



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

January 26, 2018

U. S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. James Lastinger
NCDOT Division 9 Project Coordinator

SUBJECT: Request for Modification to Section 404 General Permit and Section 401 General Water Quality Certification for the proposed US 421/I-40 Business pavement reconstruction, bridge replacements and interchange modifications from west of 4th St. to east of Church St., and a multi-use path from 4th St. to Liberty St., Forsyth County, Division 9. Federal Aid Project No. NHF-0421(5), TIP Project No. U-2827B / C-5620A. Debit \$570.00 from WBS 34872.3.4.

References: Section 404 General Permit 198200031, U.S. Army Corps of Engineers Action ID SAW-2009-01193, dated July 11, 2017; 401 Water Quality General Certification No. 4088, N.C. Division of Water Resources Project No. 20170732, dated July 13, 2017.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes pavement reconstruction for approximately 1.2 miles of I-40 Business, bridge replacements, interchange modifications, and widening of Peters Creek Parkway in Forsyth County. As part of the project, 8.5 miles of 2-inch parallel fiber optic conduits and signage for ITS communication will be installed. In conjunction with U-2827B, project C-5620A a multi-use path along US 421/I-40 Business from Lockland Avenue to Liberty Street will be constructed. No jurisdictional impacts are proposed for the installation of the fiber optic conduits, signage, and multi-use path.

The original permit application dated June 6, 2017, stated there would be a total of 380 linear feet of permanent stream impact and 236 linear feet of temporary stream impact associated with construction of the project. Mitigation was acquired for 347 linear feet. Mitigation was not proposed for the remaining 33 linear feet of impact due to bank stabilization. There were no temporary or permanent impacts to wetlands. Several design changes have instigated the need to modify the original permitted impacts. Below are site by site descriptions of these modifications.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 9
375 SILAS CREEK PARKWAY
WINSTON SALEM, NC 27127

Telephone: (336) 896-2330
Fax: (336) 703-6693
Customer Service: 1-877-368-4968

Location:
375 SILAS CREEK PARKWAY
WINSTON SALEM, NC 27127

Website: www.ncdot.gov

Site 1

As the sanitary sewer design has progressed, it was determined the 12” sanitary sewer impact originally proposed at Site 1 will be relocated to the south. This shifted impact area will overlap with the original permanent stream impacts from the 42” pipe extension. Therefore, the standalone stream impacts (20 feet permanent, 10 feet temporary) due to the sanitary sewer for Site 1 will no longer need to occur. Therefore, there are no additional impacts for utilities at Site 1.

Sites 2 and 3

Due to ongoing design of traffic control measures, a temporary detour ramp alignment (shown in purple on Revised Permit Drawing Sheets 6 and 7) is now needed to maintain traffic to construct the new ramp. The temporary ramp alignment will have a greater impact to the streams at Sites 2 and 3, extending all the way to the embankment rip rap for the culvert inlet. Due to steep slopes and the already degraded nature of the stream, NCDOT proposes to permanently connect the existing 66” pipe to the box culvert, rather than remove a potential temporary pipe and restore the channel banks after removal of the temporary detour. By permanently filling this area, it will minimize long term maintenance concerns by removing guardrail, flattening slopes, and reducing stream bank erosion.

At Site 2, in addition to the originally permitted 83 feet of permanent stream impact (due to culvert fill and bank stabilization), an additional 91 linear feet of permanent stream fill will result from this action at Site 2 (due to the new 66” pipe). See Revised Permit Drawing Sheets 6 and 7.

At Site 3, the current design will pipe the stream to the existing culvert inlet, with no stream relocation as previously shown. The 48” pipe utilized to convey the stream at Site 3 will not be buried due to the existing steep grade of the pipe. Permanent impacts of 70 linear feet will result from this action (see Revised Permit Drawing Sheets 6 and 7), rather than the previously-proposed 42 feet of permanent stream relocation and 10 feet of temporary impacts.

The sanitary sewer at Sites 2 and 3 has also been re-designed due to the detour ramp. The sewerline will now intersect the stream at Site 3, overlapping with the stream impacts of the 48” pipe installation at Site 3. Therefore, the standalone permanent stream impact of 21 feet due to the sanitary sewer for Site 2 will no longer need to occur. Therefore, there are no additional impacts for utilities at Site 2.

Summary

The previously permitted impacts were 380 linear feet of permanent stream impacts and 236 linear feet of temporary stream impacts. The revised total impacts will be 458 linear feet of permanent stream impacts and 216 linear feet of temporary stream impacts associated with construction of the project. Mitigation was originally only proposed for 347 linear feet of the 380 feet of permanent stream impacts (33 feet of the 380 was bank stabilization). The revised mitigation will be 458 linear feet of permanent stream impacts. Therefore, an additional 111 linear feet of permanent stream impacts will be needed. Mitigation for 458 linear feet of permanent stream impacts has been provided by NC Division of Mitigation Services (see attached letter).

A copy of this permit modification will be posted on the NCDOT Website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links > Permit Applications*. A copy of the CE is also available at the above website address under *Quick Links > Environmental Documents*. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Deanna Riffey at either driffey@ncdot.gov or (919) 707-6151.

Sincerely,



for

Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit

cc:

NCDOT Permit Application Standard Distribution List
Amy Euliss, NCDOT Division 9 Environmental Officer
Michael Penney, NCDOT Design-Build



PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

January 23, 2018

Mr. Philip S. Harris, III, P.E., CPM
Manager, Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter:

U-2827B, Winston-Salem – I-40 Business / US 421 from East of Church Street to West of 4th Street), Forsyth County

References: USACE 404 General Permit 31 issued July 11, 2017 (USACE Action ID 2009-01193)

NCDWR 401 Water Quality Certification issued July 13, 2017 (NCDWR ID 2017-0732)

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the additional compensatory stream mitigation for the subject project. Based on the information supplied by you on January 9, 2018, the impacts are located in CU 03040101 of the Yadkin River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Table 1 – Additional Impacts (feet / acres)

Yadkin 03040101 CP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	111.0	0	0	0	0	0

*NOTE: Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This additional impact and associated mitigation needs were not projected by the NCDOT in the 2017 impact data. DMS is currently providing stream mitigation for the impacts associated with this project located in cataloging unit 03040101 of the Yadkin River basin as required by the 404 and 401 permits issued in July 2017, as shown in the below table (in mitigation credits)

Mr. Harris
TIP U-2827B
January 23, 2018
Page Two

Table 2 – Current Permitted Impacts and Associated Mitigation Requirements provided by DMS (based on 2017 issued permits) and Revised Anticipated Impacts (based on mitigation request)

Impact Type	Total Permitted Impacts (feet / acre / sq ft)	Mitigation Provided by DMS per Issued Permits (Credits)	Additional Impact (for approval)	Revised Total Impacts*
Stream (warm)	347.0	694.0	111.0	458.0

*Some of the additional stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details. DMS will provide the amount of mitigation as determined by the regulatory agencies.

This mitigation acceptance letter replaces the mitigation acceptance letters issued on July 27, 2016 and May 18, 2017. DMS commits to implementing additional sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,



James B. Stanfill
Credit Management Supervisor

cc: Mr. James Lastinger, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, Division of Water Resources, Wetlands/401 Unit
File: U-2827B Additional



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.05; Released April 2016)

WBS Element: 34872.3.4 TIP No.: U-2827B / C-5620A County(ies): Forsyth Page 1 of 3

General Project Information

WBS Element:	34872.3.4	TIP Number:	U-2827B / C-5620A	Project Type:	Pavement Reconstruction	Date:	5/4/2017
NCDOT Contact:	Matt Lauffer		Contractor / Designer:	James Rice			
Address:	1020 Birch Ridge Dr. Raleigh, NC 27610		Address:	555 Fayetteville St., Suite 900 Raleigh, NC 27601			
	Phone:	919-707-6703		Phone:	919-232-6621		
	Email:	mslauffer@ncdot.gov		Email:	james.rice@hdrinc.com		
City/Town:	Winston Salem		County(ies):	Forsyth			
River Basin(s):	Yadkin-Pee Dee		CAMA County?	No			
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	1.26	Surrounding Land Use:	Urban
	Proposed Project		Existing Site
Project Built-Upon Area (ac.)	30.2	ac.	32.2
Typical Cross Section Description:	4 lane divided freeway w/ an 11 ft median: (2) 10 foot outside paved shoulders, (2) 12 foot travel lanes, (2) 5.5 foot paved median shoulder - Total width of 79'		4 lane divided freeway w/ an 11ft median: (2) 12 foot outside paved shoulders, (2) 12 foot travel lanes, (2) 5.5 foot paved median shoulders - Total width Of 83'
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	96,400	Year: 2040
	Existing:	74,800	Year: 2011
General Project Narrative: (Description of Minimization of Water Quality Impacts)	<p>The project consists of pavement reconstruction of approximately 1.2 miles of I-40 Business, bridge replacements, interchange modifications, construction of multi-use path, and widening of Peters Creek Parkway. There is one culvert extension for a box culvert under Peters Creek Parkway, a pipe extension on the same tributary upstream of I-40 business where a supplemental pipe will be required, and a stream relocation for a small tributary that ties to the Peters Creek Tributary. An existing pipe that carries Tar Branch will also need to be replaced within the ROW limits of the project. There will be an additional 5.0 acres of impervious area added to the project due to the widening of Peters Creek Parkway. Stormwater control measures in the form of Media Filters have been proposed in this area to incorporate some stormwater treatment for part of this additional impervious area. In other areas of the project, there has been a decrease of impervious area by 7.0 acres due to the removal of select ramps and loops (see plans). The proposed project has a net reduction in Impervious area of 2.0 acres. The Design-Build Team has also flattened proposed ditches whenever possible to aide in as much treatment as possible.</p>		

Waterbody Information

Surface Water Body (1):	UT to Peters Creek		NCDWR Stream Index No.:	NA - Peters Creek: 12-94-12-8	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C			
	Supplemental Classification:	None			
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SA		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)				



North Carolina Department of Transportation
 Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.05; Released April 2016)

WBS Element: 34872.3.4 **TIP No.:** U-2827B / C-5620A **County(ies):** Forsyth **Page** 2 **of** 3

Additional Waterbody Information

Surface Water Body (2):	Tar Branch		NCDWR Stream Index No.:	12-94-12-7	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C			
	Supplemental Classification:	None			
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SC		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 (3):			NCDWR Stream Index No.:		
NCDWR Surface Water Classification for Water Body	Primary Classification:				
	Supplemental Classification:				
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:			Buffer Rules in Effect:		
Project Includes Bridge Spanning Water Body?		Deck Drains Discharge Over Buffer?		Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?		(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)				

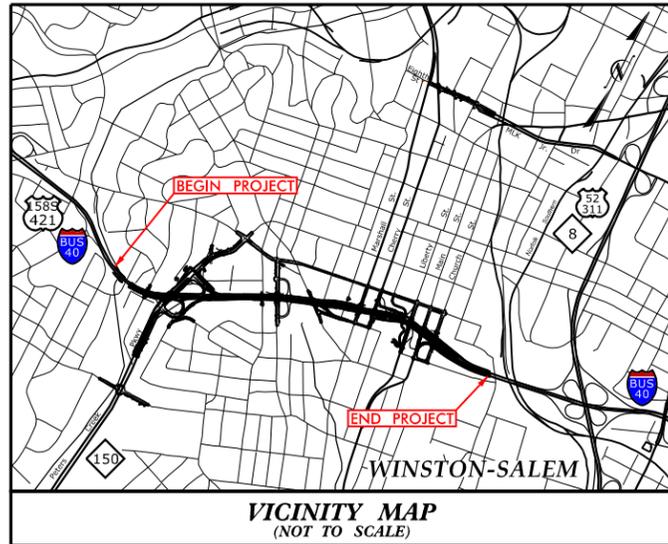
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Aquatic T&E Species?		Comments:			
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Project Includes Bridge Spanning Water Body?		Deck Drains Discharge Over Buffer?		Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?		(If 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):			NCDWR Stream Index No.:		
NCDWR Surface Water Classification for Water Body	Primary Classification:				
	Supplemental Classification:				
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:			Buffer Rules in Effect:		
Project Includes Bridge Spanning Water Body?		Deck Drains Discharge Over Buffer?		Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?		(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)				

09_08/99

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CONTRACT: C203862 **TIP PROJECT: U-2827B, C-5620A**



FINAL PLAN SUBMITAL

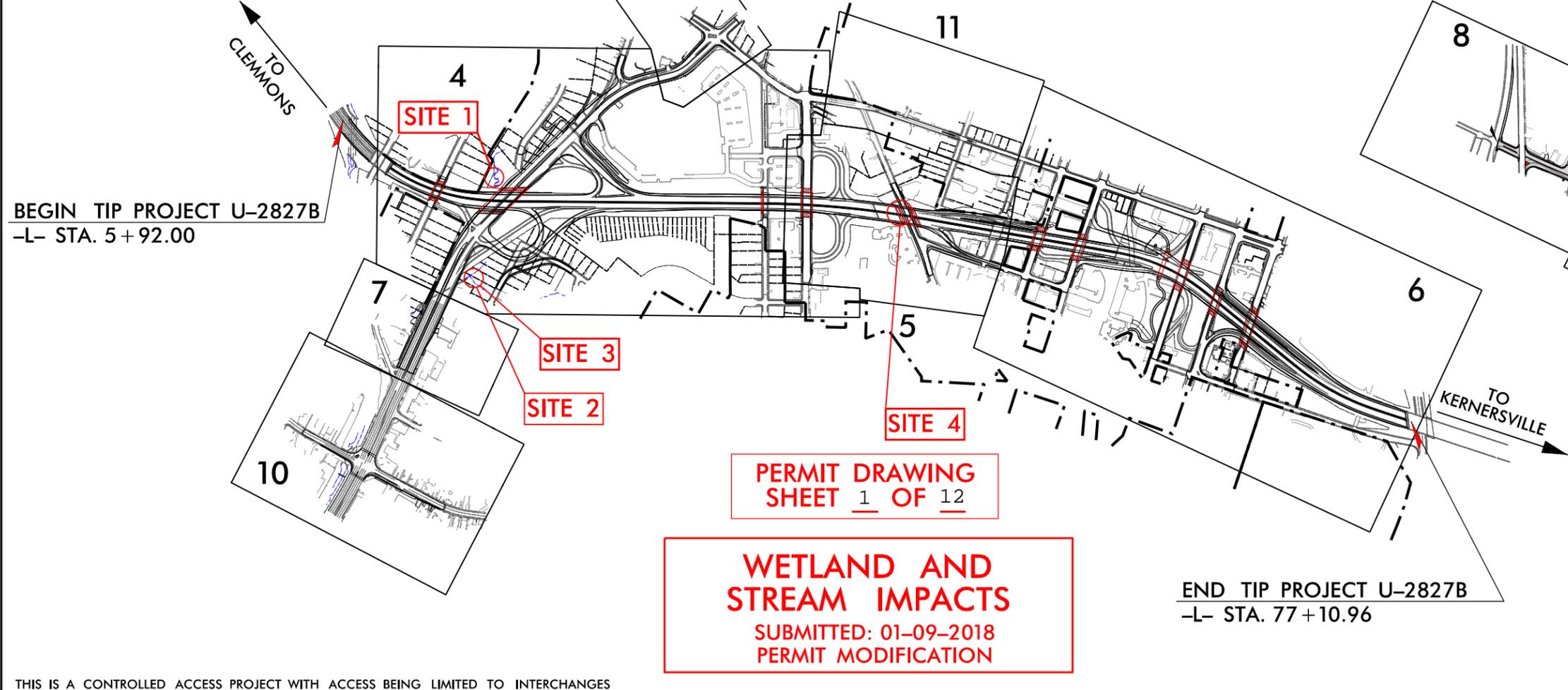
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

**LOCATION: US 421 / I-40 BUSINESS PAVEMENT RECONSTRUCTION,
BRIDGE REPLACEMENTS, AND INTERCHANGE MODIFICATIONS
FROM WEST OF FOURTH STREET TO EAST OF CHURCH STREET;
AND MULTI-USE PATH FROM FOURTH STREET TO LIBERTY STREET**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS, CURB AND GUTTER,
SIDEWALKS, SIGNING, SIGNALS, RETAINING WALLS, NOISE WALLS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34872.3.4	NHP-0421(087)		

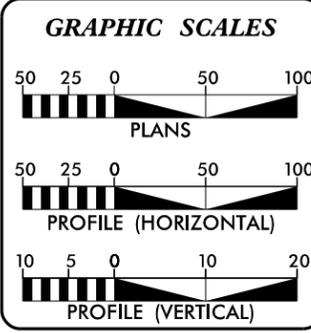


THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

PROJECT PREPARED BY:

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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



DESIGN DATA

ADT 2011 =	74,800
ADT 2040 =	96,400
DHV =	9%
D =	60%
T =	13% *
V =	50 MPH
* (TTST 7% + DUALS 6%)	
FUNC CLASS =	FREEWAY STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2827B =	1.311 MILES
LENGTH STRUCTURE TIP PROJECT U-2827B =	0.037 MILES
TOTAL LENGTH TIP PROJECT U-2827B =	1.348 MILES
BRIDGE LENGTH BASED ON CENTERLINE PROJECTION STATION	
NCDOT CONTACT: K. ZAK HAMIDI, PE, DESIGN BUILD UNIT	

Prepared for the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 30, 2016	RODNEY MONEY, P.E. PROJECT ENGINEER
LETTING DATE: AUGUST 30, 2016	JAMES RICE, P.E. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

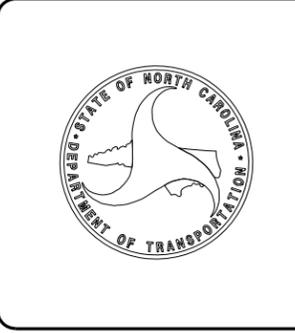
P.E.

BRIAN STEFFEN, P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.

LYDIA BUEHRER, P.E.
SIGNATURE:



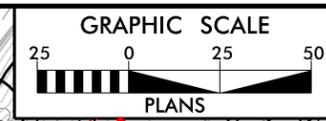
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DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



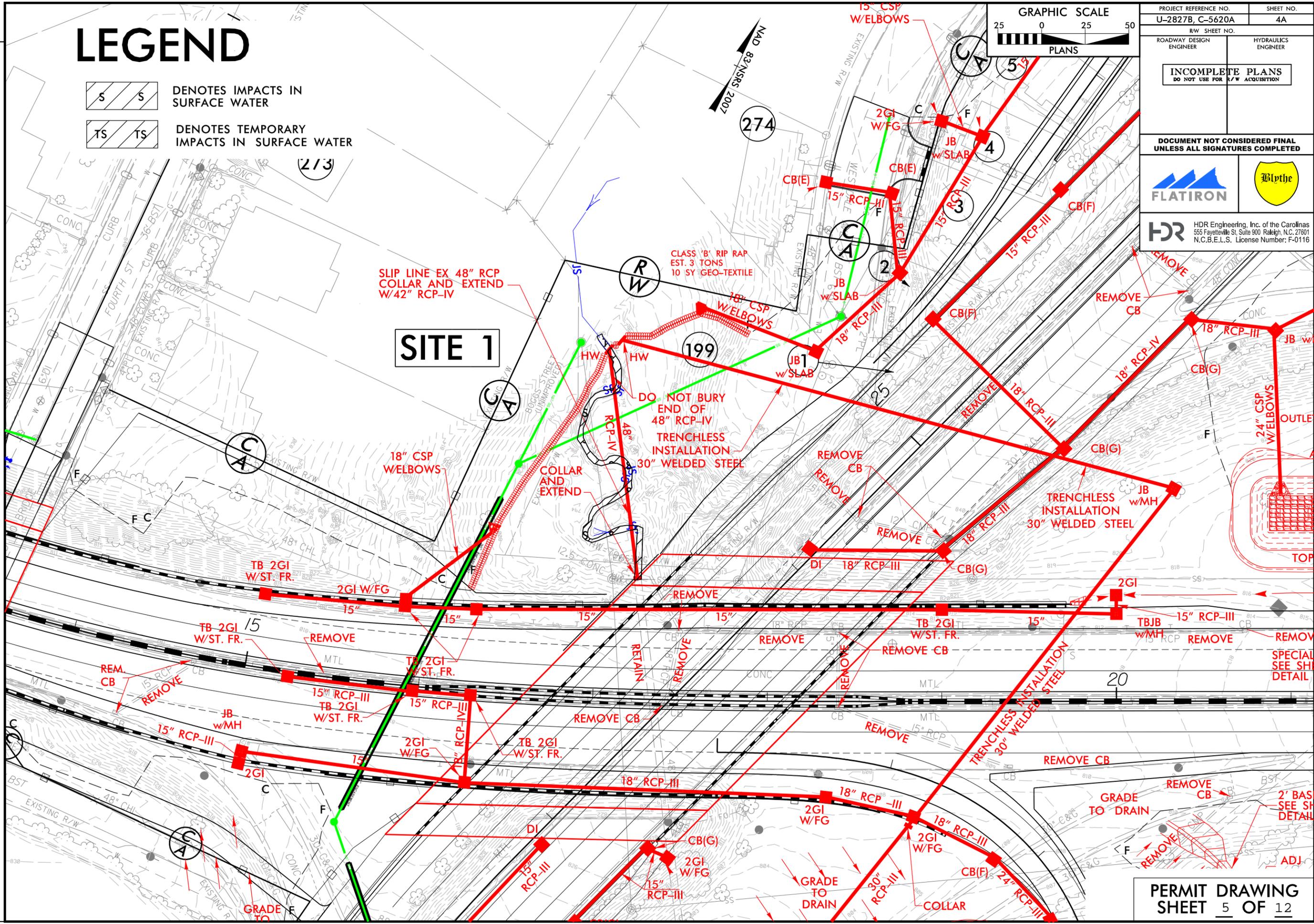
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HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

SITE 1



SLIP LINE EX 48" RCP COLLAR AND EXTEND W/42" RCP-IV

CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEO-TEXTILE

DO NOT BURY END OF 48" RCP-IV TRENCHLESS INSTALLATION 30" WELDED STEEL

TRENCHLESS INSTALLATION 30" WELDED STEEL

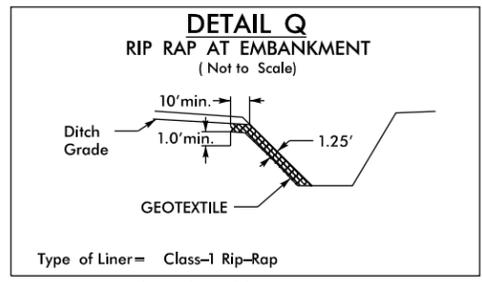
SPECIAL SEE SHEET

2' BAS SEE SHEET

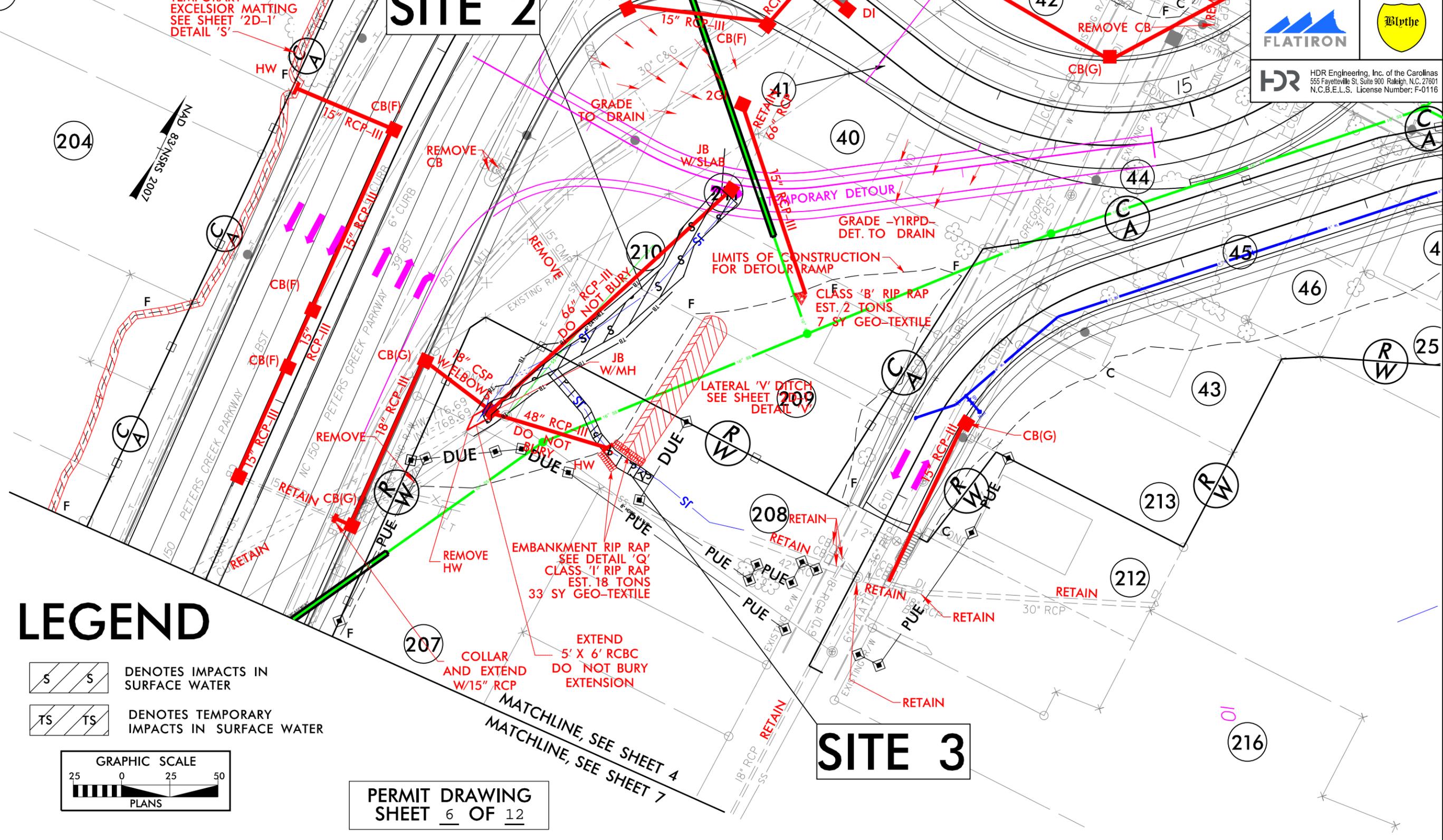
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HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

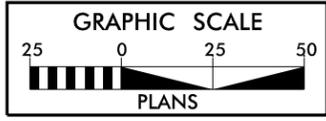


FROM STA. 32+50 -Y1- LT



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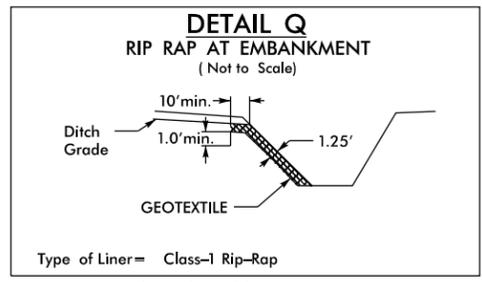
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- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PERMIT DRAWING
SHEET 6 OF 12

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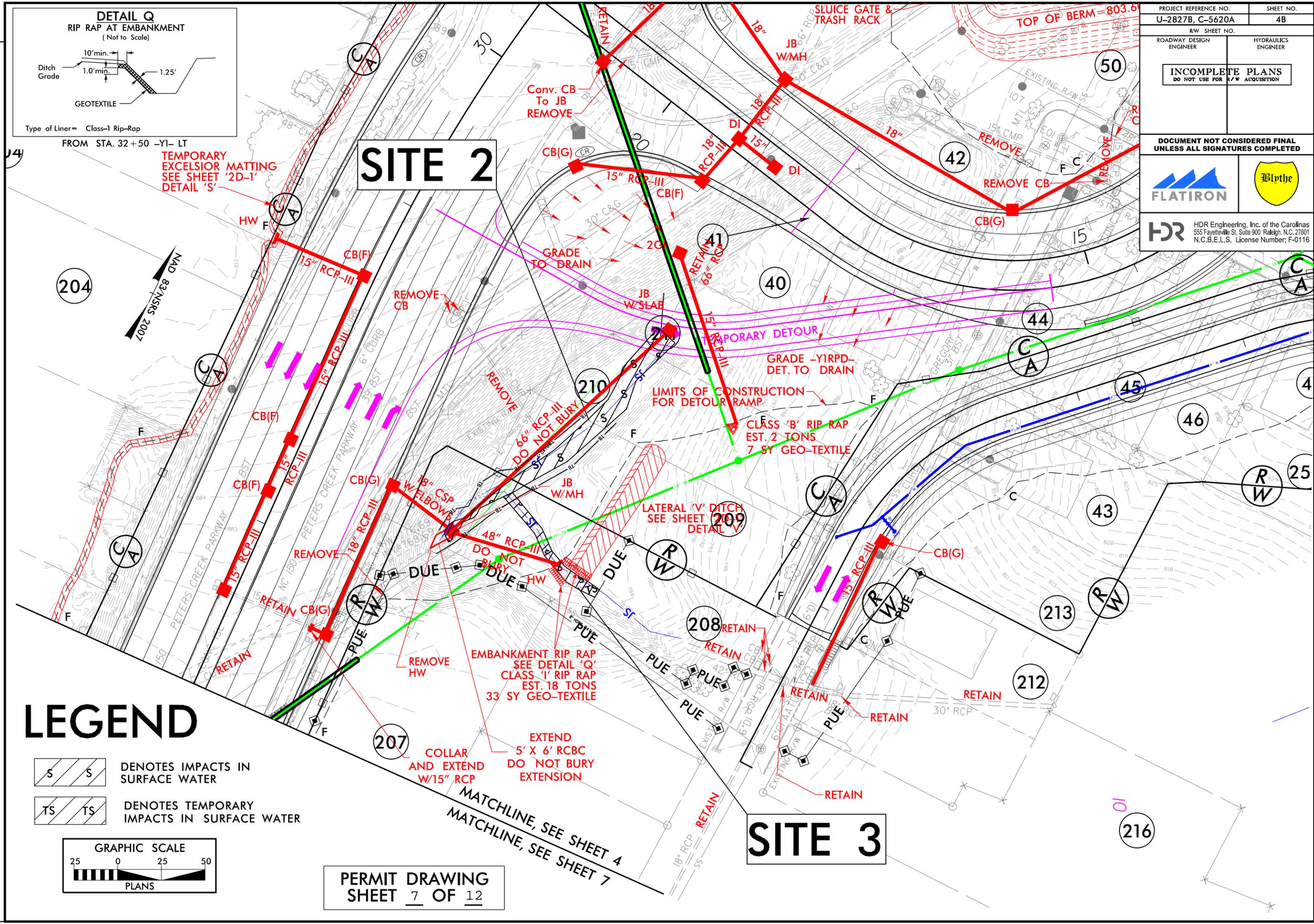
REVISIONS



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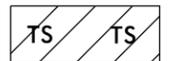
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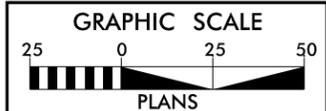
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DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

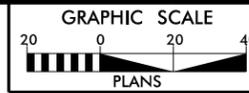


PERMIT DRAWING SHEET 7 OF 12

SITE 3

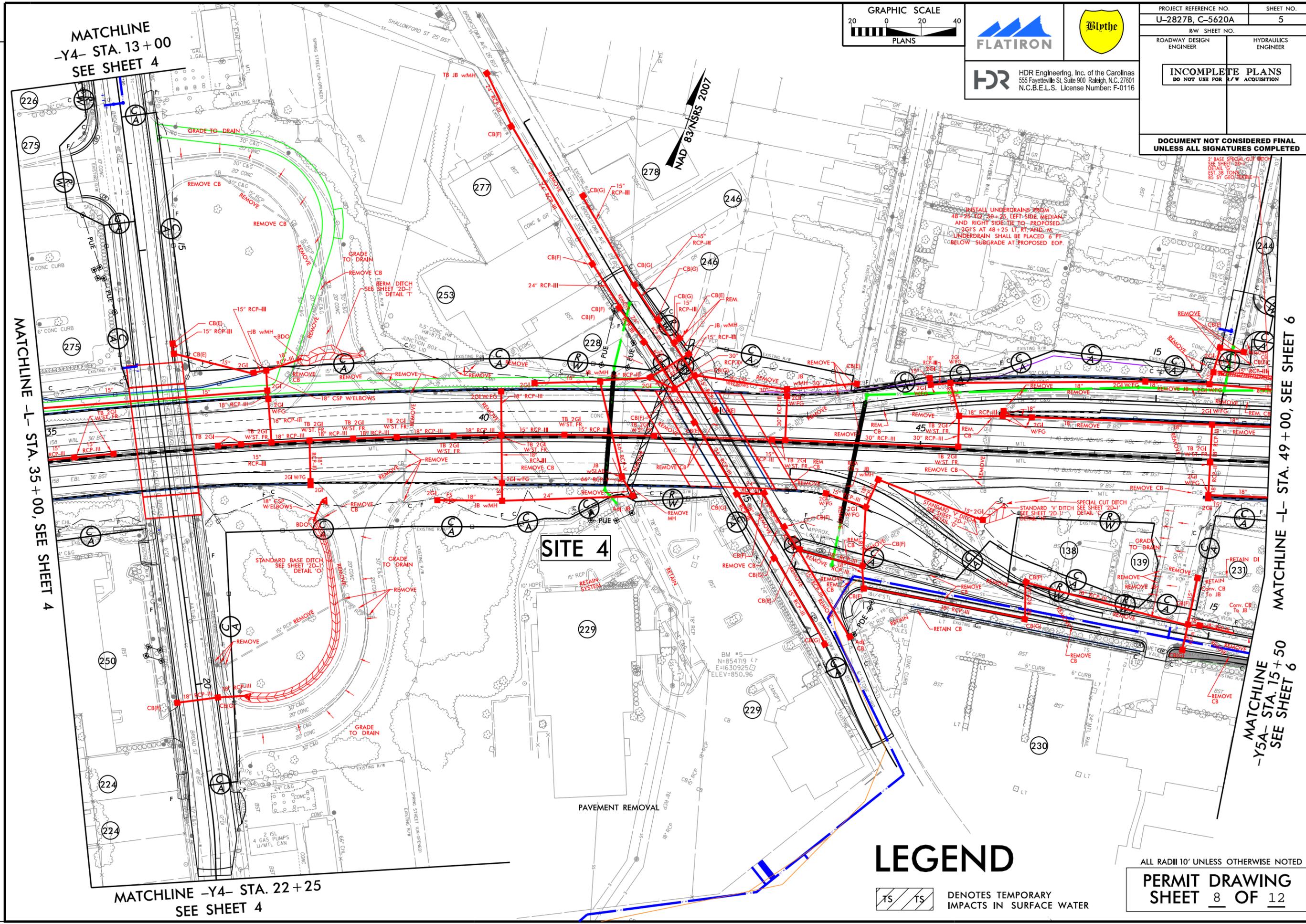
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
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HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

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 REVISIONS



HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900, Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. U-2827B, C-5620A	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCHLINE -Y4- STA. 13+00
SEE SHEET 4

MATCHLINE -L- STA. 35+00, SEE SHEET 4

MATCHLINE -Y4- STA. 22+25
SEE SHEET 4

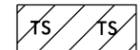
MATCHLINE -L- STA. 49+00, SEE SHEET 6

MATCHLINE -Y5A- STA. 15+50
SEE SHEET 6

SITE 4

PAVEMENT REMOVAL

LEGEND



DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ALL RADII 10' UNLESS OTHERWISE NOTED

PERMIT DRAWING
SHEET 8 OF 12

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 FILE: North_Carolina_Dept_of_Transportation\U-2827B\BB_Bus_I-40_Reconstruction.in\WS_DB\6.0_CAD_BIM\6.2_Work.in_Progress_U-2827B_Hydraulics\PERMITS_Environment\Drawings\U2827B_PRR_PSH.dgn
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 FINAL ROADWAY REV. 01 (01-08-2018): PARCEL 225 COMBINED INTO PARCEL 224. PARCEL 280 COMBINED INTO PARCEL 229.

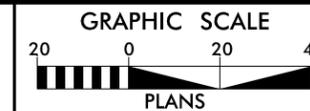
REVISIONS

LEGEND

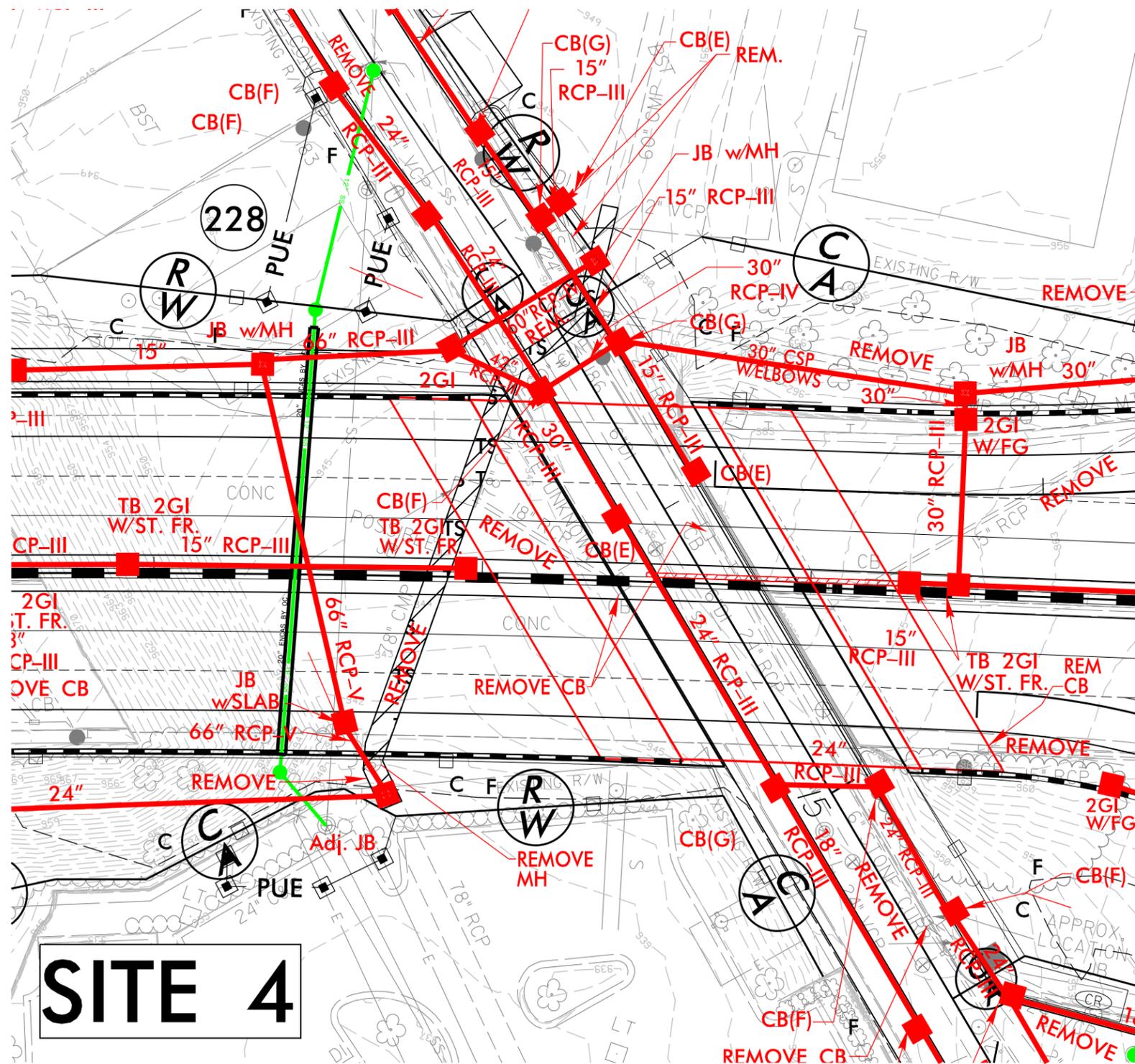


DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
TEMPORARY STREAM IMPACTS TAKEN ALONG THE FLOW LINE OF TAR BRANCH TO ACCOUNT FOR DEWATERING DURING PIPE RELOCATION.



PROJECT REFERENCE NO. U-2827B, C-5620A	SHEET NO. 5A
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	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	



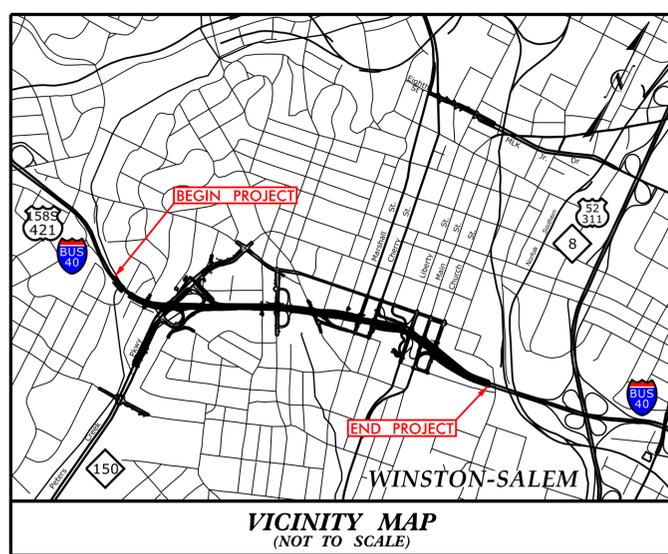
SITE 4

PERMIT DRAWING SHEET 11 OF 12

PLOT DRIVER: NCDOT_permit_color_eng_100.plt
 USER: cmyers
 FILE: North_Carolina_Dept_of_Transportation\U-2827B\BB_Bus_I-40_Reconstruction\in_ws_db\6.0_CAD_BIM\6.2_Work\in_Progress\U-2827B_Hydraulics\PERMITS_Environment\Drawings\U2827B_PRR_PSH.dgn
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 DATE: 1/9/2018
 REVISIONS

PLOT DRIVER: NCDOT_pcf_color_eng_50_U2827B.plt
 USER: LBUEHRER
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 DATE: 1/4/2018

CONTRACT: C203862 **TIP PROJECT: U-2827B, C-5620A**



**FINAL ROADWAY REV 01
PLAN SUBMITTAL**

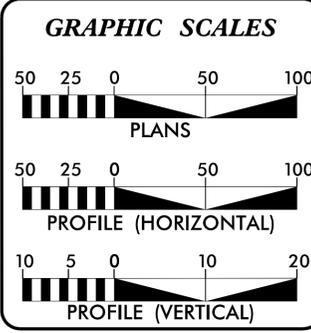
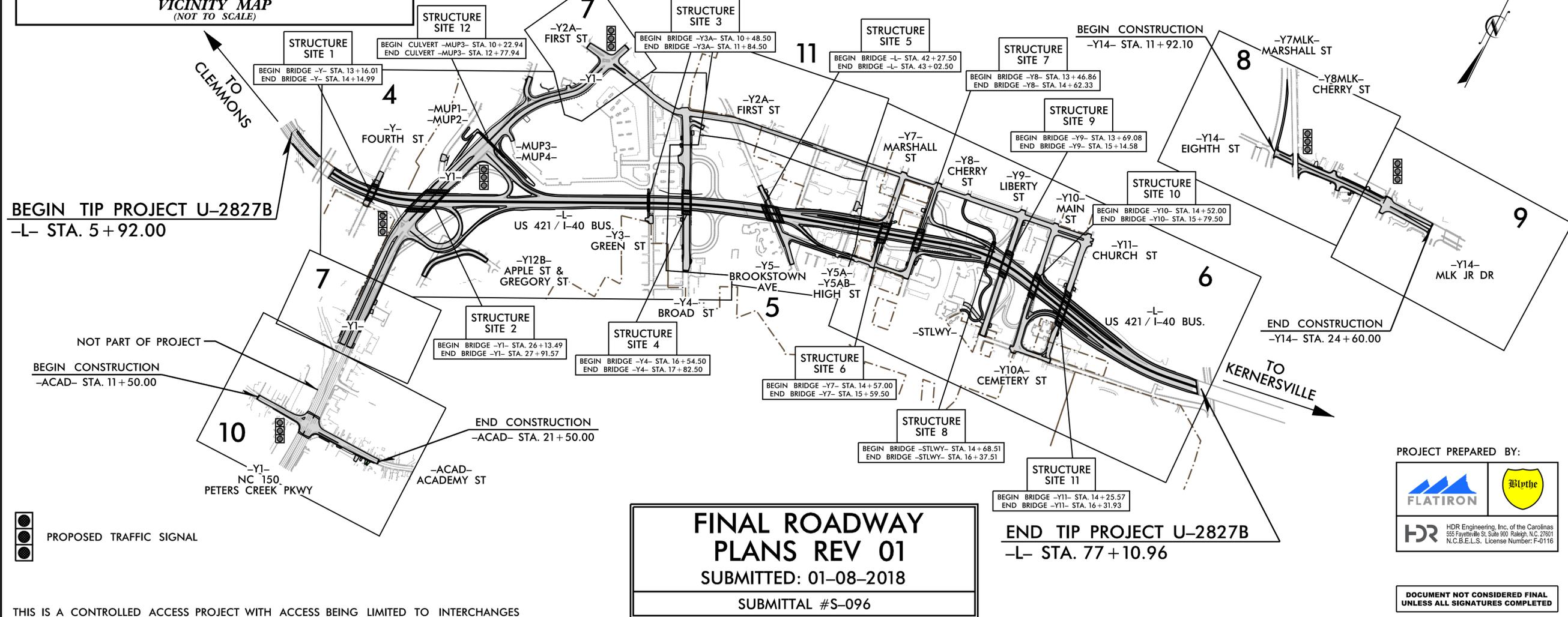
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: US 421 / I-40 BUSINESS PAVEMENT RECONSTRUCTION, BRIDGE REPLACEMENTS, AND INTERCHANGE MODIFICATIONS FROM WEST OF FOURTH STREET TO EAST OF CHURCH STREET; AND MULTI-USE PATH FROM FOURTH STREET TO LIBERTY STREET

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS, CURB AND GUTTER, SIDEWALKS, SIGNING, SIGNALS, RETAINING WALLS, NOISE WALLS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2827B, C-5620A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34872.3.4	NHP-0421(087)		



DESIGN DATA

ADT 2011 =	74,800
ADT 2040 =	96,400
DHV =	9%
D =	60%
T =	13% *
V =	50 MPH
* (TTST 7% + DUALS 6%)	
FUNC CLASS =	FREEWAY STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2827B =	1.311 MILES
LENGTH STRUCTURE TIP PROJECT U-2827B =	0.037 MILES
TOTAL LENGTH TIP PROJECT U-2827B =	1.348 MILES

BRIDGE LENGTH BASED ON CENTERLINE PROJECTION STATION

NCDOT CONTACT: K. ZAK HAMIDI, PE, DESIGN BUILD UNIT

Prepared for the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 30, 2016	RODNEY MONEY, P.E. PROJECT ENGINEER
LETTING DATE: AUGUST 30, 2016	JAMES RICE, P.E. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

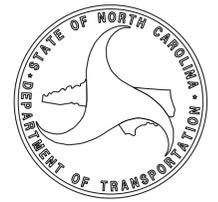
ROADWAY DESIGN ENGINEER

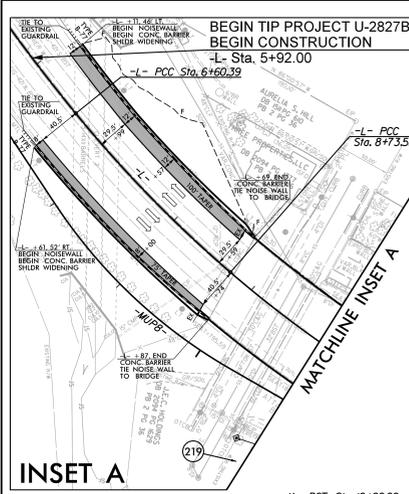
SIGNATURE: _____ P.E.

PROJECT PREPARED BY:

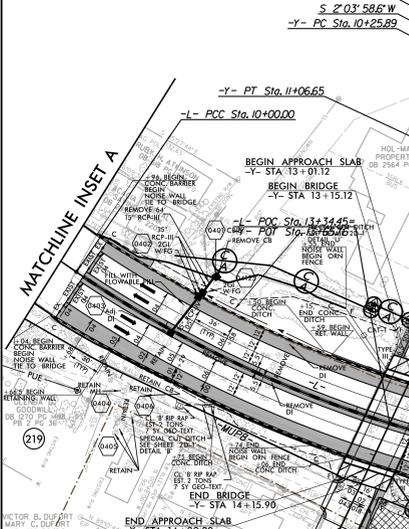
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900, Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

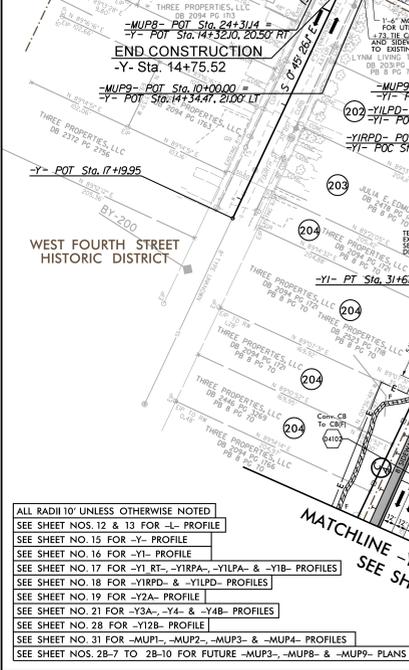




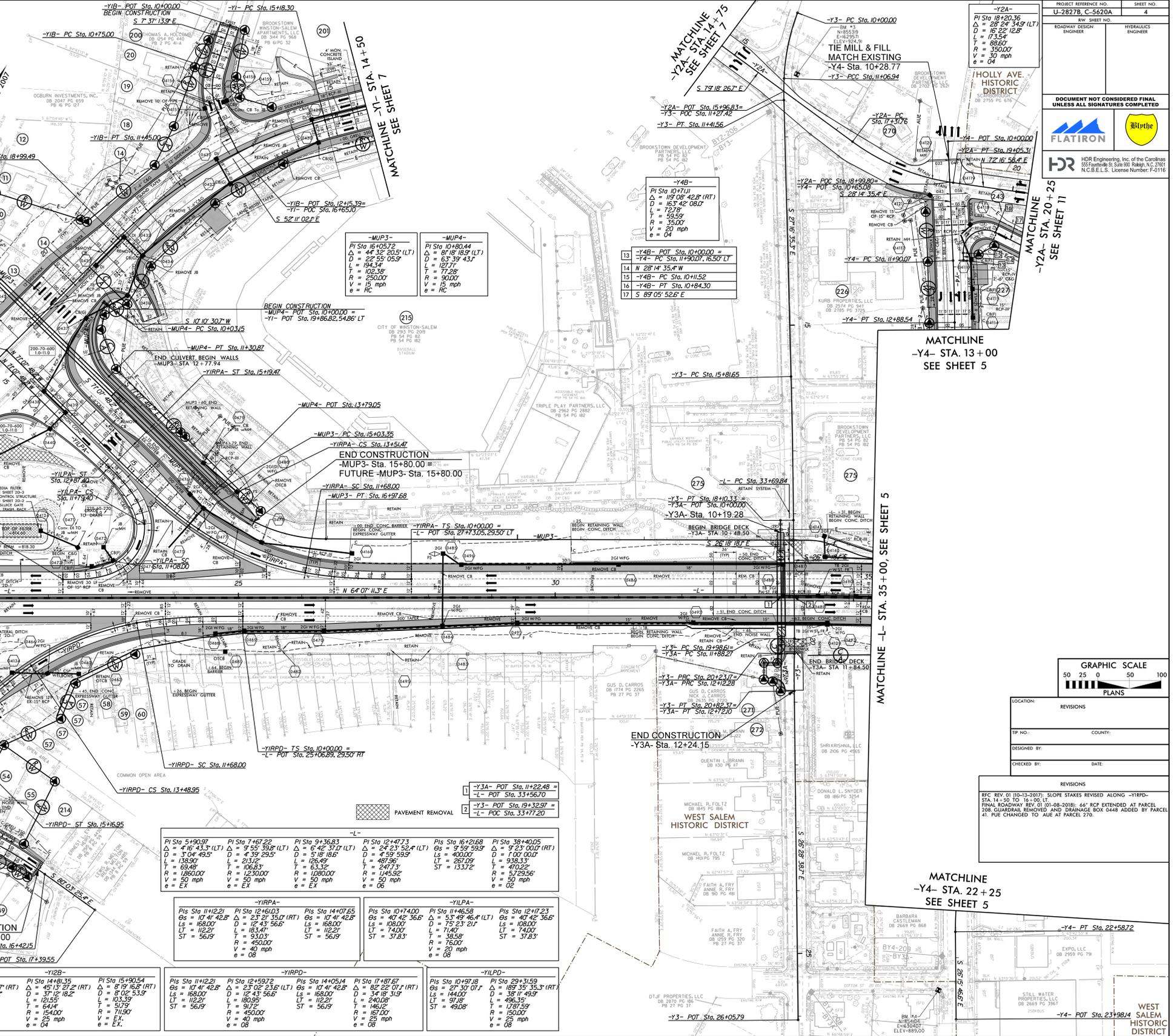
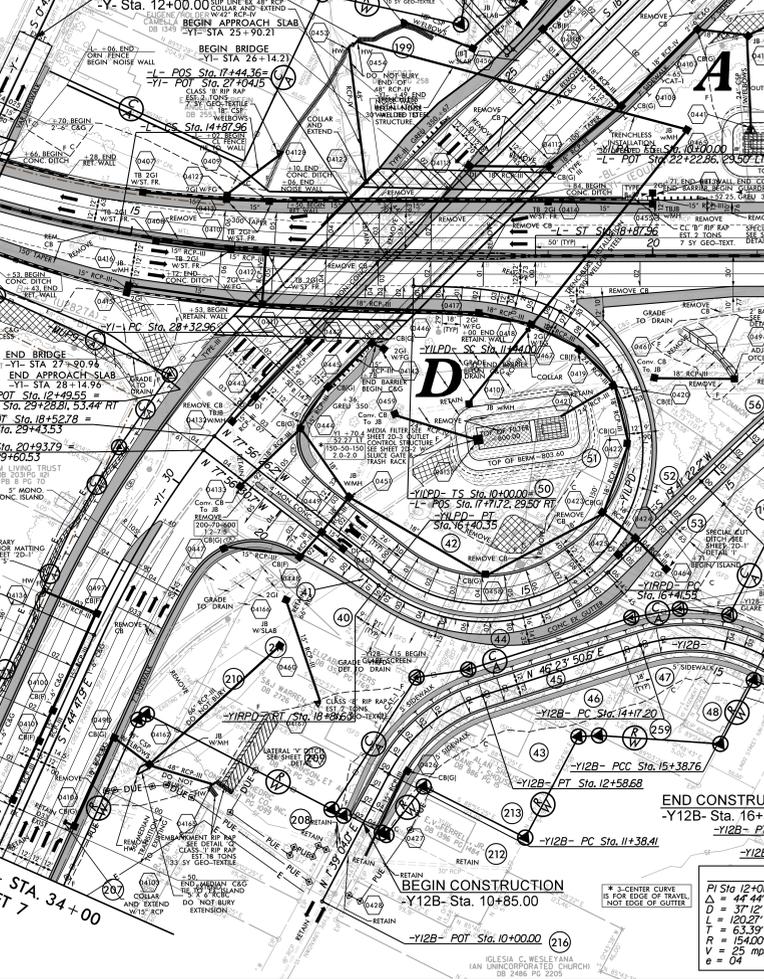
-Y- PI Sta 10+66.28 Δ = 2' 49" 247' (LT) D = 17' 29" 45.0' L = 80.77' T = 40.39' R = 163.89' V = 45 mph e = EX.	-Y1- PI Sta 11+36.00 Δ = 30' 43" 05.0' (LT) D = 6' 01" 30.5' L = 38.19' T = 195.30' R = 71.00' V = 45 mph e = 04.	-Y2- PI Sta 12+80.58 Δ = 16' 39" 45.2' (LT) D = 298' 28" 44.0' L = 58.87' T = 201.49' R = 93.00' V = 15 mph e = 02.	-Y3- PI Sta 13+61.51 Δ = 0' 58" 55.2' (RT) D = 12' 37" 13.9' L = 76.38' T = 39.24' R = 30.00' V = 15 mph e = 02.	-Y4- PI Sta 14+11.88 Δ = 44' 33" 48.2' (LT) D = 63' 39" 43.7' L = 70.00' T = 36.88' R = 30.00' V = 15 mph e = 04.
--	--	--	---	--



-Y3A- PI Sta 12+00.28 Δ = 1' 32" 53.3' (RT) D = 6' 27" 12.7' L = 24.01' T = 12.01' R = 887.82' V = 15 mph e = 02.	-Y3B- PI Sta 12+42.19 Δ = 1' 43" 18.8' (LT) D = 2' 52" 44.0' L = 59.81' T = 29.91' R = 1990.21' V = 15 mph e = 02.	-Y3C- PI Sta 16+95.99 Δ = 0' 28" 29.3' (RT) D = 6' 09" 35.0' L = 33.46' T = 169.15' R = 13,487.53' e = EX.	-Y3D- PI Sta 20+10.89 Δ = 1' 32" 58.3' (RT) D = 6' 18" 28.4' L = 228.56' T = 114.34' R = 908.32' V = 15 mph e = EX.	-Y3E- PI Sta 20+52.77 Δ = 2' 54" 31.9' D = 2' 54" 31.9' L = 228.56' T = 114.34' R = 1,969.71' V = 15 mph e = EX.
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-Y3A- PI Sta 12+00.28 Δ = 1' 32" 53.3' (RT) D = 6' 27" 12.7' L = 24.01' T = 12.01' R = 887.82' V = 15 mph e = 02.	-Y3B- PI Sta 12+42.19 Δ = 1' 43" 18.8' (LT) D = 2' 52" 44.0' L = 59.81' T = 29.91' R = 1990.21' V = 15 mph e = 02.	-Y3C- PI Sta 16+95.99 Δ = 0' 28" 29.3' (RT) D = 6' 09" 35.0' L = 33.46' T = 169.15' R = 13,487.53' e = EX.	-Y3D- PI Sta 20+10.89 Δ = 1' 32" 58.3' (RT) D = 6' 18" 28.4' L = 228.56' T = 114.34' R = 908.32' V = 15 mph e = EX.	-Y3E- PI Sta 20+52.77 Δ = 2' 54" 31.9' D = 2' 54" 31.9' L = 228.56' T = 114.34' R = 1,969.71' V = 15 mph e = EX.
--	---	--	--	---



PROJECT REFERENCE NO. U-2827B, C-5620A SHEET NO. 4
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
FLATIRON
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, NC 27601
N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE
50 25 0 50 100
PLANS
REVISIONS
LOCATION: COUNTY: COUNTY:
TIP NO.: COUNTY:
DESIGNED BY: DATE:
CHECKED BY: DATE:

ALL RADII 10' UNLESS OTHERWISE NOTED
SEE SHEET NOS. 12 & 13 FOR -L- PROFILE
SEE SHEET NO. 15 FOR -Y- PROFILE
SEE SHEET NO. 16 FOR -Y1- PROFILE
SEE SHEET NO. 17 FOR -Y1R-, -Y1PA-, -Y1LA- & -Y1B- PROFILES
SEE SHEET NO. 18 FOR -Y1RPD- & -Y1LPD- PROFILES
SEE SHEET NO. 19 FOR -Y2A- PROFILE
SEE SHEET NO. 21 FOR -Y3A-, -Y4- & -Y4B- PROFILES
SEE SHEET NO. 28 FOR -Y12B- PROFILE
SEE SHEET NO. 31 FOR -MUP1-, -MUP2-, -MUP3- & -MUP4- PROFILES
SEE SHEET NOS. 28-7 TO 28-10 FOR FUTURE -MUP3-, -MUP8- & -MUP9- PLANS

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FILE: N:\2017\2827B.dwg
PLOT: D:\2017\2827B.dwg
PLOT DATE: 1/4/2018
PLOT TIME: 5:46:38 PM
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HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900, Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

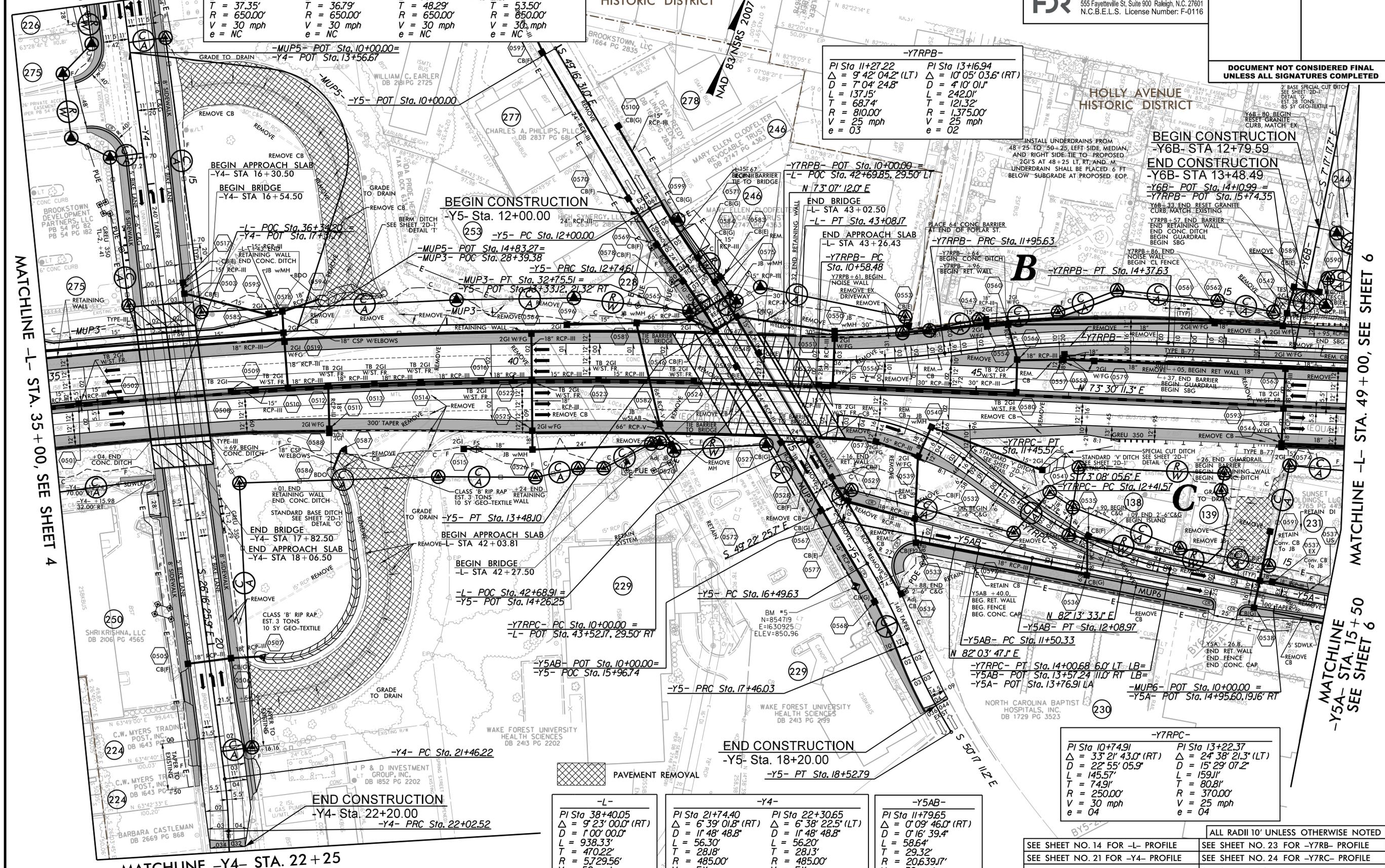
PROJECT REFERENCE NO. U-2827B, C-5620A	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE
-Y4- STA. 13+00
SEE SHEET 4

$PI\ Sta\ 12+37.35$ $\Delta = 6' 34" 35.9" (LT)$ $D = 8' 48" 53.0"$ $L = 74.61'$ $T = 37.35'$ $R = 650.00'$ $V = 30\ mph$ $e = NC$	$PI\ Sta\ 13+11.39$ $\Delta = 6' 28" 41.2" (RT)$ $D = 8' 48" 53.0"$ $L = 73.49'$ $T = 36.79'$ $R = 650.00'$ $V = 30\ mph$ $e = NC$	$PI\ Sta\ 16+97.92$ $\Delta = 8' 29" 51.1" (RT)$ $D = 8' 48" 53.0"$ $L = 96.40'$ $T = 48.29'$ $R = 650.00'$ $V = 30\ mph$ $e = NC$	$PI\ Sta\ 17+99.53$ $\Delta = 9' 24" 36.5" (LT)$ $D = 8' 48" 53.0"$ $L = 106.75'$ $T = 53.50'$ $R = 650.00'$ $V = 30\ mph$ $e = NC$
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HOLLY AVENUE
HISTORIC DISTRICT

$PI\ Sta\ 11+27.22$ $\Delta = 9' 42" 04.2" (LT)$ $D = 7' 04" 24.8"$ $L = 137.15'$ $T = 68.74'$ $R = 810.00'$ $V = 25\ mph$ $e = 03$	$PI\ Sta\ 13+16.94$ $\Delta = 10' 05" 03.6" (RT)$ $D = 4' 10" 01.1"$ $L = 242.01'$ $T = 121.32'$ $R = 1,375.00'$ $V = 25\ mph$ $e = 02$
--	--



MATCHLINE -L- STA. 35+00, SEE SHEET 4

MATCHLINE -Y4- STA. 22+25
SEE SHEET 4

MATCHLINE -L- STA. 49+00, SEE SHEET 6
MATCHLINE -Y5A- STA. 15+50
SEE SHEET 6

-L- $PI\ Sta\ 38+40.05$ $\Delta = 9' 23" 00.0" (RT)$ $D = 1' 00" 00.0"$ $L = 938.33'$ $T = 470.22'$ $R = 57,295.56'$ $V = 50\ mph$ $e = 02$
--

-Y4- $PI\ Sta\ 21+74.40$ $\Delta = 6' 39" 01.8" (RT)$ $D = 11' 48" 48.8"$ $L = 56.30'$ $T = 28.18'$ $R = 485.00'$ $V = EX.$ $e = EX.$	-Y5- $PI\ Sta\ 22+30.65$ $\Delta = 6' 38" 22.5" (LT)$ $D = 11' 48" 48.8"$ $L = 56.20'$ $T = 29.32'$ $R = 485.00'$ $V = EX.$ $e = EX.$
--	--

-Y5AB- $PI\ Sta\ 11+79.65$ $\Delta = 0' 09" 46.0" (RT)$ $D = 0' 16" 39.4"$ $L = 58.64'$ $T = 29.32'$ $R = 20,639.7'$ $V = 30\ mph$ $e = NC$
--

-Y7RPC- $PI\ Sta\ 10+74.91$ $\Delta = 33' 21" 43.0" (RT)$ $D = 22' 55" 05.9"$ $L = 145.57'$ $T = 74.9'$ $R = 250.00'$ $V = 30\ mph$ $e = 04$	$PI\ Sta\ 13+22.37$ $\Delta = 24' 38" 21.3" (LT)$ $D = 15' 29" 07.2"$ $L = 159.11'$ $T = 80.81'$ $R = 370.00'$ $V = 25\ mph$ $e = 04$
---	--

SEE SHEET NO. 14 FOR -L- PROFILE	SEE SHEET NO. 23 FOR -Y7RB- PROFILE
SEE SHEET NO. 21 FOR -Y4- PROFILE	SEE SHEET NO. 24 FOR -Y7RC- PROFILE
SEE SHEET NO. 22 FOR -Y5-, -Y5A- & -Y5AB- PROFILES	SEE SHEET NOS. 28-10 & 28-11 FOR FUTURE -MUP3-, -MUP5- & -MUP6- PLANS

PLOT DRIVERS: NCDOT...
USER: LBUEHRER
DATE: 1/4/2018
FILE: North_Carolina_Dept_of_Transportation\U-2827B\CAD\BIM\6.2_Work\in_Progress\U-2827B\Roadway\Prj\U2827B_RDY_PSH-05.dgn

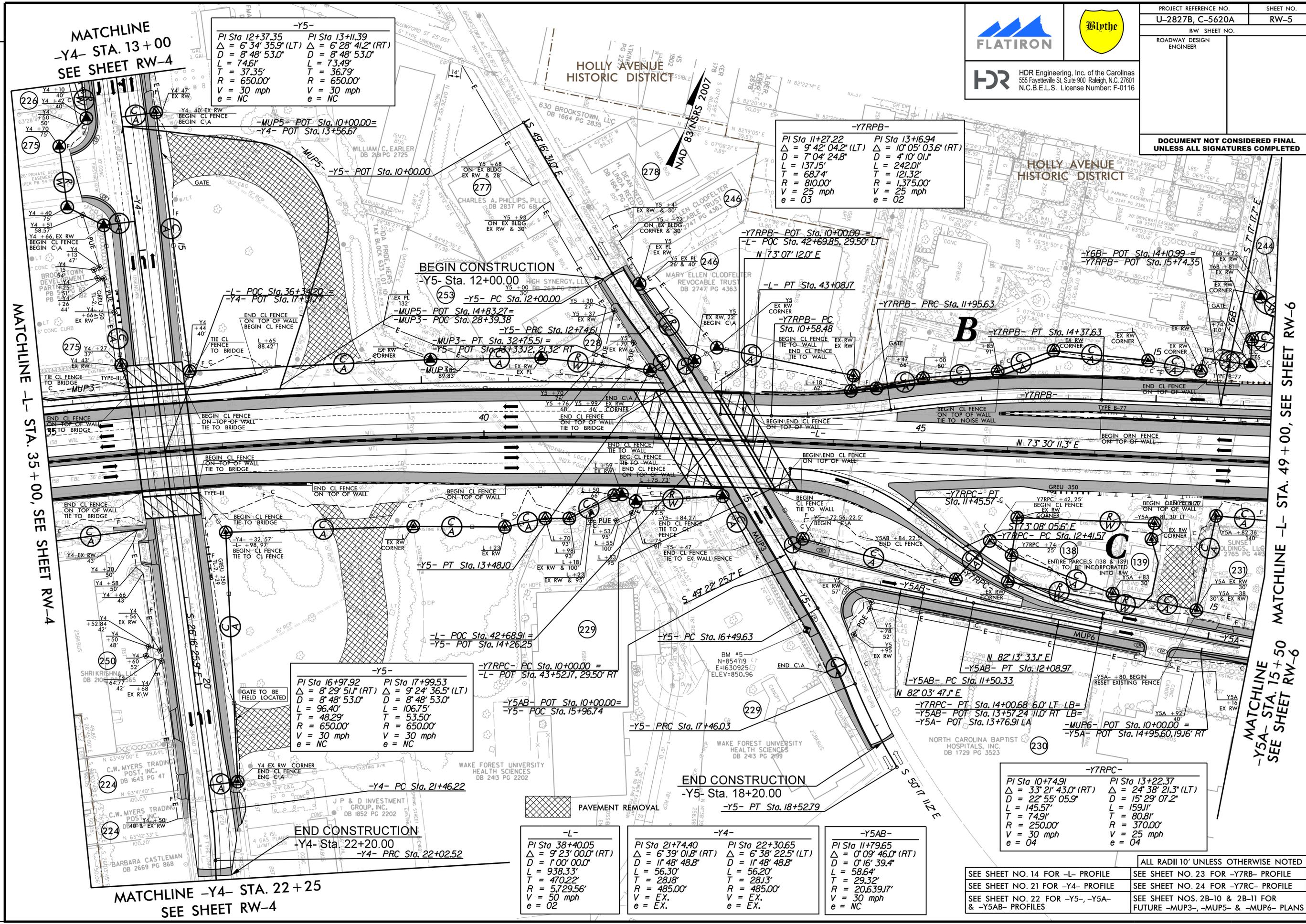
REVISIONS

RFC REV. 01 (10-13-2017): ISLAND EXTENDED TO THE EAST ON -Y5A- CONSTRUCTION LIMITS REVISED FOR TURNAROUND ON -Y6B- FINAL ROADWAY REV. 01 (01-08-2018): PARCEL 225 COMBINED INTO PARCEL 224. PARCEL 280 COMBINED INTO PARCEL 229.



HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900, Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. U-2827B, C-5620A	SHEET NO. RW-5
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-Y5-

PI Sta 12+37.35	PI Sta 13+11.39
$\Delta = 6' 34' 35.9''$ (LT)	$\Delta = 6' 28' 41.2''$ (RT)
$D = 8' 48' 53.0''$	$D = 8' 48' 53.0''$
$L = 74.61'$	$L = 73.49'$
$T = 37.35'$	$T = 36.79'$
$R = 650.00'$	$R = 650.00'$
$V = 30$ mph	$V = 30$ mph
$e = NC$	$e = NC$

-Y7RPB-

PI Sta 11+27.22	PI Sta 13+16.94
$\Delta = 9' 42' 04.2''$ (LT)	$\Delta = 10' 05' 03.6''$ (RT)
$D = 7' 04' 24.8''$	$D = 4' 10' 01.1''$
$L = 137.15'$	$L = 242.01'$
$T = 68.74'$	$T = 121.32'$
$R = 810.00'$	$R = 1,375.00'$
$V = 25$ mph	$V = 25$ mph
$e = 03$	$e = 02$

-Y5-

PI Sta 16+97.92	PI Sta 17+99.53
$\Delta = 8' 29' 51.1''$ (RT)	$\Delta = 9' 24' 36.5''$ (LT)
$D = 8' 48' 53.0''$	$D = 8' 48' 53.0''$
$L = 96.40'$	$L = 106.75'$
$T = 48.29'$	$T = 53.50'$
$R = 650.00'$	$R = 650.00'$
$V = 30$ mph	$V = 30$ mph
$e = NC$	$e = NC$

-Y7RPC-

PI Sta 10+74.91	PI Sta 13+22.37
$\Delta = 3' 21' 43.0''$ (RT)	$\Delta = 24' 38' 21.3''$ (LT)
$D = 22' 55' 05.9''$	$D = 15' 29' 07.2''$
$L = 145.57'$	$L = 159.11'$
$T = 74.91'$	$T = 80.81'$
$R = 250.00'$	$R = 370.00'$
$V = 30$ mph	$V = 25$ mph
$e = 04$	$e = 04$

-L-

PI Sta 38+40.05
$\Delta = 9' 23' 00.0''$ (RT)
$D = 1' 00' 00.0''$
$L = 938.33'$
$T = 470.22'$
$R = 5729.56'$
$V = 50$ mph
$e = 02$

-Y4-

PI Sta 21+74.40	PI Sta 22+30.65
$\Delta = 6' 39' 01.8''$ (RT)	$\Delta = 6' 38' 22.5''$ (LT)
$D = 11' 48' 48.8''$	$D = 11' 48' 48.8''$
$L = 56.30'$	$L = 56.20'$
$T = 28.18'$	$T = 29.32'$
$R = 485.00'$	$R = 485.00'$
$V = EX.$	$V = EX.$
$e = EX.$	$e = EX.$

-Y5AB-

PI Sta 11+79.65
$\Delta = 0' 09' 46.0''$ (RT)
$D = 0' 16' 39.4''$
$L = 58.64'$
$T = 29.32'$
$R = 20,639.7'$
$V = 30$ mph
$e = NC$

MATCHLINE -L- STA. 35 + 00, SEE SHEET RW-4

MATCHLINE -Y4- STA. 22 + 25
SEE SHEET RW-4

MATCHLINE -L- STA. 49 + 00, SEE SHEET RW-6
MATCHLINE -Y5A- STA. 15 + 50
SEE SHEET RW-6

PLOT DRIVERS: NCDOT_color_eng_50_U2827B.dwg
USER: LBUEHRER
DATE: 1/4/2018
FILE: North_Carolina_Dept_of_Transportation\U-2827B\BB_Bus_I-40_Reconstruction\in_ws_db\6.0_CAD\BIM\6.2_Work\in_Progress\U-2827B\Roadway\Prj\U2827B.RDY_PSH_ROW_05.dgn
REVISIONS
RFC REV. 01 (10-13-2017): ISLAND EXTENDED TO THE EAST ON -Y5A- CONSTRUCTION LIMITS REVISED FOR TURNAROUND ON -Y6B-. NOTE ADDED TO RETAIN EXISTING FENCE FOR PARCEL 231. FINAL ROADWAY REV. 01 (01-08-2018): PARCEL 225 COMBINED INTO PARCEL 224. PARCEL 280 COMBINED INTO PARCEL 229.

ALL RADII 10' UNLESS OTHERWISE NOTED

SEE SHEET NO. 14 FOR -L- PROFILE	SEE SHEET NO. 23 FOR -Y7RB- PROFILE
SEE SHEET NO. 21 FOR -Y4- PROFILE	SEE SHEET NO. 24 FOR -Y7RC- PROFILE
SEE SHEET NO. 22 FOR -Y5-, -Y5A- & -Y5AB- PROFILES	SEE SHEET NOS. 28-10 & 28-11 FOR FUTURE -MUP3-, -MUP5- & -MUP6- PLANS

REVISIONS
RFC REV. 01 (10-13-2017): CONSTRUCTION LIMITS REVISED FOR
THROUGHROADS ON YH8. REVERSED GUARDRAIL END UNIT ATTACHMENTS
FROM TYPE-1 TO CAT-1 FOR -Y7 & -Y8. STRUCTURES COMBINE
FENCE FOR PARCEL 231. NOTE ADDED TO RESET EXISTING
FINAL ROADWAY REV. 01 (01-18-2018): REVISED EXISTING PROPERTY
INFORMATION TO ADD W. DAVID SHANNON, PARCEL NO. 129 ADDED
FOR THIS PARCEL.

-Y7BP-
PI Sta 18+23.79
Δ = 87°59'00.6" (LT)
D = 63.39' 43.7"
L = 127.2'
T = 76.84'
R = 90.00'
V = 20mph
e = 02

-Y8BP-
PI Sta 14+16.38
Δ = 88°34'13.3" (RT)
D = 63.39' 43.7"
L = 139.1'
T = 87.78'
R = 90.00'
V = 20mph
e = NC

-Y9BP-
PI Sta 12+65.70
Δ = 14°56'53.5" (LT)
D = 62.31' 58.3"
L = 139.1'
T = 118.07'
R = 90.00'
V = 20mph
e = 06

-Y10BP-
PI Sta 17+14.25
Δ = 2°58'39.5" (LT)
D = 4.46' 28.7"
L = 103.0'
T = 3.19'
R = 1200.00'
V = 30 mph
e = NC

-Y11BP-
PI Sta 19+24.73
Δ = 3°21'23.5" (RT)
D = 4.46' 28.7"
L = 103.0'
T = 3.19'
R = 1200.00'
V = 30 mph
e = NC

-Y12BP-
PI Sta 21+11.72
Δ = 69°25'53.7" (RT)
D = 62.16' 40.9"
L = 114.48'
T = 63.73'
R = 92.00'
V = 20 mph
e = 02

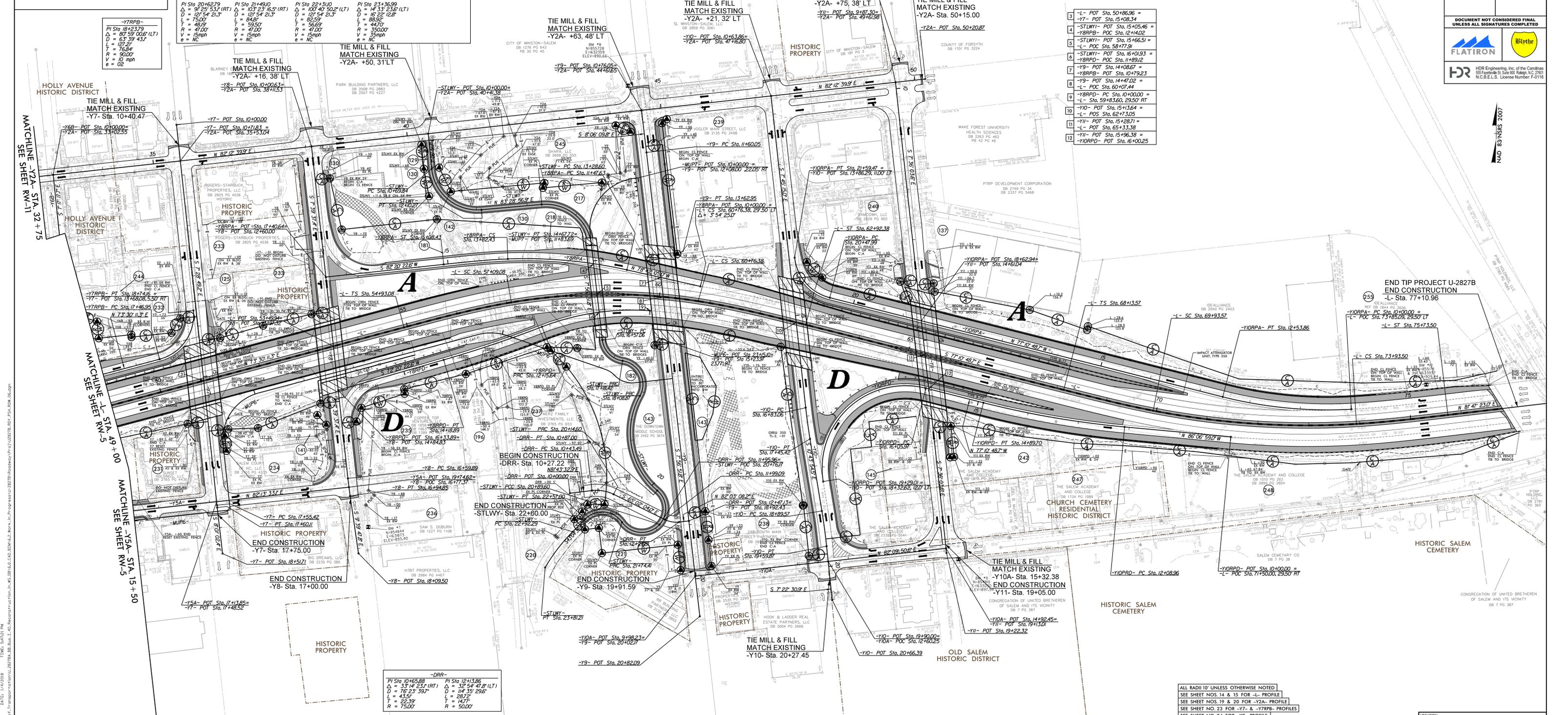
-Y13BP-
PI Sta 23+36.99
Δ = 107°40'50.2" (LT)
D = 107.54' 21.3"
L = 174.00'
T = 48.19'
R = 47.00'
V = 15mph
e = NC

-Y14BP-
PI Sta 25+31.00
Δ = 107°40'50.2" (LT)
D = 107.54' 21.3"
L = 174.00'
T = 48.19'
R = 47.00'
V = 15mph
e = NC

-Y15BP-
PI Sta 27+36.99
Δ = 143°33'23.6" (RT)
D = 143.22' 12.8"
L = 265.12'
T = 44.70'
R = 75.0000'
V = 15mph
e = NC

-Y16BP-
PI Sta 29+36.99
Δ = 143°33'23.6" (RT)
D = 143.22' 12.8"
L = 265.12'
T = 44.70'
R = 75.0000'
V = 15mph
e = NC

PROJECT REFERENCE NO. U-2827B, C-5620A
SHEET NO. RW-6
ROADWAY DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
FLATIRON
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, NC 27601
N.C.B.E.L.S. License Number: F-0116



-Y7-
PI Sta 10+40.47
Δ = 87°59'00.6" (LT)
D = 63.39' 43.7"
L = 127.2'
T = 76.84'
R = 90.00'
V = 20mph
e = 02

-Y8-
PI Sta 14+16.38
Δ = 88°34'13.3" (RT)
D = 63.39' 43.7"
L = 139.1'
T = 87.78'
R = 90.0000'
V = 20 mph
e = EX.

-Y9-
PI Sta 12+65.70
Δ = 14°56'53.5" (LT)
D = 62.31' 58.3"
L = 139.1'
T = 118.07'
R = 1000.000'
V = 20 mph
e = EX.

-Y10-
PI Sta 17+14.25
Δ = 2°58'39.5" (LT)
D = 4.46' 28.7"
L = 103.0'
T = 3.19'
R = 485.000'
V = 30 mph
e = EX.

-Y11-
PI Sta 19+24.73
Δ = 3°21'23.5" (RT)
D = 4.46' 28.7"
L = 103.0'
T = 3.19'
R = 485.000'
V = 30 mph
e = EX.

-Y12-
PI Sta 21+11.72
Δ = 69°25'53.7" (RT)
D = 62.16' 40.9"
L = 114.48'
T = 63.73'
R = 163.000'
V = 20 mph
e = EX.

-Y13-
PI Sta 23+36.99
Δ = 107°40'50.2" (LT)
D = 107.54' 21.3"
L = 174.00'
T = 48.19'
R = 1580.000'
V = 15 mph
e = EX.

-Y14-
PI Sta 25+31.00
Δ = 107°40'50.2" (LT)
D = 107.54' 21.3"
L = 174.00'
T = 48.19'
R = 1580.000'
V = 15 mph
e = EX.

-Y15-
PI Sta 27+36.99
Δ = 143°33'23.6" (RT)
D = 143.22' 12.8"
L = 265.12'
T = 44.70'
R = 2290.000'
V = 15 mph
e = EX.

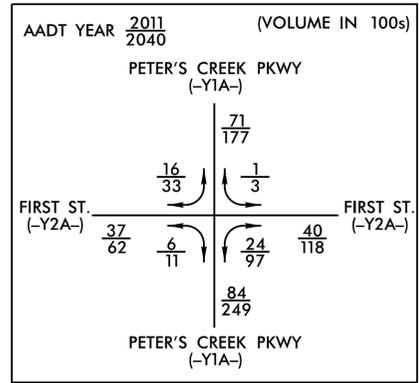
-Y16-
PI Sta 29+36.99
Δ = 143°33'23.6" (RT)
D = 143.22' 12.8"
L = 265.12'
T = 44.70'
R = 2290.000'
V = 15 mph
e = EX.

GRAPHIC SCALE
50 25 0 50 100
PLANS
LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

PLOT DRIVER: NC007.pdf, color, mca, 50, 1028x784pt
USER: LIEBERER
DATE: 1/4/2018 PM
FILE: Non-Highway.dwg, c:\1\temp\ref\plan\U-2827B\BB.Bun, 1, 40, Rectangular, 2827B, 1028x784pt, 1028x784pt, 1028x784pt, 1028x784pt, 1028x784pt

PROJECT REFERENCE NO.	SHEET NO.
U-2827B, C-5620A	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

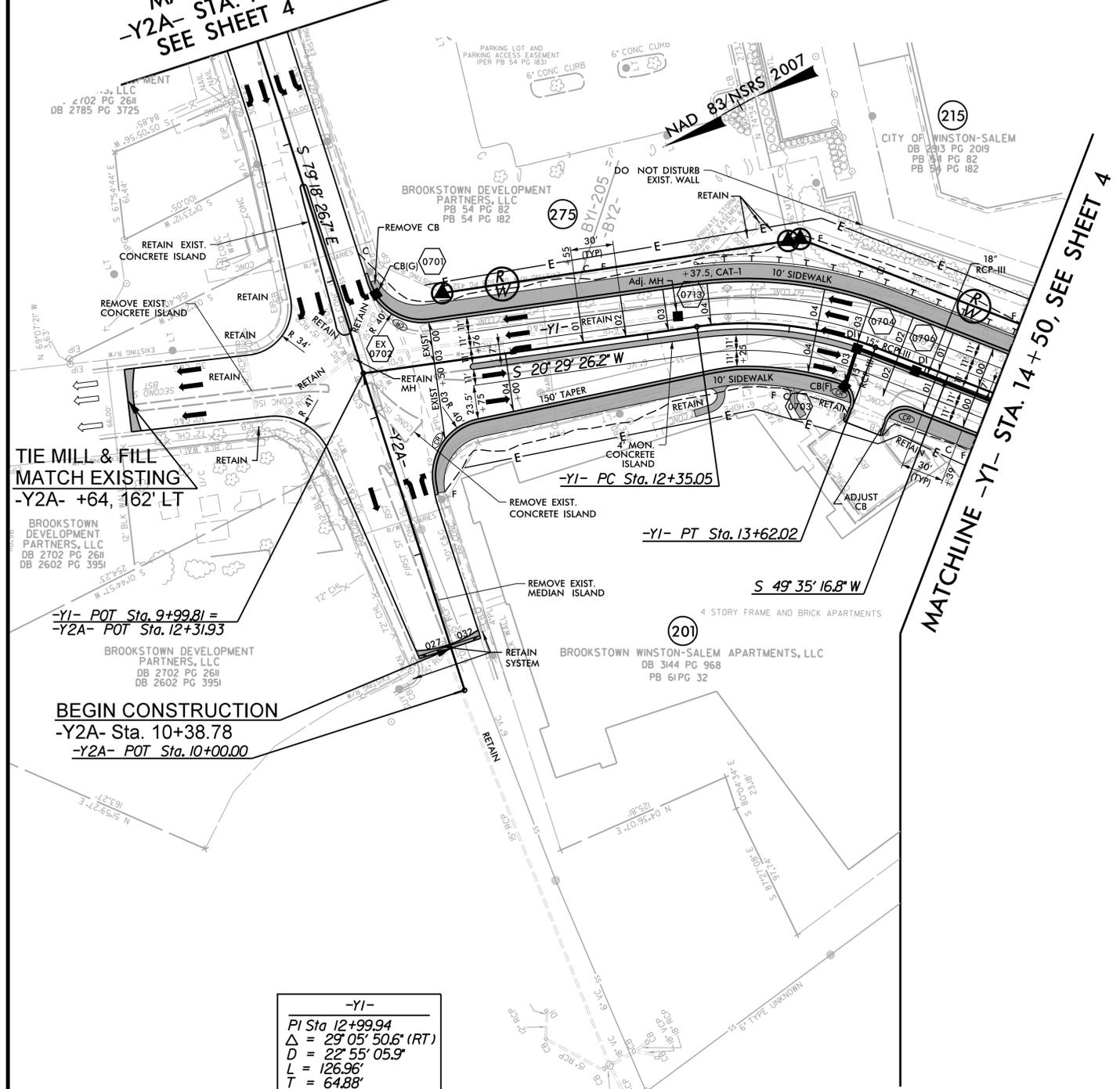
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



NAD 83/NSRS 2007

MATCHLINE
-Y2A- STA. 14+75
SEE SHEET 4

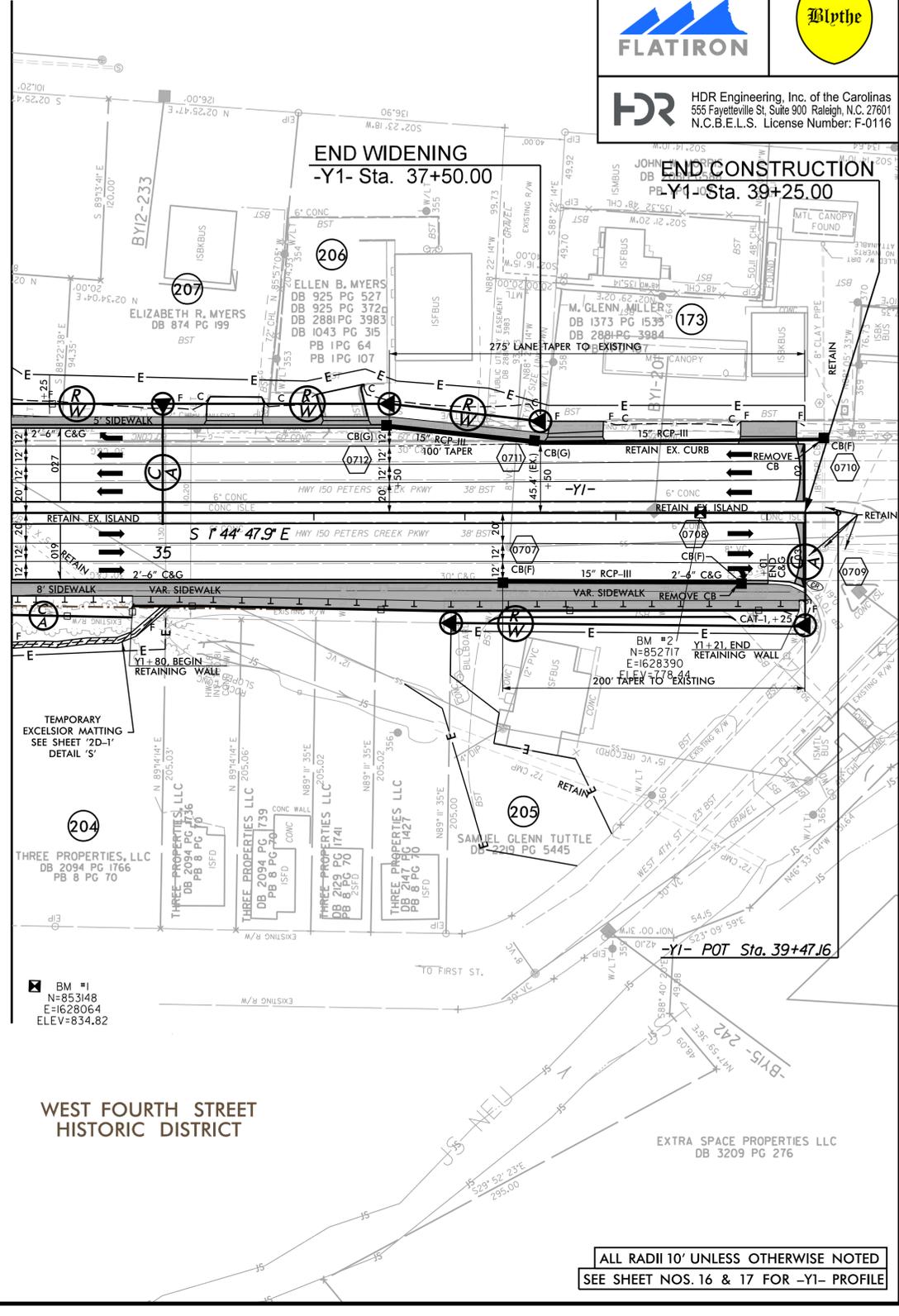
MATCHLINE -Y1- STA. 14+50, SEE SHEET 4



-Y1-
PI Sta 12+99.94
$\Delta = 29^{\circ} 05' 50.6''$ (RT)
$D = 22^{\circ} 55' 05.9''$
$L = 126.96'$
$T = 64.88'$
$R = 250.00'$
$V = 30$ mph
$e = 04$

ALL RADII 10' UNLESS OTHERWISE NOTED
SEE SHEET NO. 16 FOR -Y1- PROFILE
SEE SHEET NO. 19 FOR -Y2A- PROFILE

MATCHLINE -Y1- STA. 34+00, SEE SHEET 4



ALL RADII 10' UNLESS OTHERWISE NOTED
SEE SHEET NOS. 16 & 17 FOR -Y1- PROFILE

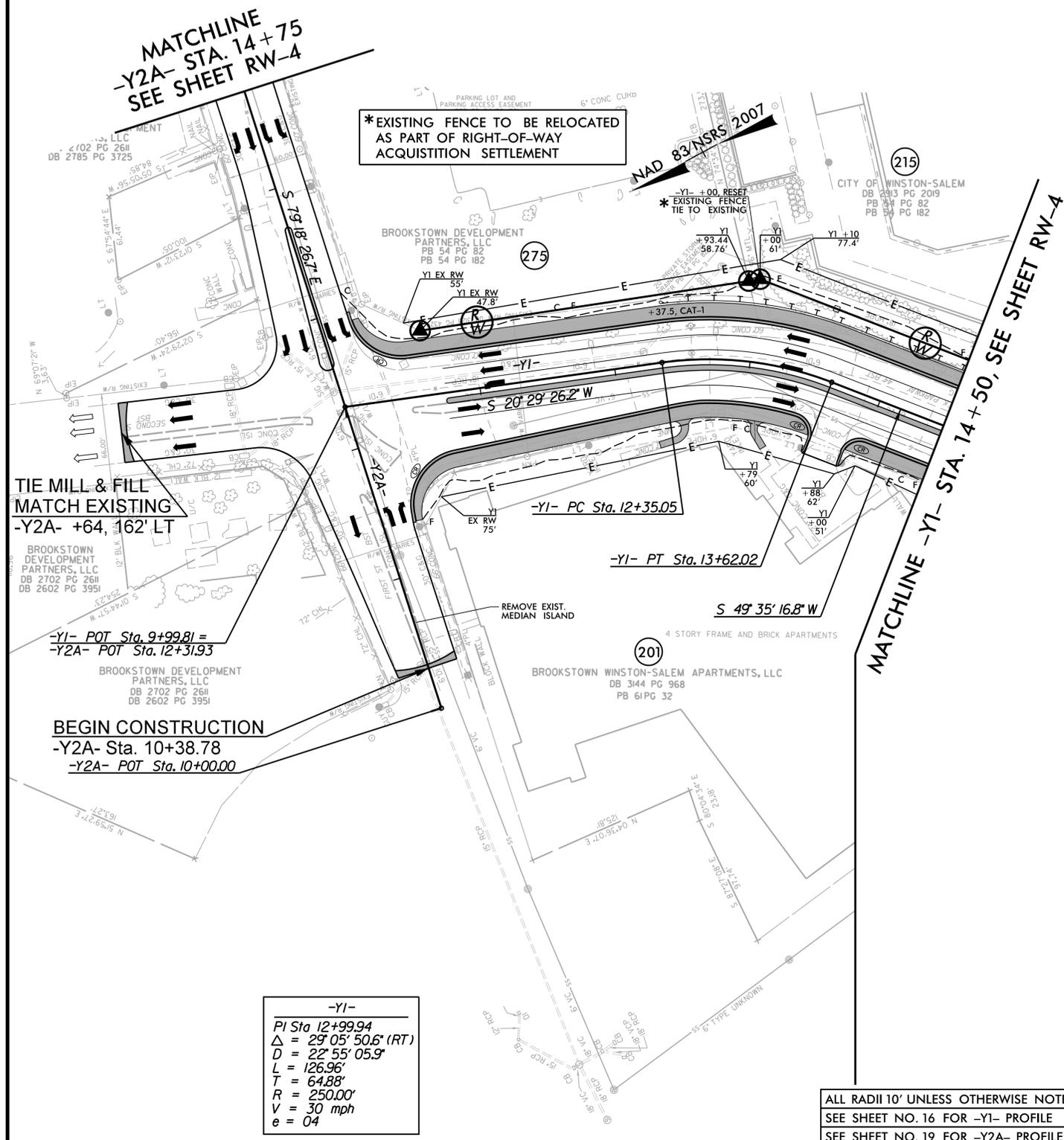
PLOT DRIVER: NCDOT_color_eng_50_U2827B.plt
 USER: LBUHRER
 DATE: 1/4/2018
 FILE: North_Carolina_Dept_of_Transportation\U-2827B\BB_Bus_I-40_Reconstruction\in_ws_db\6.0_CAD\BIM\6.2_Work\in_Progress\U-2827B\Roadway\Proj\U2827B.RDY_PSH-07.dgn

REVISIONS

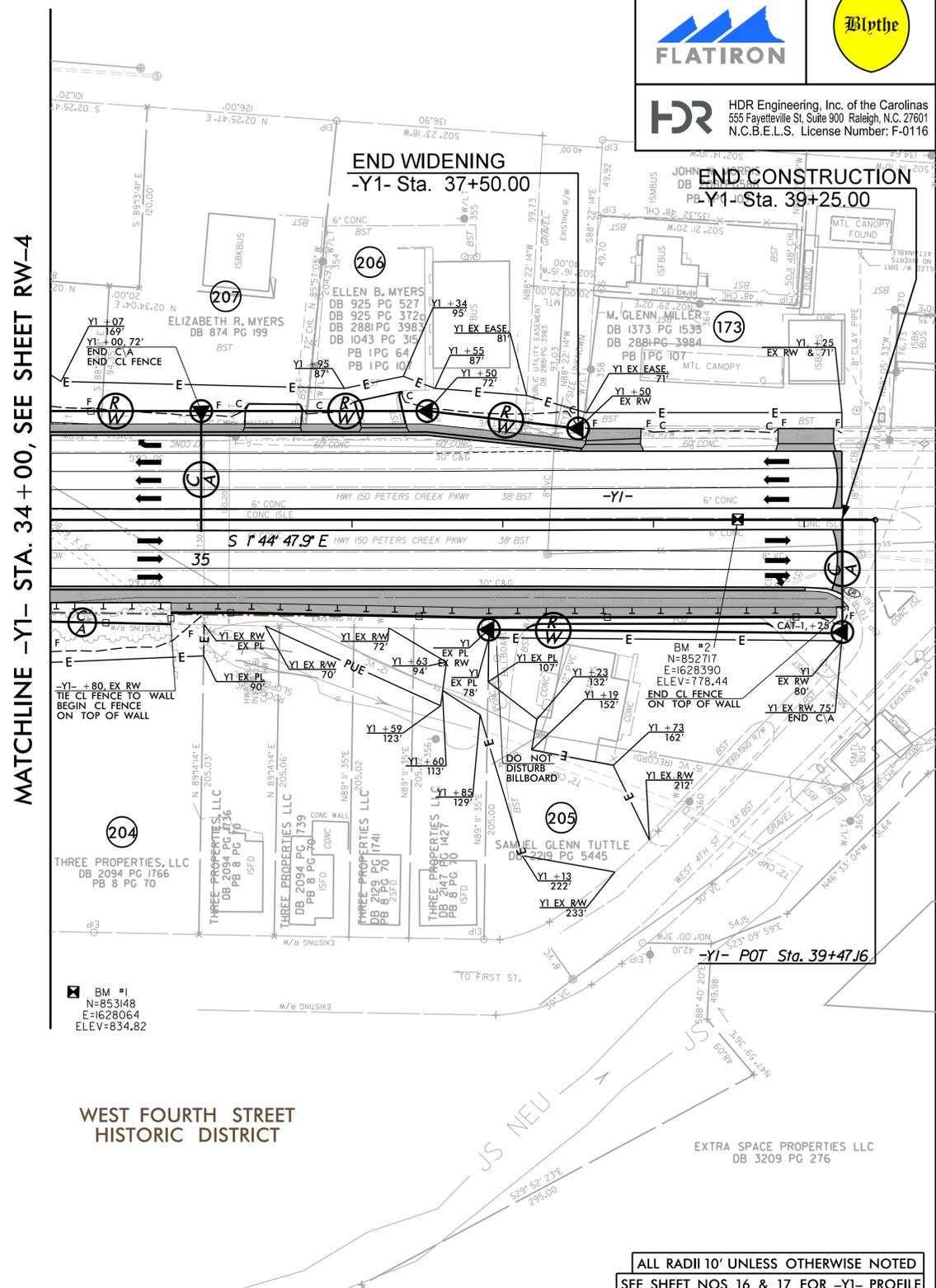
RFC REV. 01 (10-13-2017): REVISED EXISTING RW LINE FOR PARCEL 275
 FINAL ROADWAY REV. 01 (01-08-2018): REVISED PROPOSED RW LINE FOR PARCELS 215 & 275 FOR PREVIOUSLY REVISED EXISTING RW LINE. TCE ADDED TO PARCELS 204 & 205.

PROJECT REFERENCE NO. U-2827B, C-5620A	SHEET NO. RW-7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
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ALL RADII 10' UNLESS OTHERWISE NOTED
 SEE SHEET NO. 16 FOR -Y1- PROFILE
 SEE SHEET NO. 19 FOR -Y2A- PROFILE



ALL RADII 10' UNLESS OTHERWISE NOTED
 SEE SHEET NOS. 16 & 17 FOR -Y1- PROFILE

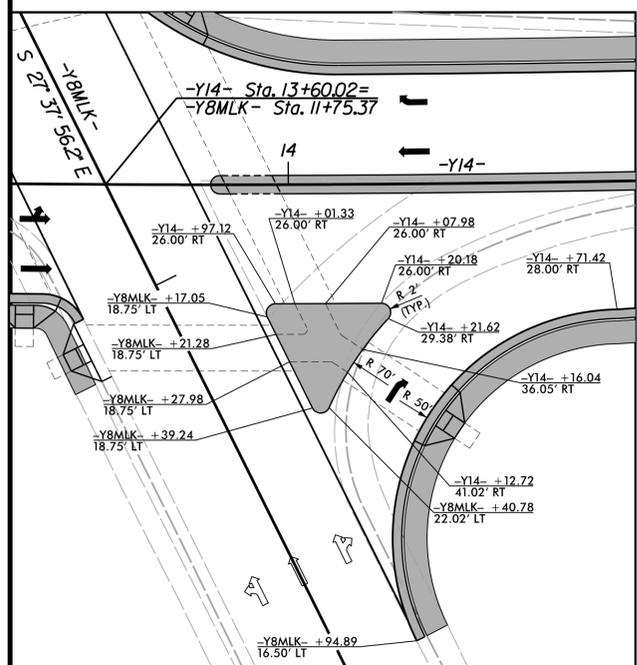
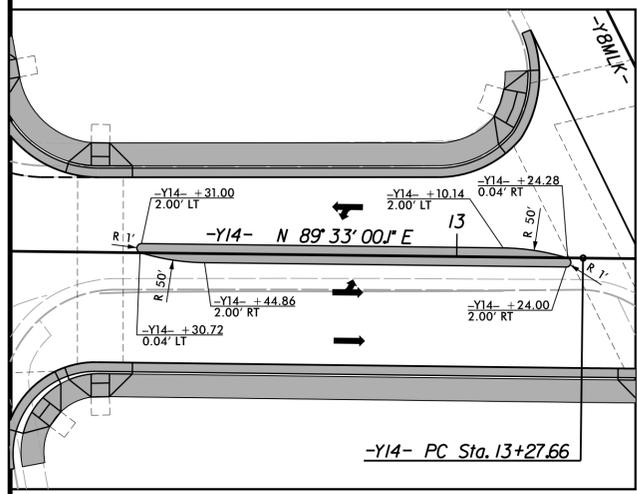
WEST FOURTH STREET
 HISTORIC DISTRICT

PLOT DRIVER: NCDOT_color_eng_50_U2827B.plt
 USER: LBUHRER
 FILE: North_Carolina_Dept_of_Transportation\U-2827B\BB_Bus_I-40_Reconstruction\in_ws_db\6.0_CAD\BIM\6.2_Work\in_Progress\U-2827B_Roadway\Prj\U2827B_RW_PSH_ROW_07.dgn
 PENTABLE: NCDOT_pshpfl_U2827B.tbl
 TIME: 5:47:38 PM
 DATE: 1/4/2018
 REVISIONS
 RFC REV. 01 (10-13-2017): REVISED EXISTING RW LINE FOR PARCELS 215 & 275 FOR PREVIOUSLY REVISED EXISTING RW LINE. TCE ADDED TO PARCELS 204 & 205.
 FINAL ROADWAY REV. 01 (01-08-2018): REVISED PROPOSED RW LINE FOR PARCELS 215 & 275 FOR PREVIOUSLY REVISED EXISTING RW LINE. TCE ADDED TO PARCELS 204 & 205.

PROJECT REFERENCE NO. U-2827B, C-5620A	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

NAD 83/NSRS 2007

-Y7MLK-
 PI Sta 12+20.05
 $\Delta = 14^{\circ} 20' 00.8" (RT)$
 $D = 3^{\circ} 21' 37.6"$
 $L = 426.54'$
 $T = 214.39'$
 $R = 1,705.00'$
 $V = 35 \text{ mph}$
 $e = EX.$



AADT YEAR 2011		2040		(VOLUME IN 100s)	
MARSHALL ST./CHERRY ST. (-Y7MLK- / -Y8MLK-)					
	183		221		
MLK JR. DR. (-Y14-)	$\frac{1}{23}$	$\frac{50}{71}$		$\frac{76}{224}$	MLK JR. DR. (-Y14-)
	$\frac{3}{156}$	$\frac{1}{33}$	$\frac{25}{53}$		
			158		
			213		
MARSHALL ST./CHERRY ST. (-Y7MLK- / -Y8MLK-)					

-Y14-
 PI Sta 14+67.38
 $\Delta = 3^{\circ} 21' 20.1" (LT)$
 $D = 1^{\circ} 12' 04.2"$
 $L = 279.36'$
 $T = 139.72'$
 $R = 4,770.00'$
 $V = 40 \text{ mph}$
 $e = NC$

PI Sta 18+01.24
 $\Delta = 4^{\circ} 39' 47.4" (RT)$
 $D = 1^{\circ} 12' 04.2"$
 $L = 388.22'$
 $T = 194.22'$
 $R = 4,770.00'$
 $V = 40 \text{ mph}$
 $e = NC$

MATCHLINE -Y14- STA. 19 + 00, SEE SHEET 9

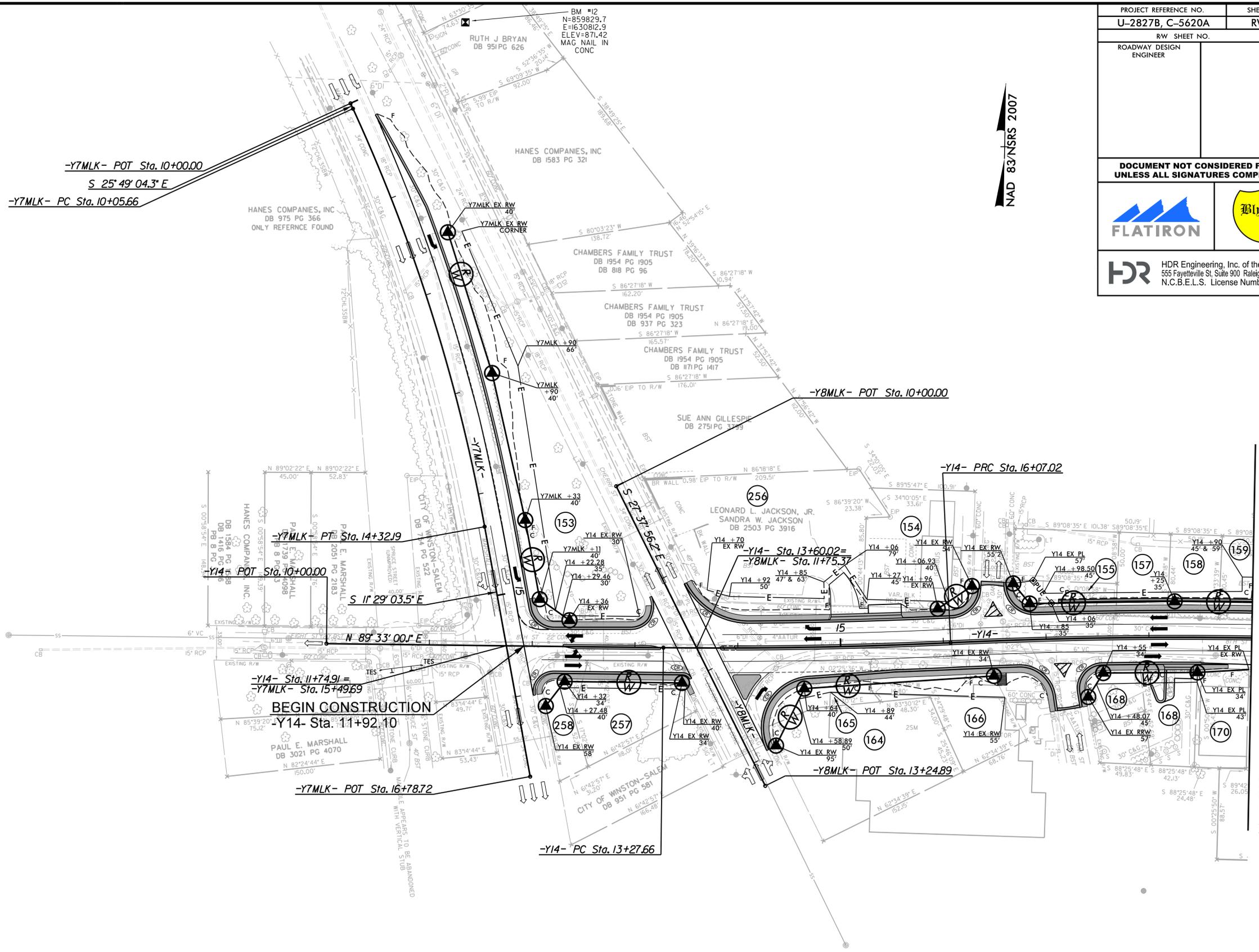
PLOT DRIVER: NCDOT...
 USER: LBUEHRER
 FILE: North_Carolina_Dept_of_Transportation\U-2827B\CAD\BIM\6.2_Work\in-Progress\U-2827B\Roadway\Proj\U2827B.RDY_PSH-08.dgn
 REVISIONS
 RFC REV. 01 (10-13-2017): DRIVEWAY APRONS FOR PARCELS 256 & 154 COMBINED.
 FINAL ROADWAY REV. 01 (01-08-2018): PUE ADDED TO PARCEL 155.

PLOT DRIVER: NCDOT_color_eng_50_U2827B.plt
 USER: LBUHRER
 FILE: North_Carolina_Dept_of_Transportation\U2827BA.BB.Bus.I.40.Reconstruction.in.WS.DB.6.0.CAD.BIM.6.2.Work.in.Progress\U2827B.Roadway\Proj\U2827B.RDY.PSH_ROW_08.dgn

REVISIONS
 RFC REV. 01 (10-13-2017): DRIVEWAY APRONS FOR PARCELS 256 & 154 COMBINED.
 FINAL ROADWAY REV. 01 (01-08-2018): PUE ADDED TO PARCEL 155.

-Y7MLK-
 PI Sta 12+20.05
 $\Delta = 14^{\circ} 20' 00.8" (RT)$
 $D = 3^{\circ} 21' 37.6"$
 $L = 426.54'$
 $T = 214.39'$
 $R = 1,705.00'$
 $V = 35 \text{ mph}$
 $e = \text{EX.}$

-Y7MLK- POT Sta. 10+00.00
 $S 25^{\circ} 49' 04.3" E$
-Y7MLK- PC Sta. 10+05.66



-Y14-
 PI Sta 14+67.38
 $\Delta = 3^{\circ} 21' 20.1" (LT)$
 $D = 1^{\circ} 12' 04.2"$
 $L = 279.36'$
 $T = 139.72'$
 $R = 4,770.00'$
 $V = 40 \text{ mph}$
 $e = \text{NC}$

-Y14-
 PI Sta 18+01.24
 $\Delta = 4^{\circ} 39' 47.4" (RT)$
 $D = 1^{\circ} 12' 04.2"$
 $L = 388.22'$
 $T = 194.22'$
 $R = 4,770.00'$
 $V = 40 \text{ mph}$
 $e = \text{NC}$

PROJECT REFERENCE NO. U-2827B, C-5620A	SHEET NO. RW-8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
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MATCHLINE -Y14- STA. 19 + 00, SEE SHEET RW-9

ALL RADII 10' UNLESS OTHERWISE NOTED
 SEE SHEET NO. 29 FOR -Y14- & -Y7MLK- PROFILES