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09/08/99

TIP PROJECT: W-5601EC

CONTRACT: 50138.3.131

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

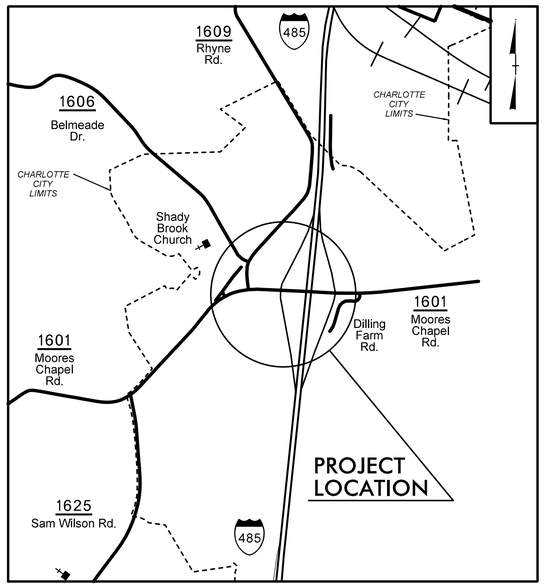
MECKLENBURG COUNTY

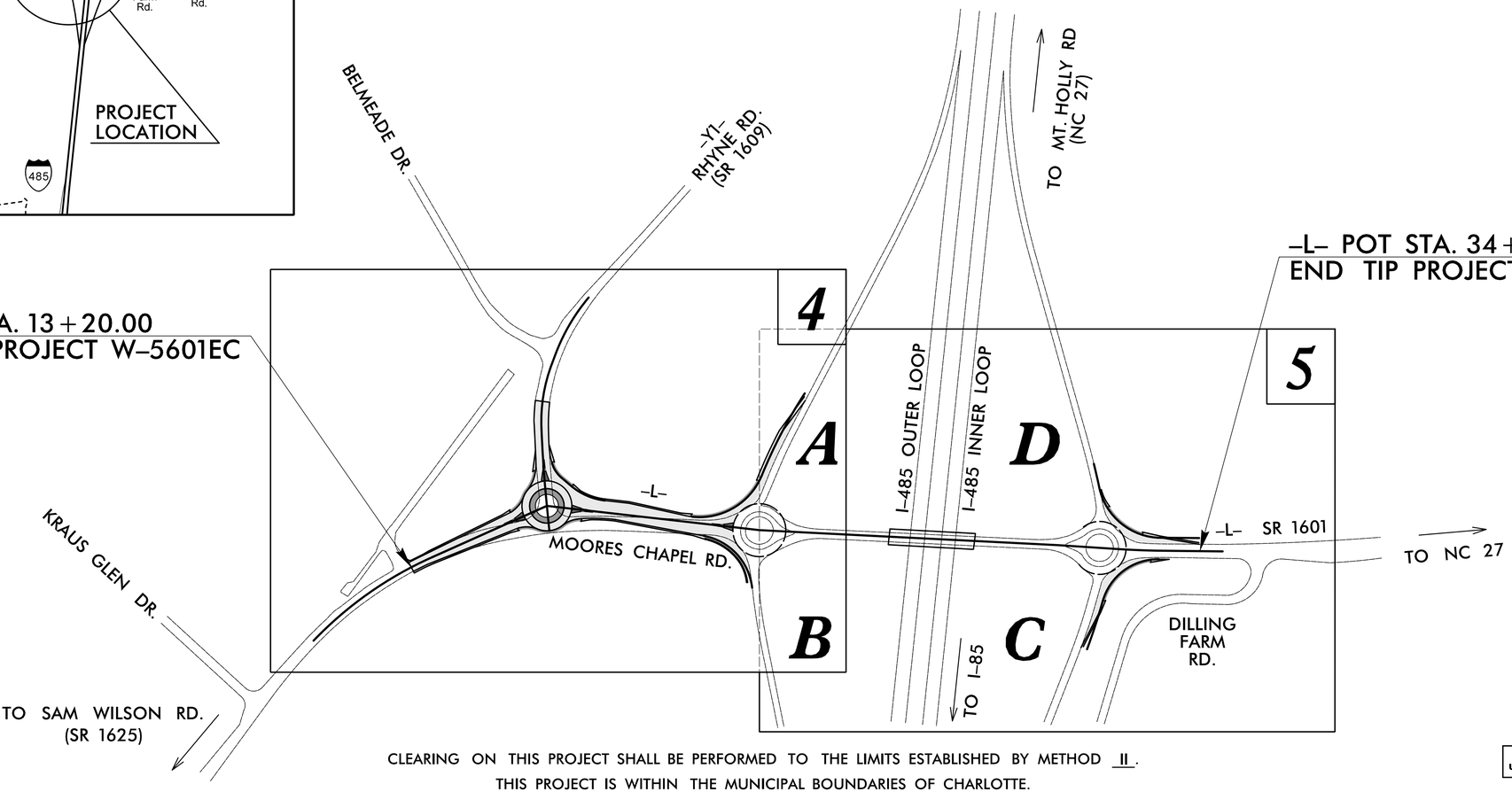
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601EC	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50138.1.131	HSIP-1601(003)	P.E.
50138.2.131	HSIP-1601(003)	R/W, UTIL.
50138.3.131	HSIP-1601(003)	CONST.

LOCATION: MOORES CHAPEL RD. AND RHYNE RD. ROUNDABOUT

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CONCRETE ISLANDS & THERMOPLASTIC PAVEMENT MARKINGS





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

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF CHARLOTTE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012 = 5,800
ADT 2026 = 7,650
V = 40 MPH

FUNC CLASS = MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT W-5601EC	=	*0.397 mile*
TOTAL LENGTH TIP PROJECT W-5601EC	=	*0.397 mile*

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610
By:

TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603

PH (919) 773-8887
CORP. LICENSE NO.: C-0275

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 16, 2016

LETTING DATE:
AUGUST 16, 2017

BURKE EVANS, PE
PROJECT ENGINEER

TRAVIS COOK, EI
PROJECT DESIGN ENGINEER

RANDY BOWERS
PROJECT ENGINEER
NCDOT DIVISION 10

HYDRAULICS ENGINEER

DocuSigned by: David Petty
P.E.
SIGNATURE: 7/17/2017

NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY

ROADWAY DESIGN ENGINEER

DocuSigned by: David Burke Evans
P.E.
SIGNATURE: 7/17/2017

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	1A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

7/17/2017

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1 thru 2A-3	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2B-1 thru 2B-4	PAVEMENT REMOVAL AREAS, ALIGNMENT DATA SHEETS, LOCATION OF BARRICADES
2C-1	DETAIL OF GUARDRAIL PLACEMENT
3B-1	SUMMARY OF EARTHWORK, PAVEMENT REMOVAL SUMMARY, SHOULDER BERM GUTTER SUMMARY, AND GUARDRAIL SUMMARY
3D-1	SUMMARY OF DRAINAGE
4 thru 5	PLAN SHEETS
6 thru 7	PROFILE SHEETS
PMP-1 thru PMP-3	PAVEMENT MARKING PLANS
EC-1 thru EC-7	EROSION CONTROL PLANS
X-0	CROSS SECTION EARTHWORK VOLUME SUMMARY
X-1 thru X-10	CROSS SECTIONS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

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.

CLEARING:

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

SUPERELEVATION:

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

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.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

GAS: PIEDMONT NATURAL GAS
TELEPHONE: AT&T
WATER & SEWER: CHARLOTTE WATER
TELECOMMUNICATIONS: LEVEL-3 COMMUNICATIONS

STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-17-2012
REV. 02-29-2016

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

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
840.18	Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' – 12" thru 36" Pipe
840.27	Brick Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' – 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box – 12" thru 66" Pipe
840.32	Brick Junction Box – 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
852.01	Concrete Islands
852.02	Concrete Mountable Median – for Use with Rigid or Flexible Pavement
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Beg. March 2013 Letting use detail in lieu of Standard)
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

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
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

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 R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) — W
- U/G Water Line LOS C (S.U.E.*) — W
- U/G Water Line LOS D (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (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
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

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

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	1C-1
Location and Surveys	

SURVEY CONTROL SHEET W-5601EC

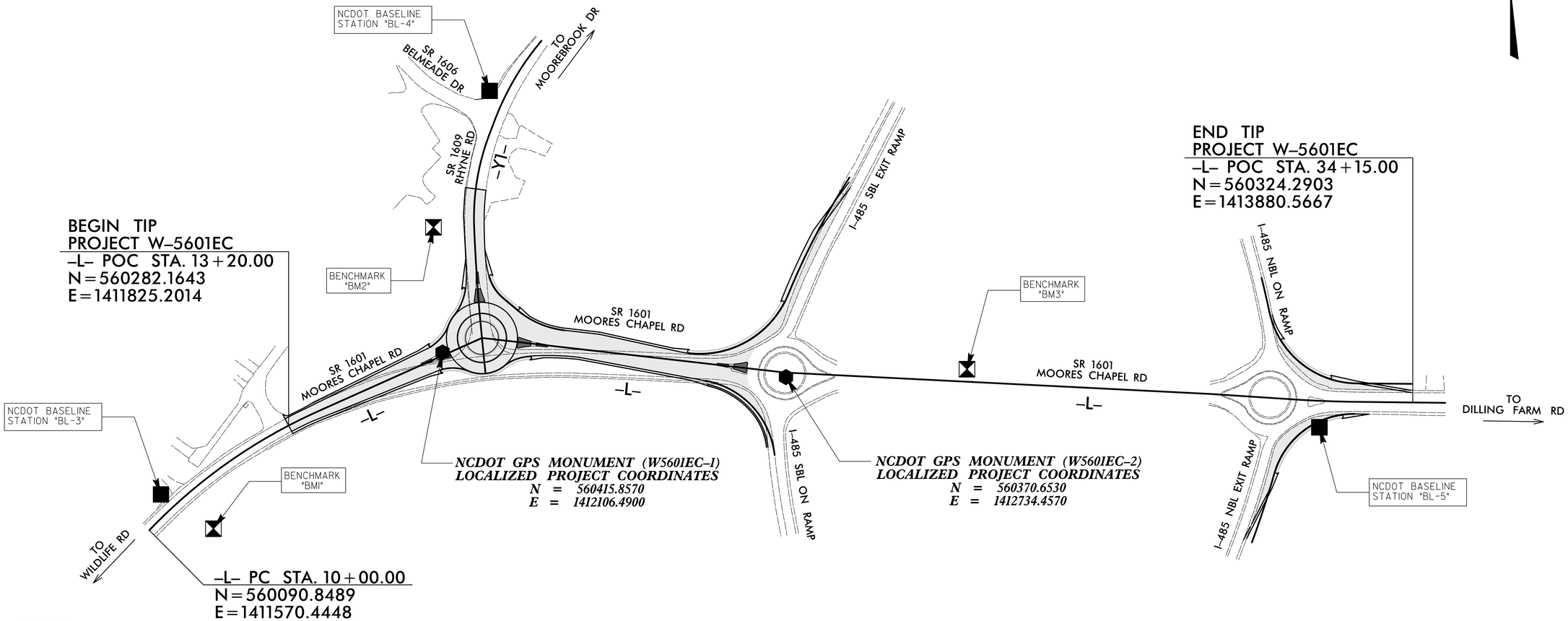
BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	560156.2856	1411591.5299	756.74	10+59.93	31.94 LT
1	W5601EC-1	560415.8570	1412106.4900	756.08	16+31.40	5.33 LT
2	W5601EC-2	560370.6530	1412734.4570	752.47	22+67.90	8.20 RT
5	BL-5	560278.7565	1413709.6125	736.10	32+46.05	48.54 RT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
4	BL-4	560893.4503	1412192.5129	762.14	11+25.54	29.86 RT
1	W5601EC-1	560415.8570	1412106.4900	756.08	15+92.31	74.35 RT

NC GRID
NAD 83 NA 2011



BEGIN TIP
PROJECT W-5601EC
-L- POC STA. 13+20.00
N=560282.1643
E=1411825.2014

NCDOT GPS MONUMENT (W5601EC-1)
LOCALIZED PROJECT COORDINATES
N = 560415.8570
E = 1412106.4900

NCDOT GPS MONUMENT (W5601EC-2)
LOCALIZED PROJECT COORDINATES
N = 560370.6530
E = 1412734.4570

END TIP
PROJECT W-5601EC
-L- POC STA. 34+15.00
N=560324.2903
E=1413880.5667

-L- PC STA. 10+00.00
N=560090.8489
E=1411570.4448

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   W5601EC_ls_baseline_160420.txt

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

⬢ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

```
****************************************
BM1       ELEVATION = 750.97
N 560094      E 1411688
L STATION 10+90.00 79 RIGHT
RR SPIKE IN 28" RED OAK
****************************************
****************************************
BM2       ELEVATION = 763.04
N 560644      E 1412090
Y1 STATION 13+68.00 74 RIGHT
RR SPIKE IN 46" OAK
****************************************
****************************************
BM3       ELEVATION = 745.18
N 560385      E 1413066
L STATION 25+98.00 23 LEFT
1-1/2" BOLT IN NW WINGWALL OF BRIDGE
****************************************
```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "W5601EC-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 560370.653(ft) EASTING: 1412734.457(ft) ELEVATION: 752.47(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984141
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "W5601EC-2" TO -L- STATION IS S 76°29'01.4" W 1197.17 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

6/20/2017
x:\ncdot\w-5601ec\roadway\proj\W-5601EC_ls_psh_01C-1.dgn
User:Bevans

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
SEAL 019724 NORTH CAROLINA PROFESSIONAL ENGINEER DAVID BURKE EVANS 7/17/2017	PAVEMENT DESIGN PROVIDED BY NCDOT

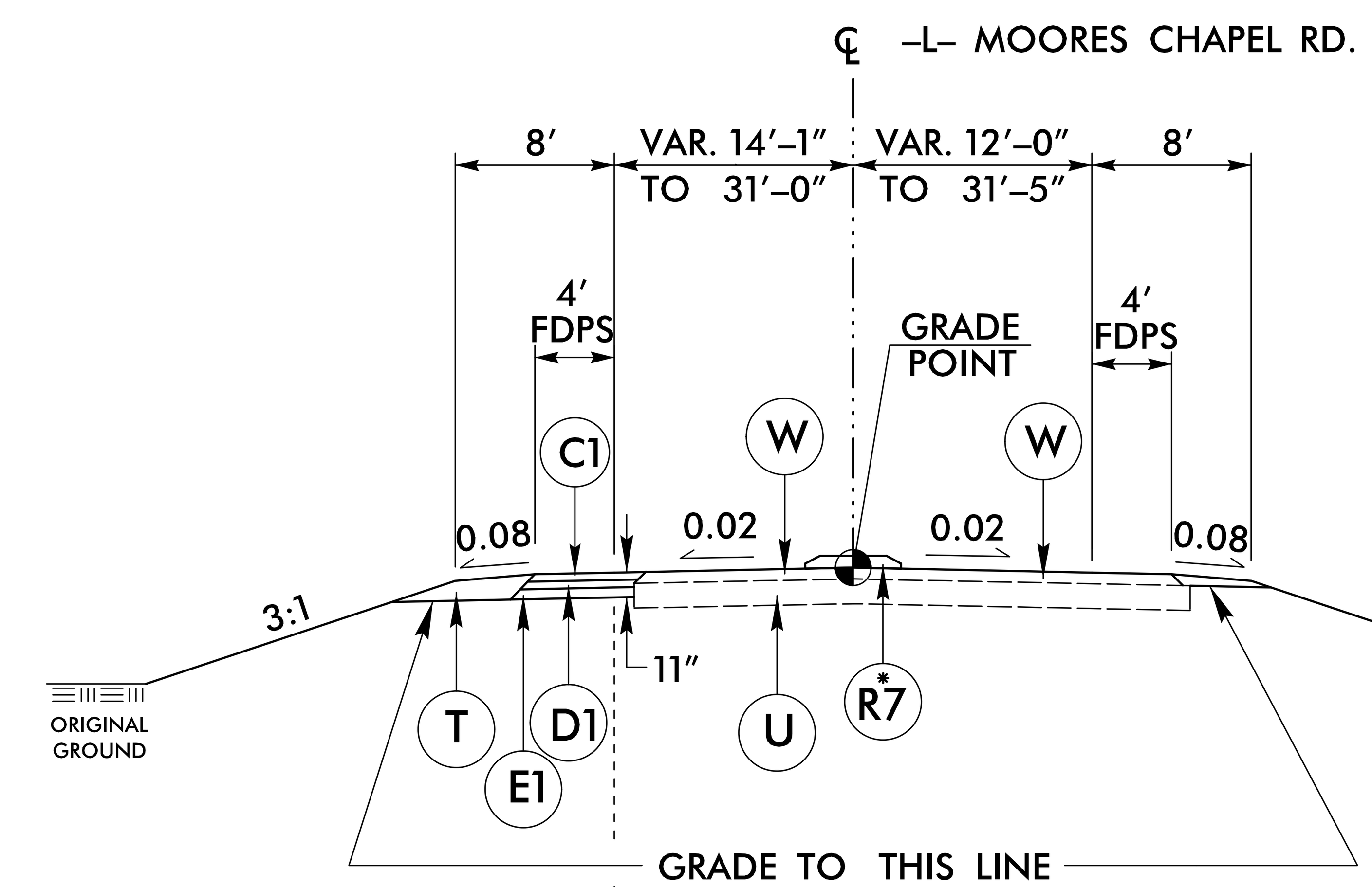
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.	R5	7" TRUCK MOUNTABLE CONC. ISLAND, CLASS AA CONCRETE
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.	E2	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	R6	7" TRUCK MOUNTABLE CONC. ISLAND W/ BLACK TINT, CLASS AA CONCRETE
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2" IN DEPTH.	E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.	R7	5" MONOLITHIC CONCRETE ISLAND
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.	R1	2'-6" CONCRETE CURB & GUTTER	T	EARTH MATERIAL
D2	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YARD.	R2	1'-6" CONCRETE CURB & GUTTER, CLASS AA CONCRETE	U	EXISTING PAVEMENT
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R3	1'-6" CONCRETE CURB & GUTTER W/ BLACK TINT, CLASS AA CONCRETE	V	INCIDENTAL MILLING
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.		R4	CONC. SHOULDER BERM GUTTER	W	WEDGING (VARIABLE DEPTH ASPHALT PAVEMENT, SEE DETAIL ON THIS SHEET)



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1:

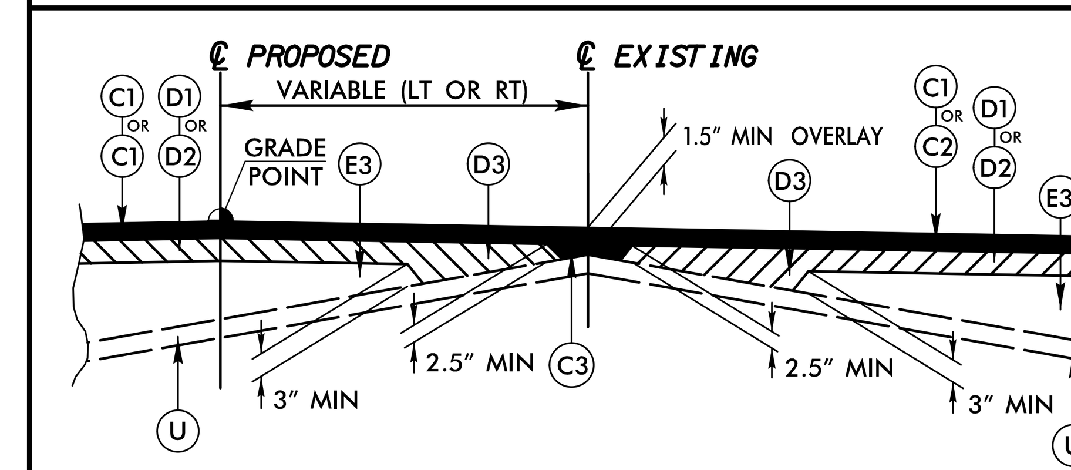
FROM -L- STA. 13+60.68 TO 16+43.03
FROM -L- STA. 17+73.03 TO 20+40.00

INCIDENTAL MILLING (AS DIRECTED BY THE ENGINEER):

FROM -L- STA. 13+20.00 TO 14+15.00

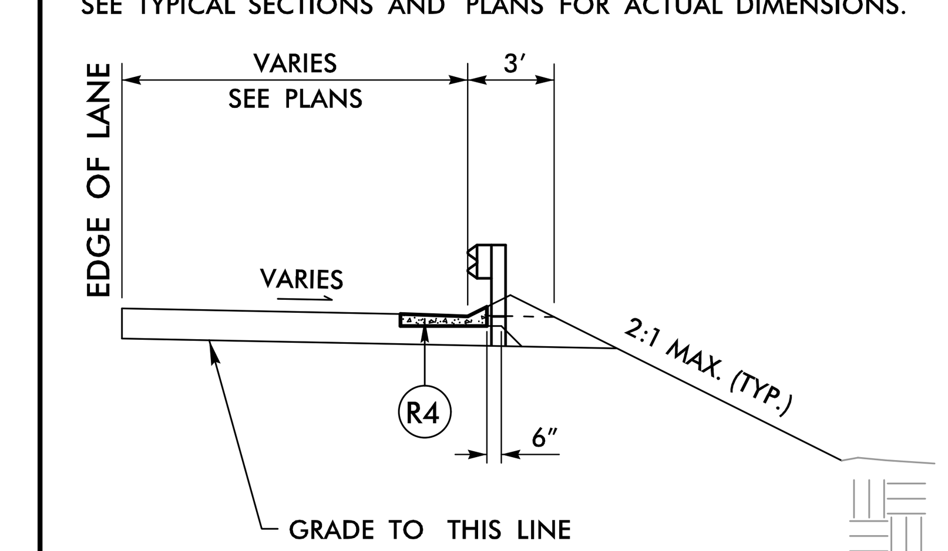
RESURFACE WITH (C2) FROM 13+20.00 TO 13+60.68

* SEE PLANS FOR WIDTH AND LOCATIONS OF MONO. CONC. ISLANDS



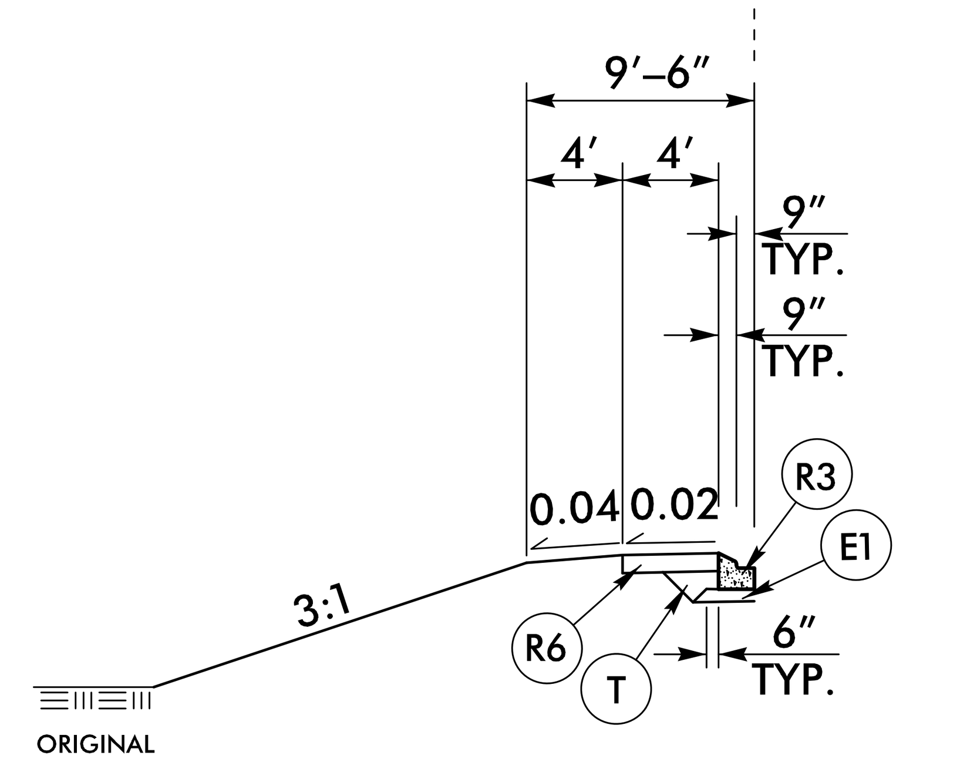
DETAIL FOR SHOULDER BERM GUTTER

SEE CORRESPONDING TYPICAL SECTION FOR PAVEMENT DESIGN.
SEE TYPICAL SECTIONS AND PLANS FOR ACTUAL DIMENSIONS.



LINE	STATIONS
-RAMPBBYP-	10+04.31 to 11+82.04 RT

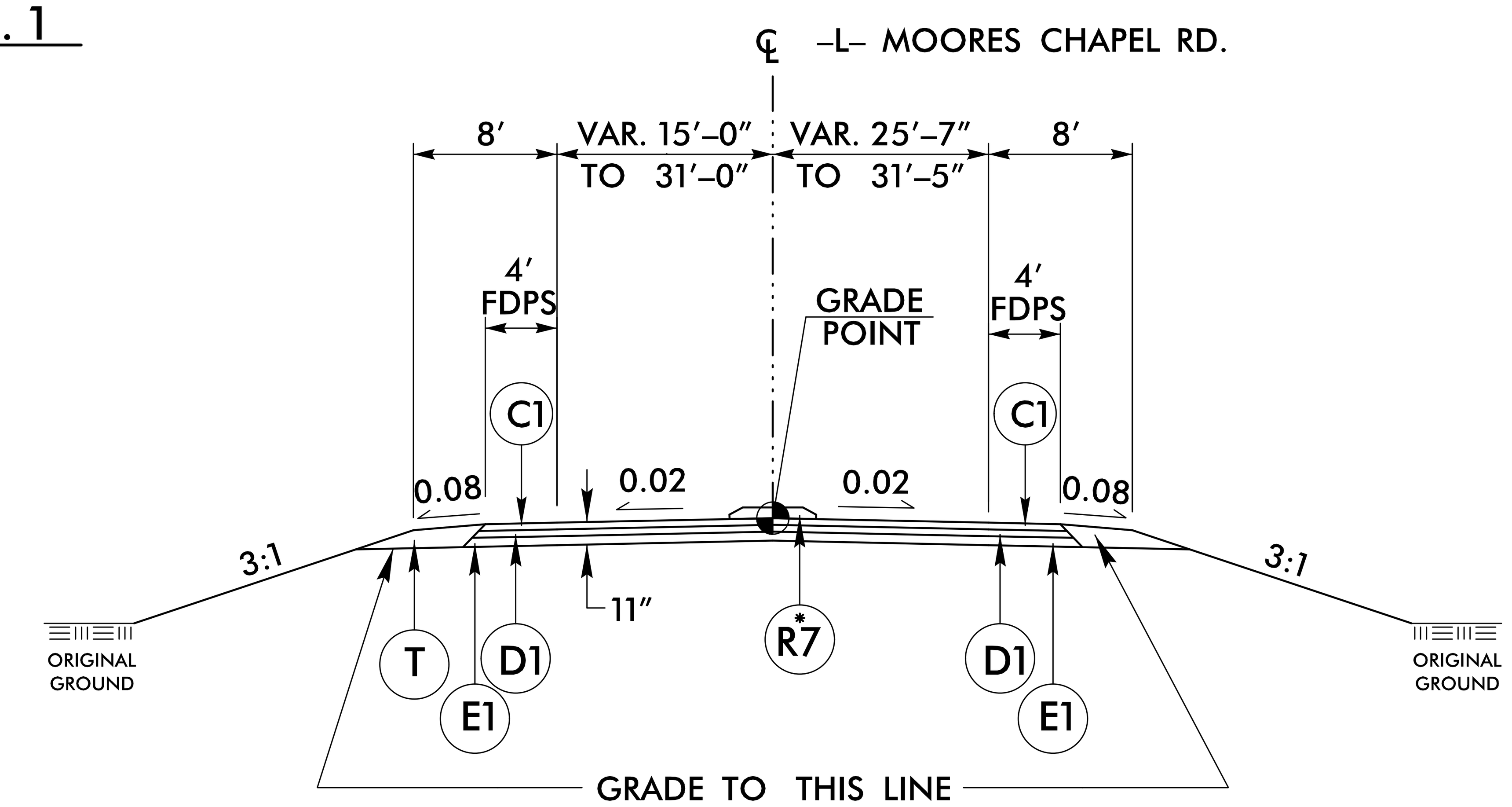
PROP. EOP



TYPICAL SECTION NO. 1A

USE TYPICAL SECTION NO. 1A IN CONJUNCTION WITH TYPICAL SECTIONS 1 & 2:

FROM -L- STA. 16+16.32 (LT) TO -Y1- 14+81.50 (RT)
FROM -L- STA. 16+16.56 (RT) TO 17+99.74 (RT)
FROM -Y1BYP- STA. 10+96.62 (RT) TO 11+76.71 (RT)

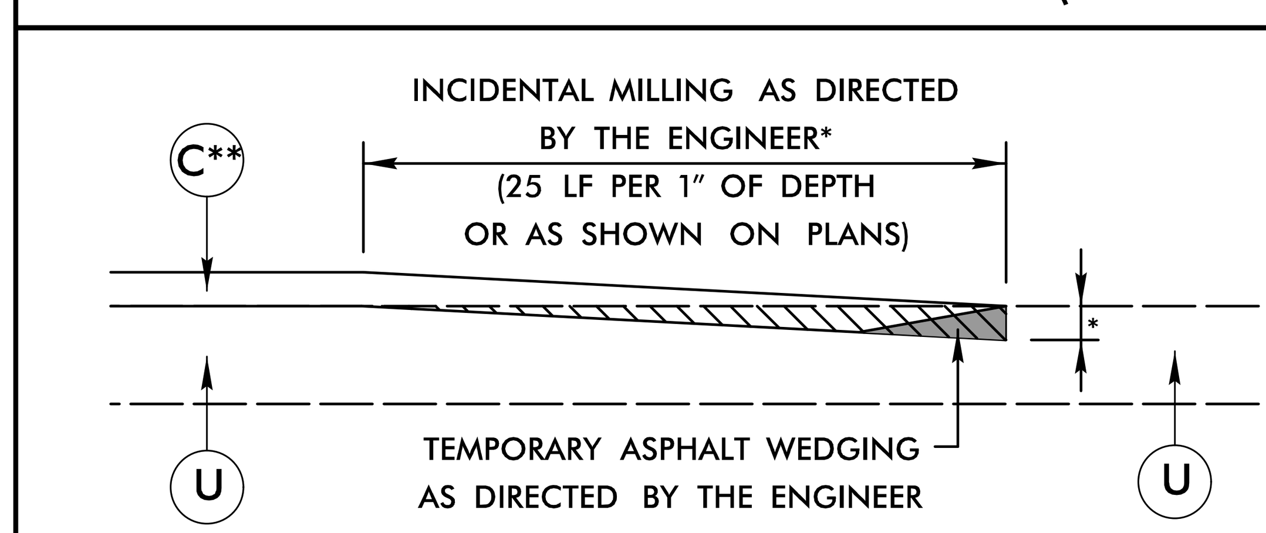


TYPICAL SECTION NO. 1B

USE TYPICAL SECTION NO. 1B

FROM -L- STA. 20+40.00 TO 22+00.00

MILLED BUTT JOINT TIE-IN DETAIL (PROFILE)



* MILL DEPTH AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER

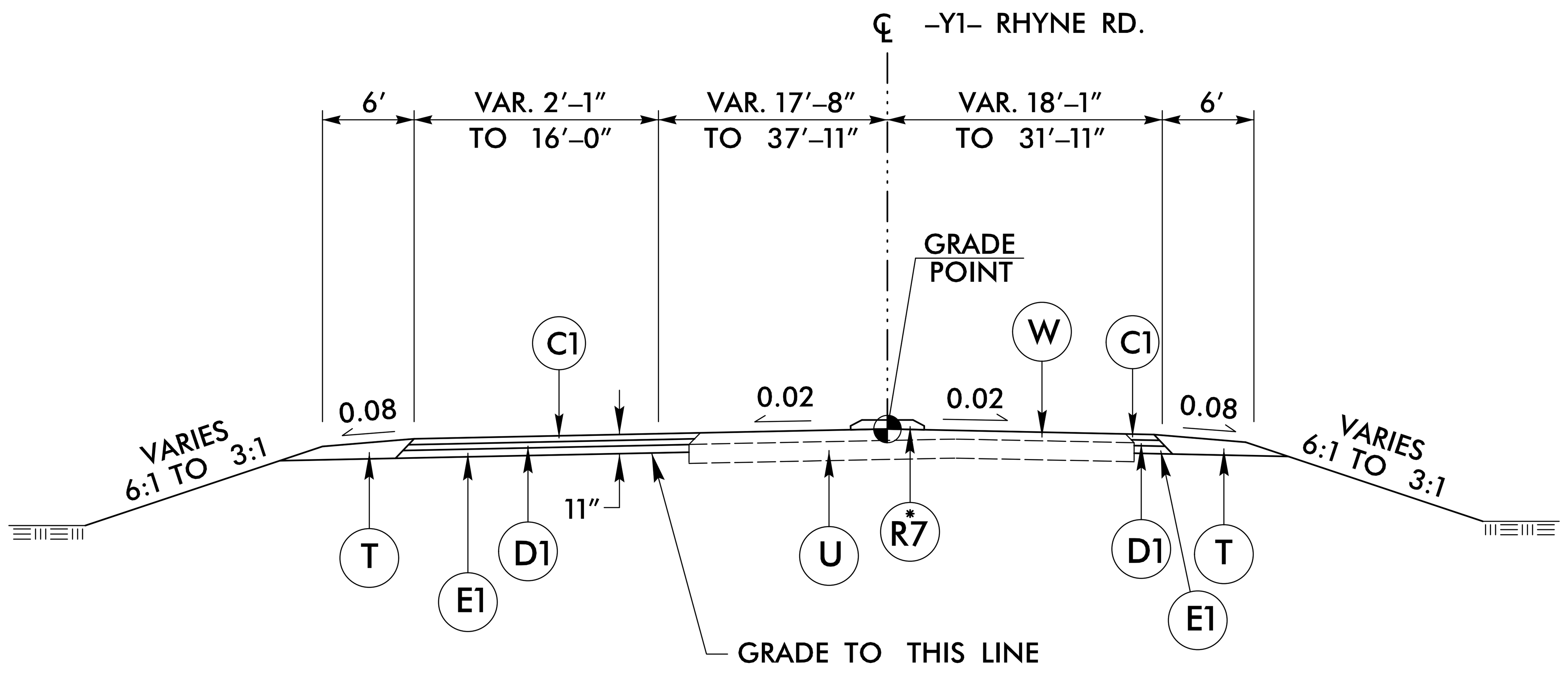
** SEE TYPICALS FOR MIX TYPE

6/20/2017
...t\w-5601ec\roadway\proj\W-5601EC_Rdy_typ.dgn
Userhaviano

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
SEAL 019724 NORTH CAROLINA PROFESSIONAL ENGINEER DAVID BURKE EVANS 7/17/2017	PAVEMENT DESIGN PROVIDED BY NCDOT

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 2

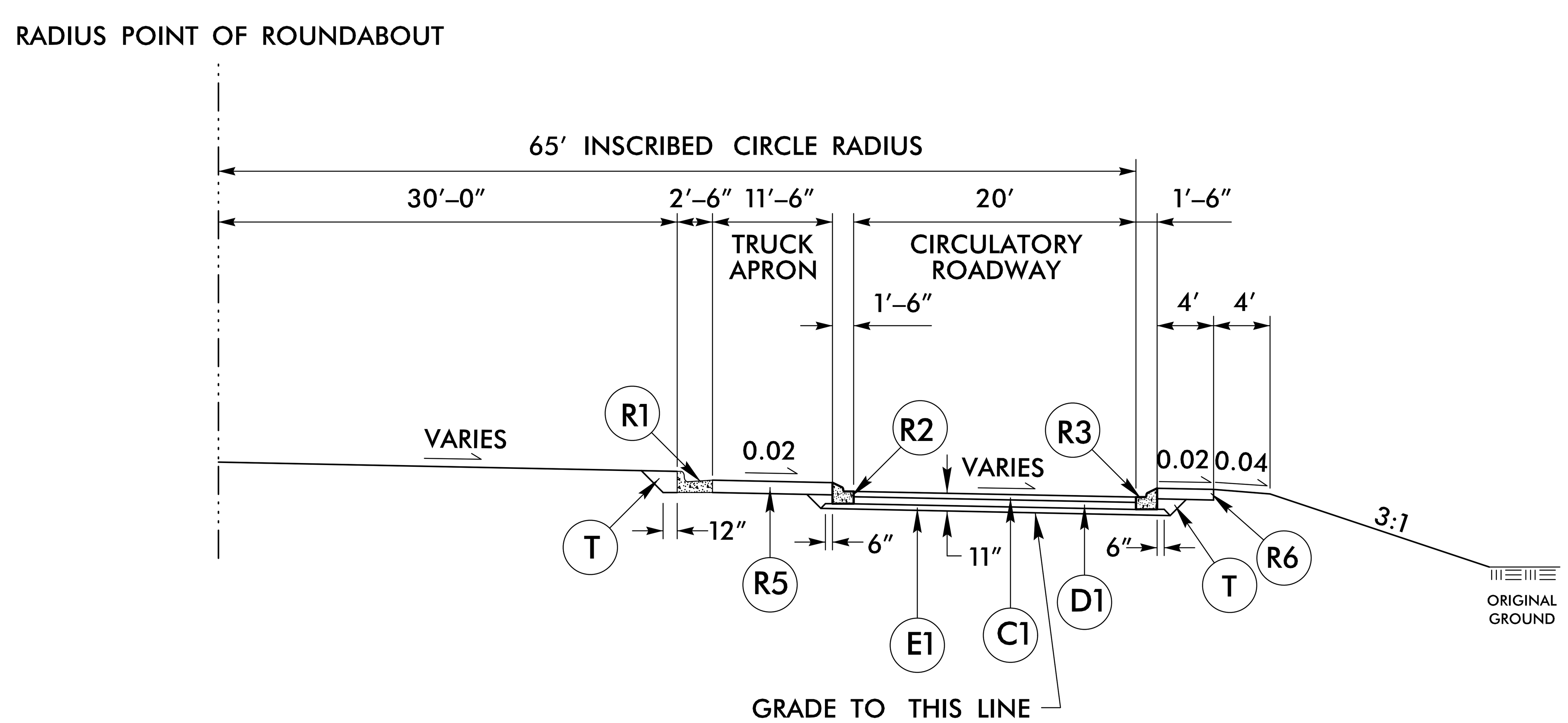
USE TYPICAL SECTION NO. 2:

FROM -Y1- STA. 13+00.00 TO 15+08.10

INCIDENTAL MILLING (AS DIRECTED BY THE ENGINEER):

FROM -Y1- STA. 13+00.00 TO 13+25.00

* SEE PLANS FOR WIDTH AND LOCATIONS OF MONO. CONC. ISLANDS



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:

ROUNDABOUT

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	3" S9.5C
C2	1.5" S9.5C
C3	VAR. S9.5C
D1	4" I19.0C
D2	2.5" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	11" B25.0C
E3	VAR. B25.0C
R1	2'-6" C & G
R2	1'-6" C & G
R3	1'-6" C & G W/ BLACK TINT
R4	CONC. SBG
R5	7" CONC. ISLAND
R6	7" CONC. ISLAND W/ BLACK TINT
R7	5" MONO. CONC. ISLAND
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	INC. MILLING
W	WEDGING
PAVEMENT EDGE SLOPES 1:1 UNLESS NOTED OTHERWISE	

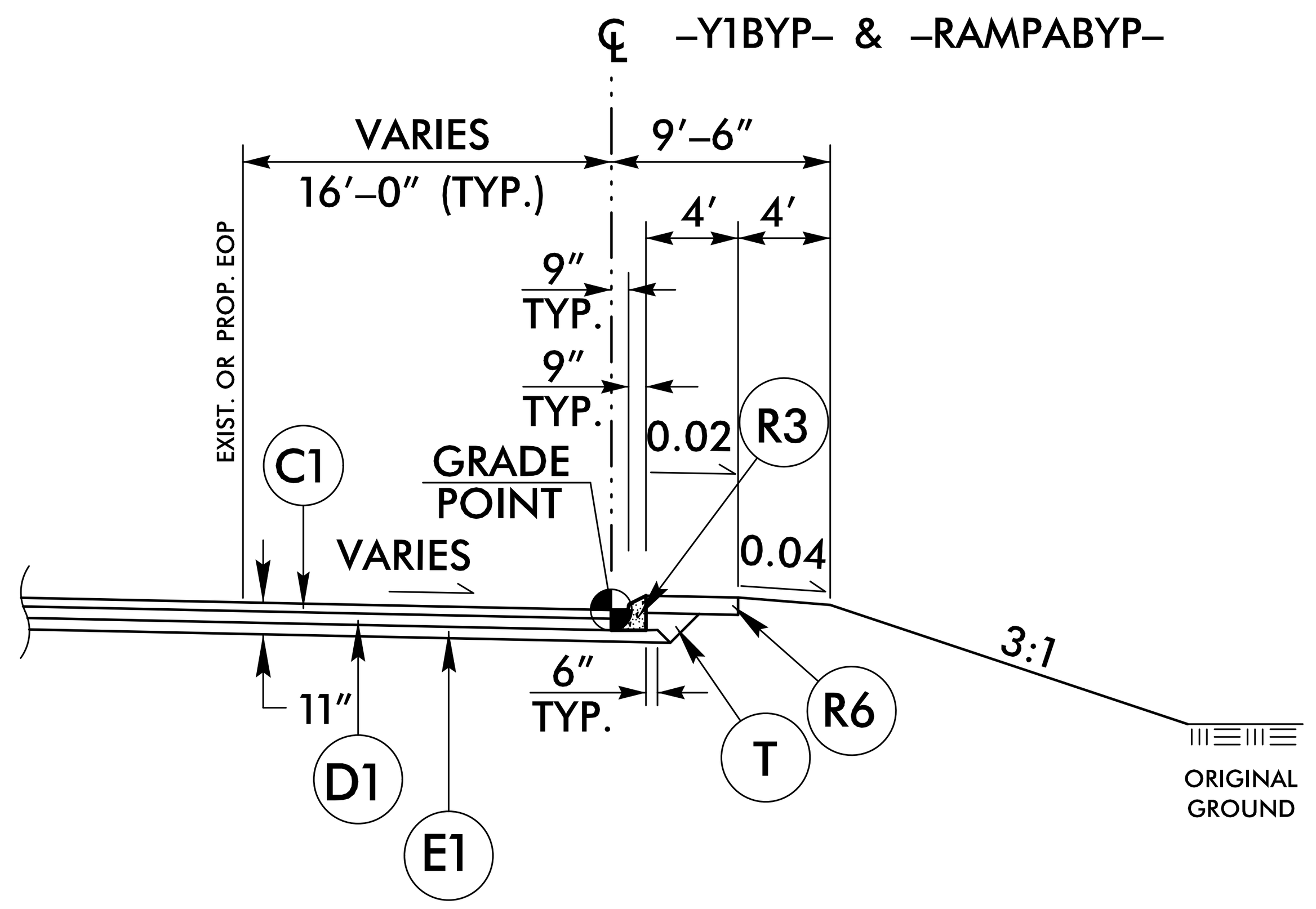
DocuSign Envelope ID: 7E91A8FE-823A-411C-8358-A7012C88AF06

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2A-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS 7/7/2017	PAVEMENT DESIGN PROVIDED BY NCDOT

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

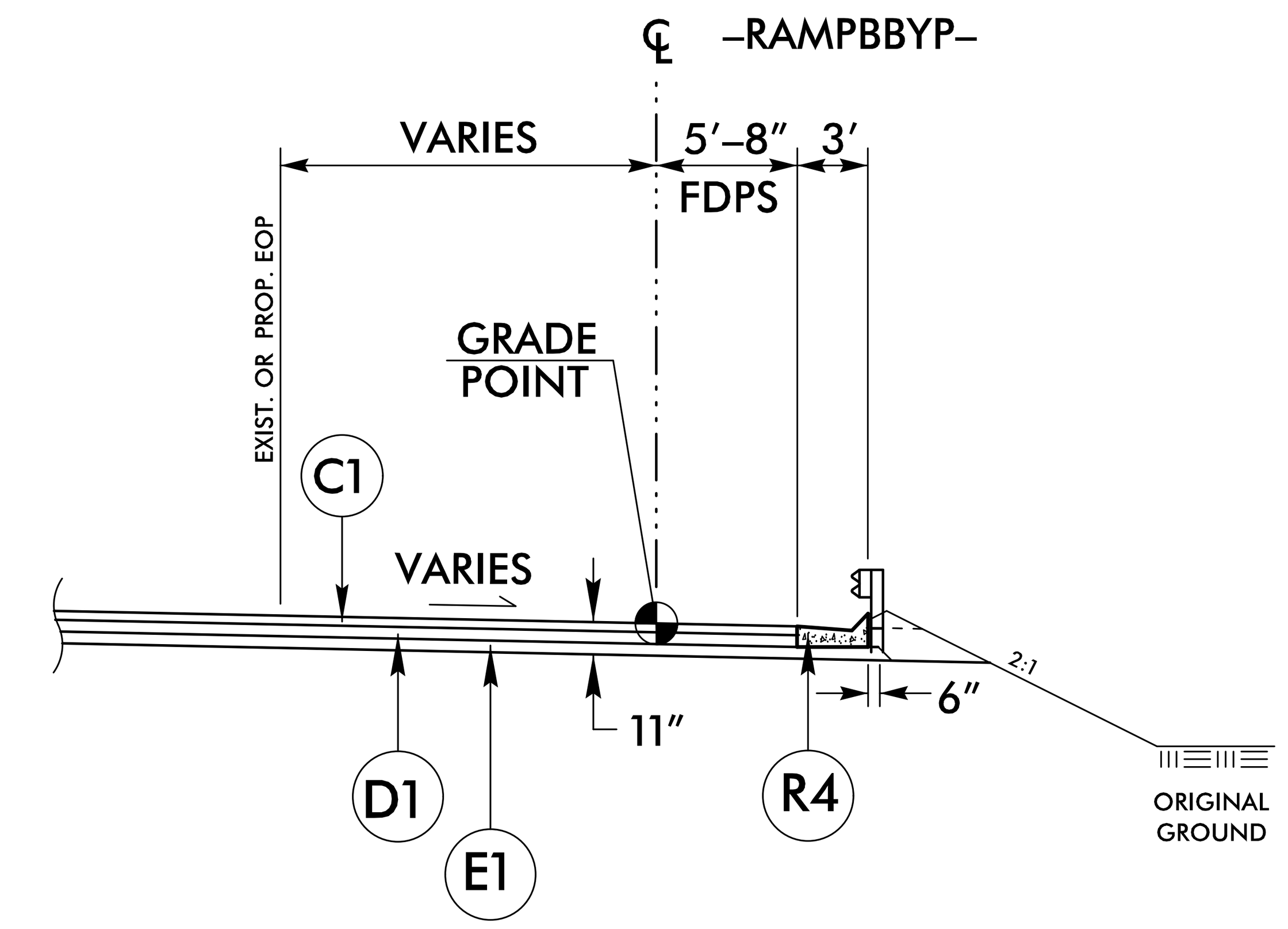


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4:

FROM -Y1BYP- STA. 10+96.62 TO 11+76.71
FROM -RAMPABYP- STA. 12+59.66 TO 14+68.65

SEE INSET 'A' FOR INCIDENTAL MILLING AND RESURFACING DETAIL FOR -RAMPABYP- TO BE USED AS DIRECTED BY THE ENGINEER



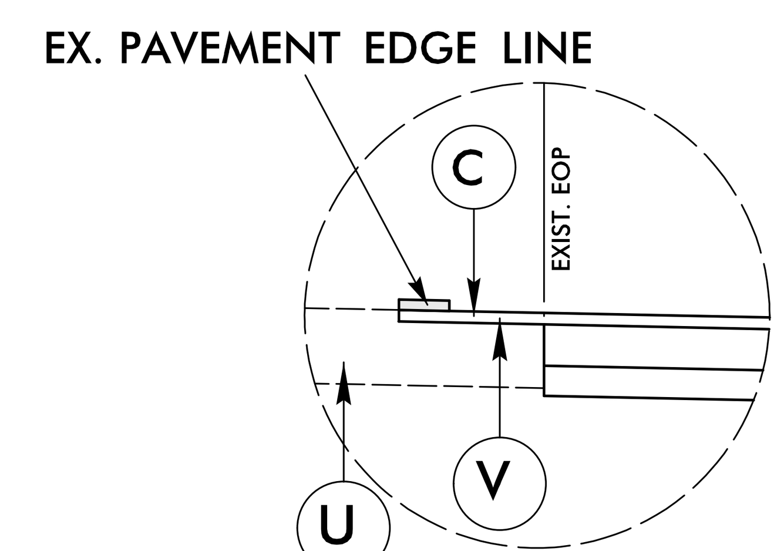
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5:

FROM -RAMPBBYP- STA. 10+04.31 TO 11+82.04

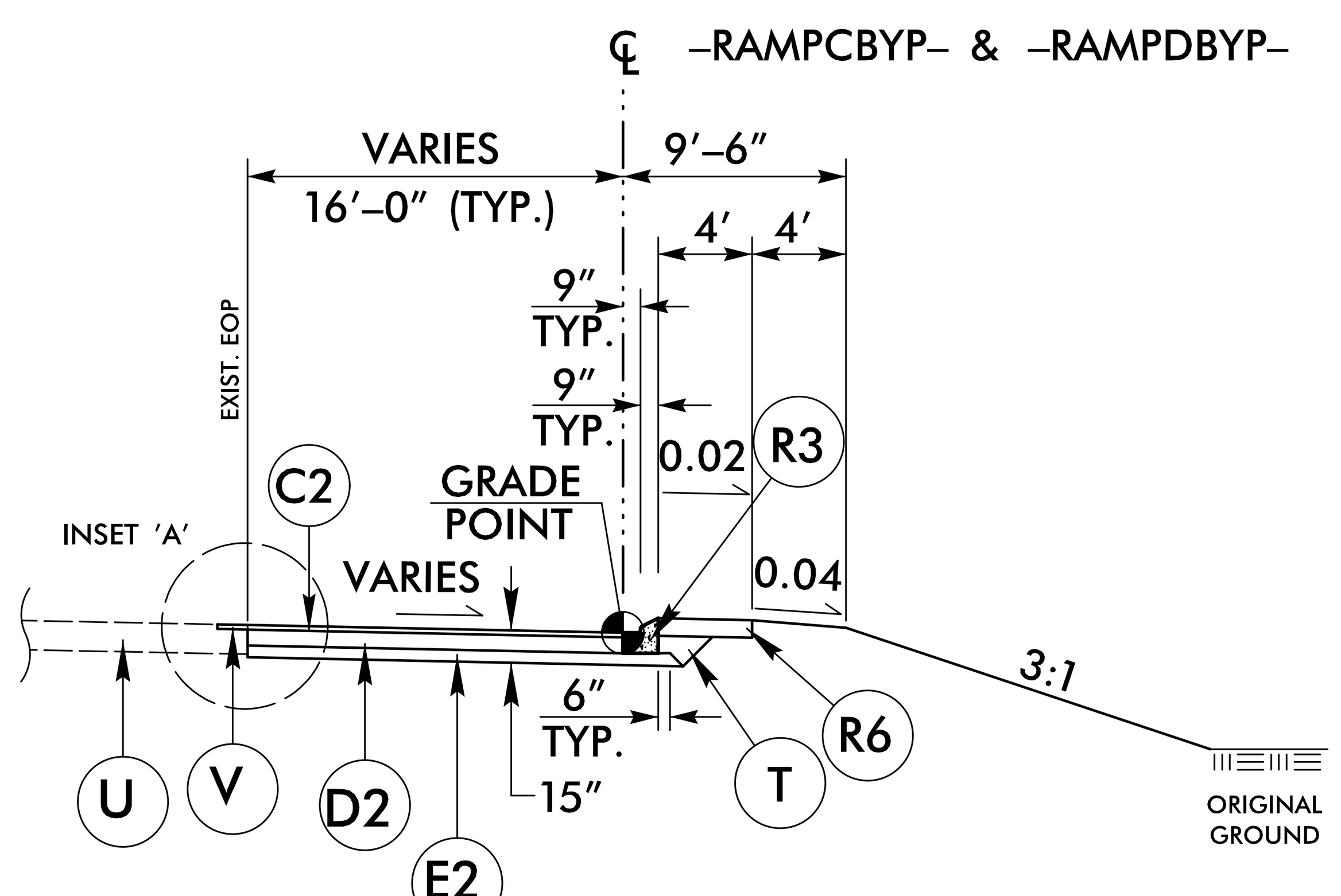
NOTE: CONSTRUCT STA. 10+00 TO 10+04.31 AS A SHOULDER SECTION W/O SBG

SEE INSET 'A' FOR INCIDENTAL MILLING AND RESURFACING DETAIL FOR -RAMPABYP- TO BE USED AS DIRECTED BY THE ENGINEER



INSET 'A'

INCIDENTAL MILLING AND RESURFACING TO REMOVE EX. PAVEMENT EDGE LINE AS DIRECTED BY THE ENGINEER

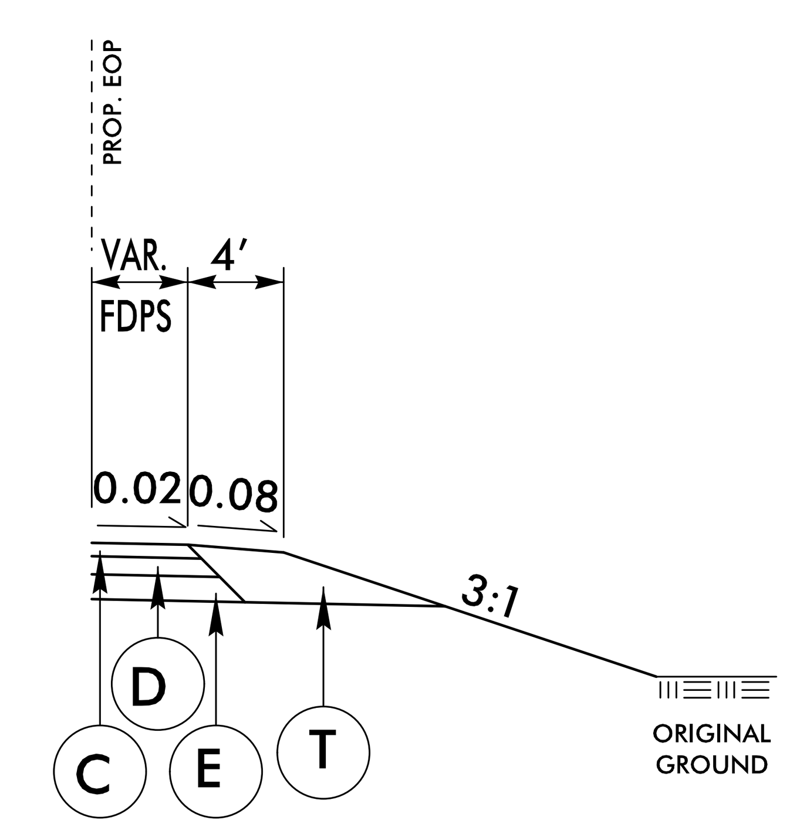


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6:

FROM -RAMPCBYP- STA. 11+36.42 TO 13+04.94
FROM -RAMPDBYP- STA. 10+51.01 TO 11+65.65

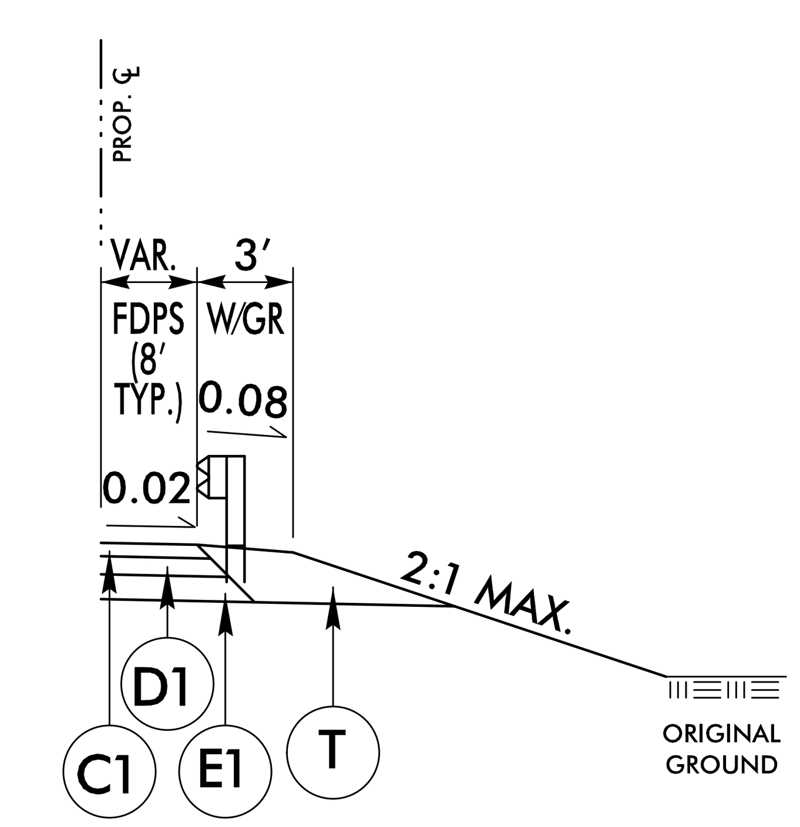
SEE INSET 'A' FOR INCIDENTAL MILLING AND RESURFACING DETAIL FOR -RAMPABYP- TO BE USED AS DIRECTED BY THE ENGINEER



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 IN CONJUNCTION WITH TYPICAL SECTIONS 1, 2, 4, 5 & 6:

FROM -Y1- STA. 14+12.03 (LT) TO -Y1BYP- STA. 11+76.71 (RT)
FROM -Y1- STA. 14+26.96 TO 14+81.50 (RT)
FROM -Y1BYP- STA. 10+00.00 TO 10+96.62 (RT)
FROM -RAMPCBYP- STA. 10+03.04 TO 11+36.42 (RT)
FROM -RAMPCBYP- STA. 13+04.94 TO -L- STA. 33+35.20 (RT)
FROM -L- STA. 34+12.34 (LT) TO -RAMPDBYP- STA. 10+51.01 (RT)
FROM -RAMPDBYP- STA. 11+65.65 TO 12+17.32 (RT)



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 IN CONJUNCTION WITH TYPICAL SECTION 4:

FROM -RAMPABYP- STA. 10+08.00 TO 12+59.66 (RT)

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	3" S9.5C
C2	1.5" S9.5C
C3	VAR. S9.5C
D1	4" I19.0C
D2	2.5" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	11" B25.0C
E3	VAR. B25.0C
R1	2'-6" C & G
R2	1'-6" C & G
R3	1'-6" C & G W/ BLACK TINT
R4	CONC. SBG
R5	7" CONC. ISLAND
R6	7" CONC. ISLAND W/ BLACK TINT
R7	5" MONO. CONC. ISLAND
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	INC. MILLING
W	WEDGING

PAVEMENT EDGE SLOPES 1:1 UNLESS NOTED OTHERWISE

6/20/2017
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PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2B-1
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

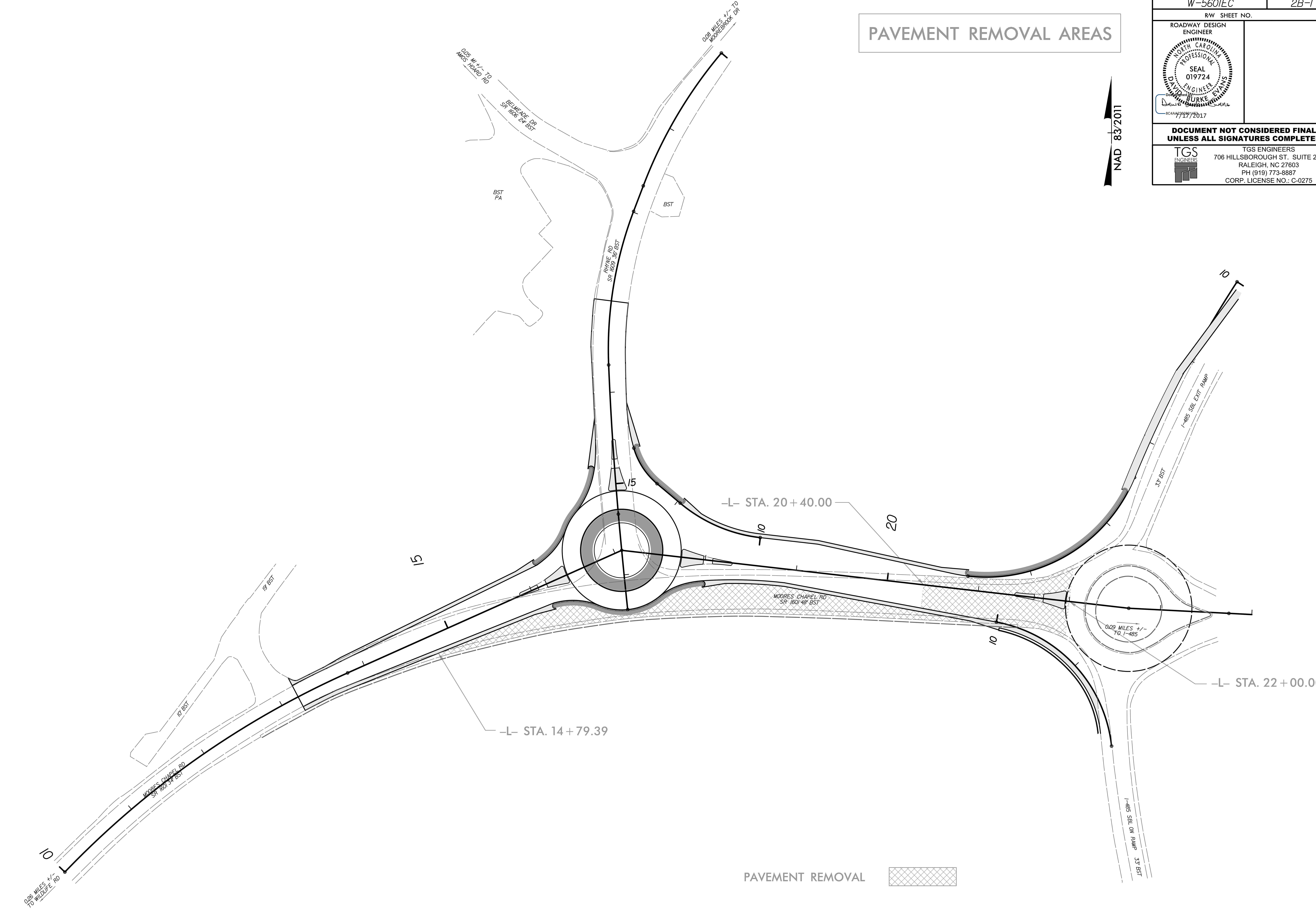
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019724 DAVID BURKE EVANS

7/17/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PAVEMENT REMOVAL AREAS



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6/20/2017
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User:bevans

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

SEAL 019724 — NORTH CAROLINA PROFESSIONAL ENGINEER — DAVID BURKE EVANS — 7/17/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

ALIGNMENT DATA SHEET

-Y1-

PI Sta 10+85.38	PI Sta 12+85.69	PI Sta 14+51.74	PI Sta 15+85.74
Δ = 19° 22' 54.1" (LT)	Δ = 23° 04' 06.1" (LT)	Δ = 2° 48' 50.6" (LT)	Δ = 0° 55' 23.3" (LT)
D = 11° 27' 33.0"	D = 13° 28' 52.9"	D = 1° 43' 23.5"	D = 0° 52' 53.3"
L = 169.14'	L = 171.11'	L = 163.31'	L = 104.73'
T = 85.38'	T = 86.73'	T = 81.67'	T = 52.36'
R = 500.00'	R = 425.00'	R = 3,325.00'	R = 6,500.00'

-Y1BYP-

PI Sta 10+49.74	PI Sta 11+53.89
Δ = 33° 33' 08.8" (RT)	Δ = 33° 42' 06.0" (RT)
D = 34° 43' 29.0"	D = 71° 37' 11.0"
L = 96.62'	L = 47.06'
T = 49.74'	T = 24.23'
R = 165.00'	R = 80.00'

-RAMPABYP-

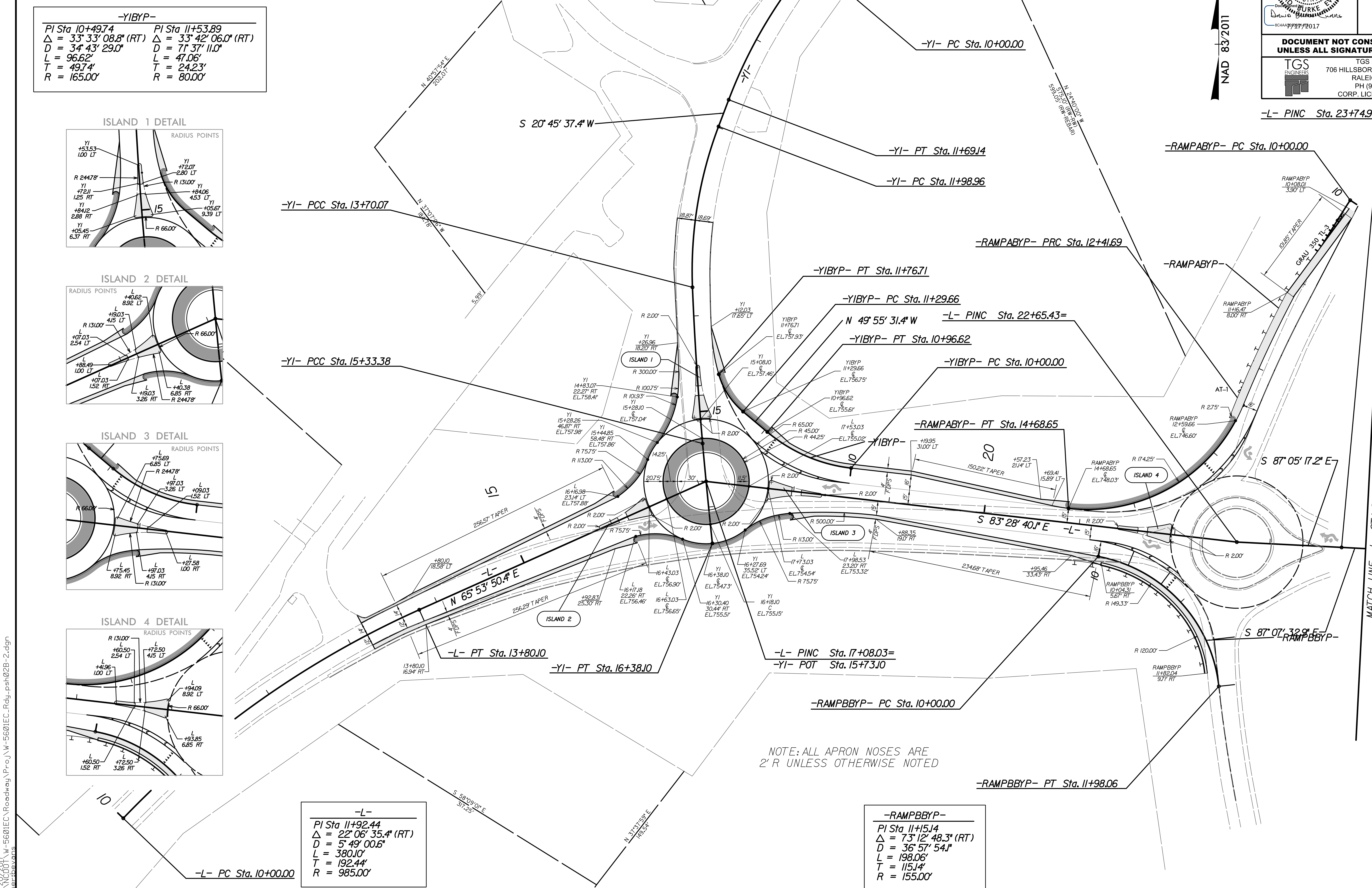
PI Sta 11+21.21	PI Sta 13+74.30
Δ = 10° 51' 16.8" (LT)	Δ = 74° 18' 20.0" (RT)
D = 4° 29' 28.0"	D = 32° 44' 25.6"
L = 241.69'	L = 226.95'
T = 121.21'	T = 132.61'
R = 1,275.76'	R = 175.00'

-L-

PI Sta 11+92.44
Δ = 22° 06' 35.4" (RT)
D = 5° 49' 00.6"
L = 380.10'
T = 192.44'
R = 985.00'

-RAMPBBYP-

PI Sta 11+15.14
Δ = 73° 12' 48.3" (RT)
D = 36° 57' 54.1"
L = 198.06'
T = 115.14'
R = 155.00'



8/17/99

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User:bevans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2B-3
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

7/17/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

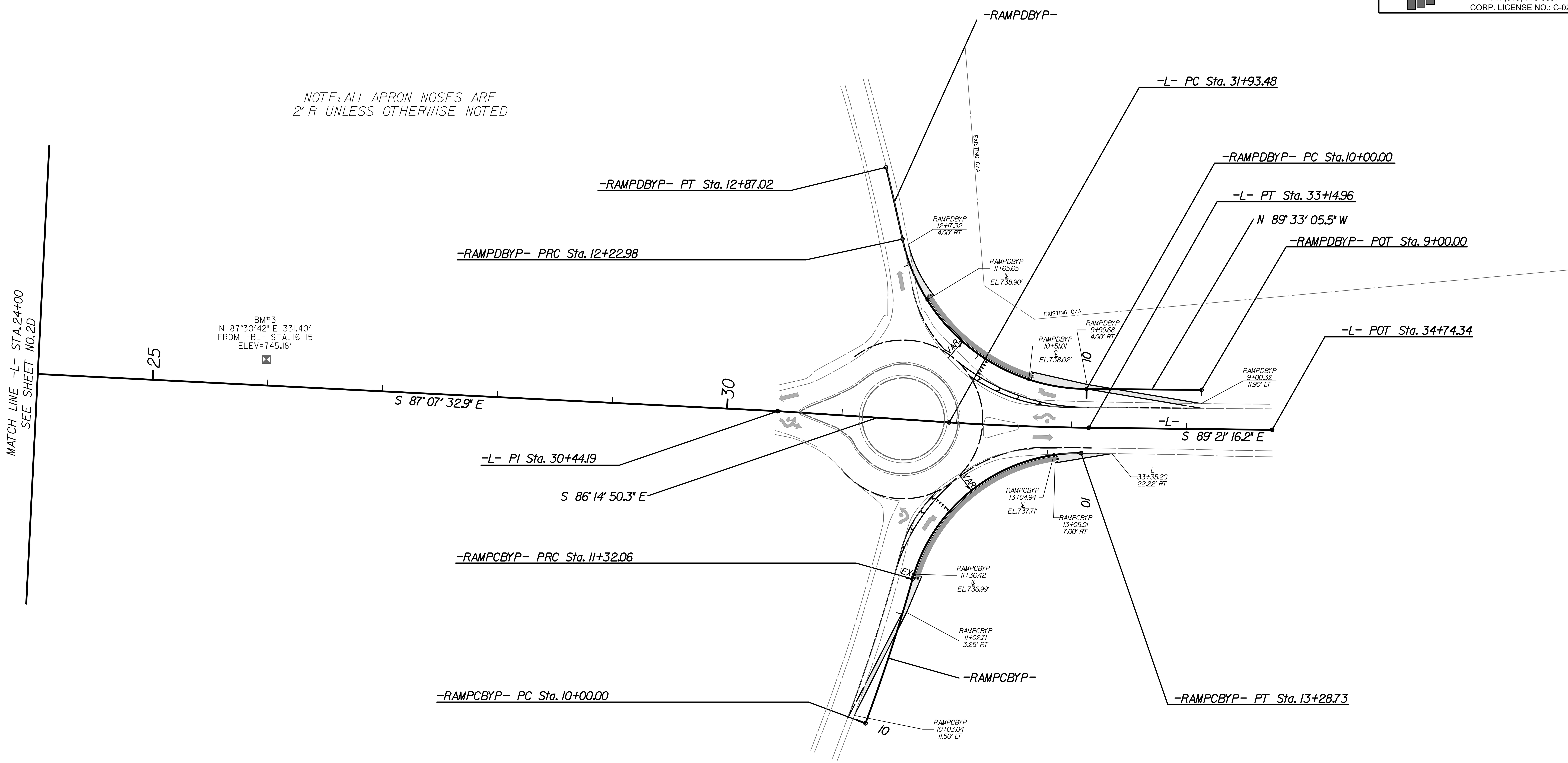
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

ALIGNMENT DATA SHEET

NAD 83/2011

-L-
PI Sta 32+54.24
Δ = 3° 06' 25.9" (LT)
D = 2° 33' 28.3"
L = 121.48'
T = 60.75'
R = 2,240.00'

-RAMPDBYP-	
PI Sta 11+32.26	PI Sta 12+55.00
Δ = 77° 25' 46.1" (RT)	Δ = 1° 32' 55.9" (LT)
D = 34° 43' 29.0"	D = 2° 25' 06.6"
L = 222.98'	L = 64.04'
T = 132.26'	T = 32.02'
R = 165.00'	R = 2,369.05'



-RAMPCBYP-	
PI Sta 10+66.07	PI Sta 12+47.41
Δ = 4° 40' 55.7" (LT)	Δ = 75° 07' 19.3" (RT)
D = 3° 32' 43.9"	D = 38° 11' 49.9"
L = 132.06'	L = 196.67'
T = 66.07'	T = 115.35'
R = 1,616.00'	R = 150.00'

6/30/2017
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Username

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2B-4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

7/17/2017

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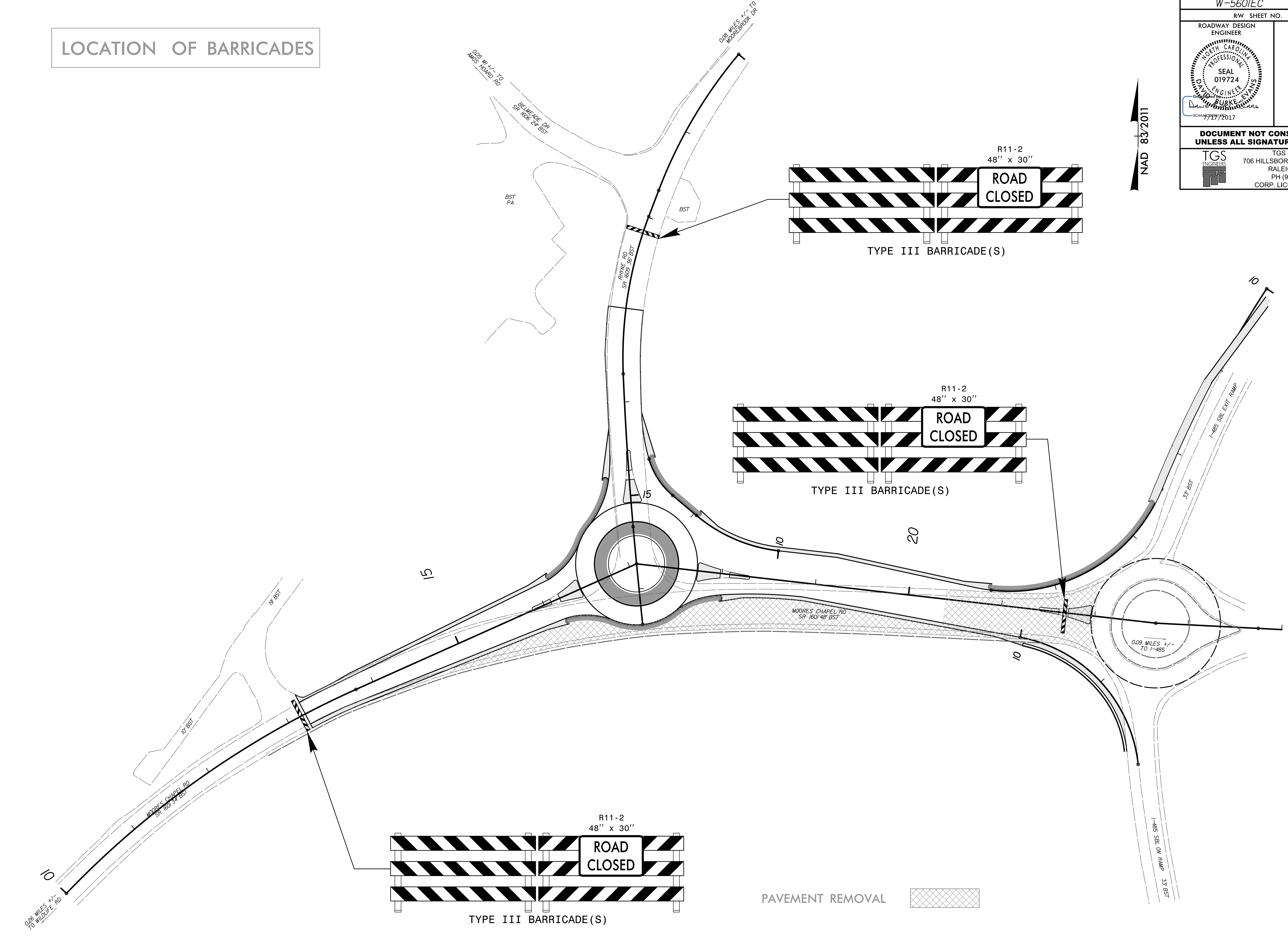
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

LOCATION OF BARRICADES



8/17/99

6/30/2017
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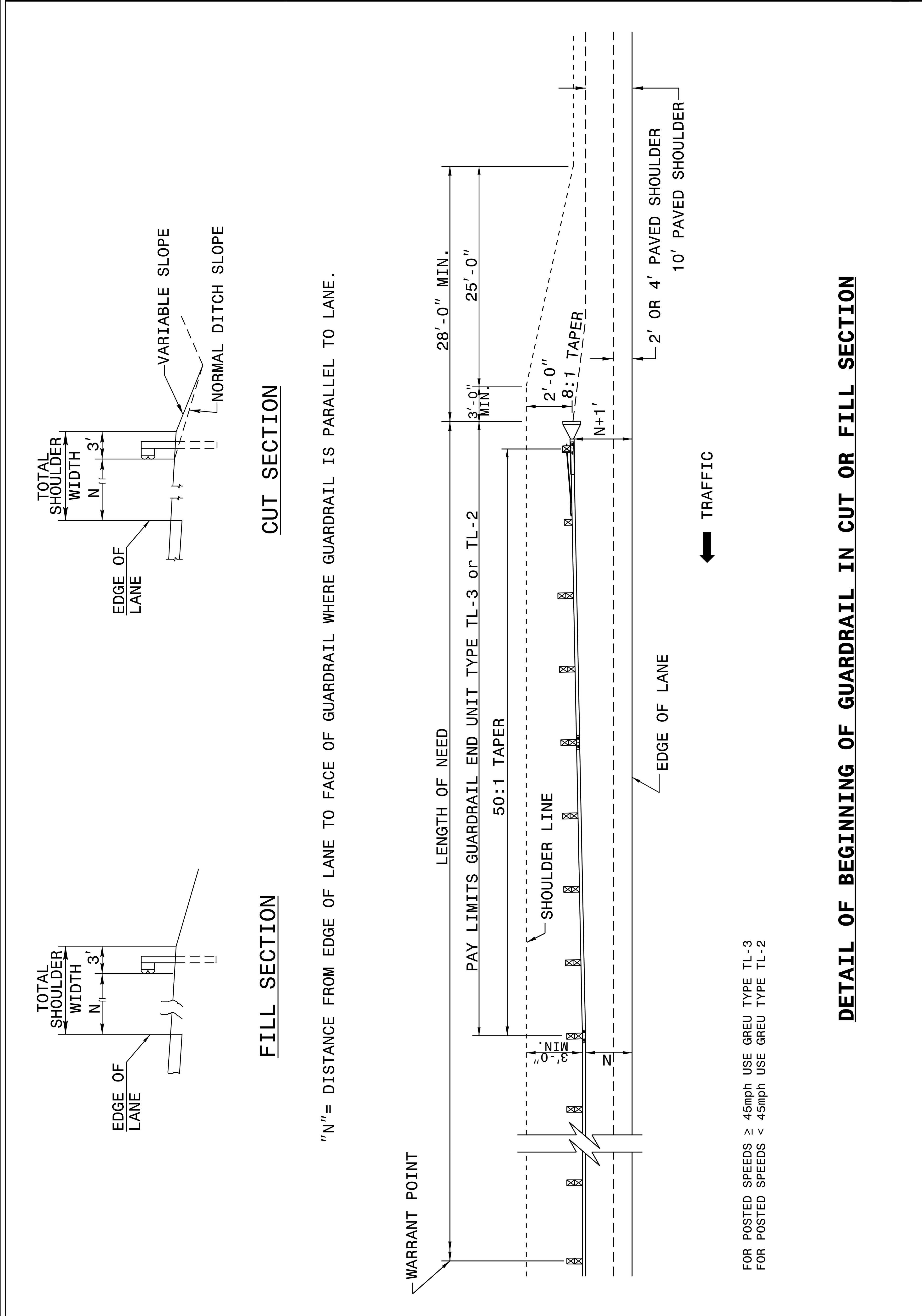
PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	2C-1

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT — SHEET 6 OF 11 862D01

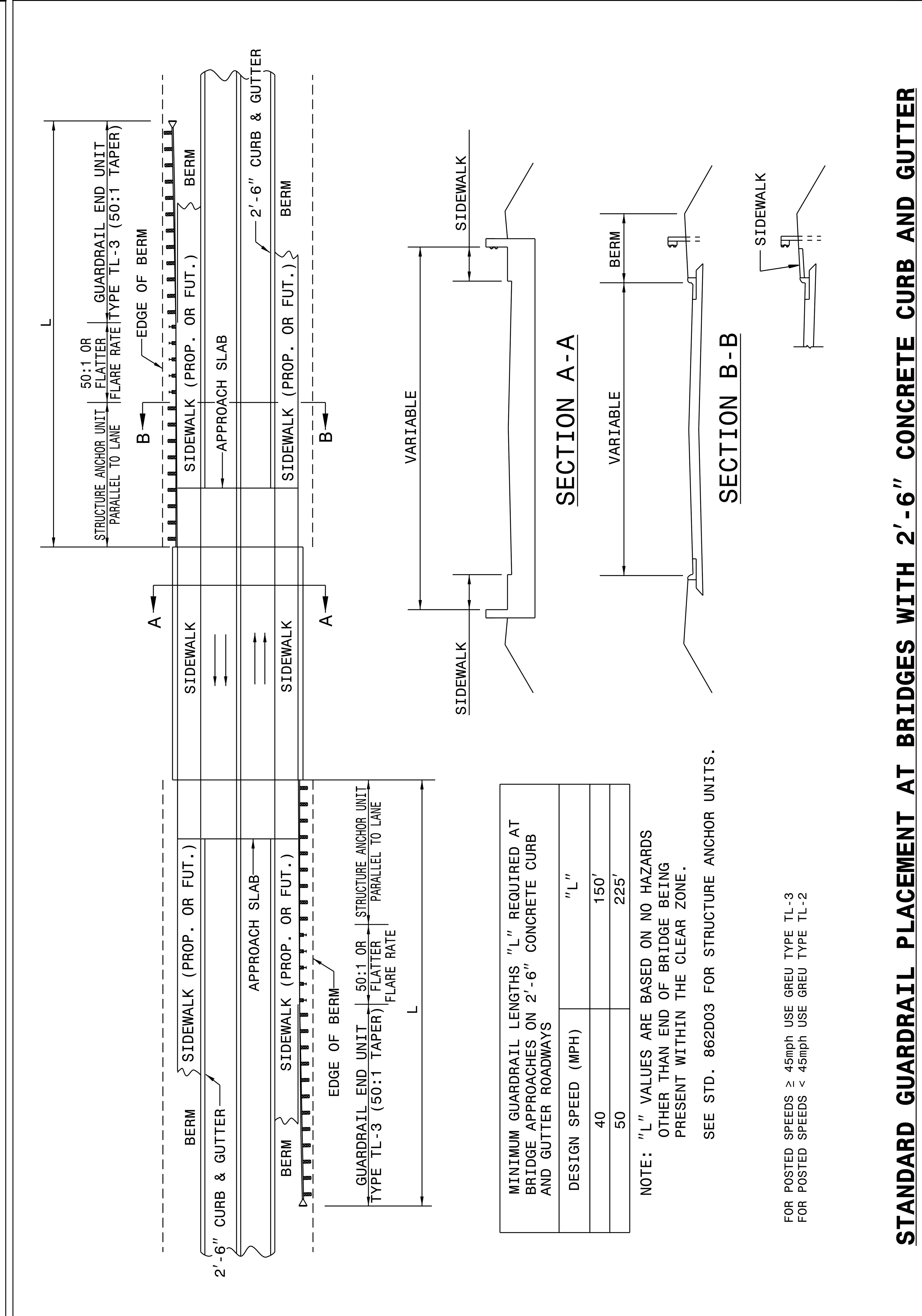
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT — SHEET 5 OF 11 862D01



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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 11
862D01



MINIMUM GUARDRAIL LENGTHS "L" REQUIRED AT BRIDGE APPROACHES ON 2'-6" CONCRETE CURB AND GUTTER ROADWAYS

DESIGN SPEED (MPH)	"L"
40	150'
50	225'

NOTE: "L" VALUES ARE BASED ON NO HAZARDS OTHER THAN END OF BRIDGE BEING PRESENT WITHIN THE CLEAR ZONE.

SEE STD. 862D03 FOR STRUCTURE ANCHOR UNITS.

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 5 OF 11
862D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton
DocuSigned by: 7/17/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

6/21/00

COMPUTED BY: VML DATE: 3/3/17
CHECKED BY: DBE DATE: 6/19/17

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	3B-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
–L– 13+20.00 TO 16+43.03	318		1337	1019	
–L– 17+73.03 TO 22+00.00	544		2003	1459	
–Y1– 13+00.00 TO 16+38.10	75		1302	1227	
–RAMPABYP– 10+00.00 TO 13+56.35	167		645	478	
–RAMPBBYP– 10+70.13 TO 11+82.04	34		960	926	
–RAMPCBYP– 10+03.04 TO 13+28.73	120		197	77	
–RAMPDBYP– 10+00.00+ TO 12+17.32	94		135	41	
SUBTOTAL	1352		6579	5227	
MATERIAL FOR SHOULDER CONSTRUCTION			449	449	
PROJECT TOTAL	1352		7028	5676	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				284	
GRAND TOTAL	1352		7028	5960	
SAY	1420			6260	

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading".

NOTE:
NO GEOTECHNICAL REPORT PROVIDED.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
–L–	14+79.39	20+40.00	RT	1229
–L–	20+40.00	22+00.00	CL	942
			TOTAL:	2171
			SAY:	2180

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LOCATION	LENGTH (LF)
–RAMPBBYP–	10+04.31	11+82.04	RT	167
			TOTAL:	167
			SAY:	167

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

GUARDRAIL SUMMARY

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 GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE 350 TL–3	CAT–1	AT–1	TYPE III	B–77	TYPE 350 TL–2	·	·	·	EA	G	NG				
L /RAMPBBYP	20+90.19	11+81.93	RT																								222.5		
Y1 /RAMPABYP	14+05.07	10+16.26	LT																								975.7		
L /RAMPBBYP	20+90.19	11+81.93	RT	37.5	175		20+90.19	11+81.93	VAR.	VAR.																			
–RAMPABYP–	10+16.26	12+31.09	RT	218.75			10+91.26	12+31.09	8′	11′	50′	0′	1′	0′	1		1												
		SUBTOTAL (LF)		256.25	175								TOTAL ANCHORS OR ATTENUATORS (EA)		1		1										1,198.2		TOTAL
		LESS ANCHORS (LF)		56.25																									
		TOTAL GUARDRAIL (LF)		200	175								ANCHOR UNIT LENGTH (LF)		50	6.25	6.25	18.75	18.75	25									
		SAY GUARDRAIL (LF)		200	175		ADDITIONAL GUARDRAIL POSTS: SAY 5 EA						DEDUCTION PER TYPE (LF)		50		6.25										1,199		SAY (LF)
													TOTAL DEDUCTION (LF)		56.25														

TGSZACH-LAPTOP

COMPUTED BY:	Zachary Richard, EI	DATE:	8/25/2016
CHECKED BY:	David B. Petty, PE	DATE:	6/21/2017

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
W-5601EC	3D-1

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 16+10	75	LT	0401																	
			0401	0402		743.5	740.2				36							X	X	
L 16+26	43	LT	0402		744.0															
L 17+89	42	LT	0403		747.0															
L 14+75	27	RT	0404		756.7															
			0404	0405		754.0	749.6			128								X	X	
L 16+02	43	RT	0405		753.0															
			0405	0406		749.5	749.3			8								X	X	
L 16+01	49	RT	0406		750.6															
L 18+43	48	RT	0407		747.9															
			0407	0408		746.0	745.9			8								X	X	
L 18+44	55	RT	0408		747.1															
L 21+39	40	RT	0409		747.5															
			0409	0410		744.8	717.8													
RAMPBBYP 11+69	10	RT	0411		745.5															
			0411	0412		742.8	723.8													
RAMPABYP 12+55	30	RT	0413	1414		740.2	730.5													
L 20+68	39	RT																		
SHEET TOTALS										144	36									
PROJECT TOTALS										144	36									

LINE & STATION	C. S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)	48 (.109)	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	42
0409–0410		68																					
0411–0412		52																					
RAMPABYP 12+55		44																					
SHEET TOTALS		164																					
PROJECT TOTALS		164																					

LINE & STATION	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28
L 16+26						1														
L 14+75						1													1	
L 16+02						1													1	
L 18+43						1														1
L 21+39						1														
RAMPBBYP 11+69						1														
SHEET TOTALS						6													2	1
PROJECT TOTALS						6													2	1

LINE & STATION	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	BERM DITCH OUTLET STD. 850.10	TEMP STEEL PLATE COVER MASONRY DRAINAGE	SPRING BOX STD. 840.41	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B.	15" C.S. ELBOW	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 16+26										1															
L 17+89																			1						Remove top section of DI and convert to JB.
L 14+75								1																	
L 16+02								1																	
L 16+01																						0.3990			
L 18+43								1																	
L 18+44																						0.3990			
L 21+39								1				1													
0409–0410																				2				63	ROD&LUG COUPLING BANDS W/ SLEEVE GASKETS
RAMPBBYP 11+69								1				1													
0411–0412																				2					ROD&LUG COUPLING BANDS W/ SLEEVE GASKETS
RAMPABYP 12+55														1						1					ROD&LUG COUPLING BANDS W/ SLEEVE GASKETS
L 20+68																							0.045		REMOVE DI & PLUG 15" PIPE
SHEET TOTALS								5		1		2		1					1	5		0.7980	0.045	63	
PROJECT TOTALS								5		1		2		1					1	5		0.7980	0.045	63	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

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PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 019724 — DAVID BURKE EVANS — 7/17/2017

HYDRAULICS ENGINEER — SEAL 038697 — 7/17/2017

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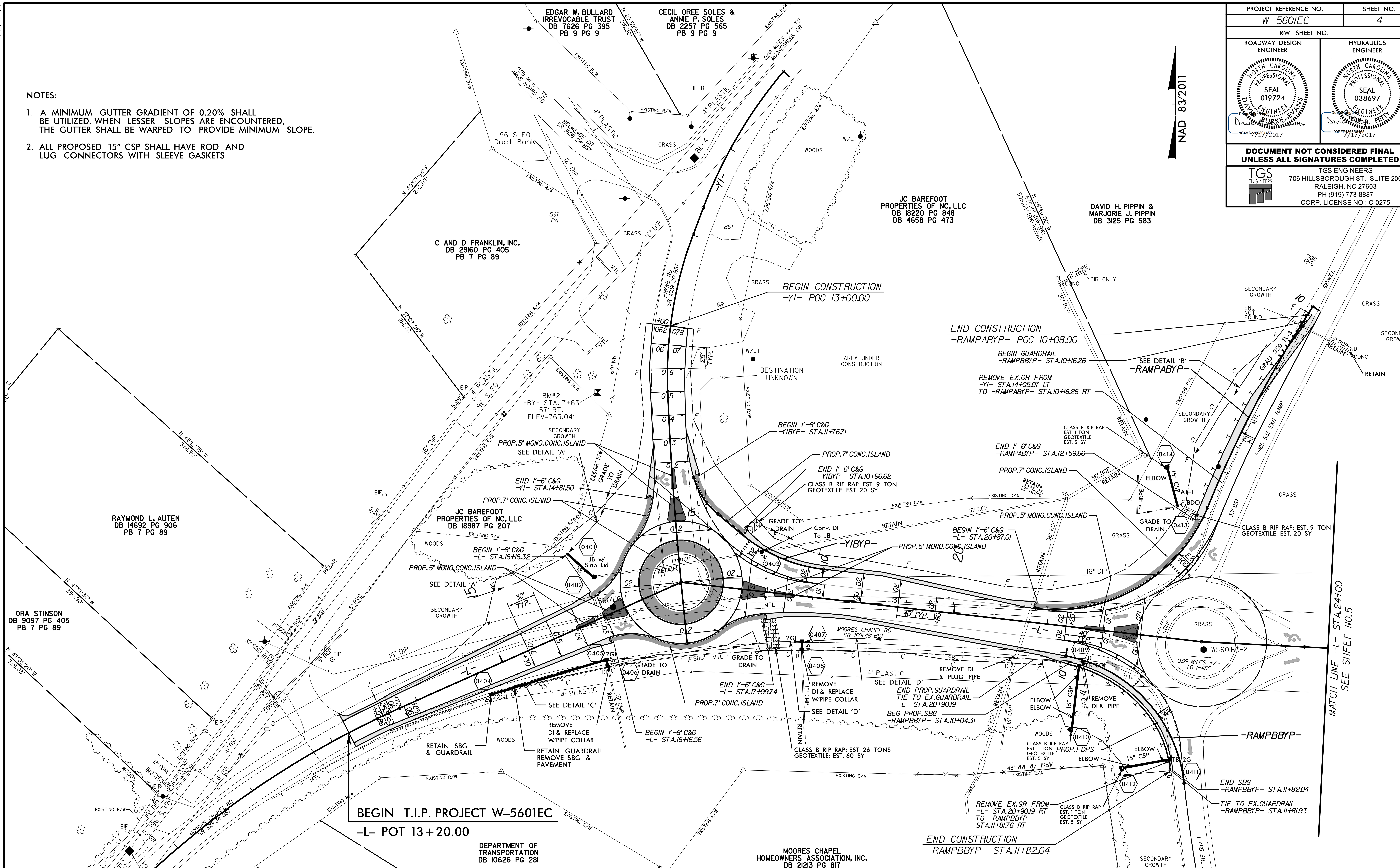
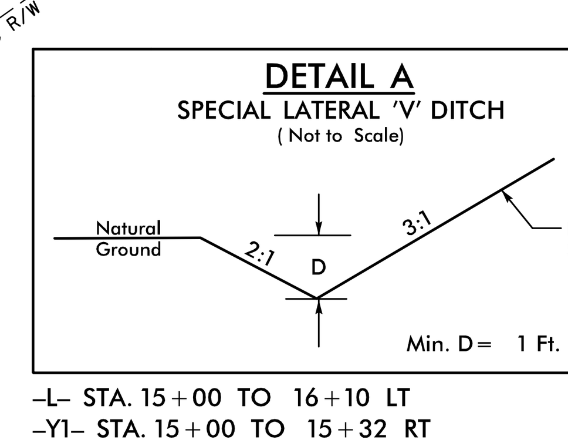
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

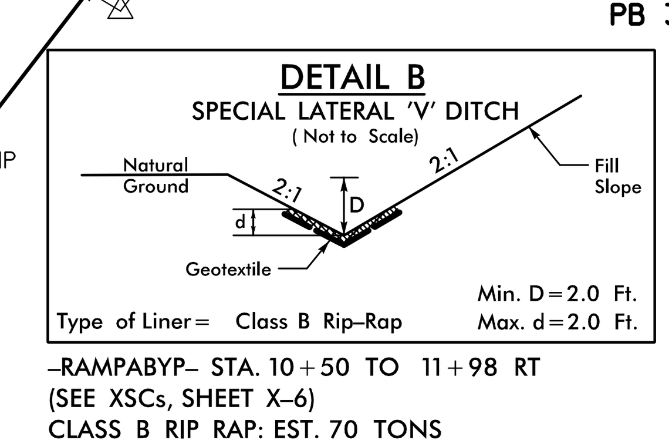
NOTES:

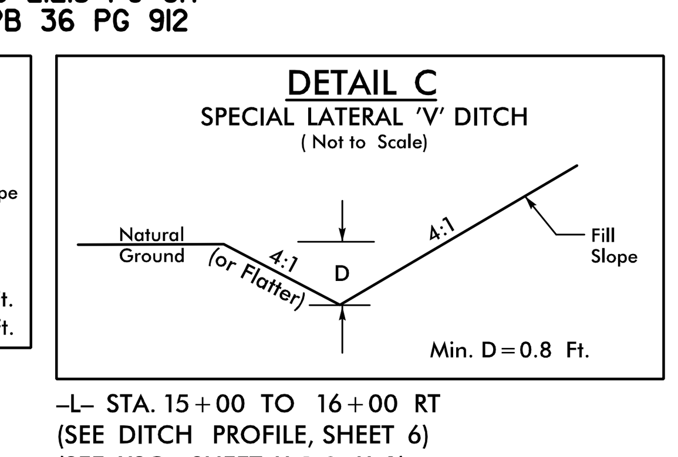
1. A MINIMUM GUTTER GRADIENT OF 0.20% SHALL BE UTILIZED. WHEN LESSER SLOPES ARE ENCOUNTERED, THE GUTTER SHALL BE WARPED TO PROVIDE MINIMUM SLOPE.
2. ALL PROPOSED 15" CSP SHALL HAVE ROD AND LUG CONNECTORS WITH SLEEVE GASKETS.

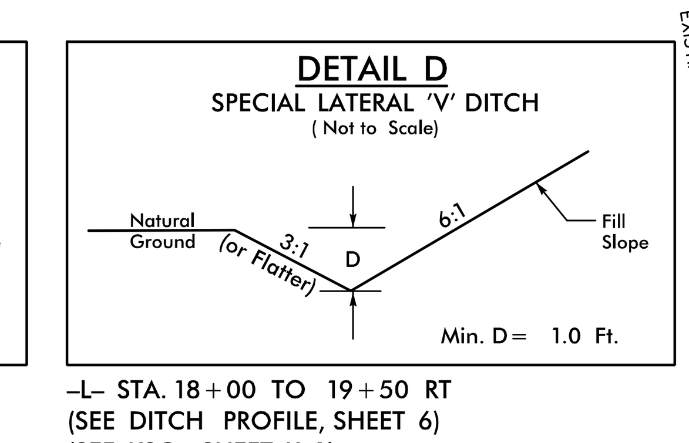


NAD 83/2011
EDGAR W. BULLARD IRREVOCABLE TRUST DB 7626 PG 395 PB 9 PG 9
CECIL OREE SOLES & ANNIE P. SOLES DB 2257 PG 565 PB 9 PG 9
C AND D FRANKLIN, INC. DB 29160 PG 405 PB 7 PG 89
JC BAREFOOT PROPERTIES OF NC, LLC DB 18220 PG 848 DB 4658 PG 473
DAVID H. PIPPIN & MARJORIE J. PIPPIN DB 3125 PG 583
RAYMOND L. AUTEN DB 14692 PG 906 PB 7 PG 89
JC BAREFOOT PROPERTIES OF NC, LLC DB 18987 PG 207
ORA STINSON DB 9097 PG 405 PB 7 PG 89
DEPARTMENT OF TRANSPORTATION DB 10626 PG 281
MOORES CHAPEL HOMEOWNERS ASSOCIATION, INC. DB 21213 PG 817 PB 36 PG 912
FRED R. CHASTAIN & EVELYN F. CHASTAIN DB 5657 PG 920
BEGIN CONSTRUCTION -Y1- POC 13+00.00
END CONSTRUCTION -RAMPABYP- POC 10+08.00
END CONSTRUCTION -RAMPBBYP- STA.11+82.04
BEGIN T.I.P. PROJECT W-5601EC -L- POT 13+20.00
MATCH LINE -L- STA.24+00 SEE SHEET NO.5
BM#2 -BY- STA. 7+63 57' RT. ELEV=763.04'
BM#1 -BL- STA. 5+58 99' RT. ELEV=750.97'
-Y1-
-Y1BYP-
-RAMPABYP-
-RAMPBBYP-
-L-
MOORES CHAPEL RD SR 1601 48' BST









SEE SHEET 2C FOR PAVEMENT REMOVAL AREAS
SEE SHEET 2D FOR ALIGNMENT DATA

SEE SHEET 6 FOR -L- & -Y1- PROFILES
SEE SHEET 7 FOR -Y1BYP-, -RAMPABYP-, & -RAMPBBYP- PROFILES

8/17/99

6/22/2017
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS 7/17/2017	NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY 7/17/2017

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TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NOTES:

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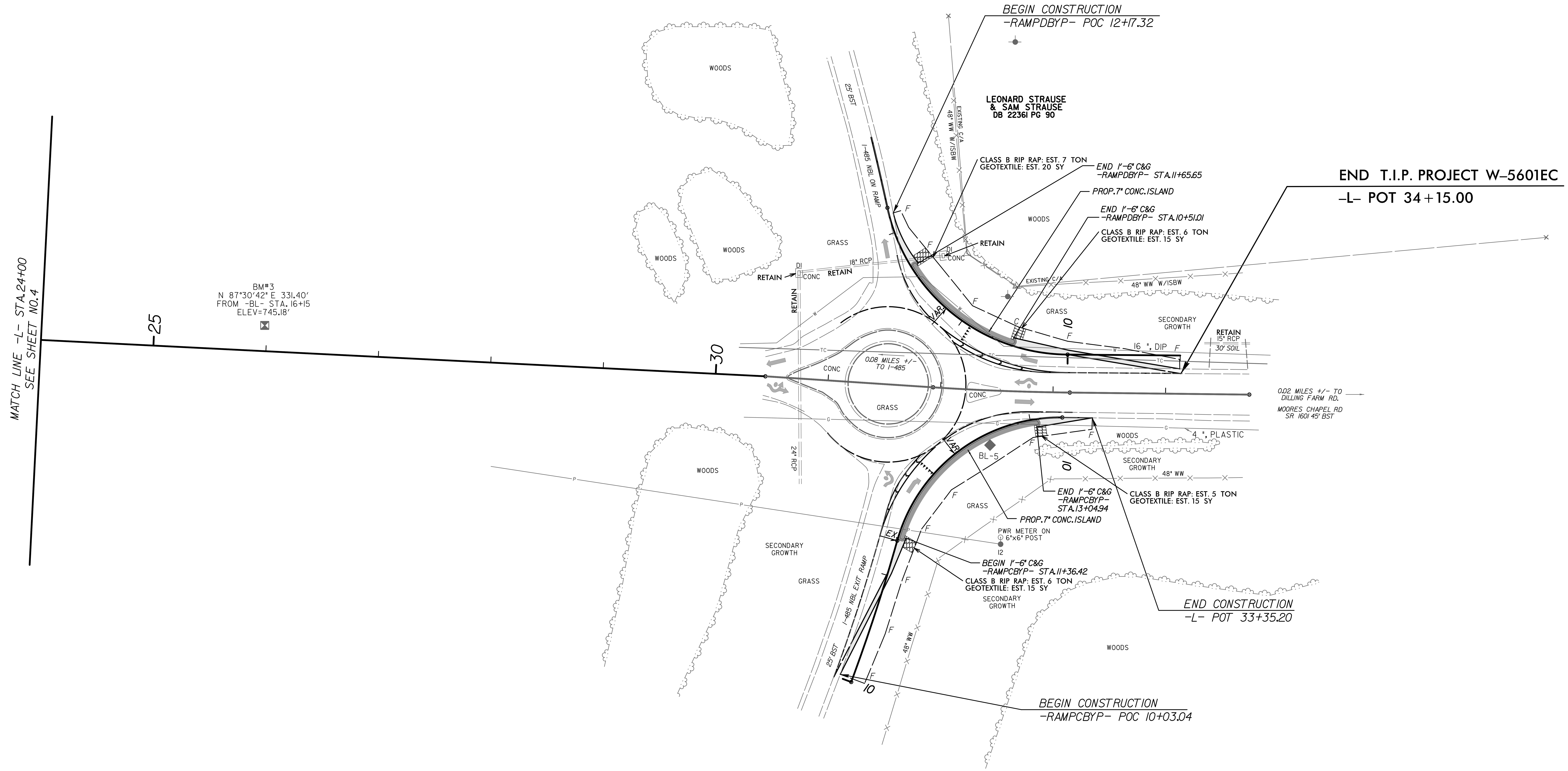
2. ALL PROPOSED 15" CSP SHALL HAVE ROD AND LUG CONNECTORS WITH SLEEVE GASKETS.

NAD 83/2011



SEE SHEET 2E FOR ALIGNMENT DATA

SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -RAMPCBYP- & -RAMPDBYP- PROFILES

6/20/2017
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PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	6

ROADWAY DESIGN ENGINEER: SEAL 019724, DAVID BURKE EVANS, NORTH CAROLINA PROFESSIONAL ENGINEER, 7/17/2017

HYDRAULICS ENGINEER: SEAL 038697, NORTH CAROLINA PROFESSIONAL ENGINEER, 7/17/2017

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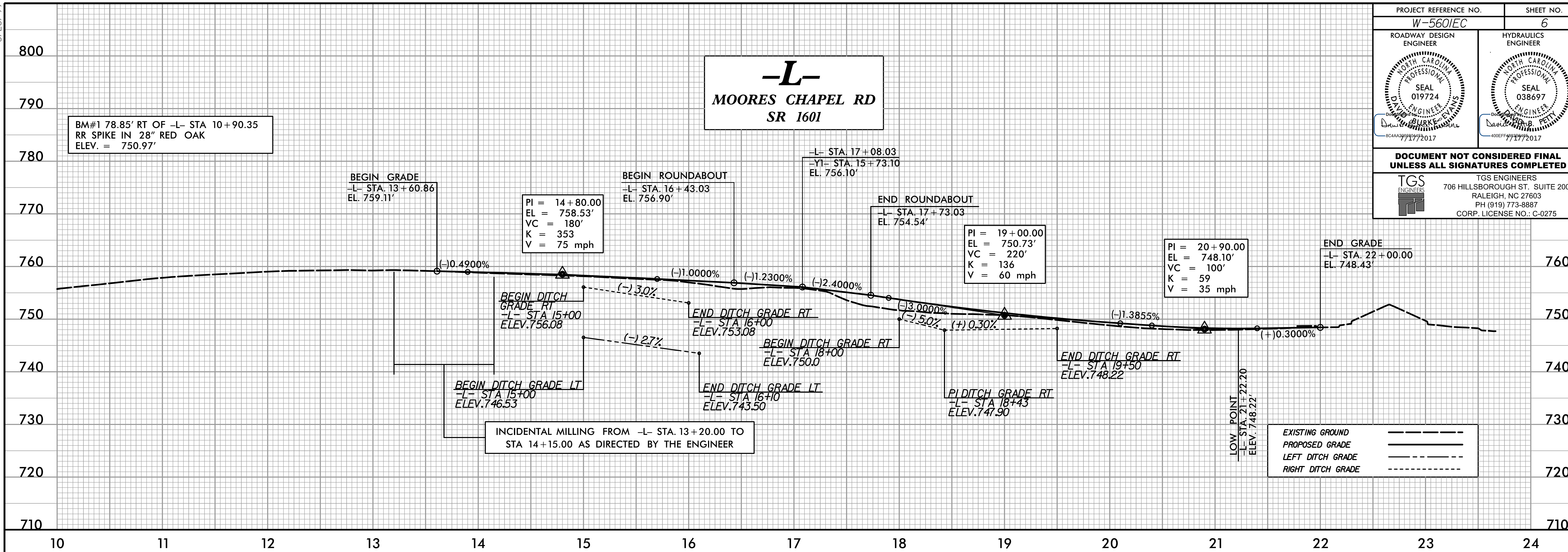
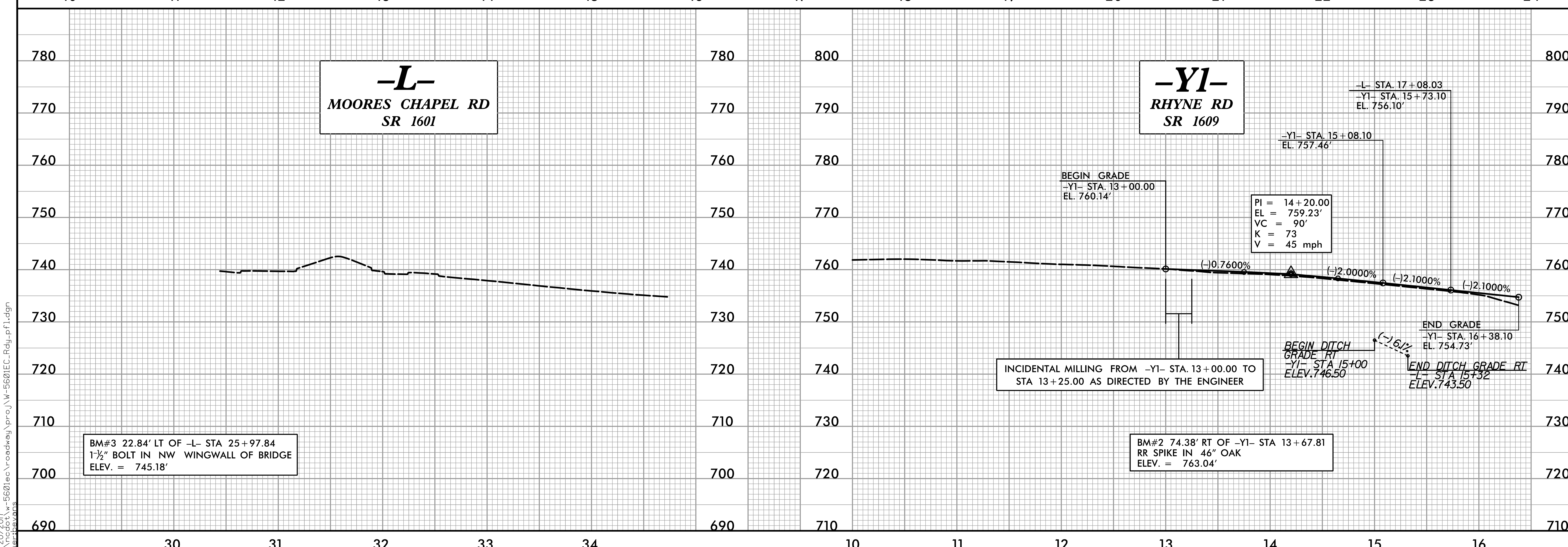
5/28/99


-L-
MOORES CHAPEL RD
SR 1601
BM#1 78.85' RT OF -L- STA 10+90.35
RR SPIKE IN 28" RED OAK
ELEV. = 750.97'
BEGIN GRADE
-L- STA. 13+60.86
EL. 759.11'
PI = 14+80.00
EL = 758.53'
VC = 180'
K = 353
V = 75 mph
BEGIN ROUNDABOUT
-L- STA. 16+43.03
EL. 756.90'
-L- STA. 17+08.03
-Y1- STA. 15+73.10
EL. 756.10'
END ROUNDABOUT
-L- STA. 17+73.03
EL. 754.54'
PI = 19+00.00
EL = 750.73'
VC = 220'
K = 136
V = 60 mph
PI = 20+90.00
EL = 748.10'
VC = 100'
K = 59
V = 35 mph
END GRADE
-L- STA. 22+00.00
EL. 748.43'
(-)0.4900%
(-)1.0000%
(-)1.2300%
(-)2.4000%
(-)3.0000%
(-)1.3855%
(+)0.3000%
(-) 3.0%
(-) 2.7%
(-) 5.0%
(+) 0.30%
BEGIN DITCH GRADE RT
-L- STA 15+00
ELEV.756.08
END DITCH GRADE RT
-L- STA 16+00
ELEV.753.08
BEGIN DITCH GRADE RT
-L- STA 18+00
ELEV.750.0
END DITCH GRADE RT
-L- STA 19+50
ELEV.748.22
BEGIN DITCH GRADE LT
-L- STA 15+00
ELEV.746.53
END DITCH GRADE LT
-L- STA 16+10
ELEV.743.50
PI DITCH GRADE RT
-L- STA 18+43
ELEV.747.90
LOW POINT
-L- STA. 21+22.20
ELEV. 748.22'
INCIDENTAL MILLING FROM -L- STA. 13+20.00 TO STA 14+15.00 AS DIRECTED BY THE ENGINEER
EXISTING GROUND
PROPOSED GRADE
LEFT DITCH GRADE
RIGHT DITCH GRADE
800
790
780
770
760
750
740
730
720
710
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24


-L-
MOORES CHAPEL RD
SR 1601
BM#3 22.84' LT OF -L- STA 25+97.84
1-½" BOLT IN NW WINGWALL OF BRIDGE
ELEV. = 745.18'
780
770
760
750
740
730
720
710
700
690
30
31
32
33
34
-Y1-
RHYNE RD
SR 1609
-L- STA. 17+08.03
-Y1- STA. 15+73.10
EL. 756.10'
-Y1- STA. 15+08.10
EL. 757.46'
BEGIN GRADE
-Y1- STA. 13+00.00
EL. 760.14'
PI = 14+20.00
EL = 759.23'
VC = 90'
K = 73
V = 45 mph
(-)0.7600%
(-)2.0000%
(-)2.1000%
(-)2.1000%
END GRADE
-Y1- STA. 16+38.10
EL. 754.73'
BEGIN DITCH GRADE RT
-Y1- STA 15+00
ELEV.746.50
(-) 6.1%
END DITCH GRADE RT
-L- STA 15+32
ELEV.743.50
INCIDENTAL MILLING FROM -Y1- STA. 13+00.00 TO STA 13+25.00 AS DIRECTED BY THE ENGINEER
BM#2 74.38' RT OF -Y1- STA 13+67.81
RR SPIKE IN 46" OAK
ELEV. = 763.04'
800
790
780
770
760
750
740
730
720
710
10
11
12
13
14
15
16

6/20/2017
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	7

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

7/17/2017

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY

7/17/2017

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TGS ENGINEERS
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–Y1BYP–

SR 1609
BYPASS LANE

PI = 10+35.00
EL = 753.08'
VC = 70'
K = 43
V = 30 mph

PI = 11+30.00
EL = 757.01'
VC = 92'
K = 42
V = 35 mph

(+)4.1377%
(+)1.9660%
(+)2.5100%

END GRADE
–Y1BYP– STA. 11+76.71
EL. 757.93'

BEGIN GRADE
–Y1BYP– STA. 10+00.00
EL. 752.20'

–RAMPABYP–

I–485 SBL
EXIT RAMP
BYPASS LANE

END GRADE
RAMPABYP– STA. 14+68.65
EL. 748.03'

PI = 13+50.00
EL = 747.67'
VC = 100'
K = 112
V = 40 mph

(+)1.1889%
(+)0.3000%

BEGIN WIDENING
–RAMPABYP– STA. 10+08.01

END WIDENING /BEGIN GRADE
–RAMPABYP– STA. 12+59.66
EL. 746.60'

–RAMPBBYP–

I–485 SBL
ON RAMP
BYPASS LANE

PI = 11+25.76
EL = 748.23'
VC = 72'
K = 12
V = 25 mph

(+)0.4900%
(–)5.3900%

BEGIN GRADE
–RAMPBBYP– STA. 10+00.00
EL. 747.61'

END GRADE
–RAMPBBYP– STA. 11+98.06
EL. 744.33'

EXISTING GROUND
PROPOSED GRADE
LEFT DITCH GRADE
RIGHT DITCH GRADE

–RAMPCBYP–

I–485 NBL
EXIT RAMP
BYPASS LANE

END GRADE
RAMPCBYP– STA. 13+28.73
EL. 737.27'

PI = 11+75.00
EL = 738.25'
VC = 70'
K = 25
V = 30 mph

PI = 12+55.00
EL = 738.63'
VC = 90'
K = 39
V = 30 mph

(+)3.2600%
(+)0.4800%
(–)1.8500%

END WIDEN. & RESURF.
BEGIN GRADE
–RAMPCBYP– STA. 11+03.27
EL. 735.91'

BEGIN WIDENING
–RAMPCBYP– STA. 10+03.04

–RAMPDBYP–

I–485 NBL
ON RAMP
BYPASS LANE

BEGIN GRADE
–RAMPDBYP– STA. 10+00.00
737.20'

PI = 11+20.00
EL = 739.12'
VC = 100'
K = 48
V = 40 mph

(+)1.6000%
(–)0.4800%

END GRADE
–RAMPDBYP– STA. 11+89.97
738.78'

6/20/2017
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User:evans

CONTRACT: 50138.3.131 T.I.P.: W-5601EC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
W-5601EC	PMP-1

NORTH CAROLINA PROFESSIONAL SEAL 27418 ENGINEER V. MARCUS LOWERY

DocuSigned by: V. Marcus Lowery BD20CE1ED86C49E...

6/22/2017

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PAVEMENT MARKING PLAN

MECKLENBURG

LOCATION: MOORES CHAPEL RD. AND RHYNE RD. ROUNDABOUT

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1601 MOORES CHAPEL RD	THERMOPLASTIC	PERMANENT RAISED
SR 1609 RHYNE RD	THERMOPLASTIC	PERMANENT RAISED
I-485 SBL EXIT RAMP	THERMOPLASTIC	PERMANENT RAISED
I-485 SBL ON-RAMP	THERMOPLASTIC	PERMANENT RAISED
I-485 NBL ON-RAMP	THERMOPLASTIC	PERMANENT RAISED
I-485 NBL EXIT RAMP	THERMOPLASTIC	PERMANENT RAISED

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

INDEX

FINAL PAVEMENT MARKING SCHEDULE

SYMB	DESCRIPTION
	THERMOPLASTIC PAVEMENT MARKING LINES (12", 120 MILS)
T10	3 FT.- 3 FT./SP WHITE MINISKIP
	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
TD	3 FT.- 9 FT./SP WHITE MINISKIP
TE	WHITE SOLID LANE LINE
TH	YELLOW SINGLE CENTER
TI	YELLOW DOUBLE CENTER
	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
TN	WHITE GORELINE
TO	WHITE DIAGONAL
TP	YELLOW DIAGONAL
	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
TA	WHITE EDGELINE
TB	YELLOW EDGELINE
	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
UA	LEFT TURN ARROW
UB	RIGHT TURN ARROW
UU	FISH-HOOK STRAIGHT ARROW
UV	FISH-HOOK LEFT/STRAIGHT ARROW
UN	24" YIELD LINE TRIANGLE
	MARKERS
	PERMANENT RAISED PAVEMENT MARKERS (SNOWPLOWABLE)
ME	YELLOW & YELLOW
MF	CRYSTAL & RED

PLAN PREPARED BY: TGS ENGINEERS

BURKE EVANS, PE — PROJECT ENGINEER

MARCUS LOWERY, PE — DESIGN TECHNICIAN

TGS ENGINEERS
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SUITE 200
RALEIGH, NC 27603
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PROJ. REFERENCE NO.	SHEET NO.
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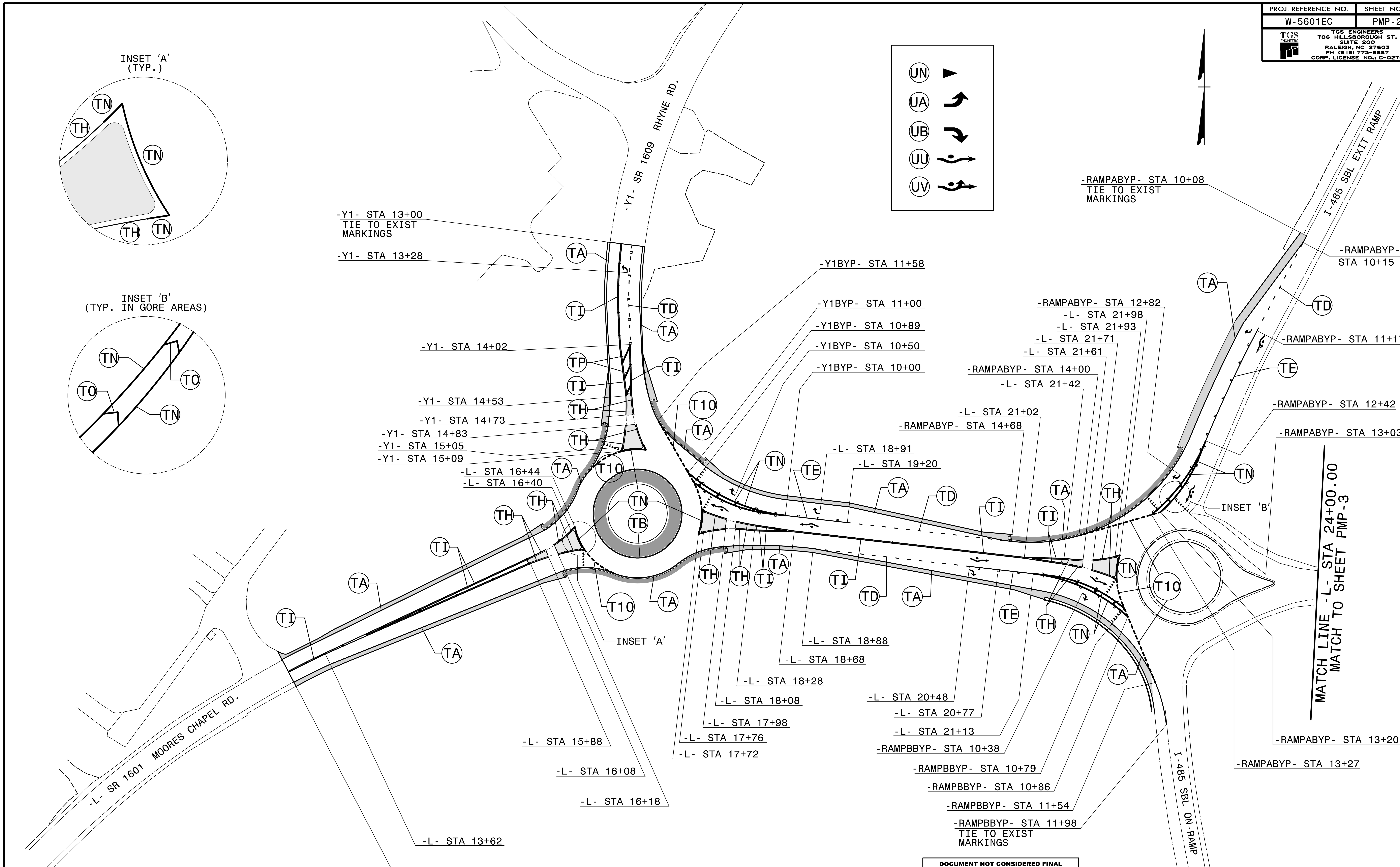

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NORTH CAROLINA PROFESSIONAL SEAL 27418 ENGINEER V. MARCUS LOWERY
6/22/2017

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

FINAL PAVEMENT MARKINGS PLAN

FOR FINAL PAVEMENT SCHEDULE SEE SHEET PMP-1

PROJ. REFERENCE NO.	SHEET NO.
W-5601EC	PMP-3

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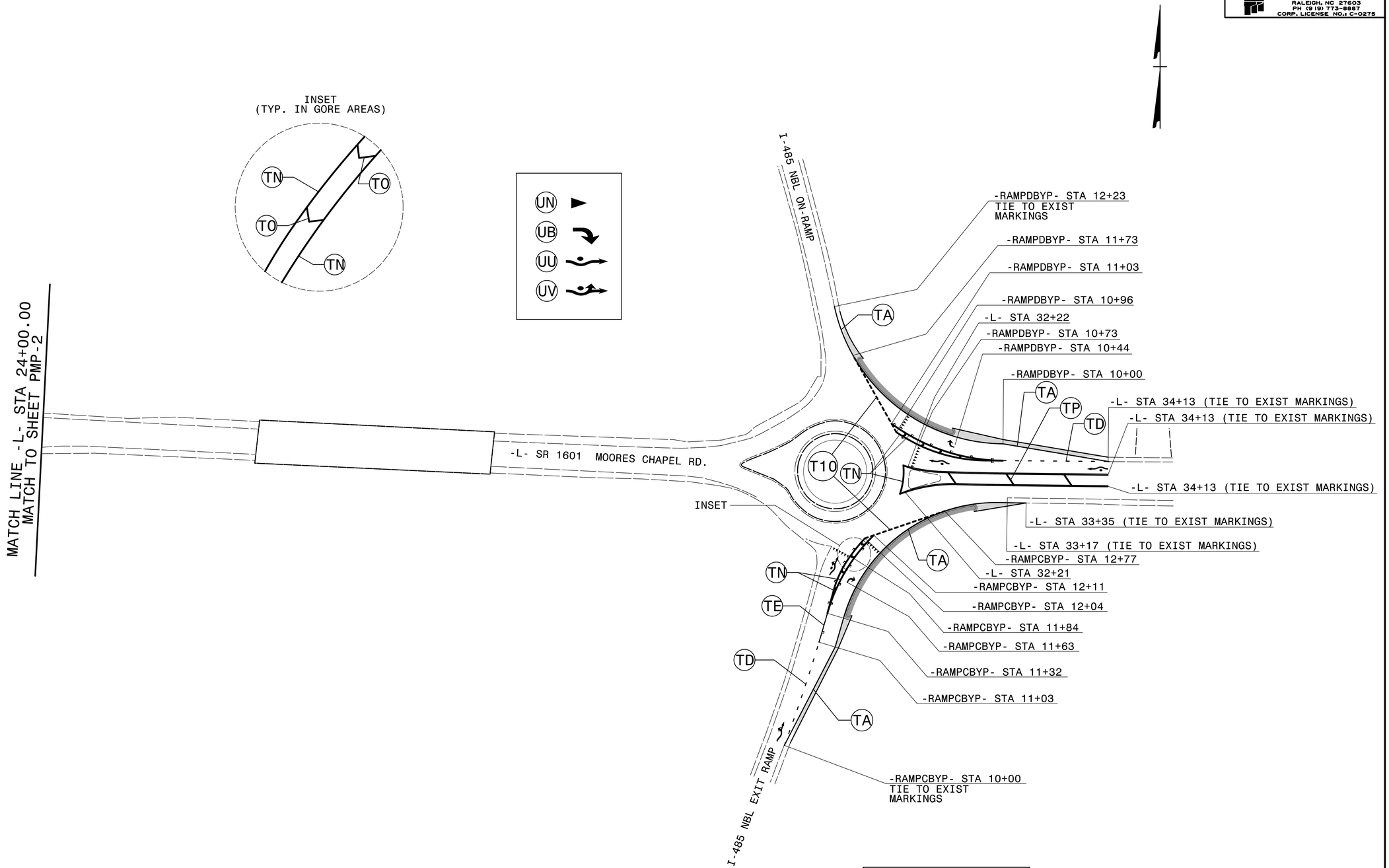

FOR FINAL PAVEMENT SCHEDULE SEE SHEET PMP-1

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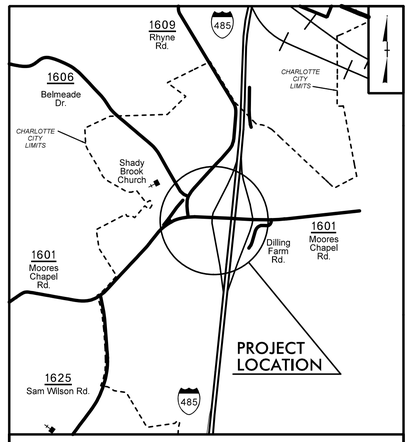
V. M. Lowery
6/22/2017

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

FINAL PAVEMENT MARKINGS PLAN

PROJECT: W-5601EC

CONTRACT: 50138.3.131



VICINITY MAP

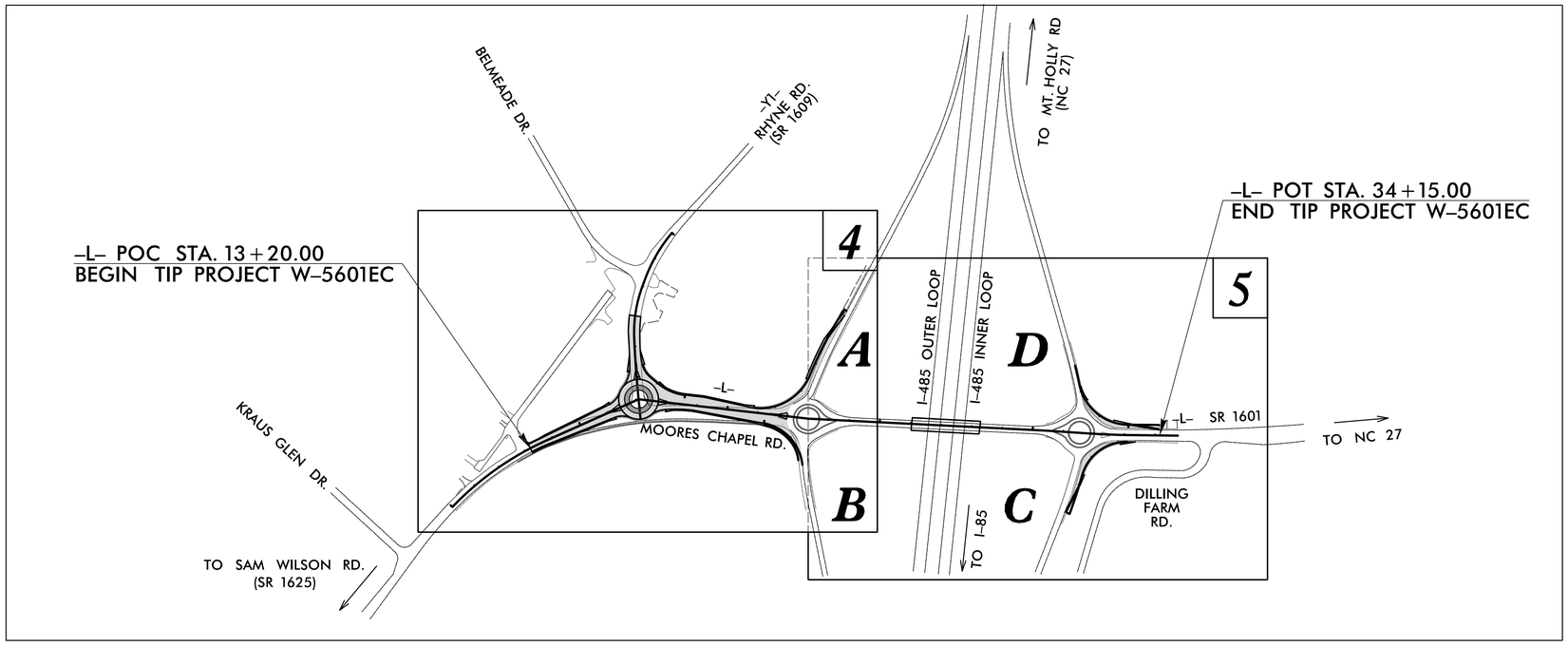
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

MECKLENBURG COUNTY

LOCATION: MOORES CHAPEL RD AND RHYNE RD ROUNDABOUT

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CONCRETE ISLANDS & THERMOPLASTIC PAVEMENT MARKINGS



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601EC	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50138.1.131	HSIP-1601(003)	P.E.
50138.2.131	HSIP-1601(003)	R/W, UTIL.
50138.3.131	HSIP-1601(003)	CONST.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	SW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALE

25 0 50

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

TGS ENGINEERS

804-C N. LAFAYETTE ST.
SHELBY, NC 28150

2012 STANDARD SPECIFICATIONS

Designed by:

ANDREW H. COCHRANE, PE 3015

NAME *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

JEREMY GOODWIN, PE

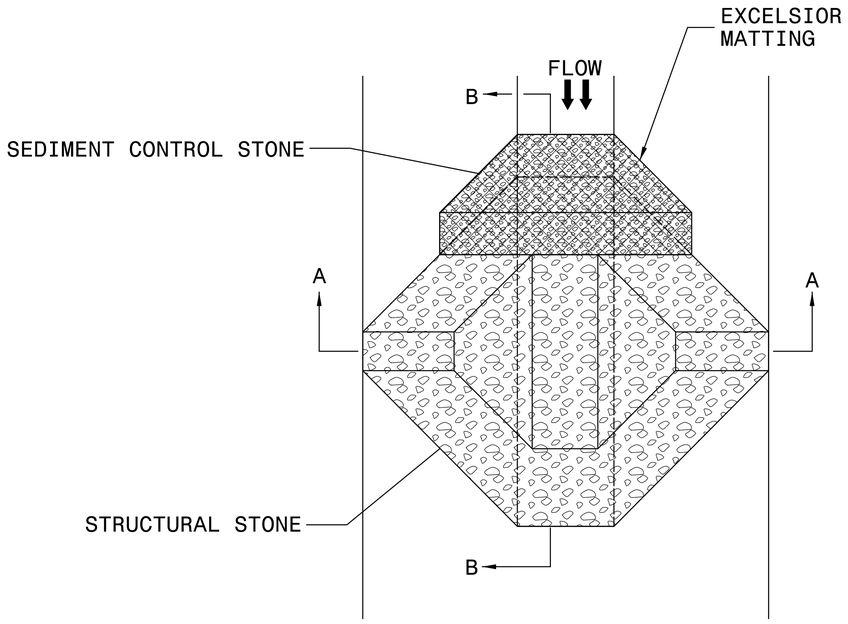
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

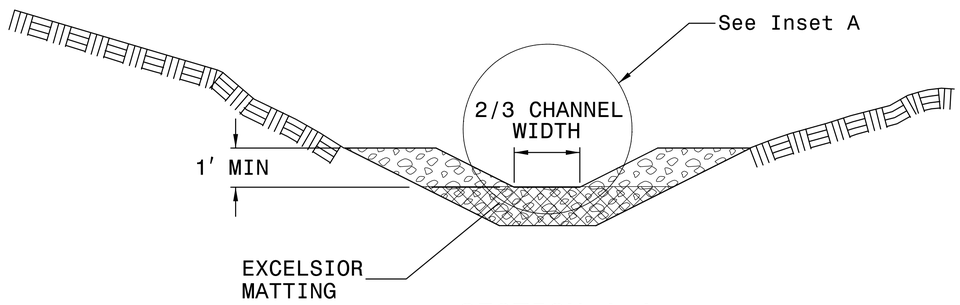
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

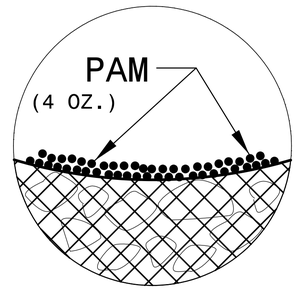
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

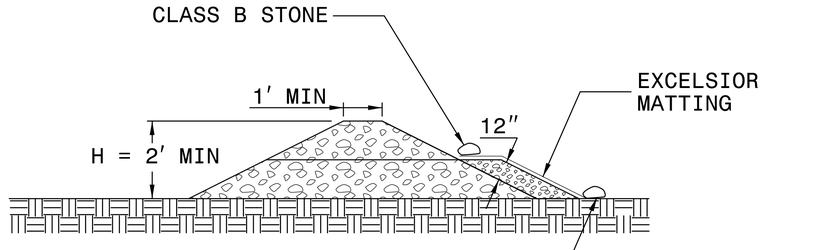
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	*STABILIZATION TIME*	*TIMEFRAME EXCEPTIONS*
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

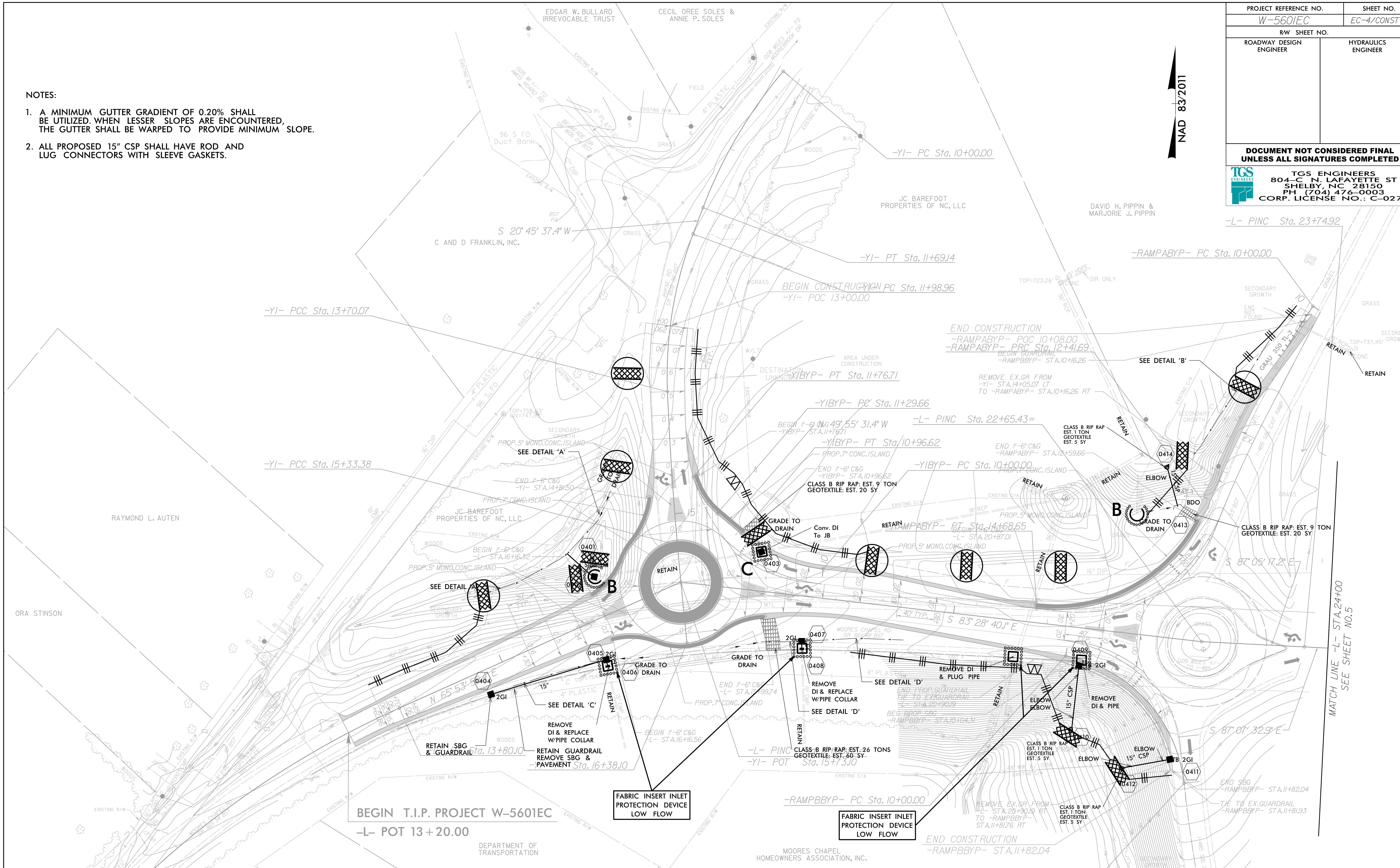
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

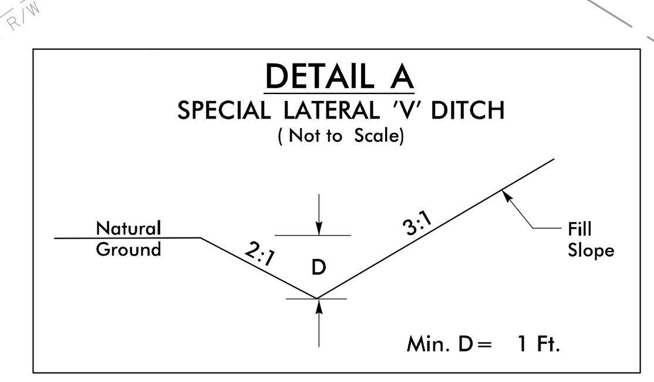
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NOTES:

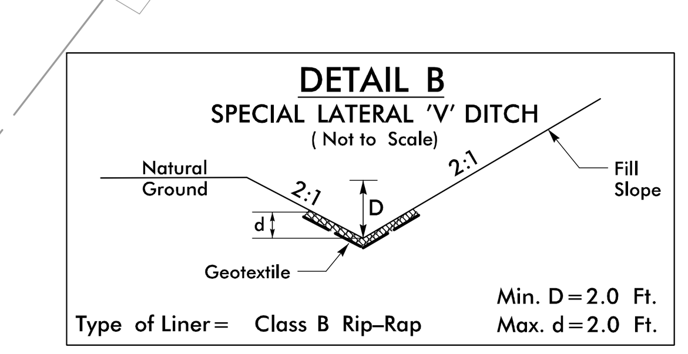
1. A MINIMUM GUTTER GRADIENT OF 0.20% SHALL BE UTILIZED. WHEN LESSER SLOPES ARE ENCOUNTERED, THE GUTTER SHALL BE WARPED TO PROVIDE MINIMUM SLOPE.

2. ALL PROPOSED 15" CSP SHALL HAVE ROD AND LUG CONNECTORS WITH SLEEVE GASKETS.

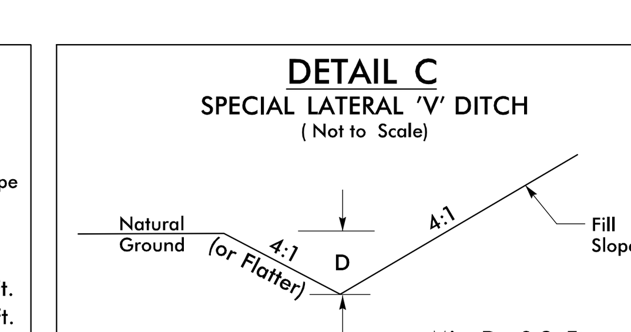




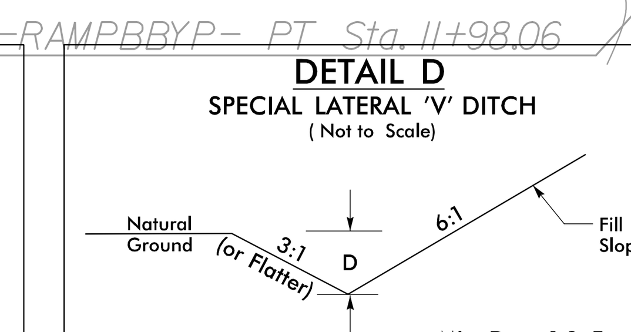
-L- STA. 15+00 TO 16+10 LT
-Y1- STA. 15+00 TO 15+32 RT
(SEE DITCH PROFILES, SHEET 6)



-RAMPABYP- STA. 10+50 TO 11+98 RT
(SEE XSCs, SHEET X-6)
CLASS B RIP RAP: EST. 70 TONS
GEOTEXTILE: EST. 150 SY



-L- STA. 15+00 TO 16+00 RT
(SEE DITCH PROFILE, SHEET 6)
(SEE XSCs, SHEET X-1 & X-2)



-L- STA. 18+00 TO 19+50 RT
(SEE DITCH PROFILE, SHEET 6)
(SEE XSCs, SHEET X-2)

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

NOTES:

1. A MINIMUM GUTTER GRADIENT OF 0.20% SHALL BE UTILIZED. WHEN LESSER SLOPES ARE ENCOUNTERED, THE GUTTER SHALL BE WARPED TO PROVIDE MINIMUM SLOPE.

2. ALL PROPOSED 15" CSP SHALL HAVE ROD AND LUG CONNECTORS WITH SLEEVE GASKETS.

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
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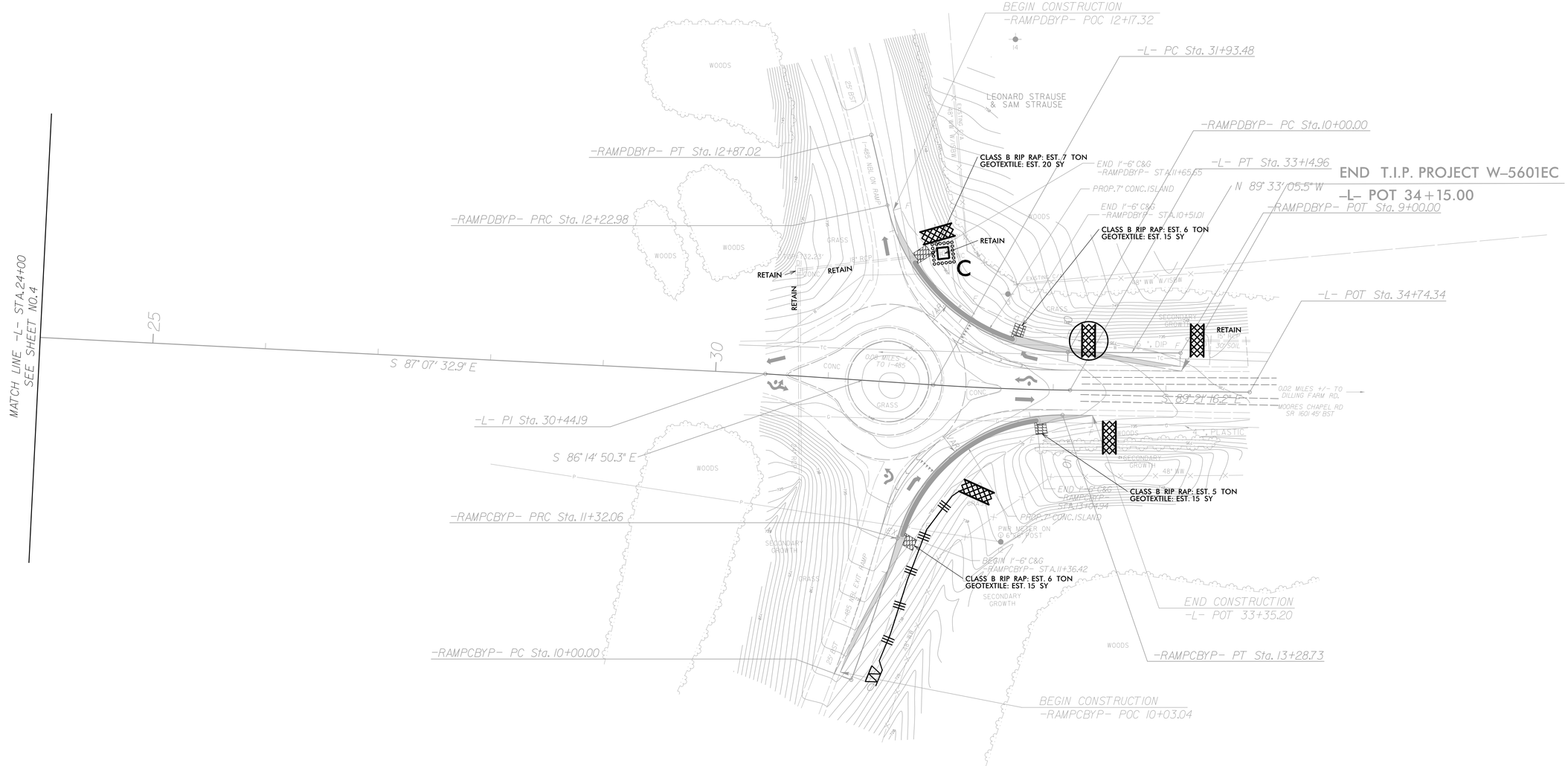

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NOTES:

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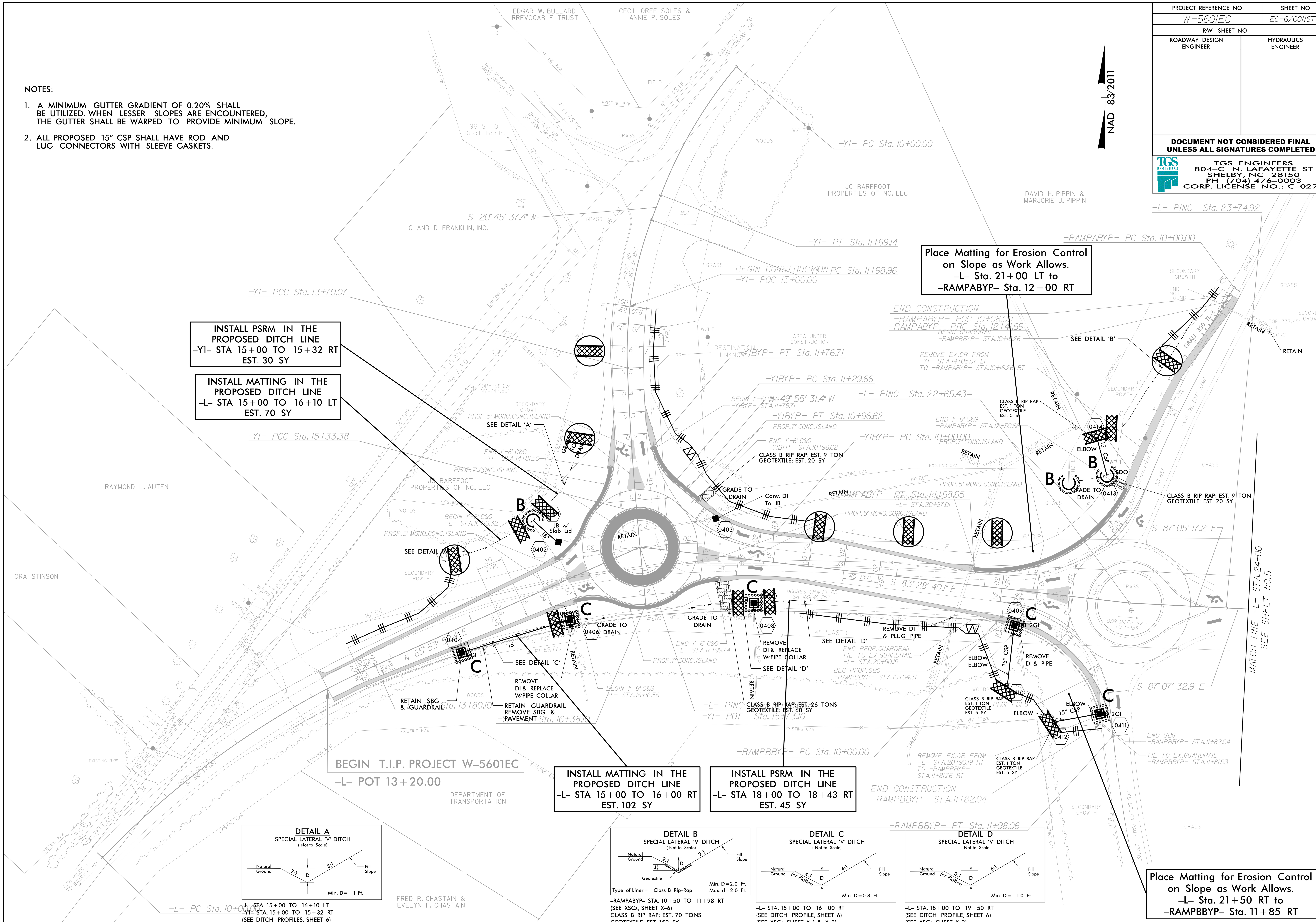
2. ALL PROPOSED 15" CSP SHALL HAVE ROD AND LUG CONNECTORS WITH SLEEVE GASKETS.



NAD 83/2011
INSTALL PSRM IN THE PROPOSED DITCH LINE -Y1- STA 15+00 TO 15+32 RT EST. 30 SY
INSTALL MATTING IN THE PROPOSED DITCH LINE -L- STA 15+00 TO 16+10 LT EST. 70 SY
Place Matting for Erosion Control on Slope as Work Allows. -L- Sta. 21+00 LT to -RAMPABYP- Sta. 12+00 RT
INSTALL MATTING IN THE PROPOSED DITCH LINE -L- STA 15+00 TO 16+00 RT EST. 102 SY
INSTALL PSRM IN THE PROPOSED DITCH LINE -L- STA 18+00 TO 18+43 RT EST. 45 SY
Place Matting for Erosion Control on Slope as Work Allows. -L- Sta. 21+50 RT to -RAMPBBYP- Sta. 11+85 RT
BEGIN T.I.P. PROJECT W-5601EC
-L- POT 13+20.00
MATCH LINE -L- STA.24+00 SEE SHEET NO.5
EDGAR W. BULLARD IRREVOCABLE TRUST
CECIL OREE SOLES & ANNIE P. SOLES
JC BAREFOOT PROPERTIES OF NC, LLC
DAVID H. PIPPIN & MARJORIE J. PIPPIN
C AND D FRANKLIN, INC.
RAYMOND L. AUTEN
ORA STINSON
FRED R. CHASTAIN & EVELYN F. CHASTAIN
DEPARTMENT OF TRANSPORTATION
-Y1- PC Sta. 10+00.00
-Y1- PT Sta. 11+69.14
-Y1- PCC Sta. 13+70.07
-Y1- PCC Sta. 15+33.38
-L- PINC Sta. 23+74.92
-L- PINC Sta. 22+65.43
-RAMPABYP- PC Sta. 10+00.00
-RAMPBBYP- PC Sta. 10+00.00
-L- PC Sta. 10+00.00
S 20° 45' 37.4" W
S 87° 05' 17.2" E
S 83° 28' 40.1" E
S 87° 07' 32.9" E
RETAIN
GRADE TO DRAIN
SEE DETAIL 'A'
SEE DETAIL 'B'
SEE DETAIL 'C'
SEE DETAIL 'D'
CLASS B RIP RAP: EST. 9 TON GEOTEXTILE: EST. 20 SY
CLASS B RIP RAP: EST. 26 TONS GEOTEXTILE: EST. 60 SY
REMOVE DI & REPLACE W/PIPE COLLAR
REMOVE DI & PLUG PIPE
REMOVE DI & PIPE
RETAIN SBG & GUARDRAIL
RETAIN GUARDRAIL REMOVE SBG & PAVEMENT
DETAIL A SPECIAL LATERAL 'V' DITCH (Not to Scale) Min. D = 1 Ft.
-L- STA. 15+00 TO 16+10 LT
-Y1- STA. 15+00 TO 15+32 RT
(SEE DITCH PROFILES, SHEET 6)
DETAIL B SPECIAL LATERAL 'V' DITCH (Not to Scale) Min. D=2.0 Ft. Max. d=2.0 Ft.
Type of Liner = Class B Rip-Rap
-RAMPABYP- STA. 10+50 TO 11+98 RT
(SEE XSCs, SHEET X-6)
CLASS B RIP RAP: EST. 70 TONS
GEOTEXTILE: EST. 150 SY
DETAIL C SPECIAL LATERAL 'V' DITCH (Not to Scale) Min. D=0.8 Ft.
-L- STA. 15+00 TO 16+00 RT
(SEE DITCH PROFILE, SHEET 6)
(SEE XSCs, SHEET X-1 & X-2)
DETAIL D SPECIAL LATERAL 'V' DITCH (Not to Scale) Min. D= 1.0 Ft.
-L- STA. 18+00 TO 19+50 RT
(SEE DITCH PROFILE, SHEET 6)
(SEE XSCs, SHEET X-2)

PROJECT REFERENCE NO.	SHEET NO.
W-5601EC	EC-7/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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CORP. LICENSE NO.: C-0275

NAD 83/2011

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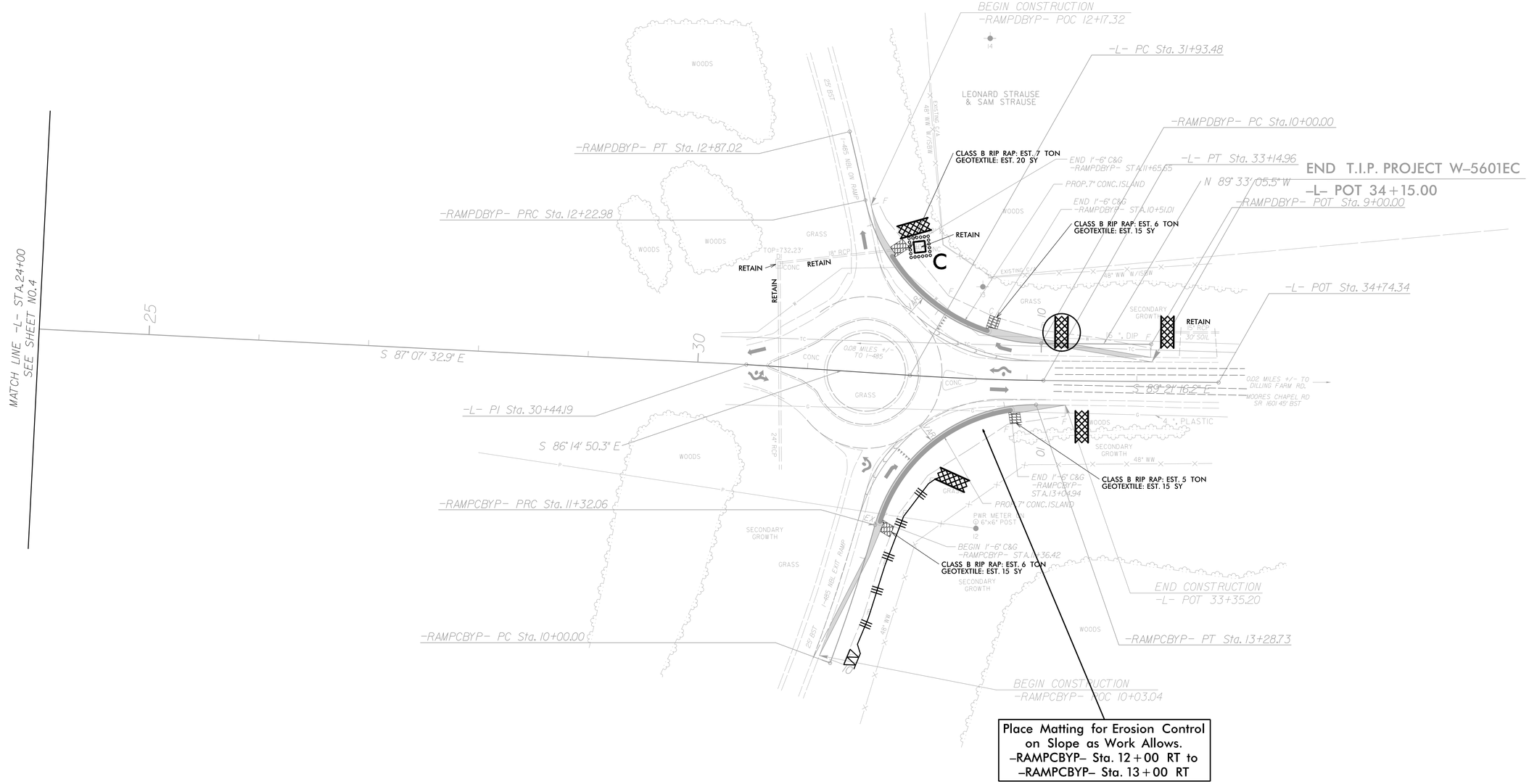
2. ALL PROPOSED 15" CSP SHALL HAVE ROD AND LUG CONNECTORS WITH SLEEVE GASKETS.



PROJ. REFERENCE NO.	SHEET NO.
W-5601EC	X-0

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+60.86	0	0
14+00.00	6	1
14+50.00	4	4
15+00.00	2	25
15+50.00	31	154
16+00.00	119	443
18+00.00	17	148
18+50.00	58	212
19+00.00	67	122
19+50.00	36	81
20+00.00	15	68
20+50.00	38	60
21+00.00	80	61
21+50.00	100	273
22+00.00	132	718

Station RAMPCBYP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+00.00	17	42

Station RAMPDBYP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
9+50.00	0	0
10+00.00	24	2
10+50.00	20	6
11+00.00	24	29
11+50.00	26	53
12+00.00	18	28

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the lump sum price for "Grading".

Station Y1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+00.00	0	0
13+50.00	4	2
14+00.00	1	3
14+50.00	4	26
15+00.00	19	302
15+08.10	3	76
15+50.00	4	346
16+00.00	16	281

Station RAMPABYP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	24	1
11+00.00	29	14
11+50.00	48	65
12+00.00	37	129
12+50.00	10	113
13+00.00	6	102
13+50.00	11	122

Station RAMPBBYP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+00.00	7	346
11+50.00	15	377

Station RAMPCBYP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	14	4
11+00.00	17	4
11+50.00	21	17
12+00.00	23	38
12+50.00	24	57

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-1

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

770 760 750 740

S.S. 751.07
2:1
745.18
3:1
0.053
0.053
4:1 4:1
757.66
754.58

15+50.00

3:1
0.06
0.06
4:1 4:1
758.15
756.08

15+00.00

3:1
0.06
0.06
758.48

14+50.00

8.163:1
0.06
0.06
758.83

14+00.00

11.08:1
760.01
0.055
0.059
759.11

13+60.86

759.18

13+50.00

759.24

13+00.00

—L—

6/20/2017
X:\ncdot\w-5601ec\roadway\CorridorModeling\W-5601EC_RDY_XPLL.dgn
User:bevans

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-2

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

760 750 740 730

3:1 0.020 0.020 50:1

748.81

20+00.00

760 750 740

3:1 0.013 0.020 6:1 14:1

749.83 748.22

19+50.00

760 750 740

3:1 0.000 0.020 6:1 7:1

750.75 748.07

19+00.00

760 750 740

3:1 0.010 0.013 0.020 6:1 3.2:1

751.02 747.92

18+50.00

760 750 740

3.4:1 0.009 0.020 0.020 6:1 6.6:1

751.68 750.00

18+00.00

760 750 740

S.S. 751.20 2:1 3:1 0.037 0.037 4:1 6:1

743.83 756.98 753.08

16+00.00

—℄—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/20/2017
K:\ncdot\w-5601ec\roadway\CorridorModeling\W-5601EC_RDY_XPLL.dgn
User:bevans

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-3

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

760 750 740 730 720

4.1:1 0.035 0.007 0.000 0.022 3:1

748.43

22+00.00

760 750 740 730 720

3.32:1 0.026 0.013 0.012 0.018 2.128:1

748.19

21+50.00

710 750 740 730 720

3:1 0.017 0.020 50:1

747.93

21+00.00

760 750 740 730 720

3:1 0.020 0.020 50:1

748.11

20+50.00

—℄—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/20/2017
X:\ncdot\w-5601ec\roadway\CorridorModeling\W-5601EC_RDY_XPLL.dgn
User:bevans

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

770 760 750

3:1 0.020 0.020 3:1

758.33

14+50.00

12.50:1 0.038 0.039 3:1

759.07

14+00.00

0.058 0.060 3:1

759.42

13+50.00

0.078 0.062 6:1

760.15

13+00.00

760.64

12+50.00

760.94

12+15.00

761.02

12+00.00

-Y/-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-5

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

760 / 750 / 740

753.64

16+30.00

760 / 750 / 740

0.020 0.020

755.19

16+00.00

760 / 750 / 740

755.87

15+73.10

760 / 750 / 740

0.020 0.020

756.33

15+50.00

760 / 750 / 740

3.9:1 0.014 0.020 0.020 758.09

757.19

15+08.10

760 / 750 / 740

3.9:1 0.010 0.020 0.020 758.17

757.36

SECTION SKEWED RELATIVE TO SLOPE. SEE PROFILE, SHEET 6 FOR DITCH GRADE AND DETAIL A, SHEET 4 FOR SIDE SLOPES.

3.7:1 3.6:1 746.50

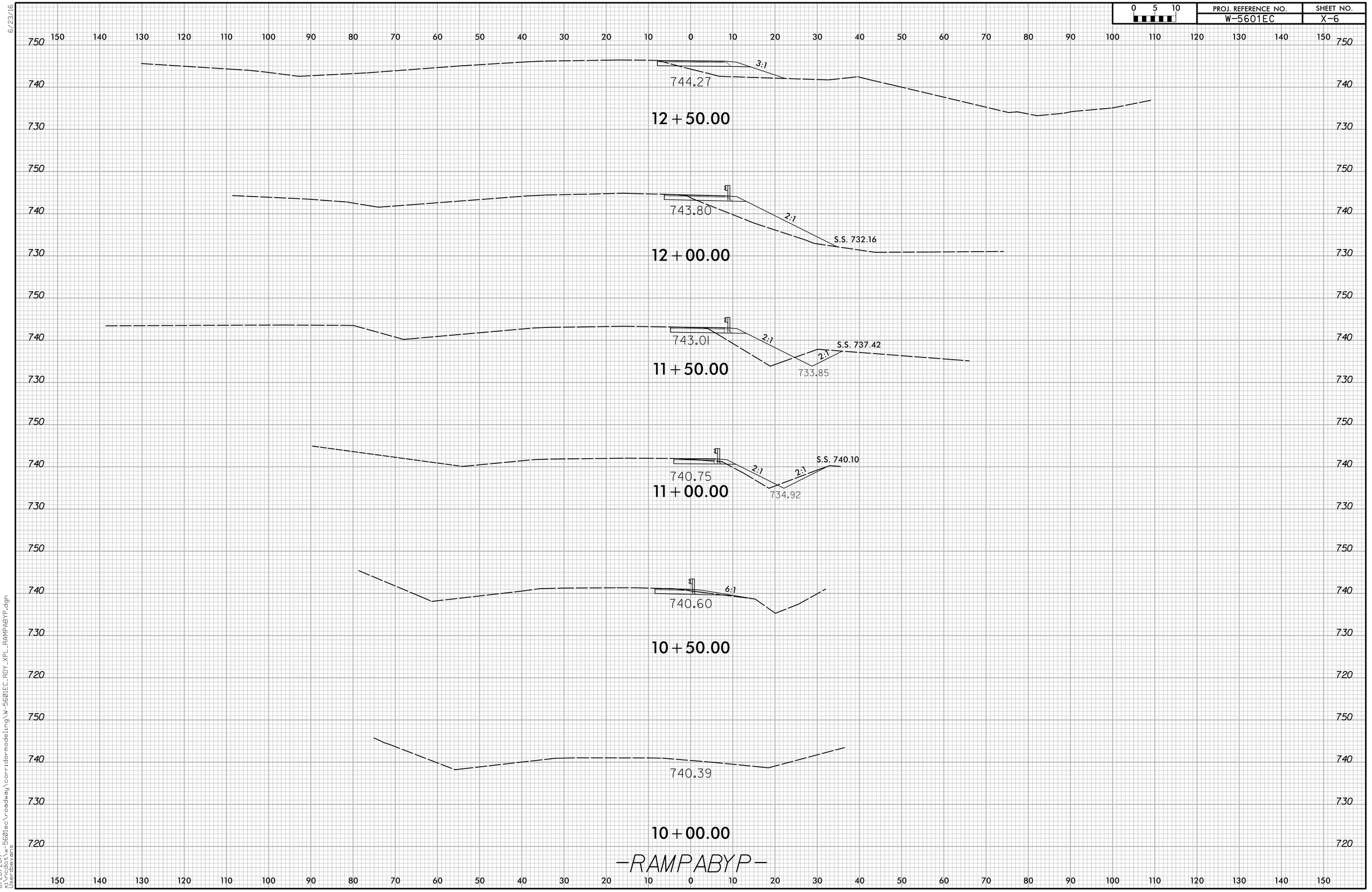
15+00.00

-Y1-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/20/2017
X:\ncdot\w-5601ec\roadway\CorridorModeling\W-5601EC_RDY_XPL_Y1.dgn
User:tevans

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-6



6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-7

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

760
750
740
730

0.02
3:1
745.74
13+50.00

0.02
3:1
744.85
13+00.00

-RAMPABYP-

6/20/2017
x:\ncdot\w-5601ec\roadway\corridormodeling\W-5601EC_RDY_XPL_RAMPABYP.dgn
User:bevans

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-8

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

760
750
740
730
720
710
700

0.002
746.66
2:1

11+50.00

0.004
745.58
2:1

11+00.00

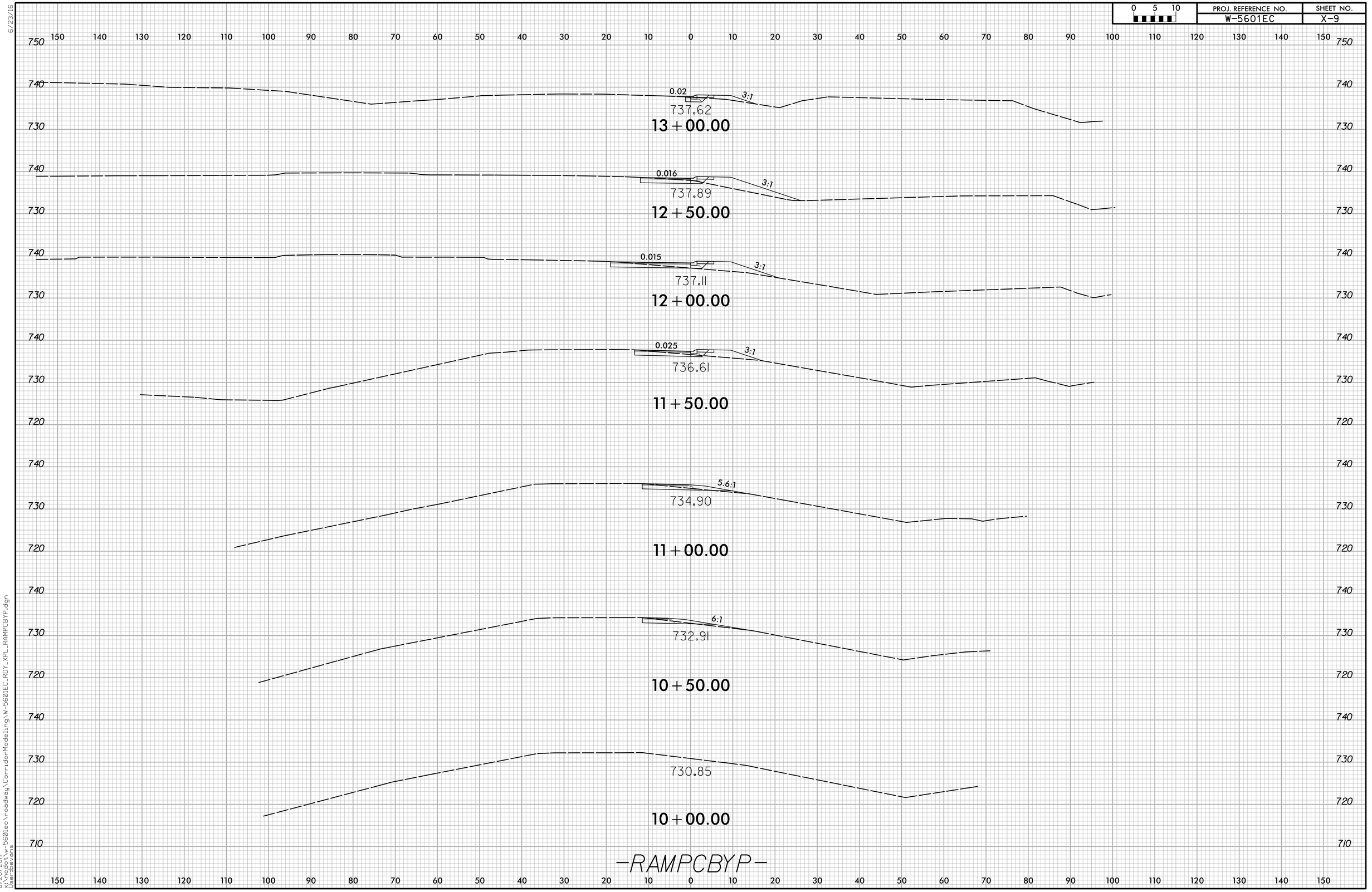
-RAMPBBYP-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/20/2017
X:\ncdot\w-5601ec\roadway\CorridorModeling\W-5601EC_RDY_XPL_RAMPBBYP.dgn
User:bevans

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-9



6/20/2017
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User:bevans

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5601EC	X-10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

750
740
730

5.8:1
738.77
12+00.00

0.000
3:1
737.76
11+50.00

0.014
3:1
737.24
11+00.00

0.008
3:1
2:1
736.72
10+50.00

0.006
3:1
736.17
10+00.00

10.4:1
735.45
9+50.00

-RAMPDBYP-

6/20/2017
x:\ncdot\w-5601ec\roadway\CorridorModeling\W-5601EC_RDY_XPL_RAMPDBYP.dgn
User:bevans