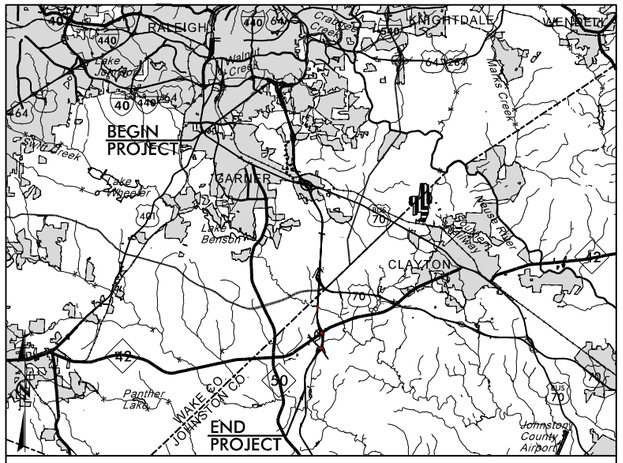
09/28/16

TIP PROJECT: I-5111 /I-4739

CONTRACT: C204134

See Sheet 1-B For Plan Sheet Symbols



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

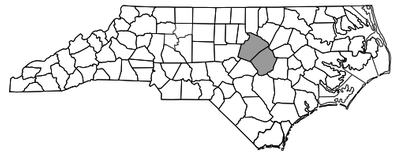
WAKE & JOHNSTON COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5111 /I-4739	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
42346.3.1	IMNHF-040-4(139)301	PE	

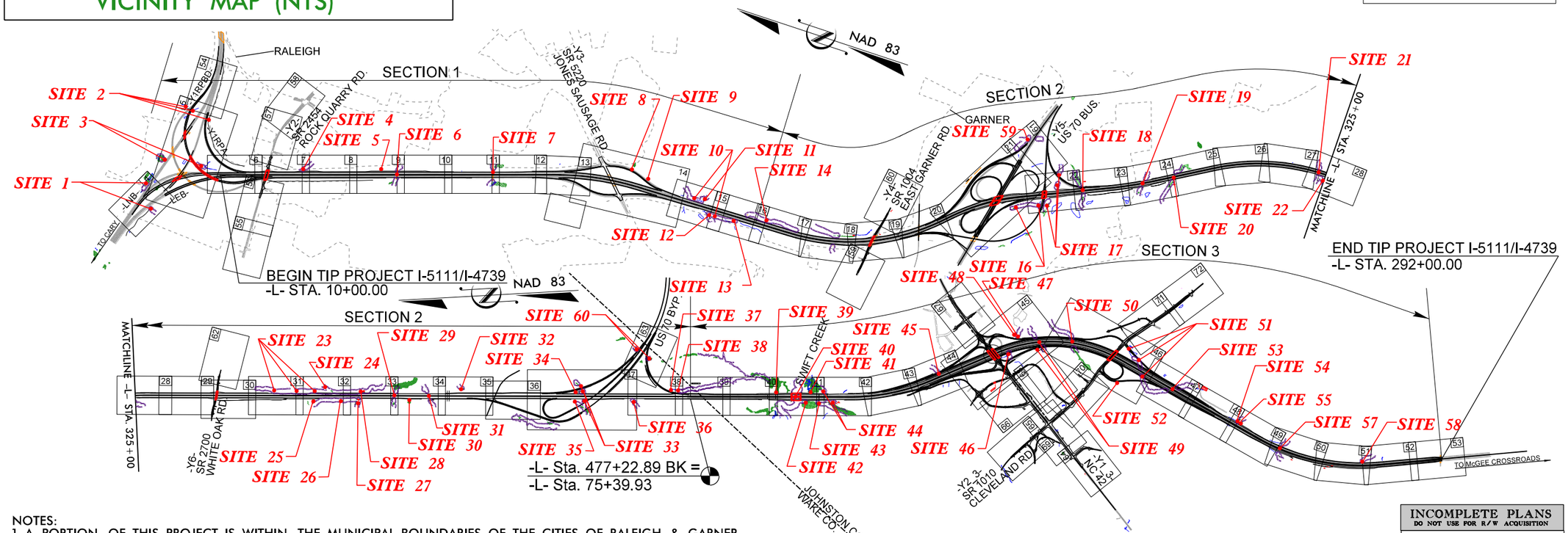
LOCATION: *I–40 FROM I–440 /US 64 (EXIT 301) TO JUST NORTH OF SR 1525 (CORNWALLIS ROAD), INCLUDING IMPROVEMENTS TO NC 42 AND SR 1010 (CLEVELAND ROAD).*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING & STRUCTURES*

WETLAND AND STREAM IMPACTS



PERMIT DRAWING
SHEET 1 OF 125



NOTES:
1. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITIES OF RALEIGH & GARNER.
2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III MODIFIED.
3. THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2018 = 106,200
ADT 2040 = 137,200
DHV = 65%
D = 9%
T = 9% *
V = 70 MPH & 75 MPH **
FUNC CLASS: URBAN INTERSTATE
* (TTST 5% + DUAL 4%)
** DESIGN SPEED CHANGES AT US 70 BUS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I–5111 /I–4739..... 12.950 miles
LENGTH STRUCTURE TIP PROJECT I–5111 /I–4739..... 0.094 miles
TOTAL LENGTH OF PROJECT I–5111 /I–4739..... 13.044 miles

NCDOT CONTACT

K. Zak Hamidi, P.E.
PROJECT ENGINEER – DESIGN-BUILD UNIT

PLANS PREPARED BY:

RK&K — RUMMEL, KLEPPER & KAHL, LLP, 900 RIDGEFIELD DRIVE, SUITE 350, RALEIGH, NORTH CAROLINA 27609, NC LICENSE NO. F–0112

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

S.T. WOOTEN

2018 STANDARD SPECIFICATIONS

LETTING DATE: JUNE 19, 2018

Brandon J. McInnis, P.E.
PROJECT ENGINEER

Mary E. Yahl, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER
SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

4/15/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\4C\I5III_I4739_Hyd_wet_tsh.dgn
Fkeys

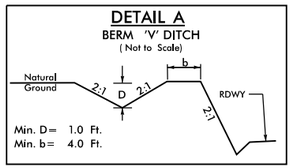
DITCH DETAILS: SECTION 1

PERMIT DRAWING
SHEET 2 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

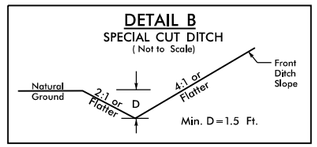
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL A
BERM 'V' DITCH
(Not to Scale)



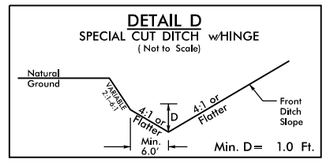
–L– STA. 55+00 TO STA. 56+50 LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



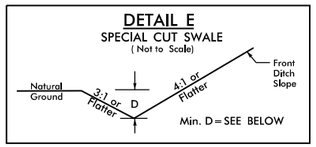
–L1– STA. 37+50 TO STA. 38+00 RT
–L1– STA. 33+50 TO STA. 34+00 LT
–L1– STA. 37+00 TO STA. 37+50 LT
–L1– STA. 152+00 to STA. 152+50 LT
–Y3RPA– STA. 15+02 TO STA. 15+52 RT
–Y1RPC– STA. 24+00 TO STA. 25+39 RT
–Y1RPA– STA. 22+00 TO STA. 24+50 RT
–Y1RPA– STA. 27+50 TO STA. 32+25 LT

DETAIL D
SPECIAL CUT DITCH wHINGE
(Not to Scale)



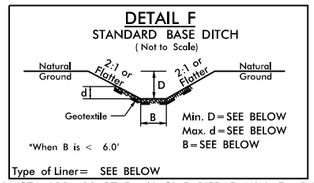
–L1– STA. 120+00 TO STA. 123+00 RT
–L1– STA. 121+50 TO STA. 122+50 LT
–L1– STA. 130+00 TO STA. 132+50 LT
–L1– STA. 124+00 TO STA. 128+00 LT
–L1– STA. 125+50 TO STA. 127+00 RT
–L1– STA. 130+00 TO STA. 131+50 RT
–L1– STA. 138+50 TO STA. 142+00 LT
–L1– STA. 146+00 TO STA. 148+00 RT
–Y1RPEB– STA. 17+50 TO STA. 19+00 RT
–Y3RPA– STA. 17+59 TO STA. 22+00 LT

DETAIL E
SPECIAL CUT SWALE
(Not to Scale)



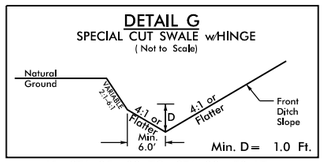
–Y1RPBD– STA. 21+00 TO STA. 23+00 LT, D=1.0'

DETAIL F
STANDARD BASE DITCH
(Not to Scale)



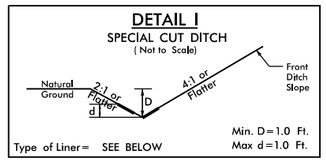
–L1– STA. 103+00 RT, B=6', CL B RIPRAP, MIN D=2.0'
L=100', BEG. EL=253.00', END EL=261.50', S=3.0%
–L1– STA. 104+00 RT, B=6', CL B RIPRAP, MIN D=6.0'
L=300', BEG. EL=256.00', END EL=261.50', S=1.5%
–L– STA. 64+80 TO STA. 66+00 RT

DETAIL G
SPECIAL CUT SWALE wHINGE
(Not to Scale)



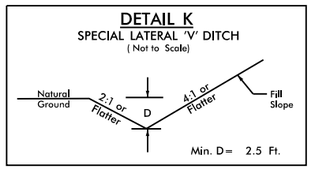
–L1– STA. 25+00 TO STA. 28+50 LT
–L1– STA. 31+00 TO STA. 32+00 RT
–L1– STA. 30+50 TO STA. 33+50 LT
–L1– STA. 72+50 TO STA. 73+50 LT
–Y1RPBD– STA. 28+50 TO STA. 29+50 LT
–Y1RPWB– STA. 14+60 TO STA. 16+50 RT

DETAIL I
SPECIAL CUT DITCH
(Not to Scale)



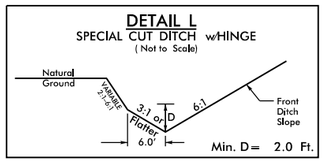
–Y1RPA– STA. 24+00 TO STA. 25+00 LT, CL B RIPRAP

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



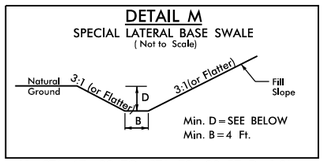
–L1– STA. 37+00 TO STA. 37+63 LT
–L1– STA. 41+00 TO STA. 42+50 LT
–L1– STA. 41+50 TO STA. 42+00 RT
–L1– STA. 58+00 TO STA. 58+50 LT
–L1– STA. 67+00 TO STA. 72+50 LT
–L1– STA. 70+00 TO STA. 70+50 RT
–L1– STA. 73+50 TO STA. 74+50 LT
–L1– STA. 107+60 TO STA. 109+00 RT
–L1– STA. 113+00 TO STA. 121+50 LT
–L1– STA. 113+50 TO STA. 120+00 RT
–L1– STA. 116+00 TO STA. 121+50 LT
–L1– STA. 128+50 TO STA. 130+00 LT
–L1– STA. 132+50 TO STA. 133+00 LT
–L1– STA. 136+50 TO STA. 140+00 RT
–L1– STA. 137+00 TO STA. 138+00 LT
–L1– STA. 137+50 TO STA. 139+00 RT
–L1– STA. 138+50 TO STA. 139+00 LT
–L1– STA. 140+50 TO STA. 142+50 RT
–L1– STA. 142+00 TO STA. 143+00 RT
–L1– STA. 145+50 TO STA. 146+00 RT
–Y1RPEB– STA. 31+00 TO STA. 32+64 RT
–Y1RPWB– STA. 18+00 TO STA. 19+00 LT
–Y1RPBD– STA. 30+00 TO STA. 30+50 LT

DETAIL L
SPECIAL CUT DITCH wHINGE
(Not to Scale)



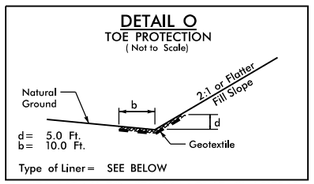
–L1– STA. 42+50 TO STA. 45+50 LT
–L1– STA. 109+00 TO STA. 110+85 RT
–L1– STA. 124+00 TO STA. 128+00 LT
–L1– STA. 125+50 TO STA. 127+00 RT
–L1– STA. 130+00 TO STA. 131+50 RT
–L1– STA. 139+00 TO STA. 142+00 RT
–L1– STA. 143+00 TO STA. 144+50 RT
–L1– STA. 121+50 TO STA. 122+50 LT
–L1– STA. 137+00 TO STA. 137+50 LT
–L1– STA. 139+00 TO STA. 142+00 LT
–L1– STA. 140+00 TO STA. 140+50 RT
–L1– STA. 142+50 TO STA. 144+50 RT
–L1– STA. 158+50 TO STA. 160+00 LT
–Y1RPBD– STA. 21+50 TO STA. 22+00 RT
–Y1RPBD– STA. 25+00 TO STA. 27+00 RT
–Y1RPBD– STA. 23+00 TO STA. 28+50 LT

DETAIL M
SPECIAL LATERAL BASE SWALE
(Not to Scale)



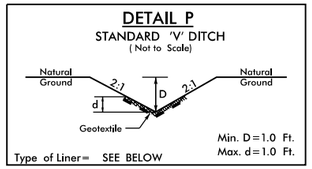
–L1– STA. 67+00 TO STA. 70+00 RT, D=1.0'
–L1– STA. 149+00 TO STA. 150+50 RT, D=1.0'
–Y1RPWB– STA. 33+50 TO STA. 37+00 RT, D=1.0'

DETAIL O
TOE PROTECTION
(Not to Scale)



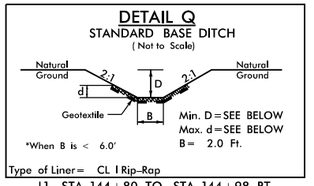
–L1– STA. 143+11 TO STA. 144+21 LT, CL I RIPRAP

DETAIL P
STANDARD 'V' DITCH
(Not to Scale)



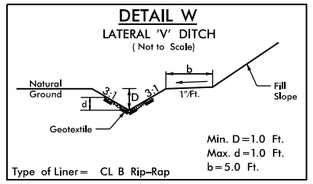
–L1– STA. 118+88 TO STA. 118+94 RT, CL B RIPRAP

DETAIL Q
STANDARD BASE DITCH
(Not to Scale)



–L1– STA. 144+80 TO STA. 144+98 RT,
MIN D=1.0', MAX d=1.0'

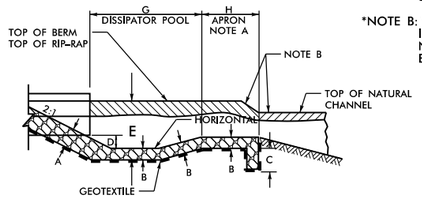
DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



–Y1RPA– STA. 22+50 TO STA. 24+00 LT

DETAIL X
RIP–RAP ENERGY DISSIPATOR BASIN

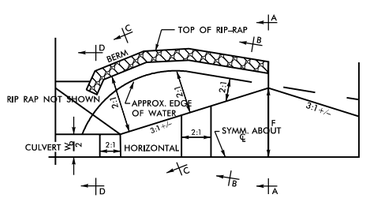
℄ SECTION



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

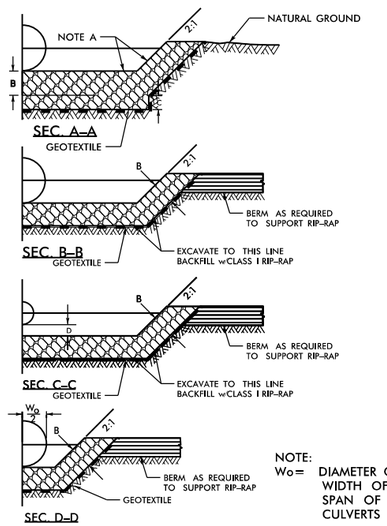
HALF PLAN



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	2.5							
B	1.67							
C	2.0							
D	2.3							
E	10.0							
F	10.0							
G	22.4							
H	11.2							

*ALL DIMENSIONS APPROXIMATE IN FT

BASIN #	LOCATION (AT OUTLET)
1	–L1– 149+03 LT
2	
3	
4	
5	
6	
7	
8	



NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

5/05

PLANS PREPARED BY:
RS&H
RS&H Architects–Engineers–Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F–0493 (919) 926–4100

15-APR-2019 08:04
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$$$$USERNAME$$$$

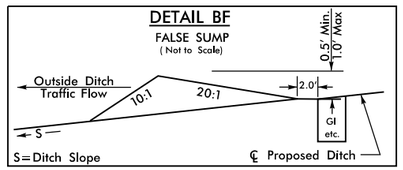
DITCH DETAILS: SECTION 1

PERMIT DRAWING
SHEET 3 OF 125

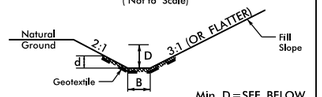
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL BF
FALSE SUMP
(Not to Scale)



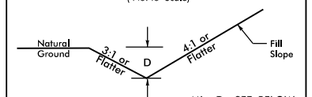
DETAIL AD
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
Max. d=SEE BELOW
B=4.0 Ft.
Type of Liner= CL B Rip-Rap

-L1- STA. 144+50 TO STA. 144+79 RT,
MIN D=1.25', MAX d=1.25'
-L1- STA. 145+00 TO STA. 146+00 RT,
MIN D=1.25', MAX d=1.25'

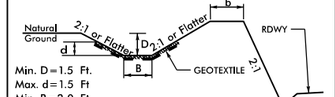
DETAIL AE
SPECIAL LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW

-L1- STA. 56+50 TO STA. 57+30 LT, D=1.0'

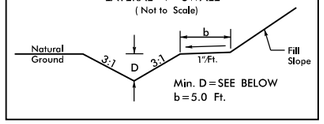
DETAIL CA
BERM BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft
Min. B=2.0 Ft.
Min. b=4.0 Ft.
Type of Liner= CL B Rip-Rap

-Y1RPEB- STA. 21+50 TO 24+50 RT

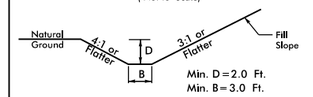
DETAIL AN
LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW
b=5.0 Ft.

-Y1RPA- STA. 18+05 TO STA. 22+50 LT, D=1.5'

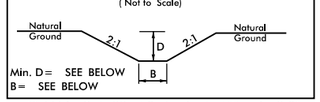
DETAIL AP
SPECIAL LATERAL BASE DITCH
(Not to Scale)



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

-L1- STA. 113+34 TO STA. 113+50 RT
-L1- STA. 59+50 TO STA. 63+00 LT
-Y1RPWB- STA. 33+50 TO STA. 34+80 RT
-Y1RPBD- STA. 54+00 TO STA. 54+50 LT

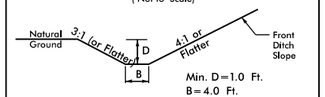
DETAIL AT
STANDARD BASE DITCH
(Not to Scale)



Min. D= SEE BELOW
B= SEE BELOW

-Y1RPBD- STA. 32+50 RT, B=4', MIN D=2.0'
L=175', BEG. EL=231.15', END EL=224.00', S=4.1%

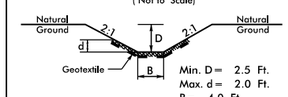
DETAIL AU
SPECIAL CUT BASE SWALE
(Not to Scale)



Min. D=1.0 Ft.
B=4.0 Ft.

-L1- STA. 32+00 TO STA. 37+50 RT
-Y1RPEB- STA. 17+50 TO STA. 19+95 LT
-Y1RPWB- STA. 33+50 TO STA. 37+00 RT

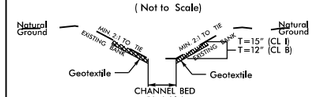
DETAIL AY
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.5 Ft.
Max. d= 2.0 Ft.
B= 4.0 Ft.
Type of Liner= CL I Rip-Rap

-L- STA. 59+12 TO STA. 61+50 LT

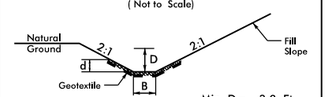
DETAIL BB
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length= SEE BELOW
Type of Liner= CL I or B Rip-Rap - Keyed-In (SEE BELOW)

-LEB- STA. 12+14 RT, L=10', CL B RIP RAP
-Y1RPBD- STA. 46+80 LT, L=10', CL B RIP RAP

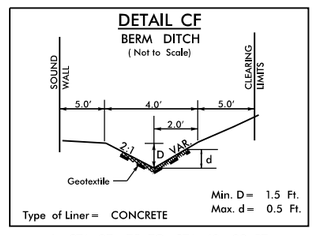
DETAIL CB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 3.0 Ft.
Max. d= 2.5 Ft.
B= 6.0 Ft.
Type of Liner= SEE BELOW

-L- STA. 61+50 TO STA. 61+85 LT, CL 1 RIPRAP
-L- STA. 61+85 TO STA. 63+00 LT, CL B RIPRAP

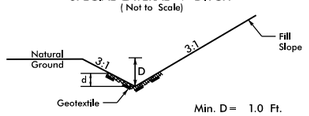
DETAIL CF
BERM DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 0.5 Ft.
Type of Liner= CONCRETE

-L- STA. 37+75 TO STA. 40+00 RT
-L- STA. 30+50 TO STA. 37+65 RT
-L- STA. 55 TO STA. 56+50 LT
-Y1RPA- STA. 14+00 TO STA. 21+00 RT
-Y1RPA- STA. 21+00 TO STA. 25+50 RT
-Y1RPA- STA. 25+50 TO STA. 35+25 RT
-Y1RPA- STA. 35+25 TO -L2RT- STA. 490+50 RT
-L2RT- STA. 492+25 TO STA. 494+00 RT
-L2RT- STA. 494+80 TO STA. 499+25 RT
-L2RT- STA. 499+25 TO STA. 501+00 RT
-L2RT- STA. 447+50 TO STA. 448+25 RT
-L2RT- STA. 449+50 TO STA. 453+00 RT
-L2RT- STA. 454+00 TO STA. 454+75 RT
-L2RT- STA. 454+75 -Y1RPEB- STA. 12+25 RT
-L2RT- STA. 450+50 STA. STA. 459+00 LT

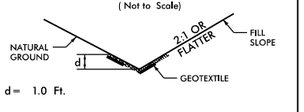
DETAIL CC
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= CL I Rip-Rap

-L- STA. 65+76 TO STA. 66+50 LT

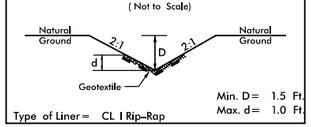
DETAIL CD
TOE PROTECTION
(Not to Scale)



d= 1.0 Ft.
Type of Liner= CL B Rip-Rap

-L- 30+00 TO 30+50 RT

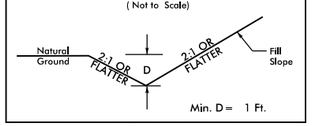
DETAIL CE
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= CL I Rip-Rap

-L- STA. 40+25 TO STA. 40+40 LT

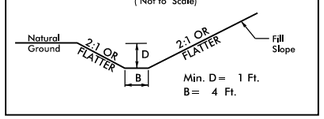
DETAIL CG
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1 Ft.

-Y1RPBD- STA. 29+50 TO STA. 32+50 RT
-Y1RPBD- STA. 60+75 TO STA. 63+85 RT

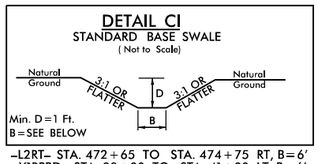
DETAIL CH
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 4 Ft.

-Y1RPBD- STA. 30+50 TO STA. 33+00 LT
-Y1RPBD- STA. 32+50 TO STA. 36+00 RT
-Y1RPWB- STA. 19+00 TO STA. 24+50 LT
-Y1RPWB- STA. 19+50 TO STA. 22+00 RT

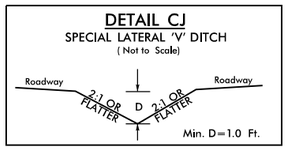
DETAIL CI
STANDARD BASE SWALE
(Not to Scale)



Min. D=1 Ft.
B=SEE BELOW

-L2RT- STA. 472+65 TO STA. 474+75 RT, B=6'
-Y1RPBD- STA. 38+00 TO STA. 41+00 LT, B=6'

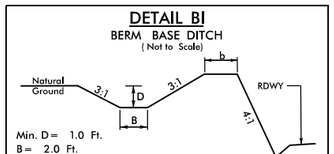
DETAIL CJ
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.

-L1- STA. 112+50 TO 116+00 LT
-L1- STA. 132+50 TO 135+00 RT
-Y3RPA- STA. 15+02 TO 17+59 LT

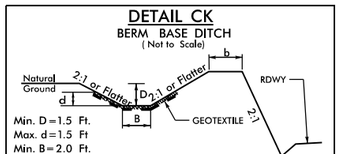
DETAIL BI
BERM BASE DITCH
(Not to Scale)



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

-L- STA. 114+00 TO STA. 119+80 RT

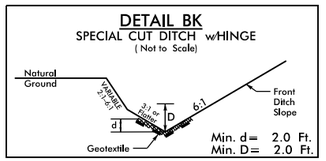
DETAIL CK
BERM BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft
Min. B=2.0 Ft.
Min. b=4.0 Ft.
Type of Liner= CL I Rip-Rap

-Y1RPEB- STA. 24+50 TO 25+25 RT

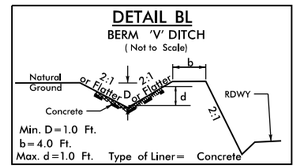
DETAIL BK
SPECIAL CUT DITCH w/HINGE
(Not to Scale)



Min. d= 2.0 Ft.
Min. D= 2.0 Ft.

-L1- STA. 144+00 TO STA. 144+50 RT

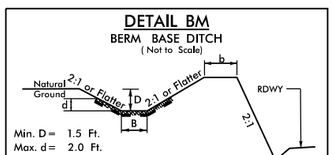
DETAIL BL
BERM 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.
b=4.0 Ft.
Max. d=1.0 Ft. Type of Liner= Concrete

-L- STA. 30+50 TO STA. 33+50 RT
-L- STA. 34+00 TO STA. 46+00 RT

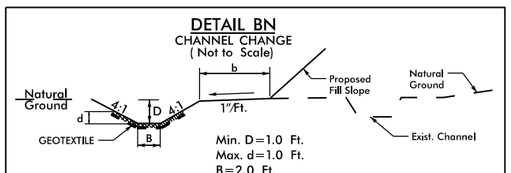
DETAIL BM
BERM BASE DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 2.0 Ft.
Min. B= 2.0 Ft.
Min. b= 4.0 Ft.
Type of Liner= Concrete

-L- STA. 54+00 TO STA. 55+00 LT

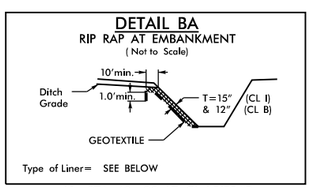
DETAIL BN
CHANNEL CHANGE
(Not to Scale)



Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
Type of Liner= Class "I" Rip Rap

-L1- STA. 149+00 LT

DETAIL BA
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= SEE BELOW

-L1- STA. 40+20 LT, CL I RIPRAP

PLANS PREPARED BY:
RS&H
RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

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$$$$USERNAME$$$$

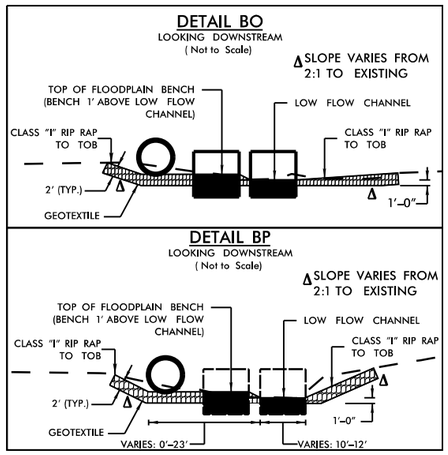
CULVERT DETAILS: SECTION 1

PERMIT DRAWING
SHEET 4 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

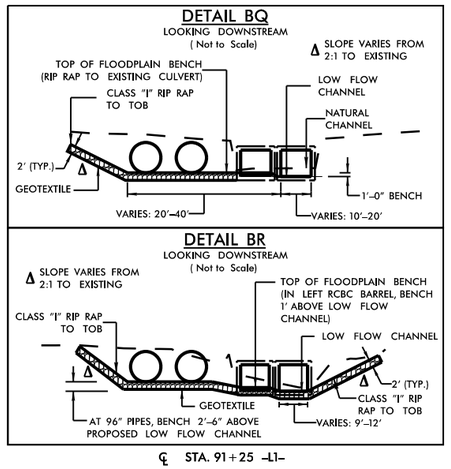
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 1



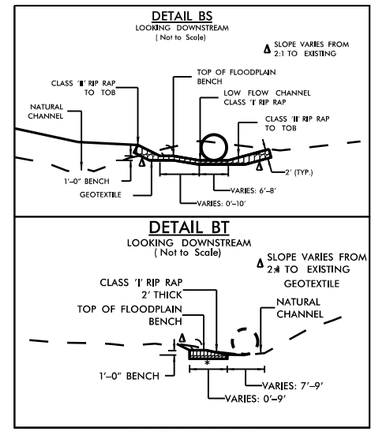
℄ STA. 64+93 -L1-

SITE 2



℄ STA. 91+25 -L1-

SITE 3



℄ STA. 150+49 -L1-

PLANS PREPARED BY:
RS&H
RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

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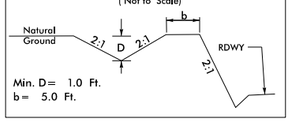
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

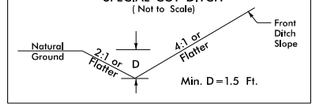
PERMIT DRAWING SHEET 5 OF 125

DETAIL A
BERM 'V' DITCH
(Not to Scale)



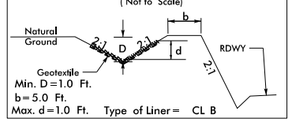
–L2– STA. 170+50 TO STA. 175+50 RT
–L2– STA. 198+50 TO STA. 204+00 RT
–L2– STA. 295+16 TO STA. 310+00 RT
–L2– STA. 388+75 TO STA. 394+00 RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



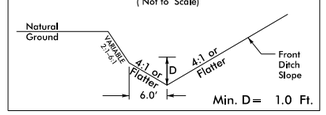
–L2– STA. 198+50 TO STA. 199+30 RT
–L2– STA. 204+95 TO STA. 209+00 RT
–L2– STA. 209+00 TO STA. 209+50 LT
–L2– STA. 212+00 TO STA. 214+50 LT
–L2– STA. 212+50 TO STA. 214+00 RT
–L2– STA. 303+50 TO STA. 304+35 RT
–L2– STA. 309+00 TO STA. 310+00 RT
–L2– STA. 420+50 TO STA. 423+50 LT
–L3– STA. 155+00 TO STA. 157+50 RT
–L3– STA. 155+00 TO STA. 157+50 LT
–L3– STA. 261+50 TO STA. 262+00 RT
–L3– STA. 276+50 TO STA. 278+50 RT
–LCDEB– STA. 91+51.57 TO STA. 99+29.50 RT
–Y1RPA_3– STA. 22+00 TO STA. 24+00 RT
–Y1RPB_3– STA. 20+50 TO STA. 22+00 LT
–Y1RPC_3– STA. 12+97 TO STA. 15+49 RT
–Y1RPC_3– STA. 24+00 TO STA. 25+39 RT
–Y2_3– STA. 13+00 TO STA. 14+50 RT
–Y2_3– STA. 13+50 TO STA. 14+50 LT
–Y2_3– STA. 17+50 TO STA. 19+15 RT
–Y2_3– STA. 71+50 TO STA. 74+50 RT
–Y2RPA– STA. 17+40 TO STA. 19+00 RT
–Y3RPC– STA. 24+00 TO STA. 26+00 LT
–Y3RPC– STA. 27+00 TO STA. 30+00 LT
–Y3RPC– STA. 31+00 TO STA. 32+00 LT
–Y8RPA– STA. 16+25 TO STA. 15+25 LT
–Y4– STA. 10+80 TO STA. 14+50 LT
–Y5– STA. 43+50 TO STA. 44+00 RT
–Y5RPA– STA. 18+00 TO STA. 23+50 LT
–Y5LPC– STA. 17+00 TO STA. 19+50 RT
–Y5RPB– STA. 37+00 TO STA. 38+50 LT
–Y5RPB_TEMP– STA. 37+00 TO STA. 38+50 LT
–Y5RPB_TEMP– STA. 39+90 TO STA. 42+50 LT
–Y5RPB– STA. 42+00 TO STA. 43+50 RT
–Y5RPC– STA. 17+03.22 TO STA. 20+00 RT
–Y5RPC– STA. 58+50 TO STA. 59+60 LT
BEG. EL=312.27', END EL=311.94', S=0.30%
–Y5RPBSPUR– STA. 14+50 TO STA. 16+50 LT
–Y5RPBSPUR– STA. 17+20 TO STA. 17+50 RT
–Y5RPD– STA. 18+00 TO STA. 18+59 RT
–Y6– STA. 10+50 TO STA. 15+58 LT
–Y6– STA. 11+16 TO STA. 14+00 RT
–Y6– STA. 18+50 TO STA. 23+00 LT
–Y6– STA. 20+79 TO STA. 23+00 RT
–Y8RPC– STA. 18+61 TO STA. 21+13 RT

DETAIL C
BERM 'V' DITCH
(Not to Scale)



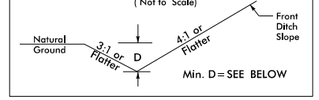
–L2– STA. 167+50 TO STA. 170+50 RT
–L2– STA. 204+00 TO STA. 204+95 RT

DETAIL D
SPECIAL CUT DITCH w/HINGE
(Not to Scale)



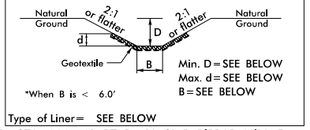
–L2– STA. 172+50 TO STA. 176+50 RT
–L2– STA. 177+00 TO STA. 181+00 RT
–L2– STA. 179+50 TO STA. 181+50 LT
–L2– STA. 190+50 TO STA. 195+50 RT
–L2– STA. 199+30 TO STA. 204+95 RT
–L2– STA. 207+00 TO STA. 209+00 LT
–L2– STA. 214+50 TO STA. 216+00 LT
–L2– STA. 218+00 TO STA. 219+50 LT
–L2– STA. 417+50 TO STA. 420+50 LT
–L3– STA. 21+50 TO STA. 23+50 LT
–Y5RPB– STA. 38+50 TO STA. 39+00 LT

DETAIL E
SPECIAL CUT SWALE
(Not to Scale)



–L2– STA. 170+00 TO STA. 172+00 LT, D=1.0'
–L2– STA. 195+50 TO STA. 197+00 LT, D=1.0'
–L2– STA. 252+00 TO STA. 254+50 LT, D=1.25'
–L2– STA. 258+50 TO STA. 260+50 LT, D=1.0'
–L2– STA. 258+50 TO STA. 262+50 RT, D=1.0'
–L2– STA. 387+50 TO STA. 390+50 RT, D=1.0'
–L2– STA. 411+00 TO STA. 415+50 LT, D=1.25'
–L2– STA. 418+00 TO STA. 422+50 RT, D=1.25'
–L2– STA. 424+50 TO STA. 429+00 LT, D=1.0'
–L3– STA. 186+00 TO STA. 189+50 RT, D=1.0'
–L3– STA. 191+00 TO STA. 193+50 LT, D=1.0'
–L3– STA. 258+50 TO STA. 261+50 RT, D=1.0'
–Y2RPA_3– STA. 13+62 TO STA. 17+40 RT, D=1.25'
–Y5LPB– STA. 12+25 TO STA. 13+82 RT, D=1.0'
–Y5RPB– STA. 30+50 TO STA. 34+00 RT, D=1.0'
–Y5RPB– STA. 45+00 TO STA. 46+50 LT, D=1.0'
–Y5RPC– STA. 52+00 TO STA. 53+28 LT, D=1.0'
BEG. EL=314.91', END EL=311.93', S=2.33%
–Y5RPC– STA. 53+28 TO STA. 54+50 LT, D=1.0'
BEG. EL=311.93', END EL=312.30', S=0.30%
–Y8RPA– STA. 24+50 TO STA. 28+50 LT, D=1.0'
–Y2_3– STA. 61+50 TO STA. 63+50 LT, D=1.0'

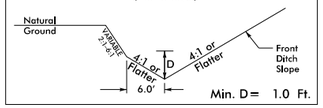
DETAIL F
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

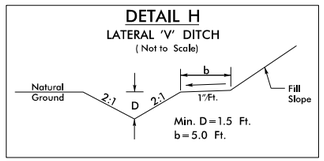
–L2– STA. 444+43 RT, B=2', CL B RIPRAP, MIN D=1.0'
L=98', BEG. EL=271.77', END EL=266.15', S=5.76%
–L2– STA. 473+44 LT, B=2', CL B RIPRAP, MIN D=1.0'
L=39', BEG. EL=237.23, END EL=235.29, S=5.0%
–Y5LPB– STA. 26+85 RT, B=4', CL I RIPRAP, MIN. D=2.25'
L=485', BEG. EL=338.00', END EL=325.00', S=2.68%
–Y5LPB– STA. 27+33 LT, B=4', CL I RIPRAP, MIN D=3.5'
L=445', BEG. EL=323.00', END EL=315.25', S=1.74%
–Y5RPBSPUR– STA. 17+30 LT, B=4',CL I RIPRAP, MIN D=3.5'
L=286', BEG. EL=311.25', END EL=306.50', S=1.66%
–Y5RPB– STA. 43+35 LT, B=4', CL II RIPRAP, MIN D=3.5'
L=133', BEG. EL=305.80', END EL=302.95', S=2.14%
–L3– STA. 446+90 TO STA. 447+24 LT,
B=4', CL I RIPRAP, MIN D=2.0'
L=100', BEG. EL=272.43', END EL=269.19', S=3.2%

DETAIL G
SPECIAL CUT SWALE w/HINGE
(Not to Scale)



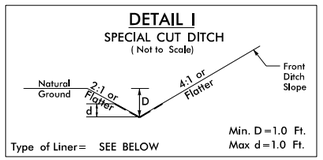
–L2– STA. 177+50 TO STA. 179+50 LT
–L2– STA. 181+50 TO STA. 184+50 LT
–L2– STA. 200+00 TO STA. 207+00 LT
–L2– STA. 216+00 TO STA. 218+00 LT
–L2– STA. 251+50 TO STA. 256+00 RT
–L3– STA. 20+28 TO STA. 21+50 LT
–Y5RPA– STA. 17+50 TO STA. 20+50 RT
–Y5RPB– STA. 40+50 TO STA. 43+50 LT

DETAIL H
LATERAL 'V' DITCH
(Not to Scale)



–L2– STA. 257+28 TO STA. 258+50 RT
–L2– STA. 395+74 TO STA. 396+50 RT
–Y5LPC– STA. 14+50 TO STA. 17+00 RT
–Y5LPB– STA. 15+40 TO STA. 17+50 LT
–Y5RPB– STA. 35+00 TO STA. 37+00 LT
–Y5RPB TEMP– STA. 35+00 TO STA. 37+00 LT
–Y5RPBSPUR– STA. 16+50 TO STA. 17+29 LT

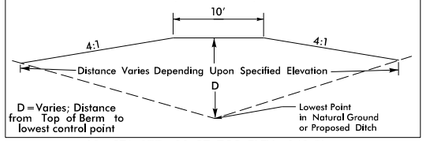
DETAIL I
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= SEE BELOW

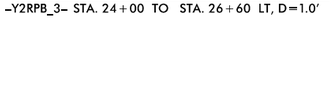
–L3– STA. 122+50 TO STA. 123+50 LT, CL B RIPRAP
–Y1RPA_3– STA. 24+00 TO STA. 25+00 LT, CL B RIPRAP
–Y5RPB– STA. 34+00 TO STA. 37+50 RT, PSRM
–Y5RPB– STA. 38+50 TO STA. 40+50 LT, CL I RIPRAP
–Y5RPB TEMP– STA. 38+50 TO STA. 39+90 LT, CL I RIPRAP
–Y5RPBSPUR– STA. 10+20 TO STA. 13+73 RT, CL II RIPRAP

DETAIL J
10' WIDE BERM
(Not to Scale)



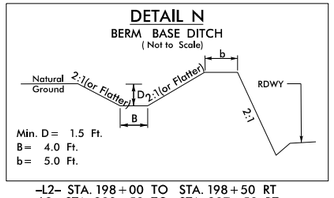
–L2– STA. 177+00 RT, TOP ELEV=349.5'
–L2– STA. 305+00 RT, TOP ELEV=314.5'
–L2– STA. 324+25 LT, TOP ELV=277.5'
–L2– STA. 436+50 LT, TOP ELEV=280.0'
–L3– STA. 114+00 LT, TOP ELEV=228.0'
–L3– STA. 278+50 RT, TOP ELEV=260.0'
–Y5RPB– STA. 43+74 LT, TOP ELEV=314.0'
–Y2RPA_3– STA. 19+26 LT, TOP ELEV=298.0'
–Y2– STA. 70+00 LT, TOP ELEV=304.8'

DETAIL M
SPECIAL LATERAL BASE SWALE
(Not to Scale)



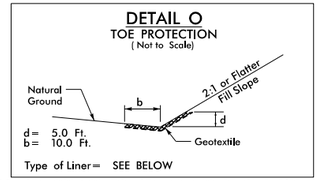
–Y2RPB_3– STA. 24+00 TO STA. 26+60 LT, D=1.0'

DETAIL N
BERM BASE DITCH
(Not to Scale)



–L2– STA. 198+00 TO STA. 198+50 RT
–L2– STA. 283+50 TO STA. 287+50 RT
–L2– STA. 289+50 TO STA. 290+50 RT
–LCDEB– STA. 95+00 TO STA. 104+50 RT (101+50 TO 104+50 USE A 2' BASE)

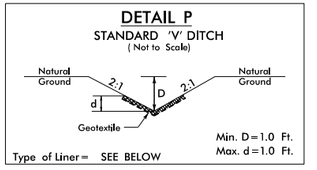
DETAIL O
TOE PROTECTION
(Not to Scale)



Type of Liner= SEE BELOW

–L2– STA. 399+00 TO STA. 401+00 RT, CL B RIPRAP
–L2– STA. 427+00 TO STA. 429+25 RT, CL I RIPRAP
–L2– STA. 430+50 TO STA. 433+50 RT, CL I RIPRAP
–L3– STA. 77+77 TO STA. 78+38 LT, CL B RIPRAP
–L3– STA. 98+20 TO STA. 99+60 LT, CL I RIPRAP
–L3– STA. 107+50 TO STA. 111+00 LT, CL II RIPRAP
–L3– STA. 111+87 TO STA. 118+19 LT, CL I RIPRAP
–L3– STA. 144+14 TO STA. 145+50 LT, CL I RIPRAP
–L3– STA. 171+60 TO STA. 173+25 LT, CL I RIPRAP
–L3– STA. 181+65 TO STA. 183+00 LT, CL I RIPRAP
–L3– STA. 181+80 TO STA. 183+90 RT, CL I RIPRAP
–L3– STA. 211+00 TO STA. 212+50 LT, CL I RIPRAP
–L3– STA. 243+50 TO STA. 246+60 RT, CL I RIPRAP
–L3– STA. 247+42 TO STA. 250+00 RT, CL I RIPRAP
–Y8LPC– STA. 10+62 TO STA. 12+40 LT, CL I RIPRAP
–LCDWB– STA. 97+73.62 TO STA. 99+23.62 LT, CL B RIPRAP
–Y2RPA_3– STA. 18+31 TO STA. 19+12 LT, CL B RIPRAP
–Y1_3– STA. 32+90 TO STA. 33+40 RT, CL B RIPRAP
–Y1_3– STA. 68+00 TO STA. 68+60 RT, CL B RIPRAP

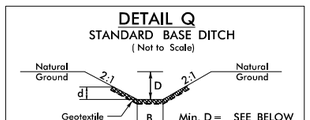
DETAIL P
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner= SEE BELOW

–Y5RPA– STA. 20+50 RT, L=100', CL I RIPRAP
BEG. EL=311.09', END EL=302.04', S=9.05%
–Y5RPA– STA. 21+50 RT, L=100', CL I RIPRAP
BEG. EL=302.04', END EL=293.48', S=8.56%
–Y6– STA. 21+00 LT, CL B RIPRAP

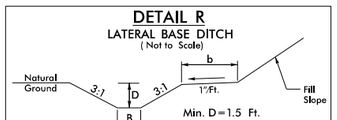
DETAIL Q
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap

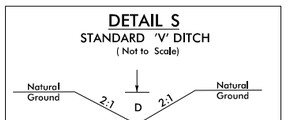
–Y5– STA. 25+00 LT, L=103', CL B RIPRAP,
BEG. EL=355.50' END EL=352.00', S=3.4%
MIN D=1.25', MIN d=1.25'

DETAIL R
LATERAL BASE DITCH
(Not to Scale)



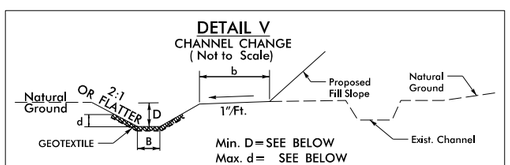
–L3– STA. 92+50 TO STA. 94+50 LT
–L3– STA. 265+00 TO STA. 276+50 RT

DETAIL S
STANDARD 'V' DITCH
(Not to Scale)



–Y8RPA– STA. 16+00 RT, MIN. D=3.25'
L=99', S=0.3%
BEG. EL=237.80', END EL=237.54'

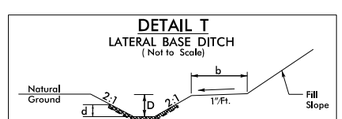
DETAIL V
CHANNEL CHANGE
(Not to Scale)



Type of Liner= VARIES

–Y5RPC– STA. 53+28 LT, B=3', CL I RIPRAP, MIN D=2.25'
BEG. EL=308.85', END EL=307.37', L=48', S=3.1%
–L2– STA. 281+89 RT, B=1.5', CL I RIPRAP, MIN D=3.25'
BEG. EL=306.78', END EL=306.28', L=25', S=2.0%
–L2– STA. 257+28 RT, B=8', CL I RIPRAP, MIN D=4.0'
L=31', BEG. EL=314.75', END EL=314.84', S=0.3%
–L2– STA. 273+00 TO STA. 273+30 RT, B=4', D=4', d=4',
CL I RIPRAP, BEG. EL=297.70, END EL.=297.50
–L2– STA. 275+00 LT, B=4', CL I RIPRAP, MIN D=3.5'
L=42', BEG. EL=290.72', END EL=290.12', S=1.42%
–L2– STA. 283+47 LT, B=4', CL I RIPRAP, MIN D=4.75'
L=66', BEG. EL=302.98', END EL=302.67', S=0.5%
–L2– STA. 323+32 TO STA. 324+50 RT,
B=4', D=4.75', d=4.75', CL I RIPRAP
–L2– STA. 395+91 RT, B=3', D=1.5', d=1.5', CL I RIPRAP, S=4.4%
BEG. EL=259.53', END EL=257.50'
–L3– STA. 178+50 TO STA. 181+75 LT, B=4', D=2.5', CL I RIPRAP
–L3– STA. 246+42 TO STA. 247+34 RT, B=4', D=3.25', d=3.25', CL I RIPRAP
–L3– STA. 104+89 TO STA. 106+28 RT, B=4', D=1.0',
CL I RIPRAP, S=6.2%, BEG. EL.=184.77. END EL.=193.32

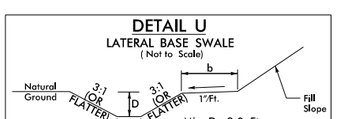
DETAIL T
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

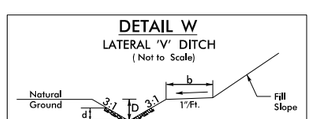
–L2– STA. 251+00 TO STA. 251+50 RT, CL B
–L2– STA. 272+00 TO STA. 273+00 RT, CL B
–L2– STA. 273+30 TO STA. 275+50 RT, CL B
–L2– STA. 274+00 TO STA. 275+05 LT, CL B
–L2– STA. 320+00 TO STA. 322+68 LT, CL B
–L2– STA. 320+50 TO STA. 322+00 RT, CL I
–L2– STA. 324+50 TO STA. 325+50 RT, CL B
–L2– STA. 405+93 TO STA. 406+50 RT, CL B

DETAIL U
LATERAL BASE SWALE
(Not to Scale)



–L2– STA. 249+00 TO STA. 251+00 RT
–L2– STA. 256+00 TO STA. 257+28 RT
–L2– STA. 282+11 TO STA. 282+50 RT
–L2– STA. 322+00 TO STA. 323+32 RT
–L2– STA. 322+68 TO STA. 323+75 LT
–L2– STA. 386+27 TO STA. 387+50 RT
–L2– STA. 437+00 TO STA. 446+90 LT
–L3– STA. 86+50 TO STA. 92+80 RT
–L3– STA. 146+15 TO STA. 147+00 RT
–L3– STA. 173+25 TO STA. 175+50 LT
–L3– STA. 249+00 TO STA. 250+00 LT
–Y5RPD– STA. 20+17 TO STA. 21+66 RT
–Y2_3– STA. 57+50 TO STA. 58+00 LT
–Y2RPA_3– STA. 19+63 TO STA. 22+75 LT
–Y2RPA_3– STA. 19+50 TO STA. 23+50 RT

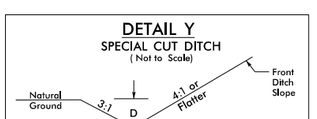
DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap

–Y1RPA_3– STA. 22+50 TO STA. 24+00 LT

DETAIL Y
SPECIAL CUT DITCH
(Not to Scale)



–Y2_3– STA. 77+50 TO STA. 85+50 LT, MIN D=3.25'

4/15/2019
R:\Hydraulics\PERMITS_Environmental\Drawings\4C\15111_I4739_Hyd_wet_DitchDetail.dgn
jr Keys

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 6 OF 125

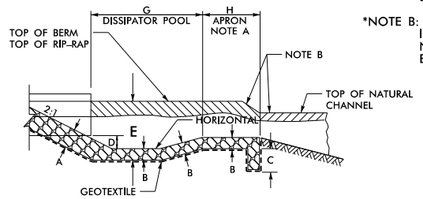
DETAIL X

RIP–RAPPED ENERGY DISSIPATOR BASIN

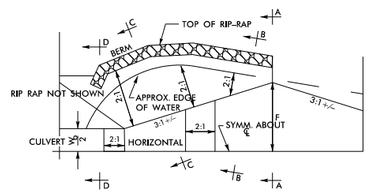
*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

℄ SECTION



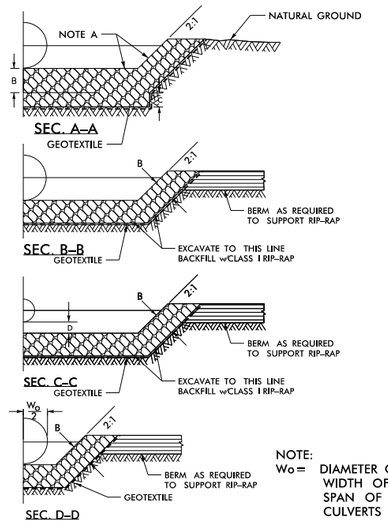
HALF PLAN



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	4.0	4.0						
B	3.0	3.0						
C	2.0	2.0						
D	1.9	1.3						
E	10.5	8.5						
F	12.6	12.6						
G	28.7	21.3						
H	9.6	6.3						

*ALL DIMENSIONS APPROXIMATE IN FT

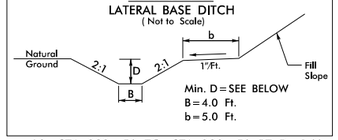
BASIN #	LOCATION (AT OUTLET)
1	–L2– 192+73 LT
2	–L2– 256+65 LT
3	
4	
5	
6	
7	
8	



NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

5/05

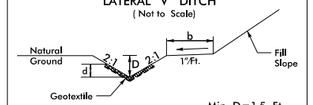
DETAIL AA
LATERAL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
B=4.0 Ft.
b=5.0 Ft.

–L2– STA. 282+50 TO STA. 283+50 RT, D=1.0'
–L2– STA. 290+50 TO STA. 292+50 RT, D=1.0'
–Y4– STA. 22+76 TO STA. 23+75 LT, D=1.75'

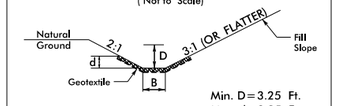
DETAIL AB
LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
b=5.0 Ft.
Type of Liner= SEE BELOW

–L2– STA. 248+00 TO STA. 249+50 LT, CL B RIPRAP
–L2– STA. 316+50 TO STA. 317+50 RT, CL I RIPRAP
–L2– STA. 401+00 TO STA. 403+00 RT, CL I RIPRAP

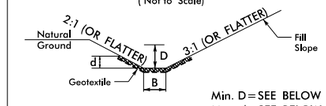
DETAIL AC
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=3.25 Ft.
Max. d=3.25 Ft.
B=4.0 Ft.
Type of Liner= CL I Rip–Rap

–L2– STA 362+63 TO STA. 364+50 LT
–L2– STA. 374+50 TO STA. 379+00 LT

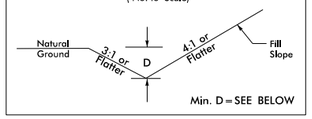
DETAIL AD
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
Max. d=SEE BELOW
B=4.0 Ft.
Type of Liner= CL B Rip–Rap

–L2– STA. 369+50 TO STA. 373+92 RT, D=1.5', d=1.5'
–L2– STA. 405+93 TO STA. 410+00 RT, D=1.5', d=1.5'
–L2– STA. 434+50 TO STA. 436+27 LT, D=1.5', d=1.5'

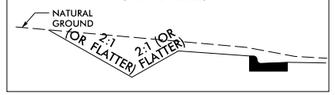
DETAIL AE
SPECIAL LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW

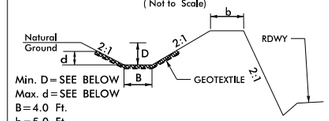
–L2– STA. 410+00 TO STA. 417+50 RT, D=1.25'
–L2– STA. 467+50 TO STA. 473+50 RT, D=1.25'
–L2– STA. 474+00 TO STA. 476+00 RT, D=1.0'
–Y5RPA– STA. 27+00 TO STA. 29+00 RT, D=1.0'

DETAIL AG
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



–Y2 3– STA. 30+00 TO STA. 42+49 RT
–Y5LPC– STA. 18+50 TO STA. 21+20 LT
–Y1 3– STA. 25+50 TO STA. 30+10 RT
–Y1E– STA. 12+25 TO STA. 16+00 LT

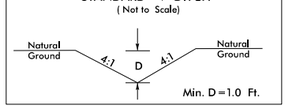
DETAIL AH
BERM BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
Max. d=SEE BELOW
B=4.0 Ft.
b=5.0 Ft.
Type of Liner= CL B Rip–Rap

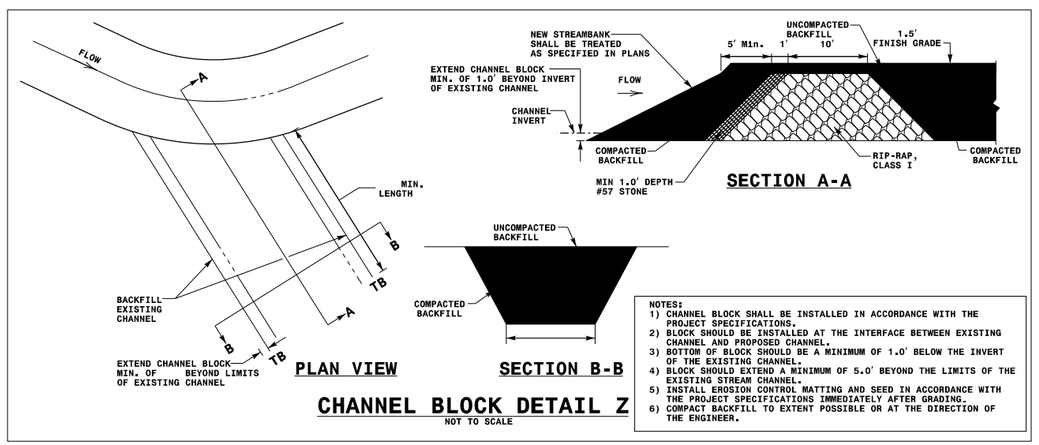
–L2– STA. 198+00 TO STA. 198+50 RT, D=2.0'
–L2– STA. 418+50 TO STA. 420+50 RT, D=1.5'
–L2– STA. 424+80 TO STA. 435+00 LT, D=1.5'

DETAIL AI
STANDARD 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.

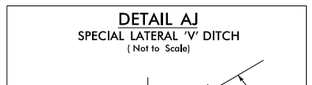
–L2– STA. 223+19 LT, L=75', S=1.08%
BEG. EL=364.81', END EL=364.00'



CHANNEL BLOCK DETAIL Z
NOT TO SCALE

NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 1.0' BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 5.0' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

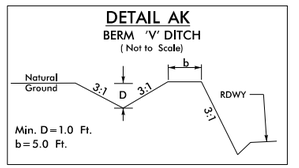
DETAIL AJ
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=SEE BELOW Ft.

–L2– STA. 444+50 TO STA. 448+00 LT, D=1.25'
–L2– STA. 473+50 TO STA. 474+00 RT, D=1.0'
–LCDEB– STA. 22+55.28 TO STA. 25+05.29 RT, D=1.0'
–Y1RPB_3– STA. 22+00 TO STA. 25+00 RT, D=1.5'
–Y1RPB_3– STA. 22+00 TO STA. 23+50 LT, D=2.00'
–Y2_3– STA. 69+00 TO STA. 70+52 RT, D=1.0'
–Y5RPD– STA. 17+50 TO STA. 19+75 LT, D=2.00'
–SR1– STA. 11+85 TO STA. 14+50 RT, D=1.25'
–SR1– STA. 12+34 TO STA. 14+75 LT, D=1.0'
–PIERCE– STA. 14+54 TO STA. 15+41 RT, D=1.0'

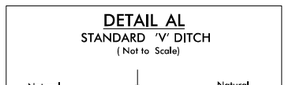
DETAIL AK
BERM 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.
b=5.0 Ft.

–L3– STA. 121+00 TO STA. 122+50 LT
–L3– STA. 126+50 TO STA. 138+00 LT
–L3– STA. 156+00 TO STA. 157+75 RT
–L3– STA. 238+00 TO STA. 243+00 RT
–L3– STA. 276+50 TO STA. 290+00 RT
–LCDEB– STA. 90+01.57 TO STA. 95+00 RT
–Y2RPA_3– STA. 18+00 TO STA. 19+50 RT

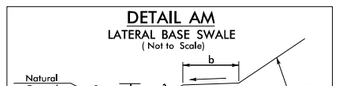
DETAIL AL
STANDARD 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.

–L3– STA. 157+75 TO STA. 159+58 RT
–SR1– STA. 18+50 RT, BEG. ELEV=316.80, END ELEV=315.00, S=1.24%, L=145'
–SR1– STA. 18+50 LT, BEG. ELEV=317.56, END ELEV=317.02, S=0.48%, L=112'
–Y1 3– STA. 19+77 TO STA. 20+50 LT, BEG. ELEV=312.00, END ELEV=313.00, S=1.4%
–Y1 3– STA. 21+71 TO STA. 22+50 RT, BEG. ELEV=316.00, END ELEV=317.50, S=1.7%
–Y1E– STA. 16+00 TO STA. 17+00 LT, S=1.3%
BEG. ELEV=314.00, END ELEV=312.72'
–PIERCE– STA. 14+54 RT, L=118', S=1.8%
BEG. ELEV=320.48, END ELEV=318.40

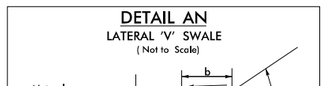
DETAIL AM
LATERAL BASE SWALE
(Not to Scale)



Min. D=1.0 Ft.
B=4.0 Ft.
b=5.0 Ft.

–L2– STA. 446+00 TO STA. 447+40 RT
–L3– STA. 111+09 LT; L=70'; S=0.9%
–L3– STA. 231+50 TO STA. 232+79 LT
–L3– STA. 234+28 TO STA. 235+50 LT
–L3– STA. 243+00 TO STA. 243+50 RT
–L3– STA. 245+50 TO STA. 247+66 LT
–L3– STA. 269+00 TO STA. 270+71 LT
–LCDEB– STA. 88+98.93 TO STA. 91+51.57 RT
–LCDWB– STA. 102+08.23 TO STA. 103+26.82 LT
–Y1RPD_3– STA. 14+21 TO STA. 16+53 LT

DETAIL AN
LATERAL 'V' SWALE
(Not to Scale)



Min. D=SEE BELOW
b=5.0 Ft.

–L2– STA. 249+50 TO STA. 250+53 LT, D=1.0'
–L2– STA. 275+65 TO STA. 276+50 LT, D=1.0'
–L2– STA. 462+50 TO STA. 464+00 RT, D=1.25'
–L2– STA. 396+50 TO STA. 399+00 RT, D=1.0'
–L2– STA. 403+00 TO STA. 405+93 RT, D=1.5'
–L3– STA. 163+70 TO STA. 166+64 LT, D=1.25'
–L3– STA. 184+00 TO STA. 185+50 RT, D=1.5'
–Y1RPA_3– STA. 15+74.66 TO STA. 16+33.93 RT, D=1.0'
–Y1RPA_3– STA. 18+05 TO STA. 22+50 LT, D=1.5'
–Y2_3– STA. 59+26 TO STA. 61+00 LT, D=1.75'
–Y5LPB– STA. 17+50 TO STA. 20+98 RT, D=1.25'
–Y5LPB– STA. 25+00 TO STA. 26+85 RT, D=1.0'
–Y5LPB– STA. 26+85 TO STA. 29+45 RT, D=1.75'
–Y8RPA– STA. 26+00 TO STA. 27+01 RT, D=1.0'
–Y8RPA– STA. 27+48 TO STA. 29+60 RT, D=1.75'

PLANS PREPARED BY :
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4/15/2019
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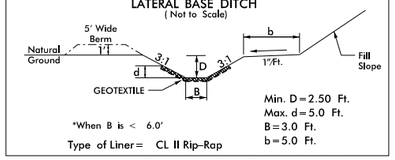
F.Keys

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 7 OF 125

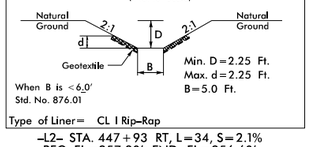
DETAIL AQ
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CL II Rip-Rap

–L3– STA. 112+94 TO STA. 115+23 LT

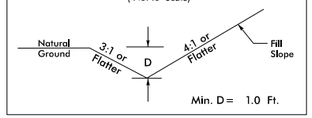
DETAIL AR
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap

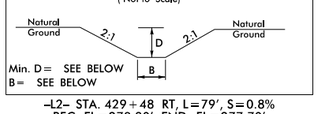
–L2– STA. 447+93 RT, L=34, S=2.1%
BEG. EL=257.30'; END EL=256.60'

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



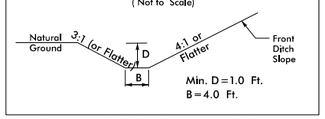
–L2– STA. 454+50 TO STA. 455+77 RT
–Y5LPB– STA. 13+82.47 TO STA. 17+50 RT

DETAIL AT
STANDARD BASE DITCH
(Not to Scale)



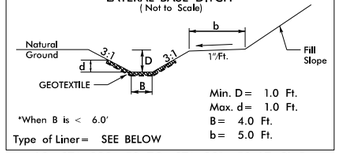
–L2– STA. 429+48 RT, L=79', S=0.8%
BEG. EL=278.30', END EL=277.70'
D=2.0', B=3.0'

DETAIL AU
SPECIAL CUT BASE SWALE
(Not to Scale)



–L3– STA. 237+00 TO STA. 241+50 LT
–Y5RPBSPUR– STA. 13+73 TO STA. 17+20 RT

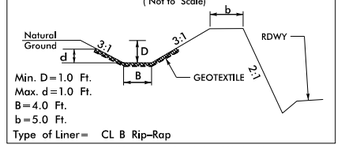
DETAIL AV
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

–L3– STA. 229+50 TO STA. 231+50 LT, CL B
–L3– STA. 231+75 TO STA. 233+00 RT, CL I
–L3– STA. 234+00 TO STA. 235+00 RT, CL B
–L3– STA. 235+50 TO STA. 237+00 LT, CL B
–L3– STA. 243+00 TO STA. 245+50 LT, CL B
–L3– STA. 263+00 TO STA. 269+00 LT, CL B
–L3– STA. 263+50 TO STA. 265+00 RT, CL B

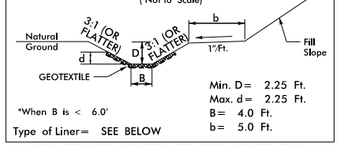
DETAIL AW
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap

–L3– STA. 122+50 TO STA. 126+50 LT
–L3– STA. 234+50 TO STA. 238+00 RT
–LCDEB– STA. 104+50 TO STA. 109+50 RT (104+50 TO 107+50 USE A 2' BASE WITH 2:1 SIDE SLOPES)

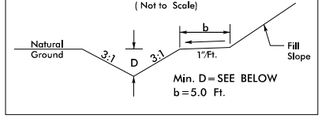
DETAIL AX
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW

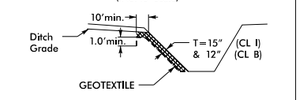
–L3– STA. 231+00 TO STA. 231+75 RT, CL I
–L3– STA. 233+00 TO STA. 234+00 RT, CL B
–LCDWB– STA. 99+23.62 TO STA. 103+26.82 LT, CL I
–Y2RPA_3– STA. 22+75 TO STA. 23+40 LT, CL I

DETAIL AZ
LATERAL 'V' DITCH
(Not to Scale)



–Y2_3– STA. 55+75 TO STA. 57+50 LT, D=1.0'
–Y2LPD_3– STA. 16+20 TO STA. 18+81 RT, D=1.0'
–Y2RPD_3– STA. 24+43 TO STA. 25+27 LT, D=2.25'
–Y1_3– STA. 30+88 TO STA. 32+00 RT, D=1.0'

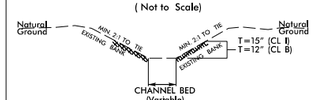
DETAIL BA
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= SEE BELOW

–L2– STA. 257+25 RT, CL I RIPRAP
–L2– STA. 272+87 RT, CL B RIPRAP
–L2– STA. 273+27 RT, CL B RIPRAP
–L2– STA. 275+06 LT, CL B RIPRAP
–L2– STA. 322+48 LT, CL B RIPRAP
–L2– STA. 322+88 LT, CL B RIPRAP
–L2– STA. 323+13 RT, CL I RIPRAP
–L2– STA. 386+30 RT, CL I RIPRAP
–L2– STA. 395+82 RT, CL I RIPRAP
–L2– STA. 405+84 RT, CL I RIPRAP
–L2– STA. 406+05 RT, CL B RIPRAP
–L2– STA. 447+72 LT, CL I RIPRAP
–L2– STA. 447+93 LT, CL I RIPRAP
–L3– STA. 174+80 RT, CL B RIPRAP
–L3– STA. 210+62 RT, CL I RIPRAP
–L3– STA. 215+34 LT, CL I RIPRAP
–L3– STA. 215+52 LT, CL I RIPRAP
–L3– STA. 247+67 LT, CL I RIPRAP
–L3– STA. 270+63 LT, CL I RIPRAP

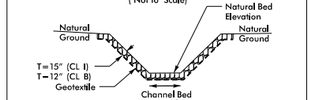
DETAIL BB
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length= SEE BELOW
Type of Liner= CL I or B Rip-Rap – Keyed-In (SEE BELOW)

–L2– STA. 169+12 LT, L=5', CL B RIPRAP
–L2– STA. 172+65 LT, L=8', CL B RIPRAP
–L2– STA. 176+20 LT, L=36', CL I RIPRAP
–L2– STA. 284+50 LT, L=5', CL I RIPRAP
–L2– STA. 396+41 LT, L=45', CL I RIPRAP
–L2– STA. 369+00 LT, L=5', CL B RIPRAP
–L2– STA. 381+90 RT, L=5', CL B RIPRAP
–L2– STA. 416+93 LT, L=10', CL B RIPRAP
–L2– STA. 447+84 LT, L=64', CL I RIPRAP
–L2– STA. 461+38 RT, L=30', CL I RIPRAP
–Y8RPA– STA. 27+36 RT, L=22', CL I RIPRAP
–L3– STA. 111+82 LT, L=16', CL I RIPRAP (INLET)
–L3– STA. 144+04 LT, L=40', CL I RIPRAP
–L3– STA. 168+43 LT, L=45', CL I RIPRAP
–L3– STA. 171+49 LT, L=55', CL I RIPRAP
–L3– STA. 205+30 RT, L=55', CL I RIPRAP
–L3– STA. 233+34 LT, L=45', CL I RIPRAP
–L3– STA. 234+09 LT, L=40', CL I RIPRAP
–L3– STA. 247+67 LT, L=50', CL I RIPRAP
–L3– STA. 270+61 LT, L=33', CL I RIPRAP

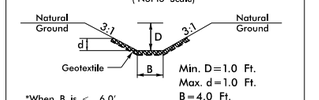
DETAIL BC
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Length= SEE BELOW
Type of Liner= CL I or B Rip-Rap – Keyed-In (SEE BELOW)

–L2– STA. 245+56 RT, L=20', CL I RIPRAP
–L2– STA. 290+70 LT, L=35', CL I RIPRAP
–L3– STA. 121+50 RT, L=20', CL B RIPRAP
–L3– STA. 124+36 RT, L=30', CL I RIPRAP
–L3– STA. 126+90 RT, L=30', CL I RIPRAP
–L3– STA. 275+43 LT, L=25', CL I RIPRAP

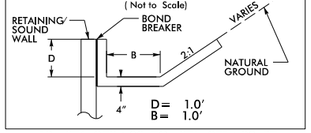
DETAIL BD
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap

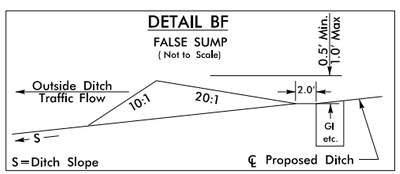
–Y1_3– STA. 30+05 LT, L=87', S=5.74%
BEG. EL=320.00, END EL=315.00
–Y1RPD_3– STA. 23+00 TO STA. 23+31 LT, S=7.2%
BEG. EL= 302.27, END ELEV=300.0
–Y1RPD_3– STA. 23+31 TO STA. 23+96 LT, S=9.2%
BEG. ELEV=300.00, END ELEV=305.96

DETAIL BE
CONCRETE DITCH BEHIND WALL
(Not to Scale)

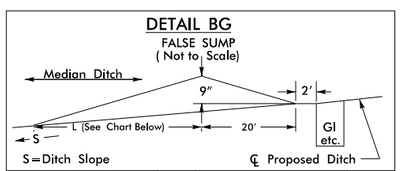


–L2– STA. 258+00 TO STA. 271+00 RT
–L2– STA. 276+00 TO STA. 280+00 RT
–L2– STA. 347+50 TO STA. 366+50 RT
–L3– STA. 250+00 TO STA. 251+00 RT
–L3– STA. 256+50 TO STA. 262+00 RT

DETAIL BF
FALSE SUMP
(Not to Scale)

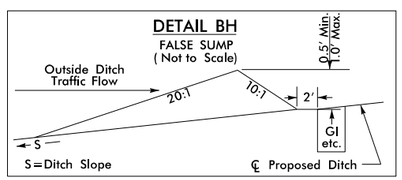


DETAIL BG
FALSE SUMP
(Not to Scale)

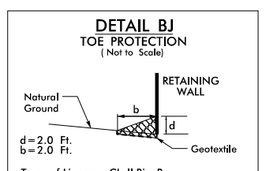


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL BH
FALSE SUMP
(Not to Scale)



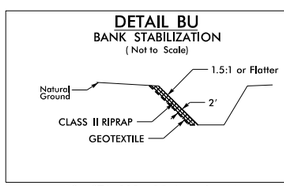
DETAIL BJ
TOE PROTECTION
(Not to Scale)



Type of Liner= CL II Rip-Rap

–L3– STA. 105+80 TO STA. 111+00 LT

DETAIL BU
BANK STABILIZATION
(Not to Scale)



–L3– STA. 103+95, Length=225'
–L3– STA. 104+40, Length=250'

4/15/2019
H:\HydRaulics\PERMITS_Environmental\Drawings\4C\I5111_I4739_Hyd_wet_DitchDetail.dgn
FLKeys

PLANS PREPARED BY :

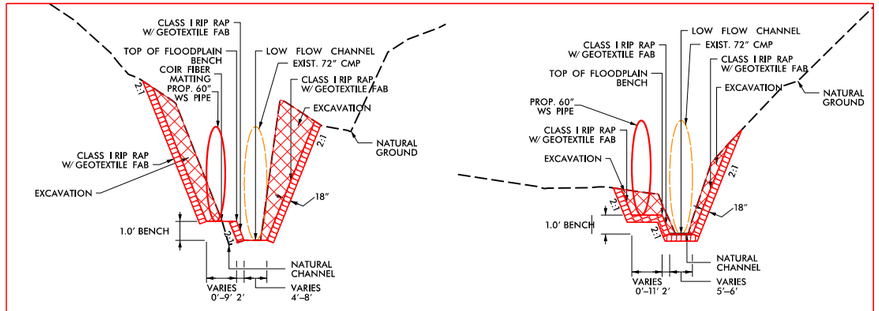
RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

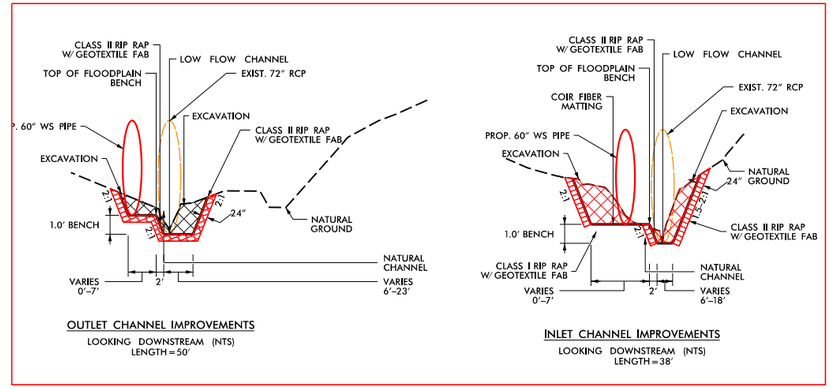
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	2D-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

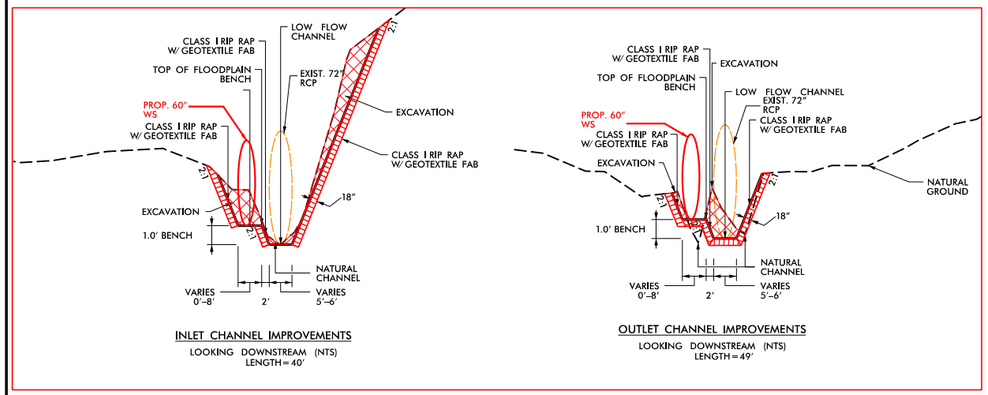
PERMIT DRAWING
SHEET 8 OF 125



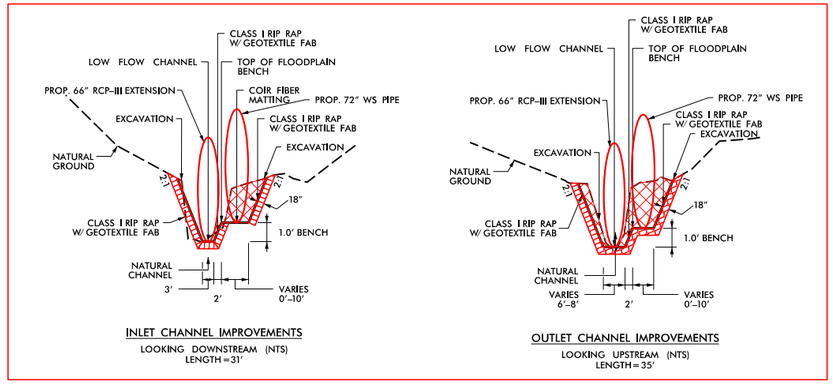
CULVERT INLET/OUTLET DETAILS
C400
–L2– 249+09



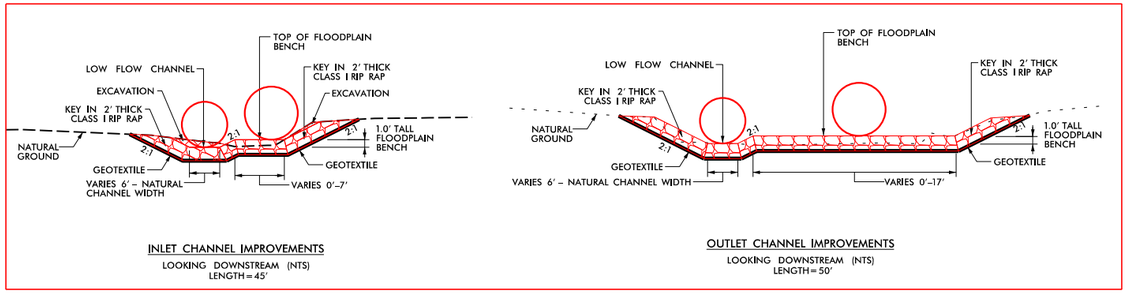
CULVERT INLET/OUTLET DETAILS
C700
–L2– 386+82



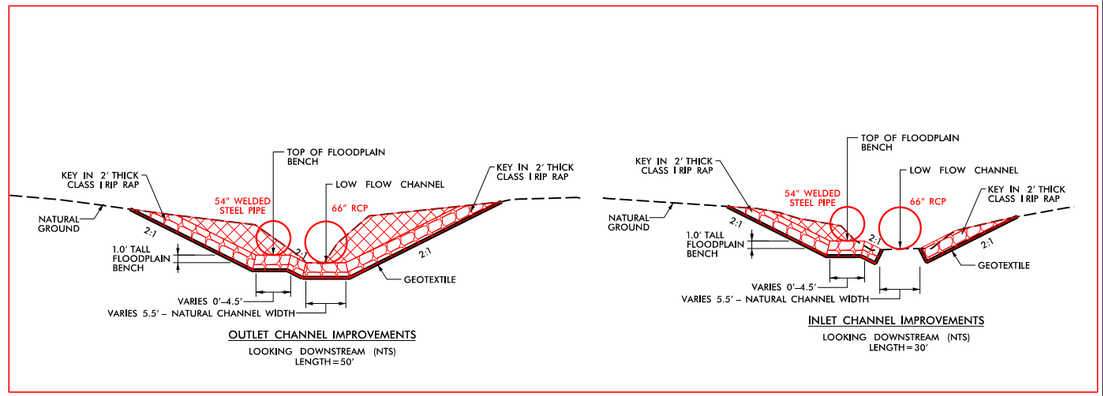
CULVERT INLET/OUTLET DETAILS
C500
–Y5RPA– 21+98



CULVERT INLET/OUTLET DETAILS
C800
–L2– 405+38



CULVERT INLET/OUTLET DETAILS
C600
–L2– 322+93



CULVERT INLET/OUTLET DETAILS
C900
–L3– 212+70

4/15/2019
F:\Hydraulics\PERMITS_Environmental\Drawings\4C\I5111_I4739_Hyd_wet_DitchDetail.dgn
F.keys

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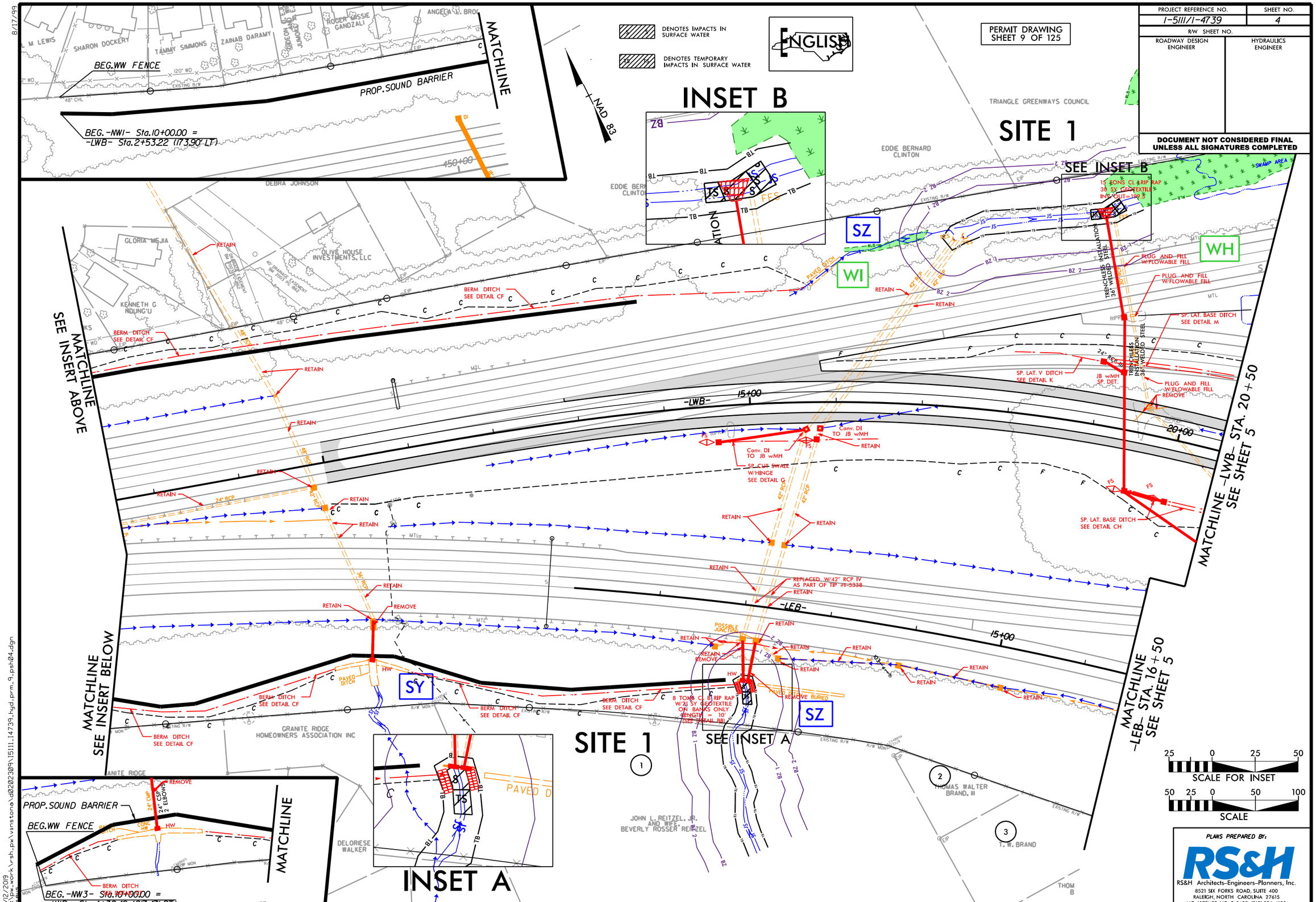
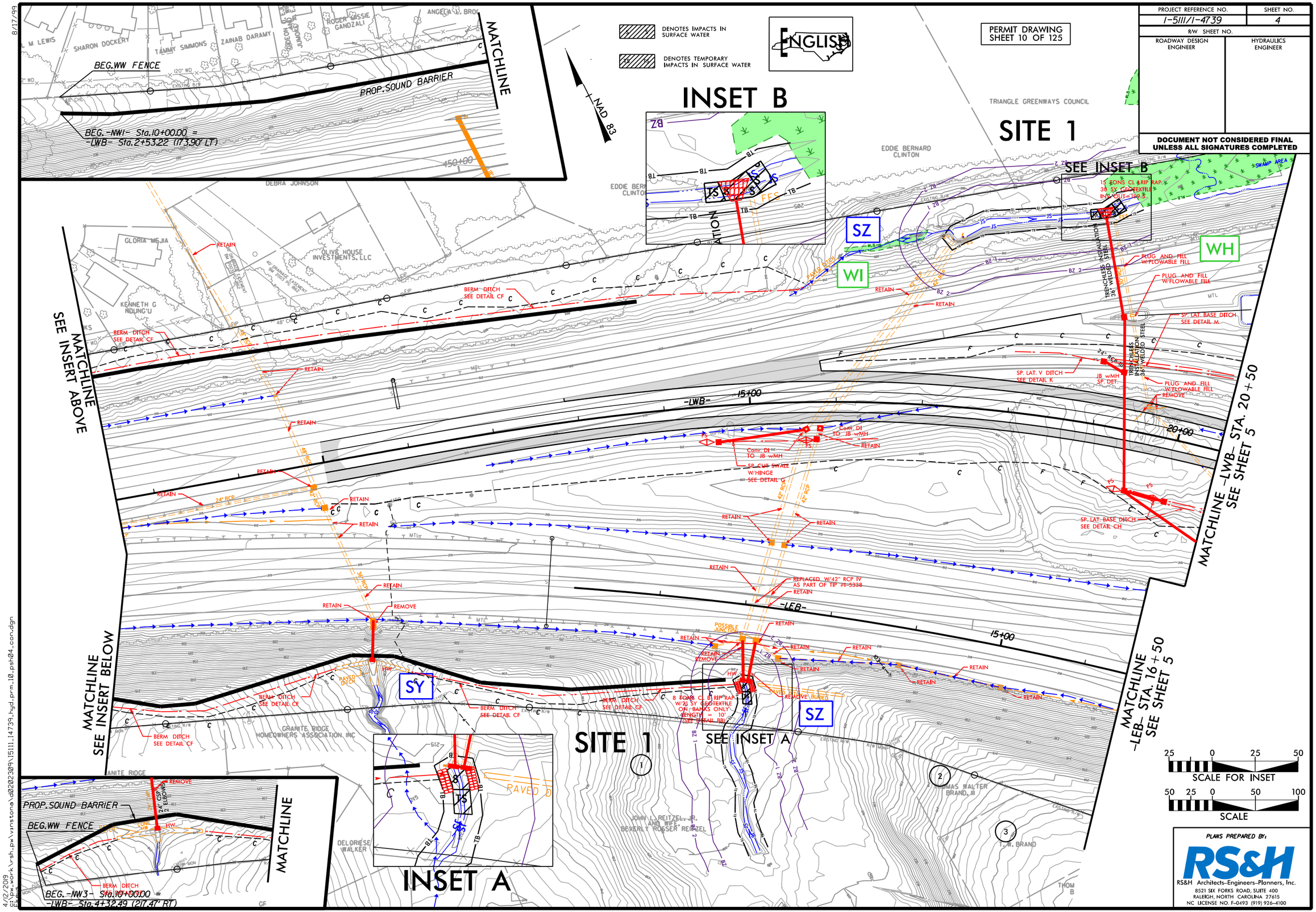
NC LICENSE NO. F-0112 • (919) 878-9560



PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
ENGLISH
PERMIT DRAWING SHEET 9 OF 125
NAD 83
INSET B
SITE 1
SEE INSET B
SEE INSET A
INSET A
MATCHLINE
BEG.WW FENCE
PROP.SOUND BARRIER
BEG.-NW1- Sta.10+00.00 = -LWB- Sta.2+53.22 (173.90' LT)
MATCHLINE SEE INSERT ABOVE
MATCHLINE SEE INSERT BELOW
MATCHLINE -LWB- STA. 20+50 SEE SHEET 5
MATCHLINE -LEB- STA. 16+50 SEE SHEET 5
-LWB-
-LEB-
15+00
20+00
SZ
WI
WH
SY
SZ
BERM DITCH SEE DETAIL CF
RETAIN
REMOVE
PLUG AND FILL W/FLOWABLE FILL
SP. LAT. BASE DITCH SEE DETAIL M
SP. LAT. V DITCH SEE DETAIL K
SP. LAT. BASE DITCH SEE DETAIL CH
Conv. DI TO JB w/MH
SP. CUT SWALE W/HINGE SEE DETAIL G
REPLACED W/42" RCP IV AS PART OF TIP #I-5338
8 TONS CL B RIP RAP W/21 SY GEOTEXTILE ON BANKS ONLY LENGTH = 10' (SEE DETAIL BB)
GRANITE RIDGE HOMEOWNERS ASSOCIATION INC
JOHN L. REITZEL, JR. AND WIFE, BEVERLY ROSSER REITZEL
THOMAS WALTER BRAND, III
T. W. BRAND
DELORIESE WALKER
SCALE FOR INSET
SCALE
PLANS PREPARED BY:
RS&H
RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100



PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
ENGLISH
PERMIT DRAWING SHEET 10 OF 125
NAD 83
INSET B
SITE 1
SEE INSET B
SITE 1
SEE INSET A
INSET A
MATCHLINE
MATCHLINE SEE INSERT ABOVE
MATCHLINE SEE INSERT BELOW
MATCHLINE -LWB- STA. 20+50 SEE SHEET 5
MATCHLINE -LEB- STA. 16+50 SEE SHEET 5
BEG.WW FENCE
PROP.SOUND BARRIER
BEG.-NW1- Sta.10+00.00 = -LWB- Sta.2+53.22 (173.90' LT)
BEG.-NW3- Sta.10+00.00 = -LWB- Sta.4+32.49 (217.47' RT)
SZ
WI
WH
SY
SZ
-LWB-
-LEB-
15+00
20+00
BERM DITCH SEE DETAIL CF
SP. LAT. BASE DITCH SEE DETAIL M
SP. LAT. V DITCH SEE DETAIL K
SP. CUT SWALE W/HINGE SEE DETAIL G
SP. LAT. BASE DITCH SEE DETAIL CH
PLUG AND FILL W/FLOWABLE FILL
REPLACED W/42" RCP IV AS PART OF TIP #I-5338
8 TONS C. B RIP RAP W/21 SY GEOTEXTILE ON BANKS ONLY LENGTH = 10' (SEE DETAIL BB)
TRENCHLESS INSTALLATION 36" WELDED STEEL
TRIANGLE GREENWAYS COUNCIL
EDDIE BERNARD CLINTON
DEBRA JOHNSON
GLORIA MEJIA
OLIVE HOUSE INVESTMENTS, LLC
KENNETH G NDUNG'U
GRANITE RIDGE HOMEOWNERS ASSOCIATION INC
JOHN L. REITZEL, JR. AND WIFE, BEVERLY ROSSER REITZEL
DELORIESE WALKER
THOMAS WALTER BRAND, III
T. W. BRAND
SCALE FOR INSET
SCALE
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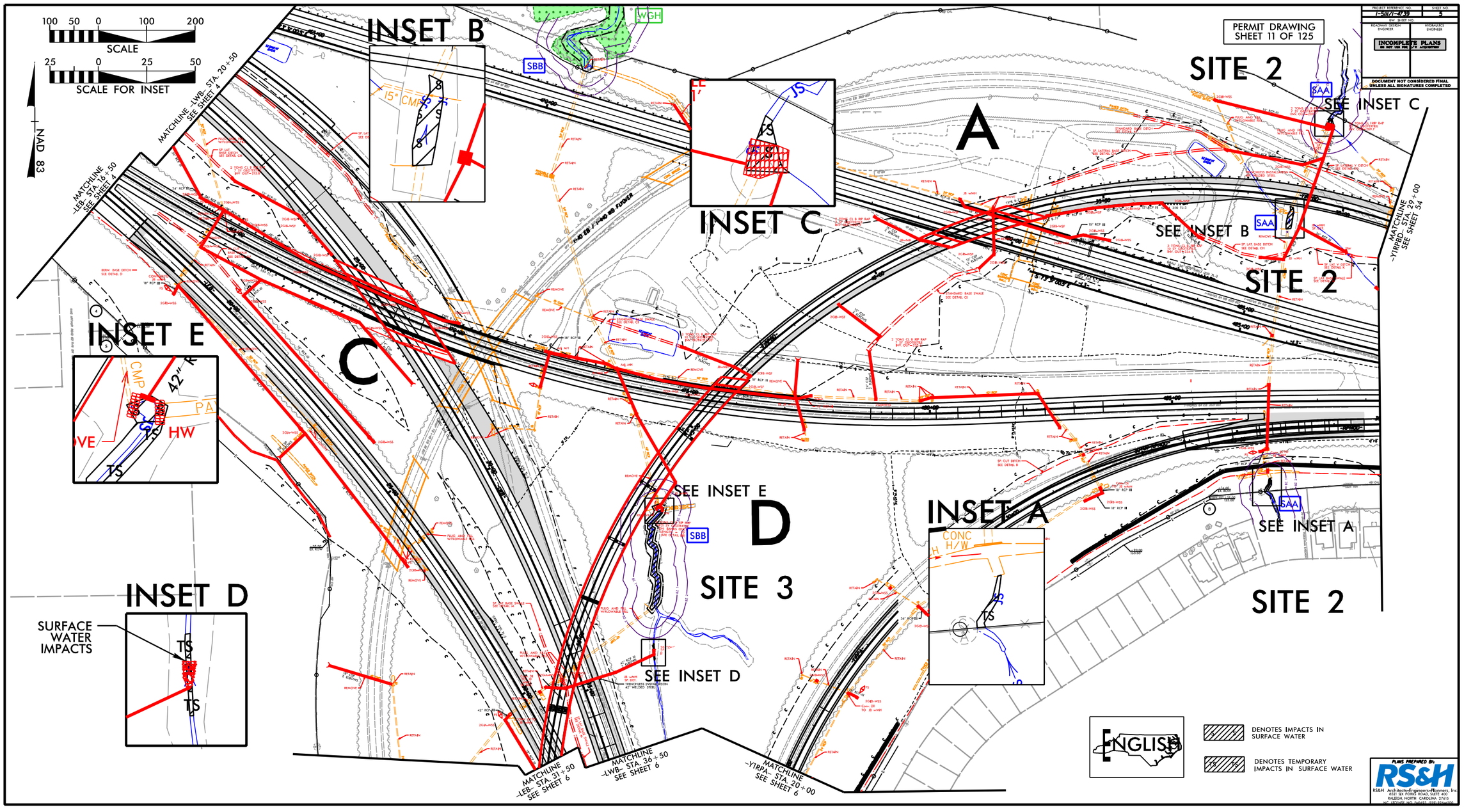
INSET B
INSET C
INSET E
INSET D
INSET A
SITE 2
SITE 3
SITE 2
SITE 2
A
C
D
SEE INSET C
SEE INSET B
SEE INSET E
SEE INSET D
SEE INSET A
PERMIT DRAWING
SHEET 11 OF 125
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SCALE
SCALE FOR INSET
NAD 83
SURFACE WATER IMPACTS
MATCHLINE -LWB- STA. 20+50 SEE SHEET 4
MATCHLINE -LEB- STA. 16+50 SEE SHEET 4
MATCHLINE -LEB- STA. 31+50 SEE SHEET 6
MATCHLINE -LWB- STA. 36+50 SEE SHEET 6
MATCHLINE -YYRPBD- STA. 20+00 SEE SHEET 6
MATCHLINE -YYRPBD- STA. 29+00 SEE SHEET 54
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
ENGLISH
PLANS PREPARED BY:
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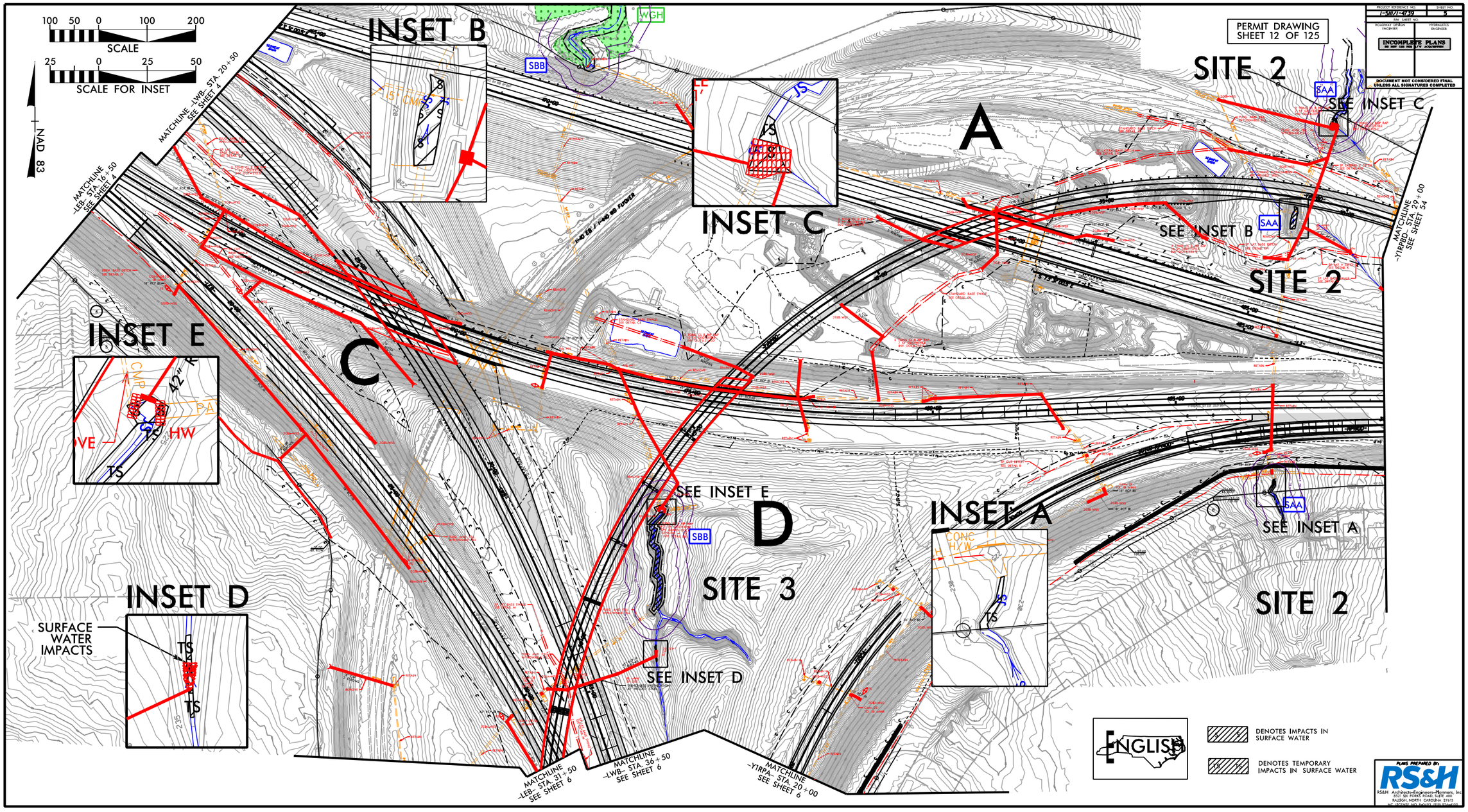
100 50 0 100 200
SCALE
25 0 25 50
SCALE FOR INSET
NAD 83
INSET B
INSET C
INSET E
INSET D
INSET A
SITE 2
SITE 3
A
C
D
SEE INSET C
SEE INSET B
SEE INSET E
SEE INSET D
SEE INSET A
MATCHLINE -LWB- STA. 20+50 SEE SHEET 4
MATCHLINE -LEB- STA. 16+50 SEE SHEET 4
MATCHLINE -YIRPBD- STA. 29+00 SEE SHEET 54
MATCHLINE -LEB- STA. 31+50 SEE SHEET 6
MATCHLINE -LWB- STA. 36+50 SEE SHEET 6
MATCHLINE -Y1RPA- STA. 20+00 SEE SHEET 6
SURFACE WATER IMPACTS
PERMIT DRAWING SHEET 12 OF 125
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
ENGLISH
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PLANS PREPARED BY:
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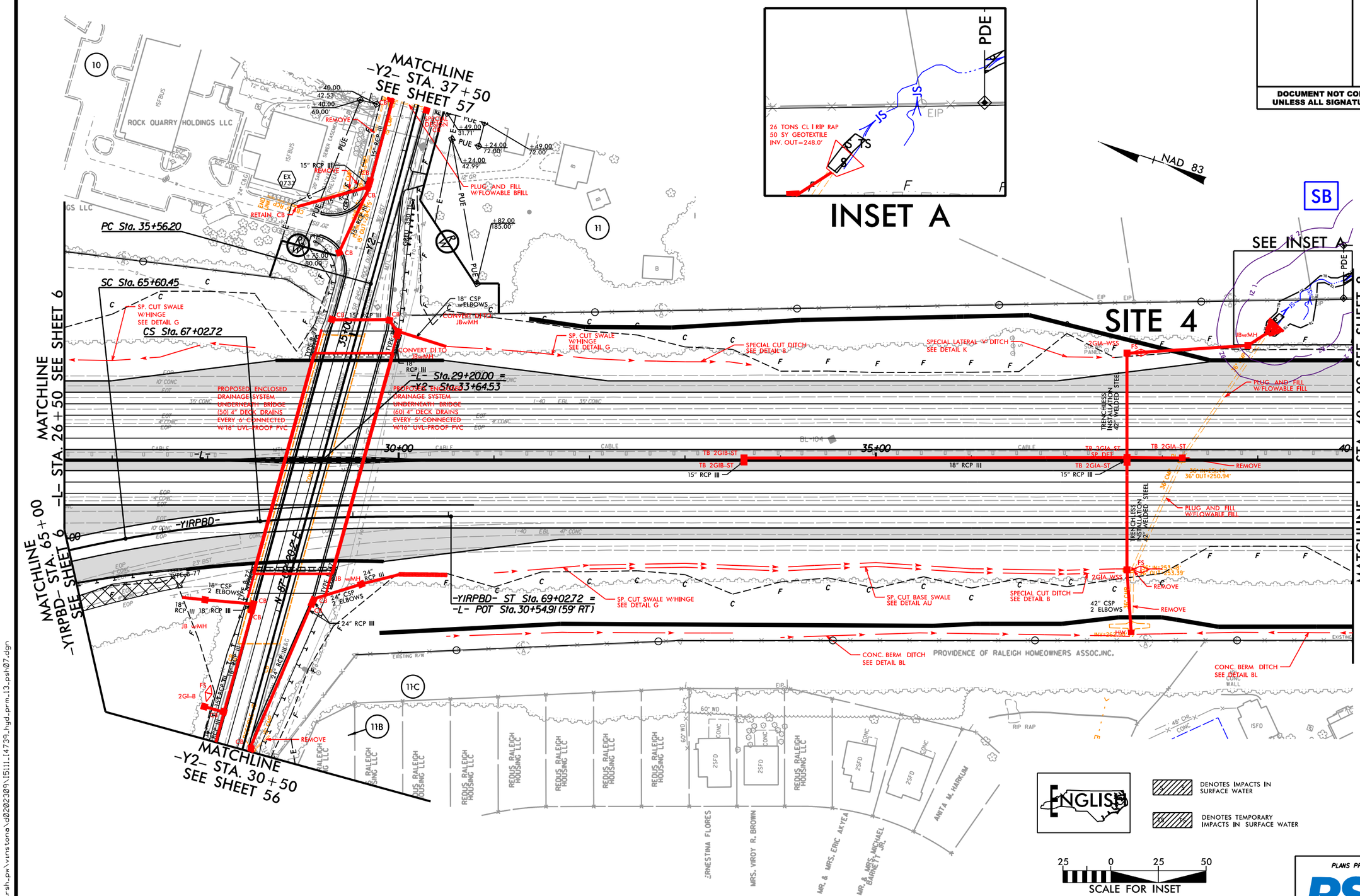
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 13 OF 125



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8/17/99

4/12/2019
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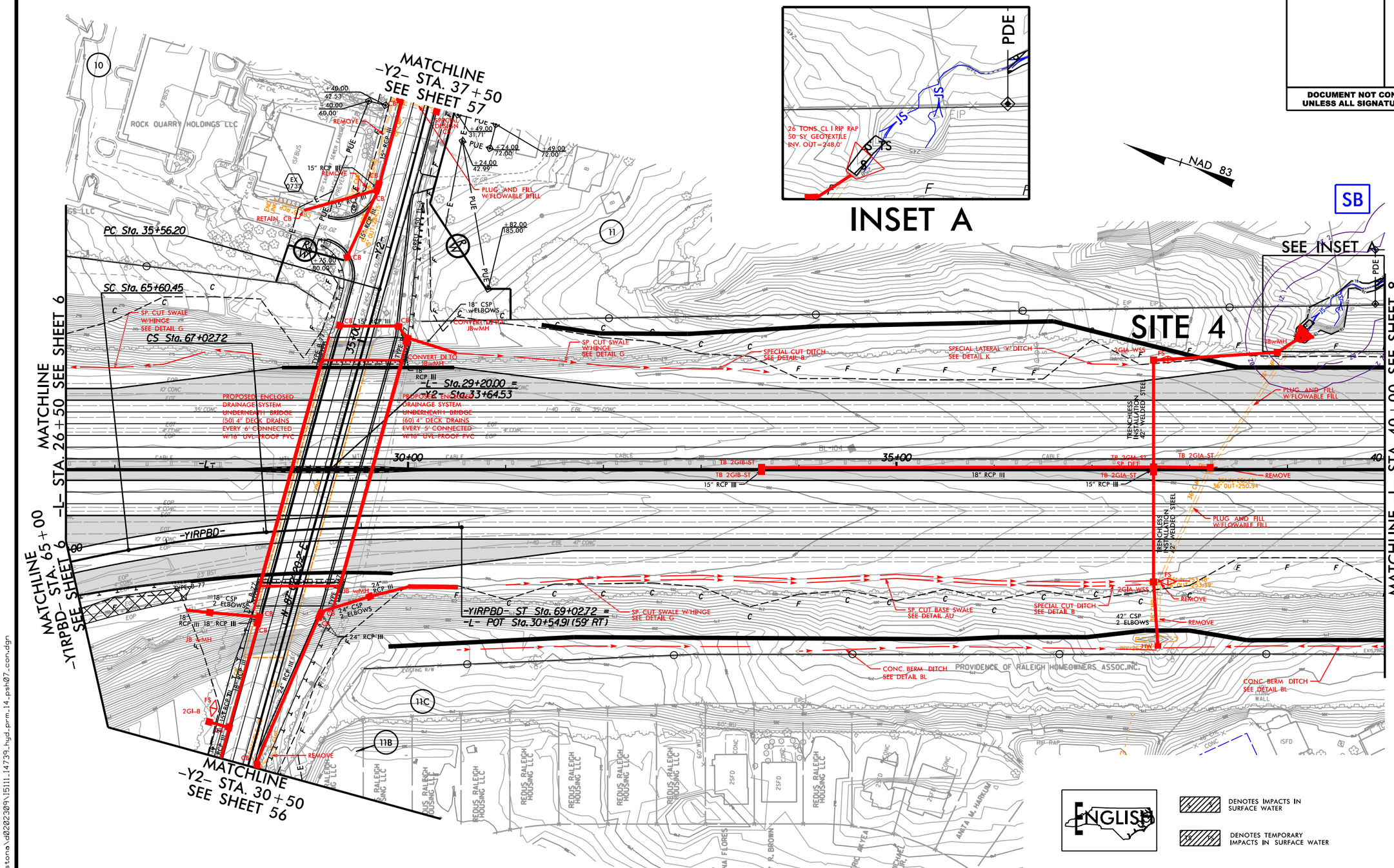
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 14 OF 125



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8/17/99

4/12/2019
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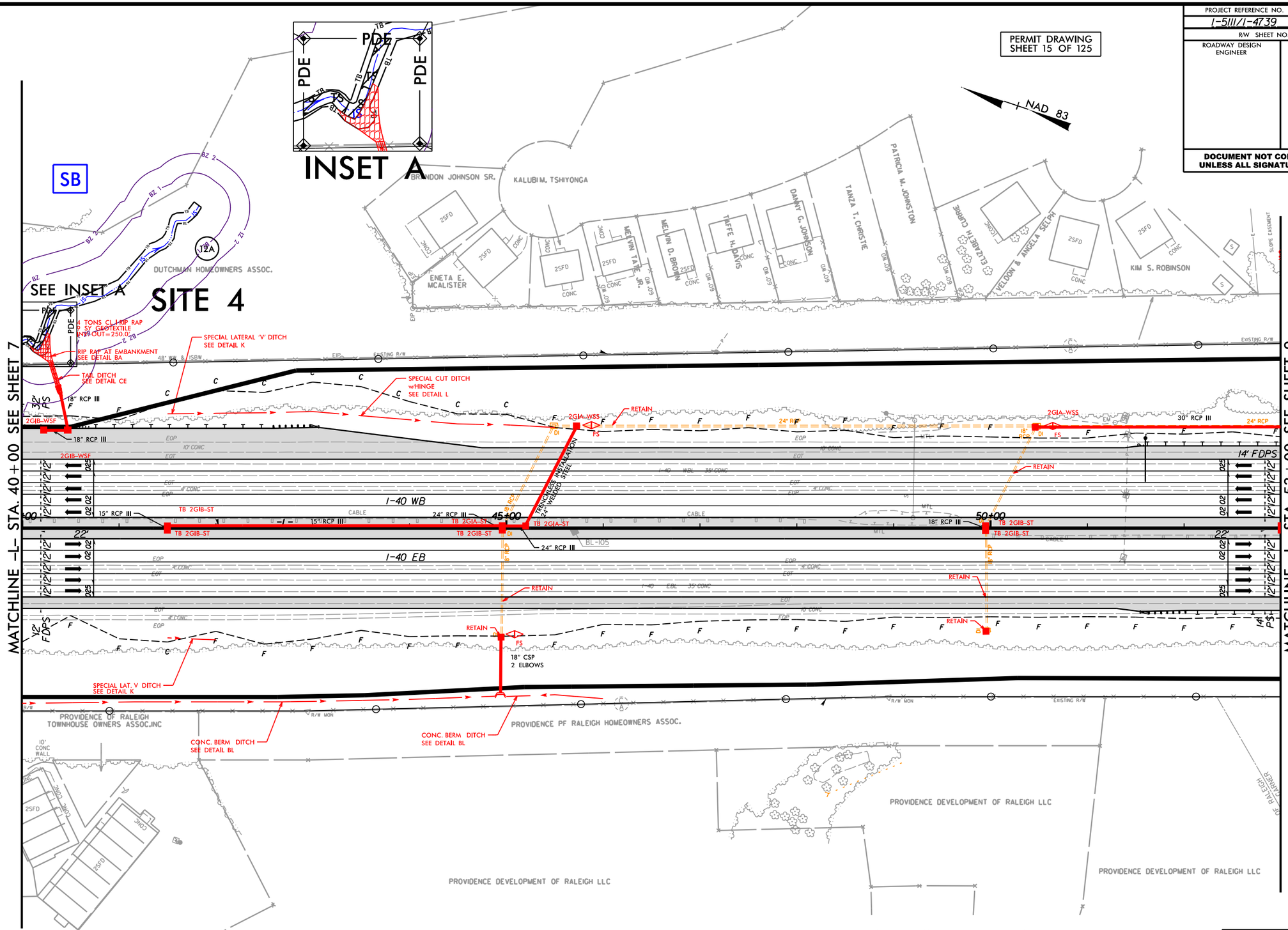
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 15 OF 125



ENGLISH

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

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4/12/2019
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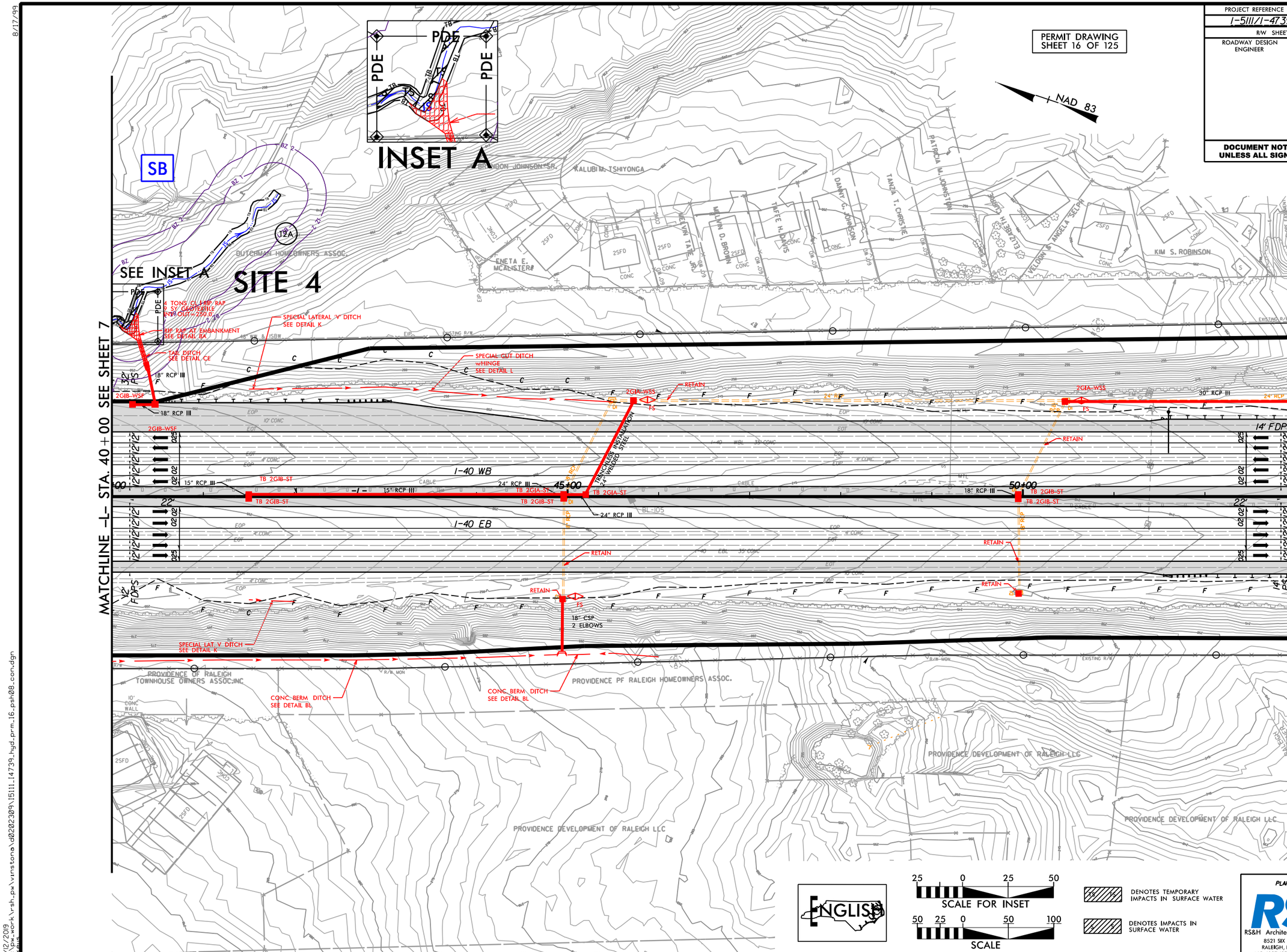
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 16 OF 125



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4/12/2019
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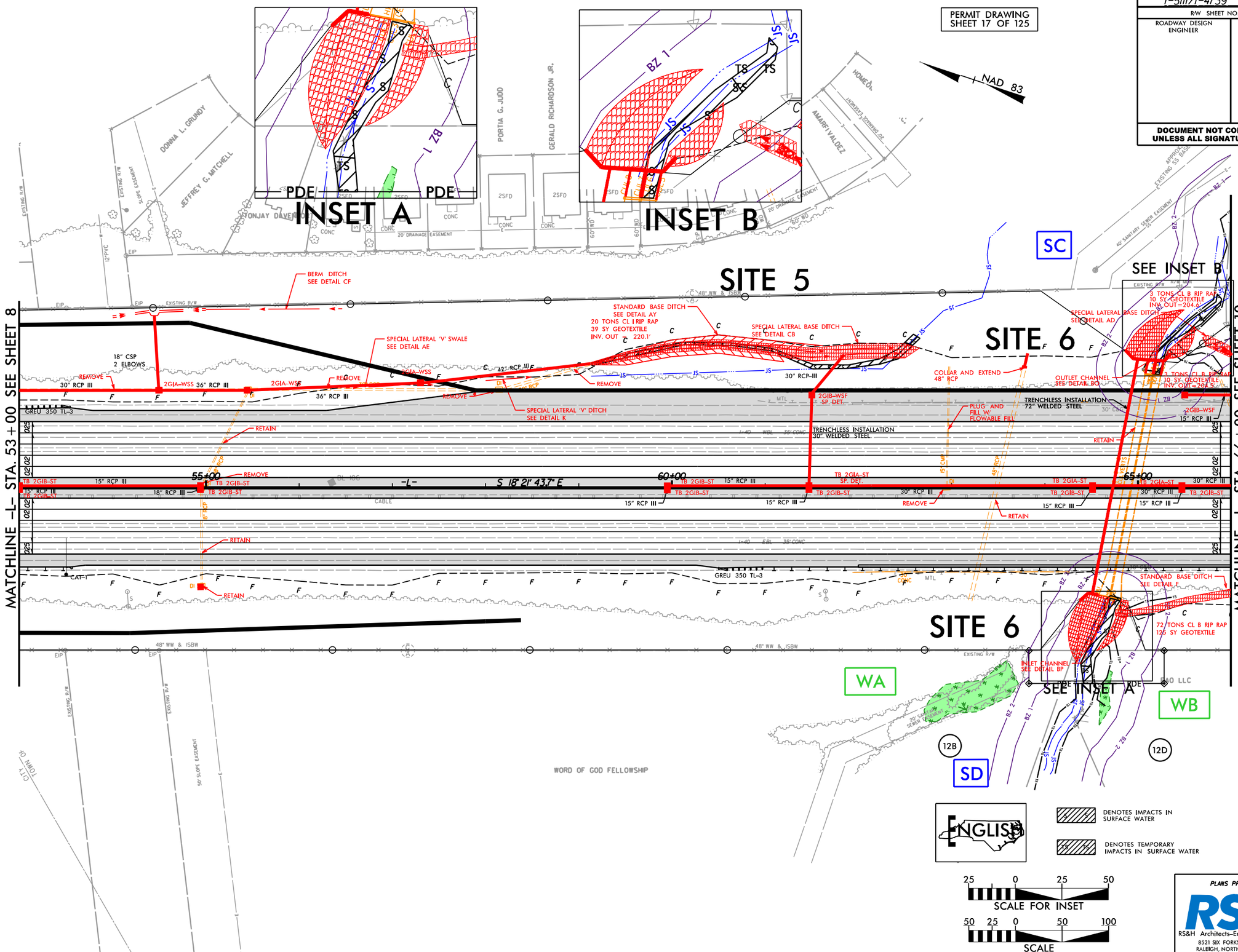
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 17 OF 125



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NC LICENSE NO. F-0493 (919) 926-4100

8/17/99

4/12/2019
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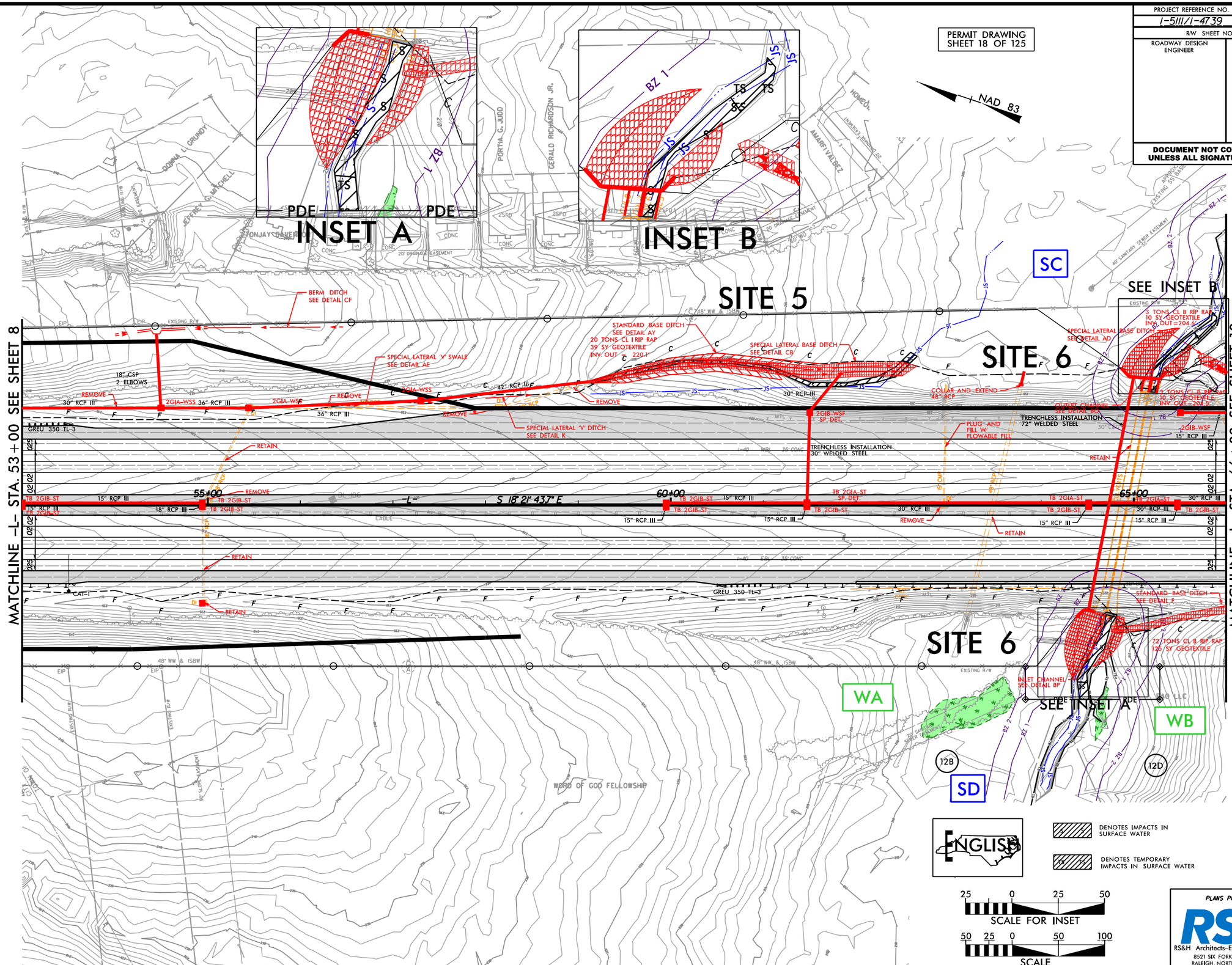
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 18 OF 125



PLANS PREPARED BY:

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8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

8/17/99

4/12/2019
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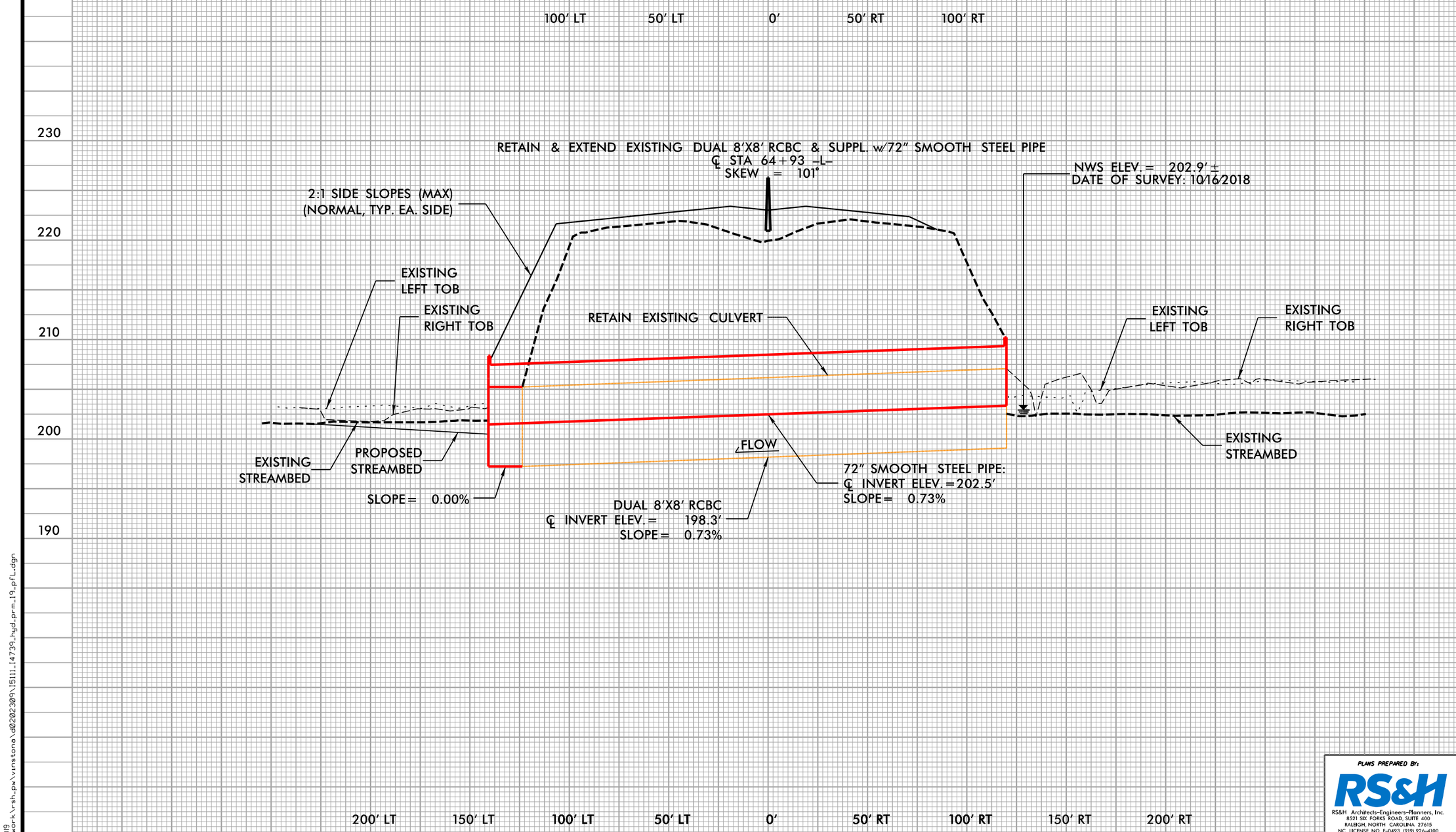
PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 19 OF 125

SITE 6



PLANS PREPARED BY:

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5/14/99

3/4/2019
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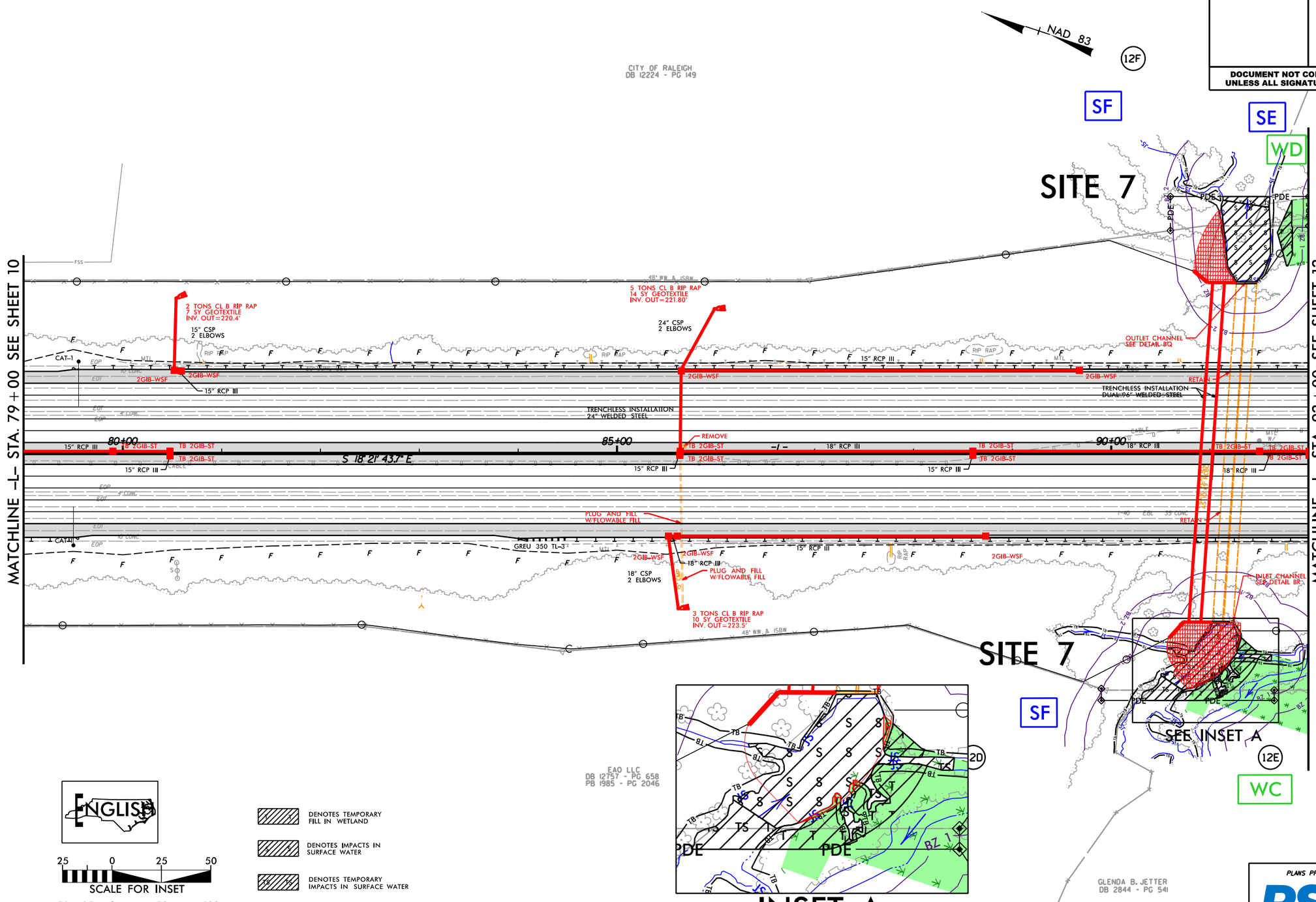
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 20 OF 125



PLANS PREPARED BY:

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RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

8/17/99

4/12/2019
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 21 OF 125

NAD 83

12F

SF

SE

WD

SITE 7

CITY OF RALEIGH
DB 12224 - PG 149

MATCHLINE –L– STA. 79+00 SEE SHEET 10

MATCHLINE –L– STA. 92+00 SEE SHEET 12

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
INV. OUT=220.4'

15" CSP
2 ELBOWS

15" RCP III

2GIB-WSF

5 TONS CL B RIP RAP
14 SY GEOTEXTILE
INV. OUT=221.80'

24" CSP
2 ELBOWS

TRENCHLESS INSTALLATION
24" WELDED STEEL

REMOVE

PLUG AND FILL W/FLOWABLE FILL

18" RCP III

18" CSP
2 ELBOWS

3 TONS CL B RIP RAP
10 SY GEOTEXTILE
INV. OUT=223.5'

OUTLET CHANNEL
SEE DETAIL BQ

TRENCHLESS INSTALLATION
DUAL 96" WELDED STEEL

INLET CHANNEL
SEE DETAIL BR

RETAIN

TB 2GIB-ST

80+00

85+00

90+00

S 18° 21' 43.7" E

CAT-1

GREU 350 TL-3

48" WW A ISBW

PDE

SEE INSET A

12E

WC

2D

EAO LLC
DB 12757 - PG 658
PB 1985 - PG 2046

GLENDA B. JETTER
DB 2844 - PG 541

ENGLISH

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

DENOTES TEMPORARY FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

INSET A

FILL IN WETLANDS SHOWN RED FOR CLARITY

PLANS PREPARED BY:

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4/12/2019
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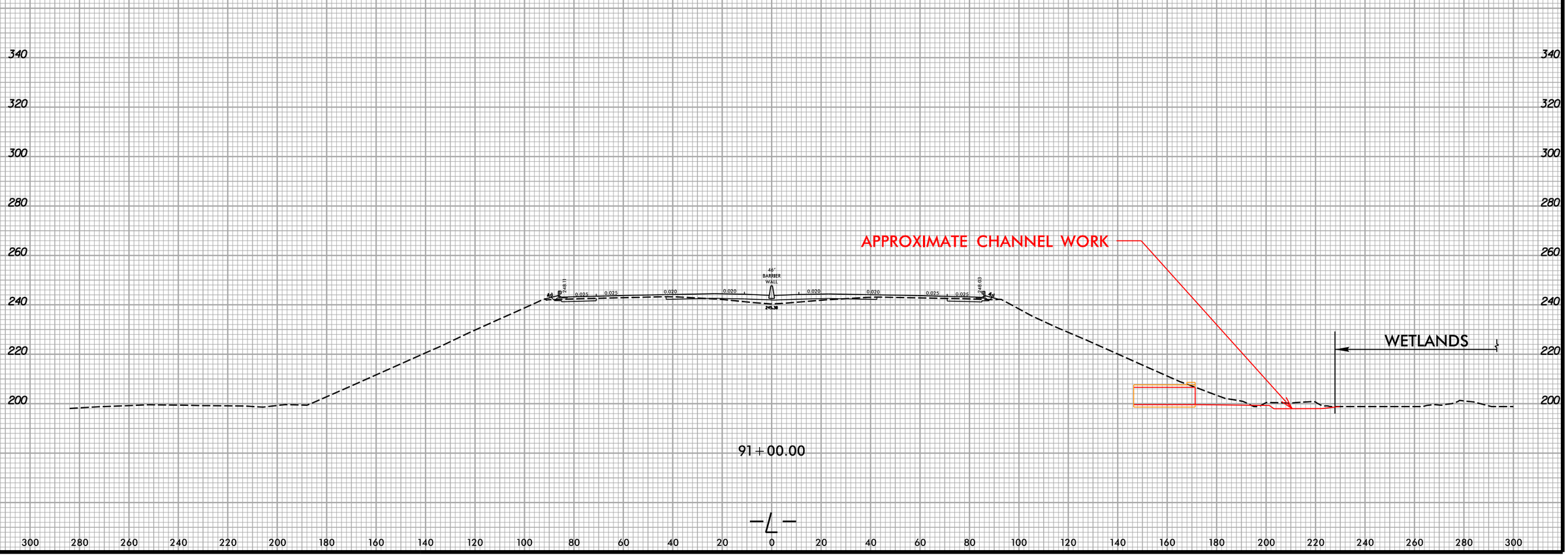
6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	S1

SITE 7

PERMIT DRAWING
SHEET 22 OF 125



2/5/2019
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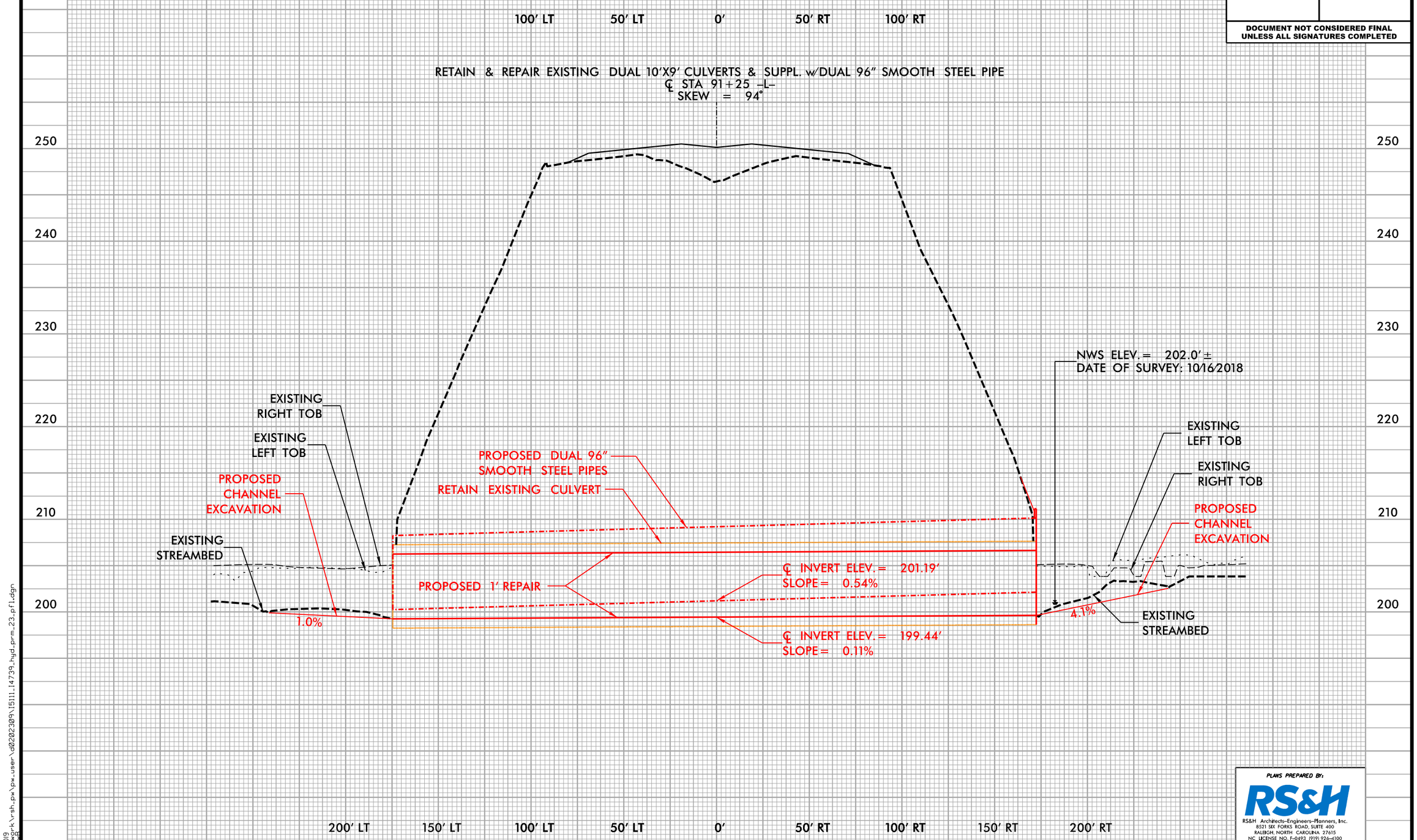
Fullen8

PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 23 OF 125

SITE 7



PLANS PREPARED BY:

RS&H

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5/14/99

2/5/2019
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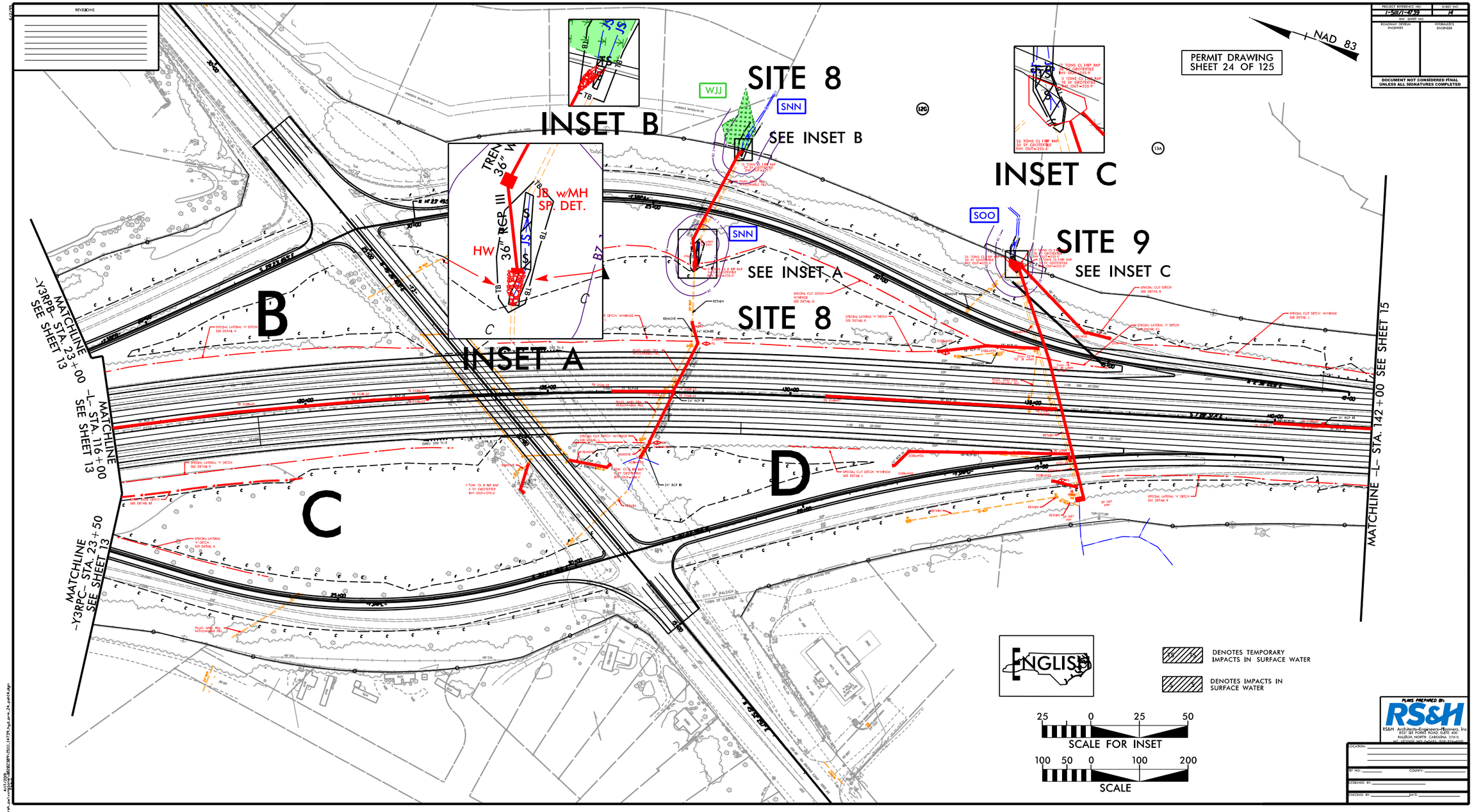
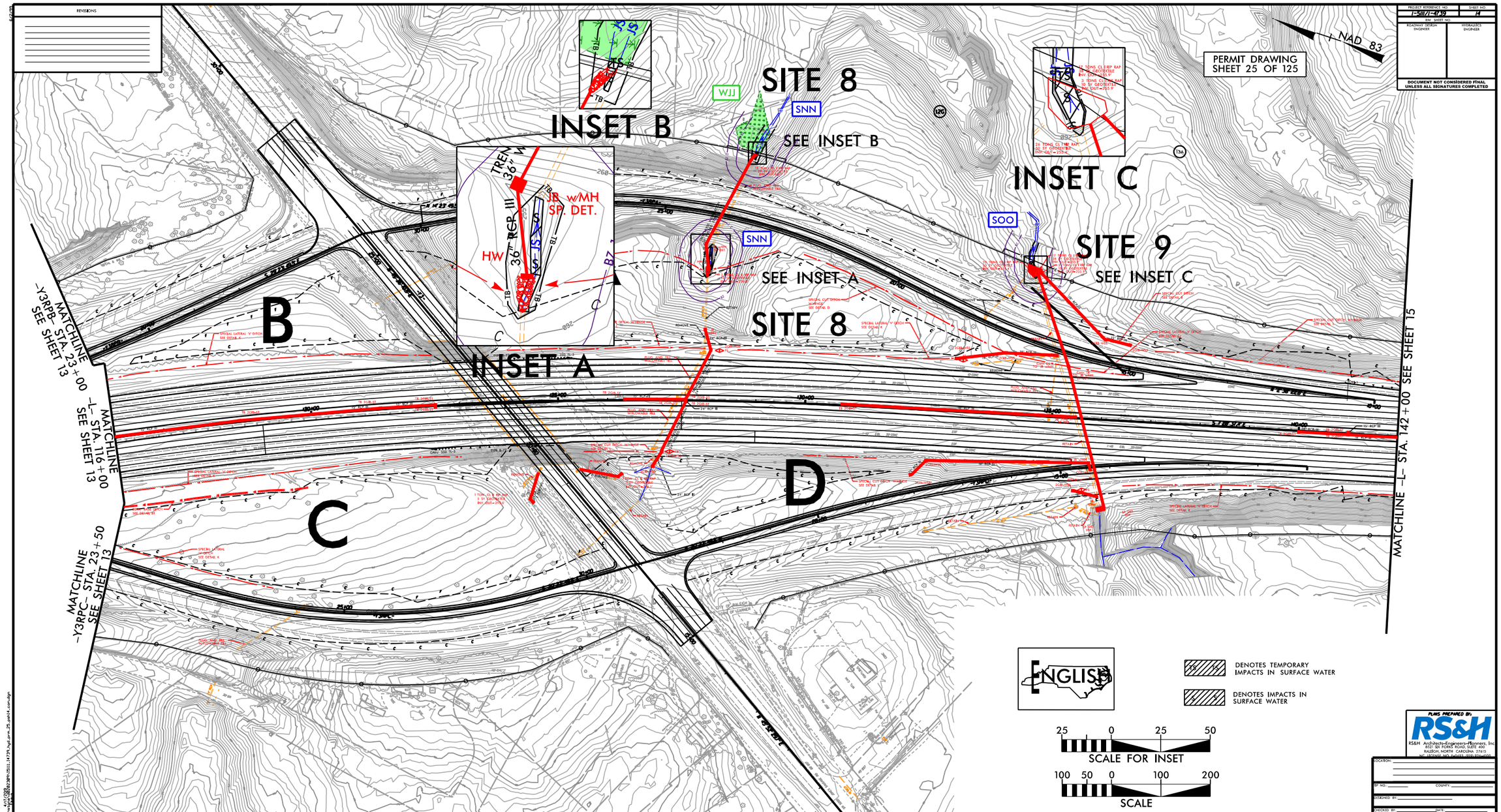


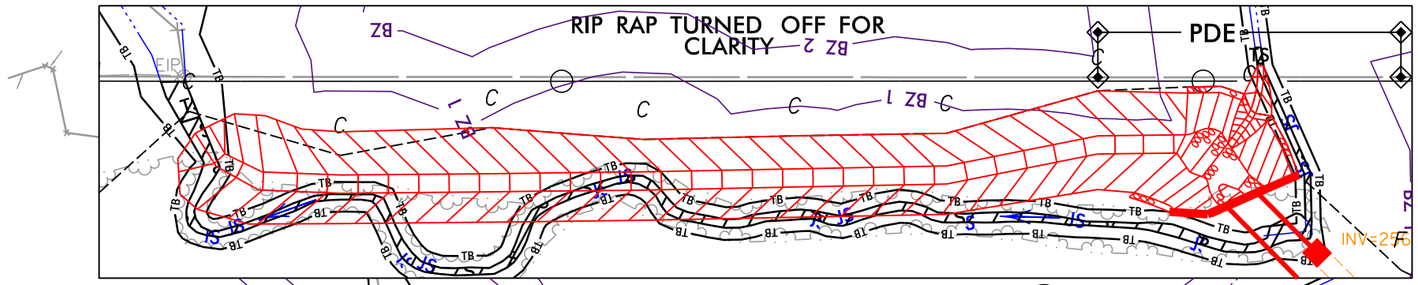
PERMIT DRAWING
SHEET 24 OF 125
NAD 83
SITE 8
SEE INSET B
INSET B
INSET C
SITE 9
SEE INSET C
SEE INSET A
SITE 8
INSET A
WJJ
SNN
SOO
JB w/MH
SP. DET.
HW
B
C
D
MATCHLINE
-Y3RPB- STA. 23+00
SEE SHEET 13
MATCHLINE
-L- STA. 116+00
SEE SHEET 13
MATCHLINE
-Y3RPC- STA. 23+50
SEE SHEET 13
MATCHLINE -L- STA. 142+00 SEE SHEET 15
ENGLISH
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
SCALE FOR INSET
SCALE
PLANS PREPARED BY:
RS&H
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS
PERMIT DRAWING
SHEET 25 OF 125
NAD 83
SITE 8
SEE INSET B
INSET B
INSET C
SITE 9
SEE INSET C
SEE INSET A
SITE 8
INSET A
WJJ
SNN
SOO
JB w/MH
SP. DET.
HW
B
C
D
MATCHLINE
-Y3RPB- STA. 23+00
SEE SHEET 13
MATCHLINE
-L- STA. 116+00
SEE SHEET 13
MATCHLINE
-Y3RPC- STA. 23+50
SEE SHEET 13
MATCHLINE -L- STA. 142+00 SEE SHEET 15
ENGLISH
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
25 0 25 50
SCALE FOR INSET
100 50 0 100 200
SCALE
PLANS PREPARED BY:
RS&H
RS&H Architects-Engineers-Planners, Inc.
8521 SEE FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0123 (919) 878-9100
LOCATION:
ZIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:

8/17/99

INSET A



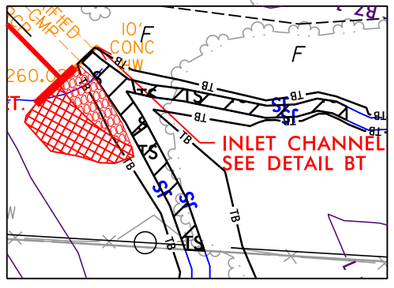
NAD 83

PERMIT DRAWING
SHEET 26 OF 125

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET B



ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PLANS PREPARED BY:

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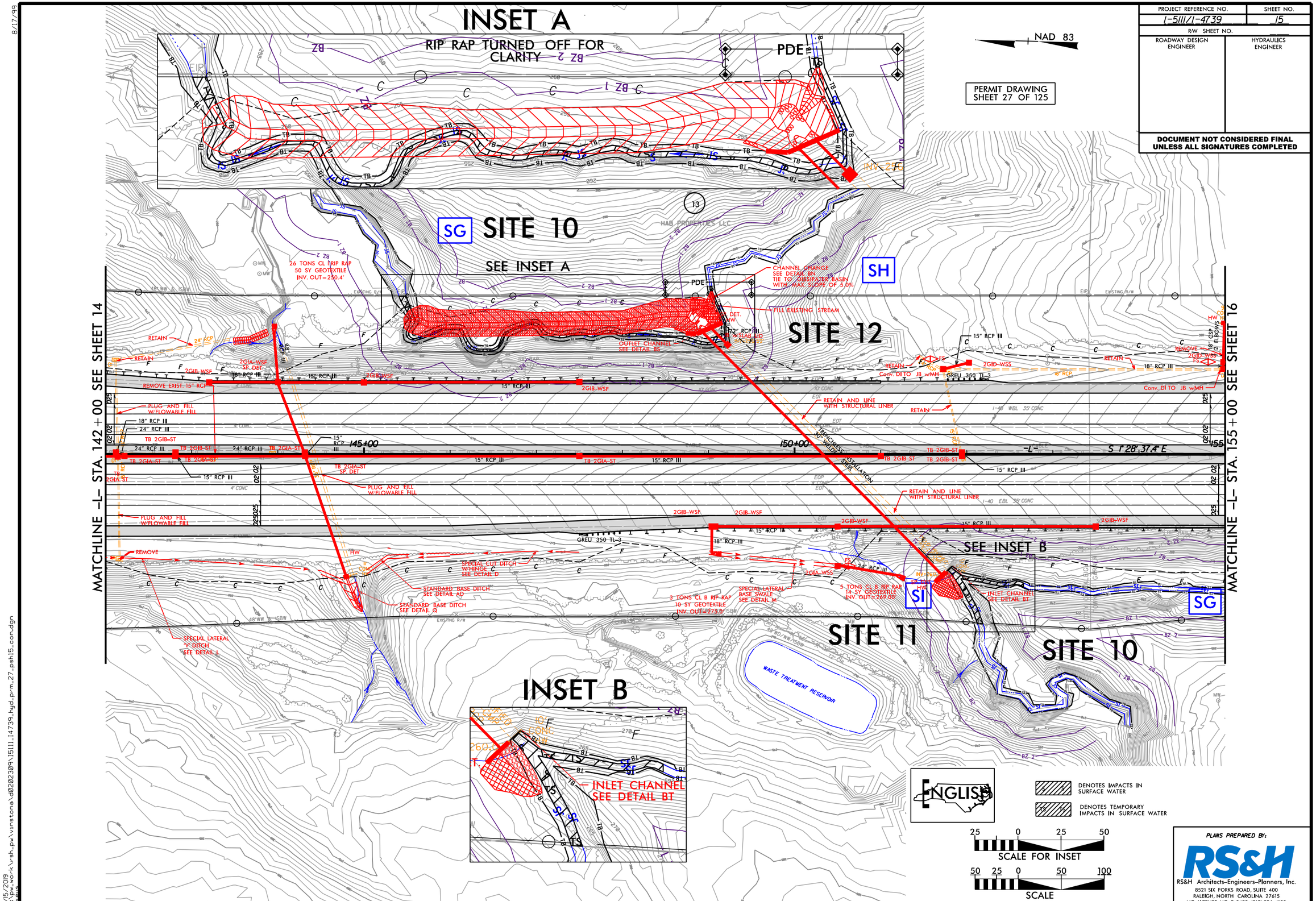

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC LICENSE NO. F-0493 (919) 926-4100

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4/15/2019
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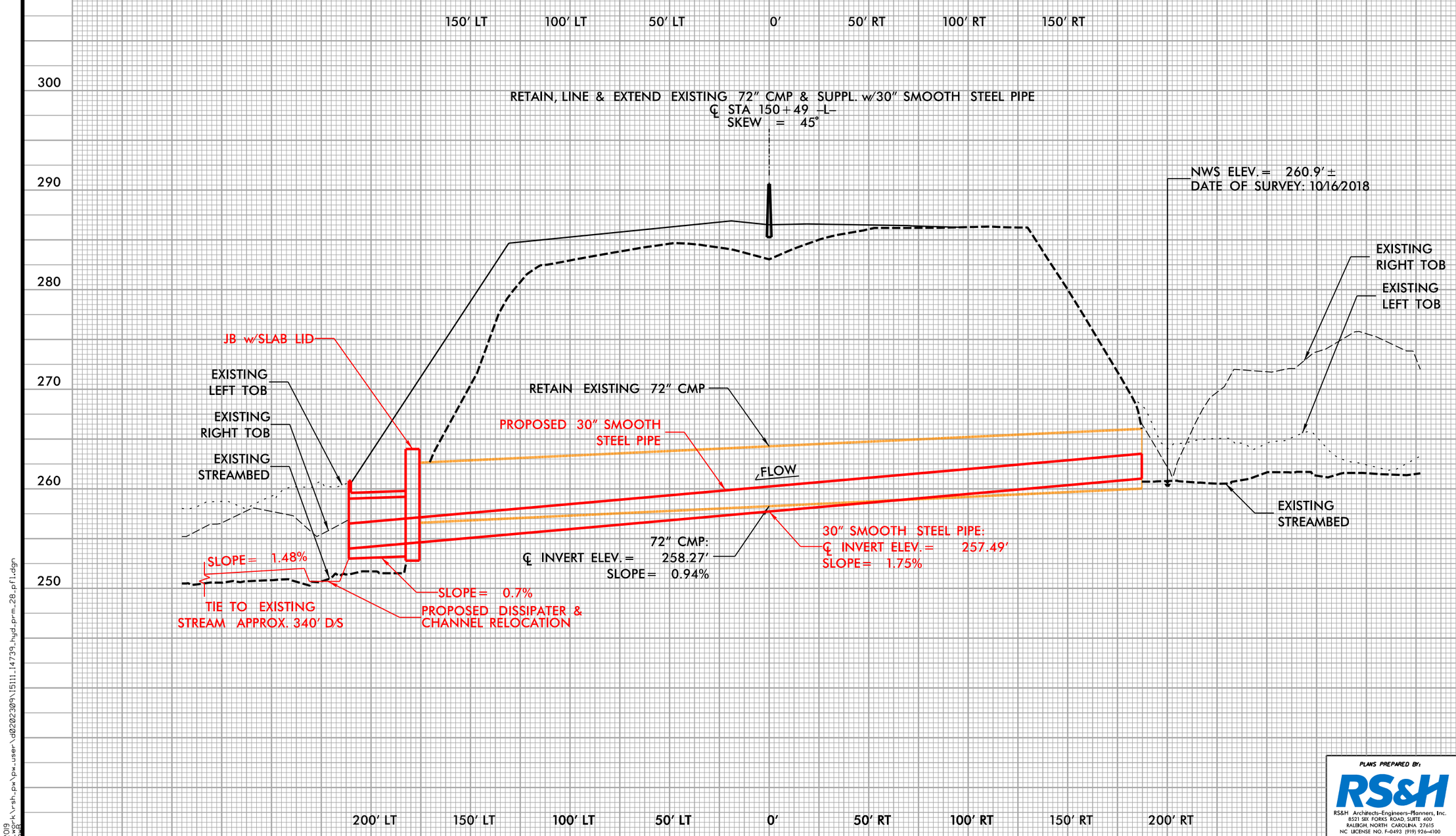
PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 28 OF 125

SITE 10



PLANS PREPARED BY:

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2/18/2019
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8/17/99

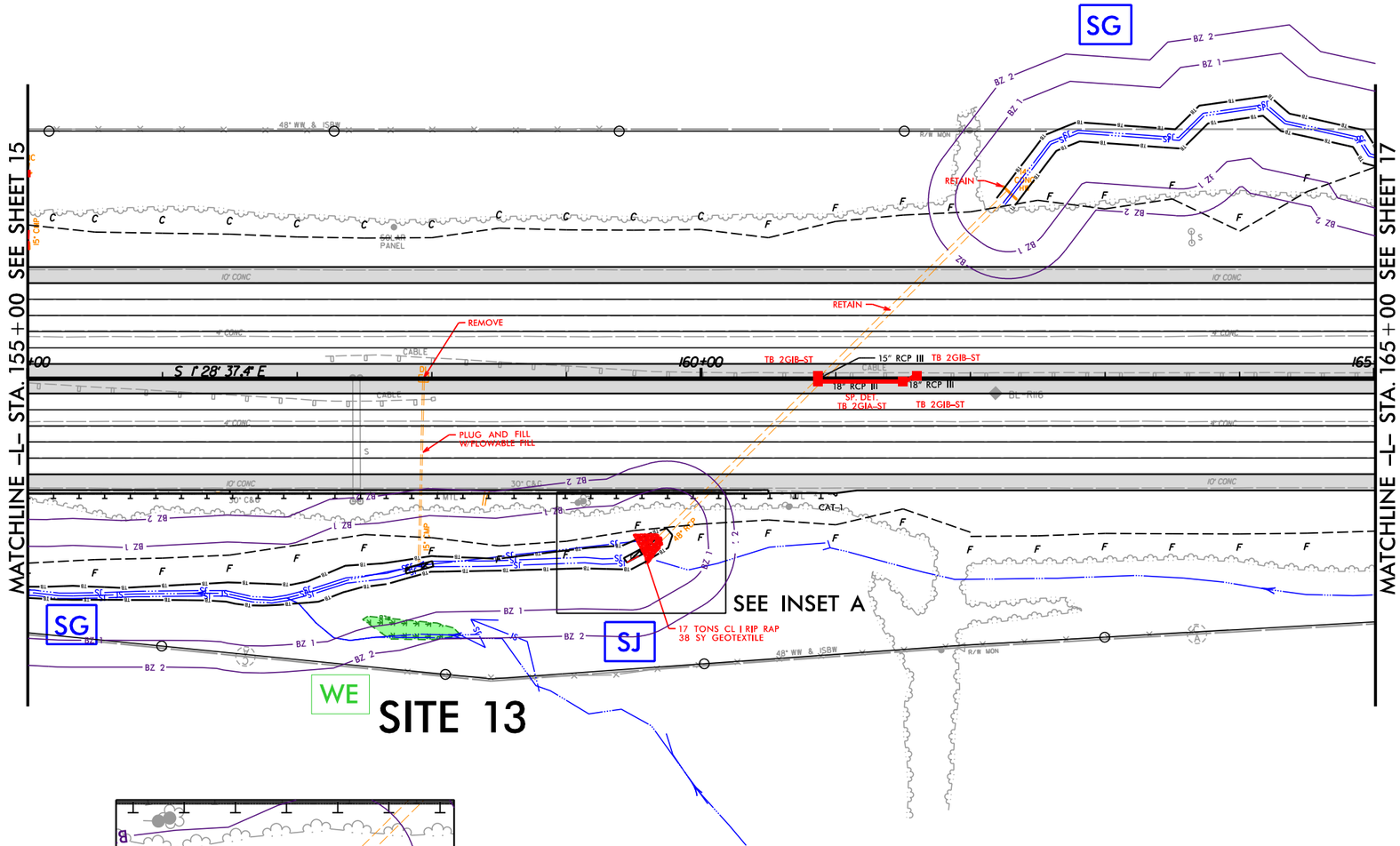
NAD 83

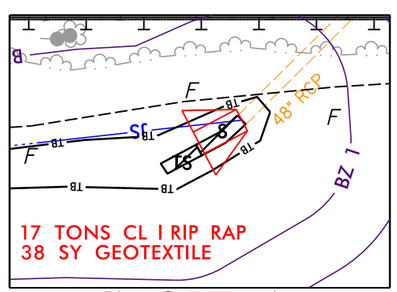
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 29 OF 125

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.





INSET A

GARNER ECONOMIC DEVELOPMENT CORP.
DB 14572 - PG 2740

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

50 25 0 50 100
SCALE

PLANS PREPARED BY:

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RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

4/12/2019
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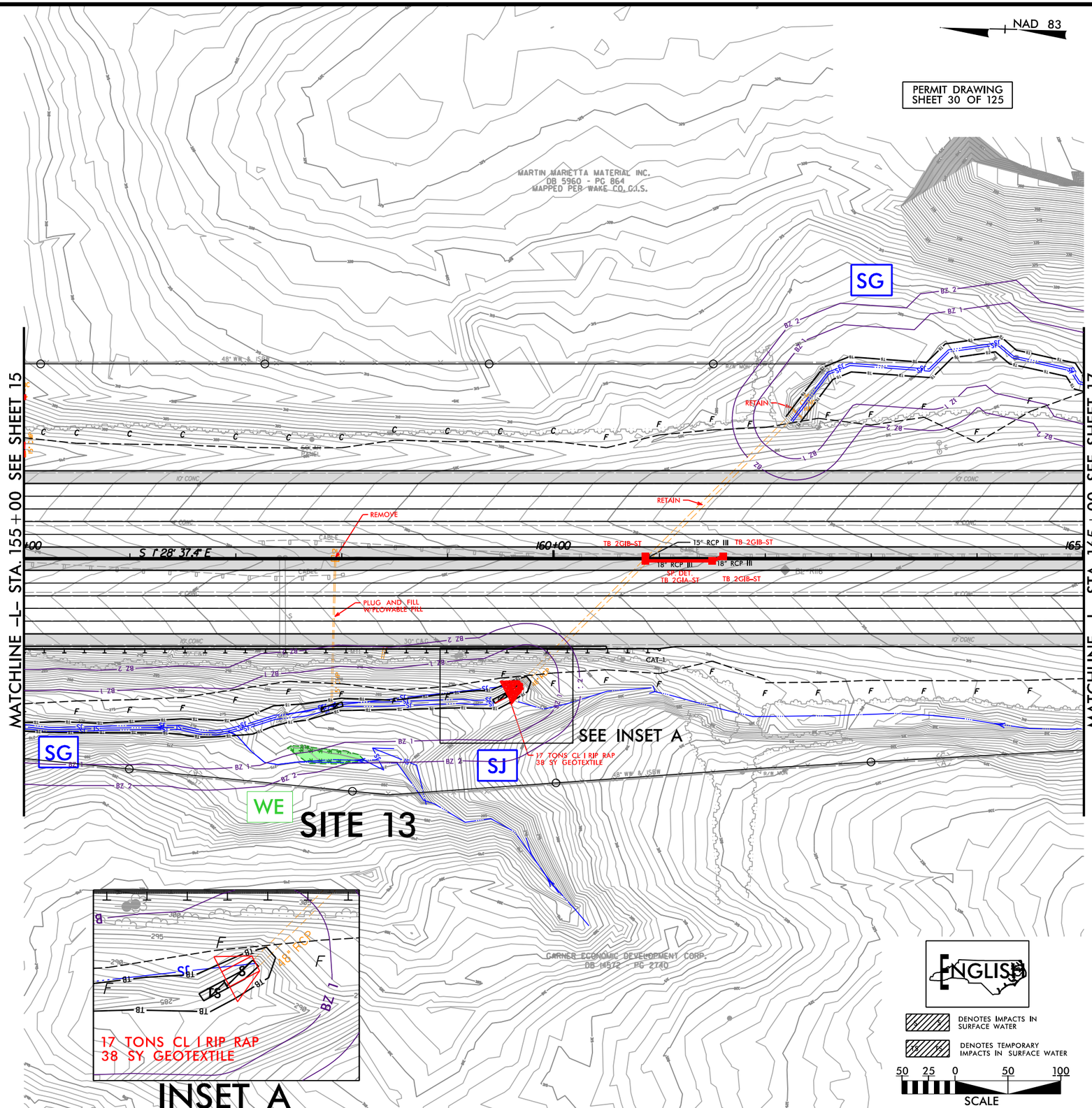
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLANS PREPARED BY:

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8/17/99

4/12/2019
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8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 31 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	17
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

NAD 83

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

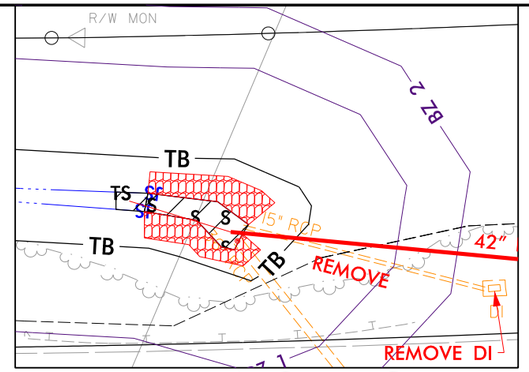
SITE 14A

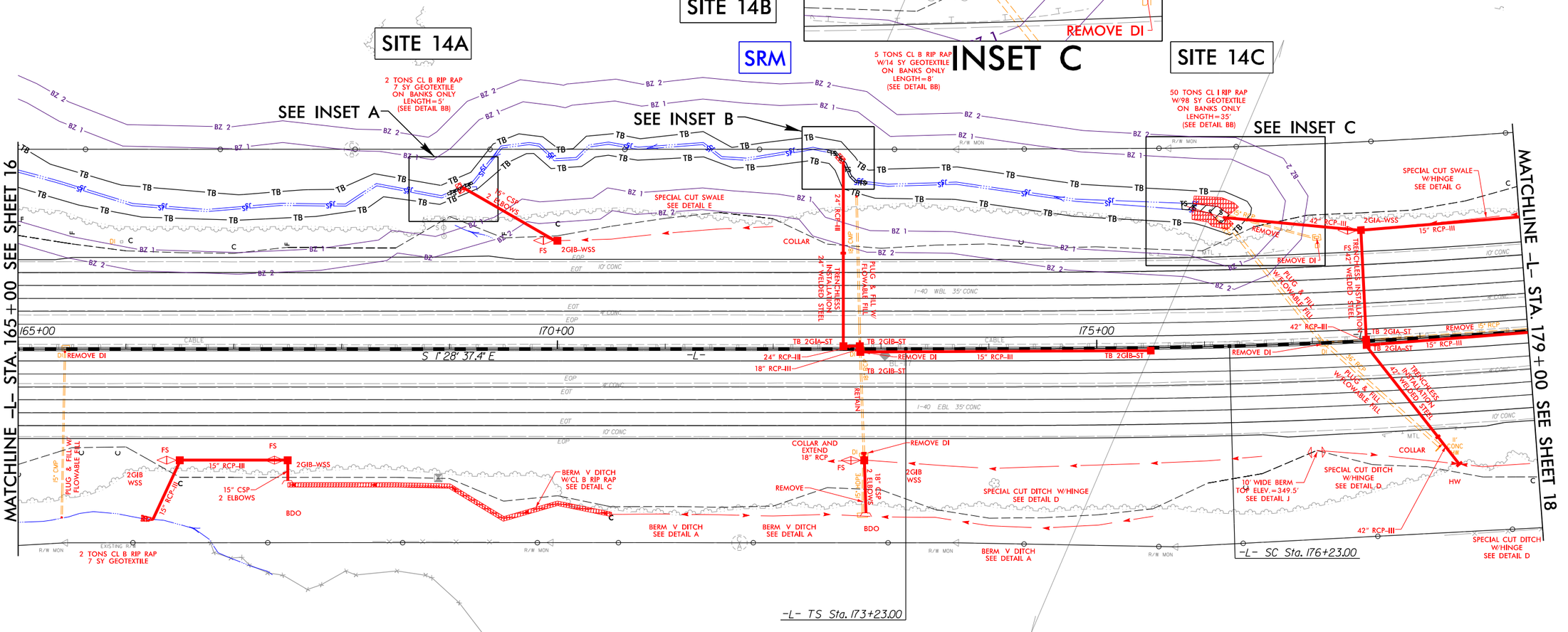
SITE 14B

SITE 14C

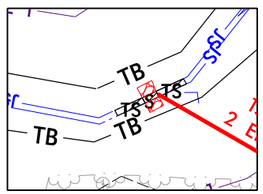
SRM

INSET C

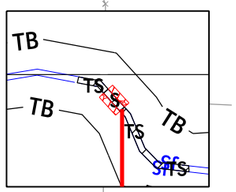




GARNER ECONOMIC DEVELOPMENT CORP.



INSET A



INSET B

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

FOR -L- PROFILE SEE SHT. 85

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Kevin

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 32 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	17
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

NAD 83

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

SITE 14A

SITE 14B

SITE 14C

SRM

SEE INSET A

SEE INSET B

SEE INSET C

INSET C

2 TONS CL B RIP RAP
7 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 5'
(SEE DETAIL BB)

5 TONS CL B RIP RAP
W/14 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 8'
(SEE DETAIL BB)

50 TONS CL I RIP RAP
W/98 SY GEOTEXTILE
ON BANKS ONLY
LENGTH = 35'
(SEE DETAIL BB)

MATCHLINE –L– STA. 165+00 SEE SHEET 16

MATCHLINE –L– STA. 179+00 SEE SHEET 18

165+00 170+00 175+00

S 1° 28' 37.4" E

–L–

–L– TS Sta. 173+23.00

–L– SC Sta. 176+23.00

REMOVE DI

REMOVE

REMOVE 15" RCP

2GIB–WSS

2GIA–WSS

TB 2GIB–ST

TB 2GIA–ST

15" RCP–III

18" RCP–III

24" RCP–III

42" RCP–III

15" CSP
2 ELBOWS

18" CSP
2 ELBOWS

FS

BDO

COLLAR

COLLAR AND EXTEND 18" RCP

SPECIAL CUT SWALE
SEE DETAIL E

SPECIAL CUT SWALE
W/HINGE
SEE DETAIL G

SPECIAL CUT DITCH
W/HINGE
SEE DETAIL D

SPECIAL CUT DITCH W/HINGE
SEE DETAIL D

BERM V DITCH
W/CL B RIP RAP
SEE DETAIL C

BERM V DITCH
SEE DETAIL A

10' WIDE BERM
TOP ELEV. = 249.5'
SEE DETAIL J

24" RCP–III
TRENCHLESS INSTALLATION
24" WELDED STEEL

42" RCP–III
TRENCHLESS INSTALLATION
42" WELDED STEEL

PLUG & FILL W/FLOWABLE FILL

2 TONS CL B RIP RAP
7 SY GEOTEXTILE

RETAIN

I-40 EBL 35' CONC

10' CONC

GARNER ECONOMIC DEVELOPMENT CORP.

MARTIN MARIETTA MATERIAL INC.
MAPPED PER WAKE CO. G.I.S.
14

INSET A

INSET B

FOR –L– PROFILE SEE SHT. 85

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Ekeys

SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y4-	21+98.84	22+28.80	RT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 32A OF 125

ENGLISH

50 25 0 50 100 SCALE

NAD 83

REVISIONS

8/17/99 ROW REVISION - 01-09-2019 - ADDED PUES TO PARCEL NO.15 & 14 FOR UTILITY RELOCATIONS.

DRAINAGE REVISION - 03-14-2019 - REVISED ALL DRAINAGE SYSTEMS AND LAYOUTS.

4/15/2019
8:47:06 am
Ekeus

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-Y4- STA. 26+00 SEE SHEET 60

MATCHLINE -L- STA. 205+00 SEE SHEET 20

MATCHLINE -L- STA. 192+00 SEE SHEET 18

MATCHLINE -Y4- STA. 16+00 SEE SHEET 59

14 MARTIN MARIETTA MATERIAL INC. DB 5960 - PG 864 MAPPED PER WAKE CO. G.I.S.

14A MARTIN MARIETTA MATERIALS INC. DB 13897 - PG 1354

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 3078 - PG 378

15 S.T. WOOTEN CORP. DB 12346 - PG 1359 PB 1990 - PG 836

16 SHERMAN A. YEARGAN JR. TRUSTEE DB 14611 - PG 2642-2672 PB 2005 - PG 1397

8421 TIME WARNER ENTERTAINMENT PB 1986 - PG 528

-Y4- PRC Sta. 23+90.19

-Y4- PRC Sta. 17+12.83

-Y4- POT Sta. 20+29.24 = -L- POC Sta. 197+50.29

SITE 5 BRIDGE SKETCH

BEGIN BRIDGE -Y4- POC Sta 18+84.72

END BRIDGE -Y4- POC Sta 21+65.21

-L- Sta. 197+50.29
-Y4- Sta. 20+29.83
D = 57°36'17"

BEGIN APPROACH SLAB -Y4- POC Sta 18+67.67

END APPROACH SLAB -Y4- POC Sta 21+83.91

SHEET FOR INFORMATION ONLY- NO IMPACTS

FOR -L- PROFILE SEE SHTS. 86-87
FOR -Y4- PROFILE SEE SHT. 139

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SHOULDER BERM GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-Y4-	21+98.84	22+28.80	RT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 32B OF 125

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

50 25 0 50 100
SCALE

NAD 83

REVISIONS

8/17/99

ROW REVISION - 01-09-2019 - ADDED PUES TO PARCEL NO.15 & 14 FOR UTILITY RELOCATIONS.
DRAINAGE REVISION - 03-14-2019 - REVISED ALL DRAINAGE SYSTEMS AND LAYOUTS.
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MATCHLINE -Y4- STA. 26+00 SEE SHEET 60

MATCHLINE -L- STA. 205+00 SEE SHEET 20

MATCHLINE -L- STA. 192+00 SEE SHEET 18

MATCHLINE -Y4- STA. 16+00 SEE SHEET 59

MARTIN MARIETTA MATERIAL INC.
DB 5960 - PG 864
MAPPED PER WAKE CO. G.I.S.

MARTIN MARIETTA MATERIALS INC.
DB 13897 - PG 1354

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3078 - PG 378

S.T. WOOTEN CORP.
DB 12346 - PG 1359
PB 4990 - PG 936

8421 TIME WARNER ENTERTAINMENT
PB 1986 - PG 528

SHERMAN A. YEARGAN JR. TRUSTEE
DB 14611 - PG 2642-2672
PB 2005 - PG 1397

-Y4- PRC Sta. 23+90.19

-Y4- POT Sta. 20+29.24 = -L- POC Sta. 197+50.29

-Y4- PRC Sta. 17+12.83

SITE 5 BRIDGE SKETCH

BEGIN BRIDGE
-Y4- POC Sta 18+84.72

END BRIDGE
-Y4- POC Sta 21+65.21

-L- Sta. 197+50.29
-Y4- Sta. 20+29.83
D = 57°36'17"

BEGIN APPROACH SLAB
-Y4- POC Sta 18+67.67

END APPROACH SLAB
-Y4- POC Sta 21+83.91

SHEET FOR INFORMATION ONLY- NO IMPACTS

FOR -L- PROFILE SEE SHTS. 86-87
FOR -Y4- PROFILE SEE SHT. 139

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PROJECT REFERENCE NO. I-5111/I-4739 | SHEET NO. 21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
NO RWP NOR FOR R/W ACQUISITION

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SITE 59
SRN

MATCHLINE -L- STA. 218+00 SEE SHEET 20

MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 61

MATCHLINE -Y5- STA. 44+50 SEE SHEET 61

MATCHLINE -L- STA. 243+00 SEE SHEET 22

-Y5RPB- SC Sta. 27+06.95 REVISED LINESTYLE TO STORM SEWER BASED ON SITE VISIT

-Y5RPB- CS Sta. 23+26.95

-Y5RPB- SRS Sta. 25+16.95

-Y5RPB- TS Sta. 39+75.47

-Y5RPB- SC Sta. 41+95.47

-Y5RPB- CS Sta. 36+03.86

-Y5RPB- ST Sta. 37+93.86

-Y5RPBSPUR- PC Sta. 10+00.00= -Y5RPB- Sta. 35+79.42 (12 RT)

-Y5RPBSPUR- PT Sta. 17+99.84

-Y5RPBSPUR- Sta. 17+66.69

-Y5LPB- SC Sta. 18+65.10

-Y5LPB- CS Sta. 17+90.00

-Y5LPB- CS Sta. 26+30.83

-Y5LPB- SC Sta. 27+05.83

-Y5LPB- ST Sta. 31+89.80

-Y5LPB- CS Sta. 29+89.80

-Y5LPB- TS Sta. 11+50.00

-Y5LPB- POT Sta. 10+00.00= -L- Sta. 242+72.52 (67 LT)

-L- POC Sta. 233+62.28= -Y5- POT Sta. 30+17.50

-L- CS Sta. 238+54.95

-L- ST Sta. 241+04.95

-L- SRS Sta. 218+90.04

-L- SC Sta. 221+40.04

-Y5LPC- SC Sta. 13+00.00

-Y5LPC- PCC Sta. 15+70.75

-Y5LPC- ST Sta. 10+00.00 = -L- POC Sta. 227+27.11 59 RT

-Y5LPC- ST Sta. 23+62.77 = -Y5- POT Sta. 22+67.39 139 LT

-Y5LPC- CS Sta. 21+62.77

-Y5RPCSPUR- PT Sta. 16+92.91

-Y5RPCSPUR- POT Sta. 20+48.41= -Y5- PT Sta. 15+55.59

-Y5RPC- TS Sta. 32+43.33

-Y5RPC- SC Sta. 34+23.33

-Y5RPD- ST Sta. 10+00.00 -Y5- POT Sta. 20+22.22 139 RT

-Y5RPD- CS Sta. 27+73.39

BEGIN CONSTRUCTION -Y5- POT Sta. 8+25.32

END PAVING -Y5- POT Sta. 43+50.00
END CONSTRUCTION -Y5- POT Sta. 44+00.00
-Y5- PT Sta. 41+34.38= -Y5RPBSPUR- POT Sta. 18+41.86

HP -Y5RPB- STA. 18+36.64 2.04% 1.19%

HP -L- STA. 226+22.90 LT 1.97% 1.03%

HP -Y5LPB- STA. 13+44.74 4.99% 0.61%

LP -Y5LPB- STA. 27+88.65 5.15% 3.54%

HP -Y5LPC- STA. 11+05.12 1.37% 0.30%

HP -L- STA. 225+81.29 RT

LP -Y5RPBSPUR- STA. 17+66.69

A

B

C

D

INSET A

TEMPORARY IMPACTS DUE TO PLUG & FILL OF EXISTING PIPE

INSET B

SEE INSET A
SITE 16A WPP

SEE INSET B
SITE 16B SCF

TEMPORARY IMPACTS DUE TO PLUG & FILL OF EXISTING PIPE

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWING SHEET 33 OF 125

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE FOR INSET
25 0 25 50

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LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

INVESTORS PROPERTY TAX SERVICES, INC.

5/6/2019
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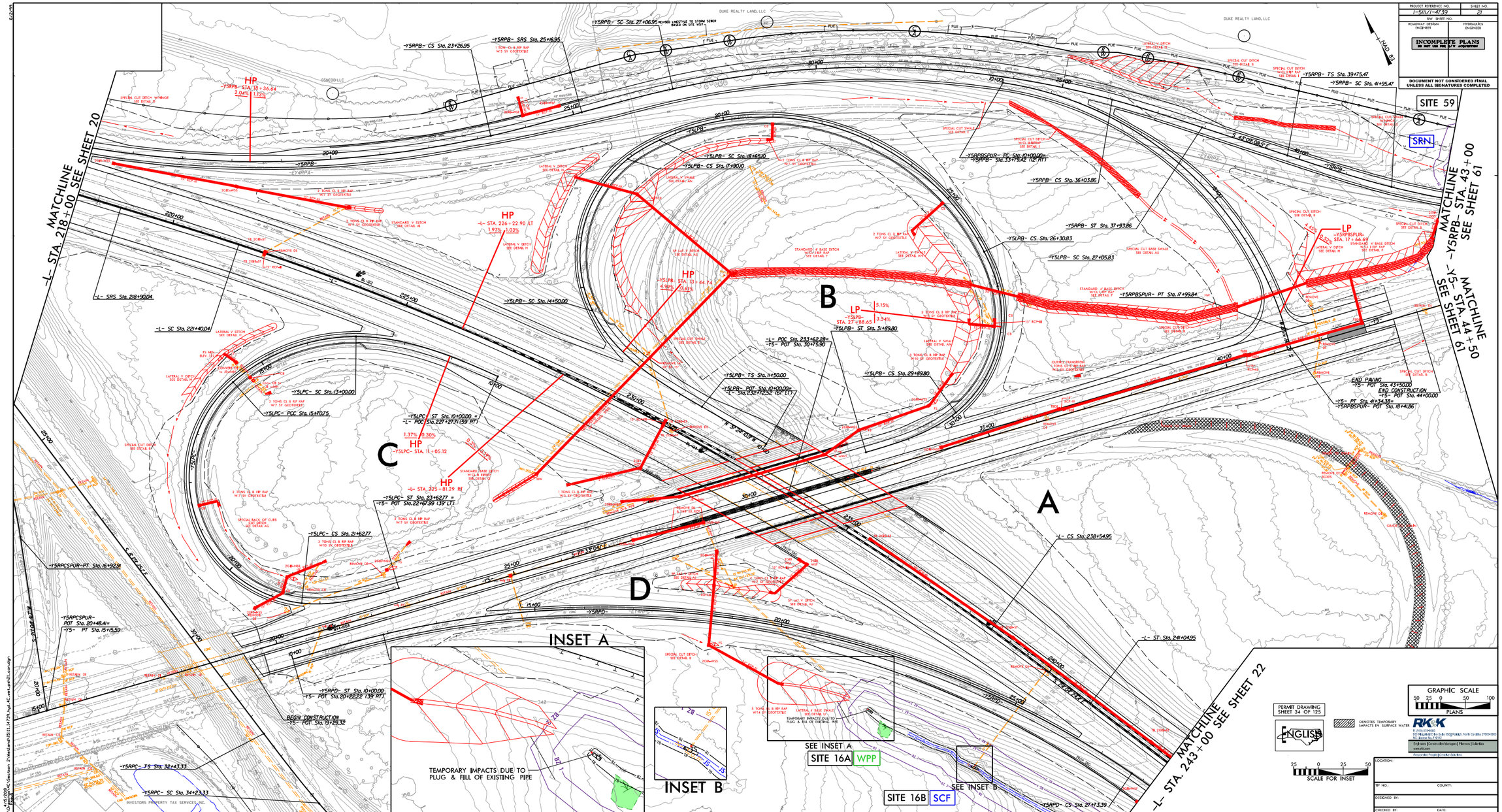
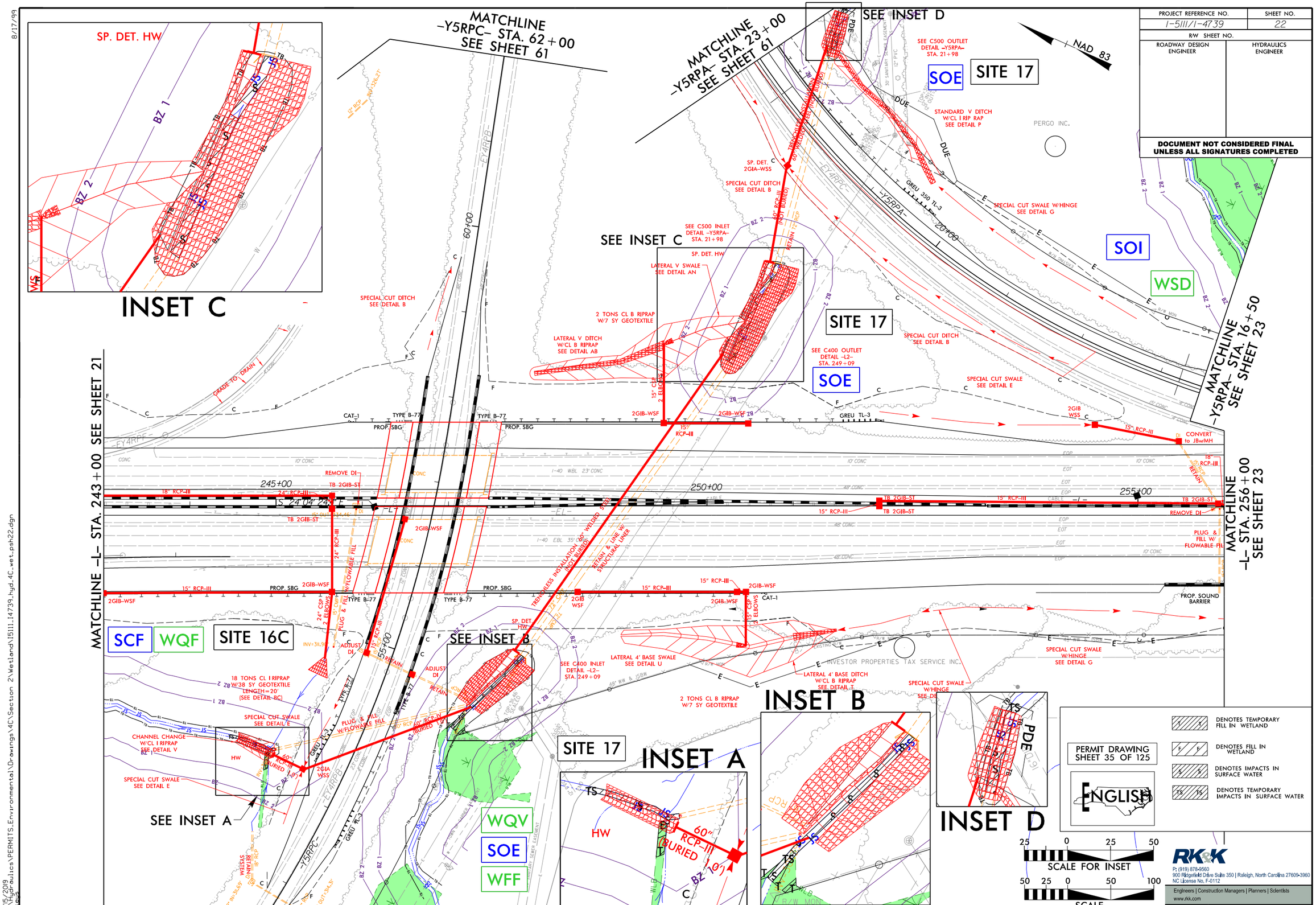
PJ Bell



PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SITE 59
SRN
MATCHLINE -L- STA. 218+00 SEE SHEET 20
MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 61
MATCHLINE -Y5- STA. 44+50 SEE SHEET 61
MATCHLINE -L- STA. 243+00 SEE SHEET 22
A
B
C
D
INSET A
INSET B
TEMPORARY IMPACTS DUE TO PLUG & FILL OF EXISTING PIPE
SEE INSET A
SITE 16A
WPP
SEE INSET B
SITE 16B
SCF
PERMIT DRAWING SHEET 34 OF 125
ENGLISH
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
GRAPHIC SCALE
PLANS
SCALE FOR INSET
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:



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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

MATCHLINE –Y5RPC– STA. 62+00 SEE SHEET 61

MATCHLINE –Y5RPA– STA. 23+00 SEE SHEET 61

SEE INSET D

SOE

SITE 17

SOI

WSD

SITE 16C

SCF

WQF

WQV

SOE

WFF

SITE 17

MATCHLINE –L– STA. 243+00 SEE SHEET 21

MATCHLINE –L– STA. 256+00 SEE SHEET 23

MATCHLINE –Y5RPA– STA. 16+50 SEE SHEET 23

SEE INSET A

SEE INSET B

SEE INSET C

INSET A

INSET B

INSET C

INSET D

SP. DET. HW

SP. DET. 2GIA–WSS

SP. DET. 2GIB–WSS

SEE C500 OUTLET DETAIL –Y5RPA– STA. 21+98

SEE C500 INLET DETAIL –Y5RPA– STA. 21+98

SEE C400 OUTLET DETAIL –L2– STA. 249+09

SEE C400 INLET DETAIL –L2– STA. 249+09

STANDARD V DITCH W/CL I RIP RAP SEE DETAIL P

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE W/HINGE SEE DETAIL G

SPECIAL CUT SWALE SEE DETAIL E

LATERAL V SWALE SEE DETAIL AN

LATERAL V DITCH W/CL B RIPRAP SEE DETAIL AB

LATERAL 4' BASE SWALE SEE DETAIL U

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL T

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

18 TONS CL I RIPRAP W/38 SY GEOTEXTILE LENGTH = 20' (SEE DETAIL BC)

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

GRADE TO DRAIN

REMOVE DI

ADJUST DI

RETAIN

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION OF 60" WELDED STEEL (NOT BURIED)

RETAIN & LINE W/ STRUCTURAL LINER

PROP. SBG

PROP. SOUND BARRIER

PERGO INC.

INVESTOR PROPERTIES TAX SERVICE INC.

PERMIT DRAWING SHEET 36 OF 125

ENGLISH

1 1 DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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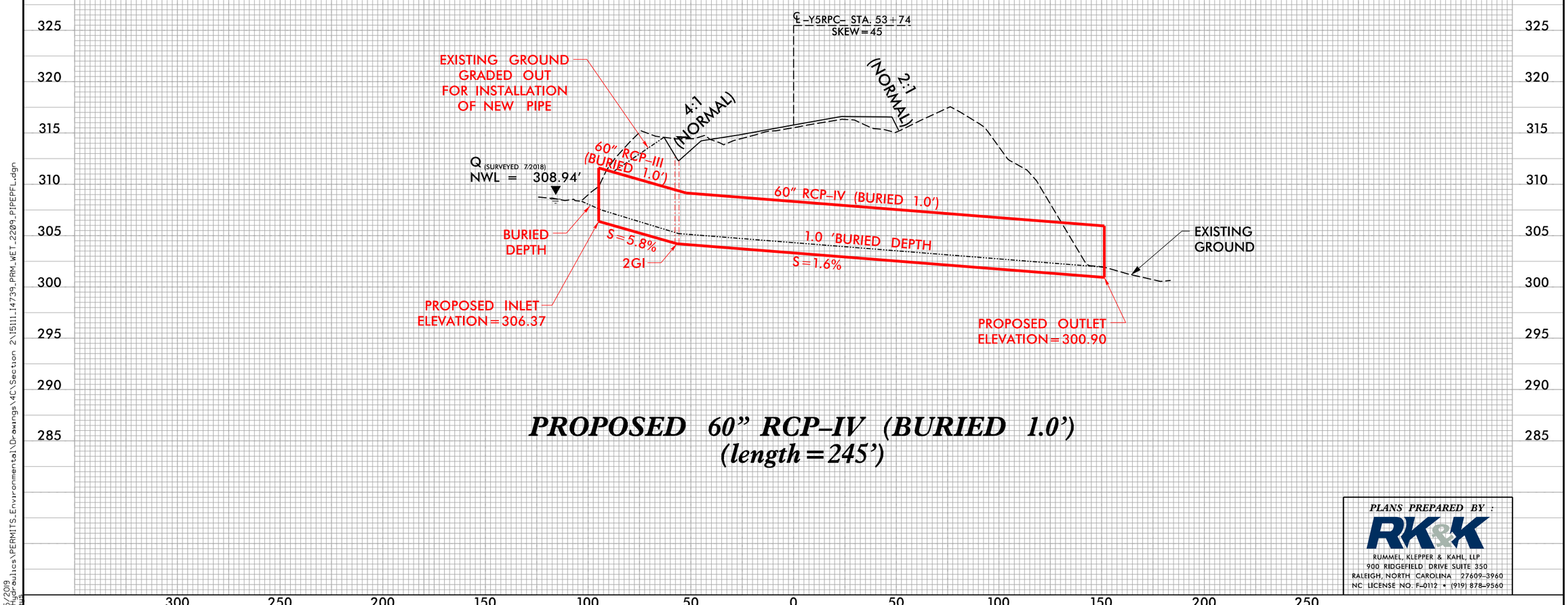
PERMIT DRAWING
SHEET 37 OF 125

SITE 16C & 17
–Y5RPC– 53+74



PROPOSED 60" RCP–IV (BURIED 1.0')
(length=245')

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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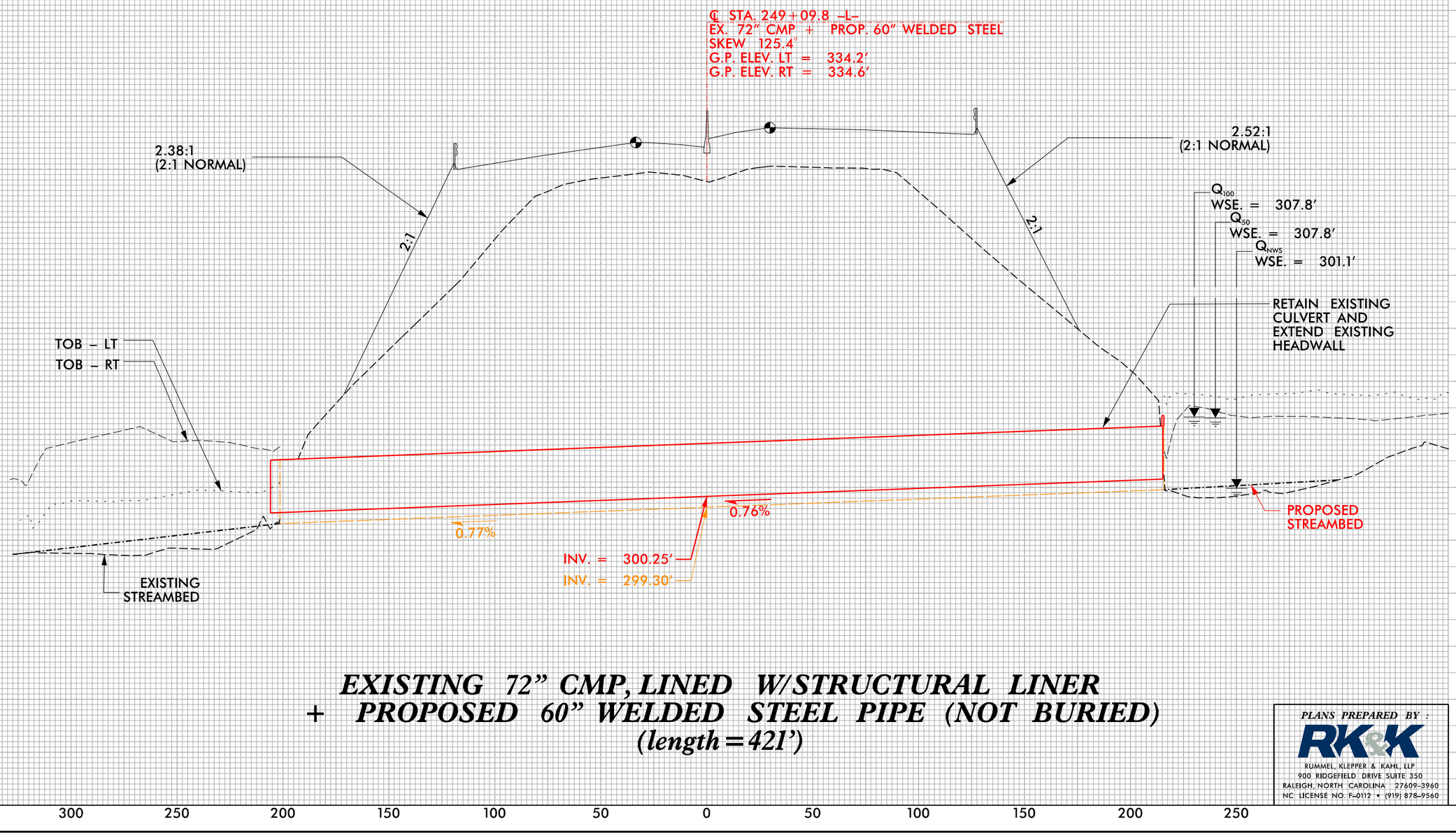
PERMIT DRAWING
SHEET 38 OF 125

SITE 17
–L– 249+09.8



EXISTING 72" CMP, LINED W/STRUCTURAL LINER + PROPOSED 60" WELDED STEEL PIPE (NOT BURIED) (length = 421')

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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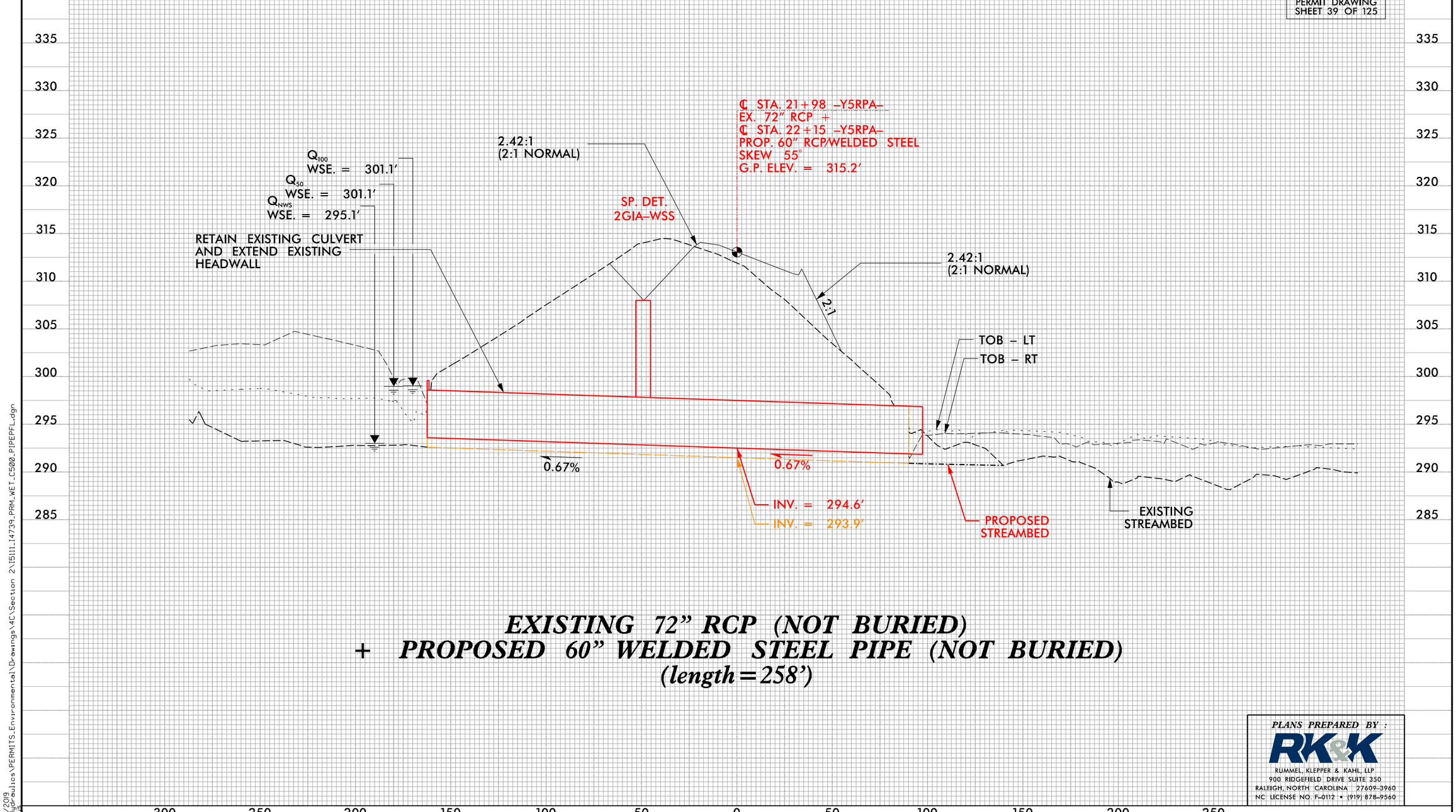
PERMIT DRAWING
SHEET 39 OF 125

SITE 17
–Y5RPA– 21+98



EXISTING 72" RCP (NOT BURIED)
+ PROPOSED 60" WELDED STEEL PIPE (NOT BURIED)
(length = 258')

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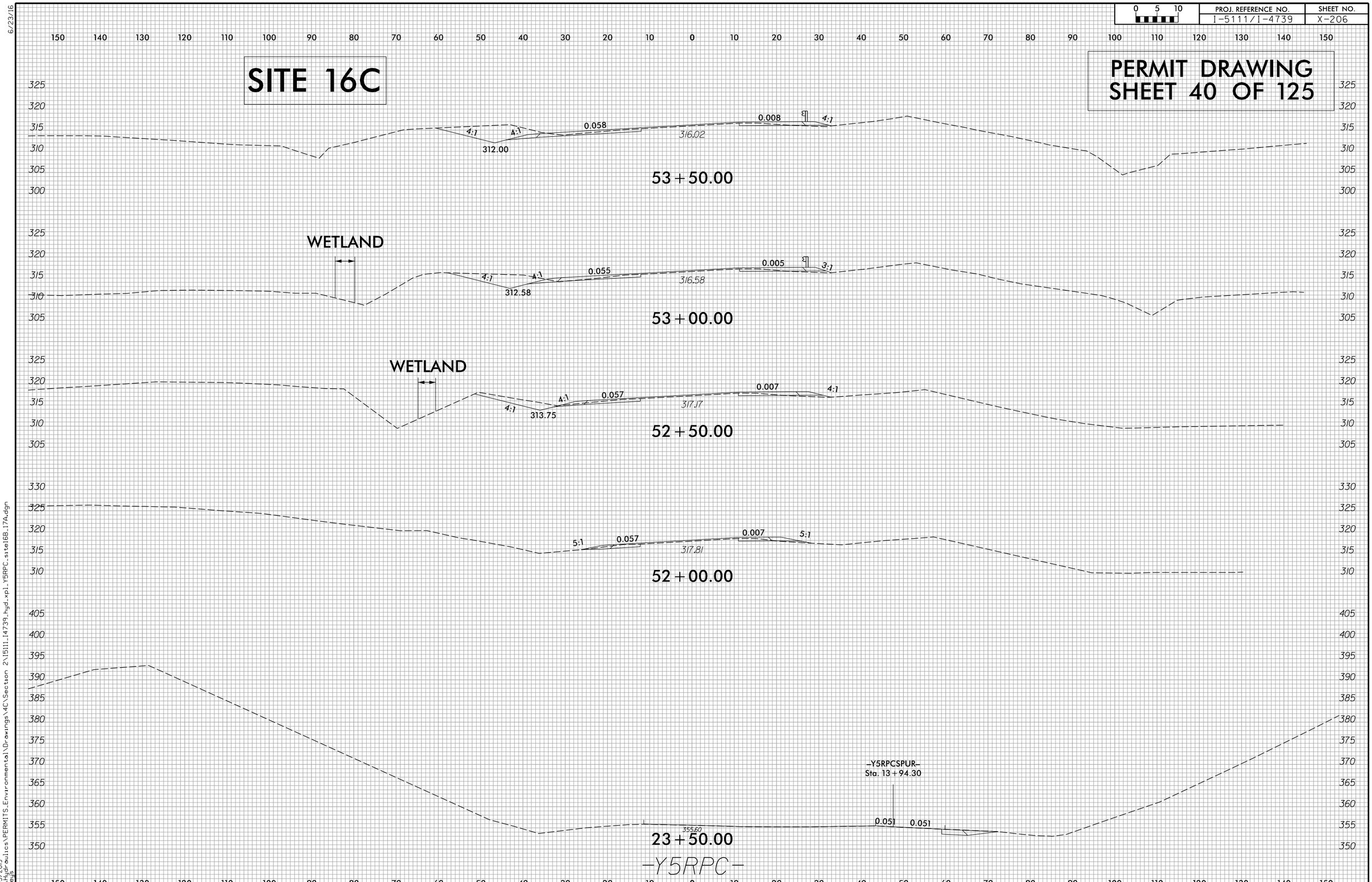

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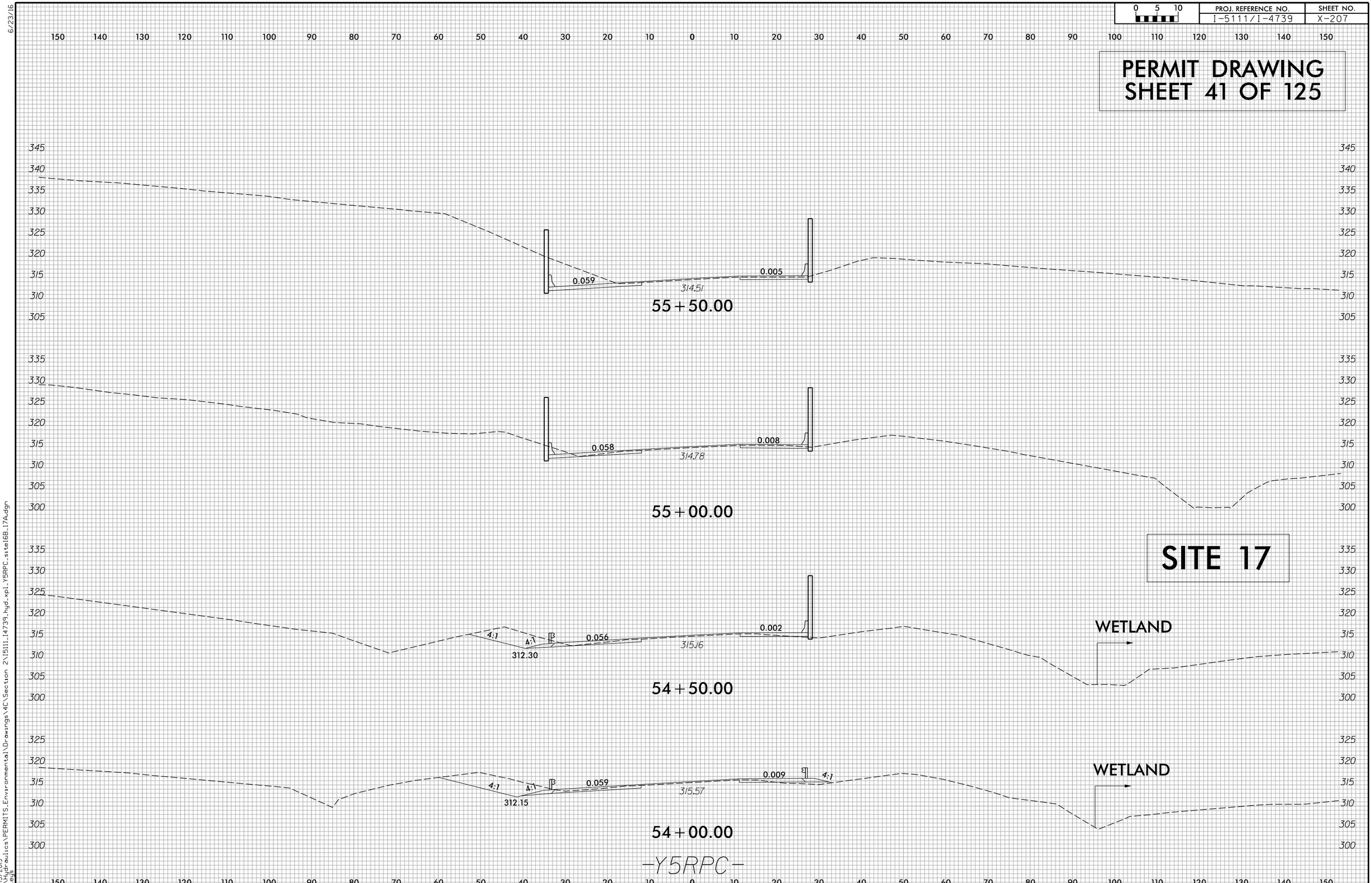

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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 42 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
E E DENOTES EXCAVATION IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
T T DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

INSET A

INSET B

-Y5RPA- SC Sta. 14+72.96

-Y5RPA- TS Sta. 11+82.96

SOI

WSD

ENERGY DISSIPATOR BASIN SEE DETAIL X

HP
-Y5RPA- STA. 13+77.27
2.05% 0.30%

Q10=160.0 cfs
V10=1.6 fps

SITE 18

SEE INSET B

MATCHLINE -Y5RPA- STA. 16+50 SEE SHEET 22

CUT-FILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

SPECIAL CUT SWALE SEE DETAIL E

-Y5RPA- POT Sta. 10+00.00= -L- POT Sta. 262+16.57 (59' LT)

-Y5RPA- N 21° 04' 30.4" W

-Y5RPA- S 24° 04' 24.4" E

-L- TS Sta. 263+81.72

-L- SC Sta. 265+31.72

MATCHLINE -L- STA. 256+00 SEE SHEET 22

MATCHLINE -L- STA. 269+00 SEE SHEET 24

2GIA-WSF
66" RCP-III (BURIED 1.0')
HW
BZ 1
BZ 2
TB
TS
S
E
T

PDE
RDE
RW

15" RCP-III
66" RCP-III (BURIED 1.0')
2GIB WSF
2GIA-WSF

2GID-WSS
FS
15" RCP-III
Conv. DI TO JB w/MH
RETAIN
REMOVE
24" RCP-III
TB 2GIB-ST
TB 2GIA-ST
BL -I27

2GIB-WSS
15" CSP
2 ELBOWS
18" RCP-III
2GIA-WSF
TB 2GIB ST
PLUG & FILL W/FLOWABLE FILL
66" WELDED STEEL (BURIED 1.0)

LATERAL BASE SWALE SEE DETAIL U
RIP RAP AT EMBANKMENT SEE DETAIL BA
CONCRETE DITCH BEHIND WALL SEE DETAIL BE
CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

SEE INSET A WPT

SITE 18
SOI

INVESTOR PROPERTY TAX SERVICE INC.
PERGO INC.
JAMES M. NICHOLSON
3SFAPT
SEDIMENT BA

48" WW & ISBW
EXISTING R/W
R/W MON
70' POWER EASEMENT
9' BLK & 48" CHL
48" CHL
8" PVC
24" CMP
24" CSP
13" BST
10' CONC
4' CONC
EOP
EOT
CABLE
-L-
-Y4RPC-

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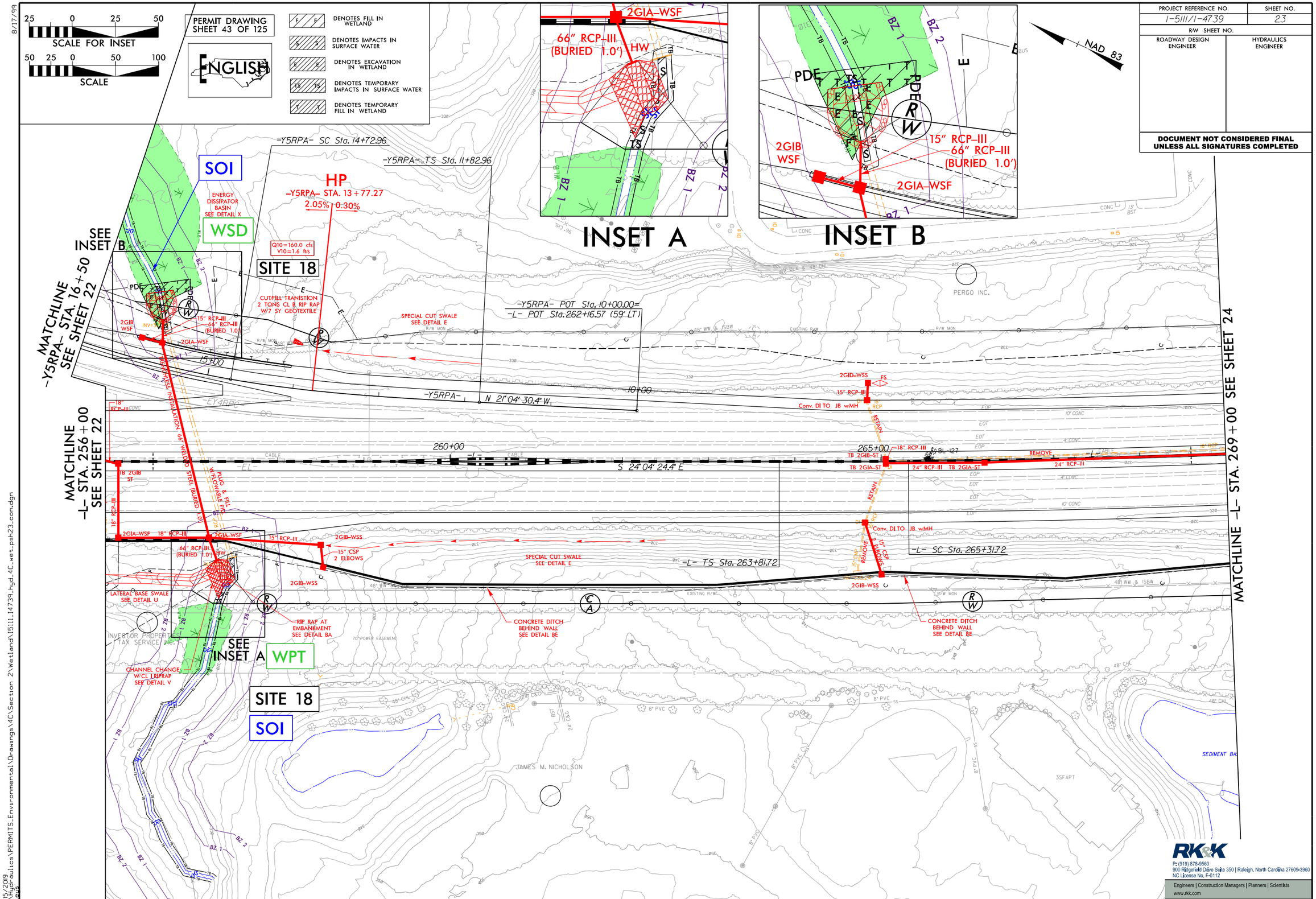

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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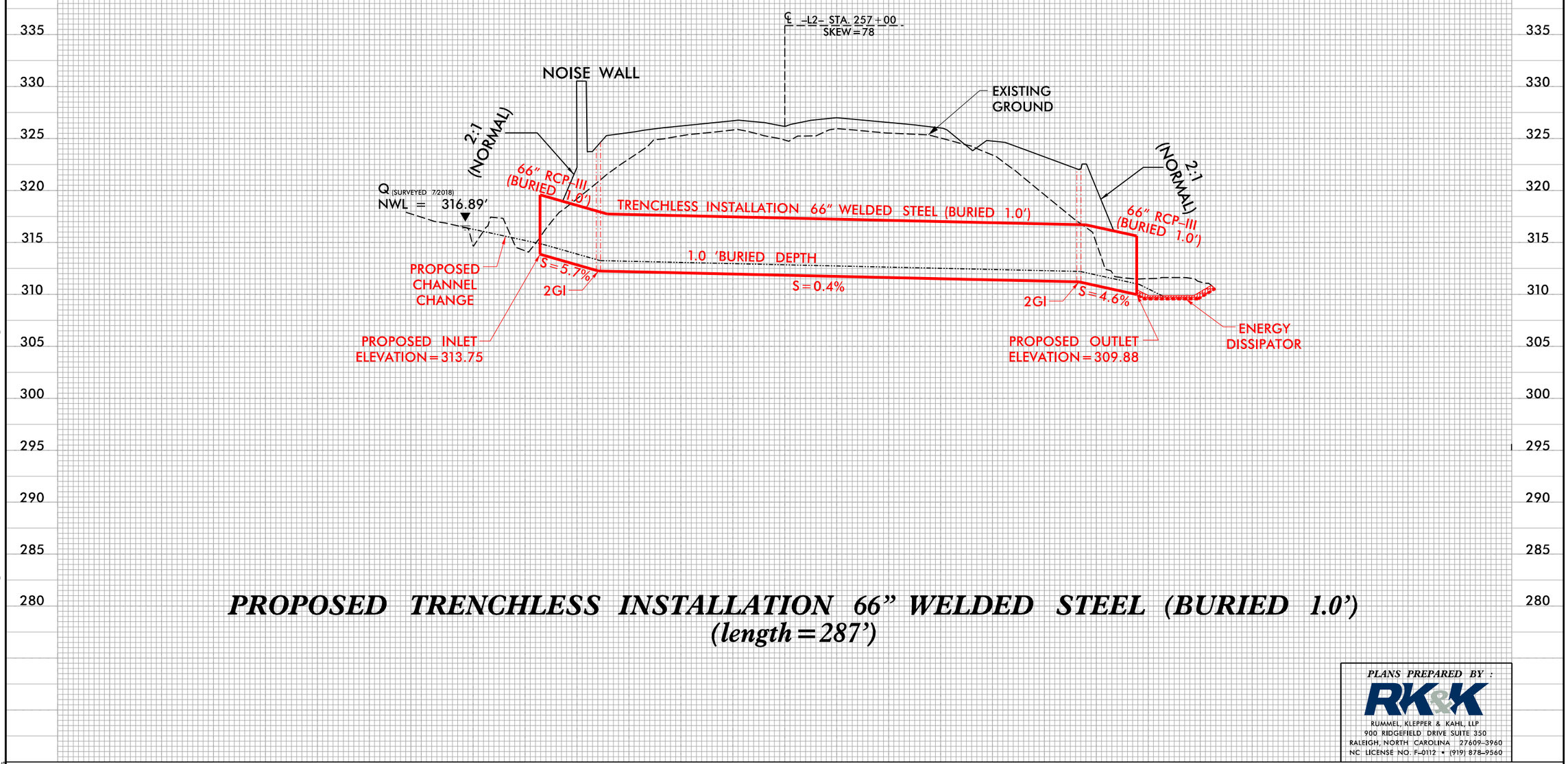
SHEET 44 OF 125

SITE 18
–L2– 257+00



PROPOSED TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')
(length=287')

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6/23/16

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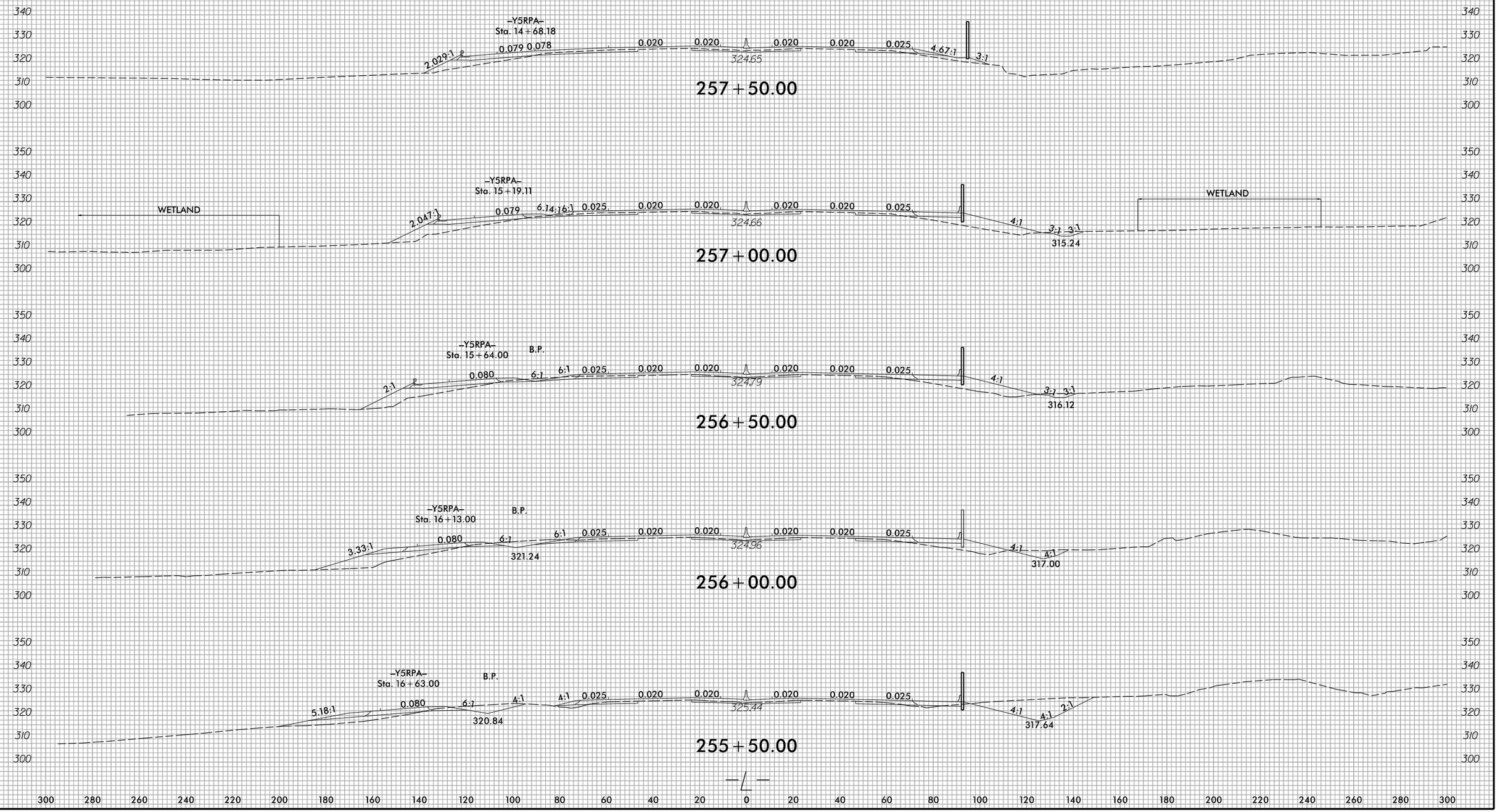
	I-5111/I-4739	X-50

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

SITE 18

PERMIT DRAWING
SHEET 45 OF 125



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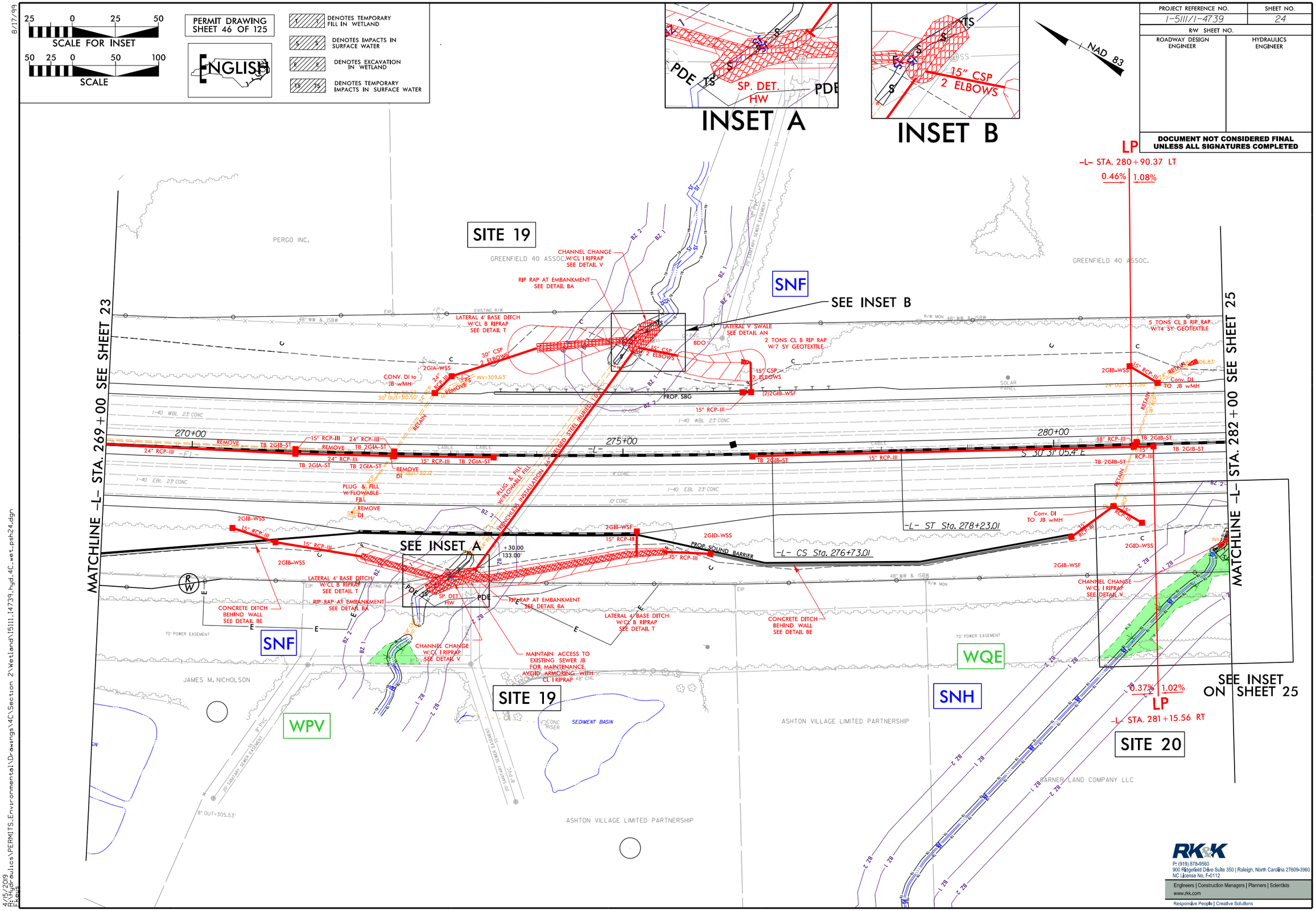

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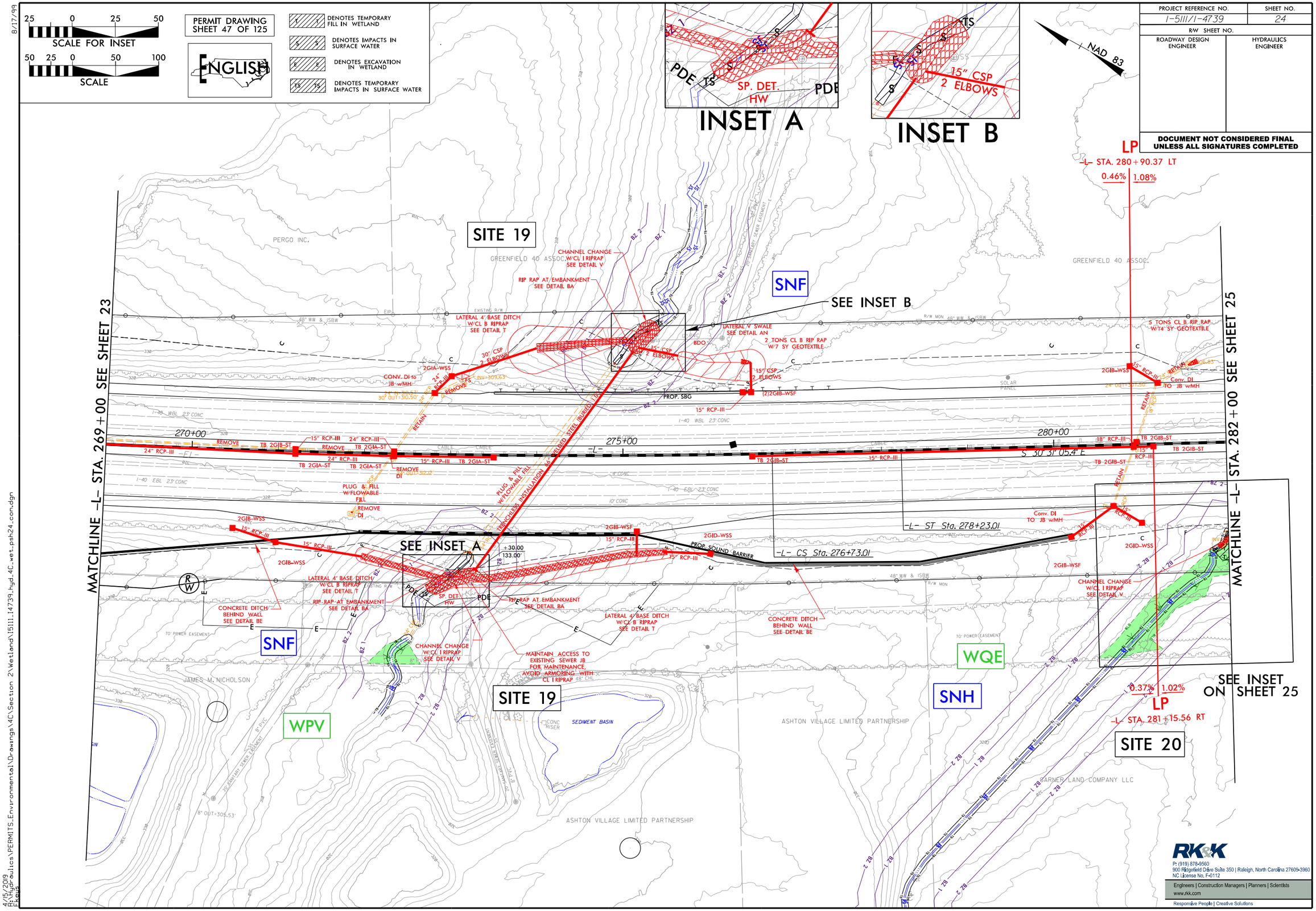

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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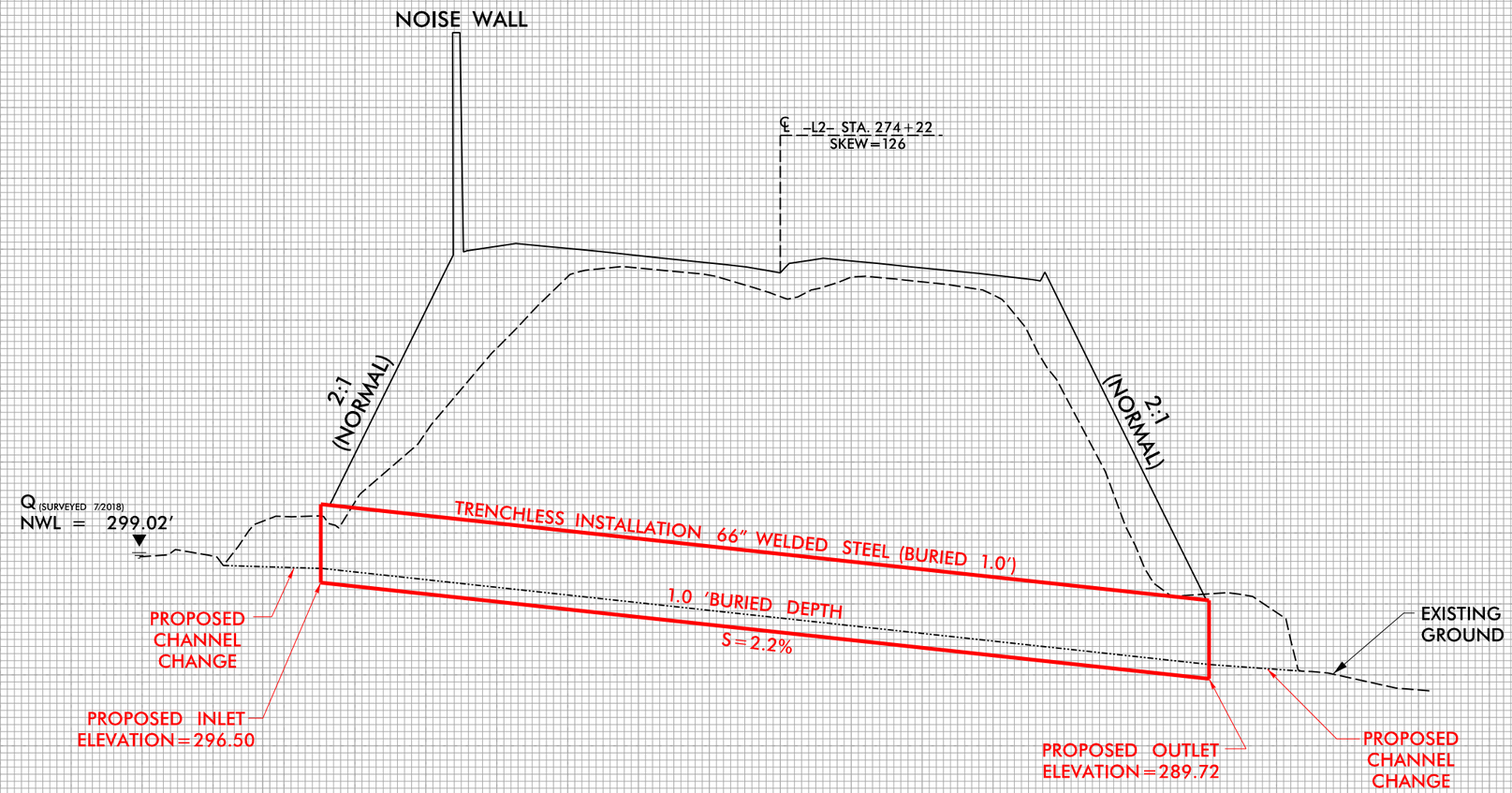
PERMIT DRAWING
SHEET 48 OF 125

SITE 19
–L2– 274+22



PROPOSED TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')
(length=314')

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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 49 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83

SMM

WRX

SITE 20

SNH

SEE INSET B

GREENFIELD 40 ASSOC.

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

INSET B

BZ 2
BZ 1
EXISTING R/W
JS
15" CSP
2 ELBOWS
FS
2GIB-WSF
15"
TRENCHLESS INSTALLATION STEEL WELDED (BURIED 1.0')

SKE TRUCK LEASING CO. L.P.

BST PA
CONC
72" CMP

-L- TS Sta. 292+63.21

48" WW & ISBW
EIP
2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)
15" RCP-III
2GIB-WSF
PLUG & FILL W/FLOWABLE FILL
REMOVE DI
40 TONS CL I RIP RAP W/78 SY GEOTEXTILE LENGTH=35' (SEE DETAIL BC)
CUT/FILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE
GREU TL-3
R/W MON

MATCHLINE -L- STA. 282+00 SEE SHEET 24

285+00
290+00
T.I. 66" W.S.
SP. DET. TB 2GIA-ST
T.I. 42" W.S.
TB 2GIB-ST
S 30° 31' 05.4" E
BL-129
I-40 EBL 23' CONC
10' CONC
CABLE

MATCHLINE -L- STA. 295+00 SEE SHEET 26

TRENCHLESS INSTALLATION STEEL WELDED (BURIED 1.0')
TRENCHLESS INSTALLATION STEEL WELDED (NOT BURIED)
42" CSP
FS
2GIB-WSS
15" RCP-III
HW
LATERAL BASE SWALE SEE DETAIL U
LATERAL BASE DITCH SEE DETAIL AA
2 TONS CL B RIP RAP W/7 SY GEOTEXTILE
BERM 4' BASE DITCH SEE DETAIL N
WQE
SITE 20
Q10=13.0 cfs
V10=1.84 fps
CHANNEL CHANGE W/CL I RIPRAP ON BANKS ONLY SEE DETAIL V
70' POWER EASEMENT
GARNER LAND COMPANY LLC

SEE INSET A

INSET A

RCP
15" RCP-III
TRENCHLESS 66" WELDED (BURIED
2GID-WSS
WLB
EIP
EBW

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Features

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 50 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

SMM

WRX

SITE 20

WQE

SITE 20

SNH

SEE INSET B

SEE INSET A

INSET B

INSET A

MATCHLINE –L– STA. 282+00 SEE SHEET 24

MATCHLINE –L– STA. 295+00 SEE SHEET 26

–L– TS Sta. 292+63.21

GREENFIELD 40 ASSOC.

GARNER LAND COMPANY LLC

SKE TRUCK LEASING CO. L.P.

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

2 TONS CL B RIP-RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH = 5' (SEE DETAIL BB)

40 TONS CL I RIP RAP W/78 SY GEOTEXTILE LENGTH = 35' (SEE DETAIL BC)

CUTFILL TRANSITION 2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')

TRENCHLESS INSTALLATION 42" WELDED STEEL (NOT BURIED)

15" RCP-III

2GIB-WSF

2GID-WSS

2 ELBOWS 15" CSP

T.I. 66" W.S.

T.I. 42" W.S.

SP. DET. TB 2GIA-ST

TB 2GIB-ST

285+00

290+00

S 30° 31' 05.4" E

BL-129

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

BERM 4' BASE DITCH SEE DETAIL N

LATERAL BASE SWALE SEE DETAIL U

LATERAL BASE DITCH SEE DETAIL AA

Q10=13.0 cfs
V10=1.84 fps

CHANNEL CHANGE W/CL I RIPRAP ON BANKS ONLY SEE DETAIL V

70' POWER EASEMENT

GREU TL-3

BST PA

CONC

12" CMP

48" WW & ISBW

I-40 WBL 23' CONC

I-40 EBL 23' CONC

10' CONC

8' CONC

CABLE

BZ 1

BZ 2

HW

T

F

C

FS

WLB

RTW

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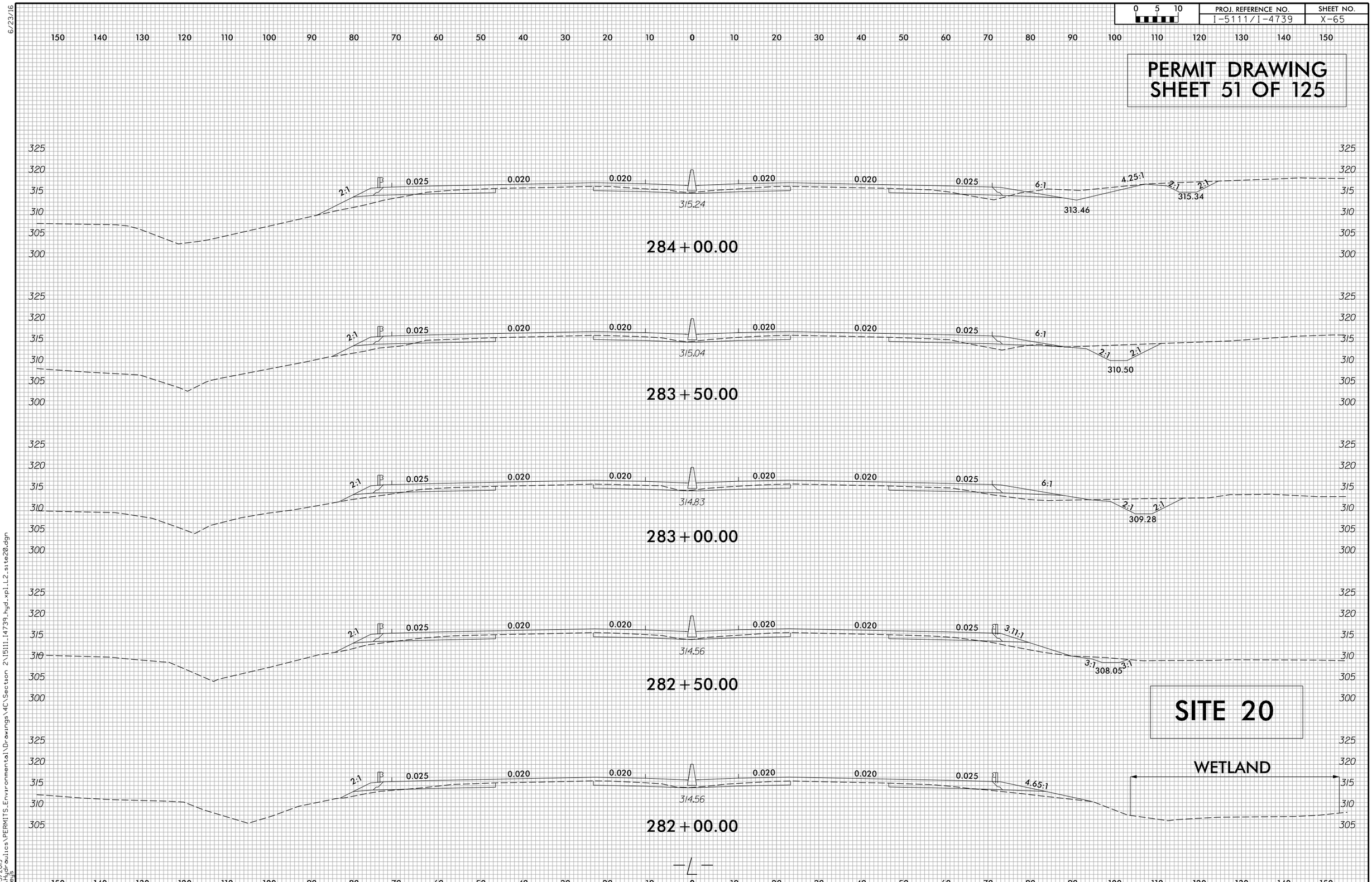
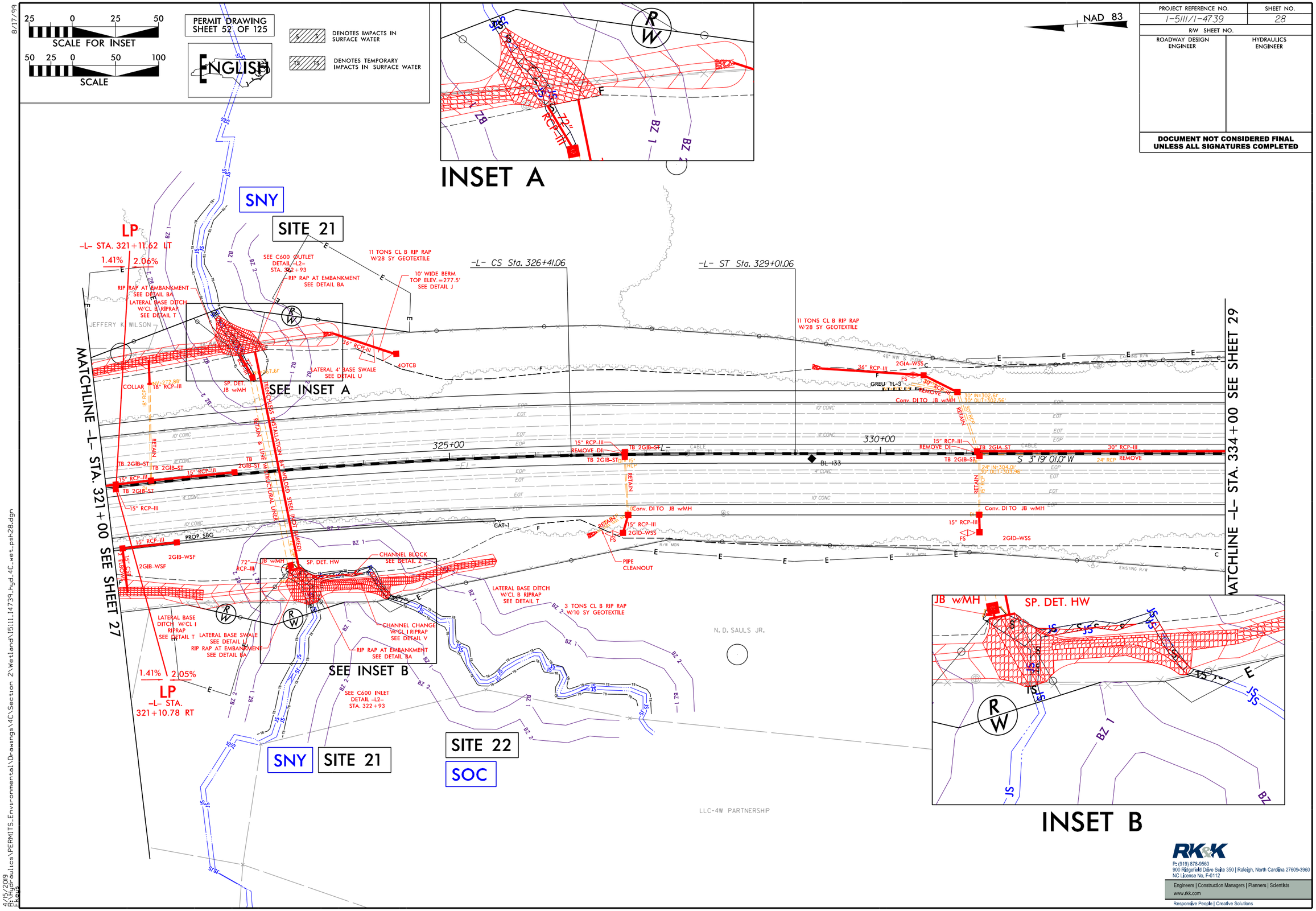
Eng



PROJ. REFERENCE NO.
I-5111/I-4739
SHEET NO.
X-65
PERMIT DRAWING
SHEET 51 OF 125
284+00.00
315.24
313.46
315.34
283+50.00
315.04
310.50
283+00.00
314.83
309.28
282+50.00
314.56
308.05
SITE 20
WETLAND
282+00.00
314.56
4.65:1



PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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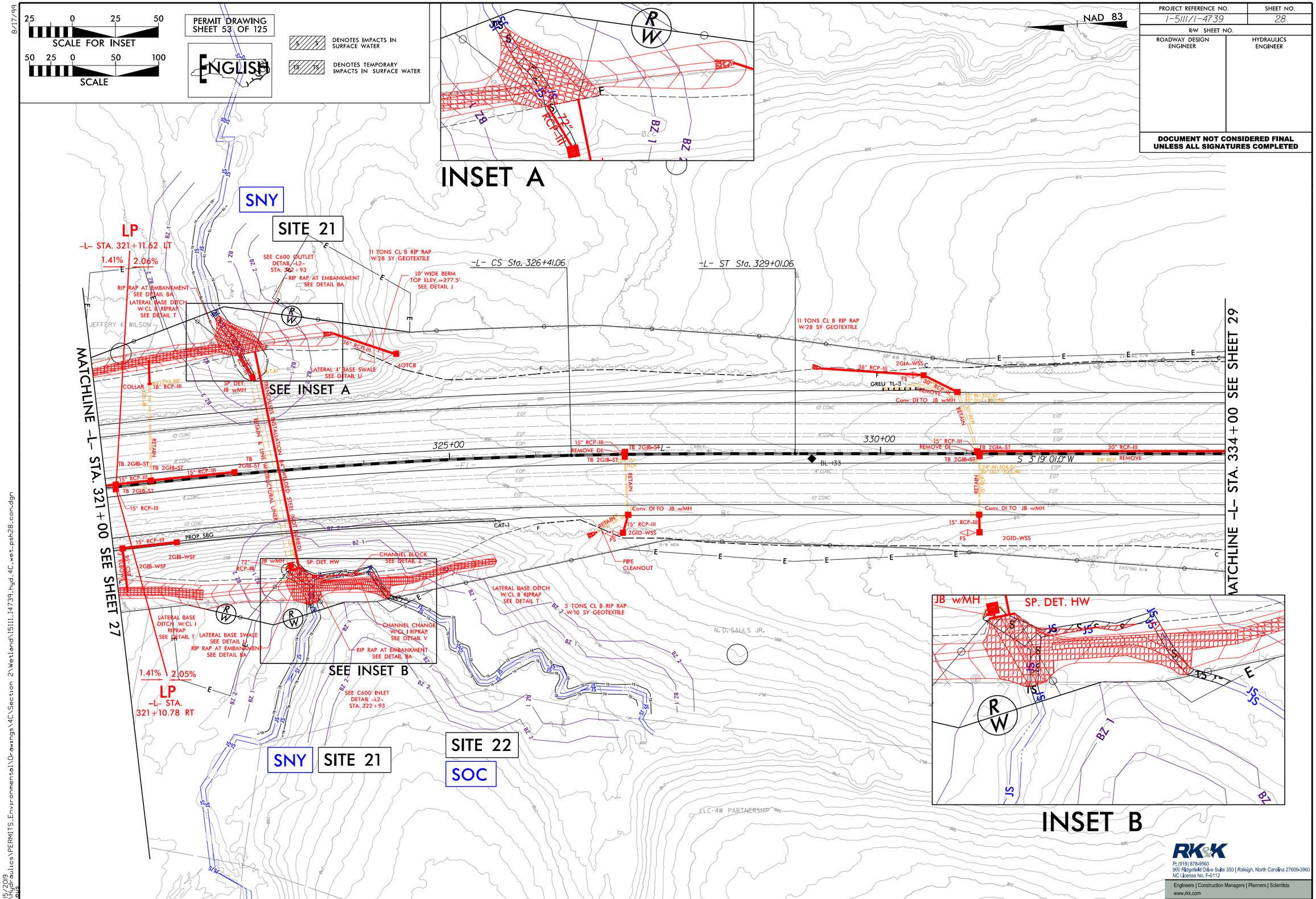

PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
28
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 53 OF 125
ENGLISH
SCALE FOR INSET
SCALE
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83
INSET A
INSET B
SNY
SITE 21
SITE 22
SOC
LP
-L- STA. 321+11.62 LT
1.41%
2.06%
LP
-L- STA. 321+10.78 RT
1.41%
2.05%
-L- CS Sta. 326+41.06
-L- ST Sta. 329+01.06
MATCHLINE -L- STA. 321+00 SEE SHEET 27
MATCHLINE -L- STA. 334+00 SEE SHEET 29
SEE INSET A
SEE INSET B
325+00
330+00
S 3°19'01.0" W
JEFFERY K. WILSON
N. D. SAULS JR.
LLC-4W PARTNERSHIP
SP. DET. HW
JB w/MH
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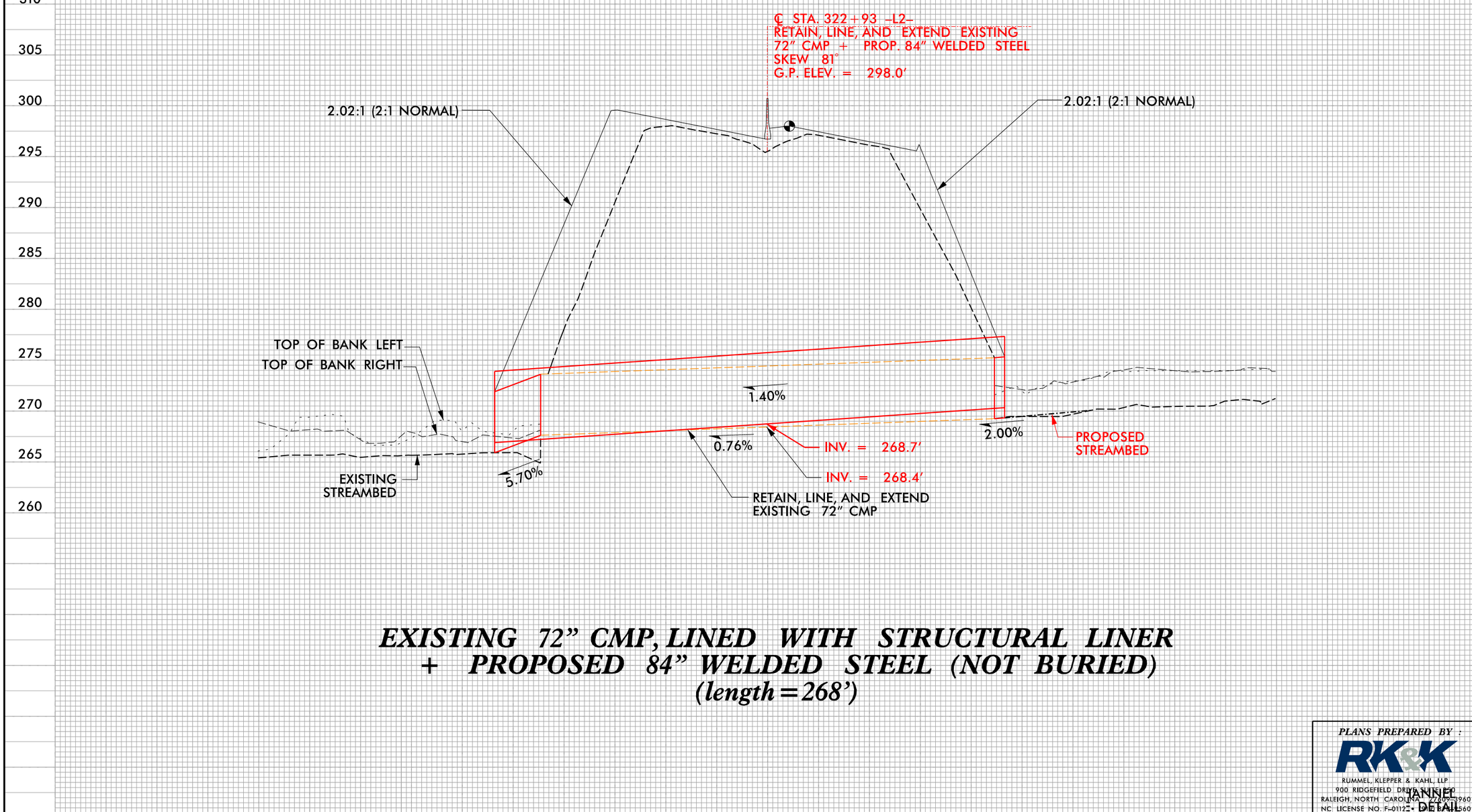
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 54 OF 125

SITE 21
–L– 322+93



EXISTING 72" CMP, LINED WITH STRUCTURAL LINER + PROPOSED 84" WELDED STEEL (NOT BURIED)
(length = 268')

PLANS PREPARED BY :
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JANNEL DETAIL

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 55 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

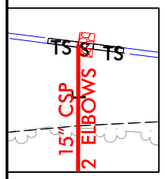
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

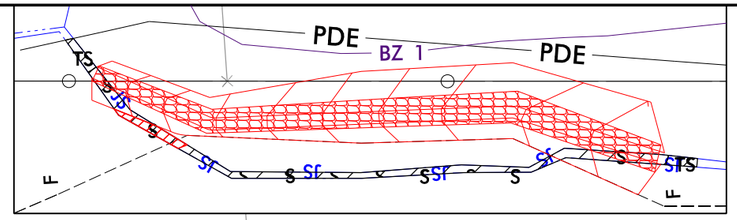
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

INSET B





INSET A

BOBBY BANKS

N. D. SAULS JR.

SLF

SLH

SITE 23A

SITE 23B

SEE INSET A

SEE INSET B

SEM

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=5' (SEE DETAIL BB)

11 TONS CL B RIP RAP W/28 SY GEOTEXTILE "FLARE RIP RAP OUT FOR MORE DISPERSION IN BUFFER ZONE

CHANNEL BLOCK SEE DETAIL Z

MATCHLINE -L- STA. 357+00 SEE SHEET 30

MATCHLINE -L- STA. 370+00 SEE SHEET 32

2GIB-WSS

FS

REMOVE

30" RCP-III

CAT 1

Conv. DI TO JB w/MH

30" IN=306.19
30" OUT=305.15

PROP. SBG

2GIB-WSF

REMOVE DI

360+00

365+00

370+00

BL 1SB

TB 2GIA-ST

TB 2GIB-ST

24" RCP-III

24" RCP

REMOVE

18" RCP-III

24" IN=301.19
24" OUT=300.09

S 3°19'01.0" W

-L-

-Fl-

RETAIN

JB w/MH

REMOVE 15'

18" CSP
2 ELBOWS

15" RCP-III

REMOVE

2GID-WSS

2GIB-WSS

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

PROP SOUND BARRIER WALL

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

DENNIS L. POWELL

WAUDDELL J. ROBINSON JR.

MARVA LEWIS

MR. & MRS. HARRIS D. FAULK

VICTORIA LYNN SCALLY

WAUDDELL J. ROBINSON JR.

WILLIAM C. MCLAMB

CHARLIE L. FOBBS

2SFD

ISFD

CONC

10' CONC

4' CONC

CABLE

EOP

EOT

EIP

R/W MON

72" WD

SNK

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Eric Sauls
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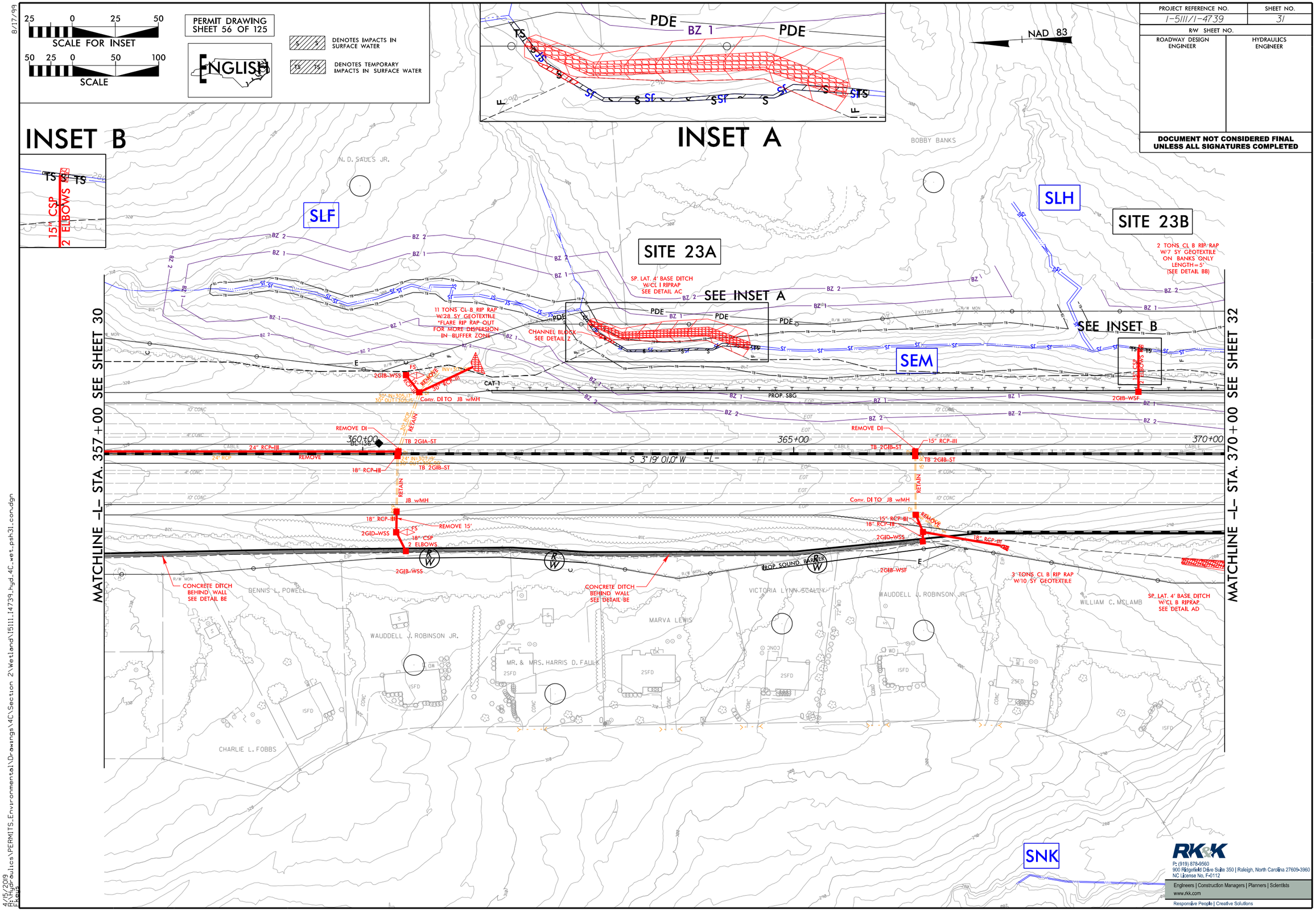

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Fkeys

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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 57 OF 125

ENGLISH

F/F DENOTES FILL IN WETLAND

S/S DENOTES IMPACTS IN SURFACE WATER

TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 370+00 SEE SHEET 31

MATCHLINE –L– STA. 383+00 SEE SHEET 33

SITE 23C

SITE 24

SITE 25

SITE 26A

SLI

WNQ

SEM

SEM

SNK

SNM

WPX

WQC

SEE INSET A

SEE INSET B

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

RIP RAP LINE ENTIRE PENINSULA BETWEEN STREAMS FOR STABILIZATION 10 TONS CL B RIP RAP W/28 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH = 5' (SEE DETAIL BB)

*SITE IMPACTS ONLY IN BUFFER DRAWINGS

JS BEGINS

JS BEGINS

BOBBY BANKS

ROY R. SMITH

ROY R. SMITH

ROY R. SMITH

WILLIAM C. MCLAMB

RIDGEVIEW SUBDIVISION HOMEOWNERS ASSOC.

PROP. SBG

PROP. SOUND BARRIER

PROP. SBG

TYPE B-77

I-40 WBL 23' BST

I-40 EBL 23' BST

370+00

375+00

380+00

BL -L1-37

BL -L1-38

-L-

S 3°19'01.0" W

15" RCP-III

2GIB-WSF

TB 2GIB-ST

REMOVE DI

RETAIN

15" CSP 2 ELBOWS

10' CONC

4' CONC

EOP

EOT

CABLE

EIP

EIP

HTR

HTR

MTL CAN

INSET A

INSET B

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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 58 OF 125

ENGLISH

F / F DENOTES FILL IN WETLAND

S / S DENOTES IMPACTS IN SURFACE WATER

TS / TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE –L– STA. 370+00 SEE SHEET 31

MATCHLINE –L– STA. 383+00 SEE SHEET 33

SITE 23C

SITE 24

SITE 25

SITE 26A

SEE INSET A

SEE INSET B

SLI

WNQ

SEM

SEM

WPX

SNK

SNM

WQC

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

SP. LAT. 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AC

RIP RAP LINE ENTIRE PENINSULA BETWEEN STREAMS FOR STABILIZATION 10 TONS CL B RIP RAP W/28 SY GEOTEXTILE

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

*SITE IMPACTS ONLY IN BUFFER DRAWINGS

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

JS BEGINS

JS BEGINS

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE ON BANKS ONLY LENGTH=15' (SEE DETAIL BB)

INSET A

INSET B

BOBBY BANKS

ROY R. SMITH

WILLIAM C. MCLAMB

RIDGEVIEW SUBDIVISION HOMEOWNERS ASSOC.

PROP. SBG

PROP. SOUND BARRIER

TYPE B-77

15" RCP-III

15" CSP 2 ELBOWS

2GIB-WSF

TB 2GIB-ST

REMOVE DI

RETAIN

I-40 WBL 23' BST

I-40 EBL 23' BST

370+00

375+00

380+00

BL -L37

BL -L38

-L- S 3°19' 01.0" W

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jpulice
Ekeus

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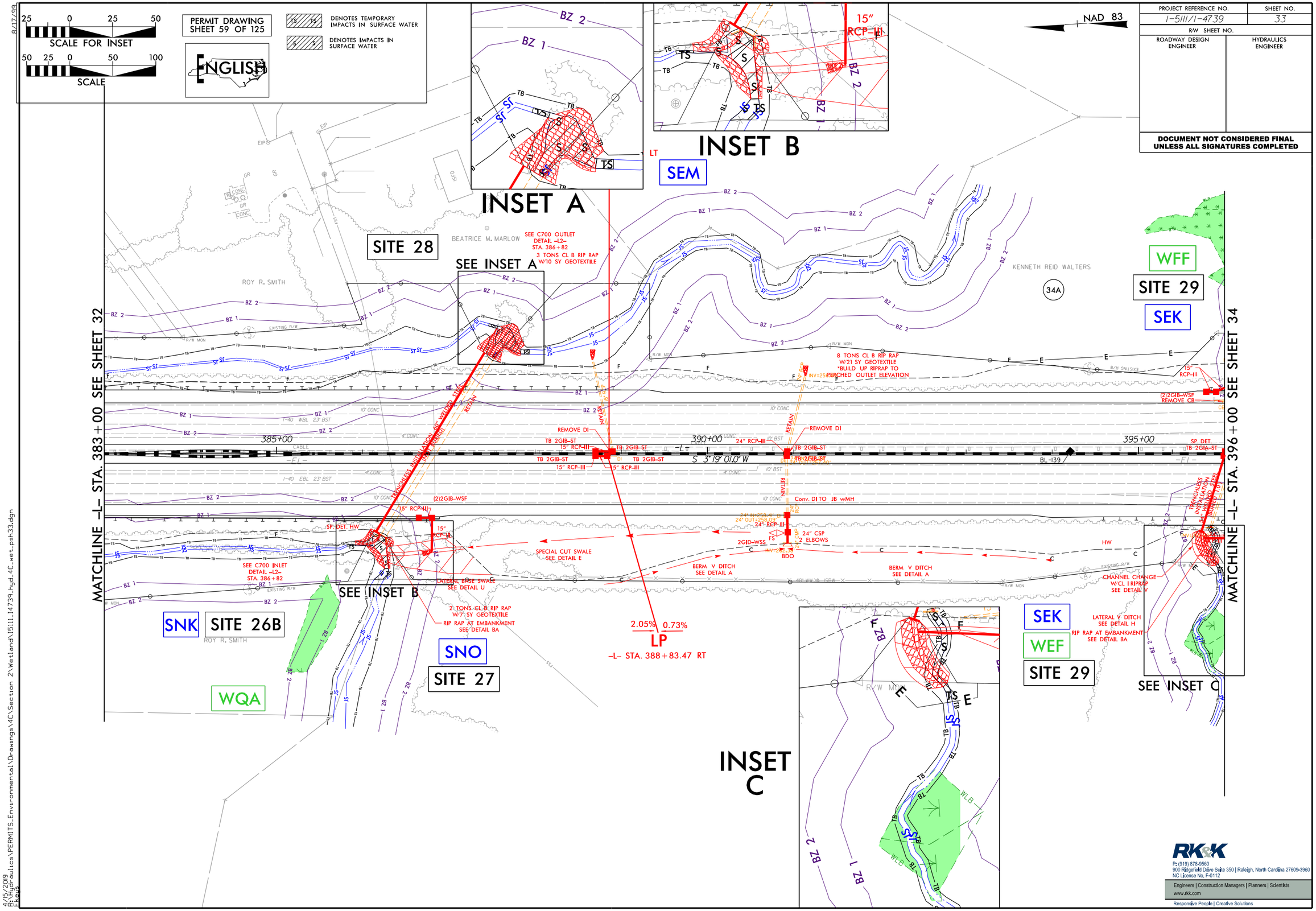

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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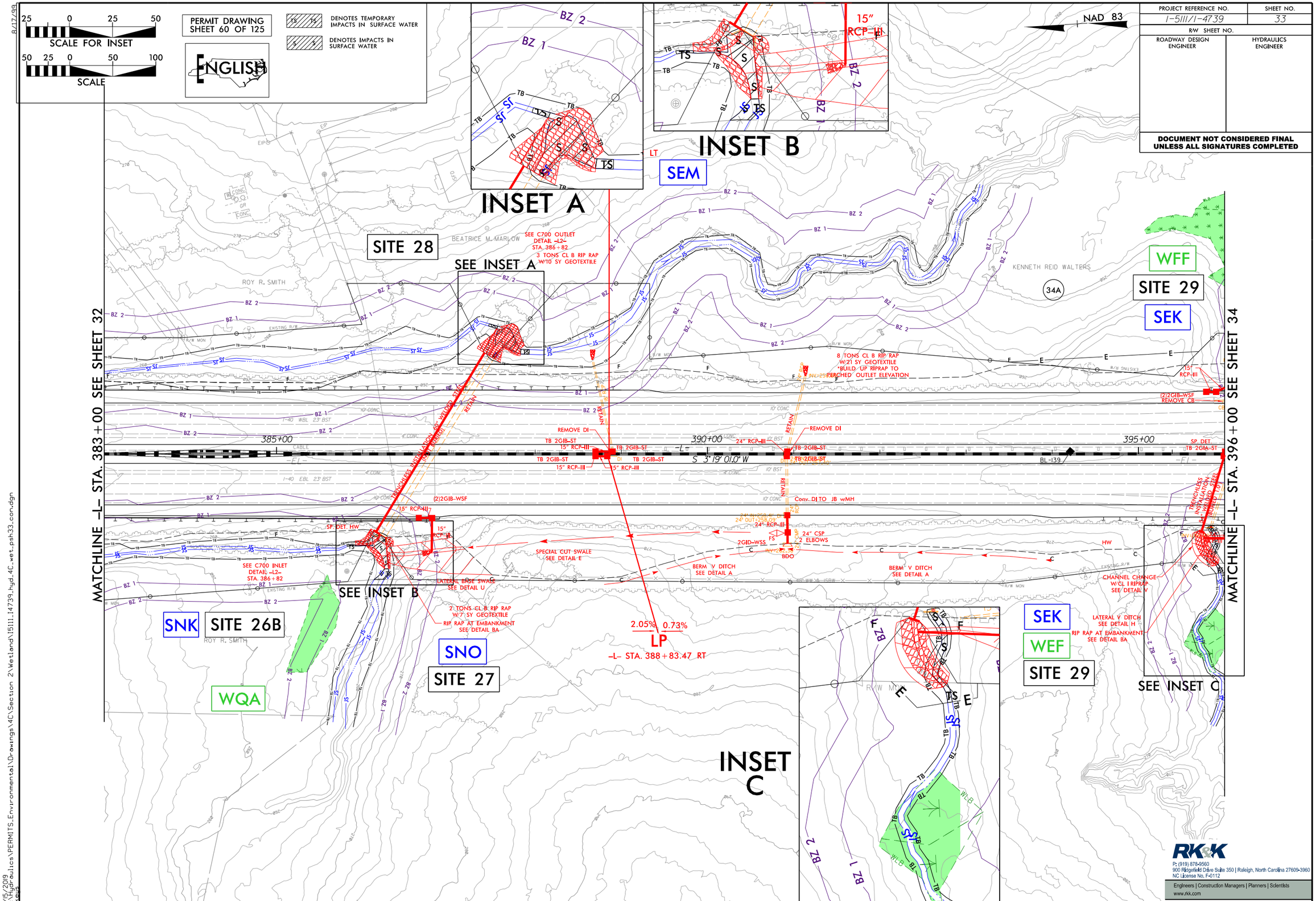

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I-5111/I-4739	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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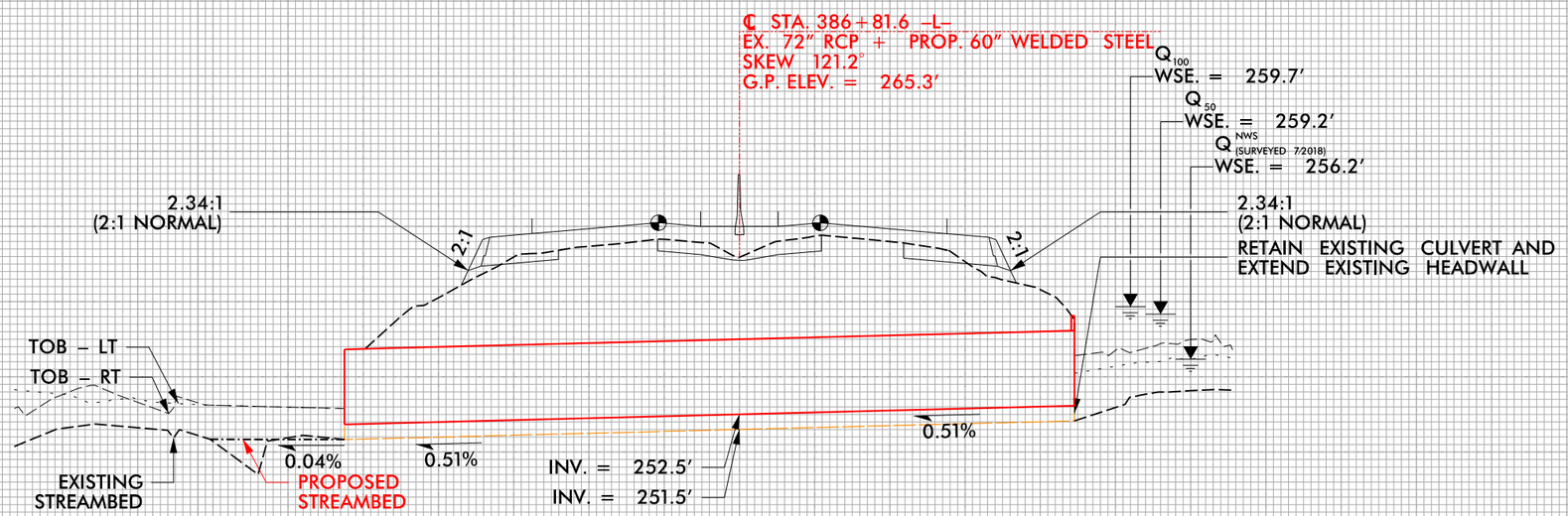
PERMIT DRAWING
SHEET 61 OF 125

SITE 26B, 27, & 28
–L– 386+81.6



EXISTING 72" RCP +
PROPOSED 60" WELDED STEEL (NOT BURIED)
(length = 243')

PLANS PREPARED BY :

RK&K

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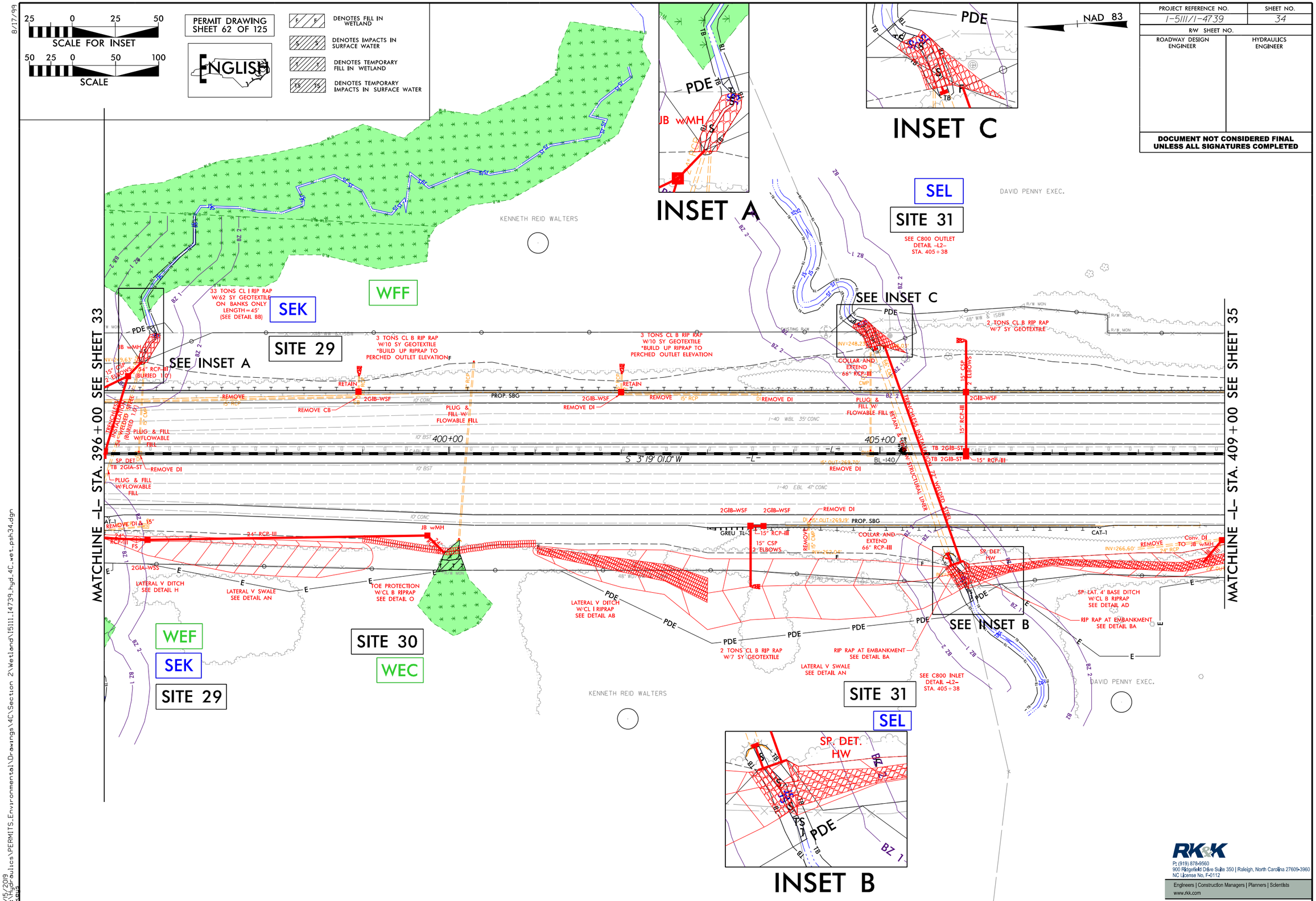

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 63 OF 125

ENGLISH

F / F DENOTES FILL IN WETLAND
S / S DENOTES IMPACTS IN SURFACE WATER
T / T DENOTES TEMPORARY FILL IN WETLAND
TS / TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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MATCHLINE –L– STA. 396+00 SEE SHEET 33

MATCHLINE –L– STA. 409+00 SEE SHEET 35

INSET A

INSET B

INSET C

SEE INSET A

SEE INSET B

SEE INSET C

SITE 29

SITE 30

SITE 31

SEK

WFF

WEF

WEC

SEL

KENNETH REID WALTERS

DAVID PENNY EXEC.

33 TONS CL I RIP RAP W/62 SY GEOTEXTILE ON BANKS ONLY LENGTH = 45' (SEE DETAIL BB)

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE *BUILD UP RIPRAP TO PERCHED OUTLET ELEVATION

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

TOE PROTECTION W/CL B RIPRAP SEE DETAIL O

LATERAL V DITCH SEE DETAIL H

LATERAL V SWALE SEE DETAIL AN

LATERAL V DITCH W/CL I RIPRAP SEE DETAIL AB

RIP RAP AT EMBANKMENT SEE DETAIL BA

SP. LAT. 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AD

SEE C800 OUTLET DETAIL –L2– STA. 405+38

SEE C800 INLET DETAIL –L2– STA. 405+38

PROP. SBG

S 3°19'01.0" W

–L–

400+00

405+00

BL-140

TB 2GIB-ST

15" RCP-III

15" CSP 2 ELBOWS

COLLAR AND EXTEND 66" RCP-III

REMOVE DI

REMOVE CB

REMOVE

PLUG & FILL W/FLOWABLE FILL

RETAIN

2GIB-WSF

2GIA-WSS

JB w/MH

SP. DET. HW

Conv. DI TO JB w/MH

REMOVE 24" RCP

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Plotted By: Eric Hall

5/14/99

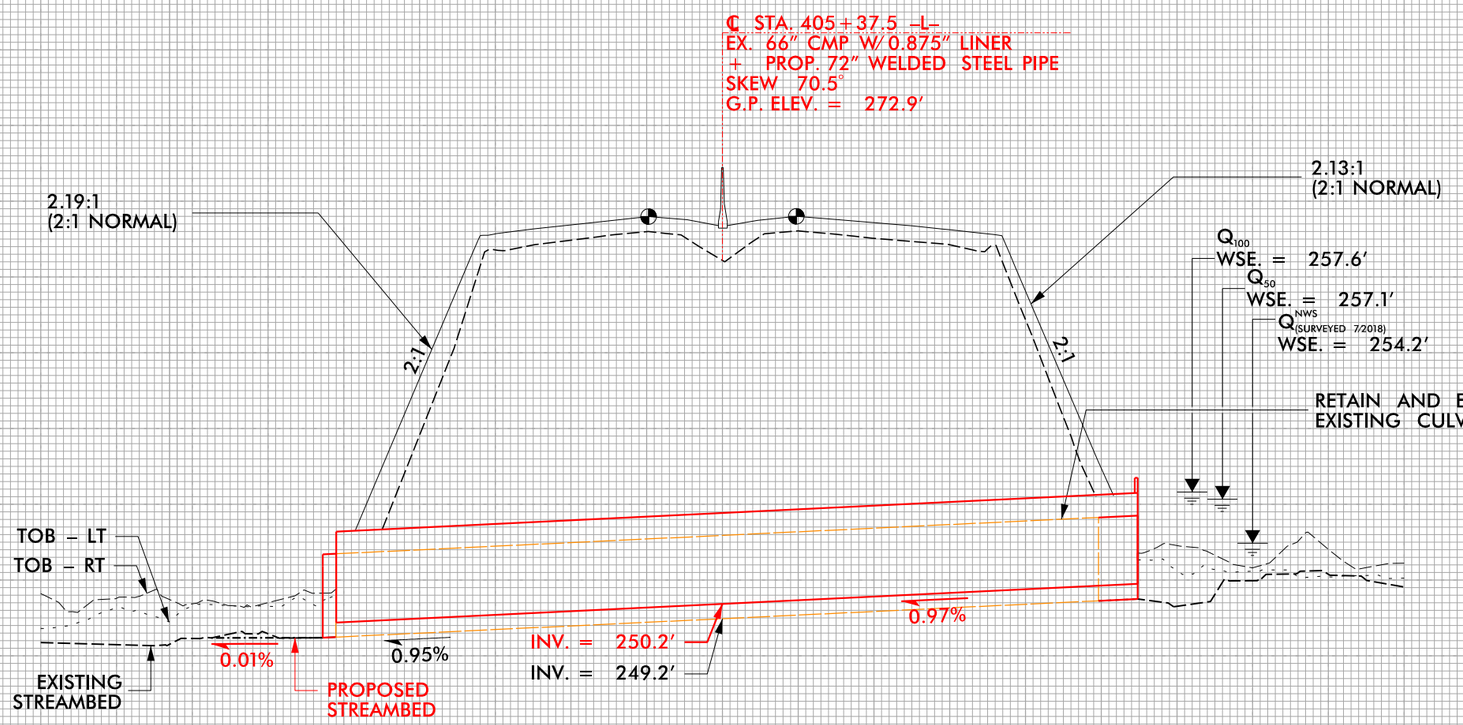
PROJECT REFERENCE NO.	SHEET NO.
1-5111.1-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

SITE 31
–L– 405+37.5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 64 OF 125



EXISTING 66" CMP, LINED WITH STRUCTURAL LINER + PROPOSED TRENCHLESS 72" WELDED STEEL (NOT BURIED) (length = 265')

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

4/15/2019
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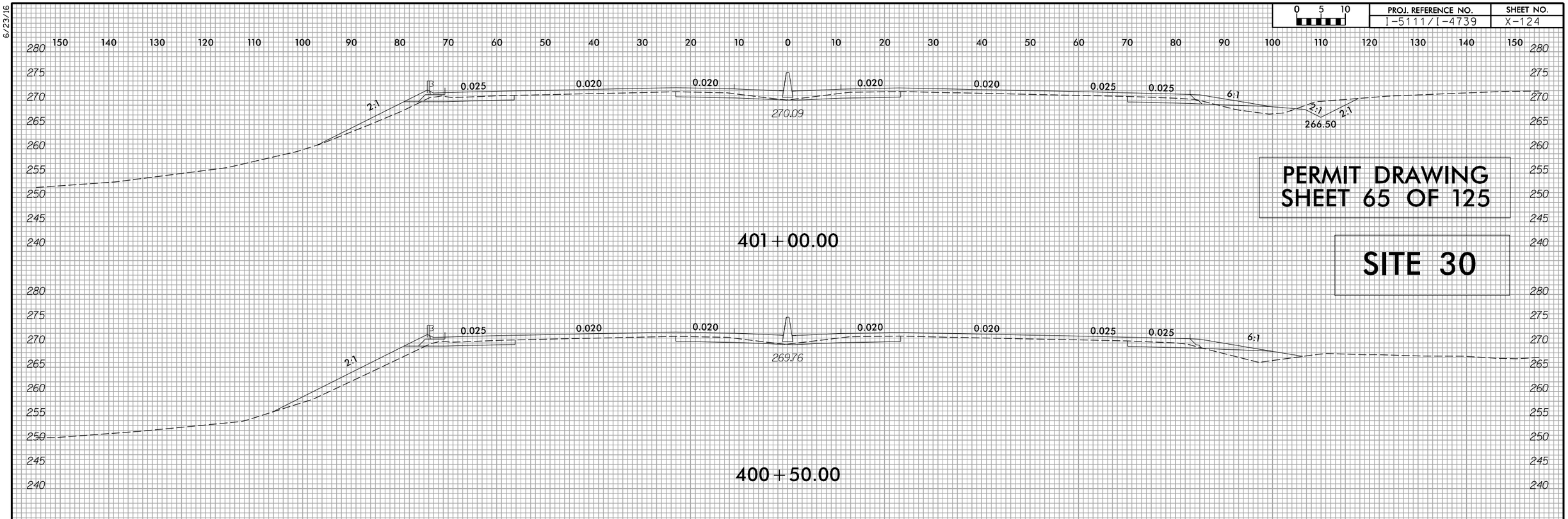
Engineer

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-124



PERMIT DRAWING
SHEET 65 OF 125

SITE 30

4/15/2019
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8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 66 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

INSET A

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA. 409+00 SEE SHEET 34

MATCHLINE -L- STA. 422+00 SEE SHEET 36

MATCHLINE -Y8RPC- STA. 16+80 SEE SHEET 36

MOLLIE F. PENNY

DAVID PENNY EXEC.

JIMMY LEE PENNY

REBECCA A. NORRIS

INTERMITTENT BEGINS

PERENNIAL BEGINS

WFE

SEV

SITE 32

SEE INSET A

3 TONS CL B RIP RAP W/10 SY GEOTEXTILE

8 TONS CL B RIP RAP W/21 SY GEOTEXTILE OPT BANKS ONLY LENGTH = 10' (SEE DETAIL BB)

Conv. DI TO DB w/MH

2GIB-WSS

18" RCP-III

24" RCP-III

24" CSP 2 ELBOWS

PLUG & FILL W/FLOWABLE FILL

REMOVE

RETAIN

18" RCP END UNKNOWN

TB 2GIB-ST

TB 2GIA-ST

-Y8RPC- ST Sta. 10+04.38 =
-L- POT Sta. 415+89.83 (59' LT)

-Y8RPC- SC Sta. 11+84.38

S 3° 19' 01.0" W

S 64° 49' 38.9" E

410+00 415+00 420+00 10+00 15+00

48" WW & ISBW

EXISTING R/W

R/W MON

10' CONC

10' BST

I-40 WBL 47' CONC

I-40 EBL 35' CONC

PROP. SBG

GREU TL-3

CABLE

-L-

-FL-

-Y8RPC-

-FY7RPC-

22' CONC

24" BST

SOLAR PANEL

EM

SOIL & ROCK

PDE

BDO

RK&K
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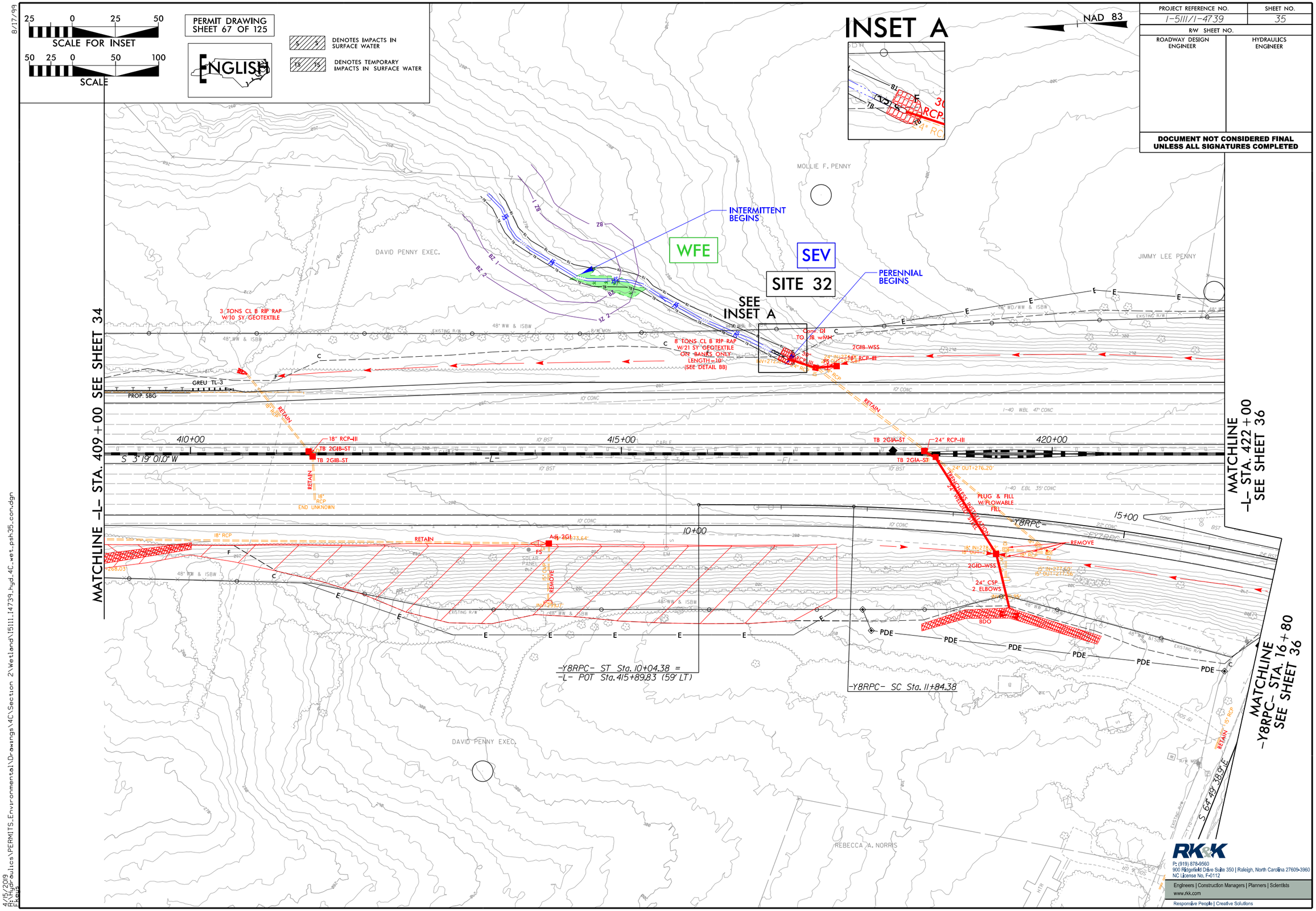

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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4/15/2019
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Fkeys

REVISIONS

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 0 25 50 SCALE FOR INSET

50 25 0 50 100 SCALE

PERMIT DRAWING SHEET 68 OF 125

ENGLISH

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	37
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET C

BZ 2

INV=269.19'

54" RCP-IV

REMOVE 30" RCP

-Y8RPB- ST Sta. 10+00.00 = -L- POT Sta.436+43.38 (1T RT)

-Y8RPB- SC Sta. 12+40.00

MARY POWELL WARD WHITE

CONTRACTOR TO FIELD ADJUST WITH MATTING OR INFILL LOCATIONS TO PREVENT CONCENTRATED FLOW TRAVELING SHEER INTO PROPOSED DITCHES

SP. LAT. BASE DITCH SEE DETAIL N AND SEE DETAIL AI

LATERAL BASE SWALE SEE DETAIL U

50' WIDE ERM TOP ELEV=260.0' SEE DETAIL I

REMOVE EX. SDU SYSTEM

END GRADE -Y8RPB- POC Sta.11+90.00 BEGIN OVERLAY

SDT

JS ENDS HERE

WFD

WFC

SITE 33

SEE INSET C

WFA

SDT

SITE 33

B

A

SDU

SEE INSET A

WFB

SITE 34

MATCHLINE -Y8RPC- STA. 29+00 SEE SHEET 36

MATCHLINE -L- STA. 435+00 SEE SHEET 36

MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 63

MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 63

MATCHLINE -Y8RPC- STA. 40+00 SEE SHEET 63

MATCHLINE -L- STA. 461+00 SEE SHEET 38

435+00 440+00 445+00 450+00 455+00 460+00

-L- S 3°19'00" W

RL-145 RL-144

10+00 15+00 20+00 25+00 30+00 35+00 40+00 45+00 50+00 55+00

-Y8LPC-

-Y8RPB-

-Y8RPC-

2.22% 0.65% HP

-Y8LPC- STA. 11+09.77

-Y8LPC- SC Sta. 12+40.00

-Y8LPC- ST Sta. 10+00.00 = -L- POT Sta.440+61.74 (159' LT)

SEE INSET B

SITE 35 SDS

SITE 33 SDT

C

END GRADE -Y8LPC- POC Sta.14+55.00 BEGIN OVERLAY

-Y8LPC- SC Sta. 22+16.43

-Y8LPC- CS Sta. 19+21.16

WEK

WEL

SDT

-Y8RPC- TS Sta. 32+16.52

-Y8RPC- SC Sta. 35+11.80

-Y8RPC- CS Sta. 39+10.92

WEJ

SDQ

SDR

NC DEPARTMENT OF TRANSPORTATION

CH YOUNG PROPERTIES, LLC.

INSET B

48" W/W

15" CSP 2 ELBOWS BDO

INV=253.37'

BZ 2

BZ 1

INSET A

SPECIAL LATERAL V DITCH SEE DETAIL AJ

REMOVE 47' EX. 24"

10' BST

INV=263.65'

RKK CONSULTANTS 301 Yonkers Road Suite 300 Raleigh, North Carolina 27603-6400 Tel: (919) 779-4511 Fax: (919) 779-4685 Engineering | Construction Management | Planning | Surveying WWW.RKK.COM Responsible People | Creative Solutions

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE 50 25 0 50 100 PLANS

Rpt:tgrandison Plt:PERMITS_Environmental Dgn:K:\Structure Drawings\Roadway\I5111_I4739_hyd_AC_str_sum37.dgn

REVISIONS

SCALE FOR INSET 25 0 25 50

SCALE 50 25 0 50 100

PERMIT DRAWING SHEET 69 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. I-5111/I-6139 | SHEET NO. 37

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83

MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 63

MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 63

MATCHLINE -Y8RPC- STA. 40+00 SEE SHEET 63

MATCHLINE -L- STA. 435+00 SEE SHEET 36

MATCHLINE -Y8RPC- STA. 29+00 SEE SHEET 36

MATCHLINE -L- STA. 461+00 SEE SHEET 38

INSET C

INSET B

INSET A

A

B

C

SITE 33 SDT WFD WFC

SITE 34 WFB SDU

SITE 33 SDT WFA

SITE 35 SDS

SITE 33 SDT

SITE 35 WEJ SDQ

SITE 35 SDR

WEK

WEL SDT

SEE INSET A

SEE INSET B

SEE INSET C

-Y8RPB- ST Sta.10+00.00 = -L- POT Sta.436+43.38 (LT RT)

-Y8RPB- SC Sta.12+40.00

END GRADE -Y8RPB- POC Sta.11+50.00 BEGIN OVERLAY

-Y8LPC- ST Sta.10+00.00 = -L- POT Sta.440+61.74 (LT RT)

-Y8LPC- SC Sta.12+40.00

END GRADE -Y8LPC- POC Sta.14+55.00 BEGIN OVERLAY

-Y8LPC- SC Sta.22+16.43

-Y8LPC- CS Sta.19+21.16

-Y8RPC- TS Sta.32+16.52

-Y8RPC- SC Sta.35+41.80

-Y8RPC- CS Sta.39+10.92

INV=269.19'

54" RCP-IV

REMOVE 47' EX. 24"

SPECIAL LATERAL V DITCH SEE DETAIL AJ

BZ 1

BZ 2

15" CSP 2 ELBOWS BDO

HP

2.22% 0.65%

-Y8LPC- STA. 11+09.72

-Y8LPC- SC Sta.12+40.00

SCDOT DEPARTMENT OF TRANSPORTATION

RKK CONSULTANTS 100 Regency Forest Drive, Suite 300 | Raleigh, North Carolina 27615-6400 | Tel: (919) 870-0576 | Fax: (919) 870-0577 | Engineering | Construction Management | Planning | Surveying | www.rkk.com

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE 50 25 0 50 100 PLANS

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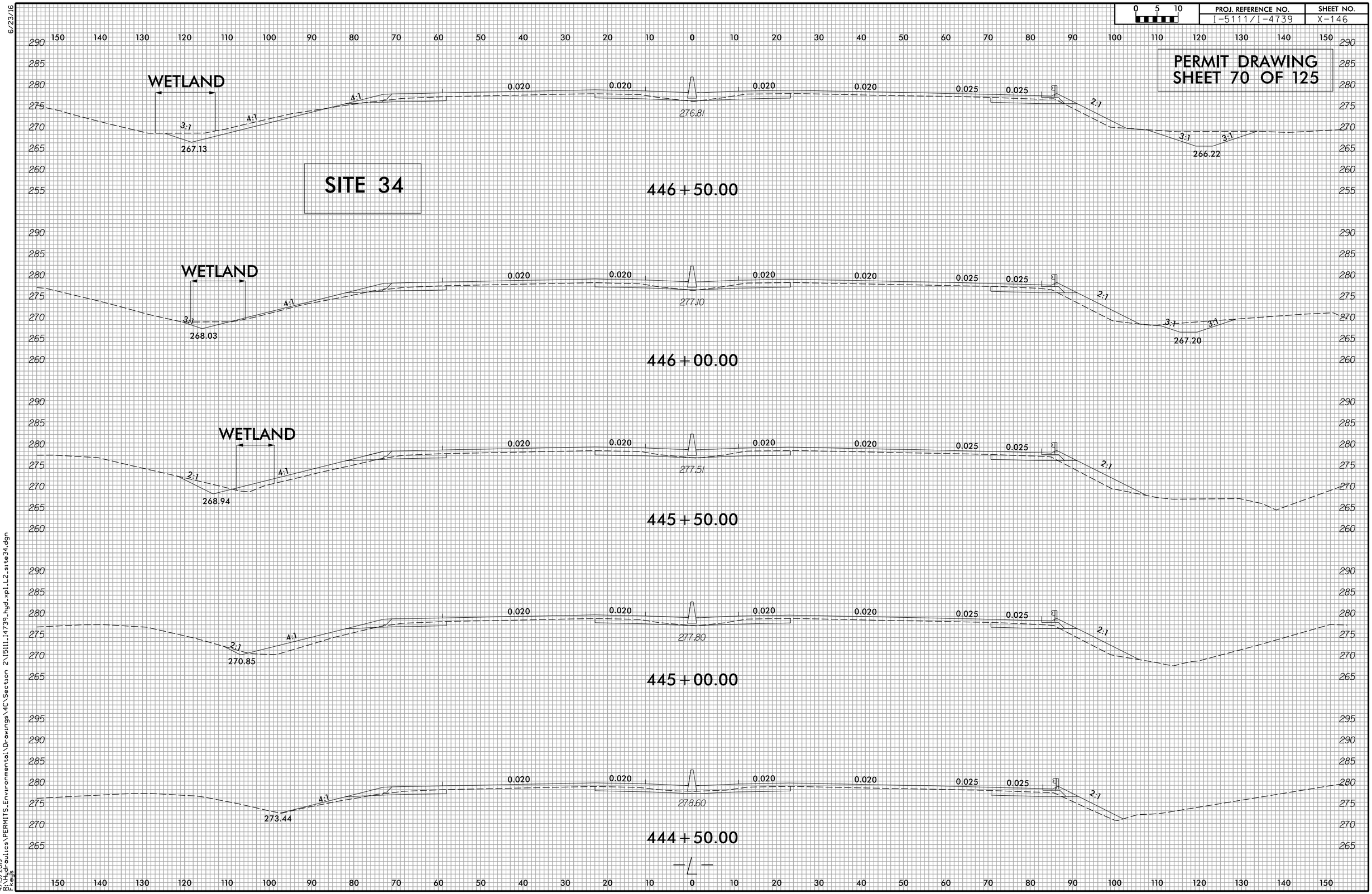

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4/15/2019
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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 71 OF 125

ENGLISH

F/F DENOTES FILL IN WETLAND
S/S DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	38
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

INSET A

INSET B

INSET C
COLLAR AND EXTEND 18" RCP-III

MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 63

JOHNSTON COUNTY
WAKE COUNTY

-Y8RPA-
20+00

-Y8RPA- PCC Sta. 14+01.80

SITE 37
SITE 38

Q10=30.0 cfs
V10=1.22 f/s
WEZ

JS BEGINS
STANDARD 2' BASE DITCH W/CL B RIPRAP SEE DETAIL F

STANDARD 'V' DITCH SEE DETAIL S

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

11 TONS CL B RIPRAP W/28 SY GEOTEXTILE

SEE INSET B

SEE INSET C

REMOVE DI AND EX. 15" RCP

2GIB-WSS

18" RCP-III

15" RCP-III

ADJUST DI

RETAIN & ADJUST EXISTING HAZARDOUS SPILL BASIN AS NEEDED TO SAME APPROX. DIMENSIONS.

36" RCP-IV (NOT BURIED)

PLUG & FILL W/FLOWABLE FILL

HW W/SLUICE GATE
INV=241.46'

SPECIAL CUT DITCH SEE DETAIL B

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

ADJUST JB W/MH
TOP=255.36'

18" CSP REMOVE & REMOVE

15+00
-Y7RPD-

CONC PAVED DITCH

CAT-1

MATCHLINE -L- STA. 461+00 SEE SHEET 37

MATCHLINE -L- STA. 474+00 SEE SHEET 39

465+00
470+00

-L-
BL -145
-FL-

TB 2GIB-ST
15" RCP-III

S 3°19'01.0" W

RETAIN

REMOVE SYSTEM

15" PROP. SBG

(2)-2GIB-WSF

CAT-1

LATERAL V SWALE SEE DETAIL AN

2GIB-WSS

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

SPECIAL LATERAL V SWALE SEE DETAIL AE

SPECIAL LATERAL V DITCH SEE DETAIL AJ

RETAIN DI

TRENCHLESS INSTALLATION 36" WELDED STEEL

45° ELBOWS

15 TONS CL I RIPRAP W/30 SY GEOTEXTILE ON BANKS ONLY LENGTH=30' (SEE DETAIL BB)

SEE INSET A

SDO

SITE 36

4/15/2019
4/17/2019
Plotted By: Eric Boules
P:\Environmental\Drawings\4C\Section 2\Wetland\I5111_I4739_hyd_4C_wet_psh38.dgn

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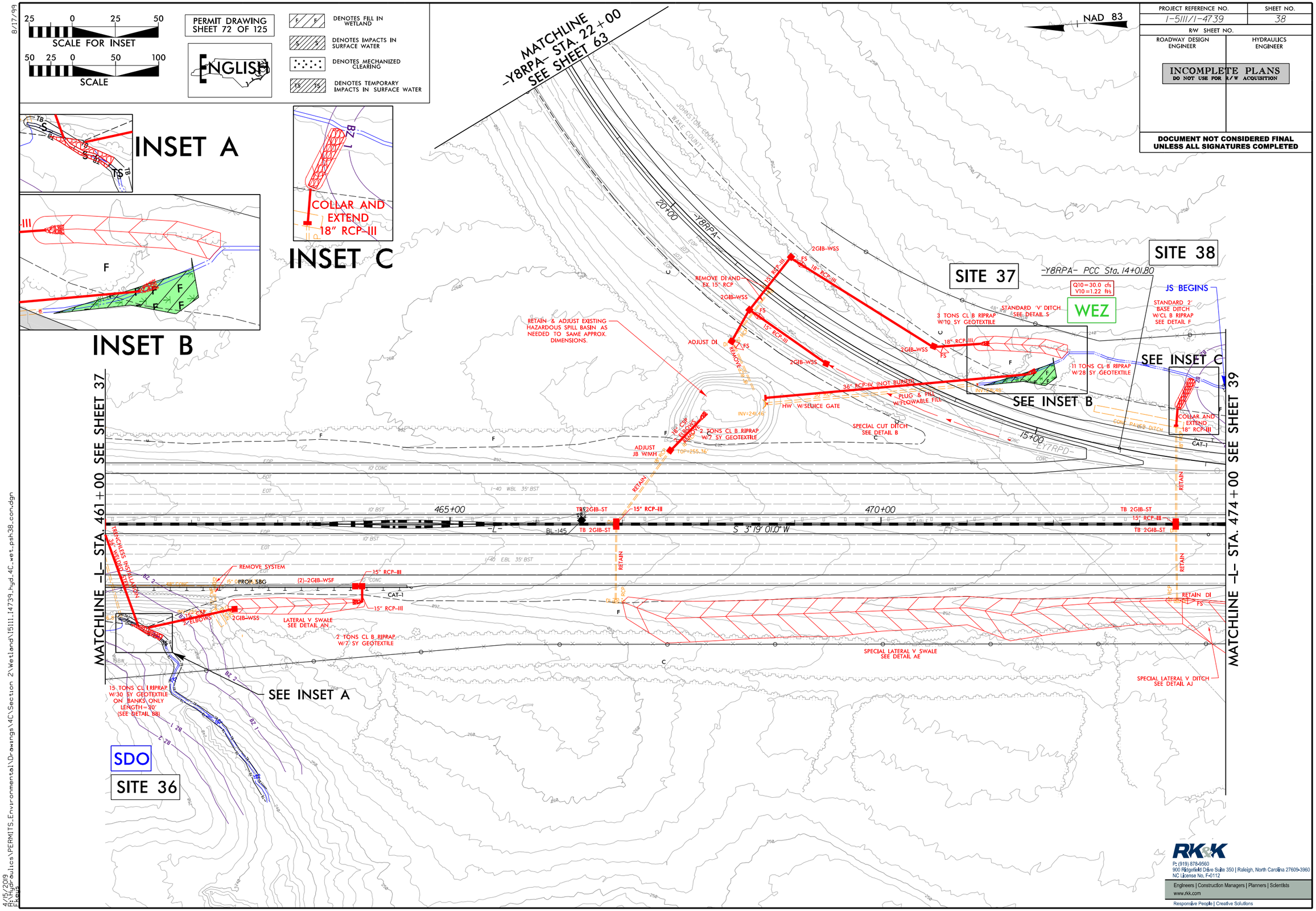

PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
38
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 72 OF 125
SCALE FOR INSET
SCALE
ENGLISH
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83
MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 63
INSET A
INSET B
INSET C
COLLAR AND EXTEND 18" RCP-III
SITE 37
SITE 38
SITE 36
SDO
WEZ
-Y8RPA- PCC Sta. 14+01.80
Q10=30.0 cfs
V10=1.22 ft/s
JS BEGINS
STANDARD 2' BASE DITCH W/CL B RIPRAP SEE DETAIL F
STANDARD 'V' DITCH SEE DETAIL S
3 TONS CL B RIPRAP W/10 SY GEOTEXTILE
11 TONS CL B RIPRAP W/28 SY GEOTEXTILE
RETAIN & ADJUST EXISTING HAZARDOUS SPILL BASIN AS NEEDED TO SAME APPROX. DIMENSIONS.
REMOVE DI AND EX. 15" RCP
ADJUST DI
36" RCP-IV (NOT BURIED)
PLUG & FILL W/FLOWABLE FILL
HW W/SLUICE GATE
SPECIAL CUT DITCH SEE DETAIL B
2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
ADJUST JB W/MH
TRENCHLESS INSTALLATION 36" WELDED STEEL
REMOVE SYSTEM
LATERAL V SWALE SEE DETAIL AN
2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
SPECIAL LATERAL V SWALE SEE DETAIL AE
SPECIAL LATERAL V DITCH SEE DETAIL AJ
15 TONS CL I RIPRAP W/30 SY GEOTEXTILE ON BANKS ONLY LENGTH=30' (SEE DETAIL BB)
MATCHLINE -L- STA. 461+00 SEE SHEET 37
MATCHLINE -L- STA. 474+00 SEE SHEET 39
465+00
470+00
S 3°19' 01.0" W
SEE INSET A
SEE INSET B
SEE INSET C
RK&K
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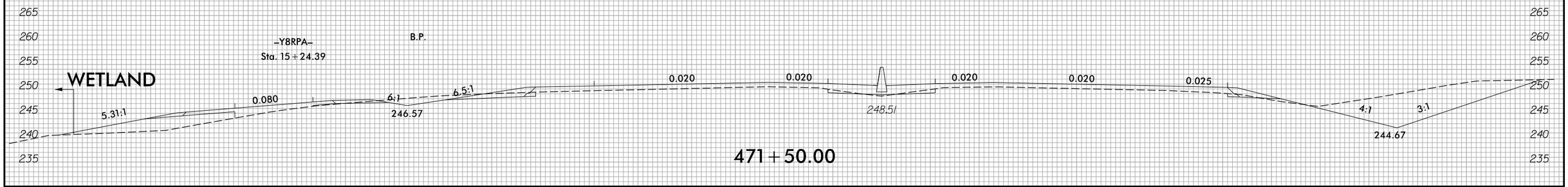
6/23/16

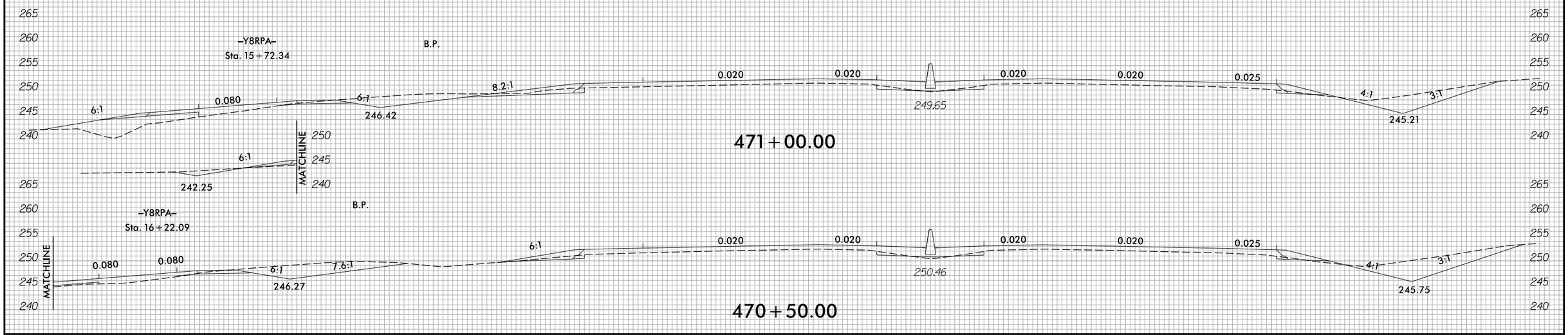
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-157

PERMIT DRAWING
SHEET 73 OF 125

SITE 37

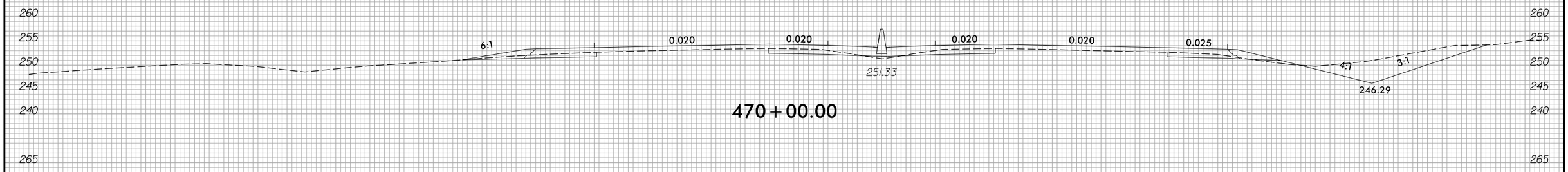


471+50.00

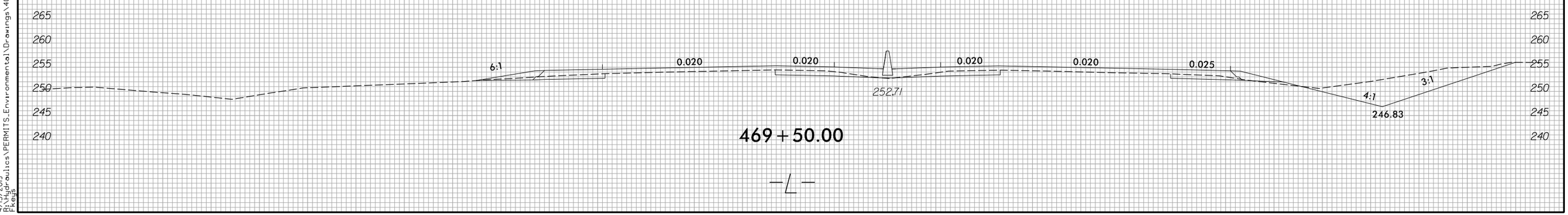


471+00.00

470+50.00



470+00.00



469+50.00

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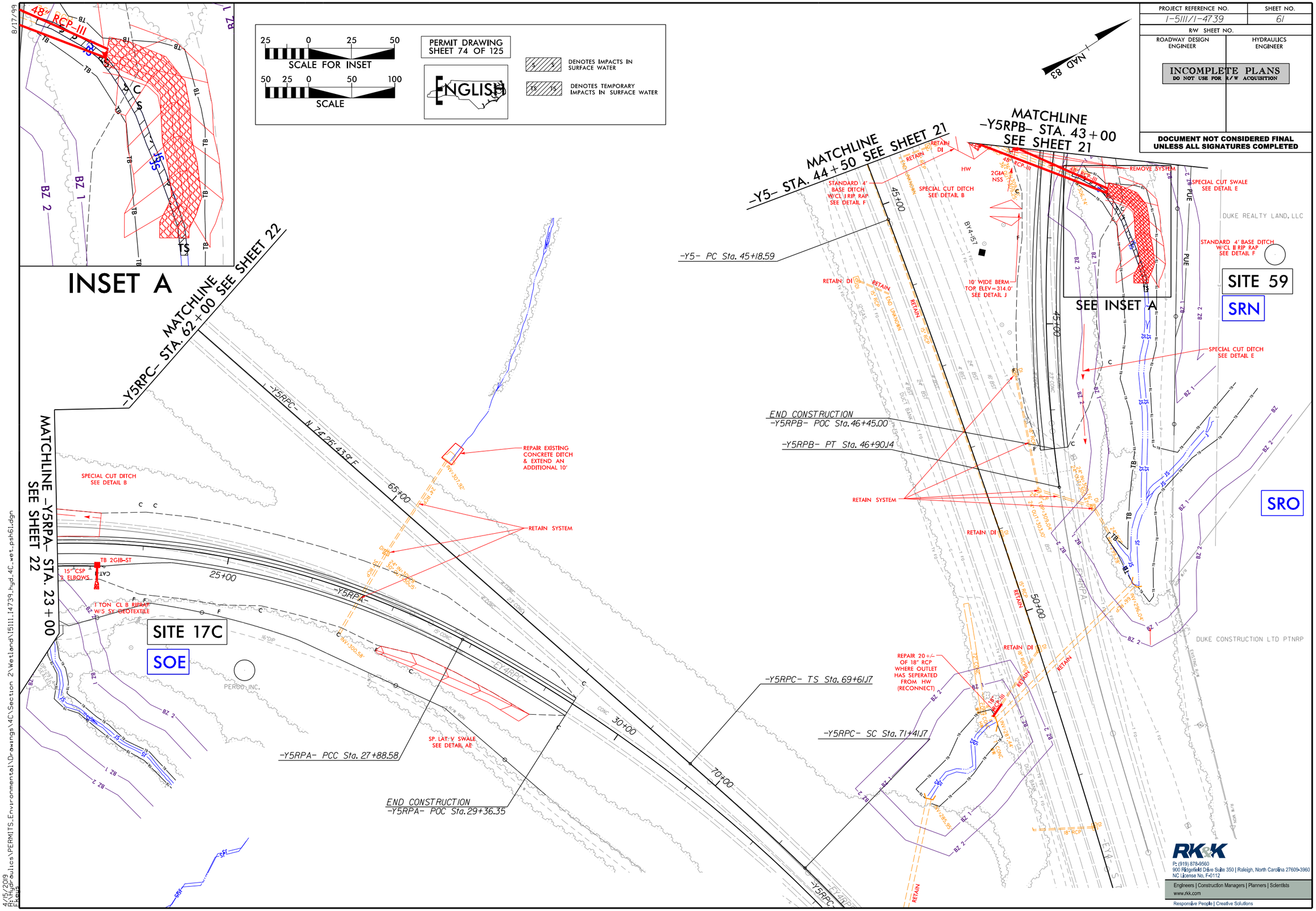

PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
61
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 74 OF 125
SCALE FOR INSET
SCALE
ENGLISH
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83
INSET A
48" RCP-III
MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 22
MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 22
MATCHLINE -Y5- STA. 44+50 SEE SHEET 21
MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 21
SITE 17C
SOE
SITE 59
SRN
SRO
SEE INSET A
-Y5- PC Sta. 45+18.59
END CONSTRUCTION -Y5RPB- POC Sta. 46+45.00
-Y5RPB- PT Sta. 46+90.14
-Y5RPC- TS Sta. 69+61.17
-Y5RPC- SC Sta. 71+41.17
-Y5RPA- PCC Sta. 27+88.58
END CONSTRUCTION -Y5RPA- POC Sta. 29+36.35
-Y5RPC- N 74°26'43.9" E
REPAIR EXISTING CONCRETE DITCH & EXTEND AN ADDITIONAL 10'
SPECIAL CUT DITCH SEE DETAIL B
RETAIN SYSTEM
SP. LAT. V SWALE SEE DETAIL AE
REPAIR 20+/- OF 18" RCP WHERE OUTLET HAS SEPERATED FROM HW (RECONNECT)
10' WIDE BERM TOP ELEV=314.0' SEE DETAIL J
STANDARD 4' BASE DITCH W/CL I RIP RAP SEE DETAIL F
STANDARD 4' BASE DITCH W/CL II RIP RAP SEE DETAIL F
SPECIAL CUT SWALE SEE DETAIL E
REMOVE SYSTEM
DUKE REALTY LAND, LLC
DUKE CONSTRUCTION LTD PTNRP
PERGO INC.
RK&K
P: (919) 878-9560
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3960
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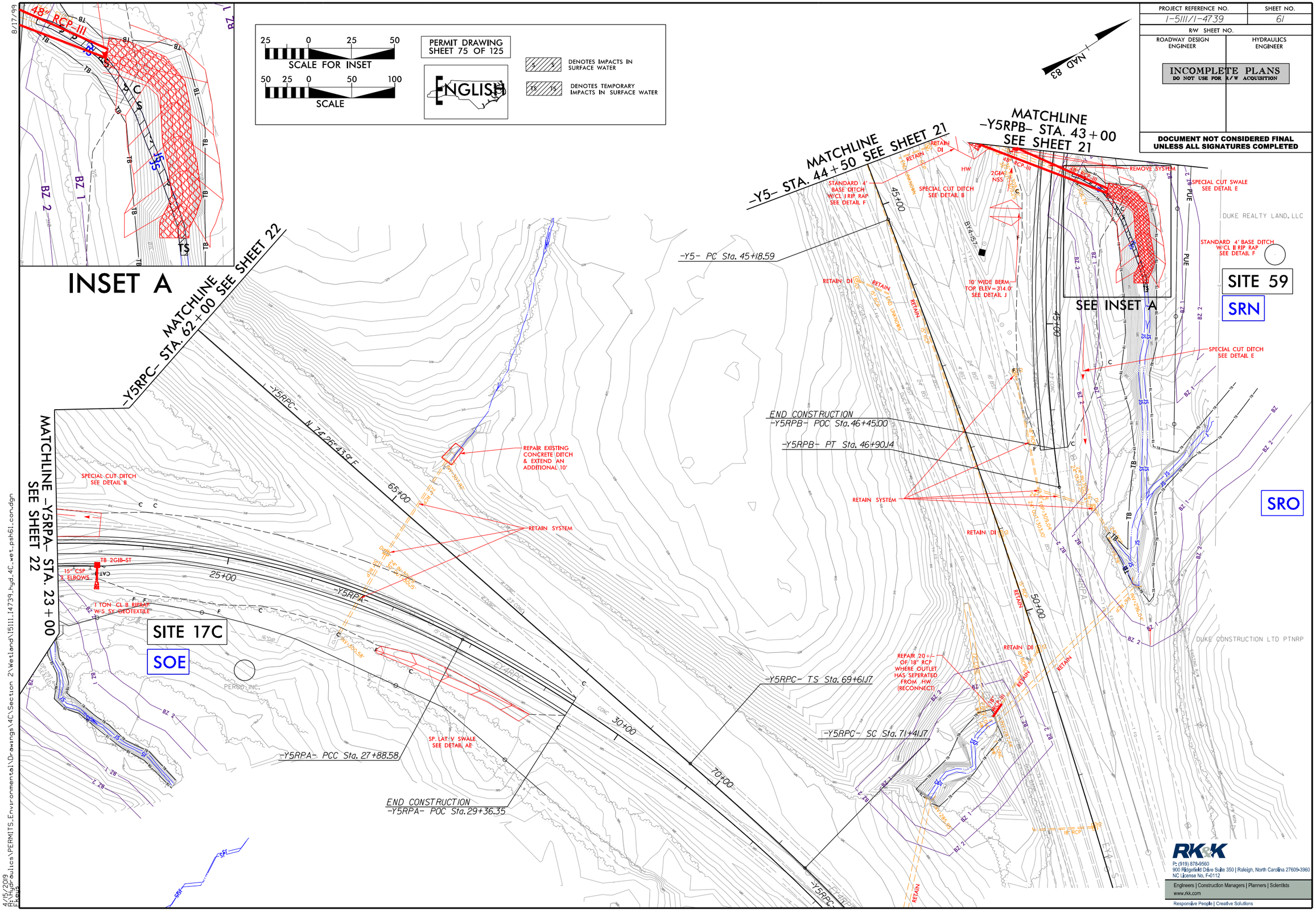

PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
61
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING SHEET 75 OF 125
SCALE FOR INSET
SCALE
ENGLISH
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
NAD 83
INSET A
48" RCP-III
MATCHLINE -Y5RPC- STA. 62+00 SEE SHEET 22
MATCHLINE -Y5RPA- STA. 23+00 SEE SHEET 22
MATCHLINE -Y5- STA. 44+50 SEE SHEET 21
MATCHLINE -Y5RPB- STA. 43+00 SEE SHEET 21
SITE 59
SRN
SRO
SITE 17C
SOE
SEE INSET A
-Y5- PC Sta. 45+18.59
END CONSTRUCTION -Y5RPB- POC Sta. 46+45.00
-Y5RPB- PT Sta. 46+90.14
-Y5RPC- TS Sta. 69+61.17
-Y5RPC- SC Sta. 71+41.17
-Y5RPA- PCC Sta. 27+88.58
END CONSTRUCTION -Y5RPA- POC Sta. 29+36.35
-Y5RPC- N 74°26'43.9" E
REPAIR EXISTING CONCRETE DITCH & EXTEND AN ADDITIONAL 10'
SPECIAL CUT DITCH SEE DETAIL B
SPECIAL CUT DITCH SEE DETAIL E
SPECIAL CUT SWALE SEE DETAIL E
STANDARD 4' BASE DITCH W/CL I RIP RAP SEE DETAIL F
STANDARD 4' BASE DITCH W/CL II RIP RAP SEE DETAIL F
10' WIDE BERM TOP ELEV=314.0' SEE DETAIL J
REMOVE SYSTEM
RETAIN SYSTEM
REPAIR 20+/- OF 18" RCP WHERE OUTLET HAS SEPERATED FROM HW (RECONNECT)
SP. LAT. V SWALE SEE DETAIL AE
1 TON CL B RIPRAP W/5 SY GEOTEXTILE
15" CSP 2 ELBOWS
TB 2GIB-ST
DUKE REALTY LAND, LLC
DUKE CONSTRUCTION LTD PTNRP
PERGO INC.
RK&K
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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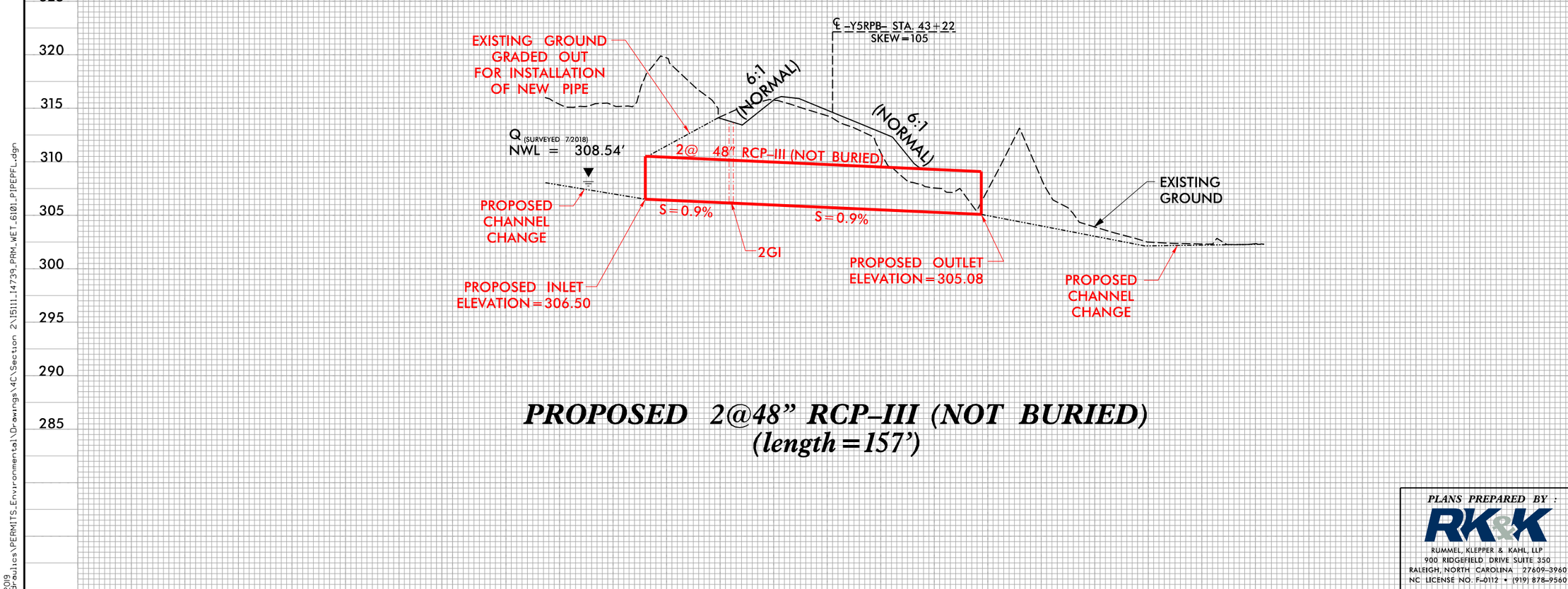
PERMIT DRAWING
SHEET 76 OF 125

SITE 59
–Y5RPB– 43+22



PROPOSED 2@48" RCP–III (NOT BURIED)
(length=157')

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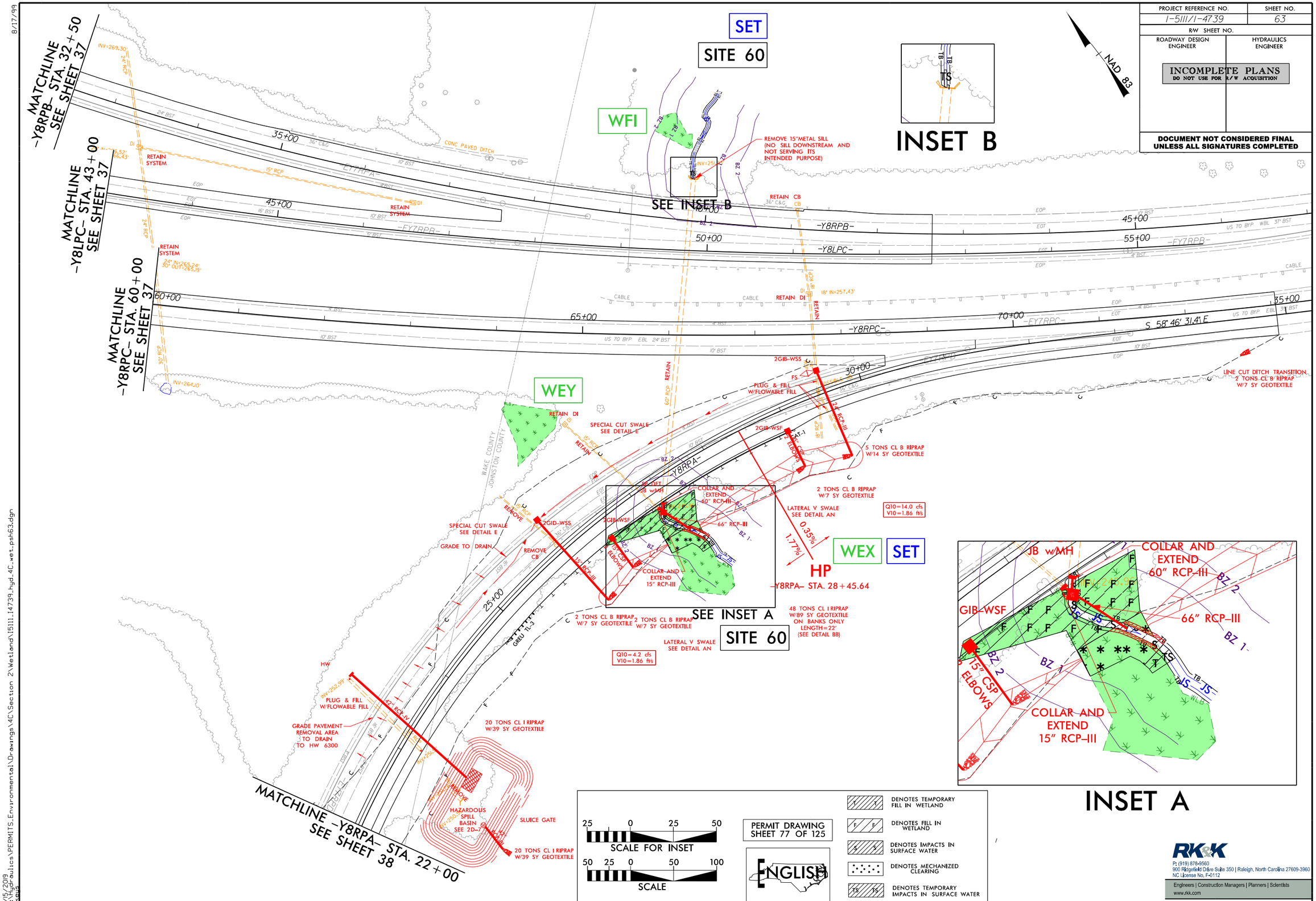

PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
63
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
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NAD 83
SET
SITE 60
WFI
WEY
WEX
SET
INSET B
SEE INSET B
SEE INSET A
SITE 60
INSET A
MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 37
MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 37
MATCHLINE -Y8RPC- STA. 60+00 SEE SHEET 37
MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 38
REMOVE 15" METAL SILL (NO SILL DOWNSTREAM AND NOT SERVING ITS INTENDED PURPOSE)
RETAIN SYSTEM
RETAIN CB
RETAIN DI
CONC PAVED DITCH
-Y8RPB-
-Y8LPC-
-Y8RPC-
-Y8RPA-
S 58° 46' 31.4" E
LINE CUT DITCH TRANSITION 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
5 TONS CL B RIPRAP W/14 SY GEOTEXTILE
2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
LATERAL V SWALE SEE DETAIL AN
Q10=14.0 cfs V10=1.86 ft/s
0.35%
1.77%
HP
-Y8RPA- STA. 28+45.64
48 TONS CL I RIPRAP W/89 SY GEOTEXTILE ON BANKS ONLY LENGTH=22' (SEE DETAIL BB)
Q10=4.2 cfs V10=1.86 ft/s
SPECIAL CUT SWALE SEE DETAIL E
GRADE TO DRAIN
REMOVE CB
PLUG & FILL W/FLOWABLE FILL
GRADE PAVEMENT REMOVAL AREA TO DRAIN TO HW 6300
20 TONS CL I RIPRAP W/39 SY GEOTEXTILE
HAZARDOUS SPILL BASIN SEE 2D-7
SLUICE GATE
WAKE COUNTY
JOHNSTON COUNTY
JB w/MH
COLLAR AND EXTEND 60" RCP-III
66" RCP-III
GIB-WSF
15" CSP ELBOWS
COLLAR AND EXTEND 15" RCP-III
SCALE FOR INSET
SCALE
PERMIT DRAWING SHEET 77 OF 125
ENGLISH
DENOTES TEMPORARY FILL IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
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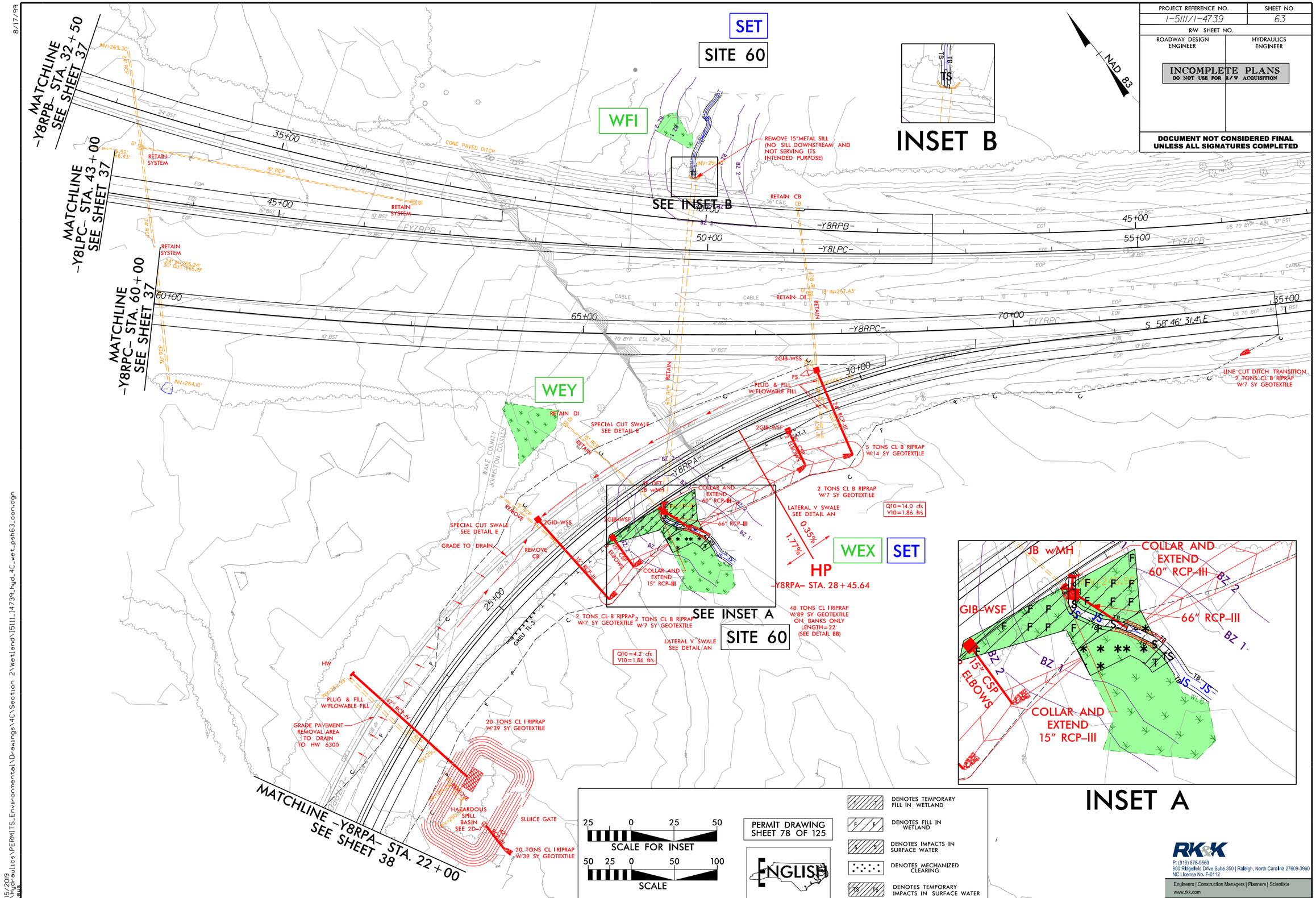

PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
63
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
NAD 83
SET
SITE 60
WFI
WEY
WEX
SET
INSET B
SEE INSET B
SEE INSET A
SITE 60
HP
-Y8RPA- STA. 28+45.64
MATCHLINE -Y8RPB- STA. 32+50 SEE SHEET 37
MATCHLINE -Y8LPC- STA. 43+00 SEE SHEET 37
MATCHLINE -Y8RPC- STA. 60+00 SEE SHEET 37
MATCHLINE -Y8RPA- STA. 22+00 SEE SHEET 38
REMOVE 15" METAL SILL (NO SILL DOWNSTREAM AND NOT SERVING ITS INTENDED PURPOSE)
RETAIN SYSTEM
RETAIN CB
RETAIN DI
CONC PAVED DITCH
-Y8RPB-
-Y8LPC-
-Y8RPC-
-Y8RPA-
S 58° 46' 31.4" E
2GIB-WSS
2GIB-WSF
PLUG & FILL W/FLOWABLE FILL
SPECIAL CUT SWALE SEE DETAIL E
5 TONS CL B RIPRAP W/14 SY GEOTEXTILE
2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
LATERAL V SWALE SEE DETAIL AN
Q10=14.0 cfs V10=1.86 ft/s
LINE CUT DITCH TRANSITION 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
COLLAR AND EXTEND 60" RCP-III
66" RCP-III
COLLAR AND EXTEND 15" RCP-III
48 TONS CL I RIPRAP W/89 SY GEOTEXTILE ON BANKS ONLY LENGTH=22' (SEE DETAIL BB)
Q10=4.2 cfs V10=1.86 ft/s
GRADE TO DRAIN
REMOVE CB
GRADE PAVEMENT REMOVAL AREA TO DRAIN TO HW 6300
20 TONS CL I RIPRAP W/39 SY GEOTEXTILE
HAZARDOUS SPILL BASIN SEE 2D-7
SLUICE GATE
0.35%
1.77%
JB w/MH
GIB-WSF
15" CSP ELBOWS
INSET A
SCALE FOR INSET
SCALE
PERMIT DRAWING SHEET 78 OF 125
ENGLISH
DENOTES TEMPORARY FILL IN WETLAND
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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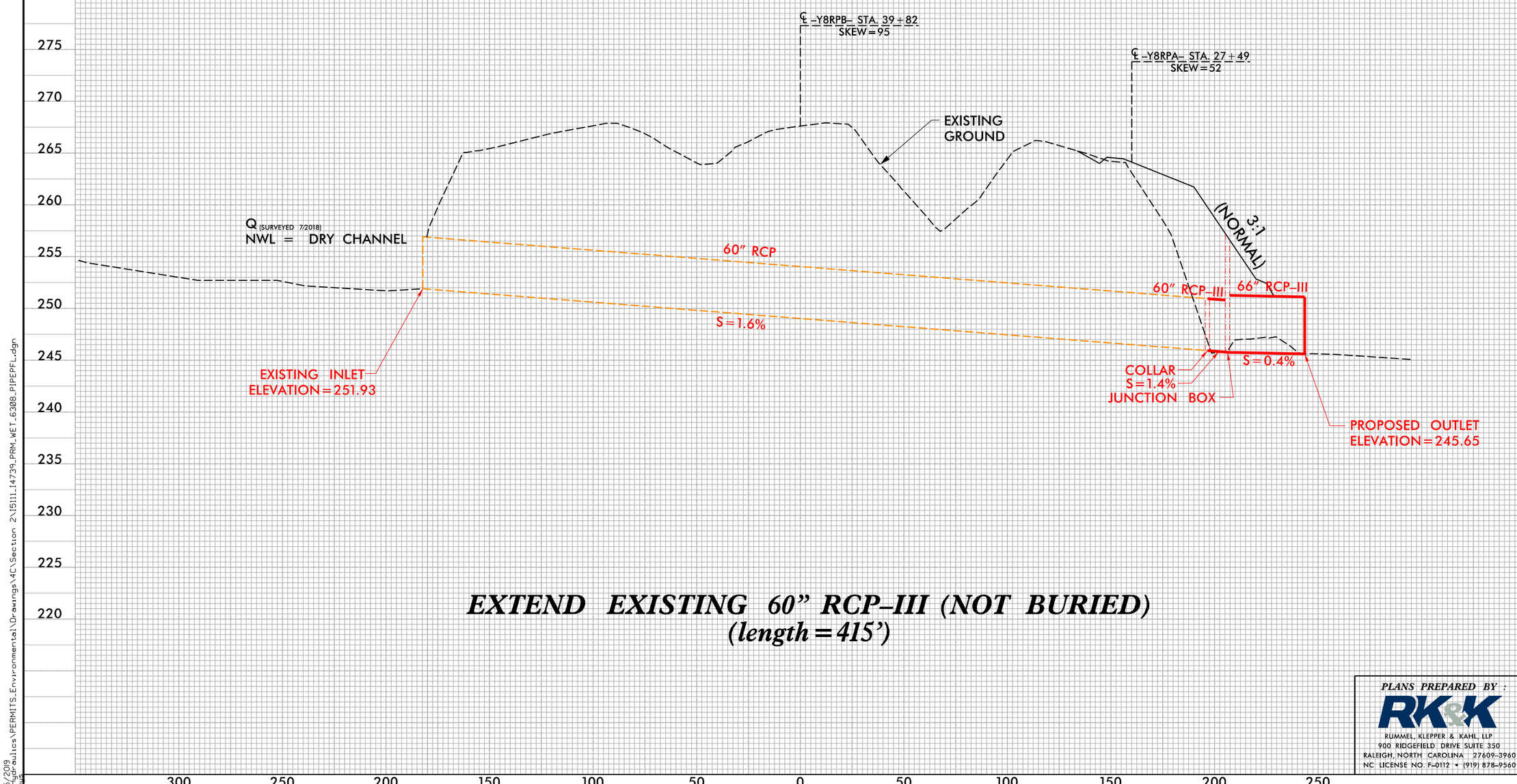
PERMIT DRAWING
SHEET 79 OF 125

SITE 60
–Y8RPB 39+82



EXTEND EXISTING 60" RCP–III (NOT BURIED)
(length=415')

PLANS PREPARED BY :
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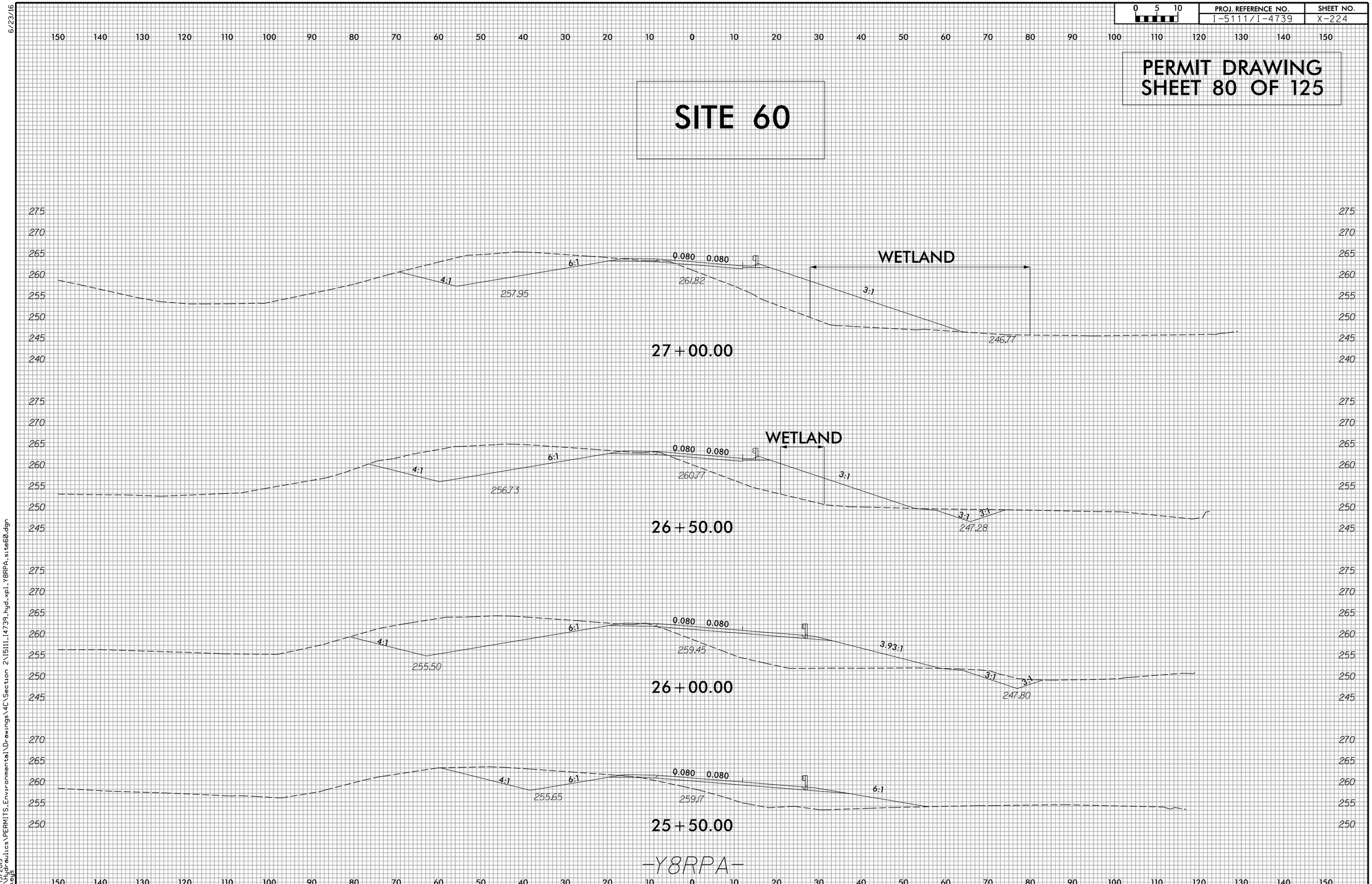

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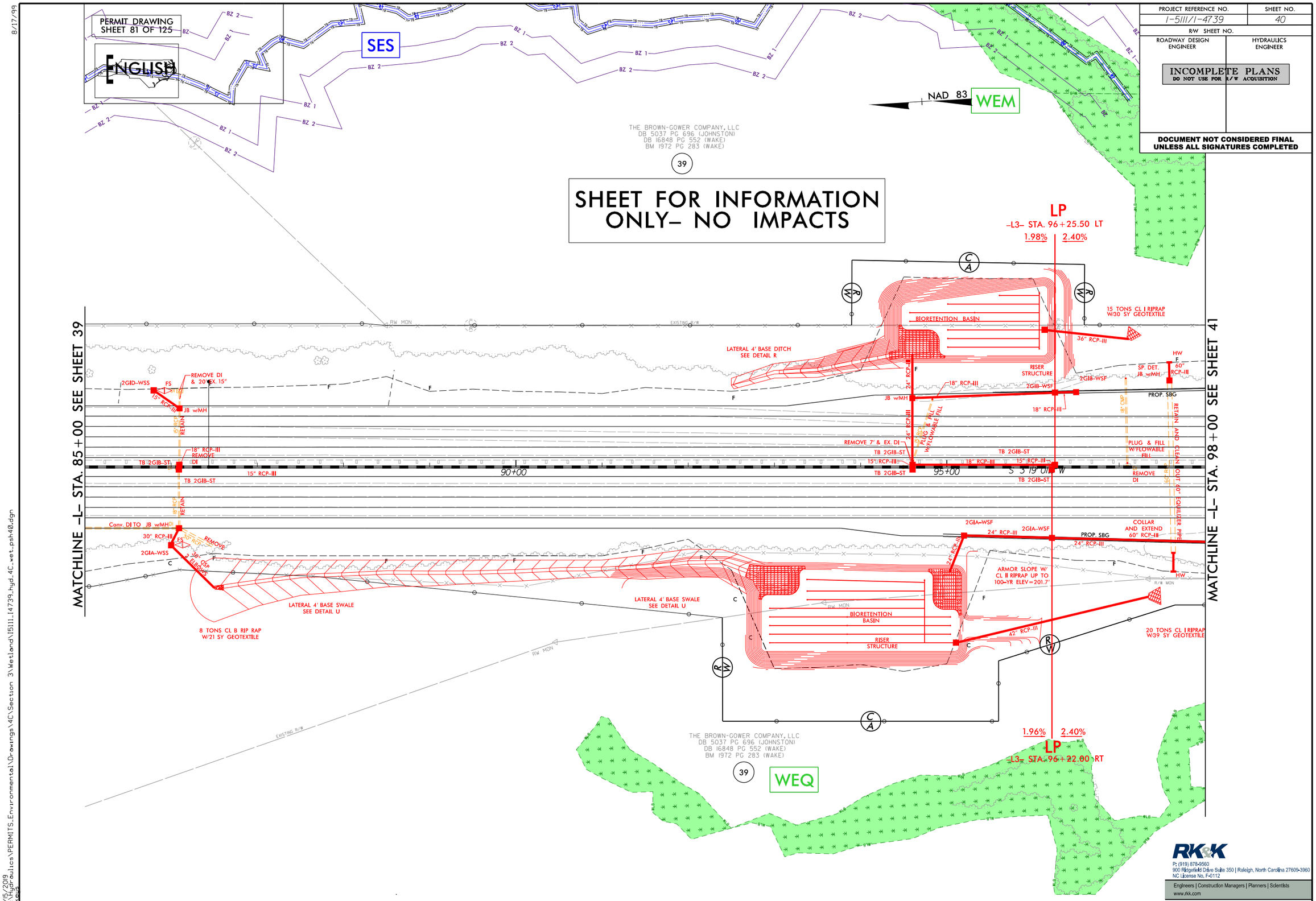

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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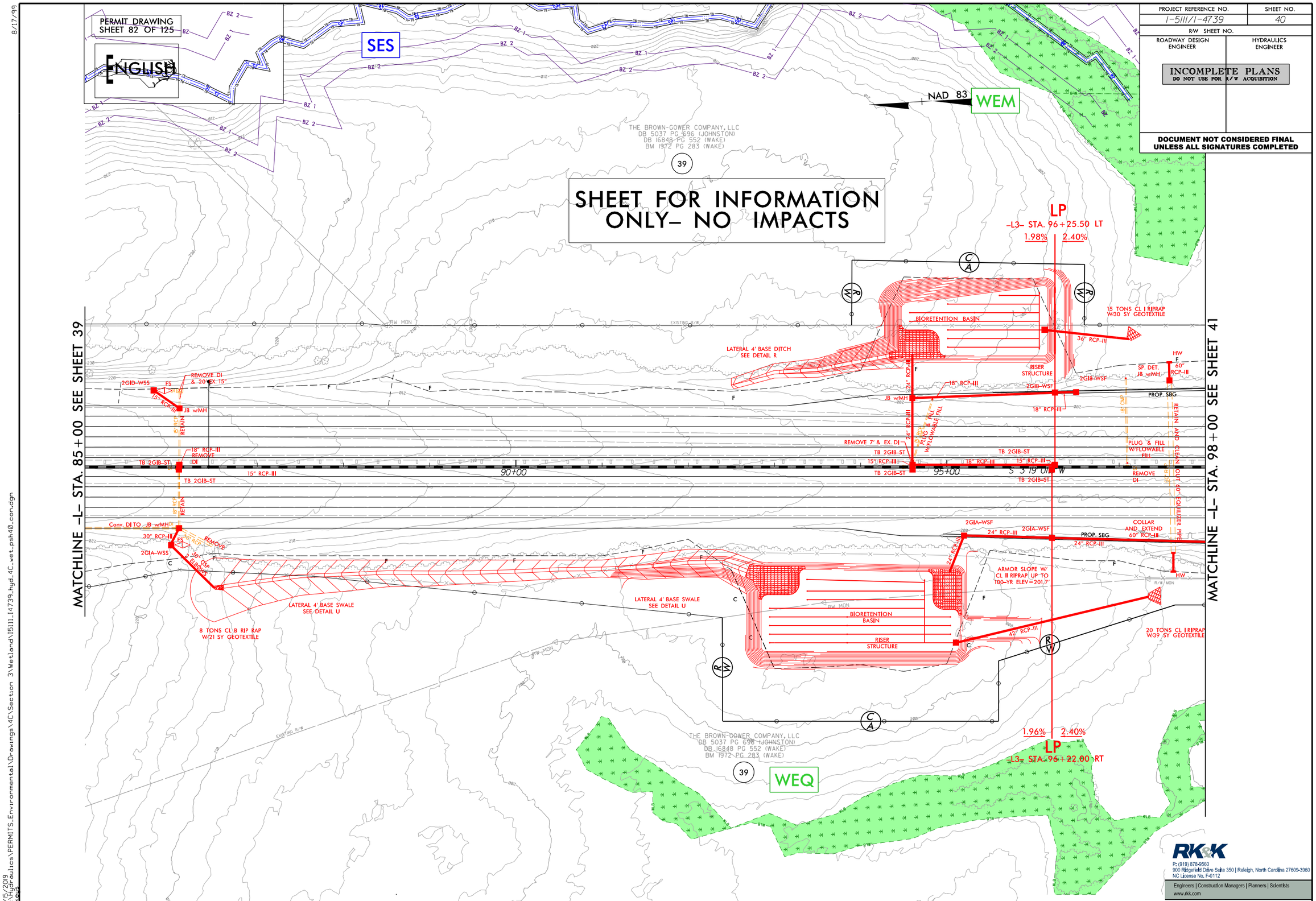

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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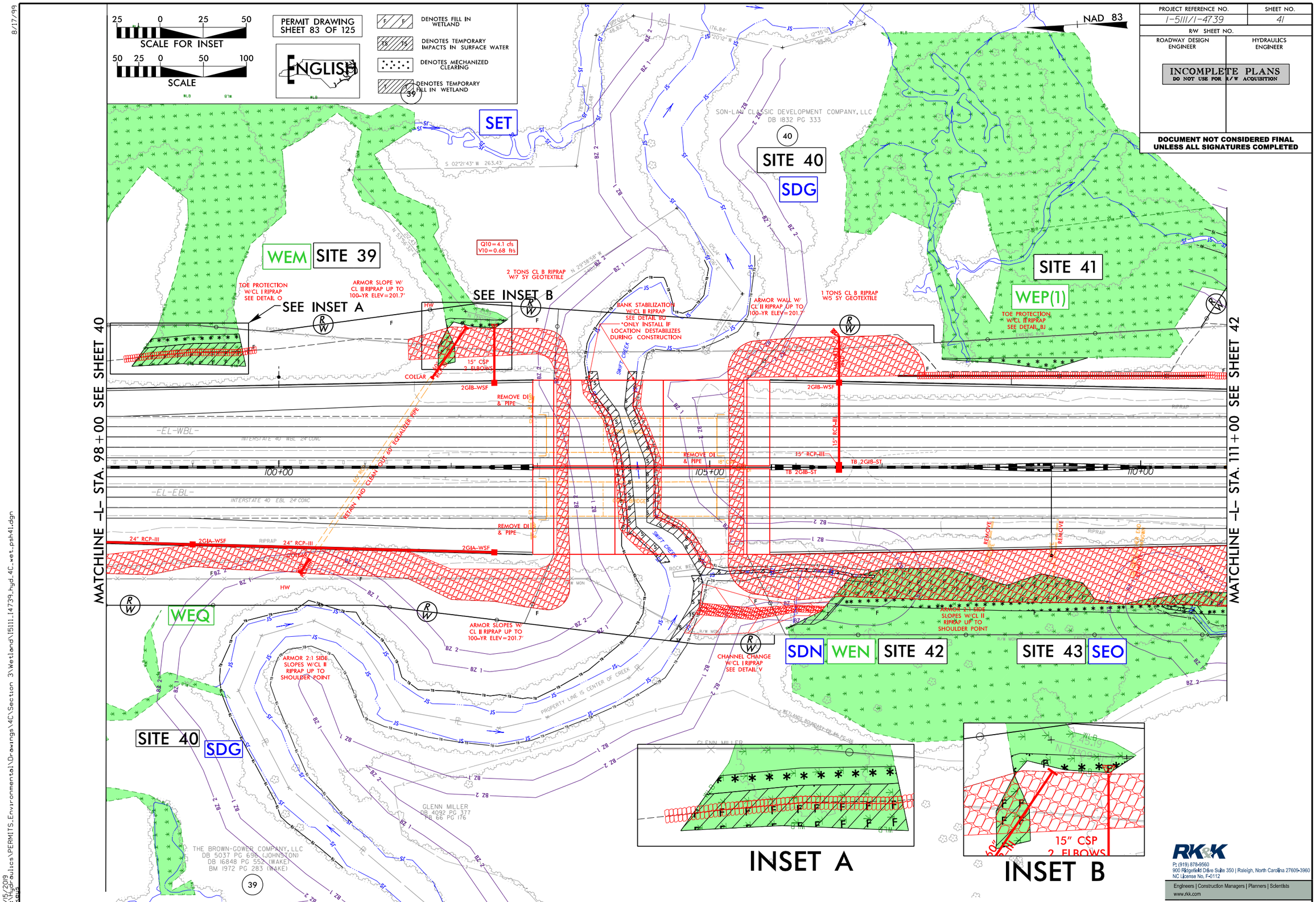

PROJECT REFERENCE NO.
I-5111/I-4739
SHEET NO.
41
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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PERMIT DRAWING SHEET 83 OF 125
ENGLISH
SCALE FOR INSET
SCALE
DENOTES FILL IN WETLAND
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN WETLAND
NAD 83
SET
SITE 40
SDG
SITE 39
WEM
SITE 41
WEP(1)
WEQ
SDN
WEN
SITE 42
SITE 43
SEO
SEE INSET A
SEE INSET B
MATCHLINE -L- STA. 98+00 SEE SHEET 40
MATCHLINE -L- STA. 111+00 SEE SHEET 42
Q10=4.1 cfs
V10=0.68 ft/s
TOE PROTECTION W/CL I RIPRAP SEE DETAIL O
ARMOR SLOPE W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'
2 TONS CL B RIPRAP W/7 SY GEOTEXTILE
BANK STABILIZATION W/CL II RIPRAP SEE DETAIL BU
*ONLY INSTALL IF LOCATION DESTABILIZES DURING CONSTRUCTION
ARMOR WALL W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'
1 TONS CL B RIPRAP W/5 SY GEOTEXTILE
TOE PROTECTION W/CL II RIPRAP SEE DETAIL BJ
15" CSP 2 ELBOWS
COLLAR
2GIB-WSF
REMOVE DI & PIPE
15" RCP-III
TB 2GIB-ST
24" RCP-III
2GIA-WSF
RETAIN AND CLEAN OUT 60' EQUALIZER PIPE
ARMOR SLOPES W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'
ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT
CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V
SWIFT CREEK
PROPERTY LINE IS CENTER OF CREEK
GLENN MILLER DB 4092 PG 377 PB 66 PG 176
THE BROWN-GOWER COMPANY, LLC DB 5037 PG 696 (JOHNSTON) DB 16848 PG 552 (WAKE) BM 1972 PG 283 (WAKE)
SON-LAN CLASSIC DEVELOPMENT COMPANY, LLC DB 1832 PG 333
INSET A
INSET B
15" CSP 2 ELBOWS
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 84 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

TF TF DENOTES TEMPORARY FILL IN WETLAND

NAD 83

MATCHLINE –L– STA. 98+00 SEE SHEET 40

MATCHLINE –L– STA. 111+00 SEE SHEET 42

SET

SITE 40
SDG

SON-LA CLASSIC DEVELOPMENT COMPANY, LLC
DB 1832 PG 333

WEM SITE 39

SITE 41
WEP(1)

Q10 = 4.1 cfs
V10 = 0.68 fps

2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

1 TONS CL B RIPRAP W/5 SY GEOTEXTILE

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

ARMOR SLOPE W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

SEE INSET A

SEE INSET B

BANK STABILIZATION W/CL II RIPRAP SEE DETAIL BO
*ONLY INSTALL IF LOCATION DESTABILIZES DURING CONSTRUCTION

ARMOR WALL W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

TOE PROTECTION W/CL II RIPRAP SEE DETAIL BJ

15" CSP
2 ELBOWS

COLLAR

2GIB-WSF

REMOVE DI & PIPE

-EL-WBL-
INTERSTATE 40 WBL 24 CONC

-EL-EBL-
INTERSTATE 40 EBL 24 CONC

100+00

105+00

110+00

15" RCP-III

TB 2GIB-ST

24" RCP-III

2GIA-WSF

RETAIN AND CLEAN OUT 50' EQUALIZER PIPE

SHIFT CHECK

WEQ

SITE 40
SDG

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

ARMOR SLOPES W/ CL II RIPRAP UP TO 100-YR ELEV=201.7'

PROPERTY LINE IS CENTER OF CREEK

GLENN MILLER
DB 4092 PG 377
PB 66 PG 176

THE BROWN-GOWER COMPANY, LLC
DB 5037 PG 696 (JOHNSTON)
DB 16848 PG 552 (WAKE)
BM 1972 PG 283 (WAKE)

SDN WEN SITE 42

SITE 43 SEO

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

INSET A

INSET B

15" CSP
2 ELBOWS

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SHEET 85 OF 125

-L- LT

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	109
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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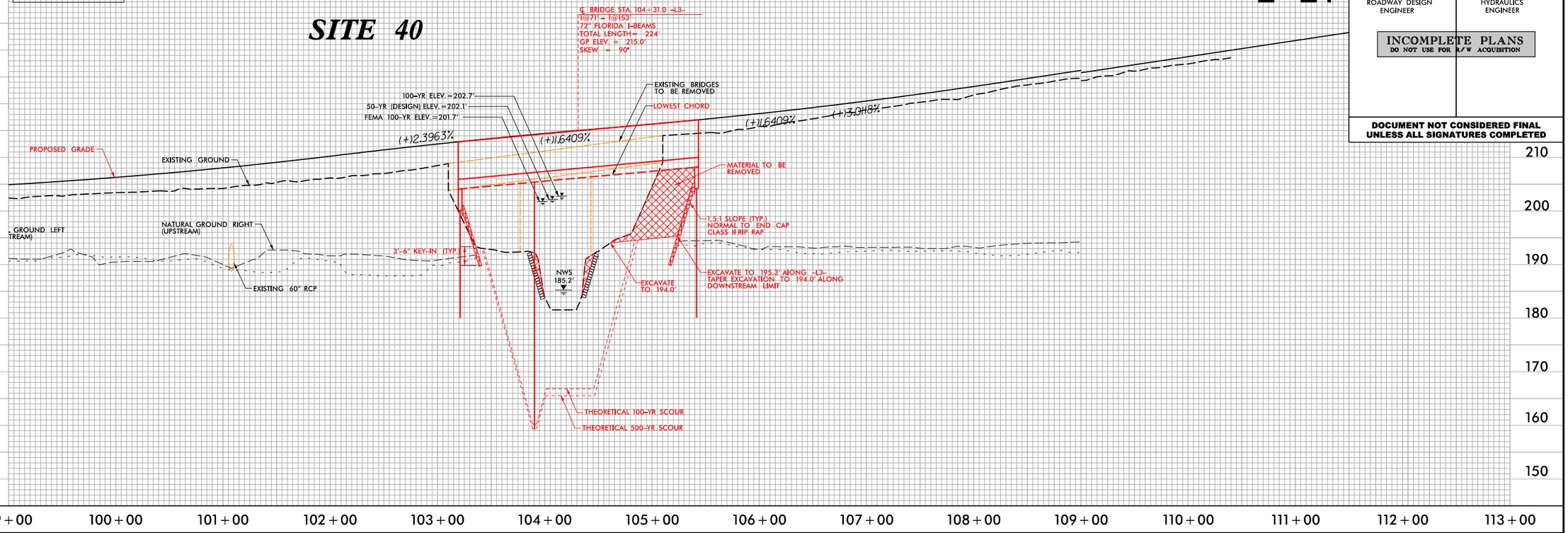
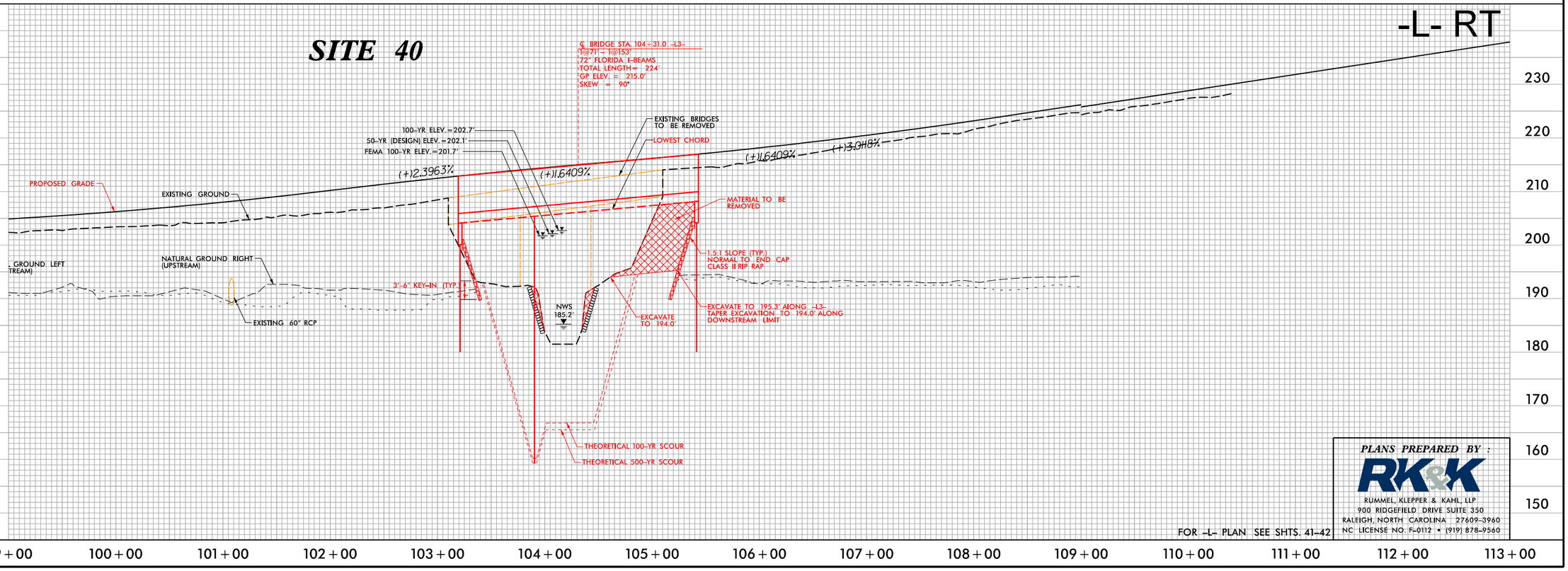
SITE 40



-L- RT



FOR –L– PLAN SEE SHTS. 41–42

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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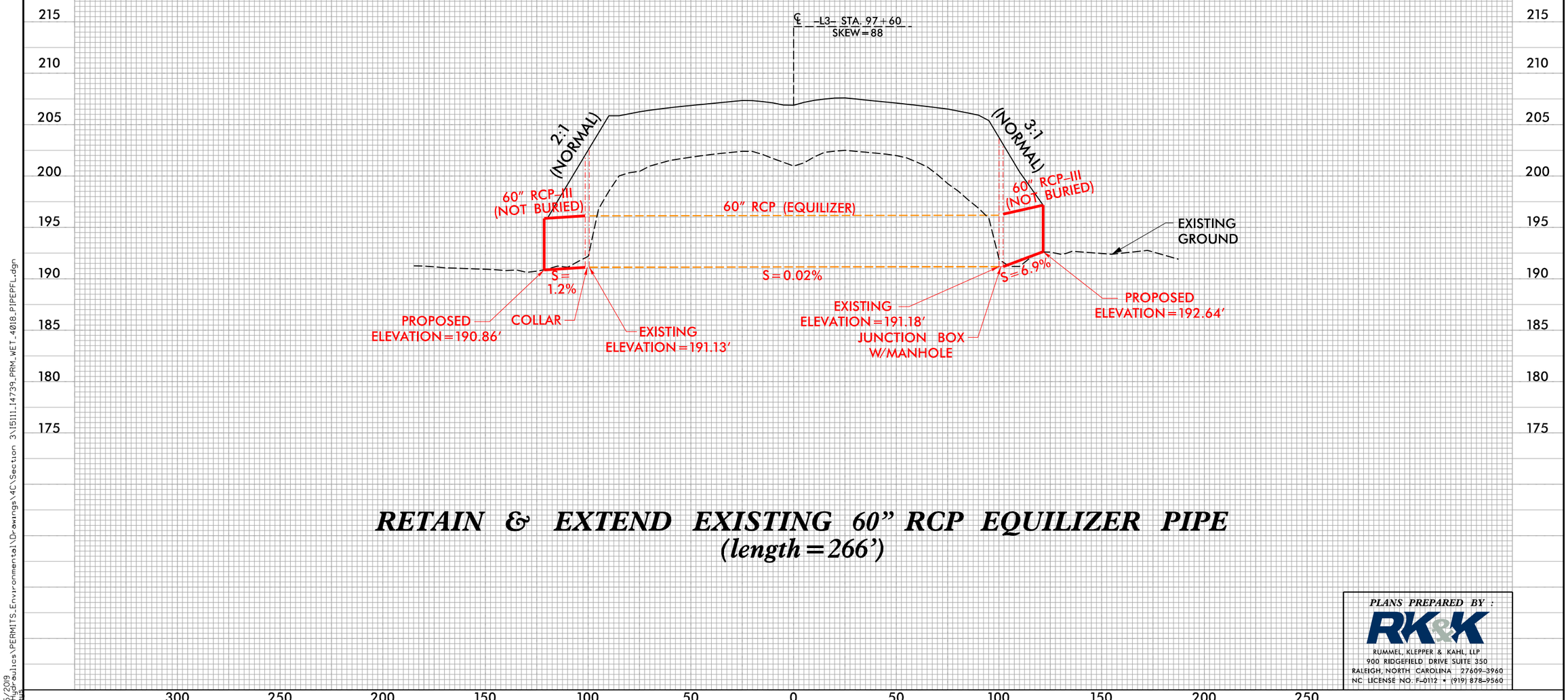
PERMIT DRAWING
SHEET 86 OF 125

SITE 39
–L3– 97+60



RETAIN & EXTEND EXISTING 60" RCP EQUILIZER PIPE
(length=266')

PLANS PREPARED BY :
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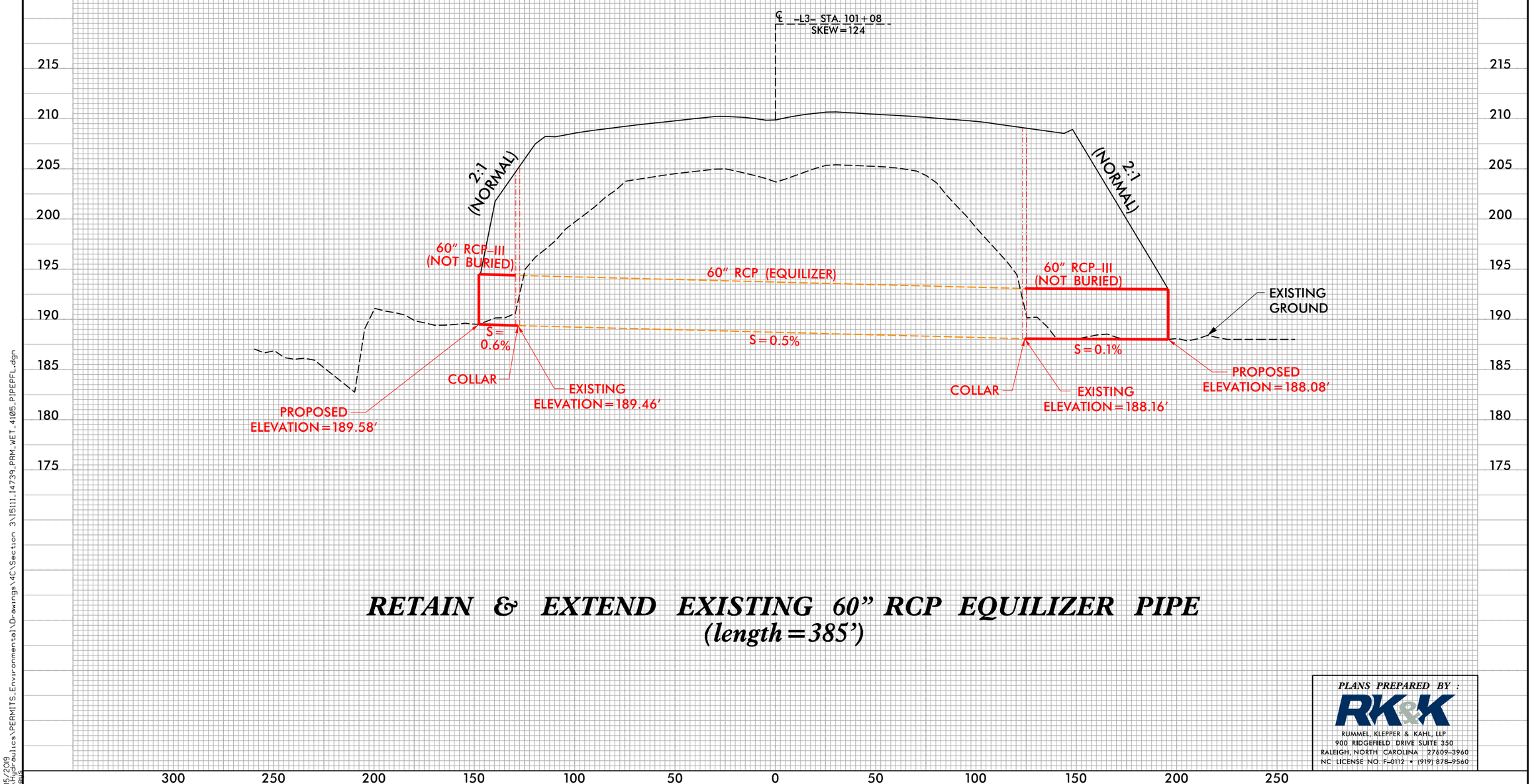
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 87 OF 125

SITE 40
–L3– 101+08



RETAIN & EXTEND EXISTING 60" RCP EQUILIZER PIPE
(length=385')

PLANS PREPARED BY :
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	I-5111/I-4739	X-7

SITE 39

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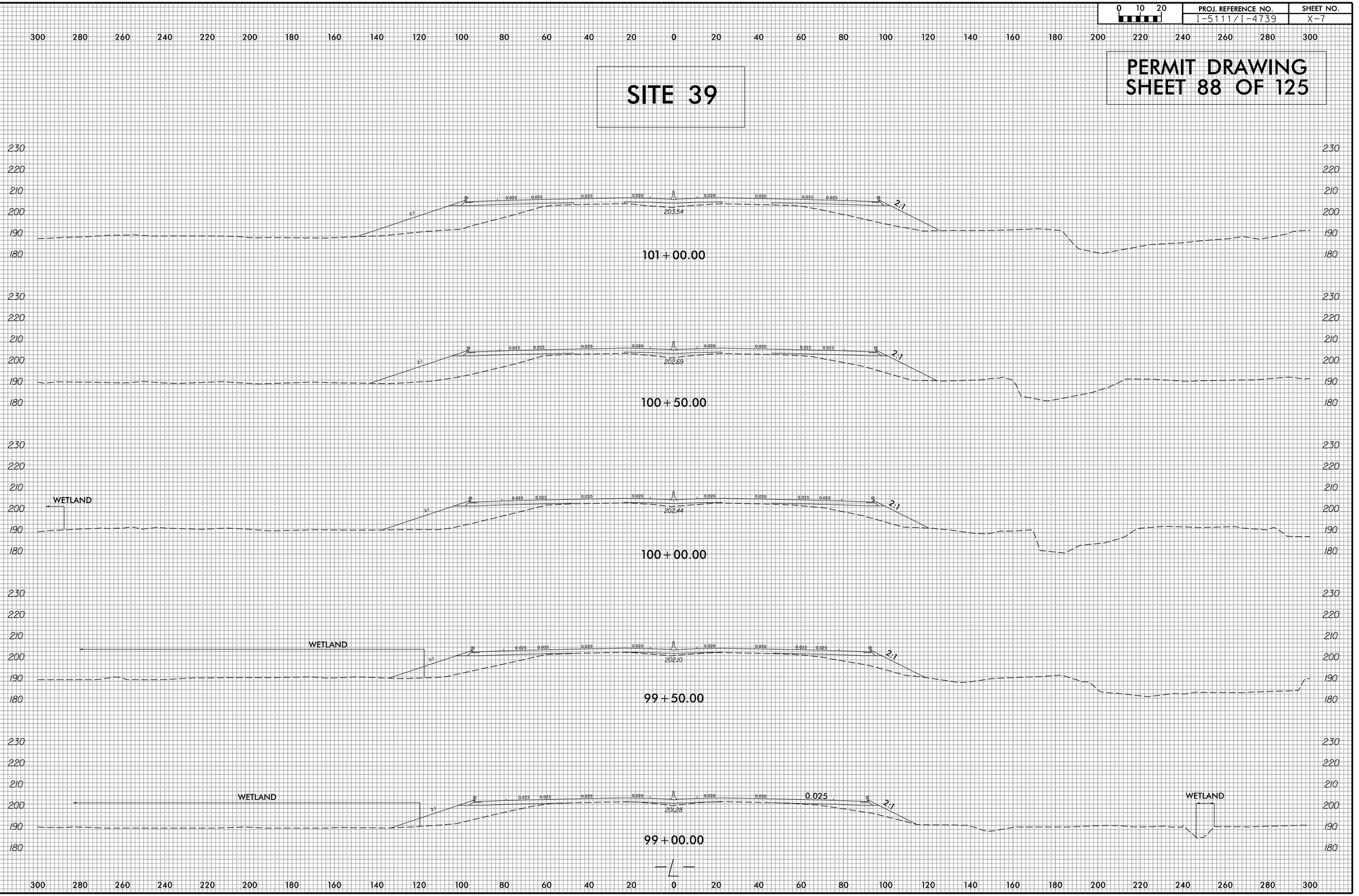
SHEET 88 OF 125



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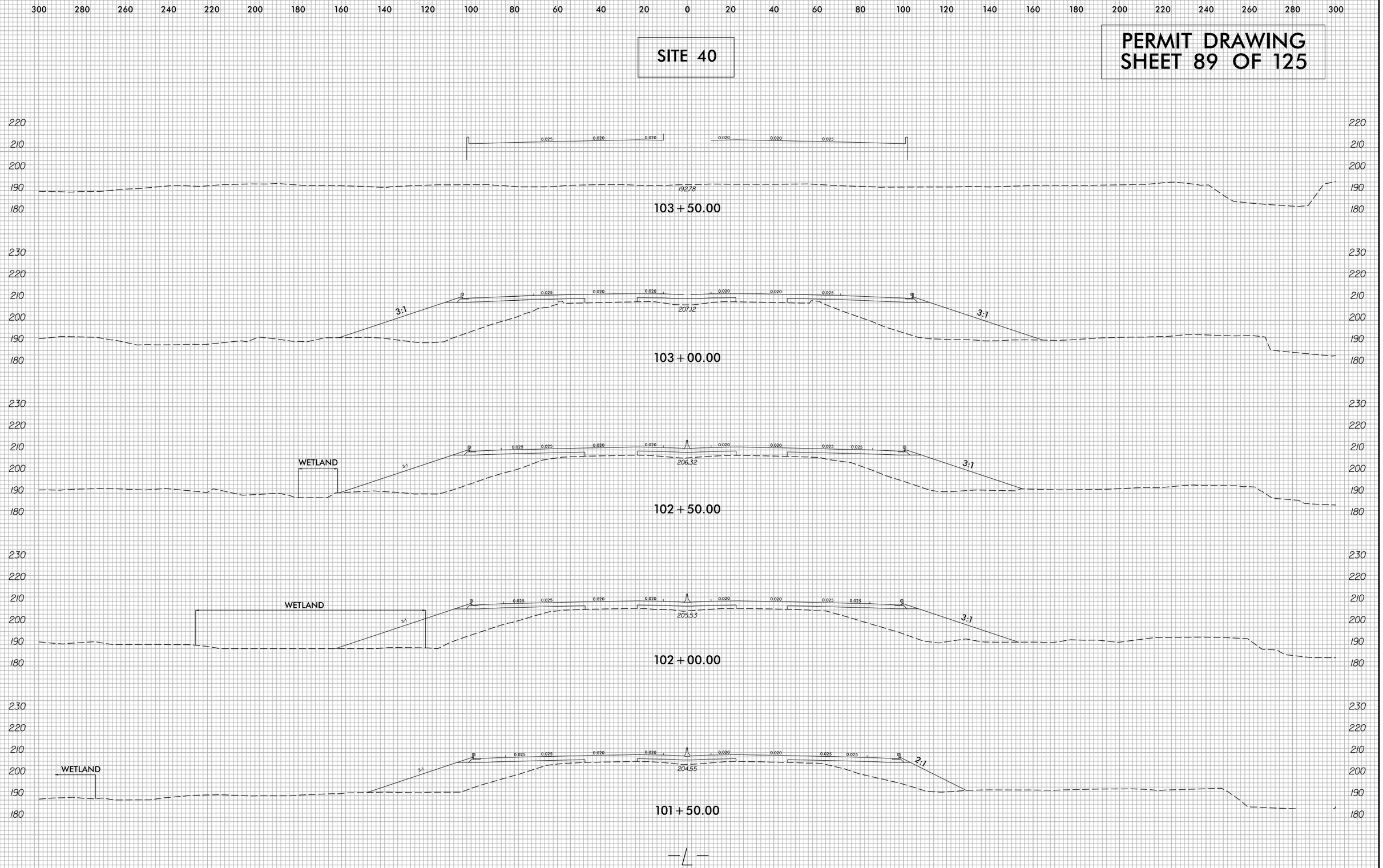
	I-5111/I-4739	X-8

SITE 40

PERMIT DRAWING
SHEET 89 OF 125



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	I-5111/I-4739	X-10

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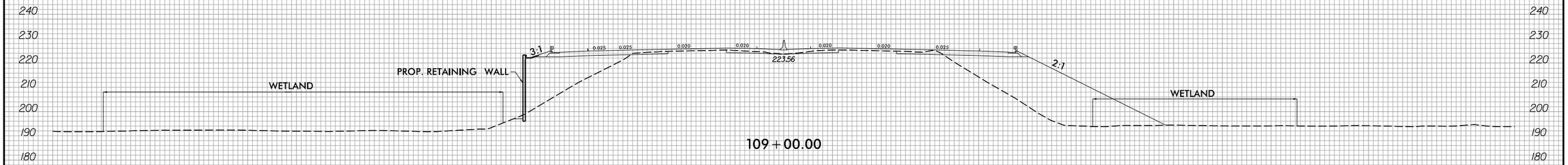
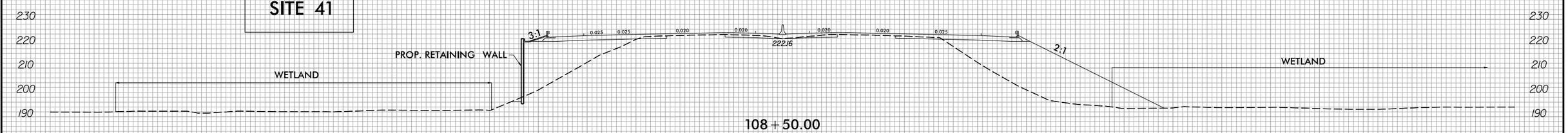
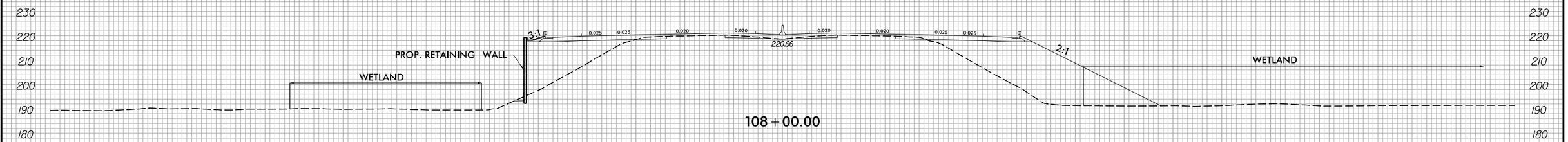
PERMIT DRAWING
SHEET 90 OF 125



SITE 41





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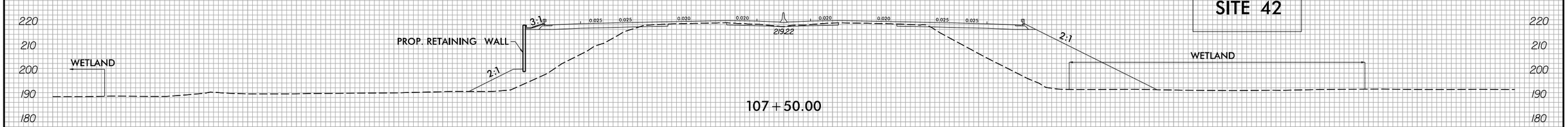

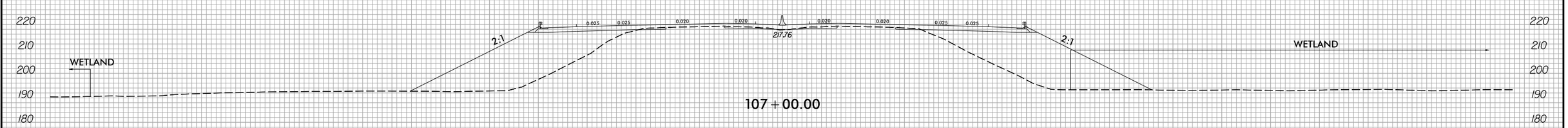

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Keys

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 91 OF 125

ENGLISH

T T	DENOTES TEMPORARY FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
E E	DENOTES EXCAVATION IN WETLAND

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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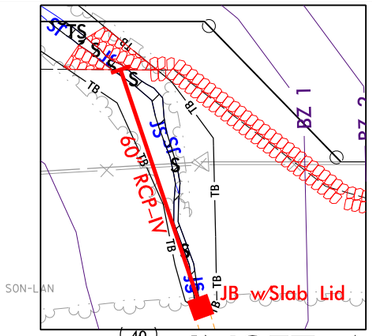
WEP(1)

SITE 44

SEQ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8/17/99

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 92 OF 125

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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WEP(1)

SITE 44

SEQ

SEE INSET A

INSET A

60' 18" RCP-IV

JB w/Slab Lid

Q10=10.0 cfs
V10=1.99 ft/s

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=16' (SEE DETAIL BB)

3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

10' WIDE BERM TOP ELEV.=228.0' SEE DETAIL J

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

LATERAL 4' BASE SWALE SEE DETAIL AM

18" CSP 2 ELBOWS

15" RCP-III

15" RCP-III

REMOVE DI

TB 2GIB-ST

2GIB-WSF

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

18" RCP-III

SP. EXCT. JB w/MH

18" RCP-III

JB w/MH

18" CSP 2 ELBOWS

15" CSP ELBOWS

2GIB-WSS

GREU TL-3

BERM 'V' DITCH SEE DETAIL AK

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

SP. CUT DITCH W/CL B RIPRAP SEE DETAIL I

MATCHLINE -L- STA. 111+00 SEE SHEET 41

MATCHLINE -L- STA. 124+00 SEE SHEET 43

S 3°19'01.0" W

115+00

120+00

INTERSTATE 40 EBL 24" CONC

REMOVE EXISTING CULVERT AND CLEAN OUT EQUALIZER PIPE

TRENCHLESS INSTALLATION 54" WELDED STEEL (NOT BURIED)

TRENCHLESS INSTALLATION 24" WELDED STEEL (NOT BURIED)

PLUG & FILL W/FLOWABLE FILL

SEQ

SITE 44

5' WIDE BERM TO PROTECT WETLAND BOUNDARY

LATERAL 3' BASE DITCH W/CL I RIPRAP SEE DETAIL AQ

Q10=130.0 cfs
V10=1.98 ft/s

END FENCE

BEGIN FENCE

ARMOR 2:1 SIDE SLOPES W/CL II RIPRAP UP TO SHOULDER POINT

SEE INSET B

WEO(1)

SEP

WEO(2)

WEN

SEO

SITE 43

41

WETLANDS BOUNDARY PB 66 PG 176

GLENN MILLER DB 4092 PG 377 PB 66 PG 176

INSET B

*RIPRAP ON SLOPES TURNED OFF FOR CLARITY

JB w/Slab Lid

BEGIN FENCE

PDE

+60.00' EX. ROW

18 TONS CL I RIPRAP W/38 SY GEOTEXTILE LENGTH=20' (SEE DETAIL BC)

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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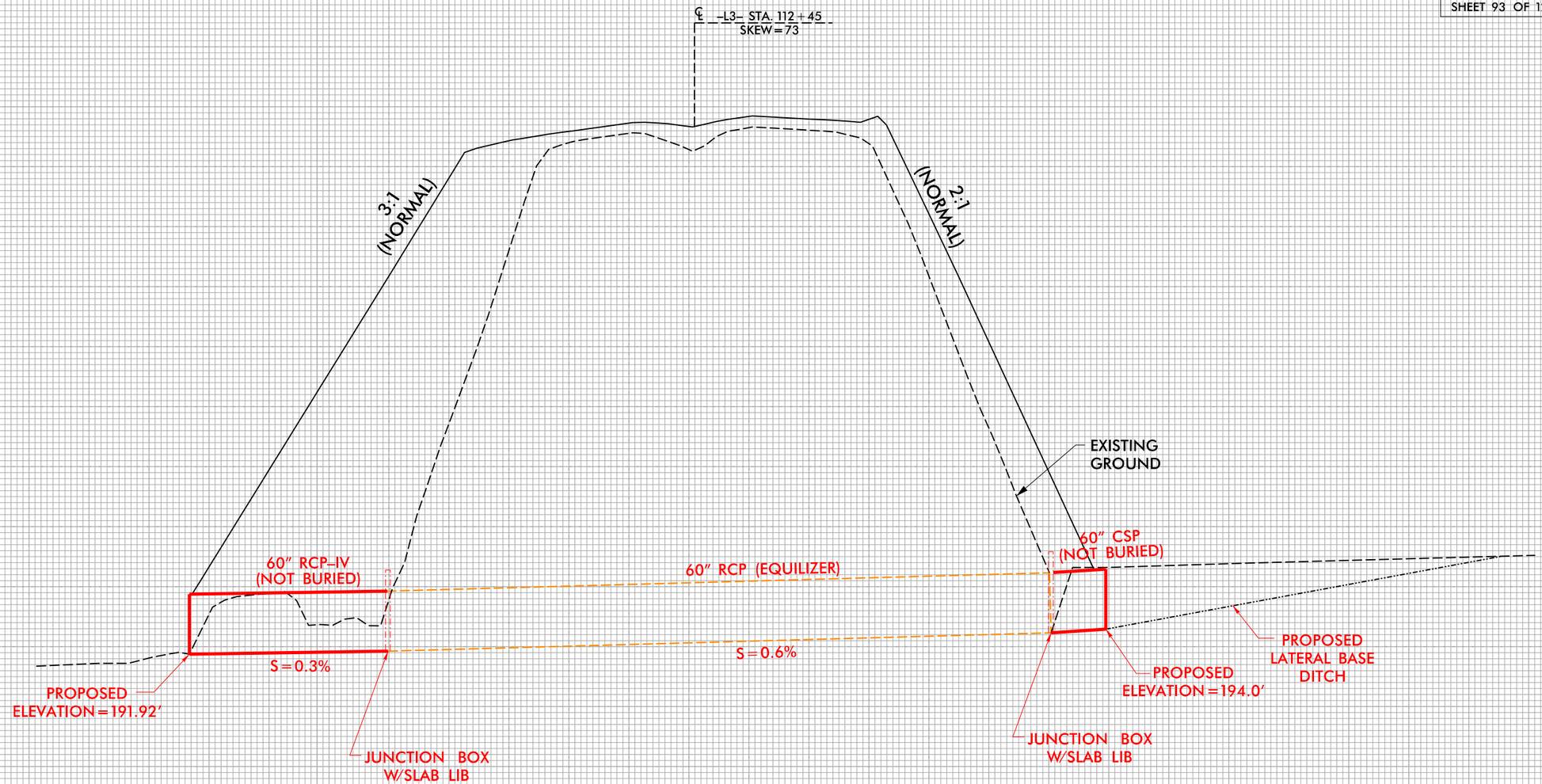
PERMIT DRAWING
SHEET 93 OF 125

SITE 44
–L3– 112+45



RETAIN & EXTEND EXISTING 60" RCP EQUILIZER PIPE (length=360')

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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SCALE

PERMIT DRAWING
SHEET 94 OF 125

ENGLISH

5 5 DENOTES IMPACTS IN SURFACE WATER

15 15 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	44
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

NAD 83

SEE INSET A

SEU

SITE 45

52 TONS CL B RIP RAP W/100 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

HP –L3– STA. 145+95.26 LT 2.99% 2.06%

HP –LCDWB– STA. 32+17.47 1.57% 2.06%

HP –Y1RPB3– STA. 11+10.89 0.56% 0.45%

SON-LAN CLASSIC DEVELPMENT CO, LLC

40

MATCHLINE –Y1RPB3– STA. 16+00 SEE SHEET 45

MATCHLINE –L– STA. 137+00 SEE SHEET 43

MATCHLINE –L– STA. 150+00 SEE SHEET 45

MATCHLINE –Y1RPB3– STA. 15+50 SEE SHEET 45

MATCHLINE –Y1A– STA. 25+50 –Y1RPC3– STA. 15+50 SEE SHEET 45

BERM V DITCH SEE DETAIL AK

48" RCP–III

JB w/MH

15" CSP 2 ELBOWS

48" RCP–V

2GIB–WSF

REMOVE DI

REMOVE DI & 7' PIPE

18" CMP REMOVE

PLUG & FILL W/ FLOWABLE FILL

18" RCP–III

TB 2GIB–ST

15" RCP–III

INTERSTATE 40 WBL 36' CONC

INTERSTATE 40 EBL 24' CONC

ATTENUATOR

–LCDWB–

–Y1RPB3–

–Y1RPC3–

–LCDEB–

–Y1A–

S 19° 41' 30.0" E

S 19° 50' 33.6" E

S 10° 29' 05.6" E

10+00 15+00 20+00 25+00 30+00 35+00 140+00 145+00

2 " PVC, JOHNSTON COUNTY

8 " PVC, JOHNSTON COUNTY

12 " DIP, JOHNSTON COUNTY

SPECIAL LATERAL V DITCH SEE DETAIL AJ

BZ 1 BZ 2

R/W MON

EXISTING R/W

TECHNOLOGY DRIVE 20' RST

RIPRAP

CONC

BST

REBAR

FLAG POLE

ZIGGY VENTURES LLC

2.32% 0.95%
HP
–LCDEB– STA. 21+46.61

0.95% 0.99%
LP
–LCDEB– STA. 24+96.27

0.55% 0.36%
LP
–Y1RPC– STA. 10+97.01

2.98% 2.30%
HP
L3– STA. 145+86.02 RT

0.99% 2.41%
HP
–LCDEB– STA. 28+58.50

0.66% 1.48%
LP
–Y1RPC3– STA. 15+27.06

0.36% 0.66%
HP
–Y1RPC3– STA. 13+47.61

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

SPECIAL CUT DITCH SEE DETAIL B

LATERAL 4' BASE SWALE SEE DETAIL U

CLEAN OUT RIPRAP & DIRT, REPAIR ADJ DITCH IF NEEDED

RETAIN DI

24" RCP

18" RCP

15" RCP

2GIB–WSS

Piedmont Natural Gas Company, Inc., 2 " PLASTIC, 2002

J & M SMITH ENTERPRISES LLC

JACK L. CHANDLER JR.

KELLEY C. GURLEY

SHIV ENTERPRISES INC

ISBLKBUS

INSET A

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SCALE FOR INSET

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SCALE

PERMIT DRAWING
SHEET 95 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83

SEE INSET A

SEU

SITE 45

52 TONS CL I RIP RAP W/100 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

48" RCP-III

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

HP -L3- STA. 145+95.26 LT
2.99% 2.06%

HP -LCDWB- STA. 32+17.47
1.57% 2.06%

HP -Y1RPB3 STA. 11+10.89
0.56% 0.45%

SON-LAN CLASSIC DEVELPMENT CO. LLC

40

BERM V DITCH SEE DETAIL AK

MATCHLINE -L- STA. 137+00 SEE SHEET 43

MATCHLINE -L- STA. 16+00 -Y1RPB3- SEE SHEET 45

MATCHLINE -L- STA. 150+00 SEE SHEET 45

MATCHLINE -Y1A- STA. 25+50 -Y1RPC3- SEE SHEET 45

-LCDWB-

-Y1RPB3-

-Y1RPC3-

-Y1A-

-LCDEB-

S 19° 41' 30.0" E

S 19° 50' 33.6" E

S 10° 29' 05.6" E

2GIB-WSF

15" RCP-III

18" RCP-III

TB 2GIB-ST

REMOVE DI & 7' PIPE

PLUG & FILL W/ FLOWABLE FILL

18" CMP REMOVE

REMOVE DI

ATTENUATOR

PIPES DO NOT INTERSECT (~28' SEPERATION BTW. COLLAR & 2GI)

COLLAR

TRENCHLESS INSTALLATION OF 48" INTRUDER STEEL

SPECIAL LATERAL V DITCH SEE DETAIL AJ

8" PVC, JOHNSTON COUNTY

12" DIP, JOHNSTON COUNTY

JB w/MH

SP. DET. JB w/MH

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

24" RCP-III FES

SPECIAL CUI DITCH SEE DETAIL B

15" CSP 2 ELBOWS

48" RCP-V

BZ 1

RETAIN DI

24" RETAIN

LATERAL 4' BASE SWALE SEE DETAIL U

CLEAN OUT-RIPRAP & DIRT, REPAIR/ADJ. DI IF NEEDED

HP -LCDEB- STA. 21+46.61
2.32% 0.95%

LP -LCDEB- STA. 24+96.27
0.95% 0.99%

LP -Y1RPC- STA. 10+97.01
0.55% 0.36%

HP L3- STA. 145+86.02 RT
2.98% 2.10%

HP -Y1RPC3- STA. 13+47.61
0.36% 0.66%

HP -LCDEB- STA. 28+58.50
0.99% 2.41%

LP -Y1RPC3- STA. 15+27.06
0.66% 1.48%

ZIGGY VENTURES LLC

J & M SMITH ENTERPRISES LLC

JACK L. CHANDLER JR.

KELLEY C. GURLEY

SHIV ENTERPRISES INC

Piedmont Natural Gas Company, Inc.

INTERSTATE 40 WBL 36' CONC

INTERSTATE 40 EBL 24' CONC

INSET A

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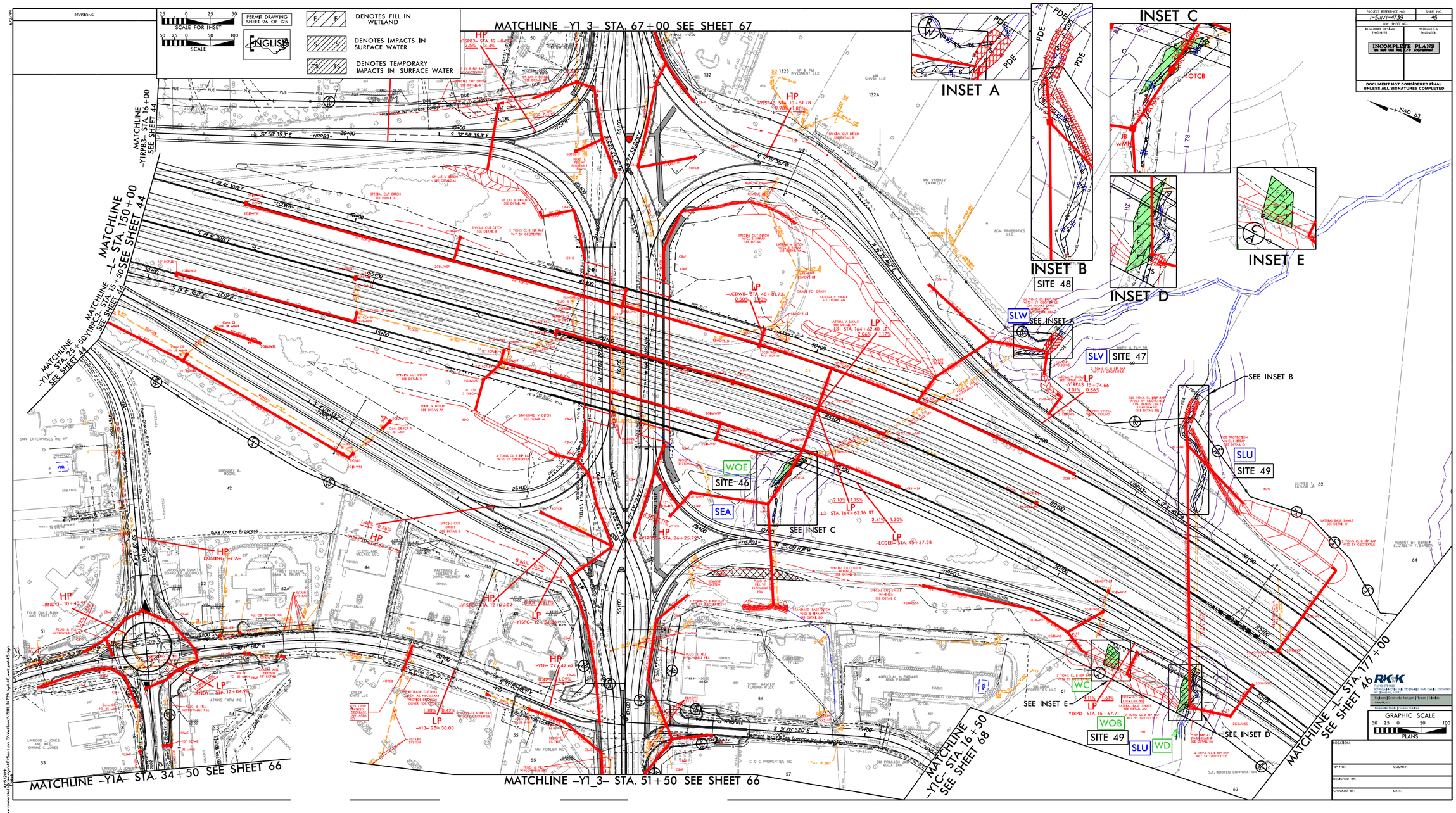
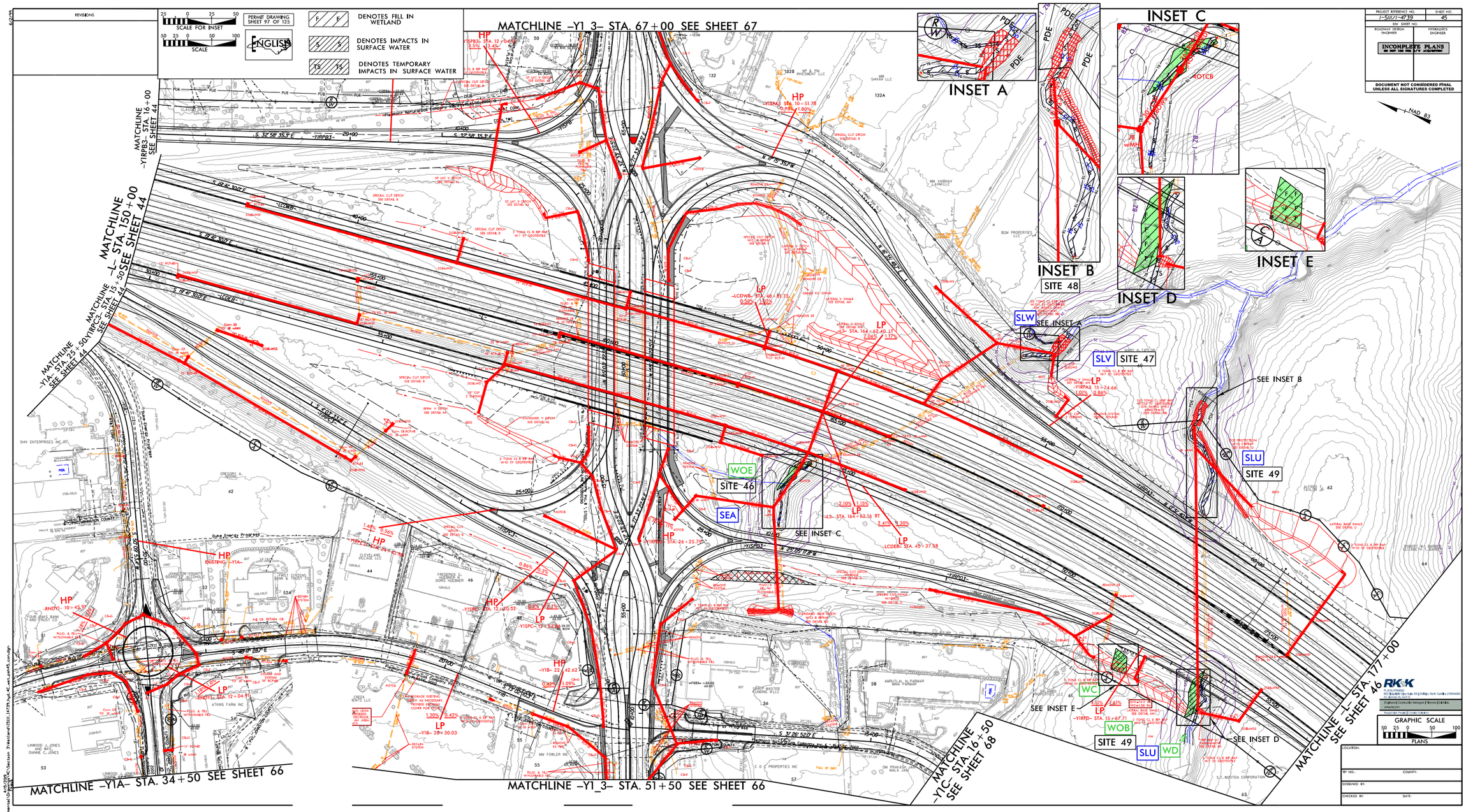


REVISIONS
SCALE FOR INSET
SCALE
PERMIT DRAWING SHEET 96 OF 125
ENGLISH
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MATCHLINE -Y1_3- STA. 67+00 SEE SHEET 67
MATCHLINE -Y1A- STA. 34+50 SEE SHEET 66
MATCHLINE -Y1_3- STA. 51+50 SEE SHEET 66
MATCHLINE -Y1C- STA. 16+50 SEE SHEET 68
MATCHLINE -L- STA. 177+00 SEE SHEET 46
MATCHLINE -L- STA. 150+00 SEE SHEET 44
MATCHLINE -Y1RPB3- STA. 16+00 SEE SHEET 44
MATCHLINE -Y1A- STA. 25+50 SEE SHEET 44
MATCHLINE -Y1RPC3- STA. 15+50 SEE SHEET 44
INSET A
INSET B
INSET C
INSET D
INSET E
SITE 48
SITE 47
SITE 46
SITE 49
SEE INSET A
SEE INSET B
SEE INSET C
SEE INSET D
SEE INSET E
SLW
SLV
SLU
WOE
SEA
WC
WOB
WD
HP
LP
PDE
NAD 83
PROJECT REFERENCE NO.
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
GRAPHIC SCALE
PLANS
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:



REVISIONS
SCALE FOR INSET
SCALE
PERMIT DRAWING SHEET 97 OF 125
ENGLISH
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MATCHLINE -Y1_3- STA. 67+00 SEE SHEET 67
MATCHLINE -Y1A- STA. 34+50 SEE SHEET 66
MATCHLINE -Y1_3- STA. 51+50 SEE SHEET 66
MATCHLINE -Y1C- STA. 16+50 SEE SHEET 68
MATCHLINE -L- STA. 177+00 SEE SHEET 46
MATCHLINE -L- STA. 150+00 SEE SHEET 44
MATCHLINE -Y1RPB3- STA. 16+00 SEE SHEET 44
MATCHLINE -Y1A- STA. 25+50 SEE SHEET 44
MATCHLINE -Y1RPC3- STA. 15+50 SEE SHEET 44
INSET A
INSET B
INSET C
INSET D
INSET E
SITE 48
SITE 47
SITE 46
SITE 49
SEE INSET A
SEE INSET B
SEE INSET C
SEE INSET D
SEE INSET E
SLW
SLV
SLU
WOE
SEA
WC
WOB
WD
HP
LP
NAD 83
PROJECT REFERENCE NO.
SHEET NO.
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
GRAPHIC SCALE
PLANS
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:

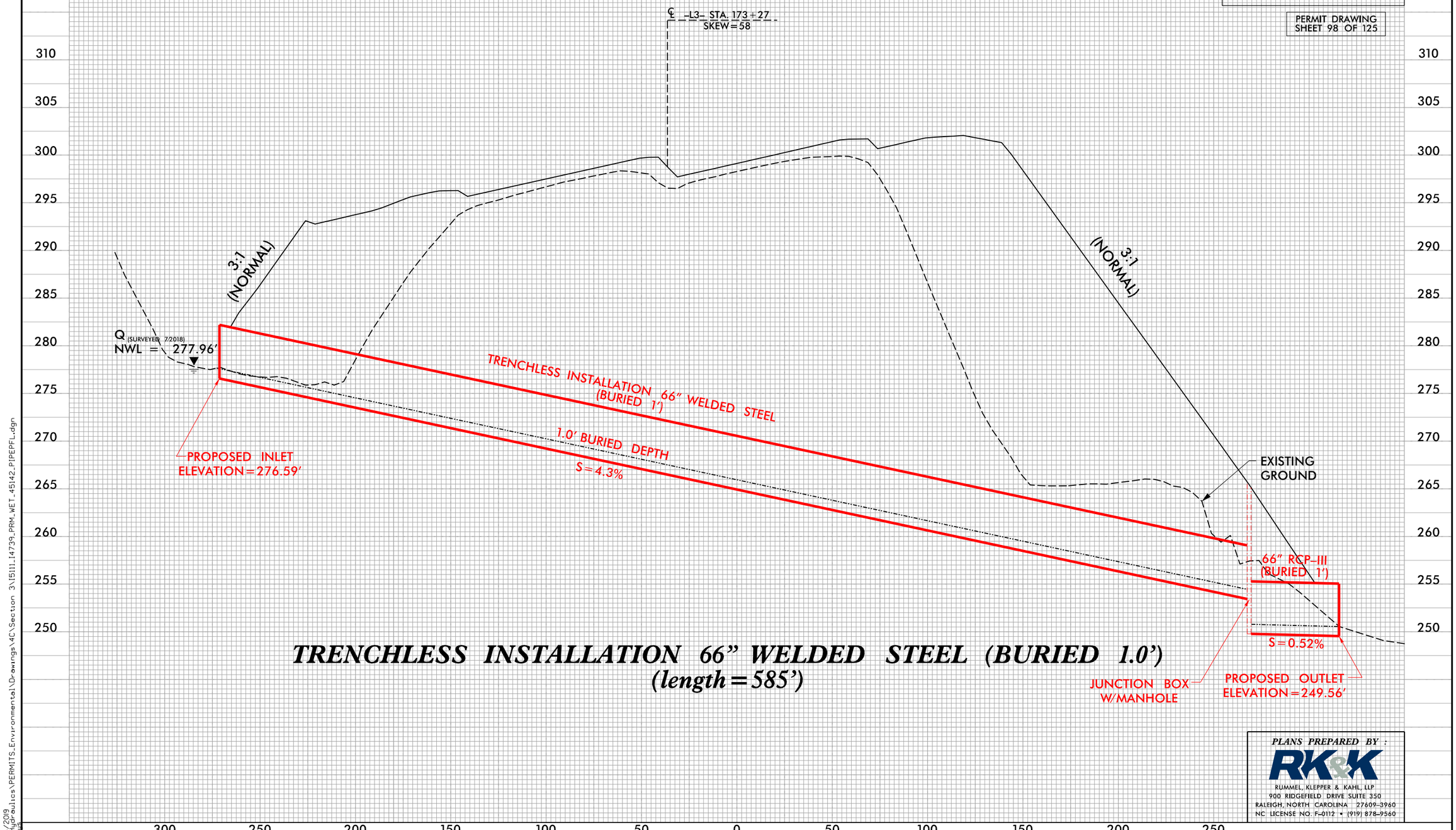
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 98 OF 125

SITE 49
–L3– 173+27



TRENCHLESS INSTALLATION 66" WELDED STEEL (BURIED 1.0')
(length=585')

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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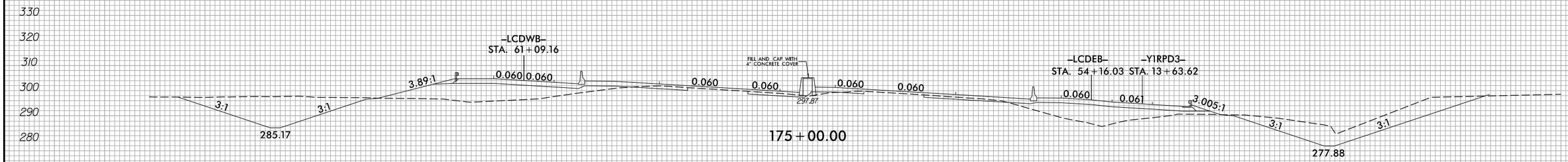
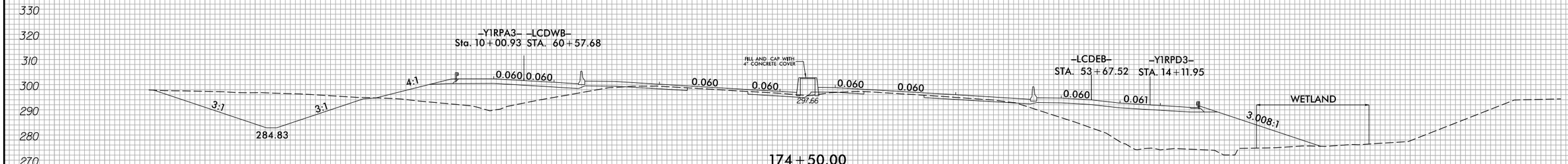
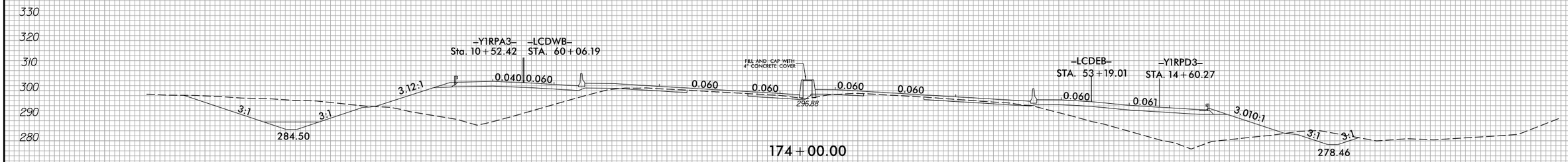
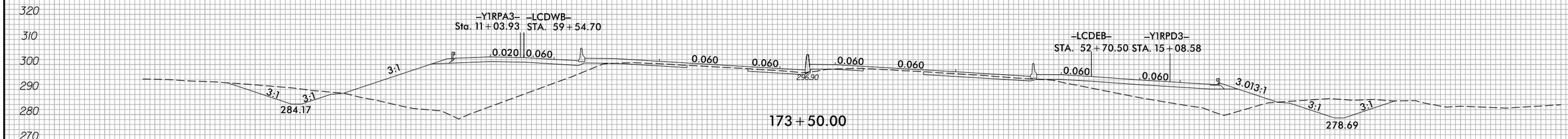
SITE 49

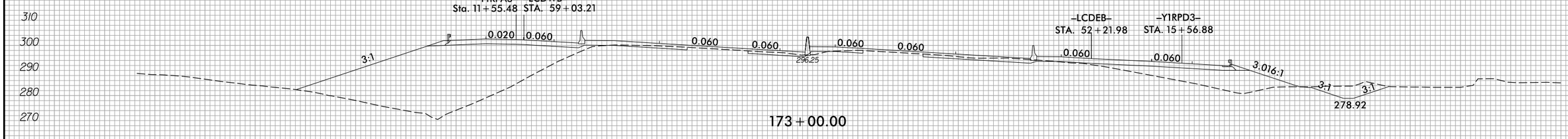
PERMIT DRAWING
SHEET 99 OF 125











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INSET D

INSET F

INSET B

INSET C

INSET E

INSET A

MATCHLINE –L– STA. 177+00 SEE SHEET 45

MATCHLINE –Y2_3– STA. 61+50 SEE SHEET 71

MATCHLINE SR2– STA. 22+00 SEE SHEET 71

MATCHLINE –Y2_3– STA. 46+50 SEE SHEET 70

MATCHLINE –L– STA. 205+50 SEE SHEET 47

SITE 50 | WOA | SLS

SITE 51 | WNZ | PBL | WH | SLR

SITE 52 | WGG

SCALE FOR INSET 25 0 25 50

SCALE 50 25 0 50 100

ENGLISH

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING SHEET 100 OF 125

PROJECT REFERENCE NO. I-5111/I-4739 | SHEET NO. 46

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RKK

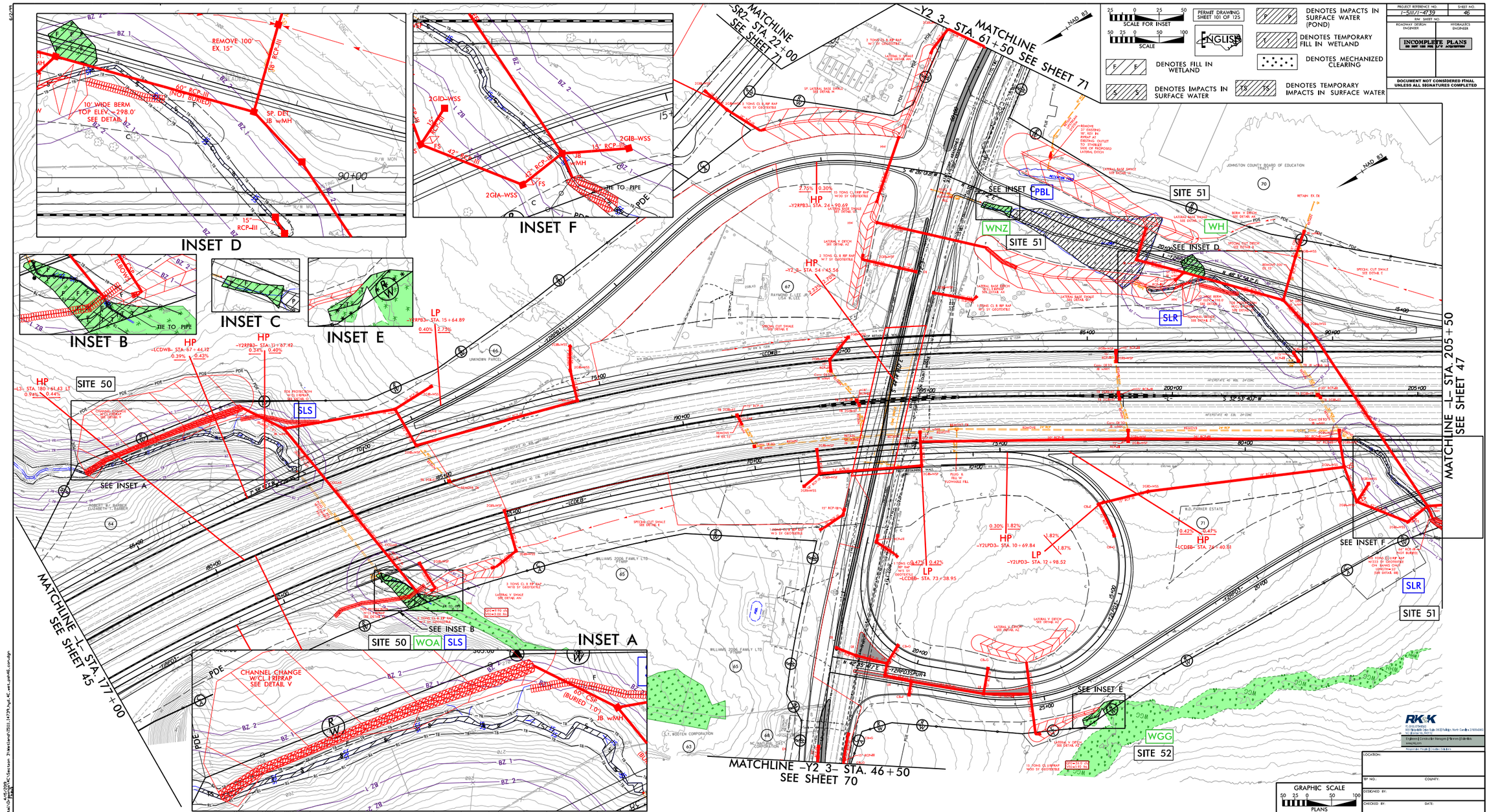
LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE 50 25 0 50 100 PLANS



INSET A
INSET B
INSET C
INSET D
INSET E
INSET F
MATCHLINE -L- STA. 177+00 SEE SHEET 45
MATCHLINE -L- STA. 205+50 SEE SHEET 47
MATCHLINE -Y2 3- STA. 46+50 SEE SHEET 70
MATCHLINE -SR2- STA. 22+00 SEE SHEET 71
MATCHLINE -Y2 3- STA. 61+50 SEE SHEET 71
SITE 50
SITE 51
SITE 52
SEE INSET A
SEE INSET B
SEE INSET C
SEE INSET D
SEE INSET E
SEE INSET F
CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V
REMOVE 100' EX. 15"
10' WIDE BERM TOP ELEV. 298.0' SEE DETAIL
60" RCP-III (NOT BURIED)
SP. DET. JB w/MH
15" RCP-III
2GID-WSS
2GIB-WSS
2GIA-WSS
TIE TO PIPE
PERMIT DRAWING SHEET 101 OF 125
ENGLISH
SCALE FOR INSET
SCALE
DENOTES IMPACTS IN SURFACE WATER (POND)
DENOTES TEMPORARY FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PROJECT REFERENCE NO. I-5111/I-4739
SHEET NO. 46
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
GRAPHIC SCALE
PLANS
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:

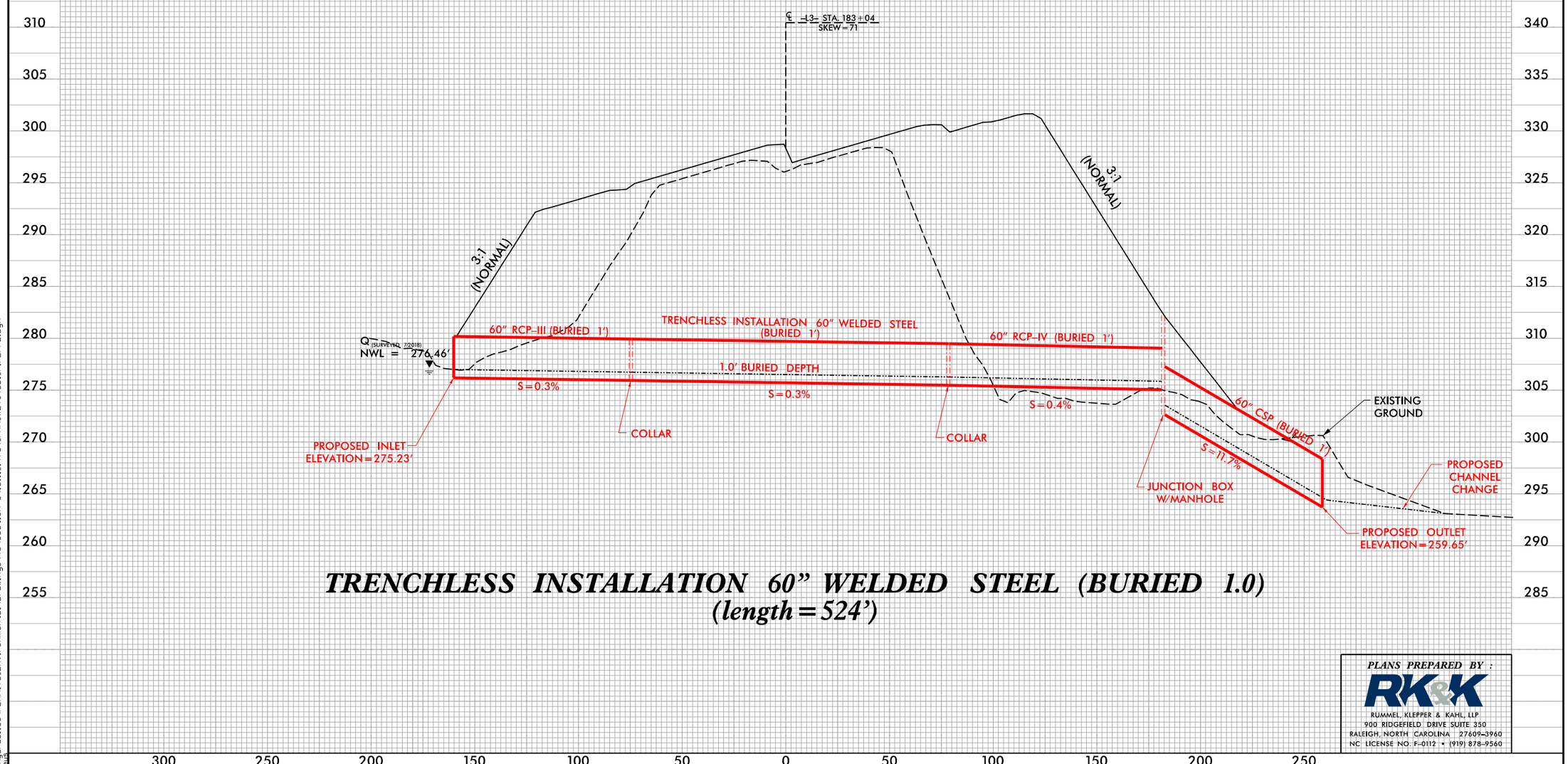
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 102 OF 125

SITE 50
–L3– 183+04



TRENCHLESS INSTALLATION 60" WELDED STEEL (BURIED 1.0)
(length=524')

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5111I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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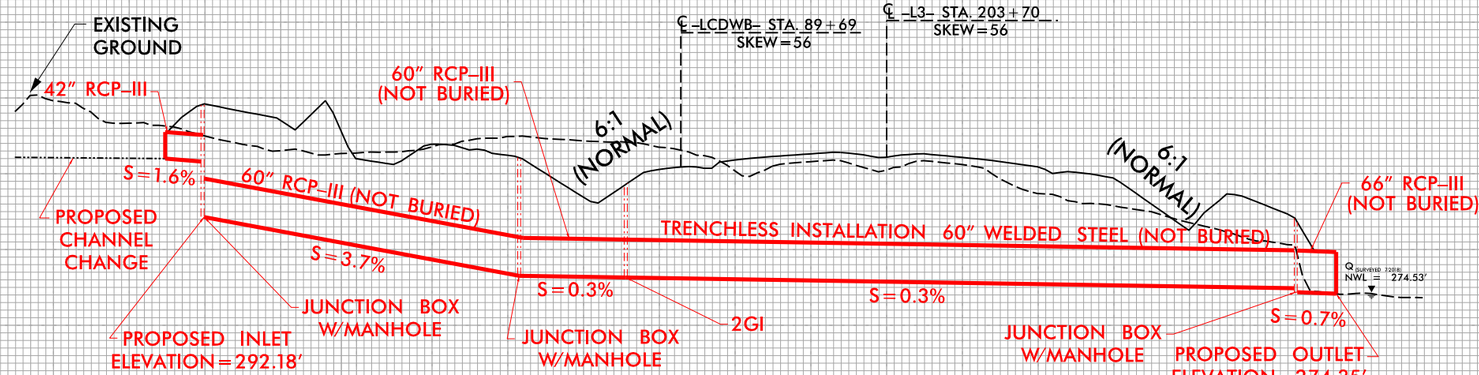
PERMIT DRAWING
SHEET 103 OF 125

SITE 51
–L3– 203+70



TRENCHLESS INSTALLATION 60" WELDED STEEL (NOT BURIED)
(length=772')

PLANS PREPARED BY :
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RUMMEL, KLEPPER & KAHL, LLP
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300 250 200 150 100 50 0 50 100 150 200 250

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Ekaus

6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-37

340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260

SITE 50

PERMIT DRAWING
SHEET 104 OF 125

330 320 310 300 290 280 270

–Y2RPB3–
Sta. 14+21.23

–LCDWB–
STA. 70+35.96

–LCDEB–
STA. 62+89.23

3.09:1 | 0.009 | 0.010 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

299.38

WETLAND

278.29

184+00.00

320 310 300 290 280 270

–Y2RPB3–
Sta. 13+69.22

–LCDWB–
STA. 69+84.48

–LCDEB–
STA. 62+40.72

3.01:1 | 0.028 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

299.59

WETLAND

183+50.00

320 310 300 290 280 270

–Y2RPB3–
Sta. 13+17.33

–LCDWB–
STA. 69+32.99

–LCDEB–
STA. 61+92.21

3.01:1 | 0.048 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

300.07

183+00.00

320 310 300 290 280 270 260

–Y2RPB3–
Sta. 12+65.55

–LCDWB–
STA. 68+81.50

–LCDEB–
STA. 61+43.70

3.01:1 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 3:1

299.94

182+50.00

320 310 300 290 280 270 260

–Y2RPB3–
Sta. 12+13.87

–LCDWB–
STA. 68+30.01

–LCDEB–
STA. 60+95.18

3:1 | 3:1 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | 6:1

299.99

182+00.00

340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260

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Fkeys

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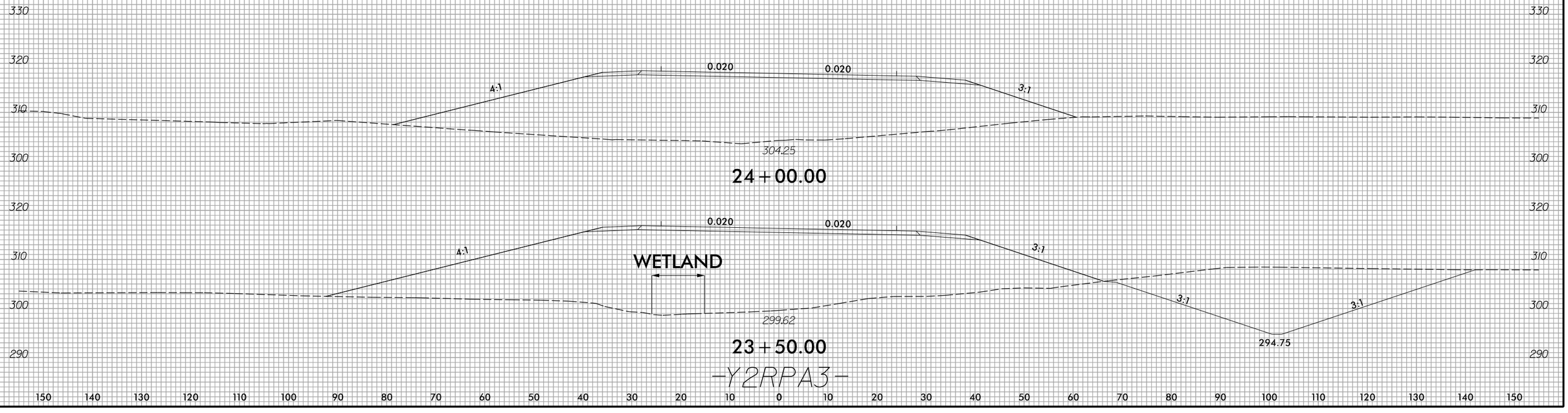
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-161

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PERMIT DRAWING
SHEET 105 OF 125

SITE 51



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FKeys

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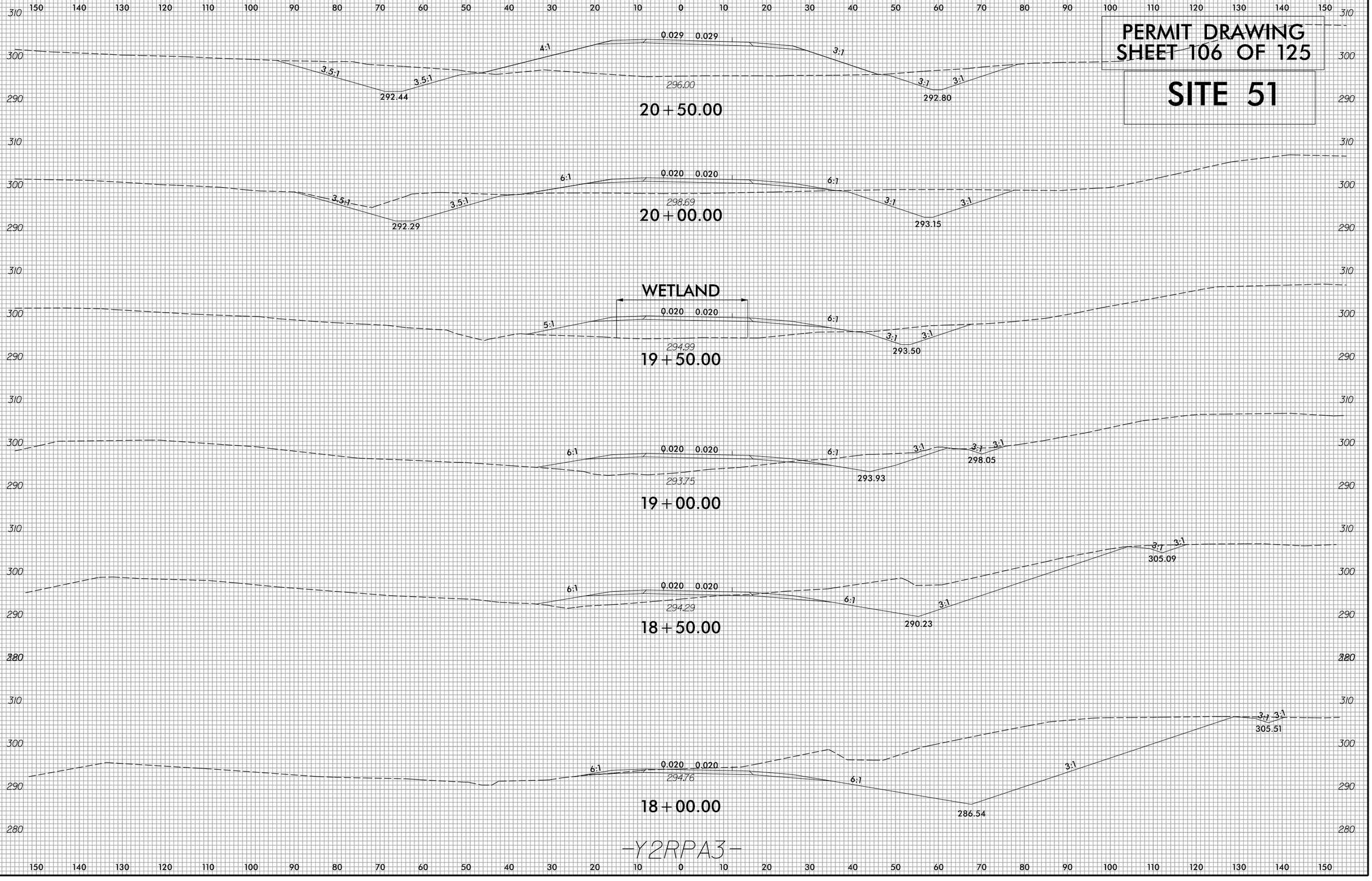
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-159

PERMIT DRAWING
SHEET 106 OF 125

SITE 51



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Fkeys

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-167

SITE 52

PERMIT DRAWING
SHEET 107 OF 125

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

310 305 300 295 290

–Y2LPD3–
Sta. 17+46.96

4:1 0.080 0.080 6:1 0.081 0.081 4.004:1
3:1 3:1 3:1 3:1
297.77
296.80
292.91
293.73

25+00.00

WETLAND

–Y2LPD3–
Sta. 17+02.73

3:1 0.080 0.080 6.03:1 6:1 0.082 0.082 4.023:1
3:1 3:1 3:1
296.36
292.74
294.62

24+50.00

WETLAND

–Y2LPD3–
Sta. 16+58.14

3:1 0.060 0.060 6.08:1 6:1 0.082 0.082 4.070:1
3:1 3:1 3:1
295.83
294.70
294.62

24+00.00

WETLAND

–Y2LPD3–
Sta. 16+20.00
B.P.

3:1 0.035 0.035 6:1 6:1 0.080 0.080 4:1
296.73
294.34

23+50.00

–Y2LPD3–
Sta. 15+78.00
B.P.

4.61:1 6:1 0.010 0.010 6:1 6:1 0.080 0.080 4:1
298.26
294.02
293.14

23+00.00

–Y2LPD3–
Sta. 15+37.00
B.P.

299.42
4.61:1 6:1 0.015 0.015 6:1 6:1 0.080 0.080 4:1
292.47
292.38

22+50.00

305 300 295 290 285 280

–Y2RPD3–

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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Fkeys

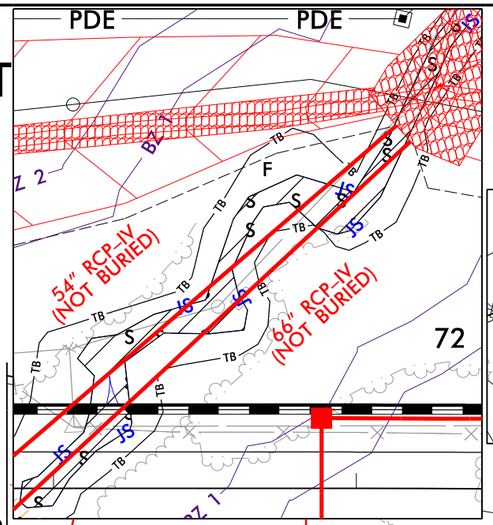
8/17/99

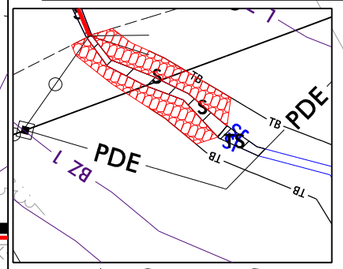
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INSET A





25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING SHEET 108 OF 125

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

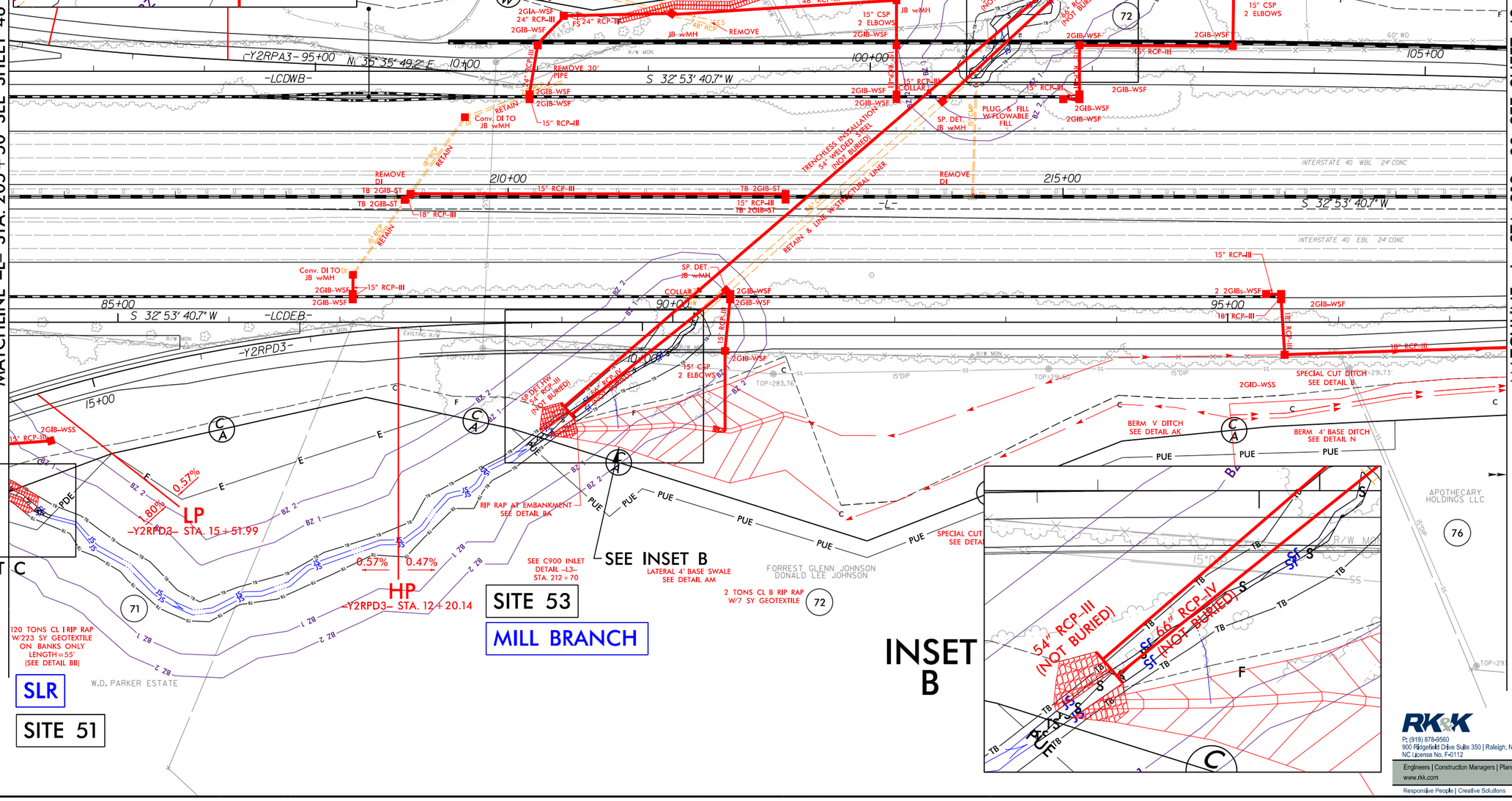
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

SITE 53
MILL BRANCH

SEE INSET A

INSET C



INSET B

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PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING SHEET 109 OF 125

ENGLISH

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

SITE 53
MILL BRANCH

INSET A

INSET C

INSET B

SEE INSET A

SEE INSET B

SEE INSET C

MATCHLINE –L– STA. 205+50 SEE SHEET 46

MATCHLINE –L– STA. 219+00 SEE SHEET 48

–Y2RPA3– 95+00 N 35° 35' 49.2" E 10.00

–LCDWB–

–Y2RPD3–

–LCDEB–

–L–

S 32° 53' 40.7" W

100+00 105+00 85+00 90+00 95+00 210+00 215+00 15+00

54" RCP–IV (NOT BURIED)

66" RCP–IV (NOT BURIED)

54" RCP–III (NOT BURIED)

66" RCP–IV (NOT BURIED)

LP
–Y2RPD3– STA. 15+51.99

HP
–Y2RPD3– STA. 12+20.14

0.57%
1.80%
0.47%

SLR
SITE 51

120 TONS CL I RIP RAP W/223 SY GEOTEXTILE ON BANKS ONLY LENGTH=55' (SEE DETAIL BB)

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

LATERAL 4' BASE DITCH W/CL I RIPRAP SEE DETAIL AX

LATERAL 4' BASE SWALE SEE DETAIL AM

SEE C900 OUTLET DETAIL –L3– STA. 212+70

SEE C900 INLET DETAIL –L3– STA. 212+70

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

RIP RAP AT EMBANKMENT SEE DETAIL BA

BERM V DITCH SEE DETAIL AK

BERM 4' BASE DITCH SEE DETAIL N

SPECIAL CUT DITCH 291.73' SEE DETAIL B

TRENCHLESS INSTALLATION 54" WELDED STEEL (NOT BURIED)

RETAIN & LINE W/STRUCTURAL LINER

IVAN OTERO
GLORIA OTERO
JONATHAN RIBA
TRACY RIBA
FORREST GLENN JOHNSON
DONALD LEE JOHNSON
W.D. PARKER ESTATE
APOTHECARY HOLDINGS, LLC

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

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ESRI

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

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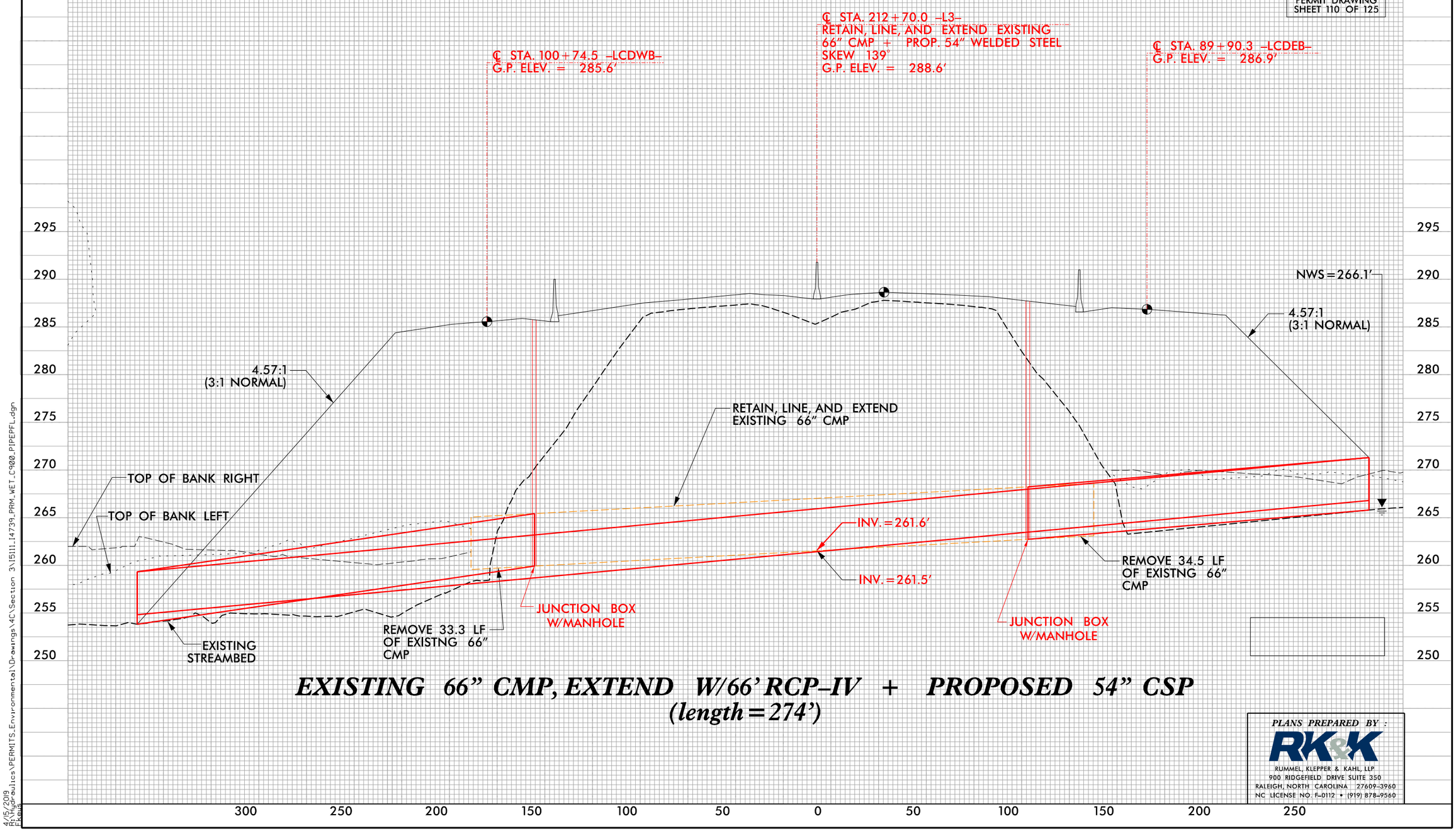
PERMIT DRAWING
SHEET 110 OF 125

SITE 53
–L– 212 + 70



EXISTING 66" CMP, EXTEND W/66' RCP–IV + PROPOSED 54" CSP
(length = 274')

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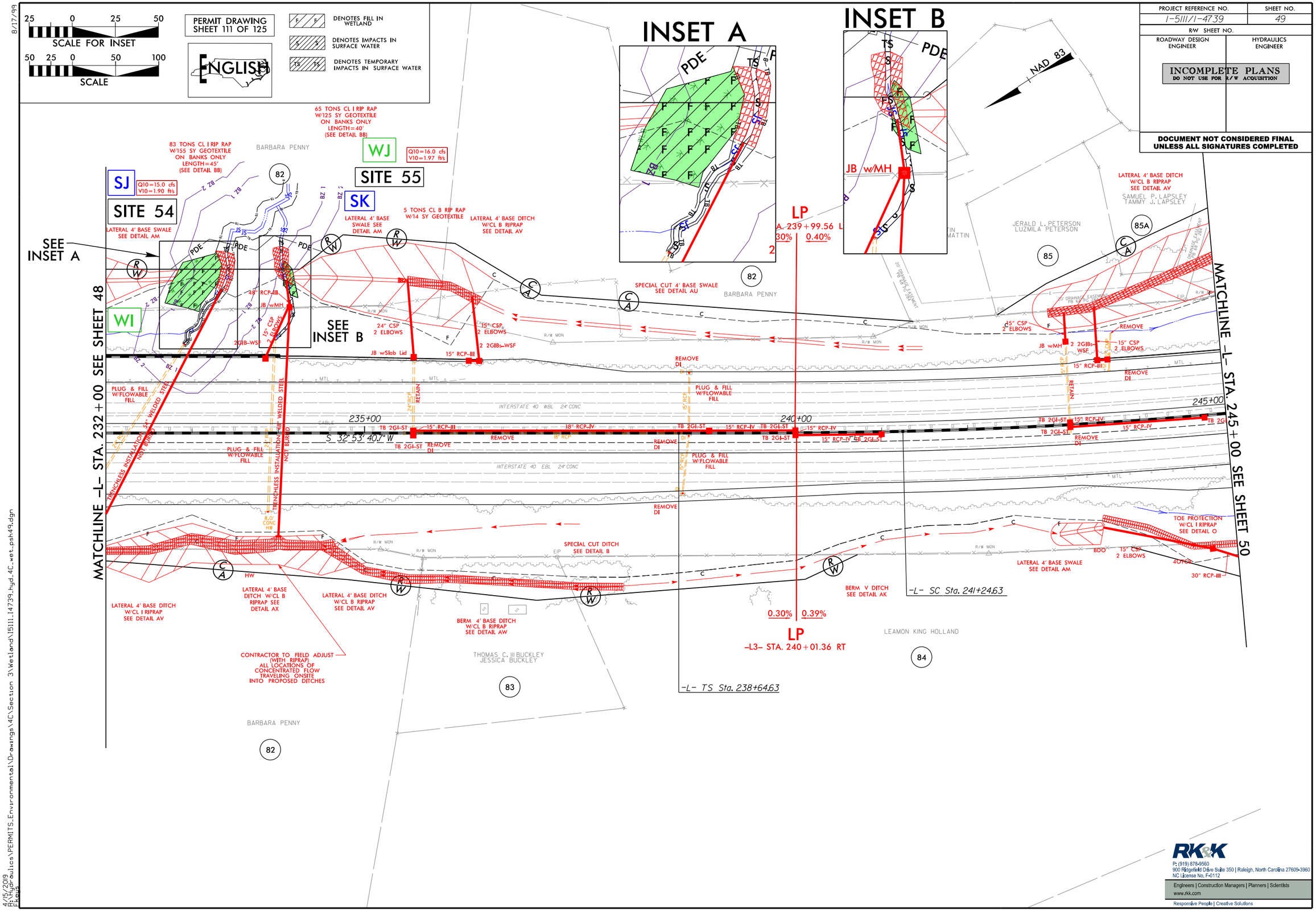

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Fkeys

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 112 OF 125

ENGLISH

F/F DENOTES FILL IN WETLAND
S/S DENOTES IMPACTS IN SURFACE WATER
TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	49
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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INSET A

INSET B

NAD 83

SEE INSET A

SEE INSET B

SJ Q10=15.0 cfs V10=1.90 fps
SITE 54

WJ Q10=16.0 cfs V10=1.97 fps
SITE 55

SK

WI

83 TONS CL I RIP RAP W/155 SY GEOTEXTILE ON BANKS ONLY LENGTH=45' (SEE DETAIL BB)

65 TONS CL I RIP RAP W/125 SY GEOTEXTILE ON BANKS ONLY LENGTH=40' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

SPECIAL CUT 4' BASE SWALE SEE DETAIL AU

SPECIAL CUT DITCH SEE DETAIL B

LP
-L- 239+99.56 L
30% 0.40%

LP
-L3- STA. 240+01.36 RT
0.30% 0.39%

-L- SC Sta. 241+24.63

-L- TS Sta. 238+64.63

MATCHLINE -L- STA. 232+00 SEE SHEET 48

MATCHLINE -L- STA. 245+00 SEE SHEET 50

235+00

240+00

245+00

S 32°53'40.7" W

INTERSTATE 40 WBL 24' CONC

INTERSTATE 40 EBL 24' CONC

TRENCHLESS INSTALLATION 48" WELDED STEEL NOT BURIED

48" RCP-III

24" RCP

15" RCP-III

15" RCP-IV

18" RCP

15" CSP 2 ELBOWS

24" CSP 2 ELBOWS

2 2GIB-WSF

JB w/MH

JB w/Slab Lid

TB 2GI-ST

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

RETAIN

BARBARA PENNY

JERALD L. PETERSON
LUZMILA PETERSON

SAMUEL P. LAPSLEY
TAMMY J. LAPSLEY

THOMAS C. III BUCKLEY
JESSICA BUCKLEY

LEAMON KING HOLLAND

82 83 84 85 85A

BDO

30" RCP-III

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

BERM 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AW

BERM V DITCH SEE DETAIL AK

CONTRACTOR TO FIELD ADJUST (WITH RIPRAP) ALL LOCATIONS OF CONCENTRATED FLOW TRAVELING ONSITE INTO PROPOSED DITCHES

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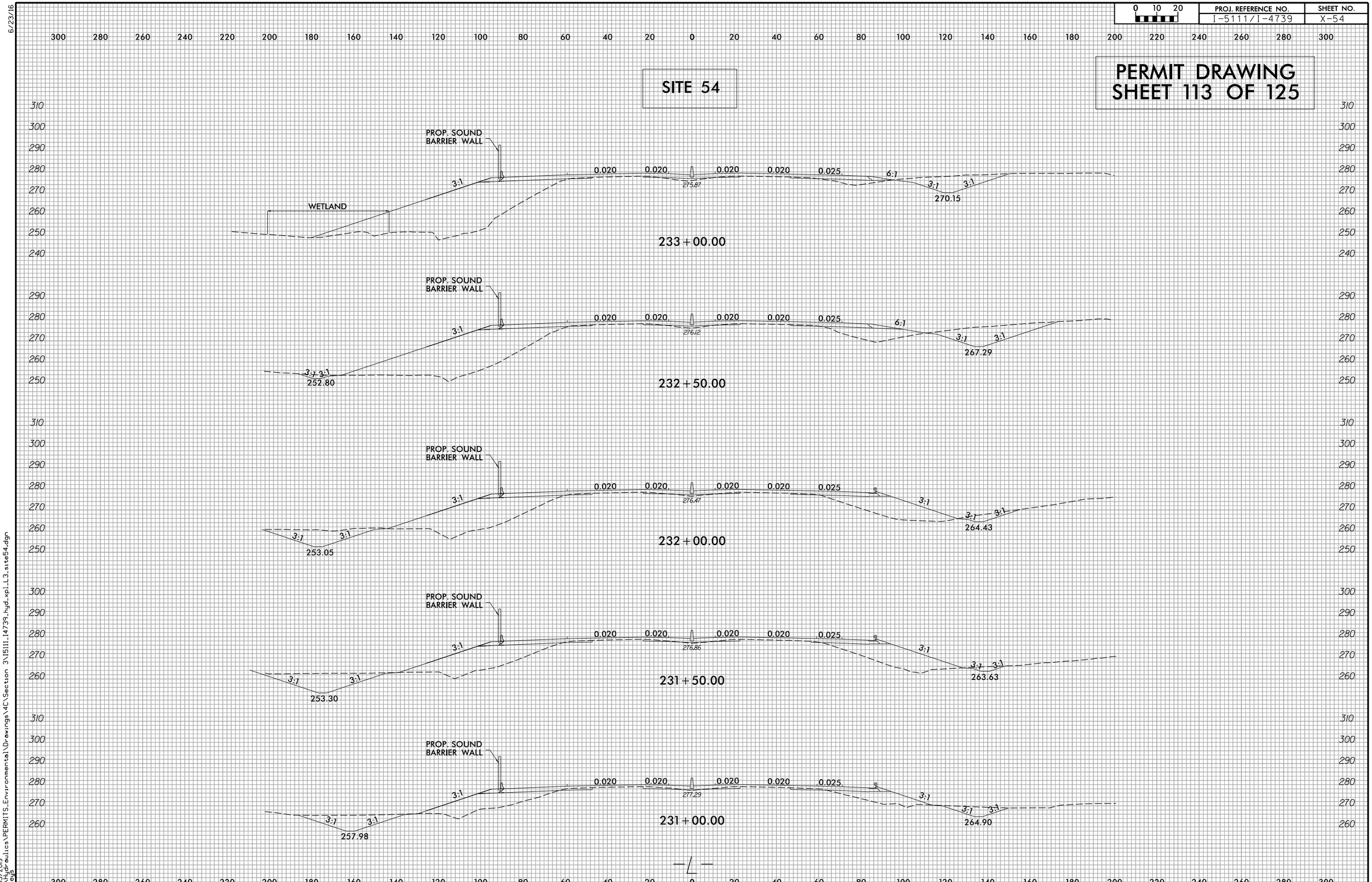

6/23/16

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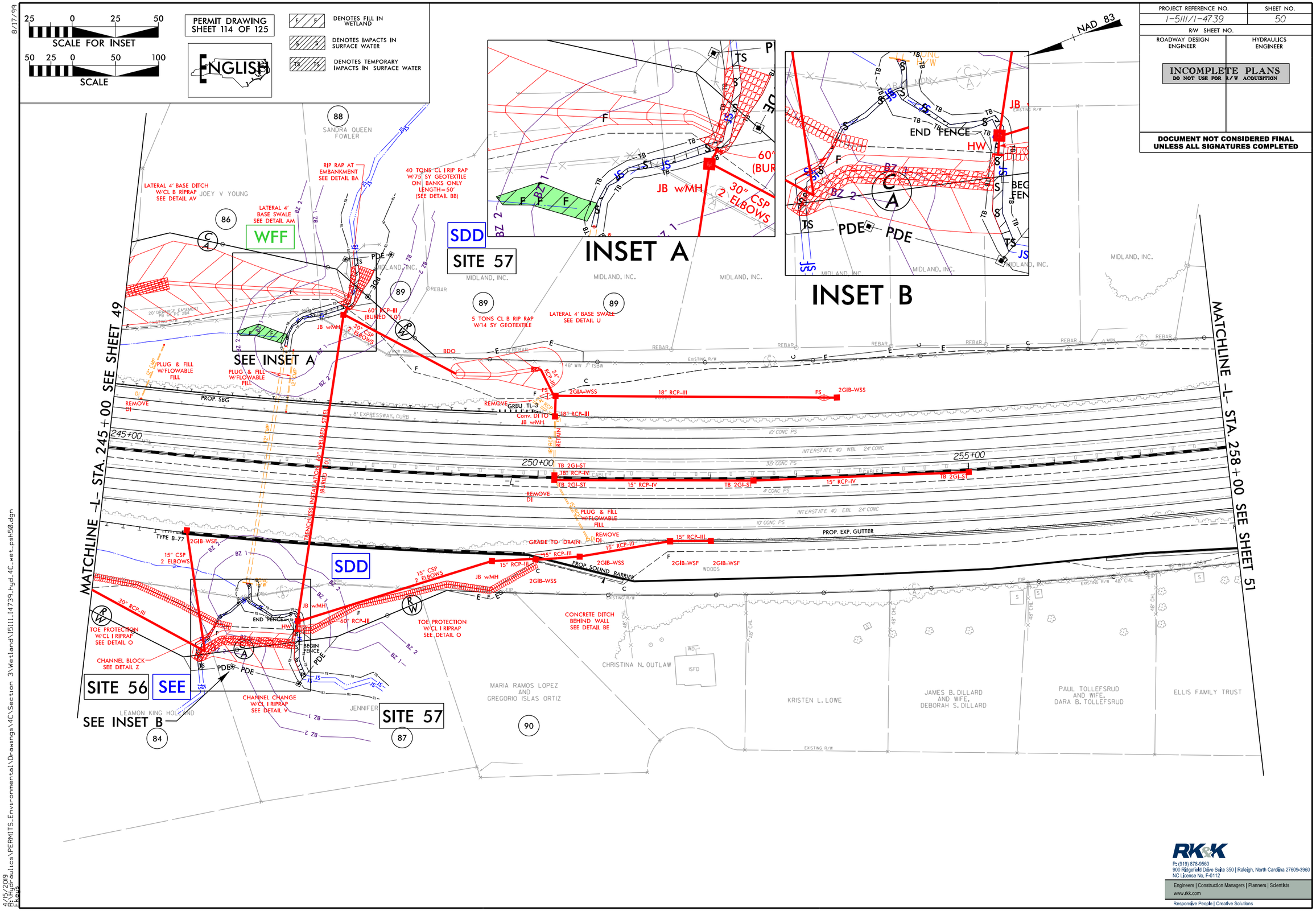
Fkeys



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Fkeys

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 115 OF 125

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	50
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

NAD 83

INSET A

INSET B

SEE INSET A

SEE INSET B

SDD

SITE 57

SITE 56

WFF

SEE SHEET 49

SEE SHEET 51

MATCHLINE –L– STA. 245+00

MATCHLINE –L– STA. 258+00

245+00

250+00

255+00

88 SANDRA QUEEN FOWLER

86

89

84

87

90

JOEY V YOUNG

MIDLAND, INC.

CHRISTINA N. OUTLAW

MARIA RAMOS LOPEZ AND GREGORIO ISLAS ORTIZ

KRISTEN L. LOWE

JAMES B. DILLARD AND WIFE, DEBORAH S. DILLARD

PAUL TOLLEFSRUD AND WIFE, DARA B. TOLLEFSRUD

ELLIS FAMILY TRUST

LEAMON KING HOLLAND

JENNIFER

LATERAL 4' BASE DITCH W/CL B RIPRAP SEE DETAIL AV

LATERAL 4' BASE SWALE SEE DETAIL AM

RIP RAP AT EMBANKMENT SEE DETAIL BA

40 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=50' (SEE DETAIL BB)

5 TONS CL B RIP RAP W/14 SY GEOTEXTILE

LATERAL 4' BASE SWALE SEE DETAIL U

TOE PROTECTION W/CL I RIPRAP SEE DETAIL O

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

CHANNEL BLOCK SEE DETAIL Z

CHANNEL CHANGE W/CL I RIPRAP SEE DETAIL V

TRENCHLESS INSTALLATION 60" WELDED STEEL (BURIED)

PROP. SOUND BARRIER

PROP. EXP. GUTTER

INTERSTATE 40 WBL 24" CONC

INTERSTATE 40 EBL 24" CONC

REMOVE DI

PLUG & FILL W/FLOWABLE FILL

GRADE TO DRAIN

END FENCE

BEGIN FENCE

JB w/MH

60" (BURIED)

30" CSP 2 ELBOWS

60" RCP-III

30" RCP-III

24" RCP-III

18" RCP-III

18" RCP-IV

15" RCP-III

15" RCP-IV

15" CSP 2 ELBOWS

2GIA-WSS

2GIB-WSS

2GIB-WSF

TB 2GI-ST

TYPE B-77

PROP. SBG

8" EXPRESSWAY CURB

GREU TL-3

Conv. DI TO JB w/MH

RETAINING WALL

BZ 1

BZ 2

PDE

TS

JS

SS

F

E

C

TB

S

HW

WD

ISFD

REBAR

EXISTING R/W

RK&K
P: (919) 878-9560
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112
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4/15/2019
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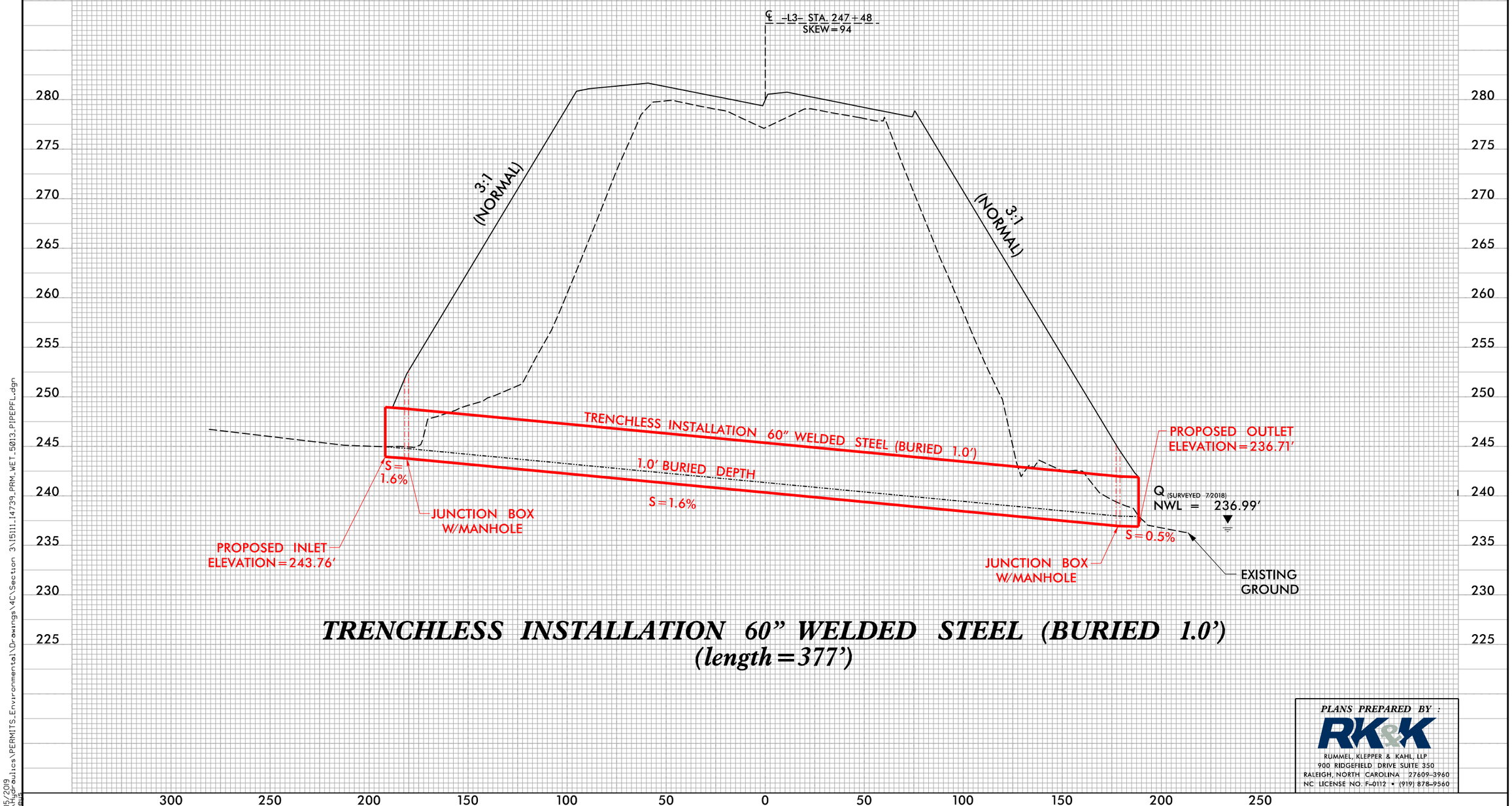
PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 116 OF 125

SITE 57
–L3– 247+48



TRENCHLESS INSTALLATION 60" WELDED STEEL (BURIED 1.0')
(length=377')

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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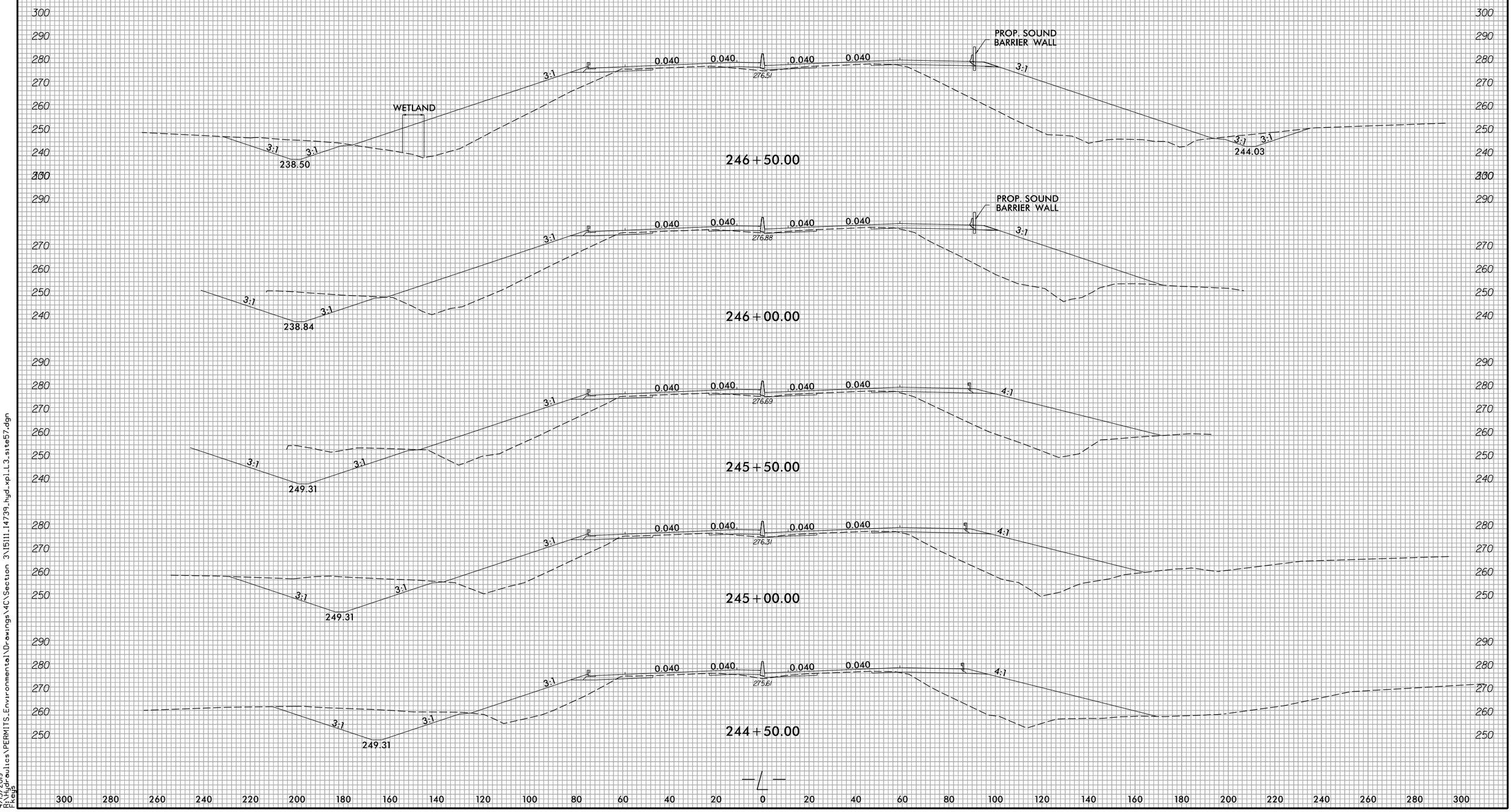
6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5111/I-4739	X-58

SITE 57

PERMIT DRAWING
SHEET 117 OF 125



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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 118 OF 125

ENGLISH

JS JS DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	51
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

SQ

SITE 58

INSET A

SEE INSET A

HP
–L3– STA. 260+13.48 LT
0.40% | 1.86%

HP
–L3– STA. 260+18.65 RT
0.39% | 1.86%

MATCHLINE –L– STA. 258+00 SEE SHEET 50

MATCHLINE –L– STA. 271+00 SEE SHEET 52

260+00 265+00 270+00

INTERSTATE 40 WBL 24' CONC
INTERSTATE 40 EBL 24' CONC
10' CONC PS
4' CONC PS

LATERAL 4' BASE SWALE SEE DETAIL AV

LATERAL 4' BASE SWALE SEE DETAIL AM

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

38 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=33' (SEE DETAIL BB)

RIP RAP AT EMBANKMENT SEE DETAIL BA

15" CSP 2 ELBOWS

JB w/MH

15" RCP-III

TB 2GI-ST

TB 2GI-ST REMOVE DI

PLUG & FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION OF REINFORCED STEEL JACKED PIPE

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE SEE DETAIL A

2GIB-WSS

2GIB-WSF

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

LATERAL 4' BASE DITCH SEE DETAIL R

LONNIE G. BOWLES AND WIFE, DONNA L. BOWLES

SANDRA M. WHITE AND HUSBAND, GREGORY D. GOODE, SR.

MICHELE LEE BURGOS AND HUSBAND, PHILIP DAVID BURGOS

MELISSA M. HAMILTON AND THOMAS N. TAYLOR

RYAN G. RHODES AND WIFE, CANDACE J. RHODES

RALPH C. GILLIKIN AND WIFE, CATERINA A. GILLIKIN

JOYCE GODWIN

MEHRAN CHARKHESHT

JOHN C. JOHNSON, III

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MIDLAND, INC.

WOODS

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SCALE FOR INSET

50 25 0 50 100
SCALE

PERMIT DRAWING
SHEET 119 OF 125

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5111/I-4739	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83

SQ

SITE 58

INSET A

SEE INSET A

HP
-L3- STA. 260+13.48 LT
0.40% 1.86%

HP
-L3- STA. 260+18.65 RT
0.39% 1.86%

MATCHLINE -L- STA. 258+00 SEE SHEET 50

MATCHLINE -L- STA. 271+00 SEE SHEET 52

RIP RAP AT EMBANKMENT — 38 TONS CL I RIP RAP W/75 SY GEOTEXTILE ON BANKS ONLY LENGTH=33' (SEE DETAIL BB)

LATERAL 4' BASE SWALE SEE DETAIL AM

LATERAL 4' BASE SWALE SEE DETAIL AV

2 TONS CL B RIP RAP W/7 SY GEOTEXTILE

15" CSP 2 ELBOWS

JB w/MH

15" RCP-III

TB 2GI-ST

TB 2GI-ST REMOVE DI

PLUG & FILL W/FLOWABLE FILL

STRUCTURE INSTALLATION 36" FILLED STEEL PIPE (NOT BURIED)

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT SWALE SEE DETAIL A

2GIB-WSS

2GIB-WSF

CONCRETE DITCH BEHIND WALL SEE DETAIL BE

LATERAL 4' BASE DITCH SEE DETAIL R

INTERSTATE 40 WBL 24' CONC

INTERSTATE 40 EBL 24' CONC

MIDLAND, INC.

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WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-LEB- 12+14 RT	HW Replacement - SZ						< 0.01	< 0.01	13	14	
1	-LWB- 18+77 LT	Rip Rap Outlet Pad - SZ						< 0.01	< 0.01	20	20	
2	-Y1RPA- 32+52 RT	Concr. Ditch Replacement - SAA							< 0.01		29	
2	-Y1RPBD- 31+06 RT	Prop Rdwy Fill - SAA						0.01		45		
2	-Y1RPBD- 30+62 LT	Rip Rap Outlet Pads - SAA						< 0.01	< 0.01	12	10	
3	-Y1RPBD- 46+74 to 48+93 LT	Prop Pipes & Bridge Construction - SBB						< 0.01	0.05	24	240	
4	-L- 39+21 LT	Rip Rap Outlet Pad - SB						< 0.01	< 0.01	13	10	
4	-L- 40+19 LT	Ditch Outfall - SB						< 0.01	< 0.01	18	27	
5	-L- 59+13 to 62+63 LT	Channel Change - SC						0.03	< 0.01	352	12	
6	-L- 64+53 RT	Channel work at 8'x8' RCBC inlet - SD						0.02	< 0.01	78	11	
6	-L- 65+38 LT	Channel work at 8'x8' RCBC outlet - SD						0.01	< 0.01	51	30	
7	-L- 90+96 RT	Channel work at 10'x9' RCBC inlet - WC, SF	< 0.01	0.04				0.06	0.02	85	90	
7	-L- 91+39 LT	Channel work at 10'x9' RCBC outlet - WD, SF		0.01				0.08	< 0.01	80	10	
8	-Y3RPA- 23+91 LT	Prop Rdwy Fill and Rip Rap Pad - SNN						< 0.01		59		
8	-Y3RPA- 23+45 RT	Channel Change - SNN						< 0.01	< 0.01	12	4	
9	-Y3RPA- 17+58 RT	Rip Rap at pipe outfalls - SOO						< 0.01	< 0.01	23	8	
TOTALS*:			< 0.01	0.05				0.24	0.11	885	515	0

*Rounded totals are sum of actual impacts

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
10	-L- 151+95 RT	Perm & Temp Channel Work - SG, SI						< 0.01	0.01	30	113	
10	-L- 145+45 to 149+23 LT	Channel Change and stabilization - SG, SH						0.03	< 0.01	496	18	
13	-L- 157+90 RT	Plug and Fill of Existing Outlet - SG							< 0.01		21	
13	-L- 158+46 to 159+72 RT	Roadway Fill Slope - SG						< 0.01	0.01	20	108	
TOTALS*:								0.04	0.03	546	260	0

*Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
April 2019
Wake County
I-5111 / I-4739
42346.3.1

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
14A	-L- 168+98-169+22 LT	BANK STABILIZATION - SRM						< 0.01	< 0.01	5	20	
14B	-L- 172+50-172+75 LT	BANK STABILIZATION - SRM						< 0.01	< 0.01	8	43	
14C	-L- 175+91-176+26 LT	BANK STABILIZATION - SRM						< 0.01	< 0.01	34	10	
15	ONLY IN BUFFER SET											
16A	-Y5RPD- 22+19-22+29 RT	EXIST. 24" CMP PLUG - SCF							< 0.01		10	
16B	-Y5RPD- 24+79 RT	EXIST. 15" CMP PLUG - SCF							< 0.01		15	
16C	-Y5RPC- 53+31 LT	60" RCP - SCF, WQF		< 0.01	< 0.01			< 0.01	< 0.01	46	10	
17	-Y5RCP- 54+38-54+68 RT	60" RCP - SOE, WQV		< 0.01				< 0.01	< 0.01	12	21	
	-Y5RCP- 54+68-55+37 RT	BANK STABILIZATION - SOE						< 0.01		84		
	-L- 250+27 LT	60" WSP - SOE						0.01		87		
	-L- 250+27 LT	BANK STABILIZATION - SOE						< 0.01		40		
	-Y5RPA- 22+51-22+93 RT	60" WSP - SOE						< 0.01	< 0.01	49	5	
18	-L- 256+39-257+51 LT & RT	DITCH, 66" WSP- SOI	< 0.01					< 0.01	< 0.01	62	6	
	-L- 256+70 LT	BANK STABILIZATION - SOI, WSD		0.02	0.02			< 0.01	< 0.01	34	11	
19	-L- 272+67-275+51 LT & RT	DITCH, 66" WSP - SNF						0.02	< 0.01	134	14	
20	-L- 281+93-284+50 LT & RT	CHANNEL CHANGE - SNH, WQE		0.01	< 0.01			< 0.01	< 0.01	99	46	
	-L- 284+50 LT	BANK STABILIZATION - SNH						< 0.01	< 0.01	5	10	
	-L- 287+00 LT	FILL SLOPE - WRX				< 0.01						
21	-L- 322+40-323+33 LT & RT	CHANNEL CHANGE, 72" RCP, SNY						0.02	< 0.01	138	19	
22	-L- 323+33-324+31 RT	CHANNEL CHANGE - SOC						0.01	< 0.01	108	22	
23A	-L- 362+54-364+61 LT	CHANNEL CHANGE - SLF / SEM						0.01	< 0.01	204	23	
23B	-L- 368+90-369+15 LT	BANK STABILIZATION - SEM						< 0.01	< 0.01	5	20	
23C	-L- 374+40-379+01 LT	CHANNEL CHANGE - SEM						0.02	< 0.01	455	10	
	-L- 379+01-379+22 LT	BANK STABILIZATION - SEM						< 0.01	< 0.01	12	10	
24	-L- 378+63-379+12 LT	BANK STABILIZATION - SLI, WNQ	0.02					< 0.01	< 0.01	56	15	
TOTALS*:			0.02	0.03	0.02	< 0.01		0.15	0.03	1678	339	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
25	ONLY IN BUFFER SET											
26A	-L- 381+90 RT	BANK STABILIZATION - SNK						< 0.01	< 0.01	5	10	
26B	-L- 385+85-386+27 RT	BANK STABILIZATION - SNK						< 0.01	< 0.01	42	10	
27	-L- 386+25 RT	BANK STABILIZATION - SNO						< 0.01	< 0.01	26	15	
28	-L- 387+46-387+93	60" WSP - SEM						0.01	< 0.01	41	20	
29	-L- 395+85 RT	CHANNEL CHANGE - SEK						< 0.01	< 0.01	48	10	
	-L- 396+45 LT	BANK STABILIZATION - SEK						< 0.01	< 0.01	37	10	
30	-L- 400+05 RT	ROADWAY FILL - WEC	< 0.01	< 0.01								
31	-L- 405+95 LT & RT	66" RCP - SEL						< 0.01	< 0.01	90	25	
32	-L- 416+74-416+93 LT	BANK STABILIZATION - SEV						< 0.01	< 0.01	10	10	
33	-L- 447+90 LT & RT	54" RCP & 54" WSP - SDT, WFA, WFC	0.01		0.01			0.01	< 0.01	127	10	
34	-L- 445+24-447+90 LT	ROADWAY FILL - SDU, WFB	0.01		0.04			< 0.01		88		
35	ONLY IN BUFFER SET											
36	-L- 461+16-461+39 RT	36" WSP - SDO						< 0.01		23		
	-L- 461+37-431+65 RT	BANK STABILIZATION - SDO						< 0.01	< 0.01	31	10	
37	-Y8RPA- 14+95-15+75 RT	36" RCP - WEZ	0.02									
38	ONLY IN BUFFER SET											
59	-Y5RPB- 43+22-44+62 LT	2 @ 48" RCP, CHANNEL CHANGE - SRN						0.01	< 0.01	159	10	
60	-Y8RPB- 39+80 LT	CHANNEL WORK - SET, WEX	0.06			0.02		< 0.01	< 0.01	51	10	
	-Y8RPA- 27+35 RT	BANK STABILIZATION - SET, WEX		< 0.01				< 0.01	< 0.01	23	10	
TOTALS*:			0.11	0.01	0.05	0.02		0.08	0.01	801	161	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
39A	-L- 98+30-99+62 LT	ROADWAY FILL - WEM	0.07			0.02						
39B	-L- 101+93-102+66 LT	ROADWAY FILL - WEM	0.01			0.01						
40	-L- 103+59-104+95 LT & RT	BANK STABILIZATION - SDG						0.12	0.03	254	90	
41	-L- 107+69-109+35 LT	ROADWAY FILL - WEP(1)				0.02						
42	-L- 104+95-108+09 RT	ROADWAY FILL - SDN, WEN	0.23	0.01		0.10		0.02		200		
43	-L- 110+24-110+66 RT	ROADWAY FILL - SEO							< 0.01		40	
44	-L- 111+78-114+64 LT & RT	60" RCP, ROADWAY FILL, DITCH - SEQ, WEO(1)			0.04			0.02		269		
	-L- 111+58-111+85 LT	BANK STABILIZATION - SEQ						< 0.01	< 0.01	16	11	
45	-L- 144+01-144+56 LT	48" CSP - SEU						0.01		154		
	-L- 143+75-144+08 LT	BANK STABILIZATION - SEU						< 0.01	< 0.01	40	11	
46	-L- 164+25-164+78 RT	30" CSP / 36" RCP - SEA, WOE	0.02					0.01		168		
47	-Y1RPA- 16+63-17+14 RT	54" CSP - SLV						< 0.01		62		
	-Y1RPA- 16+58-16+65 RT	BANK STABILIZATION - SLV						< 0.01	< 0.01	45	11	
48	-Y1RPA- 16+66-17+11 RT	ROADWAY FILL, RIPRAP - SLW						< 0.01	< 0.01	14	51	
49	-L- 171+49-174+67 LT & RT	66" WSP / 66" RCP - SLU, WC, WOB	0.06					0.03		284		
	-L- 171+40-174+63 LT & RT	BANK STABILIZATION - SLU						< 0.01	< 0.01	64	30	
50	-LCDWB- 64+67-68+61 LT & RT	60" CSP, CHANNEL CHANGE - SLS,WOA	0.05	0.02				0.06	< 0.01	588	57	
51	-Y2RPA3- 23+20-23+82 LT	ROADWAY FILL - WNZ	0.02									
	-Y2RPA3- 20+23-23+20	ROADWAY FILL - PBL						0.58				
	-L- 199+51-205+31	ROADWAY FILL, 66" RCP - SLR, WH	0.03					0.04		612		
	-Y2RPD3- 15+76-16+19 LT	BANK STABILIZATION- SLR						< 0.01	< 0.01	55	15	
52	-Y2RPD3- 23+65-24+43 LT	DITCH, ROADWAY FILL - WGG		0.01		0.02						
53	-L- 210+53-215+65 LT	54" RCP / 66" RCP - MILL BRANCH						0.06	< 0.01	401	7	
	-L- 210+21-210+61 RT	BANK STABILIZATION - MILL BRANCH						< 0.01	< 0.01	29	17	
TOTALS*:			0.49	0.05	0.04	0.18		0.98	0.05	3256	340	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

Revised 2016 09 09

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
54	-L- 232+69-233+35 LT	54" WSP - SJ, WI	0.06					< 0.01		82		
	-L- 233+33-233+44 LT	BANK STABILIZATION - SJ						< 0.01	< 0.01	45	10	
55	-L- 233+94-234+19 LT	48" RCP - SK, WJ	< 0.01					< 0.01		78		
	-L- 234+02-234+11 LT	BANK STABILIZATION - SK						< 0.01	< 0.01	40	10	
56	-L- 246+22-246+77 RT	CHANNEL CHANGE - SEE						< 0.01	< 0.01	102	10	
57	-L- 246+73-247+65	60" WSP - SDD, WFF	0.01					0.02	< 0.01	238	10	
	-L- 247+59-247+78 LT	BANK STABILIZATION - SDD						< 0.01	< 0.01	55	9	
58	-L- 269+75-270+63 LT	36" WSP - SQ						< 0.01		100		
	-L- 270+58-270+85 LT	BANK STABILIZATION - SQ						< 0.01	< 0.01	33	27	
TOTALS*:			0.09					0.06	< 0.01	773	76	0
PROJECT TOTALS*:			**0.72**	**0.14**	**0.11**	**0.21**		**1.55**	**0.24**	**7939**	**1691**	

NOTES:
*Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739