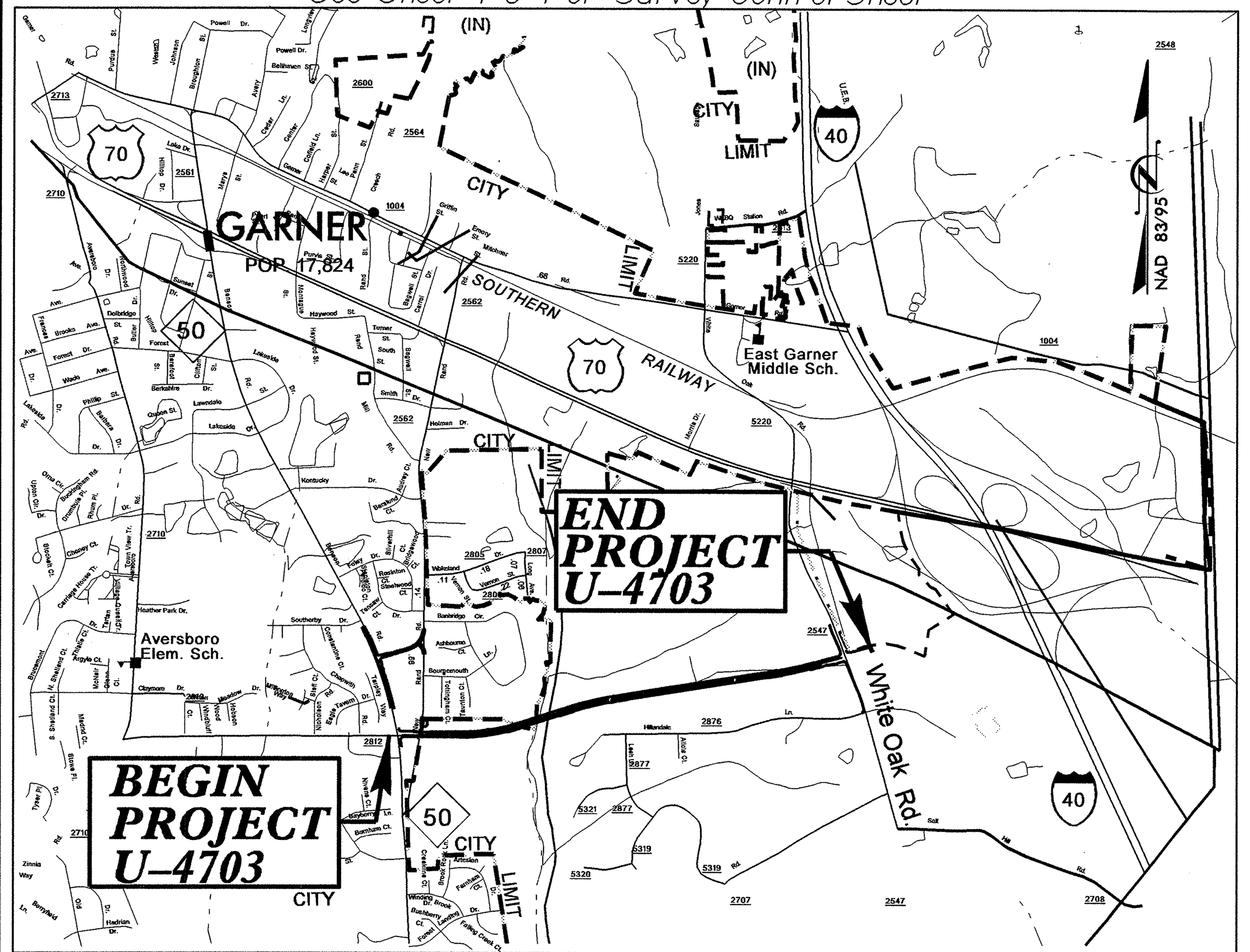
TIP PROJECT: U-4703

CONTRACT: C202379

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols
See Sheet 1-C For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

LOCATION: TIMBER DRIVE EAST EXTENSION (SR 2812) FROM NC 50 TO WHITE OAK ROAD (SR 2547) IN GARNER

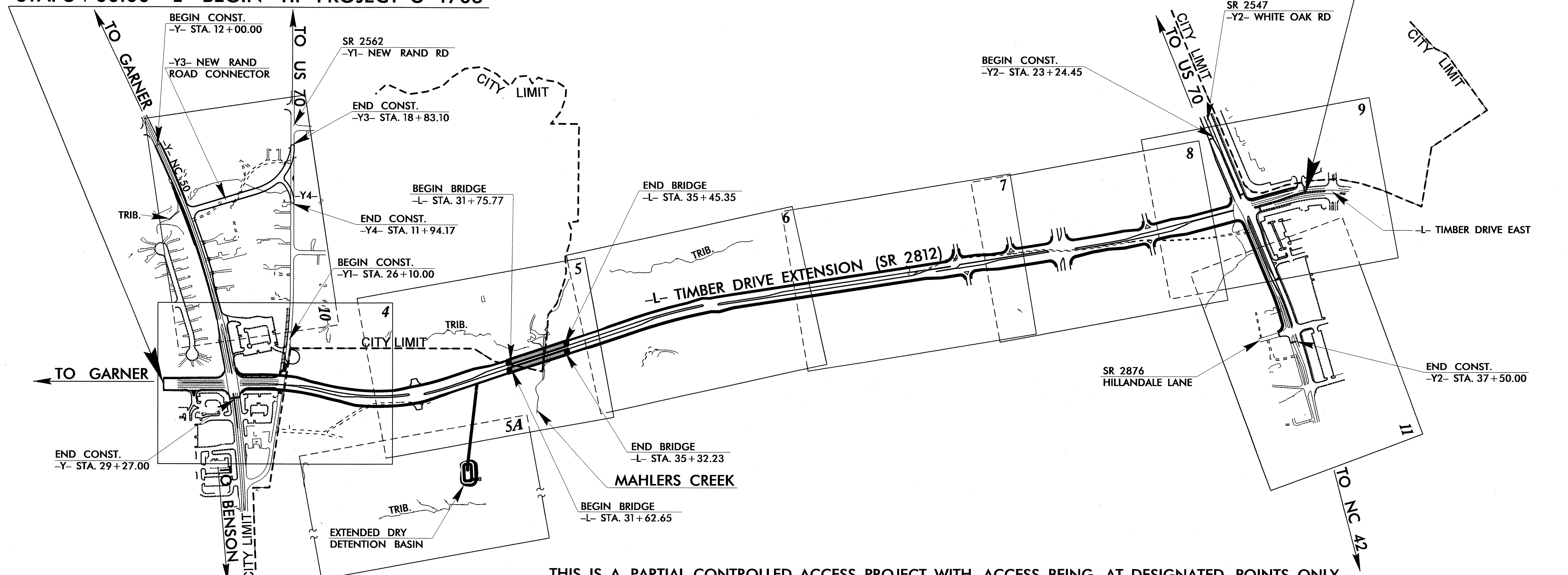
TYPE OF WORK: GRADING, DRAINAGE, WIDENING, PAVING, CURB & GUTTER, STRUCTURES, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	U-4703		1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION		
35871.1.1	STP-0508(2)	PE		
35871.2.1	STP-0508(2)	R/W & UTILITIES		
35871.3.1	STPDA-0508(3)	CONST.		

NAD 83/95

STA. 8+00.00 -L- BEGIN TIP PROJECT U-4703

STA. 84+50.00 -L- END TIP PROJECT U-4703



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING AT DESIGNATED POINTS ONLY.

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 2010 = 15,840
ADT 2030 = 24,000
DHV = 10 %
D = 55 %
T = 6 % *
V = 50 MPH
* TTST 2% DUAL 4%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4703 = 1.379 mi.
LENGTH STRUCTURE OF TIP PROJECT U-4703 = 0.070 mi.
TOTAL LENGTH OF TIP PROJECT U-4703 = 1.449 mi.

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 20, 2008

LETTING DATE:
MAY 18, 2010

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR
SIGNATURE: [illegible] P.E. 4/8/10

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR.
SIGNATURE: Daniel W. Gardner Jr P.E. 4/6/10

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Art McMillan P.E.
STATE HIGHWAY DESIGN ENGINEER

09/08/99
05-APR-2010 15:57
r:\roadway\proj\u-4703_rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4703	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR.

2/16/10

Daniel W. Gardner

INDEX OF SHEETS

GENERAL NOTES:

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

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 III.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

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

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 Sanitary Sewer-City of Raleigh,

Power (Distribution)-Progress Energy, Telephone-AT&T, CATV-Time Warner Cable,

Water-City of Raleigh, Gas-PSNC Energy

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 CONTRACT.

WHEELCHAIR RAMPS:

WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH STD. NO. 848.06

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast 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
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	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
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
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
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Wheelchair Ramp - Curb Cut
848.06	Wheelchair Ramp - Retrofitting of Existing Curb
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1′-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.01	Chain Link Fence - 4′, 5′ and 6′ High Fence
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

09/08/09

PROJECT REFERENCE NO.	SHEET NO.
U-4703	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

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
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- 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 Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

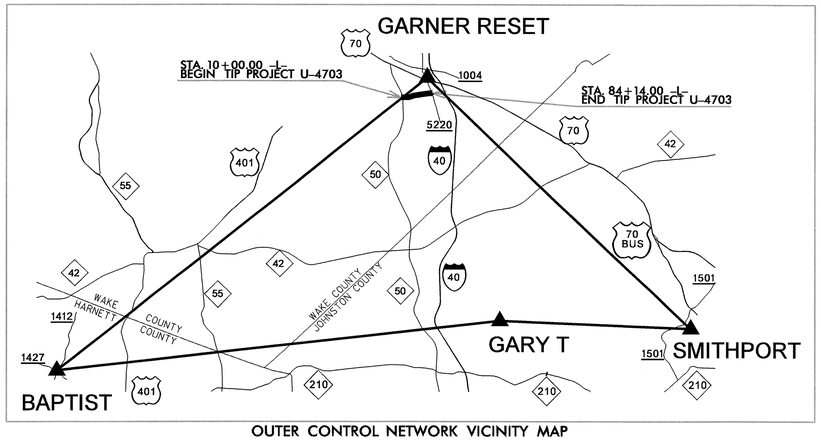
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

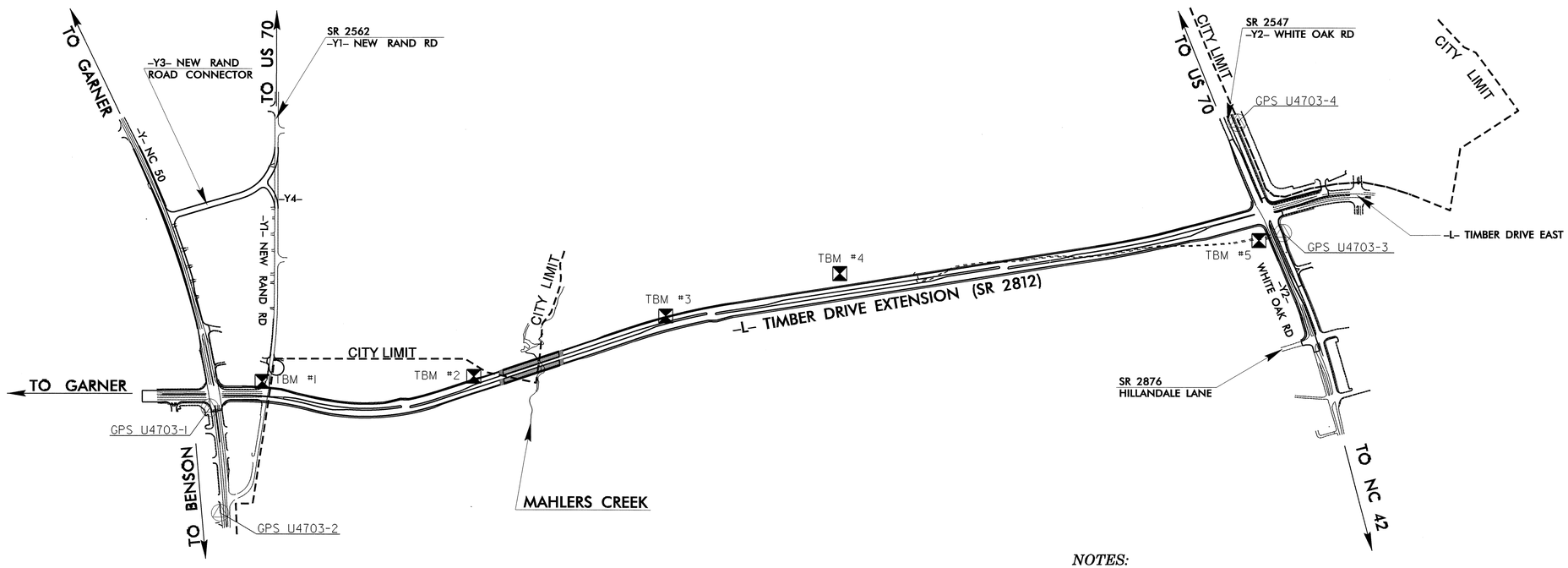
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
U-4703	1-C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET U-4703



OUTER CONTROL NETWORK VICINITY MAP



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT ""GPS U4703-1""
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 704853.110(ft) EASTING: 2117549.202(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999889590
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM ""GPS U4703-1"" TO -L- STATION 10+00.00 IS
N 75°30'52.3" W 309.28'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE : DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   U4703_LS_CONTROL_070918.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

PROJECT REFERENCE NO.	SHEET NO.
U-4703	1-D
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET U-4703

CONTROL DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	704964.3690	2117239.2060	323.97	OUTSIDE PROJECT LIMITS	
1	GPS U4703-1	704853.1100	2117549.2020	338.95	12+98.85	79.65 RT
102	BL-102	704988.9720	2117936.6140	338.38	16+80.71	63.46 LT
103	BL-103	704992.2580	2118313.3610	341.95	20+48.80	136.01 LT
104	BL-104	704952.7230	2118652.6410	328.42	24+21.65	106.49 LT
105	BL-105	704975.9720	2118997.4130	317.45	27+82.19	51.91 LT
106	BL-106	705027.0320	2119208.1950	303.72	29+98.27	33.35 LT
107	BL-107	705115.7830	2119487.6340	275.11	32+91.43	28.70 LT
108	BL-108	705180.5860	2119664.0860	270.77	34+79.32	34.07 LT
109	BL-109	705244.7220	2119894.3620	297.45	37+18.04	21.71 LT
110	BL-110	705316.0390	2120119.3010	310.07	39+53.99	17.85 LT
111	BL-111	705401.0190	2120384.0200	312.58	42+30.95	20.42 LT
112	BL-112	705520.8560	2120754.9440	315.13	46+15.19	57.79 LT
113	BL-113	705590.1030	2121091.1920	318.87	49+57.45	74.03 LT
114	BL-114	705666.8480	2121453.9780	341.89	53+27.74	93.83 LT
115	BL-115	705747.2000	2121906.6330	354.01	57+87.37	103.32 LT
116	BL-116	705801.6100	2122480.1170	348.58	63+62.38	68.52 LT
117	BL-117	705869.9470	2123259.0130	367.50	71+42.92	12.86 LT
118	BL-118	705907.2450	2123811.1670	377.02	76+87.21	77.82 RT
3	GPS U4703-3	705953.8160	2124241.6280	375.27	81+14.99	144.69 RT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
201	BY-201	706189.9320	2117242.3610	321.92	15+25.82	21.45 LT
200	BY-200	705428.8020	2117495.8650	330.36	23+25.76	20.21 LT
A1	GPS U4703-1	704853.1100	2117549.2020	338.95	29+02.05	41.04 RT
2	GPS U4703-2	704197.9460	2117613.0620	334.88	35+64.55	33.70 RT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
303	BY1-303	706394.0170	2117978.7930	340.45	14+31.05	15.16 LT
302	BY1-302	705846.7540	2117976.9850	343.45	19+78.31	14.02 LT
300	BY1-300	705407.6670	2117973.3800	344.54	24+16.74	14.38 LT
A102	BL-102	704988.9720	2117936.6140	338.38	28+35.18	27.56 LT
301	BY1-301	704635.8640	2117837.9090	340.04	31+99.39	12.04 RT

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
4	GPS U4703-4	706639.3220	2123957.5760	381.33	22+40.15	55.36 LT
A3	GPS U4703-3	705953.8160	2124241.6280	375.27	29+82.17	52.21 LT
400	BY2-400	705357.1460	2124470.2720	378.51	36+18.10	40.51 LT
401	BY2-401	704701.7500	2124640.4260	361.05	42+92.16	34.12 LT

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
A303	BY1-303	706394.0170	2117978.7930	340.45	18+02.58	26.37 RT
202	BY3-202	706323.8170	2117653.8720	324.65	14+40.29	162.53 LT
A201	BY-201	706189.9320	2117242.3610	321.92	10+07.69	151.48 LT

BENCHMARK DATA

```
**************************************
10       ELEVATION = 341.67
N 705018      E 2117875
L STATION 16+20 88 LEFT
TBM 1  RR SPIKE IN BASE OF 24" PINE
**************************************
**************************************
11       ELEVATION = 306.53
N 705053      E 2119195
L STATION 29+94 62 LEFT
TBM 2  RR SPIKE IN BASE OF 14" OAK
**************************************
**************************************
12       ELEVATION = 312.81
N 705434      E 2120392
L STATION 42+47 50 LEFT
TBM 3  RR SPIKE IN BASE OF 16" PINE
**************************************
**************************************
13       ELEVATION = 345.98
N 705699      E 2121478
L STATION 53+56 122 LEFT
TBM 4  RR SPIKE IN BASE OF 48" OAK
**************************************
**************************************
14       ELEVATION = 373.79
N 705906      E 2124092
L STATION 79+58 152 RIGHT
TBM 5  RR SPIKE IN BASE OF 24" PINE
**************************************
```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT ""GPS U4703-1"" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 704853.110(ft) EASTING: 2117549.202(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999889590 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM ""GPS U4703-1"" TO -L- STATION 10+00.00 IS N 75°30'52.3" W 309.28' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

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PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

PROJ. REFERENCE NO.	SHEET NO.
U-4703	1-E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	10+00.00	704930.4719	2117249.7525
2	L	10+50.00	704930.8544	2117299.7510
3	L	11+00.00	704931.2369	2117349.7496
4	L	11+50.00	704931.6194	2117399.7481
5	L	12+00.00	704932.0019	2117449.7467
6	L	12+50.00	704932.3844	2117499.7452
7	L	13+00.00	704932.7669	2117549.7437
8	L	13+50.00	704933.1494	2117599.7423
9	L	14+00.00	704933.5319	2117649.7408
10	L	14+50.00	704933.9144	2117699.7393
11	L	15+00.00	704934.2969	2117749.7379
12	L	15+50.00	704933.9483	2117799.7347
13	L	16+00.00	704932.0761	2117849.6977
14	L	16+50.00	704928.6817	2117899.5804
15	L	17+00.00	704923.7684	2117949.3365
16	L	17+50.00	704917.3406	2117998.9197
17	L	18+00.00	704909.4043	2118048.2838
18	L	18+50.00	704899.9670	2118097.3831
19	L	19+00.00	704889.0373	2118146.1720
20	L	19+50.00	704877.1253	2118194.7316
21	L	20+00.00	704866.6085	2118243.6104
22	L	20+50.00	704857.8044	2118292.8266
23	L	21+00.00	704850.7239	2118342.3202
24	L	21+50.00	704845.3754	2118392.0308
25	L	22+00.00	704841.7655	2118441.8977
26	L	22+50.00	704839.8986	2118491.8603
27	L	23+00.00	704839.7770	2118541.8576
28	L	23+50.00	704841.4009	2118591.8287
29	L	24+00.00	704844.7682	2118641.7127
30	L	24+50.00	704849.8748	2118691.4486
31	L	25+00.00	704856.7146	2118740.9760
32	L	25+50.00	704865.2792	2118790.2345
33	L	26+00.00	704875.5581	2118839.1639
34	L	26+50.00	704887.5389	2118887.7047
35	L	27+00.00	704901.2068	2118935.7977
36	L	27+50.00	704916.5218	2118983.3921
37	L	28+00.00	704932.4105	2119030.8004
38	L	28+50.00	704948.2992	2119078.2088
39	L	29+00.00	704964.1879	2119125.6171
40	L	29+50.00	704980.0765	2119173.0254
41	L	30+00.00	704995.9652	2119220.4338
42	L	30+50.00	705011.8539	2119267.8421
43	L	31+00.00	705027.7426	2119315.2504
44	L	31+50.00	705043.6313	2119362.6587
45	L	32+00.00	705059.5200	2119410.0671
46	L	32+50.00	705075.4087	2119457.4754
47	L	33+00.00	705091.2974	2119504.8837
48	L	33+50.00	705107.1861	2119552.2921
49	L	34+00.00	705123.0747	2119599.7004
50	L	34+50.00	705138.9634	2119647.1087
51	L	35+00.00	705154.8521	2119694.5170
52	L	35+50.00	705170.7408	2119741.9254
53	L	36+00.00	705186.6295	2119789.3337
54	L	36+50.00	705202.5182	2119836.7420
55	L	37+00.00	705218.4069	2119884.1504
56	L	37+50.00	705234.2956	2119931.5587
57	L	38+00.00	705250.1843	2119978.9670
58	L	38+50.00	705266.0729	2120026.3753
59	L	39+00.00	705281.9616	2120073.7837
60	L	39+50.00	705297.8503	2120121.1920
61	L	40+00.00	705313.7390	2120168.6003
62	L	40+50.00	705329.4774	2120216.0585
63	L	41+00.00	705344.6222	2120263.7093
64	L	41+50.00	705359.1420	2120311.5543
65	L	42+00.00	705373.0344	2120359.5852
66	L	42+50.00	705386.2969	2120407.7938
67	L	43+00.00	705398.9272	2120456.1718
68	L	43+50.00	705410.9233	2120504.7111
69	L	44+00.00	705422.2831	2120553.4032
70	L	44+50.00	705433.0045	2120602.2398
71	L	45+00.00	705443.0859	2120651.2126
72	L	45+50.00	705452.5254	2120700.3131
73	L	46+00.00	705461.3214	2120749.5329
74	L	46+50.00	705469.4724	2120798.8637
75	L	47+00.00	705477.2024	2120848.2626
76	L	47+50.00	705484.9236	2120897.6628
77	L	48+00.00	705492.6447	2120947.0630
78	L	48+50.00	705500.3659	2120996.4633
79	L	49+00.00	705508.0870	2121045.8635
80	L	49+50.00	705515.8082	2121095.2638
81	L	50+00.00	705523.5293	2121144.6640
82	L	50+50.00	705531.2505	2121194.0642
83	L	51+00.00	705538.9716	2121243.4645
84	L	51+50.00	705546.6928	2121292.8647
85	L	52+00.00	705554.4139	2121342.2650
86	L	52+50.00	705562.1351	2121391.6652
87	L	53+00.00	705569.8562	2121441.0654
88	L	53+50.00	705577.5774	2121490.4657
89	L	54+00.00	705585.2985	2121539.8659
90	L	54+50.00	705593.0197	2121589.2662
91	L	55+00.00	705600.7408	2121638.6664
92	L	55+50.00	705608.4620	2121688.0667
93	L	56+00.00	705616.1831	2121737.4669
94	L	56+50.00	705623.9043	2121786.8671
95	L	57+00.00	705631.6254	2121836.2674
96	L	57+50.00	705639.3466	2121885.6676
97	L	58+00.00	705647.0677	2121935.0679
98	L	58+50.00	705654.7889	2121984.4681
99	L	59+00.00	705662.5100	2122033.8683
100	L	59+50.00	705670.2312	2122083.2686
101	L	60+00.00	705677.9523	2122132.6688
102	L	60+50.00	705685.6735	2122182.0691
103	L	61+00.00	705693.3946	2122231.4693
104	L	61+50.00	705701.1158	2122280.8696
105	L	62+00.00	705708.8369	2122330.2698
106	L	62+50.00	705716.5581	2122379.6700
107	L	63+00.00	705724.2792	2122429.0703
108	L	63+50.00	705732.0004	2122478.4705
109	L	64+00.00	705739.7215	2122527.8708
110	L	64+50.00	705747.4427	2122577.2710
111	L	65+00.00	705755.1638	2122626.6712
112	L	65+50.00	705762.8850	2122676.0715
113	L	66+00.00	705770.6061	2122725.4717
114	L	66+50.00	705778.3272	2122774.8720
115	L	67+00.00	705786.0484	2122824.2722
116	L	67+50.00	705793.7695	2122873.6725
117	L	68+00.00	705801.4907	2122923.0727
118	L	68+50.00	705809.2118	2122972.4729
119	L	69+00.00	705816.9330	2123021.8732
120	L	69+50.00	705824.6541	2123071.2734
121	L	70+00.00	705832.5166	2123120.6512
122	L	70+50.00	705840.7972	2123169.9606
123	L	71+00.00	705849.5026	2123219.1968
124	L	71+50.00	705858.6320	2123268.3561
125	L	72+00.00	705868.1849	2123317.4349
126	L	72+50.00	705878.1606	2123366.4295
127	L	73+00.00	705888.5582	2123415.3363
128	L	73+50.00	705899.3771	2123464.1516
129	L	74+00.00	705910.6163	2123512.8719
130	L	74+50.00	705922.2752	2123561.4934
131	L	75+00.00	705934.3527	2123610.0127
132	L	75+50.00	705946.8481	2123658.4260
133	L	76+00.00	705959.7400	2123706.7353
134	L	76+50.00	705972.7301	2123755.0184
135	L	77+00.00	705985.7202	2123803.3015
136	L	77+50.00	705998.7103	2123851.5846
137	L	78+00.00	706011.7004	2123899.8677
138	L	78+50.00	706024.6905	2123948.1508
139	L	79+00.00	706037.6806	2123996.4339
140	L	79+50.00	706050.6707	2124044.7170
141	L	80+00.00	706063.6608	2124093.0001
142	L	80+50.00	706076.6509	2124141.2832
143	L	81+00.00	706089.6410	2124189.5663
144	L	81+50.00	706102.6311	2124237.8493
145	L	82+00.00	706115.6212	2124286.1324
146	L	82+50.00	706128.6113	2124334.4155
147	L	83+00.00	706141.6014	2124382.6986
148	L	83+50.00	706154.0969	2124431.1094
149	L	84+00.00	706164.4855	2124480.0138
150	L	84+50.00	706172.6233	2124529.3427
151	L	85+00.00	706178.4934	2124578.9925
152	L	85+50.00	706182.0835	2124628.8591
153	L	86+00.00	706183.3859	2124678.8377
154	L	86+50.00	706182.3980	2124728.8236
155	L	87+00.00	706179.1219	2124778.7118
156	L	87+50.00	706173.5644	2124828.3975
157	L	88+00.00	706165.7372	2124877.7767
158	L	88+41.08	706157.6191	2124918.0449

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR.

2/16/10

PAVEMENT DESIGN ENGINEER

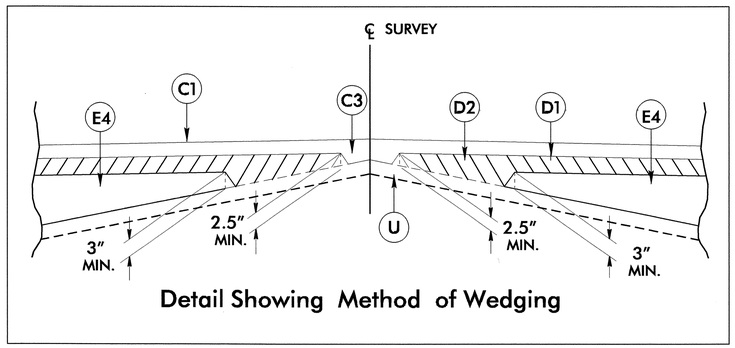
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DAVID CHEN

02/17/10

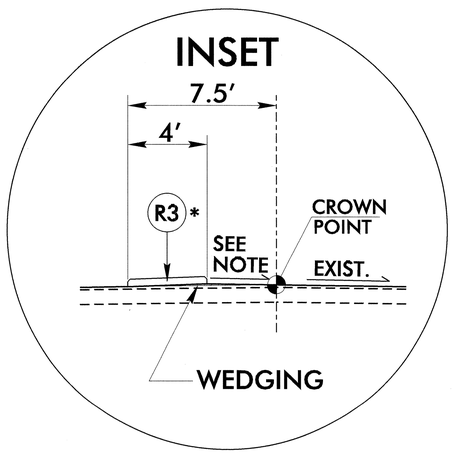
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	J2	PROP. 8" AGGREGATE BASE COURSE.
C2	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.	K	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8", AT A RATE OF 20 LBS. PER. SQ. YD. AS DIRECTED BY THE ENGINEER. OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7", AT A RATE OF 55 LBS. PER. SQ. YD. AS DIRECTED BY THE ENGINEER.
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.	R1	1'-6" CONCRETE CURB AND GUTTER.
D2	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.	R2	2'-6" CONCRETE CURB AND GUTTER.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN).
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK.
E3	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	T	EARTH MATERIAL.
E4	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 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	U	EXISTING PAVEMENT.
J1	PROP. 6" AGGREGATE BASE COURSE.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)
		Y	MILL EXISTING PAVEMENT TO A DEPTH OF 0" TO 1½" AND TO A WIDTH OF 6'.

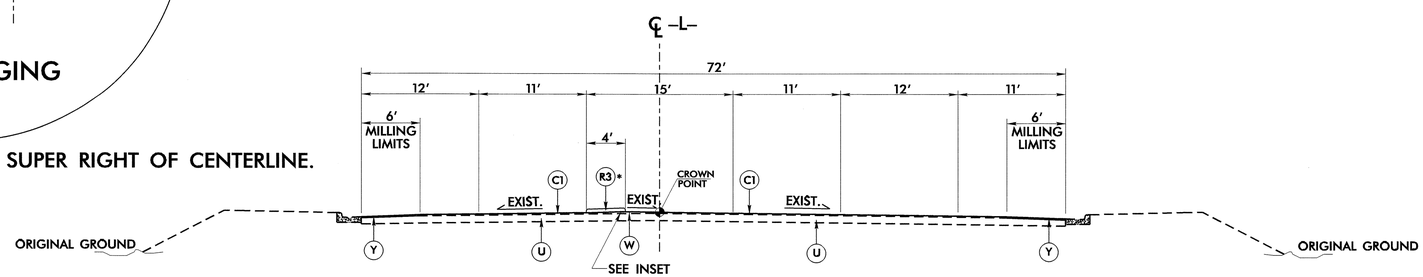
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging



NOTE: MATCH THE EXISTING SUPER RIGHT OF CENTERLINE.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 8+00.00 TO STA. 12+92.77
NOTE: MILL PAVEMENT TIE-IN
*NOTE: CONCRETE ISLAND –L– STA. 10+00.00 TO STA. 12+60.00

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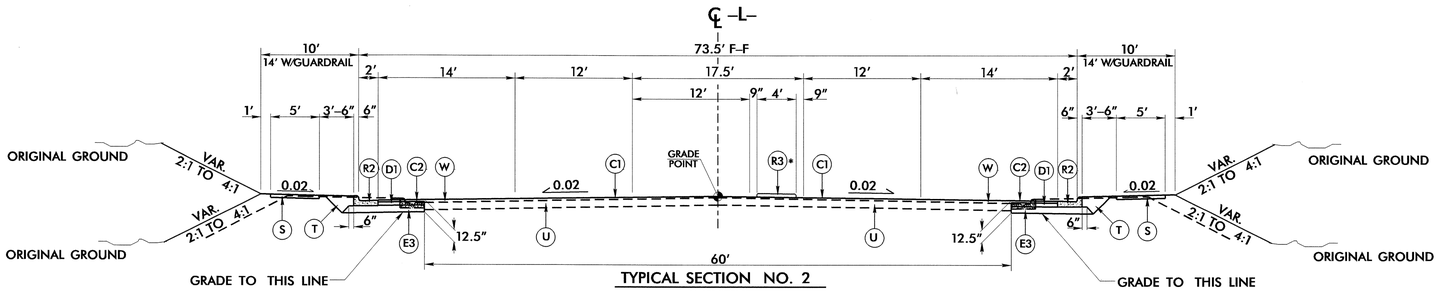
r:\roadway\pr0_u-4703_rdy_typ.dgn
$$$$USERNAME$$$$

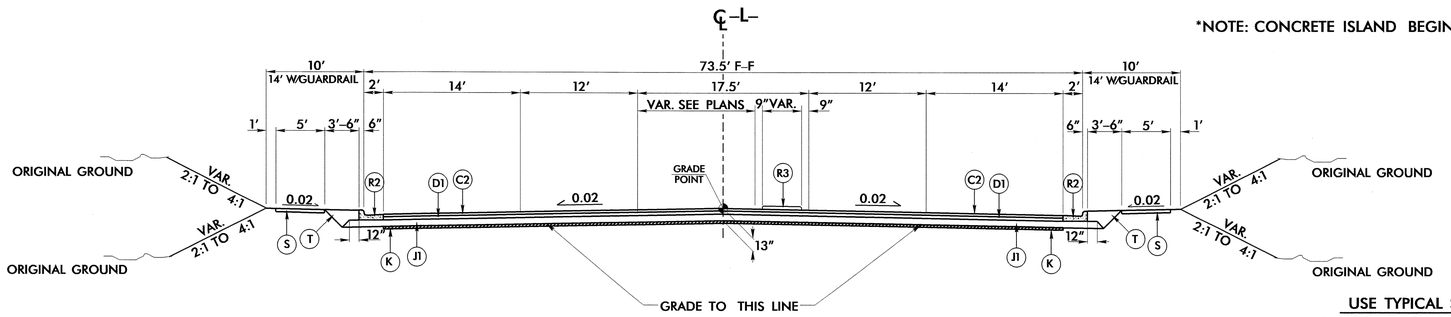
6/2/99



TYPICAL SECTION NO. 2

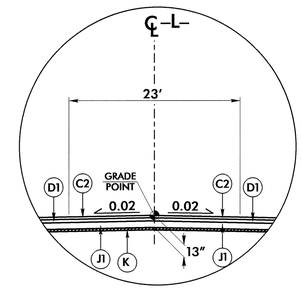
USE TYPICAL SECTION NO. 2
–L– STA. 13+61.48 TO STA. 16+34.98

*NOTE: CONCRETE ISLAND BEGINS AT –L– STA. 13+90.00

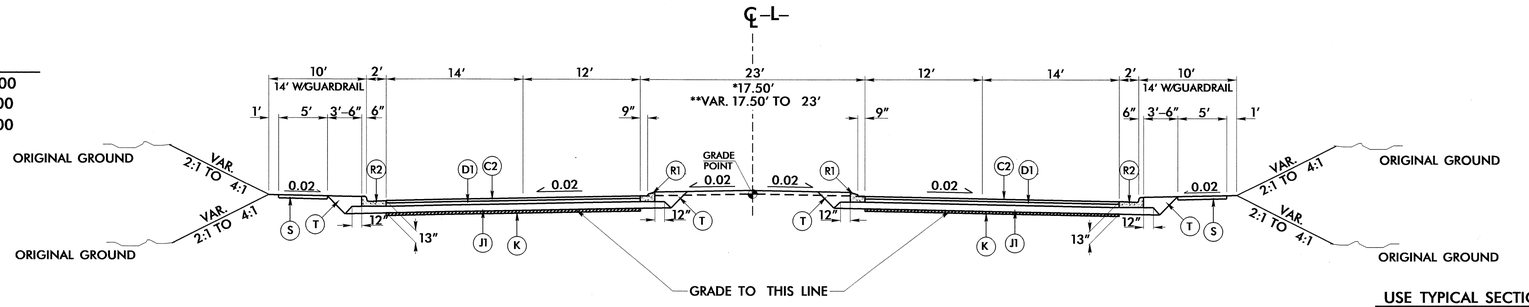


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
–L– STA. 16+34.98 TO STA. 17+64.86



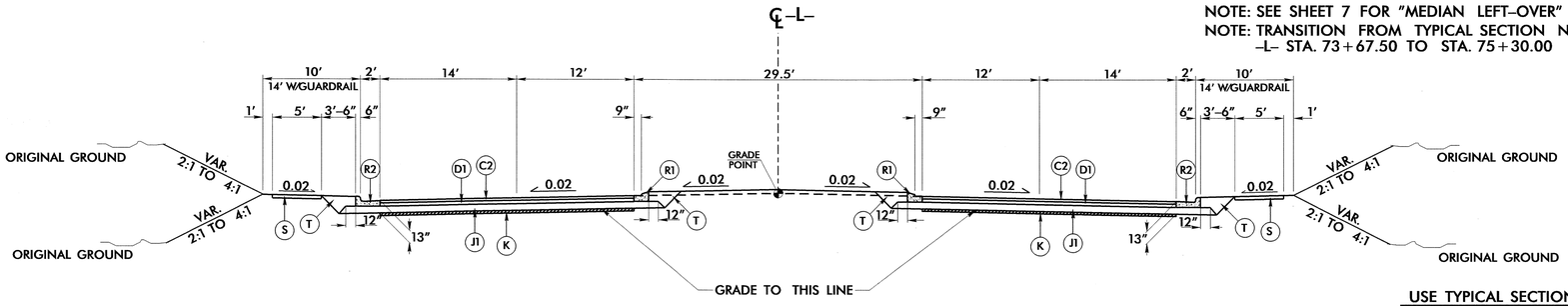
USE WITH TYPICAL SECTION NO. 4
–L– STA. 24+84.00 TO STA. 25+76.00
–L– STA. 44+79.00 TO STA. 45+71.00
–L– STA. 67+43.00 TO STA. 69+18.00



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
*–L– STA. 17+64.86 TO STA. 19+21.92
**–L– STA. 19+21.92 TO STA. 20+59.42
–L– STA. 20+59.42 TO STA. 31+69.16 (BEGIN BRIDGE)
–L– STA. 35+38.79 (END BRIDGE) TO STA. 73+67.50

NOTE: SEE SHEET 7 FOR "MEDIAN LEFT–OVER" DETAIL
NOTE: TRANSITION FROM TYPICAL SECTION NO. 4 TO TYPICAL SECTION NO. 5
–L– STA. 73+67.50 TO STA. 75+30.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
–L– STA. 75+30.00 TO STA. 76+60.87

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER
4/6/10

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DON-ERIC CHEEK
4/8/10

PAVEMENT SCHEDULE

C1	1½" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VAR. DEPTH TYPE S9.5B
D1	4" TYPE I19.0B
D2	VAR. DEPTH TYPE I19.0B
E1	4" TYPE B25.0B
E2	5" TYPE B25.0B
E3	5½" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	5" MONO. CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING
Y	MILLING EXISTING PAVEMENT

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-B

ROADWAY DESIGN ENGINEER

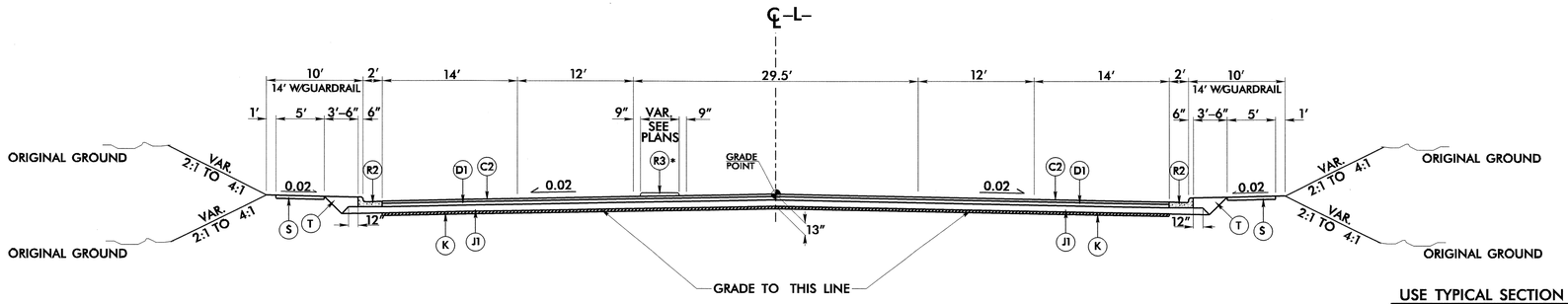
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER

2/16/10

PAVEMENT DESIGN ENGINEER

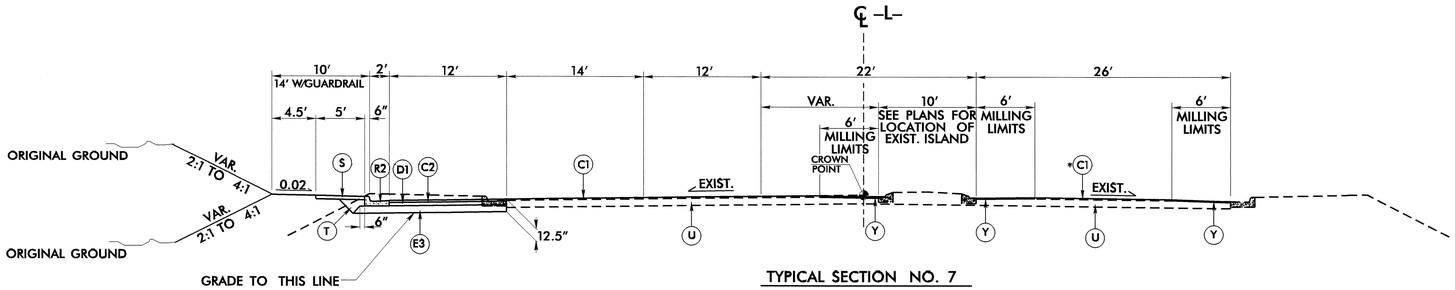
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER CHI CHEN

2/17/10



TYPICAL SECTION NO. 6

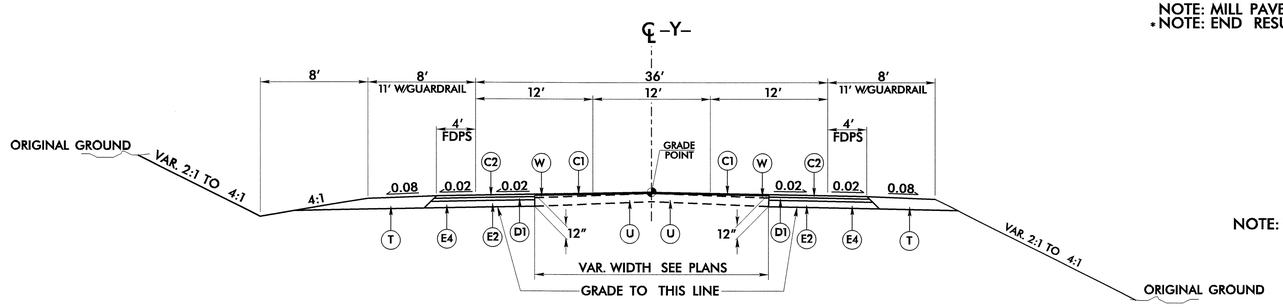
USE TYPICAL SECTION NO. 6
*–L– STA. 76+60.87 TO STA. 79+74.00
–L– STA. 79+74.00 TO STA. 80+15.13



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
–L– STA. 80+65.61 TO STA. 84+50.00

NOTE: MILL PAVEMENT TIE–IN
*NOTE: END RESURFACING –L– STA. 81+44.00 RT.

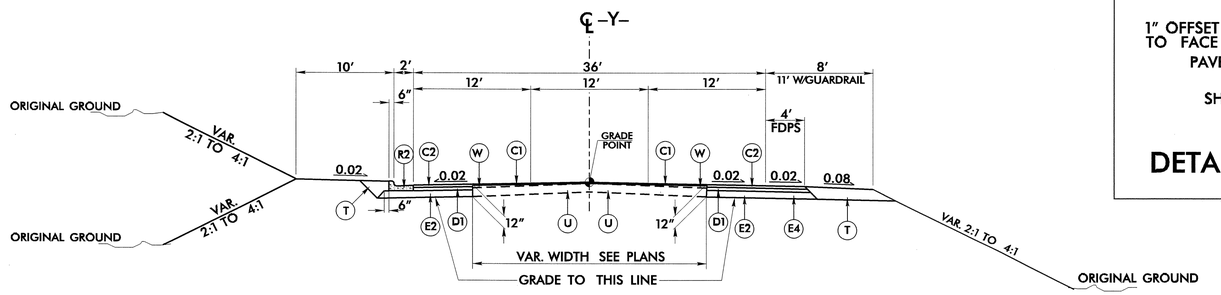


TYPICAL SECTION NO. 8

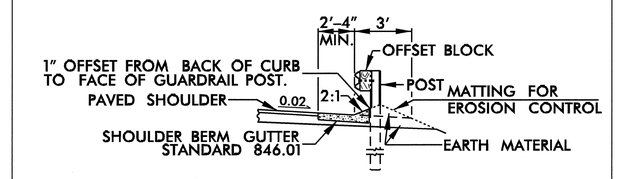
NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 8
–Y– STA. 12+00.00 TO STA. 13+00.00

USE TYPICAL SECTION NO. 8
–Y– STA. 13+00.00 TO STA. 16+13.51

NOTE: MILL PAVEMENT TIE–IN



TYPICAL SECTION NO. 9



DETAIL OF SHOULDER BERM GUTTER
SEE STD. 846.04

USE WITH TYPICAL SECTION NO. 8 AND NO. 9
–Y– STA. 15+00.00 TO STA. 19+00.00 RT.

USE TYPICAL SECTION NO. 9
–Y– STA. 16+13.51 TO STA. 24+00.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 9 TO TYPICAL SECTION NO. 10
–Y– STA. 24+00.00 TO STA. 25+29.45

PAVEMENT SCHEDULE

C1	1½″ TYPE S9.5B
C2	3″ TYPE S9.5B
C3	VAR. DEPTH TYPE S9.5B
D1	4″ TYPE I19.0B
D2	VAR. DEPTH TYPE I19.0B
E1	4″ TYPE B25.0B
E2	5″ TYPE B25.0B
E3	5½″ TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J1	6″ AGGREGATE BASE COURSE
J2	8″ AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
R1	1′-6″ CONCRETE CURB AND GUTTER
R2	2′-6″ CONCRETE CURB AND GUTTER
R3	5″ MONO. CONCRETE ISLAND (KEYED IN)
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING
Y	MILLING EXISTING PAVEMENT

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-C

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER

Daniel W. Gardner 2/16/10

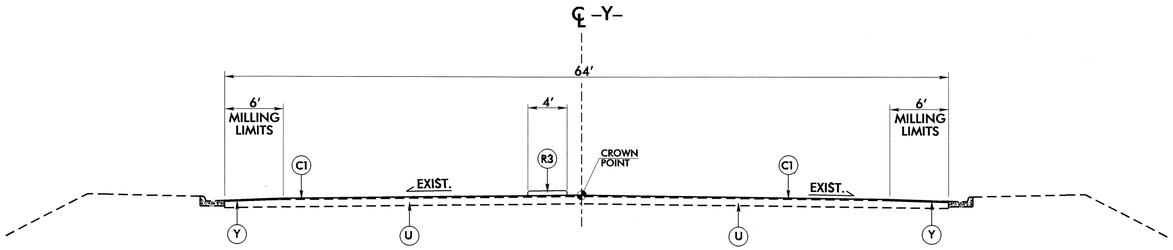
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DON CHI CHEN

Don Chi Chen 12/17/10

PAVEMENT SCHEDULE

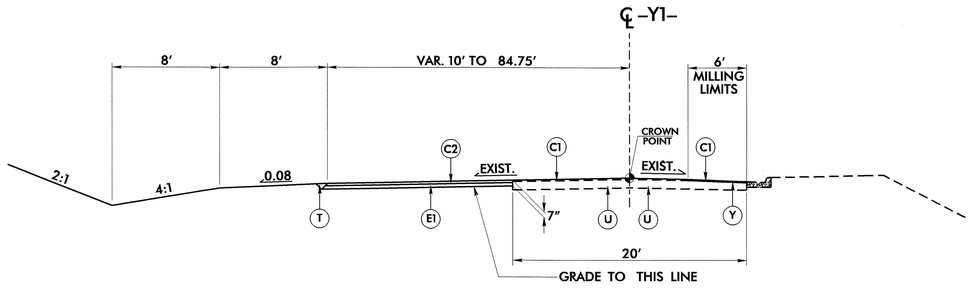
C1	1½" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VAR. DEPTH TYPE S9.5B
D1	4" TYPE I19.0B
D2	VAR. DEPTH TYPE I19.0B
E1	4" TYPE B25.0B
E2	5" TYPE B25.0B
E3	5½" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	5" MONO. CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING
Y	MILLING EXISTING PAVEMENT



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
–Y– STA. 25+29.45 TO STA. 29+27.00

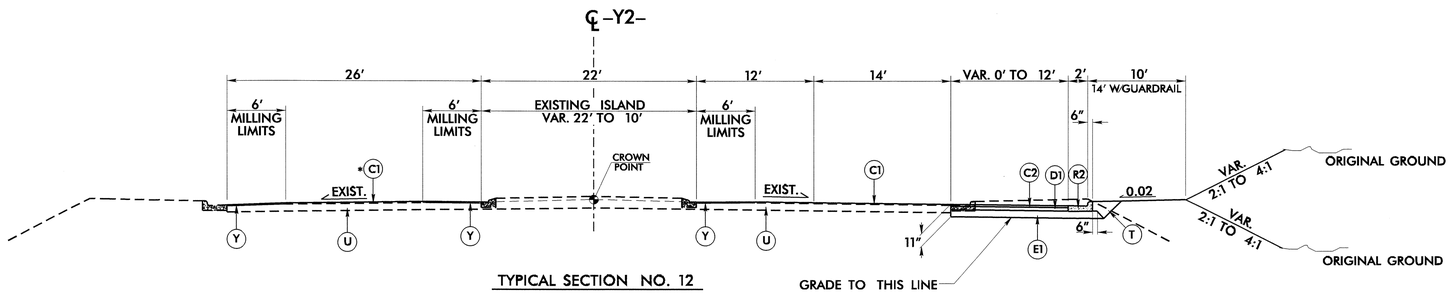
NOTE: MILL PAVEMENT TIE–IN
NOTE: REMOVE EXISTING CONCRETE ISLAND AND REPLACE WITH NEW 5" MONOLITHIC CONCRETE ISLAND AT SAME LOCATION. (–Y– STA. 25+21.00 TO STA. 27+60.00)



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11
–Y1– STA. 26+33.07 TO STA. 27+64.23

NOTE: MILL PAVEMENT TIE–IN
NOTE: SEE PLANS FOR LOCATION OF DRIVE OPENING.

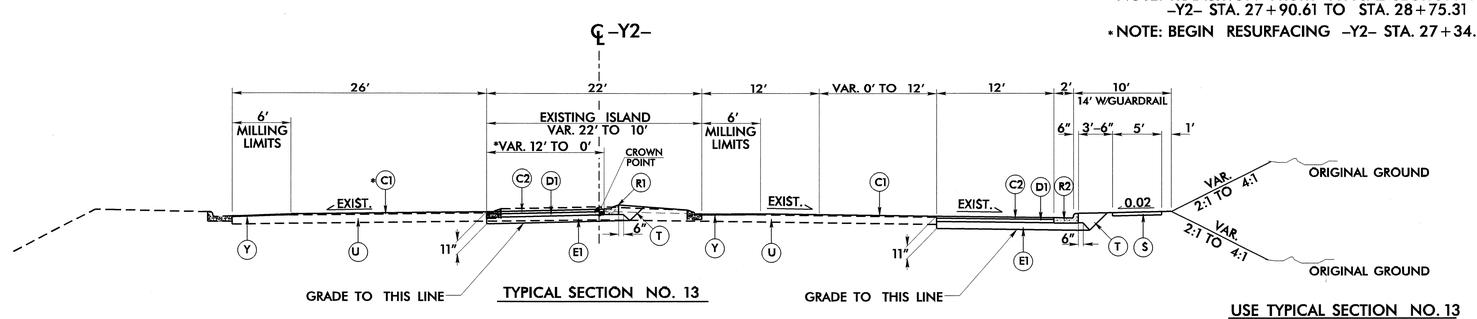


TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
–Y2– STA. 23+24.45 TO STA. 27+90.61

NOTE: MILL PAVEMENT TIE–IN
NOTE: TRANSITION FROM TYPICAL SECTION NO. 12 TO TYPICAL SECTION NO. 13
–Y2– STA. 27+90.61 TO STA. 28+75.31

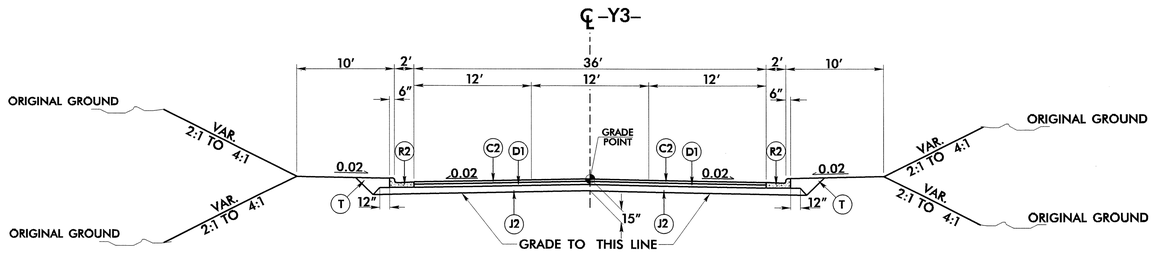
*NOTE: BEGIN RESURFACING **–Y2– STA. 27+34.00 LT.**



TYPICAL SECTION NO. 13

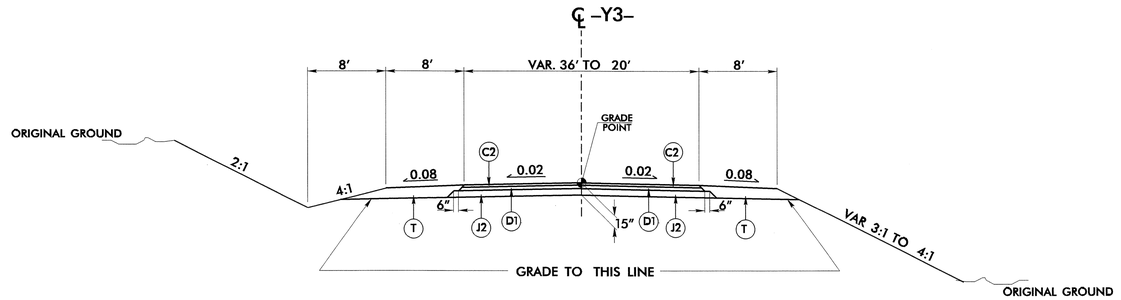
USE TYPICAL SECTION NO. 13
–Y2– STA. 28+75.31 TO STA. 37+50.00 RT.
***–Y2– STA. 28+75.31 TO STA. 33+30.00 LT.**

NOTE: MILL PAVEMENT TIE–IN



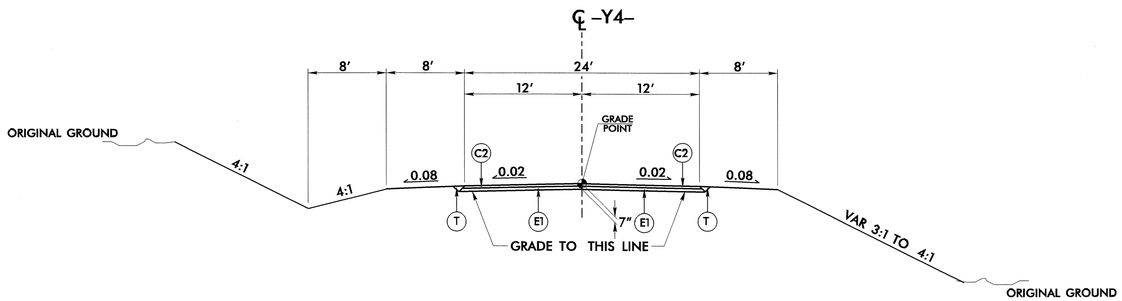
TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14
–Y3– STA. 10+85.09 TO STA. 17+63.10



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
–Y3– STA. 17+63.10 TO STA. 18+83.10
NOTE: MILL PAVEMENT TIE–IN



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16
–Y4– STA. 10+49.36 TO STA. 10+94.17

NOTE: MILL PAVEMENT TIE–IN
NOTE: TRANSITION FROM TYPICAL SECTION NO. 16 TO EXISTING
–Y4– STA. 10+94.17 TO STA. 11+94.17

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-D

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER
2/16/10

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DON CHI CHEN
02/17/10

PAVEMENT SCHEDULE

C1	1½" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VAR. DEPTH TYPE S9.5B
D1	4" TYPE I19.0B
D2	VAR. DEPTH TYPE I19.0B
E1	4" TYPE B25.0B
E2	5" TYPE B25.0B
E3	5½" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	5" MONO. CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING
Y	MILLING EXISTING PAVEMENT

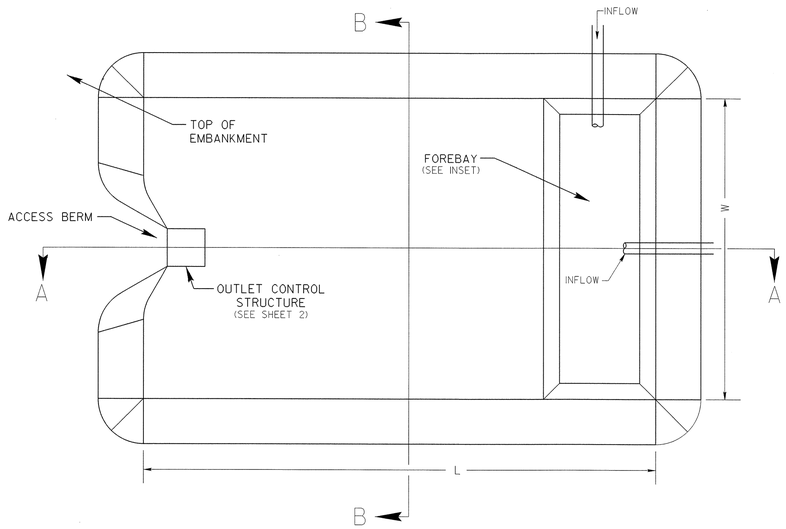
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-E

HYDRAULICS ENGINEER

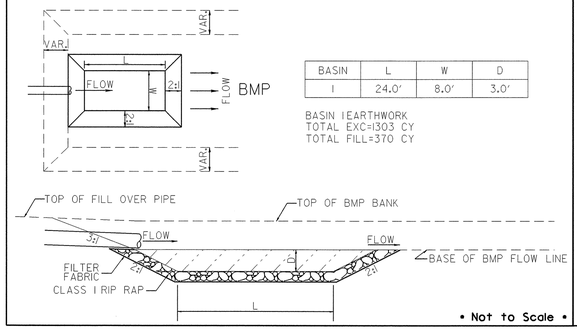
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR

2-18-10



PLAN

INSET
PARALLEL FOREBAY WITH PIPE INLET

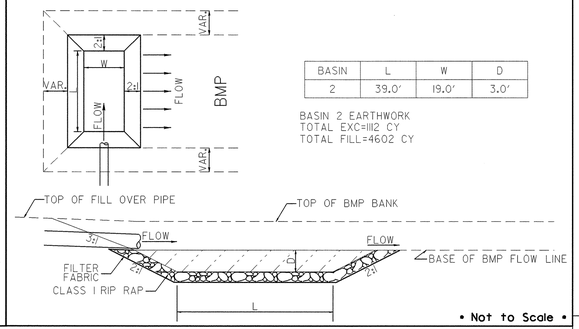


BASIN	L	W	D
1	24.0'	8.0'	3.0'

BASIN 1 EARTHWORK
TOTAL EXC=1303 CY
TOTAL FILL=370 CY

• Not to Scale •

INSET
PERPENDICULAR FOREBAY WITH PIPE INLET



BASIN	L	W	D
2	39.0'	19.0'	3.0'

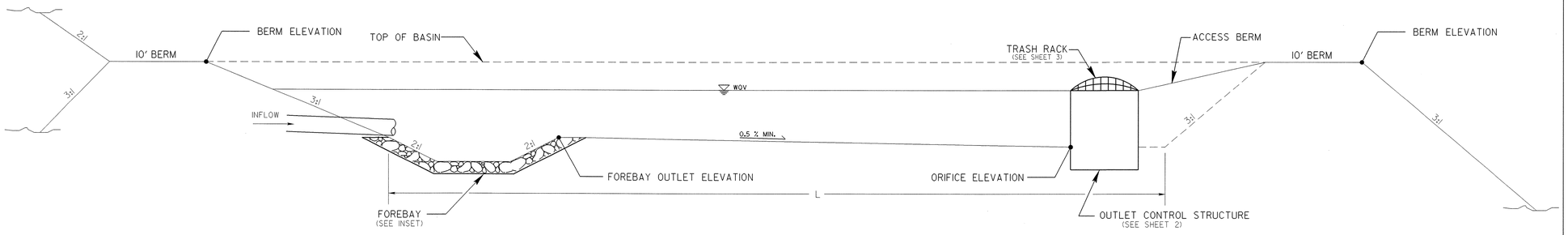
BASIN 2 EARTHWORK
TOTAL EXC=1112 CY
TOTAL FILL=4602 CY

• Not to Scale •

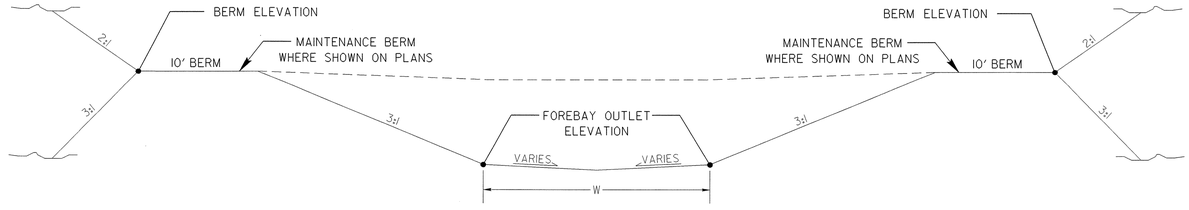
REFERENCED DRAWINGS

SHEET 2 - DRY DETENTION BASIN "OUTLET CONTROL STRUCTURE"
SHEET 3 - DRY DETENTION BASIN "TRASH RACKS"

PROFILE
SECTION A-A



PROFILE
SECTION B-B



BASIN	L	W	FOREBAY OUTLET ELEV.	ORIFICE ELEV.	BERM ELEV.
1	90.0'	30.0'	268.0	267.7	274.0
2	138.0	51.0'	292.0	290.2	298.0

NOT TO SCALE

DRY DETENTION BASIN
BASIN DETAILS

SHEET 1 OF 3

DRY DETENTION BASIN
BASIN DETAILS

SHEET 1 OF 3

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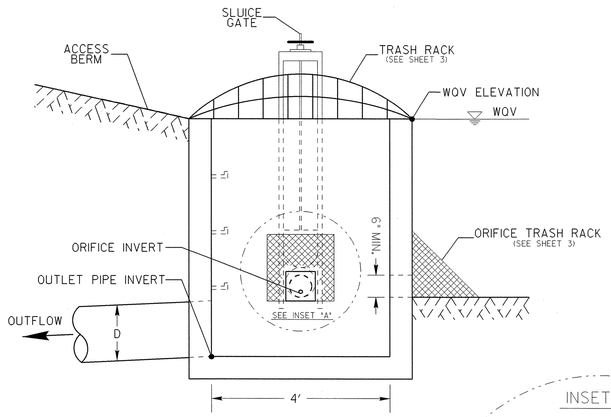
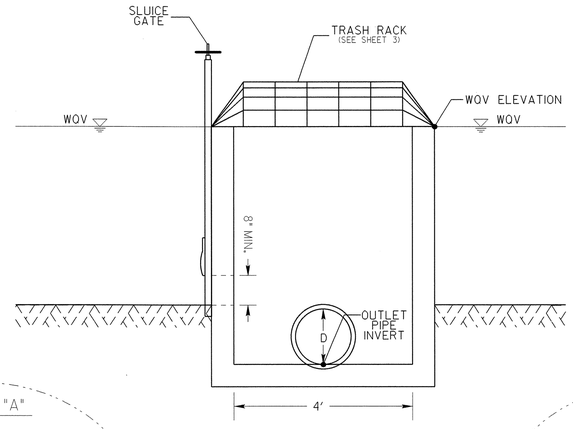
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-F

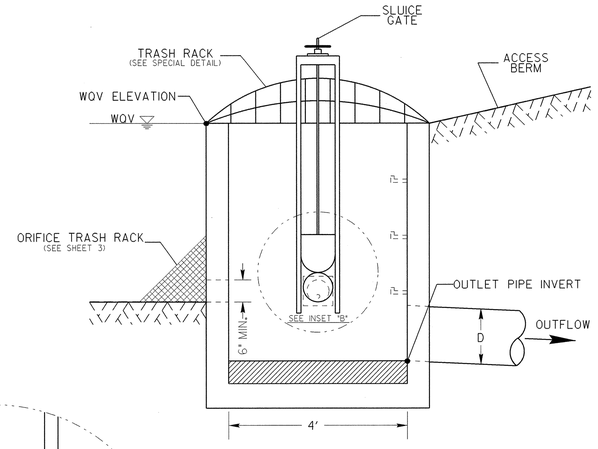
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR
2-18-10



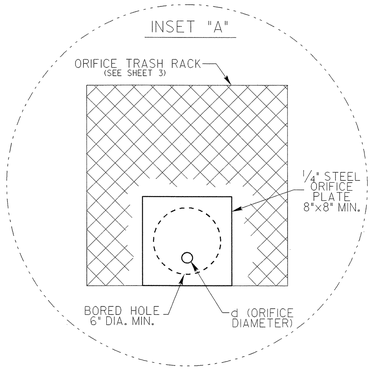
SIDE 1

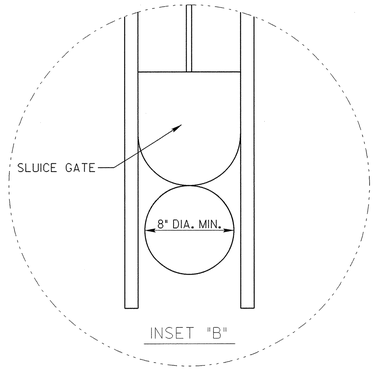


SIDE 2



SIDE 3





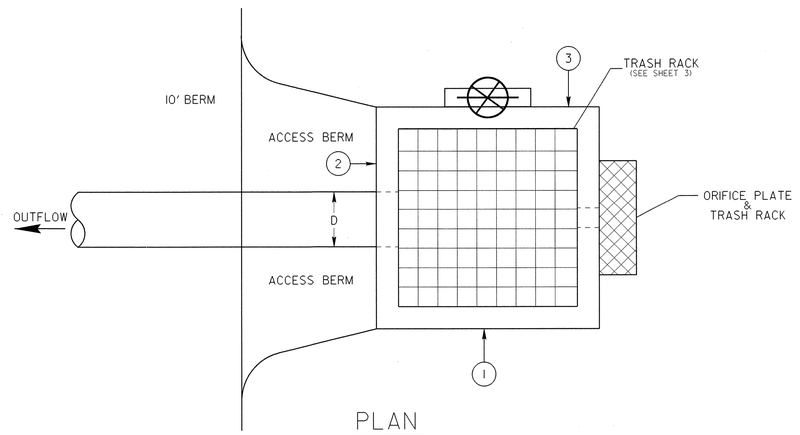
NOTES

1. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION.
2. FOR OUTLET STRUCTURE USE PRECAST DRAINAGE STRUCTURE STD. 840.45. PRECAST KNOCKOUT WALLS NOT ALLOWED. SOLID WALLS ONLY.

REFERENCED DRAWINGS

SHEET 1- DRY DETENTION BASIN "BASIN DETAILS"
SHEET 3 - DRY DETENTION BASIN "TRASH RACKS"

BASIN	-L- STATION	WQV ELEV.	ORIFICE INVERT	OUTLET PIPE INVERT	D (IN), OUTLET DIAMETER	d (IN), ORIFICE DIAMETER
1	27+00 RT	271.0	267.7	267.0	36"	1.25"
2	37+50 RT	295.0	290.2	289.0	36"	2.00"



PLAN

NOT TO SCALE

DRY DETENTION BASIN
OUTLET CONTROL STRUCTURE

SHEET 2 OF 3

DRY DETENTION BASIN
OUTLET CONTROL STRUCTURE

SHEET 2 OF 3

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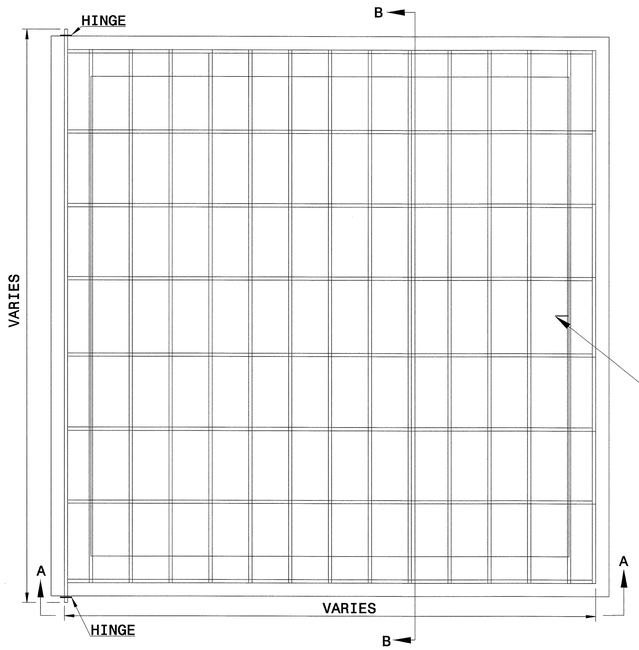
PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-G

HYDRAULICS ENGINEER

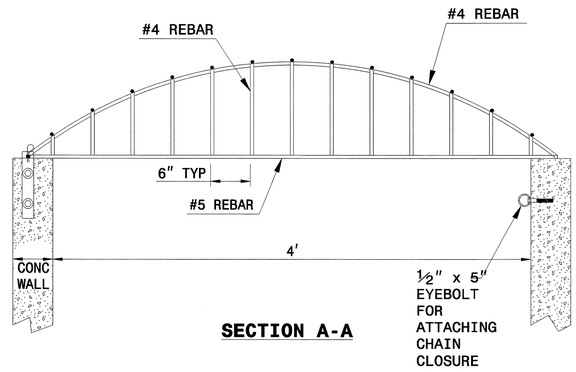
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR

2-18-10

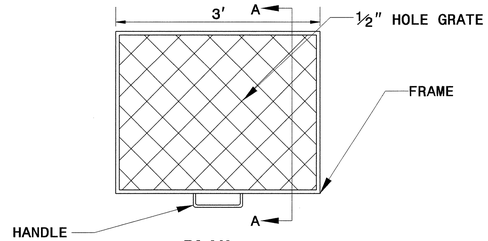


PLAN

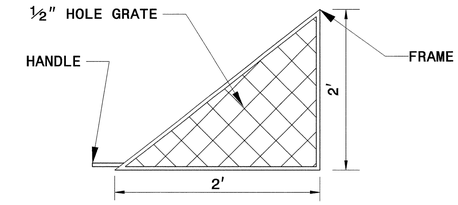
RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A ¼" BEAD.
2. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
3. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTMA153.



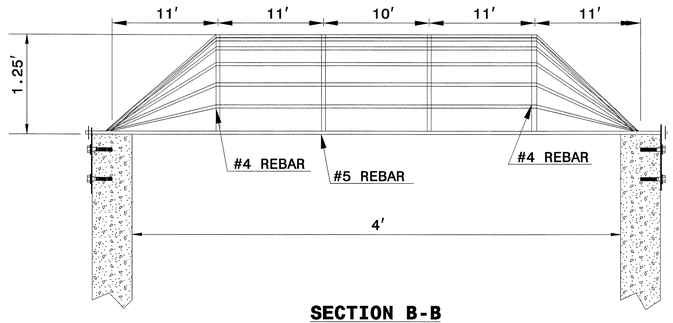
SECTION A-A



PLAN



SECTION A-A



SECTION B-B

ORIFICE TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A ¼" BEAD.
2. REMOVEABLE ORIFICE TRASH RACK SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
3. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM A153.

REMOVABLE ORIFICE TRASH RACK

REBAR TRASH RACK

*** NOT TO SCALE**

DRY DETENTION BASIN
TRASH RACKS

DRY DETENTION BASIN
TRASH RACKS

SHEET 3 OF 3

6/2/99

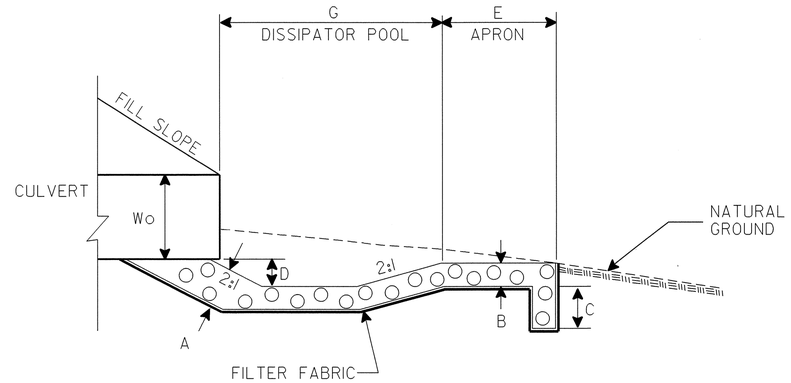
PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-H

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR
2-18-10

DIM.	RIP RAP BASIN # 1	2	3
A	2.0′	2.0′	2.0′
B	1.5′	1.5′	1.5′
C	2.0′	2.0′	0.0′
D	1.0′	1.0′	1.25′
E	4.5′	5.0′	6.5′
F	13.0′	13.0′	16.0′
G	9.5′	10.0′	12.5′

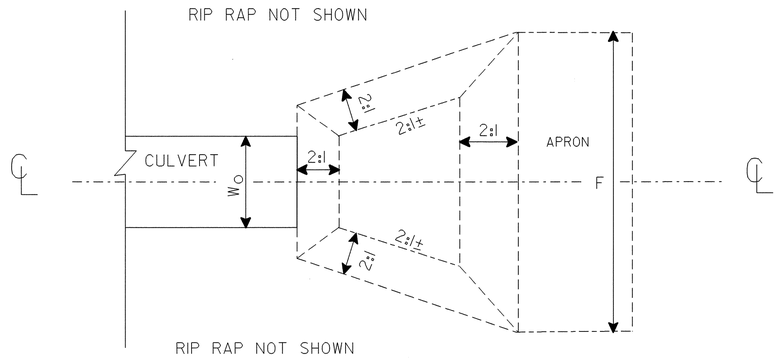
ALL DIMENSIONS APPROXIMATE

℄ SECTION



PLAN

BASIN #	LOCATION (AT OUTLET)
1	Sta 27+37 -L- (Rt)
2	Sta 34+59 -L- (Rt)
3	Sta 16+67.50 -Y- (Rt)



DETAIL OF RIP-RAPPED OUTLET ENERGY DISSIPATOR BASIN

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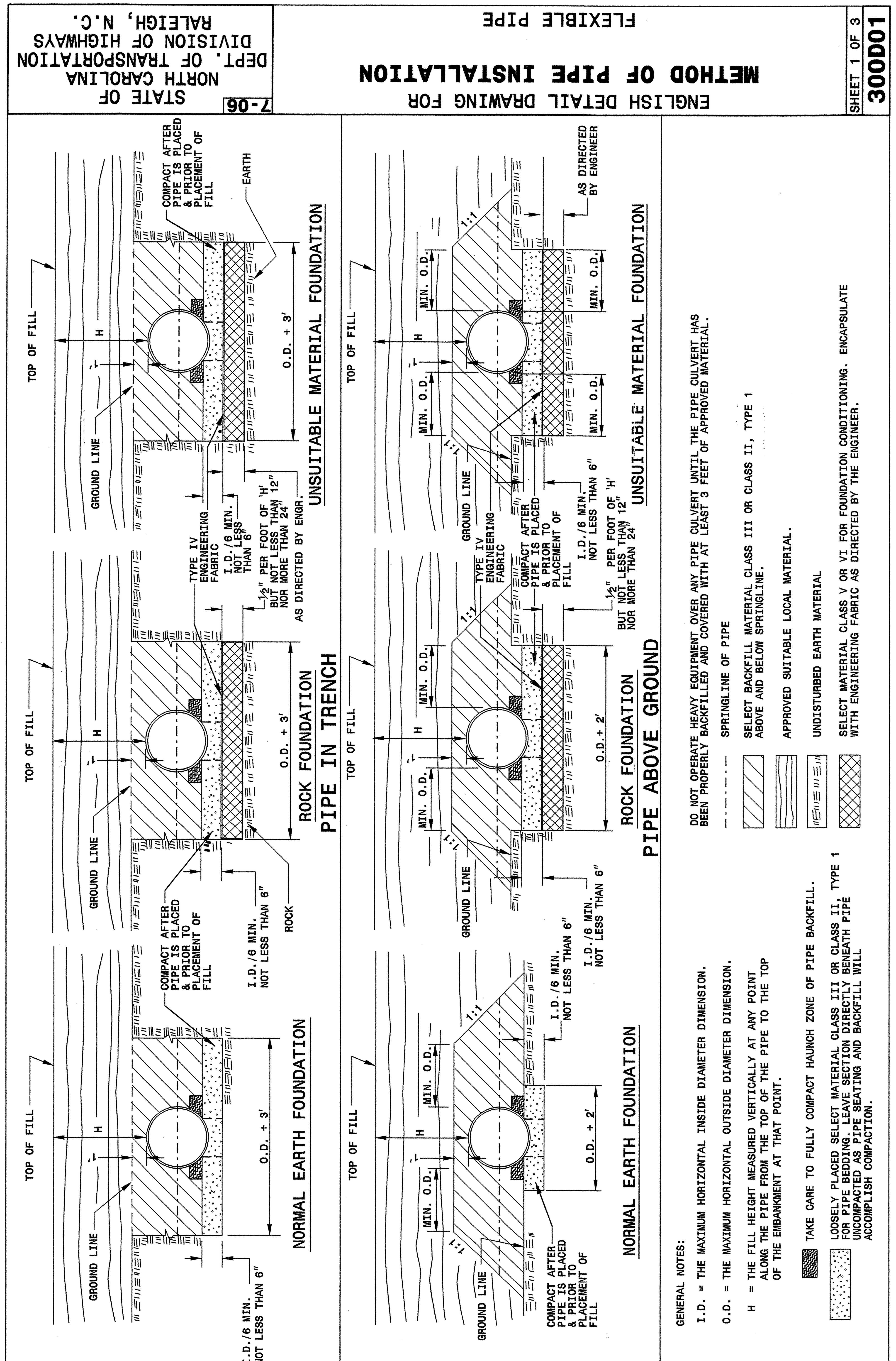
PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-1



TOP OF FILL
GROUND LINE
H
O.D. + 3'
O.D. + 2'
MIN. O.D.
1:1
COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL
EARTH
ROCK
AS DIRECTED BY ENGINEER
TYPE IV ENGINEERING FABRIC
I.D./6 MIN. NOT LESS THAN 6"
½" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24"
AS DIRECTED BY ENGR.
NORMAL EARTH FOUNDATION
ROCK FOUNDATION PIPE IN TRENCH
UNSUITABLE MATERIAL FOUNDATION
ROCK FOUNDATION PIPE ABOVE GROUND
GENERAL NOTES:
I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
SPRINGLINE OF PIPE
SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
APPROVED SUITABLE LOCAL MATERIAL.
UNDISTURBED EARTH MATERIAL
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

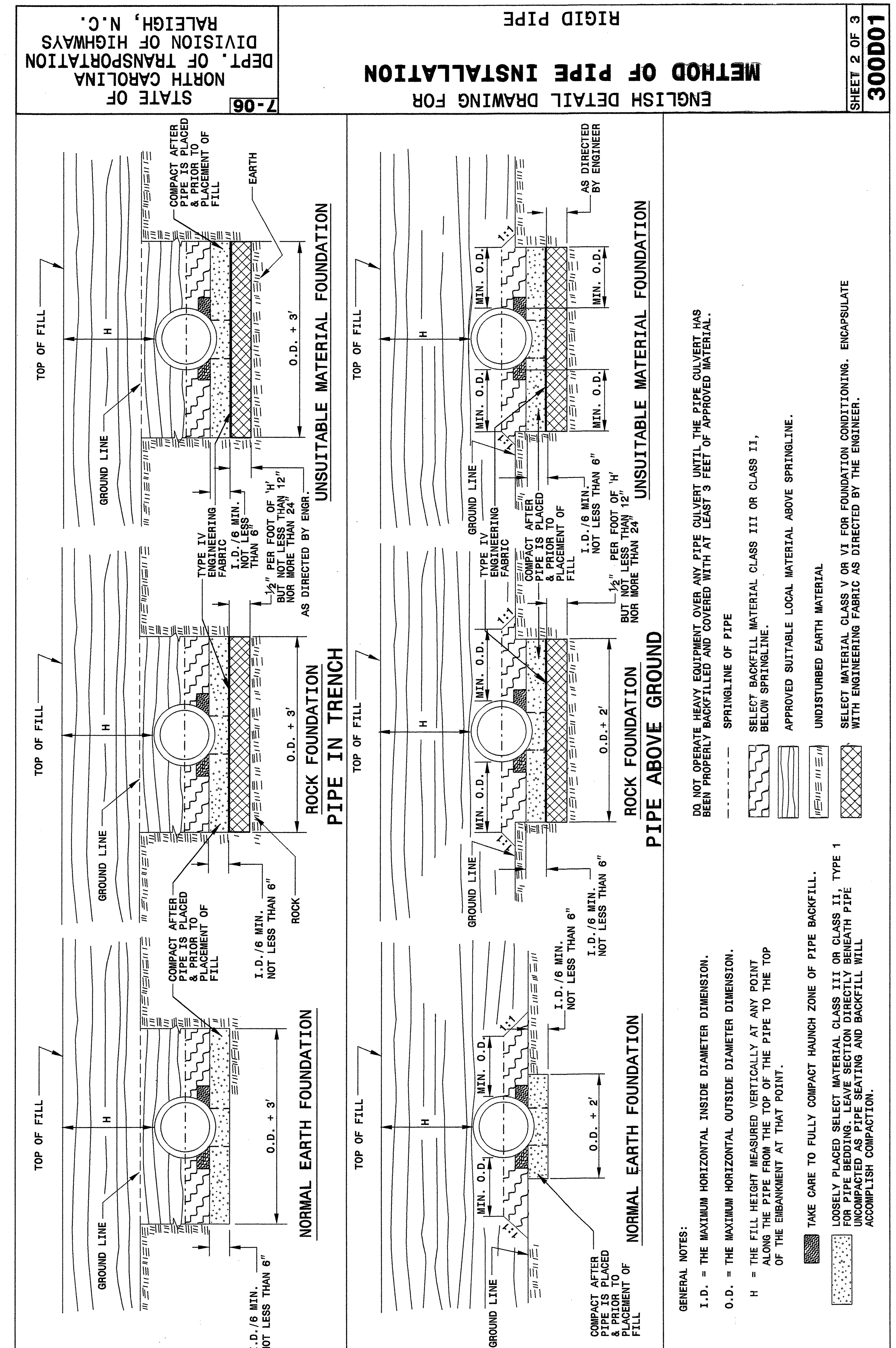
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3 300D01



TOP OF FILL
GROUND LINE
H
O.D. + 3'
O.D. + 2'
MIN. O.D.
1:1
COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL
EARTH
ROCK
AS DIRECTED BY ENGINEER
TYPE IV ENGINEERING FABRIC
I.D./6 MIN. NOT LESS THAN 6"
½" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24"
AS DIRECTED BY ENGR.
NORMAL EARTH FOUNDATION
ROCK FOUNDATION PIPE IN TRENCH
UNSUITABLE MATERIAL FOUNDATION
ROCK FOUNDATION PIPE ABOVE GROUND
GENERAL NOTES:
I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
SPRINGLINE OF PIPE
SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.
UNDISTURBED EARTH MATERIAL
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3 300D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOEL S. HOWERTON 2/19/10

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC: c:/ericward/stds/stdstodetails/30001/0300d01.dgn

5/14/99

30-JUL-2009 08:48
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jhowerton AT PS23750I

30-JUL-2009 08:49
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.jhowerton AT PS237501

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-J

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

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

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

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

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

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

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

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

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

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

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

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

RIGID PIPE

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

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

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

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

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

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

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022066 JOEL S. HOWERTON 2/19/10

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

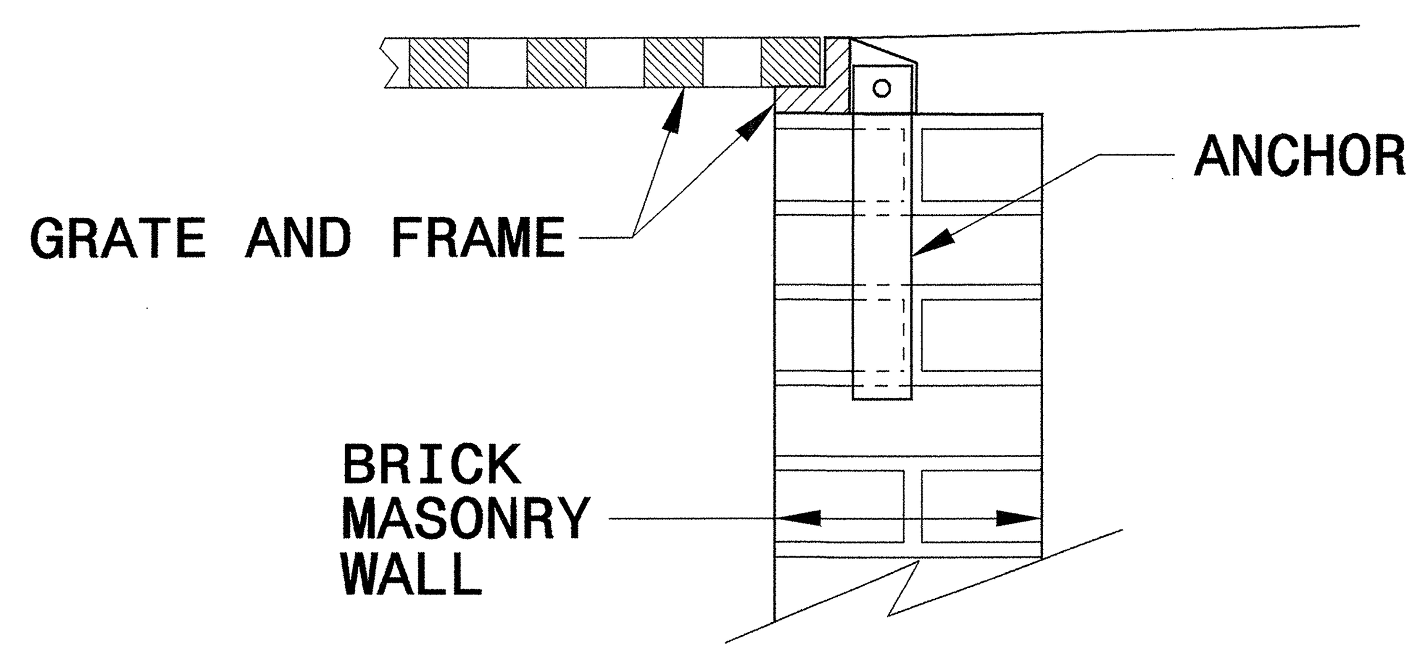
SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC: /ericward/stds/stdstodetails/30001/0300d01.dgn

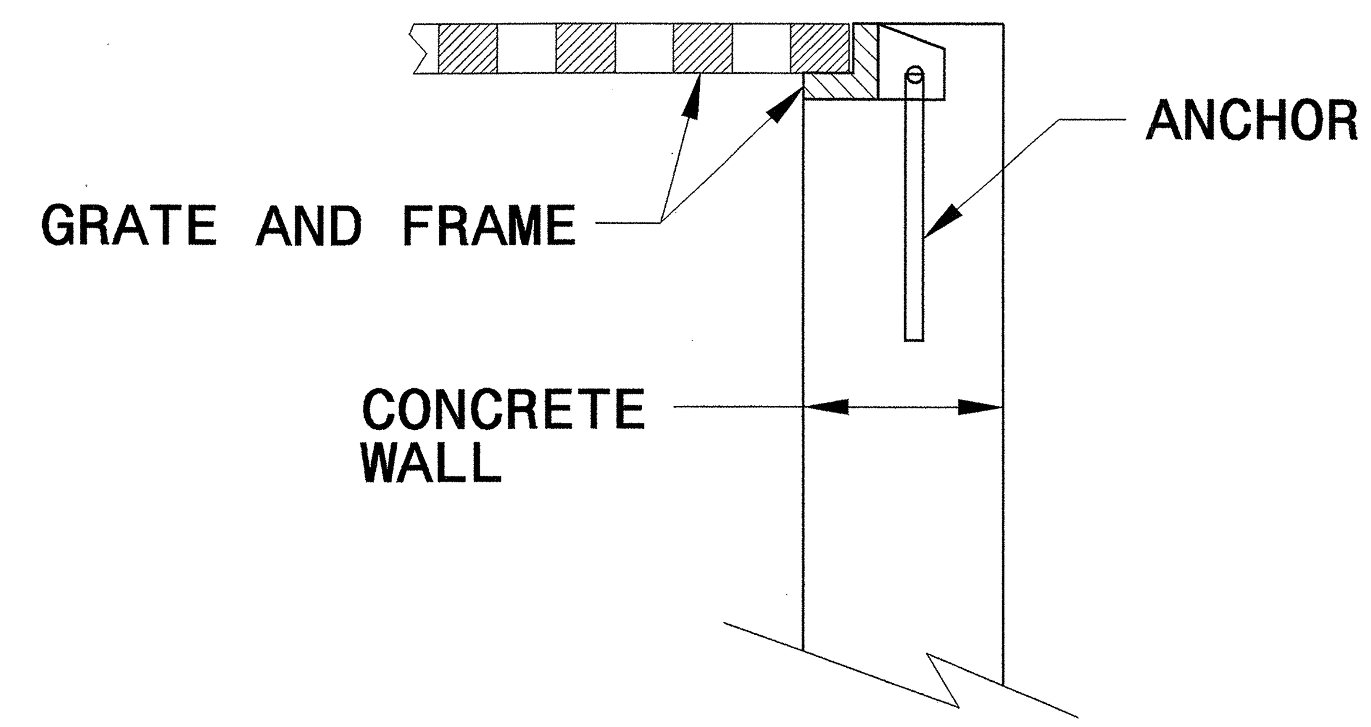
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

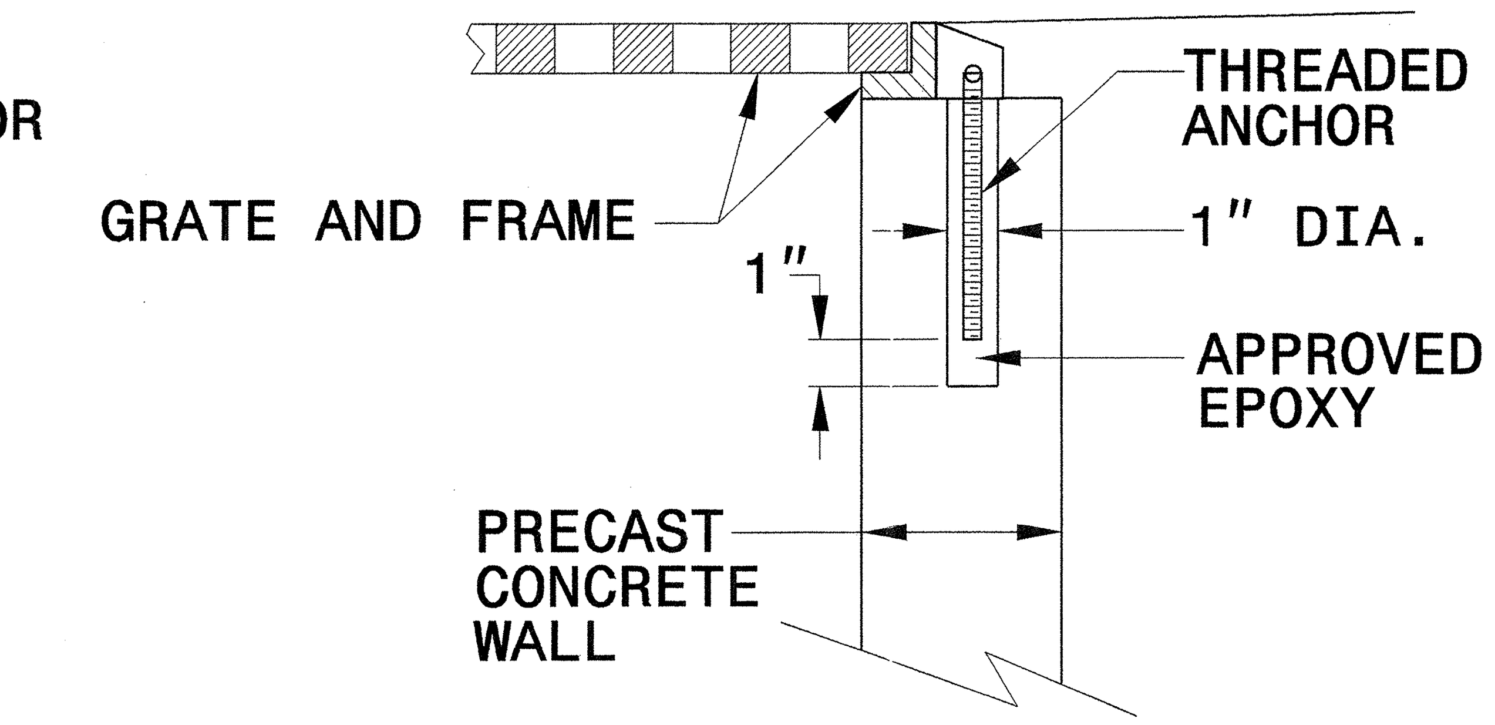
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



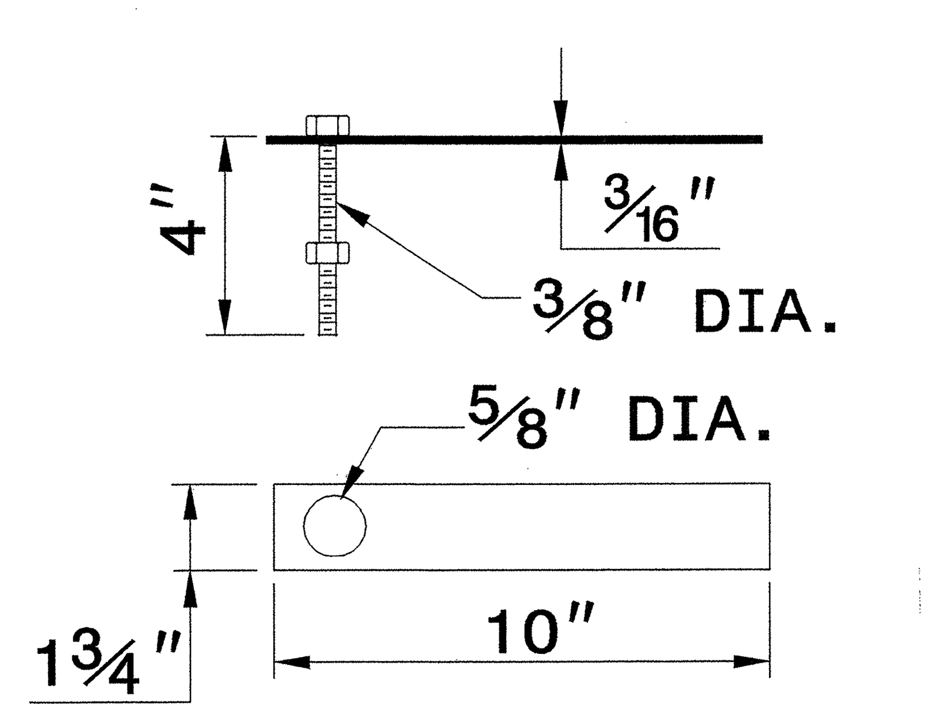
CONCRETE CONSTRUCTION



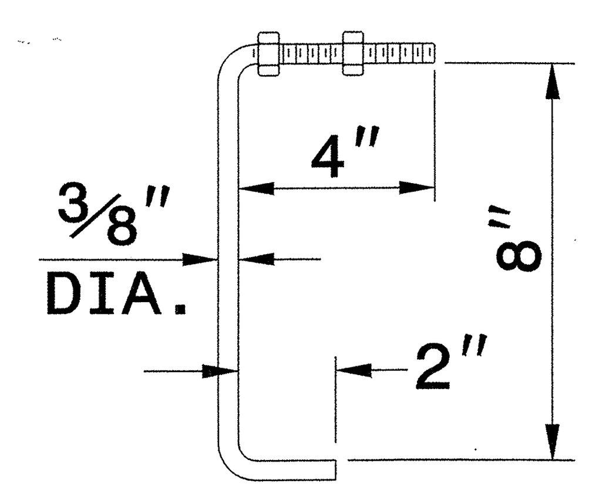
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

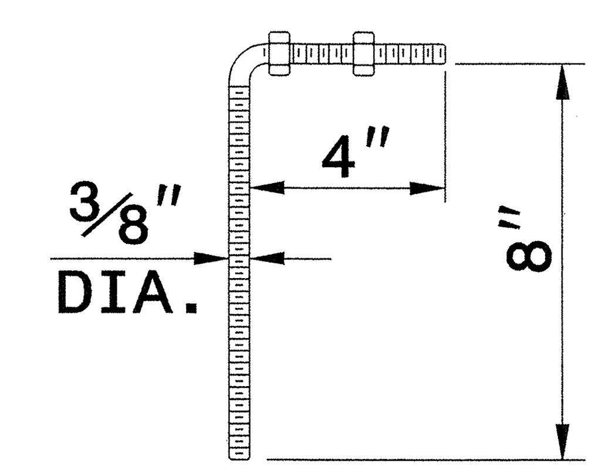
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



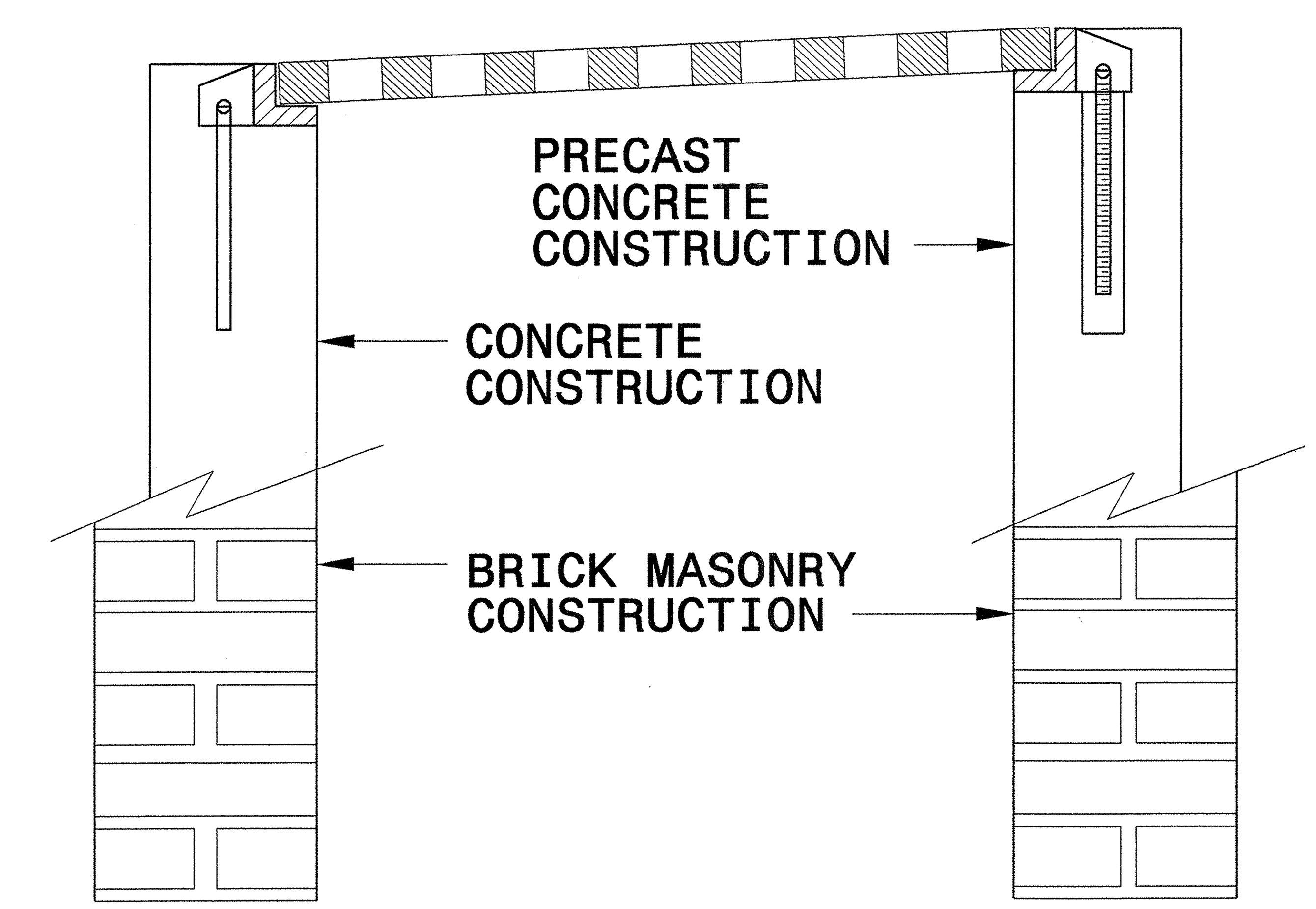
MASONRY ANCHOR
3⁄8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3⁄8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3⁄8" DIA. BENT BAR

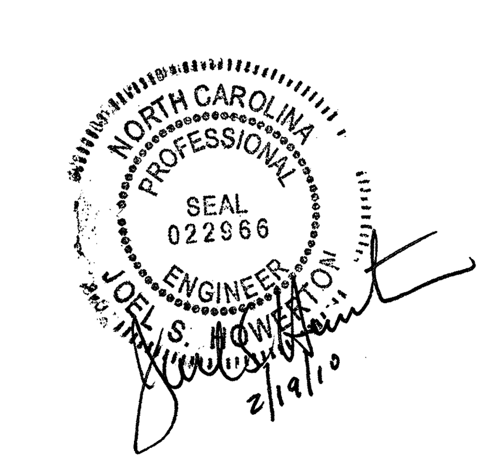


FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

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

SHEET 1 OF 1
840D25



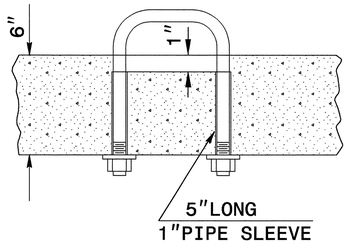
PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

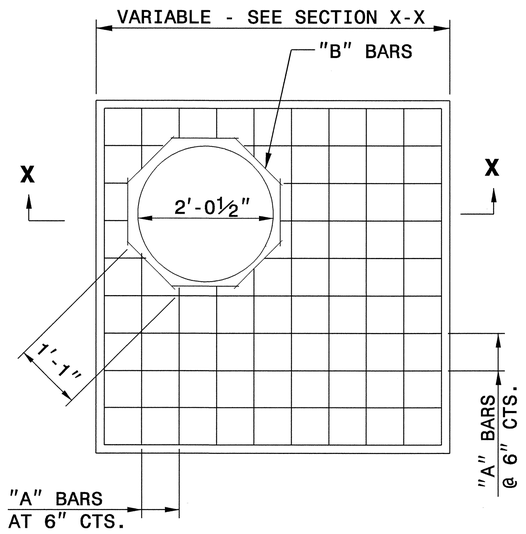
ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: [signature] DATE: 11/13/08
FILE SPEC.:

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

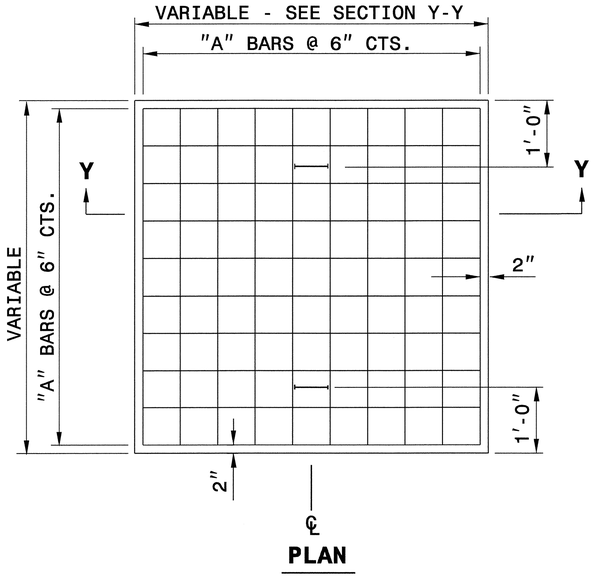
PROJECT REFERENCE NO.	SHEET NO.
U-4703	2-L



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

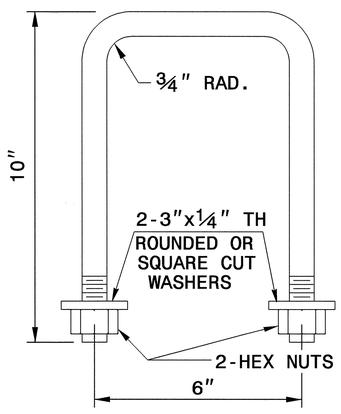
BILL OF MATERIALS

REINFORCING STEEL

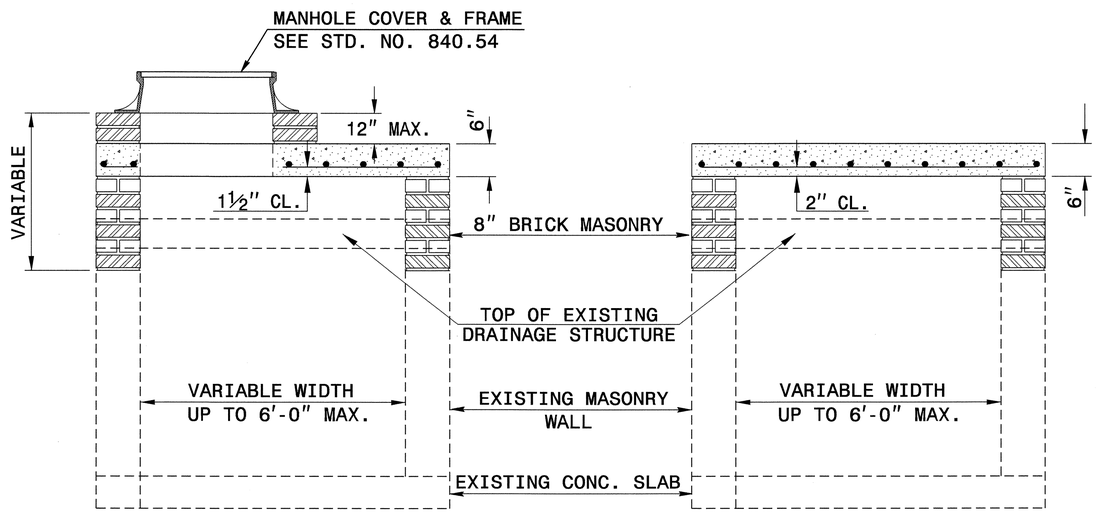
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	.433 *
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**

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL E. HOWERTON
2/16/10

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

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

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: E.E.W. DATE: 8-28-02
CHECKED BY: Jan S. Kent DATE: 2/16/10
FILE SPEC.: /usr/details/stand/boxtojbe.dgn

16-FEB-2010 08:35
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jhowerton AT PS237501

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4703	3(1of 2)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202379

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	2	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0022000000-E	225	58,200	CY	UNCLASSIFIED EXCAVATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (33+47.44-EBL)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (33+60.56-WBL)
0036000000-E	225	2,500	CY	UNDERCUT EXCAVATION
0106000000-E	230	75,900	CY	BORROW EXCAVATION
0134000000-E	240	1,238	CY	DRAINAGE DITCH EXCAVATION
0141000000-E	240	520	LF	BERM DITCH CONSTRUCTION
0156000000-E	250	1,350	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0192000000-N	260	13	HR	PROOF ROLLING
0196000000-E	270	1,650	SY	FABRIC FOR SOIL STABILIZATION
0234000000-E	SP	1,650	CY	GENERIC GRADING ITEM SELECT GRANULAR MATERIAL
0248000000-N	SP	Lump Sum		GENERIC GRADING ITEM EARTHWORK FOR DRY DETENTION BASINS
0320000000-E	SP	4,200	SY	FOUNDATION CONDITIONING FABRIC
0330000000-E	SP	1,340	TON	GENERIC DRAINAGE ITEM FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	20	LF	15" SIDE DRAIN PIPE
0384000000-E	310	1,700	LF	30" RC PIPE CULVERTS, CLASS III
0396000000-E	310	60	LF	42" RC PIPE CULVERTS, CLASS III
0448000000-E	310	496	LF	****" RC PIPE CULVERTS, CLASS IV (36')
0708000000-E	310	76	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0714000000-E	310	40	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0806000000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0807000000-E	310	2	EA	18" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0973100000-E	SP	92	LF	**" WELDED STEEL PIPE, ****" THICK, GRADE ** IN SOIL (42", 0.625", B)
0995000000-E	340	908	LF	PIPE REMOVAL
1011000000-N	500	Lump Sum		FINE GRADING
1044000000-E	501	34,860	SY	LIME TREATED SOIL (SLURRY METHOD)
1066000000-E	501	360	TON	LIME FOR LIME TREATED SOIL
1110000000-E	510	500	TON	STABILIZER AGGREGATE
1121000000-E	520	20,800	TON	AGGREGATE BASE COURSE
1176000000-E	542	14,940	SY	SOIL CEMENT BASE
1187000000-E	542	420	TON	PORTLAND CEMENT FOR SOIL CEMENT BASE
1209000000-E	543	7,480	GAL	ASPHALT CURING SEAL
1220000000-E	545	600	TON	INCIDENTAL STONE BASE
1264000000-E	SP	30	LF	DITCHING
1308000000-E	607	5,400	SY	MILLING ASPHALT PAVEMENT, ***" TO ******* DEPTH (0" TO 1-1/2")
1330000000-E	607	300	SY	INCIDENTAL MILLING
1489000000-E	610	2,700	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	13,950	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	12,100	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	1,503	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	80	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR

ItemNumber	Sec #	Quantity	Unit	Description
2000000000-N	806	155	EA	RIGHT OF WAY MARKERS
2022000000-E	815	336	CY	SUBDRAIN EXCAVATION
2033000000-E	815	168	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)
2143000000-E	818	10	TON	BLOTTING SAND
2209000000-E	838	12	CY	ENDWALLS
2253000000-E	840	3	CY	PIPE COLLARS
2264000000-E	840	1	CY	PIPE PLUGS
2275000000-E	SP	35	CY	FLOWABLE FILL
2286000000-N	840	107	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	65	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	32	EA	FRAME WITH TWO GRATES, STD 840.16
2365000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.22
2366000000-N	840	6	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.29
2374000000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	23	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	30	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	10	EA	FRAME WITH COVER, STD 840.54
2451000000-N	852	31	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS

ItemNumber	Sec #	Quantity	Unit	Description
2462000000-E	SP	2	EA	**" SLUICE GATE (8")
2542000000-E	846	10,350	LF	1'-6" CONCRETE CURB & GUTTER
2549000000-E	846	16,200	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	400	LF	SHOULDER BERM GUTTER
2591000000-E	848	7,500	SY	4" CONCRETE SIDEWALK
2600000000-N	SP	5	EA	RETROFIT EXISTING WHEELCHAIR RAMPS
2605000000-N	848	32	EA	CONCRETE WHEELCHAIR RAMPS
2612000000-E	848	400	SY	6" CONCRETE DRIVEWAY
2619000000-E	850	30	SY	4" CONCRETE PAVED DITCH
2655000000-E	852	980	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2830000000-N	858	2	EA	ADJUSTMENT OF MANHOLES
2845000000-N	858	20	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES
2860000000-N	859	1	EA	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX
3000000000-N	SP	2	EA	IMPACT ATTENUATOR UNIT, TYPE 350
3030000000-E	862	2,175	LF	STEEL BM GUARDRAIL
3045000000-E	862	75	LF	STEEL BM GUARDRAIL, SHOP CURVED
3105000000-N	862	4	EA	STEEL BM GUARDRAIL TERMINAL SECTIONS
3150000000-N	862	20	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	5	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	5	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3524000000-E	SP	12,450	LF	VINYL COATED CHAIN LINK FENCE, **" FABRIC (48")
3542000000-E	866	1,040	EA	METAL LINE POSTS FOR 48" CHAIN LINK FENCE
3548000000-E	866	120	EA	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE
3551000000-E	866	4	EA	METAL GATE POSTS FOR **" CHAIN LINK FENCE, SINGLE GATE (48")
3564000000-E	866	2	EA	SINGLE GATES, **" HIGH, **" WIDE, **" OPENING (48", 20', 20')
3628000000-E	876	258	TON	RIP RAP, CLASS I
3649000000-E	876	609	TON	RIP RAP, CLASS B
3656000000-E	876	6,897	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4072000000-E	903	1,215	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4102000000-N	904	64	EA	SIGN ERECTION, TYPE E
4108000000-N	904	9	EA	SIGN ERECTION, TYPE F
4155000000-N	907	11	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	901	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	644	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	274	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	3	EA	CHANGEABLE MESSAGE SIGN
4422000000-N	1120	40	DAY	CHANGEABLE MESSAGE SIGN (SHORT TERM)
4430000000-N	1130	500	EA	DRUMS
4445000000-E	1145	144	LF	BARRICADES (TYPE III)
4455000000-N	1150	150	MD	FLAGGER
4480000000-N	1165	3	EA	TMA
4510000000-N	SP	360	HR	LAW ENFORCEMENT
4650000000-N	1251	368	EA	TEMPORARY RAISED PAVEMENT MARKERS

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STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
U-4703	3(2 of 2)

ItemNumber	Sec #	Quantity	Unit	Description
4685000000-E	1205	31,170	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	19,956	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	1,034	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	1,390	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	12	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	114	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	1,661	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)
4810000000-E	1205	43,686	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	2,948	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	790	LF	PAINT PAVEMENT MARKING LINES (24")
4840000000-N	1205	44	EA	PAINT PAVEMENT MARKING CHARACTER
4845000000-N	1205	176	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	6,440	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4860000000-E	1205	95	LF	REMOVAL OF PAVEMENT MARKING LINES (8")
4875000000-N	1205	27	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS
4900000000-N	1251	147	EA	PERMANENT RAISED PAVEMENT MARKERS
5255000000-N	1413	Lump Sum		PORTABLE LIGHTING
5691300000-E	1520	150	LF	8" SANITARY GRAVITY SEWER
5691700000-E	1520	142	LF	18" SANITARY GRAVITY SEWER
5775000000-E	1525	3	EA	4' DIA UTILITY MANHOLE
5781000000-E	1525	21	LF	UTILITY MANHOLE WALL, 4' DIA
5801000000-E	1530	177	LF	ABANDON 8" UTILITY PIPE
5811000000-E	1530	145	LF	ABANDON 18" UTILITY PIPE
5816000000-N	1530	2	EA	ABANDON UTILITY MANHOLE
5882000000-N	SP	1	EA	GENERIC UTILITY ITEM BREAK DOWN AND REBUILD EXISTING UTILITY MANHOLE
6000000000-E	1605	10,700	LF	TEMPORARY SILT FENCE
6006000000-E	1610	4,200	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	3,150	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	4,200	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	48	ACR	TEMPORARY MULCHING
6018000000-E	1620	950	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	6.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	1,600	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	13	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	8,200	LF	SAFETY FENCE
6030000000-E	1630	23,500	CY	SILT EXCAVATION
6036000000-E	1631	25,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	150	SY	COIR FIBER MAT
6038000000-E	SP	500	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	1,600	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	36	EA	SPECIAL STILLING BASINS
6071012000-E	SP	1,300	LF	COIR FIBER WATTLE
6071020000-E	SP	350	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	7,700	LF	COIR FIBER BAFFLES
6071050000-E	SP	9	EA	** SKIMMER (1-1/2")
6071050000-E	SP	2	EA	** SKIMMER (4")
6084000000-E	1660	30	ACR	SEEDING & MULCHING
6087000000-E	1660	36	ACR	MOWING

ItemNumber	Sec #	Quantity	Unit	Description
6090000000-E	1661	400	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	1.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	700	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	21	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	20	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	36	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	1	ACR	REFORESTATION
6126000000-E	SP	0.17	ACR	STREAMBANK REFORESTATION
7000000000-E	1705	18	EA	PEDESTRIAN SIGNAL HEAD (**", ** SECTION) (16", 1 SECTION W/COUNTDOWN)
7060000000-E	1705	8,400	LF	SIGNAL CABLE
7120000000-E	1705	26	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7132000000-E	1705	5	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
7144000000-E	1705	9	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
7252000000-E	1710	350	LF	MESSENGER CABLE (1/4")
7264000000-E	1710	2,500	LF	MESSENGER CABLE (3/8")
7279000000-E	1715	2,400	LF	TRACER WIRE
7288000000-E	1715	170	LF	PAVED TRENCHING (**********) (1, 2")
7300000000-E	1715	4,710	LF	UNPAVED TRENCHING (**********) (1, 2")
7301000000-E	1715	625	LF	DIRECTIONAL DRILL (**********) (1, 2")
7324000000-N	1716	22	EA	JUNCTION BOX (STANDARD SIZE)
7348000000-N	1716	11	EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
7360000000-N	1720	6	EA	WOOD POLE
7372000000-N	1721	15	EA	GUY ASSEMBLY
7396000000-E	1722	2	EA	1/2" RISER WITH WEATHERHEAD
7408000000-E	1722	3	EA	1" RISER WITH WEATHERHEAD

ItemNumber	Sec #	Quantity	Unit	Description
7420000000-E	1722	6	EA	2" RISER WITH WEATHERHEAD
7432000000-E	1722	1	EA	2" RISER WITH HEAT SHRINK TUBING
7444000000-E	1725	5,350	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	11,200	LF	LEAD-IN CABLE (**********) (14-2)
7516000000-E	1730	1,450	LF	COMMUNICATIONS CABLE (**FIBER) (12)
7552000000-N	1731	3	EA	INTERCONNECT CENTER
7564000000-N	1732	3	EA	FIBER-OPTIC TRANSCEIVER, DROP & REPEAT
7566000000-N	1733	5	EA	DELINEATOR MARKER
7574000000-N	SP	1	EA	FURNISH FIBER-OPTIC TRANSCEIVER
7576000000-N	SP	12	EA	METAL STRAIN SIGNAL POLE
7613000000-N	SP	12	EA	SOIL TEST
7614100000-E	SP	72	CY	DRILLED PIER FOUNDATION
7624000000-N	1743	1	EA	SIGNAL PEDESTAL WITH FOUNDATION
7636000000-N	1745	16	EA	SIGN FOR SIGNALS
7684000000-N	1750	3	EA	SIGNAL CABINET FOUNDATION
7756000000-N	1751	3	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
7780000000-N	1751	26	EA	DETECTOR CARD (TYPE 2070L)
7901000000-N	1753	3	EA	CABINET BASE EXTENDER

******* BEGIN SCHEDULE AA ******* ******* (3 ALTERNATES) *******				
0366000000-E AA1	310	4,632	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA1	310	1,620	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA1	310	2,100	LF	24" RC PIPE CULVERTS, CLASS III
0390000000-E AA1	310	1,732	LF	36" RC PIPE CULVERTS, CLASS III
*** OR ***				
0366000000-E AA2	310	4,436	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA2	310	1,196	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA2	310	1,832	LF	24" RC PIPE CULVERTS, CLASS III
0390000000-E AA2	310	1,524	LF	36" RC PIPE CULVERTS, CLASS III
0536000000-E AA2	SP	196	LF	*** HDPE PIPE CULVERTS (15")
0536000000-E AA2	SP	424	LF	*** HDPE PIPE CULVERTS (18")
0536000000-E AA2	SP	268	LF	*** HDPE PIPE CULVERTS (24")
0536000000-E AA2	SP	208	LF	*** HDPE PIPE CULVERTS (36")
*** OR ***				
0366000000-E AA3	310	4,436	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA3	310	1,196	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA3	310	1,832	LF	24" RC PIPE CULVERTS, CLASS III
0390000000-E AA3	310	1,524	LF	36" RC PIPE CULVERTS, CLASS III
0540000000-E AA3	SP	196	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
0540000000-E AA3	SP	424	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (18", 0.064")
0540000000-E AA3	SP	268	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24", 0.064")
0540000000-E AA3	SP	208	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (36", 0.064")
******* END SCHEDULE AA *******				

4/04/06

COMPUTED BY: PJS	DATE: 09/04/09
CHECKED BY: DWG	DATE: 09/09/09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4703	3-A

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R. C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMNOUS COATED C. S. PIPE, TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE OR ALUMINIZED C. S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	36" RC PIPE CULVERTS, CLASS IV	42" WELDED STEEL PIPE, 0.625" THICK, (TRENCHLESS INSTALLATION)	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16 (2 GRATES)	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. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	T.B.J.B. STD. 840.34	M.H. FRAME & COVER STD. 840.54	J.B. STD. 840.31 OR 840.32	CONV. EXIST. C.B. TO J.B.	PREFORMED SCOUR HOLE	DRY DETENTION BASIN (SEE SHEETS 2-E THRU 2-G)	CONCRETE OR BRICK PIPE PLUG STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD 840.72	CORR. STEEL ELBOWS NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
-L- STA. 14+07	LT.	1		340.5																																	1	1.7																1	1								64	REMOVE EXIST. CB AND EXIST. 15’ RCP
	LT.	1	OUT		333.8	334.3	X		48																																																							
-L- STA. 14+34	RT.	2		340.7																																	1	1.4																1	1									REMOVE EXISTING CB
	RT.	2	3		334.3	337.6			24																																																					
-L- STA. 14+59	RT.	3		340.6																																	1			1			1																					
	RT.	3	4		337.6	338.1			32																																																					
-L- STA. 14+59	RT.	4		341.3																																	1								1	1	1																	
	RT.	4	5		338.1	338.9			48																																																					
-L- STA. 15+10	RT.	5		342.1																																	1								1	1	1																	
-L- STA. 16+41	LT.	6		340.0																																																			1		1						216	REMOVE EXISTING 15" RCP
-L- STA. 17+20	RT.	7		341.3																																	1	1.1								1	1																	
	RT.	IN	7		336.6	335.2	X				132																																																		132	REMOVE EXISTING 18" HDPE
-L- STA. 17+70	LT.	8		342.6																																	1								1	1	1																	
	LT.	8	9		339.5	338.9			60																																																					
-L- STA. 18+30	LT.	9		342.0																																	1								1	1	1																	
	LT.	9	10		338.9	337.3			36																																																					
-L- STA. 18+68	LT.	10		341.4																																	1								1	1	1																	
	LT.	10	11		337.3	337.5			44																																																					
	LT.	10	12		337.3	330.4			332																																																					
-L- STA. 18+68	RT.	11		340.5																																	1			1		1																						
-L- STA. 22+00	LT.	12		333.6																																	1								1	1	1																	
	LT.	12	13		330.4	328.9	X		36																																																					
-L- STA. 22+00	LT.	13		331.9																																	1			1			1																					
	LT.	13	14		328.6	321.9	X			248																																																				
-L- STA. 24+55	LT.	14		325.2																																	1			1			1																					
	LT.	14	15		322.2	324.1			44																																																					
	LT.	14	17		321.4	316.3	X				188																																																			
-L- STA. 24+55	LT.	15		327.2																																	1								1	1	1																	
	LT.	15	16		324.1	325.4			52																																																					
-L- STA. 24+00	LT.	16		328.6																																	1								1	1	1																	
-L- STA. 26+50	LT.	17		320.1																																	1			1			1																					
	LT.	17	18		316.3	314.0	X				128																																																			
-L- STA. 27+84	LT.	18		317.7																																	1			1			1																					
	LT.	18	19		314.7	316.0			60																																																					
	LT.	18	21		314.0	304.2	X				140																																																			
-L- STA. 27+84	RT.	19		319.2																																	1								1	1	1																	
	RT.	19	20		316.0	317.6			56																																																					
-L- STA. 27+25	RT.	20		320.8																																	1								1	1	1																	
-L- STA. 29+25	LT.	21		314.2																																	1	5.0	1.0	1			1																					
	LT.	IN	21		305.5	303.2																									36																																			
	LT.	21	22		303.2	302.4	X						88																																																		
	LT.	21	27		305.0	306.0			208																																																					
-L- STA. 29+25	RT.	22		314.4																																	1	5.0	2.0	1		1																						
	RT.	22	28		304.2	306.4			200																																																					
SHEET TOTAL									1280	248	588		88																36								21	14.2	3.0	8		2	6		10	11	11							2	3		1						412	

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

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$$$$USERNAME$$$$

COMPUTED BY: PJS DATE: 09/04/09
CHECKED BY: DWG DATE: 09/09/09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4703	3-B

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R. C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C. S. PIPE, TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE OR ALUMINIZED C. S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	36" RC PIPE CULVERTS, CLASS IV	42" WELDED STEEL PIPE, 0.625" THICK, (TRENCHLESS INSTALLATION)	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16 (2 GRATES)	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. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	T.B.J.B. STD. 840.34	M.H. FRAME & COVER STD. 840.54	J.B. STD. 840.31 OR 840.32	CONV. EXIST. C.B. TO J.B.	PREFORMED SCOUR HOLE	DRY DETENTION BASIN (SEE SHEETS 2-E THRU 2-G)	CONCRETE OR BRICK PIPE PLUG STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD 840.72	CORR. STEEL ELBOWS NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
	RT.	22	23		302.4	292.4	X																						48																																			
-L- STA. 29+05	RT.	23		302.4																																	1	5.0												1			1											
	RT.	23	24		292.4	274.4	X																										276																															
-L- STA. 27+89	RT.	24		286.4																																	1	5.0	2.0															1	1									
	RT.	24	25		274.4	268.3	X																										152																															
-L- STA. 27+30	RT.	25		276.9																																	1	3.6																1	1									
	RT.	25	OUT		268.3	268.0	X																										68																															
-L- STA. 27+03	RT.	26		271.0																																	1																						1					OUTLET CONTROL STRUCTURE
	RT.	26	OUT		267.0	266.0																							56																																			ENERGY DISSIPATOR BASIN (SEE SHEET 2-H)
-L- STA. 31+36	LT.	27		309.0																																	2			2			2																					
-L- STA. 31+25	RT.	28		309.4																																	1			1		1																						
-L- STA. 36+82	RT.	29		295.0																																	1	1.0																					1					OUTLET CONTROL STRUCTURE
	RT.	29	29A		289.0	270.5	X						188																																																			
-L- STA. 34+93	RT.	29A		278.0																																	1	2.5																	1	1								
	RT.	29A	OUT		270.5	270.0	X						20																																																	ENERGY DISSIPATOR BASIN (SEE SHEET 2-H)
-L- STA. 36+38	LT.	30		302.1																																	1			1	1																							
	LT.	30	31		299.1	298.7			76																																																							
-L- STA. 36+38	RT.	31		302.1																																	1			1	1																							
	RT.	31	33		292.0	296.2	X		160																																																							
-L- STA. 38+00	LT.	32		302.9																																	1			1		1																						
	LT.	32	33		299.9	297.9			76																																																							
-L- STA. 38+00	RT.	33		302.9																																	1	1.7		1			1																					
	RT.	33	OUT		296.2	292.0	X																						68																																			
	RT.	33	35		296.2	301.0	X						196																																																			
-L- STA. 39+97	LT.	34		306.8																																	1								1	1	1																			
	LT.	34	35		303.6	302.8			48																																																								
	LT.	34	36		303.6	305.0			52																																																								
-L- STA. 39+97	RT.	35		305.8																																	1			1			1																					
	RT.	35	39		301.0	306.7	X						300																																																			
-L- STA. 40+52	LT.	36		308.2																																	1								1	1	1																			
	LT.	36	37		305.0	306.8			88																																																							
-L- STA. 41+40	LT.	37		309.9																																	1								1	1	1																			
-L- STA. 43+00	LT.	38		313.1																																	1								1	1	1																			
	LT.	38	39		310.0	308.4			48																																																								
-L- STA. 43+00	RT.	39		311.4																																	1			1			1																					
	RT.	39	42		306.7	312.3	X						288																																																			
-L- STA. 44+31	LT./RT.	40			307.3	306.5				164																																																1						
-L- STA. 45+92	RT.	41		318.6																																	1								1	1	1																			
	RT.	41	42		315.5	314.0			44																																																								
	RT.	41	43		315.5	317.2			84																																																								
-L- STA. 45+92	RT.	42		317.0																																	1			1			1																					
	RT.	42	46		312.3	316.6	X						192																																																			
-L- STA. 46+76	RT.	43		320.4																																	1								1	1	1																			
-L- STA. 47+84	LT.	44		321.7																																	1			1		1																						
	LT.	44	45		318.7	318.8			4																																																								
	LT.	44	46		318.7	318.3			76																																																								
-L- STA. 47+91	LT.	45		321.8																																	1			1		1																						
-L- STA. 47+84	RT.	46		321.5																																	1			1			1																					
SHEET TOTAL									756	164			1184																172				496				25	18.8	2.0	13	2	4	7		6	6	6			1			1	2	3	1		1	2					

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: PJS DATE: 09/04/09
CHECKED BY: DWG DATE: 09/09/09

PROJECT REFERENCE NO. U-4703 | SHEET NO. 3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

CLASS III R. C. PIPE (UNLESS NOTED OTHERWISE) — BITUMINOUS COATED C. S. PIPE, TYPE B (UNLESS NOTED OTHERWISE) — CLASS III R.C. PIPE OR ALUMINIZED C. S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	R.C. 12"	R.C. 15"	R.C. 18"	R.C. 24"	R.C. 30"	R.C. 36"	R.C. 42"	R.C. 48"	BIT. 12" .064	BIT. 15" .064	BIT. 18" .064	BIT. 24" .064	BIT. 30" .079	BIT. 36" .079	BIT. 42" .109	BIT. 48" .109	12"	15"	18"	24"	30"	36"	42"	48"
	RT.	46	48		317.1	321.7	X					240																			
-L- STA. 50+25	LT.	47		326.3																											
	LT.	47	48		323.3	322.9			76																						
-L- STA. 50+25	RT.	48		326.3																											
	RT.	48	50		321.7	327.7	X					300																			
-L- STA. 53+25	LT.	49		332.3																											
	LT.	49	50		329.3	328.9			76																						
-L- STA. 53+25	RT.	50		332.3																											
	RT.	50	52		327.7	333.7	X					300																			
-L- STA. 56+25	LT.	51		338.3																											
	LT.	51	52		335.3	334.9			76																						
-L- STA. 56+25	RT.	52		338.3																											
	RT.	52	54		333.7	338.6	X					244																			
-L- STA. 58+70	LT.	53		343.2																											
	LT.	53	54		340.2	339.8			76																						
-L- STA. 58+70	RT.	54		343.2																											
	RT.	54	57		338.6	340.9	X					140																			
-L- STA. 59+55	LT.	55		345.8																											
	RT.	55	56		342.6	342.3			56																						
-L- STA. 60+10	RT.	56		346.9																											
	RT.	56	57		342.3	340.9			40																						
-L- STA. 60+10	RT.	57		345.8																											
	RT.	57	58		340.9	344.8	X					252																			
-L- STA. 62+10	LT.	57A		349.8																											
	LT.	57A	57B		346.8	346.5			52																						
-L- STA. 62+65	LT.	57B		350.8																											
	LT.	57B	58		346.5	346.1			88																						
-L- STA. 62+65	RT.	58		351.1																											
	RT.	58	59		345.3	349.5	X				144																				
-L- STA. 64+10	RT.	59		353.2																											
	RT.	59	62		349.5	351.1	X				148																				
-L- STA. 66+40	LT./RT.	60			348.1	341.1						224																			
-L- STA. 68+25	LT.	60A			355.2	349.8					156																				
-L- STA. 65+60	LT.	61		355.5																											
	LT.	61	62		351.7	351.1	X				100																				
	LT.	61	63A		351.7	357.2	X				364																				
-L- STA. 65+60	RT.	62		355.5																											
-L- STA. 69+25	LT.	63A		360.9																											
	LT.	63A	63		357.2	357.8	X				40																				
-L- STA. 69+65	LT.	63		361.5																											
	LT.	63	64		358.5	358.8	X		60																						
	LT.	63	74		357.8	358.9					184																				
-L- STA. 69+65	RT.	64		362.9																											
	RT.	64	65		358.8	359.1	X		52																						
-L- STA. 70+20	RT.	65		363.8																											
	RT.	65	65A		359.1	359.4			52																						
-L- STA. 70+75	RT.	65A		364.6																											
	RT.	65A	66		359.4	359.7			68																						
-L- STA. 71+45	RT.	66		365.7																											
SHEET TOTAL									772		1136	1700																			

ENDWALLS: STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE), CU. YDS. — QUANTITIES FOR DRAINAGE STRUCTURES: * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') — FRAME, GRATES AND HOOD STANDARD 840.03, TYPE OF GRATE — CONCRETE TRANSITIONAL SECTION

STATION	STRUCTURE NO. FROM	STRUCTURE NO. TO	15" SIDE DRAIN PIPE	36" RC PIPE CULVERTS, CLASS IV	42" WELDED STEEL PIPE, 0.625" THICK, (TRENCHLESS INSTALLATION)	ENDWALLS R.C.P.	ENDWALLS C.S.P.	PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	E	F	G	CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16 (2 GRATES)	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. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	T.B.J.B. STD. 840.34	M.H. FRAME & COVER STD. 840.54	J.B. STD. 840.31 OR 840.32	CONV. EXIST. C.B. TO J.B.	PREFORMED SCOUR HOLE	DRY DETENTION BASIN (SEE SHEETS 2-E THRU 2-G)	CONCRETE OR BRICK PIPE PLUG STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD 840.72	CORR. STEEL ELBOWS NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
-L- STA. 50+25	47							1			1		1																						
-L- STA. 50+25	48							1			1			1																					
-L- STA. 53+25	49							1			1		1																						
-L- STA. 53+25	50							1			1			1																					
-L- STA. 56+25	51							1			1		1																						
-L- STA. 56+25	52							1			1			1																					
-L- STA. 58+70	53							1			1		1																						
-L- STA. 58+70	54							1			1			1																					
-L- STA. 59+55	55							1								1	1	1																	
-L- STA. 60+10	56							1								1	1	1																	
-L- STA. 60+10	57							1			1			1																					
-L- STA. 62+10	57A							1			1		1																						
-L- STA. 62+65	57B							1			1		1																						
-L- STA. 62+65	58							1	1.3		1			1																					
-L- STA. 64+10	59							1			1			1																					
-L- STA. 65+60	61							1			1		1																						
-L- STA. 65+60	62							1			1			1																					
-L- STA. 69+25	63A							1			1		1																						
-L- STA. 69+65	63							1			1		1																						
-L- STA. 69+65	64							1								1	1	1																	
-L- STA. 70+20	65							1								1	1	1																	
-L- STA. 70+75	65A							1	0.5							1	1	1																	
-L- STA. 71+45	66							1	1							1	1	1																	
SHEET TOTAL								23	2.8		17		9	8		6	6	6																	

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

4/04/06

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COMPUTED BY: PJS DATE: 09/04/09
CHECKED BY: DWG DATE: 09/09/09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4703	3-D

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & 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	CLASS III R. C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
		66	67		359.7	360.0			68						
-L- STA. 72+15	RT.	67		366.7											
	RT.	67	68		360.0	360.3			60						
-L- STA. 72+75	RT.	68		367.6											
	RT.	68	69		360.3	360.6			60						
-L- STA. 73+35	RT.	69		368.5											
	RT.	69	70		360.6	361.0			64						
-L- STA. 74+00	RT.	70		369.5											
	RT.	70	71		361.0	367.5			72						
-L- STA. 74+75	RT.	71		370.6											
	RT.	71	72		367.5	368.7			80						
-L- STA. 75+55	RT.	72		371.8											
	RT.	72	73		368.7	368.9			20						
-L- STA. 75+78	RT.	73		372.1											
-L- STA. 71+50	LT.	74		364.3											
	LT.	74	76		359.4	361.0	X			304					
-L- STA. 73+81	LT./RT.	75			363.8	363.0				160					
-L- STA. 74+15	LT.	75A		369.0											
	LT.	IN	75A		370.5	363.8									
-L- STA. 74+60	LT.	76		368.9											
	LT.	76	77		365.6	369.0	X		224						
-L- STA. 76+86	LT.	77		372.4											
	LT.	77	78		369.0	369.1	X		32						
-L- STA. 76+86	LT.	78		373.4											
	LT.	78	80		369.1	369.4			60						
	LT.	78	79		369.1	370.9			64						
-L- STA. 77+50	LT.	79		374.0											
-L- STA. 76+86	RT.	80		372.4											
	RT.	80	81		369.4	369.5			4						
-L- STA. 76+93	RT.	81		372.5											
	RT.	81	82		369.5	370.4			108						
-L- STA. 78+00	RT.	82		373.4											
	RT.	82	83		370.4	370.9			100						
-L- STA. 79+00	RT.	83		373.9											
-Y- STA. 15+10	RT.	84		321.6											
	RT.	84	85		317.6	316.7			184						
-Y- STA. 17+00	RT.	85		322.4											
	RT.	85	OUT		316.7	303.0	X								
	RT.	85	86		316.7	319.3	X		188						
-Y- STA. 18+91	RT.	86		323.1											
	RT.	86	87		319.3	320.8	X								
-Y- STA. 20+50	RT.	87		322.7											
-Y- STA. 14+63	LT.	88													
-Y- STA. 16+42	LT./RT.	89			308.8	303.0								60	
SHEET TOTAL									1388	464				60	

STATION	FROM	TO	BITUMINOUS COATED C.S. PIPE, TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR ALUMINIZED C. S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	36" RC PIPE CULVERTS, CLASS IV	42" WELDED STEEL PIPE, 0.625" THICK, (TRENCHLESS INSTALLATION)	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.
	66	67																										
-L- STA. 72+15	67																											
	67	68																										
-L- STA. 72+75	68																											
	68	69																										
-L- STA. 73+35	69																											
	69	70																										
-L- STA. 74+00	70																											
	70	71																										
-L- STA. 74+75	71																											
	71	72																										
-L- STA. 75+55	72																											
	72	73																										
-L- STA. 75+78	73																											
-L- STA. 71+50	74																											
	74	76																										
-L- STA. 73+81	75																											
-L- STA. 74+15	75A																											
	IN	75A			40																							
-L- STA. 74+60	76																											
	76	77																										
-L- STA. 76+86	77																											
	77	78																										
-L- STA. 76+86	78																											
	78	80																										
	78	79																										
-L- STA. 77+50	79																											
-L- STA. 76+86	80																											
	80	81																										
-L- STA. 76+93	81																											
	81	82																										
-L- STA. 78+00	82																											
	82	83																										
-L- STA. 79+00	83																											
-Y- STA. 15+10	84																											
	84	85																										
-Y- STA. 17+00	85																											
	85	OUT		48																								
	85	86																										
-Y- STA. 18+91	86																											
	86	87															156											
-Y- STA. 20+50	87																											
-Y- STA. 14+63	88																							20				
-Y- STA. 16+42	89																									92	4.5	
SHEET TOTAL				48	40												156							20		92	4.5	

STATION	FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16 (2 GRATES)	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. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	T.B.J.B. STD. 840.34	M.H. FRAME & COVER STD. 840.54	J.B. STD. 840.31 OR 840.32	CONV. EXIST. C.B. TO J.B.		PREFORMED SCOUR HOLE	DRY DETENTION BASIN (SEE SHEETS 2-E THRU 2-G)	CONCRETE OR BRICK PIPE PLUG STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD 840.72	CORR. STEEL ELBOWS NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
	66	67																														
-L- STA. 72+15	67		1	1.7								1	1	1																		
	67	68																														
-L- STA. 72+75	68		1	2.3								1	1	1																		
	68	69																														
-L- STA. 73+35	69		1	2.9								1	1	1																		
	69	70																														
-L- STA. 74+00	70		1	3.5								1	1	1																		
	70	71																														
-L- STA. 74+75	71		1									1	1	1																		
	71	72																														
-L- STA. 75+55	72		1									1	1	1																		
	72	73																														
-L- STA. 75+78	73		1									1	1	1																		
-L- STA. 71+50	74		1	0.4		1		1																								
	74	76																														
-L- STA. 73+81	75																															
-L- STA. 74+15	75A			0.2																		1	1									
	IN	75A																												2@18"		BERM DITCH OUTLET STD 850.10
-L- STA. 74+60	76		1	2.9		1		1																								
	76	77																														
-L- STA. 76+86	77		1			1		1																								
	77	78																														
-L- STA. 76+86	78		1									1	1	1																		
	78	80																														
	78	79																														
-L- STA. 77+50	79		1									1	1	1																		
-L- STA. 76+86	80		1			1			1																							
	80	81																														
-L- STA. 76+93	81		1			1			1																							
	81	82																														
-L- STA. 78+00	82		1			1			1																							
	82	83																														
-L- STA. 79+00	83		1			1			1																							
-Y- STA. 15+10	84		1												1				2													
	84	85																														
-Y- STA. 17+00	85		1	0.7												1			1													
	85	OUT																												2@15"		ROD AND LUG CONNECTORS
	85	86																														
-Y- STA. 18+91	86		1													1			1													
	86	87																														
-Y- STA. 20+50	87		1													1		1														
-Y- STA. 14+63	88																														24	REMOVE EXISTING 15" RCP
-Y- STA. 16+42	89																											.524	1.7712			ENERGY DISSIPATOR BASIN (SEE SHEET 2-H) PLUG & FILL W/ FLOWABLE FILL
SHEET TOTAL			20	14.6		7		3	4			9	9	9	1	3		1	4			1	1					.524	1.7712	2@15" 2@18"	24	

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

* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')

4/04/06

COMPUTED BY: PJS DATE: 09/04/09
CHECKED BY: DWG DATE: 09/09/09

PROJECT REFERENCE NO.	SHEET NO.
U-4703	3-E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R. C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
-Y- STA. 18+25	LT.	90													
-Y- STA. 19+50	LT.	91													
-Y- STA. 21+00	LT.	92													
-Y- STA. 22+05	LT.	93													
-Y3- STA. 10+65	LT.	94		324.0											
	LT.	94	OUT		312.2	311.0	X								
	LT.	94	95		321.5	322.1			60						
	LT.	94	96		312.2	313.0	X				108				
-Y3- STA. 11+13	RT.	95		325.1											
-Y- STA. 17+70	LT.	96		317.8											
	LT.	96	97		313.0	318.0	X								
-Y- STA. 19+35	LT.	97		322.8											
	LT.	97	98		318.5	322.8									
-Y- STA. 20+25	LT.	98		325.0											
	LT.	98	99		322.8	329.0									
-Y- STA. 23+57	LT.	99		332.7											
	LT.	99	100		329.3	329.6	X								
-Y- STA. 23+60	LT.	100		331.5											
-Y1- STA. 26+65	LT.	114													
-Y2- STA. 26+00	RT.	101		378.7											
	RT.	101	102		375.7	373.4			120						
-Y2- STA. 27+20	RT.	102		376.4											
	RT.	IN	102		377.5	373.4									
	RT.	102	104		373.4	372.2	X		32						
-Y2- STA. 27+53	LT.	103		375.5						4					
-Y2- STA. 27+53	RT.	104		375.9											
	RT.	IN	104		373.1	373.0				16					
	RT.	104	105		372.2	371.3	X			168					
-Y2- STA. 29+23	RT.	105		375.0											
	RT.	105	106		371.3	371.2	X			28					
-Y2- STA. 29+53	RT.	106		375.0											
	RT.	106	OUT		371.2	371.0									
-Y2- STA. 31+20	RT.	107		376.3											
	RT.	107	OUT		370.6	370.5									
-Y2- STA. 36+10	RT.	108		375.5											
	RT.	108	109		372.5	372.2			28						
-Y2- STA. 36+40	RT.	109		375.0											
-Y3- STA. 15+08	LT./RT.	110			328.0	325.5							164		
-Y3- STA. 15+00	LT.	111		333.6											
	LT.	111	OUT		328.6	327.3									
-Y3- STA. 18+00	LT.	112		337.6											
	LT.	112	OUT		335.5	335.0				104					
-Y4- STA. 11+00	LT./RT.	113			334.3	331.1							88		
SHEET TOTAL									240	320	108		252		
PROJECT TOTAL									4436		1832		1524		
										1196		1700		60	
SAY															

STATION	LOCATION	FROM	TO	BITUMINOUS COATED C.S. PIPE, TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR ALUMINIZED C. S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
	LT.	94	OUT																	52				
	LT.	96	97																	164				
	LT.	97	98																92					
	LT.	98	99																332					
	LT.	99	100															8						
	RT.	IN	102		28																			
	RT.	106	OUT																	28				
	RT.	107	OUT																	24				
	LT.	111	OUT															32						
SHEET TOTAL					28													40	424	268				
PROJECT TOTAL					76	40												196	424	268		208		

STATION	LOCATION	FROM	TO	15" SIDE DRAIN PIPE	36" RC PIPE CULVERTS, CLASS IV	42" WELDED STEEL PIPE, 0.625" THICK, (TRENCHLESS INSTALLATION)	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET
-Y3- STA. 10+65	LT.	94							1	5.0	1.8	1		1				
-Y3- STA. 11+13	RT.	95							1			1			1			
-Y- STA. 17+70	LT.	96							1									
-Y- STA. 19+35	LT.	97							1									
-Y- STA. 20+25	LT.	98							1									
-Y- STA. 23+57	LT.	99							1									
-Y- STA. 23+60	LT.	100							1									
-Y2- STA. 26+00	RT.	101							1			1		1				
-Y2- STA. 27+20	RT.	102							1			1		1				
-Y2- STA. 27+53	LT.	103							1			1			1			
-Y2- STA. 27+53	RT.	104							1									
-Y2- STA. 29+23	RT.	105							1			1			1			
-Y2- STA. 29+53	RT.	106							1			1			1			
-Y2- STA. 31+20	RT.	107							1	0.7		1			1			
-Y2- STA. 36+10	RT.	108							1			1		1				
-Y2- STA. 36+40	RT.	109							1									
-Y3- STA. 15+08	LT./RT.	110					3.4											
-Y3- STA. 15+00	LT.	111							1			1		1				
-Y3- STA. 18+00	LT.	112							1									
-Y4- STA. 11+00	LT./RT.	113					3.4											
SHEET TOTAL							6.8		18	5.7	1.8	10		5	5			
PROJECT TOTAL				20	496	92	11.3		107	56.1	6.8	55	2	23	30			31
SAY							12.0			65								

STATION	LOCATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16 (2 GRATES)	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. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	T.B.J.B. STD. 840.34	M.H. FRAME & COVER STD. 840.54	J.B. STD. 840.31 OR 840.32	CONV. EXIST. C.B. TO J.B.		PREFORMED SCOUR HOLE	DRY DETENTION BASIN (SEE SHEETS 2-E THRU 2-G)	CONCRETE OR BRICK PIPE PLUG STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD 840.72	CORR. STEEL ELBOWS NO. & SIZE	PIPE REMOVAL LIN.FT.	REMARKS
-Y- STA. 18+25	LT.	90																				112	REMOVE EXIST. DI & EXIST. 15" RCP
-Y- STA. 19+50	LT.	91																				204	104' EXIST. 15" RCP & 100' EXIST. 15" PVC
-Y- STA. 21+00	LT.	92																				24	REMOVE EXISTING 15" RCP
-Y- STA. 22+05	LT.	93																				20	REMOVE EXISTING 15" RCP
-Y- STA. 17+70	LT.	96					1		1														
-Y- STA. 19+35	LT.	97					1		1														
-Y- STA. 20+25	LT.	98					1		1														
-Y- STA. 23+57	LT.	99											1	1									
-Y- STA. 23+60	LT.	100					1		1														
-Y1- STA. 26+65	LT.	114																				44	REMOVE 15" RCP
	RT.	IN	102																		2@15"		BERM DITCH OUTLET STD. 850.10 ROD AND LUG CONNECTORS
-Y2- STA. 27+53	LT.	103																		.4465			COLLAR AND EXTEND
-Y2- STA. 27+53	RT.	104										1	1										
	RT.	IN	104																	.4465			COLLAR AND EXTEND
	RT.	104	105																			24	REMOVE EXIST. CB & EXIST. 18' RCP
-Y2- STA. 36+40	RT.	109										1	1										REMOVE CB
-Y3- STA. 18+00	LT.	112					1		1														
-Y4- STA. 11+00	LT./RT.	113																				44	REMOVE EXISTING 30" RCP
SHEET TOTAL							5		5			2	3	1						.8930	2@15"	472	
PROJECT TOTAL				32	32	1	8	1	6	4	1	6	10	3	1		1	2	.524		4@15" 2@18"	908	
																				2.6642			
SAY																			1.0	3.0			

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

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6/21/09

COMPUTED BY: PJS DATE: 11/29/07
CHECKED BY: DWG DATE: 02/23/09

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4703	3-F

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS					IMPACT ATTENUATOR TYPE 350			REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE B-77	CAT-1	TYPE III	TYPE 350	TERMINAL SECTIONS	NO.	PERMITTED G	PERMITTED NG	
-L-	30+43.57	31+81.07	LT.	137.5				31+81.07	7.5	16		112.50		2.39		1	1						
-L-	27+46.43	31+58.93	RT.	412.5			28+50.00		7.5	16	343.75		6.5				1	1					
-L-	30+04.00	31+69.16	MED.	300.0											2					1		1	
-L-	35+49.07	37+74.07	LT.	225.0			36+50.00		7.5	16	156.25		3.12				1	1					
-L-	35+26.93	36+76.93	RT.	150.0				36+00.00	7.5	16		125		2.5		1	1						
-L-	35+38.79	37+04.00	MED.	300.0											2					1		1	
-L-	62+50.00	67+37.50	RT.	487.5			62+50.00	67+37.50	14	16						1		1					
-Y-	15+00.00	19+00.00	RT.	400.0			16+00.00	19+00.00	8	11						1		1					
	-Y3- 11+12.54	-Y- 15+50.00	LT.	112.5	62.5				14/8	16/11						1		1					
-Y1-	27+75.00	BARRICADE	CL	25.0															2				
-Y1-	29+67.00	BARRICADE	CL	25.0															2				
			TOTALS	2575.00	62.5										4	5	4	5	4	2		2	
DEDUCTION FOR ANCHORS																							
		TYPE B-77 4 @ 18.75 =		-75.0																			
		TYPE III 4 @ 18.75 =		-75.0																			
		TYPE 350 5 @ 50 =		-250.0																			
		CAT-1 5 @ 6.25 =		-31.25																			
		PROJECT TOTALS		2143.75	62.5										4	5	4	5	4	2		2	
		SAY		2175	75																		
ADDITIONAL GUARDRAIL POSTS = 20 EA.																							

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQUARE YARDS
-Y1-	13+44.70	17+26.85	LT/RT	849.22
-Y1-	27+45.00	29+67.00	LT/RT	493.33
			TOTAL:	1342.55
			SAY:	1350

48" BLACK VINYL COATED CHAIN LINK FENCE

STATION TO STATION	LOCATION LT/RT/CL	48" FABRIC LF	LINE POST	TERMINAL POST
-Y- 27+17.25 TO -L- 24+80.00	LT	1144.29	95.69	10
-L- 25+80.00 TO 31+81.07	LT	614.05	51.67	7
-L- 35+49.07 TO 41+60.00	LT	623.02	51.92	4
-L- 42+60.00 TO 44+75.00	LT	218.67	18.06	3
-L- 45+75.00 TO 49+00.00	LT	326.20	26.85	2
-L- 50+00.00 TO 55+57.00	LT	557.00	46.08	2
-L- 56+57.00 TO 61+03.00	LT	465.96	38.66	3
-L- 62+03.00 TO 64+53.00	LT	269.27	22.44	4
-L- 65+53.00 TO 67+52.00	LT	212.30	17.86	5
-L- 69+02.00 TO 73+54.00	LT	469.62	39.47	6
-L- 74+54.00 TO -Y2- 27+00.00	-L-LT/-Y2-RT	539.63	45.30	6
-Y-29+37.25 TO -L- 24+80.00	-Y-LT/-L-RT	1126.82	94.40	7
-L- 25+80.00 TO 31+58.93	RT	604.74	50.56	5
-L- 35+26.93 TO 42+10.00	RT	690.26	57.52	4
-L- 43+10.00 TO 44+75.00	RT	162.62	13.22	2
-L- 45+75.00 TO 49+00.00	RT	324.21	26.85	3
-L- 50+00.00 TO 55+57.00	RT	557.00	46.08	2
-L- 56+57.00 TO 61+53.00	RT	499.90	41.83	5
-L- 62+53.00 TO 67+52.00	RT	516.21	43.35	6
-L- 69+02.00 TO 73+54.00	RT	469.32	39.44	6
-L- 74+54.00 TO -Y2- 29+40.00	-L-LT/-Y2-RT	575.82	48.32	6
-L- 26+25.00 TO 28+10.00	RT	833.30	69.78	6
-L- 34+50.00 TO 38+70.00	RT	629.02	53.25	9
	TOTAL:	12429.22	1038.60	113
	SAY:	12450	1040	120
METAL GATE POSTS FOR 48" CHAIN LINK FENCE, SINGLE GATE - 4 EACH				
SINGLE GATES, 48" HIGH, 20' WIDE, 20' OPENING - 2 EACH				

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-Y-	15+00.00	19+00.00	400
		TOTAL:	400
		SAY:	400

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COMPUTED BY: DWG DATE: 11/29/07
CHECKED BY: PJS DATE: 02/23/09

PROJECT REFERENCE NO.	SHEET NO.
U-4703	3-G

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	EMBT + %	BORROW	WASTE
SUMMARY NO. 1				
–L– 8+00.00 TO 12+92.77				
TOTAL SUMMARY NO. 1				
SUMMARY NO. 2				
–L– 13+61.48 TO 31+69.16 (BB)	5517	45958	40441	
–Y– 12+00.00 TO 29+27.00	874	4699	3825	
–Y1– 26+33.07 TO 27+55.94	71	166	95	
–Y3– 10+85.09 TO 18+83.10	1398	8737	7339	
–Y4– 10+94.36 TO 11+94.17	231	420	189	
TOTAL SUMMARY NO. 2	8091	59980	51889	
SUMMARY NO. 3				
–L– 35+38.79 (EB) TO 57+00.00	29477	29946	469	
TOTAL SUMMARY NO. 3	29477	29946	469	
SUMMARY NO. 4				
–L– 57+00.00 TO 80+21.10	24225	39203	14978	
–Y2– 23+24.45 TO 27+50.00	1085			1085
–Y2– 29+00.00 TO 37+50.00	789	802	13	
TOTAL SUMMARY NO. 4	26099	40005	14991	1085
SUMMARY NO. 5				
–L– 80+65.61 TO 84+50.00	360	13		347
TOTAL SUMMARY NO. 5	360	13		347
SUMMARY TOTALS	64027	129944	67349	1432
LOSS DUE TO C & G	–5900		5900	
WASTE IN LIEU OF BORROW			–1432	–1432
EST. SHOULDER MATERIAL		384	384	
PROJECT SUBTOTALS	58127	130328	72201	
EST. 5% FOR REPLACING TOPSOIL ON BORROW PIT			3611	
PROJECT TOTALS	58127	130328	75812	
SAY	58200		75900	

DIVISION UNDERCUT QUANTITY (PLFI) = 2500 CY

FABRIC FOR SOIL STABILIZATION = 800 SY

FABRIC FOR SOIL STABILIZATION IN UNDERCUT OF SUBGRADE = 850 SY

SELECT GRANULAR MATERIAL = 1650 CY

UNDERDRAINS = 1000 LF (SEE "SUBSURFACE DRAINAGE–UNDERDRAIN" PROJECT SPECIAL PROVISION)

PAVEMENT STRUCTURE VOLUME = 9500 CY

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

PROJ. REFERENCE NO.	SHEET NO.
U-4703	3-H

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	TOWN OF GARNER
1A	4	JACQUES EL CHAYEB ERA IN HOUSE REALTY
1B	4	MCDONALDS CORPORATION
2	4,5,5A	BRENDA W. FOWLER, et al
3	5	TOWN OF GARNER
4	5,5A,6	BONNIE G. RAY
5	6	JOHN T. WINTERS
6	6,7	WILLIAM WINTERS, et al
7	7	DELORES W. PRYOR
8	7	JESSIE MCCULLERS & WILLIAM THOMAS
9	7,8,9,11	LEIGH VENTURES, A NC GENERAL PARTNERSHIP
10	9	GARNER RETAIL SPE LLC
11	10	GARNER CHURCH OF CHRIST
12	10	W. E. MCLAMB
13	10	RYAN L. CREECH
14	10	NATALIE HEATON
15	10	W. E. MCLAMB
16	10	ROLAND DODSON
17	10	JOSEPH LOVEJOY
18	10	GLENN BAREFOOT
19	10	RONALD THOMPSON
20	10	WILLIAM C. MCLAMB
21	11	JIMMY ALLEN
22	10	PHILIP KING
23	4,10	PERRY KIRCH
24	4	STATE EMPLOYEES CREDIT UNION

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
U-4703	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 2/16/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR 2-18-10

-L-

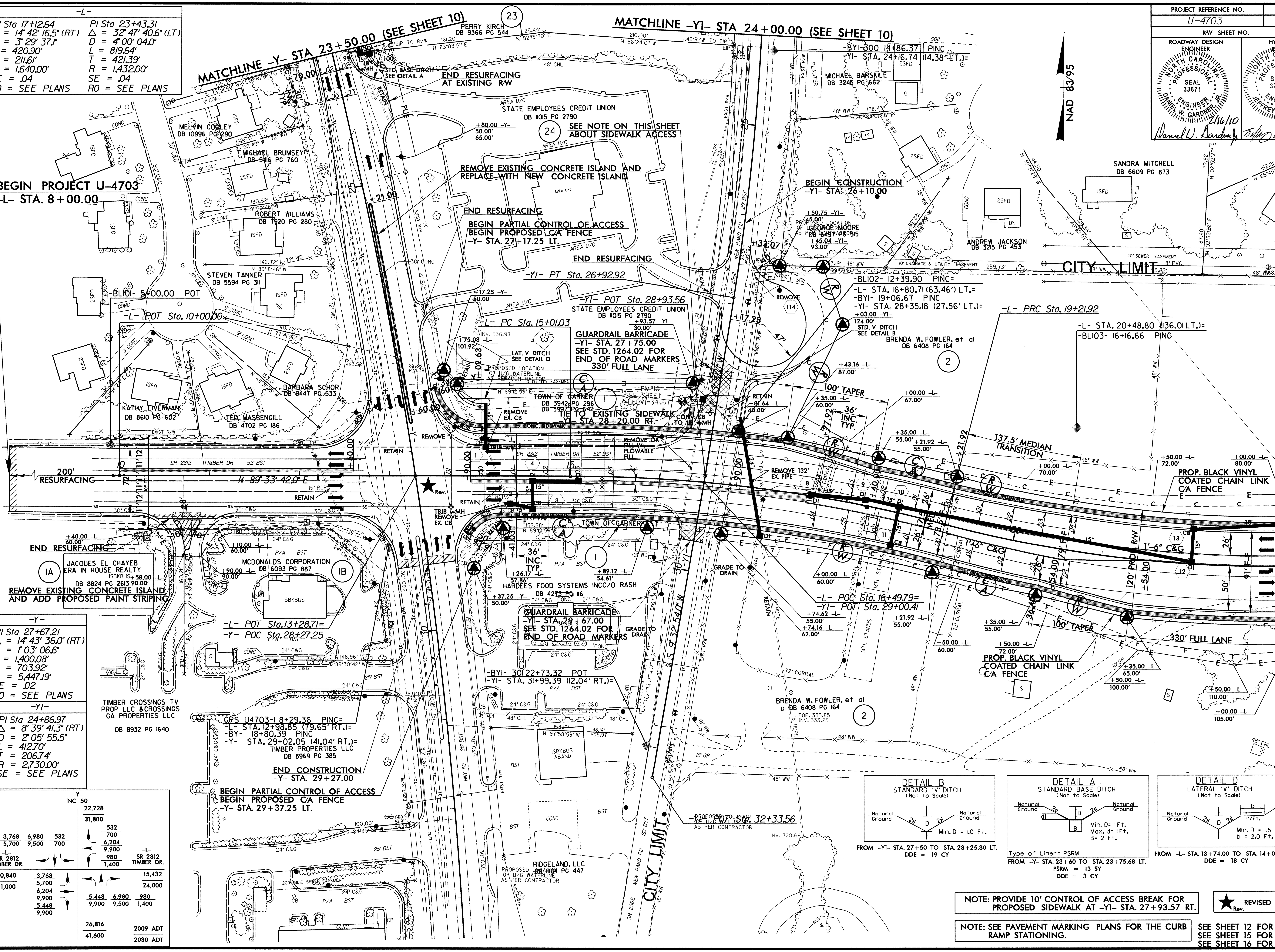
PI Sta 17+12.64	PI Sta 23+43.31
Δ = 14° 42' 16.5" (RT)	Δ = 32° 47' 40.6" (LT)
D = 3° 29' 37.1"	D = 4° 00' 04.0"
L = 420.90'	L = 819.64'
T = 211.61'	T = 421.39'
R = 1,640.00'	R = 1,432.00'
SE = .04	SE = .04
RO = SEE PLANS	RO = SEE PLANS

-Y-

PI Sta 27+67.21
Δ = 14° 43' 36.0" (RT)
D = 1° 03' 06.6"
L = 1,400.08'
T = 703.92'
R = 5,447.19'
SE = .02
RO = SEE PLANS

-Y1-

PI Sta 24+86.97
Δ = 8° 39' 41.3" (RT)
D = 2° 05' 55.5"
L = 412.70'
T = 206.74'
R = 2,730.00'
SE = SEE PLANS



MATCHLINE -Y- STA 23+50.00 (SEE SHEET 10)
MATCHLINE -Y1- STA 24+00.00 (SEE SHEET 10)
MATCHLINE -L- STA 23+00.00 (SEE SHEET 5)
NAD 83/95
BEGIN PROJECT U-4703
-L- STA. 8+00.00
END RESURFACING AT EXISTING R/W
STATE EMPLOYEES CREDIT UNION
SEE NOTE ON THIS SHEET ABOUT SIDEWALK ACCESS
REMOVE EXISTING CONCRETE ISLAND AND REPLACE WITH NEW CONCRETE ISLAND
END RESURFACING
BEGIN PARTIAL CONTROL OF ACCESS
BEGIN PROPOSED C/A FENCE
-Y- STA. 27+17.25 LT.
-Y1- PT Sta. 26+92.92
-Y1- POT Sta. 28+93.56
BEGIN CONSTRUCTION
-Y1- STA. 26+10.00
CITY LIMIT
-BL102- 12+39.90 PINC=
-L- STA. 16+80.71 (63.46' LT.)=
-BY1- 19+06.67 PINC
-Y1- STA. 28+35.18 (27.56' LT.)=
-L- PRC Sta. 19+21.92
-L- STA. 20+48.80 (136.01 LT.)=
-BL103- 16+16.66 PINC
-BL101- 5+00.00 POT
-L- POT Sta. 10+00.00
-L- PC Sta. 15+01.03
GUARDRAIL BARRICADE
-Y1- STA. 27+75.00
SEE STD. 1264.02 FOR END OF ROAD MARKERS
330' FULL LANE
100' TAPER
137.5' MEDIAN TRANSITION
TIE TO EXISTING SIDEWALK
-Y1- STA. 28+20.00 RT.
200' RESURFACING
N 89° 33' 42.0" E
PROP. BLACK VINYL COATED CHAIN LINK C/A FENCE
END RESURFACING
REMOVE EXISTING CONCRETE ISLAND AND ADD PROPOSED PAINT STRIPING
-L- POT Sta. 13+28.71=
-Y- POC Sta. 28+27.25
-L- POC Sta. 16+49.79=
-Y1- POT Sta. 29+00.41
GUARDRAIL BARRICADE
-Y1- STA. 29+67.00
SEE STD. 1264.02 FOR END OF ROAD MARKERS
-BY1- 30 22+73.32 POT
-Y1- STA. 31+99.39 (12.04' RT.)=
GPS U4703-1 8+29.36 PINC=
-L- STA. 12+98.85 (79.65' RT.)=
-BY- 18+80.39 PINC
-Y- STA. 29+02.05 (41.04' RT.)=
END CONSTRUCTION
-Y- STA. 29+27.00
BEGIN PARTIAL CONTROL OF ACCESS
BEGIN PROPOSED C/A FENCE
-Y- STA. 29+37.25 LT.
-Y1- POT Sta. 32+33.56
CITY LIMIT
MCDONALDS CORPORATION DB 6093 PG 887
HARDEES FOOD SYSTEMS INC C/O RASH DB 4273 PG 116
TOWN OF GARNER DB 3942 PG 296 DB 3937 PG 642
BRENDA W. FOWLER, et al DB 6408 PG 164
TIMBER CROSSINGS TV PROP LLC & CROSSINGS GA PROPERTIES LLC DB 8932 PG 1640
RIDGELAND, LLC DB 8164 PG 447
JACQUES EL CHAYEB ERA IN HOUSE REALTY DB 8824 PG 2613
SANDRA MITCHELL DB 6609 PG 873
MICHAEL BARSKILE DB 3245 PG 662
PERRY KIRCH DB 9366 PG 544
ANDREW JACKSON DB 3215 PG 453
REVISIONS

-Y- NC 50	
22,728 / 31,800	
26,816 / 41,600	
SR 2812 TIMBER DR. 30,840 / 51,000	-L- SR 2812 TIMBER DR. 15,432 / 24,000

2009 ADT
2030 ADT

DETAIL B — STANDARD 'V' DITCH (Not to Scale)
Natural Ground; Min. D = 1.0 Ft.
FROM -Y1- STA. 27+50 TO STA. 28+25.30 LT.
DDE = 19 CY

DETAIL A — STANDARD BASE DITCH (Not to Scale)
Natural Ground; Min. D = 1 Ft.; Max. d = 1 Ft.; B = 2 Ft.
Type of Liner = PSRM
FROM -Y- STA. 23+60 TO STA. 23+75.68 LT.
PSRM = 13 SY
DDE = 3 CY

DETAIL D — LATERAL 'V' DITCH (Not to Scale)
Natural Ground; Fill Slope; Min. D = 1.5 Ft.; b = 2.0 Ft.
FROM -L- STA. 13+74.00 TO STA. 14+07.00 LT.
DDE = 18 CY

NOTE: PROVIDE 10' CONTROL OF ACCESS BREAK FOR PROPOSED SIDEWALK AT -Y1- STA. 27+93.57 RT.

★ REVISED SIGNAL

NOTE: SEE PAVEMENT MARKING PLANS FOR THE CURB RAMP STATIONING.

SEE SHEET 12 FOR -L- PROFILE
SEE SHEET 15 FOR -Y- PROFILE
SEE SHEET 16 FOR -Y1- PROFILE

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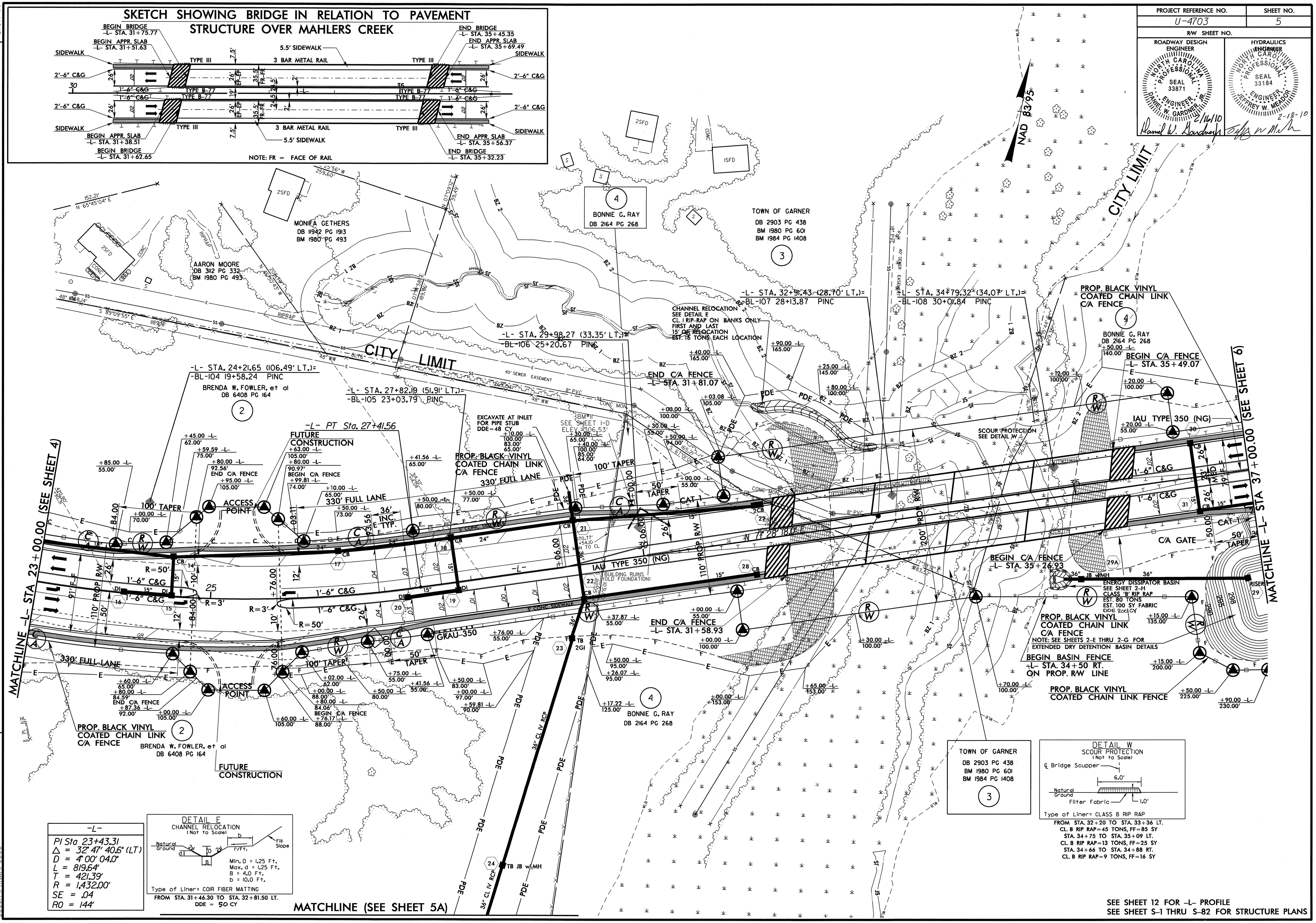
PROJECT REFERENCE NO. U-4703
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR
2/16/10
2-18-10
SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT
STRUCTURE OVER MAHLERS CREEK
BEGIN BRIDGE -L- STA. 31+75.77
BEGIN APPR. SLAB -L- STA. 31+51.63
END BRIDGE -L- STA. 35+45.35
END APPR. SLAB -L- STA. 35+69.49
BEGIN APPR. SLAB -L- STA. 31+38.51
BEGIN BRIDGE -L- STA. 31+62.65
END APPR. SLAB -L- STA. 35+56.37
END BRIDGE -L- STA. 35+32.23
5.5' SIDEWALK
3 BAR METAL RAIL
TYPE III
TYPE B-77
NOTE: FR = FACE OF RAIL
NAD 83/95
CITY LIMIT
MONIFA GETHERS DB 11942 PG 1913 BM 1980 PG 493
AARON MOORE DB 3112 PG 332 BM 1980 PG 493
BONNIE G. RAY DB 2164 PG 268
TOWN OF GARNER DB 2903 PG 438 BM 1980 PG 601 BM 1984 PG 1408
BRENDA W. FOWLER, et al DB 6408 PG 164
-L- STA. 24+21.65 (106.49' LT.)= -BL-104 19+58.24 PINC
-L- STA. 27+82.19 (51.91' LT.)= -BL-105 23+03.79 PINC
-L- STA. 29+98.27 (33.35' LT.)= -BL-106 25+20.67 PINC
-L- STA. 32+91.43 (28.70' LT.)= -BL-107 28+13.87 PINC
-L- STA. 34+79.32 (34.07' LT.)= -BL-108 30+01.84 PINC
-L- PT Sta. 27+41.56
CHANNEL RELOCATION SEE DETAIL E CL. I RIP-RAP ON BANKS ONLY FIRST AND LAST 15' OF RELOCATION EST. 18 TONS EACH LOCATION
EXCAVATE AT INLET FOR PIPE STUB DDE = 48 CY
BM #11 SEE SHEET 1-D
END C/A FENCE -L- STA. 31+81.07
END C/A FENCE -L- STA. 31+58.93
BEGIN C/A FENCE -L- STA. 35+49.07
BEGIN C/A FENCE -L- STA. 35+26.93
PROP. BLACK VINYL COATED CHAIN LINK C/A FENCE
SCOUR PROTECTION SEE DETAIL W
IAU TYPE 350 (NG)
GRAU-350
BUILDING RUINS (OLD FOUNDATION)
ENERGY DISSIPATOR BASIN SEE SHEET 2-H CLASS 'B' RIP RAP EST. 80 TONS EST. 100 SY FABRIC
NOTE: SEE SHEETS 2-E THRU 2-G FOR EXTENDED DRY DETENTION BASIN DETAILS
BEGIN BASIN FENCE -L- STA. 34+50 RT. ON PROP. R/W LINE
FUTURE CONSTRUCTION
ACCESS POINT
330' FULL LANE
100' TAPER
MATCHLINE -L- STA 23+00.00 (SEE SHEET 4)
MATCHLINE -L- STA 37+00.00 (SEE SHEET 6)
MATCHLINE (SEE SHEET 5A)
-L-
PI Sta 23+43.31
Δ = 32° 47' 40.6" (LT)
D = 4° 00' 04.0"
L = 819.64'
T = 421.39'
R = 1,432.00'
SE = .04
RO = 144'
DETAIL E CHANNEL RELOCATION (Not to Scale)
Min. D = 1.25 Ft. Max. d = 1.25 Ft. B = 4.0 Ft. b = 10.0 Ft.
Type of Liner= COIR FIBER MATTING
FROM STA. 31+46.30 TO STA. 32+81.50 LT. DDE = 50 CY
DETAIL W SCOUR PROTECTION (Not to Scale)
Type of Liner= CLASS B RIP RAP
FROM STA. 32+20 TO STA. 33+36 LT. CL B RIP RAP=45 TONS, FF=85 SY
STA. 34+75 TO STA. 35+09 LT. CL B RIP RAP=13 TONS, FF=25 SY
STA. 34+66 TO STA. 34+88 RT. CL B RIP RAP=9 TONS, FF=16 SY
SEE SHEET 12 FOR -L- PROFILE
SEE SHEET S-1 THRU S-82 FOR STRUCTURE PLANS
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-4703	5A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR.
2/16/10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR
2-18-10

REVISIONS

8/17/99

BZ 1

BZ 1

BZ 2

MATCHLINE (SEE SHEET 5)

NAD 83/95

PROPOSED GATE FOR BASIN ACCESS

+05.00 -L- 450.00'

+60.00 -L- 435.00'

+60.00 -L- 470.00'

+09.52 -L- 490.00'

PROP. BLACK VINYL COATED CHAIN LINK FENCE

2

BRENDA W. FOWLER, et al
DB 6408 PG 164

4

BONNIE G. RAY
DB 2164 PG 268

PDE

36" CL IV RCP

25

TB JB w\MH

CLASS 'I' RIP RAP
EST. 59 TONS
EST. 114 SY FABRIC

NOTE: SEE SHEETS 2-E THRU 2-G FOR EXTENDED DRY DETENTION BASIN DETAILS

274

268

26

RISER

36"

48" WW

WLS

270

ENERGY DISSIPATOR BASIN
SEE SHEET 2-H
CLASS 'B' RIP RAP
EST. 75 TONS
EST. 95 SY FABRIC

DDE 111 CY

+25.00 -L- 670.00'

+44.62 -L- 710.00'

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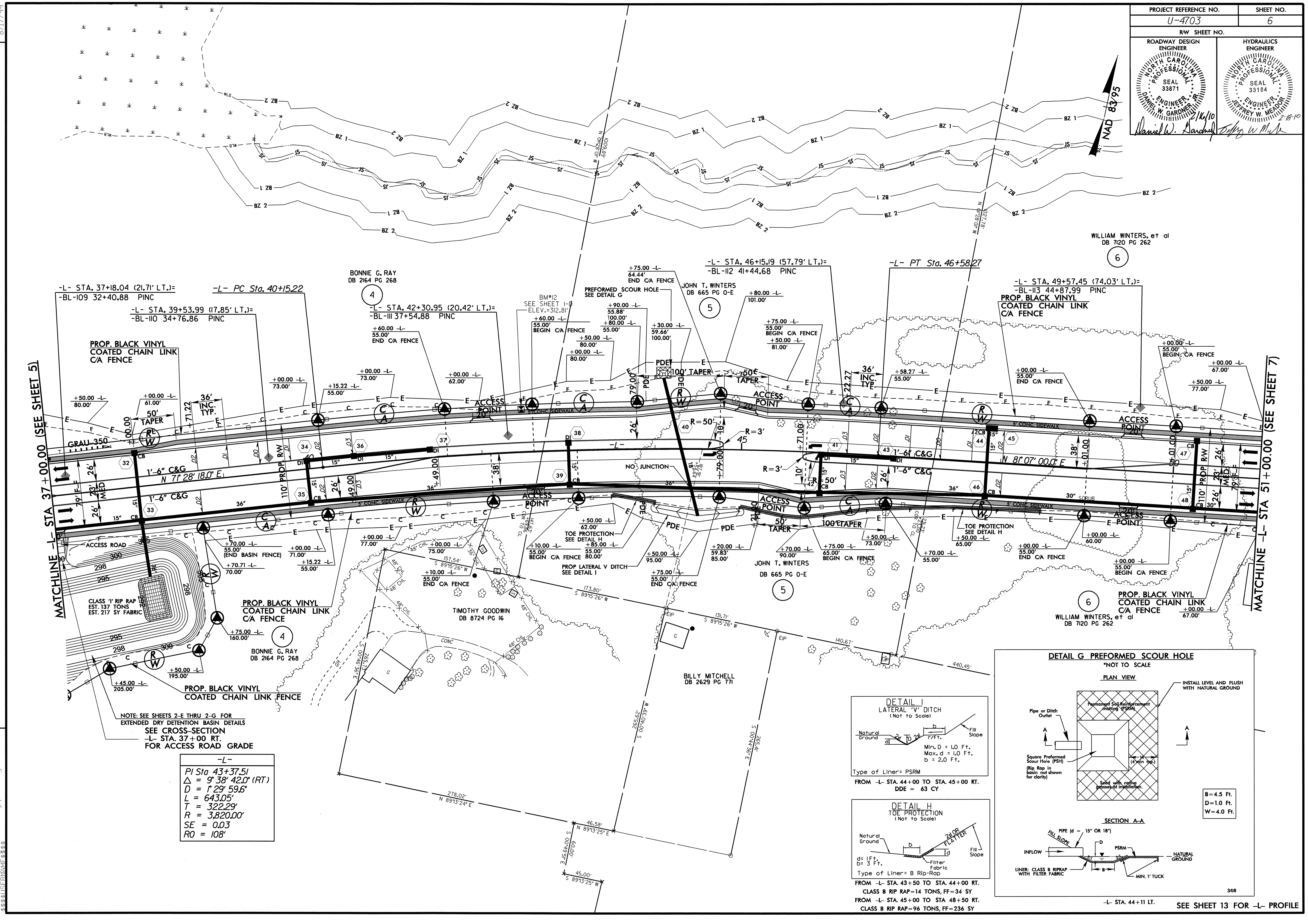
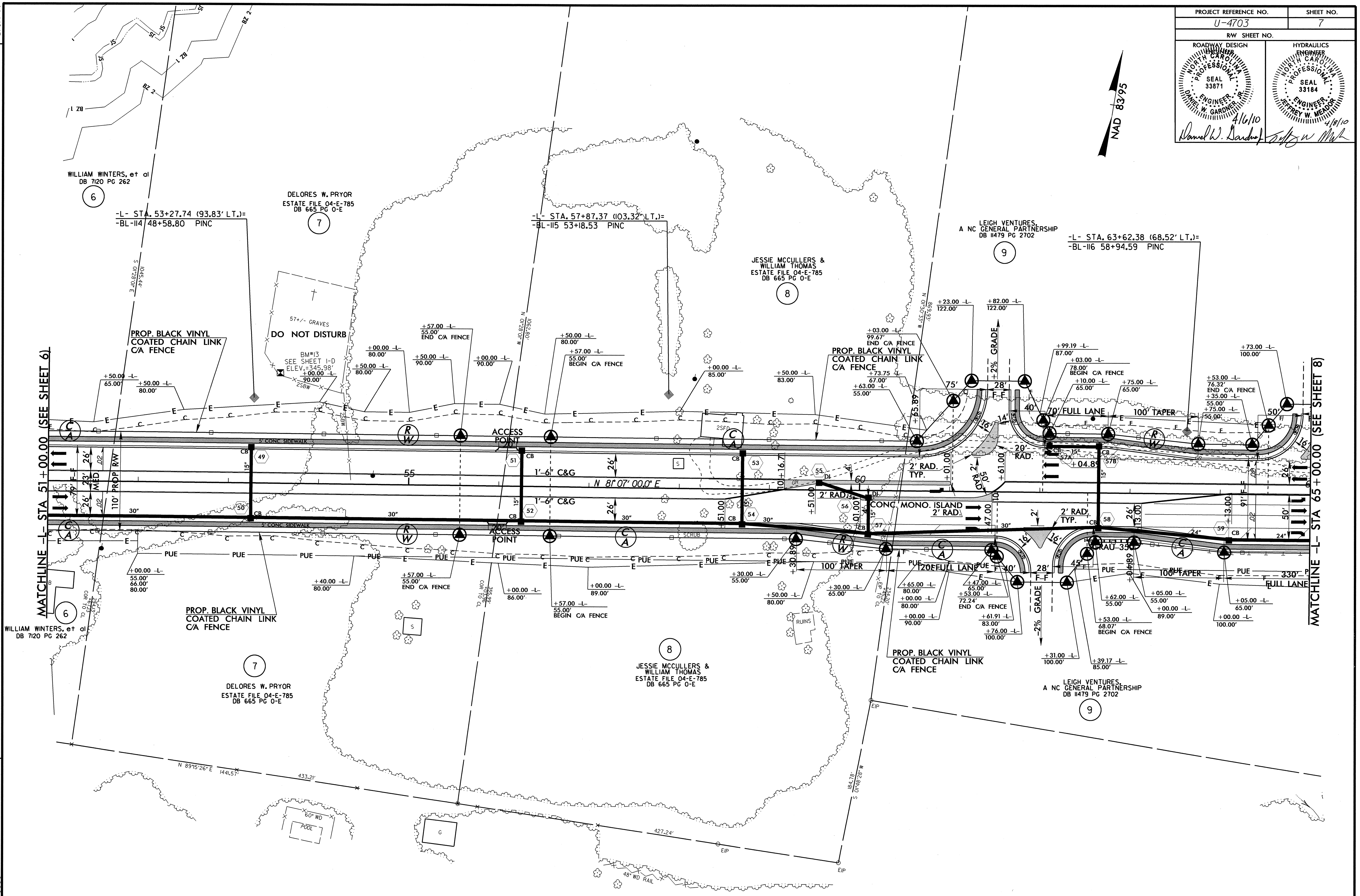


PROJECT REFERENCE NO.	SHEET NO.
U-4703	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 4/6/10	NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR 4/8/10

REVISIONS



NOTE: SEE PAVEMENT MARKING PLANS FOR THE CURB RAMP STATIONING AND CONCRETE ISLAND CUTS.

SEE SHEET 13 FOR -L- PROFILE

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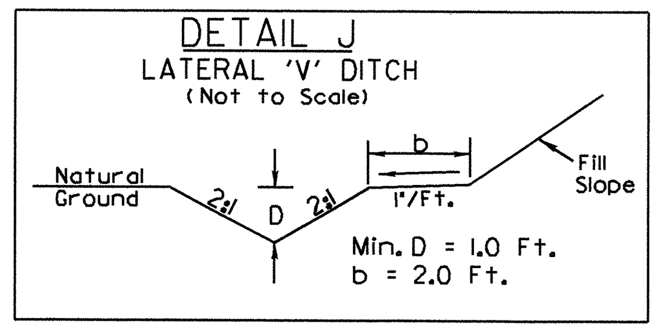
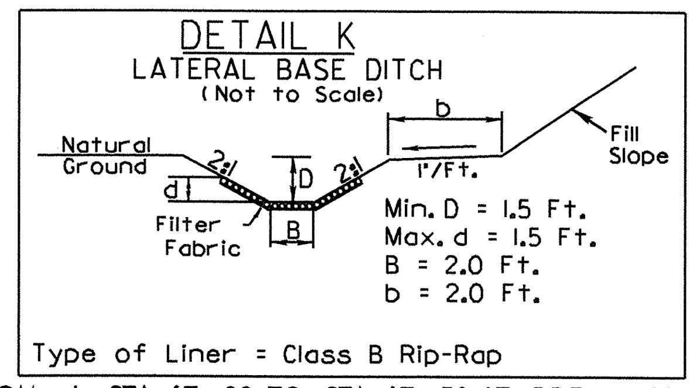
PROJECT REFERENCE NO.	SHEET NO.
U-4703	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 4/6/10

NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR 4/8/10

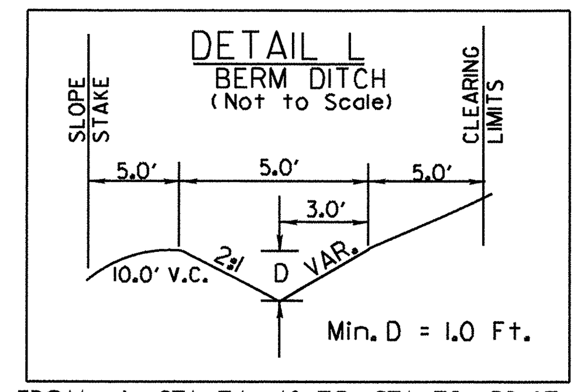


FROM -L- STA. 65+50 TO STA. 67+00 LT.
DDE = 99 CY

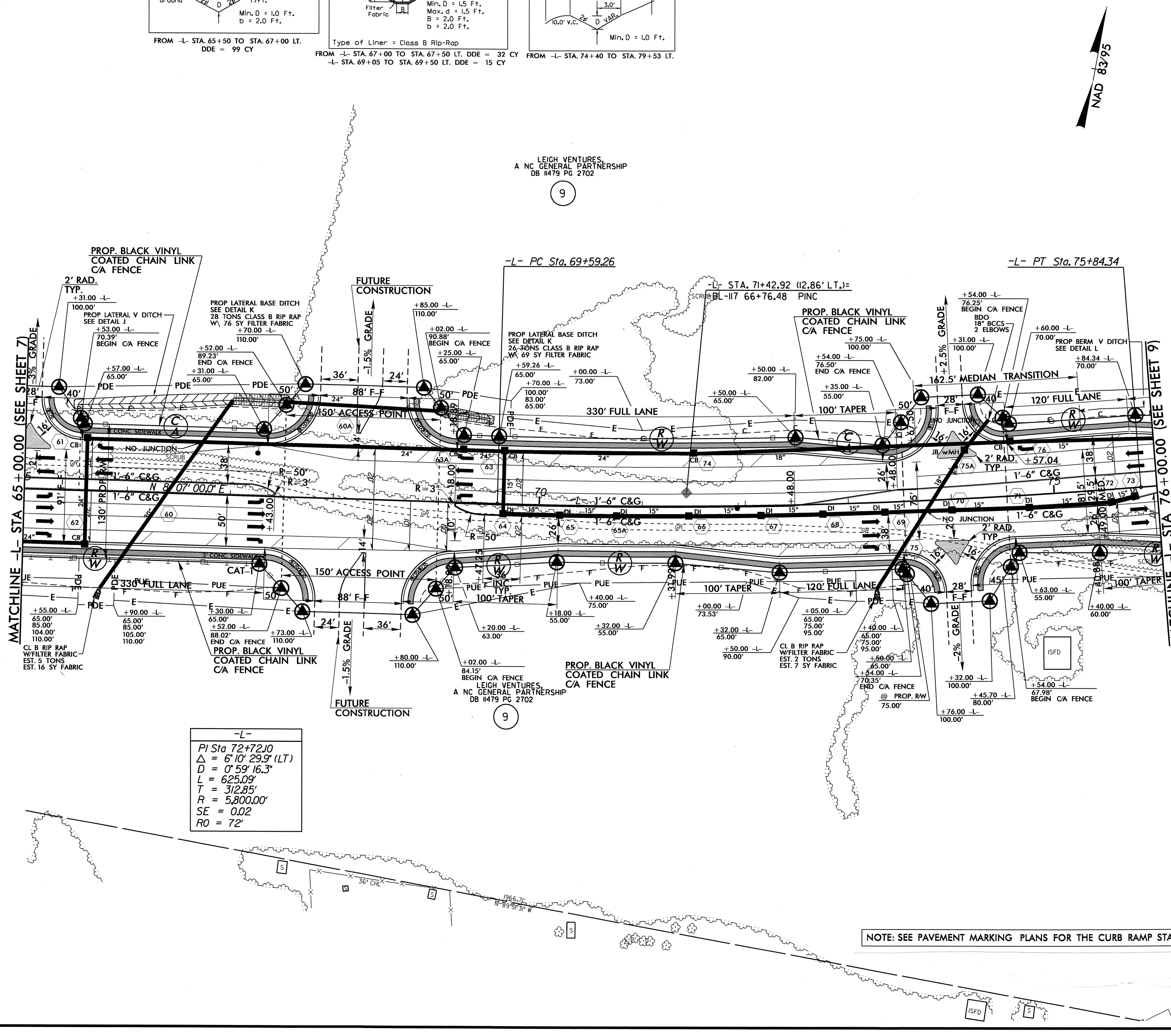


Type of Liner = Class B Rip-Rap

FROM -L- STA. 67+00 TO STA. 67+50 LT. DDE = 32 CY
-L- STA. 69+05 TO STA. 69+50 LT. DDE = 15 CY



FROM -L- STA. 74+40 TO STA. 79+53 LT.



-L-
PI Sta 72+72.10
Δ = 6° 10' 29.9" (LT)
D = 0° 59' 16.3"
L = 625.09'
T = 312.85'
R = 5,800.00'
SE = 0.02
RO = 72'

NOTE: SEE PAVEMENT MARKING PLANS FOR THE CURB RAMP STATIONING AND CONCRETE ISLAND CUTS.

SEE SHEET 14 FOR -L- PROFILE

REVISIONS

8/17/99

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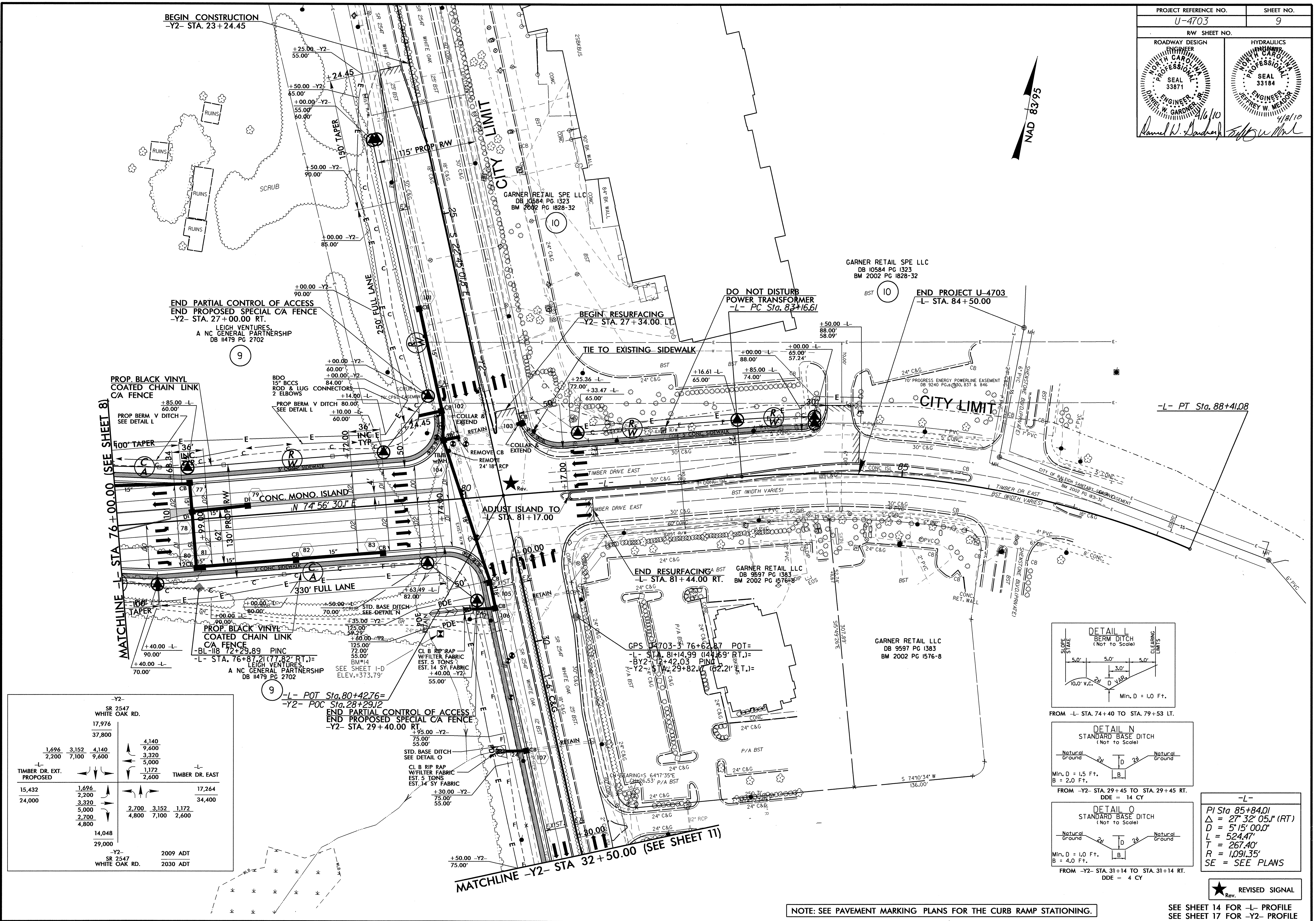
PROJECT REFERENCE NO.	SHEET NO.
U-4703	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 4/6/10

NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR 4/8/10



-L-
PI Sta 85+84.01
Δ = 27° 32' 05.1" (RT)
D = 5° 15' 00.0"
L = 524.47'
T = 267.40'
R = 1,091.35'
SE = SEE PLANS

NOTE: SEE PAVEMENT MARKING PLANS FOR THE CURB RAMP STATIONING.

SEE SHEET 14 FOR -L- PROFILE
SEE SHEET 17 FOR -Y2- PROFILE

REVISIONS

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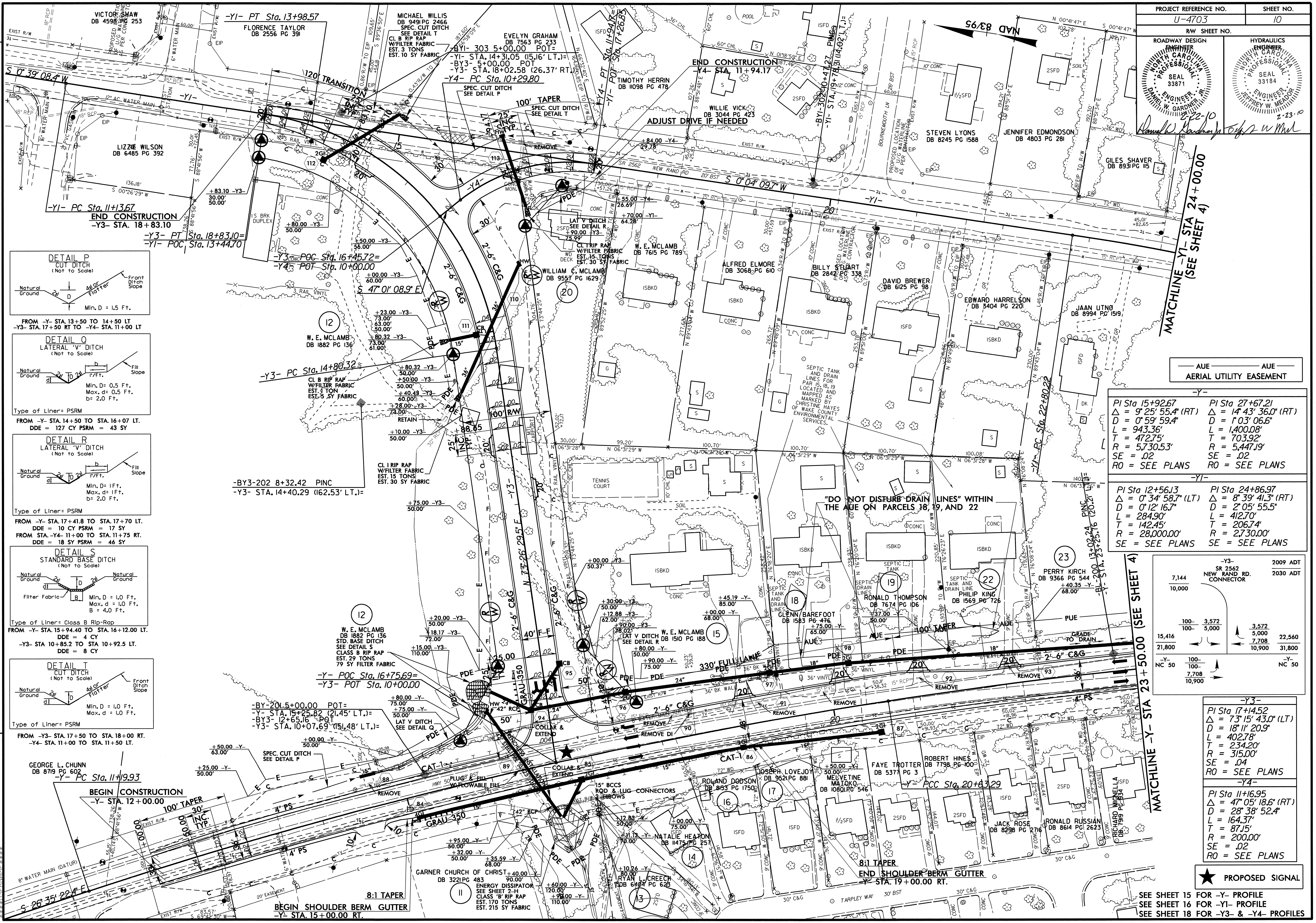
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 2-22-10

NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR 2-23-10

REVISIONS



AUE —— AUE —— AERIAL UTILITY EASEMENT

-Y-	
PI Sta 15+92.67	PI Sta 27+67.21
Δ = 9° 25' 55.4" (RT)	Δ = 14° 43' 36.0" (RT)
D = 0° 59' 59.4"	D = 1° 03' 06.6"
L = 943.36'	L = 1,400.08'
T = 472.75'	T = 703.92'
R = 5,730.53'	R = 5,447.19'
SE = .02	SE = .02
RO = SEE PLANS	RO = SEE PLANS

-Y1-	
PI Sta 12+56.13	PI Sta 24+86.97
Δ = 0° 34' 58.7" (LT)	Δ = 8° 39' 41.3" (RT)
D = 0° 12' 16.7"	D = 2° 05' 55.5"
L = 284.90'	L = 412.70'
T = 142.45'	T = 206.74'
R = 28,000.00'	R = 2,730.00'
SE = SEE PLANS	SE = SEE PLANS

-Y3- SR 2562 NEW RAND RD. CONNECTOR — 2009 ADT / 2030 ADT

7,144 / 10,000; 100- 3,572 / 100- 5,000; 3,572 / 5,000; 7,708 / 10,900; 15,416 / 21,800; 22,560 / 31,800; -Y- NC 50; 100- 100-; 7,708 / 10,900; -Y- NC 50

-Y3-
PI Sta 17+14.52
Δ = 73° 15' 43.0" (LT)
D = 18° 11' 20.9"
L = 402.78'
T = 234.20'
R = 315.00'
SE = .04
RO = SEE PLANS

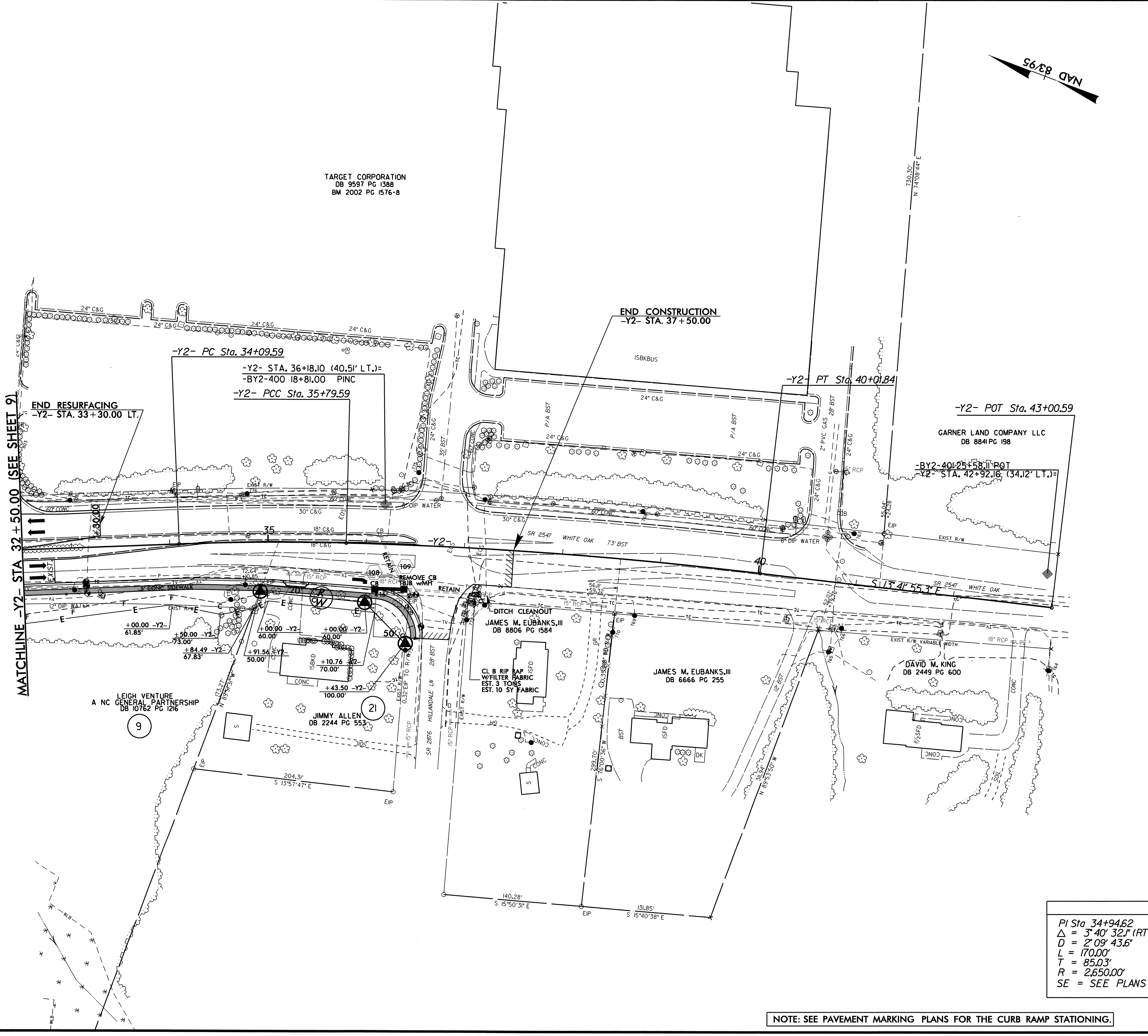
-Y4-
PI Sta 11+16.95
Δ = 47° 05' 18.6" (RT)
D = 28° 38' 52.4"
L = 164.37'
T = 87.15'
R = 200.00'
SE = .02
RO = SEE PLANS

★ PROPOSED SIGNAL

SEE SHEET 15 FOR -Y- PROFILE
SEE SHEET 16 FOR -Y1- PROFILE
SEE SHEET 18 FOR -Y3- & -Y4- PROFILES

PROJECT REFERENCE NO.	SHEET NO.
U-4703	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. 2/16/10	NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR 2-18-10

REVISIONS



-Y2-	
PI Sta 34+94.62	PI Sta 37+90.87
Δ = 3° 40' 32.1" (RT)	Δ = 5° 22' 34.4" (RT)
D = 2° 09' 43.6"	D = 1° 16' 23.7"
L = 170.00'	L = 422.25'
T = 85.03'	T = 211.28'
R = 2,650.00'	R = 4,500.00'
SE = SEE PLANS	SE = SEE PLANS

NOTE: SEE PAVEMENT MARKING PLANS FOR THE CURB RAMP STATIONING.

SEE SHEET 17 FOR -Y2- PROFILE

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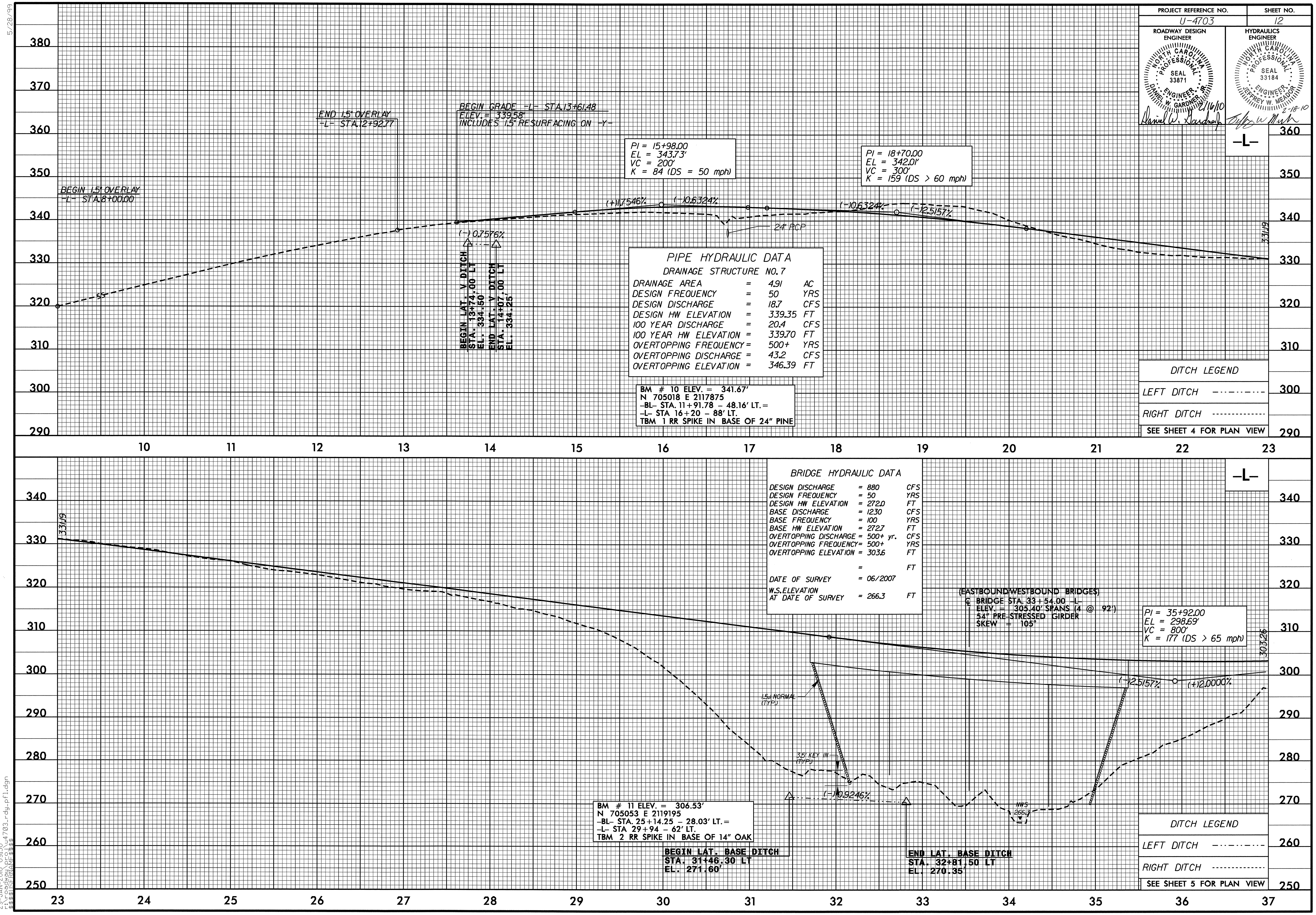


PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 7

DRAINAGE AREA	=	4.91	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	18.7	CFS
DESIGN HW ELEVATION	=	339.35	FT
100 YEAR DISCHARGE	=	20.4	CFS
100 YEAR HW ELEVATION	=	339.70	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	43.2	CFS
OVERTOPPING ELEVATION	=	346.39	FT

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	880	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	272.0	FT
BASE DISCHARGE	=	1230	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	272.7	FT
OVERTOPPING DISCHARGE	=	500+ yr.	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	303.6	FT
	=		FT
DATE OF SURVEY	=	06/2007	
W.S. ELEVATION AT DATE OF SURVEY	=	266.3	FT

PROJECT REFERENCE NO.	SHEET NO.
U-4703	13

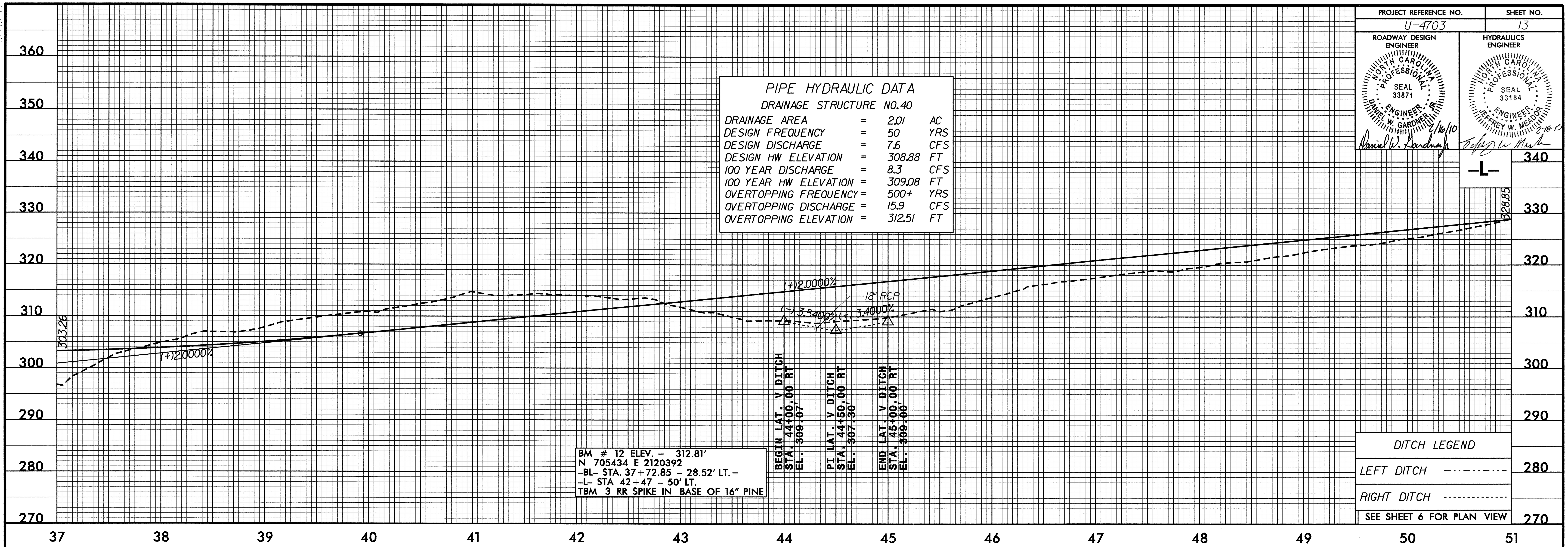
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33871 DANIEL W. GARDNER, JR. 2/16/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33184 JEFFREY W. MEADOR

PIPE HYDRAULIC DATA

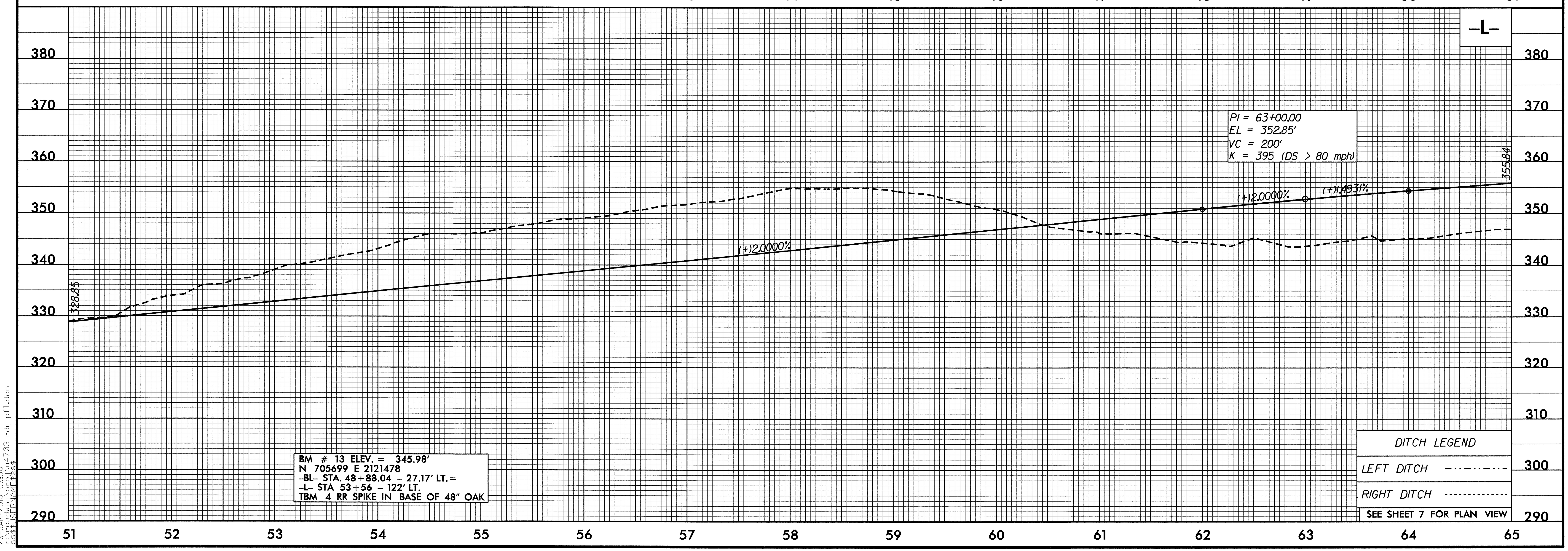
DRAINAGE STRUCTURE NO. 40

DRAINAGE AREA	=	2.01	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	7.6	CFS
DESIGN HW ELEVATION	=	308.88	FT
100 YEAR DISCHARGE	=	8.3	CFS
100 YEAR HW ELEVATION	=	309.08	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	15.9	CFS
OVERTOPPING ELEVATION	=	312.51	FT



BM # 12 ELEV. = 312.81'
N 705434 E 2120392
-BL- STA. 37+72.85 - 28.52' LT. =
-L- STA 42+47 - 50' LT.
TBM 3 RR SPIKE IN BASE OF 16" PINE

DITCH LEGEND
LEFT DITCH -·-·-·-
RIGHT DITCH ---------
SEE SHEET 6 FOR PLAN VIEW



PI = 63+00.00
EL = 352.85'
VC = 200'
K = 395 (DS > 80 mph)

BM # 13 ELEV. = 345.98'
N 705699 E 2121478
-BL- STA. 48+88.04 - 27.17' LT. =
-L- STA 53+56 - 122' LT.
TBM 4 RR SPIKE IN BASE OF 48" OAK

DITCH LEGEND
LEFT DITCH -·-·-·-
RIGHT DITCH ---------
SEE SHEET 7 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-4703	14

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER
4/6/10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR
4/8/10

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.60

DRAINAGE AREA	= 7.67	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 28.6	CFS
DESIGN HW ELEVATION	= 350.93	FT
100 YEAR DISCHARGE	= 31.3	CFS
100 YEAR HW ELEVATION	= 351.02	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 86.6	CFS
OVERTOPPING ELEVATION	= 359.59	FT

-L-

355.84

(+) 0.5000%

(+) 3.5800%

(+) 11.4931%

(+) 3.5778%

30" RCP

BEGIN LAT. V DITCH
STA. 65+50.00 LT
EL. 348.80

END LAT. V DITCH
BEGIN LAT. BASE DITCH
STA. 67+00.00 LT
EL. 348.05

END LAT. BASE DITCH
STA. 67+50.00 LT
EL. 349.84'

BEGIN LAT. BASE DITCH
STA. 69+05.00 LT
EL. 355.39

END LAT. BASE DITCH
STA. 69+50.00 LT
EL. 357.00'

BEGIN BERM DITCH
STA. 74+40.00 LT
EL. 370.50

(+) 0.3704%

PI BERM DITCH
STA. 75+75.00 LT
EL. 371.00'

372.26

(+) 3.7000%

DITCH LEGEND	
LEFT DITCH	-·-·-·-
RIGHT DITCH	----------

SEE SHEET 8 FOR PLAN VIEW

65 66 67 68 69 70 71 72 73 74 75 76

380 370 360 350 340 330 320 310

-L-

PI = 77+50.00
EL = 374.50'
VC = 200'
K = 205 (DS > 65 mph)

372.26

(+) 3.7000%

(+) 11.4931%

PI BERM DITCH
STA. 77+75.00 LT
EL. 378.40'

(-) 0.5056%

(+) 0.5166%

END BERM DITCH
STA. 79+53.00 LT
EL. 377.50'

END GRADE -L- STA. 80+07.45
ELEV. = 375.83'

END OVERLAY AND WIDENING
-L- STA. 84+50.00

BM # 14 ELEV. = 373.79'
N 705906 E 2124092
-BL- STA. 75+09.15 - 31.64' RT. =
-L- STA 79+58 - 152' RT.
TBM 5 RR SPIKE IN BASE OF 24" PINE

DITCH LEGEND	
LEFT DITCH	-·-·-·-
RIGHT DITCH	----------

SEE SHEET 9 FOR PLAN VIEW

76 77 78 79 80 81 82 83 84 85 86 87

380 370 360 350 340 330 320 310

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PROJECT REFERENCE NO.	SHEET NO.
U-4703	15

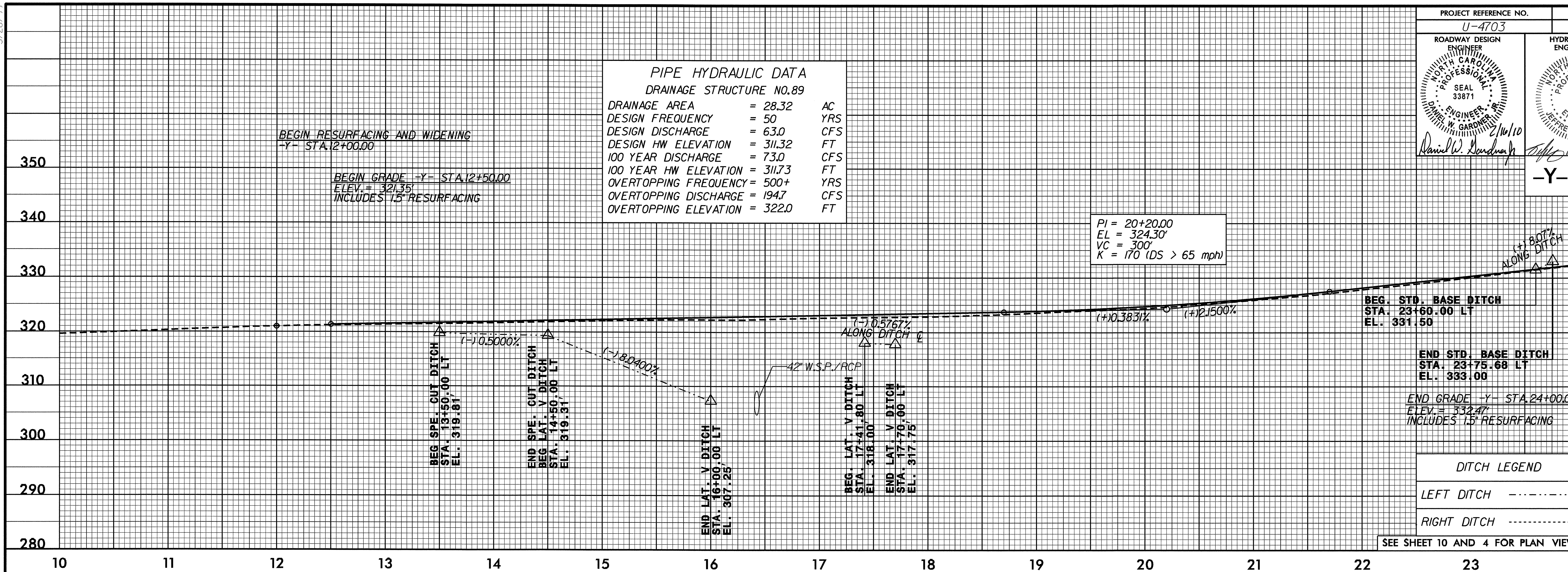
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33871 DANIEL W. GARDNER, JR. 2/16/10

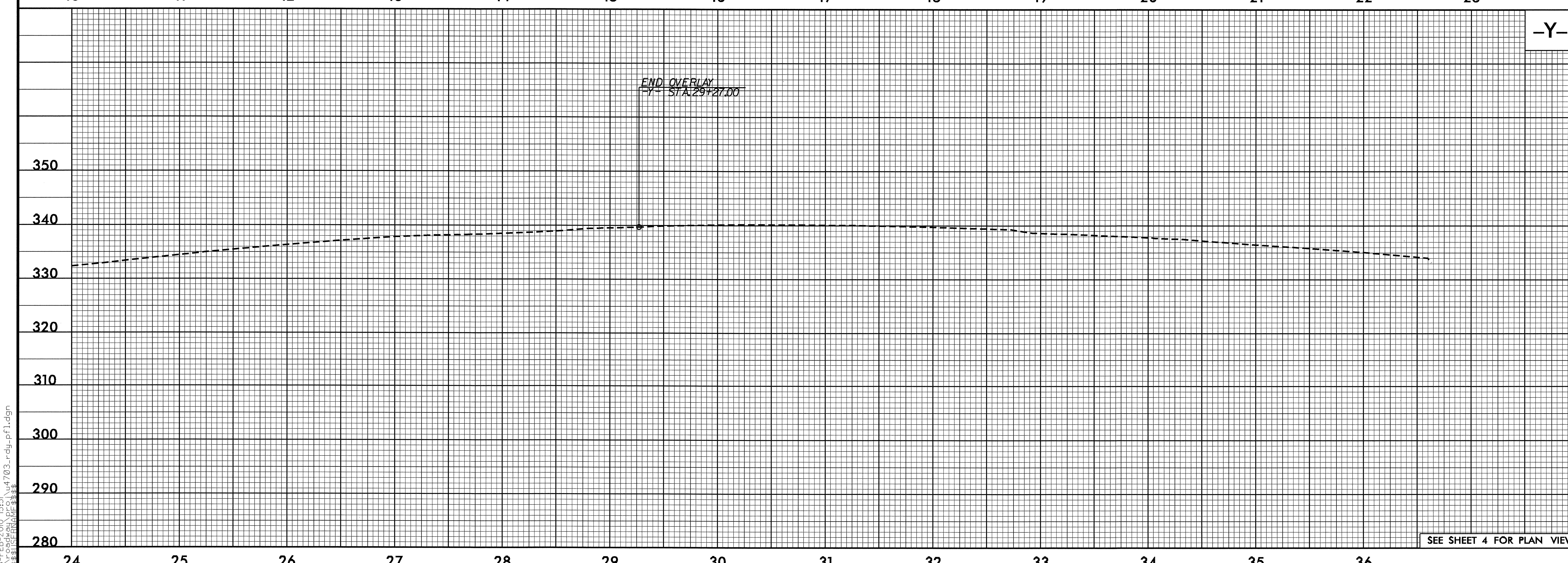
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33184 JEFFREY W. MEADOR 2-18-10

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.89

DRAINAGE AREA	= 28.32	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 63.0	CFS
DESIGN HW ELEVATION	= 311.32	FT
100 YEAR DISCHARGE	= 73.0	CFS
100 YEAR HW ELEVATION	= 311.73	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 194.7	CFS
OVERTOPPING ELEVATION	= 322.0	FT





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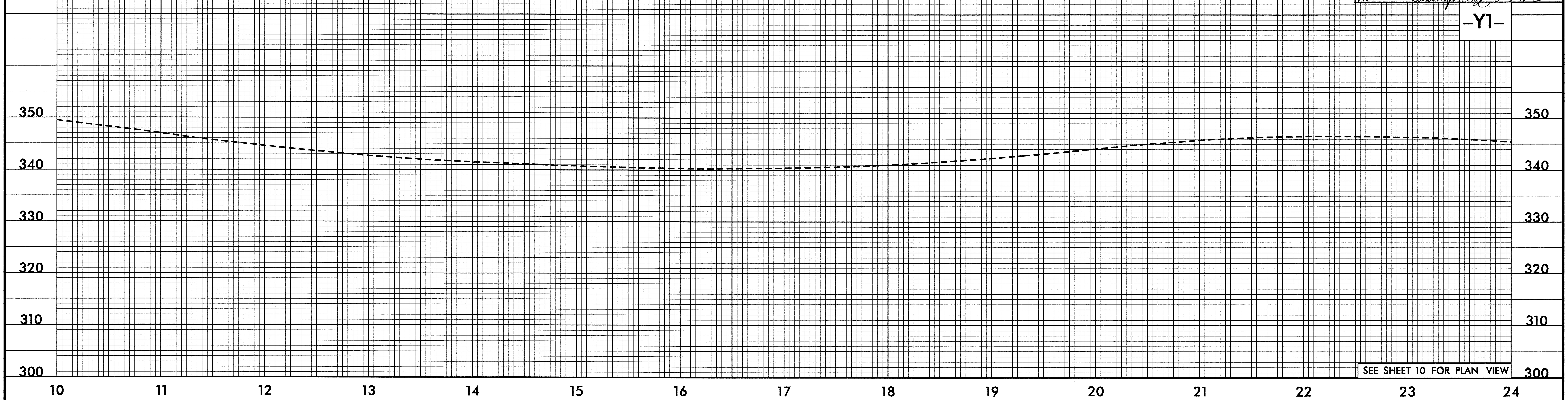
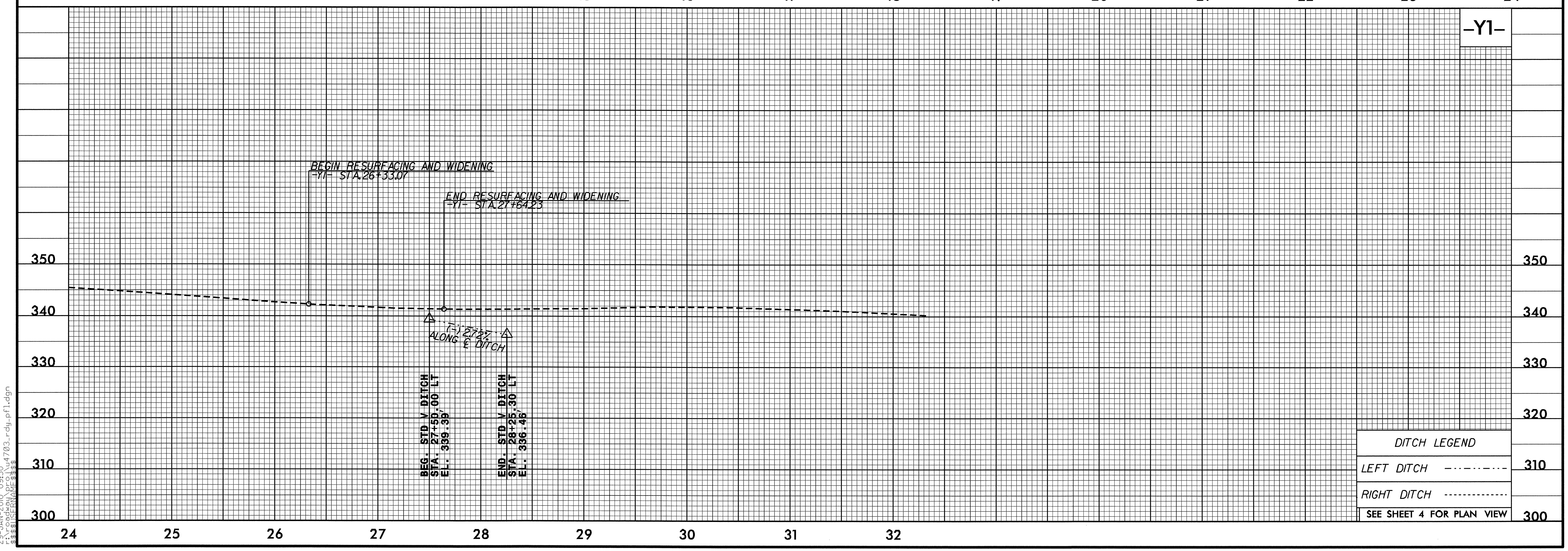
PROJECT REFERENCE NO.	SHEET NO.
U-4703	16

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33871 DANIEL W. GARDNER, JR. 2/16/10	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33184 JEFFREY W. MEADOR 2-18-10

5/28/99





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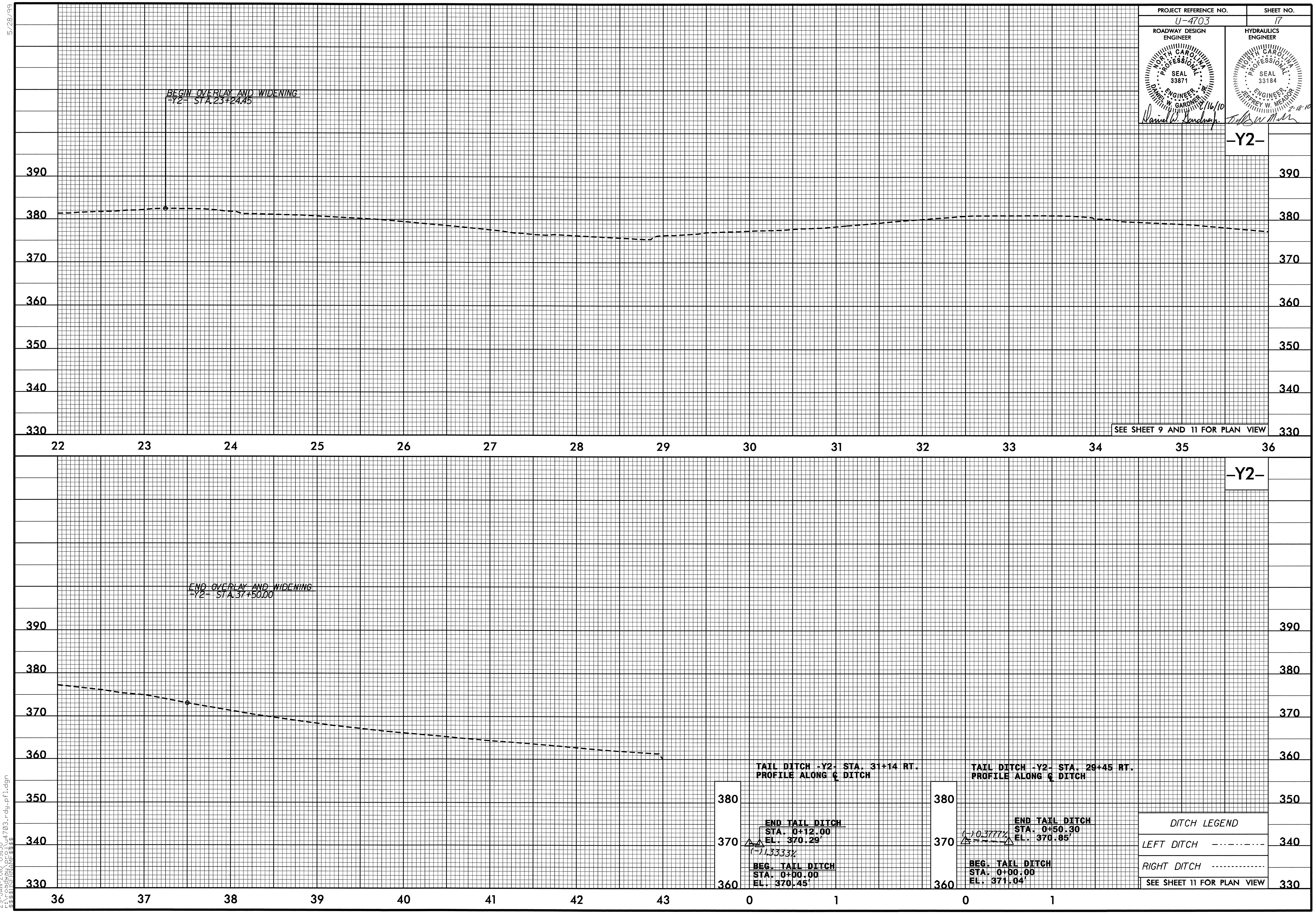

PROJECT REFERENCE NO.
U-4703
SHEET NO.
17
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR.
2/16/10
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33184 ENGINEER JEFFREY W. MEADOR
2-18-10
-Y2-
BEGIN OVERLAY AND WIDENING
-Y2- STA.23+24.45
390
380
370
360
350
340
330
SEE SHEET 9 AND 11 FOR PLAN VIEW
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
-Y2-
END OVERLAY AND WIDENING
-Y2- STA.37+50.00
TAIL DITCH -Y2- STA. 31+14 RT.
PROFILE ALONG ℄ DITCH
END TAIL DITCH
STA. 0+12.00
EL. 370.29'
(-)1.3333%
BEG. TAIL DITCH
STA. 0+00.00
EL. 370.45'
TAIL DITCH -Y2- STA. 29+45 RT.
PROFILE ALONG ℄ DITCH
(-)0.3777%
END TAIL DITCH
STA. 0+50.30
EL. 370.85'
BEG. TAIL DITCH
STA. 0+00.00
EL. 371.04'
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEET 11 FOR PLAN VIEW
36 37 38 39 40 41 42 43 0 1 0 1
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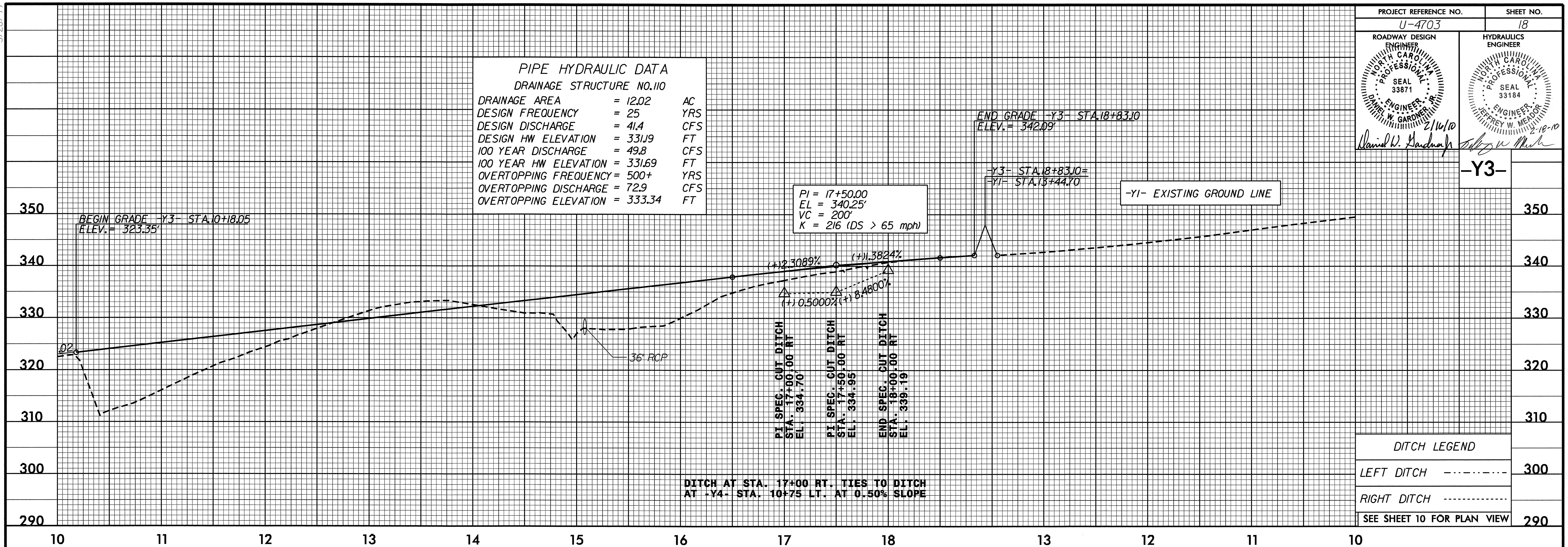
PROJECT REFERENCE NO.	SHEET NO.
U-4703	18

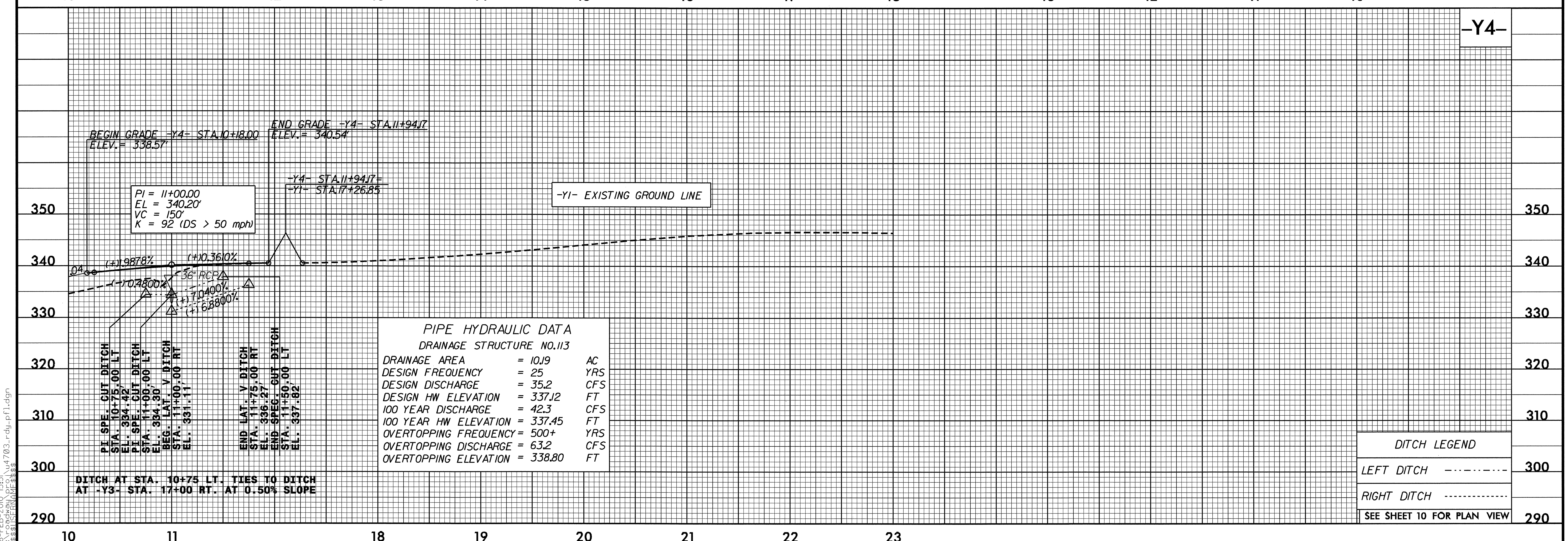
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33871 DANIEL W. GARDNER, JR. 2/16/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33184 JEFFREY W. MEADOR 2-18-10



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.110

DRAINAGE AREA	= 12.02	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 41.4	CFS
DESIGN HW ELEVATION	= 331.19	FT
100 YEAR DISCHARGE	= 49.8	CFS
100 YEAR HW ELEVATION	= 331.69	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 72.9	CFS
OVERTOPPING ELEVATION	= 333.34	FT



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.113

DRAINAGE AREA	= 10.19	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 35.2	CFS
DESIGN HW ELEVATION	= 337.12	FT
100 YEAR DISCHARGE	= 42.3	CFS
100 YEAR HW ELEVATION	= 337.45	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 63.2	CFS
OVERTOPPING ELEVATION	= 338.80	FT

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