09/08/99

TIP PROJECT: R-5000

CONTRACT: C203133

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

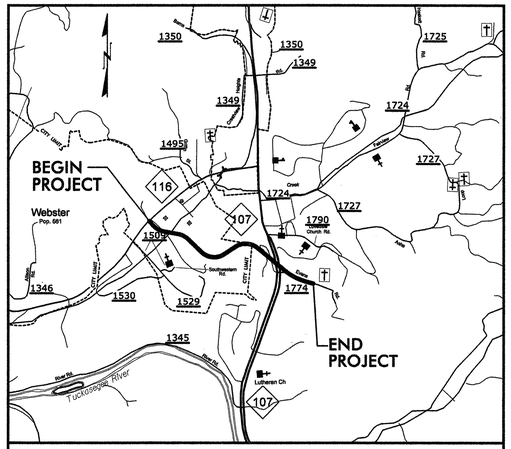
JACKSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5000	1	

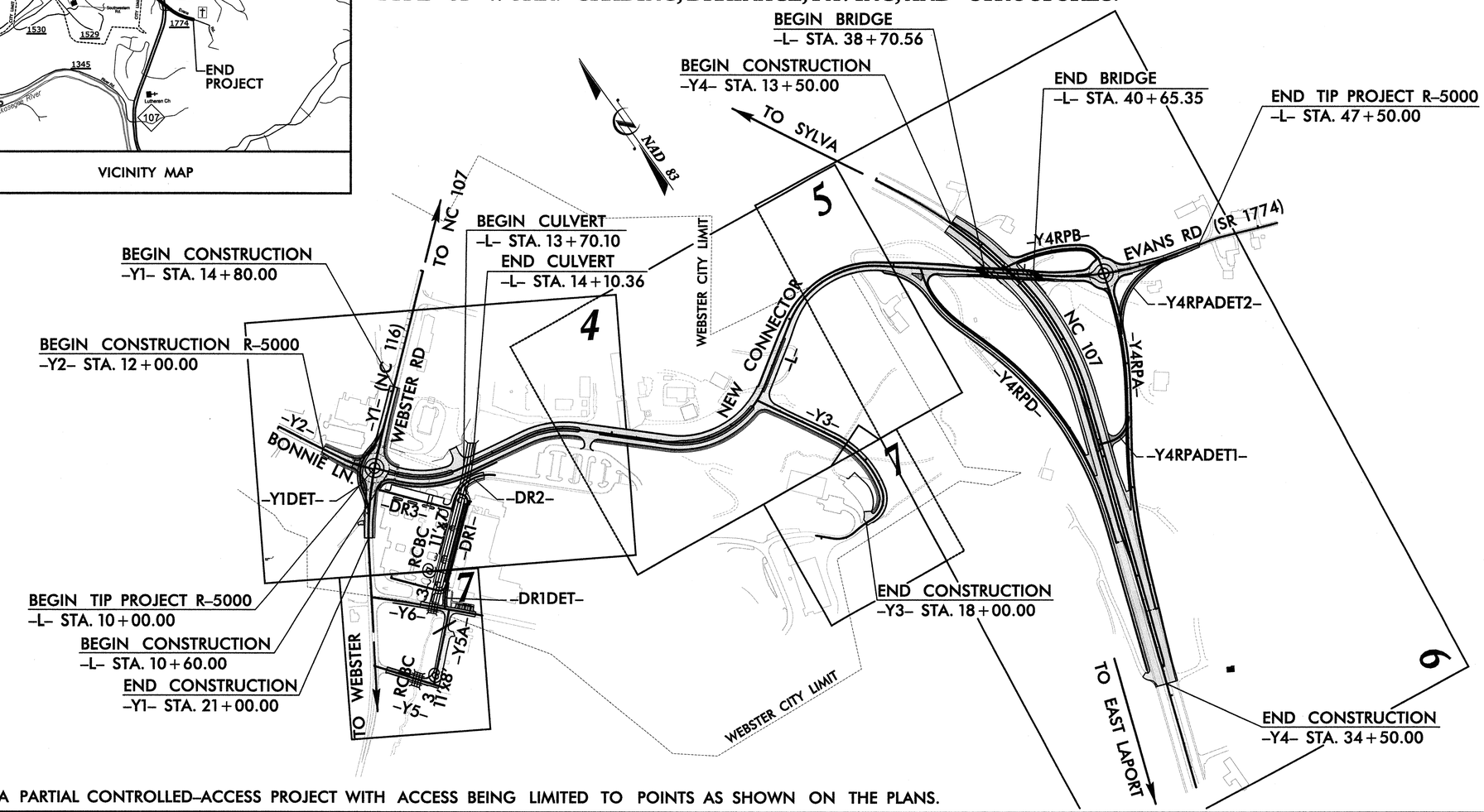
WBS NO.	F.A. PROJ. NO.	DESCRIPTION
41156.1.1		P.E.
41156.2.1		R/W/ UTIL.
41156.3.1		CONST.

LOCATION: NEW LOCATION CONNECTOR ROAD FROM NC 116 TO EAST OF NC 107

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



VICINITY MAP



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012 = 2,900
ADT 2035 = 6,700
DHV = 11 %
D = 55 %
T = 3 % *
V = 35 MPH
(* TTST 1% + DUALS 2%)
FUNC CLASS =
URBAN COLLECTOR
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5000	=	0.673 MILES
LENGTH STRUCTURE TIP PROJECT R-5000	=	0.037 MILES
TOTAL LENGTH TIP PROJECT R-5000	=	0.710 MILES

Prepared for:
NCDOT DIVISION 14
253 Webster Rd., Sylva, NC 28779

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 2011

LETTING DATE:
NOVEMBER 20, 2012

NCDOT CONTACT: STEPHEN WILLIAMS
DIVISION 14 DESIGN CONSTRUCTION ENGINEER

Prepared by:
MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC License No. C-1021

JOHNNY BANKS
PROJECT ENGINEER

W. CRAIG PARKER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN K. DUNCAN
SIGNATURE: P.E. 8-13-2012

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
SIGNATURE: P.E. 8-14-2012

8/10/2012
R:\Roadway\Proj\R5000_rdy_tsh.dgn
2:27:40 PM

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-5000	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025472 ENGINEER CRAIG PARKER
10/11/12

INDEX OF SHEETS

SHEET NO.	SHEET
1	Title Sheet
1-A	Index of Sheets, General Notes, and List of Standards
1-B	Conventional Symbols
2 thru 2C	Pavement Schedule, Wedging Details & Typical Sections
2D	Detail of Detour Alignment for Y1DET- & -DR1DET-
2E	Detail of Detour Alignment for -Y4RPADET1- & -Y4RPADET2-
2F	Detail of Parking Lot Reconstruction
2G	Detail of Monolithic Concrete Islands at Intersections
2H	Detail of Concrete Steps with Brick Walls and Handrail
2I	Detail of Surcharge Area on Y4RPB-
2J	Detail of Pedestrian Safety Rail
2K	Detail of Concrete Flume
2L	Detail to Convert Existing Drop Inlet or Catch Basin to Junction Box
2M	Detail to Convert Existing Catch Basin or Junction Box to Drop Inlet
2N	Detail of Curb Ramps
2O	Detail of Chain Link Fence with 3 Strands of Barbed Wire
2P	Detail of Temporary Shoring
2Q	Detail for Temporary Steel Plate Covers for Masonry Drainage Structures
3 (2 SHEETS)	Summary of Quantities
3A	Summary of Guardrail
3B thru 3H	Summary of Drainage
3I	Summary of Earthwork, Existing Asphalt Pavement Removal, Breaking of Existing Asphalt Pavement, Woven Wire Fence & Chain Link Fence.
3J	Parcel Index Sheet
4 thru 7	Plan Sheets
8 thru 13	Profile Sheets
TMP-1 thru TMP-4F	Traffic Control Plans
PM-1 thru PM-9	Pavement Marking Plans
E-1 thru E-6	Lighting Plans
EC-1 thru EC-15	Erosion Control Plans
RF-1	Reforestation Plans
SIGN-1 thru SIGN-8	Signing Plans
UC-1 thru UC-10	Utility Construction Plans
UO-1 thru UO-7	Utilities By Others Plans
S-1 thru S-32	Structure Plans
C-1 thru C-18	Culvert Plans
W-1 thru W-6	MSE Wall Plans
X-SUM1 & X-SUM2	Earthwork Volume Summaries
X-INDEX	Cross Section Index
X-1 thru X-152	Cross Sections

STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II (Sheet 2 of 3 is no longer applicable)
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.01	Guide for Paving Shoulders Under Bridges - Method I
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
816.01	Concrete Pads - for Shoulder Drain Installation
816.02	Aggregate Shoulder Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.05	Concrete 'L' Endwall for Single Pipe Culverts - 15" thru 48" Pipe
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.15	Brick 'L' Endwall for Single Pipe Culverts - 15" thru 48" Pipe
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
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
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
850.11	Guide for Berm Drainage Outlet - 24" and 30" Pipe
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
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.01	Chain Link Fence - 4', 5' and 6' High Fence
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES

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

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.

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 OR 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 OR 560.02.

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.

BERM DITCHES:
BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

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

SHOULDER DRAINS:
SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.03 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE Duke Energy, Frontier Communications,

PSNC, Morris Broadband, Balsam West Communications, Metrostat, TWSA, SCC

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

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

CURB RAMPS
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05.

5/28/99
10/11/2012
R:\Roadway\Proj\2006\246.05 R-5000\Roadway\Proj\R5000_rdy_tsh.dgn

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
R-5000	1-B

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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Curb Cut Future Ramp — CCFR
- 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
- 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
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025474 ENGINEER CRAIG PARKER

8/20/2012

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024944 ENGINEER JOSEPH T. HOLLAND

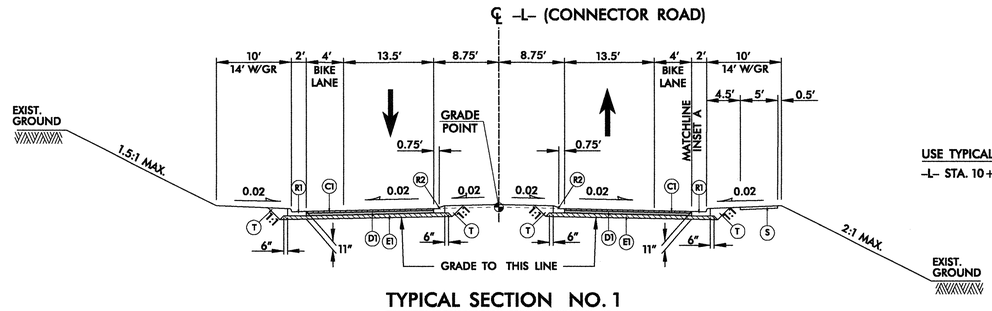
8/29/2012

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

A	7" JOINTED PLAIN CONCRETE PAVEMENT. (TINTED & STAMPED AS DIRECTED BY ENGINEER) REINFORCED WITH EITHER 4x4 W3.5xW3.5 or 6x6 W5xW5 WIRE MESH, 15' MAXIMUM JOINT SPACING.
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D3	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E4	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
L2	CLASS IV SUBGRADE STABILIZATION FOR BACKFILL OF SHALLOW UNDERCUT.
N2	GEOTEXTILE FOR SOIL STABILIZATION. PLACEMENT UNDER CLASS IV SUBGRADE STABILIZATION IN SHALLOW UNDERCUT AREAS.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	1'-6" CONCRETE CURB AND GUTTER. (MOUNTABLE MEDIAN CURB, STD DWG. 846.01)
R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN).
R4	CONCRETE EXPRESSWAY GUTTER.
R5	1'-6" CONCRETE CURB AND GUTTER. (SEE CURB DETAIL "I" SHEET 2-C)
R6	1'-6" CONCRETE CURB AND GUTTER. (SEE CURB DETAIL "II" SHEET 2-C)
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT VAR. DEPTH. SEE DETAILS ON SHEETS 2-A, 2-B, & 2-C
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE WEDGING DETAILS - ON SHEETS 2-A & 2-B)
Y	PROP. 6" WASHED STONE - TYPE #57

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

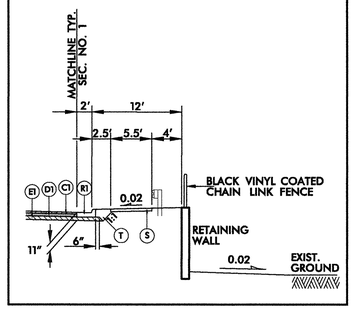


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

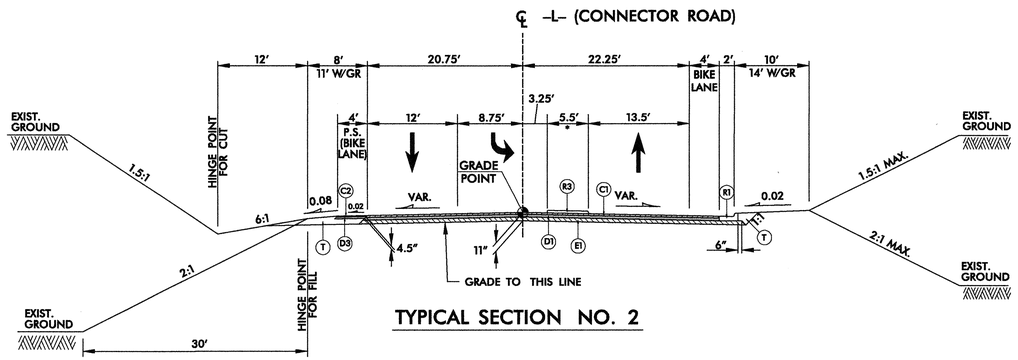
-L- STA. 10+60.00 TO STA. 27+00.00

INSET "A"



USE INSET "A" AS FOLLOWS:

-L- STA. 10+42.60 TO STA. 15+00.00 RT



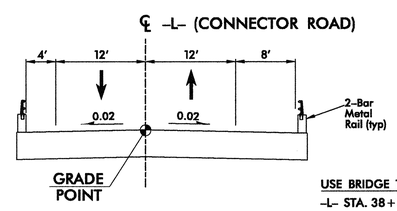
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

-L- STA. 27+00.00 TO STA. 31+00.00

NOTES:

* ISLAND PROPOSED FROM -L- STA. 26+90.40 TO STA. 29+22.65 (SEE PLANS)
TRANSITION FROM TYP. SEC. NO. 2 TO TYP. SEC. NO. 3 FROM -L- STA. 29+19.90 TO STA. 31+00.00

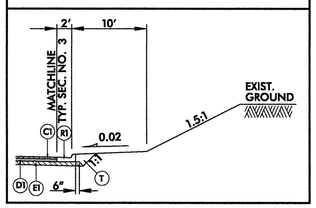


BRIDGE TYPICAL SECTION

USE BRIDGE TYPICAL SECTION AS FOLLOWS:

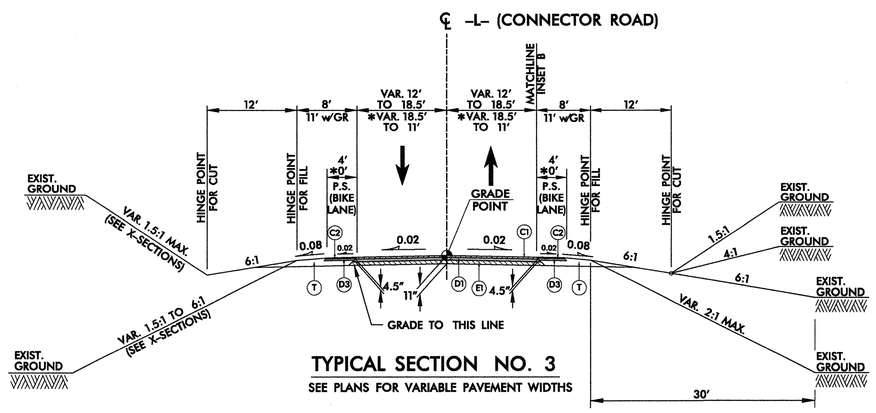
-L- STA. 38+70.56 TO STA. 40+65.35

INSET "B"



USE INSET "B" AS FOLLOWS:

-L- STA. 31+00.00 TO STA. 34+65.00



TYPICAL SECTION NO. 3

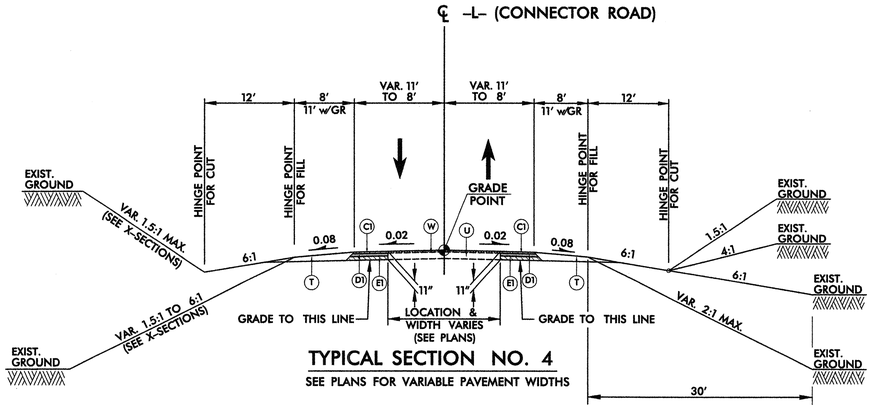
SEE PLANS FOR VARIABLE PAVEMENT WIDTHS

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

-L- STA. 31+00.00 TO STA. 38+70.56 (BEGIN BRIDGE)
-L- STA. 40+65.35 (END BRIDGE) TO STA. 42+89.99
-L- STA. 44+10.01 TO STA. 44+62.01
*-L- STA. 44+62.01 TO STA. 45+87.01

8/20/2012
G:\Projects\2006\246.05 R-5000\Roadway\Proj\R5000_rdy_typ.dgn
8:46:27 AM

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024864 ENGINEER CRAIG PARKER 8-14-2012	NORTH CAROLINA PROFESSIONAL SEAL 024864 ENGINEER JOSEPH T. HOLLAND 8/29/2012

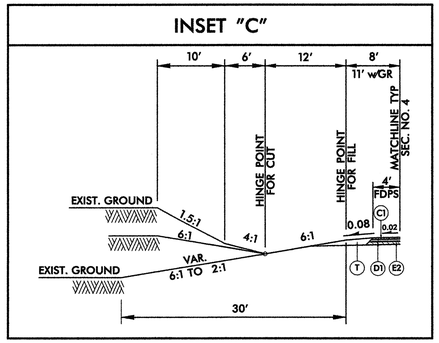


TYPICAL SECTION NO. 4

SEE PLANS FOR VARIABLE PAVEMENT WIDTHS

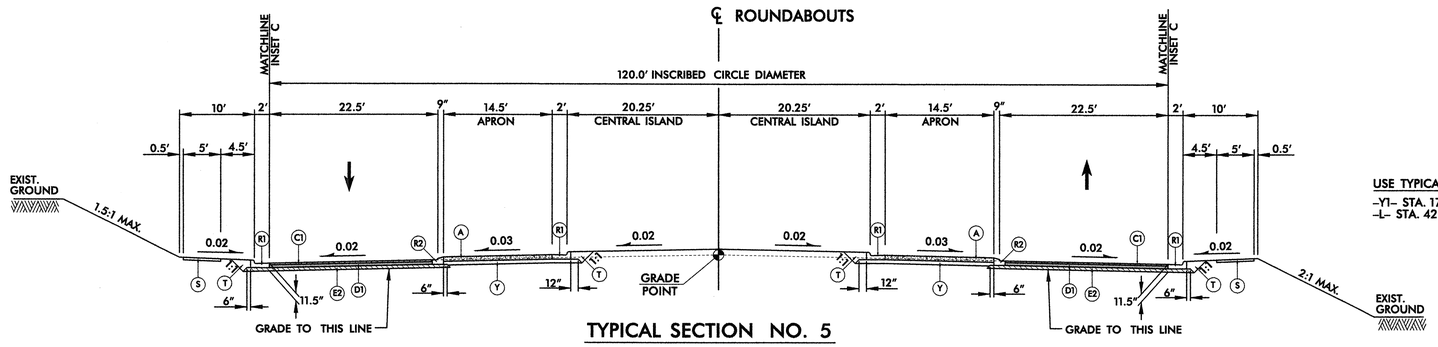
USE TYPICAL SECTION NO. 4 AS FOLLOWS:

-L- STA. 45+87.01 TO STA. 47+50.00



USE INSET "C" AS FOLLOWS:

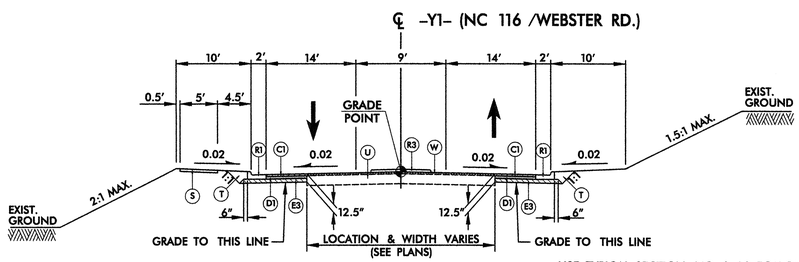
-L- STA. 42+89.99 TO STA. 44+10.01



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS:

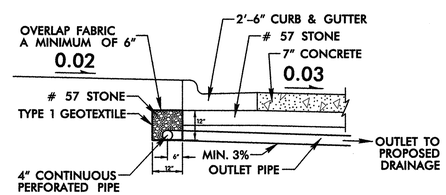
-Y1- STA. 17+56.96 TO STA. 18+76.96
-L- STA. 42+89.99 TO STA. 44+10.01



TYPICAL SECTION NO. 6

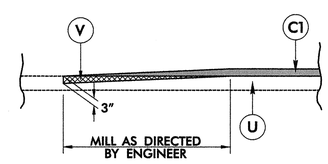
USE TYPICAL SECTION NO. 6 AS FOLLOWS:

-Y1- STA. 14+80.00 TO STA. 17+56.96
-Y1- STA. 18+76.96 TO STA. 21+00.00



SHOULDER DRAIN DETAIL

USE CONTINUOUS SHOULDER DRAINS BEHIND 2'-6" CURB & GUTTER INSIDE THE CENTRAL ISLAND AT EACH ROUNDABOUT.

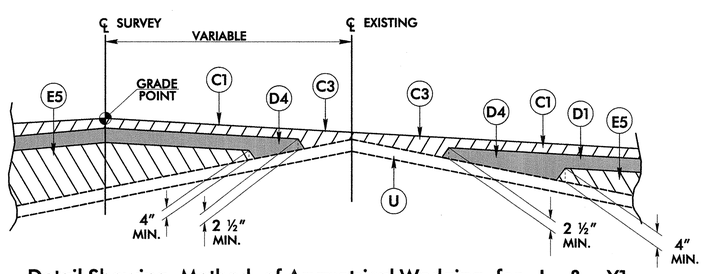


MILLING DETAIL

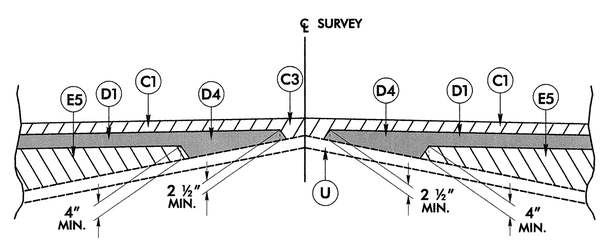
MILL EXISTING PAVEMENT AT THE FOLLOWING LOCATIONS:
-L- STA. 47+25+/- TO STA. 47+50
-Y1- STA. 14+80 TO STA. 15+05+/-
-Y1- STA. 20+75+/- TO STA. 21+00

SEE SHEET 2 FOR FULL PAVEMENT DESIGN SCHEDULE

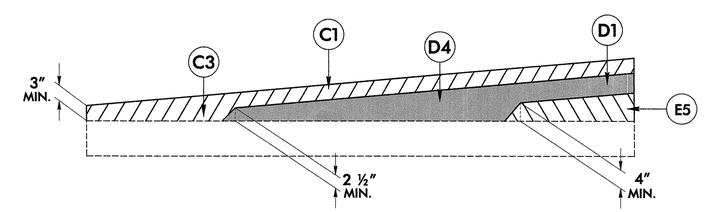
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
A	7" CONCRETE
C1	3" S9.5B
C3	VAR. S9.5B
D1	4" I19.0B
D4	VAR. I19.0B
E1	4" B25.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E5	VAR. B25.0B
R1	2'-6" CURB & GUTTER
R2	1'-6" CURB & GUTTER
R3	5" MONO. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	VAR. DEPTH MILLING (SEE MILLING DETAIL-THIS SHT.)
W	WEDGING (THIS SHT.)
Y	6" # 57 STONE



Detail Showing Method of Asymetrical Wedging for -L- & -Y1-



Detail Showing Method of Symetrical Wedging for -L- & -Y1-



Wedging Detail For Resurfacing of -L- & -Y1-

6/2/99

8/10/2012
R:\Roadway\Proj\R5000_rdy_typ.dgn
21:15:40 EDT

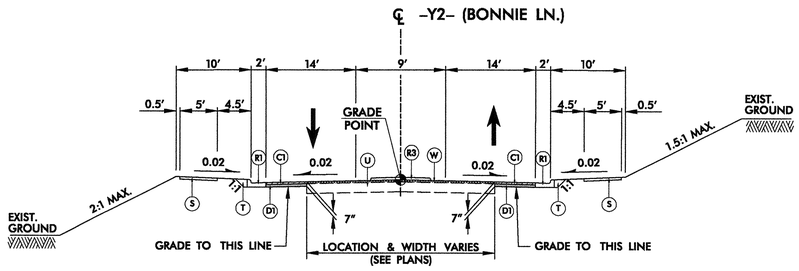
PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-B

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025474 ENGINEER CRAIG PARKER
8/20/2012

PAVEMENT DESIGN ENGINEER

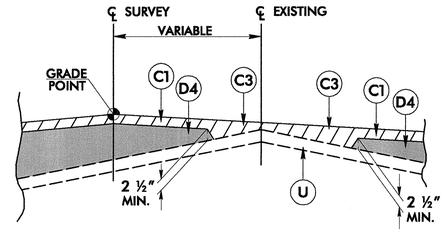
NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH T. HOLLAND
8/29/2012



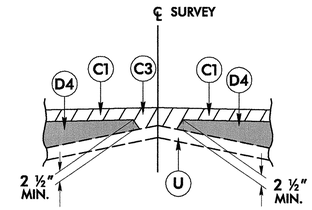
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS:

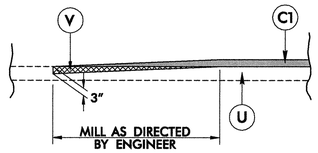
-Y2- STA. 12+00.00 TO STA. 13+61.77



Detail Showing Method of Asymetrical Wedging for -Y2-

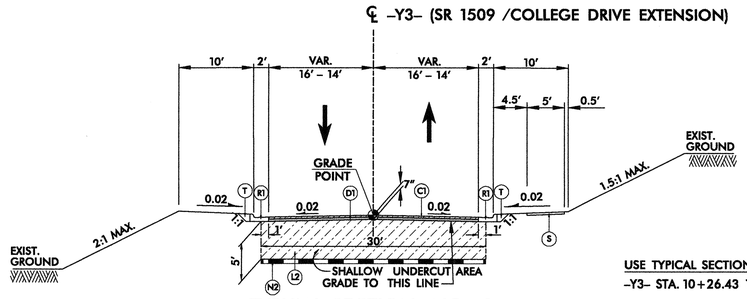


Detail Showing Method of Symetrical Wedging for -Y2-



MILLING DETAIL

MILL EXISTING PAVEMENT AT THE FOLLOWING LOCATIONS:
-Y2- STA. 12+00 TO STA. 12+25 +/-
-Y3- STA. 17+90 +/- TO STA. 18+00
-Y4- STA. 13+50 TO STA. 13+75 +/- LT
-Y4- STA. 13+50 TO STA. 13+75 +/- RT
-Y4- STA. 34+25 +/- TO STA. 34+50

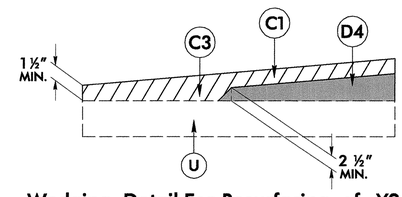


TYPICAL SECTION NO. 8

NOTE: SHALLOW UNDERCUT TO BE PERFORMED FROM -Y3- STA. 15+68 TO 18+00.

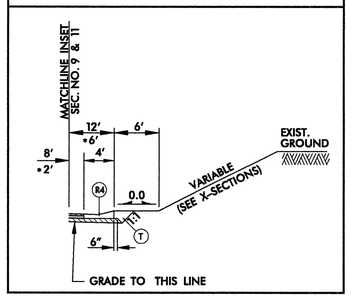
USE TYPICAL SECTION NO. 8 AS FOLLOWS:

-Y3- STA. 10+26.43 TO STA. 18+00.00



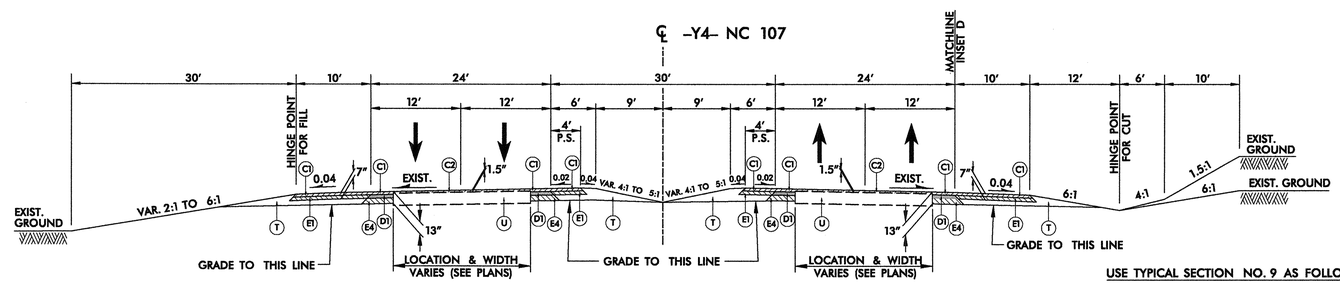
Wedging Detail For Resurfacing of -Y2-

INSET "D"



USE INSET "D" AS FOLLOWS:

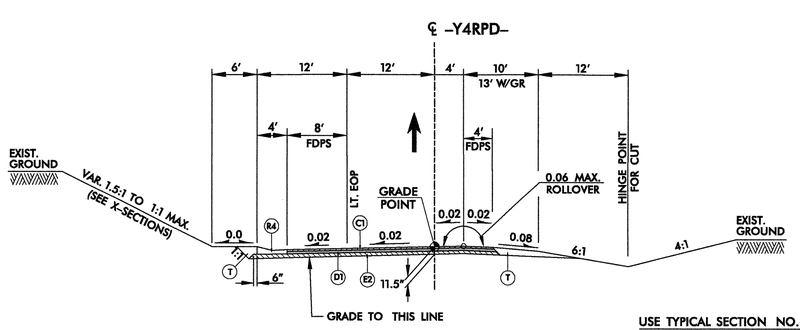
-Y4- STA. 28+50.00 TO STA. 33+77.58 RT.
• -Y4RPB- STA. 10+80.00 TO STA. 11+25.00 RT.



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 AS FOLLOWS:

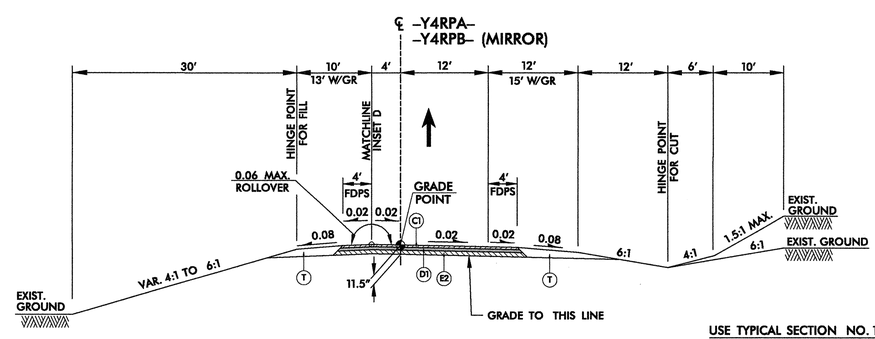
-Y4- STA. 13+50.00 TO STA. 34+50.00



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 AS FOLLOWS:

-Y4RPD- STA. 13+75.71 TO STA. 23+73.46



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 AS FOLLOWS:

-Y4RPA- STA. 14+89.65 TO STA. 23+12.73
-Y4RPB- STA. 10+41.49 TO STA. 14+06.83

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	3" S9.5B
C2	1.5" S9.5B
C3	VAR. S9.5B
D1	4" I19.0B
D4	VAR. I19.0B
E1	4" B25.0B
E2	4.5" B25.0B
E4	6" B25.0B
L2	CLASS IV SUB. STAB.
N2	GEOTEXTILE
R1	2'-6" CURB & GUTTER
R3	5" MONO. ISLAND
R4	CONC. EXP. GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	VAR. DEPTH MILLING (SEE MILLING DETAIL-THIS SHT.)
W	WEDGING (THIS SHT.)

SEE SHEET 2 FOR FULL PAVEMENT DESIGN SCHEDULE

6/2/99

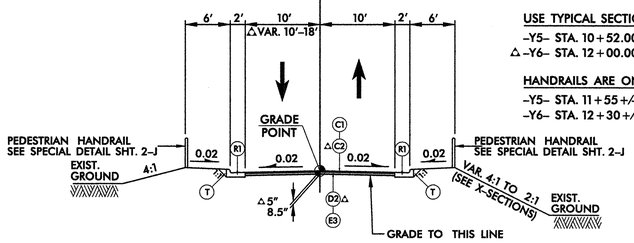
8/20/2012
G:\Project\2006\246.05 R-5000\Roadway\Proj\R5000_rdy_typ.dgn
4:22:28 PM

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER CRAIG PARKER — 8-14-2012

NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH T. HOLLAND — 8/29/2012

℄ -Y5- (ARMORY DRIVEWAY) -Y6- (SR 1509 - COLLEGE DRIVE)

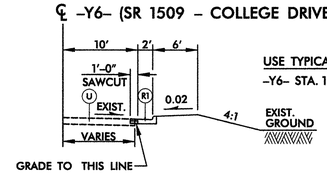


TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AS FOLLOWS:
-Y5- STA. 10+52.00 TO STA. 12+72.80
△-Y6- STA. 12+00.00 TO STA. 14+25.00

HANDRAILS ARE ONLY AT THESE LOCATIONS:
-Y5- STA. 11+55+/- TO STA. 12+05+/- RT & LT
-Y6- STA. 12+30+/- TO STA. 12+75+/- RT

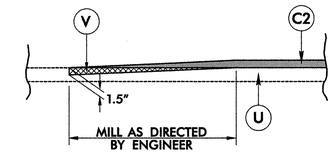
℄ -Y6- (SR 1509 - COLLEGE DRIVE)



TYPICAL SECTION NO. 12A

NOTE:
MATCH PROPOSED PAVEMENT STRUCTURE FOR -Y6- ON TYPICAL SECTION NO. 12.

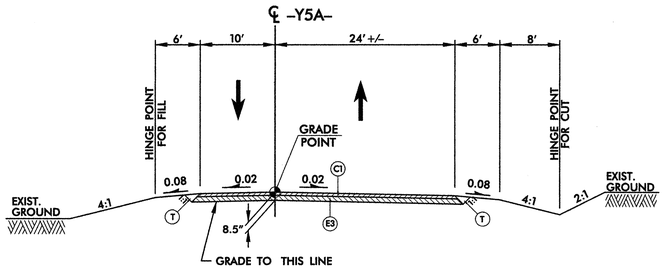
USE TYPICAL SECTION NO. 12A AS FOLLOWS:
-Y6- STA. 10+89+/- RT TO STA. 12+00.00 RT



MILLING DETAIL

MILL EXISTING PAVEMENT AT THE FOLLOWING LOCATIONS:
-Y6- STA. 12+00 TO STA. 12+25+/-
-Y6- STA. 14+00+/- TO STA. 14+25

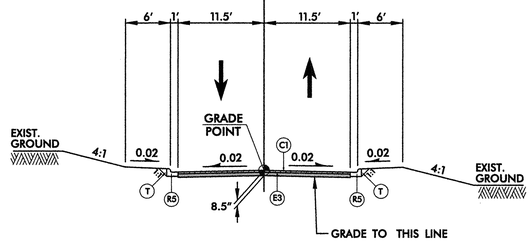
℄ -Y5A-



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 AS FOLLOWS:
-Y5A- STA. 10+10.00 TO STA. 12+95.73

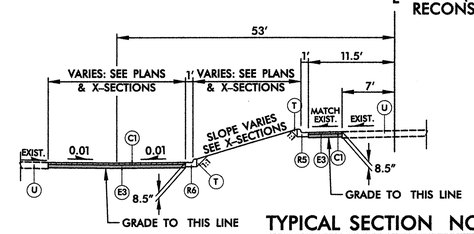
℄ -DR1- (PARKING LOT RECONSTRUCTION)



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 AS FOLLOWS:
-DR1- STA. 11+50.00 TO STA. 12+50.00
-DR1- STA. 15+75.00 TO STA. 16+31.73

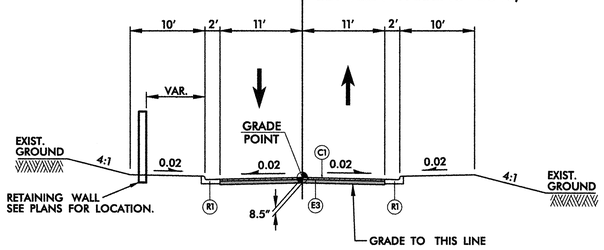
℄ -DR1- (PARKING LOT RECONSTRUCTION)



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15 AS FOLLOWS:
-DR1- STA. 12+50.00 TO STA. 15+75.00

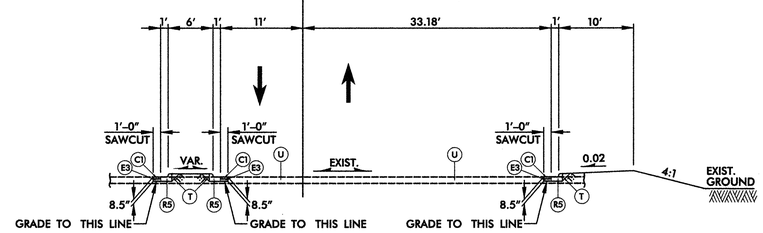
℄ -DR2- (SERVICE ROAD BETWEEN PARKING LOTS)



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16 AS FOLLOWS:
-DR2- STA. 10+25.00 TO STA. 12+00.00

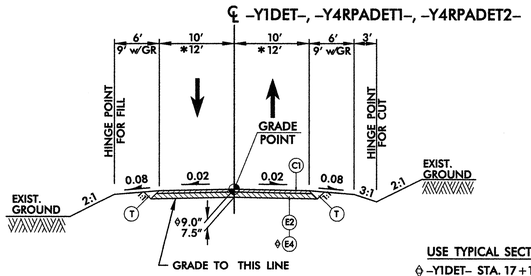
℄ -DR3- (PARKING LOT RECONSTRUCTION)



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17 AS FOLLOWS:
-DR3- STA. 10+10+/- TO STA. 12+80+/-

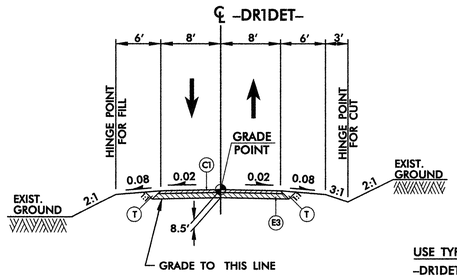
℄ -Y1DET-, -Y4RPADET1-, -Y4RPADET2-



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18 AS FOLLOWS:
ϕ -Y1DET- STA. 17+14.39 TO STA. 19+68.27
* -Y4RPADET1- STA. 10+49.00 TO STA. 11+32.54
-Y4RPADET2- STA. 21+91.21 TO STA. 24+52.44

℄ -DR1DET-



TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19 AS FOLLOWS:
-DR1DET- STA. 13+52.63 TO STA. 14+37.55

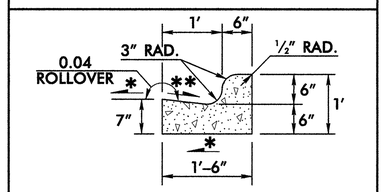
PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

SEE SHEET 2 FOR FULL PAVEMENT DESIGN SCHEDULE

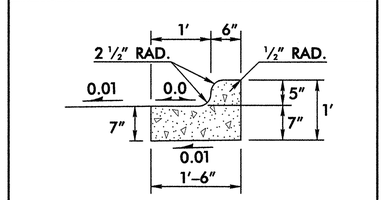
C1	3" S9.5B
C2	1.5" S9.5B
D2	3.5" I19.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E4	6" B25.0B
R1	2'-6" CURB & GUTTER
R5	1'-6" CURB & GUTTER (SEE CURB DETAIL "I"-THIS SHT.)
R6	1'-6" CURB & GUTTER (SEE CURB DETAIL "II"-THIS SHT.)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	VAR. DEPTH MILLING (SEE MILLING DETAIL-THIS SHT.)

CURB DETAIL "I"



* EXISTING PAVEMENT SUPER
** 0.04 ROLLOVER FROM EXISTING SUPER

CURB DETAIL "II"



8/10/2012
R:\Roadway\Proj\R5000_rdy_typ.dgn
User: pjr

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

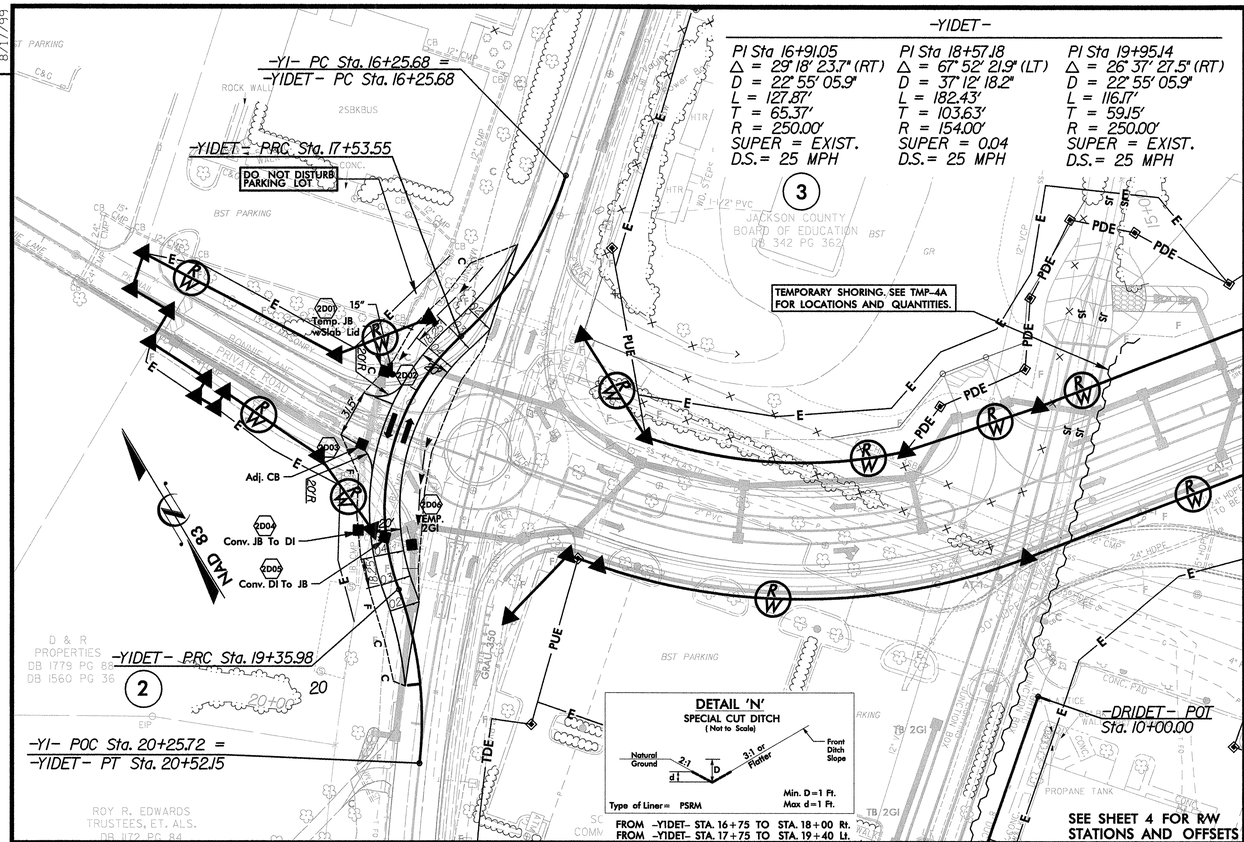
NORTH CAROLINA PROFESSIONAL SEAL 024747 ENGINEER CRAIG PARKER
8-14-2012

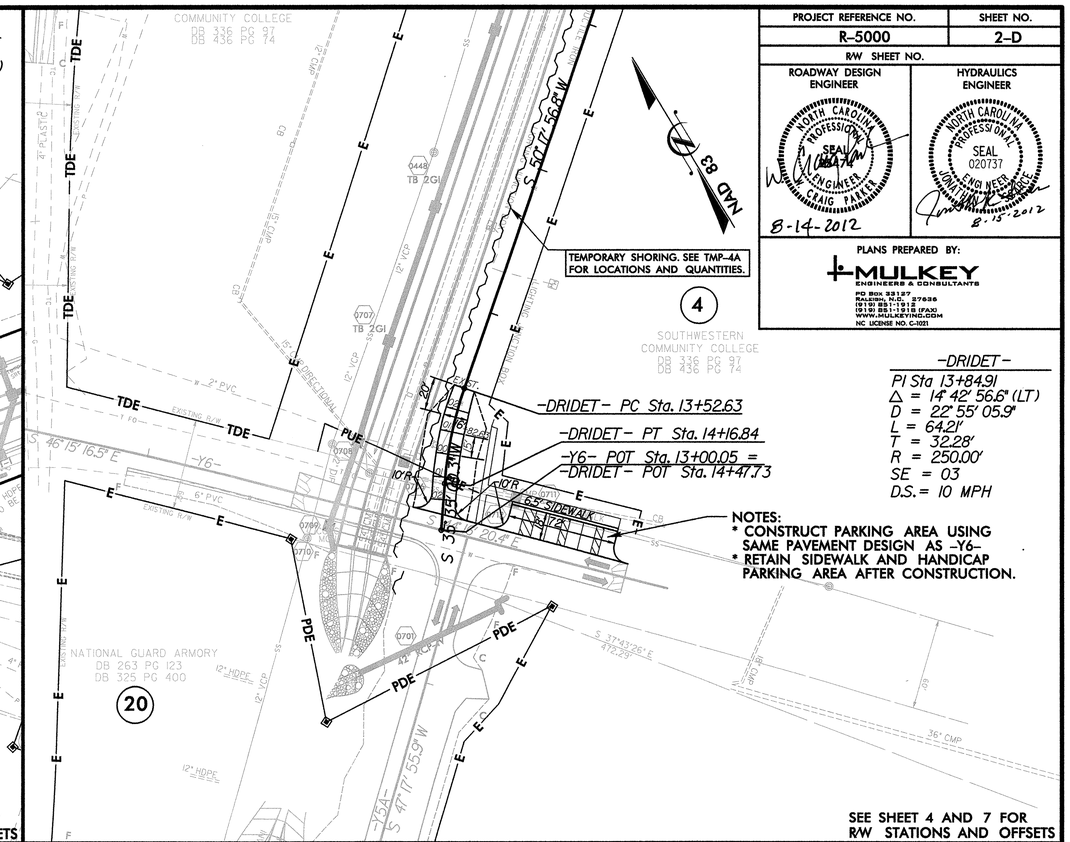
NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN W. SANDERS
8-15-2012

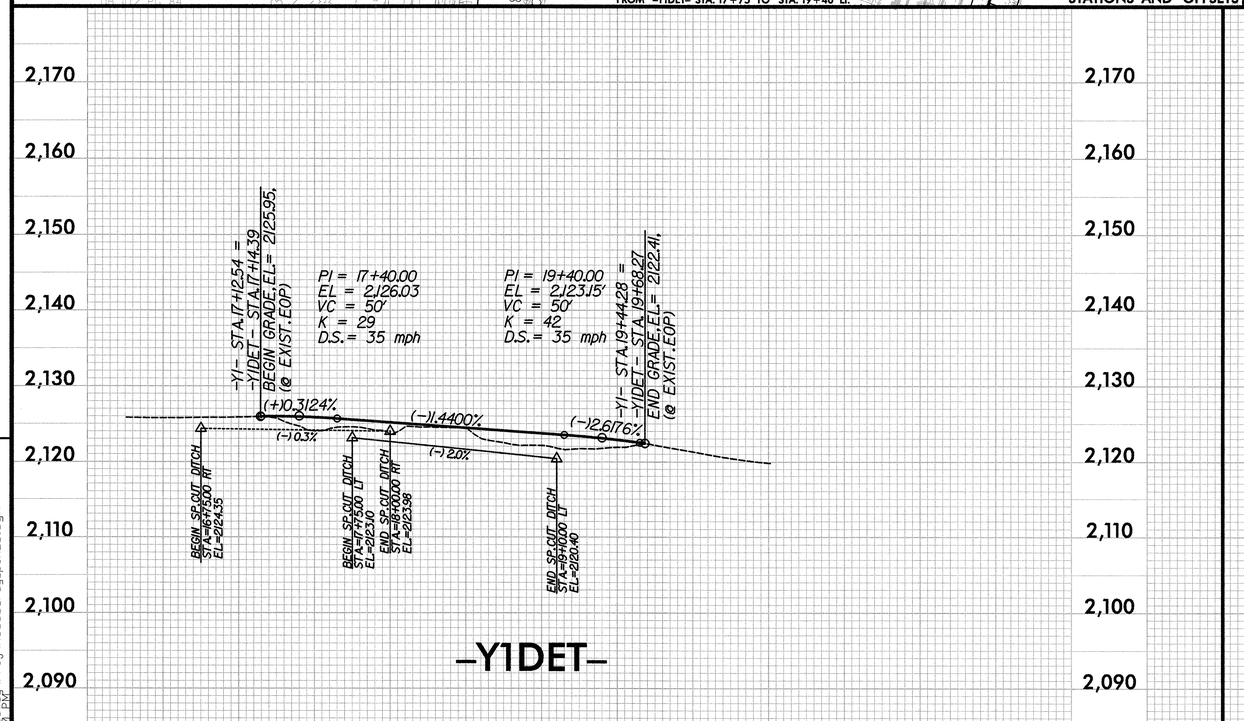
PLANS PREPARED BY:
MULKEY ENGINEERS & CONSULTANTS
PO Box 33127 RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021

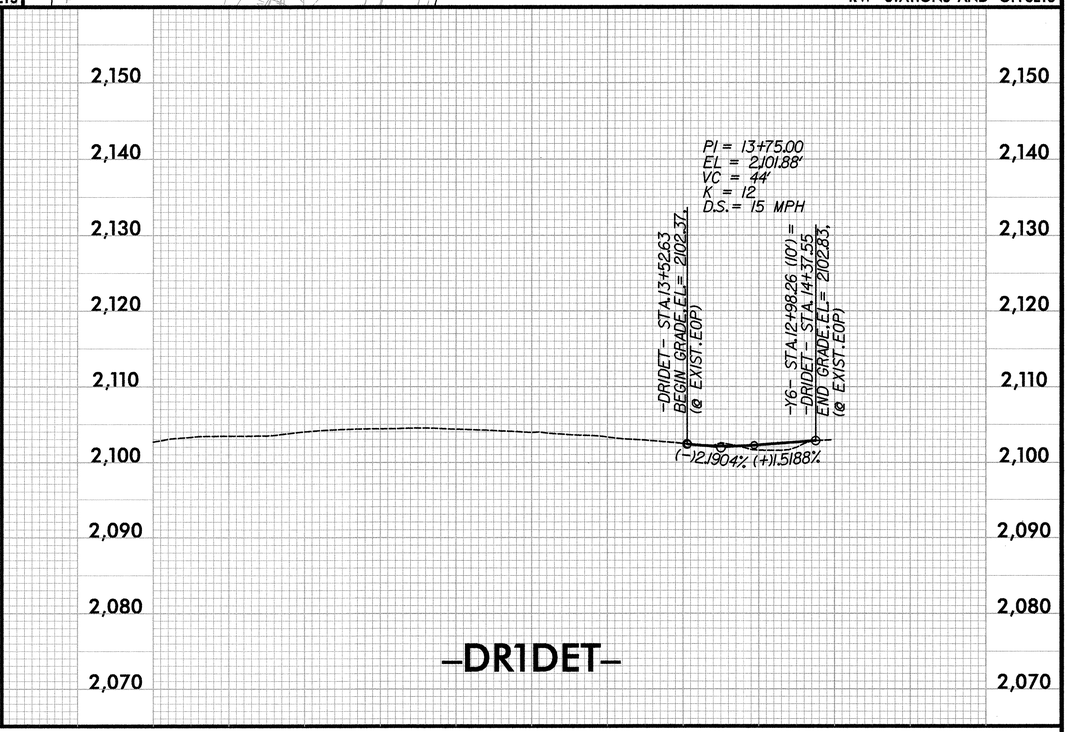
REVISIONS

8/17/99









8/10/2012
8:18:23 AM
Proj\Proj\R5000_rdy_psh2D.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-E
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 025474 ENGINEER CRAIG PARKER 8-14-2012

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN W. KEARNEY 8-15-2012

PLANS PREPARED BY: MULKEY ENGINEERS & CONSULTANTS
PO Box 33127 Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021

8/17/99

REVISIONS

-Y4RPADET2-

PI Sta 22+60.35
Δ = 58° 46' 21.7" (RT)
D = 22° 55' 05.9"
L = 256.44'
T = 140.79'
R = 250.00'
SE = 04
D.S. = 30 MPH

PI Sta 24+64.77
Δ = 22° 41' 34.0" (RT)
D = 22° 55' 05.9"
L = 99.02'
T = 50.17'
R = 250.00'
SE = 04
D.S. = 30 MPH

PI Sta 25+36.47
Δ = 1° 38' 11.1" (LT)
D = 3° 34' 51.6"
L = 45.70'
T = 22.85'
R = 1,600.00'
SE = EXIST.
D.S. = 30 MPH

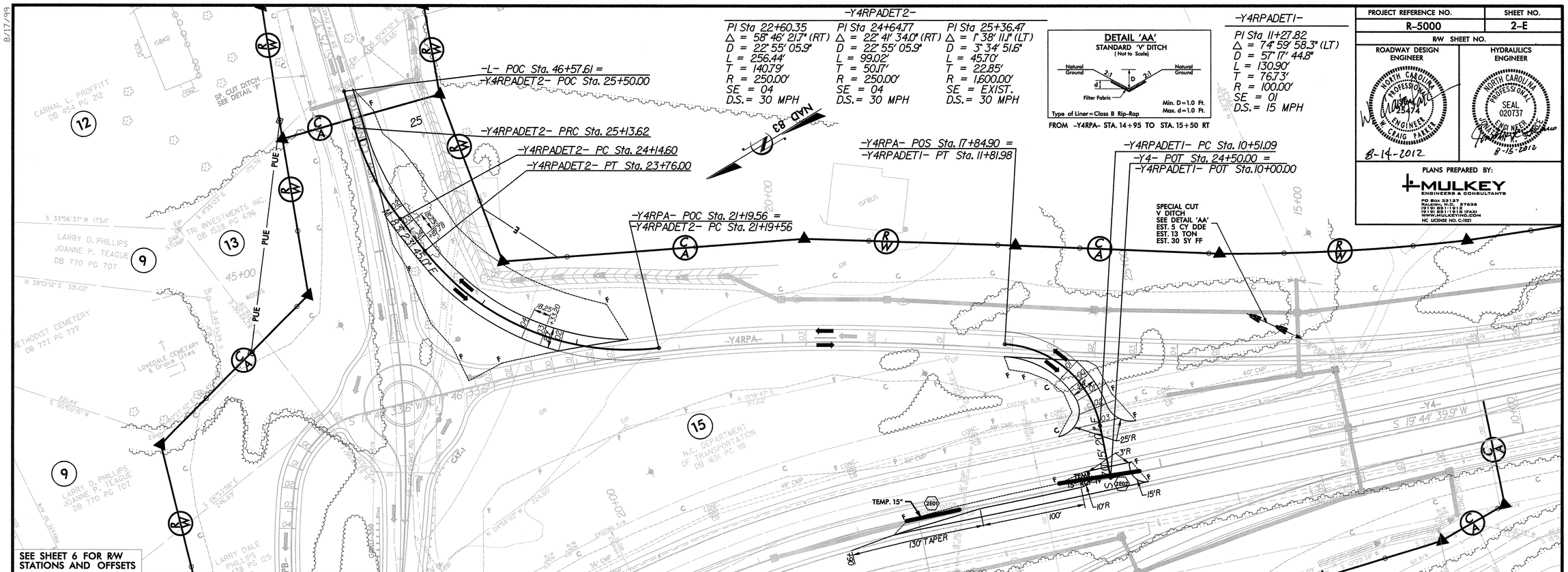
-Y4RPADET1-

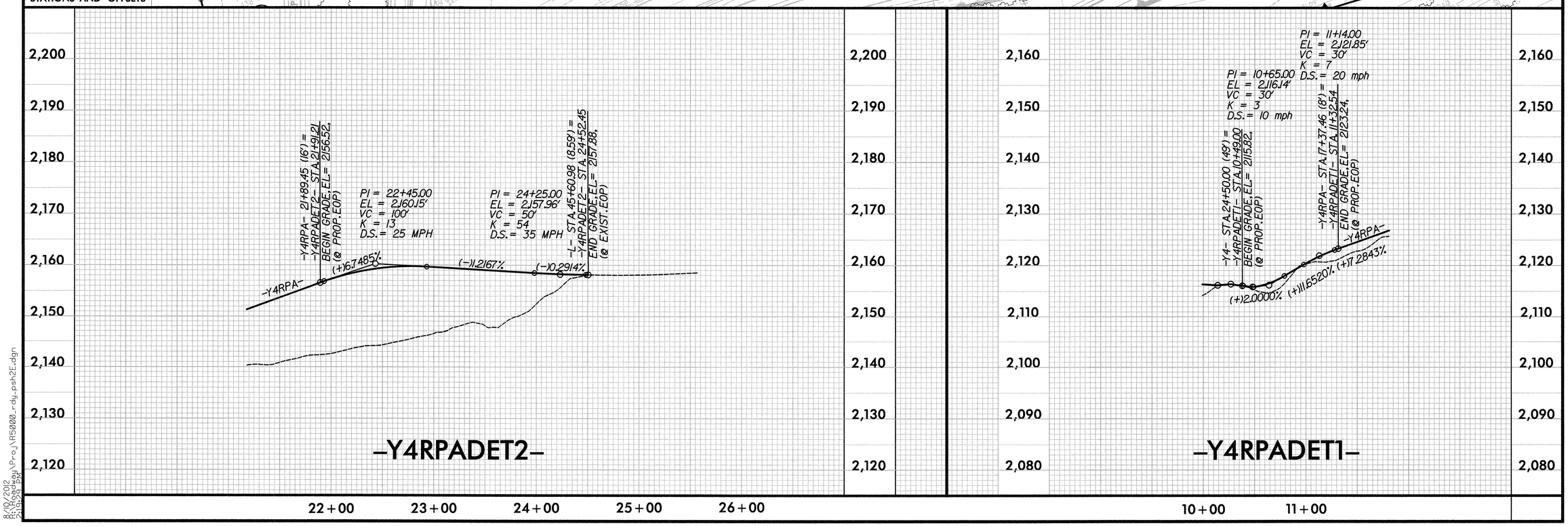
PI Sta 11+27.82
Δ = 74° 59' 58.3" (LT)
D = 57° 17' 44.8"
L = 130.90'
T = 76.73'
R = 100.00'
SE = 01
D.S. = 15 MPH

DETAIL 'AA'
STANDARD 'V' DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = Class B Rip-Rap

FROM -Y4RPA- STA. 14+95 TO STA. 15+50 RT





8/10/2012
R:\Roadway\Proj\R5000_rdy_psh2E.dgn
2:19:29 PM

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-F
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026474 ENGINEER W. CRAIG PARKER

8-14-2012

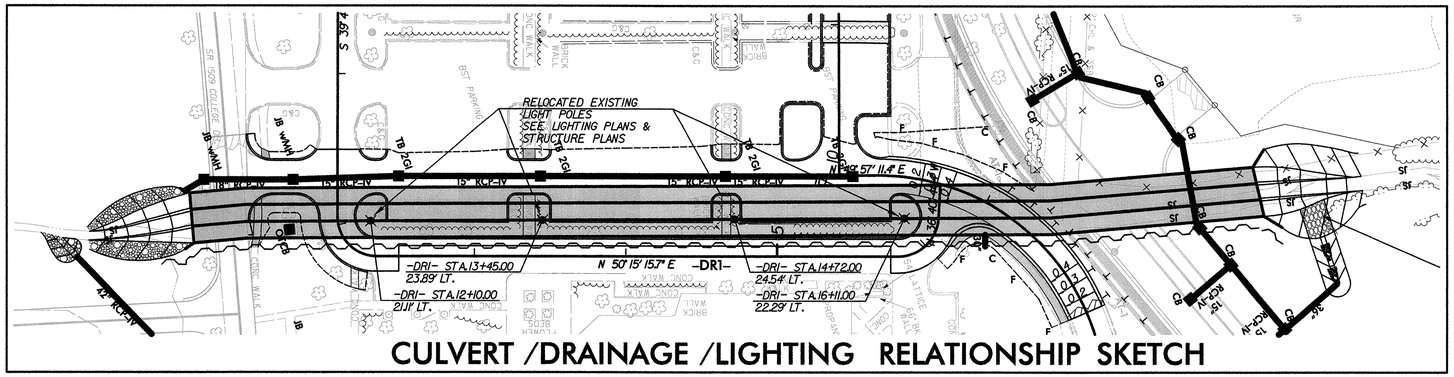
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN R. BANKS

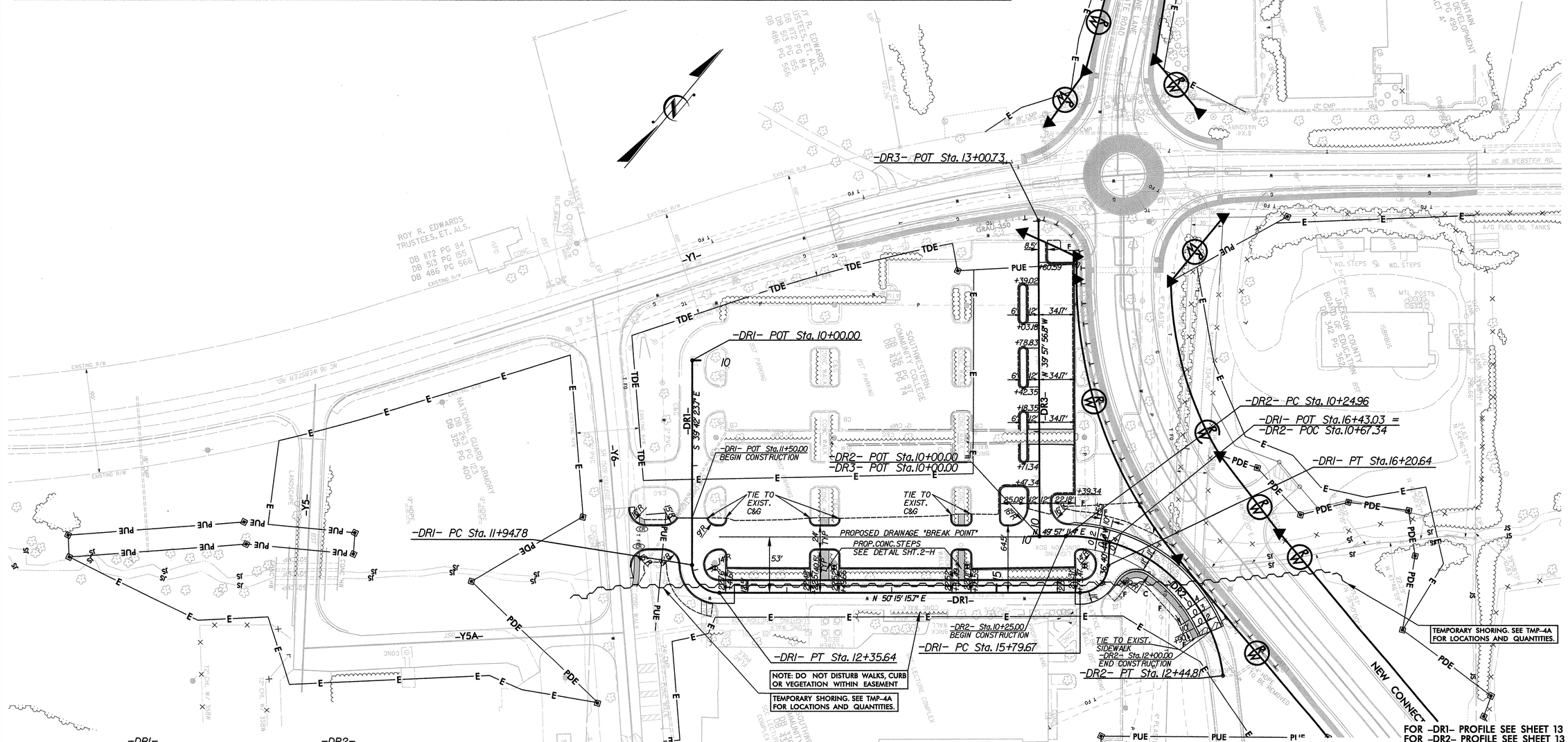
8-15-2012

PLANS PREPARED BY:

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021



CULVERT /DRAINAGE /LIGHTING RELATIONSHIP SKETCH



-DRI-

PI Sta 12+20.80	PI Sta 16+05.26
Δ = 90° 02' 20.7" (LT)	Δ = 86° 56' 00.1" (LT)
D = 220° 22' 06.2"	D = 212° 12' 23.7"
L = 40.86'	L = 40.97'
T = 26.02'	T = 25.59'
R = 26.00'	R = 27.00'

-DR2-

PI Sta 11+59.97
Δ = 83° 58' 34.2" (RT)
D = 38° 11' 49.9"
L = 219.85'
T = 135.00'
R = 150.00'
S.E. = 0.04
D.S. = 20 MPH

LEGEND:

PROPOSED RELOCATED LIGHT POLE. SEE LIGHTING PLANS E-1 THRU E-6.

NOTES:
ALL CURB IS 1'-6" CONCRETE CURB AND GUTTER, UNLESS NOTED OTHERWISE.
ALL CURB RADII ARE 5' FROM FACE OF CURB, UNLESS NOTED OTHERWISE.

DETAIL OF PARKING LOT RECONSTRUCTION

DESIGNED BY: W.C. PARKER, PE DATE: 10/25/2011
CHECKED BY: J. R. BANKS DATE: 7/11/2012

6/2/99

R:\10/2012

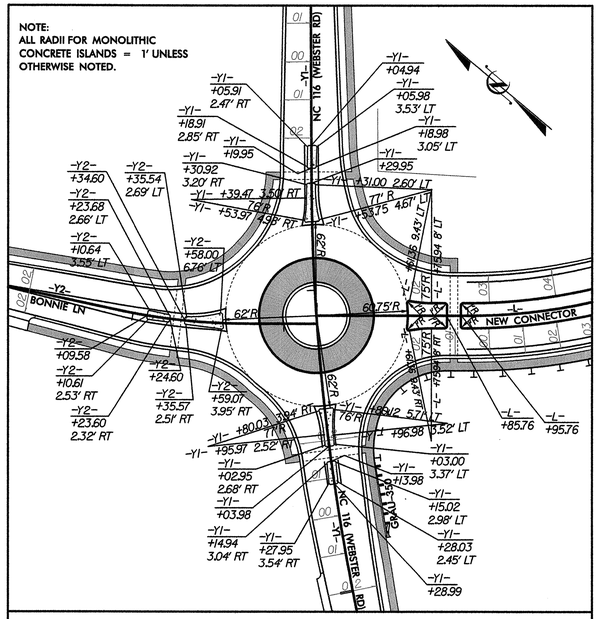
PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-G

ROADWAY DESIGN ENGINEER

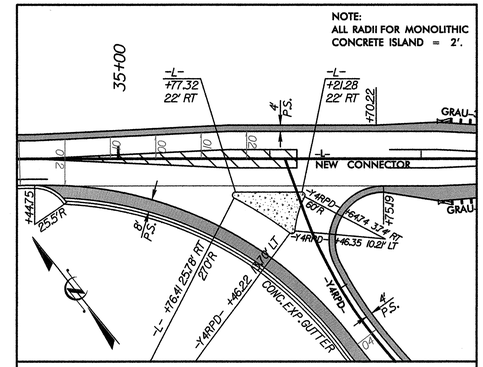
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER CRAIG BARKER

8-14-2012

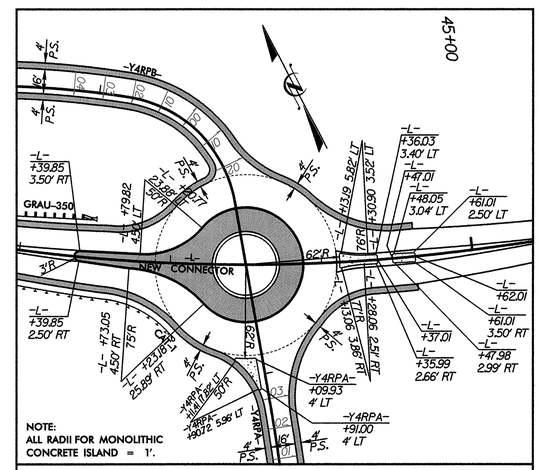
MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021



-L- INTERSECTION WITH
-Y1- (NC 116 - WEBSTER RD) & -Y2- (BONNIE LN)



-L- INTERSECTION WITH -Y4RPD-



-L- INTERSECTION WITH
-Y4RPA- & -Y4RPB-

LEGEND

MONOLITHIC CONCRETE ISLANDS

SIDEWALKS, PAVED SHOULDERS, & ROUNDABOUT APRONS

GRAPHIC SCALE
50 25 0 50 100
PLANS

DETAIL OF MONOLITHIC CONCRETE ISLANDS

COMPUTED BY: W.C. PARKER, PE DATE: 3/22/2011
CHECKED BY: J. R. BANKS DATE: 7/11/2012

6/2/99
8/10/2012
8:21:29 AM
C:\Projects\Proj\R5000_rdy_Intersection_Details - 2G.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-H

CUBIC YARDS IN STANDARD CONCRETE STEPS

NO. OF STEPS	4' WIDE	5' WIDE	6' WIDE	7' WIDE	ADDITIONAL CU. YDS. PER 1' WIDTH
2	0.4	0.5	0.5	0.6	0.1
3	0.6	0.7	0.8	0.9	0.1
4	0.8	0.9	1.0	1.2	0.1
5	1.0	1.2	1.3	1.4	0.1
6	1.2	1.4	1.5	1.7	0.2
7	1.4	1.6	1.8	2.0	0.2
8	1.6	1.8	2.0	2.3	0.2
9	1.8	2.0	2.3	2.6	0.3
10	2.0	2.3	2.5	2.8	0.3
ADDITIONAL STEP INCREMENT	0.2	0.2	0.2	0.3	0.1

GENERAL NOTES:

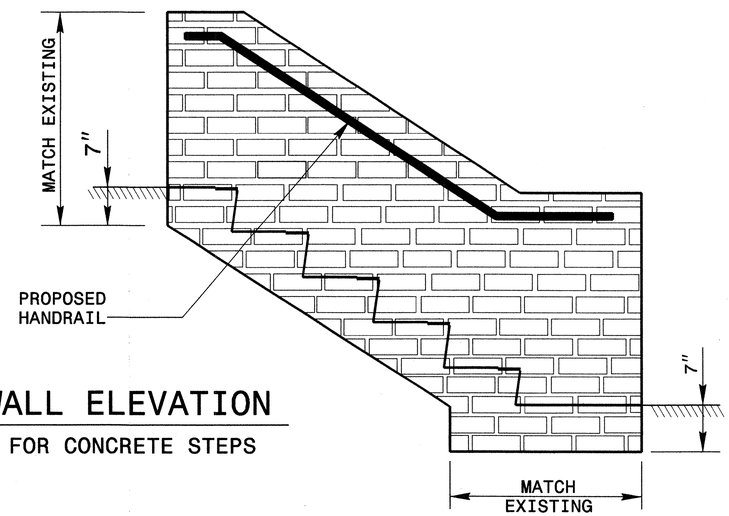
USE CLASS "B" CONCRETE THROUGHOUT FOR CONCRETE STEPS.

LOCATIONS AND QUANTITIES SHOWN ARE APPROXIMATE ONLY. EXACT LOCATIONS AND QUANTITIES WILL BE DETERMINED BY THE ENGINEER.

USE UNCORED BRICK.

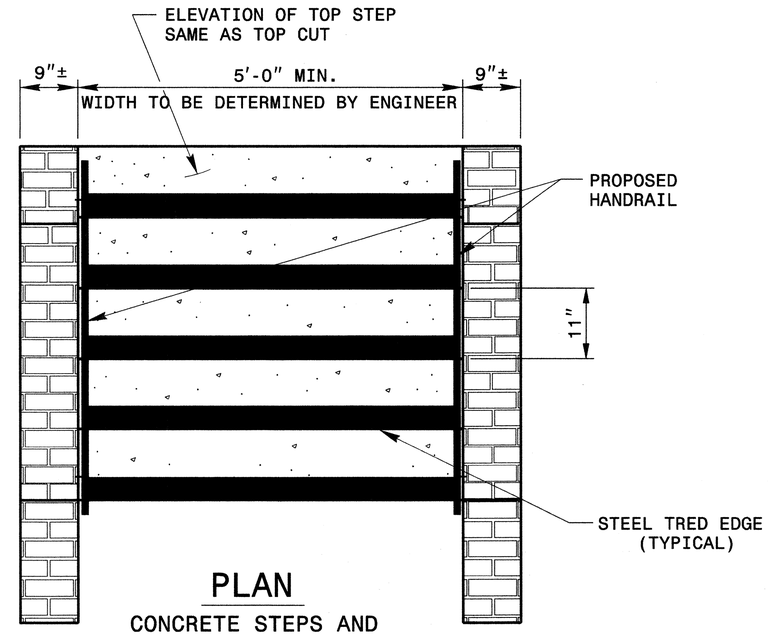
MOUNT HANDRAIL AS DIRECTED BY THE ENGINEER.

BRICK TYPE AS DIRECTED BY THE ENGINEER



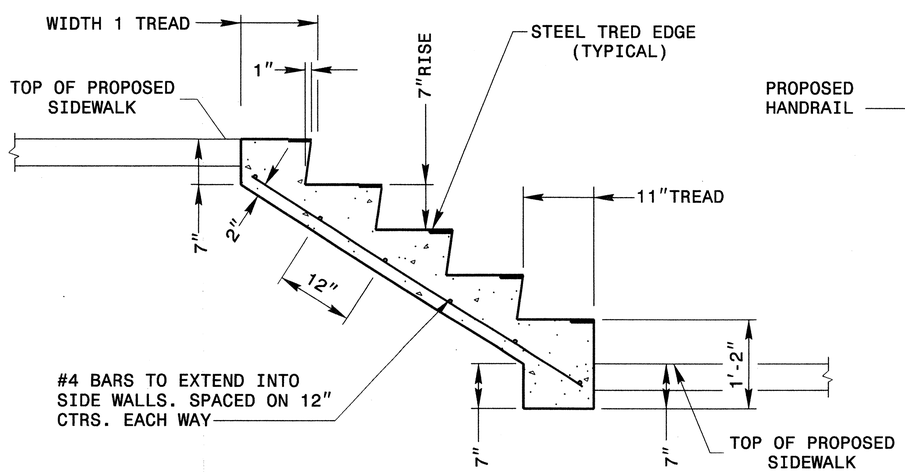
WALL ELEVATION

FOR CONCRETE STEPS



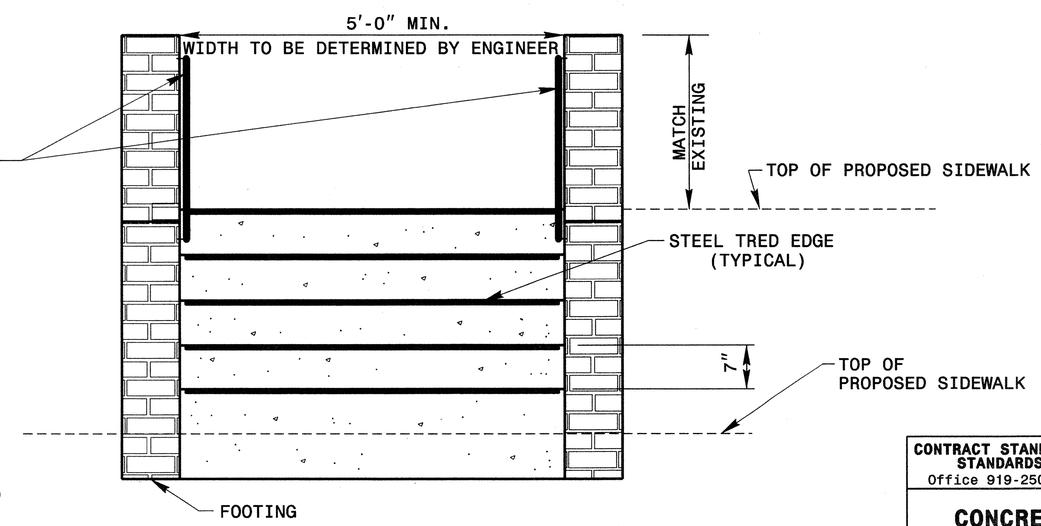
PLAN

CONCRETE STEPS AND BRICK WALLS



STEP SECTION

CONCRETE STEPS



FRONT ELEVATION

CONCRETE STEPS AND BRICK WALLS

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
8/21/12

CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

CONCRETE STEP WITH BRICK WALL DETAIL

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 06-29-2012
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/rural/concstep.dgn

5/14/99

SYSTEM ENGINEERING

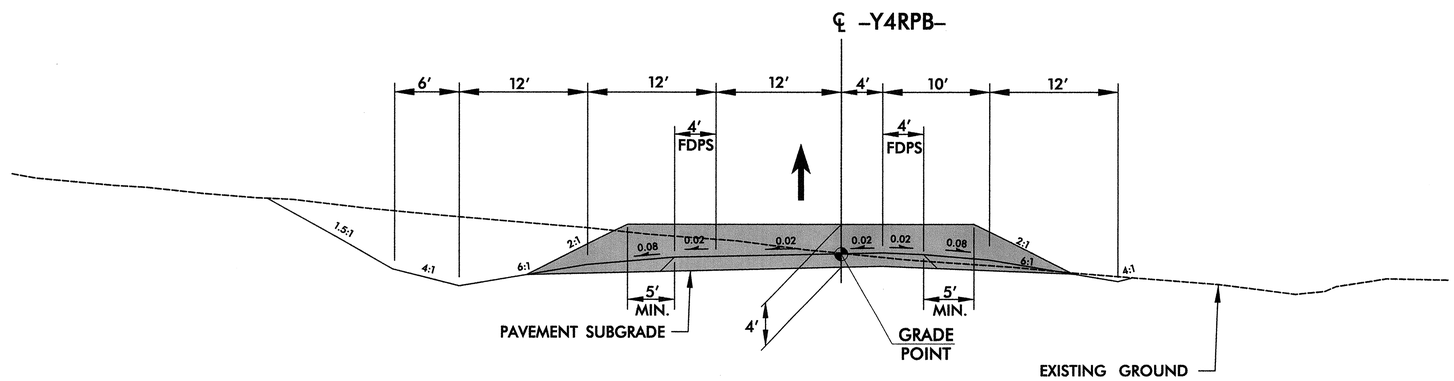
PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-I

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 29474 ENGINEER CRAIG PARKER

8-14-2012

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021



SURCHARGE TO BE PERFORMED FROM -Y4RPB- STA. 10+45 TO 10+75.

LEGEND

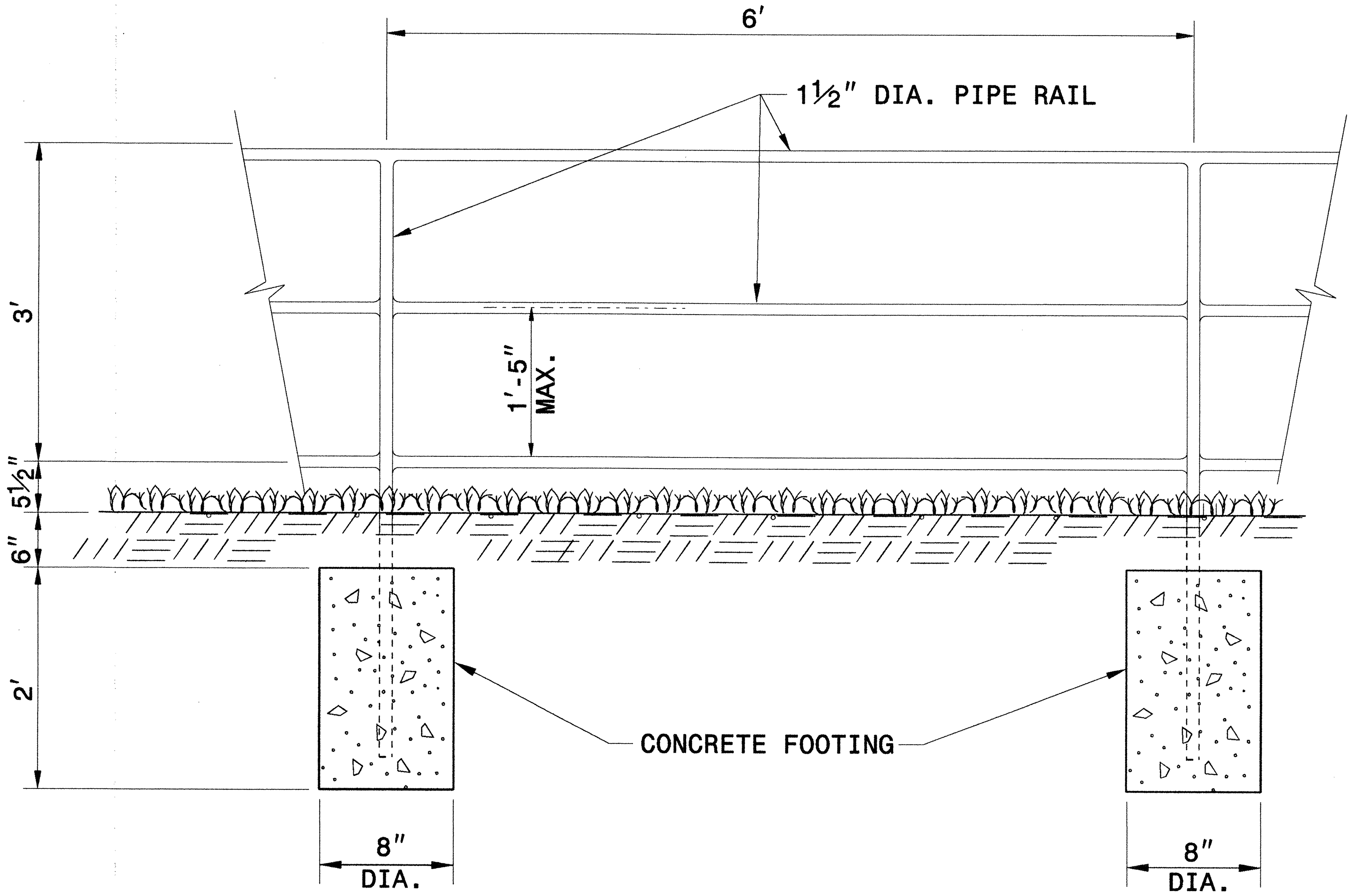
SURCHARGE AREA - SEE SUBSURFACE REPORT

DETAIL OF SURCHARGE AREA AT -Y4RPB-

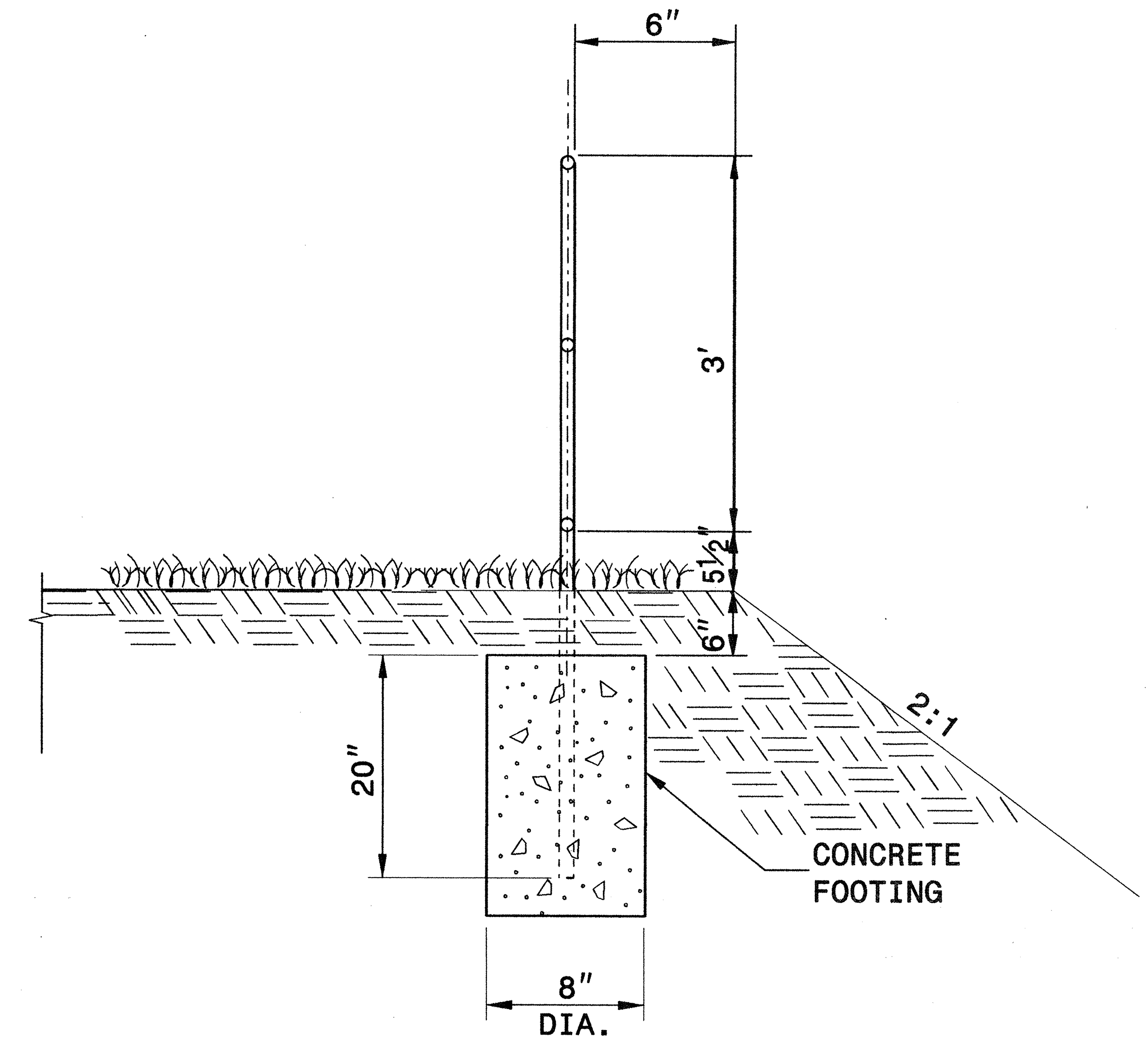
DRAWN BY: W.C. PARKER, PE DATE: 6/1/2012
CHECKED BY: J. R. BANKS DATE: 7/1/2012

6/2/99
8/10/2012
R:\Roadway\Proj\R5000_rdy_Surcharge_Detail-2i.dgn
2:22:48 PM

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-J



ELEVATION OF PROPOSED PEDESTRIAN HANDRAIL



SECTION VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO SHOULDER BREAK POINT MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
8/21/12

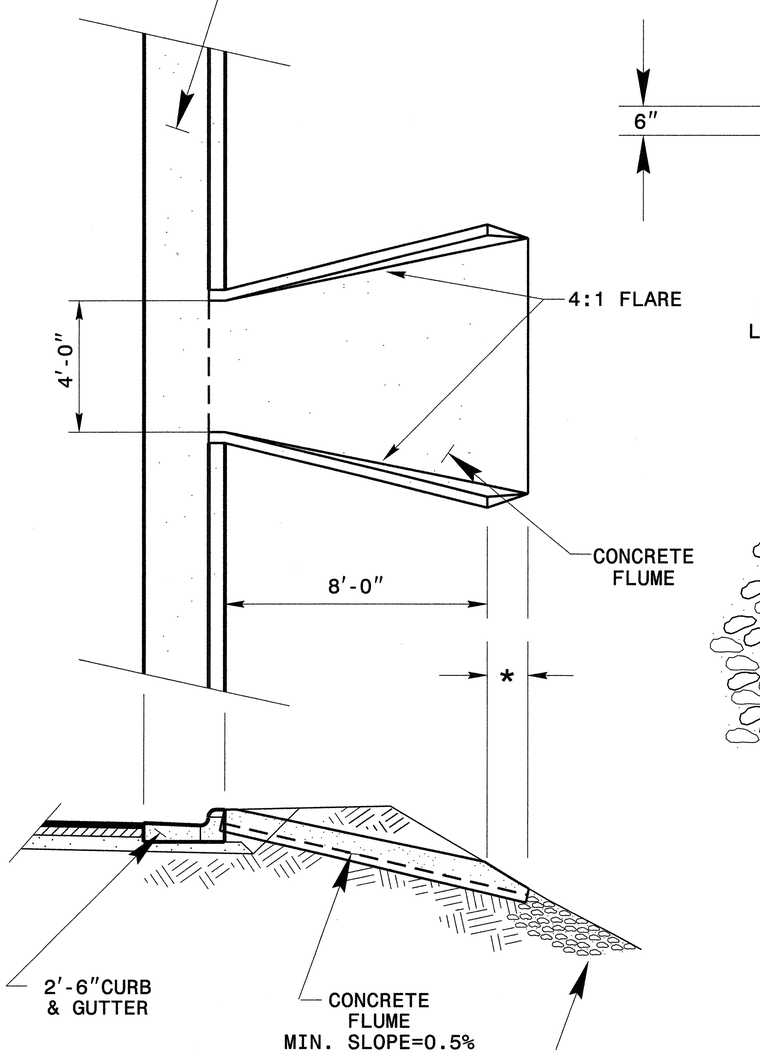
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

PROPOSED PEDESTRIAN SAFETY RAIL

ORIGINAL BY: E.E.WARD DATE: 12-99
MODIFIED BY: J.S. Howerton DATE: 6-12
CHECKED BY: DATE:
FILE SPEC.: jhowerton\handrail.dgn

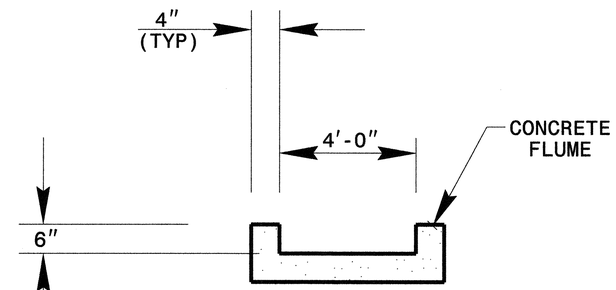
$$$$$$SYSTIME$$$$
$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-K



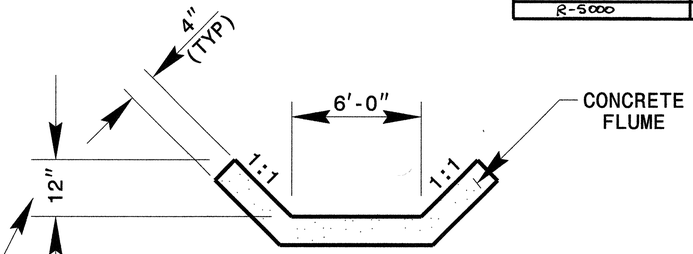
ELEVATION

* LENGTH VARIABLE WITH DITCH SLOPE

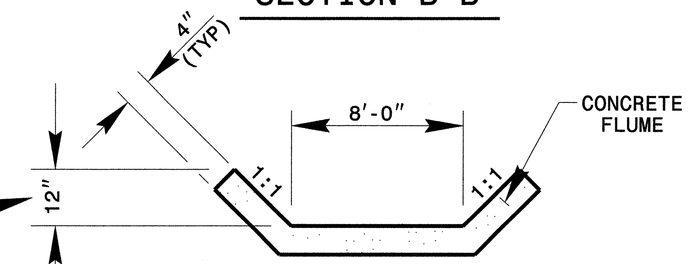


SECTION A-A

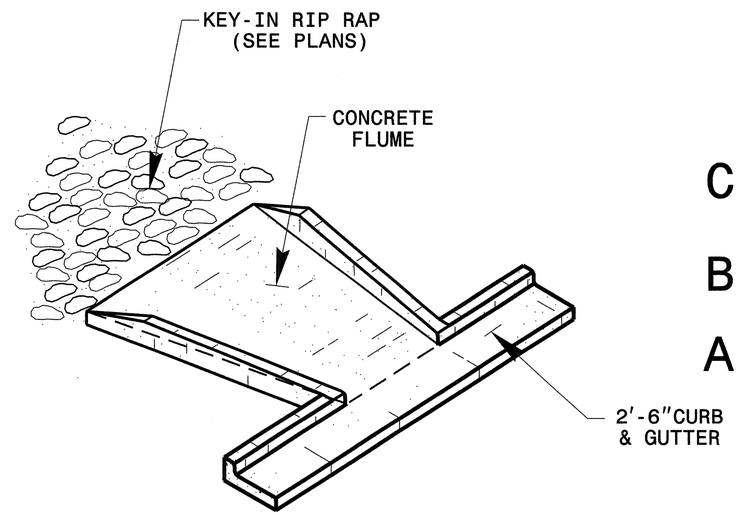
FLUME SIDES SHOULD BE FLUSH WITH ADJACENT GROUND LINE TO A MAX. HEIGHT OF 12"



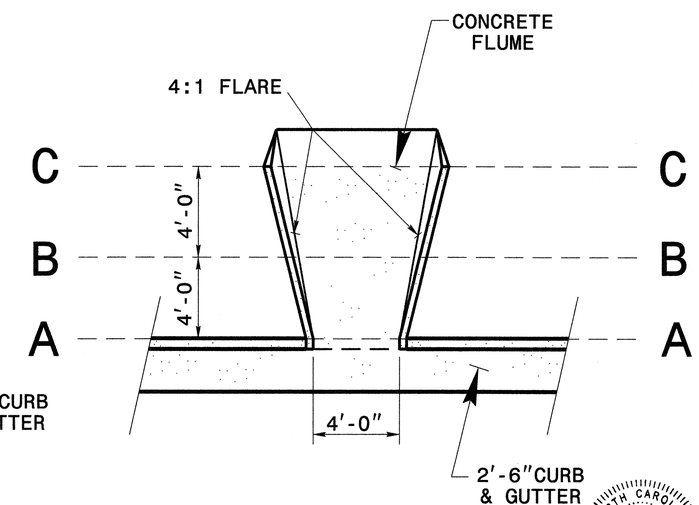
SECTION B-B



SECTION C-C



PERSPECTIVE



PLAN

NOTES:

- RIP RAP LINED DITCH WILL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE.
- MODIFICATIONS MAY BE MADE AS DIRECTED BY THE ENGINEER.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN R. THOMPSON 8/21/12

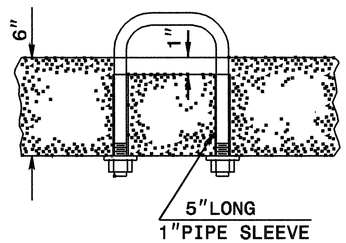
CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

CONCRETE FLUME

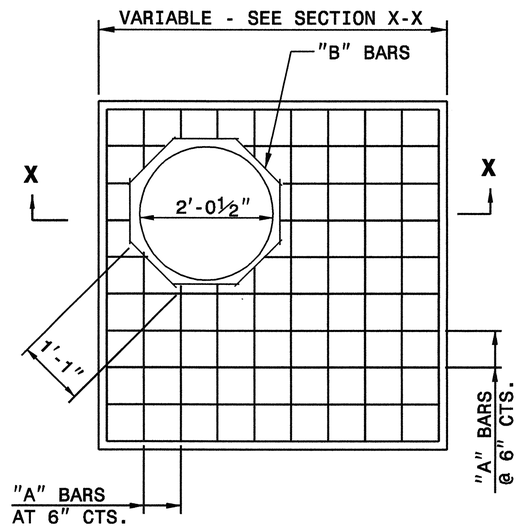
ORIGINAL BY: _____ DATE: _____
MODIFIED BY: nbritt DATE: 05-11-04
CHECKED BY: _____ DATE: _____
FILE SPEC.: details\nbritt\metric\r2201modifiedflume.dgn

6/10/09
SYSTIME$$$$$$$$
SYSTIME$$$$$$$$
SELENIME$$$$$$$$

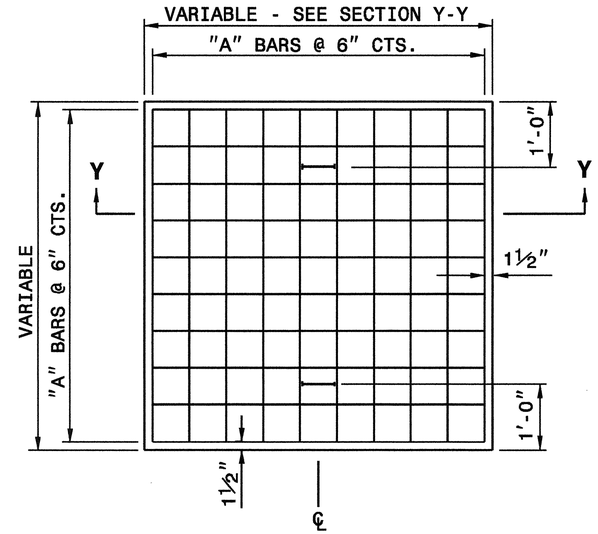
PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-L



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

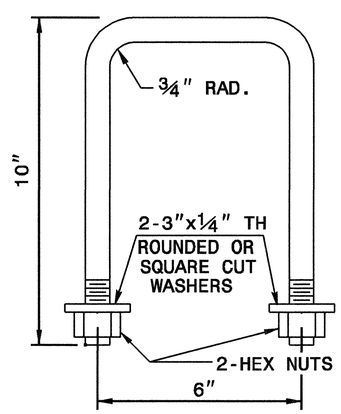
THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

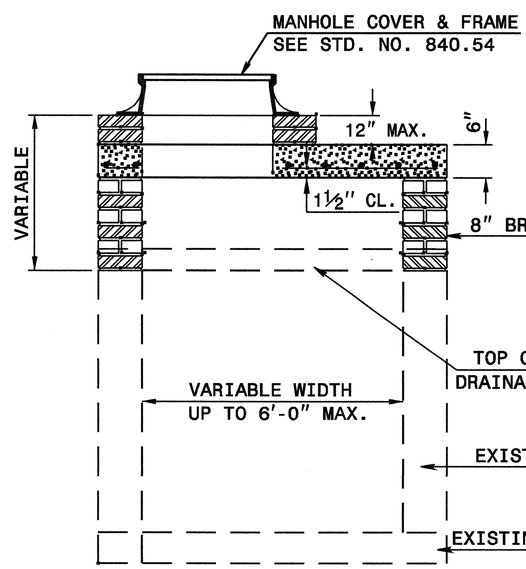
BILL OF MATERIALS

REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

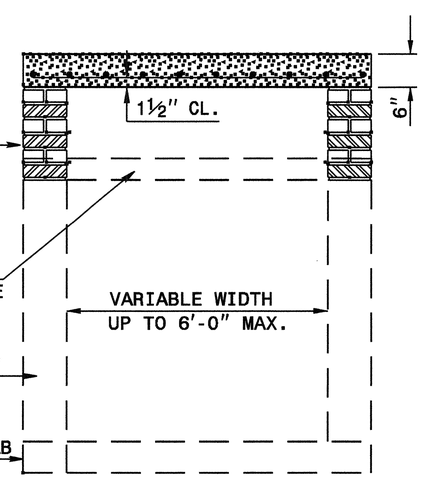
* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



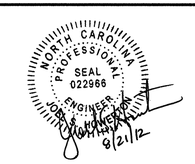
DETAIL OF HANDLE



SECTION X-X



SECTION Y-Y



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

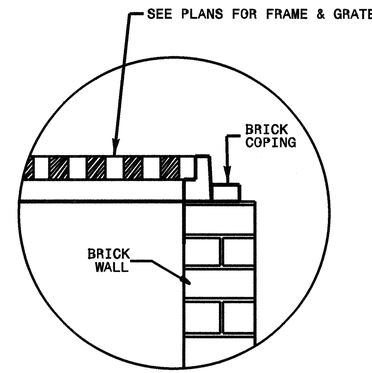
DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

5/14/99

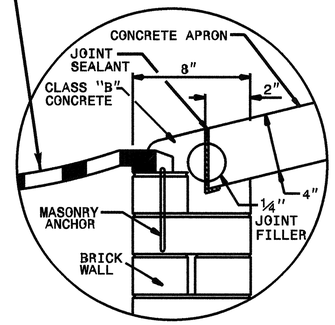
$$$$$SYSTIME$$$$
$$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-M



GRATE PLACEMENT DETAIL

FOR DROP INLETS

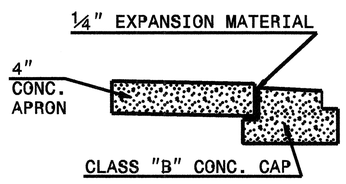


GRATE PLACEMENT DETAIL

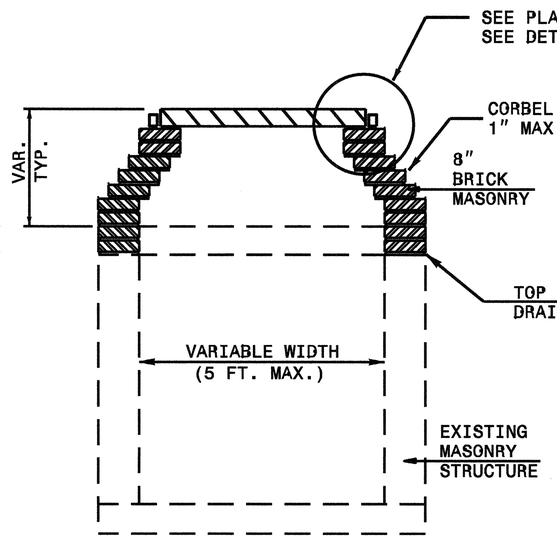
FOR GRATED DROP INLETS

GENERAL NOTES:

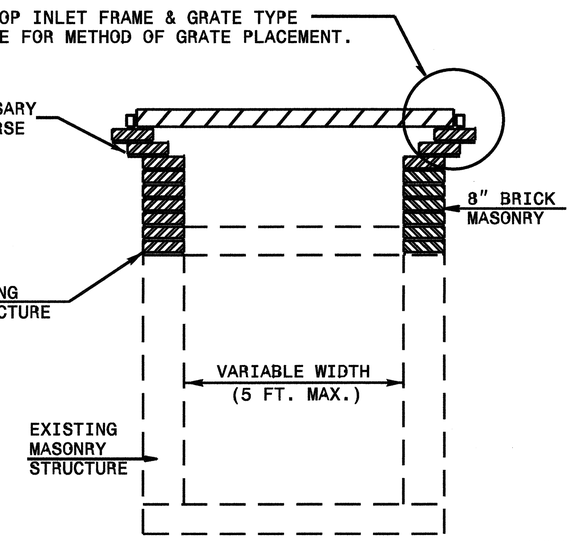
- -CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
- -USE CLASS B CONCRETE.
- -THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.
- -JUMBO CONCRETE BRICK WILL BE PERMITTED. 4" CONCRETE BRICK OR 8" SOLID CONCRETE BLOCK ARE REQUIRED FOR DRAINAGE STRUCTURE.
- -INCLUDE 18" CONCRETE APRON IN UNIT PRICE BID PER EACH, CONVERT EXISTING CATCH BASIN TO DROP INLET.
- -SPECIAL DESIGN IS REQUIRED FOR USE UNDER PAVEMENT.
- -CONFIRM DIMENSIONS ON EACH INDIVIDUAL FRAME & GRATE PROPOSAL.
- -SEE STD. DRAWING 840.25 FOR MASONRY ANCHORAGE.



EXPANSION JOINT DETAIL



TYPICAL SECTION



TYPICAL SECTION

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
8/21/12

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

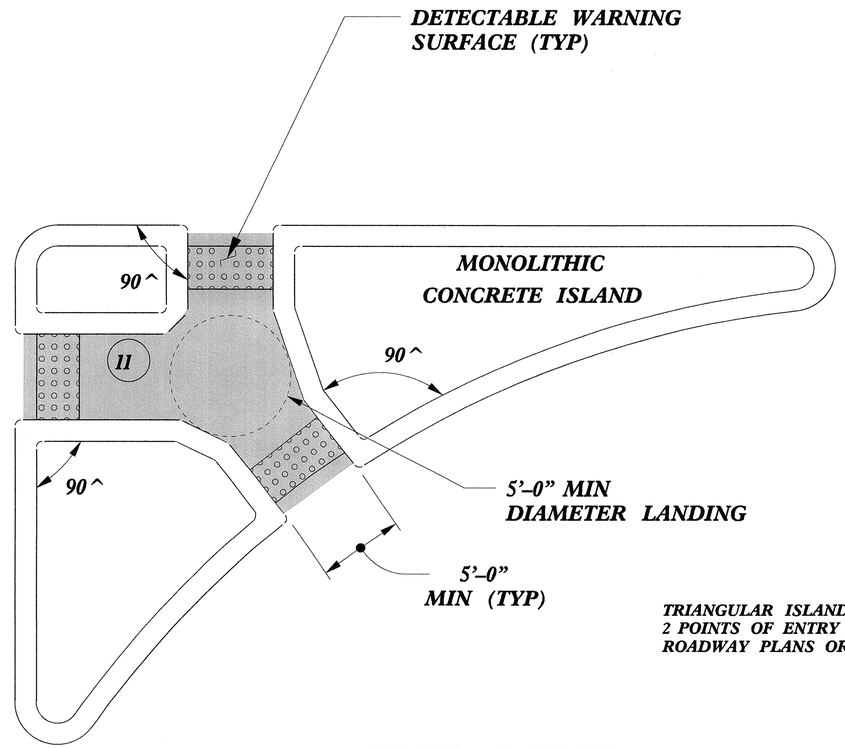
DETAIL TO CONVERT EXISTING CATCH BASIN OR JUNCTION BOX TO DROP INLET

ORIGINAL BY:	T.G.S.	DATE:	NOV.1997
MODIFIED BY:	T.G.S.	DATE:	FEB.2000
CHECKED BY:		DATE:	
FILE SPEC.:	s:usr/details/stand/cbtsdi02.dgn		

25-MAY-2010 10:30
S:\Contracts\CPS\Special Details\tspell\details\stand\cbtsdi02.dgn
J.Doerfler AT PE227080

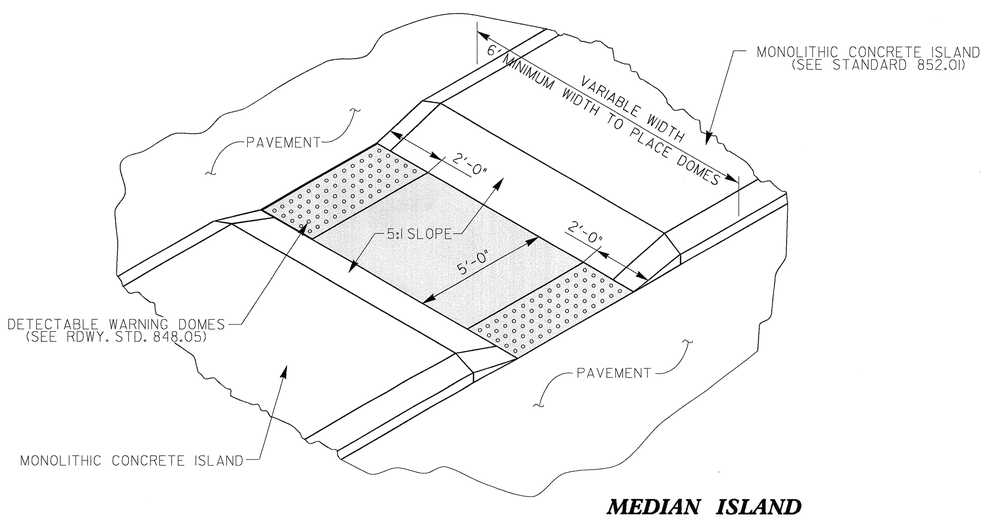
PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-N

PAY LIMITS FOR 1 CURB RAMP

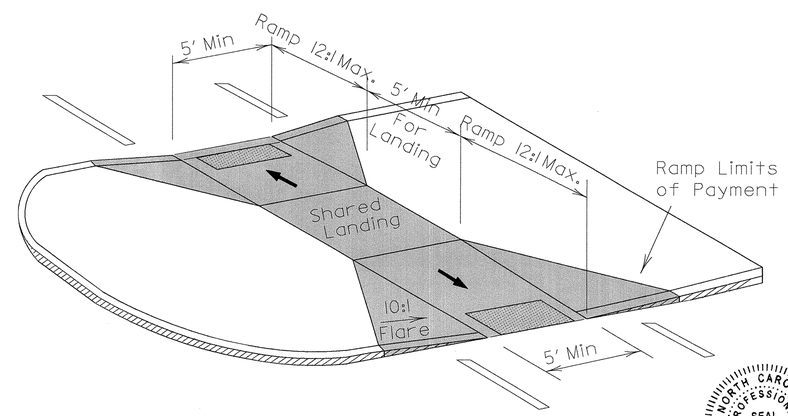


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
8/21/12

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

CURB RAMPS

Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

5/14/99

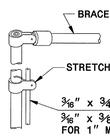
$$$$$SYSTIME$$$$
$$$$$USERNAME$$$$

8/10/2012
R:\Roadway\Proj\R5000_rdy_tsh.dgn
1:45:55 PM

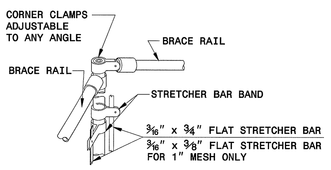
5/28/99

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

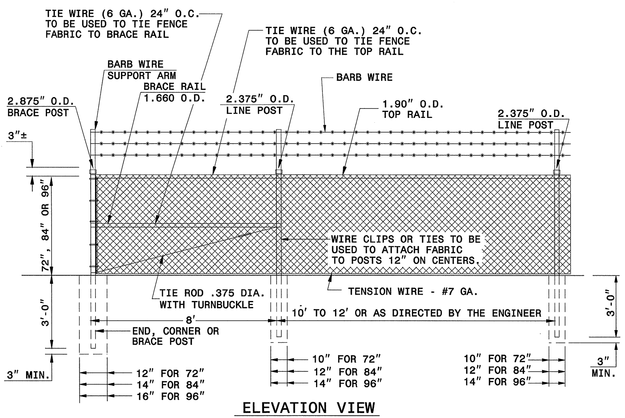
ENGLISH DETAIL DRAWING FOR
CHAIN LINK FENCE WITH BARBED WIRE
6', 7' AND 8' HEIGHT



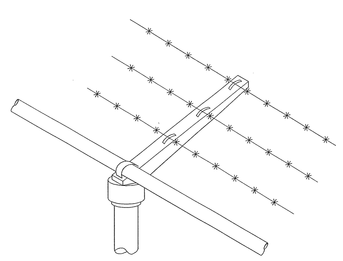
END, GATE OR BRACE POST
WITH STRETCHER BAR ATTACHMENT



CORNER WITH STRETCHER
BAR ATTACHMENT



ELEVATION VIEW

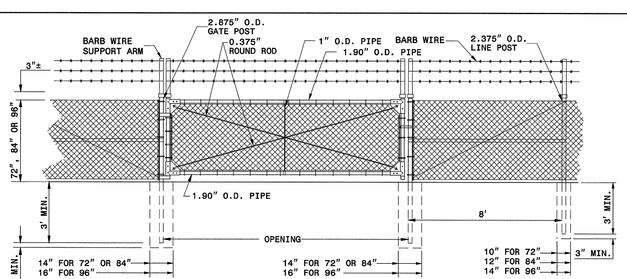


BARBED WIRE FENCE
SUPPORT ARM

SHEET 1 OF 2
fence4cl

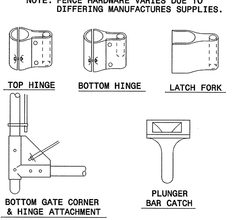
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

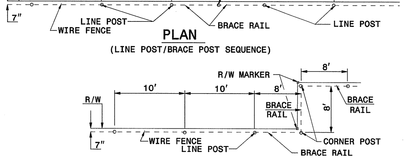
ENGLISH DETAIL DRAWING FOR
CHAIN LINK FENCE WITH BARBED WIRE
6', 7' AND 8' HEIGHT



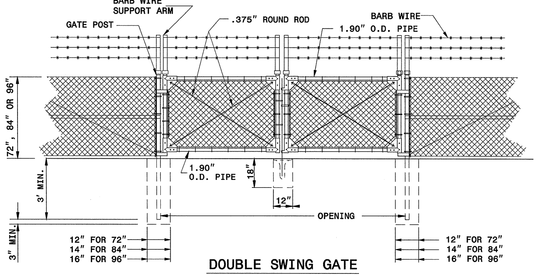
SINGLE SWING GATE
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED

NOTE: FENCE HARDWARE VARIES DUE TO
DIFFERING MANUFACTURES SUPPLIES.

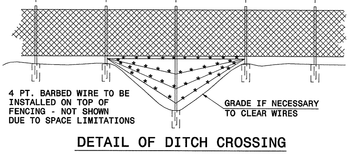




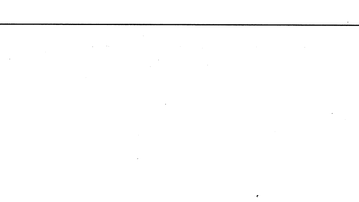
PLAN
(LINE POST/BRACE POST SEQUENCE)



DOUBLE SWING GATE
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED



PLAN
PLACEMENT OF FENCE ALONG RIGHT OF WAY
(ALL CORNER POSTS ARE TO BE BRACED AS SHOWN ABOVE)



DETAIL OF DITCH CROSSING

MAXIMUM WIRE SPACING TO BE 6".
MAXIMUM CLEARANCE BETWEEN LOWEST STRAND AND GROUND TO BE 6".
BRACE POSTS SHALL BE ERECTED BETWEEN END, CORNER OR GATE POSTS AT
INTERVALS NOT EXCEEDING 700' ON TANGENTS OR 350' ON SHORT RADIUS CURVES.
ADDITIONAL BRACE POSTS SHALL BE ERECTED IF SO DIRECTED BY THE ENGINEER.
BRACE POSTS SHALL BE BRACED FROM BOTH SIDES OF POST.

SHEET 2 OF 2
fence4cl

NORTH CAROLINA PROFESSIONAL SEAL 022666 ENGINEER
8/10/12

PROJECT REFERENCE NO.
R-5000

SHEET NO.
2-0

PROJECT REFERENCE NO.	SHEET
R-5000	2-P

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23481 ENGINEER DEAN MARDISIAN

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

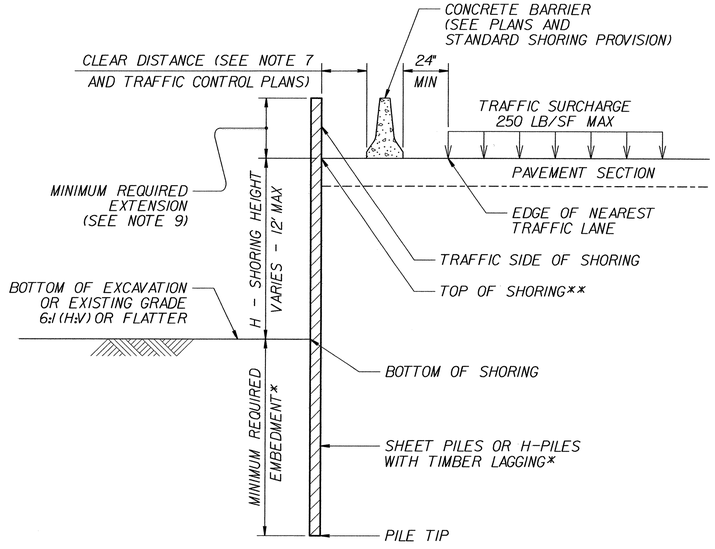
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS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

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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

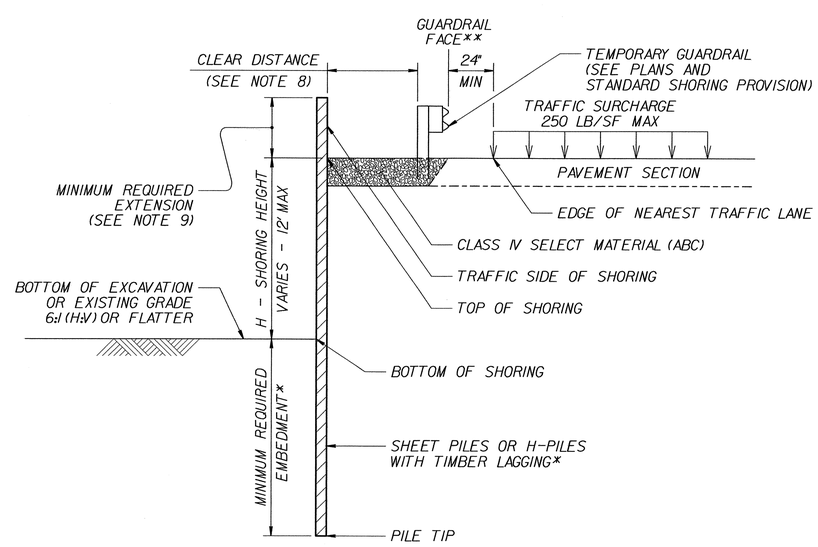
NOTES:

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



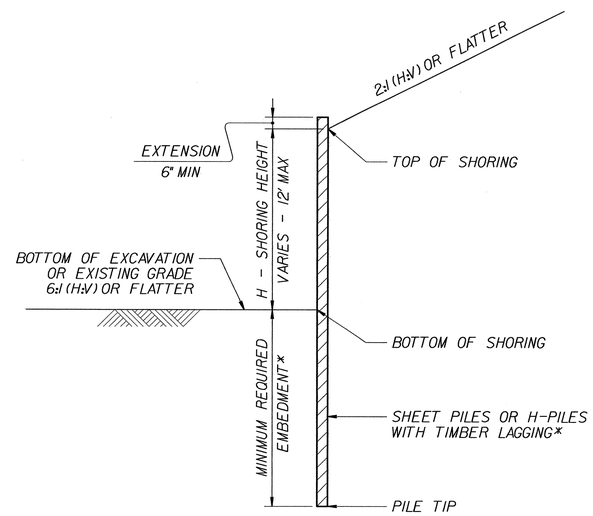
CONCRETE BARRIER

****TOP OF SHORING = EDGE OF PAVEMENT**



TEMPORARY GUARDRAIL

****GUARDRAIL FACE = EDGE OF PAVEMENT**



STANDARD TEMPORARY SHORING

(SLOPE CASE)

***SEE TABLE ABOVE.**

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

***SEE TABLE ABOVE.**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

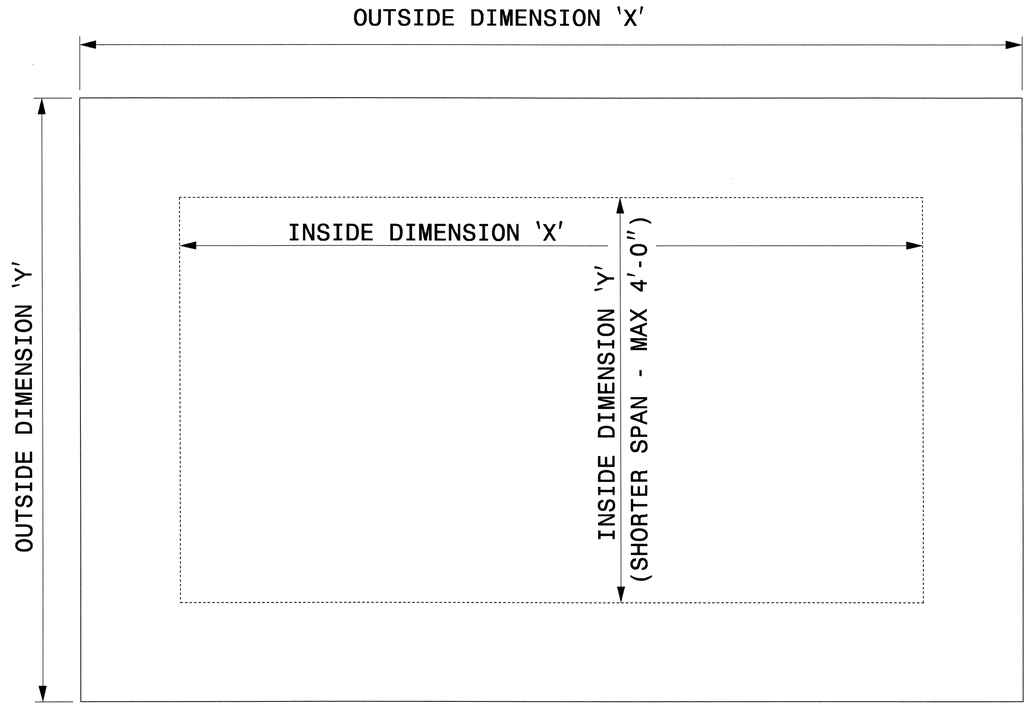
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-20-12

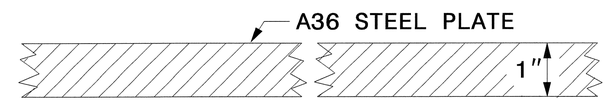
PROJECT REFERENCE NO.	SHEET NO.
R-5000	2-Q



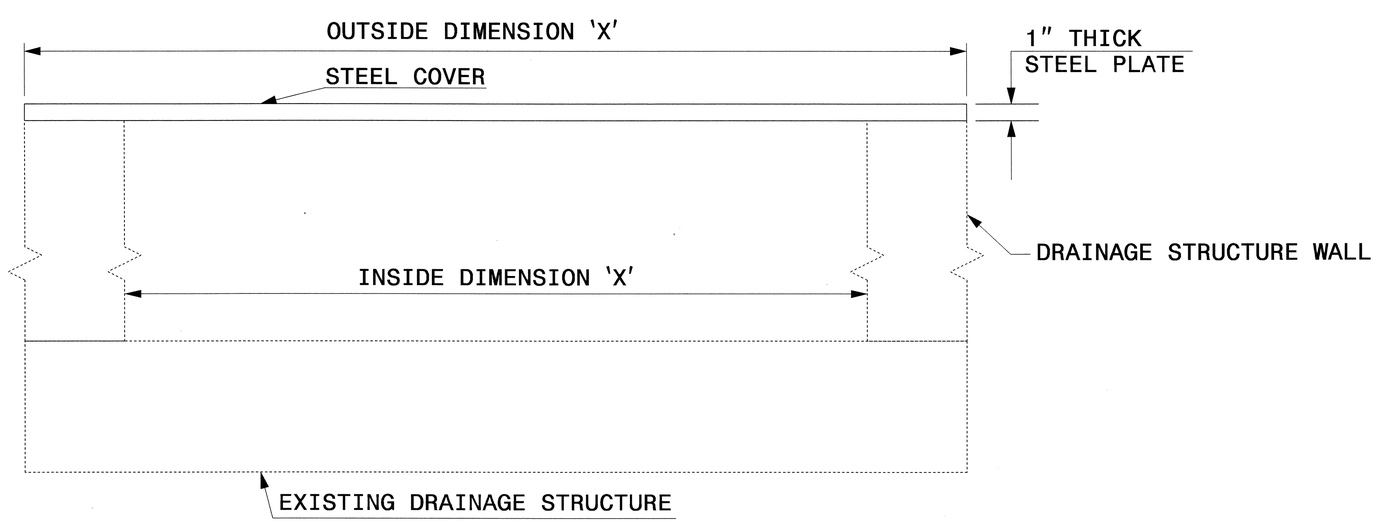
PLAN VIEWS

GENERAL NOTES:

-USE GRADE A36 STEEL
-STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
-FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
-SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
-QUANTITES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.



SECTION VIEW OF STEEL TOP PLATE



ELEVATION VIEWS

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

DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE

ORIGINAL BY: E.E. WARD DATE: 2-2-98
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

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

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-5000	3 (1of2)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203133

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000700000-N	SP	Lump Sum		FIELD OFFICE
0000915000-N	SP	2	EA	GENERIC MISCELLANEOUS ITEM CONC STEPS W/BRICK WALL & HANDRAILS
0000930000-E	SP	150	LF	GENERIC MISCELLANEOUS ITEM PEDESTRIAN SAFETY RAIL
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	2	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0022000000-E	225	610,000	CY	UNCLASSIFIED EXCAVATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (39+68)
0036000000-E	225	3,950	CY	UNDERCUT EXCAVATION
0134000000-E	240	5,128	CY	DRAINAGE DITCH EXCAVATION
0141000000-E	240	1,140	LF	BERM DITCH CONSTRUCTION
0156000000-E	250	13,000	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0177000000-E	250	1,200	SY	BREAKING OF EXISTING ASPHALT PAVEMENT
0194000000-E	SP	700	CY	SELECT GRANULAR MATERIAL, CLASS III
0196000000-E	270	1,450	SY	GEOTEXTILE FOR SOIL STABILIZATION
0199000000-E	SP	20,260	SF	TEMPORARY SHORING
0318000000-E	300	1,300	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	4,063	SY	FOUNDATION CONDITIONING GEOTEXTILE
0342000000-E	310	12	LF	**" SIDE DRAIN PIPE (12")
0342000000-E	310	292	LF	**" SIDE DRAIN PIPE (30")
0342000000-E	310	596	LF	**" SIDE DRAIN PIPE (36")
0342000000-E	310	308	LF	**" SIDE DRAIN PIPE (42")
0343000000-E	310	1,752	LF	15" SIDE DRAIN PIPE
0344000000-E	310	1,264	LF	18" SIDE DRAIN PIPE
0345000000-E	310	348	LF	24" SIDE DRAIN PIPE
0348000000-E	310	2	EA	**" SIDE DRAIN PIPE ELBOWS (12")
0348000000-E	310	12	EA	**" SIDE DRAIN PIPE ELBOWS (15")
0348000000-E	310	2	EA	**" SIDE DRAIN PIPE ELBOWS (18")
0348000000-E	310	2	EA	**" SIDE DRAIN PIPE ELBOWS (30")
0414000000-E	310	852	LF	60" RC PIPE CULVERTS, CLASS III
0448000000-E	310	140	LF	****" RC PIPE CULVERTS, CLASS IV (60")
0448200000-E	310	2,788	LF	15" RC PIPE CULVERTS, CLASS IV
0448300000-E	310	140	LF	18" RC PIPE CULVERTS, CLASS IV
0448400000-E	310	644	LF	24" RC PIPE CULVERTS, CLASS IV
0448600000-E	310	540	LF	36" RC PIPE CULVERTS, CLASS IV
0448700000-E	310	100	LF	42" RC PIPE CULVERTS, CLASS IV
0588000000-E	310	108	LF	18" CS PIPE CULVERTS, 0.064" THICK
0973100000-E	330	56	LF	**" WELDED STEEL PIPE, ****" THICK, GRADE B IN SOIL (36", 0.625")
0973300000-E	330	60	LF	**" WELDED STEEL PIPE, ****" THICK, GRADE B NOT IN SOIL (36", 0.625")
0995000000-E	340	2,146	LF	PIPE REMOVAL
0996000000-N	350	2	EA	PIPE CLEAN-OUT
1011000000-N	500	Lump Sum		FINE GRADING
1077000000-E	SP	240	TON	#57 STONE
1099500000-E	505	2,050	CY	SHALLOW UNDERCUT
1099700000-E	505	3,700	TON	CLASS IV SUBGRADE STABILIZATION
1220000000-E	545	200	TON	INCIDENTAL STONE BASE
1231000000-E	560	4,000	CY	SHOULDER BORROW

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ItemNumber	Sec #	Quantity	Unit	Description
1330000000-E	607	870	SY	INCIDENTAL MILLING
1489000000-E	610	11,580	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	8,870	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	9,860	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	1,530	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	140	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	224	CY	SUBDRAIN EXCAVATION
2033000000-E	815	168	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	2	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	12	LF	6" OUTLET PIPE
2099000000-E	816	300	LF	SHOULDER DRAIN
2110000000-E	816	300	LF	4" SHOULDER DRAIN PIPE
2121000000-E	816	280	LF	4" OUTLET PIPE FOR SHOULDER DRAINS
2132000000-N	816	4	EA	CONCRETE PAD FOR SHOULDER DRAIN PIPE OUTLET
2190000000-N	828	8	EA	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE
2209000000-E	838	9	CY	ENDWALLS
2253000000-E	840	2.1	CY	PIPE COLLARS
2264000000-E	840	0.181	CY	PIPE PLUGS
2275000000-E	SP	29.01	CY	FLOWABLE FILL
2286000000-N	840	126	EA	MASONRY DRAINAGE STRUCTURES
2297000000-E	840	25.75	CY	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	110	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.16
2365000000-N	840	24	EA	FRAME WITH TWO GRATES, STD 840.22
2366000000-N	840	24	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	16	EA	FRAME WITH TWO GRATES, STD 840.29
2374000000-N	840	5	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	22	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	23	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	9	EA	FRAME WITH COVER, STD 840.54
2440000000-N	852	8	EA	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN
2451000000-N	852	4	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLET
2473000000-N	SP	1	EA	GENERIC DRAINAGE ITEM CONCRETE FLUME
2542000000-E	846	2,647	LF	1'-6" CONCRETE CURB & GUTTER
2549000000-E	846	9,300	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	244	LF	SHOULDER BERM GUTTER
2577000000-E	846	2,221	LF	CONCRETE EXPRESSWAY GUTTER
2591000000-E	848	2,100	SY	4" CONCRETE SIDEWALK
2605000000-N	848	13	EA	CONCRETE CURB RAMP
2612000000-E	848	45	SY	6" CONCRETE DRIVEWAY
2619000000-E	850	150	SY	4" CONCRETE PAVED DITCH
2655000000-E	852	460	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2724000000-E	857	425	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED
2738000000-E	SP	660	SY	GENERIC PAVING ITEM 7" JOINTED CONC - TINTED & STAMPED
2753000000-E	846	2,319	LF	GENERIC PAVING ITEM 1'-6" CONCRETE CURB & GUTTER (PARKING LOT)
2800000000-N	858	2	EA	ADJUSTMENT OF CATCH BASINS

ItemNumber	Sec #	Quantity	Unit	Description
2815000000-N	858	3	EA	ADJUSTMENT OF DROP INLETS
2905000000-N	859	1	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX
2950000000-N	859	1	EA	CONVERT EXISTING JUNCTION BOX TO DROP INLET
3000000000-N	SP	2	EA	IMPACT ATTENUATOR UNIT, TYPE 350
3030000000-E	862	1,262.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	187.5	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3210000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	6	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	6	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3435000000-N	SP	100	EA	GENERIC GUARDRAIL ITEM EXTRA LENGTH GUARDRAIL POSTS (8' STEEL)
3503000000-E	866	5,664	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	340	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	90	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3533000000-E	866	350	LF	CHAIN LINK FENCE, **" FABRIC (72")
3539000000-E	866	30	EA	METAL LINE POSTS FOR **" CHAIN LINK FENCE (72")
3545000000-E	866	10	EA	METAL TERMINAL POSTS FOR **" CHAIN LINK FENCE (72")
3554000000-E	866	2	EA	METAL GATE POSTS FOR **" CHAIN LINK FENCE, DOUBLE GATE (72")
3557000000-E	866	200	LF	ADDITIONAL BARBED WIRE
3565000000-E	866	1	EA	DOUBLE GATES, **" HIGH, **' WIDE, **' OPENING (72", 15', 30')
3575000000-E	SP	530	LF	GENERIC FENCING ITEM BLACK VINYL COATED CHAIN LINK FENCE, 48" FABRIC
3578000000-N	SP	3	EA	GENERIC FENCING ITEM BLACK VINYL COATED METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE
3578000000-N	SP	43	EA	GENERIC FENCING ITEM BLACK VINYL COATED METAL LINE POSTS FOR 48" CHAIN LINK FENCE
3628000000-E	876	342	TON	RIP RAP, CLASS I
3649000000-E	876	611	TON	RIP RAP, CLASS B
3656000000-E	876	3,641	SY	GEOTEXTILE FOR DRAINAGE
4048000000-E	902	3	CY	REINFORCED CONCRETE SIGN FOUNDATIONS
4060000000-E	903	2,439	LB	SUPPORTS, BREAKAWAY STEEL BEAM
4072000000-E	903	938	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	1	EA	SIGN ERECTION, TYPE D
4102000000-N	904	70	EA	SIGN ERECTION, TYPE E
4110000000-N	904	4	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4155000000-N	907	23	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	815	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	416	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	210	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW BOARD
4420000000-N	1120	2	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4430000000-N	1130	276	EA	DRUMS
4435000000-N	1135	136	EA	CONES
4445000000-E	1145	360	LF	BARRICADES (TYPE III)
4450000000-N	1150	2,056	HR	FLAGGER

7/10/2012
R:\Roadway\Proj\R5000_rdy_tsh.dgn

STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
R-5000	3 (2 of 2)

ItemNumber	Sec #	Quantity	Unit	Description
4465000000-N	1160	6	EA	TEMPORARY CRASH CUSHIONS
4480000000-N	1165	2	EA	TMA
4485000000-E	1170	4,320	LF	PORTABLE CONCRETE BARRIER
4500000000-E	1170	200	LF	RESET PORTABLE CONCRETE BAR-RIER
4507000000-E	1170	1,992	LF	WATER FILLED BARRIER
4508000000-E	1170	354	LF	RESET WATER FILLED BARRIER
4510000000-N	SP	100	HR	LAW ENFORCEMENT
4516000000-N	1180	136	EA	SKINNY DRUM
4650000000-N	1251	158	EA	TEMPORARY RAISED PAVEMENT MARKERS
4695000000-E	1205	154	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	311	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4725000000-E	1205	52	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	17,185	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	427	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	40	LF	PAINT PAVEMENT MARKING LINES (24")
4845000000-N	1205	7	EA	PAINT PAVEMENT MARKING SYMBOL
4847000000-E	1205	31,696	LF	POLYUREA PAVEMENT MARKING LINES (4", **********) (HIGHLY REFLECTIVE ELEMENTS)
4847100000-E	1205	1,049	LF	POLYUREA PAVEMENT MARKING LINES (6", **********) (HIGHLY REFLECTIVE ELEMENTS)
4847110000-E	1205	386	LF	POLYUREA PAVEMENT MARKING LINES (8", **********) (HIGHLY REFLECTIVE ELEMENTS)
4847120000-E	1205	1,299	LF	POLYUREA PAVEMENT MARKING LINES (12", **********) (HIGHLY REFLECTIVE ELEMENTS)
4850000000-E	1205	2,400	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4860000000-E	1205	180	LF	REMOVAL OF PAVEMENT MARKING LINES (8")
4900000000-N	1251	84	EA	PERMANENT RAISED PAVEMENT MARKERS
4905000000-N	1253	261	EA	SNOWPLOWABLE PAVEMENT MARKERS
5045000000-N	1404	1	EA	LIGHT STANDARD, TYPE MTLS ********** (30' SA 12' BREAKWAY)
5045000000-N	1404	14	EA	LIGHT STANDARD, TYPE MTLS ********** (30' SA 15' BREAKWAY)
5045000000-N	1404	1	EA	LIGHT STANDARD, TYPE MTLS ********** (30' SA 8' BREAKAWAY)
5070000000-N	1405	10	EA	STANDARD FOUNDATION ********* (TYPE R1)
5070000000-N	1405	6	EA	STANDARD FOUNDATION ********* (TYPE R2)
5080000000-N	1406	16	EA	LIGHT STANDARD LUMINAIRES, TYPE ********** (TYPE RDW 150W HPS MC3)
5120000000-N	1407	2	EA	ELECTRIC SERVICE POLE **** ******** (30' CLASS 4)
5125000000-E	1407	105	LF	ELECTRIC SERVICE LATERAL ********** (3 #1/0 USE)
5145000000-N	1408	2	EA	LIGHT CONTROL EQUIPMENT, TYPE RW ********** (120/240 VOLT)
5155000000-E	1409	351	LF	ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")
5160000000-E	1409	250	LF	ELECTRICAL DUCT, TYPE JA, SIZE ***** (4")
5170000000-E	1410	770	LF	** #8 W/G FEEDER CIRCUIT (2)
5205000000-E	1410	1,965	LF	** #8 W/G FEEDER CIRCUIT IN *****" CONDUIT (2, 1.5")
5240000000-N	1411	11	EA	ELECTRICAL JUNCTION BOXES ********** (TYPE PC18)
5260000000-N	SP	Lump Sum		GENERIC LIGHTING ITEM REMOVE & RELOCATE LIGHT STANDARDS
5325600000-E	1510	391	LF	6" WATER LINE
5325800000-E	1510	975	LF	8" WATER LINE
5326200000-E	1510	304	LF	12" WATER LINE
5540000000-E	1515	6	EA	6" VALVE
5546000000-E	1515	7	EA	8" VALVE
5558000000-E	1515	4	EA	12" VALVE
5588000000-E	1515	1	EA	*" AIR RELEASE VALVE (12")
5648000000-N	1515	2	EA	RELOCATE WATER METER
5678400000-E	1515	3	EA	6" LINE STOP
5678600000-E	1515	4	EA	8" LINE STOP
5679000000-E	1515	2	EA	12" LINE STOP
5691300000-E	1520	178	LF	8" SANITARY GRAVITY SEWER
5691500000-E	1520	321	LF	12" SANITARY GRAVITY SEWER
5775000000-E	1525	5	EA	4' DIA UTILITY MANHOLE
5800000000-E	1530	400	LF	ABANDON 6" UTILITY PIPE
5801000000-E	1530	1,027	LF	ABANDON 8" UTILITY PIPE
5804000000-E	1530	223	LF	ABANDON 12" UTILITY PIPE
5816000000-N	1530	4	EA	ABANDON UTILITY MANHOLE
6000000000-E	1605	13,630	LF	TEMPORARY SILT FENCE
6006000000-E	1610	2,160	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	1,570	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	2,145	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	70.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	1,400	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	8	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	2,265	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	1,300	LF	SAFETY FENCE
6030000000-E	1630	78,820	CY	SILT EXCAVATION
6036000000-E	1631	120,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	405	SY	COIR FIBER MAT
6038000000-E	SP	6,300	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	8,200	LF	1/4" HARDWARE CLOTH
6045000000-E	SP	215	LF	**" TEMPORARY PIPE (18")
6069000000-E	1638	790	CY	STILLING BASINS
6071012000-E	SP	2,425	LF	COIR FIBER WATTLE
6071020000-E	SP	2,220	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	1,190	LF	COIR FIBER BAFFLE
6071050000-E	SP	4	EA	**" SKIMMER (1-1/2")
6071050000-E	SP	1	EA	**" SKIMMER (2-1/2")
6084000000-E	1660	80	ACR	SEEDING & MULCHING
6087000000-E	1660	42	ACR	MOWING
6090000000-E	1661	750	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	2	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	900	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	27	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	396	LF	IMPERVIOUS DIKE
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	150	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	3	ACR	REFORESTATION

COMPUTED BY: *WC Parker, PE* DATE: *6-27-2012*
CHECKED BY: DATE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
R-5000	*3-A*

"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

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	B-77	TYPE III	AT-1	G	NG				
-DR2-	10+97.38	12+09.88	LT	87.5	25		11+76+/-	11+37+/-	2'	10'													2						3'-1 1/2" Post Spacing w/ 6' Posts
-L-	37+11.91	38+93.16	RT	181.25			38+93.16		8'	11'	50'		1'				1					1							
-L-	37+08.72	38+52.47	LT	143.75			38+52.47		8'	11'	50'		1'				1					1							
-L-	40+87.96	43+05+/-	RT	168.75	56.25		40+87.96	43+00+/-	8'	11'										1		1							
-L-	40+47.27	42+53.52	LT	206.25			42+00+/-	40+47.27	8'	11'	50'		1'				1					1							
-Y1-/-L-	19+68+/-	15+04.31	LT/RT	468.75	100		11+00+/-	15+00	10'	10'							1			1									6'-3" Post Spacing w/ 8' Posts
-Y4-	14+38.75	15+07.50	RT	68.75			15+07.50		15'	18'	50'		1'				1				1					154			
-Y4-	15+43+/-	16+39.00	MED	150			16+39		10'	13'	56.25'		1.125'								2				1	61			
-Y4-	17+00.00	17+96+/-	MED	150			17+00		10'	13'	56.25'		1.125'								2				1	61			
-Y4-	18+15.00	18+96.25	LT	81.25			18+15		10'	13'	50'		1'				1				1					130			
		GUARDRAIL SUBTOTALS:		1,706.25	181.25												6			2	6	4	2		2	406			

GUARDRAIL SUBTOTALS:	1,706.25	181.25
ANCHOR DEDUCTIONS:		
TYPE III: 4 @ 18.75' EA	75	
TYPE B-77: 6 @ 18.75' EA	112.5	
GRAU-350: 6 @ 50.0' EA	300	
TYPE AT-1: 2 @ 6.25' EA		12.5
TYPE CAT-1: 2 @ 6.25' EA	6.25	6.25
ANCHOR TOTALS:	493.75	18.75
GUARDRAIL GRAND TOTALS:	1,212.50	162.5
SAY:	1,262.5	187.5

	GRAU 350	CAT-1	B-77	TYPE III	AT-1	NG	SINGLE FACED CONCRETE BARRIER
GUARDRAIL GRAND TOTALS:	6	2	6	4	2	2	406
SAY:							425

ADDITIONAL GUARDRAIL POSTS = 5

COMPUTED BY:	ACP	DATE:	6/12/2012
CHECKED BY:	KBA	DATE:	7/3/2012

PROJECT NO.	SHEET NO.
R-5000	3-B

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
Y2 11+34	RT	0401		2131.0															
Y2 11+34	RT	0401	0402		2124.3	2121.9													
Y2 12+10	RT	0402		2128.1	2121.9														
Y2 12+10	RT	0402	0403		2121.9	2119.3													
Y2 13+51	RT	0403		2124.3	2115.8														
Y2 13+51	CL	0404	0403		2121.3	2121.1													
Y2 13+45	LT	0404		2124.3	2121.3														
Y2 13+45	LT	0405	0404		2123.2	2121.6		12								X			X
Y2 13+45	LT	0405			2123.2														
Y1 17+72	RT	0406		2125.5	2122.5														
Y1 17+72	CL	0406	0412		2122.5	2122.0													
Y1 16+00	LT	0407		2125.6	2122.6														
Y1 16+00	LT	0407	0408		2122.6	2122.1													
Y1 14+93	LT	0408		2125.2	2122.1														
Y1 14+93	CL	0408	0409		2122.1	2121.5													
Y1 14+93	RT	0409		2124.8	2120.8														
Y1 14+93	RT	0410	0409		2121.7	2121.5			4										
Y1 13+33	RT	0409	0411		2120.8	2118.0													
Y1 17+72	LT	0412		2125.4	2122.0														
L 10+41	LT	0412	0420		2122.0	2119.1													
Y1 18+85	RT	0413		2122.1	2113.3														
Y1 18+85	RT	0413	0414		2113.3	2113.2							12						
Y1 18+75	RT	0414		2124.1	2113.2														
Y1 18+75	RT	0415	0414		2117.8	2115.0													
Y1 19+25	RT	0415		2123.2	2117.8														
Y1 19+25	RT	0416	0415		2118.2	2117.8													
Y1 20+10	RT	0416		2121.2	2118.2														
Y1 20+10	RT	0417	0416		2119.0	2118.2			12										
Y1 18+75	CL	0414	0418		2113.2	2112.9													
L 10+46	RT	0418		2124.1	2112.9														
L 10+46	RT	0418	0419		2112.9	2112.7													
L 10+80	RT	0419		2123.4	2112.7														
L 10+80	CL	0419	0420		2112.7	2112.4													
L 11+04	LT	0420		2122.1	2112.4														
L 11+04	LT	0420	0421		2112.4	2112.1													
L 11+80	LT	0421		2118.8	2112.1														
L 11+80	LT	0422	0421		2117.2	2115.8													
L 11+80	CL	0422		2120.2	2117.2														
L 11+80	LT	0421	0423		2112.1	2109.6													
L 13+00	LT	0423		2114.4	2109.6														
L 13+00	LT	0424	0423		2112.8	2111.4													
L 13+00	CL	0424		2115.8	2112.8														
L 13+00	LT	0423	0425		2109.6	2107.8													
L 13+45	LT	0425		2112.6	2107.8														
L 13+45	LT	0425	0426		2107.8	2107.7													
L 13+81	LT	0426		2112.5	2109.9														
L 13+81	LT	0426	0427		2107.7	2107.4													
L 14+35	LT	0427		2112.4	2107.4														
L 14+35	LT	0427	0428		2107.4	2107.2													
SHEET TOTAL								12	16				12						

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
Y2 11+34																								
Y2 11+34																				72				
Y2 12+10																								
Y2 12+10																				140				
Y2 13+51																								
Y2 13+51																		44						
Y2 13+45																								
Y2 13+45																								
Y2 13+45																								
Y1 17+72																								
Y1 17+72																		84						
Y1 16+00																								
Y1 16+00																		100						
Y1 14+93																								
Y1 14+93																		32						
Y1 14+93																								
Y1 14+93																								
Y1 13+33																				156				
Y1 17+72																								
L 10+41																		60						
Y1 18+85																								
Y1 18+85																								
Y1 18+75																								
Y1 18+75																		48						
Y1 19+25																								
Y1 19+25																		80						
Y1 20+10																								
Y1 20+10																								
Y1 18+75																						68		
L 10+46																								
L 10+46																						32		
L 10+80																								
L 10+80																						56		
L 11+04																								
L 11+04																						64		
L 11+80																								
L 11+80																		28						
L 11+80																								
L 11+80																						104		
L 13+00																								
L 13+00																		28						
L 13+00																								
L 13+00																						48		
L 13+45																								
L 13+45																						32		
L 13+81																								
L 13+81																						56		
L 14+35																								
L 14+35																						28		
SHEET TOTAL																		504		368		488		

STATION	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.05, STD. 838.15, OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION 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. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE FRAME & COVER STD. 840.54	T.B. G.D.I. CAST IRON STD. 840.35	T.B.J.B. STD. 840.34	O.T.C.B. STD. 840.04 OR STD. 840.05			SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, CY	PIPE PLUGS	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
Y2 11+34																																				ADJUST EXIST. CB
Y2 11+34																																				
Y2 12+10								1	1.2		1		1																							
Y2 12+10																																			216	
Y2 13+51								1	3.5		1		1																							
Y2 13+51																																			124	
Y2 13+45								1			1			1																						
Y2 13+45																																				
Y2 13+45																															2 @ 12"			0.3528	25	
Y1 17+72								1			1		1																							
Y1 17+72																																				
Y1 16+00								1			1		1																							
Y1 16+00																																				
Y1 14+93								1			1		1																							
Y1 14+93																																				
Y1 14+93								1			1			1																						
Y1 14+93																																		0.3990		
Y1 13+33																																			140	2 - PIPE CLEANOUT
Y1 17+72								1			1			1																						
L 10+41																																				
Y1 18+85								1	3.8								1	1																		
Y1 18+85																																			124	
Y1 18+75								1	5	0.9	1		1																							
Y1 18+75																																				
Y1 19+25								1			1		1																							
Y1 19+25																																				
Y1 20+10								1			1		1																							
Y1 20+10																																			28	
Y1 18+75																																				
L 10+46								1	5	1.2	1	1																								
L 10+46																																				
L 10+80								1	5	0.7	1		1																							
L 10+80																																				
L 11+04								1	4.7		1			1																						
L 11+04																																				
L 11+80								1	1.7		1			1																						
L 11+80																																				
L 11+80								1			1			1		1																				
L 11+80																																				
L 13+00								1			1			1																						
L 13+00																																				
L 13+00								1			1			1		1																				
L 13+00																																				
L 13+45								1			1			1																						
L 13+45																																				
L 13+81								1			1		1																							
L 13+81																																			40	
L 14+35								1			1			1																						
L 14+35																																				
SHEET TOTAL								22	29.9	2.8	21	1	10	10		2	1	1													2 @ 12"			0.7518	697	

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.)	(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: ACP DATE: 6/12/2012

CHECKED BY: KBA DATE: 7/3/2012

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-5000	3-C

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 14+67	LT	0428		2112.6	2107.2														
L 14+67	LT	0429	0428		2109.8	2109.0													
L 14+67	CL	0429		2112.8	2109.8														
L 14+67	LT	0428	0430		2107.2	2107.0													
L 15+22	LT	0430		2113.2	2102.8														
L 15+22	LT	0430	0431		2102.9	2100.5							48						
L 15+22	LT	0432	0430		2109.7	2109.6													
L 15+22	CL	0432		2113.1	2109.7														
L 15+22	RT	0433	0432		2109.9	2109.7													
L 15+01	RT	0433		2112.9	2109.9														
L 15+22	CL	0434	0432		2110.1	2109.7													
L 15+70	CL	0434		2113.9	2110.1														
L 15+70	RT	0435	0434		2110.3	2110.1													
L 15+70	RT	0435		2113.3	2110.3														
L 15+70	CL	0436	0434		2112.3	2110.1													
L 16+59	CL	0436		2116.5	2112.3														
L 16+59	RT	0437	0436		2112.5	2112.3													
L 16+59	RT	0437		2115.5	2112.5														
L 16+45	LT	0439	0438		2108.1	2102.3								220					
L 18+33	LT	0439		2114.1	2108.1														
L 18+33	LT	0440	0439		2108.5	2108.1								76					
L 19+08	LT	0440		2114.9	2108.5														
L 19+08	LT	0441	0440		2113.3	2108.5								12		X			X
L 19+20	LT	0441																	
L 19+08	LT	0442	0440		2128.4	2110.8			44							X			X
L 19+08	LT	0442		2131.4	2128.4														
L 19+08	LT	0443	0442		2130.9	2128.4													
L 19+56	LT	0443		2134.8	2130.9														
L 19+56	LT	0444	0443		2131.0	2130.9													
L 19+56	CL	0444		2134.7	2131.0														
L 19+56	RT	0445	0444		2131.1	2131.0													
L 19+56	RT	0445		2134.1	2131.1														
L 19+56	LT	0501	0443		2138.4	2130.9													
L 20+45	LT	0501		2141.4	2138.4														
L 21+52	LT	0502		2149.8	2144.8														
L 21+52	LT	0502	0503		2144.8	2142.7			28										
L 21+52	LT	0504	0502		2147.4	2144.8													
L 21+52	RT	0504		2150.6	2147.4														
L 21+52	RT	0505	0504		2151.1	2147.4													
L 21+97	RT	0505		2154.1	2151.1														
L 24+00	LT	0506		2169.1	2166.1														
L 24+00	LT	0506	0507		2166.1	2153.5			44							X			X
L 24+00	LT	0508	0506		2167.4	2166.1													
L 24+00	CL	0508		2170.4	2167.4														
L 27+00	LT	0509		2184.3	2179.1														
L 27+00	LT	0509	0524		2179.1	2170.4						60				X			X
L 27+00	LT	0522	0509		2194.8	2180.3			220										
L 27+00	LT	0510	0509		2180.6	2179.6													
L 27+00	CL	0510		2191.3	2180.6														
L 27+00	CL	0511	0510		2182.2	2181.3													
SHEET TOTALS									336			60	48	308					

STATION	C.S. PIPE (UNLESS NOTED OTHERWISE) *WELDED STEEL, 0.625" THICK 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	** " R.C. PIPE (CLASS V)	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.05, STD. 838.15, OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
L 14+67																															
L 14+67																		28													
L 14+67																															
L 14+67																						52									
L 15+22																															
L 15+22																															
L 15+22																		16													
L 15+22																															
L 15+22																		36													
L 15+01																															
L 15+22																		44													
L 15+70																															
L 15+70																		28													
L 15+70																															
L 15+70																		84													
L 16+59																															
L 16+59																		28													
L 16+59																															
L 16+45																															
L 18+33																															
L 18+33																															
L 19+08																															
L 19+08																															
L 19+20																															4.5
L 19+08																															
L 19+08																															
L 19+08																		40													
L 19+56																															
L 19+56																		28													
L 19+56																															
L 19+56																		16													
L 19+56																															
L 19+56																		84													
L 20+45																															
L 21+52																															
L 21+52																															
L 21+52																		28													
L 21+52																															
L 21+52																		40													
L 21+97																															
L 24+00																															
L 24+00																															
L 24+00																		28													
L 24+00																															
L 27+00																															
L 27+00																															
L 27+00																															
L 27+00																				40											
L 27+00																															
L 27+00																		16													
SHEET TOTALS																		544		40		52									4.5

STATION	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. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE FRAME & COVER STD. 840.54	T.B. G.D.I. CAST IRON STD. 840.35	T.B.J.B. STD. 840.34	O.T.C.B. STD. 840.04 OR STD. 840.05			SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, CY	PIPE PLUGS	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
L 14+67	1	0.4		1	1																								
L 14+67																													
L 14+67	1			1	1				1																				
L 14+67																													
L 15+22	1	5.0	0.4	1		1																							
L 15+22																													
L 15+22																													
L 15+22	1			1	1				1																				
L 15+22																													
L 15+01	1			1	1																								
L 15+22																													
L 15+70	1			1			1		1																				
L 15+70																													
L 15+70	1			1			1																						
L 15+70																													
L 16+59	1			1			1		1																				
L 16+59																													
L 16+59	1			1			1																						
L 16+45																													
L 18+33	1	1.0															1	1											
L 18+33																													
L 19+08	1	1.4															1	1											
L 19+08																													
L 19+20																													
L 19+08																													
L 19+08	1			1		1																							
L 19+08																													
L 19+56	1			1		1																							
L 19+56																													
L 19+56	1							1		1	1																		
L 19+56																													
L 19+56	1			1			1																						
L 19+56																													
L 20+45	1			1		1																							
L 21+52	1			1			1																						
L 21+52																													
L 21+52																													
L 21+52	1							1		1	1																		
L 21+52																													
L 21+97	1			1		1			1																				
L 24+00	1			1		1																							
L 24+00																								2@15"					
L 24+00																													
L 24+00	1			1		1			1																				
L 27+00	1	0.2										1			1														
L 27+00																													
L 27+00																													
L 27+00																													
L 27+00	1	5	0.7					1		1	1																		
L 27+00																													
SHEET TOTALS	23	13	1.1	17	4	7	6	3	6	3	3	1			1		2	2						2 @ 15"					

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.)	(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:	ACP	DATE:	6/12/2012
CHECKED BY:	KBA	DATE:	7/6/2012

PROJECT NO.	SHEET NO.
R-5000	3-D

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 27+20	CL	0511		2192.3	2182.2														
L 27+00	RT	0512	0510		2180.7	2180.6													
L 27+00	RT	0512		2192.5	2180.7														
L 27+00	RT	0513	0512		2183.8	2183.7				24									
L 27+00	RT	0514	0512		2183.4	2181.2				48									
Y3 10+75	LT	0514		2189.6	2181.4														
Y3 10+75	CL	0515	0514		2181.8	2181.7													
Y3 10+75	RT	0515		2189.6	2181.8														
Y3 10+75	RT	0516	0515		2182.0	2181.8			24										
Y3 10+75	LT	0517	0514		2187.9	2186.6													
Y3 11+25	LT	0517		2191.1	2187.9														
Y3 11+25	CL	0518	0517		2188.1	2187.9													
Y3 11+25	RT	0518		2191.1	2188.1														
Y3 11+25	LT	0519	0517		2193.1	2187.9													
Y3 12+30	LT	0519		2196.2	2193.1														
Y3 12+30	CL	0520	0519		2193.2	2193.1													
Y3 12+30	RT	0520		2196.2	2193.2														
Y3 12+30	RT	0521	0520		2204.8	2193.2													
Y3 13+74	RT	0521		2207.8	2204.8														
L 29+29	LT	0522		2197.6	2194.8														
L 29+29	CL	0523	0522		2196.1	2194.8													
L 29+29	RT	0523		2199.1	2196.1														
L 34+40	LT	0601		2194.9	2192.2														
L 34+40	CL	0601	0602		2192.2	2191.9													
L 34+40	RT	0602		2196.4	2191.9														
L 37+00	LT	0603		2181.7	2178.9														
L 37+00	LT	0603	0604		2178.9	2174.4			44							X			X
L 37+50	LT	0604		2177.1	2174.4														
L 37+50	LT	0604	0605		2174.4	2174.3			8										
L 37+50	LT	0605		2182.0	2174.3														
L 37+50	LT	0605	0606		2174.3	2174.1													
L 38+00	LT	0606		2180.5	2174.1														
L 38+00	CL	0606	0607		2174.1	2173.9													
L 38+00	RT	0607		2180.4	2173.9														
L 38+00	RT	0607	0608		2173.9	2173.8			28										
L 38+35	RT	0608		2179.4	2173.8														
L 38+35	RT	0608	0609		2173.8	2173.7			8										
L 38+35	RT	0609		2177.0	2173.7														
L 38+35	RT	0609	0610		2173.7	2143.4			92							X			X
Y4 16+60	RT	0610		2146.1	2143.1														
Y4 16+60	RT	0613	0610		2146.0	2143.4			12							X			X
Y4 16+60	RT	0610	0633		2143.1	2137.6				128									
Y4 15+00	RT	0611		2152.9	2150.2														
Y4 15+00	RT	0611	0612		2150.2	2149.3													
Y4 15+75	RT	0612		2152.4	2149.3														
Y4 15+75	RT	0612	0613		2149.3	2146.0													
Y4 16+50	RT	0613		2149.2	2146.0														
Y4 16+15	CL	0614		2151.2	2148.5														
Y4 16+15	CL	0614	0615		2148.5	2147.1													
Y4 16+43	CL	0615		2150.3	2147.1														
SHEET TOTALS									216	200									

STATION	C.S. PIPE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.05, STD. 838.15, OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.079	.109	.109																							
L 27+20																															
L 27+00																				20											
L 27+00																															
L 27+00																															
L 27+00																															
Y3 10+75																															
Y3 10+75																		32													
Y3 10+75																															
Y3 10+75																															
Y3 10+75																		44													
Y3 11+25																															
Y3 11+25																		24													
Y3 11+25																															
Y3 11+25																		100													
Y3 12+30																															
Y3 12+30																		24													
Y3 12+30																															
Y3 12+30																		136													
Y3 13+74																															
L 29+29																															
L 29+29																		60													
L 29+29																															
L 34+40																															
L 34+40																		48													
L 34+40																															
L 37+00																															
L 37+00																															
L 37+50																															
L 37+50																															
L 37+50																															
L 37+50																		44													
L 38+00																															
L 38+00																		28													
L 38+00																															
L 38+00																															
L 38+35																															
L 38+35																															
L 38+35																															
L 38+35																															
Y4 16+60																															
Y4 16+60																															
Y4 16+60																															
Y4 15+00																															
Y4 15+00																		72													
Y4 15+75																															
Y4 15+75																		68													
Y4 16+50																															
Y4 16+15																															
Y4 16+15																		20													
Y4 16+43																															
SHEET TOTALS																		700		20											

STATION	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. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE FRAME & COVER STD. 840.54	T.B. G.D.I. CAST IRON STD. 840.35	T.B.J.B. STD. 840.34	O.T.C.B. STD. 840.04 OR STD. 840.05			SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, CY	PIPE PLUGS	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
L 27+20	1	5	0.1					1		1	1																		
L 27+00																													
L 27+00	1	5	1.8														1	1											
L 27+00																													
L 27+00																													
Y3 10+75	1	3.2		1		1																							
Y3 10+75																													
Y3 10+75	1	2.8		1			1																						
Y3 10+75																													
Y3 10+75																													
Y3 11+25	1			1		1																							
Y3 11+25																													
Y3 11+25	1			1			1																						
Y3 11+25																													
Y3 12+30	1			1		1																							
Y3 12+30																													
Y3 12+30	1			1			1																						
Y3 12+30																													
Y3 13+74	1			1			1																						
L 29+29	1												1			1													
L 29+29																													
L 29+29	1			1			1																						
L 34+40	1												1			1													
L 34+40																													
L 34+40	1			1		1																							
L 37+00	1												1			1													
L 37+00																													
L 37+50	1												1			1													
L 37+50																													
L 37+50	1	2.7												1					1										
L 37+50																													
L 38+00	1	1.4												1					1										
L 38+00																													
L 38+00	1	1.5											1			1													
L 38+00																													
L 38+35	1	0.6											1			1													
L 38+35																													
L 38+35	1												1			1													
L 38+35																								2 @ 15"					
Y4 16+60	1												1			1													
Y4 16+60																													
Y4 16+60																													
Y4 15+00	1														1				1										
Y4 15+00																													
Y4 15+75	1													1					1										
Y4 15+75																													
Y4 16+50	1													1					1										
Y4 16+15	1												1			1													
Y4 16+15																													
Y4 16+43	1													1					1										
SHEET TOTALS	26	22.2	1.9	9		4	5	1		1	1		9	5	1	9	1	1	6					2 @ 15"					

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.)	(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: ACP DATE: 6/12/2012

CHECKED BY: KBA DATE: 7/6/2012

PROJECT NO.	SHEET NO.
R-5000	3-E

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

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.) — (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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
Y4 16+43	CL	0615	0616		2147.1	2145.0													
Y4 16+97	CL	0616		2148.1	2145.0														
Y4 16+97	CL	0616	0617		2145.0	2141.8													
Y4 17+50	CL	0617		2145.8	2139.1														
Y4RPB 10+58	LT	0618	0619		2153.5	2144.6			24							X			X
Y4RPB 10+50	LT	0619		2147.3	2144.3														
Y4RPB 10+50	CL	0619	0620		2144.3	2143.7													
Y4RPB 10+50	RT	0620		2151.1	2143.2														
Y4RPB 10+50	RT	0620	0621		2143.2	2143.0													
Y4RPB 10+50	RT	0630	0620		2147.5	2144.0													
Y4 16+95	LT	0621		2149.4	2143.0														
Y4 16+95	LT	0621	0622		2143.0	2142.4													
Y4 17+53	LT	0622		2147.1	2138.0														
Y4 17+53	LT	0622	0623		2138.0	2134.9													
Y4 18+53	LT	0623		2143.5	2134.9														
Y4 18+53	LT	0623	0624		2134.9	2133.3					12					X			X
Y4 18+53	LT	0624		2141.2	2133.3														
Y4 18+53	LT	0625	0624		2134.3	2133.3			12										
Y4 18+53	LT	0629	0624		2167.0	2133.3			72							X			X
Y4 18+53	LT	0625		2137.0	2134.3														
L 40+75	LT	0626		2172.5	2169.3														
L 40+75	LT	0626	0627		2169.3	2168.4													
L 41+04	LT	0627		2171.6	2168.4														
L 41+04	LT	0627	0628		2168.4	2168.3													
L 41+04	RT	0628		2171.5	2168.3														
L 41+04	RT	0628	0629		2168.3	2167.0													
L 41+50	RT	0629		2170.2	2167.0														
Y4RPB 11+21	RT	0630		2151.9	2147.5														
Y4RPB 11+21	RT	0631	0630		2147.6	2147.5			28										
Y4RPB 11+50	RT	0631		2150.4	2147.6														
L 46+50	CL	0632			2154.9	2143.7													
Y4 18+00	RT	0633		2140.6	2137.6														
Y4 18+00	RT	0633	0634		2137.6	2131.4				136									
Y4 19+50	RT	0634		2134.4	2131.4														
Y4 19+50	RT	0634	0635		2131.4	2125.0				136									
Y4 21+00	RT	0635		2128.0	2125.0														
Y4 21+00	RT	0635	0639		2125.0	2116.3				168									
Y4 21+15	CL	0636		2129.6	2126.9														
Y4 21+15	CL	0636	0638		2126.9	2118.2			184										
Y4 20+75	LT	0637		2132.2															
Y4 22+85	RT	0639		2120.6	2116.3														
Y4 22+85	RT	0639	0640		2116.3	2110.7				156									
Y4 24+50	RT	0640		2114.9	2110.2														
Y4 24+50	RT	0640	0667		2110.2	2110.0													
	LT																		
	LT																		
Y4 26+50	LT	0643	0642		2099.9	2099.6													
Y4 26+50	CL	0643		2106.5	2099.9														
Y4 26+52	RT	0644	0643		2100.2	2099.9													
Y4 26+52	RT	0644		2107.7	2100.2														
SHEET TOTALS									320	596	12								

STATION	C.S. PIPE (UNLESS NOTED OTHERWISE) *WELDED STEEL, 0.625" THICK 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
Y4 16+43																		48						
Y4 16+97																								
Y4 16+97																		48						
Y4 17+50																								
Y4RPB 10+58																								
Y4RPB 10+50																								
Y4RPB 10+50																			48					
Y4RPB 10+50																								
Y4RPB 10+50																				32				
Y4RPB 10+50																		52						
Y4 16+95																								
Y4 16+95																				52				
Y4 17+53																								
Y4 17+53																				100				
Y4 18+53																								
Y4 18+53																								
Y4 18+53																								
Y4 18+53																								
Y4 18+53																								
Y4 18+53																								
L 40+75																								
L 40+75																		20						
L 41+04																								
L 41+04																		28						
L 41+04																								
L 41+04																		40						
L 41+50																								
Y4RPB 11+21																								
Y4RPB 11+21																								
Y4RPB 11+50																								
L 46+50			108																					
Y4 18+00																								
Y4 18+00																								
Y4 19+50																								
Y4 19+50																								
Y4 21+00																								
Y4 21+00																								
Y4 21+15																								
Y4 21+15																								
Y4 20+75																								
Y4 22+85																								
Y4 22+85																								
Y4 24+50																								
Y4 24+50																				32				
Y4 26+50						*56																		
Y4 26+50																								
Y4 26+52						*60																		
Y4 26+52																								
SHEET TOTALS			108			*116												236	48	216				

STATION	** " R.C. PIPE (CLASS V)	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.05, STD. 838.15, OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
Y4 16+43																
Y4 16+97								1								
Y4 16+97																
Y4 17+50								1	1.7							
Y4RPB 10+58																
Y4RPB 10+50								1								
Y4RPB 10+50																
Y4RPB 10+50								1	2.9							
Y4RPB 10+50																
Y4RPB 10+50																
Y4 16+95								1	1.4							
Y4 16+95																
Y4 17+53								1	4.1							
Y4 17+53																
Y4 18+53								1	3.6							
Y4 18+53																
Y4 18+53								1	2.9							
Y4 18+53																
Y4 18+53																
Y4 18+53								1								
L 40+75								1								
L 40+75																
L 41+04								1								
L 41+04																
L 41+04								1								
L 41+04																
L 41+50								1								
Y4RPB 11+21								1								
Y4RPB 11+21																
Y4RPB 11+50								1								
L 46+50																
Y4 18+00								1								
Y4 18+00																
Y4 19+50								1								
Y4 19+50																
Y4 21+00								1								
Y4 21+00																
Y4 21+15								1								
Y4 21+15																
Y4 20+75																
Y4 22+85								1								
Y4 22+85																
Y4 24+50								1								
Y4 24+50																
Y4 26+50																
Y4 26+50								1	2.3							
Y4 26+52																
Y4 26+52								1	0.8							
SHEET TOTALS								23	19.7							

STATION	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. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE FRAME & COVER STD. 840.54	T.B. G.D.I. CAST IRON STD. 840.35	T.B.J.B. STD. 840.34	O.T.C.B. STD. 840.04 OR STD. 840.05			SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, CY	PIPE PLUGS	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
Y4 16+43																			100	
Y4 16+97							1			1										
Y4 16+97																				
Y4 17+50				1	1											7.5	0.116			PLUG AND FILL 24" PIPE
Y4RPB 10+58															2 @ 15"					BERM OUTLET
Y4RPB 10+50				1		1														
Y4RPB 10+50																				
Y4RPB 10+50							1			1										
Y4RPB 10+50																				
Y4RPB 10+50																				
Y4 16+95							1			1										
Y4 16+95																				
Y4 17+53							1			1										
Y4 17+53																				
Y4 18+53								1	1											
Y4 18+53																				
Y4 18+53				1		1													116	
Y4 18+53																				
Y4 18+53																				
Y4 18+53				1		1									2 @ 15"					
L 40+75							1			1										
L 40+75																				
L 41+04							1			1										
L 41+04																				
L 41+04							1			1										
L 41+04																				
L 41+50							1			1										
Y4RPB 11+21							1			1										
Y4RPB 11+21																				
Y4RPB 11+50				1		1														
L 46+50																			36	
Y4 18+00				1		1													32	
Y4 18+00																				
Y4 19+50				1		1														
Y4 19+50																				
Y4 21+00				1		1														
Y4 21+00																				
Y4 21+15				1		1														
Y4 21+15																				ADJ. 3GI
Y4 20+75																				ADJ. 2GI
Y4 22+85				1		1														
Y4 22+85																4	0.065			PLUG AND FILL 18" PIPE
Y4 24+50				1		1														
Y4 24+50																				
Y4 26+50																7.33				TRENCHLESS INSTALLATION
Y4 26+50									1		1								456	
Y4 26+52																10.18				TRENCHLESS INSTALLATION
Y4 26+52				1		1														
SHEET TOTALS				12	1	11	9	1	2	9	1				4 @ 15"	29.01	0.181		740	

COMPUTED BY: ACP DATE: 6/12/2012

CHECKED BY: KBA DATE: 7/6/2012

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-5000	3-F

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
Y4 27+73	RT	0646	0644		2102.3	2101.7				116									
Y4 24+57	RT	0667	0644		2109.5	2100.7						196							
Y4 27+73	RT	0646		2105.3	2102.3													
Y4 27+73	RT	0647	0646		2128.5	2102.3				40						X			X
Y4 29+00	CL	0648		2100.7	2097.9													
Y4 29+00	CL	0648	0649		2097.9	2093.4			188										
Y4 30+96	CL	0649		2096.1	2087.8													
Y4 30+96	CL	0650	0649		2087.9	2087.9				4									
Y4 30+79	RT	0651		2096.5	2089.7													
Y4 33+55	CL	0652		2087.4	2083.2													
Y4 33+55	CL	0652	0653		2083.2	2082.0													
Y4 33+75	CL	0653			2082.0													
Y4 33+75	RT	0654		2086.8	2084.1													
Y4 33+75	RT	0654	0655		2084.1	2077.4													
Y4 31+13	LT	0660	0659		2086.6	2086.5				16									
Y4 31+13	LT	0660		2096.2	2086.6													
Y4 26+60	LT	0662	0661		2112.2	2098.5						28						
Y4 26+60	LT	0663	0661		2110.6	2098.0							188					
Y4 24+67	LT	0663		2116.4	2110.6													
Y4 24+67	LT	0664	0663		2125.8	2110.6							196					
Y4 22+73	LT	0664		2131.5	2125.8													
Y4 22+73	LT	0665	0664		2133.2	2125.8							100					
Y4 21+87	LT	0665		2139.0	2133.2													
Y4 21+87	LT	0666	0665		2136.5	2133.2							52					
Y4RPD 14+00	LT	0667		2115.1	2109.5													
Y4RPD 14+00	LT	0668	0667		2120.0	2110.0					144							
Y4RPD 15+50	LT	0668		2124.8	2120.0													
Y4RPD 15+50	LT	0669	0668		2135.8	2120.0					192							
Y4RPD 17+50	LT	0669		2140.7	2135.8													
Y4RPD 17+50	CL	0670	0669		2136.8	2136.6													
Y4RPD 17+50	RT	0670		2139.5	2136.8													
Y4RPD 17+50	LT	0671	0669		2221.8	2136.6			148							X			X
Y4RPD 17+50	LT	0672	0669		2160.0	2136.3				292									
Y4RPD 20+50	LT	0672		2165.5	2160.0													
Y4RPD 20+50	CL	0673	0672		2160.4	2160.2													
Y4RPD 20+50	RT	0673		2163.2	2160.4													
Y4RPD 20+50	LT	0674	0672		2227.0	2160.2			104							X			X
Y4RPD 20+50	LT	0675	0672		2173.6	2160.2			132							X			X
Y4RPD 21+85	LT	0675		2176.5	2173.6													
Y4RPD 21+85	LT	0676	0675		2183.1	2173.8			116										
Y4RPD 23+00	LT	0676		2185.8	2183.1													
Y4RPD 23+00	LT	0677	0676		2189.4	2183.1			96										
Y4RPD 23+76	LT	0677		2192.1	2189.4													
Y4RPD 23+76	LT	0602	0677		2191.9	2189.4													
Y5A 10+65	CL	0701			2094.0	2098.8													
SHEET TOTALS									784	468	336	224	536						

STATION	FROM	TO	C.S. PIPE (UNLESS NOTED OTHERWISE) *WELDED STEEL, 0.625" THICK 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.05, STD. 838.15, OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE
Y4 27+73	0646	0644																																	
Y4 24+57	0667	0644																																	
Y4 27+73	0646																																1		
Y4 27+73	0647	0646																																	
Y4 29+00	0648																																1		
Y4 29+00	0648	0649																																	
Y4 30+96	0649																																1	3.3	
Y4 30+96	0650	0649																																	
Y4 30+79	0651																																1	1.8	
Y4 33+55	0652																																1		
Y4 33+55	0652	0653																			16														
Y4 33+75	0653																																		
Y4 33+75	0654																																1		
Y4 33+75	0654	0655																		92															
Y4 31+13	0660	0659																																	
Y4 31+13	0660																																1	4.6	
Y4 26+60	0662	0661																																	
Y4 26+60	0663	0661																																	
Y4 24+67	0663																																1	0.8	
Y4 24+67	0664	0663																																	
Y4 22+73	0664																																1	0.7	
Y4 22+73	0665	0664																																	
Y4 21+87	0665																																1	0.8	
Y4 21+87	0666	0665																																	
Y4RPD 14+00	0667																																1	0.6	
Y4RPD 14+00	0668	0667																																	
Y4RPD 15+50	0668																																1		
Y4RPD 15+50	0669	0668																																	
Y4RPD 17+50	0669																																1		
Y4RPD 17+50	0670	0669																		40															
Y4RPD 17+50	0670																																1		
Y4RPD 17+50	0671	0669																																	
Y4RPD 17+50	0672	0669																																	
Y4RPD 20+50	0672																																1	0.5	
Y4RPD 20+50	0673	0672																		40															
Y4RPD 20+50	0673																																1		
Y4RPD 20+50	0674	0672																																	
Y4RPD 20+50	0675	0672																																	
Y4RPD 21+85	0675																																1		
Y4RPD 21+85	0676	0675																																	
Y4RPD 23+00	0676																																1		
Y4RPD 23+00	0677	0676																																	
Y4RPD 23+76	0677																																1		
Y4RPD 23+76	0602	0677																		96															
Y5A 10+65	0701																								100						4.5			
SHEET TOTALS																					268	16				100								4.5		19	13.1	

STATION	FROM	TO	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. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE FRAME & COVER STD. 840.54	T.B. G.D.I. CAST IRON STD. 840.35	T.B.J.B. STD. 840.34	O.T.C.B. STD. 840.04 OR STD. 840.05			SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, CY	PIPE PLUGS	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
Y4 27+73	0646	0644																									
Y4 24+57	0667	0644																									
Y4 27+73	0646										1	1															
Y4 27+73	0647	0646																					2 @ 18"				40	BERM OUTLET
Y4 29+00	0648										1		1														
Y4 29+00	0648	0649																									
Y4 30+96	0649										1			1													
Y4 30+96	0650	0649																								0.4465		
Y4 30+79	0651										1	1															
Y4 33+55	0652										1		1														
Y4 33+55	0652	0653																									
Y4 33+75	0653																									0.4465		
Y4 33+75	0654										1	1															
Y4 33+75	0654	0655																										ADJ. 4GI
Y4 31+13	0660	0659																									
Y4 31+13	0660														1	1										
Y4 26+60	0662	0661																					2 @ 30"					BERM OUTLET
Y4 26+60	0663	0661																									
Y4 24+67	0663									1			1															
Y4 24+67	0664	0663																									
Y4 22+73	0664									1			1															
Y4 22+73	0665	0664																									
Y4 21+87	0665									1			1															
Y4 21+87	0666	0665																									
Y4RPD 14+00	0667									1		1																
Y4RPD 14+00	0668	0667																									
Y4RPD 15+50	0668									1		1																
Y4RPD 15+50	0669	0668																									
Y4RPD 17+50	0669									1		1																
Y4RPD 17+50	0670	0669																									
Y4RPD 17+50	0670										1		1														
Y4RPD 17+50	0671	0669																					2 @ 15"					BERM OUTLET
Y4RPD 17+50	0672	0669																									
Y4RPD 20+50	0672										1	1															
Y4RPD 20+50	0673	0672																									
Y4RPD 20+50	0673										1		1														
Y4RPD 20+50	0674	0672																					2 @ 15"					BERM OUTLET
Y4RPD 20+50	0675	0672																									
Y4RPD 21+85	0675										1	1															
Y4RPD 21+85	0676	0675																									
Y4RPD 23+00	0676										1	1															
Y4RPD 23+00	0677	0676																									
Y4RPD 23+76	0677										1	1															
Y4RPD 23+76	0602	0677																									
Y5A 10+65	0701																										
SHEET TOTALS										6	12	10	7	1	1	1						4@15", 2@18", 2@30"			0.893	40	

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.)	(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: ACP DATE: 6/12/2012

CHECKED BY: KBA DATE: 7/6/2012

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-5000	3-G

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

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
Y3 16+02	RT	0702		2234.4	2228.7														
Y3 16+02	RT	0703	0702		2230.0	2228.7													
Y3 17+32	RT	0703		2233.0	2230.0														
Y3 17+88	LT	0704			2226.4														
Y3 17+88	LT	0705	0704		2226.6	2226.4			16										
DR1 11+97	RT	0706		2102.8	2098.3														
DR1 15+50	LT	0446		2102.6	2099.4														
DR1 15+50	LT	0446	0447		2099.4	2098.7													
DR1 14+66	LT	0447		2101.9	2098.7														
DR1 14+66	LT	0447	0448		2098.7	2097.2													
DR1 13+44	LT	0448		2100.4	2097.2														
DR1 13+44	LT	0448	0707		2097.2	2096.3													
DR1 12+50	LT	0707		2099.5	2096.3														
DR1 11+70	CL	0707	0708		2096.3	2096.1	X												
DR1 11+70	RT	0708		2101.4	2095.8														
Y6 12+27	CL	0708	0709		2095.8	2093.5													
Y6 12+27	RT	0709		2101.0	2093.5														
Y6 12+27	RT	0709	0710		2093.5	2093.0													
Y6 13+43	LT	0711		2103.3															
Y6 13+43	LT	0711	0712		2098.9	2098.9			4										
Y6 13+43	LT	0712		2103.0															
Y1DET 18+00	RT	2D01		2126.9															
Y1DET 18+00	RT	2D01	2D02		2123.9	2124.0			8										
Y1DET 18+44	RT	2D03																	
Y1DET 18+95	RT	2D04																	
Y1DET 19+00	CL	2D05																	
Y1DET 19+08	LT	2D06		2121.4															
Y4 22+48	CL	2E01							52										
Y4 24+00	CL	2E02																	
DR2 11+13	RT	0449										8							
SHEET TOTALS									80			8							
SHT 3B TOTALS								12	16				12						
SHT 3C TOTALS									336			60	48	308					
SHT 3D TOTALS									216	200									
SHT 3E TOTALS									320	596	12								
SHT 3F TOTALS									784	468	336	224	536						
SHT 3G TOTALS									80			8							
SHT 3H TOTALS																			
GRAND TOTAL								12	1752	1264	348	292	596	308					

STATION	C.S. PIPE (UNLESS NOTED OTHERWISE) *WELDED STEEL, 0.625" THICK 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
Y3 16+02																								
Y3 16+02																		84						
Y3 17+32																								
Y3 17+88																								
Y3 17+88																								
DR1 11+97																								
DR1 15+50																								
DR1 15+50																		84						
DR1 14+66																								
DR1 14+66																		124						
DR1 13+44																								
DR1 13+44																		92						
DR1 12+50																								
DR1 11+70																		72						
DR1 11+70																								
Y6 12+27																			60					
Y6 12+27																								
Y6 12+27																			16					
Y6 13+43																								
Y6 13+43																								
Y6 13+43																								
Y1DET 18+00																								
Y1DET 18+00																								
Y1DET 18+44																								
Y1DET 18+95																								
Y1DET 19+00																								
Y1DET 19+08																								
Y4 22+48																								
Y4 24+00																		80						
DR2 11+13																								
SHEET TOTALS																		536	76					
SHT 3B TOTALS																		504		368		488		
SHT 3C TOTALS																		544		40		52		
SHT 3D TOTALS																		700		20				
SHT 3E TOTALS			108			*116												236	48	216				
SHT 3F TOTALS																		268	16				100	
SHT 3G TOTALS																		536	76					
SHT 3H TOTALS																								
GRAND TOTAL			108			*116												2788	140	644		540	100	

STATION	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, 838.05, STD. 838.15, OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
Y3 16+02								1	0.7		1			1
Y3 16+02														
Y3 17+32								1			1			1
Y3 17+88														
Y3 17+88														
DR1 11+97								1						
DR1 15+50								1						
DR1 15+50														
DR1 14+66								1						
DR1 14+66														
DR1 13+44								1						
DR1 13+44														
DR1 12+50								1						
DR1 11+70														
DR1 11+70								1	0.6					
Y6 12+27														
Y6 12+27								1	2.5					
Y6 12+27														
Y6 13+43								1						
Y6 13+43														
Y6 13+43								1			1		1	
Y1DET 18+00								1						
Y1DET 18+00														
Y1DET 18+44														
Y1DET 18+95														
Y1DET 19+00														
Y1DET 19+08								1						
Y4 22+48														
Y4 24+00														
DR2 11+13														
SHEET TOTALS								13	3.8		3		1	2
SHT 3B TOTALS								22	29.9	2.8	21	1	10	10
SHT 3C TOTALS							4.5	23	13	1.1	17	4	7	6
SHT 3D TOTALS								26	22.2	1.9	9		4	5
SHT 3E TOTALS								23	19.7					
SHT 3F TOTALS						4.5		19	13.1					
SHT 3G TOTALS								13	3.8		3		1	2
SHT 3H TOTALS														
						4.5	4.5		101.7	5.8				
GRAND TOTAL						9.0		126	109.3		50	5	22	23

STATION	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. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MANHOLE FRAME & COVER STD. 840.54	T.B. G.D.I. CAST IRON STD. 840.35	T.B.J.B. STD. 840.34	O.T.C.B. STD. 840.04 OR STD. 840.05			SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, CY	PIPE PLUGS	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
Y3 16+02																					25	
Y3 16+02																						
Y3 17+32																						
Y3 17+88																				0.399		
Y3 17+88																					88	
DR1 11+97														1								TIE TO BOX CULVERT
DR1 15+50									1			1										
DR1 15+50																						
DR1 14+66									1			1										
DR1 14+66																						
DR1 13+44									1			1										
DR1 13+44																						
DR1 12+50									1			1										
DR1 11+70																						
DR1 11+70										1	1											
Y6 12+27																						
Y6 12+27										1	1											
Y6 12+27																						
Y6 13+43										1	1											
Y6 13+43																						
Y6 13+43																						
Y1DET 18+00										1												
Y1DET 18+00																					8	
Y1DET 18+44																						ADJ. CB
Y1DET 18+95																						CONVERT JB TO DI
Y1DET 19+00																						CONVERT DI TO JB
Y1DET 19+08						1			1													
Y4 22+48																					52	
Y4 24+00																					80	
DR2 11+13																						
SHEET TOTALS						1			5	4	3	4		1						0.399	253	
SHT 3B TOTALS		2	1	1													2 @ 12"			0.7518	697	
SHT 3C TOTALS	3	6	3	3	1			1		2	2						2 @ 15"					
SHT 3D TOTALS	1		1	1		9	5	1	9	1	1	6					2 @ 15"					
SHT 3E TOTALS						12	1	11	9	1	2	9	1				4 @ 15"	29.01	0.181		740	
SHT 3F TOTALS					6	12	10	7	1	1	1						4@15", 2@18", 2@30"			0.893	40	
SHT 3G TOTALS						1			5	4	3	4		1						0.399	253	
SHT 3H TOTALS								4													416	
GRAND TOTAL	4	8	5	5	7	34	16	24	24	9	9	19	1	1			2 @ 12" 12 @ 15" 2 @ 18" 2 @ 30"	29.01	0.181	2.0438	2146	

Say 110

Say 2.1

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(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: ACP DATE: 6/12/2012
CHECKED BY: KBA DATE: 7/6/2012

PROJECT NO.	SHEET NO.
R-5000	3-H

RD244542

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

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) 54"	CLASS III 60"	CLASS III 66"	CLASS III 72"	CLASS III 78"	CLASS III 84"	C.S. PIPE 54" .109	C.S. 54" .138	C.S. 54" .168	C.S. 54" SHOP ELONGATED .138	C.S. 54" SHOP ELONGATED .168	C.S. 60" .138	C.S. 60" .168	C.S. 66" .138	C.S. 66" .168	C.S. 72" .139	C.S. 72" .168	CLASS IV R.C. PIPE 60"	CLASS IV 66" 12	CLASS IV 66" 10	CLASS IV 72" 12	CLASS IV 72" 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. FRAME WITH TWO GRATES STD. 840.22	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
Y4 25+21	LT	0641	0642						124																																				160	
Y4 34+97	LT	0656							12																																				12	
Y4 33+89	LT	0657	0658																						88																					
Y4 33+89	LT	0658	0659						268																																				244	
Y4 31+13	LT	0659	0661						448																																					
Y4 26+60	LT	0661	0642																						52																					
Y4 26+50	LT	0642		2107.0	2096.3																											7.02							1	1						
Y4 33+89	LT	0658		2084.6	2076.8																											6.17							1	1						
Y4 31+13	LT	0659		2092.5	2083.0																											6.39							1	1						
Y4 26+60	LT	0661		2103.7	2096.0																											6.17							1	1						
SHEET TOTALS									852																140							25.75							4	4					416	

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: WC Parker DATE: 8-20-2012
CHECKED BY: _____ DATE: _____

PROJECT NO.	SHEET NO.
R-5000	3-I

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
(CUBIC YARDS)

Line	Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
-L-	10+60.00	38+93.16	218,559		42,322		176,237
Bridge over Y4 (NC 107)							
-L-	40+47.27	47+50.00	5,099		25,395	20,296	
-Y1-	14+80.00	21+00.00	263		2,170	1,907	
-Y2-	12+00.00	13+61.77	54		118	64	
-Y3-	10+26.43	18+00.00	28,785		1,842		26,943
-Y4-	13+50.00	34+50.00	32,941		370		32,571
-Y4RPA-	14+89.65	23+12.73	5,083		14,681	9,598	
-Y4RPB-	10+41.49	14+06.83	19,433		2		19,431
-Y4RPD-	13+75.71	23+73.46	291,006		3		291,003
-Y5-	10+52.00	12+72.80	68		386	318	
-Y5A-	10+10.18	12+95.73	159		520	361	
-Y6-	10+88.78	14+25.00	134		160	26	
-DR1-	11+50.00	16+31.73	506		48		458
-DR2-	10+33.98	12+50.00	87		21		66
-DR3-	10+25.00	12+79.46	40		48	8	
SUBTOTAL #1			**602,217**		**88,086**	**32,578**	**546,709**
DETOURS:							
-Y1DET-	16+81.04	20+00.26	281		121		160
-Y4RPADET1-	10+49.00	11+81.98	28		129	101	
-Y4RPADET2-	21+49.38	25+50.06	6		6,958	6,952	
-DR1DET-	13+52.63	14+37.55	50		1		49
SUBTOTAL #2			**365**		**7,209**	**7,053**	**209**
DETOUR REMOVAL:							
-Y1DET-	16+81.04	20+00.26	7		0		7
-Y4RPADET1-	10+49.00	11+81.98	112		0		112
-Y4RPADET2-	21+49.38	25+50.06	6,050		0		6,050
-DR1DET-	13+52.63	14+37.55	1		0		1
SUBTOTAL #3			**6,170**		**0**	**0**	**6,170**
PROJECT TOTALS:			**608,752**		**95,295**	**39,631**	**553,088**
Rock Waste to Replace Borrow						-81	-81
Adjustment for Rock					-24	-24	
Adjustment for Earth Shrinkage					-16	-16	
Placement of Surcharge					299	299	
Removal of Surcharge			260				260
Use Waste In-Lieu of Borrow						-40,097	-40,097
GRAND TOTALS:			**609,012**		**95,553**	**0**	**513,459**
SAY:			**610,000**				**514,000**

Est. DDE = 4,295 Yd^3 Shoulder Borrow = 4,000 Yd^3 Estimated Undercut = 3,950 Yd^3
Class IV Subgrade Stabilization to be used with Shallow Undercut = 300 Tons

Est. Shallow Undercut = 500 Yd^3
Est. Shallow Undercut by Stations = 1,550 Yd^3
Total Shallow Undercut = 2,050 Yd^3

Est. Class IV Subgrade Stabilization = 500 Tons
Est. Class IV Subgrade Stabilization by Stations = 3,200 Tons
Total Class IV Subgrade Stabilization = 3,700 Tons

-L-, -Y- Line, & Detour Pavement Structure Volume = 10, 864 Yd^3

Note: Earthwork quantities are calculated by Division 14. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

LINE	Station	Station	LOC LT/RT/CL	FT^2
-L-	44+75.00	45+60.00	CL	1,491.73
-Y1-	14+80.00	16+39.00	RT	139.60
-Y1-	14+80.00	16+00.00	LT	120.00
-Y1-	16+79.00	17+41.00	LT	1,166.89
-Y1-	18+14.00	18+54.00	LT	430.38
-Y1-	20+00.00	21+00.00	LT	86.42
-Y1-	20+50.00	21+00.00	RT	50.41
-Y2-	12+00.00	12+21.00	RT	10.61
-Y2-	12+00.00	13+03.00	LT	61.72
-Y3-	15+09.00	17+50.00	RT/CL	5,684.11
-Y4-	13+50.00	34+50.00	LT	11,883.19
-Y4-	13+50.00	34+50.00	RT	11,389.84
-Y4-	14+97.00	21+36.00	MED	6,899.63
-Y5-	10+52.00	12+73.00	CL	5,424.61
-Y5A-	10+82.00	12+63.00	CL	5,882.29
-Y6-	12+00.00	14+25.00	CL	4,608.35
-DR1-	11+50.00	16+43.00	CL/LT	25,967.40
-DR3-	10+41.00	12+79.00	RT	11,444.80
-DR3-	10+69.00	11+20.00	LT	488.68
-DR3-	11+40.00	11+81.00	LT	383.28
-DR3-	12+01.00	12+41.00	LT	376.97
Detour Pavement Removal:				
-Y1DET-	16+81.00	20+00.00	CL	5,984.36
-Y4-	22+33.00	24+85.00	MED	2,182.57
-Y4RPADET1-	10+49.00	11+82.00	CL	2,384.44
-Y4RPADET2-	21+49.00	25+50.00	CL	5,384.31
-DR1DET-	13+52.63	14+37.55	CL	1,384.76
			TOTAL FT^2	111,311.34
			TOTAL YD^2	12,367.93
			SAY	**13,000**

SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

LINE	Station	Station	LOC LT/RT/CL	FT^2
-L-	40+75.00	44+75.00	RT/CL	8,936.42
			TOTAL FT^2	8,936.42
			TOTAL YD^2	992.94
			SAY	**1,200**

SUMMARY OF WOVEN WIRE FENCE

STATION TO STATION	LOC	FABRIC (LF)	END BRACE	CORNER BRACE	LINE BRACE	4" POSTS	5" POSTS
-L- 27+18.92 - 34+28.91	RT	563.77	1	3	1	33	14
-Y4RPD- 10+32 - 23+33.34	LT	1,413.75	1	6	0	90	20
-L- 26+90 - 35+82.07	LT	1,039.08	2	4	1	64	19
-Y4- 14+75 - 15+79.04	LT	108.93	1	1	0	5	5
-Y4RPB- 10+60.64 - 14+15.55	LT	541.21	0	1	1	35	6
-L- 44+70 - 47+30	LT	152.49	1	1	0	8	5
-Y4- 30+29.11 - 33+00	LT	272.43	1	0	0	18	2
-Y4RPA- 11+25 - 22+49.24	RT	1,130.05	0	0	4	74	12
-L- 44+70 - 46+30	RT	171.97	1	0	0	11	2
TOTAL:		5,393.67	8	16	7	338	85
SAY:		**5,664**				**340**	**90**

SUMMARY OF VINYL COATED CHAIN LINK FENCE, 48"

STATION TO STATION	LOC	FABRIC (LF)	END BRACE	CORNER BRACE	LINE BRACE	LINE POSTS	TERMINAL POSTS
Chain link fence on top of retaining wall:							
-L- 10+42.60 to 15+00.00	RT	501.15	2	0	0	41	2
TOTAL:		501.15	2	0	0	41	2
SAY:		**530**				**43**	**3**

SUMMARY OF CHAIN LINK SECURITY FENCE, 72" FABRIC

STATION TO STATION	LOC	FABRIC (LF)	END BRACE	CORNER BRACE	LINE BRACE	LINE POSTS	TERMINAL POSTS
Security Fence for Bus Parking Lot (Parcel 3)							
-L- 12+44+/- to 14+79+/-	LT	225.1	2	3	2	19	7
-Y1- 16+81+/- to 17+22+/-	LT	40.9	0	1	0	4	1
-L- 10+41+/- to 11+07+/-	LT	65.0	0	0	0	5	0
TOTAL:		331.00	2	4	2	28	8
SAY:		**350**				**30**	**10**

PROJECT REFERENCE NO.	SHEET NO.
R-5000	3-J
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAME
1	4	SMOKY MOUNTAIN MENTAL HEALTH DEVELOPMENT "TRACT A"
2	4	D & R PROPERTIES
3	4	JACKSON COUNTY BOARD OF EDUCATION
4	4, 5, 7	SOUTHWESTERN COMMUNITY COLLEGE
5	4	N.C. DEPT. OF TRANSPORTATION
6	4, 5	SOUTHWESTERN COMMUNITY COLLEGE
7	4, 5, 6,7	N.C. DEPT. OF TRANSPORTATION
8	5,6	SOUTHWESTERN COMMUNITY COLLEGE
9	6	LARRY D PHILLIPS & JOANNE P. TEAGUE
10	6	LARRY DALE PHILLIPS
11	6	LOVEDALE BAPTIST CHURCH
12	6	CARNAL L. PROFFITT
13	6	TRI INVESTMENTS INC./AWD FAMILY LP LLLP
14	6	SOUTHWESTERN COMMUNITY COLLEGE
15	6	N.C. DEPT. OF TRANSPORTATION
16	6	EDWARD L. BUMGARNER
17	6	TODD & MELISSA M. TRUE
18	6	PROPERTY OWNER UNKNOWN (SHOWS UP AS ROW ON TAX MAP)
19	6	AWD FAMILY LP LLLP
20	7	NATIONAL GUARD ARMORY
21	6	FRANCES PARKER

5AA2490
7/10/2012
R:\Roadway\Proj\R5000_rdy_Parcel_Index.dgn
8:24:15 AM

PROJECT REFERENCE NO.	SHEET NO.
R-5000	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 025474 ENGINEER CRAIG PARKER 10/9/12

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN W. KEE 10/9/12 (Includes BASIN Design)

PLANS PREPARED BY:

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC License No. C-1021

REVISIONS

8/17/99

-L-

PI Sta 12+33.69
Δ = 39° 44' 15.4" (LT)
D = 15° 26' 37.0"
L = 257.31'
T = 134.07'
R = 371.00'
D.S. = 35 MPH
S.E. = 0.04

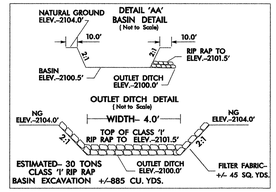
PI Sta 17+54.18
Δ = 32° 55' 53.7" (RT)
D = 15° 26' 37.0"
L = 213.24'
T = 109.65'
R = 371.00'
D.S. = 35 MPH
S.E. = 0.04

-Y1-

PI Sta 19+43.71
Δ = 17° 11' 33.3" (LT)
D = 4° 00' 00.0"
L = 429.81'
T = 216.53'
R = 1,432.39'
D.S. = 25 MPH
S.E. = NC

-Y2-

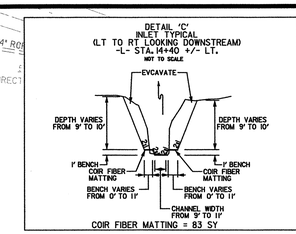
PI Sta 13+33.55
Δ = 11° 49' 20.6" (LT)
D = 14° 19' 26.2"
L = 82.54'
T = 41.41'
R = 400.00'
D.S. < 25 MPH
S.E. = NC

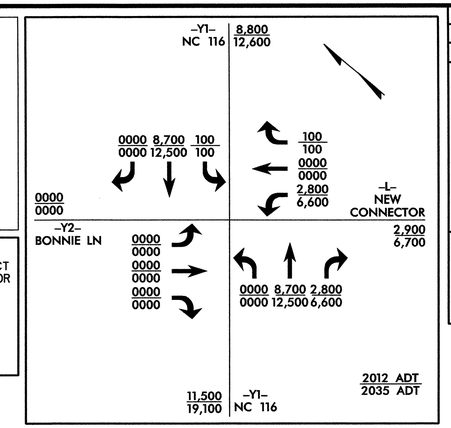


BASIN DESIGNED BY NCDOT HYDRAULICS UNIT

NOTE: PERFORM PIPE CLEANOUT ON 18" CMP -Y1- STA. 11+23 RT. & ON 24" CMP -Y1- STA. 11+57 RT.

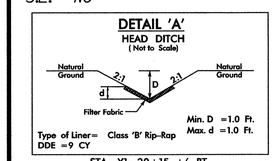
NOTE: PERFORM BASE DITCH CLEANOUT -Y1- STA. 11+56 TO STA. 13+34 RT. SEE DETAIL 'B'.



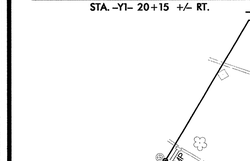


DATUM DESCRIPTION

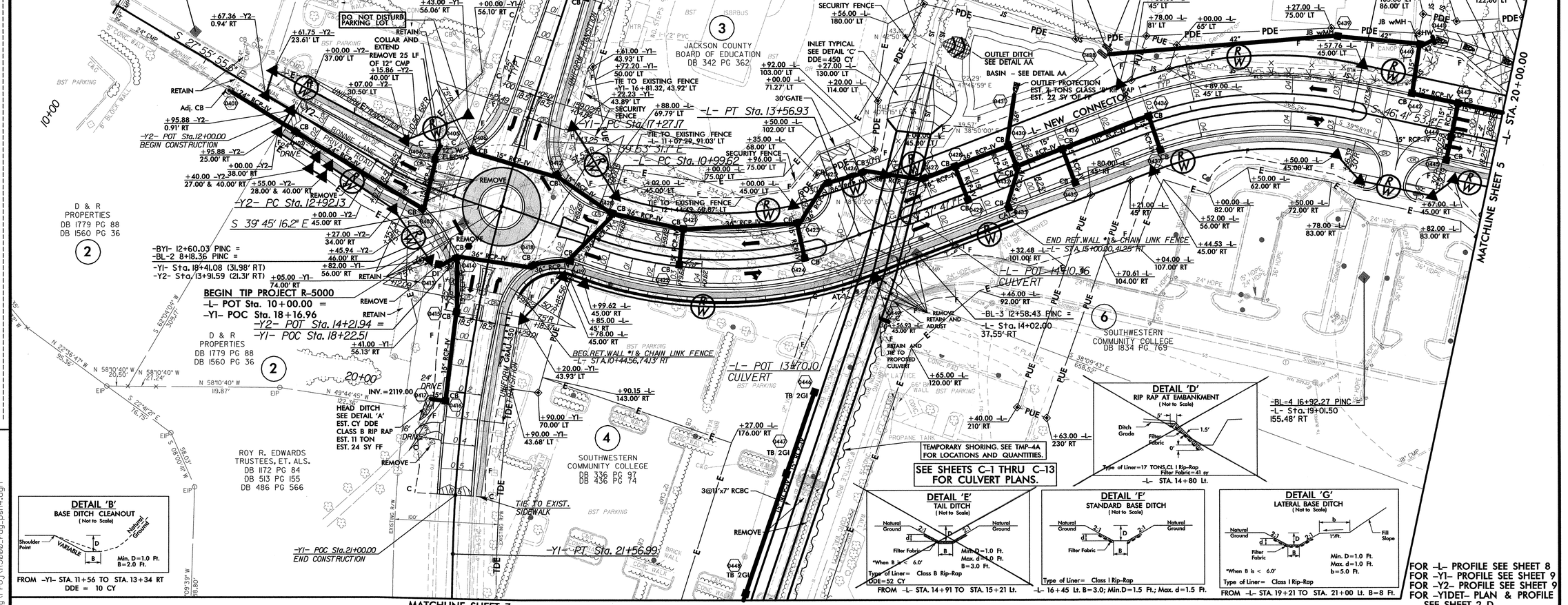
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON 83/NSRS 2007 (OPUS) STATE PLANE COORDINATES FOR NCDOT MONUMENT 'R-5000 GPS-103' WITH A NORTHING OF 607708.388(FT) AND EASTING OF 746702.365(FT). THE AVERAGE COMBINED FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.99979522. ALL LINEAR DISTANCES ARE LOCALIZED HORIZONTAL DISTANCES. THE VERTICAL DATUM IS BASED ON NCDOT MONUMENT 'R-5000 GPS-103'(ELEV 2224.63 FT.) (NAVD 1988).



STA. -Y1- 20+15 +/- RT.



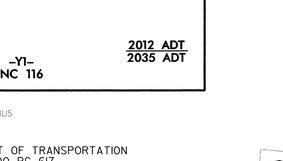
FROM -Y1- STA. 11+56 TO STA. 13+34 RT
DDE = 10 CY



FROM -L- STA. 14+91 TO STA. 15+21 Lt.

-L- 16+45 Lt. B = 3.0; Min. D = 1.5 Ft.; Max. d = 1.5 Ft.

FROM -L- STA. 19+21 TO STA. 21+00 Lt. B = 8 Ft.



-L- STA. 14+80 Lt.

FOR -L- PROFILE SEE SHEET 8
FOR -Y1- PROFILE SEE SHEET 9
FOR -Y2- PROFILE SEE SHEET 9
FOR -Y1DET- PLAN & PROFILE SEE SHEET 2-D
FOR ISLAND DIMENSIONS & DETAILS SEE SHEET 2-G
FOR PARKING LOT RECONSTRUCTION SEE SHEET 2-F

10/17/2012
R:\Roadway\Proj\R5000_rdy_psh4.dgn
4:21:19 PM

PROJECT REFERENCE NO.	SHEET NO.
R-5000	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER — 8-14-2012

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN W. SPEARS — 8-15-2012

PLANS PREPARED BY:

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC License No. C-1021

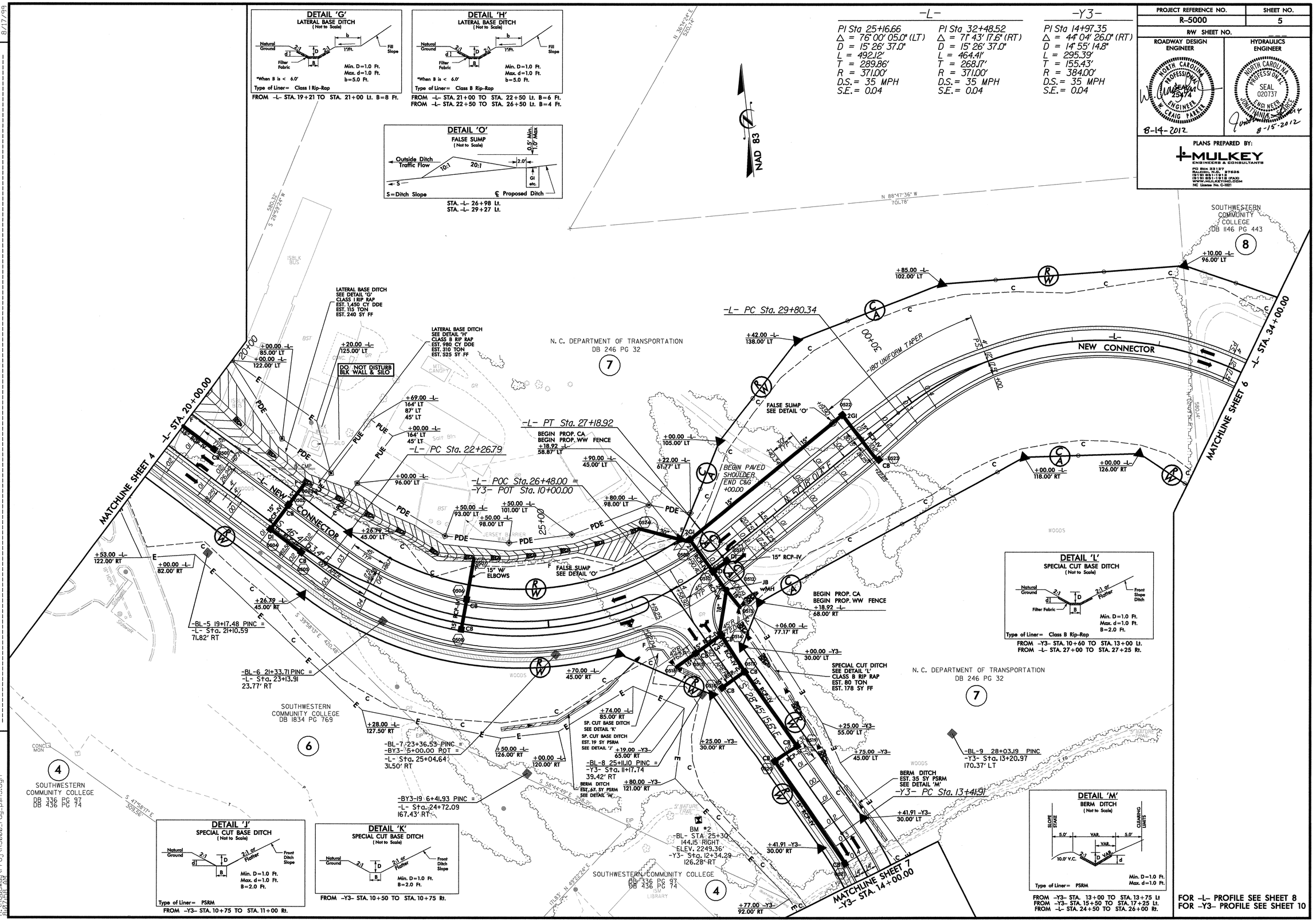
-L-

PI Sta 25+16.66
Δ = 76° 00' 05.0" (LT)
D = 15° 26' 37.0"
L = 492.12'
T = 289.86'
R = 371.00'
D.S. = 35 MPH
S.E. = 0.04

PI Sta 32+48.52
Δ = 71° 43' 17.6" (RT)
D = 15° 26' 37.0"
L = 464.41'
T = 268.17'
R = 371.00'
D.S. = 35 MPH
S.E. = 0.04

-Y3-

PI Sta 14+97.35
Δ = 44° 04' 26.0" (RT)
D = 14° 55' 14.8"
L = 295.39'
T = 155.43'
R = 384.00'
D.S. = 35 MPH
S.E. = 0.04

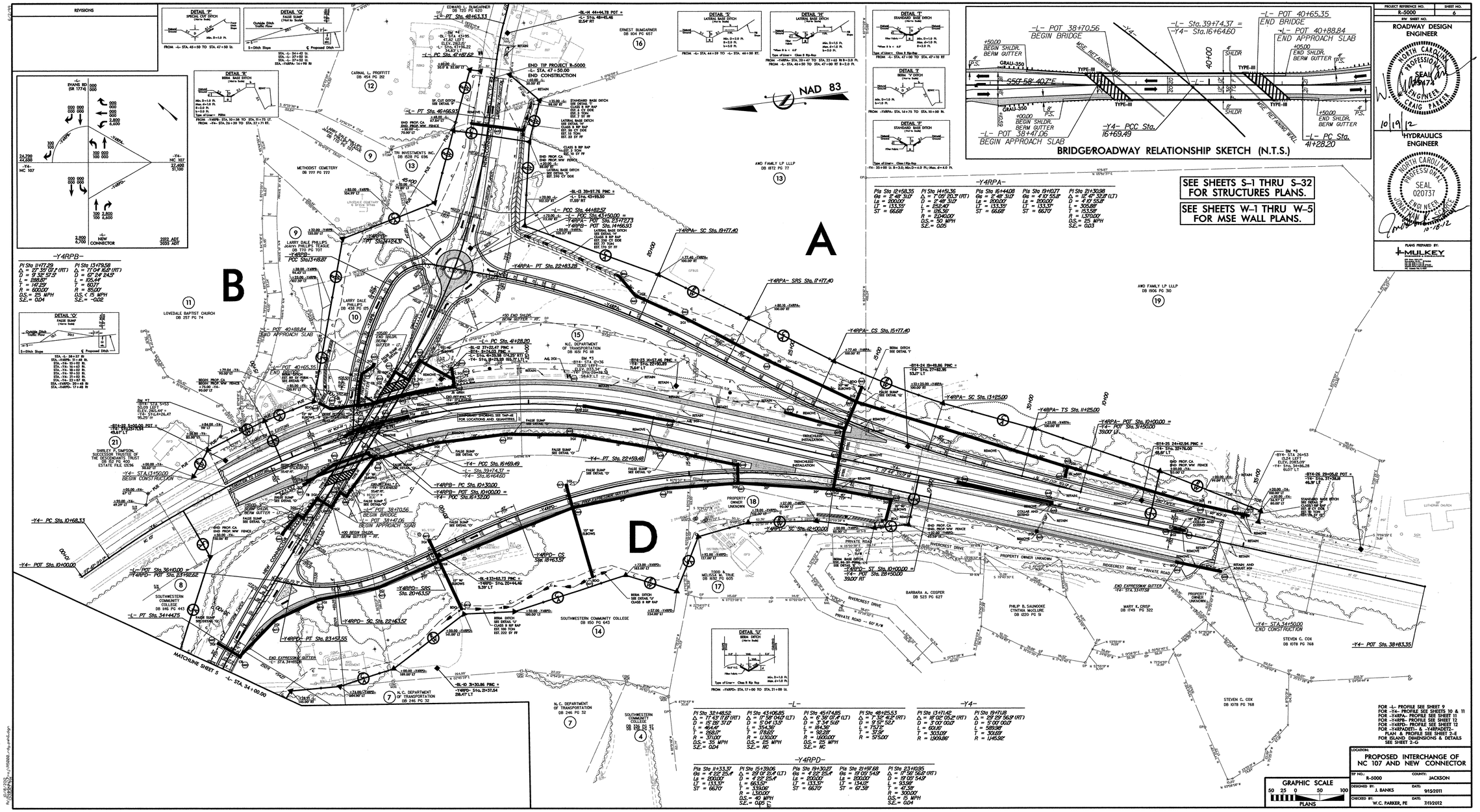


REVISIONS

8/17/99

8/14/2012
R:\Roadway\Proj\R5000_rdy_psh5.dgn

REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
R-5000	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025472 ENGINEER CRAIG PARKER

10/19/12

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN W. SCOTT

10-18-12

PLANS PREPARED BY:

MULKEY

FOR -L- PROFILE SEE SHEET 9
FOR -Y4- PROFILE SEE SHEETS 10 & 11
FOR -Y4RPA- PROFILE SEE SHEET 11
FOR -Y4RPB- PROFILE SEE SHEET 12
FOR -Y4RPD- PROFILE SEE SHEET 12
FOR -Y4RPADET1- & -Y4RPADET2-
PLAN & PROFILE SEE SHEET 2-E
FOR ISLAND DIMENSIONS & DETAILS
SEE SHEET 2-G

LOCATION:
PROPOSED INTERCHANGE OF NC 107 AND NEW CONNECTOR

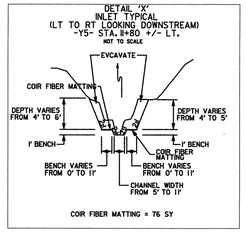
TIP NO.: R-5000	COUNTY: JACKSON
DESIGNED BY: J. BANKS	DATE: 9/15/2011
CHECKED BY: W.C. PARKER, PE	DATE: 7/1/2012

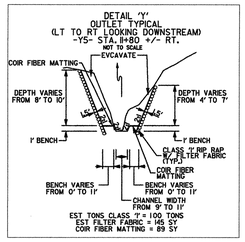
PROJECT REFERENCE NO.	SHEET NO.
R-5000	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

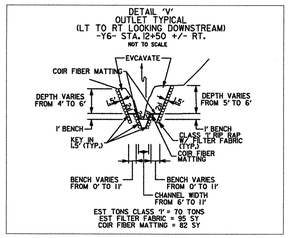
NORTH CAROLINA PROFESSIONAL SEAL 034474 ENGINEER W. CRAIG PARKER
8-14-2012

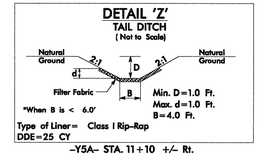
NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN K. SCHMUDDE
8-15-2012

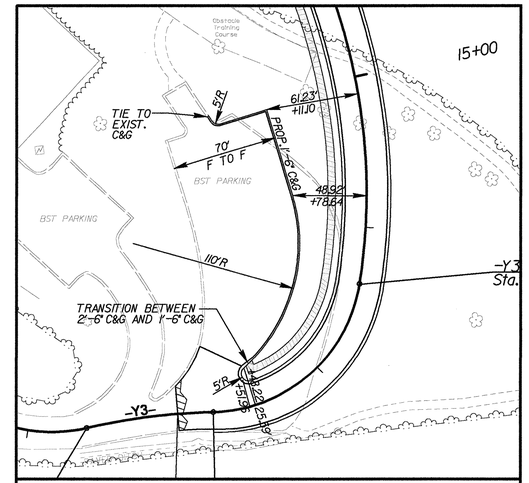
PLANS PREPARED BY:
MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC License No. C-0921



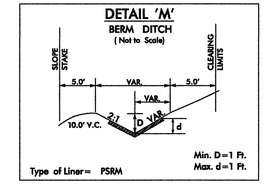




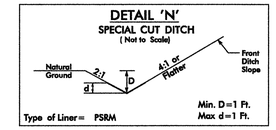




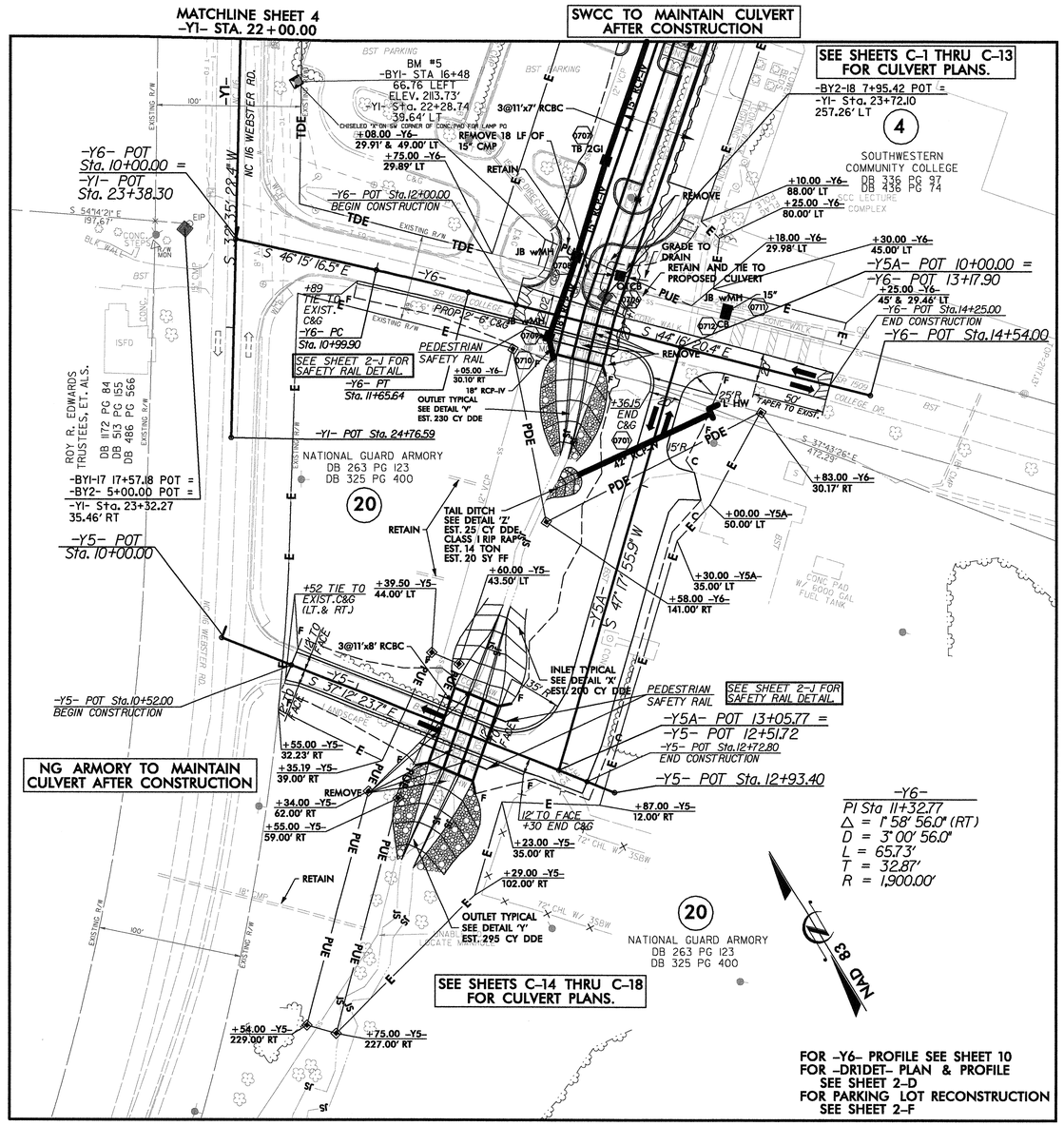
PARKING LOT CONSTRUCTION DETAIL

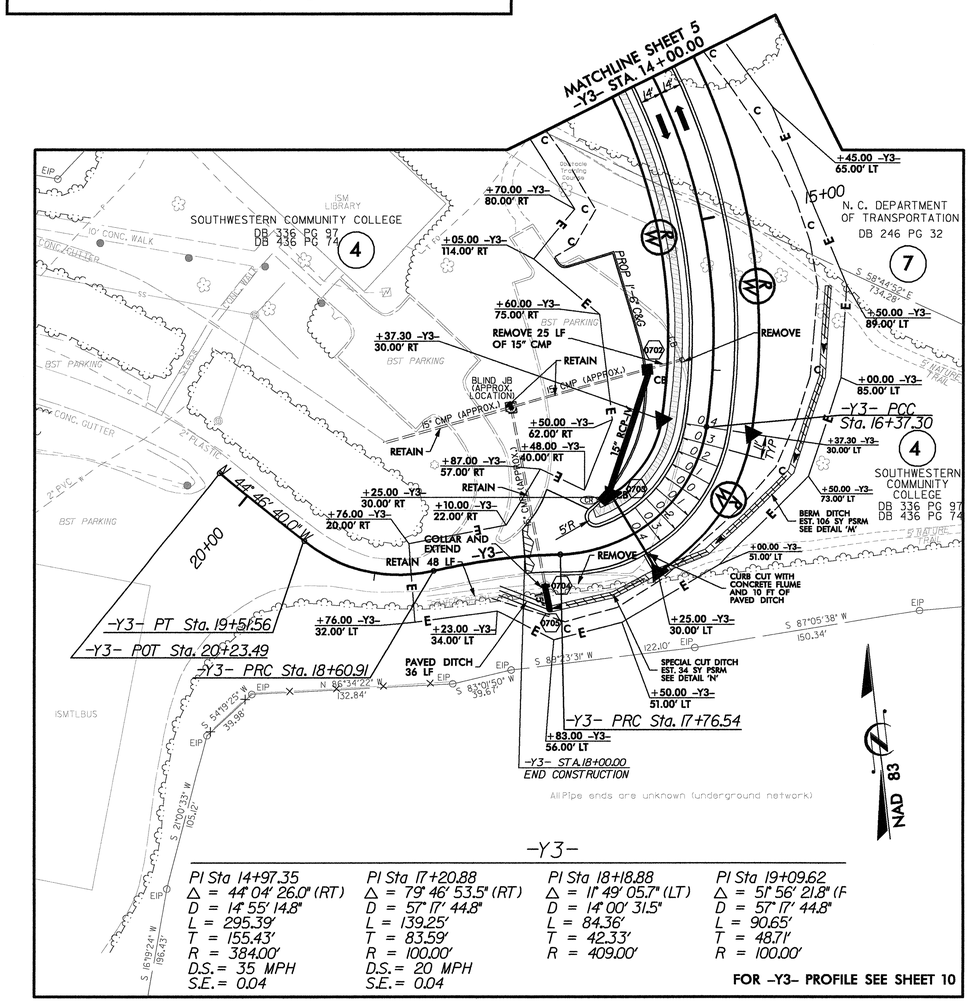


FROM -Y3- STA. 15+50 TO STA. 17+25 Lt.



FROM -Y3- STA. 17+25 TO STA. 17+85 Lt.





REVISIONS

8/17/99

8/10/2012
pgscanlon
P:\Proj\R5000_rdy_psh7.dgn

5/28/99

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1201

PROJECT REFERENCE NO.	SHEET NO.
R-5000	8

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER W. CRAIG FARKER

8-14-2012

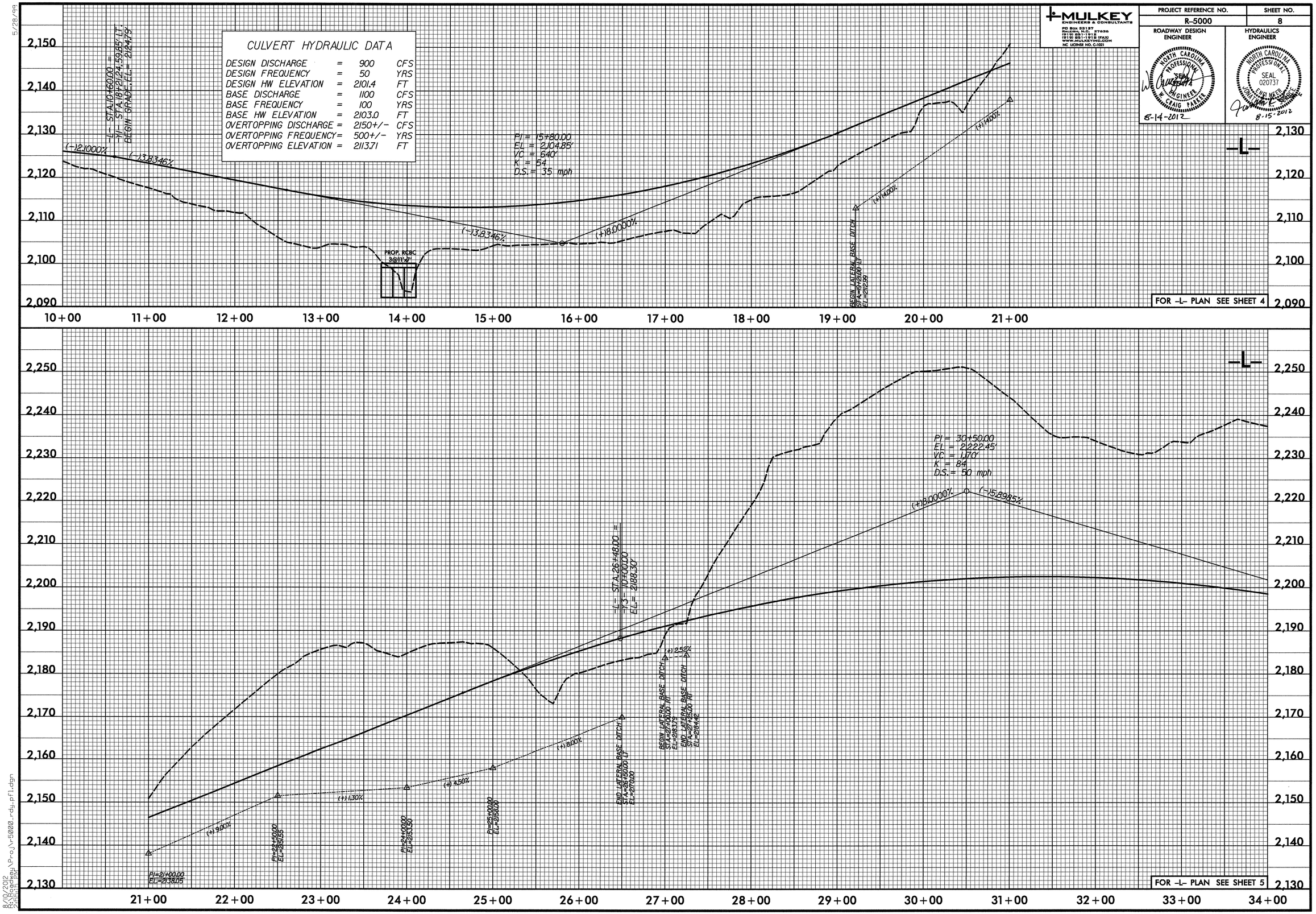
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN R. SCHMIDT

8-15-2012

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	900	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	2101.4	FT
BASE DISCHARGE	=	1100	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2103.0	FT
OVERTOPPING DISCHARGE	=	2150+/-	CFS
OVERTOPPING FREQUENCY	=	500+/-	YRS
OVERTOPPING ELEVATION	=	2113.71	FT



8/10/2012
2:55:16 pm
C:\Bentley\Projects\Proj\r5000_rdy_pfl.dgn

5/28/99

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1201

PROJECT REFERENCE NO.	SHEET NO.
R-5000	9

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL ENGINEER CRAIG PARKER — 8-14-2012

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN W. KIRKMAN — 8-15-2012

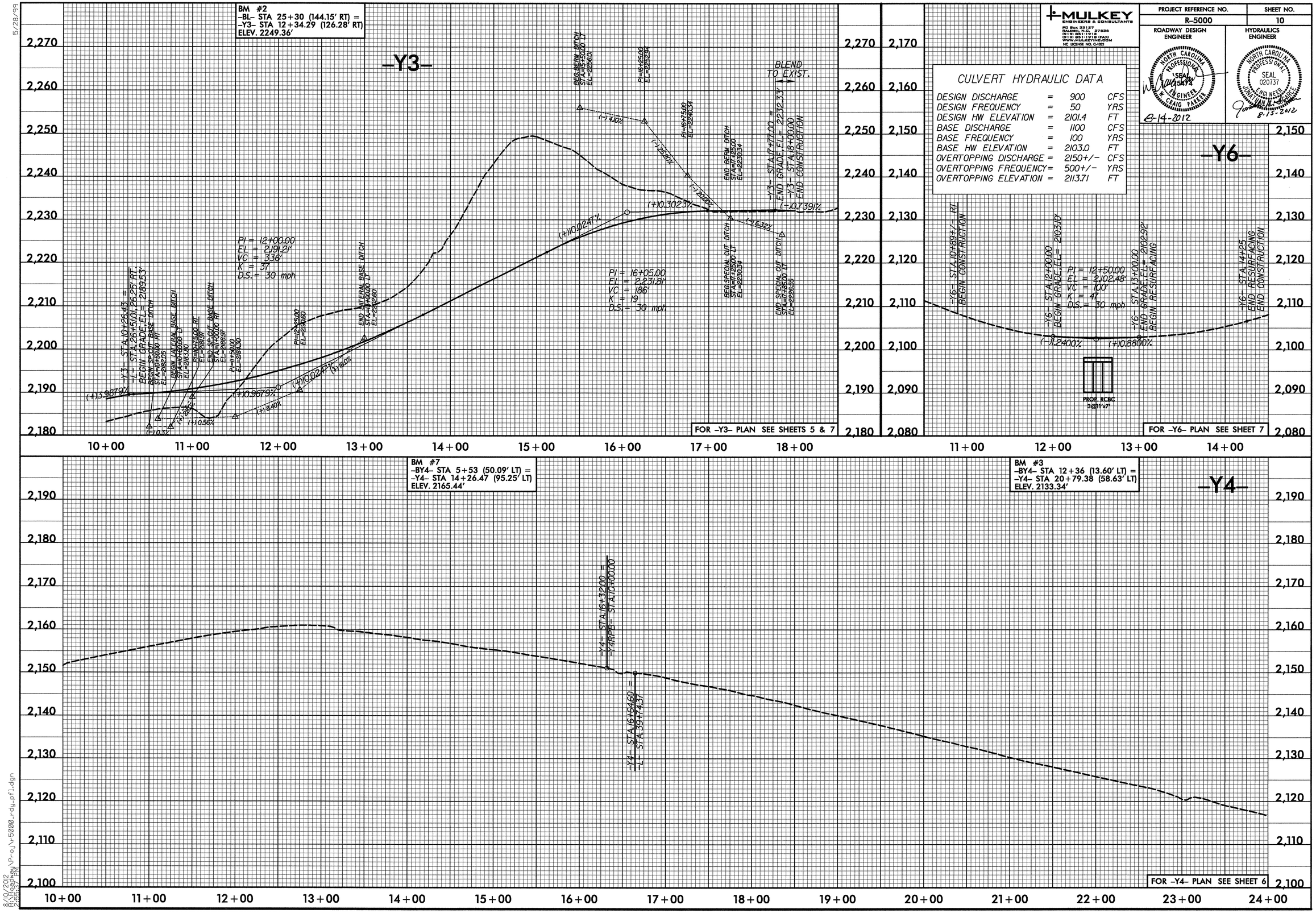
PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 3.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 8	CFS
DESIGN HW ELEVATION	= 2156.6	FT
100 YEAR DISCHARGE	= 9	CFS
100 YEAR HW ELEVATION	= 2156.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 16	CFS
OVERTOPPING ELEVATION	= 2158.48	FT

8/13/2012
R:\Roadway\Proj\r-5000_rdy_pfl.dgn
10:41:49 AM

5/28/99



8/10/2012
R:\Roadway\Proj\r-5000_rdy_pfl.dgn

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-0501

PROJECT REFERENCE NO.	SHEET NO.
R-5000	11

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER

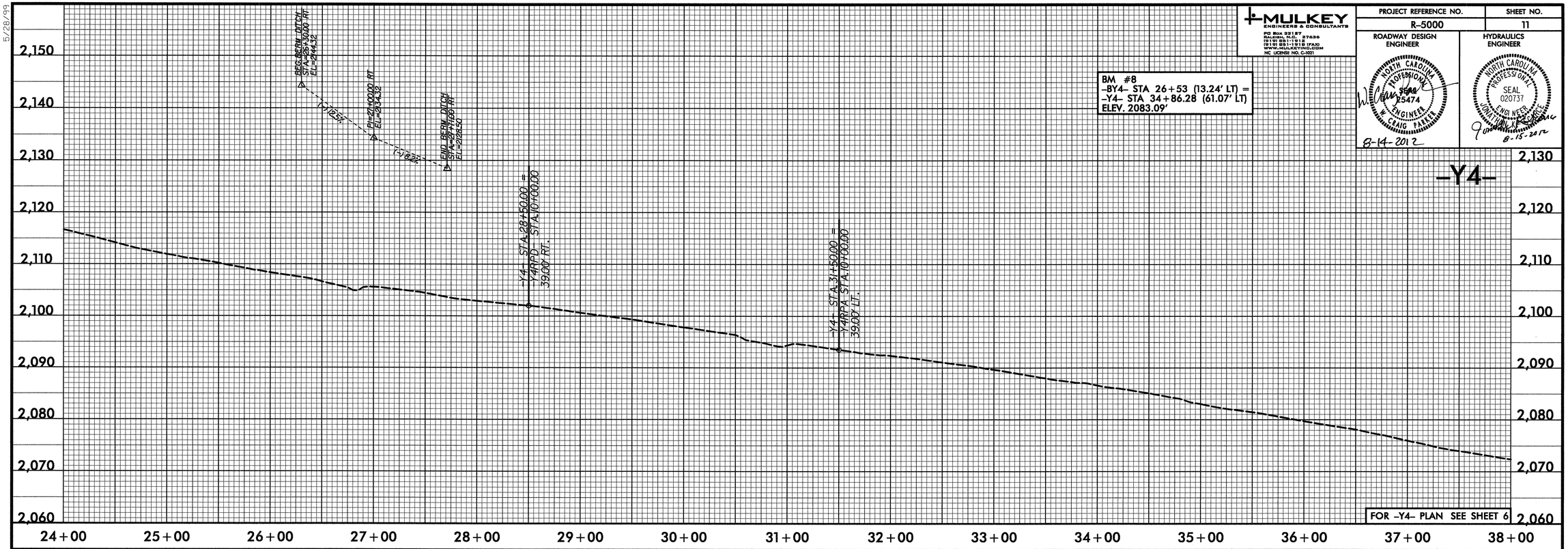
8-14-2012

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN K. SCHEIDT

8-15-2012

BM #8
-BY4- STA 26+53 (13.24' LT) =
-Y4- STA 34+86.28 (61.07' LT)
ELEV. 2083.09'



5/28/99

8/10/2012
R:\Roadway\Proj\r5000_rdy_pfl.dgn

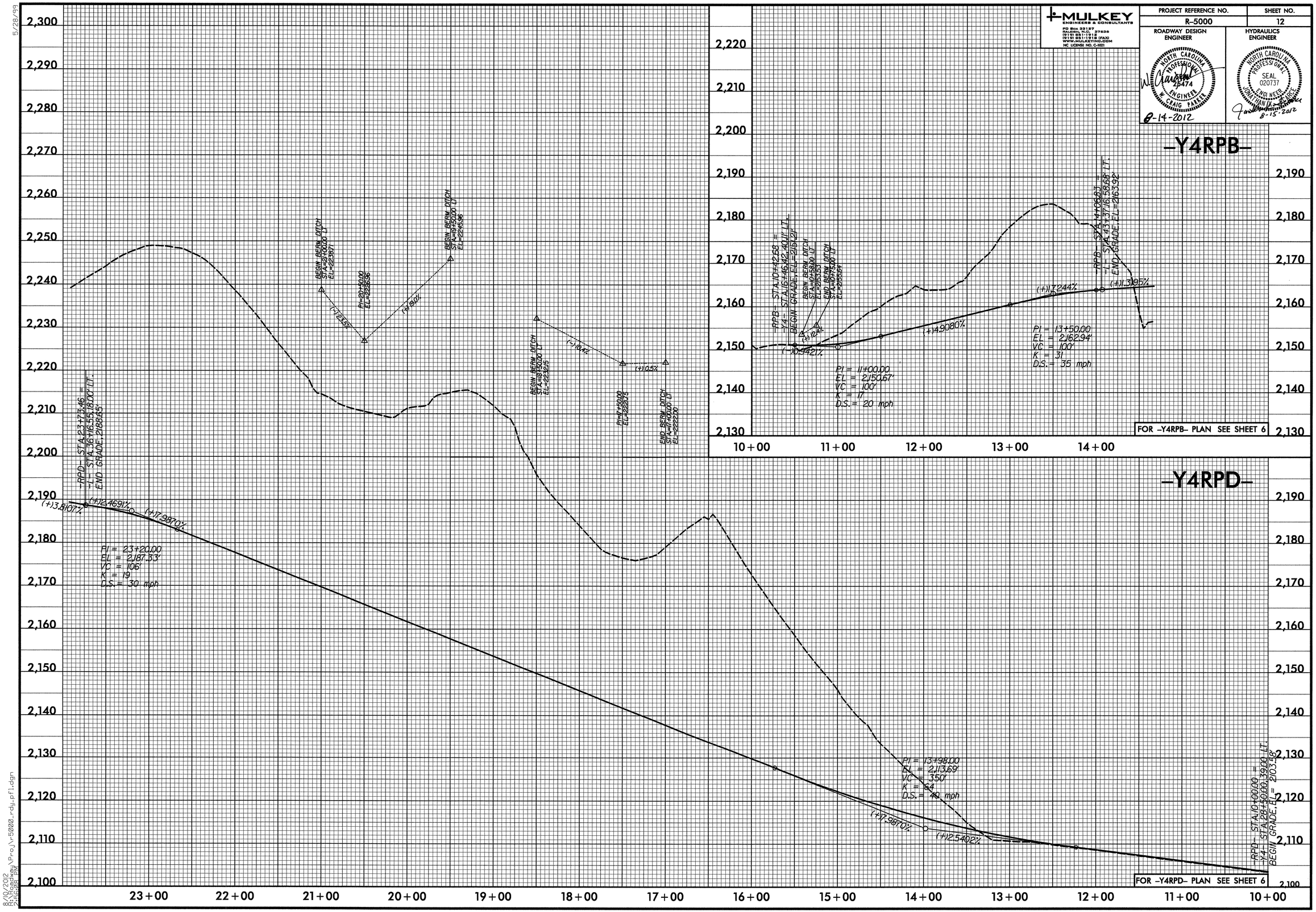
5/28/99

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, NC 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1601

PROJECT REFERENCE NO.	SHEET NO.
R-5000	12

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25474 W. CRAIG PARKER
8-14-2012

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 020737 JONATHAN K. PEARCE
8-15-2012



8/10/2012
C:\Projects\Roadway\Proj\r-5000_rdy_pfl.dgn

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-5000	13

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1201

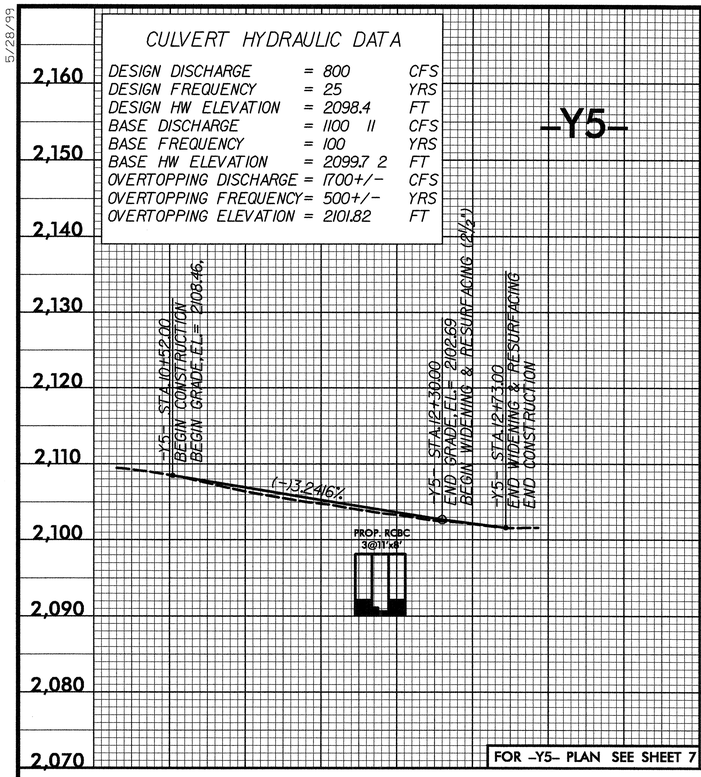
NORTH CAROLINA PROFESSIONAL SEAL 25474 ENGINEER W. CRAIG PARKER
8-14-2012

NORTH CAROLINA PROFESSIONAL SEAL 020737 ENGINEER JONATHAN W. SPEARS
8-15-2012

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2098.4	FT
BASE DISCHARGE	= 1100 11	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2099.7 2	FT
OVERTOPPING DISCHARGE	= 1700+/-	CFS
OVERTOPPING FREQUENCY	= 500+/-	YRS
OVERTOPPING ELEVATION	= 2101.82	FT

-Y5-



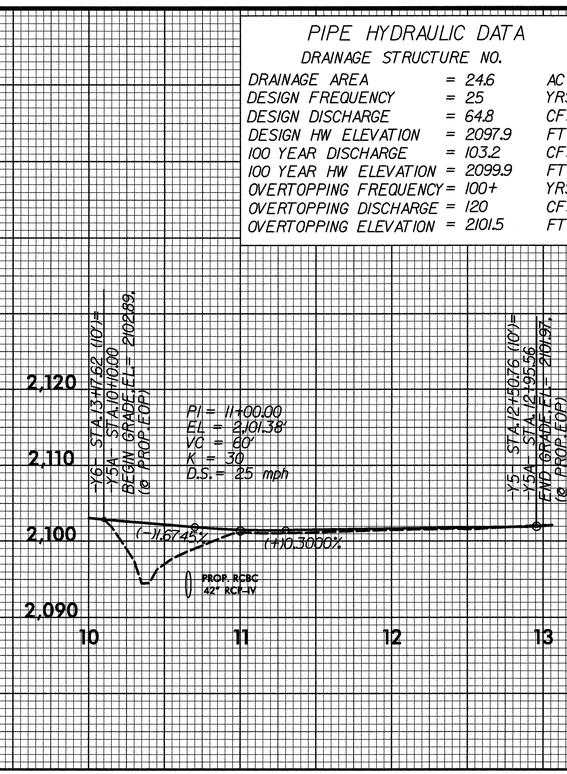
FOR -Y5- PLAN SEE SHEET 7

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

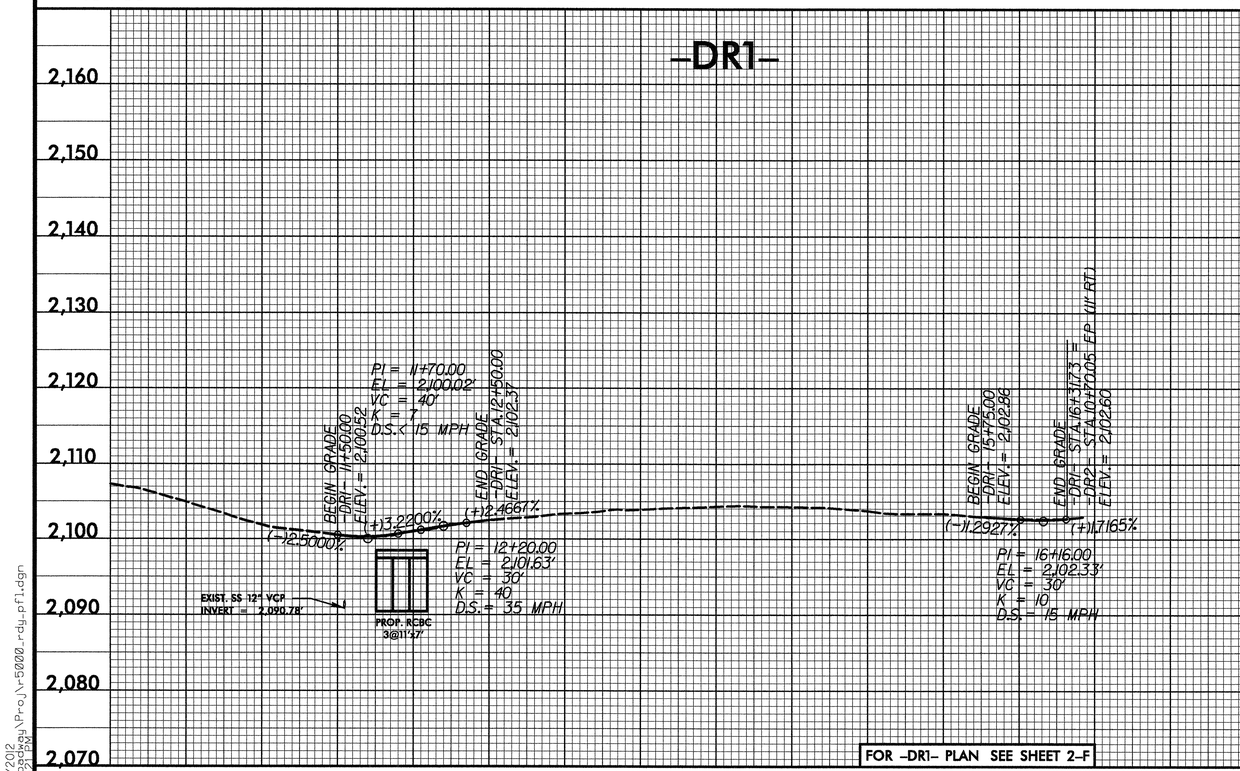
DRAINAGE AREA	= 24.6	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 64.8	CFS
DESIGN HW ELEVATION	= 2097.9	FT
100 YEAR DISCHARGE	= 103.2	CFS
100 YEAR HW ELEVATION	= 2099.9	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 120	CFS
OVERTOPPING ELEVATION	= 2101.5	FT

-Y5A-



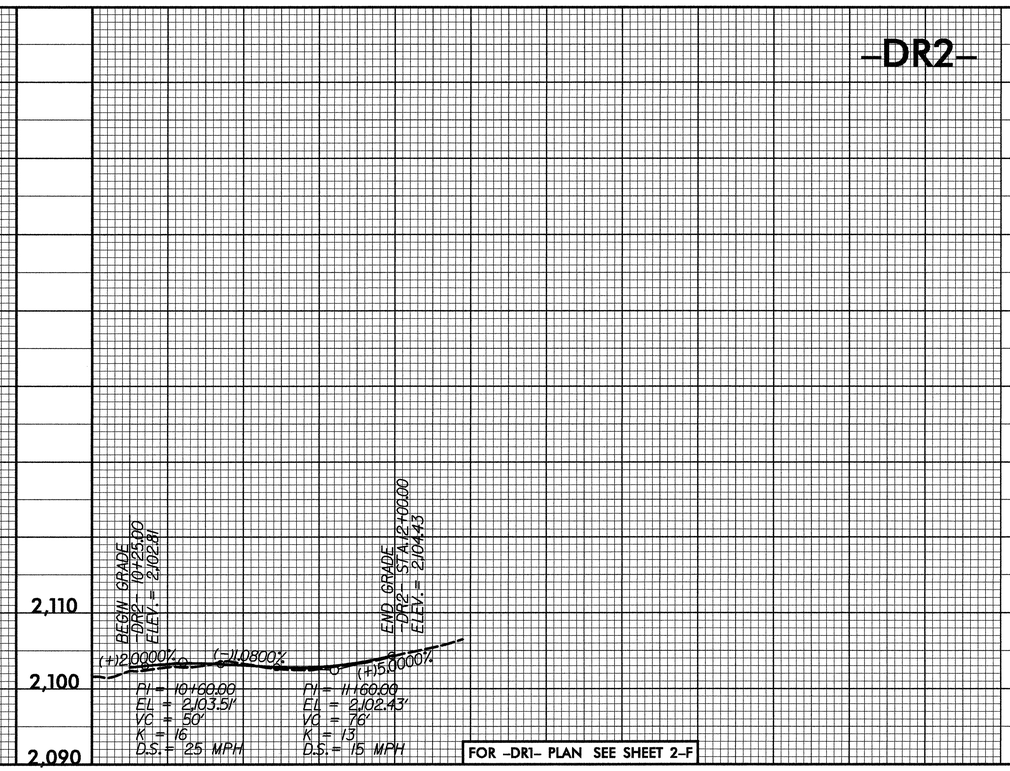
FOR -Y5A- PLAN SEE SHEET 7

-DR1-



FOR -DR1- PLAN SEE SHEET 2-F

-DR2-



FOR -DR1- PLAN SEE SHEET 2-F

8/10/2012
C:\Pwworking\Proj\r5000\rdy_pfl.dgn