Submitted 12/21/2021

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	46377.1.2	**TIP No.:**	R-5705A	**County(ies):**	Harnett	**Page** 1	**of** 2

General Project Information

WBS Element:	46377.1.2	**TIP Number:**	R-5705A	**Project Type:**	New Location	**Date:**	11/8/2021
NCDOT Contact:	Nicole Hackler, PE			**Contractor / Designer:**	Kimley-Horn & Associates		
Address:	1000 Birch Ridge Drive 1582 Mail Service Center Raleigh NC 27699			**Address:**	One Bank of America Plaza 421 Fayetteville St, STE 600 Raleigh, NC 27601		
Phone:	919-707-6029			**Phone:**	919-677-2000		
Email:	nmhackler@ncdot.gov			**Email:**	dan.robinson@kimley-horn.com		
City/Town:	Angier			**County(ies):**	Harnett		
River Basin(s):	Cape Fear			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	4.364 miles	**Surrounding Land Use:**	Widening: Rural farmland; New location: Rural farmland, forests

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	51.2 ac.	14.3 ac.
Typical Cross Section Description:	Widening Section: 4 lanes divided (2 lanes each way) with 4' paved shoulder -12' lane widths, 6:1 outside ditch front slopes with 4:1 back slopes. Raised grass median with 1'-6" curb and gutter, rasied concrete islands for turn lanes. New location section: Same as above except 4'-10' varied paved shoulders	2 lanes with paved shoulder and grass ditches - 11' lane widths, 2-4' paved shoulder, 3:1 side slopes or flatter
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 27100 Year: 2045	Existing: 15900 Year: 2022

General Project Narrative: (Description of Minimization of Water Quality Impacts)

This is a Central managed project. Existing drainage patterns have been maintained to the best extent practical.
-Direct discharges are avoided where possible. Some pipe outlets have been moved to outlet right before wetlands to avoid impacts.
-3:1 slopes with guardrail used for all culvert crossings (the use of 2:1 slopes is not feasible due to Geotech conditions and slope stability).
-Erosion control basins have been placed outside of all wetland boundaries.
-Vegetated conveyances used throughout the project, many of which which meet swale standards, will have a positive water quality benefit. These were used instead of closed system conveyance to the maximum extent practical.
-Excluded driveways/driveway fill from access points that were in wetland areas.
-Hand clearing proposed at all wetland locations except for 2 areas where clean water diversions will impact the wetland.
-Culvert barrels with sills will be back filled with native material. Native material will consist of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Native material is subject to approval by the engineer and may be subject to permit conditions.
-Riprap pads used at the outlet of any open pipe.
-Where conditions dictated, ditches were stopped before wetland boundaries with a riprap pad at the end to slow down velocities.
-Where a ditch was already running through a wetland and was pushed out in proposed condition, the proposed ditch was designed with slope reduced and base widths increased as much as possible to get velocities down close to or below 2 ft/s.
-All box culverts have slopes of less than 1% so there is no need for sills. This should help reduce velocities at culvert outlets.
-Bank stabilization and outlet improvements have been proposed at box culverts to minimize erosion.
-The pond being drained at site 27 will have a proposed channel with constructed banks and floodplain to match pre-dam conditions and low flow stream conditions as much as possible.

Waterbody Information

Surface Water Body (1):	UT to East Buies Creek	**NCDWR Stream Index No.:**	18-18-1-(2)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)		
		Supplemental Classification:	None		
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?	Comments:				
NRTR Stream ID:	SAU, SAP, SAO, SAL, SAM		**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Submitted 12/21/2021

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	46377.1.2	**TIP No.:**	R-5705A	**County(ies):**	Harnett	**Page**	**2**	**of**	**2**

Additional Waterbody Information

Surface Water Body (2):	East Buies Creek		**NCDWR Stream Index No.:**	18-18-1-(2)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)		
		Supplemental Classification:	None		
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	East Buies Creek			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**		**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Surface Water Body (3):	Buies Creek		**NCDWR Stream Index No.:**	18-18	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)		
		Supplemental Classification:	None		
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	Buies Creek			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Surface Water Body (4):	UT to Black River		**NCDWR Stream Index No.:**	18-68-12-1a	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	Swamp Waters (Sw)		
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SAJ, SAI			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

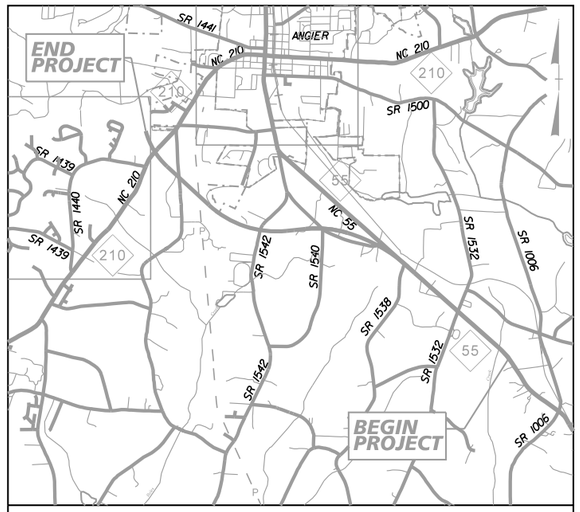
Surface Water Body (5):	UT to West Buies Creek		**NCDWR Stream Index No.:**	18-18-2-(1)	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	SAH, SAG, SAQ, SAS, SAT			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Submitted 12/21/2021

09/08/99

TIP PROJECT: R-5705A

See Sheet 1B For Conventional Plan Sheet Symbols



VICINITY MAP

ROW PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5705A	1	

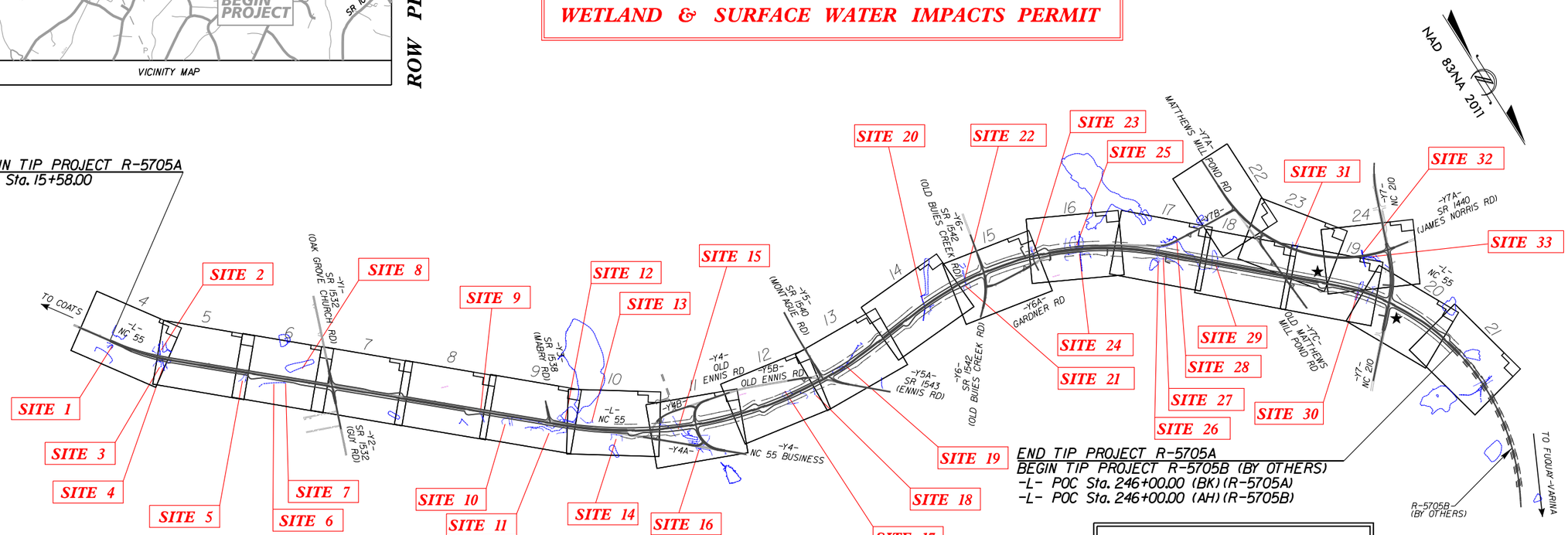
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
46377.1.2		P.E.
46377.2.1		RIGHT-OF-WAY
46377.2.5		UTILITIES

PERMIT DRAWING
SHEET 1 OF 71

LOCATION: NC 55 FROM SOUTH OF SR 1532 (OAK GROVE CHURCH ROAD) TO NORTH OF NC 210

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

WETLAND & SURFACE WATER IMPACTS PERMIT



** DESIGN SPEED = 50 MPH FROM -L- STA. 15+58.00 TO STA. 112+18.00 (EXISTING NC 55)
60 MPH FROM -L- STA. 112+18.00 TO STA. 246+00.00 (NEW LOCATION)

★ TRAFFIC SIGNAL
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO ONE DRIVEWAY PER PARCEL AND FULL-CONTROL AT U-TURN BULBS
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

FINAL PERMIT DRAWINGS
SUBMITTED: 11-15-21
FINAL SUBMITTAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

AADT 2022 = 15,900
AADT 2045 = 27,100
K = 9%
D = 60%
T = 4%*
** V = 50/60 MPH
* (TTST 1% + DUAL 3%)
FUNCTIONAL CLASSIFICATION: MINOR ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5705A = 4.364 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 9, 2021

LETTING DATE: OCTOBER 18, 2022

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

EVERETT J. LOVING, P.E.
PROJECT DESIGN ENGINEER

NICOLE M. HACKLER, P.E.
SENIOR PROJECT MANAGER
NCDOT PROJECT MANAGEMENT UNIT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONTRACT:

$FILE$

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

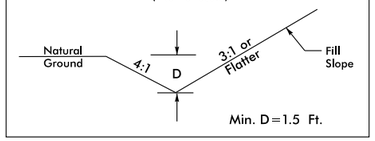
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	2D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

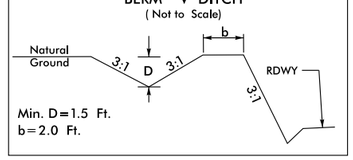
PERMIT DRAWING
SHEET 2 OF 71

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



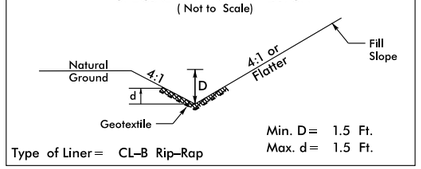
FROM STA. 21+00 TO STA. 23+00 –L– RT
FROM STA. 26+85 TO STA. 28+75 –L– LT
FROM STA. 26+70 TO STA. 31+00 –L– RT
FROM STA. 53+50 TO STA. 59+30 –L– RT
FROM STA. 53+09 TO STA. 57+00 –L– LT
FROM STA. 63+30 TO STA. 64+81 –L– RT
FROM STA. 68+50 TO STA. 72+50 –L– RT
FROM STA. 76+00 TO STA. 77+20 –L– RT
FROM STA. 74+50 TO STA. 76+75 –L– LT
FROM STA. 78+50 TO STA. 80+50 –L– RT
FROM STA. 91+50 TO STA. 94+50 –L– RT
FROM STA. 93+00 TO STA. 96+00 –L– LT
FROM STA. 104+50 TO STA. 109+50 –L– RT
FROM STA. 108+40 TO STA. 110+00 –L– LT
FROM STA. 123+18 TO STA. 124+85 –L– LT
FROM STA. 132+50 TO STA. 133+50 –L– LT
FROM STA. 133+00 TO STA. 134+80 –L– RT
FROM STA. 134+58 TO STA. 140+00 –L– LT
FROM STA. 136+20 TO STA. 142+50 –L– RT
FROM STA. 151+00 TO STA. 153+20 –L– LT
FROM STA. 164+00 TO STA. 164+80 –L– RT
FROM STA. 178+50 TO STA. 180+50 –L– RT
FROM STA. 182+50 TO STA. 186+20 –L– LT
FROM STA. 198+25 TO STA. 201+50 –L– LT
FROM STA. 233+35 TO STA. 234+40 –L– LT
FROM STA. 233+90 TO STA. 235+00 –L– RT
FROM STA. 216+74 TO STA. 221+50 –L– RT
FROM STA. 224+50 TO STA. 227+30 –L– RT
FROM STA. 13+55 TO STA. 14+05 –Y1– LT
FROM STA. 10+70 TO STA. 13+50 –Y2– RT
FROM STA. 19+76 TO STA. 21+73 –Y5– LT
FROM STA. 13+50 TO STA. 15+40 –Y6– LT
FROM STA. 24+70 TO STA. 27+45 –Y7– RT
FROM STA. 29+00 TO STA. 31+95 –Y7– LT

DETAIL 3
BERM 'V' DITCH
(Not to Scale)



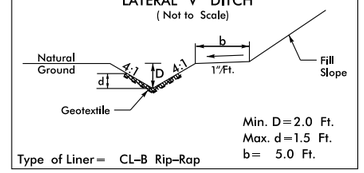
FROM STA. 16+28 TO STA. 17+55 –L– RT
FROM STA. 186+50 TO STA. 188+70 –L– RT
FROM STA. 190+00 TO STA. 190+50 –L– RT

DETAIL 4
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



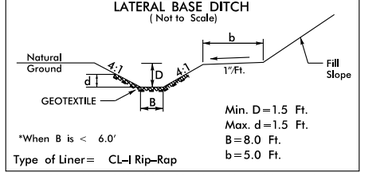
FROM STA. 90+50 TO STA. 91+50 –L– RT
FROM STA. 27+45 TO STA. 29+00 –Y7– LT

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



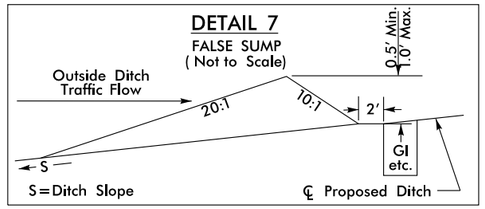
FROM STA. 24+06 TO STA. 26+30 –L– LT.

DETAIL 6
LATERAL BASE DITCH
(Not to Scale)



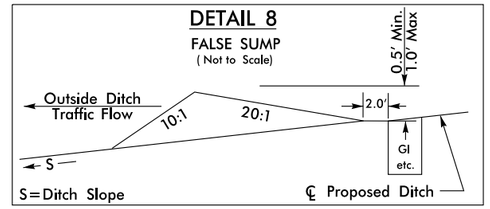
FROM STA. 23+00 TO STA. 24+88 –L– RT.

DETAIL 7
FALSE SUMP
(Not to Scale)



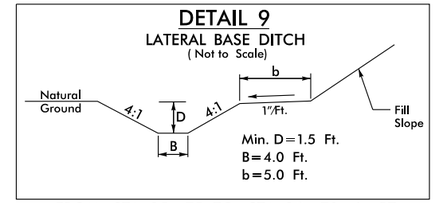
FROM STA. 47+33 TO STA. 47+48 –L– RT
FROM STA. 51+40 TO STA. 51+55 –L– RT
FROM STA. 50+00 TO STA. 50+15 –L– RT
FROM STA. 81+54 TO STA. 81+69 –L– LT
FROM STA. 83+54 TO STA. 83+69 –L– LT
FROM STA. 84+02 TO STA. 84+17 –L– LT
FROM STA. 86+04 TO STA. 86+19 –L– LT
FROM STA. 183+83 TO STA. 183+98 –L– RT

DETAIL 8
FALSE SUMP
(Not to Scale)



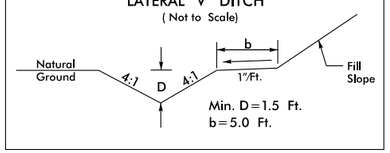
FROM STA. 192+53 TO STA. 192+68 –L– RT
FROM STA. 194+52 TO STA. 194+67 –L– RT
FROM STA. 207+33 TO STA. 207+48 –L– LT
FROM STA. 204+83 TO STA. 204+98 –L– LT
FROM STA. 11+24 TO STA. 11+39 –Y2– LT
FROM STA. 12+00 TO STA. 12+15 –Y2– LT

DETAIL 9
LATERAL BASE DITCH
(Not to Scale)



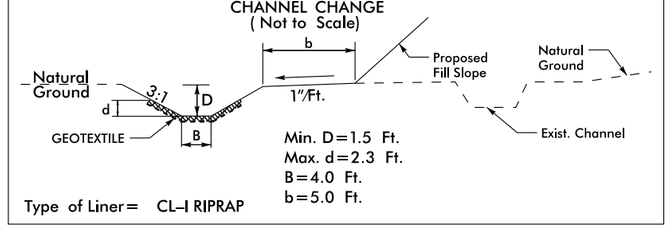
FROM STA. 25+75 TO STA. 26+70 –L– RT.

DETAIL 10
LATERAL 'V' DITCH
(Not to Scale)



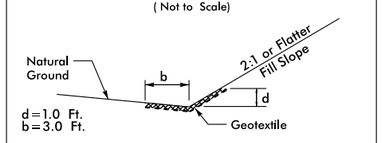
FROM STA. 153+20 TO STA. 154+75 –L– RT.

DETAIL 11
CHANNEL CHANGE
(Not to Scale)



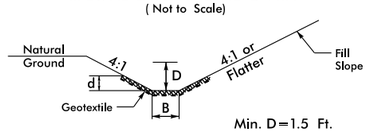
FROM STA. 42+50 TO STA. 43+50 –L– RT

DETAIL 12
TOE PROTECTION
(Not to Scale)



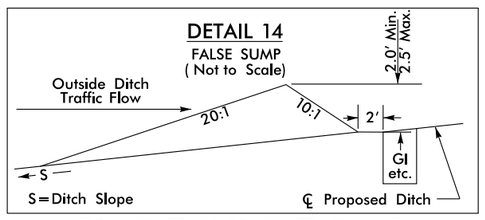
FROM STA. 44+00 TO STA. 45+68 –L– RT.
FROM STA. 161+07 TO STA. 162+43 –L– LT
FROM STA. 196+65 TO STA. 197+50 –L– RT
FROM STA. 227+95 TO STA. 230+45 –L– RT
FROM STA. 44+00 TO STA. 45+00 –Y7A– RT
FROM STA. 10+37 TO STA. 10+70 –Y7B– LT
FROM STA. 10+70 TO STA. 11+50 –Y7B– RT

DETAIL 13
SPECIAL LATERAL BASE DITCH
(Not to Scale)



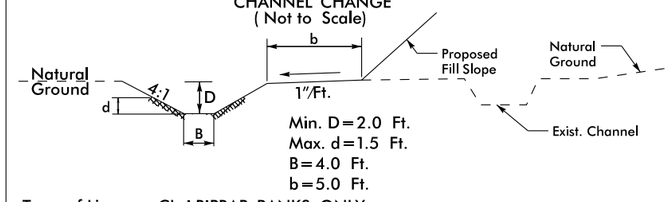
FROM STA. 72+00 TO STA. 73+02 –L– LT.

DETAIL 14
FALSE SUMP
(Not to Scale)



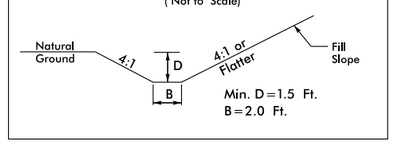
FROM STA. 77+22 TO STA. 77+82 –L– LT
FROM STA. 122+18 TO STA. 122+78 –L– LT
FROM STA. 124+85 TO STA. 125+45 –L– LT
FROM STA. 126+00 TO STA. 126+60 –L– LT
FROM STA. 20+85 TO STA. 21+15 –Y7A– RT

DETAIL 15
CHANNEL CHANGE
(Not to Scale)



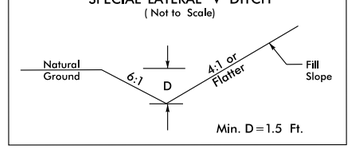
FROM STA. 42+60 TO STA. 44+30 –Y7A– RT

DETAIL 16
SPECIAL LATERAL BASE DITCH
(Not to Scale)



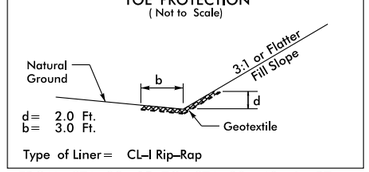
FROM STA. 72+50 TO STA. 73+25 –L– RT
FROM STA. 151+50 TO STA. 153+75 –L– RT
FROM STA. 154+05 TO STA. 156+50 –L– RT
FROM STA. 178+00 TO STA. 179+00 –L– LT

DETAIL 17
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



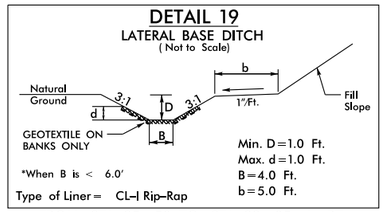
FROM STA. 82+50 TO STA. 85+00 –L– LT.
FROM STA. 146+50 TO STA. 148+50 –L– LT

DETAIL 18
TOE PROTECTION
(Not to Scale)



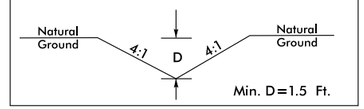
FROM STA. 88+15 TO STA. 90+40 –L– RT.
FROM STA. 90+48 TO STA. 90+58 –L– RT.

DETAIL 19
LATERAL BASE DITCH
(Not to Scale)



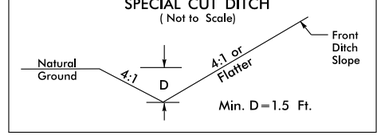
FROM STA. 85+50 TO STA. 88+05 –L– RT

DETAIL 20
STANDARD 'V' DITCH
(Not to Scale)



FROM STA. 100+25 TO 101+50 –L– RT
AT STA. 64+81 RT

DETAIL 21
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 103+50 TO STA. 104+50 –L– RT
FROM STA. 159+50 TO STA. 160+50 –L– RT
FROM STA. 177+50 TO STA. 178+50 –L– RT
FROM STA. 23+50 TO STA. 24+50 –Y4– LT
FROM STA. 10+30 TO STA. 11+00 –Y6A– RT
FROM STA. 34+00 TO STA. 36+00 –Y7– LT

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

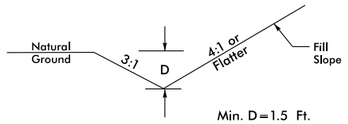
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	2D-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

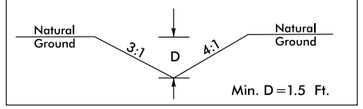
PERMIT DRAWING
SHEET 3 OF 71

DETAIL 22
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



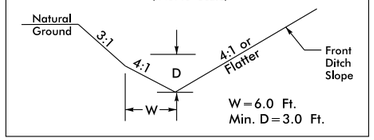
FROM STA. 130+09 TO STA. 132+50 –L– LT
FROM STA. 10+88 TO STA. 12+85 –Y3– RT
FROM STA. 10+88 TO STA. 12+95 –Y3– LT
FROM STA. 13+13 TO STA. 15+00 –Y4– LT
FROM STA. 16+00 TO STA. 16+63 –Y4B– LT
FROM STA. 10+65 TO STA. 13+50 –Y5A– RT
FROM STA. 17+65 TO STA. 22+44 –Y6– RT
FROM STA. 17+50 TO STA. 22+00 –Y6– LT
FROM STA. 14+80 TO STA. 16+90 –Y7A– RT
FROM STA. 29+00 TO STA. 30+50 –Y7A– RT
FROM STA. 32+50 TO STA. 34+00 –Y7A– LT
FROM STA. 31+50 TO STA. 36+50 –Y7A– RT
FROM STA. 39+50 TO STA. 41+00 –Y7A– LT
FROM STA. 39+50 TO STA. 40+50 –Y7A– RT
FROM STA. 10+55 TO STA. 12+50 –Y7C– LT

DETAIL 23
STANDARD 'V' DITCH
(Not to Scale)



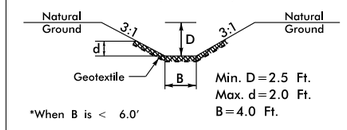
FROM STA. 15+15 TO 16+63 –Y4B– LT.

DETAIL 25
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 112+85 TO STA. 118+75 –L– LT.
FROM STA. 121+00 TO STA. 123+18 –L– LT.
FROM STA. 190+00 TO STA. 192+50 –L– RT.

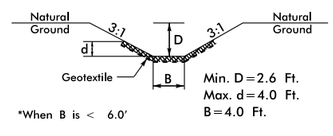
DETAIL 26
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL–I Rip–Rap

AT STA. 45+00 –L– LT (EST. 70 L.F.)
AT STA. 108+30 –L– LT (EST. 90 L.F.)

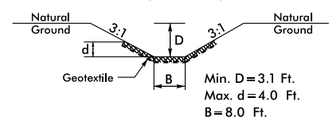
DETAIL 27
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL–I Rip–Rap

AT STA. 22+30 –Y4– RT. (EST. 50 L.F.)

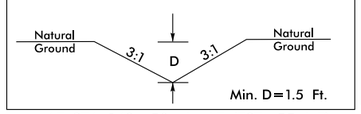
DETAIL 28
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL–II Rip–Rap

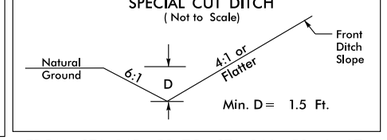
AT STA. 19+25 –Y4A– RT. (EST. 50 L.F.)

DETAIL 29
STANDARD 'V' DITCH
(Not to Scale)



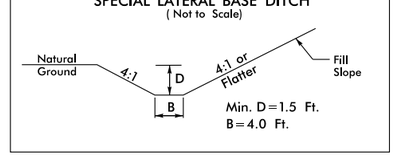
AT STA. 143+50 –L– LT (EST. 55 L.F)
AT STA. 18+50 –Y6A– LT (EST. 50 L.F)

DETAIL 30
SPECIAL CUT DITCH
(Not to Scale)



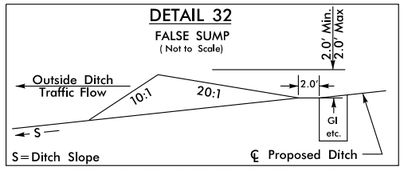
FROM STA. 145+50 TO STA. 146+50 –L– LT.

DETAIL 31
SPECIAL LATERAL BASE DITCH
(Not to Scale)



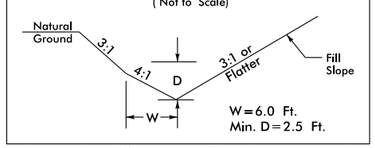
FROM STA. 45+00 TO STA. 46+00 –L– LT
FROM STA. 92+25 TO STA. 93+00 –L– LT
FROM STA. 160+50 TO STA. 161+80 –L– RT
FROM STA. 161+80 TO STA. 164+00 –L– RT
FROM STA. 173+00 TO STA. 173+65 –L– RT
FROM STA. 202+50 TO STA. 203+80 –L– LT
FROM STA. 203+80 TO STA. 205+00 –L– LT
FROM STA. 10+50 TO STA. 13+15 –Y1– LT
FROM STA. 22+00 TO STA. 23+50 –Y4– LT

DETAIL 32
FALSE SUMP
(Not to Scale)



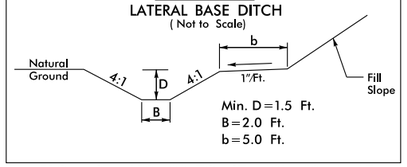
FROM STA. 17+15 TO STA.17+50 –Y6– LT

DETAIL 33
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



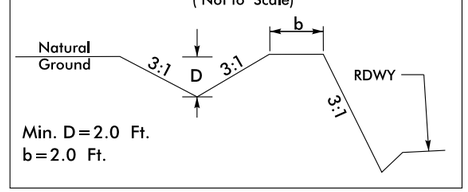
FROM STA. 166+10 TO STA. 170+00 –L– RT
FROM STA. 194+50 TO STA. 195+50 –L– RT

DETAIL 34
LATERAL BASE DITCH
(Not to Scale)



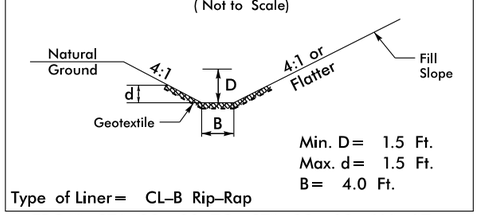
FROM STA. 179+00 TO STA. 181+50 –L– LT.

DETAIL 35
BERM 'V' DITCH
(Not to Scale)



FROM STA. 190+50 TO STA. 192+50 –L– RT.

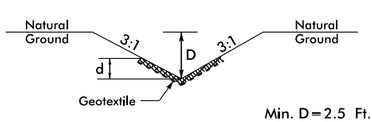
DETAIL 36
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CL–B Rip–Rap

FROM STA. 20+00 TO STA. 22+00 –Y4– LT

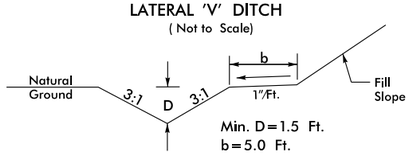
DETAIL 37
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner= CL–B Rip–Rap

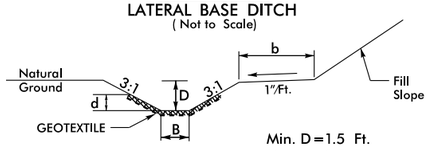
FROM –L– STA. 132+50 LT. TO
–Y5B– STA. 13+90 LT. (EST. 64 L.F,
HEAD DITCH THROUGH –Y5B–)

DETAIL 38
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 132+10 TO STA. 133+00 –L– RT
FROM STA. 30+50 TO STA. 31+20 –Y7A– RT
FROM STA. 31+70 TO STA. 32+50 –Y7A– LT
FROM STA. 41+00 TO STA. 42+25 –Y7A– LT
FROM STA. 43+00 TO STA. 45+50 –Y7A– LT

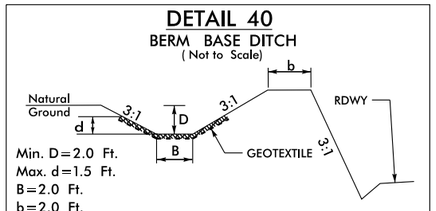
DETAIL 39
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CL–I Rip–Rap

FROM STA. 197+50 TO STA. 198+90 –L– RT

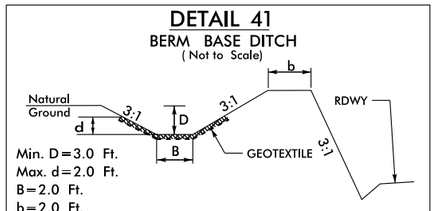
DETAIL 40
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL–B Rip–Rap

FROM STA. 205+00 TO STA. 205+50 –L– LT.
FROM STA. 208+50 TO STA. 212+00 –L– LT.

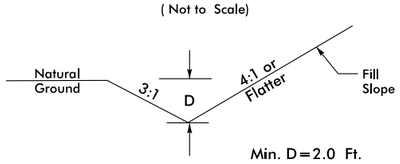
DETAIL 41
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL–B Rip–Rap

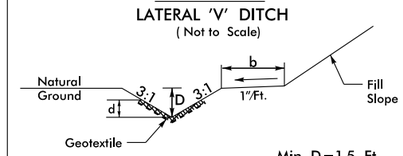
FROM STA. 207+50 TO STA. 208+50 –L– LT.

DETAIL 42
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 15+92 TO STA. 22+00 –Y7A– LT.

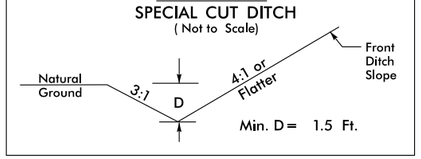
DETAIL 43
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL–B Rip–Rap

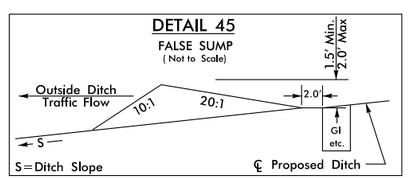
FROM STA. 29+50 TO STA. 30+80 –Y7A– LT
FROM STA. 40+50 TO STA. 42+00 –Y7A– RT

DETAIL 44
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 26+12 TO STA. 29+00 –Y7A– RT
FROM STA. 26+00 TO STA. 29+50 –Y7A– LT
FROM STA. 45+50 TO STA. 46+00 –Y7A– LT

DETAIL 45
FALSE SUMP
(Not to Scale)



FROM STA. 15+41 TO STA.15+86 –Y7A– RT

11/15/2021

Submitted 12/21/2021

5/14/99

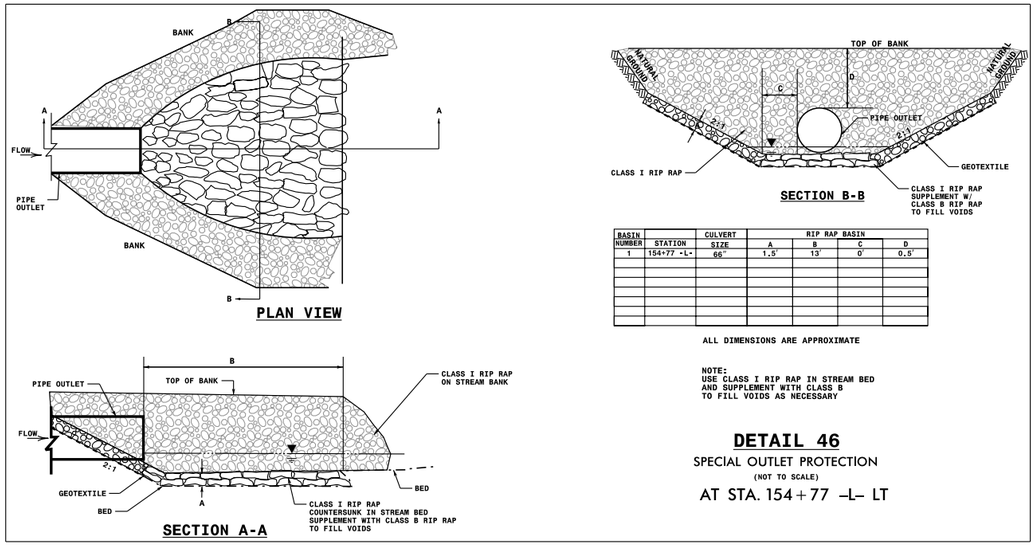
REVISIONS

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	2D-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 4 OF 71

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

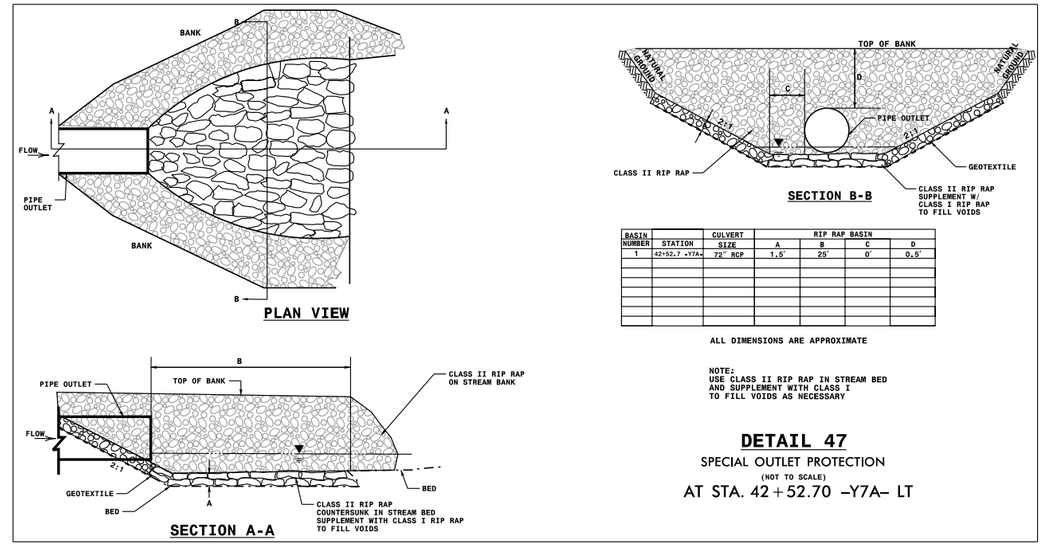


BASIN NUMBER	STATION	CULVERT SIZE	RIP RAP BASIN A	B	C	D
1	154+77 -L-	66"	1.5'	13'	0'	0.5'

ALL DIMENSIONS ARE APPROXIMATE

NOTE:
USE CLASS I RIP RAP IN STREAM BED AND SUPPLEMENT WITH CLASS B TO FILL VOIDS AS NECESSARY

DETAIL 46
SPECIAL OUTLET PROTECTION
(NOT TO SCALE)
AT STA. 154+77 –L– LT



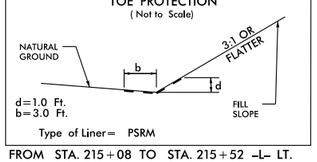
BASIN NUMBER	STATION	CULVERT SIZE	RIP RAP BASIN A	B	C	D
1	42+52.7 -Y7A-	72" RCP	1.5'	25'	0'	0.5'

ALL DIMENSIONS ARE APPROXIMATE

NOTE:
USE CLASS II RIP RAP IN STREAM BED AND SUPPLEMENT WITH CLASS I TO FILL VOIDS AS NECESSARY

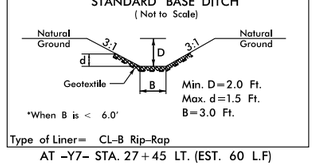
DETAIL 47
SPECIAL OUTLET PROTECTION
(NOT TO SCALE)
AT STA. 42+52.70 –Y7A– LT

DETAIL 48
TOE PROTECTION
(Not to Scale)



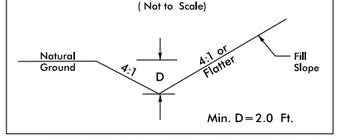
FROM STA. 215+08 TO STA. 215+52 –L– LT.

DETAIL 49
STANDARD BASE DITCH
(Not to Scale)



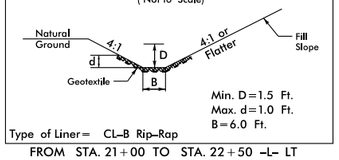
AT –Y7– STA. 27+45 LT. (EST. 60 L.F)

DETAIL 50
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



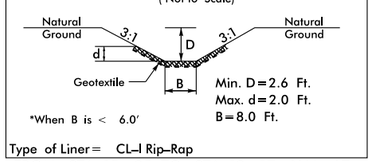
FROM STA. 170+00 TO STA. 173+00 –L– RT

DETAIL 51
SPECIAL LATERAL BASE DITCH
(Not to Scale)



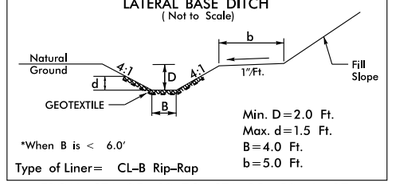
FROM STA. 21+00 TO STA. 22+50 –L– LT

DETAIL 52
STANDARD BASE DITCH
(Not to Scale)



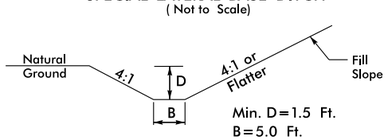
FROM STA. 15+95 TO STA. 19+17 –Y4A– LT.

DETAIL 53
LATERAL BASE DITCH
(Not to Scale)



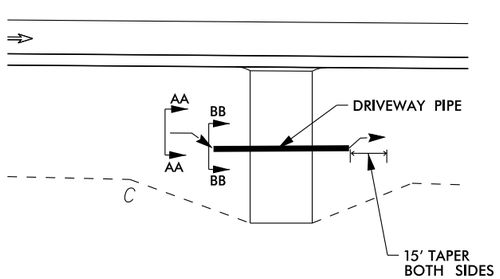
FROM STA. 25+10 TO STA. 25+50 –L– RT

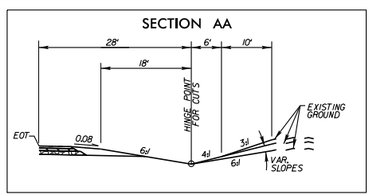
DETAIL 54
SPECIAL LATERAL BASE DITCH
(Not to Scale)

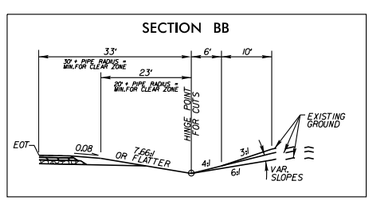


FROM STA. 80+50 TO STA. 81+82 –L– RT.
FROM STA. 88+64 TO STA. 90+50 –L– LT

DETAIL 55 – PIPE FLARE OUT





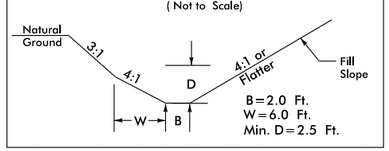


AT STA. 95+06 –L– RT
AT STA. 98+24 –L– LT
AT STA. 104+45 –L– LT
AT STA. 119+50 –L– LT

AT STA. 147+00 –L– RT
AT STA. 157+55 –L– RT
AT STA. 177+08 –L– RT
AT STA. 186+69 –L– LT

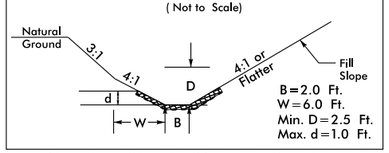
AT STA. 188+90 –L– RT
AT STA. 235+90 –L– RT

DETAIL 56
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 105+50 TO STA. 106+30 –L– LT

DETAIL 57
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 106+30 TO STA. 108+40 –L– LT

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

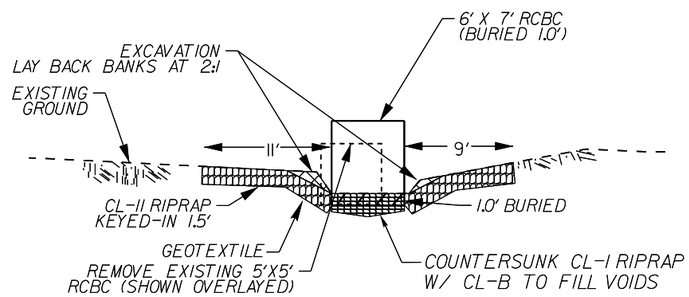
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	2D-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

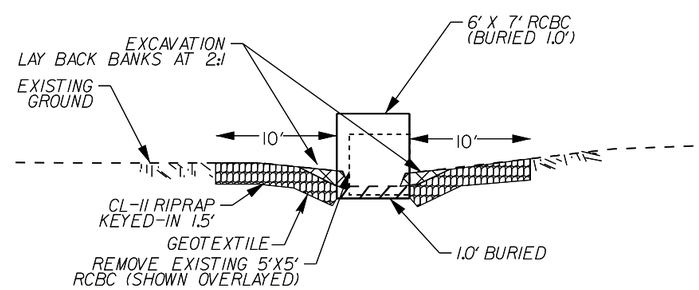
PERMIT DRAWING
SHEET 5 OF 71

DETAIL 58 TYPICAL OUTLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM
NOT TO SCALE



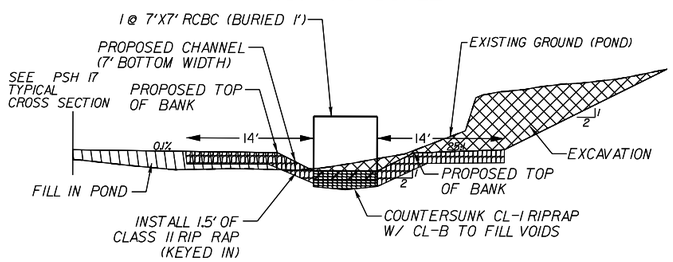
APPROX. STA. 24+10 -L- LT

DETAIL 59 TYPICAL - INLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM
NOT TO SCALE

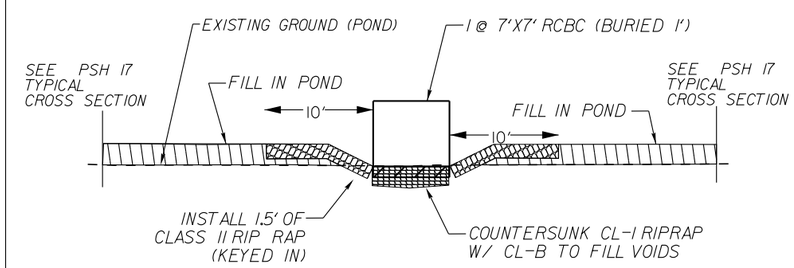


APPROX. STA. 24+70 TO 25+00 -L- RT

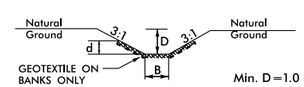
DETAIL 60 TYPICAL OUTLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM
NOT TO SCALE



DETAIL 61 TYPICAL - INLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM
NOT TO SCALE



DETAIL 62
STANDARD BASE DITCH
(Not to Scale)



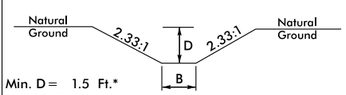
Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=4.0 Ft.

*When B is < 6.0'

Type of Liner= CL-I Rip-Rap

FROM STA. 86+50 TO STA. 86+87 -L- RT

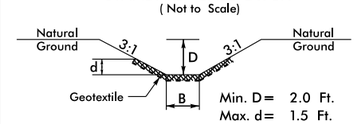
DETAIL 63
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.5 Ft.*
B= 5 Ft.
*MATCH EXIST DITCH INV.

STA. 174+10 -L- LT (EST. 78 L.F.)

DETAIL 64
STANDARD BASE DITCH
(Not to Scale)

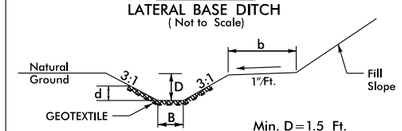


Min. D= 2.0 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.

Type of Liner= Class I Rip-Rap

STA. 162+53 -L- LT (EST. 73 L.F.)

DETAIL 65
LATERAL BASE DITCH
(Not to Scale)

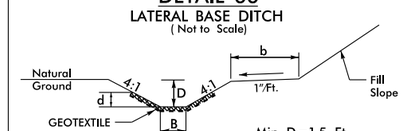


Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=8.0 Ft.
b=5.0 Ft.

Type of Liner= CL-B Rip-Rap

FROM STA. 42+00 TO STA. 42+58 -Y7A- RT.

DETAIL 66
LATERAL BASE DITCH
(Not to Scale)

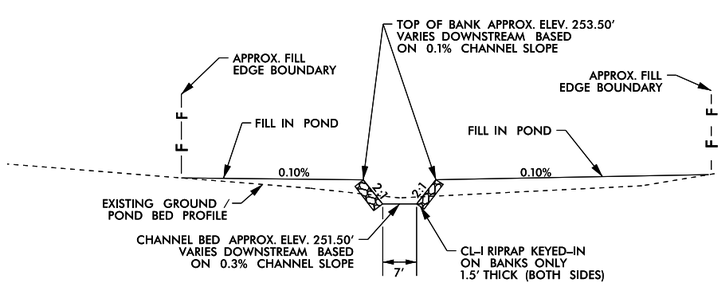


Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
b=5.0 Ft.

Type of Liner= CL-B Rip-Rap

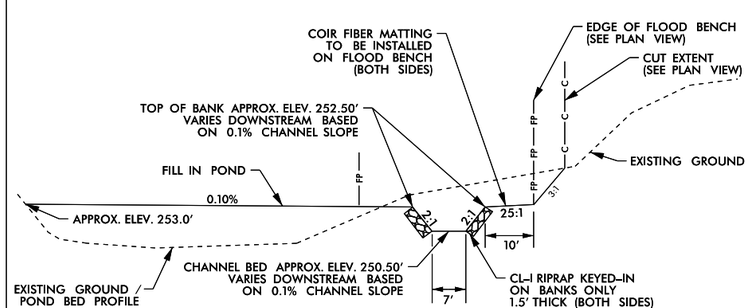
FROM STA. 42+25 TO STA. 42+48 -Y7A- LT.
FROM STA. 42+55 TO STA. 43+00 -Y7A- LT.

DETAIL TYPICAL SECTION P1



NOT TO SCALE

DETAIL TYPICAL SECTION P2



NOT TO SCALE

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

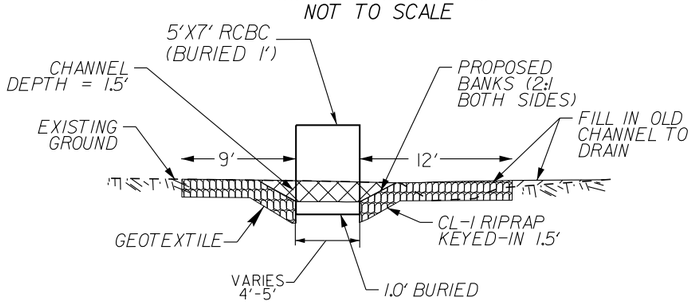
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	2D-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

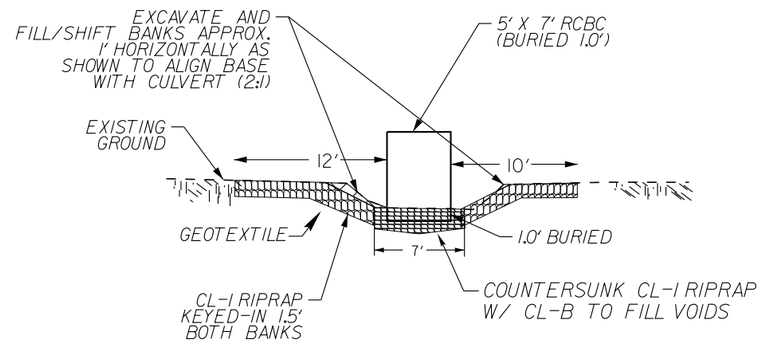
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 6 OF 71

DETAIL 67 TYPICAL - INLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM
NOT TO SCALE

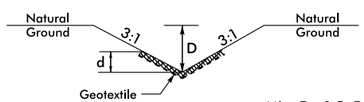


DETAIL 68 TYPICAL OUTLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM
NOT TO SCALE



DETAIL 69

STANDARD 'V' DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.0 Ft.

Type of Liner= CL-I Rip-Rap

FROM STA. 20+80 TO STA. 23+30 -Y7B- LT
(EQUATES TO: -L- LT. STA. 195+00 TO STA. 197+26)

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

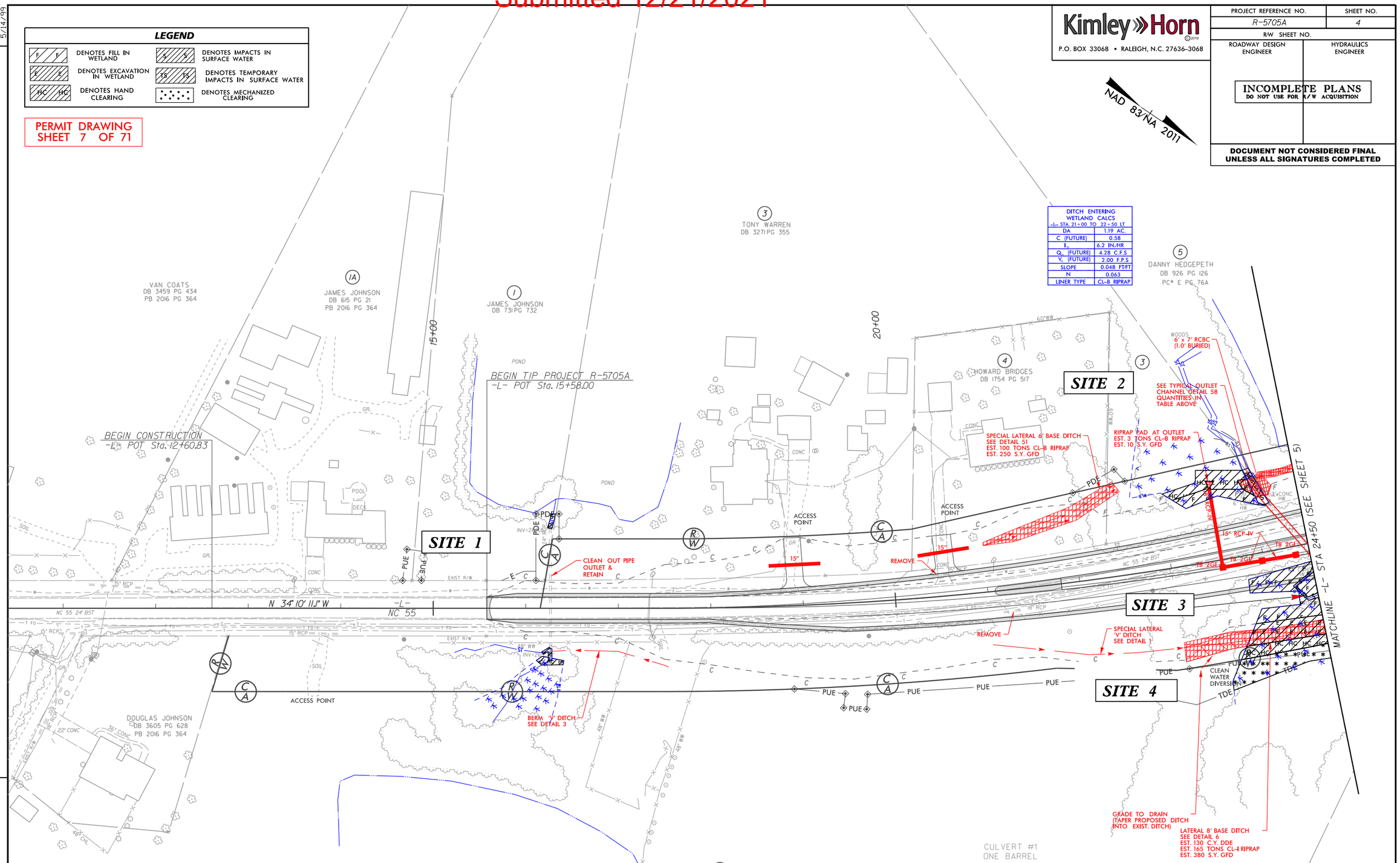
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

LEGEND

- F F — DENOTES FILL IN WETLAND
- E E — DENOTES EXCAVATION IN WETLAND
- HC HC — DENOTES HAND CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING

PERMIT DRAWING
SHEET 7 OF 71



DITCH ENTERING WETLAND CALCS -L- STA. 21+00 TO 22+50 LT	
DA	1.19 AC.
C (FUTURE)	0.58
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	4.28 C.F.S
V_{10} (FUTURE)	2.00 F.P.S
SLOPE	0.048 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

CULVERT #1
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	624925.48	2088902.82	249.12
CUL2	624928.77	2088898.61	249.13
CE1	624927.00	2088900.66	253.56
HW1	624928.18	2088898.34	255.20
CUL3	624854.02	2088887.29	248.84
CUL4	624857.34	2088882.93	248.64
CE2	624856.33	2088884.79	253.47
HW2	624856.18	2088885.51	255.04

DITCH ENTERING WETLAND CALCS -L- STA. 23+75 TO 24+00 RT	
DA	6.23 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	19.30 C.F.S
V_{10} (FUTURE)	2.00 F.P.S
SLOPE	0.017 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 24+00 TO 24+70 RT	
DA	6.64 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	20.58 C.F.S
V_{10} (FUTURE)	1.22 F.P.S
SLOPE	0.004 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

RY INVESTMENT
OPERTIES LLC
3497 PG 845

SEE SHEET 25 FOR -L- PROFILE

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

LEGEND

F F	DENOTES FILL IN WETLAND
E E	DENOTES EXCAVATION IN WETLAND
HC HC	DENOTES HAND CLEARING
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING

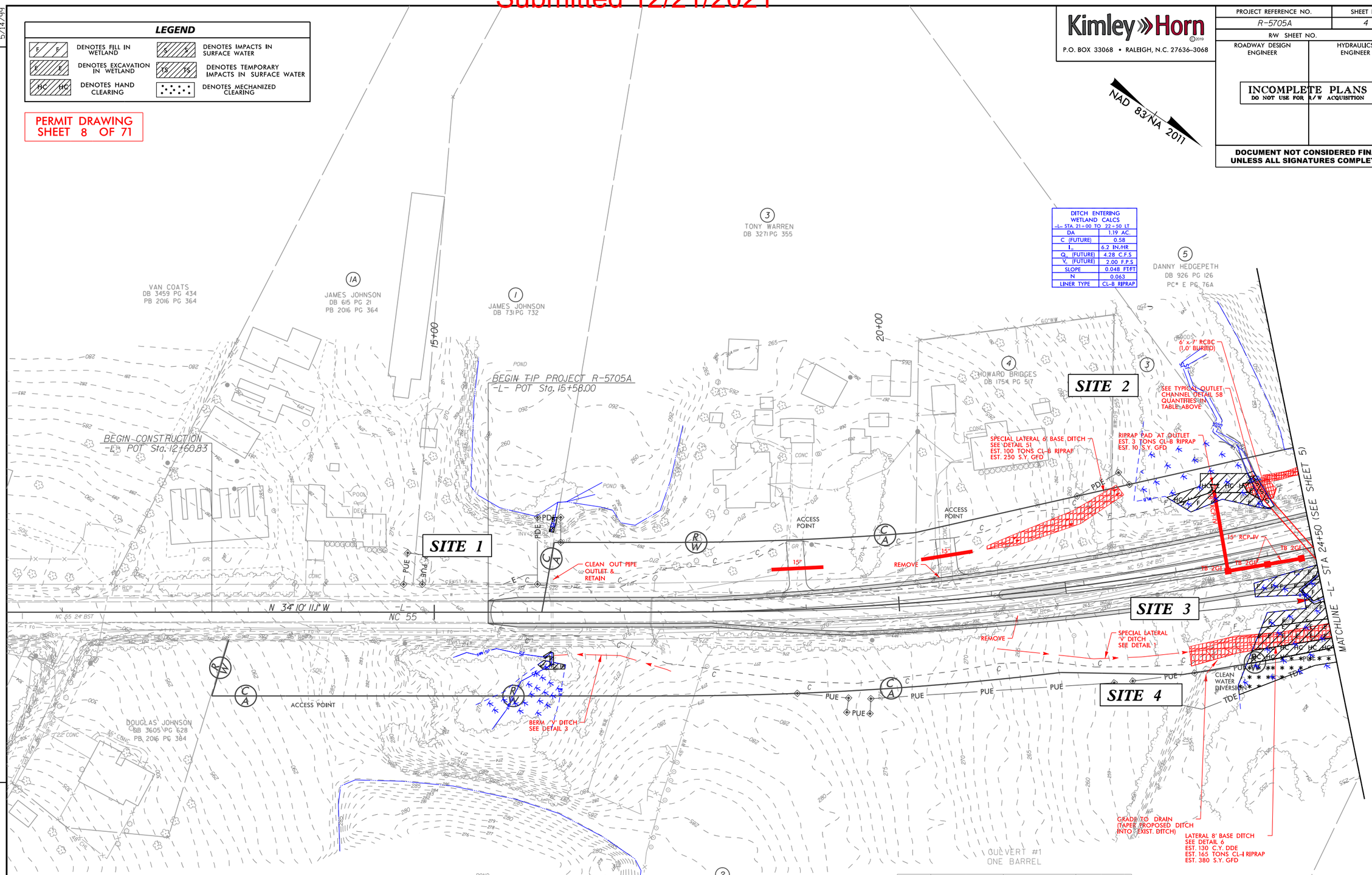
PERMIT DRAWING
SHEET 8 OF 71

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	4
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



DITCH ENTERING WETLAND CALCS -L- STA. 21+00 TO 22+50 LT	
DA	1.19 AC.
C (FUTURE)	0.58
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	4.28 C.F.S
V_{10} (FUTURE)	2.00 F.P.S
SLOPE	0.048 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

	NORTH	EAST	ELEV.
CUL1	624925.48	2088902.82	249.12
CUL2	624928.77	2088898.61	249.13
CE1	624927.00	2088900.66	253.56
HW1	624928.18	2088898.34	255.20
CUL3	624854.02	2088887.29	248.84
CUL4	624857.34	2088882.93	248.64
CE2	624856.33	2088884.79	253.47
HW2	624856.18	2088885.51	255.04

DITCH ENTERING WETLAND CALCS -L- STA. 23+75 TO 24+00 RT	
DA	6.23 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	19.30 C.F.S
V_{10} (FUTURE)	2.00 F.P.S
SLOPE	0.017 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 24+00 TO 24+70 RT	
DA	6.64 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	20.58 C.F.S
V_{10} (FUTURE)	1.22 F.P.S
SLOPE	0.004 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

RY INVESTMENT
OPERTIES LLC
3497 PG 845

SEE SHEET 25 FOR -L- PROFILE

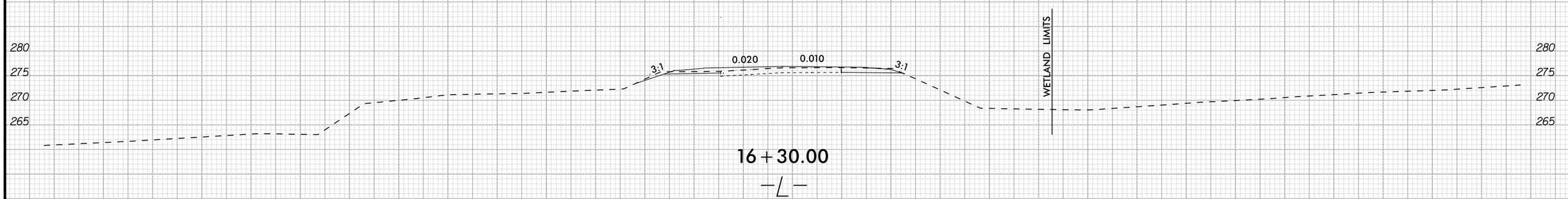
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 9 OF 71

SITE 1



11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

LEGEND

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
HC HC — DENOTES HAND CLEARING	DENOTES MECHANIZED CLEARING

PERMIT DRAWING
SHEET 10 OF 71

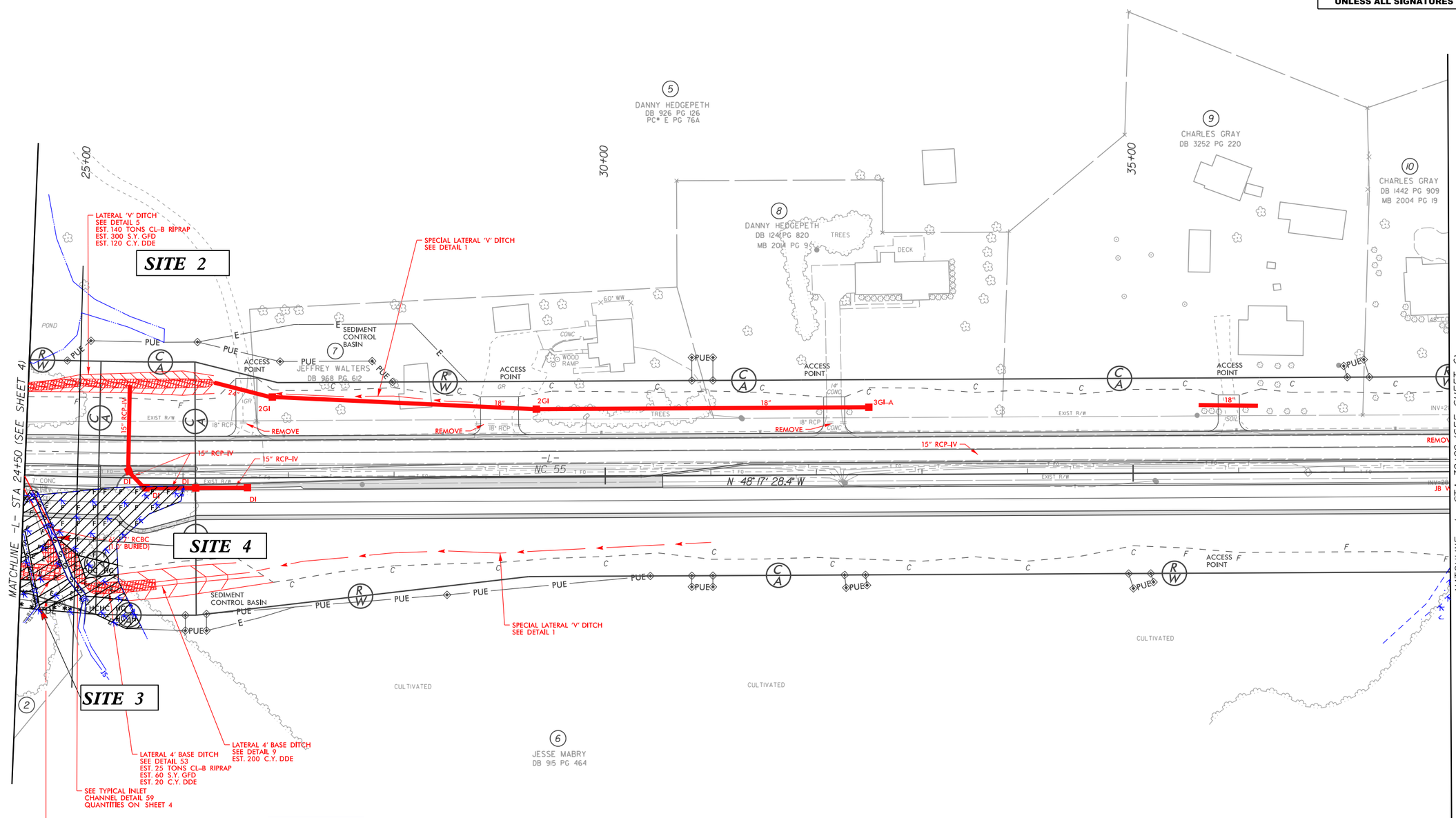
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	5
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/NA 2011



DITCH ENTERING WETLAND CALCS -L- STA. 24+70 TO 24+85 RT	
DA	45.77 AC.
C	0.50
I_{10}	3.8 IN./HR
Q_{10}	87 C.F.S
V_{10}	1.81 F.P.S
SLOPE	0.004 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 25+10 TO 25+50 RT	
DA	2.22 AC.
C	0.59
I_{10}	6.2 IN./HR
Q_{10}	8.12 C.F.S
V_{10}	1.96 F.P.S
SLOPE	0.02 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

SEE SHEET 25 FOR -L- PROFILE

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

LEGEND

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
HC HC	DENOTES HAND CLEARING		DENOTES MECHANIZED CLEARING

PERMIT DRAWING
SHEET 11 OF 71

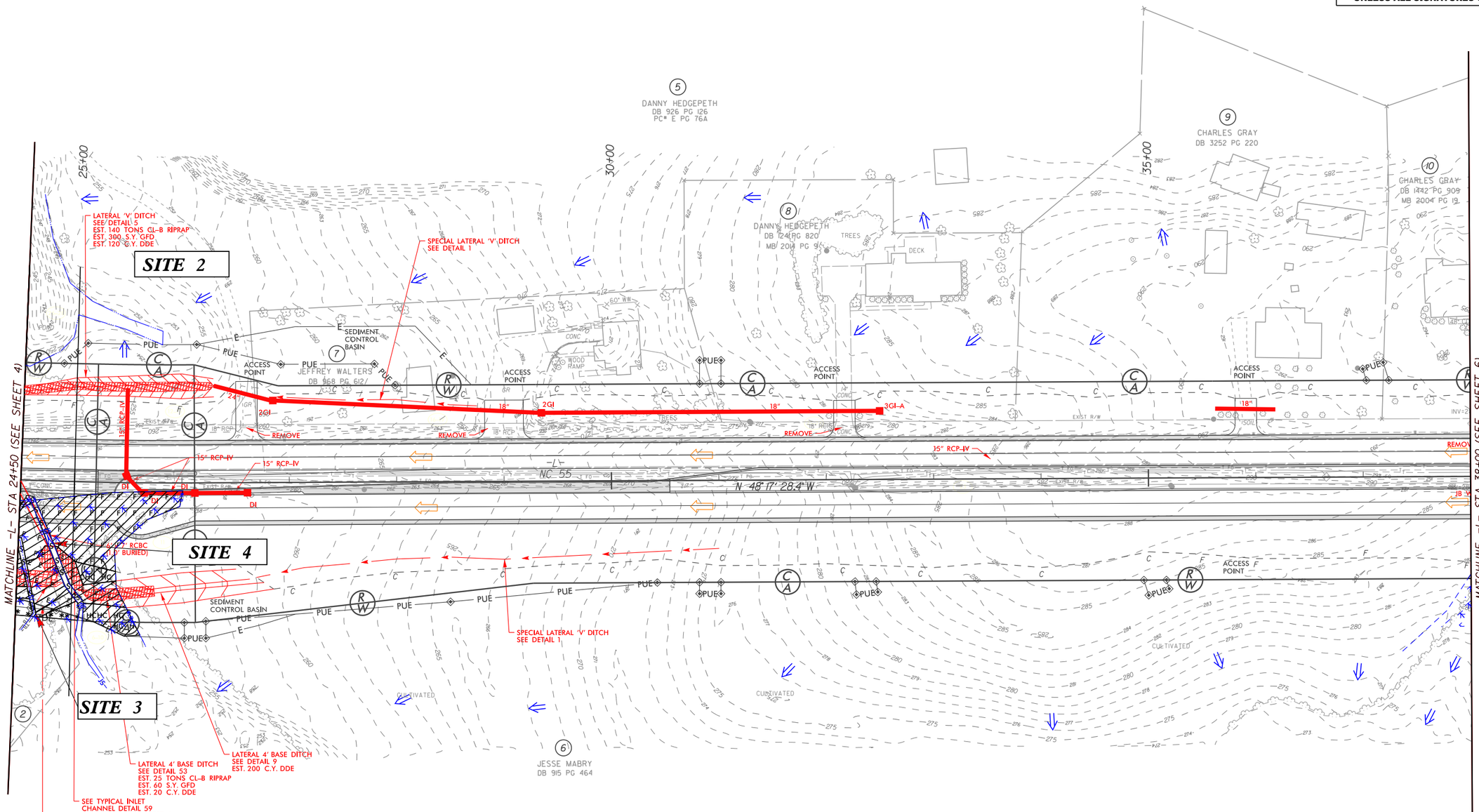
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	5
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/NA 2011



DITCH ENTERING WETLAND CALCS	
-L- STA. 24+70 TO 24+85 RT	
DA	45.77 AC.
C	0.50
I_{10}	3.8 IN./HR
Q_{10}	87 C.F.S
V_c	1.81 F.P.S
SLOPE	0.004 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS	
-L- STA. 25+10 TO 25+50 RT	
DA	2.22 AC.
C	0.59
I_{10}	6.2 IN./HR
Q_{10}	8.12 C.F.S
V_c	1.96 F.P.S
SLOPE	0.02 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

SEE SHEET 25 FOR -L- PROFILE

11/15/2021

Submitted 12/21/2021

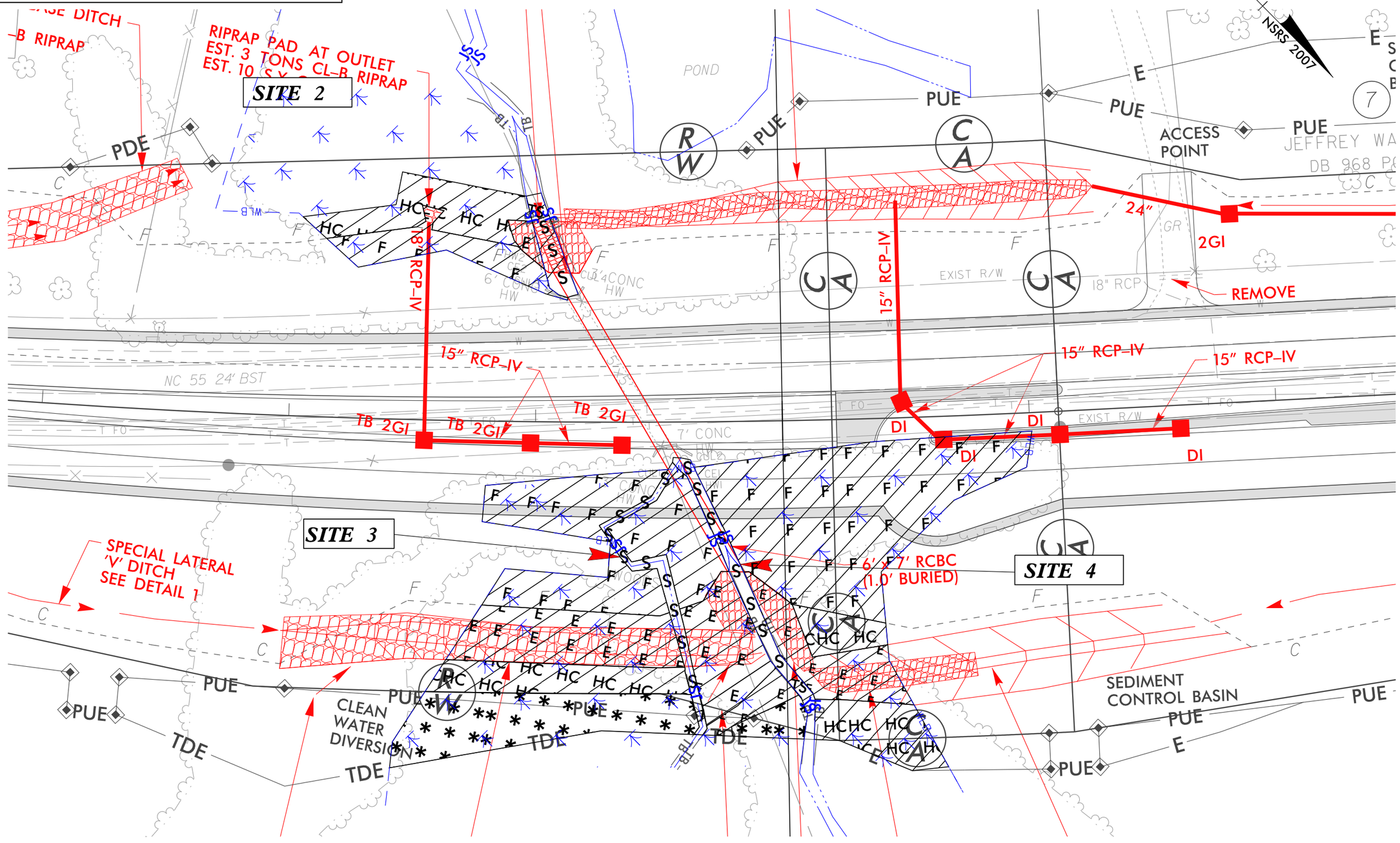
PROJECT REFERENCE NO.	SHEET NO.
R-5705A	4A/5A

PERMIT DRAWING
SHEET 12 OF 71

WETLAND AND STREAM IMPACTS
SITE IMPACT ZOOM: 1"=40'

LEGEND

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
HC HC — DENOTES HAND CLEARING	DENOTES MECHANIZED CLEARING



SITES 2,3,4

REVISIONS

11/15/2021

Submitted 12/21/2021

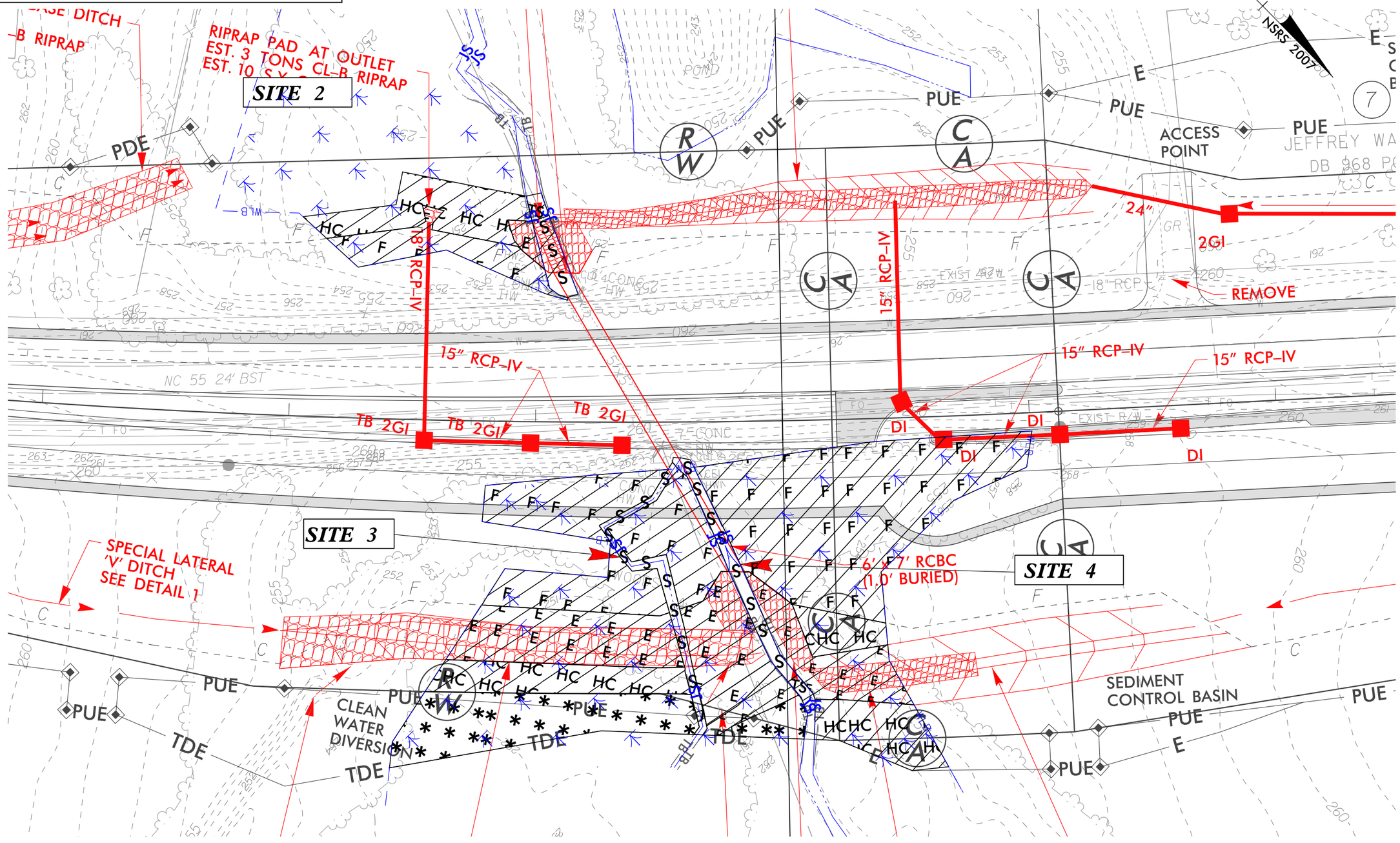
PROJECT REFERENCE NO.	SHEET NO.
R-5705A	4A/5A

PERMIT DRAWING
SHEET 13 OF 71

WETLAND AND STREAM IMPACTS
SITE IMPACT ZOOM: 1"=40'

LEGEND

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
HC HC — DENOTES HAND CLEARING	DENOTES MECHANIZED CLEARING



SITES 2,3,4

20' 0' 20' 40'
GRAPHIC SCALE

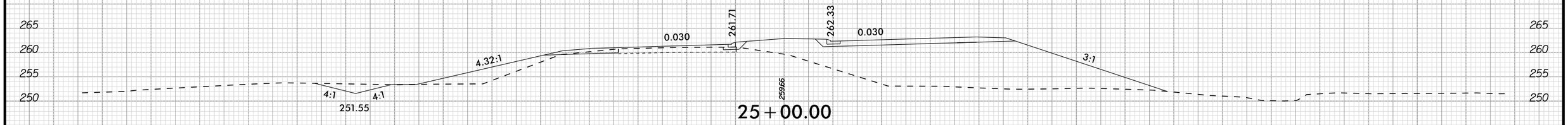
REVISIONS

11/15/2021

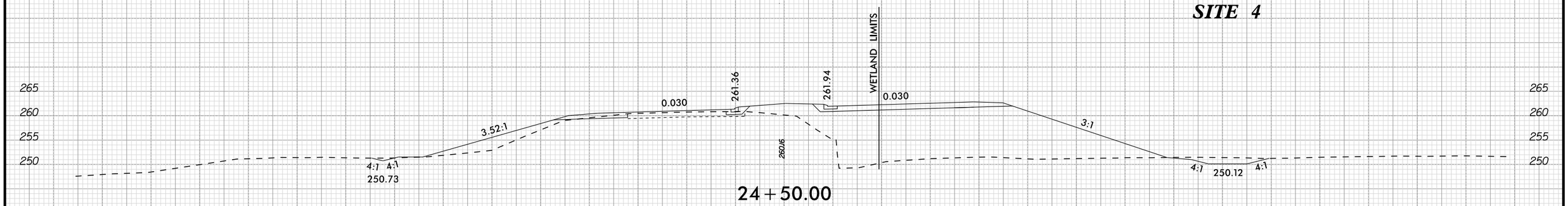
Submitted 12/21/2021

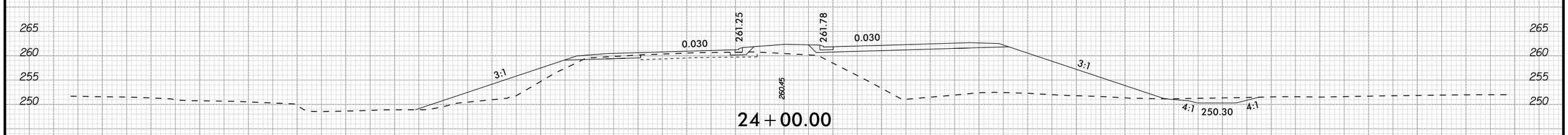
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 14 OF 71

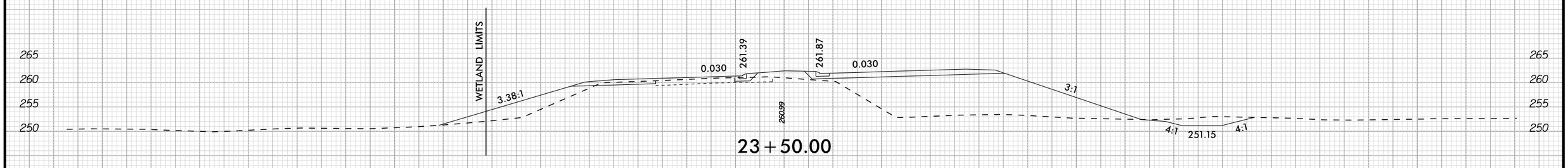


SITE 4





SITE 2



-L-

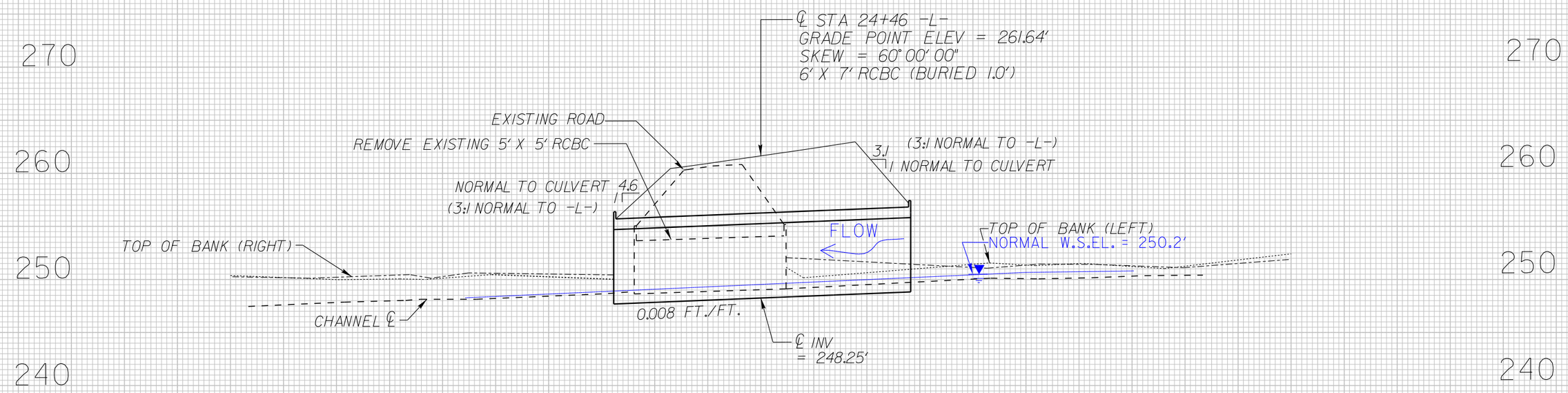
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 15 OF 71

SITE 2,3,4



11/15/2021

Submitted 12/21/2021

LEGEND

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- HC HC — DENOTES HAND CLEARING
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)

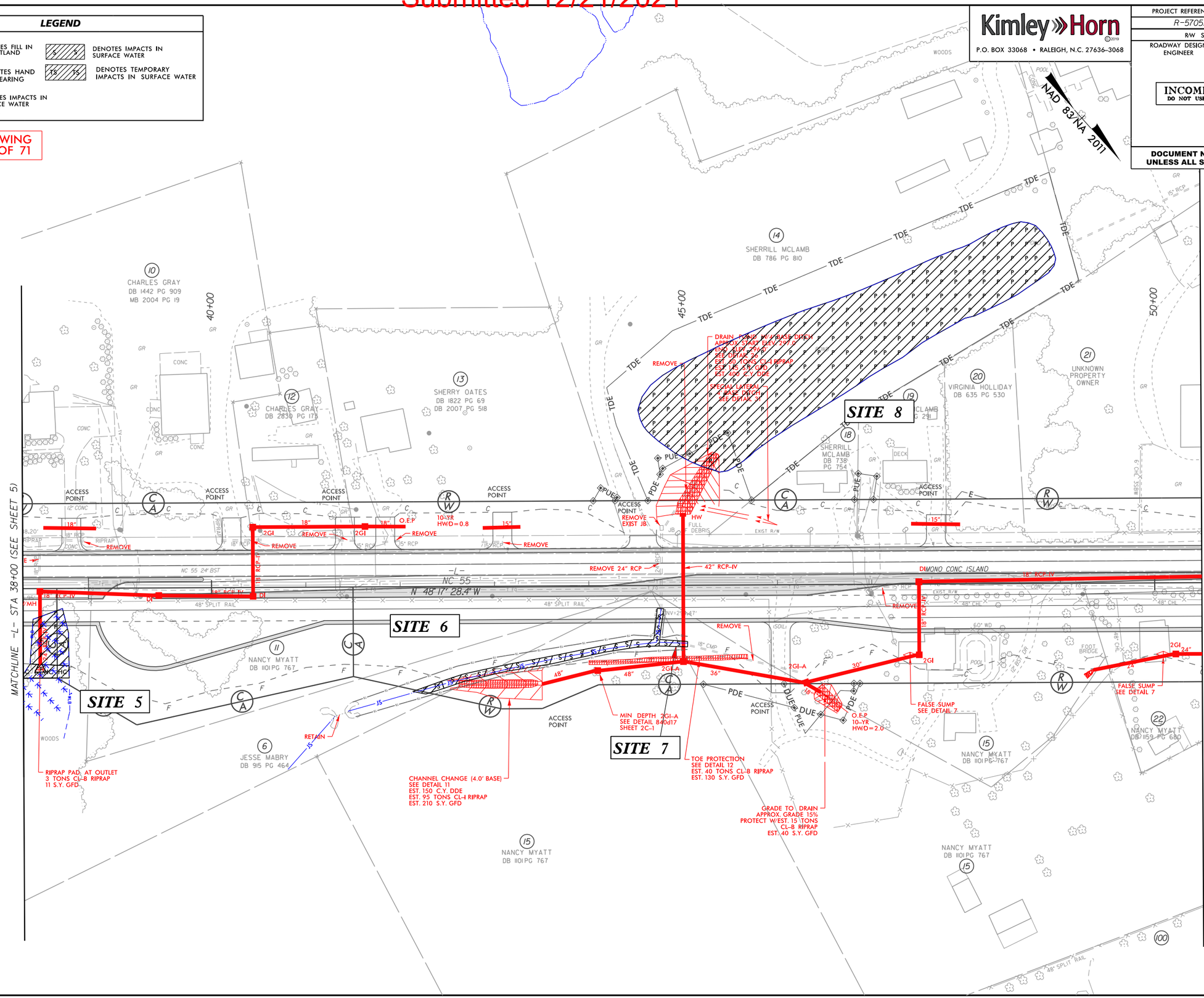
PERMIT DRAWING
SHEET 16 OF 71

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS

5/14/99

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

LEGEND

F F — DENOTES FILL IN WETLAND	S S — DENOTES IMPACTS IN SURFACE WATER
HC HC — DENOTES HAND CLEARING	TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
P P — DENOTES IMPACTS IN SURFACE WATER (POND)	

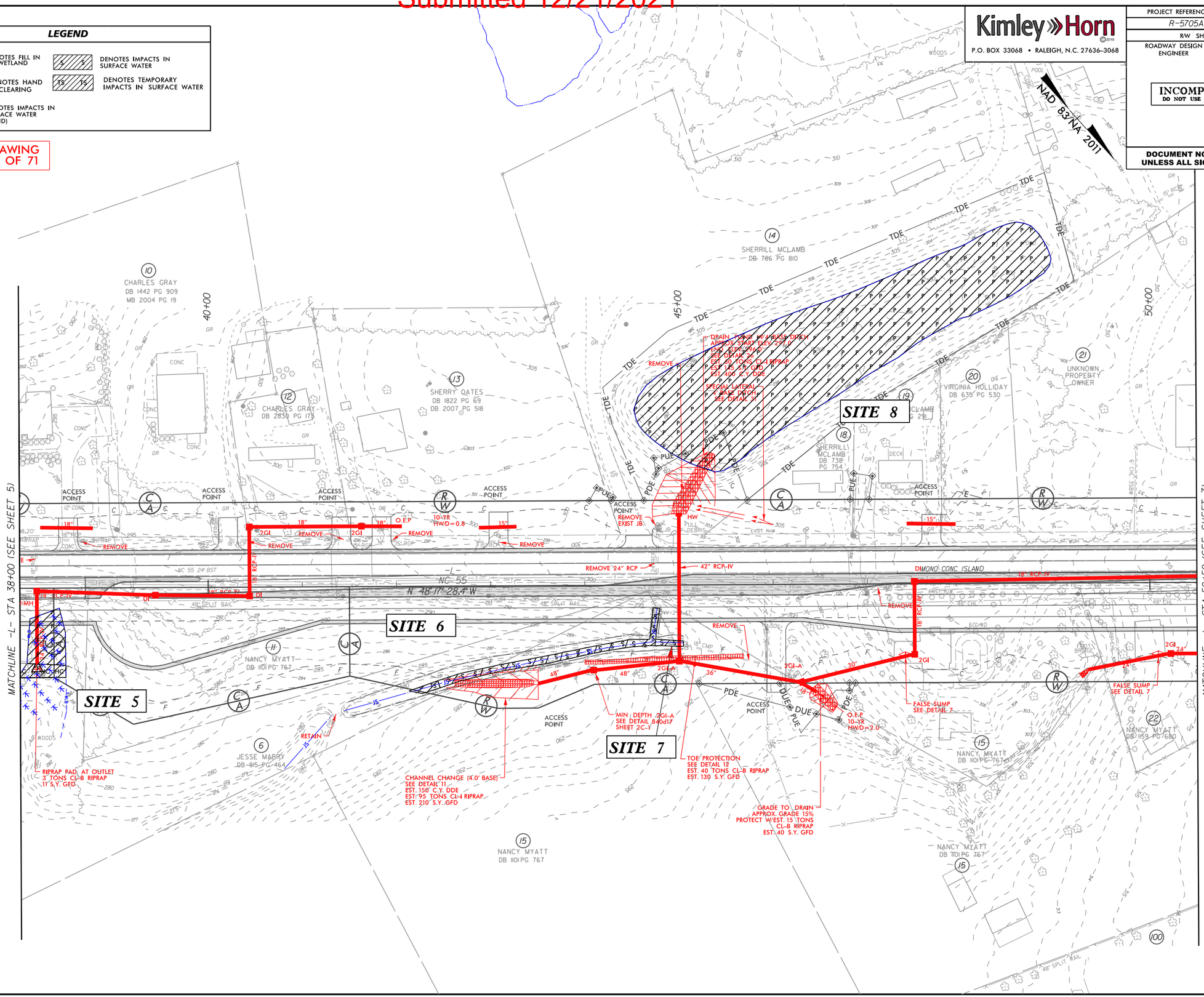
PERMIT DRAWING
SHEET 17 OF 71

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

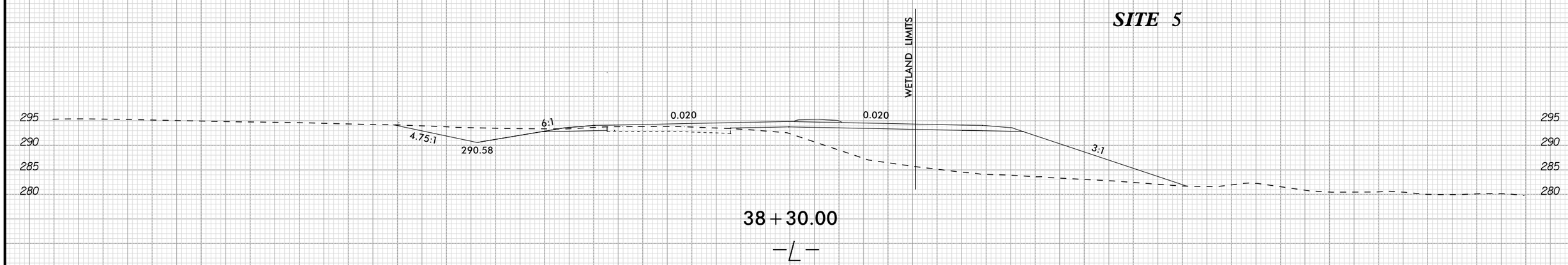


11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 18 OF 71



11/15/2021

Submitted 12/21/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	8
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/NA 2011

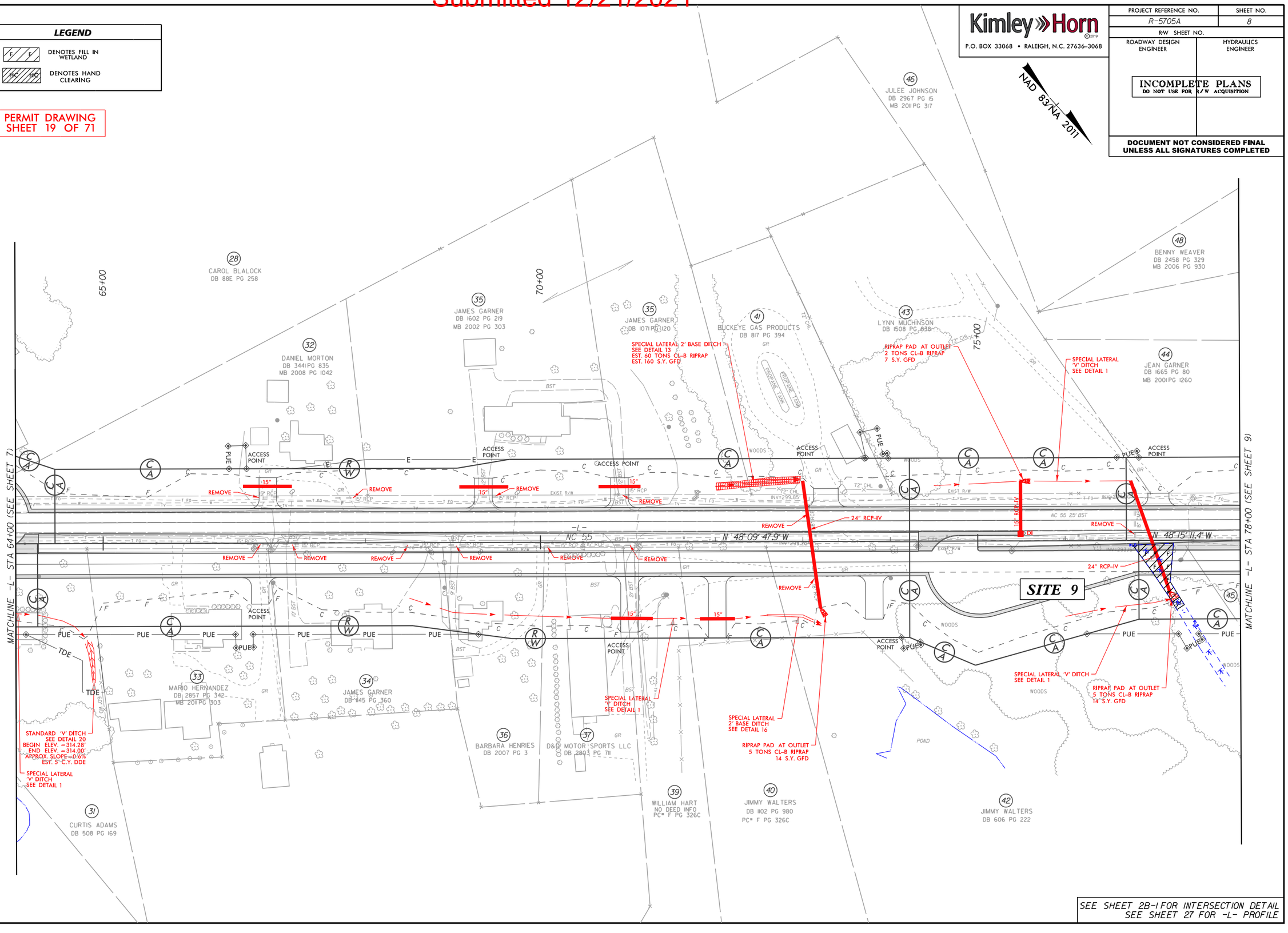
5/14/99

REVISIONS

LEGEND

- F F — DENOTES FILL IN WETLAND
- HC HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 19 OF 71



SEE SHEET 2B-1 FOR INTERSECTION DETAIL
SEE SHEET 27 FOR -L- PROFILE

11/15/2021

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	8
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

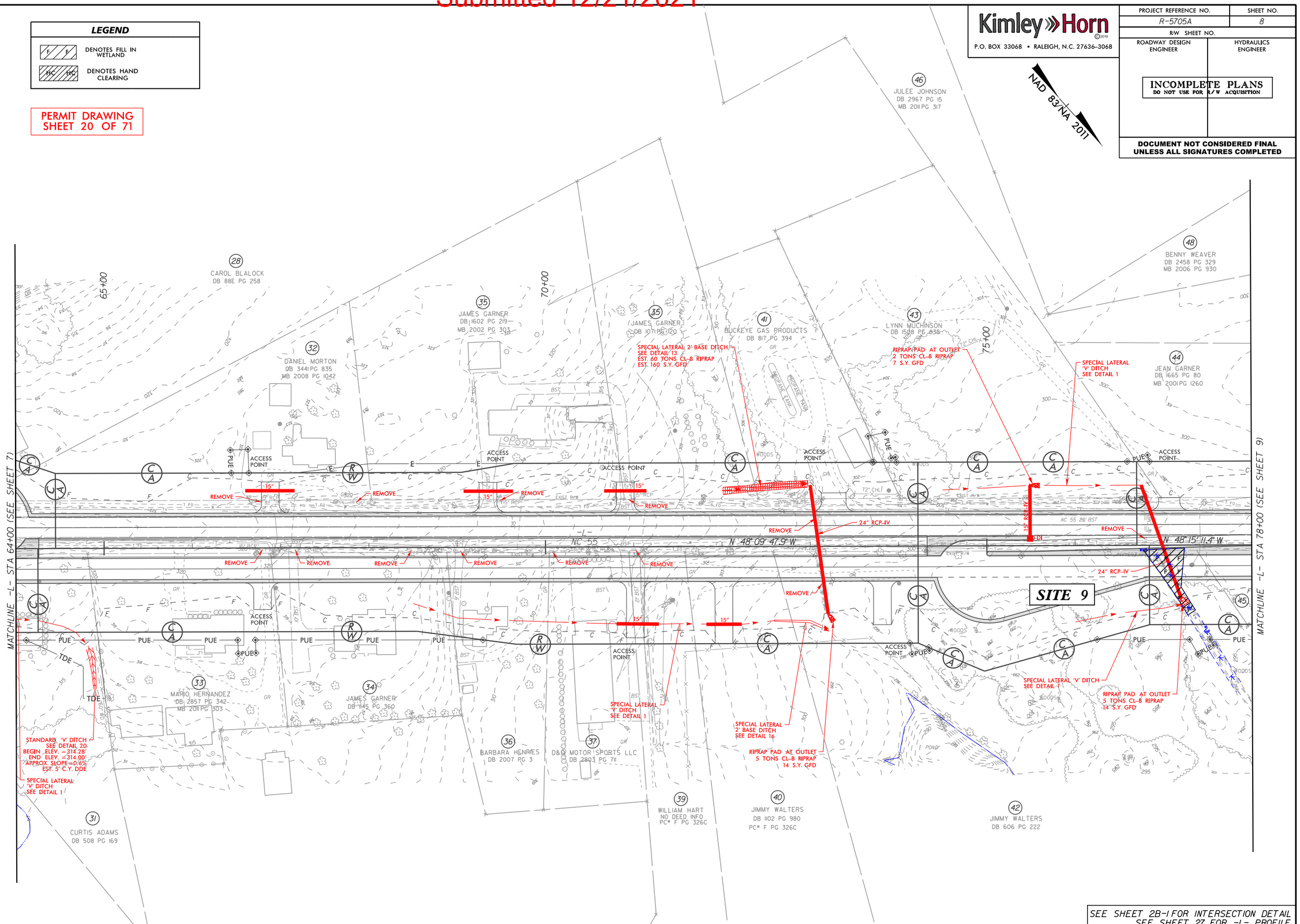
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

NAD 83/NA 2011

LEGEND

- F/F — DENOTES FILL IN WETLAND
- HC/HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 20 OF 71



SEE SHEET 2B-1 FOR INTERSECTION DETAIL
SEE SHEET 27 FOR -L- PROFILE

REVISIONS

5/14/99

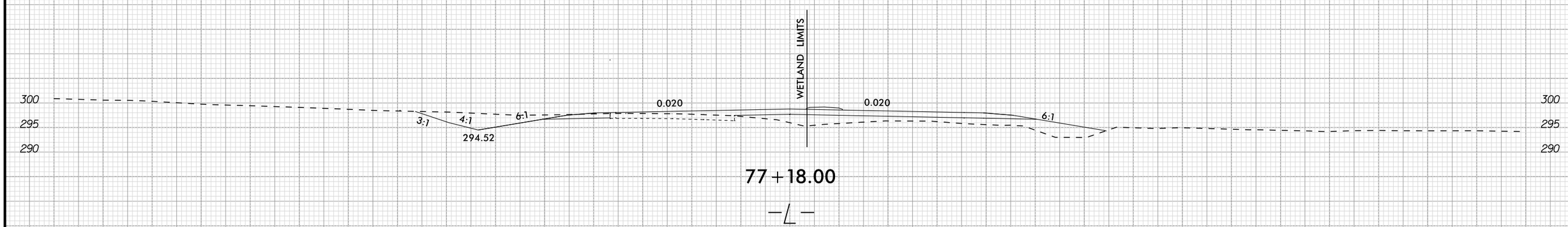
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 21 OF 71

SITE 9



11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

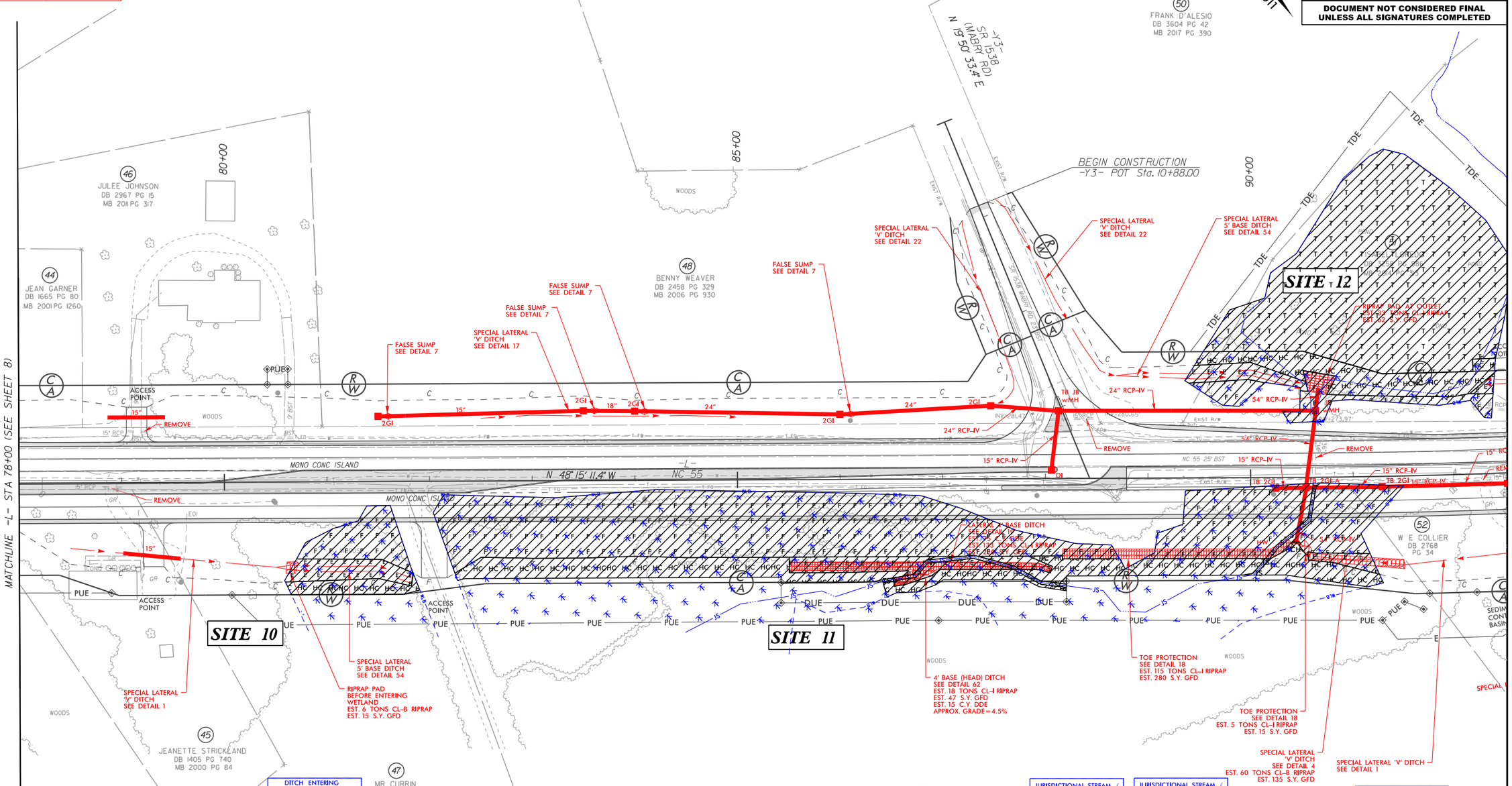
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

LEGEND

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
HC HC — DENOTES HAND CLEARING	T T — DENOTES TEMPORARY FILL IN WETLAND

PERMIT DRAWING
SHEET 22 OF 71



DITCH ENTERING WETLAND CALCS -L- STA. 80+75 TO 81+82 RT	
DA	0.65 AC.
C	0.59
I_{10}	6.2 IN./HR
Q_{10}	2.40 C.F.S
V_{10}	1.05 F.P.S
SLOPE	0.011 FT/FT
N	0.063
LINER TYPE	RIPRAP PAD

JURISDICTIONAL STREAM / CHANNEL CHANGE DITCH WITHIN WETLAND -L- STA. 85+50 TO 87+00 RT	
DA	35.51 AC.
C (FUTURE)	0.51
I_{10}	4.27 IN./HR
Q_{10} (FUTURE)	77.39 C.F.S
V_{10} (FUTURE)	2.69 F.P.S
SLOPE	0.01 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

JURISDICTIONAL STREAM / CHANNEL CHANGE DITCH WITHIN WETLAND -L- STA. 87+00 TO 88+05 RT	
DA	35.51 AC.
C (FUTURE)	0.51
I_{10}	4.27 IN./HR
Q_{10} (FUTURE)	77.39 C.F.S
V_{10} (FUTURE)	1.76 F.P.S
SLOPE	0.003 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 89+40 TO 90+50 LT	
DA	0.98 AC.
C (FUTURE)	0.53
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	3.22 C.F.S
V_{10} (FUTURE)	1.94 F.P.S
SLOPE	0.016 FT/FT
N	0.035
LINER TYPE	NONE

DITCH ENTERING WETLAND CALCS -L- STA. 90+50 TO 91+15 RT	
DA	3.69 AC.
C (FUTURE)	0.46
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	10.52 C.F.S
V_{10} (FUTURE)	2.00 F.P.S
SLOPE	0.018 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

SEE SHEET 2B-1 & 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 34 FOR -Y3- PROFILE

11/15/2021

Submitted 12/21/2021

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

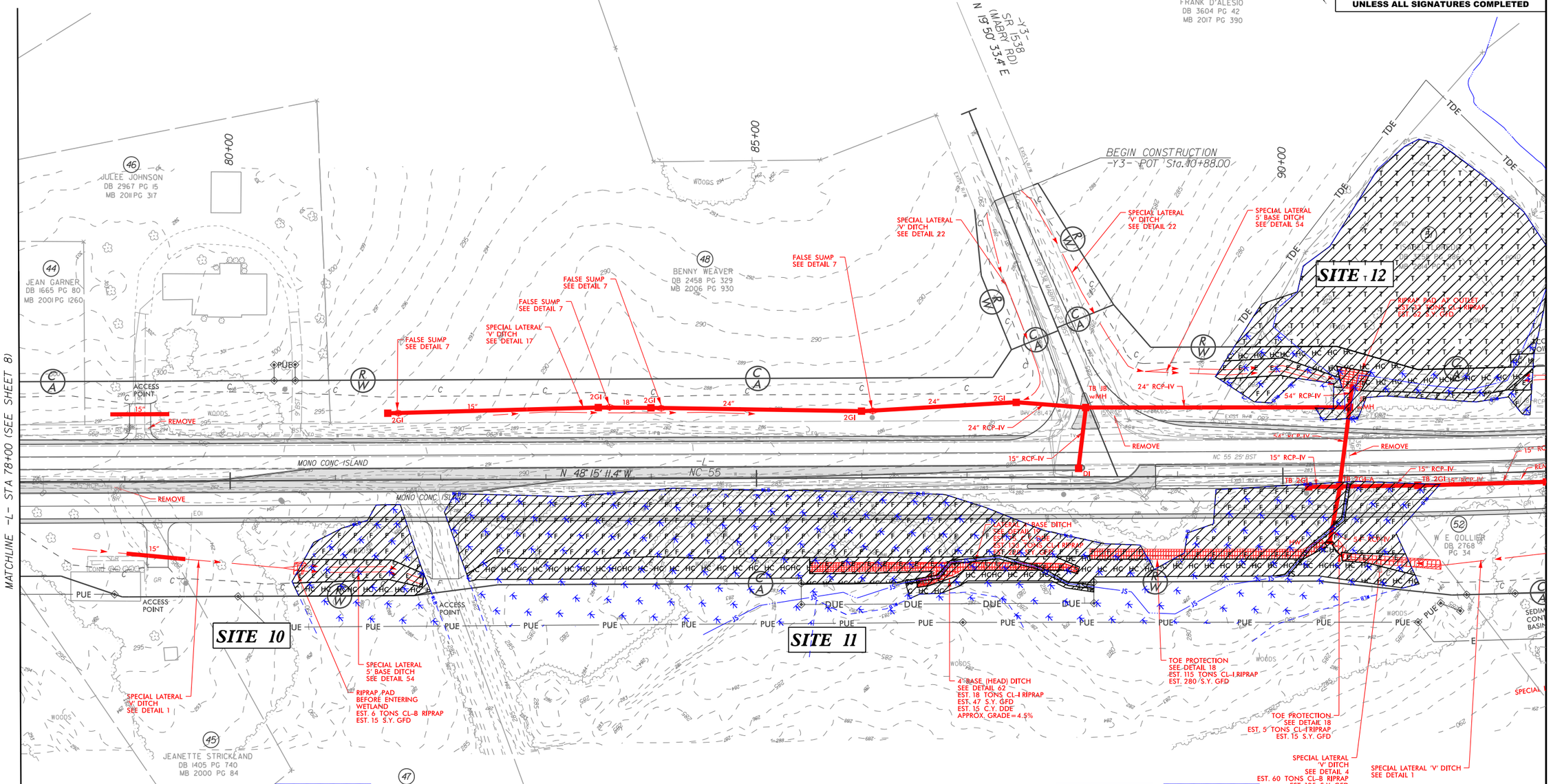
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LEGEND

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
HC HC — DENOTES HAND CLEARING	T T — DENOTES TEMPORARY FILL IN WETLAND

PERMIT DRAWING
SHEET 23 OF 71

NAD 83/NA 2011



DITCH ENTERING WETLAND CALCS	
-L- STA. 80+75 TO 81+82 RT	
DA	0.65 AC.
C	0.59
I_{10}	6.2 IN./HR
Q_{10}	2.40 C.F.S
V_{10}	1.05 F.P.S
SLOPE	0.011 FT/FT
N	0.063
LINER TYPE	RIPRAP PAD

JURISDICTIONAL STREAM / CHANNEL CHANGE DITCH WITHIN WETLAND	
-L- STA. 85+50 TO 87+00 RT	
DA	35.51 AC.
C (FUTURE)	0.51
I_{10}	4.27 IN./HR
Q_{10} (FUTURE)	77.39 C.F.S
V_{10} (FUTURE)	2.69 F.P.S
SLOPE	0.01 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

JURISDICTIONAL STREAM / CHANNEL CHANGE DITCH WITHIN WETLAND	
-L- STA. 87+00 TO 88+05 RT	
DA	35.51 AC.
C (FUTURE)	0.51
I_{10}	4.27 IN./HR
Q_{10} (FUTURE)	77.39 C.F.S
V_{10} (FUTURE)	1.76 F.P.S
SLOPE	0.003 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS	
-L- STA. 89+40 TO 90+50 LT	
DA	0.98 AC.
C (FUTURE)	0.53
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	3.22 C.F.S
V_{10} (FUTURE)	1.94 F.P.S
SLOPE	0.016 FT/FT
N	0.035
LINER TYPE	NONE

DITCH ENTERING WETLAND CALCS	
-L- STA. 90+50 TO 91+15 RT	
DA	3.69 AC.
C (FUTURE)	0.46
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	10.52 C.F.S
V_{10} (FUTURE)	2.00 F.P.S
SLOPE	0.018 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

SEE SHEET 2B-1 & 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 34 FOR -Y3- PROFILE

REVISIONS 5/14/99

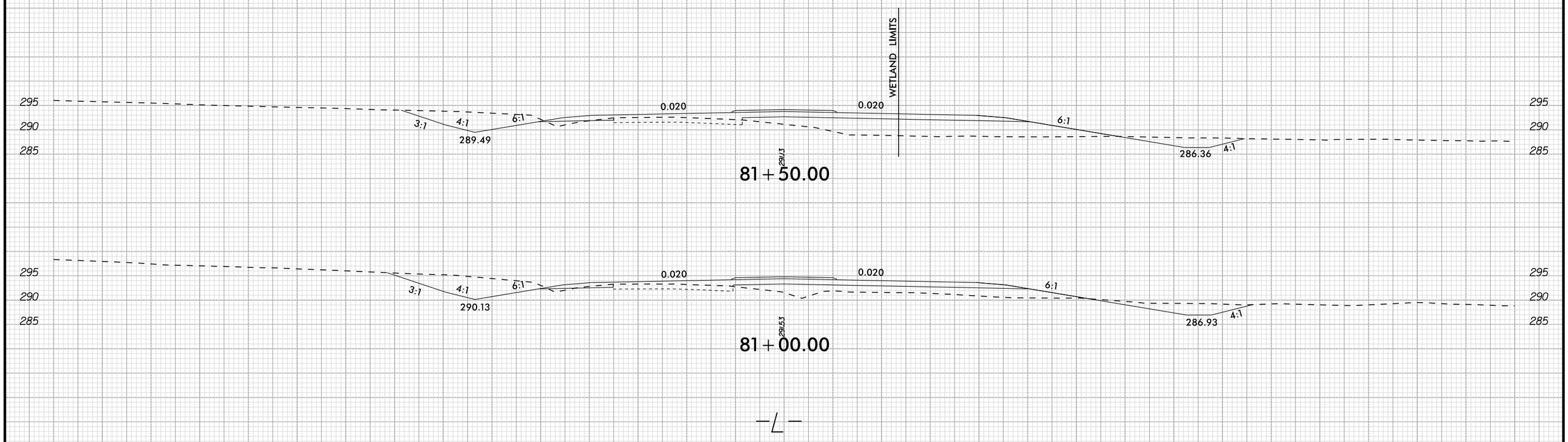
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 24 OF 71

SITE 10

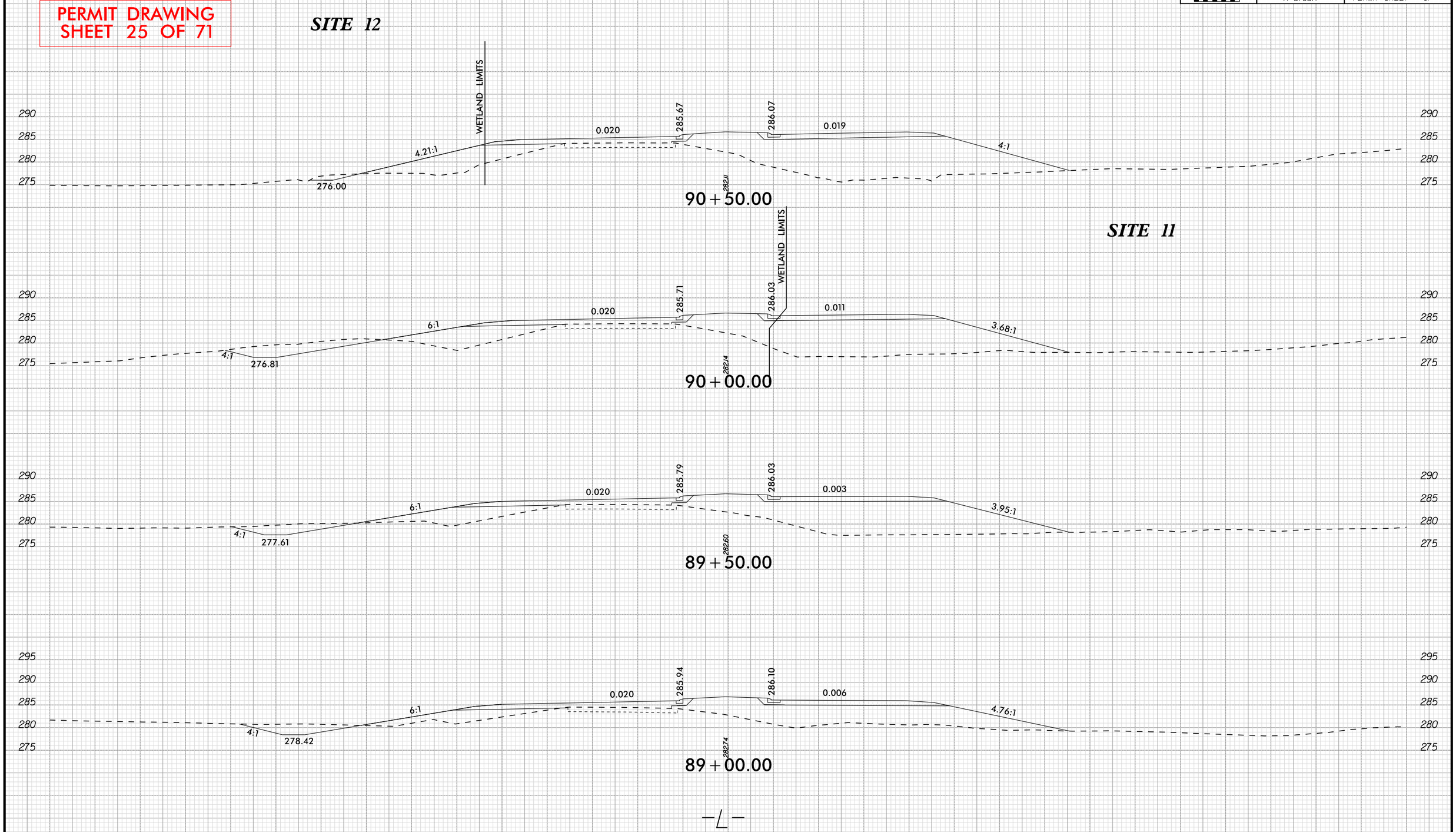


11/15/2021

Submitted 12/21/2021

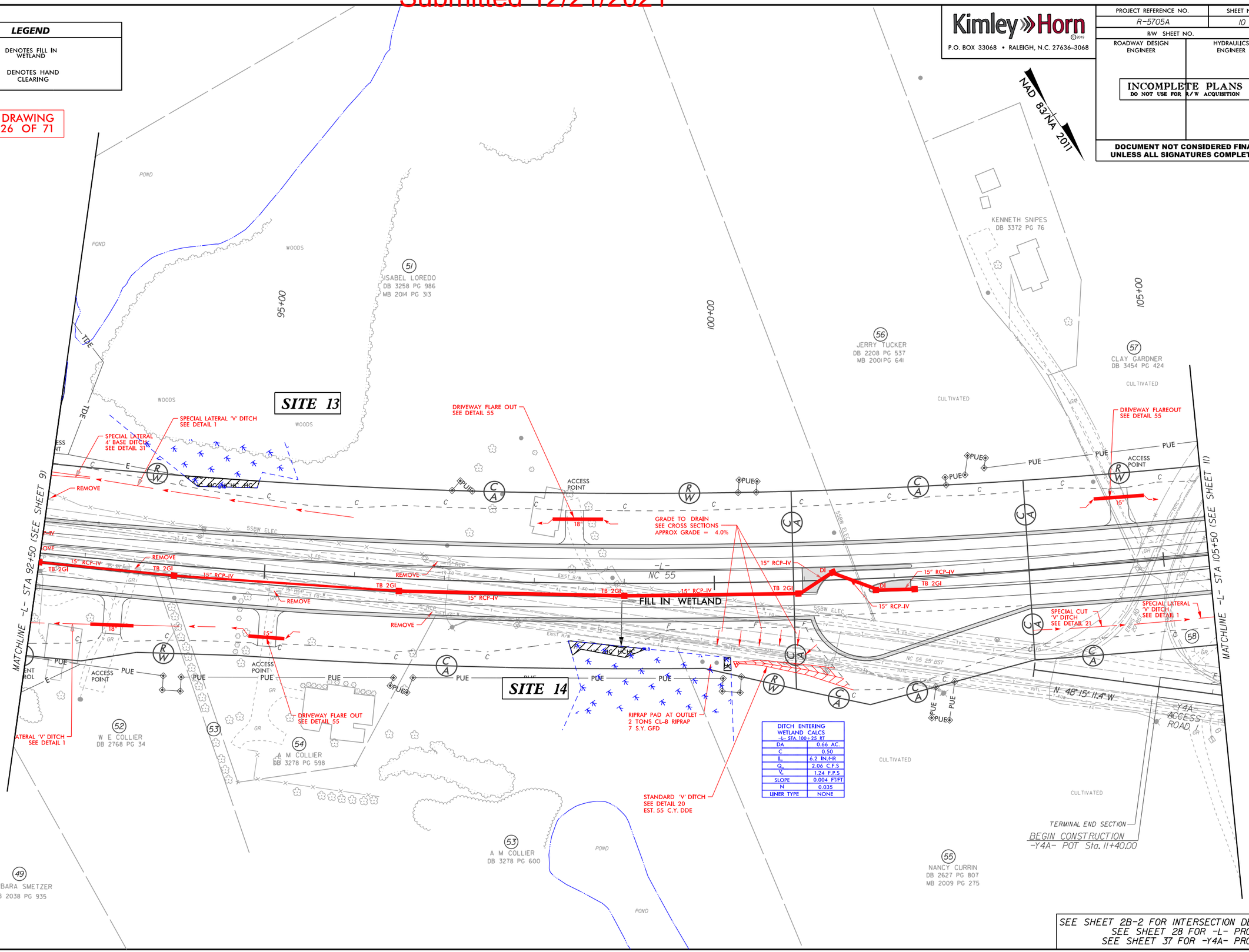
PROJ. REFERENCE NO.	SHEET NO.
R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 25 OF 71



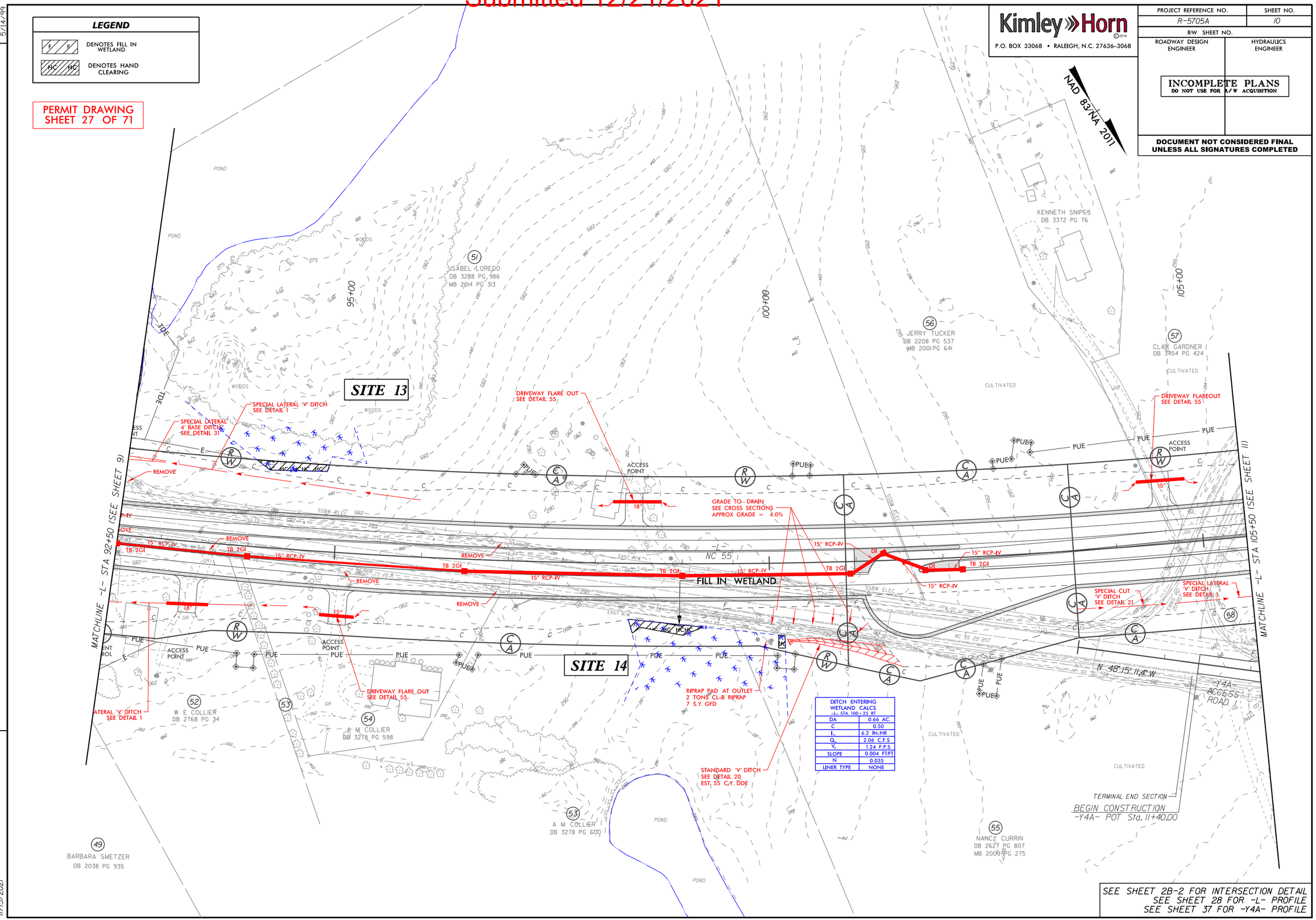
11/15/2021

Submitted 12/21/2021



DITCH ENTERING WETLAND CALCS -L- STA. 100+25 RT	
DA	0.66 AC.
C	0.50
I_{10}	6.2 IN./HR
Q_{10}	2.06 C.F.S
V_{10}	1.24 F.P.S
SLOPE	0.004 FT/FT
N	0.035
LINER TYPE	NONE

Submitted 12/21/2021



DITCH ENTERING WETLAND CALCS -L- STA. 100+25 RT	
DA	0.66 AC.
C	0.50
I_{10}	6.2 IN./HR
Q_{10}	2.06 C.F.S
V_{10}	1.24 F.P.S
SLOPE	0.004 FT/FT
N	0.035
LINER TYPE	NONE

REVISIONS

5/14/99

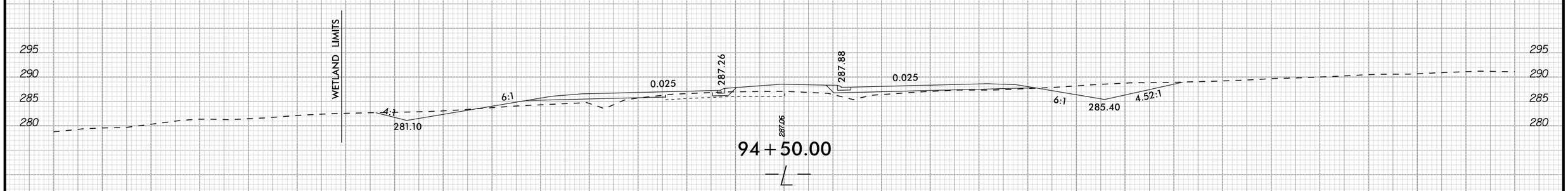
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 28 OF 71

SITE 13



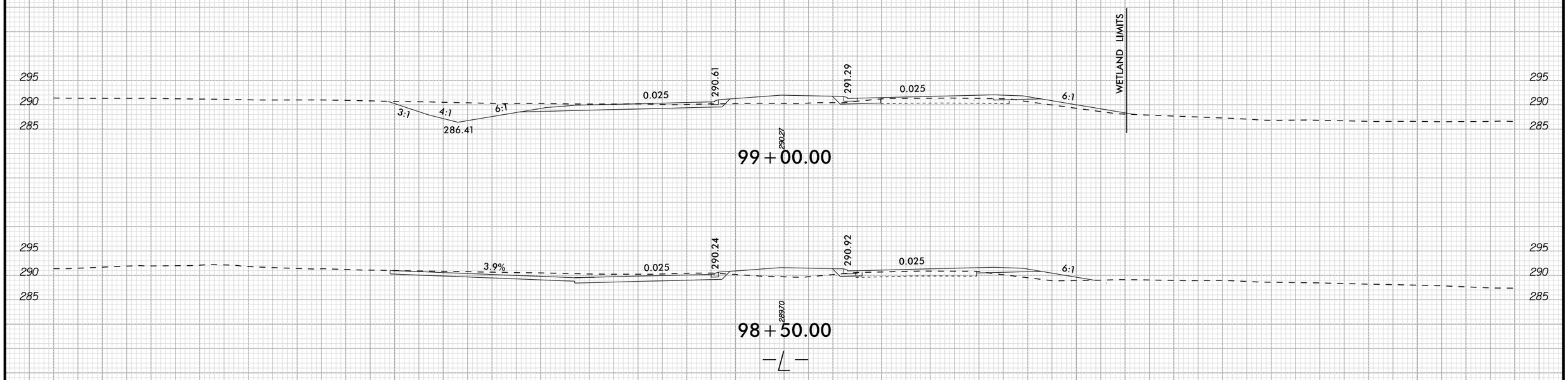
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 29 OF 71

SITE 14



11/15/2021

Submitted 12/21/2021

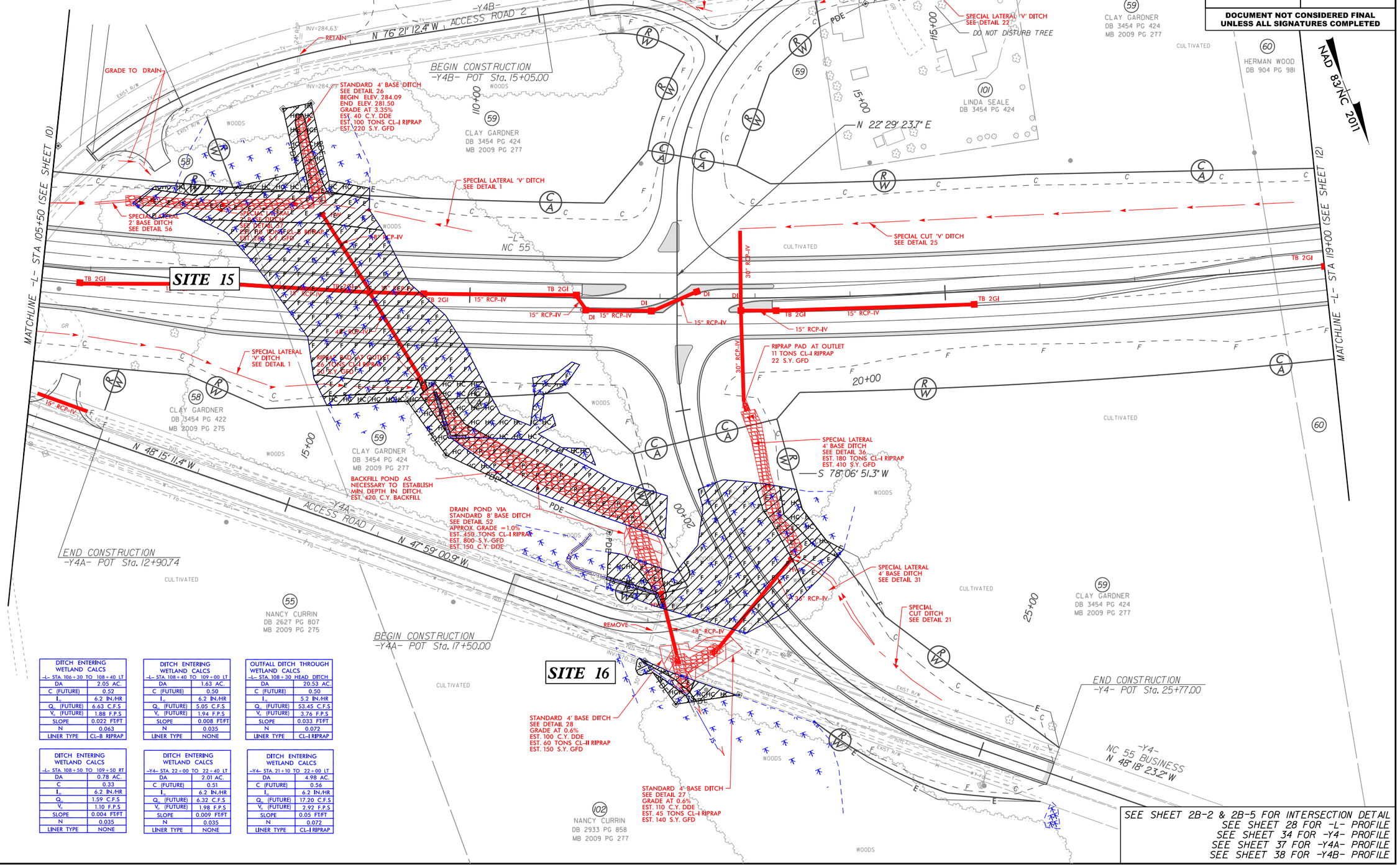
5/14/99

REVISIONS

11/15/2021

LEGEND	
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
HC HC — DENOTES HAND CLEARING	P P — DENOTES IMPACTS IN SURFACE WATER (POND)

PERMIT DRAWING
SHEET 30 OF 71



DITCH ENTERING WETLAND CALCS -L- STA. 106+30 TO 108+40 LT	
DA	2.05 AC.
C (FUTURE)	0.52
I_m	6.2 IN./HR
Q_p (FUTURE)	6.63 C.F.S
V_p (FUTURE)	1.88 F.P.S
SLOPE	0.022 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 108+40 TO 109+00 LT	
DA	1.63 AC.
C (FUTURE)	0.50
I_m	6.2 IN./HR
Q_p (FUTURE)	5.05 C.F.S
V_p (FUTURE)	1.94 F.P.S
SLOPE	0.008 FT/FT
N	0.035
LINER TYPE	NONE

OUTFALL DITCH THROUGH WETLAND CALCS -L- STA. 108+30 HEAD DITCH	
DA	20.53 AC.
C (FUTURE)	0.50
I_m	5.2 IN./HR.
Q_p (FUTURE)	53.45 C.F.S
V_p (FUTURE)	3.76 F.P.S
SLOPE	0.033 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 108+50 TO 109+50 RT	
DA	0.78 AC.
C	0.33
I_m	6.2 IN./HR
Q_p	1.59 C.F.S
V_p	1.10 F.P.S
SLOPE	0.004 FT/FT
N	0.035
LINER TYPE	NONE

DITCH ENTERING WETLAND CALCS -Y4- STA. 22+00 TO 22+40 LT	
DA	2.01 AC.
C (FUTURE)	0.51
I_m	6.2 IN./HR
Q_p (FUTURE)	6.32 C.F.S
V_p (FUTURE)	1.98 F.P.S
SLOPE	0.009 FT/FT
N	0.035
LINER TYPE	NONE

DITCH ENTERING WETLAND CALCS -Y4- STA. 21+10 TO 22+00 LT	
DA	4.98 AC.
C (FUTURE)	0.56
I_m	6.2 IN./HR
Q_p (FUTURE)	17.20 C.F.S
V_p (FUTURE)	2.92 F.P.S
SLOPE	0.05 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	11
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

SEE SHEET 2B-2 & 2B-5 FOR INTERSECTION DETAIL
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 34 FOR -Y4- PROFILE
SEE SHEET 37 FOR -Y4A- PROFILE
SEE SHEET 38 FOR -Y4B- PROFILE

Submitted 12/21/2021

5/14/99

REVISIONS

11/15/2021

LEGEND	
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
HC HC — DENOTES HAND CLEARING	P P — DENOTES IMPACTS IN SURFACE WATER (POND)

PERMIT DRAWING
SHEET 31 OF 71

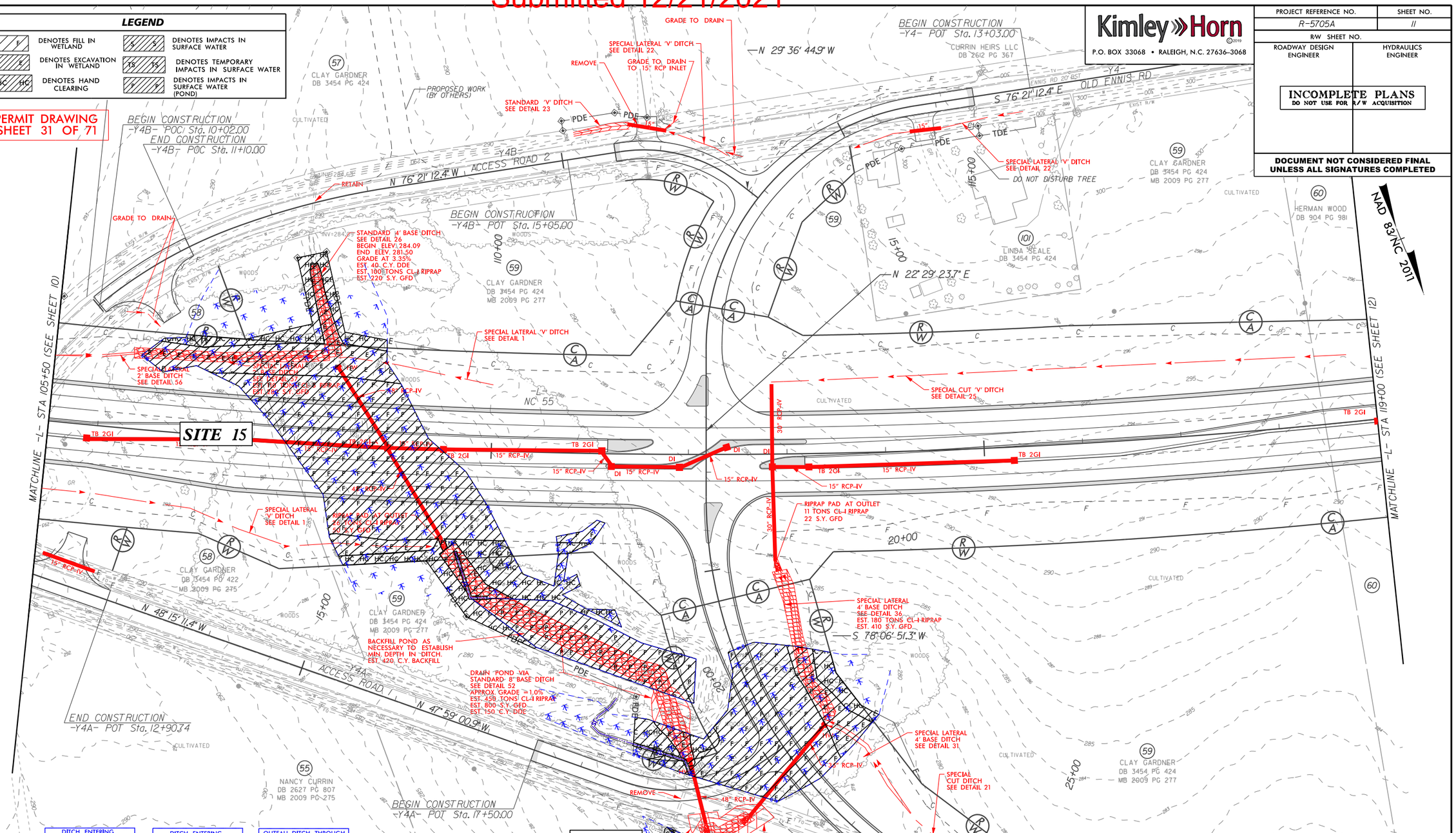
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	11
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/NC 2011



DITCH ENTERING WETLAND CALCS -L- STA. 106+30 TO 108+40 LT	
DA	2.05 AC.
C (FUTURE)	0.52
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	6.63 C.F.S
V_{10} (FUTURE)	1.88 F.P.S
SLOPE	0.022 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 108+40 TO 109+00 LT	
DA	1.63 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	5.05 C.F.S
V_{10} (FUTURE)	1.94 F.P.S
SLOPE	0.008 FT/FT
N	0.035
LINER TYPE	NONE

OUTFALL DITCH THROUGH WETLAND CALCS -L- STA. 108+30 HEAD DITCH	
DA	20.53 AC.
C (FUTURE)	0.50
I_{10}	5.2 IN./HR
Q_{10} (FUTURE)	53.45 C.F.S
V_{10} (FUTURE)	3.76 F.P.S
SLOPE	0.033 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

DITCH ENTERING WETLAND CALCS -L- STA. 108+50 TO 109+50 RT	
DA	0.78 AC.
C	0.33
I_{10}	6.2 IN./HR
Q_{10}	1.59 C.F.S
V_{10}	1.10 F.P.S
SLOPE	0.004 FT/FT
N	0.035
LINER TYPE	NONE

DITCH ENTERING WETLAND CALCS -Y4- STA. 22+00 TO 22+40 LT	
DA	2.01 AC.
C (FUTURE)	0.51
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	6.32 C.F.S
V_{10} (FUTURE)	1.98 F.P.S
SLOPE	0.009 FT/FT
N	0.035
LINER TYPE	NONE

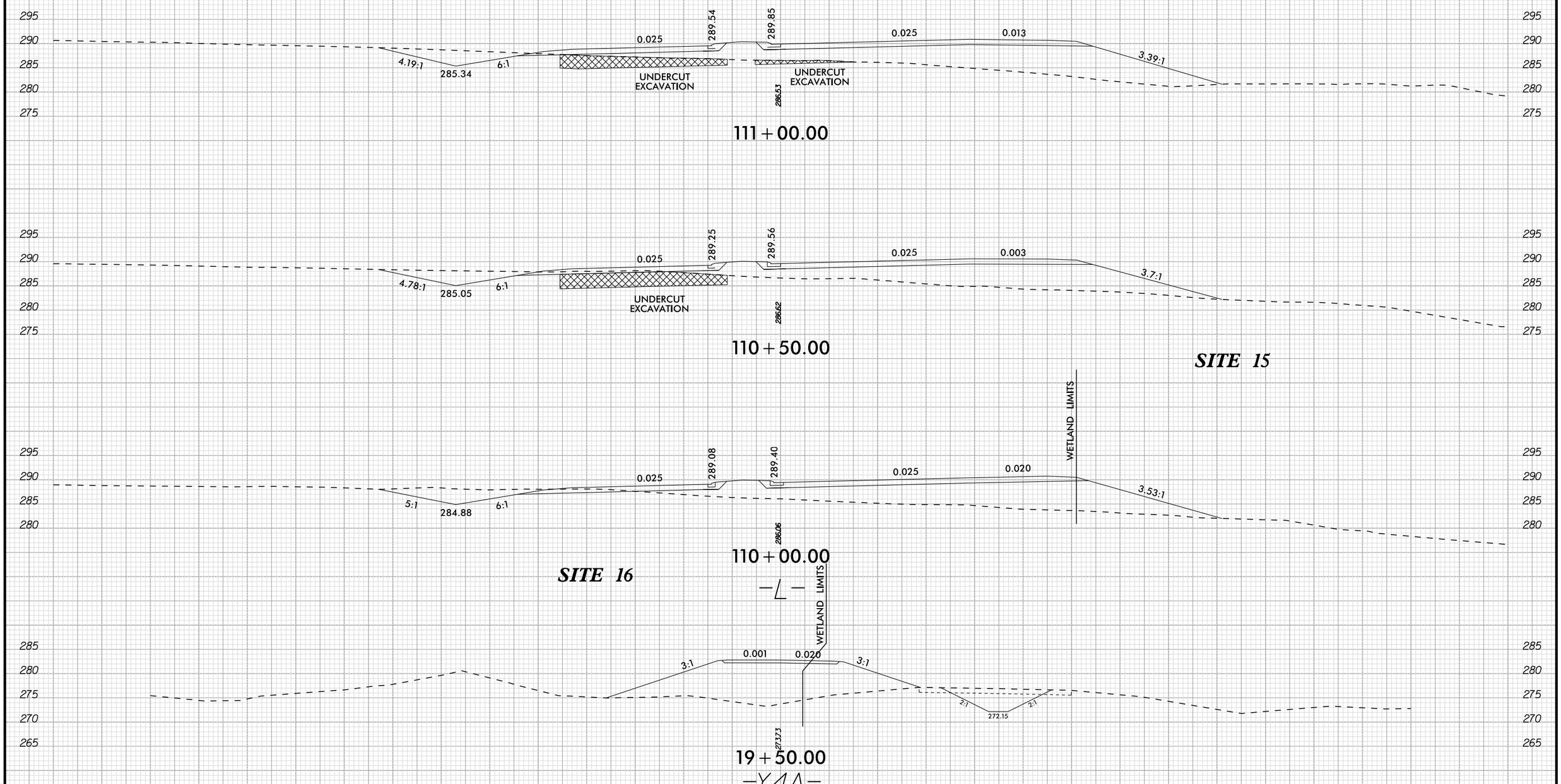
DITCH ENTERING WETLAND CALCS -Y4- STA. 21+10 TO 22+00 LT	
DA	4.98 AC.
C (FUTURE)	0.56
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	17.20 C.F.S
V_{10} (FUTURE)	2.92 F.P.S
SLOPE	0.05 FT/FT
N	0.072
LINER TYPE	CL-I RIPRAP

SEE SHEET 2B-2 & 2B-5 FOR INTERSECTION DETAIL
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 34 FOR -Y4- PROFILE
SEE SHEET 37 FOR -Y4A- PROFILE
SEE SHEET 38 FOR -Y4B- PROFILE

Submitted 12/21/2021

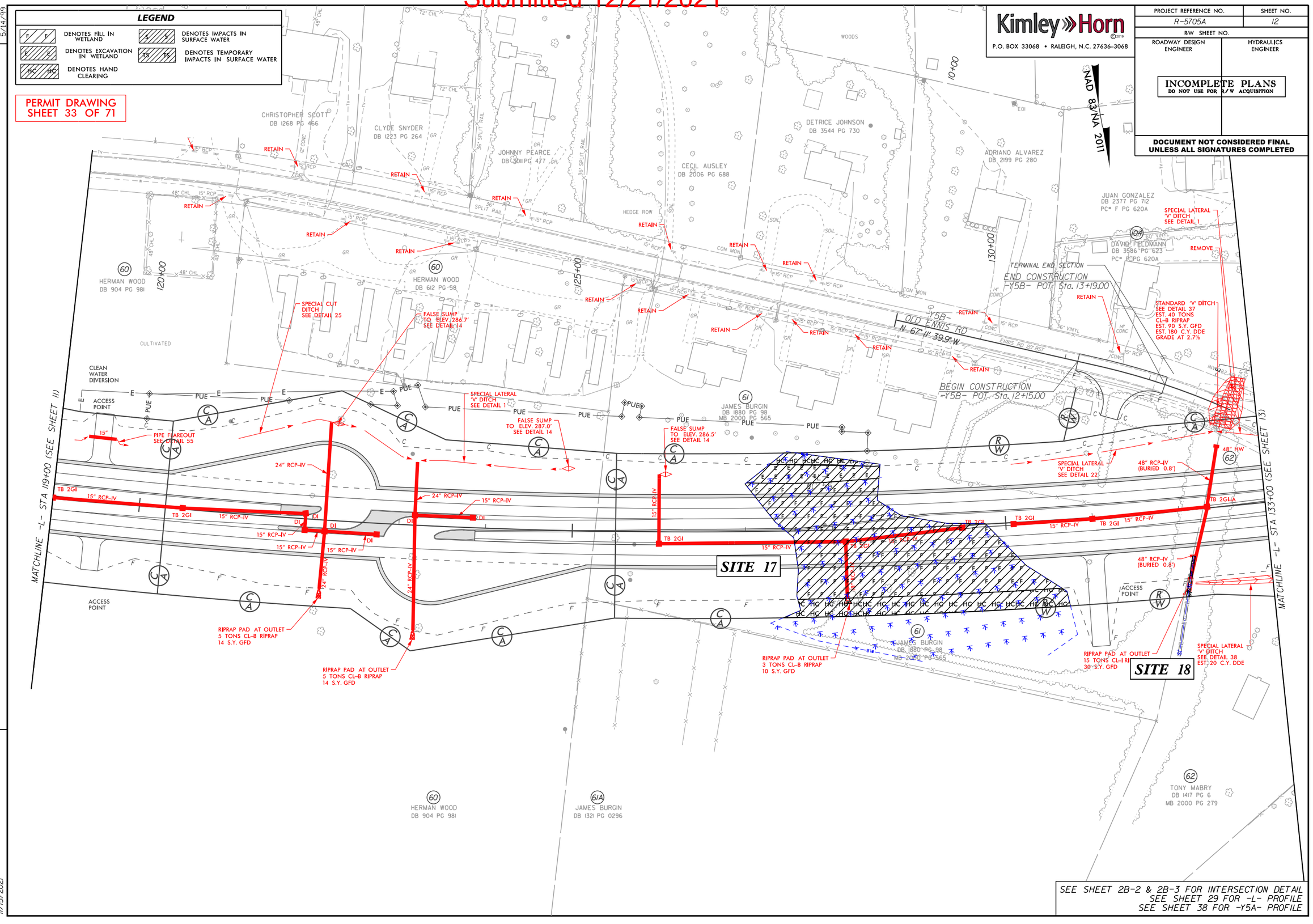
PERMIT DRAWING
SHEET 32 OF 71

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -



11/15/2021

Submitted 12/21/2021

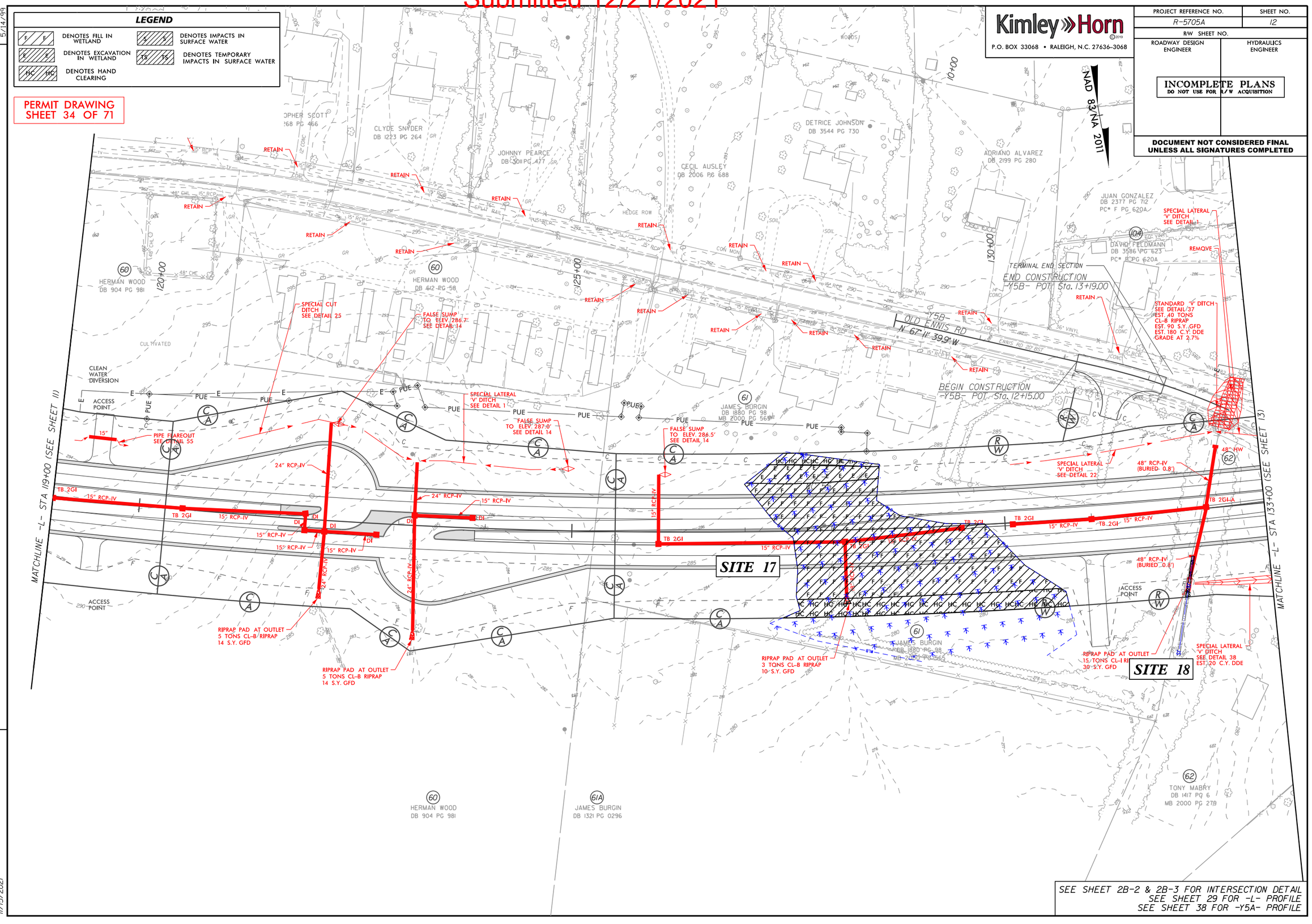


REVISIONS

5/14/99

11/15/2021

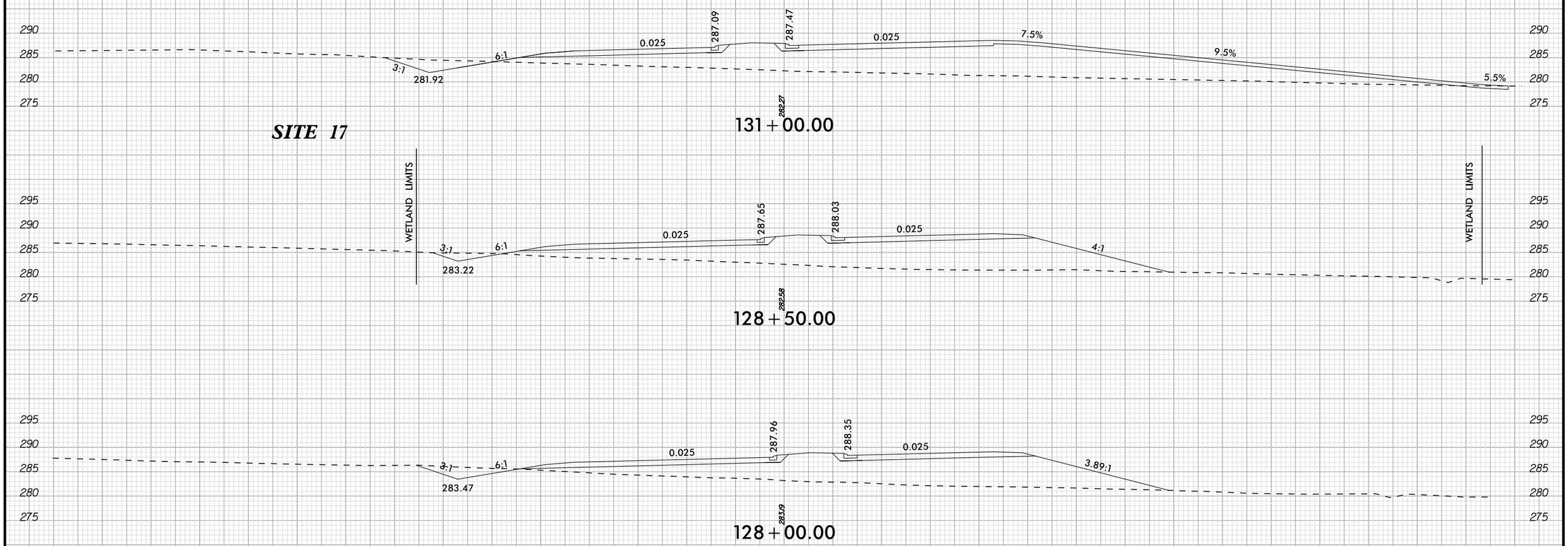
Submitted 12/21/2021



Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 35 OF 71



11/15/2021

Submitted 12/21/2021

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

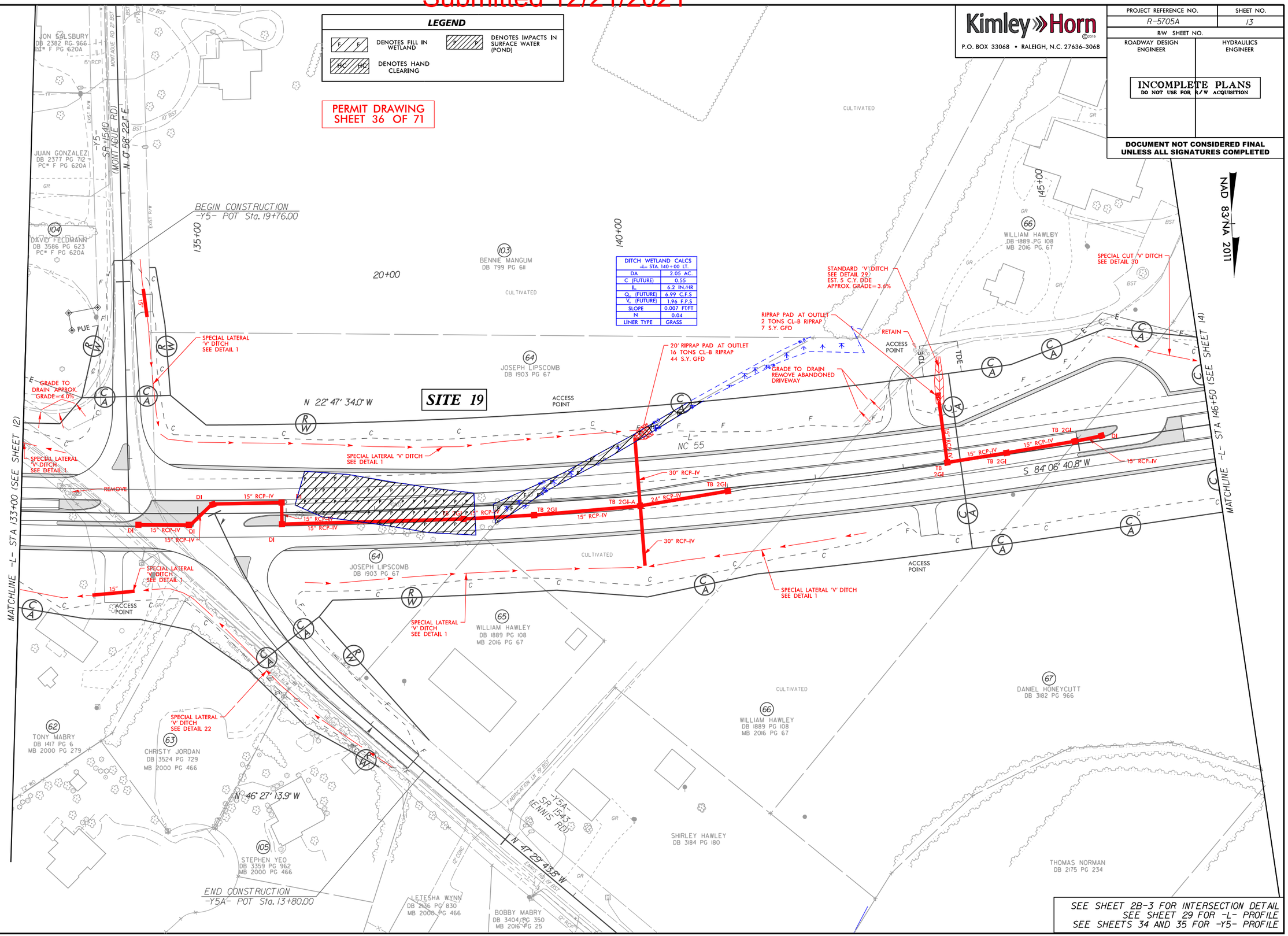
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 36 OF 71

LEGEND

- F F — DENOTES FILL IN WETLAND
- HC HC — DENOTES HAND CLEARING
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)

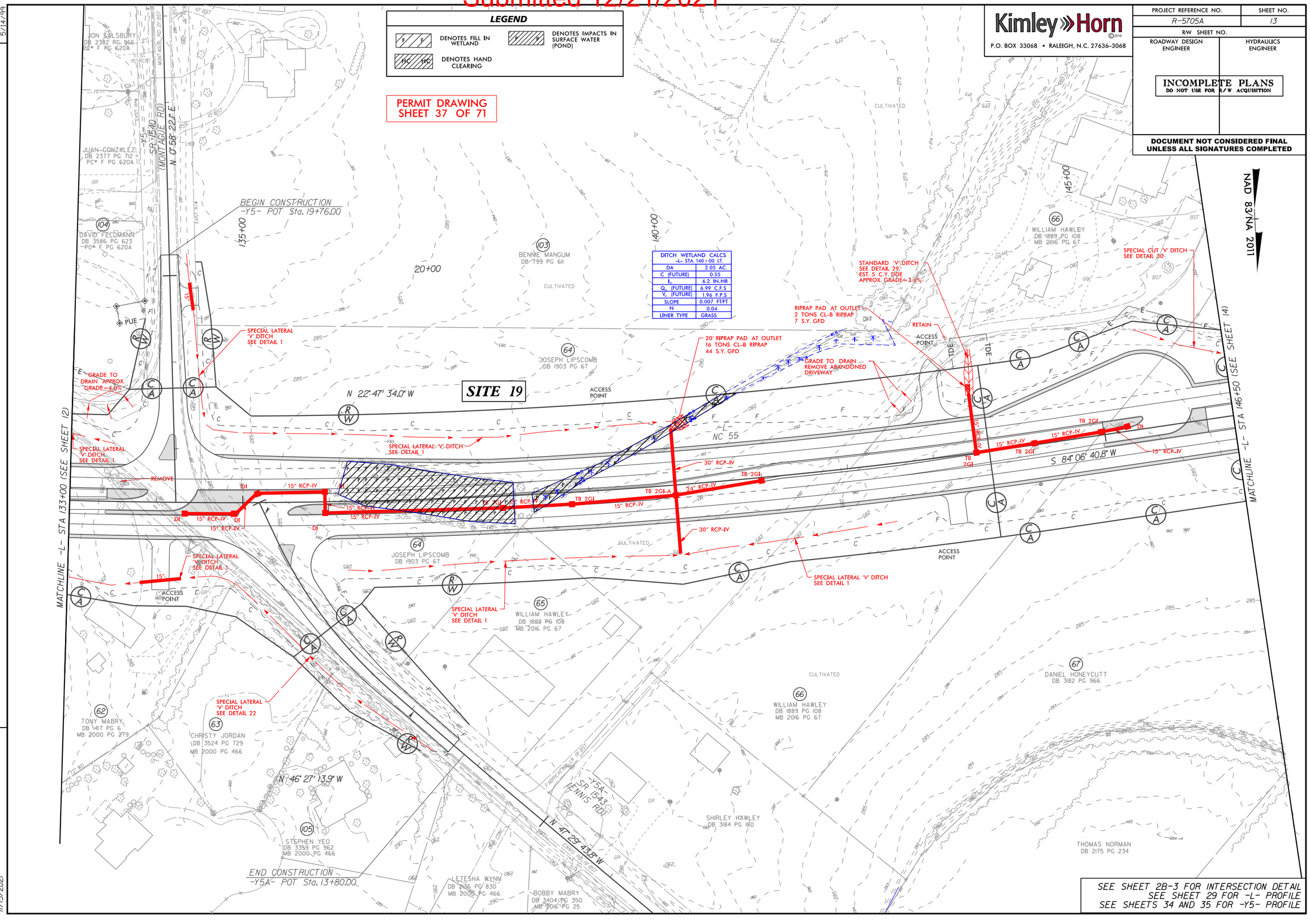


DITCH WETLAND CALCS -L- STA. 140+00 LT.	
DA	2.05 AC.
C (FUTURE)	0.55
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	6.99 C.F.S.
V_{10} (FUTURE)	1.96 F.P.S.
SLOPE	0.007 FT/FT
N	0.04
LINER TYPE	GRASS

SEE SHEET 2B-3 FOR INTERSECTION DETAIL
SEE SHEET 29 FOR -L- PROFILE
SEE SHEETS 34 AND 35 FOR -Y5- PROFILE

REVISIONS
5/14/99
11/15/2021

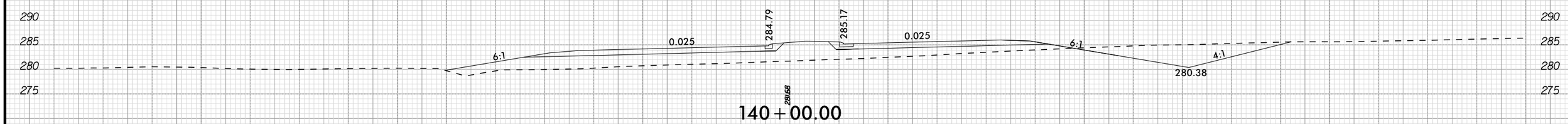
Submitted 12/21/2021

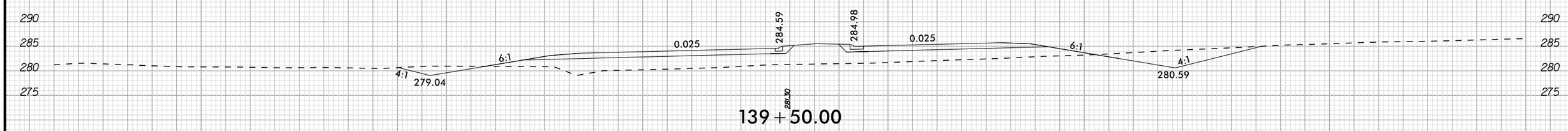


Submitted 12/21/2021

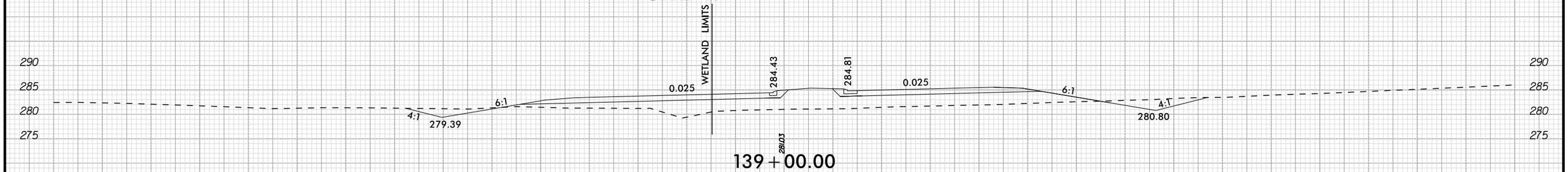
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 38 OF 71





SITE 19



11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

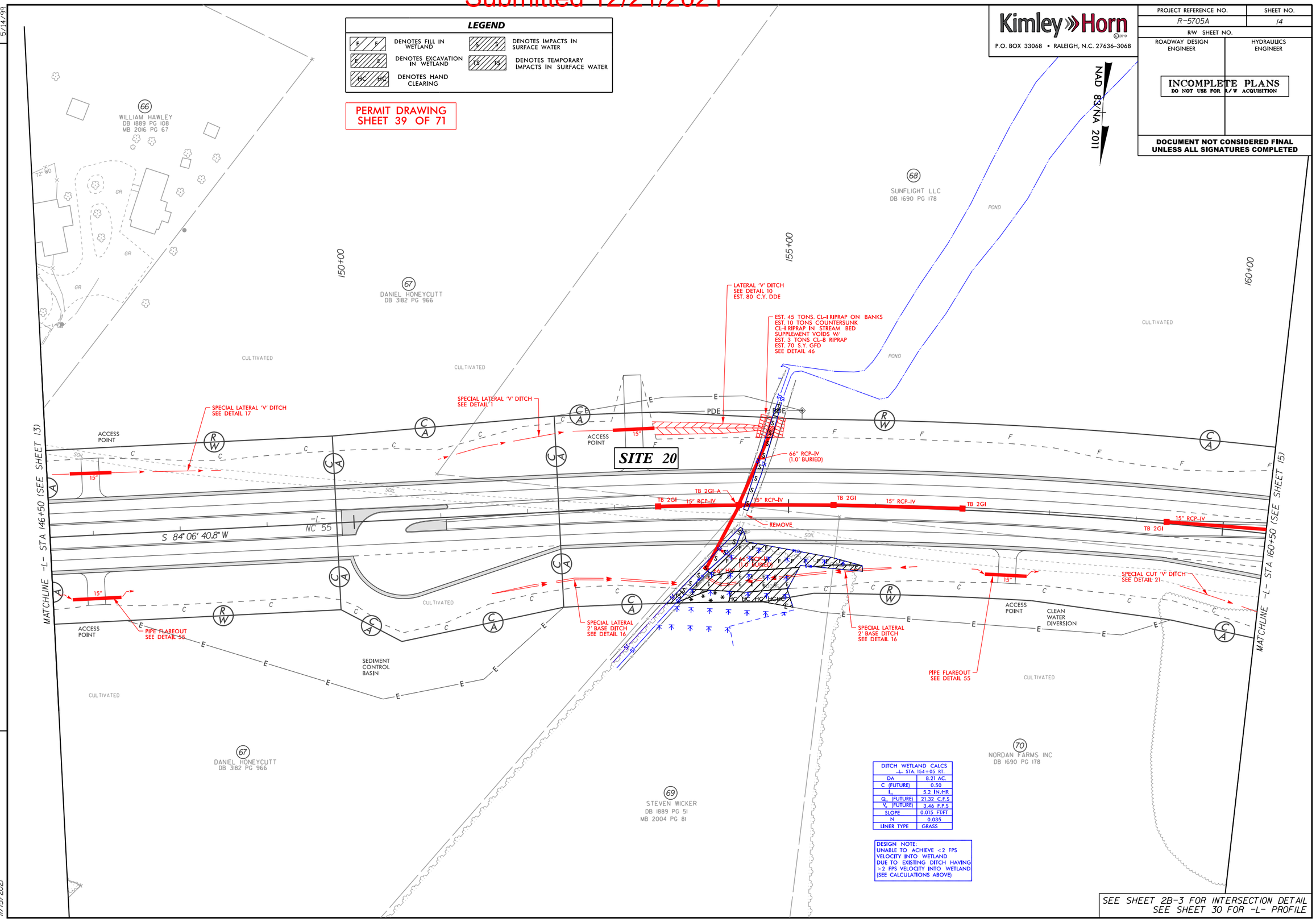
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

LEGEND

- F F — DENOTES FILL IN WETLAND
- E E — DENOTES EXCAVATION IN WETLAND
- HC HC — DENOTES HAND CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 39 OF 71



DITCH WETLAND CALCS -L- STA. 154+05 RT.	
DA	8.21 AC.
C (FUTURE)	0.50
I_{10}	5.2 IN./HR
Q_{10} (FUTURE)	21.32 C.F.S.
V_{10} (FUTURE)	3.46 F.P.S.
SLOPE	0.015 FT/FT
N	0.035
LINER TYPE	GRASS

DESIGN NOTE:
UNABLE TO ACHIEVE <2 FPS VELOCITY INTO WETLAND DUE TO EXISTING DITCH HAVING >2 FPS VELOCITY INTO WETLAND (SEE CALCULATIONS ABOVE)

SEE SHEET 2B-3 FOR INTERSECTION DETAIL
SEE SHEET 30 FOR -L- PROFILE

11/15/2021

Submitted 12/21/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	14
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

LEGEND

- F F — DENOTES FILL IN WETLAND
- E E — DENOTES EXCAVATION IN WETLAND
- HC HC — DENOTES HAND CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 40 OF 71

NAD 83/NA 2011

SITE 20

MATCHLINE -L- STA 146+50 (SEE SHEET 13)

MATCHLINE -L- STA 160+50 (SEE SHEET 15)

150+00 155+00 160+00

-L- NC 55

S 84° 06' 40.8" W

DANIEL HONEYCUTT DB 3182 PG 966

SUNFLIGHT LLC DB 1690 PG 178

STEVEN WICKER DB 1889 PG 51 MB 2004 PG 81

NORDAN FARMS INC DB 1690 PG 178

CULTIVATED

POND

ACCESS POINT

SEDIMENT CONTROL BASIN

CLEAN WATER DIVERSION

SPECIAL LATERAL 'V' DITCH SEE DETAIL 17

SPECIAL LATERAL 'V' DITCH SEE DETAIL 1

LATERAL 'V' DITCH SEE DETAIL 10 EST. 80 C.Y. DDE

EST. 45 TONS CL-I RIPRAP ON BANKS
EST. 10 TONS COUNTERSUNK CL-I RIPRAP IN STREAM BED SUPPLEMENT VOIDS W/ EST. 3 TONS CL-B RIPRAP
EST. 70 S.Y. GFD
SEE DETAIL 46

66" RCP-IV (1.0' BURIED)

TB 2GI-A

TB 2GI

15" RCP-IV

REMOVE

PIPE FLAREOUT SEE DETAIL 55

SPECIAL LATERAL 2' BASE DITCH SEE DETAIL 16

SPECIAL CUT 'V' DITCH SEE DETAIL 21

15"

PDE

DITCH WETLAND CALCS -L- STA. 154+05 RT.	
DA	8.21 AC.
C (FUTURE)	0.50
I_{10}	5.2 IN./HR
Q_{10} (FUTURE)	21.32 C.F.S
V_{10} (FUTURE)	3.46 F.P.S
SLOPE	0.015 FT/FT
N	0.035
LINER TYPE	GRASS

DESIGN NOTE:
UNABLE TO ACHIEVE <2 FPS VELOCITY INTO WETLAND DUE TO EXISTING DITCH HAVING >2 FPS VELOCITY INTO WETLAND (SEE CALCULATIONS ABOVE)

SEE SHEET 2B-3 FOR INTERSECTION DETAIL
SEE SHEET 30 FOR -L- PROFILE

REVISIONS

5/14/99

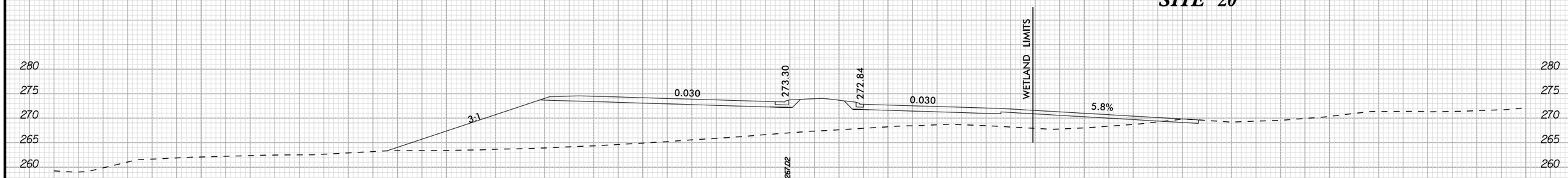
11/15/2021

Submitted 12/21/2021

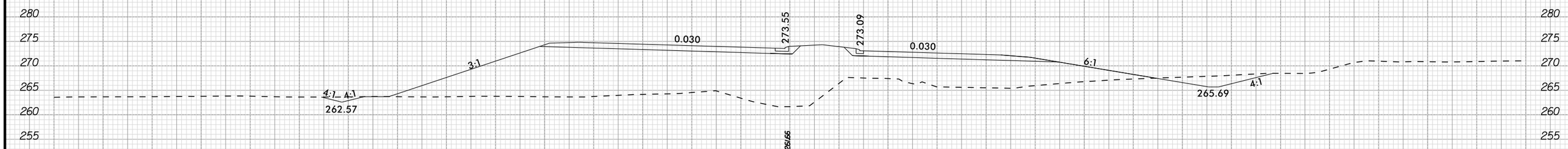
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 41 OF 71

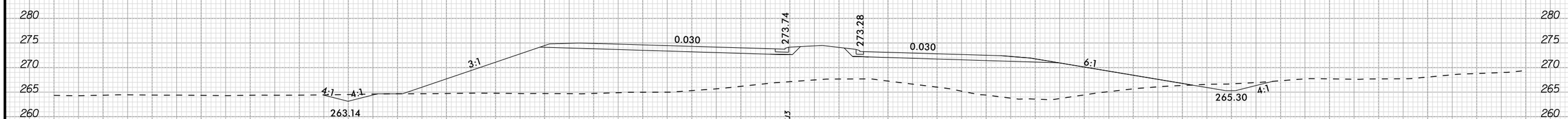
SITE 20



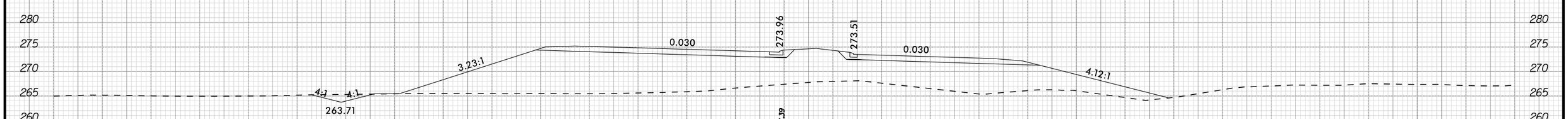
155 + 00.00



154 + 50.00



154 + 25.00



154 + 00.00

—L—

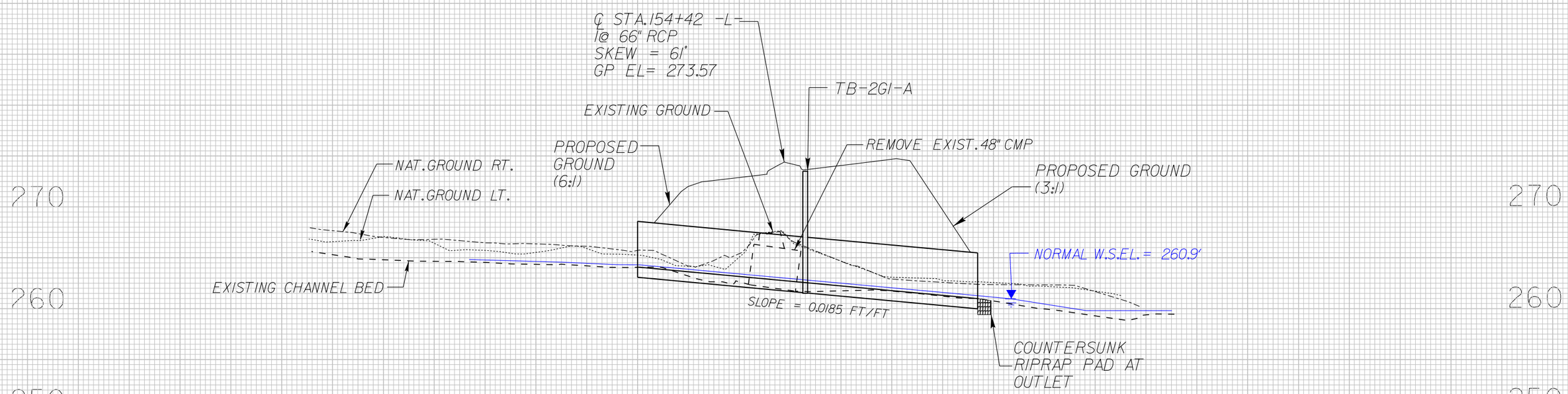
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

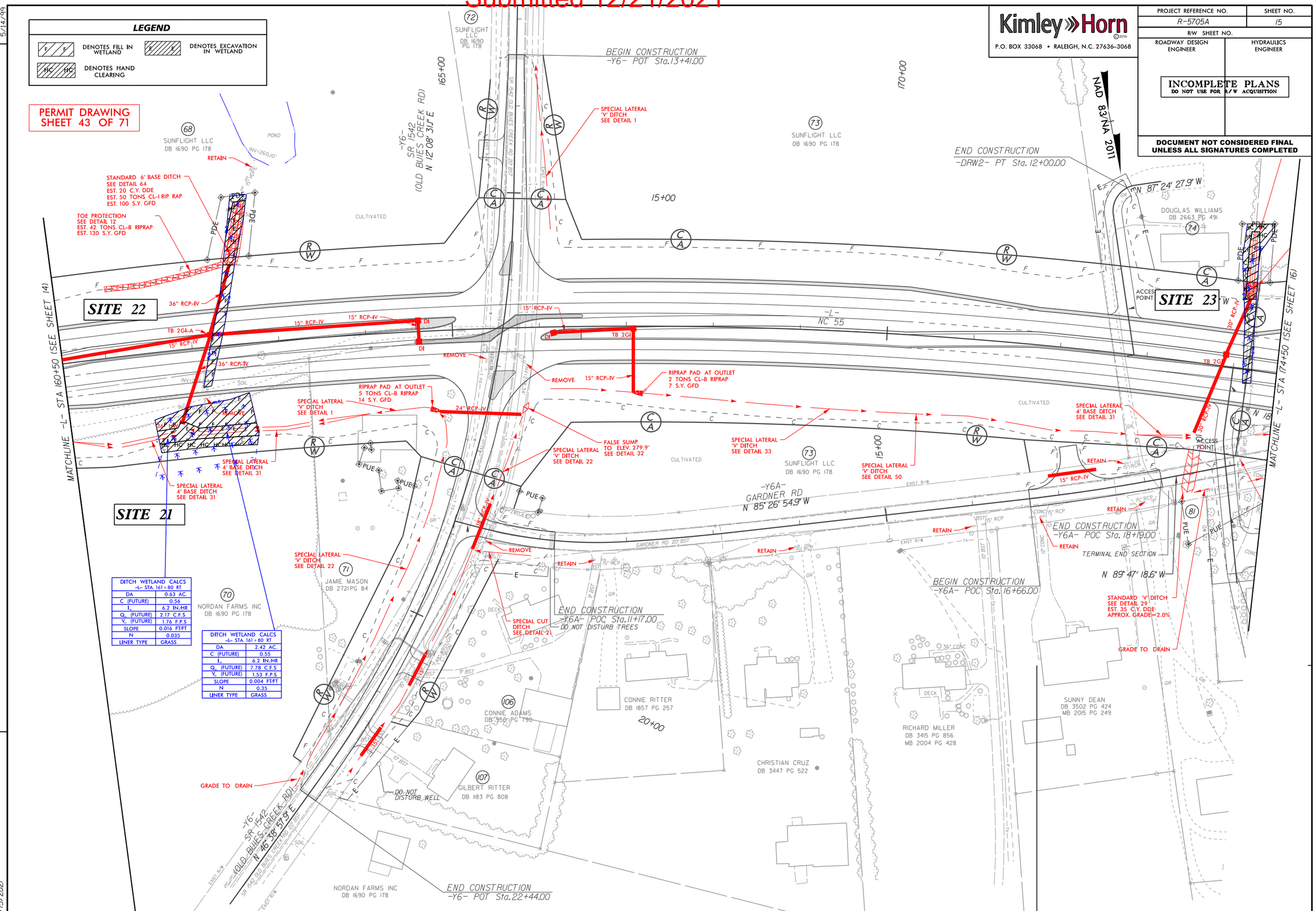
PERMIT DRAWING
SHEET 42 OF 71

SITE 20



11/15/2021

Submitted 12/21/2021



DITCH WETLAND CALCS -L- STA. 161+80 RT	
DA	0.63 AC.
C (FUTURE)	0.56
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	2.17 C.F.S
V_{10} (FUTURE)	1.76 F.P.S
SLOPE	0.016 FT/FT
N	0.035
LINER TYPE	GRASS

DITCH WETLAND CALCS -L- STA. 161+80 RT	
DA	2.42 AC.
C (FUTURE)	0.55
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	7.78 C.F.S
V_{10} (FUTURE)	1.53 F.P.S
SLOPE	0.004 FT/FT
N	0.35
LINER TYPE	GRASS

REVISIONS

5/14/99

11/15/2021

Submitted 12/21/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 44 OF 71

NAD 83/NA 2011

BEGIN CONSTRUCTION
-Y6- POT Sta.13+41.00

END CONSTRUCTION
-DRW2- PT Sta. 12+00.00

SITE 22

SITE 21

SITE 23

MATCHLINE -L- STA 160+50 (SEE SHEET 14)

MATCHLINE -L- STA 174+50 (SEE SHEET 16)

-Y6- SR 1542 (OLD BUIES CREEK RD) N 12° 08' 31.1" E

-Y6- SR 1542 (OLD BUIES CREEK RD) N 46° 38' 57.9" E

-Y6A- GARDNER RD N 85° 26' 54.9" W

N 87° 24' 27.9" W

N 89° 47' 18.6" W

-L- NC 55

SUNFLIGHT LLC DB 1690 PG 178

DOUGLAS WILLIAMS DB 2663 PG 491

JAMIE MASON DB 2721 PG 84

NORDAN FARMS INC DB 1690 PG 178

CONNIE ADAMS DB 350 PG 790

GILBERT RITTER DB 1183 PG 808

CONNIE RITTER DB 1857 PG 257

CHRISTIAN CRUZ DB 3447 PG 522

RICHARD MILLER DB 3416 PG 856 MB 2004 PG 428

SUNNY DEAN DB 3502 PG 424 MB 2015 PG 249

END CONSTRUCTION
-Y6A- POC Sta.11+17.00
DO NOT DISTURB TREES

END CONSTRUCTION
-Y6- POT Sta.22+44.00

BEGIN CONSTRUCTION
-Y6A- POC Sta.16+66.00

END CONSTRUCTION
-Y6A- POC Sta.18+19.00

TERMINAL END SECTION

SPECIAL LATERAL 'V' DITCH SEE DETAIL 1

STANDARD 6' BASE DITCH SEE DETAIL 64 EST. 20 C.Y. DDE EST. 50 TONS CL-I RIP RAP EST. 100 S.Y. GFD

TOE PROTECTION SEE DETAIL 12 EST. 42 TONS CL-B RIPRAP EST. 130 S.Y. GFD

RETAIN

36" RCP-IV

15" RCP-IV

TB 2GI-A

TB 2GI

DI

REMOVE

RIPRAP PAD AT OUTLET 5 TONS CL-B RIPRAP 14 S.Y. GFD

RIPRAP PAD AT OUTLET 2 TONS CL-B RIPRAP 7 S.Y. GFD

24" RCP-IV

SPECIAL LATERAL 'V' DITCH SEE DETAIL 1

SPECIAL LATERAL 4' BASE DITCH SEE DETAIL 31

SPECIAL LATERAL 'V' DITCH SEE DETAIL 22

FALSE SUMP TO ELEV. 279.9' SEE DETAIL 32

SPECIAL LATERAL 'V' DITCH SEE DETAIL 33

SPECIAL LATERAL 'V' DITCH SEE DETAIL 50

SPECIAL CUT DITCH SEE DETAIL 21

STANDARD 'V' DITCH SEE DETAIL 29 EST. 35 C.Y. DDE APPROX. GRADE=2.0%

GRADE TO DRAIN

DO NOT DISTURB WELL

ACCESS POINT

DITCH WETLAND CALCS -L- STA. 161+80 RT	
DA	0.63 AC.
C (FUTURE)	0.56
I_m	6.2 IN./HR
Q_p (FUTURE)	2.17 C.F.S
V_p (FUTURE)	1.76 F.P.S
SLOPE	0.016 FT/FT
N	0.035
LINER TYPE	GRASS

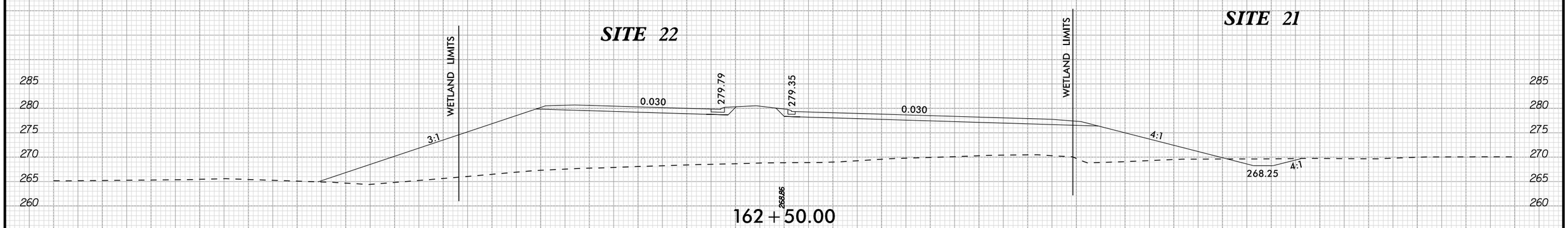
DITCH WETLAND CALCS -L- STA. 161+80 RT	
DA	2.42 AC.
C (FUTURE)	0.55
I_m	6.2 IN./HR
Q_p (FUTURE)	7.78 C.F.S
V_p (FUTURE)	1.53 F.P.S
SLOPE	0.004 FT/FT
N	0.35
LINER TYPE	GRASS

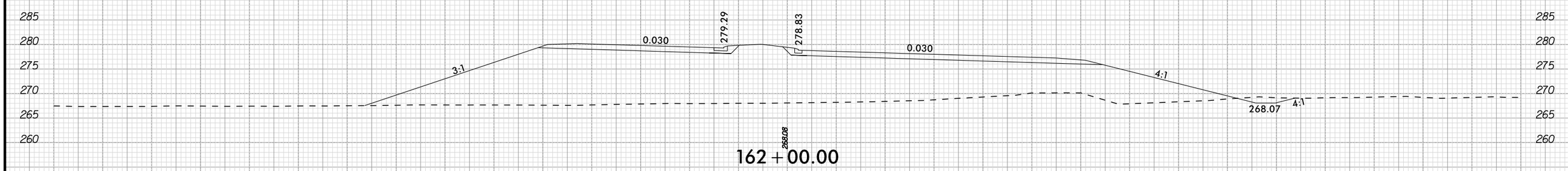
11/15/2021

Submitted 12/21/2021

PERMIT DRAWING
SHEET 45 OF 71

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -





-L-

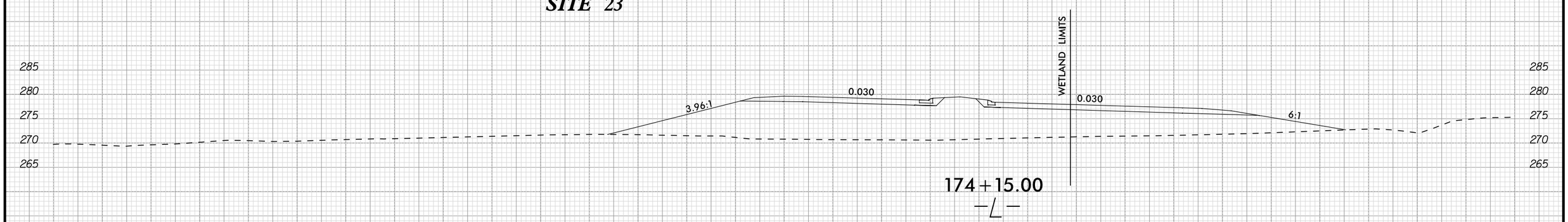
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 46 OF 71

SITE 23



11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

11/15/2021

LEGEND

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
HC HC — DENOTES HAND CLEARING	P P — DENOTES IMPACTS IN SURFACE WATER (POND)

PERMIT DRAWING
SHEET 47 OF 71

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	16
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/NA 2011

SITE 25

SITE 24

DITCH WETLAND CALCS -L- STA. 181+50 LT.	
DA	1.32 AC.
C (FUTURE)	0.43
I_a	6.2 IN./HR
Q_a (FUTURE)	3.48 C.F.S
V_a (FUTURE)	1.5 F.P.S
SLOPE	0.005 FT/FT
N	0.035
LINER TYPE	GRASS

DITCH WETLAND CALCS -L- STA. 182+50 LT.	
DA	0.74 AC.
C (FUTURE)	0.34
I_a	6.2 IN./HR
Q_a (FUTURE)	1.55 C.F.S
V_a (FUTURE)	1.8 F.P.S
SLOPE	0.015 FT/FT
N	0.035
LINER TYPE	GRASS

DITCH WETLAND CALCS -L- STA. 180+50 RT.	
DA	1.51 AC.
C (FUTURE)	0.53
I_a	6.2 IN./HR
Q_a (FUTURE)	4.94 C.F.S
V_a (FUTURE)	1.31 F.P.S
SLOPE	0.003 FT/FT
N	0.035
LINER TYPE	GRASS

REALIGN AND WIDEN EXISTING DITCH TO PROPERTY LINE
MATCH EXISTING DITCH INVERT ELEVATIONS
SEE DETAIL 63
EST 10 CY DDE

20' RIPRAP PAD AT OUTLET
20 TONS CL-B RIPRAP
45 S.Y. GFD

GRADE TO DRAIN (FILL)

FILL POND TO ELEV. 250.0' AT THIS SIDE
FILL TO ELEV. 249.0' AT OPPOSITE SIDE
GRADE AT APPROX. 1.2% TO DRAIN
(SEE GRADE TO DRAIN ARROWS)
EST. 1030 C.Y. BACKFILL

LATERAL 2' BASE DITCH
SEE DETAIL 34
EST. 60 C.Y. DDE
DITCH TO BE EXCAVATED
AFTER POND HAS BEEN
FILLED

TYPICAL OUTLET
IMPROVEMENTS
SEE DETAIL 68 &
QUANTITIES IN
TABLE ABOVE

PROPOSED SINGLE GATE,
47" HIGH, 12' WIDE, 12' OPENING
STA 182+00 TO 182+12 LT

RIPRAP PAD AT OUTLET
2 TONS CL-B RIPRAP
7 S.Y. GFD

SPECIAL LATERAL
'V' DITCH
SEE DETAIL 1

SPECIAL LATERAL
2' BASE DITCH
SEE DETAIL 16

RIPRAP PAD AT OUTLET
2 TONS CL-B RIPRAP

SPECIAL CUT
'V' DITCH
SEE DETAIL 21

SPECIAL LATERAL
'V' DITCH
SEE DETAIL 1

RIPRAP PAD AT OUTLET
2 TONS CL-B RIPRAP
7 S.Y. GFD

FALSE SUMP
SEE DETAIL 7

TYPICAL INLET
IMPROVEMENTS
SEE DETAIL 67 &
QUANTITIES IN
TABLE ABOVE
GRADE CHANNEL
AT 1.0%

PIPE FLAREOUT
SEE DETAIL 55

PIPE FLAREOUT
SEE DETAIL 55

BERM 'V' DITCH
SEE DETAIL 3

15" CSP
W/ELBOWS

B.D.O.

REMOVE FENCE AND
BRICK COLUMNS

REMOVE
& BACKFILL TO
DRAIN

MATCHLINE -L- STA 174+50 (SEE SHEET 15)

MATCHLINE -L- STA 188+00 (SEE SHEET 17)

N 22° 04' 22.0" E

54' 36.2" E

N 32° 54' 14.5" E

N 48° 01' 02.7" E

S 76° 53' 18.3" E
END CONSTRUCTION
-DRW4- POT Sta. 11+26.90

N 5° 24' 08.4" E
END CONSTRUCTION
-DRW3- POT Sta. 12+38.00

END CONSTRUCTION
-DRW5- POT Sta. 11+07.00

CONTRACTOR SHALL COORDINATE
DRIVEWAY REPLACEMENT LIMITS
WITH THE PROPERTY OWNER.
CONTRACTOR TO ADJUST AS
DIRECTED BY THE ENGINEER.

76 ILLIAM TYSON DB 1446 PG 986
78 DAVID GARDNER DB 1085 PG 714
80 DAVID GARDNER DB 1085 PG 714 MB 2003 PG 1243
82 JAMES ALLEN DB 3355 PG 413
84 JEREMY SKOLOZYNSKI DB 3258 PG 306 PC* C PG 118D
85 MICHAEL ANTHONY DB 1286 PG 579 PC* F PG 26B
79 DAVID ADAMS DB 1635 PG 609
77 JERRY GREGORY DB 1684 PG 453 MB 2000 PG 477
75 RAFAEL CERVANTES DB 7403 PG 599 MB 2000 PG 477
81 CLINTON ADAMS DB 1291 PG 300 MB 2003 PG 1071
81 CLINTON ADAMS DB 528 PG 185
83 RICHARD HALL DB 982 PG 219

SEE SHEET 2B-4 FOR INTERSECTION DETAIL
SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 40 FOR -DRW3- PROFILE
SEE SHEET 40 FOR -DRW4- PROFILE

Submitted 12/21/2021

5/14/99

REVISIONS

11/15/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LEGEND

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
HC HC — DENOTES HAND CLEARING	P P — DENOTES IMPACTS IN SURFACE WATER (POND)

PERMIT DRAWING
SHEET 48 OF 71

NAD 83/NA 2011

SITE 25

SITE 24

MATCHLINE -L- STA 174+50 (SEE SHEET 15)

MATCHLINE -L- STA 188+00 (SEE SHEET 17)

WILLIAM TYSON DB 1446 PG 986

DAVID GARDNER DB 1085 PG 714

DAVID GARDNER DB 1085 PG 714 MB 2003 PG 1283

JAMES ALLEN DB 3355 PG 413

JEREMY SKOLOZYNSKI DB 3258 PG 306 PC# C PG 11BD

MICHAEL ANTHONY DB 1286 PG 579 PC# F PG 26B

DAVID ADAMS DB 1655 PG 609

JERRY GREGORY DB 4684 PG 453 MB 2000 PG 477

RAFAEL CERVANTES DB 3403 PG 599 MB 2000 PG 477

CLINTON ADAMS DB 1291 PG 300 MB 2003 PG 1071

TON ADAMS 528 PG 185

RICHARD HALL DB 982 PG 219

REALIGN AND WIDEN EXISTING DITCH TO PROPERTY LINE MATCH EXISTING DITCH INVERT ELEVATIONS SEE DETAIL 63 EST 10 CY DDE

20' RIPRAP PAD AT OUTLET 20 TONS CL-B RIPRAP 45 S.Y. GFD

GRADE TO DRAIN (FILL)

FILL POND TO ELEV. 250.0' AT THIS SIDE FILL TO ELEV. 249.0' AT OPPOSITE SIDE GRADE AT APPROX. 1.2% TO DRAIN (SEE GRADE TO DRAIN ARROWS) EST. 1030 C.Y. BACKFILL

LATERAL 2' BASE DITCH SEE DETAIL 34 EST. 60 C.Y. DDE DITCH TO BE EXCAVATED AFTER POND HAS BEEN FILLED

TYPICAL OUTLET IMPROVEMENTS SEE DETAIL 68 & QUANTITIES IN TABLE ABOVE

PROPOSED SINGLE GATE, 47" HIGH, 12' WIDE, 12' OPENING STA 182+00 TO 182+12 -L-T

RIPRAP PAD AT OUTLET 2 TONS CL-B RIPRAP 7 S.Y. GFD

SPECIAL LATERAL 'V' DITCH SEE DETAIL 1

SPECIAL LATERAL 2' BASE DITCH SEE DETAIL 16

RIPRAP PAD AT OUTLET 2 TONS CL-B RIPRAP

15" RCP-IV (1.0' BURIED)

PIPE FLAREOUT SEE DETAIL 55

REMOVE

SPECIAL CUT 'V' DITCH SEE DETAIL 21

FALSE SUMP SEE DETAIL 7

15" CSP W/ELBOWS

B.D.O.

SPECIAL LATERAL 'V' DITCH SEE DETAIL 1

TYPICAL INLET IMPROVEMENTS SEE DETAIL 67 & QUANTITIES IN TABLE ABOVE GRADE CHANNEL AT 1.0%

SEDIMENT CONTROL BASIN

BERM 'V' DITCH SEE DETAIL 3

REMOVE FENCE AND BRICK COLUMNS

REMOVE & BACKFILL TO DRAIN

N 22° 04' 22.0" E

54' 36.2" E

N 32° 54' 14.5" E

N 48° 01' 02.1" E

S 76° 53' 18.3" E
END CONSTRUCTION
-DRW4- POT Sta. 11+26.90

N 5° 24' 08.4" E
END CONSTRUCTION
-DRW3- POT Sta. 12+38.00

END CONSTRUCTION
-DRW5- POT Sta. 11+07.00

CONTRACTOR SHALL COORDINATE DRIVEWAY REPLACEMENT LIMITS WITH THE PROPERTY OWNER. CONTRACTOR TO ADJUST AS DIRECTED BY THE ENGINEER.

DITCH WETLAND CALCS -L- STA. 181+50 LT.	
DA	1.32 AC.
C (FUTURE)	0.43
I_a	6.2 IN./HR
Q_a (FUTURE)	3.48 C.F.S
V_a (FUTURE)	1.5 F.P.S
SLOPE	0.005 FT/FT
N	0.035
LINER TYPE	GRASS

DITCH WETLAND CALCS -L- STA. 182+50 LT.	
DA	0.74 AC.
C (FUTURE)	0.34
I_a	6.2 IN./HR
Q_a (FUTURE)	1.55 C.F.S
V_a (FUTURE)	1.8 F.P.S
SLOPE	0.015 FT/FT
N	0.035
LINER TYPE	GRASS

DITCH WETLAND CALCS -L- STA. 180+50 RT.	
DA	1.51 AC.
C (FUTURE)	0.53
I_a	6.2 IN./HR
Q_a (FUTURE)	4.94 C.F.S
V_a (FUTURE)	1.31 F.P.S
SLOPE	0.003 FT/FT
N	0.035
LINER TYPE	GRASS

SEE SHEET 2B-4 FOR INTERSECTION DETAIL
SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 40 FOR -DRW3- PROFILE
SEE SHEET 40 FOR -DRW4- PROFILE

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	16A/B

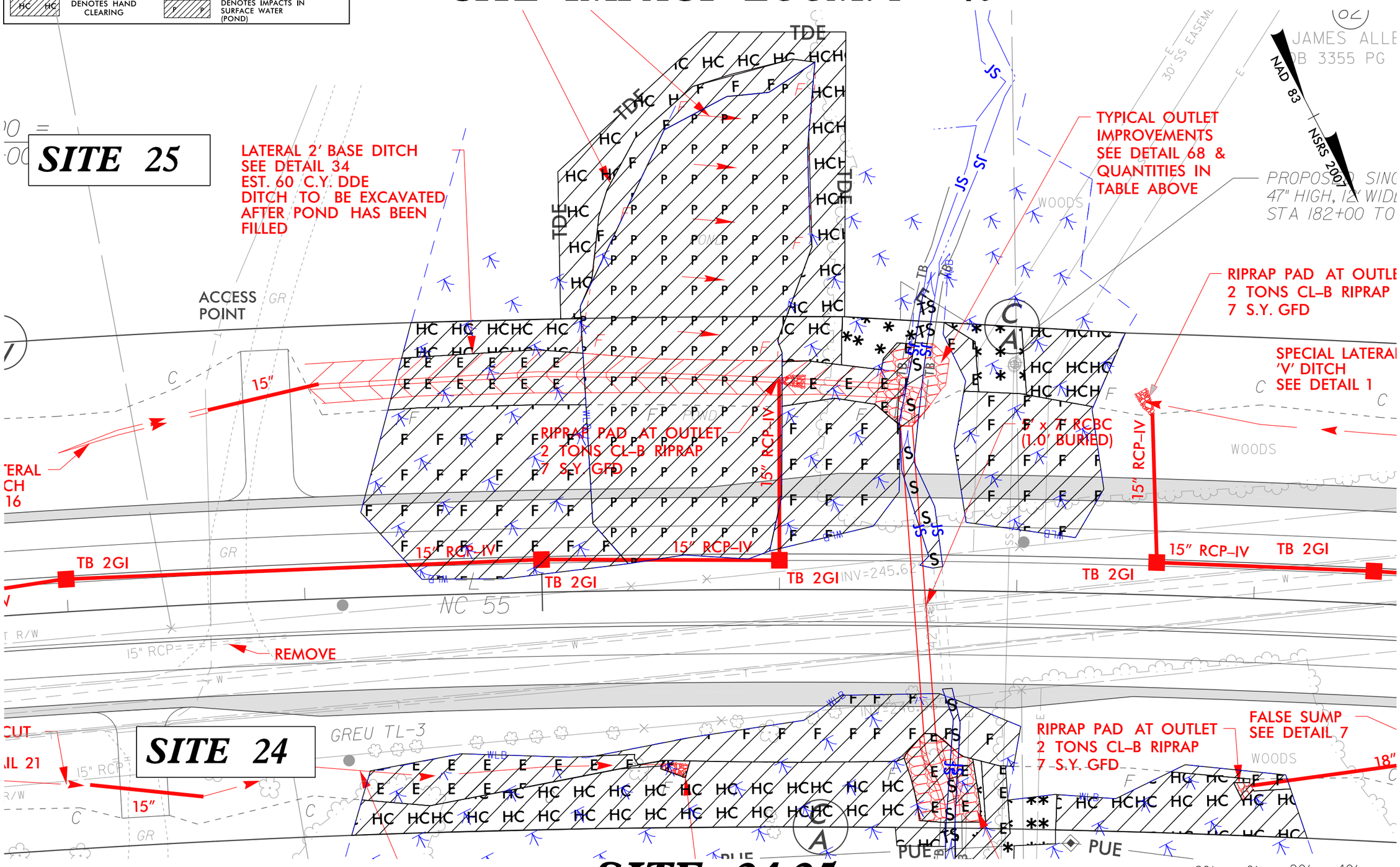
WETLAND AND STREAM IMPACTS

SITE IMPACT ZOOM: 1"=40'

PERMIT DRAWING
SHEET 49 OF 71

LEGEND

- F F — DENOTES FILL IN WETLAND
- E E — DENOTES EXCAVATION IN WETLAND
- HC HC — DENOTES HAND CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)



SITE 24,25

REVISIONS

11/15/2021

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	16A/B

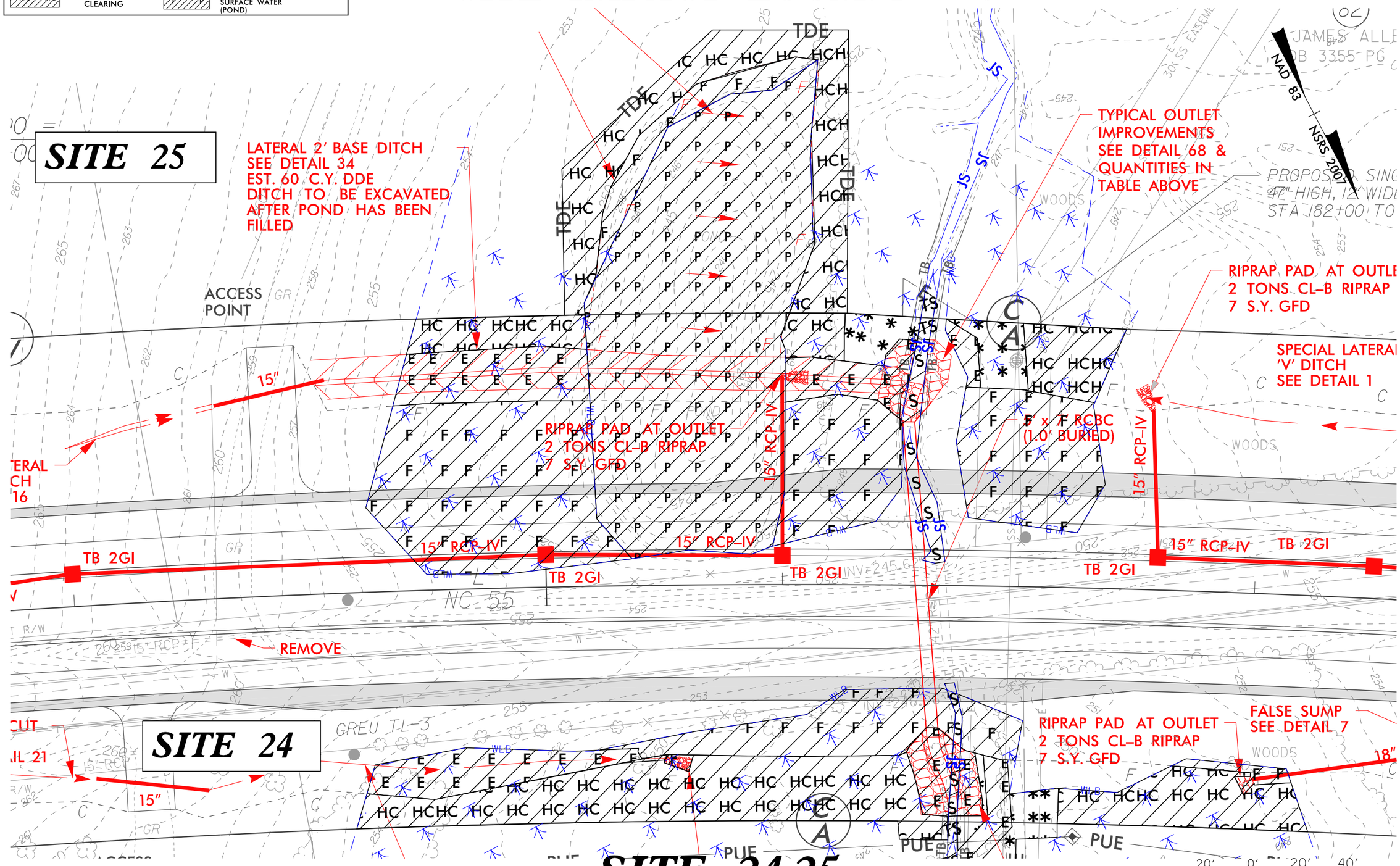
WETLAND AND STREAM IMPACTS

SITE IMPACT ZOOM: 1"=40'

PERMIT DRAWING
SHEET 50 OF 71

LEGEND

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
HC HC — DENOTES HAND CLEARING	P P — DENOTES IMPACTS IN SURFACE WATER (POND)



SITE 24,25

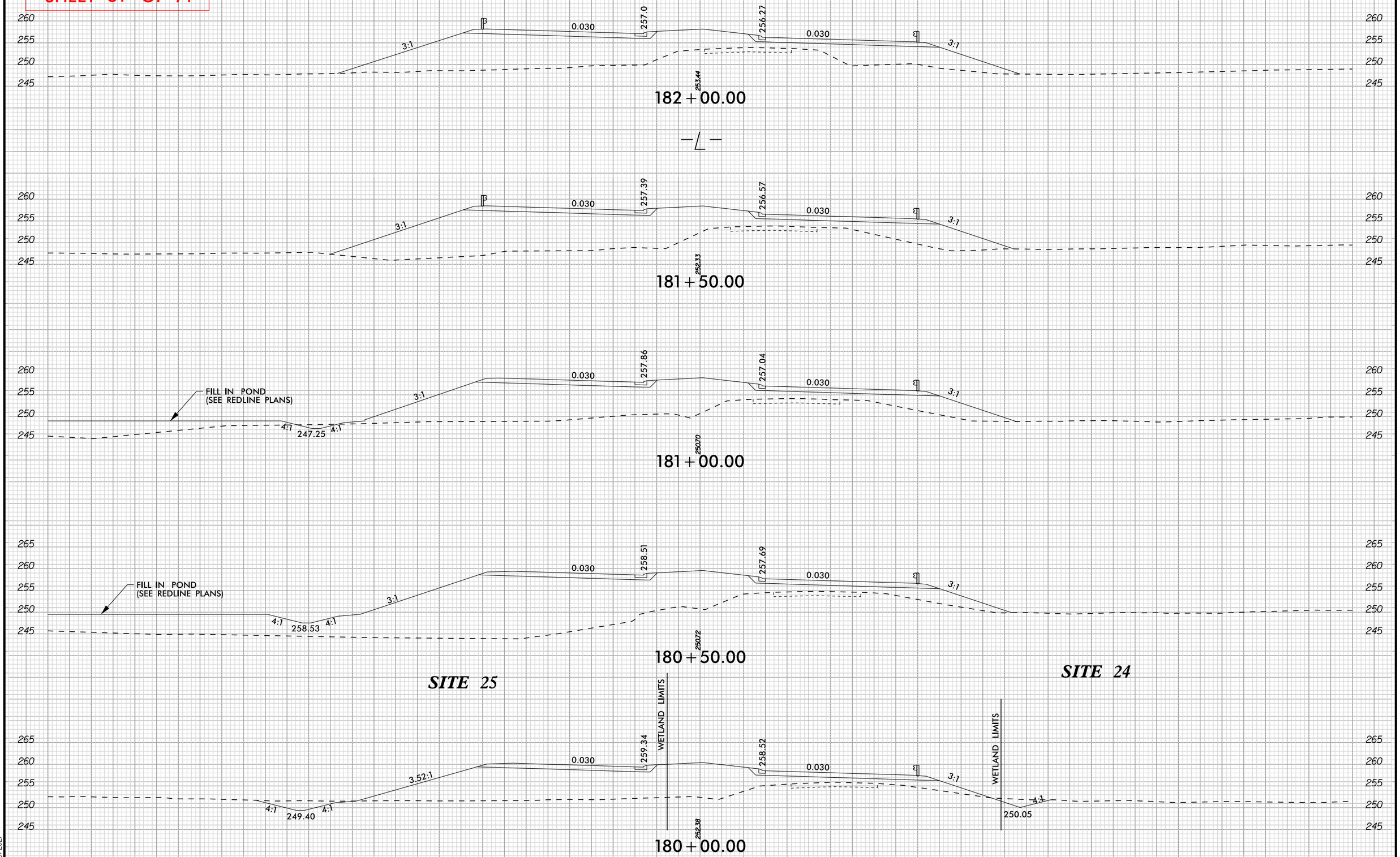
REVISIONS

11/15/2021

Submitted 12/21/2021

PERMIT DRAWING
SHEET 51 OF 71

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -



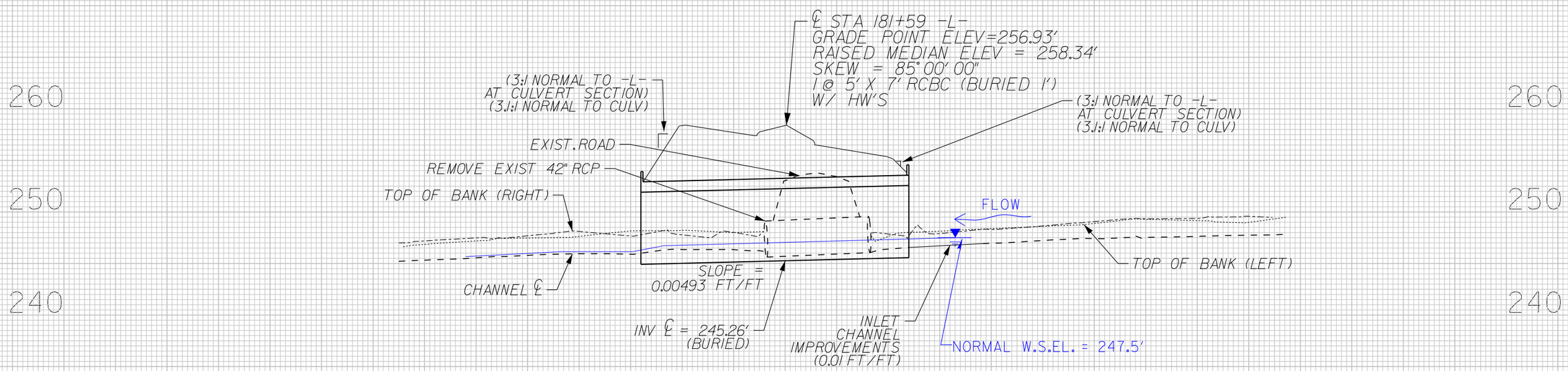
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

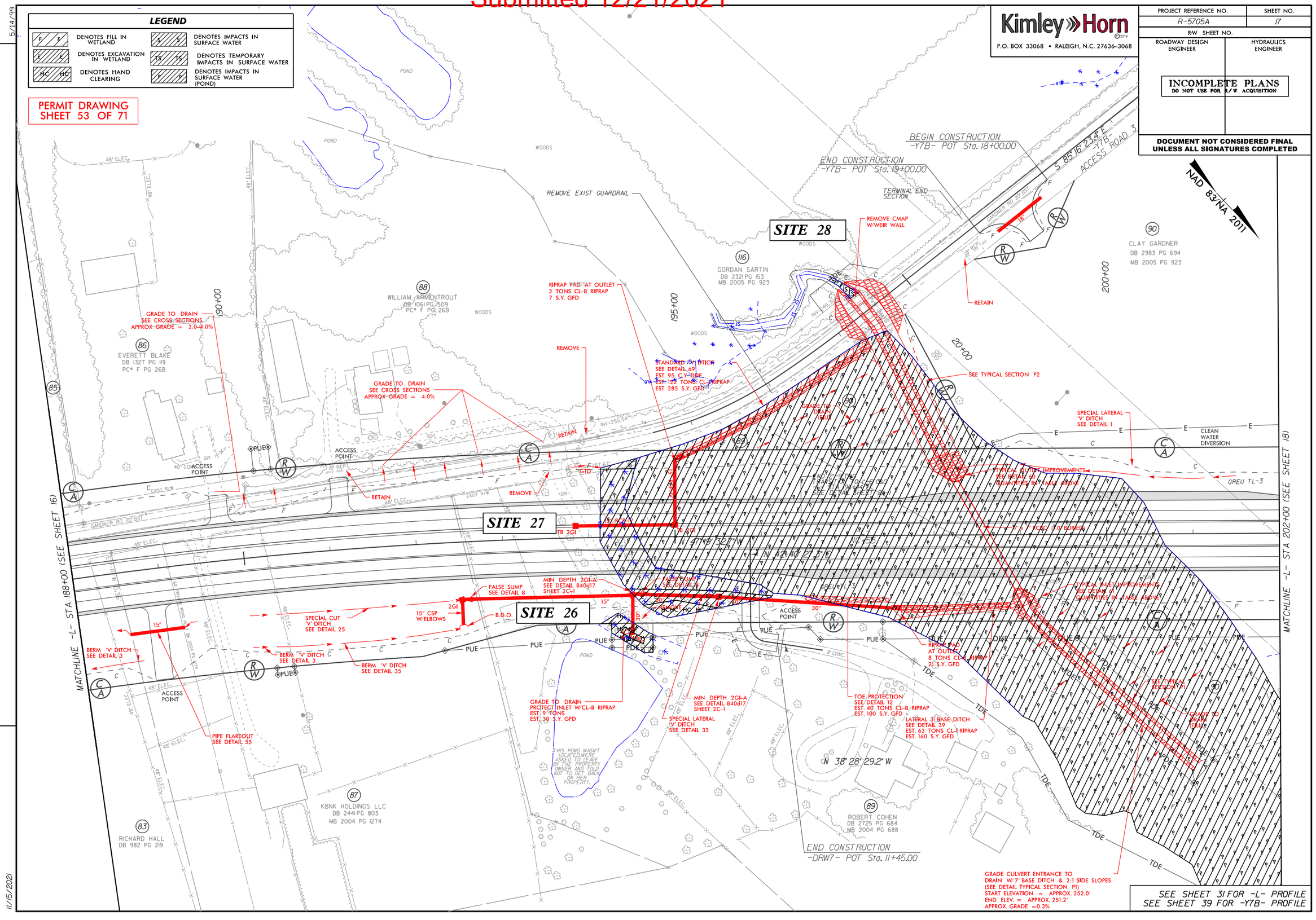
PERMIT DRAWING
SHEET 52 OF 71

SITE 24,25

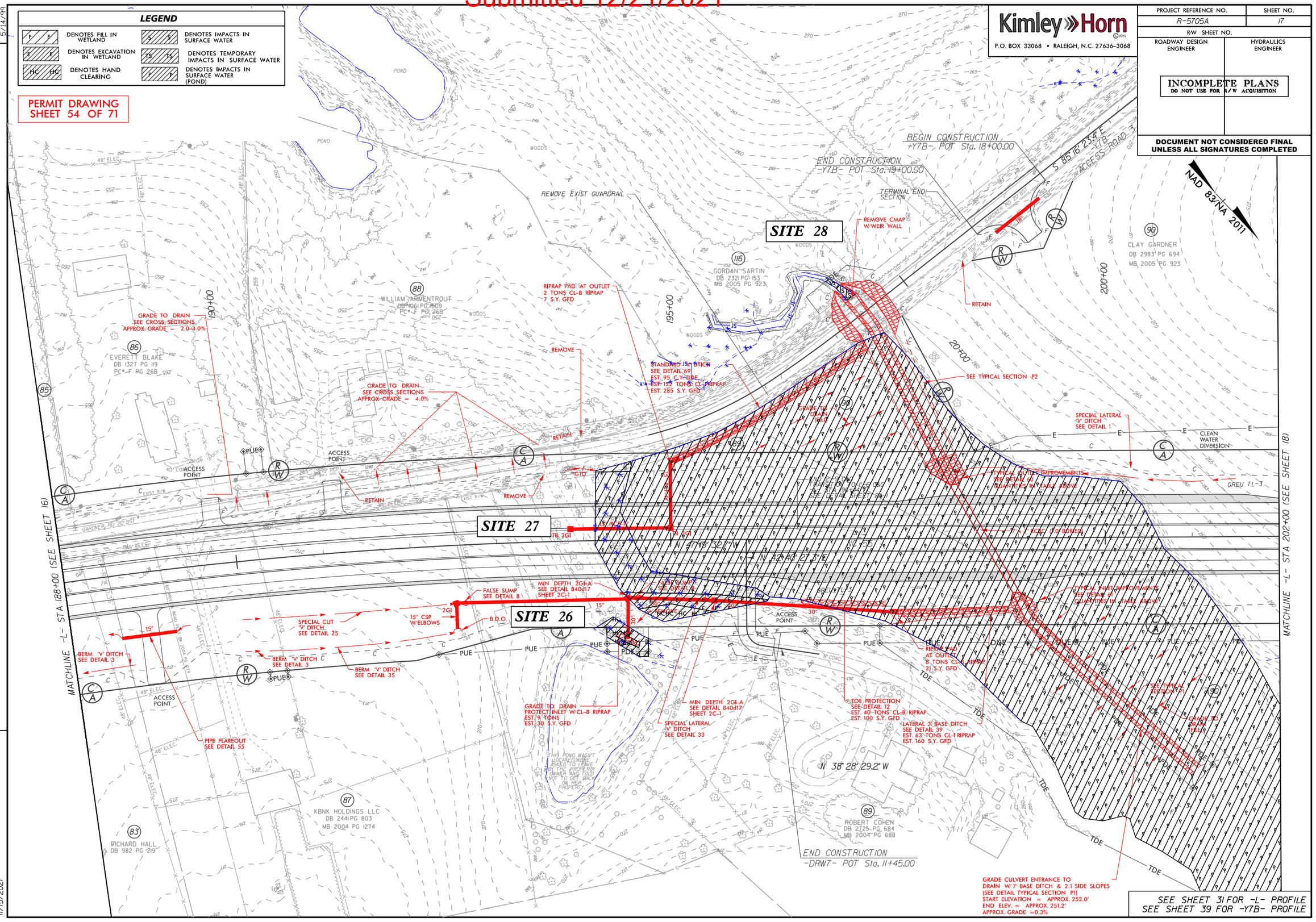


11/15/2021

Submitted 12/21/2021



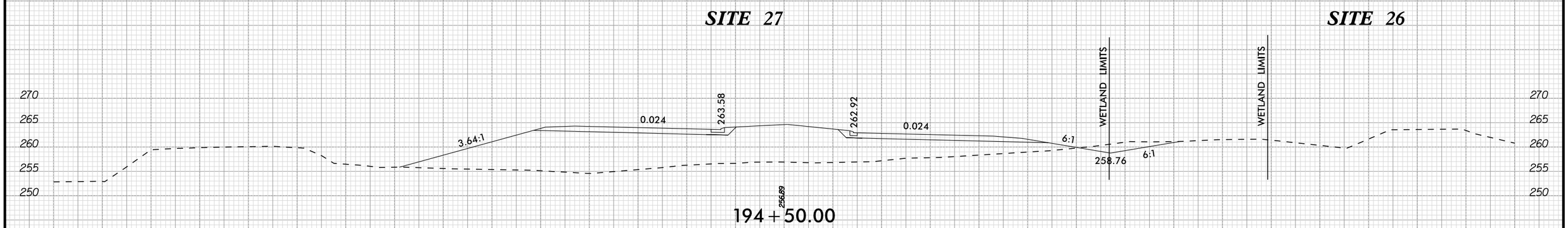
Submitted 12/21/2021



Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 55 OF 71



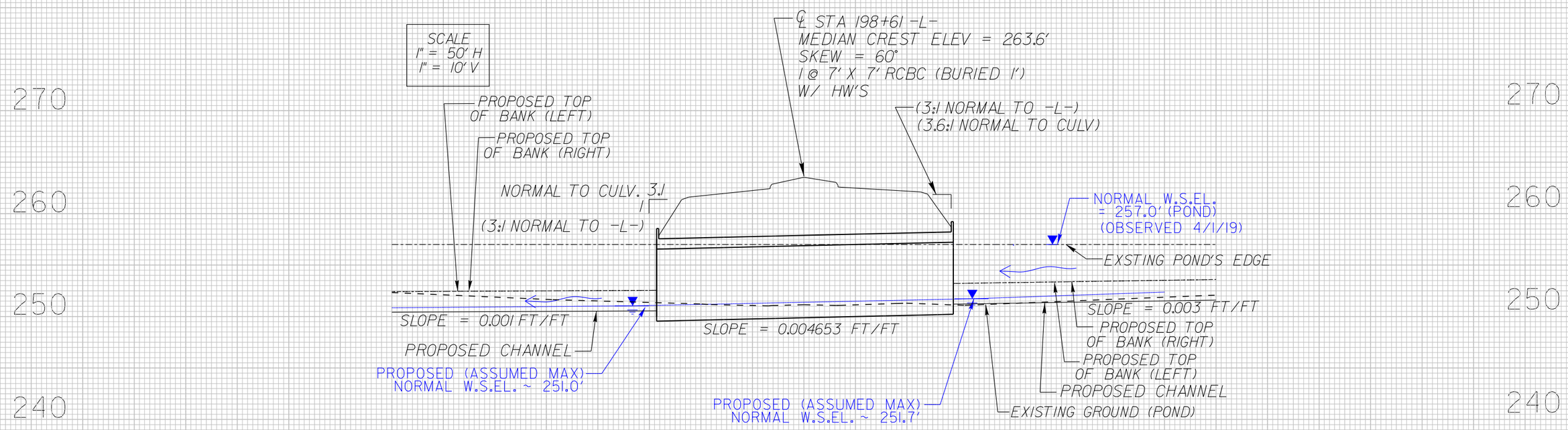
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 56 OF 71

SITE 27,28



11/15/2021

Submitted 12/21/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	18
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/NA 2011

5/14/99

REVISIONS

11/15/2021

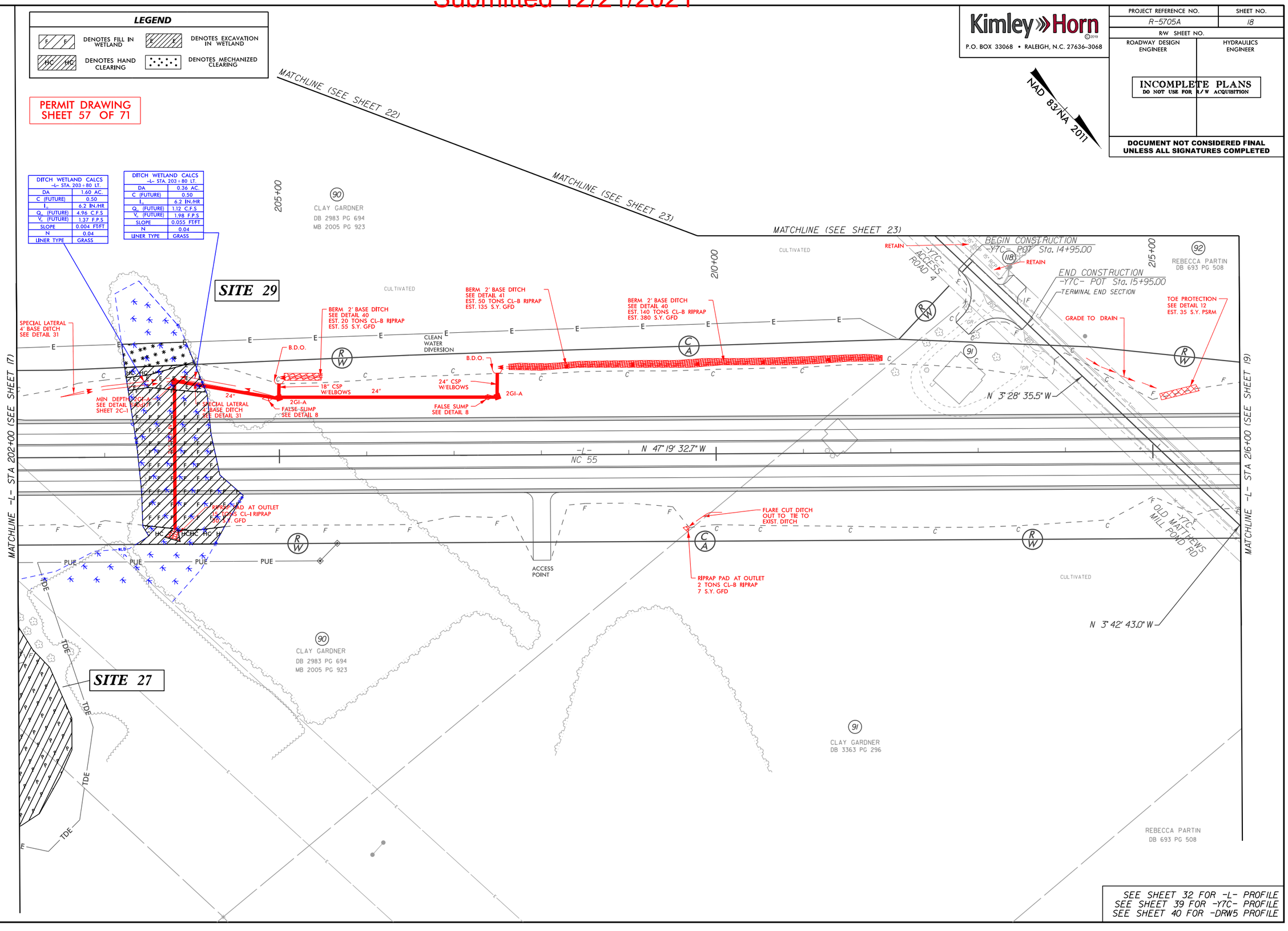
LEGEND

- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES HAND CLEARING
- DENOTES MECHANIZED CLEARING

PERMIT DRAWING
SHEET 57 OF 71

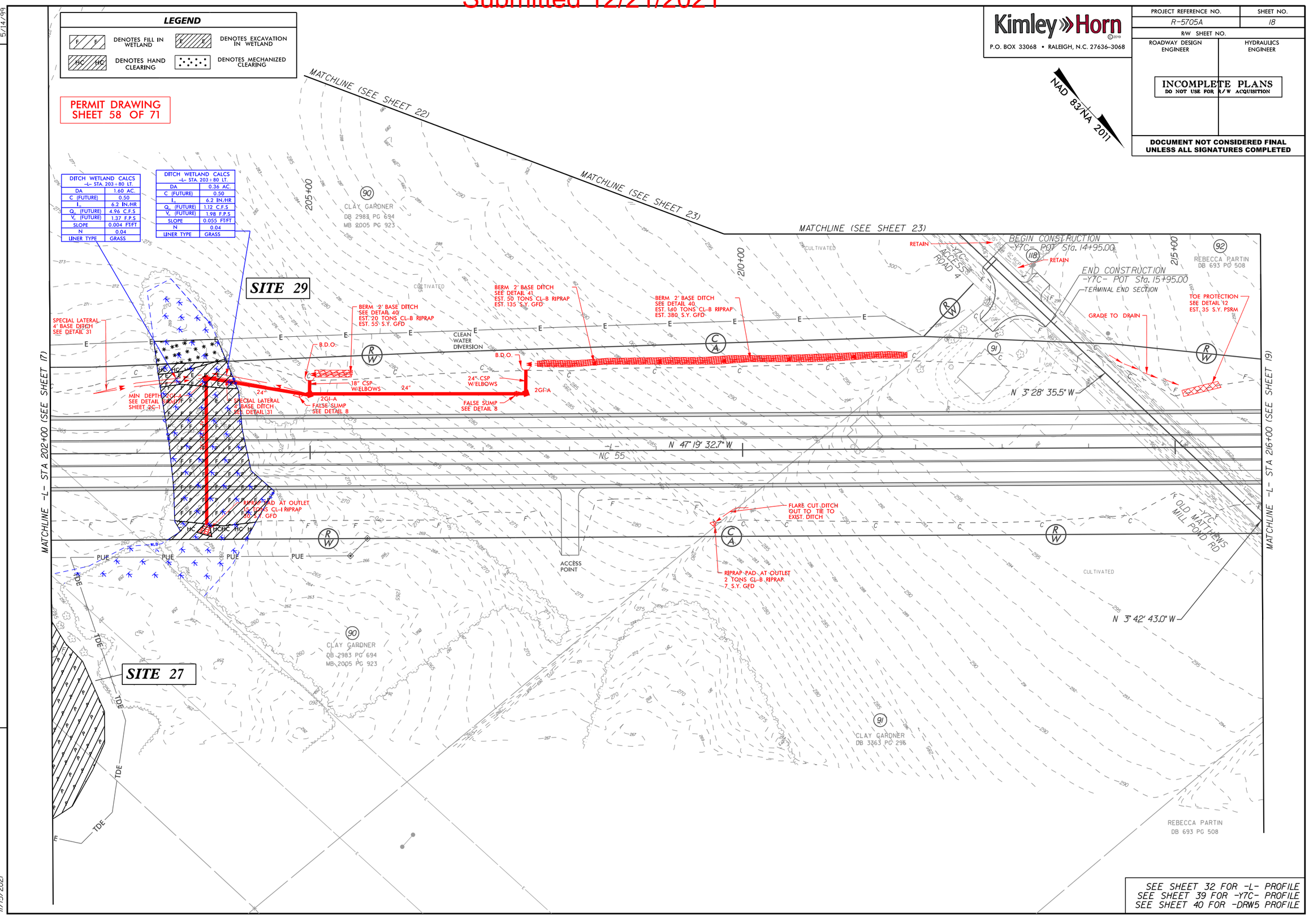
DITCH WETLAND CALCS -L- STA. 203+80 LT.	
DA	1.60 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	4.96 C.F.S
V_{10} (FUTURE)	1.37 F.P.S
SLOPE	0.004 FT/FT
N	0.04
LINER TYPE	GRASS

DITCH WETLAND CALCS -L- STA. 203+80 LT.	
DA	0.36 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	1.12 C.F.S
V_{10} (FUTURE)	1.98 F.P.S
SLOPE	0.055 FT/FT
N	0.04
LINER TYPE	GRASS



SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 39 FOR -Y7C- PROFILE
SEE SHEET 40 FOR -DRW5 PROFILE

Submitted 12/21/2021



DITCH WETLAND CALCS -L- STA. 203+80 LT.	
DA	1.60 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	4.96 C.F.S
V_{10} (FUTURE)	1.37 F.P.S
SLOPE	0.004 FT/FT
N	0.04
LINER TYPE	GRASS

DITCH WETLAND CALCS -L- STA. 203+80 LT.	
DA	0.36 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	1.12 C.F.S
V_{10} (FUTURE)	1.98 F.P.S
SLOPE	0.055 FT/FT
N	0.04
LINER TYPE	GRASS

REVISIONS

5/14/99

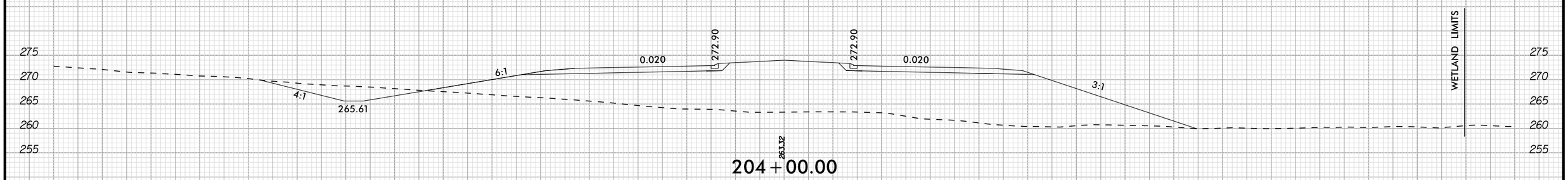
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 59 OF 71

SITE 29



11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

LEGEND	
F F — DENOTES FILL IN WETLAND	S S — DENOTES IMPACTS IN SURFACE WATER
HC HC — DENOTES HAND CLEARING	TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 60 OF 71

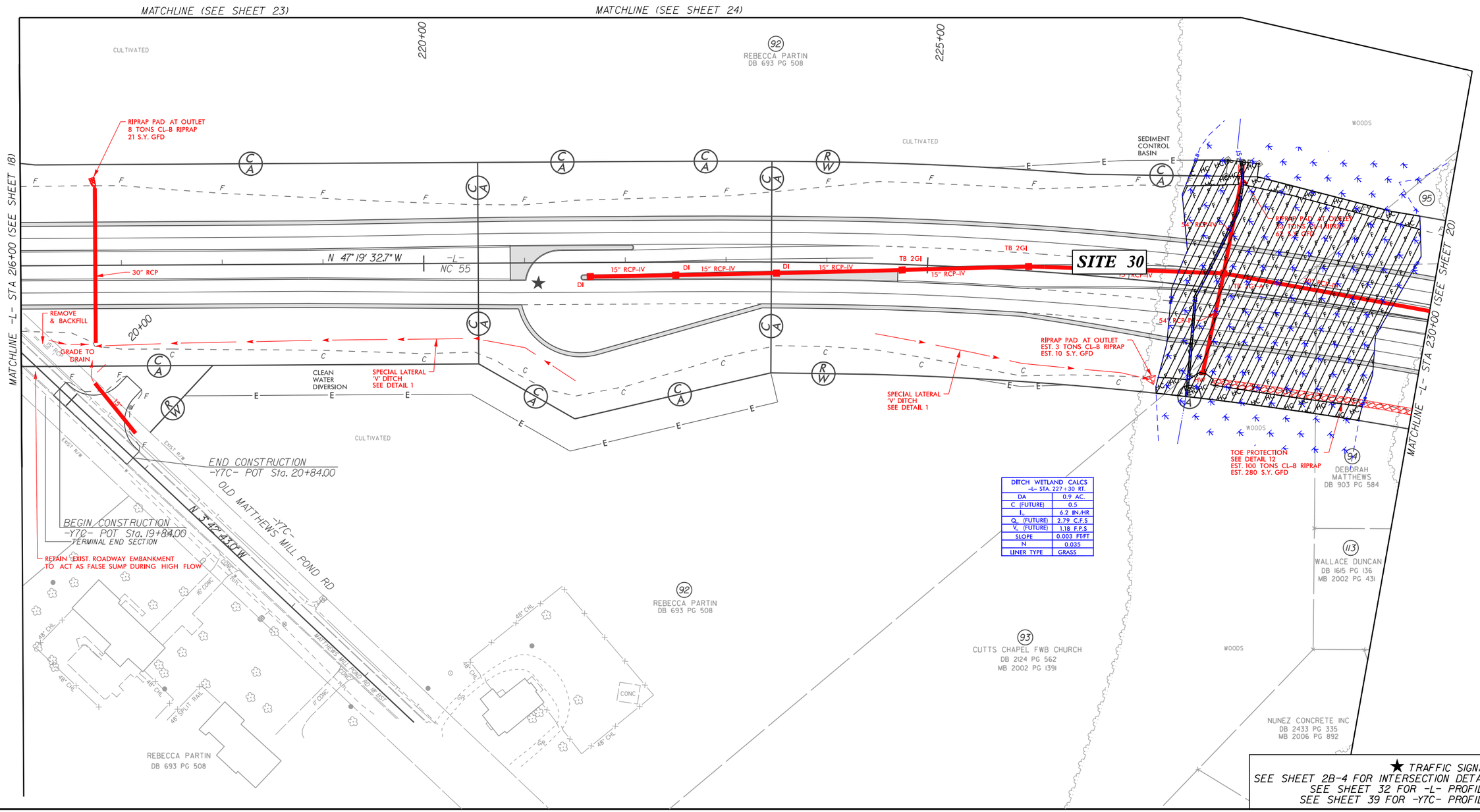
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011



DITCH WETLAND CALCS -L- STA. 227+30 RT.	
DA	0.9 AC.
C (FUTURE)	0.5
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	2.79 C.F.S.
V_{10} (FUTURE)	1.18 F.P.S.
SLOPE	0.003 FT/FT
N	0.035
LINER TYPE	GRASS

★ TRAFFIC SIGNAL
SEE SHEET 2B-4 FOR INTERSECTION DETAIL
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 39 FOR -Y7C- PROFILE

11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

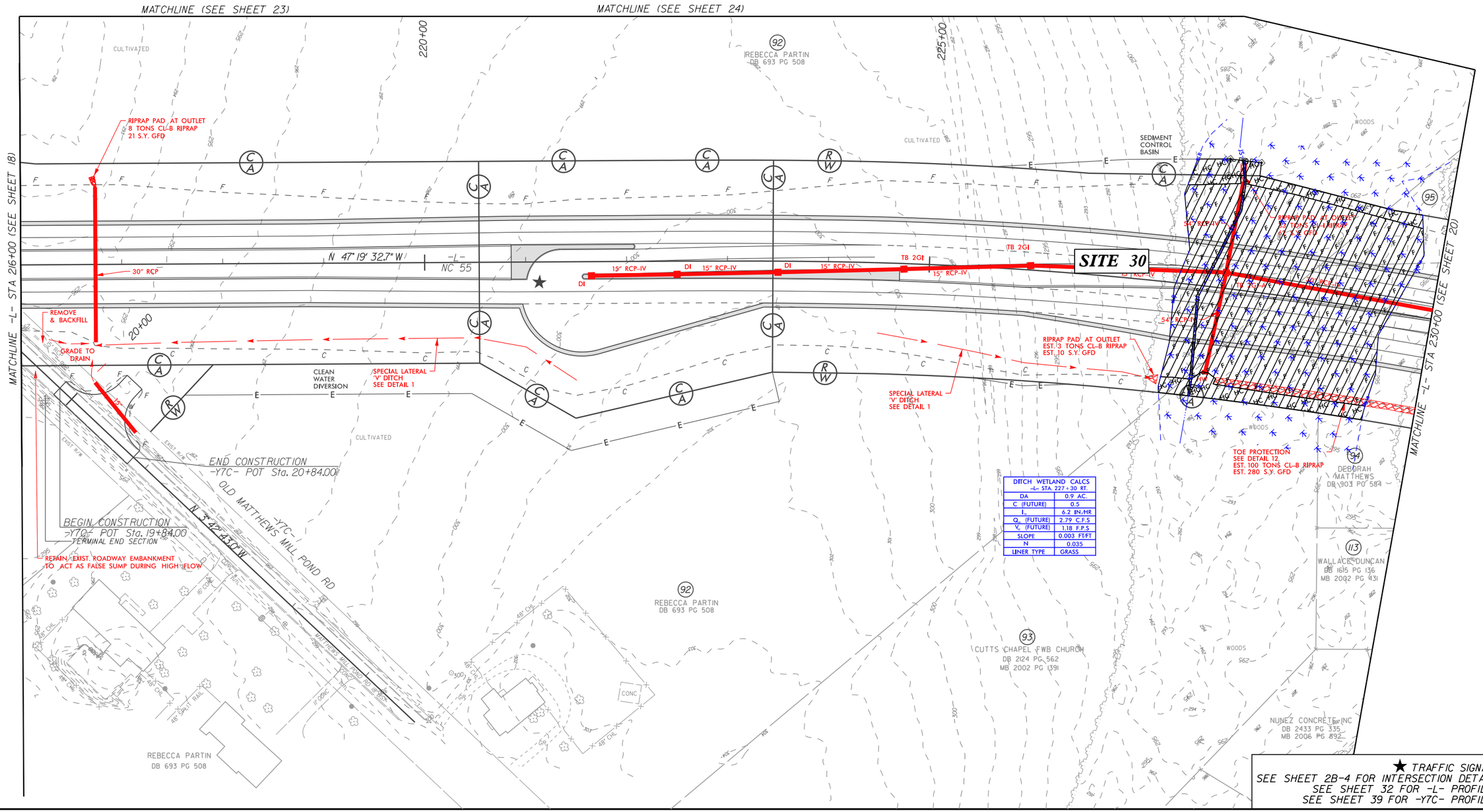
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

LEGEND

F F — DENOTES FILL IN WETLAND	S S — DENOTES IMPACTS IN SURFACE WATER
HC HC — DENOTES HAND CLEARING	TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 61 OF 71



DITCH WETLAND CALCS -L- STA. 227+30 RT.	
DA	0.9 AC.
C (FUTURE)	0.5
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	2.79 C.F.S.
V_{10} (FUTURE)	1.18 F.P.S.
SLOPE	0.003 FT/FT
N	0.035
LINER TYPE	GRASS

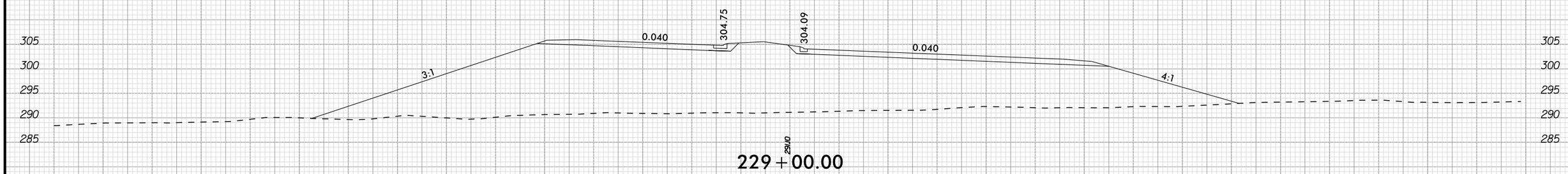
★ TRAFFIC SIGNAL
SEE SHEET 2B-4 FOR INTERSECTION DETAIL
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 39 FOR -Y7C- PROFILE

11/15/2021

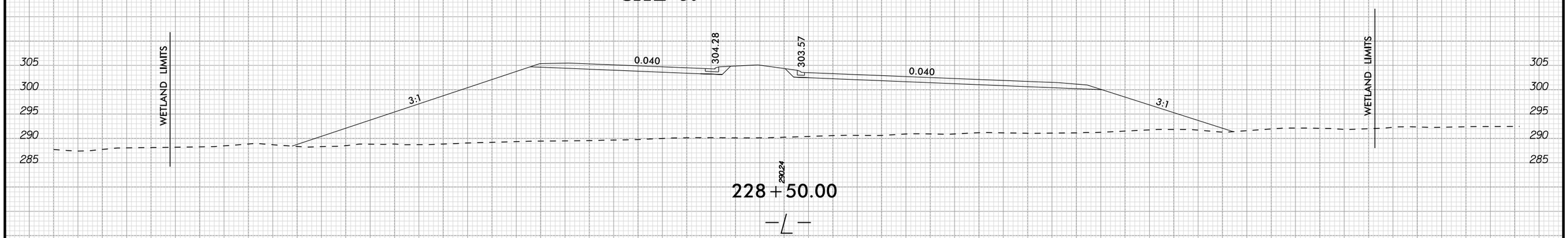
Submitted 12/21/2021

PERMIT DRAWING
SHEET 62 OF 71

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -



SITE 30



11/15/2021

Submitted 12/21/2021

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn ©2018
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

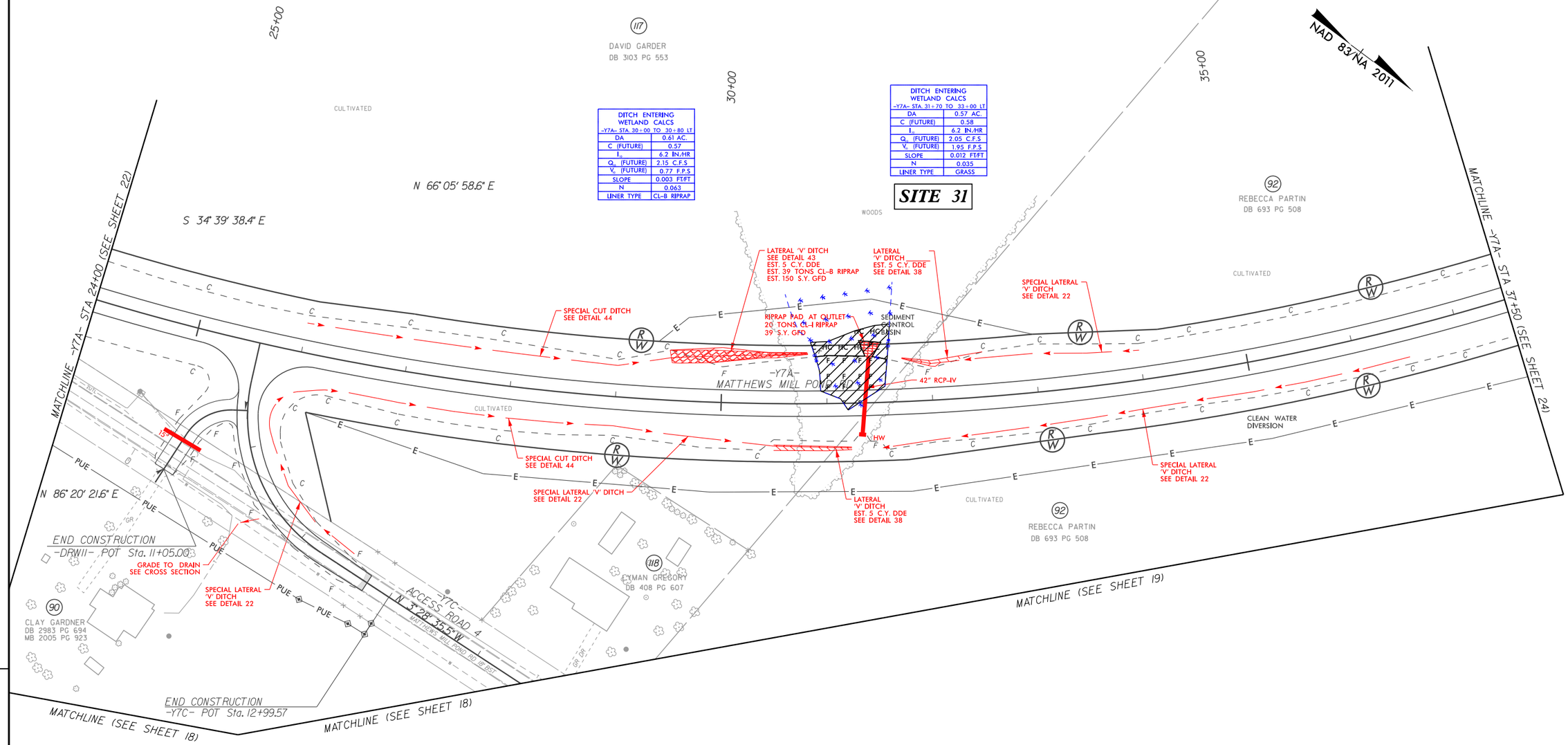
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LEGEND

- F F — DENOTES FILL IN WETLAND
- HC HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 63 OF 71



DITCH ENTERING WETLAND CALCS -Y7A- STA. 30+00 TO 30+80 LT	
DA	0.61 AC.
C (FUTURE)	0.57
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	2.15 C.F.S
V_{10} (FUTURE)	0.77 F.P.S
SLOPE	0.003 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

DITCH ENTERING WETLAND CALCS -Y7A- STA. 31+70 TO 33+00 LT	
DA	0.57 AC.
C (FUTURE)	0.58
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	2.05 C.F.S
V_{10} (FUTURE)	1.95 F.P.S
SLOPE	0.012 FT/FT
N	0.035
LINER TYPE	GRASS

11/15/2021

Submitted 12/21/2021

Kimley»Horn ©2018
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	23
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

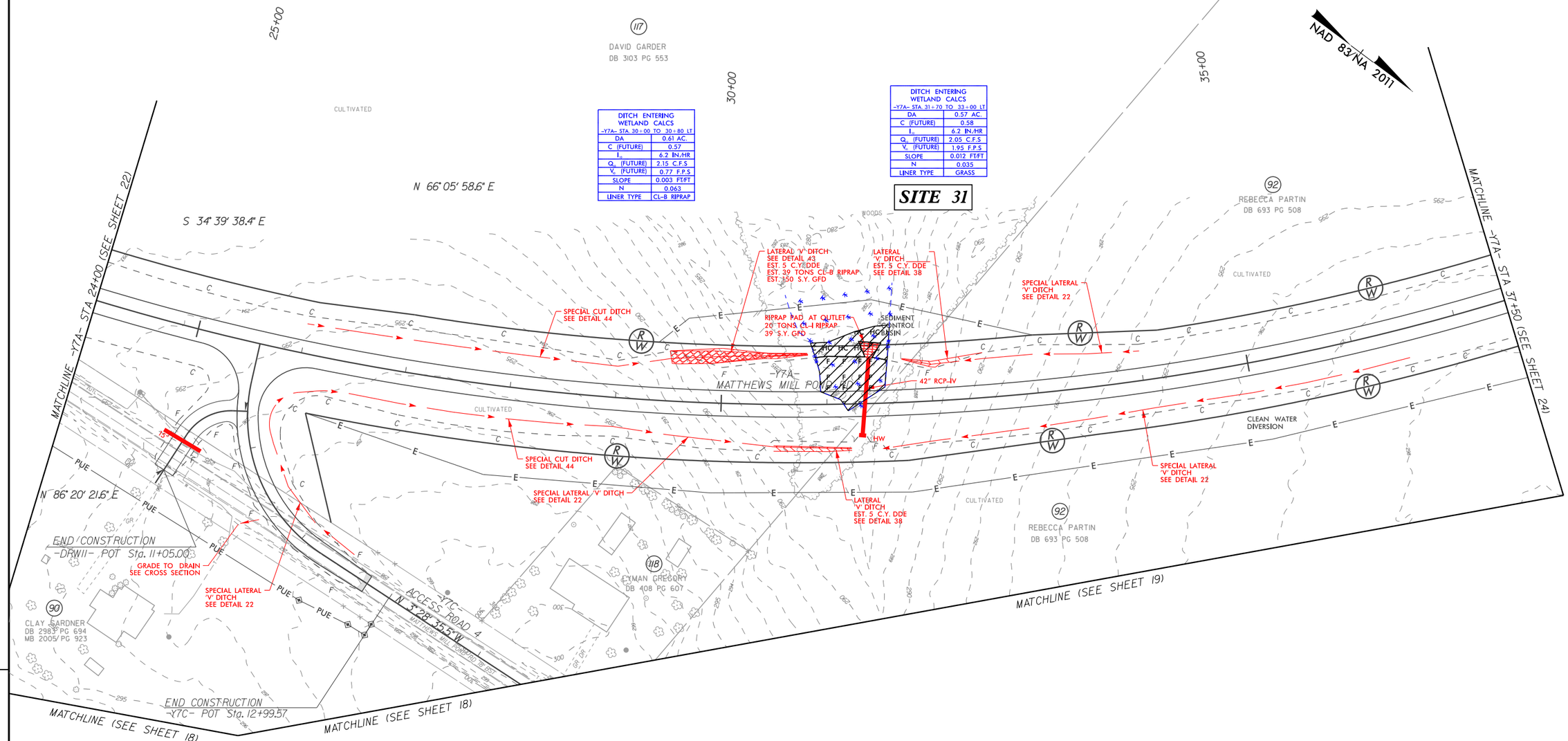
5/14/99

REVISIONS

LEGEND

- F/F — DENOTES FILL IN WETLAND
- HC/HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 64 OF 71



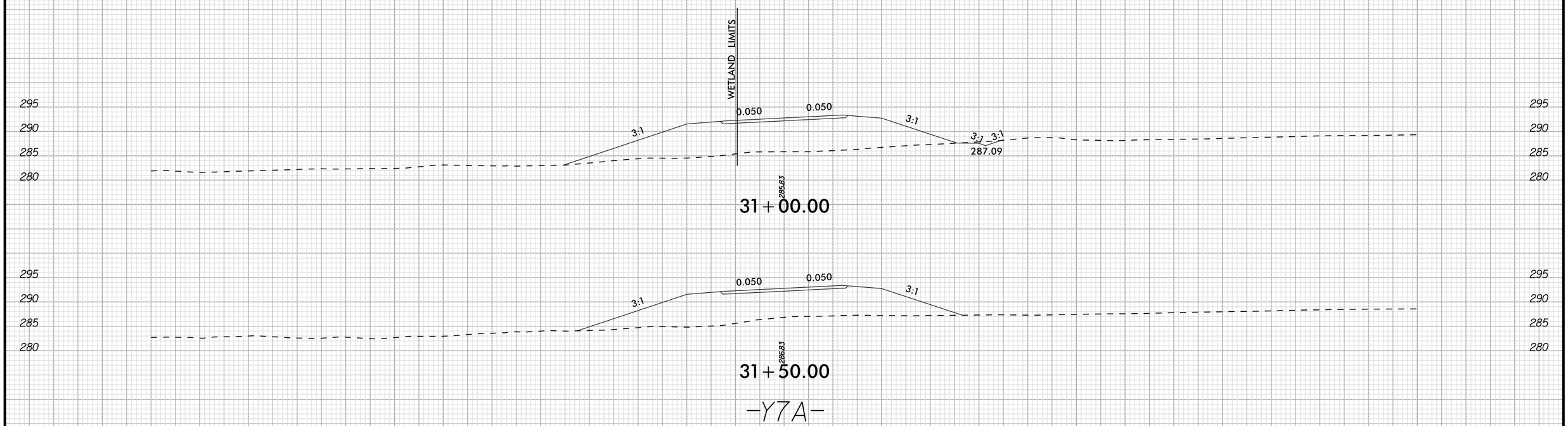
11/15/2021

Submitted 12/21/2021

PERMIT DRAWING
SHEET 65 OF 71

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

SITE 31



11/15/2021

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

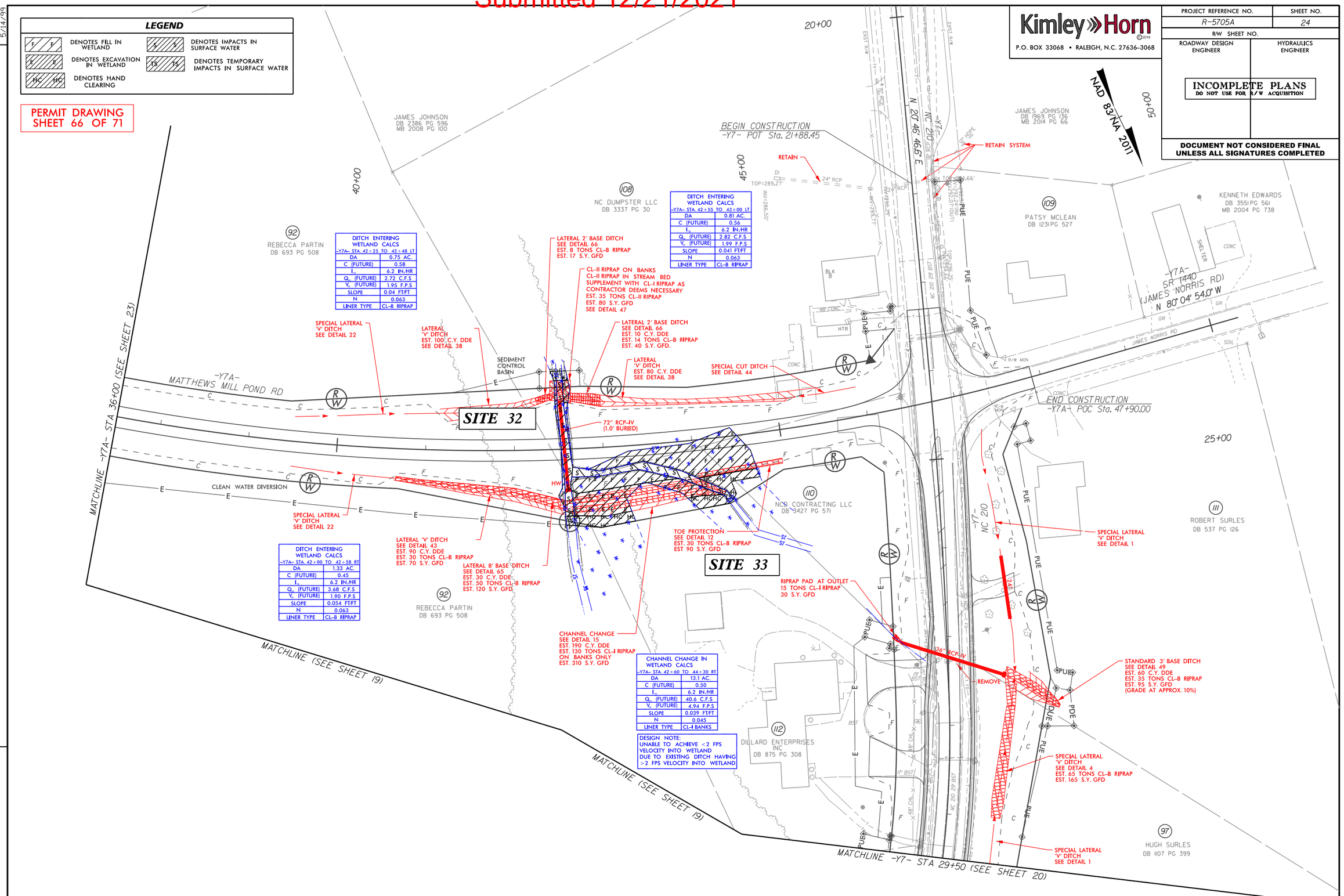
5/14/99

REVISIONS

LEGEND

- F F — DENOTES FILL IN WETLAND
- E E — DENOTES EXCAVATION IN WETLAND
- HC HC — DENOTES HAND CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 66 OF 71



DITCH ENTERING WETLAND CALCS -Y7A- STA. 42+25 TO 42+48 LT	
DA	0.75 AC.
C (FUTURE)	0.58
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	2.72 C.F.S
V_{10} (FUTURE)	1.95 F.P.S
SLOPE	0.04 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

DITCH ENTERING WETLAND CALCS -Y7A- STA. 42+55 TO 43+00 LT	
DA	0.81 AC.
C (FUTURE)	0.56
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	2.82 C.F.S
V_{10} (FUTURE)	1.99 F.P.S
SLOPE	0.041 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

DITCH ENTERING WETLAND CALCS -Y7A- STA. 42+00 TO 42+58 RT	
DA	1.33 AC.
C (FUTURE)	0.45
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	3.68 C.F.S
V_{10} (FUTURE)	1.90 F.P.S
SLOPE	0.054 FT/FT
N	0.063
LINER TYPE	CL-B RIPRAP

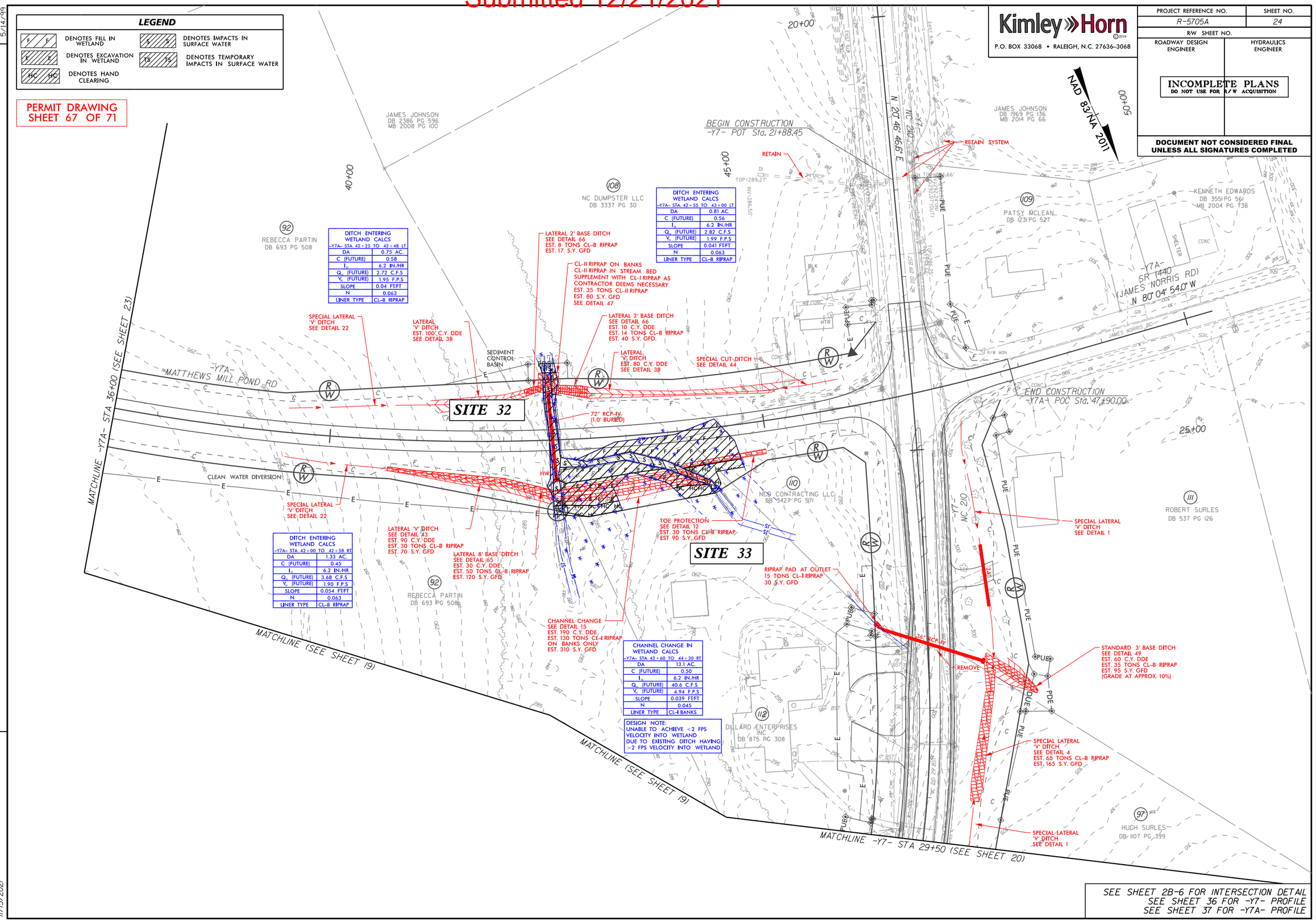
CHANNEL CHANGE IN WETLAND CALCS -Y7A- STA. 42+60 TO 44+30 RT	
DA	13.1 AC.
C (FUTURE)	0.50
I_{10}	6.2 IN./HR
Q_{10} (FUTURE)	40.6 C.F.S
V_{10} (FUTURE)	4.94 F.P.S
SLOPE	0.039 FT/FT
N	0.045
LINER TYPE	CL-I BANKS

DESIGN NOTE:
UNABLE TO ACHIEVE <2 FPS VELOCITY INTO WETLAND DUE TO EXISTING DITCH HAVING >2 FPS VELOCITY INTO WETLAND

SEE SHEET 2B-6 FOR INTERSECTION DETAIL
SEE SHEET 36 FOR -Y7- PROFILE
SEE SHEET 37 FOR -Y7A- PROFILE

11/15/2021

Submitted 12/21/2021

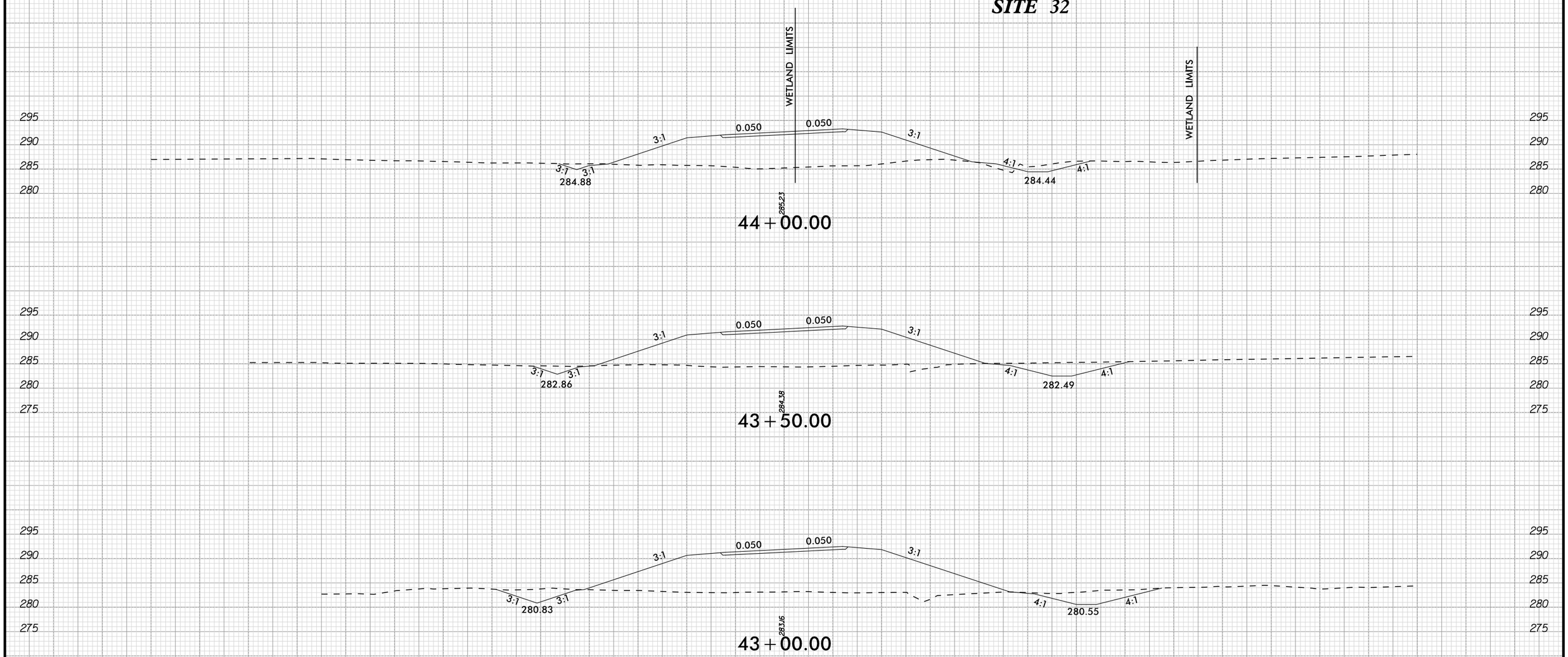


Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 68 OF 71

SITE 32



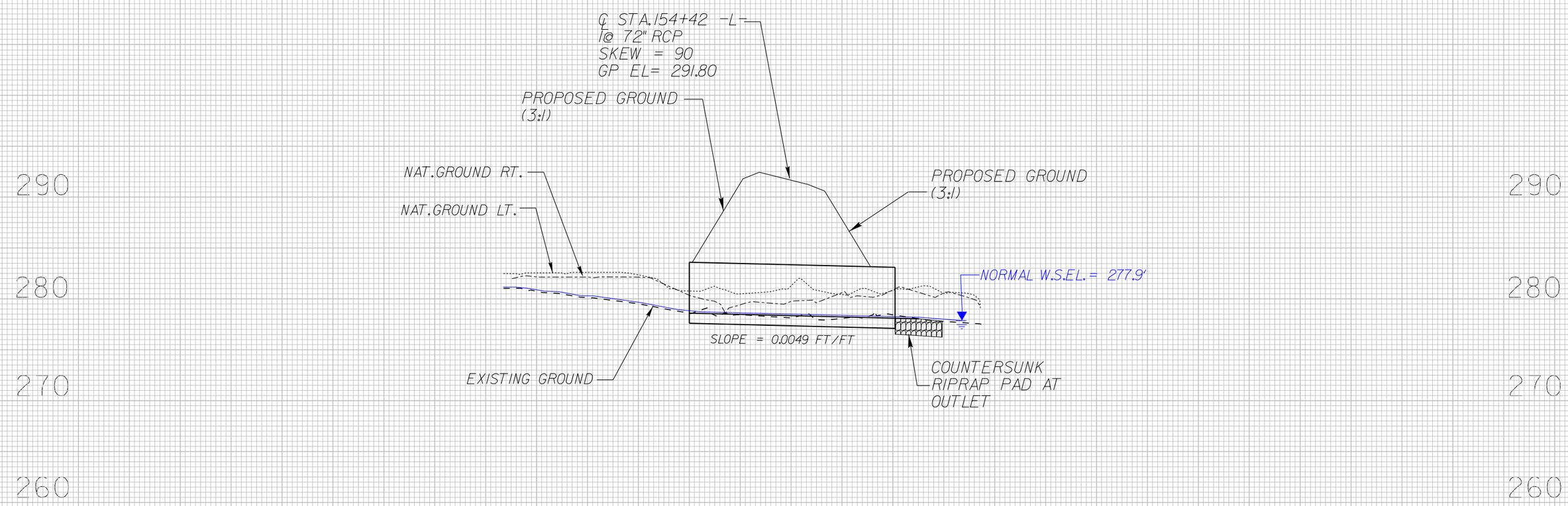
11/15/2021

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET - OF -

PERMIT DRAWING
SHEET 69 OF 71

SITE 32



11/15/2021

Submitted 12/21/2021

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)
1	-L- 16+20 to 16+40 LT/RT	24" RCP					< 0.01		< 0.01		30	
2	-L- 23+03 to 24+16 LT/RT	6' x 7' RCBC	0.02		< 0.01		0.03	< 0.01	< 0.01	34	10	
3	-L- 24+28 to 24+54 RT	Roadway Fill						0.01	< 0.01	116	10	
4	-L- 24+54 to 24+83 RT	6' x 7' RCBC	0.22		0.10	0.07	0.06	< 0.01		51		
4	-L- 24+83 to 25+09 RT	Bank Stabilization						< 0.01	< 0.01	49	10	
5	-L- 37+97 to 38+48 RT	24" RCP	0.05				0.01					
6	-L- 42+50 to 44+74 RT	42" RCP						0.05	< 0.01	268	30	
7	-L- 44+74 to 45+04 RT	42" RCP						< 0.01	< 0.01	30		
8	-L- 44+50 to 49+00 LT	42" RCP						0.95				
9	-L- 76+77 to 77+38 RT	24" RCP	0.04				< 0.01					
10	-L- 80+58 to 81+90 RT	Roadway Fill	0.09		0.05		0.04					
11	-L- 82+04 to 91+50 RT	Roadway Fill	1.11		0.10		0.35	0.01	< 0.01	224	86	
12	-L- 89+35 to 92+38 LT	54" RCP	0.09	0.91	0.04		0.09					
13	-L- 94+02 to 94+88 LT	Roadway Fill					0.02					
14	-L- 98+38 to 99+24 RT	Roadway Fill	< 0.01				0.02					
15	-L- 106+38 to 113+76 LT/RT	48" RCP	0.97		0.34		0.32	< 0.01	< 0.01	102	35	
15	-L- 106+38 to 113+76 LT/RT	48" RCP						0.21				
16	-Y4A- 18+96 to 19+58 RT	48" RCP			< 0.01		0.02	0.01	< 0.01	57	9	
17	-L- 127+00 to 130+67 RT/LT	Roadway Fill	0.66		0.06		0.17					
18	-L- 132+03 to 132+13 RT	48" RCP						< 0.01	< 0.01	41	7	
19	-L- 136+18 to 140+48 RT	Roadway Fill	0.05				0.01					
19	-L- 136+18 to 140+48 RT	Roadway Fill						0.23				
20	-L- 153+56 to 154+84 RT/LT	66" RCP	0.08		0.06	0.02	0.02	0.04	< 0.01	204	31	
20	-L- 154+84 LT	Bank Stabilization						< 0.01	< 0.01	12	14	
TOTALS*:			3.36	0.91	0.76	0.09	1.17	1.53	0.03	1186	270	0

*Rounded totals are sum of actual impacts

NOTES:

0.055 acres of mechanized clearing on Site 4 is for clean water diversion erosion control feature

0.008 acres of mech. clearing on Site 4 is for temporary excavation associated with a temporary pipe for culvert phasing (shown as "E" hatching on plans but quantified as mechanized clearing in this table)

0.91 acres of temporary fill in wetland on Site 12 is being used to quantify the impact for the potential that the ponded water in the wetland will need to be temporarily drained during construction

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
09-13-2021
Harnett
R-5705A
46377.1.2

Revised 2018 Feb

Submitted 12/21/2021

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)
21	-L- 161+48 to 162+68 RT	36" RCP	0.06		0.04		0.03					
22	-L- 162+58 to 162+77 LT	36" RCP	0.04		0.03		< 0.01					
23	-L- 173+93 to 174+24 LT	30" RCP	0.02		0.02		0.02					
24	-L- 179+18 to 183+23 RT	5' x 7' RCBC	0.07		0.05	0.03	0.17	0.02	< 0.01	154	33	
25	-L- 179+25 to 182+36 LT	5' x 7' RCBC	0.31		0.06	0.03	0.16					
25	-L- 179+25 to 182+36 LT	5' x 7' RCBC						0.35				
26	-L- 194+11 to 194+75 RT	30" RCP	< 0.01				0.02					
27	-L- 194+13 to 202+60 RT/LT	Roadway Fill	0.18		0.05	< 0.01	0.02					
27	-L- 194+13 to 202+60 RT/LT	7' x 7' RCBC						5.05				
28	-Y7B- 20+53 to 20+69 RT	Bank Stabilization						< 0.01	< 0.01	19	15	
29	-L- 203+22 to 204+58 RT/LT	36" RCP	0.35		0.04	0.05	0.04					
30	-L- 227+38 to 229+82 RT/LT	54" RCP	0.96				0.14	0.02	< 0.01	224	20	
31	-Y7A- 30+84 to 31+61 LT	42" RCP	0.06				0.03					
32	-Y7A- 42+45 to 44+70 RT/LT	72" RCP	0.15		0.07	< 0.01	0.05	0.03	< 0.01	153	23	
33	-Y7A- 42+67 to 44+64 RT	Roadway Fill						0.03	< 0.01	178	11	
SHEET TOTALS*:			2.20		0.36	0.12	0.69	5.50	< 0.01	728	102	0
PROJECT TOTALS*:			5.56	0.91	1.12	0.21	1.86	7.03	0.03	1915	373	

*Rounded totals are sum of actual impacts

NOTES:

0.006 Acres of mechanized clearing on site 27 represents remnant wetland piece which will have significantly less supporting hydrology post-construction. The plans still call for hand clearing per guidance from 4B meeting

0.004 acres of mechanized clearing on Site 20, 0.012 acres of mechanized clearing on Site 24, and 0.005 acres of mechanized clearing on Site 25 is for temporary excavation associated with culvert construction and phasing (shown as "E" hatching on plans but quantified as mechanized clearing in this table).

There will be 0.15 acres of Temporary Fill in wetlands in the Hand Clearing areas for Erosion Control measures.

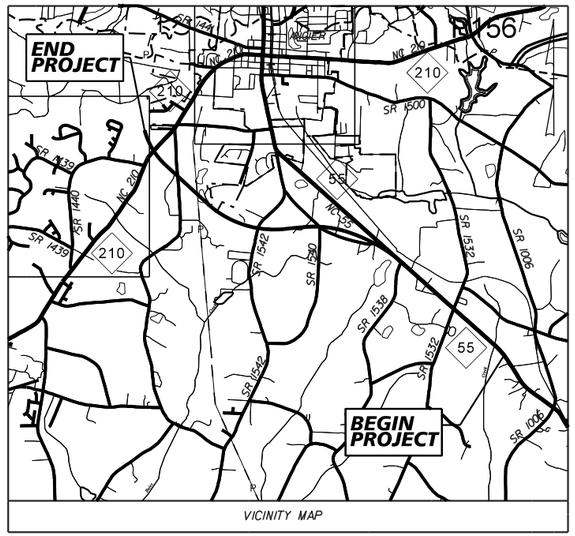
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
09-13-2021
Harnett
R-5705A
46377.1.2

Revised 2018 Feb

Submitted 12/21/2021

TIP PROJECT: R-5705A

09/08/99



65% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY ENVIRONMENTAL PERMIT PLANS
HARNETT COUNTY

T.I.P. NO.	SHEET NO.
R-5705A	UE-01

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS.
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

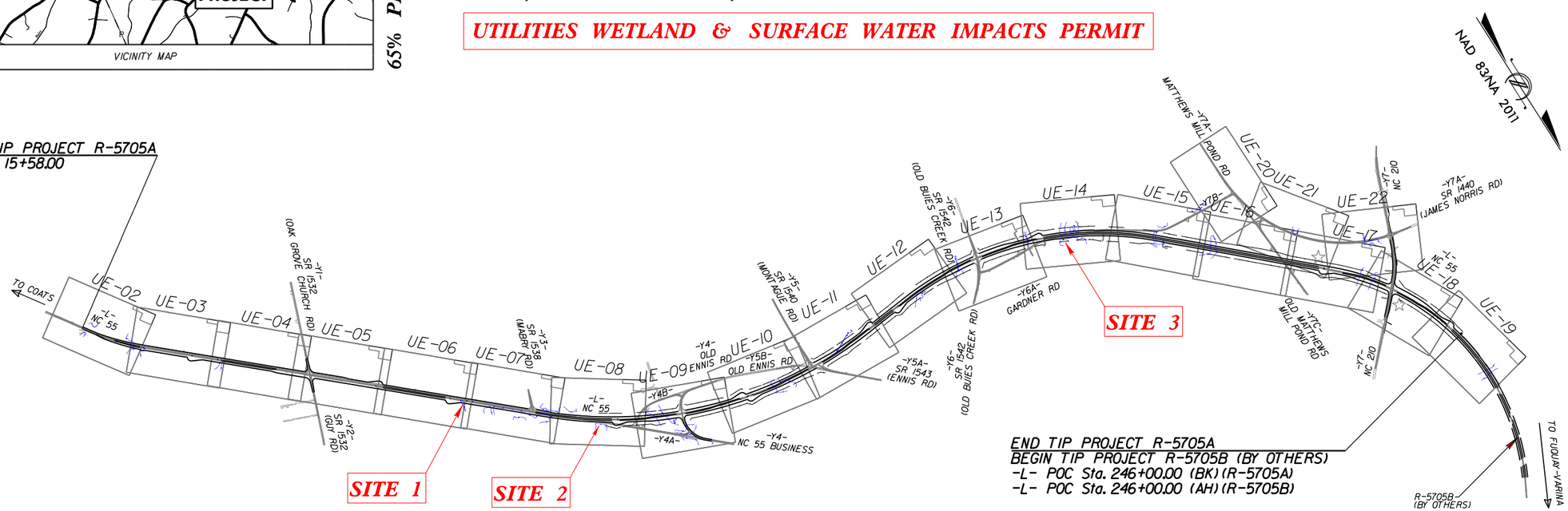
PERMIT DRAWING
SHEET 1 OF 14

PRELIMINARY

LOCATION: NC 55 FROM SOUTH OF SR 1532 (OAK GROVE CHURCH ROAD) TO NORTH OF NC 210

TYPE OF WORK: AERIAL AND UNDERGROUND RELOCATIONS OF WATER, SANITARY SEWER, POWER AND COMMUNICATIONS LINES

UTILITIES WETLAND & SURFACE WATER IMPACTS PERMIT



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UE-1	*TITLE SHEET*
UE-02 THRU UE-22	*ENVIRONMENTAL PERMIT PLAN SHEETS*

UTILITY OWNERS WITH CONFLICTS

(A) POWER – DUKE ENERGY
(B) COMMUNICATIONS – CHARTER
(C) WATER – HARNETT REGIONAL WATER
(D) TOWN OF ANGIER

PREPARED IN THE OFFICE OF:

KCI
http://www.kci.com

KCI Associates of N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
Fax (919) 783-9266

JOHN FAISON	*UTILITY PROJECT MANAGER*
L. KELSEY BARTLETT	*PROJECT UTILITY COORDINATOR*
DANIEL ALLEN	*PROJECT UTILITY DESIGNER IN TRAINING*

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 BIRCH SERVICE CENTER
RALEIGH, NC 27699

KELVIN MARTIN	*UTILITY ENGINEER*
VACANT	*UTILITY AREA COORDINATOR*
KELVIN MARTIN	*UTILITY COORDINATOR*

8/20/2021
M:\2010\05100583AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\01_290_001_R-5705A_ut_U001_tsh.dgn
Shannon.Emrich

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-06

UTILITIES BY OTHERS

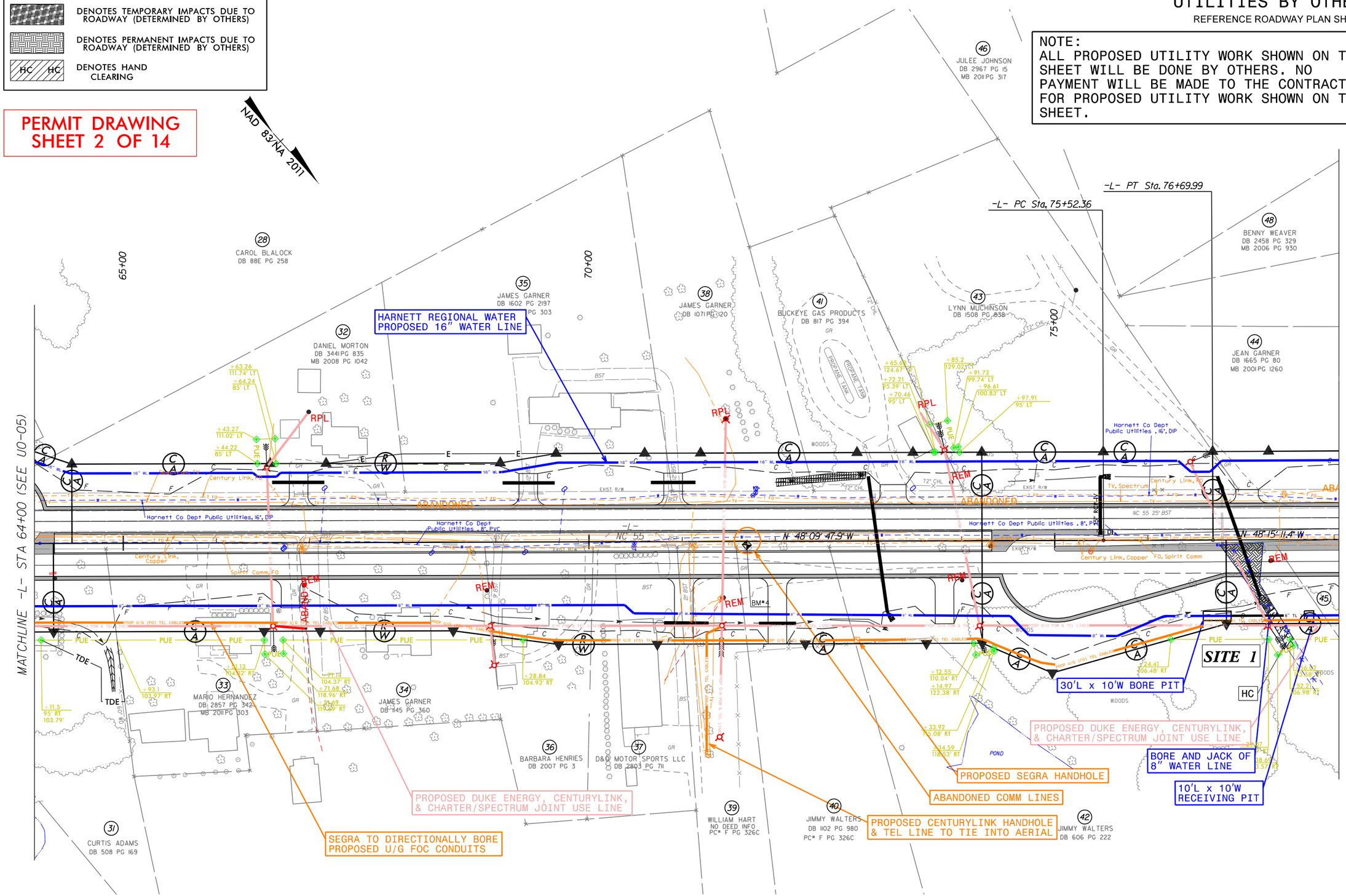
REFERENCE ROADWAY PLAN SHEET 08

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 2 OF 14



8/17/99

8/20/2021
M:\2010\05100583AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\02_R5705A_ut_prm_rdy08A_UO06A_psh.dgn
Shannon Emrich

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-06

UTILITIES BY OTHERS

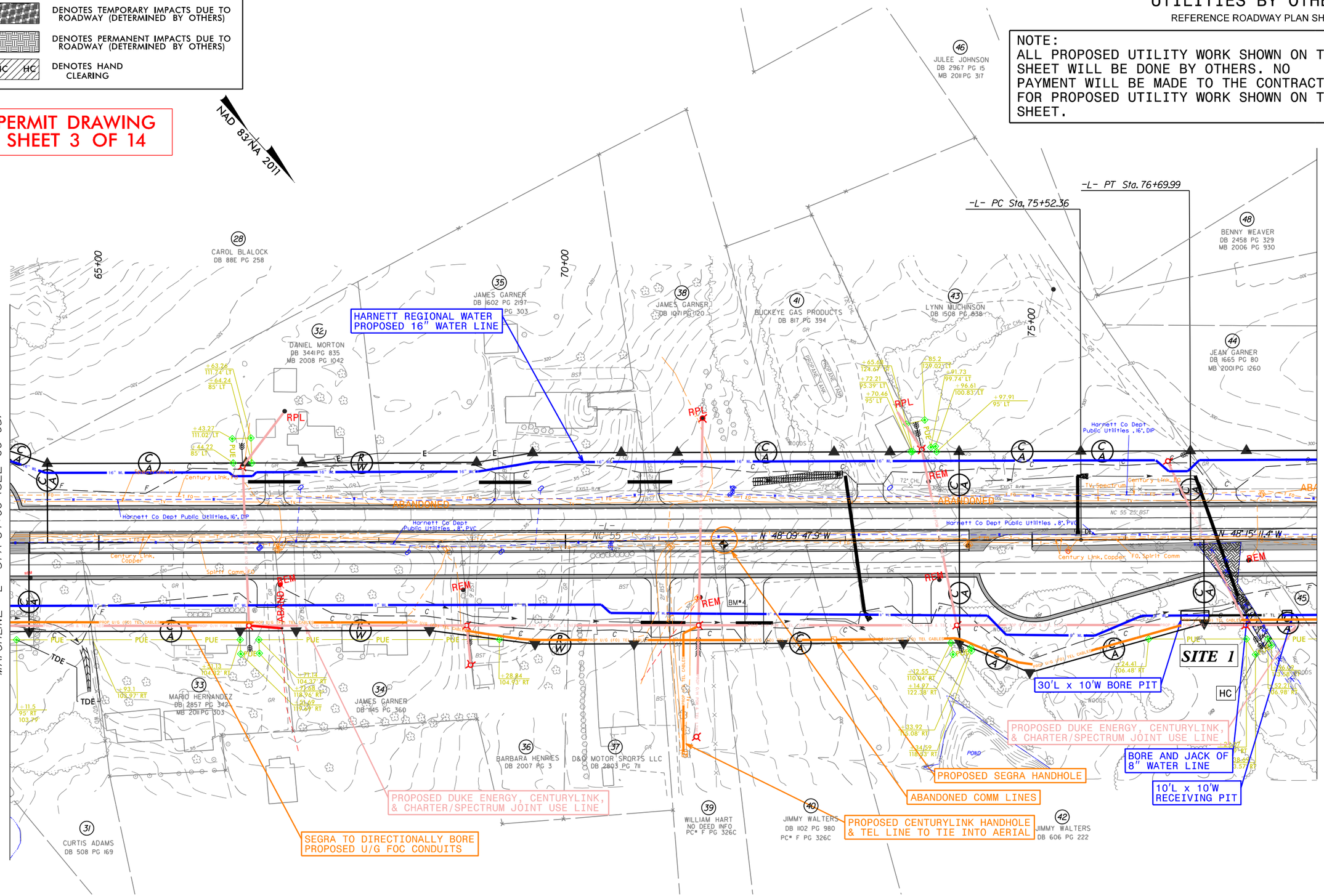
REFERENCE ROADWAY PLAN SHEET 08

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 3 OF 14



8/17/99

8/20/2021
R:\Roadway\Proj\0051005B3AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\03_R5705A_ut_prm_rdy08_U006_psh.dgn

Submitted 12/21/2021

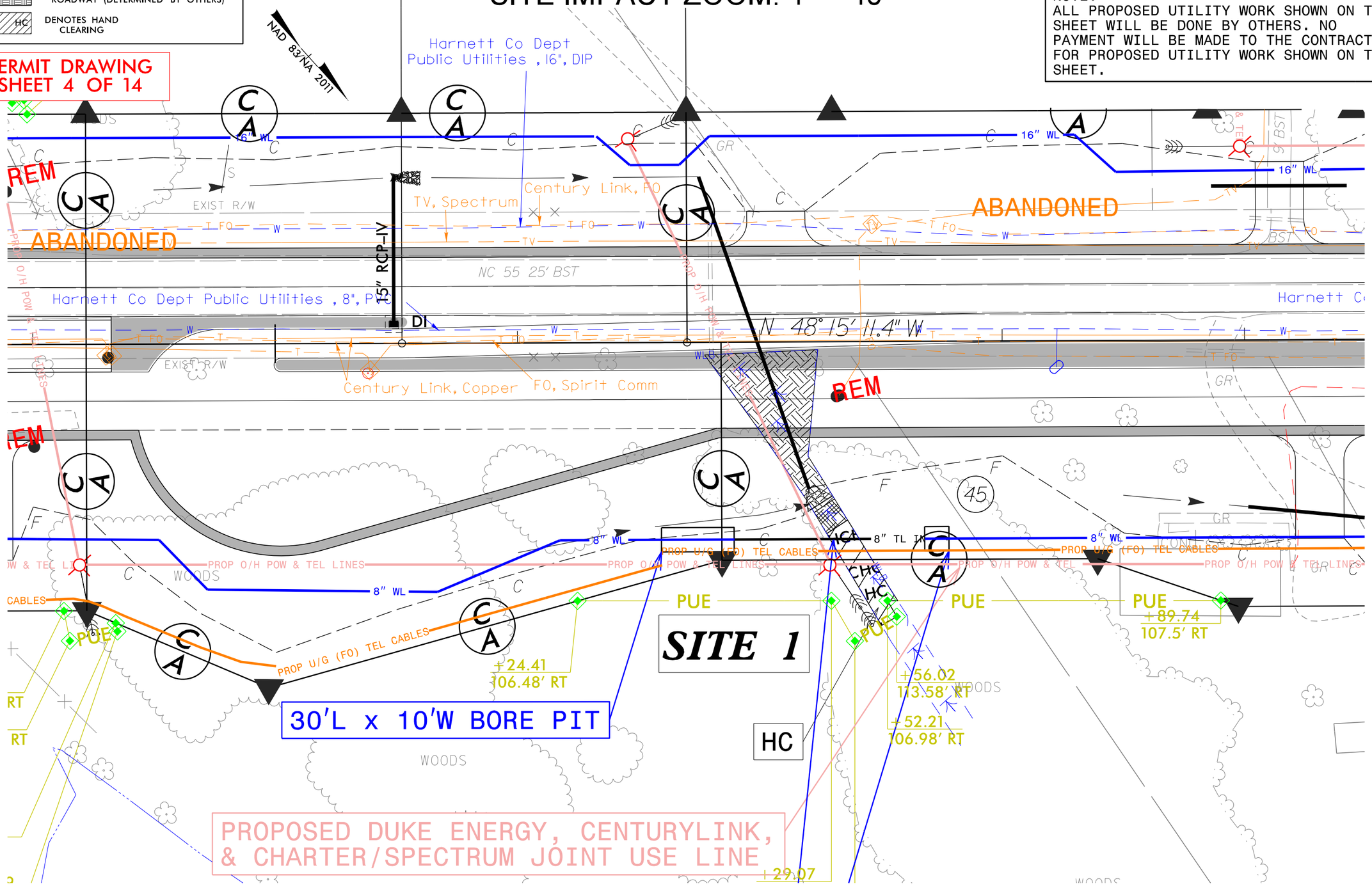
PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-06A

UTILITIES BY OTHERS

WETLAND AND STREAM IMPACTS
SITE IMPACT ZOOM: 1" = 40'

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

PERMIT DRAWING
SHEET 4 OF 14



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-06A

UTILITIES BY OTHERS

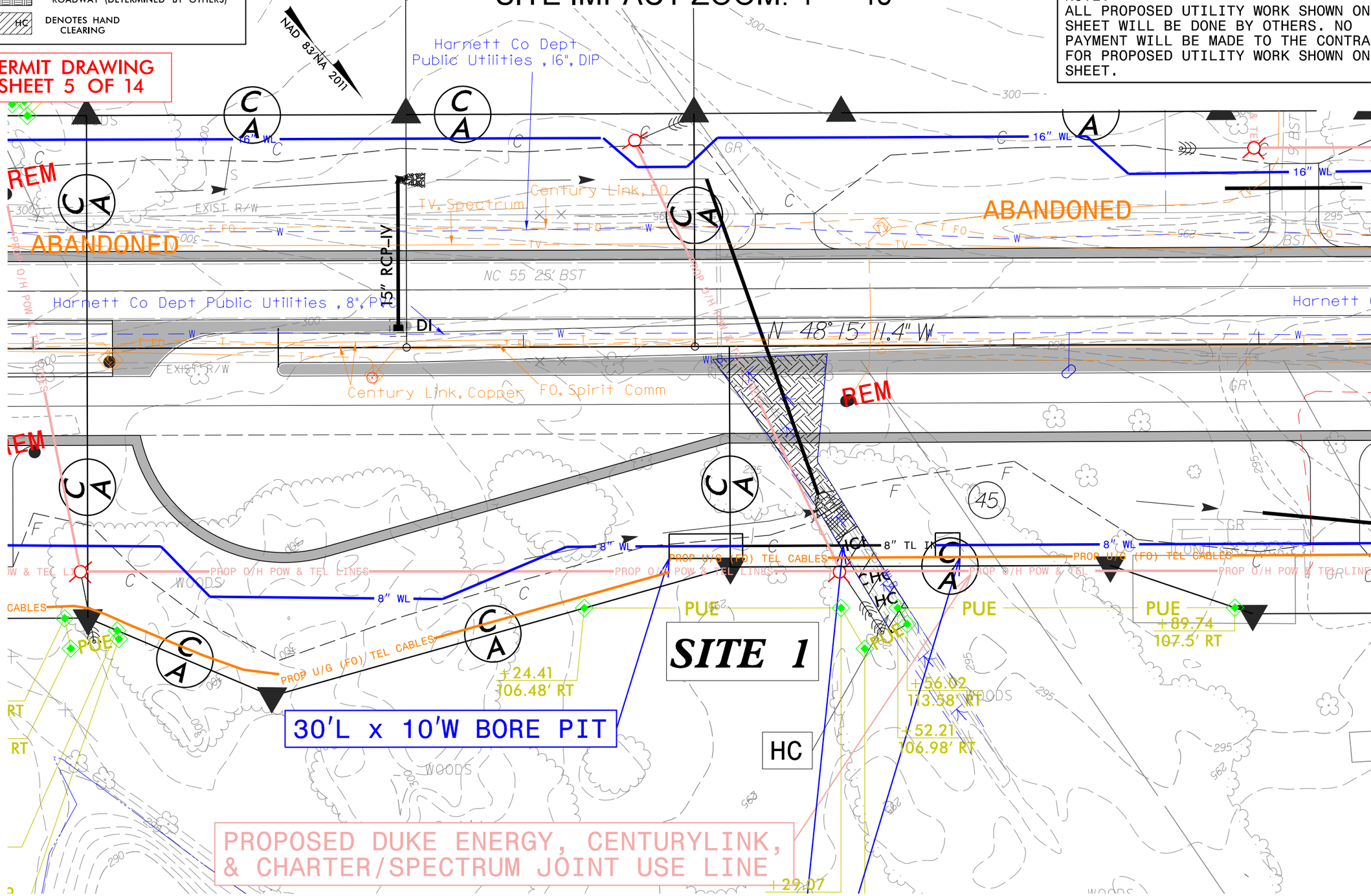
WETLAND AND STREAM IMPACTS
SITE IMPACT ZOOM: 1" = 40'

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 5 OF 14



8/17/99

8/20/2021
M:\2010\05100583AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\05_R5705A_ut_prm_rdy08_U006_psh_zoom w con.dgn
Shannon Emrich

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-08

UTILITIES BY OTHERS

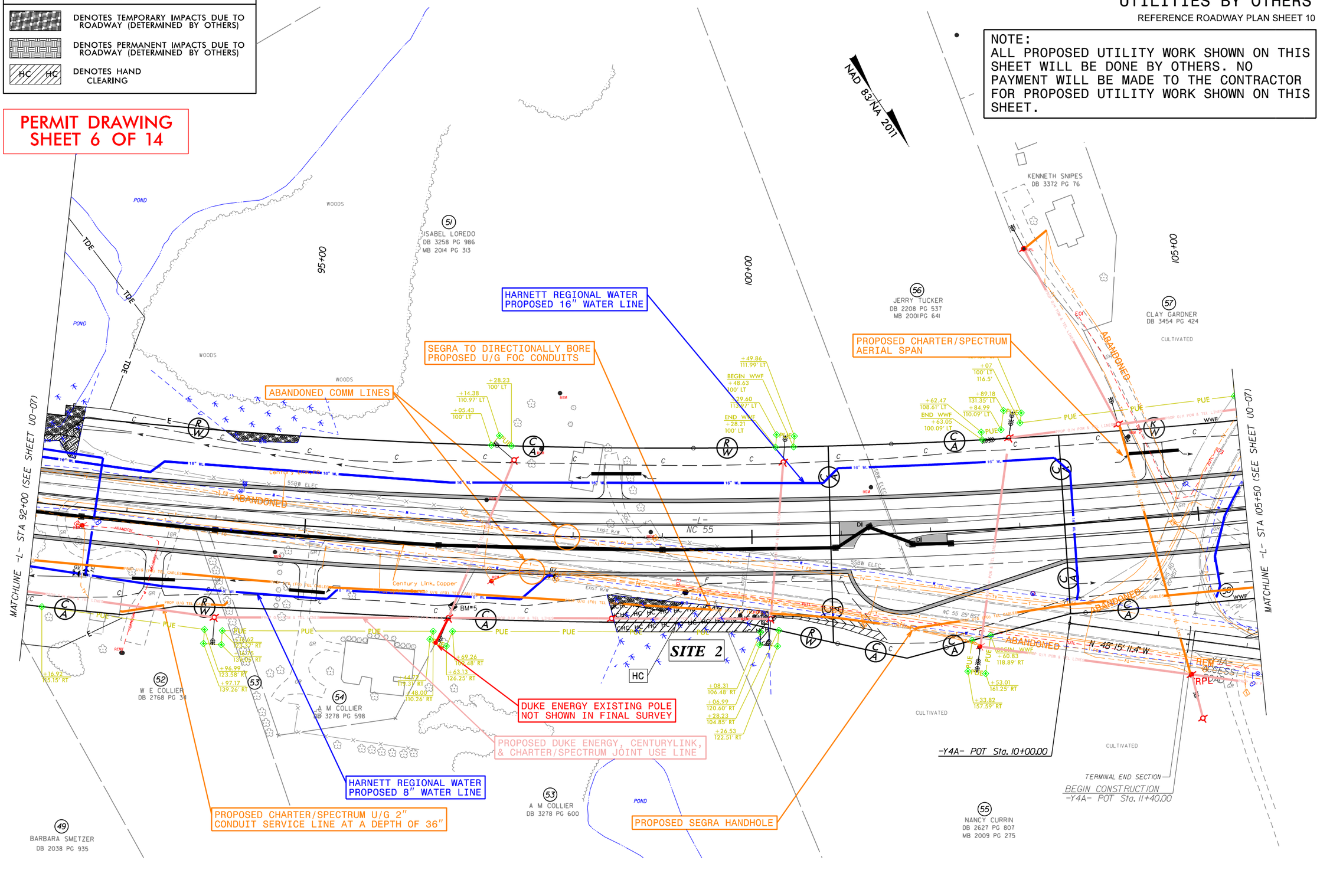
REFERENCE ROADWAY PLAN SHEET 10

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 6 OF 14



8/17/99

8/20/2021
N:\2010\25100583AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\06_R5705A_ut_prm_rdg10A_UU08A_psh.dgn
Shannon.Emrich

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-08

UTILITIES BY OTHERS

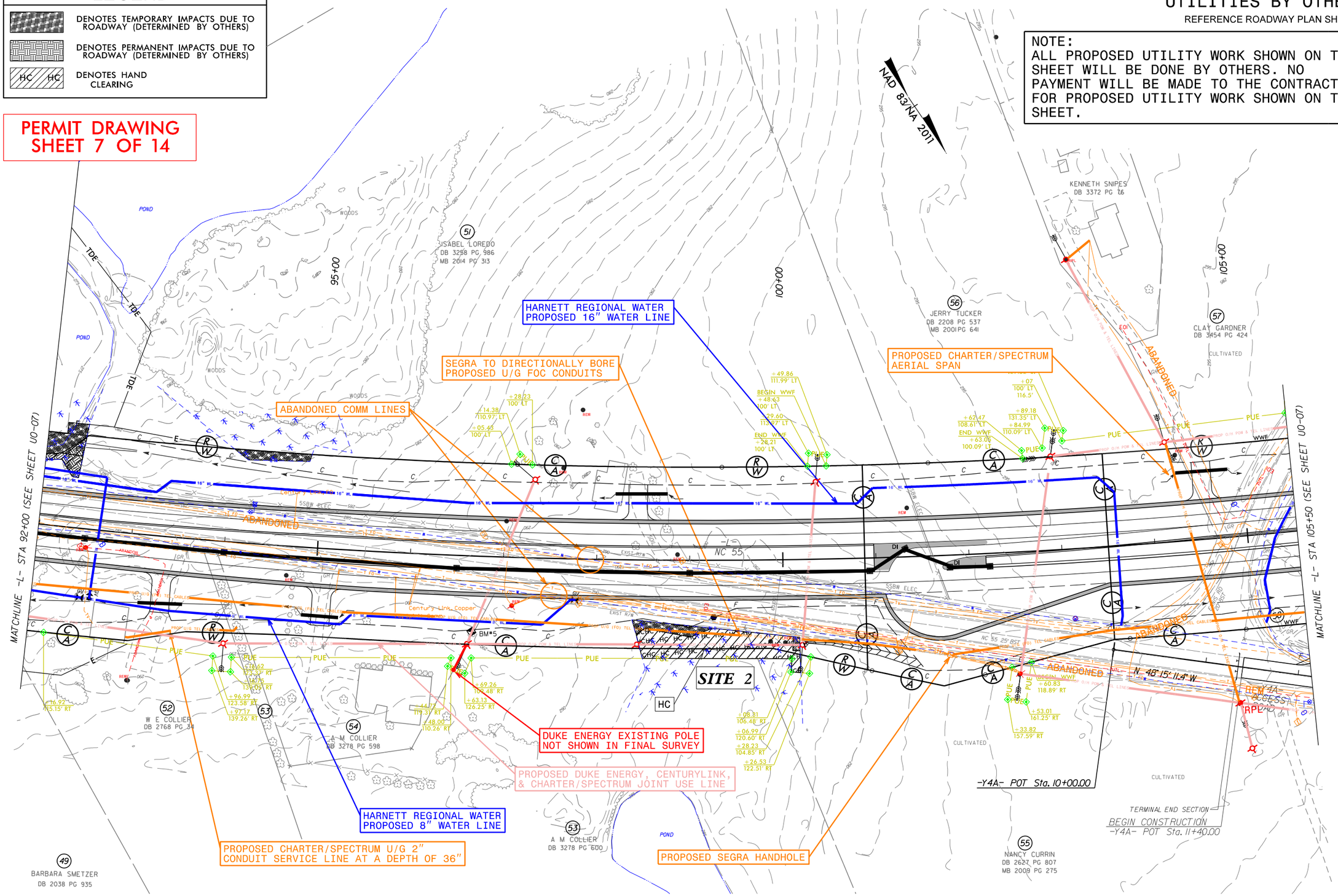
REFERENCE ROADWAY PLAN SHEET 10

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 7 OF 14



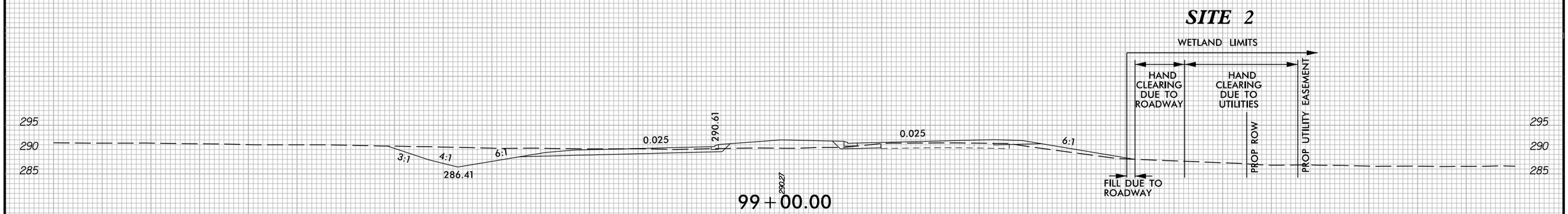
8/17/99

8/20/2021
N:\2010\5100583AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\07_R5705A_ut_prm_rdy10_U008_psh.dgn
Shannon.Emrich

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET _ OF _

PERMIT DRAWING
SHEET 8 OF 14



8/20/2021

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-14

UTILITIES BY OTHERS

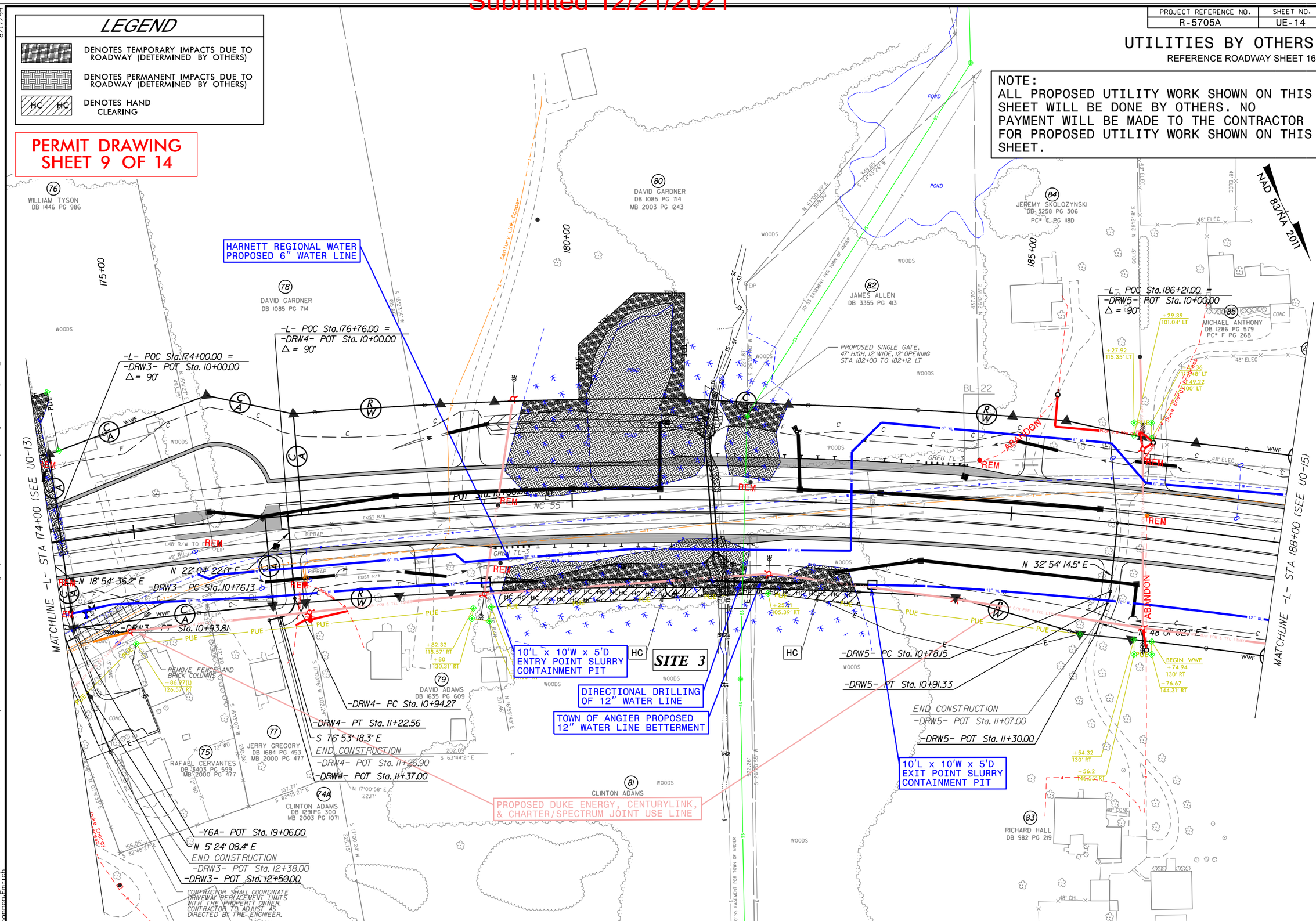
REFERENCE ROADWAY SHEET 16

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 9 OF 14



8/17/99

8/23/2021
8:20:10 AM
Shannon Emrich

R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\16_R5705A_ut_prm_rdy16A_U014A_psh.dgn

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-14

UTILITIES BY OTHERS

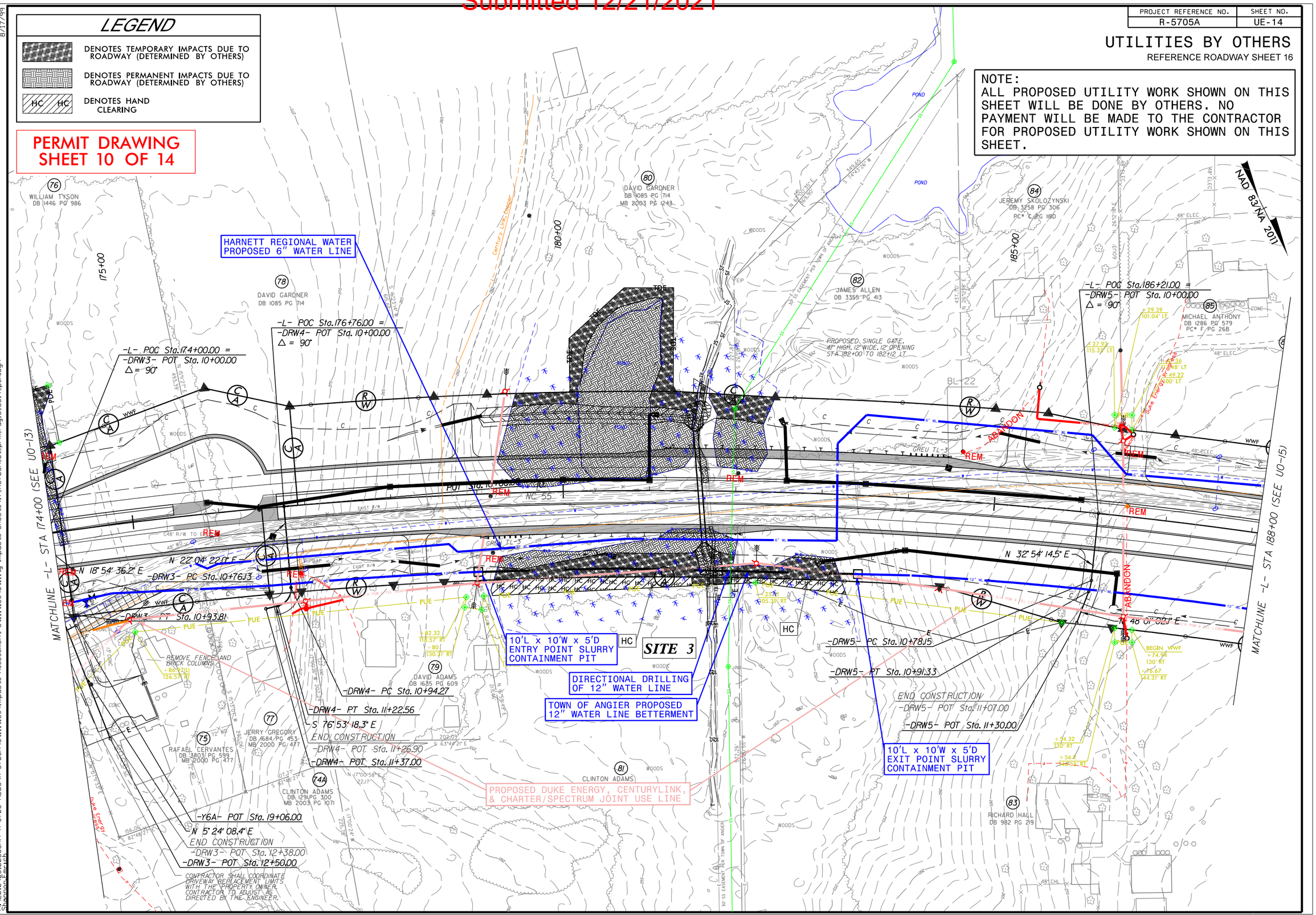
REFERENCE ROADWAY SHEET 16

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 10 OF 14



8/17/99

8/20/2021
M:\2010\05100583AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\17_R5705A_ut_prm_rdy16_U014_psh.dgn

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-14A

UTILITIES BY OTHERS

LEGEND

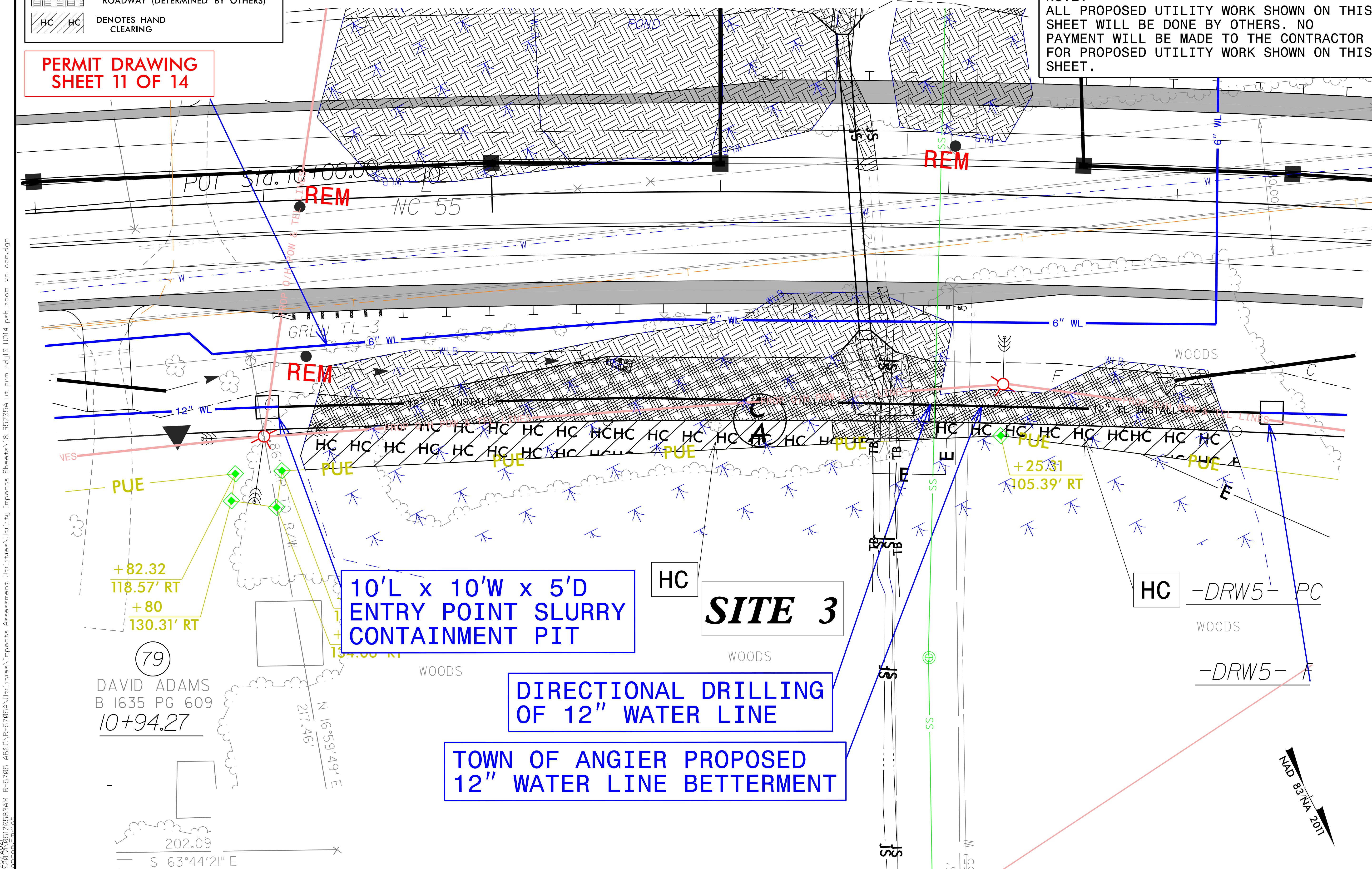
- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 11 OF 14

WETLAND AND STREAM IMPACTS

SITE IMPACT ZOOM: 1" = 40'

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	UE-14A

WETLAND AND STREAM IMPACTS
SITE IMPACT ZOOM: 1" = 40'

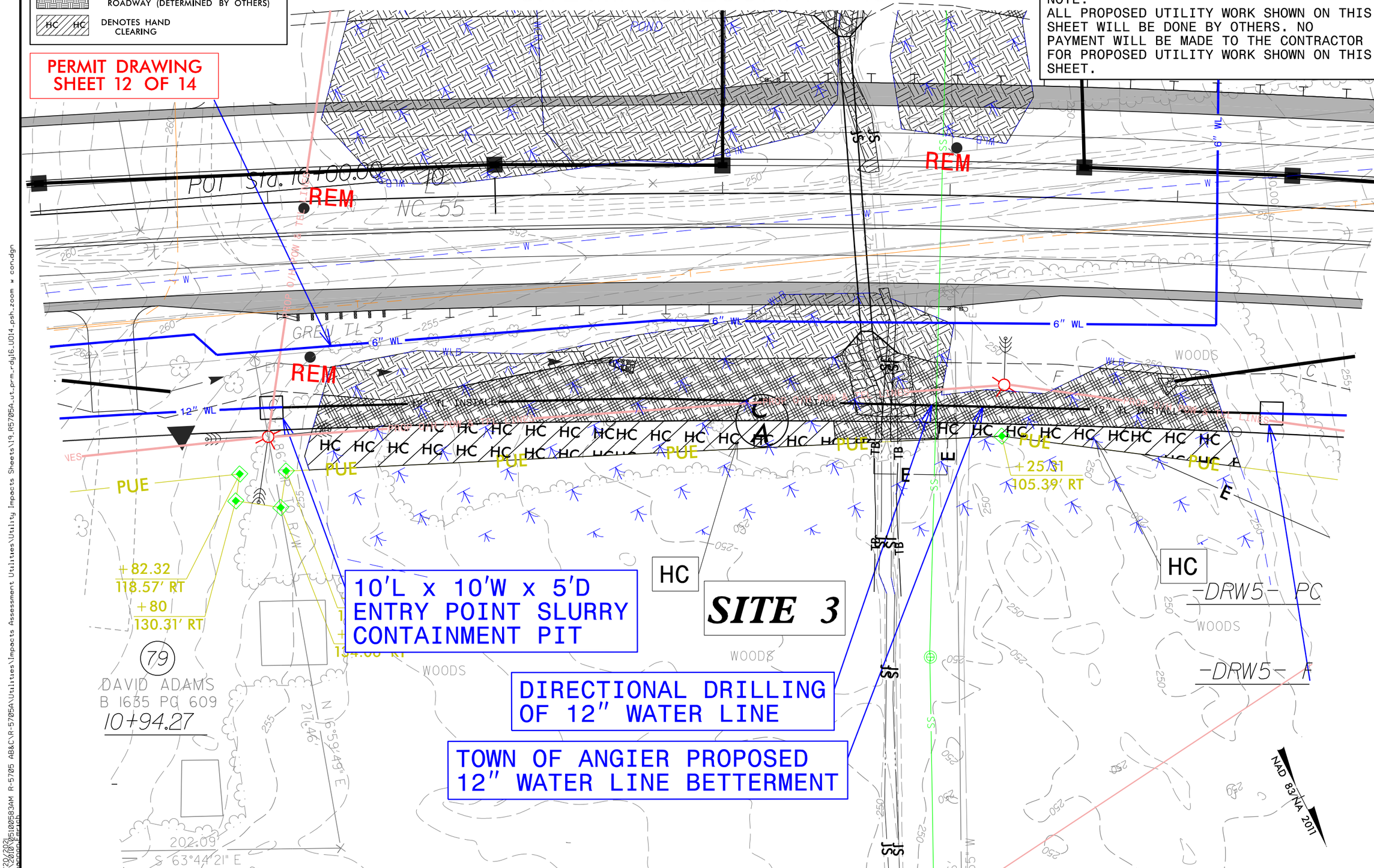
UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

LEGEND

- DENOTES TEMPORARY IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- DENOTES PERMANENT IMPACTS DUE TO ROADWAY (DETERMINED BY OTHERS)
- HC HC DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 12 OF 14



10'L x 10'W x 5'D
ENTRY POINT SLURRY
CONTAINMENT PIT

DIRECTIONAL DRILLING
OF 12" WATER LINE

TOWN OF ANGIER PROPOSED
12" WATER LINE BETTERMENT

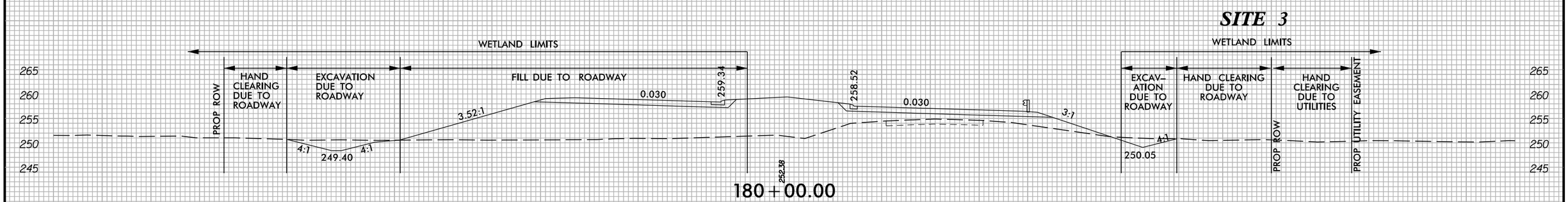
8/17/99

8/20/2021
M:\2010\05100583AM R-5705 AB&C\R-5705A\Utilities\Impacts Assessment Utilities\Utility Impacts Sheets\19_R5705A_ut_prm_rdy16_U014_psh_zoom w con.dgn
Shannon Emrich

Submitted 12/21/2021

PERMIT DRAWING
SHEET 13 OF 14

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705A	PERMIT SHEET _ OF _



8/20/2021

Submitted 12/21/2021

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)
1	-L-77+27/77+56 RT	OH Power & Telephone Line					0.01					
2	-L- 98+43/100+17 RT	OH Power & Telephone Line					0.11					
3	-L-179+12/183+33 RT	OH Power & Telephone Line					0.11					
TOTALS*:							0.23			0	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
August 2021
Harnett County
R-5705A Utility Permit Plans
46377.1.2

Revised 2018 Feb

Submitted 12/21/2021

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

General Project Information

WBS Element:	46377.1.3	**TIP Number:**	R-5705B	**Project Type:**	Roadway Relocation	**Date:**	9/20/2021
NCDOT Contact:	Nicole Hackler, PE			**Contractor / Designer:**	TGS Engineers (Rusty Lassiter)		
Address:	1000 Birch Ridge Drive Raleigh, NC 27610			**Address:**	706 Hillsborough Street Suite 200 Raleigh, NC 27603		
Phone:	919-707-6029			**Phone:**	919-773-8887 ext. 121		
Email:	nmhackler@ncdot.gov			**Email:**	rlassiter@tgsengineers.com		
City/Town:	Angier			**County(ies):**	Wake	Harnett	
River Basin(s):	Cape Fear	Neuse		**CAMA County?**	No	No	
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	4.437 miles	**Surrounding Land Use:**	Business; Residential; Rural Farmland		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	51.0	ac.		12.0	ac.
Typical Cross Section Description:	4-lane divided roadway with a 30-foot raised median and 10-foot shoulders (4-foot paved shoulders)			Two 11-foot lanes with 3-foot paved shoulders	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 44400	Year: 2042		Existing: 30200	Year: 2022

General Project Narrative: (Description of Minimization of Water Quality Impacts)

Currently, NC 55 is primarily a two-lane roadway throughout the R5705B corridor, with turn lanes at major intersections. To relieve congestion and improve mobility, R5705B is proposing to widen portions of NC 55 to a median-divided, four-lane roadway and build a multi-lane bypass west of Angier. Proposed typical section for widening of NC 55 will be a 4-lane divided roadway with a 23-foot raised median, curb and gutter with a 10-foot berm. Proposed typical section for new location of NC 55 will be a 4-lane divided roadway with a 30-foot raised median and 10-foot shoulders (including 4-foot paved shoulders).

Waterbody Information

Surface Water Body (1):	UT to Neills Creek	**NCDWR Stream Index No.:**	18-16-(0.7)a		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)		
		Supplemental Classification:	None		
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?	Comments:				
NRTR Stream ID:			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Additional Waterbody Information

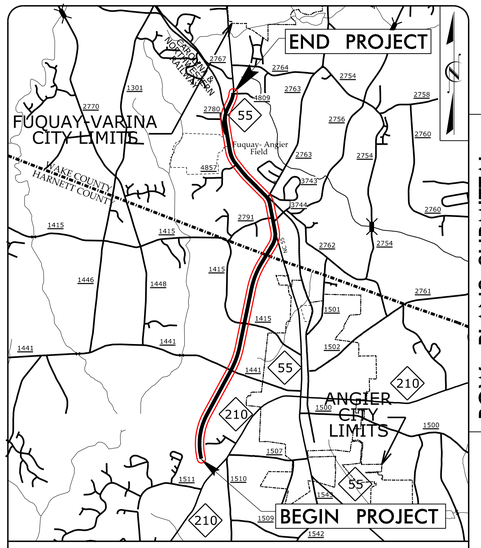
Surface Water Body (2):	UT to Neills Creek	**NCDWR Stream Index No.:**	18-16-(0.7)a		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)		
		Supplemental Classification:			
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?	Comments:				
NRTR Stream ID:	SAF,SAE,SAC,SAD,SAB,SY,SAA,SZ,SW,SV,SX		**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Submitted 12/21/2021

09/08/99

TIP PROJECT: R-5705B

See Sheet 1A For Index of Sheets



VICINITY MAP

ROW PLANS SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT & WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5705B	1	

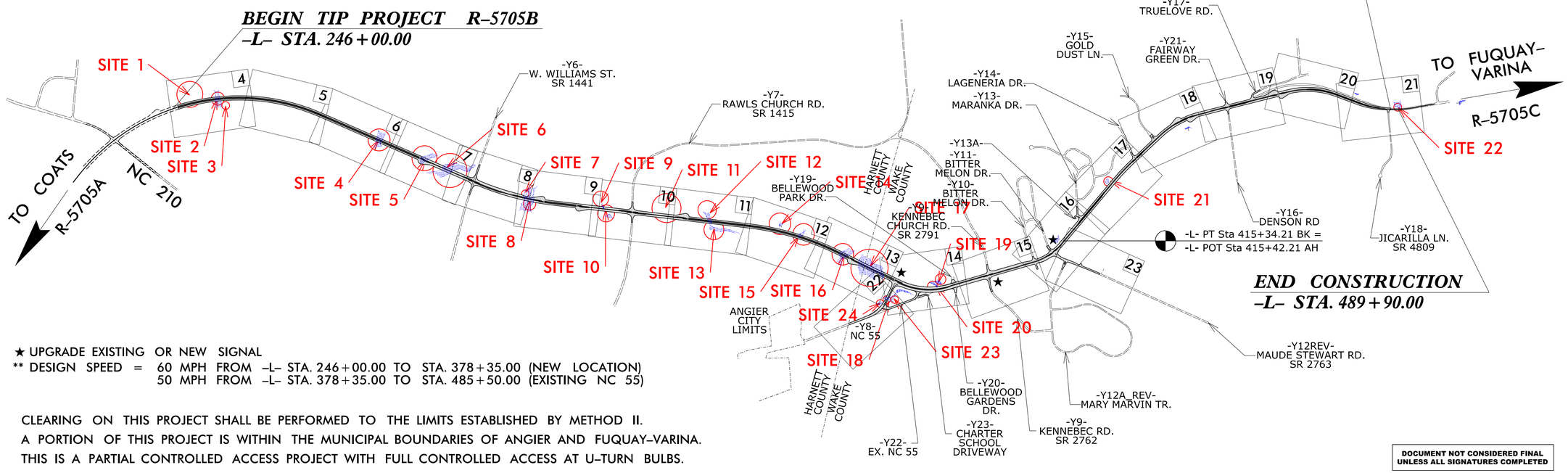
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
46377.1.3		PE
46377.2.2		ROW
46377.2.6		UTILITIES

LOCATION: NC 55 FROM NC 210 TO SR 4809 (JICARILLA LANE)

TYPE OF WORK: PAVING, GRADING, DRAINAGE, SIGNALS & CULVERT

NAD 83/NA 2011

WETLAND AND SURFACE WATER IMPACTS PERMIT



★ UPGRADE EXISTING OR NEW SIGNAL

** DESIGN SPEED = 60 MPH FROM -L- STA. 246+00.00 TO STA. 378+35.00 (NEW LOCATION)
50 MPH FROM -L- STA. 378+35.00 TO STA. 485+50.00 (EXISTING NC 55)

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ANGIER AND FUQUAY-VARINA.

THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH FULL CONTROLLED ACCESS AT U-TURN BULBS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 30,200
ADT 2045 = 44,200
K = 9 %
D = 60 %
T = 4 % *
**V = 50 & 60 MPH
* TTST =1% DUAL 3%
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT R-5705B = 4.536 MILES
TOTAL LENGTH PROJECT = 4.536 MILES

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

By:
TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 3, 2021

LETTING DATE:
OCTOBER 18, 2022

TOMMY REGISTER, P.E.
PROJECT ENGINEER

NICOLE M. HACKLER, PE
NCDOT CONTACT

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

9/17/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_tsh.dgn
User:rlassiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

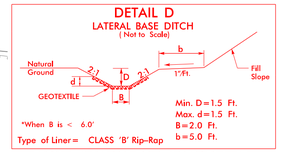
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING SHEET _1_ OF _47_

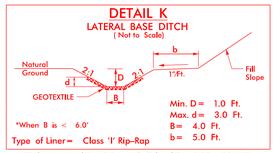
NAD 83/NA 2011

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



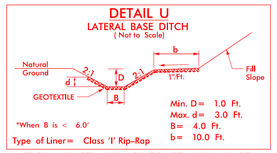
FROM STA.252+00 TO STA.253+16-L- LT.

DETAIL K
LATERAL BASE DITCH
(Not to Scale)



FROM -L- STA. 254+16 TO STA. 255+50 RT

DETAIL U
LATERAL BASE DITCH
(Not to Scale)



FROM -L- STA. 253+67 TO STA. 254+18 RT

DETAIL N
RIP RAP AT EMBANKMENT
(Not to Scale)

FROM STA. 253+15 -L- LT.

SITE 1

3' STANDARD BASE DITCH
SEE DETAIL 'AE'
S=1.3%
L=325'
EST. 475 CY DDE

CLASS 'B' RIP RAP
EST. 5 TONS
GEOTEXTILE
EST. 14 SY

PROPOSED 15" RCP COMING FROM CB#2104 (R-5705A) DESIGNED BY OTHERS

SEE NCDOT TIP PROJECT R-5705A FOR RIGHT OF WAY PURCHASED UNDER NCDOT TIP PROJECT R-5705A

SEE NCDOT TIP PROJECT R-5705A FOR RIGHT OF WAY PURCHASED UNDER NCDOT TIP PROJECT R-5705A

END PROPOSED R/W TIP PROJECT R-5705A
BEGIN PROPOSED R/W TIP PROJECT R-5705B
℄
100' LT

RIP RAP AT EMBANKMENT
SEE DETAIL 'N'

CLASS 'I' RIP RAP

2.0' LATERAL BASE DITCH
SEE DETAIL 'D'
CLASS 'B' RIP RAP

CLASS 'B' RIP RAP
EST. 2 TONS
GEOTEXTILE
EST. 7 SY

SURFACE WATER IMPACT

BURY PIPE

TRANSITION STONE
CLASS 'B' RIP RAP
EST. 5 TONS
GEOTEXTILE
EST. 15 SY

4.0' LATERAL BASE DITCH
SEE DETAIL U
CLASS 'I' RIP RAP
(54' STREAM RELOCATION)

4.0' LAT. BASE DITCH
SEE DETAIL K
CLASS 'I' RIP RAP

END PROPOSED R/W TIP PROJECT R-5705A
BEGIN PROPOSED R/W TIP PROJECT R-5705B
℄
111.85' RT

MATCHLINE SHEET 5
-L- STA. 259+00.00

SITE 2

SITE 3

F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
P P	DENOTES IMPACTS IN SURFACE WATER (POND)
HC HC	DENOTES HAND CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
E E	DENOTES EXCAVATION IN WETLAND

100' 0' 100'
HORIZONTAL SCALE

ROBERTA WOOLARD
WILLIAM WHEELER
ROY GARDNER
ROBERT PHELPS
JESUS GARCIA
JAMES JOHNSON
CLARENCE LYON

SEE SHEET 24 FOR -L- PROFILE

8/17/99

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_04.dgn

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

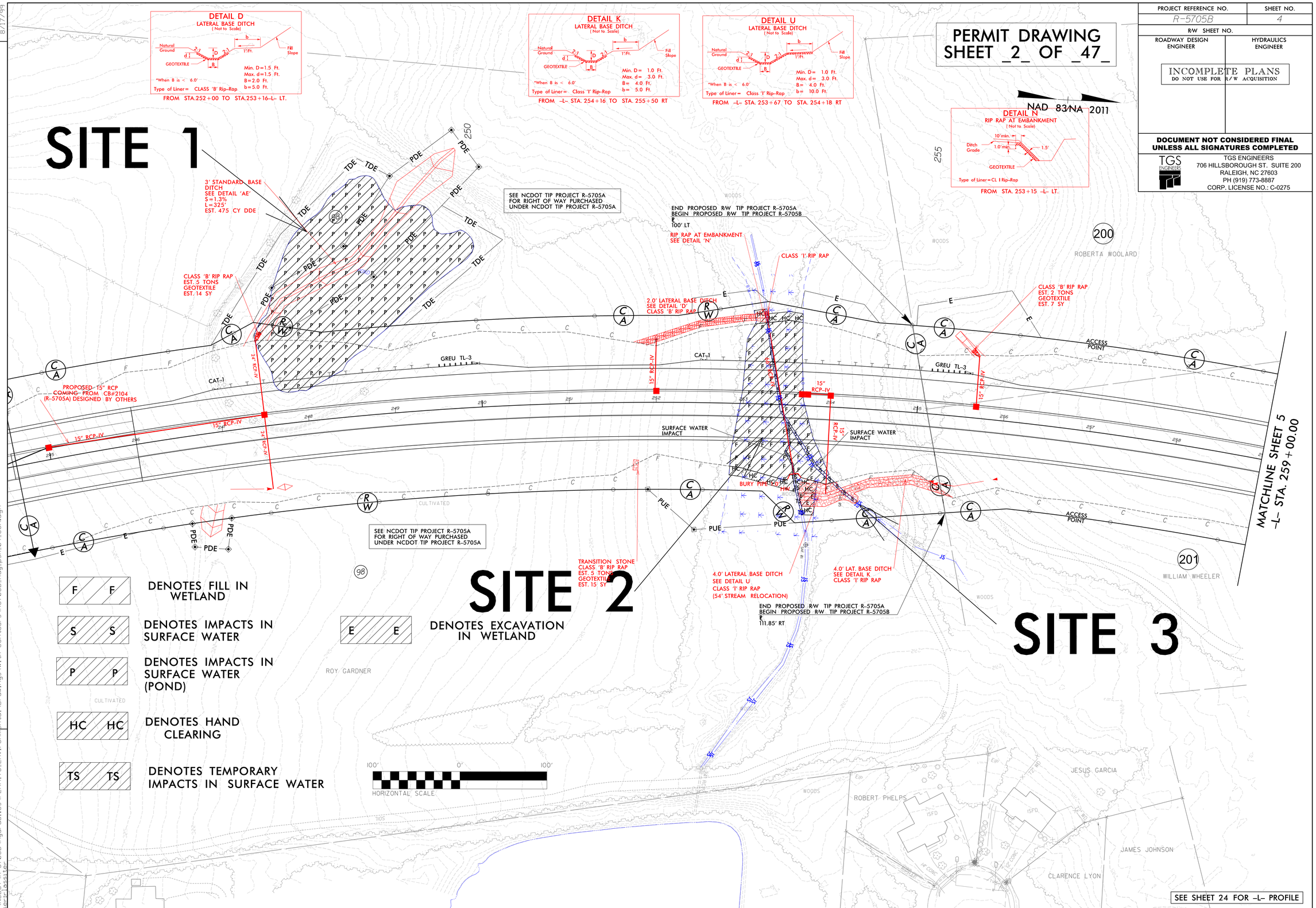
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING SHEET _2_ OF _47_

NAD 83/NA 2011



REVISIONS

8/17/99

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_04_con.dgn
jbergeron

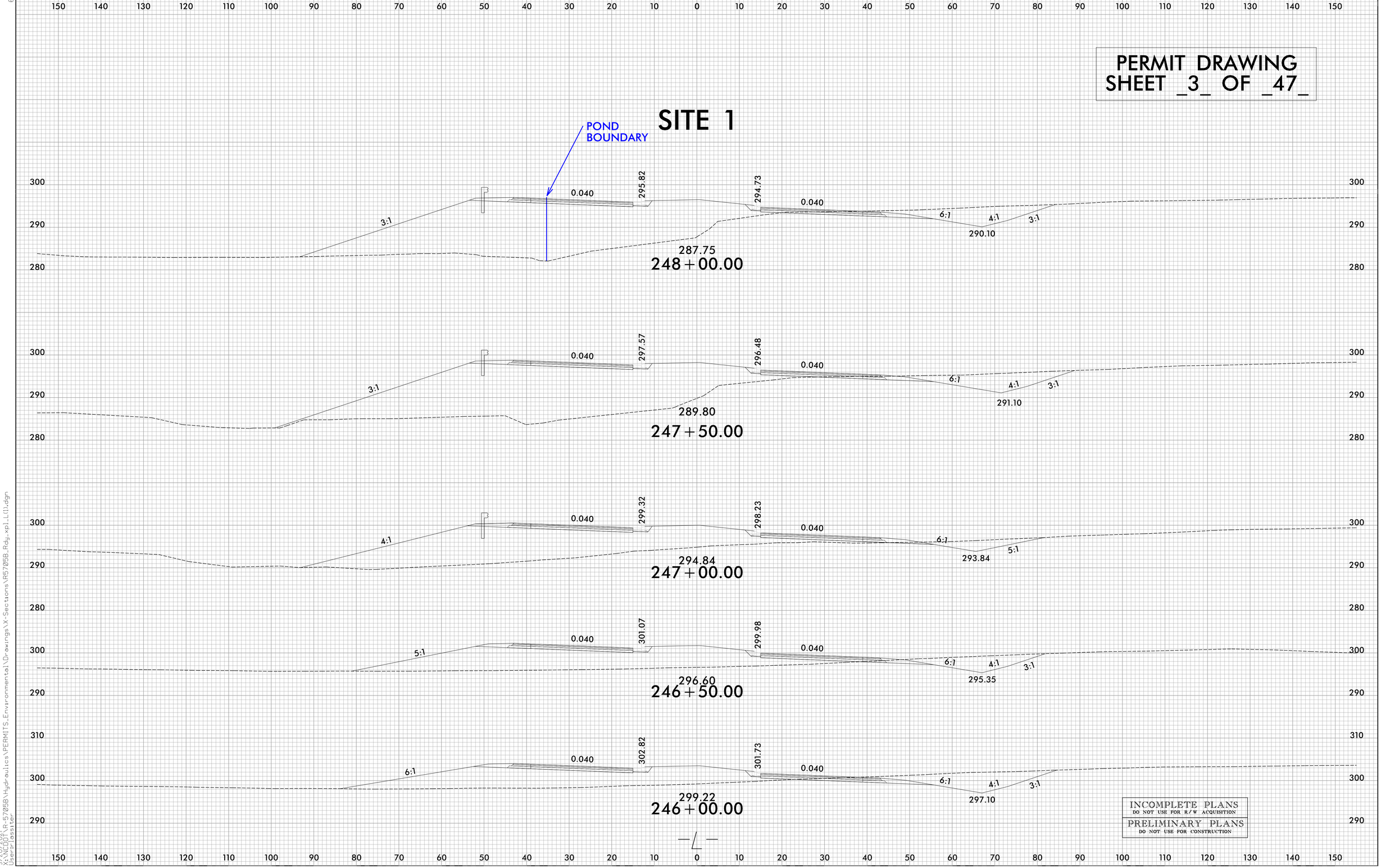
Submitted 12/21/2021

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-1

PERMIT DRAWING
SHEET _3_ OF _47_

SITE 1



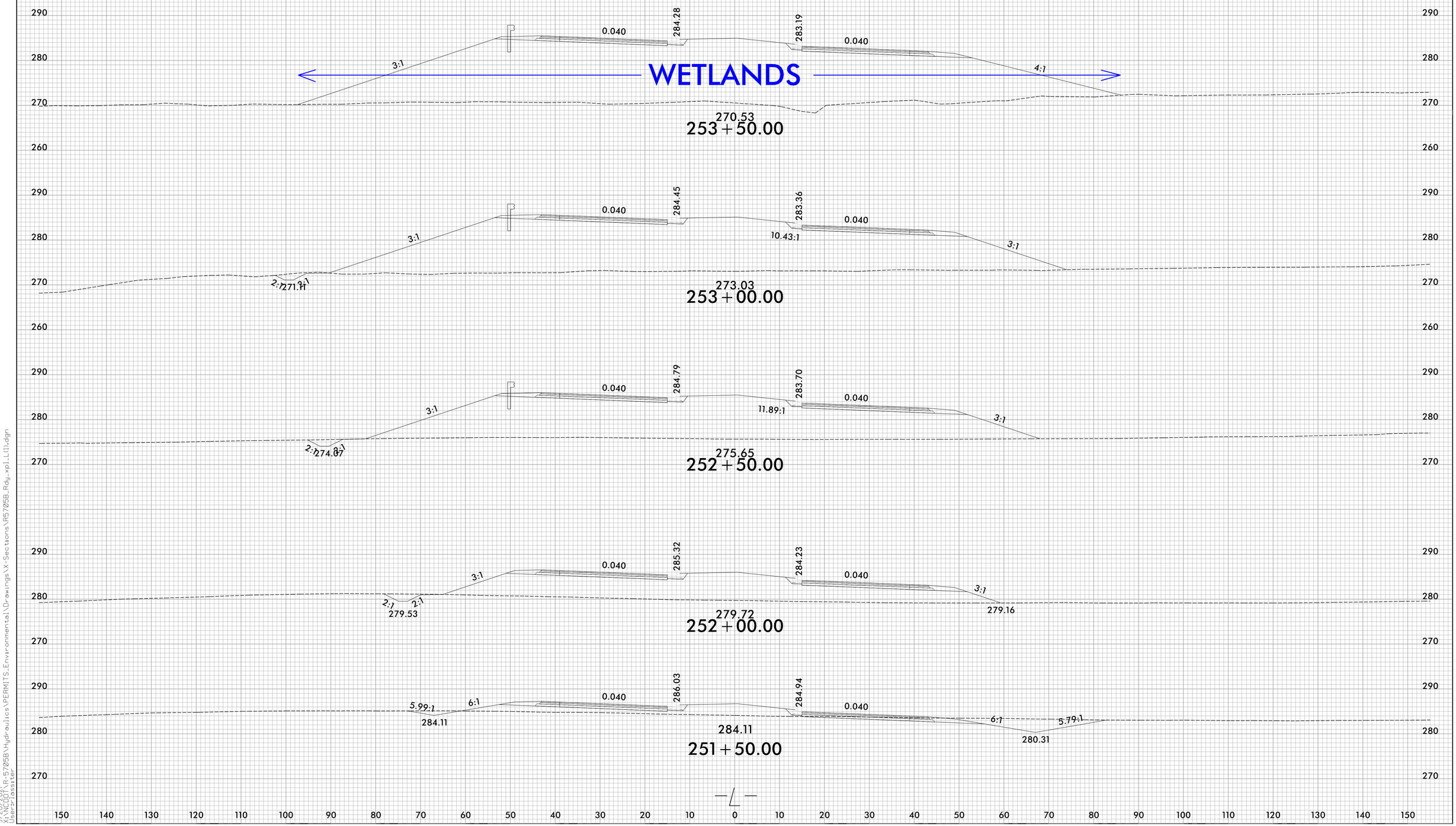
9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-3

PERMIT DRAWING
SHEET _4_ OF _47_

SITE 2 and SITE 3



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lossiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

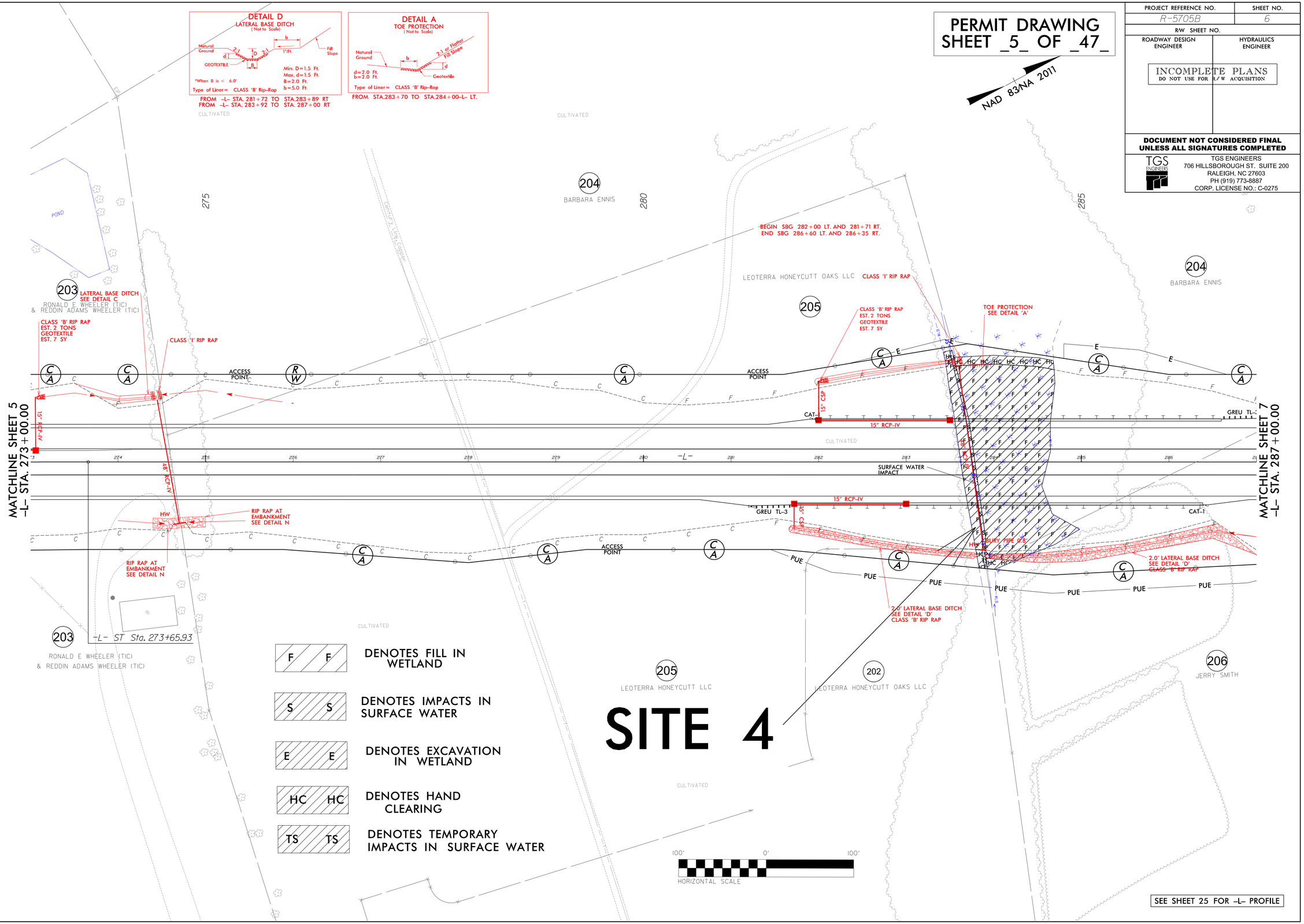
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _5_ OF _47_

NAD 83/NA 2011

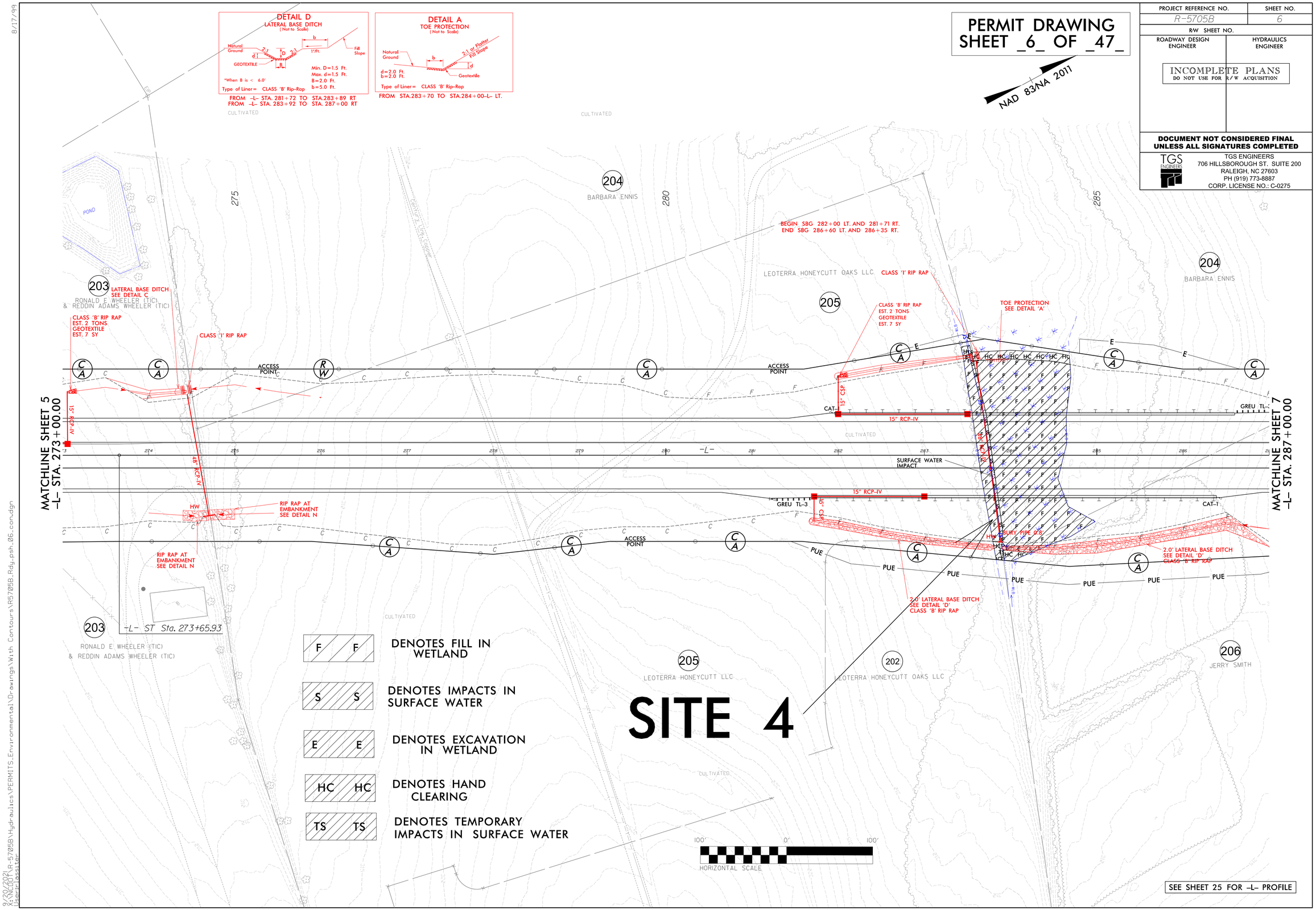


SEE SHEET 25 FOR -L- PROFILE

8/17/99

9/20/2021
R:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_06.dgn
User: lassiter

Submitted 12/21/2021

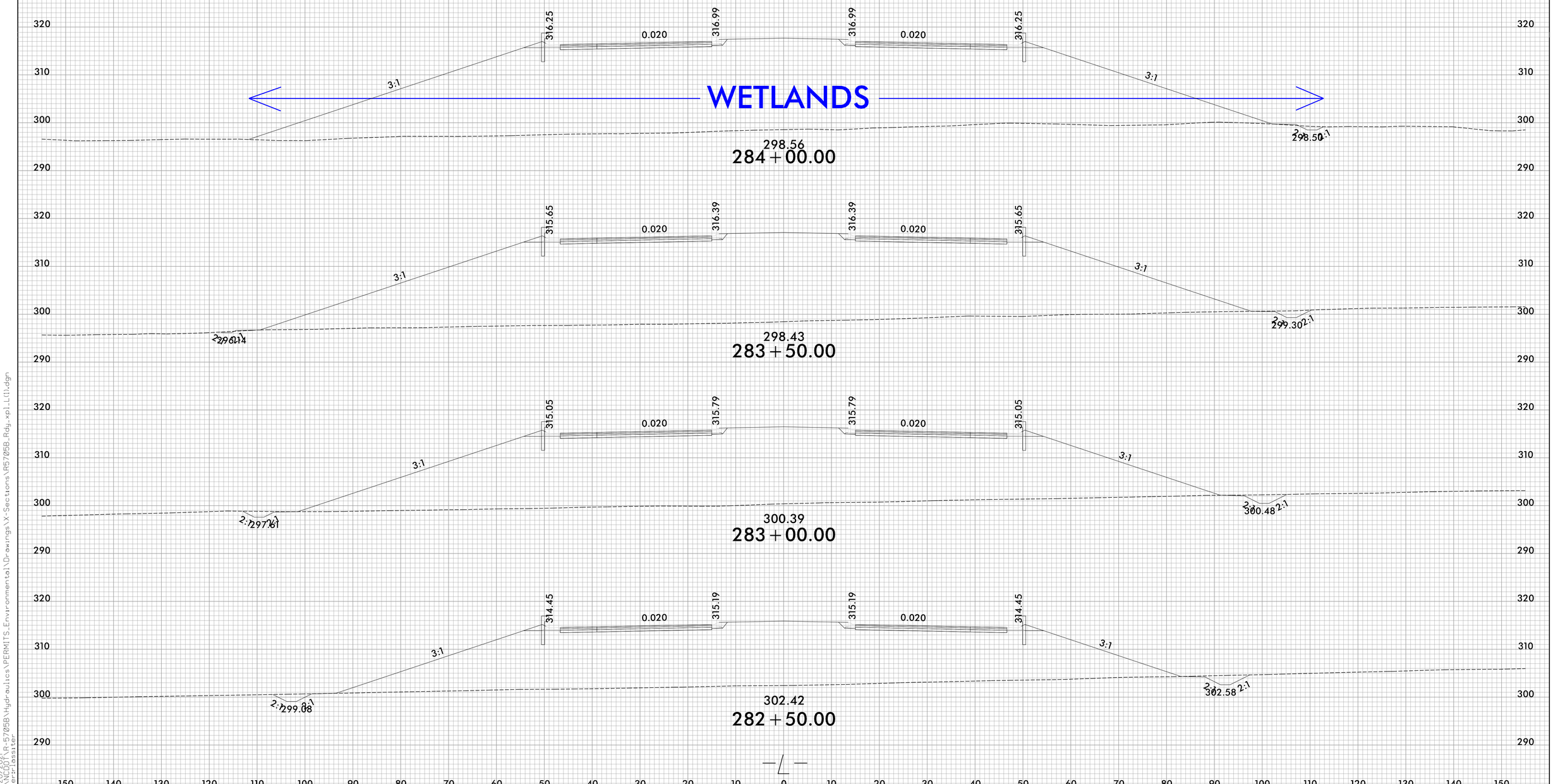


Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-14

PERMIT DRAWING
SHEET _7_ OF _47_

SITE 4



6/23/16
9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lassiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

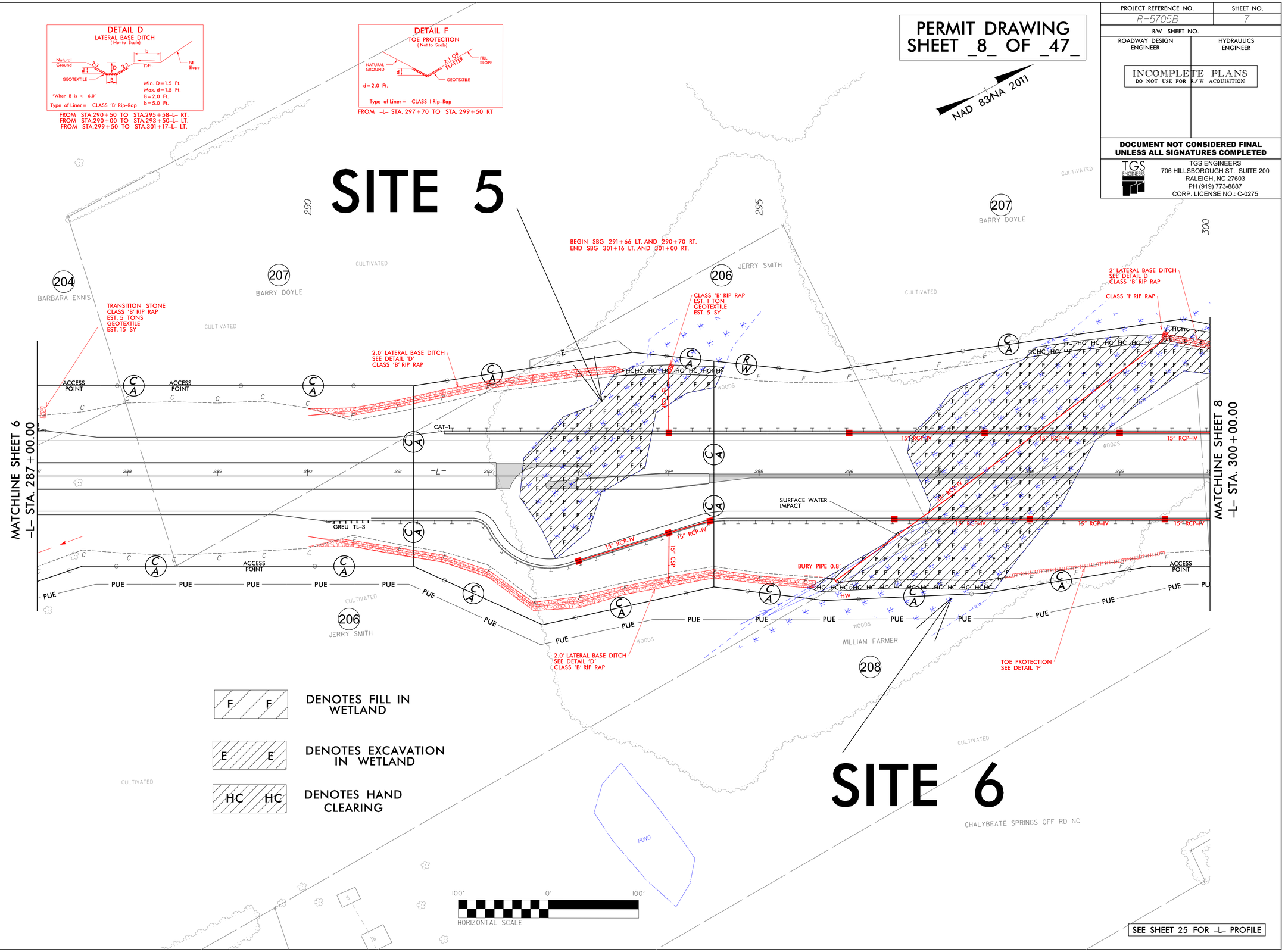
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _8_ OF _47_

NAD 83/NA 2011



SEE SHEET 25 FOR -L- PROFILE

8/17/99

8/20/2021
X:\WLOOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_07.dgn
User:lossiter

Submitted 12/21/2021

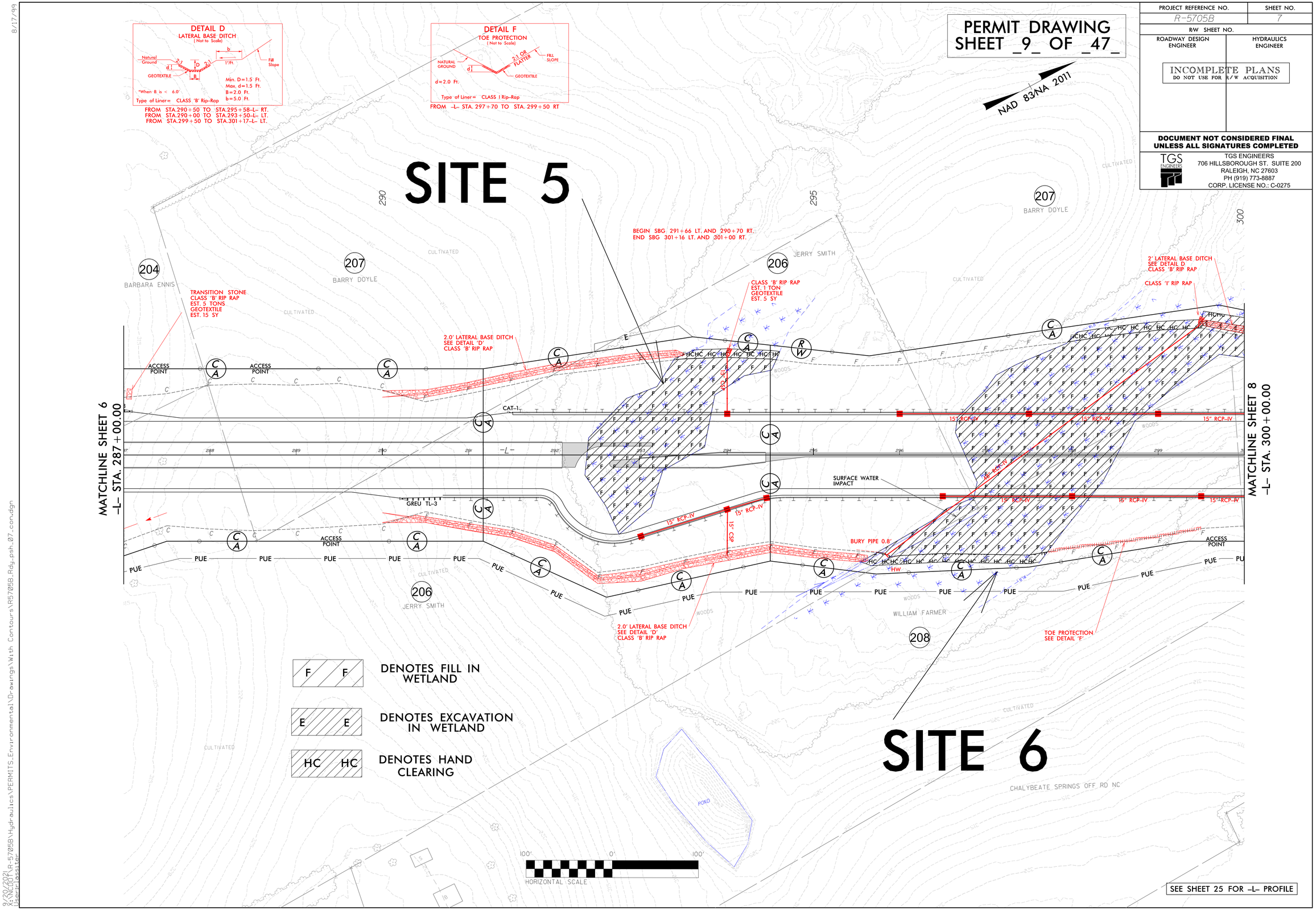
PROJECT REFERENCE NO.	SHEET NO.
R-5705B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _9_ OF _47_



SEE SHEET 25 FOR -L- PROFILE

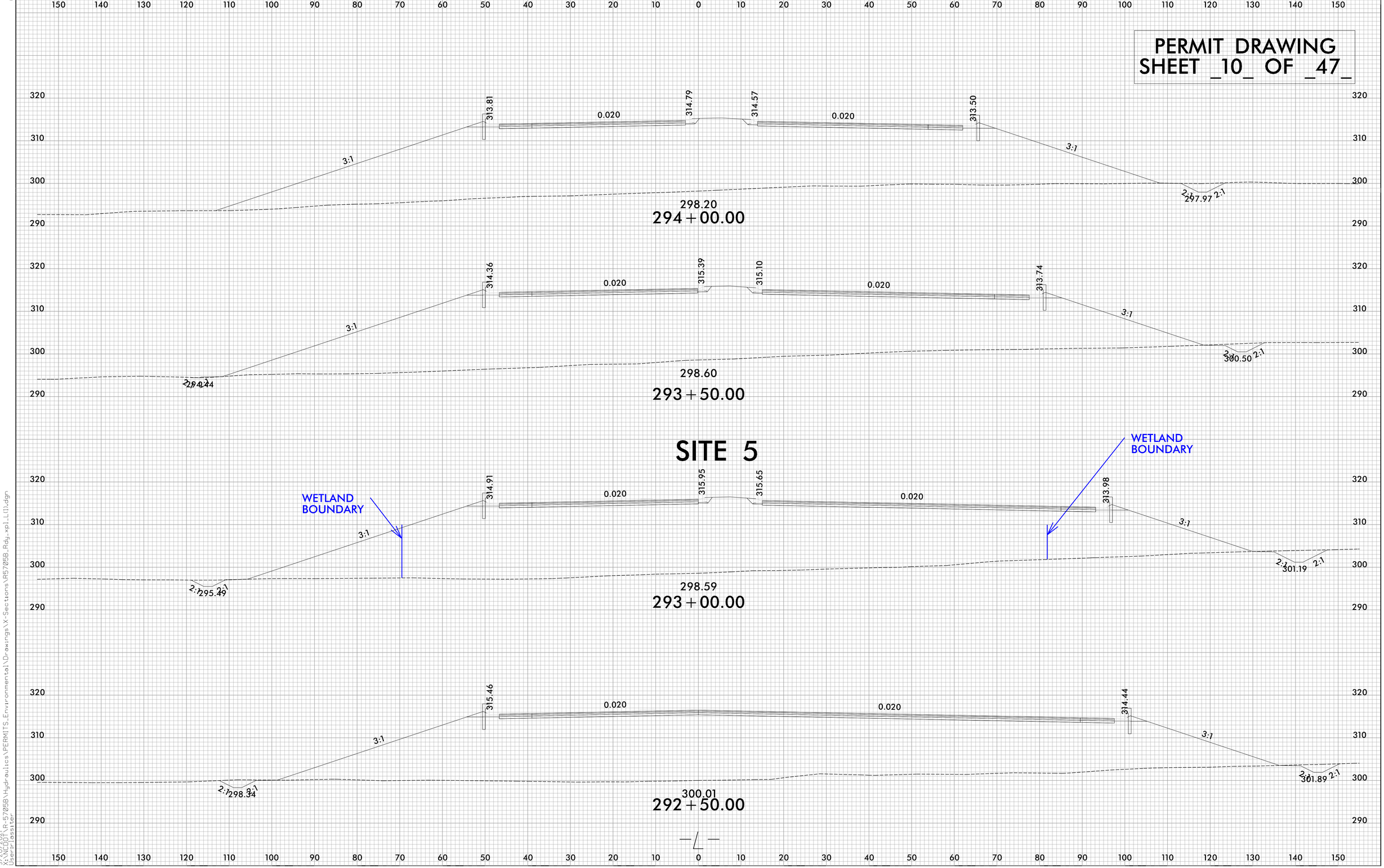
8/17/99

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_07_con.dgn
User:rlassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-18

PERMIT DRAWING
SHEET _10_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lossiter

Submitted 12/21/2021

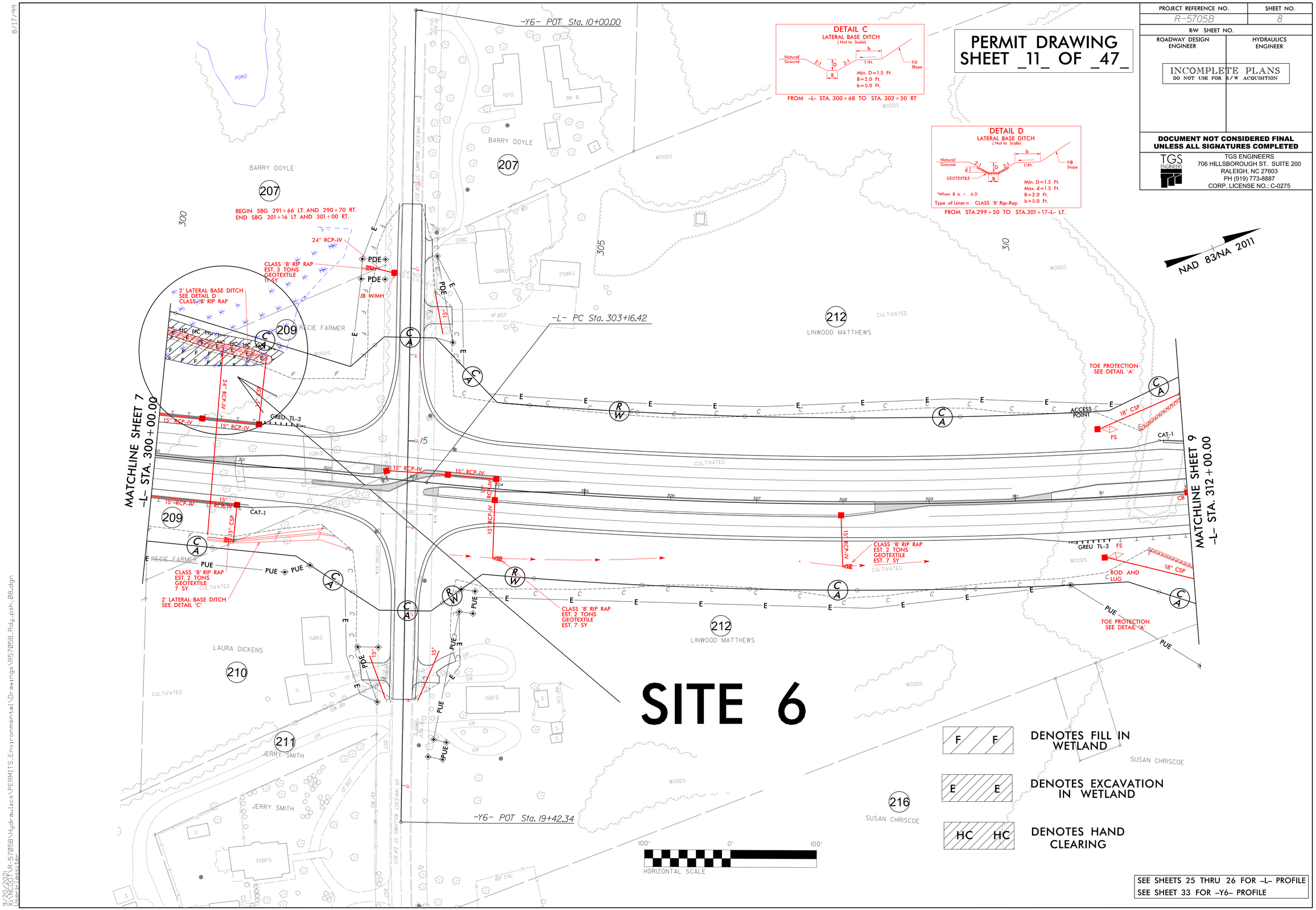
PROJECT REFERENCE NO.	SHEET NO.
R-5705B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _11_ OF _47_



SEE SHEETS 25 THRU 26 FOR -L- PROFILE
SEE SHEET 33 FOR -Y6- PROFILE

8/17/99

8/20/2021
R:\ROADWAY\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_08.dgn
User: lassiter

Submitted 12/21/2021

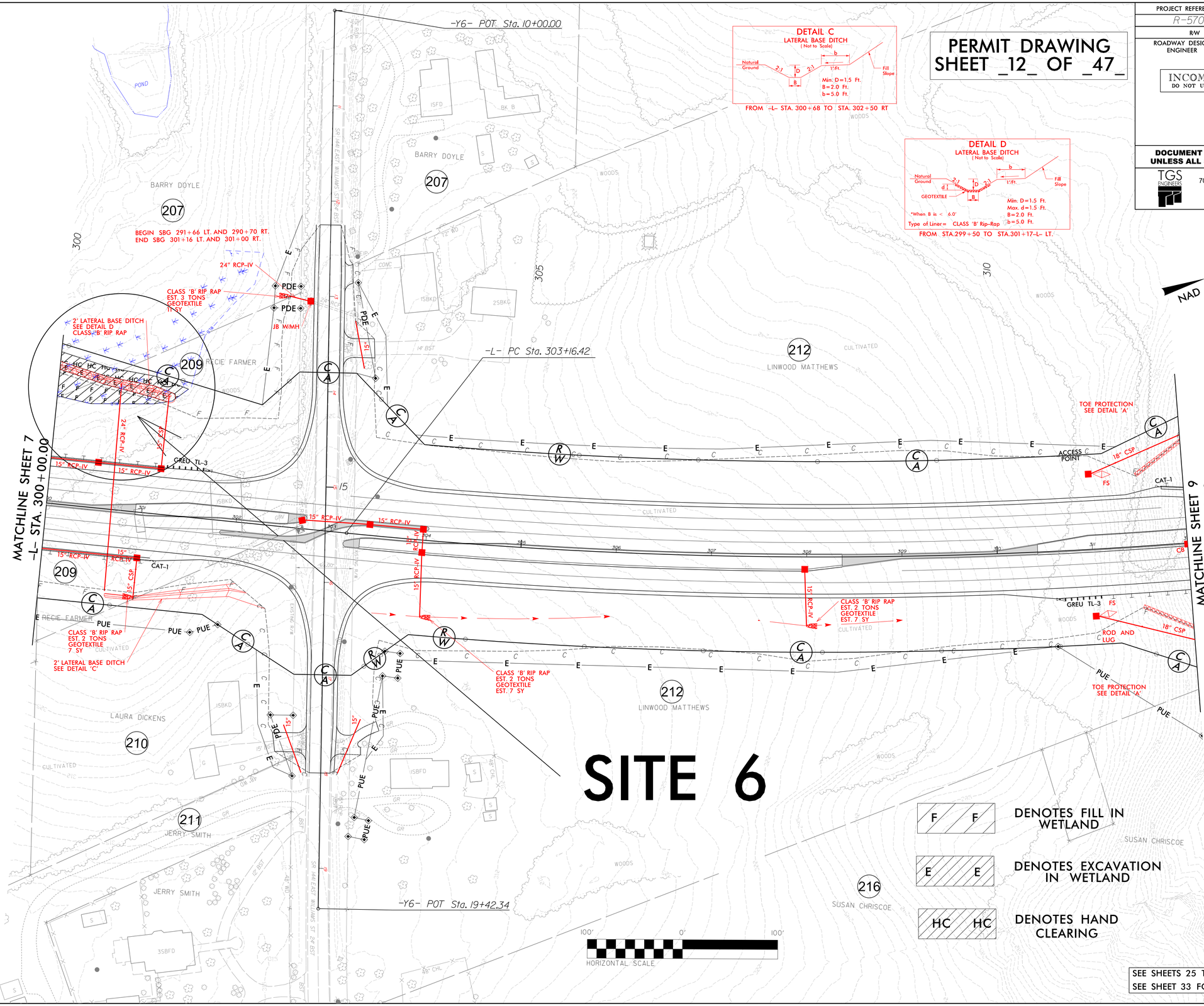
PROJECT REFERENCE NO.	SHEET NO.
R-5705B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _12_ OF _47_



SEE SHEETS 25 THRU 26 FOR -L- PROFILE
SEE SHEET 33 FOR -Y6- PROFILE

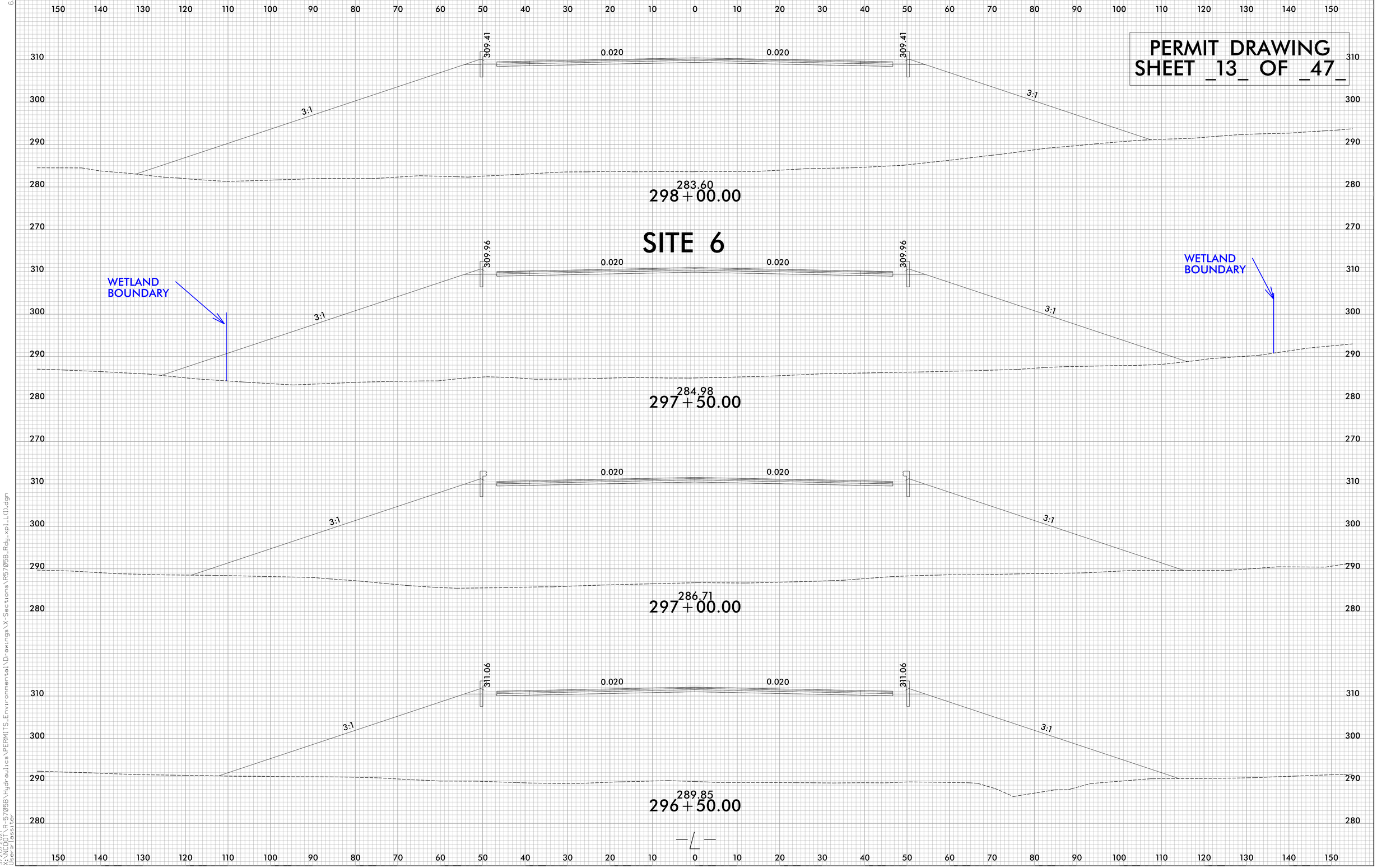
8/17/99

8/20/2021
R:\ROADWAY\PROJECTS\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_08_con.dgn
User: lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-20

PERMIT DRAWING
SHEET _13_ OF _47_



6/23/16

9/20/2021
X:\WORK\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lossiter

Submitted 12/21/2021

8/17/99

PERMIT DRAWING SHEET _14_ OF _47_

NAD 83/NA 2011

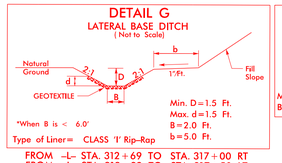
PROJECT REFERENCE NO.	SHEET NO.
R-5705B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

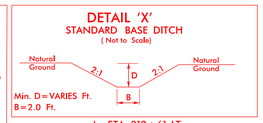
DETAIL G
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 'I' Rip-Rap

FROM -L- STA. 312+69 TO STA. 317+00 RT
FROM -L- STA. 313+82 TO STA. 317+50 LT

DETAIL 'X'
STANDARD BASE DITCH
(Not to Scale)



Min. D=VARIES Ft.
B=2.0 Ft.

-L- STA. 312+61 LT
FROM -L- STA. 312+56 TO STA. 312+74 RT

SITE 7

BEGIN SBG 311+87 LT. AND END SBG 315+75 LT.

SITE 8

MATCHLINE SHEET 8
-L- STA. 312+00.00

MATCHLINE SHEET 10
-L- STA. 326+00.00

-L- PT Sta. 317+84.22

2' STANDARD BASE DITCH
SEE DETAIL 'X'
EST. DDE=25 CY
L= 53'
S= 1.9%

CLASS 'B' RIP RAP
EST. 2 TONS

2' LAT. BASE DITCH
SEE DETAIL G
CLASS 'I' RIP RAP

18" CSP

15" RCP-IV

2GI

AT-1

SURFACE WATER IMPACT

2@ 7'x7' RCBC WITH SILLS

CAT-1

ACCESS POINT

PUE

CLASS 'B' RIP RAP
EST. 3 TONS
GEOTEXTILE
EST. 10 SY

2' STANDARD BASE DITCH
SEE DETAIL 'X'
EST. DDE=10 CY
L= 20'
S= 1.0%

212 LINWOOD MATTHEWS

218 ANN BLALOCK

217 DANNY HONEYCUTT

216 SUSAN CHRISCOE

WOODS

CULTIVATED

315 320 325

F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
P P	DENOTES IMPACTS IN SURFACE WATER (POND)
E E	DENOTES EXCAVATION IN WETLAND
* *	DENOTES MECHANIZED CLEARING
HC HC	DENOTES HAND CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
HORIZONTAL SCALE

SEE SHEET 26 FOR -L- PROFILE

8/20/2021
X:\WCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_09.dgn
User:lassiter

Submitted 12/21/2021

8/17/99

PERMIT DRAWING
SHEET _15_ OF _47_

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

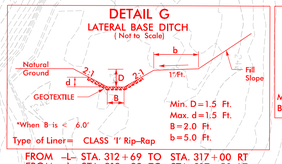
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NAD 83/NA 2011

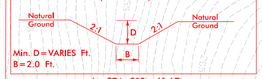
DETAIL G
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 'I' Rip-Rap

FROM -L- STA. 312+69 TO STA. 317+00 RT
FROM -L- STA. 313+82 TO STA. 317+50 LT

DETAIL 'X'
STANDARD BASE DITCH
(Not to Scale)



Min. D=VARIES Ft.
B=2.0 Ft.

-L- STA. 312+61 LT
FROM -L- STA. 312+56 TO STA. 312+74 RT

SITE 7

BEGIN SBG 311+87 LT. AND END SBG 315+75 LT.

SITE 8

MATCHLINE SHEET 8
-L- STA. 312+00.00

MATCHLINE SHEET 10
-L- STA. 326+00.00

-L- PT Sta. 317+84.22

2' STANDARD BASE DITCH
SEE DETAIL 'X'
EST. DDE=75 CY
L= 53'
S= 1.9%

CLASS 'B' RIP RAP
EST. 2 TONS

2' LAT. BASE DITCH
SEE DETAIL G
CLASS 'I' RIP RAP

18" CSP

15" RCP-IV

2GI

AT-1

SURFACE WATER IMPACT

2@ 7'x7' RCBC WITH SILLS

CAT-1

ACCESS POINT

PUE

CLASS 'B' RIP RAP
EST. 3 TONS
GEOTEXTILE
EST. 10 SY

2' STANDARD BASE DITCH
SEE DETAIL 'X'
EST. DDE=10 CY
L= 20'
S= 1.0%

212 LINWOOD MATTHEWS

218 ANN BLALOCK

217 DANNY HONEYCUTT

216 SUSAN CHRISCOE

CULTIVATED

WOODS

315 320 325

F F	DENOTES FILL IN WETLAND	
S S	DENOTES IMPACTS IN SURFACE WATER	
P P	DENOTES IMPACTS IN SURFACE WATER (POND)	
E E	DENOTES EXCAVATION IN WETLAND	
	DENOTES MECHANIZED CLEARING	
HC HC	DENOTES HAND CLEARING	
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER	

100' 0' 100'
HORIZONTAL SCALE

SEE SHEET 26 FOR -L- PROFILE

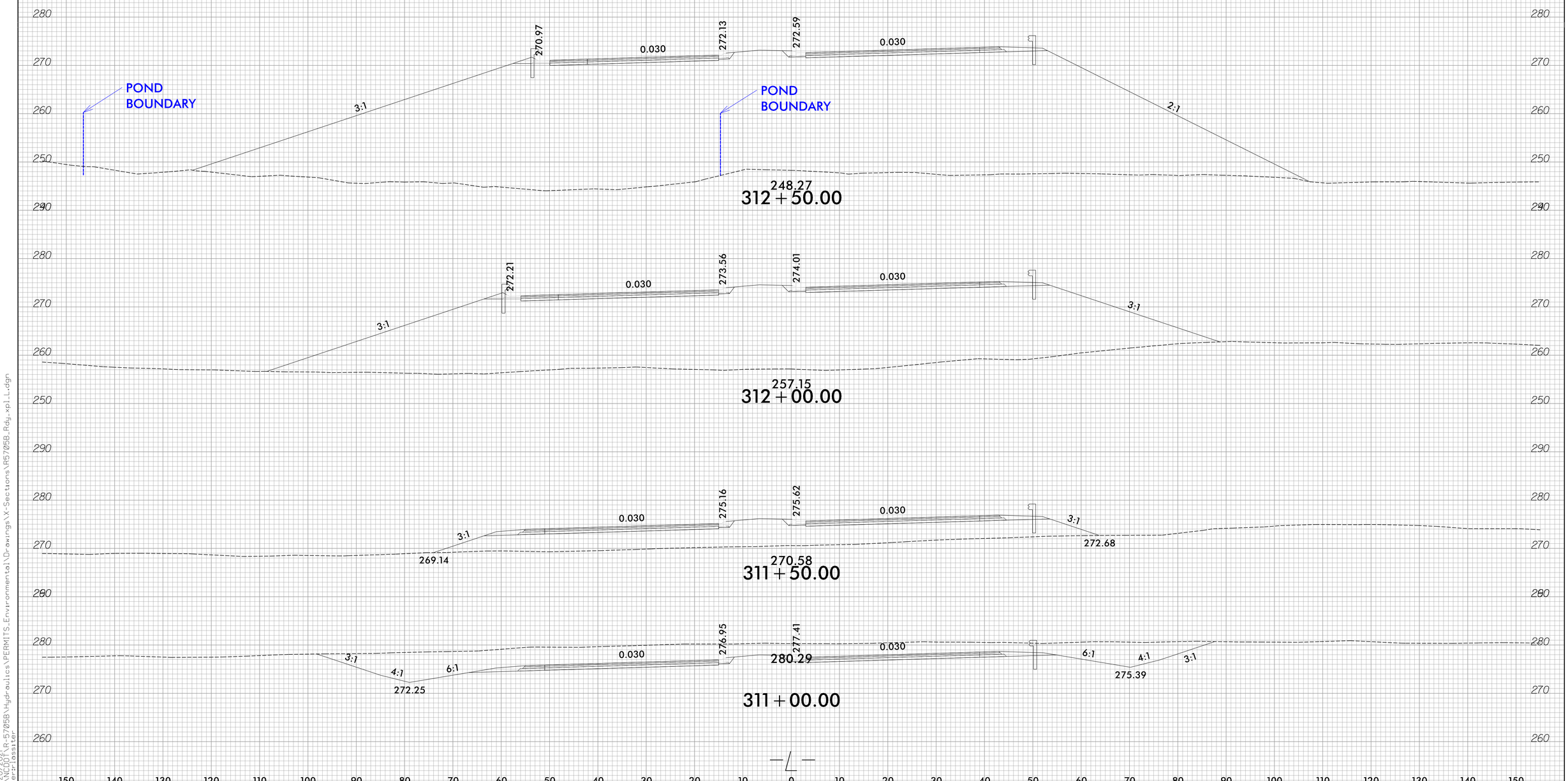
8/20/2021
R:\NCDOT\R-5705B\Hydraulics\PERMITS\Environmental\Drawings\With Contours\R5705B_Rdy_psh_09_con.dgn
User: lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-26

PERMIT DRAWING
SHEET _16_ OF _47_

SITE 7



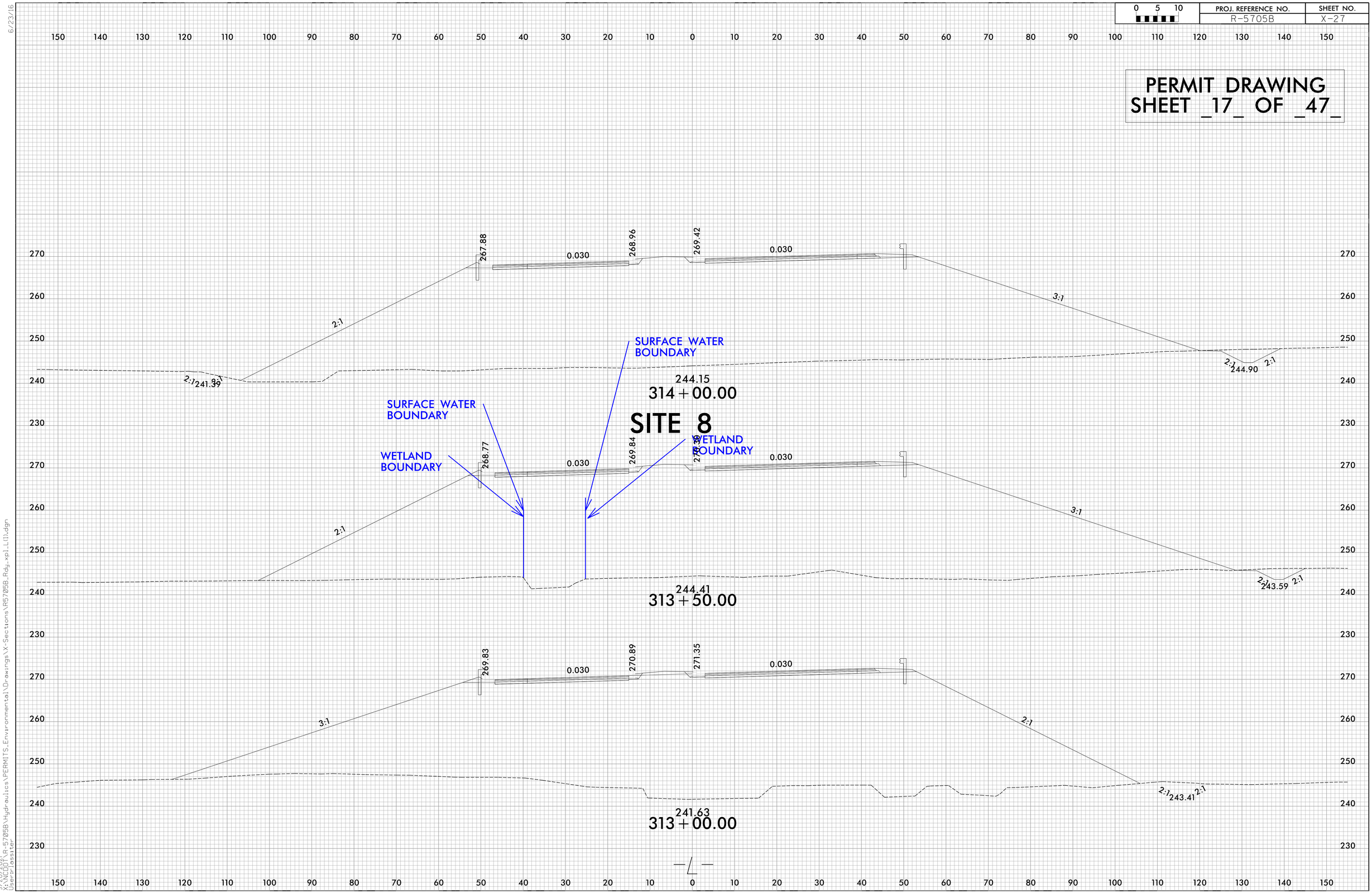
6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L.dgn
User:lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-27

PERMIT DRAWING
SHEET _17_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lassiter

PERMIT DRAWING
SHEET _18_ OF _47_

(NOT TO SCALE)

SKEWED MULTI–BARREL CULVERT LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN

*NOTES:

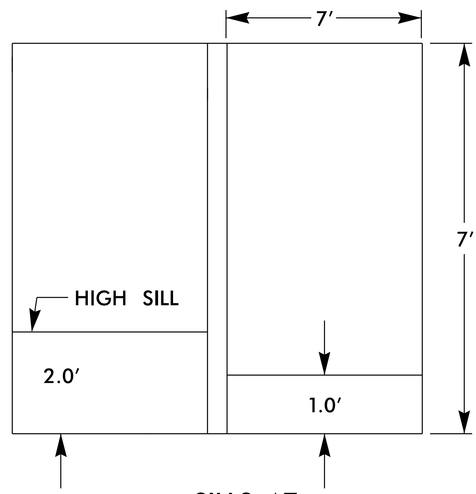
1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP–RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP–RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

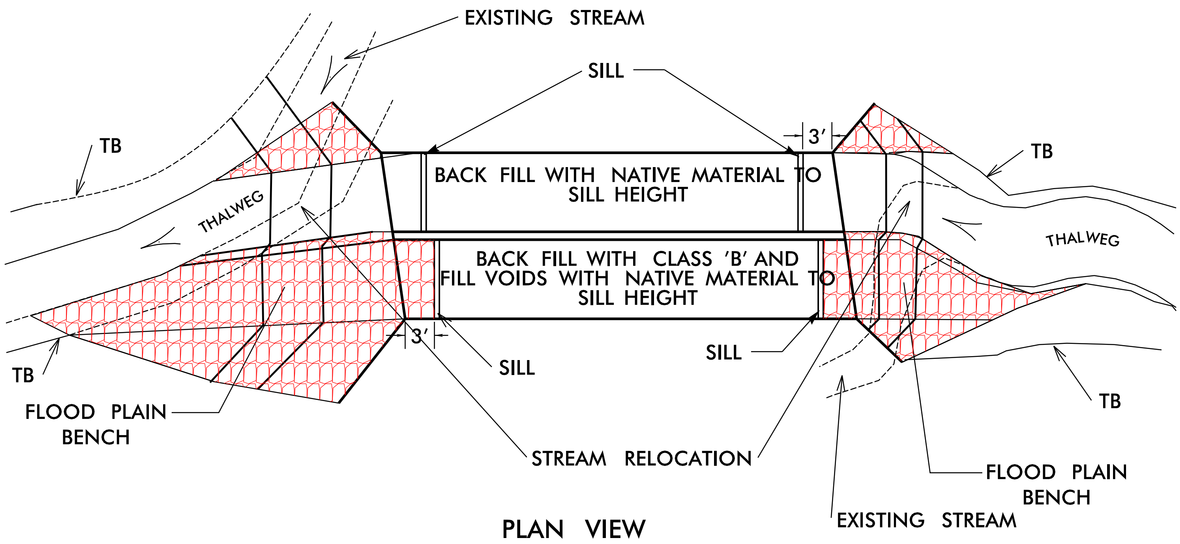
3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.

5) PLACE SILLS 3.0′ INSIDE INLET AND OUTLET



SILLS AT
INLET AND OUTLET



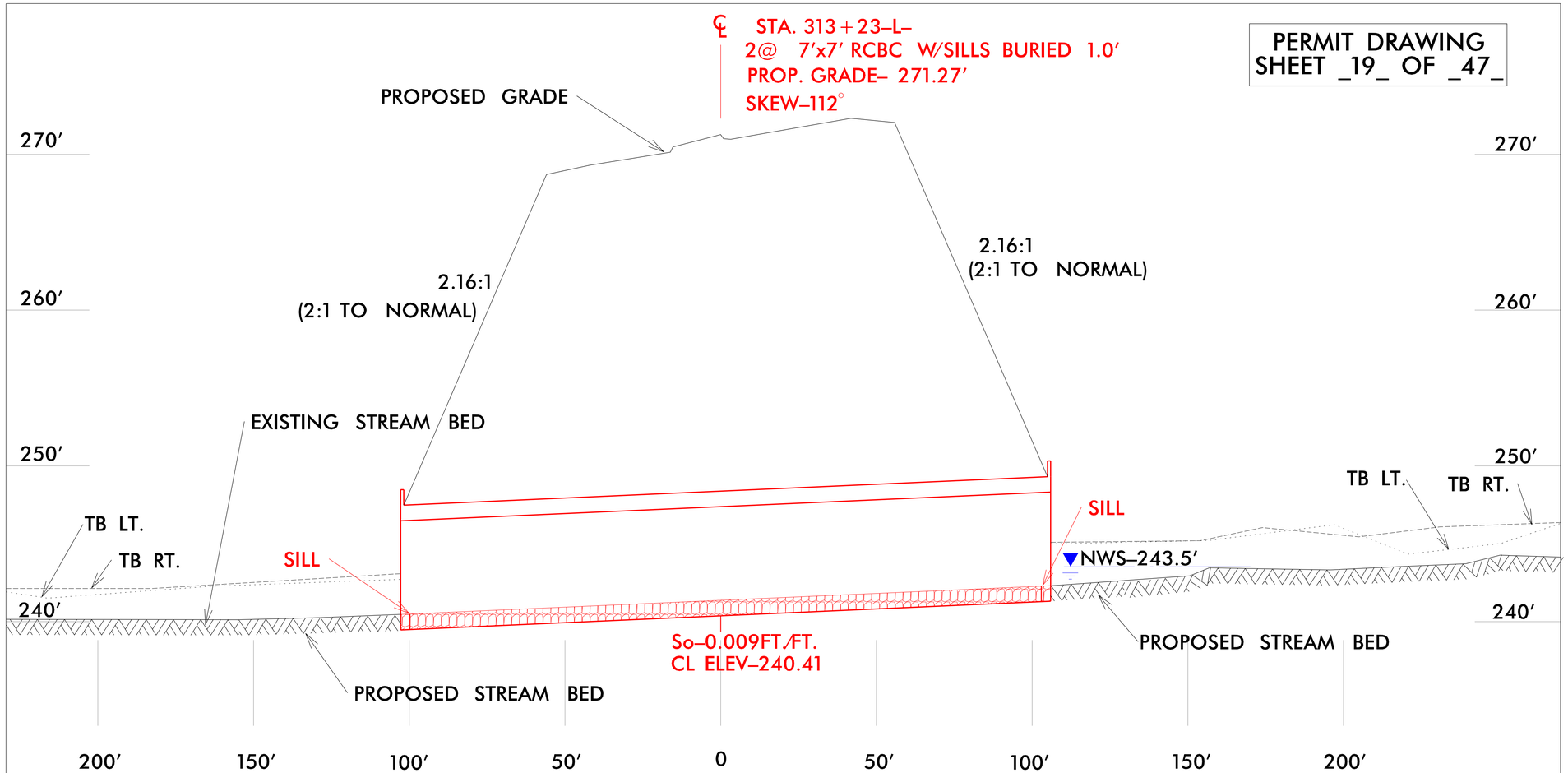
PLAN VIEW

CULVERT DETAIL SHEET

SITE 8

Submitted 12/21/2021

Submitted 12/21/2021



CULVERT AND STREAM PROFILE

SITE 8

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

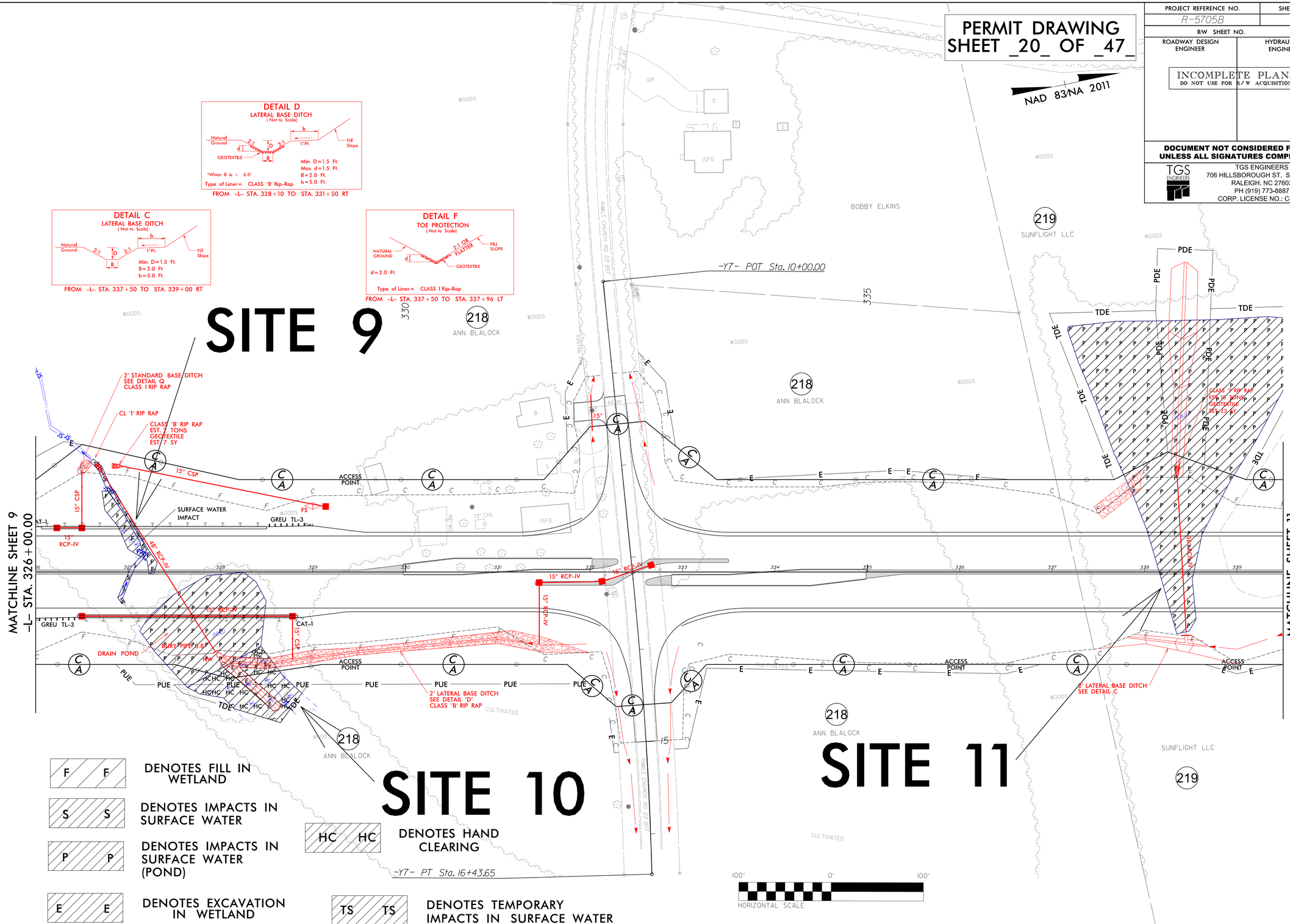
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _20_ OF _47_

NAD 83/NA 2011



SEE SHEETS 26 & 27 FOR -L- PROFILE
SEE SHEET 33 FOR -Y7- PROFILE

8/17/99

8/20/2021
X:\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_10.dgn
User: lassiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

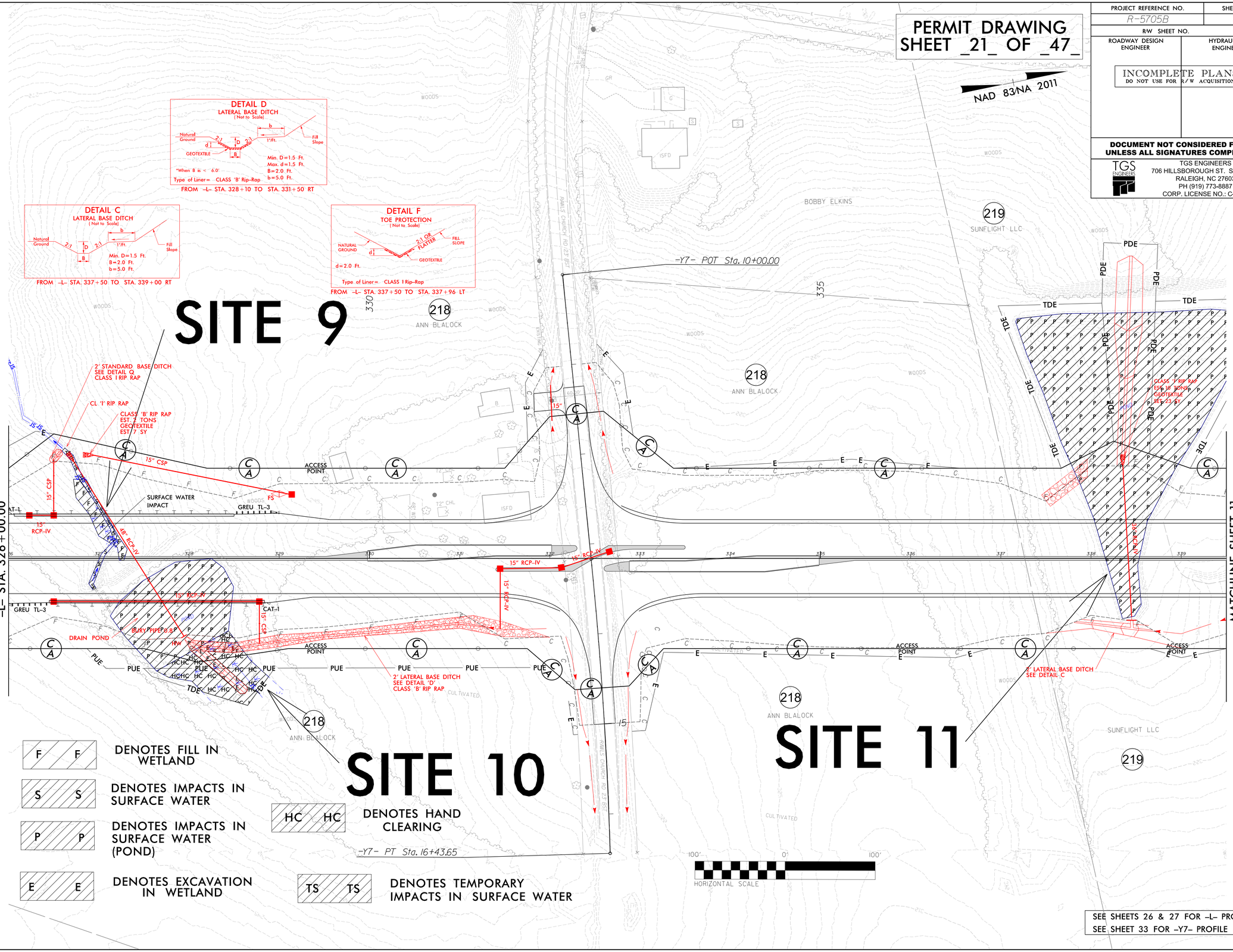
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _21_ OF _47_

NAD 83/NA 2011



F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
P P	DENOTES IMPACTS IN SURFACE WATER (POND)
E E	DENOTES EXCAVATION IN WETLAND
HC HC	DENOTES HAND CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEETS 26 & 27 FOR -L- PROFILE
SEE SHEET 33 FOR -Y7- PROFILE

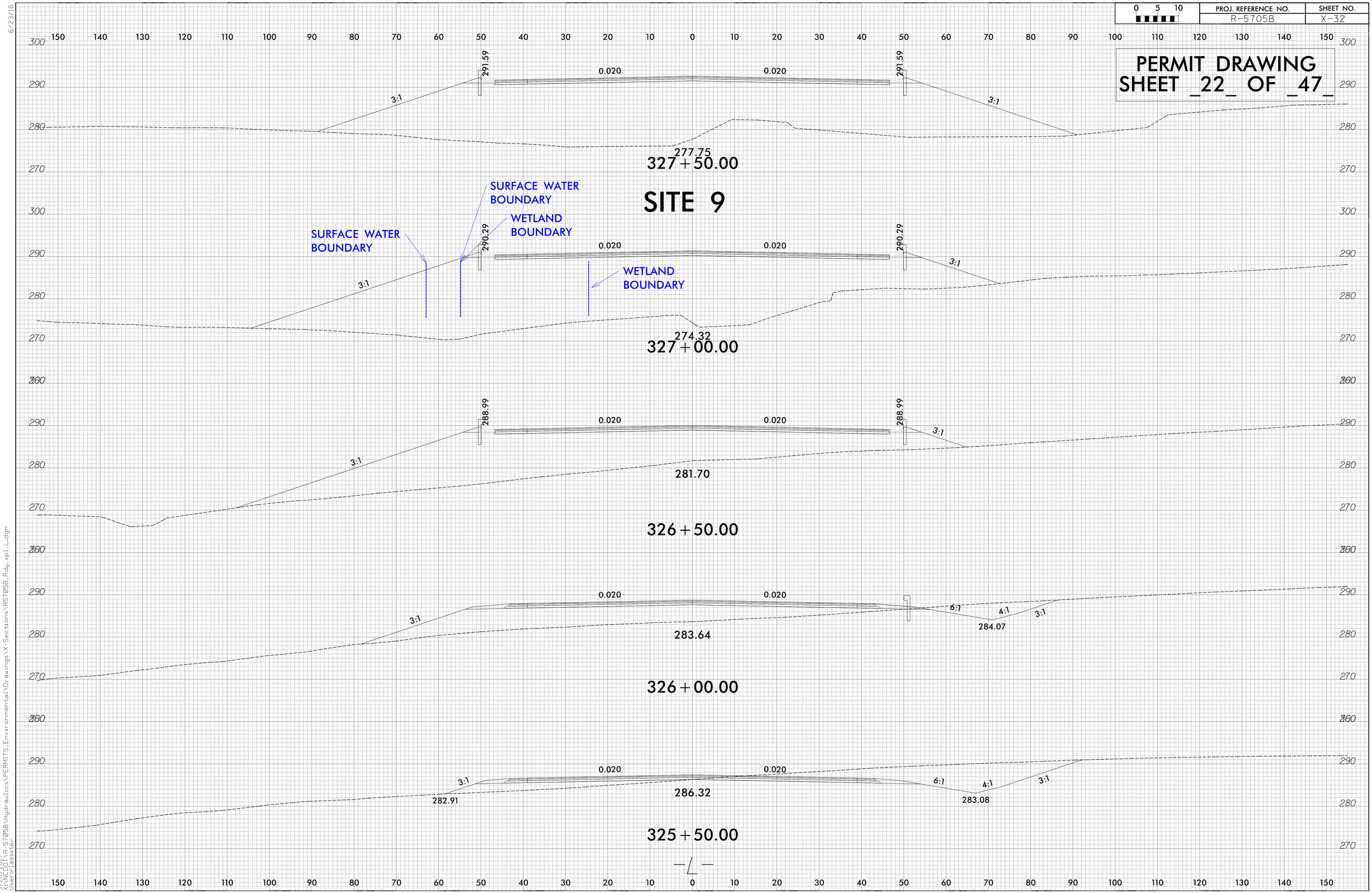
8/17/99

9/20/2021
X:\WGODF\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_10_con.dgn
User: lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-32

PERMIT DRAWING
SHEET _22_ OF _47_



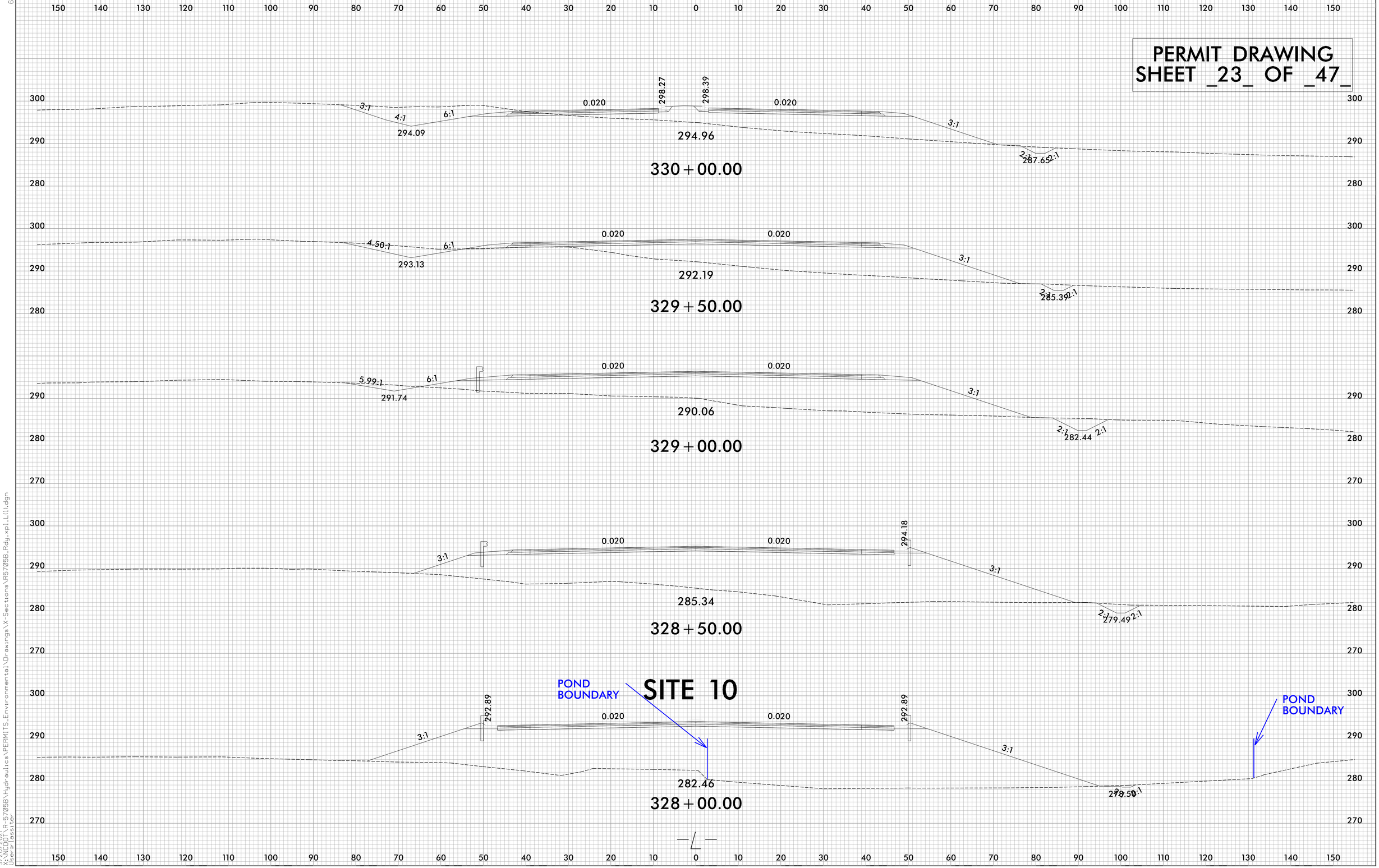
6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L.dgn
User:lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-33

PERMIT DRAWING
SHEET _23_ OF _47_



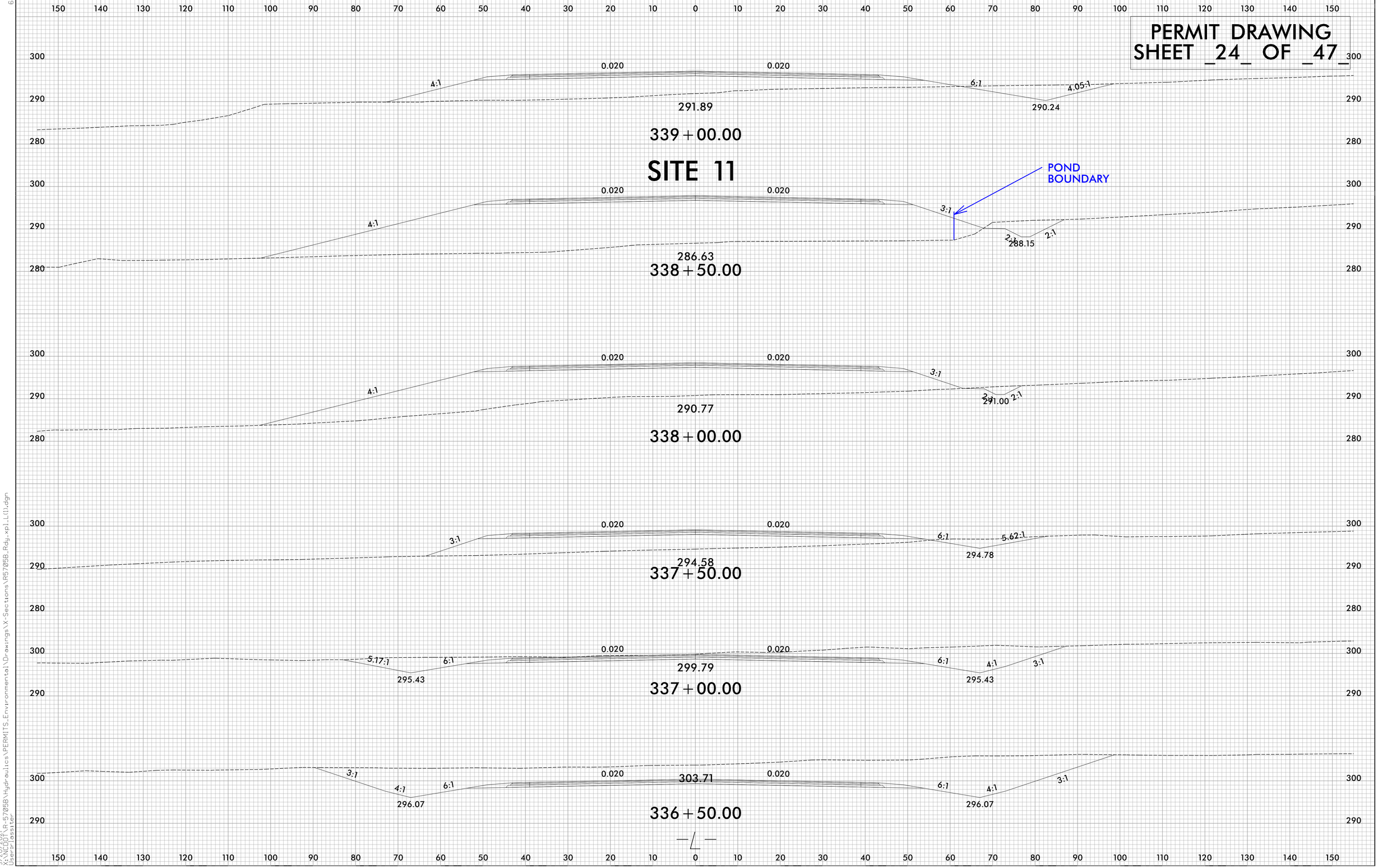
6/23/16

9/20/2021
X:\WCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-36

PERMIT DRAWING
SHEET _24_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lassiter

Submitted 12/21/2021

8/17/99

PERMIT DRAWING SHEET _25_ OF _47_

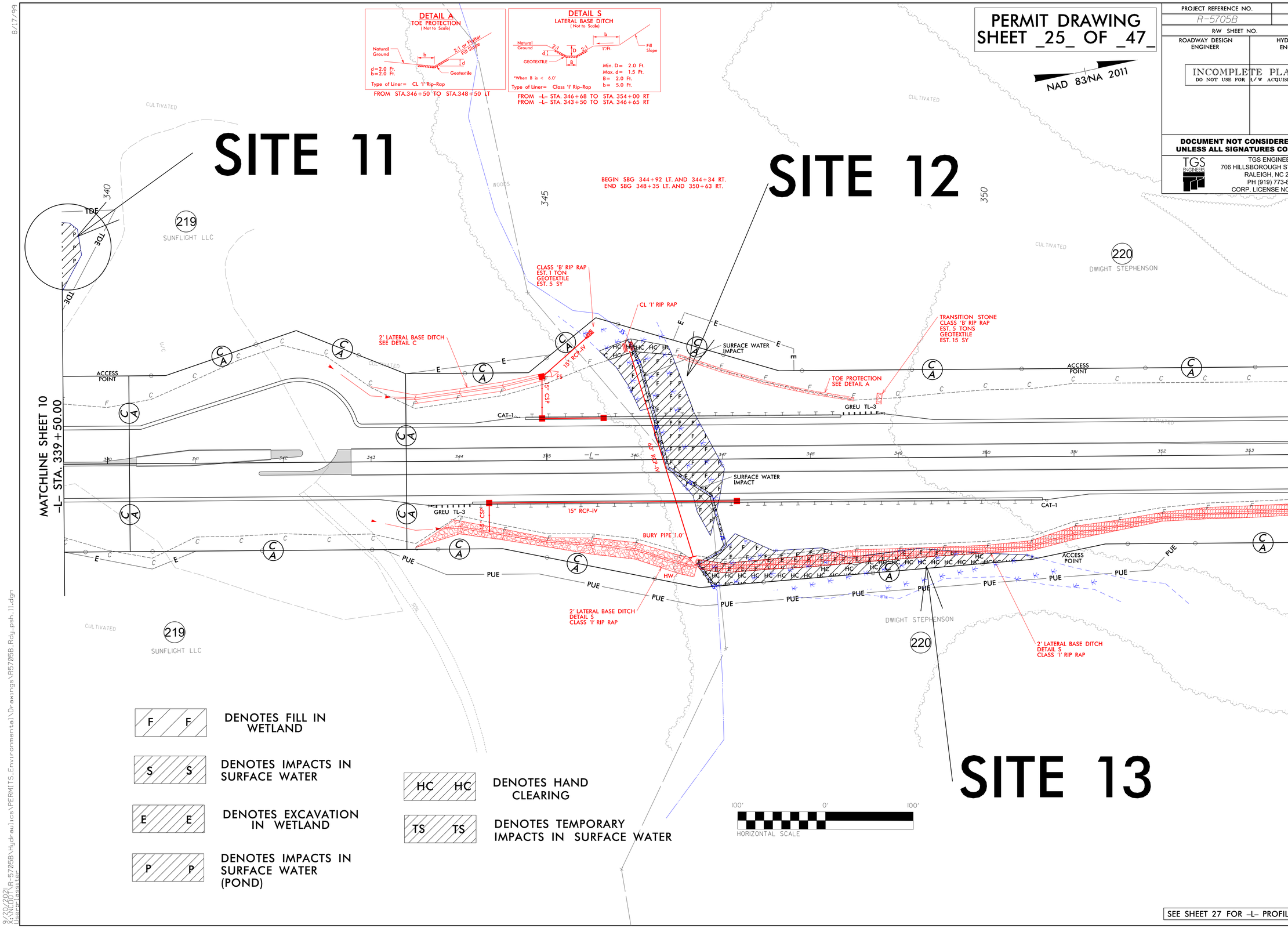
PROJECT REFERENCE NO.	SHEET NO.
R-5705B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NAD 83/NA 2011



SEE SHEET 27 FOR -L- PROFILE

8/20/2021
R:\ROUTE\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_11.dgn
User: jessiter

Submitted 12/21/2021

8/17/99

PERMIT DRAWING SHEET _26_ OF _47_

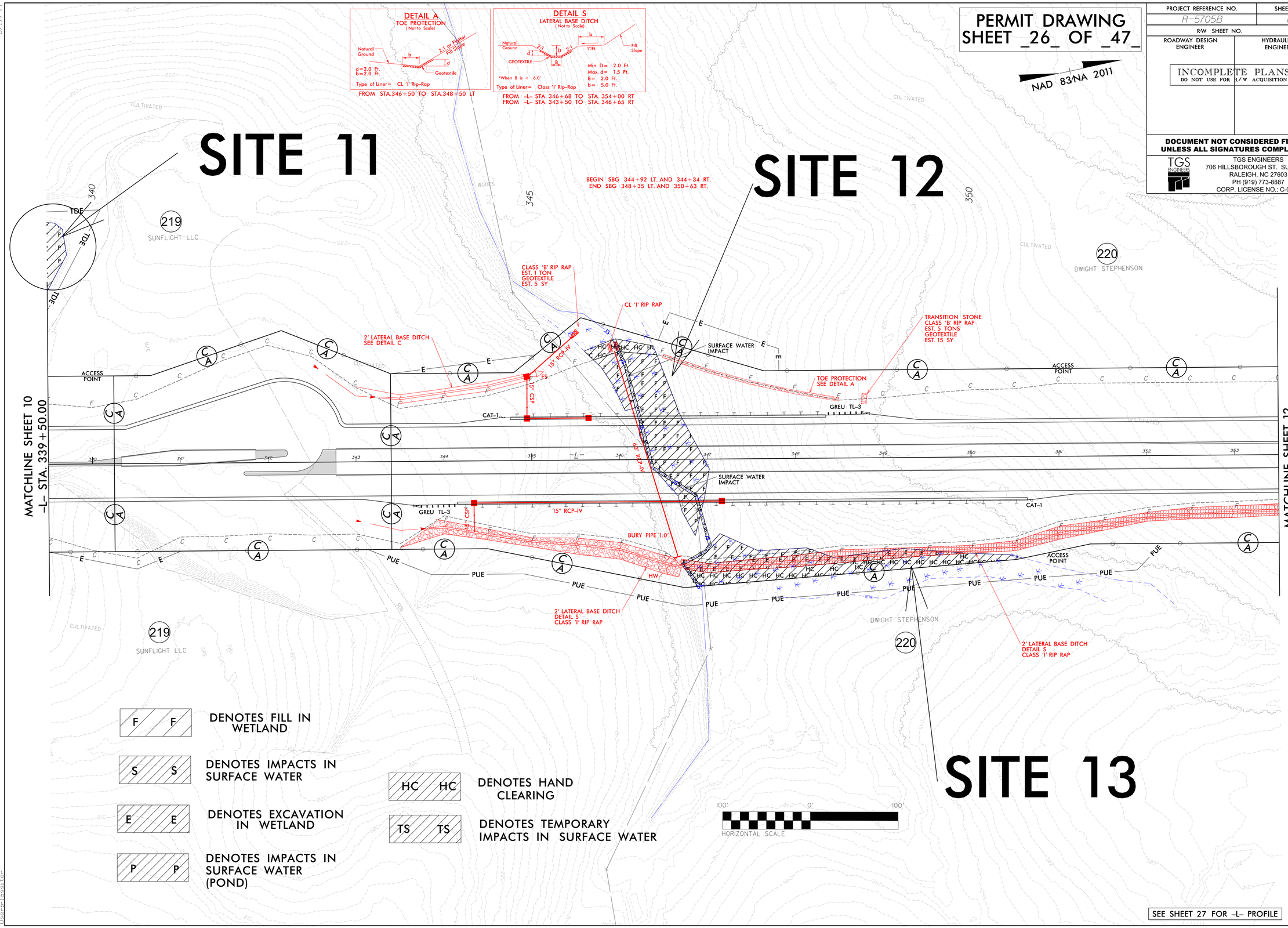
PROJECT REFERENCE NO.	SHEET NO.
R-5705B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NAD 83/NA 2011



SEE SHEET 27 FOR -L- PROFILE

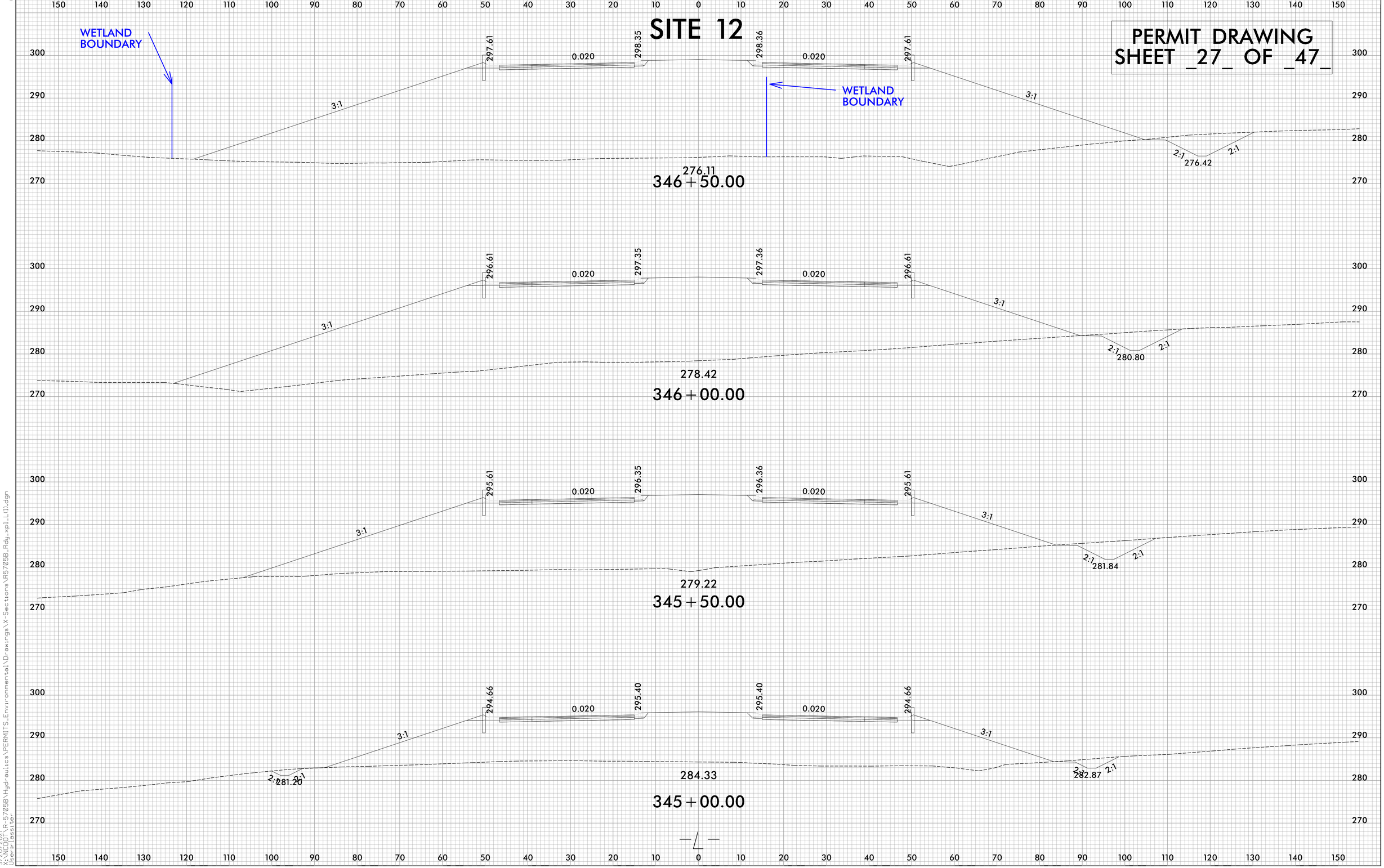
8/20/2021
R:\ROADWAY\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_11_con.dgn
User: jessier

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-39

SITE 12

PERMIT DRAWING
SHEET _27_ OF _47_



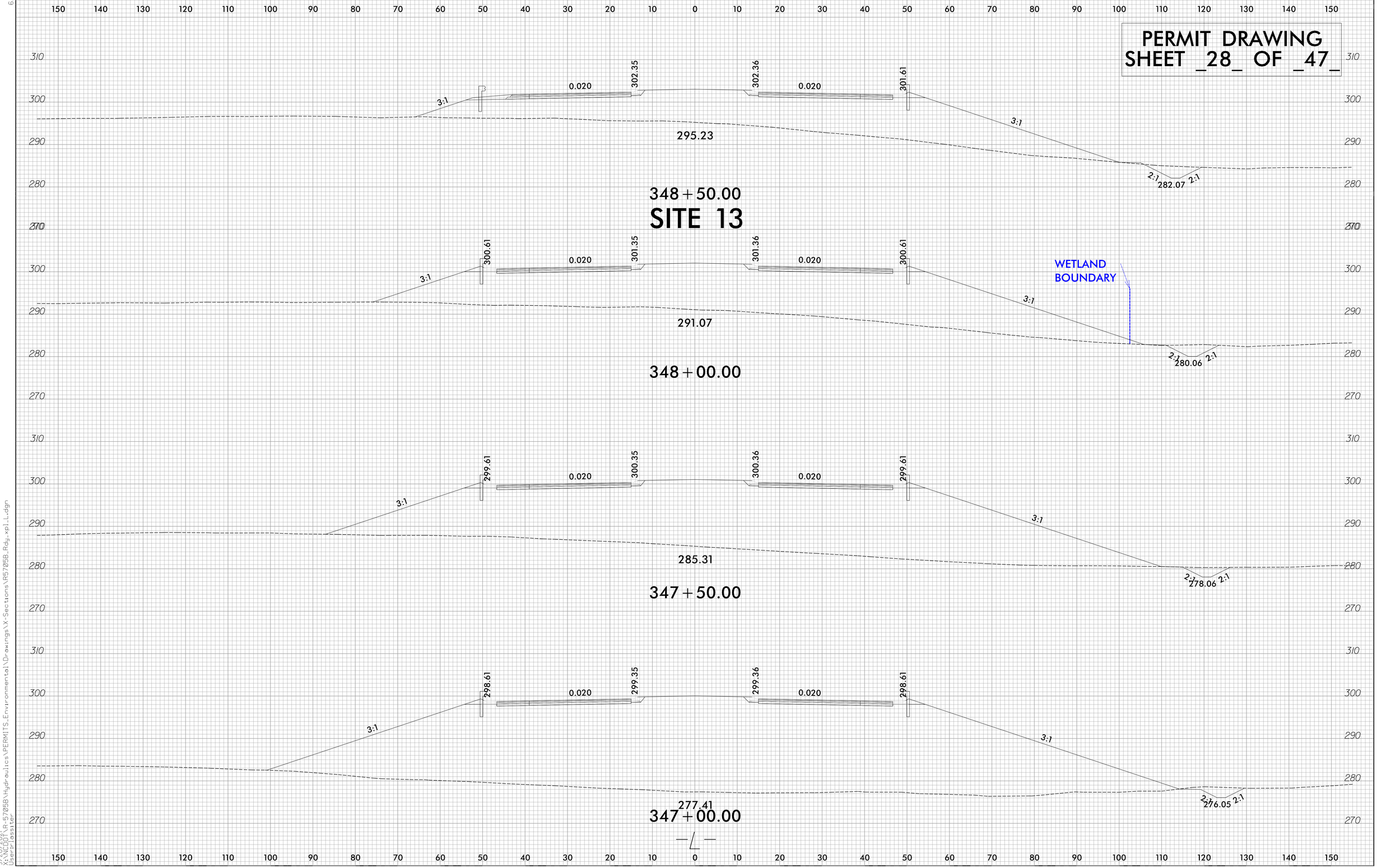
6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lossiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-40

PERMIT DRAWING
SHEET _28_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L.dgn
User:lassiter

Submitted 12/21/2021

8/17/99

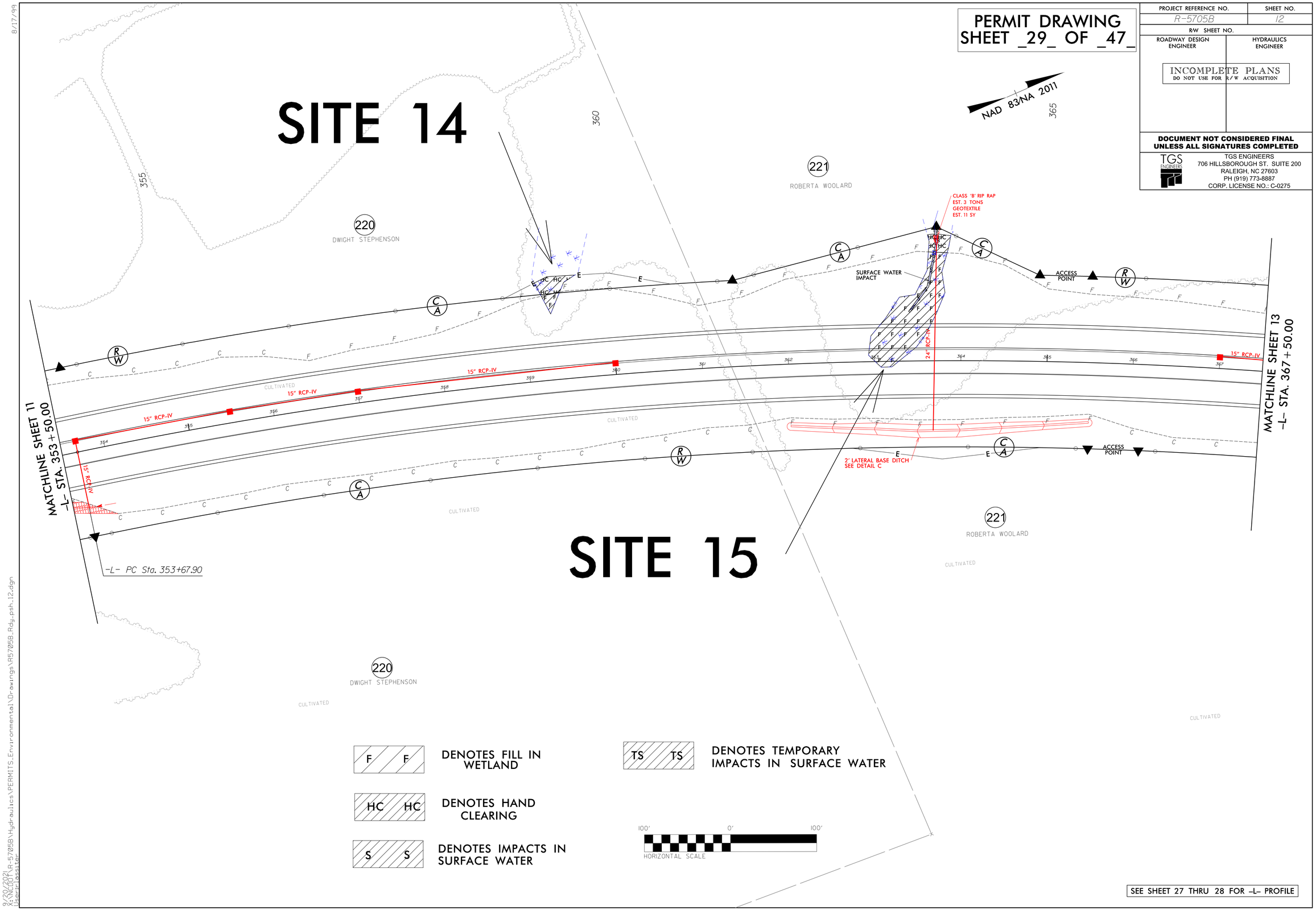
PERMIT DRAWING
SHEET _29_ OF _47_

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



SEE SHEET 27 THRU 28 FOR -L- PROFILE

8/20/2021
R:\R5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_12.dgn
User: jessiter

Submitted 12/21/2021

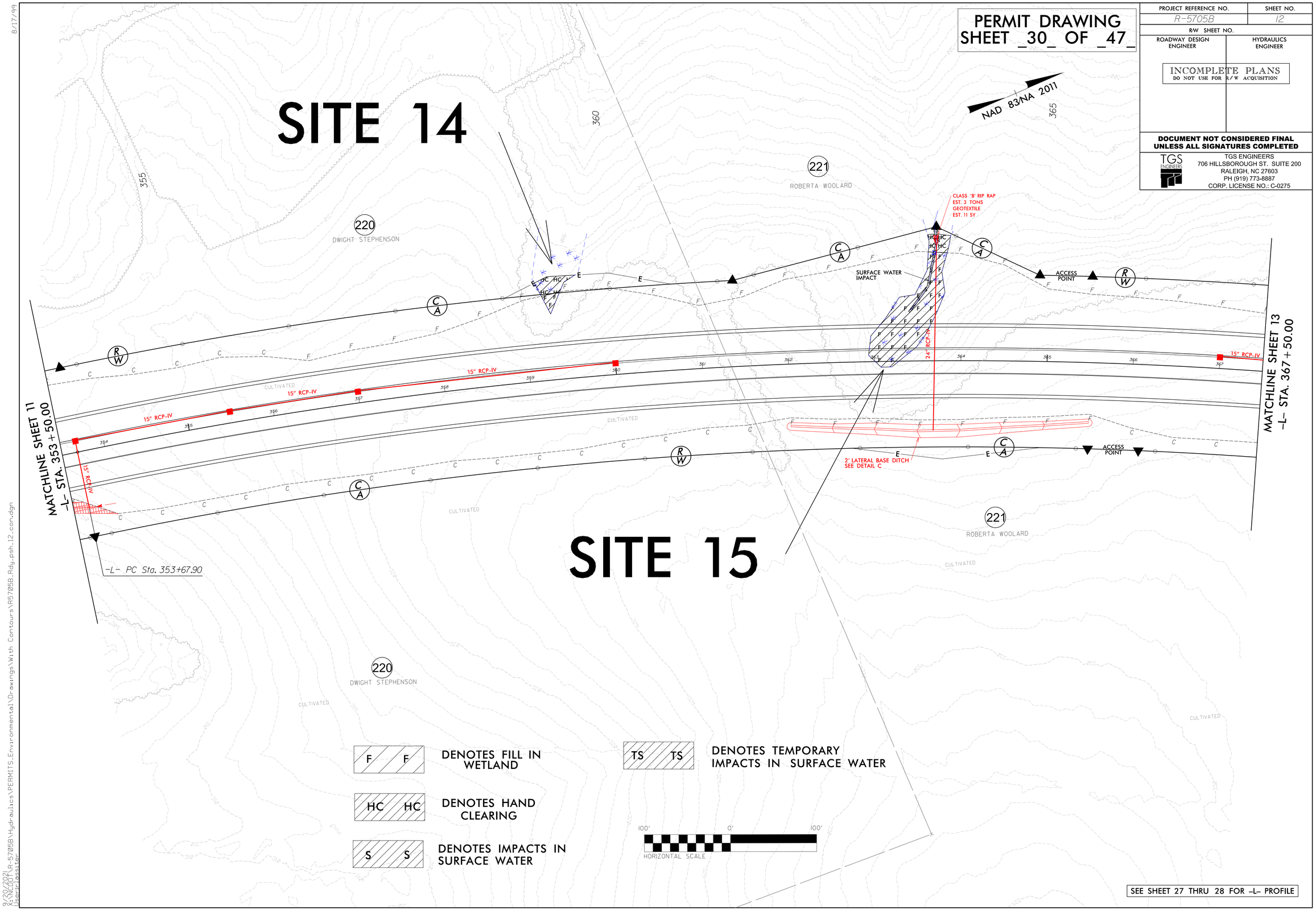
PROJECT REFERENCE NO.	SHEET NO.
R-5705B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _30_ OF _47_



SEE SHEET 27 THRU 28 FOR -L- PROFILE

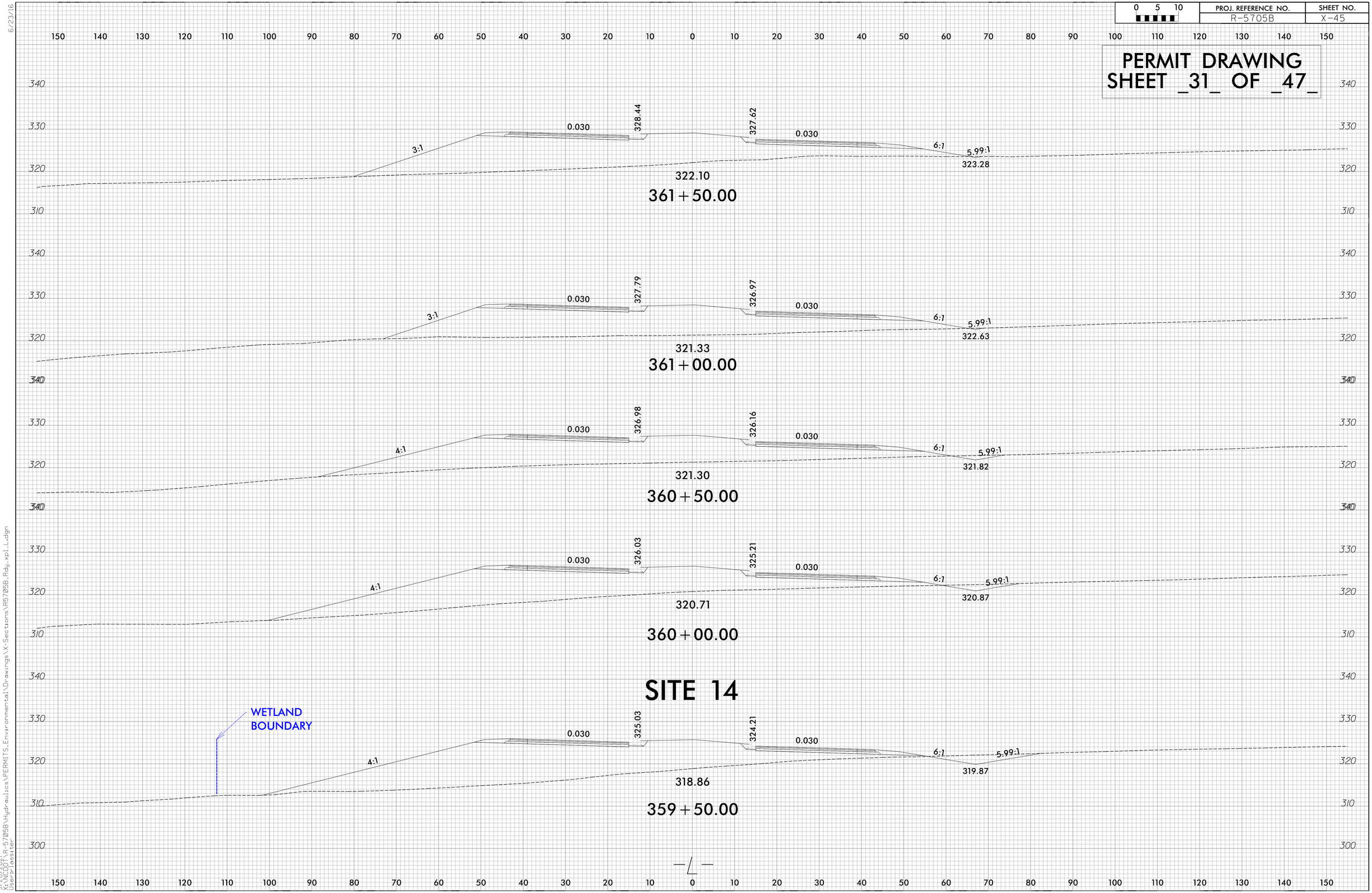
8/17/99

8/20/2021
R:\ROUTE\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_12_con.dgn
User: lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-45

PERMIT DRAWING
SHEET _31_ OF _47_



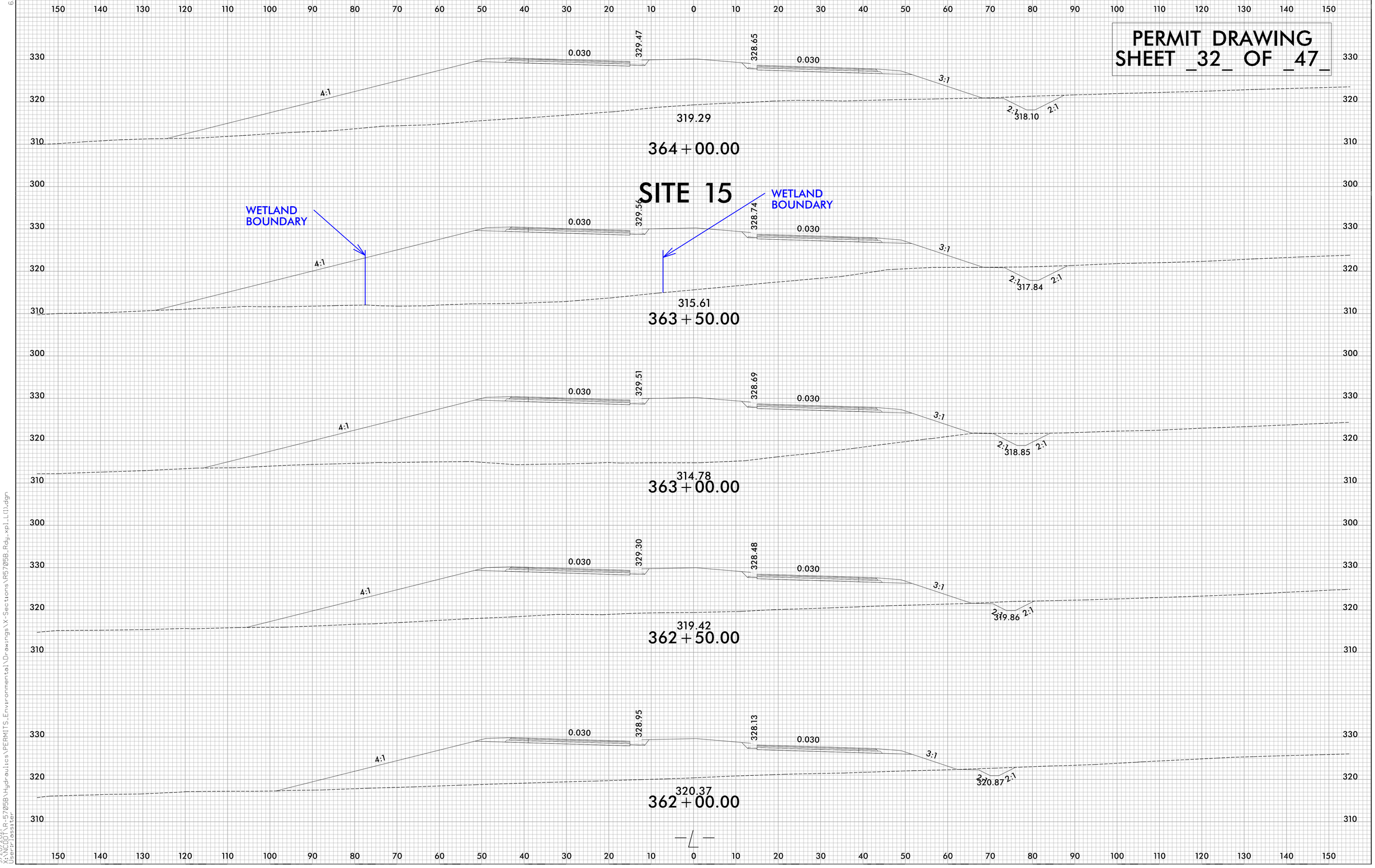
6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L.dgn
User:lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-46

PERMIT DRAWING
SHEET _32_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lossiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

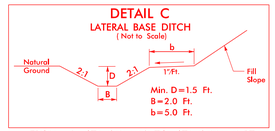
PERMIT DRAWING
SHEET _33_ OF _47_

NAD 83/NA 2011

SITE 16

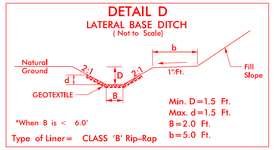
SITE 17

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



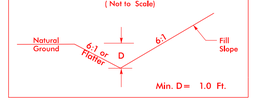
FROM –L– STA. 375+50 TO STA. 377+17 RT
FROM –L– STA. 370+50 TO STA. 372+07 RT
FROM –L– STA. 372+10 TO STA. 373+00 RT
FROM –L– STA. 380+00 TO STA. 381+50 RT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 377+28 TO STA. 380+00 RT
FROM –L– STA. 370+00 TO STA. 372+39 LT.

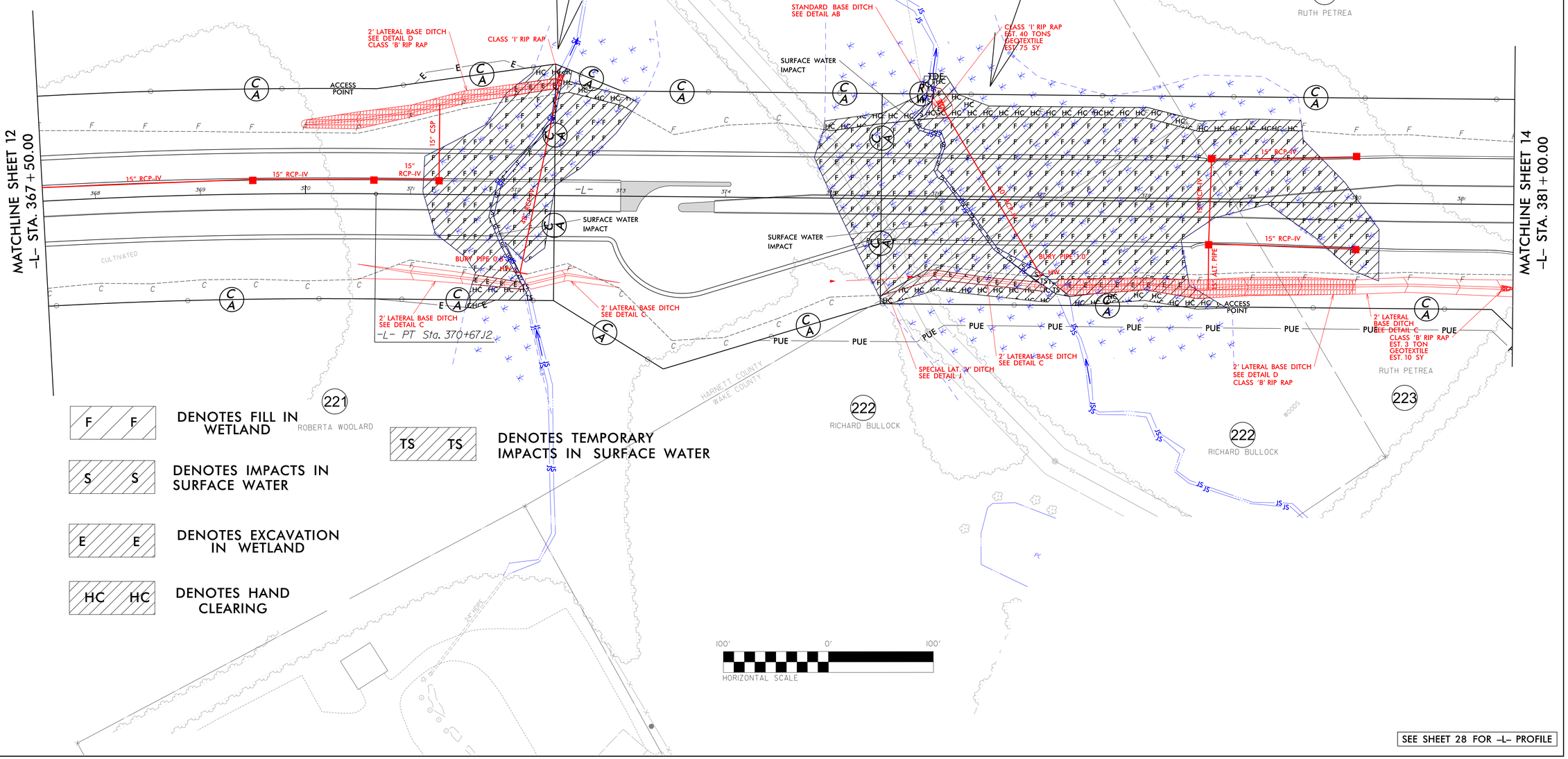
DETAIL J
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM –L– STA. 375+00 TO STA. 375+50 RT

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)

–L– STA. 376+07 LT



F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

HC HC DENOTES HAND CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 28 FOR –L– PROFILE

8/17/99

8/20/2021
X:\WORK\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_13.dgn
User: lassiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

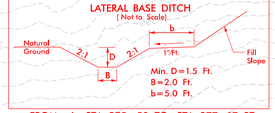
PERMIT DRAWING
SHEET _34_ OF _47_

NAD 83/NA 2011

SITE 16

SITE 17

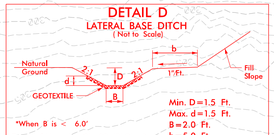
DETAIL C
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.

FROM -L- STA. 375+50 TO STA. 377+17 RT
FROM -L- STA. 370+50 TO STA. 372+07 RT
FROM -L- STA. 372+10 TO STA. 373+00 RT
FROM -L- STA. 380+00 TO STA. 381+50 RT

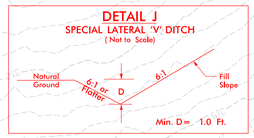
DETAIL D
LATERAL BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.
Type of Liner= CLASS 'B' Rip-Rap

FROM -L- STA. 377+28 TO STA. 380+00 RT
FROM -L- STA. 370+00 TO STA. 372+39 LT.

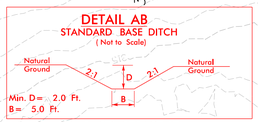
DETAIL J
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.

FROM -L- STA. 375+00 TO STA. 375+50 RT

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



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

-L- STA. 376+07 LT

MATCHLINE SHEET 12
-L- STA. 367+50.00

MATCHLINE SHEET 14
-L- STA. 381+00.00

2' LATERAL BASE DITCH
SEE DETAIL D
CLASS 'B' RIP RAP

CLASS 'I' RIP RAP

STANDARD BASE DITCH
SEE DETAIL AB

CLASS 'I' RIP RAP
EST. 40 TONS
GEOTEXTILE
EST. 75 SY

ACCESS POINT

SURFACE WATER IMPACT

15" CSP

15" RCP-IV

BURY PIPE 0.6'

BURY PIPE 1.0'

ALT. PIPE

2' LATERAL BASE DITCH
SEE DETAIL C

-L- PT Sta. 370+67.12

2' LATERAL BASE DITCH
SEE DETAIL C
CLASS 'B' RIP RAP
EST. 3 TON
GEOTEXTILE
EST. 10 SY

SPECIAL LAT. 'V' DITCH
SEE DETAIL J

2' LATERAL BASE DITCH
SEE DETAIL D
CLASS 'B' RIP RAP

PUE

ROBERTA WOOLARD

RUTH PETREA

RICHARD BULLOCK

WAKE COUNTY
HARNETT COUNTY

CULTIVATED

WOODS

F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
E E	DENOTES EXCAVATION IN WETLAND
HC HC	DENOTES HAND CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
HORIZONTAL SCALE

SEE SHEET 28 FOR -L- PROFILE

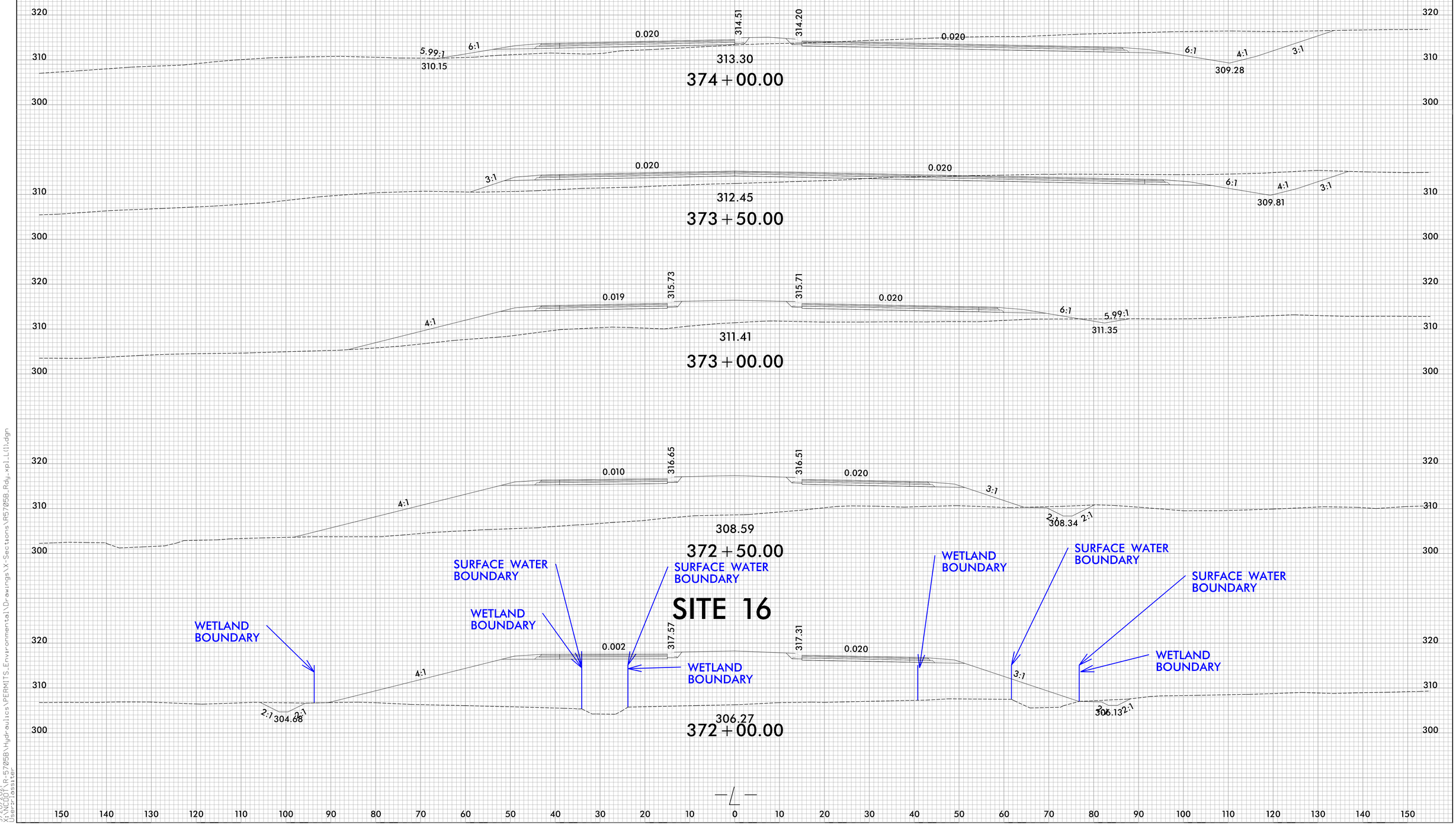
8/17/99

8/20/2021
R:\ROADWAY\PROJECTS\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_13_con.dgn
User: lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-50

PERMIT DRAWING
SHEET _35_ OF _47_



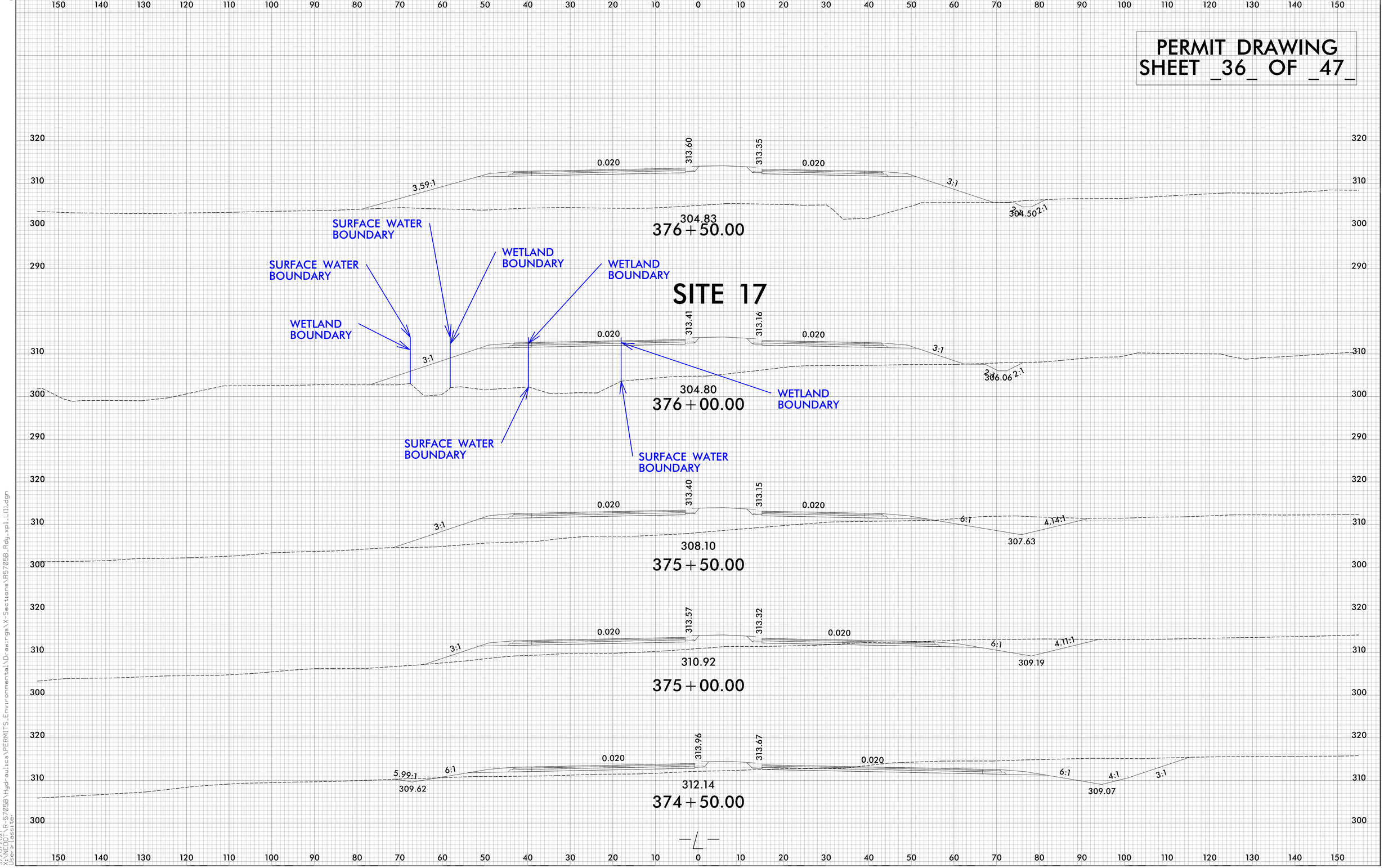
6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-51

PERMIT DRAWING
SHEET _36_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lossiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

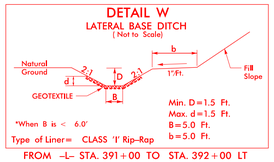
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING SHEET _37_ OF _47_

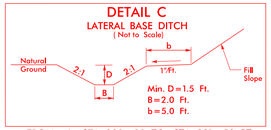
NAD 83/NA 2011

DETAIL W
LATERAL BASE DITCH
(Not to Scale)



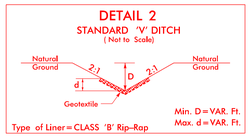
Type of Liner= CLASS 'I' Rip-Rap
FROM -L- STA. 391+00 TO STA. 392+00 LT

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



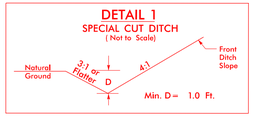
FROM -L- STA. 380+00 TO STA. 381+50 RT
FROM -Y8- STA. 12+92 TO STA. 13+00 RT

DETAIL 2
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner=CLASS 'B' Rip-Rap
FROM STA. 17+00 -Y22- LT.

DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)



FROM -Y22- STA. 11+00 TO STA. 12+30 RT
FROM -Y22- STA. 14+63 TO STA. 16+50 RT.

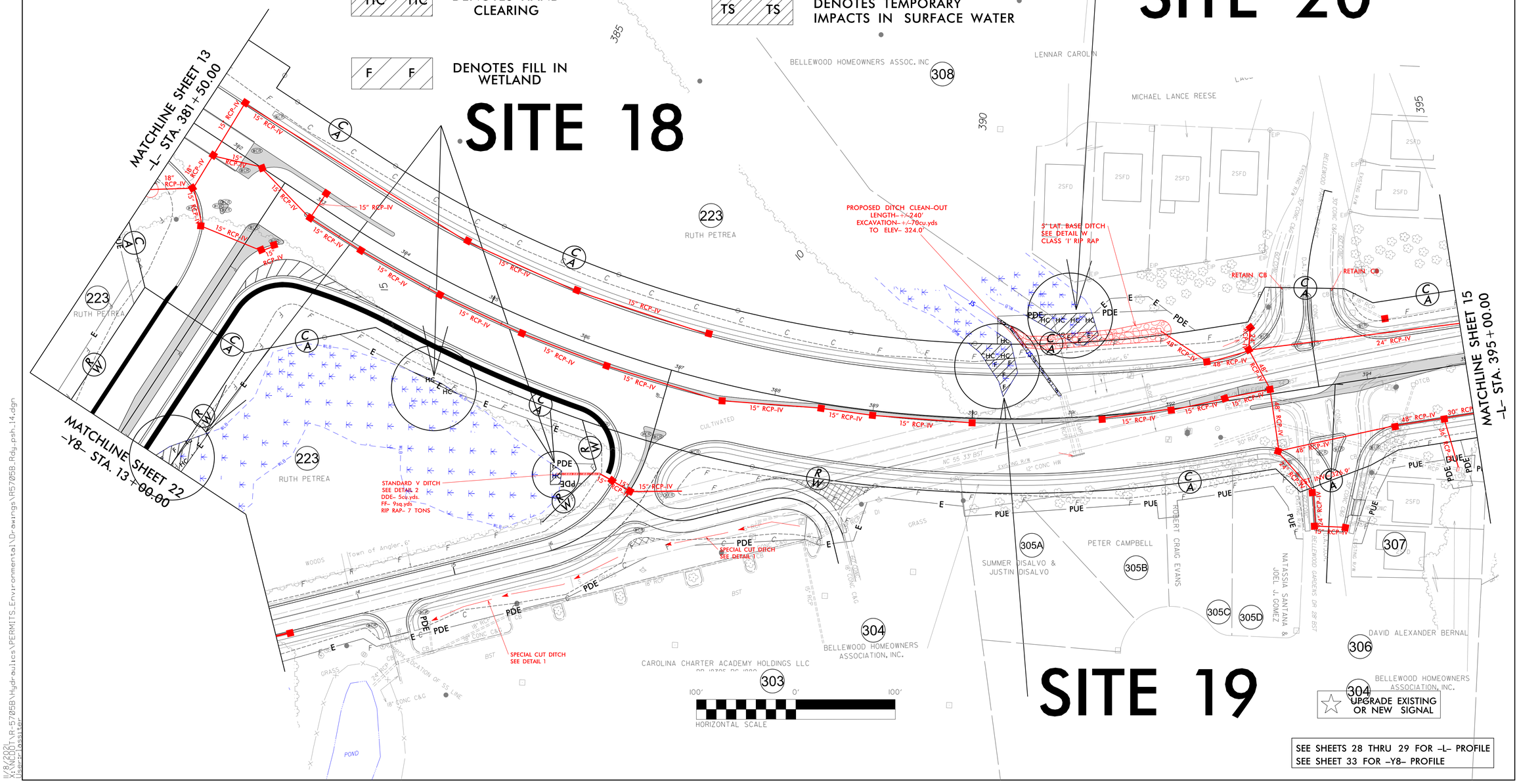
S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



SEE SHEETS 28 THRU 29 FOR -L- PROFILE
SEE SHEET 33 FOR -Y8- PROFILE

8/17/99

V8(202)
V:\MCDOT\R-5705B\Hydraulics\PERMITS.Environmental\Drawings\R5705B.Rdy.psh.14.dgn
User:jessler

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

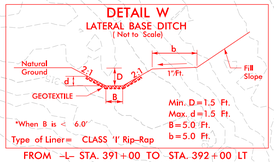
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _38_ OF _47_

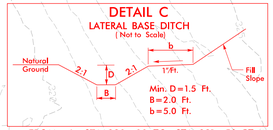
NAD 83/NA 2011

DETAIL W
LATERAL BASE DITCH
(Not to Scale)



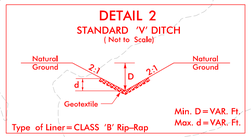
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=5.0 Ft.
b=5.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 'I' Rip-Rap
FROM –L– STA. 391+00 TO STA. 392+00 LT

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.
FROM –L– STA. 380+00 TO STA. 381+50 RT
FROM –Y8– STA. 12+92 TO STA. 13+00 RT

DETAIL 2
STANDARD 'V' DITCH
(Not to Scale)



Min. D=VAR. Ft.
Max. d=VAR. Ft.
Type of Liner=CLASS 'B' Rip-Rap
FROM STA. 17+00 –Y22– LT.

DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1.0 Ft.
FROM –Y22– STA. 11+00 TO STA. 12+30 RT
FROM –Y22– STA. 14+63 TO STA. 16+50 RT.

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 18

SITE 20

SITE 19

MATCHLINE SHEET 13
–L– STA. 381+50.00

MATCHLINE SHEET 22
–Y8– STA. 13+00.00

MATCHLINE SHEET 15
–L– STA. 395+00.00

PROPOSED DITCH CLEAN-OUT
LENGTH- +-240'
EXCAVATION- +/-70cu.yds
TO ELEV- 324.0'

5' LAT. BASE DITCH
SEE DETAIL W
CLASS 'I' RIP RAP

STANDARD V DITCH
SEE DETAIL 2
DDE- 5cu.yds.
FF- 9sq.yds
RIP RAP- 7 TONS

SPECIAL CUT DITCH
SEE DETAIL 1

SPECIAL CUT DITCH
SEE DETAIL 1

RETAIN CB

RETAIN CB

15" RCP-IV
18" RCP-IV
24" RCP-IV
30" RCP
48" RCP-IV

BELLEWOOD HOMEOWNERS ASSOC. INC
KRYSTAL LAUREN MOORE
LENNAR CAROLIN
MICHAEL LANCE REESE
RUTH PETREA
CAROLINA CHARTER ACADEMY HOLDINGS LLC
BELLEWOOD HOMEOWNERS ASSOCIATION, INC.
SUMMER DISALVO & JUSTIN DISALVO
PETER CAMPBELL
ROBERT CRAIG EVANS
NATASSIA SANTANA & JOEL J. GOMEZ
DAVID ALEXANDER BERNAL
BELLEWOOD GARDENS DR
POND

HORIZONTAL SCALE
100' 0' 100'

UPGRADE EXISTING OR NEW SIGNAL

SEE SHEETS 28 THRU 29 FOR –L– PROFILE
SEE SHEET 33 FOR –Y8– PROFILE

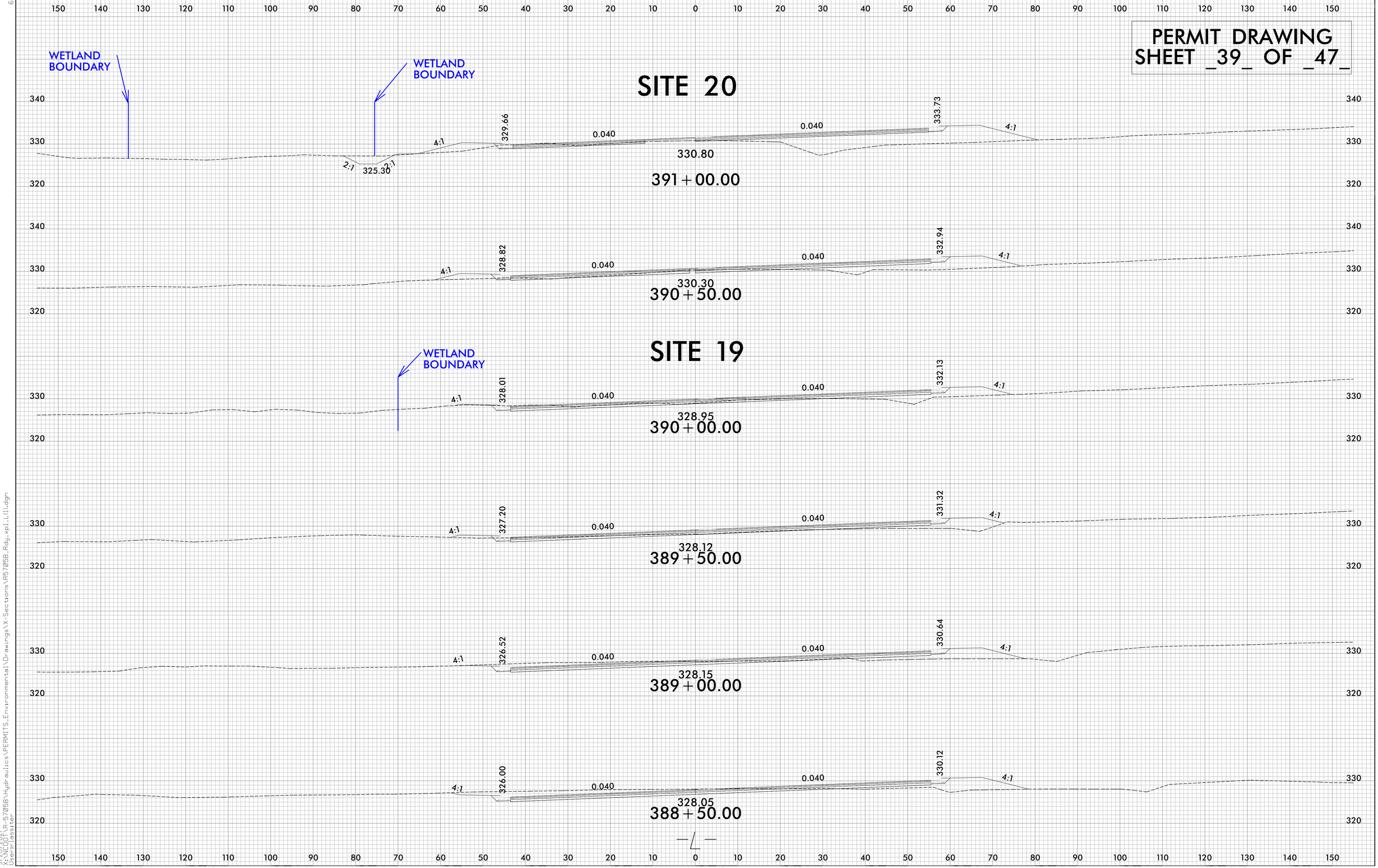
8/17/99

11/8/2021
X:\6001\R-5705B\Hydraulics\PERMITS\Environmental\Drawings\With Contours\R5705B_Rdy_psh_14_con.dgn
User: tlossiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-56

PERMIT DRAWING
SHEET _39_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_L(1).dgn
User:lassiter

Submitted 12/21/2021

8/17/99

PERMIT DRAWING
SHEET _40_ OF _47_

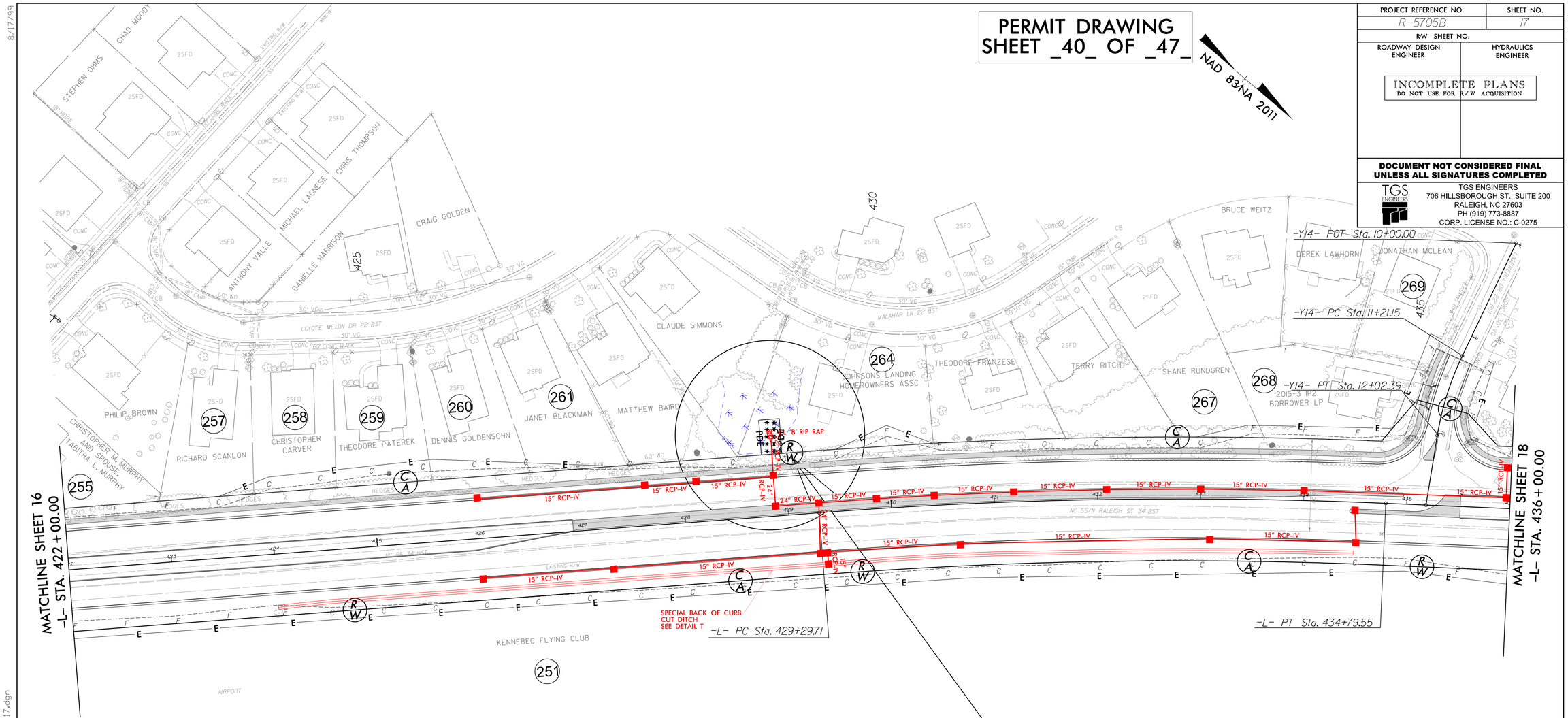
NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	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

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



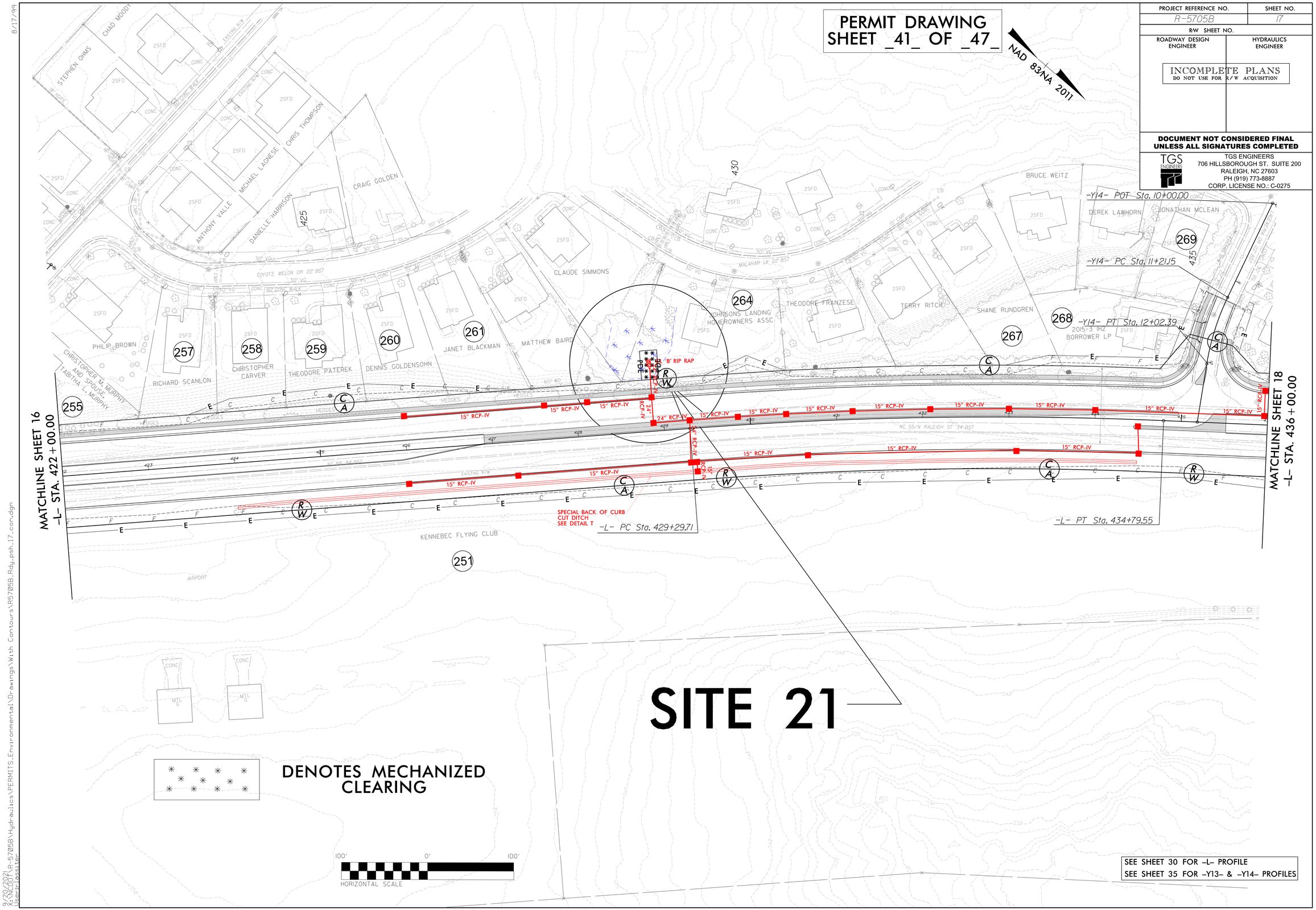
DENOTES MECHANIZED CLEARING

100' 0' 100'
HORIZONTAL SCALE

SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 35 FOR -Y13- & -Y14- PROFILES

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_17.dgn
(Sherrilossiter)

Submitted 12/21/2021



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

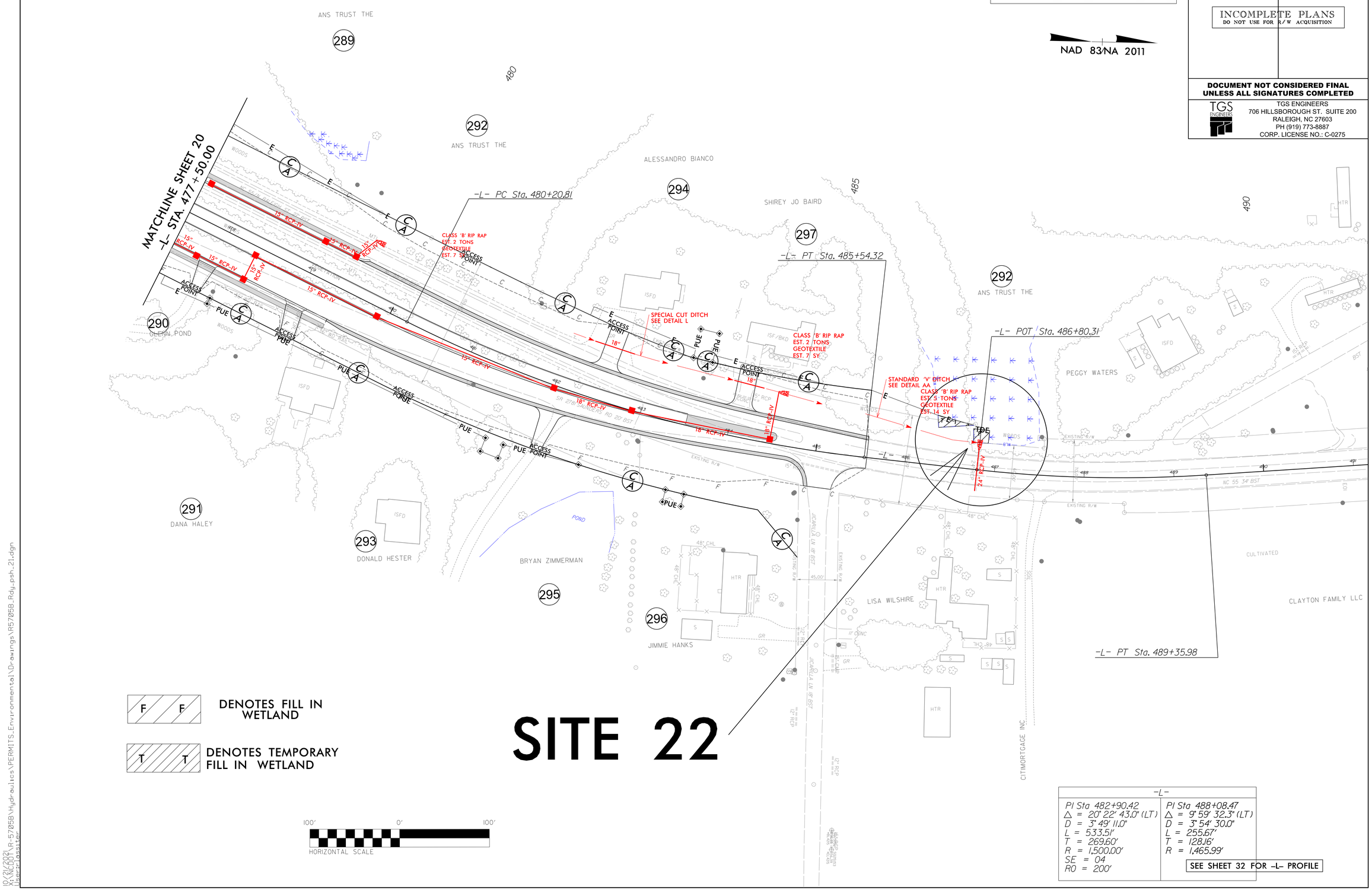
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _42_ OF _47_

NAD 83/NA 2011



-L-	
PI Sta 482+90.42	PI Sta 488+08.47
Δ = 20° 22' 43.0" (LT)	Δ = 9° 59' 32.3" (LT)
D = 3° 49' 11.0"	D = 3° 54' 30.0"
L = 533.51'	L = 255.67'
T = 269.60'	T = 128.16'
R = 1,500.00'	R = 1,465.99'
SE = 04	
RO = 200'	

SEE SHEET 32 FOR -L- PROFILE

8/17/99

10/21/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_21.dgn
User: rlassiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

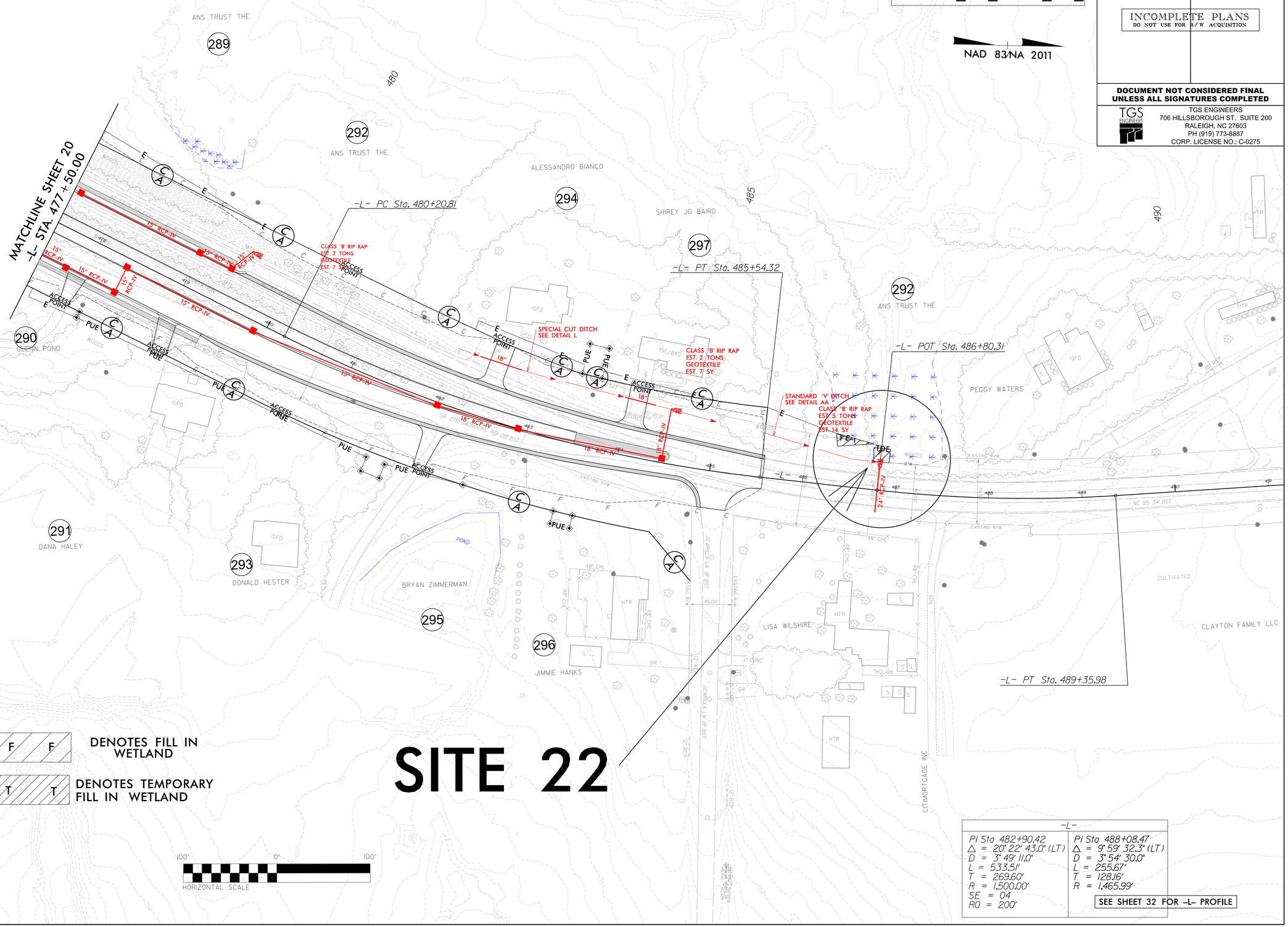
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _43_ OF _47_

NAD 83/NA 2011



F F DENOTES FILL IN WETLAND

T T DENOTES TEMPORARY FILL IN WETLAND

SITE 22

100' 0' 100'
HORIZONTAL SCALE

-L-	
PI Sta 482+90.42	PI Sta 488+08.47
Δ = 20° 22' 43.0" (LT)	Δ = 9° 59' 32.3" (LT)
D = 3° 49' 11.0"	D = 3° 54' 30.0"
L = 533.51'	L = 255.67'
T = 269.60'	T = 128.16'
R = 1,500.00'	R = 1,465.99'
SE = 04	
RO = 200'	

SEE SHEET 32 FOR -L- PROFILE

8/17/99
10/8/2021
X:\R5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_21_con.dgn
User: Lassiter

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

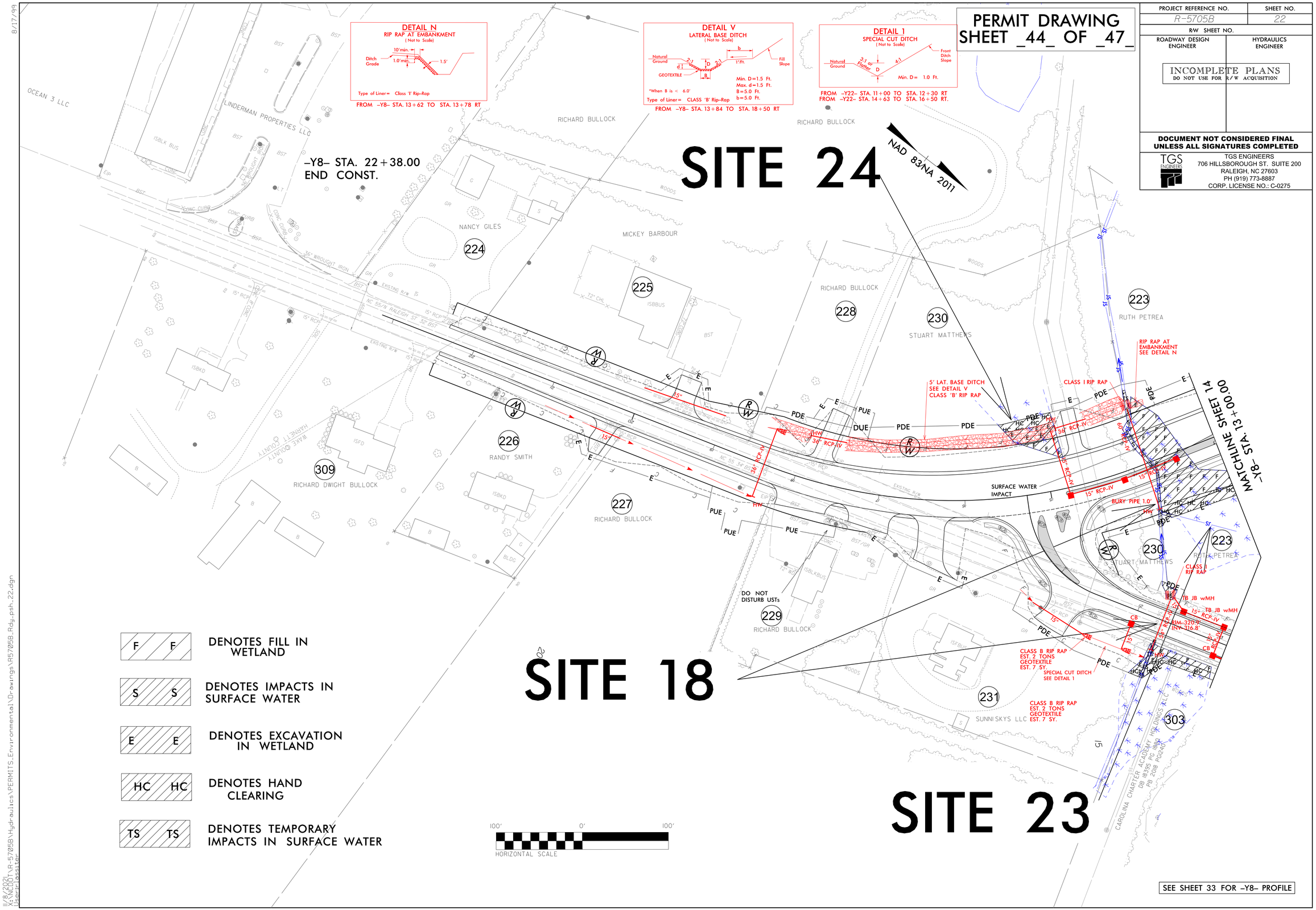
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING
SHEET _44_ OF _47_

DETAIL N
RIP RAP AT EMBANKMENT
(Not to Scale)
10' min. — Ditch Grade — 1.0' min. — 1.5'
Type of Liner = Class 'I' Rip-Rap
FROM –Y8– STA. 13+62 TO STA. 13+78 RT

DETAIL V
LATERAL BASE DITCH
(Not to Scale)
Natural Ground — 2:1 — d — D — 2:1 — b — 1'/Ft. — Fill Slope — GEOTEXTILE — B
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 5.0 Ft.
b = 5.0 Ft.
*When B is < 6.0'
Type of Liner = CLASS 'B' Rip-Rap
FROM –Y8– STA. 13+84 TO STA. 18+50 RT

DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground — 3:1 or Flatter — D — 4:1 — Front Ditch Slope
Min. D = 1.0 Ft.
FROM –Y22– STA. 11+00 TO STA. 12+30 RT
FROM –Y22– STA. 14+63 TO STA. 16+50 RT.



F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
E E	DENOTES EXCAVATION IN WETLAND
HC HC	DENOTES HAND CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 33 FOR –Y8– PROFILE

8/17/99
1/8/2021
X:\R5705B\Hydraulics\PERMITS_Environmental\Drawings\R5705B_Rdy_psh_22.dgn
User: lassiter

Submitted 12/21/2021

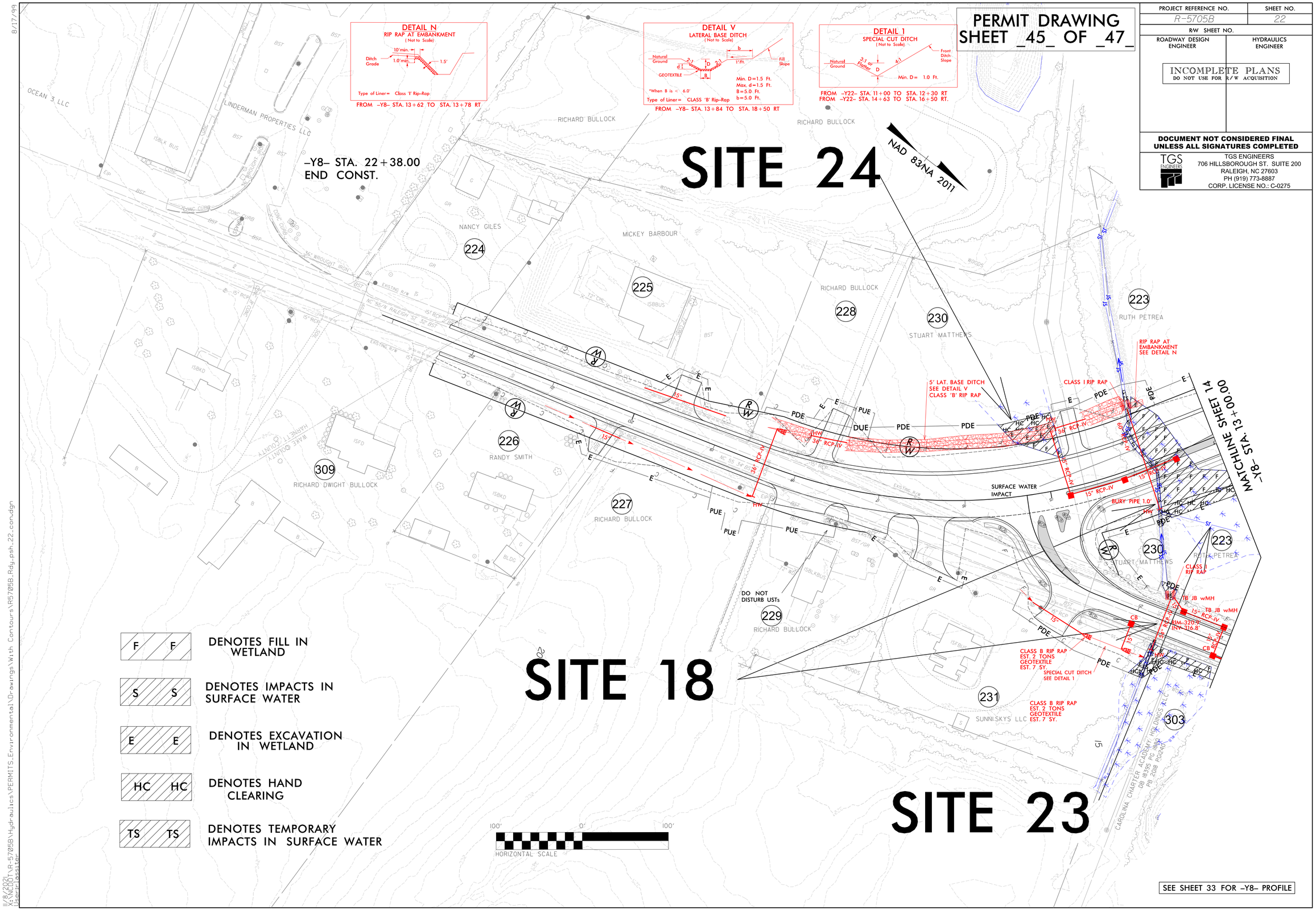
PERMIT DRAWING
SHEET _45_ OF _47_

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



SEE SHEET 33 FOR -Y8- PROFILE

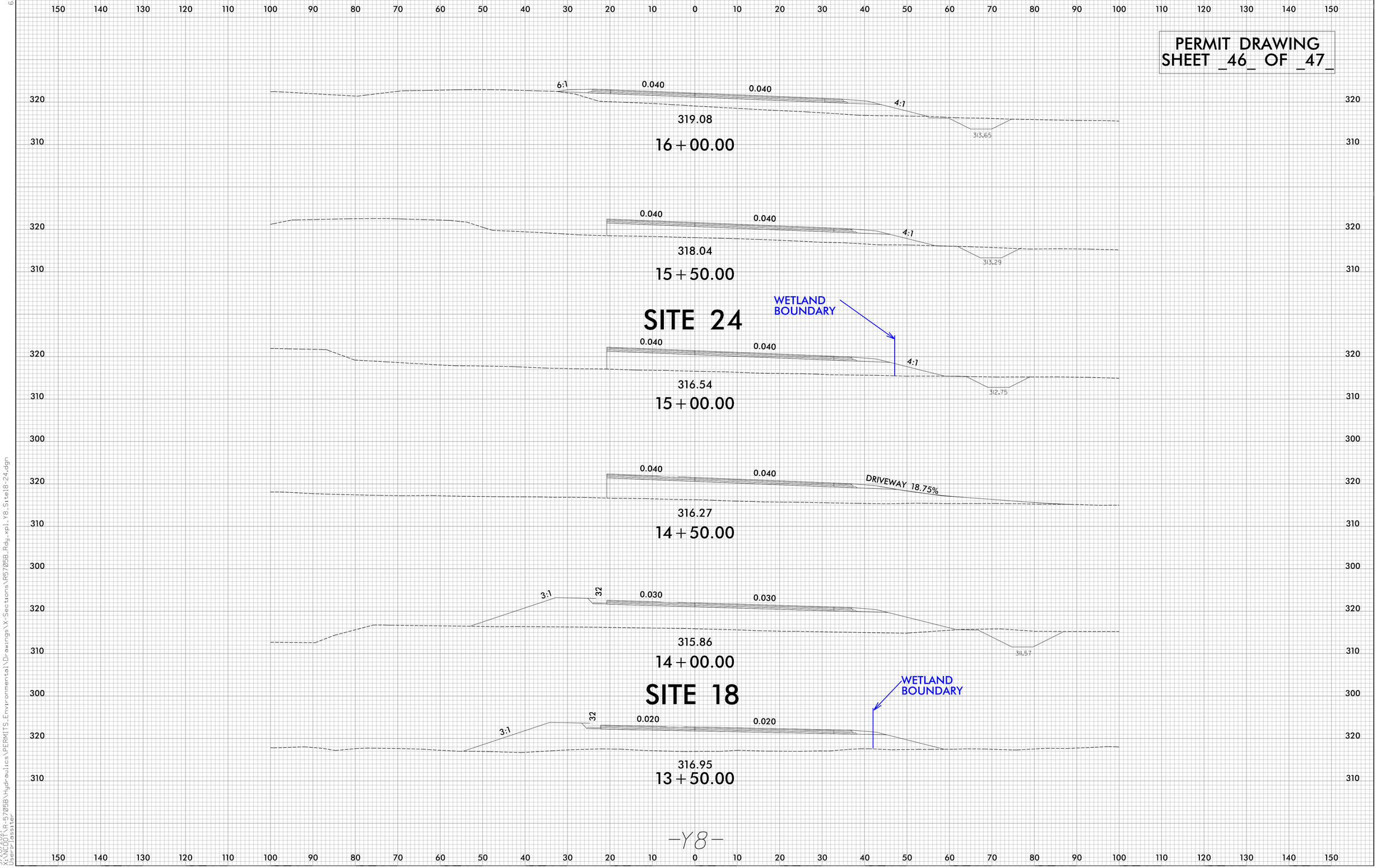
8/17/99

11/8/2021
X:\R5705B\TV\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\With Contours\R5705B_Rdy_psh_22_con.dgn
User: lassiter

Submitted 12/21/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-5705B	X-101

PERMIT DRAWING
SHEET _46_ OF _47_



6/23/16

9/20/2021
X:\NCDOT\R-5705B\Hydraulics\PERMITS_Environmental\Drawings\X-Sections\R5705B_Rdy_xpl_Y8_Site18-24.dgn
User:lossiter

Submitted 12/21/2021

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)
1	247+50-250+00-L-(Pond)	Roadway Fill						0.77				
2	253+00-253+70-L-	66" RCP/Roadway Fill	0.32		< 0.01		0.04	< 0.01	< 0.01	183	61	
	253+00-L- Lt	Bank Stabilization								15		
3	254+00-L- Rt	Roadway Fill						< 0.01		110		
4	283+62-284+64-L-	48"RCP/Roadway Fill	0.50		< 0.01		0.04	0.02	< 0.01	213	39	
	284+00-L- Lt	Bank Stabilization								10		
5	292+37-293+74-L-	Roadway Fill	0.43				0.03					
6	296+76-298+52-L-	48"RCP/Roadway Fill	1.16				0.19					
	298+52-301+10 Lt.	Lateral Ditch			0.04							
7	312+53-L- Lt(Pond)	Roadway Fill						0.11				
8	312+77-314+35-L-	2@7'x7' RCBC/Roadway Fill	0.73		0.07	0.08	0.07	0.07	0.01	400	60	
	313+50-L- Lt&Rt	Bank Stabilization								114		
9	327+00-327+29-L-	48"RCP	0.03					0.01	< 0.01	168	12	
10	327+00-329+00-L- Rt.	48"RCP/Roadway Fill			0.03		0.09	0.25				
11	338+41-L-(Pond)	36"RCP						0.98				
12	346+34-346+96-L-	60" RCP/Roadway Fill	0.22				0.02	0.02	< 0.01	300	39	
13	346+68-349+95-L- Rt.	Lateral Ditch	0.04		0.07		0.11					
14	359+42-L- Lt.	Roadway Fill	< 0.01				0.01					
15	363+50-L-Lt.	24"RCP	0.12				0.01	< 0.01	< 0.01	86	20	
16	371+11-372+36-L-	48"RCP/Roadway Fill	0.45		0.02		0.05	0.02	< 0.01	207	42	
17	375+00-380+00-L-	60"RCP/Roadway Fill	1.46				0.20	0.02	< 0.01	235	48	
	375+80-378+61-L- Rt.	Lateral Ditch			0.07							
18	13+85-Y8-Rt.&Lt.	Bank Stabilization 60"/54"							< 0.01	20		
	13+40-13+84-Y8-	60"RCP/Roadway Fill	0.14		< 0.01		0.05	0.01	< 0.01	136	39	
	12+31-Y22-	54"RCP	< 0.01		< 0.01		0.02	< 0.01	< 0.01	12	34	
19	390+30-L-Lt.	Roadway Fill	0.02				0.02	< 0.01	< 0.01	84	17	
20	391+15-L-Lt.	Ditch Excavation			< 0.01		0.02					
21	428+90-L-Lt.	24"RCP				0.02						
22	486+80-L-Lt.	24"RCP	< 0.01	< 0.01								
23	13+68-Y8-Lt.	60"RCP							< 0.01		16	
24	15+00-Y8-Rt.	15"RCP	0.02		0.02		0.02					
SHEET TOTALS*:			5.65	< 0.01	0.35	0.09	0.97	2.31	0.05	2293	427	

*Rounded totals are sum of actual impacts

**Notes:

There will be 0.08 acres of Temporary Fill in wetlands in the Hand Clearing areas for Erosion Control measures.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/8/2021
HARNETT/WAKE
R-5705B
46377.1.3

Revised 2018 Feb

Submitted 12/21/2021

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

PERMIT DRAWING
SHEET 1 OF 26

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5705C	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46377.1.1		

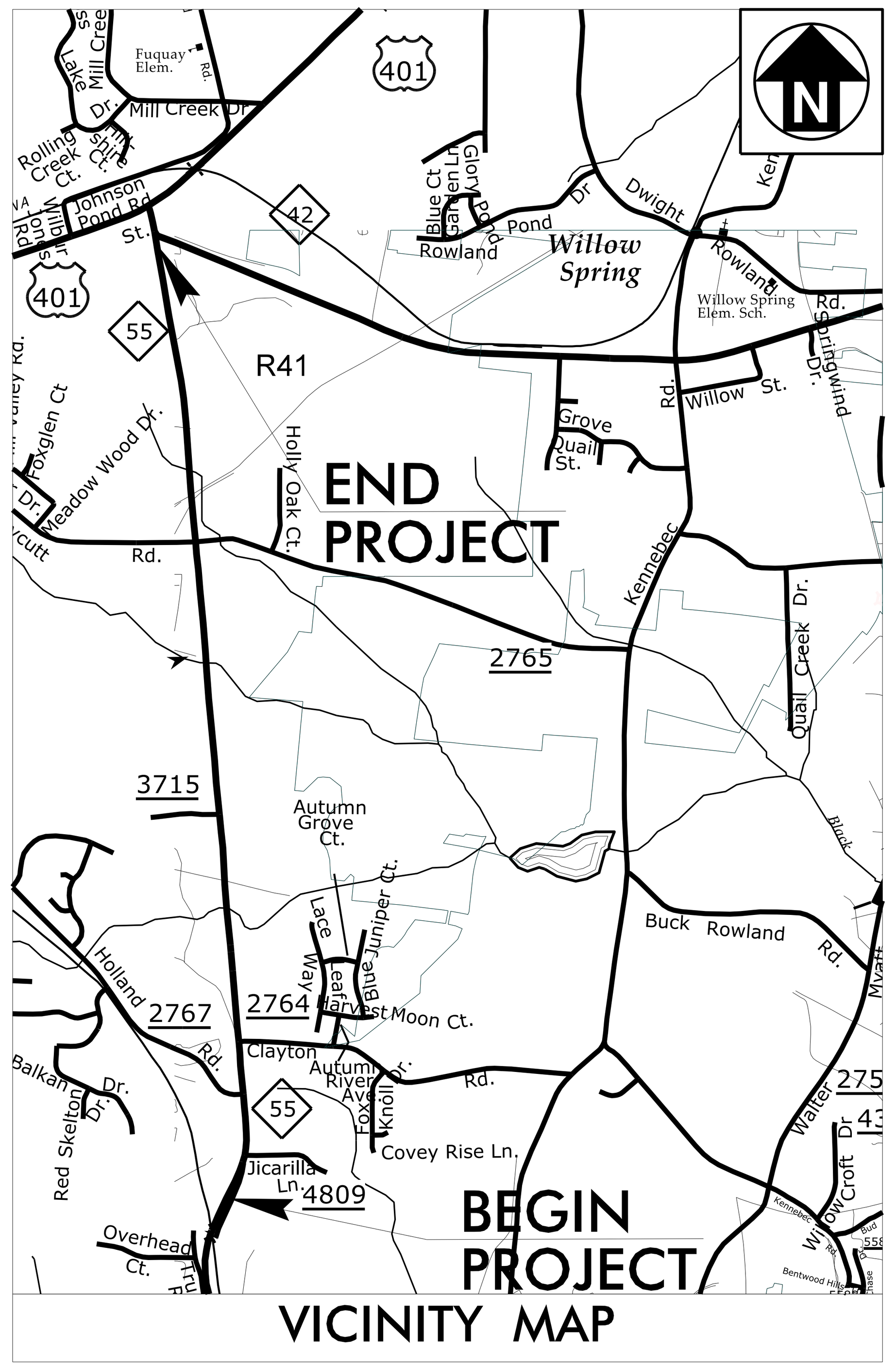
TIP PROJECT: R-5705C

CONTRACT:

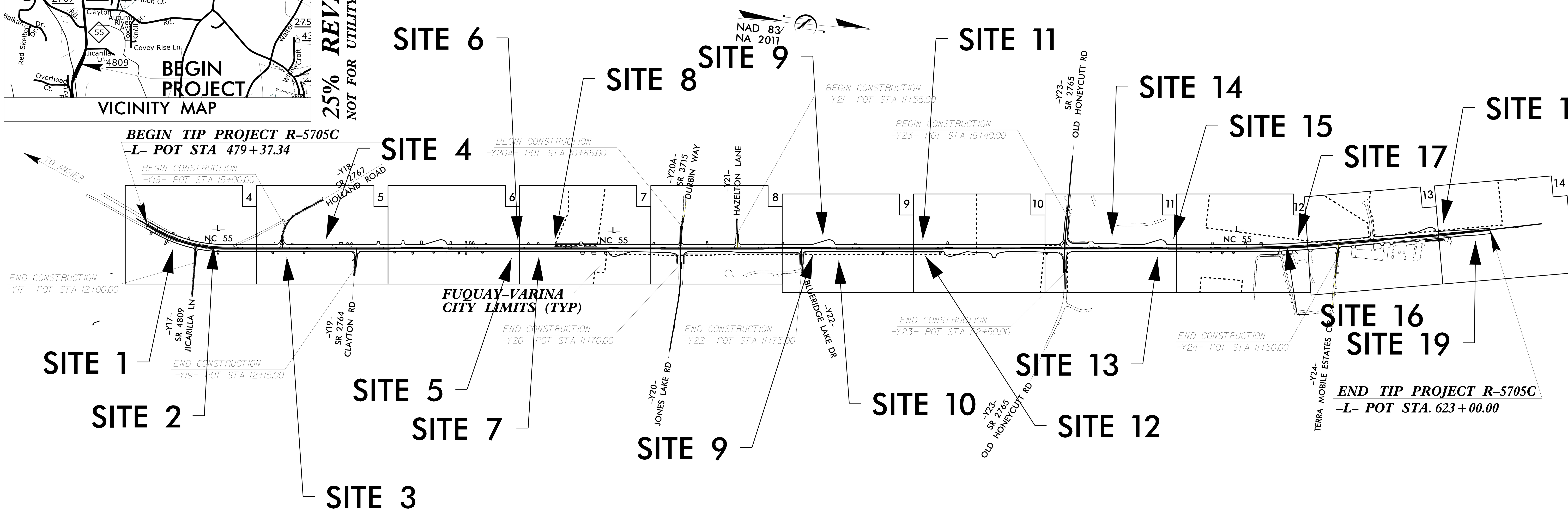
LOCATION: NC 55 FROM SOUTH OF SR 4809 (JICARILLA LANE) TO NC 42 IN FUQUAY-VARINA

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CULVERT EXTENSIONS

WETLAND AND SURFACE WATER IMPACTS PERMIT



25% REVIEW PLANS
NOT FOR UTILITY OR HYDRAULIC DESIGN



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PORTIONS OF THIS PROJECT ARE WITHIN THE MUNICIPAL BOUNDARIES OF FUQUAY-VARINA
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ___.

GRAPHIC SCALES

50 25 50 100 — PLANS
50 25 50 100 — PROFILE (HORIZONTAL)
10 5 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 28800
ADT 2045 = 46500
K = 9 %
D = 60 %
T = 4 % *
V = 50 MPH
* (TTST = 1% DUAL 3%)
FUNC CLASS = MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5705C = 2.692 MILES
TOTAL LENGTH OF TIP PROJECT R-5705C = 2.692 MILES

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 17, 2020

LETTING DATE:

GLENN W. MUMFORD, PE
PROJECT ENGINEER

HERB TURNER, PE
HYDRAULICS ENGINEER

NICOLE M. HACKLER, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

$$$$SYSTIME$$$$
$$$$$$DGN$$$$$$$$$$$$
$$$$USERNAME$$$$

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	4
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEET 15

FOR -Y17- PROFILE SEE SHEET 21

S S — DENOTES IMPACTS IN SURFACE WATER

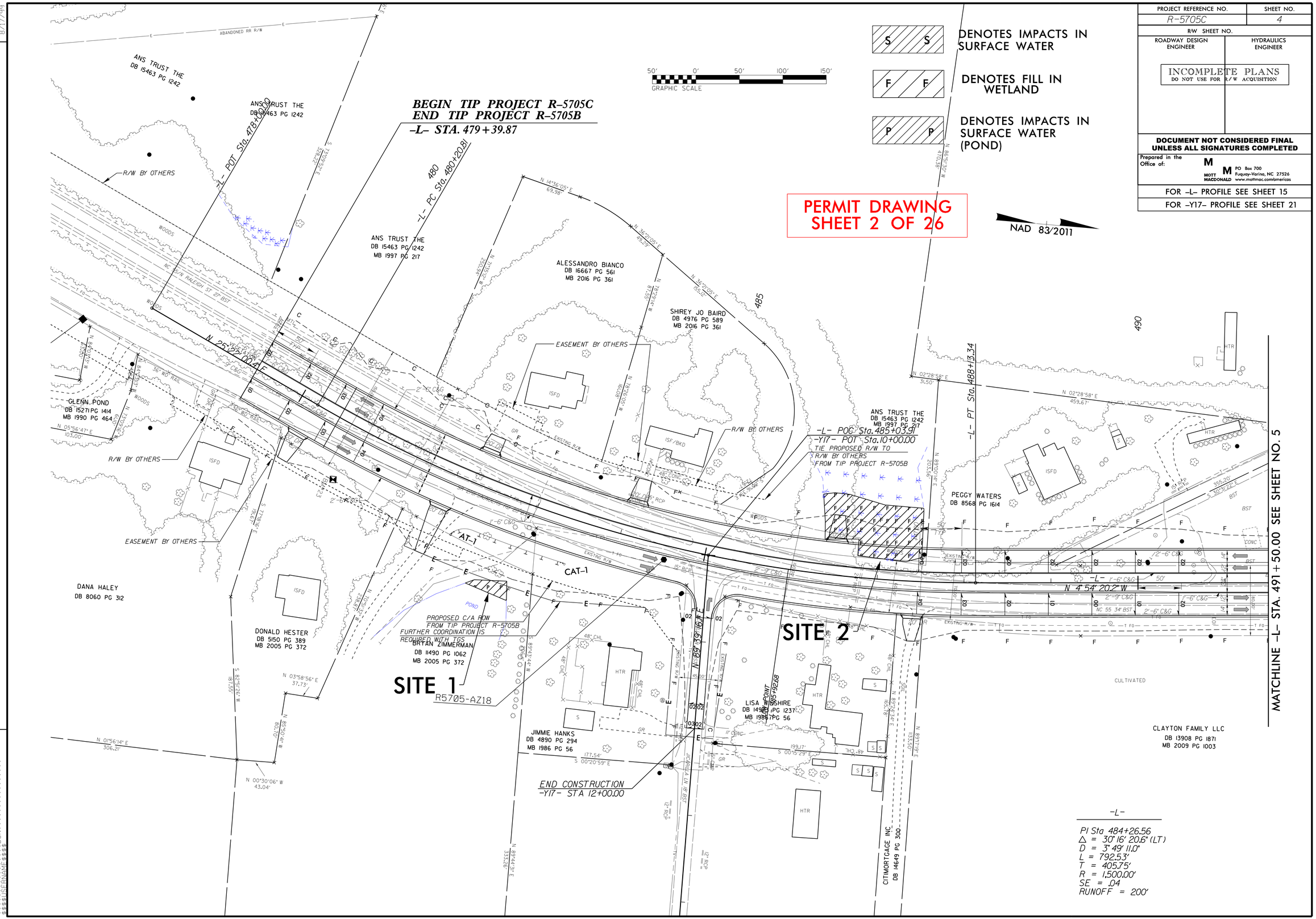
F F — DENOTES FILL IN WETLAND

P P — DENOTES IMPACTS IN SURFACE WATER (POND)

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 2 OF 26

NAD 83/2011



REVISIONS

8/17/99

SYSTIME$$$$
DGN$$$$

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	4
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEET 15

FOR -Y17- PROFILE SEE SHEET 21

S S — DENOTES IMPACTS IN SURFACE WATER

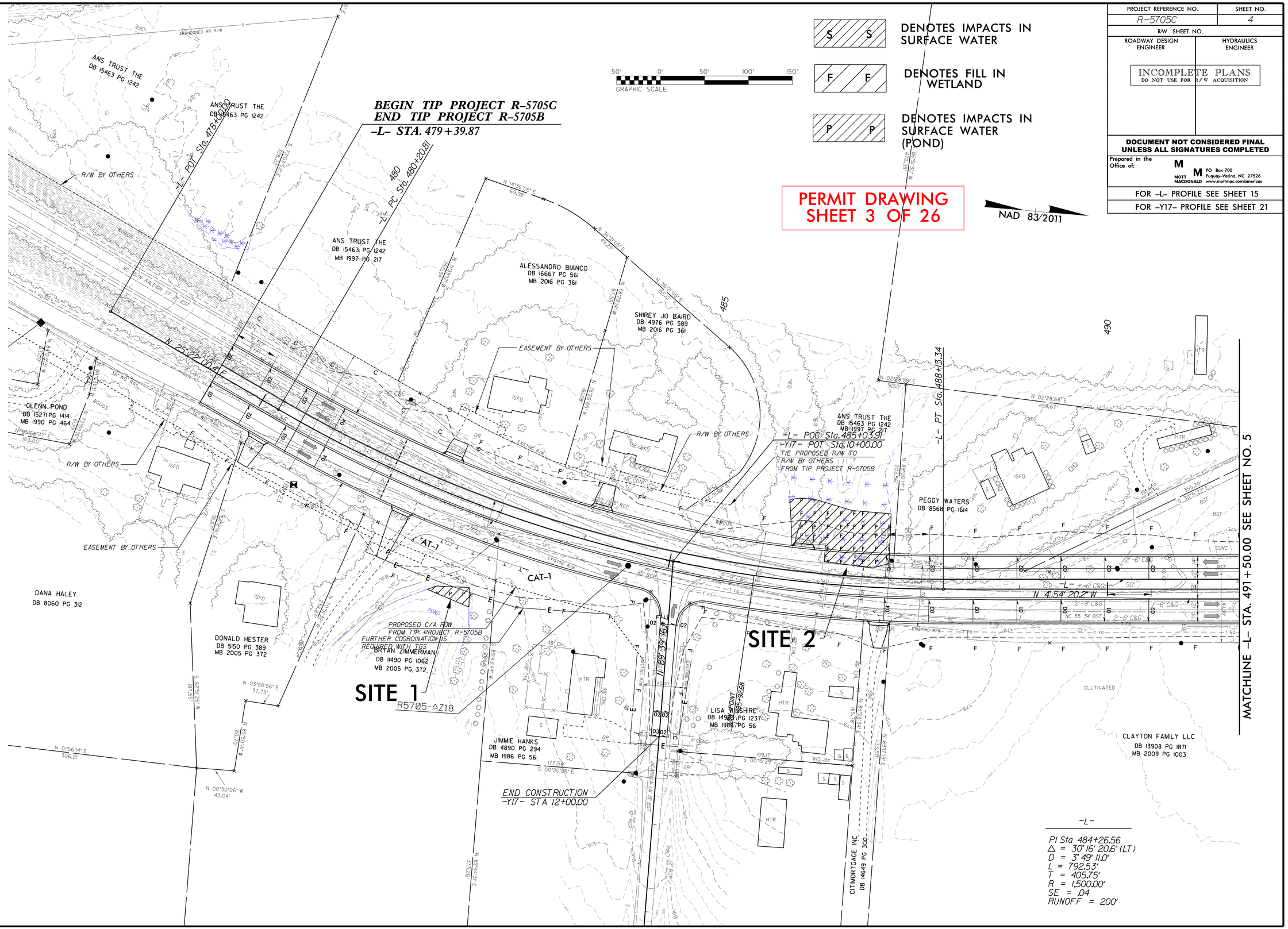
F F — DENOTES FILL IN WETLAND

P P — DENOTES IMPACTS IN SURFACE WATER (POND)

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 3 OF 26

NAD 83/2011



-L-

PI Sta 484+26.56
Δ = 30° 16' 20.6" (LT)
D = 3° 49' 11.0"
L = 792.53'
T = 405.75'
R = 1,500.00'
SE = .04
RUNOFF = 200'

REVISIONS

8/17/99

SYSTIME$$$$
SYSDATE$$$$
SYSDIR$$$$
SYSDGN$$$$

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	5
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR –L– PROFILE SEE SHEET 15

FOR –Y18– PROFILE SEE SHEET 21

FOR –Y19– PROFILE SEE SHEET 22

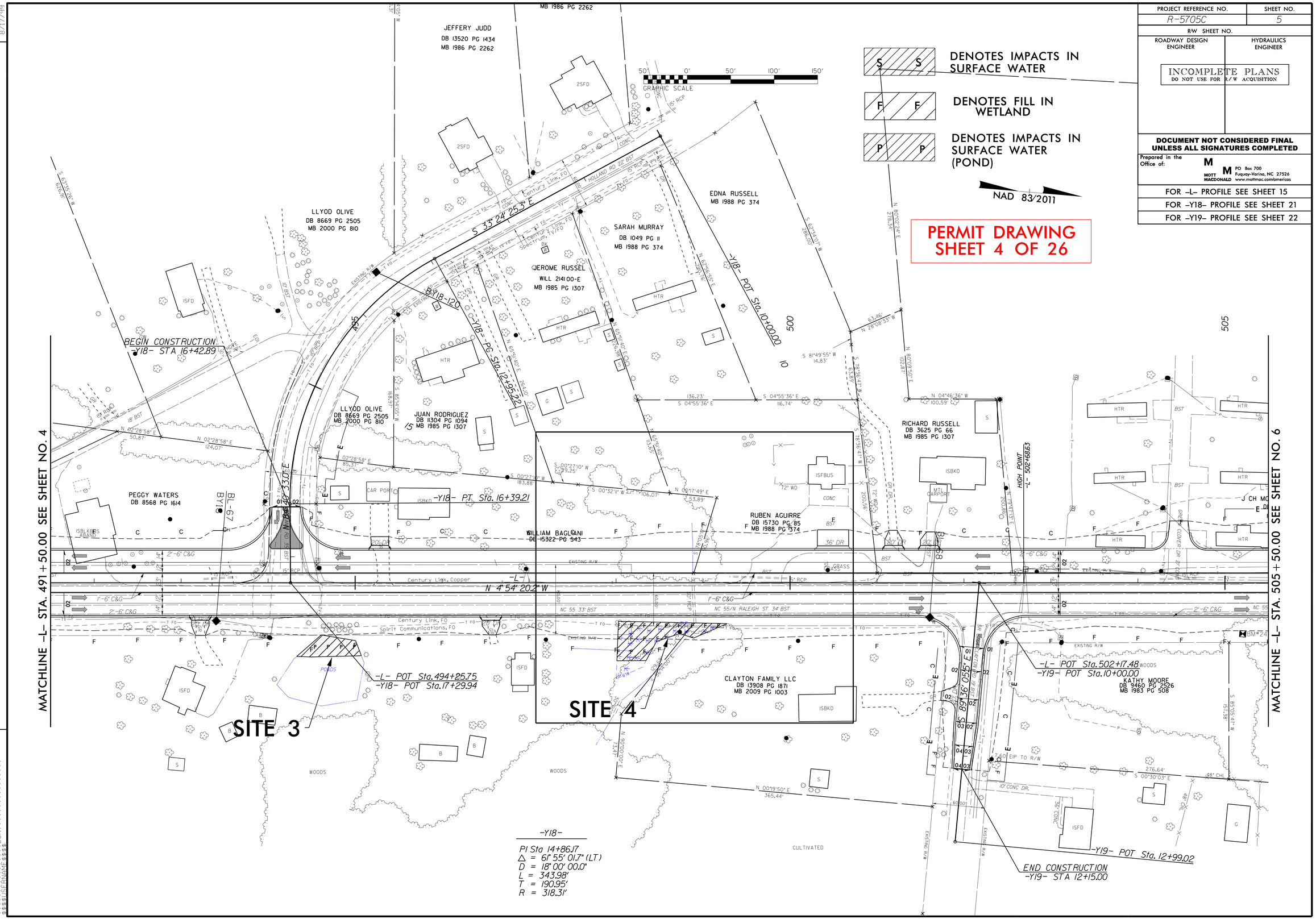
S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

P P DENOTES IMPACTS IN SURFACE WATER (POND)

NAD 83/2011

PERMIT DRAWING SHEET 4 OF 26



REVISIONS

8/17/99

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	5
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR –L– PROFILE SEE SHEET 15

FOR –Y18– PROFILE SEE SHEET 21

FOR –Y19– PROFILE SEE SHEET 22

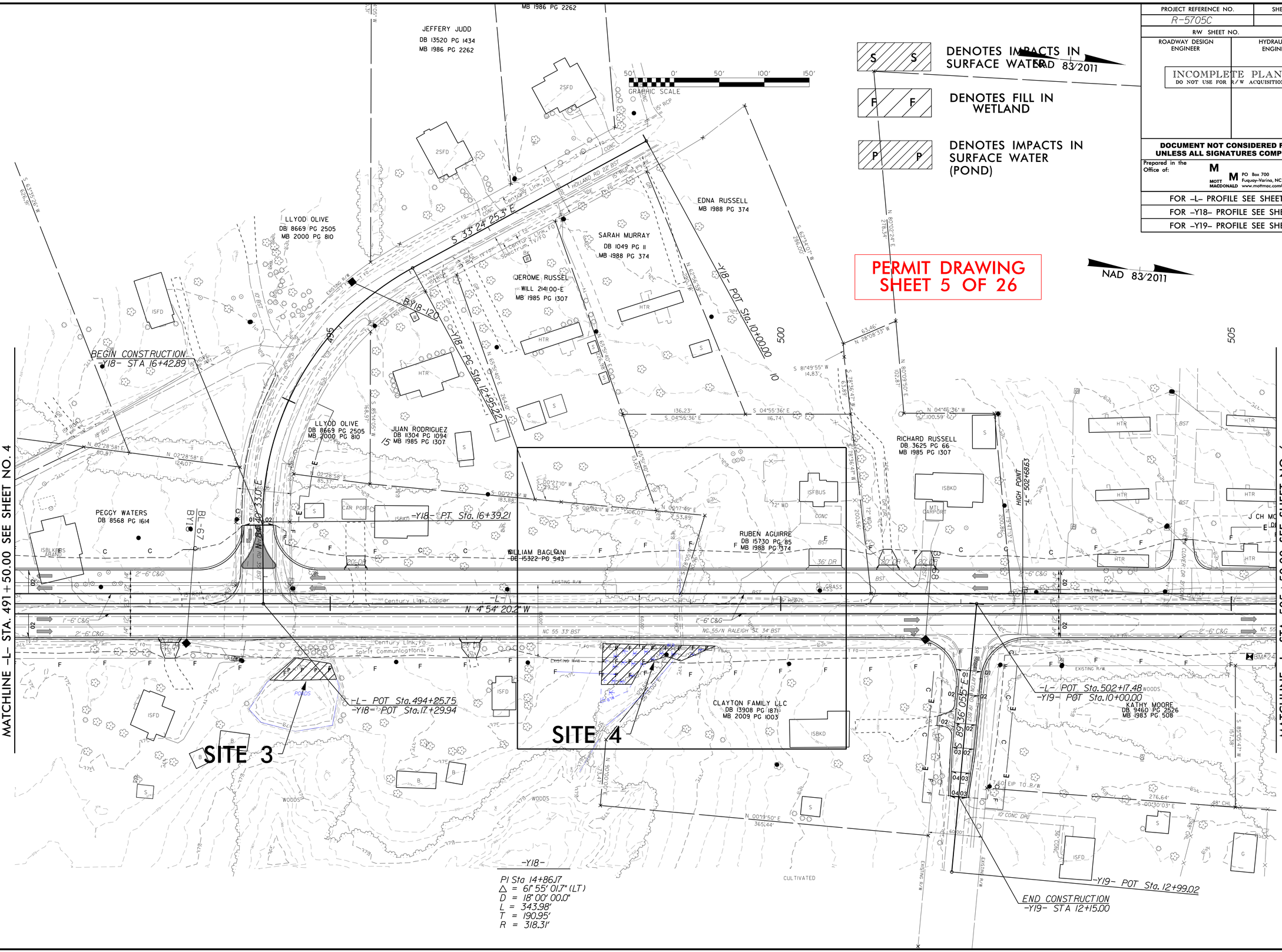
S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

P P DENOTES IMPACTS IN SURFACE WATER (POND)

NAD 83/2011

PERMIT DRAWING
SHEET 5 OF 26



REVISIONS

8/17/99

Submitted 12/21/2021

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	5
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

Prepared in the Office of: MOTT MACDONALD
PO Box 700
Fuquay-Varina, NC 27526
www.mottmac.com/americas

FOR –L– PROFILE SEE SHEET 15

FOR –Y18– PROFILE SEE SHEET 21

FOR –Y19– PROFILE SEE SHEET 22

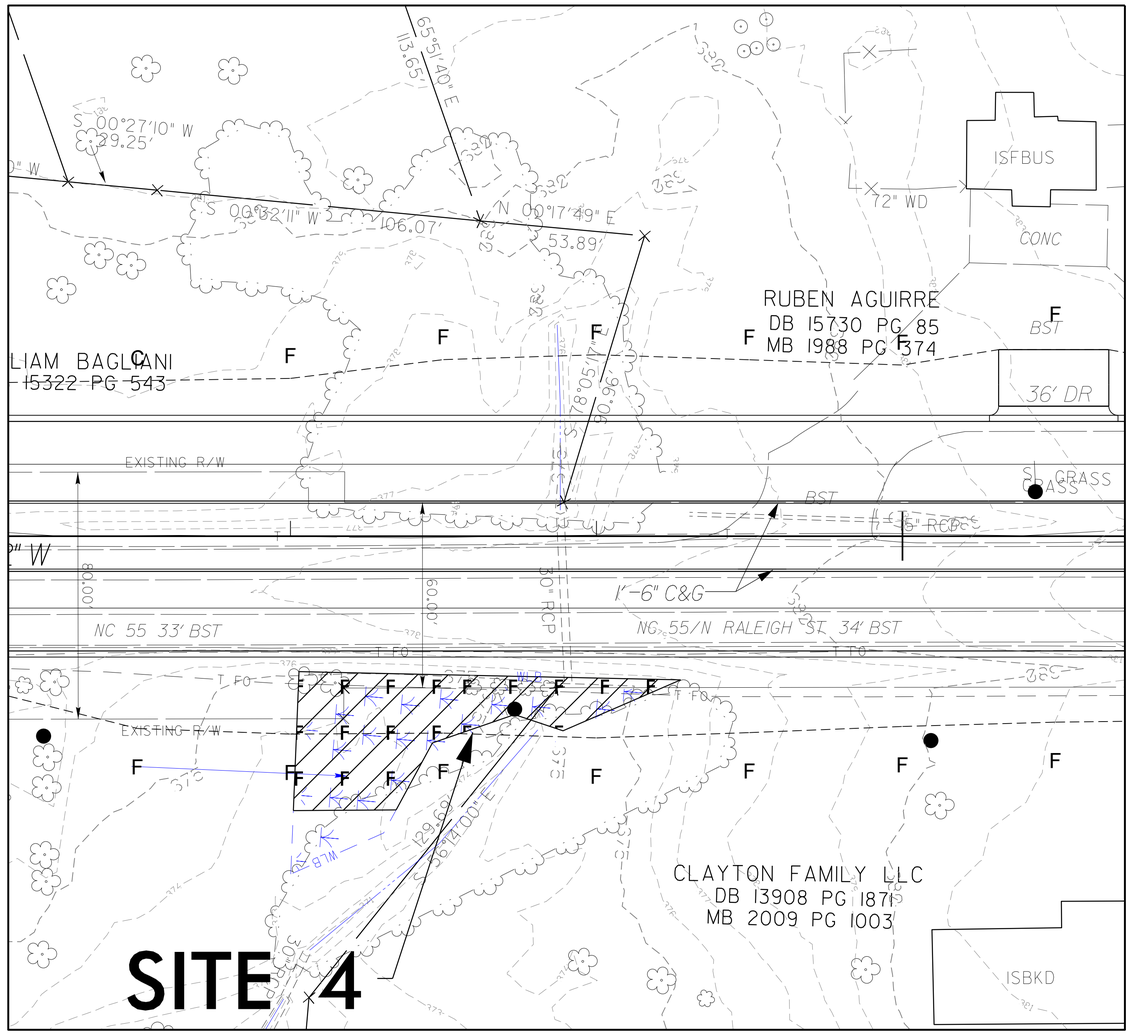
25′ 0′ 25′ 50′ 75′
GRAPHIC SCALE

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

NAD 83/2011

PERMIT DRAWING
SHEET 6 OF 26



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of: MOTT MACDONALD
PO Box 700
Fuquay-Varina, NC 27526
www.mottmac.com/americas

FOR -L- PROFILE SEE SHEETS 15 & 16

8/17/99

REVISIONS

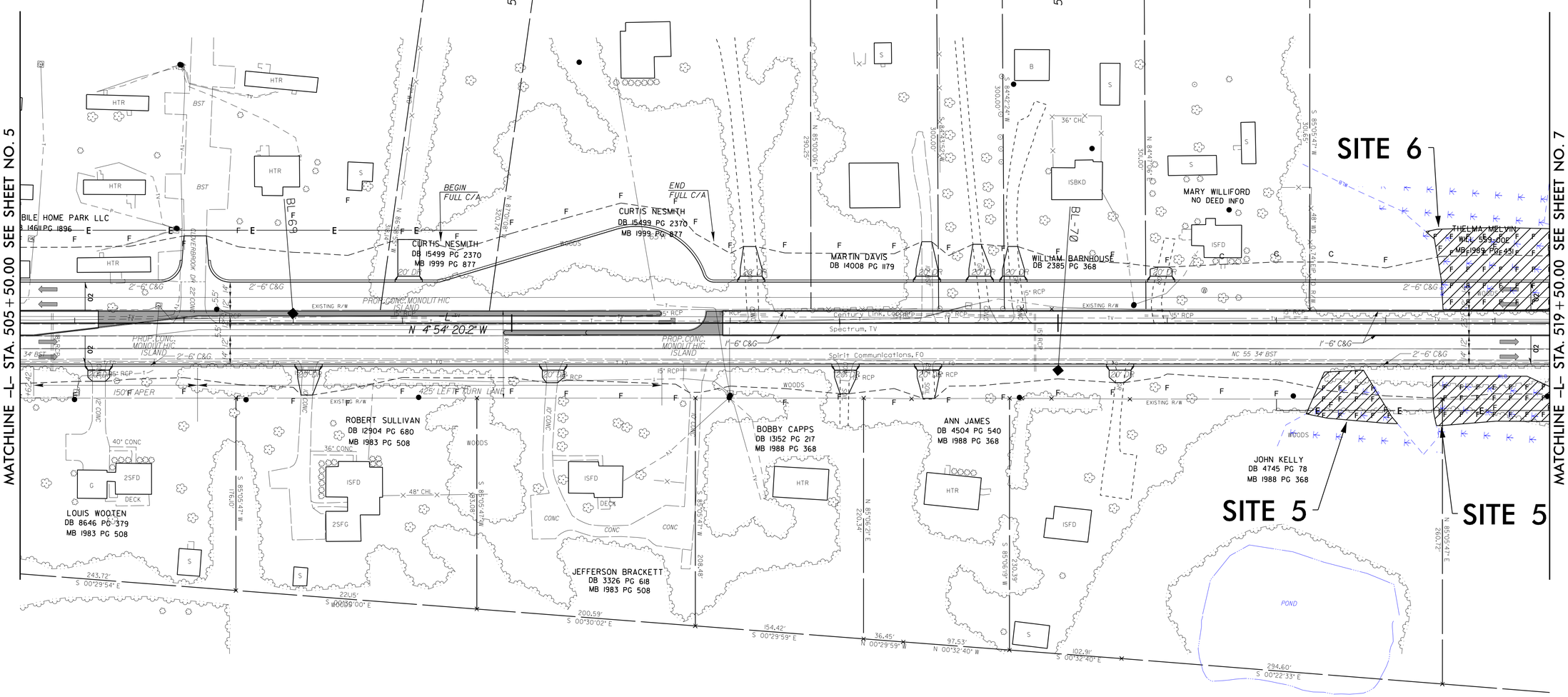
S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

PERMIT DRAWING
SHEET 7 OF 26

NAD 83/2011

GRAPHIC SCALE 50' 0' 50' 100' 150'



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	6

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of: MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas

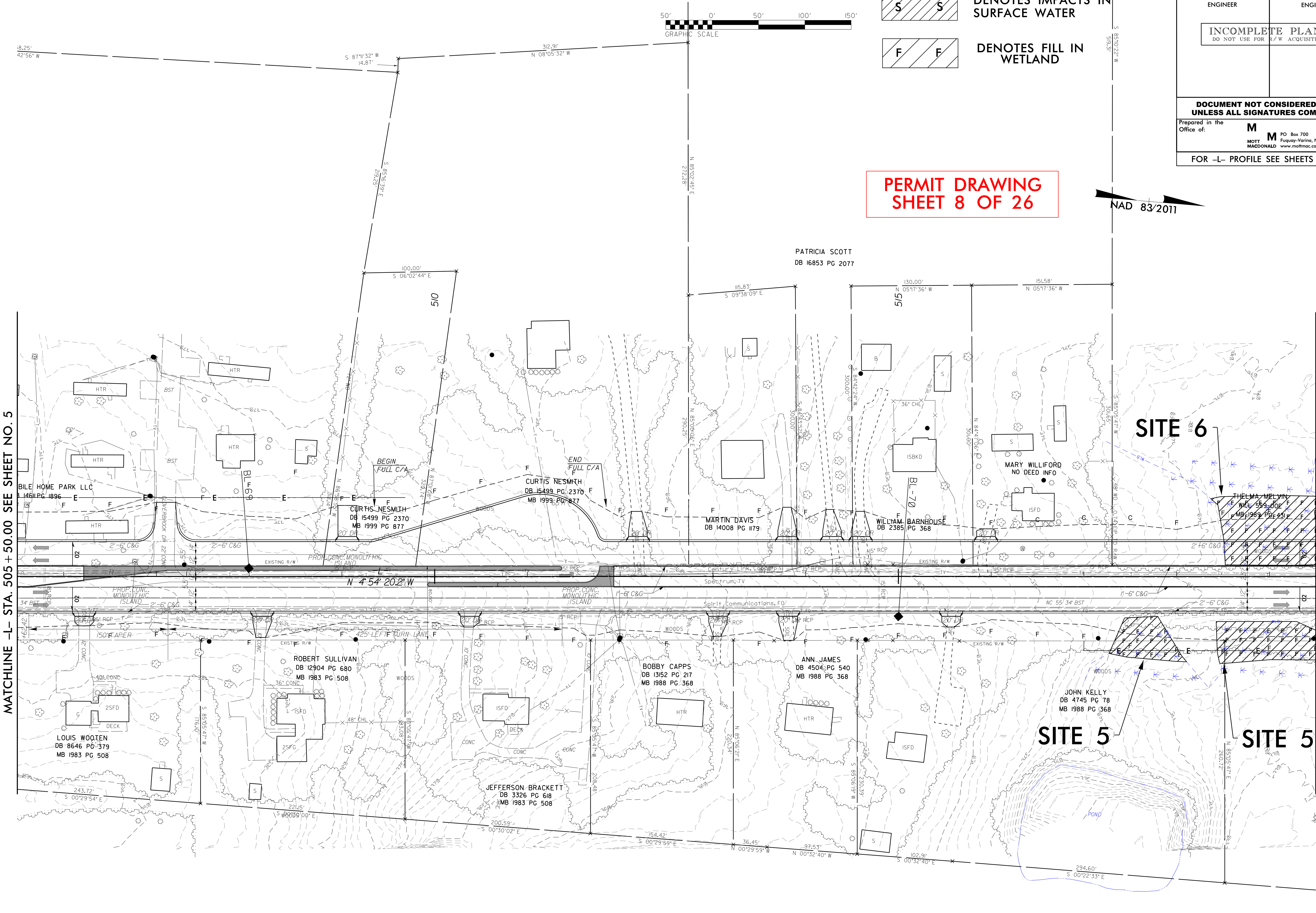
FOR -L- PROFILE SEE SHEETS 15 & 16

PERMIT DRAWING
SHEET 8 OF 26

DENOTES IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

REVISIONS



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	7
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEET 16

S DENOTES IMPACTS IN SURFACE WATER

F DENOTES FILL IN WETLAND

PERMIT DRAWING SHEET 9 OF 26

NAD 83/2011

GRAPHIC SCALE 50' 0' 50' 100' 150'

MATCHLINE -L- STA. 519+50.00 SEE SHEET NO. 6

MATCHLINE -L- STA. 533+50.00 SEE SHEET NO. 8

SITE 5 SITE 6 SITE 7 SITE 8

EUGENE LOCKHART
DB 13576 PG 1993

ABUNDANT SPACE SELF STORAGE LLC
DB 14218 PG 510
MB 2010 PG 600

GARLAND MCLAMB LLC
DB 17141 PG 2683

LOUISE FREEMAN
DB 11541 PG 1249
MB 1993 PG 204

HILDA WILSON
DB 15707 PG 2688
MB 1993 PG 204

IMPERIAL SELF STORAGE LLC
DB 16715 PG 2194
MB 2017 PG 274

-L- N 4°54'20.2" W

BEGIN FULL C/A

END FULL C/A

425' LEFT TURN LANE

400' TAPER

PROP. CONC. MONOLITHIC ISLAND

PROPOSED 5' SIDEWALK

EXISTING R/W

Century Link, Copper

Other, FO Spirit Communications

Town of Fuquay-Varina, 12" PVC

NC 55/N RALEIGH ST 34' BST

NC 55 37' BST

REVISIONS 8/17/99

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	7
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR –L– PROFILE SEE SHEET 16

DENOTES IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

PERMIT DRAWING SHEET 10 OF 26

NAD 83/2011

GRAPHIC SCALE 50' 0' 50' 100' 150'

MATCHLINE –L– STA. 519+50.00 SEE SHEET NO. 6

MATCHLINE –L– STA. 533+50.00 SEE SHEET NO. 8

EUGENE LOCKHART
DB 13576 PG 1993

ABUNDANT SPACE SELF STORAGE LLC
DB 14218 PG 510
MB 2010 PG 600

LOUISE FREEMAN
DB 11541 PG 1249
MB 1993 PG 204

HILDA WILSON
DB 15707 PG 2688
MB 1993 PG 204

GARLAND MCLAMB LLC
DB 17141 PG 2683

IMPERIAL SELF STORAGE LLC
DB 16715 PG 2194
MB 2017 PG 274

SITE 5 SITE 6 SITE 7 SITE 8

-L- N 4°54'20.2" W

BEGIN FULL C/A

END FULL C/A

425' LEFT TURN LANE

400' TAPER

PROPOSED 5' SIDEWALK

PROP. CONC. MONOLITHIC ISLAND

NC 55/N RALEIGH ST 34' BST

Century Link, Copper

Spirit Communications

Town of Fuquay-Varina, Inc. P.V.C.

REVISIONS

8/17/99

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	9
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR –L– PROFILE SEE SHEET 17

FOR –Y22– PROFILE SEE SHEET 24

REVISIONS

8/17/99

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

NC CRID NAD 83 NA 2011

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 11 OF 26

NAD 83/2011

MATCHLINE –L– STA. 547+50.00 SEE SHEET NO. 8

MATCHLINE –L– STA. 561+50.00 SEE SHEET NO. 10

SITE 9

SITE 10

SITE 11

SITE 12

–L– POT Sta.549+55.98
–Y22– POT Sta.10+00.00

BEGIN FULL C/A

END FULL C/A

LOW POINT 552+14.10

575' LEFT TURN LANE

575' RIGHT TURN LANE

BCELD MEADOWBROOK LLC
DB 1609 PG 2458
MB 1970 PG 217

HIGH POINT 556+99.11

LOW POINT 561+13.41

BL-76

BL-10

N 4°54' 20.2" W

PROP. CONC. MONOLITHIC ISLAND

Century Link, Copper

NC 55 55' BST

Spirit Communications, FO

Town of Fuquay-Varina, 12"

PONC, 4", Plastic

NC 55/N RALEIGH ST 35' BST

NC 55 34' BST

EXISTING SIDEWALK TO REMAIN

PROPOSED 5' SIDEWALK

SOUTH LAKES MAETER AASN INC.
DB 14186 PG 1094
MB 2008 PG 373

TOWN OF FUQUAY VARINA
DB 15844 PG 2186
MB 2014 PG 1219

FILL IN WETLAND

–Y22– PC Sta. 11+79.40

–Y22– PT Sta.13+21.63

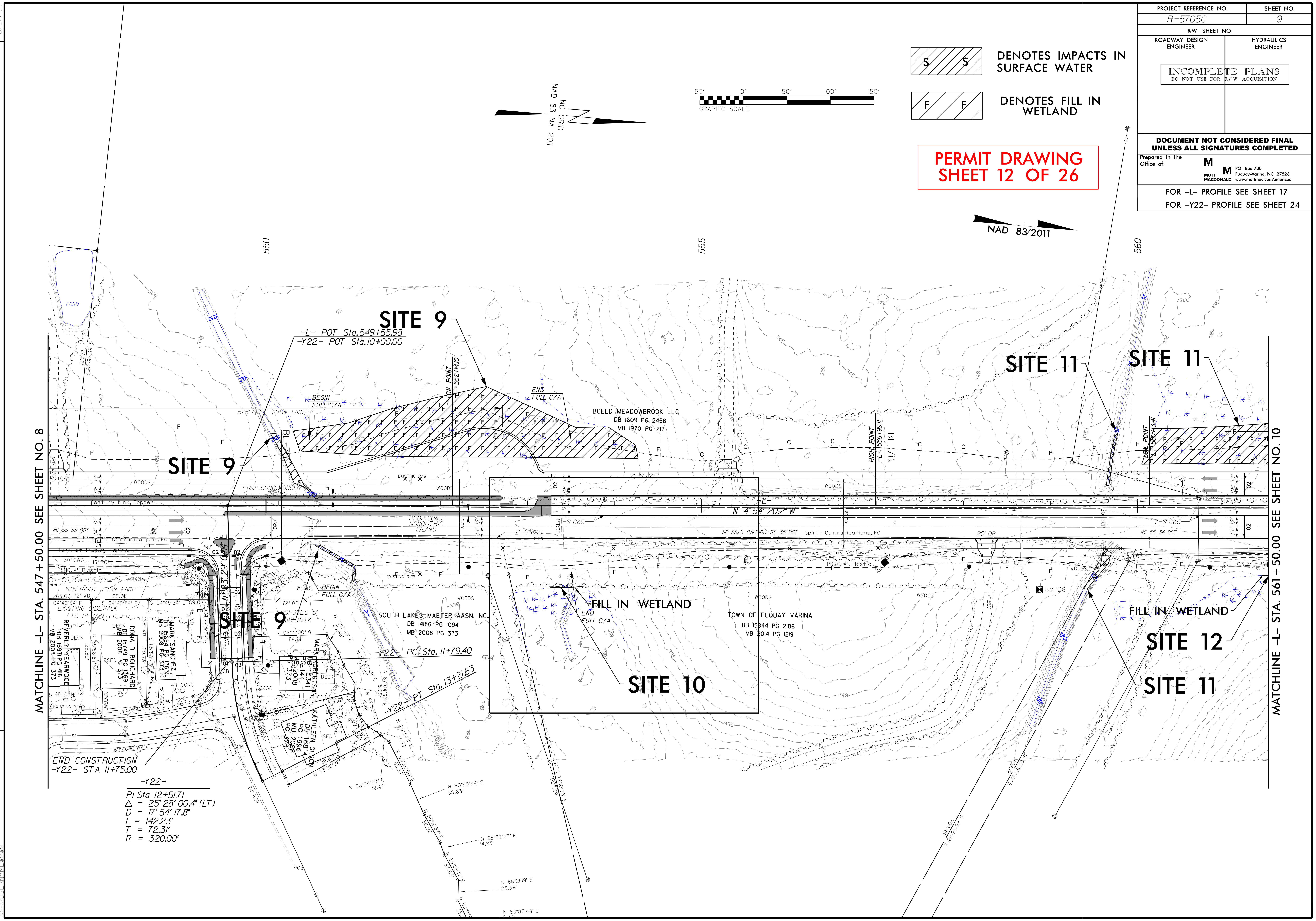
END CONSTRUCTION
–Y22– STA 11+75.00

–Y22–
PI Sta 12+51.71
△ = 25° 28' 00.4" (LT)
D = 17° 54' 17.8"
L = 142.23'
T = 72.31'
R = 320.00'

BM=26

SYSTIME$$$$
SYSDATE$$$$

Submitted 12/21/2021



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	9
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

Prepared in the Office of: MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas

FOR -L- PROFILE SEE SHEET 17

FOR -Y22- PROFILE SEE SHEET 24

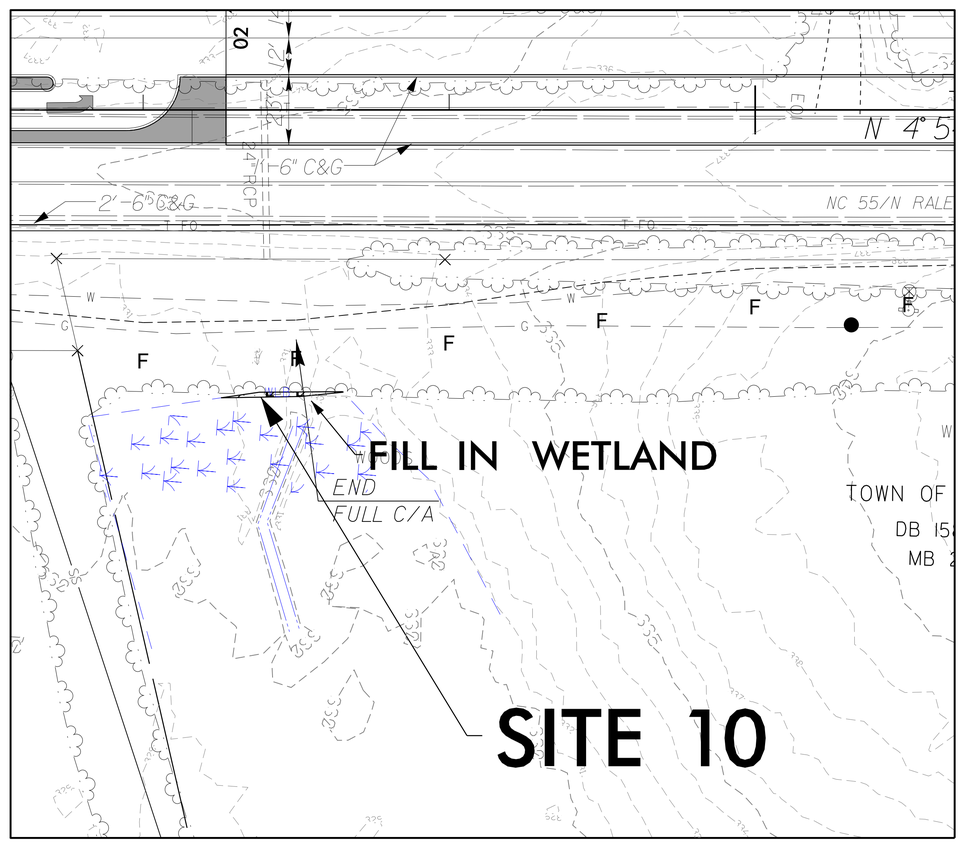
NAD 83/2011

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

25' 0' 25' 50' 75'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 13 OF 26



REVISIONS

8/17/99

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	10
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR –L– PROFILE SEE SHEETS 17 & 18

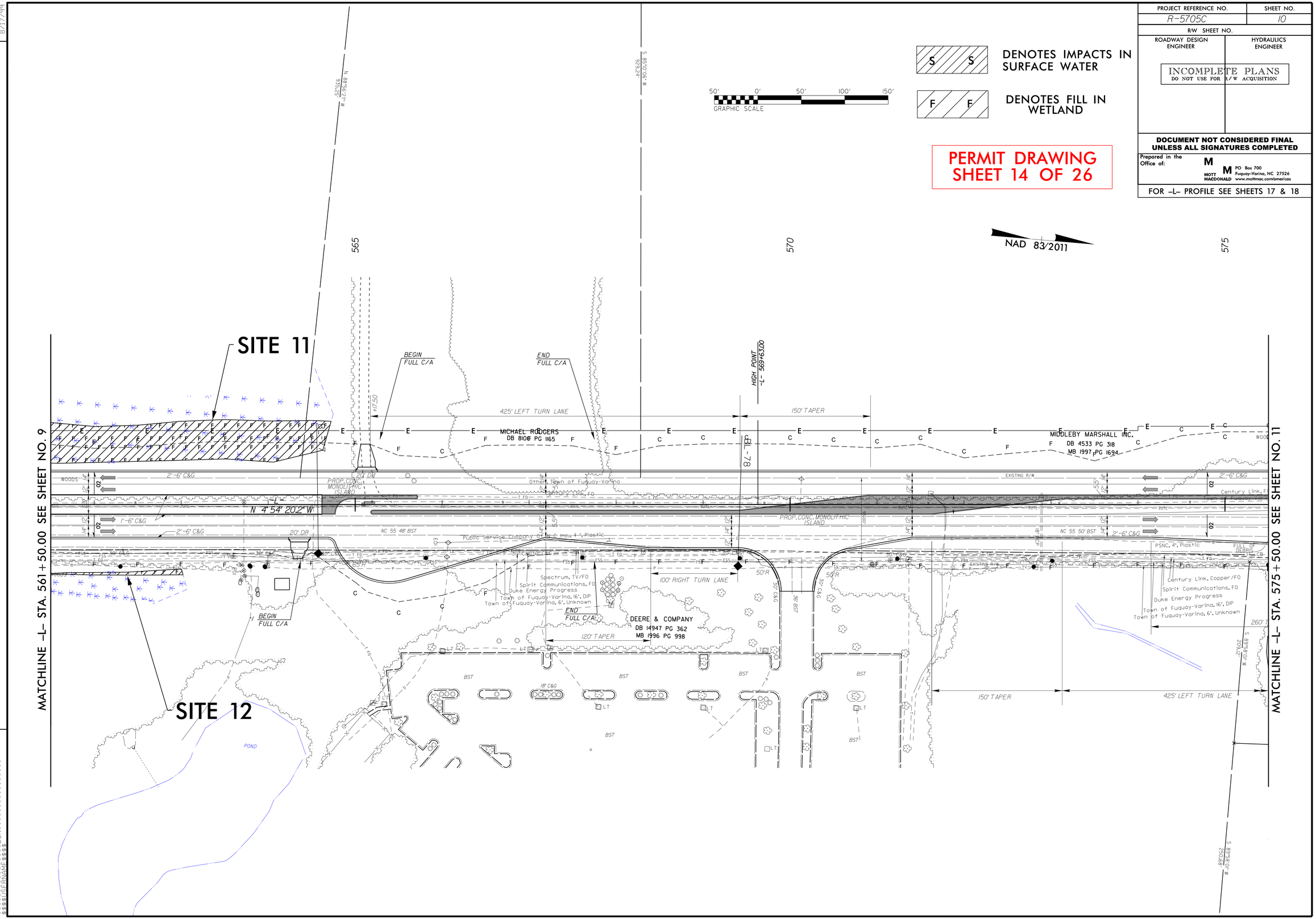
S DENOTES IMPACTS IN SURFACE WATER

F DENOTES FILL IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 14 OF 26

NAD 83/2011



REVISIONS

8/17/99

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	10
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

Prepared in the Office of:
MOTT MACDONALD
PO Box 700
Fuquay-Varina, NC 27526
www.mottmac.com/americas

FOR –L– PROFILE SEE SHEETS 17 & 18

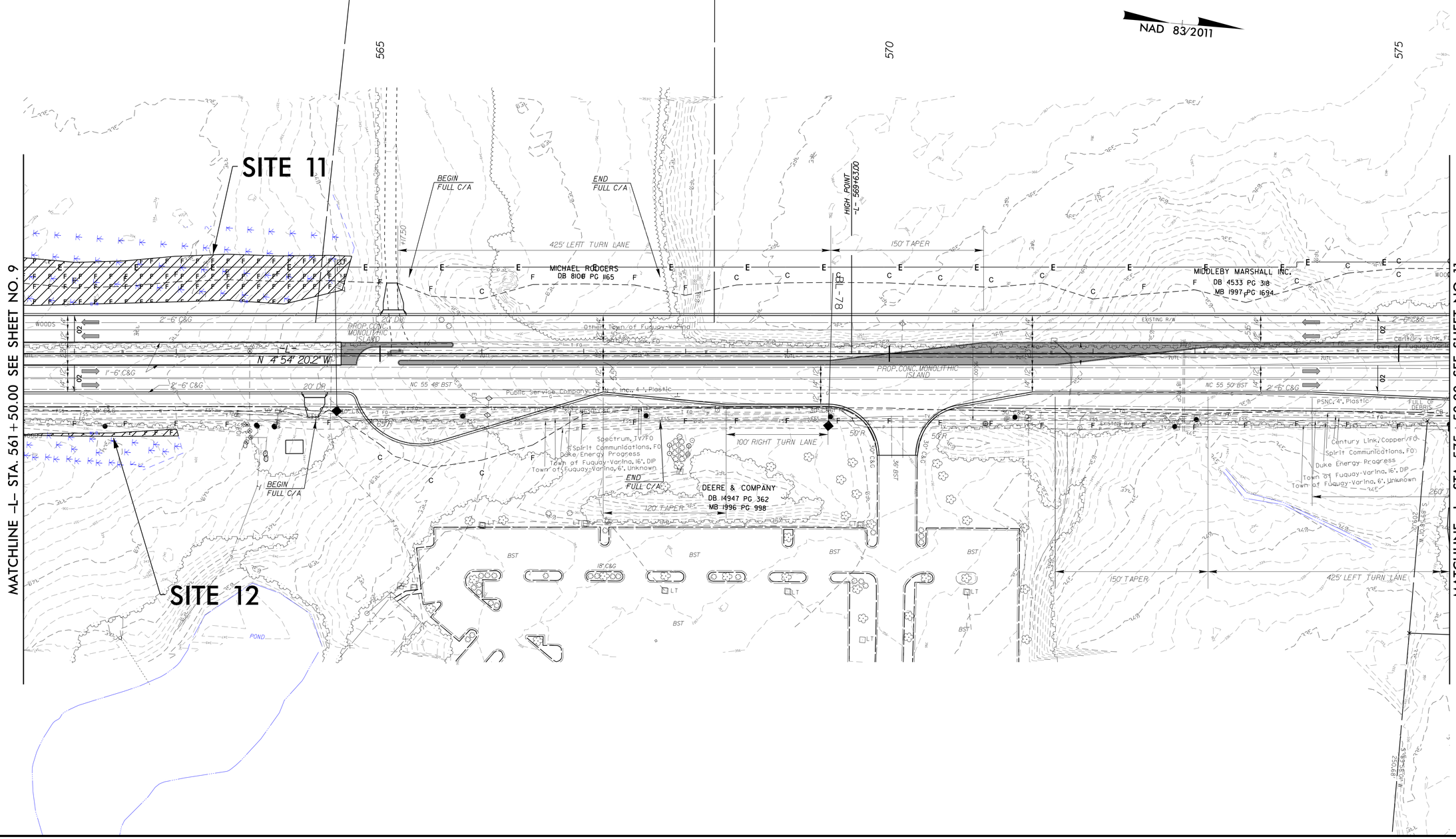
S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

NAD 83/2011

PERMIT DRAWING
SHEET 15 OF 26



REVISIONS

8/17/99

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	11
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR –L– PROFILE SEE SHEET 18

FOR –Y23– PROFILE SEE SHEET 24

S S — DENOTES IMPACTS IN SURFACE WATER

F F — DENOTES FILL IN WETLAND

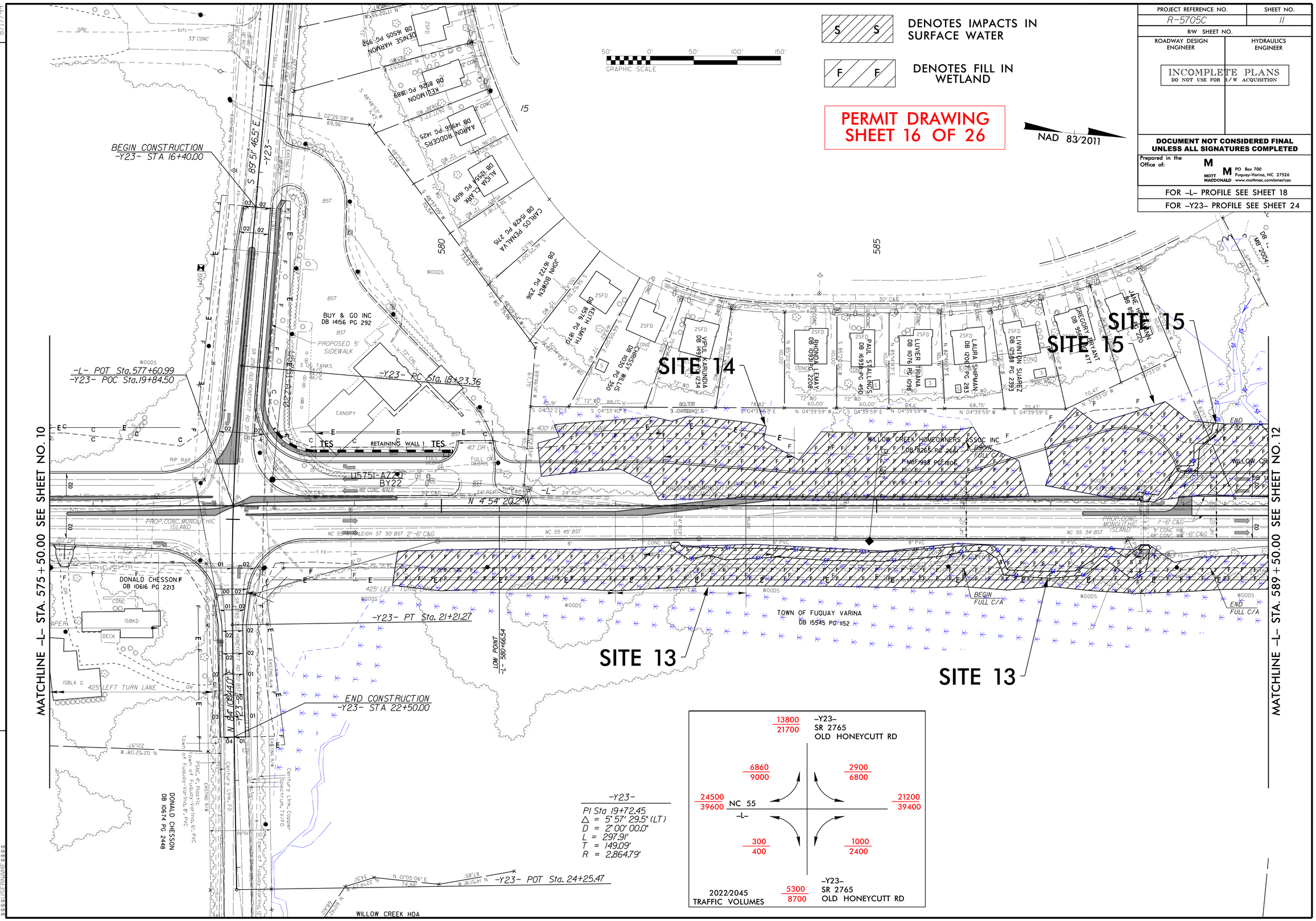
PERMIT DRAWING SHEET 16 OF 26

NAD 83/2011

GRAPHIC SCALE 50' 0' 50' 100' 150'

REVISIONS

8/17/99



2022/2045 TRAFFIC VOLUMES		
	13800 / 21700	–Y23– SR 2765 OLD HONEYCUTT RD
24500 / 39600	NC 55 –L–	21200 / 39400
	6860 / 9000	2900 / 6800
	300 / 400	1000 / 2400
	5300 / 8700	–Y23– SR 2765 OLD HONEYCUTT RD

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	11
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEET 18

FOR -Y23- PROFILE SEE SHEET 24

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

GRAPHIC SCALE 50' 0' 50' 100' 150'

PERMIT DRAWING SHEET 17 OF 26

NAD 83/2011

8/17/99

REVISIONS

MATCHLINE -L- STA. 575+50.00 SEE SHEET NO. 10

MATCHLINE -L- STA. 589+50.00 SEE SHEET NO. 12

BEGIN CONSTRUCTION -Y23- STA 16+40.00

S 89° 51' 46.5" E

-Y23-

-L- POT Sta.577+60.99
-Y23- POC Sta.19+84.50

-Y23- PC Sta. 18+23.36

-Y23- PT Sta. 21+21.27

END CONSTRUCTION -Y23- STA 22+50.00

-Y23- POT Sta. 24+25.47

N 84° 08' 40.0" E -Y23-

N 4° 54' 20.2" W

-L-

LOW POINT -L- 580+66.54

SITE 14

SITE 15

SITE 13

SITE 13

BUY & GO INC DB 14156 PG 292

PROPOSED 5' SIDEWALK

RETAINING WALL 1

WILLOW CREEK HOMEOWNERS ASSOC INC DB 8265 PG 264 DB 1998 PG 1805

TOWN OF FUQUAY VARINA DB 15545 PG 1152

DONALD CHESSON DB 10616 PG 2213

DONALD CHESSON DB 10614 PG 2448

WILLOW CREEK HOA

425' LEFT TURN LANE

NC 55 45' BST

NC 55 34' BST

PROP. CONC. MONOLITHIC ISLAND

BEGIN FULL C/A

END FULL C/A

13800 / 21700	-Y23- SR 2765 OLD HONEYCUTT RD	
6860 / 9000	2900 / 6800	
24500 / 39600	NC 55 -L-	21200 / 39400
300 / 400	1000 / 2400	
5300 / 8700	-Y23- SR 2765 OLD HONEYCUTT RD	

2022/2045 TRAFFIC VOLUMES

-Y23-
PI Sta 19+72.45
Δ = 5° 57' 29.5" (LT)
D = 2° 00' 00.0"
L = 297.91'
T = 149.09'
R = 2,864.79'

Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEETS 18 & 19

8/17/99

REVISIONS

50' 0' 50' 100' 150'
GRAPHIC SCALE

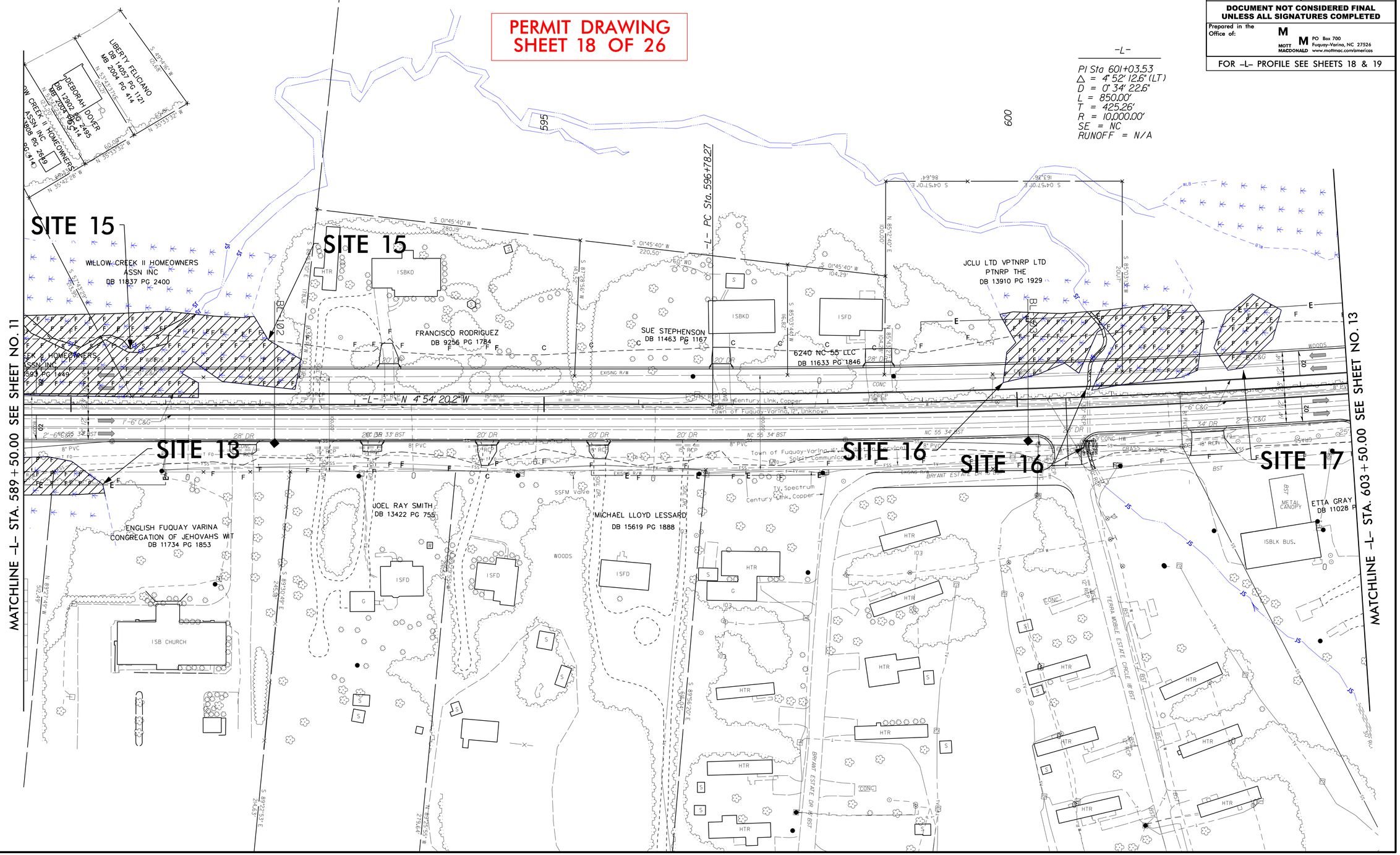
S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

NAD 83/2011

PERMIT DRAWING
SHEET 18 OF 26

-L-
PI Sta 601+03.53
Δ = 4° 52' 12.6" (LT)
D = 0° 34' 22.6"
L = 850.00'
T = 425.26'
R = 10,000.00'
SE = NC
RUNOFF = N/A



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEETS 18 & 19

8/17/99

REVISIONS

50' 0' 50' 100' 150'
GRAPHIC SCALE

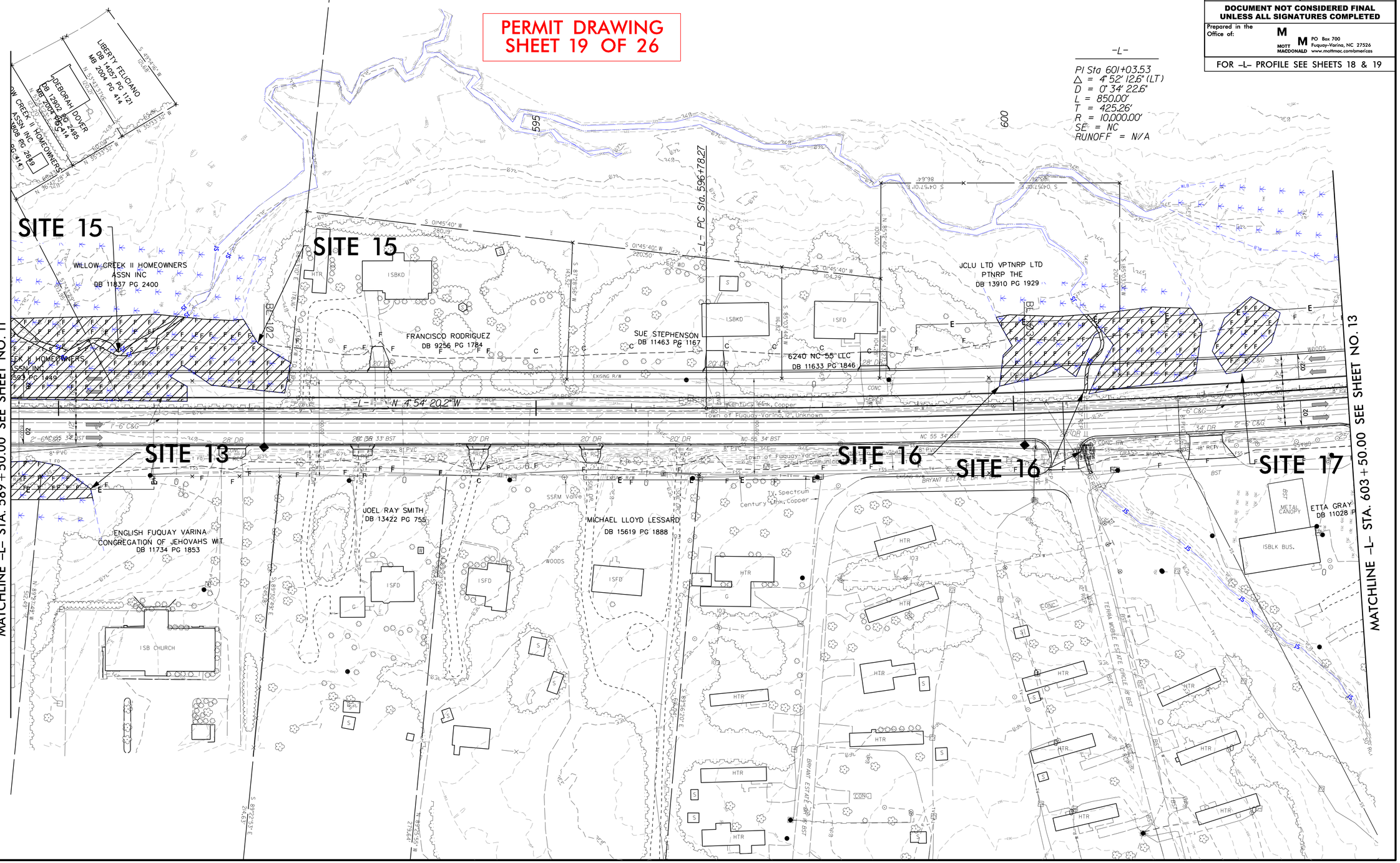
S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

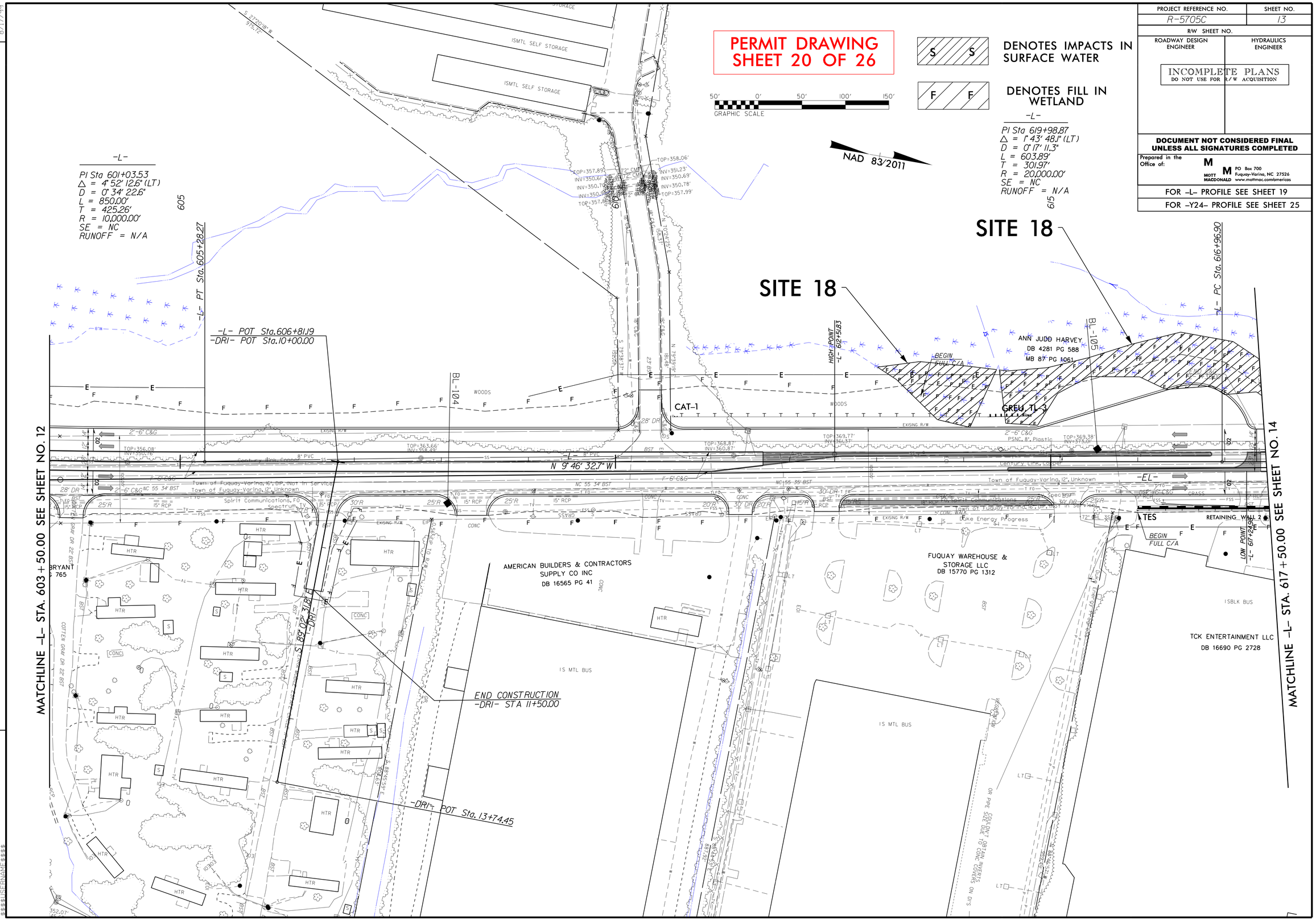
NAD 83/2011

PERMIT DRAWING
SHEET 19 OF 26

-L-
PI Sta 601+03.53
Δ = 4° 52' 12.6" (LT)
D = 0° 34' 22.6"
L = 850.00'
T = 425.26'
R = 10,000.00'
SE = NC
RUNOFF = N/A



Submitted 12/21/2021



PROJECT REFERENCE NO.	SHEET NO.
R-5705C	13
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

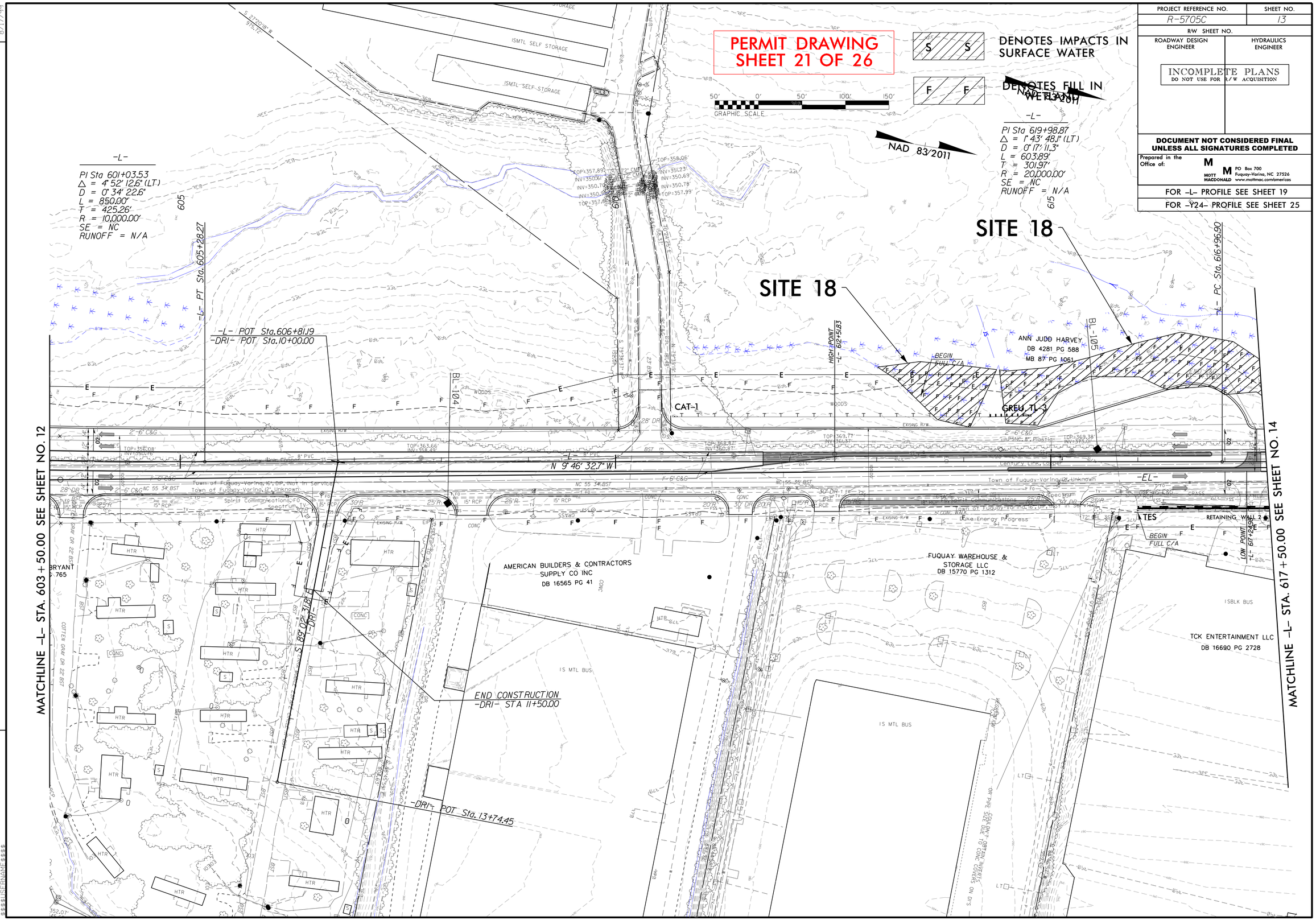
FOR -L- PROFILE SEE SHEET 19

FOR -Y24- PROFILE SEE SHEET 25

REVISIONS

8/17/99

Submitted 12/21/2021



PROJECT REFERENCE NO.	SHEET NO.
R-5705C	13
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

Prepared in the Office of: MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/americas

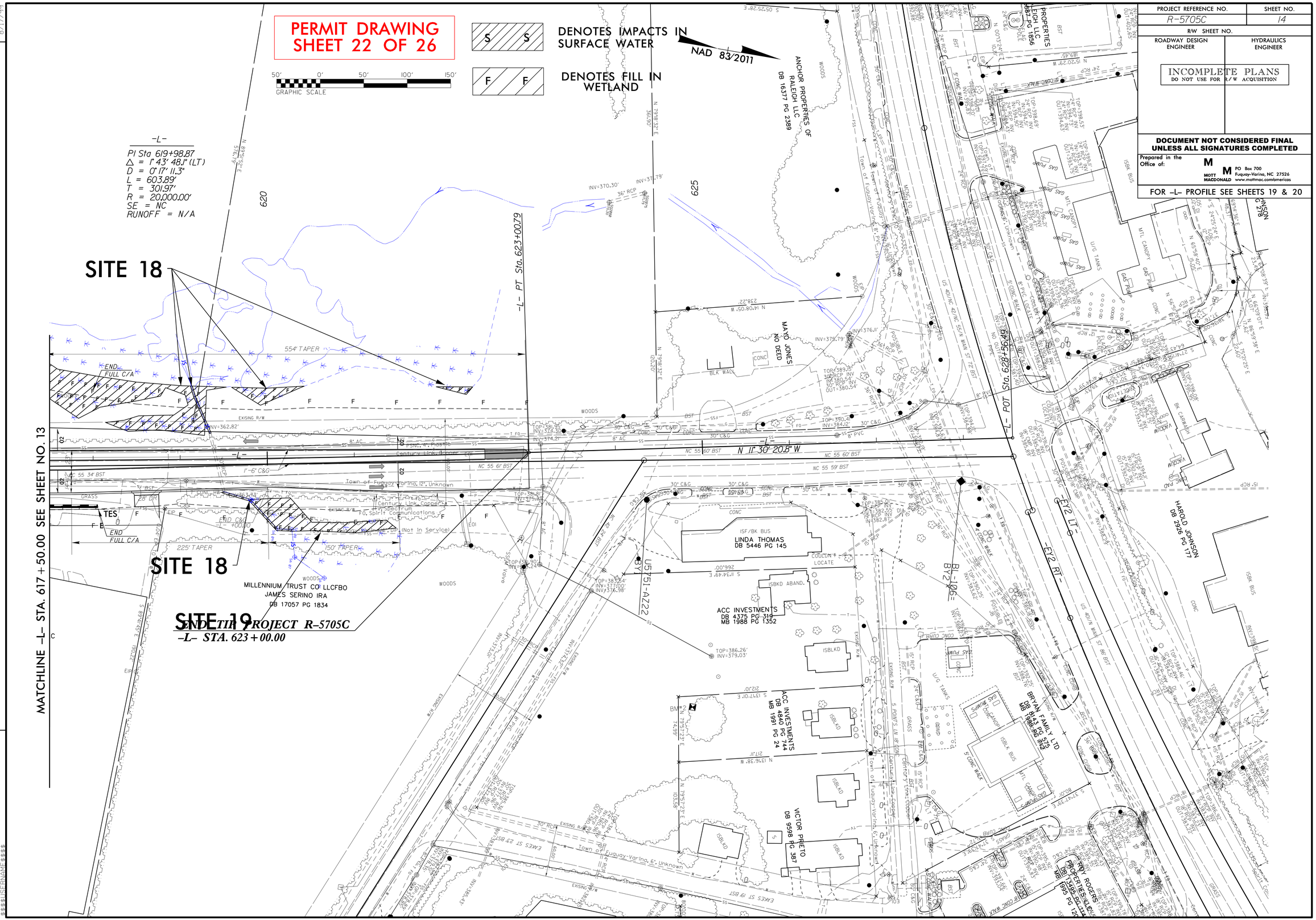
FOR -L- PROFILE SEE SHEET 19

FOR -Y24- PROFILE SEE SHEET 25

REVISIONS

8/17/99

Submitted 12/21/2021



PROJECT REFERENCE NO.	SHEET NO.
R-5705C	14
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

Prepared in the Office of: MOTT MACDONALD
PO Box 700
Fuquay-Varina, NC 27526
www.mottmac.com/americas

FOR -L- PROFILE SEE SHEETS 19 & 20

REVISIONS

8/17/99

Submitted 12/21/2021

Submitted 12/21/2021

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	From Sta. 482+54 to	Roadway Fill						0.01				
	Sta. 483+02 Rt											
2	From Sta. 486+27 to	Roadway Fill	0.15									
	Sta. 487+51 -L- Lt											
3	From Sta. 494+32 to	Roadway Fill						0.03				
	Sta. 495+08 -L- Rt											
4	From Sta. 498+01 to	Roadway Fill	0.07									
	Sta. 499+28 -L- Rt/Lt											
5	From Sta. 517+27 to	Roadway Fill	0.17									
	Sta. 519+72 -L- Rt											
6	From Sta. 518+36 to	Roadway Fill	0.28									
	Sta. 520+22 -L- Lt											
7	From Sta. 519+56 to	Roadway Fill	0.15					0.01		116		
	Sta. 522+84 -L- Rt											
8	From Sta. 522+74 to	Roadway Fill	0.03					0.01		140		
	Sta. 523+151 -L- Lt/Rt											
THIS PAGE SUBTOTAL*:			0.86					0.07		256	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/10/2021
WAKE COUNTY
R-5705C
46377.1.1

Revised 2018 Feb

Submitted 12/21/2021

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)
9	From Sta. 550+05 to	Roadway Fill	0.45					0.02		159		
	Sta. 554+27 -L- Lt/Rt											
10	From Sta. 553+25 to	Roadway Fill	< 0.01									
	Sta. 553+66 -L- Rt											
11	From Sta. 559+37 to	Roadway Fill	0.45					0.01		115		
	Sta. 564+73 -L- Lt/Rt											
12	From Sta. 561+43 to	Roadway Fill	0.01									
	Sta. 563+02 -L- Rt											
13	From Sta. 579+43 to	Roadway Fill	0.98					0.14		582		
	Sta. 590+37 -L- Rt											
14	From Sta. 581+10 to	Roadway Fill	0.92									
	Sta. 586+74 -L- Lt											
15	From Sta. 586+93 to	Roadway Fill	0.97					0.06		357		
	Sta. 592+43 -L- Lt											
THIS PAGE SUBTOTAL*:			3.78					0.22		1214	0	0
PAGE 1 SUBTOTALS*:			0.86					0.07		256	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/10/2021
WAKE COUNTY
R-5705C
46377.1.1

Revised 2018 Feb

Submitted 12/21/2021

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)
16	From Sta. 599+85 to	Roadway Fill	0.31					< 0.01		93		
	Sta. 602+02 -L- Lt											
17	From Sta. 602+10 to	Roadway Fill	0.08									
	Sta. 602+85 -L- Lt											
18	From Sta. 613+01 to	Roadway Fill	0.65					< 0.01		155		
	Sta. 622+39 -L- Lt/Rt											
19	From Sta. 619+79 to	Roadway Fill	0.06									
	Sta. 621+47 -L- Rt											
THIS PAGE SUBTOTAL*:			1.11					0.01		248	0	0
PAGE 1 SUBTOTALS*:			0.86					0.07		256	0	0
PAGE 2 SUBTOTALS*:			3.78					0.22		1214	0	0
PROJECT TOTALS*:			5.75	0	0	0	0	0.31	0	1718	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/10/2021
WAKE COUNTY
R-5705C
46377.1.1

Revised 2018 Feb

Submitted 12/21/2021

TIP PROJECT: R-5705C

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5705C	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46377.1.1		

PERMIT DRAWING
SHEET 1 OF 8

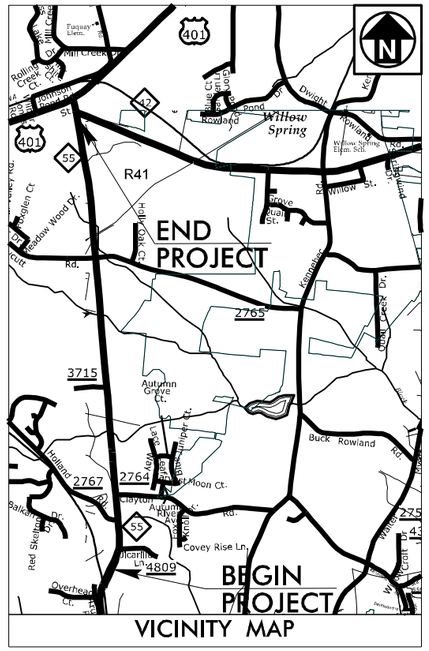
WAKE COUNTY

LOCATION: NC 55 FROM SOUTH OF SR 4809 (JICARILLA LANE) TO NC 42 IN FUQUAY-VARINA

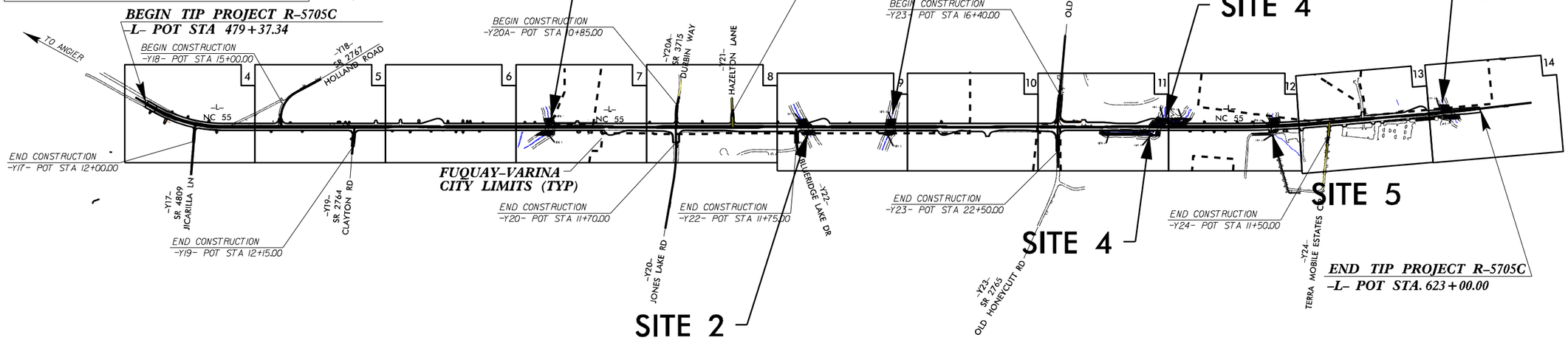
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CULVERT EXTENSIONS

BUFFER IMPACTS PERMIT

25% REVIEW PLANS
NOT FOR UTILITY OR HYDRAULIC DESIGN



VICINITY MAP



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PORTIONS OF THIS PROJECT ARE WITHIN THE MUNICIPAL BOUNDARIES OF FUQUAY-VARINA
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD __.

$$$$SYSTIME$$$$DGN$$$$
$$$$USERNAME$$$$

GRAPHIC SCALES

50 25 50 100
PLANS

50 25 50 100
PROFILE (HORIZONTAL)

10 5 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 28800
ADT 2045 = 46500
K = 9 %
D = 60 %
T = 4 % *
V = 50 MPH
* (TTST =1% DUAL 3%)
FUNC CLASS =
MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5705C = 2.692 MILES
TOTAL LENGTH OF TIP PROJECT R-5705C = 2.692 MILES

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 17, 2020

LETTING DATE:

GLENN W. MUMFORD, PE
PROJECT ENGINEER

HERB TURNER, PE
HYDRAULICS ENGINEER

NICOLE M. HACKLER, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

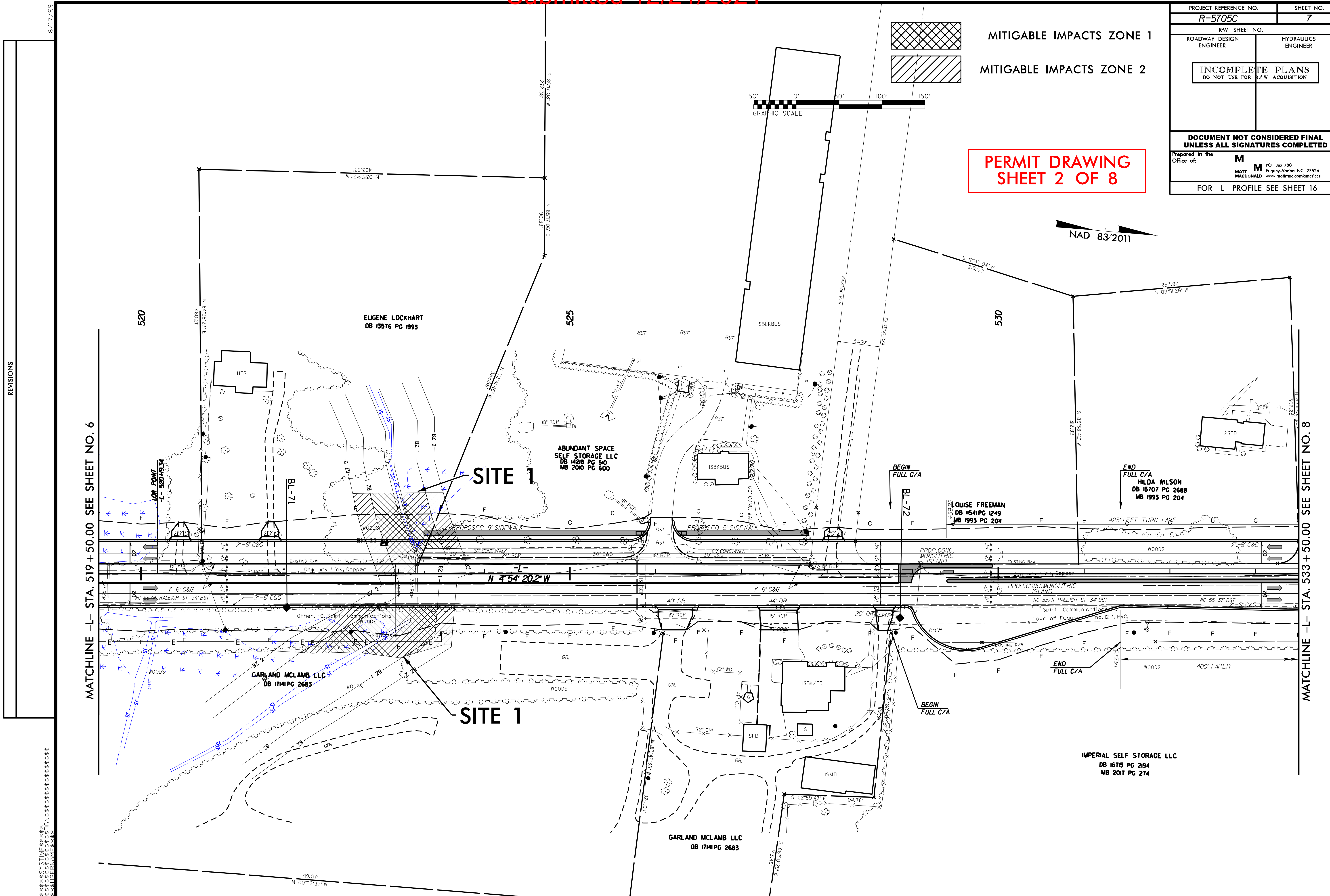
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

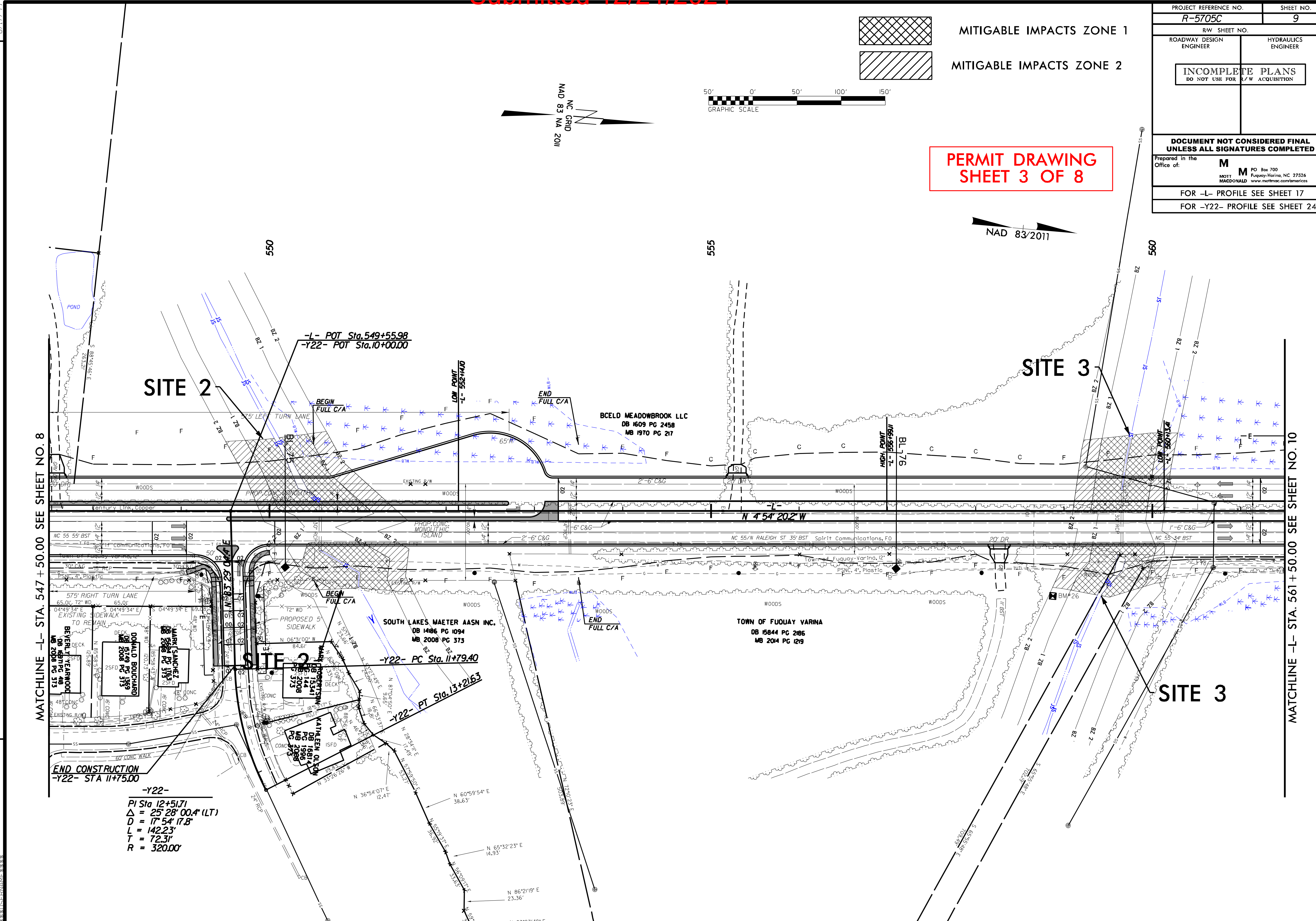
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

Submitted 12/21/2021



Submitted 12/21/2021



Submitted 12/21/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705C	11
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEET 18

FOR -Y23- PROFILE SEE SHEET 24

PERMIT DRAWING
SHEET 4 OF 8

NAD 83/2011

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

GRAPHIC SCALE 50' 0' 50' 100' 150'

MATCHLINE -L- STA. 575+50.00 SEE SHEET NO. 10

MATCHLINE -L- STA. 589+50.00 SEE SHEET NO. 12

BEGIN CONSTRUCTION
-Y23- STA 16+40.00

-L- POT Sta. 577+60.99
-Y23- POC Sta. 19+84.50

-Y23- PC Sta. 18+23.36

-Y23- PT Sta. 21+21.27

END CONSTRUCTION
-Y23- STA 22+50.00

-Y23- POT Sta. 24+25.47

LOW POINT
-L- 580+66.54

SITE 4

SITE 4

SITE 4

BUY & GO INC
DB 14156 PG 292

DONALD CHESSON
DB 10616 PG 2213

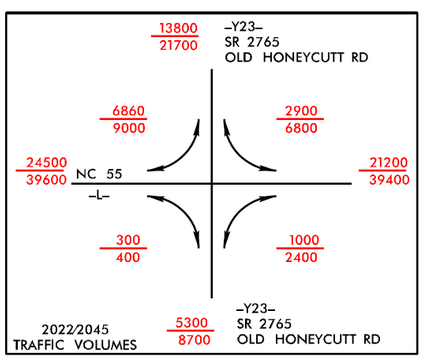
DONALD CHESSON
DB 10674 PG 2448

TOWN OF FUQUAY VARINA
DB 15545 PG 152

WILLOW CREEK HOMEOWNERS ASSOC INC
DB 8265 PG 2661
MB 1998 PG 1806

WILLOW CREEK HOA

-Y23-
PI Sta 19+72.45
Δ = 5° 57' 29.5" (LT)
D = 2° 00' 00.0"
L = 297.91'
T = 149.09'
R = 2,864.79'



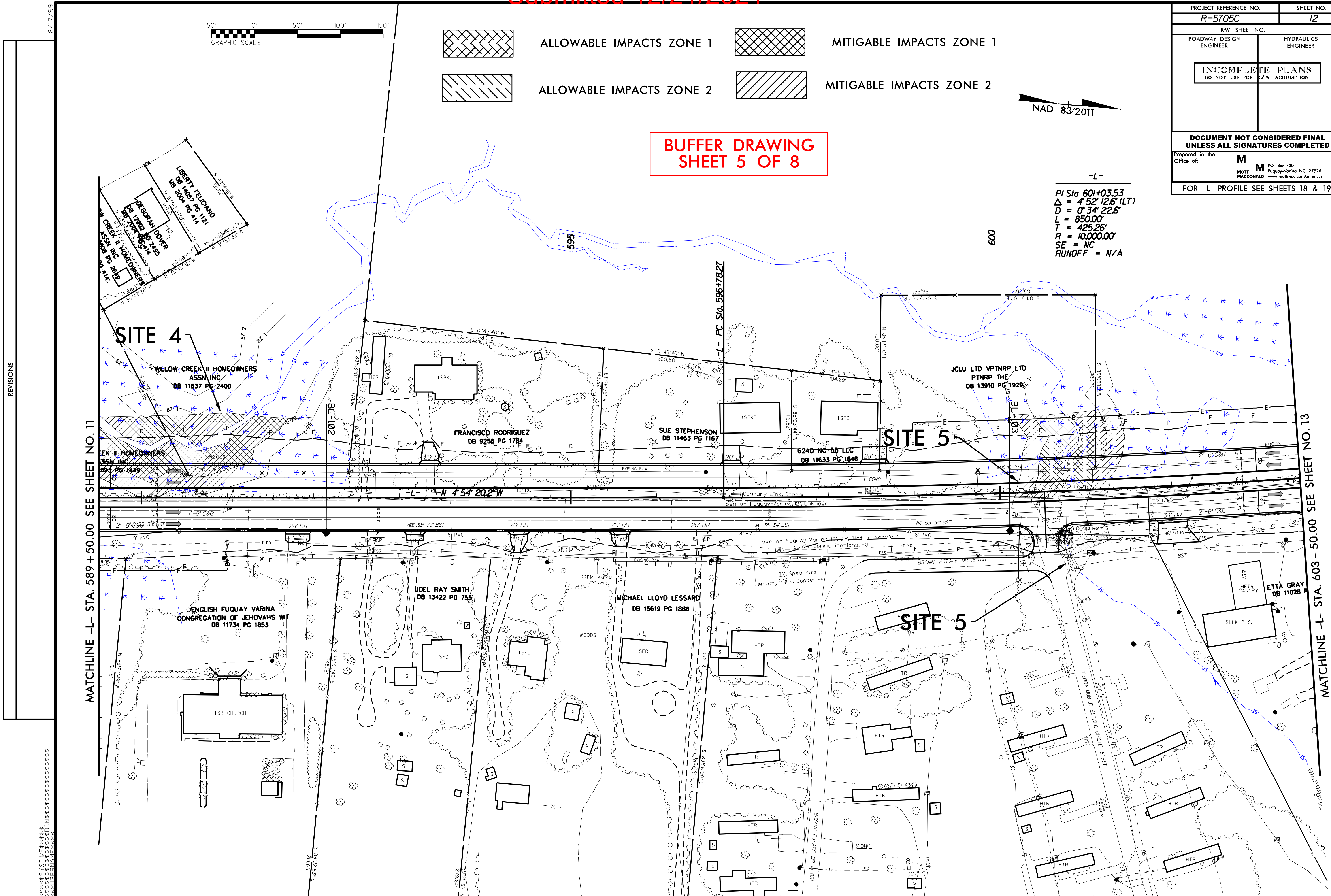
2022/2045
TRAFFIC VOLUMES

REVISIONS

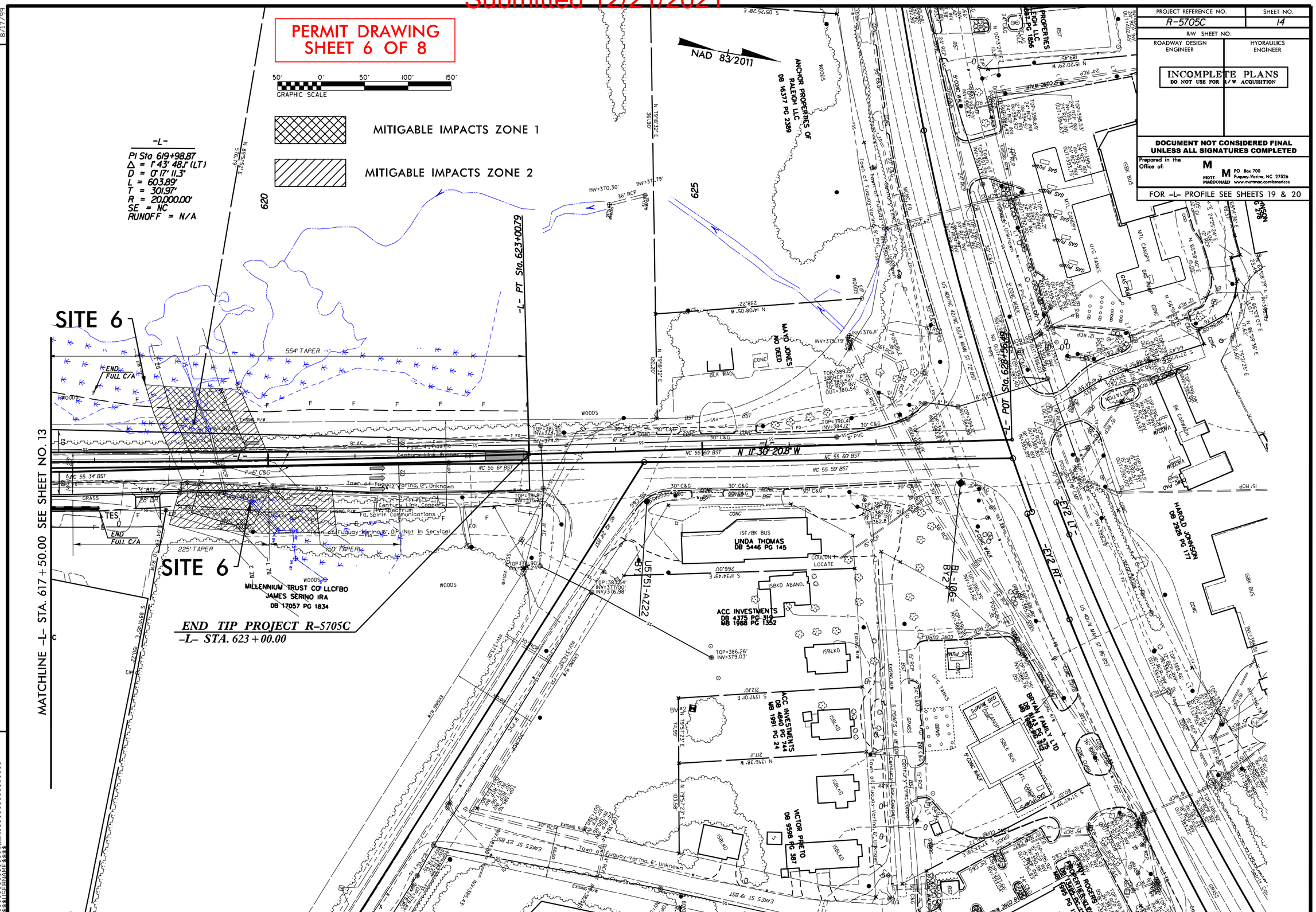
8/17/99

$$$$SYSTIME$$$$
$$$$CN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

Submitted 12/21/2021



Submitted 12/21/2021



PROJECT REFERENCE NO.	SHEET NO.
R-5705C	14
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

Prepared in the Office of: MOTT MACDONALD, PO Box 700, Fuquay-Varina, NC 27526, www.mottmac.com/americas

FOR -L- PROFILE SEE SHEETS 19 & 20

REVISIONS

8/17/99

Submitted 12/21/2021

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	From -L- Sta. 521+54 to	Roadway Fill	x						10742	6748	17489		
	Sta. 523+74 Lt/Rt												
2	From -L- Sta. 549+50 to	Roadway Fill	x						10851	6638	17489		
	Sta. 551+59 Lt/Rt												
3	From -L- Sta. 558+86 to	Roadway Fill	x						9364	5469	14833		
	Sta. 560+30 Lt/Rt												
4	From -L- Sta. 582+07 to	Roadway Fill	x						13950	6502	20452		
	Sta. 592+01 Lt/Rt												
4	From -L- Sta. 582+07 to	Roadway Fill			x				34255	11164	45418		
	Sta. 592+01 Lt/Rt												
5	From -L- Sta. 600+16 to	Roadway Fill	x			7682	5039	12721					
	Sta. 601+49 Lt/Rt												
6	From -L- Sta. 618+85 to	Roadway Fill	x						10546	6563	17108		
	Sta. 620+74 Lt/Rt												
TOTALS*:						**7682**	**5039**	**12721**	**89706**	**43084**	**132790**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
12/20/21
WAKE COUNTY
R-5705C
46377.1.1
SHEET 7 OF 8

Revised 2018 Feb

Submitted 12/21/2021

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
1	From -L- 521+54	to 523+52 Rt/Lt	2944	1750
2	From -L- 550+31	to 550+81 Lt	371	640
3	From -L- 560+04	to 560+30 Lt	0	550
4	From -L- 582+07	to 591+98 Rt/Lt	41380	12552
5	From -L- 600+18	to 601+49 Lt	3977	3121
6	From -L- 618+59	to 620+78 Rt/Lt	3350	982
TOTAL:			**52022**	**19595**

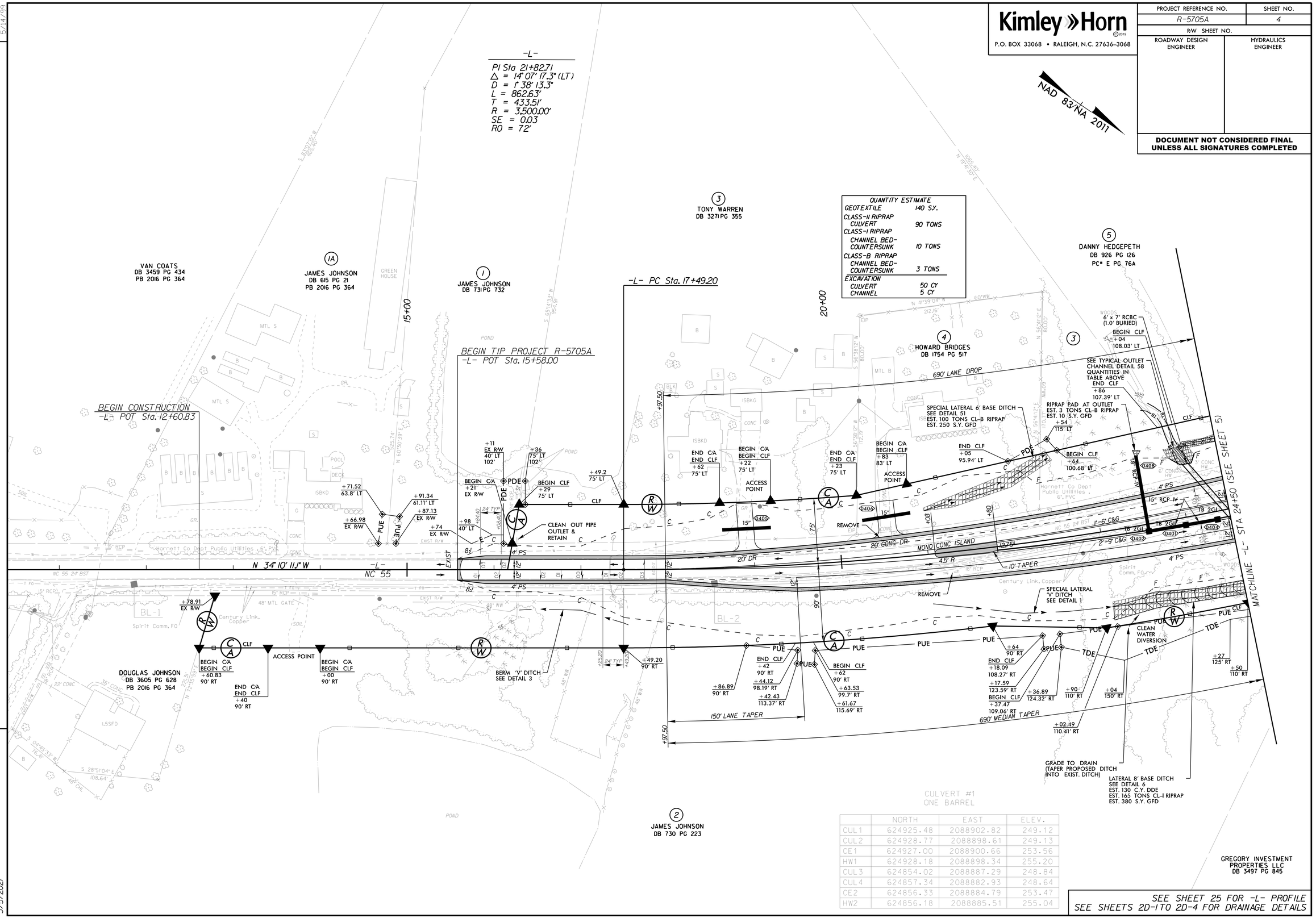
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
12/20/21
WAKE COUNTY
R-5705C
46377.1.1
SHEET 8 OF 8

Revised 2018 Feb

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS

5/14/99

3/5/2021

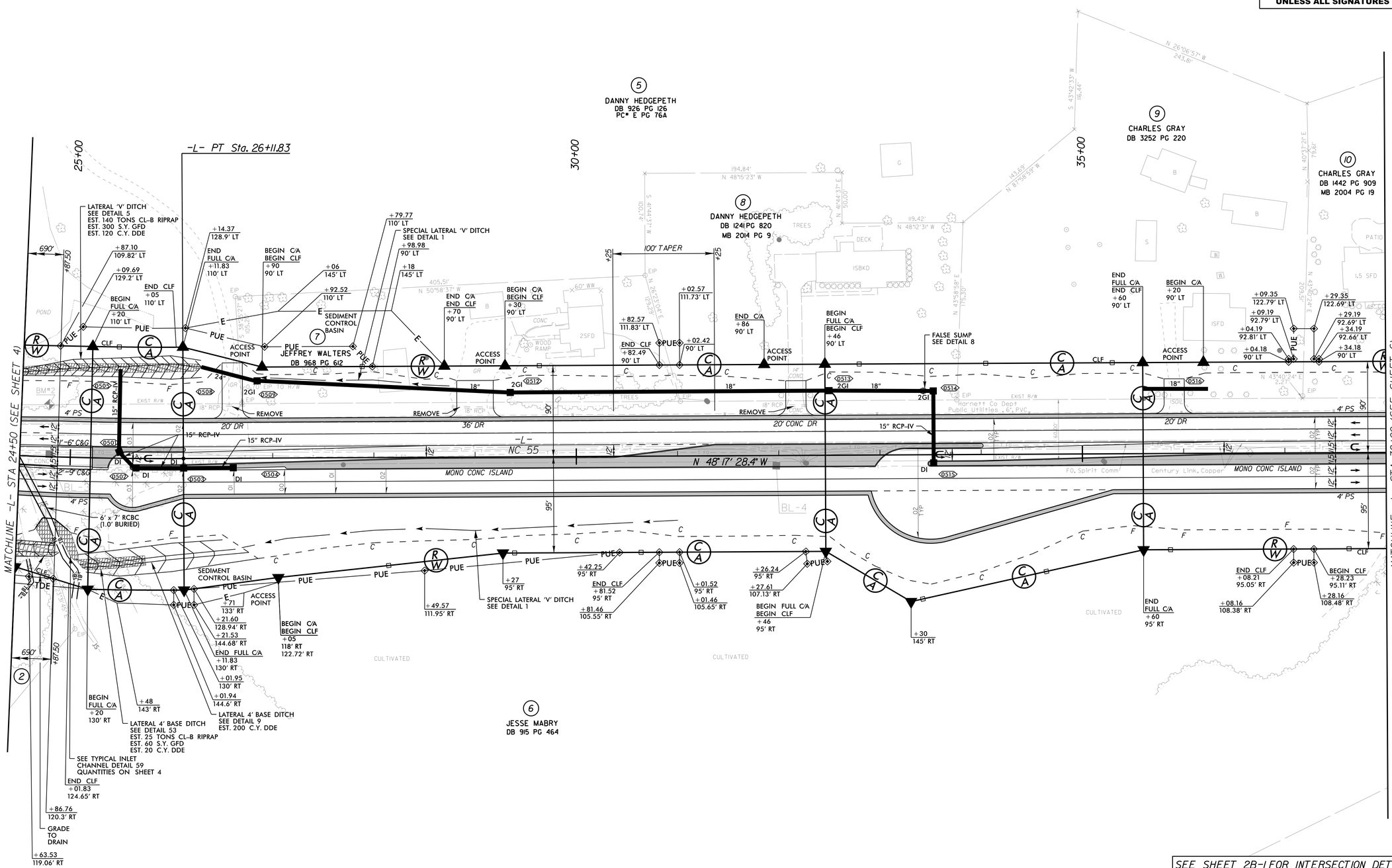
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

-L-
PI Sta 21+82.71
Δ = 14° 07' 17.3" (LT)
D = 1° 38' 13.3"
L = 862.63'
T = 433.51'
R = 3,500.00'
SE = 0.03
RO = 150'



SEE SHEET 2B-1 FOR INTERSECTION DETAILS 1 AND 2
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 25 FOR -L- PROFILE

REVISIONS

5/14/99

3/5/2021

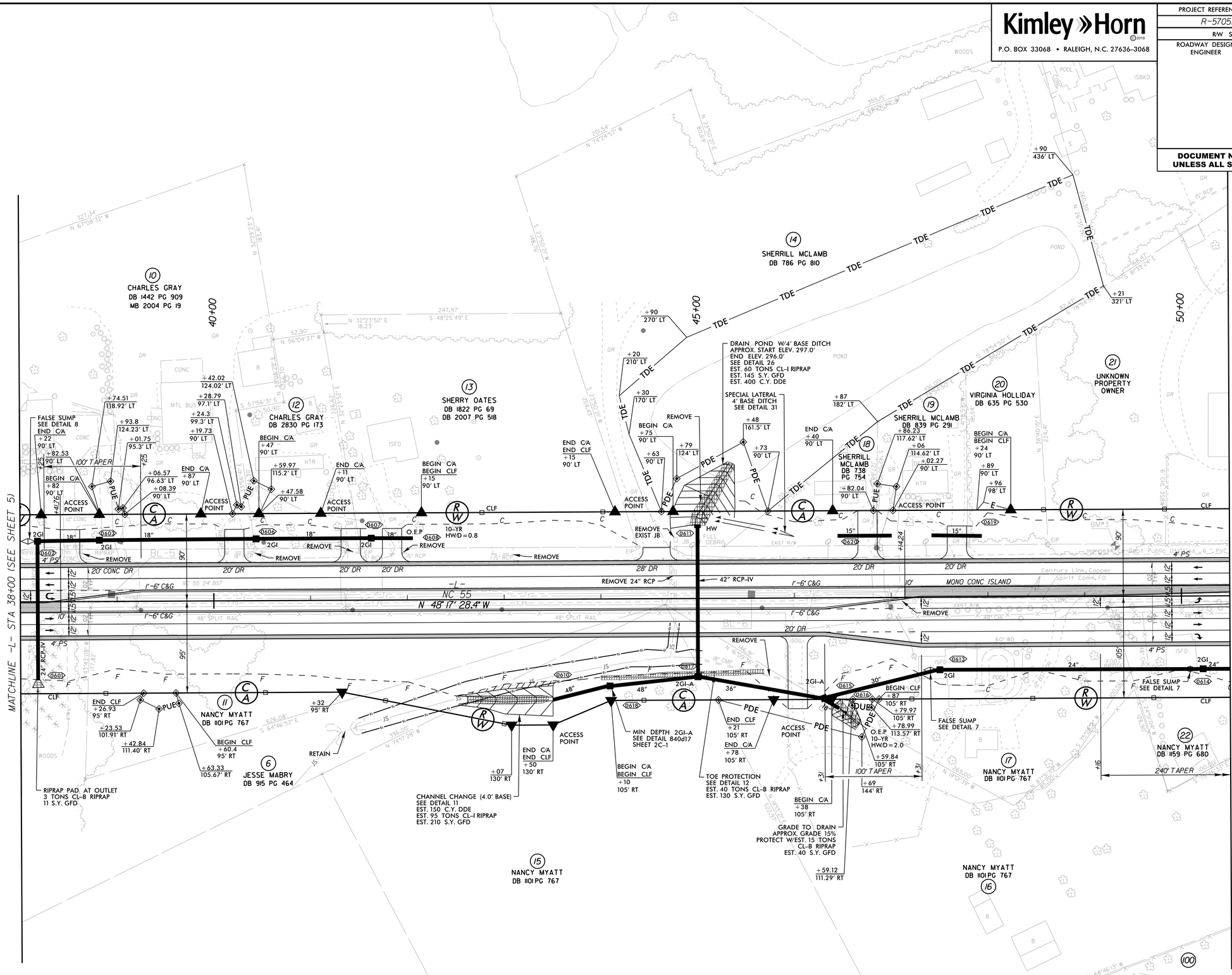
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99



SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 26 FOR -L- PROFILE

3/5/2021

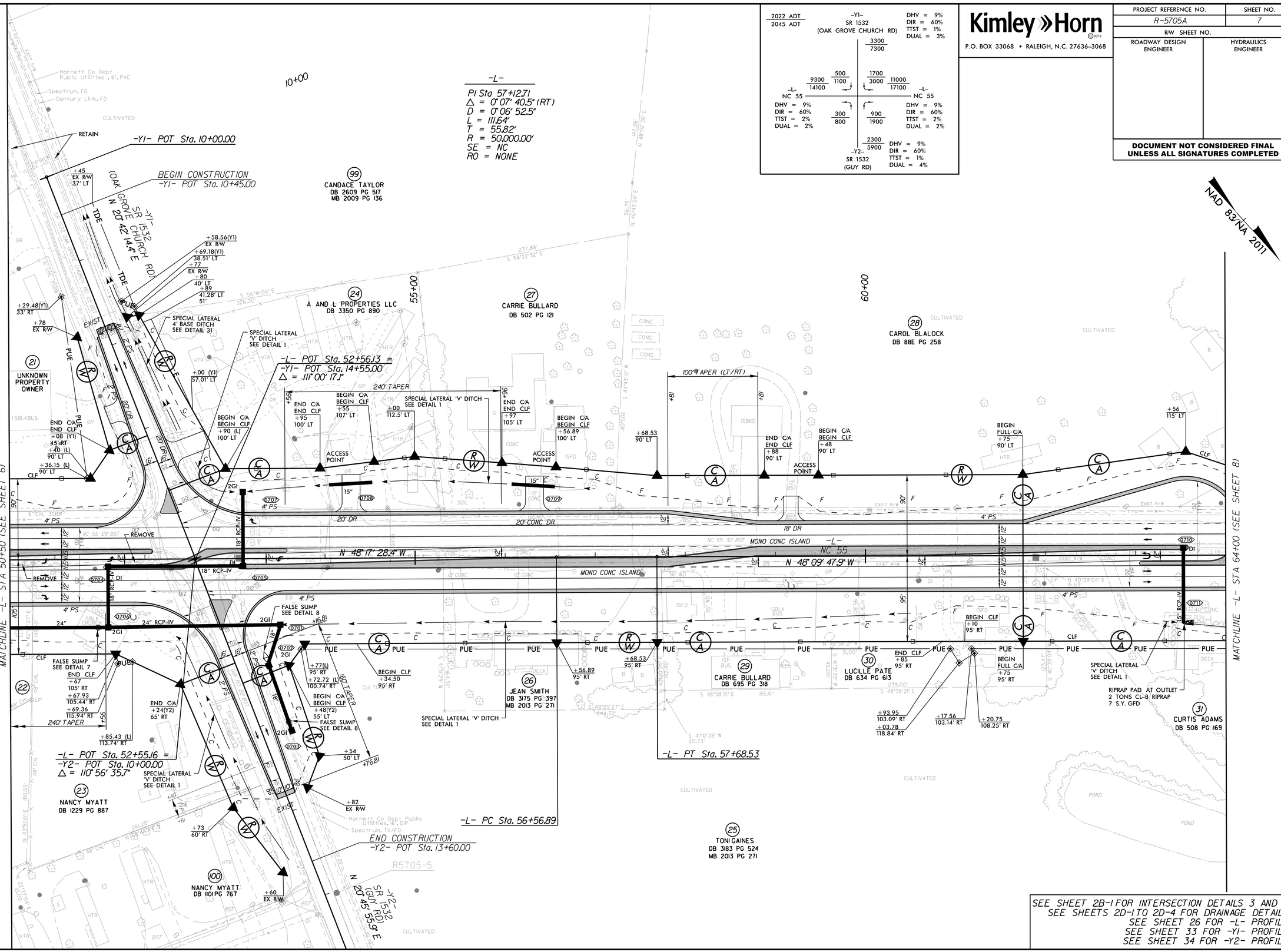
2022 ADT / 2045 ADT	-Y1- SR 1532 (OAK GROVE CHURCH RD)	DHV = 9% DIR = 60% TTST = 1% DUAL = 3%
-L- NC 55	DHV = 9% DIR = 60% TTST = 2% DUAL = 2%	
-L- NC 55	DHV = 9% DIR = 60% TTST = 2% DUAL = 2%	
-Y2- SR 1532 (GUY RD)	DHV = 9% DIR = 60% TTST = 1% DUAL = 4%	

Kimley»Horn ©2019

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEET 2B-1 FOR INTERSECTION DETAILS 3 AND 4
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 33 FOR -Y1- PROFILE
SEE SHEET 34 FOR -Y2- PROFILE

REVISIONS

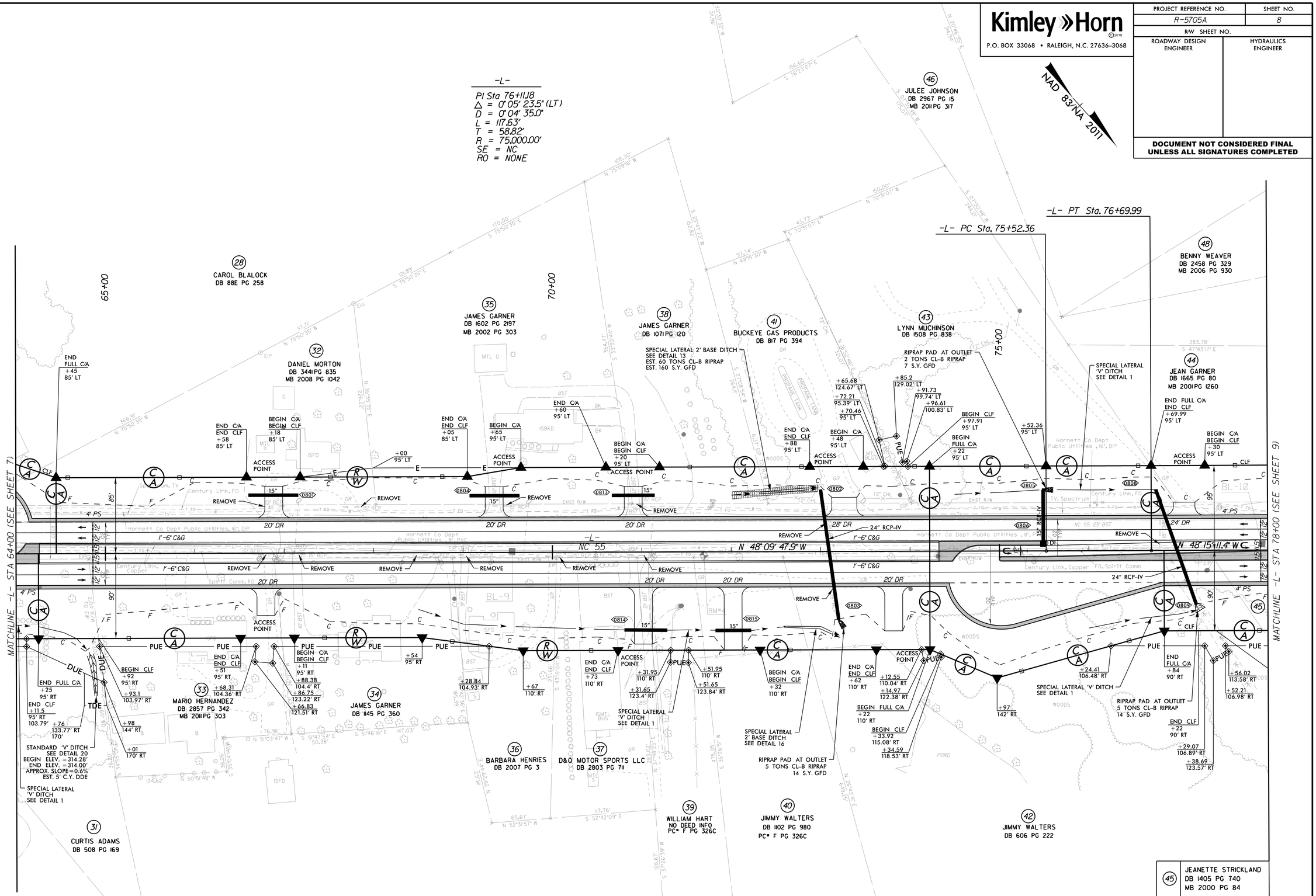
5/14/99

3/5/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEET 2B-2 FOR INTERSECTION DETAIL 5
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 27 FOR -L- PROFILE

REVISIONS

5/14/99

3/5/2021

Kimley »Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

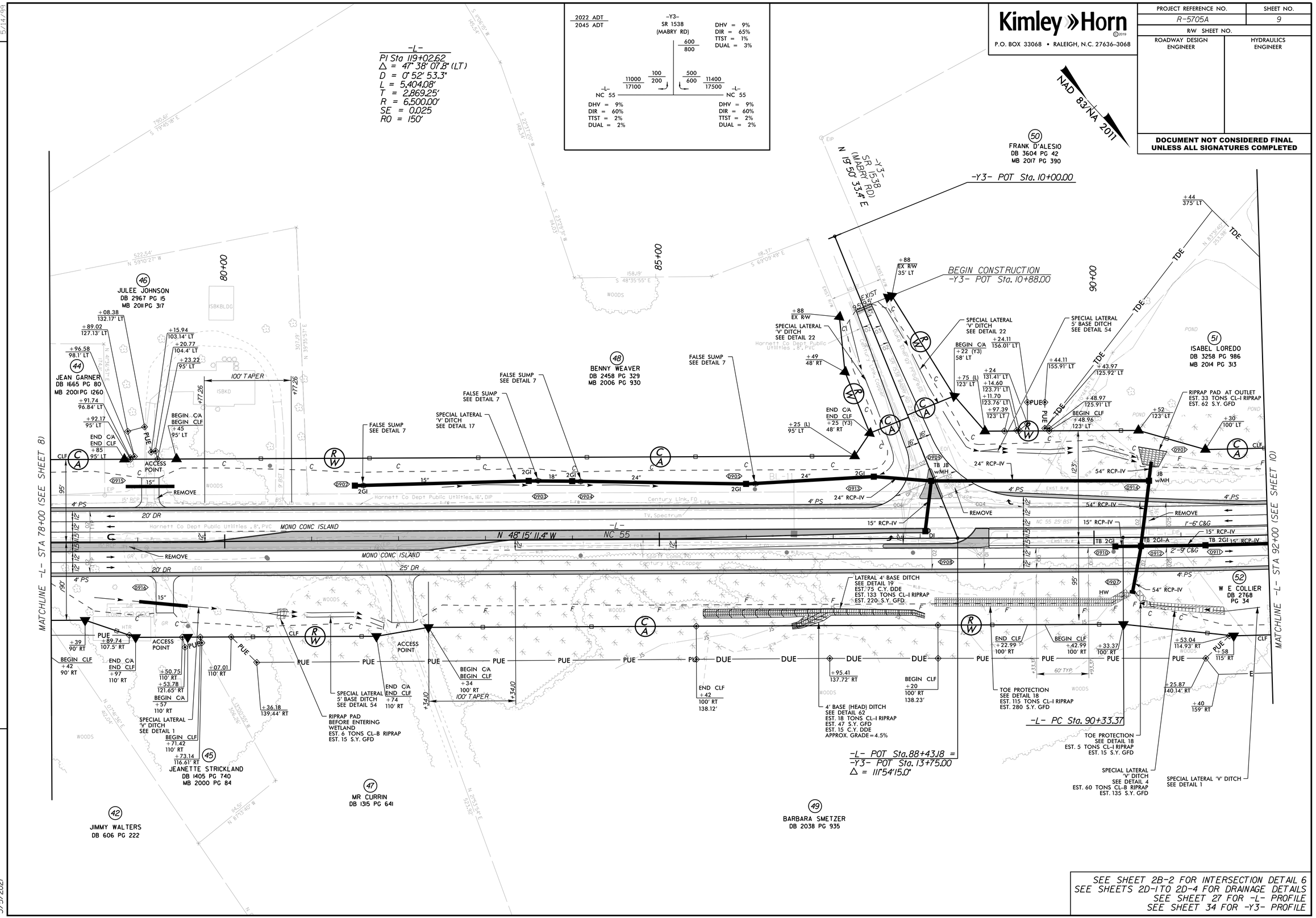
PROJECT REFERENCE NO.	SHEET NO.
R-5705A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99

3/5/2021



SEE SHEET 2B-2 FOR INTERSECTION DETAIL 6
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 34 FOR -Y3- PROFILE

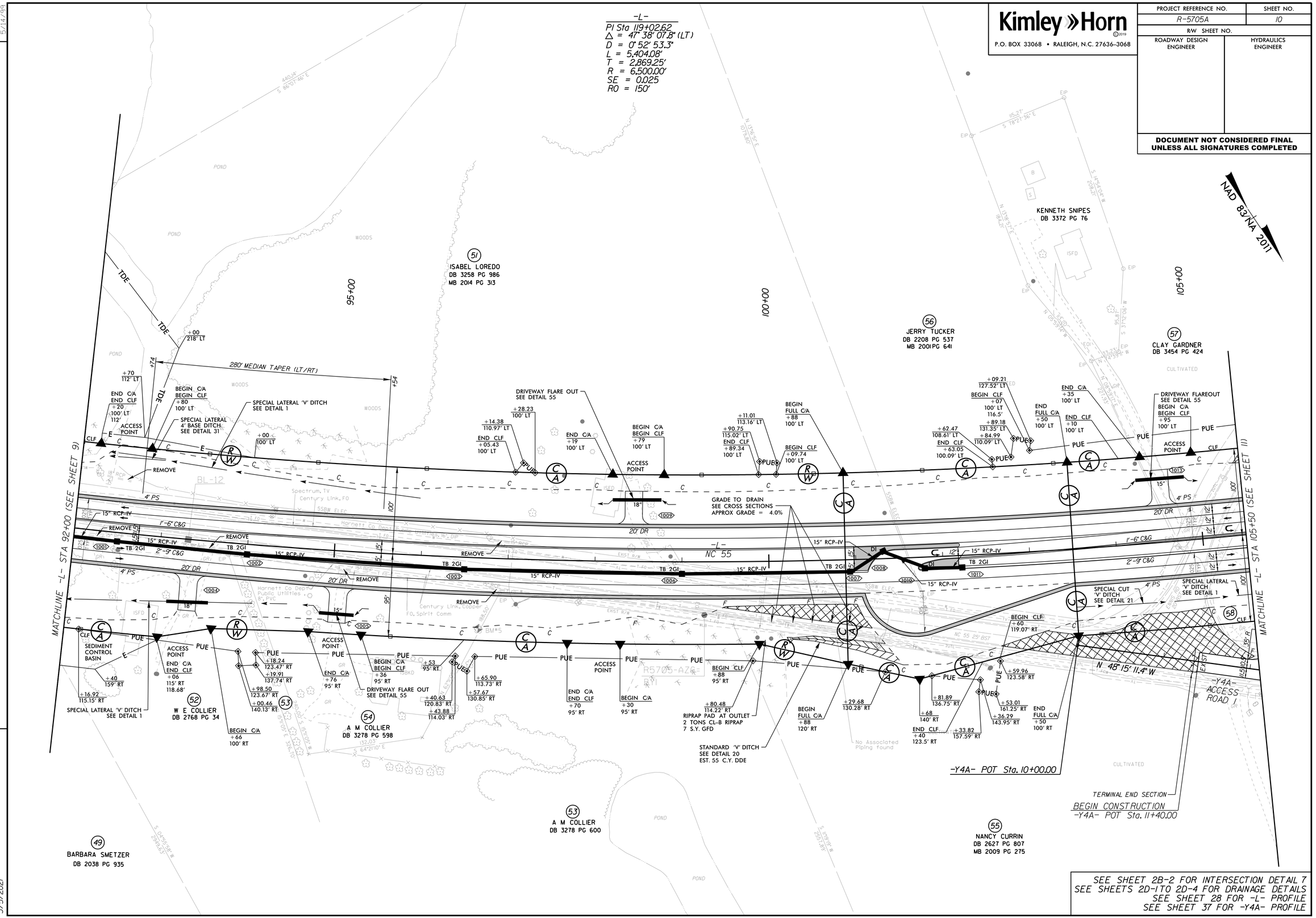
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99



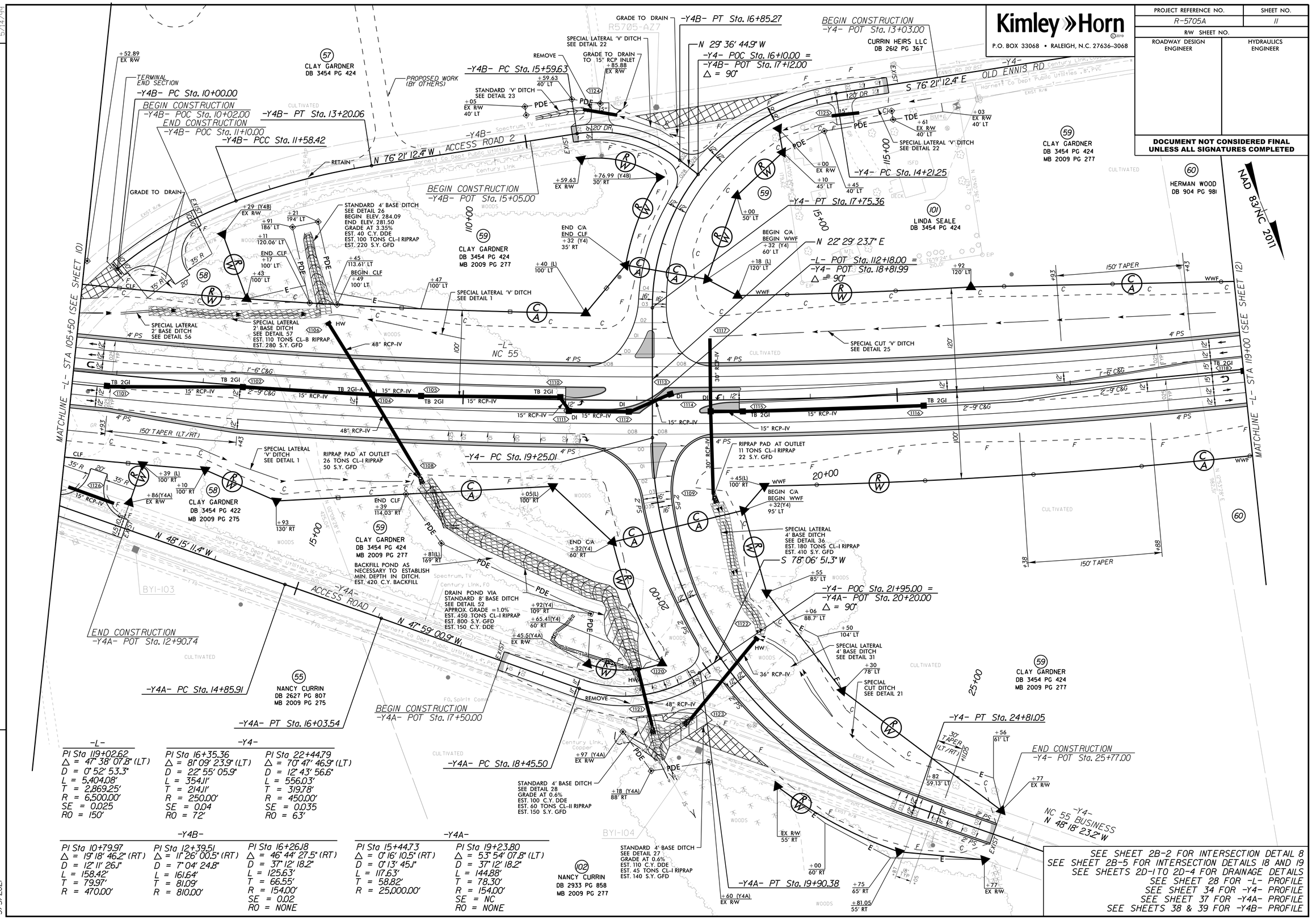
SEE SHEET 2B-2 FOR INTERSECTION DETAIL 7
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 37 FOR -Y4A- PROFILE

3/5/2021

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L-	-Y4-	
PI Sta 119+02.62	PI Sta 16+35.36	PI Sta 22+44.79
Δ = 47° 38' 07.8" (LT)	Δ = 81° 09' 23.9" (LT)	Δ = 70° 47' 46.9" (LT)
D = 0° 52' 53.3"	D = 22° 55' 05.9"	D = 12° 43' 56.6"
L = 5,404.08'	L = 354.11'	L = 556.03'
T = 2,869.25'	T = 214.11'	T = 319.78'
R = 6,500.00'	R = 250.00'	R = 450.00'
SE = 0.025	SE = 0.04	SE = 0.035
RO = 150'	RO = 72'	RO = 63'

-Y4B-			-Y4A-	
PI Sta 10+79.97	PI Sta 12+39.51	PI Sta 16+26.18	PI Sta 15+44.73	PI Sta 19+23.80
Δ = 19° 18' 46.2" (RT)	Δ = 11° 26' 00.5" (RT)	Δ = 46° 44' 27.5" (RT)	Δ = 0° 16' 10.5" (RT)	Δ = 53° 54' 07.8" (LT)
D = 12° 11' 26.1"	D = 7° 04' 24.8"	D = 37° 12' 18.2"	D = 0° 13' 45.1"	D = 37° 12' 18.2"
L = 158.42'	L = 161.64'	L = 125.63'	L = 117.63'	L = 144.88'
T = 79.97'	T = 81.09'	T = 66.55'	T = 58.82'	T = 78.30'
R = 470.00'	R = 810.00'	R = 154.00'	R = 25,000.00'	R = 154.00'
		SE = 0.02		SE = NC
		RO = NONE		RO = NONE

SEE SHEET 2B-2 FOR INTERSECTION DETAIL 8
SEE SHEET 2B-5 FOR INTERSECTION DETAILS 18 AND 19
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 34 FOR -Y4- PROFILE
SEE SHEET 37 FOR -Y4A- PROFILE
SEE SHEETS 38 & 39 FOR -Y4B- PROFILE

REVISIONS

5/14/99

3/5/2021

5/14/99

REVISIONS

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

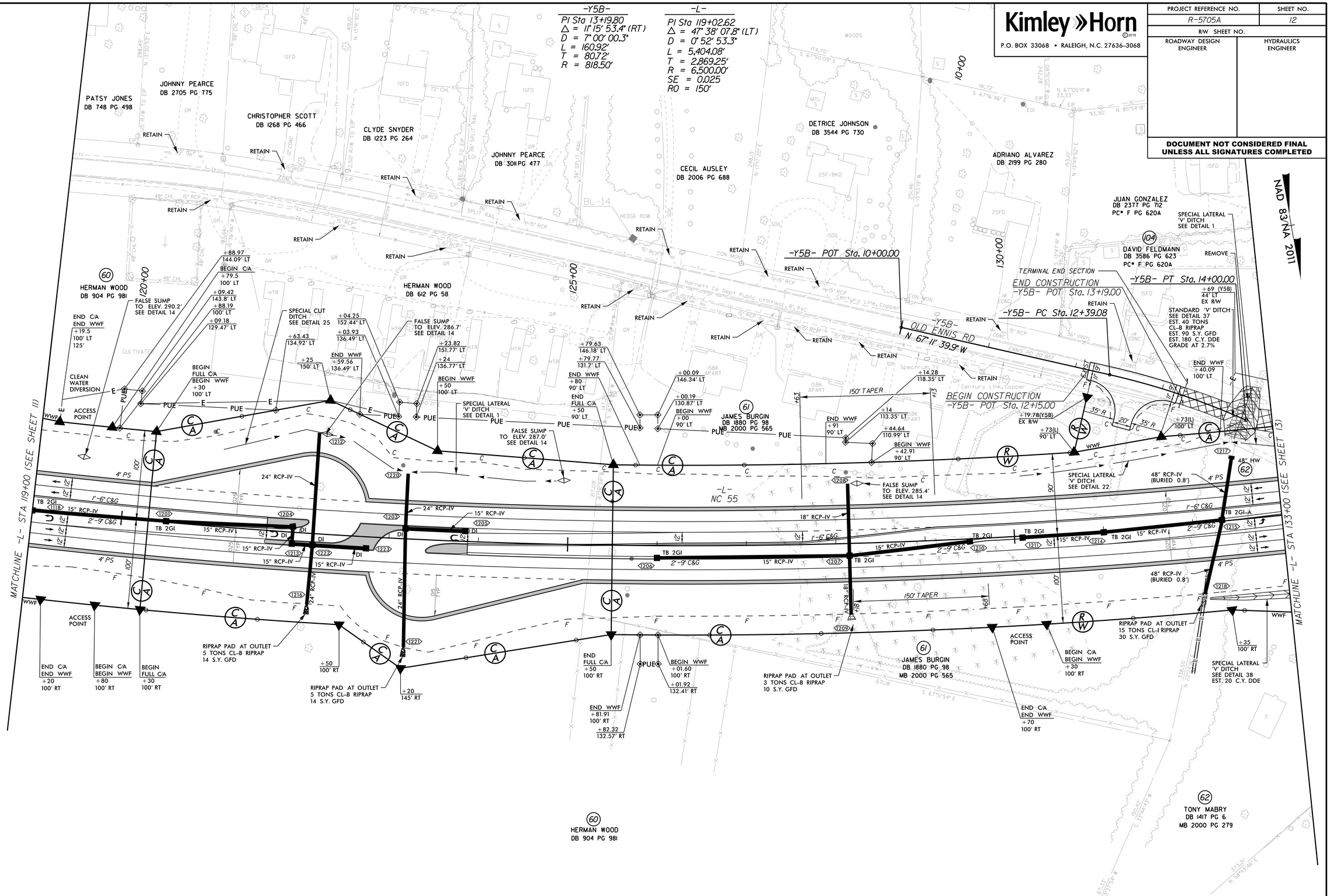
PROJECT REFERENCE NO.	SHEET NO.
R-5705A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

-Y5B-
PI Sta 13+19.80
Δ = 11° 15' 53.4" (RT)
D = 7° 00' 00.3"
L = 160.92'
T = 80.72'
R = 818.50'

-L-
PI Sta 119+02.62
Δ = 47° 38' 07.8" (LT)
D = 0° 52' 53.3"
L = 5,404.08'
T = 2,869.25'
R = 6,500.00'
SE = 0.025
RO = 150'



SEE SHEET 2B-3 FOR INTERSECTION DETAIL 9
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 38 FOR -Y5B- PROFILE

3/5/2021

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn © 2019

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

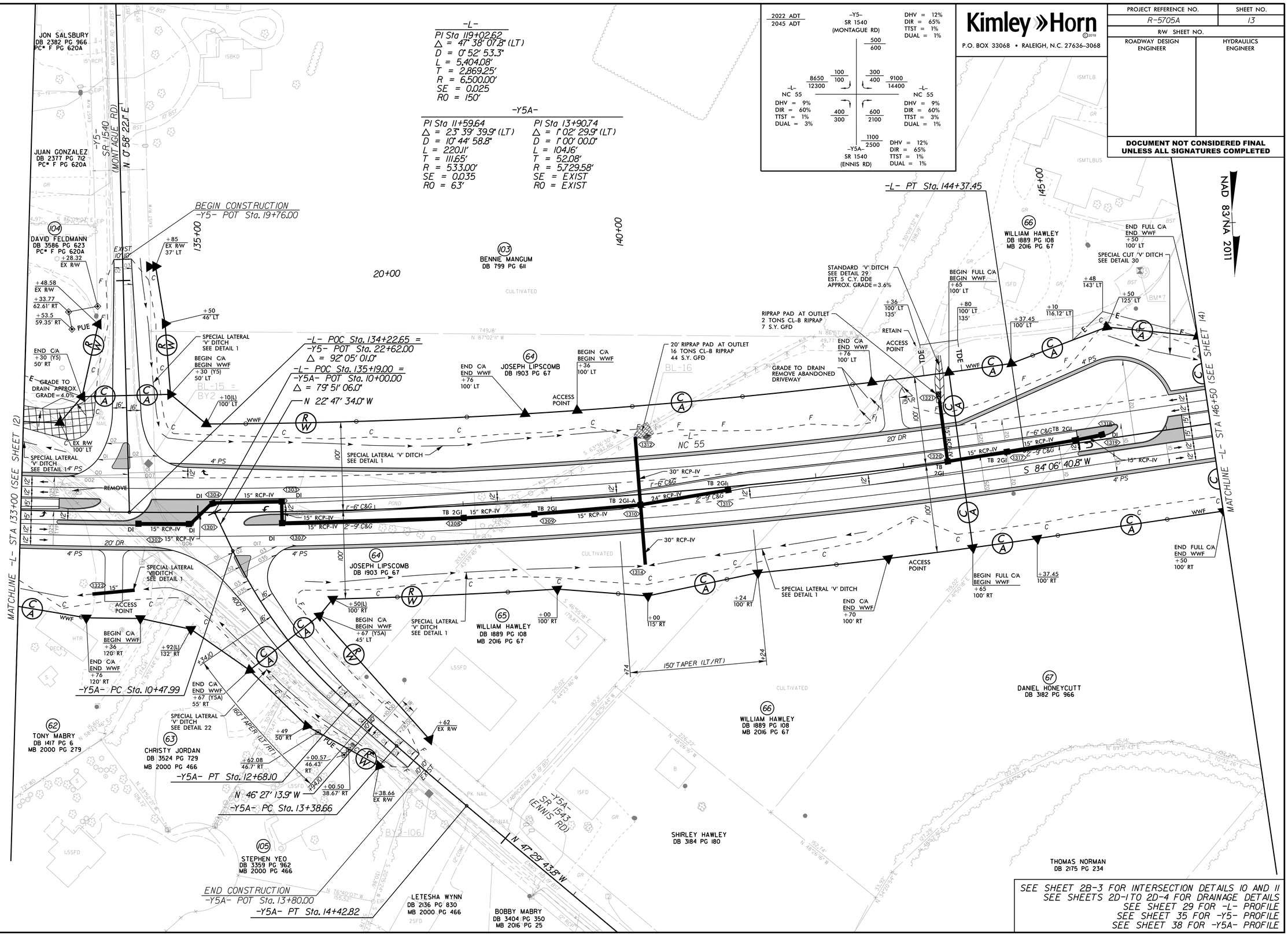
NAD 83/NA 2011

-L-
PI Sta 119+02.62
△ = 47° 38' 07.8" (LT)
D = 0° 52' 53.3"
L = 5,404.08'
T = 2,869.25'
R = 6,500.00'
SE = 0.025
RO = 150'

-Y5A-
PI Sta 11+59.64
△ = 23° 39' 39.9" (LT)
D = 10° 44' 58.8"
L = 220.11'
T = 111.65'
R = 533.00'
SE = 0.035
RO = 63'

PI Sta 13+90.74
△ = 1° 02' 29.9" (LT)
D = 1° 00' 00.0"
L = 104.16'
T = 52.08'
R = 5,729.58'
SE = EXIST
RO = EXIST

	-Y5- SR 1540 (MONTAGUE RD)	
2022 ADT / 2045 ADT		DHV = 12%, DIR = 65%, TTST = 1%, DUAL = 1%
-L- NC 55: DHV = 9%, DIR = 60%, TTST = 1%, DUAL = 3%	8650 / 12300; 100 / 100; 500 / 600; 300 / 400; 9100 / 14400; 400 / 300; 600 / 2100; 1100 / 2500	-L- NC 55: DHV = 9%, DIR = 60%, TTST = 3%, DUAL = 1%
	-Y5A- SR 1540 (ENNIS RD)	DHV = 12%, DIR = 65%, TTST = 1%, DUAL = 1%



SEE SHEET 2B-3 FOR INTERSECTION DETAILS 10 AND 11
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 35 FOR -Y5- PROFILE
SEE SHEET 38 FOR -Y5A- PROFILE

3/5/2021

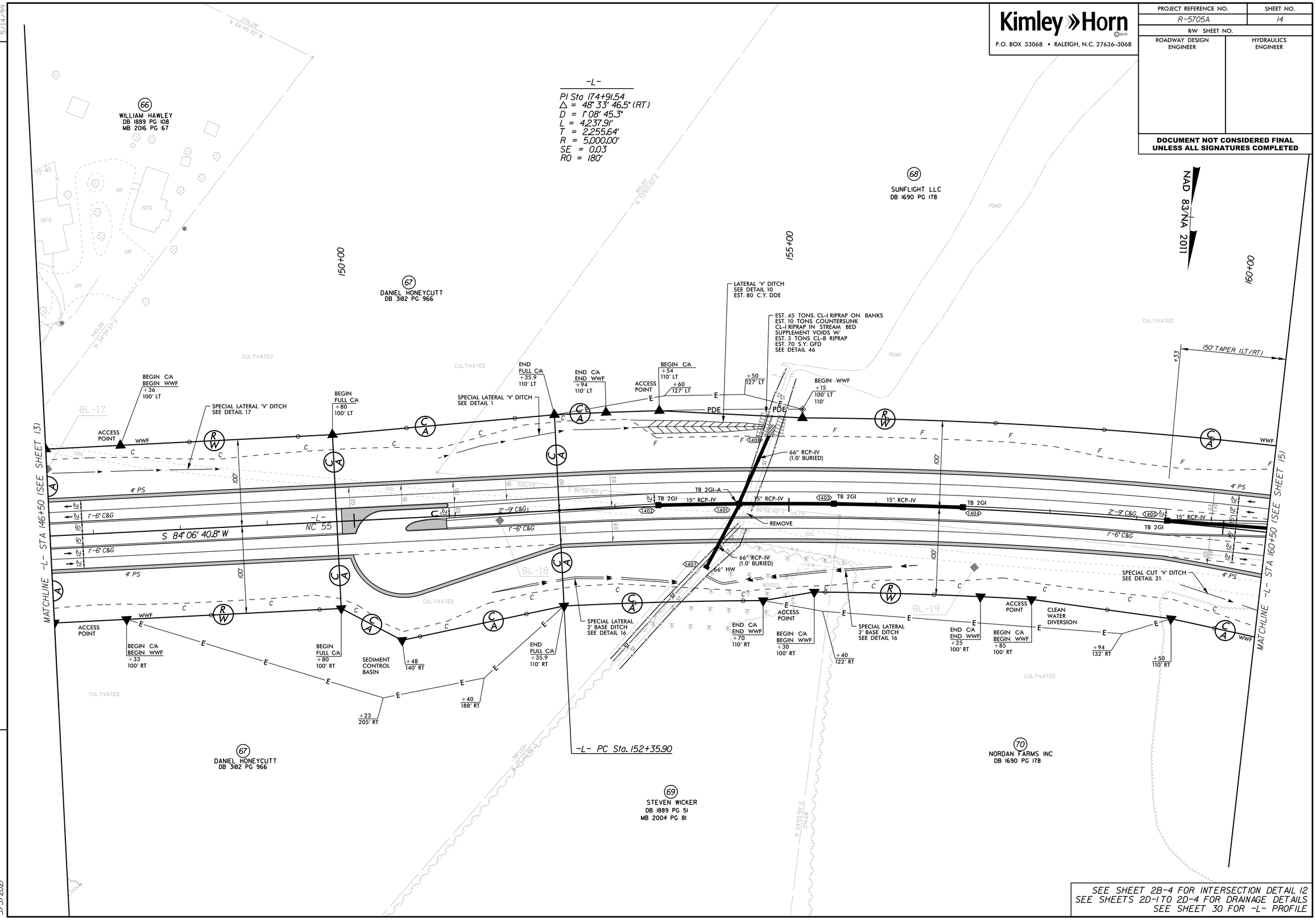
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

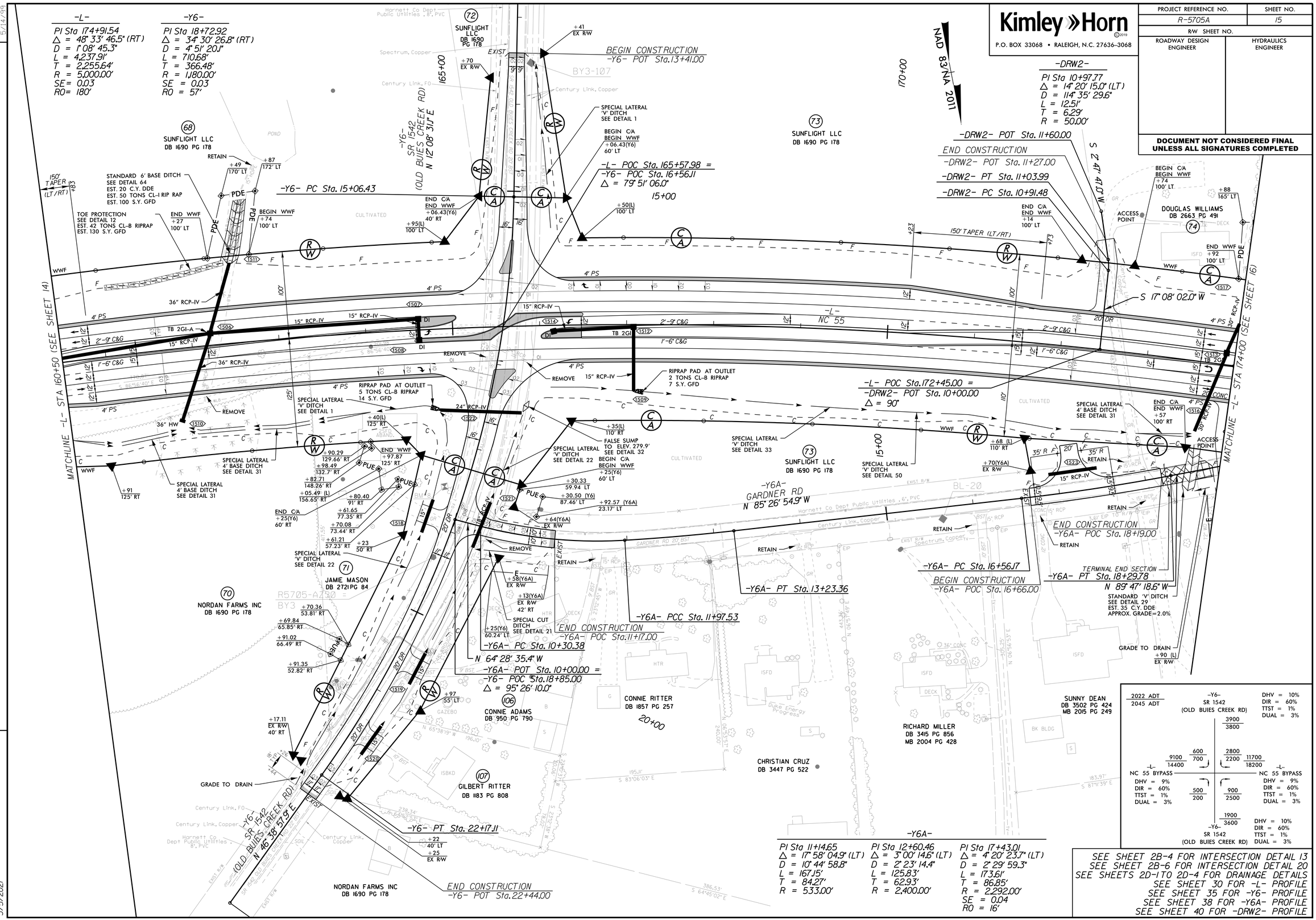
REVISIONS

5/14/99

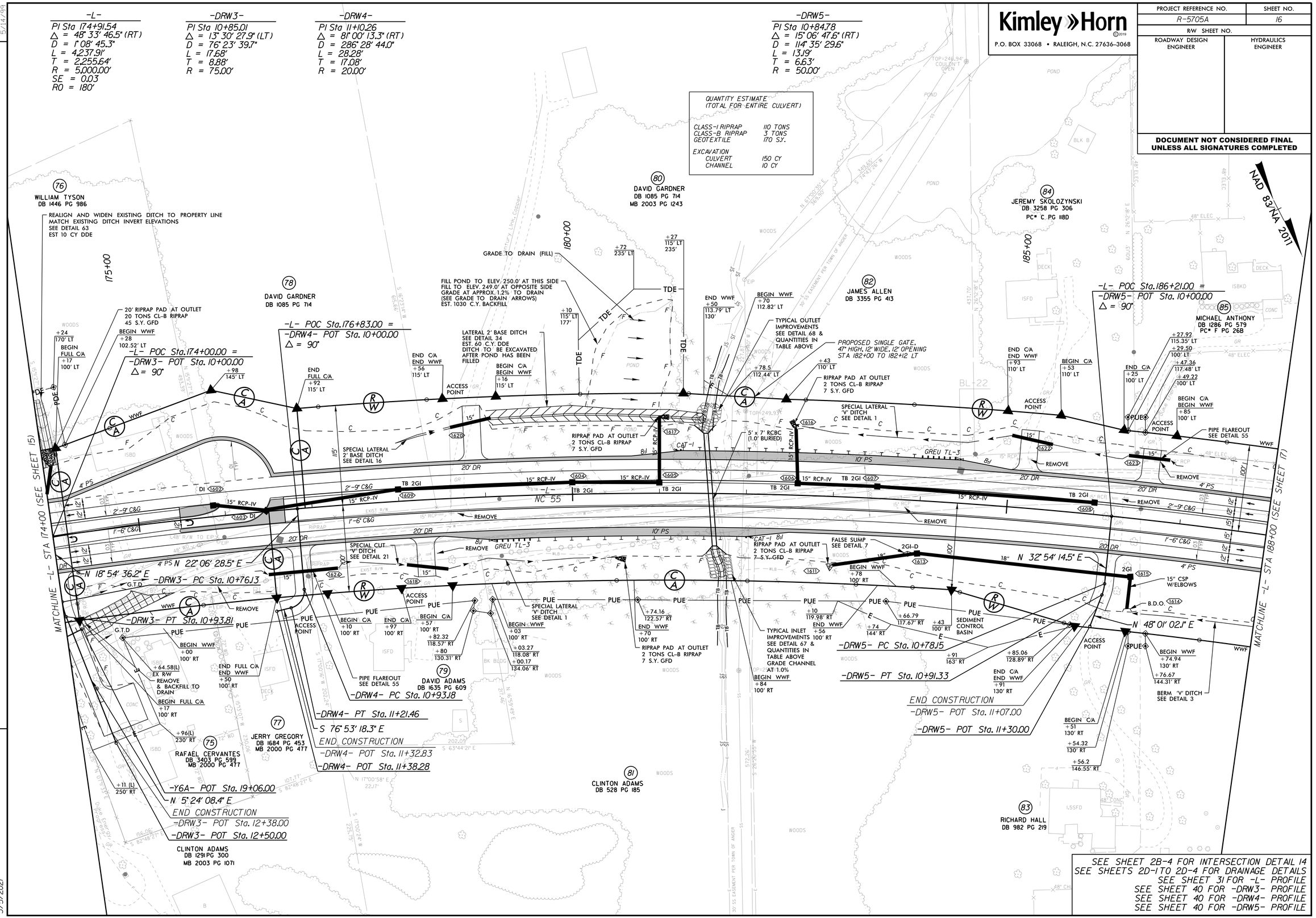


SEE SHEET 2B-4 FOR INTERSECTION DETAIL 12
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 30 FOR -L- PROFILE

3/5/2021



Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068
PROJECT REFERENCE NO.
R-5705A
SHEET NO.
15
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
-L-
PI Sta 174+91.54
Δ = 48° 33' 46.5" (RT)
D = 1° 08' 45.3"
L = 4,237.91'
T = 2,255.64'
R = 5,000.00'
SE = 0.03
RO = 180'
-Y6-
PI Sta 18+72.92
Δ = 34° 30' 26.8" (RT)
D = 4° 51' 20.1"
L = 710.68'
T = 366.48'
R = 1,180.00'
SE = 0.03
RO = 57'
-DRW2-
PI Sta 10+97.77
Δ = 14° 20' 15.0" (LT)
D = 114° 35' 29.6"
L = 12.51'
T = 6.29'
R = 50.00'
NAD 83/NA 2011
BEGIN CONSTRUCTION
-Y6- POT Sta.13+41.00
-L- POC Sta. 165+57.98 =
-Y6- POC Sta. 16+56.11
Δ = 79° 51' 06.0"
-Y6- PC Sta. 15+06.43
-DRW2- POT Sta. 11+60.00
END CONSTRUCTION
-DRW2- POT Sta. 11+27.00
-DRW2- PT Sta. 11+03.99
-DRW2- PC Sta. 10+91.48
-L- POC Sta.172+45.00 =
-DRW2- POT Sta. 10+00.00
Δ = 90°
-Y6A- GARDNER RD
N 85° 26' 54.9" W
END CONSTRUCTION
-Y6A- POC Sta. 18+19.00
-Y6A- PC Sta. 16+56.17
BEGIN CONSTRUCTION
-Y6A- POC Sta. 16+66.00
-Y6A- PT Sta. 18+29.78
N 89° 47' 18.6" W
-Y6A- PT Sta. 13+23.36
-Y6A- PCC Sta. 11+97.53
END CONSTRUCTION
-Y6A- POC Sta.11+17.00
-Y6A- PC Sta. 10+30.38
N 64° 28' 35.4" W
-Y6A- POT Sta. 10+00.00 =
-Y6- POC Sta.18+85.00
Δ = 95° 26' 10.0"
-Y6- PT Sta. 22+17.11
END CONSTRUCTION
-Y6- POT Sta.22+44.00
-Y6A-
PI Sta 11+14.65
Δ = 17° 58' 04.9" (LT)
D = 10° 44' 58.8"
L = 167.15'
T = 84.27'
R = 533.00'
PI Sta 12+60.46
Δ = 3° 00' 14.6" (LT)
D = 2° 23' 14.4"
L = 125.83'
T = 62.93'
R = 2,400.00'
PI Sta 17+43.01
Δ = 4° 20' 23.7" (LT)
D = 2° 29' 59.3"
L = 173.61'
T = 86.85'
R = 2,292.00'
SE = 0.04
RO = 16'
SEE SHEET 2B-4 FOR INTERSECTION DETAIL 13
SEE SHEET 2B-6 FOR INTERSECTION DETAIL 20
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 35 FOR -Y6- PROFILE
SEE SHEET 38 FOR -Y6A- PROFILE
SEE SHEET 40 FOR -DRW2- PROFILE
2022 ADT
2045 ADT
-Y6- SR 1542 (OLD BUIES CREEK RD)
DHV = 10%
DIR = 60%
TTST = 1%
DUAL = 3%
-L- NC 55 BYPASS
DHV = 9%
DIR = 60%
TTST = 1%
DUAL = 3%
-Y6- SR 1542 (OLD BUIES CREEK RD)
DHV = 10%
DIR = 60%
TTST = 1%
DUAL = 3%
MATCHLINE -L- STA 160+50 (SEE SHEET 14)
MATCHLINE -L- STA 174+00 (SEE SHEET 16)
REVISIONS
5/14/99
3/5/2021


Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068
PROJECT REFERENCE NO. R-5705A
SHEET NO. 16
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
NAD 83/NA 2011
-L-
PI Sta 174+91.54
Δ = 48° 33' 46.5" (RT)
D = 1° 08' 45.3"
L = 4,237.91'
T = 2,255.64'
R = 5,000.00'
SE = 0.03
RO = 180'
-DRW3-
PI Sta 10+85.01
Δ = 13° 30' 27.9" (LT)
D = 76° 23' 39.7"
L = 17.68'
T = 8.88'
R = 75.00'
-DRW4-
PI Sta 11+10.26
Δ = 81° 00' 13.3" (RT)
D = 286° 28' 44.0"
L = 28.28'
T = 17.08'
R = 20.00'
-DRW5-
PI Sta 10+84.78
Δ = 15° 06' 47.6" (RT)
D = 114° 35' 29.6"
L = 13.19'
T = 6.63'
R = 50.00'
QUANTITY ESTIMATE (TOTAL FOR ENTIRE CULVERT)
CLASS-I RIPRAP 110 TONS
CLASS-B RIPRAP 3 TONS
GEOTEXTILE 170 S.Y.
EXCAVATION
CULVERT 150 CY
CHANNEL 10 CY
76 WILLIAM TYSON DB 1446 PG 986
REALIGN AND WIDEN EXISTING DITCH TO PROPERTY LINE MATCH EXISTING DITCH INVERT ELEVATIONS SEE DETAIL 63 EST 10 CY DDE
78 DAVID GARDNER DB 1085 PG 714
80 DAVID GARDNER DB 1085 PG 714 MB 2003 PG 1243
82 JAMES ALLEN DB 3355 PG 413
84 JEREMY SKOLOZYNSKI DB 3258 PG 306 PC# C PG 118D
85 MICHAEL ANTHONY DB 1286 PG 579 PC# F PG 26B
79 DAVID ADAMS DB 1635 PG 609
77 JERRY GREGORY DB 1684 PG 453 MB 2000 PG 477
75 RAFAEL CERVANTES DB 3403 PG 599 MB 2000 PG 477
81 CLINTON ADAMS DB 528 PG 185
83 RICHARD HALL DB 982 PG 219
CLINTON ADAMS DB 1291 PG 300 MB 2003 PG 1071
20' RIPRAP PAD AT OUTLET 20 TONS CL-B RIPRAP 45 S.Y. GFD
-L- POC Sta.174+00.00 = -DRW3- POT Sta. 10+00.00 Δ = 90°
-L- POC Sta.176+83.00 = -DRW4- POT Sta. 10+00.00 Δ = 90°
-L- POC Sta.186+21.00 = -DRW5- POT Sta. 10+00.00 Δ = 90°
GRADE TO DRAIN (FILL)
FILL POND TO ELEV. 250.0' AT THIS SIDE FILL TO ELEV. 249.0' AT OPPOSITE SIDE GRADE AT APPROX. 1.2% TO DRAIN (SEE GRADE TO DRAIN ARROWS) EST. 1030 C.Y. BACKFILL
LATERAL 2' BASE DITCH SEE DETAIL 34 EST. 60 C.Y. DDE DITCH TO BE EXCAVATED AFTER POND HAS BEEN FILLED
TYPICAL OUTLET IMPROVEMENTS SEE DETAIL 68 & QUANTITIES IN TABLE ABOVE
PROPOSED SINGLE GATE, 47" HIGH, 12' WIDE, 12' OPENING ST A 182+00 TO 182+12 LT
RIPRAP PAD AT OUTLET 2 TONS CL-B RIPRAP 7 S.Y. GFD
SPECIAL LATERAL 'V' DITCH C SEE DETAIL 1
SPECIAL LATERAL 2' BASE DITCH SEE DETAIL 16
SPECIAL CUT 'V' DITCH SEE DETAIL 21
5' x 7' RCBC (1.0' BURIED)
FALSE SUMP SEE DETAIL 7
TYPICAL INLET IMPROVEMENTS 100' RT SEE DETAIL 67 & QUANTITIES IN TABLE ABOVE GRADE CHANNEL AT 1.0%
SEDIMENT CONTROL BASIN
PIPE FLAREOUT SEE DETAIL 55
BERM 'V' DITCH SEE DETAIL 3
15" CSP W/ELBOWS
B.D.O.
-DRW3- PC Sta. 10+76.13
-DRW3- PT Sta. 10+93.81
-DRW4- PC Sta. 10+93.18
-DRW4- PT Sta. 11+21.46
S 76° 53' 18.3" E
END CONSTRUCTION
-DRW4- POT Sta. 11+32.83
-DRW4- POT Sta. 11+38.28
-DRW5- PC Sta. 10+78.15
-DRW5- PT Sta. 10+91.33
END CONSTRUCTION
-DRW5- POT Sta. 11+07.00
-DRW5- POT Sta. 11+30.00
-Y6A- POT Sta. 19+06.00
N 5° 24' 08.4" E
END CONSTRUCTION
-DRW3- POT Sta. 12+38.00
-DRW3- POT Sta. 12+50.00
N 18° 54' 36.2" E
N 22° 06' 28.5" E
N 32° 54' 14.5" E
N 48° 01' 02.1" E
MATCHLINE -L- STA 174+00 (SEE SHEET 15)
MATCHLINE -L- STA 188+00 (SEE SHEET 17)
SEE SHEET 2B-4 FOR INTERSECTION DETAIL 14
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 40 FOR -DRW3- PROFILE
SEE SHEET 40 FOR -DRW4- PROFILE
SEE SHEET 40 FOR -DRW5- PROFILE
REVISIONS
5/14/99
3/5/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

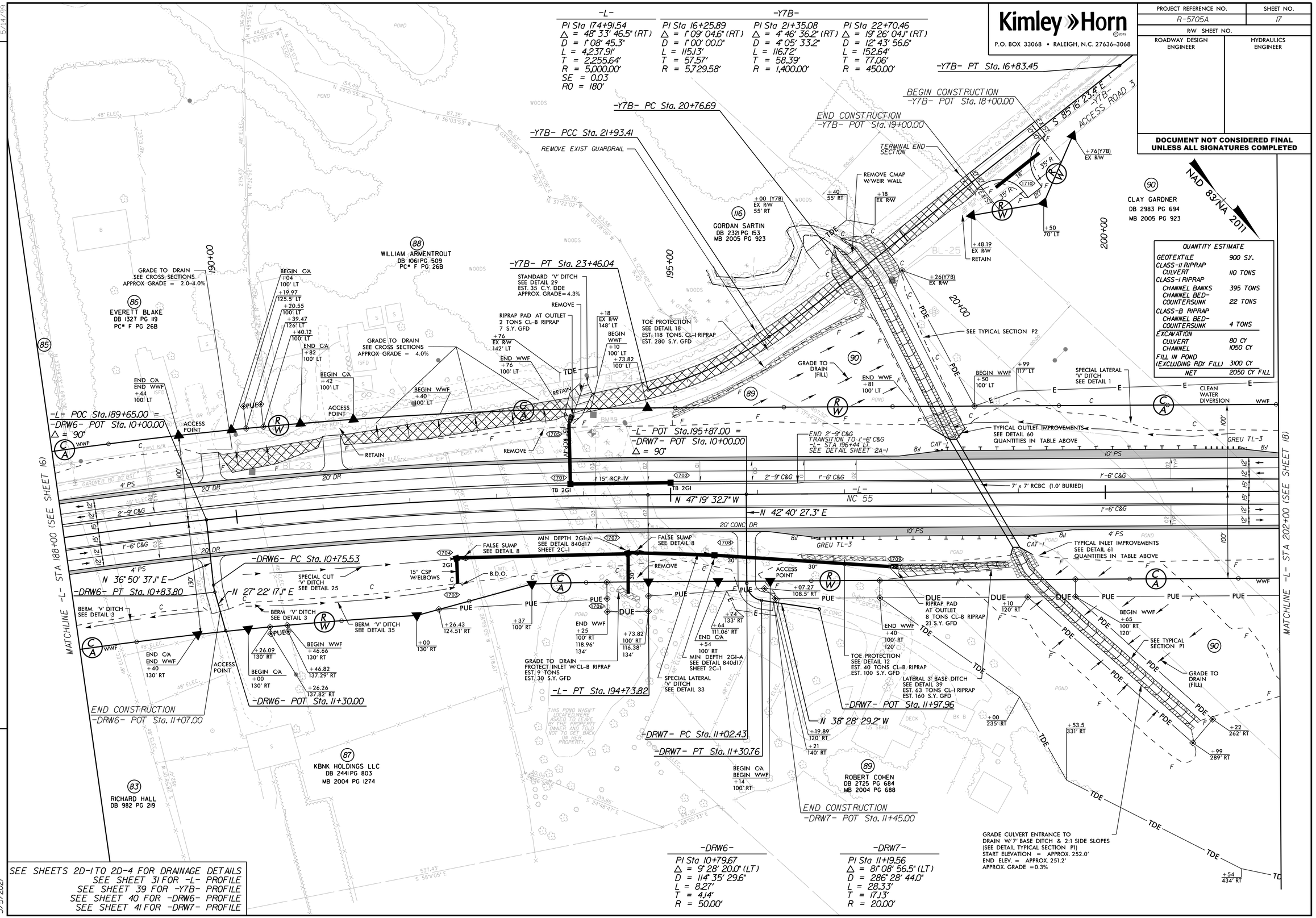
REVISIONS

5/14/99

3/5/2021

-L-	
PI Sta 17+91.54	
△ = 48° 33' 46.5" (RT)	
D = 1° 08' 45.3"	
L = 4,237.91'	
T = 2,255.64'	
R = 5,000.00'	
SE = 0.03	
RO = 180'	

-Y7B-		
PI Sta 16+25.89	PI Sta 21+35.08	PI Sta 22+70.46
△ = 1° 09' 04.6" (RT)	△ = 4° 46' 36.2" (RT)	△ = 19° 26' 04.1" (RT)
D = 1° 00' 00.0"	D = 4° 05' 33.2"	D = 12° 43' 56.6"
L = 115.13'	L = 116.72'	L = 152.64'
T = 57.57'	T = 58.39'	T = 77.06'
R = 5,729.58'	R = 1,400.00'	R = 450.00'



QUANTITY ESTIMATE	
GEOTEXTILE	900 S.Y.
CLASS-II RIPRAP	
CULVERT	110 TONS
CLASS-I RIPRAP	
CHANNEL BANKS	395 TONS
CHANNEL BED-COUNTERSUNK	22 TONS
CLASS-B RIPRAP	
CHANNEL BED-COUNTERSUNK	4 TONS
EXCAVATION	
CULVERT	80 CY
CHANNEL	1050 CY
FILL IN POND (EXCLUDING RDY FILL)	3100 CY
NET	2050 CY FILL

-DRW6-
PI Sta 10+79.67
△ = 9° 28' 20.0" (LT)
D = 114° 35' 29.6"
L = 8.27'
T = 4.14'
R = 50.00'

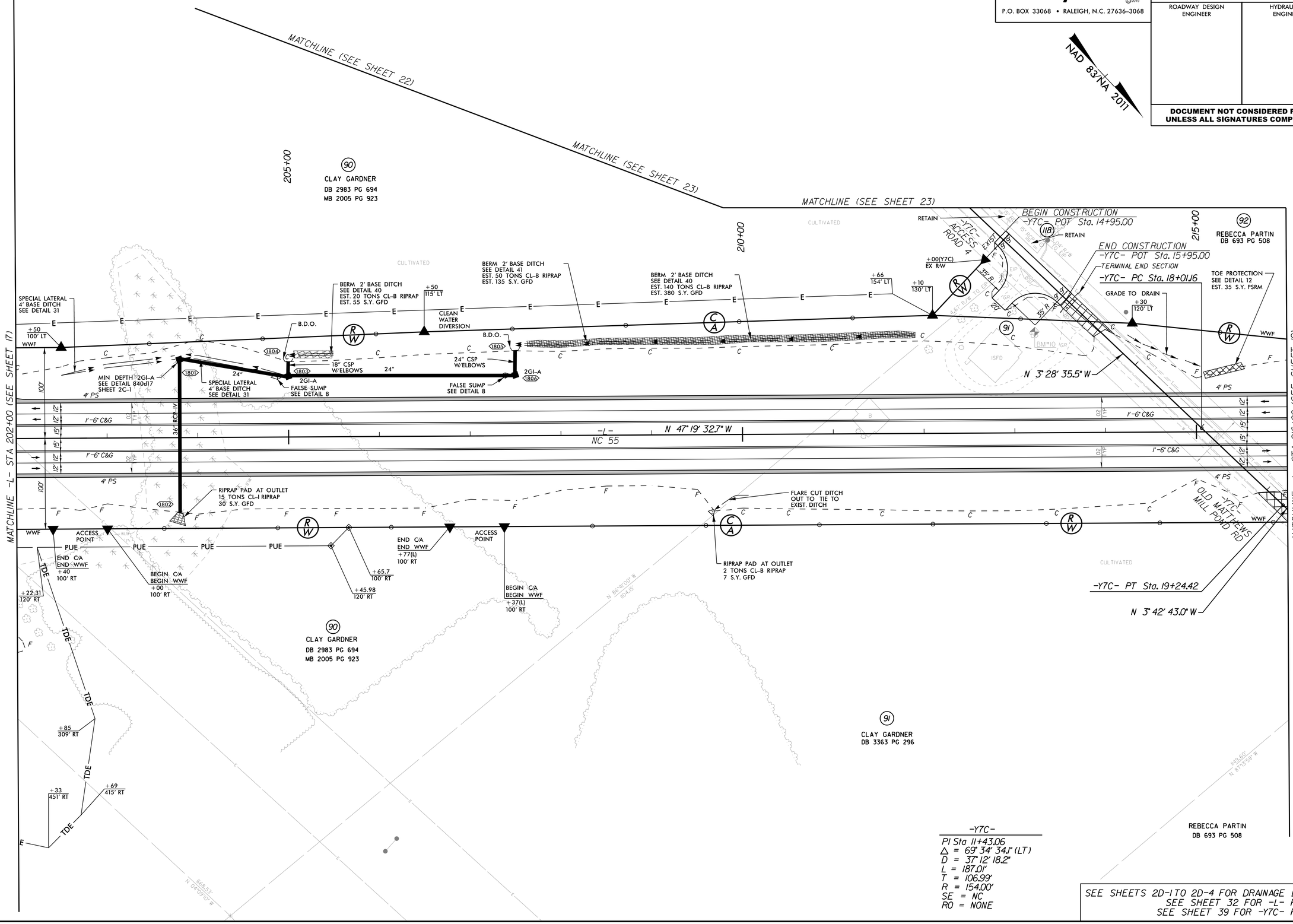
-DRW7-
PI Sta 11+19.56
△ = 81° 08' 56.5" (LT)
D = 286° 28' 44.0"
L = 28.33'
T = 17.13'
R = 20.00'

SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 39 FOR -Y7B- PROFILE
SEE SHEET 40 FOR -DRW6- PROFILE
SEE SHEET 41 FOR -DRW7- PROFILE

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-Y7C-
PI Sta 11+43.06
△ = 69° 34' 34.1" (LT)
D = 37° 12' 18.2"
L = 187.01'
T = 106.99'
R = 154.00'
SE = NC
RO = NONE

SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 39 FOR -Y7C- PROFILE

REVISIONS

5/14/99

3/5/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

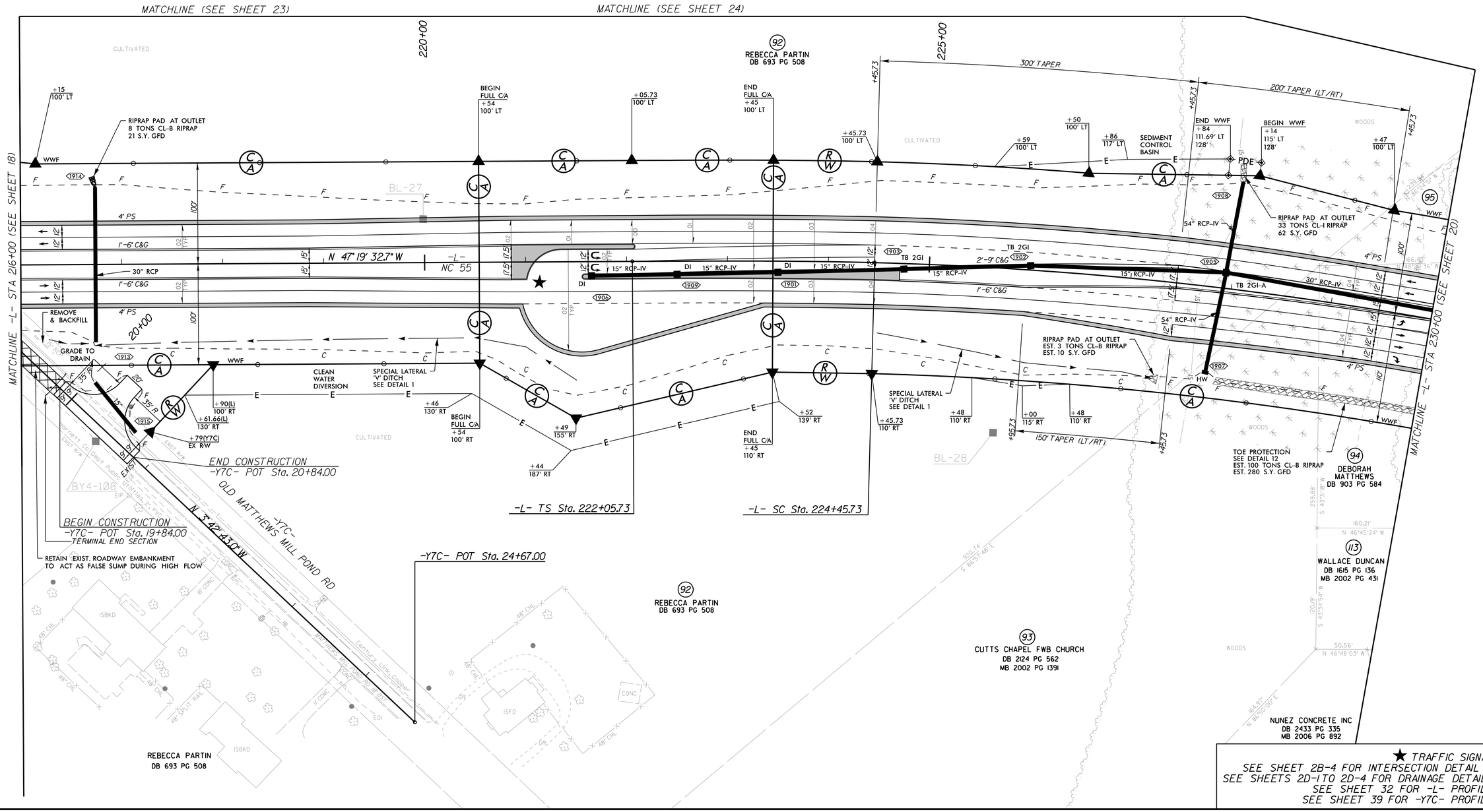
NAD 83/NA 2011

REVISIONS

5/14/99

-L-

PIs Sta 223+65.74	PI Sta 251+52.68
Θs = 1° 50' 53.7"	Δ = 72° 05' 05.6" (RT)
Ls = 240.00'	D = 1° 32' 24.8"
LT = 160.01'	L = 4,680.20'
ST = 80.01'	T = 2,706.95'
	R = 3,720.00'
	SE = 0.04



★ TRAFFIC SIGNAL
SEE SHEET 2B-4 FOR INTERSECTION DETAIL 15
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 39 FOR -Y7C- PROFILE

3/5/2021

5/14/99

REVISIONS

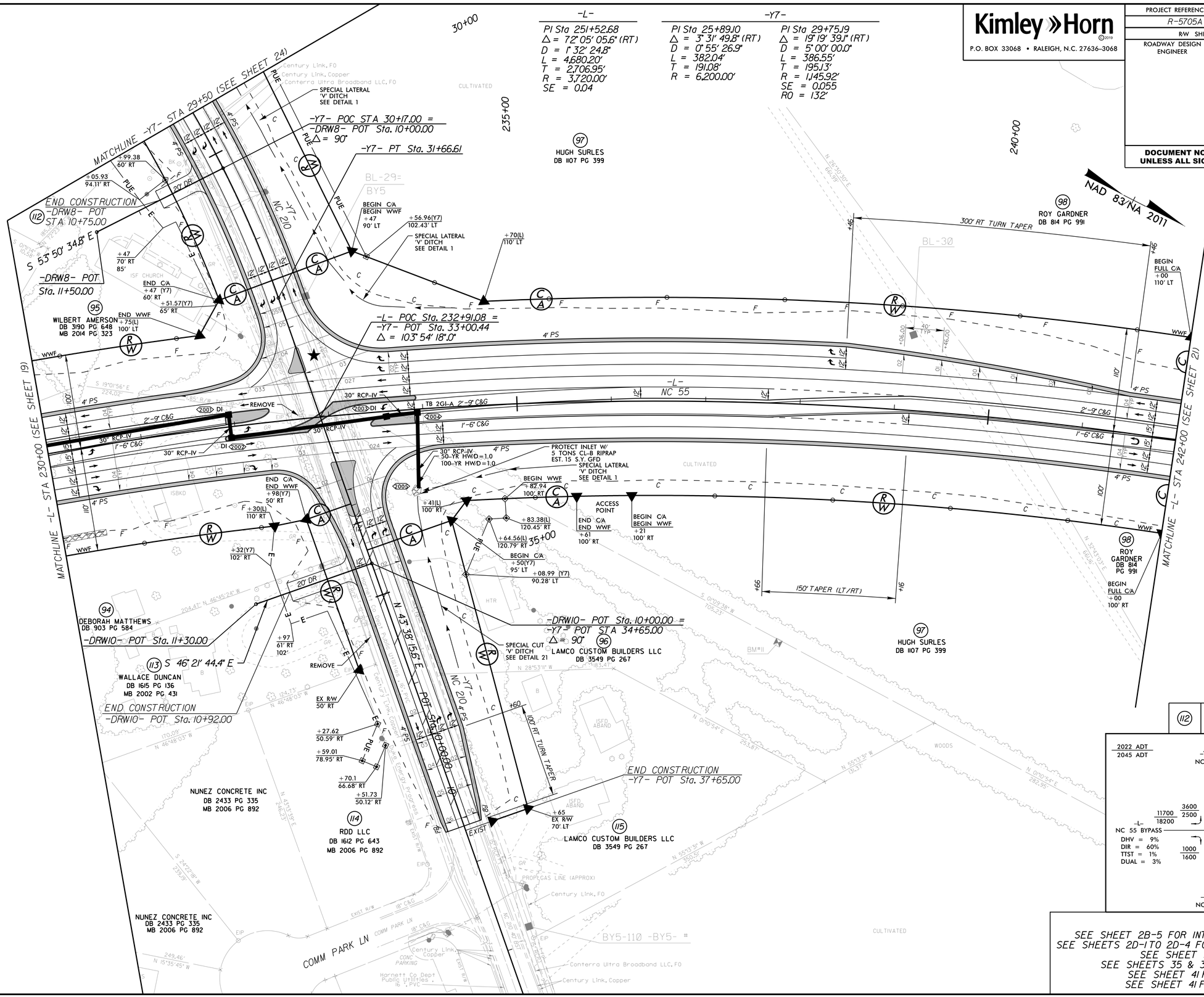
-L-	-Y7-	
PI Sta 251+52.68	PI Sta 25+89.10	PI Sta 29+75.19
Δ = 72° 05' 05.6" (RT)	Δ = 3° 31' 49.8" (RT)	Δ = 19° 19' 39.1" (RT)
D = 1° 32' 24.8"	D = 0° 55' 26.9"	D = 5° 00' 00.0"
L = 4,680.20'	L = 382.04'	L = 386.55'
T = 2,706.95'	T = 191.08'	T = 195.13'
R = 3,720.00'	R = 6,200.00'	R = 1,145.92'
SE = 0.04		SE = 0.055
		R0 = 132'

Kimley»Horn © 2019

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



2022 ADT / 2045 ADT		
-Y7- NC 210	17600 / 24300	DHV = 8%, DIR = 55%, TTST = 2%, DUAL = 4%
-L- NC 55 BYPASS	11700 / 18200	DHV = 9%, DIR = 60%, TTST = 1%, DUAL = 3%
-L- NC 55 BYPASS	3600 / 2500	
-L- NC 55 BYPASS	7500 / 11500	
-L- NC 55 BYPASS	15900 / 27100	DHV = 9%, DIR = 60%, TTST = 1%, DUAL = 3%
-L- NC 55 BYPASS	1000 / 1600	
-L- NC 55 BYPASS	1400 / 1500	
-Y7- NC 210	9000 / 13400	DHV = 8%, DIR = 55%, TTST = 2%, DUAL = 4%

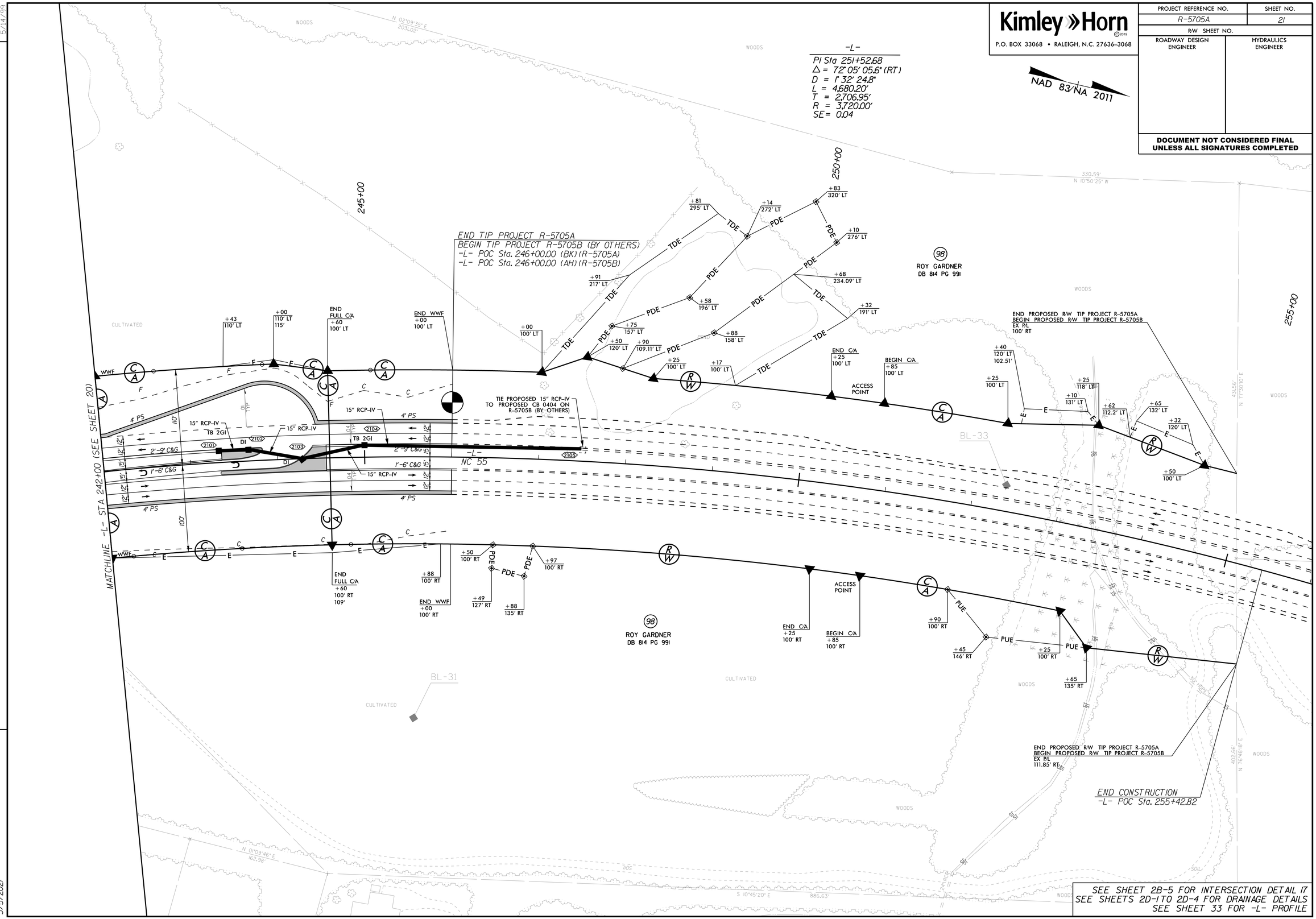
★ TRAFFIC SIGNAL
SEE SHEET 2B-5 FOR INTERSECTION DETAIL 16
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 33 FOR -L- PROFILE
SEE SHEETS 35 & 36 FOR -Y7- PROFILE
SEE SHEET 41 FOR -DRW8- PROFILE
SEE SHEET 41 FOR -DRW10- PROFILE

3/5/2021

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEET 2B-5 FOR INTERSECTION DETAIL 17
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 33 FOR -L- PROFILE

REVISIONS

5/14/99

3/5/2021

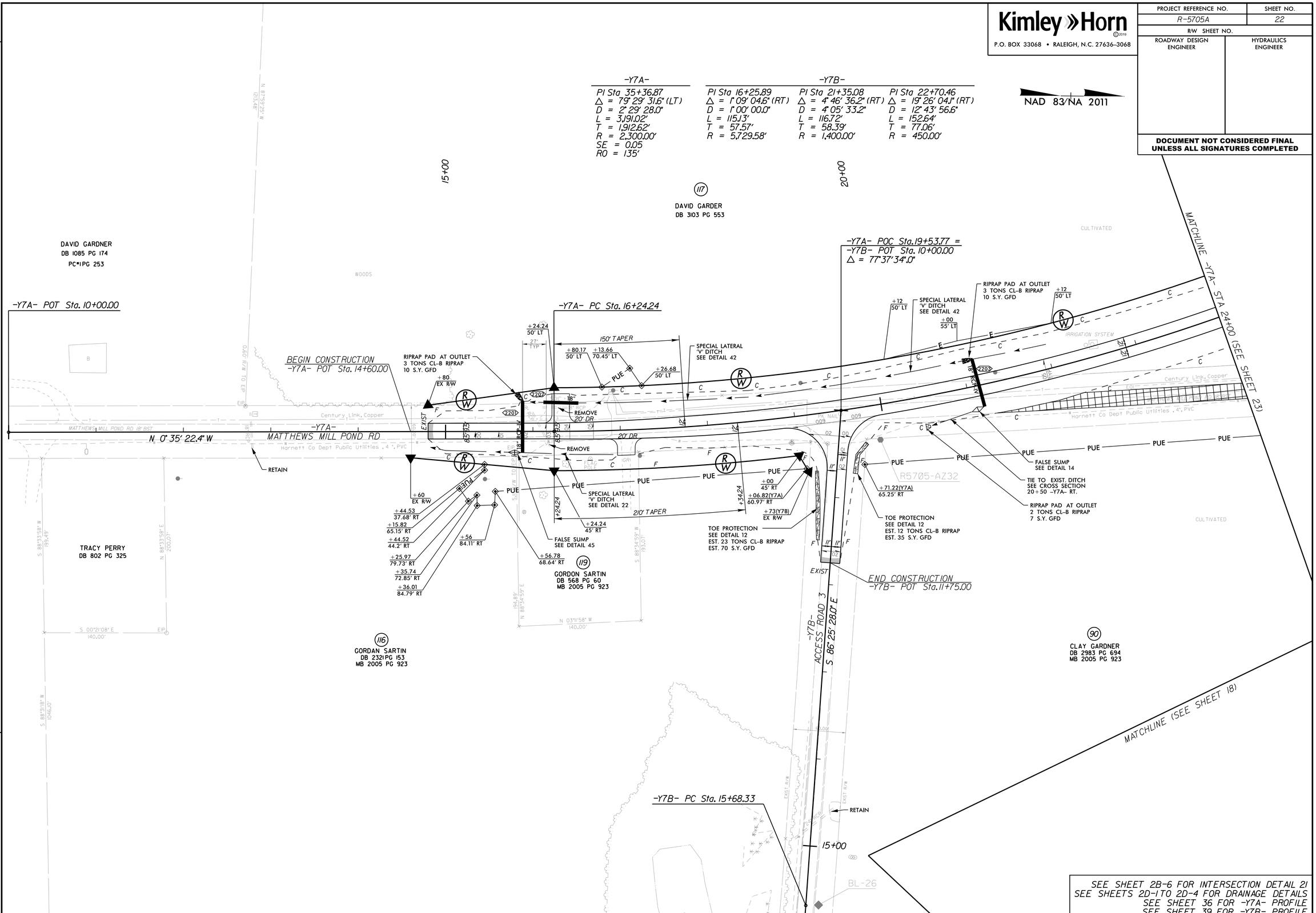
Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

-Y7A-	-Y7B-		
PI Sta 35+36.87	PI Sta 16+25.89	PI Sta 21+35.08	PI Sta 22+70.46
Δ = 79° 29' 31.6" (LT)	Δ = 1° 09' 04.6" (RT)	Δ = 4° 46' 36.2" (RT)	Δ = 19° 26' 04.1" (RT)
D = 2° 29' 28.0"	D = 1° 00' 00.0"	D = 4° 05' 33.2"	D = 12° 43' 56.6"
L = 3,191.02'	L = 115.13'	L = 116.72'	L = 152.64'
T = 1,912.62'	T = 57.57'	T = 58.39'	T = 77.06'
R = 2,300.00'	R = 5,729.58'	R = 1,400.00'	R = 450.00'
SE = 0.05			
RO = 135'			



SEE SHEET 2B-6 FOR INTERSECTION DETAIL 21
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 36 FOR -Y7A- PROFILE
SEE SHEET 39 FOR -Y7B- PROFILE

REVISIONS

5/14/99

3/5/2021

Kimley»Horn ©2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

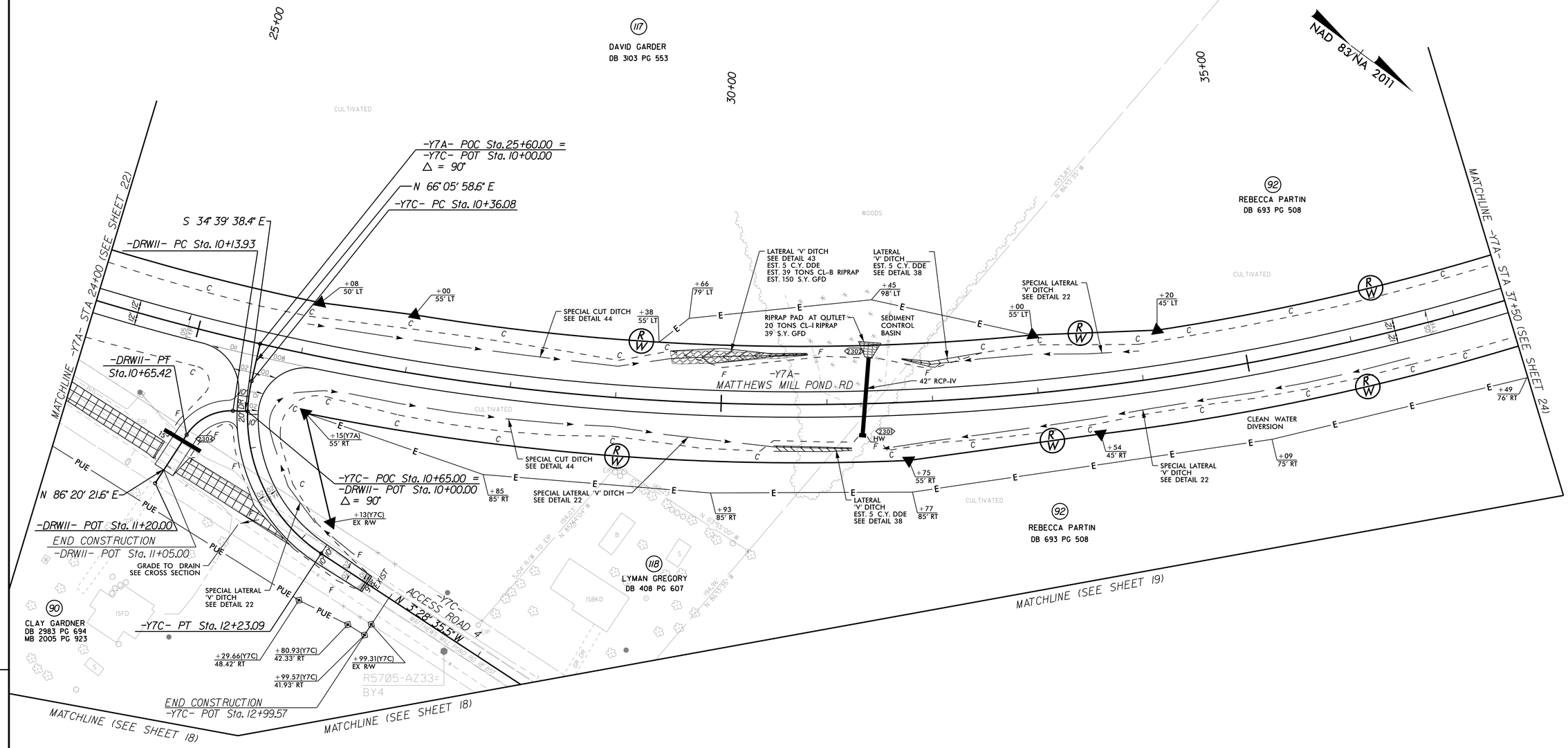
5/14/99

3/5/2021

-Y7A-
PI Sta 35+36.87
△ = 79° 29' 31.6" (LT)
D = 2° 29' 28.0"
L = 3,191.02'
T = 1,912.62'
R = 2,300.00'
SE = 0.05
RO = 135'

-Y7C-
PI Sta 11+43.06
△ = 69° 34' 34.1" (LT)
D = 37° 12' 18.2"
L = 187.01'
T = 106.99'
R = 154.00'
SE = NC
RO = NONE

-DRWII-
PI Sta 10+42.22
△ = 59° 00' 00.0" (LT)
D = 114° 35' 29.6"
L = 51.49'
T = 28.29'
R = 50.00'

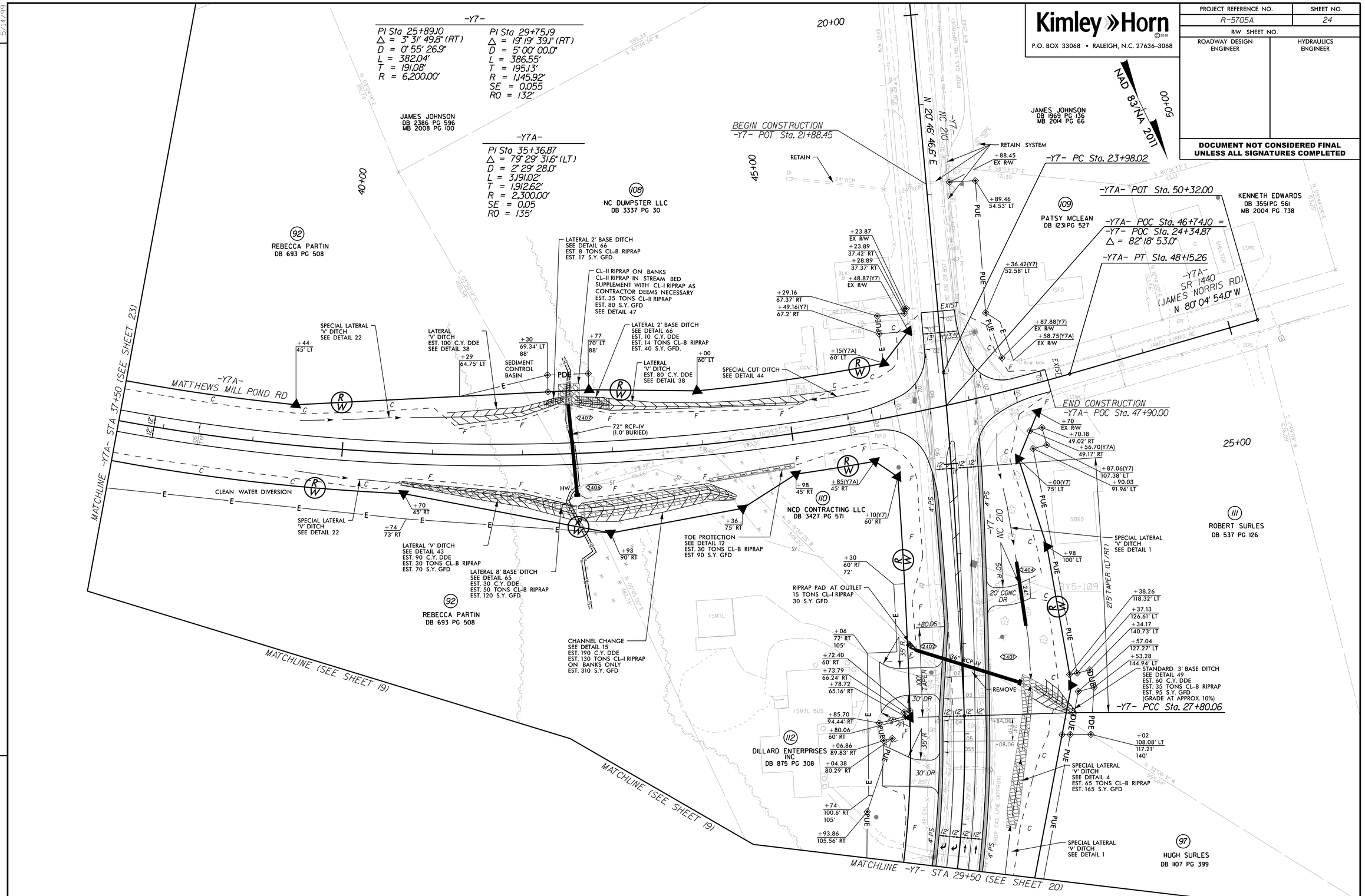


SEE SHEET 2B-6 FOR INTERSECTION DETAIL 22
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 36 FOR -Y7A- PROFILE
SEE SHEET 39 FOR -Y7C- PROFILE
SEE SHEET 41 FOR -DRWII- PROFILE

Kimley»Horn
© 2019
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEET 2B-6 FOR INTERSECTION DETAIL 23
SEE SHEETS 2D-1 TO 2D-4 FOR DRAINAGE DETAILS
SEE SHEET 35 FOR -Y7- PROFILE
SEE SHEET 37 FOR -Y7A- PROFILE

REVISIONS

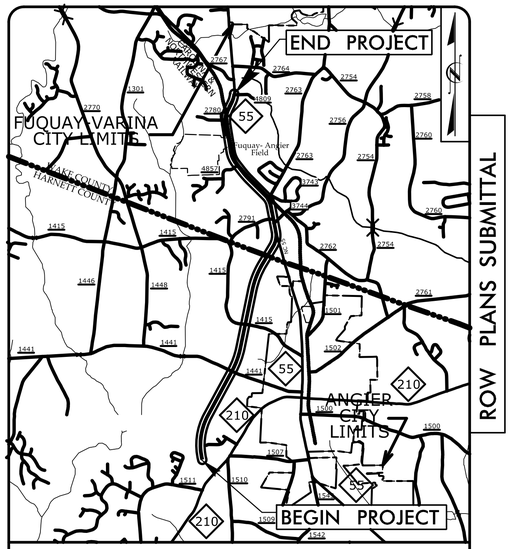
5/14/99

3/5/2021

09/08/99

TIP PROJECT: R-5705B

See Sheet 1A For Index of Sheets



VICINITY MAP

ROW PLANS SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT & WAKE COUNTY

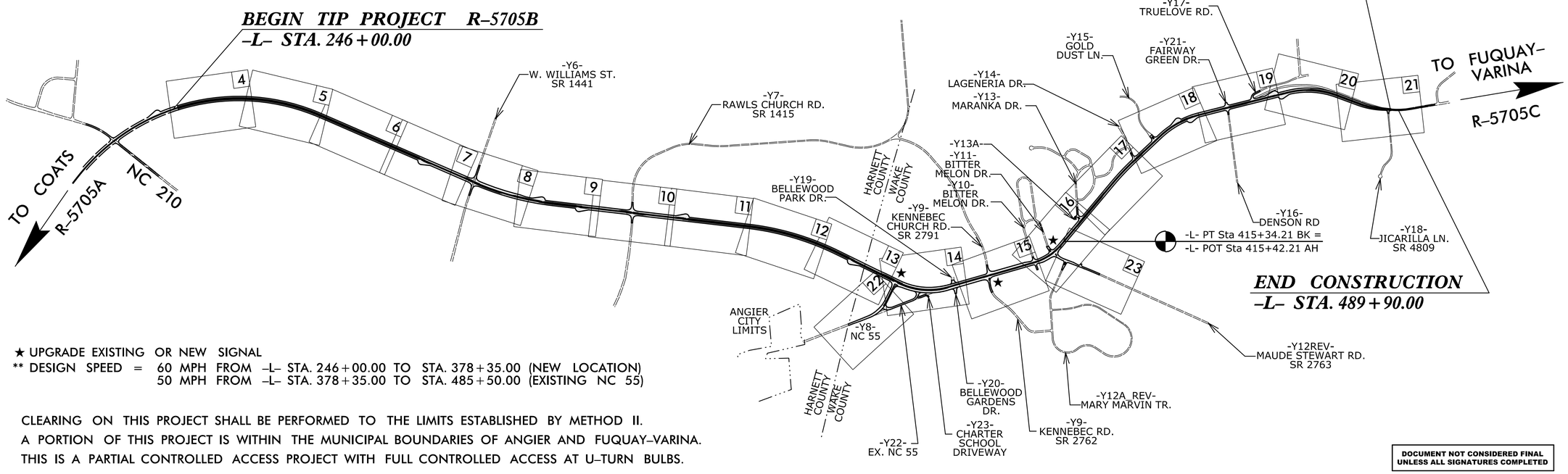
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5705B	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
46377.1.3		PE
46377.2.2		ROW
46377.2.6		UTILITIES

LOCATION: NC 55 FROM NC 210 TO SR 4809 (JICARILLA LANE)

TYPE OF WORK: PAVING, GRADING, DRAINAGE, SIGNALS & CULVERT

NAD 83/NA 2011



★ UPGRADE EXISTING OR NEW SIGNAL

** DESIGN SPEED = 60 MPH FROM -L- STA. 246+00.00 TO STA. 378+35.00 (NEW LOCATION)
50 MPH FROM -L- STA. 378+35.00 TO STA. 485+50.00 (EXISTING NC 55)

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ANGIER AND FUQUAY-VARINA.

THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH FULL CONTROLLED ACCESS AT U-TURN BULBS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 30,200
ADT 2045 = 44,200
K = 9 %
D = 60 %
T = 4 % *
**V = 50 & 60 MPH
* TTST = 1% DUAL 3%
FUNC CLASS = MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT R-5705B = 4.536 MILES
TOTAL LENGTH PROJECT = 4.536 MILES

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610
By:
TGS ENGINEERS
706 HILLSBOROUGH ST
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 3, 2021

LETTING DATE:
OCTOBER 18, 2022

TOMMY REGISTER, P.E.
PROJECT ENGINEER

NICOLE M. HACKLER, PE
NCDOT CONTACT

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

12/2/2021
X:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_tsh.dgn
User:bevans

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

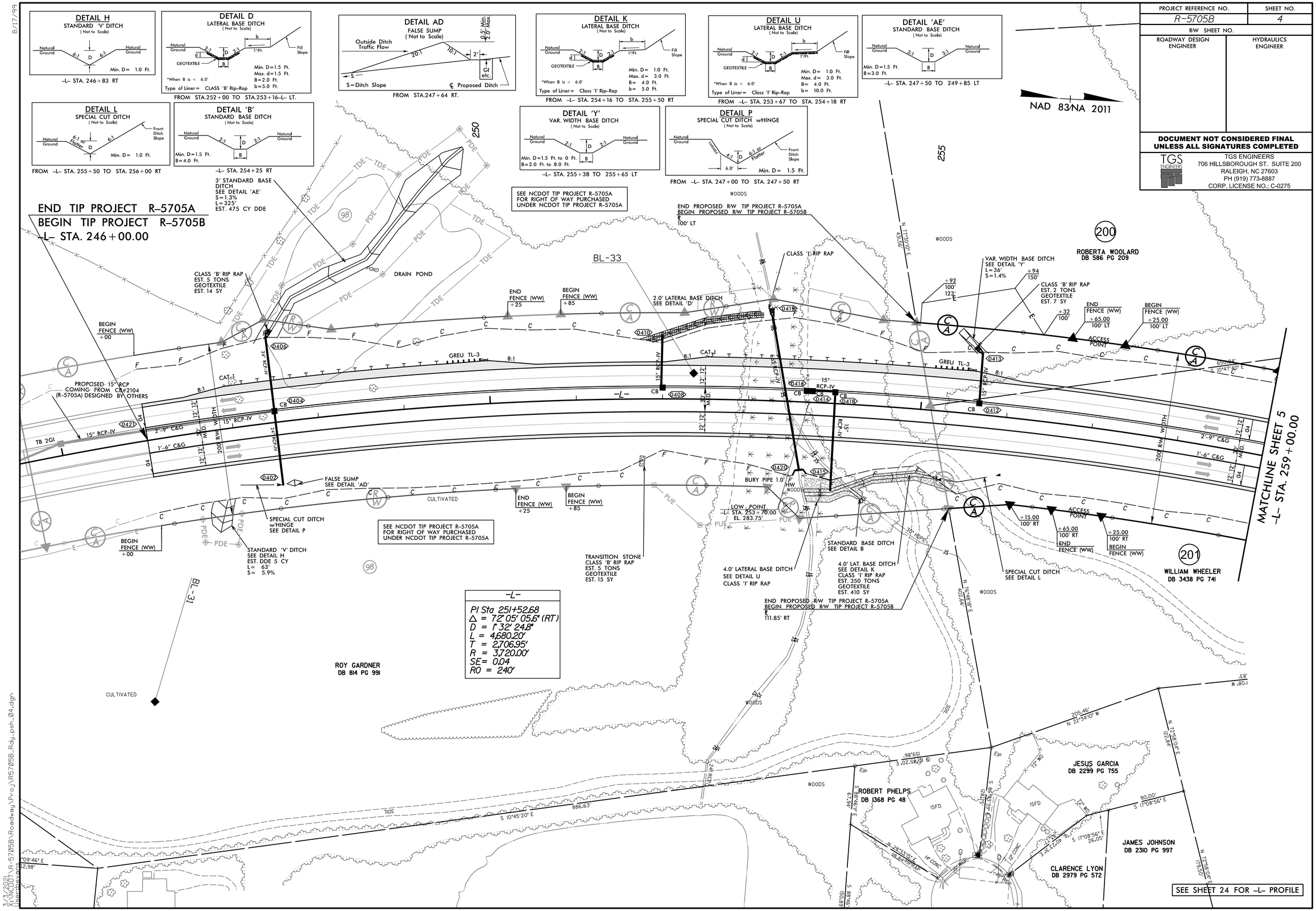
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



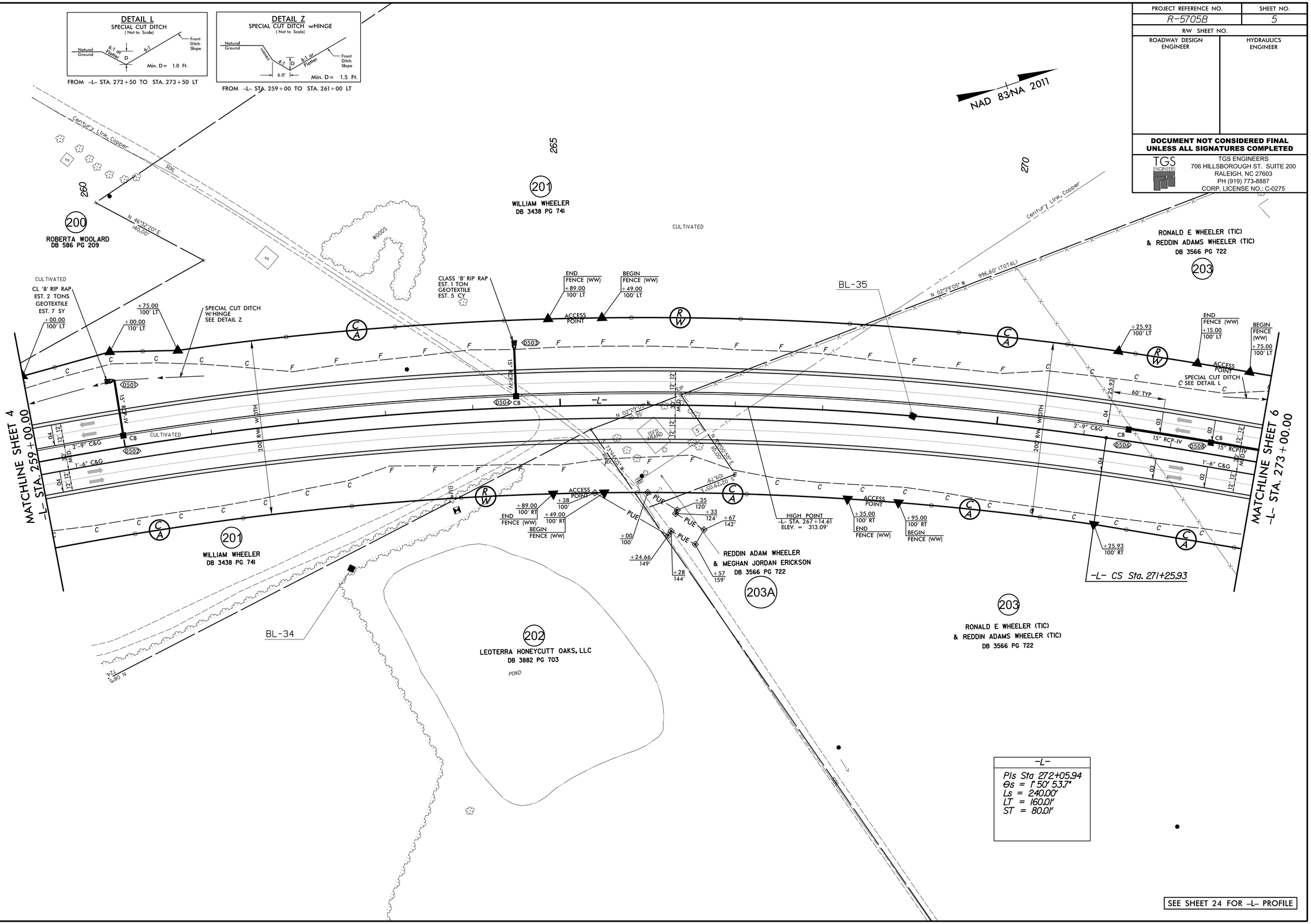
8/17/99

3/3/2021
X:\NC001\R-5705B\Roadway\Proj\R5705B_Rdy_psh_04.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



REVISIONS

7-19-2021 PARCEL 203 HAS BEEN SUBDIVIDED, REVISED PROPERTY LINES, OWNERS, DEED BOOK DATA AND EASEMENTS FOR PARCELS 203 & 203A.
10-19-2021 ADDED PARCEL NUMBER 203A(DBE)
REVISED PROPERTY OWNER & DEED BOOK DATA FOR PARCEL 202.(DBE)

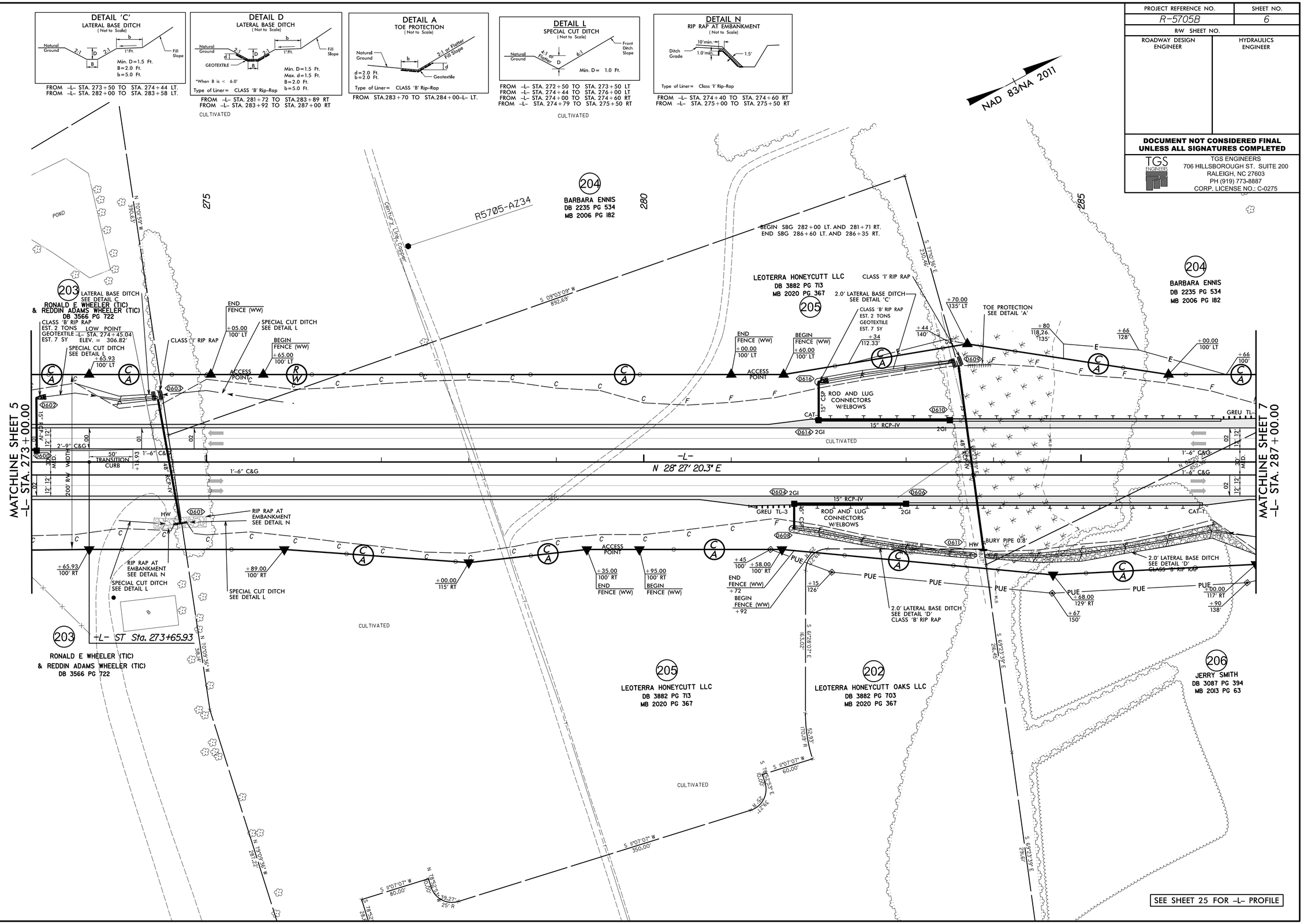
8/17/99

10/19/2021
X:\Proj\R-5705B\Roadway\Proj\R5705B_Rdy_psh_05.dgn
User:Bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



REVISIONS

7-19-2021 REVISED PROPERTY LINES,OWNER & DEED BOOK DATA FOR PARCELS 203 & 205.ADDED PARCEL NUMBER 205A.(DBE)
10-19-2021 REVISED PROPERTY OWNER FOR PARCEL 205.RENUMBERED PARCEL 205A TO PARCEL 202.(DBE)

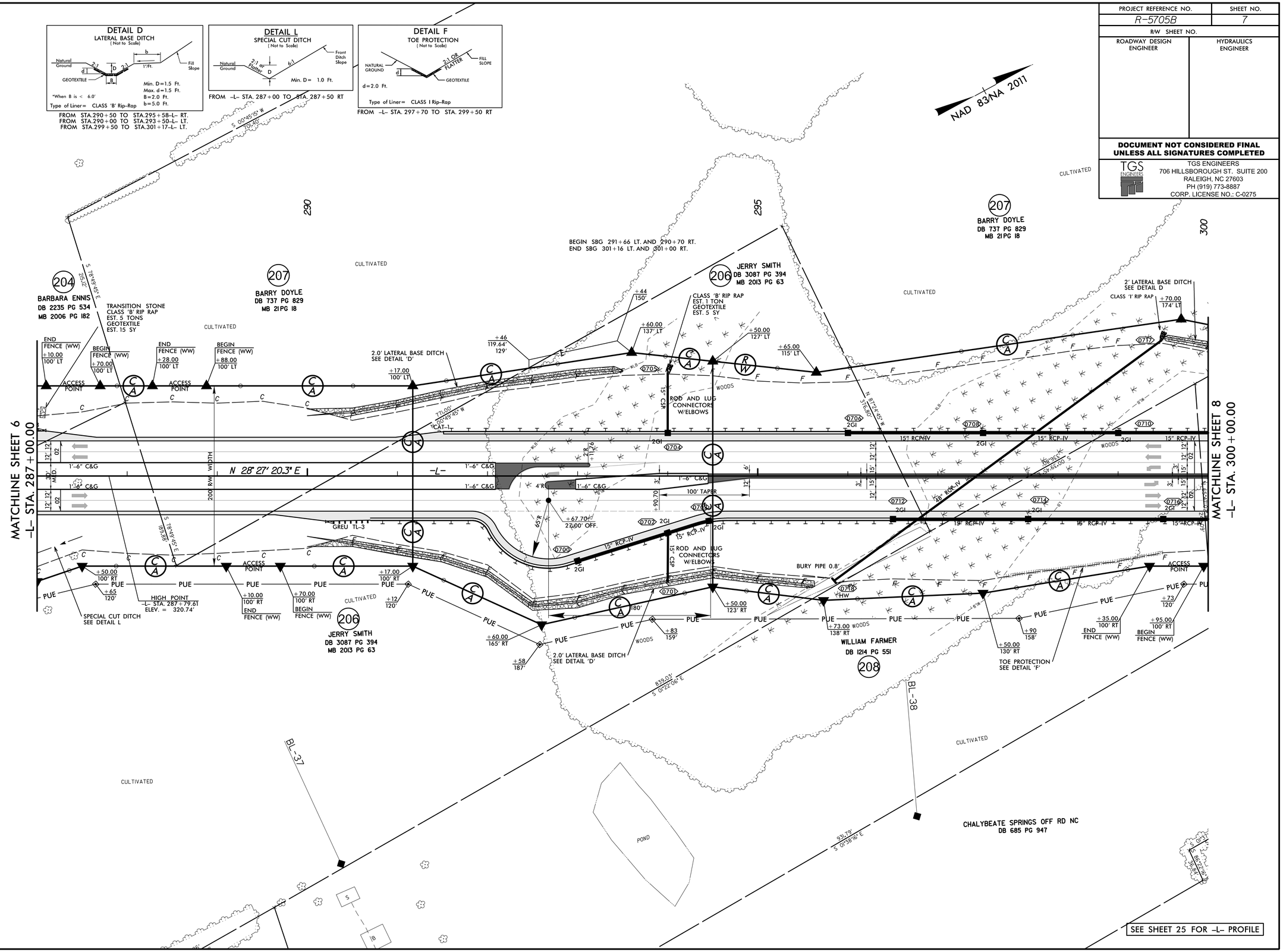
8/17/99

10/19/2021
R:\Roadway\Proj\R5705B_Rdy_psh_06.dgn
User:Revons

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



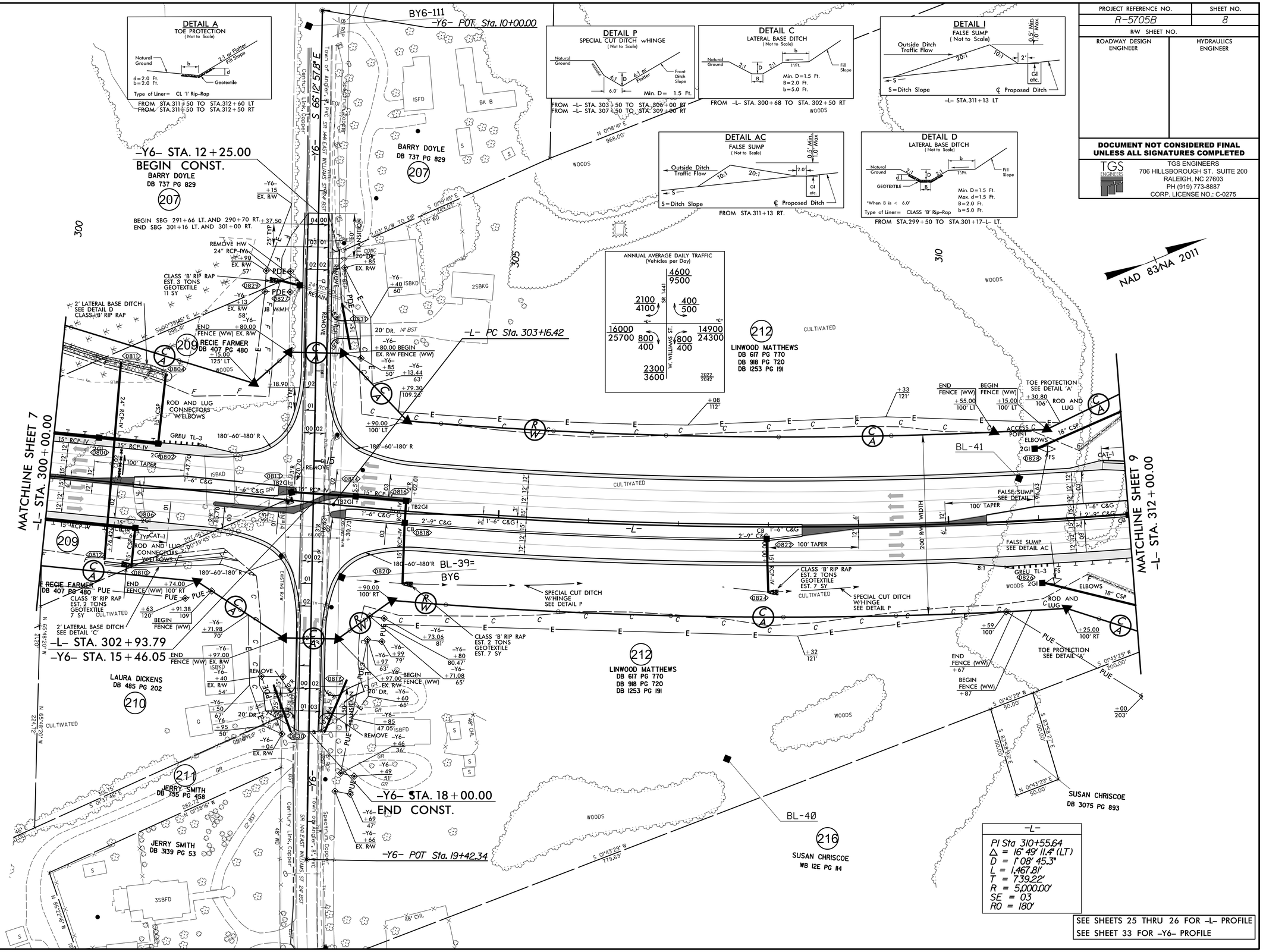
8/17/99

3/3/2021
X:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_07.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



SEE SHEETS 25 THRU 26 FOR -L- PROFILE
SEE SHEET 33 FOR -Y6- PROFILE

REVISIONS

10-19-2021 COMBINED PROPERTY LINES FOR PARCELS 212,213,214 & 215 INTO PARCEL 212.DELETED PARCEL NUMBERS 213,214 & 215.(DBE)

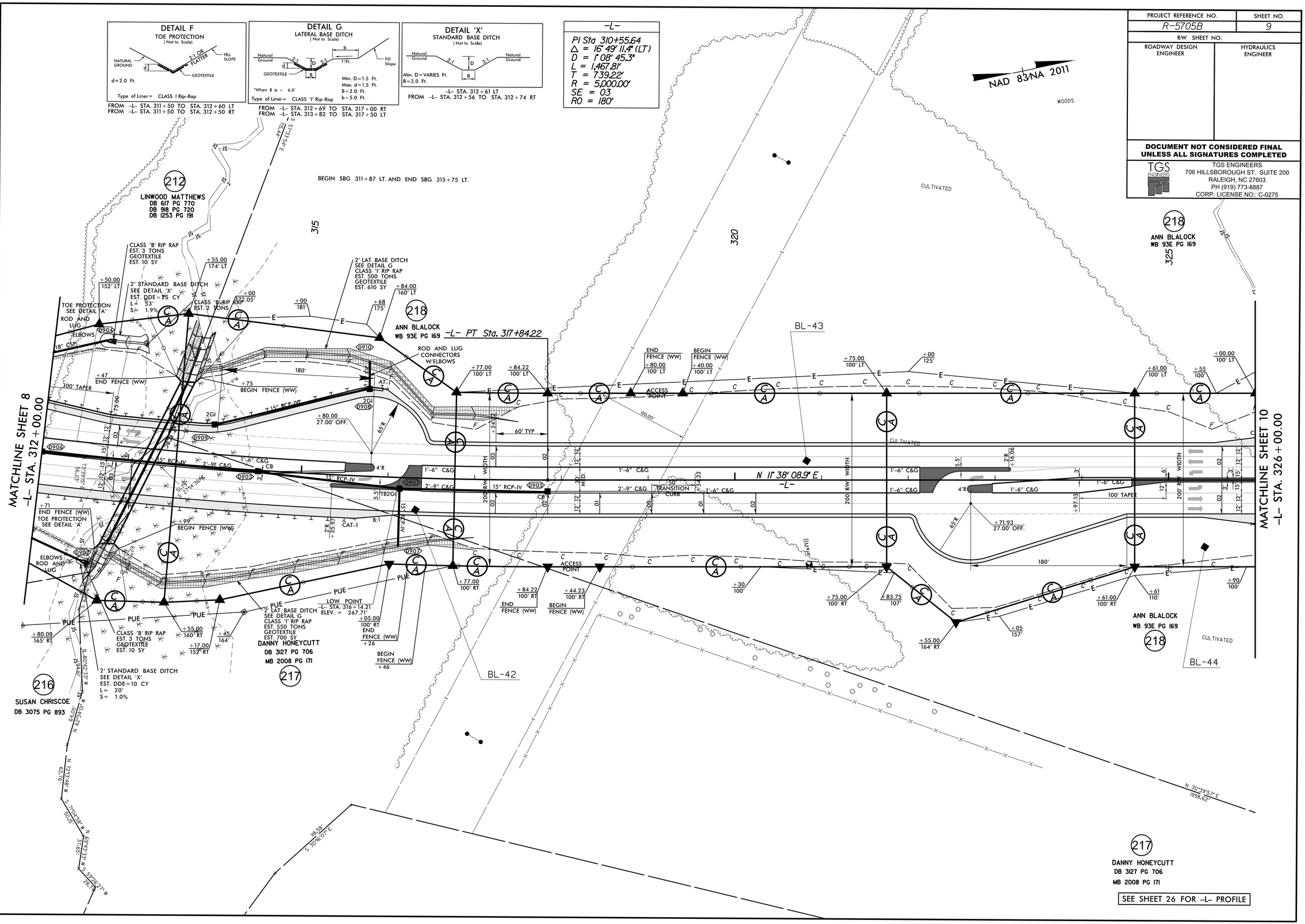
8/17/99

10/19/2021
X:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_08.dgn
User:Bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



REVISIONS

10-19-2021 RENUMBERED PARCEL 215 TO 212.(DBE)

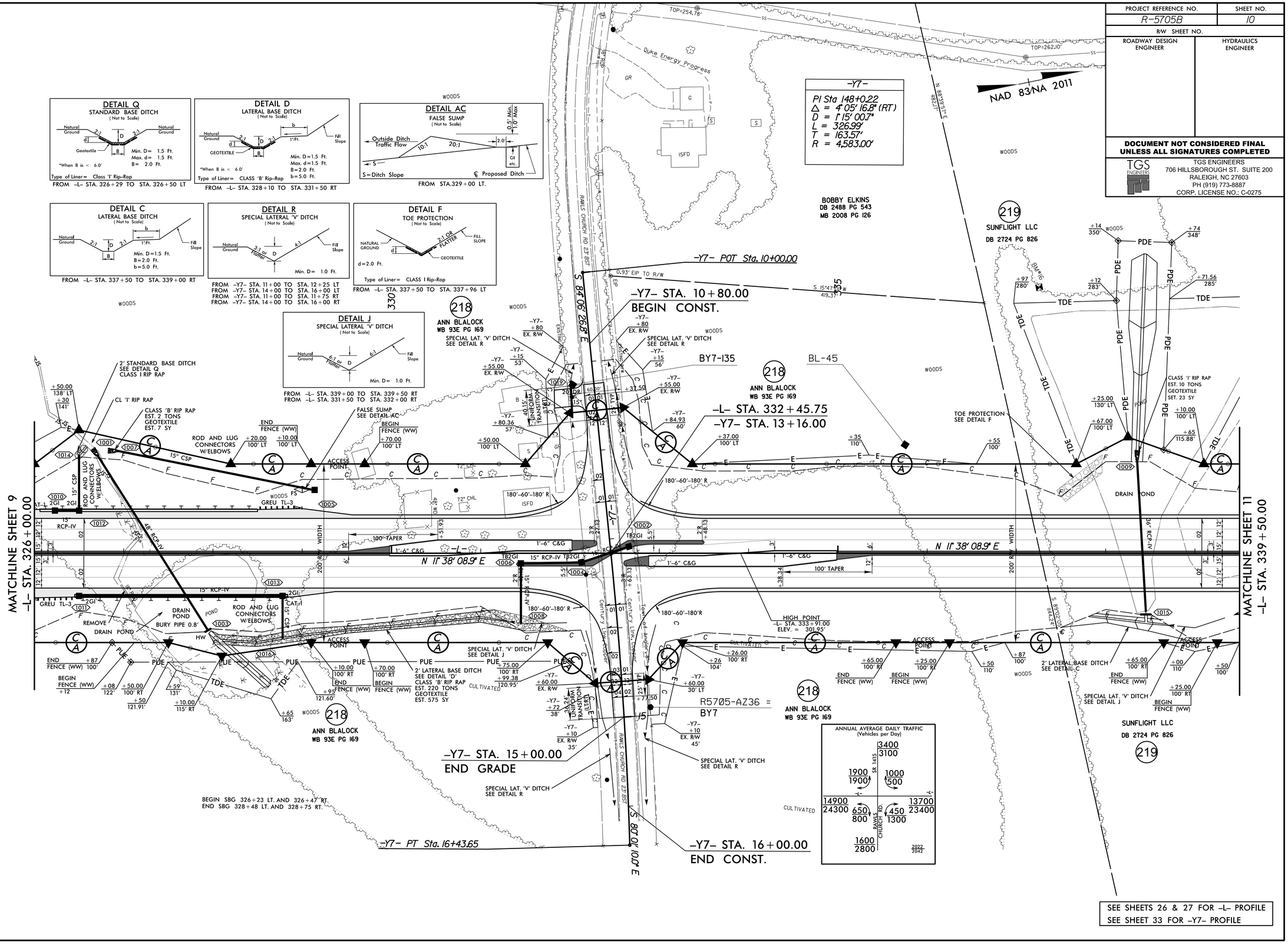
8/17/99

10/19/2021
X:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_09.dgn
User:Bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



REVISIONS

7-19-2021 REVISED PUE ON PARCEL 218.(DBE)

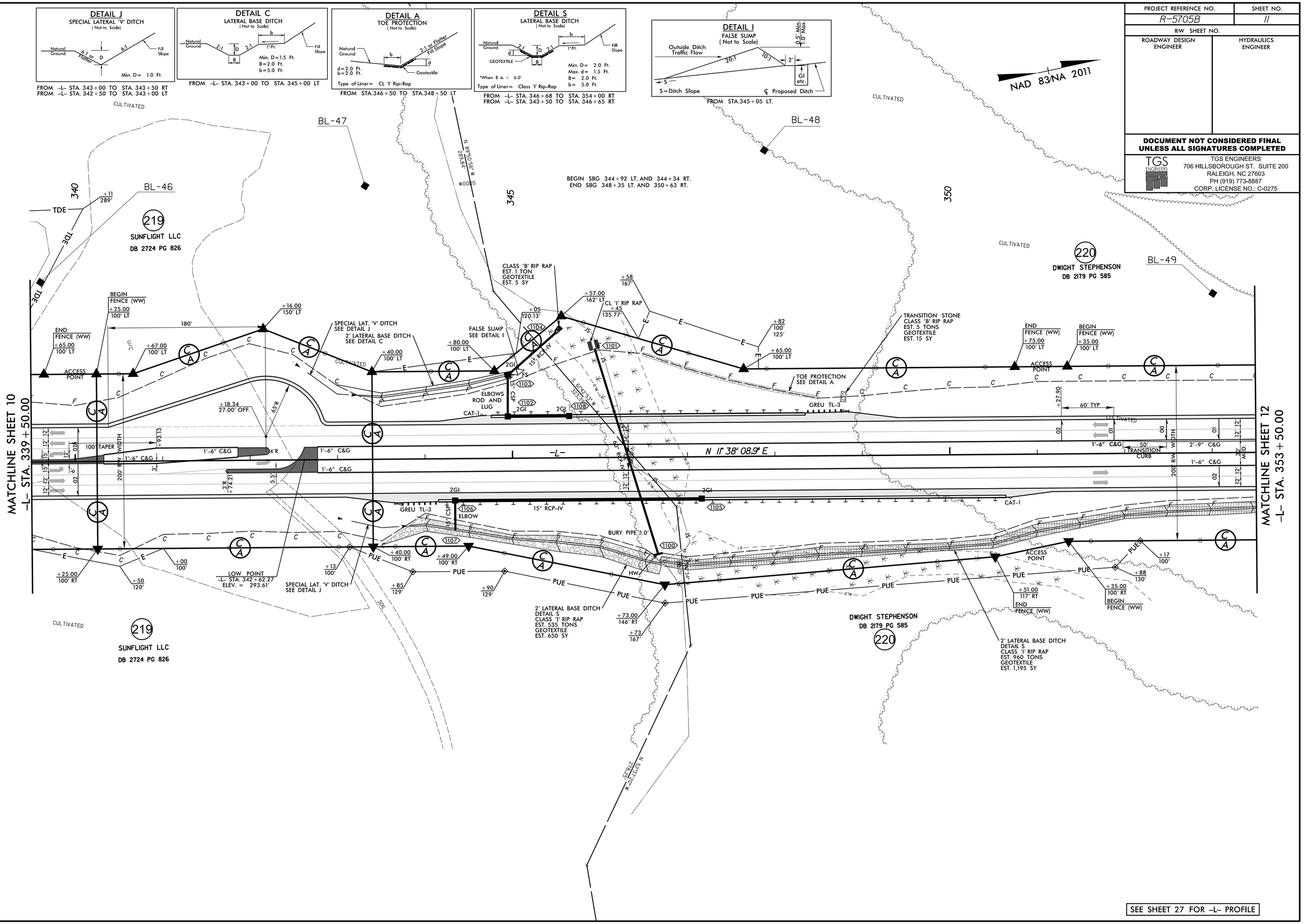
8/17/99

12/14/2021
K:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_10.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



SEE SHEET 27 FOR -L- PROFILE

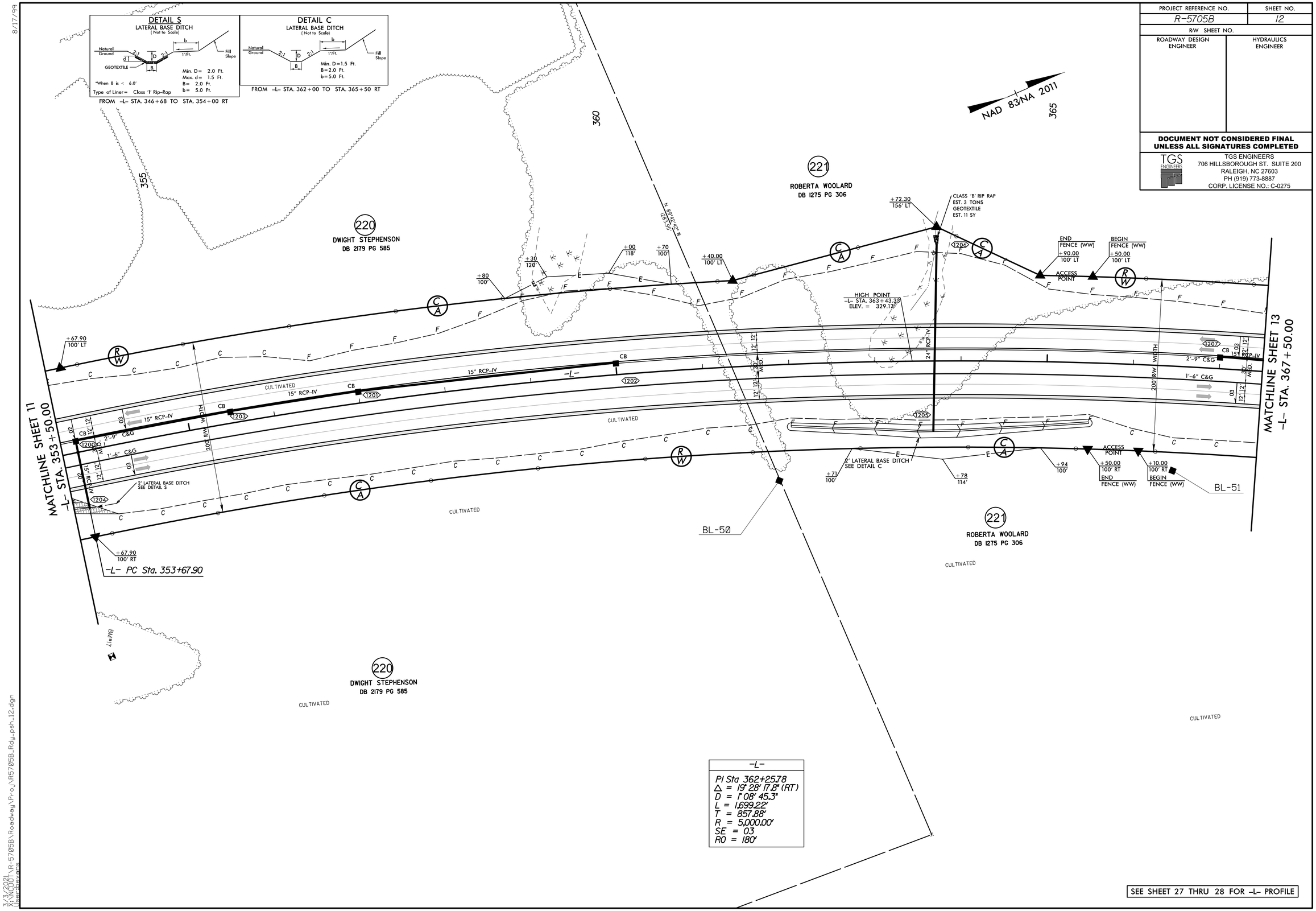
8/17/99

3/3/2021
R:\Hydro\R-5705B\Roadway\Proj\R5705B_Rdy_psh_11.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



SEE SHEET 27 THRU 28 FOR -L- PROFILE

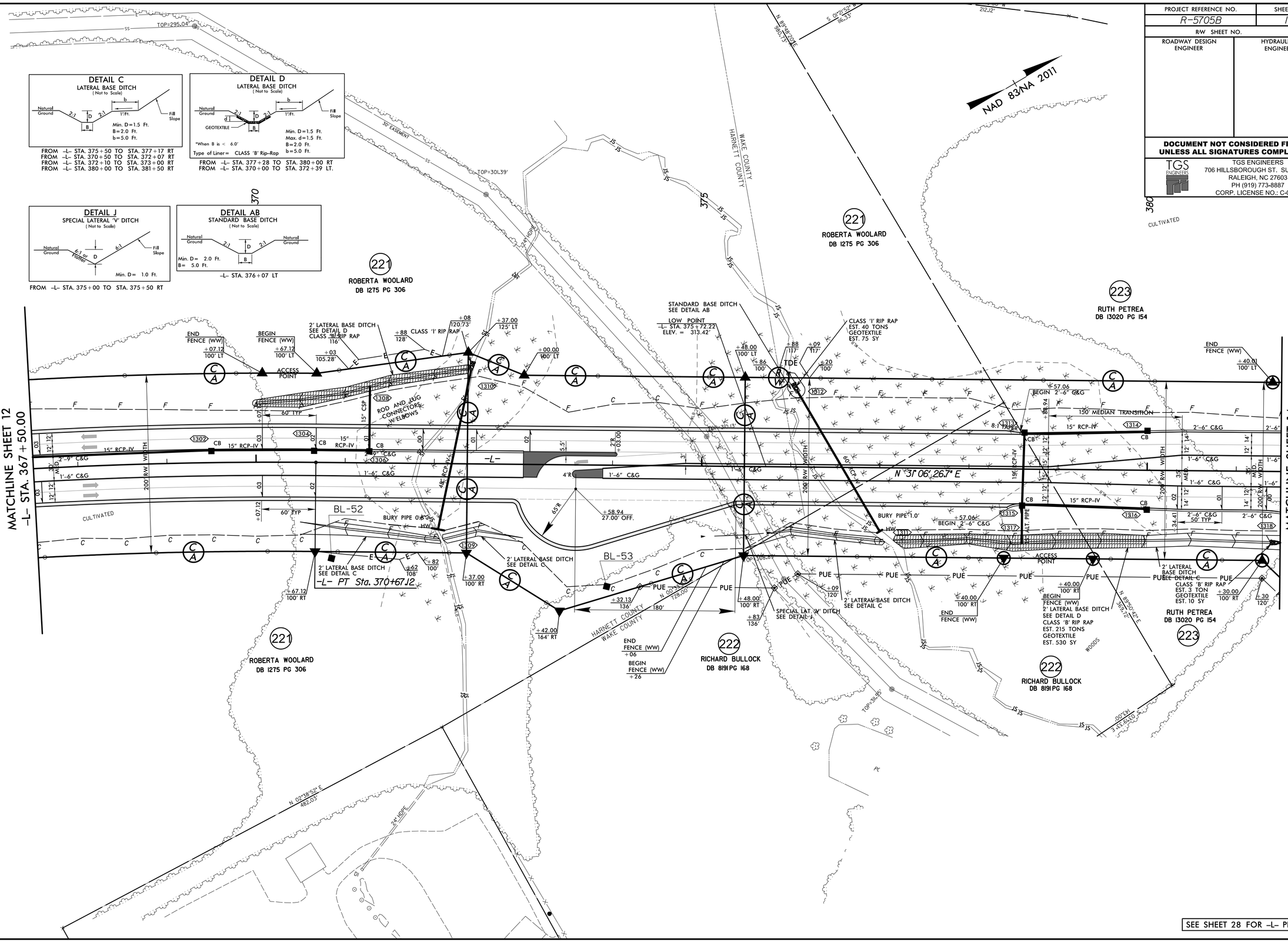
8/17/99

3/3/2021
\\SNC001\R-5705B\Roadway\Proj\R5705B_Rdy_psh_12.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



REVISIONS

10-19-2021 REVISED ACCESS POINT FOR PARCEL 222 TO BE 100' WIDE.(DBE)

8/17/99

10/19/2021
X:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_13.dgn
User:Bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

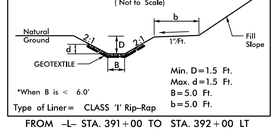
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS

5-20-2021 DELETED PARCEL NUMBER 305. UPDATED SURVEYS AND ADDED PARCEL NUMBERS AND PROPERTY OWNER DATA FOR PARCELS 305A,305B,305C & 305D.
7-16-2021 REVISED EASEMENTS ON PARCELS 304,305A,305B,305C,305D,306 & 307. REMOVED PUE FROM PARCEL 308.
9-1-2021 REMOVED C/A FENCE FROM -L- STA.389+00 RT TO THE END OF THE SHEET.(DBE)
10-19-2021 ADDED DESIGN FOR -Y22- AND -Y23-, REVISED R/W AND EASEMENTS ON PARCELS 223 & 303. REVISED -L- MEDIAN TO ALLOW A LEFTOVER AND U-TURN AT -Y20-. REVISED DESIGN ALONG -Y8-(DBE)
11-15-2021 REVISED PROPERTY OWNER & DEED BOOK DATA FOR PARCEL 304.(DBE)
REVISED DESIGN FOR -Y8- AND MEDIAN DESIGN FOR -L-, REVISED R/W AND EASEMENTS ON PARCELS 223 & 303. UPDATED WETLANDS ON PARCEL 223.(DBE)

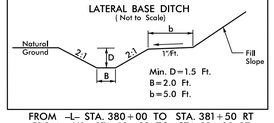
8/17/99

DETAIL W
LATERAL BASE DITCH
(Not to Scale)



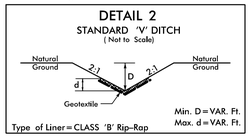
*When B is < 6.0'
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=5.0 Ft.
b=5.0 Ft.
Type of Liner= CLASS 'I' Rip-Rap
FROM -L- STA. 391+00 TO STA. 392+00 LT

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=2.0 Ft.
b=5.0 Ft.
FROM -L- STA. 380+00 TO STA. 381+50 RT
FROM -Y8- STA. 12+92 TO STA. 13+00 RT

DETAIL 2
STANDARD 'V' DITCH
(Not to Scale)



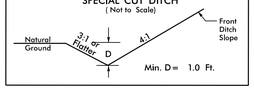
Min. D=VAR. Ft.
Max. d=VAR. Ft.
Type of Liner=CLASS 'B' Rip-Rap
FROM STA. 17+00 -Y22- LT.

-Y19-
PI Sta 10+95.22
Δ = 22° 07' 54.7" (LT)
D = 22° 55' 05.9"
L = 96.57'
T = 48.89'
R = 250.00'

NAD 83/NA 2011

-L-
PI Sta 387+98.92
Δ = 42° 06' 28.1" (LT)
D = 4° 35' 01.2"
L = 918.65'
T = 481.18'
R = 1,250.00'
SE = 04
RO = 200'

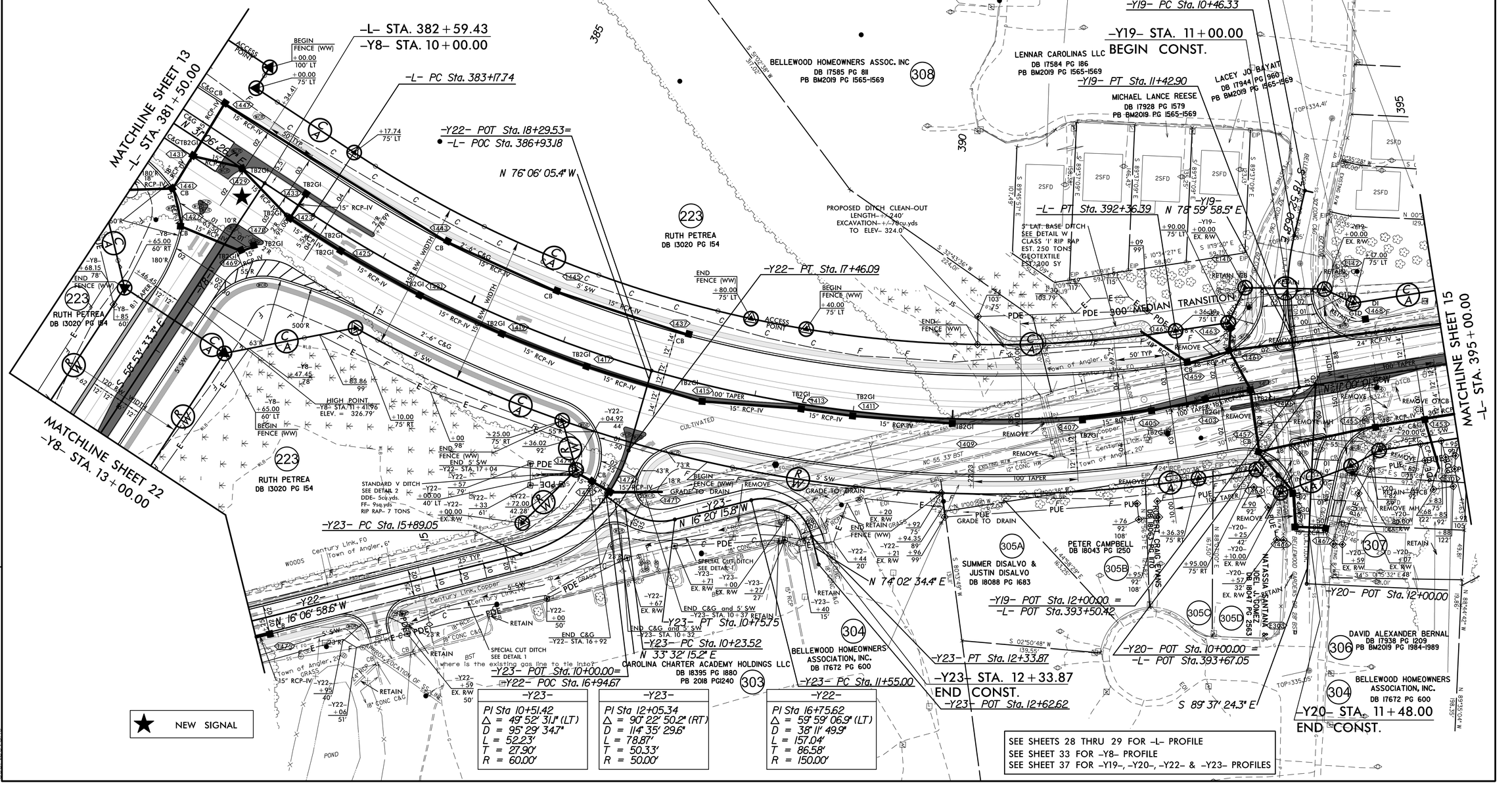
DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0 Ft.
FROM -Y22- STA. 11+00 TO STA. 12+30 RT
FROM -Y22- STA. 14+63 TO STA. 16+50 RT.

ANNUAL AVERAGE DAILY TRAFFIC
(Vehicles per Day)

13700 / 23400	28800 / 42200
NC 55	
400 / 1100	15500 / 19900
16000 / 21000	2022 / 2042



-Y23-
PI Sta 10+51.42
Δ = 49° 52' 31.1" (LT)
D = 95° 29' 34.7"
L = 52.23'
T = 27.90'
R = 60.00'

-Y23-
PI Sta 12+05.34
Δ = 90° 22' 50.2" (RT)
D = 114° 35' 29.6"
L = 78.87'
T = 50.33'
R = 50.00'

-Y22-
PI Sta 16+75.62
Δ = 59° 59' 06.9" (LT)
D = 38° 11' 49.9"
L = 157.04'
T = 86.58'
R = 150.00'

V:\5.20.2021
V:\3\0001\R-5705B\Roadway\Proj\R5705B_Rdy.psl
14.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

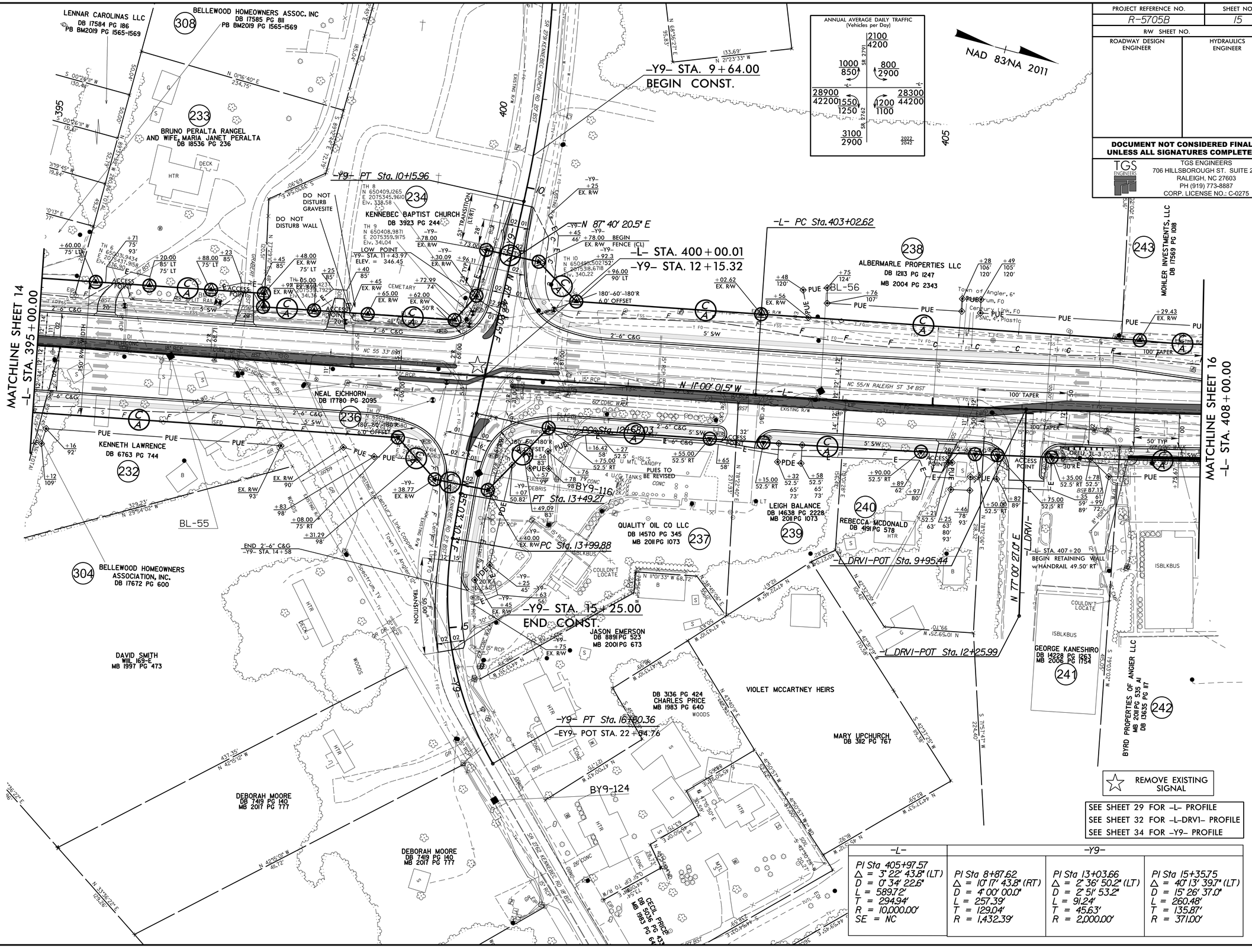
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS

7-19-2021 REVISED EASEMENTS ON PARCELS 232,234,236,237,238,239,240,241 & 242. REMOVED PUE FROM PARCELS 233 & 308.
UPDATED SURVEY ON PARCEL 240 TO SHOW GARAGE.REMOVED C/A FENCE FROM ENTIRE SHEET.(DBE)
10-19-2021 REVISED PROPERTY OWNER & DEED BOOK DATA FOR PARCELS 233,236,243 & 304.ADDED "DO NOT DISTURB GRAVESITE" NOTE TO PARCEL 234.(DBE)

8/17/99



-L-	-Y9-		
PI Sta 405+97.57 Δ = 3° 22' 43.8" (LT) D = 0° 34' 22.6" L = 589.72' T = 294.94' R = 10,000.00' SE = NC	PI Sta 8+87.62 Δ = 10° 17' 43.8" (RT) D = 4° 00' 00.0" L = 257.39' T = 129.04' R = 1,432.39'	PI Sta 13+03.66 Δ = 2° 36' 50.2" (LT) D = 2° 51' 53.2" L = 91.24' T = 45.63' R = 2,000.00'	PI Sta 15+35.75 Δ = 40° 13' 39.7" (LT) D = 15° 26' 37.0" L = 260.48' T = 135.87' R = 371.00'

10/19/2021
V:\R\R-5705B\Roadway\Proj\R5705B_Rdy_psh15.dgn
User:BEVANS

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

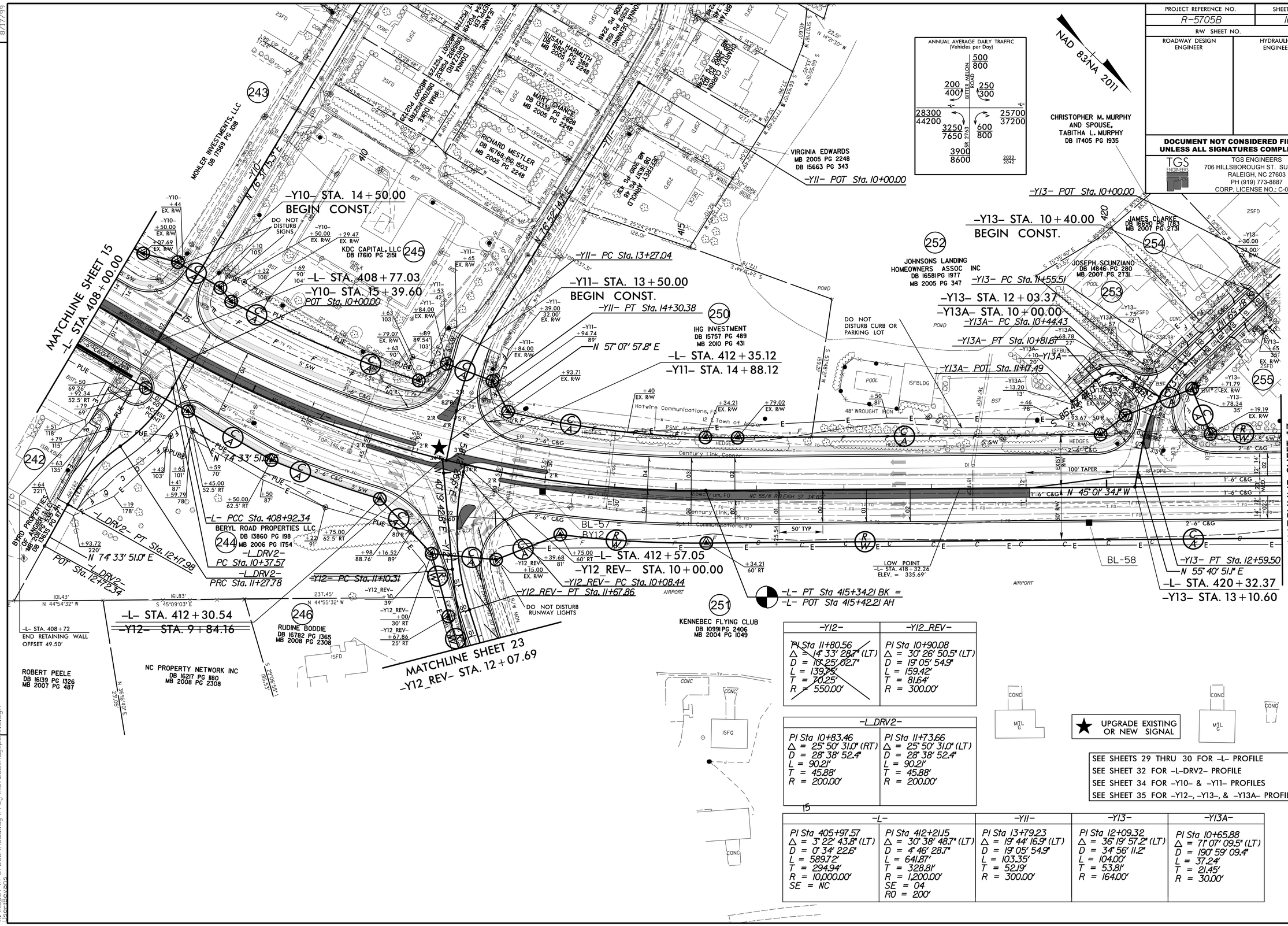
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS

6-23-2021 REVISED DESIGN FOR -Y12_REV- ALONG WITH R/W AND EASEMENTS FOR PARCELS 244,246 & 251.(DBE)
7-19-2021 REVISED EASEMENTS ON PARCELS 242,244,245 & 250.REMOVED C/A FENCE FROM ENTIRE SHEET.(DBE)
10-19-2021 REVISED PROPERTY OWNER & DEED BOOK DATA FOR PARCELS 243,245 & 255. ADDED "DO NOT DISTURB SIGN" NOTES TO PARCEL 245.(DBE)

8/17/99



-Y12-	-Y12_REV-
PI Sta 11+80.56 Δ = 14° 33' 28.7" (LT) D = 10° 25' 02.7" L = 139.75' T = 70.25' R = 550.00'	PI Sta 10+90.08 Δ = 30° 26' 50.5" (LT) D = 19° 05' 54.9" L = 159.42' T = 81.64' R = 300.00'

-L_DRV2-	
PI Sta 10+83.46 Δ = 25° 50' 31.0" (RT) D = 28° 38' 52.4" L = 90.21' T = 45.88' R = 200.00'	PI Sta 11+73.66 Δ = 25° 50' 31.0" (LT) D = 28° 38' 52.4" L = 90.21' T = 45.88' R = 200.00'

SEE SHEETS 29 THRU 30 FOR -L- PROFILE
SEE SHEET 32 FOR -L-DRV2- PROFILE
SEE SHEET 34 FOR -Y10- & -Y11- PROFILES
SEE SHEET 35 FOR -Y12-, -Y13-, & -Y13A- PROFILES

-L-	-Y11-	-Y13-	-Y13A-
PI Sta 405+97.57 Δ = 3° 22' 43.8" (LT) D = 0° 34' 22.6" L = 589.72' T = 294.94' R = 10,000.00' SE = NC	PI Sta 412+21.15 Δ = 30° 38' 48.7" (LT) D = 4° 46' 28.7" L = 641.87' T = 328.81' R = 1,200.00' SE = 04 RO = 200'	PI Sta 13+79.23 Δ = 19° 44' 16.9" (LT) D = 19° 05' 54.9" L = 103.35' T = 52.19' R = 300.00'	PI Sta 12+09.32 Δ = 36° 19' 57.2" (LT) D = 34° 56' 11.2" L = 104.00' T = 53.81' R = 164.00'	PI Sta 10+65.88 Δ = 71° 07' 09.5" (LT) D = 190° 59' 09.4" L = 37.24' T = 21.45' R = 30.00'

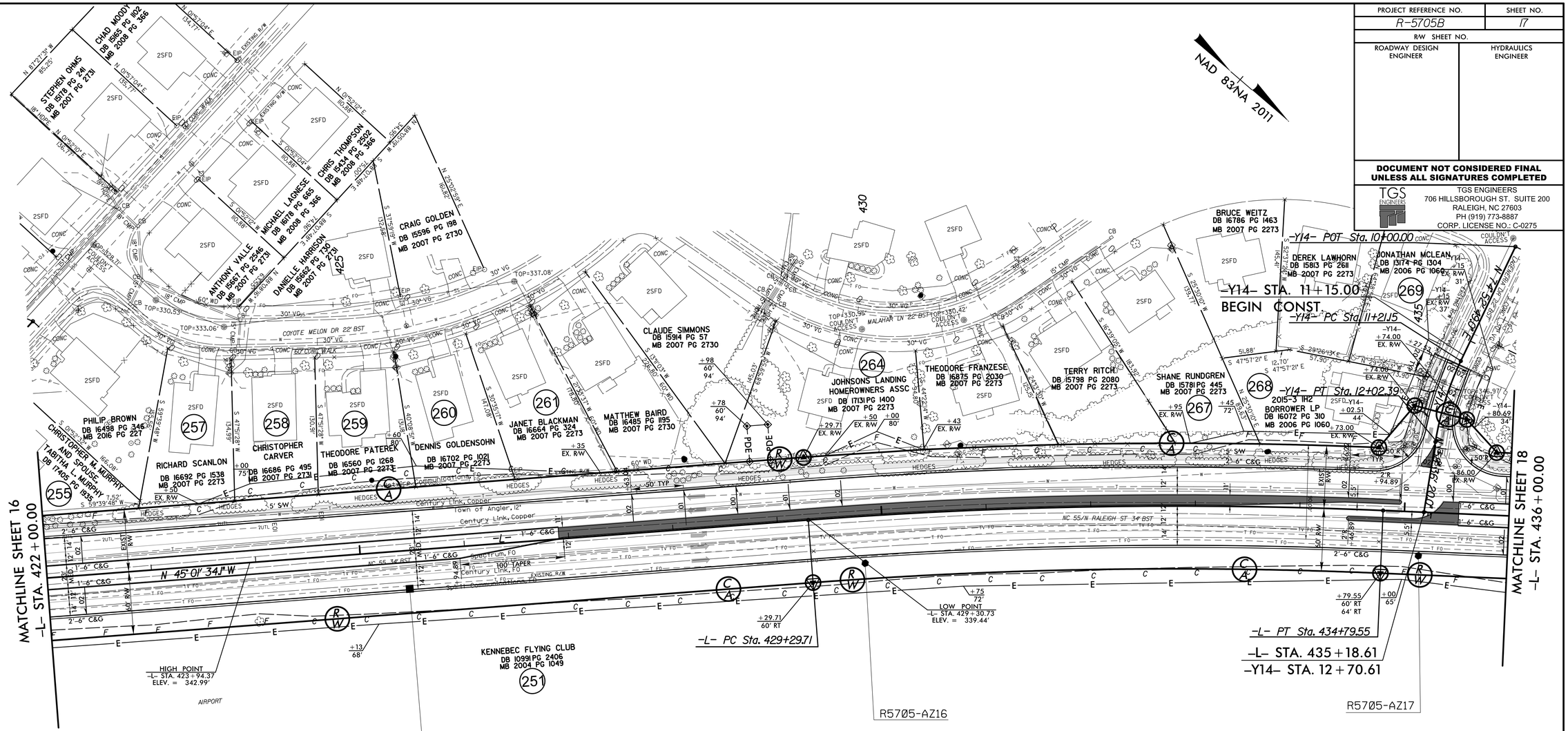
10/13/2021
R:\Roadway\Proj\R-5705B\Roadway\Proj\R5705B_Rdy_psh_16.dgn
User:Revons

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NAD 83/NA 2011



-L-	-Y14-
PI Sta 432+04.95	PI Sta 11+62.05
Δ = 6° 48' 15.4" (RT)	Δ = 16° 16' 29.0" (LT)
D = 1° 14' 15.0"	D = 20° 02' 00.6"
L = 549.85'	L = 81.24'
T = 275.25'	T = 40.89'
R = 4,630.00'	R = 286.00'
SE = 0.2	
RO = 100'	

SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 35 FOR -Y13- & -Y14- PROFILES

REVISIONS

7-19-2021 REMOVED C/A FENCE FROM ENTIRE SHEET.(DBE)
10-19-2021 REVISED PROPERTY OWNER & DEED BOOK DATA FOR PARCEL 255.(DBE)

8/17/99

10/19/2021
r:\proj\r-5705b\roadway\proj\R5705B_Rdy_psh_17.dgn
User:Revans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

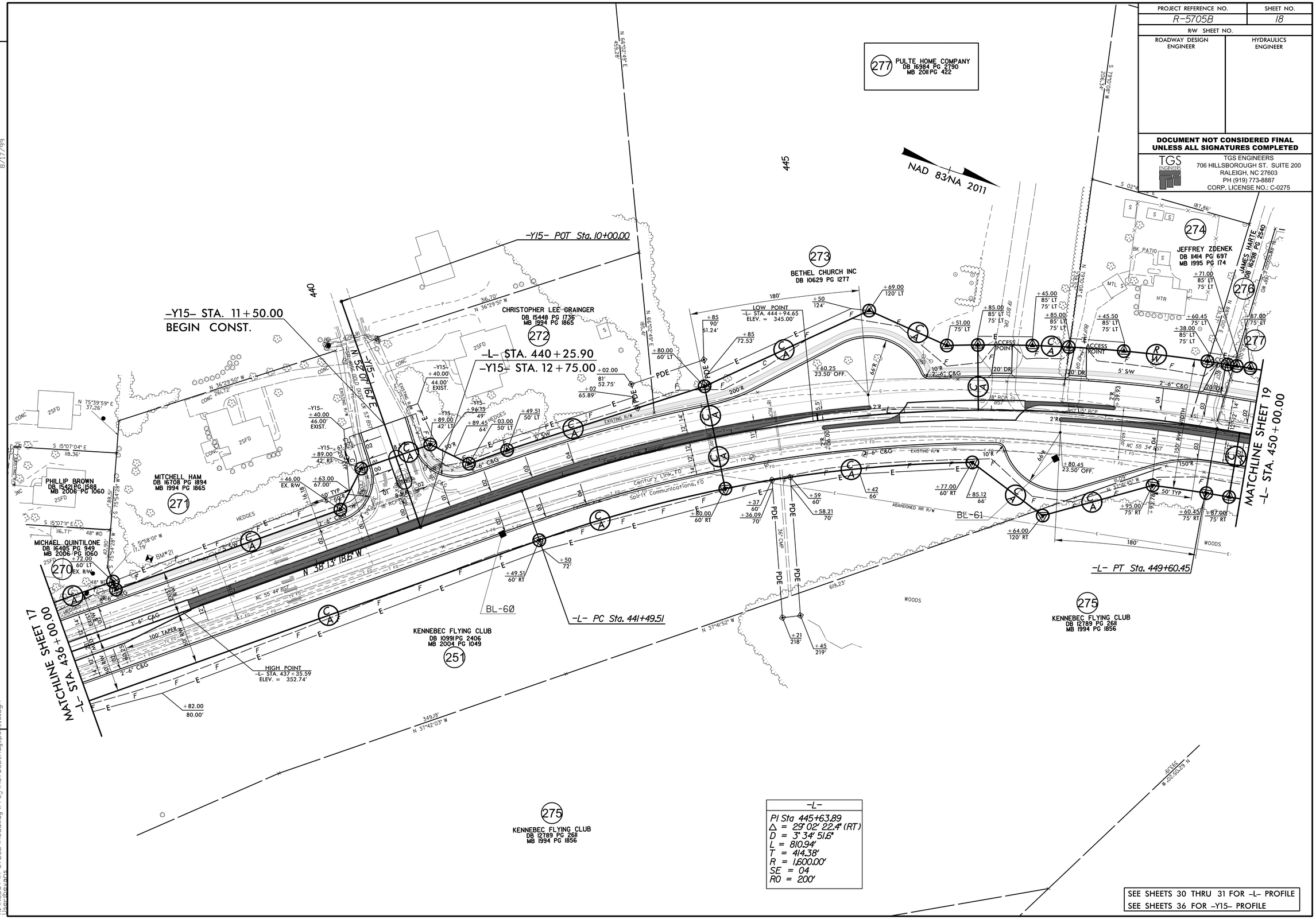
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS

7-19-2021 REMOVED C/A FENCE FROM ENTIRE SHEET.(DBE)

8/17/99



SEE SHEETS 30 THRU 31 FOR -L- PROFILE
SEE SHEETS 36 FOR -Y15- PROFILE

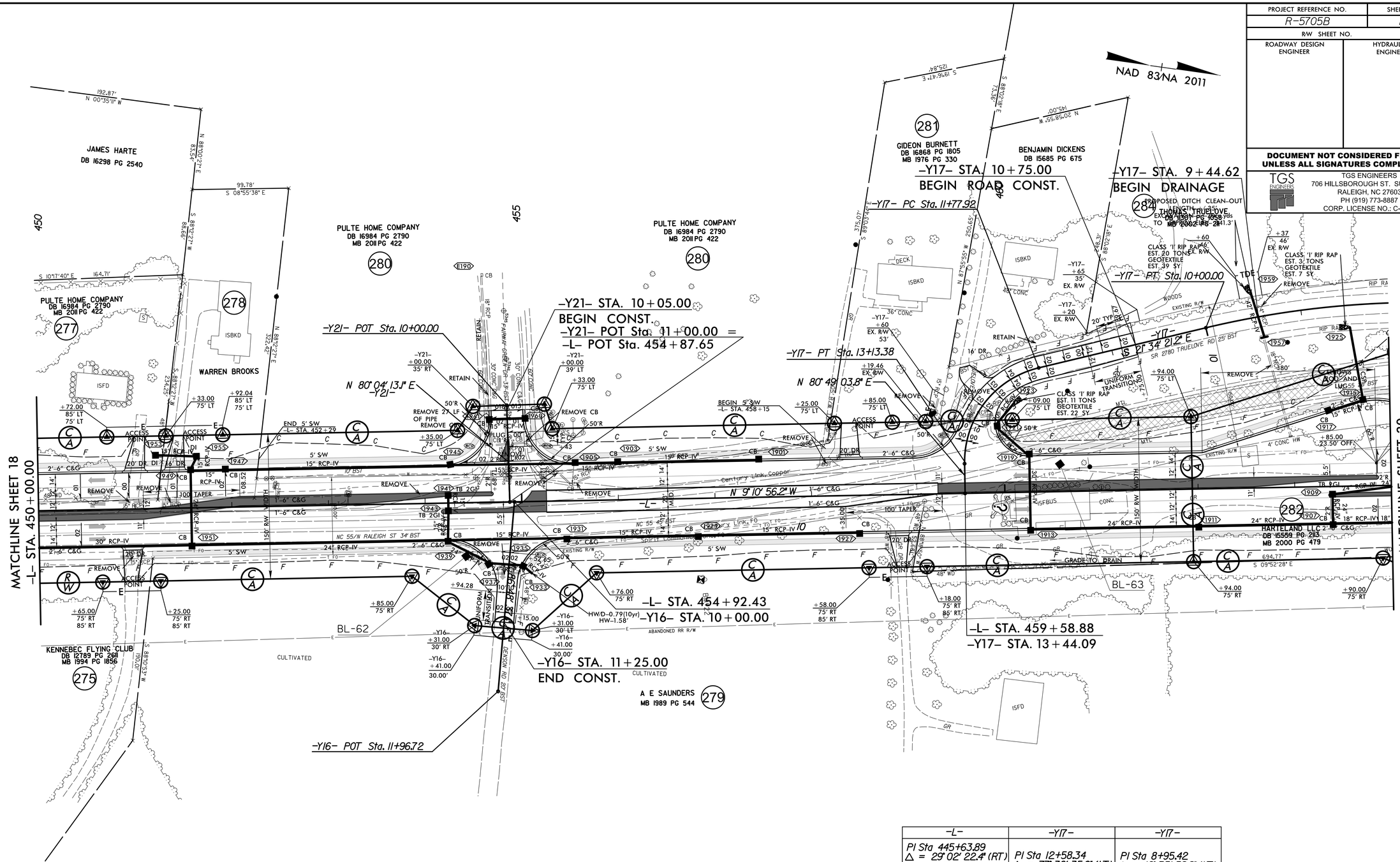
12/14/2021
X:\INCOMP\R-5705B\Roadway\Proj\R5705B_Rdy_pst_18.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

NAD 83/NA 2011



-L-	-Y17-	-Y17-
PI Sta 445+63.89 Δ = 29° 02' 22.4" (RT) D = 3° 34' 51.6" L = 810.94' T = 414.38' R = 1,600.00' SE = 04 R0 = 200'	PI Sta 12+58.34 Δ = 77° 36' 35.0" (LT) D = 57° 17' 44.8" L = 135.45' T = 80.42' R = 100.00'	PI Sta 8+95.42 Δ = 12° 35' 58.8" (LT) D = 5° 59' 58.4" L = 210.01' T = 105.43' R = 955.00'

SEE SHEET 31 FOR -L- PROFILE
SEE SHEET 36 FOR -Y16 & -Y17- PROFILES
SEE SHEET 37 FOR -Y21- PROFILE

REVISIONS

7-19-2021 REMOVED C/A FENCE FROM ENTIRE SHEET.(DBE)

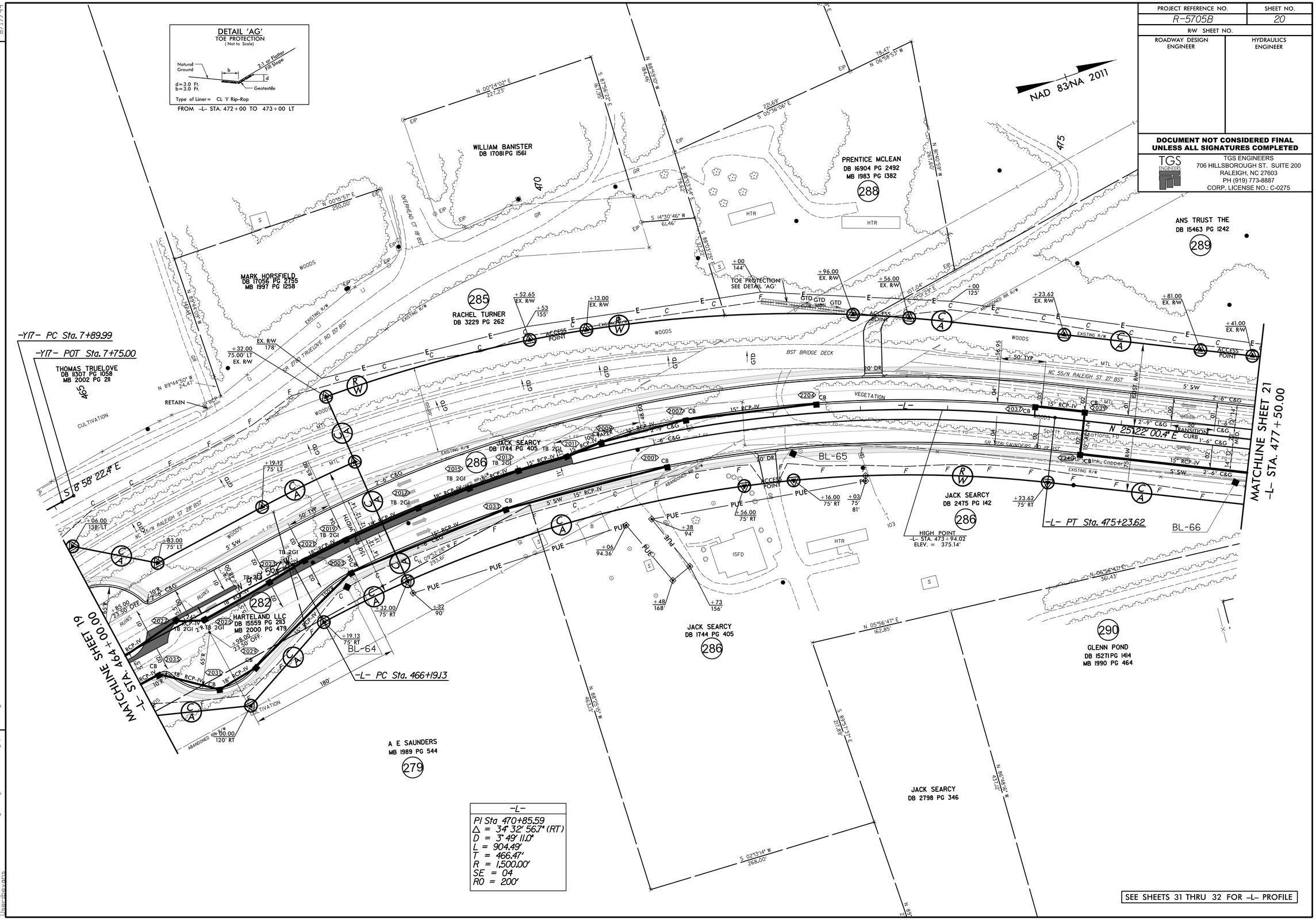
8/17/99

12/14/2021
R:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_19.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



SEE SHEETS 31 THRU 32 FOR -L- PROFILE

REVISIONS

7-19-2021 REVISED PUE ON PARCEL 286.REMOVED C/A FENCE FROM ENTIRE SHEET.(DBE)

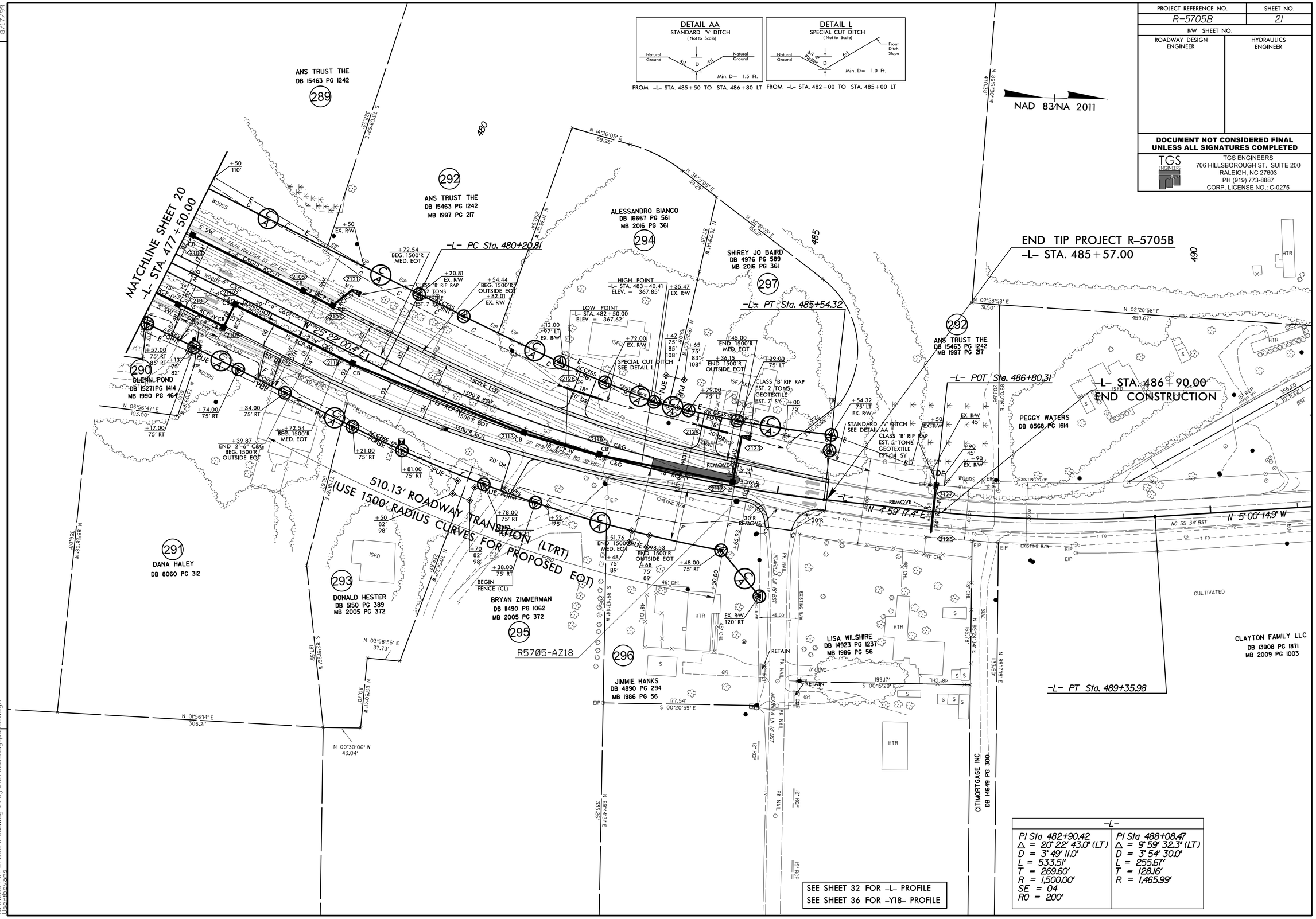
8/17/99

12/14/2021
X:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_20.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



-L-	
PI Sta 482+90.42	PI Sta 488+08.47
Δ = 20° 22' 43.0" (LT)	Δ = 9° 59' 32.3" (LT)
D = 3° 49' 11.0"	D = 3° 54' 30.0"
L = 533.51'	L = 255.67'
T = 269.60'	T = 128.16'
R = 1,500.00'	R = 1,465.99'
SE = 04	
RO = 200'	

REVISIONS

7-19-2021 REMOVED C/A FENCE FROM ENTIRE SHEET.(DBE)

8/17/99

12/14/2021
K:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh21.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

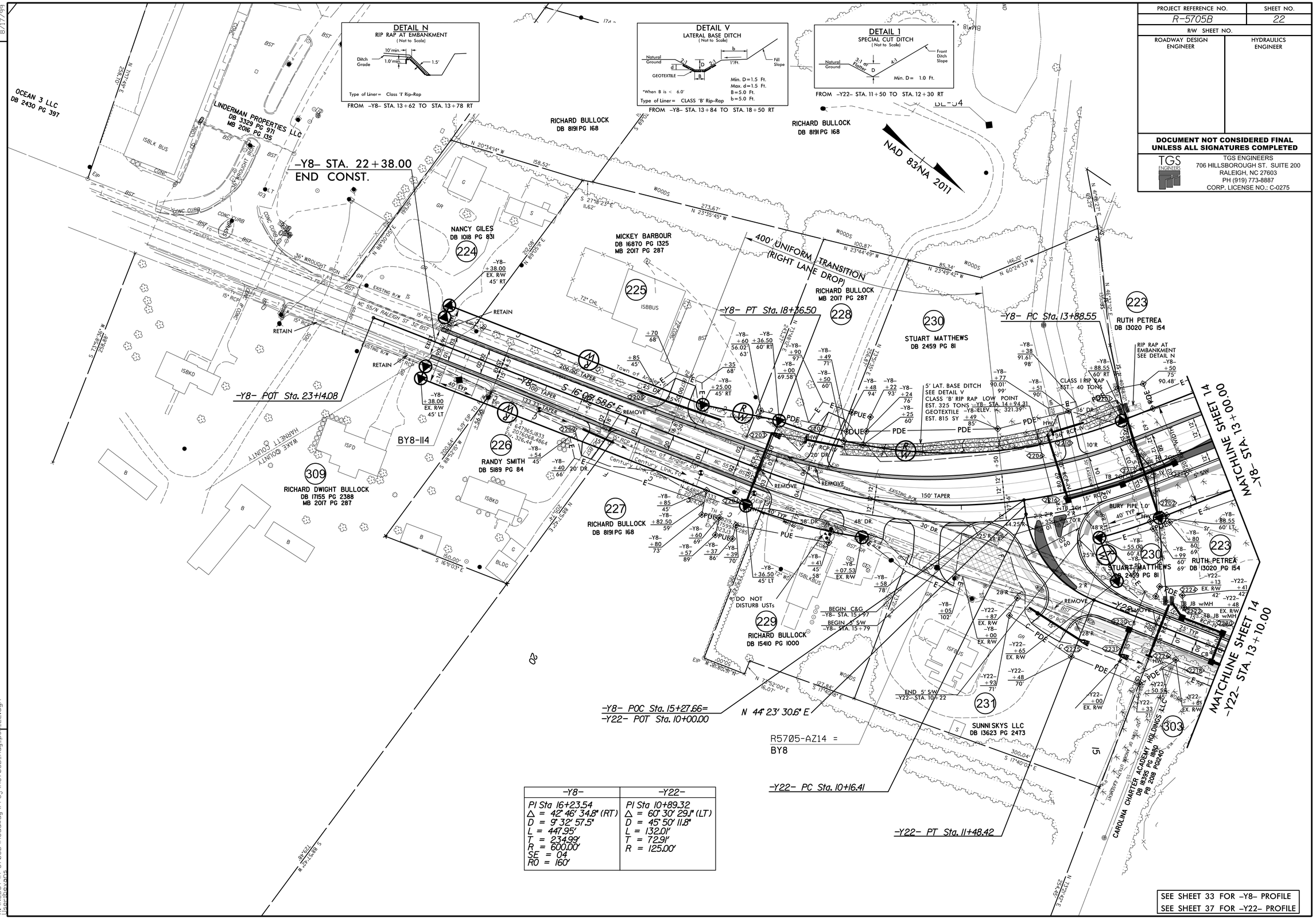
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS

7-19-2021 ADDED OWNER,DEED BOOK DATA AND PARCEL NUMBER TO PARCEL 309.(DBE)
12-8-2021 ADDED DESIGN FOR -Y22-, REVISED R/W AND EASEMENTS ON PARCELS 223,230,231 & 303.(DBE)

8/17/99



-Y8-	-Y22-
PI Sta 16+23.54	PI Sta 10+89.32
Δ = 42° 46' 34.8" (RT)	Δ = 60° 30' 29.1" (LT)
D = 9° 32' 57.5"	D = 45° 50' 11.8"
L = 447.95'	L = 132.01'
T = 234.99'	T = 72.91'
R = 600.00'	R = 125.00'
SE = 04	
RO = 160'	

SEE SHEET 33 FOR -Y8- PROFILE
SEE SHEET 37 FOR -Y22- PROFILE

12/14/2021
X:\NCDOT\R-5705B\Roadway\Proj\R5705B_Rdy_psh_22.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
R-5705B	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

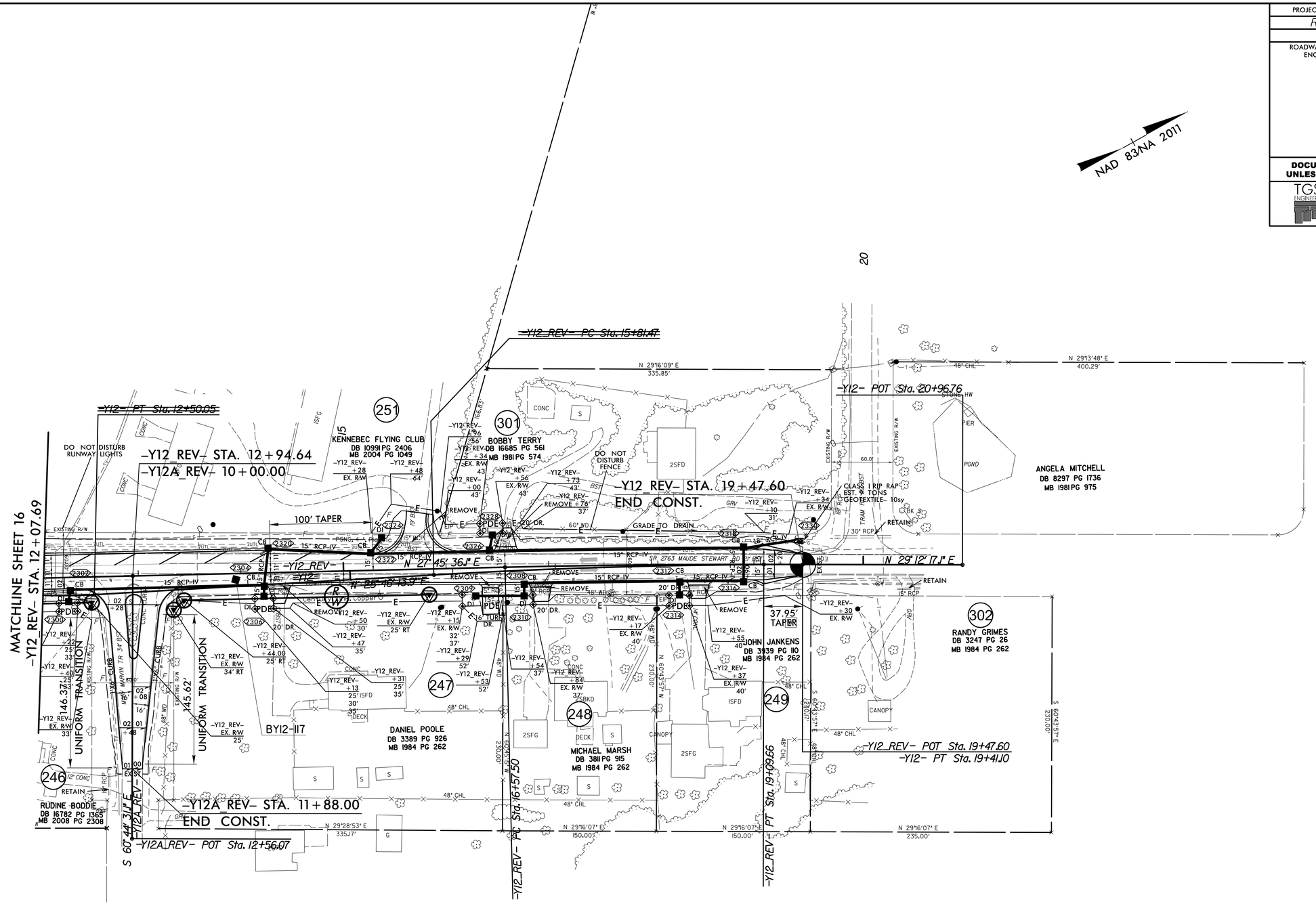
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

REVISIONS

6-23-2021 REVISED DESIGN FOR -Y12_REV- AND -Y12A_REV- ALONG WITH R/W AND EASEMENTS FOR PARCELS 246,247,248,249,251 & 301.(DBE)

8/17/99



-Y12-	
~~PI Sta 11+80.56~~	~~PI Sta 17+61.34~~
~~Δ = 14° 33' 28.7" (LT)~~	~~Δ = 3° 26' 03.2" (RT)~~
~~D = 10° 25' 02.7"~~	~~D = 0° 57' 17.7"~~
~~L = 139.75'~~	~~L = 359.63'~~
~~T = 70.25'~~	~~T = 179.87'~~
~~R = 550.00'~~	~~R = 6,000.00'~~

-Y12_REV-
PI Sta 17+83.59
Δ = 1° 26' 41.0" (RT)
D = 0° 34' 22.6"
L = 252.15'
T = 126.08'
R = 10,000.00'

SEE SHEET 35 FOR -Y12_REV- & -Y12A_REV- PROFILES

6/23/2021
R:\ROADWAY\Proj\R5705B_Rdy_psh_23.dgn
$USERNAME$