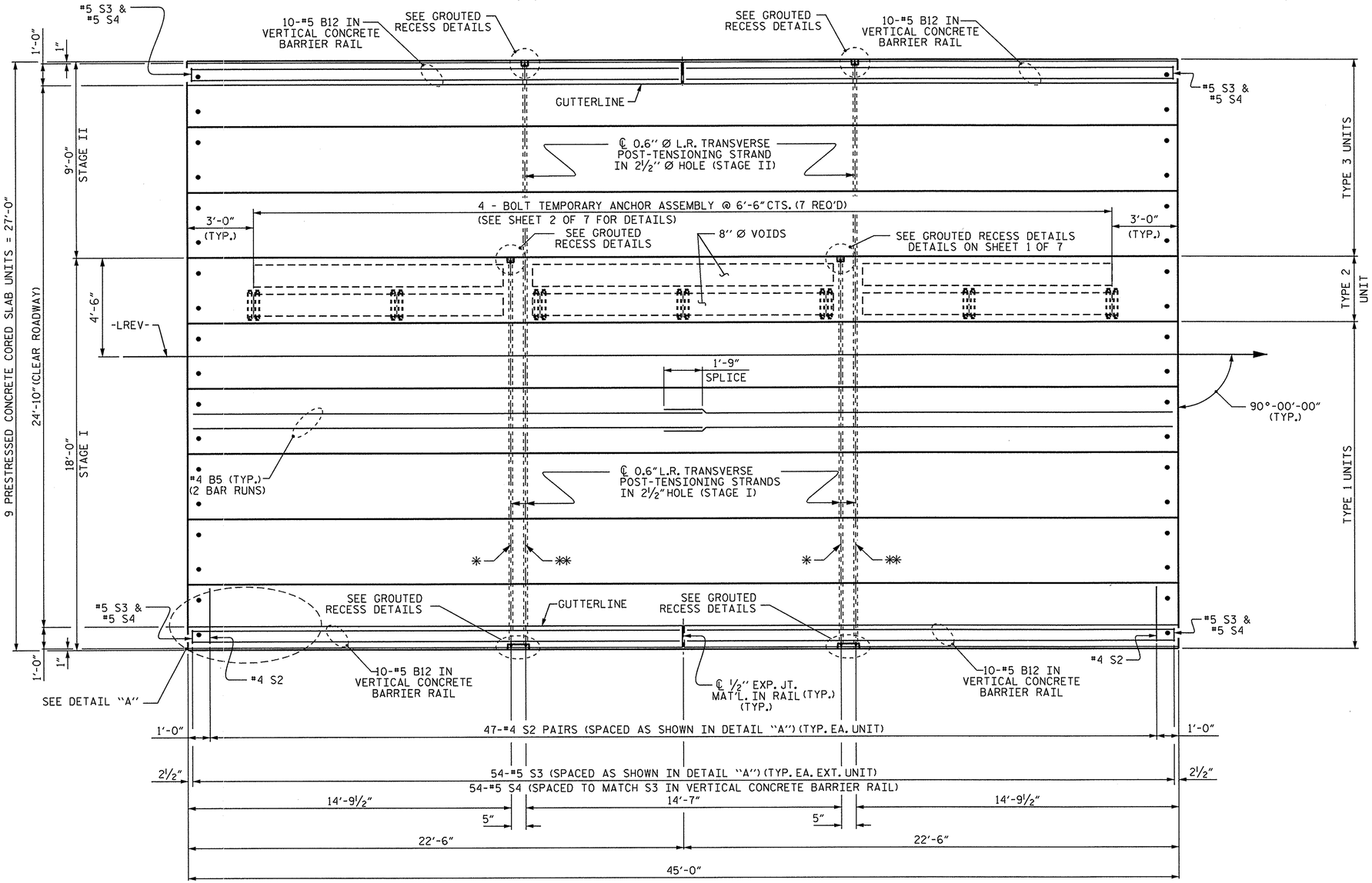
STD. NO. 21"PCS_27_90S_35L



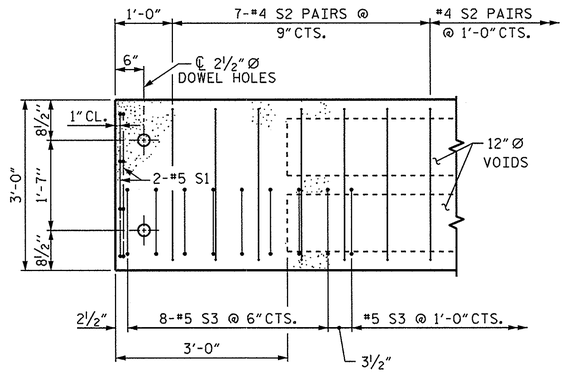
SPAN B

NO DECK DRAINS REQUIRED

NOTES:

* STRAND GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION).

** STRAND GOES THRU ALL 9 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION).



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT *5 S3 BARS.

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 45' UNIT 24'-10" CLEAR ROADWAY 90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 22006 ENGINEER KEITH PASCHAL

3-28-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 10-31-12
CHECKED BY : B.N. BARODAWALA DATE : 12-28-12
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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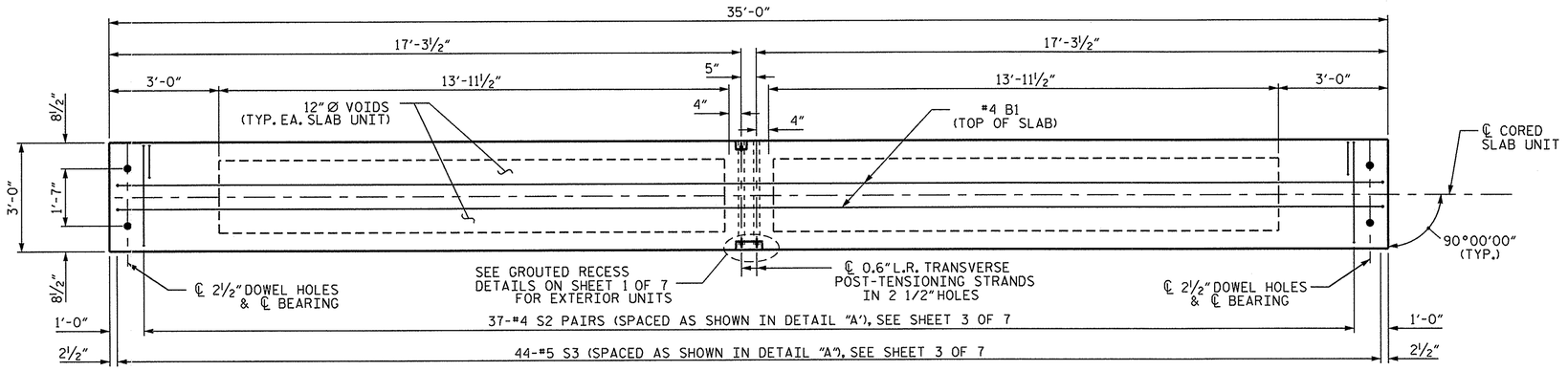
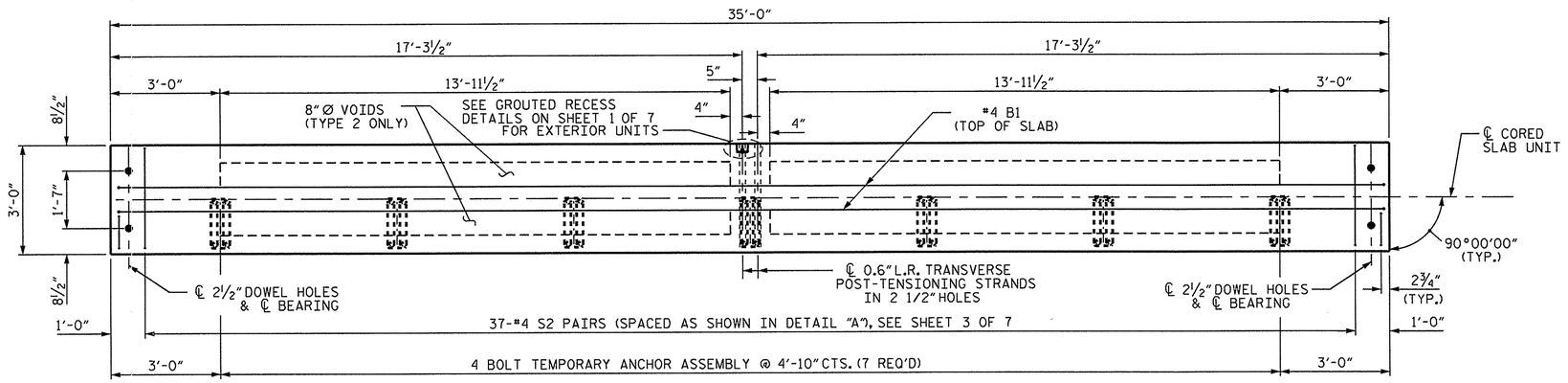
STD. NO. 21"PCS_27_90S_45L



PLAN OF CORED SLAB UNIT STAGE I

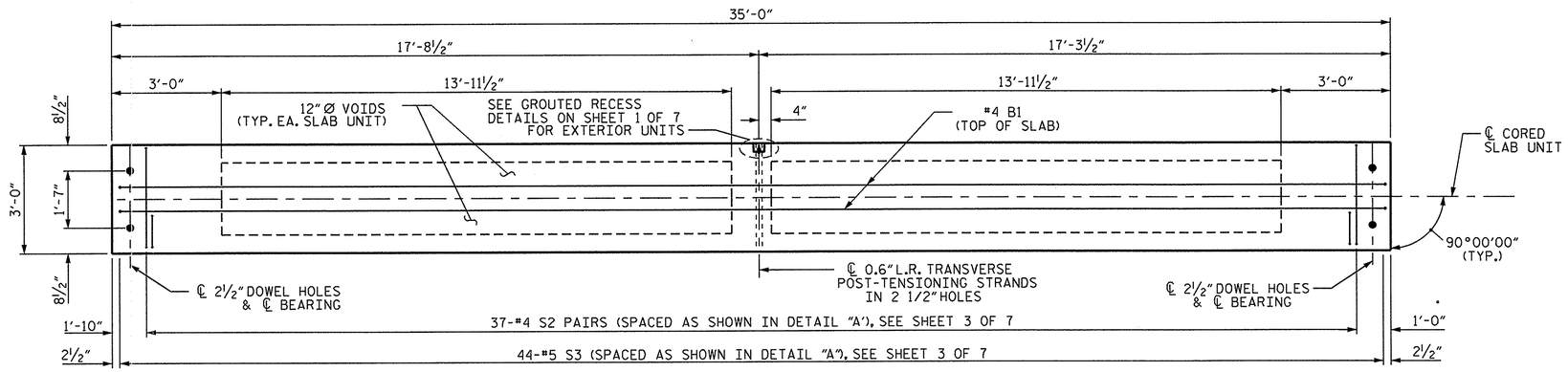
(TYPE 1)

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.



PLAN OF CORED SLAB UNIT STAGE I

(TYPE 2)



PLAN OF CORED SLAB UNIT STAGE II

(TYPE 3)

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

DRAWN BY : N. D'AIUTO DATE : 3-21-13
CHECKED BY : M.M. AHMED DATE : 3-26-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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NORTH CAROLINA PROFESSIONAL SEAL 24005 ENGINEER ANGELA KEITH PASCHAL
3-28-13

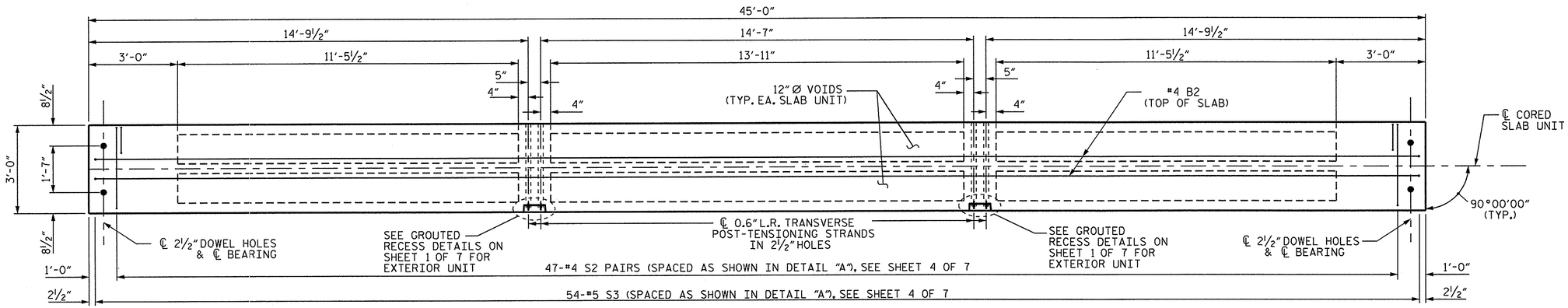
PROJECT NO. B-4737
CRAVEN COUNTY
STATION: 27+43.50 -LREV-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF CORED
SLAB UNITS
(SPANS A & C)

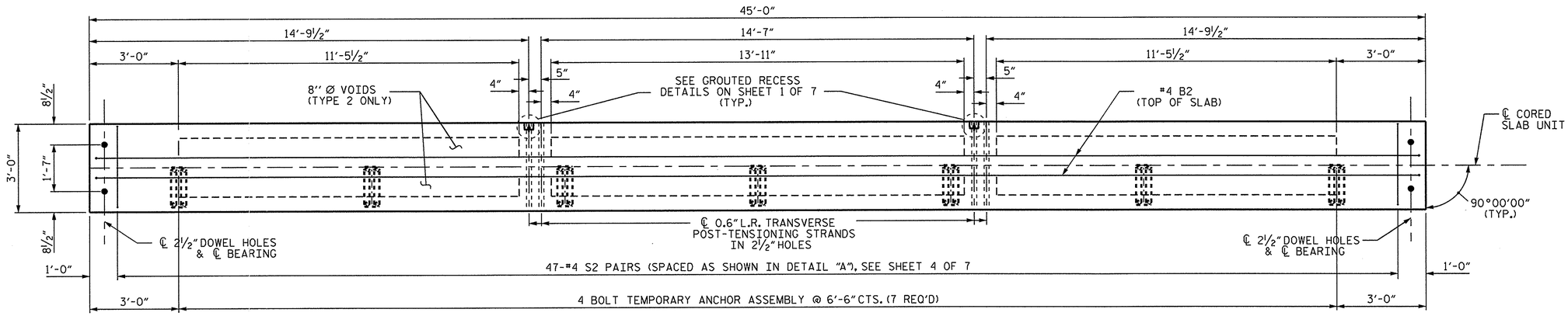
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			21



PLAN OF CORED SLAB UNIT STAGE I

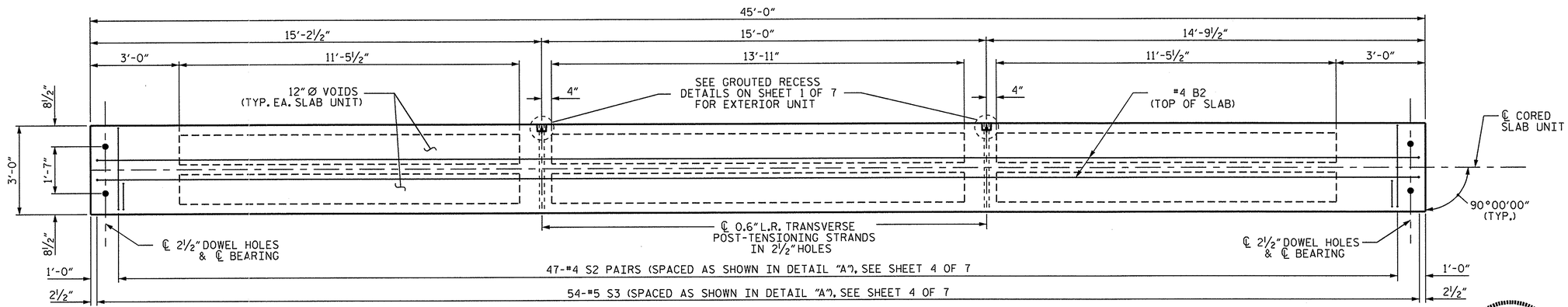
(TYPE 1)

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.



PLAN OF CORED SLAB UNIT STAGE II

(TYPE 2)



PLAN OF CORED SLAB UNIT STAGE II

(TYPE 3)

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF CORED
SLAB UNITS
(SPAN B)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 32006 ENGINEER A. KEITH PASCHAL
3-28-13

DRAWN BY :	N. D'AIUTO	DATE : 3-21-13
CHECKED BY :	M.M. AHMED	DATE : 3-26-13
DESIGN ENGINEER OF RECORD:	A. K. PASCHAL	DATE : 3-25-13

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BILL OF MATERIAL FOR ONE CORED SLAB UNIT
SPANS A AND C

				STAGE I				STAGE II			
				EXTERIOR UNIT		INTERIOR UNIT		EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	18'-3"	49	18'-3"	49	18'-3"	49	18'-3"	49
S1	8	#5	3	4'-3"	35	4'-3"	35	4'-3"	35	4'-3"	35
S2	74	#4	3	5'-4"	264	5'-4"	264	5'-4"	264	5'-4"	264
✻ S3	44	#5	1	6'-2"	283			6'-2"	283		
REINFORCING STEEL LBS.					348		348		348		348
✻EPOXY COATED REINFORCING STEEL LBS.					283				283		
5000 P.S.I. CONCRETE CU. YDS.					5.1		5.1		5.1		5.1
0.6" Ø L.R. STRANDS No.					10		10		10		10

BILL OF MATERIAL FOR ONE CORED SLAB UNIT
SPAN B

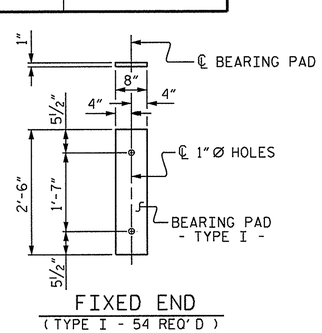
				STAGE I				STAGE II			
				EXTERIOR UNIT		INTERIOR UNIT		EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT
B5	4	#4	STR	23'-3"	62	23'-3"	62	23'-3"	62	23'-3"	62
S1	8	#5	3	4'-3"	35	4'-3"	35	4'-3"	35	4'-3"	35
S2	94	#4	3	5'-4"	335	5'-4"	335	5'-4"	335	5'-4"	335
✻ S3	54	#5	1	6'-2"	347			6'-2"	347		
REINFORCING STEEL LBS.					432		432		432		432
✻EPOXY COATED REINFORCING STEEL LBS.					347				347		
6500 P.S.I. CONCRETE CU. YDS.					6.5		6.5		6.5		6.5
0.6" Ø L.R. STRANDS No.					14		14		14		14

CORED SLAB UNITS REQUIRED
SPANS A AND C

		NUMBER	LENGTH	TOTAL LENGTH
STAGE I	EXTERIOR	2	35'-0"	70'-0"
	INTERIOR	10	35'-0"	350'-0"
	TOTAL	12		420'-0"
STAGE II	EXTERIOR	2	35'-0"	70'-0"
	INTERIOR	4	35'-0"	140'-0"
	TOTAL	6		210'-0"
TOTAL		27		1035'-0"

CORED SLAB UNITS REQUIRED
SPAN B

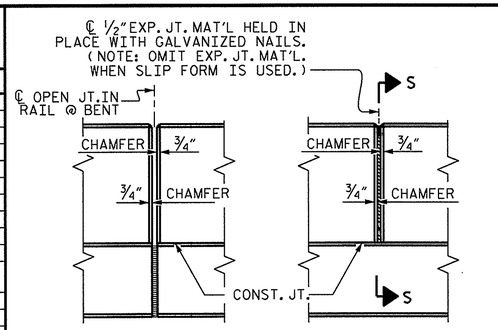
		NUMBER	LENGTH	TOTAL LENGTH
STAGE I	EXTERIOR	1	45'-0"	45'-0"
	INTERIOR	5	45'-0"	225'-0"
	TOTAL	6		270'-0"
STAGE II	EXTERIOR	1	45'-0"	45'-0"
	INTERIOR	2	45'-0"	90'-0"
	TOTAL	3		135'-0"
TOTAL		27		1035'-0"



FIXED END
(TYPE I - 54 REQ'D)

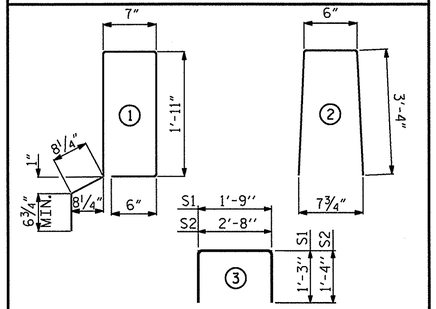
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

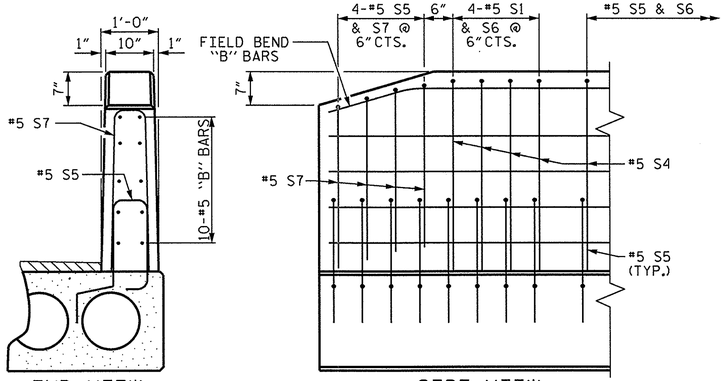


ELEVATION AT EXPANSION JOINTS

BAR TYPES

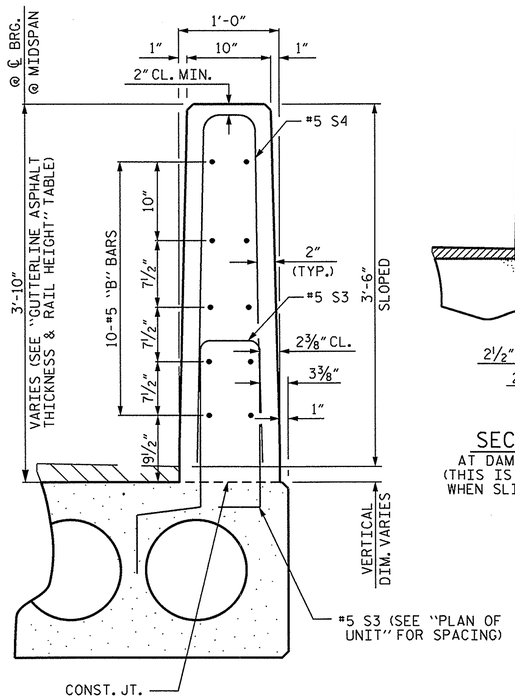


ALL BAR DIMENSIONS ARE OUT TO OUT

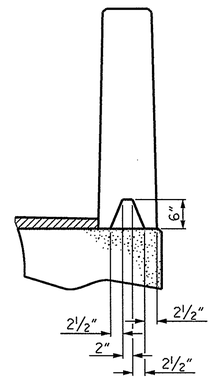


END VIEW — SIDE VIEW

END OF BARRIER RAIL DETAILS



VERTICAL CONCRETE BARRIER RAIL SECTION



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	35' UNIT					
✻B10	40	80	#5	STR	17'-1"	1425
✻ S4	88	176	#5	2	7'-2" 658	1316
✻EPOXY COATED REINFORCING STEEL				LBS.		2741
CLASS AA CONCRETE				CU.YDS.		18.4
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		140.5

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	45' UNIT					
✻B12	40	40	#5	STR	22'-1"	921
✻ S4	108	108	#5	2	7'-2"	807
✻EPOXY COATED REINFORCING STEEL				LBS.		1728
CLASS AA CONCRETE				CU.YDS.		11.8
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		90.25

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CONCRETE RELEASE STRENGTH	
UNIT	PSI
35' & 45' UNITS	4000

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 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX 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.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL 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, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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 THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

THE STAGE I 0.6" Ø H.S TRANSVERSE POST TENSIONING STRAND SHALL BE TENSIONED PRIOR TO PLACEMENT OF TRAFFIC ON STAGE I

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
24'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
35' UNITS	3¼"	3'-9½"
45' UNITS	2⅝"	3'-8⅜"

DEAD LOAD DEFLECTION AND CAMBER			
	SPAN A	SPAN B	SPAN C
	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	⅝" ↑	1 5/16" ↑	⅝" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✻✻	⅛" ↓	3/16" ↓	⅛" ↓
FINAL CAMBER	½" ↑	1⅛" ↑	½" ↑

✻✻ INCLUDES FUTURE WEARING SURFACE

PROJECT NO. B-4737

CRAVEN COUNTY

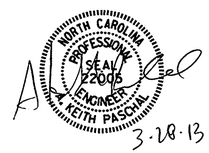
STATION: 27+43.50 -LREV-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			21



3-28-13

DRAWN BY : M.M. AHMED DATE : 10-31-12
CHECKED BY : B.N. BARODAWALA DATE : 12-28-12
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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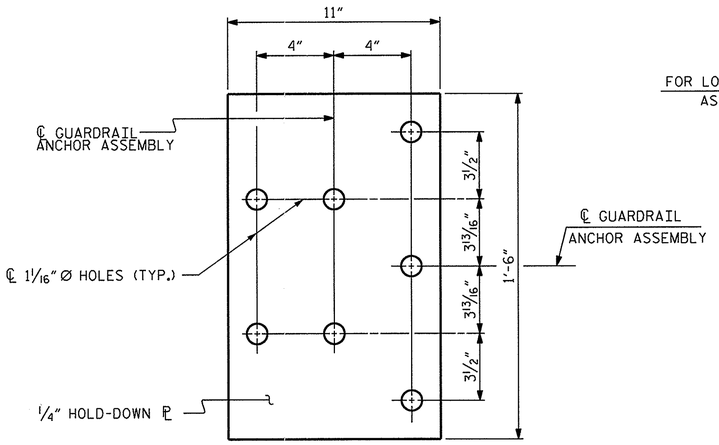
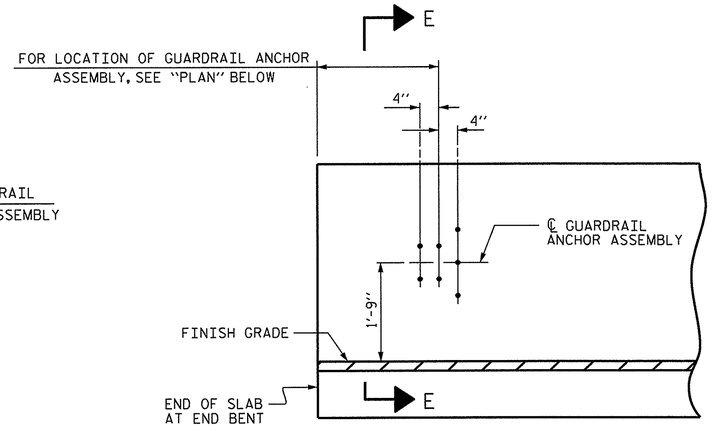
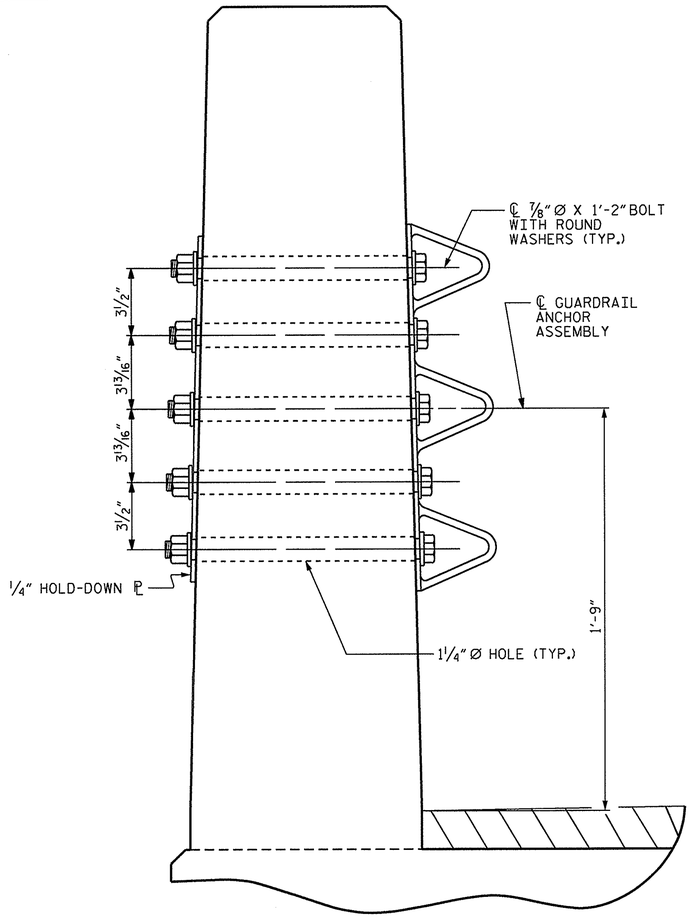
STD. NO. 21"PCS3_27_90S



PLAN



ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

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.)

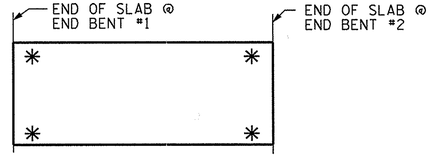
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

DRAWN BY : M.M. AHMED DATE : 10-31-12

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DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER KEITH PASCHAL

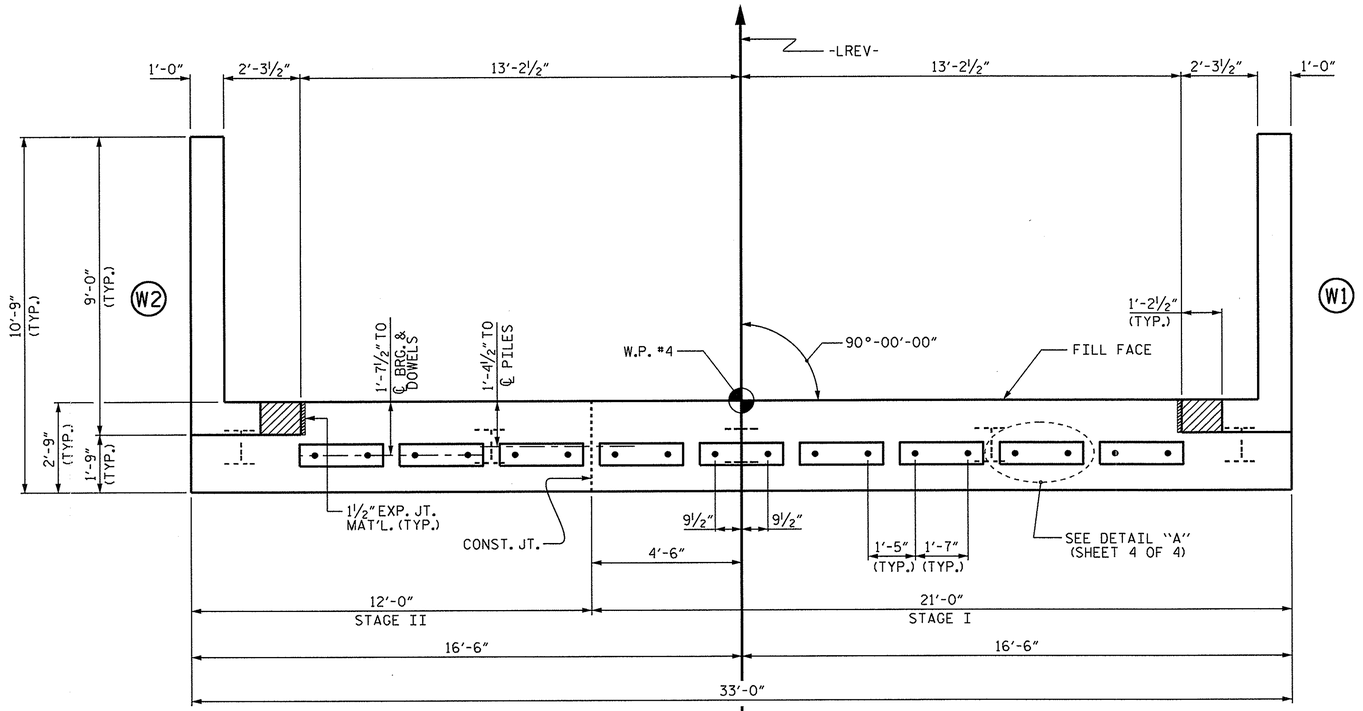
3-28-13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

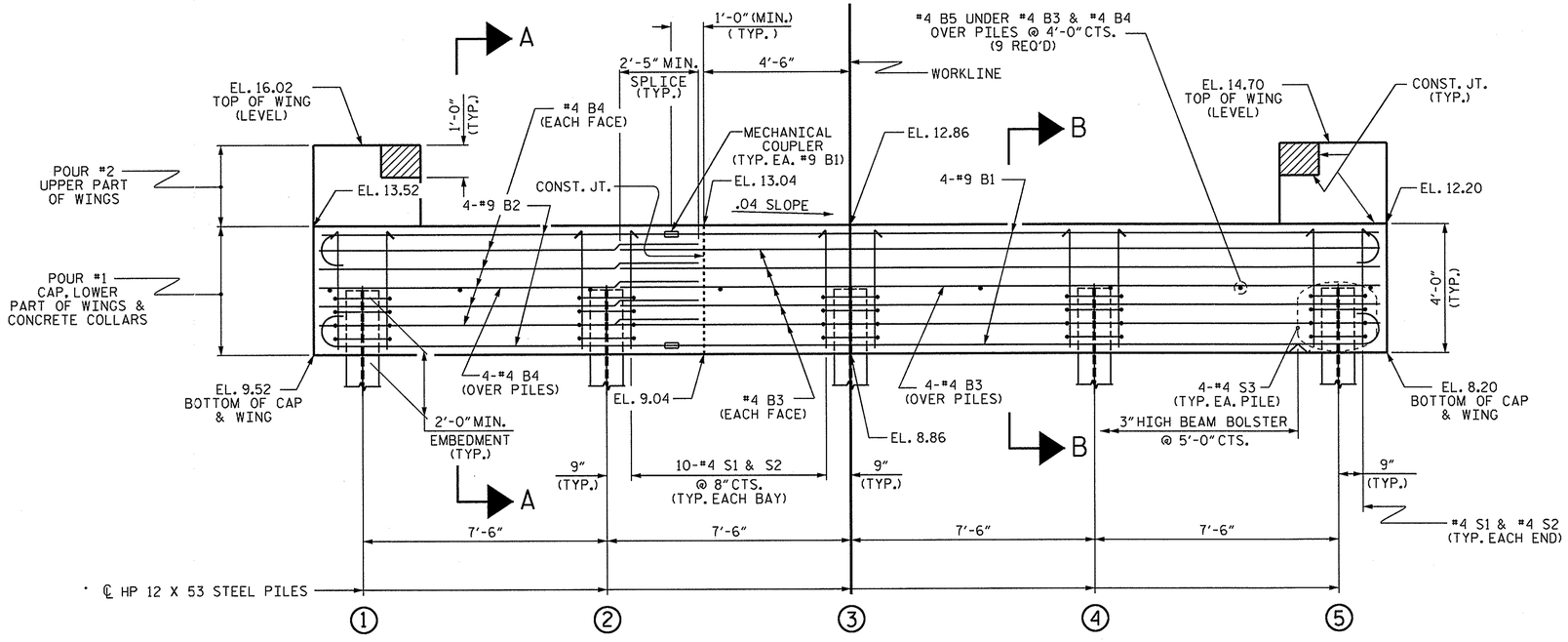
STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			21

(SHT 1) STD. NO. GRA3



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	11.48
②	11.18
③	10.88
④	10.58
⑤	10.28

PROJECT NO. B-4737
CRAVEN COUNTY
STATION: 27+43.50 -LREV-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER KEITH PASCHAL
3.20.13

DRAWN BY : M.M. AHMED DATE : 11-1-12
CHECKED BY : B.N. BARODAWALA DATE : 1-2-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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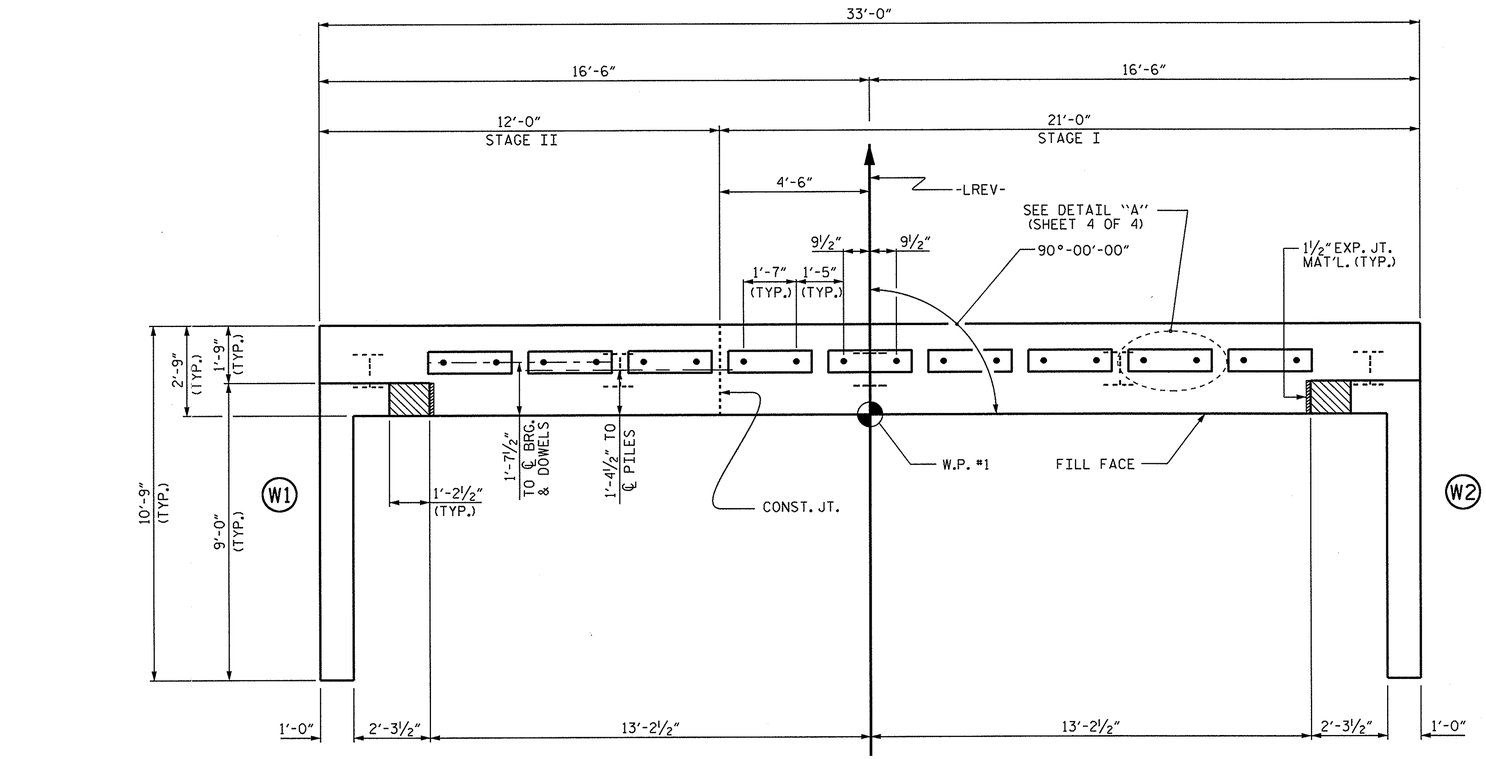
STD. NO. EB_27_90S4



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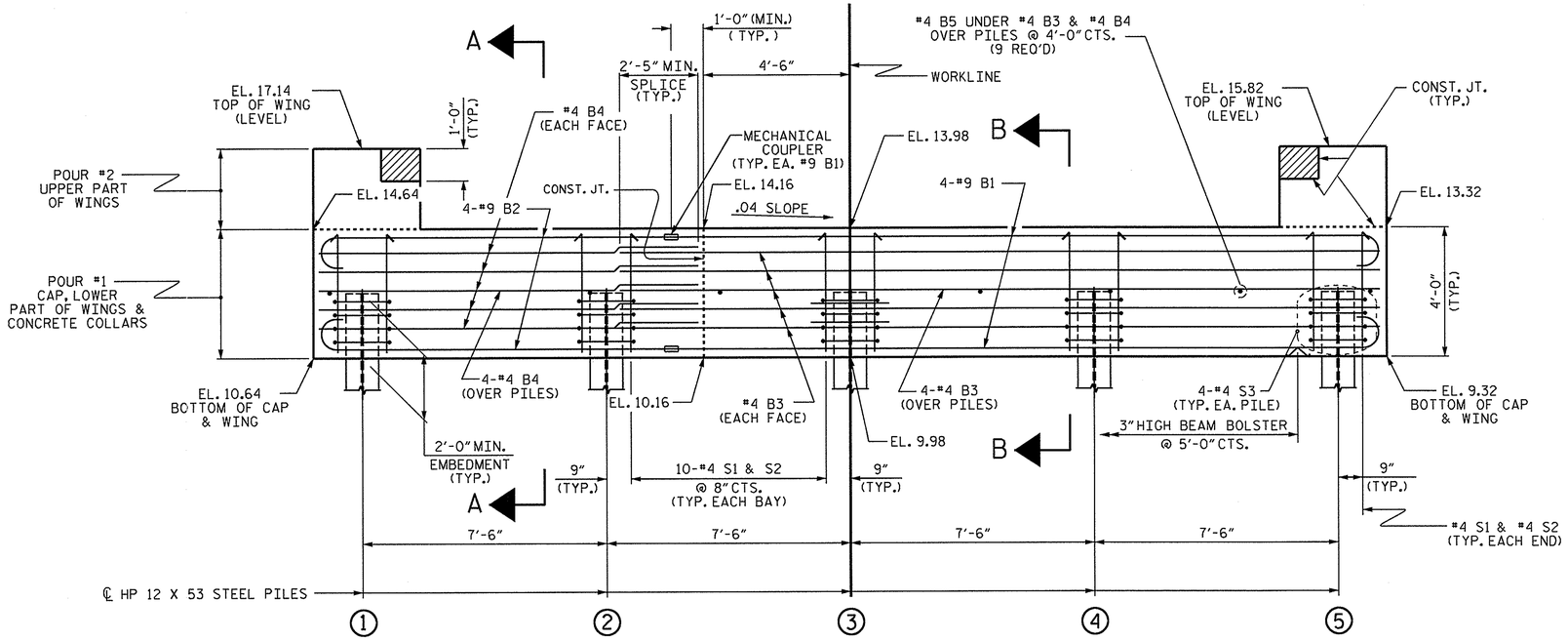

ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP OF PILE ELEVATIONS	
①	12.60
②	12.30
③	12.00
④	11.70
⑤	11.40

PROJECT NO. B-4737
CRAVEN COUNTY
STATION: 27+43.50 -LREV-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 22008 ENGINEER A. K. PASCHAL
3-28-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 11-13-12
CHECKED BY : B.N. BARODAWALA DATE : 1-2-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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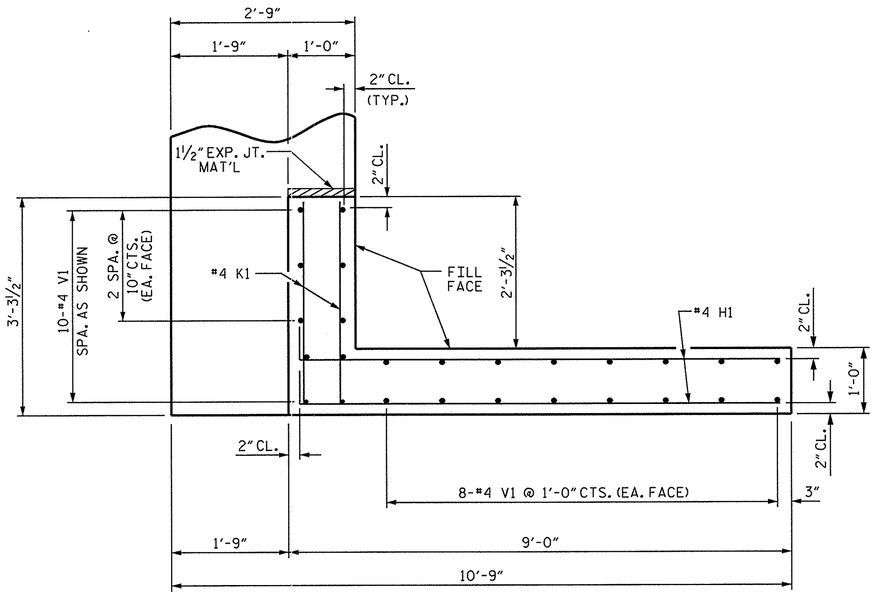
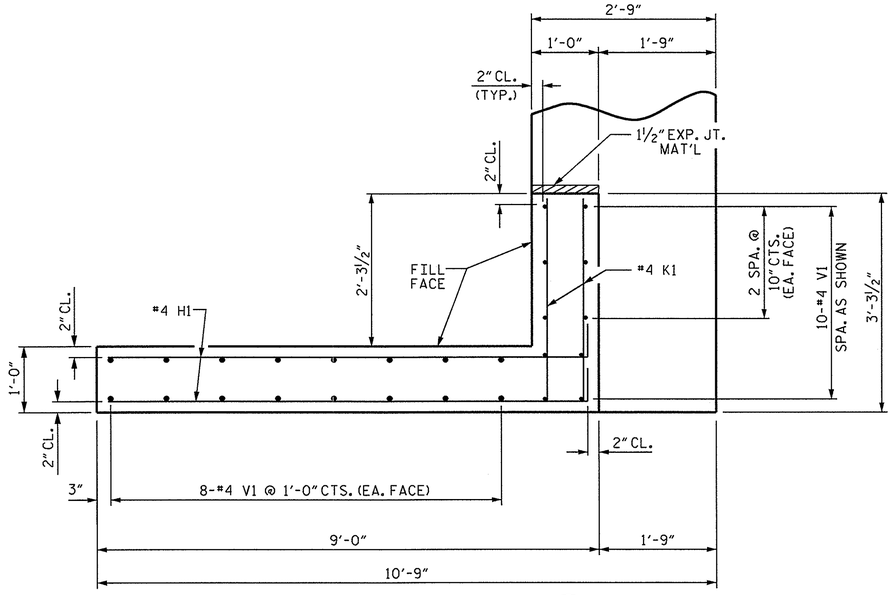
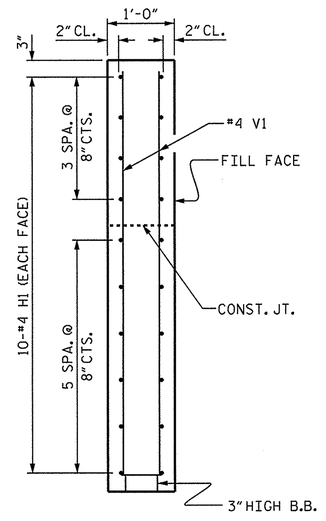


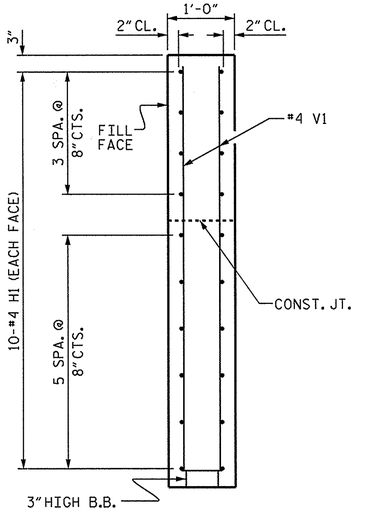
PLAN OF WING (W1)



PLAN OF WING (W2)

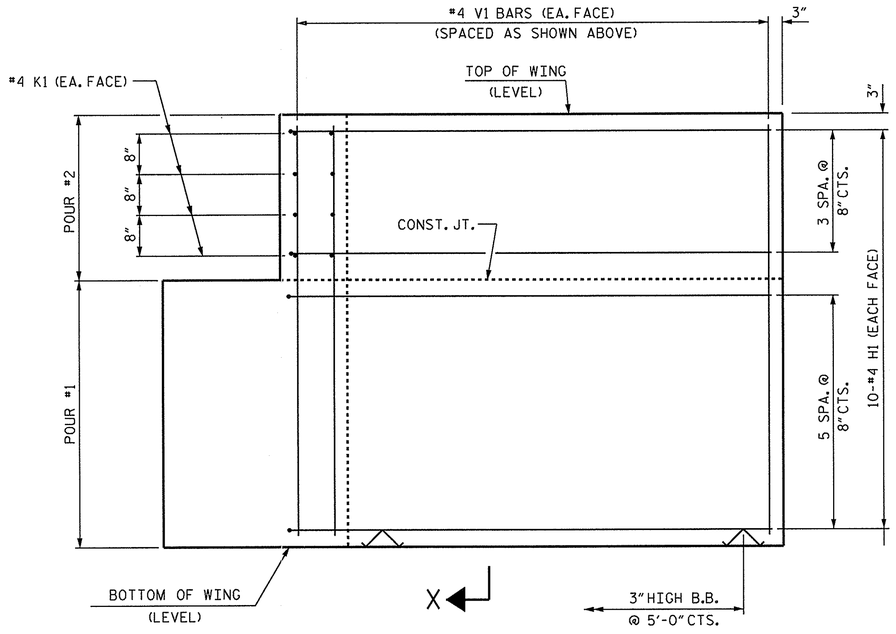


SECTION X-X

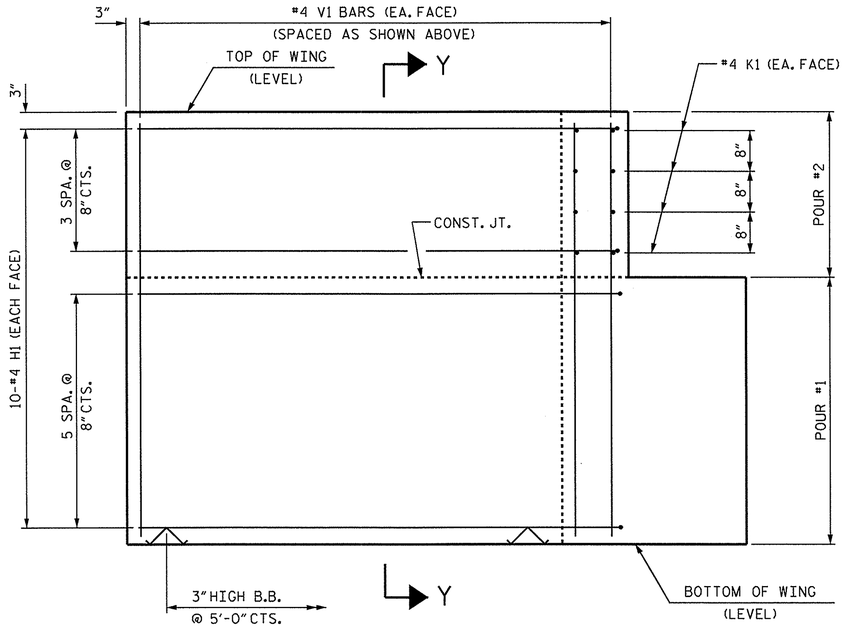


SECTION Y-Y

X



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL
3-28-13

PROJECT NO. B-4737
CRAVEN COUNTY
STATION: 27+43.50 -LREV-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 11-1-12
CHECKED BY : B.N. BARODAWALA DATE : 1-2-13
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

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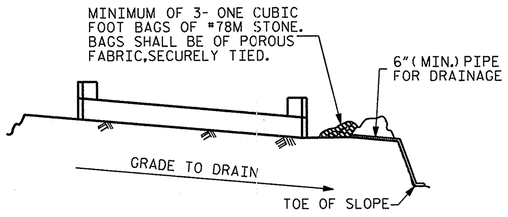
STD. NO. EB_27_90S4

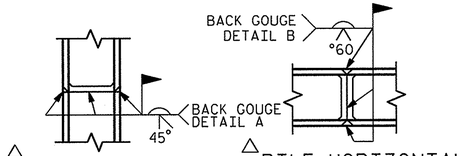


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

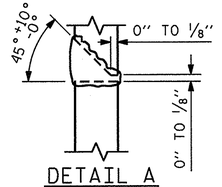
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

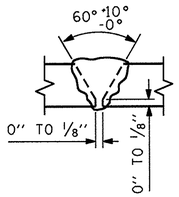


△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL



DETAIL A

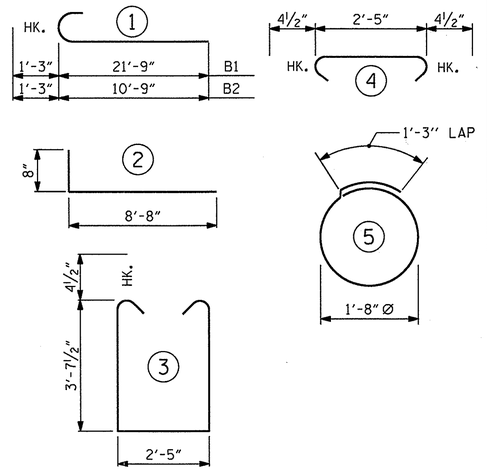


DETAIL B

△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT 1		
HP 12 X 53 STEEL PILES		
STAGE I	NO: 3	180 LIN. FT.
STAGE II	NO: 2	120 LIN. FT.
PILE REDRIVES		2 EA.

END BENT 2		
HP 12 X 53 STEEL PILES		
STAGE I	NO: 3	180 LIN. FT.
STAGE II	NO: 2	120 LIN. FT.
PILE REDRIVES		2 EA.

BILL OF MATERIAL FOR ONE END BENT (2 REQ'D)

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	23'-0"	626
B3	14	#4	STR	23'-5"	219
B5	6	#4	STR	2'-5"	10
D1	12	#6	STR	1'-6"	27
H1	20	#4	2	9'-4"	125
K1	8	#4	STR	2'-11"	16
S1	27	#4	3	10'-5"	188
S2	27	#4	4	3'-2"	57
S3	12	#4	5	6'-6"	52
V1	26	#4	STR	6'-2"	107

REINFORCING STEEL 1427 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	10.3 C.Y.
POUR #2	UPPER PART OF WINGS	1.1 C.Y.
	TOTAL	11.4 C.Y.

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	8	#9	1	12'-0"	326
B4	14	#4	STR	11'-8"	109
B5	3	#4	STR	2'-5"	5
D1	6	#6	STR	1'-6"	14
H1	20	#4	2	9'-4"	125
K1	8	#4	STR	2'-11"	16
S1	15	#4	3	10'-5"	104
S2	15	#4	4	3'-2"	32
S3	8	#4	5	6'-6"	35
V1	26	#4	STR	6'-2"	107

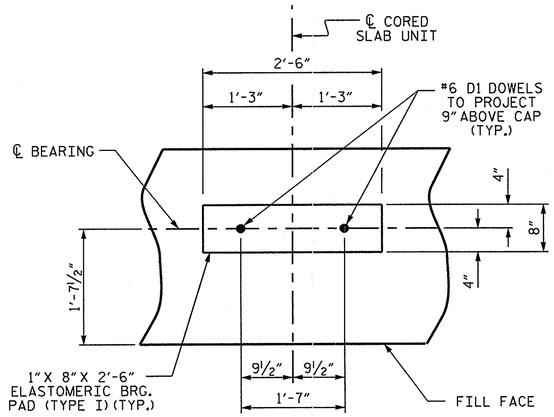
REINFORCING STEEL 873 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	6.4 C.Y.
POUR #2	UPPER PART OF WINGS	1.1 C.Y.
	TOTAL	7.5 C.Y.

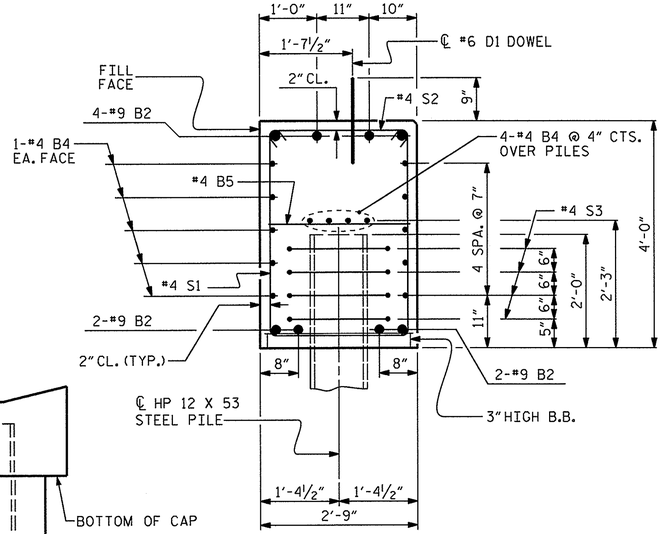
TOTAL BILL OF MATERIAL

REINFORCING STEEL	= 2300 LBS.
CLASS A CONCRETE TOTAL	= 18.9 CY.
HP 12 X 53 STEEL PILES NO: 5	= 300 LIN. FT.
PILE REDRIVES	= 2 EA.



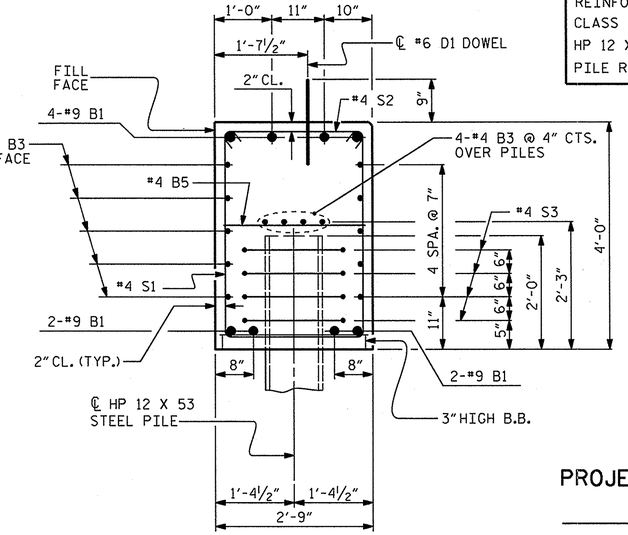
DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



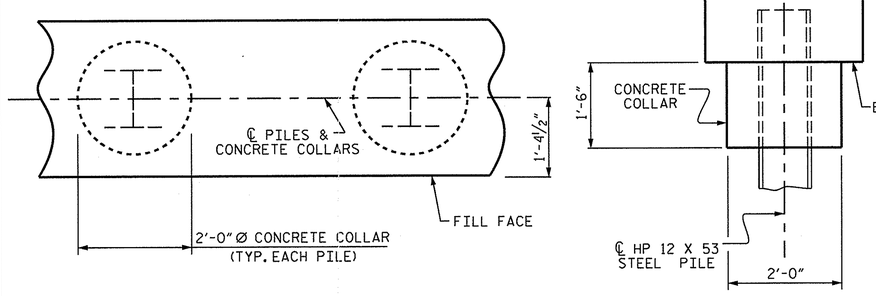
SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")
(STAGE II)



SECTION B-B

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")
(STAGE I)



PLAN

ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 & 2 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

3-28-13

DRAWN BY :	M.M. AHMED	DATE :	11-13-12
CHECKED BY :	B.N. BARODAWALA	DATE :	1-2-13
DESIGN ENGINEER OF RECORD:	A. K. PASCHAL	DATE :	3-25-13

27-MAR-2013 12:16
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ndaluto

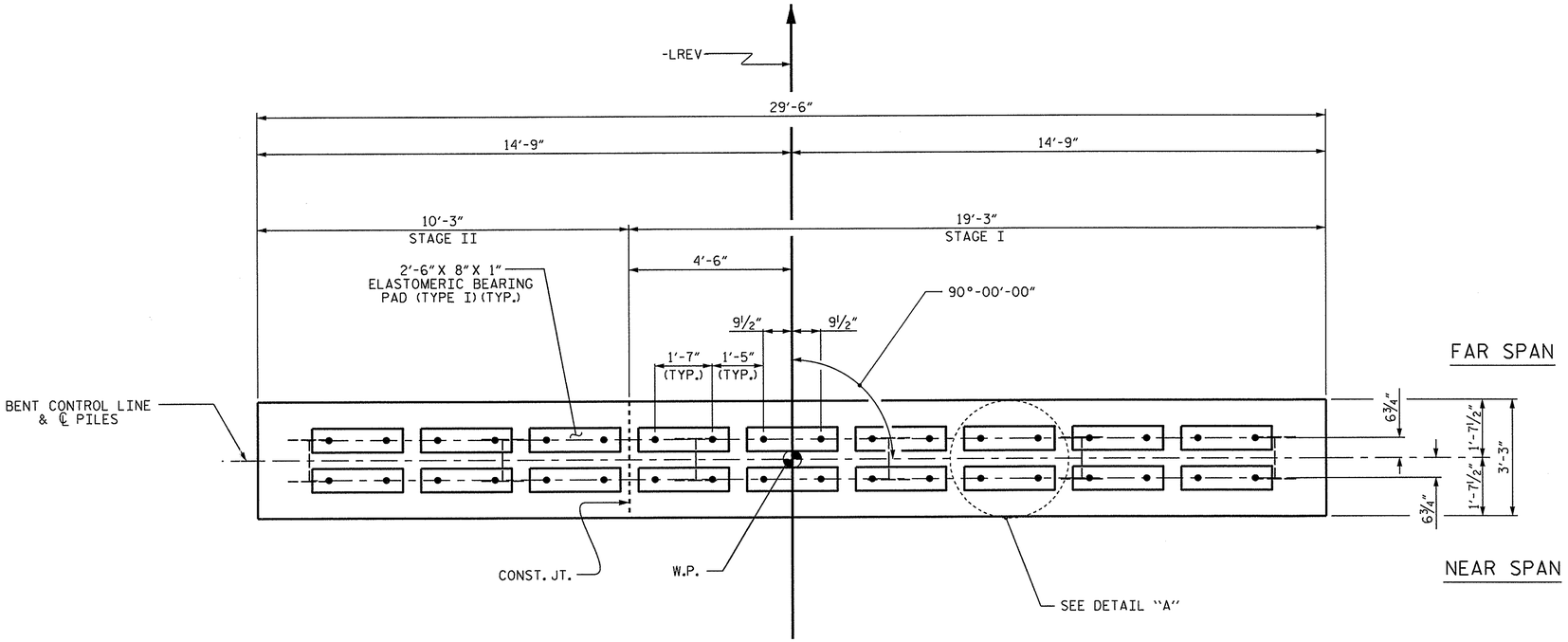
STD. NO. EB_27_90S4

NOTES

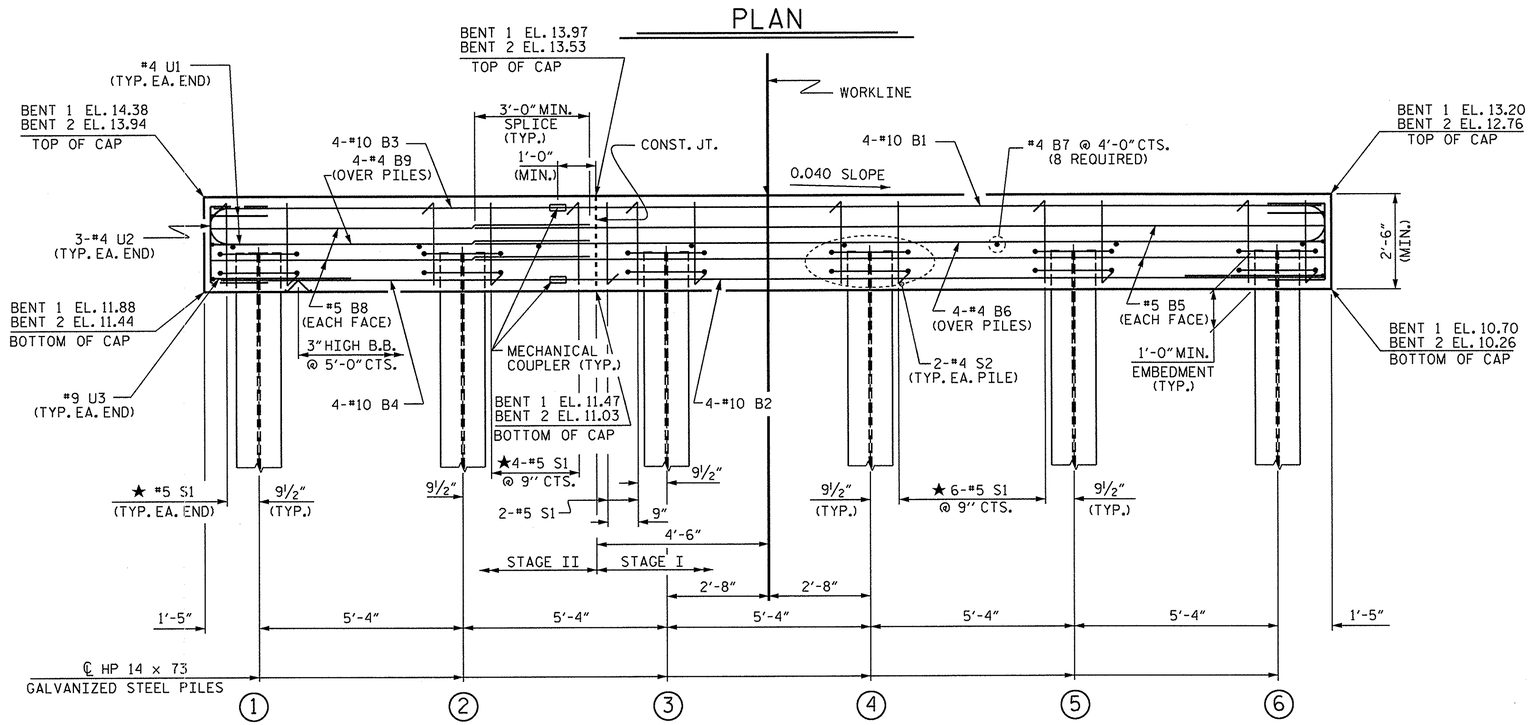
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

★ INVERT ALTERNATE STIRRUPS.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 41.50 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

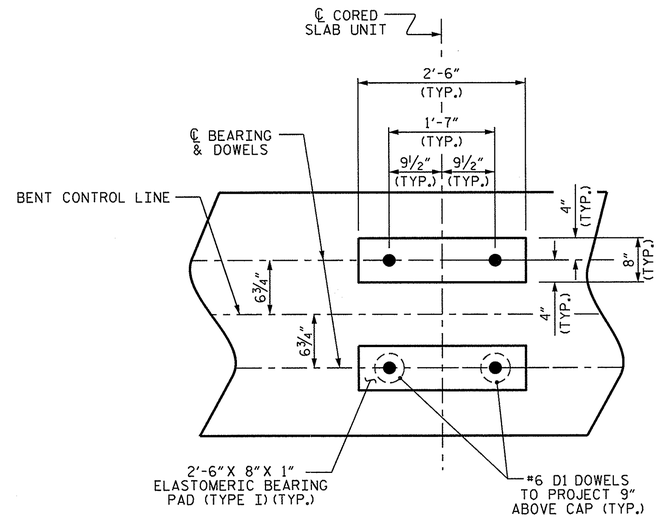


PLAN



ELEVATION

FOR CAP CROSSSECTION, SEE SHEET 2 OF 2



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

TOP OF PILE ELEVATIONS		
PILE	BENT 1	BENT 2
1	12.86	12.42
2	12.64	12.20
3	12.42	11.98
4	12.21	11.77
5	11.99	11.55
6	11.77	11.33

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 & 2

NORTH CAROLINA PROFESSIONAL SEAL 22004 ENGINEER A. KEITH PASCHAL

3-28-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 11-14-12
CHECKED BY : B.N. BARODAWALA DATE : 12-31-12
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

28-MAR-2013 10:06
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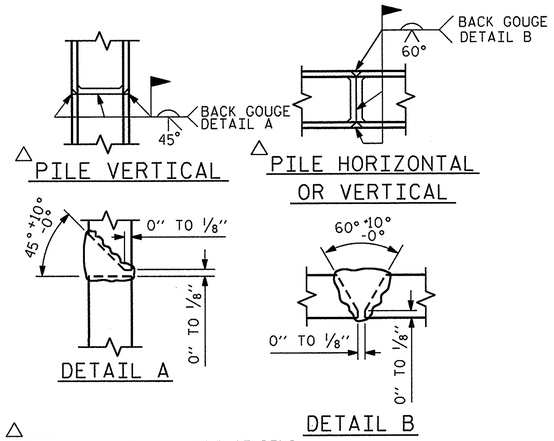
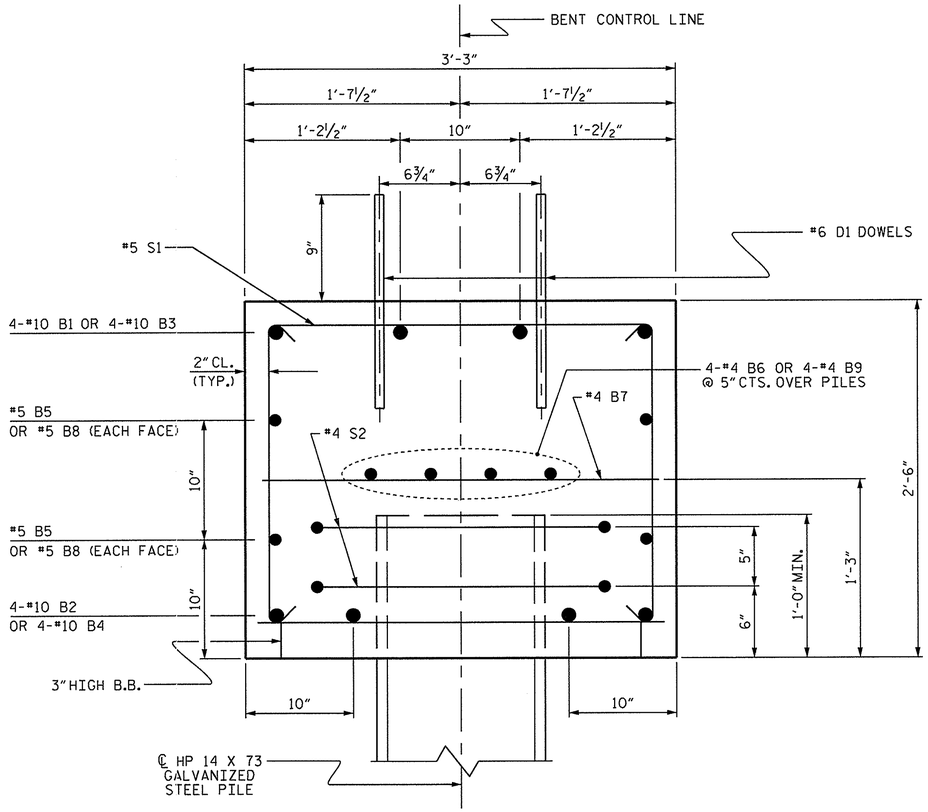
kpaschal

STD. NO. 14" HP_BT_27_90S_<60'

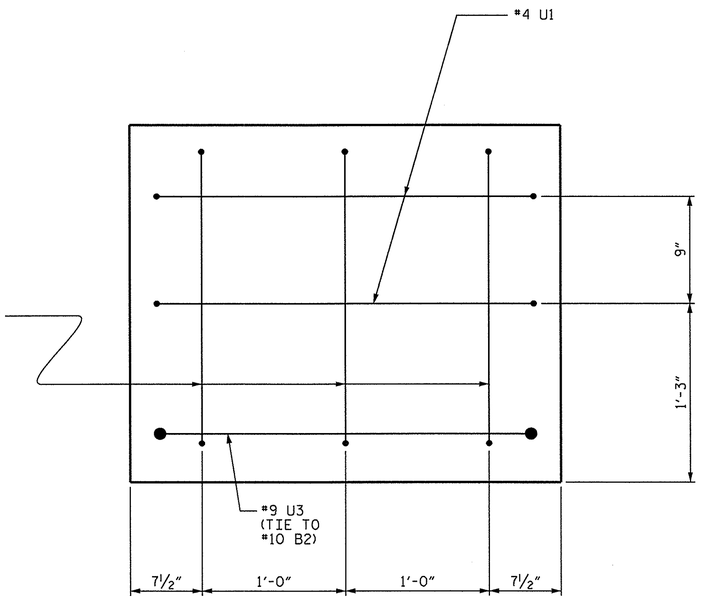


△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



SECTION THRU CAP



END OF CAP VIEW

(TYPICAL BOTH ENDS)

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE BENT (2 REQ'D)

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	21'-5"	369
B2	4	#10	STR	20'-1"	346
B5	4	#5	STR	22'-3"	93
B6	4	#4	STR	22'-3"	59
B7	5	#4	STR	2'-11"	10
D1	24	#6	STR	1'-6"	54
S1	21	#5	2	8'-1"	177
S2	8	#4	3	7'-7"	41
U1	2	#4	4	5'-10"	8
U2	3	#4	4	5'-0"	10
U3	1	#9	4	10'-1"	34

REINFORCING STEEL 1201 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 (CAP) 5.8 C.Y.

TOTAL CLASS A CONCRETE 5.8 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES (FOR STAGE I)

No. 4 280 LIN. FT.

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	4	#10	1	10'-5"	179
B4	4	#10	STR	9'-1"	156
B7	3	#4	STR	2'-11"	6
B8	4	#5	STR	9'-11"	41
B9	4	#4	STR	9'-11"	26
D1	12	#6	STR	1'-6"	27
S1	11	#5	2	8'-1"	93
S2	4	#4	3	7'-7"	20
U1	2	#4	4	5'-10"	8
U2	3	#4	4	5'-0"	10
U3	1	#9	4	10'-1"	34

REINFORCING STEEL 600 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1 (CAP) 3.1 C.Y.

TOTAL CLASS A CONCRETE 3.1 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES (FOR STAGE II)

No. 2 140 LIN. FT.

TOTAL BILL OF MATERIAL

REINFORCING STEEL	= 1801 LBS.
CLASS A CONCRETE TOTAL	= 8.9 CY.
HP 14 X 73 GALVANIZED STEEL PILES NO: 6	= 420 LIN. FT.
PILE REDRIVES	= 3 EA.
PREDRILLING FOR PILES	= 252 LIN. FT.

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENTS 1 & 2

NORTH CAROLINA PROFESSIONAL SEAL 22065 ENGINEER A. KEITH PASCHAL
3-28-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 11-14-12
CHECKED BY : B.N. BARODAWALA DATE : 12-31-12
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-25-13

28-MAR-2013 10:06
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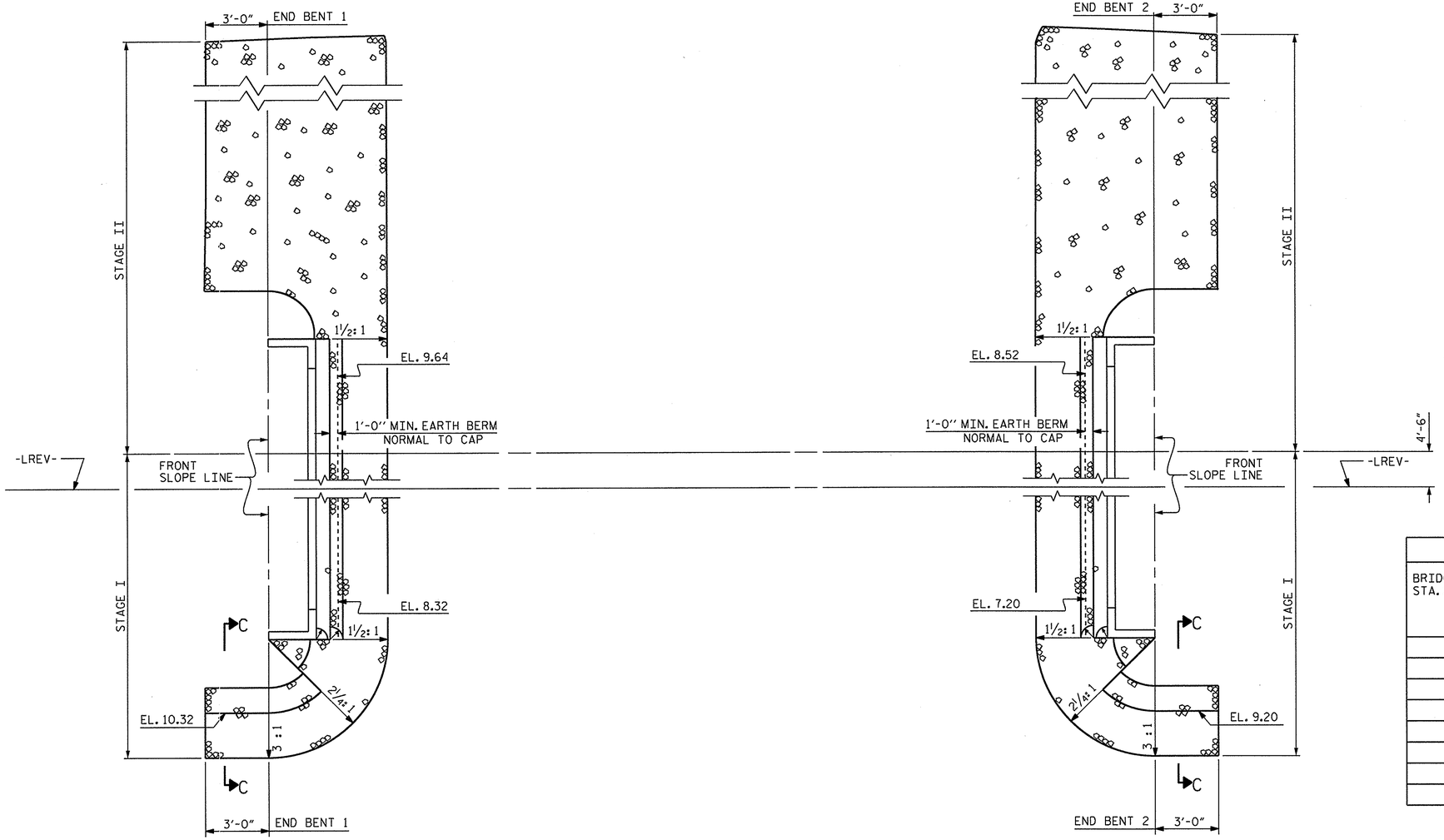
kpaschal

STD. NO. 14"HP_BT_27_90S_<60'



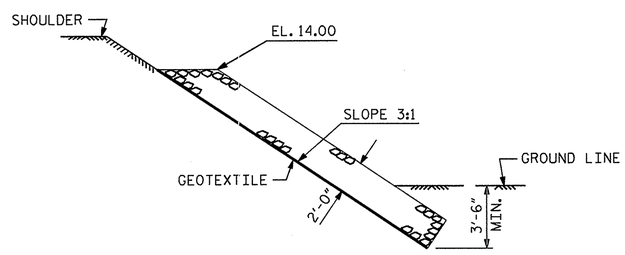
END BENT 1

END BENT 2

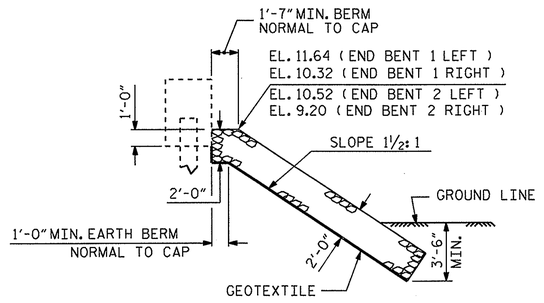
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES		
BRIDGE @ STA. 27+43.50 -LREV-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1		
STAGE I	51	56
STAGE II	90	100
TOTAL	141	156
END BENT 2		
STAGE I	51	56
STAGE II	86	96
TOTAL	137	152



SECTION C-C



℄ SECTION
BERM RIP RAPPED

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER A. KEITH PASCHAL

3-20-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : M.M. AHMED DATE : 11-2-12
CHECKED BY : B. BARODAWALA DATE : 1-3-12
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-26-13

27-MAR-2013 12:15
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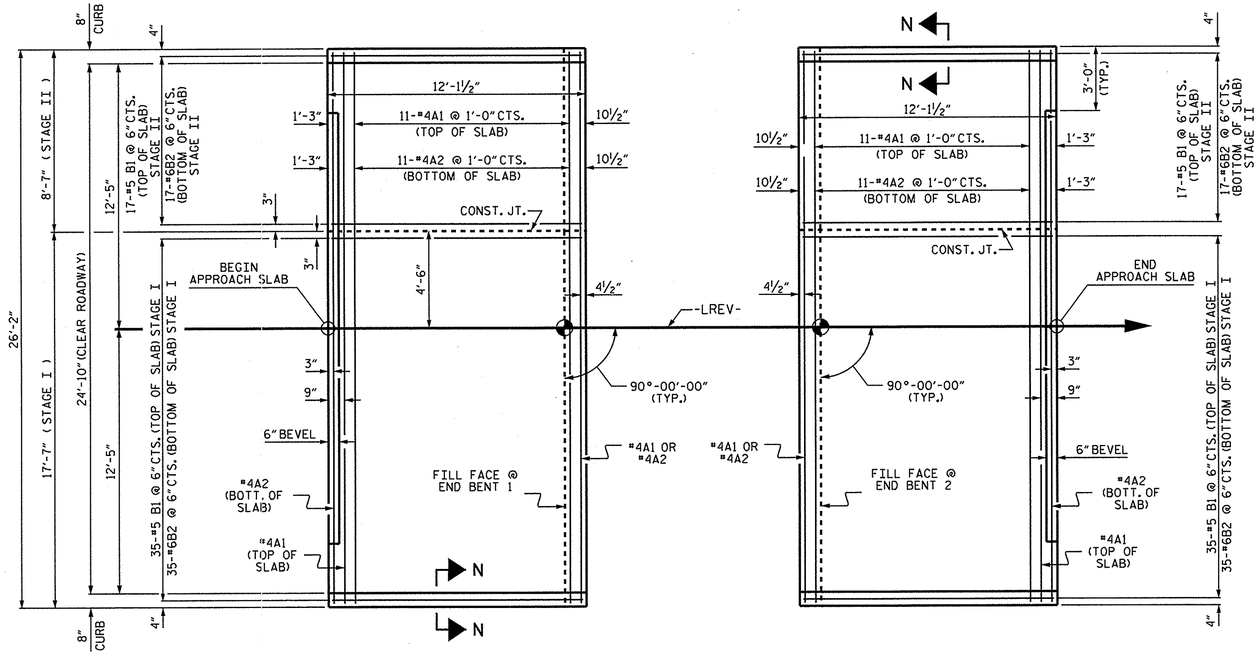
STD. NO. RR1 (Sht 2)



PLAN @ END BENT 1 PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

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.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

STAGE I

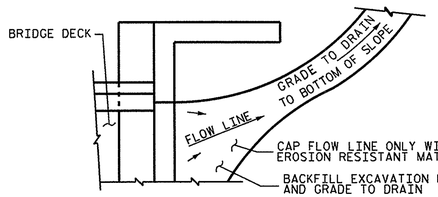
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	19'-7"	170
A2	13	#4	STR	19'-4"	168
* B1	35	#5	STR	11'-2"	408
B2	35	#6	STR	11'-8"	613
REINFORCING STEEL				LBS.	781
* EPOXY COATED REINFORCING STEEL				LBS.	578
CLASS AA CONCRETE				C.Y.	10.2

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	8'-3"	72
A2	13	#4	STR	8'-3"	72
* B1	17	#5	STR	11'-2"	198
B2	17	#6	STR	11'-8"	298
REINFORCING STEEL				LBS.	370
* EPOXY COATED REINFORCING STEEL				LBS.	270
CLASS AA CONCRETE				C.Y.	5.0

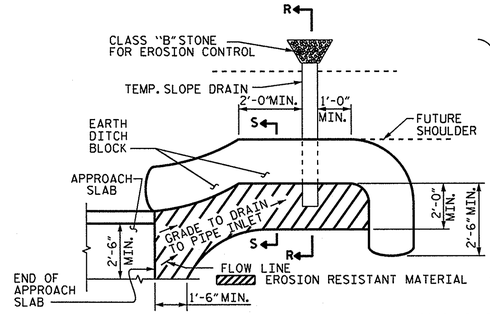
TOTAL BILL OF MATERIAL

TOTAL REINFORCING STEEL	= 1151 LBS.
TOTAL EPOXY COATED REINFORCING STEEL	= 848 LBS.
TOTAL CLASS AA CONCRETE	= 15.2 CY.



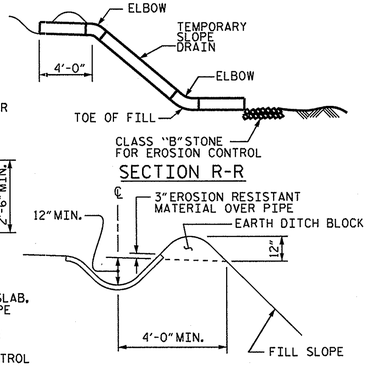
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



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.

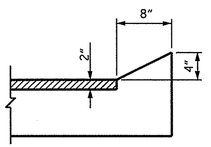
PLAN VIEW



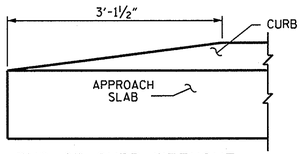
SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

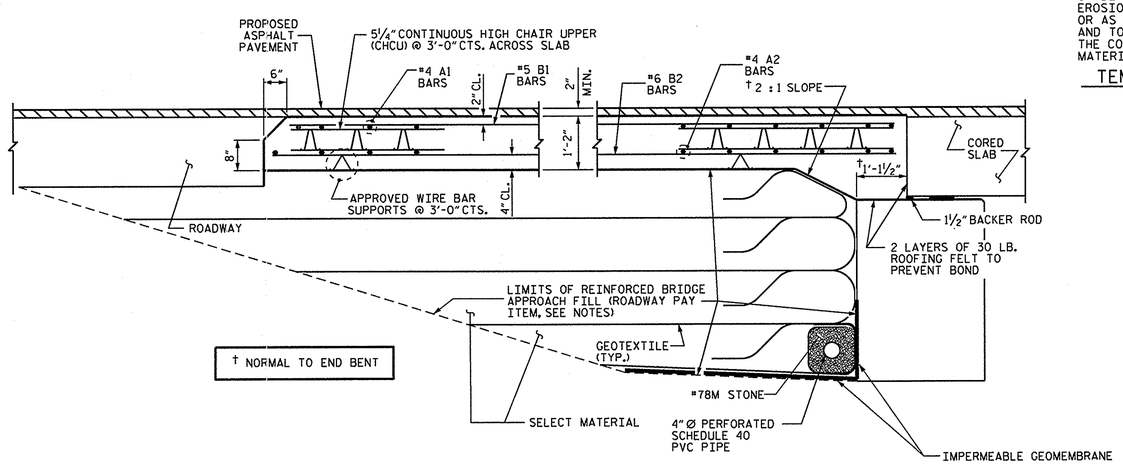


SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS



SECTION THRU SLAB

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

NORTH CAROLINA PROFESSIONAL SEAL 22005 ENGINEER KEITH PASCHAL

3.28.13

PROJECT NO. B-4737

CRAVEN COUNTY

STATION: 27+43.50 -LREV-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 90° SKEW

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

DRAWN BY : M.M. AHMED DATE : 11-16-12
CHECKED BY : B.N. BARODAWALA DATE : 1-3-12
DESIGN ENGINEER OF RECORD: A. K. PASCHAL DATE : 3-26-13

27-MAR-2013 12:15
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STD. NO. BAS_27_90S

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 2012 "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; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

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. 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.

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. FINS 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

REV. 6-16-95 EEM (c) RGW REV. 5-7-03 RWW (c) JTE REV. 10-1-11 MAA (c) GM
REV. 8-16-99 RWW (c) LES REV. 5-1-06 TLA (c) GM
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