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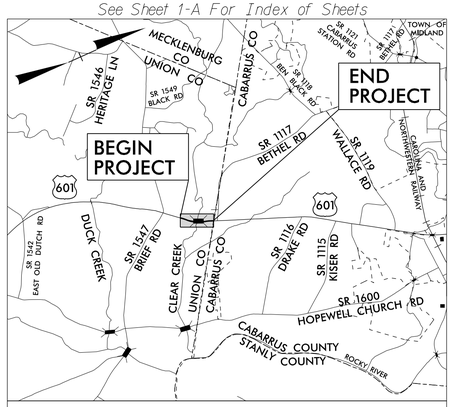
09/08/99

TIP PROJECT: B-5371

CONTRACT: C204064

See Sheet 1-A For Index of Sheets



VICINITY MAP
(NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

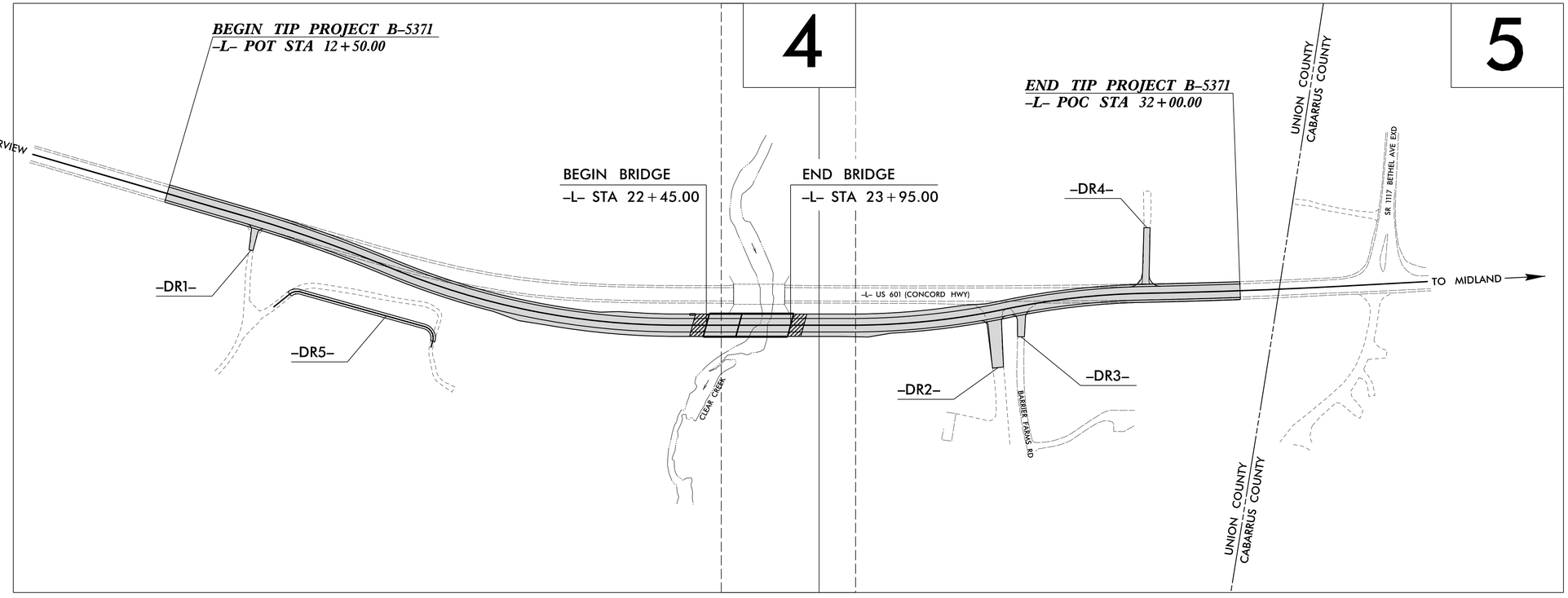
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5371	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46086.1.1	BRSTP-0601(21)	P.E.
46086.2.1		R/W & UTL
46086.3.1		CONSTR.

LOCATION: REPLACE BRIDGE No. 71 OVER CLEAR CREEK ON US 601

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

NAD 83/NA 2011



NCDOT CONTACT: DAVID STUTTS, P.E.

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 2018 = 7,641
ADT 2038 = 13,005
K = 10 %
D = 55 %
T = 20 % *
V = 60 MPH
* TTST = 11% DUAL 9%
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5371 = 0.341 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5371 = 0.028 MILES
TOTAL LENGTH OF TIP PROJECT B-5371 = 0.369 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
NORTH CAROLINA PROFESSIONAL SEAL 026696 ENGINEER JEFFREY L. ROCK
DocuSigned by: Jeffrey L. Rock
SIGNATURE: P.E. 12/27/2017

ROADWAY DESIGN ENGINEER
moffatt & nichol
NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER TIMOTHY R. REID
DocuSigned by: Timothy R. Reid
SIGNATURE: P.E. 12/27/2017

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

12/5/2017
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thuffman

PROJECT REFERENCE NO.	SHEET NO.
B-5371	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER T. R. REID

DocuSigned by: Timothy R. Reid

26569A242E83411...

12/28/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REV:

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

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.

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 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE
Duke Energy - Power (Distribution), AT&T - Communications,
Frontier - Communications, MCNC - 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 CONTRACT.

EFF. 01-16-2018
REV.

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
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.04	Parallel Pipe End Section - Prefabricated Steel Section for 15" to 24" Pipe
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
422.03	Reinforced 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
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.20	Frames and Wide Slot Flat Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.02	Woven Wire Fence - with Wood Posts
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/99

12/19/2017
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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5371	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
- Computed 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 — 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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- 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 — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- 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
- 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:

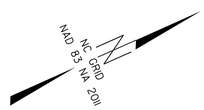
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

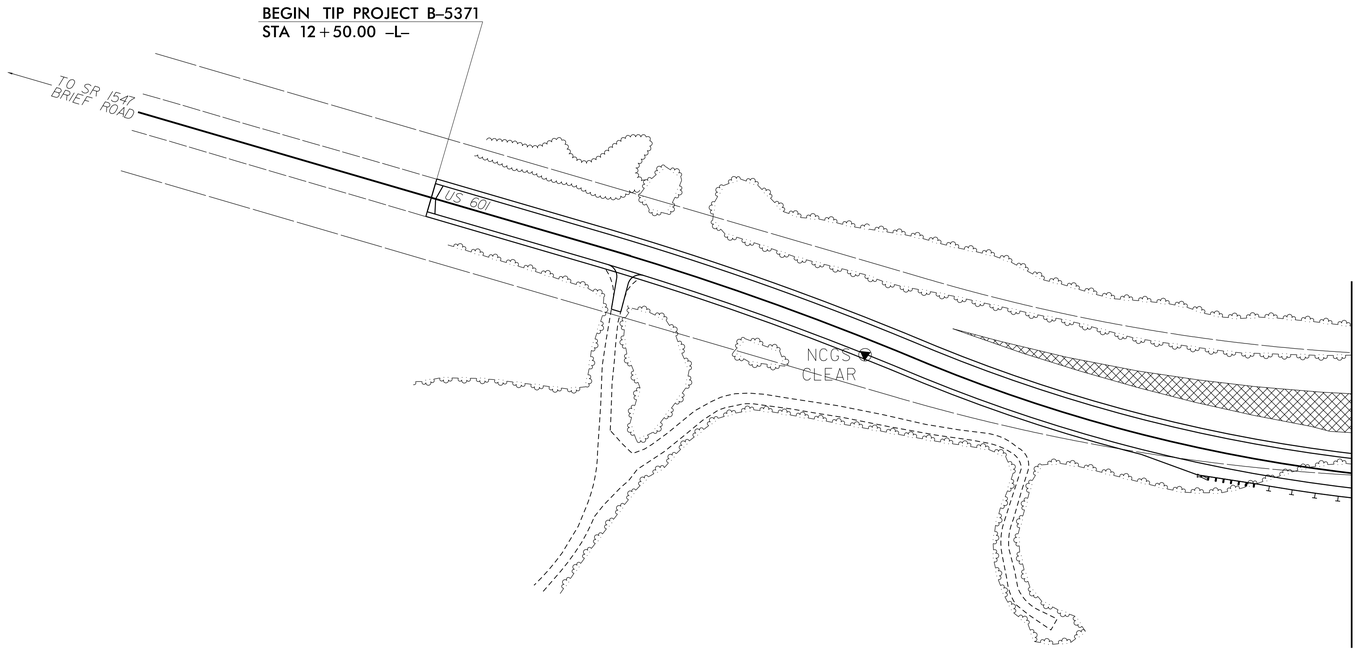
SANITARY SEWER:

- 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.





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PROJECT REFERENCE NO.	SHEET NO.
B–5371	1C–1

Location and Surveys

SURVEY CONTROL SHEET
FINAL

BL-1

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	527612.9303	1541952.5310	496.21	OUTSIDE PROJECT LIMITS	
2	BL-2	528010.7472	1542279.6490	494.32	OUTSIDE PROJECT LIMITS	
8	CLEAR	528656.5110	1542832.9880	477.41	16+28.35	12.63 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "B5371-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 529424.242(ft) EASTING: 1543254.767(ft)
ELEVATION: 479.03(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.9998550
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"B5371-2" TO -L- STATION 12+50.00 IS
S 33°20'44" W 1244.24'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

* *

BM1 ELEVATION = 505.56
N 530483 E 1543614
RR SPIKE IN ROOT OF 8" POPLAR

* *

NOTE: DRAWING NOT TO SCALE

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:
   B5371_LS_BASELINE.TXT
   B5371_LS_PAN-LOCAL_130225.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*

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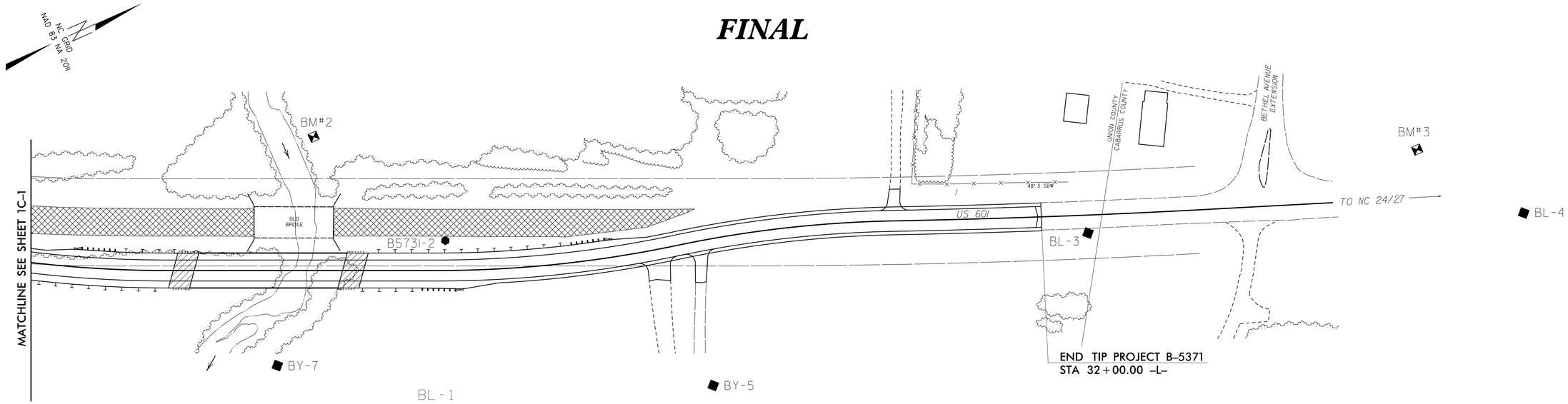
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5371	1C-2
Location and Surveys	

SURVEY CONTROL SHEET
FINAL



BL-1

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
7	B5731-2	529424.2420	1543254.7670	479.03	25+13.54	34.24 LT
3	BL-3	530100.0095	1543547.1760	503.62	32+52.76	20.58 RT
4	BL-4	530565.1338	1543729.8330	508.12	OUTSIDE PROJECT LIMITS	

BY-1

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BY-5	529636.6904	1543531.5730	492.86	27+89.41	165.69 RT
6	BY-6	529548.5216	1543936.2000	495.41	27+93.45	579.81 RT

BY-2

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
9	BY-7	529190.0252	1543307.0276	473.74	23+20.75	108.98 RT
10	BY-8	529004.7920	1543525.4714	469.40	22+40.74	383.99 RT

BM2 ELEVATION = 472.99
N 529335 E 1543085
RR SPIKE IN ROOT OF 36" OAK

BM3 ELEVATION = 494.78
N 527999 E 1542284
RR SPIKE IN ROOT OF 24" OAK

NOTE: DRAWING NOT TO SCALE

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:
   B5371_LS_BASELINE.TXT
   B5371_LS_PAN-LOCAL_130225.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*

12/20/2017
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lwilliams

SURVEY CONTROL SHEET
FINAL

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	528194.2991	1542408.9720
PC	13+90.00	528491.5364	1542661.4596
PRC	16+68.73	528693.4785	1542853.3645
PT	21+94.71	529119.4058	1543156.1072
PC	25+03.21	529401.0702	1543281.9553
PRC	27+79.40	529663.0823	1543367.7262
PRC	30+30.70	529902.2828	1543443.5598
PT	33+78.83	530225.0307	1543573.9973
POT	35+34.63	530370.4742	1543629.8529

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	528512.6621	1542679.6083
PC	10+40.52	528488.6108	1542712.2165
PT	11+08.20	528453.2225	1542769.8200
POT	11+37.75	528439.9385	1542796.2133

DR2

TYPE	STATION	NORTH	EAST
POT	10+00.00	529641.6624	1543362.9187
POT	11+10.34	529606.3236	1543467.4499

DR3

TYPE	STATION	NORTH	EAST
POT	10+00.00	529691.9095	1543374.2829
POT	11+06.44	529646.8347	1543470.7108

DR4

TYPE	STATION	NORTH	EAST
POT	10+00.00	529979.9447	1543279.0019
POT	11+17.56	529931.0481	1543385.9080
POT	11+82.03	529901.6745	1543443.3018

DR5

TYPE	STATION	NORTH	EAST
POT	10+00.00	528475.2927	1542833.0003
PC	10+37.01	528511.0607	1542823.4843
PT	10+57.01	528529.8654	1542827.6139
PC	12+86.75	528706.7030	1542974.2691
PT	13+19.97	528709.3123	1543004.0175
POT	13+31.81	528701.6505	1543013.0505

RIGHT OF WAY MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	16+00.00	41.50	528616.2648	1542833.2375
L	16+00.00	60.00	528603.1484	1542846.2813
L	19+00.00	92.00	528810.7247	1543080.8741
L	19+50.00	80.00	528860.9554	1543102.1874
L	22+00.00	100.00	529083.4459	1543249.5680
L	24+20.00	75.00	529294.5067	1543316.4883
L	25+50.00	70.00	529417.8306	1543365.1643
L	27+79.40	60.00	529650.4263	1543426.3762
L	30+50.00	75.00	529890.8769	1543520.1762
L	30+80.00	50.00	529928.3950	1543508.8319

PERMANENT EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+15.00	47.08	528552.5067	1542779.0469
L	15+15.00	90.00	528523.1206	1542810.3280
L	19+06.00	105.00	528808.1371	1543095.1511
L	19+14.00	88.42	528824.8764	1543086.8787
L	19+17.00	102.00	528819.4701	1543099.7474
L	22+10.00	-105.22	529176.2905	1543066.2834
L	22+10.00	-130.00	529186.4010	1543043.6548
L	24+45.00	-130.00	529400.9586	1543139.5194
L	24+45.00	-105.20	529390.8412	1543162.1636

NOTE: DRAWING NOT TO SCALE

6/2/99
12/20/2017
G:\RA\B22-04\CADD\B5371\Roadway\Proj\b5371_ls_1C-3.dgn
thuffman

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5371	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER JIMMY R. REID

DocuSigned by: Jimmy R. Reid 26569A242E83411...

12/27/2017

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON

DocuSigned by: Clark S. Morrison B0A110DD1E004C4...

12/28/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

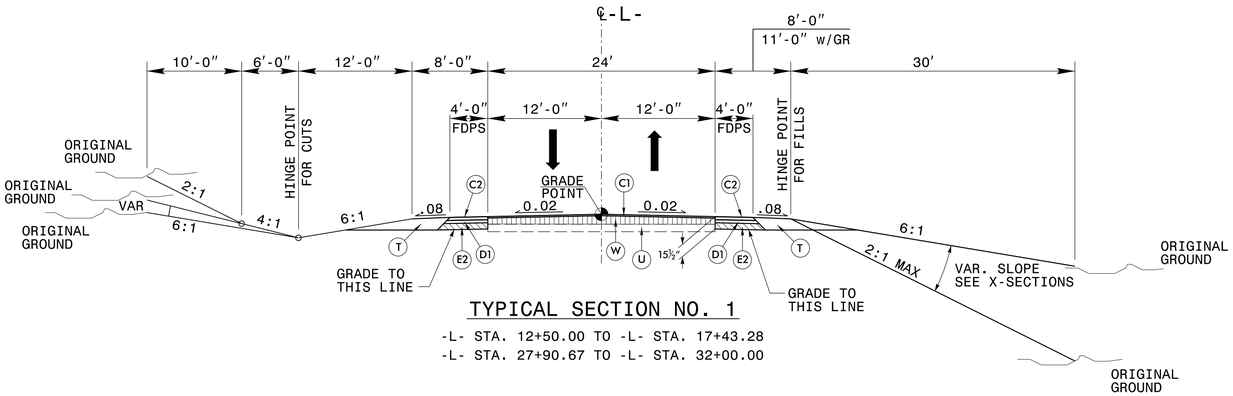
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO: F-0105

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN I-25-2016)

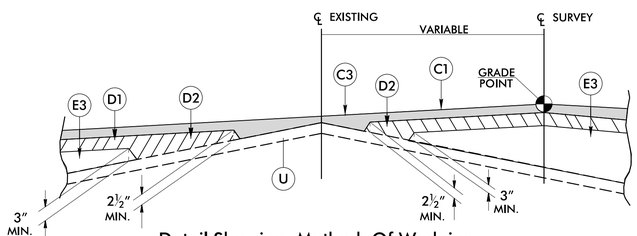
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	J1	PROP. 6" AGGREGATE BASE COURSE.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J2	PROP. 8" AGGREGATE BASE COURSE.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R1	CONCRETE SHOULDER BERM GUTTER
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2 " IN DEPTH OR GREATER THAN 4" IN DEPTH.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	V	INCIDENTAL MILLING
E2	PROP. APPROX. 8½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 484.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS, THIS SHEET)
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.		

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

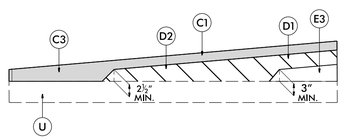


TYPICAL SECTION NO. 1

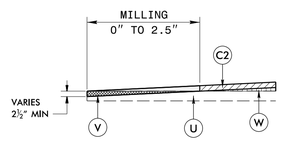
-L- STA. 12+50.00 TO -L- STA. 17+43.28
-L- STA. 27+90.67 TO -L- STA. 32+00.00



Detail Showing Method Of Wedging



Wedging Detail For Resurfacing



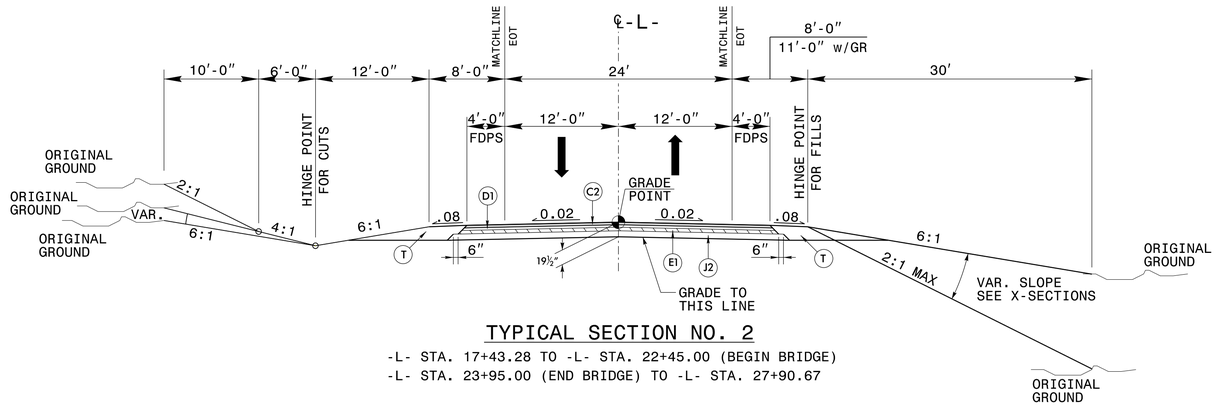
NOTE: MIRROR FOR END PROJECT

MILL DEPTH AS SHOWN ON PLANS OR AS DIRECTED BY ENGINEER

PAVEMENT MILLING DETAIL KEY-IN (TIE-IN)

12/27/2017
G:\PROJECTS\B5322-04\CADD\B5371\Roadway\Proj\b5371_rdy_typ.dgn
thuffman

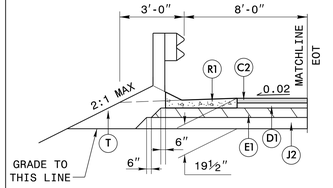
6/2/99



TYPICAL SECTION NO. 2

-L- STA. 17+43.28 TO -L- STA. 22+45.00 (BEGIN BRIDGE)
-L- STA. 23+95.00 (END BRIDGE) TO -L- STA. 27+90.67

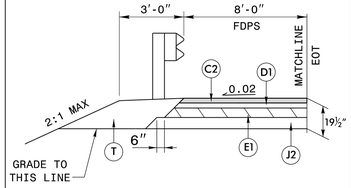
Detail Showing Shoulder Berm Gutter on Top of Subgrade



INSET 'A' DETAIL

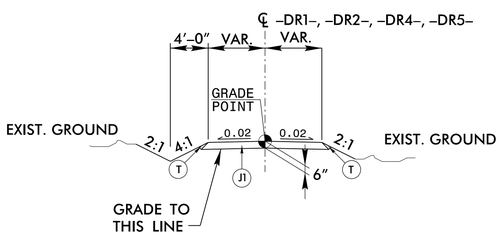
TO BE USED IN CONJUNCTION WITH TYPICAL SECTION No. 2 AS FOLLOWS
-L- STA. 22+15.86 TO -L- STA. 22+26.22 (LT)

Detail Showing Full Depth Paved Shoulder Width at Guardrail Locations



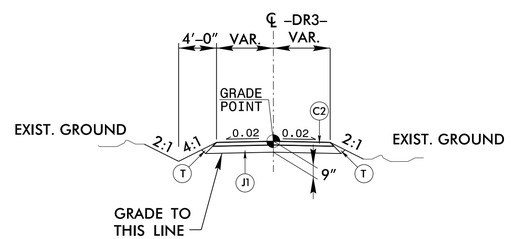
INSET 'B' DETAIL

TO BE USED IN CONJUNCTION WITH TYPICAL SECTION No. 2 AS FOLLOWS
-L- STA. 20+86.31 TO -L- STA. 22+26.22 (LT)
-L- STA. 19+14.89 TO -L- STA. 22+15.50 (RT)
-L- STA. 24+24.50 TO -L- STA. 27+08.06 (LT)
-L- STA. 24+14.11 TO -L- STA. 25+33.35 (RT)



TYPICAL SECTION NO. 3

-DR1- STA. 10+12.08 TO STA. 10+55.00
-DR2- STA. 10+12.03 TO STA. 11+00.00
-DR4- STA. 10+65.00 TO STA. 11+70.00
-DR5- STA. 10+37.01 TO STA. 13+19.97



TYPICAL SECTION NO. 4

-DR3- STA. 10+12.25 TO STA. 10+55.00

PROJECT REFERENCE NO.	SHEET NO.
B-5371	2A-2

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER
DocuSigned by: Timothy B. REID
26569A242E83411...
12/27/2017

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
DocuSigned by: Clark S. Morrison
B0A110DD1E004C4...
12/28/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

moffatt & nichol
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(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO: F-0105

PAVEMENT SCHEDULE

C2	3" ACSC TYPE S9.5C
D1	4" ACIC TYPE I19.0C
E1	4½" ACBC TYPE B25.0C
J1	6" ABC
J2	8" ABC
R1	CONC. SHOULDER BERM GUTTER
T	EARTH MATERIAL

NOTES: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN

12/06/07

COMPUTED BY: G. MODLIN DATE: 8/3/2017
CHECKED BY: T. HUFFMAN DATE: 8/7/2017

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L-					
12+00	22+45	1,458	11,352	9,894	
-L-					
23+95	32+50	2,522	5,677	3,155	
-DR2-					
10+20	11+00	42	88	46	
-DR4-					
10+70	11+40	21	11		10
-DR5-					
10+37	13+97	69	19		50
SUBTOTALS:		4,112	17,147	13,095	60
MATERIAL FOR SHOULDER CONSTRUCTION			816	816	
WASTE IN LIEU OF BORROW				-60	-60
PROJECT TOTALS:		4,112	17,963	13,851	
EST 5% TO REPLACE TOP SOIL ON BORROW PIT				693	
GRAND TOTALS:		4,112		14,544	
SAY:		4,200		14,600	

EST. DDE = 680 CY
EST. UNDERCUT = 750 CY
EST. SELECT GRANULAR MATERIAL = 700 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."

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	LOC.	STATION	STATION	LENGTH
-L-	LT	22+15.86	22+26.54	10.68
			TOTAL:	10.68
			SAY:	12

SUMMARY OF REMOVAL EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-L-	14+44	22+94	LT	2,175.58
-L-	23+85	30+17	LT	1,609.22
			TOTAL:	3,784.80
			SAY:	3,790

"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-3	B-77	EA	G	NG				
-L-	19+08.86	22+40.11	RT	337.50			19+85	22+45	8	11	50	0	1	0	1	1							BRIDGE
-L-	23+90.11	25+33.35	RT	150.00			23+95		8	11	0	50	0	1	1	1							BRIDGE
-L-	20+86.31	22+50.83	LT	175.00			22+45		8	11	50	0	1	0	1	1							BRIDGE
-L-	24+00.83	27+08.06	LT	312.50			26+30	23+95	8	11	0	50	0	1	1	1							BRIDGE
-L-	16+18.69	23+07.68	RT																		685		
-L-	21+18.90	23+10.10	LT																		190		
-L-	23+71.96	25+31.68	RT																		160		
-L-	23+71.54	28+75.92	LT																		497		
TOTAL				975.00											4	4					1,532		
LESS ANCHOR DEDUCTIONS																							
GREU TL-3			4 @ 50.00'	-200.00																			
TYPE B-77			4 @ 18.75'	-75.00																			
SUB TOTAL				700.00																			
SAY				725											4	4					1,532		

ADDITIONAL GUARDRAIL POSTS	8

RA-1553

COMPUTED BY: J. DAVENPORT **DATE:** 7/6/17

CHECKED BY: J. RECK **DATE:** 7/7/17

PROJECT NO.	SHEET NO.
B-5371	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**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 %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	54	60	66	72	78	84	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54
L 14+21	36 RT	0401										68																							
L 22+20	19 LT	0402		482.2																															
		0402	0404		473.4	465.8																						96							
L 27+65	34 RT	0501								132																									
L 30+33	35 LT	0502							76																										
L 14+21	29 RT	0000																																	
L 27+56	7 RT	0000																																	
L 28+07	15 RT	0000																																	
L 30+31	31 LT	0000																																	
SHEET TOTALS									76	132		68																96							
PROJECT TOTALS									76	132		68																96							

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	5' THRU 10' A LIN. FT.	10' AND ABOVE B 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	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	T.B.D.I. STD. 840.35 OR STD. 840.46	15" PARALLEL PIPE END SECTION	18" PARALLEL PIPE END SECTION	30" PARALLEL PIPE END SECTION	PIPE REMOVAL LIN. FT.	REMARKS
L 14+21	36 RT	0401																		1		
L 22+20	19 LT	0402					1	3.8								1	1					
		0402	0404																			
L 27+65	34 RT	0501																	1			
L 30+33	35 LT	0502																1				
L 14+21	29 RT	0000																			21	
L 27+56	7 RT	0000																			40	
L 28+07	15 RT	0000																			41	
L 30+31	31 LT	0000																			20	
SHEET TOTALS							1	3.8								1	1	1	1	1	122	
PROJECT TOTALS							1	3.8								1	1	1	1	1	122	

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

COMPUTED BY: JEB	DATE: 10/20/2016
CHECKED BY: TEH	DATE: 11/28/2017

(2-16-16)

PROJECT NO.	SHEET NO.
B-5371	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.**

PROJ. REFERENCE NO.	SHEET NO.
B-5371	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	JAMISON GLENN AUSTIN
2	4	VIVIAN CATHERINE RUSSELL et. Al
3		**NOT USED**
4	4, 5	GERALD L. CLONTZ, AMY B. CLONTZ
5	4, 5	PERLA NUNEZ
6	5	DONALD B. McLAIN, DIANE C. McLAIN

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
B-5371	4
R/W SHEET NO.	

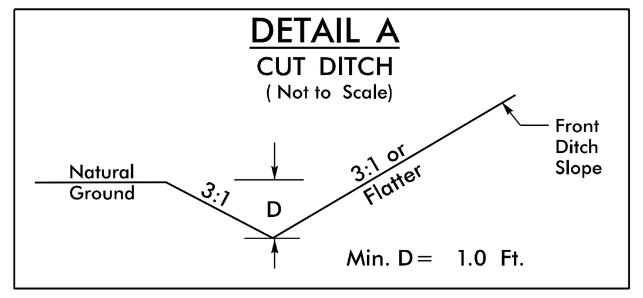
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 015869 — Timothy R. Reid — 12/27/2017

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026696 — Jeffrey L. Reck — 12/27/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

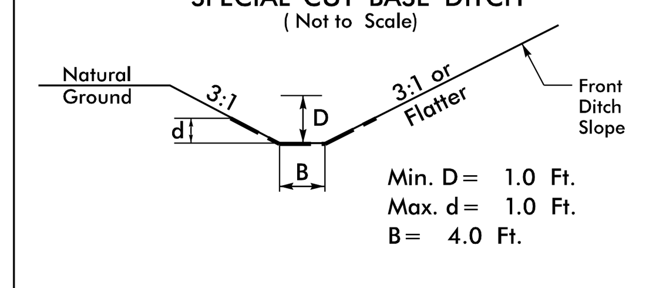
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License No.: F-0105

DETAIL A
CUT DITCH
(Not to Scale)



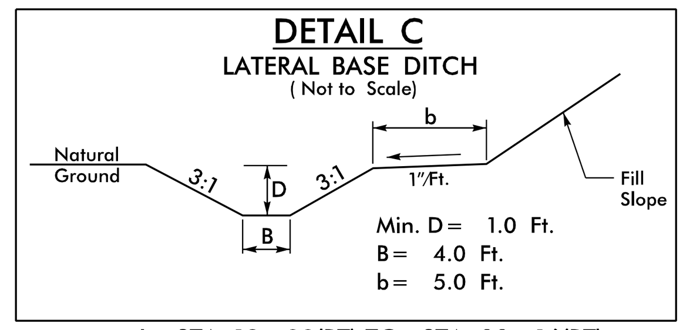
-L- STA. 13+00(LT) TO STA. 14+93.30(LT)
-DR5- STA. 11+00(LT) TO STA. 13+00(LT)

DETAIL B
SPECIAL CUT BASE DITCH
(Not to Scale)



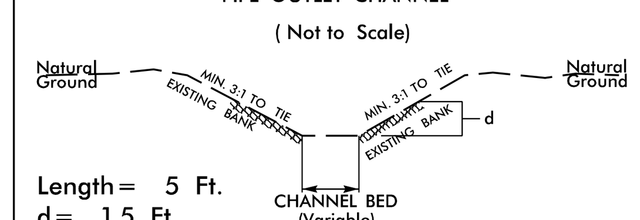
Type of Liner= PSRM
-L- STA. 13+00(RT) TO STA. 18+00(RT)

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



-L- STA. 18+00(RT) TO STA. 22+16(RT)

DETAIL D
PIPE OUTLET CHANNEL
(Not to Scale)



Length = 5 Ft.
d = 1.5 Ft.
Est. = 4 Tons of Class I Rip-Rap
5 SY of GEOTEXTILE

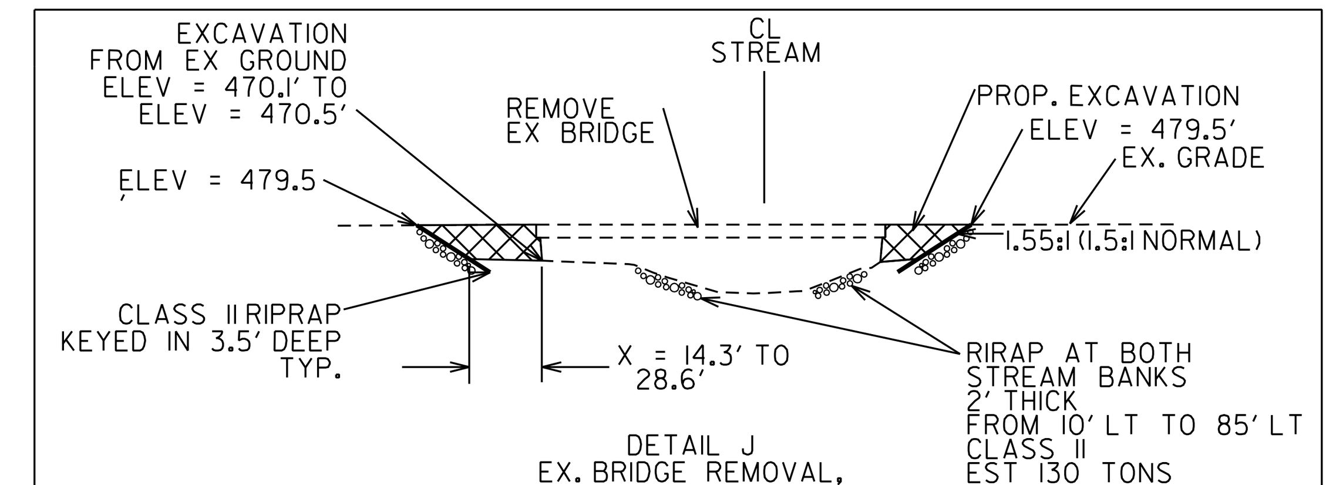
FROM STA. 22+20 -L- TO STA. 22+25 -L- LT

-L-

PI Sta 15+29.51	PI Sta 19+35.20
Δ = 6° 23' 16.6" (RT)	Δ = 22° 39' 32.2" (LT)
D = 2° 17' 30.6"	D = 4° 18' 28.6"
L = 278.73'	L = 525.98'
T = 139.51'	T = 266.47'
R = 2,500.00'	R = 1,330.00'
SE = .05	SE = .06
Ro = 135'	Ro = 162'

-DR1-

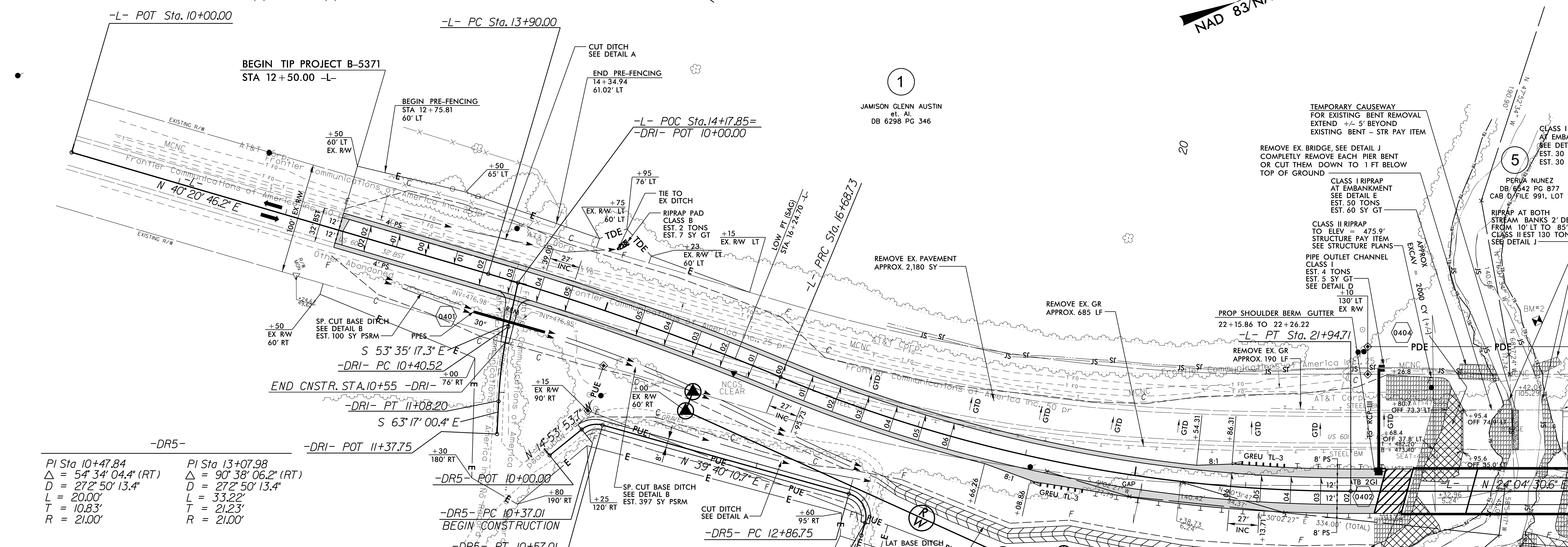
PI Sta 10+74.44
Δ = 9° 41' 43.2" (LT)
D = 14° 19' 26.2"
L = 67.69'
T = 33.92'
R = 400.00'


EXCAVATION FROM EX GROUND ELEV = 470.1' TO ELEV = 470.5'
CL STREAM
REMOVE EX BRIDGE
PROP. EXCAVATION ELEV = 479.5'
EX. GRADE
ELEV = 479.5
1.55:1 (1.5:1 NORMAL)
CLASS II RIPRAP KEYED IN 3.5' DEEP TYP.
X = 14.3' TO 28.6'
RIPRAP AT BOTH STREAM BANKS 2' THICK FROM 10' LT TO 85' LT CLASS II EST 130 TONS

DETAIL J
EX. BRIDGE REMOVAL, STREAM BANK RIP RAP & PROPOSED EXCAVATION

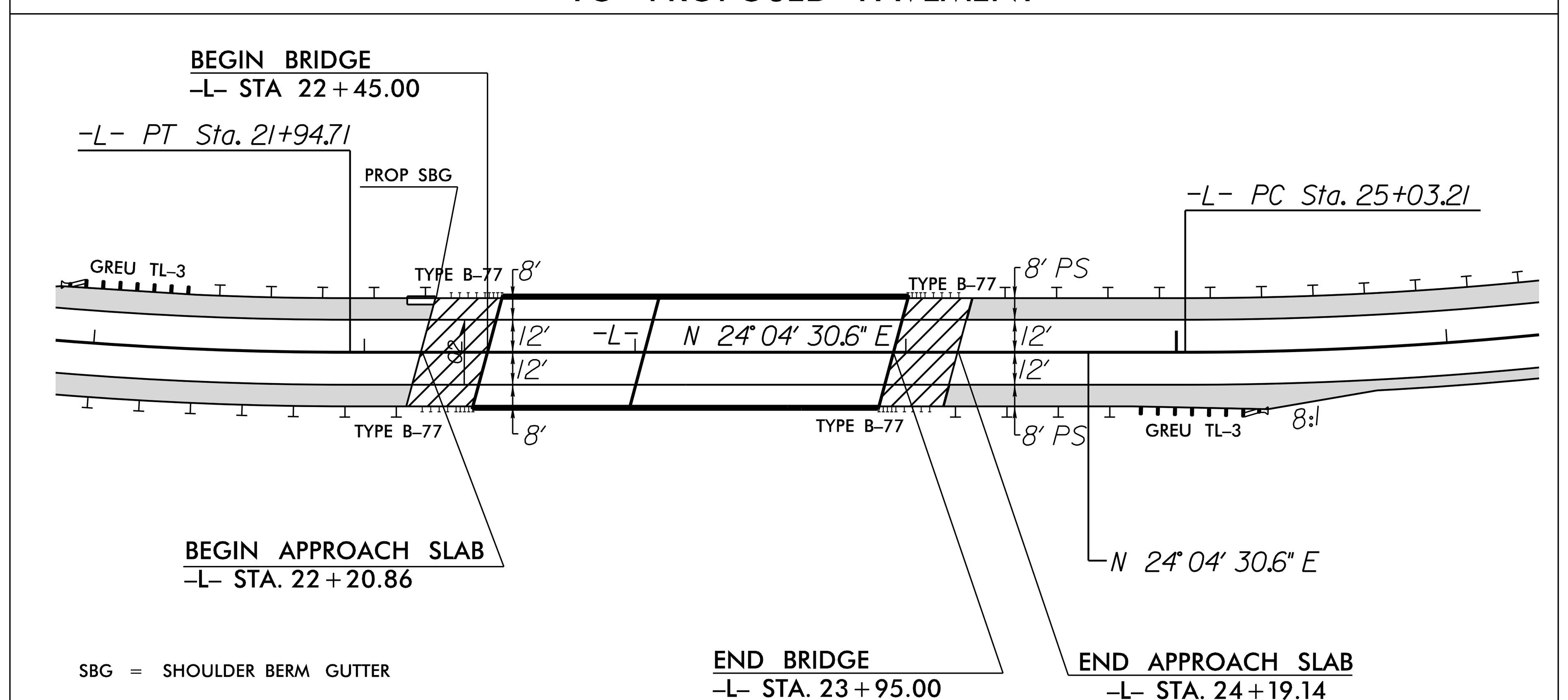
-DR5-

PI Sta 10+47.84	PI Sta 13+07.98
Δ = 54° 34' 04.4" (RT)	Δ = 90° 38' 06.2" (RT)
D = 272° 50' 13.4"	D = 272° 50' 13.4"
L = 20.00'	L = 33.22'
T = 10.83'	T = 21.23'
R = 21.00'	R = 21.00'


NAD 83/NA 2011
-L- POT Sta. 10+00.00
BEGIN TIP PROJECT B-5371
STA 12+50.00 -L-
BEGIN PRE-FENCING STA 12+75.81 60' LT
-L- PC Sta. 13+90.00
CUT DITCH SEE DETAIL A
END PRE-FENCING 14+34.94 61.02' LT
-L- POC Sta.14+17.85= -DRI- POT 10+00.00
TIE TO EX DITCH
RIPRAP PAD CLASS B EST. 2 TONS EST. 7 SY GT
LOW PT (SAG) STA. 16+24.70 -L-
-L- PRC Sta. 16+68.73
JAMISON GLENN AUSTIN et. Al. DB 6298 PG 346
N 40° 20' 46.2" E
SP. CUT BASE DITCH SEE DETAIL B EST. 100 SY PSRM
S 53° 35' 17.3" E
-DRI- PC 10+40.52
END CNSTR. STA.10+55 -DRI-
-DRI- PT 11+08.20
S 63° 17' 00.4" E
-DRI- POT 11+37.75
-DR5- POT 10+00.00
-DR5- PC 10+37.01
BEGIN CONSTRUCTION
-DR5- PT 10+57.01
SP. CUT BASE DITCH SEE DETAIL B EST. 397 SY PSRM
CUT DITCH SEE DETAIL A
-DR5- PC 12+86.75
-DR5- PT 13+19.97
END CONSTRUCTION
-DR5- PC 12+86.75
N 39° 40' 10.7" E
LAT BASE DITCH SEE DETAIL C EST. 565 CY DDE
REMOVE EX. PAVEMENT APPROX. 2,180 SY
REMOVE EX. GR APPROX. 685 LF
PROP SHOULDER BERM GUTTER 22+15.86 TO 22+26.22
-L- PT Sta. 21+94.71
REMOVE EX. GR APPROX. 190 LF
VIVIAN CATHERINE RUSSELL et. Al. EF 11-E-484
CLASS II RIPRAP STRUCTURE PAY ITEM SEE STRUCTURE PLANS
BEGIN BRIDGE -L- STA 22+45.00
TEMPORARY CAUSEWAY FOR EXISTING BENT REMOVAL EXTEND +/- 5' BEYOND EXISTING BENT - STR PAY ITEM
REMOVE EX. BRIDGE, SEE DETAIL J COMPLETELY REMOVE EACH PIER BENT OR CUT THEM DOWN TO 1 FT BELOW TOP OF GROUND
CLASS I RIPRAP AT EMBANKMENT SEE DETAIL E EST. 50 TONS EST. 60 SY GT
CLASS II RIPRAP TO ELEV = 475.9' STRUCTURE PAY ITEM SEE STRUCTURE PLANS
PIPE OUTLET CHANNEL CLASS I EST. 4 TONS EST. 5 SY GT SEE DETAIL D
APPROX EXCAV = 200 CY (+/-)
CLASS I RIPRAP AT EMBANKMENT SEE DETAIL E EST. 30 TONS EST. 30 SY GT
PERLA NUNEZ DB 6542 PG 877 CAB D FILE 991, LOT 1
RIPRAP AT BOTH STREAM BANKS 2' DEEP FROM 10' LT TO 85' LT CLASS II EST 130 TONS SEE DETAIL J
N 24° 04' 30.6" E
CLASS I RIPRAP AT EMBANKMENT SEE DETAIL E EST. 90 TONS EST. 100 SY GT
CLASS I RIPRAP AT EMBANKMENT SEE DETAIL E EST. 20 TONS EST. 30 SY GT
BEGIN PRE-FENCING STA 23+48.96 83.07' RT
GERALD L. CLONTZ AMY B. CLONTZ DB 421 PG 326
LAT BASE DITCH SEE DETAIL F EST. 20 CY DDE EST. 20 TONS CL B EST. 45 SY GT
END BRIDGE -L- STA. 23+95.00

MATCHLINE STA 24+00.00 -L- SEE SHEET 5

SKETCH SHOWING BRIDGE RELATIVE TO PROPOSED PAVEMENT

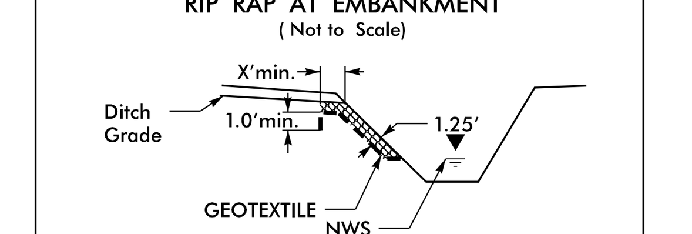


SBG = SHOULDER BERM GUTTER

NOTES:

1. PRE-FENCING SHALL FOLLOW PROPOSED EASEMENT OR PROPOSED RIGHT OF WAY LINES. BEGIN AND END OF PRE-FENCING IS LABELED ON PLAN
2. ACCESS TO EXISTING DRIVEWAYS -DR1-, -DR2-, -DR3- AND -DR4- SHALL BE MAINTAINED DURING CONSTRUCTION
3. THE EXISTING PAVEMENT STRUCTURE ON THE PORTION OF US 601 TO BE ABANDONED SHALL BE REMOVED ONCE TRAFFIC HAS BEEN SHIFTED TO FINAL PATTERN. RIGHT OF WAY WILL REMAIN AND NOT BE ABANDONED FOR FUTURE USE.
4. GTD = "GRADE TO DRAIN"

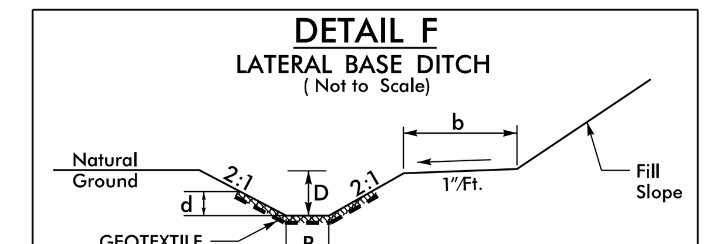
DETAIL E
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL I Rip-Rap
Geotextile = SEE BELOW

-L- STA. 23+08(115' LT) TO STA. 23+27(100' LT); 50 TONS CL I, 60 SY GEOTEXT; X=30'
-L- STA. 23+63(108' LT) TO STA. 24+00(118' LT); 30 TONS CL I, 30 SY GEOTEXT; X=20'
-L- STA. 22+16(86' RT) TO STA. 22+52(65' RT); 90 TONS CL I, 100 SY GEOTEXT; X=10'
-L- STA. 23+49(44' RT) TO STA. 23+61(50' RT); 20 TONS CL I, 30 SY GEOTEXT; X=10'

DETAIL F
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.

*When B is < 6.0'

Type of Liner= CLASS B Rip-Rap

-L- STA. 23+51(RT) TO STA. 24+14(RT)

FOR L PROFILE SEE SHEET 6
FOR DR1 AND DR5 PROFILE SEE SHEET 7
FOR STRUCTURE PLANS SEE S-1 THRU S-29

8/17/99
12/20/2017
d:\RA\B522-04\CADD\B5371\Roadway\Proj\b5371_rdy_psh_04.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5371	5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 015869 — 12/27/2017

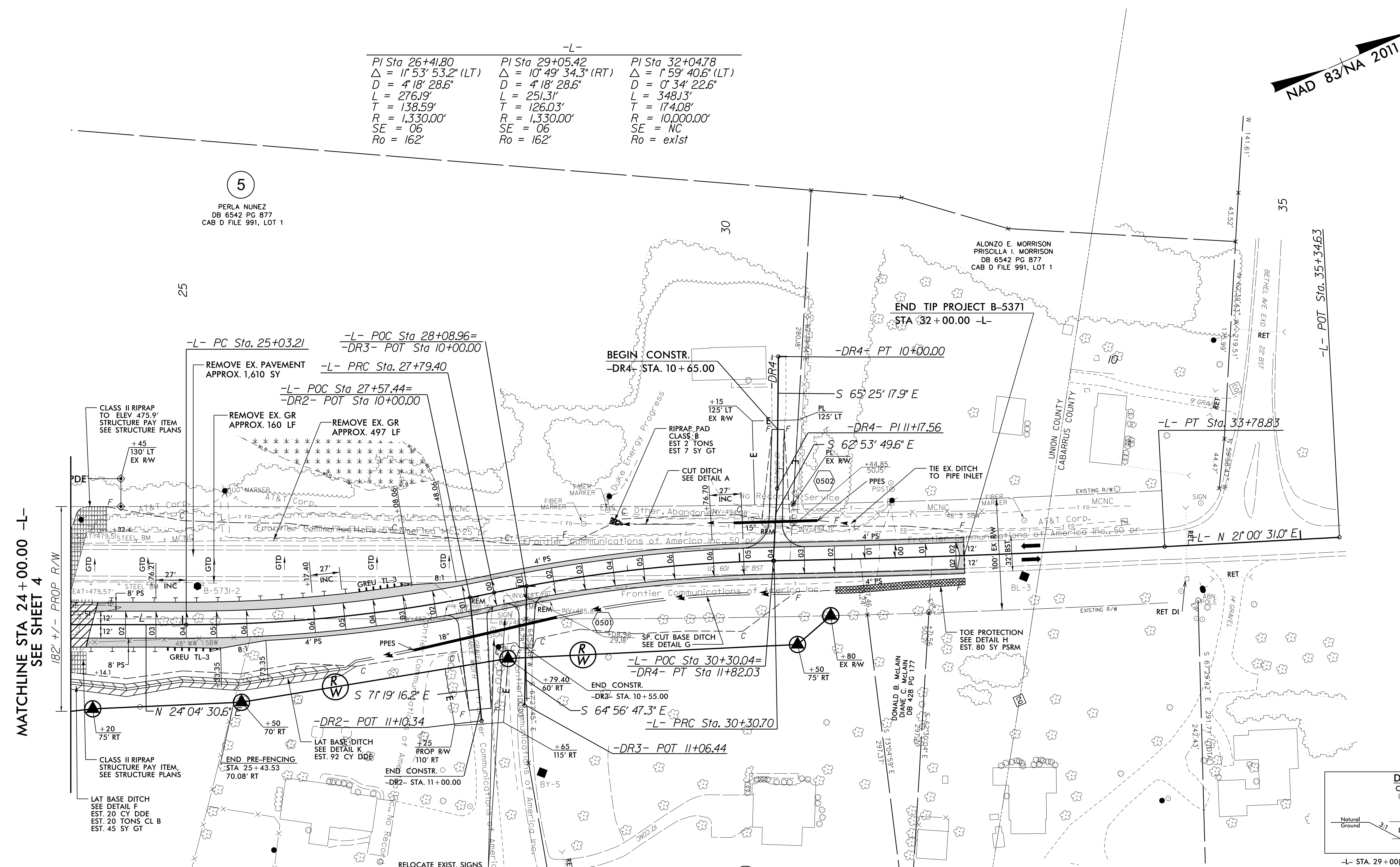
HYDRAULICS ENGINEER — SEAL 026696 — 12/27/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

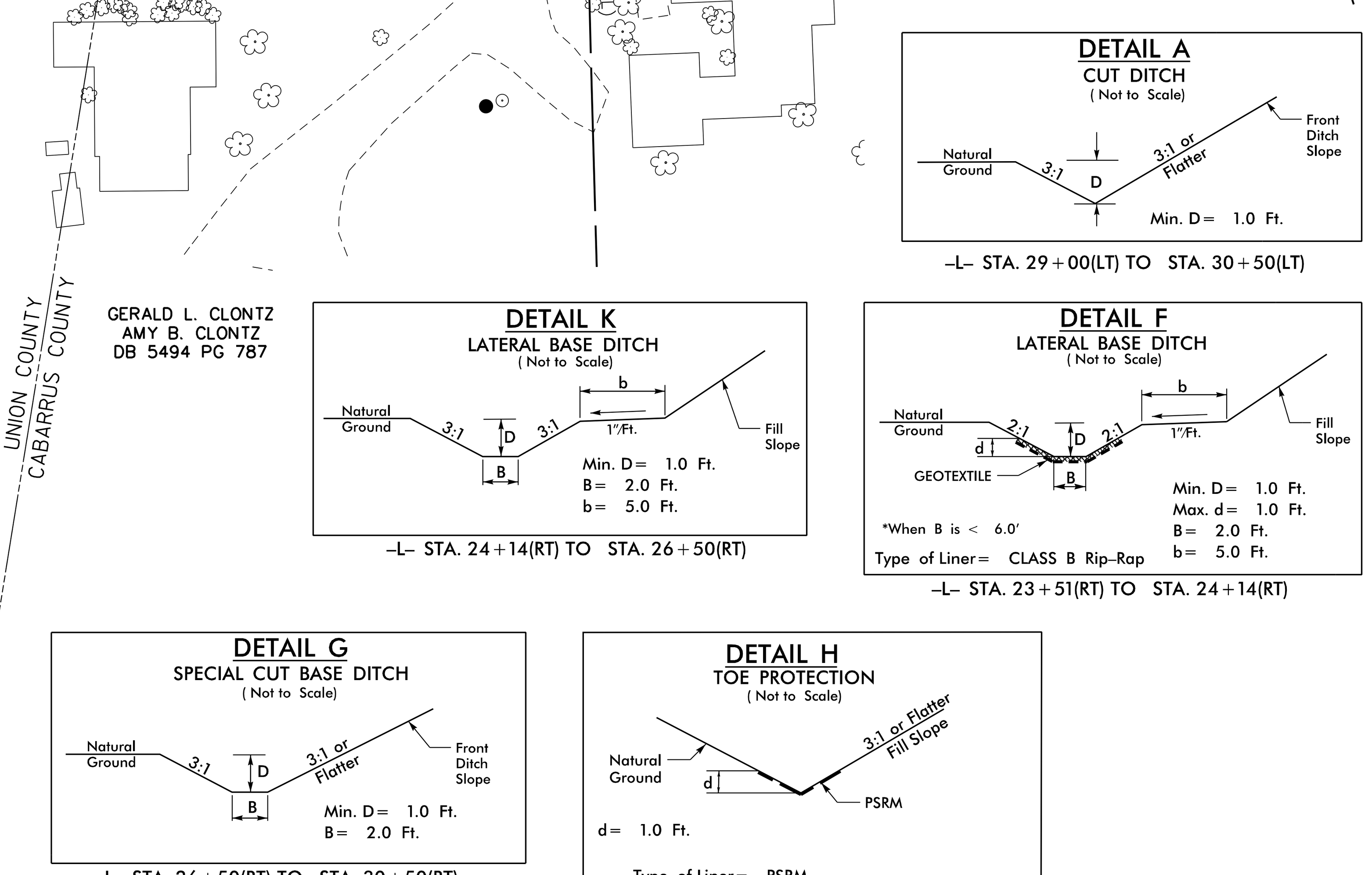
moffatt & nichol — 4700 FALLS OF NEUSE ROAD, SUITE 300, RALEIGH, NORTH CAROLINA 27609 — NC License No.: F-0105

-L-

PI Sta 26+41.80	PI Sta 29+05.42	PI Sta 32+04.78
△ = 11° 53' 53.2" (LT)	△ = 10° 49' 34.3" (RT)	△ = 1° 59' 40.6" (LT)
D = 4° 18' 28.6"	D = 4° 18' 28.6"	D = 0° 34' 22.6"
L = 276.19'	L = 251.31'	L = 348.13'
T = 138.59'	T = 126.03'	T = 174.08'
R = 1,330.00'	R = 1,330.00'	R = 10,000.00'
SE = .06	SE = .06	SE = NC
Ro = 162'	Ro = 162'	Ro = exist



NAD 83/NA 2011
PERLA NUNEZ
DB 6542 PG 877
CAB D FILE 991, LOT 1
ALONZO E. MORRISON
PRISCILLA I. MORRISON
DB 6542 PG 877
CAB D FILE 991, LOT 1
END TIP PROJECT B-5371
STA 32+00.00 -L-
-L- PC Sta. 25+03.21
-L- POC Sta 28+08.96=
-DR3- POT Sta 10+00.00
-L- PRC Sta. 27+79.40
-L- POC Sta 27+57.44=
-DR2- POT Sta 10+00.00
REMOVE EX. PAVEMENT APPROX. 1,610 SY
REMOVE EX. GR APPROX. 160 LF
REMOVE EX. GR APPROX. 497 LF
CLASS II RIPRAP TO ELEV 475.9' STRUCTURE PAY ITEM SEE STRUCTURE PLANS
BEGIN CONSTR.
-DR4- STA. 10+65.00
-DR4- PT 10+00.00
S 65° 25' 17.9" E
-DR4- PI 11+17.56
S 62° 53' 49.6" E
RIPRAP PAD CLASS B EST 2 TONS EST 7 SY GT
CUT DITCH SEE DETAIL A
TIE EX. DITCH TO PIPE INLET
-L- PT Sta. 33+78.83
-L- POT Sta. 35+34.63
-L- N 21° 00' 31.0" E
MATCHLINE STA 24+00.00 -L- SEE SHEET 4
TOE PROTECTION SEE DETAIL H EST. 80 SY PSRM
SP. CUT BASE DITCH SEE DETAIL G
-L- POC Sta 30+30.04=
-DR4- PT Sta 11+82.03
END CONSTR.
-DR3- STA. 10+55.00
S 64° 56' 47.3" E
-L- PRC Sta. 30+30.70
-DR3- POT 11+06.44
S 71° 19' 16.2" E
N 24° 04' 30.6" E
-DR2- POT 11+10.34
LAT BASE DITCH SEE DETAIL K EST. 92 CY DDE
END PRE-FENCING STA 25+43.53 70.08' RT
END CONSTR. -DR2- STA. 11+00.00
CLASS II RIPRAP STRUCTURE PAY ITEM, SEE STRUCTURE PLANS
LAT BASE DITCH SEE DETAIL F EST. 20 CY DDE EST. 20 TONS CL B EST. 45 SY GT
RELOCATE EXIST. SIGNS OUTSIDE PROP R/W
GERALD L. CLONTZ
AMY B. CLONTZ
DB 421 PG 326
DONALD B. McLAIN
DIANE C. McLAIN
DB 426 PG 797
GERALD L. CLONTZ
AMY B. CLONTZ
DB 5494 PG 787
UNION COUNTY
CABARRUS COUNTY
Frontier Communications of America Inc. 50' pr
AT&T Corp.
Duke Energy Progress



DETAIL A
CUT DITCH
(Not to Scale)
Natural Ground
3:1
D
3:1 or Flatter
Front Ditch Slope
Min. D = 1.0 Ft.
-L- STA. 29+00(LT) TO STA. 30+50(LT)
DETAIL K
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
-L- STA. 24+14(RT) TO STA. 26+50(RT)
DETAIL F
LATERAL BASE DITCH
(Not to Scale)
GEOTEXTILE
Fill Slope
*When B is < 6.0'
Type of Liner = CLASS B Rip-Rap
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
-L- STA. 23+51(RT) TO STA. 24+14(RT)
DETAIL G
SPECIAL CUT BASE DITCH
(Not to Scale)
Natural Ground
3:1 or Flatter
Front Ditch Slope
Min. D = 1.0 Ft.
B = 2.0 Ft.
-L- STA. 26+50(RT) TO STA. 30+50(RT)
DETAIL H
TOE PROTECTION
(Not to Scale)
Natural Ground
3:1 or Flatter Fill Slope
PSRM
d = 1.0 Ft.
Type of Liner = PSRM
-L- STA. 30+85(RT) TO STA. 32+00(RT)

NOTES:

1. PRE-FENCING SHALL FOLLOW PROPOSED EASEMENT OR PROPOSED RIGHT OF WAY LINES. BEGIN AND END OF PRE-FENCING IS LABELED ON PLAN
2. ACCESS TO EXISTING DRIVEWAYS -DR1-, -DR2-, -DR3- AND -DR4- SHALL BE MAINTAINED DURING CONSTRUCTION
3. THE EXISTING PAVEMENT STRUCTURE ON THE PORTION OF US 601 TO BE ABANDONED SHALL BE REMOVED ONCE TRAFFIC HAS BEEN SHIFTED TO FINAL PATTERN. RIGHT OF WAY WILL REMAIN AND SHALL NOT BE ABANDONED FOR FUTURE USE.
4. GTD = "GRADE TO DRAIN"

FOR L PROFILE SEE SHEET 6
FOR DR2 PROFILE SEE SHEET 7
FOR DR3 PROFILE SEE SHEET 7
FOR DR4 PROFILE SEE SHEET 7
FOR STRUCTURE PLANS SEE S-1 THRU S-29

PROJECT REFERENCE NO.	SHEET NO.
B-5371	6

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER T. R. REID
DocuSigned by: Timothy R. Reid 26569A242E83411... 12/27/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 026696 ENGINEER JEFFREY L. RECK
DocuSigned by: Jeffrey L. Reck 1B958614A51D425... 12/27/2017

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moffatt & nichol
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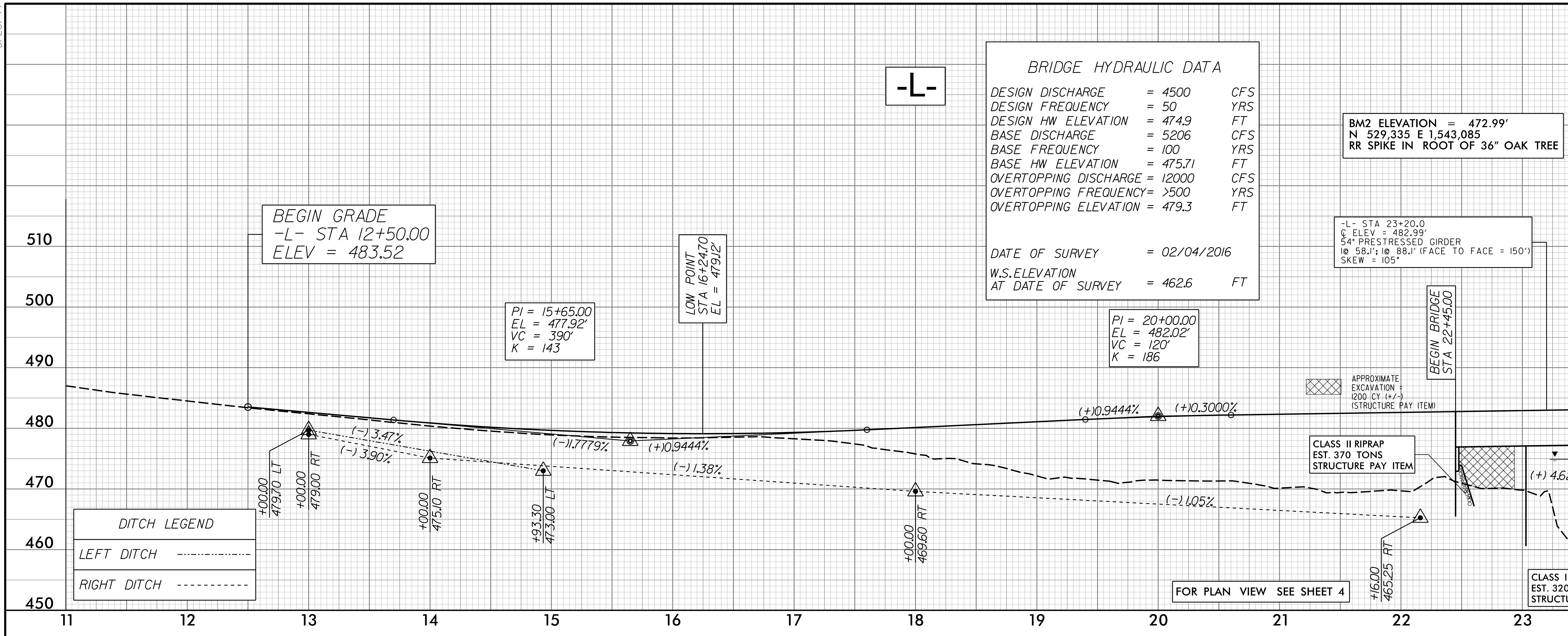
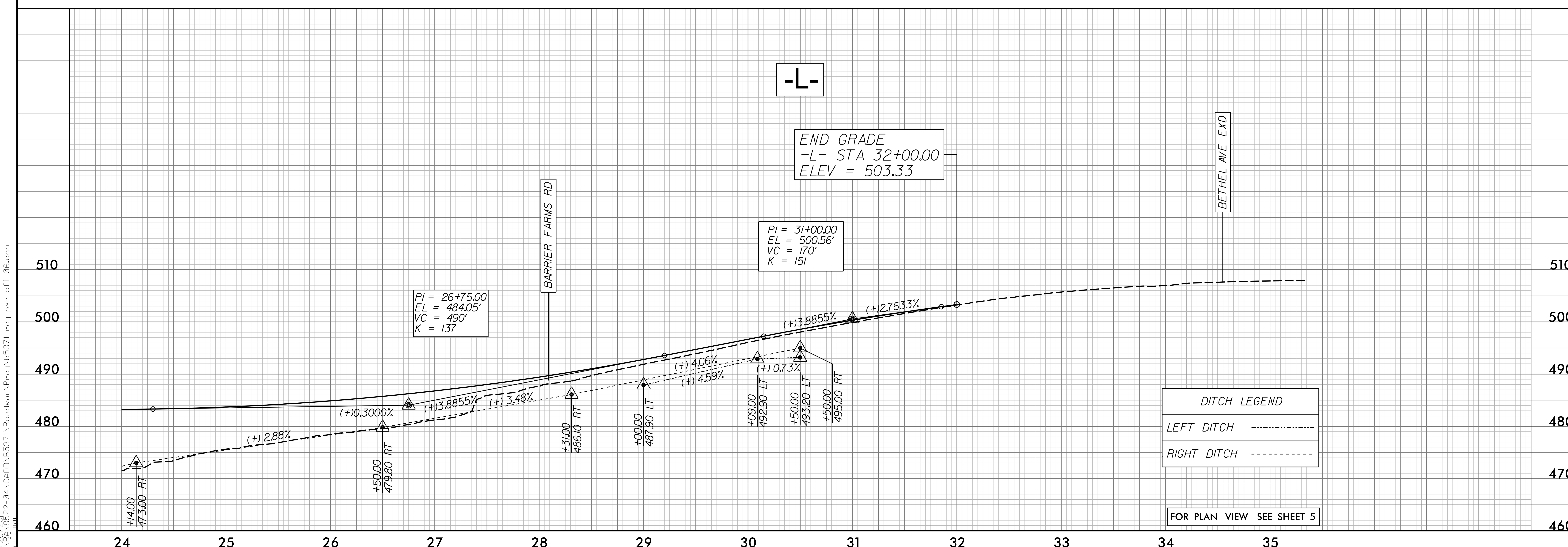
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105



5/28/99
-L-
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 4500 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 474.9 FT
BASE DISCHARGE = 5206 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 475.71 FT
OVERTOPPING DISCHARGE = 12000 CFS
OVERTOPPING FREQUENCY= >500 YRS
OVERTOPPING ELEVATION = 479.3 FT
DATE OF SURVEY = 02/04/2016
W.S.ELEVATION AT DATE OF SURVEY = 462.6 FT
BM2 ELEVATION = 472.99'
N 529,335 E 1,543,085
RR SPIKE IN ROOT OF 36" OAK TREE
BEGIN GRADE
-L- STA 12+50.00
ELEV = 483.52
LOW POINT STA 16+24.70 EL = 479.12'
PI = 15+65.00
EL = 477.92'
VC = 390'
K = 143
PI = 20+00.00
EL = 482.02'
VC = 120'
K = 186
-L- STA 23+20.0
℄ ELEV = 482.99'
54" PRESTRESSED GIRDER
1@ 58.1'; 1@ 88.1' (FACE TO FACE = 150')
SKEW = 105°
BEGIN BRIDGE STA 22+45.00
END BRIDGE STA 23+95.00
APPROXIMATE EXCAVATION = 1200 CY (+/-) (STRUCTURE PAY ITEM)
(+)0.9444%
(+)0.3000%
(-) 3.47%
(-) 3.90%
(-)1.7779%
(+)0.9444%
(-) 1.38%
(-) 1.05%
(+) 4.62%
50-YR ELEV=474.9'
CLASS II RIPRAP
EST. 370 TONS
STRUCTURE PAY ITEM
CLASS II RIPRAP
EST. 320 TONS
STRUCTURE PAY ITEM
+00.00 479.70 LT
+00.00 479.00 RT
+00.00 475.10 RT
+93.30 473.00 LT
+00.00 469.60 RT
+16.00 465.25 RT
+41.00 470.99 RT
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
FOR PLAN VIEW SEE SHEET 4
510
500
490
480
470
460
450
11
12
13
14
15
16
17
18
19
20
21
22
23
24



-L-
END GRADE
-L- STA 32+00.00
ELEV = 503.33
BETHEL AVE EXD
BARRIER FARMS RD
PI = 31+00.00
EL = 500.56'
VC = 170'
K = 151
PI = 26+75.00
EL = 484.05'
VC = 490'
K = 137
(+)3.8855%
(+)2.7633%
(+) 4.06%
(+) 0.73%
(+) 4.59%
(+)0.3000%
(+)3.8855%
(+) 3.48%
(+) 2.88%
+14.00 473.00 RT
+50.00 479.80 RT
+31.00 486.10 RT
+00.00 487.90 LT
+09.00 492.90 LT
+50.00 493.20 LT
+50.00 495.00 RT
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
FOR PLAN VIEW SEE SHEET 5
510
500
490
480
470
460
24
25
26
27
28
29
30
31
32
33
34
35

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-5371	7

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 015869 ENGINEER TIMOTHY R. REID

DocuSigned by: Timothy R. Reid 26569A242E83411...

12/27/2017

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026696 ENGINEER JEFFREY L. RECK

DocuSigned by: Jeffrey L. Reck 1B958614A51D425...

12/27/2017

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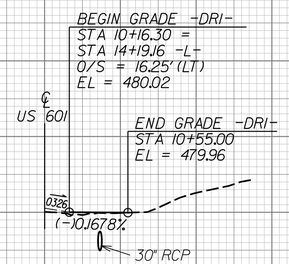
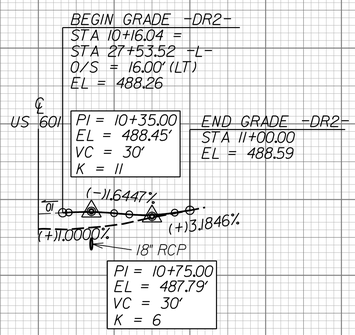
NC License NO: F-0105

-DR1-



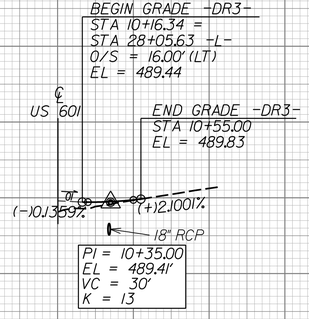
FOR PLAN VIEW SEE SHEET 4

-DR2-



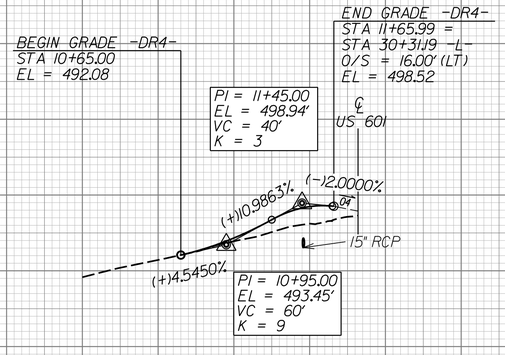
FOR PLAN VIEW SEE SHEET 5

-DR3-



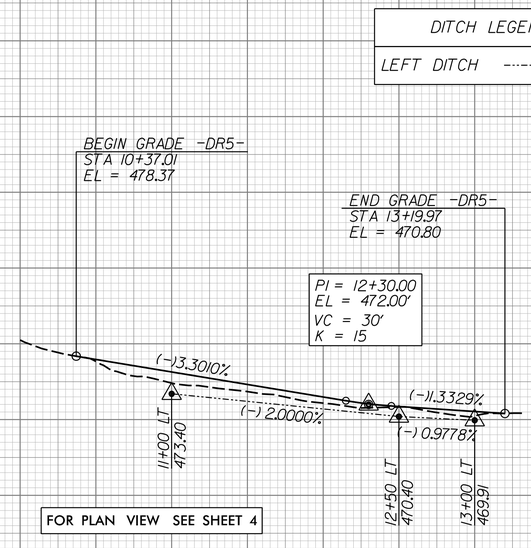
FOR PLAN VIEW SEE SHEET 5

-DR4-



FOR PLAN VIEW SEE SHEET 5

-DR5-



FOR PLAN VIEW SEE SHEET 4