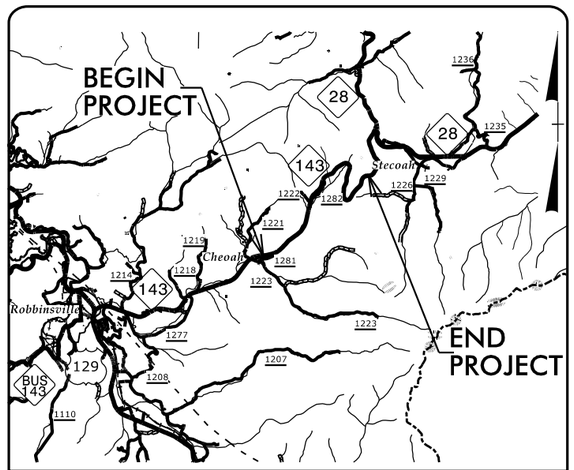
09/08/99

TIP PROJECT: A–0009CB

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GRAHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	A–0009CB	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
32572.1.14	APD–0074(178)	PE
32572.2.14	APD–0074(178)	ROW,UTIL.
32572.3.14	APD–0074(178)	CONST.

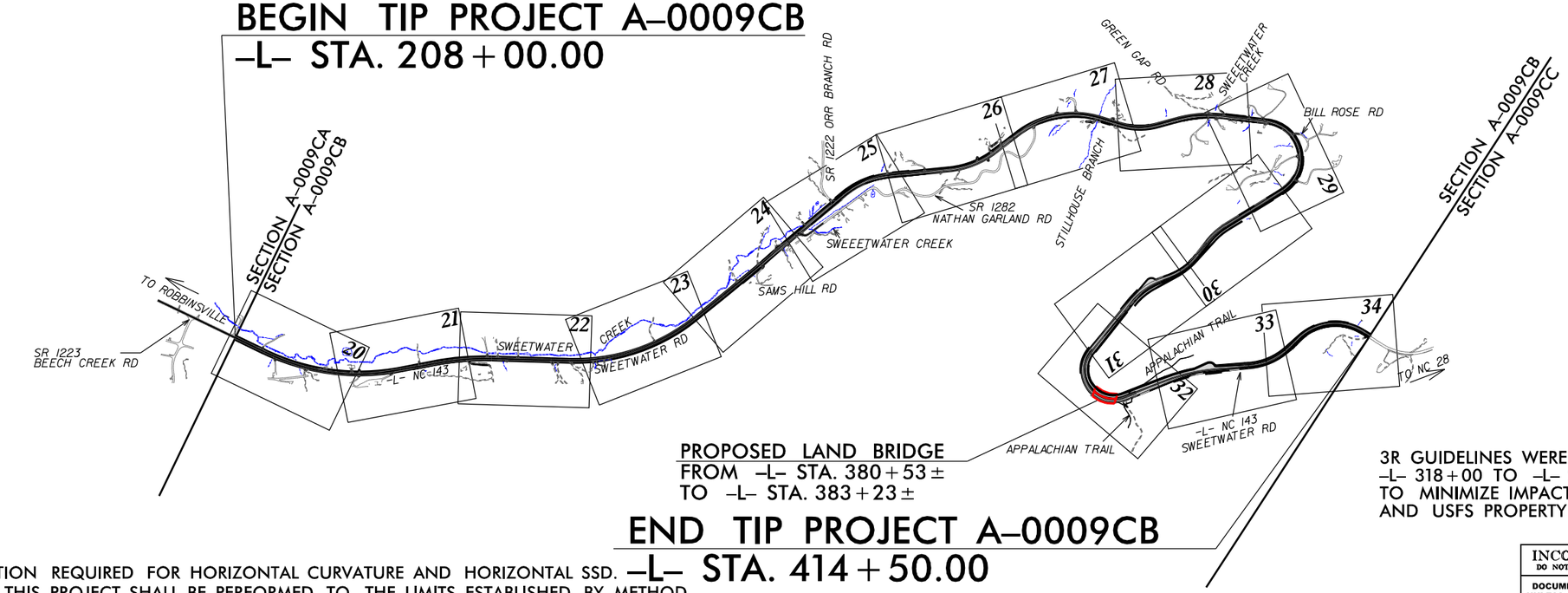
LOCATION: UPGRADE NC 143 FROM SR 1223 (BEECH CREEK RD) TO 0.5 MILES NORTH OF APPALACHIAN TRAIL

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERTS, RETAINING WALLS, AND STRUCTURE

MERGER 4B PLANS FOR 4–14–2021 MEETING

NAD 83/2011

BEGIN TIP PROJECT A–0009CB
–L– STA. 208+00.00



PROPOSED LAND BRIDGE
FROM –L– STA. 380+53±
TO –L– STA. 383+23±

END TIP PROJECT A–0009CB
–L– STA. 414+50.00

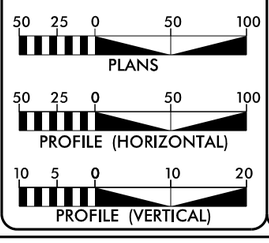
3R GUIDELINES WERE USED FROM –L– 318+00 TO –L– STA 414+50 TO MINIMIZE IMPACTS TO TRIBAL AND USFS PROPERTY.

DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVATURE AND HORIZONTAL SSD.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD __.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

CONTRACT:

GRAPHIC SCALES



DESIGN DATA

ADT 2022 = 6590
ADT 2045 = 8800
K = 11 %
D = 57.5 %
T = 7 % *
V = 60 MPH
* TTST = 2% DUAL = 5%
FUNC CLASS =
RURAL ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT A–0009CB = 3.911 MILES
TOTAL LENGTH TIP PROJECT A–0009CB = 3.911 MILES

NCDOT CONTACT: WANDA H. AUSTIN, PE

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

PLANS PREPARED FOR:
NORTH CAROLINA DEPARTMENT OF TRANSPORATION
DIVISION 14
252 Webster Rd
Sylva, NC 28779

RIGHT OF WAY DATE: SEPTEMBER 2021

LETTING DATE: SEPTEMBER 20, 2022

2018 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

AUSTIN TURNER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

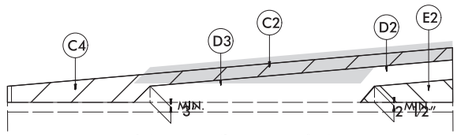
3/10/2021
X:\NCDOT\A-0009\Hydraulics\MERGER\A-0009 CB\CP 4B\Plan Sheets\A-0009CB_Rdy-tsh.dgn
User:dpetty

6/2/99

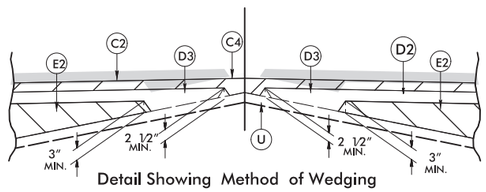
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 ½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 ½" IN DEPTH.
D2	PROP. APPROX. 2 ½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D3	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 LSSS THAN 2 ½" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 LSSS THAN 5 ½" OR GREATER THAN 3" IN DEPTH.
R2	EXPRESSWAY GUTTER
R4	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING EXISTING PAVEMENT, SEE SHEET 2A-3 FOR DETAILS

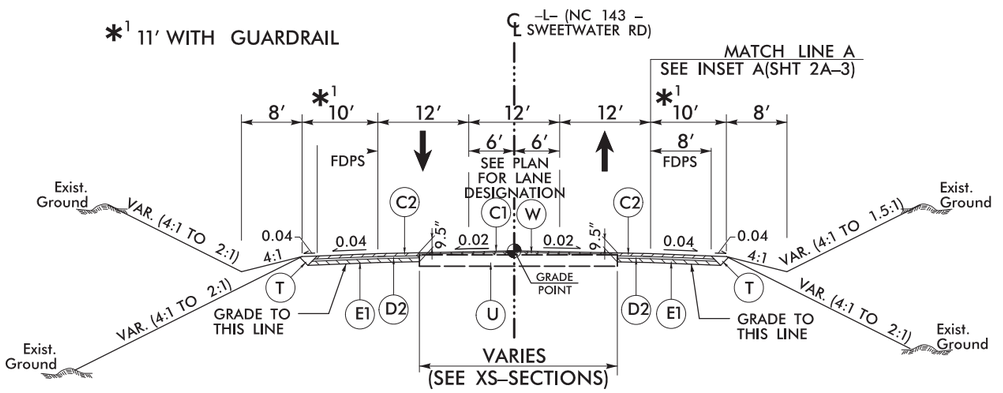
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Wedging Detail For Resurfacing



Detail Showing Method of Wedging

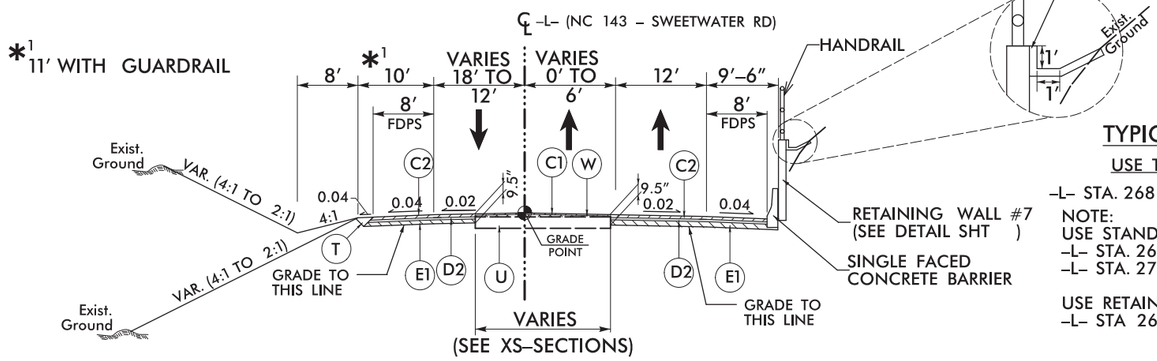


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

–L– STA. 208+00.00 TO –L– STA. 268+90.00

TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

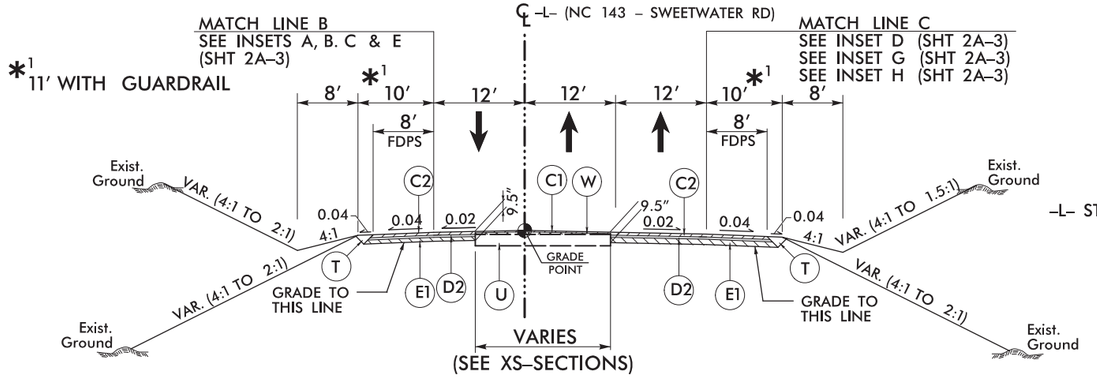
USE TYPICAL SECTION NO. 2

–L– STA. 268+90.00 TO –L– STA. 272+50.00

NOTE:
USE STANDARD DITCH:
–L– STA. 268+90.00 TO –L– STA. 269+25.00,RT
–L– STA. 272+18+/– TO –L– STA. 272+50.00, RT

USE RETAINING WALL:
–L– STA 269+25± TO –L– STA 272+18±,RT

TYPICAL SECTION NO. 2



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–L– STA. 272+50.00 TO –L– STA. 360+80.00

TYPICAL SECTION NO. 3

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

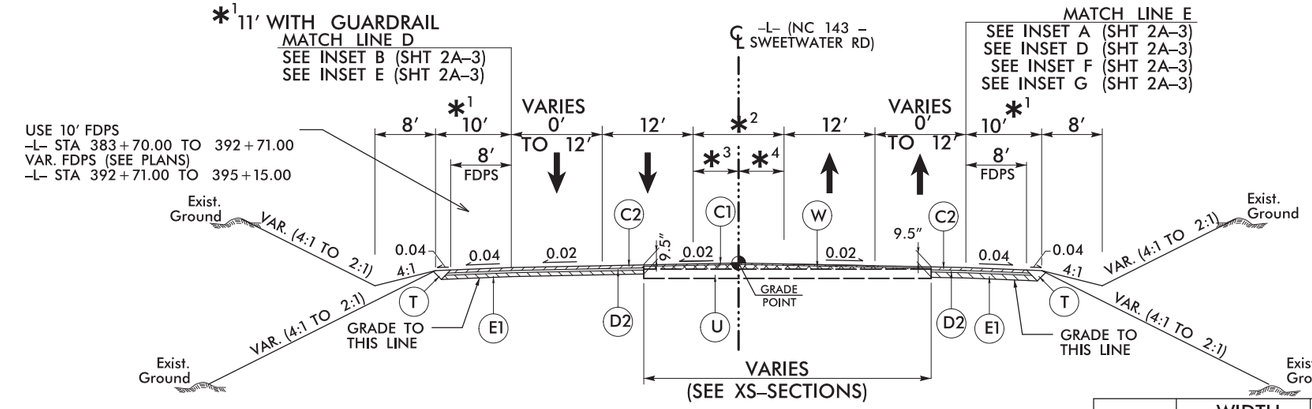
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

3/5/2021
X:\A-0009\Roadway\Proj\A-0009CB Plan Sheets\A-0009CB_Rdy_typ.dgn
tgsrichard

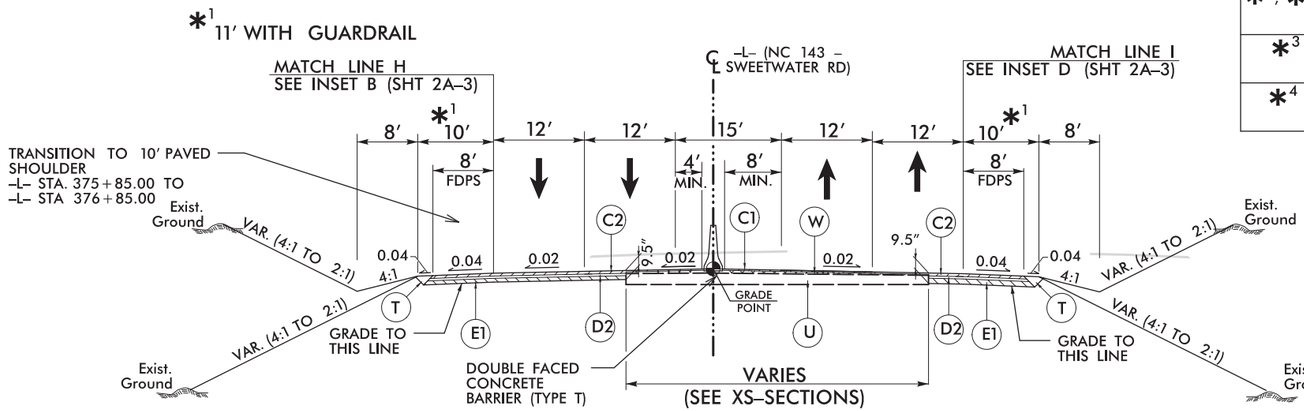
6/2/99

PAVEMENT SCHEDULE	
C1	1.5″ S9.5B
C2	3″ S9.5B
D2	2 ½″ I19.0C
E1	4″ B25.0C
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

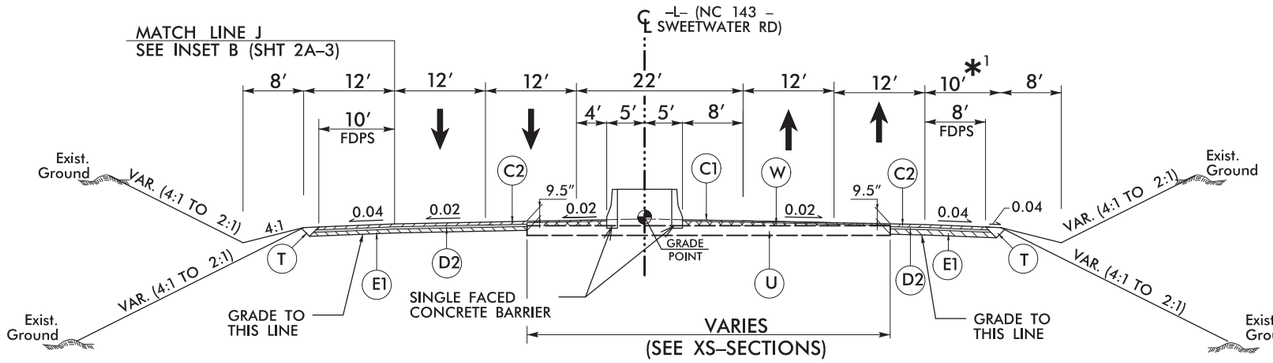
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. SEE SHEET 2A-1 FOR DETAILED PAVEMENT SCHEDULE.



TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 5



TYPICAL SECTION NO. 6

	WIDTH	STA TO STA	
*2	0′ TO 12′	–L– STA. 360+80.00 TO –L– STA. 364+10.00	
	12′	–L– STA. 364+10.00 TO –L– STA. 373+33.00	
	12′ TO 15′	–L– STA. 373+33.00 TO –L– STA. 375+25.00	
	22′ TO 12′	–L– STA. 385+65.00 TO –L– STA. 389+50.00	
*3, *4	0′ TO 6′	–L– STA. 360+80.00 TO –L– STA. 364+10.00	LT & RT
	6′	–L– STA. 364+10.00 TO –L– STA. 373+33.00	LT & RT
*3	6′ TO 5.5′	–L– STA. 373+33.00 TO –L– STA. 375+25.00	LT
	9′ TO 6′	–L– STA. 385+65.00 TO –L– STA. 389+50.00	LT
*4	6′ TO 9.5′	–L– STA. 373+33.00 TO –L– STA. 375+25.00	RT
	13′ TO 6′	–L– STA. 385+65.00 TO –L– STA. 389+50.00	RT

TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

–L– STA. 360+80.00 TO –L– STA. 375+25±
–L– STA. 385+65.00 TO –L– STA. 395+15.00

TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

–L– STA. 375+25.00 TO –L– STA. 379+30.00

NOTE:
TRANSITION BETWEEN TYP. SECT. NO. 5 AND TYP. SECT. NO 6 AS FOLLOWS:
–L– STA. 379+30.00 TO –L– STA. 380+05.00

TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

–L– STA. 380+05.00 TO –L– STA. 383+70.00

NOTE:
TRANSITION BETWEEN TYP. SECT. NO. 6 AND TYP. SECT. NO 4 AS FOLLOWS:
–L– STA. 383+70.00 TO –L– STA. 385+65.00

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

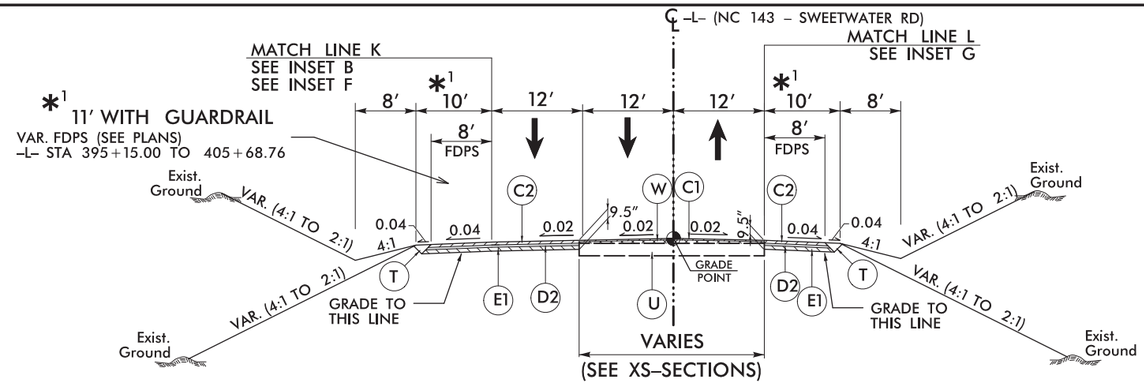
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

6/2/99

PAVEMENT SCHEDULE	
C1	1.5″ S9.5B
C2	3″ S9.5B
D2	2 ½″ I19.0C
E1	4″ B25.0C
R2	EXPRESSWAY GUTTER
R4	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE. SEE SHEET 2A-1 FOR DETAILED PAVEMENT SCHEDULE.



TYPICAL SECTION NO. 7

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	2A-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

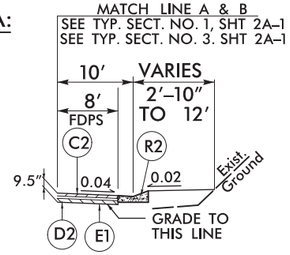
NOTE:
TRANSITION BETWEEN TYP. SECT. NO. 4 AND TYP. SECT. NO 7 AS FOLLOWS:
–L– STA. 395+15.00 TO –L– STA. 398+45.00

TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7

–L– STA. 398+45.00 TO –L– STA. 414+50.00

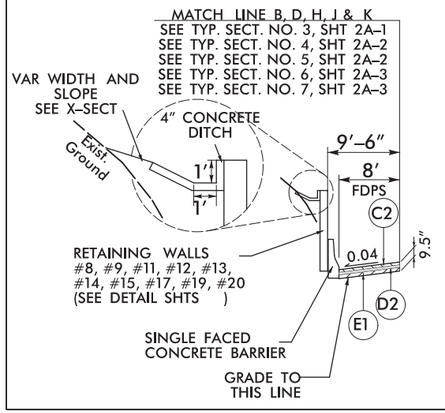
INSET A:



USE INSET A

–L– STA. 229+00.00 TO –L– STA. 235+36±, RT
–L– STA. 319+50.00 TO –L– STA. 322+00.00, LT

INSET B:



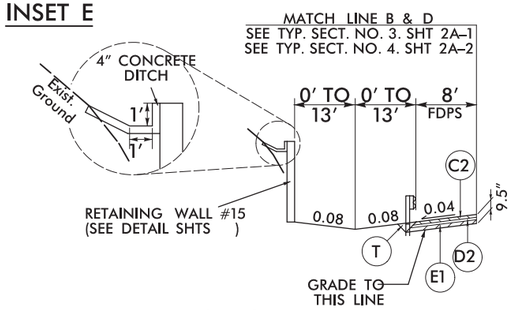
USE INSET B

–L– STA. 283+65±	TO	–L– STA. 288+75±, LT	
–L– STA. 290+80±	TO	–L– STA. 292+75±, LT	
–L– STA. 330+82±	TO	–L– STA. 333+24±, LT	
–L– STA. 341+76±	TO	–L– STA. 344+11±, LT	
–L– STA. 344+71±	TO	–L– STA. 346+76±, LT	
–L– STA. 347+95±	TO	–L– STA. 350+64±, LT	
–L– STA. 358+77±	TO	–L– STA. 362+94±, LT	
–L– STA. 369+41±	TO	–L– STA. 375+25±, LT	
–L– STA. 377+15±	TO	–L– STA, 408+00±, LT *5	
–L– STA. 409+50±	TO	–L– STA. 411+75±, LT	

NOTE – BARRIER MAY NOT BE AT FACE OF WALL ON RETAINING WALL # 15 (SEE PLANS)

*5 SEE PLANS FOR FPDS WIDTH

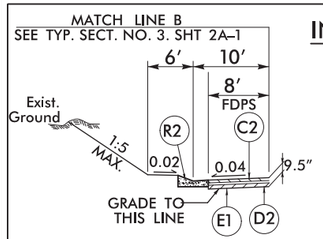
INSET E



USE INSET E

–L– STA. 352+25± TO –L– STA. 358+77±, LT
–L– STA. 362+94± TO –L– STA. 368+35±, LT

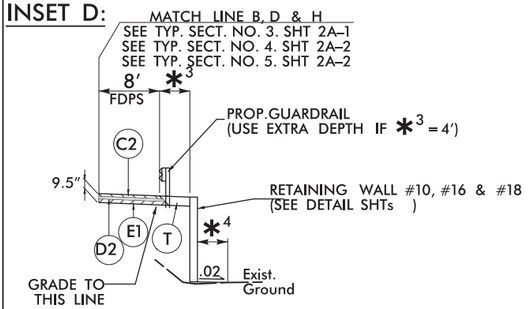
INSET C:



USE INSET C

–L– STA. 302+62± TO –L– STA. 303+96±, LT

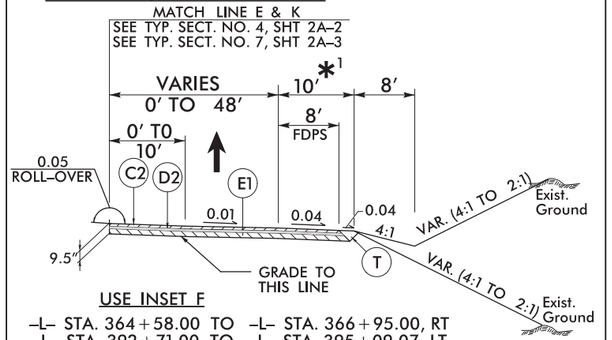
INSET D:



USE INSET D

–L– STA. 316+45± TO –L– STA. 316+50±, RT
–L– STA. 317+31± TO –L– STA. 317+62±, RT
(*3=4′, *4=4′)
–L– STA. 366+75± TO –L– STA. 369+65±, RT
(*3=5.5′, *4=10′)
–L– STA. 375+25± TO –L– STA. 378+15±, RT
(*3=5.5′, *4=10′)

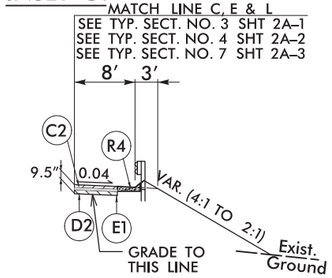
INSET F (U–TURN BULB)



USE INSET F

–L– STA. 364+58.00 TO –L– STA. 366+95.00, RT
–L– STA. 392+71.00 TO –L– STA. 395+09.07, LT

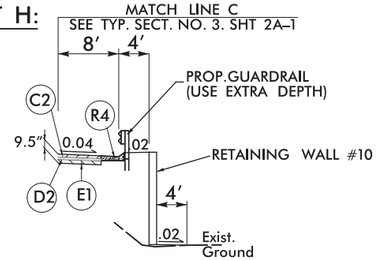
INSET G:



USE INSET G

–L– STA. 279+50±	TO	–L– STA. 284+00±, RT
–L– STA. 287+50±	TO	–L– STA. 290+00±, RT
–L– STA. 292+15±	TO	–L– STA. 295+00±, RT
–L– STA. 310+47±	TO	–L– STA. 313+40±, RT
–L– STA. 326+00±	TO	–L– STA. 328+25±, RT
–L– STA. 331+75±	TO	–L– STA. 334+50±, RT
–L– STA. 335+94±	TO	–L– STA. 337+62±, RT
–L– STA. 339+10±	TO	–L– STA. 341+47±, RT
–L– STA. 344+13±	TO	–L– STA. 346+50±, RT
–L– STA. 350+17±	TO	–L– STA. 352+22±, RT
–L– STA. 360+04±	TO	–L– STA. 363+61±, RT
–L– STA. 387+16±	TO	–L– STA. 392+19±, RT
–L– STA. 393+69±	TO	–L– STA. 396+71±, RT
–L– STA. 405+23±	TO	–L– STA. 406+66±, RT
–L– STA. 407+52±	TO	–L– STA. 409+81±, RT
–L– STA. 411+00±	TO	–L– STA. 413+70±, RT

INSET H:



USE INSET H

–L– STA. 316+50± TO –L– STA. 317+31±, RT

8/17/99

REVISIONS

-L- CURVE DATA

PI Sta 219+95.61
△ = 36° 39' 28.8" (LT)
D = 2° 17' 30.6"
L = 1,599.51'
T = 828.20'
R = 2,500.00'
SE = 0.06
DS = 60 MPH

DETAIL 20A
BANK STABILIZATION
(Not to Scale)

Natural Ground, EXISTING BANK, PROPOSED BANK, CLASS I RIPRAP KEYED-IN (TYP.), CHANNEL BED (Variable), d

Length = 14 Ft.
Min. d = 3 Ft.

-L- STA 212+83(44' LT) TO 212+83(58' LT)

DETAIL 20B
BANK STABILIZATION
(Not to Scale)

Natural Ground, EXISTING BANK, PROPOSED BANK, CLASS I RIPRAP KEYED-IN (TYP.), CHANNEL BED (Variable), d

Length = 15 Ft.
Min. d = 3 Ft.

-L- STA 215+37(51' LT) TO 215+47(40' LT)

DETAIL 20C
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1, b, 1'-Ft., Fill Slope

Min. D = 1.5 Ft.
b = 3 Ft.

-L- STA. 213+50 TO 215+00 RT
SEE XSC FOR DITCH GRADE

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	20
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

BEGIN TIP PROJECT A-0009CB
-L- STA. 208+00.00

END SECTION A-0009CA
BEGIN SECTION A-0009CB

NAD 83/2011

MATCH LINE STA -L- 221+00.00
MATCH TO SHEET NO. 21

-L- PC 211+67.41

(+)1.191

PROP. ASPHALT DRIVE

MADELINE P. MEENTS, TRUSTEE
DB 373 PG 548
DB 326 PG 496

CLASS B RIPRAP
3 TONS, 11 SY GEO

POOR CONDITION.
1.0' OPEN

BANK STABILIZATION
SEE DETAIL 20A
CLASS I RIPRAP
XX TONS, NO GEO

BANK STABILIZATION
SEE DETAIL 20B
CLASS I RIPRAP
XX TONS, NO GEO

CUT TO FILL TRANSITION
CLASS B RIPRAP
10 TONS, 22 SY GEO

INV PERCHED 7.0'
BURY INVERT 0.7'

INV PERCHED 2.0'
BURY INVERT 0.8'

LLOYD SCOTT ORR
DB 304 PG 107

LLOYD SCOTT
DB 304 PG 10

SWEETWATER CREEK

N 77°45' 39.3" E

REMOVE

GRADE TO DRAIN

LATERAL 'V' DITCH
SEE DETAIL 20C
DDE=58 CY

ERNEST D. PHILLIPS, JR.
DB 378 PG 260

MAXINE CRISP
DB 10IPG 46
DB 57 PG 37

ERNEST PHILLIPS, ET AL
DB 370 PG 773

SR 1281 (ERNEST PHILLIPS RD) 16' BST

BURY INVERT 0.7'

5" OF FLOW

BLOCKED 85%

12" HDPE W/ENDWALL
HDPE THROUGH IT

4" HDPE ENT.

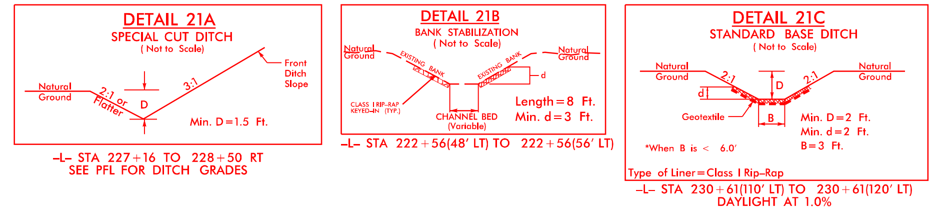
SA — ELIGIBLE AND UNASSESSED SITES

FOR -L- PROFILE, SEE SHEET NO. 44

3/30/2021
X:\NCDOT\A-0009\Hydraulics\MERGER\A-0009_CB_CP_4B\Plan_Sheets\A-0009CB_Rdy_psh_20.dgn
User:rdesty

-L- CURVE DATA

PI Sta 219+95.61	PI Sta 234+84.86
Δ = 36° 39' 28.8" (LT)	Δ = 12° 40' 17.1" (RT)
D = 2° 17' 30.6"	D = 1° 54' 35.5"
L = 1,599.51'	L = 663.47'
T = 828.20'	T = 333.10'
R = 2,500.00'	R = 3,000.00'
SE = 0.06	SE = 0.05
DS = 60 MPH	DS = 60 MPH



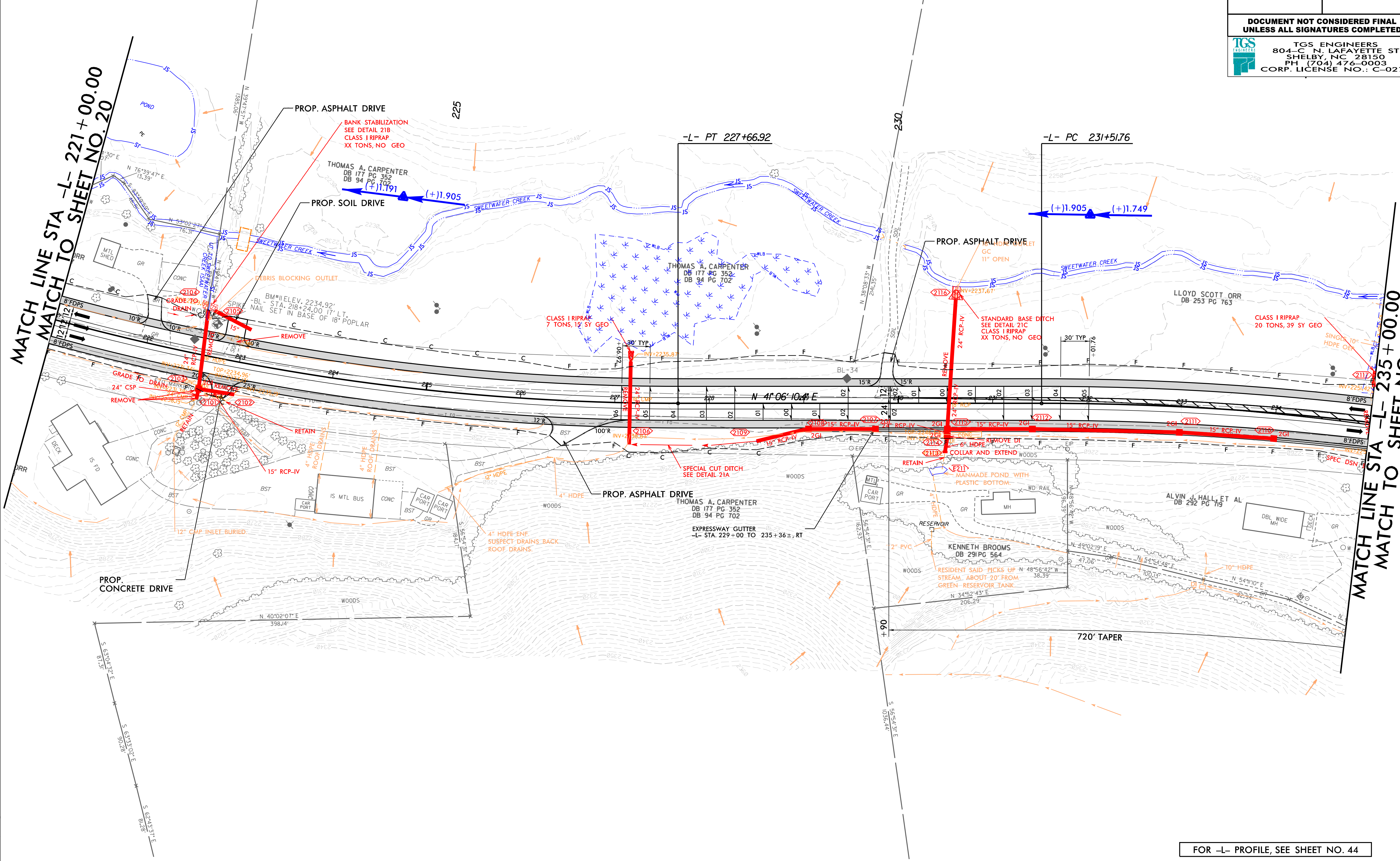
DETAIL 21A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
2:1 or Flatter
D
3:1
Front Ditch Slope
Min. D=1.5 Ft.
-L- STA 227+16 TO 228+50 RT
SEE PFL FOR DITCH GRADES
DETAIL 21B
BANK STABILIZATION
(Not to Scale)
Natural Ground
EXISTING BANK
CLASS I RIP-RAP KEYED-IN (TYP.)
CHANNEL BED (Variable)
Length=8 Ft.
Min. d=3 Ft.
-L- STA 222+56(48' LT) TO 222+56(56' LT)
DETAIL 21C
STANDARD BASE DITCH
(Not to Scale)
Natural Ground
2:1
D
d
Geotextile
B
Min. D=2 Ft.
Min. d=2 Ft.
B=3 Ft.
*When B is < 6.0'
Type of Liner=Class I Rip-Rap
-L- STA 230+61(110' LT) TO 230+61(120' LT)
DAYLIGHT AT 1.0%

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



NAD 83/2011
MATCH LINE STA -L- 221+00.00
MATCH TO SHEET NO. 20
MATCH LINE STA -L- 235+00.00
MATCH TO SHEET NO. 22
PROP. ASPHALT DRIVE
BANK STABILIZATION
SEE DETAIL 21B
CLASS I RIPRAP
XX TONS, NO GEO
THOMAS A. CARPENTER
DB 177 PG 352
DB 94 PG 702
PROP. SOIL DRIVE
SWEETWATER CREEK
UT TO SWEETWATER CREEK (SAA)
POND
DEBRIS BLOCKING OUTLET
BM#11 ELEV. 2234.92'
-BL- STA. 218+24.00 17' LT.
SPIKE NAIL SET IN BASE OF 18" POPLAR
GRADE TO DRAIN
REMOVE
24" CSP
RETAIN
15" RCP-IV
24" RCP-IV
-L- PT 227+66.92
-L- PC 231+51.76
N 41° 06' 10.4" E
CLASS I RIPRAP
7 TONS, 15 SY GEO
30' TYP
STANDARD BASE DITCH
SEE DETAIL 21C
CLASS I RIPRAP
XX TONS, NO GEO
LLOYD SCOTT ORR
DB 253 PG 763
CLASS I RIPRAP
20 TONS, 39 SY GEO
SPECIAL CUT DITCH
SEE DETAIL 21A
EXPRESSWAY GUTTER
-L- STA. 229+00 TO 235+36±, RT
PROP. CONCRETE DRIVE
12" CMP INLET BURIED
4" HDPE ENF. SUSPECT DRAINS BACK ROOF DRAINS.
REMOVE DI
6" HDPE
COLLAR AND EXTEND
MANMADE POND WITH PLASTIC BOTTOM.
KENNETH BROOMS
DB 291 PG 564
RESIDENT SAID PICKS UP STREAM ABOUT 20' FROM GREEN RESERVOIR TANK.
ALVIN J. HALL, ET AL
DB 292 PG 719
720' TAPER
WOODS

FOR -L- PROFILE, SEE SHEET NO. 44

8/17/99

REVISIONS

3/30/2021
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User:dgtw

-L- CURVE DATA

PI Sta 234+84.86	PI Sta 255+20.12
Δ = 12° 40' 17.1" (RT)	Δ = 40° 44' 05.0" (LT)
D = 1° 54' 35.5"	D = 2° 36' 15.7"
L = 663.47'	L = 1,564.10'
T = 333.10'	T = 816.75'
R = 3,000.00'	R = 2,200.00'
SE = 0.05	SE = 0.07
DS = 60 MPH	DS = 60 MPH

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	22
R/W SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

NAD 83/2011

MATCH LINE STA -L- 235+00.00
MATCH TO SHEET NO. 21

MATCH LINE STA -L- 249+00.00
MATCH TO SHEET NO. 23

-L- PT 238+15.24

-L- PC 247+03.37

(+)1.749 (+)2.413

N 53° 46' 27.5" E

BM#12 ELEV. 2269.68'
-BL- STA. 237+67.00 21' LT.
SPIKE/NAIL SET IN BASE OF 15" POPLAR

PROP. ASPHALT DRIVE

FLOWING (WATER OUT OF 10" & 6") HDPE

6" HDPE OUTLET. INLET ENF. SOIL DRIVE OVER 10" HDPE

PERCHED 0.5'

6" OPEN

18" HDPE (NOT 24")

SWEETWATER CREEK

LANDAN ORR
DB 380 PG 748

MARY S. LAMBERTH
DB 200 PG 768

INV PERCHED 13" 3' ABOVE NWSEL WITH 8" WATER DEPTH IN SWEETWATER CREEK

BURY INVERT 0.8'

STANDARD BASE DITCH
SEE DETAIL 22D
CLASS II RIPRAP
XX TONS, NO GEO

30' TYP

DEBORAH E. JUSTICE
DB 222 PG 415
DB 154 PG 730

4" BLOCKED

STANDARD BASE DITCH
SEE DETAIL 22E
CLASS I RIPRAP
XX TONS, NO GEO

REMOVE

SPECIAL CUT DITCH
SEE DETAIL 22A

PROP. ASPHALT DRIVE

OUTLET ENF. ASSUMED BURIED.

PER PROPERTY OWNER EXISTING 2GI JUNCTIONS WELL

DITCH BYPASSES MTL

MATT SHIPLET
DB 188 PG 701
DB 162 PG 298
DB 135 PG 299
DB 55 PG 475

6" CMP

ROCK HDW

10' GRAVEL DRIVE

42" CSP

RAUL H. OLIVERA
DB 378 PG 598

10" OPEN
5" WATER DEPTH

DRAIN FIELD

SEPTIC TANK

BRICK CABIN

RETAIN

ROD&LNG 60' ASSET DISPOSITION

REMOVE

EXPRESSWAY GUTTER
-L- STA. 229+00 TO 235+36±, RT

18" HDPE

720' TAPER

320' BUFFER

720' TAPER

BERM DITCH

EIP

PROP. ASPHALT DRIVE

FALSE SUMP
SEE DETAIL 22B

BURY INVERT 0.8'

BANK STABILIZATION
SEE DETAIL 22C
CLASS I RIPRAP
XX TONS, NO GEO

PROP. SOIL DRIVE

GERALD V. JONES
DB 174 PG 819

DEBORAH E. JUSTICE
DB 190 PG 826

UT TO SWEETWATER CREEK

PROP. ASPHALT DRIVE

BOBBY MAX EDWARDS
DB 304 PG 406

PROP. ASPHALT DRIVE

30" RCP-IV

JOSEPH A. BRADLEY
DB 378 PG 72

SUSPECTED PIPE

FOR -L- PROFILE, SEE SHEET NO. 45

DETAIL 22A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 3:1 or Flatter; D; 4:1 or Flatter; Front Ditch Slope; Min. D=2 Ft.

-L- STA. 246+00 TO 247+00 RT
SEE XSC FOR DITCH GRADE

DETAIL 22B
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow; 4:1; 2:1; 1.5'; S; S=Toe of Slope; TOE OF FILL

-L- STA. 239+07 RT

DETAIL 22C
BANK STABILIZATION
(Not to Scale)

Natural Ground; EXISTING BANK; REQUIRED BANK; d; CLASS I RIP-RAP KEYED-IN (TYP.); CHANNEL BED (Variable)

Length=15 Ft.
Min. d=3 Ft.

-L- STA 239+52(37' RT) TO 239+59(50' RT)

DETAIL 22D
STANDARD BASE DITCH
(Not to Scale)

Natural Ground; 1.5:1; D; B; Min. D=2.5 Ft.; Min. d=2.5 Ft.; B=4 Ft.; *When B is < 6.0'

Type of Liner=Class II Rip-Rap

-L- STA 239+45(35' LT) TO 239+45(48' LT)
DAYLIGHT AT 1.0%

DETAIL 22E
STANDARD BASE DITCH
(Not to Scale)

Natural Ground; 1.5:1; D; B; Min. D=2.5 Ft.; Min. d=2.5 Ft.; B=3 Ft.; *When B is < 6.0'

Type of Liner=Class I Rip-Rap

-L- STA 245+56(38' LT) TO 245+56(50' LT)
DAYLIGHT AT 1.0%

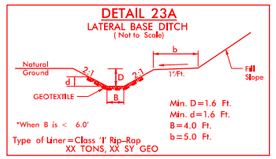
8/17/99

REVISIONS

-L- CURVE DATA

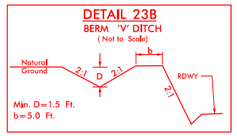
PI Sta 255+20.12
△ = 40° 44' 05.0" (LT)
D = 2° 36' 15.7"
L = 1,564.10'
T = 816.75'
R = 2,200.00'
SE = 0.07
DS = 60 MPH

DETAIL 23A
LATERAL BASE DITCH
(Not to Scale)



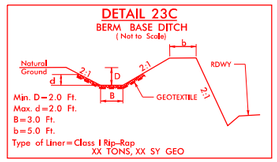
-L- STA. 250+15 TO 250+50 LT
SEE PFL FOR DITCH GRADE (3.9%)

DETAIL 23B
BERM 'V' DITCH
(Not to Scale)



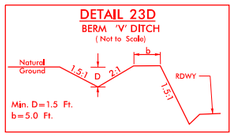
-L- STA. 251+90 TO 252+35 RT
SEE PFL FOR DITCH GRADE (13.5%)

DETAIL 23C
BERM BASE DITCH
(Not to Scale)



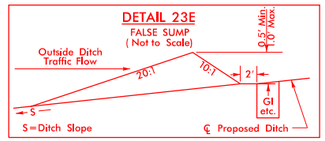
-L- STA. 252+50 TO 254+00 RT
SEE PFL FOR DITCH GRADE (4.5%)

DETAIL 23D
BERM 'V' DITCH
(Not to Scale)



-L- STA. 258+50 TO 258+68 RT
-L- STA. 258+68 TO 259+00 RT
SEE PFL FOR DITCH GRADES

DETAIL 23E
FALSE SUMP
(Not to Scale)



-L- STA. 251+75 RT
-L- STA. 252+36 RT
-L- STA. 253+86 RT
-L- STA. 255+36 RT
-L- STA. 256+69 RT
-L- STA. 258+55 RT
-L- STA. 259+87 RT
-L- STA. 261+94 RT

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	23
RW SHEET NO.	___
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

MATCH LINE STA -L- 249+00.00
MATCH TO SHEET NO. 22

MATCH LINE STA -L- 263+00.00
MATCH TO SHEET NO. 24

-L- PT 262+67.47

48" BCCSP AGED MASONRY HW (FUNCTIONING)
1' MAX DEPTH SCOUR HOLE
4' WIDE JS W/0.3' FLOW DEPTH
COBBLES W/SILT
(SAME AT INLET)

CLASS II RIPRAP
XX TONS, NO GEO

LATERAL BASE DITCH
SEE DETAIL 23A
DDE=XX CY

CLASS B RIPRAP
5 TONS, NO GEO

24" CMP FAIR COND
MODERATE RUST
OUTFALL 2' WIDE
COBBLES STABLE

JAMES A. CALHOUN
DB 66 PG 433

MACK N. CALHOUN, ET AL, TRUSTEE
DB 254 PG 196

LOWELL CABLE, ET AL
DB 343 PG 555

PROP. ASPHALT DRIVE

GOOD CONDITION

SWEETWATER CREEK

DEFINED DITCH ENDS

REMOVE

RETAIN

TIE EXISTING 48" HDPE INTO BOX

ROD AND LUG WITH GASKETS (ELBOW)

FALSE SUMP SEE DETAIL 23E

BERM 'V' DITCH SEE DETAIL 23B DDE=XX CY

BERM BASE DITCH SEE DETAIL 23C DDE=XX CY

SPEC DSN BDO
3 GARDEN HOSE WORTH OF FLOW
1 GARDEN HOSE WORTH OF FLOW

STREAM SAME AS OUTFALL EXCEPT 2'-3' WIDE, 0.2' FLOW

INLET OF 6" HDPE OUTLET IS 2' US OF 18" INLET AND INV=18" INV=0.5'

(+)2.413
(+)2.283

FOR -L- PROFILE, SEE SHEET NO. 45

3/30/2021
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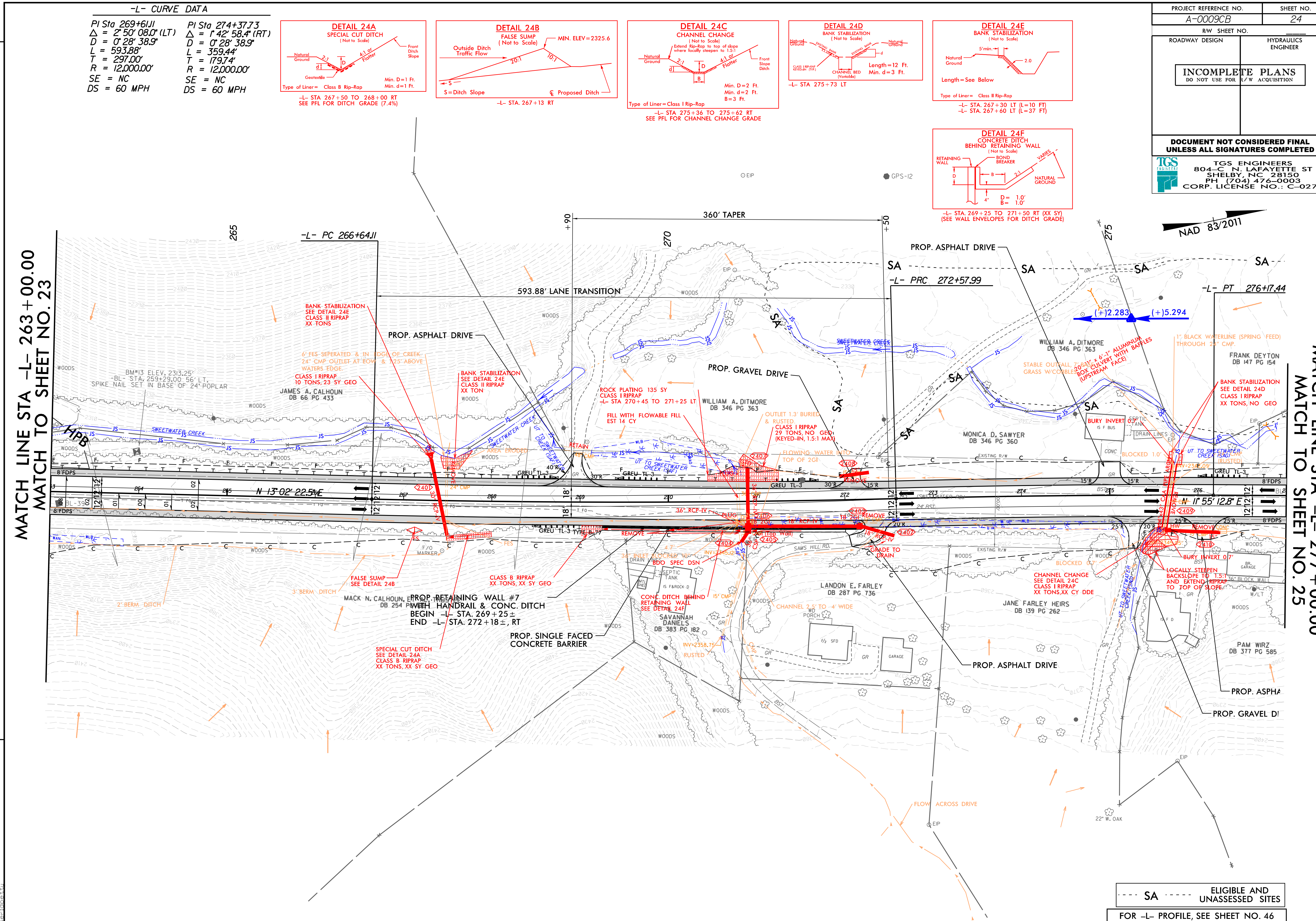

8/17/99

3/30/2021
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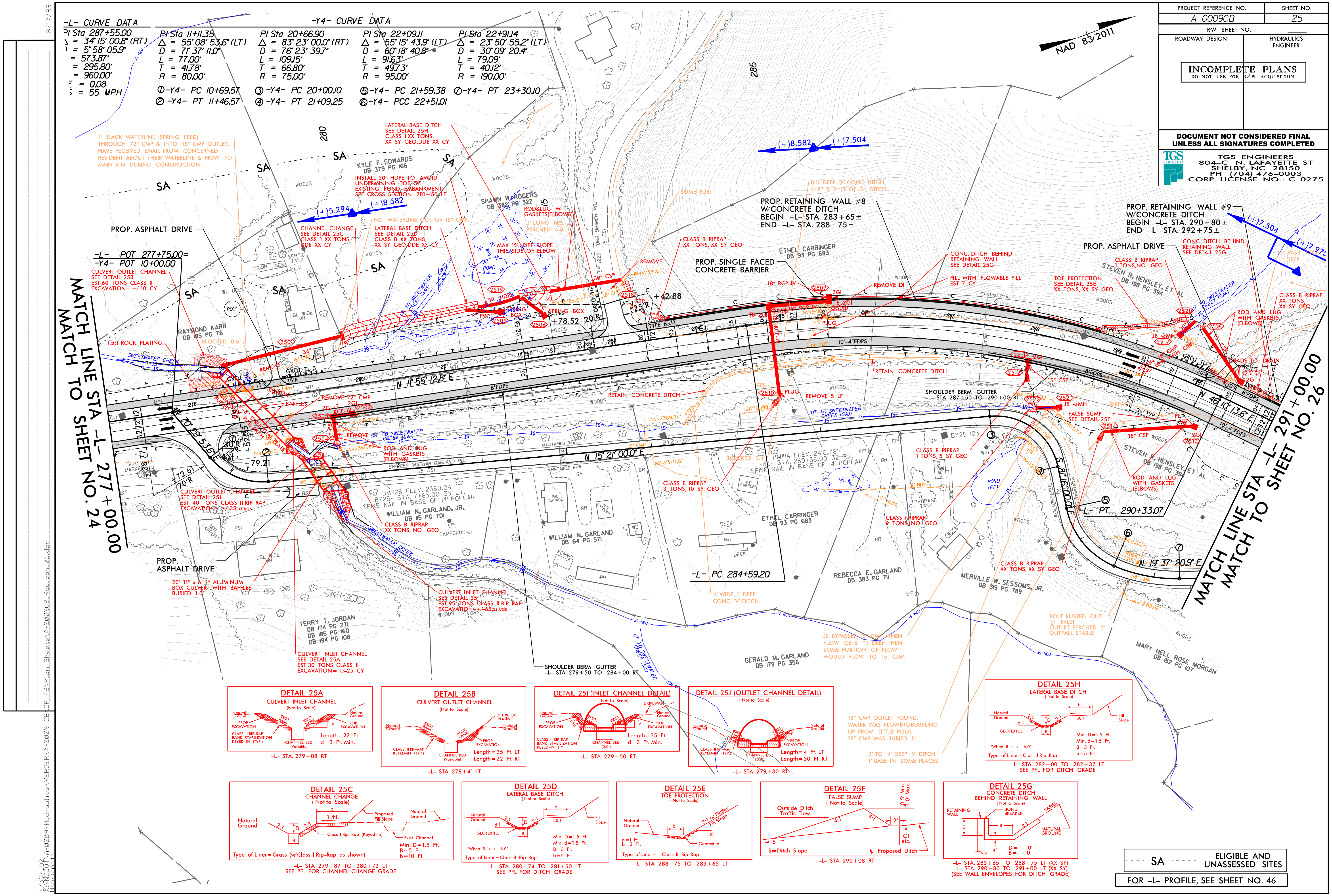

PROJECT REFERENCE NO. A-0009CB
SHEET NO. 25
R/W SHEET NO.
ROADWAY DESIGN
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275
NAD 83/2011
-L- CURVE DATA
PI Sta 287+55.00
Δ = 34° 15' 00.8" (RT)
D = 5° 58' 05.9"
L = 573.87'
T = 295.80'
R = 960.00'
SE = 0.08
V = 55 MPH
-Y4- CURVE DATA
PI Sta 11+11.35
Δ = 55° 08' 53.6" (LT)
D = 71° 37' 11.0"
L = 77.00'
T = 41.78'
R = 80.00'
PI Sta 20+66.90
Δ = 83° 23' 00.0" (RT)
D = 76° 23' 39.7"
L = 109.15'
T = 66.80'
R = 75.00'
PI Sta 22+09.11
Δ = 55° 15' 43.9" (LT)
D = 60° 18' 40.8"
L = 91.63'
T = 49.73'
R = 95.00'
PI Sta 22+91.14
Δ = 23° 50' 55.2" (LT)
D = 30° 09' 20.4"
L = 79.09'
T = 40.12'
R = 190.00'
① -Y4- PC 10+69.57
② -Y4- PT 11+46.57
③ -Y4- PC 20+00.10
④ -Y4- PT 21+09.25
⑤ -Y4- PC 21+59.38
⑥ -Y4- PCC 22+51.01
⑦ -Y4- PT 23+30.10
MATCH LINE STA -L- 277+00.00 MATCH TO SHEET NO. 24
MATCH LINE STA -L- 291+00.00 MATCH TO SHEET NO. 26
-L- POT 277+75.00 = -Y4- POT 10+00.00
-L- PC 284+59.20
-L- PT 290+33.07
N 11° 55' 12.8" E
N 15° 21' 00.0" E
N 46° 10' 13.6" E
S 81° 16' 00.0" E
N 19° 37' 20.9" E
70° 29' 53.6" E
1" BLACK WATERLINE (SPRING FEED) THROUGH 72" CMP & INTO 18" CMP OUTLET. HAVE RECEIVED EMAIL FROM CONCERNED RESIDENT ABOUT THEIR WATERLINE & HOW TO MAINTAIN DURING CONSTRUCTION.
PROP. ASPHALT DRIVE
CULVERT OUTLET CHANNEL SEE DETAIL 25B EST.60 TONS CLASS II EXCAVATION = +/-10 CY
1.5:1 ROCK PLATING
RAYMOND KARR DB 185 PG 76
BLOCKED 0.6'
KYLE F. EDWARDS DB 379 PG 166
INSTALL 30" HDPE TO AVOID UNDERMINING TOE OF EXISTING POND EMBANKMENT SEE CROSS SECTION 281+50 LT.
CHANNEL CHANGE SEE DETAIL 25C CLASS 1 XX TONS, DDE XX CY
LATERAL BASE DITCH SEE DETAIL 25D CLASS B XX TONS, XX SY GEO,DDE XX CY
NO WATERLINE OUT OF 18" CMP.
LATERAL BASE DITCH SEE DETAIL 25H CLASS I XX TONS, XX SY GEO,DDE XX CY
SHAWN W. ROGERS DB 382 PG 322
ROD&LUG W/ GASKETS(ELBOWS)
3' LONG FES. PERCHED 4.0'
MAX 1% PIPE SLOPE THIS SIDE OF ELBOW
SPRING BOX
30" CSP
INV=2391.60'
INV=2385.03'
SOME RUST
CLASS B RIPRAP XX TONS, XX SY GEO
REMOVE
0.5' DEEP 'V' CONC. DITCH 4' RT & 2' LT OF CL DITCH.
PROP. RETAINING WALL #8 W/CONCRETE DITCH BEGIN -L- STA. 283+65± END -L- STA. 288+75±
PROP. SINGLE FACED CONCRETE BARRIER
ETHEL CARRINGER DB 93 PG 683
18" RCP-IV
REMOVE DI
CONC. DITCH BEHIND RETAINING WALL SEE DETAIL 25G
FILL WITH FLOWABLE FILL EST 7 CY
TOE PROTECTION SEE DETAIL 25E XX TONS, XX SY GEO
CLASS B RIPRAP 1 TONS,NO GEO
STEVEN R. HENSLEY, ET AL DB 198 PG 394
PROP. RETAINING WALL #9 W/CONCRETE DITCH BEGIN -L- STA. 290+80± END -L- STA. 292+75±
CLASS B RIPRAP XX TONS, XX SY GEO
ROD AND LUG WITH GASKETS (ELBOWS)
2' BASE DITCH 1' DEEP
GRADE TO DRAIN
RETAIN CONCRETE DITCH
REMOVE 5 LF
PLUG
SHOULDER BERM GUTTER -L- STA. 287+50 TO 290+00 RT
FALSE SUMP SEE DETAIL 25F
15" CSP
JB w/MH
REMOVE 72" CMP
BAFFLES
20'-11" x 8'-3" STRUCTURAL PLATE PIPE ARCH BURIED 1.0'
UT TO SWEETWATER CREEK (SAJ)
SWEETWATER CREEK
BM#28 ELEV. 2360.04' -BY25- STA. 7+65.00 35' LT. SPIKE NAIL IN BASE OF 14" POPLAR
BM#14 ELEV. 2410.76' -B- STA. 280+38.00 32' RT. SPIKE NAIL IN BASE OF 14" POPLAR
WILLIAM N. GARLAND, JR. DB 115 PG 701
CLASS B RIPRAP XX TONS, NO GEO
CLASS B RIPRAP 3 TONS, 10 SY GEO
CLASS B RIPRAP 1 TONS, 5 SY GEO
CLASS I RIPRAP 9 TONS, NO GEO
CULVERT OUTLET CHANNEL SEE DETAIL 25J EST. 40 TONS CLASS II RIP RAP EXCAVATION= +/-35cu.yds
20'-11" x 6'-1" ALUMINUM BOX CULVERT WITH BAFFLES BURIED 1.0'
CULVERT INLET CHANNEL SEE DETAIL 25I EST.95 TONS CLASS II RIP RAP EXCAVATION= +/-65cu.yds
CULVERT INLET CHANNEL SEE DETAIL 25A EST.30 TONS CLASS II EXCAVATION = +/-25 CY
TERRY T. JORDAN DB 174 PG 271 DB 185 PG 160 DB 194 PG 108
WILLIAM N. GARLAND DB 64 PG 571
SHOULDER BERM GUTTER -L- STA. 279+50 TO 284+00, RT
4' WIDE, 1' DEEP CONC. 'V' DITCH.
REBECCA E. GARLAND DB 383 PG 711
MERVILLE W. SESSOMS, JR. DB 319 PG 789
GERALD M. GARLAND DB 179 PG 356
MARY NELL ROSE MORGAN DB 152 PG 107
JS BYPASSES 15" CMP. WHEN FLOW GETS ~1' DEEP THEN SOME PORTION OF FLOW WOULD FLOW TO 15" CMP.
BOLT RUSTED OUT @ INLET OUTLET PERCHED 2' OUTFALL STABLE
18" CMP OUTLET FOUND. WATER WAS FLOWING/BUBBLING UP FROM LITTLE POOL. 18" CMP WAS BURIED 1'.
3' TO 4' DEEP 'V' DITCH. 1' BASE IN SOME PLACES.
DETAIL 25A CULVERT INLET CHANNEL (Not to Scale) Length = 22 Ft. d = 3 Ft. Min. -L- STA. 279+08 RT
DETAIL 25B CULVERT OUTLET CHANNEL (Not to Scale) Length = 35 Ft. LT Length = 22 Ft. RT -L- STA. 278+41 LT
DETAIL 25I (INLET CHANNEL DETAIL) (Not to Scale) Length = 35 Ft. d = 3 Ft. Min. -L- STA. 279+50 RT
DETAIL 25J (OUTLET CHANNEL DETAIL) (Not to Scale) Length = 4 Ft. LT Length = 30 Ft. RT -L- STA. 279+30 RT
DETAIL 25H LATERAL BASE DITCH (Not to Scale) Min. D = 1.5 Ft. Min. d = 1.5 Ft. B = 3 Ft. b = 5 Ft. Type of Liner = Class I Rip-Rap -L- STA 282+00 TO 282+37 LT SEE PFL FOR DITCH GRADE
DETAIL 25C CHANNEL CHANGE (Not to Scale) Min. D = 1.5 Ft. B = 5 Ft. b = 10 Ft. Type of Liner = Grass (w/Class I Rip-Rap as shown) -L- STA 279+87 TO 280+72 LT SEE PFL FOR CHANNEL CHANGE GRADE
DETAIL 25D LATERAL BASE DITCH (Not to Scale) Min. D = 1.5 Ft. Min. d = 1.5 Ft. B = 3 Ft. b = 5 Ft. Type of Liner = Class B Rip-Rap -L- STA 280+74 TO 281+50 LT SEE PFL FOR DITCH GRADE
DETAIL 25E TOE PROTECTION (Not to Scale) d = 1 Ft. b = 3 Ft. Type of Liner = Class B Rip-Rap -L- STA 288+75 TO 289+65 LT
DETAIL 25F FALSE SUMP (Not to Scale) S = Ditch Slope -L- STA. 290+08 RT
DETAIL 25G CONCRETE DITCH BEHIND RETAINING WALL (Not to Scale) D = 1.0' B = 1.0' -L- STA. 283+65 TO 288+75 LT (XX SY) -L- STA. 290+80 TO 291+00 LT (XX SY) (SEE WALL ENVELOPES FOR DITCH GRADE)
SA ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 46
8/17/99
3/30/2021
X:\NCDOT\A-0009\Hydraulics\MERGER\A-0009 CB\CP_4B\Plan Sheets\A-0009CB_Rdy_psh_25.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	26
R/W SHEET NO.	___
ROADWAY DESIGN	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

NAD 83/2011

-L- CURVE DATA

PI Sta 300+23.36
△ = 31° 41' 09.8" (LT)
D = 5° 43' 46.5"
L = 553.03'
T = 283.78'
R = 1,000.00'
SE = 0.08
DS = 55 MPH

-Y4- CURVE DATA

PI Sta 24+49.98
△ = 62° 22' 39.1" (RT)
D = 60° 18' 40.8"
L = 103.43'
T = 57.51'
R = 95.00'
① -Y4- PC 23+92.47
② -Y4- PT 24+95.90

PI Sta 26+47.22
△ = 33° 27' 29.8" (LT)
D = 19° 05' 54.9"
L = 175.19'
T = 90.17'
R = 300.00'
③ -Y4- PC 25+57.05
④ -Y4- PCC 27+32.23
⑤ -Y4- PT 28+49.59

PI Sta 27+92.98
△ = 36° 32' 32.0" (LT)
D = 31° 08' 20.4"
L = 117.35'
T = 60.75'
R = 184.00'

PI Sta 29+58.22
△ = 28° 20' 20.0" (RT)
D = 21° 42' 10.6"
L = 130.58'
T = 66.65'
R = 264.00'
⑥ -Y4- PC 28+91.56
⑦ -Y4- PCC 30+22.14
⑧ -Y4- PT 31+57.25

PI Sta 30+89.80
△ = 1° 44' 28.4" (RT)
D = 5° 43' 46.5"
L = 135.11'
T = 67.66'
R = 1,000.00'

PI Sta 33+31.35
△ = 59° 32' 46.6" (LT)
D = 57° 17' 44.8"
L = 103.93'
T = 57.21'
R = 100.00'
⑨ -Y4- PC 32+74.14
⑩ -Y4- PT 33+78.07

PI Sta 34+83.66
△ = 76° 08' 00.0" (RT)
D = 86° 48' 42.4"
L = 87.70'
T = 51.69'
R = 66.00'
⑪ -Y4- PC 34+31.98
⑫ -Y4- PT 35+19.68

PI Sta 36+39.74
△ = 84° 11' 34.2" (LT)
D = 76° 23' 39.7"
L = 110.21'
T = 67.76'
R = 75.00'
⑬ -Y4- PC 35+71.98
⑭ -Y4- PCC 36+82.19
⑮ -Y4- PT 37+30.68

PI Sta 37+06.50
△ = 10° 12' 57.1" (LT)
D = 21° 03' 52.6"
L = 48.50'
T = 24.31'
R = 272.00'

PI Sta 39+22.11
△ = 116° 14' 31.4" (RT)
D = 71° 37' 11.0"
L = 162.30'
T = 128.63'
R = 80.00'
⑯ -Y4- PC 37+93.48
⑰ -Y4- PT 39+55.79

PI Sta 40+76.38
△ = 78° 16' 33.1" (LT)
D = 71° 37' 11.0"
L = 109.29'
T = 65.10'
R = 80.00'
⑱ -Y4- PC 40+11.27

MATCH LINE STA -L- 291+00.00
MATCH TO SHEET NO. 25

MATCH LINE STA -L- 305+00.00
MATCH TO SHEET NO. 27

STEVEN R. HENSLEY, ET AL
DB 198 PG 394

PROP. RETAINING WALL #9 W/CONCRETE DITCH
BEGIN -L- STA. 290+80±
END -L- STA. 292+75±

CONC. DITCH BEHIND RETAINING WALL SEE DETAIL 26E

REMOVE 3 LF

TOE PROTECTION SEE DETAIL 26A XX TONS, XX SY GEO

WATER FLOWS ACROSS DRIVE

FALSE SUMP SEE DETAIL 26C

PROP. ASPHALT DRIVE

0.5' BLOCKED

-L- PC 297+39.58

DITCH ERODED 0.5' WIDE BY LIP TO 0.5' DEEP THRU HERE EXPOSING BEDROCK

LATERAL BASE DITCH SEE DETAIL 26D CLASS I RIPRAP XX TONS, XX SY GEO

(+)7.975 (+)7.740 (+)7.740 (+)8.315 (+)8.315 (+)8.485

PROP. GRAVEL DRIVE

CONTRACTOR SHALL PLACE 6" OF ABC ON DRIVE AS DIRECTED BY THE ENGINEER

EXPRESSWAY GUTTER -L- STA. 302+62± TO 303+96±, LT

2.5'X2.5' NON-STANDARD GRATE ALL DI

-L- PT 302+92.61

TOE PROTECTION SEE DETAIL 26A XX TONS, XX SY GEO

REMOVE DI

18" CMP INCORRECT IN FS

12" HDPE

24" CMP (APPROX LOCATION) OUTLET 30% BLOCKED

PROP. ASPHALT DRIVE

PROP. SOIL DRIVE

PROP. SOIL DRIVE

PROP. CONCRETE DRIVE

PROP. SOIL DRIVE

SHOULDER BERM GUTTER -L- STA. 292+10 TO 295+00, RT

CLASS B RIPRAP XX TONS, XX SY GEO

CLASS B RIPRAP XX TONS, XX SY GEO

TOE PROTECTION SEE DETAIL 26A XX TONS, XX SY GEO

CLASS II RIP RAP 29 TONS, 41 SY GEO

CUT TO FILL TRANSITION CLASS B RIPRAP XX TONS, XX SY GEO

FILL WITH FLOWABLE FILL EST 7 CY

ROD AND LUG WITH GASKETS (ELBOWS)

MAX 1% PIPE SLOPE THIS SIDE OF ELBOW

FILL WITH FLOWABLE FILL, EST. 16 CY

REMOVE 45 LF OF 24" CMP

MAX 1% PIPE SLOPE THIS SIDE OF ELBOW

RETAIN. CONCRETE DITCH

CLASS B RIPRAP 2 TONS, 7 SY GEO

NO PIPE OUTLET HERE INV. SHOT MAY BE ON CONC. DITCH.

CHANNEL STABLE 2' BASE, 2' DEEP SILTY SAND W/PEBBLES, COBBLES & SOME BOULDERS

24" CMP OUTLET PERCHED ~2' & 3.7' LOWER THAN 18" CMP OUTLET. 24" CMP ESTIMATED INV=2528.0 24" CMP BOTTOM BEGINNING TO RUST OUT.

18" CMP OUTLET POOR CONDITION. ROUSED & PERCHED 4'.

1" BLACK HOSE THROUGH 18" CMP TO A CUT OFF VALVE ON D/S BANK. ASSUMED WATERLINE FROM A SPRING.

1" WIDE X 1' DEEP EROSION IN BASE OF DITCH

MAINTANCE NOTIFIED 12-29-2020: PIPE FAILURE. BOTTOM COMPLETELY RUSTED OUT BOTH ENDS. UNDERMINING RD @ D/S AT LEAST 3' DEEP VOID BELOW D/S EOP EXTENDING AT LEAST 2' UNDER PAVEMENT, MAYBE MUCH FURTHER. ASPHALT FAILING AT D/S SHOULDER & CRACKED ALL THE WAY ACROSS ROAD.

N 46°10'13.6" E
N 19°37'20.9" E
N 82°00'00.0" E
N 15°59'58" E
N 45°04'46.6" E
N 64°40'00.0" E
N 11°28'00.0" W
N 29°44'54.4" W
N 14°20'03.8" E
N 26°00'00.0" E

RAYMOND E. WHITTLE, JR., ET AL
DB 219 PG 37
DB 93 PG 41

RICHARD W. ROGERS
DB 357 PG 506

H. HAROLD CRISP
DB 80 PG 4

BRITTANY D. CRISP
DB 333 PG 650

JOHN C. EDWARDS, JR.
DB 139 PG 197

BARRELL R. GARLAND
DB 264 PG 139
DB 87 PG 568

ELL ROSE MORGAN
B 152 PG 107

SR 1202 (NATHAN GARLAND RD)

BY25-106 BY25-107 BY25-108 BY25-109 BY25-110 BY25-111

DETAIL 26A
TOE PROTECTION
(Not to Scale)

Natural Ground; b; 2:1 or Flatter Fill Slope; d; Geotextile

d = 1 Ft.
b = 3 Ft.

Type of Liner – Class B Rip-Rap

-L- STA. 293+80 TO STA. 295+00 RT
-L- STA. 293+91 TO STA. 294+31 LT
-L- STA. 304+66 TO STA. 305+00 LT

DETAIL 26B
FALSE SUMP
(Not to Scale)

MIN. ELEV=2505.5; Outside Ditch Traffic Flow; 6:1; 20:1; S; ℄ Proposed Ditch

S=Ditch Slope

-L- STA. 297+40 LT

DETAIL 26C
FALSE SUMP
(Not to Scale)

0.5' Min. 1.0' Max; Outside Ditch Traffic Flow; 4:1; 10:1; 2.0'; GI etc.; S; ℄ Proposed Ditch

S=Ditch Slope

-L- STA. 294+86 LT
-L- STA. 298+28 LT

DETAIL 26D
LATERAL BASE DITCH
(Not to Scale)

Natural Ground; d; 2:1; D; 2:1; b; 1'Flt.; Fill Slope; GEOTEXTILE; B

Min. D=1.5 Ft.
Min. d=1.5 Ft.
B=3 Ft.
b=min 4 Ft.

Type of Liner – Class I Rip-Rap

-L- STA. 297+56(45' LT) TO STA. 297+79(46' LT)
SEE PFL FOR DITCH GRADE (6%)

DETAIL 26E
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)

RETAINING WALL; BOND BREAKER; VARIES; D; B; 2:1; NATURAL GROUND; 4"

D= 1.0'
B= 1.0'

-L- STA. 291+00 TO 292+75 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)

ESA ELIGIBLE AND UNASSESSED SITES

FOR -L- PROFILE, SEE SHEET NO. 47

3/30/2021
X:\NCDOT\A-0009\Hydraulics\MERGER\A-0009_CB_CP_4B\Plan_Sheets\A-0009CB_Rdy_psh_26.dgn
User:destu

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	27
RW SHEET NO.	
ROADWAY DESIGN	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

-L- CURVE DATA

PI Sta 311+70.00
Δ = 54° 45' 45.1" (RT)
D = 5° 24' 18.9"
L = 1,013.13'
T = 549.01'
R = 1,060.00'
SE = 0.08
DS = 55 MPH

PI Sta 320+83.09
Δ = 32° 27' 42.9" (LT)
D = 7° 32' 20.1"
L = 430.59'
T = 221.25'
R = 760.00'
SE = 0.08
DS = 50 MPH

PI Sta 40+76.38
Δ = 78° 16' 33.1" (LT)
D = 71° 37' 11.0"
L = 109.29'
T = 65.10'
R = 80.00'
① -Y4- PCC 41+20.57
② -Y4- PT 41+86.75

PI Sta 41+53.87
Δ = 15° 47' 56.9" (LT)
D = 23° 52' 23.7"
L = 66.18'
T = 33.30'
R = 240.00'

PI Sta 43+61.39
Δ = 41° 05' 30.0" (LT)
D = 28° 38' 52.4"
L = 143.44'
T = 74.96'
R = 200.00'
③ -Y4- PC 42+86.43
④ -Y4- PT 44+29.86

NAD 83/2011

MATCH LINE STA -L- 305+00.00
MATCH TO SHEET NO. 26

MATCH LINE STA -L- 319+00.00
MATCH TO SHEET NO. 28

-L- POC 308+40.71 =
-Y4- POT 45+18.05

-L- PC 306+20.98

-L- PC 318+61.84

-L- PT 316+34.12

PROP. GRAVEL DRIVE

PROP. ASPHALT DRIVE

PROP. SOIL DRIVE

PROP. RETAINING WALL #10
BEGIN -L- STA. 316+45 ±
END -L- STA. 317+62 ±

JERRY TIPTON, SR.
DB 215 PG 164
DB 99 PG 300

DARRELL R. GARLAND
DB 264 PG 139
DB 87 PG 568

PHILLIPS & JORDAN INVESTMENT CORP.
DB 66 PG 223

JERRY V. TIPTON, JR.
DB 215 PG 167

WILLEM VAN DE WEERD
DB 358 PG 675
DB 294 PG 341

MARK HILL
DB 361 PG 419

DILLARD JORDAN
DB 66 PG 223

3-SIDED OTCB AGED BUT FUNC. ALL 3 OPEN 2.6'X0.6'.

1.5" DIA. PVC SUSPENDED FROM UNKNOWN BURIED CONCRETE STRUCTURE (POSSIBLE SPRING BOX)

3' TALL SPRING BOX LIKE STRUCTURE WITH 1" DIA. HDPE OUT (FLOWING FULL) STICKING OUT 1.0' (0.5' BELOW TOP).

30" CMP W/ BLOCK WALL

6' WIDE BASE/STABLE BOULDERS & SAND W/PEBBLES & COBBLES 36" AGED/ BUT FUNC. L/S HALF EXPOSED INLET W/ GRATE W/ SAND BAGS STACKED 2.3' UP HAUNCH

6' BASE STABLE BOULDERS SAND W/PEBBLES SPRING DRAIN & L/S

BDO SPEC DSN

CUT TO FILL TRANSITION CLASS B RIP-RAP XX TONS, XX SY GEO

FALSE SUMP SEE DETAIL 27C

REMOVE

REMOVE CB

REMOVE DI

RETAIN CONCRETE DITCH

ROD AND LUG WITH GASKETS (ELBOWS)

SPRING BOX

FILL WITH FLOWABLE FILL EST 5 CY

CLASS B RIPRAP 3 TONS, 10 SY GEO

TOE PROTECTION SEE DETAIL 27B XX TONS, XX SY GEO

STABLE OUTFALL

SHOULDER BERM GUTTER -L- STA. 310+44 TO 313+40, RT

SHOULDER BERM GUTTER -L- STA. 316+50 TO 317+31, RT

CLASS I RIPRAP XX TONS, NO GEO

BANK STABILIZATION SEE DETAIL 27D CLASS I RIPRAP XX TONS, NO GEO

REMOVE CONCRETE DITCH

CONCRETE CUT DITCH SEE DETAIL 27A

GRADE TO DRAIN

REMOVE CONC. DITCH

REMOVE CONC. PIPE

SUSPECT FUNNEL OR 'S' CLOGGED FLOW BY-PASSING AND EXITING AT END OF CURB CREATING 0.5' WIDE, 0.5' DEEP EROSION DOWN, THRU SHOULDER & SLOPE

NEWISH 24" HDPE PERCHED 1' SCOUR HOLE 7'LFx5'WIDEx0.5'DEEP OTW STABLE

IS 2" TO 3" BASE COBBLE & SAND W/ BOULDERS AND PEBBLES 1/2 FIREHOSE @ VISIT

SUSPECT D/S MOST 30' LF FAILED & REPLACED WITH HDPE

EROSION BELOW D/S 20 LF OF DITCH. 1' TO 2' DEEP THEN WHERE FS SHOWS SPRING 4' TO 5' WIDE BY 2' TO 4' DEEP EROSION

36" AGED BUT UNC. PERCHED 0.5' STABLE OUTFALL SAND'Y COBBLES, STONE BOULDERS 2'-3' WIDE BASE 0.1' FLOW DEPTH @ VISIT

50% BLOCKED

18" AGED BUT UNC. PERCHED 2' OUTFALL STABLE 3' WIDE, 1' DEEP DRY @ VISIT

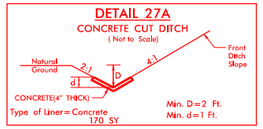
FALSE SUMP SEE DETAIL 27C

TOE PROTECTION SEE DETAIL 27B XX TONS, XX SY GEO

JS UT TO SWEETWATER CREEK (SW)

ST STILLHOUSE BRANCH

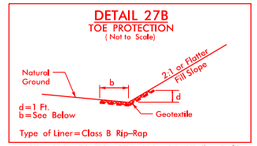
DETAIL 27A
CONCRETE CUT DITCH
(Not to Scale)



Type of Liner = Concrete
170 SY
Min. D = 2 Ft.
Min. d = 1 Ft.

-L- STA. 316+40 TO 317+36 LT
-L- STA. 318+00 TO 319+23 LT
(SEE XSC FOR DITCH GRADE)

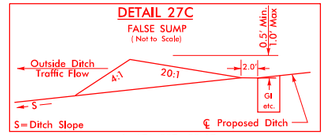
DETAIL 27B
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
b = See Below
Type of Liner = Class B Rip-Rap

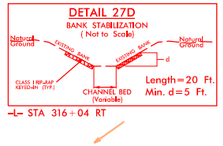
-L- STA. 310+50 TO STA. 310+85 RT (b=5 ft)
-L- STA. 311+37 TO STA. 312+50 RT (b=3 ft)

DETAIL 27C
FALSE SUMP
(Not to Scale)



-L- STA. 307+80 LT
-L- STA. 310+38 LT
-L- STA. 315+94 LT
-L- STA. 313+35 RT (USE 4:1 FOR FRONT & BACK SLOPES)

DETAIL 27D
BANK STABILIZATION
(Not to Scale)



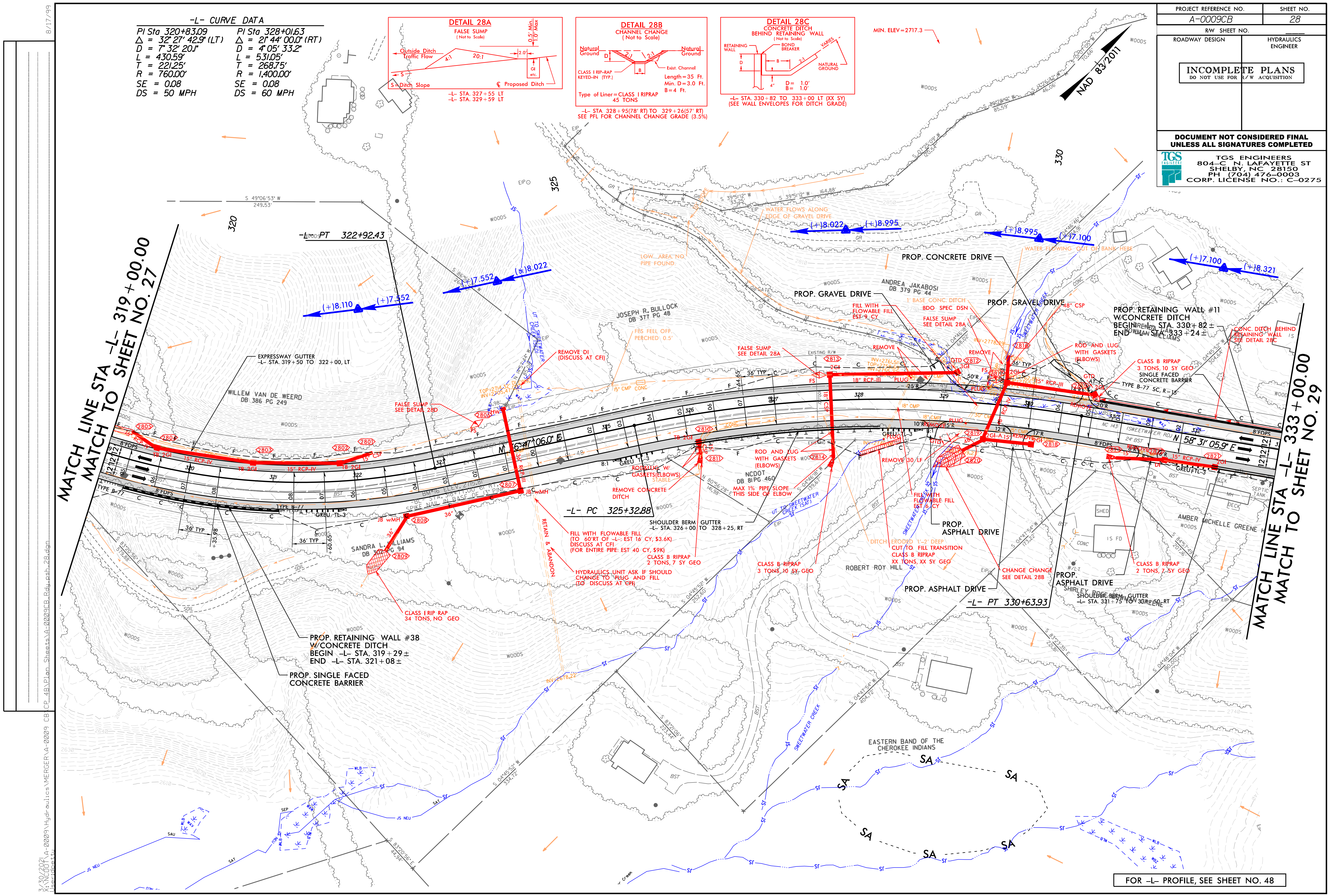
Length = 20 Ft.
Min. d = 5 Ft.

-L- STA 316+04 RT

ESA ELIGIBLE AND UNASSESSED SITES

FOR -L- PROFILE, SEE SHEET NO. 47

3/30/2021
X:\NCDOT\A-0009\Hydraulics\MERGER\A-0009 CB\CP_4B\Plan Sheets\A-0009CB_Rdy_psh_27.dgn
User:ksiu


PROJECT REFERENCE NO. A-0009CB
SHEET NO. 28
R/W SHEET NO.
ROADWAY DESIGN
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275
-L- CURVE DATA
PI Sta 320+83.09
Δ = 32° 27′ 42.9″ (LT)
D = 7° 32′ 20.1″
L = 430.59′
T = 221.25′
R = 760.00′
SE = 0.08
DS = 50 MPH
PI Sta 328+01.63
Δ = 21° 44′ 00.0″ (RT)
D = 4° 05′ 33.2″
L = 531.05′
T = 268.75′
R = 1,400.00′
SE = 0.08
DS = 60 MPH
DETAIL 28A
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
4:1
20:1
2.0′
0.5′ Min. 1.0′ Max
GI etc.
S = Ditch Slope
℄ Proposed Ditch
-L- STA. 327+55 LT
-L- STA. 329+59 LT
DETAIL 28B
CHANNEL CHANGE
(Not to Scale)
Natural Ground
2:1
Exist. Channel
CLASS I RIP-RAP KEYED-IN (TYP.)
Length = 35 Ft.
Min. D = 3.0 Ft.
B = 4 Ft.
Type of Liner = CLASS I RIPRAP 45 TONS
-L- STA 328+95(78′ RT) TO 329+26(57′ RT)
SEE PFL FOR CHANNEL CHANGE GRADE (3.5%)
DETAIL 28C
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)
RETAINING WALL
BOND BREAKER
VARIES
NATURAL GROUND
D = 1.0′
B = 1.0′
-L- STA. 330+82 TO 333+00 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)
MIN. ELEV = 2717.3
NAD 83/2011
MATCH LINE STA -L- 319+00.00
MATCH TO SHEET NO. 27
MATCH LINE STA -L- 333+00.00
MATCH TO SHEET NO. 29
-L- PT 322+92.43
-L- PC 325+32.88
-L- PT 330+63.93
N 56° 47′ 06.0″ E
N 58° 31′ 05.9″ E
EXPRESSWAY GUTTER
-L- STA. 319+50 TO 322+00, LT
WILLEM VAN DE WEERD
DB 386 PG 249
JOSEPH R. BULLOCK
DB 377 PG 48
ANDREA JAKABOSI
DB 379 PG 44
SANDRA L. WILLIAMS
DB 302 PG 94
NCDOT
DB 81 PG 460
ROBERT ROY HILL
AMBER MICHELLE GREENE
SHIRLEY ROSE BOWMAN GREENE
BRENDA GAIL BOWMAN WILLIAMS
EASTERN BAND OF THE CHEROKEE INDIANS
FALSE SUMP SEE DETAIL 28D
REMOVE DI (DISCUSS AT CFI)
LOW AREA NO PIPE FOUND
FES FELL OFF. PERCHED 0.5′
WATER FLOWS ALONG EDGE OF GRAVEL DRIVE
WATER FLOWING OUT OF BANK HERE
FALSE SUMP SEE DETAIL 28A
PROP. GRAVEL DRIVE
FILL WITH FLOWABLE FILL EST 9 CY
1′ BASE CONC. DITCH
BDO SPEC DSN
PROP. CONCRETE DRIVE
48″ CSP
PROP. RETAINING WALL #11
W/CONCRETE DITCH
BEGIN -L- STA. 330+82 ±
END -L- STA. 333+24 ±
CONC. DITCH BEHIND RETAINING WALL SEE DETAIL 28C
ROD AND LUG WITH GASKETS (ELBOWS)
CLASS B RIPRAP 3 TONS, 10 SY GEO
SINGLE FACED CONCRETE BARRIER
TYPE B-77 SC, R = 15′
ROD&LUG W/ GASKETS(ELBOWS) STABLE
REMOVE CONCRETE DITCH
MAX 1% PIPE SLOPE THIS SIDE OF ELBOW
SHOULDER BERM GUTTER
-L- STA. 326+00 TO 328+25, RT
FILL WITH FLOWABLE FILL
(TO 60′RT OF -L-: EST 16 CY, $3.6K)
DISCUSS AT CFI
(FOR ENTIRE PIPE: EST 40 CY, $9K)
CLASS B RIPRAP 2 TONS, 7 SY GEO
HYDRAULICS UNIT ASK IF SHOULD CHANGE TO PLUG AND FILL (TO DISCUSS AT CFI)
RETAIN & ABANDON
CLASS I RIP RAP 34 TONS, NO GEO
REMOVE 30 LF
FILL WITH FLOWABLE FILL EST 6 CY
PROP. ASPHALT DRIVE
DITCH ERODED 1′-2′ DEEP
CUT TO FILL TRANSITION
CLASS B RIPRAP XX TONS, XX SY GEO
CHANGE CHANGE SEE DETAIL 28B
SHOULDER BERM GUTTER
-L- STA. 331+75 TO 332+50 RT
CLASS B RIPRAP 2 TONS, 7 SY GEO
PROP. RETAINING WALL #38
W/CONCRETE DITCH
BEGIN -L- STA. 319+29 ±
END -L- STA. 321+08 ±
PROP. SINGLE FACED CONCRETE BARRIER
BM#16 ELEV. 2715.81′
-BL- STA. 318+77.00 61′ RT.
SPIKE NAIL IN BASE OF 13″ PINE
NC 143 (SWEETWATER RD)
UT TO SWEETWATER CREEK (SED)
UT TO SWEETWATER CREEK (SAT)
SWEETWATER CREEK
FOR -L- PROFILE, SEE SHEET NO. 48
8/17/99
3/30/2021
X:\NCDOT\A-0009\Hydraulics\MERGER\A-0009 CB\CP_4B\Plan Sheets\A-0009CB_Rdy_psh_28.dgn

8/17/99

-L- CURVE DATA
PI Sta 348+33.64
Δ = 141° 55' 19.6" (RT)
D = 13° 08' 28.4"
L = 1,079.98'
T = 1,263.45'
* R = 436.00'
SE = 0.08
DS = 35 MPH

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	29
R/W SHEET NO.	
ROADWAY DESIGN	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PROP. ASPHALT DRIVE (+)17.495
PROP. ASPHALT DRIVE (+)17.170
(+)18.321
(+)17.495
(+)16.500

KYLIE SHARON CROWE SHULER
BILL ROSE RD.
SHARON ROSE PETTY & MARK LYLE ROSE
TIONNA FAITH WILLIAMS
BOWMAN LANE
SWEETWATER RD. (SR 1143)
EASTERN BAND OF CHEROKEE INDIANS
EASTERN CHEROKEE

UT TO SWEETWATER CREEK (SAK)
UT TO SWEETWATER CREEK (SFF)
SWEETWATER CREEK

PROP. ASPHALT DRIVE
PROP. CONCRETE DRIVE
PROP. ASPHALT DRIVE
PROP. ASPHALT DRIVE
PROP. ASPHALT DRIVE

PROP. RETAINING WALL #11 W/CONCRETE DITCH
BEGIN -L- STA. 330+82±
END -L- STA. 333+24±

PROP. RETAINING WALL #12 W/CONCRETE DITCH
BEGIN -L- STA. 341+76±
END -L- STA. 344+11±

PROP. RETAINING WALL #13 W/CONCRETE DITCH
BEGIN -L- STA. 344+71±
END -L- STA. 346+76±

-L- PC 335+70.20
-L- PT 346+50.17

NO CLEARING FROM -L- STA. 335+70 TO 346+50 RT

DO NOT DISTURB POLE

SHOULDER BERM GUTTER -L- STA. 335+94 TO 337+62, RT
SHOULDER BERM GUTTER -L- STA. 339+10 TO 341+47, RT
SHOULDER BERM GUTTER -L- STA. 344+13 TO 348+53, RT
SHOULDER BERM GUTTER -L- STA. 337+75 TO 334+50, RT

SINGLE FACED CONCRETE BARRIER
SINGLE FACED CONCRETE BARRIER
SINGLE FACED CONCRETE BARRIER

CONC DITCH BEHIND RETAINING WALL SEE DETAIL 29F
CONC DITCH BEHIND RETAINING WALL SEE DETAIL 29F
CONC DITCH BEHIND RETAINING WALL SEE DETAIL 29F

TOE PROECTION SEE DETAIL 29B
CLASS B RIP-RAP XX TONS, XX SY GEO
CUT TO FILL TRANSITION CLASS B RIP-RAP XX TONS XX SY GEO
CLASS B RIP-RAP XX TONS, XX SY GEO
CLASS I RIPRAP 7 TONS, 15 SY GEO
CLASS B RIPRAP 3 TONS, 10 SY GEO
BANK STABILIZATION SEE DETAIL 29E + CLASS I RIPRAP XX TONS, NO GEO
CLASS B RIP-RAP 3 TONS, 10 SY GEO
CLASS I RIPRAP 11 TONS, 28 SY GEO
CLASS B RIPRAP 8 TONS, 21 SY GEO

STANDARD BASE DITCH SEE DETAIL 29A CLASS I RIPRAP XX TONS, XX SY GEO
SPECIAL BERM SEE DETAIL 29D

FALSE SUMP SEE DETAIL 29C
FALSE SUMP SEE DETAIL 29C
FILL WITH FLOWABLE FILL EST 14 CY
FILL WITH FLOWABLE FILL EST 5 CY
FILL WITH FLOWABLE FILL EST 8 CY

REMOVE 5 LF
ABANDON
REMOVE
REMOVE

MAX 1% PIPE SLOPE THIS SIDE OF ELBOW
MAX 1% PIPE SLOPE THIS SIDE OF ELBOW
MAX 1% PIPE SLOPE THIS SIDE OF ELBOW

ROD AND LUG WITH GASKETS (ELBOWS)
ROD AND LUG WITH GASKETS (ELBOWS)
ROD AND LUG WITH GASKETS (ELBOWS)
ROD AND LUG WITH GASKETS (ELBOWS)

CONC. SLAB AT OUTLET, END PITCHED 8.7' TO RIPRAP STABLE
STABLE OUTFALL 2 BASE W/SOME COBBLES 75% BLOCKED
STABLE OUTFALL 1-1.5' BASE SILT-W/SOME COBBLES
18" BCCSP PERCHED 0.5' STABLE OUTFALL W/ SOME BOULDERS

OUTLET CRUSHED
OUTLET UNDER DEBRIS
INLET CRUSHED
INLET CRUSHED
APPEARS TO BE 18" INLET 70% CRUSHED OUTLET BASE COMPLETELY RUSHED OUT
DEBRIS ON INLET
CONC DITCH BEHIND RETAINING WALL SEE DETAIL 29F
INLET CRUSHED BLOCKED BY DEBRIS. UNKNOWN SIZE/MATERIAL

DETAIL 29F
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)
RETAINING WALL
BOND BREAKER
VARIES
NATURAL GROUND
D = 1.0'
B = 1.0'
-L- STA. 333+00 TO 333+24 LT (XX SY)
-L- STA. 341+76 TO 344+11 LT (XX SY)
-L- STA. 344+70 TO 346+76 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)

DETAIL 29A
STANDARD BASE DITCH
(Not to Scale)
Natural Ground
Geotextile
Min. D=2 Ft.
Max. d=2 Ft.
B=3 Ft.
*When B is < 6.0'
Type of Liner=Class I Rip-Rap
-L- STA. 344+25 (25' LT TO 42' LT)
SEE PFL FOR DITCH GRADE (27%)

DETAIL 29B
TOE PROTECTION
(Not to Scale)
2:1 or Flatter Fill Slope
Geotextile
d=1 Ft.
b=3 Ft.
Type of Liner=Class B Rip-Rap
FROM STA. 340+62 TO STA. 341+00 -L- LT.

DETAIL 29C
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
4:1
20:1
2.0'
0.5' Min. 1.0' Max.
Gl etc.
S=Ditch Slope
℄ Proposed Ditch
-L- STA. 337+35 LT
-L- STA. 339+45 LT (USE 4:1 FOR FRONT & BACK SLOPES)

DETAIL 29D
SPECIAL BERM
(Not to Scale)
2'
1'
2:1
2Gl
Exist. Ditch Bed
-L- STA. 344+68 LT

DETAIL 29E
BANK STABILIZATION
(Not to Scale)
Natural Ground
Geotextile Fabric
CLASS I RIP-RAP REMEDIAN (TYP.)
CHANNEL BED (Variable)
Length=See Below
Min. d=3 Ft.
-L- STA 333+66 RT (LENGTH=12 FT)
-L- STA 339+74 RT (LENGTH=16 FT)

MATCH LINE STA -L- 333+00.00
MATCH TO SHEET NO. 28

MATCH LINE STA -L- 347+00.00
MATCH TO SHEET NO. 30

* DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVATURE.

FOR -L- PROFILE, SEE SHEET NO. 48

3/30/2021
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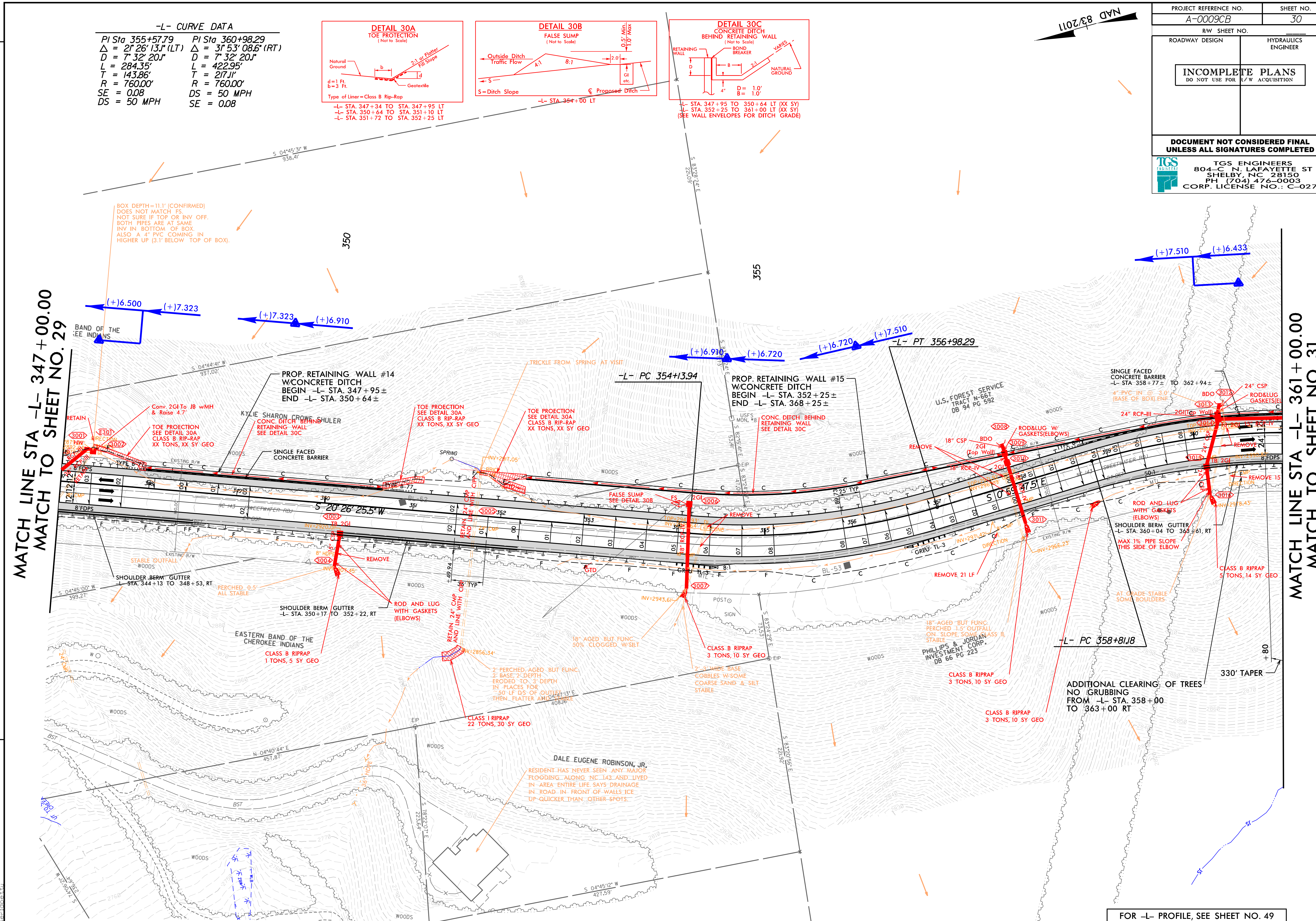
PROJECT REFERENCE NO. A-0009CB
SHEET NO. 30
R/W SHEET NO.
ROADWAY DESIGN
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275
NAD 83/2011
-L- CURVE DATA
PI Sta 355+57.79
Δ = 21° 26′ 13.1″ (LT)
D = 7° 32′ 20.1″
L = 284.35′
T = 143.86′
R = 760.00′
SE = 0.08
DS = 50 MPH
PI Sta 360+98.29
Δ = 31° 53′ 08.6″ (RT)
D = 7° 32′ 20.1″
L = 422.95′
T = 217.11′
R = 760.00′
DS = 50 MPH
SE = 0.08
DETAIL 30A
TOE PROTECTION
(Not to Scale)
Natural Ground
2:1 or Flatter Fill Slope
Geotextile
d = 1 Ft.
b = 3 Ft.
Type of Liner = Class B Rip-Rap
-L- STA. 347+34 TO STA. 347+95 LT
-L- STA. 350+64 TO STA. 351+10 LT
-L- STA. 351+72 TO STA. 352+25 LT
DETAIL 30B
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
0.5′ Min. 1.0′ Max
S = Ditch Slope
℄ Proposed Ditch
-L- STA 354+00 LT
DETAIL 30C
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)
RETAINING WALL
BOND BREAKER
VARIES
NATURAL GROUND
D = 1.0′
B = 1.0′
-L- STA. 347+95 TO 350+64 LT (XX SY)
-L- STA. 352+25 TO 361+00 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)
MATCH LINE STA -L- 347+00.00 MATCH TO SHEET NO. 29
MATCH LINE STA -L- 361+00.00 MATCH TO SHEET NO. 31
BOX DEPTH = 11.1′ (CONFIRMED) DOES NOT MATCH FS. NOT SURE IF TOP OR INV OFF. BOTH PIPES ARE AT SAME INV IN BOTTOM OF BOX. ALSO A 4″ PVC COMING IN HIGHER UP (3.1′ BELOW TOP OF BOX).
PROP. RETAINING WALL #14 W/CONCRETE DITCH BEGIN -L- STA. 347+95± END -L- STA. 350+64±
PROP. RETAINING WALL #15 W/CONCRETE DITCH BEGIN -L- STA. 352+25± END -L- STA. 368+25±
-L- PC 354+13.94
-L- PT 356+98.29
-L- PC 358+81.18
S 20° 26′ 25.5″ W
TRICKLE FROM SPRING AT VISIT
TOE PROECTION SEE DETAIL 30A CLASS B RIP-RAP XX TONS, XX SY GEO
CONC. DITCH BEHIND RETAINING WALL SEE DETAIL 30C
Conv. 2GI To JB w/MH & Raise 4.7′
SINGLE FACED CONCRETE BARRIER
SINGLE FACED CONCRETE BARRIER -L- STA 358+77± TO 362+94±
FALSE SUMP SEE DETAIL 30B
SHOULDER BERM GUTTER -L- STA. 344+13 TO 348+53, RT
SHOULDER BERM GUTTER -L- STA. 350+17 TO 352+22, RT
SHOULDER BERM GUTTER -L- STA. 360+04 TO 363+61, RT
ROD AND LUG WITH GASKETS (ELBOWS)
ROD&LUG W/ GASKETS(ELBOWS)
RETAIN 24″ CMP AND LINE WITH CIPP
CLASS B RIPRAP 1 TONS, 5 SY GEO
CLASS I RIPRAP 22 TONS, 30 SY GEO
CLASS B RIPRAP 3 TONS, 10 SY GEO
CLASS B RIPRAP 5 TONS, 14 SY GEO
MAX 1% PIPE SLOPE THIS SIDE OF ELBOW
REMOVE 21 LF
STABLE OUTFALL
PERCHED 0.5′ ALL STABLE
2′ PERCHED, AGED BUT FUNC. 2′ BASE, 2′ DEPTH ERODED TO 3′ DEPTH IN PLACES FOR ~50 LF D/S OF OUTLET THEN FLATTER AND STABLE
18″ AGED BUT FUNC. 50% CLOGGED W/SILT
2′-3′ WIDE BASE COBBLES W/SOME COARSE SAND & SILT STABLE
18″ AGED BUT FUNC. PERCHED 1.5′ OUTFALL ON SLOPE, SOME CLASS II, STABLE
AT GRADE STABLE SOME BOULDERS
4″ PVC IN @ 3.0′ (BASE OF BOX) ENF
RESIDENT HAS NEVER SEEN ANY MAJOR FLOODING ALONG NC 143 AND LIVED IN AREA ENTIRE LIFE. SAYS DRAINAGE IN ROAD IN FRONT OF WALLS ICE UP QUICKER THAN OTHER SPOTS.
KYLIE SHARON CROWE SHULER
EASTERN BAND OF THE CHEROKEE INDIANS
U.S. FOREST SERVICE TRACT N-667 DB 94 PG 592
PHILLIPS & JORDAN INVESTMENT CORP. DB 66 PG 223
DALE EUGENE ROBINSON, JR.
ADDITIONAL CLEARING OF TREES NO GRUBBING FROM -L- STA. 358+00 TO 363+00 RT
330′ TAPER
NC 143 (SWEETWATER RD.)
FOR -L- PROFILE, SEE SHEET NO. 49
3/30/2021
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	31

R/W SHEET NO.

ROADWAY DESIGN | HYDRAULICS ENGINEER

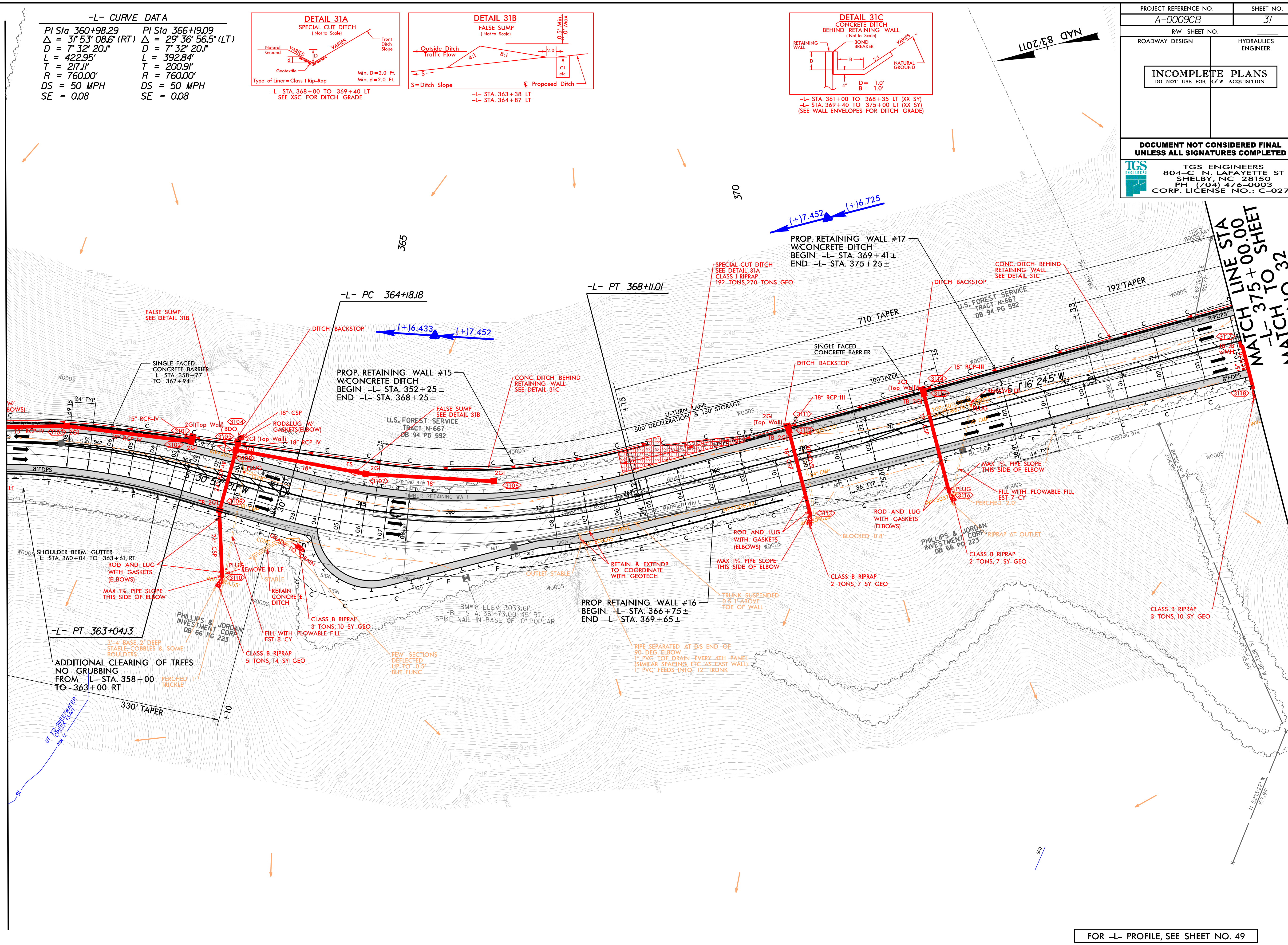
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

-L- CURVE DATA

PI Sta 360+98.29	PI Sta 366+19.09
Δ = 31° 53' 08.6" (RT)	Δ = 29° 36' 56.5" (LT)
D = 7° 32' 20.1"	D = 7° 32' 20.1"
L = 422.95'	L = 392.84'
T = 217.11'	T = 200.91'
R = 760.00'	R = 760.00'
DS = 50 MPH	DS = 50 MPH
SE = 0.08	SE = 0.08



DETAIL 31A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
VARIES
D
d
Geotextile
Front Ditch Slope
Type of Liner = Class I Rip-Rap
Min. D = 2.0 Ft.
Min. d = 2.0 Ft.
-L- STA. 368+00 TO 369+40 LT
SEE XSC FOR DITCH GRADE
DETAIL 31B
FALSE SUMP
(Not to Scale)
0.5' Min. 1.0' Max
Outside Ditch Traffic Flow
4:1
8:1
2.0'
GI etc.
S = Ditch Slope
℄ Proposed Ditch
-L- STA. 363+38 LT
-L- STA. 364+87 LT
DETAIL 31C
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)
RETAINING WALL
BOND BREAKER
VARIES
2:1
NATURAL GROUND
D = 1.0'
B = 1.0'
-L- STA. 361+00 TO 368+35 LT (XX SY)
-L- STA. 369+40 TO 375+00 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)
NAD 83/2011
MATCH LINE STA -L- 361+00.00
MATCH TO SHEET NO. 30
MATCH LINE STA -L- 375+00.00
MATCH TO SHEET NO. 32
365
370
-L- PC 364+18.18
-L- PT 368+11.01
-L- PT 363+04.13
(+)6.433
(+)7.452
(+)6.725
FALSE SUMP
SEE DETAIL 31B
DITCH BACKSTOP
SINGLE FACED CONCRETE BARRIER
-L- STA 358+77±
TO 362+94±
PROP. RETAINING WALL #15
W/CONCRETE DITCH
BEGIN -L- STA. 352+25±
END -L- STA. 368+25±
CONC. DITCH BEHIND RETAINING WALL
SEE DETAIL 31C
U.S. FOREST SERVICE
TRACT N-667
DB 94 PG 592
SPECIAL CUT DITCH
SEE DETAIL 31A
CLASS I RIPRAP
192 TONS,270 TONS GEO
PROP. RETAINING WALL #17
W/CONCRETE DITCH
BEGIN -L- STA. 369+41±
END -L- STA. 375+25±
710' TAPER
192' TAPER
100' TAPER
330' TAPER
U-TURN LANE
500' DECELERATION & 150' STORAGE
SINGLE FACED CONCRETE BARRIER
18" CSP
ROD&LUG W/ GASKETS(ELBOW)
2GI (Top Wall)
18" RCP-IV
15" RCP-IV
2GI(Top Wall)
BDO
2GI
FS
18" RCP-III
TB 2GI
24" CSP
24" CMP
18" CMP
REMOVE
PLUG
TIMBER RETAINING WALL
EXISTING R/W
CONC. BARRIER WALL
24' BST
8'FDPS
24' TYP
36' TYP
44' TYP
S 30° 53' 21.1" W
S 1° 16' 24.5" W
SHOULDER BERM GUTTER
-L- STA. 360+04 TO 363+61, RT
ROD AND LUG WITH GASKETS (ELBOWS)
MAX 1% PIPE SLOPE THIS SIDE OF ELBOW
REMOVE 10 LF
STABLE
RETAIN CONCRETE DITCH
FILL WITH FLOWABLE FILL
EST 8 CY
CLASS B RIPRAP
5 TONS, 14 SY GEO
CLASS B RIPRAP
3 TONS, 10 SY GEO
GRADE TO DRAIN
PHILLIPS & JORDAN INVESTMENT CORP.
DB 66 PG 223
3'-4' BASE, 2' DEEP
STABLE, COBBLES & SOME BOULDERS
PERCHED 1' TRICKLE
ADDITIONAL CLEARING OF TREES
NO GRUBBING
FROM -L- STA. 358+00
TO 363+00 RT
UT TO SWEETWATER CREEK (SAV)
FEW SECTIONS DEFLECTED UP TO 0.5' BUT FUNC.
BM#18 ELEV. 3033.61'
-BL- STA. 361+73.00 45' RT.
SPIKE NAIL IN BASE OF 10" POPLAR
PROP. RETAINING WALL #16
BEGIN -L- STA. 366+75±
END -L- STA. 369+65±
OUTLET STABLE
RETAIN & EXTEND?
TO COORDINATE
WITH GEOTECH
TRUNK SUSPENDED 0.5-1' ABOVE TOE OF WALL
PIPE SEPARATED AT D/S END OF 90 DEG. ELBOW
1" PVC TOE DRAIN EVERY 4TH PANEL
(SIMILAR SPACING, ETC. AS EAST WALL)
1" PVC FEEDS INTO 12" TRUNK
CLASS B RIPRAP
2 TONS, 7 SY GEO
BLOCKED 0.8'
PERCHED 2.0'
RIPRAP AT OUTLET
FILL WITH FLOWABLE FILL
EST 7 CY
CLASS B RIPRAP
3 TONS, 10 SY GEO
(SWEETWATER RD)
NC 143
WOODS
S 84°02'38" W 254.95'
S 81°22'38" W 113.65'
N 52°13'22" W 157.94'
S 62°51'22" E 92.77'
USFS BOUNDARY POST
TRACT LINE

FOR -L- PROFILE, SEE SHEET NO. 49

8/17/99
3/30/2021
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	32
R/W SHEET NO.	
ROADWAY DESIGN	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

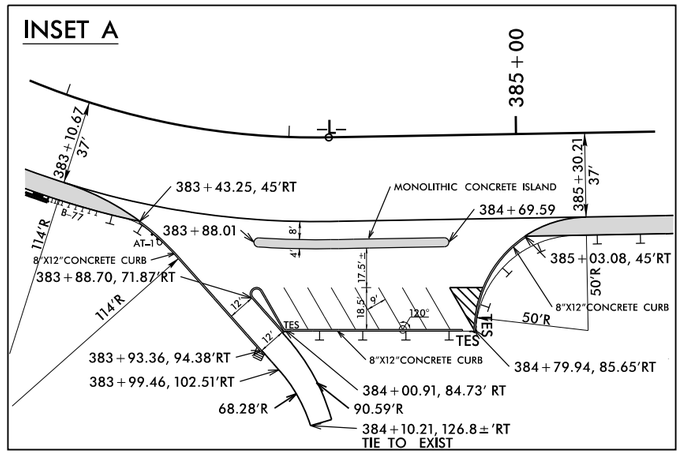
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

-L- CURVE DATA
PI Sta 388+01.79
△ = 150° 28' 04.5" (LT)
D = 17° 24' 54.5"
L = 864.01'
T = 1,248.21'
*R = 329.00'
DS = 35 MPH
SE = 0.08

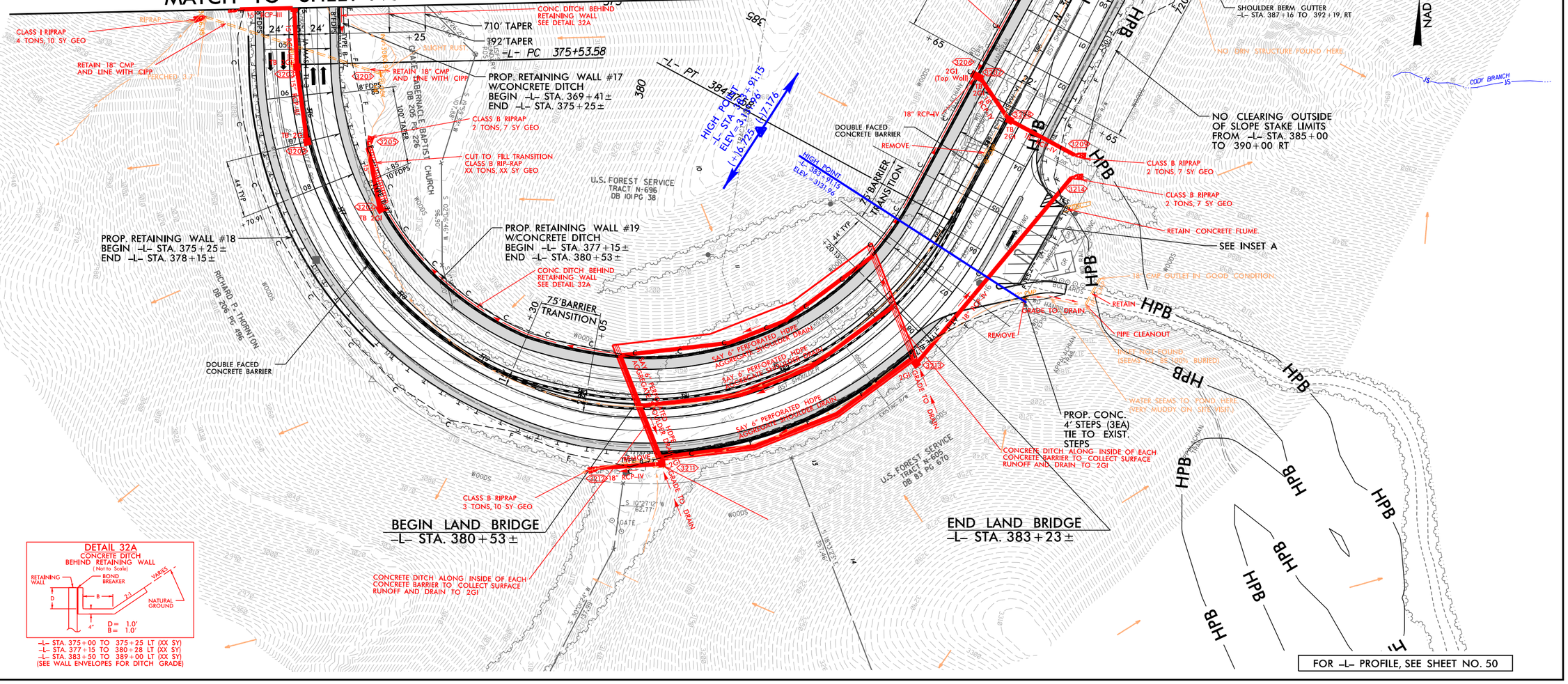
* DESIGN EXCEPTION REQUIRED FOR HORIZONTAL CURVATURE AND HORIZONTAL SSD.

INSET A



MATCH LINE STA -L- 375+00.00
MATCH TO SHEET NO. 31

MATCH LINE STA -L- 389+00.00
MATCH TO SHEET NO. 33



DETAIL 32A
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)

-L- STA. 375+00 TO 375+25 LT (XX SY)
-L- STA. 377+15 TO 380+28 LT (XX SY)
-L- STA. 383+50 TO 389+00 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)

FOR -L- PROFILE, SEE SHEET NO. 50

3/30/2021
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User:dstu

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	33
R/W SHEET NO.	
ROADWAY DESIGN	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

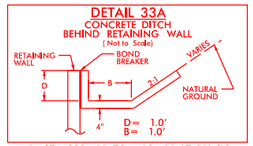
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

-L- CURVE DATA

PI Sta 392+21.82	PI Sta 401+77.67
Δ = 16° 47' 22.5" (RT)	Δ = 40° 19' 35.7" (LT)
D = 2° 51' 53.2"	D = 7° 32' 20.1"
L = 586.07'	L = 534.91'
T = 295.15'	T = 279.07'
R = 2,000.00'	R = 760.00'
DS = 70 MPH	DS = 50 MPH
SE = 0.08	SE = 0.08

DETAIL 33A
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)



-L- STA. 389+00 TO 403+00 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)

NAD 83/2011

-L- PC 389+26.67

-L- PT 395+12.74

-L- PC 398+98.60

PROP. RETAINING WALL #19 W/CONCRETE DITCH
BEGIN -L- STA. 383+24 ±
END -L- STA. 408+00 ±

PROP. RETAINING WALL #28
BEGIN -L- STA. 390+00 ±
END -L- STA. 392+00 ±

PROP. RETAINING WALL #29
BEGIN -L- STA. 393+90 ±
END -L- STA. 395+85 ±

MATCH LINE STA -L- 389+00.00
MATCH TO SHEET NO. 32

MATCH LINE STA -L- 403+34.00
MATCH TO SHEET NO. 34

FOR -L- PROFILE, SEE SHEET NO. 50

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	34
R/W SHEET NO.	
ROADWAY DESIGN	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

NAD 83/2011

-L- CURVE DATA

PI Sta 401+77.67	PI Sta 410+45.07
Δ = 40° 19' 35.7" (LT)	Δ = 77° 49' 42.3" (RT)
D = 7° 32' 20.1"	D = 9° 42' 40.1"
L = 534.91'	L = 801.43'
T = 279.07'	T = 476.31'
R = 760.00'	R = 590.00'
DS = 50 MPH	DS = 45 MPH
SE = 0.08	SE = 0.08

-L- PT 404+33.51

-L- PC 405+68.76

-L- PC 416+23.25

-L- PT 413+70.19

END TIP PROJECT A-0009CB
-L- STA. 414+50.00

END SECTION A-0009CB
BEGIN SECTION A-0009CC

-L- SHEET NO. 33 403+00.00

MATCH LINE TO STA

PROP. RETAINING WALL #19 W/CONCRETE DITCH
BEGIN -L- STA. 383+24 ±
END -L- STA. 408+00 ±

PROP. RETAINING WALL #20 W/CONCRETE DITCH
BEGIN -L- STA. 409+50 ±
END -L- STA. 411+75 ±

ADDITIONAL CLEARING OF TREES NO GRUBBING FROM -L- STA. 405+00 TO 414+00 RT

SINGLE FACED CONCRETE BARRIER

CONC. DITCH BEHIND RETAINING WALL SEE DETAIL 34B

TIE TO EXISTING DITCH

LATERAL 'V' DITCH SEE DETAIL 34A DDE=11 CY

TRICKLE OF WATER OUT OF BANK

U.S. FOREST SERVICE TRACT N-599 DB 82 PG 603

CUT TO FILL TRANSITION CLASS B RIPRAP XX TONS, XX SY GEO

REMOVE DI KILL WITH FLOWABLE FILL EST 3 CY

SOME EROSION IN DITCH (1' BASE)

REMOVE 24 LF

REMOVE 22 LF

REMOVE 3 LF

REMOVE CONCRETE DITCH

REMOVE 40 LF

REMOVE CONCRETE DITCH FAILED CONCRETE 'V' DITCH, 6' WIDE, 1' DEEP 6" TO 8" THICK CONCRETE SECTIONS SEPERATED AND 2' TO UNDER DITCH

FILL WITH FLOWABLE FILL EST 6 CY

FILL WITH FLOWABLE FILL EST 7 CY

ROD AND LUG WITH GASKETS (ELBOWS)

MAX 1% PIPE SLOPE THIS SIDE OF ELBOW

CLASS B RIPRAP 3 TONS, 11 SY GEO

CLASS B RIPRAP 5 TONS, 14 SY GEO

SHOULDER BERM GUTTER -L- STA. 407+52 TO 409+81, RT

SHOULDER BERM GUTTER -L- STA. 405+23 TO 406+66, RT

SHOULDER BERM GUTTER -L- STA. 411+00 TO 413+70, RT

8" PIPE HAS 'S' SECTION SEPERATED

STABLE OUTFALL DITCH, 2' BASE W/SOME CLASS II RIPRAP

STABLE DITCH OUTFALL

FAILED 8' SECTION OF 18" CMP & FAILED CONCRETE DITCH

REMAINING 18" CMP PERCHED 4'

STACKED ROCK HW

PROP. GRAVEL DRIVE

PROP. CONCRETE DRIVE

U.S. FOREST SERVICE TRACT N-599 DB 82 PG 603

DELMAR L. HOLDER, ET AL DB 118 PG 76 DB 118 PG 233

HOUSE OF PRAYER DB 147 PG 92

ROCK RETAINING WALL

1S ROCK CHURCH

MONO. CONC. TS

SPRING

-L- 16.748
-L- 17.105
-L- 16.959
-L- 17.270
-L- 16.696

DETAIL 34A
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1, b, 1':Ft., Fill Slope
Min. D=1 Ft.
b=2 Ft.

-L- STA. 408+25 TO 409+00 LT
SEE XSC FOR DITCH GRADE

DETAIL 34B
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)

RETAINING WALL, BOND BREAKER, VARIES, D, B, 2:1, NATURAL GROUND, 4"
D= 1.0'
B= 1.0'

-L- STA. 403+00 TO 408+00 LT (XX SY)
-L- STA. 409+50 TO 411+75 LT (XX SY)
(SEE WALL ENVELOPES FOR DITCH GRADE)

FOR -L- PROFILE, SEE SHEET NO. 51

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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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TGS ENGINEERS
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-L-

PIPE HYDRAULIC DATA
*2001-L- Sta.210+31

DRAINAGE AREA	= 3.1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 6.5	CFS
DESIGN HW ELEVATION	= 2214.1	FT
100 YEAR DISCHARGE	= 7.1	CFS
100 YEAR HW ELEVATION	= 2214.1	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 8.6	CFS
OVERTOPPING ELEVATION	= 2214.3	FT

PIPE HYDRAULIC DATA
*2002-L- Sta.212+83

DRAINAGE AREA	= 25.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 54	CFS
DESIGN HW ELEVATION	= 2221.3	FT
100 YEAR DISCHARGE	= 59	CFS
100 YEAR HW ELEVATION	= 2221.6	FT
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING DISCHARGE	= 50	CFS
OVERTOPPING ELEVATION	= 2221.1	FT

PIPE HYDRAULIC DATA
*2004-L- Sta.215+79

DRAINAGE AREA	= 36.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 76	CFS
DESIGN HW ELEVATION	= 2227.9	FT
100 YEAR DISCHARGE	= 84	CFS
100 YEAR HW ELEVATION	= 2228.4	FT
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING DISCHARGE	= 78	CFS
OVERTOPPING ELEVATION	= 2228.0	FT

(+)1.1906%

PROPOSED 24" RCP

PROPOSED 42" RCP

PROPOSED 48" RCP

BEGIN GRADE SECTION CB
-L- STA 208+00.00
EL.2,219.14'

FOR -L- PLAN, SEE SHEET NO. 20

PIPE HYDRAULIC DATA
*2103-L- Sta.222+60

DRAINAGE AREA	= 3.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 10	CFS
DESIGN HW ELEVATION	= 2233.0	FT
100 YEAR DISCHARGE	= 11	CFS
100 YEAR HW ELEVATION	= 2233.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2235.6	FT

PIPE HYDRAULIC DATA
*2106-L- Sta.227+16

DRAINAGE AREA	= 8.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 16	CFS
DESIGN HW ELEVATION	= 2241.7	FT
100 YEAR DISCHARGE	= 18	CFS
100 YEAR HW ELEVATION	= 2241.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 33	CFS
OVERTOPPING ELEVATION	= 2244.3	FT

PI = 224+50.00
EL = 2,238.78'
VC = 200'
K = 280
DS = 80 MPH

(+)1.1906%

(+)1.9054%

(+)0.76%

(+) 4.1%

PROPOSED 24" RCP

PROPOSED 24" RCP

BEGIN SPECIAL CUT DITCH
-L- STA.227+16 RT
EL=2239.50

PI
-L- STA.228+00 RT
EL=2240.14

END SPECIAL CUT DITCH
-L- STA.228+50 RT
EL=2242.20

PI = 232+00.00
EL = 2,253.07'
VC = 180'
K = 11.53
DS = 80 MPH

(+)1.9054%

(+)1.7492%

FOR -L- PLAN, SEE SHEET NO. 21

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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	45A

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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-L-

PIPE HYDRAULIC DATA
*2203-L- Sta.235+07

DRAINAGE AREA	= 28.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 54	CFS
DESIGN HW ELEVATION	= 2254.3	FT
100 YEAR DISCHARGE	= 60	CFS
100 YEAR HW ELEVATION	= 2254.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2257.2	FT

PIPE HYDRAULIC DATA
*2204-L- Sta.239+48

DRAINAGE AREA	= 38.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 73	CFS
DESIGN HW ELEVATION	= 2264.4	FT
100 YEAR DISCHARGE	= 81	CFS
100 YEAR HW ELEVATION	= 2264.9	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 88	CFS
OVERTOPPING ELEVATION	= 2265.0	FT

PI = 245+40.00
EL = 2,276.51'
VC = 200'
K = 301
DS = 80 MPH

(+)1.7492%

(+)2.4134%

PROPOSED 42" RCP

PROPOSED 48" RCP

FOR -L- PLAN, SEE SHEET NO. 22

2,290
2,280
2,270
2,260
2,250
2,240

2,290
2,280
2,270
2,260
2,250
2,220

235 236 237 238 239 240 241 242 243 244 245 246 247 248 249

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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	45B

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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-L-

(-) 14.8% (+) 11.1%

BEGIN BERM 'V' DITCH
-L- STA.258+50 RT
EL=2407.07

PI
-L- STA.258+68 RT
EL=2404.40

END BERM 'V' DITCH
-L- STA.259+00 RT
EL=2407.96

PIPE HYDRAULIC DATA
*2301-L- Sta.250+00

DRAINAGE AREA	= 140	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 230	CFS
DESIGN HW ELEVATION	= 2287.3	FT
100 YEAR DISCHARGE	= 290	CFS
100 YEAR HW ELEVATION	= 2288.6	FT
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING DISCHARGE	= 280	CFS
OVERTOPPING ELEVATION	= 2288.5	FT

END BERM 'V' DITCH
-L- STA.252+35 RT
EL=2304.1

BEGIN BERM 'V' DITCH
-L- STA.251+90 RT
EL=2298.00

(+) 13.5%

BEGIN BERM BASE DITCH
-L- STA.252+50 RT
EL=2307.70

END BERM BASE DITCH
-L- STA.254+00 RT
EL=2314.45

(+) 4.5%

PI = 253+50.00
EL = 2,296.06'
VC = 180'
K = 138.1
DS = 80 MPH

(+) 2.41134%

(+) 2.2831%

(+) 3.9%

PROPOSED
95"X67" CAA PA

END LATERAL BASE DITCH
-L- STA.250+50 LT
EL=2280.70

BEGIN LATERAL BASE DITCH
-L- STA.250+15 LT
EL=2279.33

FOR -L- PLAN, SEE SHEET NO. 23

2,430 2,420 2,410 2,400 2,390 2,380 2,370 2,360 2,350 2,340 2,330 2,320 2,310 2,300 2,290 2,280 2,270 2,260 2,250

249 250 251 252 253 254 255 256 257 258 259 260 261 262 263

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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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-L-

PIPE HYDRAULIC DATA
*2401-L- Sta.267+41

DRAINAGE AREA	= 12.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 24	CFS
DESIGN HW ELEVATION	= 2325.2	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 2325.3	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 31	CFS
OVERTOPPING ELEVATION	= 2325.6	FT

PIPE HYDRAULIC DATA
*2406-L- Sta.270+90

DRAINAGE AREA	= 27.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 53	CFS
DESIGN HW ELEVATION	= 2333.3	FT
100 YEAR DISCHARGE	= 58	CFS
100 YEAR HW ELEVATION	= 2333.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2335.0	FT

PIPE HYDRAULIC DATA
*2409-L- Sta.275+68

DRAINAGE AREA	= 44.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 83	CFS
DESIGN HW ELEVATION	= 2346.9	FT
100 YEAR DISCHARGE	= 92	CFS
100 YEAR HW ELEVATION	= 2347.3	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 91	CFS
OVERTOPPING ELEVATION	= 2347.3	FT

PI = 275+25.00
EL = 2,345.72'
VC = 430'
K = 143
DS = 60 MPH

(+)2.2831%
(+)1.4%
(+)5.2940%
(+)14.3%
PROPOSED 30" RCP
PROPOSED 36" RCP
PROPOSED 64"X43" CAA PA
BEGIN SPECIAL CUT DITCH -L- STA.267+50 RT EL=2322.70
END SPECIAL CUT DITCH -L- STA.268+00 RT EL=2326.41
BEGIN CHANNEL CHANGE -L- STA.275+36 RT EL=2348.00
END CHANNEL CHANGE -L- STA.275+62 RT EL=2342.80

FOR -L- PLAN, SEE SHEET NO. 24

PI = 280+20.00
EL = 2,371.92'
VC = 560'
K = 170
DS = 65 MPH

(+)8.5819%
(+)5.2940%
(+)1.8%
(+)3.8%
(+)10.0%
END CHANNEL CHANGE -L- STA.280+72 LT EL=2359.00
END LATERAL BASE DITCH -L- STA.282+37 LT EL=2367.50
BEGIN LATERAL BASE DITCH -L- STA.282+00 LT EL=2363.80
END LATERAL BASE DITCH -L- STA.281+50 LT EL=2361.90
BEGIN LATERAL BASE DITCH -L- STA.280+74 LT EL=2359.00
BEGIN CHANNEL CHANGE -L- STA.279+87 LT EL=2357.40

PIPE HYDRAULIC DATA
*2517-L- Sta.289+25

DRAINAGE AREA	= 12.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 22	CFS
DESIGN HW ELEVATION	= 2429.2	FT
100 YEAR DISCHARGE	= 24	CFS
100 YEAR HW ELEVATION	= 2430.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 41	CFS
OVERTOPPING ELEVATION	= 2442.8	FT

PI = 290+50.00
EL = 2,454.93'
VC = 180'
K = 383
DS = 80 MPH

PI = 285+50.00
EL = 2,417.41'
VC = 180'
K = 167
DS = 60 MPH

(+)8.5819%
(+)17.5042%
(+)17.9745%
RELINE EXISTING 18" CMP

FOR -L- PLAN, SEE SHEET NO. 25

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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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CORP. LICENSE NO.: C-0275

PIPE HYDRAULIC DATA
*2605-L- Sta.293+20

DRAINAGE AREA	= 3.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 8	CFS
DESIGN HW ELEVATION	= 2470.5	FT
100 YEAR DISCHARGE	= 9	CFS
100 YEAR HW ELEVATION	= 2470.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 14	CFS
OVERTOPPING ELEVATION	= 2472.3	FT

PIPE HYDRAULIC DATA
*2610-L- Sta.297+45

DRAINAGE AREA	= 14.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 29	CFS
DESIGN HW ELEVATION	= 2504.9	FT
100 YEAR DISCHARGE	= 33	CFS
100 YEAR HW ELEVATION	= 2505.1	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 40	CFS
OVERTOPPING ELEVATION	= 2505.5	FT

PI = 299+40.00
EL = 2,524.87'
VC = 180'
K = 313
DS = 80 MPH
(+)18.3146%
(+)17.7398%

PI = 295+00.00
EL = 2,490.81'
VC = 180'
K = 767
DS = 80 MPH
(+)17.9745%
(+)17.7398%

(+) 6.0%
PROPOSED 36" CSP
BEGIN LATERAL BASE DITCH -L- STA.297+56 LT EL=2502.30
END LATERAL BASE DITCH -L- STA.297+79 LT EL=2503.6

RELINE EXISTING 18" CMP

PI = 302+50.00
EL = 2,550.65'
VC = 180'
K = 1055
DS = 80 MPH
(+)18.4852%
(+)18.3146%

FOR -L- PLAN, SEE SHEET NO. 26

PIPE HYDRAULIC DATA
*2715-L- Sta.316+07

DRAINAGE AREA	= 69	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 2654.8	FT
100 YEAR DISCHARGE	= 140	CFS
100 YEAR HW ELEVATION	= 2655.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 250	CFS
OVERTOPPING ELEVATION	= 2658.6	FT

PI = 311+70.00
EL = 2,624.38'
VC = 180'
K = 334
DS = 80 MPH
(+)17.6201%
(+)18.1588%

PI = 306+70.00
EL = 2,586.28'
VC = 180'
K = 208
DS = 65 MPH
(+)18.4852%
(+)17.6201%

PIPE HYDRAULIC DATA
*2707-L- Sta.312+10

DRAINAGE AREA	= 22.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 40	CFS
DESIGN HW ELEVATION	= 2599.0	FT
100 YEAR DISCHARGE	= 44	CFS
100 YEAR HW ELEVATION	= 2599.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 180	CFS
OVERTOPPING ELEVATION	= 2622.4	FT

PROPOSED 36" WSP

PI = 315+80.00
EL = 2,657.83'
VC = 180'
K = 3689
DS = 80 MPH
(+)18.1588%
(+)18.0127%

PROPOSED 60" RCP

FOR -L- PLAN, SEE SHEET NO. 27

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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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-L-

PI = 322+25.00
EL = 2,710.14'
VC = 180'
K = 323
DS = 75 MPH
(+)8.1100%
(+)7.5520%

PI = 324+10.00
EL = 2,724.12'
VC = 180'
K = 383
DS = 80 MPH
(+)7.5520%
(+)8.0223%

PI = 327+90.00
EL = 2,754.60'
VC = 180'
K = 185
DS = 70 MPH
(+)8.0223%

PI = 329+90.00
EL = 2,772.59'
VC = 220'
K = 116
DS = 55 MPH
(+)8.9950%
(+)7.1000%

PI = 332+00.00
EL = 2,787.50'
VC = 180'
K = 147
DS = 60 MPH
(+)7.1000%
(+)8.3213%

(+) 3.5%

END CHANNEL CHANGE
-L- STA 329+26 LT
EL=2756.20

BEGIN CHANNEL CHANGE
-L- STA 328+95 LT
EL=2755.00

FOR -L- PLAN, SEE SHEET NO. 28

PIPE HYDRAULIC DATA
*2903-L- Sta.333+84

DRAINAGE AREA	= 21.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 38	CFS
DESIGN HW ELEVATION	= 2797.2	FT
100 YEAR DISCHARGE	= 41	CFS
100 YEAR HW ELEVATION	= 2797.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 87	CFS
OVERTOPPING ELEVATION	= 2800.9	FT

PI = 336+70.00
EL = 2,826.61'
VC = 180'
K = 218
DS = 65 MPH
(+)8.3213%
(+)7.4945%

PI = 338+50.00
EL = 2,840.10'
VC = 180'
K = 554
DS = 80 MPH
(+)7.4945%
(+)7.1696%

PROPOSED 48" RCP

PROPOSED 36" RCP

PIPE HYDRAULIC DATA
*2916-L- Sta.339+66

DRAINAGE AREA	= 46.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 80	CFS
DESIGN HW ELEVATION	= 2841.2	FT
100 YEAR DISCHARGE	= 90	CFS
100 YEAR HW ELEVATION	= 2841.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2845.0	FT

PIPE HYDRAULIC DATA
*2921-L- Sta.340+64

DRAINAGE AREA	= 12	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 25	CFS
DESIGN HW ELEVATION	= 2842.5	FT
100 YEAR DISCHARGE	= 28	CFS
100 YEAR HW ELEVATION	= 2843.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2849.1	FT

PIPE HYDRAULIC DATA
*2924-L- Sta.344+23

DRAINAGE AREA	= 21	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 37	CFS
DESIGN HW ELEVATION	= 2880.4	FT
100 YEAR DISCHARGE	= 40	CFS
100 YEAR HW ELEVATION	= 2880.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2881.5	FT

PIPE HYDRAULIC DATA
*3001-L- Sta.346+87

DRAINAGE AREA	= 11.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21	CFS
DESIGN HW ELEVATION	= 2895.2	FT
100 YEAR DISCHARGE	= 23	CFS
100 YEAR HW ELEVATION	= 2895.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2898.9	FT

PI = 345+40.00
EL = 2,889.57'
VC = 200'
K = 299
DS = 70 MPH
(+)7.1696%
(+)6.5000%

PROPOSED 30" RCP

PROPOSED 36" RCP

BEGIN STANDARD BASE DITCH
-L- STA 344+25 LT
EL=2882.00

(+) 27%

END STANDARD BASE DITCH
-L- STA 344+25 LT
EL=2877.5

RELINE EXISTING 24" CMP

FOR -L- PLAN, SEE SHEET NO. 29

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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	49

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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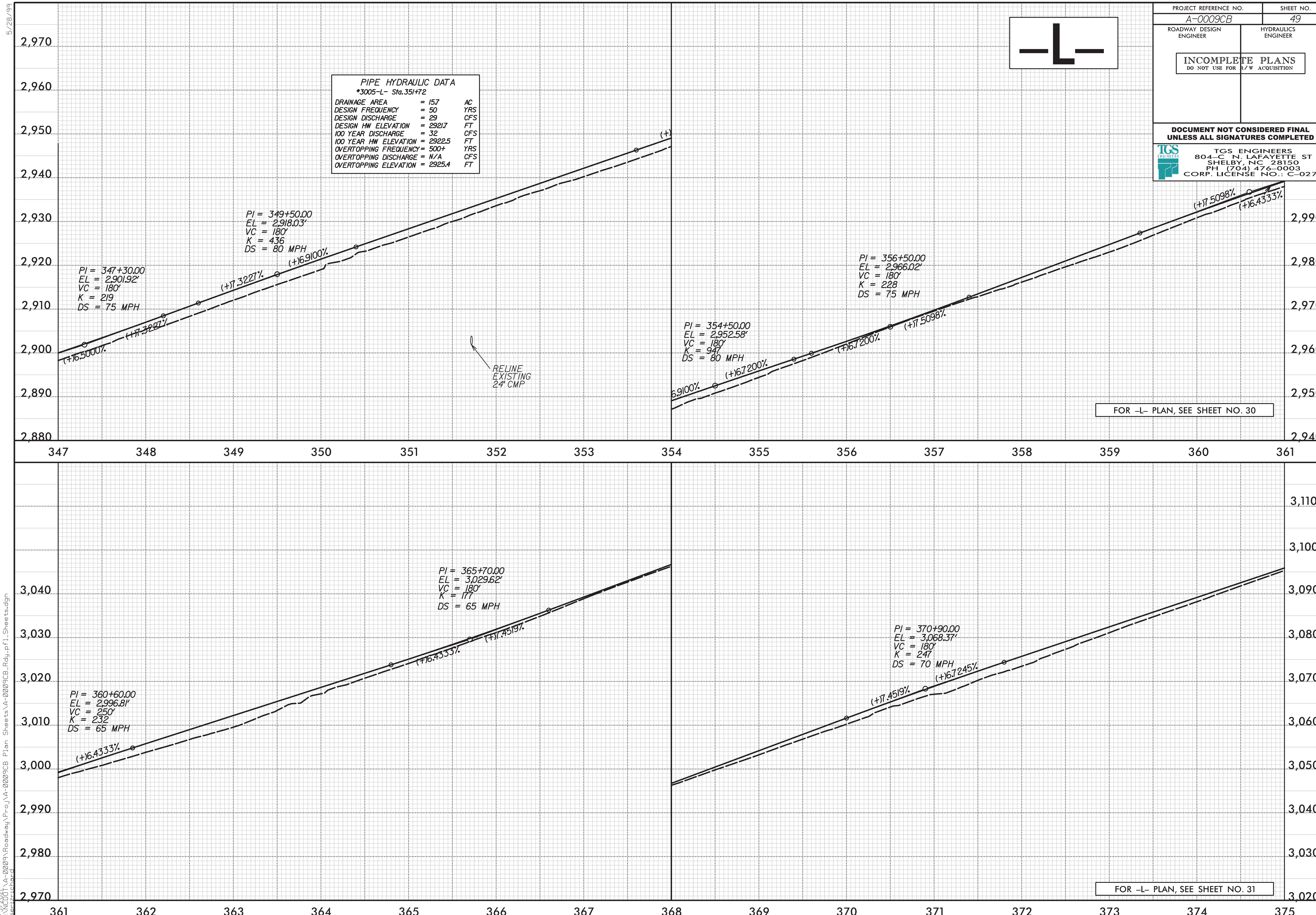
-L-

PIPE HYDRAULIC DATA
*3005-L- Sta.351+72

DRAINAGE AREA	= 15.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 29	CFS
DESIGN HW ELEVATION	= 2921.7	FT
100 YEAR DISCHARGE	= 32	CFS
100 YEAR HW ELEVATION	= 2922.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2925.4	FT



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TGS ENGINEERS
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SHELBY, NC 28150
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PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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-L-

PIPE HYDRAULIC DATA
*3201-L- Sta. 375+37

DRAINAGE AREA	= 4.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 90	CFS
DESIGN HW ELEVATION	= 3083.2	FT
100 YEAR DISCHARGE	= 99	CFS
100 YEAR HW ELEVATION	= 3083.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 3095.8	FT

(+)6.72457%
(-)7.17567%
PI = 384+15.00
EL = 3,157.47'
VC = 1,470'
K = 106
DS = 50 MPH

RELINE EXISTING 18" CMP

FOR -L- PLAN, SEE SHEET NO. 32

(-)7.17567%

PI = 399+70.00
EL = 3,045.89'
VC = 200'
K = 450
DS = 80 MPH

(-)7.17567%
(-)7.62007%

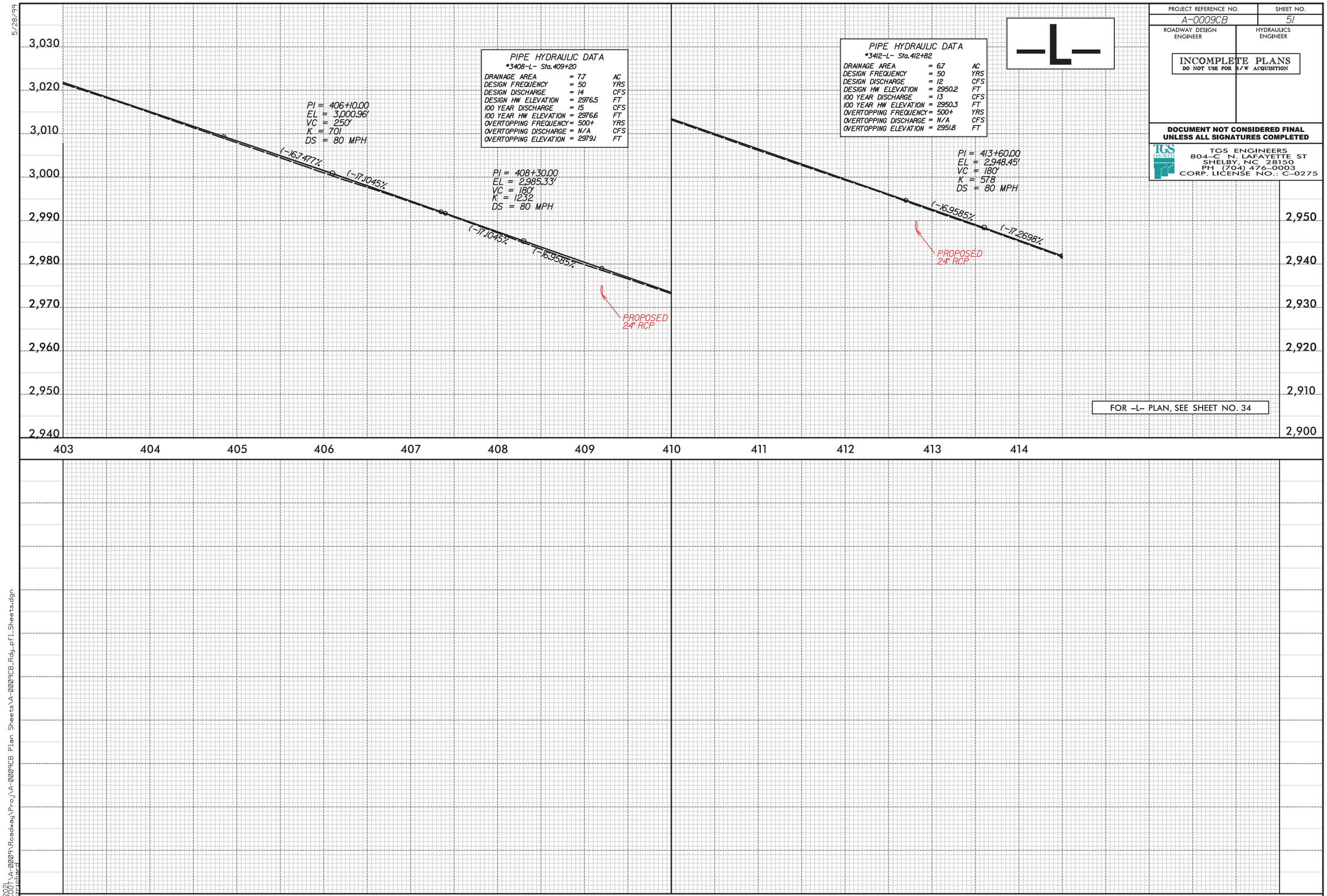
PI = 401+70.00
EL = 3,030.65'
VC = 180'
K = 206
DS = 75 MPH

(-)7.62007%
(-)6.74777%

FOR -L- PLAN, SEE SHEET NO. 33

3/5/2021
X:\SW2001\A-0009\Roadway\Proj\A-0009CB Plan Sheets\A-0009CB_Rdy_pf1_Sheets.dgn
User:rjbard

5/28/99



PROJECT REFERENCE NO.	SHEET NO.
A-0009CB	51

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
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PH (704) 476-0003
CORP. LICENSE NO.: C-0275