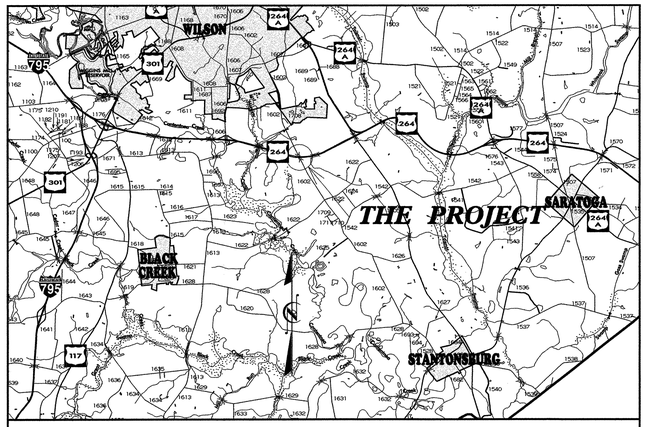
TIP PROJECT: R-4737

CONTRACT: C202396

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

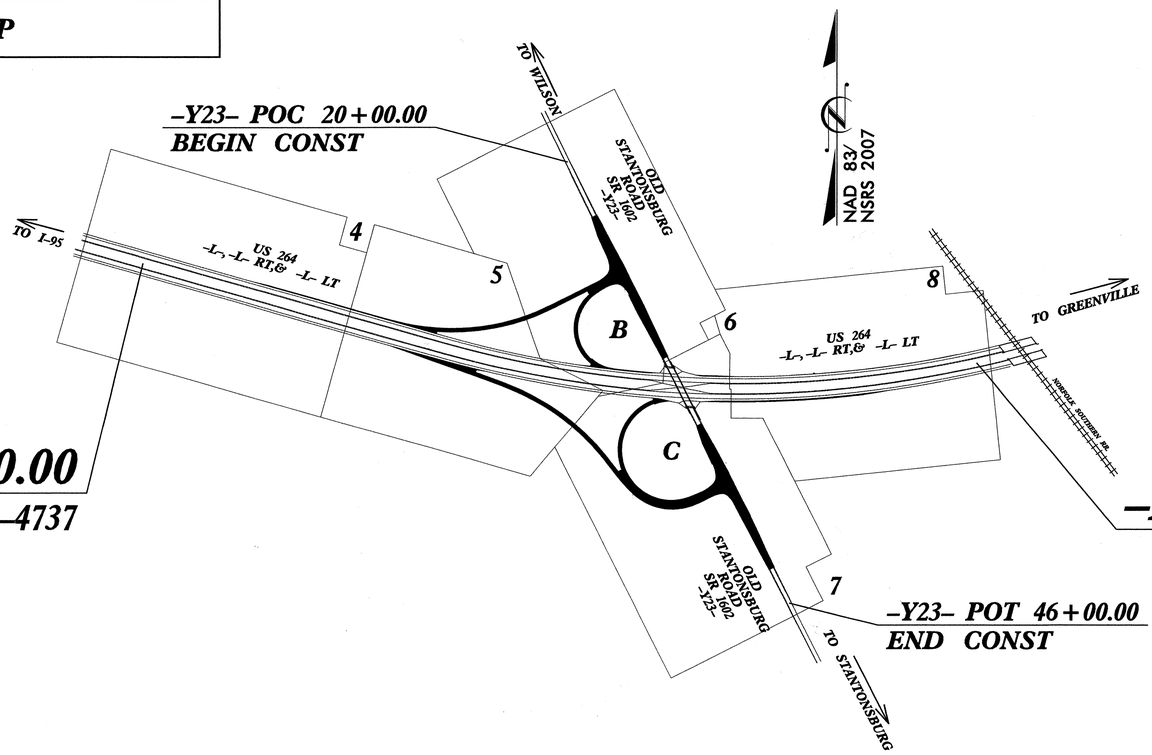
WILSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4737	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
39918.1.1	HPPNHF-264(33)	PE
39918.2.STI	STM-0264(41)	R/W & UTILITES
39918.3.STI	STM-0264(41)	CONST.

LOCATION: INTERCHANGE AT US-264 AND SR-1602 (OLD STANTONSBURG ROAD)

TYPE OF WORK: GRADING, DRAINAGE AND PAVING



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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 2009 = 18400
ADT 2030 = 30200
DHV = 55 %
D = 10 %
T = 17 % *
V = MPH

* TTST 10% DUAL 7%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-4737 = 0.852 MILES
TOTAL LENGTH TIP PROJECT R-4737 = 0.852 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
Division 4 DDC
509 Ward Blvd., Wilson NC, 27895

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: July 2009

LETTING DATE: November 17, 2009

R. E. GREENE, JR., PE
PROJECT ENGINEER

J. C. CAULEY, PLS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20870 ENGINEER MARC T. SHOWN

SIGNATURE: 9-22-09

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER JERRY P. PAGE

SIGNATURE: 7/1/09 P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
R-4737	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER JERRY R. PAGE

8/31/09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

SHEET	NUMBER SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2-B	TYPICAL SECTIONS, PAVEMENT SCHEDULE, WEDGING DETAILS AND UNDERCUT DETAIL
2-C	INTERSECTIONS DETAIL
2-D	DETAIL FOR ANCHORAGE FOR FRAMES
2-E	DETAIL FOR METHOD OF PIPE INSTALLATION, RIGID PIPE
2-F	DETAIL FOR METHOD OF PIPE INSTALLATION, FILL HEIGHT TABLES
3	SUMMARY OF QUANTITIES
3-A THRU 3-B	DRAINAGE SUMMARY
3-C	SUMMARY OF EARTHWORK, SUMMARY OF HYDRAULIC RIP RAP & DDE AND SUMMARY OF WOVEN WIRE FENCE
3-D	GUARDRAIL SUMMARY
3-E	PARCEL INDEX SHEET
4 THRU 8	PLAN SHEETS
9 THRU 13	PROFILE SHEETS
TCP-1 THRU TCP-5	TRAFFIC CONTROL PLANS
PMP-1 THRU PMP-6	PAVEMENT MARKING PLANS
EC-1 THRU EC-13	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-11	SIGNING PLANS
X-1A THRU X-1B	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-48	CROSS-SECTIONS

GENERAL NOTES

GENERAL NOTES:

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

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

UNDERDRAINS:

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

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 CITY OF WILSON, AND SPRINT TELEPHONE

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

LIST OF STANDARDS DRAWINGS

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

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
665.01	Milled Rumble Strips - Asphalt Pavements
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.29	Frames and Narrow Slot Flat Grates
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
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
866.02	Woven Wire Fence - with Wood Post
876.02	Guide for Rip Rap at Pipe Outlets

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HP4500

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
R-4737	1B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
R-4737	1 C
Location and Surveys	

SURVEY CONTROL SHEET R-4737

BENCHMARK DATA

****

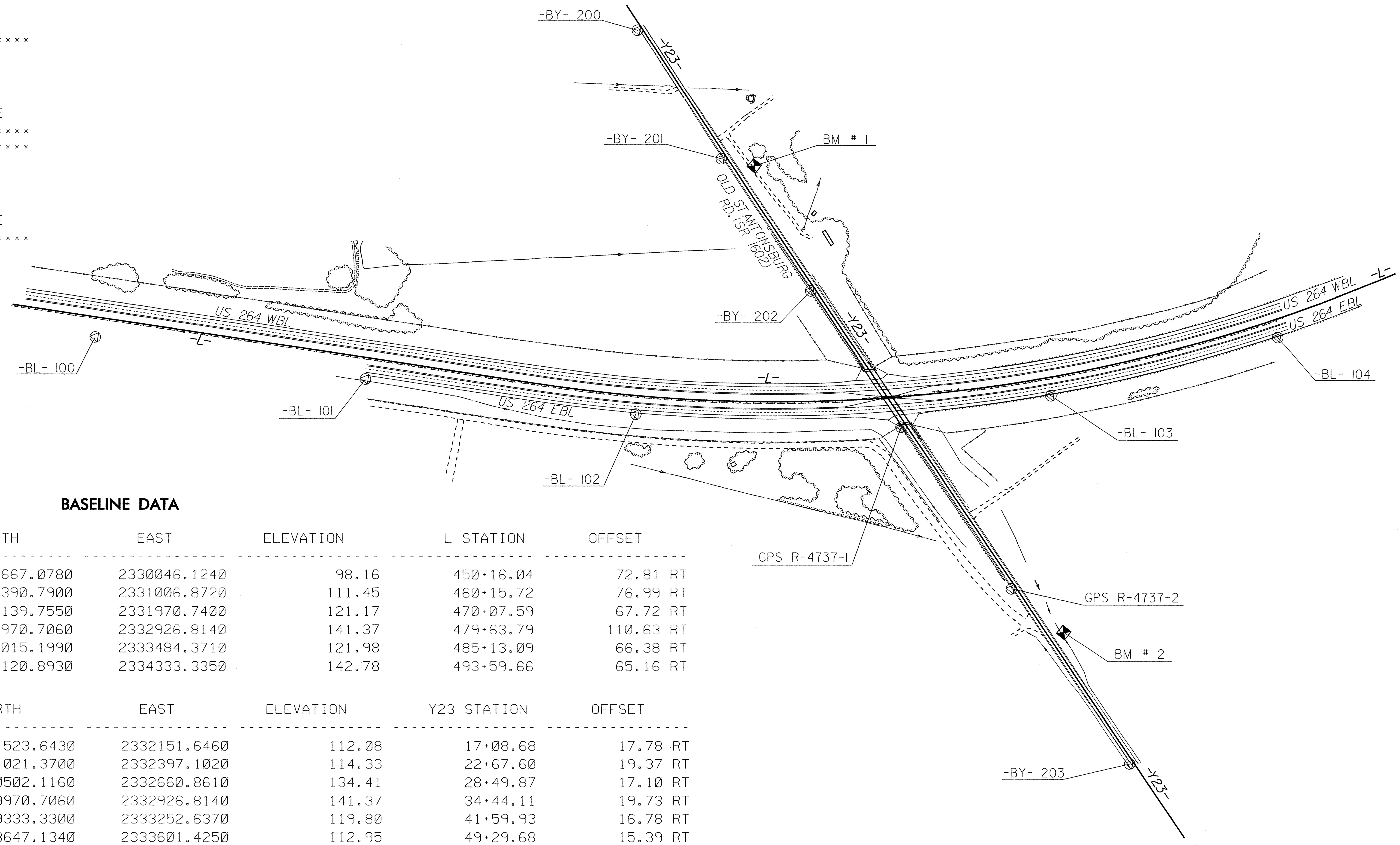
501 BM #1 ELEVATION = 114.13
N 700980 E 2332514
Y23 STATION 23+57 67 LEFT
RR SPIKE IN CITY OF WILSON POWER POLE

****

****

502 BM #2 ELEVATION = 112.28
N 699153 E 2333423
Y23 STATION 43+98 54 LEFT
RR SPIKE IN CITY OF WILSON POWER POLE

****



BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
100	BL-100	700667.0780	2330046.1240	98.16	450+16.04	72.81 RT
101	BL-101	700390.7900	2331006.8720	111.45	460+15.72	76.99 RT
102	BL-102	700139.7550	2331970.7400	121.17	470+07.59	67.72 RT
1	GPS R4737-1	699970.7060	2332926.8140	141.37	479+63.79	110.63 RT
103	BL-103	700015.1990	2333484.3710	121.98	485+13.09	66.38 RT
104	BL-104	700120.8930	2334333.3350	142.78	493+59.66	65.16 RT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y23 STATION	OFFSET
200	BY-200	701523.6430	2332151.6460	112.08	17+08.68	17.78 RT
201	BY-201	701021.3700	2332397.1020	114.33	22+67.60	19.37 RT
202	BY-202	700502.1160	2332660.8610	134.41	28+49.87	17.10 RT
A1	GPS R4737-1	699970.7060	2332926.8140	141.37	34+44.11	19.73 RT
2	GPS R4737-2	699333.3300	2333252.6370	119.80	41+59.93	16.78 RT
203	BY-203	698647.1340	2333601.4250	112.95	49+29.68	15.39 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS R4737-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 699970.706(ft) EASTING: 2332926.814(ft)
ELEVATION: 141.374(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999898055
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS R4737-1" TO -L- STATION 450+00.00 IS
N 74°59'53.7" W 2977.78'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

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

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   R4737_LS_CONTROL_090717.TXT

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

◎ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

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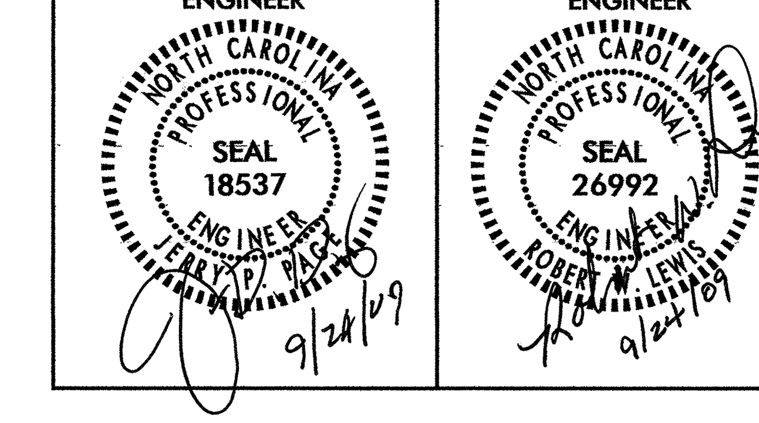
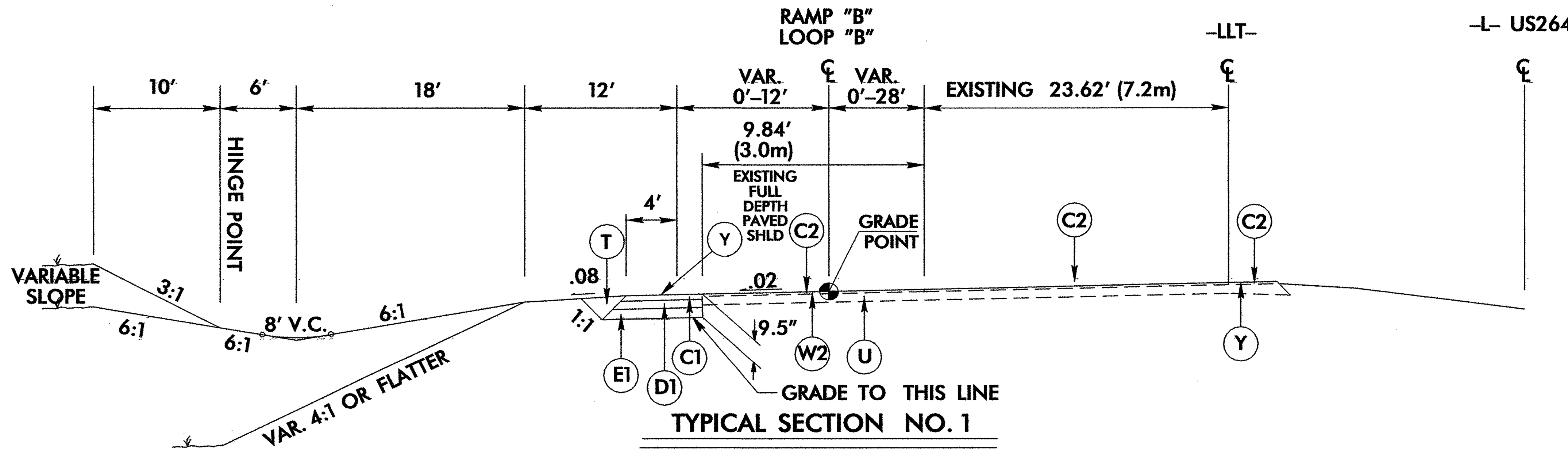
PROJECT REFERENCE NO.	SHEET NO.
R-4737	2

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
SEAL 18537	SEAL 26992

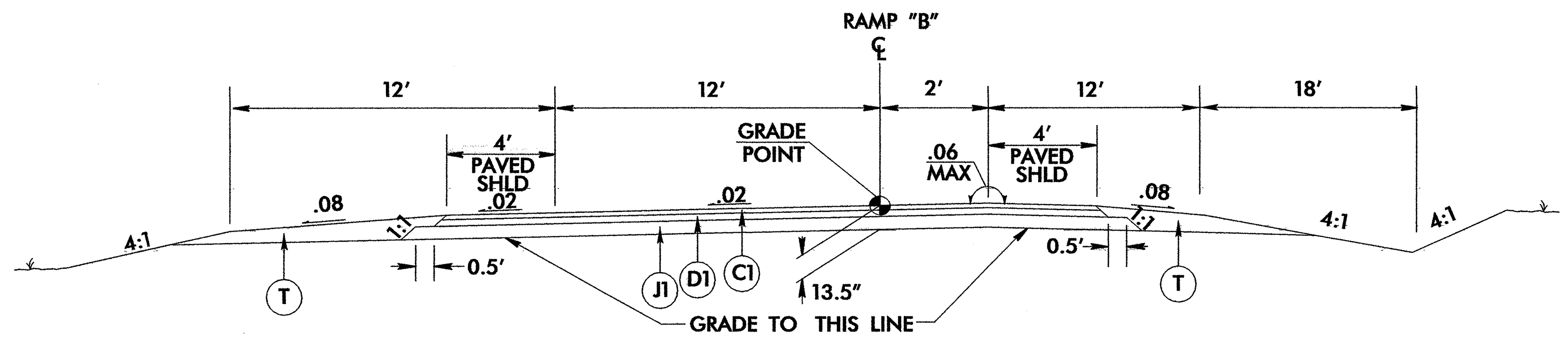




TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS

-RAMP B- 13+00 TO 25+21
-LOOP B- 16+09 TO 25+96.73

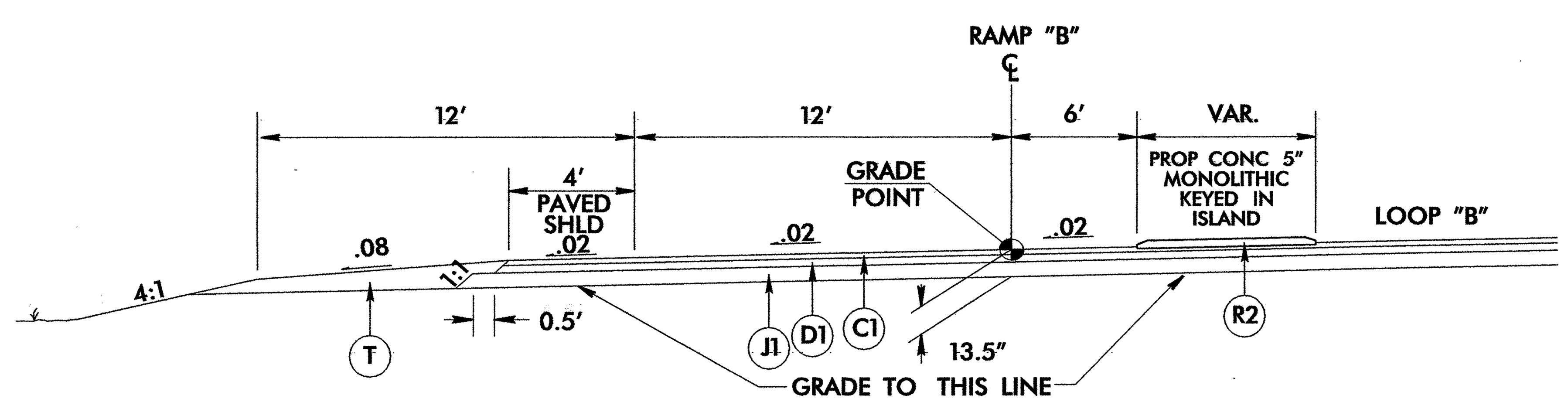


TYPICAL SECTION NO. 2

SEE ROADWAY STANDARD DRAWINGS STD. NO. 560.02 SHEET 2 OF 5 FOR SHOULDER SLOPES ON HIGH SIDE OF SUPER

USE TYPICAL SECTION NO. 2 AS FOLLOWS

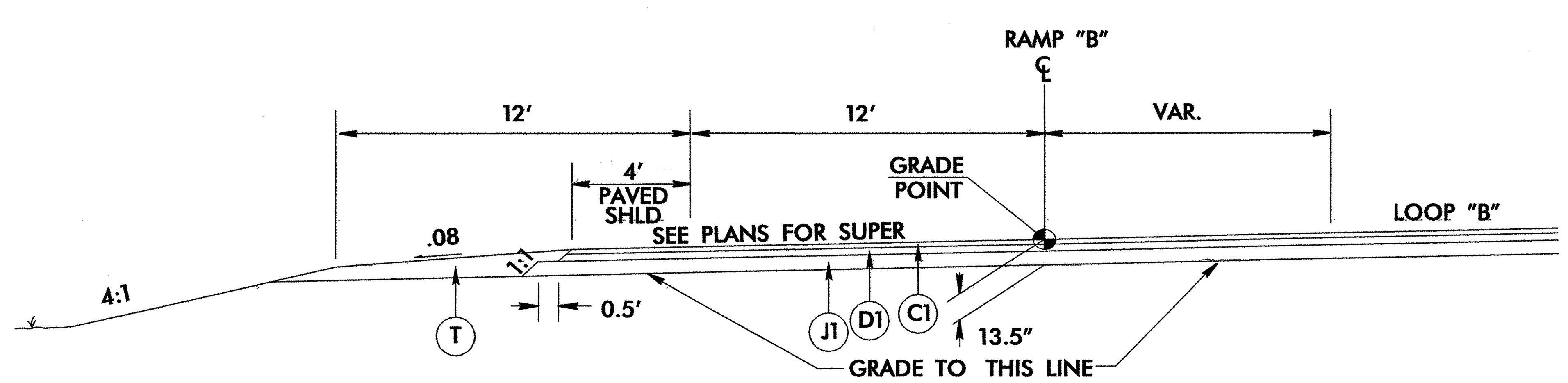
-RAMP B- 25+21 TO 33+53



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS

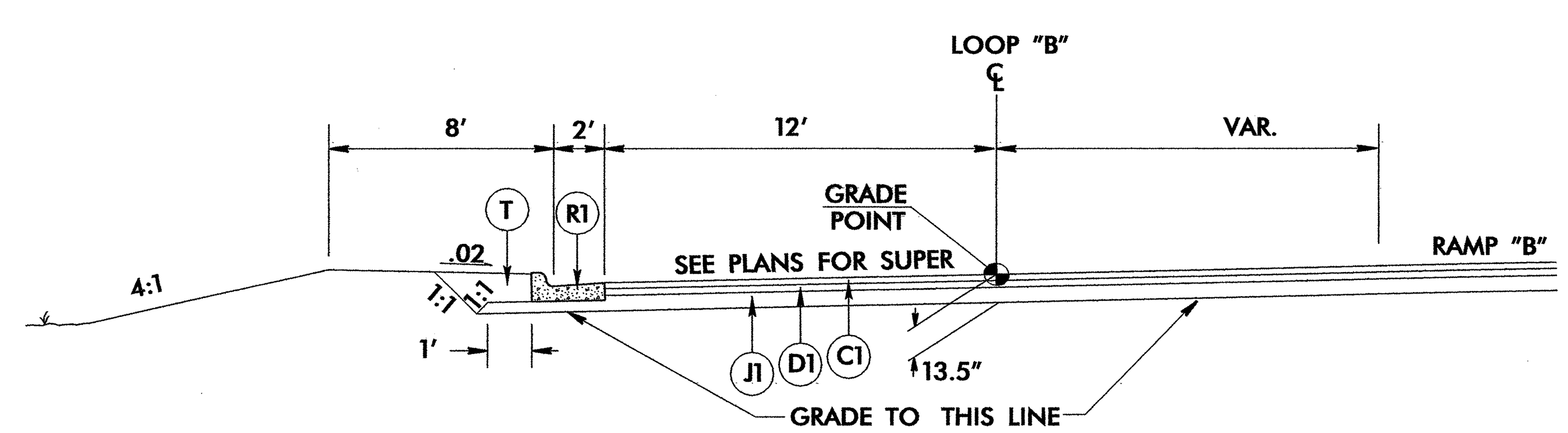
-RAMP B- 33+59 TO 34+80



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS

-RAMP B- 33+53 TO 33+59
-RAMP B- 34+80 TO 35+34



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS

-LOOP B- 10+22 TO 10+82
-LOOP B- 12+01 TO 12+06

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE
J2	PROP. 6" AGGREGATE BASE COURSE
R1	PROP. 30" CONCRETE CURB AND GUTTER
R2	PROP. 5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
R3	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING #1 SHEET No. 2B)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING #2 SHEET No. 2B)
Y	MILLED RUMBLE STRIPS

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

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PROJECT REFERENCE NO.	SHEET NO.
R-4737	2-A

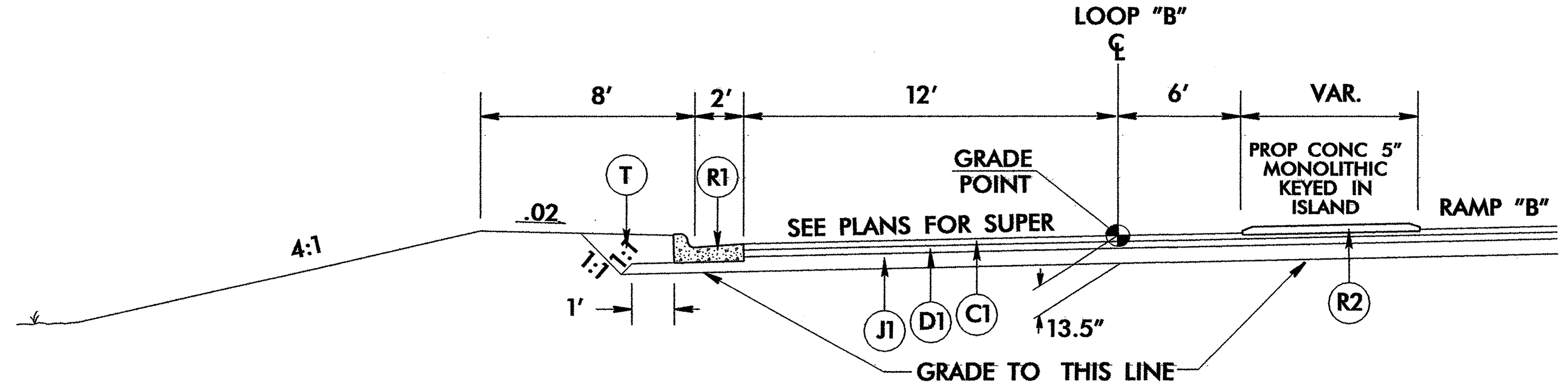
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18537 — 9/24/09

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26992 — 9/24/09

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

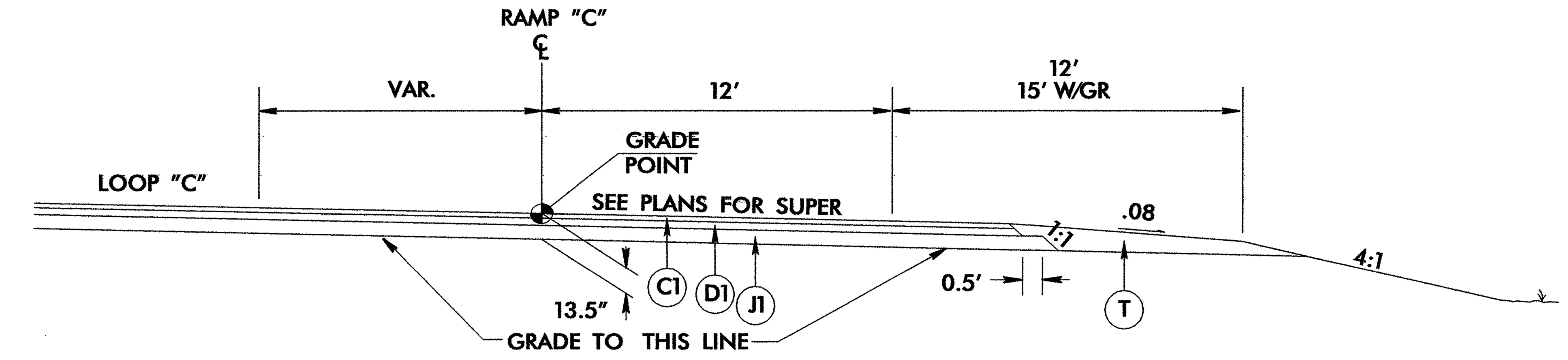
C1	3" S9.5B
C2	1½" S9.5B
C3	VAR. S9.5B
D1	2½" I19.0B
D2	VAR. I19.0B
E1	4" B25.0B
E2	5½" B25.0B
E3	VAR. B25.0B
J1	8" ABC
J2	6" ABC
R1	30" CONC.C&G
R2	5" CONC. ISL.
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXIST. PAVE.
W1	WEDGING
W2	WEDGING
Y	MILLED RUMBLE STRIPS



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS

-LOOP B- 10+82 TO 12+01

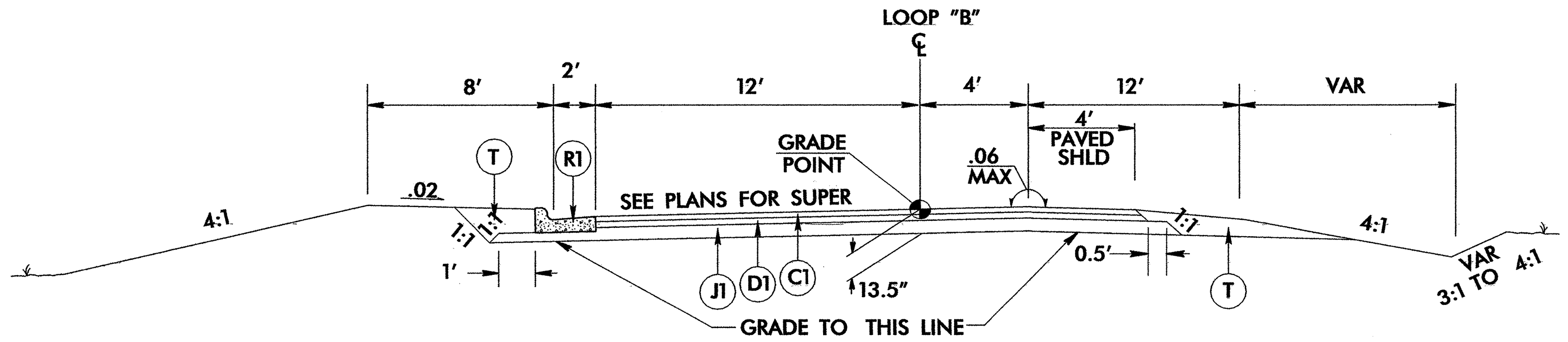


TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 AS FOLLOWS

-RAMP C- 28+41 TO 28+47
-RAMP C- 34+39 TO 35+00

SEE ROADWAY STANDARD DRAWINGS STD. NO. 560.02 SHEET 2 OF 5 FOR SHOULDER SLOPES ON HIGH SIDE OF SUPER

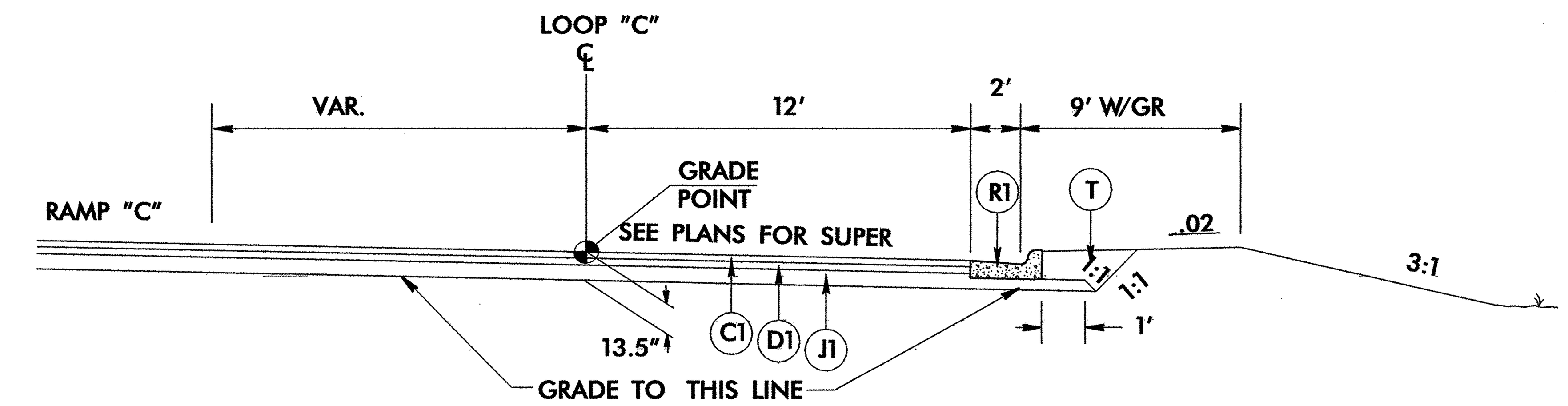


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS

-LOOP B- 12+06 TO 16+09

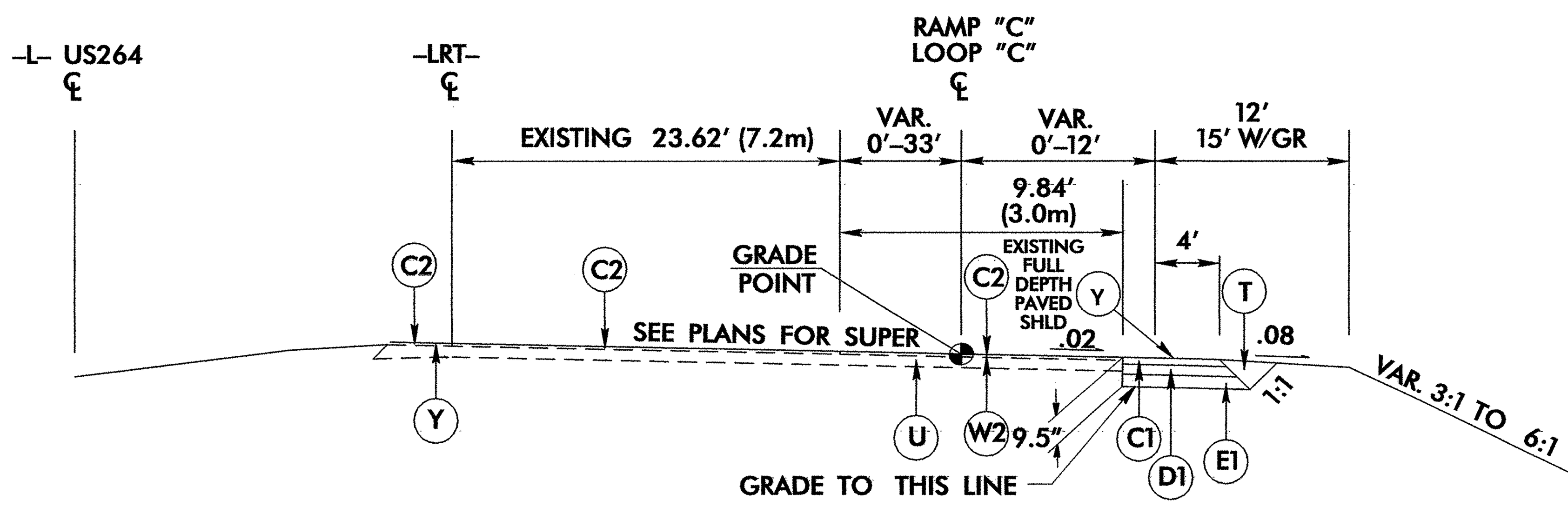
SEE ROADWAY STANDARD DRAWINGS STD. NO. 560.02 SHEET 2 OF 5 FOR SHOULDER SLOPES ON HIGH SIDE OF SUPER



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AS FOLLOWS

-LOOP C- 10+30 TO 10+85
-LOOP C- 16+45 TO 16+51

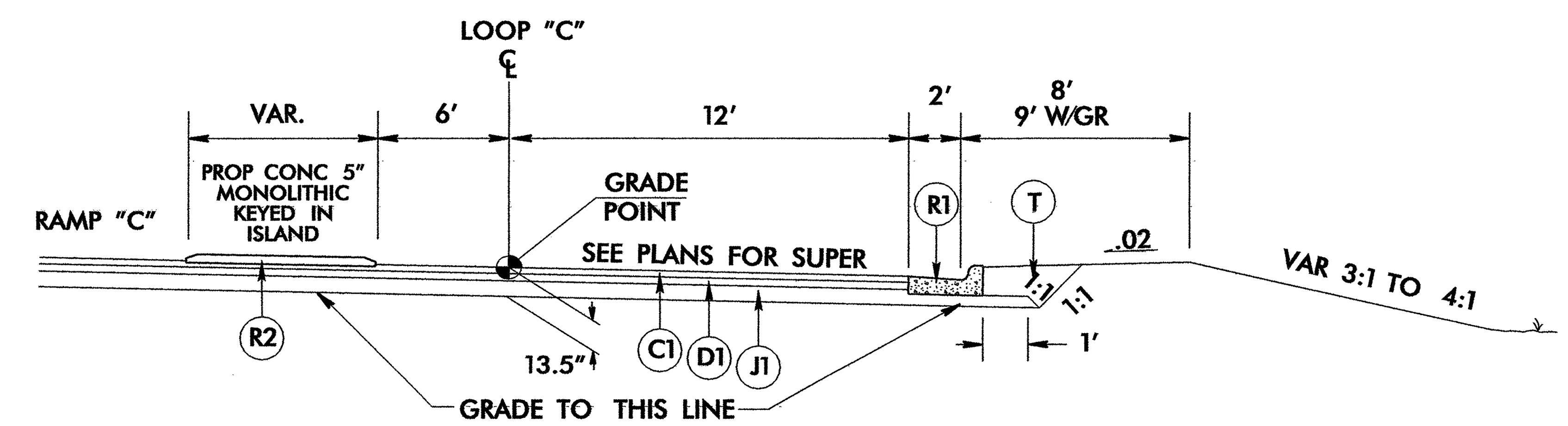


TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 AS FOLLOWS

-RAMP C- 13+29 TO 19+10
-LOOP C- 20+88 TO 35+00

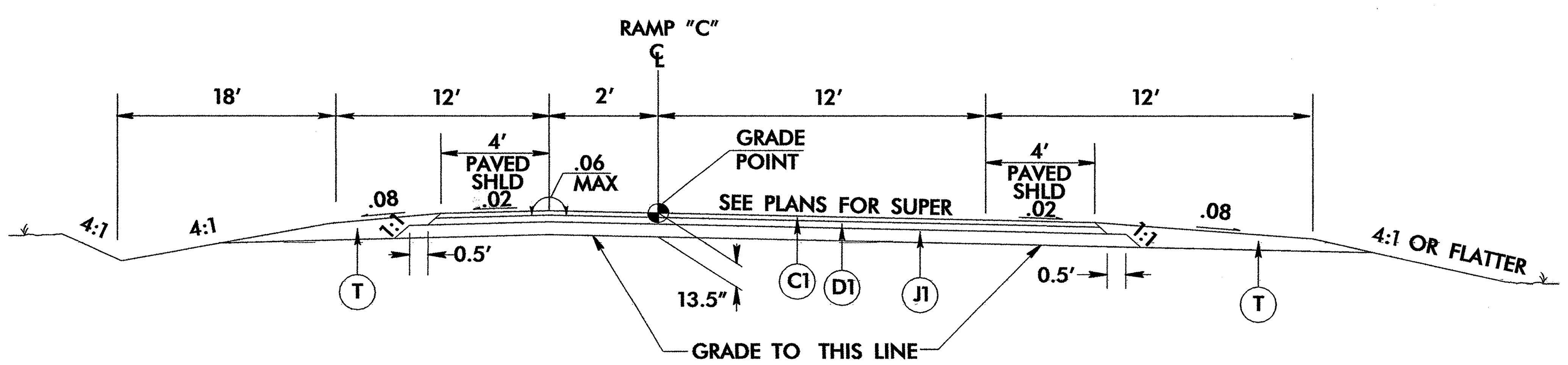
SEE ROADWAY STANDARD DRAWINGS STD. NO. 560.02 SHEET 2 OF 5 FOR SHOULDER SLOPES ON HIGH SIDE OF SUPER



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 AS FOLLOWS

-LOOP C- 10+85 TO 16+45

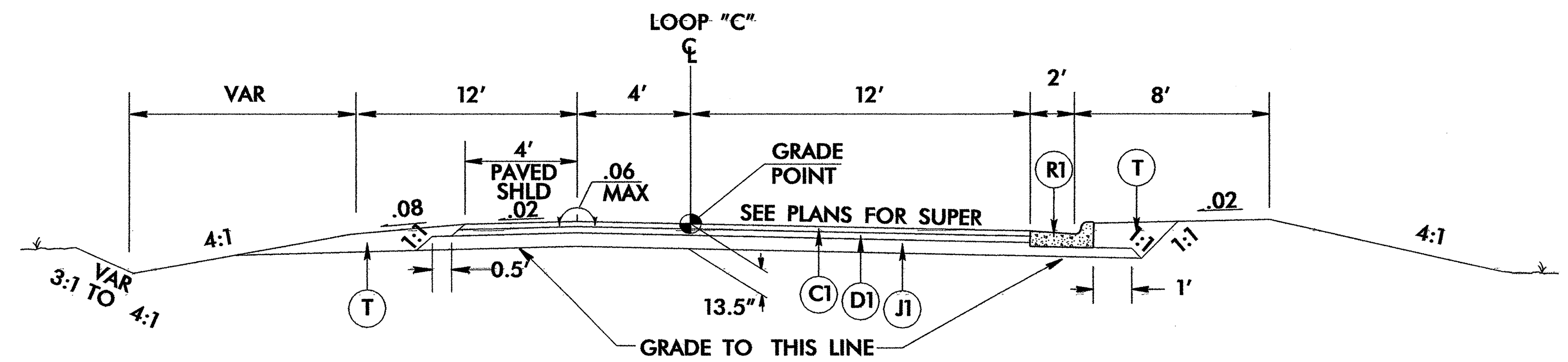


TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 AS FOLLOWS

-RAMP C- 19+10 TO 28+41

SEE ROADWAY STANDARD DRAWINGS STD. NO. 560.02 SHEET 2 OF 5 FOR SHOULDER SLOPES ON HIGH SIDE OF SUPER

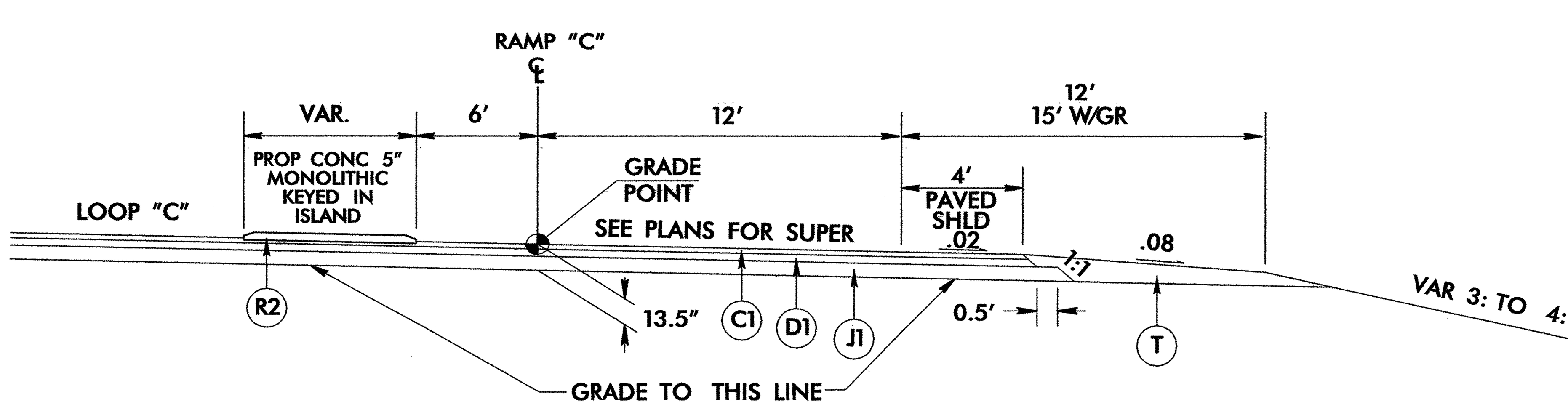


TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 AS FOLLOWS

-LOOP C- 16+451 TO 20+88

SEE ROADWAY STANDARD DRAWINGS STD. NO. 560.02 SHEET 2 OF 5 FOR SHOULDER SLOPES ON HIGH SIDE OF SUPER

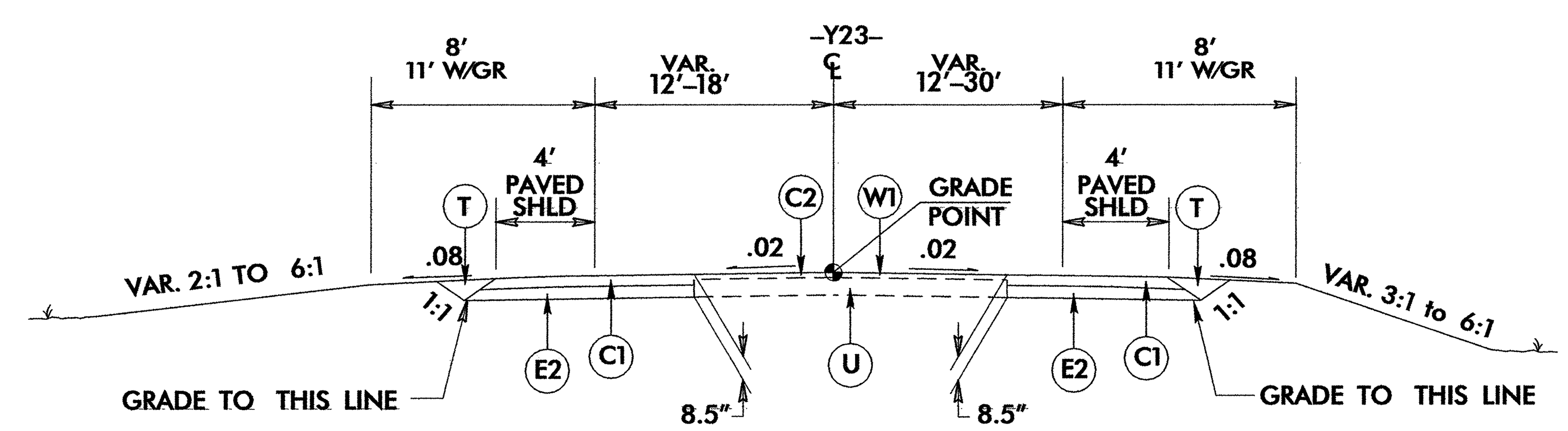


TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 AS FOLLOWS

-RAMP C- 28+47 TO 34+39

SEE ROADWAY STANDARD DRAWINGS STD. NO. 560.02 SHEET 2 OF 5 FOR SHOULDER SLOPES ON HIGH SIDE OF SUPER



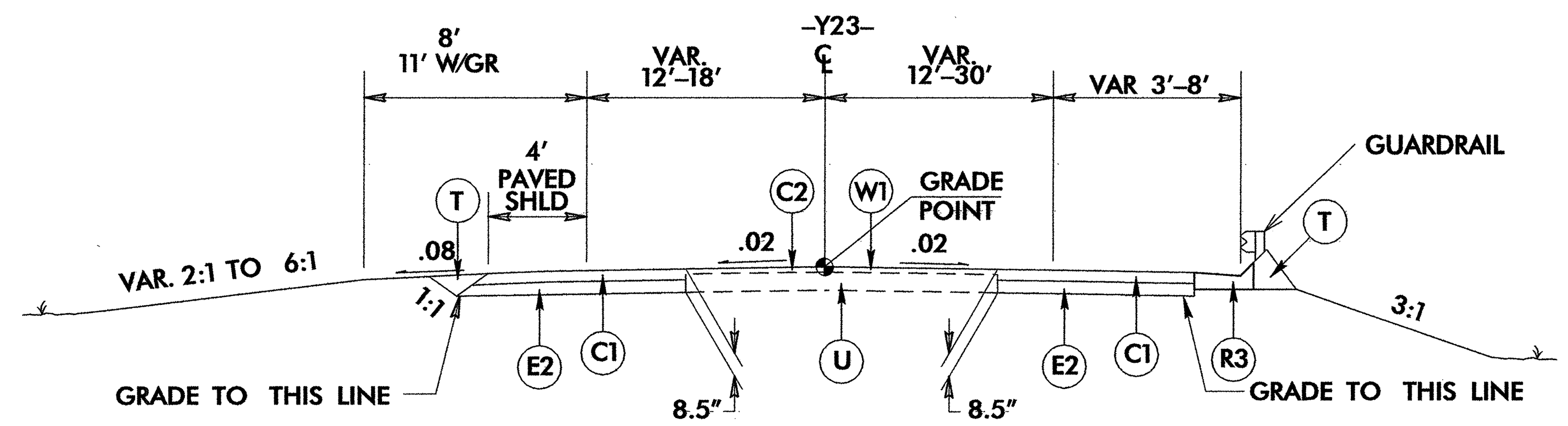
TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15 AS FOLLOWS

-Y23- 23+15 TO 27+66
-Y23- 37+65 TO 43+95

ROADWAY DESIGN ENGINEER — SEAL 18537 — 9/24/09

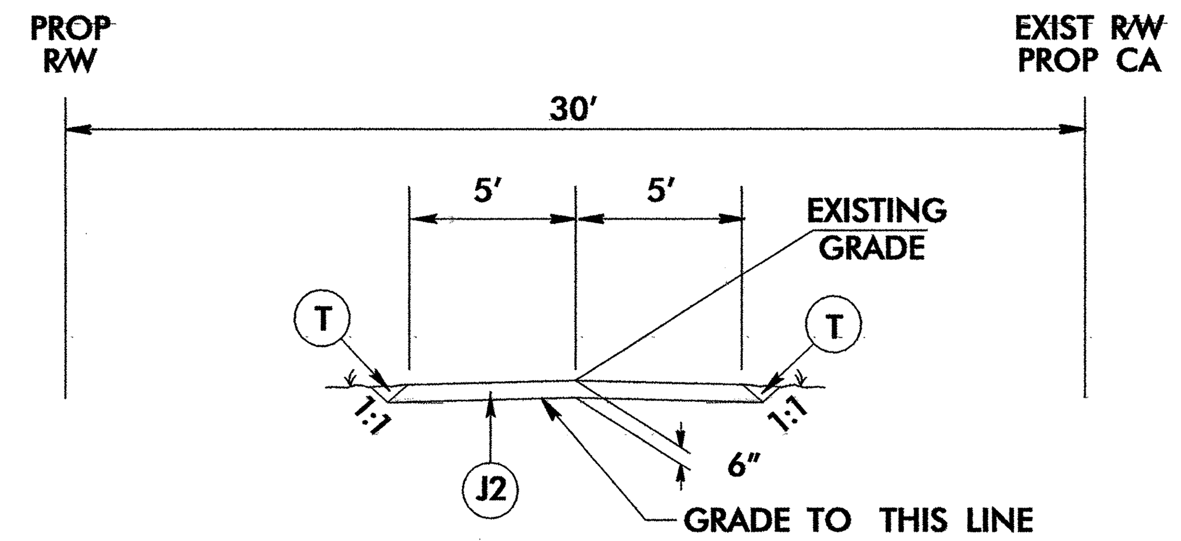
PAVEMENT DESIGN ENGINEER — SEAL 26992 — 9/24/09



TYPICAL SECTION NO. 15A

USE TYPICAL SECTION NO. 15A AS FOLLOWS

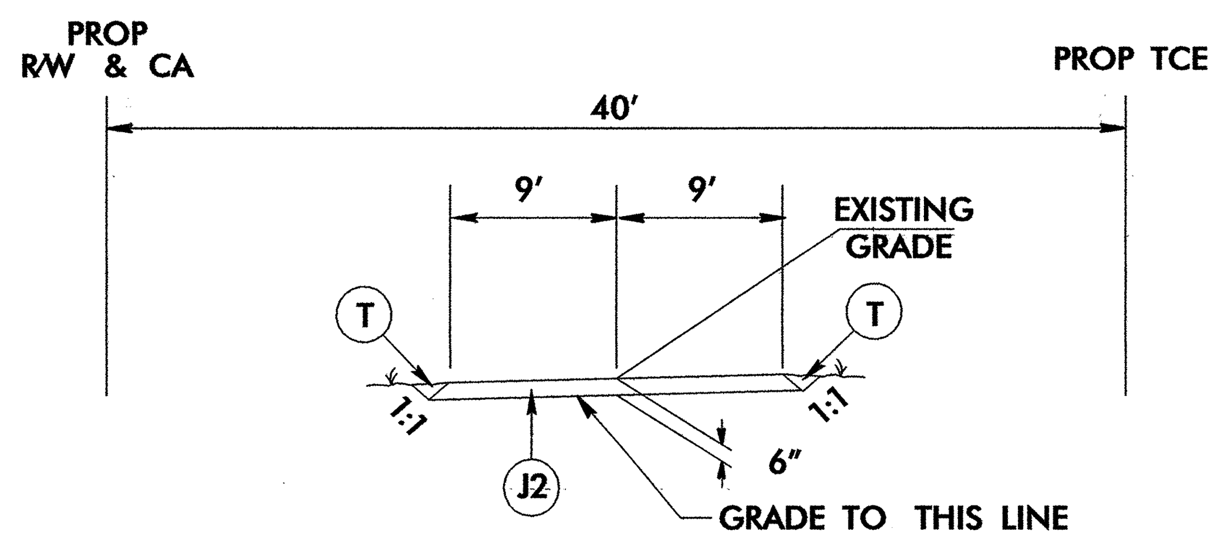
-Y23- 27+66 TO 31+50
-Y23- 34+70 TO 37+65



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16 AS FOLLOWS

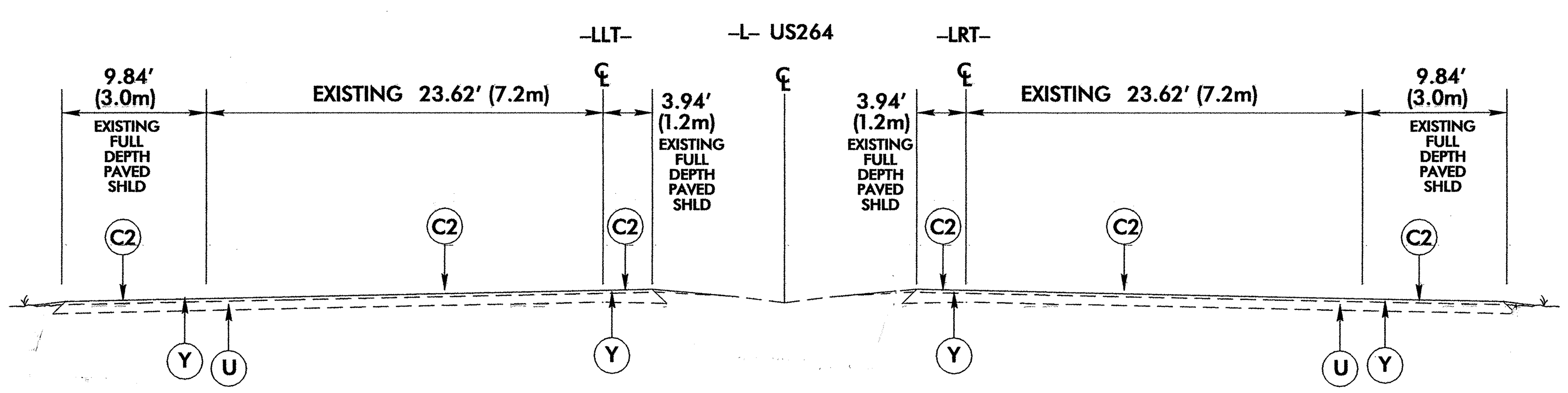
-Y23- DRIVE LT



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17 AS FOLLOWS

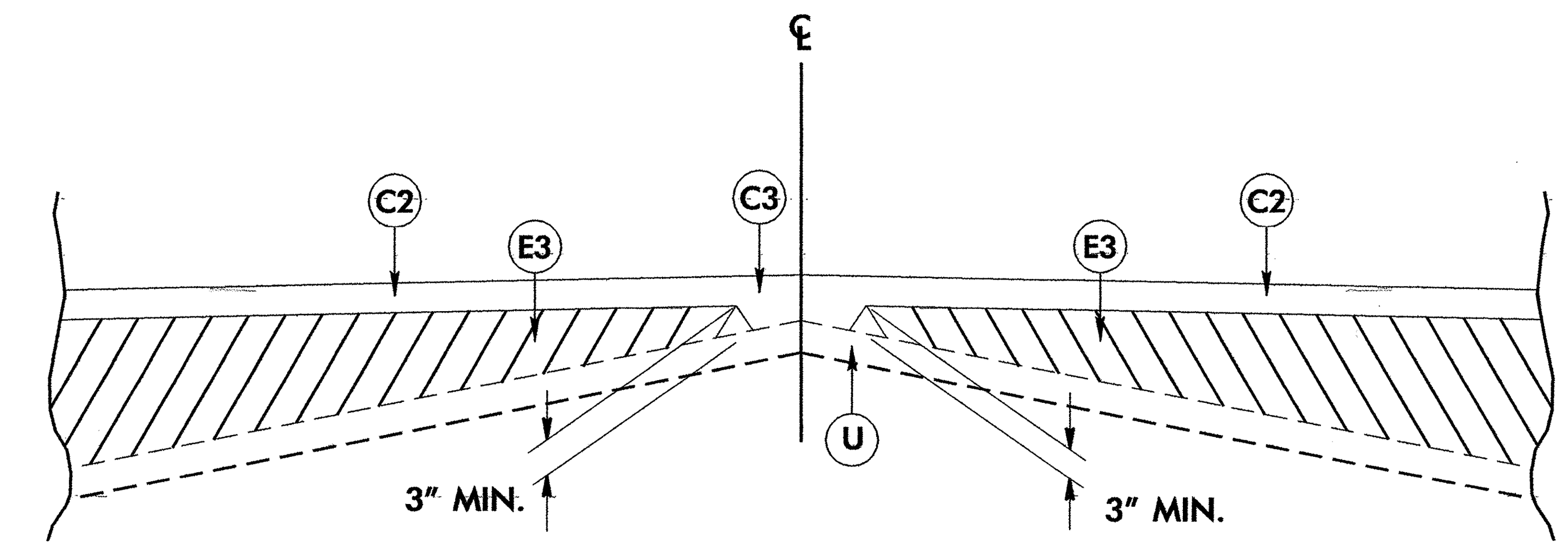
RAMP "C" DRIVE RT



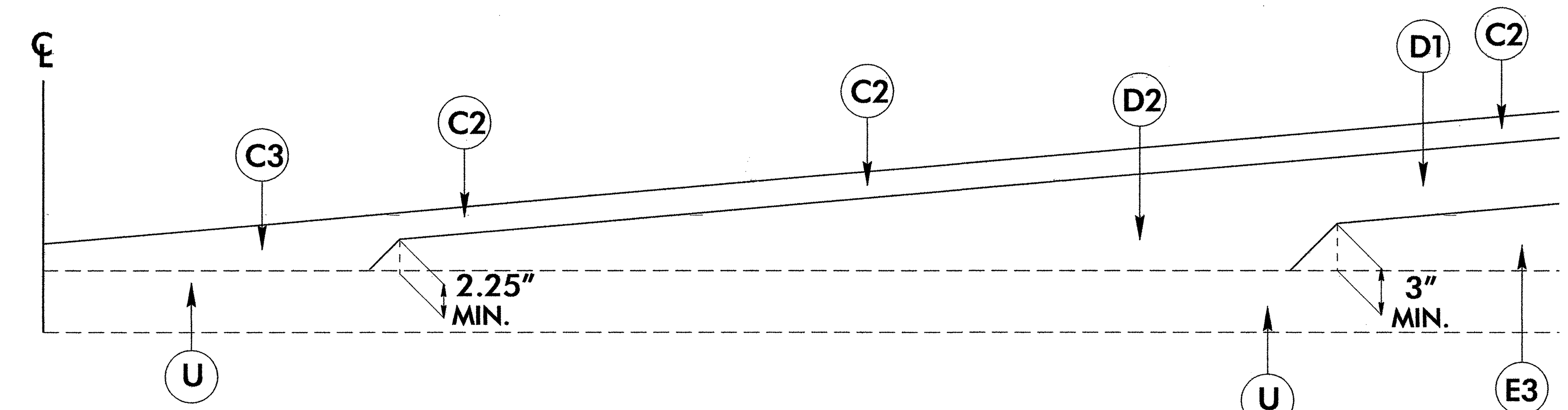
TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18 AS FOLLOWS

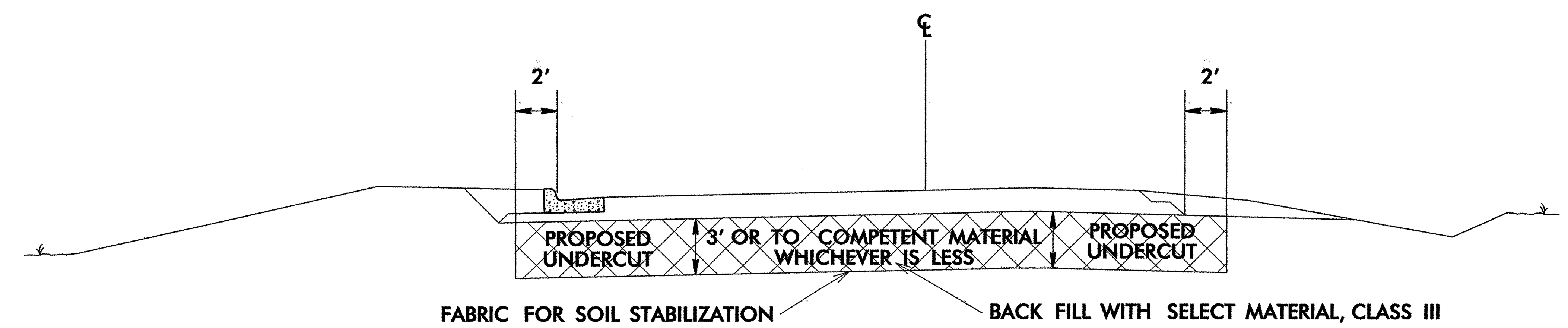
-L- STA 453+00 TO 492+00



Detail Showing Method of Wedging #1



Detail Showing Method of Wedging #2



UNDERCUT DETAIL

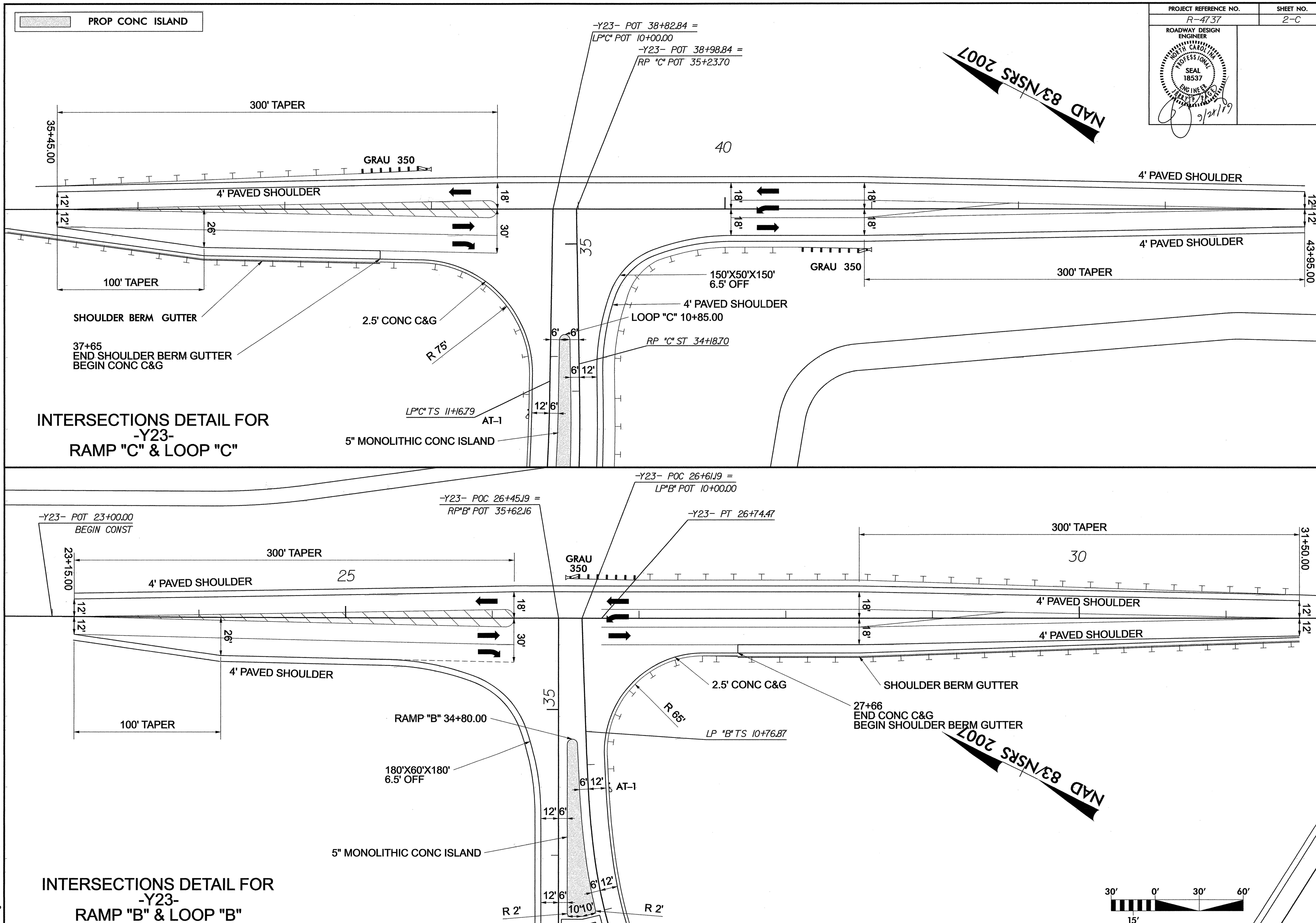
PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

C1	3" S9.5B
C2	1½" S9.5B
C3	VAR. S9.5B
D1	2½" I19.0B
D2	VAR. I19.0B
E1	4" B25.0B
E2	5½" B25.0B
E3	VAR. B25.0B
J1	8" ABC
J2	6" ABC
R1	30" CONC.C&G
R2	5" CONC. ISL.
R3	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXIST. PAVE.
W1	WEDGING
W2	WEDGING
Y	MILLED RUMBLE STRIPS

24-SEP-2009 10:43
d:\rdy\r4737_proj\r4737_ddc4_typ.dgn
dethridge AT D4D-239218-DIV

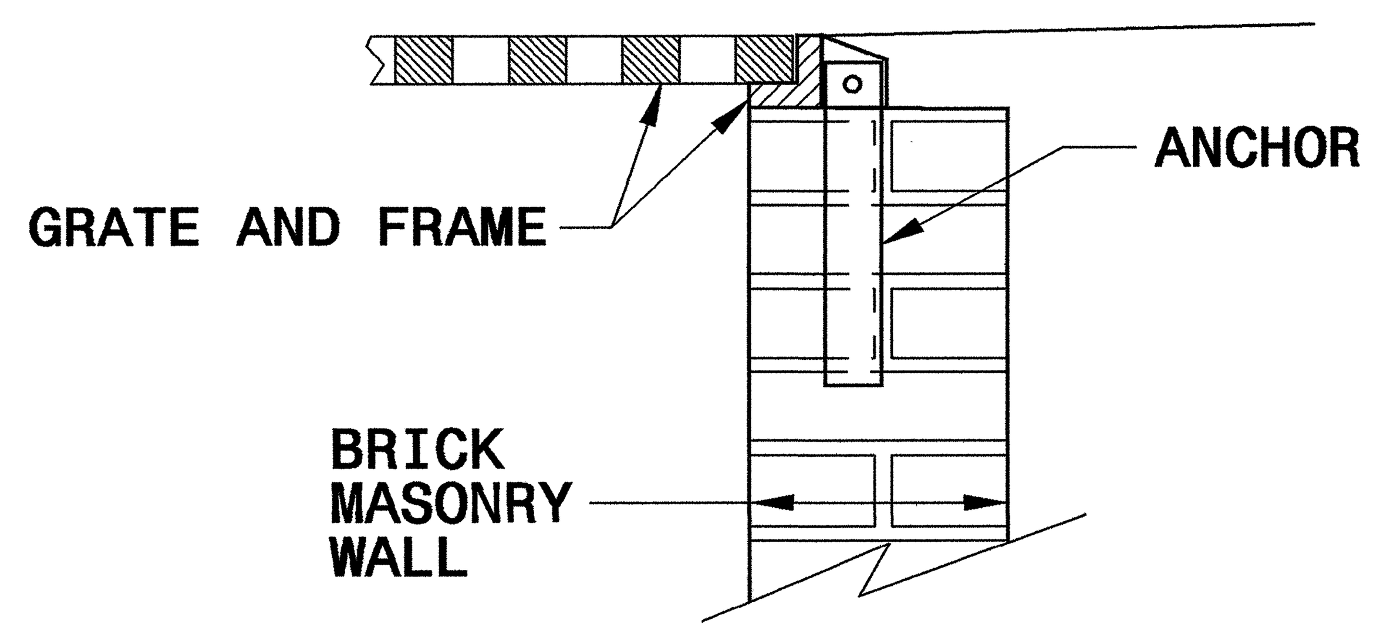
HP4500


PROP CONC ISLAND
PROJECT REFERENCE NO.
R-4737
SHEET NO.
2-C
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER
NAD 83/NSRS 2007
-Y23- POT 38+82.84 =
LP"C" POT 10+00.00
-Y23- POT 38+98.84 =
RP "C" POT 35+23.70
300' TAPER
35+45.00
GRAU 350
40
4' PAVED SHOULDER
12'
18'
26'
30'
100' TAPER
35
43+95.00
150'X50'X150'
6.5' OFF
LOOP "C" 10+85.00
RP "C" ST 34+18.70
SHOULDER BERM GUTTER
2.5' CONC C&G
R 75'
37+65
END SHOULDER BERM GUTTER
BEGIN CONC C&G
6'
LP"C" TS 11+16.79
AT-1
5" MONOLITHIC CONC ISLAND
INTERSECTIONS DETAIL FOR
-Y23-
RAMP "C" & LOOP "C"
-Y23- POC 26+61.19 =
LP"B" POT 10+00.00
-Y23- POC 26+45.19 =
RP"B" POT 35+62.16
-Y23- PT 26+74.47
-Y23- POT 23+00.00
BEGIN CONST
23+15.00
25
30
31+50.00
R 65'
27+66
END CONC C&G
BEGIN SHOULDER BERM GUTTER
RAMP "B" 34+80.00
LP "B" TS 10+76.87
180'X60'X180'
6.5' OFF
10'
R 2'
INTERSECTIONS DETAIL FOR
-Y23-
RAMP "B" & LOOP "B"
30' 0' 30' 60'
15'
24-SEP-2009 10:43
d:\rdy\r4737_ddc4_detail.dgn

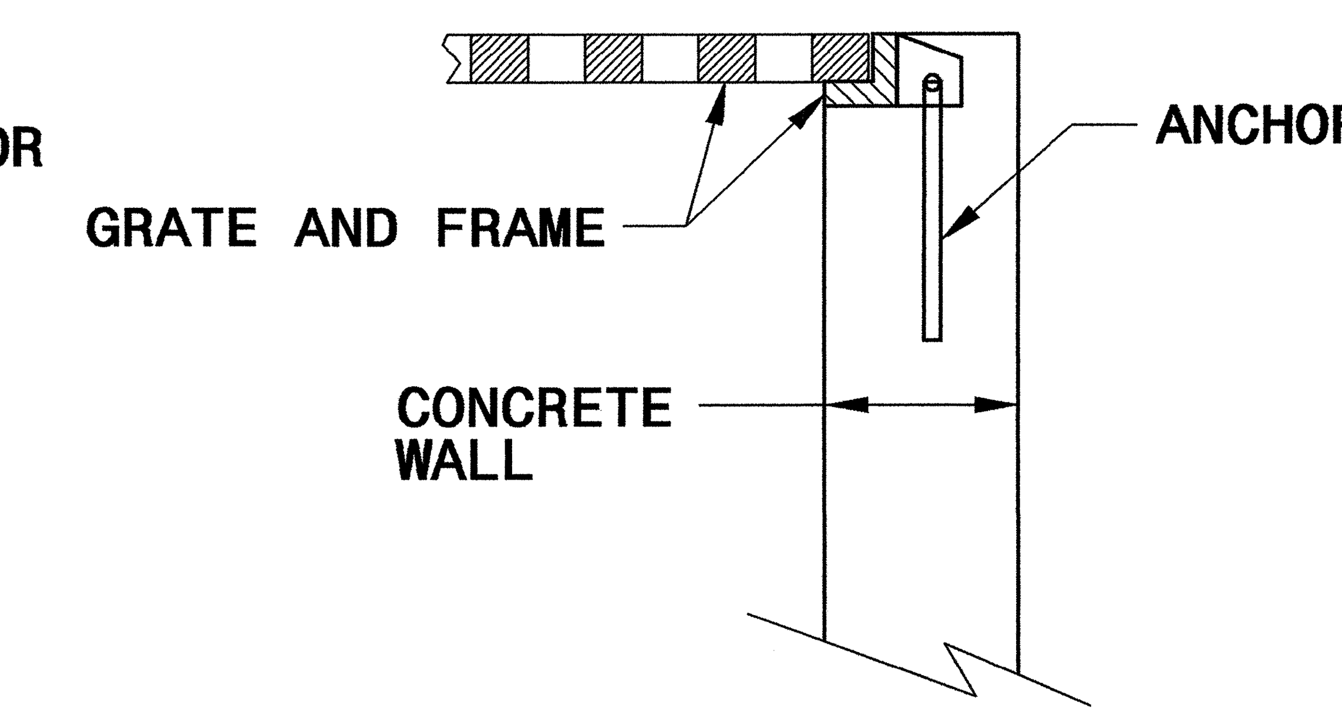
PROJECT REFERENCE NO.	SHEET NO.
R-4737	2-D

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

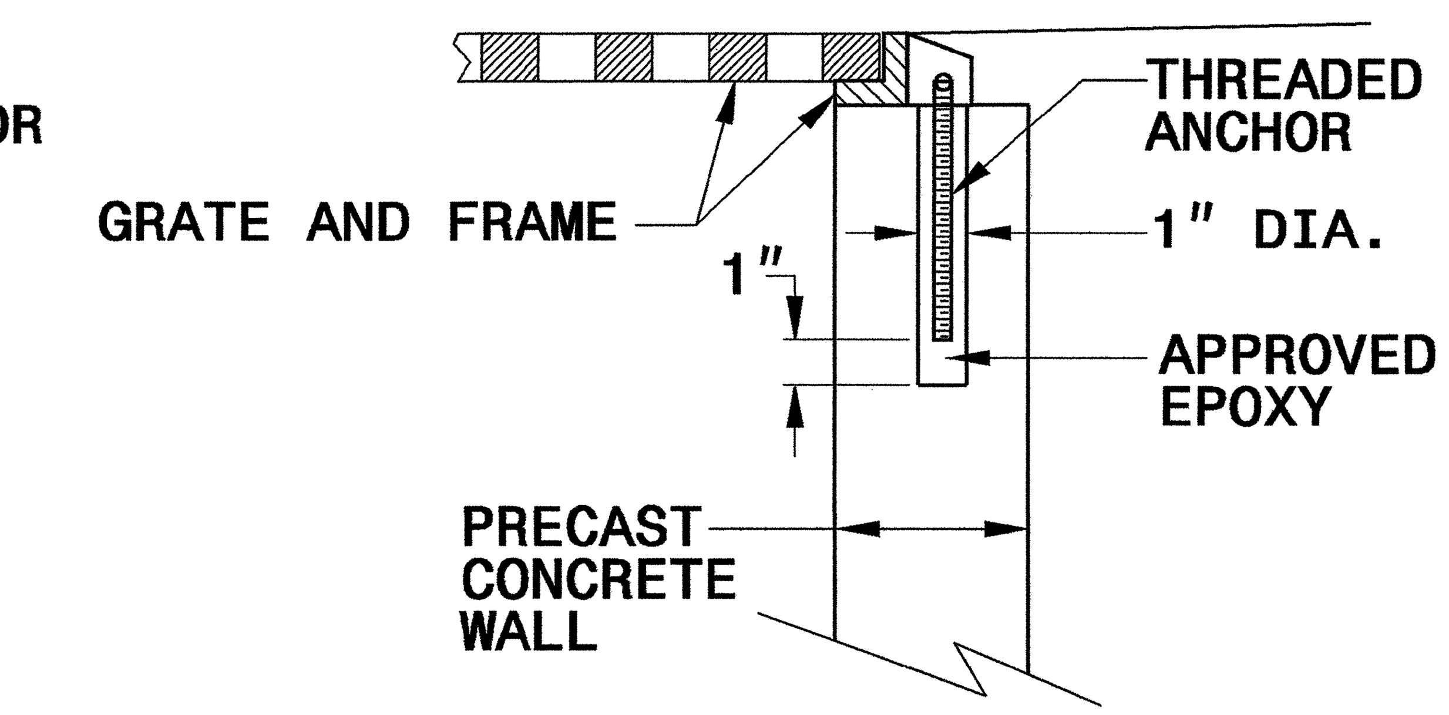
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



BRICK MASONRY CONSTRUCTION



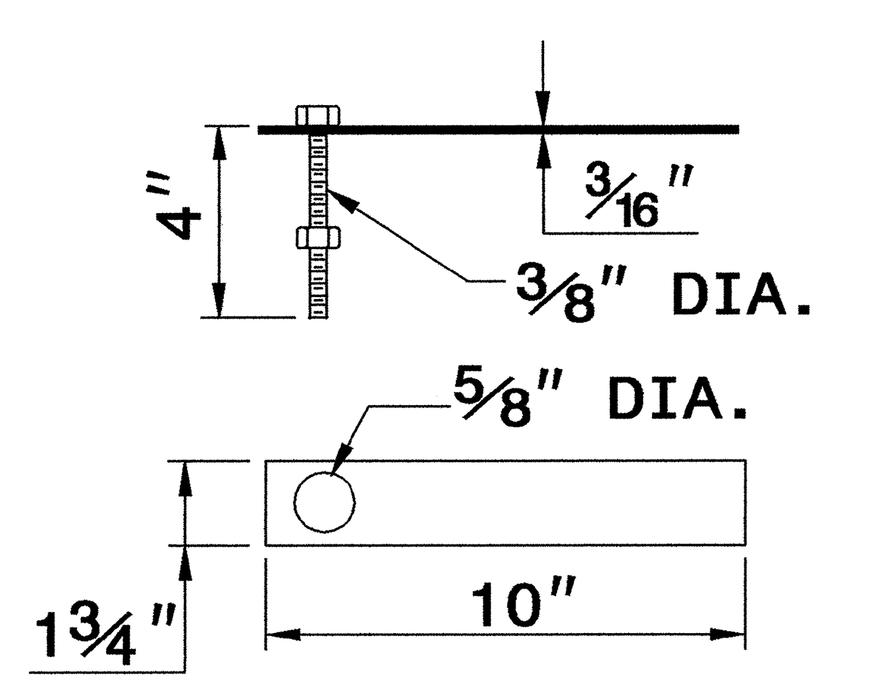
CONCRETE CONSTRUCTION



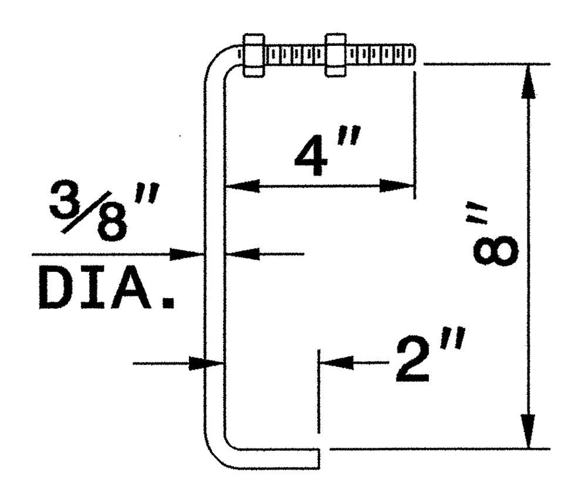
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

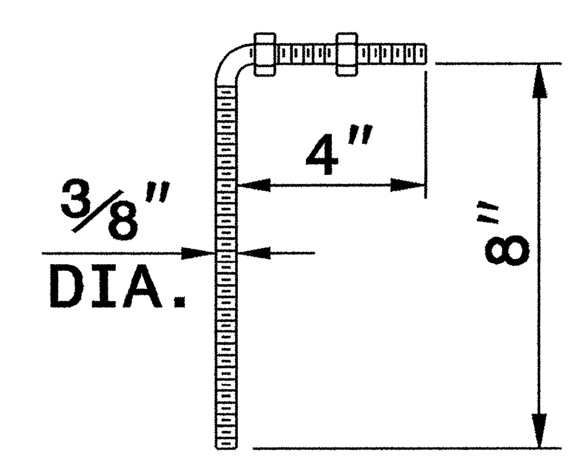
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



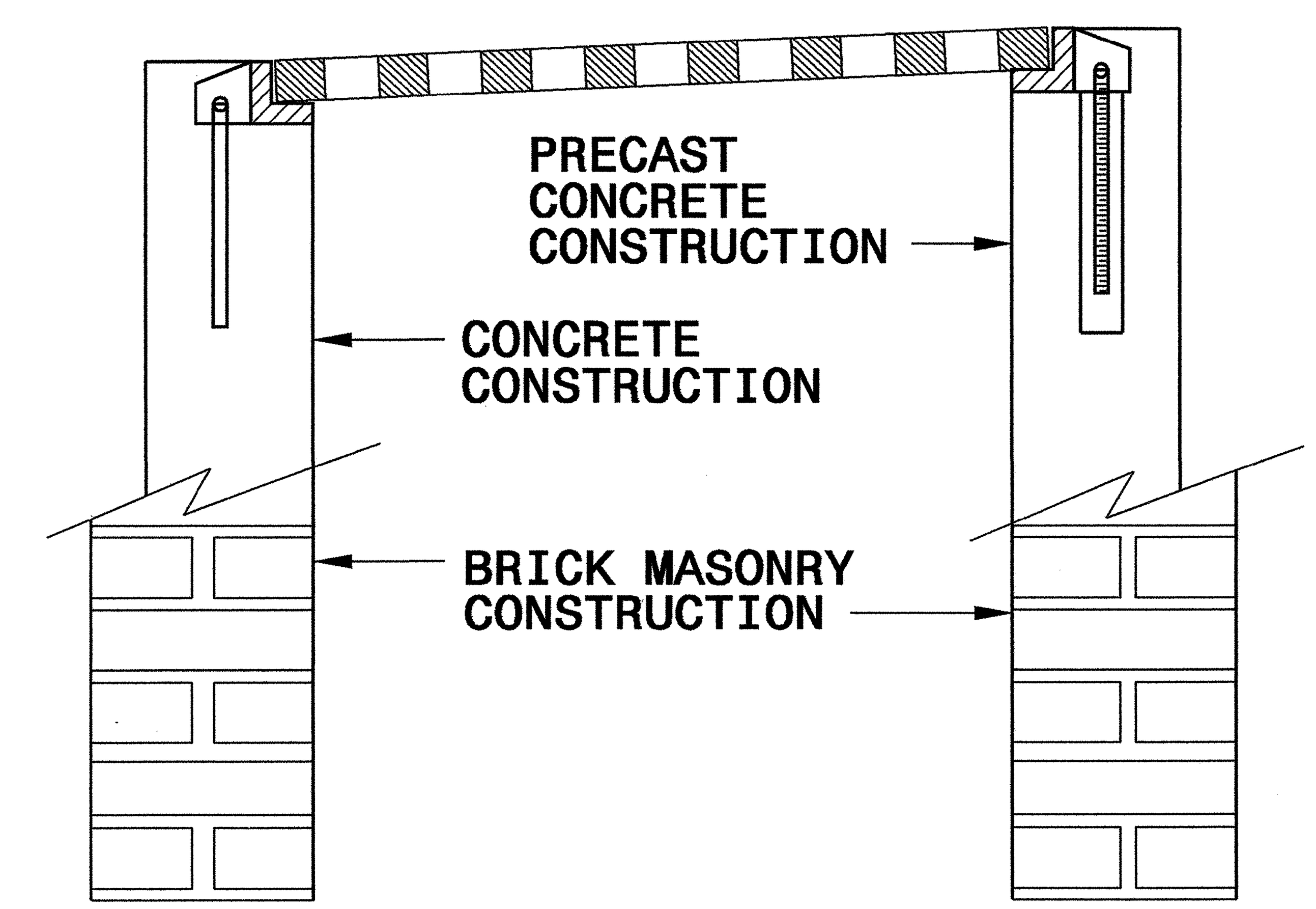
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

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

SHEET 1 OF 1
840D25

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOEL S. HOWERTON
9/4/09

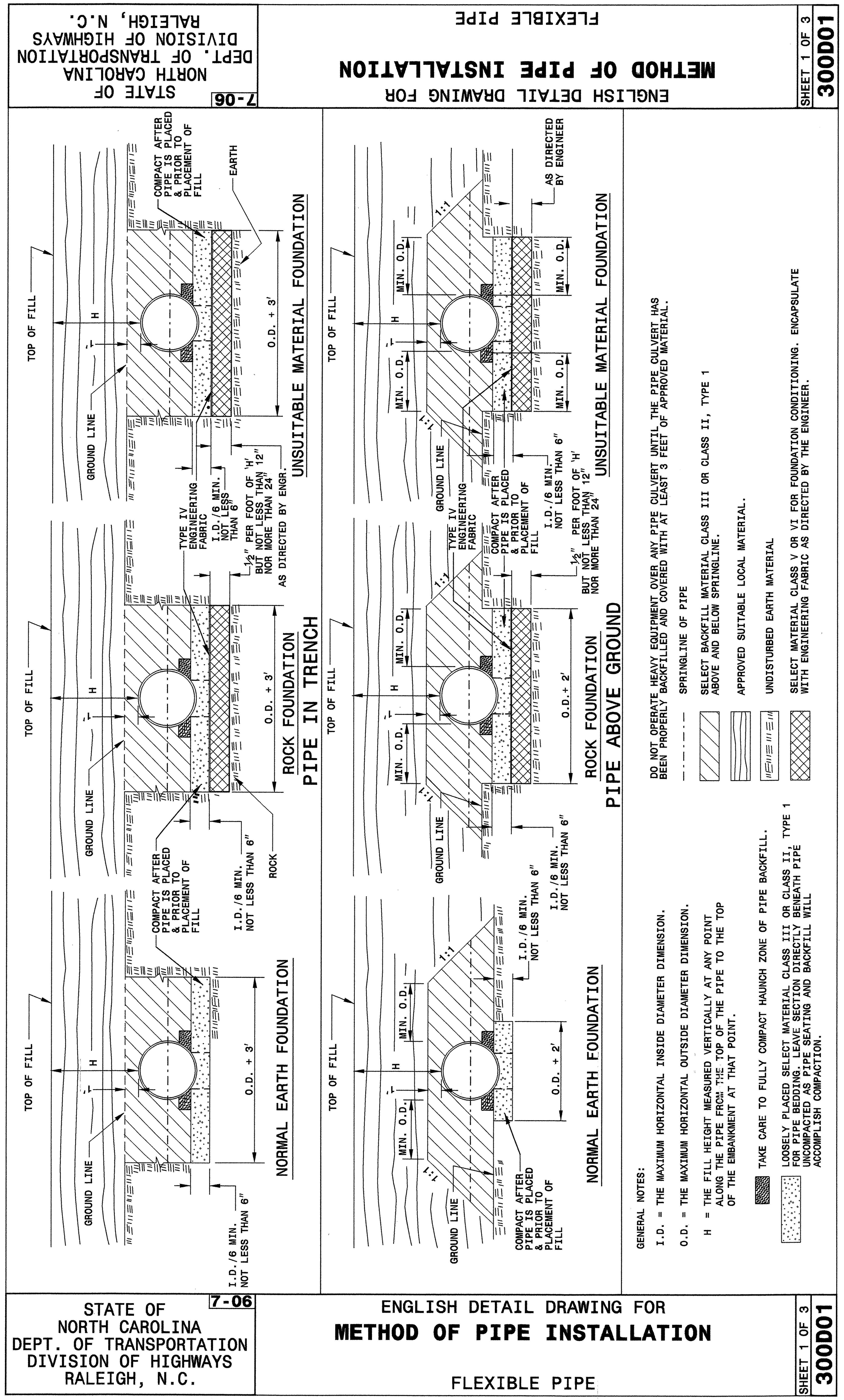
PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

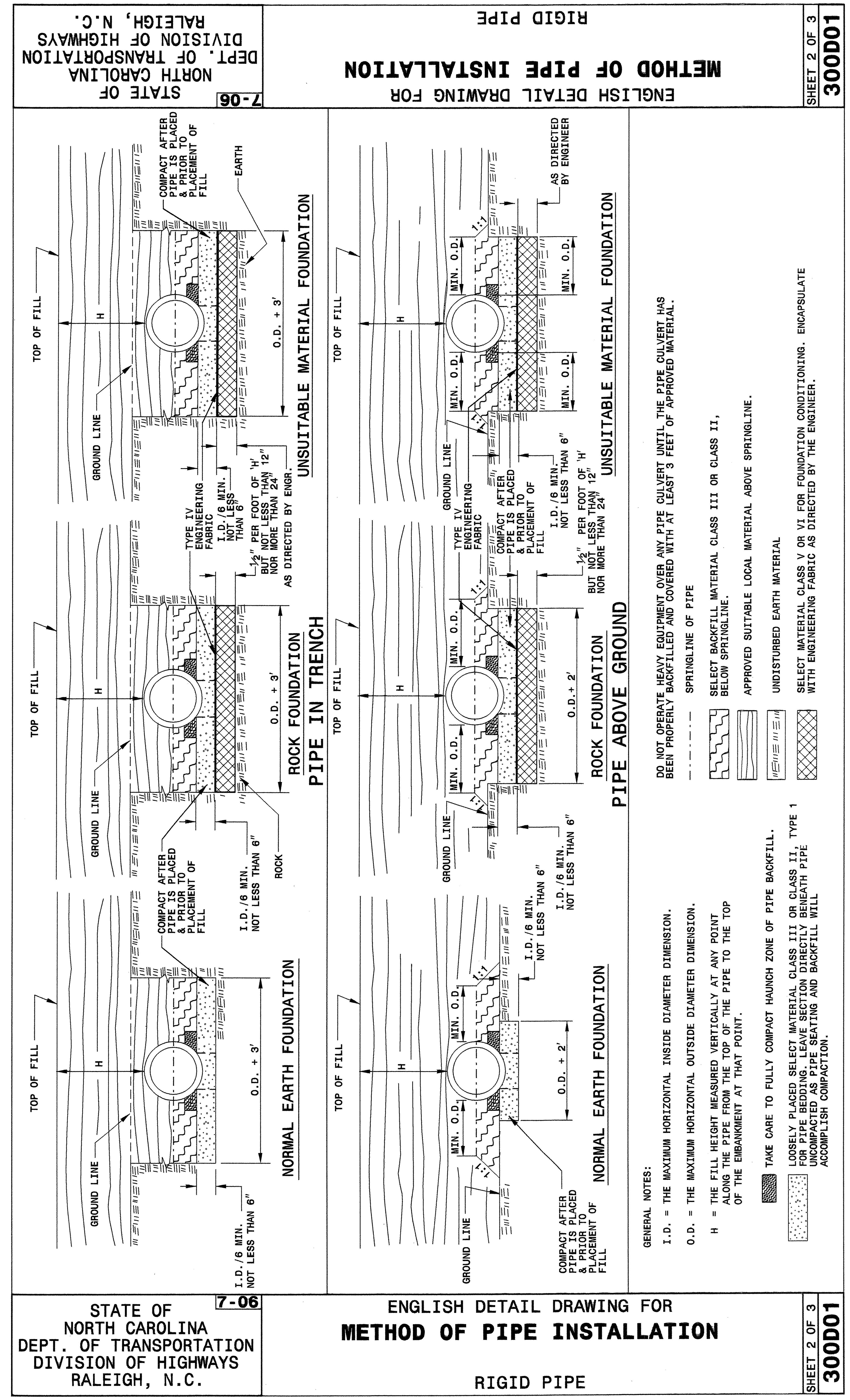
ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

27-SEP-2006 08:59
S:\Contracts\Contracts\Special Details\ericward\stds\06' Stds to Special Details\84025 Anchorage for Frames\0840d25.dgn
ericward AT PS222293

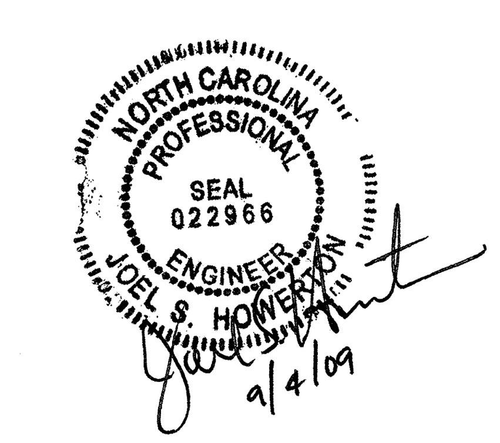
PROJECT REFERENCE NO.	SHEET NO.
R4737	2-E



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
7-06
ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE
SHEET 1 OF 3
300D01
TOP OF FILL
GROUND LINE
H
O.D. + 3'
O.D. + 2'
MIN. O.D.
1:1
COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL
I.D./6 MIN. NOT LESS THAN 6"
TYPE IV ENGINEERING FABRIC
1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGR.
AS DIRECTED BY ENGINEER
EARTH
ROCK
NORMAL EARTH FOUNDATION
ROCK FOUNDATION
UNSUITABLE MATERIAL FOUNDATION
PIPE IN TRENCH
PIPE ABOVE GROUND
GENERAL NOTES:
I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
SPRINGLINE OF PIPE
SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
APPROVED SUITABLE LOCAL MATERIAL.
UNDISTURBED EARTH MATERIAL
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
7-06
ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE
SHEET 2 OF 3
300D01
TOP OF FILL
GROUND LINE
H
O.D. + 3'
O.D. + 2'
MIN. O.D.
1:1
COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL
I.D./6 MIN. NOT LESS THAN 6"
TYPE IV ENGINEERING FABRIC
1/2" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24" AS DIRECTED BY ENGR.
AS DIRECTED BY ENGINEER
EARTH
ROCK
NORMAL EARTH FOUNDATION
ROCK FOUNDATION
UNSUITABLE MATERIAL FOUNDATION
PIPE IN TRENCH
PIPE ABOVE GROUND
GENERAL NOTES:
I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
SPRINGLINE OF PIPE
SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.
UNDISTURBED EARTH MATERIAL
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.



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

SEE PLATE FOR TITLE

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

30-JUL-2009 08:48
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jhowerton AT PS23750I

5/14/99

5/14/99

FLEXIBLE PIPE

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

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

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

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

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

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

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

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

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

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

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

RIGID PIPE

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

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

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

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

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

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

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06
ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES
SHEET 3 OF 3
300D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOEL S. HOWERTON
9/4/09

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

SEE PLATE FOR TITLE

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202396

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	7,200	CY	UNCLASSIFIED EXCAVATION
0036000000-E	225	6,650	CY	UNDERCUT EXCAVATION
0106000000-E	230	93,700	CY	BORROW EXCAVATION
0134000000-E	240	5,700	CY	DRAINAGE DITCH EXCAVATION
0156000000-E	250	8,500	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0194000000-E	SP	6,800	CY	SELECT GRANULAR MATERIAL, CLASS III
0196000000-E	270	6,800	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	160	TON	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRS
0320000000-E	SP	500	SY	FOUNDATION CONDITIONING FABRIC
0366000000-E	310	176	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	398	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E	310	204	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E	310	104	LF	30" RC PIPE CULVERTS, CLASS III
0390000000-E	310	252	LF	36" RC PIPE CULVERTS, CLASS III
0706000000-E	310	36	LF	12" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0708000000-E	310	316	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0805000000-E	310	1	EA	12" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0806000000-E	310	10	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0995000000-E	340	260	LF	PIPE REMOVAL
1011000000-N	500	Lump Sum		FINE GRADING
1121000000-E	520	7,800	TON	AGGREGATE BASE COURSE
1220000000-E	545	40	TON	INCIDENTAL STONE BASE
1330000000-E	607	500	SY	INCIDENTAL MILLING
1489000000-E	610	2,100	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	2,400	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	7,600	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	660	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	40	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
1840000000-E	665	15,700	LF	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE)
2022000000-E	815	40	CY	SUBDRAIN EXCAVATION
2033000000-E	815	20	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2209000000-E	838	7	CY	ENDWALLS
2253000000-E	840	1	CY	PIPE COLLARS
2264000000-E	840	1	CY	PIPE PLUGS
2286000000-N	840	11	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	1	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.16
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2374000000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)

ItemNumber	Sec #	Quantity	Unit	Description
2549000000-E	846	1,700	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	700	LF	SHOULDER BERM GUTTER
2655000000-E	852	600	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2830000000-N	858	1	EA	ADJUSTMENT OF MANHOLES
2845000000-N	858	1	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES
3030000000-E	862	250	LF	STEEL BM GUARDRAIL
3045000000-E	862	450	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3345000000-E	864	3,150	LF	REMOVE & RESET EXISTING GUARD-RAIL
3360000000-E	863	300	LF	REMOVE EXISTING GUARDRAIL
3503000000-E	866	5,600	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	360	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	80	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3557000000-E	866	200	LF	ADDITIONAL BARBED WIRE
3628000000-E	876	15	TON	RIP RAP, CLASS I
3649000000-E	876	29	TON	RIP RAP, CLASS B
3656000000-E	876	1,725	SY	FILTER FABRIC FOR DRAINAGE
4048000000-E	902	10	CY	REINFORCED CONCRETE SIGN FOUN-DATIONS
4060000000-E	903	7,974	LB	SUPPORTS, BREAKAWAY STEEL BEAM
4072000000-E	903	442	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	6	EA	SIGN ERECTION, TYPE D
4102000000-N	904	30	EA	SIGN ERECTION, TYPE E
4108000000-N	904	10	EA	SIGN ERECTION, TYPE F
4110000000-N	904	6	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4110000000-N	904	4	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B)
4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (A)
4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (B)
4155000000-N	907	2	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4236000000-N	907	2	EA	DISPOSAL OF SIGN, A OR B (GROUND MOUNTED)
4400000000-E	1110	192	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	288	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	40	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	260	EA	DRUMS
4435000000-N	1135	40	EA	CONES
4445000000-E	1145	50	LF	BARRICADES (TYPE III)
4450000000-N	1150	1,200	HR	FLAGGER
4480000000-N	1165	2	EA	TMIA
4685000000-E	1205	3,123	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	7,383	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4688000000-E	1205	23,801	LF	THERMOPLASTIC PAVEMENT MARKING LINES (6", 90 MILS)
4690000000-E	1205	2,515	LF	THERMOPLASTIC PAVEMENT MARKING LINES (6", 120 MILS)
4695000000-E	1205	414	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4700000000-E	1205	1,816	LF	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)

ItemNumber	Sec #	Quantity	Unit	Description
4725000000-E	1205	22	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	13,200	LF	PAINT PAVEMENT MARKING LINES (4")
4850000000-E	1205	1,576	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4900000000-N	1251	92	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	7,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	850	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	1,500	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	800	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	34	ACR	TEMPORARY MULCHING
6018000000-E	1620	800	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	4.25	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	1,500	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	13	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	550	LF	SAFETY FENCE
6030000000-E	1630	4,800	CY	SILT EXCAVATION
6036000000-E	1631	3,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	75	SY	COIR FIBER MAT
6038000000-E	SP	75	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	450	LF	1/4" HARDWARE CLOTH
6071030000-E	SP	3,750	LF	COIR FIBER BAFFLES
6071050000-E	SP	1	EA	**" SKIMMER (2")
6084000000-E	1660	30	ACR	SEEDING & MULCHING
6087000000-E	1660	18	ACR	MOWING
6090000000-E	1661	300	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	1	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	725	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	21.25	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6138000000-E	SP	18,750	CY	GENERIC EROSION CONTROL ITEM BORROW PIT DEWATERING BASIN

COMPUTED BY:	DRE	DATE:	September 24, 2009
CHECKED BY:		DATE:	

PROJECT REFERENCE NO.	SHEET NO.
R-4737	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPE, ENDWALLS, ECT. (FOR PIPE 48" & UNDER)

Station	Location (LT, RT or CL)	Structure No. From	Structure No. To	Top Elevation	Invert Elevation	Invert Elevation	Slope Critical	Class III R.C. Pipe (unless noted otherwise) 12"	15"	18"	24"	30"	36"	42"	48"	Bituminous Coated C.S. Pipe Type B (unless noted otherwise) 12" (0.064)	15" (0.064)	18" (0.064)	24" (0.064)	30" (0.079)	36" (0.079)	42" (0.109)	48" (0.109)
-Y23- 20+50	LT	1								32													
-Y23- 26+33	LT	2										32											
-Y23- 27+70	RT	3		132.0																			
		3	4		128.9	111.7											76						
-Y23- 27+70	RT	4																					
-Y23- 37+61	RT	5																					
		5	6		114.7	131.3											72						
-Y23- 37+62	RT	6		134.5																			
-Y23- 45+29	RT	7								32													
-Y23- 45+30	LT	8								24													
-RP B- 32+10	RT	9																					
		9	10		110.3	109.9					120												
-RP B- 32+40	LT	10																					
-RP B- 34+18	LT	11																					
		11	12		109.6	109.5						72											
-RP B- 34+82	LT	12		113.8																			
		12	13		109.5	111.7				136													
-LP B- 11+10	LT	13																					
-LP B- 12+98	LT	14																					
		14	15		110.5	110.3				124													
-LP B- 13+32	RT	15																					
-LP B- 14+79	RT	16																					
		16	17		110.6	110.9			40														
-LP B- 14+81	LT	17		113.9																			
-LP B- 19+01	LT	18																					
		18	19		112.3	113.6										36							
-LP B- 19+34	LT	19																					
-RP C- 28+52	RT	20								32													
-LP C- 16+44	RT	21																					
		21	22		110.4	115.1			72														
-RP C- 28+58	LT	22		118.3																			
		22	23		115.1	115.3			24														
-RP C- 28+83	LT	23		118.5																			
SHEET 3-A TOTAL									136	380	120	104				36	148						

QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL."A" + (1.3 X COL."B")

ENDWALLS: STD. 838.01, STD. 838.11 OR STD.838.80 (UNLESS NOTED OTHERWISE) CU. YDS.

FRAME, GRATES & HOOD STANDARD 840.03

Station	Location	From	To	Class III R.C. Pipe or C.S. Pipe or Type IR Aluminized or HDPE Pipe, Type S or D 12"	15"	18"	24"	30"	36"	42"	48"	Endwalls R.C.P.	Endwalls C.S.P.	Per Each (0' thru 5.0')	Linear Feet A: 5.0' thru 10.0'	Linear Feet B: 10.0' and above	C.B. Std. 840.01 or Std. 840.02	Type of Grate E	F	G	D.I. Std. 840.14 or Std. 840.15	D.I. Frame & Grate Std. 840.16	Grated D.I. Type "A" Std. 840.17 or 840.26	Frame with Two Narrow Slot Flat Grates Std. 840.29	T.B.J.B. Std. 840.34	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 Linear Feet	Remarks
-Y23- 20+50	LT	1																											31	
-Y23- 26+33	LT	2																												
-Y23- 27+70	RT	3												1									1	1						
		3	4																							2 @15"				
-Y23- 27+70	RT	4																												
-Y23- 37+61	RT	5																												
		5	6																							2 @15"				
-Y23- 37+62	RT	6												1									1	1					90	
-Y23- 45+29	RT	7																											31	
-Y23- 45+30	LT	8																												
-RP B- 32+10	RT	9																												
		9	10																											
-RP B- 32+40	LT	10																												
-RP B- 34+18	LT	11																												
		11	12																											
-RP B- 34+82	LT	12												1											1					
		12	13																											
-LP B- 11+10	LT	13																												
-LP B- 12+98	LT	14																												
		14	15																											
-LP B- 13+32	RT	15																												
-LP B- 14+79	RT	16																												
		16	17																											
-LP B- 14+81	LT	17												1			1	1												
-LP B- 19+01	LT	18																												
		18	19																							1 @12"				
-LP B- 19+34	LT	19																												
-RP C- 28+52	RT	20																												
-LP C- 16+44	RT	21																												
		21	22																											
-RP C- 28+58	LT	22												1							1	1								
		22	23																											
-RP C- 28+83	LT	23												1							1	1								
																										1 @12"				
SHEET 3-A TOTAL														6			1	1			2	2	2	2	1	4 @15"			152	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: DRE DATE: August 11, 2009
CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
R-4737	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPE, ENDWALLS, ECT. (FOR PIPE 48" & UNDER)

Station	Location (LT,RT or CL)	Structure No. From	Structure No. To	Top Elevation	Invert Elevation	Invert Elevation	Slope Critical	Class III R.C. Pipe (Unless Noted Otherwise) 12"	15"	18"	24"	30"	36"	42"	48"	Bituminous Coated C.S. Pipe Type B (Unless Noted Otherwise) 12"	15"	18"	24"	30"	36"	42"	48"	Class III R.C. Pipe or C.S. Pipe or Type IR Aluminized or HDPE Pipe, Type S or D 12"	15"	18"	24"	30"	36"	42"	48"	Endwalls Std. 838.01, Std. 838.11 or Std.838.80 (Unless Noted Otherwise) Cu. Yds. R.C.P.	C.S.P.	Quantities for Drainage Structures * Total L.F. for Pay Quantity shall be Col. 'A' + (1.3 X Col.'B') Per Each (0' thru 5.0')	Linear Feet A 5.0' thru 10.0'	Linear Feet B 10.0' and above	C.B. Std. 840.01 or Std. 840.02	Frame, Grates & Hood Standard 840.03 Type of Grate E	F	G	D.I. Std. 840.14 or Std. 840.15	D.I. Frame & Grate Std. 840.16	Grated D.I. Type "A" Std. 840.17 or 840.26	Frame with Two Narrow Slot Flat Grates Std. 840.29	T.B.J.B. Std. 840.34	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 Linear Feet	Remarks
Thickness or Gauge																0.064	0.064	0.064	0.064	0.079	0.079	0.109	0.109																											
-RP C- 30+33	LT	24		120.7																														1							1	1								
		24	25		117.5	111.0											76																													2 @15"				
-LP C- 14+71	RT	25																																																
-LP C- 12+07	RT	26																														3.4																		
		26	27		110.5	109.5							180																																					
-RP C- 33+22	RT	27																																															106	
-RP C- 33+39	LT	28		127.2																														1							1	1								
		28	29		124.0	123.2			28																																									
-LP C- 11+84	RT	29		126.2																														1			1		1											
		29	30		123.2	113.0											64																													2 @15"				
-LP C- 11+83	RT	30																																																
-RP C- 33+99	RT	31																														3.4																		
		31	32		107.8	107.5							72																																					
-RP C- 34+57	RT	32		112.3																														1											1					
-LP C- 16+88	RT	33		116.2																														1			1	1												
		33	34		113.2	110.3											28																													2 @15"				
-LP C- 16+89	RT	34																																																
-LP C- 18+50	RT	35																																																
		35	36		110.7	111.0					84																																							
-LP C- 18+79	LT	36																																																
-LP C- 21+03	RT	37																																																
		37	38		111.1	111.2			12																																									
-LP C- 21+08	RT	38																																													0.399			
-RP C- 22+50	RT	39								18																																								
SHEET 3-B TOTAL									40	18	84		252				168															6.8		5			2	1	1		2	2			1	6 @15"	0.399		106	
SHEET 3-A TOTAL									136	380	120	104				36	148																	6			1	1			2	2	2	2	1				152	
SHEET 3-B TOTAL									40	18	84		252				168															6.8		5			2	1	1		2	2			1		0.399		106	
GRAND TOTAL									176	398	204	104	252			36	316															6.8		11			3	2	1		4	4	2	2	2		0.399		258	
SAY																																7.0			1.0											1 @12"	1	1	260	
PROJECT TOTAL									176	398	204	104	252			36	316															7.0		11	1.0		3	2	1		4	4	2	2	2	10 @15"	1	1	260	

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. MANHOL

PROJ. REFERENCE NO.	SHEET NO.
R-4737	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Volumes in Cubic Yards

STATION TO STATION	Uncl. Excav.	Undercut	Embank +%	Borrow	Waste
Y23 23+15.00 TO 31+50.00	91		8447	8356	
RPB 13+00.00 TO 35+31.71	3833	1026	13470	12671	4060
LPB 10+30.47 TO 26+00.00	1081	568	8662	7581	568
DRIVE -Y23- LT	139	550			689
SUBTOTAL	5144	2144	30579	28608	5317
Y23 35+45.00 TO 43+95.00	125		6865	6740	
RPC 13+28.52 TO 34+93.36	15	238	26848	26833	238
LPC 10+30.33 TO 35+00.00	1048	218	25535	24487	218
DRIVE RP "C" RT	866	3450			4316
	2054	3906	59248	58060	4772
TOTAL	7198	6050	89827	86668	10089
ADDITIONAL UNDERCUT		600			600
EST. SHOULDER MATERIAL			2625	2625	
PROJECT TOTAL	7198	6650	92452	89293	10689
ESTIMATE TO REPLACE TOPSOIL ON BORROW PIT				4333	
GRAND TOTAL	7198	6650	92452	93626	10689
SAY	7200	6650		93700	

Y23, RP B, RPC, LP B & LP C, Pavement Structure Volumes are 452 CY

Quantities are approximate only. The Resident Engineer will recross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

Embankment column does not include backfill for Undercut.
Backfill Undercut with Class III Select Material.

Earthwork quantities are calculated by Division Four DDC.
These quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit

SUMMARY OF HYDRAULIC RIP RAP & DDE

STATION TO STATION	LOC	RIP RAP CLASS (TONS)				FF (SY)	PSRM (SY)	DDE (CY)	DETAIL
		I	II	A	B				
Y23 27+70.38	RT				1	5			
Y23 34+99.00 TO 35+49.00	RT							40	B
Y23 35+49.00 TO 37+00.00	RT							310	A
Y23 37+00.00 TO 37+96.00	RT							250	C
Y23 37+61.27	RT				1	5			
LP B 13+32.10	RT				3	10			
LP B 14+79.17	RT				2	7			
LP B 19+01.01	LT				2	5			
RP B 29+50.00 TO 34+00.00	LT							720	A
RP B 32+39.91	LT				5	14			
RP C 17+00.00 TO 34+00.00	RT							4220	A
RP C 22+50.00	RT							40	B
RP C 33+21.72	RT	15				30			
LP C 11+82.84	RT				2	7			
LP C 14+71.12	RT				2	7			
LP C 16+43.81	RT				2	7			
LP C 16+88.69	RT				2	7			
LP C 18+50.00	RT				5	14			
LP C 18+75.00	LT							50	C
LP C 21+03.42	RT				2	7			
TOTAL		15			29	125		5630	
SAY		15			29	125		5700	

SUMMARY OF WOVEN WIRE FENCE

STATION TO STATION	LOC	A FABRIC (L.F)	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POST (EA.)	F 5" POST (EA.)	ADD. BARBED WIRE (L.F.)
RPB 21+80 TO Y23 21+00		1669	1	2	5	107	23	
Y23 21+00.00 TO 28+93.04	LT	796	1		3	51	11	
Y23 38+05.11 TO 45+00.00	LT	704	1		3	45	11	
RPC 16+00 TO Y23 45+00		2408	1	2	8	155	32	
TOTAL		5577				358	77	
SAY		5600				360	80	200

$$F = (2B + 3C + 3D)$$

$$E = \left[\frac{A - (8B + 16C + 16D)}{14} \right] - \frac{(B + C + D)}{2}$$

COMPUTED BY: *DRE* DATE: *August 10, 2009*
CHECKED BY: _____ DATE: _____

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
GUARDRAIL SUMMARY

PROJECT REFERENCE NO.	SHEET NO.
R-4737	*3-D*

"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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & RESET EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	TYPE III	CAT-1	AT-1					G	NG				
-Y23-	26+50.00	31+50.00	LT	150			26+50	32+14	8	11	50		1														350	REMOVE & RESET INCLUDES 1 GRAU 350
-Y23-	LP B	31+50.00	RT		141		31+97	27+50	8	11								1									380	
-Y23-	35+45.00	38+00.00	LT				34+53	38+00	8	11	50		1														255	REMOVE & RESET INCLUDES 1 GRAU 350
-Y23-	35+45.00	LP C	RT		160		37+50	34+35	8	11								1									220	
-Y23-	RP C	41+00.00	RT	187.5	137.5		RP C 30+50	40+50	12	15	50	50	1	1	1												355	REMOVE & RESET INCLUDES 1 GRAU 350
LP C	24+00.00	38+44.00	RT						12	15	50		1														1450	REMOVE & RESET INCLUDES 1 GRAU 350
LP B	24+65.00	26+00.00	LT						12	15		50		1													135	REMOVE & RESET INCLUDES 1 CAT-1
			SUB-TOTAL	337.5																								
			ANCHOR UNIT DECUCTION																									
			GRAU 350 1 @ 50	-50																								
			AT-1 2 @ 6.25	-37.5																								
			TOTAL	250	438.5										1			2								293	3145	
			SAY	250	450										1			2								300	3150	
			ADDITIONAL GUARDRAIL POSTS	10																								

COMPUTED BY:	D.R. ETHRIDGE	DATE:	June 4, 2009
CHECKED BY:		DATE:	

PROJECT REFERENCE NO.	SHEET NO.
R-4737	3-E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY AREA DATA SHEET

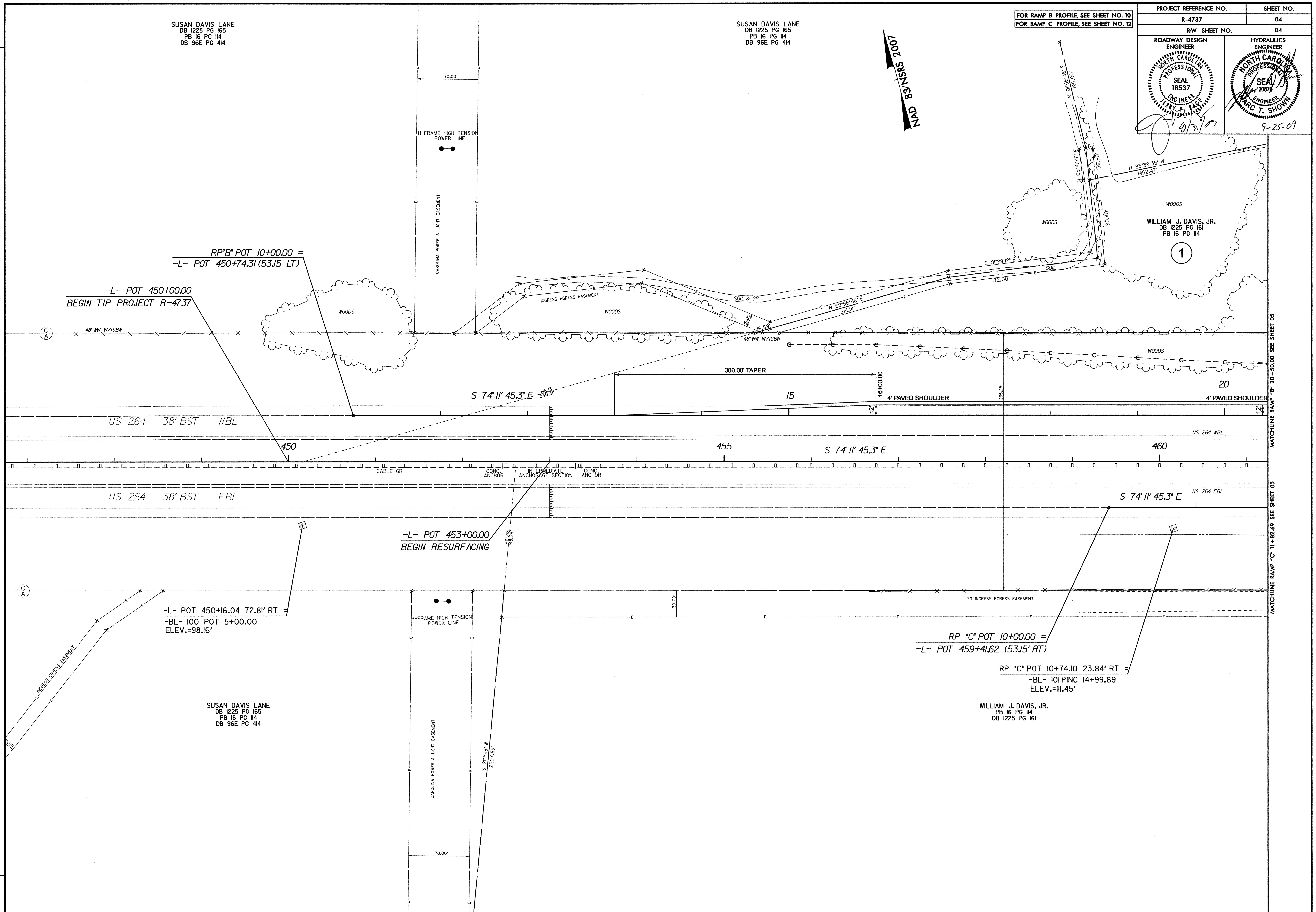
PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONST. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT
1	4-6	WILLIAM J. DAVIS, III	28.802 AC	5.384 AC			21,591 SF		
2	5-8	JOSEPH DAVIS PATTERSON	14.747 AC	5.719 AC			6,988 SF		
3	5,7,8	SETH T. WOOTEN, JR TRUSTEE	290.897 AC	3.737 AC			1.668 AC		
4	6	SUSAN DAVIS LANE	25.948 AC	3,884 SF					

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONST. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT

HP4500

PROJECT REFERENCE NO.	SHEET NO.
R-4737	04
R/W SHEET NO.	04

FOR RAMP B PROFILE, SEE SHEET NO. 10
FOR RAMP C PROFILE, SEE SHEET NO. 12



ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 20878 ENGINEER MARC T. SHOWN
9-25-09
NAD 83/NSRS 2007
SUSAN DAVIS LANE
DB 1225 PG 165
PB 16 PG 114
DB 96E PG 414
70.00'
H-FRAME HIGH TENSION POWER LINE
CAROLINA POWER & LIGHT EASEMENT
RP"B" POT 10+00.00 =
-L- POT 450+74.31 (53.15 LT)
-L- POT 450+00.00
BEGIN TIP PROJECT R-4737
WOODS
INGRESS EGRESS EASEMENT
SOIL & GR
48" WW W/ISBW
N 89°56'48" E
214.14'
S 81°28'12" E
172.00'
SOIL
N 85°39'35" W
1452.47'
WILLIAM J. DAVIS, JR.
DB 1225 PG 161
PB 16 PG 114
1
300.00' TAPER
16+00.00
4' PAVED SHOULDER
15
20
S 74° 11' 45.3" E
US 264 38' BST WBL
450
455
460
US 264 WBL
CABLE GR
CONC. ANCHOR
INTERMEDIATE ANCHORAGE SECTION
US 264 38' BST EBL
US 264 EBL
-L- POT 453+00.00
BEGIN RESURFACING
-L- POT 450+16.04 72.81' RT =
-BL- 100 POT 5+00.00
ELEV.=98.16'
30' INGRESS EGRESS EASEMENT
RP "C" POT 10+00.00 =
-L- POT 459+41.62 (53.15' RT)
RP "C" POT 10+74.10 23.84' RT =
-BL- 101 PINC 14+99.69
ELEV.=111.45'
WILLIAM J. DAVIS, JR.
PB 16 PG 114
DB 1225 PG 161
S 21°11'49" W
2207.85'
MATCHLINE RAMP "B" 20+50.00 SEE SHEET 05
MATCHLINE RAMP "C" 11+82.69 SEE SHEET 05

REVISIONS

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dethridge AT D4D-239218-DIV

PROJECT REFERENCE NO.	SHEET NO.
R-4737	05
R/W SHEET NO.	05

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18537 JERRY P. PAGE

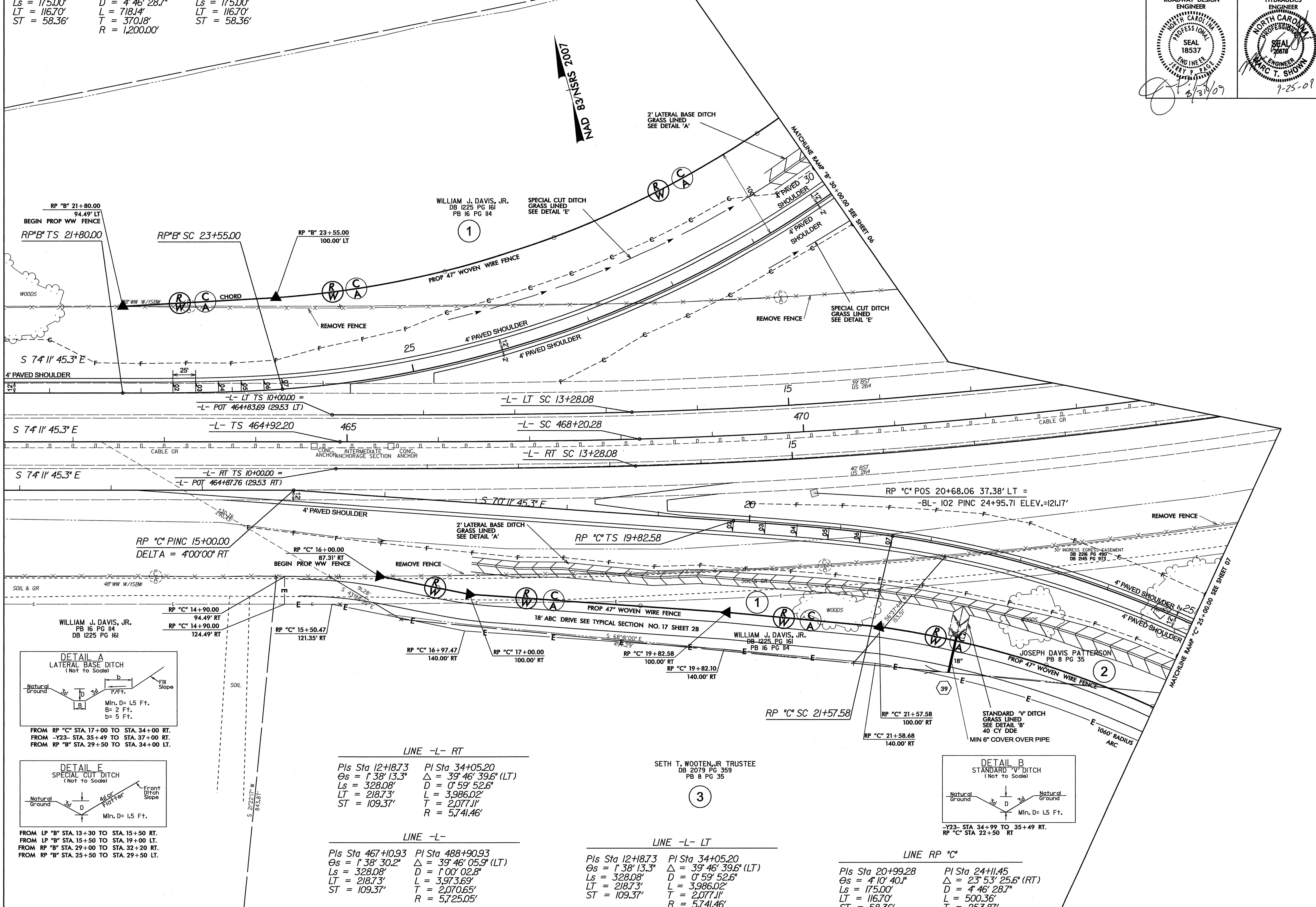
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20878 MARC T. SHOWN — 9-25-09

REVISIONS

FOR RAMP B PROFILE, SEE SHEET NO. 10
FOR RAMP C PROFILE, SEE SHEET NO. 12

LINE RP "B"

PIs Sta 22+96.70	PI Sta 27+25.18	PIs Sta 31+31.50
Θs = 4° 10' 40.1"	Δ = 34° 17' 18.4" (LT)	Θs = 4° 10' 40.1"
Ls = 175.00'	D = 4° 46' 28.7"	Ls = 175.00'
LT = 116.70'	L = 718.14'	LT = 116.70'
ST = 58.36'	T = 370.18'	ST = 58.36'
	R = 1,200.00'	



NAD 83/NSRS 2007
MATCHLINE RAMP "B" 20+50.00 SEE SHEET 04
MATCHLINE RAMP "C" 10+87.94 SEE SHEET 04
MATCHLINE RAMP "B" 30+00.00 SEE SHEET 06
MATCHLINE RAMP "C" 25+00.00 SEE SHEET 07
WILLIAM J. DAVIS, JR.
DB 1225 PG 161
PB 16 PG 114
JOSEPH DAVIS PATTERSON
PB 8 PG 35
SETH T. WOOTEN, JR TRUSTEE
DB 2079 PG 359
PB 8 PG 35
RP "B" TS 21+80.00
RP "B" SC 23+55.00
-L- LT TS 10+00.00 =
-L- POT 464+83.69 (29.53 LT)
-L- LT SC 13+28.08
-L- TS 464+92.20
-L- SC 468+20.28
-L- RT SC 13+28.08
-L- RT TS 10+00.00 =
-L- POT 464+87.76 (29.53' RT)
S 74° 11' 45.3" E
RP "C" PINC 15+00.00
DELTA = 4°00'00" RT
RP "C" TS 19+82.58
RP "C" SC 21+57.58
RP "C" POS 20+68.06 37.38' LT =
-BL- 102 PINC 24+95.71 ELEV.=121.17'
PROP 47" WOVEN WIRE FENCE
4' PAVED SHOULDER
REMOVE FENCE
2' LATERAL BASE DITCH GRASS LINED SEE DETAIL 'A'
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 'E'
STANDARD 'V' DITCH GRASS LINED SEE DETAIL 'B' 40 CY DDE
MIN 6" COVER OVER PIPE
18' ABC DRIVE SEE TYPICAL SECTION NO. 17 SHEET 28
30' INGRESS EGRESS EASEMENT
1060' RADIUS ARC

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Min. D= 1.5 Ft.
B= 2 Ft.
b= 5 Ft.

FROM RP "C" STA. 17+00 TO STA. 34+00 RT.
FROM -Y23- STA. 35+49 TO STA. 37+00 RT.
FROM RP "B" STA. 29+50 TO STA. 34+00 LT.

DETAIL E
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1.5 Ft.

FROM LP "B" STA. 13+30 TO STA. 15+50 RT.
FROM LP "B" STA. 15+50 TO STA. 19+00 LT.
FROM RP "B" STA. 29+00 TO STA. 32+20 RT.
FROM RP "B" STA. 25+50 TO STA. 29+50 LT.

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

Min. D= 1.5 Ft.

-Y23- STA 34+99 TO 35+49 RT.
RP "C" STA 22+50 RT

LINE -L- RT

PIs Sta 12+18.73	PI Sta 34+05.20
Θs = 1° 38' 13.3"	Δ = 39° 46' 39.6" (LT)
Ls = 328.08'	D = 0° 59' 52.6"
LT = 218.73'	L = 3,986.02'
ST = 109.37'	T = 2,077.11'
	R = 5,741.46'

LINE -L-

PIs Sta 467+10.93	PI Sta 488+90.93
Θs = 1° 38' 30.2"	Δ = 39° 46' 05.9" (LT)
Ls = 328.08'	D = 1° 00' 02.8"
LT = 218.73'	L = 3,973.69'
ST = 109.37'	T = 2,070.65'
	R = 5,725.05'

LINE -L- LT

PIs Sta 12+18.73	PI Sta 34+05.20
Θs = 1° 38' 13.3"	Δ = 39° 46' 39.6" (LT)
Ls = 328.08'	D = 0° 59' 52.6"
LT = 218.73'	L = 3,986.02'
ST = 109.37'	T = 2,077.11'
	R = 5,741.46'

LINE RP "C"

PIs Sta 20+99.28	PI Sta 24+11.45
Θs = 4° 10' 40.1"	Δ = 23° 53' 25.6" (RT)
Ls = 175.00'	D = 4° 46' 28.7"
LT = 116.70'	L = 500.36'
ST = 58.36'	T = 253.87'
	R = 1,200.00'

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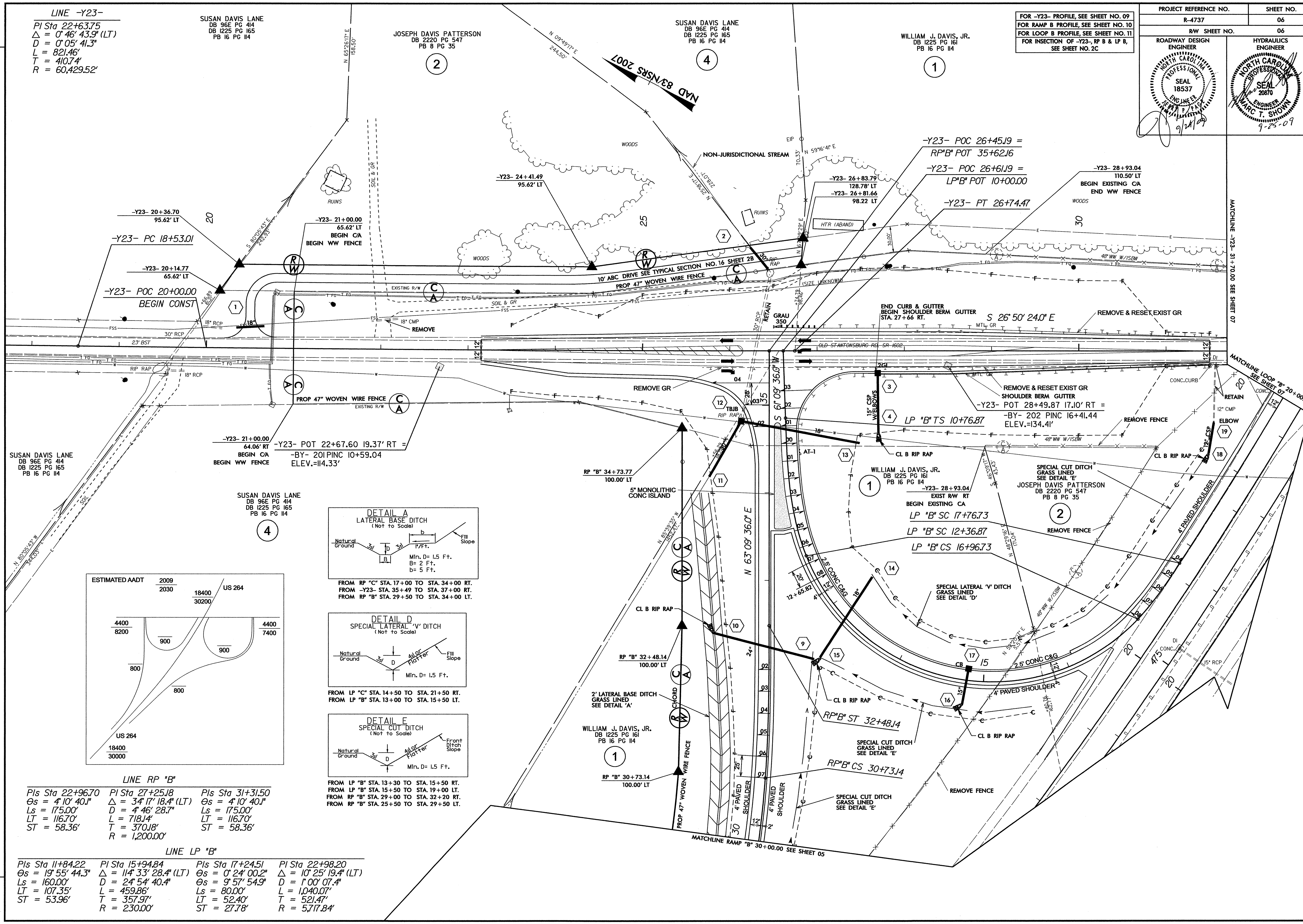
dethridge AT D4D-239218-DIV

HP4500

PROJECT REFERENCE NO.	SHEET NO.
R-4737	06
RW SHEET NO.	06

ROADWAY DESIGN ENGINEER — SEAL 18537
HYDRAULICS ENGINEER — SEAL 20870 MARC T. SHOWN 9-25-09

FOR -Y23- PROFILE, SEE SHEET NO. 09
FOR RAMP B PROFILE, SEE SHEET NO. 10
FOR LOOP B PROFILE, SEE SHEET NO. 11
FOR INSECTION OF -Y23-, RP B & LP B, SEE SHEET NO. 2C



LINE -Y23-
PI Sta 22+63.75
△ = 0° 46' 43.9" (LT)
D = 0° 05' 41.3"
L = 821.46'
T = 410.74'
R = 60,429.52'
SUSAN DAVIS LANE DB 96E PG 414 DB 1225 PG 165 PB 16 PG 114
JOSEPH DAVIS PATTERSON DB 2220 PG 547 PB 8 PG 35
WILLIAM J. DAVIS, JR. DB 1225 PG 161 PB 16 PG 114
NAD 83/NSRS 2007
NON-JURISDICTIONAL STREAM
-Y23- POC 26+45.19 = RP"B" POT 35+62.16
-Y23- POC 26+61.19 = LP"B" POT 10+00.00
-Y23- PT 26+74.47
-Y23- 28+93.04 110.50' LT BEGIN EXISTING C/A END WW FENCE
-Y23- 24+41.49 95.62' LT
-Y23- 26+83.79 128.78' LT
-Y23- 26+81.66 98.22 LT
-Y23- 20+36.70 95.62' LT
-Y23- 21+00.00 65.62' LT BEGIN C/A BEGIN WW FENCE
-Y23- PC 18+53.01
-Y23- 20+14.77 65.62' LT
-Y23- POC 20+00.00 BEGIN CONST
10' ABC DRIVE SEE TYPICAL SECTION NO. 16 SHEET 2B
PROP 47" WOVEN WIRE FENCE
EXISTING R/W
18" CMP REMOVE
OLD STANTONSBURG RD. SR 1602
S 26° 50' 24.0" E
END CURB & GUTTER BEGIN SHOULDER BERM GUTTER STA. 27+66 RT.
REMOVE & RESET EXIST GR
REMOVE GR
REMOVE & RESET EXIST GR SHOULDER BERM GUTTER
-Y23- POT 28+49.87 17.10' RT = -BY- 202 PINC 16+41.44 ELEV.=134.41'
MATCHLINE -Y23- 31+70.00 SEE SHEET 07
MATCHLINE LOOP "B" 20+00.00 SEE SHEET 07
RETAIN
12" CMP
ELBOW
CL B RIP RAP
REMOVE FENCE
LP "B" TS 10+76.87
LP "B" SC 17+76.73
LP "B" SC 12+36.87
LP "B" CS 16+96.73
-Y23- 28+93.04 EXIST RW RT BEGIN EXISTING CA
SPECIAL CUT DITCH GRASS LINED SEE DETAIL 'E'
SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 'D'
-Y23- 21+00.00 64.06' RT BEGIN C/A BEGIN WW FENCE
-Y23- POT 22+67.60 19.37' RT = -BY- 201 PINC 10+59.04 ELEV.=114.33'
PROP 47" WOVEN WIRE FENCE
RP "B" 34+73.77 100.00' LT
5" MONOLITHIC CONC ISLAND
N 63° 09' 36.0" E
S 61° 09' 36.0" W
2.5' CONC C&G
4' PAVED SHOULDER
RP "B" 32+48.14 100.00' LT
RP"B" ST 32+48.14
RP"B" CS 30+73.14
RP "B" 30+73.14 100.00' LT
2' LATERAL BASE DITCH GRASS LINED SEE DETAIL 'A'
MATCHLINE RAMP "B" 30+00.00 SEE SHEET 05
REVISIONS
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ESTIMATED AADT 2009 / 2030

- US 264: 18400 / 30200
- 4400 / 8200
- 4400 / 7400
- 900
- 900
- 800
- 800
- US 264: 18400 / 30000

DETAIL A LATERAL BASE DITCH (Not to Scale)

Natural Ground, 3d, D, B, b, 1"/Ft., Fill Slope. Min. D= 1.5 Ft. B= 2 Ft. b= 5 Ft.

FROM RP "C" STA. 17+00 TO STA. 34+00 RT.
FROM -Y23- STA. 35+49 TO STA. 37+00 RT.
FROM RP "B" STA. 29+50 TO STA. 34+00 LT.

DETAIL D SPECIAL LATERAL 'V' DITCH (Not to Scale)

Natural Ground, 3d, D, 4d or Flatter, Fill Slope. Min. D= 1.5 Ft.

FROM LP "C" STA. 14+50 TO STA. 21+50 RT.
FROM LP "B" STA. 13+00 TO STA. 15+50 LT.

DETAIL E SPECIAL CUT DITCH (Not to Scale)

Natural Ground, 3d, D, 4d or Flatter, Front Ditch Slope. Min. D= 1.5 Ft.

FROM LP "B" STA. 13+30 TO STA. 15+50 RT.
FROM LP "B" STA. 15+50 TO STA. 19+00 LT.
FROM RP "B" STA. 29+00 TO STA. 32+20 RT.
FROM RP "B" STA. 25+50 TO STA. 29+50 LT.

LINE RP "B"

PIs Sta 22+96.70	PI Sta 27+25.18	PIs Sta 31+31.50
Θs = 4° 10' 40.1"	△ = 34° 17' 18.4" (LT)	Θs = 4° 10' 40.1"
Ls = 175.00'	D = 4° 46' 28.7"	Ls = 175.00'
LT = 116.70'	L = 718.14'	LT = 116.70'
ST = 58.36'	T = 370.18'	ST = 58.36'
	R = 1,200.00'	

LINE LP "B"

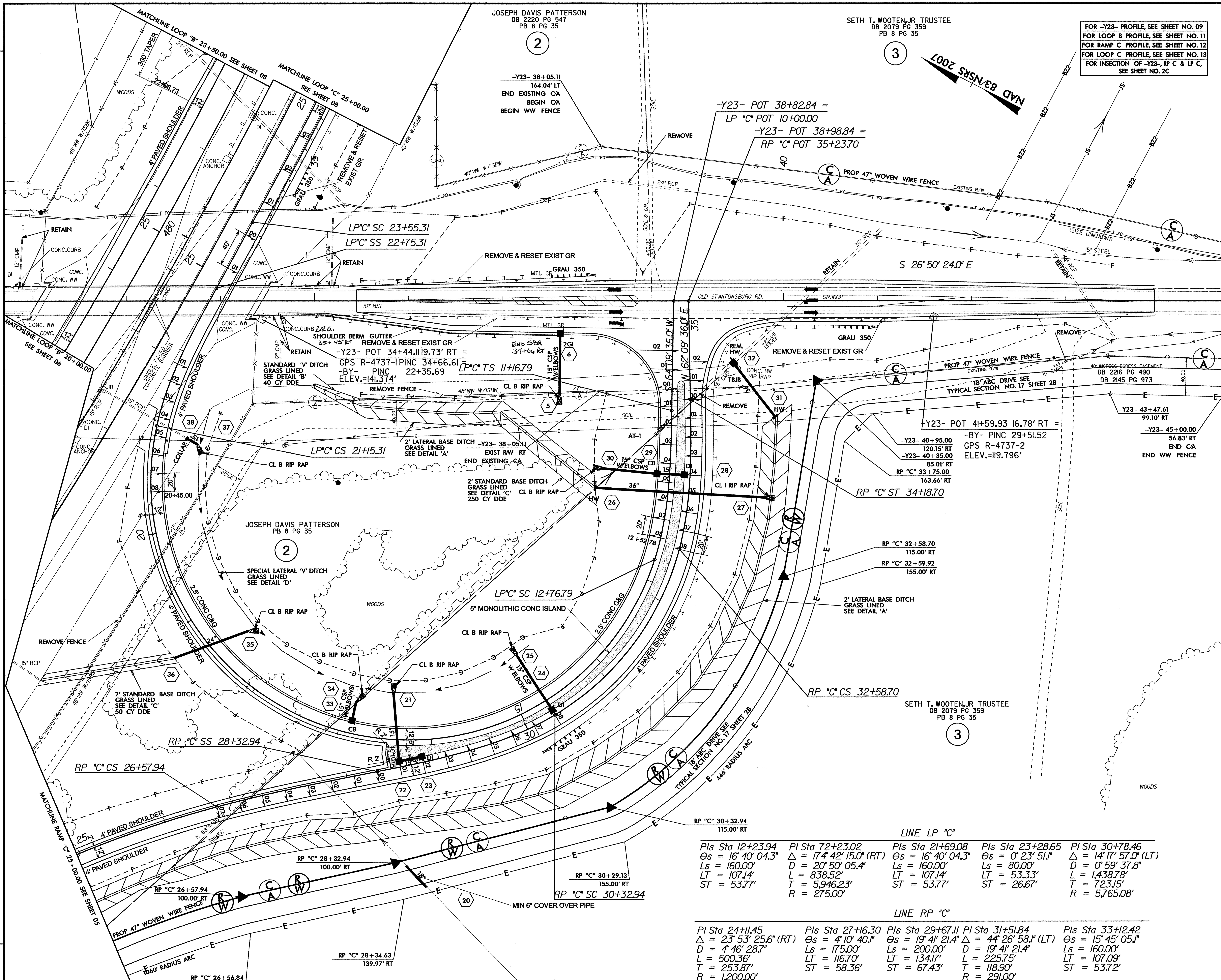
PIs Sta 11+84.22	PI Sta 15+94.84	PIs Sta 17+24.51	PI Sta 22+98.20
Θs = 19° 55' 44.3"	△ = 114° 33' 28.4" (LT)	Θs = 0° 24' 00.2"	△ = 10° 25' 19.4" (LT)
Ls = 160.00'	D = 24° 54' 40.4"	Ls = 80.00'	D = 1° 00' 07.4"
LT = 107.35'	L = 459.86'	LT = 52.40'	L = 1,040.07'
ST = 53.96'	T = 357.97'	ST = 27.78'	T = 521.47'
	R = 230.00'		R = 5,717.84'

PROJECT REFERENCE NO.	SHEET NO.
R-4737	07
RW SHEET NO.	07

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18537

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20870 MARC T. SHOWN 9-25-09

FOR -Y23- PROFILE, SEE SHEET NO. 09
FOR LOOP B PROFILE, SEE SHEET NO. 11
FOR RAMP C PROFILE, SEE SHEET NO. 12
FOR LOOP C PROFILE, SEE SHEET NO. 13
FOR INSECTION OF -Y23-, RP C & LP C, SEE SHEET NO. 2C

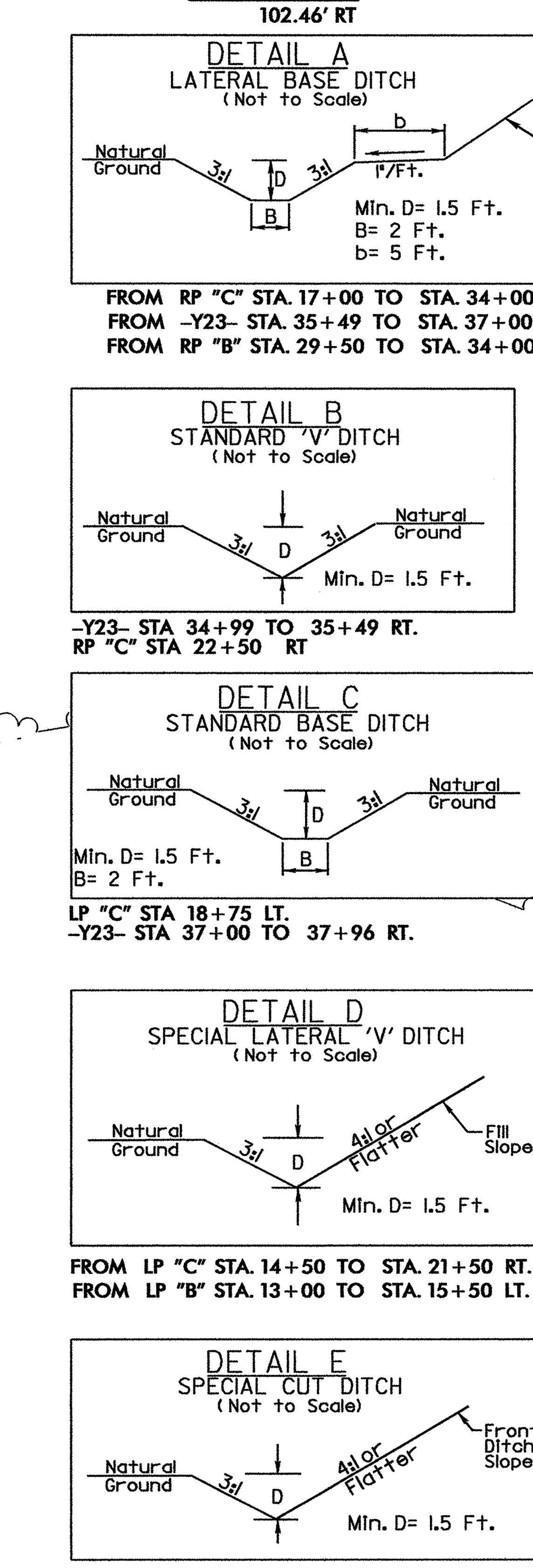


LINE LP "C"

PIs Sta 12+23.94	PI Sta 72+23.02	PIs Sta 21+69.08	PIs Sta 23+28.65	PIs Sta 30+78.46
θs = 16° 40' 04.3"	Δ = 174° 42' 15.0" (RT)	θs = 16° 40' 04.3"	θs = 0° 23' 51.1"	Δ = 14° 17' 57.0" (LT)
Ls = 160.00'	D = 20° 50' 05.4"	Ls = 160.00'	Ls = 80.00'	D = 0° 59' 37.8"
LT = 107.14'	L = 838.52'	LT = 107.14'	LT = 53.33'	L = 1,438.78'
ST = 53.77'	T = 5,946.23'	ST = 53.77'	ST = 26.67'	T = 723.15'
	R = 275.00'			R = 5,765.08'

LINE RP "C"

PI Sta 24+11.45	PIs Sta 27+16.30	PIs Sta 29+67.11	PI Sta 31+51.84	PIs Sta 33+12.42
Δ = 23° 53' 25.6" (RT)	θs = 4° 10' 40.1"	θs = 19° 41' 21.4"	Δ = 44° 26' 58.1" (LT)	θs = 15° 45' 05.1"
D = 4° 46' 28.7"	Ls = 175.00'	Ls = 200.00'	D = 19° 41' 21.4"	Ls = 160.00'
L = 500.36'	LT = 116.70'	LT = 134.17'	L = 225.75'	LT = 107.09'
T = 253.87'	ST = 58.36'	ST = 67.43'	T = 118.90'	ST = 53.72'
R = 1,200.00'			R = 291.00'	



FROM RP "C" STA. 17+00 TO STA. 34+00 RT.
FROM -Y23- STA. 35+49 TO STA. 37+00 RT.
FROM RP "B" STA. 29+50 TO STA. 34+00 LT.

-Y23- STA 34+99 TO 35+49 RT.
RP "C" STA 22+50 RT

LP "C" STA 18+75 LT.
-Y23- STA 37+00 TO 37+96 RT.

FROM LP "C" STA. 14+50 TO STA. 21+50 RT.
FROM LP "B" STA. 13+00 TO STA. 15+50 LT.

FROM LP "B" STA. 13+30 TO STA. 15+50 RT.
FROM LP "B" STA. 15+50 TO STA. 19+00 LT.
FROM RP "B" STA. 29+00 TO STA. 32+20 RT.
FROM RP "B" STA. 25+50 TO STA. 29+50 LT.

REVISIONS

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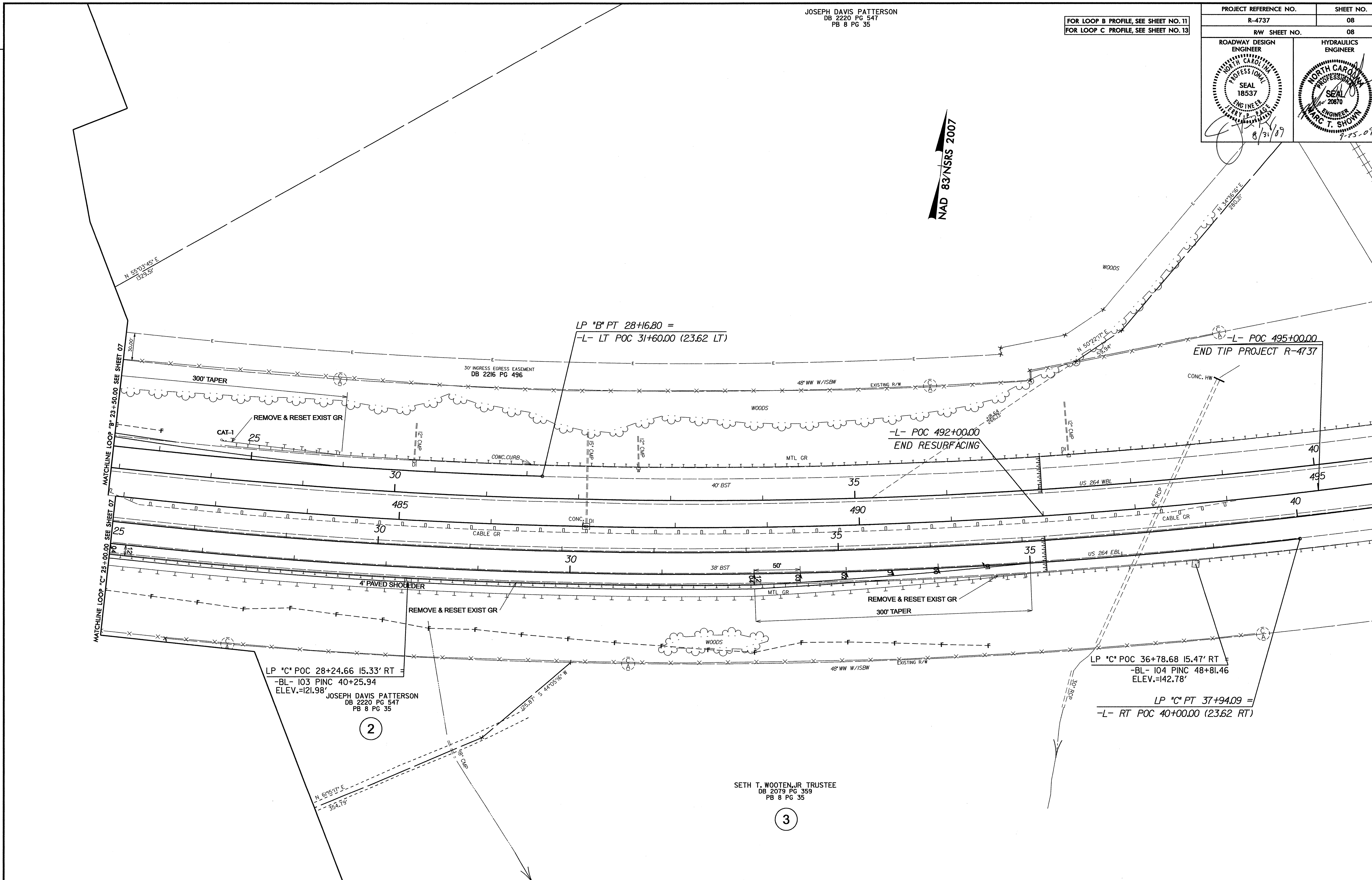
PROJECT REFERENCE NO.	SHEET NO.
R-4737	08
R/W SHEET NO.	08

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18537 JERRY L. PAGE 8/31/09

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20870 MARC T. SHOWN 9-25-09

FOR LOOP B PROFILE, SEE SHEET NO. 11
FOR LOOP C PROFILE, SEE SHEET NO. 13



LINE -L-

PIs Sta 467+10.93	PI Sta 488+90.93
θs = 1° 38' 30.2"	Δ = 39° 46' 05.9" (LT)
Ls = 328.08'	D = 1° 00' 02.8"
LT = 218.73'	L = 3,973.69'
ST = 109.37'	T = 2,070.65'
	R = 5,725.05'

LINE -L- LT

PIs Sta 12+18.73	PI Sta 34+05.20
θs = 1° 38' 13.3"	Δ = 39° 46' 39.6" (LT)
Ls = 328.08'	D = 0° 59' 52.6"
LT = 218.73'	L = 3,986.02'
ST = 109.37'	T = 2,077.11'
	R = 5,741.46'

LINE -L- RT

PIs Sta 12+18.73	PI Sta 34+05.20
θs = 1° 38' 13.3"	Δ = 39° 46' 39.6" (LT)
Ls = 328.08'	D = 0° 59' 52.6"
LT = 218.73'	L = 3,986.02'
ST = 109.37'	T = 2,077.11'
	R = 5,741.46'

REVISIONS

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dethridge AT D4D-239218-DIV

HP4500

HP4500

5/28/99

LINE –Y23–

501 BM #1 ELEVATION = 114.13
N 700980 E 2332514
Y23 STATION 23+57 67 LEFT
RR SPIKE IN CITY OF WILSON POWER POLE

PROJECT REFERENCE NO.	SHEET NO.
R-4737	09
RW SHEET NO.	09

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER TERRY P. PAGE
8/31/09

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 20878 ENGINEER MARC T. SHOWN
7-25-09

–Y23–
PI = 23+15.00
EL = 116.35'
BEGIN GRADE

–Y23–
PI = 24+40.00
EL = 119.50'
VC = 180.00'
K = 100

(+)2.5200% (+)4.3184%

30" RCP

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 30	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21	CFS
DESIGN HW ELEVATION	= 111.87	FT
100 YEAR DISCHARGE	= 25	CFS
100 YEAR HW ELEVATION	= 112.17	FT
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING DISCHARGE	= 35	CFS
OVERTOPPING ELEVATION	= 113	FT

LINE –Y23–

502 BM #2 ELEVATION = 112.28
N 699153 E 2333423
Y23 STATION 43+98 54 LEFT
RR SPIKE IN CITY OF WILSON POWER POLE

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 41	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 28	CFS
DESIGN HW ELEVATION	= 110.28	FT
100 YEAR DISCHARGE	= 34	CFS
100 YEAR HW ELEVATION	= 110.61	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 55	CFS
OVERTOPPING ELEVATION	= 112.81	FT

–Y23–
PI = 33+35.00
EL = 158.15'
VC = 1475.00'
K = 165

(+)4.3184% (–)4.6124%

–Y23– 35+49.00
EL = 111.28'
BEGIN LATERAL
BASE DITCH RIGHT

–Y23– 37+00.00
EL = 110.83'
END LATERAL
BASE DITCH RIGHT

(–)0.3000%

36" RCP

(–)4.6124% (–)11.8235%

–Y23–
PI = 42+25.00
EL = 117.10'
VC = 290.00'
K = 104

–Y23–
PI = 43+95.00
EL = 114.00'
END GRADE

DITCH LEGEND
RIGHT DITCH ----------

REVISIONS

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dehridge AT D4D-239218-DV


PROJECT REFERENCE NO. R-4737
SHEET NO. 10
R/W SHEET NO. 10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER JERRY P. PACE
NORTH CAROLINA PROFESSIONAL SEAL 20870 ENGINEER MARC T. SHOWN
9-25-09
5/28/99
HP4500
REVISIONS
31-AUG-2009 09:18
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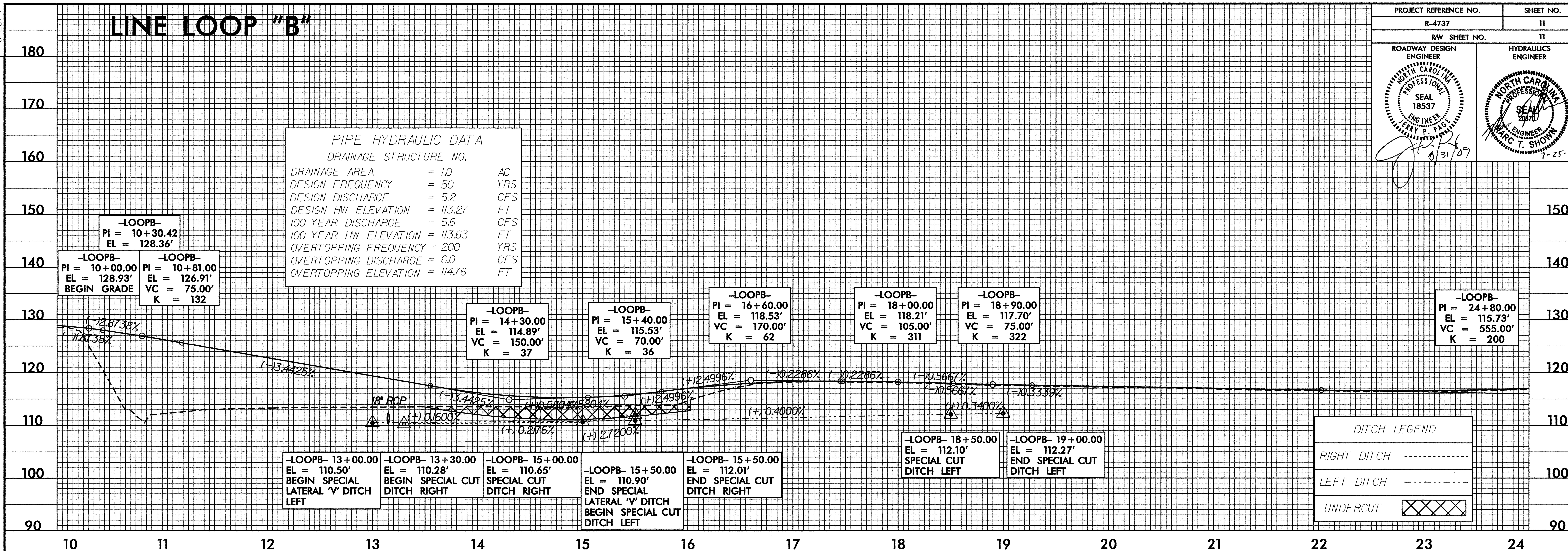
dethridge AT D4D-239218-DIV
LINE RAMP "B"
-RAMPB- PI = 13+00.00 EL = 105.31' BEGIN GRADE
-RAMPB- PI = 22+05.00 EL = 117.95' VC = 250.00' K = 383
-RAMPB- PI = 24+00.00 EL = 119.40' VC = 140.00' K = 119
(+)1.3967%
(+)0.7436%
(+)0.7436%
180 170 160 150 140 130 120 110 100 90
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
LINE RAMP "B"
DITCH LEGEND
RIGHT DITCH
LEFT DITCH
UNDERCUT
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 3.7 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 14 CFS
DESIGN HW ELEVATION = 112.9 FT
100 YEAR DISCHARGE = 15 CFS
100 YEAR HW ELEVATION = 113.1 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 35 CFS
OVERTOPPING ELEVATION = 115.58 FT
-RAMPB- PI = 24+00.00 EL = 119.40' VC = 140.00' K = 119
-RAMPB- PI = 25+20.00 EL = 118.88' VC = 100.00' K = 710
-RAMPB- PI = 31+74.92 EL = 116.96' VC = 600.00' K = 182
-RAMPB- PI = 35+31.71 EL = 127.68'
-RAMPB- PI = 35+62.16 EL = 128.29' END GRADE
(-)0.4333%
(-)0.2925%
(-)0.2000%
(-)0.2925%
(+)3.0034%
(-)0.8937%
(-)0.2000%
(+)3.0034%
(+)2.0034%
24" RCP
-RAMPB- 25+50.00 EL = 111.29' BEGIN SPECIAL CUT DITCH LEFT
-RAMPB- 29+00.00 EL = 113.14' BEGIN SPECIAL CUT DITCH RIGHT
-RAMPB- 29+50.00 EL = 110.49' END SPECIAL CUT DITCH BEGIN LATERAL BASE DITCH LEFT
-RAMPB- 32+20.00 EL = 110.28' END SPECIAL CUT DITCH RIGHT
-RAMPB- 34+00.00 EL = 109.59' END LATERAL BASE DITCH LEFT
180 170 160 150 140 130 120 110 100 90
24 25 26 27 28 29 30 31 32 33 34 35

PROJECT REFERENCE NO.	SHEET NO.
R-4737	11
R/W SHEET NO.	11

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER JERRY P. PAGE — 8/31/09

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 20570 ENGINEER MARC T. SHOWN — 7-25-01



LINE LOOP "B"
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 1.0 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 5.2 CFS
DESIGN HW ELEVATION = 113.27 FT
100 YEAR DISCHARGE = 5.6 CFS
100 YEAR HW ELEVATION = 113.63 FT
OVERTOPPING FREQUENCY = 200 YRS
OVERTOPPING DISCHARGE = 6.0 CFS
OVERTOPPING ELEVATION = 114.76 FT
-LOOPB- PI = 10+30.42 EL = 128.36'
-LOOPB- PI = 10+00.00 EL = 128.93' BEGIN GRADE
-LOOPB- PI = 10+81.00 EL = 126.91' VC = 75.00' K = 132
-LOOPB- PI = 14+30.00 EL = 114.89' VC = 150.00' K = 37
-LOOPB- PI = 15+40.00 EL = 115.53' VC = 70.00' K = 36
-LOOPB- PI = 16+60.00 EL = 118.53' VC = 170.00' K = 62
-LOOPB- PI = 18+00.00 EL = 118.21' VC = 105.00' K = 311
-LOOPB- PI = 18+90.00 EL = 117.70' VC = 75.00' K = 322
-LOOPB- PI = 24+80.00 EL = 115.73' VC = 555.00' K = 200
(-)2.8738%
(-)1.8738%
(-)3.4425%
(-)3.4425%
(+)0.5804%
(+)0.5804%
(+)2.4996%
(+)2.4996%
(-)0.2286%
(-)0.2286%
(-)0.5667%
(-)0.5667%
(-)0.3339%
18" RCP
(+)0.1600%
(+)0.2176%
(+)2.7200%
(+)0.4000%
(+)0.3400%
-LOOPB- 13+00.00 EL = 110.50' BEGIN SPECIAL LATERAL 'V' DITCH LEFT
-LOOPB- 13+30.00 EL = 110.28' BEGIN SPECIAL CUT DITCH RIGHT
-LOOPB- 15+00.00 EL = 110.65' SPECIAL CUT DITCH RIGHT
-LOOPB- 15+50.00 EL = 110.90' END SPECIAL LATERAL 'V' DITCH BEGIN SPECIAL CUT DITCH LEFT
-LOOPB- 15+50.00 EL = 112.01' END SPECIAL CUT DITCH RIGHT
-LOOPB- 18+50.00 EL = 112.10' SPECIAL CUT DITCH LEFT
-LOOPB- 19+00.00 EL = 112.27' END SPECIAL CUT DITCH LEFT
DITCH LEGEND
RIGHT DITCH
LEFT DITCH
UNDERCUT
180
170
160
150
140
130
120
110
100
90
10
11
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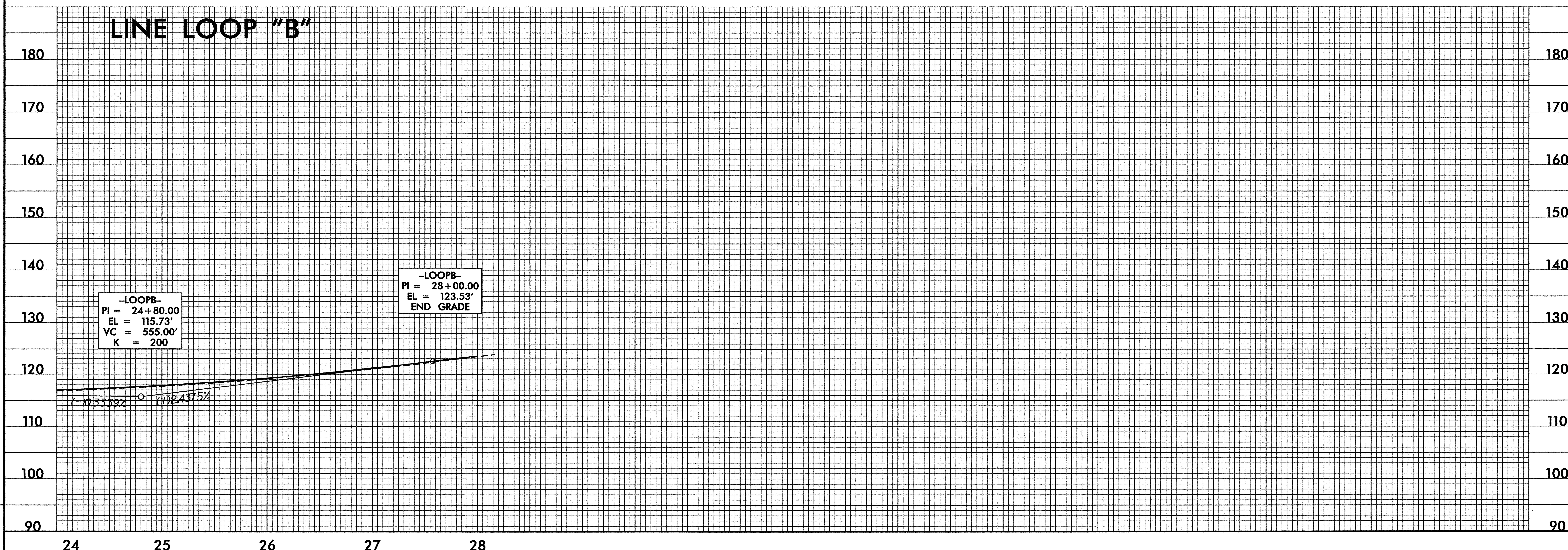

REVISIONS

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HP4500

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-4737	12
R/W SHEET NO.	12

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18537 ENGINEER JERRY P. PASEK

8/31/09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28670 ENGINEER MARC T. SHOWN

9-25-09

LINE RAMP "C"

–RAMPC–
PI = 12+00.00
EL = 116.02'
BEGIN GRADE

–RAMPC–
PI = 19+60.00
EL = 125.60'
VC = 1160.00'
K = 491

(+)1.2605%

(–)1.1021%

(–) 0.3000%

–RAMPC– 17+00.00
EL = 112.92'
BEGIN LATERAL
BASE DITCH RIGHT

DITCH LEGEND

RIGHT DITCH ----------

180 170 160 150 140 130 120 110 100 90

0 11 12 13 14 15 16 17 18 19 20 21 22 23 24

LINE RAMP "C"

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 10.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 41	CFS
DESIGN HW ELEVATION	= 113.7	FT
100 YEAR DISCHARGE	= 44	CFS
100 YEAR HW ELEVATION	= 113.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 80	CFS
OVERTOPPING ELEVATION	= 116.98	FT

–RAMPC–
PI = 28+00.00
EL = 116.34'
VC = 400.00'
K = 127

–RAMPC–
PI = 34+93.07
EL = 130.60'

–RAMPC–
PI = 35+23.70
EL = 131.23'
END GRADE

(–)1.1021%

(+)2.0571%

(+)2.0571%

(+)2.0571%

(–) 0.3000%

36" RCP

–RAMPC– 34+00.00
EL = 107.82'
END LATERAL
BASE DITCH RIGHT

DITCH LEGEND

RIGHT DITCH ----------

UNDERCUT

180 170 160 150 140 130 120 110 100 90

24 25 26 27 28 29 30 31 32 33 34 35

REVISIONS

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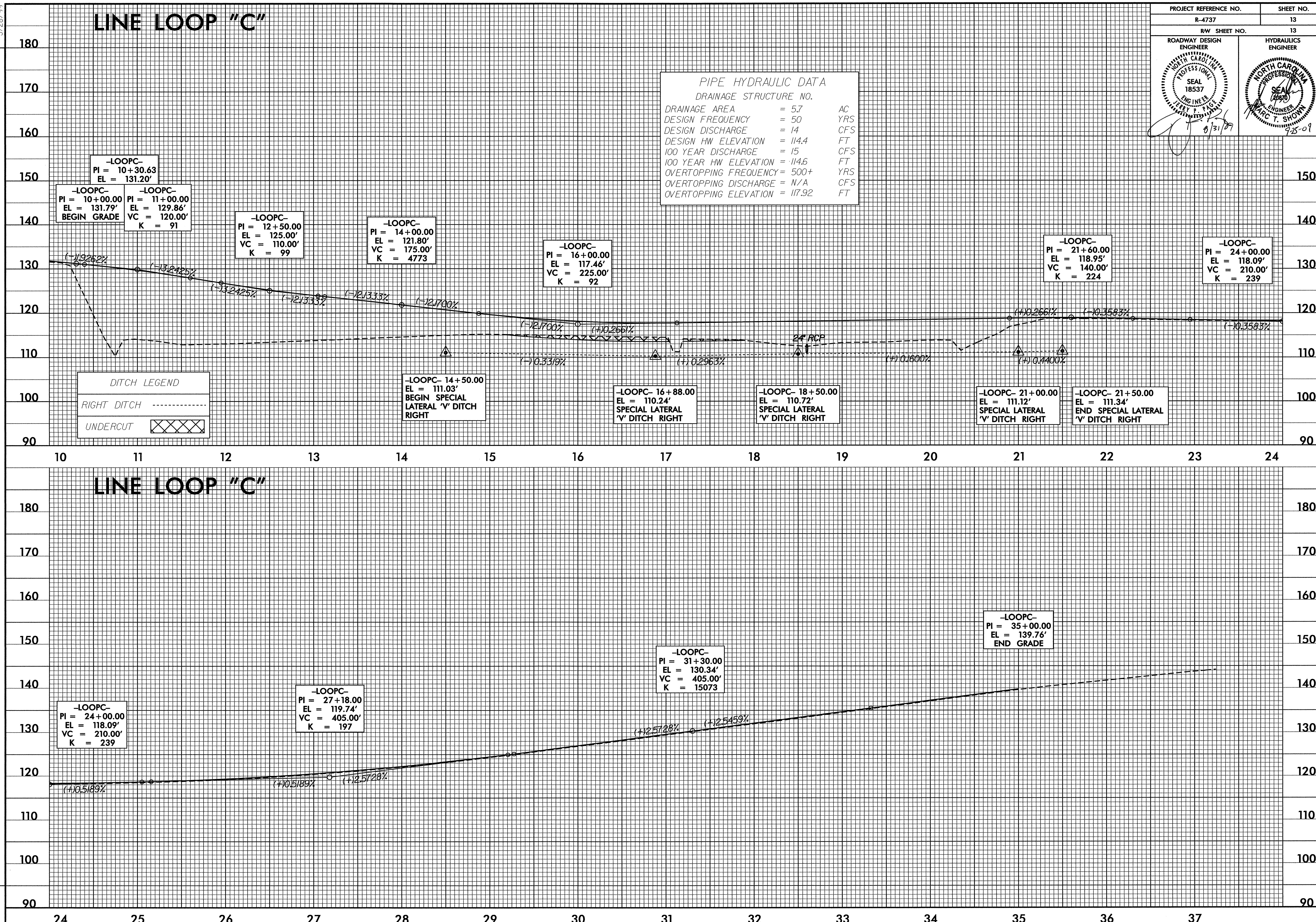
AT D40-239218-DW

PROJECT REFERENCE NO.	SHEET NO.
R-4737	13
R/W SHEET NO.	13

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18537 JERRY P. PAGE — 8/31/09

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL MARC T. SHOWN — 9-25-09

LINE LOOP "C"



LINE LOOP "C"
-LOOPC- PI = 10+30.63 EL = 131.20'
-LOOPC- PI = 10+00.00 EL = 131.79' BEGIN GRADE
-LOOPC- PI = 11+00.00 EL = 129.86' VC = 120.00' K = 91
-LOOPC- PI = 12+50.00 EL = 125.00' VC = 110.00' K = 99
-LOOPC- PI = 14+00.00 EL = 121.80' VC = 175.00' K = 4773
-LOOPC- PI = 16+00.00 EL = 117.46' VC = 225.00' K = 92
-LOOPC- PI = 21+60.00 EL = 118.95' VC = 140.00' K = 224
-LOOPC- PI = 24+00.00 EL = 118.09' VC = 210.00' K = 239
(-)1.9262%
(-)3.2425%
(-)3.2425%
(-)2.1333%
(-)2.1333%
(-)2.1700%
(-)2.1700%
(+)0.2661%
(+)0.2661%
(-)0.3583%
(-)0.3583%
(-)0.3319%
(+) 0.2963%
(+) 0.1600%
(+) 0.4400%
24" RCP
DITCH LEGEND
RIGHT DITCH
UNDERCUT
-LOOPC- 14+50.00 EL = 111.03' BEGIN SPECIAL LATERAL 'V' DITCH RIGHT
-LOOPC- 16+88.00 EL = 110.24' SPECIAL LATERAL 'V' DITCH RIGHT
-LOOPC- 18+50.00 EL = 110.72' SPECIAL LATERAL 'V' DITCH RIGHT
-LOOPC- 21+00.00 EL = 111.12' SPECIAL LATERAL 'V' DITCH RIGHT
-LOOPC- 21+50.00 EL = 111.34' END SPECIAL LATERAL 'V' DITCH RIGHT
180 170 160 150 140 130 120 110 100 90
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
LINE LOOP "C"
-LOOPC- PI = 24+00.00 EL = 118.09' VC = 210.00' K = 239
-LOOPC- PI = 27+18.00 EL = 119.74' VC = 405.00' K = 197
-LOOPC- PI = 31+30.00 EL = 130.34' VC = 405.00' K = 15073
-LOOPC- PI = 35+00.00 EL = 139.76' END GRADE
(+)0.5189%
(+)0.5189%
(+)2.5728%
(+)2.5728%
(+)2.5459%
24 25 26 27 28 29 30 31 32 33 34 35 36 37
REVISIONS

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 5.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14	CFS
DESIGN HW ELEVATION	= 114.4	FT
100 YEAR DISCHARGE	= 15	CFS
100 YEAR HW ELEVATION	= 114.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 117.92	FT

HP4500
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