

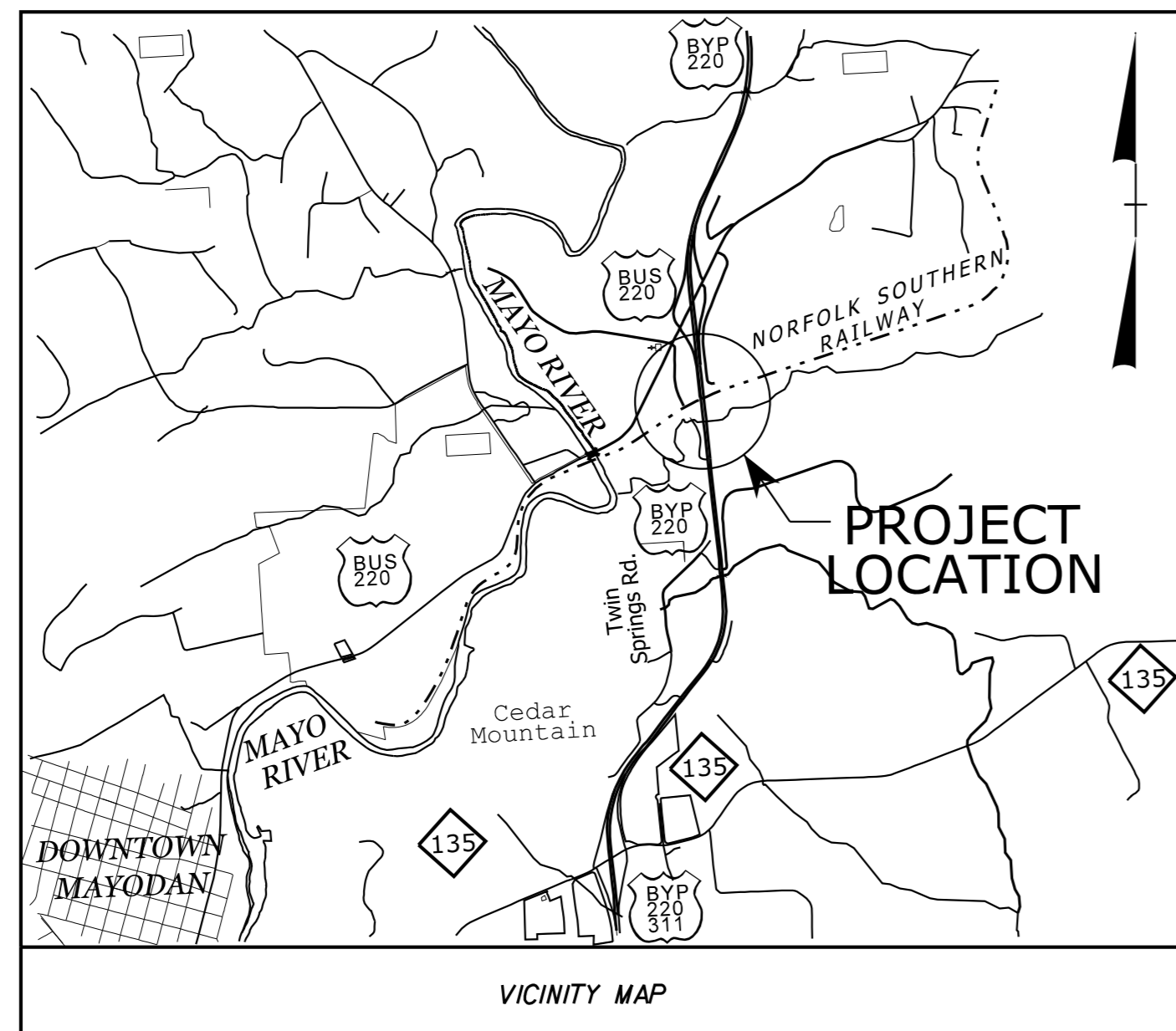
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**TIP PROJECT: B-5352**

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



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

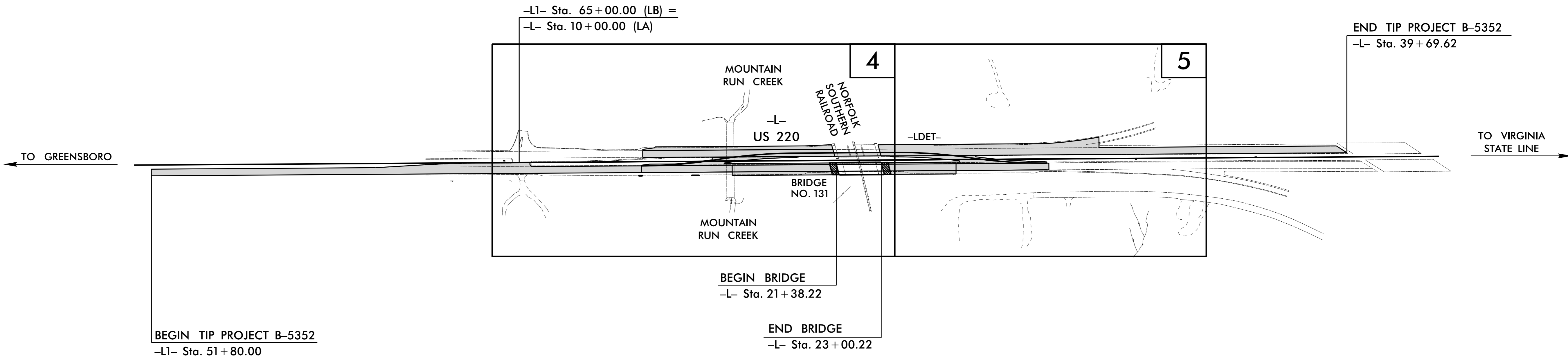
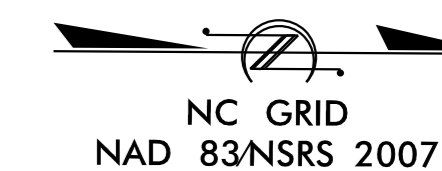
**ROCKINGHAM COUNTY**

**LOCATION: BRIDGE NO. 131 ON US 220 NBL OVER NORFOLK SOUTHERN RAILROAD**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**

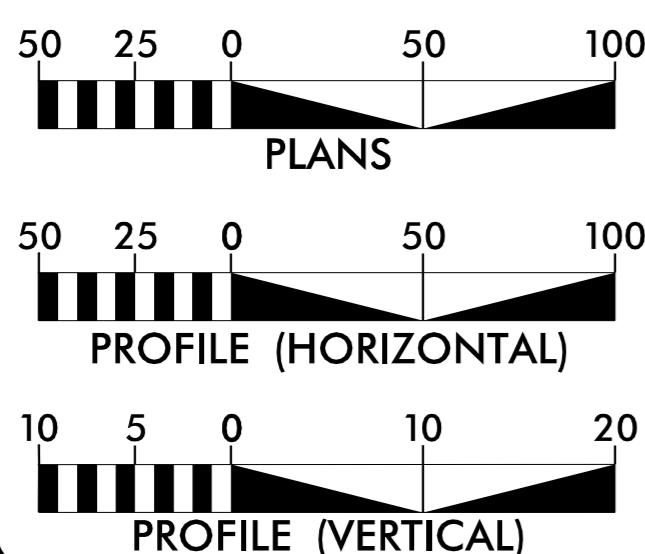
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5352	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46066.1.1	BRNHS-0220(67)	P.E.	
46066.2.1	BRNHS-0220(67)	RIGHT-OF-WAY	
46066.2.1	BRNHS-0220(67)	UTILITIES	
46066.3.1	BRNHS-0220(67)	CONSTRUCTION	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



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

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2018 = 19336 VPD  
ADT 2040 = 30100 VPD  
DHV = 11%  
D = 55%  
T = 23%\*  
V = 65 MPH  
V<sub>DET</sub> = 55 MPH  
\* TTST=14% DUAL=9%  
FUNC CLASS = RURAL FREEWAY (FUTURE INTERSTATE) "STATEWIDE TIER"

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-5352 = 0.781 MILES  
LENGTH STRUCTURES TIP PROJECT B-5352 = 0.031 MILES  
TOTAL LENGTH TIP PROJECT B-5352 = 0.812 MILES

PLANS PREPARED FOR THE NCDOT BY:

**Kimley & Horn**

1000 BROADWAY, SUITE 1000  
FAYETTEVILLE, NORTH CAROLINA 28404  
PHONE: (704) 772-0200

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
NOVEMBER 18, 2016

LETTING DATE:  
MAY 15, 2018

**JEFFREY W. MOORE, P.E.**  
PROJECT ENGINEER

**CATHERINE M. KENNEDY, P.E.**  
PROJECT DESIGN ENGINEER

**JACQUELYN BOWLES, P.E.**  
NCDOT CONTACT

HYDRAULICS ENGINEER



3/28/2018 P.E.

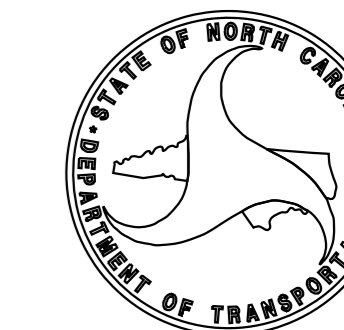
SIGNATURE:

ROADWAY DESIGN ENGINEER



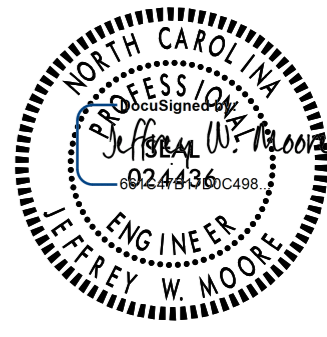
3/26/2018 P.E.

SIGNATURE:



**CONTRACT: C204101**

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-5352	SHEET NO. 1A
ROADWAY DESIGN ENGINEER	
	
3/26/2018	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

B-5352  
ROCKINGHAM COUNTY

SHEET NUMBER	SHEET	INDEX OF SHEETS
I	TITLE SHEET	
IA	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS	
IB	CONVENTIONAL SYMBOLS SHEET	
IC-1	SURVEY CONTROL SHEET	
2A-1 THRU 2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS	
2B-1 THRU 2B-2	DETOUR PLAN SHEETS	
2C-1	DETAIL FOR CONVERTING EXISTING JUNCTION BOX TO DROP INLET	
2C-2	DETAIL FOR GUARDRAIL INSTALLATION	
3B-1	SUMMARY OF EARTHWORK	
3B-2	SUMMARIES OF GUARDRAIL AND SHOULDER BERM GUTTER	
3B-3	SUMMARIES OF REMOVAL OF EXISTING ASPHALT PAVEMENT AND CHAIN LINK FENCE	
3D-1	SUMMARY OF DRAINAGE QUANTITIES	
3G-1	GEO TECHNICAL SUMMARIES	
3P-1	PARCEL INDEX SHEET	
4 THRU 5	PLAN SHEETS	
6 THRU 7	PROFILE SHEETS	
TMP-1 THRU TMP-11	TRANSPORTATION MANAGEMENT PLANS	
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS	
EC-1 THRU EC-7	EROSION CONTROL PLANS	
X-0	CROSS-SECTION INDEX	
X-1A	CROSS-SECTION SUMMARY SHEET	
X-1 THRU X-22	CROSS-SECTIONS	
S-1 THRU S-37	STRUCTURE PLANS	

### GENERAL NOTES

EFF. 01-16-2018

#### 2018 SPECIFICATIONS

EFFECTIVE: 01-16-18

#### GRADE LINE:

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

#### SHOULDER CONSTRUCTION:

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

#### GUARDRAIL:

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

#### TEMPORARY SHORING:

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

#### END BENTS:

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

#### RIGHT-OF-WAY MARKERS:

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

#### 2018 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 JANUARY, 2018 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  
 225.05 METHOD OF OBTAINING SUPERELEVATION - DIVIDED HIGHWAY

DIVISION 3 - PIPE CULVERTS  
 300.01 METHOD OF PIPE INSTALLATION

DIVISION 4 - MAJOR STRUCTURES  
 422.01 BRIDGE APPROACH FILLS - TYPE I STANDARD APPROACH FILL  
 422.03 BRIDGE APPROACH FILLS - TYPE A ALTERNATE APPROACH FILL FOR INTEGRAL ABUTMENT

DIVISION 5 - SUBGRADE, BASES, AND SHOULDERS  
 560.01 METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I

DIVISION 6 - ASPHALT BASES AND PAVEMENTS  
 654.01 PAVEMENT REPAIRS  
 665.01 ASPHALT SHOULDERS - MILLED RUMBLE STRIPS

DIVISION 8 - INCIDENTALS  
 806.01 CONCRETE RIGHT-OF-WAY MARKER  
 806.02 GRANITE RIGHT-OF-WAY MARKER  
 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  
 840.00 CONCRETE BASE PAD FOR DRAINAGE STRUCTURES  
 840.18 CONCRETE GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE  
 840.20 FRAMES AND WIDE SLOT FLAT GRATES  
 840.22 FRAMES AND WIDE SLOT SAG GRATES  
 840.25 ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST  
 840.27 BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE  
 840.34 TRAFFIC BEARING JUNCTION BOX - FOR USE WITH PIPES 42" AND UNDER  
 840.35 TRAFFIC BEARING GRATED DROP INLET - FOR CAST IRON DOUBLE FRAME AND GRATES  
 840.54 MANHOLE FRAME AND COVER  
 840.66 DRAINAGE STRUCTURE STEPS  
 840.71 CONCRETE AND BRICK PIPE PLUG  
 846.01 CONCRETE CURB, GUTTER AND CURB & GUTTER  
 846.04 DROP INLET INSTALLATION IN SHOULDER BERM GUTTER  
 850.01 CONCRETE PAVED DITCHES  
 850.10 GUIDE FOR BERM DRAINAGE OUTLET - 15" AND 18" PIPE  
 862.01 GUARDRAIL PLACEMENT  
 862.02 GUARDRAIL INSTALLATION (USE DETAIL 2C-2 IN LIEU OF SHEET 6 OF 8)  
 862.04 ANCHORING END OF GUARDRAIL - B-77 AND B-83 ANCHOR UNITS  
 866.01 CHAIN LINK FENCE - 4', 5' AND 6' HIGH FENCE  
 876.01 RIP RAP IN CHANNELS  
 876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS  
 876.04 DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

# 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
Computed Property Corner	-----
Property Monument	◻ EGM
Parcel/Sequence Number	⑩②③
Existing Fence Line	-x-x-x-
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	☠-S-☠
Potential Contamination Area: Soil	⊗-S-⊗
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	⊗-W-⊗
Contaminated Site: Known or Potential	☠⊗

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
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	-----
False Sump	-----

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	◻
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	◻
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊕
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite RW Marker	-----
New Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

### 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	☼

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

Hedge	-----
Woods Line	-----
Orchard	-----
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	-----
Storm Sewer	-----

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
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	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	-----
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	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

### TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	-----
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	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	----- ?UL
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.

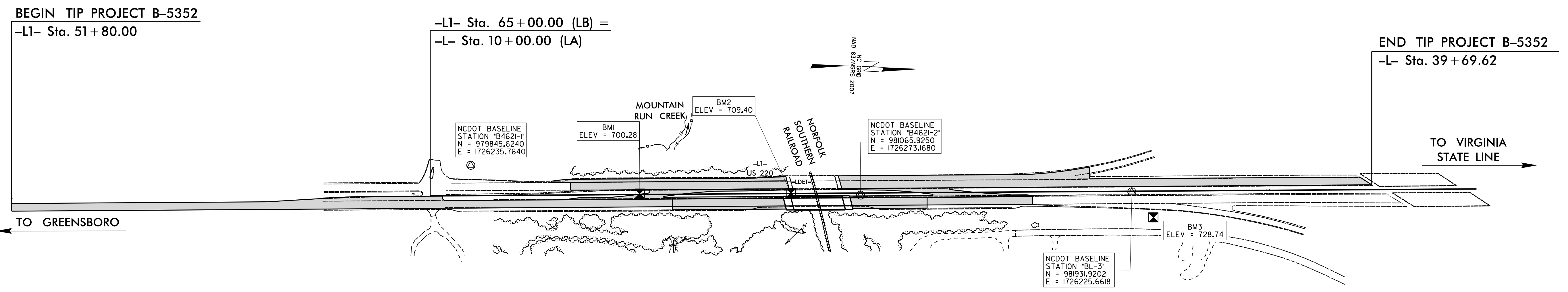
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12/01/2005

# B-5352 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-5352	1C-1
Location and Surveys	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



TYPE	STATION	NORTH	EAST
POT	10+00.00	979721.9901	1726338.0274
POT	33+00.00	982018.9175	1726219.1803

-L- NEW FINAL NEW R/W MONUMENTS				
ALIGN	STATION	OFFSET	NORTH	EAST
L	21+07.00	128.71	980834.16195	1726409.36247
L	21+30.00	147.00	980858.07639	1726426.44096
L	21+45.00	147.00	980873.05635	1726425.66587
L	21+67.00	128.66	980894.07929	1726406.21367

-L- NEW FINAL PERMANENT DRAINAGE EASEMENT				
ALIGN	STATION	OFFSET	NORTH	EAST
L	14+42.00	129.25	980170.07784	1726444.26174
L	14+44.00	137.00	980172.47610	1726451.90164
L	14+59.00	137.00	980187.45606	1726451.12655
L	14+72.00	129.22	980200.03687	1726442.68882
L	16+18.00	137.72	980346.28090	1726443.63344
L	16+21.00	149.00	980349.85972	1726454.73967
L	16+36.00	152.00	980364.99470	1726456.96057
L	16+49.00	141.67	980377.44377	1726445.97684

### BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4621-1		979845.6240	1726235.7640	710.44	11+28.75	95.74 LT
2	B4621-2		981065.9250	1726273.1680	711.94	23+45.49	4.67 RT
3	BL-3		981931.9202	1726225.6618	730.39	32+12.78	1.98 RT

### NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)  
  
THE FILES TO BE FOUND ARE AS FOLLOWS:  
*b5352\_ls\_control.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.

### DATUM DESCRIPTION

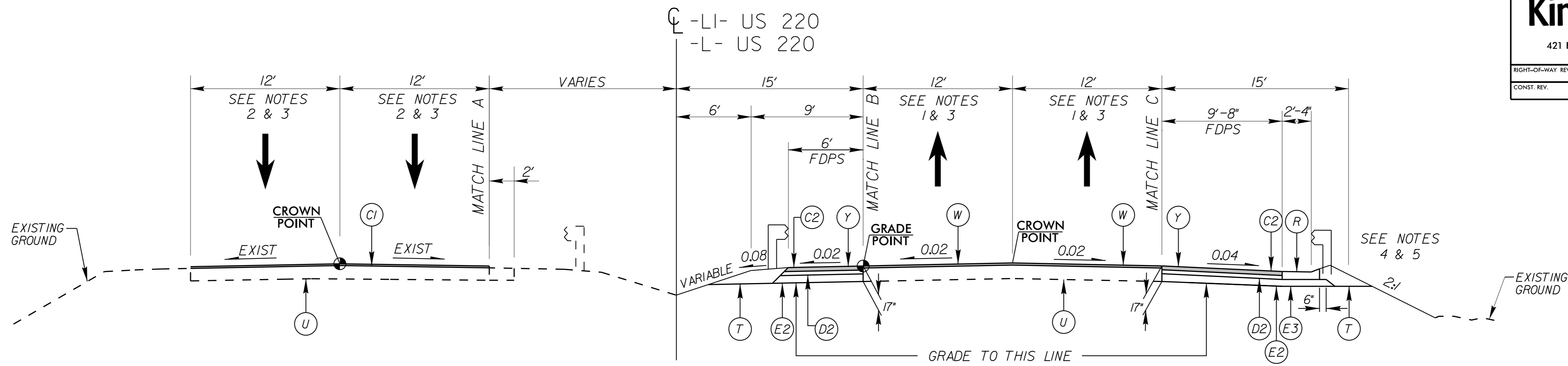
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B4621-2"  
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 981065.9250(ft) EASTING: 1726273.1680(ft) ELEVATION: 711.94'(ft)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000596193  
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4621-2" TO -L1- STATION 51+80.00 IS S 02°51'41" E 2,665.50'  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

### BENCHMARK DATA

.....  
 BM1 ELEVATION = 700.28  
 N 980382 E 1726301  
 L STATION 16+61.00 3 LEFT  
 CHISELED SQUARE ON A YARD INLET GRATE  
 IN MEDIAN OF 220 SOUTH OF THE RAILROAD  
 .....  
 BM2 ELEVATION = 709.40  
 N 980866 E 1726272  
 L STATION 21+46.00 7 LEFT  
 CHISELED SQUARE ON SE WW OF SBL BRIDGE  
 .....  
 BM3 ELEVATION = 728.74  
 N 981985 E 1726304  
 L STATION 32+62.00 83 RIGHT  
 CHISELED SQUARE ON BASE OF BUS 220  
 STONEVILLE SIGN  
 .....

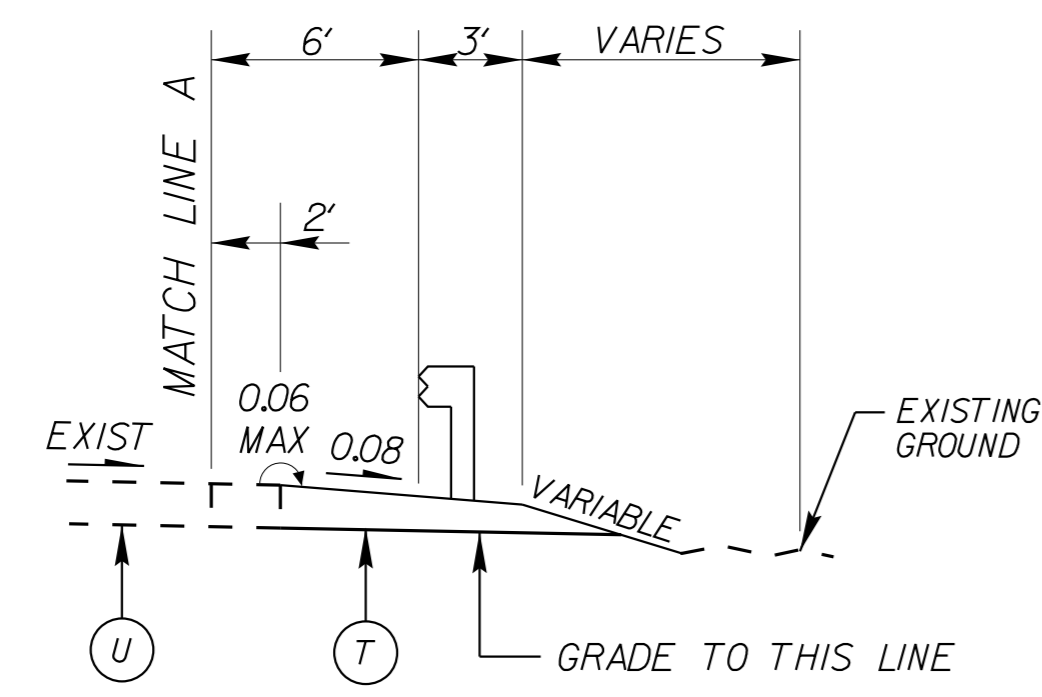
NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO. B-5352	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER Kimley W. Horn 02443668	PAVEMENT DESIGN ENGINEER 3/28/2018 SEAL 022896 C. MORRISON
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	



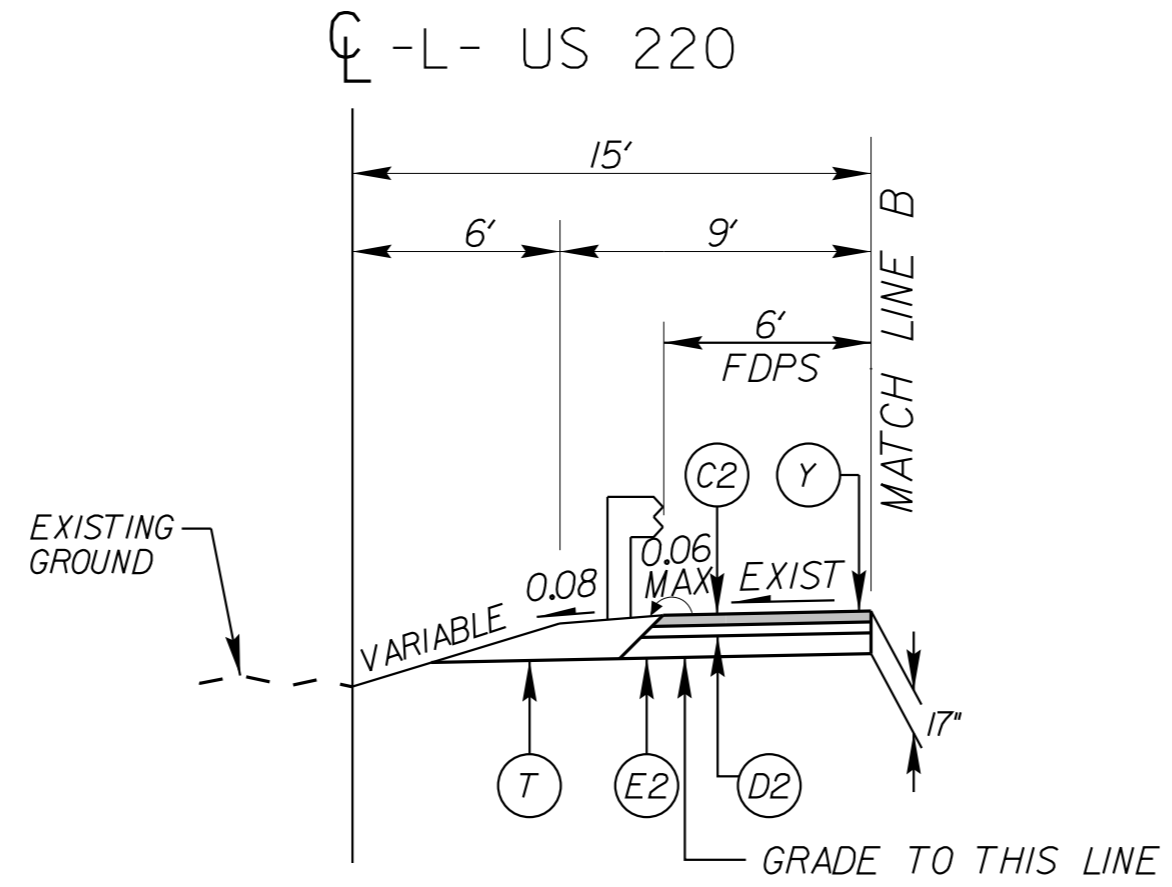
**TYPICAL SECTION NO. 1**

-L- STA 51+80.00 TO STA 65+00.00 (LB)  
-L- STA 10+00.00 (LA) TO STA 21+38.22 (BEGIN BRIDGE)  
-L- STA 23+00.22 (END BRIDGE) TO STA 29+00.00



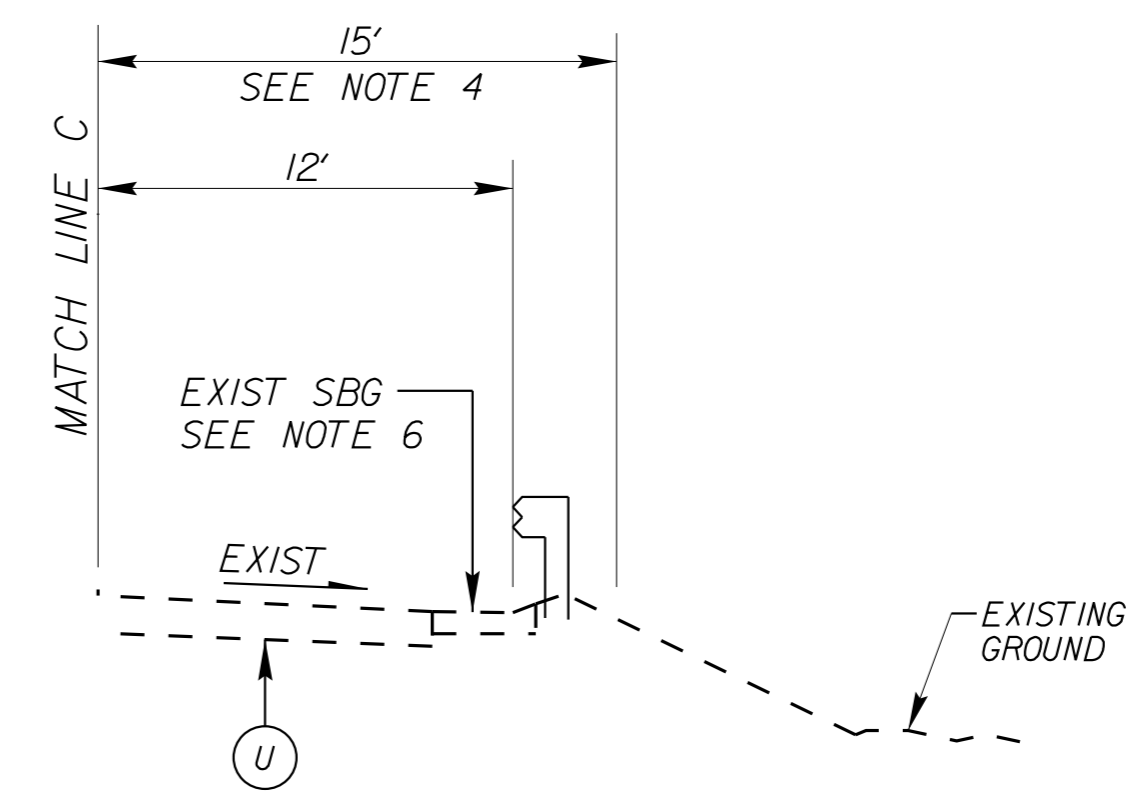
**TYPICAL SECTION NO. 1A**

-L- STA 15+51.07 TO STA 16+92.70 - SBL MEDIAN  
-L- STA 26+37.53 TO STA 27+71.52 - SBL MEDIAN



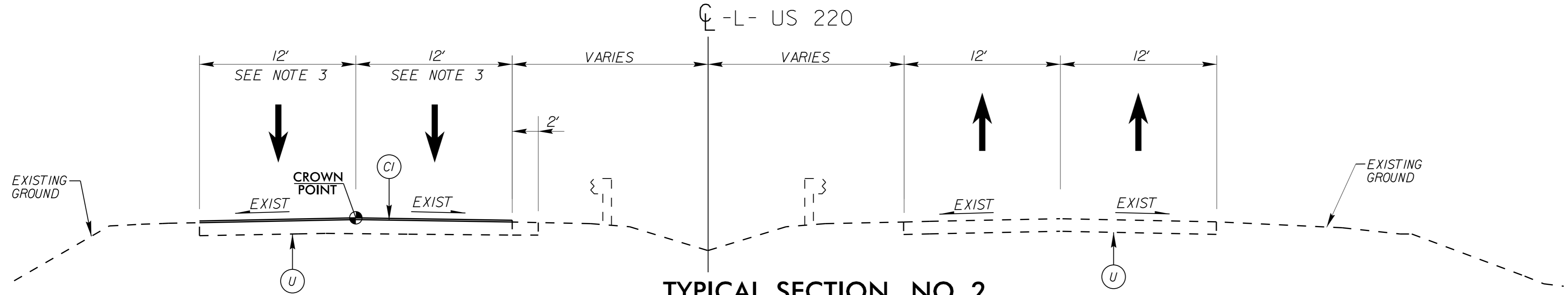
**TYPICAL SECTION NO. 1B**

-L- STA 14+38.38 TO STA 17+64.00 (RT) - NBL MEDIAN  
-L- STA 16+92.70 TO STA 21+43.92 (LT) - SBL MEDIAN  
-L- STA 22+86.81 TO STA 26+37.53 (LT) - SBL MEDIAN



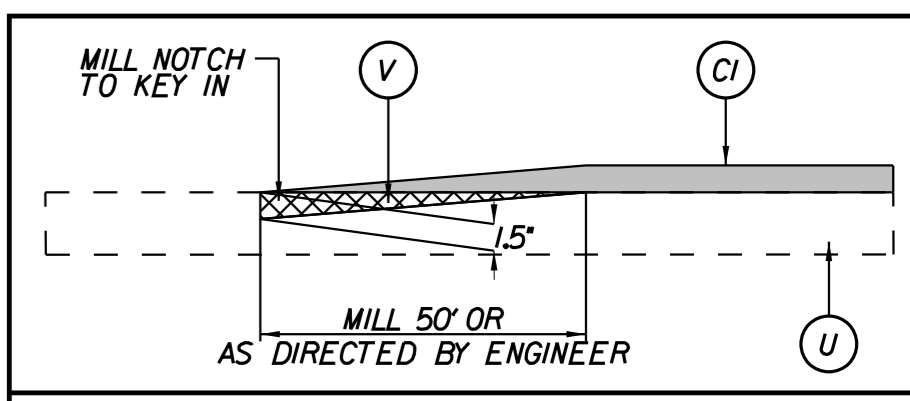
**TYPICAL SECTION NO. 1C**

-L- STA 14+28.00 TO STA 17+64.00 (RT)  
-L- STA 25+67.00 TO STA 29+00.00 (RT)

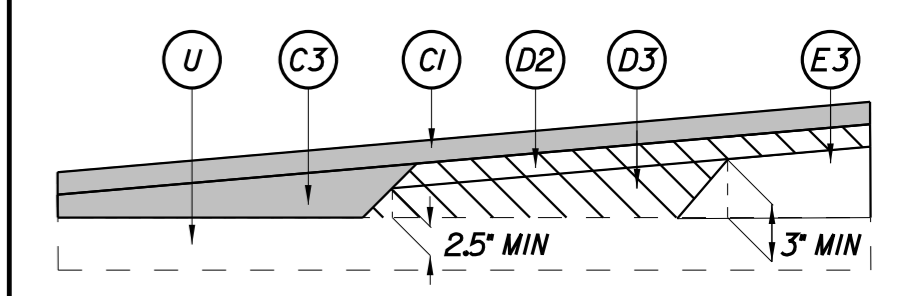


**TYPICAL SECTION NO. 2**

-L- STA 29+00.00 TO STA 39+69.62



PROFILE KEY-IN DETAIL



DETAIL SHOWING METHOD OF WEDGING

**NOTES:**

- 1) OVERLAY FROM -L- STA 51+80.00 TO STA 65+00.00 (RT), FROM -L- STA 10+00.00 TO STA 17+64.00 (RT) AND FROM -L- STA 25+67.00 TO STA 29+00.00 (RT) (1.5" S9.5C)
- 2) OVERLAY FROM -L- STA 14+43.00 TO STA 21+32.33 (LT) AND FROM -L- STA 22+87.67 TO STA 29+00.00 (LT) (1.5" S9.5C)
- 3) MILL NOTCH TO KEY-IN S9.5C FROM -L- STA 51+80.00 TO STA 52+30.00 (RT), -L- STA 14+43.00 TO STA 14+93.00 (LT), -L- STA 28+50.00 TO STA 29+00.00 (RT), AND -L- STA 39+19.62 TO STA 39+69.62 (LT)
- 4) SLOPES ARE STEEPER THAN 2:1 IN SOME AREAS TO AVOID SLOPE SLIVERS (SEE CROSS-SECTIONS)
- 5) RETAIN EXISTING GUARDRAIL FROM -L- STA 25+67.00 TO 28+69.27 (RT)
- 6) INSTALL SHOULDER BERM GUTTER FROM -L- STA 14+28.00 TO STA 14+42.00 (RT) AND FROM -L- STA 16+18.00 TO STA 16+46.00 (RT)
- 7) TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 3 -LDET- STA 10+00.00 TO STA 12+11.95
- 8) TRANSITION FROM TYPICAL SECTION NO. 3 TO EXISTING -LDET- STA 13+43.58 TO STA 15+68.55
- 9) TRANSITION FROM TYPICAL SECTION NO. 3 TO EXISTING -LDET- STA 18+94.01 TO STA 21+18.23
- 10) TRANSITION FROM TYPICAL SECTION NO. 3 TO EXISTING -LDET- STA 22+41.75 TO STA 24+58.52
- 11) EXCAVATE DETOUR CROSSOVER AS SHOWN ON DITCH DETAILS (SHEETS 4 & 5) AND CROSS SECTIONS
- 12) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

REVISIONS

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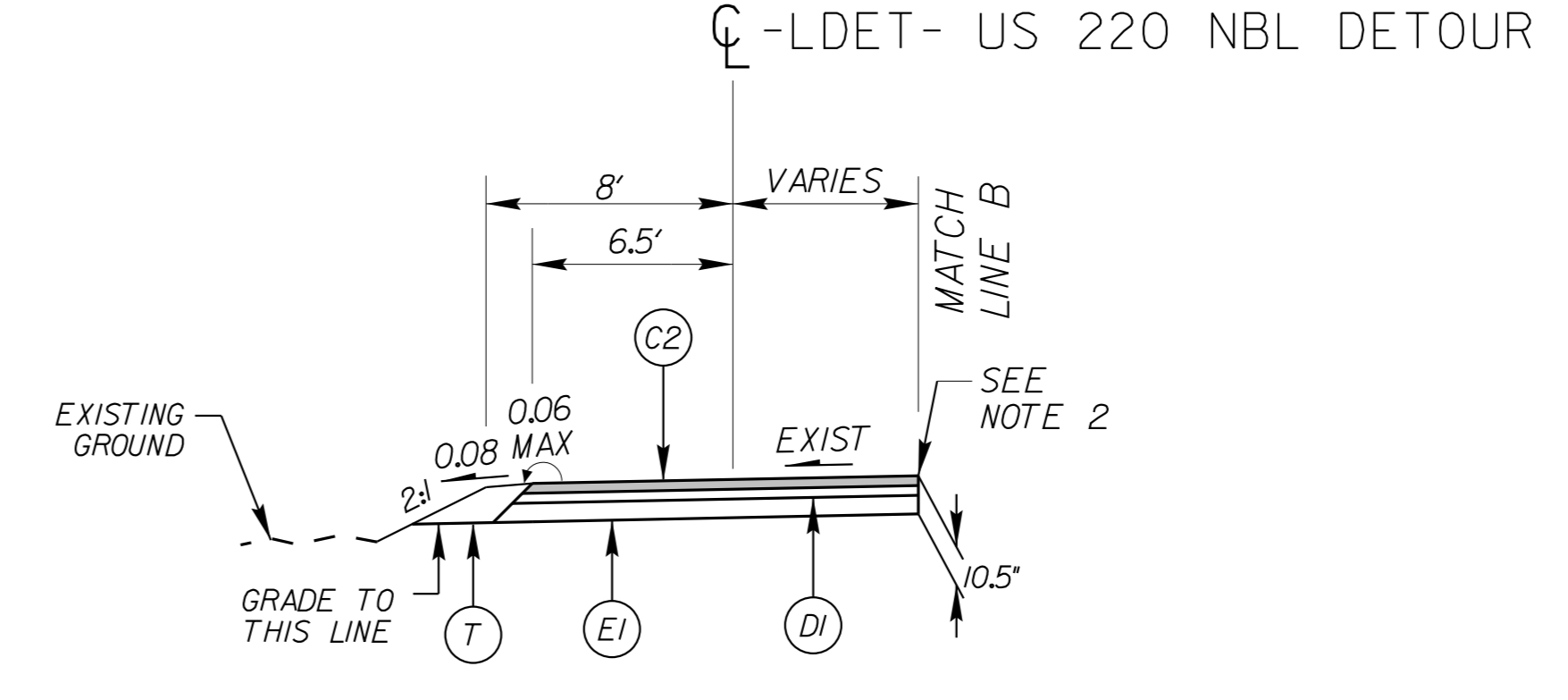
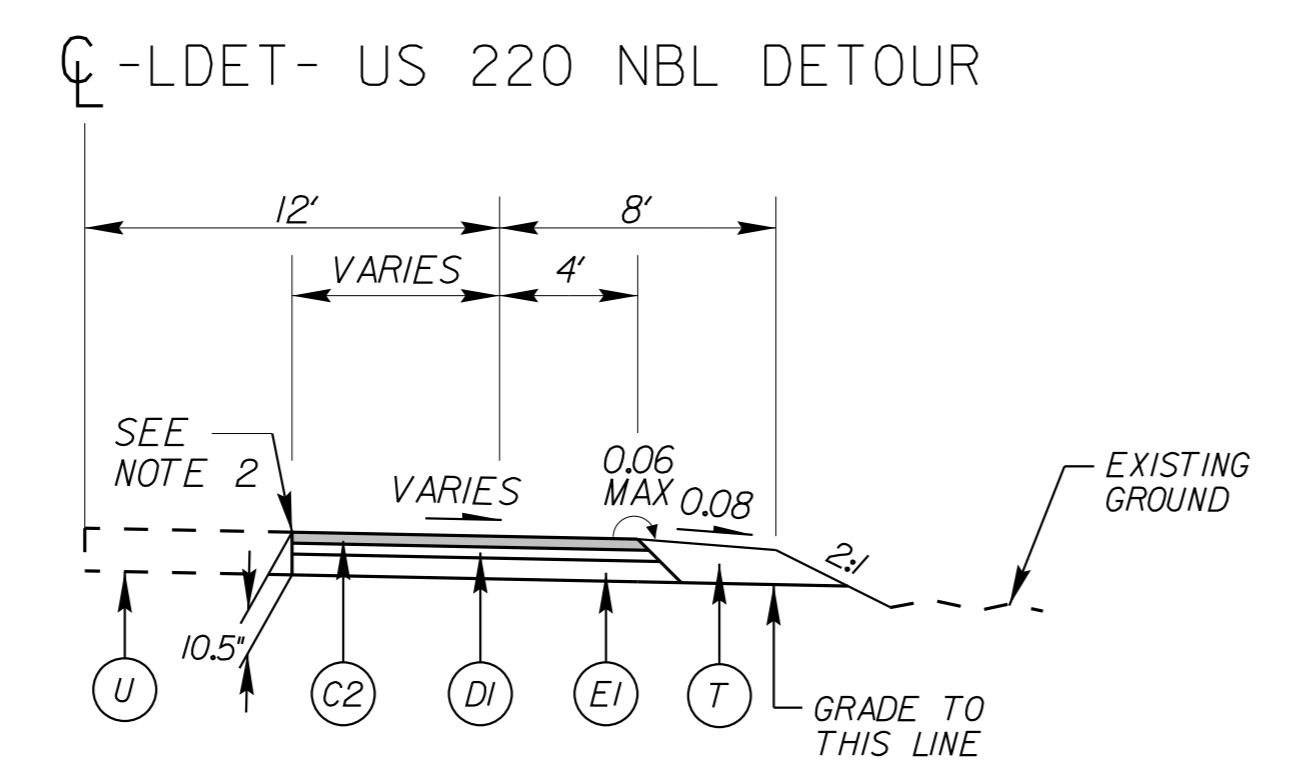
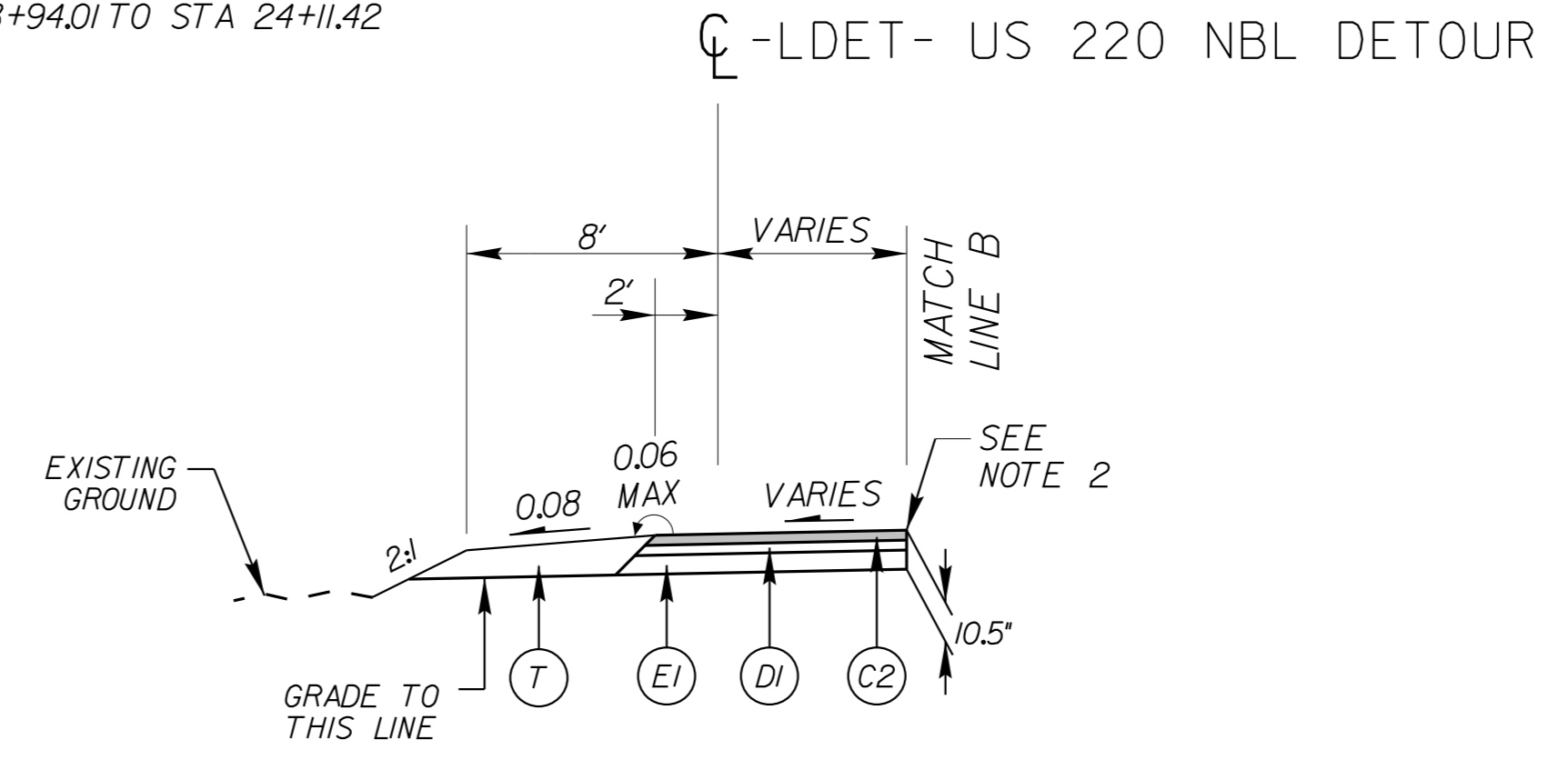
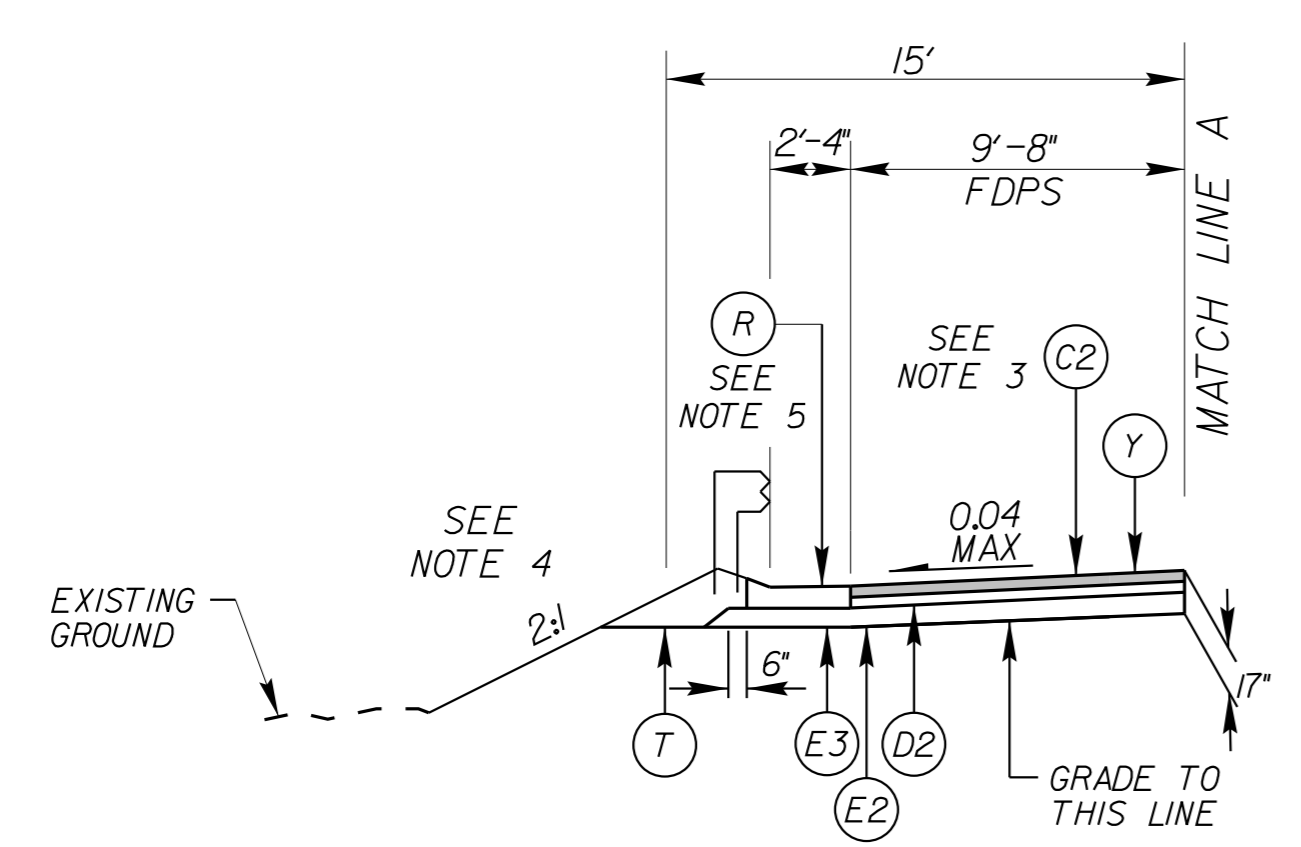
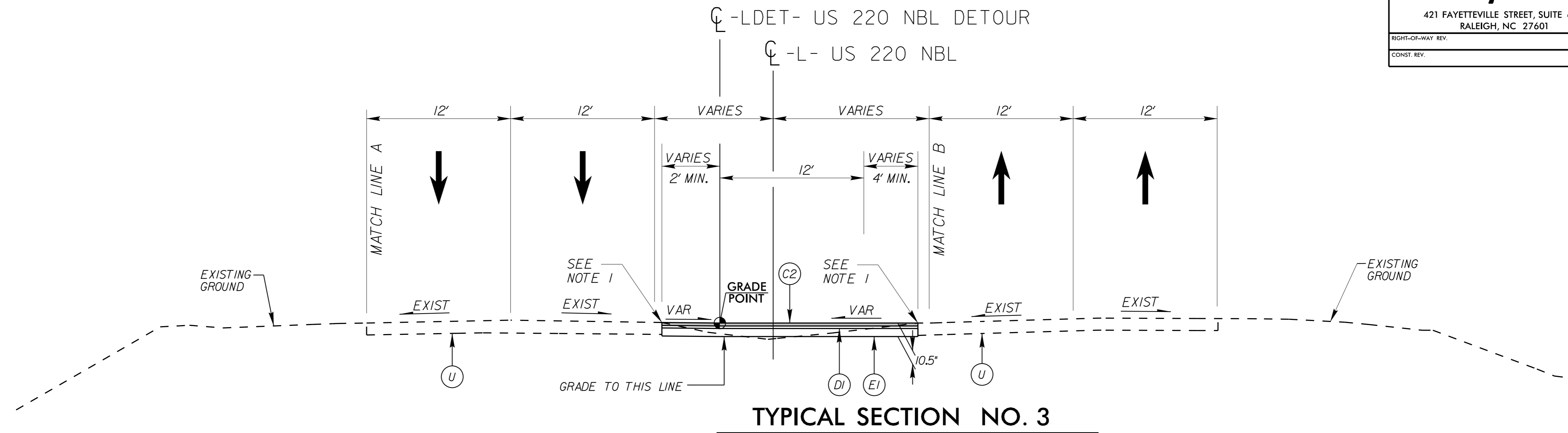
PROJECT REFERENCE NO. B-5352	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER JEFFREY W. MORRISON	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON
3/26/2018	3/28/2018

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

**PAVEMENT DESIGN**  
(FINAL PAVEMENT DESIGN)

C1	1.5' S9.5C
C2	3" S9.5C
C3	VAR. DEPTH S9.5C
D1	2.5' I19.0C
D2	4" I19.0C
D3	VAR. DEPTH I19.0C
E1	5" B25.0C
E2	10" B25.0C
E3	VAR. DEPTH B25.0C
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT
Y	MILLED RUMBLE STRIPS

REVISIONS



- NOTES:**
- 1) TIE TO EXISTING EDGE OF PAVEMENT
  - 2) TIE TO EXISTING EDGE OF TRAVEL
  - 3) CONSTRUCT -L- PAVEMENT UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE. THE FINAL LAYER (1.5' S9.5C) WILL BE CONSTRUCTED AS SHOWN ON TYPICAL SECTION NO. 1.
  - 4) SLOPES ARE STEEPER THAN 2:1 IN SOME AREAS TO AVOID SLOPE SLIVERS (SEE CROSS-SECTIONS)
  - 5) INSTALL SHOULDER BERM GUTTER FROM -L- STA 14+28.28 TO STA 14+38.38 (LT) AND FROM -LDET- STA 10+00.00 TO STA 16+86.00 (LT)
  - 6) SEE TRANSPORTATION MANAGEMENT PLANS FOR PCB LOCATIONS
  - 7) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

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# THIS SHEET IS FOR DETOUR CONSTRUCTION ONLY

## Kimley Horn

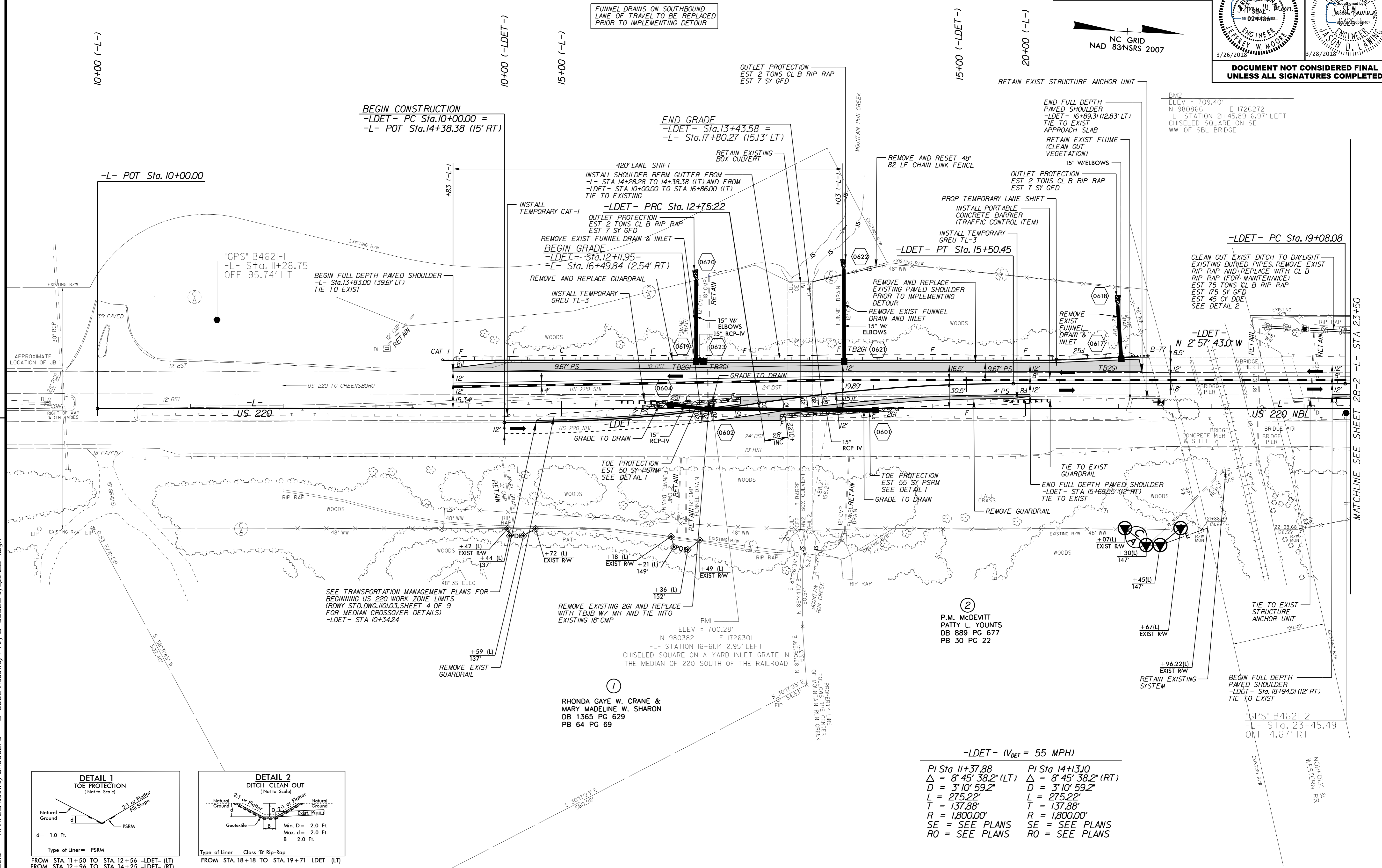
421 FAYETTEVILLE STREET, SUITE 600  
RALEIGH, NC 27601

RIGHT-OF-WAY REV.  
CONST. REV.

NC GRID  
NAD 83/NSRS 2007

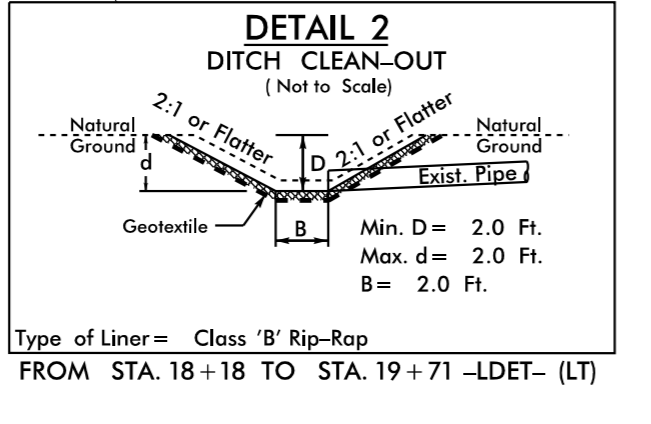
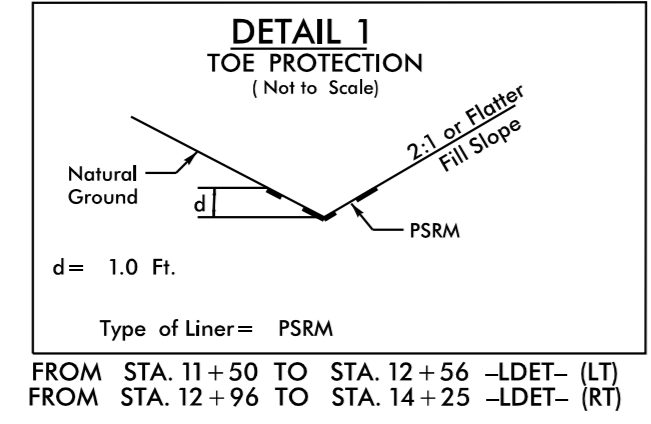
PROJECT REFERENCE NO. B-5352	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
3/26/2018	3/28/2018
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

FUNNEL DRAINS ON SOUTHBOUND LANE OF TRAVEL TO BE REPLACED PRIOR TO IMPLEMENTING DETOUR



REVISIONS

MATCHLINE SEE SHEET 2B-2 -L- STA 23+50



-LDET- (V<sub>DET</sub> = 55 MPH)

PI Sta 11+37.88	PI Sta 14+13.10
Δ = 8' 45" 38.2" (LT)	Δ = 8' 45" 38.2" (RT)
D = 3' 10' 59.2"	D = 3' 10' 59.2"
L = 275.22'	L = 275.22'
T = 137.88'	T = 137.88'
R = 1,800.00'	R = 1,800.00'
SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS

3/26/2018 K:\PAL\_Roadway\01036275 - B-5352\Roadway\Proj\B-5352\_rdy\_pst2B-1.dgn

SEE SHEET 7 FOR -LDET- PROFILE

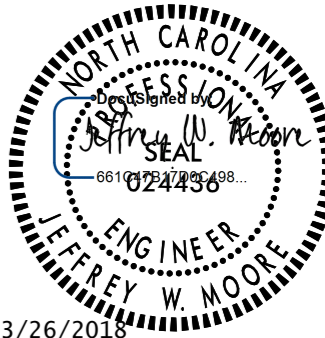
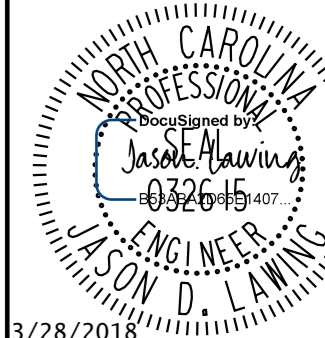


# THIS SHEET IS FOR DETOUR CONSTRUCTION ONLY

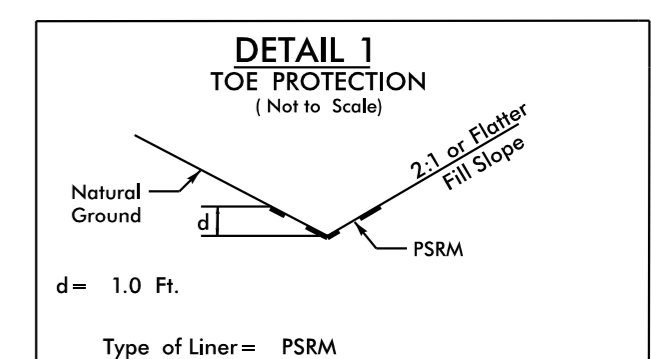
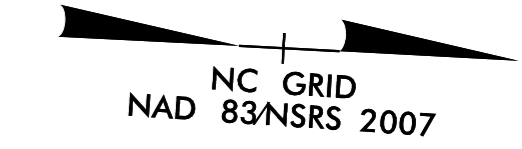
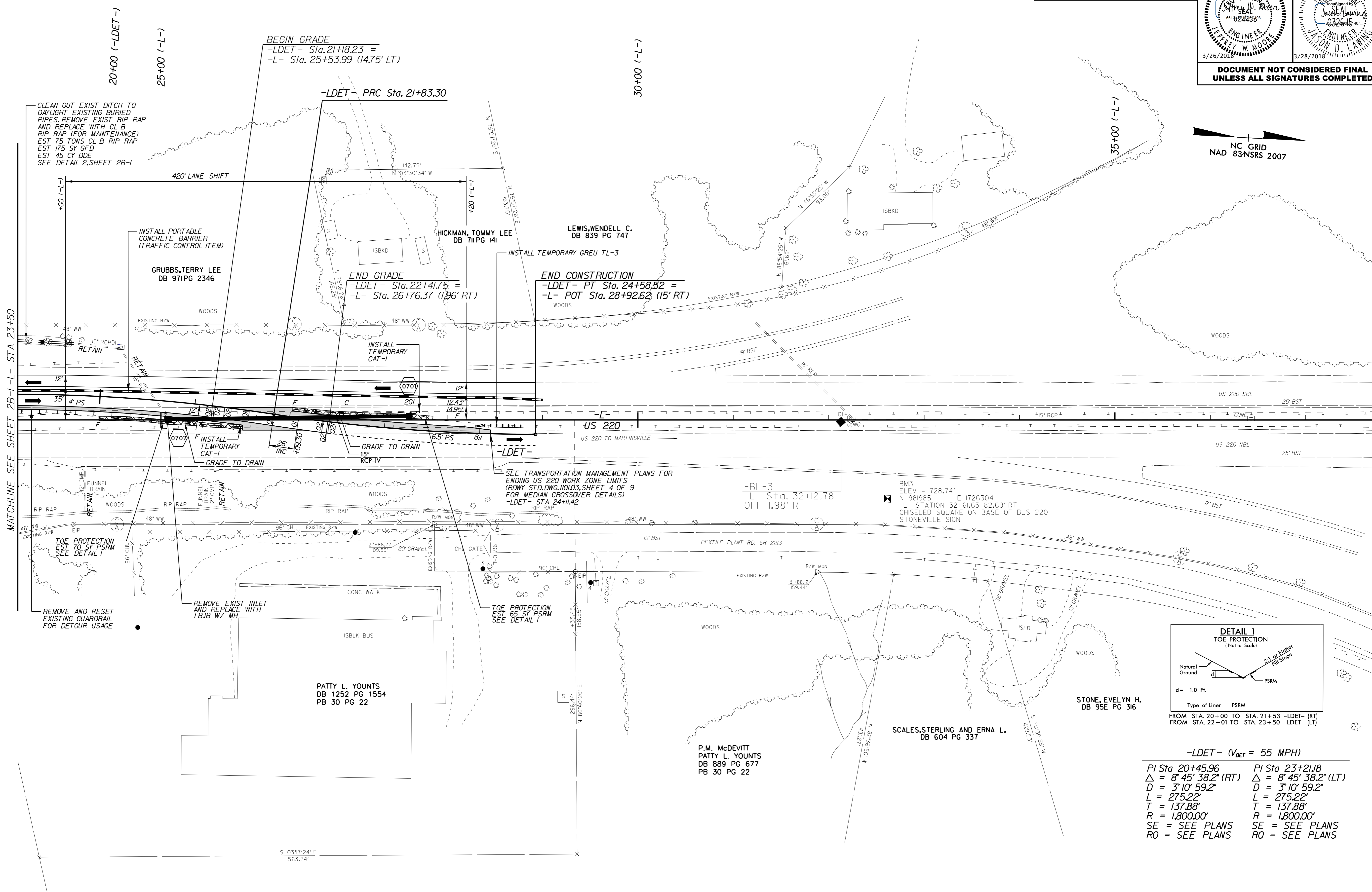
## Kimley » Horn

421 FAYETTEVILLE STREET, SUITE 600  
RALEIGH, NC 27601

RIGHT-OF-WAY REV.  
CONST. REV.

PROJECT REFERENCE NO. <i>B-5352</i>	SHEET NO. <i>2B-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Kimley, Horn</i>	HYDRAULICS ENGINEER <i>Kimley, Horn</i>
	
3/26/2018	3/28/2018
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

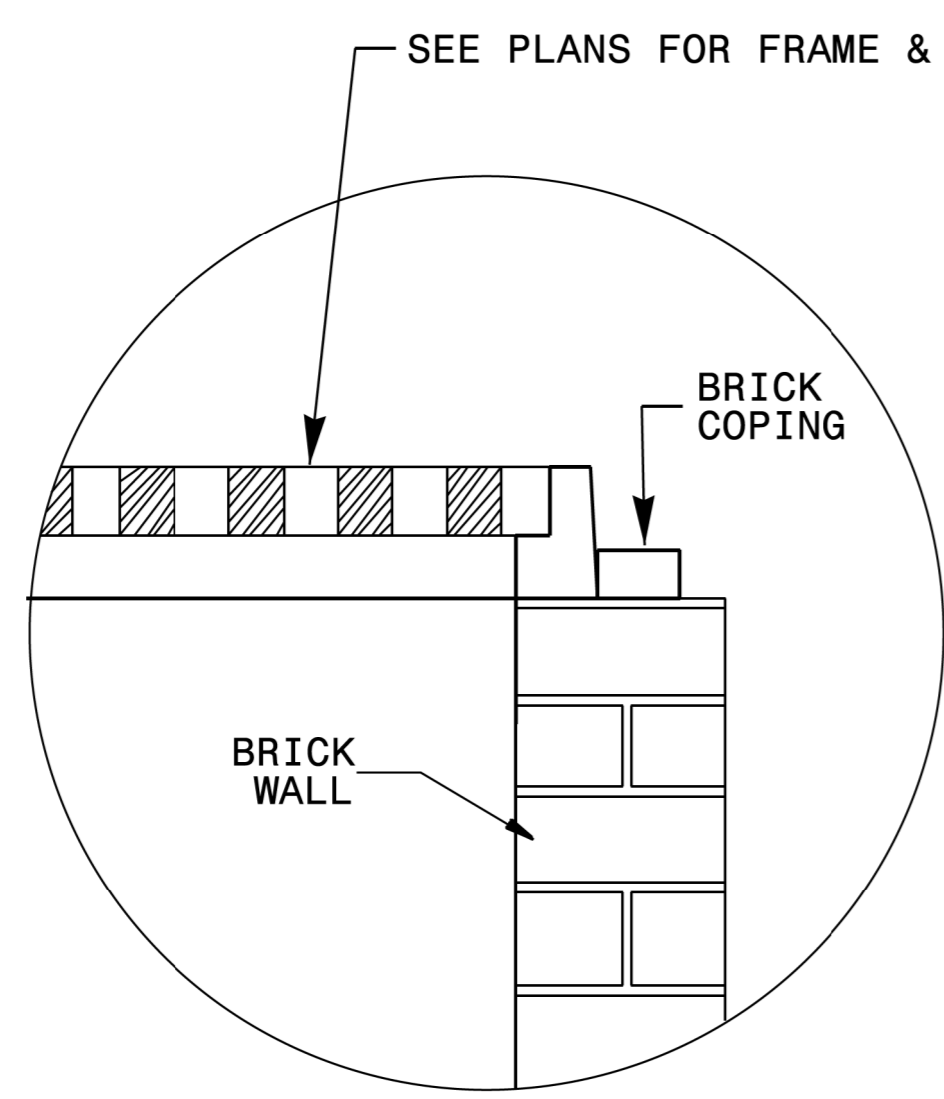
REVISIONS  
 3/26/2018 K:\PAL\_Roadway\01036275 - B-5352\Roadway\Proj\B-5352\_ry\_02B-2.dgn



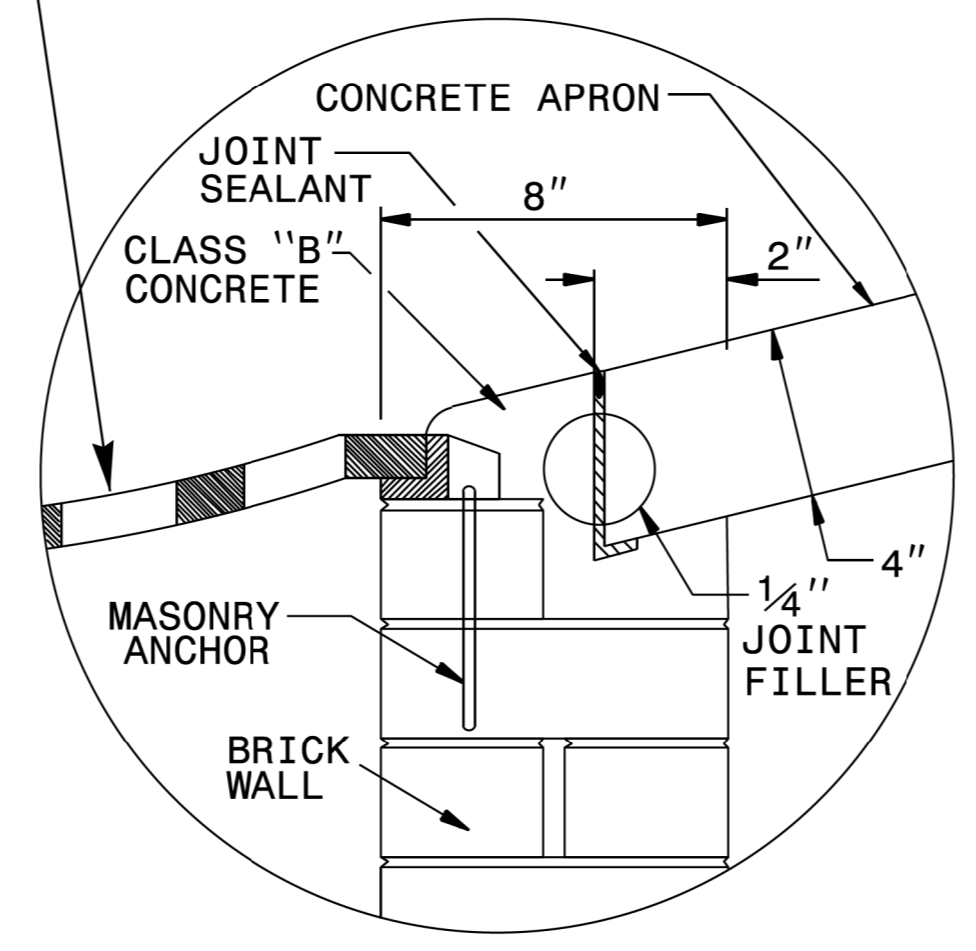
FROM STA. 20+00 TO STA. 21+53 -LDET- (RT)  
FROM STA. 22+01 TO STA. 23+50 -LDET- (LT)

<b>-LDET- (V<sub>DET</sub> = 55 MPH)</b>	
PI Sta 20+45.96	PI Sta 23+21.18
$\Delta = 8' 45' 38.2"$ (RT)	$\Delta = 8' 45' 38.2"$ (LT)
D = 3' 10' 59.2"	D = 3' 10' 59.2"
L = 275.22'	L = 275.22'
T = 137.88'	T = 137.88'
R = 1,800.00'	R = 1,800.00'
SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS

SEE SHEET 7 FOR -LDET- PROFILE



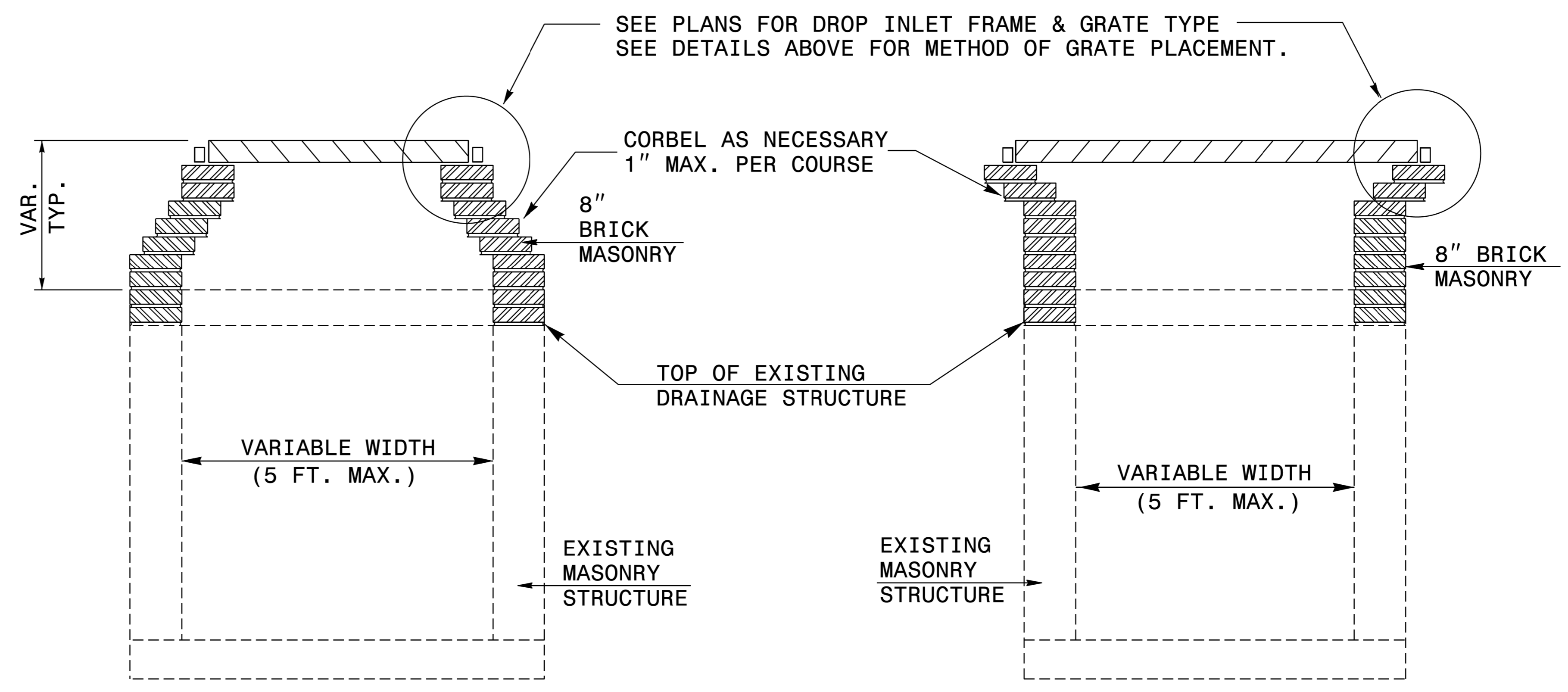
**GRATE PLACEMENT DETAIL**  
FOR DROP INLETS



**GRATE PLACEMENT DETAIL**  
FOR GRATED DROP INLETS

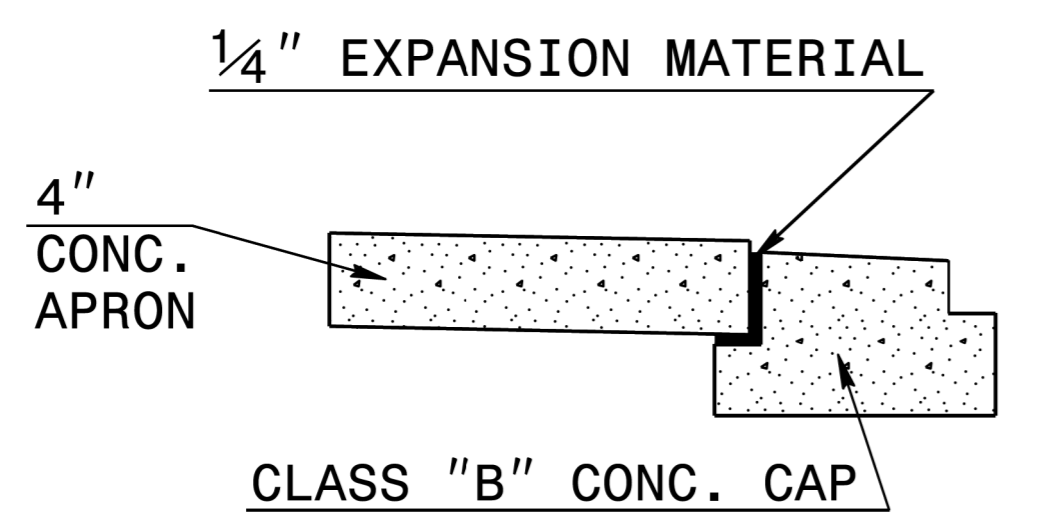
**GENERAL NOTES:**

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



**TYPICAL SECTION**

**TYPICAL SECTION**



**EXPANSION JOINT DETAIL**



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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

**DETAIL TO CONVERT EXISTING CATCH BASIN OR JUNCTION BOX TO DI OR 2-GI**

ORIGINAL BY: T.S.S.	DATE: NOV. 1997
MODIFIED BY: T.S.S.	DATE: FEB. 2000
CHECKED BY:	DATE:
FILE SPEC.: s:\usr\details\stand\cbtodi02.dgn	

26-JUN-2017 10:39  
 S:\Contracts\Special Details\hower-ton\Convert CB or JB to DI.dgn  
 jhower-ton AT USD-292595

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

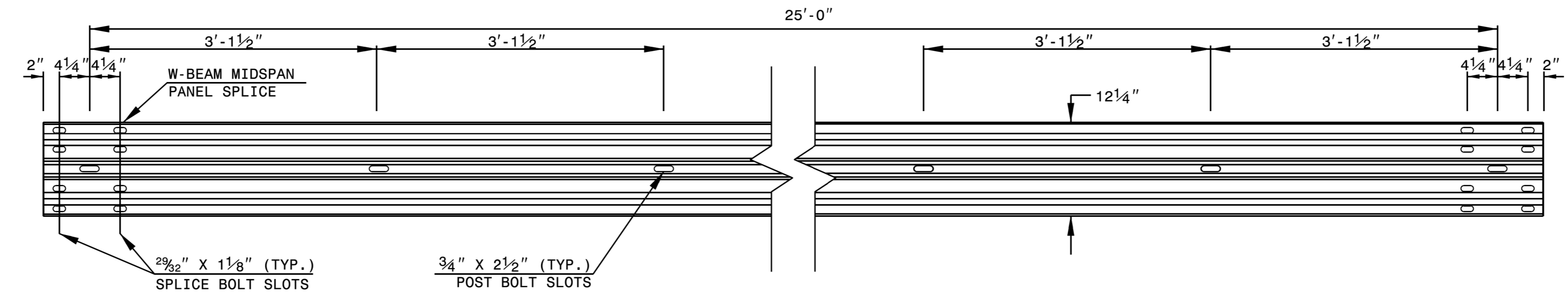
ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 6 OF 8  
**862D02**

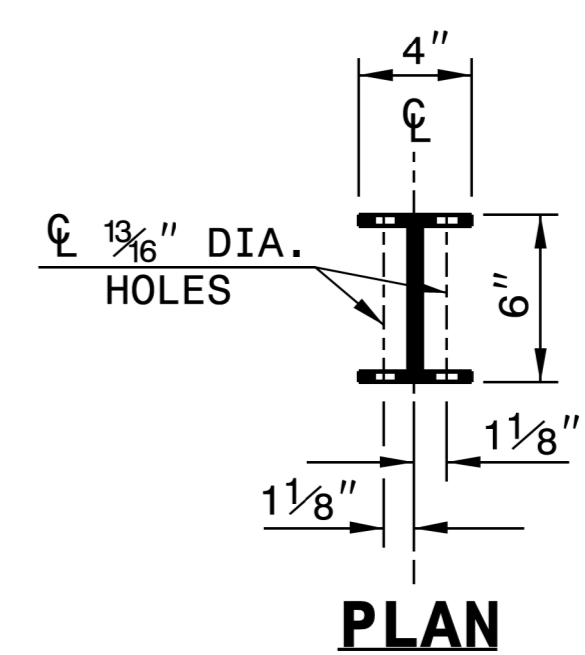
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

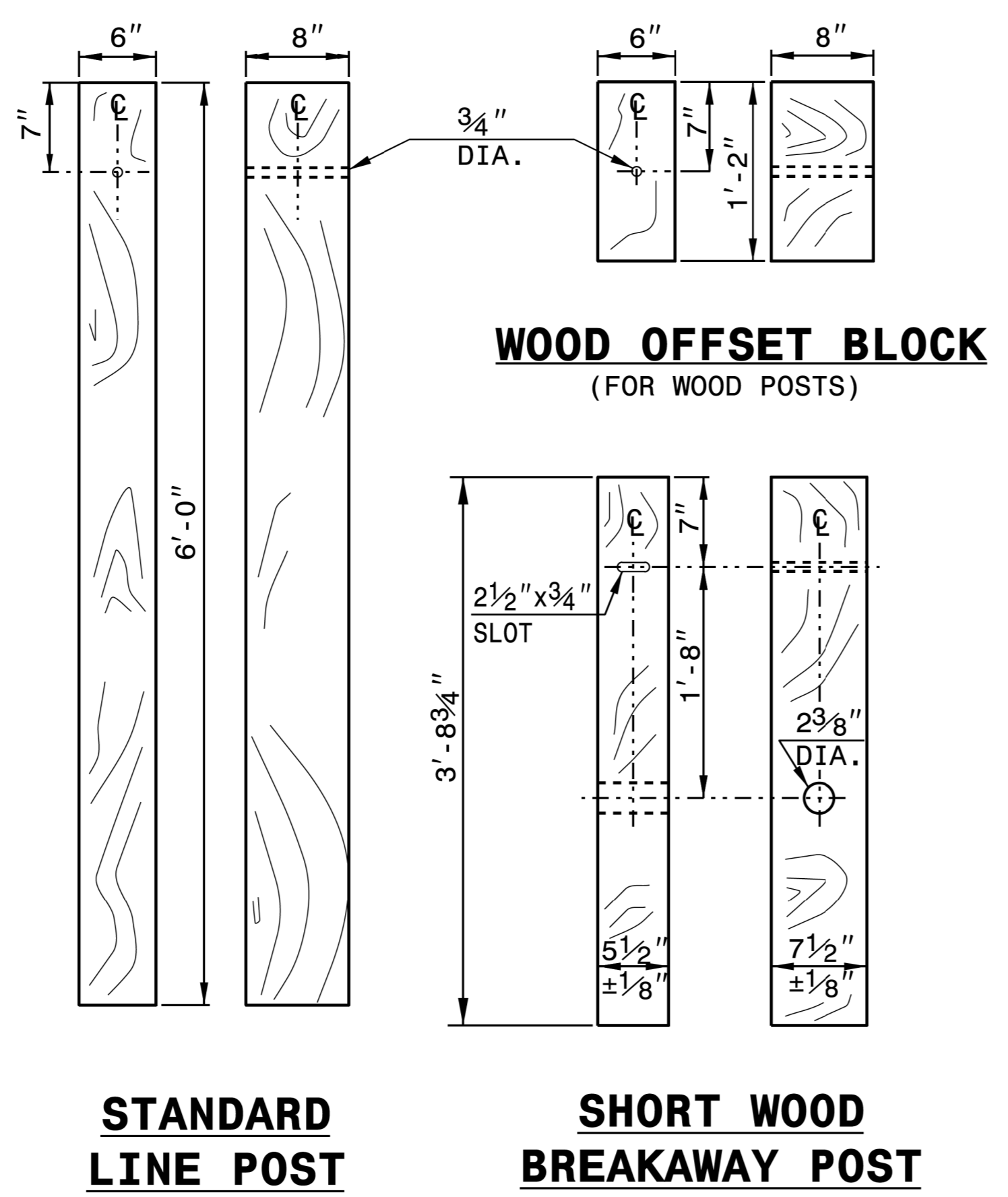
SHEET 6 OF 8  
**862D02**



**STANDARD W-BEAM GUARDRAIL**



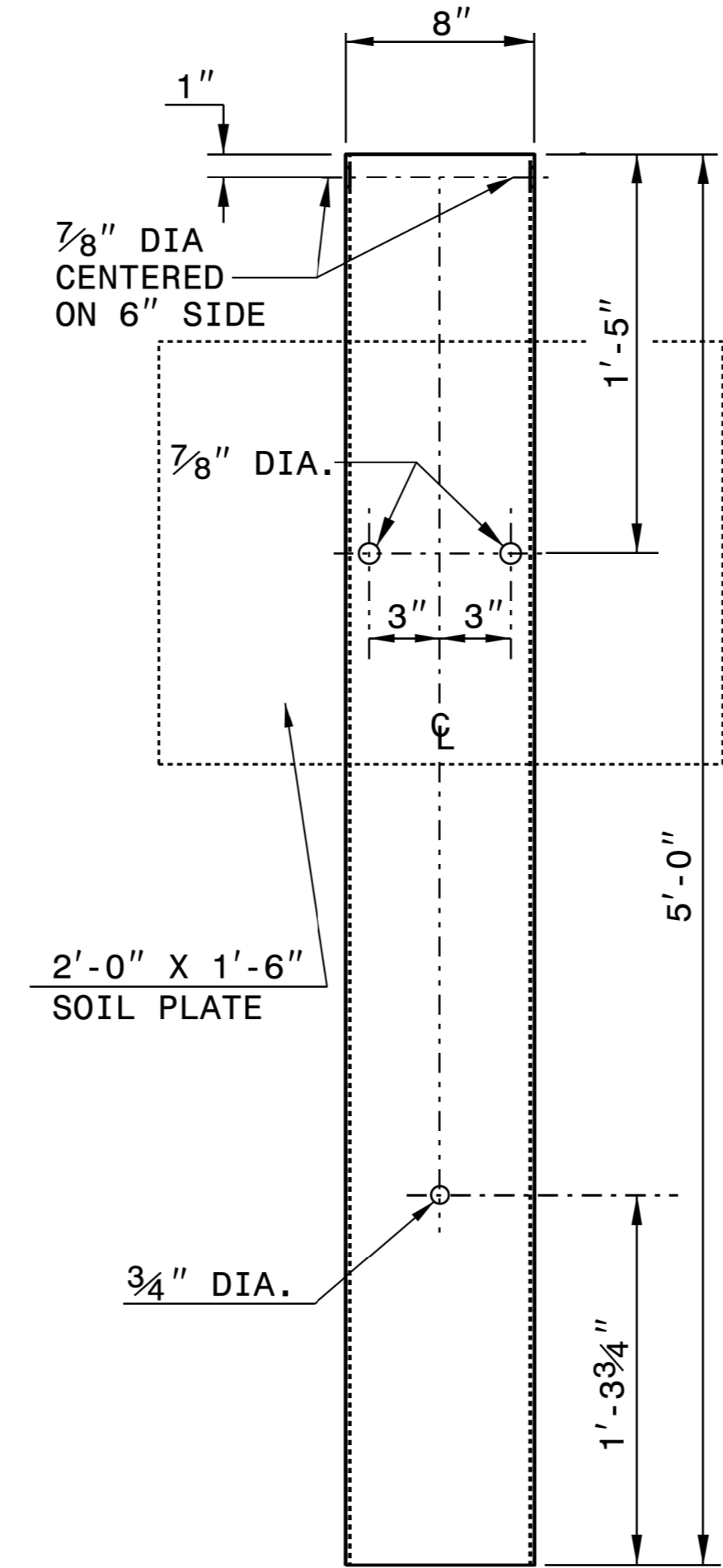
**PLAN**



**WOOD OFFSET BLOCK  
(FOR WOOD POSTS)**

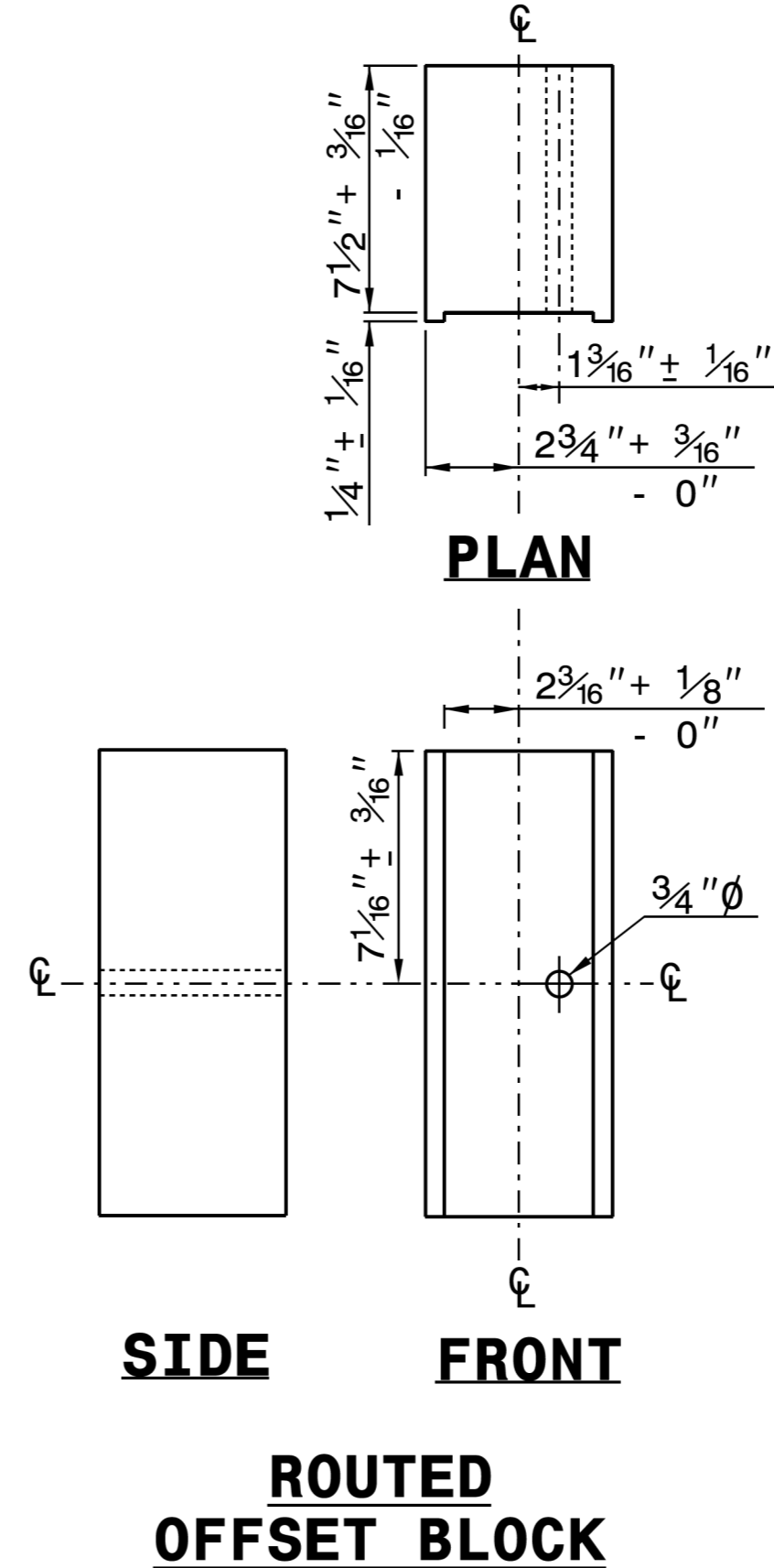
**STANDARD  
LINE POST**

**SHORT WOOD  
BREAKAWAY POST**



**STEEL TUBE  
TS 6"x8"x0.1875"**

**SYSTEM PARTS**

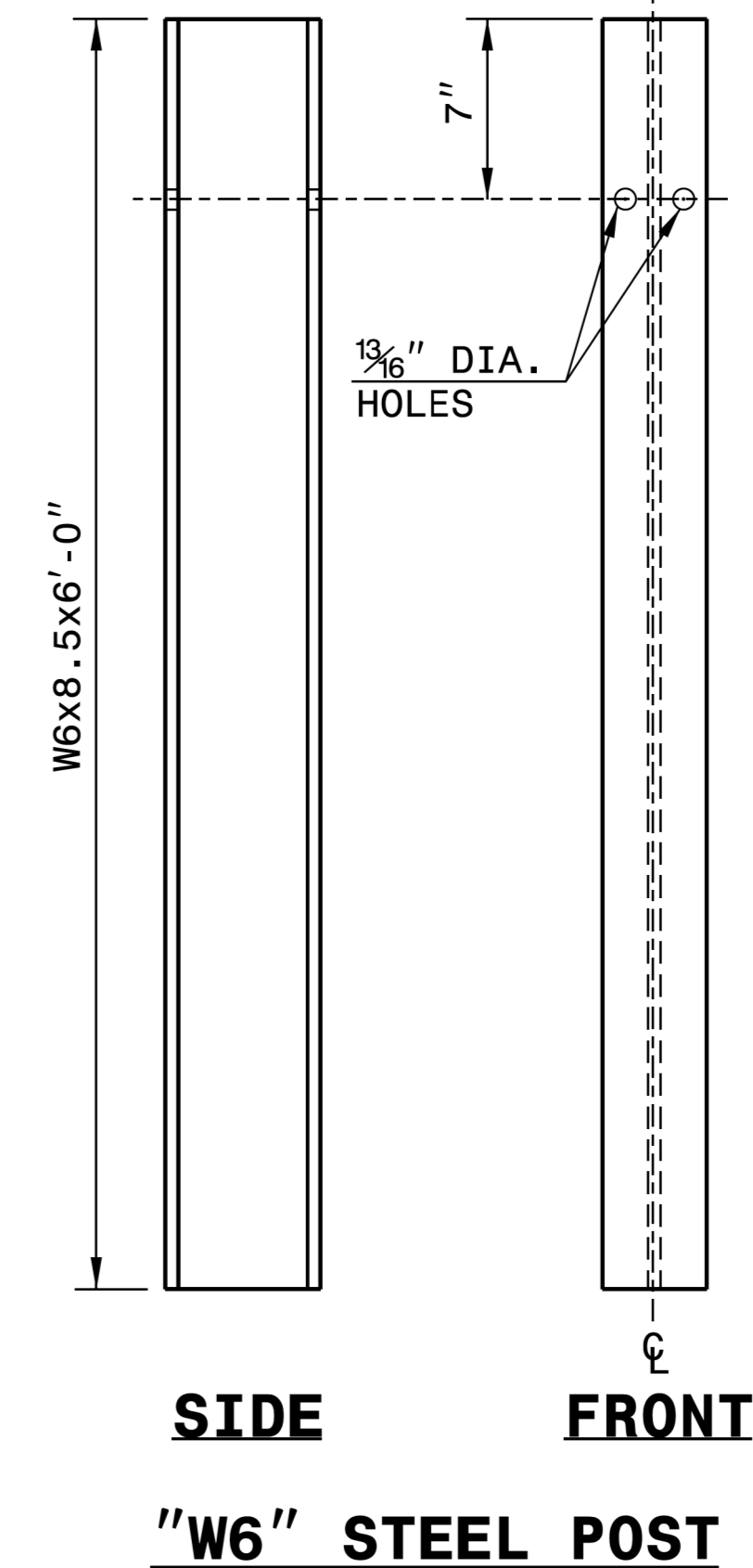


**PLAN**

**SIDE**

**FRONT**

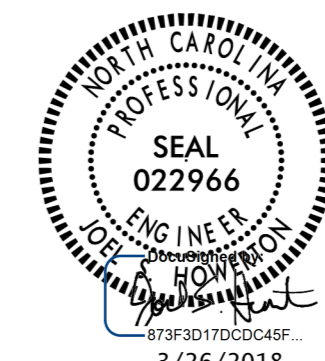
**ROUTED  
OFFSET BLOCK**



**SIDE**

**FRONT**

**"W6" STEEL POST**



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

**SEE TITLE BLOCK**

ORIGINAL BY: J. HOWERTON	DATE: 3-7-2018
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS



**SUMMARY OF EARTHWORK**  
 IN CUBIC YARDS

STATION	STATION	EXCAVATION		EMBANKMENT	BORROW	WASTE
		TOTAL UNCLASSIFIED	UNDERCUT	EMBANKMENT + %		TOTAL
PHASE I (DETOUR)						
SUMMARY NO. 1						
-LDET- 10+00.00	-LDET- 17+04.46	401		13		388
-LDET- 18+47.27	-LDET- 24+58.52	125		52		73
-LDET- ESTIMATED SHOULDER MATERIAL				302	302	
TOTAL SUMMARY NO. 1						
SUBTOTAL		526		367	302	461
PHASE II (MAINLINE)						
SUMMARY NO. 2						
-L- 14+38.38	-L- 21+38.22	380		203		177
-L- 23+00.22	-L- 29+00.00	275		721	446	
-L- ESTIMATED SHOULDER MATERIAL				683	683	
TOTAL SUMMARY NO. 3						
SUBTOTAL		655		1607	1129	177
PHASE III (REMOVE DETOUR)						
SUMMARY NO. 3						
-LDET- 10+00.00	-LDET- 17+04.46	32		8		24
-LDET- 18+47.27	-LDET- 24+58.52	52		8		44
-LDET- SHOULDER REMOVAL		252				252
TOTAL SUMMARY NO. 3						
SUBTOTAL		336		16		320
TOTAL		1517		1990	1431	958
EARTH WASTE TO REPLACE BORROW					-638	-638
LOSS DUE TO CLEARING & GRUBBING		-600			600	
PROJECT TOTAL		917		1990	1393	320
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					70	
GRAND TOTAL		917		1990	1463	320
SAY		1000			1500	
ESTIMATED SHALLOW UNDERCUT			100 CY			
ESTIMATED DRAINAGE DITCH EXCAVATION			150 CY			
ESTIMATED CLASS IV SUBGRADE STABILIZATION			200 TONS			
ESTIMATED UNDERCUT EXCAVATION			350 CY			
ESTIMATED SELECT GRANULAR MATERIAL			200 CY			
ESTIMATED GEOTEXTILE FOR SOIL STABILIZATION			500 SY			

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2/16/2018

NOTE: APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS



"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 TL-3  
 NG = NON-GATING IMPACT ATTENUATOR TYPE TL-3

**GUARDRAIL SUMMARY**

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE TL-3			TERMINAL SECTIONS	REMOVE EXISTING GUARDRAIL	REMOVE AND RESET EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	CAT-1	B-77	TEMP CAT-1	TEMP GREU TL-3	EA	G	NG					
-L-	13+70.56	21+33.06	LT	762.50'			21+33.06		12'	15'					1	1								750'		
-L-	14+29.30	21+48.05	RT	718.75'				21+48.05	12'	15'	50'		1'			1								740'		TIE TO EXIST GUARDRAIL
-L-	14+31.33	21+37.58	RT (MED)	706.25'				21+37.58	6'	9'	50'		1'			1								729'		TIE TO EXIST GUARDRAIL
-L-	15+51.08	21+26.08	LT (MED)	575.00'			21+26.08		6'	9'	125'	25'	2'-6"	0'-6"										575'		TIE TO EXIST GUARDRAIL
-L-	22+97.86	28+91.61	RT (MED)	593.75'			22+97.86		6'	9'				1'		1								613'		TIE TO EXIST GUARDRAIL
-L-	23+06.42	27+68.92	LT (MED)	462.50'				23+06.42	6'	9'			125'	2'-6"										463'		TIE TO EXIST GUARDRAIL
-L-	23+08.34	25+64.59	RT	256.25'			23+08.34		12'	15'			25'	0'-6"		1								275'		TIE TO EXIST GUARDRAIL
			SUBTOTAL	4075.00'																						
			LESS ANCHOR DEDUCTIONS																							
			CAT-1	1 @ 6.25'	=	6.25'																				
			B-77	5 @ 22.875'	=	114.375'																				
			TOTAL	3954.375'											1	5								4138'		
			SAY	3975.00'																						
-LDET-	10+00.00	10+06.25	LT	6.25'			10+00.00		6'-9"	9'-9"							1									TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	11+24.98	11+74.98	LT	50.00'				11+24.98	VARIES	VARIES	50'		1'					1								TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	15+40.26	15+90.26	RT	50.00'				15+90.26	VARIES	VARIES	50'		1'						1							TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	18+70.31	21+45.31	RT																					275.00'		TEMPORARY GUARDRAIL
-LDET-	21+45.31	21+51.56	RT	6.25'				21+45.31	4'	8'							1									
-LDET-	23+29.75	23+36.00	LT	6.25'			23+36.00		6'-3"	9'-3"							1									TEMPORARY GUARDRAIL; TIE TO EXIST
-LDET-	23+95.86	24+45.86	LT	50.00'				24+45.86	VARIES	VARIES	50'		1'													TEMPORARY GUARDRAIL; TIE TO EXIST
			SUBTOTAL	168.75'																						
			LESS ANCHOR DEDUCTIONS																							
			TEMP CAT-1	3 @ 6.25'	=	18.75'																				
			TEMP GREU TL-3	3 @ 50.00'	=	150.00'																				
			TOTAL	0													3	3						275.00'		

ADDITIONAL GUARDRAIL POSTS = 10 EA

SUMMARY OF SHOULDER BERM GUTTER			
LINE	STATION TO STATION	LOCATION	LENGTH (LF)
-L-	14+28.28 TO 14+38.38	LT	10.10
-LDET-	10+00.00 TO 16+86.00	LT	683.94
-L-	14+28.00 TO 14+42.00	RT	14
-L-	16+18.00 TO 16+46.00	RT	28
-L-	17+64.00 TO 21+22.47	RT	358.47
-L-	23+32.75 TO 25+67.00	RT	234.25
TOTAL			1328.76
SAY			1330

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2/23/2018

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS



REMOVAL OF EXISTING ASPHALT PAVEMENT			
LINE	STATION TO STATION	LOCATION	SQ. YDS.
-L-	13+83 TO 21+26	LT	791
-L-	14+28 TO 14+42	RT	2
-L-	14+38 TO 21+14	RT (MED)	171
-L-	16+18 TO 16+46	RT	3
-L-	16+93 TO 21+32	LT (MED)	87
-L-	17+64 TO 21+21	RT	332
-L-	21+14 TO 21+68	RT	146
-L-	22+79 TO 23+31	RT	139
-L-	22+98 TO 26+38	LT (MED)	60
-L-	23+24 TO 28+93	RT (MED)	269
-L-	23+30 TO 25+67	RT	210
TEMP PAVEMENT			
-LDET-	10+34 TO 15+69	LT/RT	513
-LDET-	18+94 TO 24+11	LT/RT	567
TOTAL			3,291
SAY			3,300

CHAIN LINK FENCE, 48" FABRIC										
E = $\frac{A-(8B + 16C + 16D)}{12} + (B + 2C + 2D) - \frac{(B + C + D)}{2}$ F = (B + C + D)										
STATION	STATION	LT or RT	A	B	C	D	E	F		
			FABRIC (LF)	END BRACE	CORNER BRACE	LINE BRACE	LINE POST	TERMINAL POST		
14+31.24	-L-	14+61.18	-L-	RT	30	2		1	2	3
16+08.03	-L-	16+47.97	-L-	RT	40	2			3	2
17+90.29	-L-	18+20.28	-L-	RT	30	2		1	2	3
21+09.23	-L-	21+48.46	-L-	RT	148	2	3	5	7	10
23+08.74	-L-	23+55.81	-L-	RT	103	2	1	1	8	4
TOTAL					351	10	4	8	22	22
SAY					351	10	4	8	22	22

NOTE: APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**SUMMARY OF AGGREGATE SUBGRADE / STABILIZATION**

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		100	200	500**		
			TOTAL CY/TONSSY		100	200	500**		

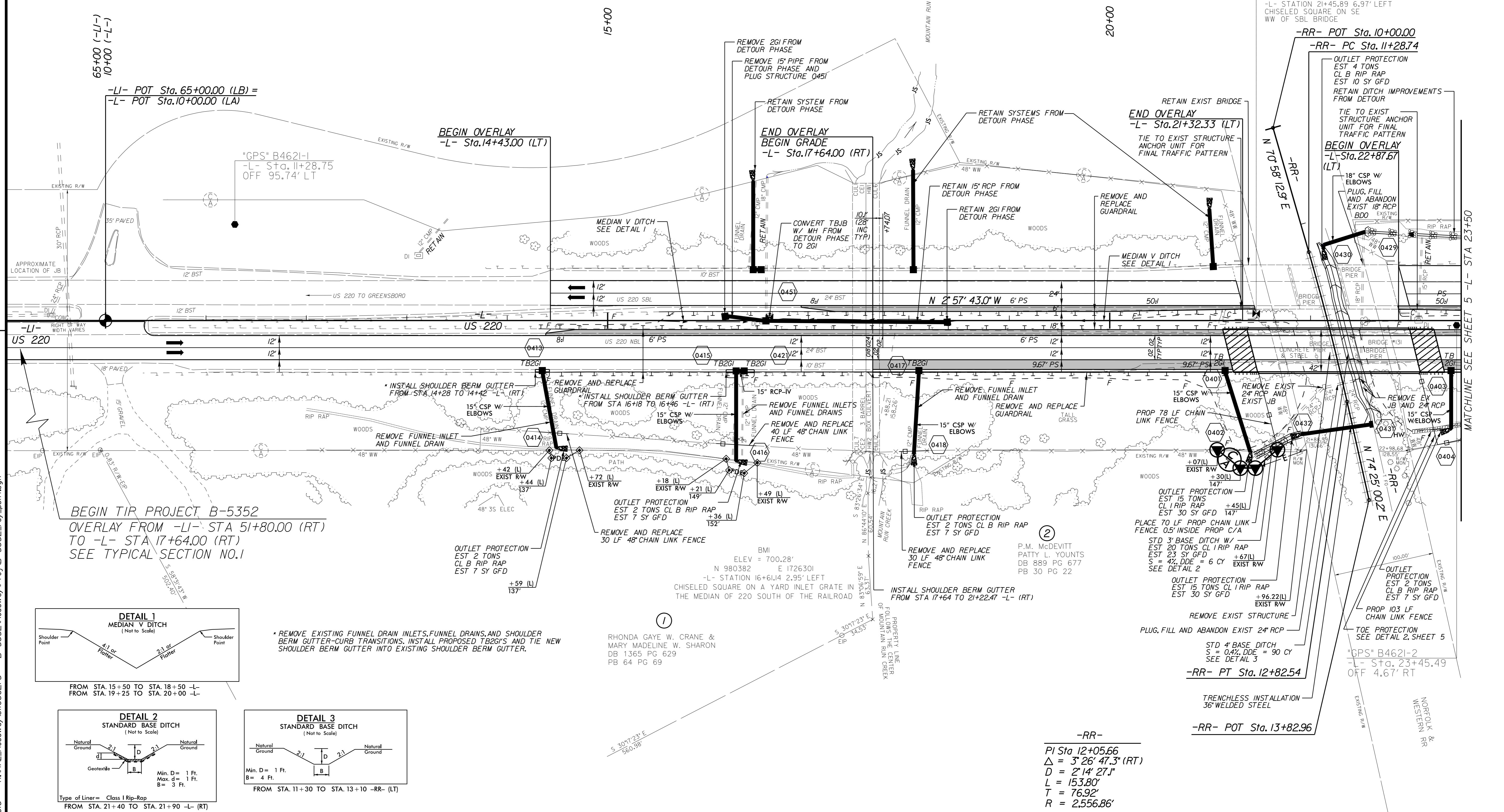
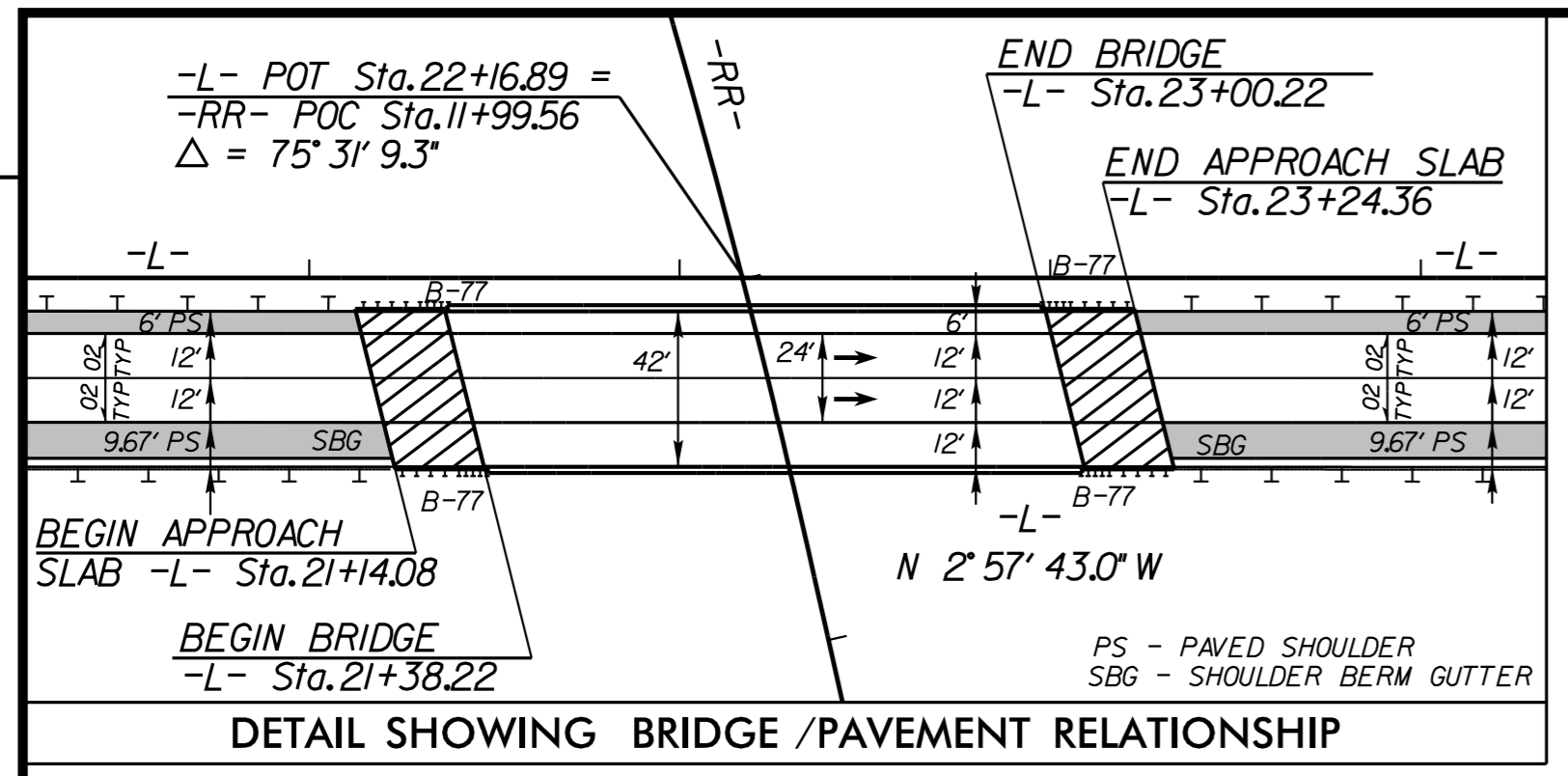
\*ASU = Aggregate Subgrade  
 \*AST = Aggregate Stabilization

\*\*Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.



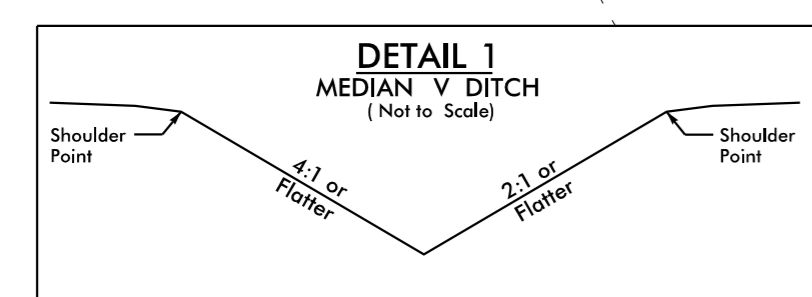


PROJECT REFERENCE NO. B-5352	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
3/26/2018	3/28/2018
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

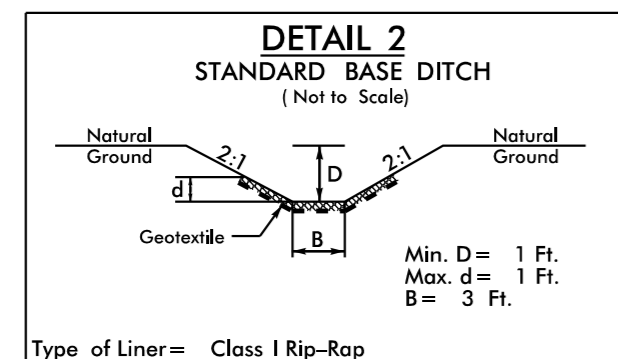


REVISIONS

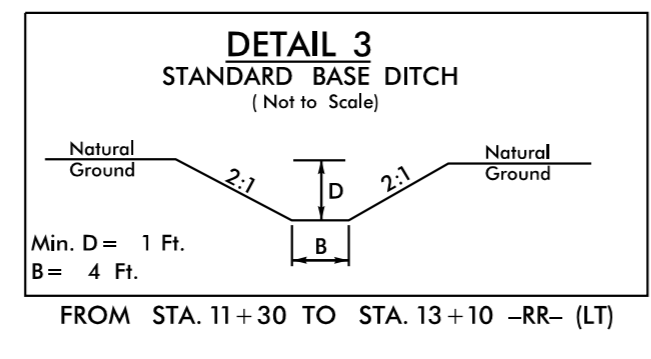
3/26/2018 K:\RAL\_Roadway\01036275 - B-5352-Roadway\Proj\B-5352\_rdy\_pst\4.dgn



FROM STA. 15+50 TO STA. 18+50 -L-  
FROM STA. 19+25 TO STA. 20+00 -L-



FROM STA. 21+40 TO STA. 21+90 -L- (RT)



FROM STA. 11+30 TO STA. 13+10 -RR- (LT)

\* REMOVE EXISTING FUNNEL DRAIN INLETS, FUNNEL DRAINS, AND SHOULDER BERM GUTTER-CURB TRANSITIONS. INSTALL PROPOSED TB2G'S AND TIE THE NEW SHOULDER BERM GUTTER INTO EXISTING SHOULDER BERM GUTTER.

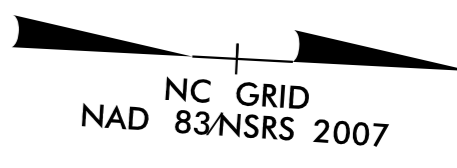
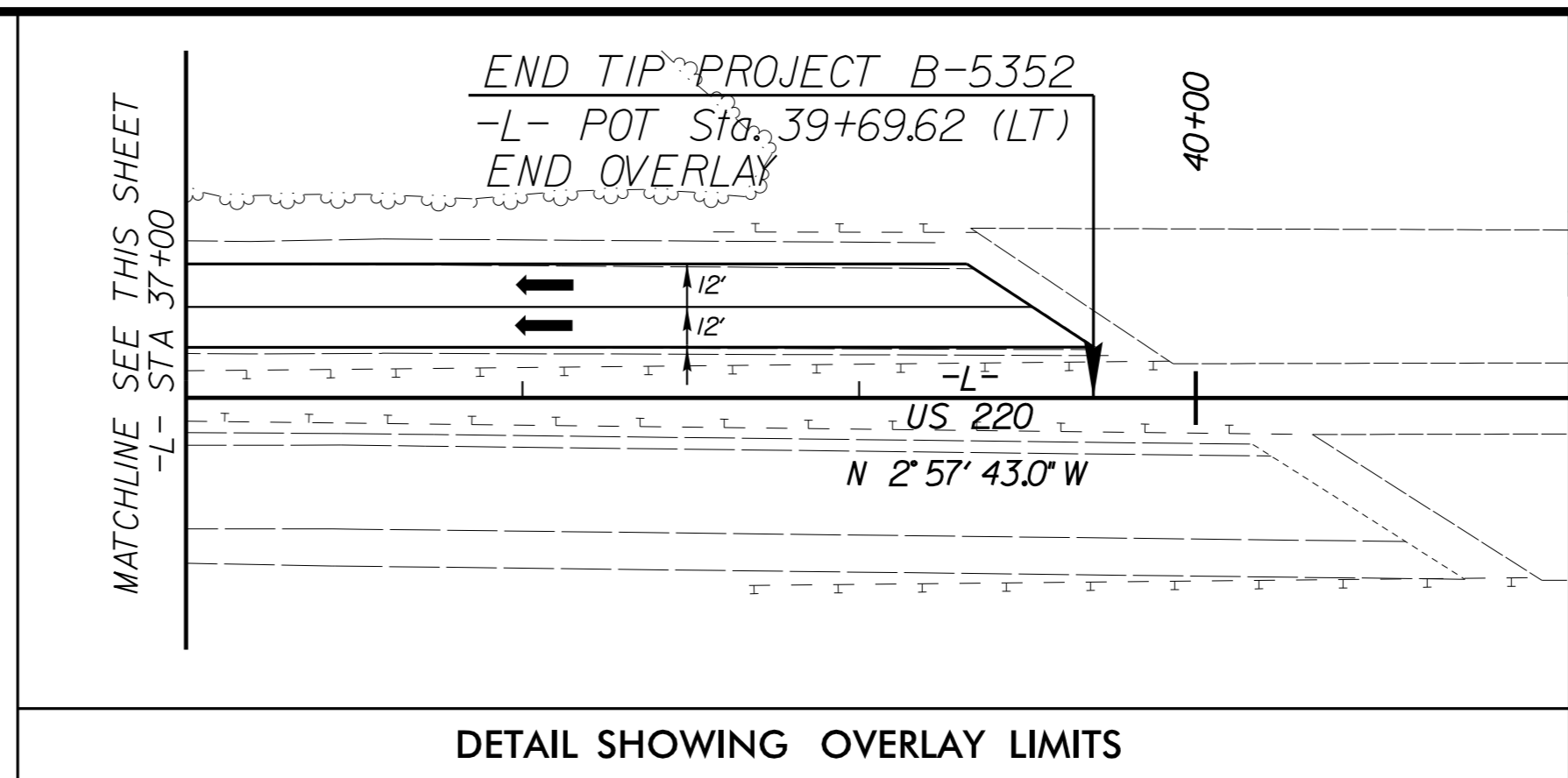
①  
RHONDA GAYE W. CRANE &  
MARY MADELINE W. SHARON  
DB 1365 PG 629  
PB 64 PG 69

P.M. McDEVITT  
PATTY L. YOUNTS  
DB 889 PG 677  
PB 30 PG 22

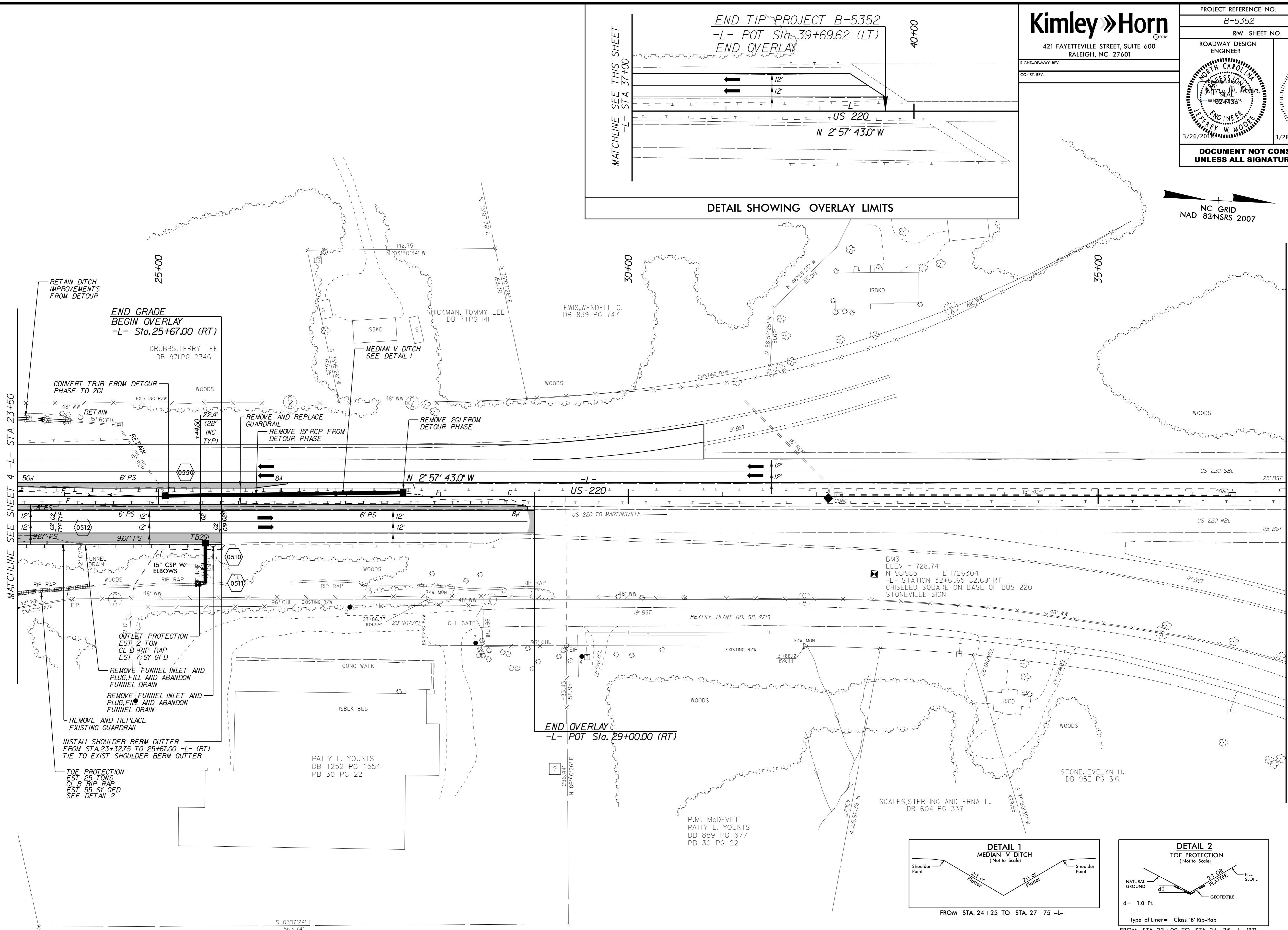
-RR-  
PI Sta 12+05.66  
Δ = 3° 26' 47.3" (RT)  
D = 2' 14' 27.1"  
L = 153.80'  
T = 76.92'  
R = 2,556.86'

SEE SHEET 6 FOR -L- PROFILE  
SEE SHEETS S-1 THRU S-37 FOR STRUCTURE PLANS

PROJECT REFERENCE NO. B-5352	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

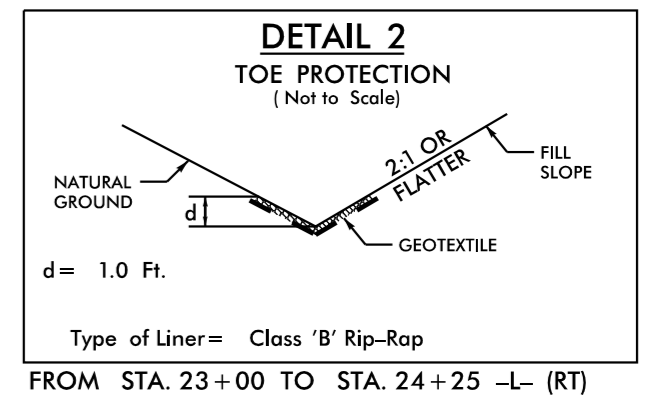
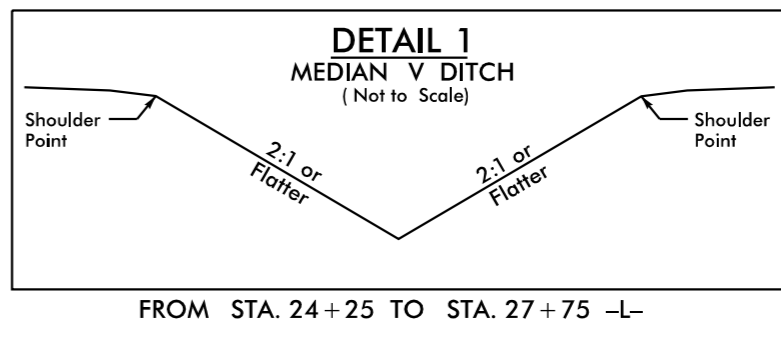


REVISIONS

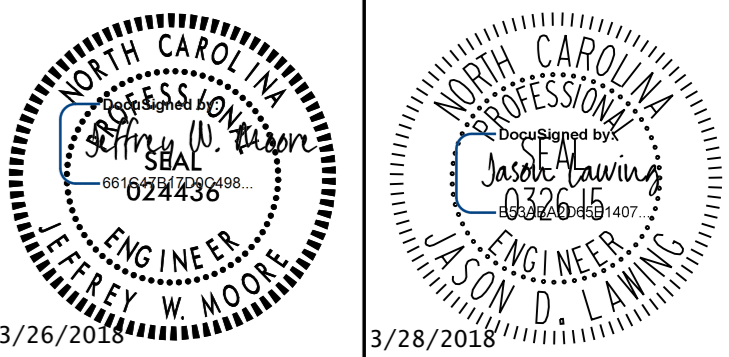


MATCHLINE SEE THIS SHEET -L- STA 37+00

MATCHLINE SEE SHEET 4 -L- STA 23+50



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**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

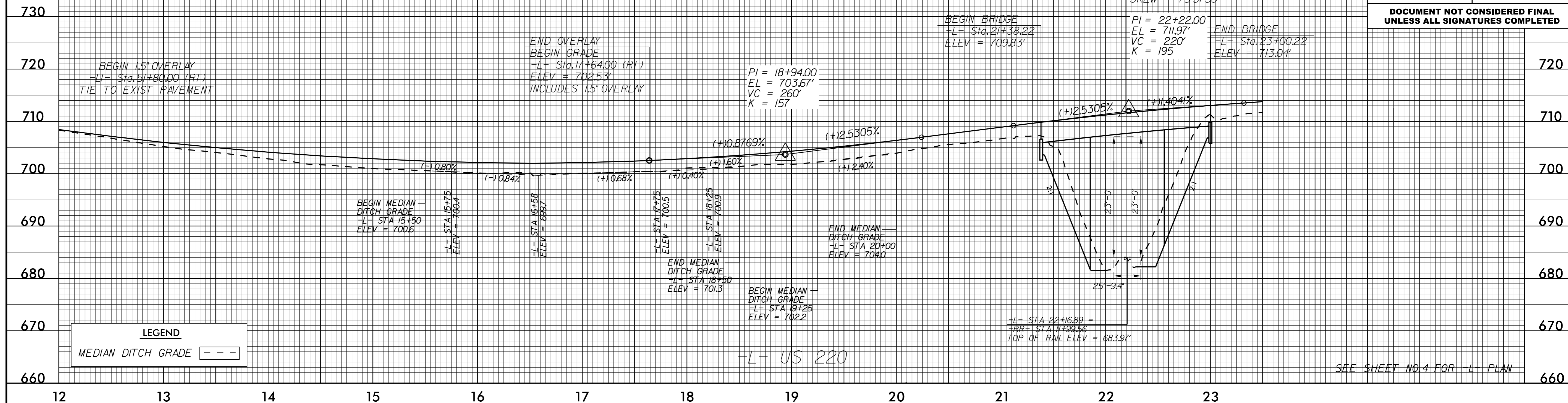
REVISIONS

BMI  
ELEV = 700.28'  
N 980382 E 1726301  
-L- STA. 16+61.14 2.95' LEFT  
CHISELED SQUARE ON A YARD INLET GRATE IN  
THE MEDIAN OF 220 SOUTH OF THE RAILROAD

BM2  
ELEV = 709.40'  
N 980866 E 1726272  
-L- STA 21+45.89 6.97' LEFT  
CHISELED SQUARE ON SE WW OF SBL BRIDGE

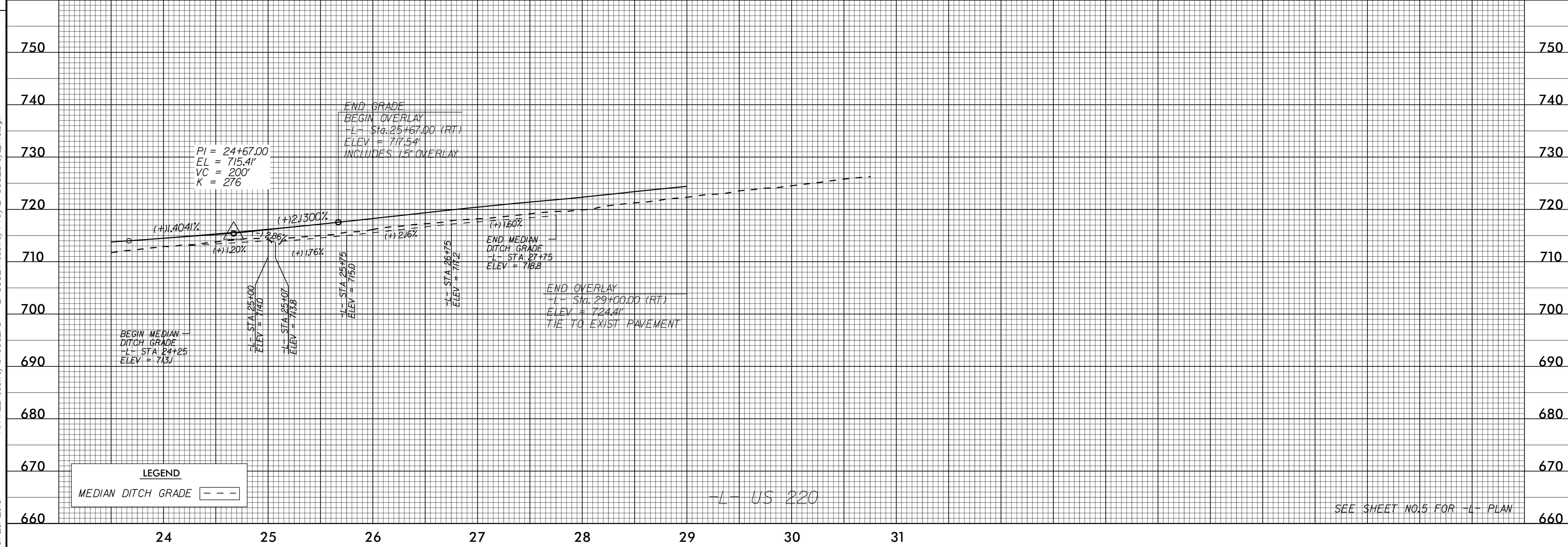
CL -L- Sta. 22+19.22  
CONCRETE GIRDER  
CL ELEV = 711.61'  
SKEW = 75°51'58"

PI = 22+22.00  
EL = 711.97'  
VC = 220'  
K = 195  
END BRIDGE  
-L- Sta. 23+00.22  
ELEV = 713.04'



**LEGEND**  
MEDIAN DITCH GRADE - - -

SEE SHEET NO. 4 FOR -L- PLAN



**LEGEND**  
MEDIAN DITCH GRADE - - -

SEE SHEET NO. 5 FOR -L- PLAN

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3/26/2018

**Kimley Horn**  
 421 FAYETTEVILLE STREET, SUITE 600  
 RALEIGH, NC 27601

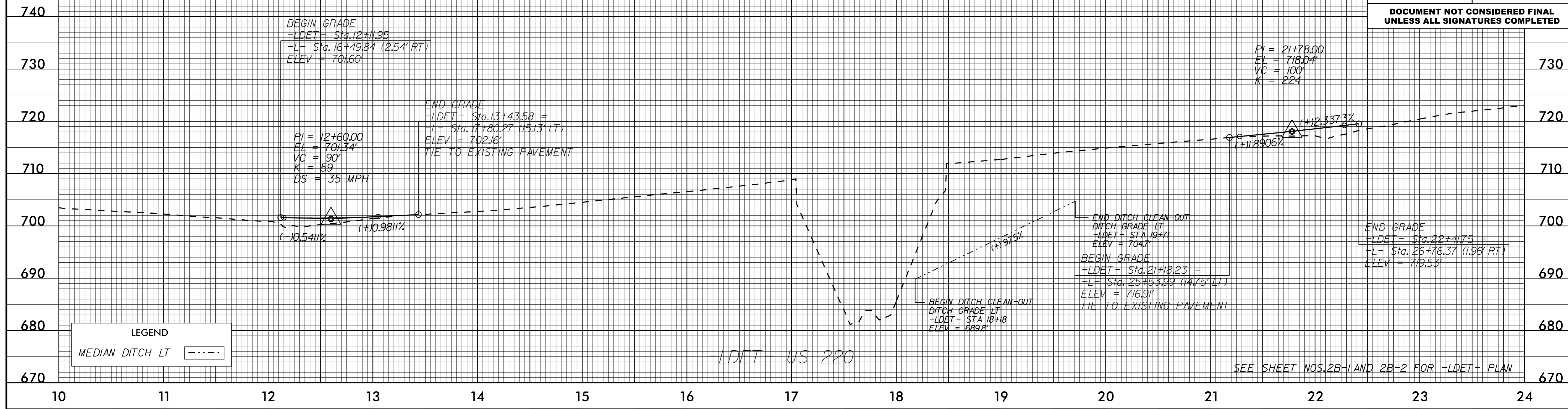
PROJECT REFERENCE NO. B-5352	SHEET NO. 7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BMI  
 ELEV = 700.28'  
 N 980382 E 1726301  
 -L- STA. 16+61.4 2.95' LEFT  
 CHISELED SQUARE ON A YARD INLET GRATE IN THE MEDIAN OF 220 SOUTH OF THE RAILROAD

BMI2  
 ELEV = 709.40'  
 N 980866 E 1726272  
 -L- STA 21+45.89 6.97' LEFT  
 CHISELED SQUARE ON SE WW OF SBL BRIDGE

REVISIONS

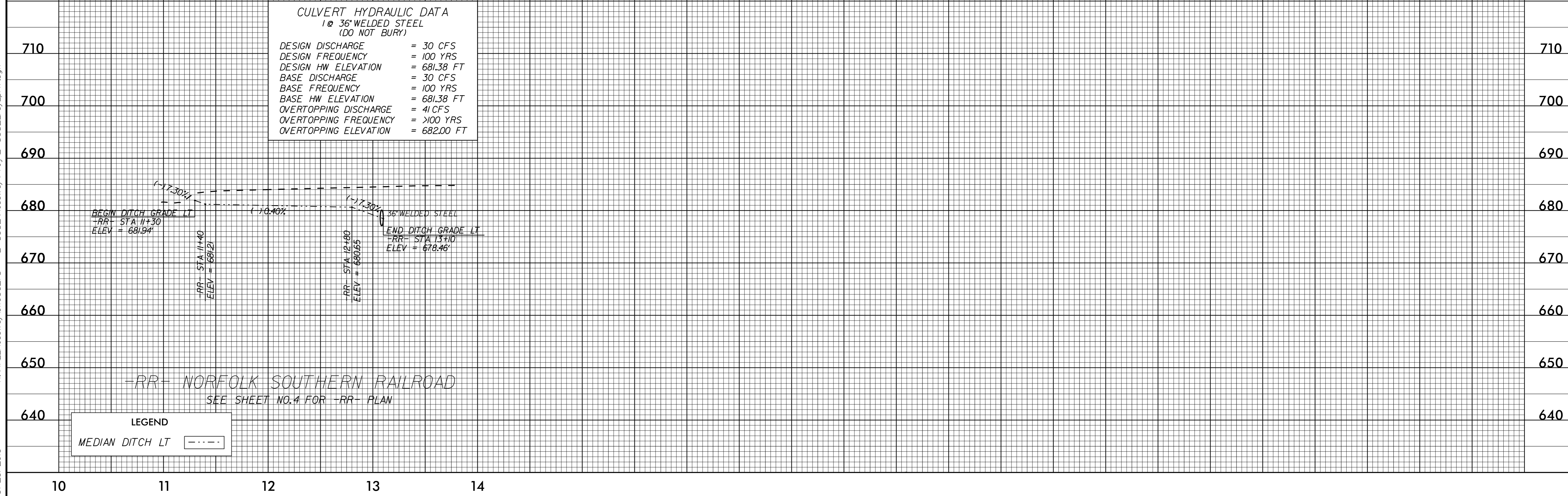


LEGEND  
 MEDIAN DITCH LT - - - -

SEE SHEET NOS. 2B-1 AND 2B-2 FOR -LDET- PLAN

**CULVERT HYDRAULIC DATA**  
 1 @ 36" WELDED STEEL  
 (DO NOT BURY)

DESIGN DISCHARGE	= 30 CFS
DESIGN FREQUENCY	= 100 YRS
DESIGN HW ELEVATION	= 681.38 FT
BASE DISCHARGE	= 30 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 681.38 FT
OVERTOPPING DISCHARGE	= 41 CFS
OVERTOPPING FREQUENCY	= >100 YRS
OVERTOPPING ELEVATION	= 682.00 FT



LEGEND  
 MEDIAN DITCH LT - - - -

-RR- NORFOLK SOUTHERN RAILROAD  
 SEE SHEET NO. 4 FOR -RR- PLAN

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