STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3304	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34912.1.1	STP-0701(8)	P.E.
34912.2.2	STP-0701(8)	R/W, UTIL.
34912.3.3	STP-0701(16)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

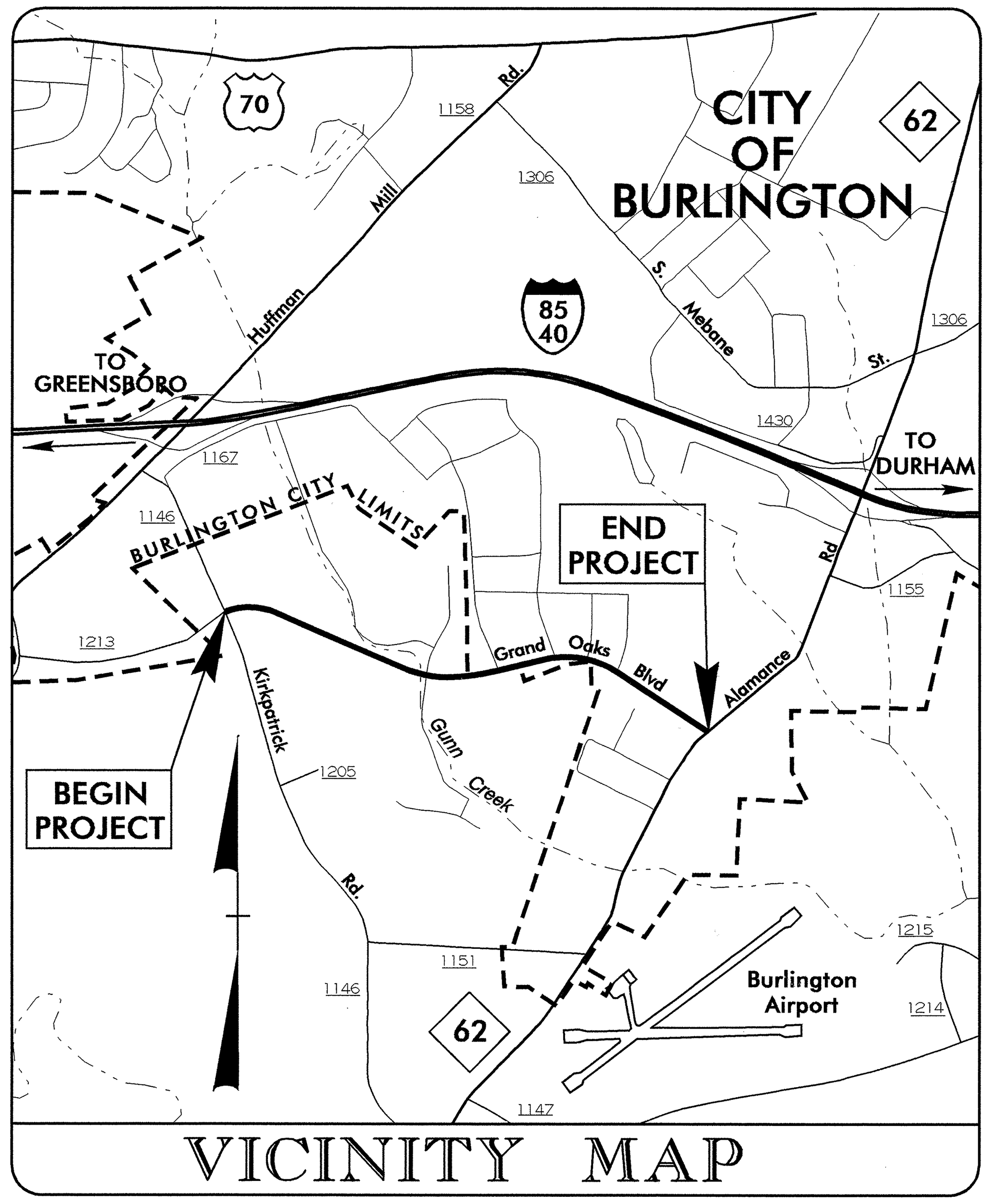
LOCATION: BURLINGTON – GRAND OAKS BLVD EXTENSION FROM SR 1146 (KIRKPATRICK ROAD) TO NC 62 (ALAMANCE ROAD)

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

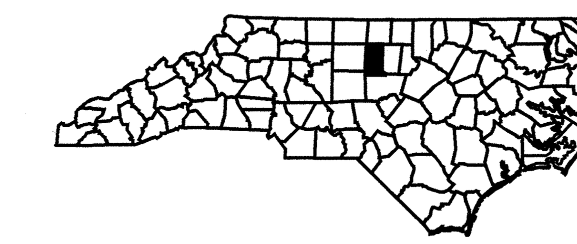
TIP PROJECT: U-3304

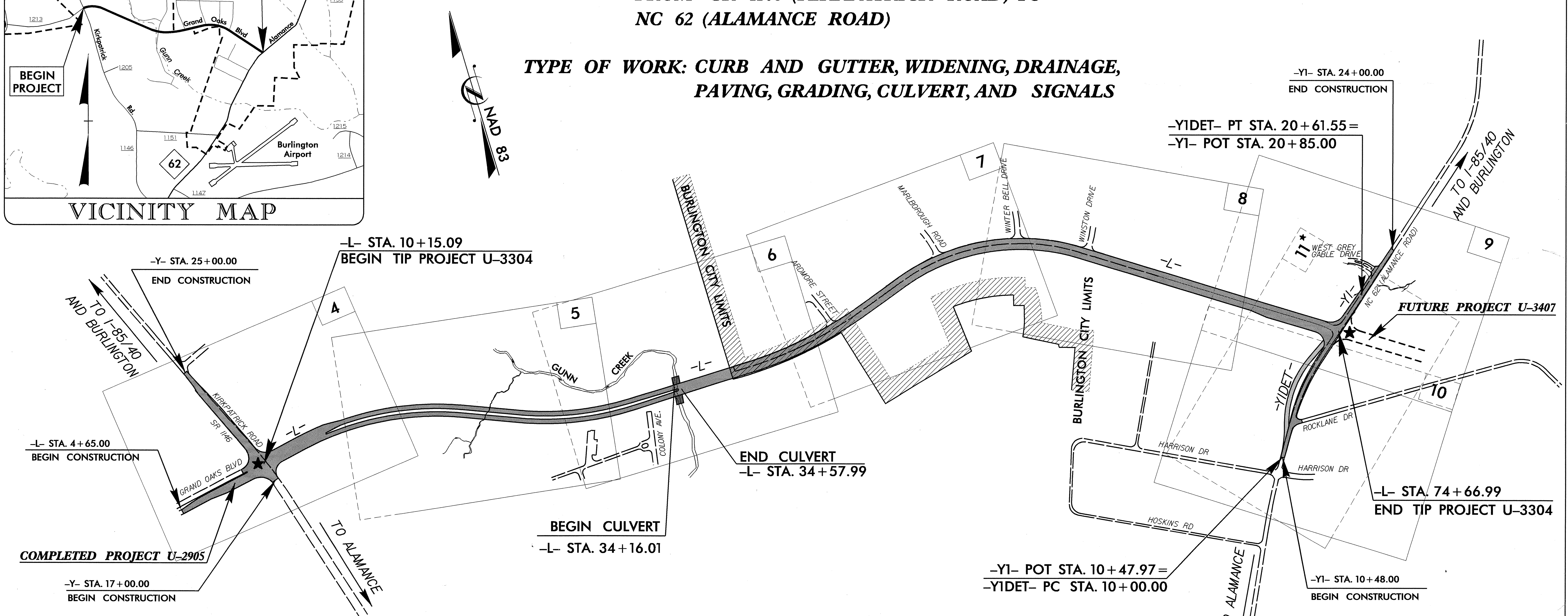
CONTRACT: C201857

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



VICINITY MAP





★ **PROPOSED SIGNAL**
THIS IS NOT A CONTROL ACCESS PROJECT

***NOTE: -Y1- DETOUR SHOWN ON SHEET 11**

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 2008 = 10,575
ADT 2030 = 23,500
DHV = 11 %
D = 60 %
T = 6 % *
V = 50 MPH

* TTST 2 % DUAL 4 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3304 =	1.214 mi
LENGTH STRUCTURE TIP PROJECT U-3304 =	0.008 mi
TOTAL LENGTH TIP PROJECT U-3304 =	1.222 mi

Prepared In the Office of:

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 21, 2006

LETTING DATE: JULY 15,2008

JASON MOORE, PE
PROJECT ENGINEER

KEVIN E. MOORE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SEAL 022000
4/14/08 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
SEAL 24912 KEVIN E. MOORE
4/7/08 P.E.
SIGNATURE:

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

9/09/99
24-MAR-2008 08:20
r:\roadway\proj\u-3304_rdy_tsh.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3304	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24012 ENGINEER KEVIN E. MOORE
4/7/08

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

GENERAL NOTES:

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

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

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

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.

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.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, AT&T, TIME WARNER CABLE, PIEDMONT NATURAL GAS, SHILOH PRESBYTERIAN CHURCH, CITY OF BURLINGTON WATER AND SEWER. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, AS SHOWN ON THE PLANS.

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

WHEELCHAIR RAMPS:
WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH DETAILS IN PLANS.

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

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
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
300.02	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
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	
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
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
838.39	Reinforced Concrete Endwall - for Single 72" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.69	Reinforced Brick Endwall - for Single 72" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwals - 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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.52	Precast Manhole - 4', 5' and 6' Diameter
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & 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
852.01	Concrete Islands
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/99
04-APR-2008 14:23
r:\roadway\proj\u-3304_rdy_tsh.dgn
$$$$USERNAME$$$$

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
U-3304	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 Utility Easement — PUE

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
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

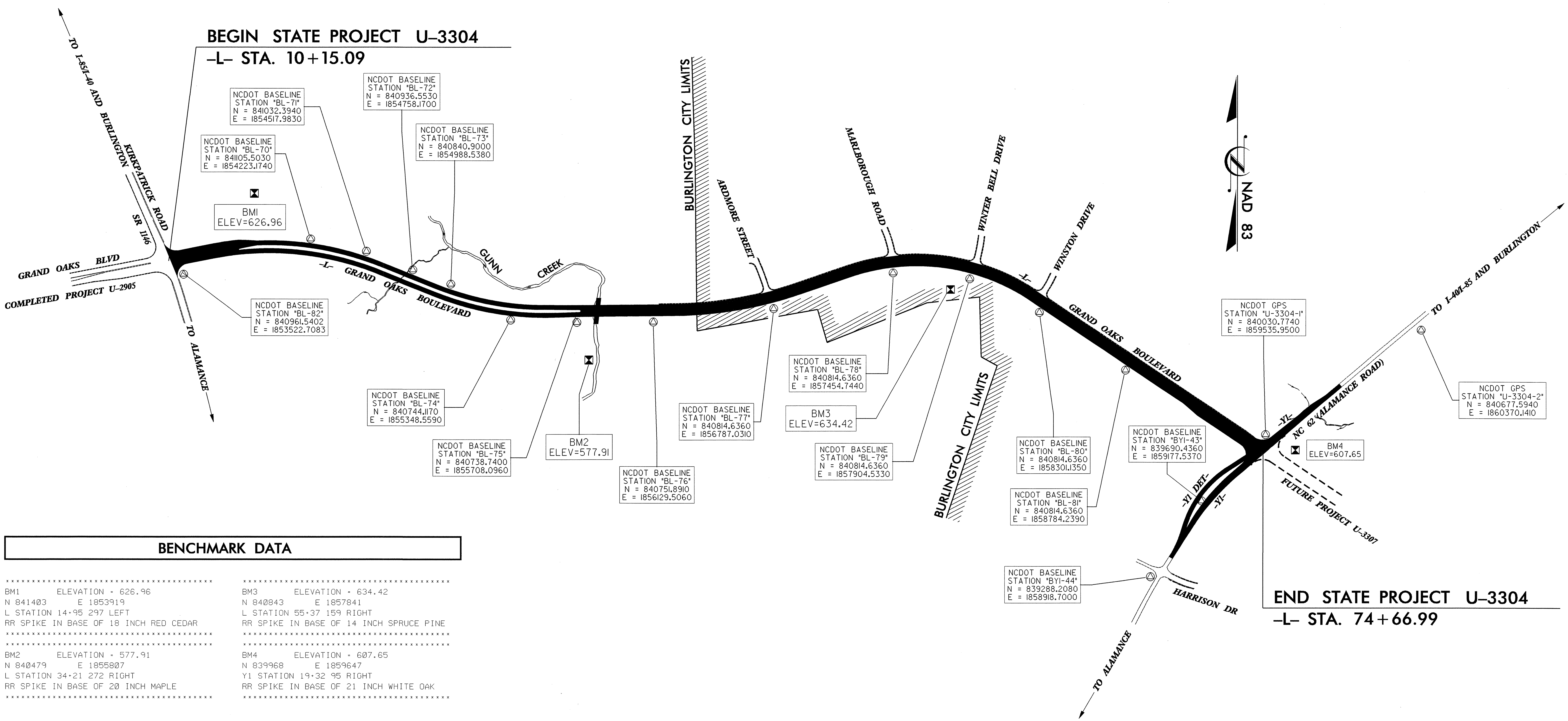
MISCELLANEOUS:

- 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.

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
U-3304	1C
Location and Surveys	

U-3304 SURVEY CONTROL SHEET



BENCHMARK DATA

****

BM1 ELEVATION = 626.96
N 841403 E 1853919
L STATION 14+95 297 LEFT
RR SPIKE IN BASE OF 18 INCH RED CEDAR

BM2 ELEVATION = 577.91
N 840479 E 1855807
L STATION 34+21 272 RIGHT
RR SPIKE IN BASE OF 20 INCH MAPLE

BM3 ELEVATION = 634.42
N 840843 E 1857841
L STATION 55+37 159 RIGHT
RR SPIKE IN BASE OF 14 INCH SPRUCE PINE

BM4 ELEVATION = 607.65
N 839968 E 1859647
Y1 STATION 19+32 95 RIGHT
RR SPIKE IN BASE OF 21 INCH WHITE OAK

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
82	BL-82	840961.5402	1853522.7083	637.64	10+64.68	81.73 RT
70	BL-70	841105.5030	1854223.1740	621.00	17+85.17	12.59 LT
71	BL-71	841032.3940	1854517.9830	611.08	20+87.45	7.45 LT
72	BL-72	840936.5530	1854758.1700	593.16	23+45.64	4.98 LT
73	BL-73	840840.9000	1854988.5380	603.97	25+95.13	0.71 LT
74	BL-74	840744.1170	1855348.5590	599.71	29+66.94	14.01 RT
75	BL-75	840738.7400	1855708.0960	588.18	33+25.19	11.21 RT
76	BL-76	840751.8910	1856129.5060	609.06	37+46.71	2.44 RT
77	BL-77	840814.6360	1856787.0310	627.34	44+07.17	12.62 RT
78	BL-78	841020.1560	1857454.7440	635.68	51+07.31	4.10 RT
79	BL-79	840985.7360	1857904.5330	634.58	55+62.88	3.67 RT
80	BL-80	840786.7270	1858301.1350	635.68	60+10.31	5.43 RT
81	BL-81	840461.8360	1858784.2390	640.31	65+92.50	7.44 RT
1	U3304-1	840030.7740	1859535.9500	607.49	74+57.03	51.38 LT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
2	U3304-2	840677.5940	1860370.1410	592.73	OUTSIDE PROJECT LIMITS	
1	U3304-1	840030.7740	1859535.9500	607.49	18+87.68	24.05 LT
143	BY14-3	839690.4360	1859177.5370	611.40	13+96.72	19.80 LT
144	BY14-4	839288.2080	1858918.7000	598.58	OUTSIDE PROJECT LIMITS	

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:

U3304_LS_CONTROL_060403.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 FROM EXISTING NCGS MONUMENTATION.

NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BURLINGTON"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 836,856.1117(ft) EASTING: 1,858,342.7531(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .999947311
THE N.C. LAMBERT GRID BEARING
LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BURLINGTON" TO -L- STATION 10+00.00 IS
N49°34'29"W 6435.69 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

07-APR-2008 08:36
r:\roadway\proj\u-3304_ls_1c.dgn
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
U-3304	1-D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	10+00.00	841029.3640	1853443.5660
2	L	10+50.00	841038.9466	1853492.6391
3	L	11+00.00	841048.5292	1853541.7123
4	L	11+50.00	841058.1118	1853590.7854
5	L	12+00.00	841067.6944	1853639.8586
6	L	12+50.00	841077.2770	1853688.9317
7	L	13+00.00	841086.1175	1853738.1420
8	L	13+50.00	841093.4510	1853787.5993
9	L	14+00.00	841099.2707	1853837.2575
10	L	14+50.00	841103.5712	1853887.0703
11	L	15+00.00	841106.3485	1853936.9911
12	L	15+50.00	841107.5999	1853986.9735
13	L	16+00.00	841107.3243	1854036.9708
14	L	16+50.00	841105.5220	1854086.9364
15	L	17+00.00	841102.1947	1854136.8236
16	L	17+50.00	841097.3454	1854186.5859
17	L	18+00.00	841090.9787	1854236.1770
18	L	18+50.00	841083.1005	1854285.5505
19	L	19+00.00	841073.7181	1854334.6603
20	L	19+50.00	841062.8404	1854383.4607
21	L	20+00.00	841050.4774	1854431.9062
22	L	20+50.00	841036.6407	1854479.9515
23	L	21+00.00	841021.3432	1854527.5518
24	L	21+50.00	841004.5992	1854574.6628
25	L	22+00.00	840986.4350	1854621.2448
26	L	22+50.00	840967.7244	1854667.6120
27	L	23+00.00	840949.0139	1854713.9791
28	L	23+50.00	840930.3033	1854760.3463
29	L	24+00.00	840911.5927	1854806.7135
30	L	24+50.00	840892.8821	1854853.0806
31	L	25+00.00	840874.1715	1854899.4478
32	L	25+50.00	840855.7367	1854945.9242
33	L	26+00.00	840838.6283	1854992.9041
34	L	26+50.00	840822.9626	1855040.3845
35	L	27+00.00	840808.7543	1855088.3212
36	L	27+50.00	840796.0164	1855136.6695
37	L	28+00.00	840784.7611	1855185.3842
38	L	28+50.00	840774.9987	1855234.4199
39	L	29+00.00	840766.7383	1855283.7309
40	L	29+50.00	840759.9877	1855333.2711
41	L	30+00.00	840754.7531	1855382.9944
42	L	30+50.00	840751.0395	1855432.8543
43	L	31+00.00	840748.8503	1855482.8044
44	L	31+50.00	840748.1875	1855532.7981
45	L	32+00.00	840748.6499	1855582.7958
46	L	32+50.00	840749.1697	1855632.7931
47	L	33+00.00	840749.6896	1855682.7904
48	L	33+50.00	840750.2095	1855732.7877
49	L	34+00.00	840750.7294	1855782.7850
50	L	34+50.00	840751.2492	1855832.7823
51	L	35+00.00	840751.7691	1855882.7796
52	L	35+50.00	840752.2890	1855932.7769
53	L	36+00.00	840752.8089	1855982.7742
54	L	36+50.00	840753.3287	1856032.7715
55	L	37+00.00	840753.8486	1856082.7688
56	L	37+50.00	840754.3685	1856132.7661
57	L	38+00.00	840754.8884	1856182.7634
58	L	38+50.00	840755.4082	1856232.7607
59	L	39+00.00	840756.1657	1856282.7544
60	L	39+50.00	840757.9865	1856332.7201
61	L	40+00.00	840760.9402	1856382.6317
62	L	40+50.00	840765.0254	1856432.4635
63	L	41+00.00	840770.2399	1856482.1898
64	L	41+50.00	840776.5810	1856531.7849
65	L	42+00.00	840784.0456	1856581.2235
66	L	42+50.00	840792.6297	1856630.4801
67	L	43+00.00	840802.3289	1856679.5292
68	L	43+50.00	840813.1383	1856728.3457
69	L	44+00.00	840825.0522	1856776.9044
70	L	44+50.00	840838.0646	1856825.1804
71	L	45+00.00	840852.1687	1856873.1488
72	L	45+50.00	840867.3573	1856920.7849
73	L	46+00.00	840883.5423	1856968.0923
74	L	46+50.00	840899.9288	1857015.3309
75	L	47+00.00	840916.3152	1857062.5695
76	L	47+50.00	840932.7017	1857109.8081
77	L	48+00.00	840949.0881	1857157.0467
78	L	48+50.00	840965.4746	1857204.2853
79	L	49+00.00	840981.1958	1857251.7460
80	L	49+50.00	840994.8893	1857299.8303
81	L	50+00.00	841006.4908	1857348.4617
82	L	50+50.00	841015.9788	1857397.5493

Point #	Chain	Station	Northing (Y)	Easting (X)
83	L	51+00.00	841023.3354	1857447.0012
84	L	51+50.00	841028.5468	1857496.7249
85	L	52+00.00	841031.6033	1857546.6275
86	L	52+50.00	841032.4993	1857596.6156
87	L	53+00.00	841031.2330	1857646.5957
88	L	53+50.00	841027.8067	1857696.4742
89	L	54+00.00	841022.2270	1857746.1580
90	L	54+50.00	841014.5042	1857795.5540
91	L	55+00.00	841004.6528	1857844.5699
92	L	55+50.00	840992.6911	1857893.1140
93	L	56+00.00	840978.6417	1857941.0955
94	L	56+50.00	840962.5307	1857988.4247
95	L	57+00.00	840944.3884	1858035.0129
96	L	57+50.00	840924.2485	1858080.7731
97	L	58+00.00	840902.1489	1858125.6197
98	L	58+50.00	840878.1308	1858169.4688
99	L	59+00.00	840852.2392	1858212.2383
100	L	59+50.00	840824.7266	1858253.9867
101	L	60+00.00	840796.9674	1858295.5730
102	L	60+50.00	840769.2081	1858337.1594
103	L	61+00.00	840741.4489	1858378.7457
104	L	61+50.00	840713.6896	1858420.3321
105	L	62+00.00	840685.9304	1858461.9184
106	L	62+50.00	840658.1711	1858503.5047
107	L	63+00.00	840630.4119	1858545.0911
108	L	63+50.00	840602.6526	1858586.6774
109	L	64+00.00	840574.8933	1858628.2638
110	L	64+50.00	840547.1341	1858669.8501
111	L	65+00.00	840519.3748	1858711.4364
112	L	65+50.00	840491.6156	1858753.0228
113	L	66+00.00	840463.8563	1858794.6091
114	L	66+50.00	840436.0971	1858836.1955
115	L	67+00.00	840408.3378	1858877.7818
116	L	67+50.00	840380.5786	1858919.3681
117	L	68+00.00	840352.8193	1858960.9545
118	L	68+50.00	840325.0600	1859002.5408
119	L	69+00.00	840297.3008	1859044.1272
120	L	69+50.00	840269.5415	1859085.7135
121	L	70+00.00	840241.7823	1859127.2998
122	L	70+50.00	840214.0230	1859168.8862
123	L	71+00.00	840186.2638	1859210.4725
124	L	71+50.00	840158.5045	1859252.0589
125	L	72+00.00	840130.7452	1859293.6452
126	L	72+50.00	840102.9860	1859335.2315
127	L	73+00.00	840075.2267	1859376.8179
128	L	73+50.00	840047.4675	1859418.4042
129	L	74+00.00	840019.7082	1859459.9906
130	L	74+50.00	839991.9490	1859501.5769
131	L	74+66.99	839982.5150	1859515.7100
132	Y1	10+00.00	839345.4320	1858977.5900
133	Y1	10+50.00	839387.8045	1859004.1338
134	Y1	11+00.00	839430.1770	1859030.6776
135	Y1	11+50.00	839472.5495	1859057.2214
136	Y1	12+00.00	839514.9219	1859083.7651
137	Y1	12+50.00	839557.2944	1859110.3089
138	Y1	13+00.00	839599.5592	1859137.0223
139	Y1	13+50.00	839640.8353	1859165.2340
140	Y1	14+00.00	839680.8674	1859195.1849
141	Y1	14+50.00	839719.5822	1859226.8201
142	Y1	15+00.00	839756.9089	1859260.0817
143	Y1	15+50.00	839792.7792	1859294.9089
144	Y1	16+00.00	839827.1276	1859331.2381
145	Y1	16+50.00	839859.8951	1859368.9994
146	Y1	17+00.00	839891.9600	1859407.3640
147	Y1	17+50.00	839924.0249	1859445.7286
148	Y1	18+00.00	839956.0899	1859484.0932
149	Y1	18+50.00	839988.1548	1859522.4578
150	Y1	19+00.00	840020.2197	1859560.8223
151	Y1	19+50.00	840052.2846	1859599.1869
152	Y1	20+00.00	840084.3495	1859637.5515
153	Y1	20+50.00	840116.4144	1859675.9161
154	Y1	21+00.00	840148.4793	1859714.2807
155	Y1	21+50.00	840180.5442	1859752.6453
156	Y1	22+00.00	840212.6091	1859791.0099
157	Y1	22+50.00	840244.6741	1859829.3744
158	Y1	23+00.00	840276.7390	1859867.7390
159	Y1	23+50.00	840308.8039	1859906.1036
160	Y1	24+00.00	840340.8688	1859944.4682
161	Y1	24+50.00	840372.9337	1859982.8328
162	Y1	25+00.00	840404.9986	1860021.1974
163	Y1	25+50.00	840437.0635	1860059.5620

Point #	Chain	Station	Northing (Y)	Easting (X)
164	Y1	25+79.36	840455.8940	1860082.0920
165	Y1DET	10+00.00	839386.0806	1859003.0538
166	Y1DET	10+50.00	839429.4462	1859027.9165
167	Y1DET	11+00.00	839474.6200	1859049.3189
168	Y1DET	11+50.00	839521.3263	1859067.1303
169	Y1DET	12+00.00	839568.9617	1859082.3226
170	Y1DET	12+50.00	839615.8899	1859099.5322
171	Y1DET	13+00.00	839661.1462	1859120.7524
172	Y1DET	13+50.00	839704.3885	1859145.8228
173	Y1DET	14+00.00	839745.2902	1859174.5539
174	Y1DET	14+50.00	839783.5422	1859206.7286
175	Y1DET	15+00.00	839818.8553	1859242.1039
176	Y1DET	15+50.00	839850.9628	1859280.4123
177	Y1DET	16+00.00	839879.6220	1859321.3644
178	Y1DET	16+50.00	839906.5065	1859363.5215
179	Y1DET	17+00.00	839933.3910	1859405.6786
180	Y1DET	17+50.00	839960.2755	1859447.8358
181	Y1DET	18+00.00	839987.1600	1859489.9929
182	Y1DET	18+50.00	840014.0444	1859532.1501
183	Y1DET	19+00.00	840041.5382	1859573.9101
184	Y1DET	19+50.00	840070.2941	1859614.8112
185	Y1DET	20+00.00	840100.2857	1859654.8151
186	Y1DET	20+50.00	840131.4849	1859693.8845
187	Y1DET	20+61.55	840138.8600	1859702.7720

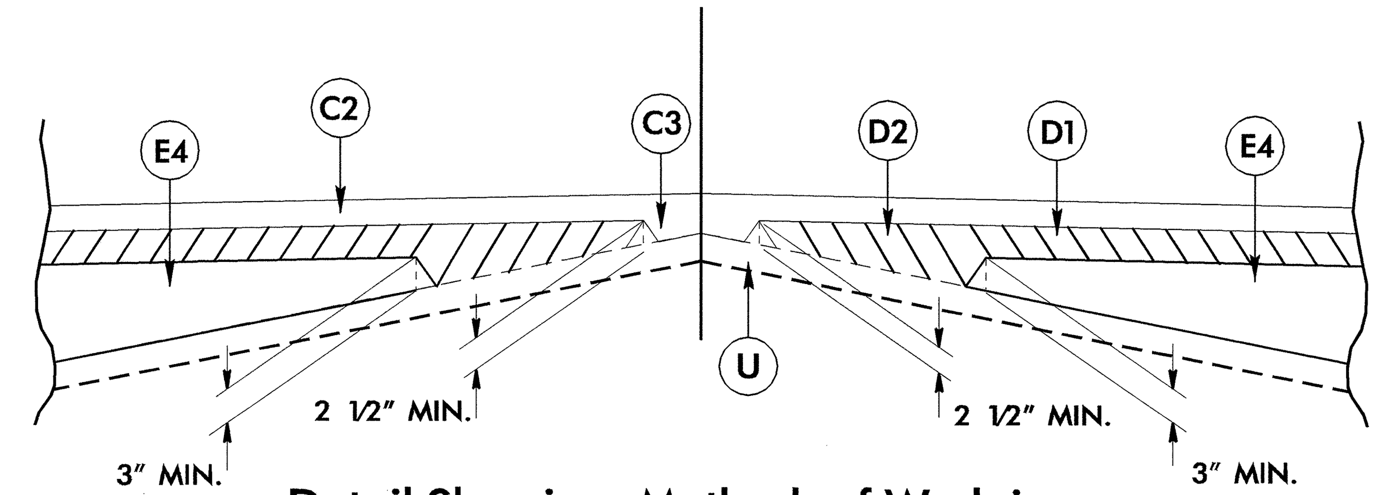
PROJECT REFERENCE NO.	SHEET NO.
U-3304	2

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 4/7/08

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 13308 ENGINEER CHI CHEN 4/8/08

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	K	PROP. 7″ SOIL CEMENT SUBBASE. AT A RATE OF 55 LBS PER SQ. YARD, AS DIRECTED BY THE ENGINEER. OR PROP. 8″ SOIL LIME SUBBASE. AT A RATE OF 20 LBS PER SQ. YARD, AS DIRECTED BY THE ENGINEER.
C2	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.		
C3	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2′-6″ CONCRETE CURB AND GUTTER.
D2	PROP. VAR. DEPTH ASPHALT 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 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.	R2	1′-6″ CONCRETE CURB AND GUTTER.
E1	PROP. APPROX. 3″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R3	5″ MONOLITHIC CONCRETE ISLAND. (KEYED IN)
E2	PROP. APPROX. 4.5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	S	4″ CONCRETE SIDEWALK.
E3	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.
E4	PROP. VAR. DEPTH ASPHALT 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 5.5″ IN DEPTH.	U	EXISTING PAVEMENT.
J1	PROP. 10″ AGGREGATE BASE COURSE.	W	VARIABLE DEPTH ASPHALT PAVEMENT. SEE WEDGING DETAILS.



Detail Showing Method of Wedging

USE TYPICAL SECTION NO. 1 AS FOLLOWS

-L- STA. 10+15.09+/- TO 32+00.00

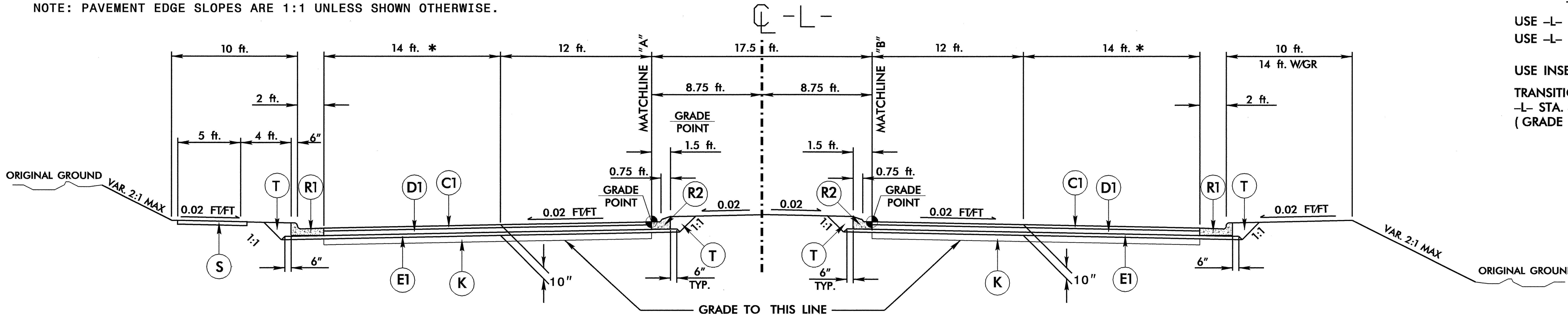
USE -L- LT. LN GRADE STA. 10+13.29 TO 13+50.00

USE -L- RT. LN GRADE STA. 10+16.89 TO 13+50.00

USE INSET A FOR -L- STA. 10+68.00 TO 14+95.00

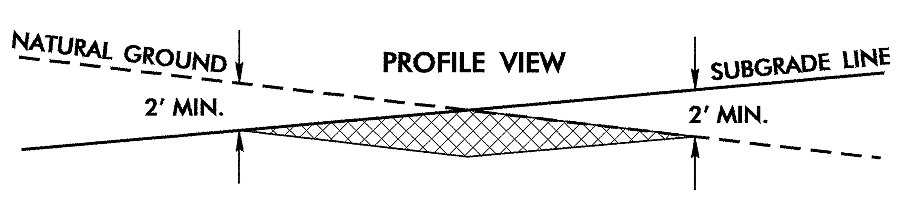
TRANSITION FROM T.S. No. 1 TO T.S. No. 2
-L- STA. 32+00.00 TO 34+41.00
(GRADE POINT TRANSITIONS WITH INSIDE E.O.P.)

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

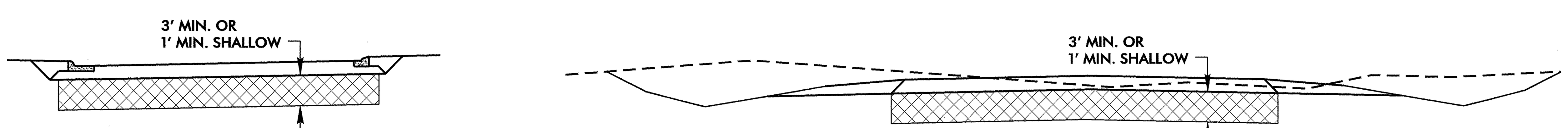


TYPICAL SECTION NO. 1

* ACCOMODATES BICYCLE TRAFFIC



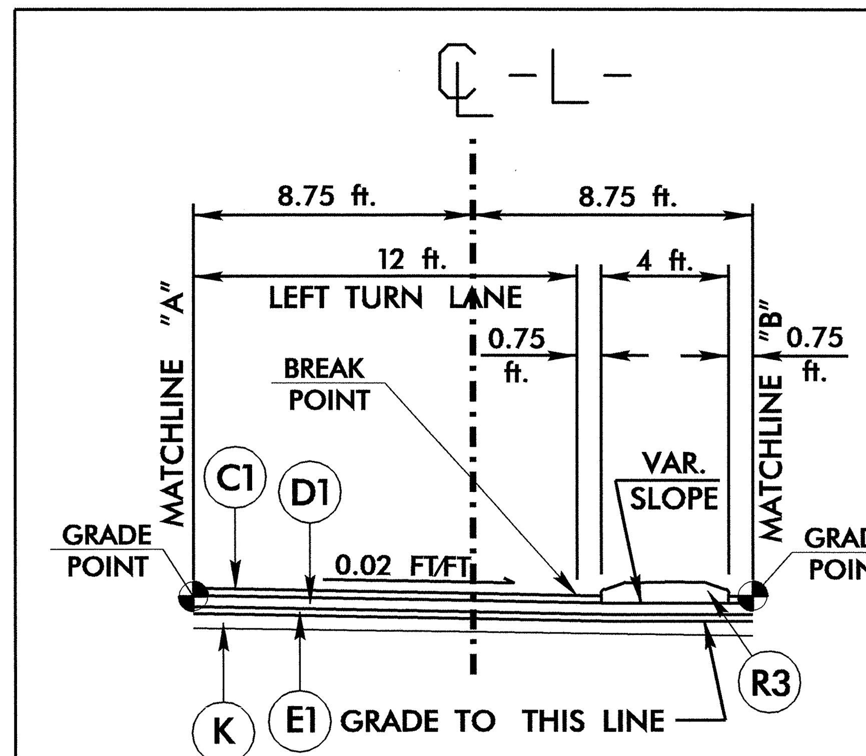
DETAIL OF UNDERCUT AT GRADE POINT



CROSS-SECTIONAL VIEW
DETAIL OF UNDERCUT LIMITS

SHALLOW UNDERCUT LOCATIONS

-L- STA 60+00+/- TO 70+50+/- RT.
-Y1- STA 16+00+/- TO 18+50+/-



INSET A

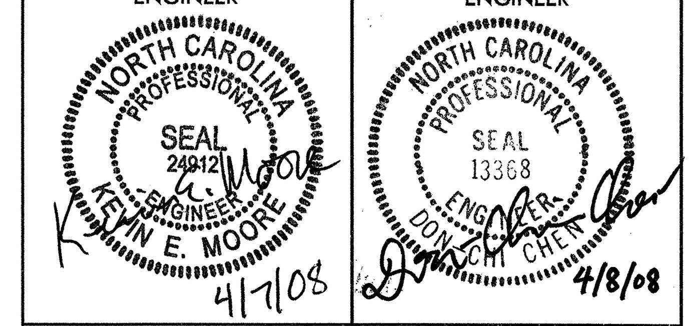
6/2/99

07-APR-2008 14:49
r:\roadway\proj\u-3304_rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3304	2-A

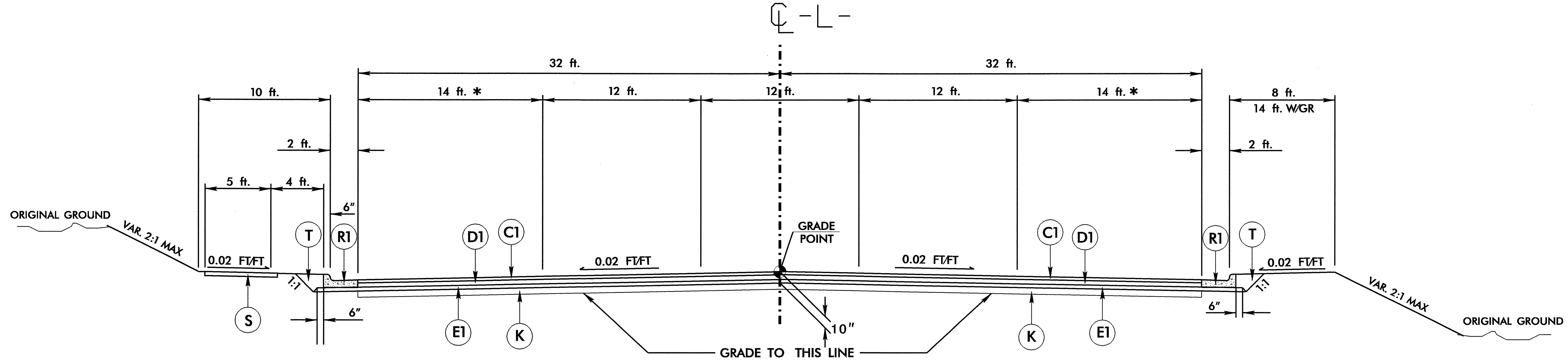
ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER



PAVEMENT SCHEDULE

C1	3" TYPE S9.5B
C2	1½" TYPE S9.5B
C3	VAR. DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VAR. DEPTH I19.0B
E1	3" TYPE B25.0B
E2	4.5" TYPE B25.0B
E3	4.0" TYPE B25.0B
E4	VAR. DEPTH B25.0B
J1	10" ABC
K	8" LIME OR 7" CEMENT SUBGRADE STABILIZATION
P	PRIME COAT
R1	2'-6" CONC. C & G
R2	1'-6" CONC. C & G
R3	5" MONO. CONC. ISL. (KEYED IN)
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. ASPHALT WEDGING

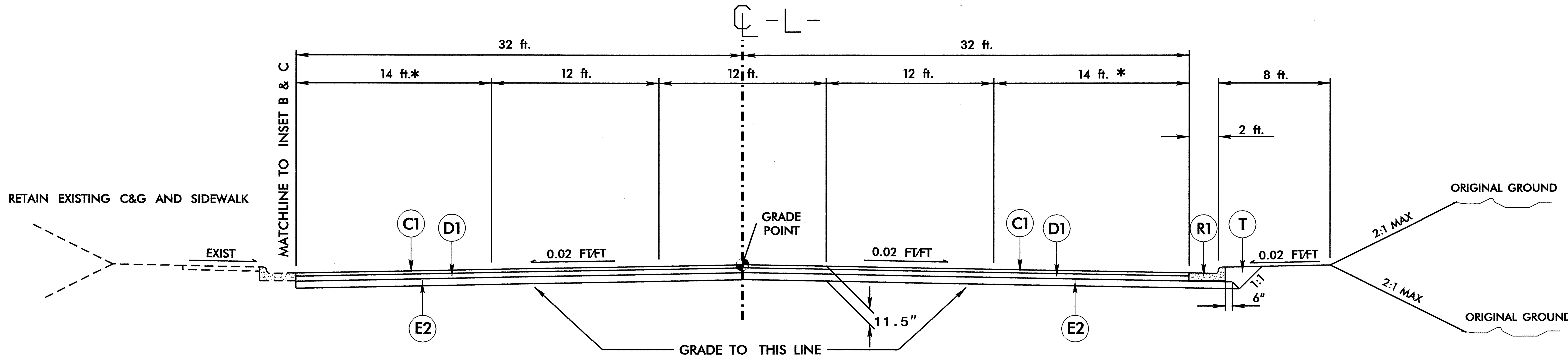


TYPICAL SECTION NO. 2

* ACCOMODATES BICYCLE TRAFFIC

USE TYPICAL SECTION NO. 2 AS FOLLOWS

-L- STA. 34+41.00 TO 37+80.00

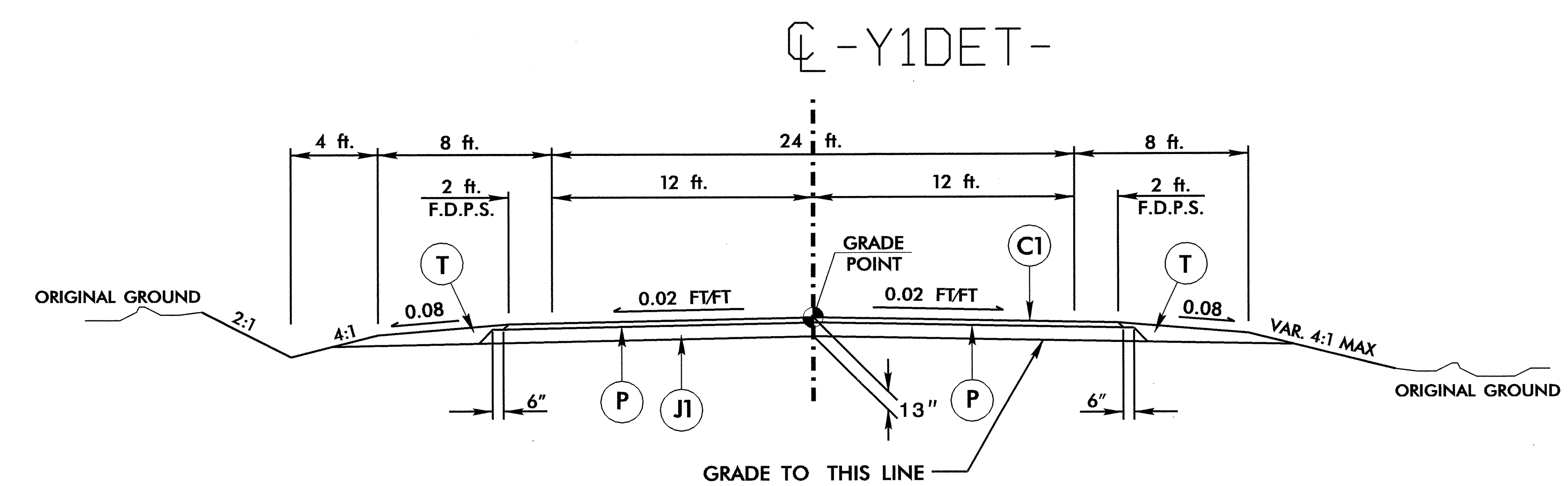


TYPICAL SECTION NO. 3

* ACCOMODATES BICYCLE TRAFFIC

USE TYPICAL SECTION NO. 3 AS FOLLOWS

-L- STA. 37+80 TO 74+48.88
USE INSET C FOR -L- STA. LT. 37+80.00 TO 43+70.00
USE INSET B FOR -L- STA. LT. 61+14.00 TO 61+85.00
USE INSET B FOR -L- STA. LT. 69+00.00 TO 74+48.88

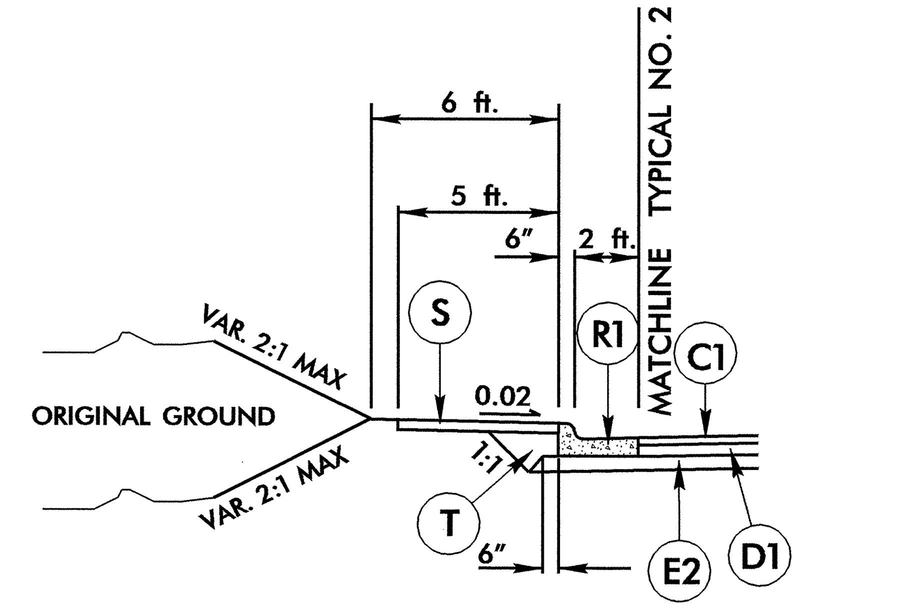


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS

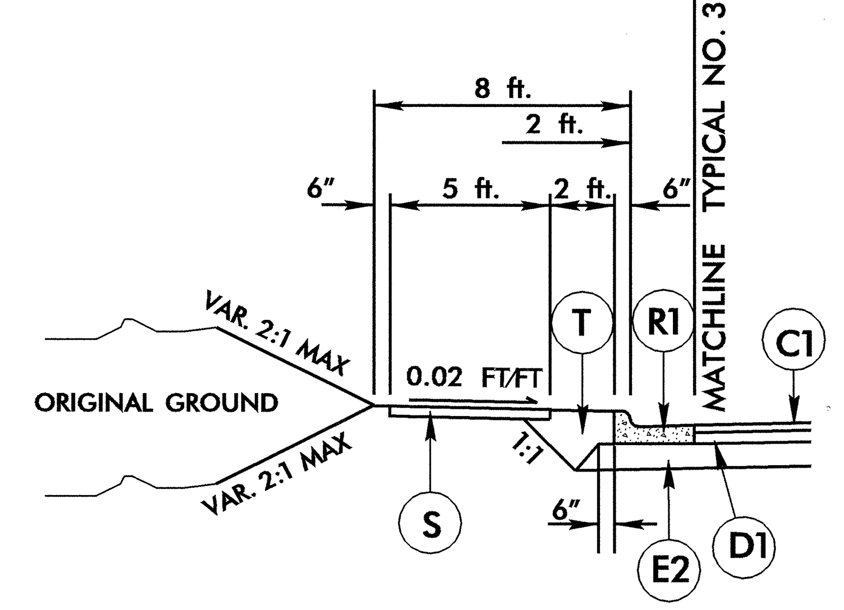
-Y1DET- STA. 11+18.19 TO 18+14.00

USE INSET B FOR -L- STA. 69+00.00 TO 74+48.88
USE INSET B FOR -L- STA. LT. 61+14.00 TO 61+85.00



INSET B

USE INSET C FOR -L- STA. LT. 37+80.00 TO 43+70.00



INSET C

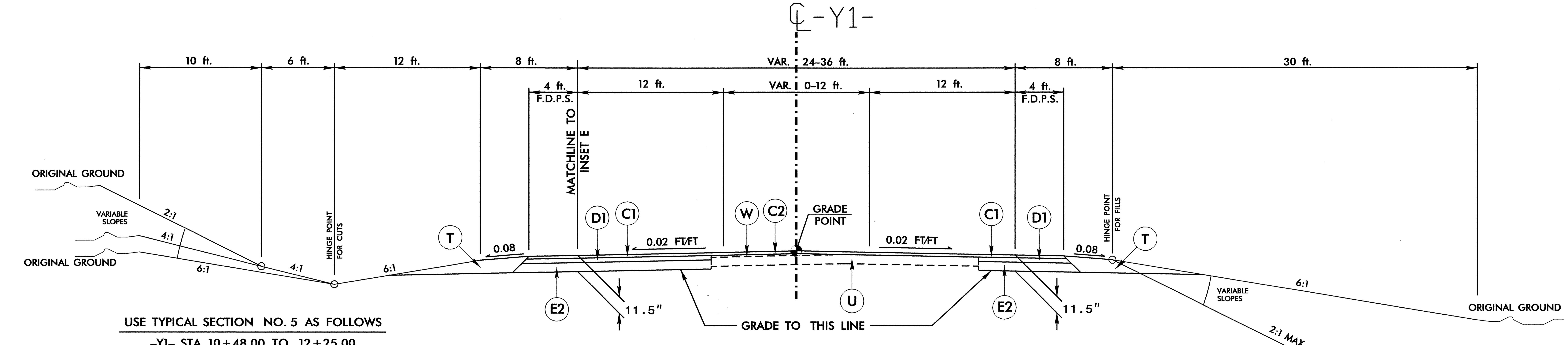
6/2/99

03-APR-2008 15:00
u-3304_rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3304	2-B

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24912 KEVIN E. MOORE 4/7/08

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13368 DONG-CHI CHEN 4/8/08



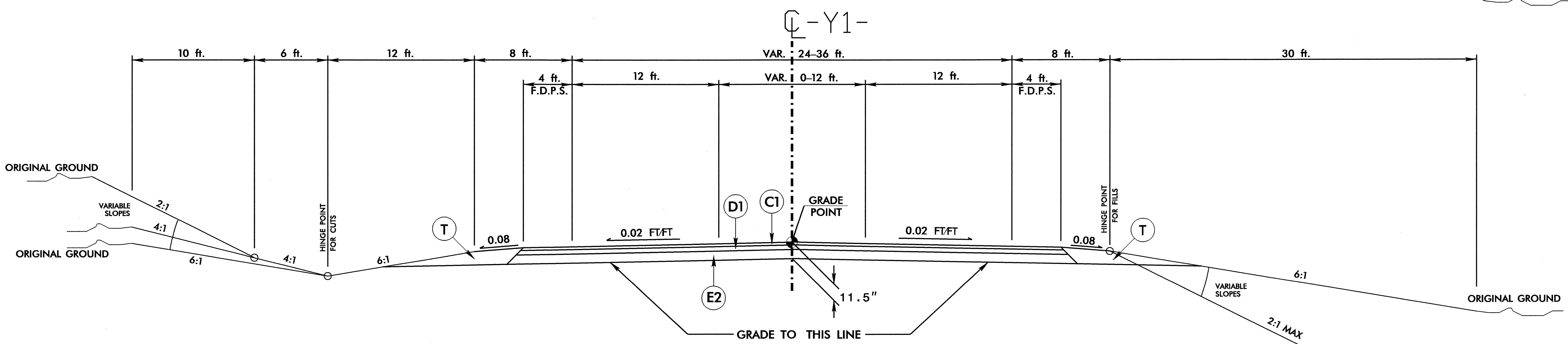
USE TYPICAL SECTION NO. 5 AS FOLLOWS

-Y1- STA. 10+48.00 TO 12+25.00
-Y1- STA. 18+00.00 TO 23+50.00

USE INSET E FOR -Y1- STA. 19+26.00 TO 22+26.00

USE DITCH DETAIL F IN CONJUNCTION WITH TS No. 5
-Y1- STA. 10+50 TO 13+00 RT.

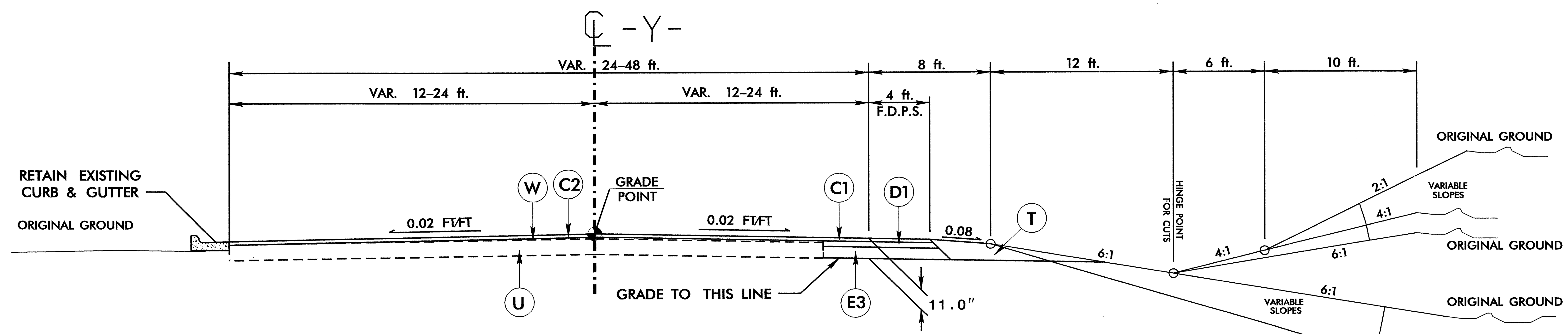
TYPICAL SECTION NO. 5



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS

-Y1- STA. 12+25.00 TO 18+00.00

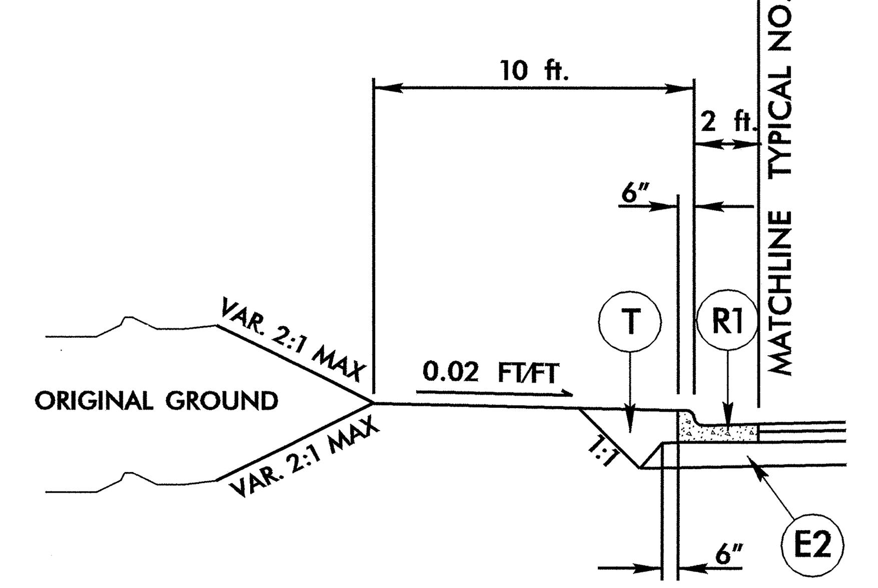


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS

-Y- STA. 17+00.00 TO 25+00.00

USE DITCH DETAIL F IN CONJUNCTION WITH TS No. 7
-Y- STA. 19+25 TO 21+50 RT.



INSET E

PAVEMENT SCHEDULE

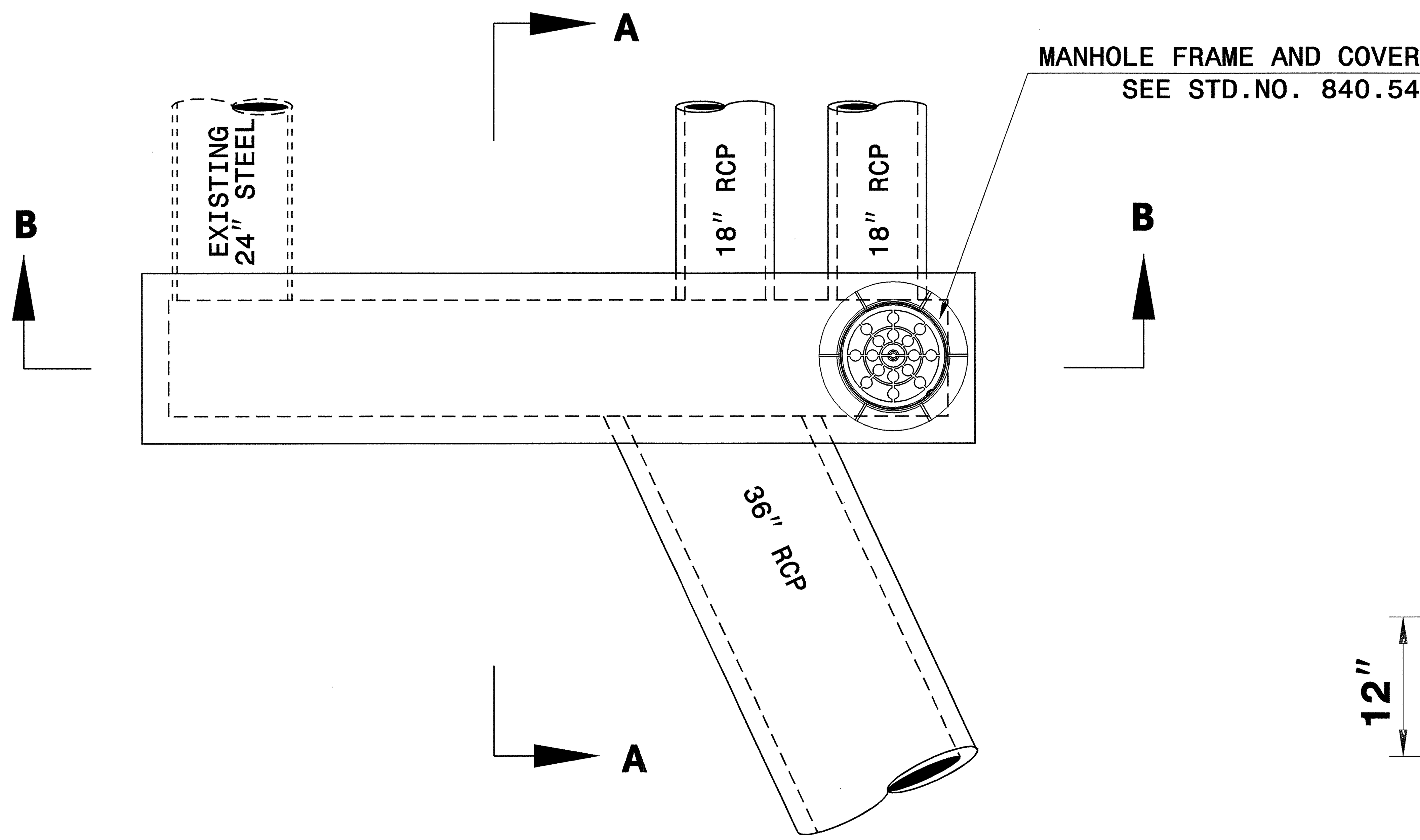
C1	3" TYPE S9.5B
C2	1½" TYPE S9.5B
C3	VAR. DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VAR. DEPTH I19.0B
E1	3" TYPE B25.0B
E2	4.5" TYPE B25.0B
E3	4.0" TYPE B25.0B
E4	VAR. DEPTH B25.0B
J1	10" ABC
K	8" LIME OR 7" CEMENT SUBGRADE STABILIZATION
P	PRIME COAT
R1	2'-6" CONC. C & G
R2	1'-6" CONC. C & G
R3	5" MONO. CONC. ISL. (KEYED IN)
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. ASPHALT WEDGING

6/2/99

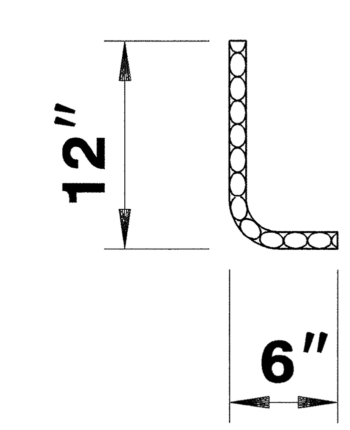
03-APR-2008 15:00
r:\roadway\proj\u-3304_rdy_typ.dgn
$$$$USERNAME$$$$

GENERAL NOTES:

- CONSTRUCT THE BASE SLAB BY FORMING AND POURING OF CONCRETE, CLASS "A".
- IF REINFORCED CONCRETE PIPE IS SET BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD.NO. 840.00
- USE CLASS "A" CONCRETE THROUGHOUT.
- BASE SLAB OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
- CHAMFER ALL EXPOSED CORNERS 1".
- MAXIMUM HEIGHT OF THIS STRUCTURE IS 12'-0".
- PROVIDE JUNCTION BOX WITH STEPS TO BE PLACED ON 12" CTRS. REFERENCE STD.NO. 840.66.



PLAN

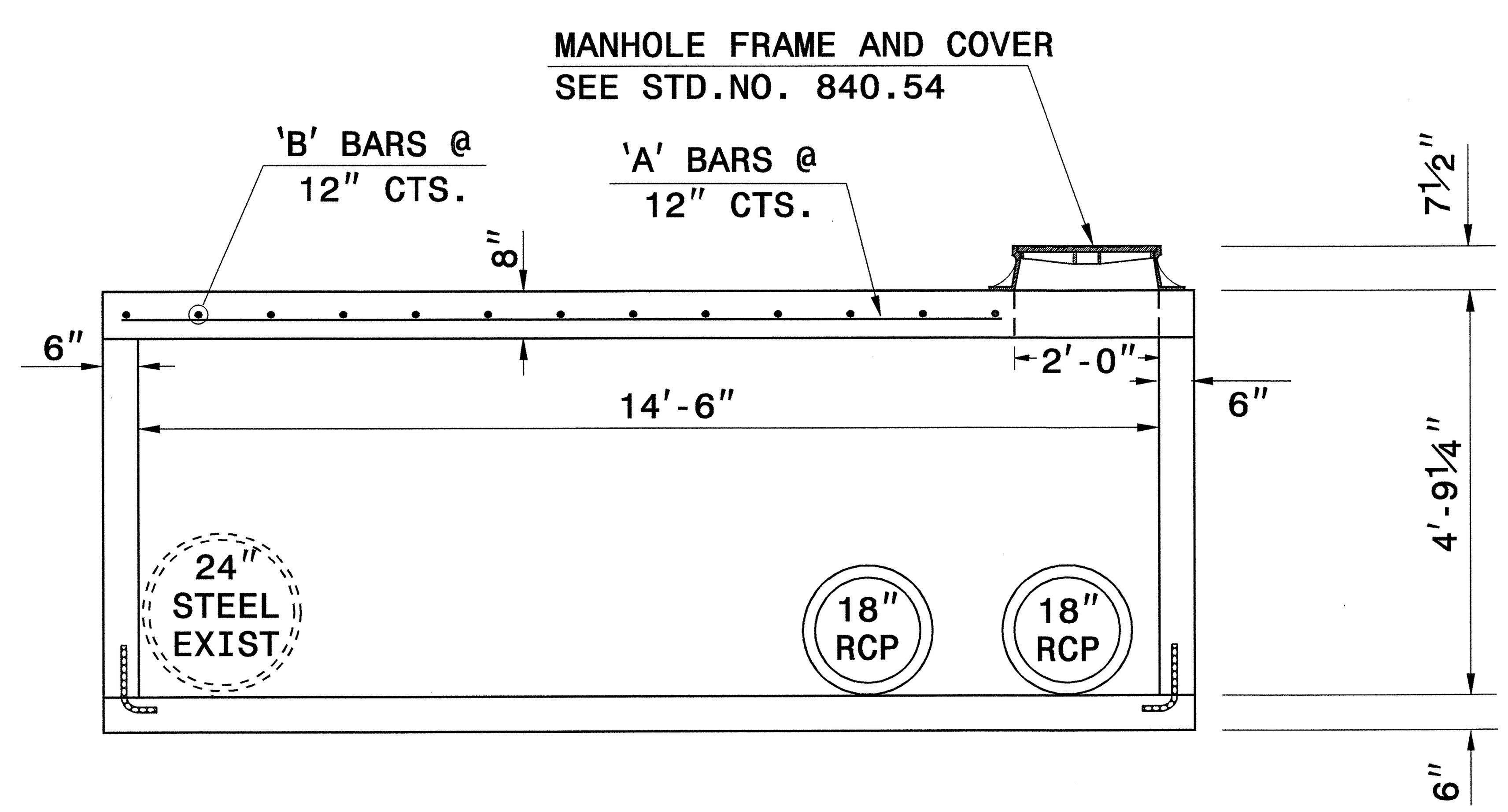


DOWEL

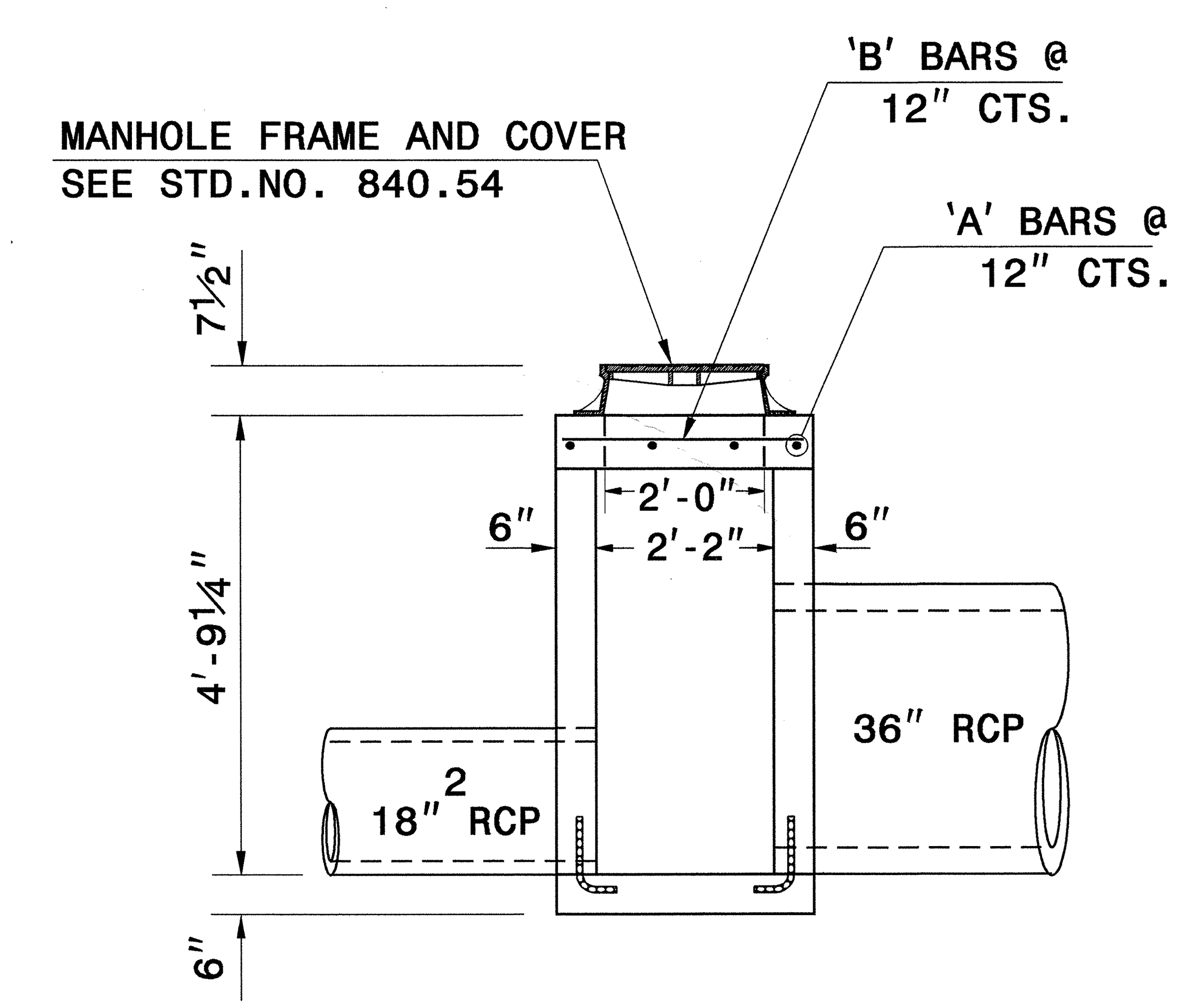
STR. NO. 71

BILL OF MATERIAL				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	4	#4	13'-2"	37
B	13	#4	2'-10"	25
TOTAL REINFORCING STEEL (lbs.)				62
CLASS "A" CONC. (cu. yds.)				4.8

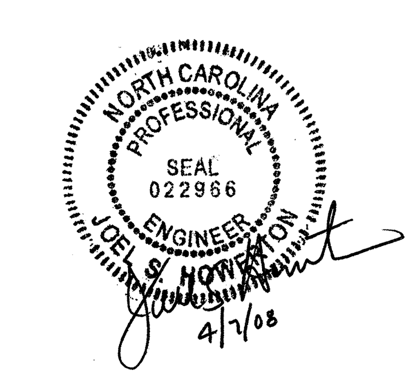
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES, CATCH BASIN OPENING AND MANHOLE OPENING.



SECTION 'B-B'



SECTION 'A-A'



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

SPECIAL JUNCTION BOX WITH MANHOLE

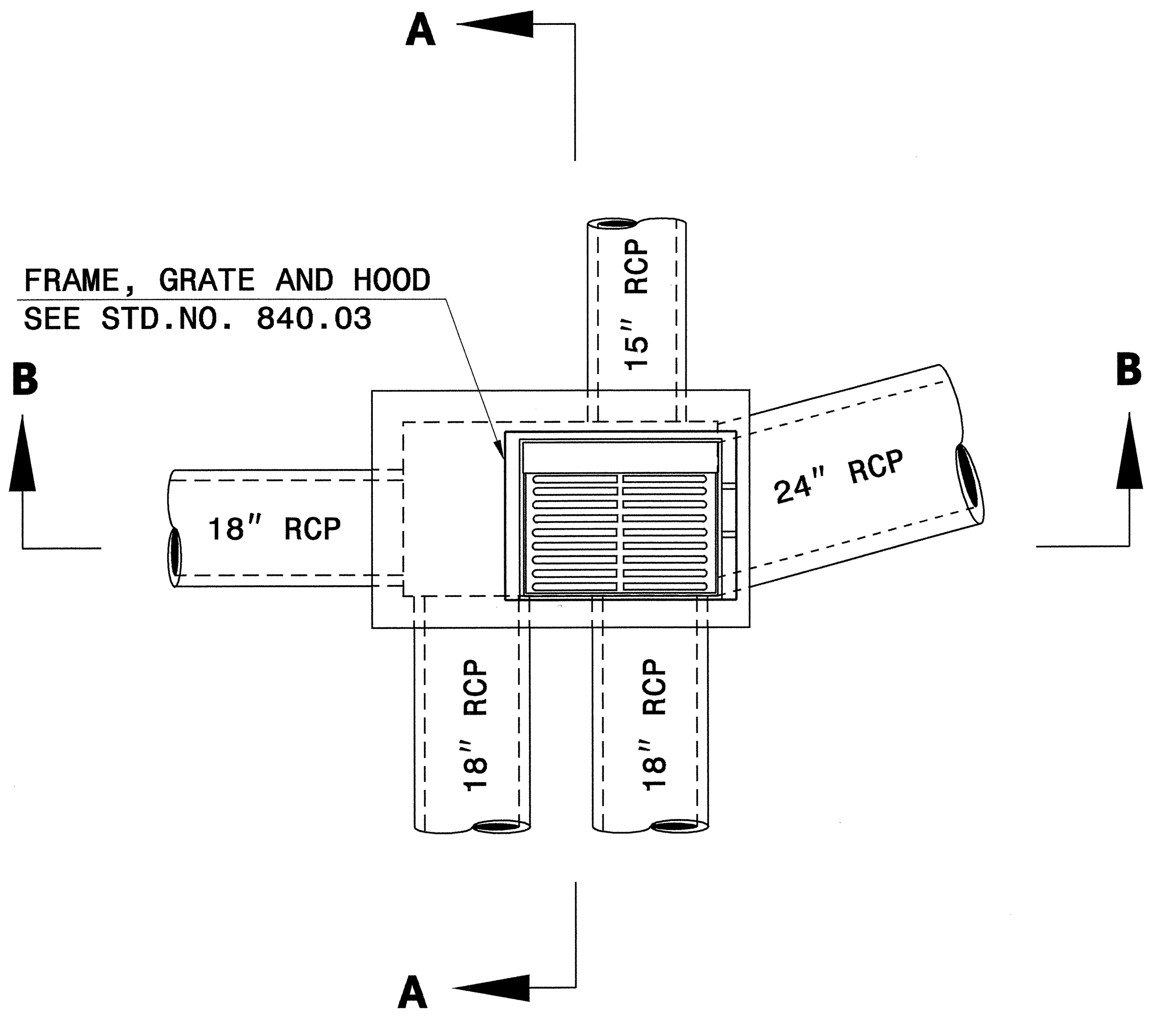
ORIGINAL BY: K.A.KEMPF DATE: Mar.28,2008
MODIFIED BY: DATE:
CHECKED BY: [signature] DATE: 3/28/08
FILE SPEC.: w:kkempf/english/cb24_18s_15rcp.dgn

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

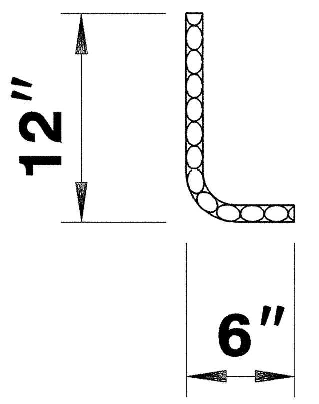
PROJECT REFERENCE NO.	SHEET NO.
U-3304	2-D

GENERAL NOTES:

- CONSTRUCT THE BASE SLAB BY FORMING AND POURING OF CONCRETE, CLASS "A".
- IF REINFORCED CONCRETE PIPE IS SET BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD.NO. 840.00
- USE CLASS "A" CONCRETE THROUGHOUT.
- BASE SLAB OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
- CHAMFER ALL EXPOSED CORNERS 1".
- MAXIMUM HEIGHT OF THIS STRUCTURE IS 12'-0".
- PROVIDE JUNCTION BOX WITH STEPS TO BE PLACED ON 12" CTRS. REFERENCE STD.NO. 840.66.



PLAN



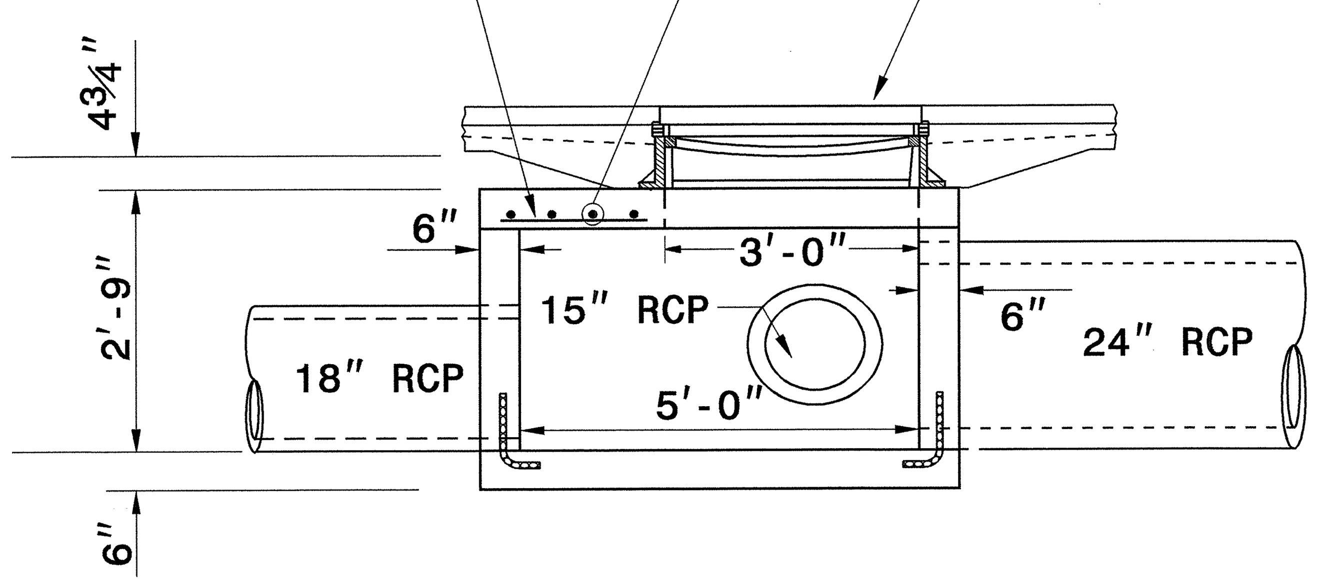
DOWEL

STR. NO. 64

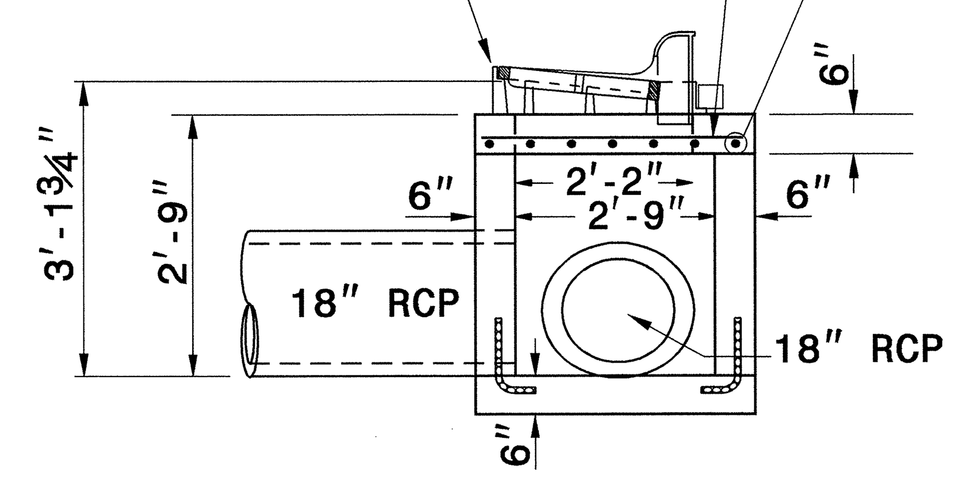
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	WEIGHT
A	7	#4	3'-5"	16
B	4	#4	2'-2"	6
TOTAL REINFORCING STEEL (lbs.)				22
CLASS "A" CONC. (cu. yds.)				1.2

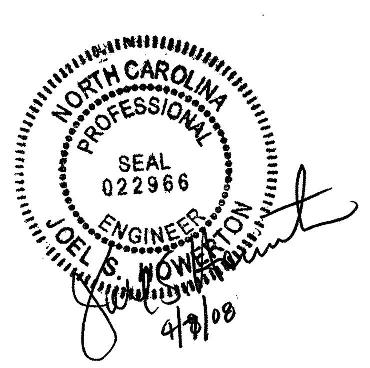
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES, CATCH BASIN OPENING AND MANHOLE OPENING.



SECTION 'B-B'



SECTION 'A-A'



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

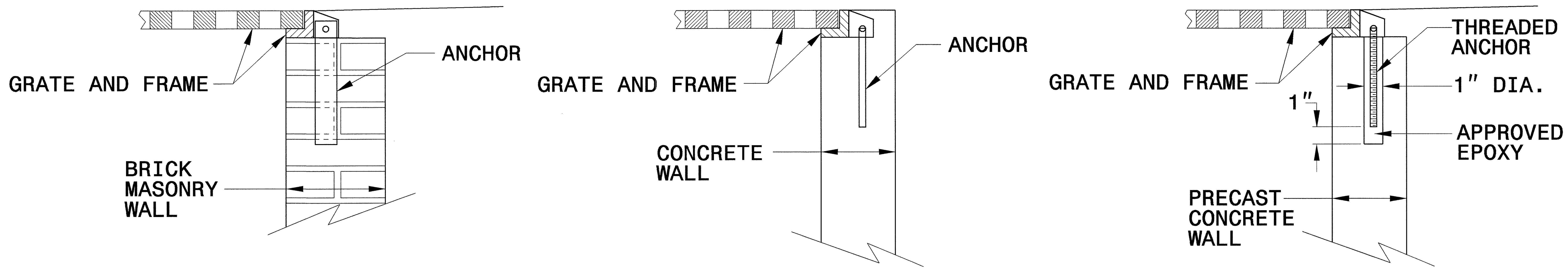
SPECIAL JUNCTION BOX WITH CATCH BASIN

ORIGINAL BY: K.A.KEMPF DATE: Mar.28,2008
MODIFIED BY: DATE:
CHECKED BY: DATE: 3/28/08
FILE SPEC.: w/kkempf/english/cb24_18s_15rcp.dgn

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

PROJECT REFERENCE NO.	SHEET NO.
U-3304	2-E

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



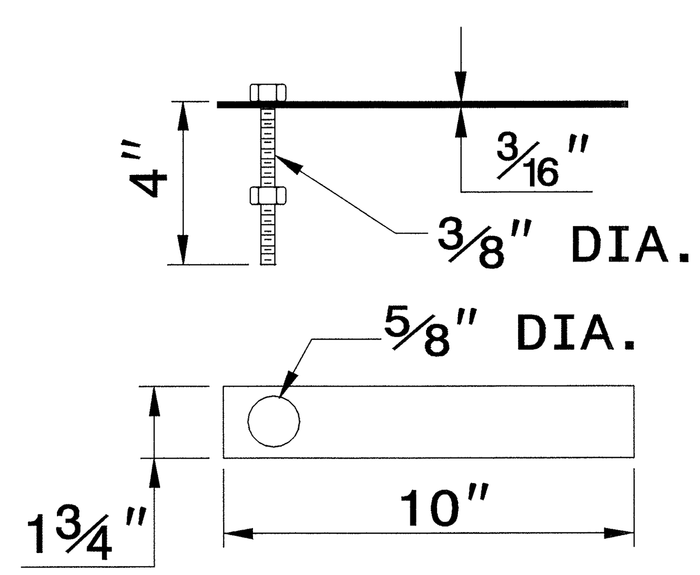
BRICK MASONRY CONSTRUCTION

CONCRETE CONSTRUCTION

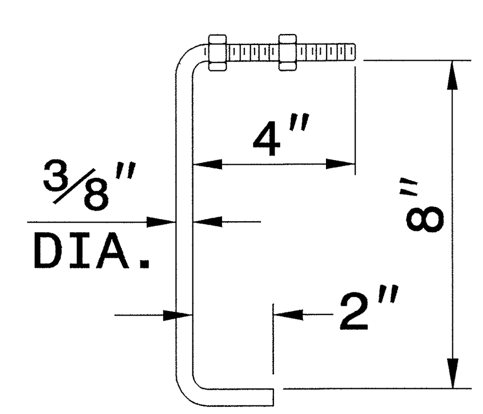
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

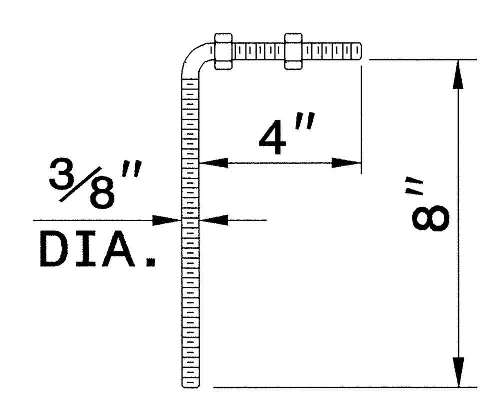
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



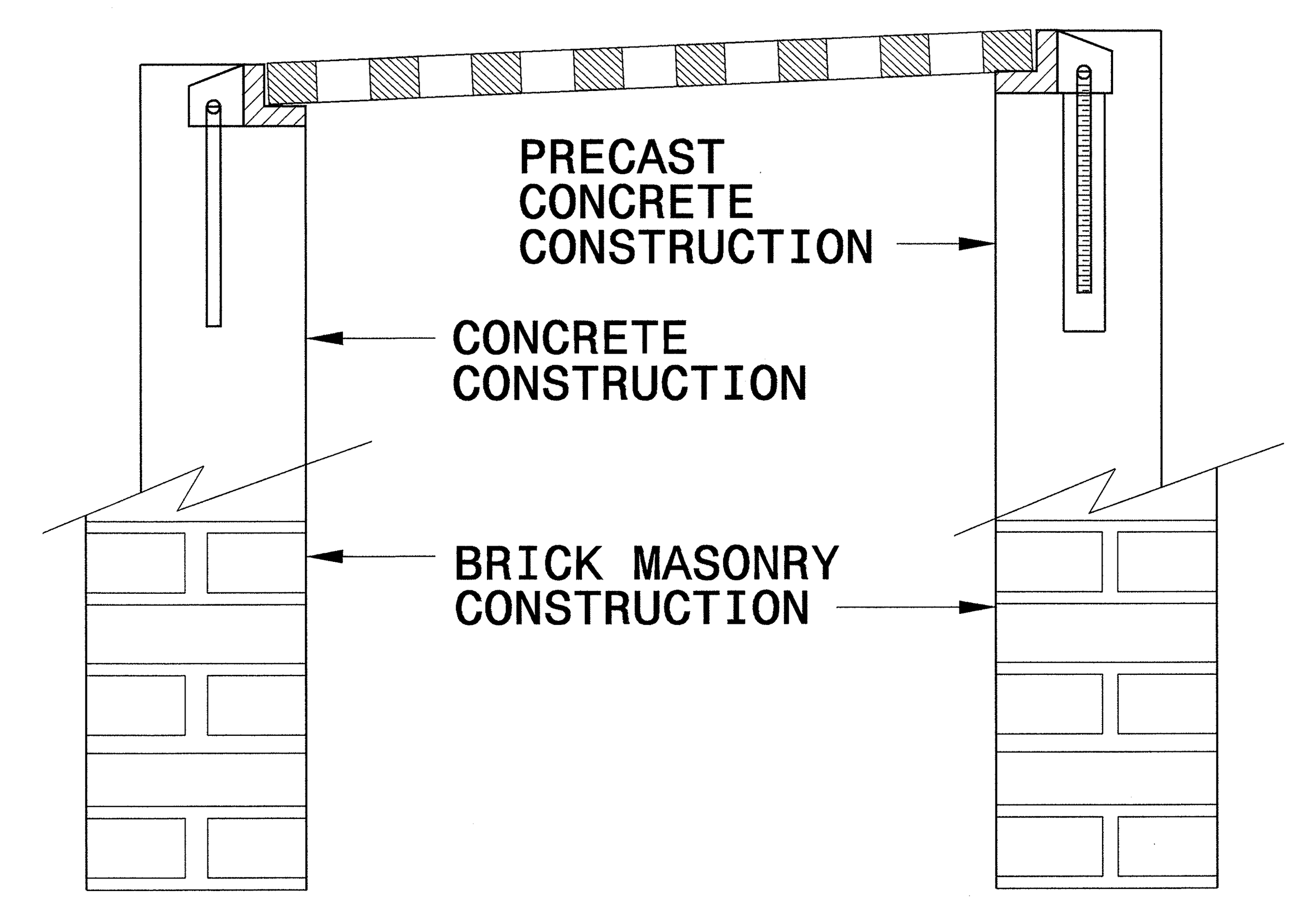
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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

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

SHEET 1 OF 1
840D25

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOEL S. HOWERTON
4/7/08

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

SEE PLATE FOR TITLE

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

PROJECT REFERENCE NO.	SHEET NO.
U-3304	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201857

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0022000000-E	225	22,800	CY	UNCLASSIFIED EXCAVATION
0036000000-E	225	7,600	CY	UNDERCUT EXCAVATION
0080000000-E	SP	5,750	TON	CLASS IV SUBGRADE STABILIZA-TION
0106000000-E	230	88,600	CY	BORROW EXCAVATION
0134000000-E	240	80	CY	DRAINAGE DITCH EXCAVATION
0156000000-E	250	16,860	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0192000000-N	260	4.5	HR	PROOF ROLLING
0195000000-E	265	7,000	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	10,050	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	642	TON	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRS
0343000000-E	310	168	LF	15" SIDE DRAIN PIPE
0426000000-E	310	188	LF	72" RC PIPE CULVERTS, CLASS III
0582000000-E	310	136	LF	15" CS PIPE CULVERTS, 0.064" THICK
0995000000-E	340	1,250	LF	PIPE REMOVAL
1011000000-N	500	Lump Sum		FINE GRADING
1044000000-E	501	10,750	SY	LIME TREATED SOIL (SLURRY METHOD)
1066000000-E	501	110	TON	LIME FOR LIME TREATED SOIL
1077000000-E	SP	20	TON	#57 STONE
1110000000-E	510	500	TON	STABILIZER AGGREGATE
1121000000-E	520	1,421	TON	AGGREGATE BASE COURSE
1176000000-E	542	7,170	SY	SOIL CEMENT BASE
1187000000-E	542	198	TON	PORTLAND CEMENT FOR SOIL CE-MENT BASE
1209000000-E	543	2,690	GAL	ASPHALT CURING SEAL
1220000000-E	545	500	TON	INCIDENTAL STONE BASE
1275000000-E	600	820	GAL	PRIME COAT
1297000000-E	607	2,680	SY	MILLING ASPHALT PAVEMENT, ***" DEPTH (1-1/2")
1308000000-E	607	390	SY	MILLING ASPHALT PAVEMENT, ***" TO ******" DEPTH (0" TO 3")
1330000000-E	607	3,980	SY	INCIDENTAL MILLING
1489000000-E	610	12,420	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	11,630	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	9,760	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	1,670	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	110	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
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	15	TON	BLOTTING SAND
2209000000-E	838	4	CY	ENDWALLS
2220000000-E	838	8	CY	REINFORCED ENDWALLS
2253000000-E	840	2	CY	PIPE COLLARS
2286000000-N	840	73	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	22	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.16
2366000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.24
2374000000-N	840	7	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	25	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	27	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	5	EA	FRAME WITH COVER, STD 840.54
2542000000-E	846	4,100	LF	1'-6" CONCRETE CURB & GUTTER
2549000000-E	846	10,790	LF	2'-6" CONCRETE CURB & GUTTER
2591000000-E	848	2,250	SY	4" CONCRETE SIDEWALK
2600000000-N	SP	5	EA	RETROFIT EXISTING WHEELCHAIR RAMPS
2605000000-N	848	6	EA	CONCRETE WHEELCHAIR RAMPS
2612000000-E	848	50	SY	6" CONCRETE DRIVEWAY
2655000000-E	852	145	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2800000000-N	858	4	EA	ADJUSTMENT OF CATCH BASINS
3030000000-E	862	1,325	LF	STEEL BM GUARDRAIL
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3628000000-E	876	92	TON	RIP RAP, CLASS I
3642000000-E	876	6	TON	RIP RAP, CLASS A
3649000000-E	876	665	TON	RIP RAP, CLASS B
3656000000-E	876	3,270	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	2	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4072000000-E	903	1,006	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4102000000-N	904	37	EA	SIGN ERECTION, TYPE E
4108000000-N	904	3	EA	SIGN ERECTION, TYPE F
4155000000-N	907	21	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	400	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	536	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	258	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	1	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	285	EA	DRUMS
4435000000-N	1135	70	EA	CONES
4445000000-E	1145	640	LF	BARRICADES (TYPE III)
4450000000-N	1150	3,600	HR	FLAGGER
4480000000-N	1165	1	EA	TMIA
4510000000-N	SP	120	HR	POLICE
4516000000-N	1180	105	EA	SKINNY DRUM
4650000000-N	1251	182	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	2,765	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	19,202	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	414	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	399	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	16	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	88	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	53,878	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	234	LF	PAINT PAVEMENT MARKING LINES (24")
4850000000-E	1205	6,584	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4870000000-E	1205	55	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4875000000-N	1205	4	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS
4905000000-N	1253	383	EA	SNOWPLOWABLE PAVEMENT MARKERS
5255000000-N	1413	Lump Sum		PORTABLE LIGHTING
5325800000-E	1510	60	LF	8" WATER LINE
5326200000-E	1510	2,765	LF	12" WATER LINE
5558000000-E	1515	3	EA	12" VALVE
5572200000-E	1515	1	EA	12" TAPPING VALVE
5648000000-N	1515	3	EA	RELOCATE WATER METER
5649000000-N	1515	6	EA	RECONNECT WATER METER
5666000000-E	1515	4	EA	FIRE HYDRANT
5672000000-N	1515	8	EA	RELOCATE FIRE HYDRANT
5691100000-E	1520	122	LF	4" SANITARY GRAVITY SEWER
5691300000-E	1520	105	LF	8" SANITARY GRAVITY SEWER
5768000000-N	1520	1	EA	SANITARY SEWER CLEAN-OUT
5775000000-E	1525	1	EA	4' DIA UTILITY MANHOLE
5871300000-E	1550	26	LF	TRENCHLESS INSTALLATION OF 4" IN SOIL
5871310000-E	1550	26	LF	TRENCHLESS INSTALLATION OF 4" NOT IN SOIL
6000000000-E	1605	5,355	LF	TEMPORARY SILT FENCE
6006000000-E	1610	610	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	1,390	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	1,425	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	17	ACR	TEMPORARY MULCHING
6018000000-E	1620	700	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	3.5	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	475	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	14	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	1,000	LF	SAFETY FENCE
6030000000-E	1630	6,150	CY	SILT EXCAVATION
6036000000-E	1631	9,850	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	1,110	SY	COIR FIBER MAT
6038000000-E	SP	40	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	1,705	LF	1/4" HARDWARE CLOTH
6046000000-E	SP	40	LF	TEMPORARY PIPE FOR STREAM CROSSING
6069000000-E	1638	220	CY	STILLING BASINS
6071030000-E	SP	1,080	LF	COIR FIBER BAFFLES
6071050000-E	SP	17	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	25	ACR	SEEDING & MULCHING
6087000000-E	1660	14	ACR	MOWING
6090000000-E	1661	150	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	575	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	17	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	310	LF	IMPERVIOUS DIKE
6114000000-N	SP	3.5	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	36	EA	RESPONSE FOR EROSION CONTROL
6120000000-E	SP	255	CY	CULVERT DIVERSION CHANNEL
7060000000-E	1705	1,830	LF	SIGNAL CABLE
7120000000-E	1705	7	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7144000000-E	1705	9	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
7252000000-E	1710	3,950	LF	MESSENGER CABLE (1/4")
7288000000-E	1715	60	LF	PAVED TRENCHING (**********) (1, 2")
7300000000-E	1715	2,140	LF	UNPAVED TRENCHING (**********) (1, 2")
7301000000-E	1715	380	LF	DIRECTIONAL DRILL (**********) (2, 2")
7324000000-N	1716	18	EA	JUNCTION BOX (STANDARD SIZE)
7348000000-N	1716	6	EA	JUNCTION BOX (OVER-SIZED, HEA-VY DUTY)
7372000000-N	1721	5	EA	GUY ASSEMBLY
7430000000-N	1722	1	EA	HEAT SHRINK TUBING RETROFIT KIT
7432000000-E	1722	1	EA	2" RISER WITH HEAT SHRINK TUBING
7444000000-E	1725	1,825	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	4,125	LF	LEAD-IN CABLE (************) (14-2)
7516000000-E	1730	4,213	LF	COMMUNICATIONS CABLE (**FIBER) (12)
7552000000-N	1731	1	EA	INTERCONNECT CENTER
7564000000-N	1732	1	EA	FIBER-OPTIC TRANSCEIVER, DROP & REPEAT
7568000000-N	SP	1	EA	FURNISH FIBER-OPTIC RESTORA-TION KIT
7574000000-N	SP	1	EA	FURNISH FIBER-OPTIC TRANSCEIV-ER
7588000000-N	SP	7	EA	METAL POLE WITH SINGLE MAST ARM
7613000000-N	SP	7	EA	SOIL TEST
7614100000-E	SP	42	CY	DRILLED PIER FOUNDATION
7631000000-N	SP	7	EA	MAST ARM WITH METAL POLE DE-SIGN
7684000000-N	1750	1	EA	SIGNAL CABINET FOUNDATION
7756000000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
7780000000-N	1751	11	EA	DETECTOR CARD (TYPE 2070L)
7901000000-N	1753	1	EA	CABINET BASE EXTENDER
******* BEGIN SCHEDULE AA ******* ******* (3 ALTERNATES) *******				
0366000000-E AA1	310	3,778	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA1	310	1,004	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA1	310	620	LF	24" RC PIPE CULVERTS, CLASS III
0390000000-E AA1	310	156	LF	36" RC PIPE CULVERTS, CLASS III
*** OR ***				
0366000000-E AA2	310	3,500	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA2	310	856	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA2	310	444	LF	24" RC PIPE CULVERTS, CLASS III
0390000000-E AA2	310	144	LF	36" RC PIPE CULVERTS, CLASS III
0536000000-E AA2	SP	278	LF	***" HDPE PIPE CULVERTS (15")
0536000000-E AA2	SP	148	LF	***" HDPE PIPE CULVERTS (18")
0536000000-E AA2	SP	176	LF	***" HDPE PIPE CULVERTS (24")
0536000000-E AA2	SP	12	LF	***" HDPE PIPE CULVERTS (36")
*** OR ***				
0366000000-E AA3	310	3,500	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA3	310	856	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA3	310	444	LF	24" RC PIPE CULVERTS, CLASS III
0390000000-E AA3	310	144	LF	36" RC PIPE CULVERTS, CLASS III
0540000000-E AA3	SP	278	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (15", 0.064")
0540000000-E AA3	SP	148	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (18", 0.064")
0540000000-E AA3	SP	176	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (24", 0,064")
0540000000-E AA3	SP	12	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (36", 0.079")
******* END SCHEDULE AA *******				

RD238343

COMPUTED BY:	T. R. Meadows	DATE:	3/17/2008
CHECKED BY:	H. L. Edwards	DATE:	3/17/2008

PROJECT NO.	SHEET NO.
U-3304	3-A

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) 15"	CLASS III R.C. PIPE 18"	CLASS III R.C. PIPE 24"	CLASS III R.C. PIPE 36"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 18"	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONCRETE APRON FOR CATCH BASIN	CONCRETE APRON FOR DROP INLETS	REMARKS
-L-																										
11+80	CL	1		635.9	632.7									1						1	1				1	DI w/CONC. APRON
		1	2		632.7	630.8		104																		
12+85	CL	2		634.0	630.8									1						1	1				1	DI w/CONC. APRON
		2	3		630.8	628.5		108																		
13+90	CL	3		631.7	628.5									1						1	1				1	DI w/CONC. APRON
		3	6		628.5	622.9		136																		
15+08		4	5		621.6	621.4					24		3.4													W/ HEADWALL
15+15	RT	5		628.2	621.4									1	1.8	1			1							CB-ED EXTRA DEPTH
		5	6		621.4	621					44															
15+25	CL	6		629.2	621.0									1	3.2	1			1					1		CB-ED EXTRA DEPTH w/ CONC. APRON
		6	6A		621.0	620.5					76															
20+12	LT	7		619.4	616.4									1		1			1					1		CB w/CONC. APRON
		7	8		616.4	615.0		44																		
20+12	RT	8		618.0	615.0									1		1		1								CB
		8	9		615.0	610.7	X	248																		
22+52	RT	9		613.7	610.7									1		1		1								CB
		9	10		610.7	609.9	X	56																		
23+05	RT	10		612.9	609.9									1		1		1								CB
		10	10A		609.9	609.4	X	28																		
23+35	RT	10A		612.4	609.4									1		1		1								CB
		10A	13A		609.4	609.1	X	44																		
22+00	LT	11		615.3	612.3									1		1		1						1		CB w/ CONC. APRON
		11	12		612.3	611.2		52																		
22+52	LT	12		614.2	611.2									1		1		1						1		CB w/CONC. APRON
		12	13		611.2	610.1		56																		
23+05	LT	13		613.1	610.1									1		1		1						1		CB
		13	13A		610.1	609.1		44																		
23+53	CL	13A		612.1	608.8									1		1		1						1		CB w/CONC. APRON
		13A	14		608.8	591.5	X		84																	
23+88	LT	14		596.5	591.5									1								1	1			MH w/LID
		14	14A		591.5	591.5						12														
		16	17		596.9	593.8				60																
27+86	CL	17		602.9	593.8									1	4.1	1			1					1		CB-ED EXTRA DEPTH w/ CONC. APRON
		17	18		593.8	591.5				44																
28+00	LT	18		601.5	591.5									1	5.0	1			1							CB-ED EXTRA DEPTH
		18	18A		591.5	589.5				44																
30+77	CL	19		598.1	595.1									1		1			1					1		CB w/ CONC. APRON
		19	20		595.1	593.8		44																		
30+77	LT	20		596.8	593.8									1		1			1							CB
		20	21		593.8	593.4		136																		
32+14	LT	21		596.9	593.4									1		1	1									CB
		21	22		593.4	593.4		8																		
32+22	LT	22		596.9	593.4									1		1	1									CB
32+14	CL	21A		597.5	594.5									1		1	1							1		CB w/CONC. APRON
		21A	21B		594.5	594.5		8																		

SHEET TOTALS

	SHEET TOTALS
CLASS III R.C. PIPE 12"	0
CLASS III R.C. PIPE 15"	1116
CLASS III R.C. PIPE 18"	84
CLASS III R.C. PIPE 24"	148
CLASS III R.C. PIPE 30"	0
CLASS III R.C. PIPE 36"	144
CLASS III R.C. PIPE 42"	0
CLASS III R.C. PIPE 48"	0
BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	0
BIT. C.S. 15" .064	0
BIT. C.S. 18" .064	0
BIT. C.S. 24" .064	0
BIT. C.S. 24"	0
BIT. C.S. 30" .079	0
BIT. C.S. 30"	0
BIT. C.S. 36" .079	0
BIT. C.S. 36"	0
BIT. C.S. 42" .109	0
BIT. C.S. 42"	0
BIT. C.S. 15" .064	0
BIT. C.S. 15" PLAIN	0
CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	0
15"	0
18"	12
24"	0
30"	0
36"	0
42"	0
48"	0
15" SIDE DRAIN PIPE	0
18" SIDE DRAIN PIPE	0
24" SIDE DRAIN PIPE	0
ENDWALLS CU. YARDS R.C.P.	3.4
ENDWALLS CU. YARDS C.S.P.	0
PER EACH (0' THRU 5.0')	22
LIN. FT. A 5.0' THRU 10.0'	14.1
LIN. FT. B 10.0' AND ABOVE	0.0
C.B. STD. 840.01 OR STD. 840.02	18
TYPE OF GRATE E	3
TYPE OF GRATE F	8
TYPE OF GRATE G	7
D.I. STD. 840.14 OR STD. 840.15	3
D.I. FRAME WITH TWO GRATES STD. 840.16	3
G.D.I. TYPE "A" STD. 840.17 OR 840.26	0
G.D.I. TYPE "B" STD. 840.18 OR 840.27	0
G.D.I. TYPE "D" STD. 840.19 OR 840.28	0
G.D.I. FRAME WITH GRATE STD. 840.20	0
G.D.I. FRAME WITH TWO GRATES STD. 840.22	0
G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	0
G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	0
J.B. STD. 840.31 OR 840.32	0
(blank column)	0
(blank column)	0
M.H. STD. 840.51 OR 840.53	1
M.H. FRAME AND COVER STD. 840.54	1
TBJB STD. 840.34	0
(blank column)	0
SPECIAL JUNCTION BOX W/ MANHOLE DETAIL 2-C	0
SPECIAL JUNCTION BOX W/ CATCH BASIN DETAIL 2-D	0
(blank column)	0
(blank column)	0
CONCRETE APRON FOR CATCH BASIN	9
CONCRETE APRON FOR DROP INLETS	3
(blank column)	0
ADJUSTMENT OF CATCH BASIN	0
ADJUSTMENT OF JUNCTION BAX	0
(blank column)	0
(blank column)	0
(blank column)	0
(blank column)	0
(blank column)	0
(blank column)	0
(blank column)	0
CORR. STEEL ELBOWS NO. & SIZE	0
CONC. COLLARS CL. "B" C.Y. STD. 840.72	0
CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	0
PIPE REMOVAL LIN. FT.	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

RD238343

COMPUTED BY:	T. R. Meadows	DATE:	3/17/2008
CHECKED BY:	H. L. Edwards	DATE:	3/17/2008

PROJECT NO.	SHEET NO.
U-3304	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

ABBREVIATIONS

- C.B. — CATCH BASIN
- N.D.I. — NARROW DROP INLET
- D.I. — DROP INLET
- G.D.I. — GRATED DROP INLET
- G.D.I.(N.S.) — 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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	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								15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)		QUANITIES FOR DRAINAGE STRUCTURES	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03			D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32			M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	TBJB STD. 840.34		SPECIAL JUNCTION BOX W/ MANHOLE DETAIL 2-C	SPECIAL JUNCTION BOX W/ CATCH BASIN DETAIL 2-D			CONCRETE APRON FOR CATCH BASIN	CONCRETE APRON FOR DROP INLETS		ADJUSTMENT OF CATCH BASIN	ADJUSTMENT OF JUNCTION BAX								CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
SIZE								12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"		30"		36"		42"		15"		12"	15"	18"	24"	30"	36"	42"	48"				CU. YARDS			LIN. FT. A	B																																								
THICKNESS OR GAUGE		FROM	TO													.064	.064	.064	.064		.079		.079		.109		.064	PLAIN												R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	5.0' THRU 10.0'	10.0' AND ABOVE		TYPE OF GRATE E	F	G																																					
-L-																																																																																			
32+22	CL	21B		597.5	594.5																																					1			1	1																						1																CB w/CONC. APRON
		21B	22		594.5	593.4			44																																																																												
		22	23		593.4	593.0				132																																																																											
33+51.50	LT	23		597.6	593.0																																					1			1		1																																						CB
		23	24		593.0	579.3																									40																																																						
33+75	LT	24		588.7	579.3																																					1	4.4																		1	1																							MH w/LID
		24	24A		579.3	579.3																									32																																																					
		27C	27A		578.6	578.6																									20																																																						
34+77	RT	27A		586.5	578.6																																					1	2.9																		1	1																							MH w/LID
		27A	27		581.0	595.2	X																								44																																																					
34+17	RT	27B		598.5	595.5																																					1			1		1																																						CB
		27	27B		595.2	595.5			84																																																																											
34+99	RT	27		599.7	595.2																																					1			1			1																																				CB
		27	26		595.2	596.4	X			72																																																																									
34+99	LT	26		599.7	596.4																																					1			1		1																																						CB
		26	28		596.7	603.3			252																																																																											
37+50	LT	28		606.3	603.3																																					1			1		1																																						CB
		28	29		603.3	611.0			252																																																																												
40+03	LT	29		614.1	611.0																																					1			1		1																																						CB
		29	30		611.0	621.1			336																																																																											
43+43.50	LT	30		624.1	621.1																																					1			1		1																																						CB
		30	31		621.1	622.6																								52																																																							
43+78	LT	31		625.7	622.6																																					1			1		1																																						CB
44+58.50	CL	32		628.2	623.6																																					1																				1	1																						REMOVE CB & REPLACE w/TBJB w/MH
		32	33																																																																																		RETAIN EXISTING 15"
44+27	RT	33		628.4	623.2																																					1	0.2		1			1																																				CB-ED EXTRA DEPTH RETAIN 15" CONC.
		33	34		623.2	628.0	X		332																																																																											
47+54	RT	34		631.7	628.0																																					1			1			1																																				CB-ED EXTRA DEPTH
		34	35		628.0	628.1	X		8																																																																											
47+61	RT	35		631.7	628.1																																					1			1			1																																				CB-ED EXTRA DEPTH
		35	36		628.1	628.5	X		48																																																																											
48+08	RT	36		631.9	628.5																																					1			1			1																																				CB-ED EXTRA DEPTH
		36	37		628.5	629.0	X		52																																																																											
48+59	RT	37		632.0	629.0																																					1			1			1																																				CB
50+94	LT	38		637.2	634.2																																					1			1			1																																				CB
		38	38A		634.2	633.2			36																																																																												
51+27	LT	38A		637.3	633.2																																																																				1													RETAIN & ACDJUST CB
51+45.50	CL	39				631.6																																																																											0.3990			REMOVE CB RETAIN 15"RC & EXTEND
		39	40		633.2	630.6			32																																																																										138.6	REMOVE 15" RC
51+53	RT	40		633.8	630.8																																					1			1		1																																						CB
		40	41		630.8	629.1			136																																																																										94.6	REMOVE 15" RC
52+91	RT	41		632.1	629.1																																					1			1		1																																						REMOVE CB
		41	42		629.1	628.3			100																																																																											REMOVE 2 CB & 15" RC
53+91	RT	42		631.4	628.3																																					1			1	1																																					28.4	REMOVE PART OF 18" RC
SHEET TOTALS								0	1712	204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	136	0	0	0	0	0	0	0	0	0	0	21	7.5	0	18	2	9	7	0	0	0	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0.3990	0	261.6	

RD238343,4/7/2008,R:\Drainage\U-3304_Drainage_Summary.xls

RD238343

COMPUTED BY:	T. R. Meadows	DATE:	3/17/2008
CHECKED BY:	H. L. Edwards	DATE:	3/18/2008

PROJECT NO.	SHEET NO.
U-3304	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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.P. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
-L-															
59+14	RT	43		634.9	631.9										
		43	45		632.0	631.8			68						
59+81	RT	45		634.9	631.8										
		45	44		631.8	631.7			20						
60+03.50	RT	44		635.0	631.7										
		44	44B												
60+18	CL	44B		635.6	632.0										
		44	44A		631.7	631.5	X								
		44	46		631.7				120						
61+25	RT	46		636.7	633.4										
		46	47		633.6	633.9			72						
61+26	LT	47		637.0	634.0										
		47	48		634.0	634.7			40						
		47	47A		634.0	634.5									
61+26	LT	47A		637.5	634.5										
61+67	LT	48		637.7	634.7										
		48	49		634.7	635.0			12						
61+77	LT	49		638.0	635.0										
69+50	LT	50		628.4	625.4										
		50	51		625.4	625.2			72						
69+50	RT	51		628.4	625.1										
		51	52		625.1	609.7				296					
72+43	RT	52		613.0	609.7										
		52	53		609.7	607.8				52					
72+94	RT	53		611.1	607.8										
		53	54A		607.8	607.0				52					
73+46	RT	54A		610.3	607.0										
		54A	54		607.0	606.8				16					
73+64	RT	54		610.1	606.3										
		54	55		607.0	607.2									
17+23 -Y1-	LT	55		611.3	608.5										
		55	56		608.5	610.8									
		54	57		606.3	605.5					88				
73+85	LT	57		609.3	605.5										
72+94	LT	58		611.3	608.3										
		58	59		608.3	607.2			44						
73+39	LT	59		610.0	607.0										
		59	57A		607.0	606.5			36						
73+73	LT	57A		609.5	606.5										
		57A	57		606.5	606.3			12						
		57	60		605.3	603.0									
19+58 -Y1-	LT	60		606.8	603.0										
		60	61		603.0	601.8									
20+14 -Y1-	LT	61		605.6	601.8										
	LT	61	62		601.8	601.3					40				
SHEET TOTALS								0	496	416	128	0	0	0	0

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"	15" .064	15" PLAIN	CLASS III R.C.P. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
-L-																							
59+14	43																						
	43	45																					
59+81	45																						
	45	44																					
60+03.50	44																						
	44	44B																					
60+18	44B																						
	44	44A																16						
	44	46																					
61+25	46																						
	46	47																					
61+26	47																						
	47	48																					
	47	47A																6						
61+26	47A																						
61+67	48																						
	48	49																					
61+77	49																						
69+50	50																						
	50	51																					
69+50	51																						
	51	52																					
72+43	52																						
	52	53																					
72+94	53																						
	53	54A																					
73+46	54A																						
	54A	54																					
73+64	54																						
	54	55																48						
17+23 -Y1-	55																						
	55	56																52						
	54	57																					
73+85	57																						
72+94	58																						
	58	59																					
73+39	59																						
	59	57A																					
73+73	57A																						
	57A	57																					
	57	60																		120				
19+58 -Y1-	60																						
	60	61																		56				
20+14 -Y1-	61																						
	61	62																					
SHEET TOTALS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	122	0	176	0	0	0	0

STATION	FROM	TO	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	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
-L-														
59+14	43							1			1	1		
	43	45												
59+81	45							1			1	1		
	45	44												
60+03.50	44							1			1			1
	44	44B												
60+18	44B							1						
	44	44A												
	44	46												
61+25	46							1			1			1
	46	47												
61+26	47							1			1		1	
	47	48												
	47	47A												
61+26	47A							1						
61+67	48							1			1		1	
	48	49												
61+77	49							1			1		1	
69+50	50							1			1			1
	50	51												
69+50	51							1			1		1	
	51	52												
72+43	52							1			1		1	
	52	53												
72+94	53							1			1		1	
	53	54A												
73+46	54A							1			1		1	
	54A	54												
73+64	54							1			1		1	
	54	55												
17+23 -Y1-	55							1						
	55	56												
	54	57												
73+85	57							1			1			1
72+94	58							1			1			1
	58	59												
73+39	59							1			1			1
	59	57A												
73+73	57A							1			1			1
	57A	57												
	57	60												
19+58 -Y1-	60							1			1			1
	60	61												
20+14 -Y1-	61							1			1			1
	61	62												
SHEET TOTALS			0	0	0	0	0	22	0	0	19	2	8	9

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32			M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	TBJB STD. 840.34
-L-																	
59+14	43																
	43	45															
59+81	45																
	45	44															
60+03.50	44																
	44	44B															
60+18	44B																1
	44	44A															
	44	46															
61+25	46																
	46	47															
61+26	47																
	47	48															
	47	47A															
61+26	47A											1					
61+67	48																
	48	49															
61+77	49																
69+50	50																
	50	51															
69+50	51																
	51	52															
72+43	52																
	52	53															
72+94	53																
	53	54A															
73+46	54A																
	54A	54															
73+64	54																
	54	55															
17+23 -Y1-	55					1					1						
	55	56															
	54	57															
73+85	57																
72+94	58																
	58	59															
73+39	59																
	59	57A															
73+73	57A																
	57A	57															
	57	60															
19+58 -Y1-	60																
	60	61															
20+14 -Y1-	61																
	61	62															
SHEET TOTALS			0	0	0	1	0	0	0	0	1	1	0	0	0	0	1

STATION	FROM	TO		SPECIAL JUNCTION BOX W/ MANHOLE DETAIL 2-C	SPECIAL JUNCTION BOX W/ CATCH BASIN DETAIL 2-D			CONCRETE APRON FOR CATCH BASIN	CONCRETE APRON FOR DROP INLETS		ADJUSTMENT OF CATCH BASIN	ADJUSTMENT OF JUNCTION BAX								CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-L-																								
59+14	43																							CB
	43	45																						
59+81	45																							CB
	45	44																						
60+03.50	44																							CB
	44	44B																						RETAIN EXISTING 15"
60+18	44B																							REMOVE CB & REPLACE w/TBJB
	44	44A																						
	44	46																						
61+25	46																							CB
	46	47																						
61+26	47																							CB
	47	48																						
	47	47A																						
61+26	47A																							JB
61+67	48																							CB
	48	49																						
61+77	49																							CB
69+50	50																							CB
	50	51																						
69+50	51																							CB
	51	52																						
72+43	52																							CB
	52	53																						
72+94	53																							CB
	53	54A																						
73+46	54A																							CB
	54A	54																						
73+64	54																							CB
	54	55																						
17+23 -Y1-	55																							2GI
	55	56																						
	54	57																					38.6	REMOVE 18" RC & CB
73+85	57																						35.1	REMOVE 18" RC & CB
72+94	58																							
	58	59																						
73+39	59																							CB
	59	57A																						
73+73	57A																							CB
	57A	57																						
	57	60																					78.0	REMOVE EXIST. 24" RC
19+58 -Y1-	60																						121.0	REMOVE JB & EXIST. 24" RC
	60	61																						
20+14 -Y1-	61																							CB
	61	62																						
SHEET TOTALS			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	272.7	

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

RD238343

COMPUTED BY:	T. R. Meadows	DATE:	3/17/2008
CHECKED BY:	H. L. Edwards	DATE:	3/18/2008

PROJECT NO.	SHEET NO.
U-3304	3-D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

ABBREVIATIONS

- C.B. — CATCH BASIN
- N.D.I. — NARROW DROP INLET
- D.I. — DROP INLET
- G.D.I. — GRATED DROP INLET
- G.D.I.(N.S.) — 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

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"
-Y1-															
20+55 -Y1-	LT	62		605.1	601.3										
		62	63		601.3	600.3					88				
21+40 -Y1-	LT	63		604.1	600.3										
		63	69		600.3	599.9					44				
21+84 -Y1-	LT	69		603.7	599.9										
		69	64		599.9	600.3					8				
21+92 -Y1-	LT	64		603.6	600.3										
		64	65		600.3	600.7									
21+94 -Y1-	LT	65		603.0	600.7										
		64	66		600.3						28				
22+22 -Y1-	LT	66													
22+62 -Y1-	LT	67													
		67	68		600.3	600.5									
		64	71		600.3	594.4				144					
		69	71		599.9	594.4									
21+92 -Y1-	RT	71		599.8	594.4										
		71	71A		594.4	594.3									
23+60 -Y-1-	RT														
23+92 -Y1-	LT														
24+13 -Y1-	LT														
18+93 -Y1-	RT	72													
17+81 -Y1-	RT	73													
16+64 -Y1-	RT	74													
14+71 -Y1-	LT	75													
14+35 -Y1-	RT	76													
13+64 -Y1-	LT	77													
12+65 -Y1-	RT	78							56						
12+25 -Y1-	LT	80													
11+92 -Y1-	LT	81													
11+56 -Y1DET-	LT	82													
11+88 -Y1DET-	LT	83													
12+83 -Y1DET-	CL	84	85		607.2	606.8									
13+38 -Y1DET-	LT	86													
14+42 -Y1DET-	LT	87													
16+05.67 -Y1DET-	RT	88		611.4	608.4										
		88	89		608.4	606.1			120						
17+19.54 -Y1DET-	LT	89		609.1	606.1										
		89	90		606.1	605.6									
17+87.50 -Y1DET-	LT	90													
19+23 -Y-	RT	91								8					
SHEET TOTAL								0	176	152	168	0	0	0	0
SHEET 3-A TOTAL								0	1116	84	148	0	144	0	0
SHEET 3-B TOTAL								0	1712	204	0	0	0	0	0
SHEET 3-C TOTAL								0	496	416	128	0	0	0	0
PROJECT TOTAL								0	3500	856	444	0	144	0	0
SAY									3500	856	444		144		

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"	15" .064	15" PLAIN	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"
-Y1-																							
20+55 -Y1-	62																						
	62	63																					
21+40 -Y1-	63																						
	63	69																					
21+84 -Y1-	69																						
	69	64																					
21+92 -Y1-	64																						
	64	65															16						
21+94 -Y1-	65																						
	64	66																					
22+22 -Y1-	66																						
22+62 -Y1-	67																						
	67	68															20						
	64	71																					
	69	71																					
21+92 -Y1-	71																						
	71	71A																			12		
23+60 -Y-1-																							
23+92 -Y1-																							
24+13 -Y1-																							
18+93 -Y1-	72																						
17+81 -Y1-	73																						
16+64 -Y1-	74																						
14+71 -Y1-	75																						
14+35 -Y1-	76																						
13+64 -Y1-	77																						
12+65 -Y1-	78																						
12+25 -Y1-	80																						
11+92 -Y1-	81																						
11+56 -Y1DET-	82														20								
11+88 -Y1DET-	83														20								
12+83 -Y1DET-	84	85													56								
13+38 -Y1DET-	86														20								
14+42 -Y1DET-	87														20								
16+05.67 -Y1DET-	88																						
	88	89																					
17+19.54 -Y1DET-	89																						
	89	90															68						
17+87.50 -Y1DET-	90																						
19+23 -Y-	91																						
SHEET TOTAL			0	0	0	0	0	0	0	0	0	0	0	136	0	0	104	0	0	0	12	0	0
SHEET 3-A TOTAL			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0
SHEET 3-B TOTAL			0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	136	0	0	0	0	0
SHEET 3-C TOTAL			0	0	0	0	0	0	0	0	0	0	0	0	0	0	122	0	176	0	0	0	0
PROJECT TOTAL			0	0	0	0	0	0	0	0	0	0	0	136	0	0	278	148	176	0	12	0	0
SAY														166			278	148	176		12		

STATION	FROM	TO	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
-Y1-														
20+55 -Y1-	62							1			1			1
	62	63												
21+40 -Y1-	63							1			1			1
	63	69												
21+84 -Y1-	69							1			1			1
	69	64												
21+92 -Y1-	64							1						1
	64	65												
21+94 -Y1-	65							1						
	64	66												
22+22 -Y1-	66													
22+62 -Y1-	67													
	67	68												
	64	71												
	69	71												
21+92 -Y1-	71							1	0.4					
	71	71A												
23+60 -Y-1-														
23+92 -Y1-														
24+13 -Y1-														
18+93 -Y1-	72		28											
17+81 -Y1-	73		20											
16+64 -Y1-	74		20											
14+71 -Y1-	75		20											
14+35 -Y1-	76		20											
13+64 -Y1-	77		20											
12+65 -Y1-	78													
12+25 -Y1-	80		20											
11+92 -Y1-	81		20											
11+56 -Y1DET-	82													
11+88 -Y1DET-	83													
12+83 -Y1DET-	84	85												
13+38 -Y1DET-	86													
14+42 -Y1DET-	87													
16+05.67 -Y1DET-	88							1						
	88	89												
17+19.54 -Y1DET-	89							1						
	89	90												
17+87.50 -Y1DET-	90													
19+23 -Y-	91													
SHEET TOTAL			168	0	0	0	0	8	0.4	0	3	0	0	4
SHEET 3-A TOTAL			0	0	0	3.4	0	22	14.1	0	18	3	8	7
SHEET 3-B TOTAL			0	0	0	0	0	21	7.5	0	18	2	9	7
SHEET 3-C TOTAL			0	0	0	0	0	22	0	0	19	2	8	9
PROJECT TOTAL			168	0	0	3.4	0	73	22.00		58	7	25	27
SAY			168			4.0		73	22.0		58	7	25	27

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32			M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	TBJB STD. 840.34		SPECIAL JUNCTION BOX W/ MANHOLE DETAIL 2-C	SPECIAL JUNCTION BOX W/ CATCH BASIN DETAIL 2-D			CONCRETE APRON FOR CATCH BASIN	CONCRETE APRON FOR DROP INLETS		ADJUSTMENT OF CATCH BASIN	ADJUSTMENT OF JUNCTION BAX							
21+92 -Y1-	64																			1														
21+94 -Y1-	65		1	1																														
22+22 -Y1-	66																										1							
22+62 -Y1-	67																										1							
21+92 -Y1-	71																1			1														
16+05.67 -Y1DET-	88					1					1																							
17+19.54 -Y1DET-	89					1					1																							
17+87.50 -Y1DET-	90																										1							
SHEET TOTAL			1	1	0	2	0	0	0	0	2	0	0	0	0	1	0	0	1	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0
SHEET 3-A TOTAL			3	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	9	3	0	0	0	0	0	0	0	0	0	0
SHEET 3-B TOTAL			0	0	0	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
SHEET 3-C TOTAL			0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROJECT TOTAL			4	4	0	3	0	0	0	0	3	1	0	0	3	5	2	0	1	1	0	0	10	3	0	4	0	0	0	0	0	0	0	0
SAY			4	4		3					3	1			3	5	2		1	1			10	3		4								

STATION	FROM	TO	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-Y1-							
20+55 -Y1-	62						CB
	62	63					
21+40 -Y1-	63						CB
	63	69				25.6	DI RETAIN EXIST. 24" RC
21+84 -Y1-	69			0.5526			COLLAR
	69	64					
21+92 -Y1-	64						SEE SPECIAL DETAIL SHEET 2-D
	64	65					
21+94 -Y1-	65						DI
	64	66				23.3	REMOVE EXIST. 18" RC
22+22 -Y1-	66					20.0	REMOVE EXIST 18' RC
22+62 -Y1-	67						RETAIN 18" RC
	67	68				23.3	REMOVE EXIST 18' RC
	64	71					2 18" RC @ 72' EA
	69	71					COLLAR & EXTEND EXIST 24" STEEL PIPE
21+92 -Y1-	71						SEE SPECIAL DETAIL SHEET 2-C
	71	71A					
23+60 -Y-1-						20.5	REMOVE EXIST. 15" RC
23+92 -Y1-						19.2	REMVOE EXIST. 15" RC
24+13 -Y1-						16.8	REMOVE EXIST 12" RC
18+93 -Y1-	72					36.0	REMOVE EXIST 12" CONC
17+81 -Y1-	73					19.1	REMOVE EXIST. 12" CONC.
16+64 -Y1-	74					20.3	REMOVE EXIST 12" CONC
14+71 -Y1-	75					19.0	REMOVE EXIST. 15" CONC.
14+35 -Y1-	76					23.9	REMOVE EXIST. 18" CONC.
13+64 -Y1-	77					17.3	REMOVE EXIST. 12" CONC.
12+65 -Y1-	78					63.8	REMOVE EXIST. 15" CONC.
12+25 -Y1-	80					19.5	REMOVE EXIST. 15" CONC.
11+92 -Y1-	81					17.6	REMOVE EXIST. 15" CONC.
11+56 -Y1DET-	82					20	REMOVE TEMP. 15" PIPE
11+88 -Y1DET-	83					20	REMOVE TEMP. 15" PIPE
12+83 -Y1DET-	84	85				56.0	REMOVE TEMP. 15" PIPE
13+38 -Y1DET-	86					20.0	REMOVE TEMP. 15" PIPE
14+42 -Y1DET-	87					20.0	REMOVE TEMP. 15" PIPE
16+05.67 -Y1DET-	88						TEMP. 2GI
	88	89				120	REMOVE TEMP. 15" RCP
17+19.54 -Y1DET-	89						TEMP. 2GI
	89	90				68	REMOVE TEMP. 15" RCP
17+87.50 -Y1DET-	90						TIE TO EXIST. CB REMOVE 15" CONC
19+23 -Y-	91			0.4465			
SHEET TOTAL			0	0.9991	0	709.2	
SHEET 3-A TOTAL			0	0	0	0.0	
SHEET 3-B TOTAL			0	0.3990	0	261.6	
SHEET 3-C TOTAL			0	0	0	272.7	
PROJECT TOTAL			0	1.3981	0	1243.5	
SAY				2.0		1250.0	

COMPUTED BY: TRM DATE: 10/01/07
CHECKED BY: HLE DATE: 11/9/07

PROJECT REFERENCE NO.	SHEET NO.
U-3304	3-E

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
GUARDRAIL SUMMARY

"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 BEGIN

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

RD23834€

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	ANCHORS XI	ANCHORS GRAU 350	ANCHORS M-350	ANCHORS TEMP. GRAU 350	ANCHORS CAT-1	ANCHORS VI MOD	ANCHORS TEMP. III	ANCHORS TYPE III	IMPACT ATTENUATOR TYPE 350 G	IMPACT ATTENUATOR TYPE 350 NG	SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	21+00.00	25+50.00	LT	452.09			24+50	21+00	14	16	50	N/A	1.0	N/A			1			1									
-L-	20+50.00	24+25.00	RT	371.71			21+50	24+25	14	16	50	N/A	1.0	N/A			1			1									
-L-	33+00.00	36+75.00	LT	375.00			34+17	33+00	14	16	50	N/A	1.0	N/A			1			1									
-L-	32+10.00	35+50.00	RT	340.00			33+10	35+50	14	16	50	N/A	1.0	N/A			1			1									
		L SUBTOTALS		1538.80																									
															0	0	4	0	0	4	0	0	0						
	DEDUCTION FOR -L- ANCHORS			-225.00																									
			TOTAL	1313.80																									
			SAY	1325.00																									
	ADDITIONAL GUARDRAIL POST			10 EA																									

TYPE GRAU 350	4	EA @	50.00	FT.	=	200.00
TYPE III	0	EA @	18.75	FT.	=	0.00
TYPE CAT-1	4	EA @	6.25	FT.	=	25.00
TEMP. GRAU 350	0	EA @	50.00	FT.	=	0.00
TEMP.TYPE III	0	EA @	18.75	FT.	=	0.00
DEDUCTION FOR -L- ANCHORS				FT.	=	225.00

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL')	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54"	60"	66"	72"	78"	84"			REINFORCED ENDWALLS WITH R.C. - C.Y.	REINFORCED ENDWALLS WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR 840.02	FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E	F	G				CONC.COLLARS CL.C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-L-																												
23+23		15	15A		592.6	589.8					188					7.1												
SHEET TOTALS								0	0	0	188	0	0			7.1	0	0	0	0	0	0					0	
PROJECT TOTALS											188					7.1												
SAY											188					8.0												

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

COMPUTED B	HLE	DATE:	4/4/2008
CHECKED BY:	KEM	DATE:	4/4/2008

PROJECT NO.	SHEET NO.
U-3304	3-F

RD238346

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF MILLING EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOC LT/RT/CL	DEPTH INCIDENTAL SY	DEPTH 1.5" SY	VAR. DEPTH 0" TO 3" SY
-L-	4+65.00	9+34.32	RT		2276.4	
-L-	8+71.60	9+34.32	LT		223.0	
-L-	44+00.00		LT	49.9		
-L-	51+11.00		LT	43.3		
-L-	55+70.00		LT	34.7		
-L-	59+68.00		LT	34.9		
-Y-	17+00.00	17+35.00	CL		175.2	
-Y-	17+35.00	19+15.00	LT	1060.4		
-Y-	17+35.00	19+15.00	RT			385.1
-Y-	19+15.00	25+00.00	CL	2361.1		
-Y1-	10+48.00	11+75.00	CL	306.1		
-Y1-	23+63.70	24+00.00	CL	86.8		
			TOTAL:	3977.2	2674.6	385.1
			SAY:	3980	2680	390

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL & BREAK-UP

LINE	Station	Station	LOC LT/RT/CL	PAVEMENT REMOVAL SY	PAVEMENT BREAK-UP SY
-L-	37+80.00	74+55.53	CL	13259.3	0.0
-Y1-	12+25.00	18+00.00	CL	1402.6	0.0
-Y1DET-	10+51.17	17+95.18	CL	2016.6	0.0
-Y1DET-	18+30.41	20+47.57	CL	173.2	0.0
			TOTAL:	16851.7	0.0
			SAY	16860.0	0.0

SUMMARY OF EARTHWORK

(IN CUBIC YARDS)

LINE	Station	Station	Uncl. Excav.	Undercut Excav.	Embank. +%	Borrow	Waste
-L -	10+00.00	23+50.00	10	200	54187	54192	215
-L -	23+50.00	34+50.00	165	1879	38950	38952	2046
-L-	34+50.00	38+00.00	812	0	10229	9417	0
-Y-	17+00.00	25+00.00	224	404	1240	1060	448
SUBTOTALS: NO 1			1211	2483	104606	103621	2709
-L - LT	38+00.00	68+00.00	3250	0	0	0	3250
-L - RT	38+00.00	68+00.00	7927	1070	1559	0	7438
SUBTOTALS: NO 2			11177	1070	1559	0	10688
-L-	68+00.00	74+00.00	1098	0	18	0	1080
-L- (BERM)	68+00.00	74+00.00	3074	321	403	0	2992
SUBTOTALS: NO 3			4172	321	421	0	4072
-Y1-DET	10+50.00	20+50.00	2013	0	30	0	1983
-Y1-	10+00.00	18+50.00	3205	227	332	0	3100
-Y1- LT	18+50.00	24+50.00	372	0	128	0	244
-Y1- RT	18+50.00	24+50.00	46	0	833	787	0
-Y1-DET REM	10+00.00	18+50.00	982	184	1024	240	382
SUBTOTALS: NO 4			6618	411	2347	1027	5709
PROJECT SUBTOTALS:			23178	4285	108933	104648	23178
LOSS DUE TO CLEAR. GRUB.			-400			400	0
ADDITIONAL UNDERCUT EXCAV.				3250	3900	3900	3250
EST. FOR DRIVEWAYS			0		0	0	0
EST. FOR PAV'T REMOVAL					0	0	
ROCK TO REPLACE BORROW			0		0	0	0
ADJUST FOR ROCK WASTE					0	0	
WASTE INLIEU OF BORROW			0			-15577	-15577
SHOULDER CONSTRUCTION					1000	1000	
LESS SELECT GRANURAL MAT'L						-7000	
LESS CL. IV SUBGRADE STAB. MAT'L			0		-3021	-3021	0
PROJECT TOTALS:			22778	7535	110812	84350	10851
REPLACE TOP SOIL BORROW PITS						4218	
GRAND TOTALS:			22778	7535		88568	
SAY:			**22800**	**7600**		**88600**	

PAVEMENT STRUCTURE VOLUME = 11159 CUBIC YARDS
DRAINAGE DITCH EXCAVATION = 80 CUBIC YARDS
CL. IV SUBGRADE STABILIZATION = 5750 TONS
(BACKFILL MATERIAL TO REPLACE SHALLOW UNDERCUT EXCAVATION)

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.

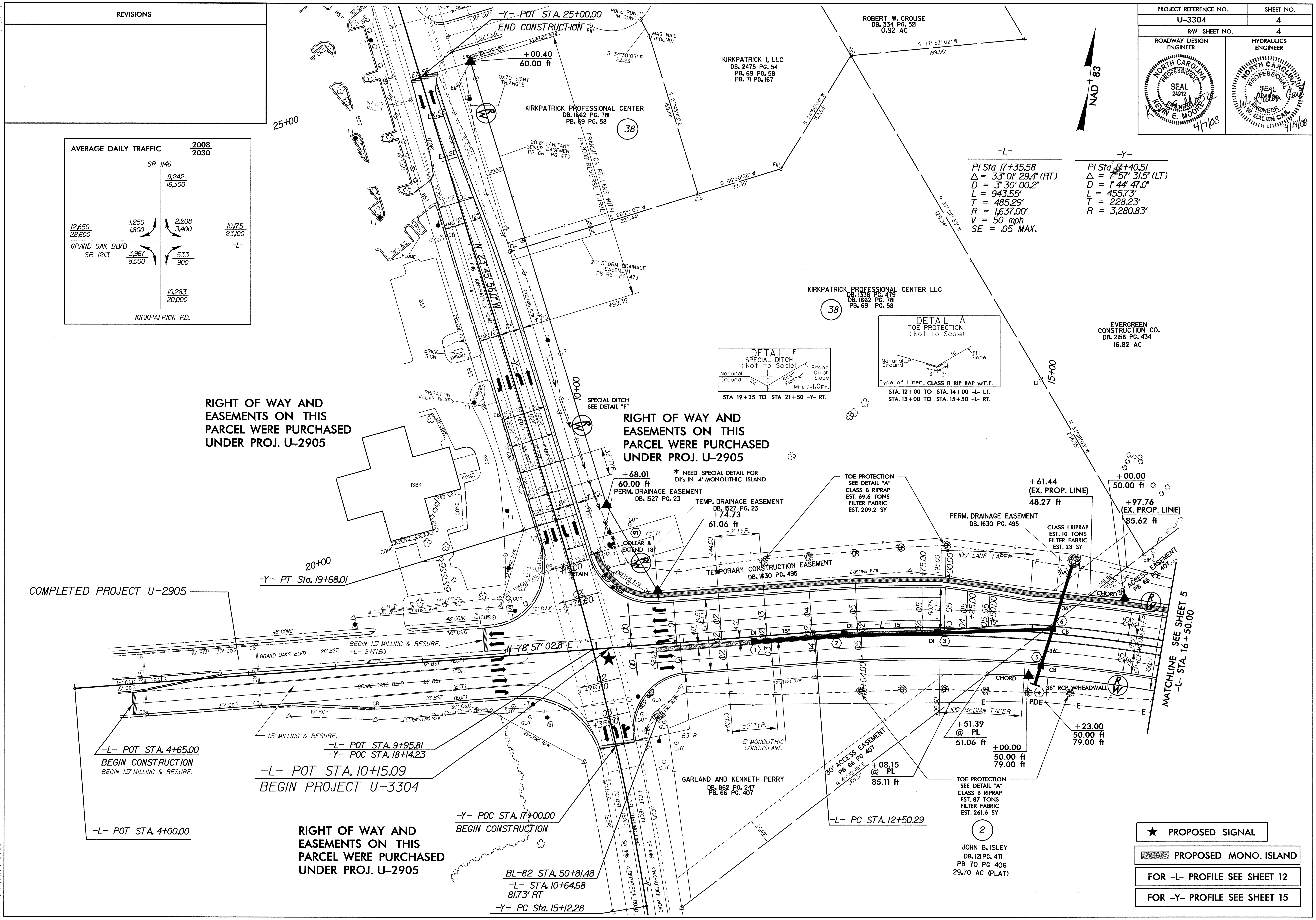
PROJ. REFERENCE NO.	SHEET NO.
U-3304	3-G

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
2	4,5	JOHN B. ISLEY
2A	6	ETHAN POINTE, LLC
3	5,6	RUBY H. ISLEY
4	6	WILLIAM W. HUFFMAN
5	6,7,8	CAROLINA HOISERY MILLS INC.
6	6	EDWARD D. LANCE
8	6	RICHARD G. HOLDEN
9	6,7	HALLMARK HOME BUILDERS, INC.
10	7	CHEILA R. MOORE
11	7	SHILOH PRESBYTERIAN CHURCH, INC.
16	8	RONNIE L. WHITTEN
18	8	FLOYD L. INGOLD, JR.
19	8	W C BUILDERS, LLC
20	8	ROBERT PATRICK LEFTWICH
21	8	JASON DEBOER
22	8	WILLIAM THOMAS ALSTON
23, 23Z	9,10	CAROLINA HOISERY MILLS INC.
24, 24Z	9	CAROLINA HOISERY MILLS INC.
25	9	THOMAS R. DAY
26	9	GPP DEVELOPERS, LLC.
27	9	BYRON B. TUCKER
28	9	SYLVIA K. DINEEN
29	9	RUTH M. SHARPE HEIRS
30	9	GLADYS J. RITCHIE
31	10	MARVIN C. BOWLAND
32	10	WILLIAM M. MATTHEWS
33	10	CARL D. MARLEY
34	10	DAVID R. BUTCHER
35	10	KENNETH W. GASAWAY
36	10	DONALD RAY YARBROUGH, JR
37	10	SOUTHCREEK, LLC
38	4	KIRKPATRICK PROFESSIONAL CENTER, LLC

PARCEL No.	SHEET No.	PROPERTY OWNER NAME



7/2/99
REVISIONS
PROJECT REFERENCE NO. U-3304
SHEET NO. 4
RW SHEET NO. 4
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 4/1/08
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER W. GALEN CAIL 4/14/08
NAD 83
AVERAGE DAILY TRAFFIC 2008 / 2030
SR 1146
9,242 / 16,300
12,650 / 28,600
1,250 / 1,800
2,208 / 3,400
10,175 / 23,100
-L-
GRAND OAK BLVD SR 1213
3,967 / 8,000
533 / 900
10,283 / 20,000
KIRKPATRICK RD.
-L-
PI Sta 17+35.58
Δ = 33° 01' 29.4" (RT)
D = 3° 30' 00.2"
L = 943.55'
T = 485.29'
R = 1,637.00'
V = 50 mph
SE = .05 MAX.
-Y-
PI Sta 17+40.51
Δ = 7° 57' 31.5" (LT)
D = 1° 44' 47.0"
L = 455.73'
T = 228.23'
R = 3,280.83'
ROBERT W. CROUSE DB. 334 PG. 521 0.92 AC
KIRKPATRICK I, LLC DB. 2475 PG. 54 PB. 69 PG. 58 PB. 71 PG. 167
KIRKPATRICK PROFESSIONAL CENTER DB. 1662 PG. 781 PB. 69 PG. 58
KIRKPATRICK PROFESSIONAL CENTER LLC DB. 1338 PG. 479 DB. 1662 PG. 781 PB. 69 PG. 58
EVERGREEN CONSTRUCTION CO. DB. 2158 PG. 434 16.82 AC
-Y- POT STA. 25+00.00 END CONSTRUCTION
+00.40 60.00 ft
10X70 SIGHT TRIANGLE
TRANSITION RT. LANE WITH R=2000' REVERSE CURVE
20.8' SANITARY SEWER EASEMENT PB 66 PG 473
20' STORM DRAINAGE EASEMENT PB 66 PG 473
N 23° 45' 56.0" W
DETAIL F SPECIAL DITCH (Not to Scale) STA. 19+25 TO STA 21+50 -Y- RT.
DETAIL A TOE PROTECTION (Not to Scale) Type of Liner: CLASS B RIP RAP w/F.F. STA. 12+00 TO STA. 14+00 -L- LT. STA. 13+00 TO STA. 15+50 -L- RT.
SPECIAL DITCH SEE DETAIL "F"
RIGHT OF WAY AND EASEMENTS ON THIS PARCEL WERE PURCHASED UNDER PROJ. U-2905
* NEED SPECIAL DETAIL FOR DI's IN 4' MONOLITHIC ISLAND
+68.01 60.00 ft PERM. DRAINAGE EASEMENT DB. 1527 PG. 23
TEMP. DRAINAGE EASEMENT DB. 1527 PG. 23 +74.73 61.06 ft
TOE PROTECTION SEE DETAIL "A" CLASS B RIPRAP EST. 69.6 TONS FILTER FABRIC EST. 209.2 SY
PERM. DRAINAGE EASEMENT DB. 1630 PG. 495
+61.44 (EX. PROP. LINE) 48.27 ft
+00.00 50.00 ft
+97.76 (EX. PROP. LINE) 85.62 ft
CLASS I RIPRAP EST. 10 TONS FILTER FABRIC EST. 23 SY
TEMPORARY CONSTRUCTION EASEMENT DB. 1630 PG. 495
30' ACCESS EASEMENT PB 66 PG 407
MATCHLINE SEE SHEET 5 -L- STA. 16+50.00
-Y- PT Sta. 19+68.01
COMPLETED PROJECT U-2905
N 78° 57' 02.8" E
BEGIN 1.5" MILLING & RESURF. -L- 8+71.60
GRAND OAKS BLVD
-L- POT STA. 4+65.00 BEGIN CONSTRUCTION BEGIN 1.5" MILLING & RESURF.
-L- POT STA. 9+95.81 -Y- POC STA. 18+14.23
-L- POT STA. 10+15.09 BEGIN PROJECT U-3304
-L- POT STA. 4+00.00
-Y- POC STA. 17+00.00 BEGIN CONSTRUCTION
BL-82 STA. 50+81.48 -L- STA. 10+64.68 81.73' RT
-Y- PC Sta. 15+12.28
GARLAND AND KENNETH PERRY DB. 862 PG. 247 PB. 66 PG. 407
+08.15 @ PL 85.11 ft
+51.39 @ PL 51.06 ft
+00.00 50.00 ft 79.00 ft
+23.00 50.00 ft 79.00 ft
100' MEDIAN TAPER
100' LANE TAPER
36" RCP W/HEADWALL
TOE PROTECTION SEE DETAIL "A" CLASS B RIPRAP EST. 87 TONS FILTER FABRIC EST. 261.6 SY
-L- PC STA. 12+50.29
JOHN B. ISLEY DB. 121 PG. 471 PB 70 PG 406 29.70 AC (PLAT)
★ PROPOSED SIGNAL
PROPOSED MONO. ISLAND
FOR -L- PROFILE SEE SHEET 12
FOR -Y- PROFILE SEE SHEET 15
04-APR-2008 11:52 r:\roadway\proj\u-3304_rdy_psh_4.dgn $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3304	5
RW SHEET NO.	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24012 ENGINEER KEVIN E. MOORE 4/7/08

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER W. GALEN CAIL 4/4/08

REVISIONS

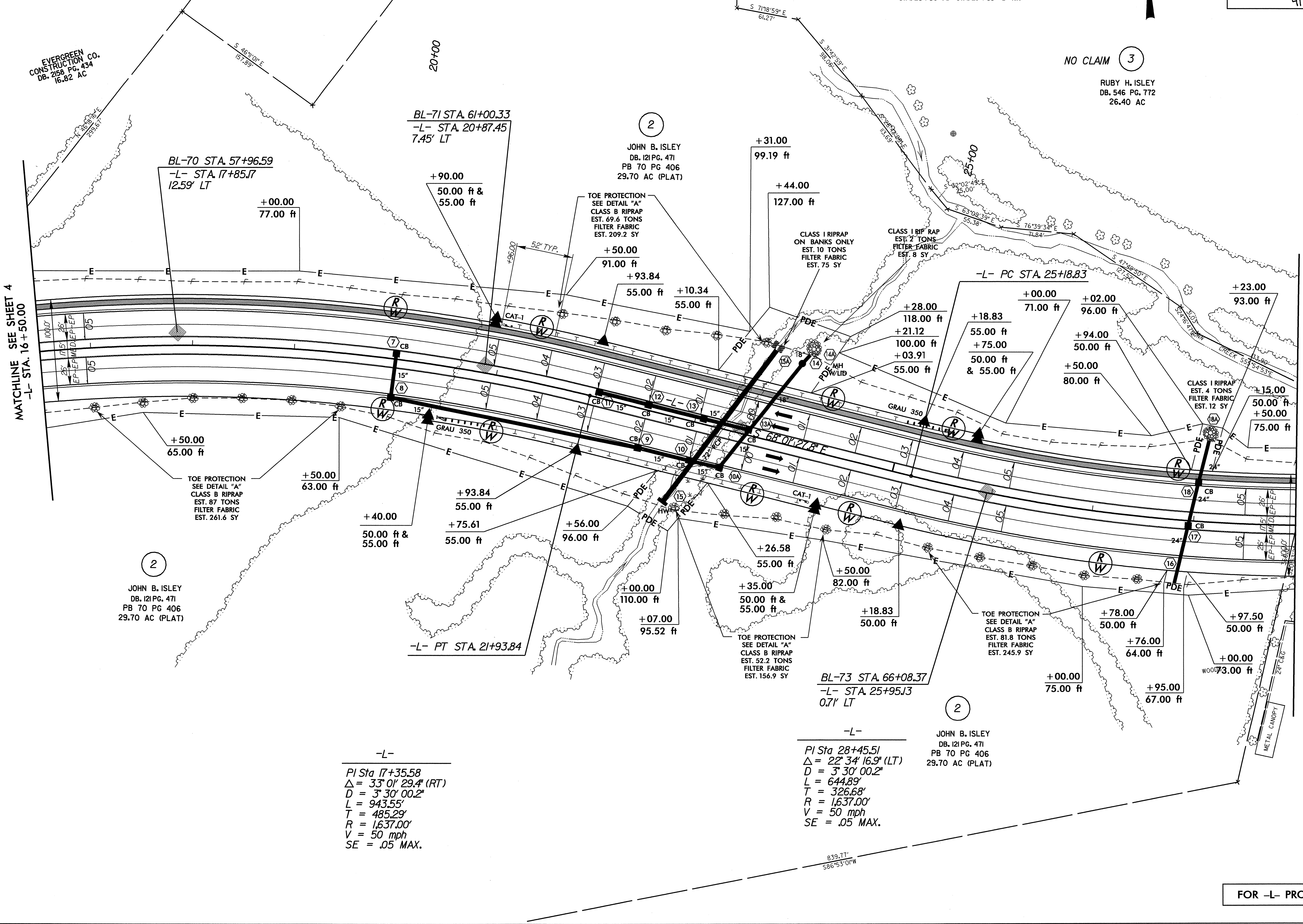
7/2/99

DETAIL A
TOE PROTECTION
(Not to Scale)

Natural Ground
Fill Slope
3:1
3' 3'
Type of Liner: CLASS B RIP RAP w/F.F.

STA. 17+00 TO STA. 19+50 -L- RT.
STA. 21+50 TO STA. 23+50 -L- LT.
STA. 23+00 TO STA. 24+50 -L- RT.
STA. 25+50 TO STA. 27+85 -L- RT.

NAD 83

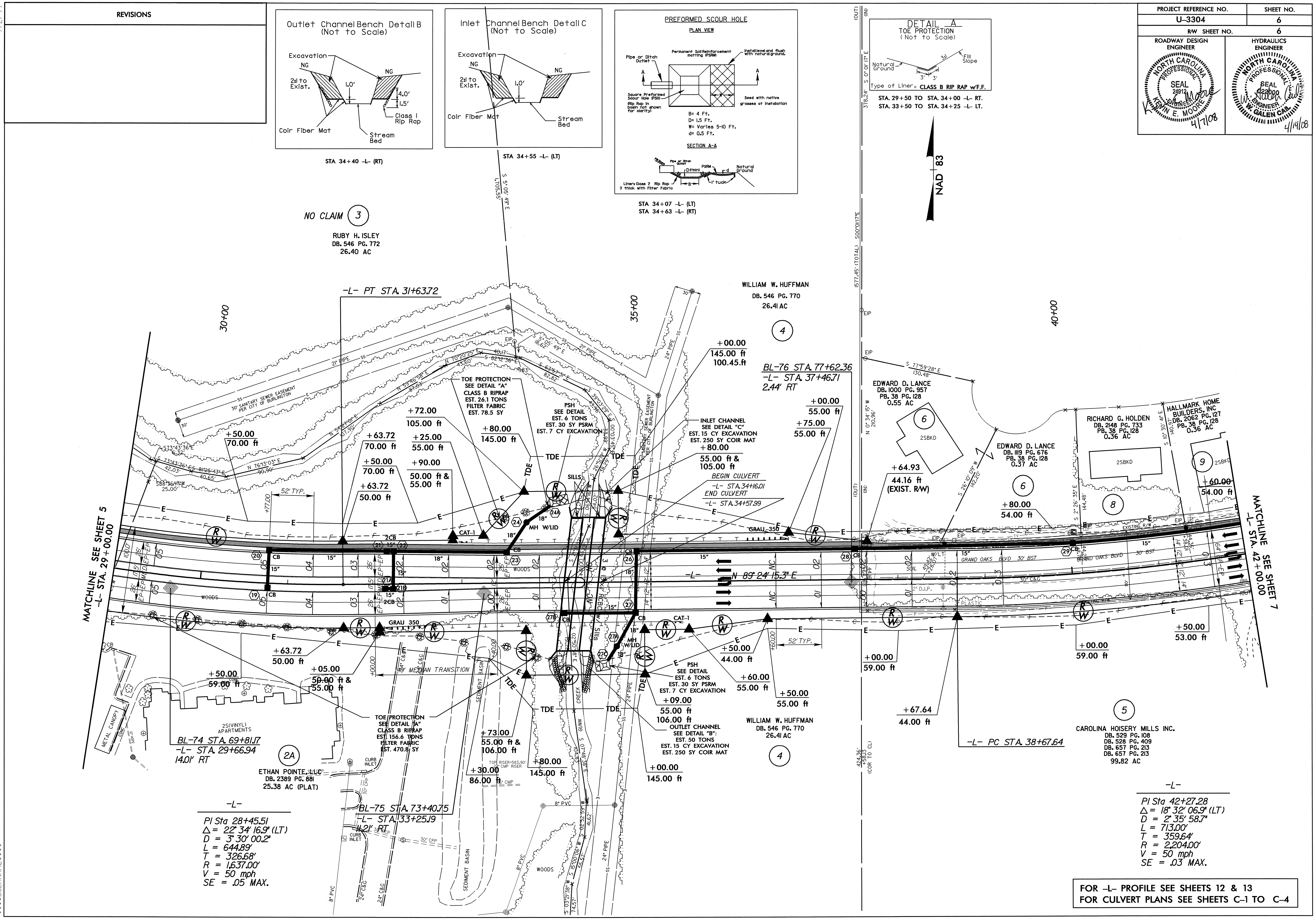


-L-
PI Sta 17+35.58
Δ = 33° 01' 29.4" (RT)
D = 3° 30' 00.2"
L = 943.55'
T = 485.29'
R = 1,637.00'
V = 50 mph
SE = .05 MAX.

-L-
PI Sta 28+45.51
Δ = 22° 34' 16.9" (LT)
D = 3° 30' 00.2"
L = 644.89'
T = 326.68'
R = 1,637.00'
V = 50 mph
SE = .05 MAX.

FOR -L- PROFILE SEE SHEET 12

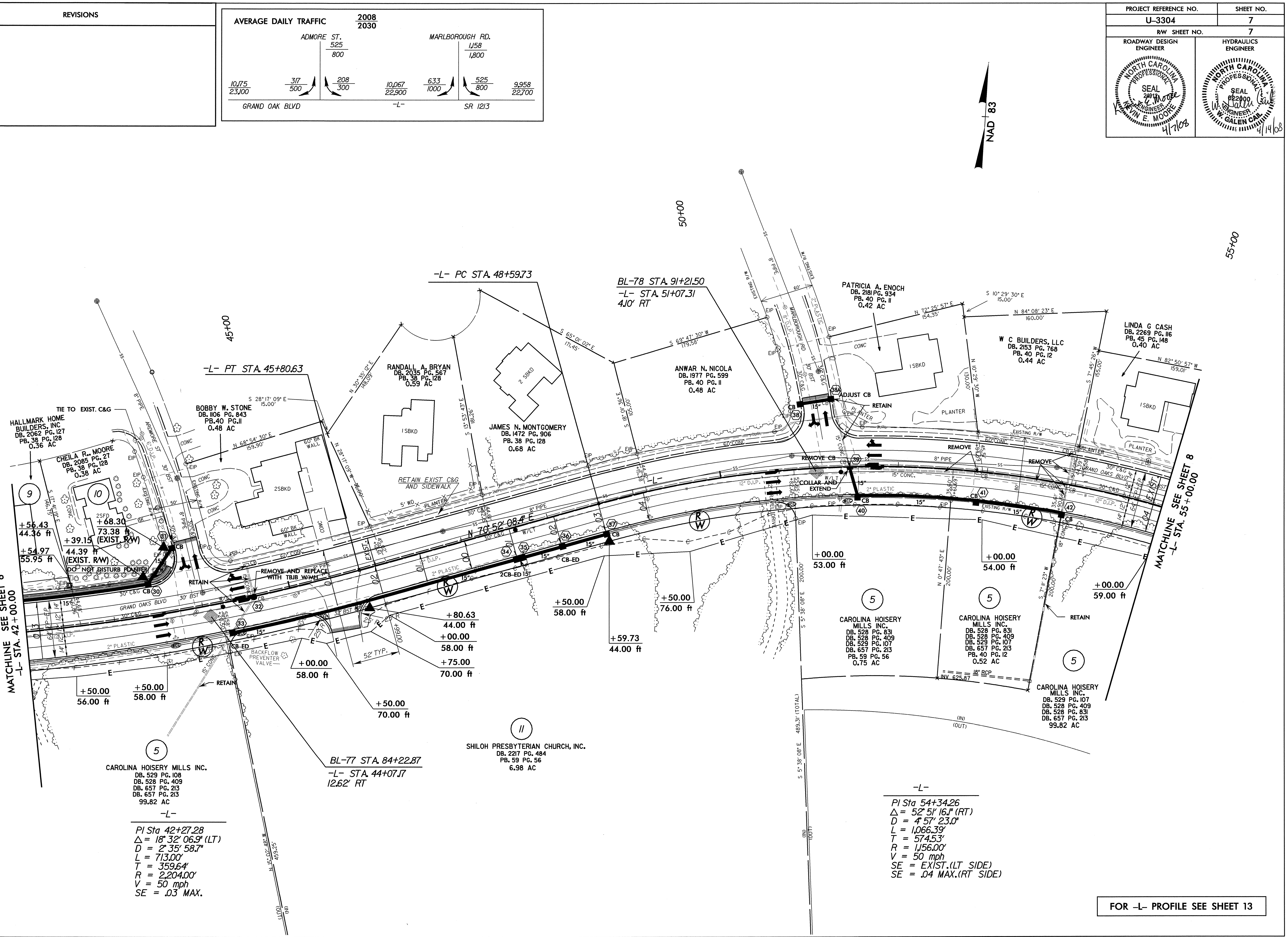
24-MAR-2008 13:37
r:\roadway\proj\u-3304_rdy_psh_5.dgn
$$$$USERNAME$$$$


PROJECT REFERENCE NO. U-3304
SHEET NO. 6
R/W SHEET NO. 6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 4/7/08
NORTH CAROLINA PROFESSIONAL SEAL 023000 ENGINEER W. GALEN CAIL 4/14/08
REVISIONS
Outlet Channel Bench Detail B (Not to Scale)
Excavation
NG
2:1 to Exist.
1.0'
4.0'
1.5'
Class I Rip Rap
Coir Fiber Mat
Stream Bed
STA 34+40 -L- (RT)
Inlet Channel Bench Detail C (Not to Scale)
Excavation
NG
2:1 to Exist.
1.0'
Coir Fiber Mat
Stream Bed
STA 34+55 -L- (LT)
PREFORMED SCOUR HOLE
PLAN VIEW
Pipe or Ditch Outlet
Permanent Soil Reinforcement matting (PSRM)
Install level and flush with natural ground.
Square Preformed Scour Hole (PSH) (Rip Rap in basin not shown for clarity)
Seed with native grasses at installation
B= 4 Ft.
D= 1.5 Ft.
W= Varies 5-10 Ft.
d= 0.5 Ft.
SECTION A-A
Liner: Class 2 Rip Rap 2' thick with Filter Fabric
STA 34+07 -L- (LT)
STA 34+63 -L- (RT)
DETAIL A
TOE PROTECTION
(Not to Scale)
Natural Ground
Fill Slope
Type of Liner= CLASS B RIP RAP w/F.F.
STA. 29+50 TO STA. 34+00 -L- RT.
STA. 33+50 TO STA. 34+25 -L- LT.
NAD 83
NO CLAIM 3
RUBY H. ISLEY DB. 546 PG. 772 26.40 AC
WILLIAM W. HUFFMAN DB. 546 PG. 770 26.41 AC
EDWARD D. LANCE DB. 1000 PG. 957 PB. 38 PG. 128 0.55 AC
EDWARD D. LANCE DB. 1119 PG. 676 PB. 38 PG. 128 0.37 AC
RICHARD G. HOLDEN DB. 2148 PG. 733 PB. 38 PG. 128 0.36 AC
HALLMARK HOME BUILDERS, INC DB. 2062 PG. 127 PB. 38 PG. 128 0.36 AC
CAROLINA HOISERY MILLS INC. DB. 529 PG. 108 DB. 528 PG. 409 DB. 657 PG. 213 DB. 657 PG. 213 99.82 AC
ETHAN POINTE, LLC DB. 2389 PG. 881 25.38 AC (PLAT)
2S(VINYL) APARTMENTS
METAL CANOPY
-L- PT STA. 31+63.72
BL-76 STA. 77+62.36
-L- STA. 37+46.71 2.44' RT
BL-74 STA. 69+81.17
-L- STA. 29+66.94 14.01' RT
BL-75 STA. 73+40.75
-L- STA. 33+25.19 11.21' RT
-L- PC STA. 38+67.64
TOE PROTECTION SEE DETAIL "A" CLASS B RIPRAP EST. 26.1 TONS FILTER FABRIC EST. 78.5 SY
TOE PROTECTION SEE DETAIL "A" CLASS B RIPRAP EST. 156.6 TONS FILTER FABRIC EST. 470.8 SY
PSH SEE DETAIL EST. 6 TONS EST. 30 SY PSRM EST. 7 CY EXCAVATION
INLET CHANNEL SEE DETAIL "C" EST. 15 CY EXCAVATION EST. 250 SY COIR MAT
OUTLET CHANNEL SEE DETAIL "B": EST. 50 TONS EST. 15 CY EXCAVATION EST. 250 SY COIR MAT
BEGIN CULVERT -L- STA. 34+16.01
END CULVERT -L- STA. 34+57.99
N 89° 24' 15.3" E
MATCHLINE SEE SHEET 5 -L- STA. 29+00.00
MATCHLINE SEE SHEET 7 -L- STA. 42+00.00
-L-
PI Sta 28+45.51
Δ = 22° 34' 16.9" (LT)
D = 3° 30' 00.2"
L = 644.89'
T = 326.68'
R = 1,637.00'
V = 50 mph
SE = .05 MAX.
-L-
PI Sta 42+27.28
Δ = 18° 32' 06.9" (LT)
D = 2° 35' 58.7"
L = 713.00'
T = 359.64'
R = 2,204.00'
V = 50 mph
SE = .03 MAX.
FOR -L- PROFILE SEE SHEETS 12 & 13
FOR CULVERT PLANS SEE SHEETS C-1 TO C-4
04-APR-2008 11:12
r:\roadway\proj\u-3304_rdy_psh_6.dgn
7/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3304	7
RW SHEET NO.	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

AVERAGE DAILY TRAFFIC 2008 / 2030



-L-
PI Sta 42+27.28
Δ = 18° 32' 06.9" (LT)
D = 2° 35' 58.7"
L = 713.00'
T = 359.64'
R = 2,204.00'
V = 50 mph
SE = .03 MAX.

-L-
PI Sta 54+34.26
Δ = 52° 51' 16.1" (RT)
D = 4° 57' 23.0"
L = 1,066.39'
T = 574.53'
R = 1,156.00'
V = 50 mph
SE = EXIST. (LT SIDE)
SE = .04 MAX. (RT SIDE)

FOR -L- PROFILE SEE SHEET 13

24-MAR-2008 13:37
r:\roadway\proj\u-3304_rdy_psh_7.dgn
$$$$USERNAME$$$$
7/2/99

7/2/99

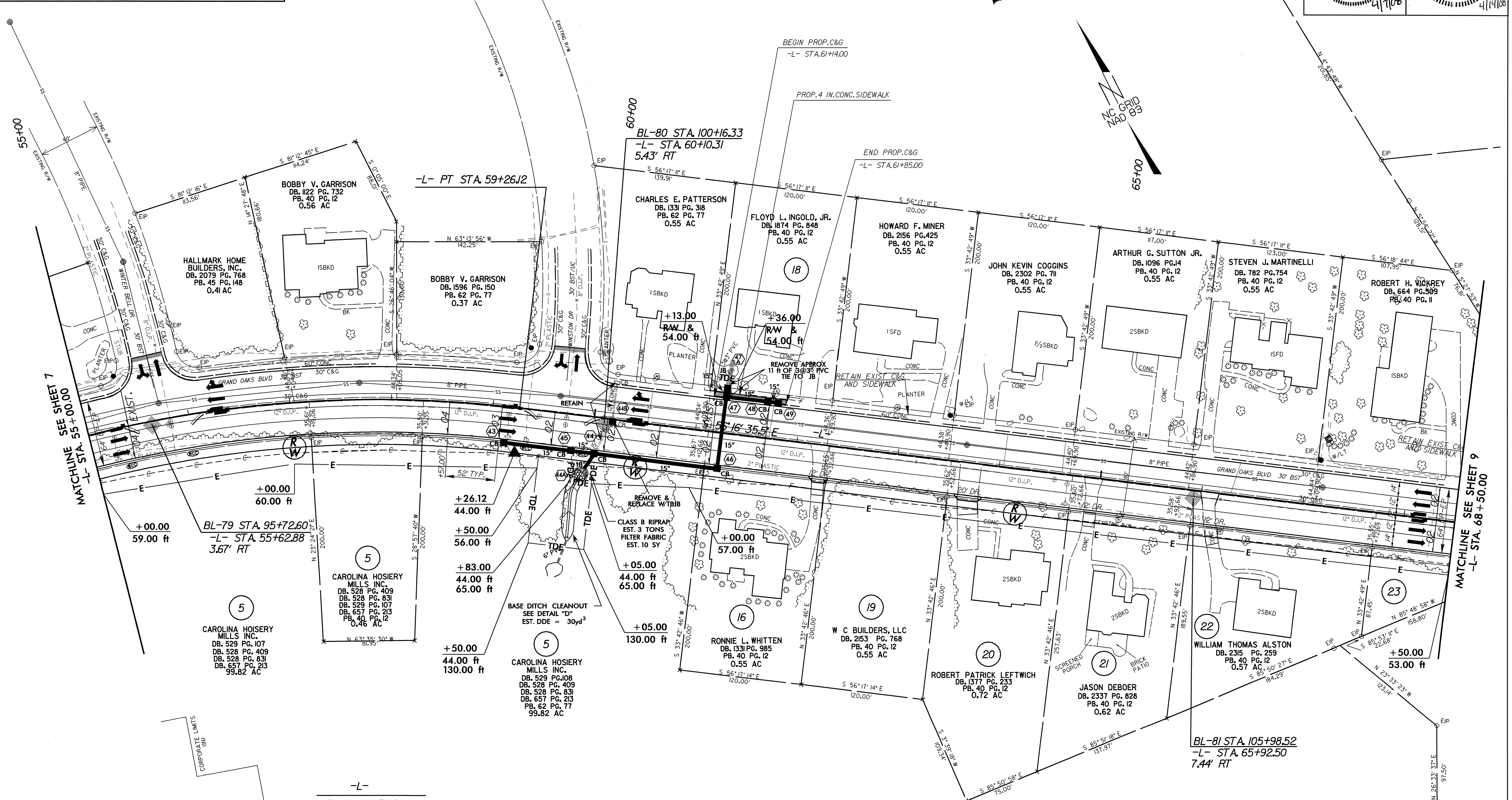
PROJECT REFERENCE NO.	SHEET NO.
U-3304	8
R/W SHEET NO.	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 4/7/08	NORTH CAROLINA PROFESSIONAL SEAL ENGINEER W. GALEN CAIL 4/14/08

REVISIONS

DETAIL D
BASE DITCH
(Not to Scale)
Natural Ground 2:1 D 2:1 Natural Ground
B
Min. D = 1.5 Ft.
B = 2.0 Ft.
STA. 59+90 -L- RT.

AVERAGE DAILY TRAFFIC 2008 / 2030

WINTER BELL DR. 450 / 1,000
WINSTON DR. 683 / 1,600
GRAND OAK BLVD 9,958 / 22,700; 125 / 400; 325 / 600
-L- 10,158 / 22,900; 133 / 500; 550 / 1,100
SR 1213 10,575 / 23,500



-L-
PI Sta 54+34.26
Δ = 52° 51' 16.1" (RT)
D = 4° 57' 23.0"
L = 1,066.39'
T = 574.53'
R = 1,156.00'
V = 50 mph
SE = EXIST. (LT SIDE)
SE = .04 MAX. (RT SIDE)

FOR -L- PROFILE SEE SHEETS 13 & 14

07-APR-2008 08:35
r:\roadway\proj\u-3304_rdy_psh_8.dgn
$$$$USERNAME$$$$


7/2/99
REVISIONS
PROJECT REFERENCE NO. U-3304
SHEET NO. 9
R/W SHEET NO. 9
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24912 KELVIN E. MOORE
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022000 W. GALEN CAIL
4/14/08
NAD 83
AVERAGE DAILY TRAFFIC 2008 / 2030
NC 62
10,958 / 19,300
10,575 / 23,500
4,525 / 10,300
2,258 / 5,100
6,333 / 14,400
GRAND OAK BLVD SR 1213
-L-
4,117 / 8,700
2,150 / 4,900
PROJECT U-3407
10,442 / 17,500
ALAMANCE RD.
DETAIL E
BASE DITCH
(Not to Scale)
Natural Ground
Min. D = 2 Ft.
Max. d = 2 Ft.
B = 3 Ft.
Type of Liner = PSRM
STA. 21+99 -Y1- RT.
-Y1- POT STA. 25+79.36
-Y1- POT STA. 24+00.00
END CONSTRUCTION
ANDREW C. LYNCH
DB. 2254 PG. 66
0.97 AC
LETTIE G. KECK
DB. 188 PG. 271
4.10 AC
SYLVIA KENNEDY DINEEN
DB. 742 PG. 604
3.30 AC
SYLVIA K. DINEEN
DB. 391 PG. 765
0.77 AC
BYRON B. TUCKER
DB. 2194 PG. 506
PB. 46 PG. 21
0.26 AC
GPP DEVELOPERS LLC
DB. 1274 PG. 164
PB. 65 PG. 130
THOMAS R. DAY
DB. 1378 PG. 676
PB. 64 PG. 175
TOMMY V. STRIGO
DB. 1440 PG. 260
PB. 65 PG. 130
KENNETH J. MURPHY
DB. 2257 PG. 451
PB. 65 PG. 130
HALTON T. HUBBARD
DB. 2148 PG. 828
DB. 2313 PG. 214
PB. 65 PG. 130
LARRY M. LEE
DB. 2275 PG. 184
PB. 65 PG. 130
CAROLINA HOSIERY MILLS INC.
DB. 528 PG. 409 DB. 657 PG. 213
DB. 528 PG. 831 PB. 40 PG. 13
DB. 529 PG. 108
1.76 AC
CAROLINA HOSIERY MILLS INC.
DB. 528 PG. 409 DB. 528 PG. 831
DB. 529 PG. 108 DB. 657 PG. 213
PB. 40 PG. 13 1.23 AC
RUTH M. SHARPE HEIRS
DB. 144 PG. 314
7.97 AC
RUTH M. SHARPE HEIRS
DB. 702 PG. 465
0.93 AC
WILLIAM K. SHARPE
DB. 520 PG. 898
DB. 348 PG. 281
0.61 AC
HILDAH D. SHARPE
DB. 379 PG. 240
DB. 363 PG. 390
0.54 AC
GLADYS J. RITCHIE
DB. 185 PG. 181
1.16 AC
BL-1 STA. 114+65.06
-L- STA. 74+57.03, 51.38' LT
BY1-1 STA. 15+55.58
-Y1- STA. 18+87.68, 24.05' LT
-L- POT STA. 74+66.99
END PROJECT U-3304
END CONSTRUCTION
-L- POT STA. 74+66.99
-Y1- POT STA. 18+41.21
-L- S 56°16' 35.5" E
GRAND OAKS BLVD
MATCHLINE SEE SHEET 8
-L- STA. 68+50.00
MATCHLINE SEE SHEET 10
-Y1- STA. 16+50.00
TIE PROP. TO EXIST. C&G
-L- STA. 69+00.00
100' LANE TAPER
PROP. 4 IN. CONC SIDEWALK
300' TRANSITION LT. THRU LNJ
300' TRANSITION RT. (EOT)
CLASS I RIP RAP EST 15 TONS EST 30 SY FF
CLASS A RIP RAP EST 6 TONS
BASE DITCH SEE DETAIL "E" SLOPE = 1.00% EST. DDE = 20 CY EST. 20 SY PSRM
BACKFILL DITCH EST. 15 CY
SPECIAL CB. SEE DETAIL 2-D
SPECIAL TBJB W/MH SEE DETAIL 2-C
COLLAR & EXTEND 24"
★ PROPOSED SIGNAL
FOR -L- PROFILE SEE SHEET 14
FOR -Y1- PROFILE SEE SHEETS 14 & 15
04-APR-2008 11:52
r:\roadway\proj\u-3304_rdy_psh_9.dgn

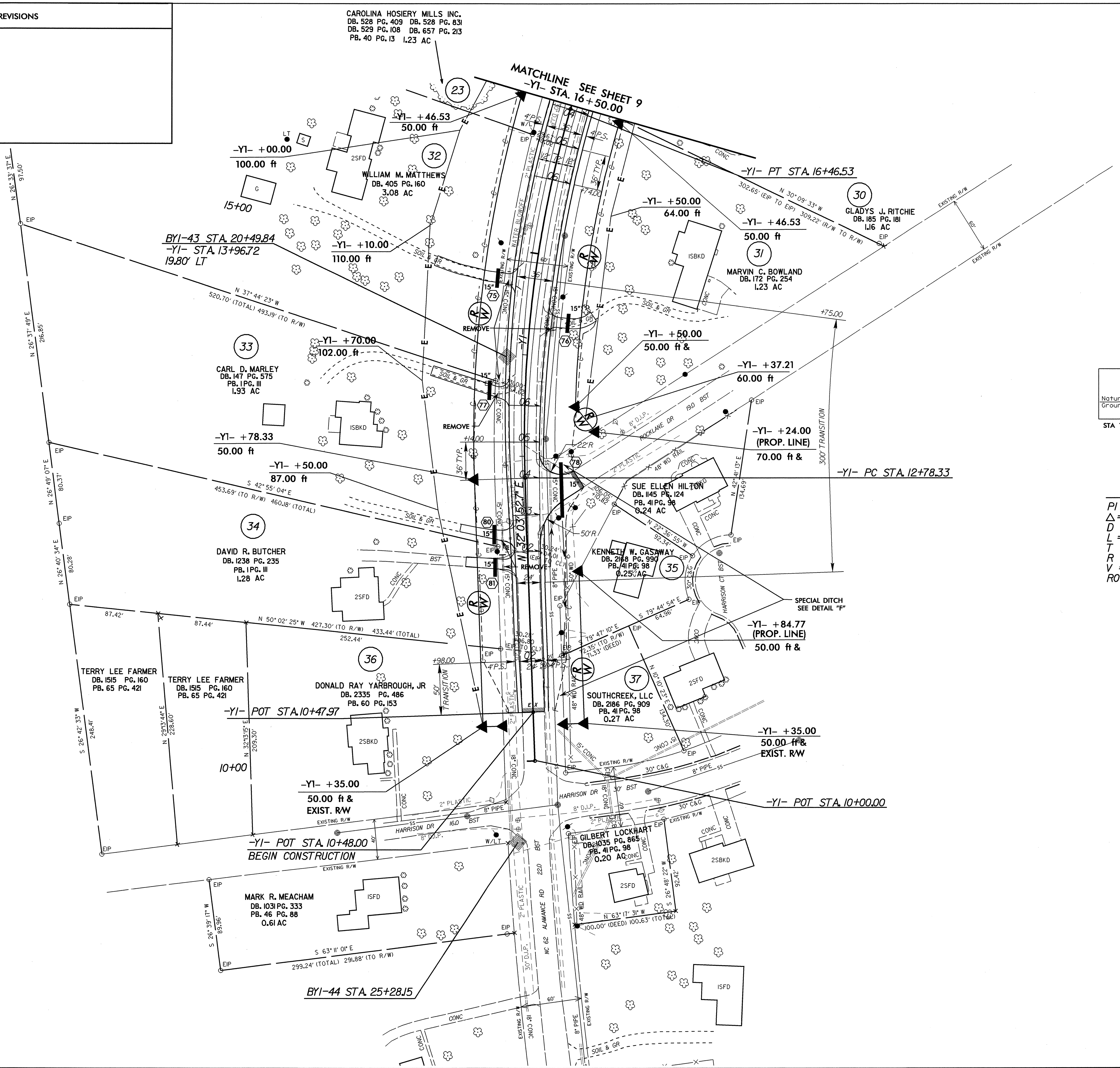
PROJECT REFERENCE NO.	SHEET NO.
U-3304	10
R/W SHEET NO.	10

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 4/7/08

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL 4/4/08

REVISIONS

7/2/99



DETAIL F
SPECIAL DITCH
(Not to Scale)

STA 10+50 TO STA 13+00 -Y1- RT.

-Y1-

PI Sta 14+63.97
Δ = 18° 02' 48.0" (RT)
D = 4° 54' 04.6"
L = 368.20'
T = 185.64'
R = 1,169.00'
V = 50 mph
RO = 216'

FOR -Y1- PROFILE SEE SHEET 14

07-APR-2008 08:39
r:\roadway\proj\u_3304_rdy_psh_10.dgn
$$$$USERNAME$$$$

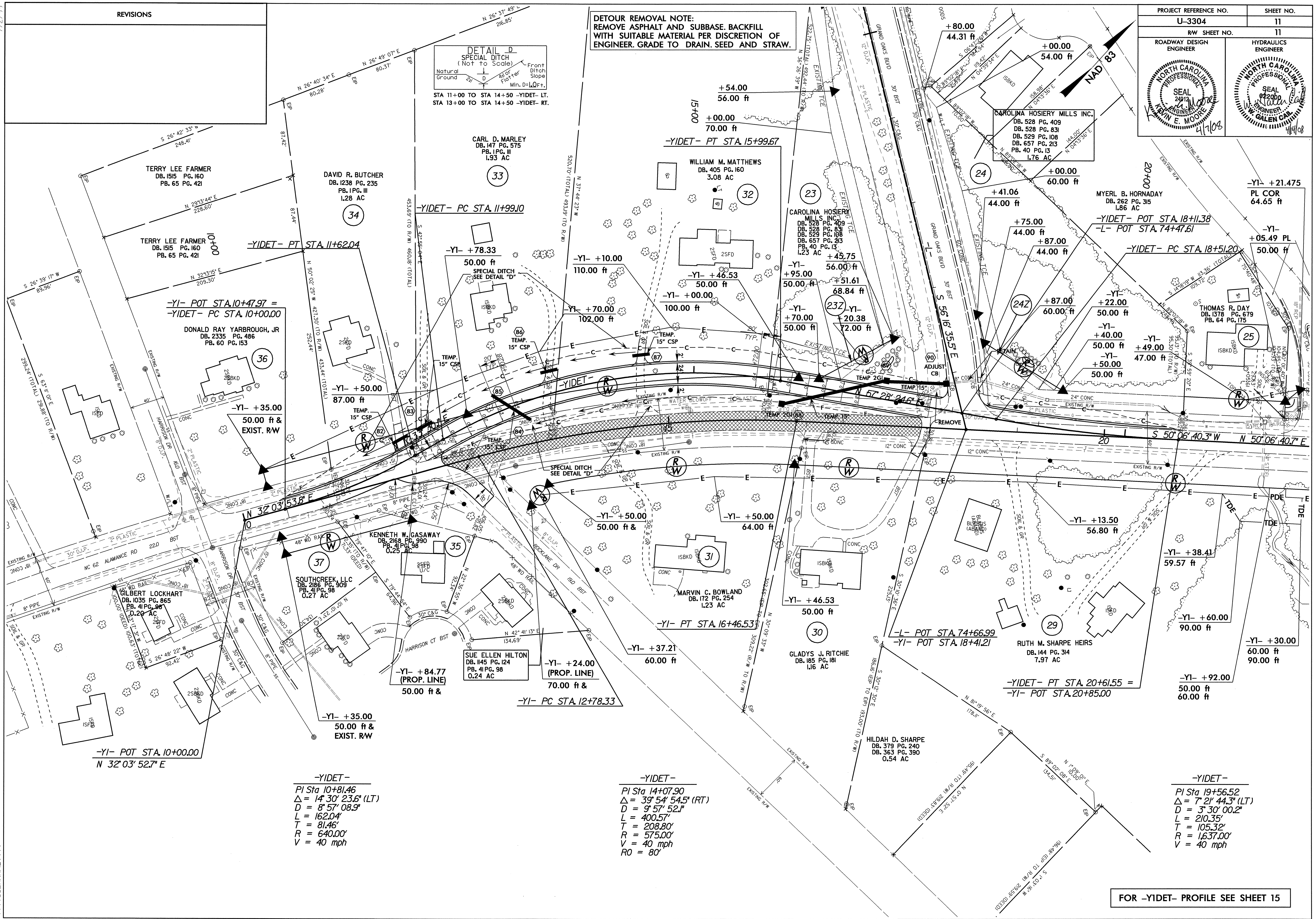
PROJECT REFERENCE NO.	SHEET NO.
U-3304	11
R/W SHEET NO.	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

DETOUR REMOVAL NOTE:
REMOVE ASPHALT AND SUBBASE. BACKFILL WITH SUITABLE MATERIAL PER DISCRETION OF ENGINEER. GRADE TO DRAIN. SEED AND STRAW.

DETAIL D
SPECIAL DITCH
(Not to Scale)

STA 11+00 TO STA 14+50 -Y1DET- LT.
STA 13+00 TO STA 14+50 -Y1DET- RT.



-Y1DET-
PI Sta 10+81.46
Δ = 14° 30' 23.6" (LT)
D = 8° 57' 08.9"
L = 162.04'
T = 81.46'
R = 640.00'
V = 40 mph

-Y1DET-
PI Sta 14+07.90
Δ = 39° 54' 54.5" (RT)
D = 9° 57' 52.1"
L = 400.57'
T = 208.80'
R = 575.00'
V = 40 mph
RO = 80'

-Y1DET-
PI Sta 19+56.52
Δ = 7° 21' 44.3" (LT)
D = 3° 30' 00.2"
L = 210.35'
T = 105.32'
R = 1,637.00'
V = 40 mph

FOR -Y1DET- PROFILE SEE SHEET 15

07-APR-2008 08:56
r:\roadway\proj\u-3304_rdy_psh_11.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3304	12

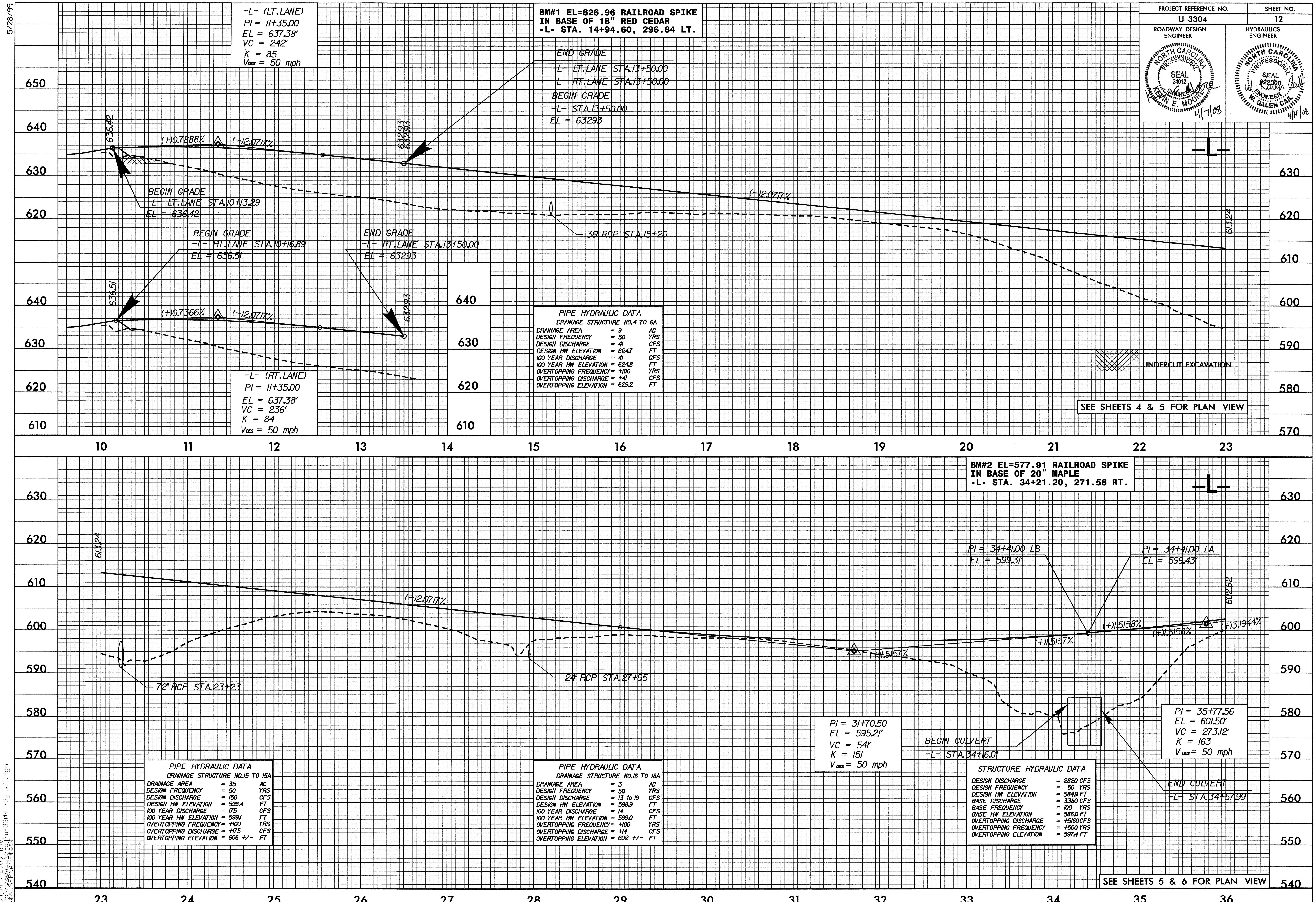
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 4/7/08

NORTH CAROLINA PROFESSIONAL SEAL 022600 ENGINEER W. GALEN CAIL 4/4/08

5/28/99



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.4 TO 6A

DRAINAGE AREA	= 9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 41	CFS
DESIGN HW ELEVATION	= 624.7	FT
100 YEAR DISCHARGE	= 41	CFS
100 YEAR HW ELEVATION	= 624.8	FT
OVERTOPPING FREQUENCY	= +100	YRS
OVERTOPPING DISCHARGE	= +41	CFS
OVERTOPPING ELEVATION	= 629.2	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.15 TO 15A

DRAINAGE AREA	= 35	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 150	CFS
DESIGN HW ELEVATION	= 598.4	FT
100 YEAR DISCHARGE	= 175	CFS
100 YEAR HW ELEVATION	= 599.1	FT
OVERTOPPING FREQUENCY	= +100	YRS
OVERTOPPING DISCHARGE	= +175	CFS
OVERTOPPING ELEVATION	= 606 +/-	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.16 TO 18A

DRAINAGE AREA	= 3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 13 to 19	CFS
DESIGN HW ELEVATION	= 598.9	FT
100 YEAR DISCHARGE	= 14	CFS
100 YEAR HW ELEVATION	= 599.0	FT
OVERTOPPING FREQUENCY	= +100	YRS
OVERTOPPING DISCHARGE	= +14	CFS
OVERTOPPING ELEVATION	= 602 +/-	FT

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2820	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 584.9	FT
BASE DISCHARGE	= 3380	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 586.0	FT
OVERTOPPING DISCHARGE	= +5160	CFS
OVERTOPPING FREQUENCY	= +500	YRS
OVERTOPPING ELEVATION	= 597.4	FT

04-APR-2008 11:46
r:\roadway\proj\u-3304_rdy_pfl.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.
U-3304
SHEET NO.
13
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE
4/7/08
NORTH CAROLINA PROFESSIONAL SEAL 022009 ENGINEER W. GALEN CAIL
4/14/08
5/28/99
-L-
PI = 39+00.00
EL = 611.80'
VC = 150'
K = 772
VDES = 50 mph
ARDMORE ST.
PI = 44+30.00
EL = 627.70'
VC = 150'
K = 93
VDES = 50 mph
PI = 47+00.00
EL = 631.45'
VC = 150'
K = 386
VDES = 50 mph
602.62
(+)3.1944%
(+)3.0000%
(+)3.0000%
(+)1.3889%
(+)1.3889%
(+)1.0000%
633.49
SEE SHEETS 6 & 7 FOR PLAN VIEW
650
640
630
620
610
600
590
580
570
36
37
38
39
40
41
42
43
44
45
46
47
48
49
-L-
PI = 49+15.00
EL = 633.60'
VC = 150'
K = 475
VDES = 50 mph
MARLBOROUGH RD.
WINTER BELL DR.
PI = 57+60.00
EL = 637.70'
VC = 220'
K = 86
V = 45 mph
WINSTON DR.
633.49
(+)1.0000%
(+)1.3158%
(+)1.3158%
(-)1.3964%
(-)1.3964%
(+)1.4316%
(+)1.4316%
(-)1.1321%
(-)1.1321%
(+)2.6071%
639.26
PI = 60+25.00
EL = 634.70'
VC = 220'
K = 59
V = 35 mph
PI = 51+05.00
EL = 636.10'
VC = 230'
K = 85
VDES = 50 mph
PI = 53+80.00
EL = 632.26'
VC = 150'
K = 53
V = 35 mph
BM#3 EL=634.42 RAILROAD SPIKE
IN BASE OF 14" SPRUCE PINE
-L- STA. 55+36.91, 158.48 RT.
UNDERCUT EXCAVATION
SEE SHEETS 7 & 8 FOR PLAN VIEW
650
640
630
620
610
600
590
580
49
50
51
52
53
54
55
56
57
58
59
60
61
62
18-MAR-2008 11:38
u-3304_rdy_pfl.dgn

PROJECT REFERENCE NO. U-3304
SHEET NO. 14
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 4/7/08
NORTH CAROLINA PROFESSIONAL SEAL 023000 ENGINEER W. GALEN CAIL 4/14/08
5/28/99
-L-
PI = 70+15.00
EL = 626.95'
VC = 200'
K = 64
V = 45 mph
PI = 72+77.00
EL = 610.11'
VC = 324'
K = 53
V = 35 mph
PI = 64+45.00
EL = 645.65'
VC = 380'
K = 65
V = 45 mph
PI = 67+50.00
EL = 635.75'
VC = 150'
K = 2004
VDES = 50 mph
639.26
(+)2.6071%
(-)3.2459%
(-)3.2459%
(-)3.3208%
(-)3.3208%
(-)6.4275%
(-)6.4275%
(-)0.3037%
(-)0.3037%
-L- STA. 74+66.99 = -Y1- STA. 18+41.21
609.14
END GRADE
-L- STA. 74+48.23 =
-Y1- STA. 18+35.91 EOP (18.00' LT.)
EL = 609.59'
UNDERCUT EXCAVATION
SEE SHEETS 8 & 9 FOR PLAN VIEW
650 640 630 620 610 600 590 580
62 63 64 65 66 67 68 69 70 71 72 73 74
-Y1-
PI = 15+00.00
EL = 615.04'
VC = 700'
K = 154
VDES = 60 mph
PI = 21+05.00
EL = 604.58'
VC = 330'
K = 269
VDES = 60 mph
BEGIN GRADE
-Y1- STA. 10+98.00
EL = 603.67
-Y1- STA. 10+48.00
MIN. WIDEN & RESURF.
(+)2.8284%
(+)2.8284%
(-)1.7289%
(-)1.7289%
(-)0.5020%
(+) 0.7800%
(+) 2.1940%
-Y1- STA. 18+41.21= -L- STA. 74+66.99
603.50
BEGIN DITCH GRADE RT.
PI = 10+50 EL = 600.7
PI = 11+00.000 EL = 601.09
END DITCH GRADE RT.
PI = 13+00 EL = 605.48
BM#4 EL=607.65 RAILROAD SPIKE
IN BASE OF 21" WHITE OAK
-Y1- STA. 19+32.42 95.28 RT.
RIGHT DITCH
UNDERCUT EXCAVATION
SEE SHEETS 9 & 10 FOR PLAN VIEW
620 610 600 590 580 570 560
10 11 12 13 14 15 16 17 18 19 20 21 22 23
18-MAR-2008 11:37
u-3304_rdy_pfl.dgn

PROJECT REFERENCE NO. U-3304
SHEET NO. 15
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER KEVIN E. MOORE
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER W. GALEN CAIL
5/28/99
-Y1-
-Y1DET-
END GRADE
-Y1- STA. 23+50.00
EL = 603.35
BEGIN GRADE
-Y1DET- STA. 11+18.19
EL = 605.61
PI = 15+10.38
EL = 615.92'
VC = 325'
K = 62
V = 45 mph
PI = 17+52.38
EL = 609.60'
VC = 100'
K = 105
V = 50 mph
-Y1DET- STA. 18+11.38= -L- STA. 74+47.61
END GRADE
-Y1DET- STA. 18+14.00
EL = 608.58
MIN. WIDEN. & RESURF.
-Y1- STA. 24+00.00
603.60
(-)0.5020%
(+) 2.0000%
(+) 2.6000%
(+) 2.7300%
(+)2.6288%
(-)2.6116%
(-)1.6553%
END DITCH GRADE LT
PI = 14+50 EL = 612.0
END DITCH GRADE RT
PI = 14+50 EL = 611.3
PI =12+00.000
El = 605.50
15" CSP STA.12+83
BEGIN DITCH GRADE RT
PI = 13+00 EL = 607.2
BEGIN DITCH GRADE LT
PI = 11+00 EL = 603.5
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.84 TO 85
DRAINAGE AREA = 0.2 AC
DESIGN FREQUENCY = 5 YRS
DESIGN DISCHARGE = 1.5 CFS
DESIGN HW ELEVATION = 607.9 FT
100 YEAR DISCHARGE = NA CFS
100 YEAR HW ELEVATION = NA FT
OVERTOPPING FREQUENCY = NA YRS
OVERTOPPING DISCHARGE = NA CFS
OVERTOPPING ELEVATION = NA FT
LEFT DITCH
RIGHT DITCH
SEE SHEET 9 FOR PLAN VIEW
SEE SHEET 11 FOR PLAN VIEW
620 610 600 590 580 570 560
23 24 25 11 12 13 14 15 16 17 18 19 20
-Y-
PI = 17+55.00
EL = 636.15'
VC = 90'
K = 111
V = 50 mph
PI = 19+00.00
EL = 635.50'
VC = 130'
K = 1211
V = 50 mph
PI = 21+20.00
EL = 634.75'
VC = 150'
K = 137
V = 50 mph
BEGIN GRADE
-Y- STA. 24+50.00
EL = 637.23
END CONST.
-Y- STA. 25+00.00
BEGIN GRADE
-Y- STA. 17+00.00
EL = 635.95
MIN. WIDEN. & RESURF.
(+)0.3636%
(-)0.4483%
(-)0.4483%
(-)0.3409%
(-)0.3409%
(+)0.7515%
(+)0.7515%
(+)0.7800%
(+)0.2667%
(+) 1.1067%
END DITCH RT
STA 21+50
EL=632.36
BEGIN DITCH RT
STA 19+25
EL=630.50
PI STA 20+00
EL=630.70
RIGHT DITCH
SEE SHEET 4 FOR PLAN VIEW
660 650 640 630 620 610 600
14 15 16 17 18 19 20 21 22 23 24 25 26 27
18-MAR-2008 11:37
u-3304_rdy_pf1.dgn
$$$$USERNAME$$$$