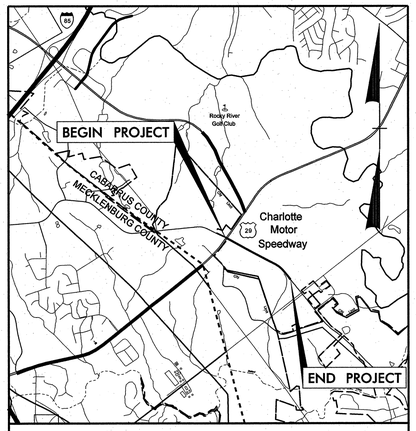
09/08/09

TIP PROJECT: U-5145

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

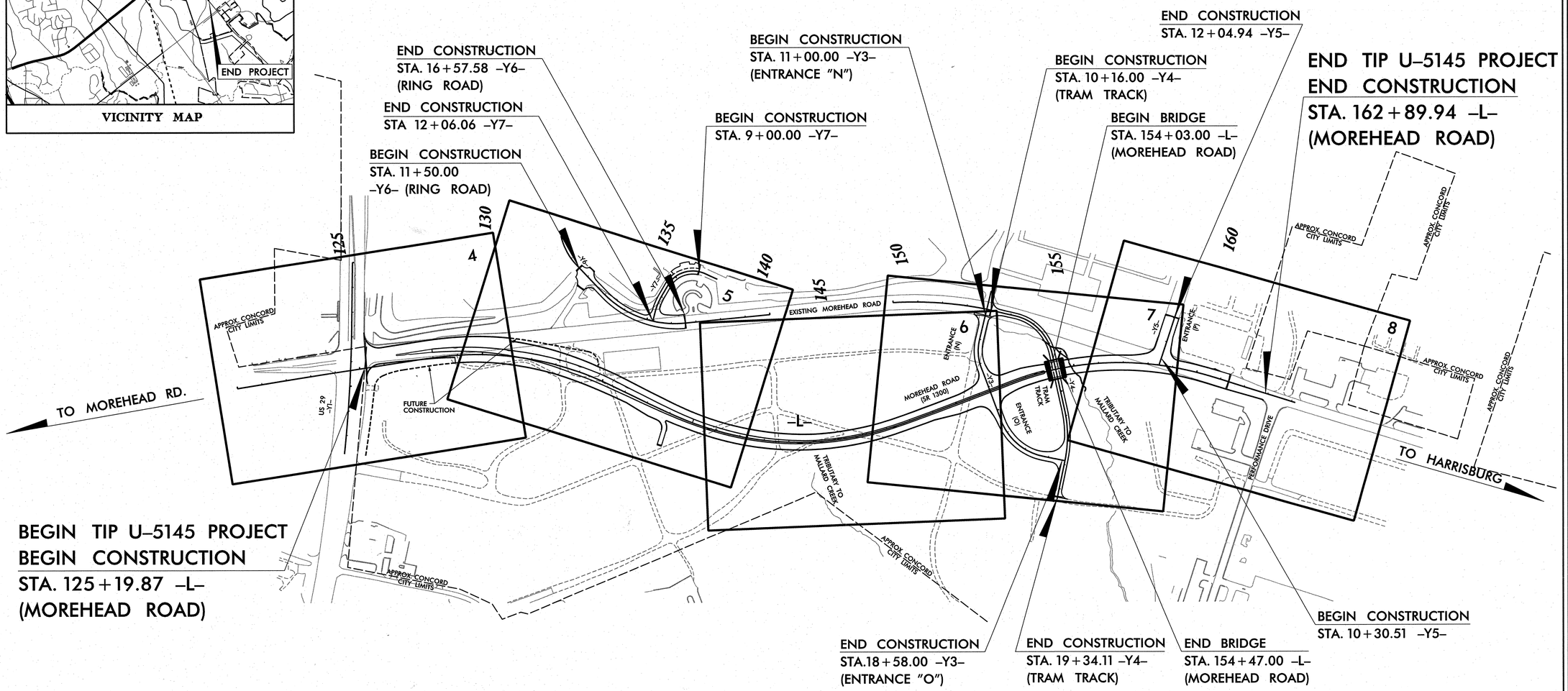
CABARRUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5145	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
WBS 42729.1.1		P.E.
WBS 42729.3.1		CONST.

LOCATION: MOREHEAD ROAD (SR 1300) FROM EAST OF US 29 TO WEST OF PERFORMANCE DRIVE

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS AND STRUCTURES



CONTRACT 202388

GRAPHIC SCALES

PLANS 40 20 0 40 80

PROFILE (HORIZONTAL) 40 20 0 40 80

PROFILE (VERTICAL) 8 4 0 8 16

DESIGN DATA

ADT 2008 = 13,900
ADT 2017 = 18,000
DHV = 10 %
T = 5 % *
V = 50 MPH

* (2% TTST & 3% DUAL)

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT = 0.706 MILES
LENGTH OF STRUCTURE PROJECT = 0.008 MILES

TOTAL LENGTH OF PROJECT = 0.714 MILES

Stantec
Stantec Consulting Services Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

2006 STANDARD SPECIFICATIONS

LETTING DATE: MARCH 16, 2010

G. S. BOYLES, P.E.
PROJECT ENGINEER

BRYON M. PALMER, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: MARC MORGAN, PE
DISTRICT ENGINEER – DIV 10 – DIST 1

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER 12-17-09

SIGNATURE: P.E.

Concord NORTH CAROLINA High Performance Living

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

12/17/2009
u:\roadway\003_morehead\proj\morehead_rdy_tsh.dgn
brpalmer

8/17/99

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-5145	1A

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER

1-21-10

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
1-D	CENTERLINE COORDINATE LIST
2 THRU 2-B	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-C	DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)
2-D	DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX
2-E	MINIMUM DEPTH CONCRETE CATCH BASIN
2-F	CONCRETE MEDIAN DROP INLET TYPE 'A' EXTRA DEPTH OVER 12' TO 21'
2-G	DETAIL OF MEDIAN CURB FOR CATCH BASIN
2-H	MODIFIED FRENCH DRAIN DETAIL
2-I	ANCHORAGE FOR FRAMES
2-J THRU 2-K	METHOD OF PIPE INSTALLATION
2-L THRU 2-M	SPECIAL REINFORCED BRIDGE APPROACH FILL
3	SUMMARY OF QUANTITIES
3A THRU 3D	DRAINAGE SUMMARY
3E	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, ASPHALT PAVEMENT REMOVAL & BREAKUP, CHAIN LINK FENCE
4 THRU 8	PLAN SHEET
9 THRU 13	PROFILE SHEET
TCP-1 THRU TCP-7E	TRAFFIC CONTROL PLANS
PMP-1 THRU PMP-6	PAVEMENT MARKING PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-8	SIGNING PLANS
SIG-1 THRU SIG-5	SIGNAL PLANS
U-1 THRU U-4	UTILTY CONFLICT PLANS
X-A	INDEX OF CROSS SECTIONS
X-B	CROSS SECTION SUMMARY
X-1 THRU X-42	CROSS-SECTIONS
SM-1 THRU SM-16	STRUCTURE PLANS
W-1	MSE RETAINING WALL PLAN, PROFILE, AND TYPICAL
W-2	MSE RETAINING WALL DETAIL AND NOTES

STANDARD DRAWINGS

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	
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast Concrete Endwall
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.30	Driveway Drop Inlet
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.04	Street Turnout
848.05	Wheelchair Ramp - Curb Cut
852.01	Concrete Islands
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES

EFFECTIVE: 07-18-06
REVISED: 07-30-08

GENERAL NOTES 2006 SPECIFICATIONS

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

GRADING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE 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.

SIDE ROADS:
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

STREET TURNOUT:
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

WHEELCHAIR RAMPS:
WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH STD. NO. 848.05

MISC:
STOPPING SIGHT DISTANCE WITHIN PROJECT LIMITS MEETS 45 MPH POSTED SPEED.

CONTRACTOR SHALL HAVE A COORDINATION MEETING WITH SPEEDWAY REPRESENTATIVE AND NCDOT REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION ON OR IN THE VICINITY OF ANY Y-LINE.

1/20/2010
u:\roadway\003_morehead\proj\morehead_rdy_psh_01a.dgn
bpalmer

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
U-5145	1B

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
- 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 — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- 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 Wheel Chair Ramp — WCR
- 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

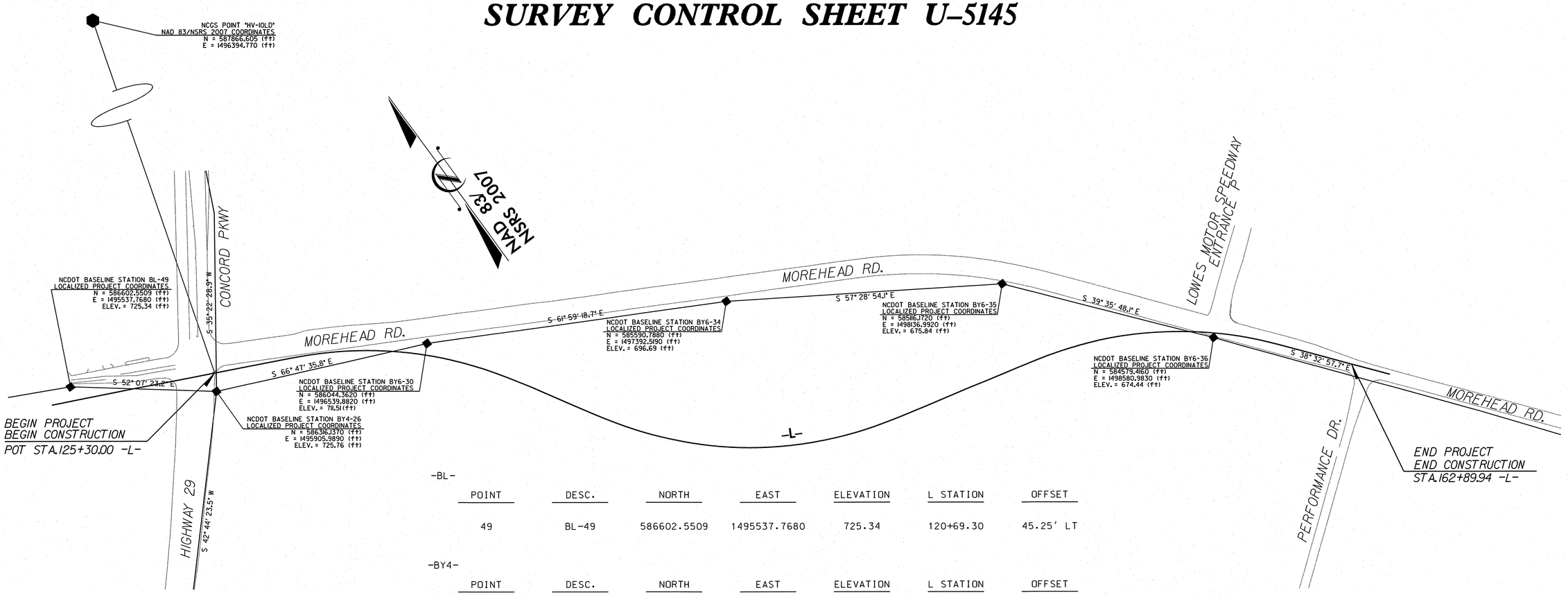
MISCELLANEOUS:

- 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.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	1C
R/W SHEET NO.	

SURVEY CONTROL SHEET U-5145



-BL-

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
49	BL-49	586602.5509	1495537.7680	725.34	120+69.30	45.25' LT

-BY4-

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
26	BY4-26	586316.1370	1495905.9890	725.76	125+23.91	59.40' RT

-BY6-

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
30	BY6-30	586044.3620	1496539.8820	711.51	132+09.14	36.96' LT
34	BY6-34	585590.7880	1497392.5190	696.69	141+71.80	464.35' LT
35	BY6-35	585116.1720	1498136.9920	675.84	152.48.90	266.44' LT
36	BY6-36	584579.4160	1498580.9830	674.44	158+39.05	14.73' RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR GPS POINT "HV-10LD"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 587866.605(ft) EASTING: 1496394.770(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984873
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "HV-10LD" TO -L- STATION 125+30.00 IS
S 16° 59' 46.32" W 1567.63'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES

1. THIS IS AN ENGLISH PROJECT
2. ALL -BL- AND -BYI- POINTS ARE 24" REBAR AND CAP UNLESS OTHERWISE NOTED.
3. NO BENCH MARKS HAVE BEEN SET AT THIS TIME. ALL BASELINE POINTS HAVE ELEVATIONS ESTABLISHED BY DOUBLE-RUN DIFFERNTIAL LEVEL LOOPS AND A BALANCED NETWORK OVER THE ENTIRE PROJECT.

■ INDICATES BASELINE CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL

⬢ INDICATES GPS POINT USED FOR HORIZONTAL AND VERTIAL CONTROL

11/23/2009
U:\Roadway\003_Morehead\Proj\morehead_rdy_psh_01C.dgn
smiller

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	1D
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER
12-17-09

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

CENTERLINE COORDINATE LIST

POINT #	LINE	STATION	NORTHING (X)	EASTING (Y)
1	L	120+00.00	586590.7023	1495455.8572
2	L	121+00.00	586548.5774	1495546.5517
3	L	122+00.00	586506.4525	1495637.2462
4	L	123+00.00	586464.3276	1495727.9407
5	L	124+00.00	586422.2028	1495818.6352
6	L	125+00.00	586380.0779	1495909.3297
7	L	126+00.00	586337.9530	1496000.0243
8	L	127+00.00	586295.8281	1496090.7188
9	L	128+00.00	586253.0057	1496181.0834
10	L	129+00.00	586206.0609	1496269.3567
11	L	130+00.00	586152.2686	1496353.6218
12	L	131+00.00	586091.6491	1496433.1170
13	L	132+00.00	586024.6230	1496507.2906
14	L	133+00.00	585951.6555	1496575.6277
15	L	134+00.00	585873.2531	1496637.6540
16	L	135+00.00	585790.1706	1496693.2715
17	L	136+00.00	585704.5890	1496744.9948
18	L	137+00.00	585618.6075	1496796.0553
19	L	138+00.00	585532.8284	1496847.4534
20	L	139+00.00	585449.0242	1496901.9860
21	L	140+00.00	585369.5885	1496962.6836
22	L	141+00.00	585295.4809	1497029.7825
23	L	142+00.00	585227.2155	1497102.8171
24	L	143+00.00	585165.2661	1497181.2804
25	L	144+00.00	585110.0628	1497264.6279
26	L	145+00.00	585061.9886	1497352.2812
27	L	146+00.00	585021.3773	1497443.6318
28	L	147+00.00	584988.5064	1497538.0444
29	L	148+00.00	584962.3886	1497634.5617
30	L	149+00.00	584939.0926	1497731.8100
31	L	150+00.00	584915.9759	1497829.1014
32	L	151+00.00	584892.8593	1497926.3929
33	L	152+00.00	584869.7096	1498023.6764
34	L	153+00.00	584844.7719	1498120.5102
35	L	154+00.00	584813.9515	1498215.6141
36	L	155+00.00	584775.3862	1498307.8471
37	L	156+00.00	584729.2775	1498396.5500
38	L	157+00.00	584675.9454	1498481.1071
39	L	158+00.00	584615.7602	1498560.9316
40	L	159+00.00	584549.1394	1498635.4694
41	L	160+00.00	584476.5915	1498704.2549
42	L	161+00.00	584399.9489	1498768.4778
43	L	162+00.00	584322.1310	1498831.2820
44	L	163+00.00	584244.2918	1498894.0599
45	L	164+00.00	584166.4526	1498956.8377
46	L	164+16.32	584153.7473	1498967.0846
47	Y1	10+00.00	586753.8096	1496125.7124
48	Y1	11+00.00	586671.5048	1496068.9152
49	Y1	12+00.00	586589.1999	1496012.1181
50	Y1	13+00.00	586507.0148	1495955.1486
51	Y1	14+00.00	586425.7049	1495896.9381
52	Y1	15+00.00	586345.4233	1495837.3176
53	Y1	16+00.00	586266.1943	1495776.3052
54	Y1	17+00.00	586188.0422	1495713.9194
55	Y1	17+75.00	586130.1491	1495666.2403
56	Y3	10+00.00	585214.2637	1498200.2770
57	Y3	11+00.00	585146.7754	1498126.4845
58	Y3	12+00.00	585079.2872	1498052.6920
59	Y3	13+00.00	584996.5090	1497998.4594
60	Y3	14+00.00	584899.4591	1497974.4569
61	Y3	15+00.00	584802.1628	1497951.3606
62	Y3	16+00.00	584703.9020	1497934.4200
63	Y3	17+00.00	584607.0203	1497955.8069
64	Y3	18+00.00	584527.4247	1498015.3064
65	Y3	18+68.84	584478.2559	1498063.4896
66	Y4	10+00.00	585163.6475	1498144.9326
67	Y4	11+00.00	585089.8550	1498212.4209
68	Y4	12+00.00	585006.7324	1498266.4349
69	Y4	13+00.00	584908.1284	1498274.8406
70	Y4	14+00.00	584813.7588	1498242.4054
71	Y4	15+00.00	584720.7155	1498205.7592
72	Y4	16+00.00	584627.9368	1498168.4743
73	Y4	17+00.00	584541.6888	1498118.1951
74	Y4	18+00.00	584466.9610	1498051.9636
75	Y4	19+00.00	584396.9697	1497980.5408
76	Y4	19+42.16	584367.4581	1497950.4256
77	Y5	10+00.00	584586.9304	1498594.7310
78	Y5	11+00.00	584648.2308	1498673.7390
79	Y5	12+00.00	584709.5312	1498752.7469
80	Y5	13+00.00	584770.8316	1498831.7549
81	Y5	13+51.29	584802.2704	1498872.2753
82	Y6	10+00.00	586371.3328	1496885.0762
83	Y6	11+00.00	586273.4956	1496867.6053
84	Y6	12+00.00	586174.6014	1496881.6241
85	Y6	13+00.00	586076.1048	1496898.8975
86	Y6	14+00.00	585981.2845	1496929.8348
87	Y6	15+00.00	585897.0658	1496983.2694
88	Y6	16+00.00	585828.6852	1497055.8787
89	Y6	17+00.00	585778.1060	1497142.0270
90	Y6	18+00.00	585730.7514	1497230.1039
91	Y6	19+00.00	585683.3968	1497318.1809
92	Y6	20+00.00	585636.0422	1497406.2578
93	Y6	21+00.00	585588.6876	1497494.3347
94	Y6	22+00.00	585541.3330	1497582.4116
95	Y6	23+00.00	585493.9784	1497670.4885
96	Y6	24+00.00	585446.6238	1497758.5654
97	Y6	25+00.00	585397.9760	1497845.9221
98	Y6	26+00.00	585343.9326	1497930.0387
99	Y6	27+00.00	585284.4056	1498010.3683
100	Y6	28+00.00	585219.6595	1498086.5538
101	Y6	28+80.91	585163.6475	1498144.9326
102	Y7	9+00.00	585939.5852	1497266.3556
103	Y7	10+00.00	585976.9916	1497176.7381
104	Y7	11+00.00	585942.0897	1497083.9005
105	Y7	12+00.00	585882.2993	1497004.3410
106	Y7	12+06.06	585878.1530	1496999.9204

12/17/2009
U:\roadway\003_morehead\proj\morehead_rdy_psh_01d.dgn
bpalmer

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON W. PALMER 12-17-09

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 1/26/2010

Stantec

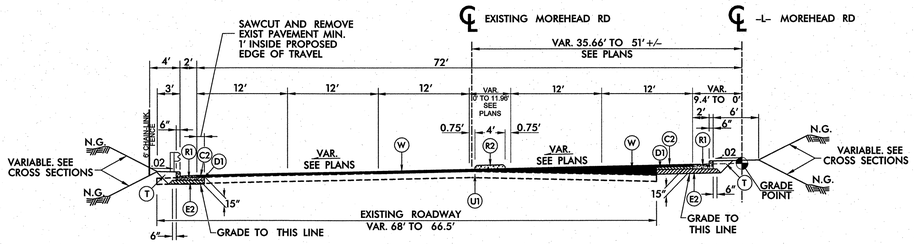
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2 " IN DEPTH
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5 " OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E2	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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 5 1/2 " IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE
J2	PROP. 8" AGGREGATE BASE COURSE
R1	PROP. 2'-6" CONCRETE CURB AND GUTTER (NCDOT STANDARD)
R2	PROP. 5" CONCRETE MONOLITHIC ISLAND
R3	PROP. 1'-6" CONCRETE CURB AND GUTTER (NCDOT STANDARD)
R4	PROP. 1'-6" CONCRETE CURB AND GUTTER (LMS STANDARD) SEE DETAIL 3
S	PROP. 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U1	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS)

NOTES:

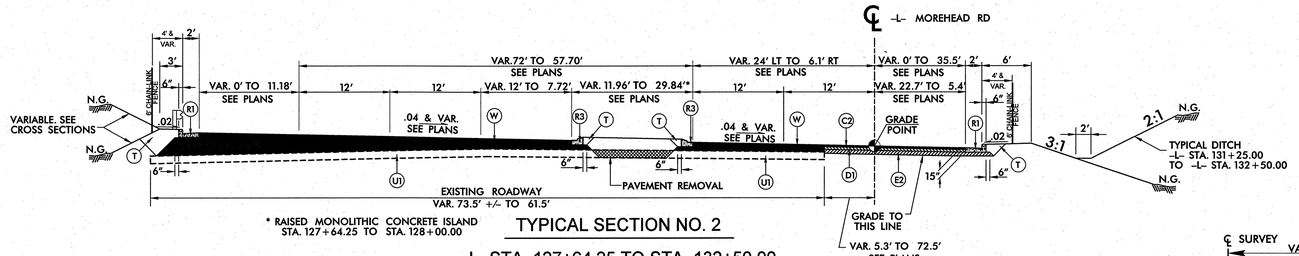
1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. PAVEMENT DESIGN FOR -L- PROVIDED BY NCDOT.
3. PAVEMENT DESIGN FOR -Y3-, -Y4-, -Y5-, -Y6-, AND -Y7- PROVIDED BY CHARLOTTE MOTOR SPEEDWAY



TYPICAL SECTION NO. 1

-L- STA. 125+19.87+/- TO STA. 127+64.25

USE IN CONJUNCTION WITH WEDGING DETAILS.

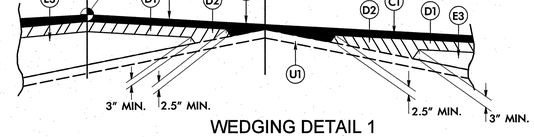


* RAISED MONOLITHIC CONCRETE ISLAND STA. 127+64.25 TO STA. 128+00.00

TYPICAL SECTION NO. 2

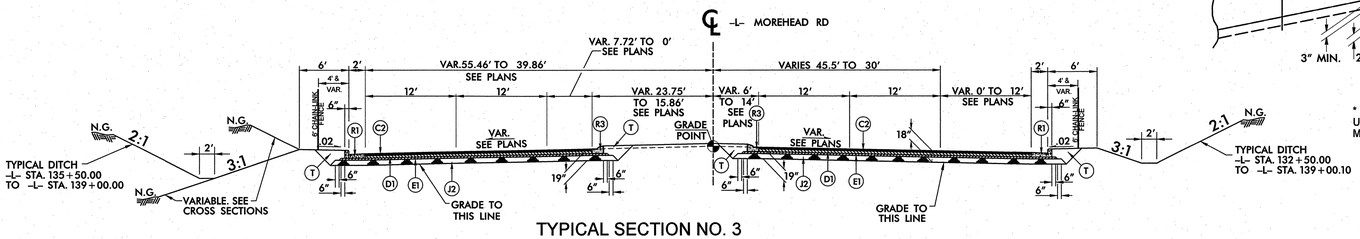
-L- STA. 127+64.25 TO STA. 132+50.00

USE IN CONJUNCTION WITH WEDGING DETAILS.



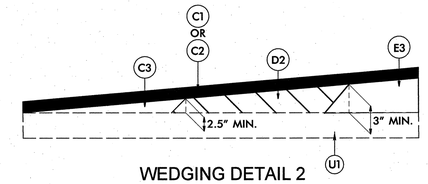
WEDGING DETAIL 1

* IN WEDGING AREAS GREATER THAN OR EQUAL TO 3" USE C2. IN WEDGING AREAS LESS THAN 3" USE C1 OR MILL TO ACHIEVE 3".

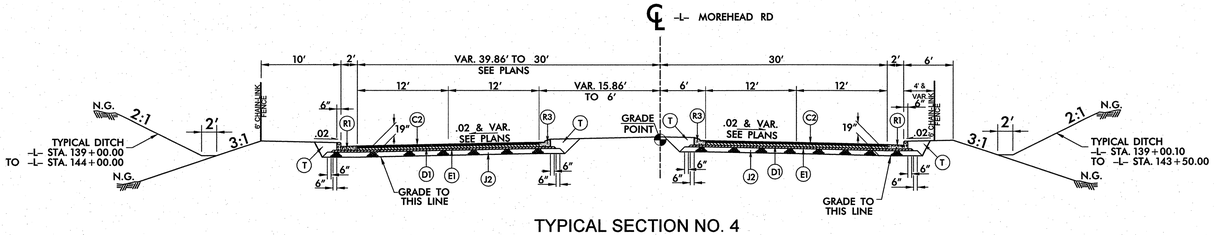


TYPICAL SECTION NO. 3

-L- STA. 132+50.00 TO STA. 139+00.10

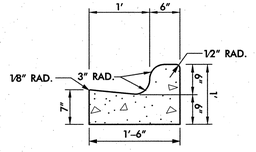


WEDGING DETAIL 2



TYPICAL SECTION NO. 4

-L- STA. 139+00.10 TO STA. 144+00.00



DETAIL 3

1'-6" CURB AND GUTTER (LMS STANDARD)

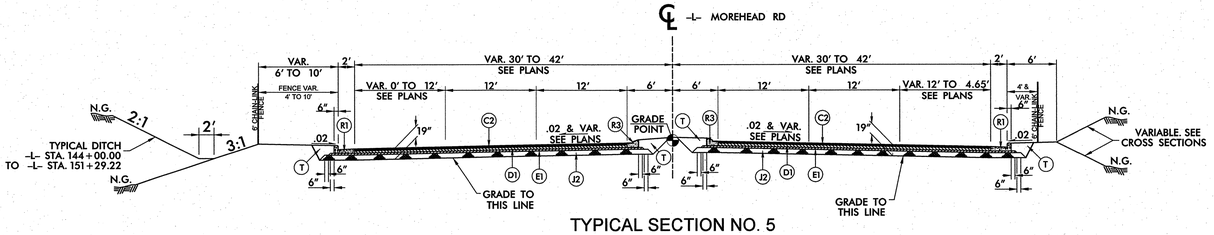
12/17/2009
u:\roadway\003_morehead\proj\morehead_rdy_typ.dgn
bpalmer

8/17/99

PAVEMENT SCHEDULE	
C1	1.5" TYPE S9.5C
C2	3" ASPHALT TYPE S9.5C
C3	VAR. DEPTH TYPE S9.5C
D1	4" TYPE I19.0C
D2	VAR. DEPTH TYPE I19.0C
E1	4" TYPE B25.0C
E2	8" TYPE B25.0C
E3	VAR. DEPTH TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
R1	PROP. 2'-6" CONC CURB AND GUTTER (NCDOT)
R2	PROP. 5" CONCRETE MONOLITHIC ISLAND
R3	PROP. 1'-6" CONC. CURB AND GUTTER (NCDOT)
R4	PROP. 1'-6" CONC. CURB AND GUTTER (LMS)
S	PROP. 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U1	EXISTING PAVEMENT
W	WEDGING

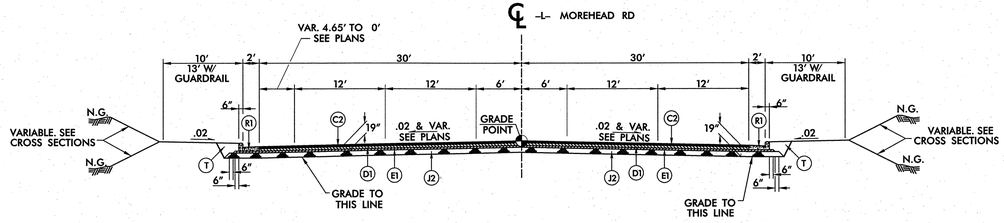
NOTES:

1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. PAVEMENT DESIGN FOR -L- PROVIDED BY NCDOT.
3. PAVEMENT DESIGN FOR -Y3-, -Y4-, -Y5-, -Y6-, AND -Y7- PROVIDED BY CHARLOTTE MOTOR SPEEDWAY



TYPICAL SECTION NO. 5

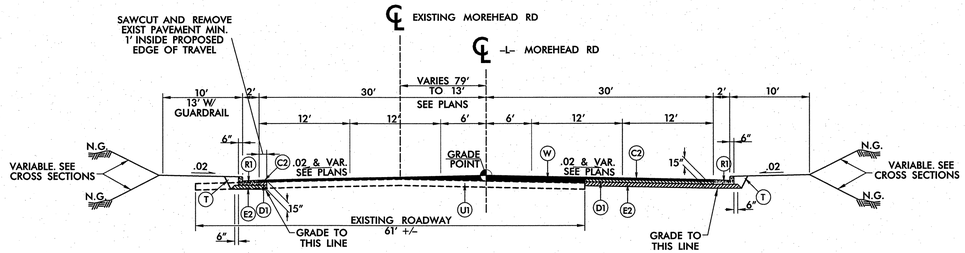
-L- STA. 144+00.00 TO STA. 153+50.00



TYPICAL SECTION NO. 6

-L- STA. 153+50.00 TO STA. 154+03.00 (BEGIN BRIDGE)

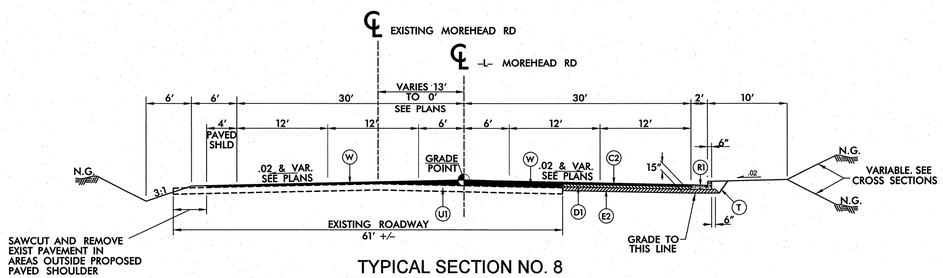
-L- STA. 154+47.00 (END BRIDGE) TO STA. 156+30.00



TYPICAL SECTION NO. 7

-L- STA. 156+30.00 TO STA. 158+81.43

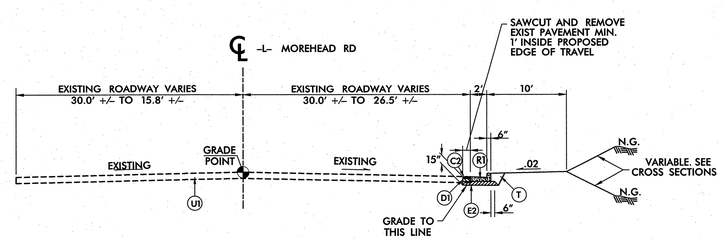
USE IN CONJUNCTION WITH WEDGING DETAILS. SEE SHEET 2.



TYPICAL SECTION NO. 8

-L- STA. 158+81.43 TO STA. 161+35.28

USE IN CONJUNCTION WITH WEDGING DETAILS. SEE SHEET 2.



TYPICAL SECTION NO. 9

-L- STA. 161+35.28 TO STA. 162+89.94

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON W. HARTLEY
12-17-09

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
12/24/2010

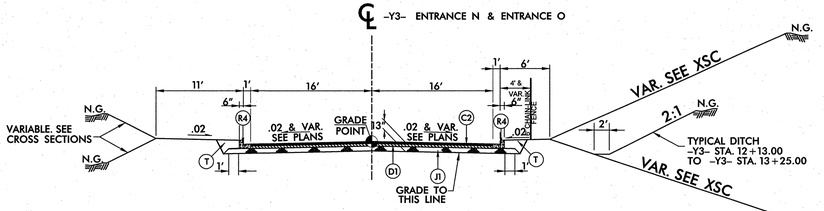
12/17/2009
u:\roadway\003_morehead\proj\morehead_rdy_typ.dgn
brad.mar

8/17/99

PAVEMENT SCHEDULE	
C1	1.5" TYPE S9.5C
C2	3" ASPHALT TYPE S9.5C
C3	VAR. DEPTH TYPE S9.5C
D1	4" TYPE I19.0C
D2	VAR. DEPTH TYPE I19.0C
E1	4" TYPE B25.0C
E2	8" TYPE B25.0C
E3	VAR. DEPTH TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
R1	PROP. 2'-6" CONC CURB AND GUTTER (NCDOT)
R2	PROP. 5" CONCRETE MONOLITHIC ISLAND
R3	PROP. 1'-6" CONC. CURB AND GUTTER (NCDOT)
R4	PROP. 1'-6" CONC. CURB AND GUTTER (LMS)
S	PROP. 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U1	EXISTING PAVEMENT
W	WEDGING

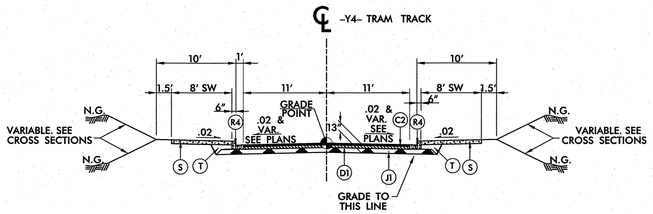
NOTES:

1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. PAVEMENT DESIGN FOR -L- PROVIDED BY NCDOT.
3. PAVEMENT DESIGN FOR -Y3-, -Y4-, -Y5-, -Y6-, AND -Y7- PROVIDED BY CHARLOTTE MOTOR SPEEDWAY



TYPICAL SECTION NO. 10

-Y3- STA. 10+11.00 TO STA. 13+87.53
-Y3- STA. 14+47.53 TO STA. 18+57.84



TYPICAL SECTION NO. 11

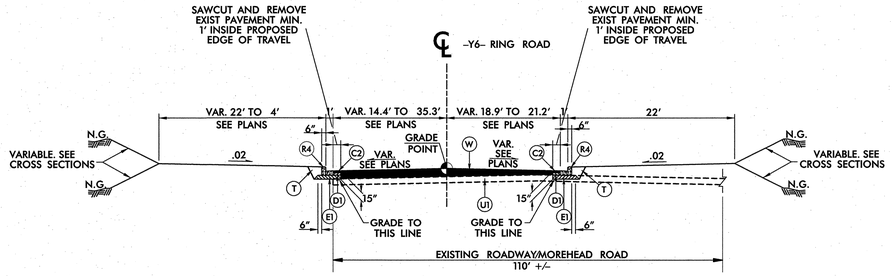
-Y4- STA. 10+16.00 TO STA. 19+34.11

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

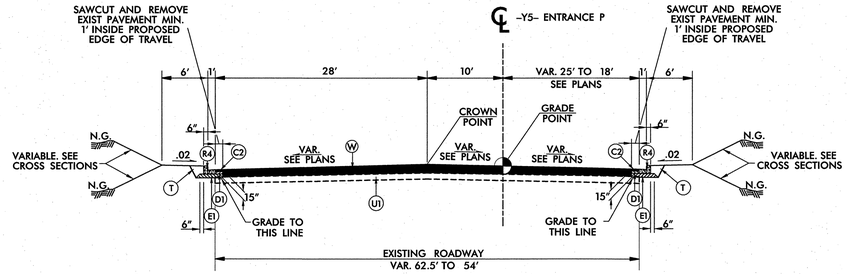
PROJECT REFERENCE NO.	SHEET NO.
U-5145	2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYAN W. PALMER 12-17-09



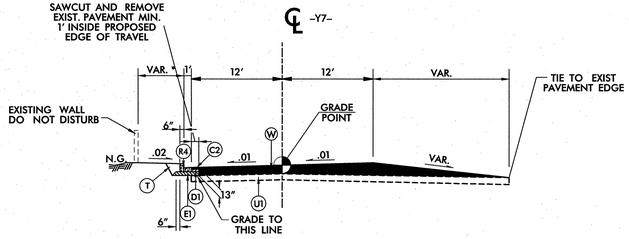
TYPICAL SECTION NO. 14

-Y6- STA. 15+25.00 TO STA. 16+54.84
USE IN CONJUNCTION WITH WEDGING DETAILS. SEE SHEET 2.



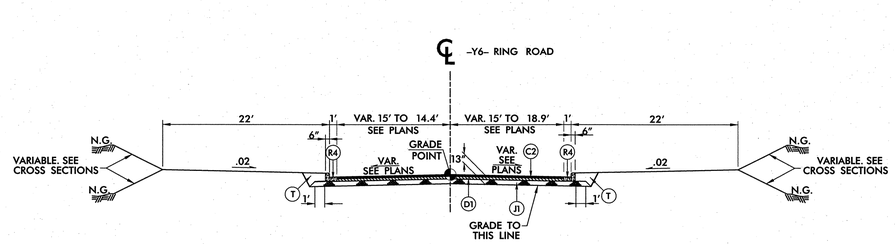
TYPICAL SECTION NO. 12

-Y5- STA. 10+30.51 TO STA. 12+04.94
USE IN CONJUNCTION WITH WEDGING DETAILS. SEE SHEET 2.



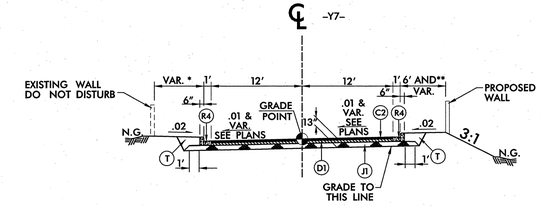
TYPICAL SECTION NO. 15

-Y7- STA. 9+00.00 TO 10+00.00
USE IN CONJUNCTION WITH WEDGING DETAILS. SEE SHEET 2.
* TIE TO N.G. OR EXIST. WALL
SEE CROSS SECTIONS FOR GUIDANCE.



TYPICAL SECTION NO. 13

-Y6- STA.11+50.00 TO STA. 15+25.00



TYPICAL SECTION NO. 16

-Y7- STA. 10+00.00 TO STA. 12+06.06
* TIE TO N.G. OR EXIST. WALL
SEE CROSS SECTIONS FOR GUIDANCE.
** TIE TO PROPOSED WALL OR 3:1 TO N.G.
SEE CROSS SECTIONS FOR GUIDANCE.

12/17/2009
u:\roadway\003_morehead\proj\morehead_rdy_typ.dgn
brpalmer

5/14/99

PARTIAL SECTION

PLAN

PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
H	#4	20	4'-6"	60.12
H1	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	0.43 *
BRICK MASONRY PER FT HT (MIN)	0.41

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

DETAIL OF HANDLE

SECTION X-X **SECTION Y-Y**

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON 1/19/10

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

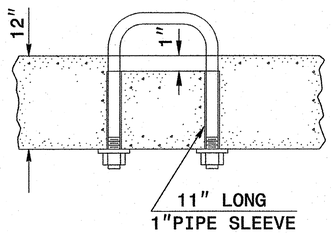
DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: ______ DATE: ______
MODIFIED BY: rnbritt DATE: 05/10/06
CHECKED BY: ______ DATE: ______
FILE SPEC.: details/nbritt/english/hydro/boxconversion

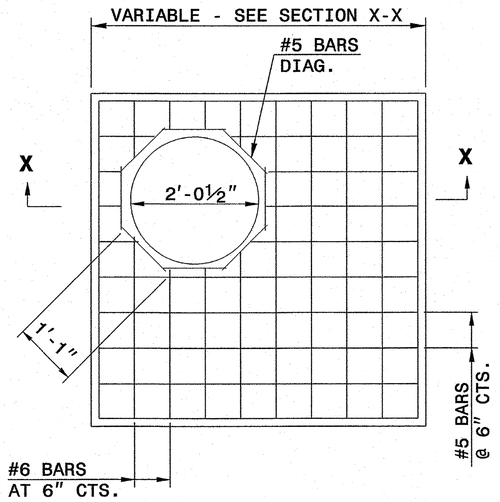
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2-D

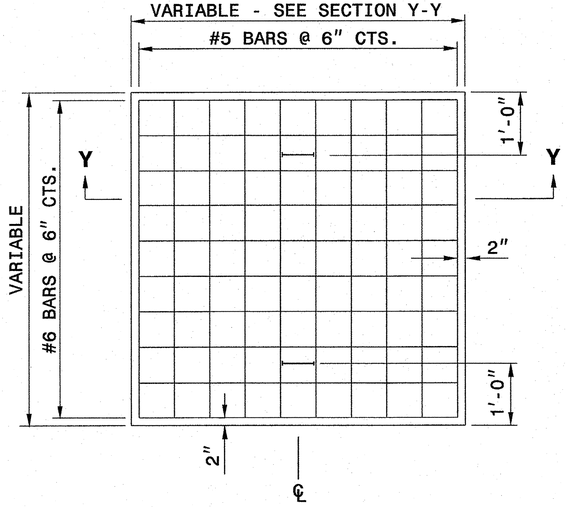
5/14/99



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

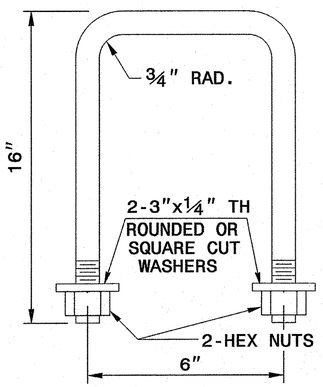
BILL OF MATERIALS

MASONRY	
TOP SLAB CONCRETE CLASS "A"	.037YDS^3 PER FT^2
BRICK MASONRY	.025YDS^3 PER FT^2
REINFORCING STEEL	7.64LBS PER FT^2

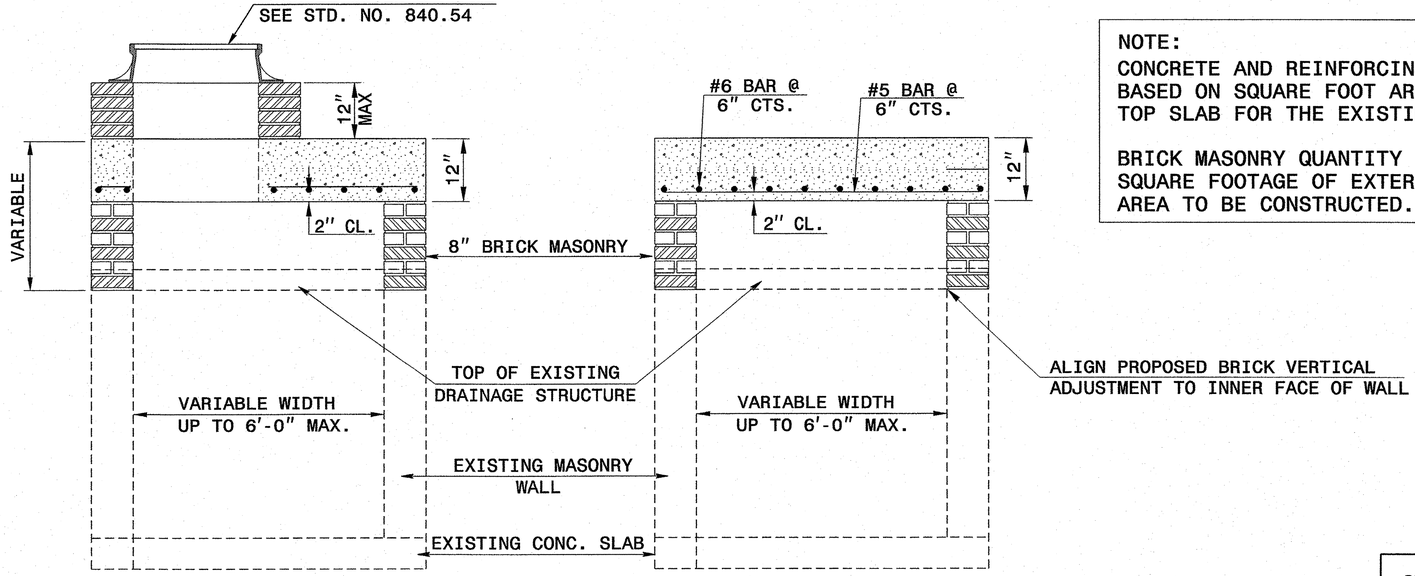
MANHOLE OPTION QUANTITIES			
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.

BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
1/9/10

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

DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY:	T.S.S.	DATE:	FEB.2000
MODIFIED BY:	E.E.W.	DATE:	NOV.2001
CHECKED BY:		DATE:	7/13/09
FILE SPEC.:	W:\bricward\usr\details\stand\boxtotbjbe.dgn		

13-JUL-2009 09:25
s:\contracts\contracts\special details\ericward\usr\details\stand\boxtotbjbe.dgn
jhowerton
AT PS237501

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2-E

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

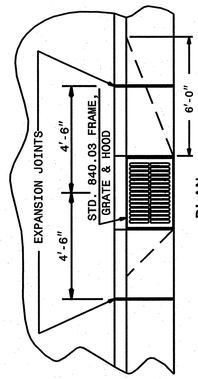
ENGLISH DETAIL DRAWING FOR

MINIMUM DEPTH CONCRETE CATCH BASIN

12" THRU 24" PIPE

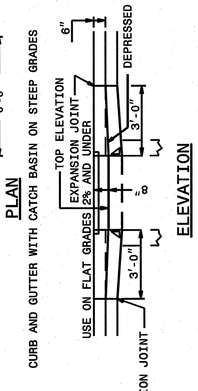
SHEET 1 OF 1 — 840D02

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
CONSTRUCT WITH PIPE CROWNS MATCHING.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.



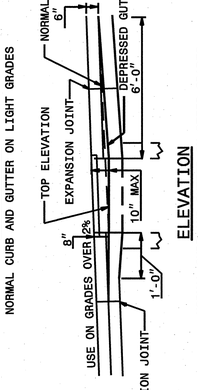
PLAN

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES



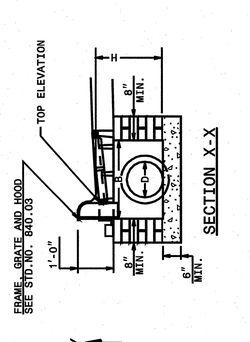
ELEVATION

NORMAL CURB AND GUTTER ON LIGHT GRADES

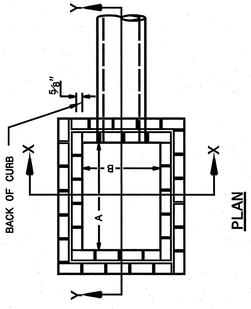


ELEVATION

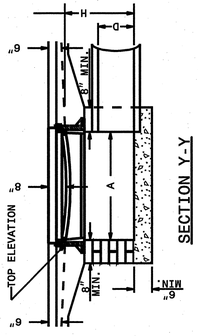
NORMAL CURB AND GUTTER ON STEEP GRADES



SECTION X-X



PLAN



SECTION Y-Y

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN

PIPE	DIMENSIONS OF BOX AND PIPE SPAN A	WIDTH B	MIN. HEIGHT H	CU. YDS. CONC. IN BOX BOTTOM SLAB	CONCRETE IN WALLS	TOTAL CONC.	DEDUCTIONS ONE PIPE C.M.	R.C.
12"	3'-0"	2'-2"	2'-0"	0.235	0.343	0.578	0.015	0.026
15"	3'-0"	2'-2"	2'-3"	0.235	0.400	0.635	0.023	0.036
18"	3'-0"	2'-2"	2'-6"	0.235	0.457	0.692	0.033	0.049
24"	3'-0"	2'-2"	3'-1"	0.235	0.590	0.825	0.059	0.085

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN E. HOWERTON
11/19/10

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

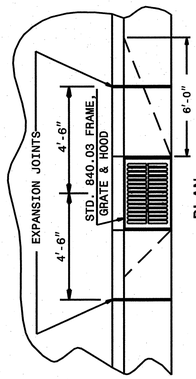
ENGLISH DETAIL DRAWING FOR

MINIMUM DEPTH BRICK CATCH BASIN

12" THRU 24" PIPE

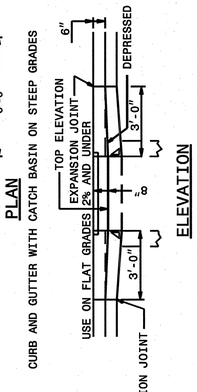
SHEET 1 OF 1 — 840D01

GENERAL NOTES:
MORTAR JOINTS ½" TO ⅝" THICK.
USE CLASS "B" CONCRETE THROUGHOUT.
USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CROWNS MATCHING.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.



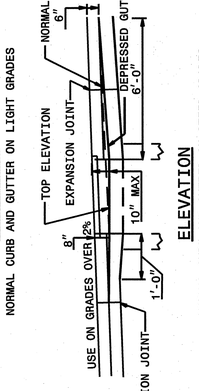
PLAN

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES



ELEVATION

NORMAL CURB AND GUTTER ON LIGHT GRADES



ELEVATION

NORMAL CURB AND GUTTER ON STEEP GRADES

SECTION X-X

PLAN

SECTION Y-Y

MINIMUM DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN

PIPE	DIMENSIONS OF BOX AND PIPE SPAN A	WIDTH B	MIN. HEIGHT H	CU. YDS. CONC. IN BOX BOTTOM SLAB	TOTAL CONC.	BRICK MASONRY BRICK WORK IN WALLS	TOTAL BRICK AND CONCRETE	DEDUCTIONS ONE PIPE C.M.	R.C.
D									
12"	3'-0"	2'-2"	2'-0"	0.281	0.281	0.481	0.762	0.020	0.042
15"	3'-0"	2'-2"	2'-3"	0.281	0.281	0.562	0.843	0.031	0.047
18"	3'-0"	2'-2"	2'-6"	0.281	0.281	0.642	0.923	0.044	0.065
24"	3'-0"	2'-2"	3'-1"	0.281	0.281	0.828	1.109	0.078	0.121

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

ENGLISH DETAIL DRAWING FOR

MINIMUM DEPTH BRICK CATCH BASIN

12" THRU 24" PIPE

SHEET 1 OF 1 — 840D01

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

SEE PLATE FOR TITLE

ORIGINAL BY: 2002 STD. 840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE:
FILE SPEC.:

04-AUG-2009 14:29
s:\contracts\contracts\special details\ericward\usr\details\stand\840stds\840d01.dgn
jhowerton AT PS237501

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2-F

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE DROP INLETS WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
WHEN PAYMENT FOR THE DROP INLET IS MADE ON A PER EACH BASIS, THE CONCRETE APRON WILL BE CONSIDERED PART OF THE DROP INLET.
CONSTRUCT WITH PIPE CROWNS MATCHING.
USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24(SHOWN), 840.20, 840.29, AND 840.33.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 21 FEET.

DETAIL
(APRON SUPPORT NOTCH)

DOWEL-A

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

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 21'
12" THRU 72" PIPE

SHEET 1 OF 2 840D17

QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING

	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"
ADDITIONAL INLETS						
CONCRETE CU. YDS.	0.191	0.417	0.665	0.897	1.145	1.380
CONCRETE APRON CU. YDS.	0.074	0.148	0.222	0.296	0.370	0.444

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS										CU YDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
PIPE D	SPAN J	WIDTH K	SPAN L	WIDTH M	HEIGHT H	BARS E NO.	BARS E LENGTH	BARS F NO.	BARS F LENGTH	BARS G NO.	BARS G LENGTH	BARS H NO.	BARS H LENGTH	TOTAL LBS.	BOTTOM SLAB	H TOTAL	H PER FT HT	APRON TOTAL	C.S.	R.C.
12"	3'-8"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	0.395	0.015	0.024
15"	3'-8"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	0.395	0.023	0.036
18"				2'-0"	4'-3"	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247		1.807	0.033	0.049
24"				2'-10"	4'-9"	8	1'-5"	6	4'-9"	—	—	—	—	27	0.444	1.362	0.278		2.201	0.059	0.085
30"			3'-8"	3'-5"	5'-3"	8	2'-0"	7	4'-9"	—	—	—	—	33	0.502	1.644	0.288		2.541	0.092	0.127
36"			4'-0"	4'-0"	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	47	0.560	1.931	0.321		2.920	0.132	0.178
42"			4'-10"	4'-10"	6'-3"	10	3'-1"	9	5'-7"	4	1'-5"	3	5'-7"	67	0.704	2.500	0.370		3.677	0.180	0.243
48"			5'-4"	5'-4"	6'-9"	11	3'-7"	10	6'-1"	4	1'-11"	4	6'-1"	87	0.823	3.013	0.407		4.315	0.235	0.317
54"			6'-0"	6'-0"	7'-3"	12	4'-1"	11	6'-7"	5	2'-5"	5	6'-7"	107	0.951	3.589	0.444		5.072	0.297	0.401
60"			6'-6"	6'-6"	7'-9"	13	4'-9"	12	7'-3"	6	3'-1"	6	7'-3"	135	1.311	4.539	0.494		6.170	0.367	0.495
66"			7'-2"	7'-2"	8'-3"	14	5'-4"	14	7'-10"	7	3'-7"	7	7'-10"	168	1.136	5.061	0.537		6.901	0.444	0.599
72"	3'-8"	2'-0"	7'-8"	7'-8"	8'-9"	15	5'-11"	15	8'-5"	4	4'-3"	8	8'-5"	199	1.500	5.860	0.580	0.395	7.868	0.528	0.713

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

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 21'
12" THRU 72" PIPE

SHEET 2 OF 2 840D17

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

SEE PLATE FOR TITLE

ORIGINAL BY 2002 STD.840.17 DATE:
MODIFIED BY K.A. KEMPF DATE: 07-06-09
CHECKED BY: DATE:
FILE SPEC. /usr/details/stand/840d17.dgn

04-AUG-2009 14:18
s:\contracts\contracts\special details\erioward\usr\details\stand\840d17.dgn
jhowerton AT PS237501

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2-G

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

7-06

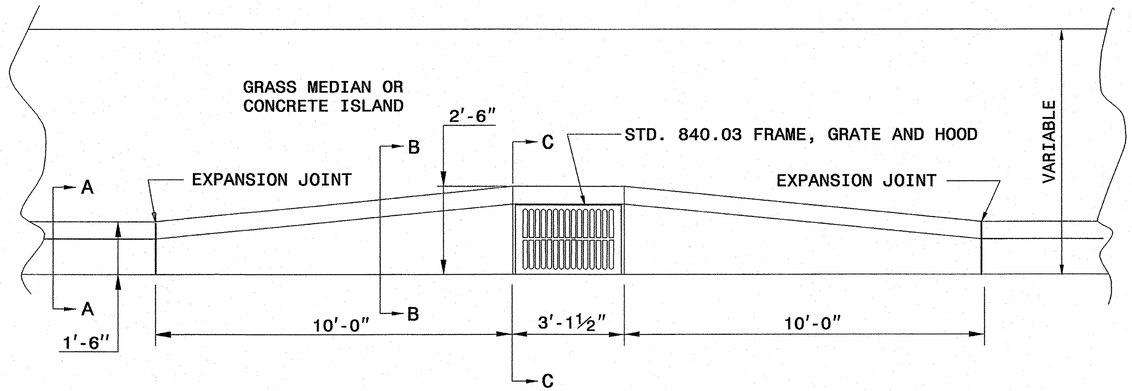
ENGLISH DETAIL DRAWING FOR

MEDIAN CURB FOR CATCH BASIN

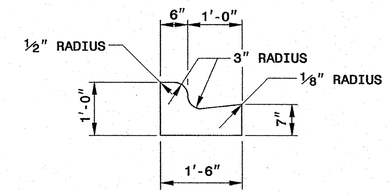
(FOR USE WITH 1'-6" CURB AND GUTTER)

SHEET 1 OF 1

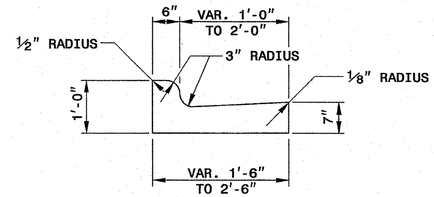
852D05



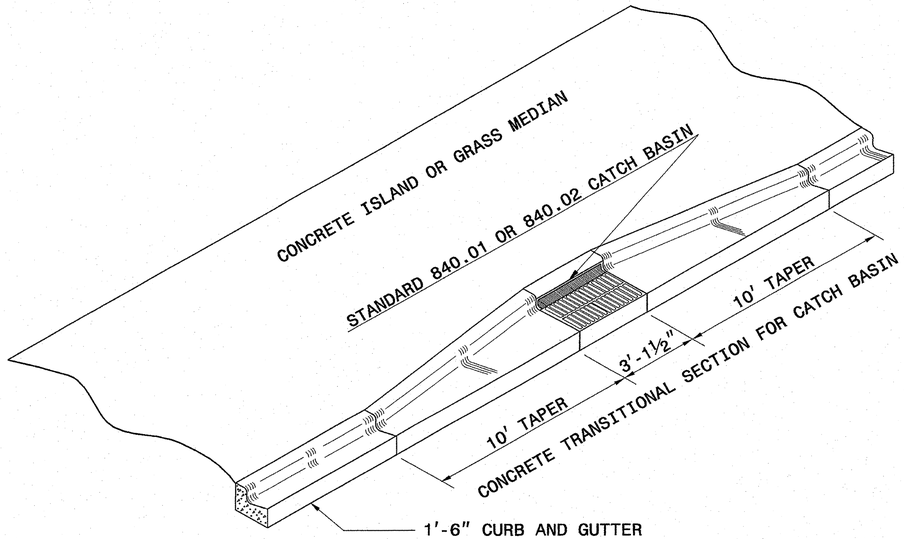
PLAN

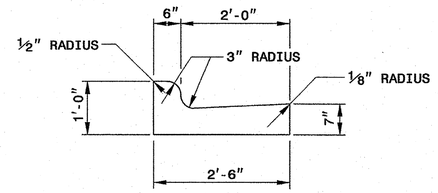


SECTION - AA



SECTION - BB





SECTION - CC

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

7-06

ENGLISH DETAIL DRAWING FOR

MEDIAN CURB FOR CATCH BASIN

(FOR USE WITH 1'-6" CURB AND GUTTER)

SHEET 1 OF 1

852D05

10-JUL-2009 13:25
R:\contracts\PS237489\special details\kkempf\english\0852d05_u5145.dgn
kkempf at PS237489

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
1/19/10

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

DETAIL OF MEDIAN CURB FOR CATCH BASIN

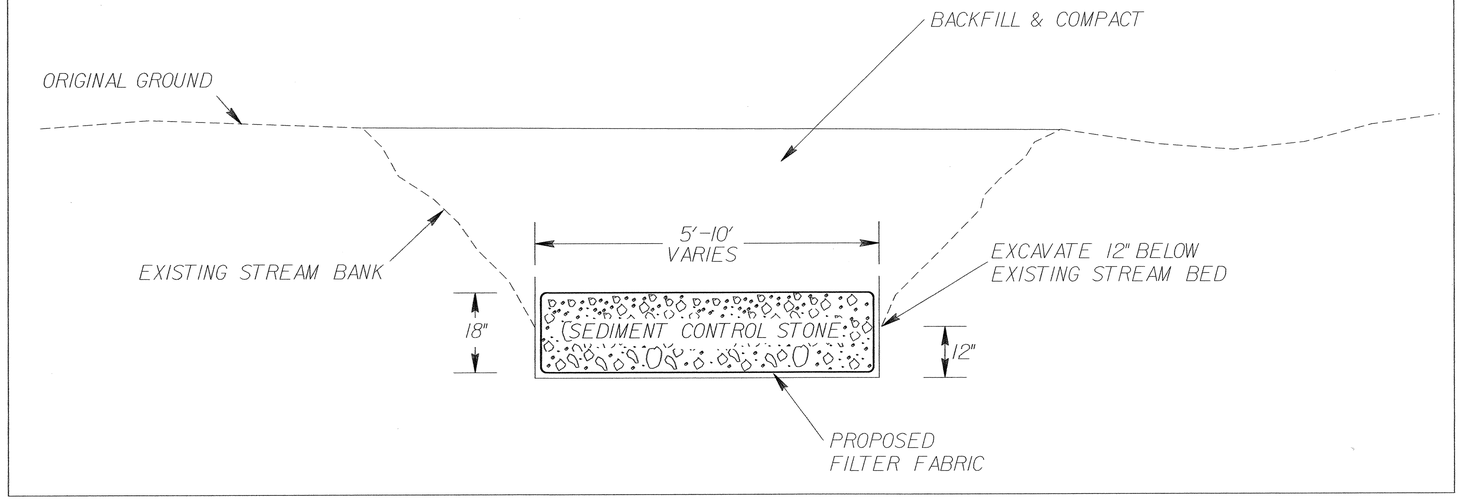
ORIGINAL BY: K.A. KEMPF DATE: JULY 2009
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/13/09
FILE SPEC.: kkempf/english/0852d05_u5145.dgn

PS237489 7/10/2009 0852d05_u5145 kkempf PS-Oce860-34dtbond

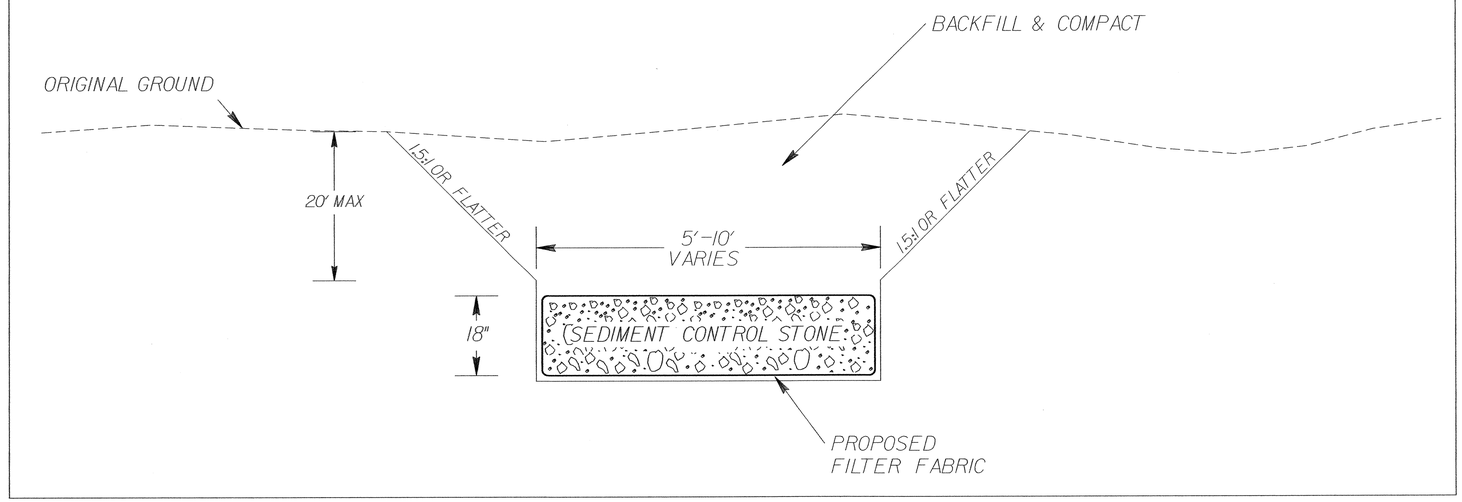
PROJECT REFERENCE NO.	SHEET NO.
U-5145	2-H

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 026948 ENGINEER MARC P. MORGAN 1/14/10	

U-5145 MOREHEAD RD.
MODIFIED FRENCH DRAIN DETAIL I
FOR INSTALLATION IN THE STREAM CHANNEL



U-5145 MOREHEAD RD.
MODIFIED FRENCH DRAIN DETAIL II
FOR INSTALLATION OUTSIDE THE STREAM CHANNEL



NOTES: INSTALLATION SHALL BE ACCORDING TO THE DETAIL OR AS DIRECTED BY THE ENGINEER.

POSITIVE OUTFALL DRAINAGE SLOPE SHALL BE ACHIEVED THROUGHOUT THE LENGTH OF THE MODIFIED FRENCH DRAIN INSTALLATION.

CARE SHALL BE TAKEN DURING AND AFTER CONSTRUCTION TO AVOID SEDIMENT RELEASE IN DOWN STREAM JURISDICTIONAL STREAM SECTIONS UNTIL VEGETATION IS STABILIZED. A SPECIAL STILLING BASIN (NCDOT STD 1630.06) MAY BE USED AND LOCATED AT THE DISCRETION OF THE PROJECT ENGINEER.

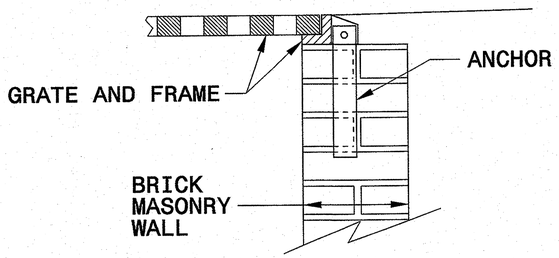
ANY CLEAN UP DUE TO SEDIMENT LOSE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

5/14/09
14-JAN-2010 16:15
J:\DOT\RDY\Color Plots\145_morehead trench detail.dgn
User: ap nlowman
PWPAD: default

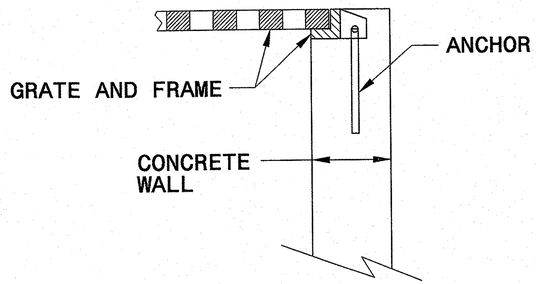
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

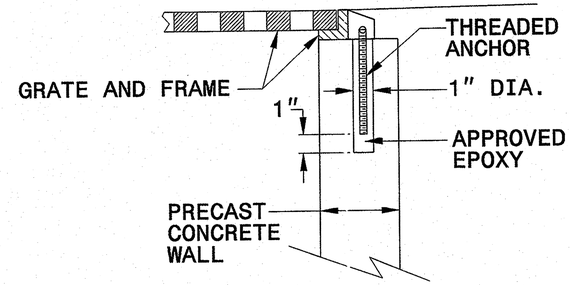
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



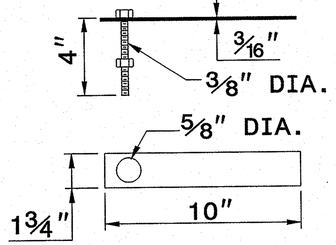
CONCRETE CONSTRUCTION



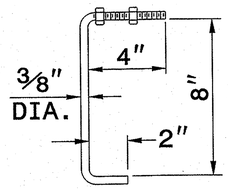
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

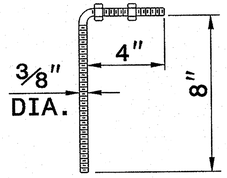
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



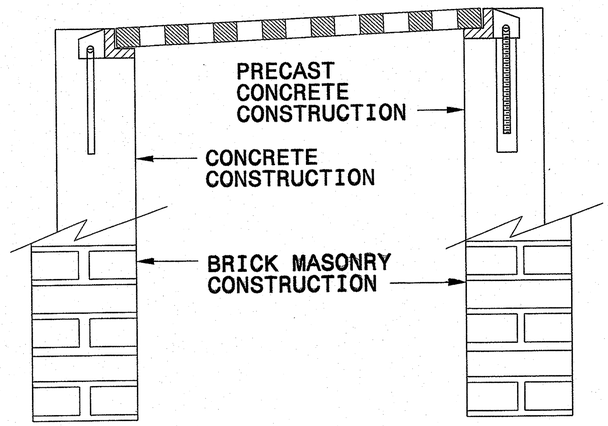
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOWARD
1/9/10

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: 11/13/06
FILE SPEC.:		

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

30-JUL-2009 08:48
s\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn
jhowerton AT PS237501

5/14/99

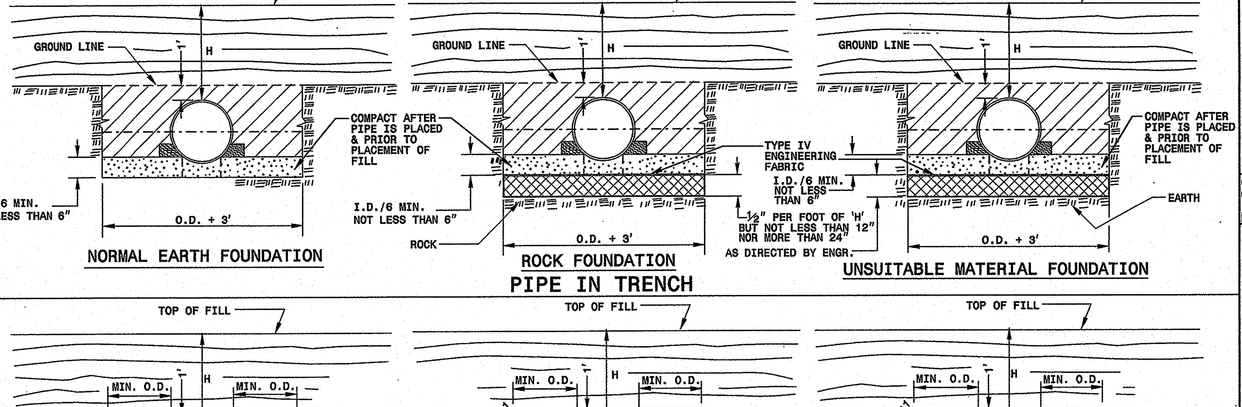
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

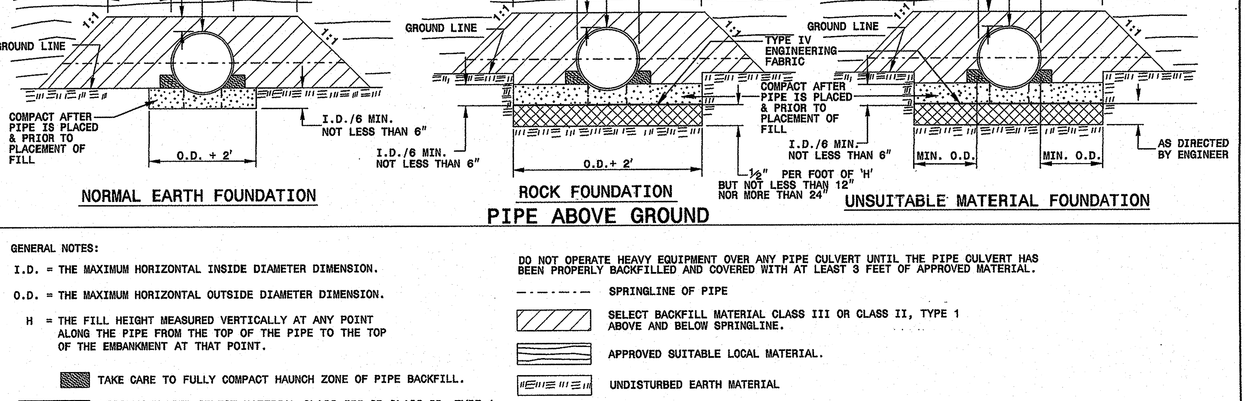
ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 1 OF 3

300D01

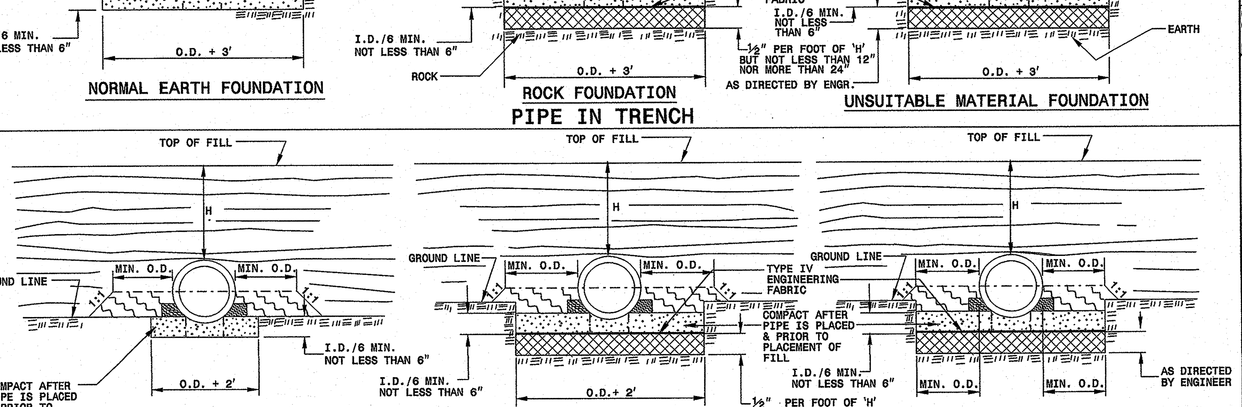
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

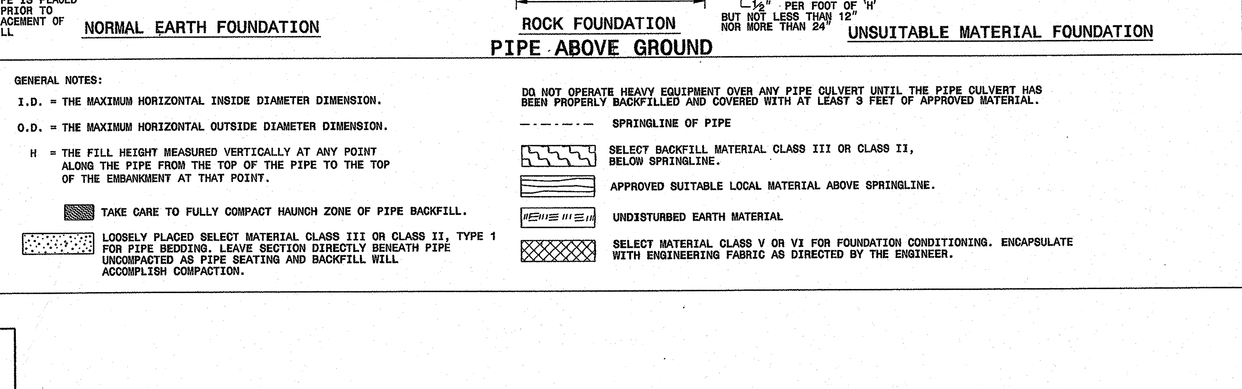
ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 2 OF 3

300D01

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

SEE PLATE FOR TITLE

ORIGINAL BY: Kknopf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/24/09
FILE SPEC: /e-ci/ericward/stds/stdstodetails/30001/0300d01.dgn

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 DIVISION OF HIGHWAYS
11/9/10

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2-J

RevStyle: Page 2 Char

30-JUL-2009 08:49
s:\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn
jhowerton AT PS237501

5/14/99

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

7-06

ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3

300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 60″
* (Maximum fill) 20′ for pipe diameters ≤ 24″
17′ for pipe diameters ≥ 30″ and ≤ 60″

PVC - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 36″
* (Maximum fill) 30′ for pipe diameters ≥ 12″ and ≤ 36″

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1′ for Class IV & CLASS V
2′ for Class III & Class II

* (Maximum fill) 10′ - Class II pipe
20′ - Class III pipe
30′ - Class IV pipe
40′ - Class V pipe

(For fills > 40′ & < 80′ use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

7-06

ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3

300D01

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC: s:\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 JOHN MICHAEL MONTEITH

PROJECT REFERENCE NO. U-5145
SHEET NO. 2-K

237501 7/30/2009 0300d01 jhowerton PS-Oce860-34dtbond

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2L

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

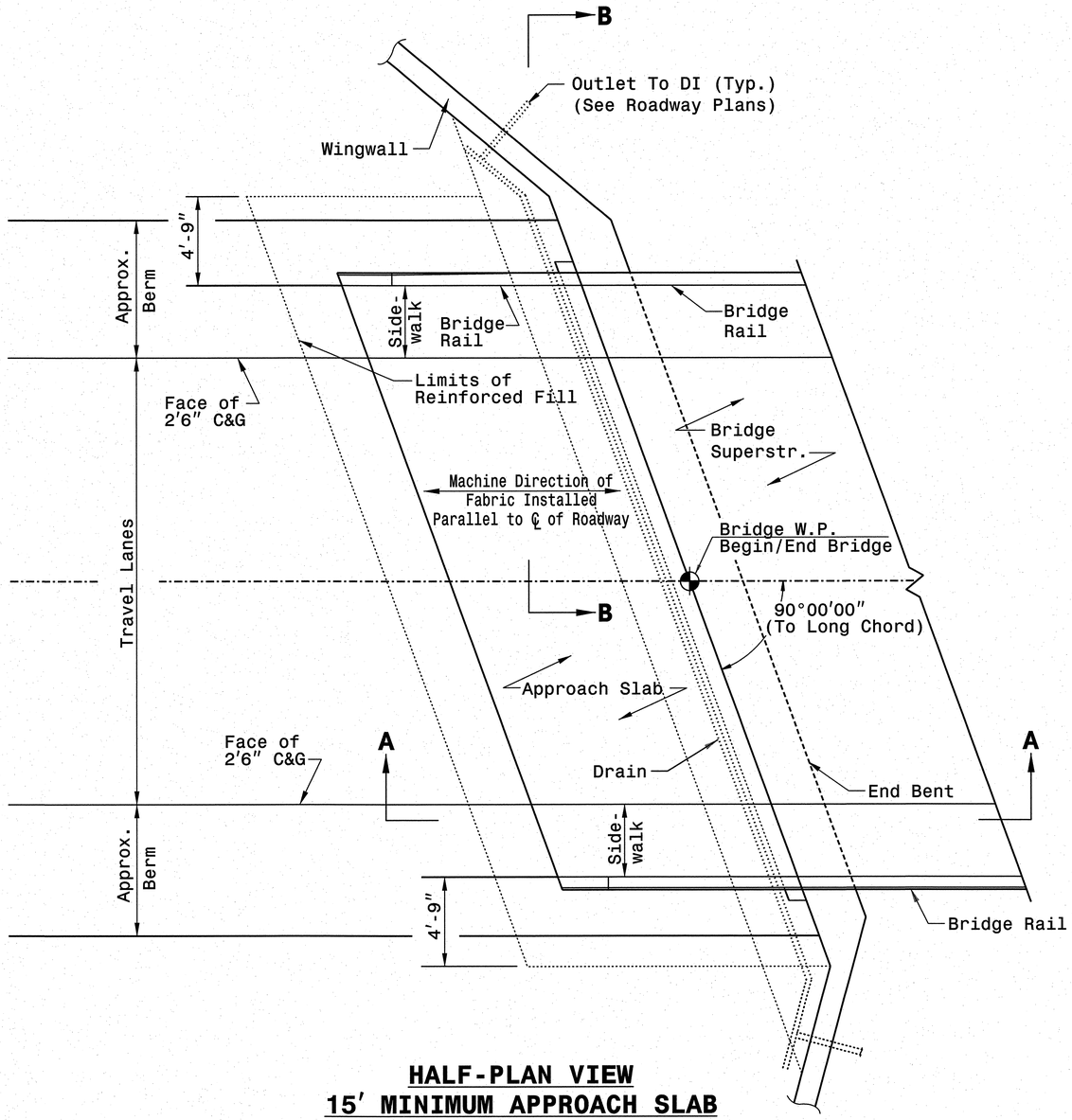
ENGLISH DETAIL DRAWING FOR

REINFORCED BRIDGE APPROACH FILLS

15′ MINIMUM APPROACH SLAB

SHEET 1 OF 2

422D10



HALF-PLAN VIEW
15′ MINIMUM APPROACH SLAB

END BENT 1 SHOWN
(END BENT 2 TYPICAL)

NORTH CAROLINA PROFESSIONAL SEAL 19406 ENGINEER JOSEPH T. KELVINGTON 8/10

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

ENGLISH DETAIL DRAWING FOR

SPECIAL REINFORCED BRIDGE APPROACH FILL

15′ MINIMUM APPROACH SLAB

SHEET 1 OF 2

422D10

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

SEE PLATE FOR TITLE

ORIGINAL BY:	STD.422.01	DATE:	
MODIFIED BY:	TSS	DATE:	1-6-10
CHECKED BY:	JTK	DATE:	1-8-10
FILE SPEC.:	s:details/stand/422d1001e.dgn		

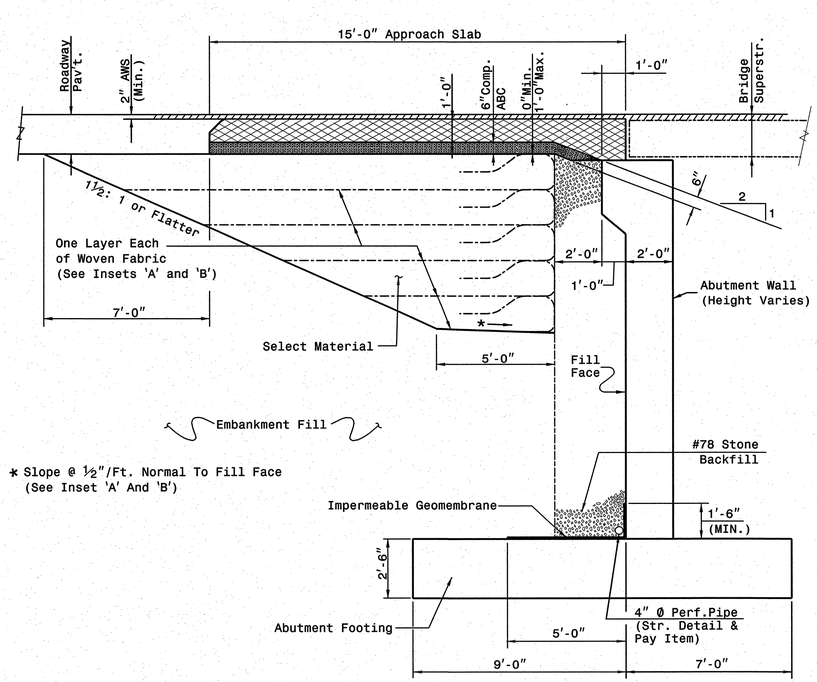
1/8/2010
i:\170006732\transportation\design\roadway\003_morehead\proj\morehead_rdy_psh_021-02m.dgn
bpalmer

PROJECT REFERENCE NO.	SHEET NO.
U-5145	2M

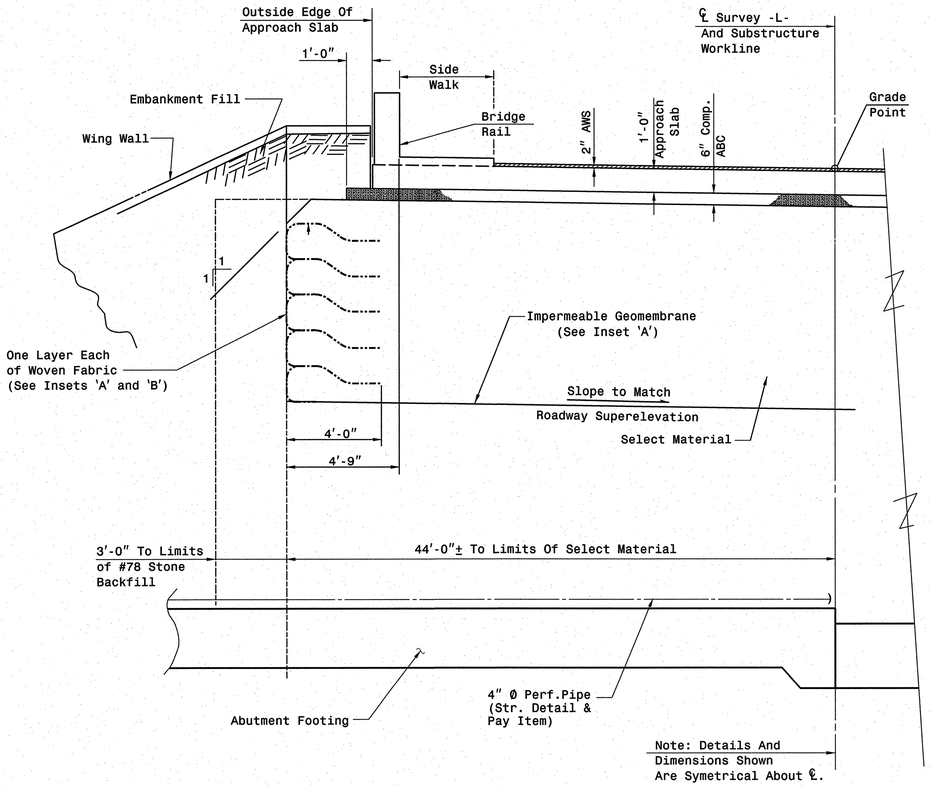
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
REINFORCED BRIDGE APPROACH FILLS
SECTIONS AND INSETS

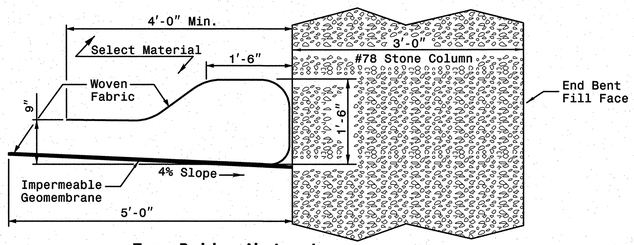
SHEET 2 OF 2
422D10



SECTION A-A

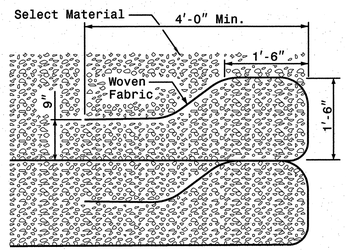


SECTION B-B



Typ. Bridge Abutment
Showing First Lift

Inset 'A'



Typical Fabric Lift and Wrap
Showing Second and Above Lifts

Inset 'B'

NORTH CAROLINA PROFESSIONAL SEAL 12406 ENGINEER JOSEPH T. KELVINGTON
Joseph T. Kelvington 1/8/10

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

ENGLISH DETAIL DRAWING FOR
SPECIAL REINFORCED BRIDGE APPROACH FILL
SECTIONS AND INSETS

SHEET 2 OF 2
422D10

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

SEE PLATE FOR TITLE

ORIGINAL BY:	STD.422.01	DATE:	
MODIFIED BY:	TSS	DATE:	1-6-10
CHECKED BY:	JTK	DATE:	1-8-10
FILE SPEC.:	s:details/stand/422d1001e.dgn		

1/8/2010
j:\171000732\transportation\design\roadway\003_morehead\proj\morehead_rdy_psh_021-02m.dgn
brpalmer

5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0022000000-E	225	64,000	CY	UNCLASSIFIED EXCAVATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (154+25)
0036000000-E	225	1,000	CY	UNDERCUT EXCAVATION
0038000000-E	SP	100	CY	SHALLOW UNDERCUT
0080000000-E	SP	50	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	310	CY	DRAINAGE DITCH EXCAVATION
0156000000-E	250	9,420	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0177000000-E	250	790	SY	BREAKING OF EXISTING ASPHALT PAVEMENT
0192000000-N	260	10	HR	PROOF ROLLING
0195000000-E	265	200	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	200	SY	FABRIC FOR SOIL STABILIZATION
0320000000-E	SP	2,220	SY	FOUNDATION CONDITIONING FABRIC
0330000000-E	SP	710	TON	GENERIC DRAINAGE ITEM FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0366000000-E	310	2,308	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	1,472	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E	310	1,076	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E	310	380	LF	30" RC PIPE CULVERTS, CLASS III
0390000000-E	310	176	LF	36" RC PIPE CULVERTS, CLASS III
0402000000-E	310	92	LF	48" RC PIPE CULVERTS, CLASS III
0408000000-E	310	164	LF	54" RC PIPE CULVERTS, CLASS III
0426000000-E	310	896	LF	72" RC PIPE CULVERTS, CLASS III
0453000000-E	310	1	EA	**" PIPE END SECTION (24")
0714000000-E	310	60	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0726000000-E	310	20	LF	30" BIT COAT CS PIPE CULVERTS, TYPE B 0.079" THICK
0738000000-E	310	68	LF	42" BIT COAT CS PIPE CULVERTS, TYPE B 0.109" THICK
0807000000-E	310	2	EA	18" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0995000000-E	340	516	LF	PIPE REMOVAL
1011000000-N	500	Lump Sum		FINE GRADING
1022000000-E	SP	500	LB	SEALING EXISTING PAVEMENT CRACKS
1121000000-E	520	11,000	TON	AGGREGATE BASE COURSE
1220000000-E	545	500	TON	INCIDENTAL STONE BASE
1330000000-E	607	500	SY	INCIDENTAL MILLING
1491000000-E	610	9,050	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1503000000-E	610	6,990	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0C
1523000000-E	610	5,440	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1560000000-E	620	720	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1565000000-E	620	330	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22
1693000000-E	654	20	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	39	EA	RIGHT OF WAY MARKERS
2022000000-E	815	168	CY	SUBDRAIN EXCAVATION
2033000000-E	815	84	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2209000000-E	838	8	CY	ENDWALLS
2286000000-N	840	63	EA	MASONRY DRAINAGE STRUCTURES
2297000000-E	840	55	CY	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	50	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.16
2366000000-N	840	7	EA	FRAME WITH TWO GRATES, STD 840.24
2374000000-N	840	16	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	20	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	16	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	5	EA	FRAME WITH COVER, STD 840.54
2418000000-E	SP	52	LF	FRAME WITH GRATES, DRIVEWAY DROP INLET
2440000000-N	852	22	EA	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN
2451000000-N	852	1	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS
2542000000-E	846	5,420	LF	1'-6" CONCRETE CURB & GUTTER
2549000000-E	846	7,550	LF	2'-6" CONCRETE CURB & GUTTER
2591000000-E	848	1,940	SY	4" CONCRETE SIDEWALK
2605000000-N	848	34	EA	CONCRETE WHEELCHAIR RAMPS
2655000000-E	852	210	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2753000000-E	846	4,340	LF	GENERIC PAVING ITEM 1'-6" CONCRETE CURB & GUTTER (LMS STANDARD)
2905000000-N	859	1	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX
2995000000-N	SP	1	EA	GENERIC DRAINAGE ITEM CONVERT EXISTING DROP INLET TO TBJB WITH MANHOLE COVER
3030000000-E	862	875	LF	STEEL BM GUARDRAIL
3045000000-E	862	75	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	15	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3210000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	3	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3375000000-E	SP	2,075	LF	REMOVE & STOCKPILE EXISTING GUARDRAIL
3524000000-E	SP	5,600	LF	VINYL COATED CHAIN LINK FENCE, **" FABRIC (72")
3539000000-E	866	460	EA	METAL LINE POSTS FOR **" CHAIN LINK FENCE (72")
3545000000-E	866	50	EA	METAL TERMINAL POSTS FOR **" CHAIN LINK FENCE (72")
3557000000-E	866	200	LF	ADDITIONAL BARBED WIRE
3628000000-E	876	60	TON	RIP RAP, CLASS I
3635000000-E	876	135	TON	RIP RAP, CLASS II
3649000000-E	876	10	TON	RIP RAP, CLASS B
3656000000-E	876	1,600	SY	FILTER FABRIC FOR DRAINAGE
4025000000-E	901	240	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
4072000000-E	903	410	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	38	EA	SIGN ERECTION, TYPE E
4142000000-N	907	5	EA	STOCKPILE SUPPORT, OVERHEAD STRUCTURE
4155000000-N	907	4	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4360000000-N	SP	21	EA	GENERIC SIGNING ITEM STOCKPILE OVERHEAD REVERSIBLE LANE SIGNS
4400000000-E	1110	472	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	352	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	89	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	4	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	650	EA	DRUMS
4435000000-N	1135	145	EA	CONES
4445000000-E	1145	800	LF	BARRICADES (TYPE III)
4455000000-N	1150	80	MD	FLAGGER
4480000000-N	1165	2	EA	TMA
4510000000-N	SP	64	HR	LAW ENFORCEMENT
4516000000-N	1180	100	EA	SKINNY DRUM
4685000000-E	1205	1,000	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	5,780	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	135	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	1,580	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	12	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	32	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	43,957	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	150	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	500	LF	PAINT PAVEMENT MARKING LINES (24")
4840000000-N	1205	16	EA	PAINT PAVEMENT MARKING CHARACTER
4845000000-N	1205	50	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	1,200	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4870000000-E	1205	500	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4900000000-N	1251	201	EA	PERMANENT RAISED PAVEMENT MARKERS
4940000000-N	1267	5	EA	FLEXIBLE DELINEATORS (YELLOW)
6000000000-E	1605	4,890	LF	TEMPORARY SILT FENCE
6006000000-E	1610	175	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	195	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	840	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	30	ACR	TEMPORARY MULCHING
6018000000-E	1620	1,500	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	8	TON	FERTILIZER FOR TEMPORARY SEEDING
6030000000-E	1630	3,105	CY	SILT EXCAVATION
6037000000-E	SP	20	SY	COIR FIBER MAT
6038000000-E	SP	7,760	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	2,010	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	1	EA	SPECIAL STILLING BASINS
6071030000-E	SP	400	LF	COIR FIBER BAFFLES
6071050000-E	SP	1	EA	**" SKIMMER (2")
6071050000-E	SP	1	EA	**" SKIMMER (3")
6084000000-E	1660	30	ACR	SEEDING & MULCHING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
7000000000-E	1705	4	EA	PEDESTRIAN SIGNAL HEAD (**", ** SECTION)
7060000000-E	1705	900	LF	(16", 1 SECTION W/COUNTDOWN) SIGNAL CABLE
7144000000-E	1705	1	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
7300000000-E	1715	60	LF	UNPAVED TRENCHING (**********) (1, 2")
7324000000-N	1716	1	EA	JUNCTION BOX (STANDARD SIZE)
7444000000-E	1725	475	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	1,500	LF	LEAD-IN CABLE (**********) (18-4)
7636000000-N	1745	2	EA	SIGN FOR SIGNALS
7780000000-N	1751	4	EA	DETECTOR CARD (TYPE 2070L)

	SHEET NO.
U-5745	3

11/23/2009
u:\roadway\003_morehead\proj\Morehead_rdy_psh_03.dgn
rgullen

PALMERBR-LT,1/14/2010,U:\Hydraulics\003_Morehead\CALCULATIONS\Drainage_summaries.xls

PALMERBR-LT

COMPUTED BY: RMC DATE: 6/16/2009

CHECKED BY: BMP DATE: 10/23/2009

PROJECT NO.	SHEET NO.
U-5145	3A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

*** Note: ALL LOCATIONS CONTAINING ASTERISK ARE LT OR RT SIDE OF DIVIDER ISLAND, NOT OF CENTER LINE.***

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)' (*SEE NOTE)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
126+20	LT	1		725.14											
126+20	LT	1	2		722.00	721.20			80						
127+00	LT	2		724.44											
127+00	LT	2	3		721.20	720.80			40						
127+21	LT	3		724.65											
127+21	LT	3	4		720.80	717.25			192						
128+93	LT	4		720.37											
128+93	CL	4	5		717.00	714.40				60					
128+93	RT	5		717.85											
128+93	RT	5	7		714.40	707.53				200					
131+05	LT	6		713.15											
131+05	CL	6	7		709.90	707.78			60						
131+05	RT	7		710.87											
131+05	RT	7	9		707.53	700.70				196					
133+08	LT	8		706.46											
133+08	CL	8	9		703.29	700.95			60						
133+08	RT	9		704.06											
133+08	RT	9	12		700.70	696.90				128					
133+95	LT	10		703.70											
133+95	CL	10	11		700.53	698.41			52						
134+37	RT	11		702.08											
134+37	RT	11	12		698.41	697.18			36						
134+37	RT	12		700.20											
134+37	RT	12	14		696.90	694.90				160					
136+00	RT	14		698.16											
136+00	CL	14	13		694.40	693.80					56				
135+55	CL	14A		699.62											
135+55	CL	14A	13		696.45	694.55			44						
136+00	LT	13		698.73											
136+00	LT	13	13A		693.80	693.50					32				
136+00	LT	13A		698.96											
136+00	LT	13A	18		693.50	688.05					160				
		15		NOT USED											
		16		NOT USED											
		17		NOT USED											
139+70	LT	19			692.07	691.23				40					
137+58	LT	18		695.33											
137+58	LT	18	20		688.05	686.20					208				
139+71	RT	21		692.96											
139+71	LT	21	20		689.79	686.95			56						
139+71	LT	20		691.17											
139+71	LT	20	22		686.20	684.50					172				
141+50	LT	22		688.52											
139+70	LT	22	23		684.50	682.70					184				
143+41	LT	23		687.23											
143+41	LT	23	24		682.70	682.65					4				
143+49	LT	24		687.23											
143+49	CL	24	26		682.15	681.79						36			
SHEET TOTALS									620	784	816	36			

STATION	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064		30" .079		36" .079		42" .109		48" .109		CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
126+20																											
126+20																											
127+00																											
127+00																											
127+21																											
127+21																											
128+93																											
128+93																											
128+93																											
128+93																											
131+05																											
131+05																											
131+05																											
131+05																											
133+08																											
133+08																											
133+08																											
133+08																											
133+95																											
133+95																											
134+37																											
134+37																											
134+37																											
134+37																											
136+00																											
136+00																											
135+55																											
135+55																											
136+00																											
136+00																											
136+00																											
136+00																											
139+70																											
137+58																											
137+58																											
139+71																											
139+71																											
139+71																											
139+71																											
141+50																											
139+70																											
143+41																											
143+41																											
143+49																											
143+49																											
SHEET TOTALS																											

STATION	QUANITIES 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 DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32		MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54
126+20	1			1			1																
126+20																							
127+00	1			1			1																
127+00																							
127+21	1							1		1	1												
127+21																							
128+93	1			1		1			1														
128+93																							
128+93	1			1		1																	
128+93																							
131+05	1			1		1			1														
131+05																							
131+05	1			1		1																	
131+05																							
133+08	1			1		1			1														
133+08																							
133+08	1			1		1																	
133+08																							
133+95	1			1		1			1														
133+95																							
134+37	1																		1				1
134+37																							
134+37	1			1		1																	
134+37																							
136+00	1			1		1																	
136+00																							
135+55	1			1		1			1														
135+55																							
136+00	1			1		1			1														
136+00																							
136+00	1	0.46		1			1																
136+00																							
139+70																							
137+58	1	2.28		1			1																
137+58																							
139+71	1			1			1		1														
139+71																							
139+71	1			1			1																
139+71																							
141+50	1			1			1																
139+70																							
143+41	1			1	1																		
143+41																							
143+49	1	0.08		1	1																		
143+49																							
SHEET TOTALS	22	2.82		20	2	11	7	1	7	1	1								1				1

STATION		TRAFFIC BEARING GRATED DROP INLET STD. 840.36	STEEL GRATE & FRAME STD. 840.37	METHOD FOR PLACEMENT CB IN MEDIAN CURB & GUTTERSTD. 852.05	METHOD FOR PLACEMENT DI IN CONCRETE ISLAND STD. 852.06	DRIVEWAY DROP INLET STD. 840.30 LIN. FT.	CONVERT EXISTING DI OR CB TO TBJB SEE SHEET 2-D	MINIMUM DEPTH CONCRETE CB SEE SHEET 2-E	CONC. MEDIAN DI TYPE 'A' EXTRA DEPTH STD. 840D17 SEE SHT 2-F	MEDIAN CURB FOR CB STD. 852D05 SEE SHEET 2-G	CONVERT EXISTING DI OR CB TO JB SEE SHEET 2-C	24" PIPE END SECTION					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
126+20																					
126+20																					
127+00																					
127+00																					
127+21					1																
127+21																					
128+93				1																	
128+93																					
128+93																					
128+93																					
131+05				1																	
131+05																					
131+05																					
131+05																					
133+08				1																	
133+08																				116	REMOVE 15" CMP
133+08																					
133+08																					
133+95				1																	
133+95																					
134+37																					
134+37																					
134+37				1																	
134+37																					
136+00																					
136+00																					
135+55				1																	
135+55																					
136+00				1																	
136+00																					
136+00																					
136+00																					
139+70																					
137+58																					
137+58																					
139+71				1																	
139+71																					
139+71																					
139+71																					
141+50																					
139+70																					
143+41																					
143+41																					
143+49																					
143+49																					
SHEET TOTALS				8	1															116	

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

PALMERBR-LT

COMPUTED BY: RMC DATE: 6/16/2009

CHECKED BY: BMP DATE: 10/23/2009

PROJECT NO.	SHEET NO.
U-5145	3B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

*** Note: ALL LOCATIONS CONTAINING ASTERISK ARE LT OR RT SIDE OF DIVIDER ISLAND, NOT OF CENTER LINE.***

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL) (*SEE NOTE)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
143+41	RT	25		688.72																																					
143+41	RT	25	26		683.09	683.04			4																																
143+49	RT	26		688.72																																					
143+49	RT	26	27		681.79	681.43						36																													
143+49	RT	27		689.93																																					
143+49	RT	27	28		681.43	679.80						48																													
143+98	RT	28		690.00																																					
143+98	RT	28	28A		681.09	679.10						28																													
143+98	RT	28A		684.00																																					
143+98	RT	28A	OUT		675.60	675.50															20																				2
143+60	RT	IN	30		683.75	683.00					12																														
147+34	RT	31		689.95																																					
147+34	RT	31	32		686.78	685.65			36																																
147+34	LT	32		688.82																																					
147+34	LT	32	35		685.65	675.60			336																																
13+31 -Y3-	LT	33		679.61																																					
13+31 -Y3-	LT	33	34		676.44	676.10			44																																
13+31 -Y3-	RT	34		680.34																																					
13+31 -Y3-	RT	34	35		676.10	675.60			72																																
150+71	LT	35		681.93																																					
150+71	CL	35	36		675.35	674.75				88																													
150+71	RT	36		681.84																																					
150+71	RT	36	37		674.75	674.35				56																													
14+98 -Y3-	RT	37		679.29																																					
14+98 -Y3-	RT	37	38		674.35	674.00				48																													
14+98 -Y3-	LT	38		678.08																																					
14+98 -Y3-	LT	38	41		674.00	670.10				176																													
153+42	LT	39A		674.85																																					
153+42	LT	39A	39		671.68	671.20			32																																
153+42	LT	39		675.47																																					
153+42	LT	39	40		671.20	670.58			36																																
153+44	RT	40		674.00																																					
153+44	RT	40	41		670.33	670.10				48																													
153+46	RT	41		676.00																																					
153+46	RT	41	43		670.10	646.00												60																							
13+55 -Y4-	RT	42		657.08																																					
13+55 -Y4-	RT	42	43		653.91	646.25			132																																
17+13 -Y4-	RT	56		654.06																																					
17+13 -Y4-	RT	56	54		650.89	647.23			128																																
15+82 -Y4-	RT	54		650.40																																					
15+82 -Y4-	RT	54	53		646.98	646.94				4																													
15+74 -Y4-	RT	53		650.40																																					
15+74 -Y4-	RT	53	43		646.94	646.00				88																													
14+87 -Y4-	RT	43		651.87																																					
14+87 -Y4-	RT	43	OUT		645.50	644.48					104																														1.4
12+13 -Y3-	RT	44		677.20																																					
12+13 -Y3-	RT	44	45		674.20	673.75				52																													
11+66 -Y3-	RT	45		676.25																																					
11+66 -Y3-	RT	45	46		673.25	672.75					52																														
SHEET TOTALS									820	560	168	112						60			20																				3.4

STATION	LOCATION	FROM	TO	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 DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32		MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	
143+41	RT	25		1	0.63		1	1				1															
143+41	RT	25	26																								
143+49	RT	26		1	1.93		1	1				1															
143+49	RT	26	27																								
143+49	RT	27		1	3.5		1	1																			
143+49	RT	27	28																								
143+98	RT	28		1	3.91		1			1																	
143+98	RT	28	28A																								
143+98	RT	28A		1	3.4																		1				1	
143+98	RT	28A	OUT																								
143+60	RT	IN	30																								
147+34	RT	31		1			1			1		1															
147+34	RT	31	32																								
147+34	LT	32		1			1			1																	
147+34	LT	32	35																								
13+31 -Y3-	LT	33		1			1		1																		
13+31 -Y3-	LT	33	34																								
13+31 -Y3-	RT	34		1			1			1																	
13+31 -Y3-	RT	34	35																								
150+71	LT	35		1	1.58		1			1																	
150+71	CL	35	36																								
150+71	RT	36		1	2.09		1		1																		
150+71	RT	36	37																								
14+98 -Y3-	RT	37		1			1		1																		
14+98 -Y3-	RT	37	38																								
14+98 -Y3-	LT	38		1			1			1																	
14+98 -Y3-	LT	38	41																								
153+42	LT	39A		1			1		1			1															
153+42	LT	39A	39																								
153+42	LT	39		1			1		1			1															
153+42	LT	39	40																								
153+44	RT	40		1			1		1																		
153+44	RT	40	41																								
153+46	RT	41		1	0.9																		1				1	
153+46	RT	41	43																								
13+55 -Y4-	RT	42		1			1		1			1															
13+55 -Y4-	RT	42	43																								
17+13 -Y4-	RT	56		1			1			1		1															
17+13 -Y4-	RT	56	54																								
15+82 -Y4-	RT	54		1			1	1				1															
15+82 -Y4-	RT	54	53																								
15+74 -Y4-	RT	53		1			1	1				1															
15+74 -Y4-	RT	53	43																								
14+87 -Y4-	RT	43		1	1.37		1		1			1															
14+87 -Y4-	RT	43	OUT																								
12+13 -Y3-	RT	44		1									1	1													
12+13 -Y3-	RT	44	45																								
11+66 -Y3-	RT	45		1									1	1													
11+66 -Y3-	RT	45	46																								
SHEET TOTALS				24	19.31		20	5	8	7		10	2	2									2				2	

STATION	LOCATION	FROM	TO	TRAFFIC BEARING GRATED DROP INLET STD. 840.36	STEEL GRATE & FRAME STD. 840.37	METHOD FOR PLACEMENT CB IN MEDIAN CURB & GUTTERSTD. 852.05	METHOD FOR PLACEMENT DI IN CONCRETE ISLAND STD. 852.06	DRIVEWAY DROP INLET STD. 840.30 LIN. FT.	CONVERT EXISTING DI OR CB TO TBJB SEE SHEET 2-D	MINIMUM DEPTH CONCRETE CB STD. 840D02 SEE SHEET 2-E	CONC. MEDIAN DI TYPE 'A' EXTRA DEPTH STD. 840D17 SEE SHT 2-F	MEDIAN CURB FOR CB STD. 852D05 SEE SHEET 2-G	CONVERT EXISTING DI OR CB TO JB SEE SHEET 2-C	24" PIPE END SECTION					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
143+41	RT	25				1																	
143+41	RT	25	26																				
143+49	RT	26				1																	
143+49	RT	26	27																				
143+49	RT	27																					
143+49	RT	27	28																				
143+98	RT	28																					
143+98	RT	28	28A																				SEE GENERAL NOTES FOR INFO ON ENDWALL PLACEMENT
143+98	RT	28A																					
143+98	RT	28A	OUT																				
143+60	RT	IN	30											1									
147+34	RT	31				1																	
147+34	RT	31	32																				
147+34	LT	32																					
147+34	LT	32	35																				
13+31 -Y3-	LT	33																					
13+31 -Y3-	LT	33	34																				
13+31 -Y3-	RT	34																					
13+31 -Y3-	RT	34	35																				
150+71	LT	35																					
150+71	CL	35	36																				
150+71	RT	36																					
150+71	RT	36	37																				
14+98 -Y3-	RT	37																					
14+98 -Y3-	RT	37	38																				
14+98 -Y3-	LT	38																					
14+98 -Y3-	LT	38	41																				
153+42	LT	39A				1																	
153+42	LT	39A	39																				
153+42	LT	39				1																	
153+42	LT	39	40																				
153+44	RT	40																					
153+44	RT	40	41																				
153+46	RT	41																					
153+46	RT	41	43																2 -18"				
13+55 -Y4-	RT	42										1											
13+55 -Y4-	RT	42	43																				
17+13 -Y4-	RT	56										1											
17+13 -Y4-	RT	56	54																				
15+82 -Y4-	RT	54										1											
15+82 -Y4-	RT	54	53																				
15+74 -Y4-	RT	53										1											
15+74 -Y4-	RT	53	43																				
14+87 -Y4-	RT	43										1											
14+87 -Y4-	RT	43	OUT																				SEE GENERAL NOTES FOR INFO ON ENDWALL PLACEMENT
12+13 -Y3-	RT	44																					
12+13 -Y3-	RT	44	45																				
11+66 -Y3-	RT	45																					
11+66 -Y3-	RT	45	46																				
SHEET TOTALS						5						5		1					2 -18"				

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

PALMERBR-LT

COMPUTED BY: RMC DATE: 6/16/2009

CHECKED BY: BMP DATE: 10/23/2009

PROJECT NO.	SHEET NO.
U-5145	3C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

** Note: ALL LOCATIONS CONTAINING ASTERISK ARE LT OR RT SIDE OF DIVIDER ISLAND, NOT OF CENTER LINE.*

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
11+19 -Y3-	RT	46		677.13											
11+19 -Y3-	RT	46	47		670.75	664.85									52
11+25 -Y3-	LT	47A		676.29											
11+25 -Y3-	LT	47A	47		673.10	673.05			4						
11+25 -Y3-	LT	47		676.29											
11+25 -Y3-	LT	47	49		664.85	661.25									40
10+44 -Y4-	LT	48		Exist											
10+44 -Y4-	LT	48	49		669.62	662.75						104			
12+29 -Y4-	RT	50		663.00											
12+29 -Y4-	RT	50	51		660.50	659.86				128					
18+27 -Y4-	RT	57		660.66											
18+27 -Y4-	RT	57	52		657.23	656.75			72						
162+71	RT	58		674.10											
162+71	RT	58	59		670.93	666.09			484						
157+81	RT	59		673.67											
157+81	RT	59	62		666.09	664.09			200						
155+78	RT	62		671.53											
155+78	RT	62	63		664.09	666.05			4						
156+19	LT	60		EXIST											
156+19	LT	60	61		664.56	662.25							84		
155+65	LT	61		668.00											
155+65	CL	61	63		662.25	661.60							92		
155+70	RT	63		671.53											
155+70	RT	63	63A		661.10	644.00									
155+70	RT	63A		656.00											
155+70	RT	63A	OUT		644.08	644.00									
137+96	RT	IN	64		693.00	691.12						44			
137+97	RT	64		695.54											
137+96	RT	64	OUT		691.12	690.52						84			
12+56 -Y6-	RT	65		690.55											
12+56 -Y6-	RT	65	66		688.30	688.10			28						
12+58 -Y6-	RT	66		690.76											
12+58 -Y6-	CL	66	67		688.10	687.85			36						
12+58 -Y6-	LT	67		690.49											
12+58 -Y6-	LT	67	OUT		687.85	687.40			40						
12+43 -Y6-	LT	68		690.95	EXIST										
11+20 -Y7-	RT	69		695.10	EXIST										
11+50 -Y5-	CL	70		VAR											
11+50 -Y5-	CL	70	71		VAR	672.33					4				
11+50 -Y5-	LT	71		676.25											
11+50 -Y5-	LT	71	72		672.33	668.84					88				
10+60 -Y5-	LT	72		EXIST											
SHEET TOTALS									868	128	92	232	176		92
SHT 3A TOTALS									620	784	816	36			
SHT 3B TOTALS									820	560	168	112			
GRAND TOTALS									2308	1472	1076	380	176		92

STATION	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
11+19 -Y3-																										
11+19 -Y3-																										
11+25 -Y3-																										
11+25 -Y3-																										
11+25 -Y3-																										
11+25 -Y3-																										
10+44 -Y4-																										
10+44 -Y4-																										
12+29 -Y4-																										
12+29 -Y4-																										
18+27 -Y4-																										
18+27 -Y4-																										
162+71																										
162+71																										
157+81																										
157+81																										
155+78																										
155+78																										
156+19																										
156+19																										
155+65																										
155+65																										
155+70																										
155+70										52																
155+70																										
155+70										16																3.8
137+96																										
137+97																										
137+96																										
12+56 -Y6-																										
12+56 -Y6-																										
12+58 -Y6-																										
12+58 -Y6-																										
12+58 -Y6-																										
12+58 -Y6-																										
12+43 -Y6-																										
11+20 -Y7-																										
11+50 -Y5-																										
11+50 -Y5-																										
11+50 -Y5-																										
11+50 -Y5-																										
10+60 -Y5-																										
SHEET TOTALS										68																3.8
SHT 3A TOTALS																										
SHT 3B TOTALS			60			20																				3.4
GRAND TOTALS			60			20				68																7.2
																									SAY	8

STATION	QUANITIES 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 DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32		MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54
11+19 -Y3-	1	1.38		1	1				1														
11+19 -Y3-																							
11+25 -Y3-	1			1	1				1														
11+25 -Y3-																							
11+25 -Y3-	1	5	1.44	1	1				1														
11+25 -Y3-																							
10+44 -Y4-																							
10+44 -Y4-																							
12+29 -Y4-	1									1	1												
12+29 -Y4-																							
18+27 -Y4-	1			1			1		1														
18+27 -Y4-																							
162+71	1			1		1																	
162+71																							
157+81	1	2.58		1			1																
157+81																							
155+78	1	2.44		1	1																		
155+78																							
156+19																							
156+19																							
155+65	1	0.75										1						1					
155+65																							
155+70	1	5	0.43	1	1																		
155+70																							
155+70	1	5	1.92																1				1
155+70																							
137+96																							
137+97	1			1	1																		
137+96																							
12+56 -Y6-	1									1	1												
12+56 -Y6-																							
12+58 -Y6-	1				1																		
12+58 -Y6-																							
12+58 -Y6-	1				1																		
12+58 -Y6-																							
12+43 -Y6-																							1
11+20 -Y7-																							
11+50 -Y5-	1																						
11+50 -Y5-																							
11+50 -Y5-	1			1	1				1														
11+50 -Y5-																							
10+60 -Y5-																							
SHEET TOTALS	17	22.15	3.79	10	9	1	2		5	2	2	1						1	1				2
SHT 3A TOTALS	22	2.82		20	2	11	7	1	7	1	1								1				1
SHT 3B TOTALS	24	19.31		20	5	8	7		10	2	2								2				2
GRAND TOTALS	63	44.28	3.79	50	16	20	16	1	22	5	5	1						1	4				5
		TOTAL (A+B*1.3)	49.207																				
		SAY	50																				

STATION		TRAFFIC BEARING GRATED DROP INLET STD. 840.36	STEEL GRATE & FRAME STD. 840.37	METHOD FOR PLACEMENT CB IN MEDIAN CURB & GUTTERSTD. 852.05	METHOD FOR PLACEMENT DI IN CONCRETE ISLAND STD. 852.06	DRIVEWAY DROP INLET STD. 840.30 LIN. FT.	CONVERT EXISTING DI OR CB TO TBJB SEE SHEET 2-D	MINIMUM DEPTH CONCRETE CB SEE SHEET 2-E	CONC. MEDIAN DI TYPE 'A' EXTRA DEPTH STD. 840D17 SEE SHT 2-F	MEDIAN CURB FOR CB STD. 852D05 SEE SHEET 2-G	CONVERT EXISTING DI OR CB TO JB SEE SHEET 2-C	24" PIPE END SECTION					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
11+19 -Y3-										1											REMOVE DI, RETAIN 36" RCP
11+19 -Y3-																				73	REMOVE 48" RCP
11+25 -Y3-										1											
11+25 -Y3-																					
11+25 -Y3-										1											
11+25 -Y3-																					
10+44 -Y4-																					RETAIN EXIST DI
10+44 -Y4-																				145	REMOVE 30" RCP TO SOUTH
12+29 -Y4-																					
12+29 -Y4-																					
18+27 -Y4-										1											
18+27 -Y4-																					
162+71																					
162+71																					
157+81																					
157+81																					
155+78																					
155+78																					
156+19																					RETAIN EXIST DI
156+19																				182	REMOVE DOUBLE 24" RCP
155+65																					
155+65																					
155+70																					
155+70																					SEE GENERAL NOTES FOR INFO ON ENDWALL PLACEMENT
155+70																					
155+70																					
137+96																					
137+97																					
137+96																					
12+56 -Y6-																					
12+56 -Y6-																					
12+58 -Y6-								1		1											MINIMUM DEPTH CB SEE SHEET 2E
12+58 -Y6-																					
12+58 -Y6-								1		1											MINIMUM DEPTH CB SEE SHEET 2E
12+58 -Y6-																					
12+43 -Y6-							1														CONVERT DI TO TBJB SEE SHEET 2-D
11+20 -Y7-											1										CONVERT DI TO JB SEE SHEET 2-C
11+50 -Y5-						52															DRIVEWAY DROP INLET (FRENCH DRAIN)
11+50 -Y5-																					
11+50 -Y5-										1											
11+50 -Y5-																					
10+60 -Y5-																					RETAIN DI, REMOVE FRENCH DRAIN
SHEET TOTALS						52	1	2		7	1									400	
SHT 3A TOTALS				8	1															116	
SHT 3B TOTALS				5						5		1					2 -18"				
GRAND TOTALS				13	1	52	1	2		12	1	1					2 -18"			516	

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

COMPUTED BY: RMC DATE: 6/16/2009

CHECKED BY: BMP DATE: 10/23/2009

PALMERBR-LT

PROJECT NO.	SHEET NO.
U-5145	3D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54"	60"	66"	72"	78"	84"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 54" (.109 .138 .168; SHOP ELON-GATED .138 .168), 60" (.138 .168), 66" (.138 .168), 72" (.139 .168)	STRUCTURAL PLATE PIPE 60" (12 10), 66" (12 10), 72" (12 10)	REINFORCED ENDWALLS WITH R.C. - C.Y.	REINFORCED ENDWALLS WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR 840.02	FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E F G	CONCRETE TRANSITIONAL SECTION DROP INLET	CONCRETE TRANSITIONAL SECTION CATCH BASIN	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING DI OR CB TO TBJB SEE SHEET 2-D	MINIMUM DEPTH CONCRETE CB SEE SHEET 2-E	CONC. MEDIAN DI TYPE 'A' EXTRA DEPTH STD. 840D17 SEE SHT 2-F	MEDIAN CURB FOR CB STD. 852D05 SEE SHEET 2-G	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & Size	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
143+75	LT	29		685.65														6.157					1	1												
143+75	LT	29	30		675.50	674.90		112																												
143+60	RT	30		685.75														6.048					1	1												
143+60	RT	30	OUT		674.90	674.60		52																												
11+31 -Y3-	LT	49		668.00														6.976					1	1												
11+31 -Y3-	LT	49	51		659.25	655.36					64																									
11+93 -Y3-	LT	51		675.50														13.264						1					1							EXTRA DEPTH 2GI
11+93 -Y3-	LT	51	55		655.36	653.00					400																									
16+98 -Y3-	LT	55		669.00														10.912						1					1							EXTRA DEPTH 2GI
16+98 -Y3-	LT	55	52		653.00	649.75					212																									
18+96 -Y4-	RT	52		666.20														11.137						1					1							EXTRA DEPTH 2GI
18+96 -Y4-	RT	52	OUT		649.75	645.00					220																									
SHEET TOTALS								164			896							54.494					3	6					3							
GRAND TOTALS								164			896							54.494					3	6					3							
																	SAY	55																		

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

COMPUTED BY: RMC DATE: 12-17-09
CHECKED BY: BMP DATE: 12-17-09

PROJECT NO.	SHEET NO.
U-5145	3-E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Line	Station	Station	Uncl. Excav.	Undercut	Earth Embankment + %	Borrow	Waste
-L-	125+50.00	154+03.00	38413	0	2654	0	35228
		BEGIN BRIDGE					
-L-	154+47.00	162+50.00	140	0	13923	16568	0
	END BRIDGE						
-Y3-	11+25.00	13+75.00	865	0	44	0	812
-Y3-	14+75.00	18+50.00	4506	0	327	0	4114
-Y4-	10+25.00	19+25.00	18170	0	620	0	17426
-Y5-	10+50.00	12+00.00	31	0	389	436	0
-Y6-	12+25.00	16+50.00	246	0	1728	1828	0
-Y7-	9+00.00	11+50.00	18	0	860	1014	0
	SUBTOTALS:		62389	0	20545	19846	57580
Undercut from Geotechinical			0	0	0	0	0
Loss Due to Clearing and Grubbing			0	0	0	0	0
Waste in Lieu of Borrow			0	0	0	-19846	-19846
	PROJECT TOTALS:		62389	0	20545	0	37734
	GRAND TOTALS:		62389	0	20545	0	37734
	SAY:		64000	1000	21000	0	39000

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

-L- AND -Y's- PAVEMENT STRUCTURE VOLUME

LINE	TOP OF PAVEMENT	TOP OF SUBGRADE	PAVEMENT STRUCTURE VOLUME
-L-	28972	38553	9581
-Y3-	4370	5371	1001
-Y4-	17080	18170	1090
		TOTAL	11672

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

Station From	Station To	Baseline Line	Baseline Location	Area (SF)	Width	Square Yards
125+50 -L-	128+03 -L-	L	LT	1841		205
131+00 -L-	16+52 -Y6-	L / Y6	LT	37521		4169
12+08	13+75	Y6	CL	11973		1330
10+00	10+60	Y7	CL	1432		159
10+16 -Y4-	157+96 -L-	Y4 / L	LT	33626		3736
160+50 -L-	162+89.94 -L	L	RT	194		22
					TOTAL	9416
					SAY	9420

SUMMARY OF EXISTING ASPHALT BREAKING

Station From	Station To	Baseline Line	Baseline Location	Area (SF)	Width	Square Yards
13+75	14+75	Y6	CL	4433.28		492.59
10+60	11+60	Y7	CL	2633.28		292.59
					TOTAL	785.17
					SAY	790

SUMMARY OF CHAIN LINK FENCE

Station From	Station To	Baseline Line	Baseline Location	A FABRIC LF	B END BRACE	C CORNER BRACE	D LINE BRACE	E LINE POST	F TERMINAL POST
125+98.04	138+55.00	L	LT	1298	2	0	4	109	10
128+71.76	137+93.27	L	RT	917	2	0	2	77	6
138+20.50	138+55.82	L	RT	53	2	0	0	5	2
138+85.01	151+18.56	L	LT	1232	2	0	3	103	8
138+85.48	151+23.21	L	RT	1291	2	0	3	108	8
11+40.56	13+28.28	Y3	RT	200	2	0	0	17	2
15+16.16	18+16.16	Y3	RT	323	2	0	0	27	2
10+03.29	11+27.35	Y7	RT	158	2	2	1	14	8
			TOTAL	5471	16	2	13	460	46
			SAY	5600				460	50

FENCE MATERIAL SHOULD BE BLACK VINYL COATED OR AS DIRECTED BY ENGINEER

"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

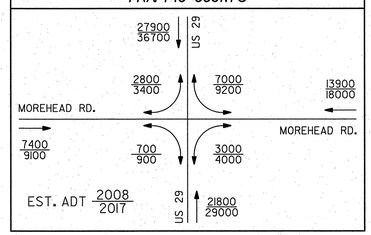
GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPR. END	WARRANT POINT TRAIL. END	"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH APPR. END	FLARE LENGTH TRAIL. END	W APPR. END	W TRAIL. END	ANCHORS TYPE III	ANCHORS GRAU 350	ANCHORS AT-1	ANCHORS XII	ANCHORS CAT-1	ANCHORS VI MOD	IMP. ATTEN. TYPE 350 EA	IMP. ATTEN. TYPE 350 G	IMP. ATTEN. TYPE 350 NG	REMOVE EXISTING GRDRAIL	STOCKPILE EXISTING GUARDRAIL	REMARKS
L	126+00.00	131+00.00	LT	500			130+00	128+50.00	2	3						1			1						642.8978	
L	151+73.50	153+88.01	RT	162.5	62.5		153+88.01		8.75	13	162.5		1.25		1		1								128.5537	
L	154+61.99	156+74.49	LT	212.5			154+61.99		9.5	13	150		2.5		1	1									128.4911	
L	154+61.99	156+11.99	RT	150				154+61.99	8.75	13		125		1.25	1				1						215.4647	
			TOTAL	1025																					641.1236	
																									103.4354	
	TYPE III @	18.75'	3	56.25																						
	GRAU 350 @	50'	2	100																						
	CAT-1 @	6.25'	2	12.5																						
	AT-1 @	6.25	1	6.25																						
			TOTAL DEDUCTIONS	175																						
Y6	26+37.19	28+45.21	LT																						203.5491	
			TOTAL LESS DEDUCTIONS	850	62.5																				2063.5154	
			SAY	875	75										3	2	1		2						2075	
			ADDITIONAL GUARDRAIL POSTS	15	EA																					

8/17/99

-L- (MOREHEAD ROAD)		
PIs Sta 128+20.04 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'	PI Sta 131+54.70 Δ = 25° 47' 16.7" (RT) D = 4° 46' 28.7" L = 540.10' T = 274.70' R = 1,200.00' e = .04	PIs Sta 134+80.13 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'
-Y1- (US 29)		
PI Sta 13+15.79 Δ = 1° 17' 47.1" (RT) D = 0° 59' 59.7" L = 129.65' T = 64.83' R = 5,730.00'	PI Sta 15+77.88 Δ = 3° 56' 36.9" (RT) D = 0° 59' 59.7" L = 394.39' T = 197.27' R = 5,730.00'	

TRAFFIC COUNTS



Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
U-5145	4
R/W SHEET NO.	

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER

1-14-10

SCALE 1" = 40'

4598569841
PATSY H LITTLE
DB 3064 PG 0025

4598568635
CLARENCE F LITTLE
DB 0998 PG 0143
PB 0013 PG 0071

4598564578
MAXWELL CHRISTENBURY SR
DB 03146 PG 0208

459856243
MAXWELL SR & MAXWELL JR CHRISTENBURY
DB 3146 PG 0200

4598660128
EARNHARDT REAL PROPERTIES LLC
DB 5949 PG 0321
PB 0046 PG 0077

4598651647
SPEEDWAY MOTORSPORTS INC.
DB 5949 PG 0326
PB 046 PG 077

POT Sta. 120+00.00

POT Sta. 10+00.00

S 34° 36' 32.0" W

S 65° 05' 11.5" E

-L-

-Y1-

-BL-49
-L- 120+69.30 (45.25' LT)

PC Sta. 12+50.96

PCC Sta. 13+80.61

PT Sta. 124+62.27 -L- =
PT Sta. 14+36.89 -Y1-

BEGIN PROJECT
BEGIN CONSTRUCTION
POT STA. 125+19.87 -L-

PT Sta. 17+75.00

TS Sta. 127+00.00

SC Sta. 128+80.00

MATCHLINE SEE SHEET 5
-L- STA. 130+00.00

TIE TO EXST C&G
+41.02

BEGIN PROP. 10' SIDEWALK
STA. 125+50.87

SAW CUT EXISTING CONC.
AND TIE TO EXISTING

END PROP. 10' SIDEWALK
STA. 125+98.05

BEGIN 6' CHAIN LINK FENCE
STA. 125+98.04

APPLY PSRM SLOPE PROTECTION
FOR 2:1 SLOPES APPROX.
STA. 127+50 TO STA. 130+50
OR AS DIRECTED BY ENGINEER

REMOVE & STOCKPILE
EXISTING GUARDRAIL

PROP. GUARDRAIL

PROP. 2'-6" CURB & GUTTER

RAISED GRASS ISLAND

MOREHEAD RD. 67' BST

END PROP. REMOVE & STOCKPILE
10' SIDEWALK
STA. 125+81.73

PROP. MONOLITHIC
CONC. ISLAND

PROP. 2'-6" CURB & GUTTER

BEGIN PROP. 10' SIDEWALK
STA. 125+33.01

PROP. FUTURE IMPROVEMENTS

BEGIN 6' CHAIN LINK FENCE
STA. 128+71.76
NOTE: APPROX. 6' GAP BETWEEN
EARNHARDT PROPERTY FENCE
AND PROPOSED NEW 6' CHAIN
LINK FENCE.

-BY4-26
-BL-
-BY6-
-L- 125+23.91 (59.40' RT)
-Y1- 14+82.16 (72.47' LT)

PARCEL TO REMAIN UNDISTURBED THROUGHOUT CONSTRUCTION

38" MTL POSTS @ 10' APART W/2 MTL CABLES

10' GRAVEL

CONC BARRIERS

REFERENCES:

1. FOR -L- PROFILE, SEE SHEET 9
2. FOR -Y1- PROFILE, SEE SHEET 11

NOTES:

1. REFER TO STANDARD 852.05 & 852.06 OF THE NCDOT STANDARD DRAWINGS FOR DETAIL OF INLET TREATMENT IN MEDIANS
2. FOR LOCATIONS OF WHEEL CHAIR RAMPS SEE PAVEMENT MARKING PLANS
3. CONTRACTOR TO VERIFY WATERLINE LOCATION AND DEPTH PRIOR TO GUARDRAIL INSTALLATION TO AVOID DAMAGE. NOTIFY ENGINEER IF CONFLICTS ARE IDENTIFIED.
4. CONTRACTOR SHALL STABILIZE ALL CUT AND FILL SLOPES STEEPER THEN 3H:1V WITH PSRM OR AS DIRECTED BY ENGINEER. INCLUDING AREAS NOT SPECIFICALLY NOTED ON THE PLANS.

LEGEND

- PROPOSED SIDEWALK
- PROPOSED MONO CONC. ISLAND

8/17/99

-Y6- (RING ROAD)	-Y6- (RING ROAD)
PI Sta 10+72.24	PI Sta 14+87.38
Δ = 31° 03' 19.1" (LT)	Δ = 51° 49' 22.9" (LT)
D = 22° 02' 12.6"	D = 14° 19' 26.2"
L = 140.92'	L = 361.79'
T = 72.24'	T = 194.33'
R = 260.00'	R = 400.00'
e = .02	e = .02

-Y7-	-Y7-	-Y7-
PI Sta 11+36.02	PI Sta 10+10.35	PI Sta 9+27.46
Δ = 17° 27' 32.9" (LT)	Δ = 37° 09' 55.9" (LT)	Δ = 46° 41' 38.4" (LT)
D = 22° 55' 05.9"	D = 53° 32' 50.8"	D = 46° 48' 37.0"
L = 76.18'	L = 69.41'	L = 99.75'
T = 38.39'	T = 35.97'	T = 52.83'
R = 250.00'	R = 107.00'	R = 122.40'

PROJECT REFERENCE NO.	SHEET NO.
U-5145	5
RW SHEET NO.	

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BYRON M. PALMER

1-21-10

SCALE 1" = 40'

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PC Sta. 10+00.00

BEGIN CONSTRUCITON
STA.11+50.00 -Y6- (RING ROAD)

S 9° 54' 44.1" E

PT Sta. 11+40.92

PROP. 20' SIDEWALK FROM STA.12+02.21 TO STA.12+35.94

PC Sta. 12+93.05

BEGIN PROP. CHAIN LINK FENCE TIE TO EXISTING

PROP. MSE RETAINING WALL STA.10+15 -Y7- TO STA.11+21 -Y7- SEE STRUCTURE PLANS SHT W-1

1 TONS CLASS 'B' RIPRAP
5 SY FILTER FABRIC
NCDOT STD. 876.02

PC Sta. 10+97.63

CONVERT DI TO JB

END PROP. BK HEADWALL

CHAIN LINK FENCE TIE TO EXISTING

PT Sta. 10+43.78

PC Sta. 9+74.38

VAR. CROSS SLOPE SEE CROSS SECTIONS FOR GUIDANCE

PC Sta. 8+74.63

POT Sta. 8+20.00

N 31° 50' 50.4" W

-Y7- (PRIVATE DRIVE)

DO NOT DISTURB EXISTING WALL AND LANDSCAPING

BEGIN CONSTRUCTION
POC Sta.9+00 -Y7-

TIE TO EXIST C&G

(PRIVATE DRIVE)

MOREHEAD RD. 60' BST

RETAIN

CONVERT DI TO TBJB

PROP. 1'-6" C&G

EXISTING PAVEMENT TO BE REMOVED

PT Sta. 11+73.81

-Y6-

POC Sta.12+06.06

END CONSTRUCTION
Sta.16+57.58 -Y6-
RING ROAD

DETAIL 5A
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground, 2:1, D, 3:1 or Flatter, Front Ditch Slope, B

Min. D= 2 Ft.
B= 2 Ft.

NOTE: SEE CROSS SECTIONS FOR APPROX. BOTTOM ELEVATIONS

FROM STA. 131+25.00 -L- TO STA. 135+00.00 -L- RT.
FROM STA. 135+50.00 -L- LT. TO STA. 12+13.00 -Y3- RT.

DO NOT DISTURB AREA OUTSIDE OF PAVEMENT REMOVAL

EXISTING PAVEMENT TO BE REMOVED AND GRADE TO DRAIN

PROP. 20' SIDEWALK FROM STA.12+29.69 TO STA.12+58.30

REMOVE & STOCKPILE EXISTING GUARDRAIL

-Y7- POT 12+06.06 -
-Y6- POC 15+25.20

EXISTING PAVEMENT TO BE REMOVED

DO NOT DISTURB

REMOVE & STOCKPILE EXISTING GUARDRAIL
SEE NOTE FOR GUARDRAIL INSTALLATION

CS Sta. 134+20.10

PROP. FUTURE IMPROVEMENTS

REMOVE

4598651647
SPEEDWAY MOTORSPORTS INC
DB 5949 PG 0326
PB 046 PG 077

ST Sta. 136+00.10

TS Sta. 137+20.10

APPLY PSRM SLOPE PROTECTION FOR 2:1 SLOPES APPROX. STA. 137+00.00 TO STA. 142+50.00 OR AS DIRECTED BY ENGINEER

BEGIN 10' SIDEWALK
END 6' CHAIN LINK FENCE
ST A.138+55

END 10' SIDEWALK
BEGIN 6' CHAIN LINK FENCE
ST A.138+85

SPECIAL CUT BASE DITCH
SEE DETAIL 5A

MATCHLINE SEE SHEET 4
-L- STA. 130+00.00

MATCHLINE SEE SHEET 6
-L- STA. 140+50.00

-BY6-30
-L- 132+09.14 (36.96' LT)

PROP. 6' CHAIN LINK FENCE

SPECIAL CUT BASE DITCH
SEE DETAIL 5A

SPECIAL CUT BASE DITCH
SEE DETAIL 5B

SEE CROSS SECTIONS FOR SUPER ELEVATION OF AUXILARY LANE

APPLY PSRM SLOPE PROTECTION FOR 2:1 SLOPES APPROX. STA. 136+00.00 TO STA. 140+00.00 OR AS DIRECTED BY ENGINEER

PROP. 6' CHAIN LINK FENCE FROM STA.138+55 TO 138+55.94

SC Sta. 139+00.10

PROP. 10' SIDEWALK FROM STA.138+55 TO STA.138+85

BEGIN 6' CHAIN LINK FENCE
ST A.137+90.28

END 6' CHAIN LINK FENCE
ST A.137+85

SPECIAL CUT BASE DITCH
SEE DETAIL 5B

8 TONS CLASS 'B' RIPRAP
21 SY FILTER FABRIC
NCDOT STD. 876.02

DETAIL 5B
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground, 2:1, D, d1, 3:1 or Flatter, Front Ditch Slope, B

Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.

NOTE: SEE CROSS SECTIONS FOR APPROX. BOTTOM ELEVATIONS

Type of Liner= PSRM

FROM STA. 135+00.00 -L- TO STA. 143+60.00 -L- RT.

-L- (MOREHEAD ROAD)		
PIs Sta 128+20.04	PI Sta 131+54.70	PIs Sta 134+80.13
Θs = 4° 17' 49.9"	Δ = 25° 47' 16.7" (RT)	Θs = 4° 17' 49.9"
Ls = 180.00'	D = 4° 46' 28.7"	Ls = 180.00'
LT = 120.04'	L = 540.10'	LT = 120.04'
ST = 60.03'	T = 274.70'	ST = 60.03'
	R = 1,200.00'	
	e = .04	
PIs Sta 138+40.14	PI Sta 143+05.53	PIs Sta 147+42.09
Θs = 4° 17' 49.9"	Δ = 37° 20' 08.4" (LT)	Θs = 4° 17' 49.9"
Ls = 180.00'	D = 4° 46' 28.7"	Ls = 180.00'
LT = 120.04'	L = 781.96'	LT = 120.04'
ST = 60.03'	T = 405.43'	ST = 60.03'
	R = 1,200.00'	
	e = .04	

LEGEND

- PAVEMENT REMOVAL
- PROPOSED SIDEWALK
- PROPOSED MONO CONC. ISLAND

NOTES:
1. REFER TO STANDARD 852.05 OF THE NCDOT STANDARD DRAWINGS FOR DETAIL OF INLET TREATMENT IN MEDIANS
2. FOR LOCATIONS OF WHEEL CHAIR RAMPS SEE PAVEMENT MARKING PLANS
3. CONTRACTOR TO VERIFY UTILITY LOCATION AND DEPTH PRIOR TO GUARDRAIL INSTALLATION TO AVOID DAMAGE. NOTIFY ENGINEER IF CONFLICTS ARE IDENTIFIED.
4. CONTRACTOR SHALL STABILIZE ALL CUT AND FILL SLOPES STEEPER THEN 3H:1V WITH PSRM OR AS DIRECTED BY ENGINEER. INCLUDING AREAS NOT SPECIFICALLY NOTED ON THE PLANS.

REFERENCES:
1. FOR -L- PROFILE SEE SHEET 9
2. FOR -Y6- PROFILE SEE SHEET 13
3. FOR -Y7- PROFILE SEE SHEET 13
4. FOR MSE RETAINING WALL SEE STRUCTURE PLAN W-1 & W-2

1/20/2010
u:\Roadway\003_Morehead\Proj\Morehead_rdy_psh_05.dgn
dpalmer

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	6
R/W SHEET NO.	

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER

1-14-10

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

40 20 0 40 80

SCALE 1" = 40'

15" RCP

DI

DI

EXISTING R/W

LT

-BY6-34

-L- 141+71.80 (464.35' LT)

20' GRAVEL

10' GRAVEL

20' GRAVEL

4598651647
SPEEDWAY MOTORSPORTS INC.
DB 5949 PG 0326
PB 046 PG 077

LT

145

APPLY PSRM SLOPE PROTECTION FOR 2:1 SLOPES APPROX. STA. 137+00.00 TO STA. 142+50.00 OR AS DIRECTED BY ENGINEER

MATCHLINE SEE SHEET 5 -L- STA. 140+50.00

+00 82' C E

18' GRAVEL

SPECIAL CUT BASE DITCH SEE DETAIL 6B

LONG TERM MAINTENANCE OF PIPE SYSTEM BY OTHERS

PROP.6' CHAIN LINK FENCE

PROP.2'-6" CURB & GUTTER

+50 61'

+45 60' 2GI 29

CB 24" 22

PROP.1'-6" CURB & GUTTER

+00.00 -30.00 -L- RAISED GRASS ISLAND

CB 23 24

CB 25 26

CB 30" 27

+20 55'

+74 55' 28

+18 55'

CB 24" 30

28A JB

+20 70' PDE FES

+50 74' 2GI

HW

+18 80'

PDE

PDE

+91 133'

+18 135'

TWENTY ARK TO

MALLARD CREEK

+22 215'

+14 204'

RIP RAP OUTLET & BANK PROTECTION (KEYED IN)
APPROX. 70 TONS CLASS 'II' RIPRAP
APPROX. 100 SY FILTER FABRIC
PLACE AS DIRECTED BY ENGINEER
SEE DETAIL 6C AND 876.02 FOR GUIDANCE

CS Sta. 146+82.06

6' CHAIN LINK FENCE OFFSET 42.0'

PROP.6' CHAIN LINK FENCE

PROP.2'-6" CURB & GUTTER

+82.06 55' LT

+00 62'

CHORD

15"

45° TYP.

CB 32

CB 31

+72.06 + CHORD

+82.06 55'

+00 55'

+00 78'

+50 80'

ST Sta. 148+62.06

6' CHAIN LINK FENCE OFFSET 36.0'

SPECIAL CUT BASE DITCH SEE DETAIL 6B

+62.06 55'

S 76° 38' 03.2" E

MATCHLINE SEE SHEET 7 -L- STA. 149+50.00

+95.00 30.00

+62.06 55'

+00 84'

+50 165'

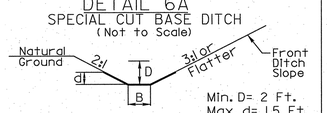
+50 235'

18' GRAVEL

GRAVEL

4598651647
SPEEDWAY MOTORSPORTS INC.
DB 5949 PG 0326
PB 046 PG 077

DETAIL 6A
SPECIAL CUT BASE DITCH
(Not to Scale)

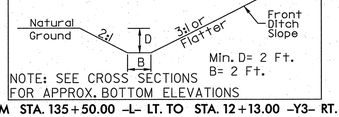


Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.

NOTE: SEE CROSS SECTIONS FOR APPROX. BOTTOM ELEVATIONS
Type of Liner= PSRM

FROM STA. 135+00.00 -L- TO STA. 143+60.00 -L- RT.

DETAIL 6B
SPECIAL CUT BASE DITCH
(Not to Scale)

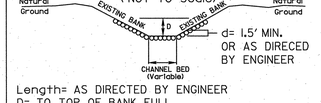


Min. D= 2 Ft.
B= 2 Ft.

NOTE: SEE CROSS SECTIONS FOR APPROX. BOTTOM ELEVATIONS

FROM STA. 135+50.00 -L- LT. TO STA. 12+13.00 -Y3- RT.

DETAIL 6C
PIPE OUTLET CHANNEL
(Not to Scale)



Length= AS DIRECTED BY ENGINEER
D= TO TOP OF BANK FULL
Est. Approx. 70 Tons of Class II Rip-Rap & Approx. 100 SY Filter Fabric OR AS DIRECTED BY ENGINEER

-L- (MOREHEAD ROAD)		
PIs Sta 128+20.04 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'	PI Sta 131+54.70 Δ = 25° 47' 16.7" (RT) D = 4° 46' 28.7" L = 540.10' T = 274.70' R = 1,200.00' e = .04	PIs Sta 134+80.13 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'
PIs Sta 138+40.14 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'	PI Sta 143+05.53 Δ = 37° 20' 08.4" (LT) D = 4° 46' 28.7" L = 781.96' T = 405.43' R = 1,200.00' e = .04	PIs Sta 147+42.09 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'

REFERENCES:

1. FOR -L- PROFILE SEE SHEET 10

NOTES:

1. REFER TO STANDARD 852.05 OF THE NCDOT STANDARD DRAWINGS FOR DETAIL OF INLET TREATMENT IN MEDIANS
2. FOR LOCATIONS OF WHEEL CHAIR RAMPS SEE PAVEMENT MARKING PLANS
3. CONTRACTOR TO VERIFY WATERLINE LOCATION AND DEPTH PRIOR TO GUARDRAIL INSTALLATION TO AVOID DAMAGE. NOTIFY ENGINEER IF CONFLICTS ARE IDENTIFIED.
4. PRIOR TO PLACEMENT OF PIPE OUTLET ENDWALLS, CONTRACTOR SHALL VERIFY THIER PLACEMENT ON BED ROCK. IF BED ROCK IS NOT PRESENT CONTACT NCDOT CONSTRUCTION ADMINISTRATOR IMMEDIATELY FOR GUIDANCE.
5. CONTRACTOR SHALL STABILIZE ALL CUT AND FILL SLOPES STEEPER THEN 3H:1V WITH PSRM OR AS DIRECTED BY ENGINEER. INCLUDING AREAS NOT SPECIFICALLY NOTED ON THE PLANS.

1/13/2010
u:\roadway\003_morehead\proj\morehead_rdy_psh_06.dgn
bpalmer

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	7
R/W SHEET NO.	

ROADWAY & HYDRAULICS DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER
7-1-10

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

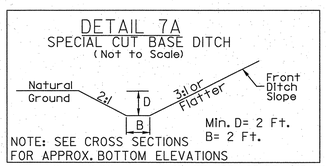
SCALE 1" = 40'

POT Sta. 10+00.00
BEGIN CONSTRUCTION
POT Sta. 10+16.00 -Y4-
BEGIN PROP. 8' SIDEWALK STA. 10+25.00
DO NOT DISTURB
PC Sta. 11+18.85
-BY6-35
-L- 152.48.90 (266.44' LT)
-Y6-
MOREHEAD RD. 59' BST
REMOVE & STOCKPILE EXISTING GUARDRAIL
PT Sta. 28+80.91 -Y6-
POT Sta. 10+76.00 -BY3-
POT Sta. 10+00.00 -Y4-
BEGIN CONSTRUCTION
POT Sta. 11+00.00 -Y3-
PC Sta. 12+00.00
END 6' CHAIN LINK FENCE STA. 11+40.56
PAVEMENT REMOVAL
REMOVE & STOCKPILE EXISTING GUARDRAIL
BEGIN PROP. 8' SIDEWALK STA. 11+25.00
GRADE TO DRAIN TO STRUCTURE 50
PT Sta. 13+42.05
LONG TERM MAINTENANCE OF PIPE SYSTEM BY OTHERS
SPECIAL CUT BASE DITCH SEE DETAIL 7A
PT Sta. 13+19.38
TRANSITION TO PROP. 1'-6" C&G LT&RT
PROP. 1'-6" CURB & GUTTER
10' GRAVEL
S 47° 33' 17.9" W
S 42° 26' 42" E
-Y4- (PRIVATE DRIVE)
-Y3- (PRIVATE DRIVE)
-L-
EXISTING PAVEMENT TO BE REMOVED
APPROXIMATE LIMITS OF MODIFIED FRENCH DRAIN INSTALLATION IN PERENNIAL STREAM SEE NOTE 5
POTENTIAL CHANNEL REALIGNMENT SEE NOTE 5
RIP RAP OUTLET & BANK PROTECTION (KEYED IN) APPROX. 65 TONS CLASS 'II' RIPRAP APPROX. 98 SY FILTER FABRIC PLACE AS DIRECTED BY ENGINEER SEE DETAIL 7C AND STD. 876.02 FOR GUIDANCE
APPLY PSRM SLOPE PROTECTION FOR 2:1 SLOPES APPROX. STA. 154+47.00 TO STA. 155+50.00 LT. & RT. OR AS DIRECTED BY ENGINEER
POT Sta. 154+25.00 -L- = POT Sta. 14+09.38 -Y4-
PC Sta. 15+73.70
PROP. 8' SIDEWALK
PROP. 1'-6" CURB & GUTTER
MATCHLINE SEE SHEET 8 -L- STA. 156+50.00
MATCHLINE SEE SHEET 9 -L- STA. 149+00.00
PC Sta. 15+46.42
STANDARD BASE DITCH EST. 89 CY DDE SEE DETAIL 7B
APPLY PSRM SLOPE PROTECTION FOR 2:1 SLOPES APPROX. STA. 15+00.00 TO STA. 18+00.00 OR AS DIRECTED BY ENGINEER
459865I647 SPEEDWAY MOTORSPORTS INC. DB 5949 PG 0326 PB 046 PG 077
END 6' CHAIN LINK FENCE STA. 18+16.16
PROP. SIDEWALK FROM STA. 18+16.84 TO STA. 18+41.85
PT Sta. 17+78.34
GRADE AREA TO DRAIN TO STRUCTURE 52
END CONSTRUCTION POT Sta. 19+34.11 -Y4-
POT Sta. 19+42.16
CONSTRUCTION STAGING AREA
POT Sta. 18+68.84 -Y3- = PT Sta. 17+83.86 -Y4-
57 TONS CLASS 'I' RIPRAP
104 SY FILTER FABRIC
NCDOT STD. 876.02
END PROP. 8' SIDEWALK STA. 19+03.59
GRADE AREA TO DRAIN TO DITCH AND STRUCTURE 55
LONG TERM MAINTENANCE OF PIPE SYSTEM BY OTHERS
END PROP. 9' SIDEWALK STA. 17+43.99
TS Sta. 15+64.69
PROP. 8' SIDEWALK
PROP. 2'-6" CURB & GUTTER
PROP. 2'-6" R=350' CURB & GUTTER
S 76° 38' 03" E
S 44° 25' 12.0" E
S 51° 51' 37.9" W
S 45° 34' 47.9" W
15' GRAVEL
24" SILT FENCE
459865I647 SPEEDWAY MOTORSPORTS INC. DB 5949 PG 0326 PB 046 PG 077

-Y6- (RING ROAD)
PI Sta 12+61.53 Δ = 34° 12' 04.3" (LT) D = 28° 38' 52.4" L = 119.38' T = 61.53' R = 200.00' e = .02

-Y3- (ENTRANCE "N")	-Y3- (ENTRANCE "O")
PI Sta 12+61.53 Δ = 34° 12' 04.3" (LT) D = 28° 38' 52.4" L = 119.38' T = 61.53' R = 200.00' e = .02	PI Sta 16+73.32 Δ = 57° 46' 25.6" (LT) D = 24° 54' 40.4" L = 231.92' T = 126.90' R = 230.00' e = .02

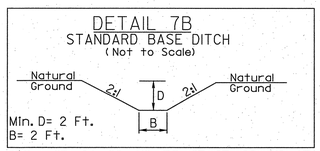
DETAIL 7A
SPECIAL CUT BASE DITCH
(Not to Scale)



NOTE: SEE CROSS SECTIONS FOR APPROX. BOTTOM ELEVATIONS

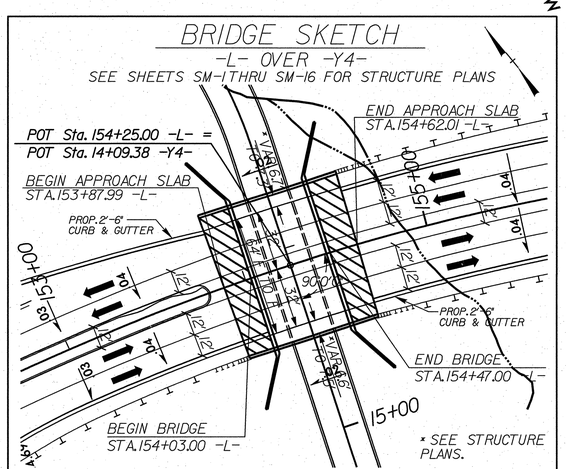
FROM STA. 135+50.00 -L- LT. TO STA. 12+13.00 -Y3- RT.
FROM STA. 151+90.00 -L- TO STA. 153+25.00 -L- LT.

DETAIL 7B
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 14+90 -Y3- TO STA. 17+80 -Y3- LT.

BRIDGE SKETCH
-L- OVER -Y4-
SEE SHEETS SM-1 THRU SM-16 FOR STRUCTURE PLANS

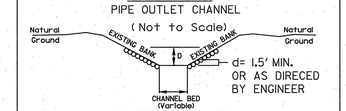


LEGEND

PAVEMENT REMOVAL

PROPOSED SIDEWALK

DETAIL 7C
PIPE OUTLET CHANNEL
(Not to Scale)



d= 1.5' MIN. OR AS DIRECED BY ENGINEER

Length= AS DIRECTED BY ENGINEER
D= TO TOP OF BANK FULL
Est. Approx. 65 Tons of Class II Rip-Rap
& Approx. 98 SY Filter Fabric
OR AS DIRECTED BY ENGINEER

NOTES:

1. REFER TO STANDARD 852.05 OF THE NCDOT STANDARD DRAWINGS FOR DETAIL OF INLET TREATMENT IN MEDIANS
2. FOR LOCATIONS OF WHEEL CHAIR RAMPS SEE PAVEMENT MARKING PLANS
3. CONTRACTOR TO VERIFY WATERLINE LOCATION AND DEPTH PRIOR TO GUARDRAIL INSTALLATION TO AVOID DAMAGE. NOTIFY ENGINEER IF CONFLICTS ARE IDENTIFIED.
4. PRIOR TO PLACEMENT OF PIPE OUTLET ENDWALLS, CONTRACTOR SHALL VERIFY PLACEMENT ON BED ROCK. IF BED ROCK IS NOT THEIR PRESENT CONTACT NCDOT CONSTRUCTION ADMINISTRATION IMMEDIATELY FOR GUIDANCE.
5. USE DETAIL SHEET 2-H FOR GUIDANCE ON INSTALLATION OF MODIFIED FRENCH DRAIN WITHIN EXISTING PERENNIAL STREAM. CONTRACTOR SHALL CONTACT NCDOT FIELD INSPECTOR PRIOR TO INSTALLATION FOR A FIELD MEETING AND INSTALLATION PROCEDURES. IN ADDITION, THE NCDOT FIELD INSPECTOR SHALL PROVIDE GUIDANCE ON THE RELOCATION OF THE EXISTING STREAM CHANNEL IN THE VICINITY OF THE PROPOSED BRIDGE WING WALL.
6. CONTRACTOR SHALL STABILIZE ALL CUT AND FILL SLOPES STEEPER THEN 3H:1V WITH PSRM OR AS DIRECTED BY ENGINEER. INCLUDING AREAS NOT SPECIFICALLY NOTED ON THE PLANS.

-L- (MOREHEAD ROAD)		
PIs Sta 138+40.14 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'	PI Sta 143+05.53 Δ = 37° 20' 08.4" (LT) D = 4° 46' 28.7" L = 781.96' T = 405.43' R = 1,200.00' e = .04	PIs Sta 147+42.09 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'
PIs Sta 152+84.72 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'	PI Sta 156+56.74 Δ = 29° 09' 12.4" (RT) D = 4° 46' 28.7" L = 610.59' T = 312.06' R = 1,200.00' e = .04	PIs Sta 160+15.31 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'

-Y4- (TRAM TRACK)	
PI Sta 12+43.68 Δ = 63° 56' 33.4" (RT) D = 28° 38' 52.4" L = 223.20' T = 124.83' R = 200.00' e = .02	PI Sta 16+80.36 Δ = 24° 04' 56.7" (RT) D = 11° 27' 33.0" L = 210.16' T = 106.65' R = 500.00' e = .02

REFERENCES:

1. FOR -L- PROFILE SEE SHEET 10
2. FOR -Y3- PROFILE SEE SHEET 12
3. FOR -Y4- PROFILE SEE SHEET 12

1/14/2010
u:\roadway\003_morehead\proj\morehead_rdy_psh_07.dgn
bpalmer

PROJECT REFERENCE NO.	SHEET NO.
U-5145	8
R/W SHEET NO.	

ROADWAY & HYDRAULICS DESIGN ENGINEER

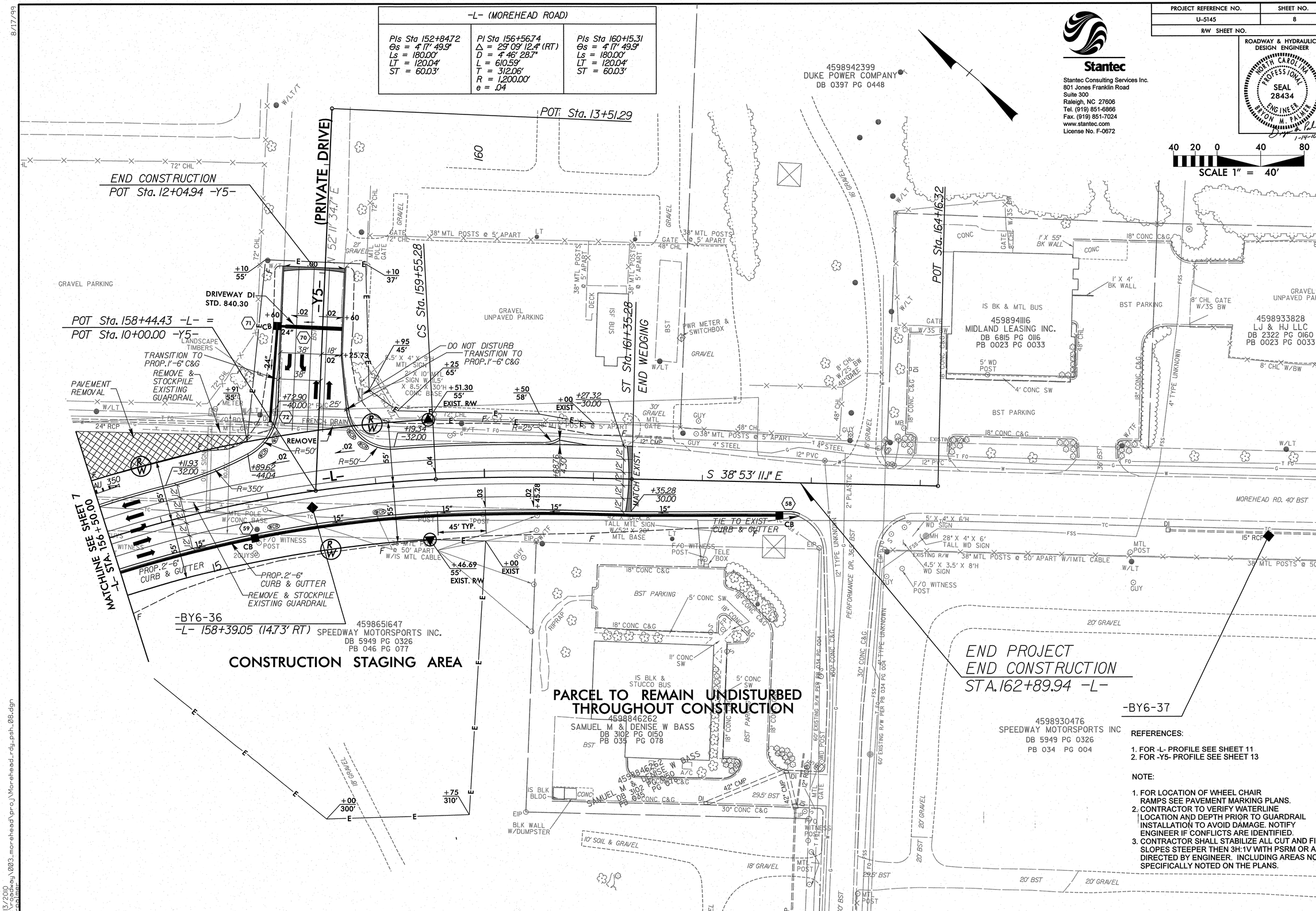
NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER

1-14-10

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

-L- (MOREHEAD ROAD)		
PIs Sta 152+84.72 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'	PI Sta 156+56.74 Δ = 29° 09' 12.4" (RT) D = 4° 46' 28.7" L = 610.59' T = 312.06' R = 1,200.00' e = .04	PIs Sta 160+15.31 Θs = 4° 17' 49.9" Ls = 180.00' LT = 120.04' ST = 60.03'



REFERENCES:

1. FOR -L- PROFILE SEE SHEET 11
2. FOR -Y5- PROFILE SEE SHEET 13

NOTE:

1. FOR LOCATION OF WHEEL CHAIR RAMPS SEE PAVEMENT MARKING PLANS.
2. CONTRACTOR TO VERIFY WATERLINE LOCATION AND DEPTH PRIOR TO GUARDRAIL INSTALLATION TO AVOID DAMAGE. NOTIFY ENGINEER IF CONFLICTS ARE IDENTIFIED.
3. CONTRACTOR SHALL STABILIZE ALL CUT AND FILL SLOPES STEEPER THEN 3H:1V WITH PSRM OR AS DIRECTED BY ENGINEER. INCLUDING AREAS NOT SPECIFICALLY NOTED ON THE PLANS.

8/17/99

1/13/2010
u:\roadway\003_morehead\proj\Morehead_rdy_psh_08.dgn
brpalmer

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	9

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALEK 12-17-09

0 40′ 80′ HORIZ.

0 8′ 16′ VERT.

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

-L-

BEGIN PROJECT
BEGIN CONSTRUCTION
MOREHEAD ROAD (-L-)
STA.125+19.87

BEGIN GRADE
MOREHEAD ROAD (-L-)
STA.125+30.00
ELEV.= 726.89

PI = 126+75.00
EL = 726.45′
VC = 250′
K = 84

PROPOSED GRADE
EXISTING GROUND
(-)0.30|4%
(-)3.2697%
STA.125+50.00 -L-
ELEV.= 726.83
STA.128+00.00 -L-
ELEV.= 722.36

BASELINE CONTROL POINT BL-49 ELEV.725.34
-BL- 88+06.59
-L- 120+69.30 (45.25′ LT)

BASELINE CONTROL POINT BY4-26 ELEV.725.76
-BL- 92+73.09
-L- 125+23.91 (59.40′ RT)

REFERENCES:

1. FOR -L- LINE PLAN, SEE SHEET 4

125 126 127 128 129 130

733 725 717 709 701 693 685

-L-

EXISTING GROUND
PROPOSED GRADE
(-)3.2697%
(-)3.3497%
(-)3.0965%
(-)2.1967%
(-)1.5018%
(-)1.1009%
(-)0.9176%
(-)1.0694%
(-)1.5640%
(-)2.3952%
(-)2.3661%
(-)1.9966%
(-)2.3307%
(-)2.2976%
(-)3.5000%
(-)2.2305%
(-)2.2001%
(-)2.0928%
(-)1.4851%
(-)0.5000%
(-)1.4893%
(-)1.4850%

BEGIN SPECIAL CUT BASE DITCH (RIGHT)
PI =131+50.00
EI = 708.03

PI =132+00.00
EI = 706.36

PI =132+50.00
EI = 704.69

PI =133+00.00
EI = 703.01

STA.133+50.00 -L-
ELEV.= 704.38
PI =133+50.00
EI = 701.34

PI =134+00.00
EI = 699.79

PI =134+50.00
EI = 698.69

PI = 135+00.00
EI = 697.94

PI = 135+50.00
EI = 697.39

PI = 134+50.00
EL = 701.11′
VC = 200′
K = 117

SPECIAL CUT BASE DITCH (LEFT)
BEGIN SPECIAL CUT BASE DITCH (LEFT)
PI =135+00.00
EI = 698.98
STA.135+50.00 -L-
ELEV.= 699.55

SPECIAL CUT BASE DITCH (LEFT)
PROPOSED GRADE
EXISTING GROUND
PI =136+00.00
EI = 697.78
PI =136+50.00
EI = 696.60
PI =137+00.00
EI = 695.44

STA.138+15.54 -L-
STA.14+82.66 -Y2-
ELEV.= 695.39

SPECIAL CUT BASE DITCH (LEFT)
SPECIAL CUT BASE DITCH (RIGHT)
PIPE INLET (RIGHT)
-L- STA.138+95.00
ELEV.= 690.52
PIPE INLET (RIGHT)
-L- STA.137+68.08
ELEV.= 693.00
PI =137+50.00
EI = 694.29
PI =139+00.00
EI = 691.02
PI =139+50.00
EI = 690.28
PI =140+00.00
EI = 689.99
PI =140+50.00
EI = 689.74

PI =136+50.00
EI = 696.40
PI =137+00.00
EI = 695.40
PI =137+50.00
EI = 693.65
PI =138+00.00
EI = 693.17
PI =138+50.00
EI = 692.07
PI =139+00.00
EI = 690.49
PI =139+50.00
EI = 690.24
PI =140+00.00
EI = 689.54
PI =140+50.00
EI = 688.80

SPECIAL CUT BASE DITCH (RIGHT)
SPECIAL CUT BASE DITCH (LEFT)
PIPE INLET (LEFT)
-L- STA.138+50.00
ELEV.= 692.07
PIPE INLET (LEFT)
-L- STA.138+90.00
ELEV.= 691.23

BASELINE CONTROL POINT BY6-30 ELEV.711.51
-BY6- 11+89.70
-L- 132+09.14 (36.96′ LT)

REFERENCES:

1. FOR -L- LINE PLAN, SEE SHEET 5

130 131 132 133 134 135 136 137 138 139 140

733 725 717 709 701 693 685 677 669 651

12/17/2009
U:\Roadway\003_morehead\proj\morehead_rdy_pro_09.dgn
bpalek

5/28/99

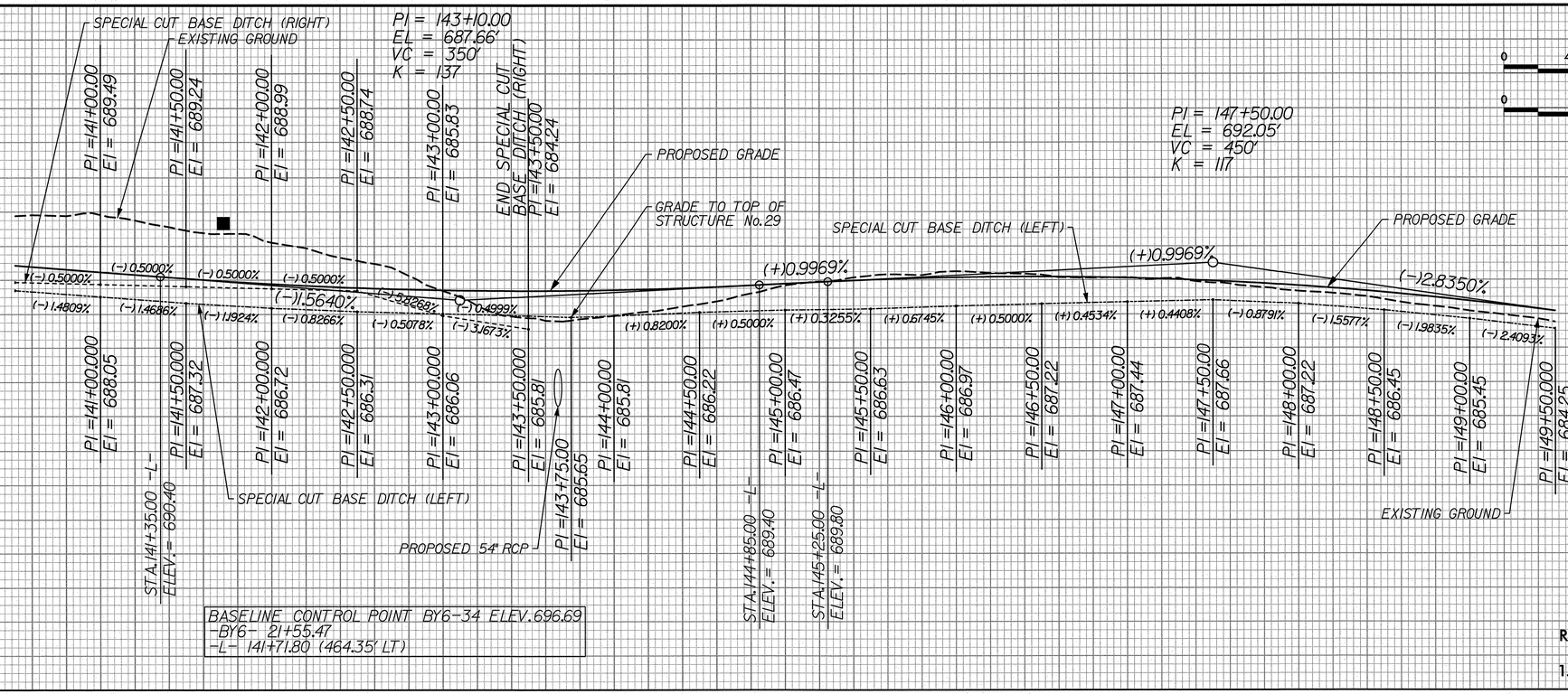
PROJECT REFERENCE NO.	SHEET NO.
U-5145	10

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER 12-17-09

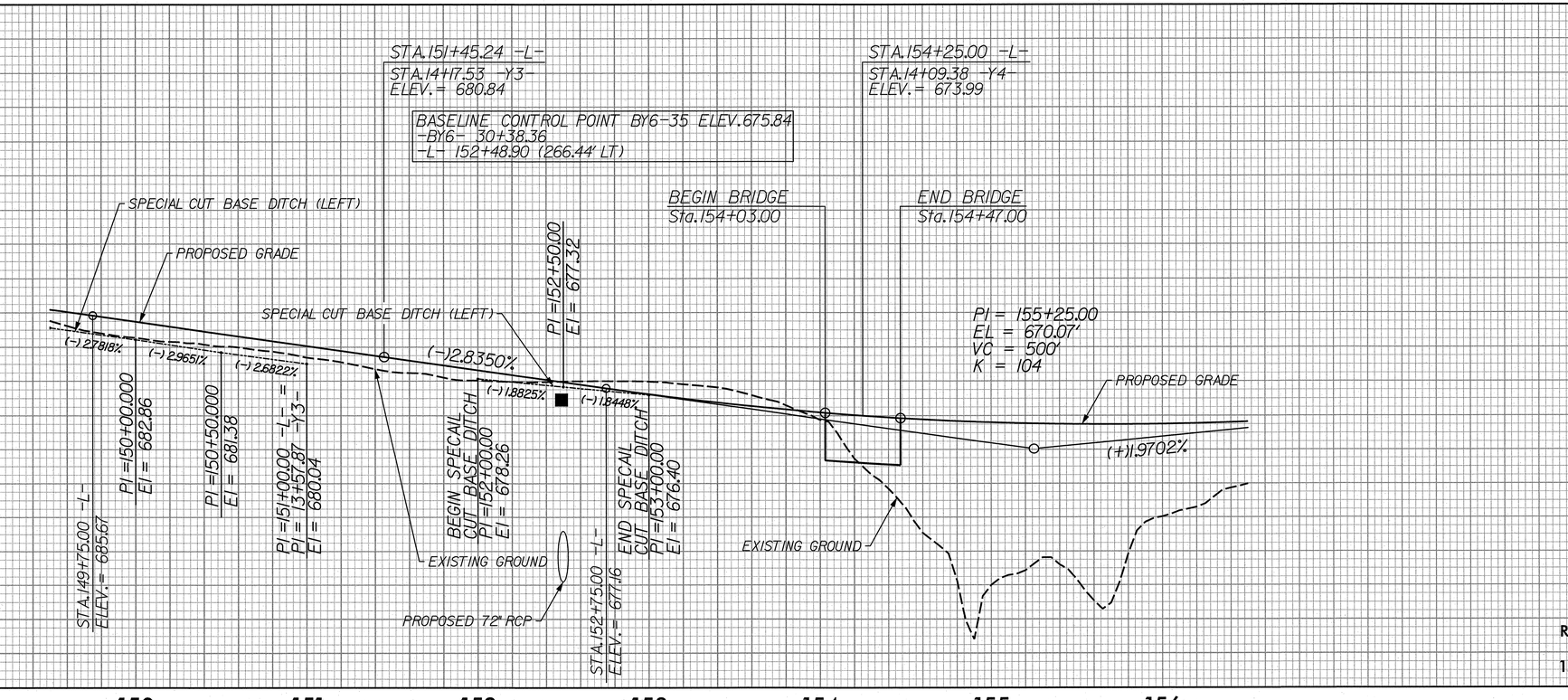
0 40′ 80′ HORIZ.

0 8′ 16′ VERT.



REFERENCES:

1. FOR –L– LINE PLAN, SEE SHEET 6



REFERENCES:

1. FOR –L– LINE PLAN, SEE SHEET 7

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

12/17/2009
U:\roadway\003_morehead\proj\Morehead_rdy_pro_10.dgn
preolmer

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5145	11

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER 12-17-09

0 40' 80' HORIZ.

0 8' 16' VERT.

BASELINE CONTROL POINT BY6-36 ELEV.674.44
-BY6- 37+34.95
-L- 158+39.05 (1473' RT)

STA.158+44.43 -L-
STA.101+00.00 -Y5-
ELEV.= 676.30

PI = 159+10.00
EL = 677.66'
VC = 200'
K = 85

END GRADE
MOREHEAD ROAD (-L-)
STA.161+00.00
ELEV.= 676.91

END PROJECT
END CONSTRUCTION
MOREHEAD ROAD (-L-)
STA.162+89.94

PROPOSED GRADE

(+)1.9702%

(+)1.9702%

(-)0.3947%

EXISTING GROUND

STA.152+75.00 -L-
ELEV.= 675.00

STA.158+10.00 -L-
ELEV.= 675.69

STA.160+10.00 -L-
ELEV.= 677.27

EXISTING GROUND

722 714 706 698 690 682 674 666 658 640

157 158 159 160 161 162 163 164

-L-

698 690 682 674 666 658 640

REFERENCES:

1. FOR -L- LINE PLAN, SEE SHEET 8

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

US 29.(-Y1-)/MOREHEAD RD.(-L-)
TIE-IN
STA.14+36.89 US 29.(-Y1-)
STA.124+62.27 MOREHEAD RD.(-L-)
ELEV.= 726.89

EXISTING GROUND

-Y1-

752 744 736 728 720 712 704 696 688 680

10 11 12 13 14 15 16 17

NO PROPOSED DESIGN
FOR REFERENCE ONLY

REFERENCES:

1. FOR -Y1- LINE PLAN, SEE SHEET 4

12/17/2009
U:\roadway\003_morehead\proj\Morehead_rdy_pro_11.dgn
brpalmer

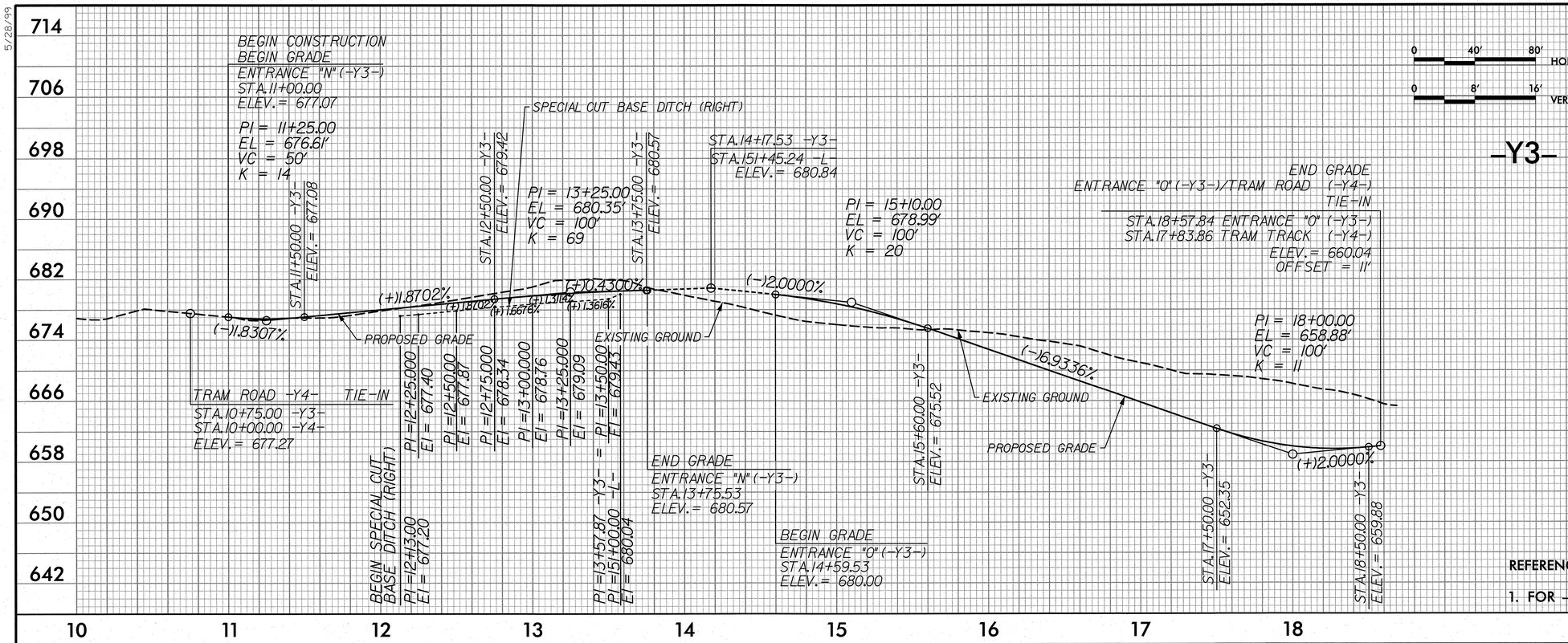
PROJECT REFERENCE NO.	SHEET NO.
U-5145	12

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER 12-17-09

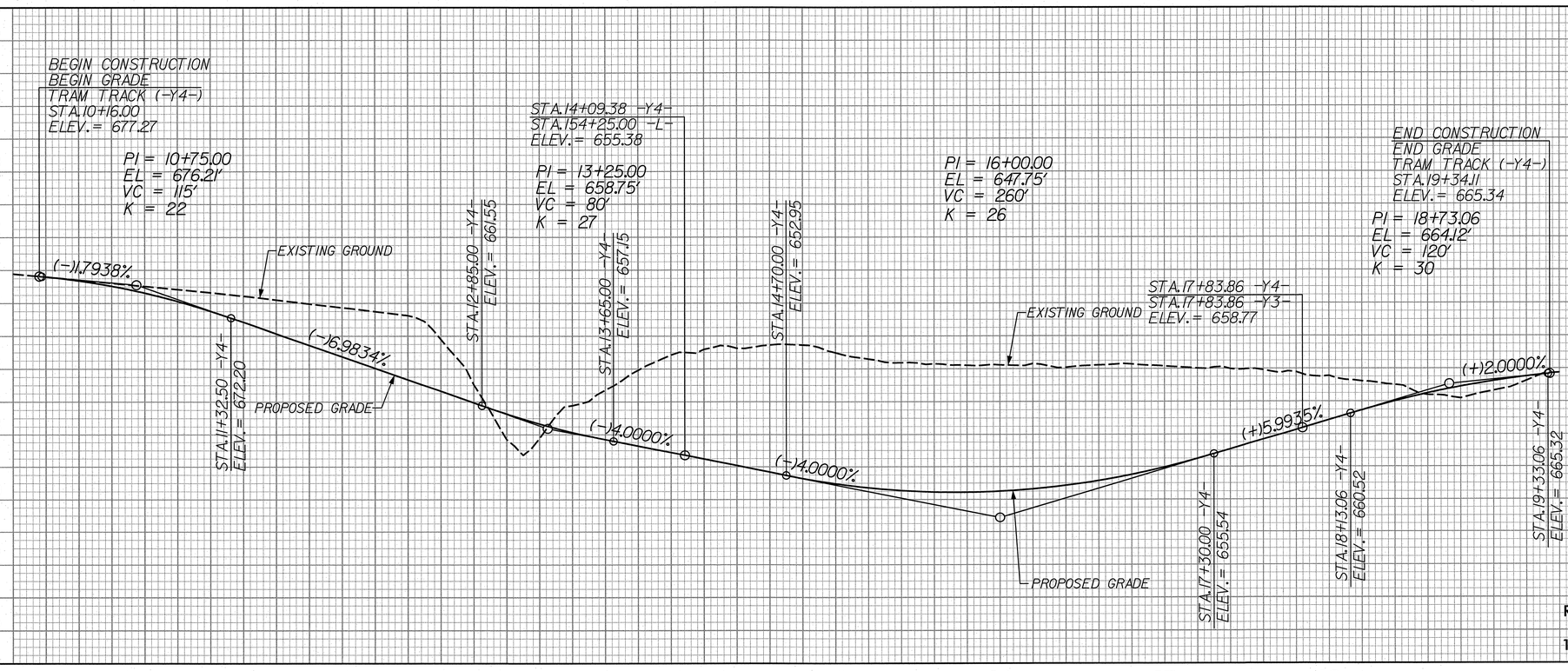
Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



REFERENCES:

1. FOR -Y3- LINE PLAN, SEE SHEET 7



REFERENCES:

1. FOR -Y4- LINE PLAN, SEE SHEET 7

5/28/99

12/17/2009
u:\roadway\003_morehead\proj\morehead_rdy_pro_12.dgn
brpalmer

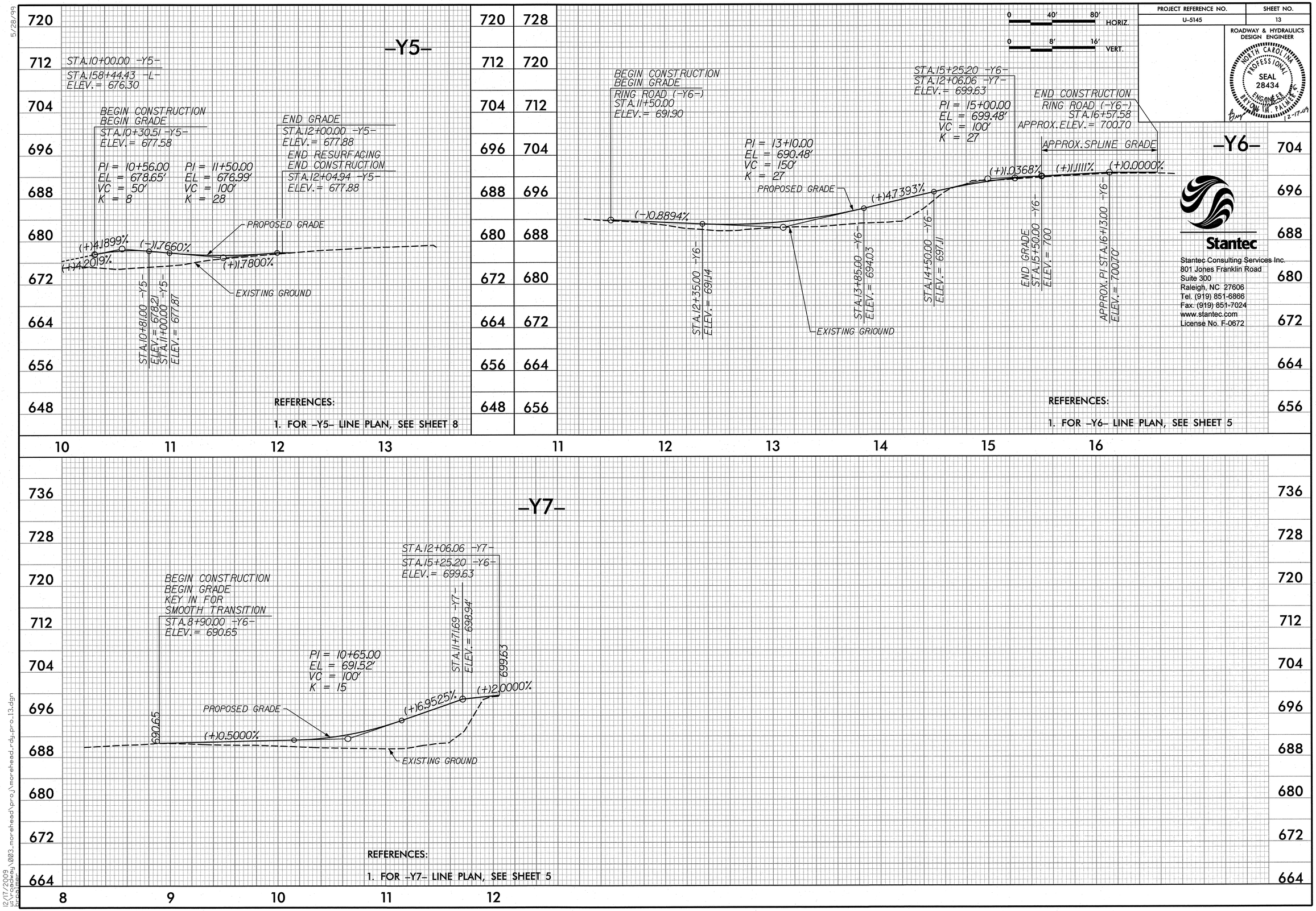
PROJECT REFERENCE NO.	SHEET NO.
U-5145	13

ROADWAY & HYDRAULICS DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28434 ENGINEER BRYON M. PALMER 12-17-09

0 40' 80' HORIZ.

0 8' 16' VERT.



Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

5/28/99

12/17/2009
u:\roadway\003_morehead\proj\morehead_rdy_pro_13.dgn
bpalmer