ROWAN COUNTY (BRIDGE #210) NCMA-9403B

EXISTING BRIDGE #210
21'-4" CLEAR ROADWAY
SPANS: 1 @ 40'-6"
TIMBER FLOOR ON I-BEAMS
ABUTMENTS: MASS CONCRETE

BM #1:
RAILROAD SPIKE IN 12" OAK
53.2' LT. OF STA. 5+44.0 -BL-
35.90' LT. OF STA. 10+06.00 -L-
ELEV. = 724.54'

BM #2:
RAILROAD SPIKE IN 18" OAK
26.0' RT. OF STA. 8+55.0 -BL-
41.73' RT. OF STA. 13+18.39 -L-
ELEV. = 711.00'

HORIZONTAL CURVE DATA

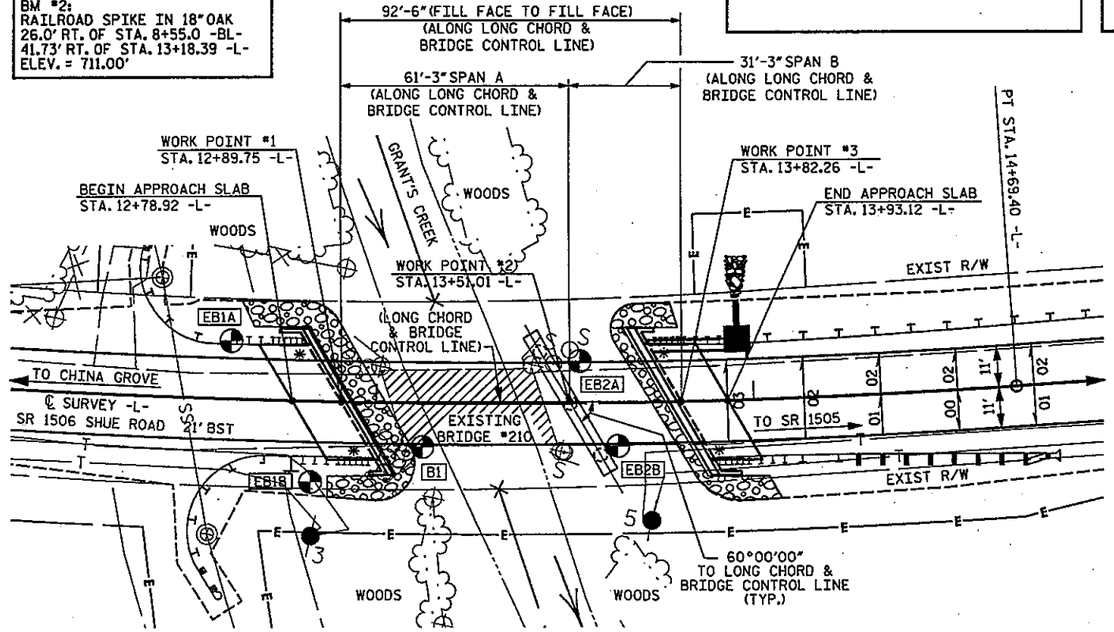
PI STA. 12+72.48 -L-
Δ = 11° 19' 10" (LT)
D= 2°51'53.2"
L = 395.12'
T = 198.21'
R = 2000.00'

HYDROGRAPHIC DATA:

DESIGN DISCHARGE -	1880 CFS
FREQUENCY OF DESIGN FLOOD -	10 YEAR
DESIGN HIGH WATER ELEVATION -	709.1
DRAINAGE AREA -	13.6 SQ. MI.
BASIC DISCHARGE (Q 100) -	3810 CFS
BASIC HIGH WATER ELEVATION -	713.3

OVERTOPPING FLOOD DATA:

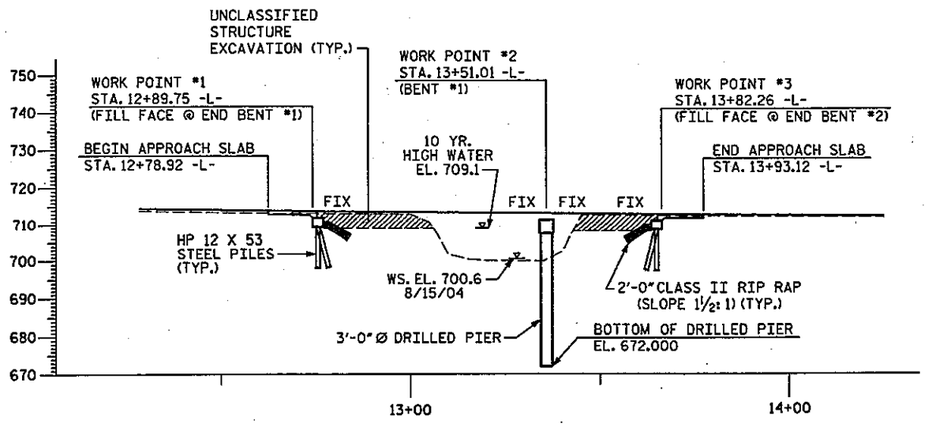
OVERTOPPING DISCHARGE -	3610 CFS
FREQUENCY OF OVERTOPPING FLOOD -	50 YEAR
OVERTOPPING FLOOD ELEVATION -	712.3



PLAN
SCALE : 1" = 20'

● DENOTES GEO-TECH BORE HOLE LOCATIONS.

* DENOTES GUARDRAIL CONNECTION REQ'D., SEE "GUARDRAIL ANCHOR UNIT" SHEET.



PROFILE ALONG ℄ SURVEY
SCALE : 1" = 20'

NOTES

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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 THE DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER 1995.

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

IN AS MUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1, OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+36.00".

WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

PILES FOR END BENT #1 AND END BENT #2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 45 TONS EACH.

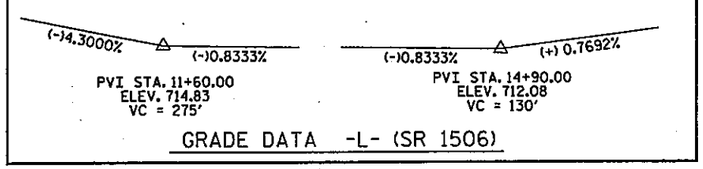
THE SCOUR CRITICAL ELEVATION FOR BENT #1 IS ELEVATION 682. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH FHWA'S TECHNICAL ADVISORY T5140.20 (SCOUR AT BRIDGES).

THE QUANTITY OF RIP RAP TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF TONS OF EACH CLASS OF RIP RAP WHICH HAS BEEN INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. THE RIP RAP WILL BE MEASURED BY BEING WEIGHED IN TRUCKS ON CERTIFIED PLATFORM SCALES OR OTHER CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON:

PLAIN RIP RAP CLASS II (2'-0" THICK) & FILTER FABRIC

END BENT #1	91 TONS & 130 SY FILTER FABRIC
END BENT #2	73 TONS & 107 SY FILTER FABRIC
TOTAL	164 TONS & 237 SY FILTER FABRIC



GRADE DATA -L- (SR 1506)

DRILLED PIER NOTES

THE DRILLED PIERS AT BENT #1 HAVE BEEN DESIGNED FOR TIP BEARING ONLY. THE REQUIRED TIP BEARING CAPACITY IS 25 TSF.

THE REQUIRED TIP BEARING CAPACITY AT BENT #1 SHALL BE VERIFIED.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT #1. IF REQUIRED, THE CASING SHALL NOT EXTEND BELOW ELEVATION 682 FT WITHOUT THE ENGINEER'S PERMISSION. THE NEED FOR PERMANENT STEEL CASING WILL BE DETERMINED BY THE ENGINEER.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF DRILLED PIERS AT BENT #1.

SID INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT #1.

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

NO SEPARATE PAYMENT SHALL BE MADE FOR ANY ADDITIONAL STEEL REQUIRED IN CONSTRUCTION OF THE DRILLED PIER AS THIS IS CONSIDERED INCIDENTAL TO THE LINEAR FOOT PRICE FOR DRILLED PIER.

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

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID I. SIMPSON JR.
12-16-09

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
(BRIDGE ON SR 1506 OVER GRANT'S CREEK)

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	1
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

12/16/2009 11:37:17 AM g:\projects\bmu\Rowan 210\Drawings\NCMA9403B_sd_gd_01.dgn

PROJECT REFERENCE		SHEET NO.
MA09403B	ROWAN #210	2
ROADWAY DESIGN ENGINEER		

Prepared in the Office of: GIBSON ENGINEERS, PC

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

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.

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.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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.

APPROXIMATE GUARDRAIL LENGTH

STATION	LOCATION	STATION	LOCATION	LENGTH
-L- 12+38.35 +/-	LT	-L- 12+80.67 +/-	LT	75'
-L- 12+59.52 +/-	RT	-L- 12+98.68 +/-	RT	87.5'
-L- 13+90.50 +/-	RT	-L- 14+78.00 +/-	RT	87.5'
-L- 13+73.88 +/-	LT	-L- 15+73.88 +/-	LT	200'
		SUBTOTAL		450'
		ANCHOR DEDUCTIONS		187.5'
		TOTAL		262.5'
		SAY		275'

ANCHOR DEDUCTIONS		
GRAU-350	2 X 50'	100'
AT-1	2 X 6.25'	12.5'
TYPE B-77	4 X 18.75'	75'
TOTAL ANCHOR DEDUCTIONS		187.5'

EFF. 07-18-06
REV. 01-02-07

2006 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 July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

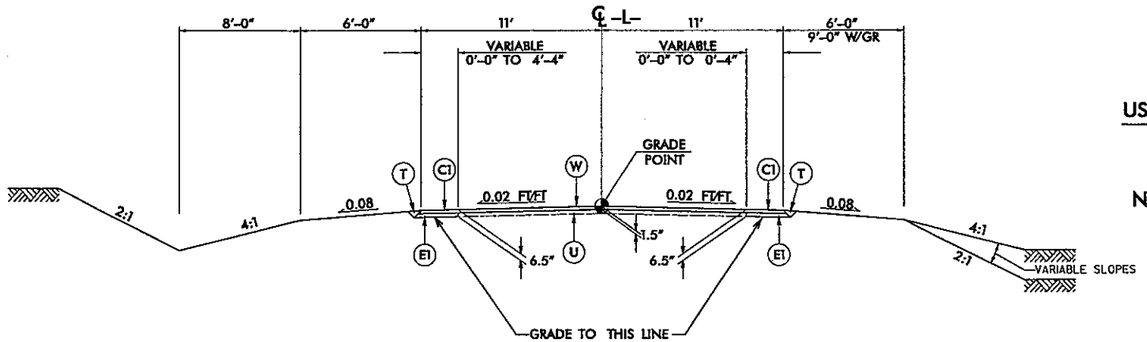
STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 4 - MAJOR STRUCTURES	
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	
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

bphillips
r:\roadway\Proj\ma09403b_rdy_sheet1a.dgn
5/21/2009 10:13:30 PM

ROWAN COUNTY (BRIDGE #210) MA 09403B

DESIGN DATA

ADT 2004 = 3800
ADT 2025 = 6900
* V = 45 MPH
* DESIGN EXCEPTION: FOR
SHOULDER WIDTH
BRIDGE WIDTH
LANE WIDTH
SUPERELEVATION



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1:
-L- STA 10+20.00 TO 12+89.75 (BEG. BRIDGE)
-L- STA 13+82.26 (END BRIDGE) TO 15+55.00

NOTE: FOR VARIABLE SLOPES SEE CROSS SECTIONS.
SEE PLANS FOR TAPERS.

PROJECT REFERENCE	SHEET NO.
MA09403B ROWAN #210	3

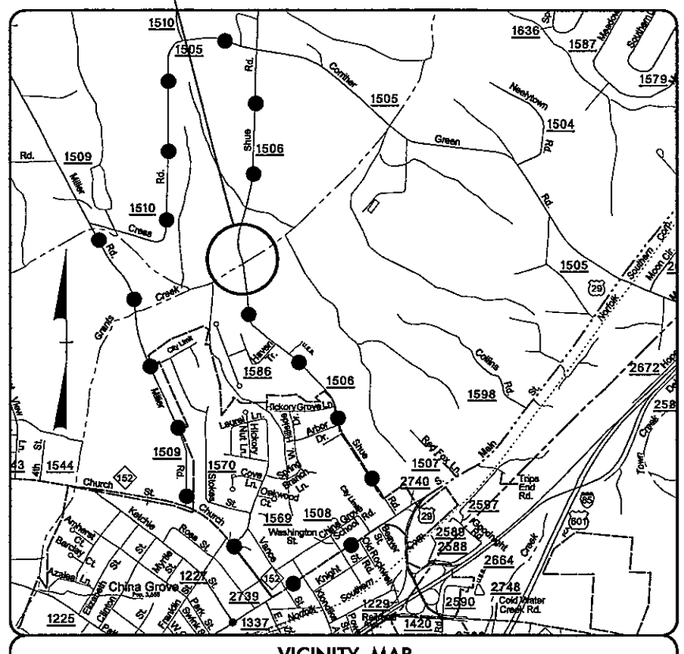
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27291 ENGINEER MICHAEL PENTREATH 3/5/05

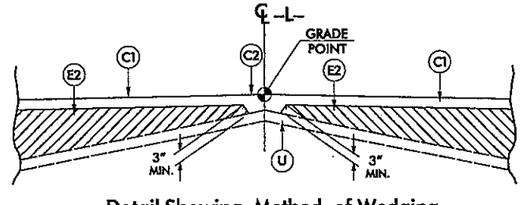
NORTH CAROLINA PROFESSIONAL SEAL 023510 ENGINEER JOHN FERGUSON 4/14/06

Prepared in the Office of: GIBSON ENGINEERS, PC

BRIDGE LOCATION FOR MA09403B



VICINITY MAP
OFFSITE DETOUR ROUTE



Detail Showing Method of Wedging

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING)

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

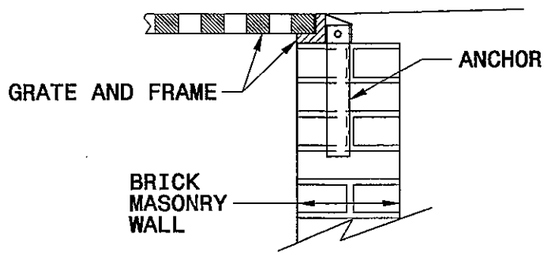
8/1/2005 10:16:06 AM

PROJECT REFERENCE NO.		SHEET NO.
MA090403B	ROWAN210	4

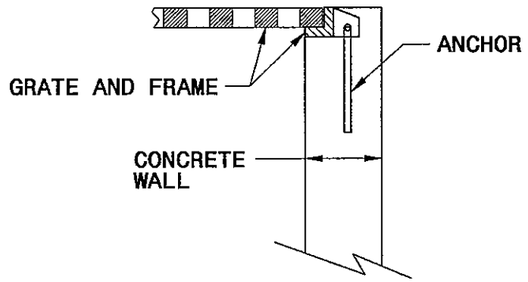
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

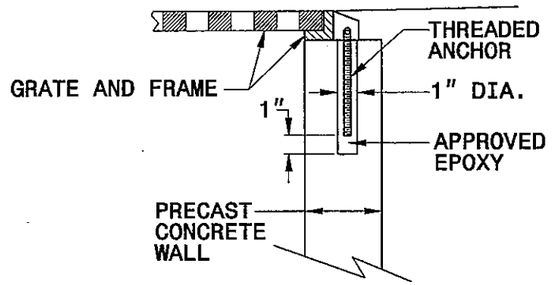
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



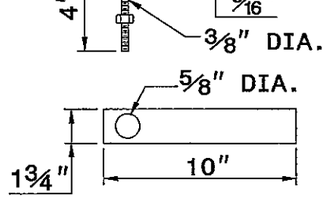
CONCRETE CONSTRUCTION



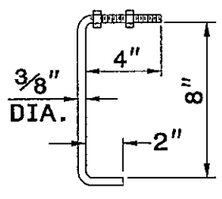
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

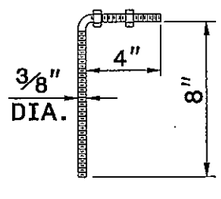
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



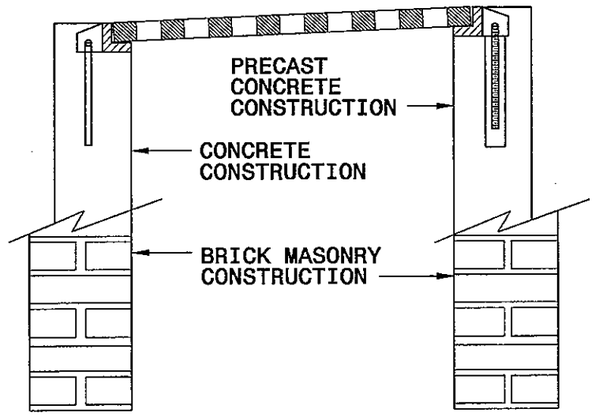
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

27-SEP-2006 08:59
C:\Projects\Standards\Special Details\ericward\stds\06' Stds to Special Details\840D25 Anchorage for Frames\840d25.dgn
ericward
Plotted At 1:1

* DESIGN EXCEPTION: FOR
SHOULDER WIDTH
BRIDGE WIDTH
LANE WIDTH
SUPERELEVATION

PROJECT REFERENCE	SHEET NO.
MA094038 ROWAN #210	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27391 ENGINEER MICHAEL PEKARIK
8/5/05

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 023510 ENGINEER JOSEPH A. FERGUSON
4/14/06

Prepared in the Office of: GIBSON ENGINEERS, PC

VERTICAL SCALE 5' 0 5' 10'
HORIZONTAL SCALE 25' 0 25' 50'

NAD 83

-L-
PI Sta 12+72.48
Δ = 11° 19' 10.0" (LT)
D = 2° 51' 53.2"
L = 395.12'
T = 198.21'
R = 2,000.00'
SE = SEE PLANS

-BL-2 8+28.68 PINC
-L- 12+91.26 OFF 17.00'

-L- POT STA. 15+79.46
END PROJECT MA09403B

PT Sta. 14+69.40

POT Sta. 10+00.00

-BL-1 5+00.00 PINC

DAVID L BELK
DB 851 PG 943

JOHN ALAN GOODMAN
DARLENE E GOODMAN
DB 915 PG 655

-L- STA 13+73
BEGIN SHOULDER
BERM GUTTER

ENERGY
DISSAPATOR
10 TONS CL
'B' RIPRAP &
28 SY FF

-L- STA 13+98
END SHOULDER
BERM GUTTER

50' TAPER
INC=20.25'

2GI, FLAT GRATE

15" RCP

GRAU 350

N 16° 29' 42.0" W
SHUE ROAD SR1506

-BL-3 11+78.60 PINC

425.24'
N2°48'08"E

BM #1
-BL- STA 5+44
53.2' LEFT
ELEV. 724.54'

50' TAPER
INC=20.25'

N 10° 32.0" W

RADIUS=2035'

15" RCP
RETAIN
RELAY

ENERGY
DISSAPATOR
10 TONS CL
'B' RIPRAP &
28 SY FF

PCSta. 10+74.27

-L- POT STA. 10+20.00
BEGIN PROJECT MA09403B

CHARLOTTE PATRICIA
MISHAK HARKEY
DB 947 PG 062

BM #2
-BL- STA 8+55
26.0' RIGHT
ELEV. 711.00

END APPROACH SLAB
-L- POCSta. 13+93.12

END BRIDGE
-L- POCSta. 13+82.26

BEG BRIDGE
-L- POCSta. 12+89.75

BEG APPROACH SLAB
-L- POCSta. 12+78.92

JOSEPH H KEENER
DB 934 PG 955

S25°04'05"E
74.55'

-L- POT STA. 15+55.00
END GRADE MA09403B

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-4" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 674544.2740(ft) EASTING: 1531226.5730(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .99997049
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-4" TO -L- STATION 10+00.00 IS S 7° 35' 18.58" E 97.32'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 88

BENCH MARKS
BM 1: R/R SPIKE SET IN 12" OAK
N= 673582.3 E= 1531318.8
-BL- STA. 5+44 LEFT 53.2'
-L- STA. 10+06.00 LEFT 35.90'
ELEV. = 724.54'

BM 2: R.R SPIKE SET IN 18" OAK
N= 673903.5 E= 1531352.4
-BL- STA. 8+55 RIGHT 26.0'
-L- STA. 13+18.39 RIGHT 41.73'
ELEV.= 711.00'

-L-

730
720
710
700
690

PI = 11+60.00
EL = 714.83'
VC = 275'
K = 79

PI = 14+90.00
EL = 712.08'
VC = 130'
K = 81

(-)4.3000%
(-)0.8333%
(-)0.8333%
(+)0.7692%

BEGIN GRADE
STA. = 10+20.00
EL = 720.85

END GRADE
STA. = 15+55.00
EL. = 712.58

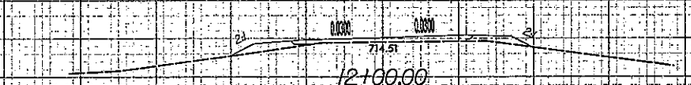
10 11 12 13 14 15

BRIDGE HYDRAULIC DATA

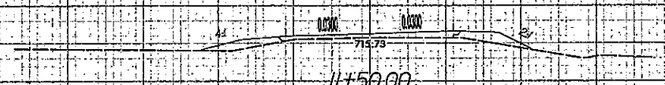
DESIGN DISCHARGE	= 1880 CFS
DESIGN FREQUENCY	= 10 YRS
DESIGN HW ELEVATION	= 709.1 FT
BASE DISCHARGE	= 3810 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 713.3 FT
OVERTOPPING DISCHARGE	= 3610 CFS
OVERTOPPING FREQUENCY	= 50 YRS
OVERTOPPING ELEVATION	= 712.3 FT
DATE OF SURVEY	= 8/15/2004
W.S. ELEVATION AT DATE OF SURVEY	= 655.23 FT

8/1/2005
4:43:51 PM
r:\roadway\proj\ma09403b_rdy_psh.dgn
bchilders

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	MA-09403B	6
	ROWAN 210	

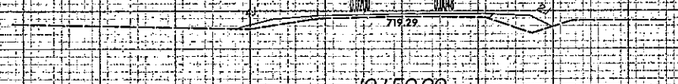


12+00.00

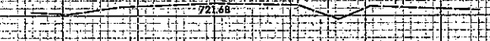


11+50.00

11+00.00



10+50.00

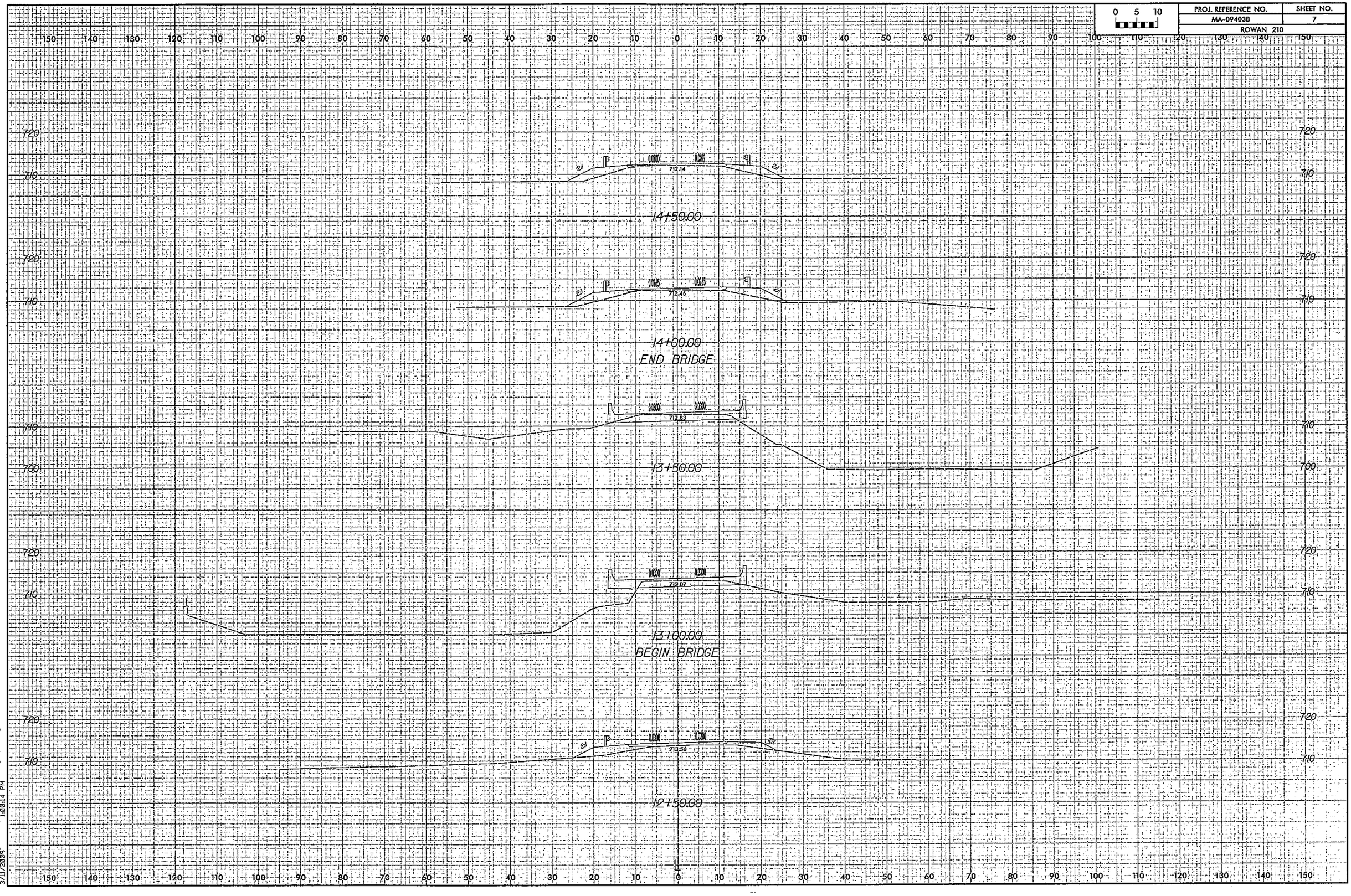


10+00.00

Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the contract lump sum price for "Grading".

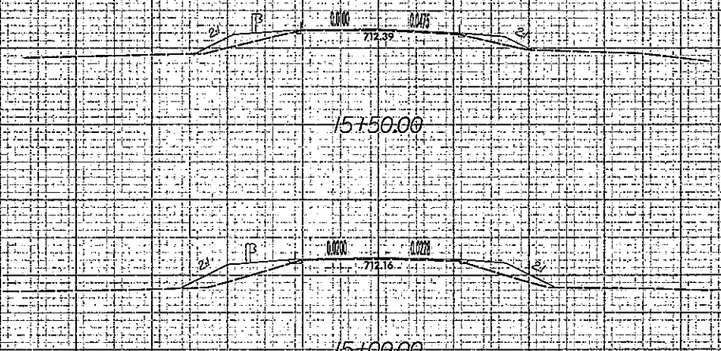
bphillips
F:\roadwgu\Xse\Xp1\mm8940 3b_rdy_xp1_1.dgn
3/11/2009
12:55:15 PM

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	MA-09403B	7
	ROWAN 210	

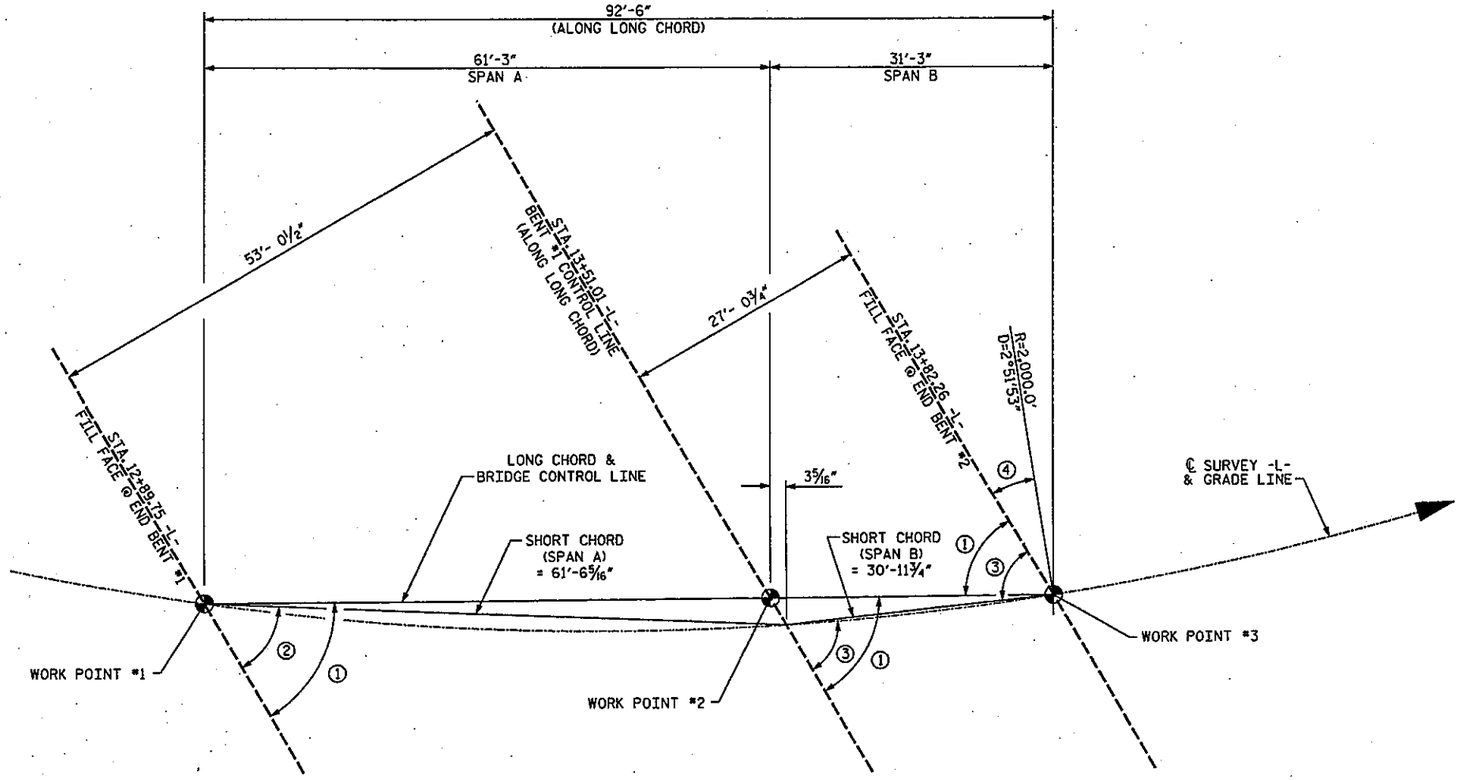


bphillips
r:\roadway\xsc\xpl\ma09403b_rdy_xpl_1.dgn
3/11/2005
1:20:14 PM

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	MA-094038	8
	ROWAN 210	



bphillips
P:\roadway\Xsc\Xpl\ma094038_rdy_xpl_1.dgn
3/12/2009
1:08:17 PM



LONG CHORD LAYOUT

(BENT & END BENTS ARE PARALLEL)

NOTE: WORK POINT #2 IS ON LONG CHORD, NOT ON ℄ SURVEY.

ANGLES

① 60°00'00"
② 59°33'23"
③ 60°52'53"
④ 28°40'30"

-L- HORIZONTAL CURVE DATA

PI = 12+72.48 -L-
Δ = 11°19'10.0" LT.
D = 2°51'53.2"
L = 395.12'
T = 198.21'
R = 2000.0'

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID A. SIMPSON III
12-16-09

PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

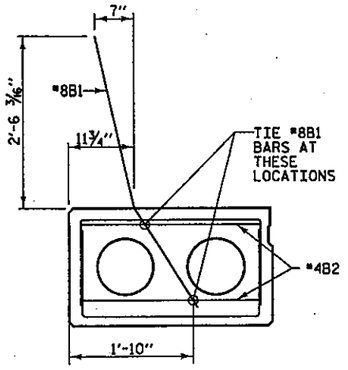
LONG CHORD LAYOUT

30' CLEAR ROADWAY - 60° SKEW

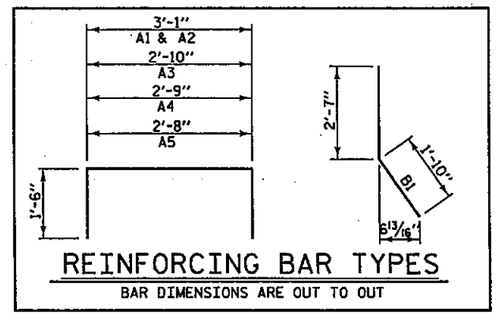
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:12:03 PM g:\projects\bmu\Rowan 210\Drawings\WCMA84038.sd_lc_01.dgn



TIE LOCATION FOR #8B1

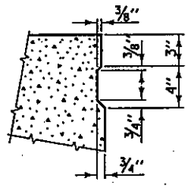


REINFORCING BAR TYPES

BAR DIMENSIONS ARE OUT TO OUT

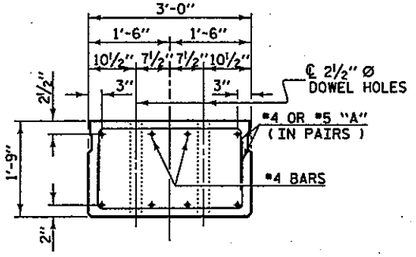
SHEATH CHART		
SPAN LENGTH	NUMBER OF SHEATHED STRANDS PER EXTERIOR SLAB SECTIONS	NUMBER OF SHEATHED STRANDS PER INTERIOR SLAB SECTIONS
*60'	6	6
30'	0	0

*BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 5'-0" FROM END OF SLAB



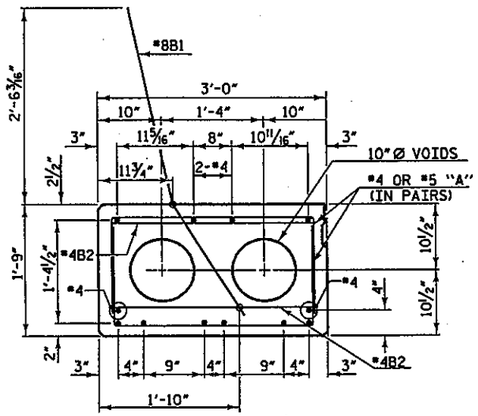
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE OF EXTERIOR CORED SLAB



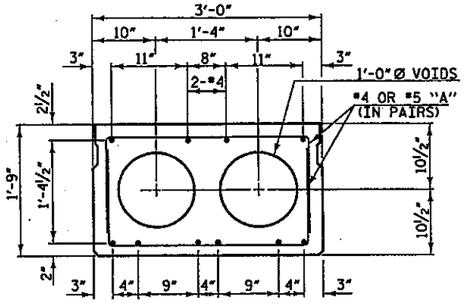
SLAB END ELEVATION

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT, SEE SPECIAL PROVISIONS.



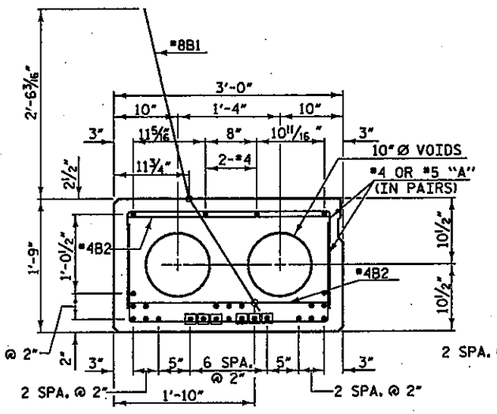
30' SPAN

8 - 6/10" Ø H.S. STRANDS
EXTERIOR SLAB SECTIONS



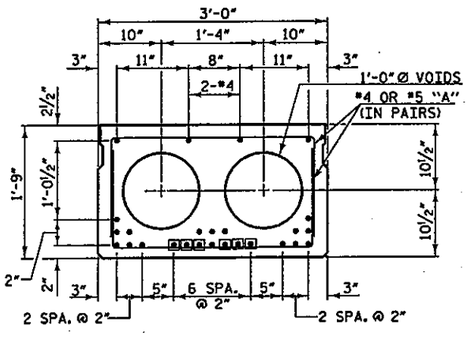
30' SPAN

8 - 6/10" Ø H.S. STRANDS
INTERIOR SLAB SECTIONS



60' SPAN

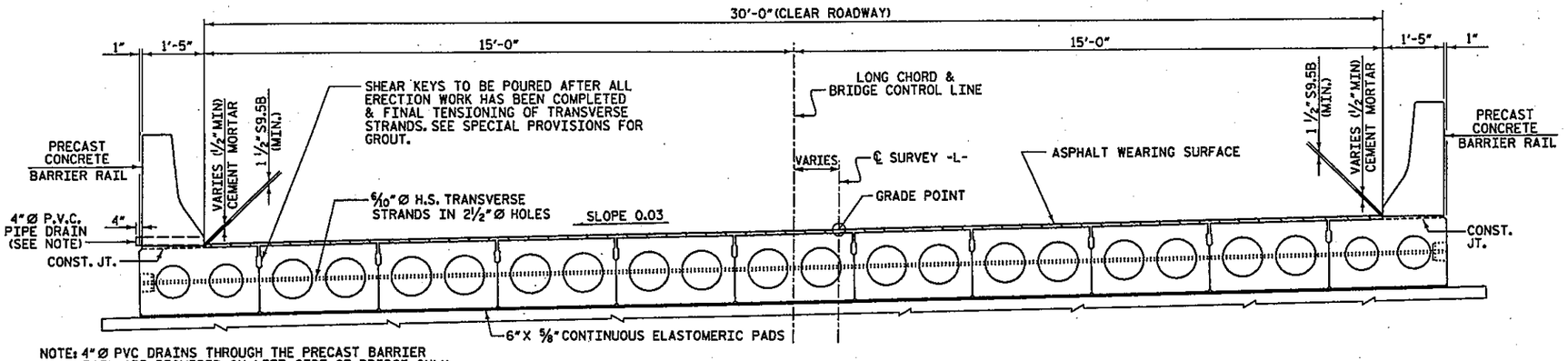
24 - 6/10" Ø H.S. STRANDS
EXTERIOR SLAB SECTIONS



60' SPAN

24 - 6/10" Ø H.S. STRANDS
INTERIOR SLAB SECTIONS

Ⓓ DENOTES SHEATHED STRAND (SEE SHEATH CHART)



NOTE: 4" Ø PVC DRAINS THROUGH THE PRECAST BARRIER RAIL ARE REQUIRED ON LEFT SIDE OF BRIDGE ONLY. NO DECK DRAINS OVER OPEN WATER, SPAN A.

TYPICAL SECTION

GENERAL NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS-25.

CONCRETE = f'c - 5000psi 30' SPAN ONLY (MIN. COMP. STRENGTH @ 28 DAYS),
f'ci - 4000psi 30' SPAN ONLY (MIN. COMP. STRENGTH @ TRANSFER OF STRESSING FORCE).

CONCRETE = f'c - 7000psi 60' SPAN ONLY (MIN. COMP. STRENGTH @ 28 DAYS),
f'ci - 6000psi 60' SPAN ONLY (MIN. COMP. STRENGTH @ TRANSFER OF STRESSING FORCE).

ALL PRESTRESSING STRANDS SHALL MEET THE REQUIREMENTS OF ASTM A416.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE HIGH STRENGTH CABLES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

SIZE	TYPE	AREA	ULTIMATE STR.	APPLIED FORCE
6/10" Ø	HIGH STR.	0.217 SQ. IN. PER CABLE	58,590 LBS.	43,940 LBS. PER CABLE

EXP. JT. MAT'L. SHALL MEET THE REQUIREMENTS OF AASHTO SPECIFICATION M153 TYPE I, II, OR III.

JOINT SEALER SHALL BE LOW MODULUS SILICONE SEALANT. SEE SECTION 1028-4 OF THE STANDARD SPECIFICATIONS.

STRUCTURAL STEEL ITEMS SHALL BE OF A GRADE CONFORMING TO EITHER ASTM A36 OR A373, EXCEPT HIGH STRENGTH BOLTS. HIGH STRENGTH BOLTS SHALL BE ASTM A325. ALL STRUCTURAL STEEL SHALL BE GALVANIZED AS PER THE SPECIFICATION.

ALL MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OF THE NC DEPARTMENT OF TRANSPORTATION DATED JANUARY 2002 AND WITH THE SPECIAL PROVISIONS.

THE CONTRACTOR, AT HIS OPTION, MAY USE STRESS RELIEVED STRANDS IN LIEU OF LOW RELAXATION STRANDS. DESIGN AND STRAND PATTERN MUST PROVIDE AT LEAST THE SAME NET COMPRESSIVE STRESS AFTER THE LOSSES.

THE ULTIMATE STRENGTH OF THE CORED SLAB UNIT MUST MEET THE REQUIREMENTS OF THE APPLICABLE AASHTO SPECIFICATIONS. STRESS RELIEVED STRANDS SHALL BE TENSIONED AND ANCHORED AT A LOAD EQUAL TO 70% OF ITS ULTIMATE STRENGTH. THIS APPLIED PRESTRESSED FORCE SHALL BE SHOWN ON THE PLANS. SIZE OF STRESS RELIEVED STRANDS SHALL NOT BE SMALLER THAN THOSE SHOWN FOR LOW RELAXATION STRANDS. DESIGN AND DETAIL PLANS USING STRESS RELIEVED STRANDS MUST BE SUBMITTED TO THE ENGINEER. ANY ADDITIONAL COST DUE TO THE USE OF STRESS RELIEVED STRANDS WILL BE PAID FOR BY THE CONTRACTOR. STRANDS SHALL BE CUT FLUSH WITH THE ENDS OF THE SLABS AND EPOXY COATED. SEE SPECIAL PROVISIONS.

A POSITIVE HOLD-DOWN SYSTEM MUST BE EMPLOYED TO PREVENT VOIDS FROM RISING.

SPIRAL WIRE REINFORCEMENT MAY BE USED IN LIEU OF DEFORMED BARS FOR STIRRUPS. (MIN. W3.5 x 6" PITCH).

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾".

FOR DEFLECTION TABLE, SEE "PRECAST CONCRETE BARRIER RAIL SECTIONS" SHEET.

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID A. SIMPSON
12-16-09

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

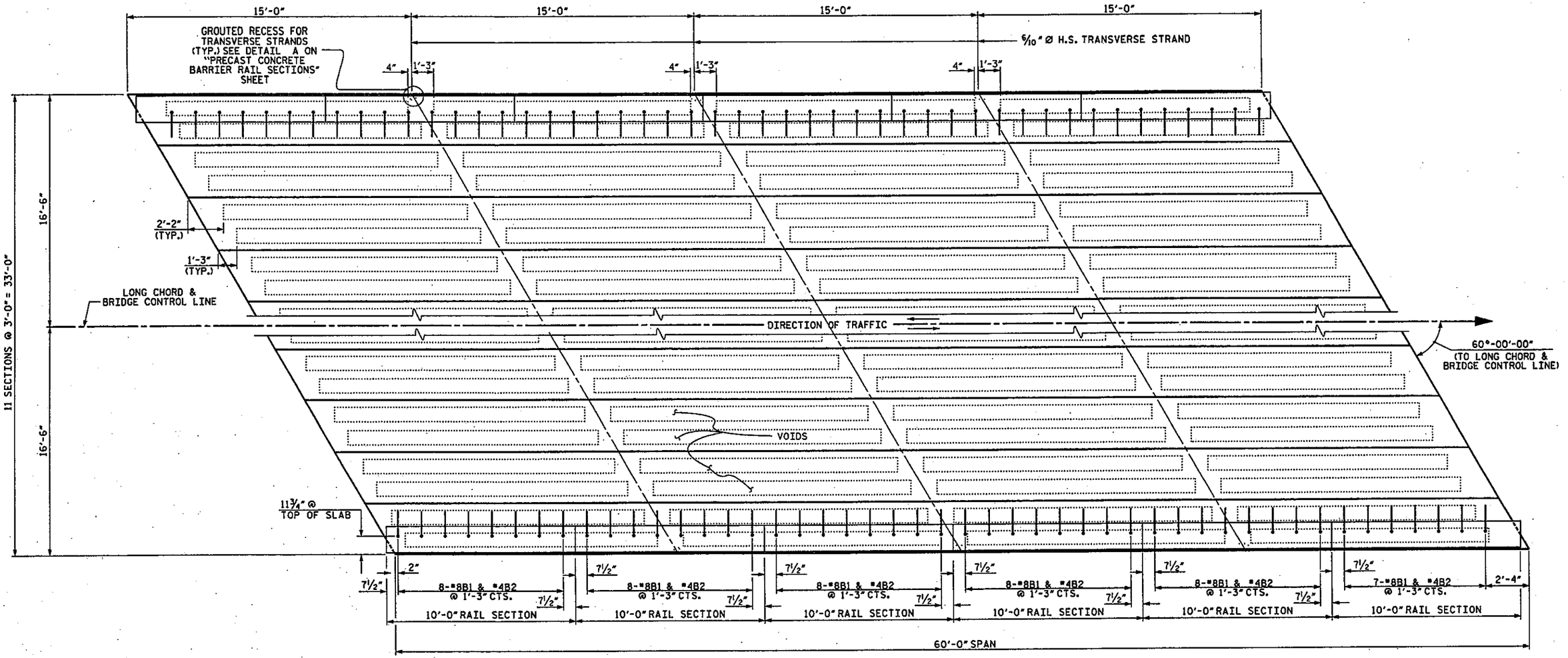
WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
PRESTRESSED CORED SLAB DETAILS 60' & 30' SPANS
30' CLEAR ROADWAY - 60° SKEW

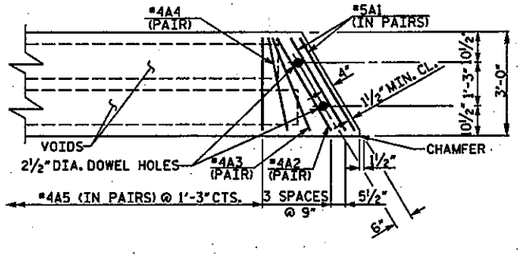
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	10
1	MAA	12/22/04	3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

12/16/2009 11:37:16 AM g:\projects\bmu\Rowan 210\Drawings\NCMA5403R_sd_ts_01.dgn



PLAN OF SPAN



PART PLAN - SLAB SECTION

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

NORTH CAROLINA PROFESSIONAL SEAL 19837 ENGINEER DAVID B. SIMPSON JR.
12-16-09

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210

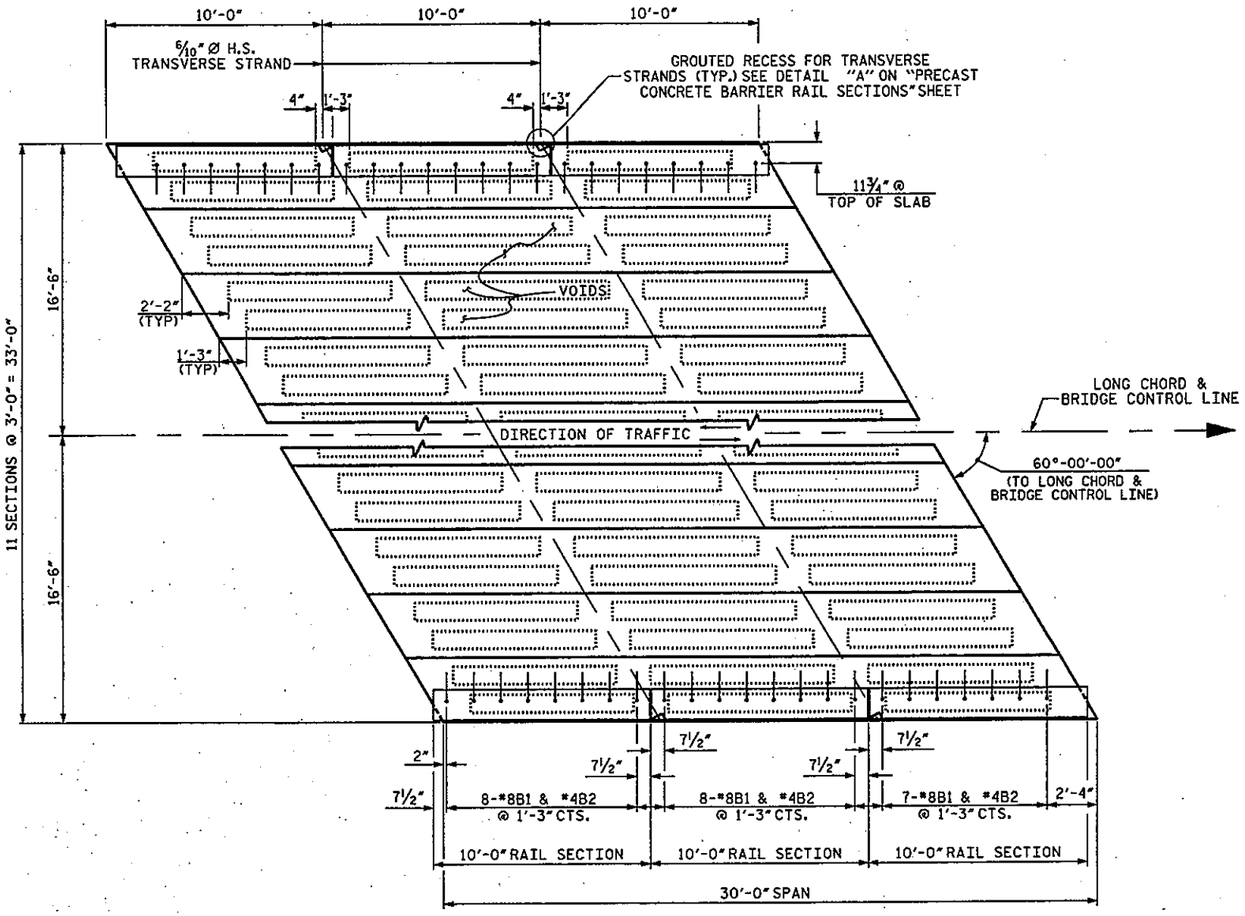
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

PRESTRESSED CORED SLAB 60' SPAN

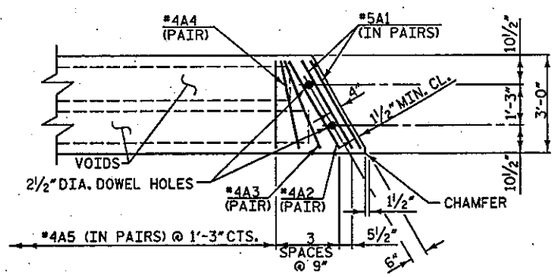
30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	11
1			3			TOTAL SHEETS
2			4			27

11/17/2009 3:12:01 PM G:\projects\bmu\Rowan 210\Drawings\NCMA94038_sd_csl_01.dgn



PLAN OF SPAN



PART PLAN - SLAB SECTION

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0586 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID B. SIMPSON JR.
12-16-09

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210

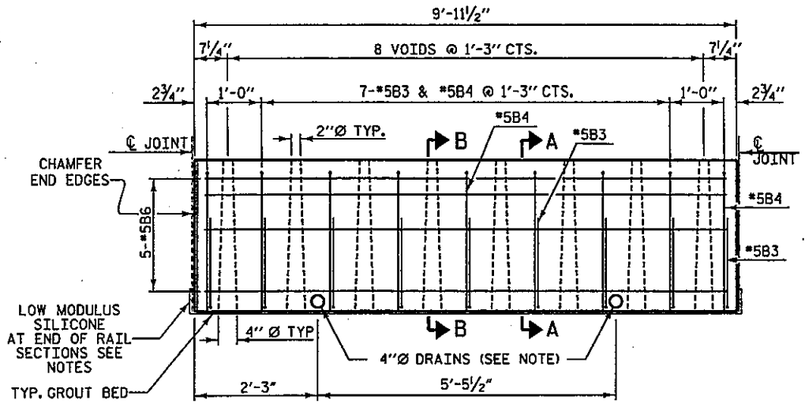
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

PRESTRESSED CORED SLAB 30' SPAN

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	12
1			3			TOTAL SHEETS
2			4			27

11/17/2009 3:12:00 PM g:\projects\bmu\Rowan 210\Drawings\NCMA94038_sd_cs2_01.dgn



TYPICAL 10'-0" PRECAST UNIT

NOTE: 4"Ø PVC DRAINS THROUGH THE PRECAST BARRIER RAIL ARE REQUIRED ON LEFT SIDE OF BRIDGE ONLY. NO DECK DRAINS ARE ALLOWED OVER OPEN WATER, SPAN A.

INTERIOR SLAB UNIT	60'	30'
CAMBER (SLAB UNIT ALONE IN PLACE)	3½" (UP)	5/16" (UP)
DEFLECTION (SUPERIMPOSED DEAD LOAD)	* 9/16" (DOWN)	* 1/16" (DOWN)
FINAL DEFLECTION	2 5/16" (UP)	¼" (UP)
* INCLUDES FUTURE WEARING SURFACE		

EXTERIOR SLAB UNIT	60'	30'
CAMBER (SLAB UNIT ALONE IN PLACE)	3 1/16" (UP)	¼" (UP)
DEFLECTION (SUPERIMPOSED DEAD LOAD)	* 9/16" (DOWN)	* 1/16" (DOWN)
FINAL DEFLECTION	2½" (UP)	3/16" (UP)
* INCLUDES FUTURE WEARING SURFACE		

NOTES

EACH PRECAST RAIL UNIT SHALL BE CAST WITH CLASS AA CONCRETE.

RAIL TO BE FLUSH WITH CORED SLAB UNITS AT EACH END OF SPAN.

GROUT SHALL BE 1" ABOVE DRAINS BETWEEN RAIL SECTIONS EXCEPT AT BENTS WHERE LOW MODULUS SILICONE SHALL BE SUBSTITUTED IN PLACE OF GROUT.

EACH PRECAST RAIL UNIT SHALL BE SUPPLIED WITH LIFTING DEVICE(S). NO CABLES ARE TO BE WRAPPED AROUND THE RAIL UNITS FOR LIFTING.

THE EXPANSION JOINT SEALER SHALL BE LOW MODULUS SILICONE SEALANT. SEE SECTION 1028-4 OF THE STANDARD SPECIFICATIONS.

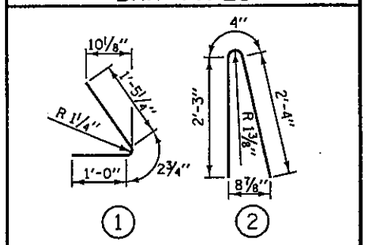
CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS; TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE ON PLANS.

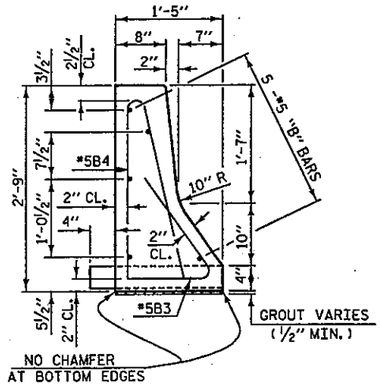
BILL OF MATERIAL FOR ONE 10'-0" RAIL SECTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	9	*5	1	2'-8"	25
B4	9	*5	2	4'-11"	46
B6	5	*5	STR.	9'-7"	50
REINFORCING STEEL LBS. =					121
CLASS AA CONCRETE CU. YDS. =					1.0

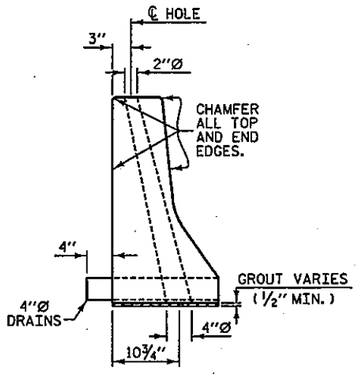
BAR TYPES



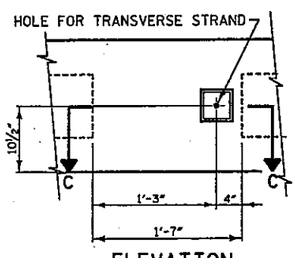
ALL BAR DIMENSIONS ARE OUT TO OUT



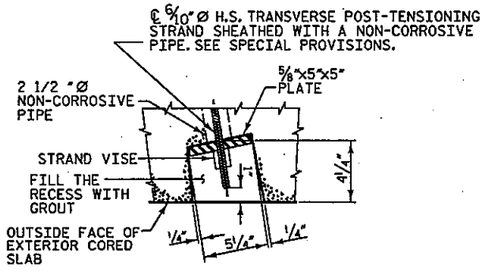
SECTION A-A



SECTION B-B

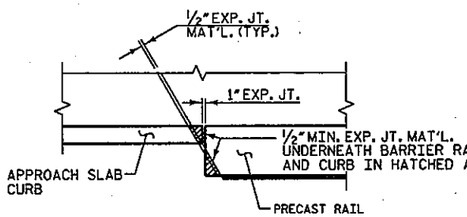


ELEVATION

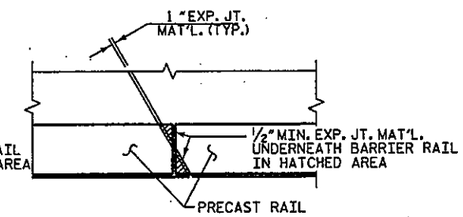


SECTION C-C

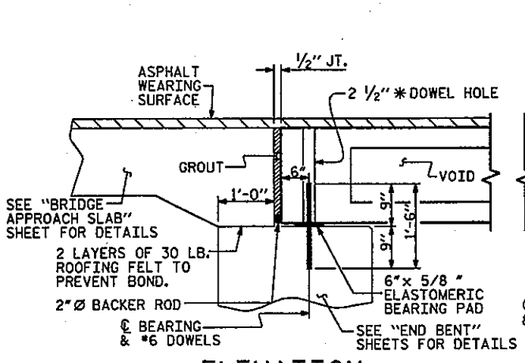
DETAIL A
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLAB



PLAN

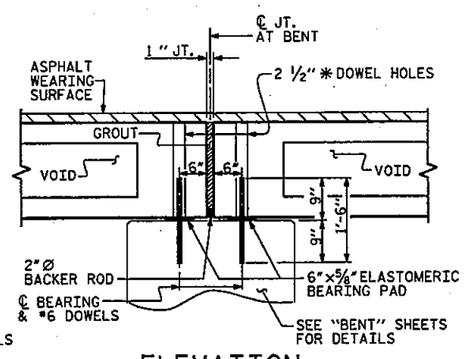


PLAN



ELEVATION

SECTION AT END BENT



ELEVATION

SECTION AT BENT

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DANIEL B. SIMPSON, JR. 12-16-09

PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsoneng.com
LICENSURE NO. C-2521

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

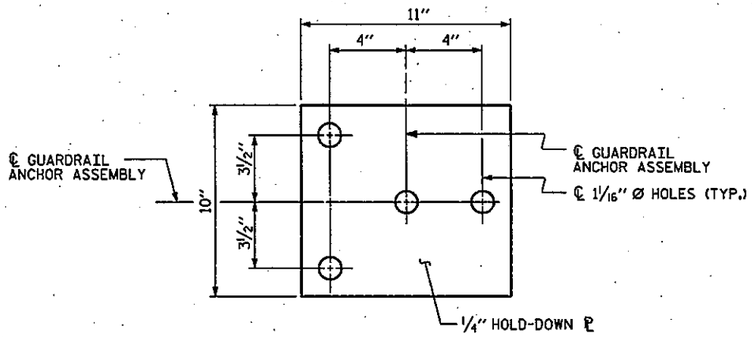
PRECAST CONCRETE BARRIER RAIL SECTIONS 60' & 30' SPAN

30' CLEAR ROADWAY - 60° SKEW

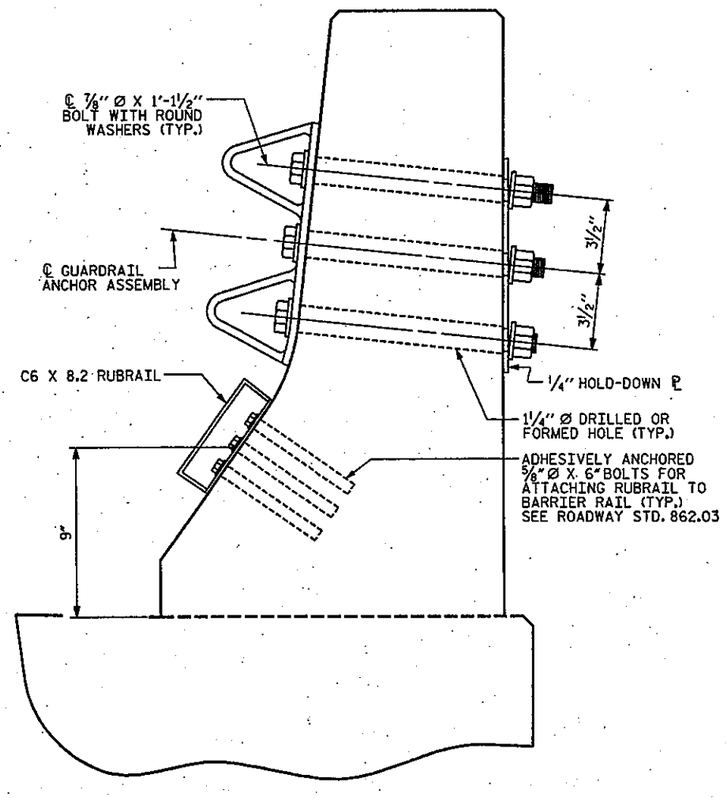
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	13
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

12/16/2009 2:12:22 PM G:\Projects\BMD\Rowan 210\Drawings\NCMA94038_sd_br_01.dgn

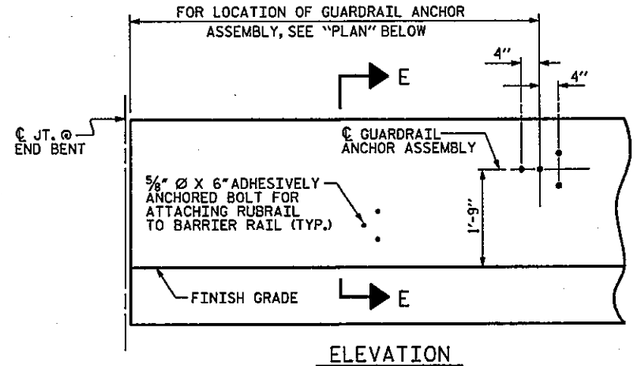


PLAN



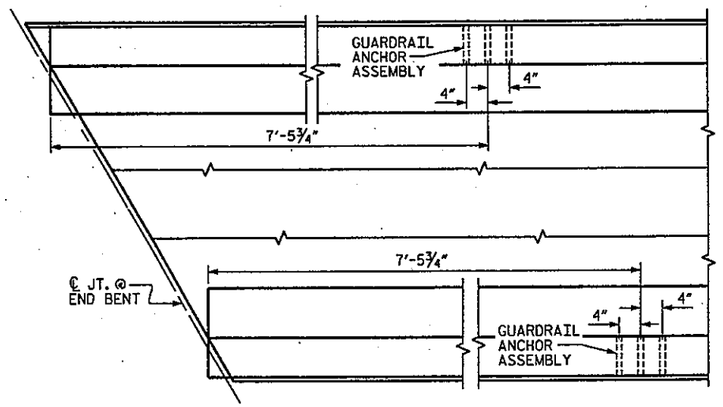
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



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 4 - 7/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

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.

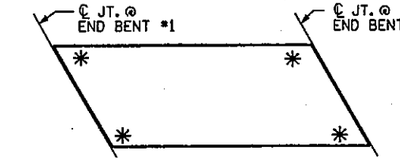
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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

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.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.

FOR ADDITIONAL GUARDRAIL INFORMATION, SEE "GUARDRAIL ANCHOR UNIT" SHEET.



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

NORTH CAROLINA PROFESSIONAL SEAL 19837 ENGINEER DAVID J. SIMPSON
12-16-09

PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

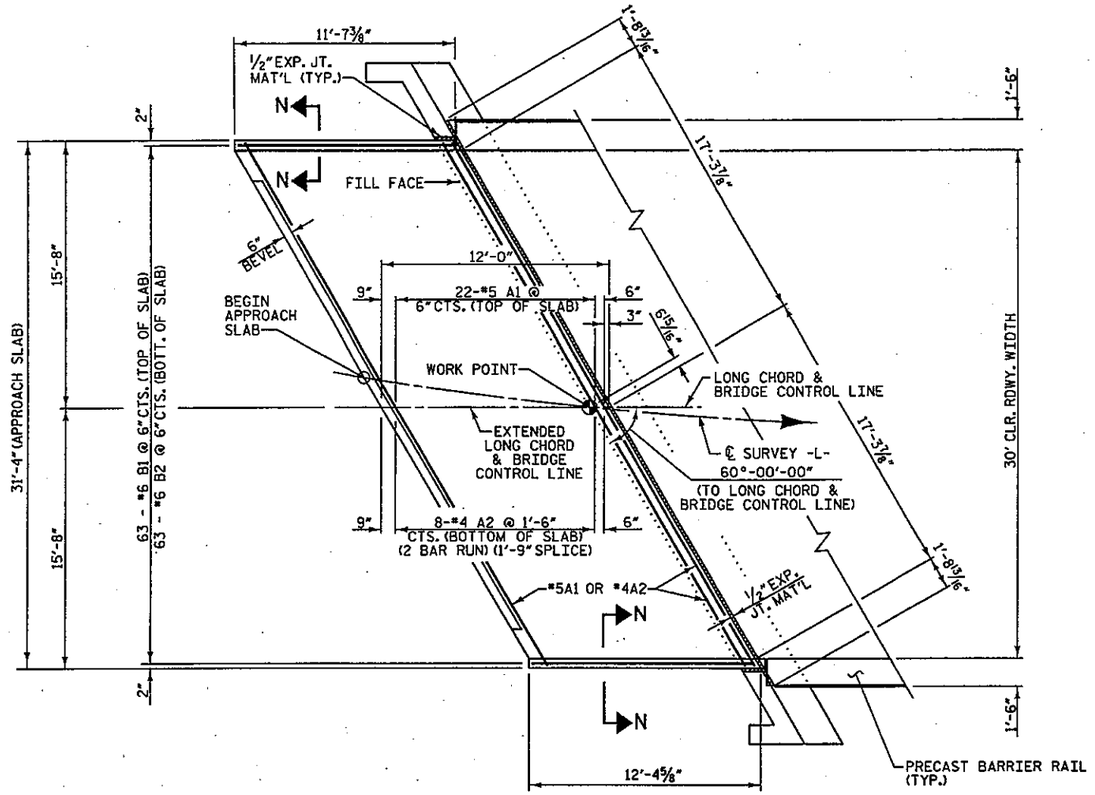
GUARDRAIL ANCHORAGE FOR BARRIER RAIL

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	14
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

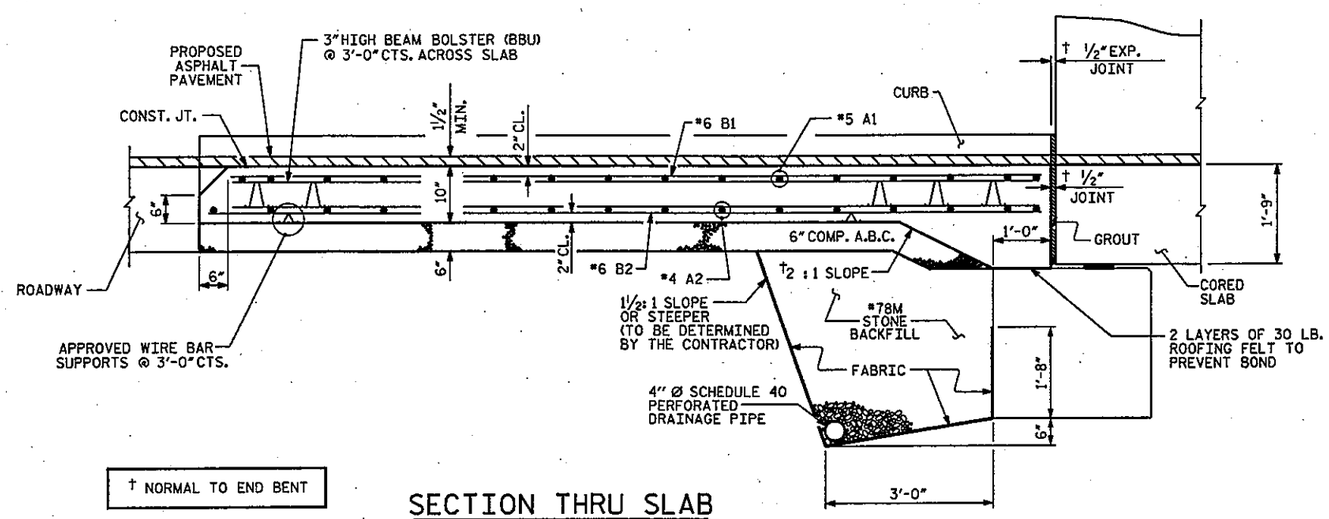
11/17/2009 3:11:59 PM gn\projects\bma\Rowan 210\Drawings\NCMA94038_sd_gr_01.dgn



PLAN OF APPROACH SLAB

BEGIN APPROACH SLAB SHOWN
END APPROACH SLAB SIMILAR

NOTE TO CONTRACTOR: THE LAYOUT OF THE APPROACH SLAB IS ALONG THE EXTENDED LONG CHORD & BRIDGE CONTROL LINE.



† NORMAL TO END BENT

SECTION THRU SLAB

NOTES

THE COST OF THE CURB ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

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

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

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

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

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

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

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

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

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

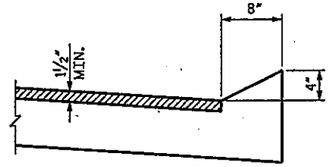
THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

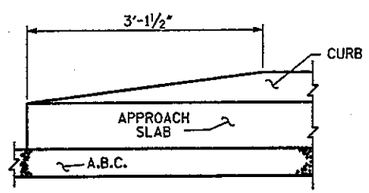
BILL OF MATERIAL
FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	23	5	STR	35'-9"	858
A2	18	4	STR	18'-10"	226
*B1	63	6	STR	11'-2"	1057
B2	63	6	STR	11'-8"	1104

REINFORCING STEEL	LBS.	1,330
*EPOXY COATED		
REINFORCING STEEL	LBS.	1,915
CLASS "AA" CONCRETE BREAKDOWN		
TOTAL		14.0 Cu. Yds.



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID B. SIMPSON, JR. 12-16-09

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

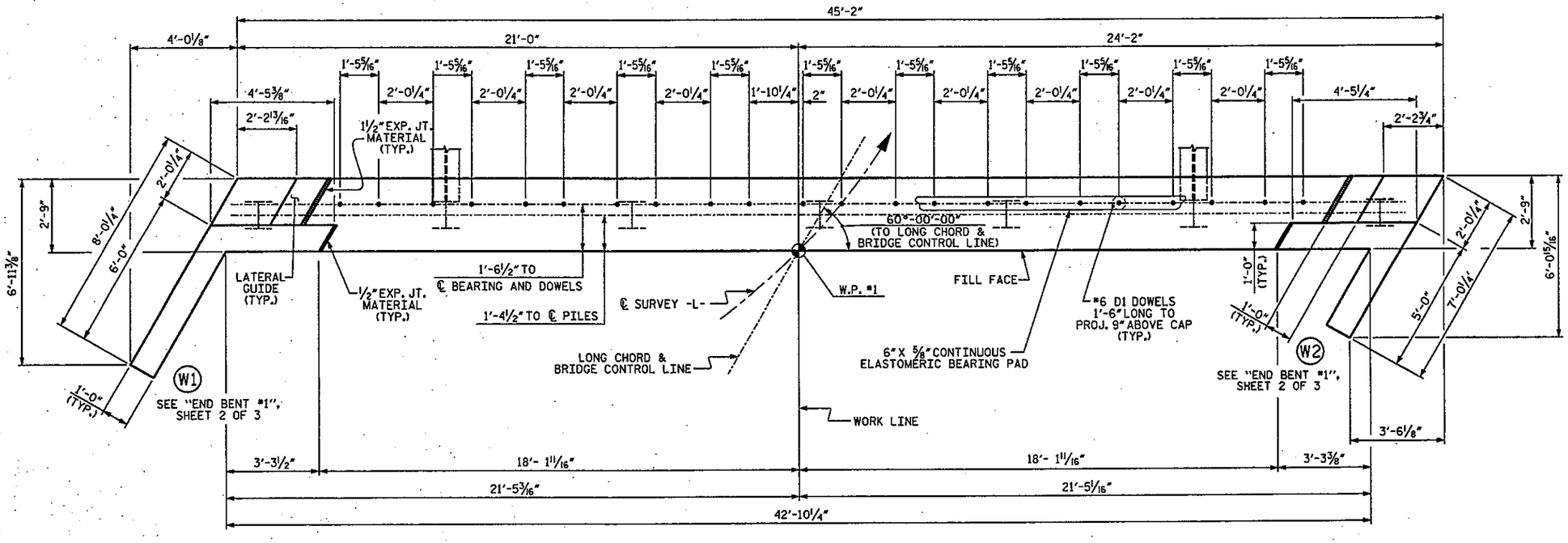
APPROACH SLAB

30' CLEAR ROADWAY - 60° SKEW

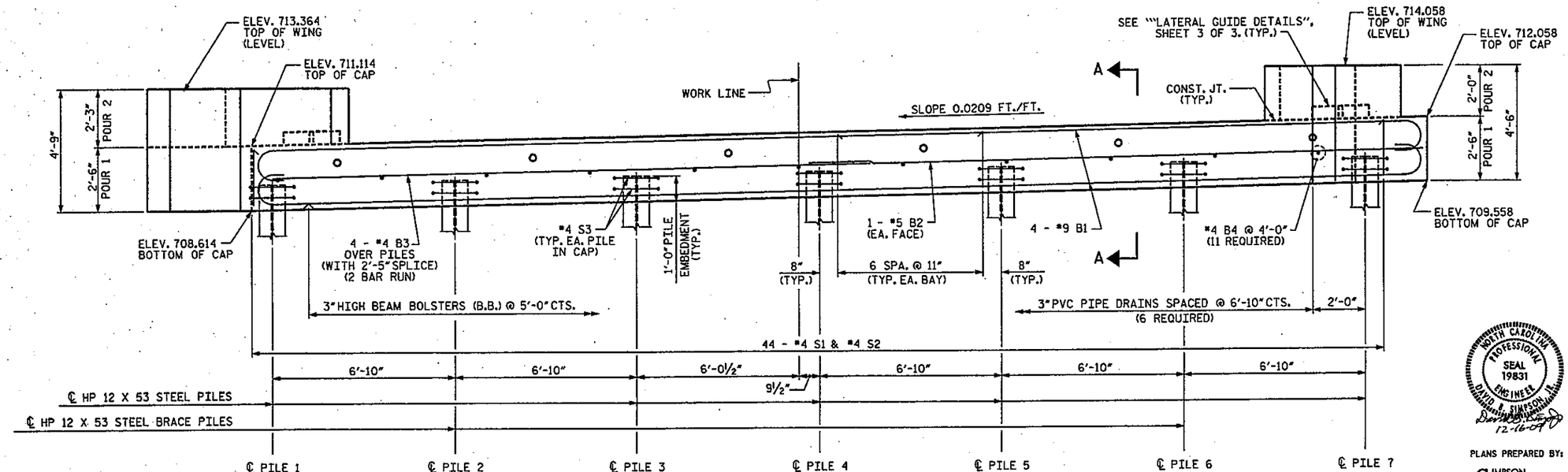
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

12/16/2009 12:7:04 PM G:\Projects\BMU\Rowan 210\Drawings\NCMA9403B_sd_cs1_01.dgn



PLAN



ELEVATION

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DI DOWELS.

PIPE DRAINS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND DOWELS.

TOP OF ℄ PILE ELEVATIONS	
PILE	ELEVATION
1	709.641
2	709.784
3	709.927
4	710.069
5	710.212
6	710.355
7	710.498

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

30' CLEAR ROADWAY - 60° SKEW

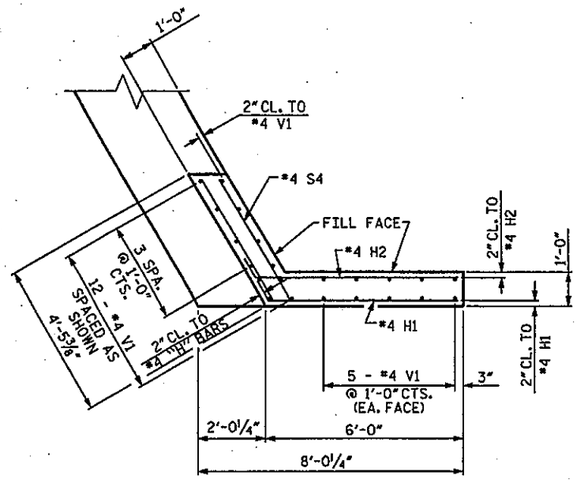
NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID B. SIMPSON, JR. 12-16-09

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

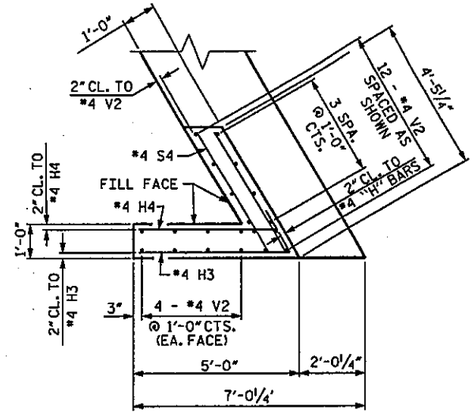
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	16
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

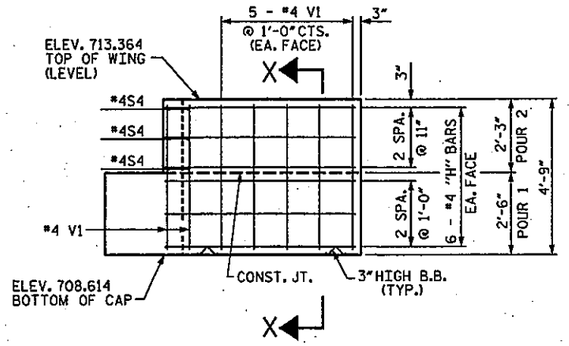
11/17/2009 3:11:57 PM g:\projects\bmu\Rowan 210\Drawings\NCMA94038_sd_ebia_01.dgn



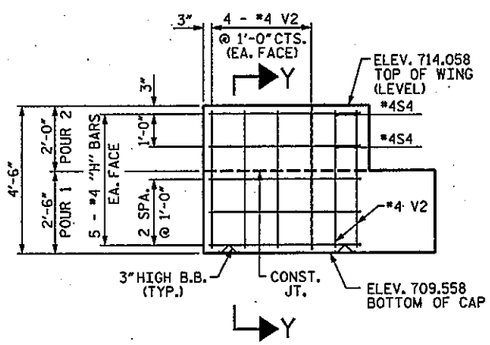
W1 PLAN OF LEFT WING



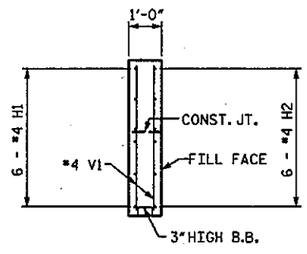
W2 PLAN OF RIGHT WING



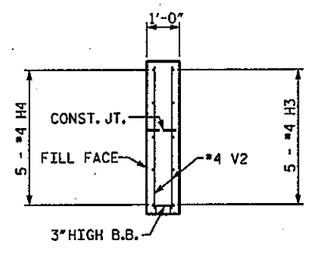
W1 ELEVATION OF LEFT WING



W2 ELEVATION OF RIGHT WING



SECTION X-X



SECTION Y-Y

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

30' CLEAR ROADWAY - 60° SKEW

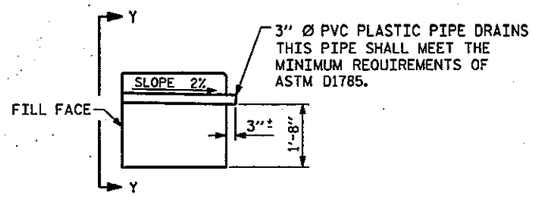
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	17
1			3			TOTAL SHEETS
2			4			27

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID B. SIMPSON JR.
12-16-09

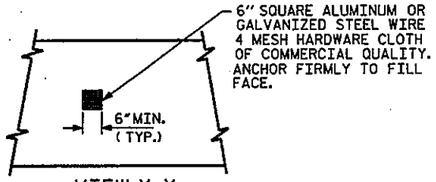
PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:56 PM Q:\projects\bmu\Rowan 210\Drawings\NCMA94038_sd_ebib_01.dgn



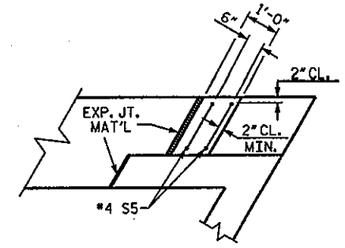
SECTION THRU CAP



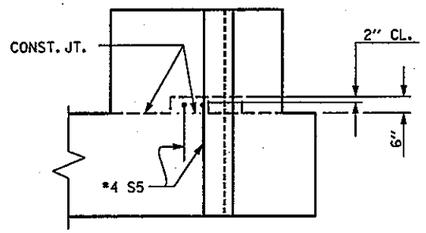
VIEW Y-Y

NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR PLACEMENT OF SUBSTRUCTURE.

PIPE DRAIN DETAILS



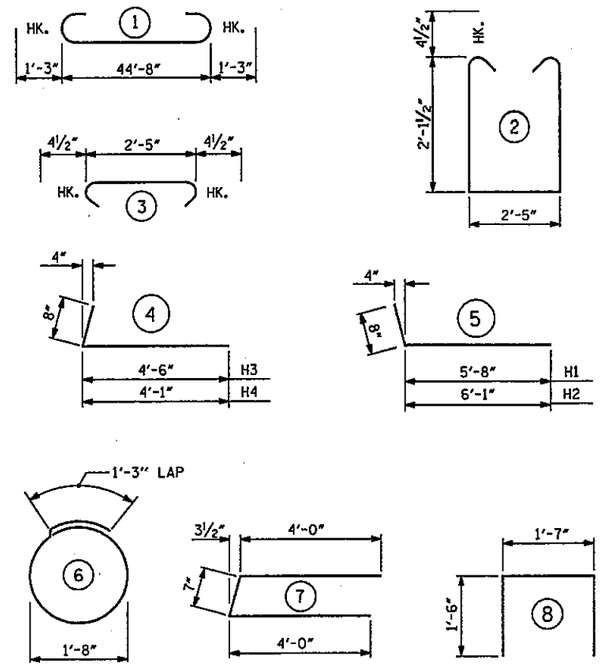
PLAN



ELEVATION

LATERAL GUIDE DETAILS

BAR TYPES

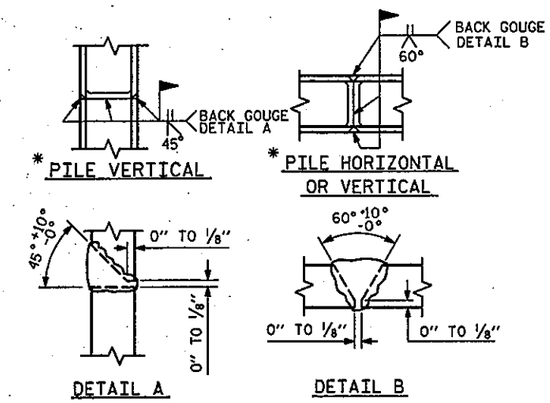


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
END BENT #1

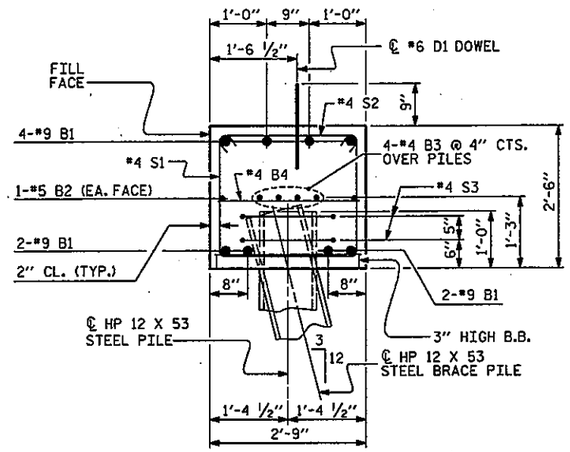
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	47'-2"	1283
B2	2	5	STR	44'-8"	93
B3	8	4	STR	23'-7"	126
B4	11	4	STR	2'-5"	18
O1	22	6	STR	1'-6"	50
H1	6	4	5	6'-4"	25
H2	6	4	5	6'-9"	27
H3	5	4	4	5'-2"	17
H4	5	4	4	4'-9"	16
S1	44	4	2	7'-5"	218
S2	44	4	3	3'-2"	93
S3	14	4	6	6'-6"	61
S4	5	4	7	8'-7"	29
S5	4	4	8	4'-7"	12
V1	22	4	STR	4'-4"	64
V2	20	4	STR	4'-1"	55

TOTAL REINFORCING STEEL	2187 Lbs.
CLASS "A" CONCRETE BREAKDOWN	
POUR #1	12.4 Cu. Yds.
POUR #2	1.5 Cu. Yds.
TOTAL	13.9 Cu. Yds.
HP 12 X 53 STEEL PILES	
7 PILES REQUIRED - LIN. FEET	210



PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.



SECTION A-A

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

30' CLEAR ROADWAY - 60° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID SIMPSON JR. 12-16-09

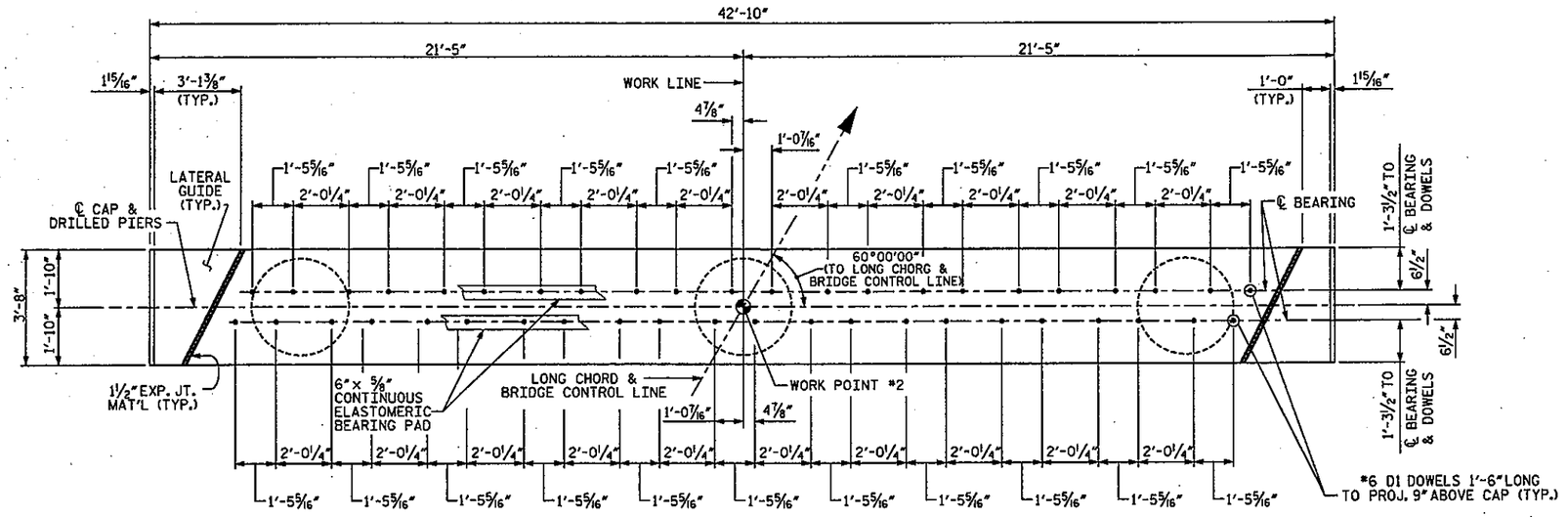
PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0596 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	18
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:56 PM g:\projects\bmu\Rowan 210\Drawings\NCMA94038_sd_eb1c_01.dgn



PLAN

NOTES:

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR *6D1 DOWELS.

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

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

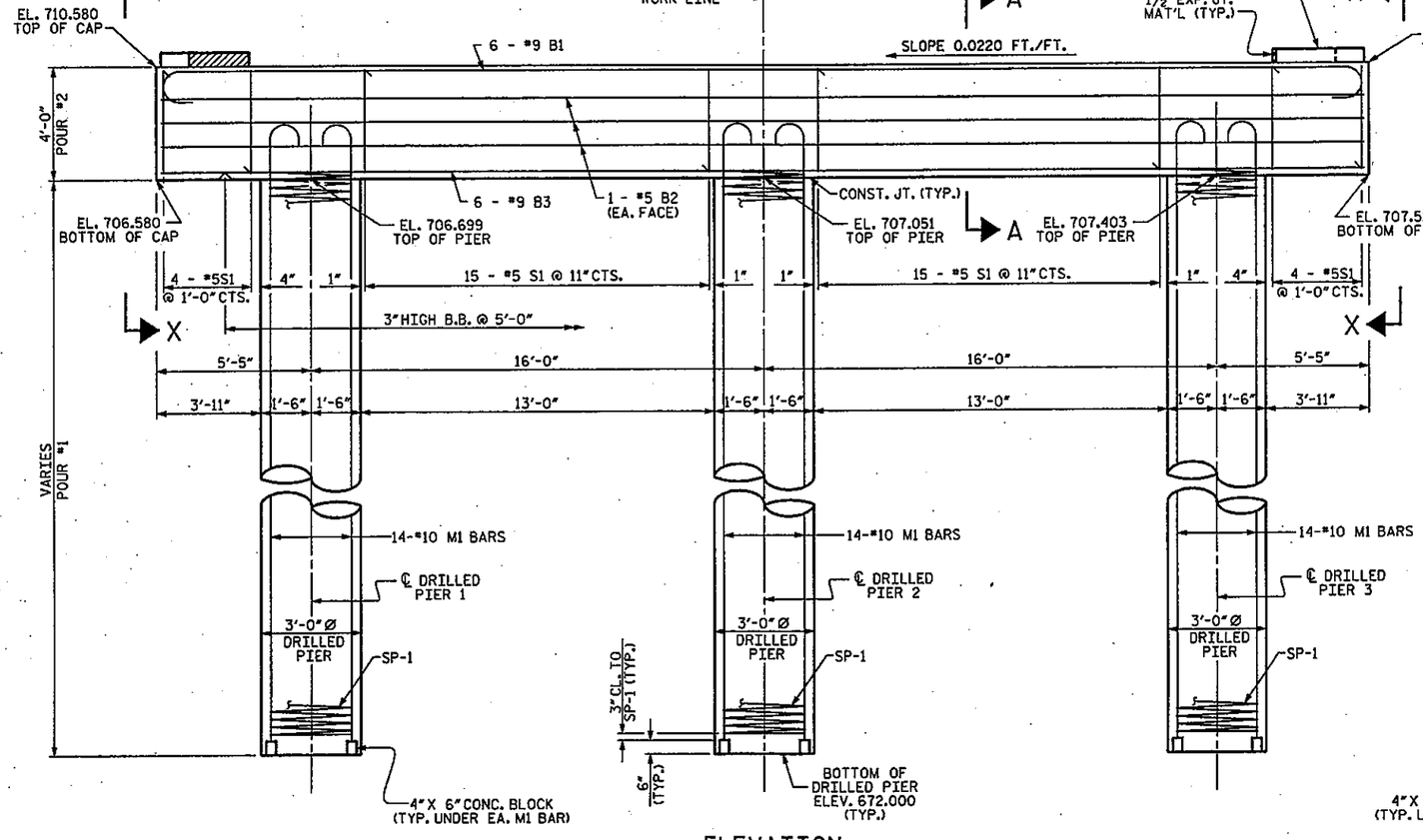
FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

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

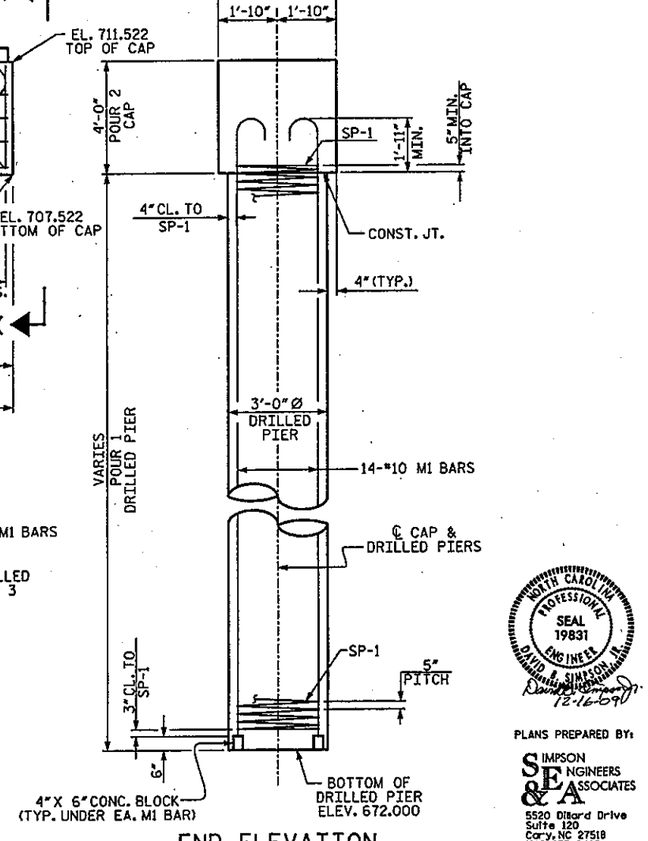
INVERT ALTERNATE STIRRUPS.

NO SEPARATE PAYMENT SHALL BE MADE FOR ANY ADDITIONAL STEEL REQUIRED IN CONSTRUCTION OF THE DRILLED PIER AS THIS IS CONSIDERED INCIDENTAL TO THE LINEAR FOOT PRICE FOR DRILLED PIER.

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



ELEVATION



END ELEVATION

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID A. SIMPSON JR. 12-16-09

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210 SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

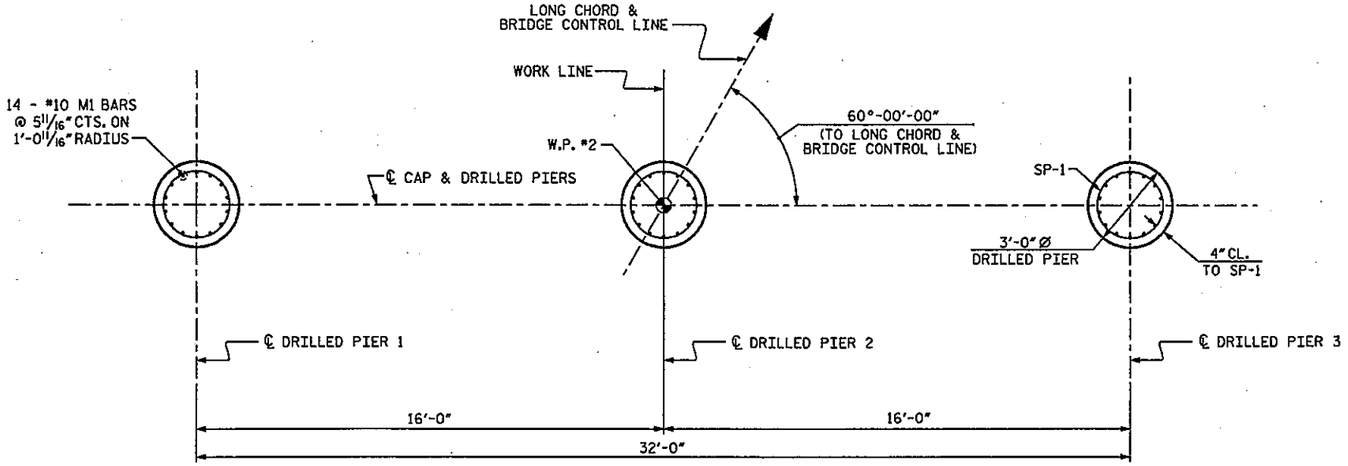
BENT #1

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	19
1			3			TOTAL SHEETS
2			4			27

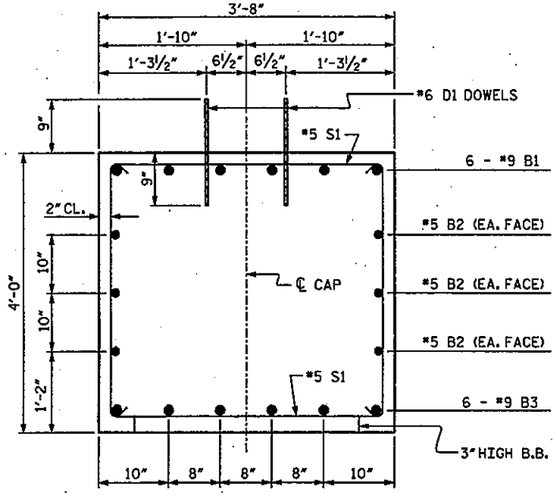
DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:55 PM g:\projects\bma\Rowan 210\Drawings\NCMA94038_sd_bia_01.dgn

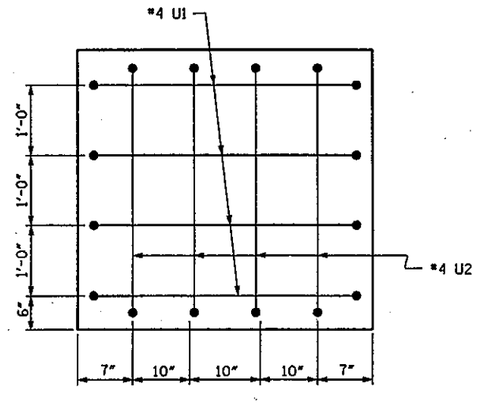


PLAN OF DRILLED PIERS

NOTE: REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS.

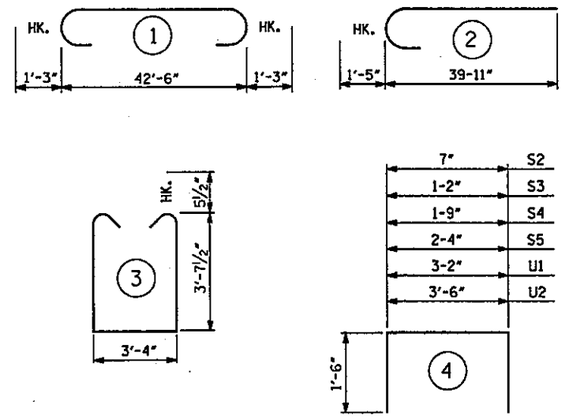


SECTION A-A



SECTION X-X

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

✻✻ THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL

FOR BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	9	1	45'-0"	918
B2	6	5	STR	42'-6"	266
B3	6	9	STR	42'-6"	867
B4	2	4	STR	3'-3"	4
B5	2	4	STR	3'-9"	5
D1	44	6	STR	1'-6"	99
M1	42	10	2	41'-4"	7470
S1	38	5	3	11'-6"	456
S2	2	4	4	3'-7"	5
S3	2	4	4	4'-2"	6
S4	2	4	4	4'-9"	6
S5	2	4	4	5'-4"	7
U1	8	4	4	6'-2"	33
U2	8	4	4	6'-6"	35
SP-1	3	✻✻	5	627'-1"	1962

REINFORCING STEEL 10177 Lbs.

SPIRAL REINFORCING STEEL 1962 Lbs.

CLASS "A" CONCRETE BREAKDOWN
POUR #2 (CAP) 23.6 Cu. Yds.

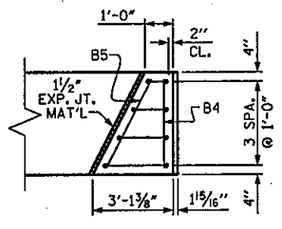
DRILLED PIER QUANTITIES

DRILLED PIER CONCRETE
POUR #1 (DRILLED PIER) 27.6 Cu. Yds.

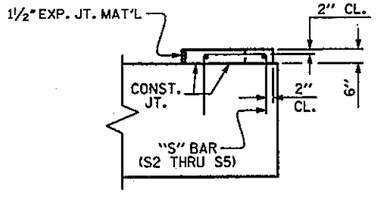
3'-0" Ø DRILLED PIERS IN SOIL 87.4 Lin. Ft.

3'-0" Ø DRILLED PIERS NOT IN SOIL 18.0 Lin. Ft.

3'-0" Ø PERMANENT STEEL CASING 75.4 Lin. Ft.



PLAN



ELEVATION

LATERAL GUIDE DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID A. SIMPSON JR.
12-16-09

PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE

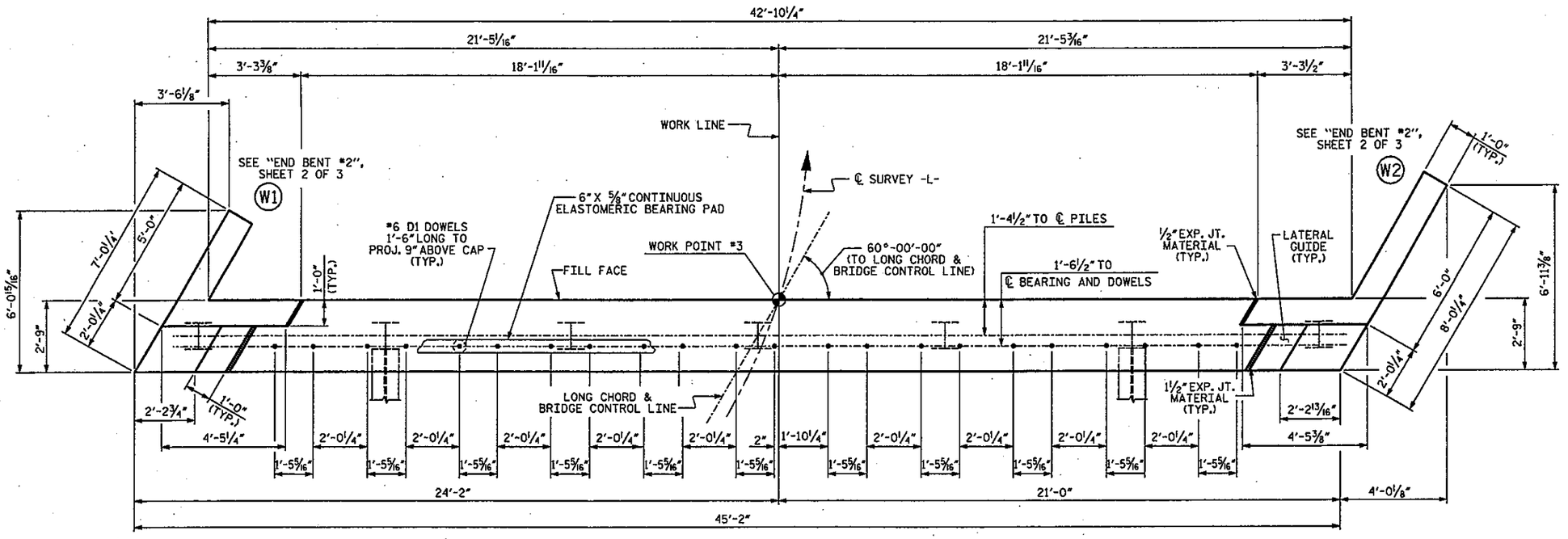
BENT #1

30' CLEAR ROADWAY - 60° SKEW

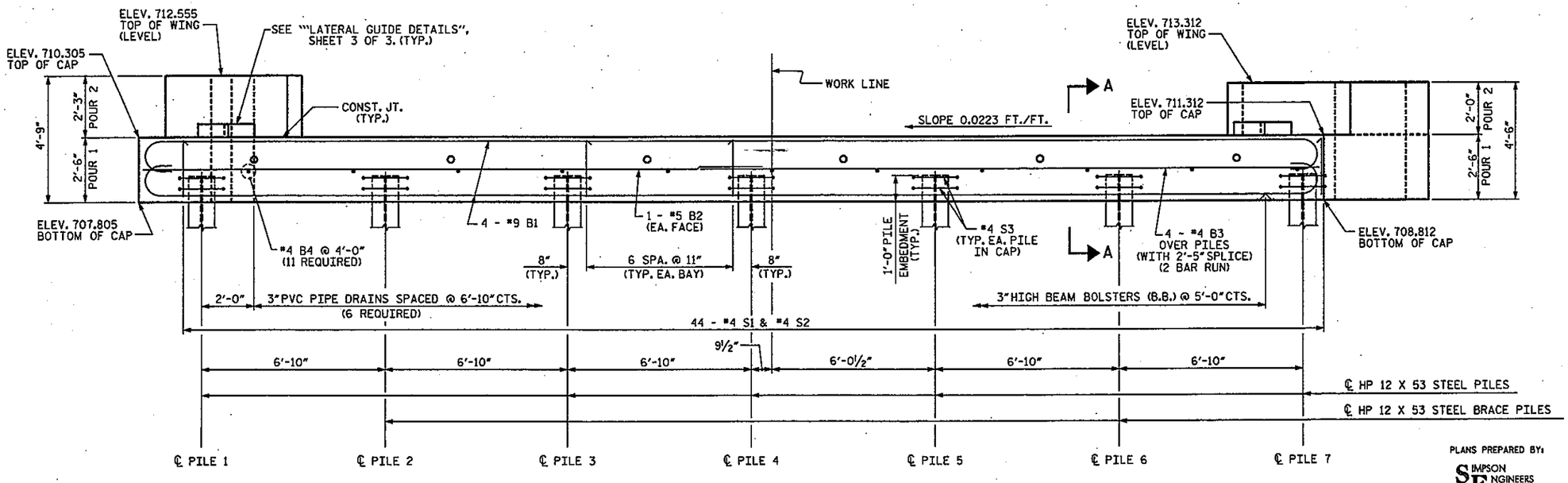
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	20
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:54 PM g:\projects\bmu\Rowan 210\Drawings\NCMA94039_sd_bib_01.dgn



PLAN



ELEVATION

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR *6 D1 DOWELS.

PIPE DRAINS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND DOWELS.

TOP OF ℄ PILE ELEVATIONS	
PILE	ELEVATION
1	708.869
2	709.022
3	709.174
4	709.326
5	709.478
6	709.631
7	709.783

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID R. SIMPSON JR.
12-16-09

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

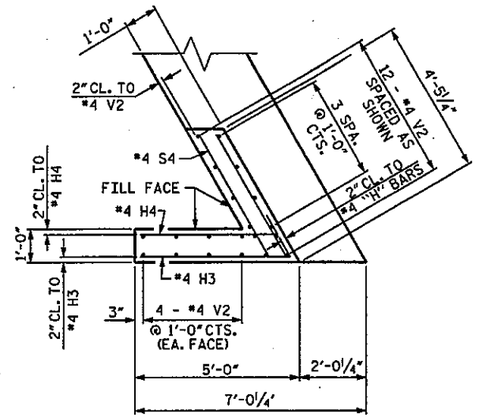
30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	21
1			3			TOTAL SHEETS
2			4			27

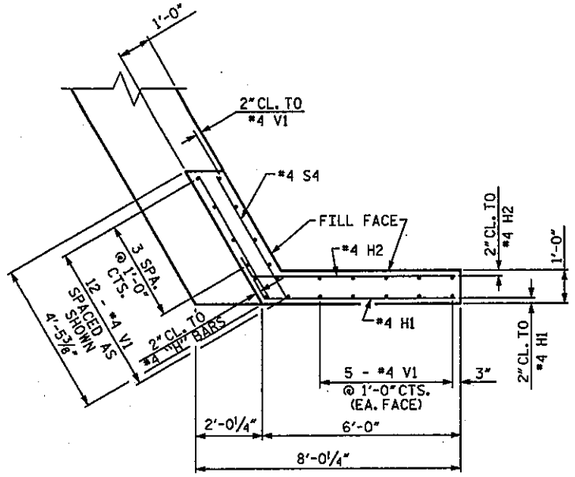
PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

DRAWN BY: R. SEALEY DATE: 3/09
CHECKED BY: M. AVERETTE DATE: 3/09

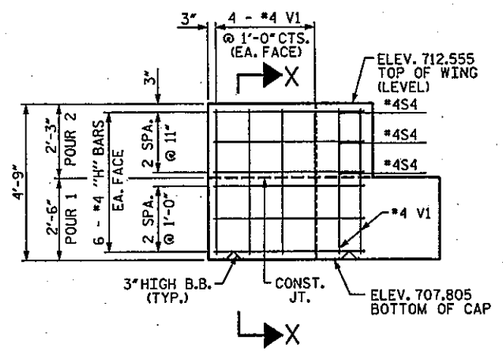
11/17/2009 3:11:53 PM g:\projects\bmu\Rowan 210\Drawings\NCMA9403B_sd_eb2a_01.dgn



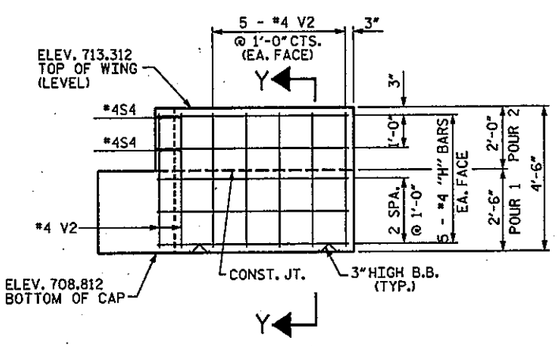
(W1) PLAN OF LEFT WING



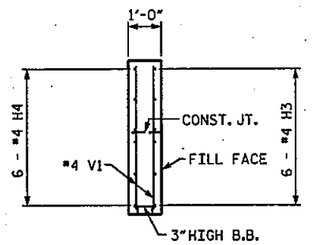
(W2) PLAN OF RIGHT WING



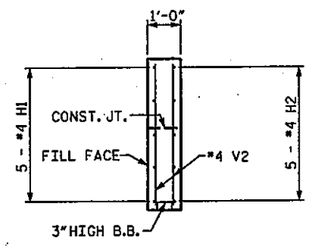
(W1) ELEVATION OF LEFT WING



(W2) ELEVATION OF RIGHT WING



SECTION X-X



SECTION Y-Y

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	22
1			3			TOTAL SHEETS
2			4			27

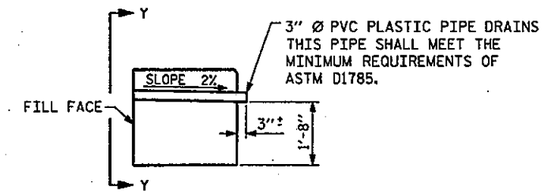
NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID R. SIMPSON JR.
12-16-09

PLANS PREPARED BY:

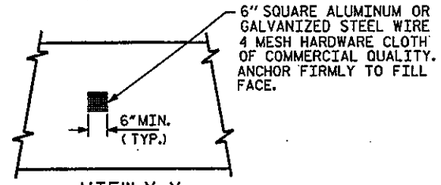
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:53 PM gs\projects\bmu\Rowan 210\Drawings\NCMA9403B_sd_eb2b_01.dgn



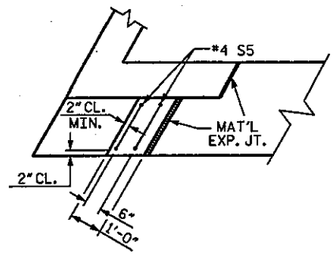
SECTION THRU CAP



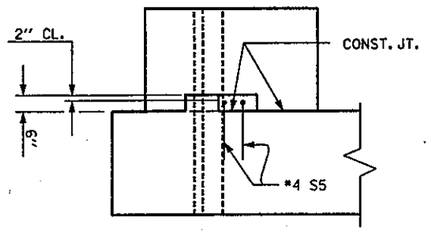
VIEW Y-Y

NOTE: NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR PLACEMENT OF SUBSTRUCTURE.

PIPE DRAIN DETAILS



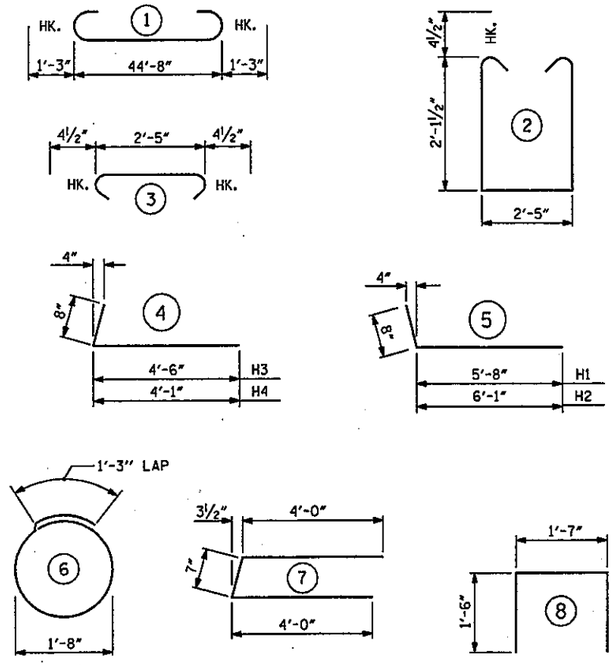
PLAN



ELEVATION

LATERAL GUIDE DETAILS

BAR TYPES



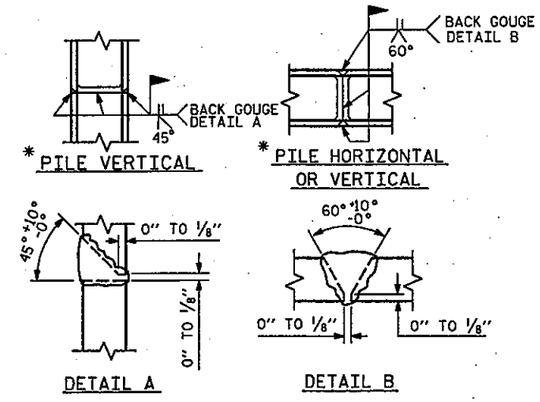
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #2

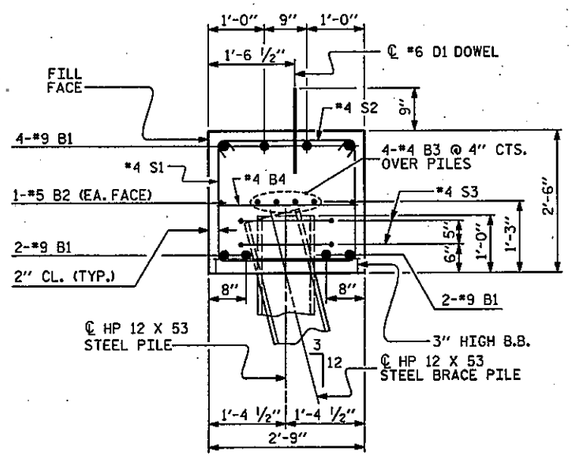
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	47'-2"	1283
B2	2	5	STR	44'-8"	93
B3	8	4	STR	23'-7"	126
B4	11	4	STR	2'-5"	18
D1	22	6	STR	1'-6"	50
H1	5	4	5	6'-4"	21
H2	5	4	5	6'-9"	23
H3	6	4	4	5'-2"	21
H4	6	4	4	4'-9"	19
S1	44	4	2	7'-5"	218
S2	44	4	3	3'-2"	93
S3	14	4	6	6'-6"	61
S4	5	4	7	8'-7"	29
S5	4	4	8	4'-7"	12
V1	20	4	STR	4'-4"	58
V2	22	4	STR	4'-1"	60

TOTAL REINFORCING STEEL	2185 Lbs.
CLASS "A" CONCRETE BREAKDOWN	
POUR #1	12.4 Cu. Yds.
POUR #2	1.5 Cu. Yds.
TOTAL	13.9 Cu. Yds.
HP 12 X 53 STEEL PILES	
7 PILES REQUIRED - LIN. FEET	195



PILE SPLICE DETAILS

*POSITION OF PILE DURING WELDING.



SECTION A-A

WBS NO. 37909

ROWAN COUNTY

STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

30' CLEAR ROADWAY - 60° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 19831 ENGINEER DAVID B. SIMPSON, JR. 12-16-09

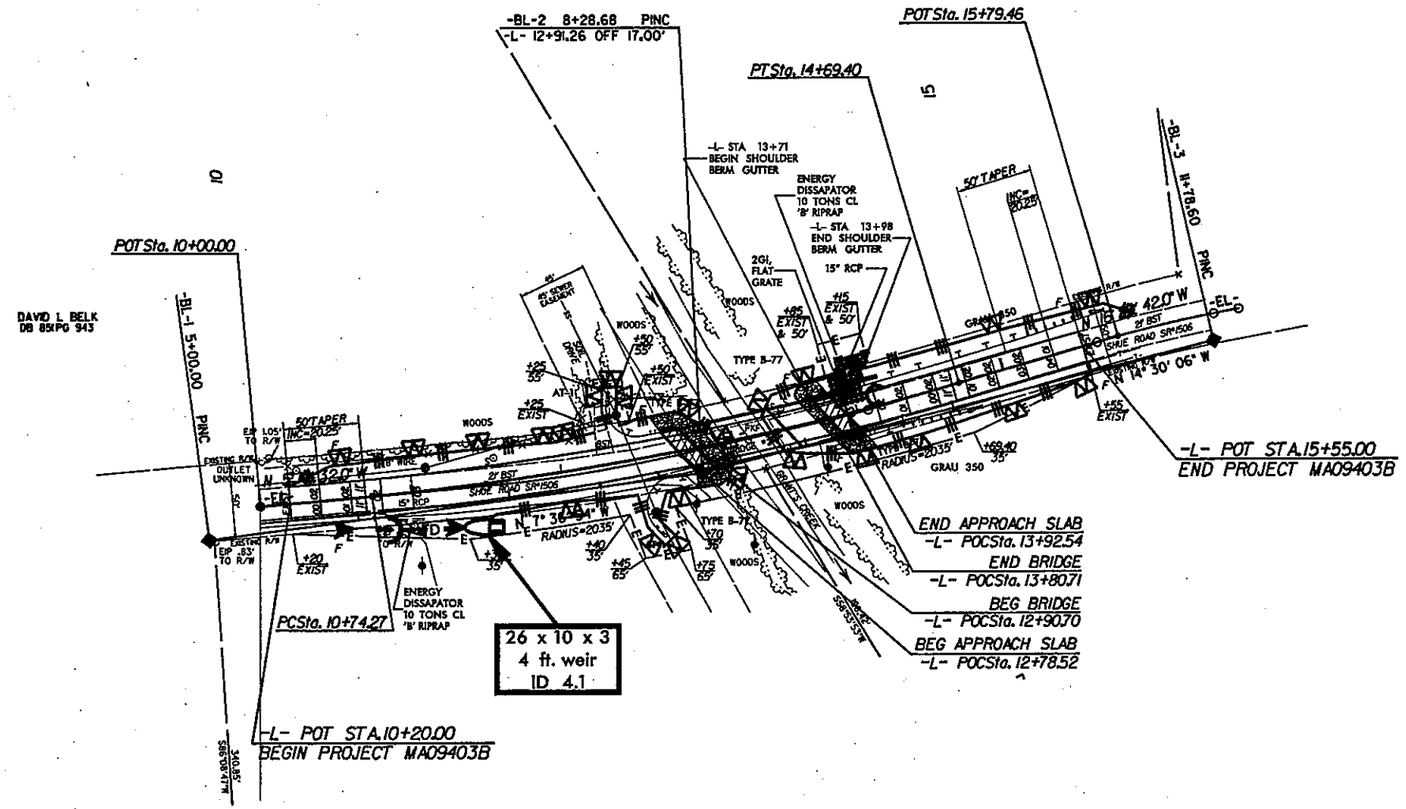
PLANS PREPARED BY:
SIMPSON ENGINEERS & ASSOCIATES
5520 Dillard Drive
Suite 120
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	23
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:52 PM g:\projects\bmu\Rowan 210\Drawings\NCMA9403B_sd_eb2c_01.dgn

EROSION CONTROL PLAN



Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
	Temporary Rock Silt Check Type-B	
	Wattle	
1634.02	Temporary Rock Sediment Dam Type-B	

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

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.

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210 SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EROSION CONTROL PLAN

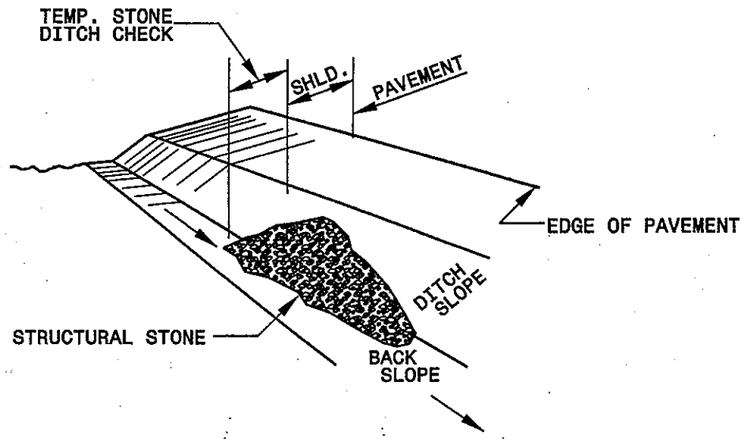
30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	24
1			3			TOTAL SHEETS
2			4			27

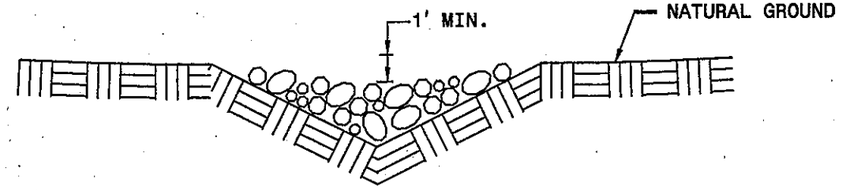
11/17/2009 3:11:51 PM g:\projects\bma\Rowan 210\Drawings\NCMA94038_ed_ec1_01.dgn

EROSION CONTROL PLAN

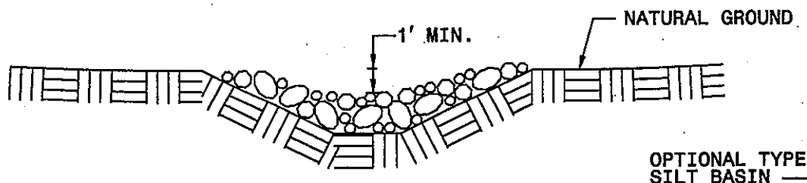
TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL



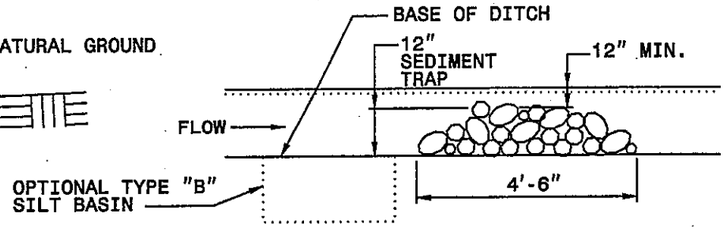
ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH



ELEVATION VIEW

NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

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.

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210 SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EROSION CONTROL PLAN

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	25
1			3			TOTAL SHEETS
2			4			27

11/17/2009 3:11:50 PM g:\projects\bma\Rowan 210\Drawings\NCNA94038_sd_ec2_01.dgn

EROSION CONTROL PLAN

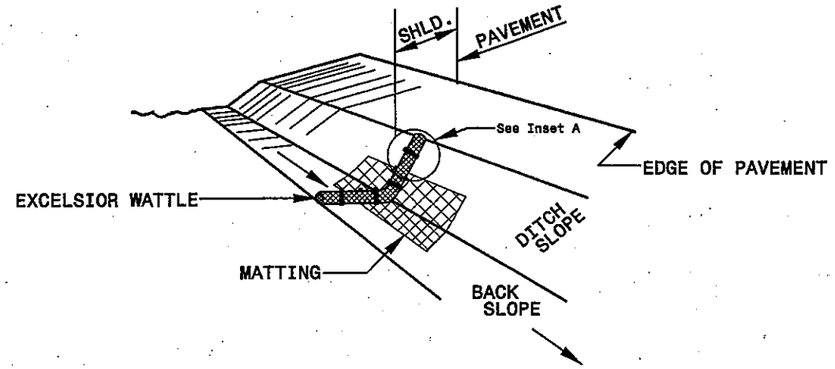
ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2006 STANDARD SPECIFICATIONS

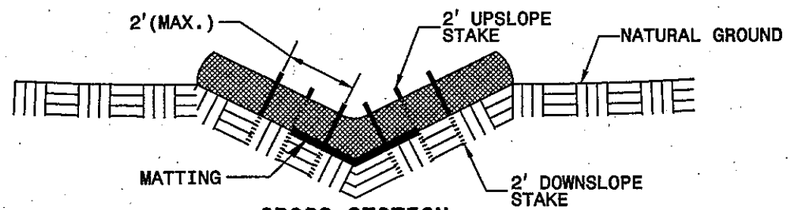
NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

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

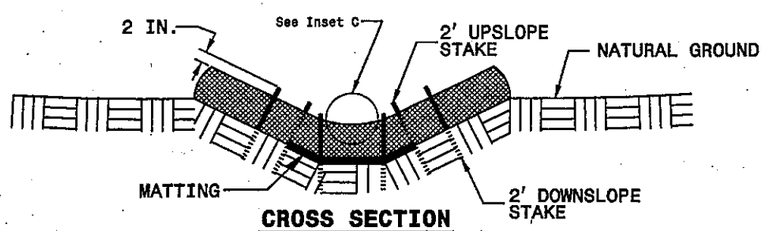
WATTLE WITH POLYACRYLAMIDE DETAIL



ISOMETRIC VIEW



CROSS SECTION
VEE DITCH



CROSS SECTION
TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

ONLY 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.

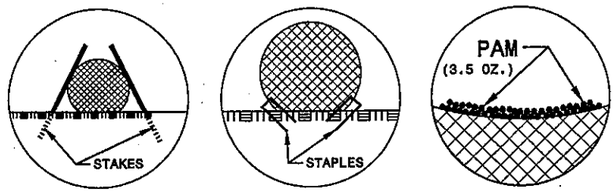
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

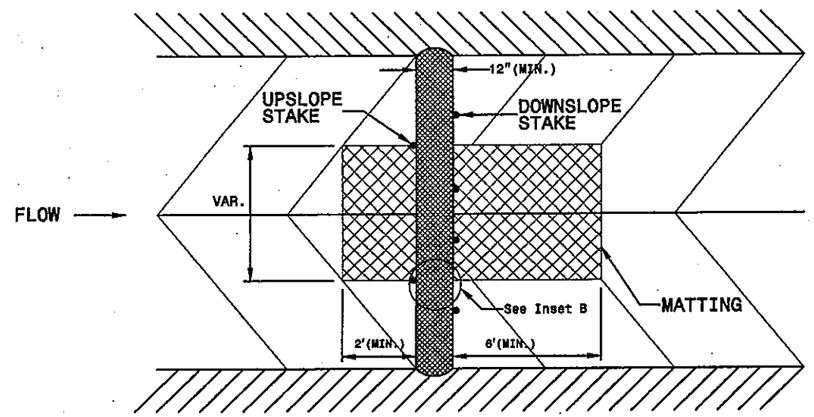
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



INSET A INSET B INSET C



TOP VIEW

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-

REPLACES BRIDGE NO. 210 SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EROSION CONTROL PLAN

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	26
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:49 PM g:\projects\bmu\Rowan 210\Drawings\WGNA94038_sd_ec3_01.dgn

EROSION CONTROL PLAN

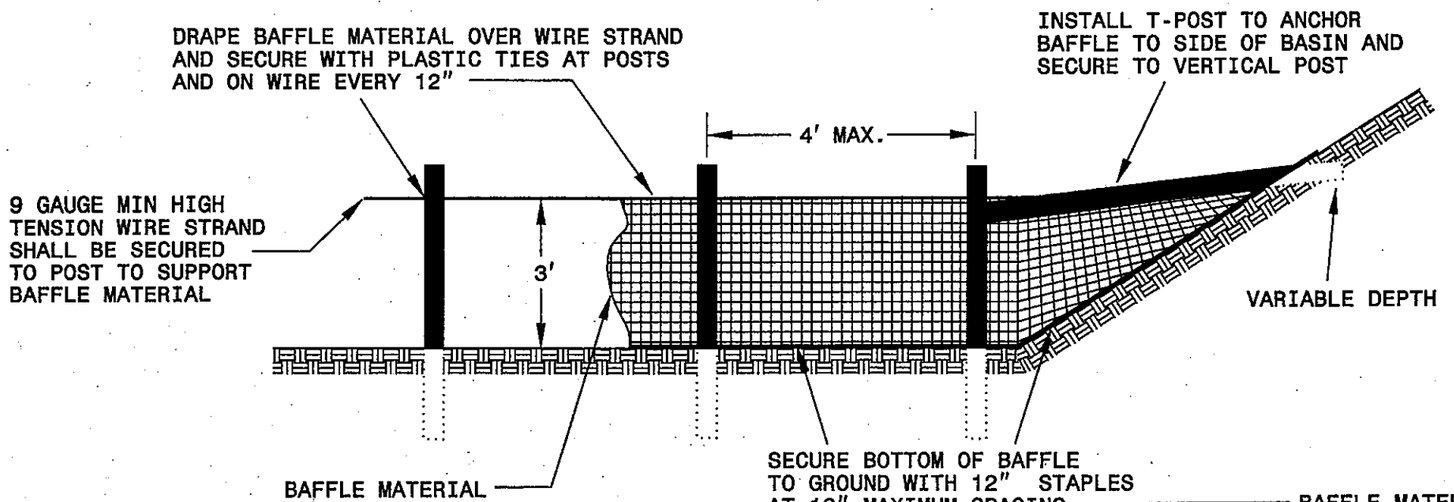
ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

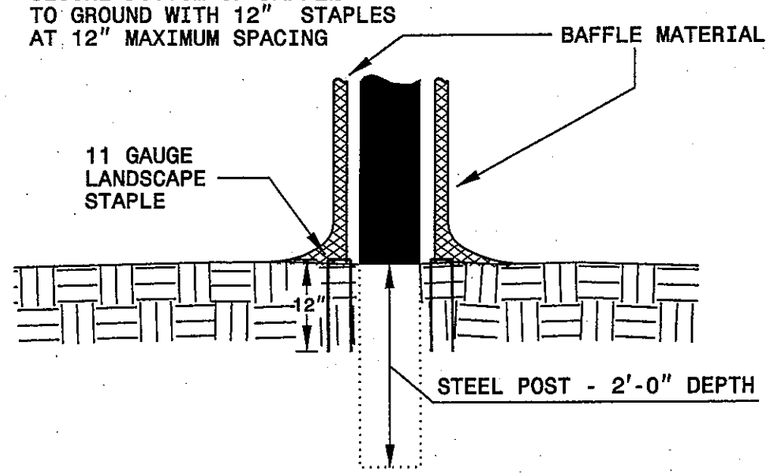
2006 STANDARD SPECIFICATIONS

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.

COIR FIBER BAFFLE DETAIL





BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES

NOTES:

1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF ¼ THE BASIN LENGTH.

2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

WBS NO. 37909
ROWAN COUNTY
STATION: 13+36.00 -L-
REPLACES BRIDGE NO. 210 SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EROSION CONTROL PLAN

30' CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	27
1			3			TOTAL SHEETS
2			4			27

DRAWN BY : R. SEALEY DATE : 3/09
CHECKED BY : M. AVERETTE DATE : 3/09

11/17/2009 3:11:48 PM g:\projects\bmu\Rowan 210\Drawings\WCNA9403B_sd_ec4_01.dgn