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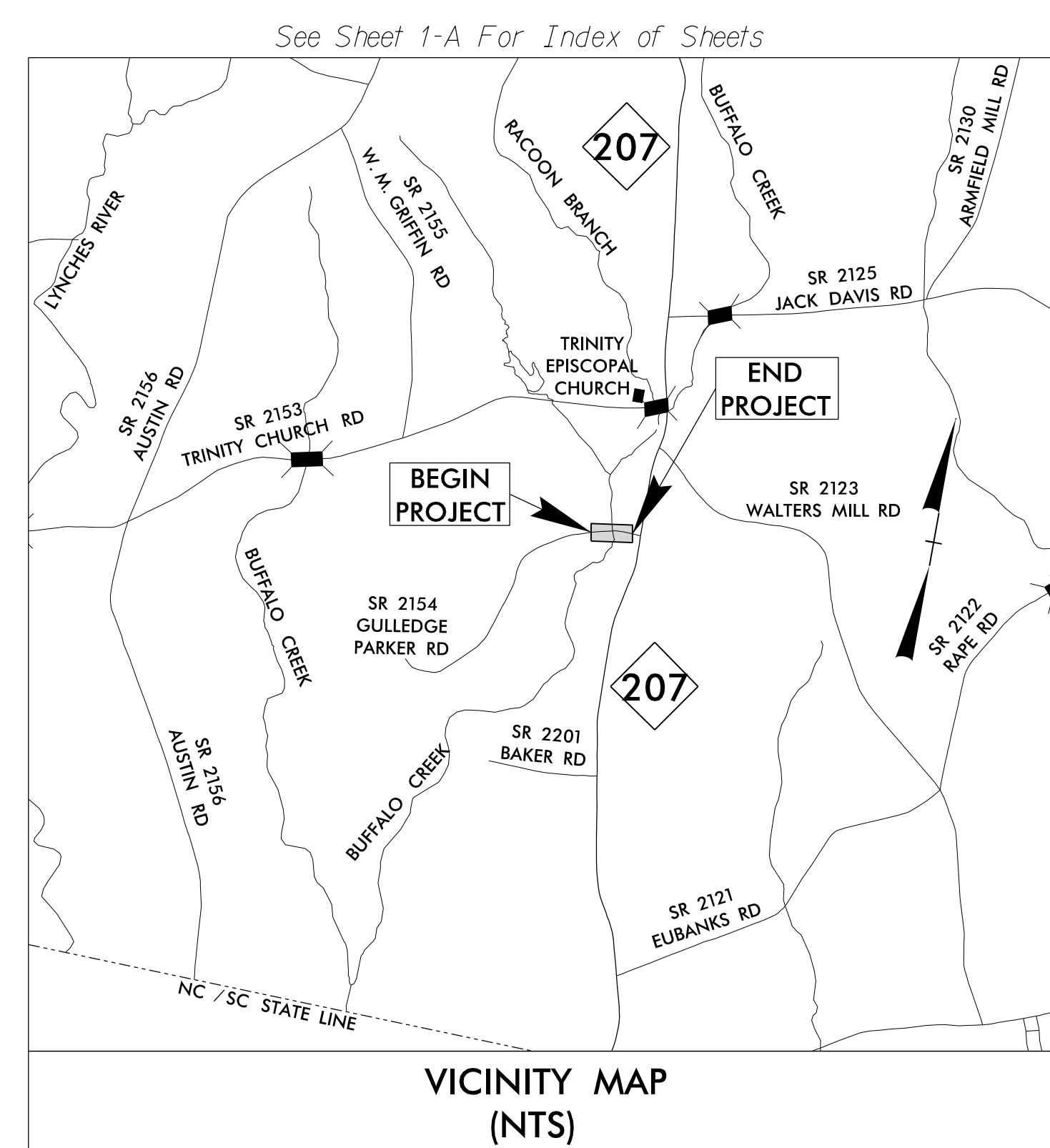
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09_08/2017

12/13/2017
 Q:\RA\8522-06\CADD\B5374\Roadway\Proj\B5374_rdy_tsh.dgn
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TIP PROJECT: B-5374

CONTRACT: C204066



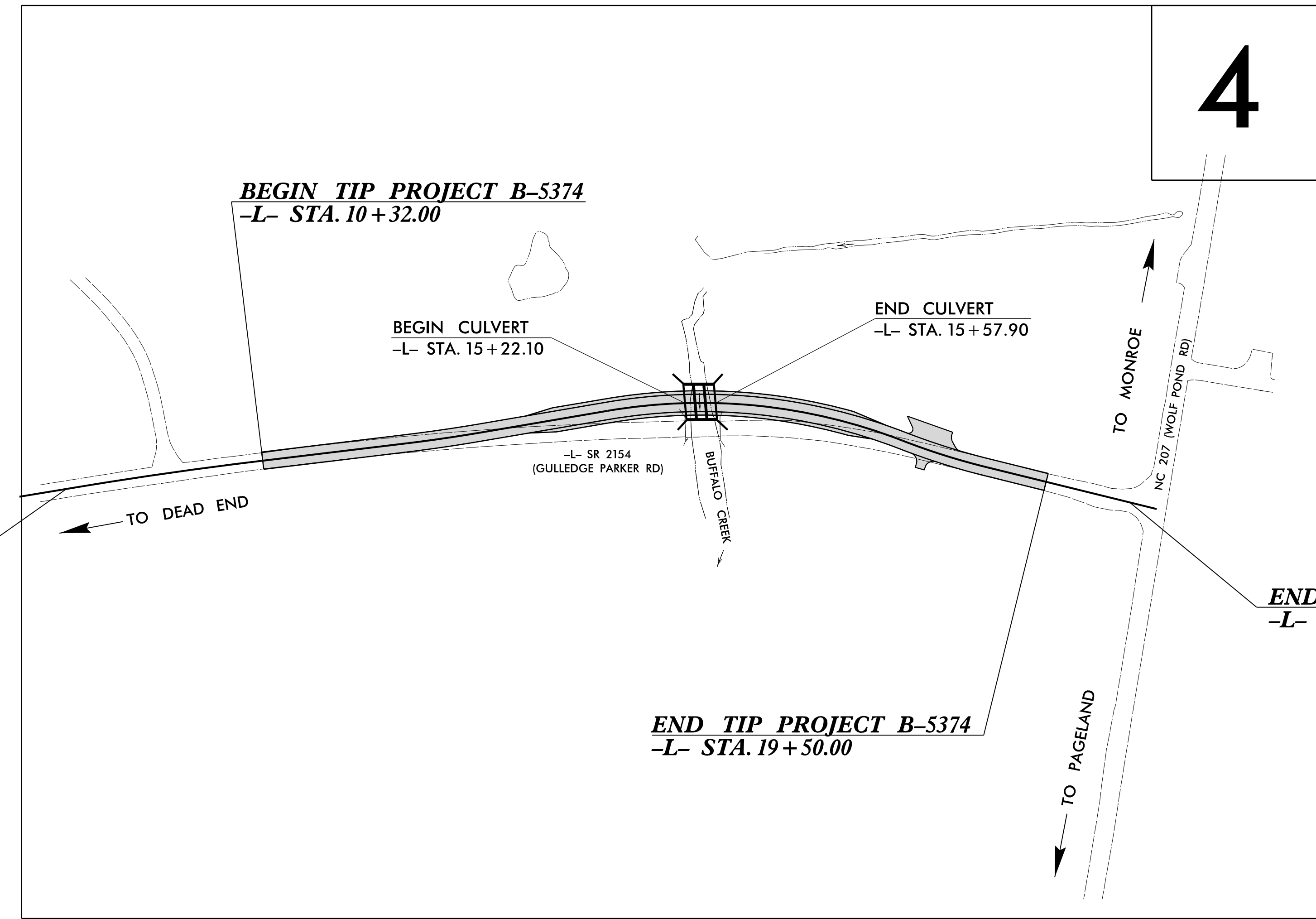
VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
UNION COUNTY

**LOCATION: BRIDGE NO. 448 OVER BUFFALO CREEK
 ON SR 2154 (GULLEDGE PARKER RD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5374	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46089.1.1	BRZ-2154(1)	P.E.	
46089.2.1	BRZ-2154(1)	RW & UTL	
46089.3.1	BRZ-2154(1)	CONSTR.	

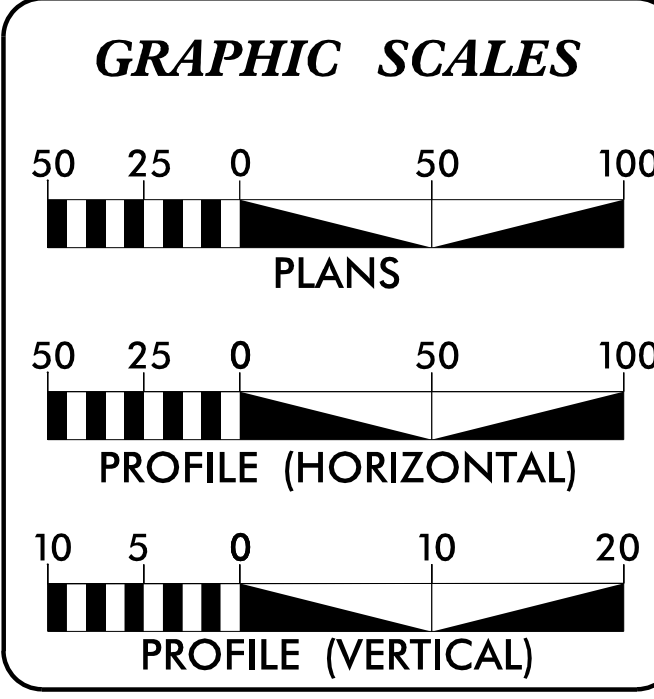


BEGIN CONSTRUCTION
 -L- STA. 8+00.00

END CONSTRUCTION
 -L- STA. 20+49.03

NCDOT CONTACT: DAVID STUTTS, P.E.

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2018	=	617
ADT 2038	=	916
K	=	10 %
D	=	60 %
T	=	5 % *
V	=	40 MPH
* TTST = 2% DUAL 3%		
FUNC CLASS =		
LOCAL RURAL		
SUB-REGIONAL TIER		

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5374	=	0.167 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5374	=	0.007 MILES
TOTAL LENGTH OF TIP PROJECT B-5374	=	0.174 MILES

Prepared for NCDOT in the Office of:
moffatt & nichol
 4700 FALLS OF NEUSE ROAD, SUITE 300
 RALEIGH, NORTH CAROLINA 27609
 (919) 781-4626 VOICE (919) 781-4869 FAX
 NC License NO.: F-0105

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 FEBRUARY 24, 2017

LETTING DATE:
 FEBRUARY 20, 2018

TIM R. REID, P.E.
 PROJECT ENGINEER

TRENT E. HUFFMAN, P.E.
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

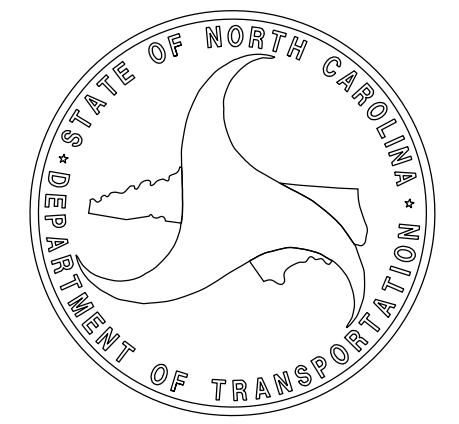
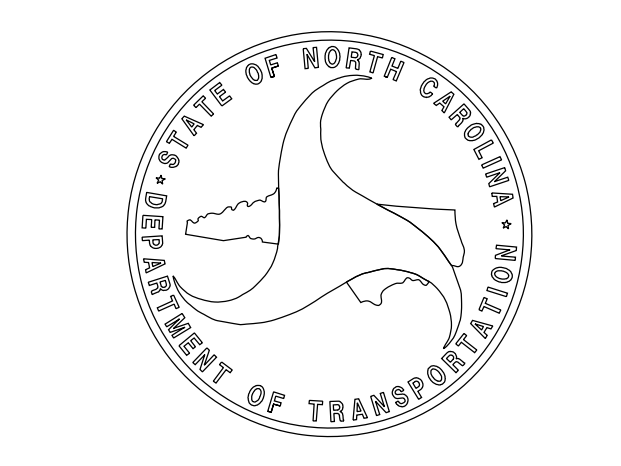
moffatt & nichol

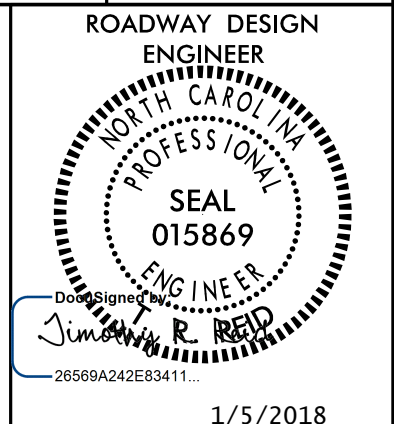
DocuSigned by:
 Jeffrey L. Reck
 SIGNATURE: 12/21/2017

ROADWAY DESIGN ENGINEER

moffatt & nichol

DocuSigned by:
 Timothy R. Reid
 SIGNATURE: 12/21/2017





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

SHEET NUMBER	INDEX OF SHEETS
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B-1	SUMMARY OF EARTHWORK, WOVEN WIRE FENCE SUMMARY, REMOVAL OF ASPHALT PAVEMENT REMOVAL, GUARDRAIL SUMMARY
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-5	TRAFFIC MANAGEMENT PLANS
EC-1 THRU EC-6	EROSION CONTROL PLANS
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-4	CROSS-SECTIONS
C-1 THRU C-9	CULVERT PLANS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WE 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
Union Power Cooperative - Power
Frontier Communications - Communications

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

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
225.02	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
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels

EFF. 01-16-2018
REV.

12/2/2016

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	□ ECM
Parcel/Sequence Number	①23
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	○ 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	▬
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ 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	○ R W
New Right of Way Line with Pin and Cap	○ R W ◆
New Right of Way Line with Concrete or Granite R/W Marker	△ R W
New Control of Access Line with Concrete C/A Marker	△ C/A
Existing Control of Access	△ C/A
New Control of Access	△ C/A
Existing Easement Line	---E---
New Temporary Construction Easement	---E---
New Temporary Drainage Easement	---TDE---
New Permanent Drainage Easement	---PDE---
New Permanent Drainage / Utility Easement	---DUE---
New Permanent Utility Easement	---PUE---
New Temporary Utility Easement	---TUE---
New Aerial Utility Easement	---AUE---

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	---T---
Proposed Guardrail	---T---
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	□ 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	⊕
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.*)	---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	⊕
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:

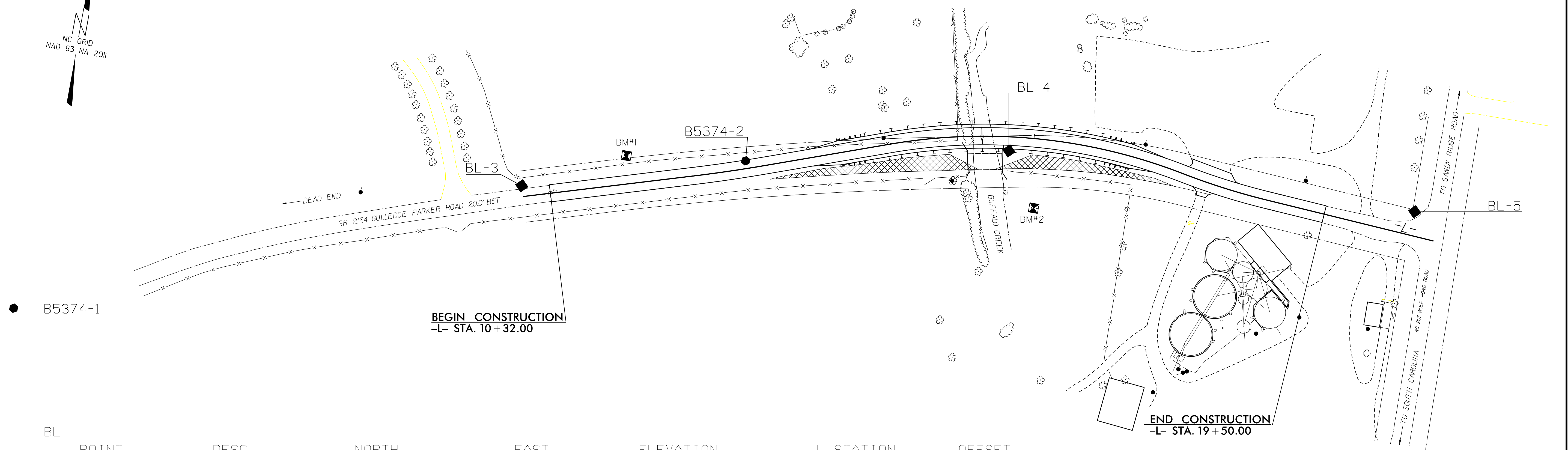
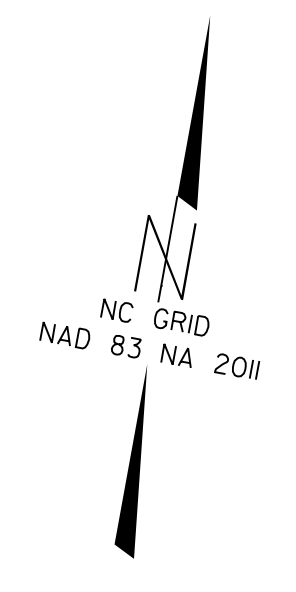
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	---SS---
Above Ground Sanitary Sewer	---A/G Sanitary Sewer---
SS Forced Main Line LOS B (S.U.E.*)	---FSS---
SS Forced Main Line LOS C (S.U.E.*)	---FSS---
SS Forced Main Line LOS D (S.U.E.*)	---FSS---

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	---TU/L---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
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.

SURVEY CONTROL SHEET

FINAL



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B5374-1		401542.3040	1539053.4130	571.03	OUTSIDE PROJECT LIMITS	
3	BL-3		401787.7880	1539610.2640	571.54	OUTSIDE PROJECT LIMITS	
2	B5374-2		401862.6520	1539861.7440	568.11	12+62.58	9.04 LT
4	BL-4		401928.5370	1540161.2820	562.74	15+71.35	16.43 RT
5	BL-5		401942.7590	1540638.8320	575.38	20+51.53	27.87 LT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5374-1"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 401542.304(ft) EASTING: 1539053.413(ft)
 ELEVATION: 571.030(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999875

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5374-1" TO -L- STATION 10+00.00 IS
 N 67°24'10" E 607.36'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

```

*****
BM1      ELEVATION = 570.98
N 401844      E 1539724
L STATION 11+25.00 33 LEFT
RR SPIKE IN BASE OF POWER POLE
*****
BM2      ELEVATION = 561.86
N 401868      E 1540202
L STATION 16+08.00 81 RIGHT
RR SPIKE IN BASE OF 32" GUM
*****
    
```

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)

THE FILES TO BE FOUND ARE AS FOLLOWS:
B5374_LS_BASELINE.TXT
B5374_LS_PAN-LOCAL_130220.TXT
2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
3. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, UTILIZING THE NCGS RTN SYSTEM (VRS).

MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:

● INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
■ INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
⊠ INDICATES BENCHMARKS FOR VERTICAL CONTROL

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET**FINAL**

L

TYPE	STATION	NORTH	EAST
POT	7+49.07	401694.5564	1539376.7133
PC	8+29.20	401721.4249	1539452.2037
PT	10+22.49	401782.3092	1539635.6441
PC	12+00.00	401834.5934	1539805.2748
PT	12+82.85	401860.9170	1539883.8258
PC	14+32.85	401912.0305	1540024.8486
PRC	17+77.87	401938.6499	1540364.6638
PT	18+80.94	401925.6093	1540466.8311
POT	20+80.94	401913.1101	1540666.4401

RIGHT OF WAY MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+50.00	-26.26	401874.87703	1539844.36397
L	15+00.00	-65.00	401994.65424	1540073.43309
L	15+00.00	-45.00	401975.24089	1540078.24159
L	15+60.00	-65.00	402007.51650	1540138.23855
L	15+60.00	-45.00	401987.73826	1540141.20859
L	16+65.00	-45.00	401995.25635	1540253.21337
L	18+80.94	-30.00	401955.55065	1540468.70594

PERMANENT EASEMENT IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	8+00.00	-50.00	401758.73928	1539407.92910
L	8+00.00	-32.85	401742.58133	1539413.68003
L	15+00.00	-85.00	402014.06760	1540068.62459
L	15+00.00	59.69	401873.62568	1540103.41069
L	15+00.00	90.00	401844.20075	1540110.69896
L	15+18.00	-84.33	402018.03685	1540088.62608
L	15+33.00	-150.00	402085.93107	1540092.77142
L	15+58.00	-148.00	402089.22671	1540123.47823
L	15+60.00	-85.00	402027.29474	1540135.26850
L	16+00.00	85.00	401863.25590	1540194.95538
L	16+10.00	55.84	401893.02311	1540201.53387
L	20+49.03	-30.00	401945.04572	1540636.46722

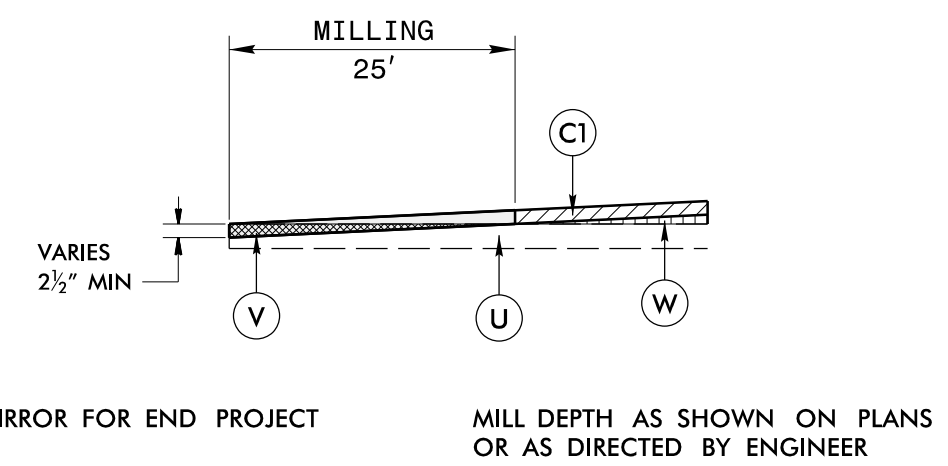
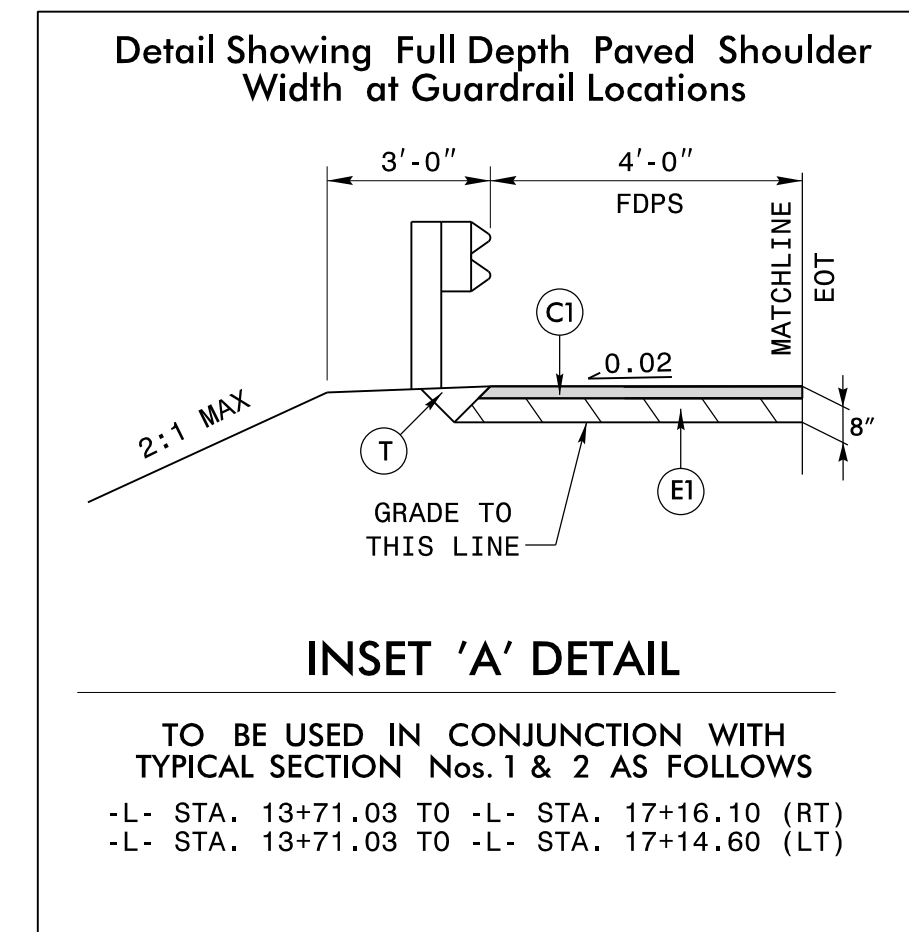
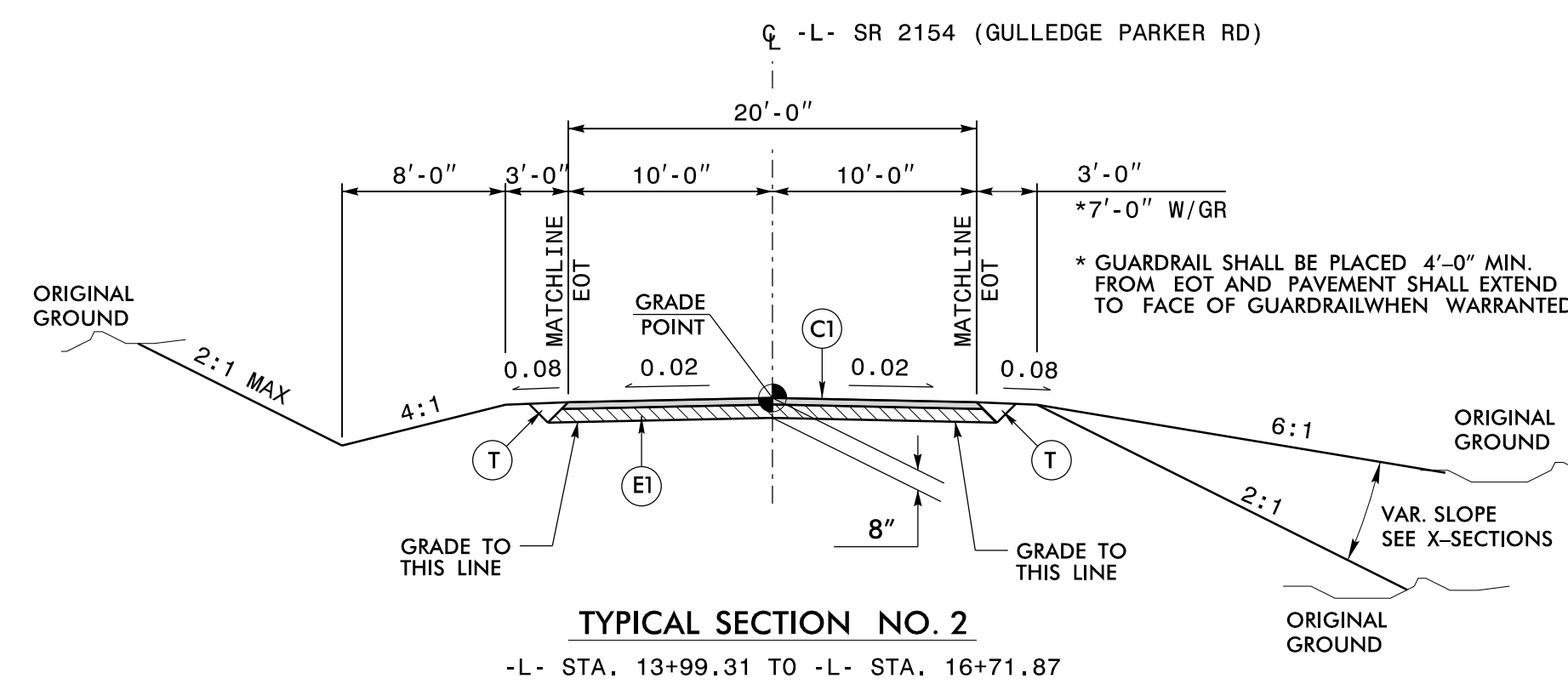
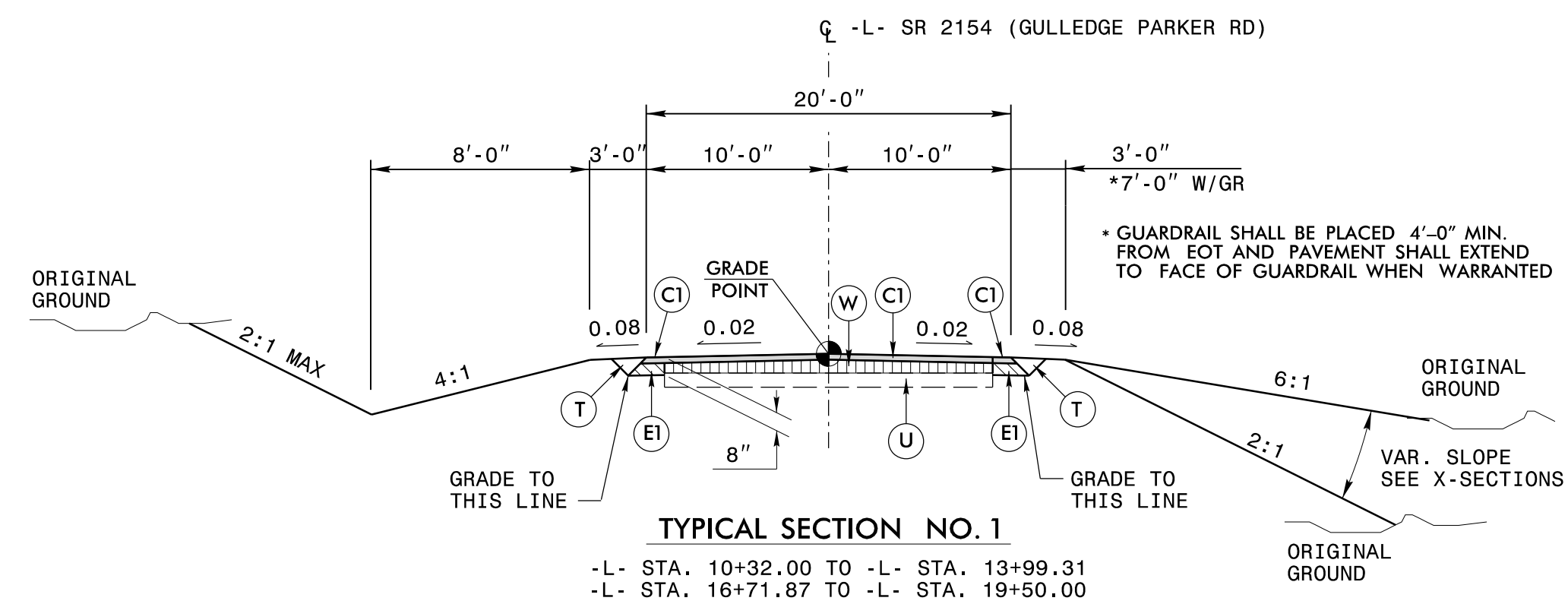
6/2/2017

PAVEMENT SCHEDULE

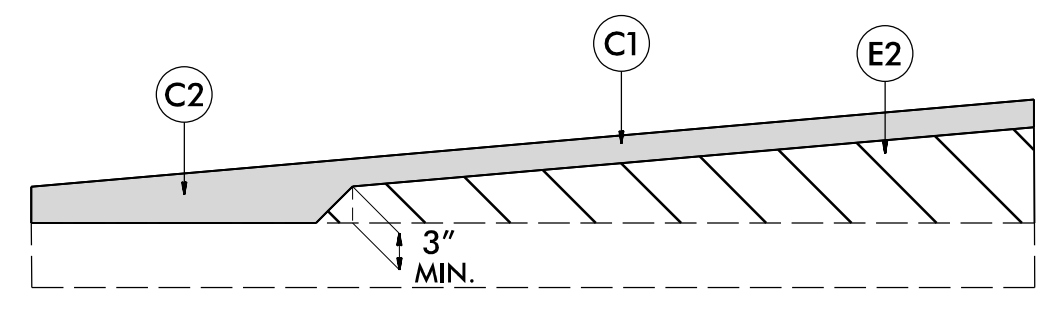
(FINAL PAVEMENT DESIGN 1-25-16)

C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	V	INCIDENTAL MILLING
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS, THIS SHEET)

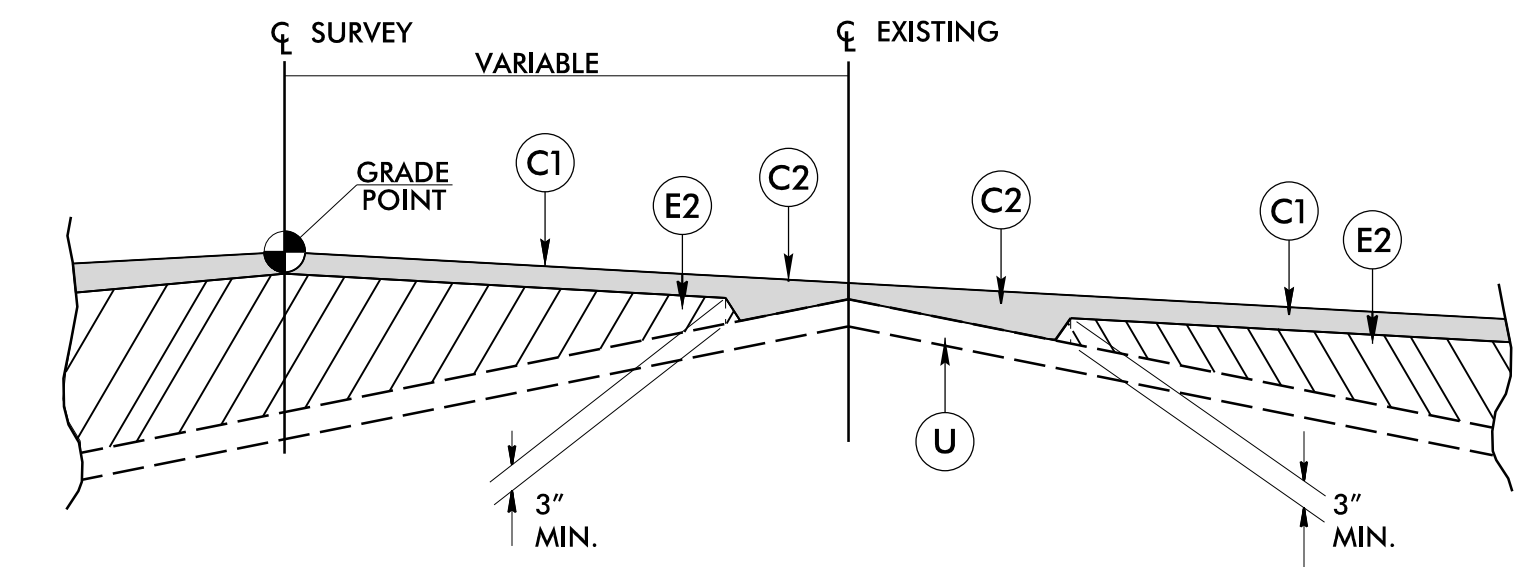
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Pavement Milling Detail Key-In (Tie-In)



Wedging Detail For Resurfacing
 SEE TYPICAL SECTION No. 1



Detail Showing Method Of Wedging
 SEE TYPICAL SECTION No. 1

PROJECT REFERENCE NO. B-5374	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 26599A242E83411... 12/21/2017	PAVEMENT DESIGN ENGINEER 604110001E004C1... 12/22/2017
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
4700 FALLS OF NEUSE ROAD, SUITE 300 WELLSBORO, NORTH CAROLINA 27689 (919) 78-4400 VOICE (919) 78-4400 FAX NC LICENSE NO.: F-0105	

I:\2017\06\07\06\CA000\B5374-Roadway\Proj\B5374_r.dwg - tujp.dgn
 12/20/2017 10:52:06

12/06/07

COMPUTED BY: C. POWELL	DATE: 6/22/17
CHECKED BY: T. HUFFMAN	DATE: 7/6/17

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-5374	SHEET NO. 3B-1
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SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L-	-L-				
10+32	19+50	366	2,816	2,450	
SUBTOTALS:		366	2,816	2,450	
REDUCTION FOR CULVERT AREA			-619	-619	
PROJECT TOTALS:		366	2,198	1,831	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				92	
GRAND TOTALS:		366		1,923	
SAY:		370		2,000	

EST. DDE = 120 CY
 EST. UNDERCUT = 650 CY
 EST. SELECT GRANULAR MATERIAL = 600 CY

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

SUMMARY OF REMOVAL EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	11+58	15+22	RT	439.29
-L-	15+65	18+57	RT	395.23
TOTAL:				834.51
SAY:				840

"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	GREU TL-2	EA	G						NG	
-L-	13+71.03	17+16.10	RT	350.00			15+22	15+58	4	7	25	25	1	1										
-L-	13+71.03	17+16.10	LT	350.00			15+58	15+22	4	7	25	25	1	1										
TOTAL				700.00											4									
LESS ANCHOR DEDUCTIONS GREU (TL-2)																								
SUB TOTAL				600.00																				
SAY				625																				
ADDITIONAL GUARDRAIL POSTS																								

12/06/07
T. HUFFMAN

COMPUTED BY: JEB DATE: 10/20/2016
 CHECKED BY: TEH DATE: 12/4/2017

PROJECT NO.
 B-5374

SHEET NO.
 3G-1

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

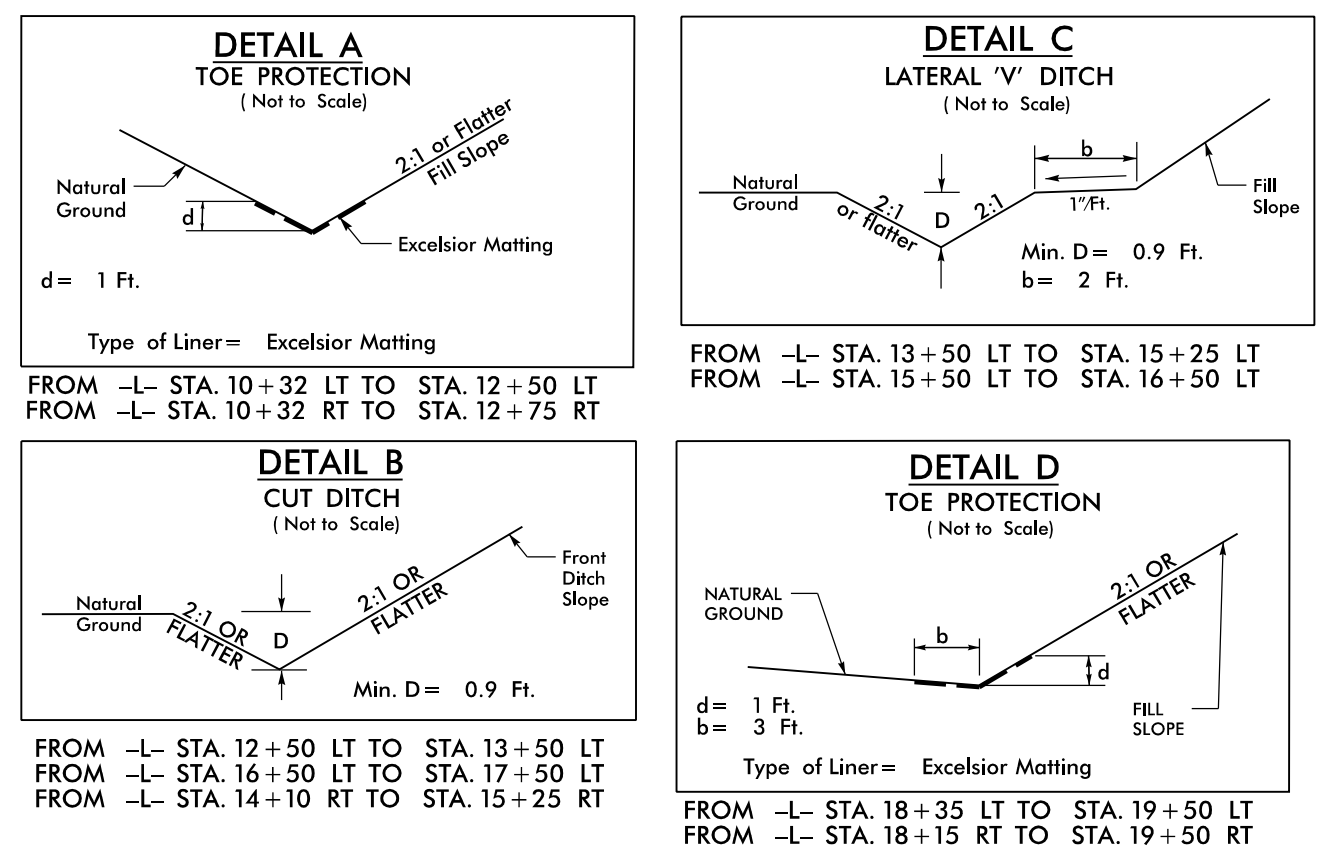
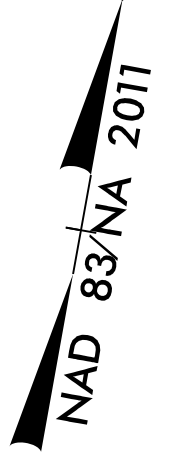
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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	18	100	200	200		
			TOTAL CY/TONS/SY:		100	200	200**	0	0

*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.

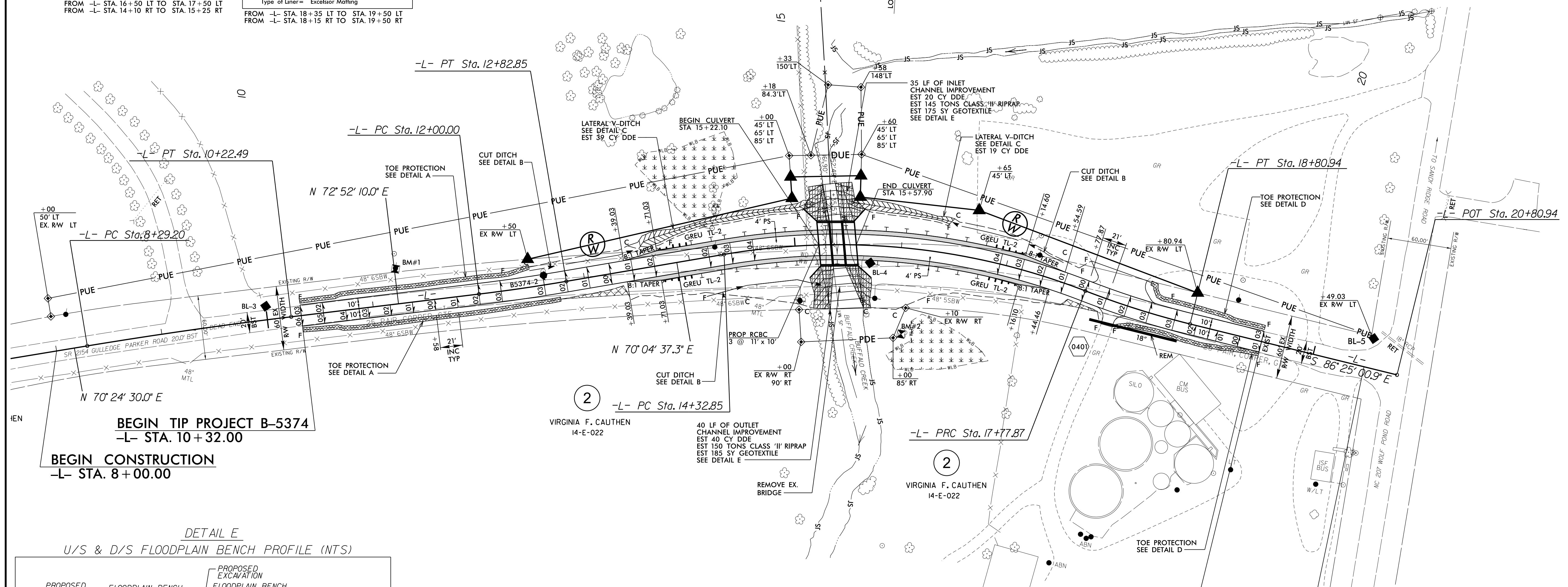
8.17.17.99

PROJECT REFERENCE NO. B-5374	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 015869 JIMMY REID	HYDRAULICS ENGINEER SEAL 026696 JEFFREY L. REED
20589A24288411 12/21/2017	10958144510425 12/21/2017
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
moffatt & nichol	



1
THOMAS M. BOUGEIOS
DB 5297 PG 773

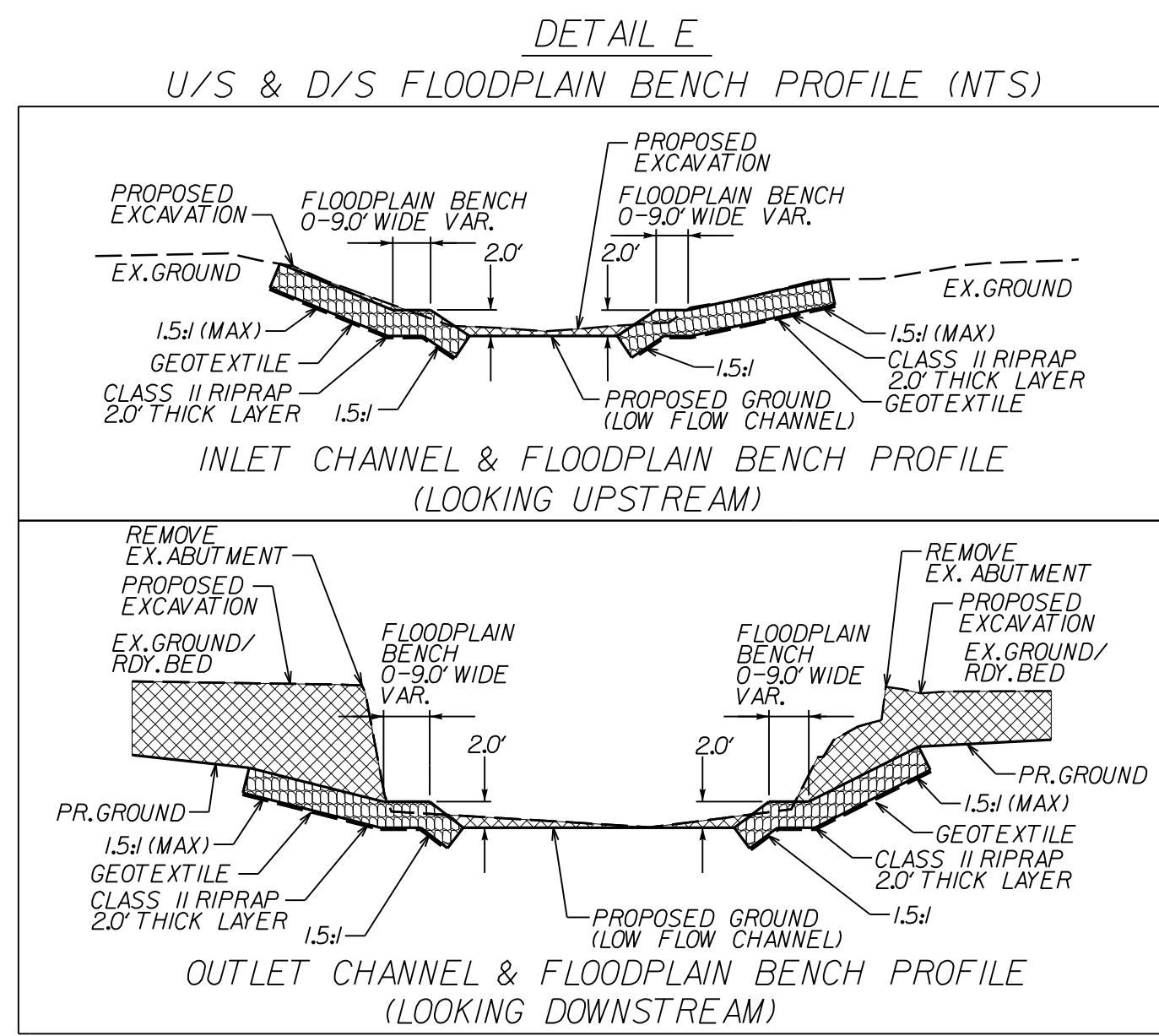
3
VIRGINIA F. CAUTHEN
14-E-022



BEGIN TIP PROJECT B-5374
-L- STA. 10 + 32.00
BEGIN CONSTRUCTION
-L- STA. 8 + 00.00

END TIP PROJECT B-5374
-L- STA. 19 + 50.00

END CONSTRUCTION
-L- STA. 20 + 49.03



- NOTES:
- CONTRACTOR SHALL AVOID WETLAND AREA FOR STAGING EQUIPMENT OR MATERIAL. INSTALL SAFETY FENCE ALONG SR 2154 PER EROSION CONTROL PLAN.
 - INSTALL CONSTRUCTION MATTING FOR ANY TEMPORARY IMPACTS TO WETLANDS IF REQUIRED.
 - DO NOT STAGE EQUIPMENT OR MATERIAL WITHIN THE PROPOSED ROW, PDE, OR WETLANDS ON THE PLANS.

PI Sta 9+25.86 Δ = 2° 27' 40.0" (RT) D = 1'16" 23.7" L = 193.30' T = 96.66' R = 4,500.00'	PI Sta 12+41.43 Δ = 2° 47' 32.7" (LT) D = 3' 22" 13.2" L = 82.85' T = 41.43' R = 1,700.00' SE = 03 Runoff = 63'	PI Sta 16+09.67 Δ = 30° 53' 15.8" (RT) D = 8' 57" 08.9" L = 345.02' T = 176.81' R = 640.00' SE = 04 Runoff = 84'	PI Sta 18+29.48 Δ = 7° 22' 54.0" (LT) D = 7' 09" 43.1" L = 103.07' T = 51.61' R = 800.00' SE = 03 Runoff = 63'
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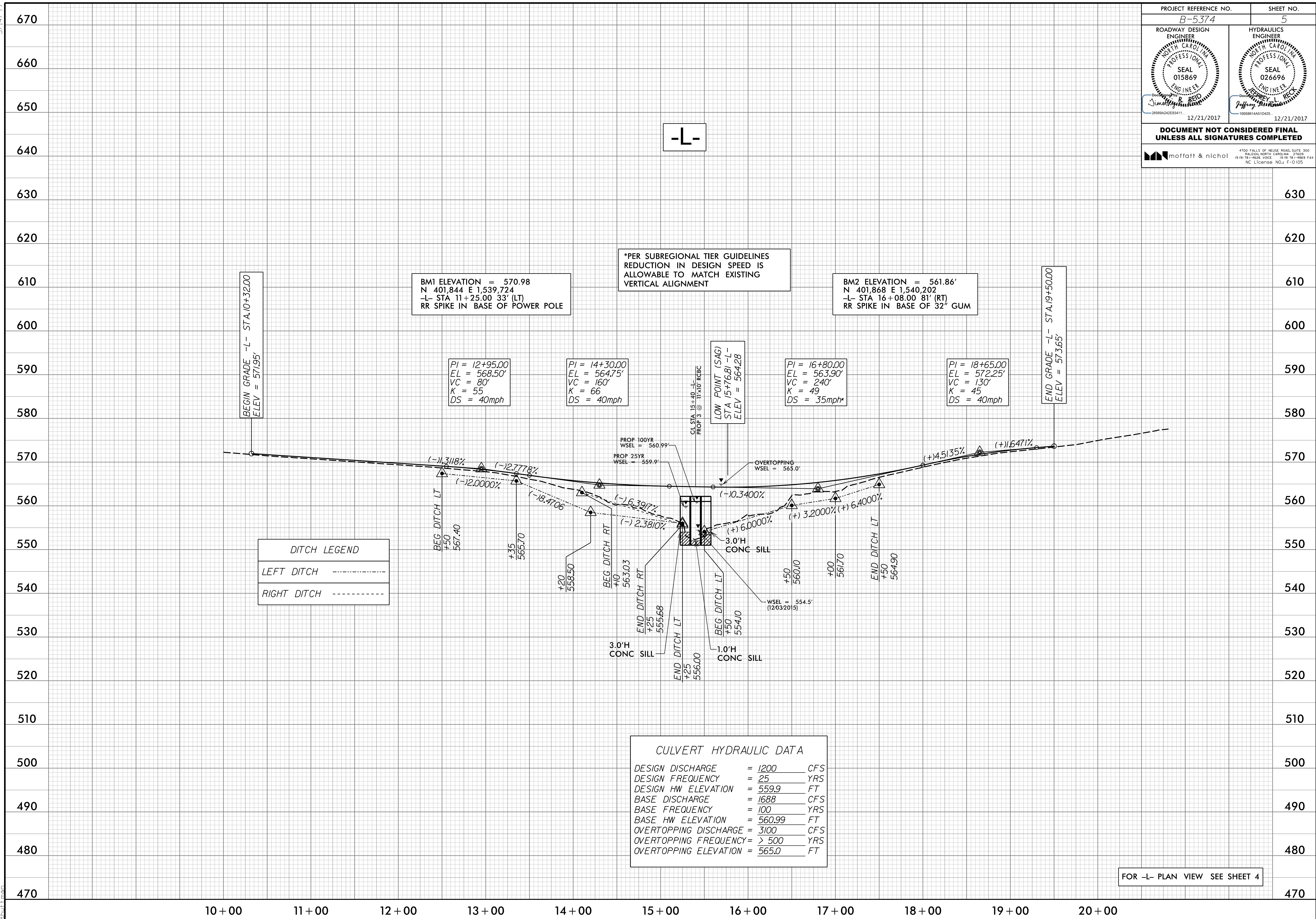


FOR PROFILE SEE SHEET 5
FOR CULVERT PLANS SEE SHEETS C-1 TO C-9

16:20:2017 06:CA000\B5374-Roadway\Proj\B5374_RDY_psh_04.dgn

5/14/99

PROJECT REFERENCE NO. B-5374	SHEET NO. 5
ROADWAY DESIGN ENGINEER SEAL 015869 12/21/2017	HYDRAULICS ENGINEER SEAL 026696 12/21/2017
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
moffatt & nichol	



BEGIN GRADE -L- STA.10+32.00
ELEV = 571.95'

BM1 ELEVATION = 570.98
N 401,844 E 1,539,724
-L- STA 11+25.00 33' (LT)
RR SPIKE IN BASE OF POWER POLE

*PER SUBREGIONAL TIER GUIDELINES
REDUCTION IN DESIGN SPEED IS
ALLOWABLE TO MATCH EXISTING
VERTICAL ALIGNMENT

BM2 ELEVATION = 561.86'
N 401,868 E 1,540,202
-L- STA 16+08.00 81' (RT)
RR SPIKE IN BASE OF 32" GUM

END GRADE -L- STA.19+50.00
ELEV = 573.65'

PI = 12+95.00
EL = 568.50'
VC = 80'
K = 55
DS = 40mph

PI = 14+30.00
EL = 564.75'
VC = 160'
K = 66
DS = 40mph

LOW POINT (SAG)
STA 15+76.81 -L-
ELEV = 564.28

PI = 16+80.00
EL = 563.90'
VC = 240'
K = 49
DS = 35mph

PI = 18+65.00
EL = 572.25'
VC = 130'
K = 45
DS = 40mph

DITCH LEGEND

LEFT DITCH	-----
RIGHT DITCH	-----

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1200	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 559.9	FT
BASE DISCHARGE	= 1688	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 560.99	FT
OVERTOPPING DISCHARGE	= 3100	CFS
OVERTOPPING FREQUENCY	= > 500	YRS
OVERTOPPING ELEVATION	= 565.0	FT

FOR -L- PLAN VIEW SEE SHEET 4

12/21/2017 8:52:06 AM C:\A000\B5374\Roadway\Proj\B5374_RDY_psh_05.dgn
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