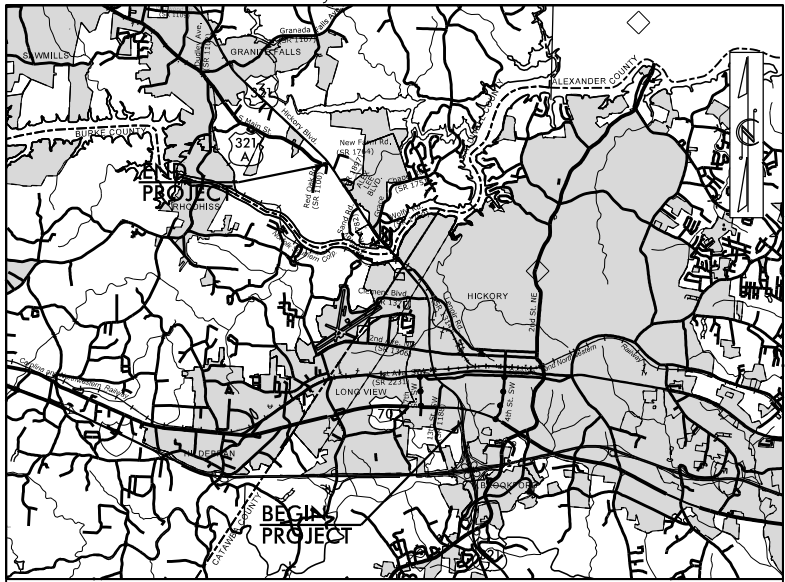


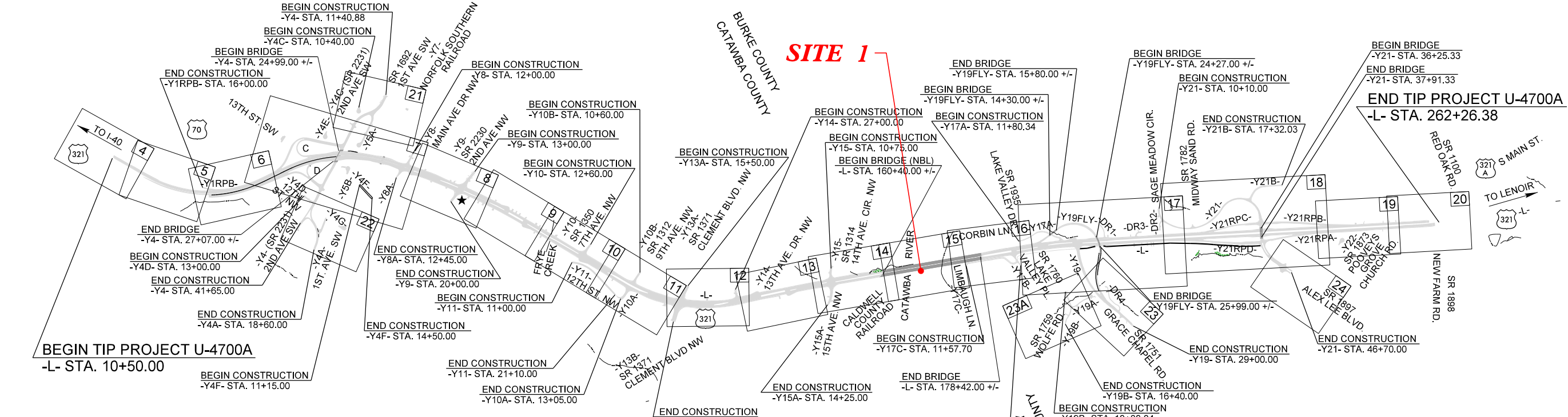
09.08/99

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP (NTS)

••• OFFSITE DETOUR



SITE 1

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

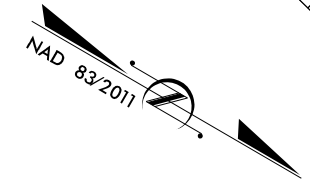
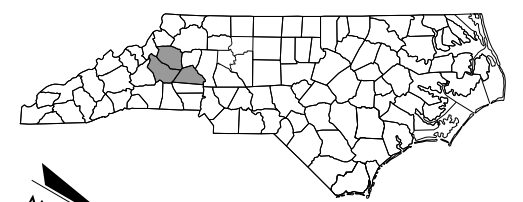
BURKE, CALDWELL, & CATAWBA COUNTIES

LOCATION: US 321 WIDENING IMPROVEMENTS FROM US 70 IN
HICKORY TO JUST SOUTH OF US 321A /NEW FARM RD.

TYPE OF WORK: GRADING, PAVING, WIDENING, DRAINAGE,
CULVERTS, SIGNING, STRUCTURES, RETAINING WALL,
SIGNALS, & UTILITIES

BUFFER IMPACTS

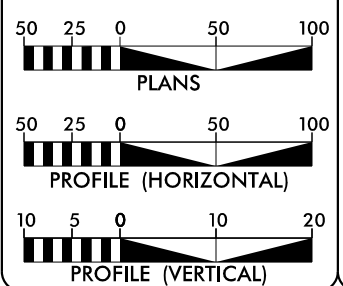
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4700A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35993.1.1	NHF-321(18)	PE	



PERMIT DRAWING
SHEET 1 OF 4

- NOTES:
1. THIS PROJECT IS PARTIALLY WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF HICKORY.
 2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD
 3. THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS. ★ TRAFFIC SIGNAL

GRAPHIC SCALES



DESIGN DATA

ADT 2021 = 50,135
 ADT 2041 = 57,490
 V = 60 MPH
 DHV = 9%
 D = 60%
 T = 8% *
 (* TTST = 4% /* DUAL = 4%)

FUNC CLASS = ARTERIAL STATEWIDE TIER
 DESIGN EXCEPTIONS AS NOTED ON PLANS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4700A..... 4.427 miles
 LENGTH STRUCTURE TIP PROJECT U-4700A..... 0.341 miles (NBL)
 TOTAL LENGTH OF PROJECT U-4700A..... 4.768 miles

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PLANS PREPARED BY:

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 RIGHT OF WAY DATE: June 19, 2019
 LETTING DATE: August 18, 2021

Brandon McInnis, P.E.
PROJECT ENGINEER

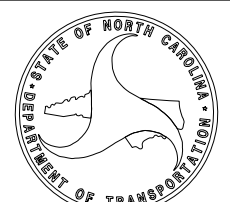
Matthew Lamy, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



2018 STANDARD SPECIFICATIONS
 NCDOT DIVISION 12
 CONTACT: Bryan Sowell, P.E.

TIP PROJECT: U-4700A

CONTRACT:

11/6/2019 R:\Hydraulics\PERMITS_Environmental\Drawings\4700a\HYD_prm_buf_tsh.dgn

8/17/99

I:\6-2019\Projects\Permits_Environmental\Drawings\4700a_Hyd_prm_bu_f_psh15.dgn

PROJECT REFERENCE NO. U-4700A	SHEET NO. 15
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PERMIT DRAWING SHEET 2 OF 4

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ALLOWABLE IMPACTS ZONE 1

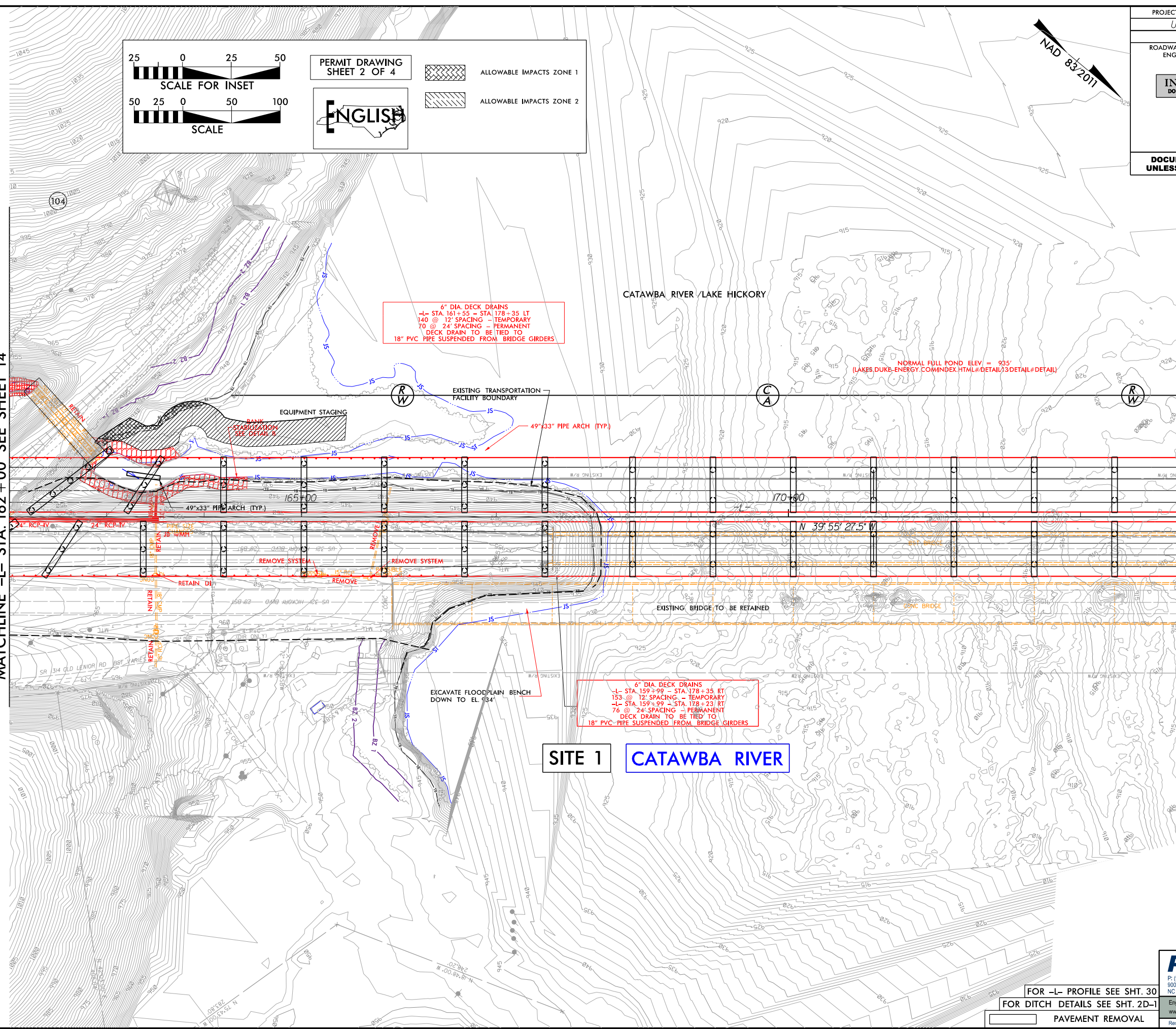
ALLOWABLE IMPACTS ZONE 2

ENGLISH



MATCHLINE -L- STA. 162+00 SEE SHEET 14

MATCHLINE -L- STA. 174+00 SEE SHEET 16



FOR -L- PROFILE SEE SHT. 30
FOR DITCH DETAILS SEE SHT. 2D-1

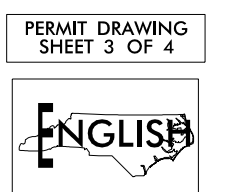
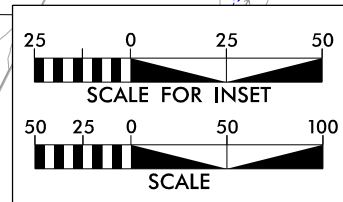
PAVEMENT REMOVAL

RK&K

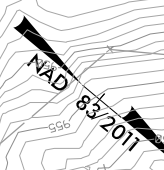
P: (919) 878-9560
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3960
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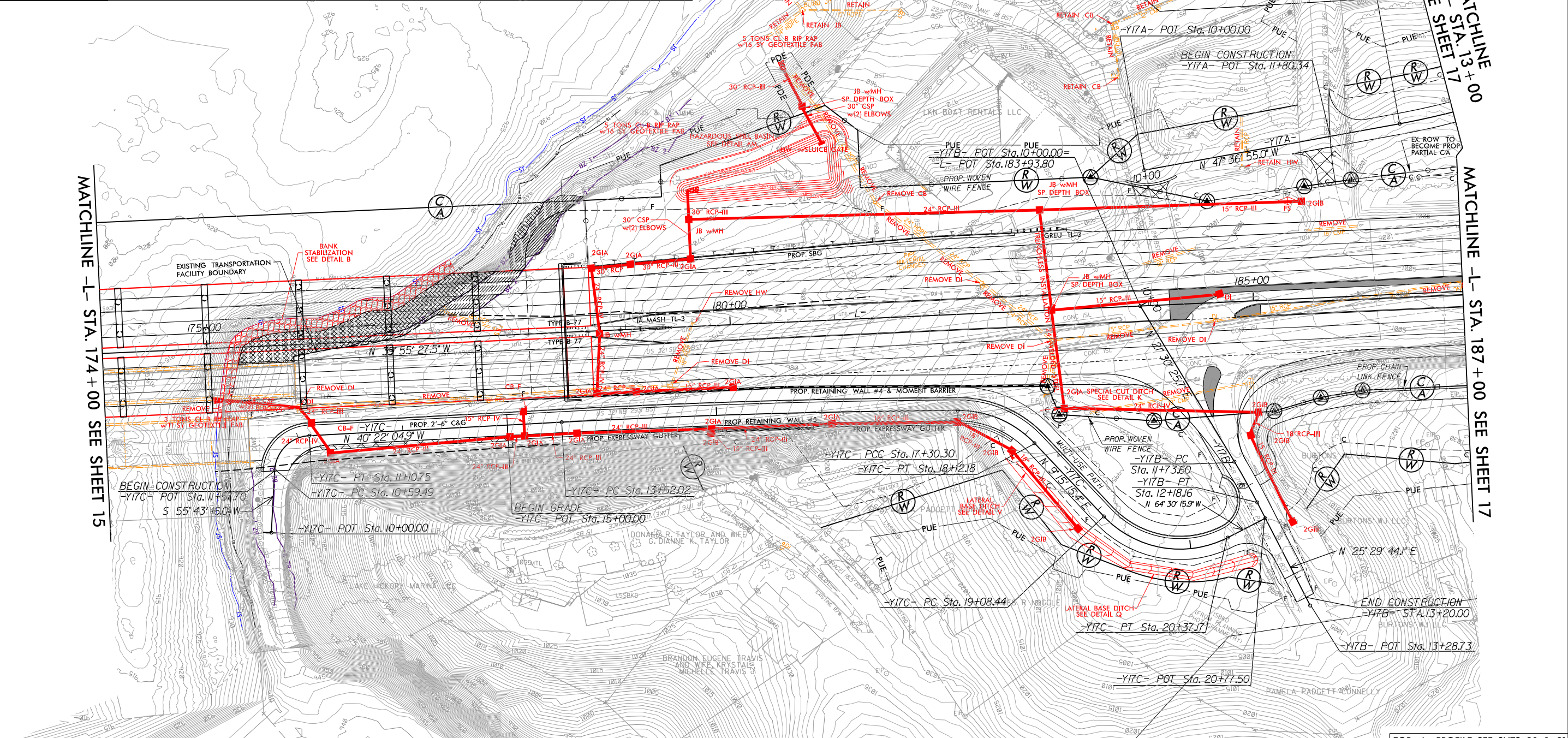
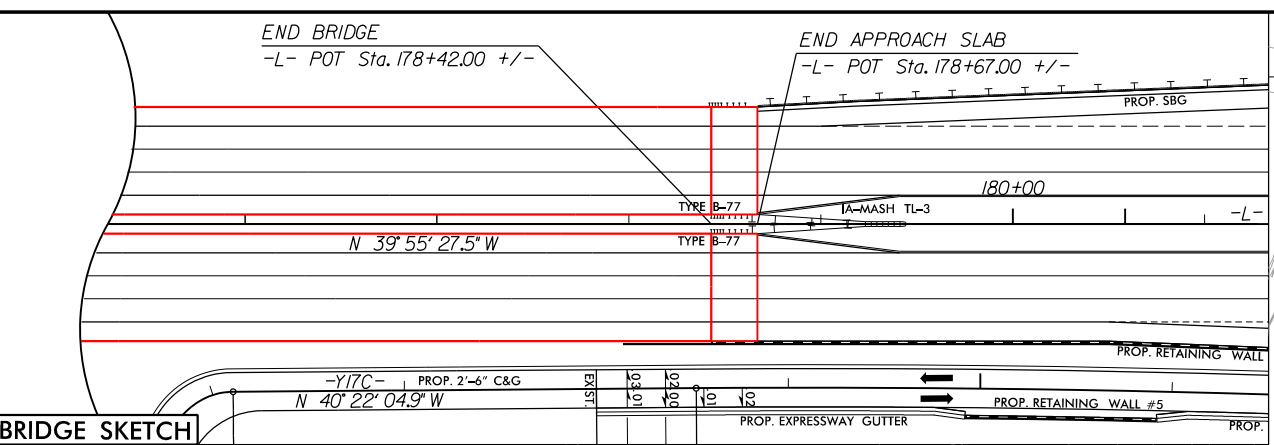
Responsive People | Creative Solutions



ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2



8/17/99



-Y17A-	-Y17B-	-Y17C-	-Y17D-	-Y17E-	-Y17F-
PI Sta 13+66.40	PI Sta 11+95.89	PI Sta 10+90.96	PI Sta 15+41.19	PI Sta 17+73.69	PI Sta 19+83.47
$\Delta = 19^\circ 30' 40.6" (LT)$	$\Delta = 3^\circ 59' 18.4" (RT)$	$\Delta = 8^\circ 54' 39.1" (RT)$	$\Delta = 2^\circ 42' 33.3" (RT)$	$\Delta = 46^\circ 54' 46.9" (RT)$	$\Delta = 7^\circ 45' 31.3" (LT)$
D = 8' 18" 13.5"	D = 8' 57" 08.9"	D = 163' 42" 08.0"	D = 0' 42" 58.3"	D = 57' 17" 44.8"	D = 57' 17" 44.8"
L = 234.97'	L = 44.55'	L = 51.26'	L = 378.28'	L = 81.88'	L = 128.73'
T = 118.63'	T = 22.28'	T = 31.46'	T = 189.18'	T = 43.39'	T = 75.03'
R = 690.00'	R = 640.00'	R = 35.00'	R = 8,000.00'	R = 100.00'	R = 100.00'
e = 3%	e = 4%	e = NC	e = NC	e = NC	e = NC
Lr = 50'	Lr = 120'	Lr = 40'	Lr = 40'	Lr = 40'	Lr = 40'
V = 30 mph	V = 30 mph	V = 20 mph	V = 20 mph	V = 20 mph	V = 20 mph

FOR DITCH DETAILS SEE SHT. 2D-1
FOR RETAINING WALL DETAILS SEE SHTS. 2B-10 & 2B-11

BRIDGE APPROACH SLAB
PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHTS. 30 & 31
FOR -Y17A- PROFILE SEE SHT. 44
FOR -Y17B- PROFILE SEE SHT. 44
FOR -Y17C- PROFILE SEE SHT. 44

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RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
1	-L- 177+93 to 178+28 LT	Toe of Proposed Fill - Catawba River		X		341	1110	1451		646	646		
	-L- 175+30 to 177+75 LT	Hand Clearing Under Bridge - Catawba River		X		5437	1793	7230					
	-L- 162+91 to 163+92 LT	Equipment Staging Area - UT Catawba		X		1028							
TOTALS*:						6807	2903	8681	0	646	646	0	0

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 OCTOBER 2019
 BURKE/CATAWBA/CALDWELL
 U-4700A

 SHEET 4 OF 4