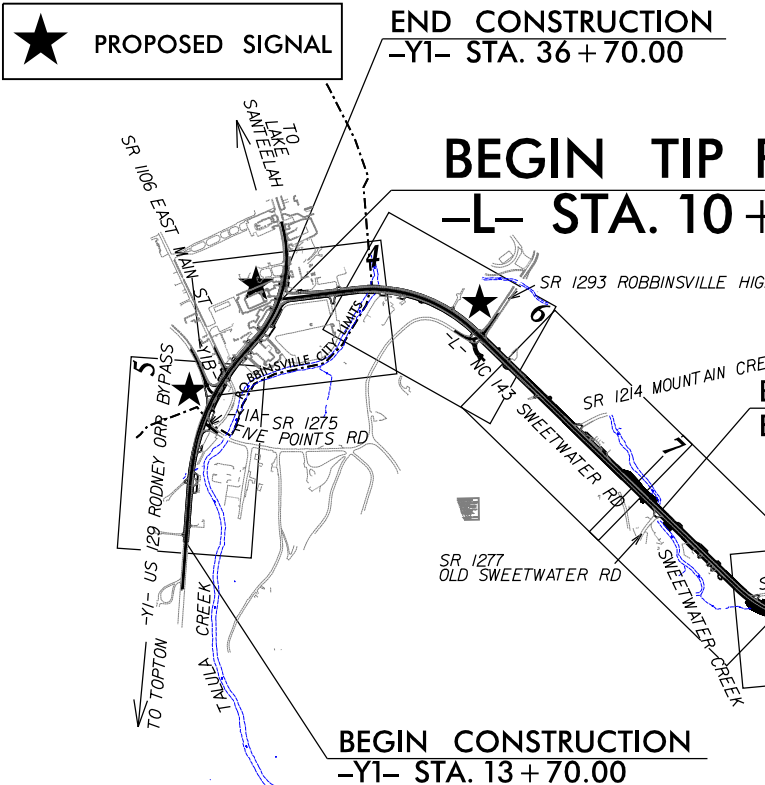
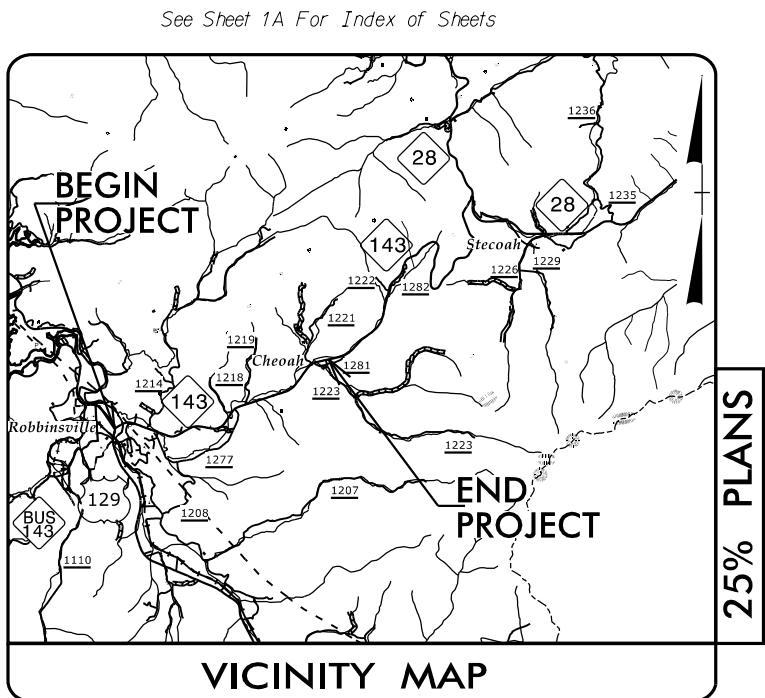


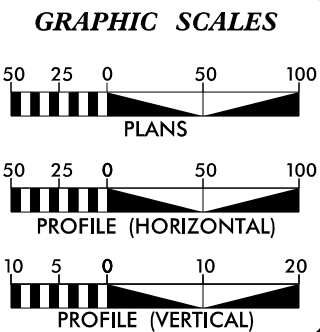
09/08/99 2/26/2021 X:\NCDOT\A-0009\Hydraulics\MERCER\A-0009 CA\CP 4B\Plan Sheets\A-0009CA.Rdy..tsh.dgn User:jlaplante

TIP PROJECT: A-0009CA

CONTRACT:



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF TOWN OF ROBBINSVILLE.
DESIGN EXCEPTION REQUIRED FOR VERTICAL GRADE.



DESIGN DATA

ADT 2019 = 6300
ADT 2045 = 8800
K = 11 %
D = 57.5 %
T = 7 % *

50MPH - BEGIN PROJECT TO
FIVE POINTS RD
60MPH - FIVE POINTS RD TO
END OF PROJECT

* TTST = 2% DUAL = 5%
FUNC CLASS =
RURAL ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT A-0009CA = 3.746 MILES
LENGTH STRUCTURE TIP PROJECT A-0009CA = 0.023 MILES
TOTAL LENGTH TIP PROJECT A-0009CA = 3.723 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. J C-0275

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

RIGHT OF WAY DATE:
SEPTEMBER 2021

LETTING DATE:
AUGUST 16, 2022

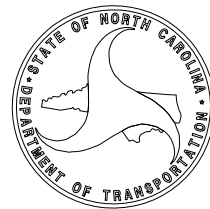
2018 STANDARD SPECIFICATIONS

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GRAHAM COUNTY

LOCATION: UPGRADE US 129 FROM SOUTH OF SR 1275 (FIVE POINTS ROAD) TO NC 143
AND UPGRADE NC 143 FROM US 129 TO SR 1223 (BEECH CREEK ROAD)

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

MERGER 4B PLANS FOR 03-17-2021 MEETING

END TIP PROJECT A-0009CA
-L- STA. 208 + 00.00

BEGIN CULVERT -L- STA. 194 + 87 ±
END CULVERT -L- STA. 195 + 13 ±

BEGIN CULVERT -L- STA. 113 + 39 ±
END CULVERT -L- STA. 113 + 82 ±

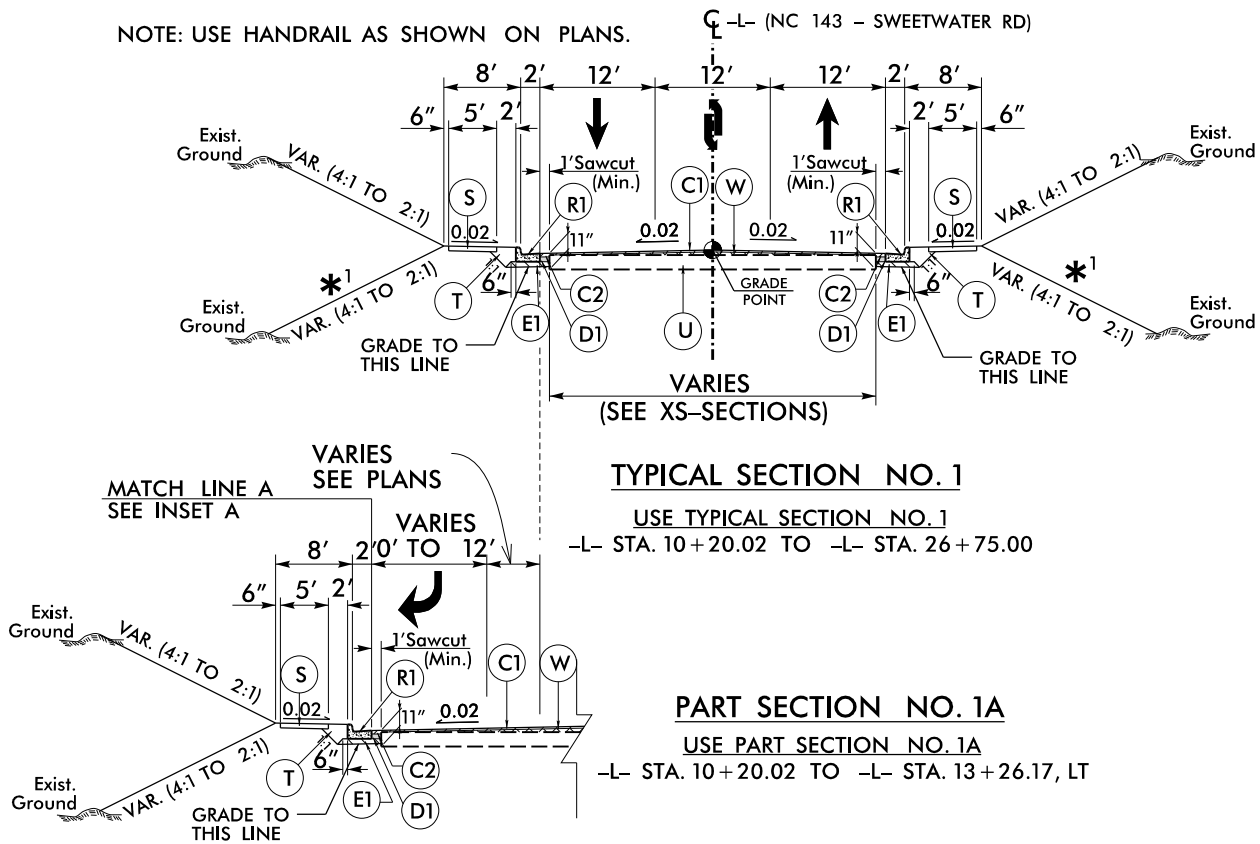
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" 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.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 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 1/2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. APPROX. 2 1/2" 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 LESS THAN 2 1/2" 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.
J1	PROP. 6" AGGREGATE BASE COURSE.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	EXPRESSWAY GUTTER
R3	8" X 12" CONCRETE CURB
R4	SHOULDER BERM GUTTER
S	CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	INCIDENTAL MILLING, SEE SHEET 2A-3 FOR DETAIL
W	WEDGING EXISTING PAVEMENT, SEE SHEET 2A-3 FOR DETAILS

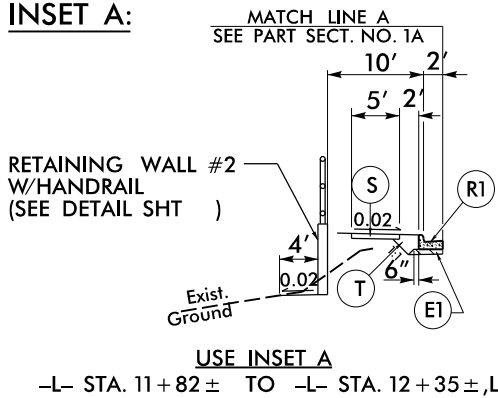
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

NOTE: USE HANDRAIL AS SHOWN ON PLANS.

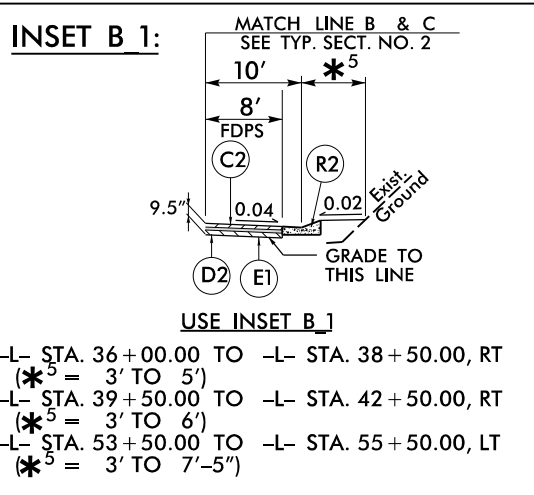


*1 NOTE:
USE 1.5:1 BACK SLOPES TO
TIE TO EXISTING CULVERT:
-L- STA. 17+21± TO
-L- STA. 17+74± LT
-L- STA. 16+95± TO
-L- STA. 17+51± RT
(SEE XS-SECTIONS)

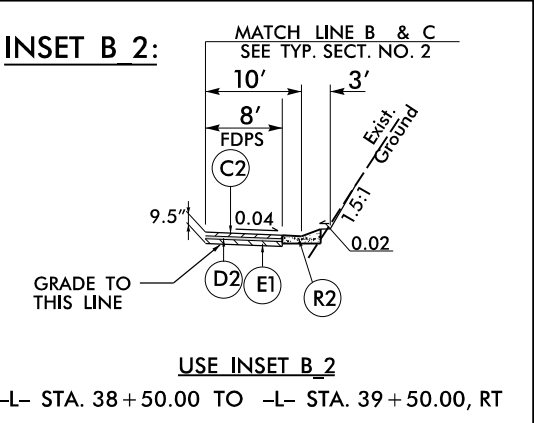
INSET A:



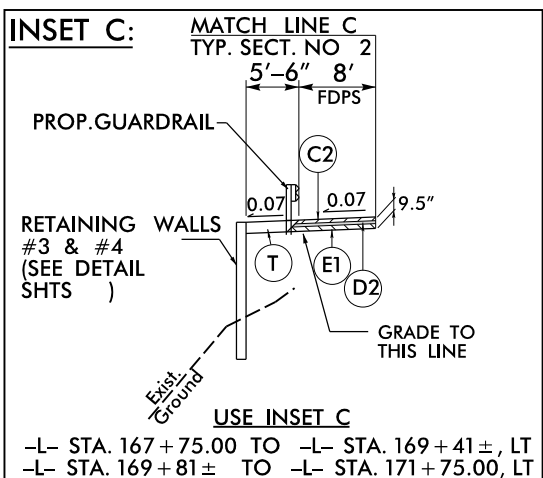
INSET B 1:



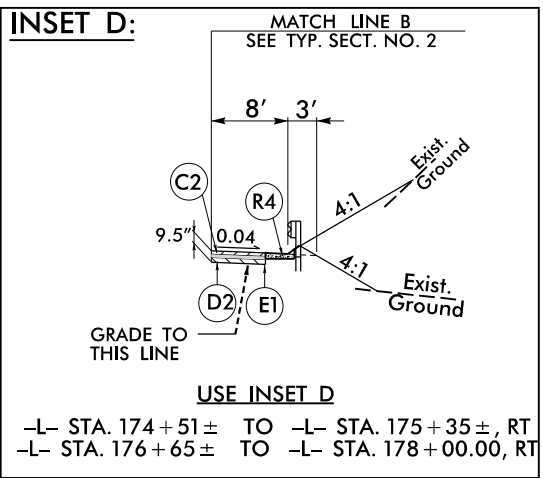
INSET B 2:



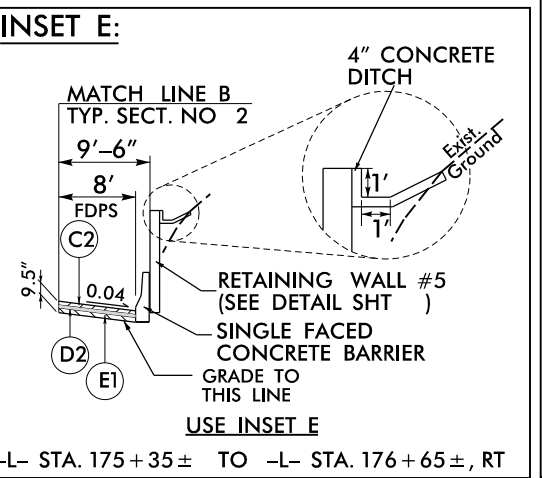
INSET C:



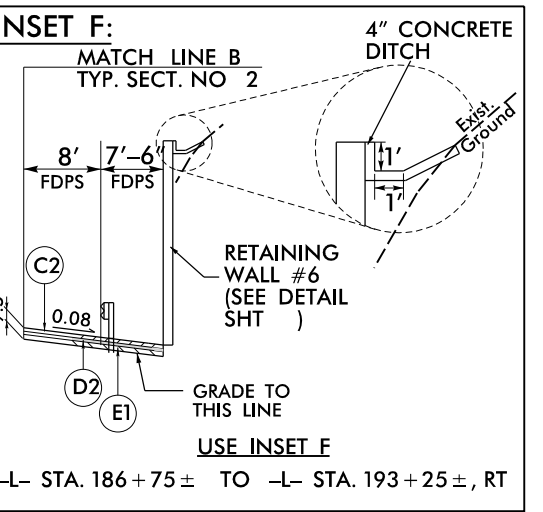
INSET D:



INSET E:



INSET F:



TYPICAL SECTION NO. 2

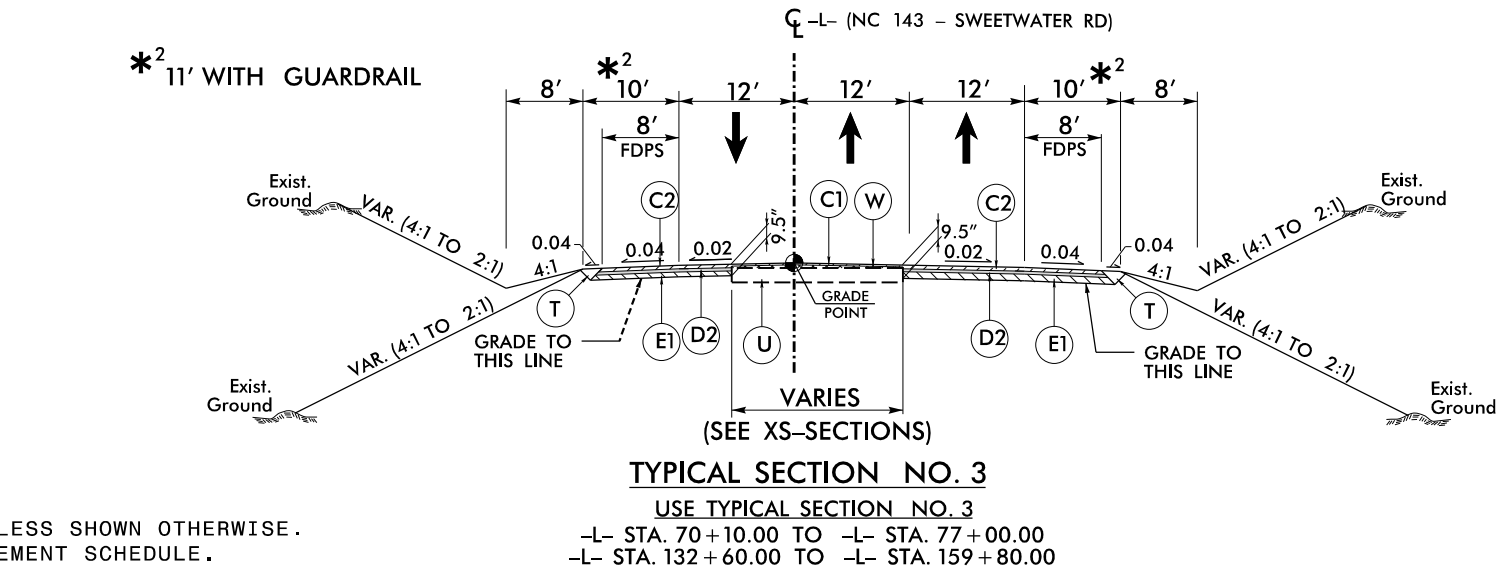
USE TYPICAL SECTION NO. 2
-L- STA. 26+75.00 TO -L- STA. 66+50.00
-L- STA. 167+00.00 TO -L- STA. 208+00.00

NOTE:
TRANSITION BETWEEN TYP. SECT. NO. 3 AND TYP. SECT.
NO. 2 AS FOLLOWS:
-L- STA. 159+80.00 TO -L- STA. 167+00.00

6/2/99
3/2/2021
3:\cadd\va-0009\Hyd-eulcs\MERGVA-0009_CANCP_4B\Plan Sheets\A-0009CA.Rdy.tup.dgn
User:theneor

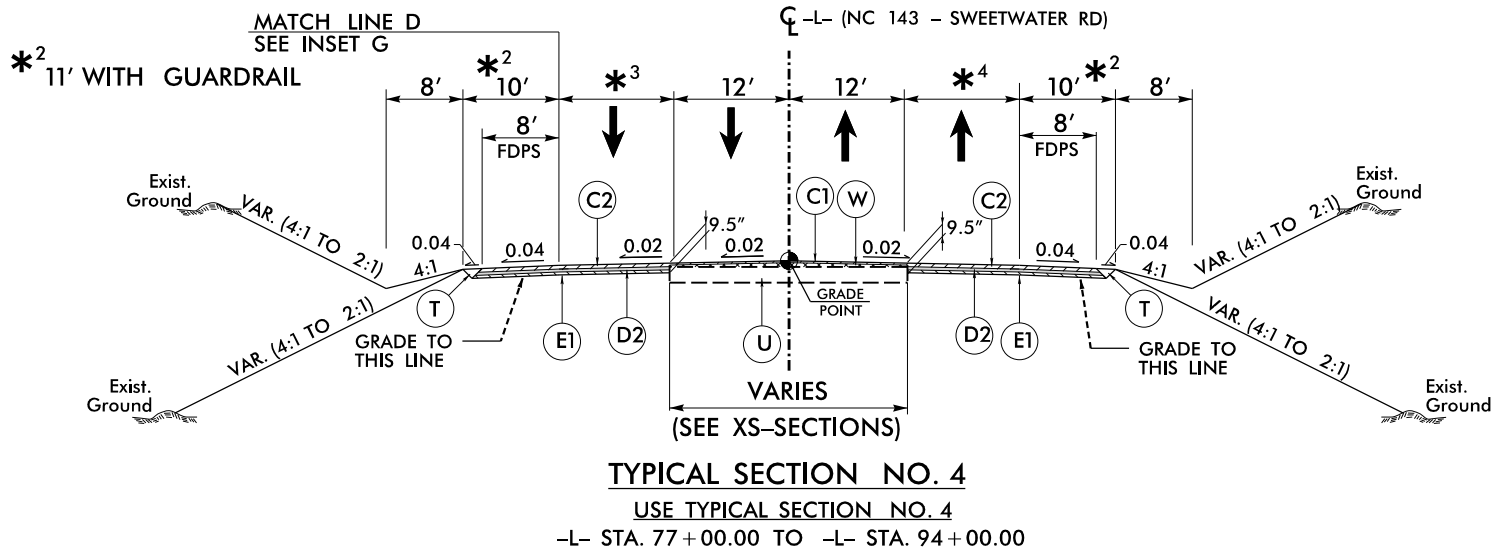
PAVEMENT SCHEDULE	
C1	1.5" S9.5B
C2	3" S9.5B
D2	2 1/2" I19.0C
E1	4" B25.0C
R2	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

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

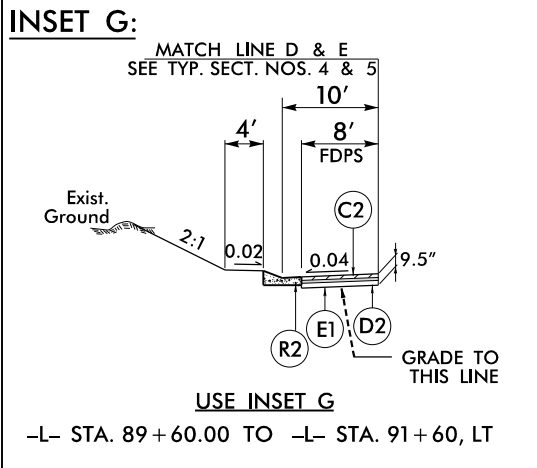
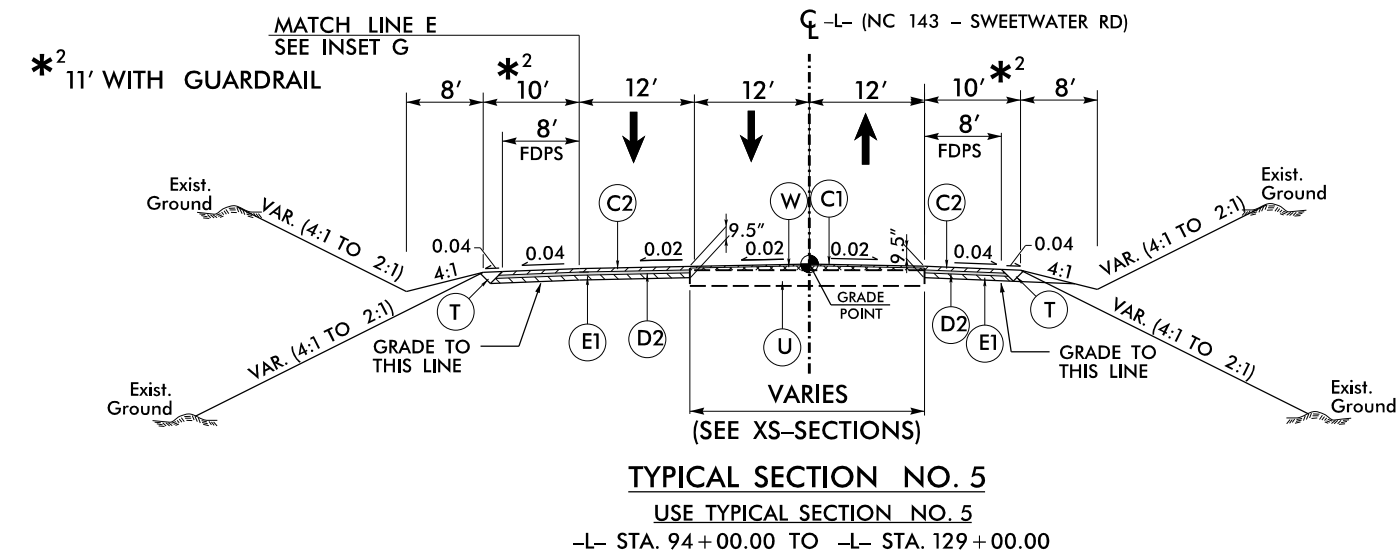


NOTE:
TRANSITION BETWEEN TYP. SECT. NO. 2 AND TYP. SECT. NO. 3 AS FOLLOWS:
-L- STA. 66+50.00 TO -L- STA. 70+10.00

TRANSITION BETWEEN TYP. SECT. NO. 4 AND TYP. SECT. NO. 3 AS FOLLOWS:
-L- STA. 129+00.00 TO -L- STA. 132+60.00



	WIDTH	STA TO STA
*3	0' TO 12'	-L- STA. 77+00.00 TO -L- STA. 84+20.00
	12'	-L- STA. 84+20.00 TO -L- STA. 94+00.00
*4	12'	-L- STA. 77+00.00 TO -L- STA. 86+80.00
	12' TO 0'	-L- STA. 86+80.00 TO -L- STA. 94+00.00



PROJECT REFERENCE NO.	SHEET NO.
A-0009CA	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	

8/17/99

-YI- CURVE DATA
PI Sta 24+35.36
 $\Delta = 38^{\circ}00'53.8"$ (RT)
D = 3'10" 59.2"
L = 1,942.7'
T = 620.05'
R = 1,800.00'
SE = 0.03
DS = 45 MPH

PI Sta 36+22.21
 $\Delta = 59^{\circ}11'14.3"$ (LT)
D = 5'52" 35.4"
L = 1,007.19'
T = 553.73'
R = 975.00'
SE = 0.04
DS = 50 MPH

-L- CURVE DATA
PI Sta 21+39.93
 $\Delta = 51^{\circ}06'09.7"$ (RT)
D = 4'56" 21.4"
L = 1,034.62'
T = 554.57'
R = 1,600.00'
SE = 0.04
DS = 50 MPH

END CONSTRUCTION
-YI- STA. 37+20.00

BEGIN TIP PROJECT A-0009CA
-L- STA. 10+20.02

BEGIN CONSTRUCTION
-YIC- STA. 11+71.27

-YI- PC 30+68.48
-YIC- POT 10+00.00

-YI- PT 30+09.58

-YI- POC 27+35.52 =
-YIC- POT 12+40.07

MATCH LINE STA -L- 16+00.00
MATCH TO SHEET NO.6

MATCH LINE STA
-YI- 27+00.00
MATCH TO SHEET NO.5

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/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			

--- SA --- ELIGIBLE AND UNASSESSED SITES

--- PROP CONC SIDEWALK

★ PROPOSED SIGNAL

AVERAGE DAILY TRAFFIC			
		9,500 12,900	
COMMERCIAL DRIVE	200 300	3,600 4,300	7,200 8,500
	700 900		
	400 500	3,500 4,100	
			9,600 12,900
		-L- NC 143	
		-YI- US 129	

2019 ADT
2045ADT

FOR -L- PROFILE, SEE SHEET NO. 20
FOR -YI- PROFILE, SEE SHEET NO. 28

REVISIONS

3/2/2021 1A-0009-Hydraulics\MERG\A-0009-CA\CP 4B\Plan Sheets\A-0009CA.Rdy.psh.04.dgn
User:thengor

PROJECT REFERENCE NO.
A-0009CA

SHEET NO.
5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR A/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TCS ENGINEERS

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

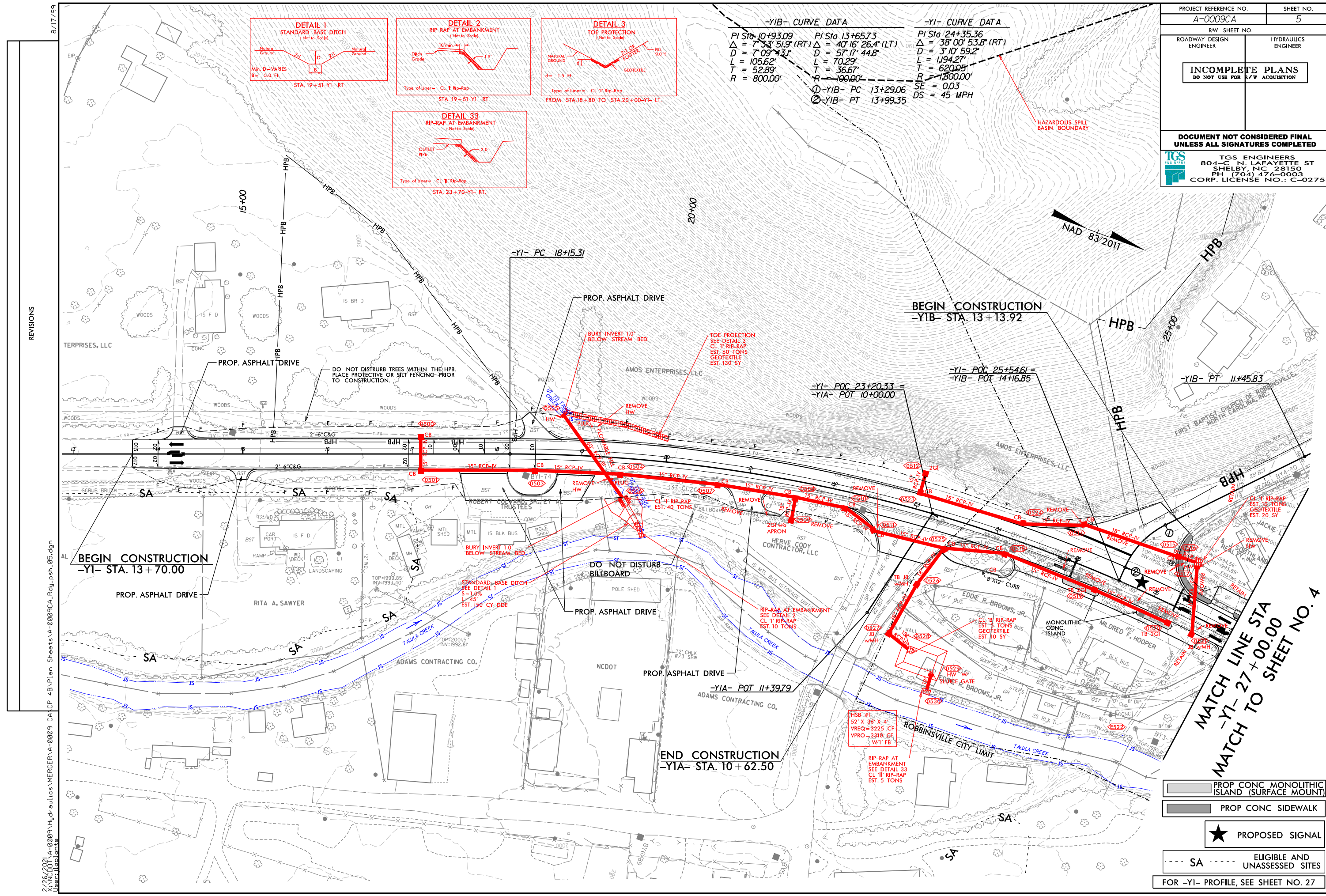
-YIB- CURVE DATA		-YI- CURVE DATA
PI Sta 10+93.09	PI Sta 13+65.73	PI Sta 24+35.36
$\Delta = 7^{\circ} 53' 51.9"$ (RT)	$\Delta = 40^{\circ} 16' 26.4"$ (LT)	$\Delta = 38^{\circ} 00' 53.8"$ (RT)
$D = 7^{\circ} 09' 43.1"$	$D = 57^{\circ} 17' 44.8"$	$D = 3^{\circ} 10' 59.2"$
$L = 105.62'$	$L = 70.29'$	$L = 1194.27'$
$T = 52.89'$	$T = 36.67'$	$T = 620.05'$
$R = 800.00'$	$R = 100.00'$	$R = 1800.00'$
	① -YIB- PC 13+29.06	SE = 0.03
	② -YIB- PT 13+99.35	DS = 45 MPH

DETAIL 1
STANDARD BASE DITCH
(Not to Scale)

DETAIL 2
RIP-RAP AT EMBANKMENT
(Not to Scale)

DETAIL 3
TOE PROTECTION
(Not to Scale)

DETAIL 33
RIP-RAP AT EMBANKMENT
(Not to Scale)



PROPOSED CONC MONOLITHIC ISLAND (SURFACE MOUNT)

PROPOSED CONC SIDEWALK

★ PROPOSED SIGNAL

SA ELIGIBLE AND UNASSSESSED SITES

FOR -YI- PROFILE, SEE SHEET NO. 27

8/17/99

REVISIONS

2/26/2009 A-0009 Hyd-aulics\MERGER\A-0009 CA CP 4B\Plan Sheets\A-0009CA_Rdy_psh_05.dgn

2/26/2009

PROJECT REFERENCE NO.
A-0009CA

SHEET NO.
6

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

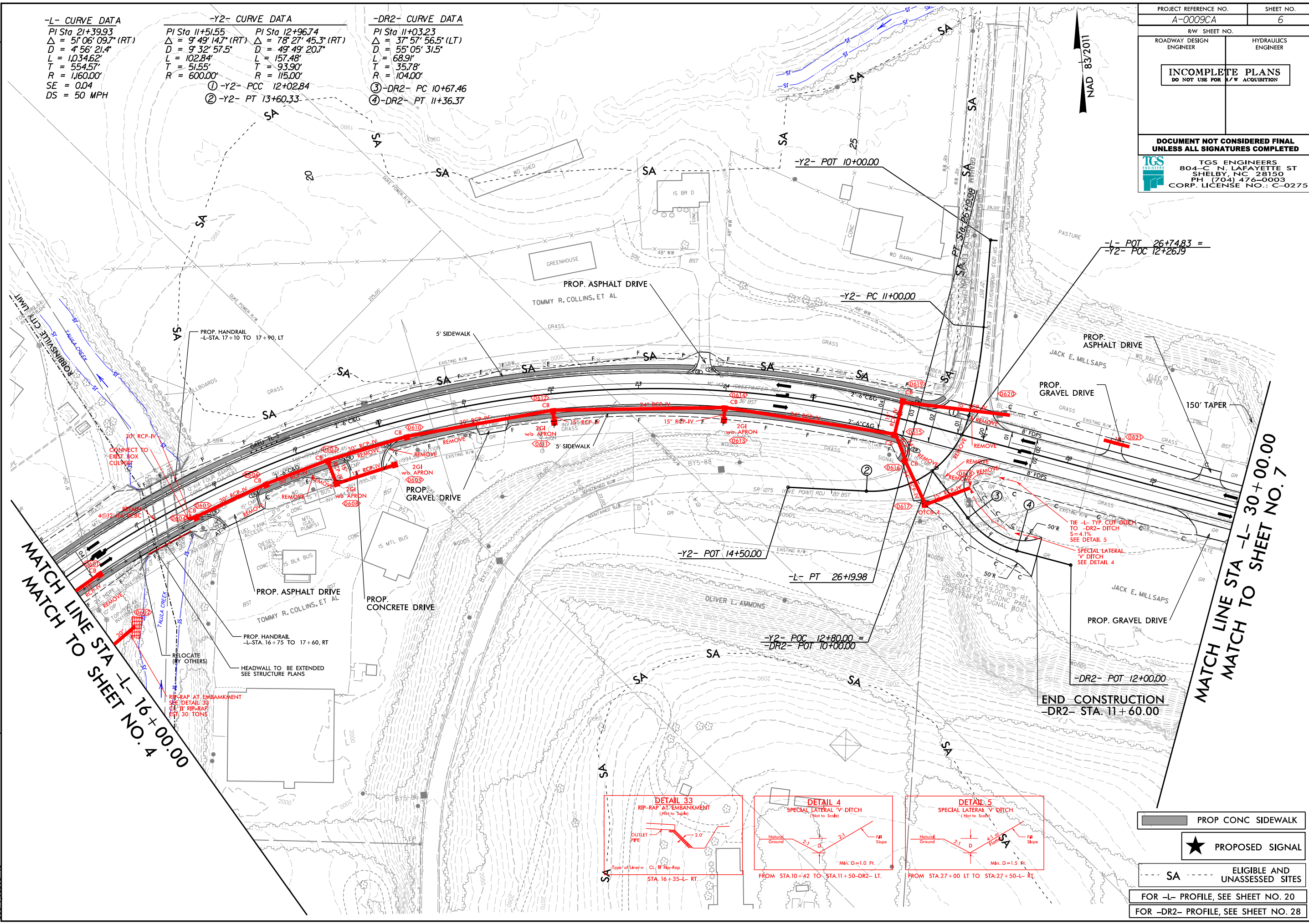
-L- CURVE DATA
PI Sta 21+39.93
Δ = 51° 06' 09.7" (RT)
D = 4' 56' 21.4"
L = 1034.62'
T = 554.57'
R = 1160.00'
SE = 0.04
DS = 50 MPH

-Y2- CURVE DATA
PI Sta 11+51.55
Δ = 9° 49' 14.7" (RT)
D = 9' 32' 57.5"
L = 102.84'
T = 51.55'
R = 600.00'

PI Sta 12+96.74
Δ = 78° 27' 45.3" (RT)
D = 49' 49' 20.7"
L = 157.48'
T = 93.90'
R = 115.00'

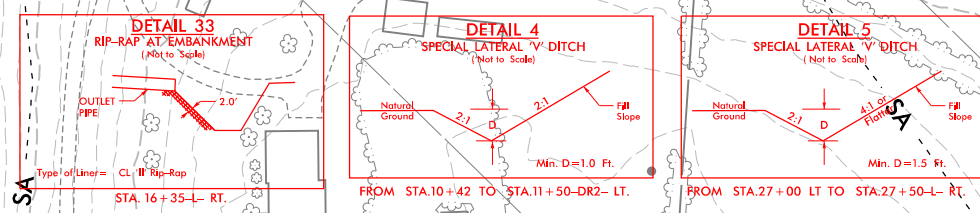
-DR2- CURVE DATA
PI Sta 11+03.23
Δ = 37° 57' 56.5" (LT)
D = 55' 05' 31.5"
L = 68.91'
T = 35.78'
R = 104.00'

③-DR2- PC 10+67.46
④-DR2- PT 11+36.37



MATCH LINE STA -L- 16+00.00
MATCH TO SHEET NO. 4

MATCH LINE STA -L- 30+00.00
MATCH TO SHEET NO. 7



PROP CONC SIDEWALK

★ PROPOSED SIGNAL

SA ELIGIBLE AND UNASSESSED SITES

FOR -L- PROFILE, SEE SHEET NO. 20

FOR -DR2- PROFILE, SEE SHEET NO. 28

REVISIONS

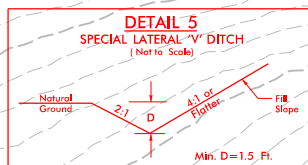
8/17/99
2/26/2001
X:\NC001\A-0009\Hydraulics\MERGER\A-0009 CA CP 4B\Plan Sheets\A-0009CA_Rdy_psh_06.dgn
User: jlabate

**MATCH LINE STA -L- 30+00.00
MATCH TO SHEET NO.6**

MATCH LINE STA -L- 44 + 00.00
MATCH TO SHEET NO 8

SA	ELIGIBLE AND UNASSESSED SITE
----	------------------------------

FOR -L- PROFILE, SEE SHEET NO. 21



FROM STA.31+50 TO STA.34+11-L- RT.
FROM STA.43+00 TO STA.44+00-I- RT.

REVISIONS

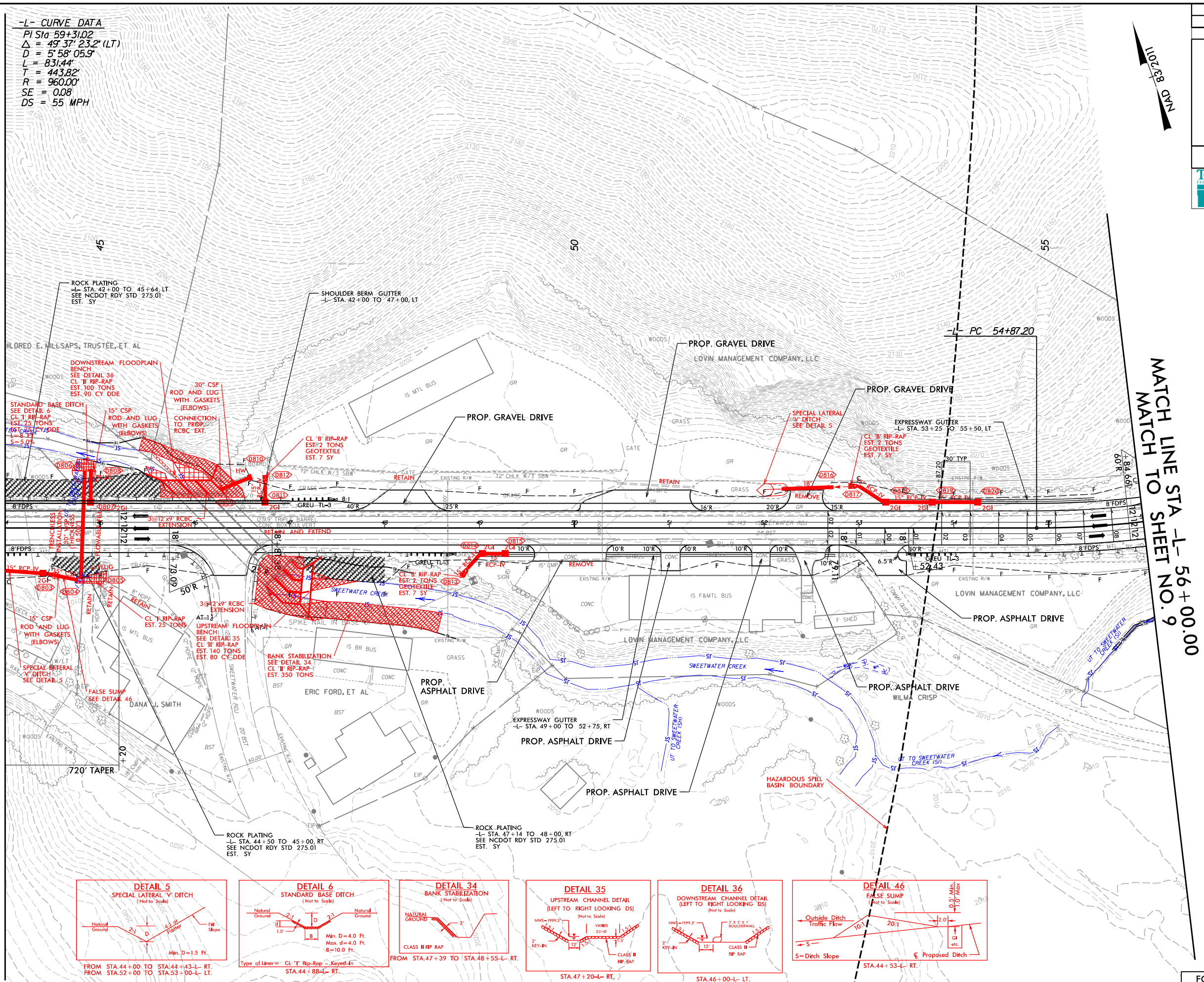
8/17/99

2/26/2021
User: jlaolante
C:\NC001\A-0009\Hydraulics\MERGER\A-0009 CANCP 4B\Plan Sheets\A-0009CA Rdy_psh-07.dgn

-L- CURVE DATA
 PI Sta 59+31.02
 $\Delta = 49^{\circ} 37' 23.2''$ (LT)
 $D = 5^{\circ} 58' 05.9''$
 $L = 831.44'$
 $T = 443.82'$
 $R = 960.00'$
 $SE = 0.08$
 $DS = 55 \text{ MPH}$

**MATCH LINE STA -L- 44+00.00
MATCH TO SHEET NO. 7**

MATCH LINE STA -L- 56 + 00.00
MATCH TO SHEET NO. 9



DETAIL 5
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground

2:1

D

4:3 or Fisher

Fill Slope

Min. D = 1.5 Ft.

FROM STA. 44 + 00 TO STA. 44 + 43 - L. RT.

FROM STA. 52 + 00 TO STA. 53 + 00 - L. LT.

DETAIL 6
STANDARD BASE DITCH
(Not to Scale)

Natural Ground

2:1

2:1

1.5'

D

B

Min. D = 4.0 Ft.
Max. d = 4.0 Ft.
B = 10.0 Ft.

Natural Ground

Type of Liner = CL "I" Rip-Rap - Keyed-In

STA. 44 + 88.4 - RT.

DETAIL 34
BANK STABILIZATION
 (Not to Scale)

NATURAL GROUND

2'

CLASS II RIP RAP

2:1

FROM STA.47+39 TO STA.48+55--L. RT.

DETAIL 35

UPSTREAM CHANNEL DETAIL
(LEFT TO RIGHT LOOKING DS)

(Not to Scale)

NWS = 1999.2

2' KEY-IN

12'

1.5'

VARIES 25'-0"

1.5'

CLASS II RIP RAP

STA. 47 + 20-L- RT.

DETAIL 36
DOWNSTREAM CHANNEL DETAIL
 (LEFT TO RIGHT LOOKING 'DS')
 (Not to Scale)

20.00
 1:1
 1.5:1
 3' X 2' X 1' BOULDER WALL
 CLASS II RIP RAP
 12'
 2' KEY-IN
 1999.2'

STA. 46 + 00 - LT.

DETAIL 46
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow

S=Ditch Slope

10:1 20:1

0.5' Min. 1.0' Max.

G1 etc.

Proposed Ditch

STA. 44 + 53 - L RT.

FOR -L- PROFILE, SEE SHEET NO. 21

8/17/99

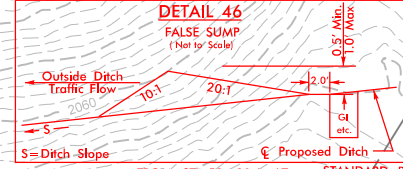
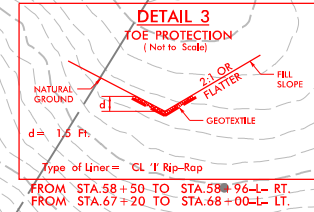
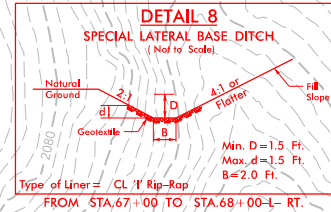
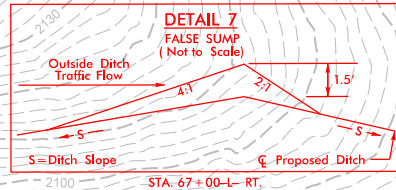
REVISIONS

3/2/2021 A-0009 Hyd-rulics\MERGER\A-0009 CA\CP 4B\Plan Sheets\A-0009CA.Rdy.psh.09.dgn
User: theng

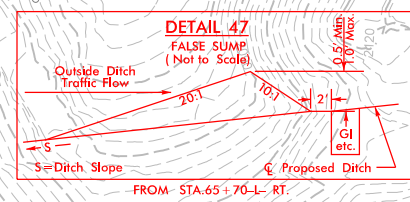
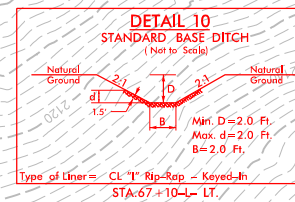
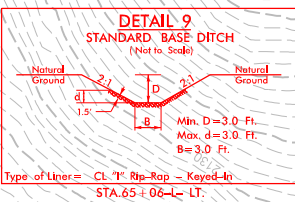
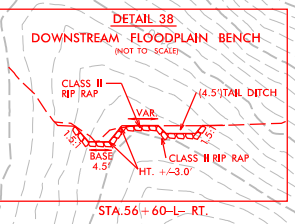
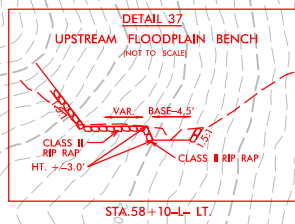
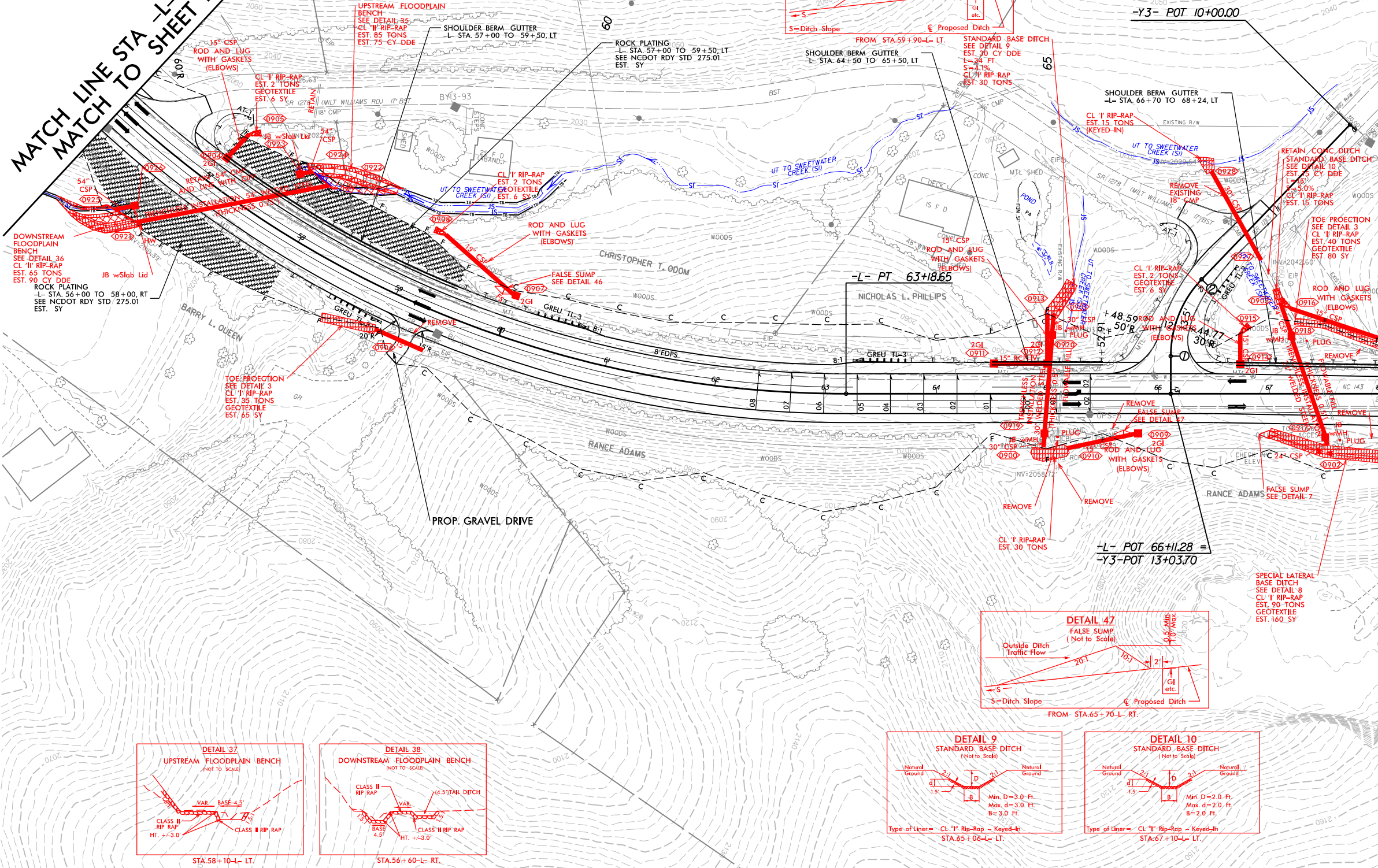
MATCH LINE STA -L- 56+00.00
MATCH TO SHEET NO. 8

MATCH LINE STA -L- 68+00.00
MATCH TO SHEET NO. 10

-L- CURVE DATA
PI Sta 59+31.02
 $\Delta = 49^{\circ} 37' 23.2''$ (LT)
 $D = 5^{\circ} 58' 05.9''$
 $L = 831.44'$
 $T = 443.82'$
 $R = 960.00'$
 $SE = 0.08$
 $DS = 55$ MPH



-Y3- POT 10+00.00



FOR -L- PROFILE, SEE SHEET NO. 22

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 TGS LLP, INC. TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			



DETAIL 47
FALSE SUMP
(Not to Scale)

20:1 10:1 2' 0.5' Min. 1'0" Max.

Gr. etc.

Proposed Ditch

STA. 68 + 90 - L RT.
STA. 81 + 40 - L RT.

DETAIL 11
STANDARD BASE DITCH
 (Not to Scale)

Natural Ground

1.5' 2.0' 8' 2.0'

Min. D = 2.0 Ft.
 Max. d = 2.0 Ft.
 B = 3.0 Ft.

Type of Liner = CL 1' Rip-Rap - Keyed-In

STA. 71+51 LYED.

DETAIL 46
FALSE SUMP
 (Not to Scale)

0.5' Min.
 1.0' Max.

Outside Ditch
 Traffic Flow

10:1 20:1

2' 0"

GL
 etc.

Proposed Ditch

S=Ditch Slope

STA. 68 + 40 - L.T.
 STA. 72 + 90 - L.T.

REVISIONS

8/17/99

8/17/99

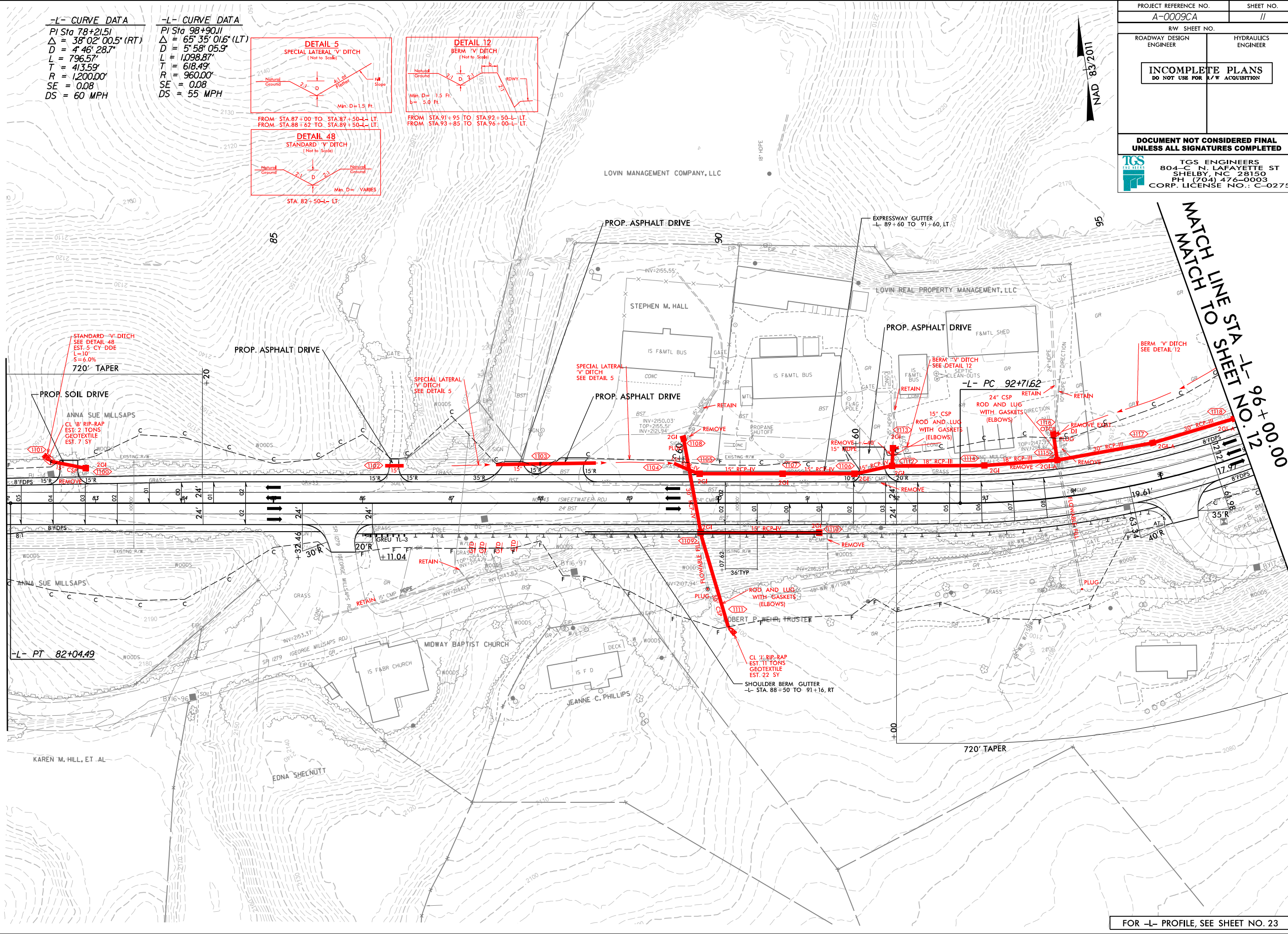
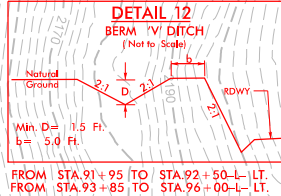
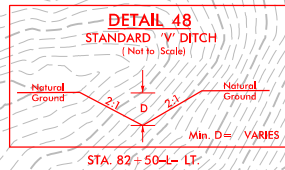
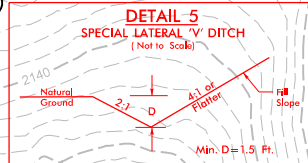
REVISIONS

2/26/2021 A-0009A-Hydraulics\MERG\A-0009 CA CP 4B\Plan Sheets\A-0009CA.Rdy.psh.11.dgn
User: jplante

MATCH LINE STA -L- 82+00.00
MATCH TO SHEET NO.10

-L- CURVE DATA
PI Sta 78+21.51
 $\Delta = 38^{\circ}02'00.5''$ (RT)
 $D = 4'46''28.7''$
 $L = 796.57'$
 $T = 413.59'$
 $R = 1200.00'$
 $SE = 0.08$
 $DS = 60$ MPH

-L- CURVE DATA
PI Sta 98+90.11
 $\Delta = 65^{\circ}35'01.6''$ (LT)
 $D = 5'58''05.9''$
 $L = 1098.87'$
 $T = 618.49'$
 $R = 960.00'$
 $SE = 0.08$
 $DS = 55$ MPH



FOR -L- PROFILE, SEE SHEET NO. 23

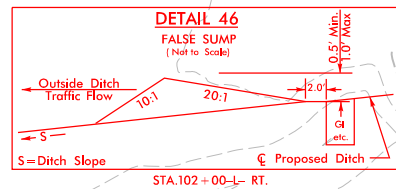
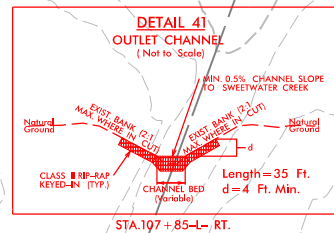
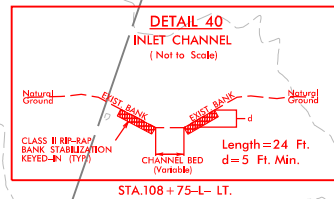
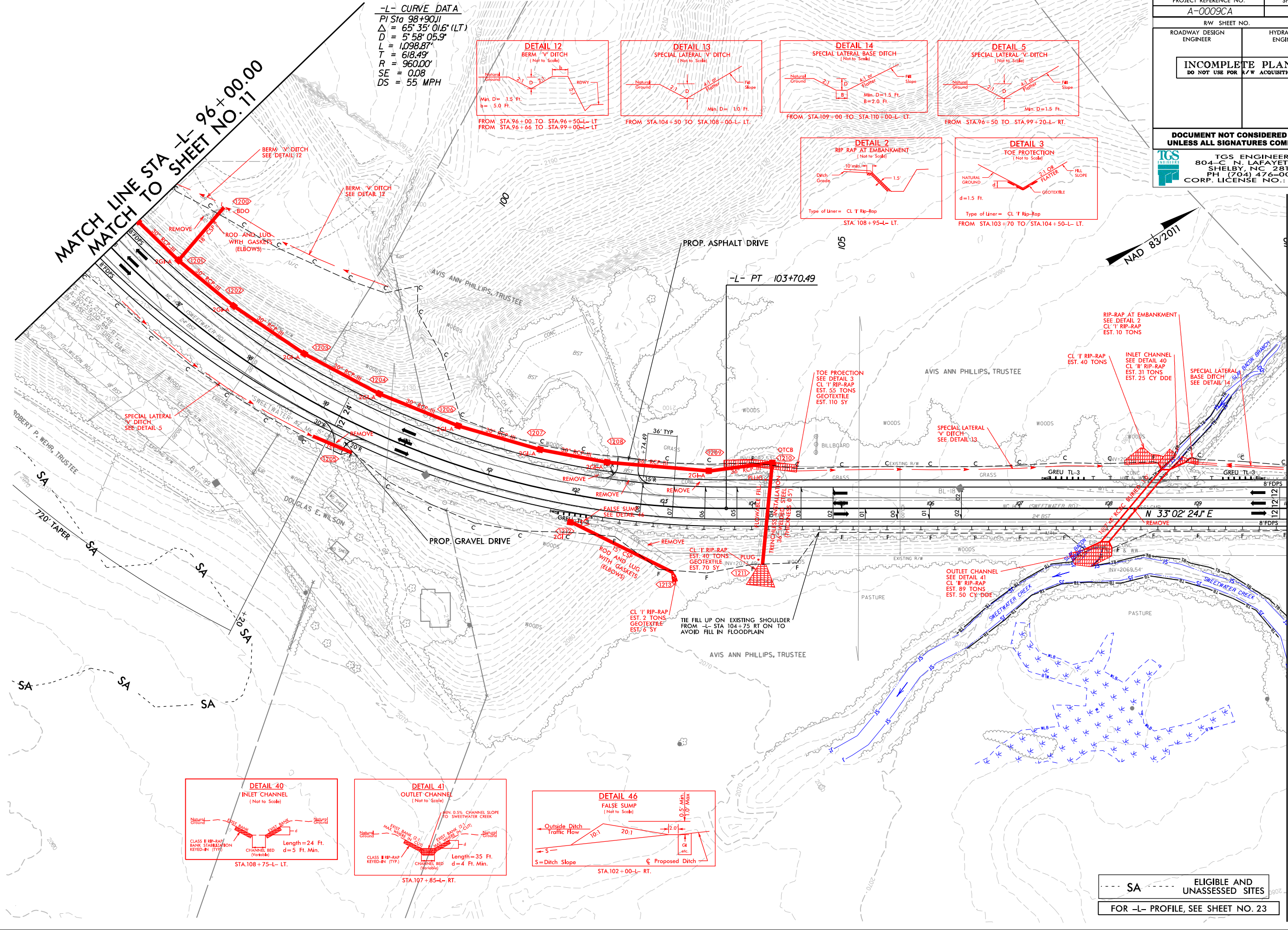
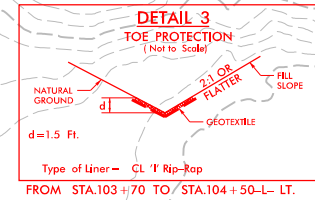
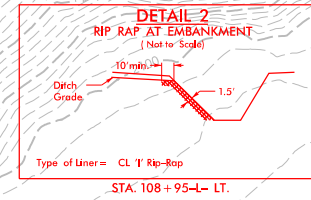
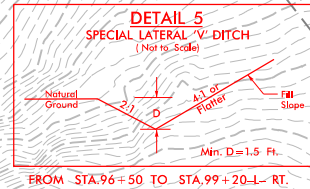
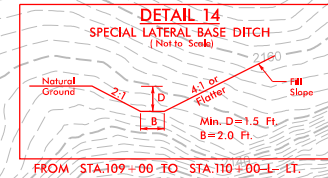
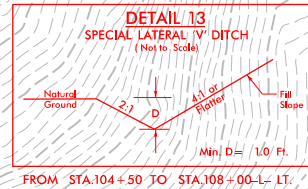
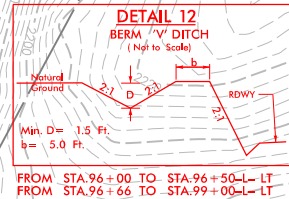
8/17/99

REVISIONS

2/26/2021 X:\NC001\A-0009\Hydraulics\MERGER\A-0009CA_Rdy_psh.12.dgn User:ilablate

MATCH LINE STA -L- 96+00.00
MATCH TO SHEET NO. 11

-L- CURVE DATA
PI Sta 98+90.11
 $\Delta = 65^{\circ} 35' 01.6" (LT)$
 $D = 5^{\circ} 58' 05.9"$
 $L = 1,098.87'$
 $T = 618.49'$
 $SE = 0.08$
 $DS = 55 \text{ MPH}$



SA ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 23

PROJECT REFERENCE NO.	SHEET NO.
A-0009CA	12
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	

MATCH LINE STA -L- 110+00.00
MATCH TO SHEET NO. 13

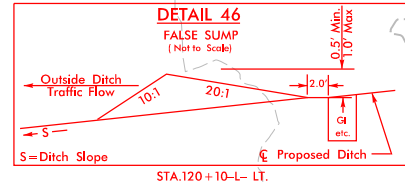
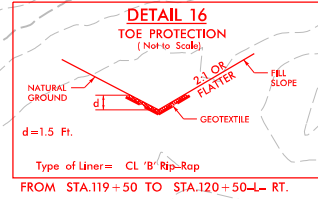
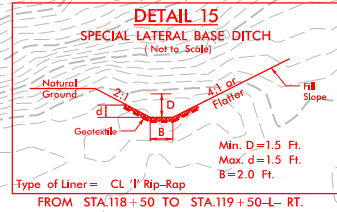
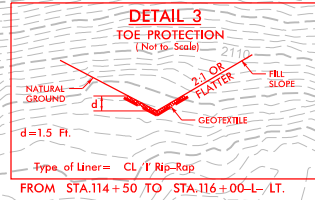
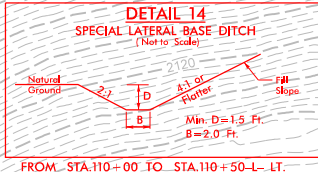
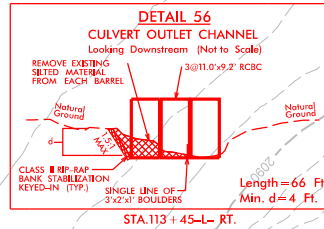
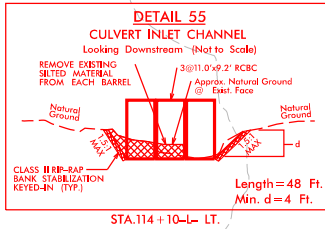
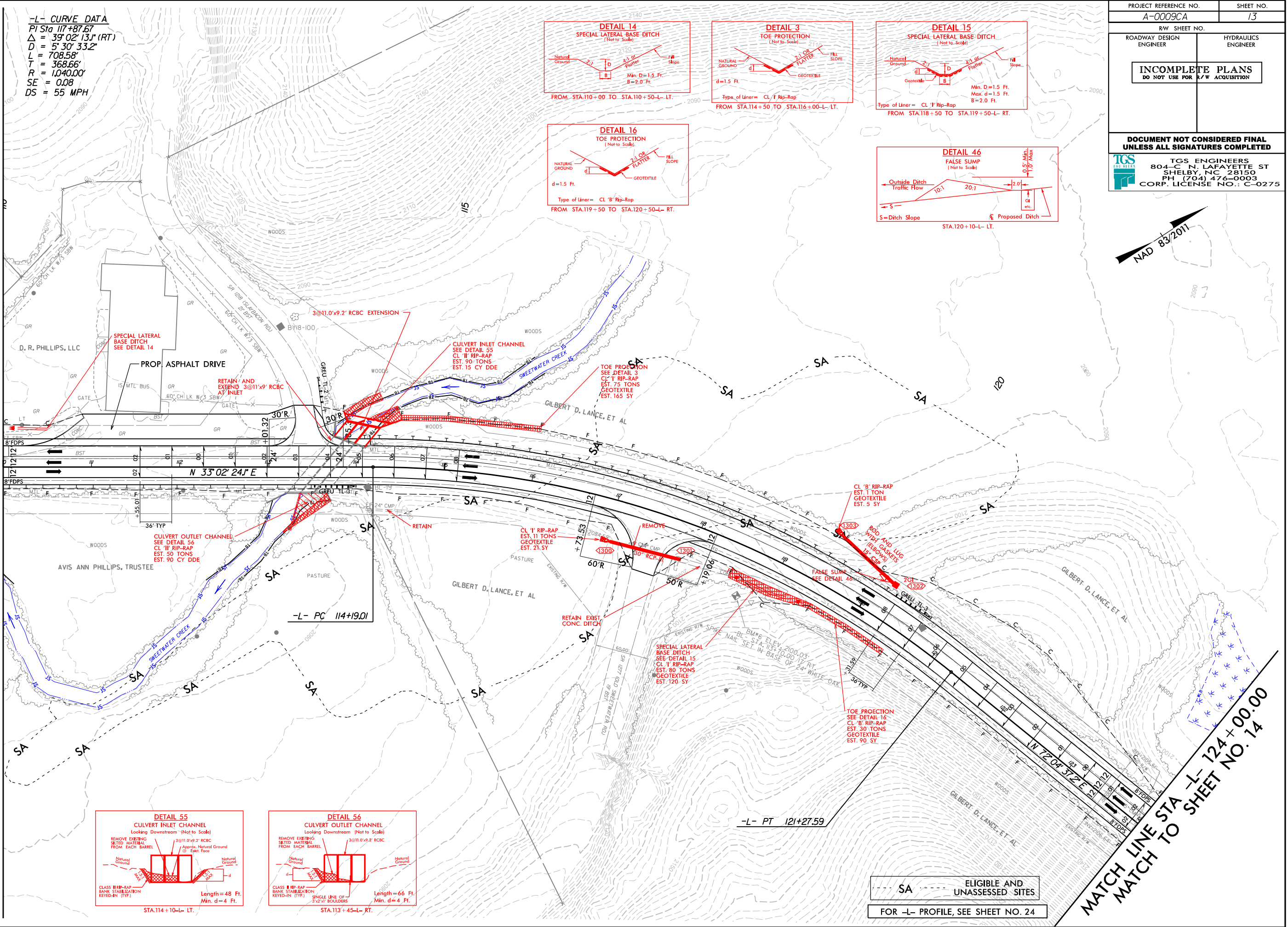
8/17/99

REVISIONS

3/2/2021 VA-0009 Hydraulics\MERGVA-0009 CA\CP 4B\Plan Sheets\A-0009CA.Rdy.psh.13.dgn
User: tshen

MATCH LINE STA -L- 110+00.00
MATCH TO SHEET NO. 12

-L- CURVE DATA
PI Sta 117+87.67
 $\Delta = 39^{\circ} 02' 13"$ (RT)
D = $5^{\circ} 30' 33.2"$
L = 708.58'
T = 368.66'
R = 1,040.00'
SE = 0.08
DS = 55 MPH



SA ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 24

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 13	
RW SHEET NO.		HYDRAULICS ENGINEER	
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			

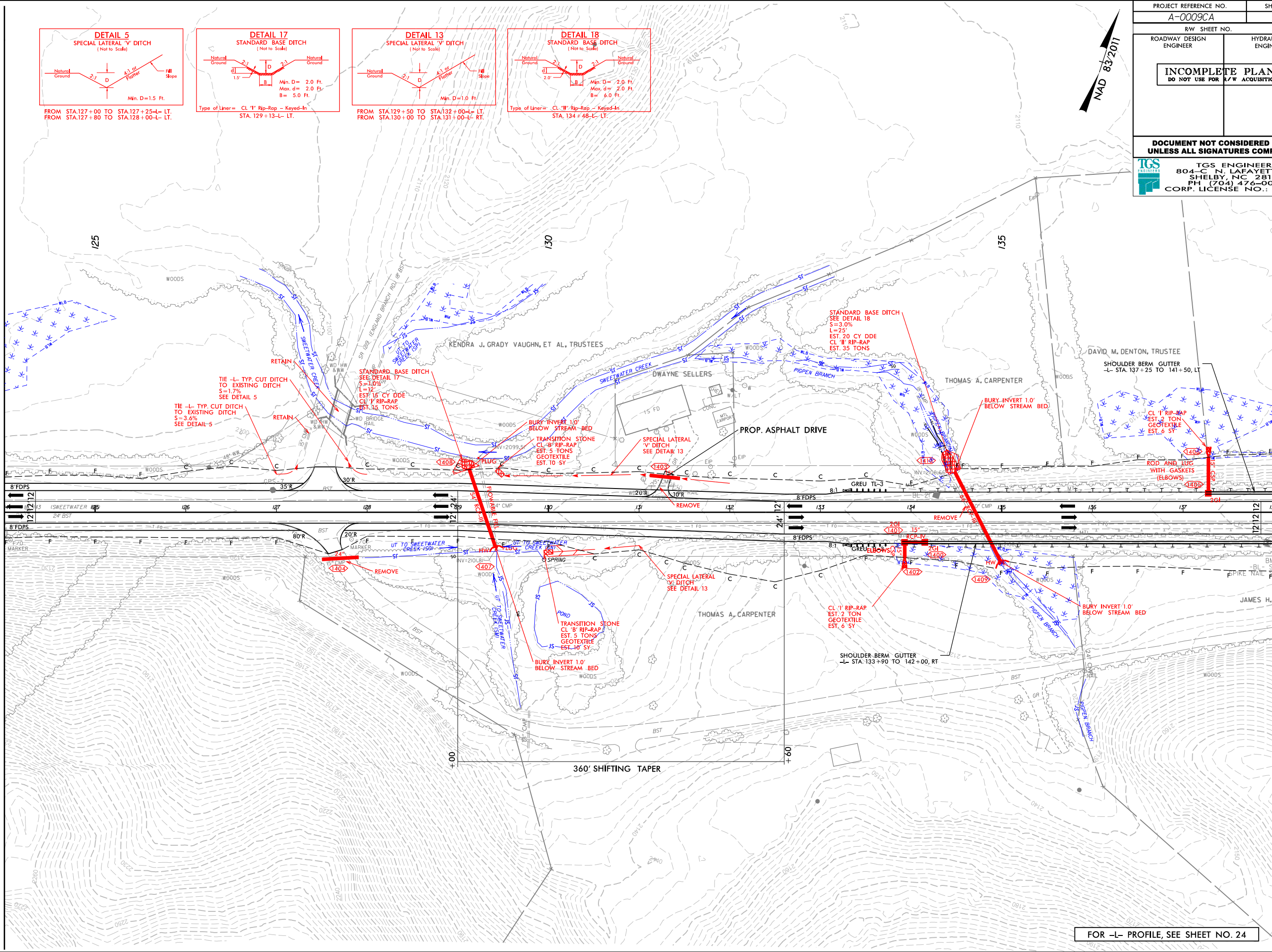
MATCH LINE STA -L- 124+00.00
MATCH TO SHEET NO. 14

REVISIONS

8/17/99

2/26/2021 A-0009 Hyd-aulics\MERGER\A-0009 CA CP 4B\Plan Sheets\A-0009CA_Rdy_psh.14.dgn
User: jllalante

MATCH LINE STA -L- 124+00.00
MATCH TO SHEET NO.13



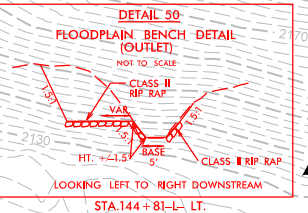
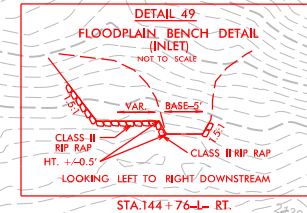
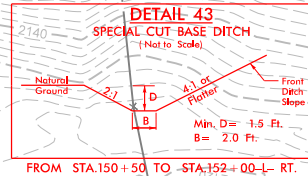
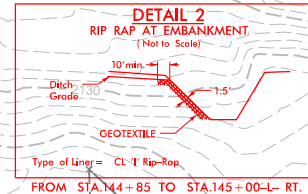
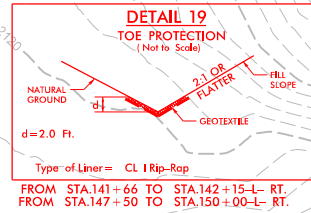
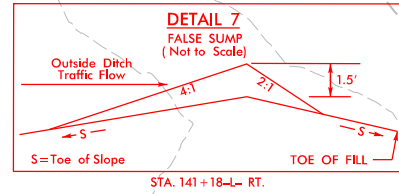
FOR -L- PROFILE, SEE SHEET NO. 24

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 14	
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- 138+00.00
MATCH TO SHEET NO.15

PROJECT REFERENCE NO.	SHEET NO.
A-0009CA	15
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 INC. VICKS TGS ENGINEERS 804-C. N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

-L- CURVE DATA
 PI Sta 149+87.02
 $\Delta = 0^\circ 52' 26.7''$ (LT)
 $D = 0^\circ 28' 38.9''$
 $L = 183.07'$
 $T = 91.54'$
 $R = 12,000.00'$
 $SE = NC$
 $DS = 60 \text{ MPH}$

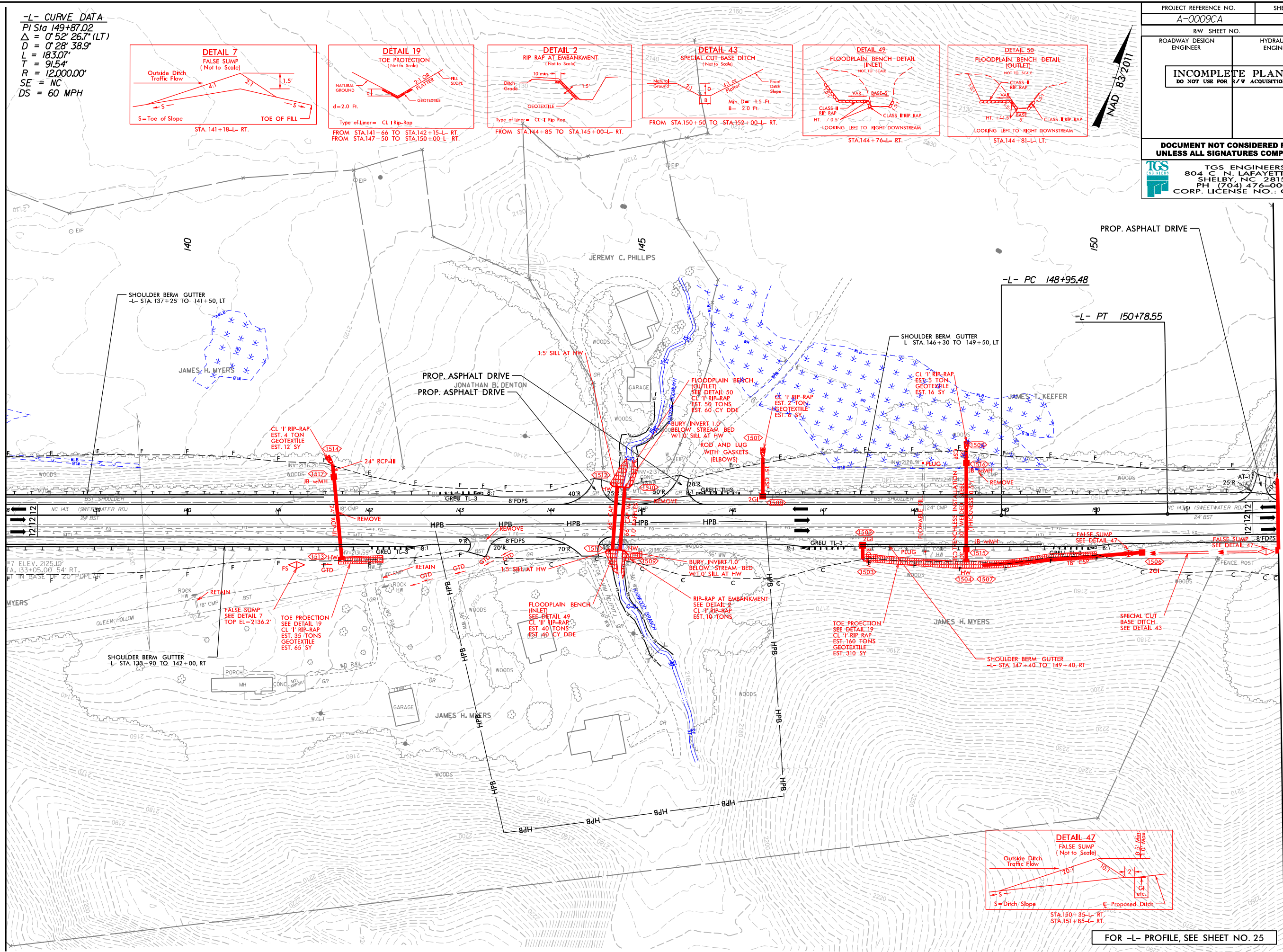


**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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

**MATCH LINE STA -L- 138+00.00
MATCH TO SHEET NO.14**

MATCH LINE STA -L- 152+00.00
MATCH TO SHEET NO. 16

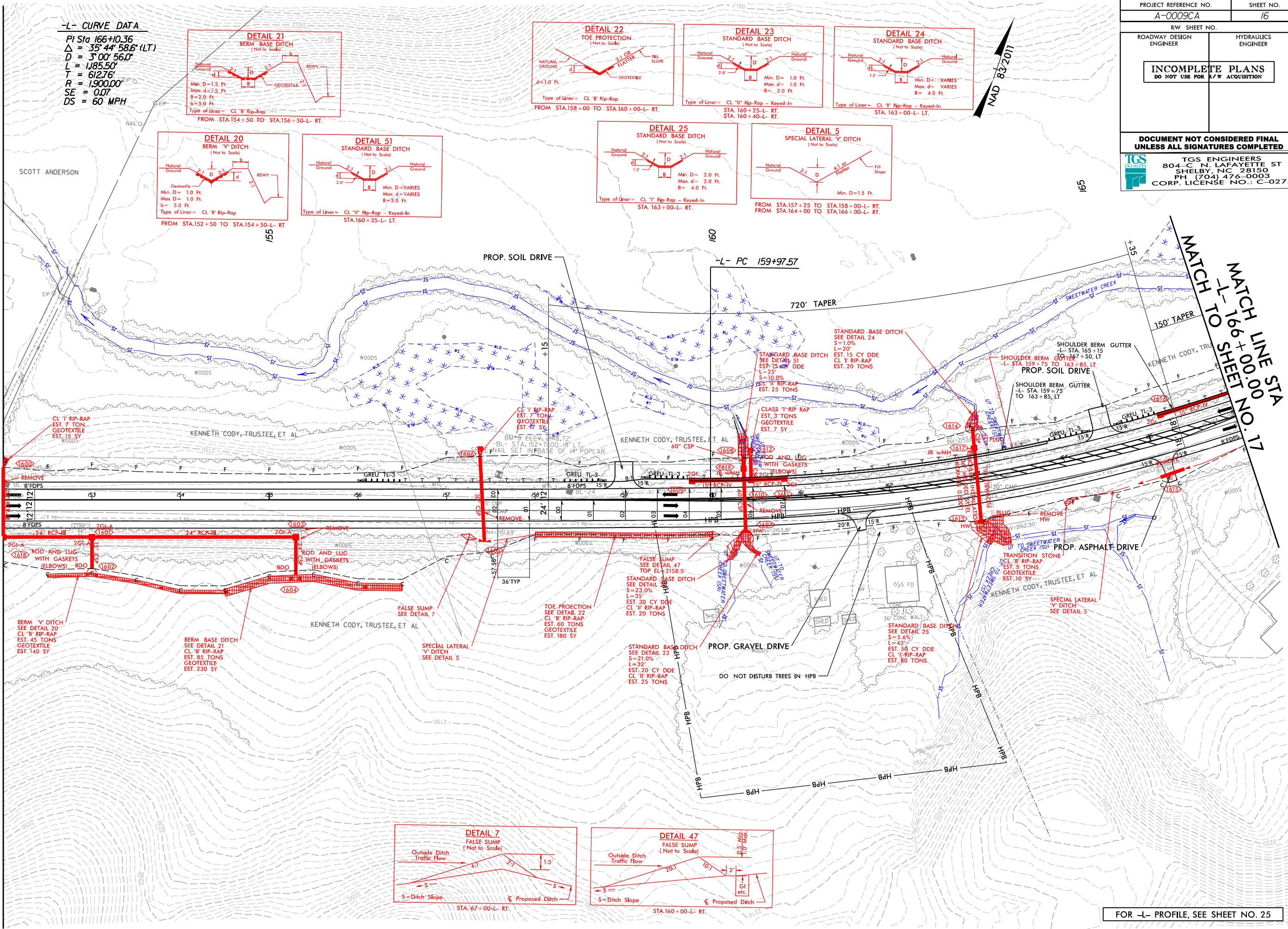


FOR -L- PROFILE, SEE SHEET NO. 25

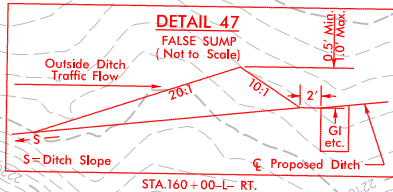
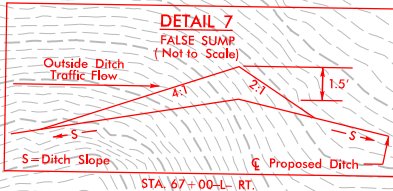
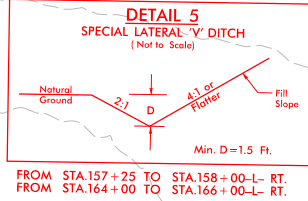
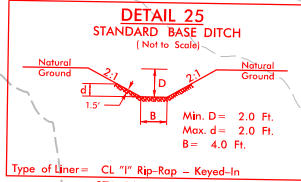
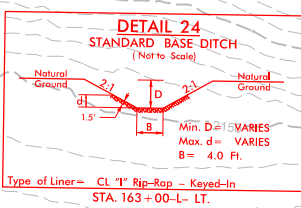
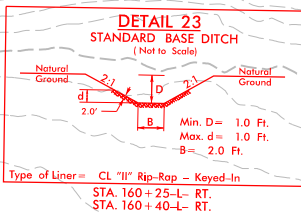
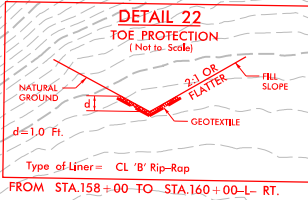
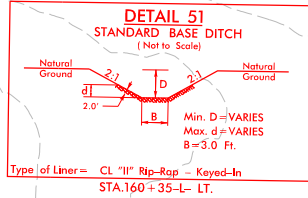
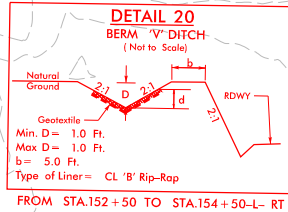
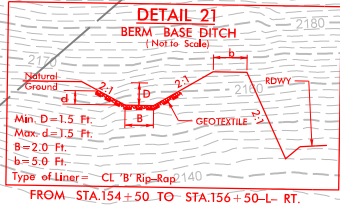
8/17/99
2/26/2009
X:\NC009\A-0009\Hydraulics\MERGER\A-0009\CA\CP 4B\Plan Sheets\A-0009CA_Rdy.phs.i6.dgn
User:ilacante

REVISIONS

MATCH LINE STA -L- 152+00.00
MATCH TO SHEET NO. 15



-L- CURVE DATA
PI Sta 166+10.36
 $\Delta = 35^\circ 44' 58.6''$ (LT)
 $D = 3^\circ 00' 56.0''$
 $L = 1485.50'$
 $T = 612.76'$
 $R = 1900.00'$
 $SE = 0.07$
 $DS = 60$ MPH



PROJECT REFERENCE NO.	SHEET NO.
A-0009CA	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR 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	

FOR -L- PROFILE, SEE SHEET NO. 25

8/17/99

REVISIONS

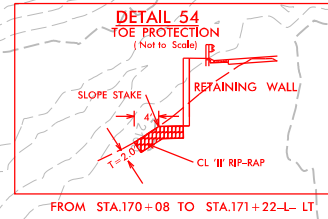
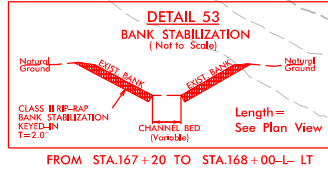
3/2/2021 A-0009CA Hyd-0009CA.Rdy.psh.17.dgn
User: thengor

MATCH LINE STA -L- 166+00.00
MATCH TO SHEET NO. 16

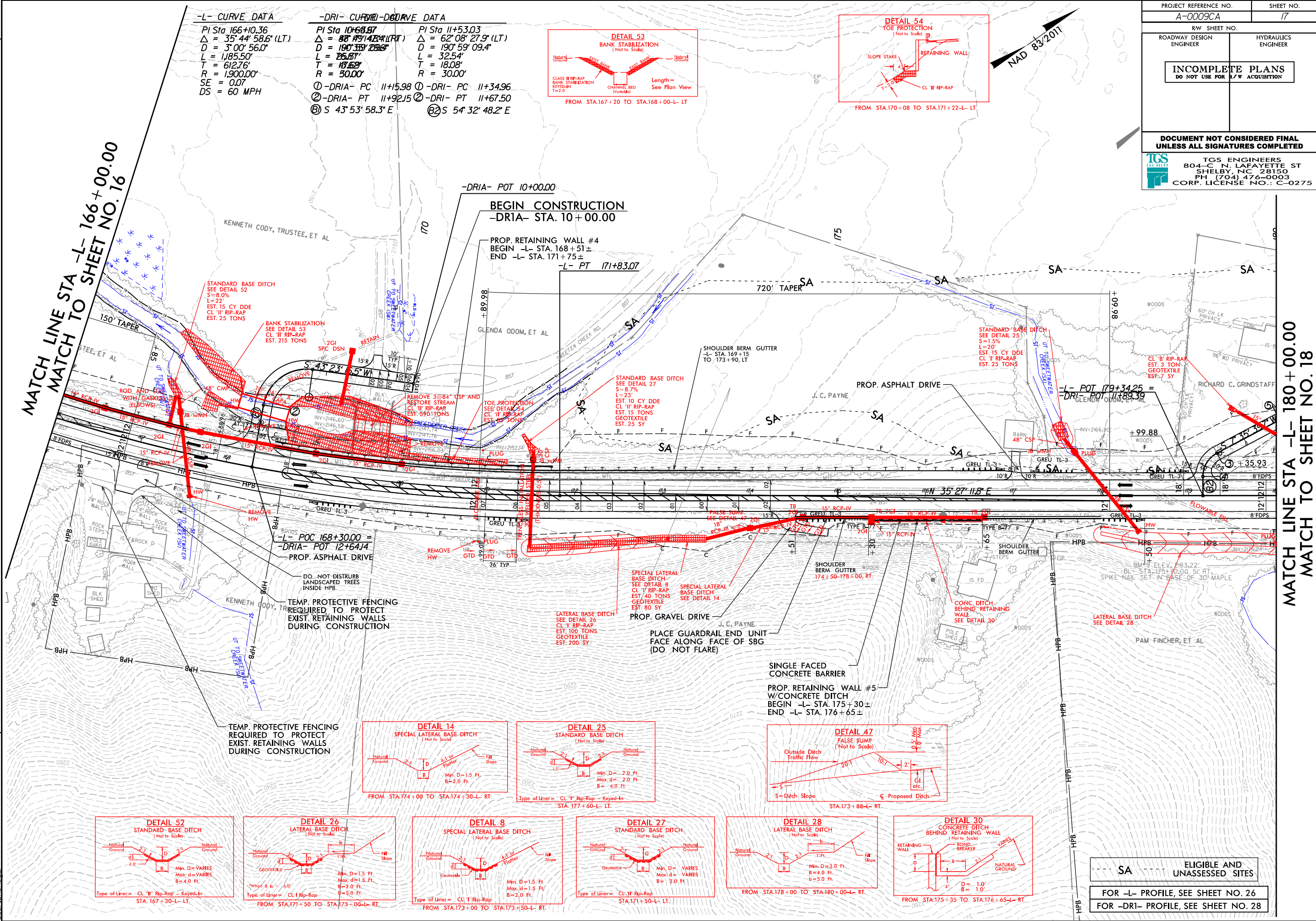
MATCH LINE STA -L- 180+00.00
MATCH TO SHEET NO. 18

-L- CURVE DATA
PI Sta 166+10.36
 $\Delta = 35^\circ 44' 58.6" (LT)$
 $D = 3^\circ 00' 56.0"$
 $L = 1,185.50'$
 $T = 612.76'$
 $R = 1,900.00'$
 $SE = 0.07$
 $DS = 60 \text{ MPH}$

-DRI- CURVE DATA
PI Sta 10+66.87
 $\Delta = 88^\circ 14' 24.1" (PT)$
 $D = 190^\circ 35' 29.6"$
 $L = 26.57'$
 $T = 13.62'$
 $R = 50.00'$
① -DRIA- PC 11+5.98 ① -DRI- PC 11+34.96
② -DRIA- PT 11+92.15 ② -DRI- PT 11+67.50
③ S 43° 53' 58.3" E ③ S 54° 32' 48.2" E



PROJECT REFERENCE NO. A-0009CA		SHEET NO. 17	
RW SHEET NO. ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/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			



SA ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 26
FOR -DRI- PROFILE, SEE SHEET NO. 28

8/17/99

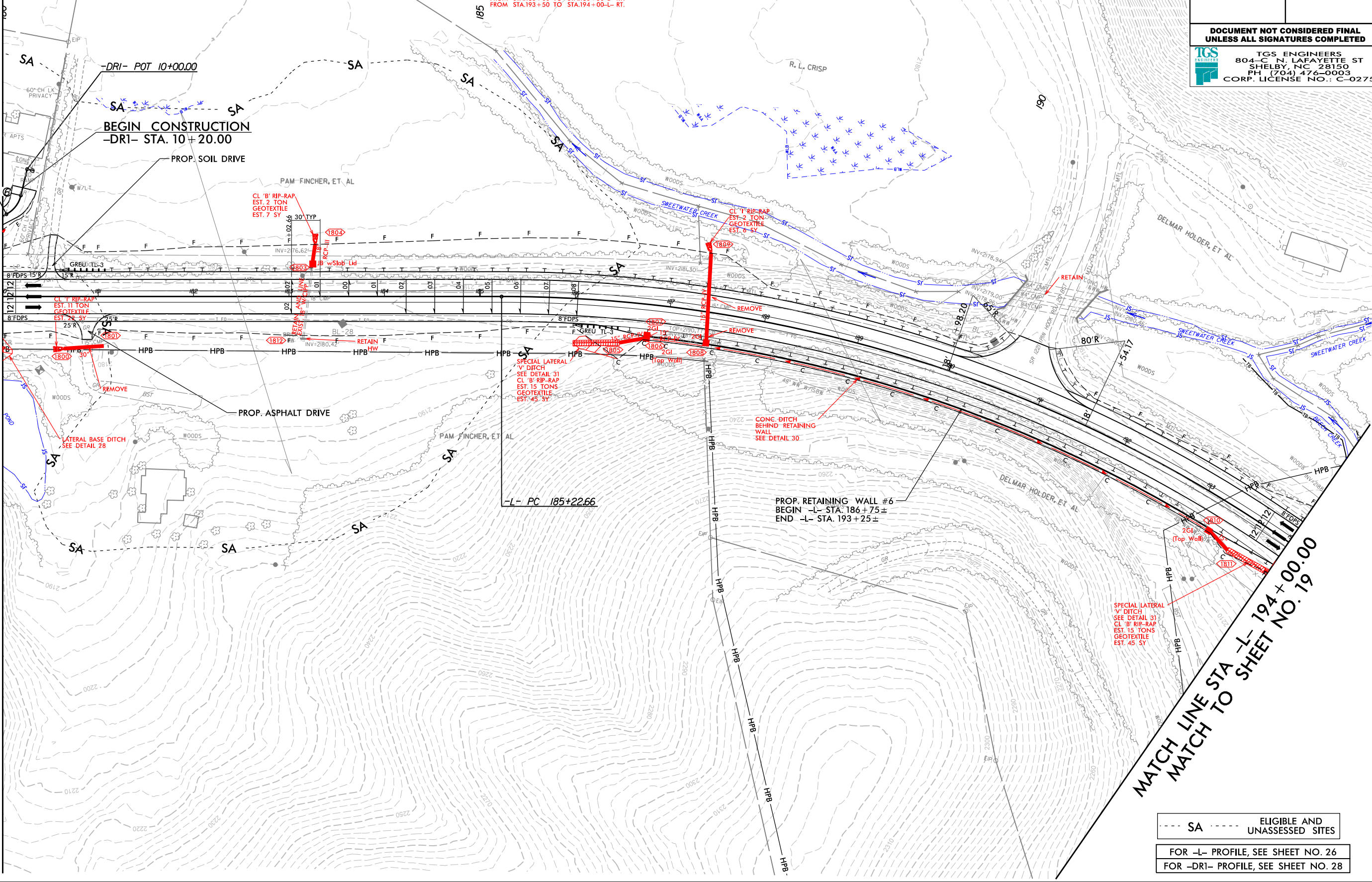
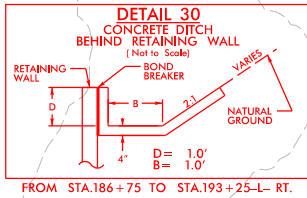
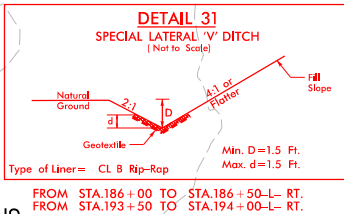
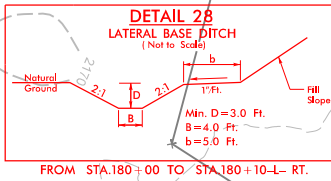
REVISIONS

X:\NC001\A-0009\Hydraulics\MERGER\A-0009\CA\CP 4B\Plan Sheets\A-0009CA_Rdy_psh_18.dgn
2/26/2021 User: jlabadie

MATCH LINE STA -L- 180+00.00
MATCH TO SHEET NO. 17

-L- CURVE DATA
PI Sta 190+83.76
 $\Delta = 42^\circ 18' 27.4" (RT)$
 $D = 3^\circ 57' 05.2"$
 $L = 1,070.69'$
 $T = 561.07'$
 $R = 1,450.00'$
 $SE = 0.08$
 $DS = 60 \text{ MPH}$

-DRI- CURVE DATA
PI Sta 10+41.97
 $\Delta = 48^\circ 49' 47.4" (RT)$
 $D = 190^\circ 59' 09.4"$
 $L = 25.57'$
 $T = 13.62'$
 $R = 30.00'$
⑤ -DRI- PC 10+28.35
⑥ -DRI- PT 10+53.92



MATCH LINE STA -L- 194+00.00
MATCH TO SHEET NO. 19

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 18	
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			

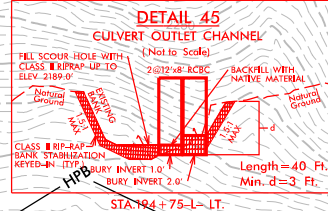
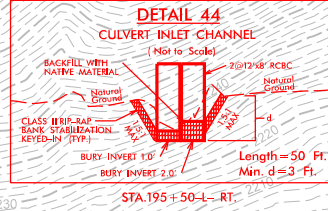
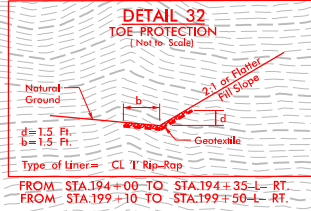
--- SA --- ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 26
FOR -DRI- PROFILE, SEE SHEET NO. 28

8/17/99

REVISIONS

2/26/2021 X:\NC009\A-0009\Hydraulics\MERGER\A-0009 CA\CP 4B\Plan Sheets\A-0009CA_Rdy_psh_19.dgn User: jlaolante

-L- CURVE DATA
PI Sta 190+83.76
 $\Delta = 42^\circ 18' 27.4" (RT)$
 $D = 3^\circ 57' 05.2"$
 $L = 1,070.69'$
 $T = 561.07'$
 $R = 1,450.00'$
 $SE = 0.08$
 $DS = 60 \text{ MPH}$



PROJECT REFERENCE NO.	SHEET NO.
A-0009CA	19
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	

MATCH LINE STA -L- 194+00.00
MATCH TO SHEET NO. 18
MATCH TO SHEET NO. 19

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

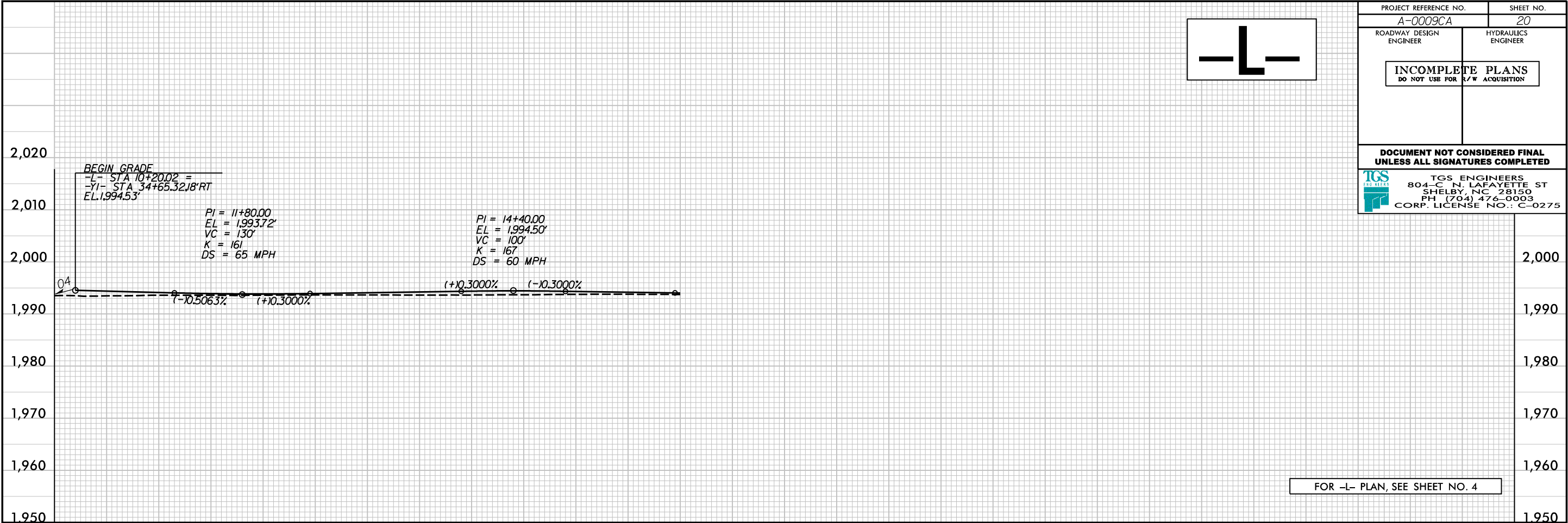
END TIP PROJECT A-0009CA
-L- STA. 208+00.00

SA ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 27

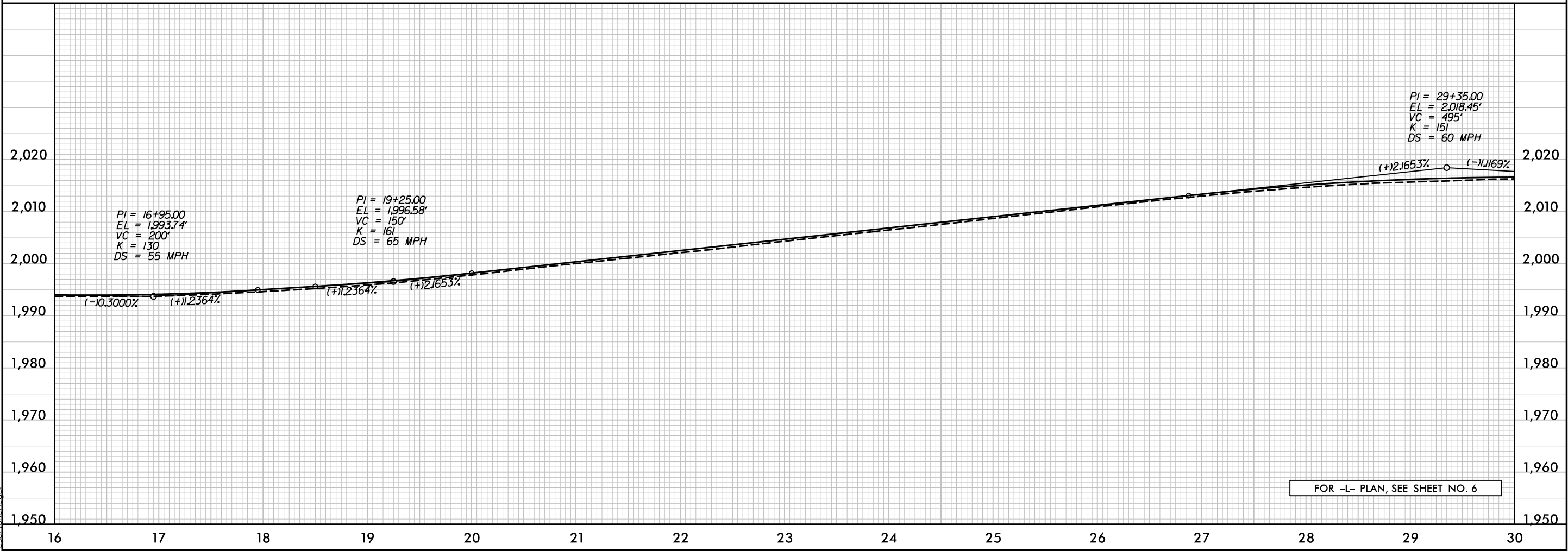
5/28/99



PROJECT REFERENCE NO. A-0009CA		SHEET NO. 20	
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	

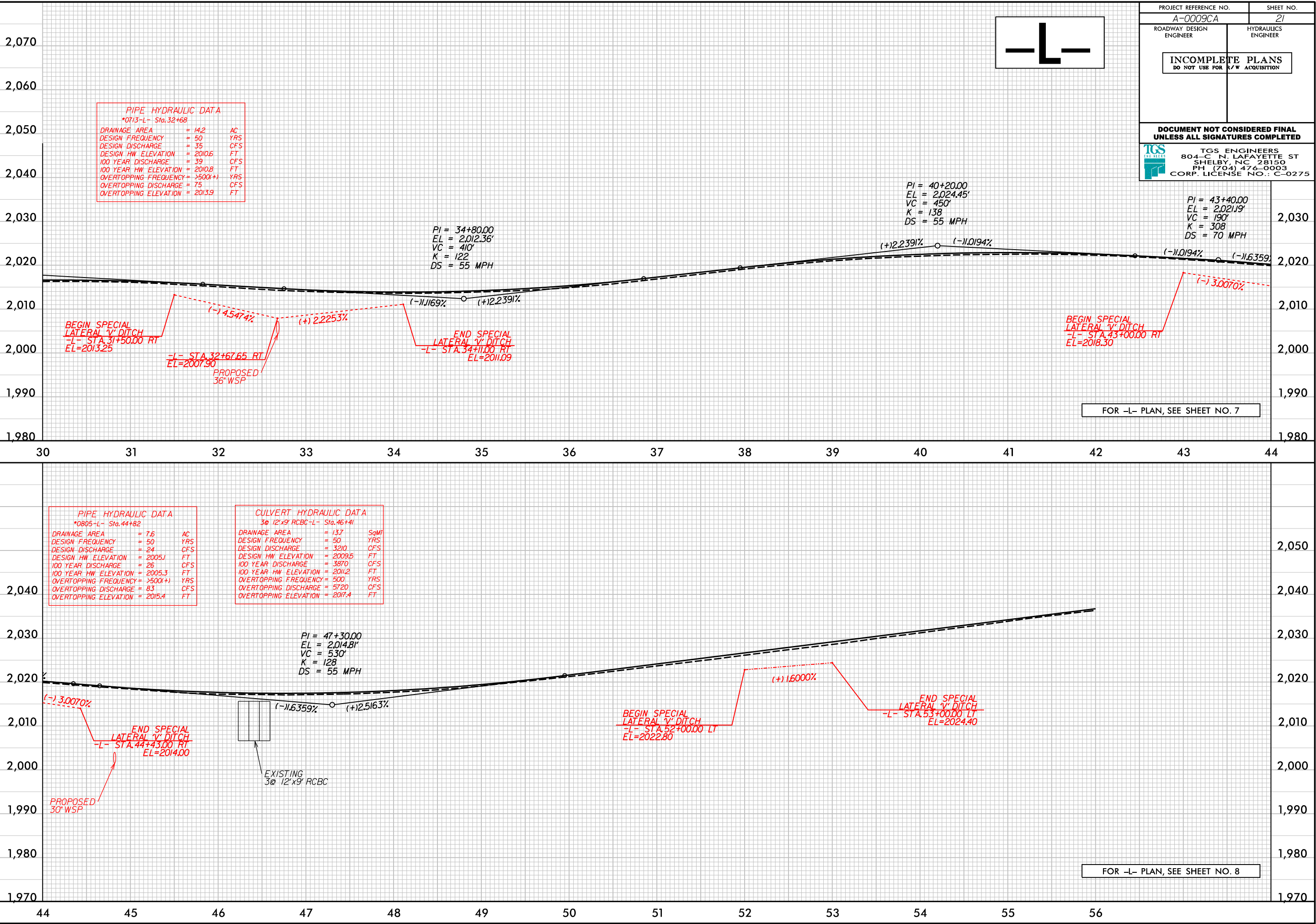


3/2/2021 11:40:00 AM C:\Users\jthompson\Documents\Projects\A-0009CA\Plan Sheets\A-0009CA.Rdy.pfl_Sheets.dgn



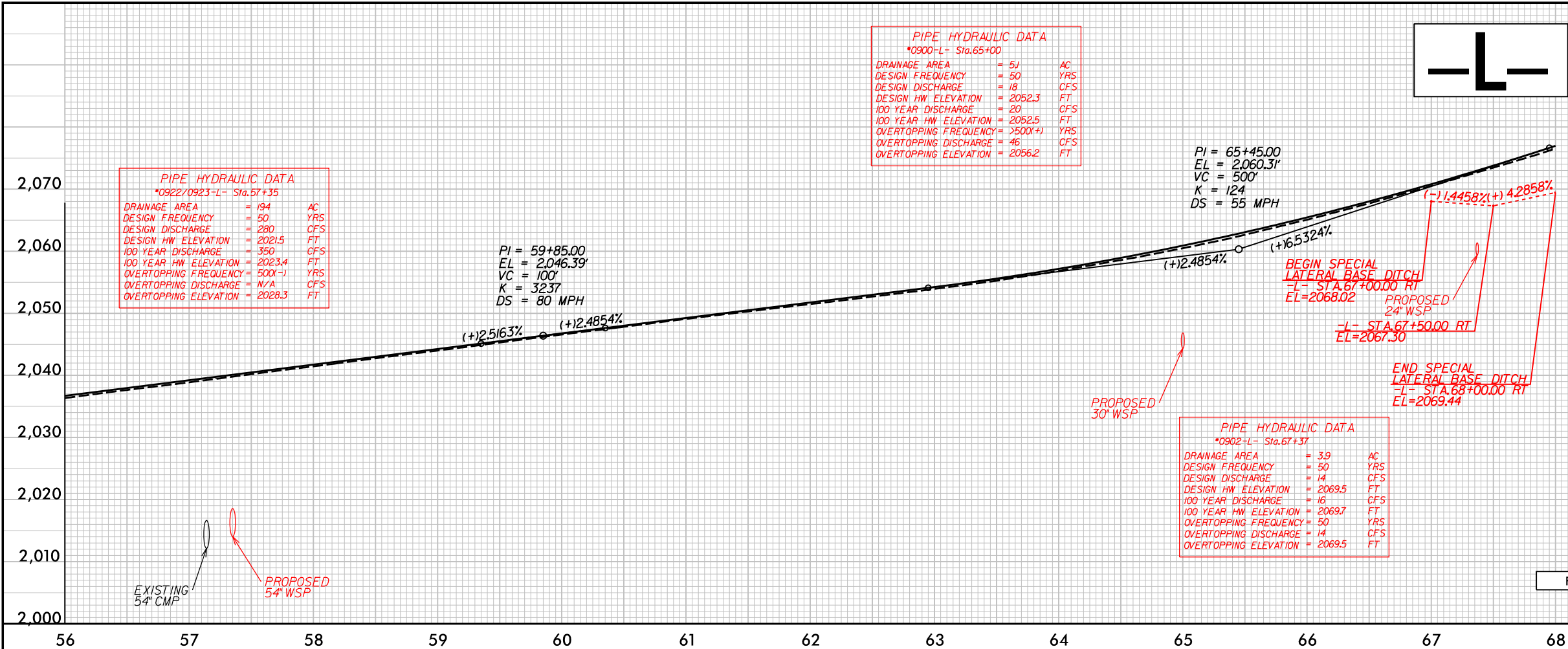
5/28/99

3/2/2021
X:\C001\A-0009\Hydraulics\MERG\A-0009 CA\CP 4B\Plan Sheets\A-0009CA.Rdy.pfl_Sheets.dgn
User: jhanson



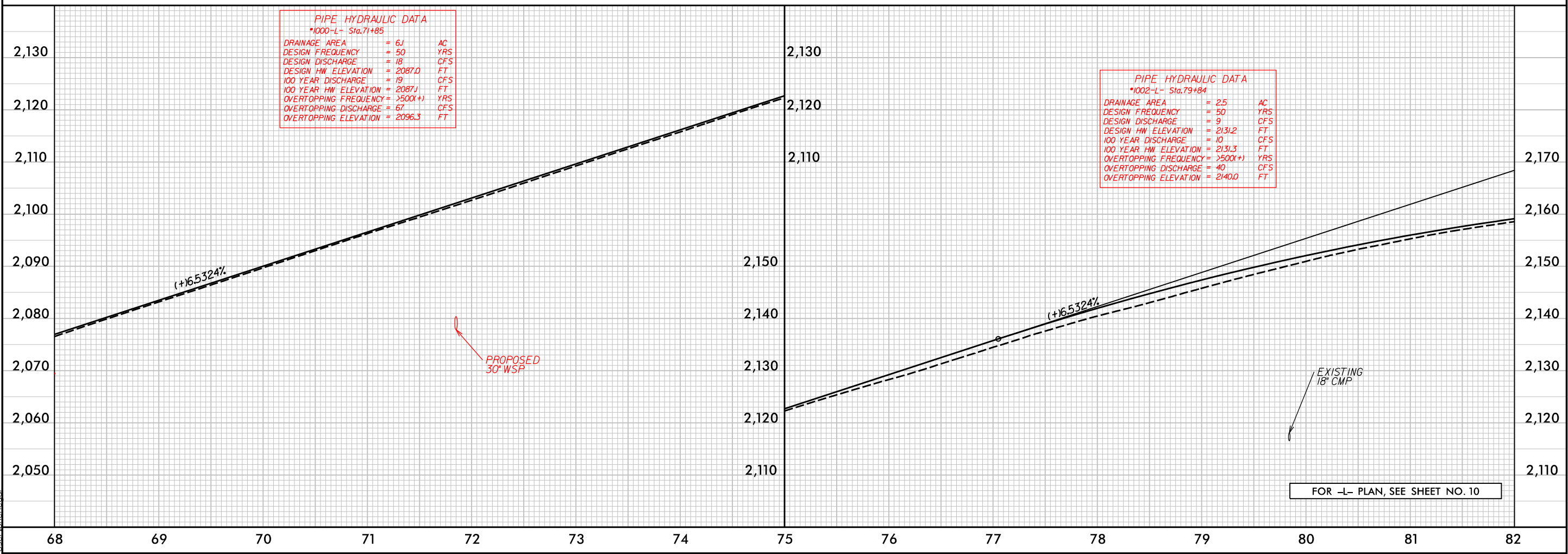
PROJECT REFERENCE NO. A-0009CA		SHEET NO. 21	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

5/28/99

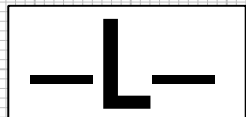


PROJECT REFERENCE NO. A-0009CA		SHEET NO. 22	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

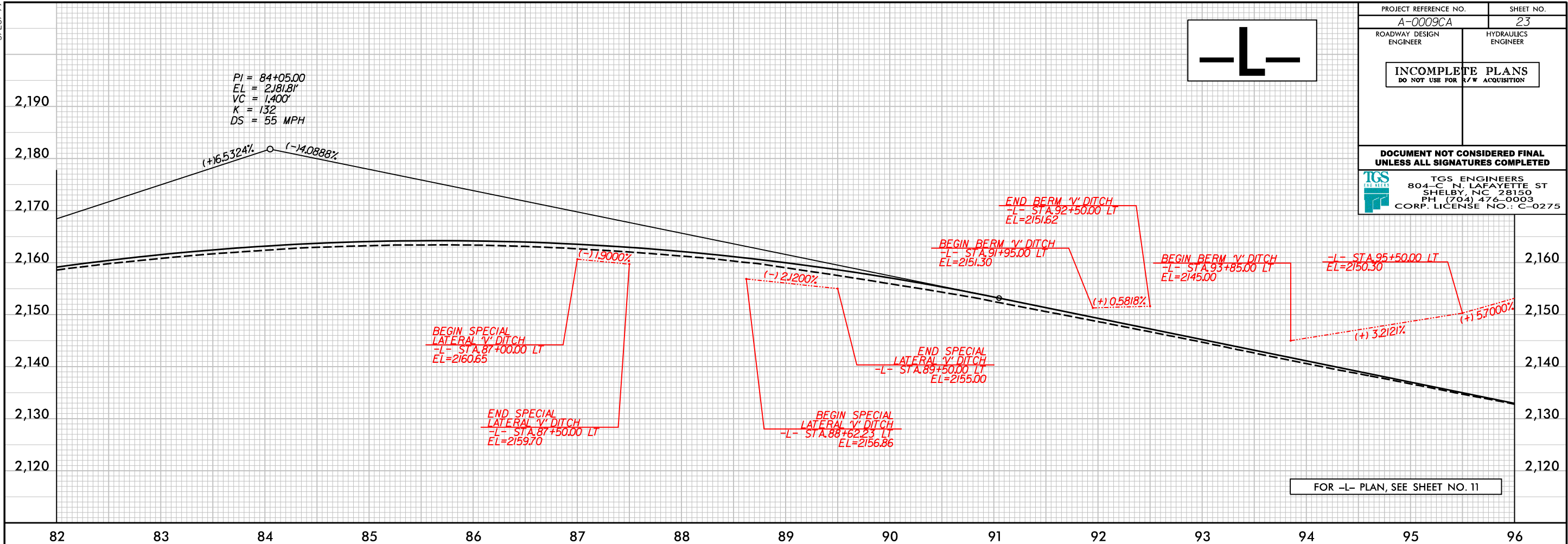
3/2/2021 14:00:09 Hydraulic\MERGER\A-0009 CA\CP 4B\Plan Sheets\A-0009CA.Rdy.pfl_Sheets.dgn User:cheneo



5/28/99

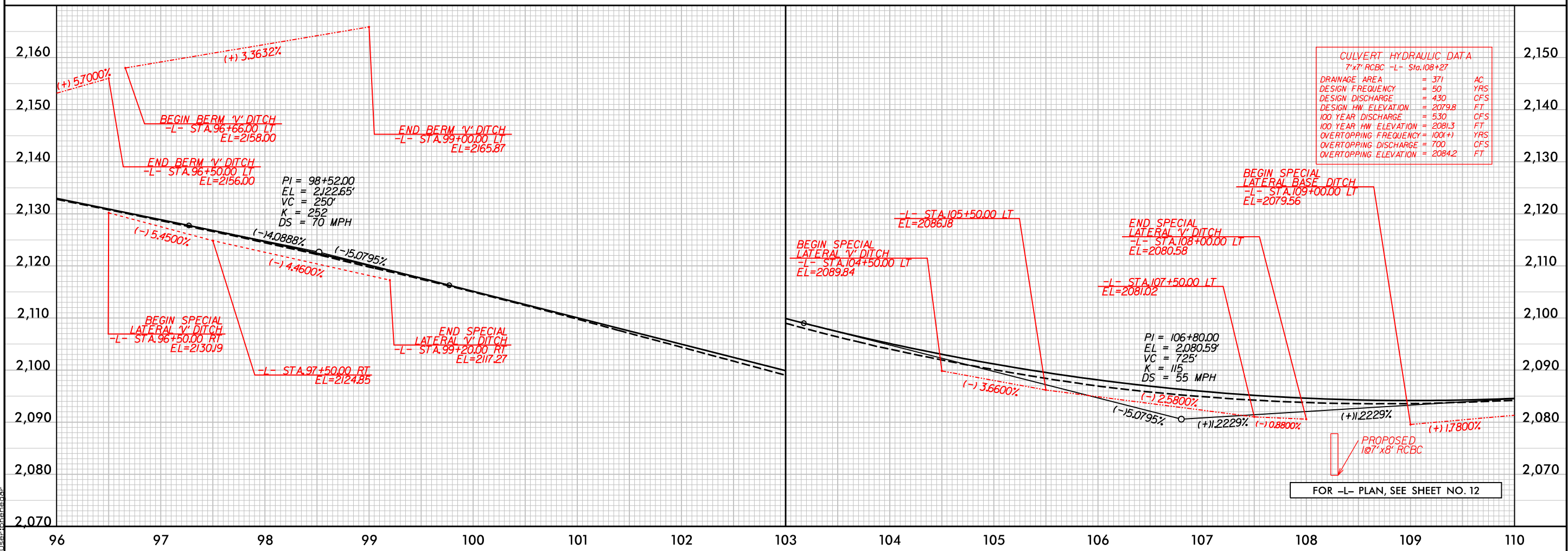


PROJECT REFERENCE NO. A-0009CA		SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
 TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275		



FOR -L- PLAN, SEE SHEET NO. 11

3/2/2021 1:40:00 PM C:\Users\jldavis\Documents\Projects\0009\CA\CP 4B\Plan Sheets\A-0009CA.Rdy.pfl_Sheets.dgn



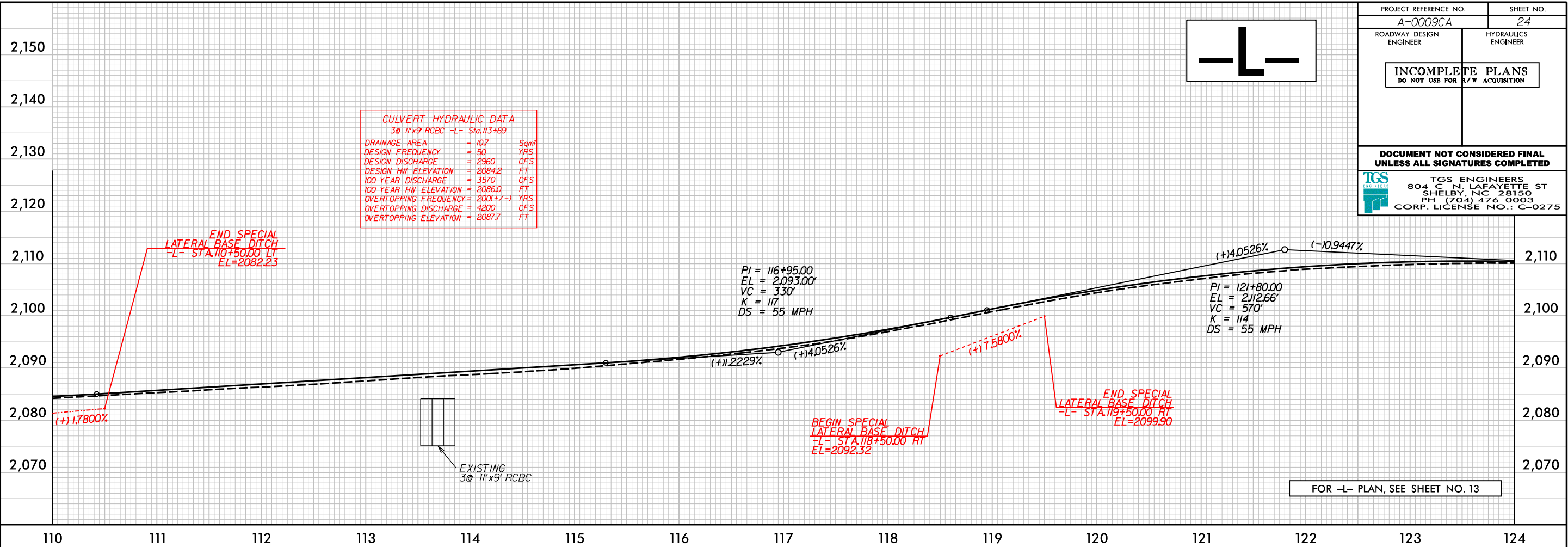
FOR -L- PLAN, SEE SHEET NO. 12

5/28/99



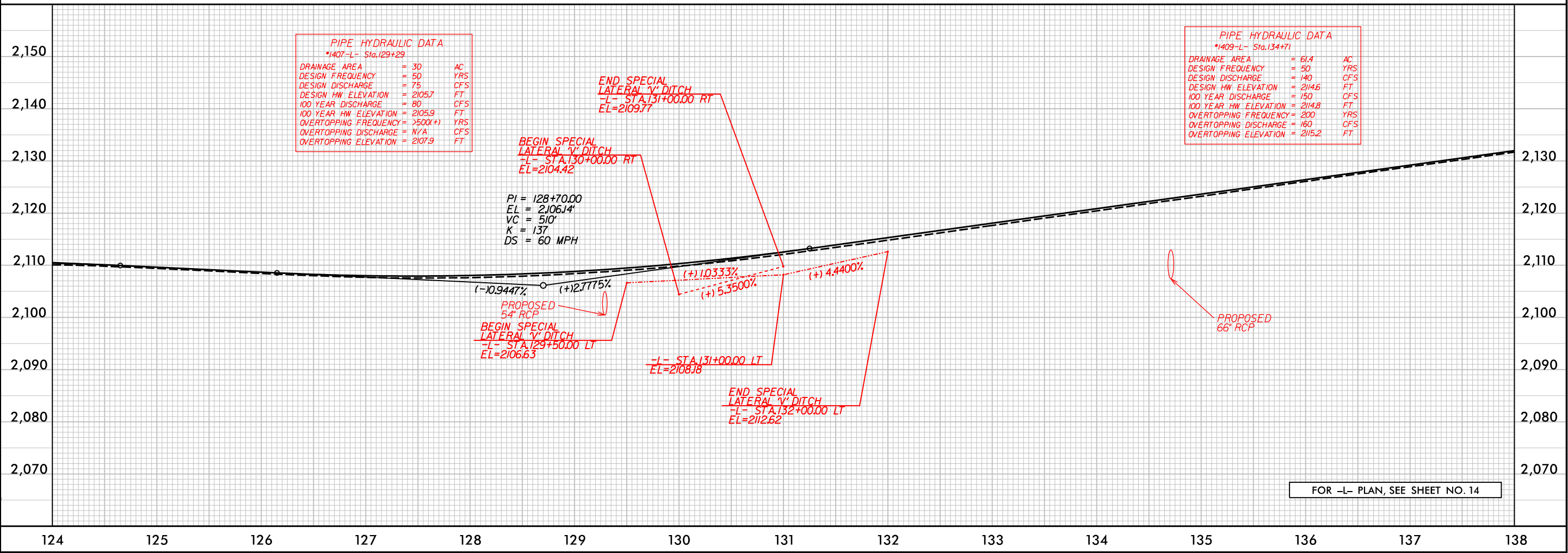
PROJECT REFERENCE NO. A-0009CA		SHEET NO. 24	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

CULVERT HYDRAULIC DATA		
30 11"x9" RCBC -L- Sta.113+69		
DRAINAGE AREA	= 10.7	Sqmi
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 2960	CFS
DESIGN HW ELEVATION	= 2084.2	FT
100 YEAR HW ELEVATION	= 3570	CFS
100 YEAR HW ELEVATION	= 2086.0	FT
OVERTOPPING FREQUENCY	= 200(+/-)	YRS
OVERTOPPING DISCHARGE	= 4200	CFS
OVERTOPPING ELEVATION	= 2087.7	FT

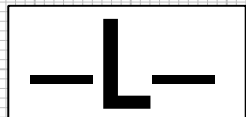


PIPE HYDRAULIC DATA		
*1407-L- Sta.129+29		
DRAINAGE AREA	= 30	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 75	CFS
DESIGN HW ELEVATION	= 2105.7	FT
100 YEAR HW ELEVATION	= 80	CFS
100 YEAR HW ELEVATION	= 2105.9	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2107.9	FT

PIPE HYDRAULIC DATA		
*1409-L- Sta.134+71		
DRAINAGE AREA	= 61.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 140	CFS
DESIGN HW ELEVATION	= 2114.6	FT
100 YEAR HW ELEVATION	= 150	CFS
100 YEAR HW ELEVATION	= 2114.8	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 160	CFS
OVERTOPPING ELEVATION	= 2115.2	FT



5/28/99



PROJECT REFERENCE NO. A-0009CA		SHEET NO. 25	
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			

PIPE HYDRAULIC DATA			
*1513-L- Sta.141+65			
DRAINAGE AREA	= 4.5	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 12	CFS	
DESIGN HW ELEVATION	= 2135.7	FT	
100 YEAR DISCHARGE	= 13	CFS	
100 YEAR HW ELEVATION	= 2135.8	FT	
OVERTOPPING FREQUENCY	= 500+	YRS	
OVERTOPPING DISCHARGE	= 17	CFS	
OVERTOPPING ELEVATION	= 2136.2	FT	

PIPE HYDRAULIC DATA			
*1509-L- Sta.144+76			
DRAINAGE AREA	= 250	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 330	CFS	
DESIGN HW ELEVATION	= 2146.5	FT	
100 YEAR DISCHARGE	= 410	CFS	
100 YEAR HW ELEVATION	= 2146.8	FT	
OVERTOPPING FREQUENCY	= 100	YRS	
OVERTOPPING DISCHARGE	= 410	CFS	
OVERTOPPING ELEVATION	= 2146.8	FT	

PIPE HYDRAULIC DATA			
*1504-L- Sta.148+56			
DRAINAGE AREA	= 5.5	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 17	CFS	
DESIGN HW ELEVATION	= 2141.2	FT	
100 YEAR DISCHARGE	= 18	CFS	
100 YEAR HW ELEVATION	= 2141.3	FT	
OVERTOPPING FREQUENCY	= 500+	YRS	
OVERTOPPING DISCHARGE	= 59	CFS	
OVERTOPPING ELEVATION	= 2146.3	FT	

PI = 143+35.00
EL = 2146.83'
VC = 400'
K = 189
DS = 60 MPH

(+)2.7775% (+)0.6578%

PROPOSED
66" CAP

PROPOSED
66" CAP

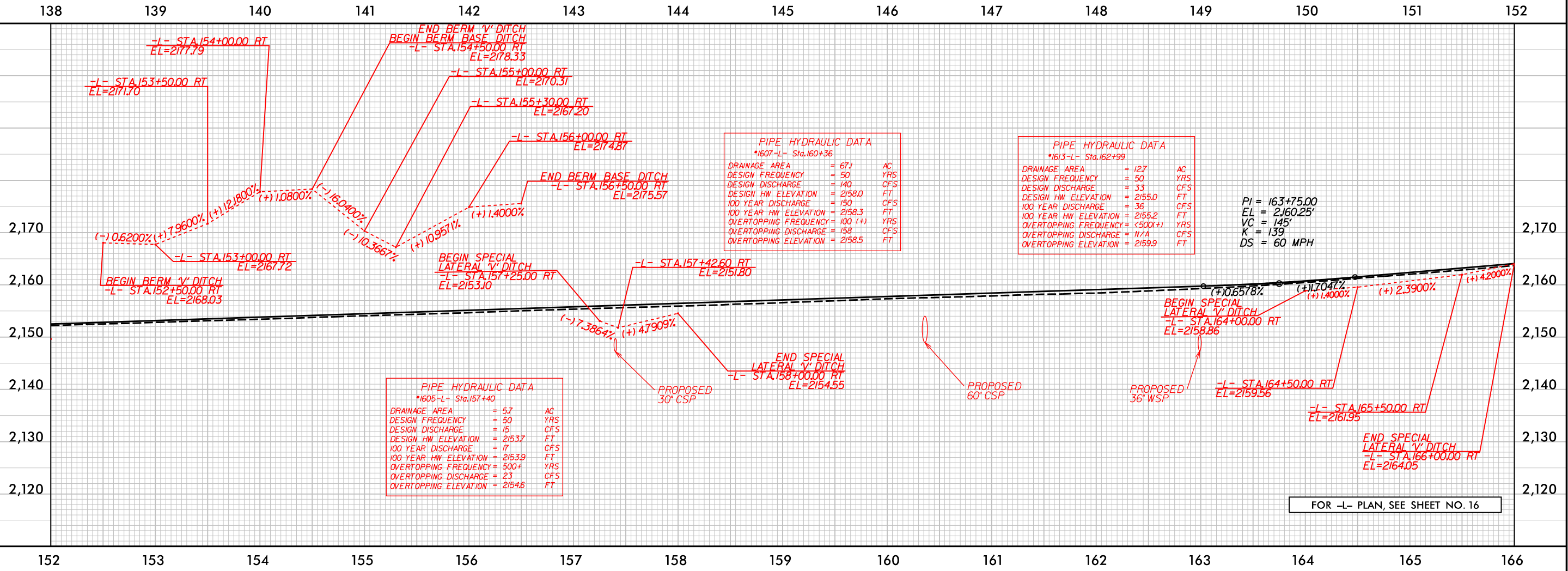
PROPOSED
24" RCP

BEGIN SPECIAL
CUT BASE DITCH
-L- STA.150+50.00 RT
EL=2148.65

END SPECIAL
CUT BASE DITCH
-L- STA.152+00.00 RT
EL=2149.64

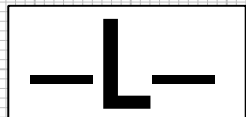
PROPOSED
30" WSP

FOR -L- PLAN, SEE SHEET NO. 15

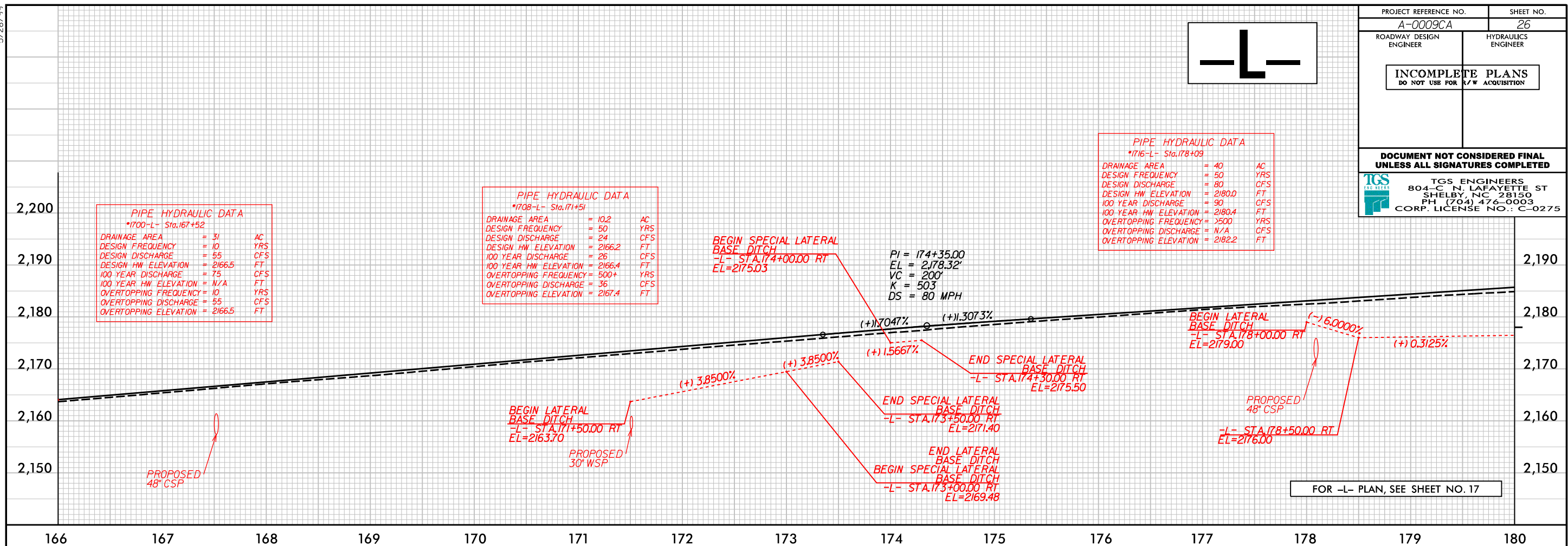


3/2/2021 11:40:00 AM C:\Users\jld\OneDrive\Documents\Projects\0009CA\0009CA_Rdy.pfl_Sheets.dgn

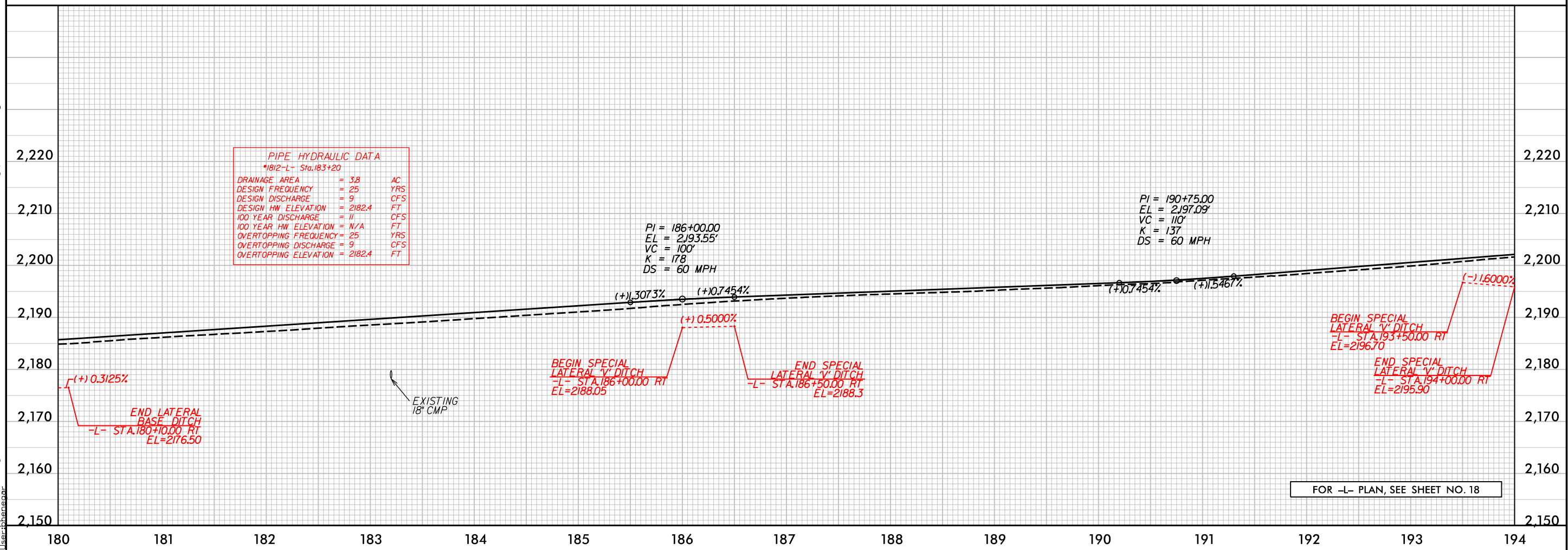
5/28/99



PROJECT REFERENCE NO. A-0009CA		SHEET NO. 26
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		



3/2/2021 11:40:00 AM C:\Users\jld\OneDrive\Documents\Projects\0009\CA\CP 48\Plan Sheets\A-0009CA.Rdy.pfl_Sheets.dgn



5/28/99

L

CULVERT HYDRAULIC DATA
2@ 12"x8" RCBC -L- Sta.195+16

DRAINAGE AREA	= 4.39	Sqmi
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 1400	CFS
DESIGN HW ELEVATION	= 2200.3	FT
100 YEAR DISCHARGE	= 1700	CFS
100 YEAR HW ELEVATION	= 2201.4	FT
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING DISCHARGE	= 1600	CFS
OVERTOPPING ELEVATION	= 2201.0	FT

PIPE HYDRAULIC DATA
*1904-L- Sta.203+62

DRAINAGE AREA	= 13.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 19	CFS
DESIGN HW ELEVATION	= 2210.3	FT
100 YEAR DISCHARGE	= 21	CFS
100 YEAR HW ELEVATION	= 2210.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 38	CFS
OVERTOPPING ELEVATION	= 2211.7	FT

PI = 195+00.00
EL = 2,203.66'
VC = 100'
K = 281
DS = 70 MPH

(+).15467% (+).11906%

PROPOSED
2@ 12"x8" RCBC

PROPOSED
30" RCP

END GRADE SECTION CA
TL STA 208+00.00
EL.2,219.14'

FOR -L- PLAN, SEE SHEET NO. 19

-Y1-

PIPE HYDRAULIC DATA
*0505-Y1- Sta.19+13

DRAINAGE AREA	= 39	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 80	CFS
DESIGN HW ELEVATION	= 2001.4	FT
100 YEAR DISCHARGE	= 90	CFS
100 YEAR HW ELEVATION	= 2001.7	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= 230	CFS
OVERTOPPING ELEVATION	= 2001.1	FT

PIPE HYDRAULIC DATA
*0517-Y1- Sta.26+51

DRAINAGE AREA	= 14.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 60	CFS
DESIGN HW ELEVATION	= 1998.0	FT
100 YEAR DISCHARGE	= 65	CFS
100 YEAR HW ELEVATION	= 1998.9	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 65	CFS
OVERTOPPING ELEVATION	= 1998.9	FT

BEGIN GRADE
Y1- STA 13+70.00
EL.2,013.35'

MILLING
REQUIRED
-Y1- 13+70
- 14+70

PI = 14+70.00
EL = 2,012.46'
VC = 120'
K = 347
DS = 75 MPH

(-).08900% (-).112350%

PI = 19+40.00
EL = 2,006.66'
VC = 120'
K = 203
DS = 70 MPH

(-).112350% (-).10.6460%

PROPOSED
60" RCP

PI = 23+00.00
EL = 2,004.33'
VC = 120'
K = 165
DS = 60 MPH

(-).10.6460% (-).11.3731%

PI = 25+60.00
EL = 2,000.76'
VC = 120'
K = 191
DS = 70 MPH

(-).11.3731% (-).10.7458%

PROPOSED
42" RCP

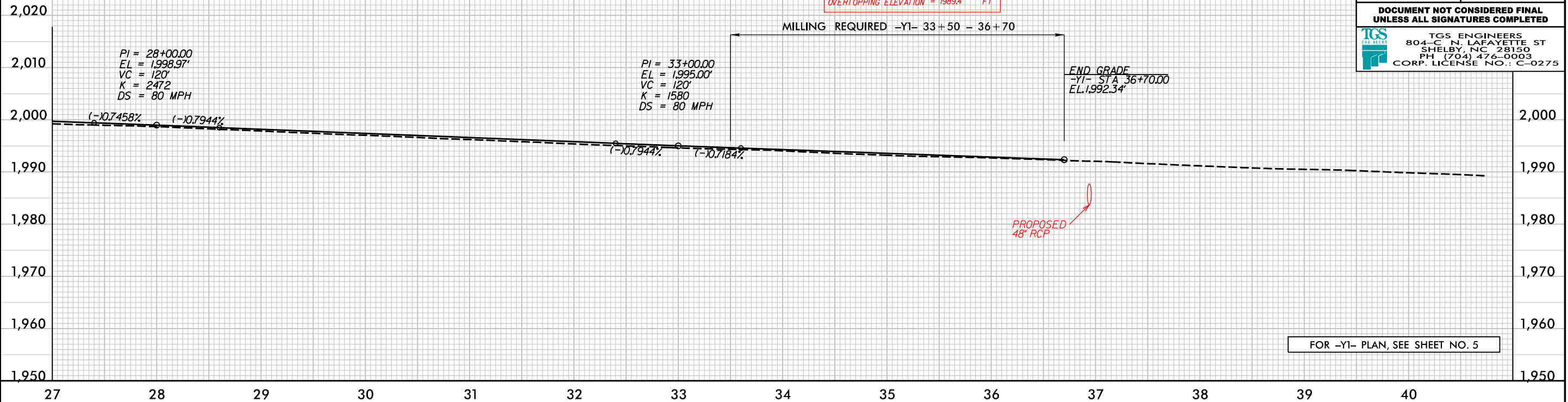
FOR -Y1- PLAN, SEE SHEET NO. 4

3/2/2001 1:40:00 PM C:\Users\jldavis\Documents\Projects\0009\CA\Plan Sheets\A-0009CA.Rdy.pfl Sheets.dgn User: jldavis

5/28/99

-Y1-

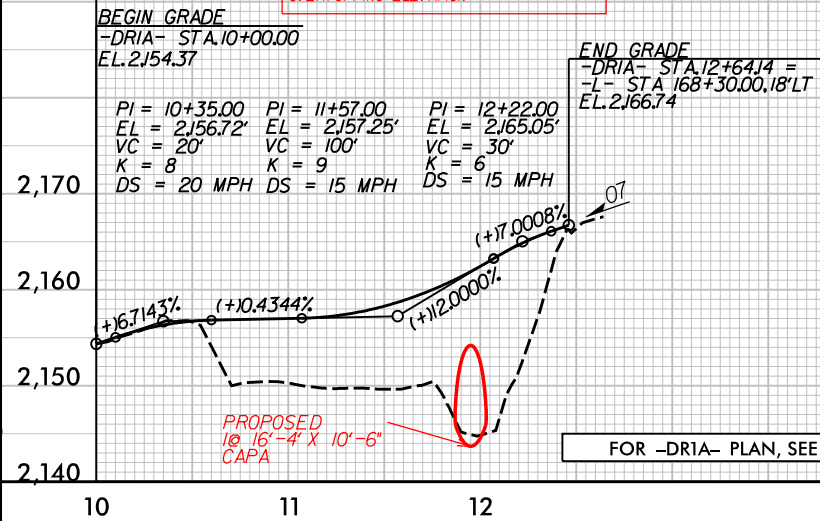
PIPE HYDRAULIC DATA		
*0419-Y1- Sta. 36+94		
DRAINAGE AREA	= 18.1	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 60	CFS
DESIGN HW ELEVATION	= 1989.4	FT
100 YEAR DISCHARGE	= 80	CFS
100 YEAR HW ELEVATION	= N/A	FT
OVERTOPPING FREQUENCY	= 25	YRS
OVERTOPPING DISCHARGE	= 60	CFS
OVERTOPPING ELEVATION	= 1989.4	FT



FOR -Y1- PLAN, SEE SHEET NO. 5

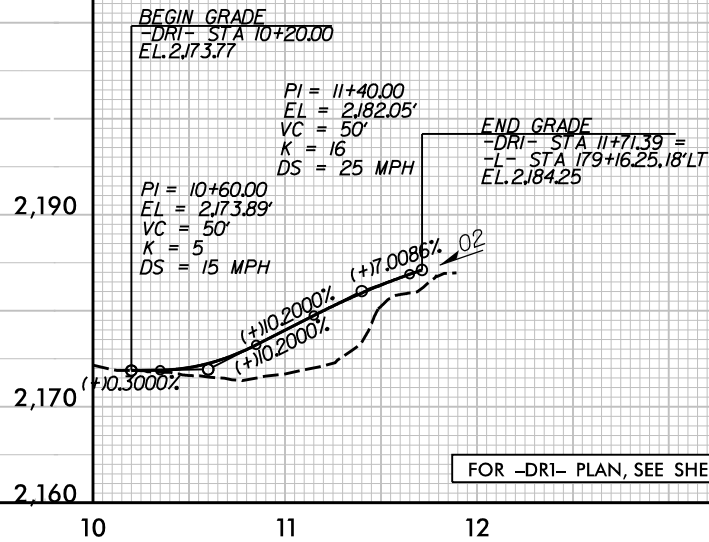
-DR1A-

CULVERT HYDRAULIC DATA		
10'16'-4"X10'-6" CAPA -DR1A- St6.11+95		
DRAINAGE AREA	=	Sqmi
DESIGN FREQUENCY	=	YRS
DESIGN DISCHARGE	=	CFS
DESIGN HW ELEVATION	=	FT
100 YEAR DISCHARGE	=	CFS
100 YEAR HW ELEVATION	=	FT
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING ELEVATION	=	FT



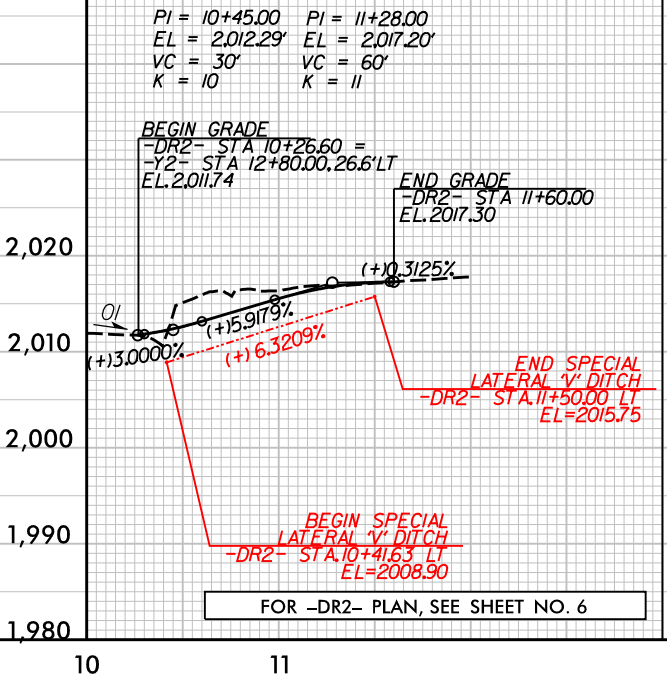
FOR -DR1A- PLAN, SEE SHEET NO. 17

-DR1-



FOR -DR1- PLAN, SEE SHEETS NOS. 17 & 18

-DR2-



FOR -DR2- PLAN, SEE SHEET NO. 6

3/2/2021 \\va-0009\Hydra\ulics\MERGER\VA-0009\CA\48\Plan Sheets\VA-0009CA.Rdy.pfl_Sheets.dgn User:chase