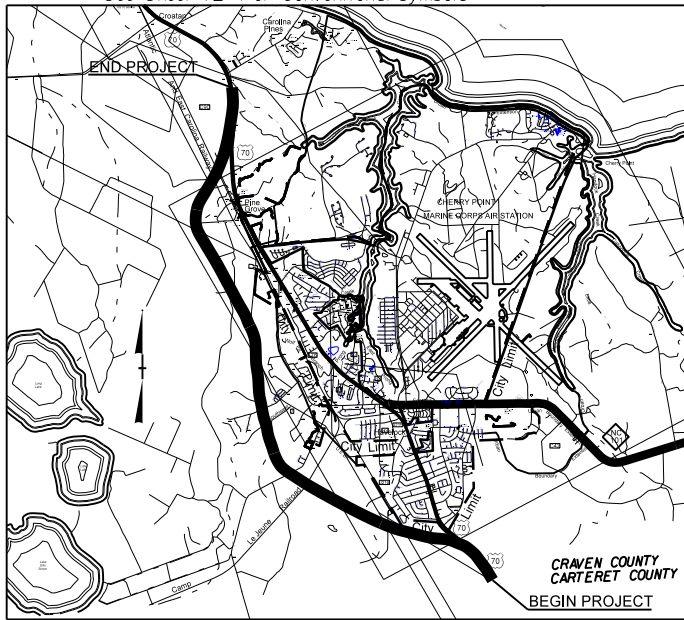


09/08/99

TIP PROJECT: R-1015

CONTRACT: C204177

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

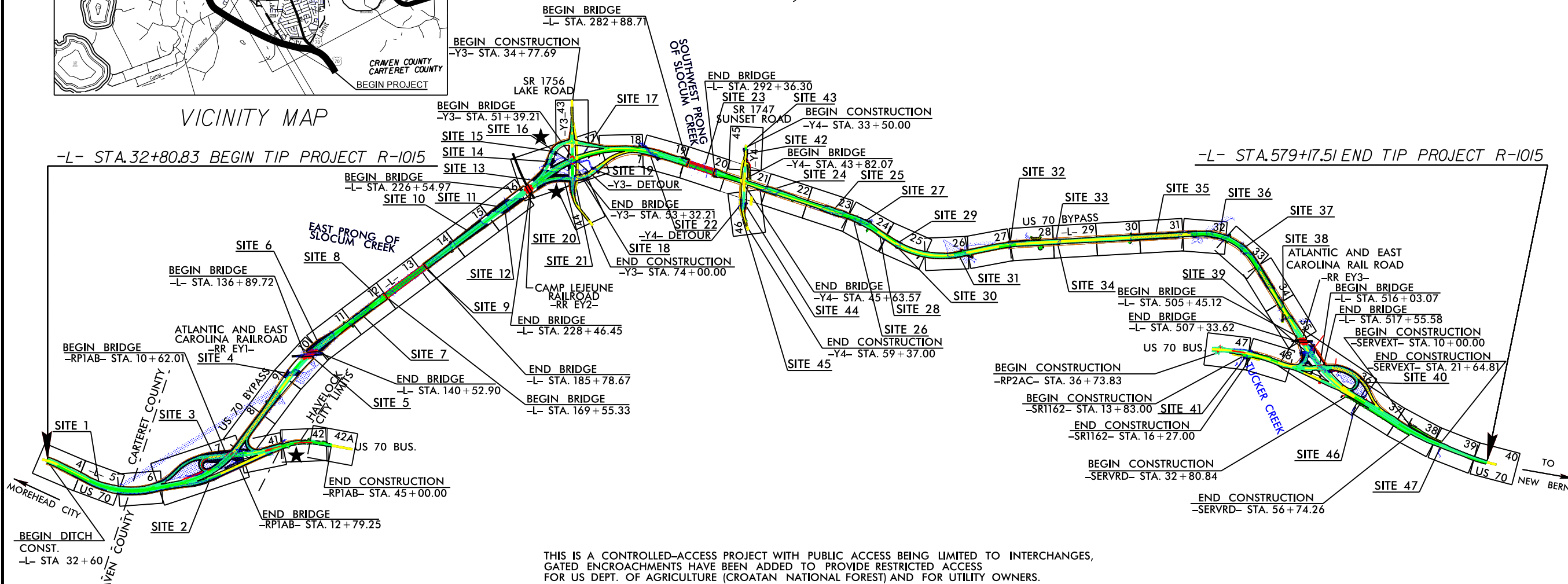
CRAVEN COUNTY

LOCATION: US 70 (HAVELOCK BYPASS) FROM SOUTH OF CARTERET /CRAVEN
COUNTY LINE TO SOUTH OF SR 1176, (CAROLINA PINES BLVD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, CULVERTS
SIGNING, SIGNALS AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-1015	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34360.1.2	NHF-70(49)	PE	
34360.2.4	NHF-70(49)	RW	
34360.2.5	NHF-70(49)	UTIL	
34360.3.4	NHF-70(49)	CONST	

PERMIT DRAWING
SHEET 1 OF 167

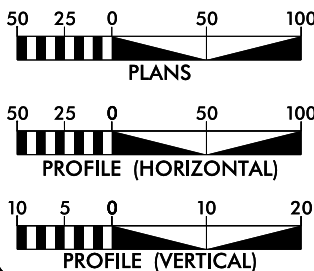


THIS IS A CONTROLLED-ACCESS PROJECT WITH PUBLIC ACCESS BEING LIMITED TO INTERCHANGES,
GATED ENCROACHMENTS HAVE BEEN ADDED TO PROVIDE RESTRICTED ACCESS
FOR US DEPT. OF AGRICULTURE (CROATAN NATIONAL FOREST) AND FOR UTILITY OWNERS.

WETLAND AND SURFACE WATER IMPACTS PERMIT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = N/A
ADT 2035 = 22,900
K = 9 %
D = 60 %
T = 8 % *
V = 70 MPH
* TTST 3% DUAL 3%
FUNC. CLASS = FREEWAY
(FUTURE INTERSTATE)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-1015 = 9.691 MILES
LENGTH OF STRUCTURE TIP PROJECT R-1015 = 0.657 MILES
TOTAL LENGTH OF TIP PROJECT R-1015 = 10.348 MILES

Prepared for NCDOT In the Office of:
moftatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX (F-0105)

RIGHT OF WAY DATE:
SEPTEMBER 16, 2016

LETTING DATE:
FEBRUARY 19, 2019

TIM REID, PE
PROJECT ENGINEER

TRENT HUFFMAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

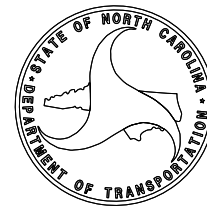


SIGNATURE:

ROADWAY DESIGN
ENGINEER



SIGNATURE:



Details

PROJECT REFERENCE NO.

SHEET NO.

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

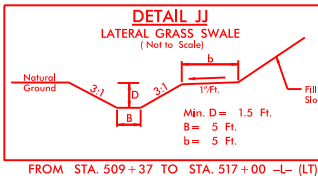
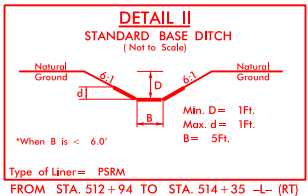
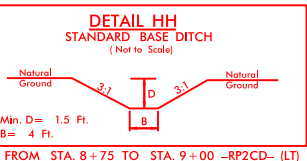
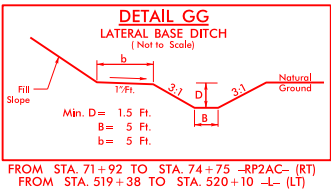
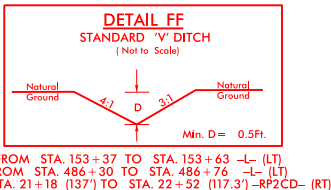
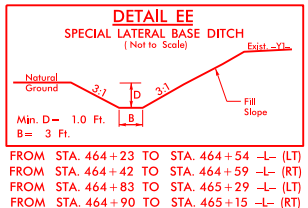
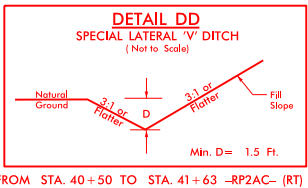
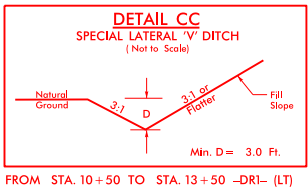
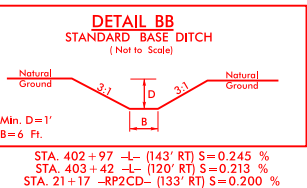
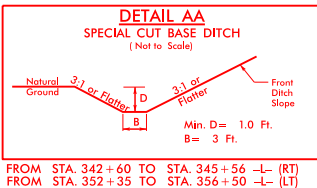
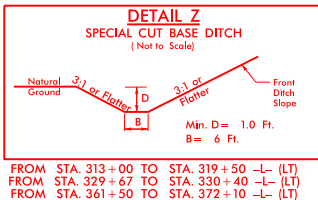
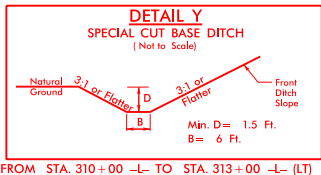
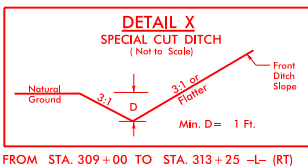
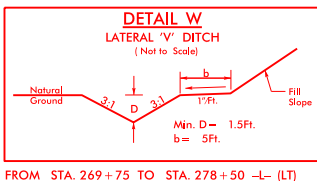
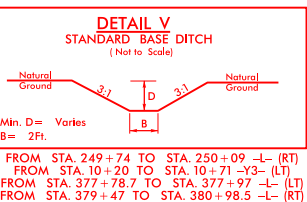
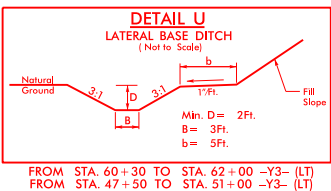
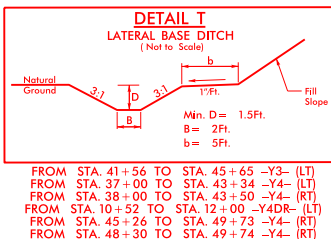
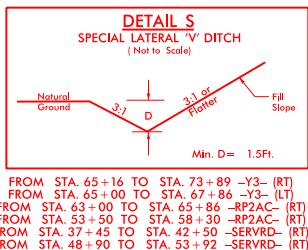
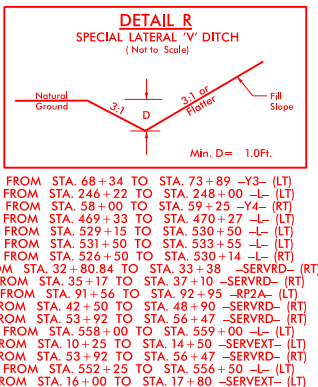
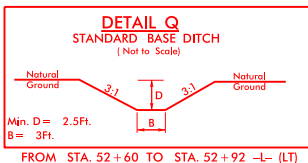
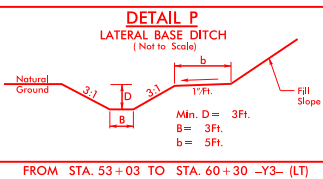
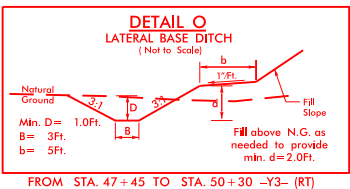
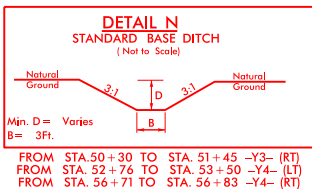
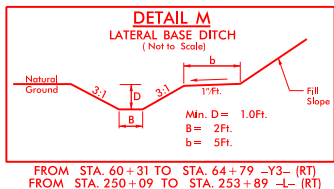
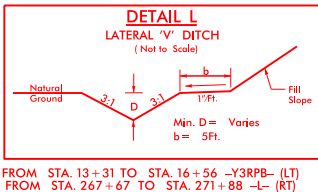
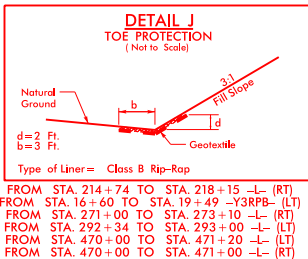
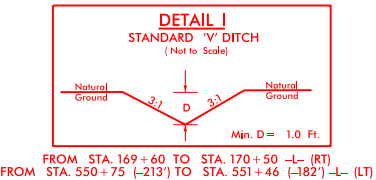
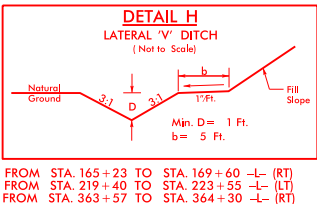
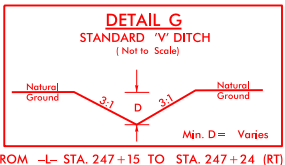
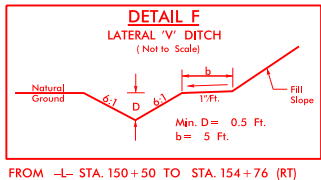
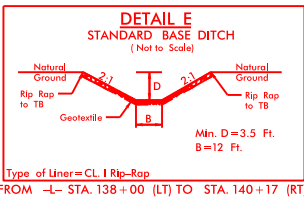
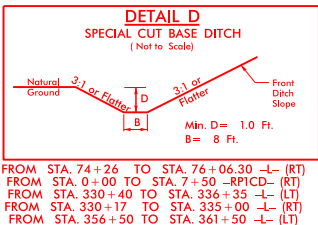
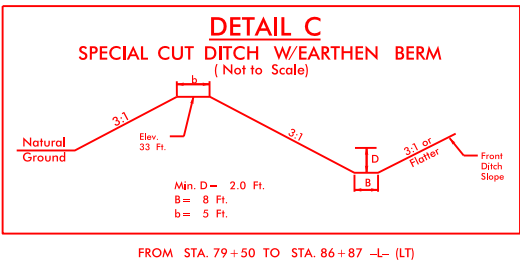
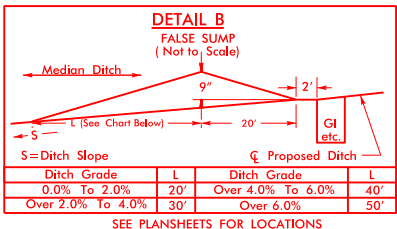
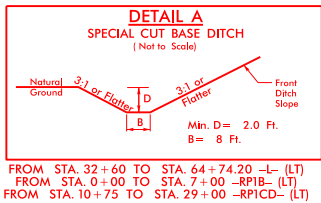
HYDRAULICS ENGINEER

INCOMPLETE PLANS

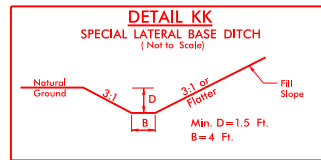
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING

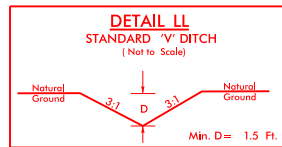
SHEET 2 OF 167



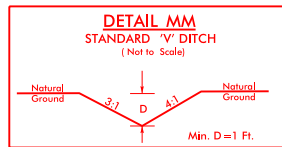
Details (cont.)



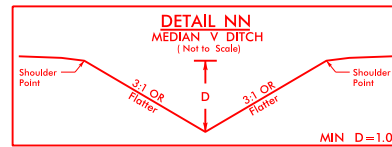
FROM STA. 9+00 TO STA. 11+65 -RP2CD- (LT)
FROM STA. 563+25 TO STA. 565+50 -L- (LT)



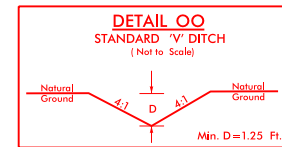
STA. 90+41 -RP2A- (LT)
FROM STA. 12+15 TO STA. 12+89 -RP2CD- (RT)
FROM STA. 534+65 TO STA. 535+02 -L- (LT)
FROM STA. 536+53 TO STA. 536+74 -L- (LT)
FROM STA. 536+83 TO STA. 537+43 -L- (LT)



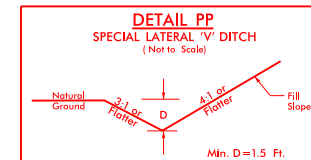
STA. 11+66 to 12+05 -RP2CD- (LT)



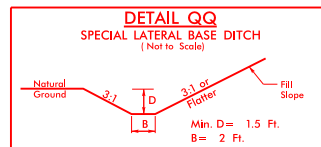
FROM STA. 162+00 TO STA. 167+00 -L- (MED)
FROM STA. 224+00 TO STA. 226+26 -L- (MED)
FROM STA. 434+50 TO STA. 450+50 -L- (MED)
FROM STA. 530+14 TO STA. 536+00 -L- (RT)
FROM STA. 537+00 TO STA. 579+00 -L- (RT)
FROM STA. 555+00 TO STA. 559+50 -L- (MED)
FROM STA. 566+47 TO STA. 575+00 -L- (MED)
FROM STA. 575+00 TO STA. 579+17.51 -L- (MED)



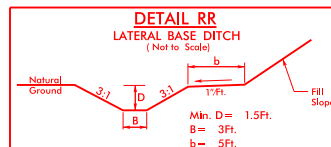
STA. 533+55 -L- (LT) S=6.8 %



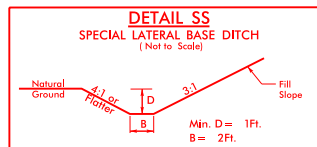
FROM STA. 559+00 TO STA. 562+50 -L- (LT)



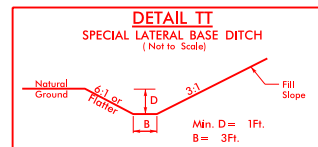
FROM STA. 544+00 TO STA. 552+25 -L- (LT)
FROM STA. 562+50 TO STA. 563+25 -L- (LT)



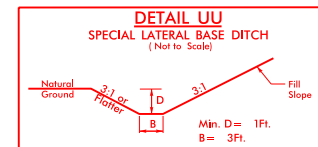
FROM STA. 53+50 TO STA. 54+50 -Y4- (LT)
STA. 11+00 -SERVEXT- S=0.286 %



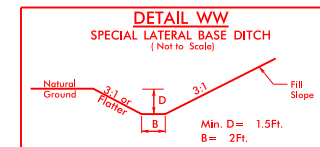
FROM STA. 34+57 TO STA. 41+17 -Y3- (LT)
FROM STA. 543+00 TO STA. 544+00 -L- (LT)



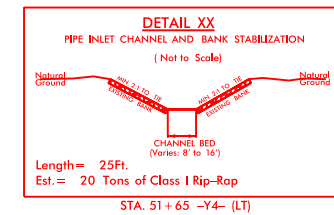
FROM STA. 34+57 TO STA. 37+79 -Y3- (RT)



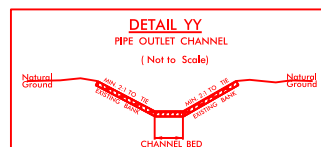
FROM STA. 38+60 TO STA. 41+50 -Y3- (RT)



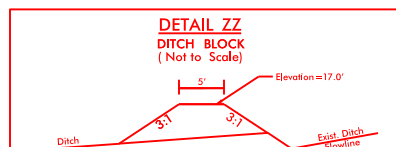
FROM STA. 34+23 TO STA. 37+00 -Y4- (LT)
FROM STA. 34+47 TO STA. 38+00 -Y4- (RT)
FROM STA. 12+00 TO STA. 15+70 -Y4DR- (LT)
FROM STA. 12+00 TO STA. 15+70 -Y4DR- (LT)



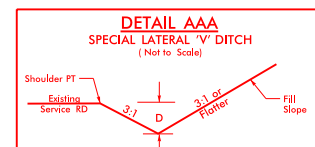
Length= 25Ft.
Est.= 20 Tons of Class I Rip-Rap
STA. 51+65 -Y4- (LT)



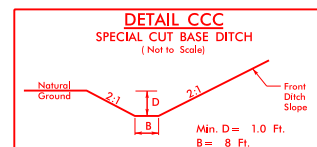
Length = 30Ft.
Est. = 100 Tons of Class I Rip-Rap
STA. 52+38 -Y4- (RT)



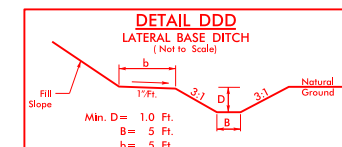
STA. 58+77 -Y4- (LT)



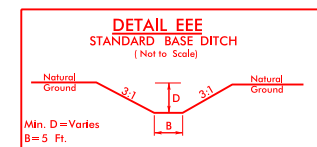
FROM STA. 38+50 TO STA. 42+50 -RP2AC- (RT)



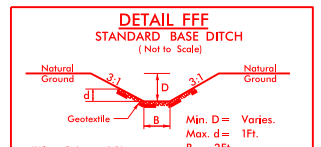
FROM STA. 341+50 -L- TO STA. 347+63 -L- (LT)



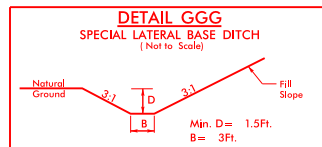
FROM STA. 7+27 TO STA. 8+36 -RP2C- (RT)



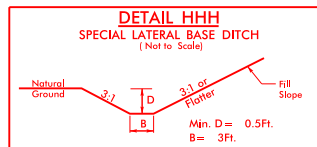
STA. 6+14 to 7+27 -RP2C-
STA. 72+02 to 72+50 -RP2AC- (RT)



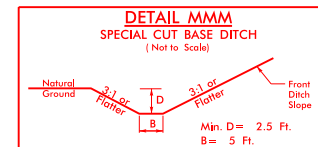
Min. D = Varies.
Max. d = 1Ft.
B = 2Ft.
Type of Liner = CLASS I Rip-Rap
FROM STA. 34+12 TO STA. 34+47 -Y4- (RT)



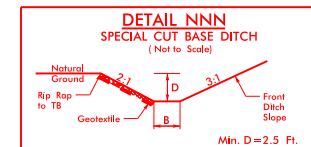
FROM STA. 54+50 TO STA. 58+66 -Y4- (LT)



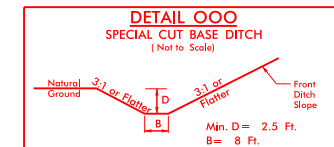
FROM STA. 56+83 TO 58+00 -Y4- (RT)



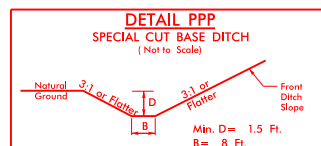
FROM STA. 33+48 TO STA. 36+78 -RP1CD- (RT)



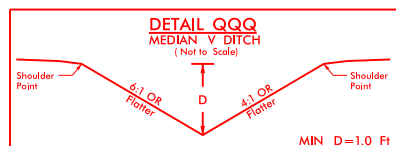
Type of Liner=CL. B Rip-Rap
FROM STA. 28+39.21 TO STA. 30+00 -RP1AB- (RT)
FROM STA. 36+78 TO STA. 36+93.06 -RP1CD- (RT)



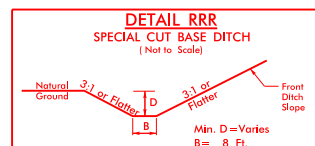
FROM STA. 12+50 TO STA. 33+48 -RP1CD- (RT)
FROM STA. 0+00 TO STA. 0+55 -RP1A- (RT)
FROM STA. 22+04.84 TO STA. 28+50 -RP1AB- (LT)



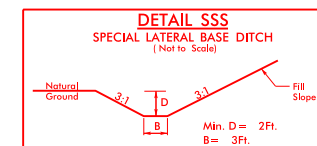
FROM STA. 7+50 TO STA. 12+50 -RP1CD- (RT)



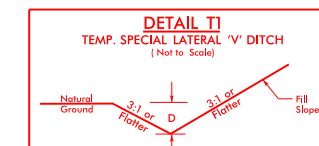
-RP1AB- FROM STA. 20+50 TO STA. 22+70 -RP1AB- (MED)



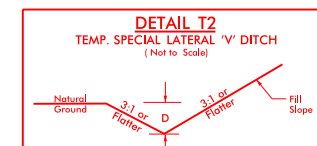
FROM STA. 32+60 TO STA. 74+26 -L- (RT)



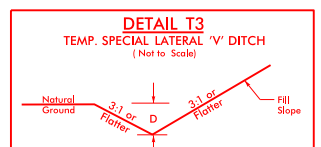
FROM STA. 62+00 TO STA. 65+00 -Y3- (LT)



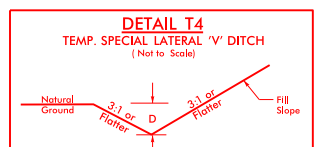
FROM STA. 42+50 TO STA. 51+13 -Y3DET- (RT)
FROM STA. 55+00 TO STA. 59+50 -Y3DET- (RT)
FROM STA. 38+25 TO STA. 40+25 -Y4DET- (LT)
FROM STA. 54+00 TO STA. 55+00 -Y4DET- (LT)



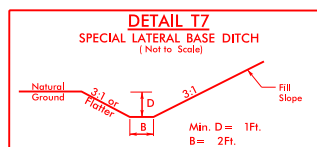
FROM STA. 50+50 TO STA. 52+99 -Y3DET- (LT)
FROM STA. 54+50 TO STA. 61+00 -Y3DET- (LT)
FROM STA. 34+52 TO STA. 38+78 -Y4DET- (RT)



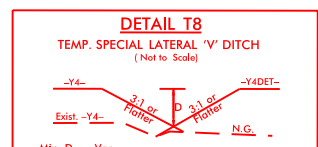
FROM STA. 68+42 TO STA. 69+16 -Y3DET- (LT)
FROM STA. 66+50 TO STA. 69+16 -Y3DET- (RT)



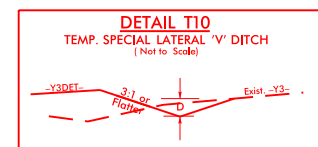
FROM STA. 53+10 TO STA. 54+50 -Y3DET- (LT)
FROM -Y3DET- STA. 61+00 TO STA. 67+93 (LT)



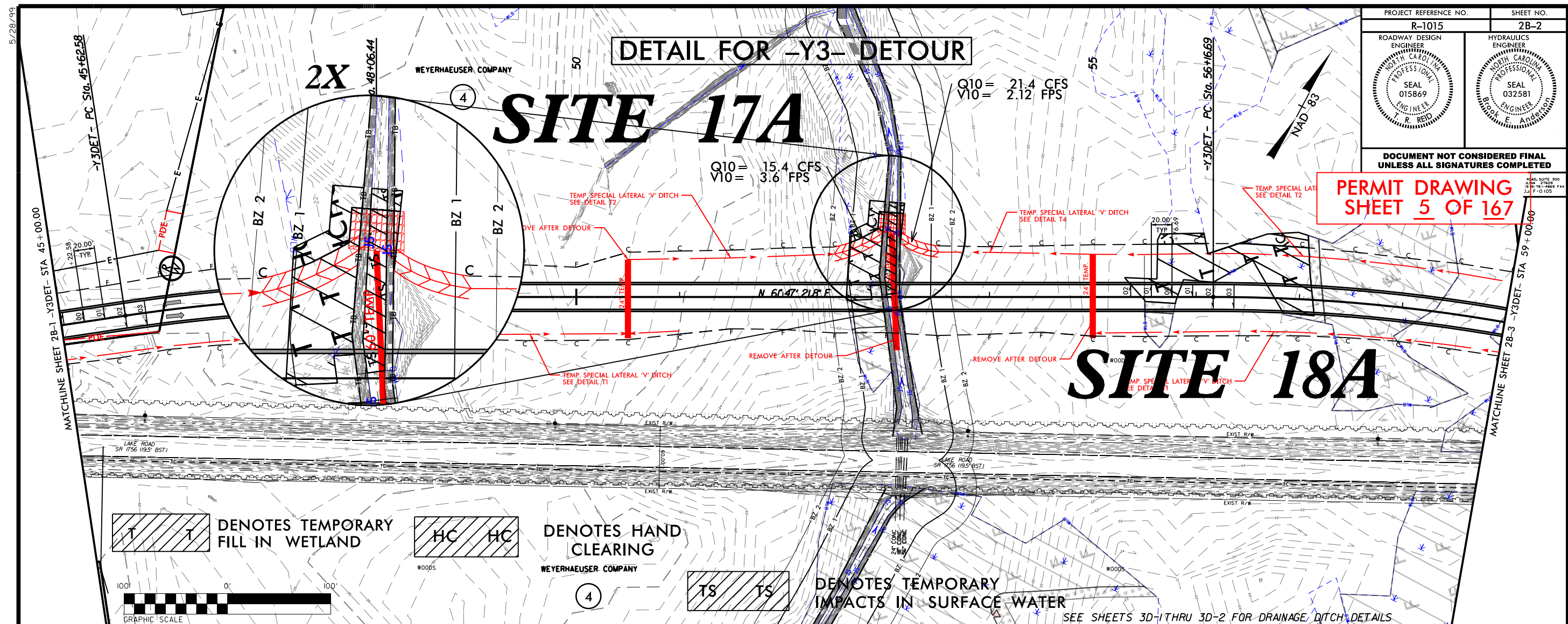
FROM STA. 36+29 TO STA. 40+50 -Y3DET- (LT)



FROM STA. 55+00 TO STA. 55+75 -Y4DET- (LT)



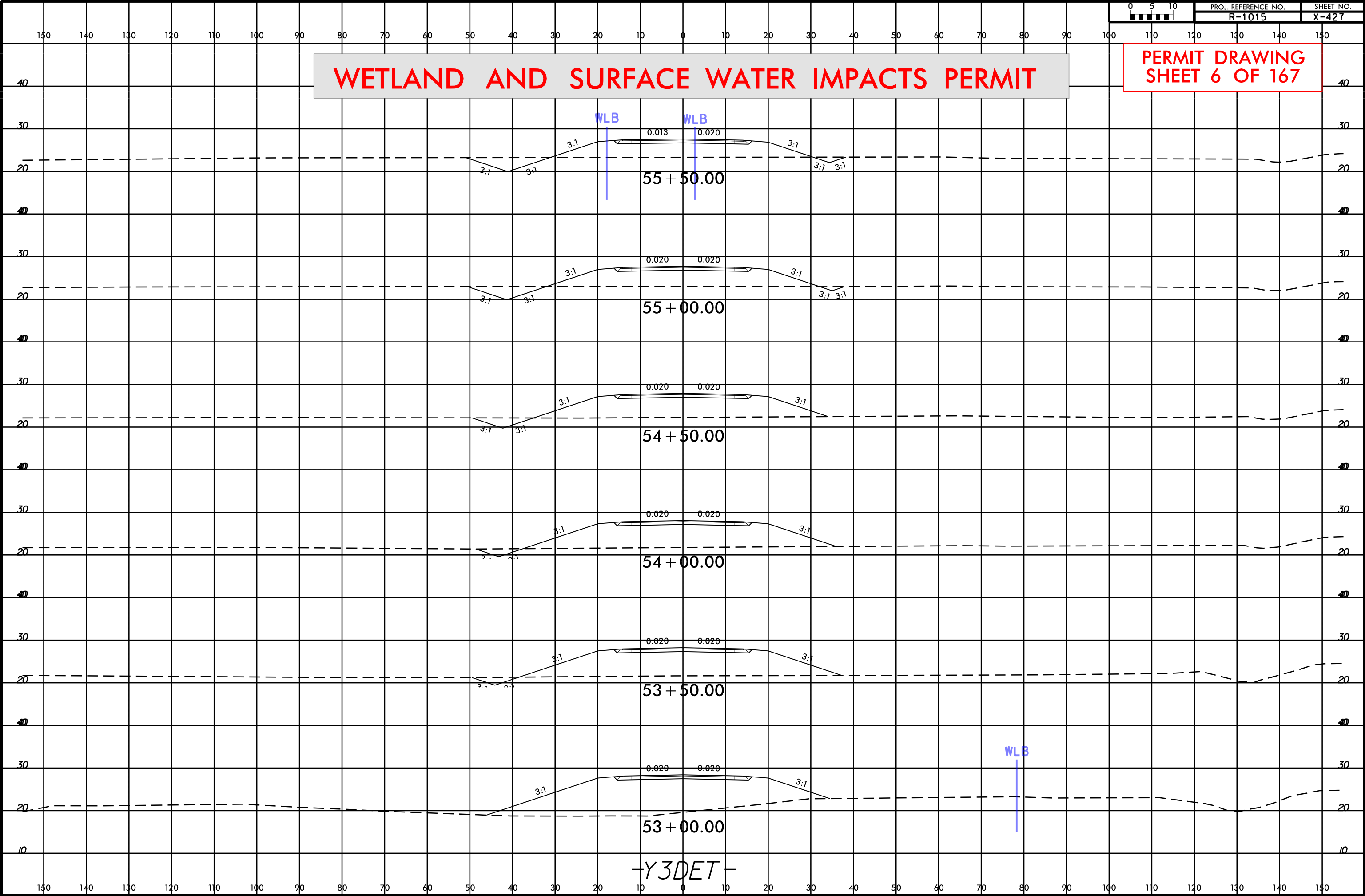
FROM STA. 61+21 TO STA. 64+50 -Y3DET- (RT)



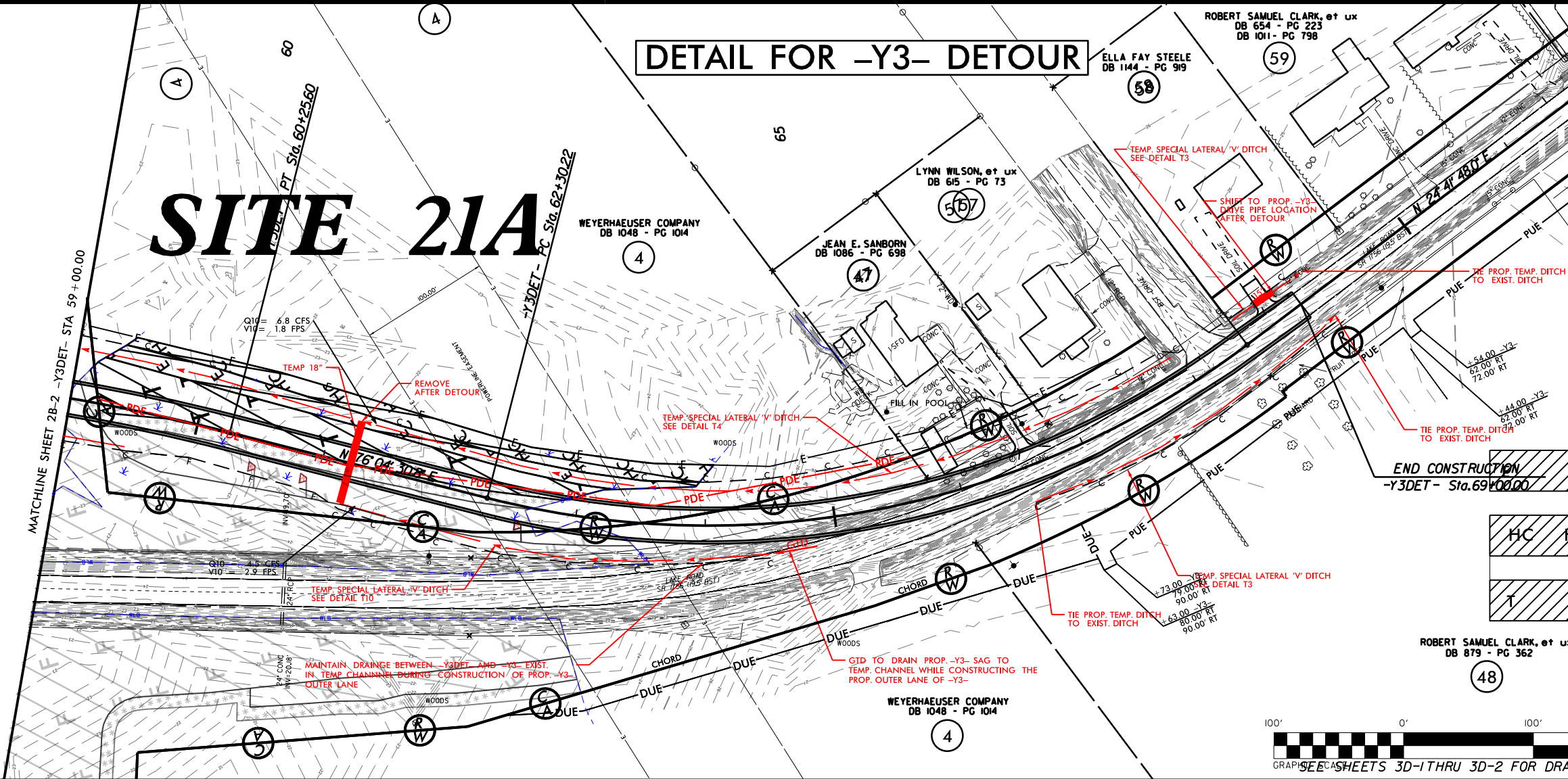
6/23/16

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 6 OF 167



5/28/99



PROJECT REFERENCE NO.	SHEET NO.
R-1015	2B-3

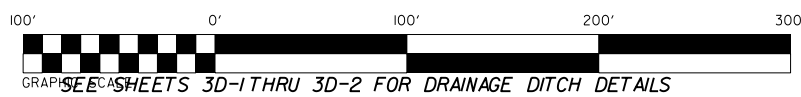
ROADWAY DESIGN
ENGINEER
NORTH CAROLINA
PROFESSIONAL
SEAL
015869
T. R. REID

HYDRAULICS
ENGINEER
NORTH CAROLINA
PROFESSIONAL
SEAL
032581
BRIAN E. ANDERSON

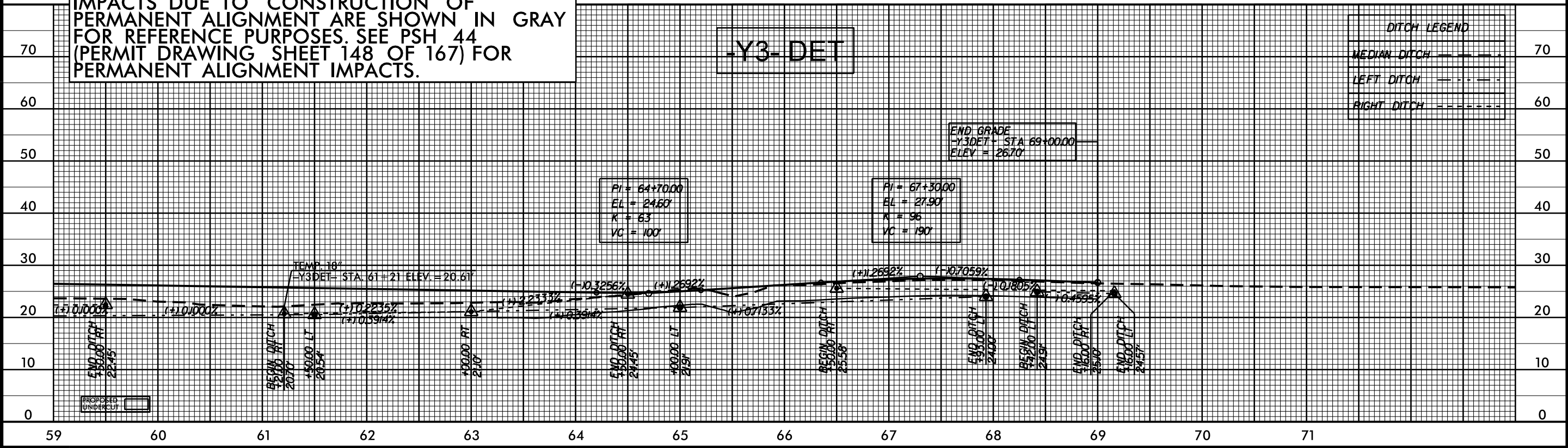
moftatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919-781-1234 VOICE 919-781-1235 FAX
NC License No. F-0105

**PERMIT DRAWING
SHEET 8 OF 167**

- ⬮ DENOTES EXCAVATION
IN WETLAND
- HC HC DENOTES HAND
CLEARING
- T T DENOTES TEMPORARY
FILL IN WETLAND



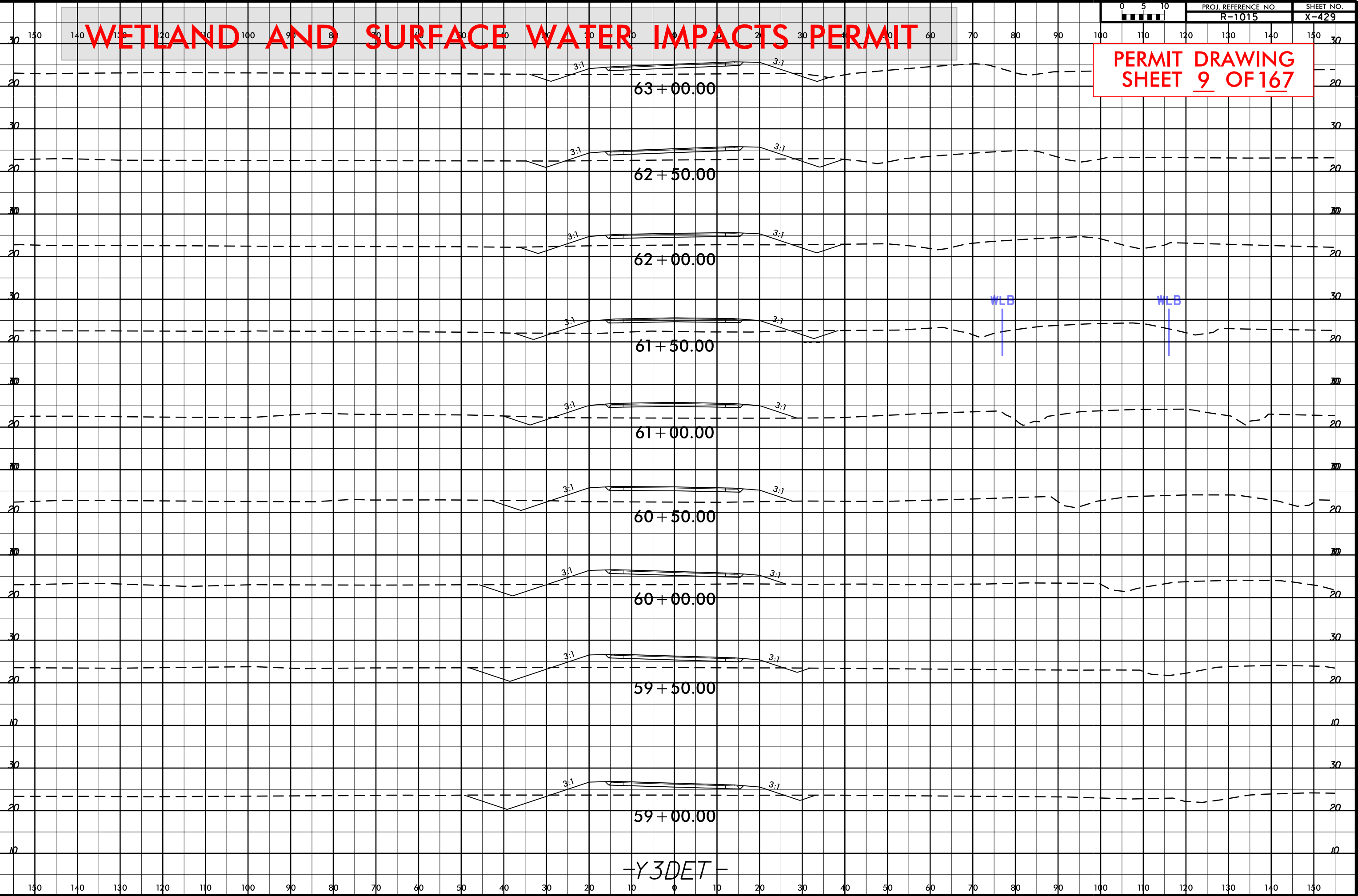
IMPACTS DUE TO CONSTRUCTION OF
PERMANENT ALIGNMENT ARE SHOWN IN GRAY
FOR REFERENCE PURPOSES. SEE PSH 44
(PERMIT DRAWING SHEET 148 OF 167) FOR
PERMANENT ALIGNMENT IMPACTS.



11/4/2018
ngberry
R:\Hydraulics\PERMITS\Environmental Drawings\Wetland & Stream\1-1015_Hyd_Prm_wet_PSH2B-3.dgn
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$REV\$\$\$\$\$



PERMIT DRAWING
SHEET 9 OF 167



5/28/99

IMPACTS DUE TO CONSTRUCTION OF
PERMANENT ALIGNMENT ARE SHOWN IN GRAY
FOR REFERENCE PURPOSES. SEE PSH 46
(PERMIT DRAWING SHEET 154 OF 167) FOR
PERMANENT ALIGNMENT IMPACTS.

DETAIL FOR -Y4- DETOUR

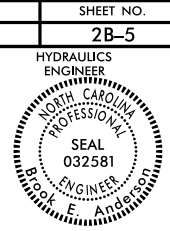
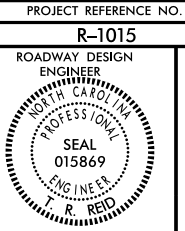
UNITED STATES AGRICULTURE
CROATAN NATIONAL FOREST

(2)

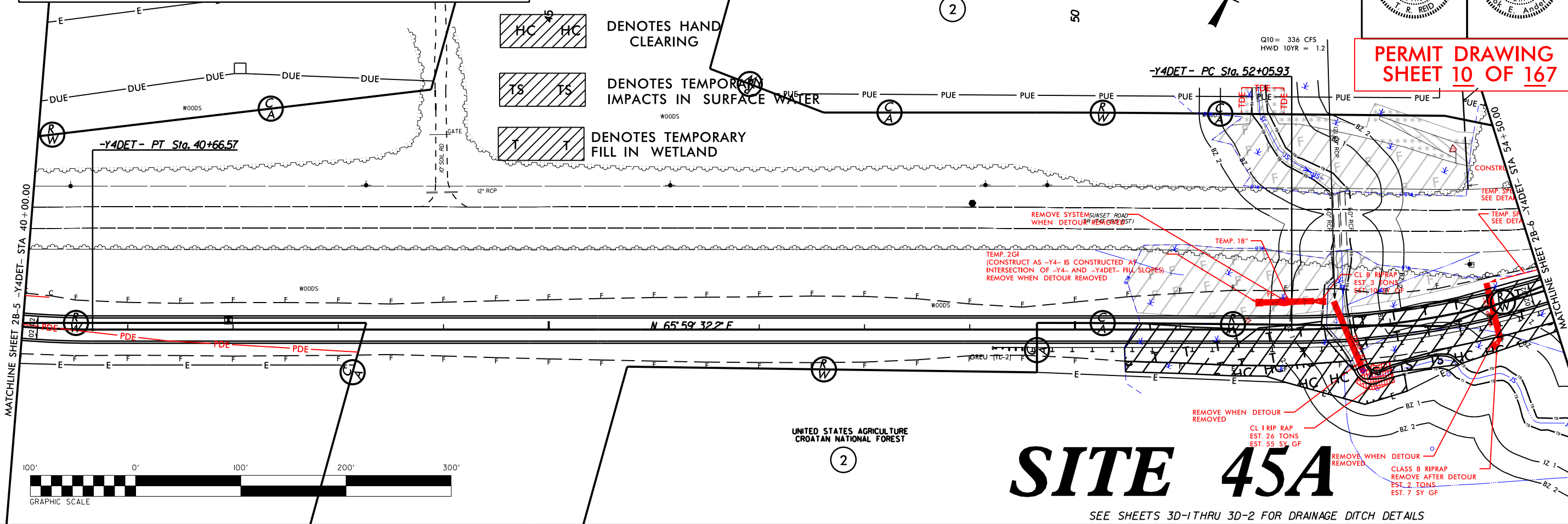
50



Q10 = 336 CFS
HWD 10YR = 1.2



PERMIT DRAWING
SHEET 10 OF 167



SITE 45A

SEE SHEETS 3D-1 THRU 3D-2 FOR DRAINAGE DITCH DETAILS



5/28/99

IMPACTS DUE TO CONSTRUCTION OF PERMANENT ALIGNMENT ARE SHOWN IN GRAY FOR REFERENCE PURPOSES. SEE PSH 46 (PERMIT DRAWING SHEET 154 OF 167) FOR PERMANENT ALIGNMENT IMPACTS.

DETAIL FOR -Y4- DETOUR



DENOTES HAND CLEARING



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES TEMPORARY FILL IN WETLAND

Q10 = 336 CFS
HWD 10YR = 1.2

PERMIT DRAWING SHEET 11 OF 167

MATCHLINE SHEET 2B-5 -Y4DET- STA 40+00.00



SITE 45A

SEE SHEETS 3D-1 THRU 3D-2 FOR DRAINAGE DITCH DETAILS

-Y4- DET

DITCH LEGEND

MEDIAN DITCH	---
LEFT DITCH	- - - -
RIGHT DITCH	- - - -

PI = 41+00.00
EL = 27.50'
K = 198
VC = 80'

PI = 48+00.00
EL = 32.85'
K = 31
VC = 170'

PI = 52+60.00
EL = 15.20'
K = 49
VC = 300'

END DITCH
STA 40+00
ELEV 22.47'

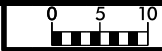
TEMP 18"

-Y4DET- STA 54+00 ELEV. = 11.38'

TEMP 84"

-Y4DET- STA 52+57 ELEV. = 6.52'

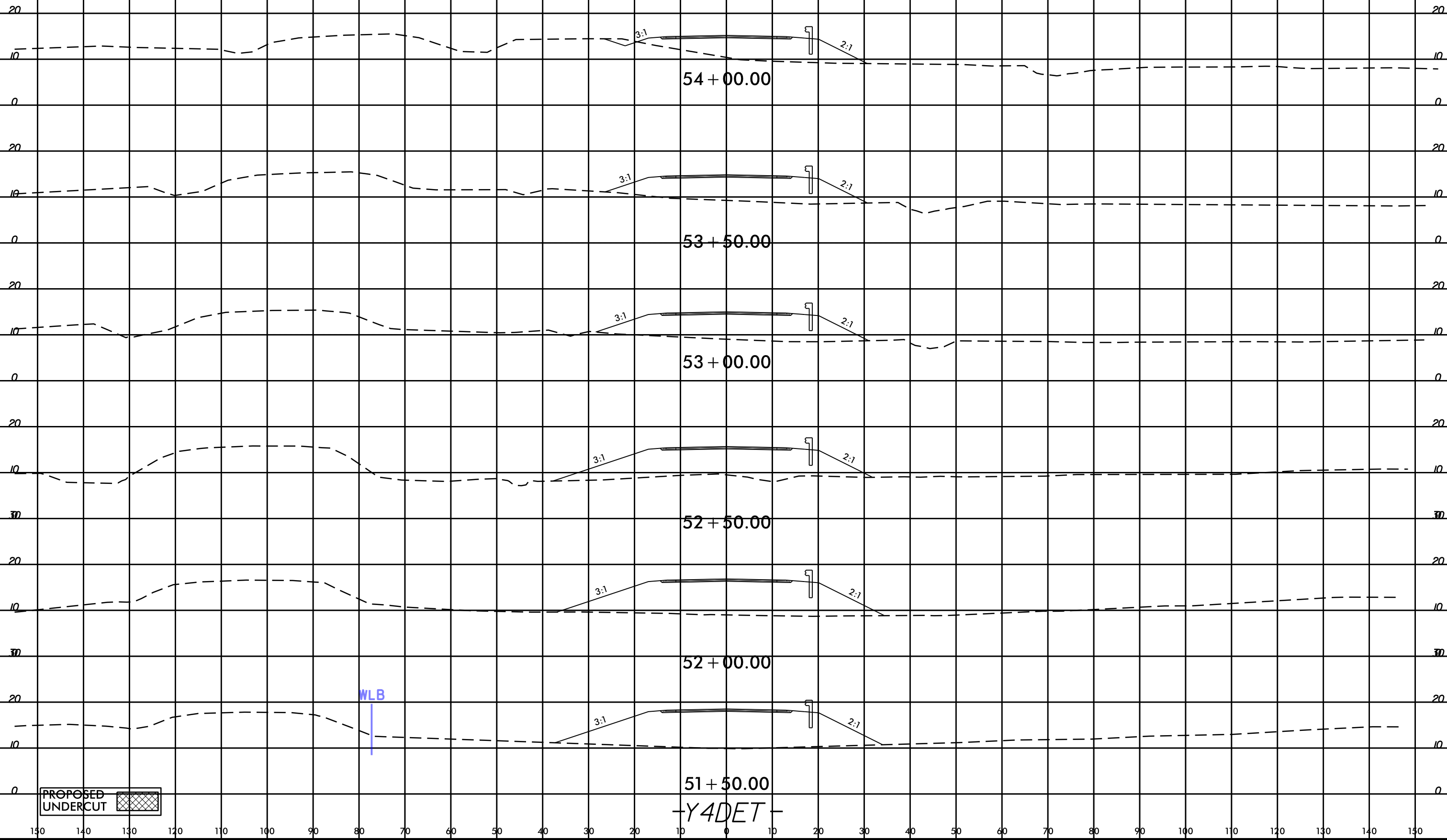
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-1015	X-437

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 12 OF 167



5/28/99

UNITED STATES AGRICULTURE
CROATAN NATIONAL FOREST

2

-Y4DET- PT Sta. 58+66.87

DETAIL FOR -Y4- DETOUR

END CONSTRUCTION
-Y4DET- PT Sta. 58+70.00

-Y4DET- POT Sta. 61+06.87

-Y4- IS CONSTRUCTED
GRADE -Y4DET- SHOULDER
TO DRAIN TO STR. #211
(-Y4DET- 55+75 TO 56+84LT)

CONSTRUCT AS -Y4- IS CONSTRUCTED
TEMP. SPECIAL LATERAL 'V' DITCH
SEE DETAIL T8

REMOVE SYSTEM
WHEN DETOUR
REMOVED

CLASS B RIPRAP
EST. 1 TONS
EST. 5 SY GF

UNITED STATES AGRICULTURE
CROATAN NATIONAL FOREST

2

SITE 45A

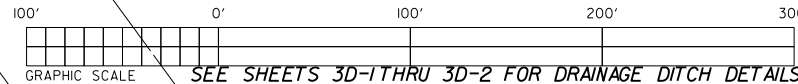


DENOTES HAND
CLEARING



DENOTES TEMPORARY
FILL IN WETLAND

IMPACTS DUE TO CONSTRUCTION OF
PERMANENT ALIGNMENT ARE SHOWN IN GRAY
FOR REFERENCE PURPOSES. SEE PSH 46
(PERMIT DRAWING SHEET 154 OF 167) FOR
PERMANENT ALIGNMENT IMPACTS.



PROJECT REFERENCE NO.

R-1015

SHEET NO.

2B-6

ROADWAY DESIGN
ENGINEER
NORTH CAROLINA
PROFESSIONAL
SEAL
015869
T. R. REID

HYDRAULICS
ENGINEER
NORTH CAROLINA
PROFESSIONAL
SEAL
032581
B. E. Anderson

moftatt & nichol

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919/781-0224 VOICE 919/781-2769 FAX
NC License No. F-0105

PERMIT DRAWING
SHEET 13 OF 167

DITCH LEGEND

MEDIAN DITCH	---
LEFT DITCH	---
RIGHT DITCH	---

-Y4- DET

END GRADE
-Y4DET- STA 58+70.00
ELEV = 17.59'

PI = 55+35.00
EL = 17.10'
K = 46
VC = 80'

PI = 56+95.00
EL = 16.55'
K = 86
VC = 80'

TEMP. 8'
Y4DET- STA 54+00 ELEV. = 11.38'

(+1.4164% (-10.3385%)

(+1.21100% (-1.06000%)

(-10.3385% (+10.5923%)

BEGIN DITCH
100.00 LT
12.93'

100.00 LT
15.04'

END DITCH
100.00 LT
15.48'

5/28/99

UNITED STATES AGRICULTURE
CROATAN NATIONAL FOREST

2

-Y4DET- PT Sta. 58+66.87

DETAIL FOR -Y4- DETOUR

END CONSTRUCTION
-Y4DET- PT Sta. 58+70.00

-Y4DET- POT Sta. 61+06.87

AS -Y4- IS CONSTRUCTED
GRADE -Y4DET- SHOULDER
TO DRAIN TO STR. #211
(-Y4DET- 55+75 TO 56+84LT)

CONSTRUCT AS -Y4- IS CONSTRUCTED
TEMP. SPECIAL LATERAL 'V' DITCH
SEE DETAIL T8

REMOVE SYSTEM
WHEN DETOUR
REMOVED
CLASS B RIPRAP
EST. 1 TONS
EST. 8 SY GP

UNITED STATES AGRICULTURE
CROATAN NATIONAL FOREST

2

SITE 45A

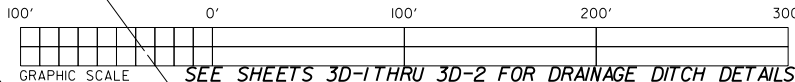


DENOTES HAND
CLEARING



DENOTES TEMPORARY
FILL IN WETLAND

IMPACTS DUE TO CONSTRUCTION OF
PERMANENT ALIGNMENT ARE SHOWN IN GRAY
FOR REFERENCE PURPOSES. SEE PSH 46
(PERMIT DRAWING SHEET 154 OF 167) FOR
PERMANENT ALIGNMENT IMPACTS.



PROJECT REFERENCE NO.
R-1015

SHEET NO.
2B-6



moftatt & nichol

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919/781-0224 VOICE 919/781-6765 FAX
NC License No. F-0105

PERMIT DRAWING
SHEET 14 OF 167

-Y4- DET

END GRADE
-Y4DET- STA 58+70.00
ELEV = 17.59'

PI = 55+35.00
EI = 17.10'
K = 46
VC = 80'

PI = 56+95.00
EI = 16.55'
K = 86
VC = 80'

TEMP. 18'
Y4DET- STA 54+00 ELEV. = 11.38'

(+1.4164% (-10.3385%)

(+1.21100% (-1.06000%)

(+1.03385% (+1.05923%)

BEGIN DITCH
100.00 LT
12.93'

END DITCH
100.00 LT
15.48'

DITCH LEGEND

MEDIAN DITCH
LEFT DITCH
RIGHT DITCH

8/17/99

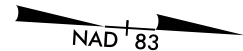
REVISIONS

7/13/2018 - PARCEL 1 - REVISED R/W EXTENDED BACK TO STATION 30+50.00 LT AND RT
10/29/18 - PARCEL 1 - ADDED PUE -L- RT, STA.41+27.00 TO STA.44+00.00

SYTIME
DESIGN
DRAWN
CHECKED
APPROVED

-L-
PI Sta 33+69.33
 $\Delta = 17^\circ 46' 26.7" (RT)$
 $D = 3' 19' 35.2"$
 $L = 534.33'$
 $T = 269.33'$
 $R = 1722.44'$
 $SE = 0.08$
 $RO = 320.00'$
 $DS = 60 \text{ mph}$

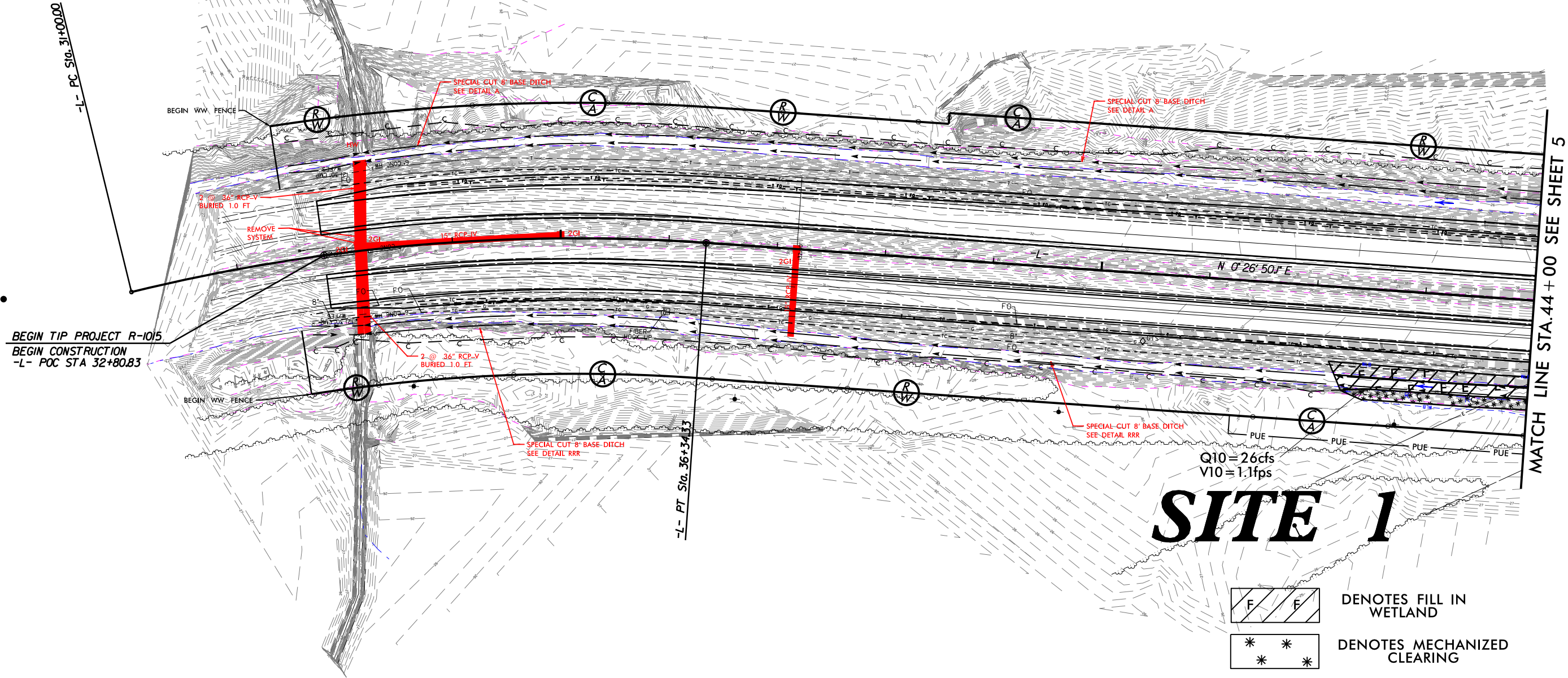
DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST



PROJECT REFERENCE NO.	SHEET NO.
R-1015	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

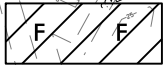
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27607
(919) 781-4826 VOICE (919) 781-4884 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 16 OF 167



DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

SITE 1



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING



DENOTES EXCAVATION IN WETLAND



8/17/99

REVISIONS

10/29/18 - PARCEL 1 - ADEDED PUE -L- RT STA.44+00.00 TO STA.58+00.00

SYTIME
DESIGN
DRAWING

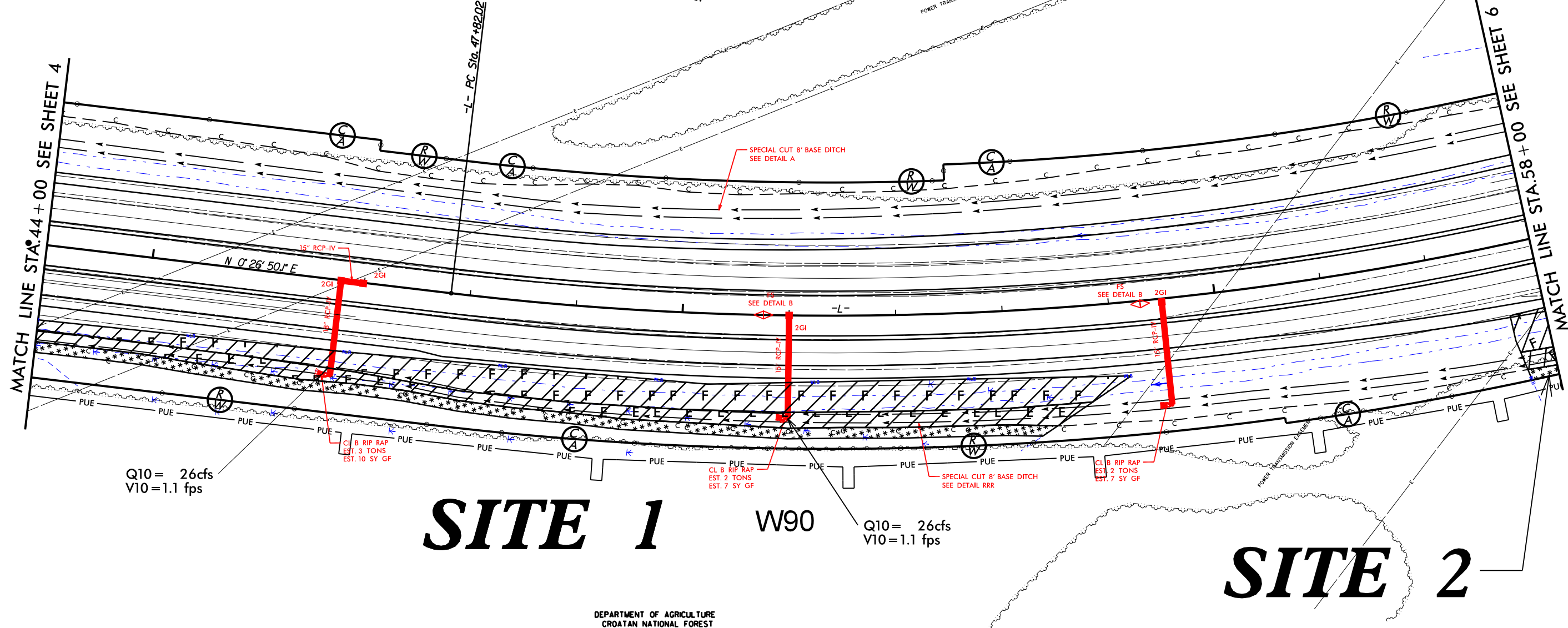
DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-1015	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27607
(919) 781-4626 VOICE (919) 781-4664 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 17 OF 167



DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

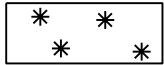
1



DENOTES EXCAVATION
IN WETLAND



DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING



8/17/99

REVISIONS

10/29/18 - PARCEL 1 - ADEDED PUE -L- RT STA.44+00.00 TO STA.58+00.00

DESIGN SYSTEMS

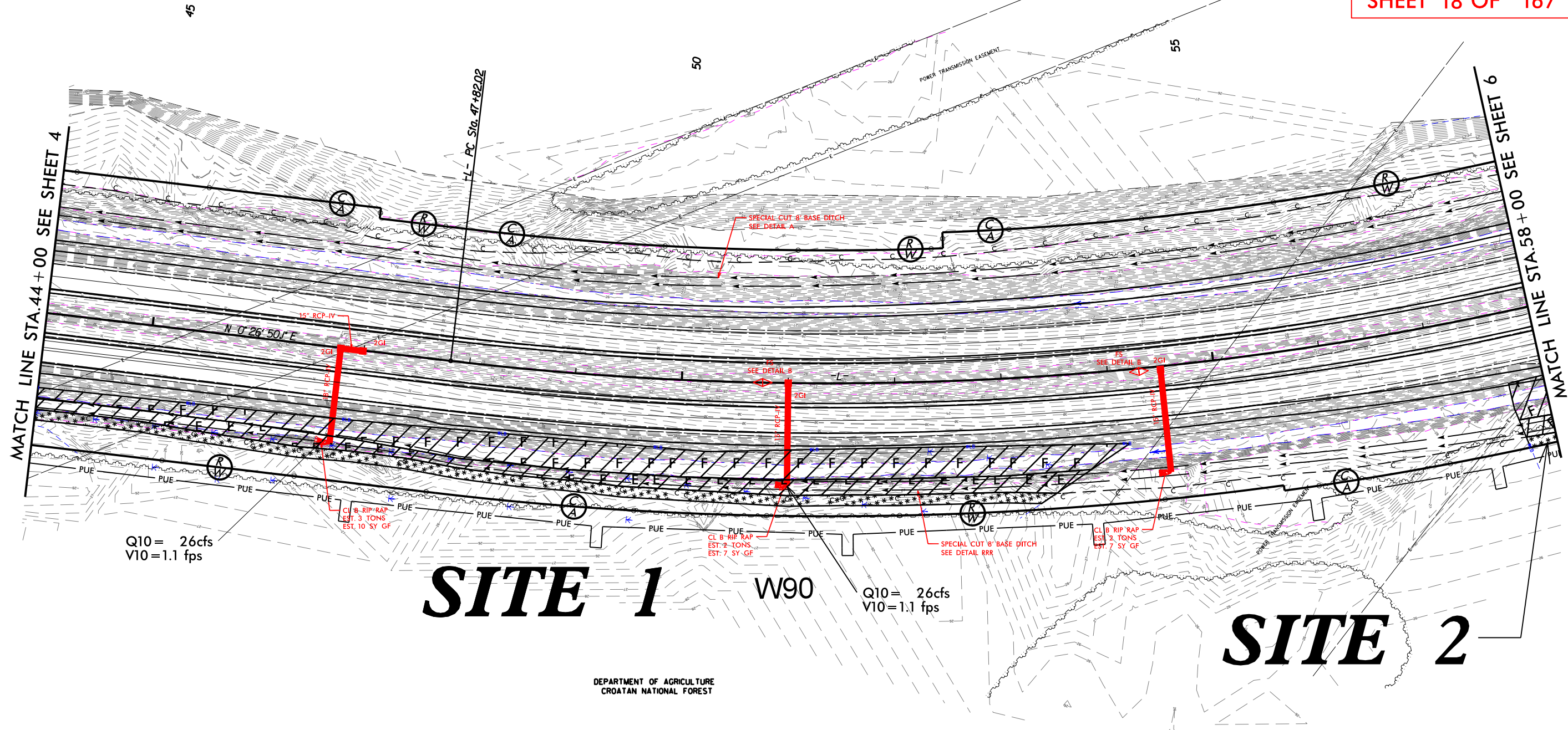
DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-1015	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27607
(919) 781-4826 VOICE (919) 781-4884 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 18 OF 167



DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

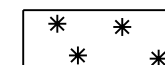
1



DENOTES EXCAVATION
IN WETLAND



DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING



6/23/16



PROJ. REFERENCE NO.
R-1015

SHEET NO.
X-6

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 19 OF 167

