STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

December 2, 2020

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

ATTN: Mr. Monte Mathews, NCDOT Regulatory Coordinator

Subject: **Request for Modification to Individual Section 404 Permit and Section 401 Water Quality Certification** for the Winston-Salem Northern Beltway (Eastern Section of Future I-74), from I-40 to I-40 Business/US 421; U-2579AB; Federal Aid Project No. NHP-0074(213), Division 9. Debit $570 from WBS No. 34839.1.8

References: **Section 404 and 401 Individual Permit Application** requested October 2, 2017, for Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 North (U-2579C Phase 2, D, D, and F), and from I-40 Business to US 311 South (U-2579AA and AB).

- Modification Application for U-2579D, E, F / U-2579C Phase 2, dated January 7, 2019.
- Modification Application for R-2247EB, dated June 26, 2019.
- Modification Application for U-2579D, E, and F, dated October 17, 2019.
- Modification Application for U-2579D, E, and F, dated November 4, 2020.

Section 404 Individual Permit issued for the Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 North (U-2579C Phase 2, D, D, and F), and from I-40 Business to US 311 South (U-2579AA and AB), dated January 22, 2018 **(SAW-2017-02112).**

- Permit Modification for U-2579D, E, F / U-2579C Phase 2, dated March 4, 2019.
- Permit Modification for R-2247EB, dated August 13, 2019.
- Permit Modification for U-2579D, E and F, dated January 29, 2020

Section 401 Water Quality Certification issued November 14, 2017 **(WQC004131),** for the Winston Salem Northern Beltway from I-40 to US 52 (R-2247B Phase 2, CA, CB, CD, D, EA, EB, and EC), from US 52 to US 311 North (U-2579C Phase 2, D, D, and F), and from I-40 Business to US 311 South (U-2579AA and AB); Revision 2 dated December 21, 2017; Revision 3 dated February 7, 2019; and Revision 4 dated August 13, 2019; Revision 5 dated November 14, 2019; Revision 6, dated November 30, 2020.

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Dear Sir:

The purpose of this modification request is to provide final design and impact calculations for the Winston-Salem Northern Beltway (Eastern Section of Future I-74), from I-40 to I-40 Business/US 421 (U-2579AB). This section was in preliminary design phase when the original permit application was submitted on October 2, 2017 (see original IP Application in References section of this Cover letter).

Impacts to Waters of the U.S.

Tables 1, 2, and 3 summarize the impacts to jurisdictional wetlands, jurisdictional streams, and jurisdictional ponds, respectively, for the final design of section **U-2579AB**. Site numbers correspond with the permit (hydraulic) drawings included in this application. The wetland, stream, and pond Site IDs correspond with the *Preliminary Jurisdiction Determination Report, R-2247/U-2579*, dated January 2016.

Tables 4 and 5 summarize Utility impacts to jurisdictional streams and wetlands, respectively, for the final design of **U-2579AB**. Site numbers correspond with the Utility Permit drawings included in this application. The wetland and stream Site IDs correspond with the *Preliminary Jurisdiction Determination Report*, R-2247/U-2579, dated January 2016.

Table 1. U-2579AB Wetland Impacts

Permit Site	Wetland ID [1/]	Wetland Size (ac)	Permanent Fill Impacts (ac)	Excavation Impacts (ac)	Mechanized Clearing Impacts (ac)	Impacts Requiring Mitigation (ac)
4A	ESE-W8	0.13	0.13	0	0	0.13
5A	ESE-W51	0.04	0	0	< 0.01	< 0.01
6A	ESE-W52	0.03	0.03	0	0	0.03
7A	ESE-W48	0.36	0.36	0	0	0.36
12A	ESE-W12	0.34	0.08	0	0.17	0.25
13A	ESE-W26	0.08	0.08	0	0	0.08
14A	ESE-W46	0.16	0.03	0	0.07	0.10
17A	ESE-W9	0.06	0.06	0	0	0.06
17B	ESE-W10	0.09	0.09	0	0	0.09
17C	ESE-W11	0.03	0.03	0	0	0.03
23A	ESE-W25	0.30	0.22	0.02	0.06	0.30
Totals:			**1.11** [2/]	**0.02**	**0.29**	**1.42 / 1.43** [2/]

[1/] Data from the *Preliminary Jurisdiction Determination Report, R-2247/U-2579*, dated January 2016.

[2/] Differences in Impact Totals is due to rounding of individual impacts to the 100th place at each site. The greater Total value (1.43 ac) has been used for mitigation purposes.

Table 2. U-2579AB Stream Impacts

Permit Site	Stream ID [1/]	Stream Type [1/]	Impact Type	Permanent Impacts (lf)	Temporary Impacts (lf)	Impacts Requiring USACE Mitigation (lf)	Impacts Requiring NCDWR Mitigation (lf)
1	ESE-S63*	I	30" Reinforced Concrete Pipe (RCP) -III	48	0	48	--
	ESE-S69	I	4' Base Ditch	76	18	76	--
2	ESE-S8	P	36" Corrugated Steel Pipe	51	0	51	--
			Energy Dissipator Basin	20	0	20	--
			Bank Stabilization	14	0	0	--
			Detour	0	76	0	--
3	ESE-S61[#]	I	54" RCP - IV	137	12	137	--
4			Roadway Fill	74	0	74	--
5			Std. 5' Base Ditch / (Pipe Removal)	28	32	28	--
6	ESE-S11 (Fiddlers Ck) +	P	2 @ 12' X 10' Reinforced Concrete Box Culvert (RCBC)	589	0	589	589
			Bank Stabilization – (w/ Inlet Channel Floodplain Bench)	26	41	0	--
			Channel Protection (outlet of RCBC)	81	88	81	81
6B	ESE-S61[#]	I	4'- segment replacement of 36" RCP	0	19	0	--
7	ESE-S59	P	54" RCP - V	92	0	92	92
			4' Base Ditch	84	10	84	84
			Riprap Pad	16	25	16	16
8		P	42" RCP - III	342	0	342	342
			Bank Stabilization	17	10	0	--
		I	42" RCP - III	102	0	102	--
9	ESE-S12[@]	P	Channel Protection – Culvert Inlet	66	10	66	66
			6' X 7' RCBC	226	0	226	226
			Channel Protection – Culvert Outlet	22	0	22	22
			Std. 6' Base Ditch	149	0	149	149
			Channel Protection – Culvert Inlet	18	0	18	18
			6' X 7' RCBC	354	0	354	354
			6' Base Ditch	195	10	195	195
10	ESE-S13	I	60" RCP - V	556	0	556	--
		P	60" RCP - V	60	0	60	--
			5' Base Ditch	52	0	52	--

there is no Site 11 for this project.

Permit Site	Stream ID [1/]	Stream Type [1/]	Impact Type	Permanent Impacts (lf)	Temporary Impacts (lf)	Impacts Requiring USACE Mitigation (lf)	Impacts Requiring NCDWR Mitigation (lf)
12	ESE-S16	P	5’ X 7’ RCBC	372	0	372	372
		I	Channel Stabilization / 4” Tail Ditch	277	0	277	--
13	ESE-S19	I	36” RCP	136	0	136	--
		P	36” RCP	368	0	368	368
			Bank Stabilization	28	10	0	--
14	ESE-S49	P	72” RCP - III	44	0	44	--
			Clean-out of existing 72” RCP	0	43	0	--
			Bank Stabilization	22	14	0	--
15	ESE-S52	P	42” RCP - III	36	10	36	--
			Riprap Pad / Tail Ditch	23	48	23	--
16	ESE-S56	P	54” RCP – III Extension	44	26	44	--
16A			54” RCP - III	170	10	170	--
			Bank Stabilization	33	10	0	--
17	ESE-S15	P	8’ X 7’ RCBC	427	0	427	427
			Channel Protection	35	0	35	35
18	ESE-S25 (Fiddlers Ck) +	P	Roadway Fill	900	102	900	900
			Bank Stabilization	44	11	0	--
19	ESE-S58	P	Roadway Fill	80	0	80	--
			4’ Base Ditch	50	0	50	--
			48” RCP - III	14	0	14	--
			48” RCP - III	16	0	16	--
			4’ Base Ditch	65	0	65	--
			48” RCP - III	18	0	18	--
			Channel Protection	6	6	6	--
20	ESE-S72	P	60” RCP - III	100	0	100	--
			5’ Base Ditch	55	10	55	--
			60” RCP - III	20	0	20	--
21	ESE-S50	I	Roadway Fill (4’ Lateral Base Ditch)	548	10	548	--
			Roadway Fill (4’ Lateral Base Ditch)	180	50	180	--
22	ESE-S63*	P	2’ Base Ditch	67	0	67	--

Permit Site	Stream ID [1/]	Stream Type [1/]	Impact Type	Permanent Impacts (lf)	Temporary Impacts (lf)	Impacts Requiring USACE Mitigation (lf)	Impacts Requiring NCDWR Mitigation (lf)
23	ESE-S42	P	Roadway Fill (2' Base Lateral Ditch)	62	10	62	--
24	ESE-S12@	P	Ditch Tie-In	0	10	0	--
25	ESE-S25 (Fiddlers Ck) +	P	3 @ 12' X 7' RCBC	92	0	92	92
			Bank Stabilization	35	5	0	--
			Outlet Channel Protection	48	13	48	48
26	ESE-S26	P	7' X 8' RCBC	56	0	56	--
			Inlet Channel Protection	18	14	18	--
			Outlet Channel Protection	33	0	33	--
27	ESE-S51	I	42" RCP - III	14	0	14	--
			Riprap Pad	12	10	12	--
28	ESE-S14	P	8' X 6' RCBC	84	0	84	--
		I		30	0	30	--
29	ESE-S12@	P	Roadway Fill (6' Lateral Base Ditch)	1,023	10	1,023	1,023
30	ESE-S10	P	6' Base Ditch (tie-In)	0	41	0	0
TOTAL				**9,180**	**824**	**8,961**	**5,222**

[1/] Data from the *Preliminary Jurisdiction Determination Report*, *R-2247/U-2579,* dated January 2016.

* Site 1 and Site 22 are both impacts to same stream (Stream ID ESE-63).

Sites 3, 4, 5 and 6B are all impacts to same stream (Stream ID ESE-S61).

+ Sites 6, 18, and 25 are all impacts to same stream (Fiddlers Creek).

@ Sites 9, 24 and 29 are all impacts to same stream (Stream ID ES-S12).

NOTE: As USACE mitigation requirements exceed those of the NCDWR, mitigation credits will be applied to 8,961 lf of impacts.

Table 3. U-2579AB Pond Impacts

Permit Site No.	Pond ID*	Pond Size (ac)	Permanent Fill (ac)	Impacts Requiring Mitigation (ac)
4B	ESE-P6	0.89	0.89	0
12B	ESE-P7	2.37	2.37	0
24	ESE-P14	0.35	0.35	0
Totals:		3.61	3.61	0

* Corresponds with data in the *Preliminary Jurisdiction Determination Report, R-2247/U-2579,* dated January 2016.

Justification for Open Cut Utility Impacts:
Where gravity sewer lines must cross streams, the pipeline will either be buried below the stream channel, or it will be aerial supported on piers above the stream channel. The elevation of the pipeline where it crosses the stream depends on the elevation of the manholes on each side of the stream.

For aerial pipelines, temporary stream impacts typically only involve construction of support piers on each side of the stream. The piers may need to be installed within stream buffers if the stream has buffer requirements. Once the piers are constructed, the pipeline can be installed on the piers with minimal impacts to the stream.

For buried pipelines, temporary stream impacts typically involve: 1) damming the stream flow at the pipeline crossing, accompanied by a pump-around assembly to convey stream flow from the upstream side of the crossing to the downstream side of the crossing; 2) excavation of the trench across the stream channel, installation of the pipeline, and backfill over the pipeline; 3) restoration of the stream channel as closely as possible to pre-construction conditions; 4) installation of erosion control measures on the bottom of the channel and the streambanks can be necessary, depending on the situation.

Directional drill installation of gravity sewer lines across streams is typically not the preferred method because gravity sewers must be installed at a uniform slope between manholes to ensure that wastewater flows by gravity through the pipeline. Directional drill installations are generally better suited for pressurized pipelines, such as water lines and sewer force mains, because the slope of the pipeline is not critical to ensure proper flow through the pipeline. Conventional bore and jack installations of encasement pipes for gravity sewer lines can be risky under streams or other bodies of water. This is because the leading face of the encasement pipe is open, which can allow water from the above stream or water body to flow into the leading face of the encasement pipe, possibly causing the bore pit to flood.

For these reasons, it is generally preferable to install gravity sewer lines across streams by the open cut method.

Table 4. U-2579AB Utility Stream Impacts

Utility Site No.	Stream ID*	Stream Type	Impact Type	Temporary Impacts lf (ac)	Impacts Requiring Mitigation (lf)
U-1	ESE-S58	P	8” Gravity Sewer Line	6 lf (< 0.01 ac)	0
U-2	ESE-S25 (Fiddlers Ck)	P	16” Gravity Sewer Line	8 lf (< 0.01 ac)	0
U-3	ESE-S72	P	8” Gravity Sewer Line	8 lf (< 0.01 ac)	0
U-4	ESE-S50	I	8” Gravity Sewer Line	78 lf (0.01)	0
U-5				24 (<0.01)	0
Totals:				124 lf (0.02 ac)	0

* Corresponds with data in the *Preliminary Jurisdiction Determination Report, R-2247/U-2579,* dated January 2016.

Table 5. U-2579AB Utility Wetland Impacts

Utility Site No.	Wetland ID*	Impact Type	Temporary Impacts (ac)	Impacts Requiring Mitigation (ac)
U-4	ESE-W37	8" Gravity Sewer Line	0.01	0
U-5			< 0.01	0
Totals:			0.01	0

* Corresponds with data in the *Preliminary Jurisdiction Determination Report, R-2247/U-2579,* dated January *2016.*

Summary of Jurisdictional Impacts by TIP

The impacts reported in this Individual Permit Modification application for **U-2579AB** are based on final design. The proposed impacts for sections still in Preliminary Design were determined by off-setting preliminary slope stake lines outward 25 feet on each side of the alignment and calculating impacts to all jurisdictional features. As Final Design is completed for each of the remaining sections in Preliminary Design, impacts will be updated, and permit modification requests will be submitted as applicable.

Table 6. Summary of Wetland Impacts per TIP Section

TIP Section	Design Stage	Wetland Impacts (ac)		Impacts Requiring USACE Mitigation (ac)
		Original IP ^	Permitted Final Design ^^	
U-2579AA	Preliminary	1.43	-	1.43
R-2247B Phase 2		0.27	-	*
R-2247CA		0.71	-	*
R-2247CB		1.98	-	*
R-2247D		0.52	-	*
R-2247EA		0.58 [1/]	-	0.58 [1/]
PRELIMINARY Design Totals:		**5.49**	**-**	**2.01**
U-2579AB	Final	1.50	**1.43**	**1.43**
FINAL Design Totals:		**1.50**	**1.43**	**1.43**
U-2579C Phase 2	Permitted	0.68	0.68	0.68
U-2579D		0.08	0.04	0.04
U-2579E		0.99	0.85	0.85
U-2579F		0.24	0.20	0.20
R-2247CD		0.04	0.04	0.04
R-2247EB		0.08	0.43 [1/]	0.43 [1/]
R-2247EC		0.31	0.31	0.31
PERMITTED Totals:		**2.42**	**2.55**	**2.55**
PROJECT Totals:		**9.41**	**3.98**	**5.99**

^ Stream impacts permitted in the referenced original Phased Individual Permit dated January 22, 2018 **(SAW-2017-02112).**

^^ Stream impacts permitted in referenced Permit Modifications (see Reference section of Cover Letter).

* Mitigation for the non-funded (post year) section is not required at this time and will be requested when funding is secured.

[1/] Values changed due to impacts not accounted for in original Phased IP App. and from revised project limits for Sections R-2247EB and R-2247EA [see referenced Modification Application, R-2247EB, dated June 26, 2019].

Table 7. Summary of Stream Impacts per TIP Section

TIP Section	Design Stage	Stream Impacts (lf)		Impacts Requiring USACE Mitigation (lf)
		Original IP ^	Permitted Final Design ^^	
U-2579AA	Preliminary	3,019	-	3,019
R-2247B Phase 2		862	-	*
R-2247CA		3,056	-	*
R-2247CB		5,674	-	*
R-2247D		5,762	-	*
R-2247EA		7,310 [1/]	-	744 [1/ 2/]
Preliminary Design totals:		**25,683**	**-**	**3,763**
U-2579AB	**Final**	10,351	9,180	**8,961**
Final Design Totals:		**10,351**	**9,180**	**8,961**
U-2579C Phase 2	Permitted	3,409	3,266	3,178
U-2579D [3/]		5,043	4,352 [3/]	4,345 [3/]
U-2579E		4,864	4,831	4,817
U-2579F		2,544	2,522	2,502
R-2247CD		699	699	611
R-2247EB		5,819 [2/]	5,817 [2/]	5,323 [2/]
R-2247EC		865	865	814
Permitted totals:		**23,361**	**22,352**	**21,590**
Project Totals:		**59,395**	**31,532**	**34,314**

^ Stream impacts permitted in the referenced original Phased Individual Permit dated January 22, 2018 **(SAW-2017-02112).**

^^ Stream impacts permitted in referenced Permit Modifications (see Reference section of Cover Letter).

* Mitigation for the non-funded (post year) section is not required at this time and will be requested when funding is secured.

[1/] Values changed from original Phased IP application due to revised project limits for R-2247EA and R-2247EB [see NCDOT Request for Permit Modification, R-2247EB, dated June 26, 2019].

[2/] Mitigation for 6,536 lf of stream impact for R-2247EA obtained from private Mitigation Bank [see original IP application, dated October 2, 2017].

[3/] Current Impact Values for Section D include revisions from two referenced modification applications: Permit Modification for U-2579 DEF (dated October 17, 2019); and Permit Modification for U-2579 DEF (dated November 4, 2020).

Culvert Burial

Table 8 identifies those sites with culvert installations / add-ons, and whether the culvert is proposed to be buried or not buried. Additionally, notes have been included on the permit drawings identifying whether the culvert/pipe is buried or not.

Table 8. Culverts/Pipes Buried vs. Non-Buried

Permit Site No.	Plan Sheet *	Permit Drawing Sheet *	Culvert Size	Buried (Yes / No)
1	6	2 of 78	30" RCP III	No
2	6	2 of 78	36" CSP	No
3	7 & 8	6 & 10 of 78	54" RCP IV	No
6	9	15 of 78	2 @ 12' X 10' RCBC	Yes
7	10	19 of 78	54" RCP IV	No
8	10	19 of 78	42" RCP III	No
9	10	19 of 78	6' X 7' RCBC	Yes
10	10	19 of 78	60" RCP V	No
12	11	28 of 78	5' X 6' RCBC	No
13	12	33 of 78	36" RCP LRDF Design	No
13A	12	33 of 78	36" RCP LRDF Design	No
14	16	38 of 78	72" RCP III	Yes
15	18	44 of 78	42" RCP III	No
16	19	47 of 78	54" RCP III	No
17	19	47 of 78	8' X 7' RCBC	Yes
19	20	57 of 78	60" RCP LRDF Design	No
20	21	62 of 78	60" RCP III	No
21	22	65 of 78	60" RCP III	No
22	6	2 of 78	42" RCP III	No
25	26	71 of 78	3 @ 12' X 7' RCBC	Yes
26	26	71 of 78	7' X 8' RCBC	Yes
27	17	42 of 78	42" RCP III	No
29	19	47 of 78	36" RCP V	No

*Indicates Sheet on which the site is depicted. Permit sites may also be depicted on associated blow-up sheets.

Summary of Wetland and Stream Mitigation Per TIP Section

Final mitigation requirements will be up to the USACE and NCDWR. NCDOT has reserved mitigation with DMS for the funded sections of the Winston-Salem Northern Beltway totaling mitigation for 5.93 acres wetland impacts and 37,248 linear feet of permanent stream impacts (at 2:1 ratio) [see Table 9 and Table 10].

Of the reserved mitigation of 1.50 acres of wetland impacts for section U-2579AB, Final Design reduced that quantity to 1.43 acres of wetland impacts requiring mitigation (see Table 6 and Table 9 of this Cover Letter). Of the reserved mitigation of 10,351 linear feet of stream impacts for section U-2579AB, Final Design reduced that quantity to 8,961 linear feet of stream impacts requiring mitigation (see Table 7 and Table 10 of this Cover Letter).

Table 9 and Table 10 present the difference between the wetland and stream mitigation obtained for each section of the project in the referenced original IP Application and the revised wetland mitigation requirement based on permitted Final Design impacts addressed in the referenced Permit Modifications Applications. As per footnote [3/] in each table, the Permitted Final Design values for U-2579AB are those presented in this Modification Application.

Sections that are non-funded (post year) (R-2247B-Phase 2, R-2247CA, R-2247CB, and R-2247D) are not required to have mitigation until funding is secured, and are therefore not included in Tables 9 and 10.

Table 9. Summary of Wetland Mitigation Per TIP Section

TIP Section	Design Stage	Wetland Impacts Requiring Mitigation (ac)		Difference in Required Mitigation (ac) [1/]
		Original Individual Permit ^	Permitted Final Design ^^	
U-2579AA	Preliminary [2/]	1.43	-	-
R-2247EA		0.58	-	-
U-2579AB	**Final**	**1.50**	**1.43 [3/]**	**- 0.07**
U-2579C Phase 2	Permitted	0.68	0.68	0
U-2579D		0.08	0.04	- 0.04
U-2579E		0.99	0.85	- 0.14
U-2579F		0.24	0.20	- 0.04
R-2247CD		0.04	0.04	0
R-2247EB		0.08	0.43 [4/]	+ 0.35 [4/]
R-2247EC		0.31	0.31	0
Totals		**5.93**	**3.98**	**+ 0.06**

^ Wetland impacts permitted in the referenced original Phased IP dated January 22, 2018 **(SAW-2017-02112).**

^^ Wetland impacts permitted in referenced Permit Modifications (see Reference section of Cover Letter).

[1/] Values indicate the difference between the current amount of mitigation obtained and the current amount of mitigation needed to cover the impacts (excludes sections not yet submitted for permitting).

[2/] Preliminary Impacts were determined by measuring 25' outside of preliminary slope stake lines and are presented as Permanent impacts requiring mitigation for those sections that Let within 5 years.

[3/] Wetland impacts requiring mitigation, per this Permit Modification Application.

[4/] Increase due to wetland impacts not accounted for in original Phased IP application and from revised project limits for Sections R-2247EB and R-2247EA [see referenced Permit Mod Application, R-2247EB, dated June 26, 2019].

Table 10. Summary of Stream Mitigation Per TIP Section

TIP Section	Design Stage	Stream Impacts Requiring Mitigation (lf)		Difference in Required Mitigation (lf) [2/]
		Permitted ^	Final Design ^^	
U-2579AA	Preliminary	3,019	-	-
R-2247EA [1/]		774	774 [1/]	+ 774 [1/]
U-2579AB	**Final**	**10,351**	**8,961 [3/]**	**-1,390**
U-2579C Phase 2	Permitted	3,409	3,178	-231
U-2579D		5,043	4,345 [4/]	-698 [4/]
U-2579E		4,864	4,817	- 47
U-2579F		2,544	2,502	- 42
R-2247CD		611	611	0
R-2247EB		5,819	5,323	- 496
R-2247EC		814	814	0
Totals		**37,248**	**31,325**	**-2,130**

^ Wetland impacts permitted in the referenced original Phased IP dated January 22, 2018 **(SAW-2017-02112).**

^^ Wetland impacts permitted in referenced Permit Modifications (see Reference section of Cover Letter).

[1/] Mitigation for the original R-2247EA section impacts (6,536 lf) was provided by a Mitigation Bank. The 774 lf represents the Preliminary Impacts which were shifted from the R-2247EB section.

[2/] Values indicate the difference between the current amount of mitigation obtained and the current amount of mitigation needed to cover the impacts (excludes sections not yet submitted for permitting). See Footnote [1/] for the additional 774 lf of mitigation needed for Section R-2247EA.

[3/] Stream impacts requiring mitigation, per this Permit Modification Application.

[4/] Revised based on two referenced modification applications: Permit Modification for U-2579 DEF (dated October 17, 2019); and Permit Modification for U-2579 DEF (dated November 4, 2020).

Avoidance/Minimization

Guardrail with 2:1 slopes were utilized throughout the project to minimize impacts to wetlands and streams. Ditches and pipes that outlet adjacent to wetlands have been designed to have non-erosive velocities. Stormwater control measures such as dry detention and energy dissipator basins were proposed at specific locations along the project. Many ditches are designed to achieve grass swale credit.

Regulatory Approvals

Section U-2579AB is scheduled to Let on May 18, 2021, with a Review Date of March 30, 2020.

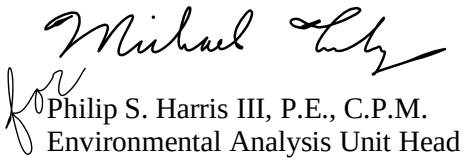
Section 404: We are hereby requesting the modifications to the USACE Individual 404 Permit signed January 22, 2018 (SAW-2017-02112), for the above-described activities for Section U-2579AB.

Section 401: We are hereby requesting a modification to the 401 Water Quality Certification from the NCDWR issued November 14, 2017 (revised November 27, 2017 & December 21, 2017) (WQC004131). In compliance with Section 143-215.3D(e) of the NCAC, we will provide $570.00 to act as payment for processing the Section 401 permit modification (see Subject line).

A copy of this modification request and its distribution list will be posted on the NCDOT website at: https://xfer.services.ncdot.gov/pdea/PermApps/

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Bill Barrett at 919-707-6103 or wabarrett@ncdot.gov.

Sincerely,



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

cc:
NCDOT Permit Application Standard Distribution List

Attachments:
DMS Mitigation Acceptance Letter, dated September 29, 2017
Concurrence Point 4B Meeting Minutes (November 16, 2017)
Concurrence Point 4C Meeting Minutes (January 14, 2019)
Stormwater Management Plan
Permit Drawings
Utility Permit Drawings
Roadway Plans

ROY COOPER

September 29, 2017

Mr. Philip S. Harris III, P.E., CPM
Natural Environment Section, PDEA
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter: **U-2579 / R-2247,** Winston-Salem Northern Beltway – from South of I-40 Southwest of the City to I-74 / US 311 Southeast of the City, Forsyth County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the stream and wetland mitigation for the subject project. Based on the information supplied by you on September 28, 2017, the stream and wetland impacts are located in CU 03040101 of the Yadkin River basin and 03010103 of the Roanoke River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream & Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Yadkin	03040101	CP	0	0	30,834.0	4.79	0	0
Impacts	Roanoke	03010103	CP	0	0	6,414.0	1.14	0	0

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

These impacts and associated mitigation needs were *under* projected by the NCDOT in the 2017 impact data. DMS will commit to implement sufficient compensatory stream and riparian wetland 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
DMS Credit Management Supervisor

Cc: Mr. James Lastinger, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NC Division of Water Resources – Raleigh
File: U-2579 / R-2247

Table 14. Summary of Mitigation Provided by DMS for Projects Letting within 5 Years

Section	Design Stage	Wetland Impacts Requiring Mitigation (ac)	Stream Impacts Requiring Mitigation (lf)
R-2247EC	Final	0.31	814
R-2247CD	Final	0.04	611
U-2579C Phase 2	Final	0.68	3,409
U-2579AA	Preliminary	1.43	3,019
U-2579AB	Preliminary	1.50	10,351
U-2579D	Preliminary	0.08	5,043
U-2579E	Preliminary	0.99	4,864
U-2579F	Preliminary	0.24	2,544
R-2247EA	Preliminary	0.57	*
R-2247EB	Preliminary	0.09	6,593
Total		**5.93**	**37,248**

*Mitigation for R-2247EA provided by Mitigation Bank. See attached mitigation summary.

Explanation of mitigation provided by DMS
Sections in Final Design (R-2247CD, R-2247EC, and U-2579C Phase 2) and
Sections in Preliminary Design with LET dates within 5 years (U-2579AA, U-2579AB, U-2579D, U-2579E, U-2579F, and R-2247EB).

Streams:

Total Project Impacts:	59,395 linear feet
Sections to Let > 5 years:	-15,354 linear feet
Bank Stabilization for Final Design	-257 linear feet
Section R-2247EA using mitigation Bank	-6,536 linear feet (see attached summary)
Balance	**37,248 linear feet**

Yadkin mitigation = 30,834
Roanoke mitigation = 6,414

Wetlands:

Total Project Impacts:	9.41 acres
Sections to Let > 5 years:	-3.48 acres
Balance	**5.93 acres**

Yadkin Mitigation = 4.79 acres
Roanoke Mitigation = 1.14 acres

REGULATORY APPROVALS

Section 404: Application is hereby made for a USACE Individual 404 Permit as required for the above-described activities.

Section 401: We are hereby requesting a 401 Water Quality Certification from the N. C. Division of Water Resources. In compliance with Section 143 215.3D(e) of the NCAC, we

SUBJECT: U-2579AB – Forsyth County, NC Draft Concurrence Point 4B Meeting Minutes

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Meeting was held on November 16, 2017

Attendees:
Bill Elam – NCDOT PMU
Craig Lee – NCDOT PMU
Mark Staley – NCDOT REU
Bill Barrett – NCDOT EAU
Carla Dagnino – NCDOT EAU
Amy Euliss – NCDOT Div. 9
Tanga Sampson – NCDOT Utilities
James Rice – HDR
Kaitlin Helms – HDR
Wyatt Yelverton - HDR
Marla Chambers – NCWRC
James Lastinger – USACE
David Wanucha - NCDEQ (phone)
Marella Buncick – USFWS (phone)
Brandon Barham – Ecological Engineering
Reid Robol – Ecological Engineering

General introduction of the project was initiated by Bill Elam. Introductions were made by all in attendance. Wyatt Yelverton started the discussion with a project overview including updates to the design since the previous 4B meeting on the project that was conducted in 2008. Design changes since then include an updated interchange design at Kernersville Rd (Y4) and the mainline. The other major update is widening to the median on the mainline to accommodate future lanes and including median barrier.

HDR asked about the use of the pre-formed scour hole as a best management practice (BMP). Pre-formed scour holes are still okay to use and will be utilized in appropriate areas. A general comment was made to maximize stormwater treatment wherever possible.

General discussion was had on piping of jurisdictional streams, burying those pipes, and where/if outlet protection would be needed on the outlet side (channel banks only or the need for outlet protection in the stream bed).

- HDR will evaluate the need for outlet protection in the channel bed at pipe outfalls depending on outlet velocities
- If any outlet protection is needed in the stream bed, the rip rap is to be embedded at stream level.
- Some pipes on jurisdictional streams may be too steep to justify burying the pipe
- All pipes or culverts to be buried will be labeled appropriately on the plans. Also, HDR will provide a list of all pipes to be buried

Regarding proper identification of jurisdictional features on the plans, HDR will work with NCDOT and location surveys to ensure all features listed in the Jurisdictional Determination are appropriately noted

- HDR will provide notes on the plans to indicate the start of jurisdictional streams

Sheet 4

It was noted that upstream of the pond shown is a mitigation site. Coordination will take place so that boundaries of the mitigation area can be shown on the plans.

At this point, there are no anticipated impacts to jurisdictional pond associated with the U-2579AB project.

Sheet 5

HDR provided an updated plan sheet 5 showing the current design and impacts to pond (ESE-P13, Site 27). The current design involves ditching a significant distance off site to achieve an appropriate outlet elevation and keep pre-post drainage conditions similar. HDR also discussed an alternative design concept that would avoid the long outlet ditch and carry the drainage in a system to outlet on Sheet 4 in the area of L Sta. 694+00 Rt. The alternative design would include a stormwater basin BMP with 2-5 day drawdown time.

- Discussion followed regarding which options would be best. Considerations included stormwater treatment benefits for each option and ROW implications
- Need to make sure ponds are still being fed. Design would still need to outlet some drainage toward ponds even if the stormwater basin option was implemented.
- If the stormwater basin option is implemented, steps would need to be taken to ensure downstream ponds on sheet 4 are protected (turbidity curtains, EC considerations)

Sheet 6

Site 1

- Not anticipating burying pipe
- Different numbered streams will require separate site numbers

Site 2

- A note needs to be added to indicate where JS starts
- Cross pipe not intended to be buried
- HDR to confirm that no other features on the sheet are jurisdictional

Sheet 7

- A note needs to be added indicating start of jurisdictional stream at top of page
- Site 3 – HDR will correct the stream number. It should be ESE-S61 rather than ESE-E61

Sheet 8

- A determination will need to be made on if the pond shown to be impacted is a designated stormwater pond
- HDR will evaluate ROW impacts and other implications of crossing the alignment with pipe at the beginning of the sheet versus keeping it in a pipe system to outlet downstream of existing pond.
- The energy dissipator basin shown is just a cell representation. Proper sizing will be done as drainage design progresses.
- Further consideration and analysis will be done to determine if the 36" existing pipe downstream of energy dissipator basin is to remain or be removed

Sheet 9

- A label is needed to indicate the crossing is Fiddlers Creek
- Backfill for material inside culvert will be a mixture of Class B rock and native material. NCDOT to provide appropriate note to be placed on plans.
- The culvert is a double 12'(W) x 10'(H) RCBC and will be buried 1' with a 2' sill in barrel #2
- Will consider making separate site number for ESE-W52

Sheet 10

Site 7

- The existing pipe upstream will be checked to see if it is providing grade control

Site 8

- Pipe does not need to need to be buried

Site 9

- Will look at slope of pipe and determine if pipe needs to be buried
- More channel work is needed to tie new channel to existing downstream channel

Site 10

- Pipe does not need to be buried

Bill Barrett noted that smaller "blow-up" sheets associated the larger sheets (e.g. 10A, 10B, 10C, and 10D) do not all show site numbers. On sheet 10 and 10A, there is a "Site 11" labeled, but no impact feature is depicted. This will be corrected on the permit sets.

Sheet 11

Site 12

- Note to be added showing start of jurisdictional stream
- The wetland label is missing and needs to be included
- HDR will look at the need for cross vanes for channel stability in old pond bed

Sheet 12

Site 13

- The wetland file needs to be checked in regards to showing the JS line within wetland
- ESE-W25 will be considered a total take

Sheets 13-15

No impacts on these sheets

Sheet 16

Site 14

- If 72" pipe needs to be buried, a note will be added to plans
- Wetland symbology will be checked for wetland ESE-W46
- Slope stakes will be analyzed to potential avoid impacts to ESE-W36

Sheet 17

- Bill Barrett noted that a small portion of Wetland ESE-46 continues onto Sheet 17 from Sheet 16 (from STA 34+75 to ~35+10 RT). It appears that it may be filled, based on fill slope. This is correct so there actually will be impacts to wetland associated with Sheet 17.
- Permanent drainage easement shown seems to be in the wrong location. This will be checked

Sheet 18

HDR will determine additional room needed for bore and jack operation on supplemental pipe. The final location of pipe may change in order to avoid any impacts due to bore pits needed for trenchless pipe installation

Sheet 19

Site 16

- Velocity and slope to be checked on pipe to see if pipe is to be buried
- Jurisdictional stream continues upstream from pipe. Notation to be updated.

Site 17

- ESE-S14 is not showing up. This will be corrected on the plans
- There is a lot going on in the Site 17 area and a blow up view would be helpful on the permit set
- Stream lines not showing up at ESE-S10. This will be corrected.
- HDR asked about the type of wetland impact to show related to fringe wetlands outside of pond to be drained. These impacts are to be shown as mechanized clearing.

Sheet 20

Site 18

- HDR will analyze stream slopes at Fiddlers Creek stream relocations and be ready to discuss and present at 4C meeting and at field inspection
- Discussion was had regarding possible stream restoration/natural channel design versus simple relocation

Sheet 21

HDR will look at armoring slope with rip rap where stream relocation starts

Sheet 22

- Impacts will be taken on ESE-S50 for relocating the jurisdictional stream on both sides of the alignment (Site 21 and Site 22).

Sheet 23

Wetland file needs to be checked at Site 23. Also, it is likely that rip rap will be needed at the pipe outlet for stability. Rip rap is to be embedded at bed level.

Sheet 25

- HDR will include a note indicating start of jurisdictional stream at Site 24.
- Pipe will be realigned better with stream at Site 11

Sheet 26

Site 25

- Fiddlers Creek Culvert on ESE-S25
- Triple 12'(W) x 7'(H) RCBC
- Buried 1' with 2' sills in barrels 2 & 3
- To be backfilled with mixture of Class B rip rap and native material

Site 26

- Tributary to Fiddlers Creek Culvert on ESE-S26
- 7'(W) x 8'(H) RCBC
- Buried 1' and to be backfilled with mixture of Class B rip rap and native material

Other Notes

Marla Chambers requested that the design team point out any stormwater treatment at 4C meeting.

SUBJECT: U-2579AB – Forsyth County, NC Concurrence Point 4C Meeting Minutes

1/14/19 at 9:00 AM

In attendance:

Craig Lee	*NCDOT Hydraulics*
Allison White	*NCDOT PMU*
Robert Patterson	*NCDOT EAU*
Bill Barrett	*NCDOT EAU*
Marla Chambers	*NCWRC*
Nicholle Braspennickx	*USACE*
Wyatt Yelverton	*HDR*
Kaitlin Helms	*HDR*
James Rice	*HDR*
Mike Sanderson	*NCDOT EPU*
John Jamison	*NCDOT EPU*
Felix Davila	*FHWA*

Via Conference

Dave Wanucha	*NCDWQ*
Amy Euliss	*NCDOT Division 9*
Mark Staley	*NCDOT REU*

Following introductions around the room James Rice led the meeting beginning with general notes about the project and then discussions about each permit site.

General Notes

- This project is an eastern section of the overall Winston-Salem Northern Beltway extending from north of Kernersville Rd to south of proposed interchange with I-40.
- U-2579AB has been through a previous 4B concurrence point in January of 2008. Since that time, the major changes to the design include the interchange revision at Kernersville Rd (Y4) and the mainline L; updated to diverging diamond interchange (DDI). The other major update is the typical section on I-40 to include future lanes and concrete barrier in the median. 2nd 4B held on November 16, 2017.
- There are 4 major stream crossings on the project. Crossings are on Fiddlers Creek and tributaries to Fiddlers Creek. Fiddlers Creek has a Class C surface water designation and is part of the Yadkin-Pee Dee River Basin.
- There are no specific buffer requirements on the project, but will work towards MEP.

- CSR's for culvert crossings were approved in June 2009. Conditional Letter of Map Revision (CLOMR) was done following previous design with CLOMR approval in August of 2012.
- Large fill heights will require shoulder berm gutter in many locations.
- BMPs utilized when possible, but steep slopes hinder the use in most cases.
    - Pre-formed scour holes utilized where possible
- For jurisdictional outfalls, outlet protection will be placed on the banks of the stream and not in the stream bed whenever possible, but due to steep grades on some pipes outlet protection may be needed for stability.
    - HDR will evaluate the need for outlet protection in the channel bed at pipe outfalls depending on outlet velocities
    - If any outlet protection is needed in the stream bed, the rip rap is to be embedded at stream level.
    - Some pipes on jurisdictional streams may be too steep to justify burying the pipe
    - All pipes or culverts to be buried will be labeled appropriately on the plans. Also, HDR will provide a list of all pipes to be buried
- Several streams did not show up as jurisdictional in the final survey file at the time of 4B. We coordinated with location surveys to get this updated. Notice any remaining discrepancies?
- Geotextile for bank stabilization?
    - Allows to settle in holes if scour does occur
    - Allows vegetation to grow through rocks

  James Rice mentioned that some Divisions have decided not to use geotextile under rip rap for bank stabilization due to piping and water getting behind geotextile fabric.

  Amy Euliss indicated that the Division would like to continue use of geotextile for this application.

  Bill Barrett asked about providing a table noting each pipe or culvert to be buried and not-buried. The table will be provided in the permit.

Sheet 6

Site 1 – ESE-S63

- 30" RCP outfall
    - JS Begins just upstream of pipe outfall.
    - Not anticipating burying pipe
    - Due to confluence with ESE-S69, realigning channel and rip rapping to the ROW for stability.

Site 22 – ESE-S69

- New site from 4B
    - Previously tying to existing channel before start of JS
    - Due to stability concerns, rip rapping channel all the way to new confluence with ESE-S63

Site 2 – ESE-S8

- JS begins at existing pipe outlet
- 36" Crosspipe
    - Cross pipe not intended to be buried
- Scour hole at existing 30" Outfall
    - Utilizing drop structure and energy dissipater basin to reduce velocities
    - Utilizing bank stabilization to the end of the easement.

Regarding fish passage, the jurisdictional stream starts at the outlet of existing pipe, therefore there is nothing upstream that would constitute fish passage.

After some discussion about the type of impact to be taken at bank stabilization, it was decided that permanent stream impacts should be taken instead of temporary.

A question was asked about the reason for the "ESE" naming convention on jurisdictional features. It was unclear why this convention was used but this designation was carried out on the permit drawings to be consistent with the Jurisdictional Determination document.

Sheet 7

Site 3 – ESE-S61

- Section of ESE-S61 to the existing 36" Pipe system
- 54" Crosspipe
    - Do not plan on burying – Long pipe with 90 degree turn

Sheet 8

Site 3 – ESE-S61

- Section of ESE-S61 to the existing 36" Pipe system
- 54" Crosspipe
    - Do not plan on burying – Long pipe with 90 degree turn

Site 4 – ESE-S61

- Section of ESE-S61 from outlet of the existing 36" Pipe system to the pond

Site 4A – ESE-W8

- Wetlands at the head of the pond
- Total take

Site 4B – ESE-P6

- Total take of pond
- Any update on if this is a designated stormwater pond?

Amy Euliss noted that we do not have to worry about this being a stormwater pond.

Amy Euliss brought up the need for language in the contract for fish relocation as a result of draining of ponds.

Site 5 – ESE-S61

- Section of ESE-S61 from outlet of the pond to the pond to the ROW
- Temporary stream impacts to tie to existing stream
- Site was extended to include removal of existing 36" pipe.
    - Temporary impacts to remove the existing 36" pipe and daylight the stream

Site 5A – ESE-W51

- Being shown as hand clearing currently
- Only hand clearing on the project
- Show as mechanized clearing?

  The area is to be shown as mechanized clearing. This will be updated in the impact summary.

We evaluated putting the trunk line down the west side of the mainline, but due to constructability concerns and maintenance of deep boxes, it did not seem like a better alternative than the one shown.

<u>Sheet 9</u>

Site 6– ESE-S11 (Fiddler's Creek)

- Double 12'(W) x 10'(H) RCBC and will be buried 1' with a 2' sill in barrel #2
    - Backfilled with Class B and Native material
    - 0.43% Slope
    - Inlet end
        - Inlet channel protection – Class I Rip Rap
        - Permanent impacts to construct channel tie in for overflow barrel
        - Temp impacts for dewatering
        - PSH for SBG

  Detail III needs to be removed from permit drawings. Detail KKKK needs to be updated to show floodplain bench. Detail '1' needs to be renamed so as not to be confused with detail 'I'.

  Temporary impacts need to be extended out to ROW limits.

  On culvert profile sheet, more existing ground will be shown at outlet end to show how culvert ties to existing ground.

    - Outlet end
        - Outlet channel protection (rip rap in bottom of channel)
            - Flush with existing channel bed

Site 6A– ESE-W52

- Total take

Sheet 10

Site 7 – ESE-S59

- 54" proposed pipe
  - Not buried due to steep pipe and rip rap
  - Added a drop structure to reduce outlet velocities downstream
  - Utilizing rip rap in the channel bottom at outlet
  - PSH to discharge from SBG
- Removing existing 48" pipe upstream
  - Providing rip rap for daylighted section to the inlet of the 54" pipe

Temporary stream impacts need to be taken to extent of ROW at outlet side.

Site 7A – ESE-W48

- Total take under fill slope

Site 8 – ESE-S59

- 42" pipe at outlet
  - JS starts in the middle of the system at the loop
  - Outlet will not be buried
  - Showing only bank stabilization at the outlet
    - Flattened out last section to reduce velocity
    - Last section is only 0.7%
  - TS at outfall for dewatering

and sills

Site 9 – ESE-S12

- Additional culvert due to revised ramp alignment
- Was originally a 60" pipe, but requested to be changed to a box culvert
- Single 6'(W) x 7'(H) RCBC and will be buried 1' with baffles
  - 338ft at 2.3% slope
  - Backfilled with Class B and Native material
  - Has multiple kinks to miss bridge pier/footings and line up with existing channel
  - Inlet end
    - Bank Stabilization
    - Temp impacts for dewatering
  - Outlet end
    - Outlet channel protection (rip rap in bottom of channel)
      - Flush with existing channel bed
  - Extended to the confluence with other ditch and pipe

James Rice discussed new ramp alignment and additional impacts to be taken due to new culvert. It was asked why the change was being made. Allison White noted that there was a highway weaving concern at the location of the ramp and new alignment would eliminate conflict points.

Amy Euliss noted a potential permit site on top left of page, sheet 9 (ESE-E61). HDR and NCDOT to check on status of pipe. Impacts to be added to site 5 if needed.

Inlet and outlet channel details need to be broken out separately with separate details.

Site 10 – ESE-S13

- 60" Pipe
  - JS starts just inside fill slope
  - Not buried
  - Drop structure at the outlet to reduce velocities
- Site numbers were added to the blow up sheets per comment from Bill Barrett at 4B

Craig Lee suggested a note be added to the impact summary indicating that there is no site 11 for the project.

Sheet 11

Site 12 – ESE-S16

- Single 5'(W) x 7'(H) RCBC and will not be buried
  - 357ft at 2.8% slope
  - JS starts just upstream of culvert inlet
  - Inlet end
    - Rip rap channel from outlet of the 42" pipe to culvert inlet
  - Outlet end
    - Rip rap proposed channel through the old pond

The profile sheet for the culvert needs to be updated to show it not being buried and baffles removed. Label to be updated as not buried.

Site 12A – ESE-W12

- Wetlands on fringe of pond.
  - Wetlands go away if pond goes away
  - Showing as mechanized clearing since internal to interchange per 4B

Site 12B – ESE-P7

- Pond is internal to interchange and will be drained
- Showing proposed rip rap channel through old pond bed
  - Note saying location and stabilization of channel may be adjusted by the engineer in the field.

Sheet 12

Site 13 – ESE-S19

- 36" Pipe
  - JS starts just inside fill slope

- Not buried
- Drop structure at the outlet to reduce velocities
- Bank Stabilization at the outlet
- Temporary impacts for dewatering

Bank stabilization to be extended on the outer bend of stream up to where temporary impact starts.

Site 13A – ESE-W26

- Total take – under fill

Site 23 – ESE-S42

- Relocation of stream outside the proposed fill slope

Site 23A – ESE-W25

- Determined at 4B to be total take
- Hatching wasn't updated with correct hatching

It was decided to keep impacts to W25 as mechanized clearing but show excavation within the permanent ditch.

Sheet 16

Site 14 – ESE-S49

- Extending existing 72" pipe on the inlet end
  - Existing pipe has 1.5-2ft of sediment at the outlet and 2-3ft of sediment at the inlet.
  - Proposed pipe extension is sized to be buried 1 ft.
  - Some sediment will need to be removed
  - Bank Stabilization at inlet
  - TS added at the outlet to provide some room for erosion control for cleanout

Site 14A – ESE-W46

- Currently not showing up as a total take – *decided to keep as mechanized clearing*

Slope stakes were adjusted to avoid impacts to ESE-W36

Sheet 17

Site 27 – ESE-S51

- Replacing existing 36" pipe with a 42" pipe
  - JS starts at outlet of existing 36" pipe
  - Rip rap in bed of JS for Stability

Additional permanent drainage easement added to include proposed ditch

Sheet 18

Site 15 – ESE-S52

- Existing 60" pipe
- Due to cover issues, only a 42" pipe will fit under the ramp
    - To maintain capacity, additional 42" pipe is required
    - Currently both pipes are at the same inlet elevation
    - Tying new bore and jack pipe to existing stream at outlet
    - May need additional temporary impacts due to bore and jack

Temporary impacts will be extended back to the end of existing pipe.

HDR will investigate providing a bench to raise one of the pipes.

Sheet 19

Site 12A – ESE-W12

- Continued from PSH 11

Site 12B – ESE-P7

- Continued from PSH 11

Site 16 – ESE-S56

- Extension of existing 54" pipe
    - Inlet end
        - Permanent impacts for ditches tying to stream
        - Temp impacts for dewatering
    - Outlet end
        - Permanent impacts for ditch tying to stream
        - Temp impacts for dewatering
- Proposed 54" pipe upstream of existing – not buried
    - Drop box to reduce velocities
    - Inlet end
        - Temp impacts for dewatering
    - Outlet end
        - Bank Stabilization at outlet
        - Temp impacts for dewatering

At proposed 54" pipe it was requested to look at options for allowing fish passage. It was noted that the drop box did not actually have a drop, but was utilized to flatten the last segment of pipe to reduce velocities. There will not be a jump that will impede fish passage.

Site 17 – ESE-S15

- From outlet of the pond (P7) to inlet of existing culvert

- Single 8'(W) x 7'(H) RCBC and will not be buried (note on profile still shows buried)
    - 309ft at 0.5% slope
    - Inlet end
        - Channel relocation and everything rip rapped
    - Outlet end
        - Proposed rip rap channel

Site 17A – ESE-W9
- Total take

Site 17B – ESE-W10
- Total take

Site 17C – ESE-W11
- Total take

Site 28 – ESE-S14
- Relocation of small tributary – total take

Site 29 – ESE-S12
- Relocation to the outside in a rip rap lined channel

Site 30 – ESE-S10
- Temporary impacts for dewatering

  Temporary impacts to be extended to ROW.

<u>Sheet 20</u>

Site 18 – ESE-S25 (Fiddler's Creek)
- Fiddler's Creek realignment
    - Slope ranges from 0.6% to 0.8%
    - Embankment rip rap where ties back to existing Fiddler's Creek
    - Temporary impacts for dewatering

Rock cross vanes were requested to be added as a line item in the contract in case they were needed during construction. After discussion of a reasonable location to show the rock cross vanes, it was decided to remove them from the Fiddler's Creek relocation sites and show them on sheet 19 in the channel through the pond. A note will be added indicating that the rock cross vanes are to be used as needed.

Site 19 – ESE-S58
- Multiple pipes through the ROW
- On inlet end
    - Bank Stabilization and TS for dewatering

- Between each segment of pipe, showing rip rap channel for stabilization
- On outlet end
    - Bank stabilization where Fiddler's Creek ties
    - TS for dewatering
- Haven't heard any further discussions on natural channel design

Sheet 21

Site 18 – ESE-S25 (Fiddler's Creek)

- Continuation of Fiddler's Creek realignment
- Armored slope with rip rap where stream relocation starts from 4B direction

Temporary stream impacts to be extended to ROW.

Site 20 – ESE-S72

- Extension of existing 60" pipe
- JS starts at outlet of existing pipe
- Pipe extension will not be buried
- 60" pipe under noise wall
- Stream impacts take between the 2 pipes
- TS upstream for dewatering

Rip rap is to be shown through entire ditch between outlet of noisewall pipe to inlet of 60" pipe extension. Rip rap outlet cell to be removed.

Sheet 22

Site 21 – ESE-S50

- Relocation JS outside the fill slope on both sides of the alignment
- TS on both ends for dewatering

Temporary impacts to be extended on the upstream end to limits of wetland.

Sheet 25

Site 24 – ESE-P14

- Total take of the pond

A note will be added saying that the Engineer may revise the location of the ditch through pond as needed.

The JS feature ESE-S12 starts below the tie in point of the proposed ditch. The TS shown needs to be removed.

Sheet 26

Site 25 - ESE-S25 (Fiddler's Creek)

- Triple 12'(W) x 7'(H) RCBC
  - Buried 1' with 2' sills in barrels 2 & 3
  - To be backfilled with mixture of Class B rip rap and native material
  - Inlet end
    - Inlet channel protection – Class I Rip Rap
    - Permanent impacts to construct channel tie in for overflow barrel
    - Temp impacts for dewatering
  - Outlet end
    - Outlet channel protection (rip rap in bottom of channel)
      - Flush with existing channel bed

Bank stabilization will be added at the inlet end and the summary will be updated

The outlet channel protection will be changed to Class I Rip Rap

Detail KKKK will be updated and made clear where we intend to use.

Site 26 - ESE-S26

- 7'(W) x 8'(H) RCBC
  - Buried 1' and to be backfilled with mixture of Class B rip rap and native material
  - Inlet end
    - Inlet channel protection – Class I Rip Rap
  - Temp impacts for dewatering Inlet end
    - Permanent impacts to construct channel tie in
    - Temp impacts for dewatering
  - Outlet end
    - Outlet channel protection (rip rap in bottom of channel)

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8 **TIP No.:** U-2579AB **County(ies):** Forsyth

General Project Information

WBS Element:	34839.1.8	**TIP Number:**	U-2579AB	**Project Type:** New Location	**Date:** 11/19/2018
NCDOT Contact:	Craig J Lee, PE	**Contractor / Designer:**	Wyatt D. Yelverton, PE		
Address:	1020 Birch Ridge Dr. Raleigh, NC 27610	**Address:**	555 Fayetteville St., Suite 900 Raleigh, NC 27601		
Phone:	919-707-6708	**Phone:**	919-232-6623		
Email:	cjlee@ncdot.gov	**Email:**	wyatt.yelverton@hdrinc.com		
City/Town:	Winston-Salem	**County(ies):**	Forsyth		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Wetlands within Project Limits?	Yes				

Project Description

Project Length (lin. miles or feet):	2.73 Miles	**Surrounding Land Use:**	Residential (Single Family)

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	530.0 ac.	90.0 ac.
Typical Cross Section Description:	6 lane divided freeway w/ an 18 foot grass median: (2) 12 foot outside paved shoulders, (3) 12 foot travel lanes, (2) 12 foot paved median shoulders - Total width of 146'	N/A - new alignment
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 20,200 Year: 2040	Existing: 14,700 Year: 2018

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

Project Description: The proposed project (U-2579AB) is part of the future I-74 Winston-Salem Northern Beltway from I-40 Bus/US 421 to I-40 and tying with the U-2579AA portion. The project will construct approximately 3 miles of 6-lane divided highway in new location. The project also includes widening of I-40 and 2 major interchanges: Kernersville Rd. and 3-level interchange at I-40. There are 2 proposed single barrel culvert crossings on the project at tributaries to Fiddlers Creek. There are no bridge crossings over major water bodies on the project. Pipe culverts will be used to convey all other jurisdictional stream crossings through the project. Wetlands are also located throughout the length of the entire project.

Impact Minimization Efforts: Guardrail with 2:1 slopes were utilized throughout the project to minimize surface water impacts to streams and wetlands. Ditches and pipes that outlet adjacent to wetlands have been designed to have non-erosive velocities to help protect the existing wetlands.

Stormwater BMP Measures: Stormwater control measures such as dry dentention and energy dissipator basins were proposed at specific locations along the project. Many ditches are designed to achieve grass swale credit.

Waterbody Information

Surface Water Body (1):	Fiddlers Creek		**NCDWR Stream Index No.:**	12-94-13-3	
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:	ESE-S8, ESE-S61, ESE-S11, ESE-S59, ESE-S12, ESE-S13, ESE-S14, ESE-S15, ESE-S16, ESE-S49, ESE-S51, ESE-S52, ESE-S56, ESE-S58, ESE-S25, ESE-S72, ESE-S50, ESE-S26		**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

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STORMWATER MANAGEMENT PLAN

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Additional Waterbody Information

Surface Water Body (2):	Fishers Branch		**NCDWR Stream Index No.:**	12-94-12-2-(1)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply III (WS-III)			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	ESE-S63, ESE-S69			**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):	Swaim Creek		**NCDWR Stream Index No.:**	12-94-13-1		
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:	ESE-S19, ESE-S42			**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

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WBS Element: 34839.1.8 **TIP No.:** U-2579AB **County(ies):** Forsyth

Swales

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4	-L- 692+33 M 36.1006784/-80.1362789	Fishers Branch	0.0	4.0	6.0	0.5	45	292	2.08%	1.3	1.9	1.6	2.1	No	No
5	-L- 703+50 M 36.0976758/-80.1380454	Fishers Branch	0.0	4.0	10.0	0.3	28	100	1.65%	0.9	1.5	1.2	1.6	No	No
5	-L- 704+50 M 36.0974187/-80.1381536	Fishers Branch	0.0	4.0	10.0	0.3	33	150	1.17%	1.1	1.4	1.4	1.5	No	No
5	-L- 704+50 RT 36.0974854/-80.1384480	Fishers Branch	0.0	4.0	4.0	0.1	14	150	1.60%	0.5	1.4	0.6	1.5	No	No
5	-L- 707+50 RT 36.0966710/-80.1387137	Fishers Branch	0.0	6.0	4.0	0.1	9	150	0.23%	0.2	0.5	0.2	0.6	No	No
5	-Y1B- 12+50 LT 36.10011150/-80.1391462	Fishers Branch	0.0	4.0	2.0	0.1	11	150	0.01%	0.4	0.2	0.5	0.2	No	No
5	-Y1B- 13+00 LT 36.1000860/-80.1390067	Fishers Branch	0.0	4.0	2.0	0.1	7	100	0.13%	0.2	0.5	0.3	0.5	No	No
5	-Y1B- 18+00 LT 36.0986947/-80.1384805	Fishers Branch	0.0	4.0	2.0	0.4	39	400	1.18%	1.3	1.7	1.6	1.9	No	No
5	-Y1B- 12+50 RT 36.0986184/-80.1389079	Fishers Branch	0.0	4.0	2.0	0.2	15	150	0.30%	0.4	0.8	0.5	0.8	No	No
5	-Y1B- 19+00 RT 36.0983349/-80.1387000	Fishers Branch	0.0	4.0	2.0	0.3	30	400	1.61%	0.6	1.7	0.8	1.8	No	No
5	-Y1B- 20+50 RT 36.0978718/-80.1385609	Fishers Branch	2.0	2.0	2.0	1.1	113	253	0.50%	3.2	1.4	4.0	1.5	No	No
6	-L- 706+00 M 36.0970192/-80.1382776	Fishers Branch	0.0	4.0	10.0	0.4	44	200	0.70%	1.4	1.2	1.8	1.3	No	No
6	-L- 708+00 M 36.0964794/-80.1384027	Fishers Branch	0.0	4.0	10.0	0.4	39	200	0.67%	1.3	1.2	1.7	1.2	No	No
6	-L- 710+00 M 36.0959338/-80.1384811	Fishers Branch	0.0	4.0	10.0	0.4	42	200	0.66%	1.4	1.2	1.7	1.3	No	No
6	-L- 712+00 M 36.0953852/-80.1385126	Fishers Branch	0.0	4.0	10.0	0.7	67	300	0.67%	2.2	1.3	2.8	1.4	No	No
6	-L- 715+00 M 36.0945621/-80.1384714	Fishers Branch	0.0	4.0	8.0	0.5	47	250	0.63%	1.5	1.2	1.9	1.3	No	No
6	-L- 717+50 M 36.0938820/-80.1383564	Fishers Branch	0.0	4.0	6.0	0.6	64	409	0.65%	2.1	1.4	2.6	1.5	No	No
6	-L- 710+50 LT 36.0956113/-80.1384356	Fishers Branch	0.0	6.0	4.0	1.3	128	250	0.50%	3.0	1.4	3.9	1.5	No	No
6	-L- 711+00 LT 36.0954521/-80.1382090	Fishers Branch	0.0	6.0	4.0	1.3	128	300	0.94%	3.0	1.8	3.9	1.9	No	No

Additional Comments

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

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WBS Element: 34839.1.8 **TIP No.:** U-2579AB **County(ies):** Forsyth

Swales

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6	-L- 711+00 LT 36.0954521/-80.1382090	Fishers Branch	0.0	6.0	4.0	2.0	197	389	0.30%	4.7	1.3	6.0	1.4	No	No
6	-L- 715+00 LT 36.0945983/-80.1381676	Fishers Branch	0.0	6.0	4.0	0.4	40	150	0.72%	1.0	1.2	1.3	1.3	No	No
6	-L- 715+00 LT 36.0945983/-80.1381676	Fishers Branch	0.0	6.0	6.0	0.7	74	250	0.83%	1.9	1.5	2.4	1.6	No	No
6	-L- 707+50 RT 36.0968041/-80.1386987	Fishers Branch	0.0	6.0	4.0	0.3	25	200	0.38%	0.4	0.8	0.5	0.8	No	No
6	-L- 709+50 RT 36.0960971/-80.1387955	Fishers Branch	0.0	6.0	4.0	1.6	164	609	0.47%	2.5	1.3	3.2	1.4	No	No
6	-L- 715+50 RT 36.0943983/-80.1387565	Fishers Branch	0.0	6.0	4.0	0.3	30	150	0.69%	0.7	1.1	0.9	1.2	No	No
6	-L- 715+50 RT 36.0943983/-80.1387565	Fishers Branch	0.0	6.0	4.0	0.3	31	150	0.54%	0.7	1.0	0.9	1.1	No	No
6	-L- 717+50 RT 36.0938372/-80.1386614	Fishers Branch	0.0	6.0	5.0	0.2	17	50	0.30%	0.4	0.7	0.5	0.7	No	No
6	-L- 719+50 RT 36.0932869/-80.1385279	Fishers Branch	0.0	6.0	6.0	0.8	75	200	0.30%	1.6	1.0	2.1	1.0	No	No
6	-L- 726+00 LT 36.0916661/-80.1374075	Fiddlers Creek	0.0	6.0	9.0	0.9	85	100	0.84%	2.0	1.4	2.6	1.5	No	No
6	-L- 726+00 LT 36.0916661/-80.1374075	Fiddlers Creek	0.0	6.0	8.0	1.4	136	300	0.66%	3.2	1.5	4.1	1.6	No	No
6	-L- 729+00 LT 36.0908643/-80.1371730	Fiddlers Creek	0.0	6.0	8.0	0.8	76	300	0.67%	2.1	1.3	2.7	1.4	No	No
6	-L- 730+00 LT 36.0905980/-80.1370899	Fiddlers Creek	0.0	6.0	8.0	0.8	76	200	1.58%	2.1	1.8	2.7	2.0	No	No
6	-L- 725+00 RT 36.0918243/-80.1380437	Fiddlers Creek	0.0	6.0	4.0	0.3	28	50	0.84%	0.7	1.2	0.9	1.2	No	No
6	-L- 726+50 RT 36.0914156/-80.1379661	Fiddlers Creek	0.0	6.0	4.0	0.9	90	150	0.72%	1.9	1.4	2.5	1.5	No	No
6	-L- 726+50 RT 36.0914156/-80.1379661	Fiddlers Creek	0.0	6.0	4.0	0.9	90	250	0.69%	1.9	1.4	2.5	1.5	No	No
6	-L-729+00 RT 36.0907482/-80.1377666	Fiddlers Creek	0.0	6.0	4.0	0.6	59	250	1.40%	1.7	1.8	2.1	1.9	No	No
6	-Y4RPC- 14+21 LT 36.0895946/-80.1375256	Fiddlers Creek	0.0	6.0	4.0	0.1	10	25	0.33%	1.2	0.6	0.3	0.7	No	No
6	-Y4RPC- 14+21 LT 36.0895946/-80.1375256	Fiddlers Creek	0.0	6.0	4.0	0.7	66	219	0.30%	1.6	1.0	2.0	1.1	No	No

Additional Comments

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6	-Y4RPD- 13+33 RT 36.0895455/-80.1366931	Fiddlers Creek	0.0	6.0	4.0	0.8	77	262	0.48%	2.2	1.3	2.8	1.4	No	No
6	-Y1B- 34+50 RT 36.0947968/-80.1356940	Fiddlers Creek	2.0	2.0	2.0	0.1	8	83	2.44%	0.2	1.0	0.3	1.1	No	No
6	-L- 708+00 LT 36.0964426/-80.1381046	Fiddlers Creek	0.0	2.0	2.0	0.4	40	75	1.60%	0.9	1.6	1.1	1.7	No	No
7	-L- 737+00 M 36.0918351/-80.1368794	Fiddlers Creek	0.0	6.0	5.0	0.4	35	335	1.33%	0.8	1.4	1.1	1.5	No	No
7	-L- 737+00 RT 36.0886700/-80.1368347	Fiddlers Creek	0.0	6.0	4.0	1.3	125	350	0.85%	3.0	1.7	3.8	1.8	No	No
7	-NWL1- 15+50 RT 36.0891145/-80.1377104	Fiddlers Creek	2.0	2.0	2.0	0.0	3	38	9.74%	0.1	1.0	0.1	1.1	No	No
7	-NWL1- 17+56 RT 36.0885768/-80.1375024	Fiddlers Creek	2.0	2.0	2.0	0.7	71	174	0.68%	1.7	1.3	2.2	2.4	No	No
7	-L- 733+18 RT 36.0895946/-80.1375256	Fiddlers Creek	0.0	2.0	2.0	0.2	24	52	2.32%	0.6	1.6	0.7	1.7	No	No
7	-L- 737+00 RT 36.0886700/-80.1368347	Fiddlers Creek	0.0	2.0	2.0	0.1	12	51	3.84%	0.3	1.7	0.4	1.8	No	No
7	-SR1- 16+50 RT 36.0878445/-80.1360991	Fiddlers Creek	0.0	2.0	2.0	0.4	39	166	2.20%	0.9	0.7	1.2	0.8	No	No
7	-SR1- 20+74 LT 36.0867225/-80.1356815	Fiddlers Creek	0.0	4.0	2.0	0.2	17	258	0.20%	0.4	1.7	0.5	1.8	No	No
7	-NWL1- 18+75 RT 36.0882617/-80.1374055	Fiddlers Creek	2.0	2.0	2.0	0.1	14	75	8.53%	0.3	1.8	0.4	1.9	No	No
7	-NWL1- 20+43 RT 36.0878133/-80.1372779	Fiddlers Creek	2.0	2.0	2.0	1.0	99	243	1.12%	2.3	1.7	3.0	1.8	No	No
7	-NWL1- 20+70 RT 36.0877397/-80.1372613	Fiddlers Creek	2.0	2.0	2.0	1.0	99	270	0.93%	2.3	1.6	3.0	1.7	No	No
8	-L- 754+00 RT 36.0840573/-80.1365954	Fiddlers Creek	2.0	2.0	2.0	0.2	17	50	2.80%	0.4	1.3	0.5	1.4	No	No
9	-L- 769+50 LT 36.0825232/-80.1358857	Fiddlers Creek	0.0	6.0	6.0	2.0	200	650	0.47%	6.4	1.6	8.3	1.7	No	No
9	-L- 762+50 M 36.0818518/-80.1363079	Fiddlers Creek	0.0	6.0	6.0	0.2	24	150	2.58%	0.5	1.6	0.7	1.7	No	No
9	-L- 770+50 M 36.0795198/-80.1364511	Fiddlers Creek	0.0	6.0	6.0	0.6	57	350	0.97%	1.5	1.4	1.9	1.5	No	No
9	-L- 773+50 M 36.0786967/-80.1365019	Fiddlers Creek	0.0	6.0	6.0	1.1	107	300	0.54%	2.8	1.4	3.5	1.4	No	No

Additional Comments

North Carolina Department of Transportation

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10	-Y15FLYBD- 25+50 LT 36.0782290/-80.1376728	Fiddlers Creek	0.0	2.0	2.0	0.9	94	175	0.31%	1.6	1.0	2.1	1.1	No	No
10	-Y15RPB- 20+50 LT 36.0759891/-80.1400686	Fiddlers Creek	0.0	2.0	2.0	1.4	140	175	1.05%	2.4	1.8	3.1	1.9	No	No
10	-L- 773+50 RT 36.0895296/-80.1374963	Fiddlers Creek	0.0	6.0	6.0	2.3	230	750	0.64%	5.9	1.8	7.6	1.9	No	No
10	-L- 790+50 RT 36.0741606/-80.1377016	Fiddlers Creek	0.0	6.0	4.0	0.4	37	175	1.86%	1.1	1.8	1.4	1.9	No	No
10	-L- 798+50 RT 36.0721321/-80.1386442	Fiddlers Creek	0.0	4.0	3.0	0.9	88	350	0.39%	2.3	1.3	2.9	1.4	No	No
10	-L- 774+50 LT 36.0784408/-80.1368754	Fiddlers Creek	0.0	6.0	4.0	1.9	193	800	0.87%	3.3	1.8	4.3	1.9	No	No
10	-L- 782+50 LT 36.0761947/-80.1364914	Fiddlers Creek	0.0	6.0	6.0	0.2	16	50	2.76%	0.4	1.6	0.5	1.7	No	No
10	-L- 790+00 LT 36.0741653/-80.1370800	Fiddlers Creek	0.0	2.0	2.0	0.3	34	225	1.76%	0.6	1.8	0.8	1.9	No	No
10	-L- 733+50 M 36.0896047/-80.1371120	Fiddlers Creek	0.0	6.0	5.0	1.6	160	850	0.67%	4.1	1.7	5.3	1.8	No	No
10	-L- 782+00 M 36.0762398/-80.1368252	Fiddlers Creek	0.0	6.0	5.0	0.9	92	450	0.67%	2.4	1.5	3.0	1.6	No	No
10	-L- 786+50 M 36.0751611/-80.1370823	Fiddlers Creek	0.0	6.0	5.0	0.8	76	350	0.84%	2.0	1.5	2.5	1.6	No	No
10	-L- 790+00 M 36.0742274/-80.1373641	Fiddlers Creek	0.0	6.0	5.0	0.4	43	200	1.72%	1.1	1.7	1.4	1.8	No	No
10	-Y15FLYCA- 76+20 RT 36.0781488/-80.1355575	Fiddlers Creek	0.0	6.0	4.0	0.3	32	270	3.81%	0.6	2.0	0.7	2.1	No	No
10	-Y15FLYBD- 60+50 RT 36.0713379/-80.1340468	Fiddlers Creek	0.0	6.0	6.0	0.1	13	150	1.07%	0.2	0.9	0.3	1.0	No	No
10	-Y15REV- 48+64 RT 36.0742992/-80.1367863	Fiddlers Creek	0.0	6.0	6.0	0.2	24	136	2.51%	0.7	1.7	0.9	1.8	No	No
10	-Y15REV- 52+50 RT 36.0743956/-80.1354862	Fiddlers Creek	0.0	6.0	4.0	0.6	61	320	0.56%	1.7	1.3	2.2	1.4	No	No
10	-Y15REV- 65+40 RT 36.0747188/-80.1311390	Fiddlers Creek	0.0	6.0	4.0	2.4	240	970	0.52%	6.2	1.7	7.9	1.8	No	No
10	-Y15REV- 49+40 LT 36.0748370/-80.1365888	Fiddlers Creek	0.0	6.0	4.0	0.1	10	66	0.43%	0.3	0.8	0.4	0.8	No	No
10	-Y15REV- 49+40 LT 36.0748370/-80.1365888	Fiddlers Creek	0.0	6.0	4.0	0.8	76	310	0.81%	2.3	1.6	2.9	1.7	No	No

Additional Comments

WBS Element: 34839.1.8 **TIP No.:** U-2579AB **County(ies):** Forsyth

Swales

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10	-Y15REV- 54+00 LT 36.0749751/-80.1350413	Fiddlers Creek	0.0	6.0	6.0	0.2	24	100	3.66%	0.7	2.0	0.9	2.1	No	No
10	-Y15REV- 54+00 LT 36.0749751/-80.1350413	Fiddlers Creek	0.0	6.0	6.0	2.1	211	225	0.44%	5.4	1.5	7.0	1.6	No	No
10	-Y15LPA- 18+30 RT 36.0759679/-80.1357773	Fiddlers Creek	0.0	2.0	2.0	0.4	36	88	0.31%	0.8	0.8	1.0	0.9	No	No
10	-Y15LPA- 18+30 RT 36.0759679/-80.1357773	Fiddlers Creek	0.0	2.0	2.0	0.8	84	117	0.57%	1.8	1.3	2.3	1.4	No	No
11	-Y16- 28+50 RT 36.0674483/-80.1397486	Fiddlers Creek	0.0	4.0	2.0	0.2	24	131	1.80%	0.6	1.7	0.8	1.8	No	No
11	-Y16B- 12+50 LT 36.0672495/-80.1399005	Fiddlers Creek	0.0	4.0	2.0	0.3	25	138	0.34%	0.5	0.9	0.7	0.9	No	No
11	-Y16B- 12+00 RT 36.0671058/-80.1397792	Fiddlers Creek	0.0	4.0	2.0	0.1	11	125	0.86%	0.3	1.1	0.4	1.1	No	No
11	-L- 801+50 M 36.0712502/-80.1386544	Fiddlers Creek	0.0	6.0	6.0	0.5	47	250	1.28%	1.2	1.5	1.6	1.6	No	No
11	-L- 804+00 M 36.0706260/-80.1390070	Fiddlers Creek	0.0	6.0	6.0	0.9	94	500	0.63%	2.4	1.4	3.1	1.5	No	No
11	-L- 809+00 M 36.0694072/-80.1397865	Fiddlers Creek	0.0	6.0	6.0	0.5	52	250	0.53%	1.3	1.1	1.7	1.2	No	No
11	-L- 811+50 M 36.0688140/-80.1402126	Fiddlers Creek	0.0	6.0	6.0	0.3	33	150	0.53%	0.9	1.0	1.1	1.1	No	No
11	-L- 813+00 M 36.0684636/-80.1404796	Fiddlers Creek	0.0	6.0	6.0	1.7	172	1000	0.77%	4.4	1.4	5.7	1.5	No	No
11	-L- 823+00 M 36.0661876/-80.1423738	Swaim Creek	0.0	6.0	6.0	0.4	37	230	0.34%	1.0	0.7	1.2	0.8	No	No
11	-L- 825+30 M 36.0656658/-80.1428127	Swaim Creek	0.0	6.0	6.0	0.4	35	220	0.33%	0.9	0.7	1.2	0.8	No	No
11	-Y15RPD- 33+32 LT 36.0689516/-80.1394923	Fiddlers Creek	0.0	6.0	4.0	1.4	141	582	1.74%	3.0	1.9	3.9	2.0	No	No
11	-Y15RPD- 34+89 LT 36.0686338/-80.1398458	Fiddlers Creek	0.0	4.0	4.0	2.4	239	738	0.29%	5.1	1.4	6.6	1.5	No	No
11	-Y15FLYAC- 79+00 RT 36.0690725/-80.1409880	Fiddlers Creek	0.0	6.0	6.0	0.2	23	100	0.35%	0.5	0.8	0.6	0.8	No	No
11	-Y15FLYAC- 84+23 RT 36.0677911/-80.1417327	Fiddlers Creek	0.0	6.0	4.0	1.5	146	200	0.73%	3.1	1.6	4.0	1.7	No	No
11	-L- 801+50 LT 36.0711493/-80.1383719	Fiddlers Creek	0.0	6.0	4.0	0.4	36	250	1.28%	0.8	1.4	1.0	1.5	No	No

Additional Comments

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8 **TIP No.:** U-2579AB **County(ies):** Forsyth

Swales

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11	-L- 804+00 LT 36.0705181/-80.1387291	Fiddlers Creek	0.0	6.0	6.0	1.1	105	500	0.63%	2.3	1.4	2.9	1.5	No	No
11	-L- 809+00 LT 36.0692854/-80.1395192	Fiddlers Creek	0.0	6.0	6.0	0.2	22	150	1.98%	0.5	1.4	0.6	1.5	No	No
11	-L- 812+50 LT 36.0684155/-80.1400668	Fiddlers Creek	0.0	4.0	4.0	1.0	100	350	0.63%	2.2	1.4	2.8	1.4	No	No
11	-L- 823+00 LT 36.0660109/-80.1420552	Fiddlers Creek	0.0	6.0	6.0	1.7	169	501	0.31%	3.6	1.3	4.7	1.4	No	No
11	-L- 804+00 RT 36.0707343/-80.1392850	Fiddlers Creek	0.0	6.0	4.0	0.9	94	450	0.64%	2.4	1.5	3.1	1.6	No	No
11	-L- 809+50 RT 36.0694122/-80.1401388	Fiddlers Creek	0.0	4.0	4.0	0.7	74	148	1.62%	1.3	2.0	2.0	2.1	No	No
11	-L- 811+00 RT 36.0690598/-80.1403898	Fiddlers Creek	0.0	6.0	4.0	0.7	74	200	0.53%	1.3	1.2	2.0	1.3	No	No
11	-L- 813+00 RT 36.0685972/-80.1407396	Fiddlers Creek	0.0	6.0	6.0	1.5	146	300	0.33%	3.1	1.2	4.0	1.2	No	No
11	-L- 816+00 RT 36.0679192/-80.1412983	Fiddlers Creek	0.0	6.0	6.0	1.5	146	300	0.49%	3.1	1.4	4.0	1.4	No	No
11	-L- 827+50 RT 36.0653701/-80.1435992	Swaim Creek	0.0	4.0	4.0	2.0	200	650	0.30%	4.3	1.3	5.5	1.4	No	No
11	-Y15RPC- 28+90 RT 36.0683966/-80.1414094	Fiddlers Creek	0.0	6.0	4.0	0.7	72	365	0.35%	1.5	1.0	2.0	1.1	No	No
11	-Y15RPC- 31+36 RT 36.0677911/-80.1417320	Fiddlers Creek	0.0	6.0	4.0	1.5	145	246	0.57%	3.1	1.5	4.0	1.6	No	No
11	-Y15RPC- 19+50 RT 36.0705722/-80.1421520	Fiddlers Creek	0.0	2.0	2.0	0.2	17	48	5.24%	0.4	2.0	0.5	2.1	No	No
11	-Y16- 16+10 LT 36.0666229/-80.1438385	Fiddlers Creek	0.0	4.0	2.0	0.8	83	290	1.26%	1.8	2.0	2.3	1.1	No	No
11	-Y16- 16+00 RT 36.0664973/-80.1438209	Swaim Creek	0.0	4.0	2.0	0.2	20	150	0.77%	0.6	1.2	0.8	1.3	No	No
11	-Y16C- 19+36 LT 36.0674474/-80.1405360	Fiddlers Creek	0.0	3.0	2.0	0.8	80	236	0.25%	1.9	1.1	2.2	1.1	No	No
11	-DR1- 10+90 RT 36.0651152/-80.1410598	Swaim Creek	0.0	3.0	2.0	0.4	43	127	0.30%	1.2	1.0	1.5	1.1	No	No
12	-L- 827+50 M 36.0651668/-80.1432325	Swaim Creek	0.0	6.0	6.0	0.4	35	225	0.32%	0.9	0.7	1.2	0.7	No	No
12	-L- 833+50 M 36.0638058/-80.1443775	Swaim Creek	0.0	6.0	6.0	1.0	96	600	1.55%	2.7	2.0	3.2	2.1	No	No

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12	-L- 836+32 M 36.0631661/-80.1449156	Swaim Creek	0.0	6.0	6.0	0.5	45	282	2.38%	1.2	1.9	1.5	2.0	No	No
13	-Y4- 18+25 LT 36.0910900/-80.1418435	Fiddlers Creek	0.0	4.0	2.0	1.8	176	225	0.24%	4.2	1.3	5.3	1.4	No	No
13	-Y4A- 14+92 RT 36.0921054/-80.1424339	Fiddlers Creek	0.0	4.0	5.0	0.4	35	342	1.08%	1.0	1.6	1.3	1.7	No	No
13	-Y4- 17+30 RT 36.0907011/-80.1419223	Fiddlers Creek	0.0	4.0	2.0	0.5	51	160	1.32%	1.4	1.9	1.8	2.0	No	No
13	-Y4- 18+90 RT 36.0909197/-80.1414658	Fiddlers Creek	0.0	4.0	2.0	0.0	4	35	0.80%	0.1	0.8	0.1	0.9	No	No
14	-Y1B- 40+50 LT 36.0943796/-80.1336890	Fiddlers Creek	0.0	4.0	2.0	0.1	7	50	2.76%	0.2	1.5	0.3	1.6	No	No
14	-Y1B- 40+50 LT 36.0943796/-80.1336890	Fiddlers Creek	0.0	4.0	2.0	1.0	103	417	0.31%	2.9	1.3	3.7	1.4	No	No
14	-Y4- 45+50 LT 36.0943101/-80.1334953	Fiddlers Creek	0.0	4.0	2.0	0.7	69	350	0.70%	1.9	1.6	2.5	1.7	No	No
14	-Y4- 46+50 LT 36.0944003/-80.1331776	Fiddlers Creek	0.0	4.0	2.0	0.7	69	250	1.23%	1.9	2.0	2.5	2.1	No	No
14	-Y4- 54+50 RT 36.0950524/-80.1305619	Fiddlers Creek	0.0	4.0	2.0	0.5	53	200	0.47%	1.5	1.3	1.9	1.4	No	No
14	-Y4- 47+50 RT 36.0941757/-80.1326709	Fiddlers Creek	0.0	4.0	2.0	1.1	114	500	0.75%	3.2	1.9	4.1	2.0	No	No
14	-Y4- 42+50 LT 36.0939850/-80.1344285	Fiddlers Creek	0.0	2.0	2.0	0.4	44	102	2.69%	0.8	1.9	1.0	2.0	No	No
15	-Y4- 60+50 RT 36.0958418°, -80.1287779	Fiddlers Creek	0.0	4.0	2.0	0.2	22	277	1.88%	0.6	1.7	0.8	1.9	No	No
15	-Y4- 56+67 LT 36.0955228/-80.1300250	Fiddlers Creek	0.0	4.0	2.0	0.4	42	167	0.42%	1.2	1.9	1.5	2.0	No	No
17	-Y15- 36+88 RT 36.0695360/-80.1557027	Fiddlers Creek	0.0	4.0	4.0	1.1	111	248	0.31%	2.6	1.2	3.4	1.3	No	No
17	-Y15- 37+25 RT 36.0695845°/-80.1555924	Fiddlers Creek	0.0	2.0	2.0	1.2	119	164	0.60%	2.3	1.4	3.0	1.5	No	No
17	-Y15- 43+30 RT 36.0703075/-80.1537474	Fiddlers Creek	0.0	6.0	4.0	1.3	128	520	0.44%	3.6	1.4	4.6	1.5	No	No
18	-Y15FLYCA- 12+52 RT 36.0710359/-80.1520417	Fiddlers Creek	0.0	6.0	4.0	0.1	11	52	4.04%	0.3	1.8	0.4	1.9	No	No
18	-Y15FLYCA- 16+72 RT 36.0714922/-80.1507606	Fiddlers Creek	0.0	6.0	4.0	0.5	47	278	1.18%	1.0	1.5	1.4	1.6	No	No

Additional Comments

Swales

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18	-Y15FLYCA- 16+72 RT 36.0714922/-80.1507606	Fiddlers Creek	0.0	2.0	2.0	0.1	8	76	5.56%	0.1	1.5	0.2	1.6	No	No
18	-Y15FLYCA- 18+93 LT 36.0718731/-80.1501056	Fiddlers Creek	0.0	6.0	6.0	0.7	67	195	0.98%	1.9	1.5	2.4	1.6	No	No
18	-Y15FLYCA- 16+72 RT 36.0715505/-080.1498332	Fiddlers Creek	2.0	2.0	2.0	0.5	47	281	3.58%	0.7	1.7	0.9	1.9	No	No
18	'-Y15FLYCA- 17+50 RT 36.0715544/-80.1505121	Fiddlers Creek	2.0	2.0	2.0	0.5	47	203	4.86%	0.7	1.9	0.9	2.1	No	No
19	-Y15REV- 17+50 RT 36.0730679/-80.1470982	Fiddlers Creek	0.0	6.0	4.0	2.0	200	366	0.75%	4.5	1.8	5.7	1.9	No	No
19	-Y15REV- 30+50 LT 36.0743828/-80.1429621	Fiddlers Creek	0.0	6.0	6.0	1.9	187	200	0.30%	3.2	1.1	4.1	1.2	No	No
20	-Y15FLYBD- 76+00 RT 36.0730686/-80.1293328	Fiddlers Creek	0.0	6.0	4.0	0.3	29	100	2.64%	0.6	1.8	0.8	1.9	No	No
20	-Y15FLYBD- 87+60 RT 36.0742539/-80.1258580	Fiddlers Creek	0.0	6.0	4.0	0.6	57	260	2.17%	1.2	2.0	1.6	2.1	No	No
20	-NWY15FLYBD- 32+90 RT 36.0744672/-80.1247066	Fiddlers Creek	0.0	2.0	2.0	0.4	42	275	2.31%	0.7	1.7	0.9	1.9	No	No
20	-Y15FLYBD- 87+60 LT 36.0748911/-80.1260916	Fiddlers Creek	0.0	6.0	4.0	0.4	36	235	2.17%	0.8	1.7	1.0	1.9	No	No
20	-Y15REV- 80+50 RT 36.0748897/-80.1260687	Fiddlers Creek	0.0	4.0	4.0	1.0	103	300	0.86%	2.2	1.7	2.8	1.8	No	No
20	-Y15REV- 73+50 LT 36.0754219/-80.1284513	Fiddlers Creek	0.0	2.0	2.0	0.9	94	152	1.48%	2.4	2.0	3.0	2.1	No	No
20	-Y15REV- 65+34 LT 36.0751944/-80.1312128	Fiddlers Creek	0.0	6.0	4.0	3.3	332	759	0.34%	7.1	1.5	9.1	1.6	No	No
20	-Y15REV- 66+00 LT 36.0752319/-80.1309927	Fiddlers Creek	0.0	6.0	4.0	0.1	12	66	2.71%	0.3	1.4	0.3	1.5	No	No
20	-Y15REV- 67+50 LT 36.0752694/-80.1304873	Fiddlers Creek	0.0	6.0	4.0	0.4	40	216	0.59%	1.0	1.1	1.3	1.2	No	No
20	-Y15REV- 69+40 LT 36.0754002/-80.1298561	Fiddlers Creek	0.0	2.0	2.0	0.8	75	406	1.83%	1.6	1.9	2.1	2.1	No	No
21	-Y15FLYCA- 17+60 RT 36.0714969/-80.1504588	Fiddlers Creek	2.0	2.0	2.0	1.4	135	183	1.09%	4.2	2.0	5.4	2.1	No	No
21	-Y15FLYCA- 14+60 RT 36.0712785/-80.1514355	Fiddlers Creek	0.0	6.0	4.0	0.5	52	150	1.73%	1.6	1.9	2.0	2.0	No	No
22	-Y15- 154+00 RT 36.0748506/-80.1176827	Fiddlers Creek	0.0	6.0	4.0	1.7	168	300	0.76%	4.3	1.8	5.5	1.9	No	No

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22	-Y15- 156+34 LT 36.0754157/-80.1168869	Fiddlers Creek	0.0	4.0	6.0	0.7	72	316	1.86%	1.5	2.0	2.0	2.1	No	No
23	-Y15- 163+19 LT 36.0753978/-80.1145691	Fiddlers Creek	0.0	6.0	4.0	1.5	152	339	0.81%	3.6	1.8	4.6	1.9	No	No
23	-Y15- 166+58 LT 36.0754240/-80.1134257	Fiddlers Creek	0.0	8.0	6.0	0.4	39	216	0.67%	1.2	1.2	1.5	1.2	No	No
23	-UXRPC- 20+75 LT 36.0761330/-80.1111572	Fiddlers Creek	0.0	6.0	4.0	0.1	14	125	0.36%	0.2	1.7	0.3	1.9	No	No
25	-NWY15FLYBD- 16+00 RT 36.072505/-80.1297928	Fiddlers Creek	0.0	2.0	2.0	0.1	12	111	2.03%	0.3	1.3	0.3	1.4	No	No
26	-Y5B- 17+00 LT 36.0782941/-80.1297071	Fiddlers Creek	0.0	4.0	2.0	0.1	6	50	0.76%	0.1	0.6	0.1	0.6	No	No

Additional Comments

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
6	-Y4- 40+43 RT 36.0933054/-80.1348169	(1)Fiddlers Creek	Riprap Energy Dissipator Basin	Class II	15.3	Pipe	36	31.8	1.0	N/A
7	-SR1- 16+49 LT 36.0878896/-80.1358437	(1)Fiddlers Creek	Riprap Energy Dissipator Basin	Class II	6.9	Pipe	30	21.0	1.0	N/A
9	-Y15FLYCA- 84+63 RT 36.0804600/-80.1358013	(1)Fiddlers Creek	PSH	Class 'B'	2.2	Pipe	18	7.4	0.4	N/A
10	-Y15FLYAC- 47+32 LT 36.0751525/-80.1338670	(1)Fiddlers Creek	PSH	Class 'B'	0.2	Pipe	15	0.7	0.2	N/A
10	-Y15RPB- 11+38 RT 36.0783088/-80.1387240	(1)Fiddlers Creek	PSH	Class 'B'	0.8	Pipe	18	3.2	0.3	N/A
10	-Y15REV- 45+38 RT 36.0741738/-80.1378812	(1)Fiddlers Creek	PSH	Class 'B'	0.2	Pipe	15	0.7	0.2	N/A
17	-Y15- 40+75 LT 36.0704817/-80.1549808	(1)Fiddlers Creek	PSH	Class 'B'	0.1	Pipe	15	0.6	0.2	N/A
18	-Y15- 50+50 LT 36.0717813/-80.1519421	(1)Fiddlers Creek	PSH	Class 'B'	0.3	Pipe	15	1.2	0.2	N/A
18	-Y15- 52+50 LT 36.0720079/-80.1513254	(1)Fiddlers Creek	PSH	Class 'B'	0.4	Pipe	15	2.0	0.2	N/A
18	-Y15- 55+50 LT 36.0724066/-80.1504363	(1)Fiddlers Creek	PSH	Class 'B'	0.4	Pipe	15	1.9	0.2	N/A
18	-Y15- 56+00 LT 36.0724731/-80.1502878	(1)Fiddlers Creek	Riprap Energy Dissipator Basin	Class II	42.4	Pipe	48	81.0	1.2	N/A
20	-Y15RPA- 13+58 RT 36.0765661/-80.1301464	(1)Fiddlers Creek	PSH	Class 'B'	0.3	Pipe	15	1.4	0.2	N/A
23	-Y15- 13+51 LT 36.0754558/-80.1133873	(1)Fiddlers Creek	PSH	Class 'B'	0.3	Pipe	15	1.5	0.2	N/A

Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 34839.1.8 **TIP No.:** U-2579AB **County(ies):** Forsyth

Other Best Management Practices

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Upon Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
4	-L- 691+50 RT 36.1004345/-80.1370537	(2)Fishers Branch	Dry Detention Basin	33.1	6.5	0.73	1.41	No
7	-SR1- 12+00 LT 36.0890563/-80.1359067	(1)Fiddlers Creek	Dry Detention Basin	21.6	1.8	0.18	1.29	No

Additional Comments

U-2579AB Culvert Buried vs Not Buried Summary			
Permit Site #	**Plan Sheet**	**Culvert Size**	**Buried (Yes/No)**
1	6	30" RCP III	No
2	6	36" CSP	No
3	7 & 8	54" RCP IV	No
4	8	NA	NA
4A	8	NA	NA
4B	8	NA	NA
5	8	NA	NA
5A	8	NA	NA
6	9	2@ 12' x 10' RCBC	Yes
6A	9	NA	NA
7	10	54" RCP IV	No
7A	10	NA	NA
8	10	42" RCP III	No
9	10	6' x 7' RCBC	Yes
10	10	60" RCP V	No
~~11~~			
12	11	5' x 6' RCBC	No
12A	11	NA	NA
12B	11	NA	NA
13	12	36" RCP LRDF Design	No
13A	12	36" RCP LRDF Design	No
14	16	72" RCP III	Yes
14A	16	NA	NA
15	18	42" RCP III	No
16	19	54" RCP III	No
17	19	8' x 6' RCBC	No
17A	19	NA	NA
17B	19	NA	NA
17C	19	NA	NA
18	20	NA	NA
19	20	60" RCP LRFD Design	No
20	21	60" RCP III	No
21	22	60" RCP III	No
22	23	42" RCP III	No
23	12	NA	NA
23A	12	NA	NA
24	25	NA	NA
25	26	3@ 12' x 7' RCBC	Yes
26	26	7' x 8' RCBC	Yes
27	17	42" RCP III	No
28	19	NA	NA
29	19	36" RCP IV	No
30	19	NA	NA

09/08/99

TIP PROJECT: U-2579AB

CONTRACT: _____

See Sheet 1-A For Index of Sheets

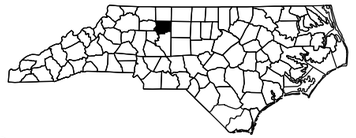
VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

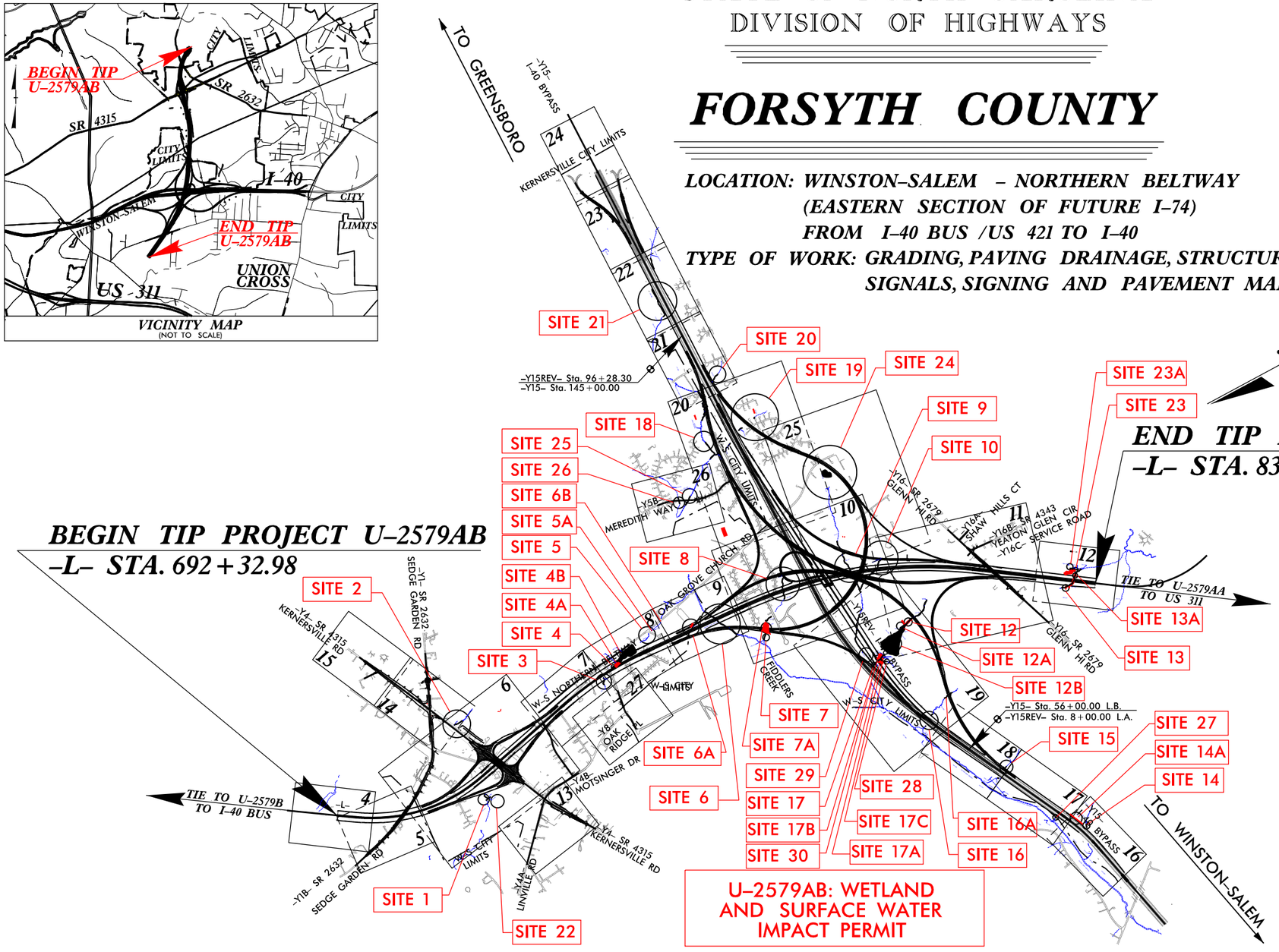
FORSYTH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34839.1.8		P.E.



LOCATION: WINSTON-SALEM – NORTHERN BELTWAY
(EASTERN SECTION OF FUTURE I-74)
FROM I-40 BUS /US 421 TO I-40
TYPE OF WORK: GRADING, PAVING DRAINAGE, STRUCTURES
SIGNALS, SIGNING AND PAVEMENT MARKERS



BEGIN TIP PROJECT U-2579AB
-L- STA. 692+32.98

END TIP PROJECT U-2579AB
-L- STA. 836+32.44

U-2579AB: WETLAND AND SURFACE WATER IMPACT PERMIT

PERMIT DRAWING
SHEET 1 OF 78

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 14,700
ADT 2040 = 20,200
K = 9 %
D = 70 %
T = 7 % *
V = 70 MPH
* TTST = 4% DUAL = 3%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2579AB = 2.727 MILES
TOTAL LENGTH TIP PROJECT U-2579AB = 2.727 MILES

Prepared in the Office of:
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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
TBD

LETTING DATE:
TBD

PHILLIP E. ROGERS, PE
PROJECT ENGINEER

CASEY E. HARRIS, PE
PROJECT DESIGN ENGINEER

TATIA L. WHITE, PE, PLS
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_TSH.tbl
USER: NWOMACK DATE: 10/19/2020 TIME: 11:44:22 AM
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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GRAPHIC SCALE 50 25 0 50 100

NAD '83/'95

SITE 2

ESE-S8

LEGEND:
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL EEE
RIP-RAPPED ENERGY DISSIPATOR BASIN

W	A	B	C	D	E	F	G
18	5	10	15	3	3	10	15
24	7	14	20	4	4	14	20
30	9	18	25	5	5	18	25
36	11	22	30	6	6	22	30
42	13	26	35	7	7	26	35
48	15	30	40	8	8	30	40

RIP-RAP CLASS	DIAMETER (IN. OR FT.)
I	4 TO 8 IN.
II	8 TO 15 IN.
III	15 TO 21 IN.
IV	21 TO 30 IN.

PLAN
L SECTION
7-08

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
NATURAL BED ELEVATION
GRADE
GEOTEXTILE
1.5' min
Type of grade: 1% Positive
SEA: 40 / 50 / 60 lb/yd²

SEE SHEET 6B

SITE 1

SITE 22

ESE-S63

ESE-W54

ESE-S69

SEE SHEET 6A

INSET 1
MATCHLINE -Y6- STA. 13+00.00
SEE THIS SHEET

MATCHLINE -Y6- STA. 13+00.00
SEE INSET 1

MATCHLINE SHEET 7 -Y4- STA. 21+00.00

END FENCE

NOTES:
SEE SHEETS 28 AND 29 FOR -L- PROFILE
SEE SHEETS 28-5 FOR -Y4DET- DETOUR PLANS AND CURVE DATA
SEE SHEET 36 AND 37 FOR -Y4- PROFILE
SEE SHEET 38 FOR -Y4DET- PROFILE
SEE SHEET 39 FOR -Y4RPA- PROFILE
SEE SHEET 43 FOR -Y4SPA- PROFILE
SEE SHEET 40 FOR -Y4RPB- PROFILE
SEE SHEET 43 FOR -Y4SPB1- AND -Y4SPB2- PROFILES
SEE SHEET 41 FOR -Y4RPC- PROFILE
SEE SHEET 43 FOR -Y4SPC- PROFILE
SEE SHEET 42 FOR -Y4RPD- PROFILE
SEE SHEET 42 FOR -Y4SPD1- AND -Y4SPD2- PROFILES
SEE SHEETS 34 AND 35 FOR -Y1B- PROFILE
SEE SHEET 28-4 FOR -Y1BDET- DETOUR PLANS AND CURVE DATA
SEE SHEET 35 FOR -Y1BDET- PROFILE
SEE SHEET 73 FOR -Y6- PROFILE

PERMIT DRAWING SHEET 2 OF 78

REVISIONS
ROW REV. – SEPTEMBER 10, 2018 – ROW LINE ON PARCEL 45 MODIFIED TO ELIMINATE DUE AND ENCOMPASS ENTIRE PARCEL IN ROW. DUE AND ROW LINE MODIFIED ON PARCEL 46 TO TIE TO NEW ROW LINE. CEH
ROW REV. – AUGUST 12, 2019 – PROPERTY LINE WAS ADDED TO PARCEL 39 FOR DRIVEWAY ACCESS. ADDITION OF PARCEL 39A. CEH.
ROW REV. – MARCH 25, 2020 – PERMANENT UTILITY EASEMENT ADDED TO PARCEL 14A (NEW CLAIM). SMP.

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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50 25 0 50 100
GRAPHIC SCALE

SITE 2

ESE-S8

LEGEND:

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD '83/'95

DETAIL EEE
RIP-RAPPED ENERGY DISSIPATOR BASIN

RIP RAP SIZE	A	B	C	D
#1	3	5	3	1
#2	4	6	4	1
#3	5	7	5	2
#4	6	8	6	2
#5	7	9	7	3
#6	8	10	8	3
#7	9	11	9	4
#8	10	12	10	4

ALL DIMENSIONS ARE IN FEET

RIP RAP	DIAMETER	MIN. DEPTH
#1	4"	1'-0"
#2	6"	1'-0"
#3	9"	1'-6"
#4	12"	2'-0"
#5	15"	2'-6"
#6	18"	3'-0"
#7	21"	3'-6"
#8	24"	4'-0"

PLAN

SECTION E-E

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM

Type of grade 10 Medium

STA. 40+00 -Y4- RT

SEE SHEET 6B

SEE SHEET 6A

SITE 1

SITE 22

ESE-S63

ESE-S69

ESE-W54

INSET 1

MATCHLINE -Y6- STA. 13+00.00
SEE THIS SHEET

MATCHLINE -Y6- STA. 13+00.00
SEE INSET 1

MATCHLINE SHEET 7 -L- STA. 233+00.00

MATCHLINE SHEET 7 -L- STA. 230+50.00

MATCHLINE SHEET 7 -L- STA. 231+00.00

MATCHLINE SHEET 13 -Y4- STA. 21+00.00

END FENCE

NOTES:
SEE SHEETS 28 AND 29 FOR -L- PROFILE
SEE SHEETS 28-5 FOR -Y4101ET- DETOUR PLANS AND CURVE DATA
SEE SHEET 36 AND 37 FOR -Y4- PROFILE
SEE SHEET 38 FOR -Y4101ET- PROFILE
SEE SHEET 39 FOR -Y4RPA- PROFILE
SEE SHEET 43 FOR -Y4SPA- PROFILE
SEE SHEET 40 FOR -Y4RPB- PROFILE
SEE SHEET 43 FOR -Y4SPB1- AND -Y4SPB2- PROFILES
SEE SHEET 41 FOR -Y4RPC- PROFILE
SEE SHEET 43 FOR -Y4SPC- PROFILE
SEE SHEET 42 FOR -Y4RPD- PROFILE
SEE SHEET 42 FOR -Y4SPD1- AND -Y4SPD2- PROFILES
SEE SHEETS 34 AND 35 FOR -Y11B- PROFILE
SEE SHEET 28-4 FOR -Y11BDET- DETOUR PLANS AND CURVE DATA
SEE SHEET 35 FOR -Y11BDET- PROFILE
SEE SHEET 73 FOR -Y6- PROFILE

PERMIT DRAWING SHEET 3 OF 78

REVISIONS

ROW REV. – SEPTEMBER 10, 2018 – ROW LINE ON PARCEL 45 MODIFIED TO ELIMINATE DUE AND ENCOMPASS ENTIRE PARCEL IN ROW. DUE AND ROW LINE MODIFIED ON PARCEL 46 TO TIE TO NEW ROW LINE. CEH
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ROW REV. – MARCH 25, 2020 – PERMANENT UTILITY EASEMENT ADDED TO PARCEL 14A (NEW CLAIM). SMP.

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	6A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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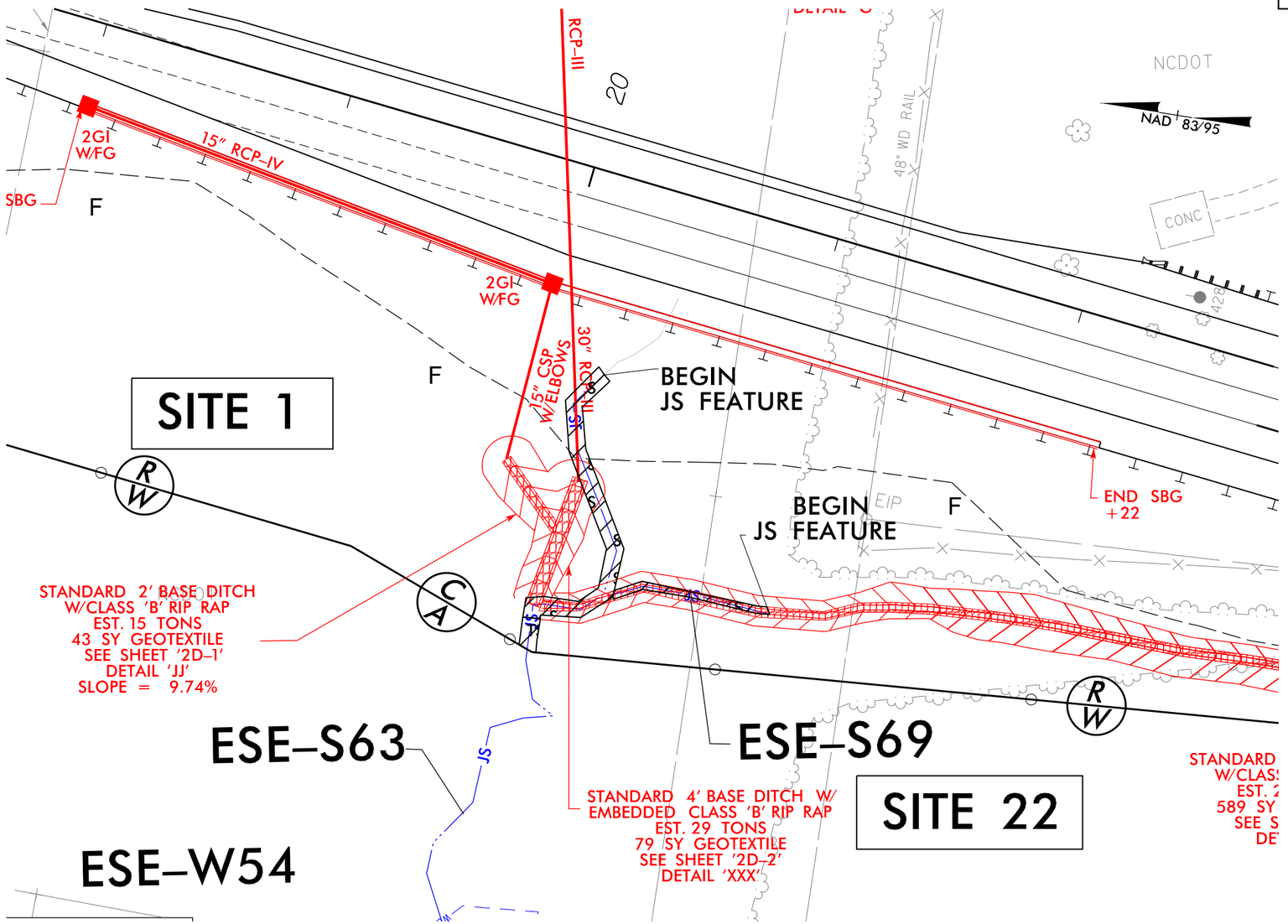
12.5 0 12.5 25
GRAPHIC SCALE

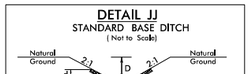
LEGEND:

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DETAIL JJ
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap
FROM STA. 20+00 TO STA. 20+29 –Y4RPB– RT
FROM STA. 22+25 TO STA. 22+79 –Y4RPB– RT

DETAIL XXX
STANDARD BASE DITCH
(Not to Scale)

Type of Liner= Class B Rip-Rap
FROM STA. 20+29 TO STA. 20+29 –Y4RPB– RT
FROM STA. 16+57 TO 16+57 –Y15RPA– RT

PERMIT DRAWING
SHEET 4 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.pit
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	6B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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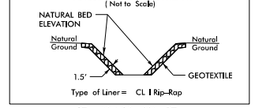
GRAPHIC SCALE 12.5 0 12.5 25

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)



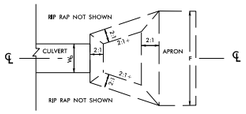
Type of Liner = CL I Rip-Rap

STA. 40+80 -Y4- RT

DETAIL EEE
RIP-RAPPED ENERGY DISSIPATOR BASIN

DIM. (ft)	RIP RAP BASIN #		
		2	3
A	3	3	3
B	2	2	2
C	2	2	2
D	1	1	1
E	10	10	10
F	25	12	12
G	25	12	12

ALL DIMENSIONS APPROXIMATE



PLAN

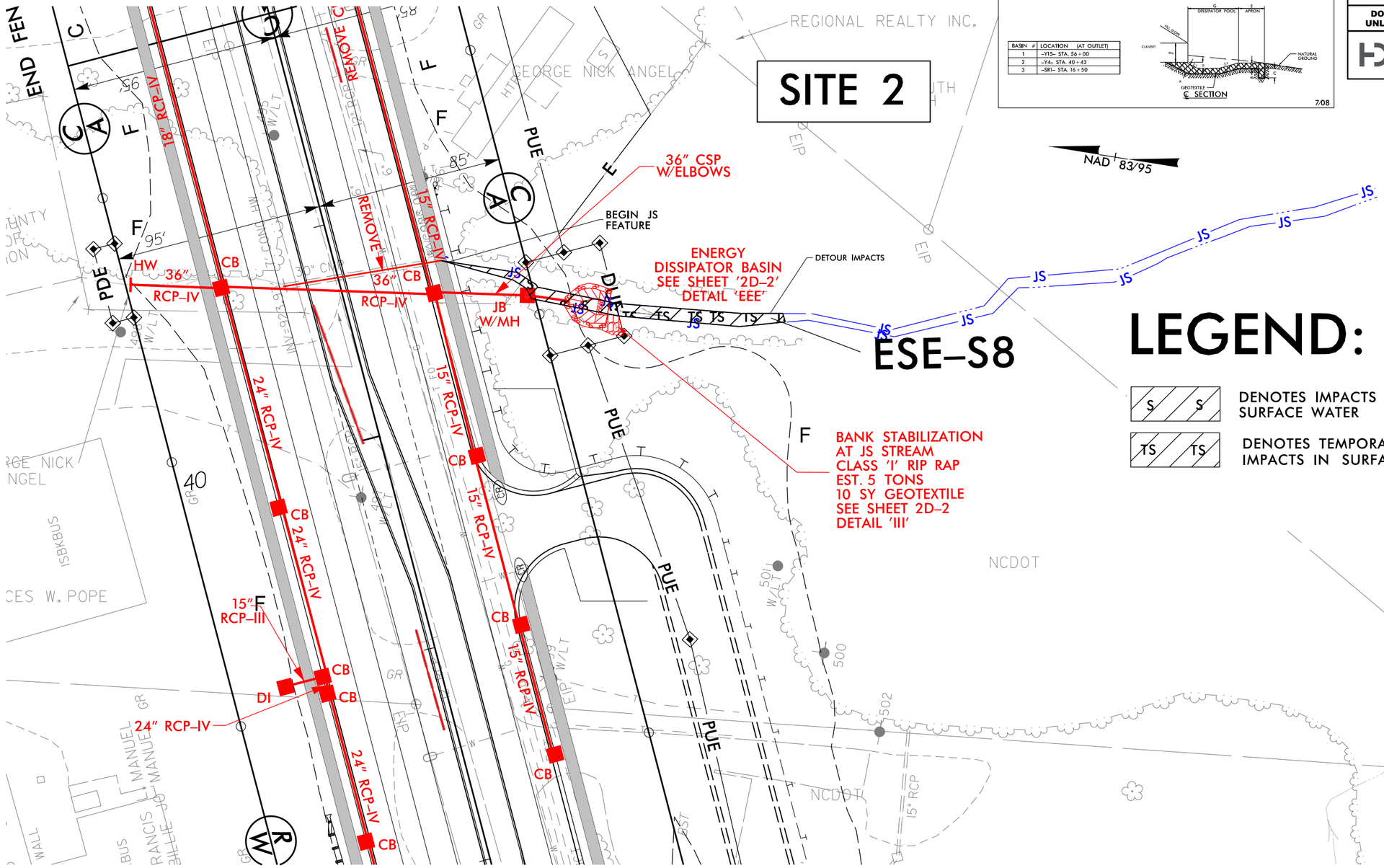
℄ SECTION

BASIN #	LOCATION (AT OUTLET)
1	-Y15- STA. 56+00
2	-Y4- STA. 40+43
3	-SR1- STA. 16+50

7/08

SITE 2

NAD 83/95



LEGEND:

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 5 OF 78

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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LEGEND:

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/95

25 12.5 0 25 50
GRAPHIC SCALE

ORIGIN OF JURISDICTIONAL STREAM
BEGIN JS FEATURE
DRY DETENTION BASIN SEE SHEET 2D-4 OUTLET CONTROL STRUCTURE SEE SHEET 2D-4 W/SLUICE GATE AND TRASH RACK
TOP OF BERM 912.50
BASIN BOTTOM 907.0
CLASS 'B' RIP RAP EST. 27 TONS 60 SY GEOTEXTILE
CLASS 'I' RIP RAP EST. 20 TONS 39 SY GEOTEXTILE
STANDARD 4' BASE DITCH W/CLASS 'I' RIP RAP EST. 66 TONS 174 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'GG'
LATERAL 'V' DITCH SEE SHEET '2D-1' DETAIL 'Q'
ENERGY DISSIPATOR BASIN SEE SHEET '2D-2' DETAIL 'EEE'
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEO-TEXTILE
GRADE TO DRAIN
PROPOSED NOISE WALL 1
PROPOSED NOISE WALL 2
SITE 3
ESE-S61
MATCHLINE SHEET 6 -L- STA. 733+00.00
MATCHLINE SHEET 8 -L- STA. 746+50.00

MARGARET P. ELTING, HEIRS
MARLENE P. FLINCHUM
ELMER L. FLINCHUM
MARLENE POPE FLINCHUM
JACK V. EARNHARDT
ELIZABETH EARNHARDT
FLORA S. MANNING
LEONARD DAVENPORT
ELSIE DAVENPORT
JACK A. TOLBERT
IH2 PROPERTY NORTH CAROLINA, LP
DOROTHY A ROUNDABUSH
RICHARD REID JR.
MARLENE P. FLINCHUM TRUSTEE
NCDOT
JOHN W. TUCKER HELEN TUCKER
RICHARD E. CAMERON SHARON CAMERON
JAMES M. CHANDLER, JR. SHARON CHANDLER
JAMES EDWARD POPE
ARCHIE H. EMBLER DEBBIE W. EMBLER
OPAL FLOYD
JEAN MARIE CRADDOCK
WILLIAM L. LIVENGOOD
ANN C. INGRAM
KEITH DELWARD SHARPE KENNETH D. SHARPE

PERMIT DRAWING SHEET 6 OF 78

NOTES:
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 41 FOR -Y4RPC- PROFILE
SEE SHEET 42 FOR -Y4RPD PROFILE
SEE SHEET 74 FOR -SR1- PROFILE
DRIVEWAY RADII 10' UNLESS OTHERWISE NOTED

REVISIONS
ROW REV. - FEBRUARY 22, 2019 - ROW ALTERED TO ENCOMPASS PARCEL 72 - SMP

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FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB_Hydraulics\PERMITS_Environmental\Drawings\U2579AB_PRM_PSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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N.C.B.E.L.S. License Number: F-0116

LEGEND:

- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/95

25 12.5 0 25 50
GRAPHIC SCALE

MATCHLINE SHEET 6 –L– STA. 733+00.00

MATCHLINE SHEET 8 –L– STA. 746+50.00

ORIGIN OF JURISDICTIONAL STREAM

BEGIN JS FEATURE

CLASS 'B' RIP RAP EST. 27 TONS 60 SY GEOTEXTILE

DRY DETENTION BASIN SEE SHEET 2D-4 OUTLET CONTROL STRUCTURE SEE SHEET 2D-4 W/SLUICE GATE AND TRASH RACK

CLASS 'I' RIP RAP EST. 20 TONS 39 SY GEOTEXTILE

TOP OF BERM 912.50

BASIN BOTTOM 907.0

42" RCP-III

STANDARD 4' BASE DITCH W/CLASS 'I' RIP RAP EST. 66 TONS 174 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'GG'

LATERAL 'V' DITCH SEE SHEET '2D-1' DETAIL 'Q'

ENERGY DISSIPATOR BASIN SEE SHEET '2D-2' DETAIL 'EEE'

30" RCP-III

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

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

STANDARD 2' BASE DITCH W/CLASS 'B' RIPRAP EST. 11 TONS 32 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'DD'

PROP. 47" WW FENCE

JB w/MH

24" RCP-III

15" CSP W/ELBOWS

15" RCP-IV

END SBG +29

36" RCP-III

36" BEGIN SBG

HW (L Shape)

15" RCP-III

2GI

2GI W/FG

REMOVE DI

REMOVE

GRADE TO DRAIN

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'D'

STANDARD 2' BASE DITCH SEE SHEET '2D-1' DETAIL 'DD' SLOPE = 31.67%

BERM DITCH SEE SHEET '2D-2' DETAIL 'VV'

STANDARD 2' BASE DITCH W/CLASS 'B' RIP RAP EST. 15 TONS 36 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'JJ' SLOPE = 6.61%

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

STANDARD 2' BASE DITCH SEE SHEET '2D-1' DETAIL 'DD' SLOPE = 6.67%

2' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'BBB'

2' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'AAA'

PROP. 47" WW FENCE

RIP RAP AT EMBANKMENT W/CLASS 'I' RIP RAP EST. 12 TONS 19 SY GEOTEXTILE SHEET '2D-2' DETAIL 'HHH'

PROPOSED NOISE WALL 1

PROPOSED NOISE WALL 2

SITE 3

ESE-S61

MARGARET P. ELTING, HEIRS

MARLENE P. FLINCHUM

ELMER L. FLINCHUM

MARLENE POPE FLINCHUM

JACK V. EARNHARDT
ELIZABETH EARNHARDT

FLORA S. MANNING

LEONARD DAVENPORT
ELSIE DAVENPORT

JACK A. TOLBERT

IH2 PROPERTY NORTH CAROLINA, LP

DOROTHY A ROUNDABUSH

RICHARD REID JR.

MARLENE P. FLINCHUM TRUSTEE

NCDOT

JOHN W. TUCKER
HELEN TUCKER

RICHARD E. CAMERON
SHARON CAMERON

JAMES M. CHANDLER, JR.
SHARON CHANDLER

JAMES EDWARD POPE

ARCHIE H. EMBLER
DEBBIE W. EMBLER

JEAN MARIE CRADDOCK

OPAL FLOYD

WILLIAM L. LIVENGOOD

ANN C. INGRAM

KEITH DELWARD SHARPE
KENNETH D. SHARPE

PERMIT DRAWING SHEET 7 OF 78

NOTES:
SEE SHEET 29 FOR –L– PROFILE
SEE SHEET 41 FOR –Y4RPC– PROFILE
SEE SHEET 42 FOR –Y4RPD PROFILE
SEE SHEET 74 FOR –SR1– PROFILE
DRIVEWAY RADII 10' UNLESS OTHERWISE NOTED

REVISIONS

ROW REV. – FEBRUARY 22, 2019 – ROW ALTERED TO ENCOMPASS PARCEL 72 – SMP

PLOT DRIVER: NCDOT_pdf_color_eng_100.pltt PENTABLE: NCDOT_permits_CON.tbl
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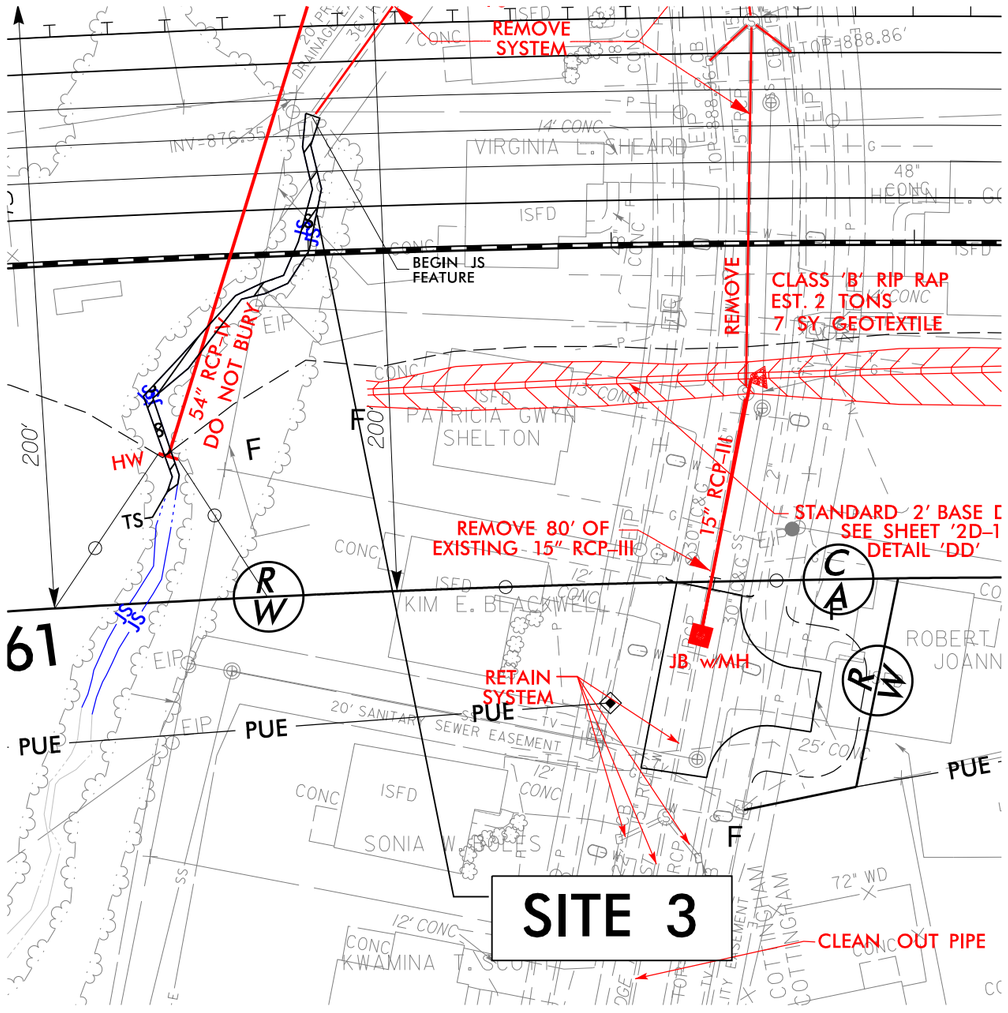
LEGEND:

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/95



PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	7A
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
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12.5 0 12.5 25
GRAPHIC SCALE

REVISIONS

PERMIT DRAWING
SHEET 8 OF 78

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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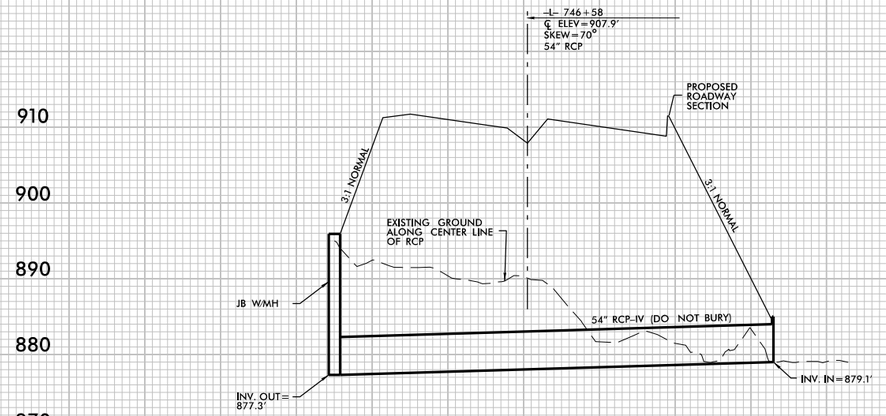
U-2579AB – SITE 3



PROFILE ALONG ℄ OF PIPE

PERMIT DRAWINGS
SHEET 9 OF 78

REVISIONS 5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)

DETAIL BBBB
STANDARD BASE DITCH
(Not to Scale)

Min. D= 2.5 Ft.
Max. d= 1 Ft.
B= 5 Ft.
*When B is < 6.0'

Type of Liner= Class I Rip-Rap
FROM STA. 750+50 TO STA. 754+50 -L- LT
FROM STA. 757+05 TO STA. 757+73 -L- LT

SEE SHEET 8A

SEE SHEET 8B

MATCHLINE SHEET 7 -L- STA. 746+50.00

MATCHLINE SHEET 9 -L- STA. 759+50.00

ESE-W8
SITE 4A
SITE 4

ESE-P6
SITE 4B

ESE-S61

ESE-S61

ESE-S61

ESE-W51
SITE 5A
SITE 5

SITE 3

STANDARD 5' BASE DITCH W/ EMBEDDED CLASS 'I' RIP RAP
EST. 276 TONS
867 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL 'BBBB'

STANDARD 5' BASE DITCH W/EMBEDDED CLASS 'I' RIP RAP
EST. 44 TONS
137 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL 'BBBB'

PROPOSED NOISE WALL 2

PROPOSED NOISE WALL 3

TIE TO EXISTING DITCH

RETAIN RCP

REMOVE

REMOVE SYSTEM

RETAIN SYSTEM

GRADE TO DRAIN

CLEAN OUT PIPE

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

STANDARD 2' BASE DITCH
SEE SHEET '2D-1'
DETAIL 'DD'

STANDARD 4' BASE DITCH
SEE SHEET '2D-1'
DETAIL 'BB'

STANDARD 4' BASE DITCH
SEE SHEET '2D-3'
DETAIL 'AAAA'

REMOVE 80' OF EXISTING 15" RCP-III

PROP. 47" WW FENCE

DETAIL DD
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
B= 2 Ft.
FROM STA. 746+70 TO STA. 749+50 -L- RT

FLORA S. MANNING
JACK V. EARNHARDT
ELIZABETH EARNHARDT
ROBERT B. BOYLES
SHARON B. BOYLES
MELBA RAE ATKINS
DB 613 PG 220
PB 6 PG 74
ASHLEY G. PELHAM
CLINT BRADY ATKINS
JULIE C. ATKINS
CRAIG B. ATKINS
JULIA J. ATKINS
JUSTIN W. STRICKLAND
SHUGART ENTERPRISES LLC
VIRGINIA L. SHEMWELL
HEDWIG L. GORDON
PATRICIA GWYN SHELTON
KIM E. BEAUCHAMP
ROBERT R. WILSON SR.
JOANNE E. WILSON
SONIA GOODES
KWAMINA L. SOUTH
BRANDI L. COTTINGHAM
JULIAN MOFUENTES
BRENDA HOLT KIVETT
GERALD DORSETTE
BEVERLY F. DORSETTE
CARMEN M. JOYCE
JASON B. ELKINS
NICOLE MARIE FUSCO
JEFFREY BRIAN SMITH
DAVID L. WILLIAMS
LORIE BAKER
TINA M. STEWART
husband MARK L. STEWART
SHELBY JEAN CONLEY
ANNA A. PRICE, TRUSTEE
SALOMON CISNEROS-HERNANDEZ
JERRIE M. PERKINS
BEESHEMAH HEMMINGWAY
PATRICIA CONTRERAS
JOE AMADOR and
MATIAS AMADOR VIZCAINO
GEORGE A. MITCHELL
SHEKINA MITCHELL
LETITIA H. LEBEAU
DONNA LA
MALISSA MALLORY
COREY M. HENSLEY
and wife
SANDY Y. HENSLEY
DENNIS K. BRIGGS
MICHAEL W. and HOLLY P. TRIPLETT
ROBERT LEON LOFLIN, SR.
DONNA MARIE THOMAS
JONATHAN BRATTON
CHORD

NCDOT

REVISIONS
ROW REV. – FEBRUARY 22, 2019 – ROW ALTERED TO ENCOMPASS PARCEL 72 – SMP
ROW REV. – JUNE 26, 2019 – DRIVEWAY ADDED TO PARCEL 84– SMP

PLOT DRIVER: NCDOT.pdf_color-eng.100.plt PENTABLE: NCDOT_permits-NOCON.tbl
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PERMIT DRAWING
SHEET 10 OF 78

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

25 12.5 0 25 50
GRAPHIC SCALE

NAD 83/95

LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)

DETAIL BBBB
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 2% / 3:1, Geotextile, D, B
Min. D = 2.5 Ft.
Max. d = 7 Ft.
B = 5 Ft.
*When B is < 6.0'
Type of Liner = Class I Rip-Rap
FROM STA 750+50 TO STA 754+50 -L- LT
FROM STA 757+05 TO STA 757+73 -L- LT

DETAIL DD
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 2% / 3:1, D, B
Min. D = 1 Ft.
B = 2 Ft.
FROM STA. 746+70 TO STA. 749+50 -L- RT

SEE SHEET 8A

SEE SHEET 8B

ESE-W8
SITE 4A
SITE 4

ESE-P6
SITE 4B

ESE-S61

SITE 3

SITE 5

ESE-S61

ESE-W51
SITE 5A

ESE-S61

PROPOSED NOISE WALL 2

PROPOSED NOISE WALL 3

STANDARD 5' BASE DITCH W/EMBEDDED CLASS 'I' RIP RAP
EST. 276 TONS
867 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL 'BBBB'

STANDARD 5' BASE DITCH W/EMBEDDED CLASS 'I' RIP RAP
EST. 44 TONS
137 SY GEOTEXTILE
SEE SHEET 2D-3
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CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEO-TEXTILE

STANDARD 4' BASE DITCH
SEE SHEET '2D-3'
DETAIL 'AAAA'

STANDARD 2' BASE DITCH
SEE SHEET '2D-1'
DETAIL 'DD'

STANDARD 4' BASE DITCH
SEE SHEET '2D-1'
DETAIL 'BB'

REMOVE 80' OF EXISTING 15" RCP-III

REMOVE SYSTEM

RETAIN SYSTEM

CLEAN OUT PIPE

TIE TO EXISTING DITCH

GRADE TO DRAIN

PROP. 47" WW FENCE

REMOVE

RETAIN RCP

36" RCP-III

60" RCP-IV

54" RCP-IV

30" RCP-III

24" RCP-III

18" RCP-III

15" RCP-III

15" RCP-IV

15" CSP W/ELBOWS

JB w/MH

2GI

2GI-A

2GI W/FG

FS

SF

PUE

CHORD

MATCHLINE SHEET 7 -L- STA. 746+50.00

MATCHLINE SHEET 9 -L- STA. 759+50.00

FLORA S. MANNING

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SHUGART ENTERPRISES LLC

VIRGINIA L. SHEARIN

PATRICIA GWYN SHELTON

KIM E. BUCKWELL

ROBERT J. WILSON JR.
JOANNE E. WILSON

SONIA [illegible]

KWAMINA [illegible]

BRANDI L. [illegible]

NICOLE MARIE FUSCO
JEFFEREY BRIAN SMITH

BRENDA HOLT KIVETT

GERALD P. DORSETTE
BEVERLY P. DORSETTE

CARMEN M. JOYCE

JASON B. ELKINS

DAVID H. WILLIAMS
LORIR BAKER

TINA M. STEWART and husband MARK A. STEWART

ANNA A. PRICE, TRUSTEE

JERRIE M. PERKINS

SALOMON CISNEROS-HERNANDEZ

REESHEMAH HEMMINGWAY

SHELBY JEAN CONNER

PATRICIA CONTRERAS DE AMADOR and MATIAS AMADOR VIZCAINO

GEORGE A. MITCHELL
SHEKINA MITCHELL

NCDOT

REVISIONS
ROW REV. – FEBRUARY 22, 2019 – ROW ALTERED TO ENCOMPASS PARCEL 72 – SMP
ROW REV. – JUNE 26, 2019 – DRIVEWAY ADDED TO PARCEL 84– SMP

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PERMIT DRAWING SHEET 11 OF 78

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	8A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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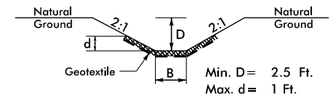
GRAPHIC SCALE 12.5 0 12.5 25

NAD 83/95

DETAIL BBBB
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.5 Ft.
Max. d= 1 Ft.
B= 5 Ft.
*When B is < 6.0'

Type of Liner= Class I Rip-Rap
FROM STA. 750+50 TO STA. 754+50 -L- LT
FROM STA. 757+05 TO STA. 757+73 -L- LT

LEGEND:

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)

STANDARD 5' BASE DITCH W/ EMBEDDED CLASS 'I' RIP RAP
EST. 276 TONS
867 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL 'BBBB'

TIE TO EXISTING DITCH

ESE-W8
SITE 4A

SITE 4

ESE-P6
SITE 4B

ESE-S61

ROBERT B. BOYLES
SHARON B. BOYLES

MELBA RAE ATKINS
DB 613 PG 220
PB 61PG 74

ASHLEY G. PELHAM

SHUGART ENTERPRISES LLC

SCOTT E. GURSTEIN
MEGAN PENNY EVERETT

JERRIE M. PERKINS

NCDOT

18" RCP
48"CHL
ISFD
ISBKD
BK WALL
48" CONC
15" CONC
RETAIL
PUE
750
236
EXISTING R/W
15"
SR 2678 OAK GROVE CHURCH RD 24' BST 6"
PROP. 47" WW FENCE
GRADE TO DRAIN
60" RCP-IV
JB w/MH
48" VINYL RAIL
50.00'
10' UTILITY EASEMENT
23' CONC
14' CONC
48" RCP
20' DRAINAGE EASEMENT
20' PRIVATE DRAINAGE EASEMENT
INV=874.40'
INV=(NW) 882.23'
INV=(W) 882.28'
INV=(SW) 882.22'
INV=(E) 892.04'
18" RCP-III
2GI
FS
24" RCP-III
INV=876.87'
2GI-A
36" RCP-III
REMOVE
TOP=888.86'
60" WD
CONC
SFD
W/LT
W/G
SS
TV
T FO
E
C
F
S
W

REVISIONS

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TIME: 11:58:56 AM

PERMIT DRAWING
SHEET 12 OF 78

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579AB	X-35

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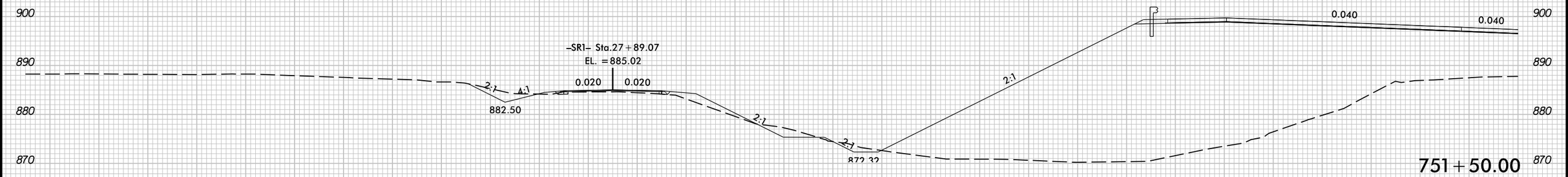

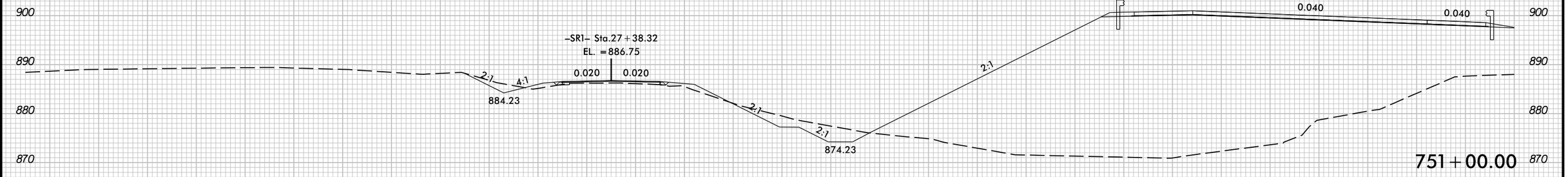

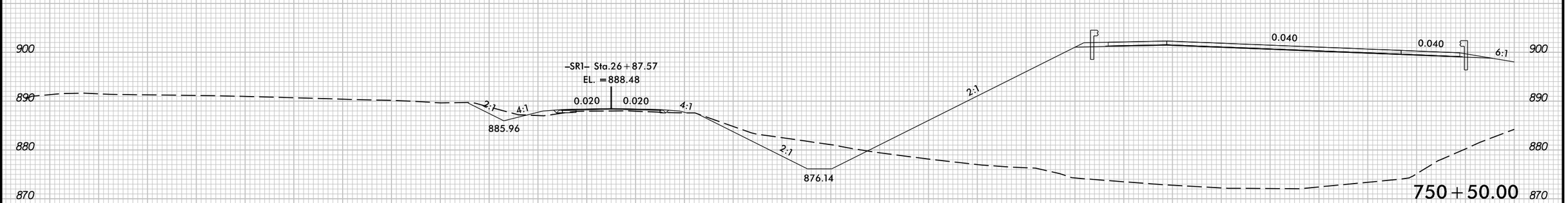

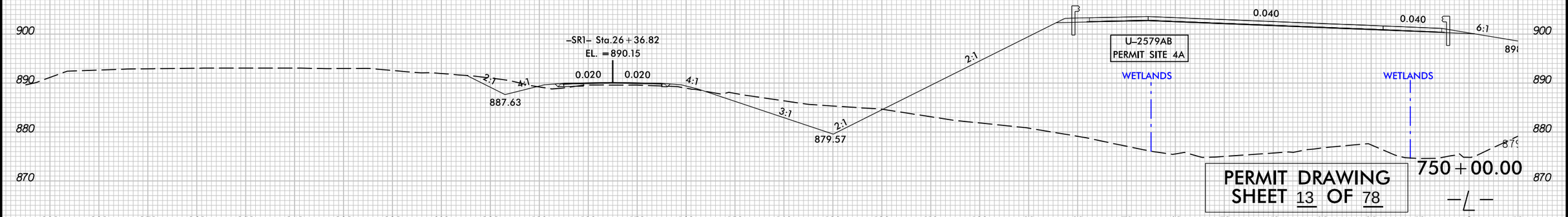

PERMIT DRAWING
SHEET 13 OF 78

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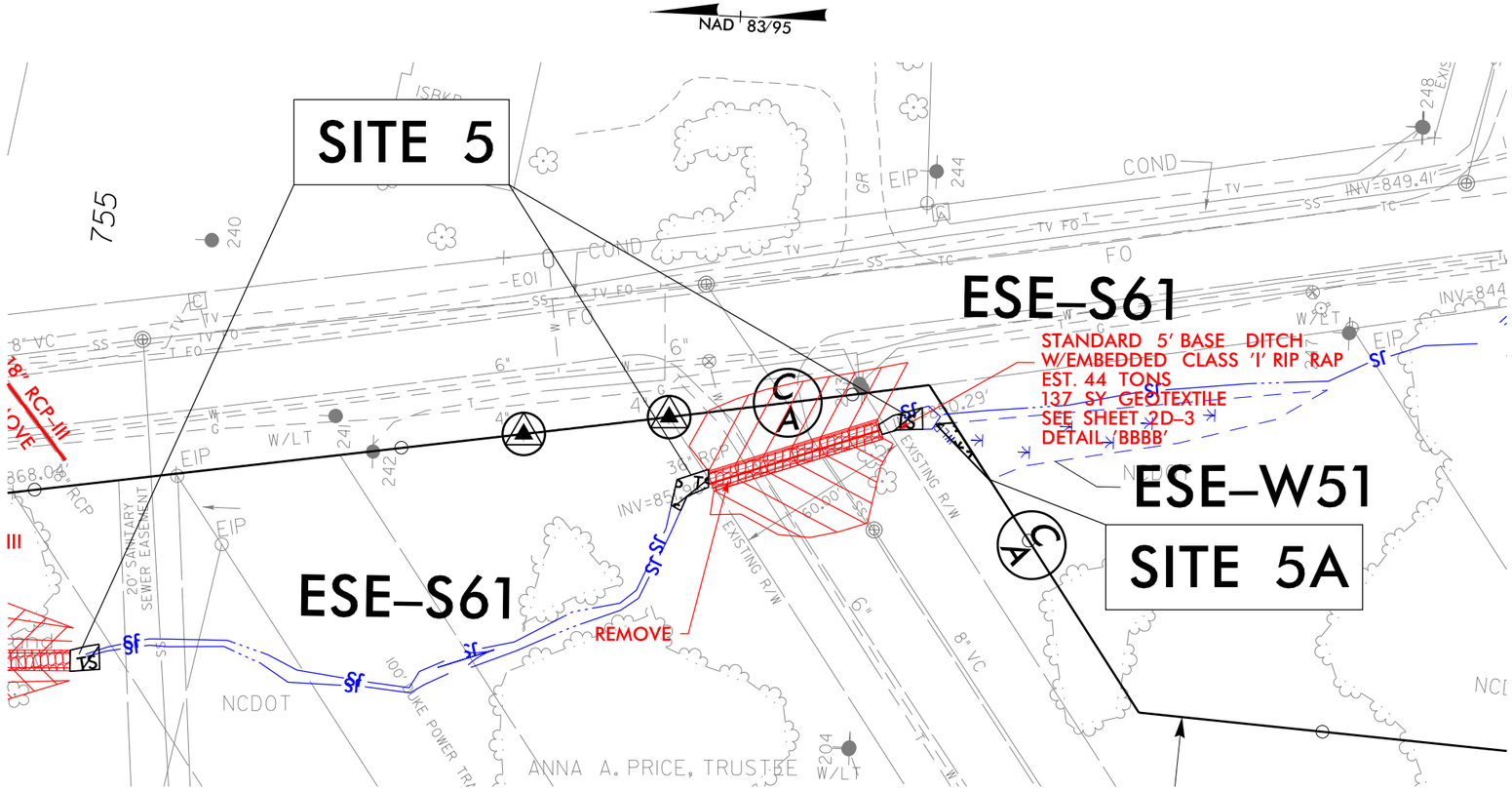
LEGEND:

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	8B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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N.C.B.E.L.S. License Number: F-0116

12.5 0 12.5 25
GRAPHIC SCALE

REVISIONS

PERMIT DRAWING
SHEET 14 OF 78

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	9
R/W 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

GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

ESE-E60

ESE-E61

JORGE L. GONZALES

SITE 6B

DETAIL 3
2 @ 12'X10' RCBC, BURIED 1' WITH 2' SILL IN BARREL 2

PROPOSED EXCAVATION
CLASS 'I' RIP RAP AND GEOTEXTILE ON BANKS ONLY (TYP)
FLOODPLAIN BENCH
COIR FIBER MATTING NOT ON STREAM BOTTOM
EXISTING GROUND
1.5:1 SIDE SLOPES
2:1

CULVERT INLET FLOODPLAIN BENCH

STA. 84+00 -Y15FLYCA- RT

REMOVE AND REPLACE LAST 4' OF 36" RCP\ CLEAN OUT PIPE

LEGEND:

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEDGE GARDEN SWIM & RACQUET CLUB

TERESA J. TUCKER
TIMOTHY E. TUCKER

TENNIS COURTS

SITE 6

SITE 6A

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

INLET CHANNEL FLOODPLAIN BENCH
EST. 6 TONS
CLASS 'I' RIP RAP
EST 33 TONS
47 SY GEOTEXTILE
SEE SEE SHEET 2D-3
DETAIL '3'

10.6' CLEARANCE FROM TOP OF BOX TO BOTTOM OF PIPE

PROP. 47" WW FENCE

TOE PROTECTION
SEE SHEET 2D-2
SEE DETAIL 'JJJ'

TERRY W. MOTSINGER and wife ELLEN R. MOTSINGER

LOREN A. LITTLE
MARGARET A. LITTLE

END SBG STA. +24

18" CSP W/ELBOWS

2GI W/FG

15" RCP-III

BEG. SBG, +75

GRADE TO DRAIN

2 @ 12'X10' RCBC, BURIED 1' WITH 2' SILL IN BARREL 2, BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

8.3' CLEARANCE

MATCHLINE SHEET 8 -L- STA. 759+50.00

ESE-W52

FIDDLERS CREEK (ESE-S11)

JOSEPH K. COFFEY
YVONNE COFFEY

THOMAS F. RILEY
CHERYL RILEY

END NOISE WALL
BEGIN FENCE

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'J'

2' BASE LATERAL DITCH
SEE SHEET '2D-1'
DETAIL 'S'

2' BASE LATERAL DITCH
W/CLASS 'I' RIP RAP
EST. 258 TONS
332 SY GEOTEXTILE
SEE SHEET '2D-1'
DETAIL 'I'

ROADWAY DITCH
CLASS 'B' RIP RAP
EST. 70 TONS
209 SY GEOTEXTILE

OUTLET CHANNEL PROTECTION
CLASS 'I' RIP RAP
EST. 217 TONS
306 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL 4

LATERAL 'V' DITCH
SEE SHEET '2D-1'
DETAIL 'Q'

MATCHLINE SHEET 10 -Y15RPA- STA. 35+00.00
-Y15FLYCA- STA. 78+88.50

MATCHLINE SHEET 10 -L- STA. 773+00.00

MATCHLINE SHEET 10
-Y15FLYBD- STA. 23+00.00

DETAIL EEEE
PREFORMED SCOUR HOLE
PLAN VIEW
SECTION A-A
"NOT TO SCALE
B= 4.5 ft
D= 1 ft
W= 4 ft
FROM STA. 40+35 -Y15- LT

DETAIL 4
2 @ 12'X10' RCBC, BURIED 1' WITH 2' SILL IN BARREL 2
PROPOSED EXCAVATION
CLASS 'I' RIP RAP AND GEOTEXTILE ON BANKS AND EMBED IN CHANNEL BED
FLOODPLAIN BENCH
EXISTING GROUND
1.5:1 SIDE SLOPES
2:1
CULVERT OUTLET PROTECTION
STA. 20+90 -Y15FLYBD- RT

DETAIL I
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
GEOTEXTILE
Fill Slope
Min. D= 1 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 18+95 TO STA. 21+00 -Y15FLYBD- RT

NOTES:

PERMIT DRAWING
SHEET 15 OF 78

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

LEGEND:

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 6B

ESE-E60

ESE-E61

JORGE L. GONZALES

DETAIL 3
2 @ 12'X10' RCBC, BURIED 1' WITH 2' SILL IN BARREL 2

PROPOSED EXCAVATION
CLASS 'I' RIP RAP AND GEOTEXTILE ON BANKS ONLY (TYP)
FLOODPLAIN BENCH
COIR FIBER MATTING NOT ON STREAM BOTTOM
EXISTING GROUND
1.5:1 SIDE SLOPES
2:1

CULVERT INLET FLOODPLAIN BENCH

STA. 84+00 -Y15FLYCA- RT

REMOVE AND REPLACE LAST 4' OF 36" RCP CLEAN OUT PIPE

SEDGE GARDEN SWIM & RACQUET CLUB

SITE 6

SITE 6A

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

INLET CHANNEL FLOODPLAIN BENCH
EST. 6 TONS
CLASS 'I' RIP RAP
EST 33 TONS
47 SY GEOTEXTILE
SEE SEE SHEET 2D-3
DETAIL '3'

10.6' CLEARANCE FROM TOP OF BOX TO BOTTOM OF PIPE

PROP. 47" WW FENCE

CHORD

TOE PROTECTION
SEE SHEET 2D-2
SEE DETAIL 'JJJ'

TERRY W. MOTSINGER and wife ELLEN R. MOTSINGER

LOREN A. LITTLE
MARGARET G. LITTLE

END SBG STA. +24

BEG. SBG, +75

2GI W/FG

15" RCP-III

18" CSP W/ELBOWS

GRADE TO DRAIN

2 @ 12'X10' RCBC, BURIED 1' WITH 2' SILL IN BARREL 2, BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

MATCHLINE SHEET 8 -L- STA. 759+50.00

MATCHLINE SHEET 10 -L- STA. 773+00.00

MATCHLINE SHEET 10 -Y15RPA- STA. 35+00.00 -Y15FLYCA- STA. 78+88.50

ESE-W52

FIDDLERS CREEK (ESE-S11)

18" RCP-III
42" RCP-III
48" RCP-III
2GI
2GI(A)
FS

ROADWAY DITCH
CLASS 'B' RIP RAP
EST. 70 TONS
209 SY GEOTEXTILE

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'J'

2' BASE LATERAL DITCH
SEE SHEET '2D-1'
DETAIL 'S'

2GI W/FG
15" RCP-III
15" CSP W/ELBOWS

LATERAL 'V' DITCH
SEE SHEET '2D-1'
DETAIL 'Q'

2' BASE LATERAL DITCH W/CLASS 'I' RIP RAP
EST. 258 TONS
332 SY GEOTEXTILE
SEE SHEET '2D-1'
DETAIL 'I'

OUTLET CHANNEL PROTECTION
CLASS 'I' RIP RAP
EST. 217 TONS
306 SY GEOTEXTILE
SEE SHEET 2D-3
DETAIL '4'

8.3' CLEARANCE

12' GATE

JOSEPH K. COFFEY
YVONNE COFFEY

THOMAS F. RILEY
CHERYL RILEY

END NOISE WALL
BEGIN FENCE

TERESA J. TUCKER
TIMOTHY E. TUCKER

NCDOT

DETAIL EEEE
PREFORMED SCOUR HOLE
PLAN VIEW
INSTALL LEVEL AND FLUSH WITH NATURAL GROUND
Pipe or Ditch Outlet
Square Preformed Scour Hole (PSH)
(Rip Rap pr. Design, not shown for clarity)
"NOT TO SCALE
SECTION A-A
B= 4.5 ft
D= 1 ft
W= 4 ft
FROM STA. 40+35 -Y15- LT

DETAIL 4
2 @ 12'X10' RCBC, BURIED 1' WITH 2' SILL IN BARREL 2
PROPOSED EXCAVATION
CLASS 'I' RIP RAP AND GEOTEXTILE ON BANKS AND EMBED IN CHANNEL BED
FLOODPLAIN BENCH
EXISTING GROUND
1.5:1 SIDE SLOPES
2:1
CULVERT OUTLET PROTECTION
STA. 20+90 -Y15FLYBD- RT

DETAIL I
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
GEOTEXTILE
Fill Slope
Min. D= 1 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 18+95 TO STA. 21+00 -Y15FLYBD- RT

NOTES:

PERMIT DRAWING SHEET 16 OF 78

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REVISIONS

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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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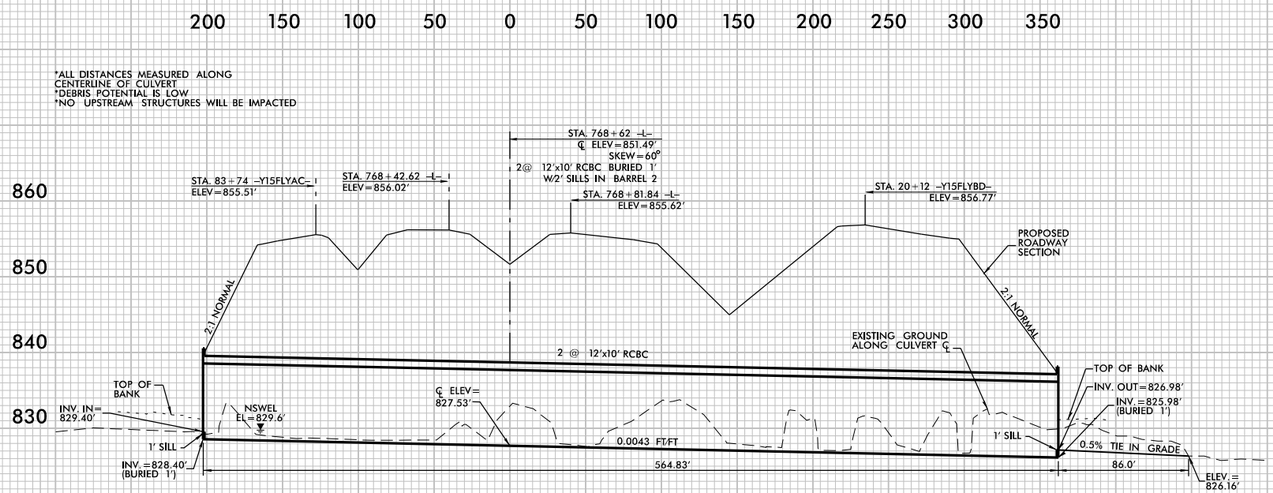
U–2579AB – SITE 6



PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 17 OF 78

REVISIONS

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5/14/99

8/23/99

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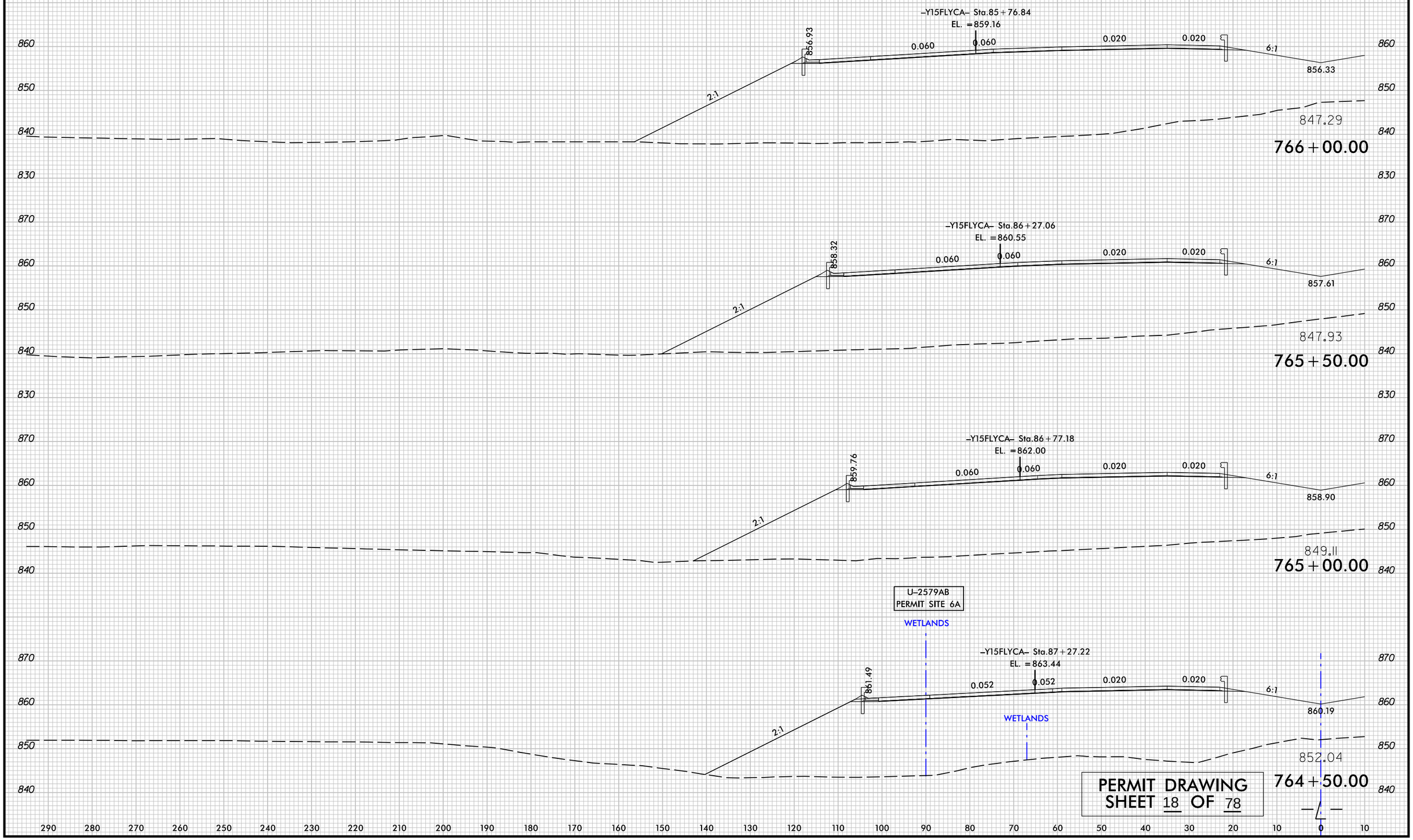

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PERMIT DRAWING
SHEET 18 OF 78

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PROJECT REFERENCE NO.	SHEET NO.
U-2539AB	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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LEGEND:

- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- F F — DENOTES FILL IN WETLAND

GRAPHIC SCALE 50 25 0 50 100

NAD 83/95

SEE SHEET 10D

SEE SHEET 10A

SEE SHEET 10B

SEE SHEET 10C

MATCHLINE SHEET 20 -Y15RPA- STA. 23+00.00

MATCHLINE SHEET 20 -Y15RTAC- STA. 46+00.00

MATCHLINE SHEET 20 -Y15REV- STA. 58+00.00

MATCHLINE SHEET 25 -Y15FLYBD- STA. 26+00.00

MATCHLINE SHEET 9 -L- STA. 773+00.00

MATCHLINE SHEET 19 -Y15REV- STA. 39+50.00

MATCHLINE SHEET 19 -Y15RE- STA. 41+50.00

MATCHLINE SHEET 25 -Y15FLYAC- STA. 30+00.00

MATCHLINE SHEET 11

SITE 7 — ESE-S59

SITE 7A — ESE-W48

SITE 8 — ESE-S59

SITE 9 — ESE-S12

SITE 10 — ESE-S13

ESE-W53

FIDDLERS CREEK (ESE-S11)

ESE-W47

BEGIN IS FEATURE

NOTES:
SEE SHEETS 30 AND 31 FOR -L- PROFILE
SEE SHEETS 48 AND 49 FOR -Y15REV- PROFILE
SEE SHEETS 53 THRU 54 FOR -Y15FLYAC- PROFILE
SEE SHEETS 55 THRU 57 FOR -Y15FLYBD- PROFILE

PERMIT DRAWING
SEE SI
SEE SH
SEE SI
SHEET 19 OF 78
SEE

REVISIONS
ROW REV. - FEBRUARY 26, 2020 - SHIFTED CUL-DE-SAC ON OAK GROVE CHURCH RD TO PROVIDE BETTER INGRESS & EGRESS FOR THE MOTSINGER PROPERTY. LINE ON PARCEL 677 CHANGED TO C/A TO ILLUSTRATE ENTIRE PARCEL PURCHASED FOR R/W. CEH.

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PROJECT REFERENCE NO.	SHEET NO.
U-2339AB	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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LEGEND:

- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- F F — DENOTES FILL IN WETLAND

NAD 83/95

GRAPHIC SCALE 50 25 0 50 100

SEE SHEET 10D

SEE SHEET 10A

SEE SHEET 10B

SEE SHEET 10C

MATCHLINE SHEET 20 -Y15RPA- STA. 23+00.00

MATCHLINE SHEET 20 -Y15RTAC- STA. 49+00.00

MATCHLINE SHEET 20 -Y15REV- STA. 58+00.00

MATCHLINE SHEET 25 -Y15FLYBD- STA. 26+00.00

MATCHLINE SHEET 9 -L- STA. 773+00.00

MATCHLINE SHEET 9 -Y15REVSA- STA. 10+00.00

MATCHLINE SHEET 19 -Y15REV- STA. 39+50.00

MATCHLINE SHEET 19 -Y15REVAC- STA. 50+00.00

MATCHLINE SHEET 11

MATCHLINE SHEET 25

SITE 7 — ESE-S59 — ESE-W48 — SITE 7A

SITE 8 — ESE-S59

SITE 9 — ESE-S12

SITE 10 — ESE-S13

BEGIN JS FEATURE

FIDDLERS CREEK (ESE-S11)

ESE-W53

ESE-W47

NOTES:
SEE SHEETS 30 AND 31 FOR -L- PROFILE
SEE SHEETS 48 AND 49 FOR -Y15REV- PROFILE
SEE SHEETS 53 THRU 54 FOR -Y15FLYAC- PROFILE
SEE SHEETS 55 THRU 57 FOR -Y15FLYBD- PROFILE

SCALE

PERMIT DRAWING
SEE SHEET 20 OF 78

REVISIONS

ROW REV. - FEBRUARY 26, 2020 - SHIFTED CUL-DE-SAC ON OAK GROVE CHURCH RD TO PROVIDE BETTER INGRESS & EGRESS FOR THE MOTSINGER PROPERTY. LINE ON PARCEL 677 CHANGED TO C/A TO ILLUSTRATE ENTIRE PARCEL PURCHASED FOR R/W. CEH.

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	10A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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GRAPHIC SCALE 12.5 0 12.5 25

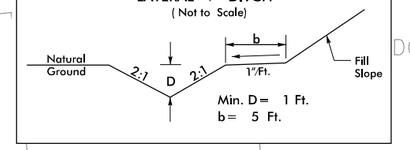
SITE 7

ESE–S59

ESE–W48

SITE 7A

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



Min. D = 1 Ft.
b = 5 Ft.

FROM STA. 22+30 TO STA. 23+75 –Y15FLYBD– LT
FROM STA. 23+75 TO STA. 25+50 –Y15FLYBD– LT
FROM STA. 25+50 TO STA. 27+09 –Y15FLYBD– LT

LATERAL 'V' DITCH
SEE SHEET '2D–1'
DETAIL 'Q'

STANDARD 4' BASE DITCH
W/CLASS 'B' RIP RAP
EST. 58 TONS
157 SY GEOTEXTILE
SEE SHEET '2D–1'
DETAIL 'II'
SLOPE = 2.79%

REMOVE 15" RCP

REMOVE 24" RCP

REMOVE 15" RCP

REMOVE 15" RCP

54" RCP–V
DO NOT BURY

18" CSP
W/ELBOWS

18" RCP–III

2GI W/ FG

CLASS 'I' RIP RAP
EST. 26 TONS
50 SY GEOTEXTILE

54" RCP–III

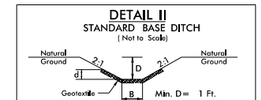
JB w/MH

PROP. 47" WW FENCE

2GI

18" RCP–III

DETAIL II
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = Class B Rip-Rap
FROM STA. 27+05 TO STA. 28+40 –Y15FLYBD– LT

LEGEND:

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

NAD 83/95

PERMIT DRAWING
SHEET 21 OF 78

REVISIONS

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TIME: 11:59:30 AM

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2579AB	X-437

0 10 20

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

880 860 840 820

-Y15RPB- Sta.12+40.69
EL = 881.92

0.040 0.040 0.020 0.020 881.72

4:1

2:1

843.35

28+00.00

880 860 840 820

-Y15RPB- Sta.11+90.04
EL = 879.60

0.032 0.032 0.020 0.020 879.80

4:1

2:1

839.93

27+50.00

880 860 840 820

U-2579AB
PERMIT SITE 7A

WETLANDS

WETLANDS

-Y15RPB- Sta.11+39.63
EL = 877.32

0.023 0.023 0.020 0.020 877.52

4:1

2:1

2:1 839.10

27+00.00

880 860 840 820

-Y15FLYBD-

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

PERMIT DRAWING
SHEET 22 OF 78

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	10B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

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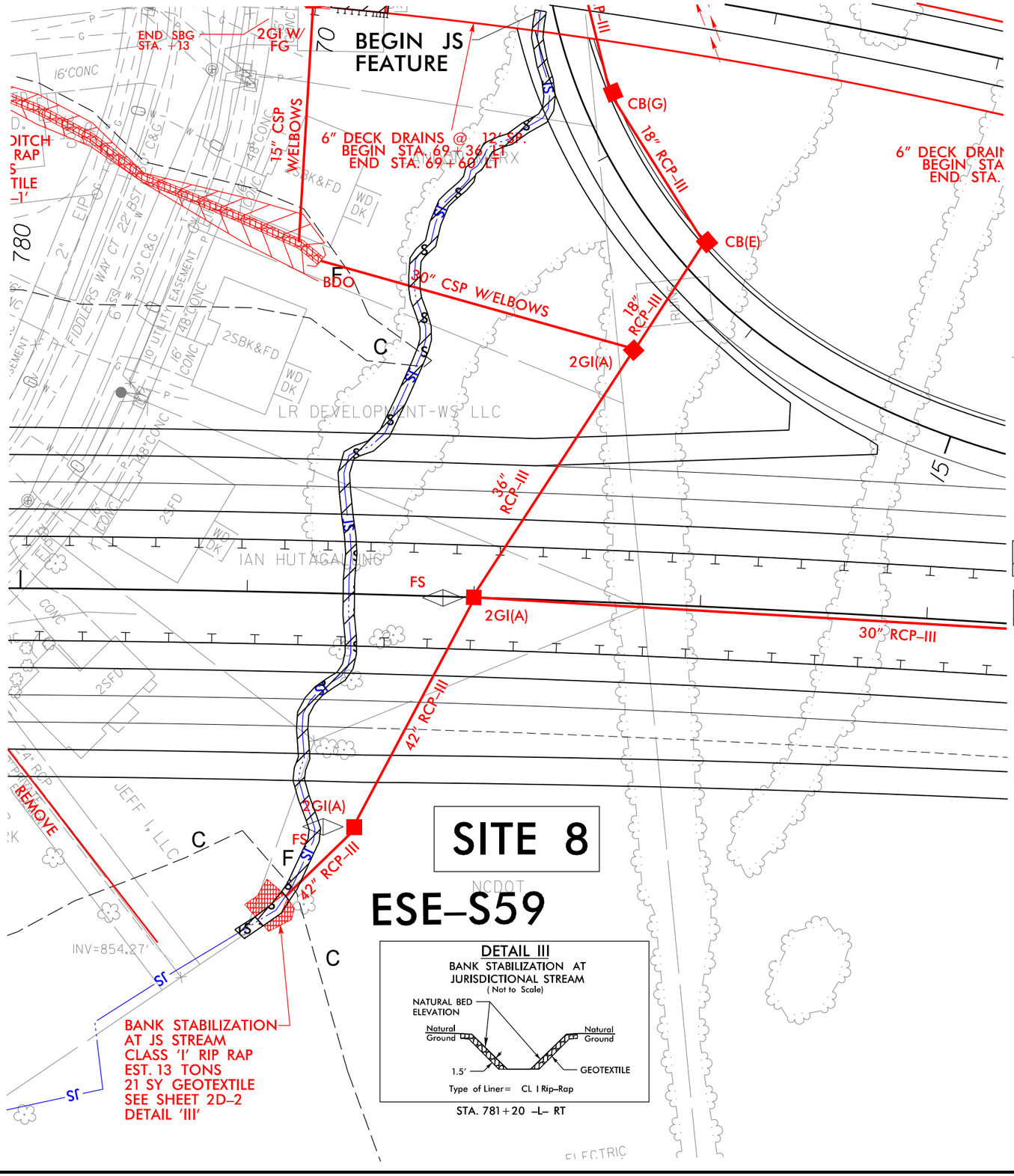

LEGEND:

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 8

ESE-S59

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)

Type of Liner= CL I Rip-Rap

STA. 781+20 -L- RT

PERMIT DRAWING
SHEET 23 OF 78

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DATE: 10/5/2020
TIME: 11:59:38 AM

REVISIONS

MATCHLINE SEE SHEET 10D

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	10C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

25 12.5 0 25 50
GRAPHIC SCALE

NAD 83/95

LEGEND:

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)
NATURAL BED ELEVATION, Natural Ground, 1.5', GEOTEXTILE
Type of Liner= CL I Rip-Rap
STA. 781+20 -L- RT

DETAIL KKKK
OUTLET CHANNEL STABILIZATION
(Not to Scale)
Natural Ground, Natural Bed Elevation, 1.5', Geotextile, Channel Bed (Variable)
Type of Liner= CL I Rip-Rap
STA. 18+50 -Y5B- LT
STA. 19+80 -Y5B- LT

SITE 9
SITE 10
ESE-S12
ESE-S13
GRADE TO DRAIN
1 @ 6'X7' RCBC, BURIED 1' WITH 1' SILLS AND BAFFLES, BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL
W/CLASS 'I' RIP RAP EST. 272 TONS 460 SY GEOTEXTILE SEE SHEET '2D-3' DETAIL 'MMMM'
CULVERT INLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 19 TONS 28 SY GEOTEXTILE SEE SHEET 2D-2 DETAIL 'III'
2' BASE DITCH W/CLASS 'B' RIP RAP EST. 107 TONS 290 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'I'
2' BASE SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'RRRR'
CLASS 'B' RIP RAP EST. 2 TONS SY GEO-TEXTILE
2' BASE DITCH SEE SHEET '2D-1' DETAIL 'DD'
BEGIN JS FEATURE
4' BASE DITCH W/CLASS 'I' RIP RAP EST 289 TONS 355 SY GEOTEXTILE SEE SHEET '2D-3' DETAIL 'OOOO'
4' BASE DITCH W/CLASS 'I' RIP RAP EST 197 TONS 348 SY GEOTEXTILE SEE SHEET '2D-3' DETAIL 'OOOO'
4' BASE W/CLASS EST 114 201 SY GE SEE SHEET DETAIL
PREFORMED SCOUR HOLE EST. 20 SY PSRM EST. 12 SY GEOTEXTILE EST. 9 TONS CLASS 'B' STONE DETAIL 'EEEE'
CULVERT OUTLET CHANNEL PROTECTION EST. 43 TONS CLASS 'I' RIP RAP 60 SY GEOTEXTILE SEE SHEET 2D-3 DETAIL 'KKKK'
6" DECK DRAINS @ 12' SP. BEGIN STA. 42+89 LT END STA. 45+77 LT
STANDARD 5' BASE DITCH W/CLASS 'I' RIP RAP EST. 59 TONS 116 SY GEOTEXTILE SEE SHEET '2D-3' DETAIL 'BBBB'
STANDARD 6' BASE DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 100 TONS 295 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'MMMM'
RIP RAP AT EMBANKMENT EST. 37 TONS CLASS 'I' RIP RAP 63 SY GEOTEXTILE SEE SHEET 2D-2 DETAIL 'HHH'
TOE PROTECTION SEE SHEET '2D-1'
GRADE TO DRAIN
6" DECK DRAINS @ 12' SP. BEGIN STA. 63+35 LT END STA. 66+11 LT
6" DECK DRAINS @ 12' SP. BEGIN STA. 54+33 LT END STA. 52+77 LT
STANDARD 2' BASE DITCH W/CLASS 'B' RIP RAP EST. 84 TONS 238 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'JJ'
BEG. SBG STA. +16
END SBG STA. +44
BEGIN SBG STA. +34
JB w/MH
2GI
2GI W/FG
15" RCP-III
18" RCP-III
24" RCP-III
60" RCP-III DO NOT BURY
15" CSP
18" CSP
FS
F
C
E/P

DETAIL MMMM
STANDARD BASE DITCH
(Not to Scale)
Natural Ground, Geotextile, 1.5', 2:1, 3:1, D, B, Natural Ground
Min. D= 2 Ft.
B= 6 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 792+70 TO STA. 792+86 -L- LT
FROM STA. 54+55 TO STA. 56+00 -Y15FLYCA- LT

DETAIL JJ
STANDARD BASE DITCH
(Not to Scale)
Natural Ground, Geotextile, 2:1, 3:1, D, B, Natural Ground
Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 49+89 TO STA. 54+44 -Y15FLYCA- LT DDE=690 CY

DETAIL HHH
RIP RAP AT EMBANKMENT
(Not to Scale)
10' min, Ditch Grade, 1.0' min, 1.5', GEOTEXTILE
Type of Liner= CL 'I' Rip-Rap/ Geotextile
STA. 54+38 -Y15FLYCA- LT

DETAIL BBBB
STANDARD BASE DITCH
(Not to Scale)
Natural Ground, Geotextile, 2:1, 3:1, D, B, Natural Ground
Min. D= 2.5 Ft.
Max. d= 1 Ft.
B= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 750+50 TO STA. 754+50 -L- LT DDE=290 CY
FROM STA. 757+05 TO STA. 757+73 -L- LT DDE=550 CY
FROM STA. 54+00 TO STA. 54+60 -Y15FLYCA- LT

NCDOT (FORMERLY - ERNEST W. ANGELL)

PERMIT DRAWING SHEET 24 OF 78

NOTES:
SEE SHEET 29 FOR -L- PROFILE
SEE SHEET 41 FOR -Y4RPC- PROFILE
SEE SHEET 42 FOR -Y4RPD PROFILE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

U–2579AB – SITE 9

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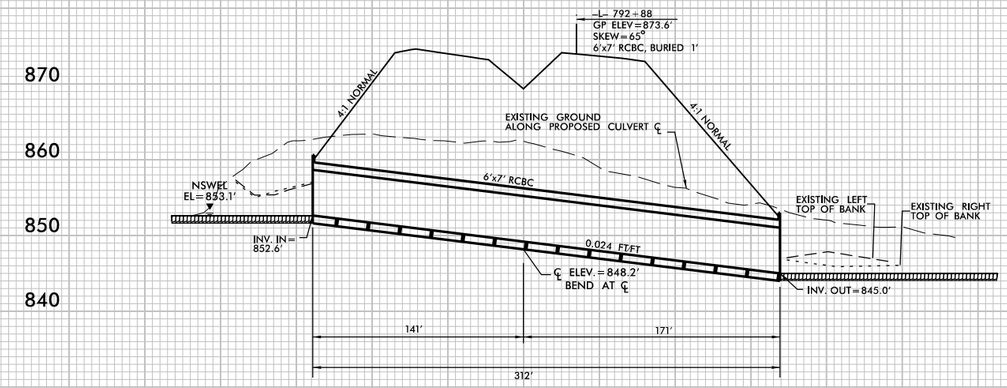

PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 25 OF 78

REVISIONS 5/14/99

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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

U-2579AB – SITE 10

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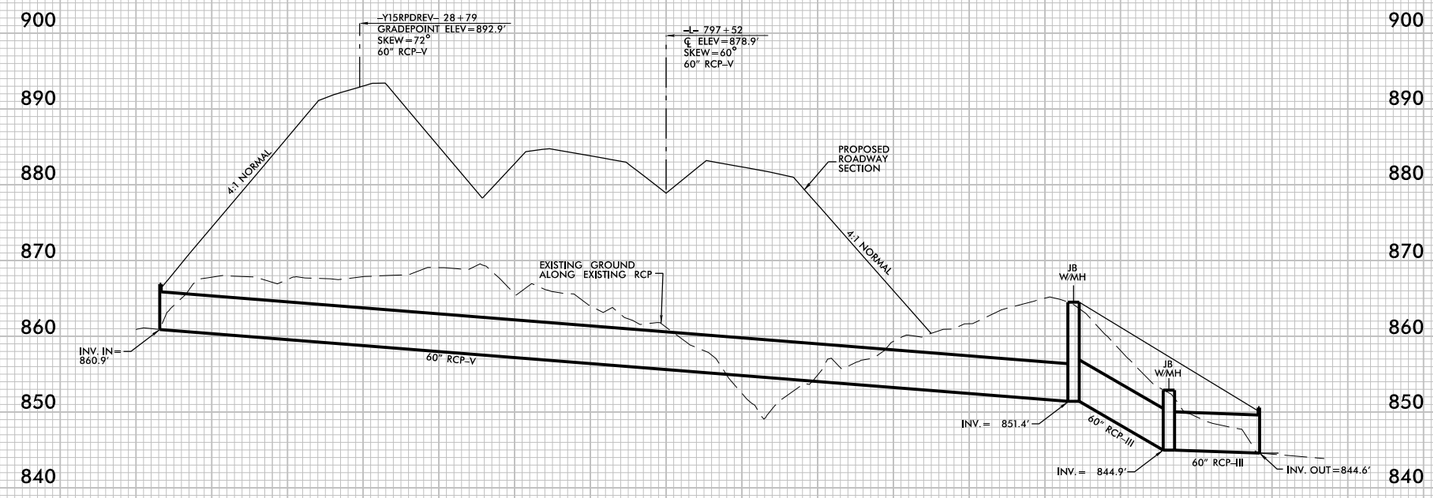

PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 26 OF 78

REVISIONS

5/14/99

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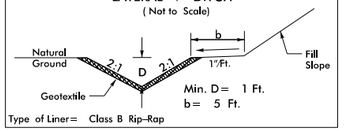
TIME: 11:24:18 AM

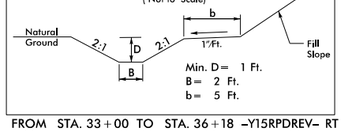
DETAIL NNNN
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

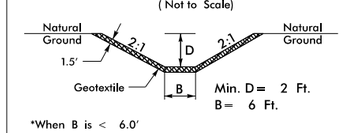
FROM STA. 36+93 TO STA. 39+40 –Y15RPDREV– RT
FROM STA. 25+67 TO STA. 28+32 –Y15RPDREV– RT

DETAIL S
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 33+00 TO STA. 36+18 –Y15RPDREV– RT
FROM STA. 37+00 TO STA. 39+37 –Y15RPDREV– RT

DETAIL MMMM
STANDARD BASE DITCH
(Not to Scale)

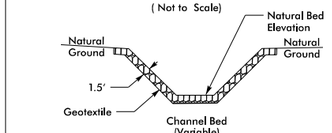


*When B is < 6.0'

Type of Liner= Class I Rip-Rap

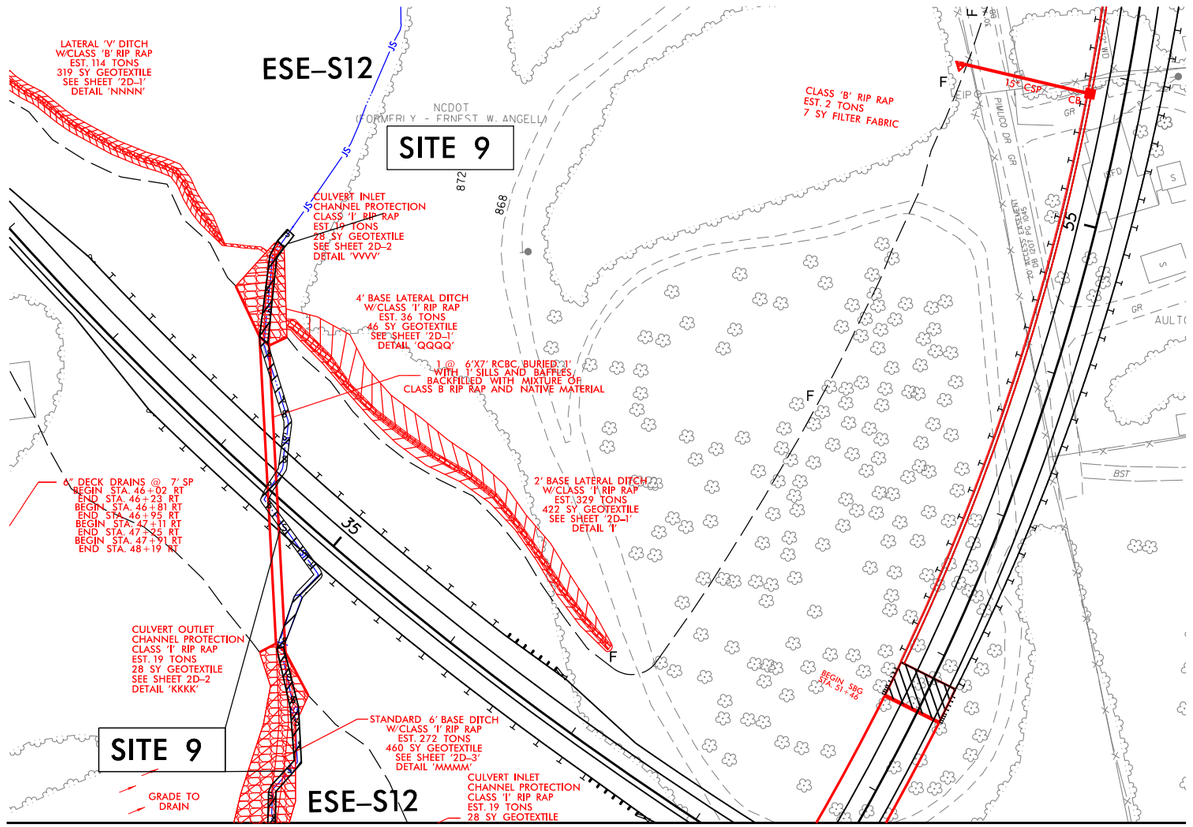
FROM STA. 792+70 TO STA. 792+86 –L– LT

DETAIL KKKK
OUTLET CHANNEL PROTECTION
(Not to Scale)



Type of Liner= CL I Rip-Rap

STA. 35+55 –Y15RPDREV– LT



MATCHLINE SEE SHEET 10C

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	10D
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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25 12.5 0 25 50
GRAPHIC SCALE

NAD 83/95

LEGEND:

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING SHEET 27 OF 78

NOTES:
SEE SHEET 29 FOR –L– PROFILE
SEE SHEET 41 FOR –Y4RPC– PROFILE
SEE SHEET 42 FOR –Y4RPD PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf-color_eng_100.plt
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DATE: 10/5/2020
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING

NAD 83/95

GRAPHIC SCALE 50 25 0 50 100

SEE SHEET 11A

SITE 12

SITE 12B

ESE-S16

ESE-P7

ESE-W12

SITE 12A

NOTE: ROCK CROSS VANES ARE TO BE USED AS NEEDED

PERMIT DRAWING SHEET 28 OF 78

REVISIONS

ROW REV. - DECEMBER 5, 2018 - REVISED TCE ON PARCELS 182, 183, 184, 190 AND 191. CEH
ROW REV. - FEBRUARY 8, 2019 - REVISED TCE ON PARCELS 157 AND 158 TO AVOID SEPTIC TANK. SMP
ROW REV. - MARCH 29, 2019 - PARCEL 159 COMBINED WITH PARCEL 160 FOR JANICE & BOYD STAFFORD. SMP
ROW REV. - FEBRUARY 26, 2020 - REMOVED Y16C AND DRI ALIGNMENTS. CLAIMS ELIMINATED ON PARCELS 182, 183, 184, 190 AND 191. ROW AND TCE REDUCED ANDOR ADJUSTED ON PARCELS 180, 181, 192 AND 193. PUE EXTENDED TO TIE TO ROW ON PARCEL 181. CEH.
ROW REV. - MARCH 13, 2020 - ELIMINATED TCE ON PARCEL 185 THEREBY ELIMINATING THE CLAIM. CEH.

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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GRAPHIC SCALE 50 25 0 50 100

LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING

NAD 83/95

SEE SHEET 11A

PERMIT DRAWING SHEET 29 OF 78

NOTE: ROCK CROSS VANES ARE TO BE USED AS NEEDED

REVISIONS

ROW REV. – DECEMBER 5, 2018 – REVISED TCE ON PARCELS 182, 183, 184, 190 AND 191. CEH
ROW REV. – FEBRUARY 8, 2019 – REVISED TCE ON PARCELS 157 AND 158 TO AVOID SEPTIC TANK. SMP
ROW REV. – MARCH 29, 2019 – PARCEL 159 COMBINED WITH PARCEL 160 FOR JANICE & BOYD STAFFORD. SMP
ROW REV. – FEBRUARY 26, 2020 – REMOVED Y16C AND DRI ALIGNMENTS. CLAIMS ELIMINATED ON PARCELS 182, 183, 184, 190 AND 191. ROW AND TCE REDUCED AND/OR ADJUSTED ON PARCELS 180, 181, 192 AND 193. PUE EXTENDED TO TIE TO ROW ON PARCEL 181. CEH.
ROW REV. – MARCH 13, 2020 – ELIMINATED TCE ON PARCEL 185 THEREBY ELIMINATING THE CLAIM. CEH.

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	11A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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N.C.B.E.L.S. License Number: F-0116

25 12.5 0 25 50
GRAPHIC SCALE

LEGEND:

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING

NAD 83/95

SITE 12

SITE 12B

SITE 12A

ESE–S16

ESE–P7

ESE–W12

BEGIN JS FEATURE

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 112 TONS 331 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'U'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 211 TONS 599 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'U'

4' BASE TAIL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 161 TONS 286 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'HH' SLOPE= 6.64%

4' BASE TAIL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 128 TONS 228 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'GG' SLOPE= 1.61%

2' BASE TAIL DITCH W/CLASS 'B' RIP RAP EST. 96 TONS 273 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'JJ' SLOPE=8.50%

3' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 23 TONS 63 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'V'

STANDARD 5' BASE DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 685 TONS 1056 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'MM' SLOPE= 2.49%

1 @ 5'X6' RCBC

CULVERT INLET CHANNEL PROTECTION EST. 6 TONS CLASS 'I' RIP RAP EST. 33 TONS 47 SY GEOTEXTILE SEE SEE SHEET 2D–3 DETAIL 'VVVV'

CULVERT OUTLET CHANNEL PROTECTION EST. 46 TONS CLASS 'I' RIP RAP 64 SY GEOTEXTILE SEE SHEET 2D–3 DETAIL 'KKKK'

ROCK CROSS VANE IF DIRECTED BY THE ENGINEER SEE DETAIL 'FFFF'

THE LOCATION AND STABILIZATION OF CHANNEL MAY BE ADJUSTED BY THE ENGINEER IN THE FIELD.

LATERAL 'V' DITCH SEE SHEET '2D–1' DETAIL 'Q'

2' BASE LATE SEE SHEE DETAI

30" CSP W/ELBOWS

42" RCP-V

15" RCP-III

15" CSP

2GI

2GI W/ FG

GRADE TO DRAIN

18 W/MH

42" RCP-III

NCDOT (FORMERLY - ERNEST W. ANGELL)

JANICE S. STAFFORD
BOYD STAFFORD

WADE H. GABARD JR.
JOYCE GABARD

CHESTER MONROE S
BETTY M. SMITH

DAVID MOTSINGER
WAYNE MOTSINGER

DETAIL KKKK
OUTLET CHANNEL PROTECTION
(Not to Scale)
Natural Ground, Natural Bed Elevation, 1.5', Geotextile, Channel Bed (Variable)
Type of Liner= CL I Rip-Rap
STA. 44+00 –Y15FLYCA– LT

DETAIL VVVV
INLET CHANNEL PROTECTION
(Not to Scale)
Natural Ground, Natural Bed Elevation, 1.0', Geotextile, Channel Bed (Variable)
Type of Liner= CL I Rip-Rap
STA. 35+55 –Y15RPDREV– RT

DETAIL HH
STANDARD BASE DITCH
(Not to Scale)
Natural Ground, 2:1, d, D, Geotextile, B
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 20+50 TO STA. 21+92 –Y15RPC– LT

DETAIL GG
STANDARD BASE DITCH
(Not to Scale)
Natural Ground, 2:1, d, D, Geotextile, B
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 54+37 TO STA. 54+40 –Y15FLYCA– LT

DETAIL V
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2:1, d, D, 1:1, b, 1'Ft., Fill Slope, GEOTEXTILE, B
Min. D= 1 Ft.
Max. d= 1 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 43+25 TO STA. 43+62 –Y15FLYCA– RT

DETAIL MM
STANDARD BASE DITCH
(Not to Scale)
Natural Ground, 2:1, d, D, Geotextile, B
Min. D= 3 Ft.
Max. d= 1 Ft.
B= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 30+50 TO STA. 32+90 –Y15REV– RT

CHORD

PERMIT DRAWING SHEET 30 OF 78

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USER: NWOMACK
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REVISIONS

8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	U-2579AB	X-486

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

900 880 860 840

0.060 0.060 4:1 4:1 50:1 2:1 2:1 859.29 860.85

44+50.00

U-2579AB
PERMIT SITE 12

WETLANDS WETLANDS

900 880 860 840

0.060 0.060 4:1 4:1 50:1 2:1 2:1 853.06 855.86

44+00.00

900 880 860 840

0.060 0.060 4:1 4:1 50:1 2:1 2:1 852.07 853.15

43+50.00

PERMIT DRAWING
SHEET 31 OF 78

-Y15FLYCA-

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

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PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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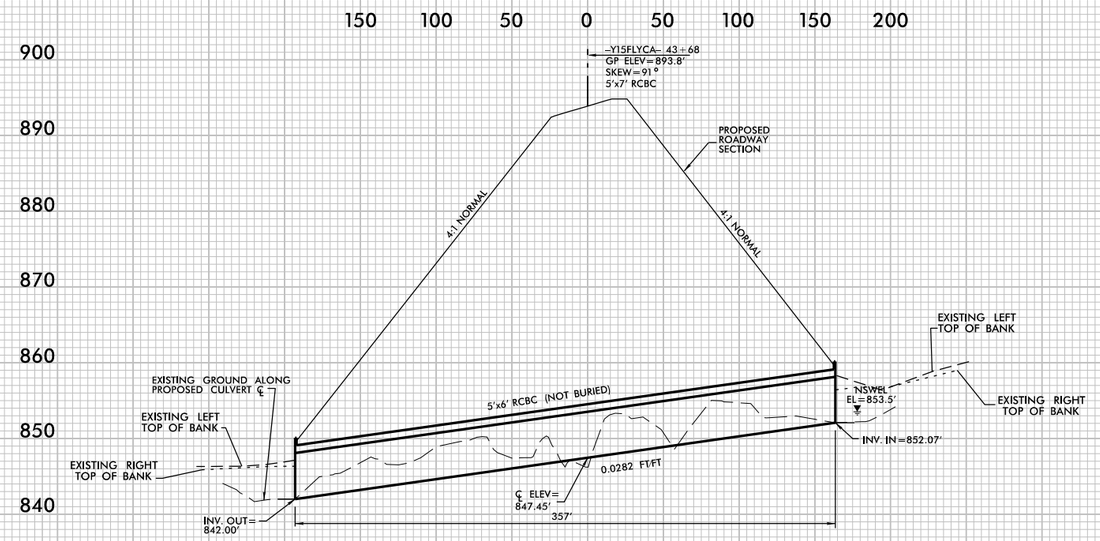
U–2579AB – SITE 12



PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 32 OF 78

REVISIONS 5/14/99

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DATE: 5/5/2020
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LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
U-2759AB	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

DETAIL S
LATERAL BASE DITCH
(Not to Scale)
FROM STA. 827+95 TO STA. 829+50 -L- LT
FROM STA. 831+00 TO STA. 832+00 -L- RT
FROM STA. 832+25 TO STA. 833+00 -L- LT

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)
STA. 833+40 -L- LT

SITE 23A
ESE-W25

SITE 23
ESE-S42

SITE 13
ESE-S19

SITE 13A

ESE-W26

ESE-S75

SITE 13
ESE-S19

MATCHLINE SHEET 11 -L- STA. 827+90.00

HELEN TROTTER

JANICE W. CRAVER
BILLY R. CRAVER

CHORD

PROP. 47" WW FENCE

2' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'S'

2' BASE LATERAL DITCH W/ EMBEDDED CLASS 'B' RIP RAP EST. 136 TONS 385 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

TIE TO EXISTING STREAM

BEGIN JS FEATURE

BANK STABILIZATION CLASS 'I' RIP RAP EST. 21 TONS 32 SY GEOTEXTILE SEE SHEET 2D-2 DETAIL 'III'

24" RCP-III

18" RCP-III

2GI W/ FG

2GI W/ FG

2GI(A)

FS

HTR

24" CLEARANCE BETWEEN PIPES

36" RCP-APP DIRECT DESIGN NOT BURIED

15" RCP-III

15" CSP W/ELBOWS

END SBG STA. 834+55

BEGIN SBG STA. 827+95

END SBG STA. 836+02

BEGIN SBG STA. 828+60

30" RCP

INV=879.03'

INV=881.81'

TIE TO EXISTING DITCH

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 45 TONS 128 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 160 TONS 452 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'S'

SPECIAL CUT DITCH SSEE SHEET '2D-1' DETAIL 'K'

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

ISFD

EIP

VAR.

200'

PERMIT DRAWING
SHEET 33 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
USER: NWOMACK
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\PERMITS_Environmental\Drawings\U2579AB_PRM_PSH.dgn
PENTABLE: NCDOT_permits_NOCON.tbl
DATE: 10/5/2020
TIME: 12:00:15 PM

LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
U-2759AB	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

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

GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

DETAIL S
LATERAL BASE DITCH
(Not to Scale)
FROM STA. 827+95 TO STA. 829+50 -L- LT
FROM STA. 831+00 TO STA. 832+00 -L- RT
FROM STA. 832+25 TO STA. 833+00 -L- LT

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)
STA. 833+40 -L- LT

SITE 23A
ESE-W25

SITE 23
ESE-S42

SITE 13
ESE-S19

SITE 13A

ESE-W26

SITE 13
ESE-S19

ESE-S75

2' BASE LATERAL DITCH W/ EMBEDDED CLASS 'B' RIP RAP EST. 136 TONS 385 SY GEOTEXTILE SEE SHEET 2D-1' DETAIL 'U'

2' BASE LATERAL DITCH SEE SHEET 2D-1' DETAIL 'S'

TIE TO EXISTING STREAM

BEGIN JS FEATURE

BANK STABILIZATION CLASS 'I' RIP RAP EST. 21 TONS 32 SY GEOTEXTILE SEE SHEET 2D-2 DETAIL 'III'

PROP. 47" WW FENCE

CHORD

MATCHLINE SHEET 11 -L- STA. 827+90.00

BEGIN SBG STA. 827+95

END SBG STA. 836+02

24" RCP-III

2GI W/ FG

2GI(A)

FS

2.4' CLEARANCE BETWEEN PIPES

36" RCP-ARCH DIRECT DESIGN NOT BURIED

18" RCP-III

15" RCP-III

15" CSP W/ELBOWS

END SBG STA. 834+55

SPECIAL CUT DITCH SSEE SHEET 2D-1' DETAIL 'K'

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

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 160 TONS 452 SY GEOTEXTILE SEE SHEET 2D-1' DETAIL 'S'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 45 TONS 128 SY GEOTEXTILE SEE SHEET 2D-1' DETAIL 'U'

30" RCP

INV=879.03

INV=881.81'

HW

ISFD

HELEN TROTTER

JANICE W. CRAVER
BILLY R. CRAVER

WILKES COUNTY

PERMIT DRAWING
SHEET 34 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_permits_CON.tbl
USER: NWOMACK DATE: 10/5/2020 TIME: 10:33:29 AM
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579AB	X-83

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

900 890 880 870 860 850 840

897

0.020 0.020 6:1

894.33

U-2579AB
PERMIT SITE 13A

WETLANDS

2:1

2:1 2:1 50:1

844.94

832+50.00

830 900 890 880 870 860 850 840

898

0.020 0.020 6:1

895.36

2:1

2:1 2:1 50:1

858.39

832+00.00

PERMIT DRAWING
SHEET 35 OF 78

-L-

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

PLOT DRIVER: NCDOT.pdf_color_eng.100.plt
USER: .USERNAME.
FILE: u2579ab_rdy_xpl_left

PENTABLE: NCDOT_PFL_XSC.tbl
TIME: 12:03:56 PM
DATE: 5/5/2020

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579AB	X-171

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

900 890 880 870 860 850 840

894.33

6:1

0.020

0.020

896

2:1

U-2579AB
PERMIT SITE 13A

WETLANDS

50:1

2:1

2:1

866.50

844.94

832+50.00

830

900 890 880 870 860 850 840

895.36

6:1

0.020

0.020

897

2:1

50:1

2:1

2:1

862.50

858.39

832+00.00

PERMIT DRAWING
SHEET 36 OF 78

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

PLOT DRIVER: NCDOT.pdf.color.eng.100.plt
USER: .USERNAME.
FILE: u2579ab_rdy_xpl_l_right
PENTABLE: NCDOT_PFL_XSC.tbl
DATE: 5/5/2020
TIME: 12:04:04 PM

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579AB	X-82

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

U-2579AB
PERMIT SITE 23A

WETLANDS

WETLANDS

899

0.020

0.020

6:1

896.32

2:1

50:1

2:1

2:1

845.83

865.68

831+50.00

900

0.020

0.020

6:1

897.21

2:1

50:1

2:1

2:1

850.87

867.80

831+00.00

900 890 880 870 860 850 840

PERMIT DRAWING
SHEET 37 OF 78

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

PLOT DRIVER: NCDOT.pdf_color_eng_100.plt
USER: .USERNAME.
FILE: u2579ab_rdy_xpl_left

PENTABLE: NCDOT_PFL_XSC.tbl
TIME: 12:03:54 PM
DATE: 5/5/2020

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	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

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N.C.B.E.L.S. License Number: F-0116

25 12.5 0 25 50
GRAPHIC SCALE

LEGEND:

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

NAD 83/95

FIDDLERS CREEK (ESE–S11)

ESE–W27

ESE–S40

ESE–W34

ESE–W35

ESE–S49

ESE–W36

SITE 14

JOHN L. ARANT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

30' SANITARY SEWER EASEMENT

27" DI

25

50

PIPE CLEAN OUT NOT FOUND

OUTLET

INV=809.54'

RETAIN DI

INV=(S) 819.61'
INV=(N) 819.44'

RETAIN

TB 2GI

12" RCP-III n 2GI

TOP=820.95'
INV=820.75'

REMOVE DI

EXISTING 72" RCP VERIFIED IN FIELD

INV=807.15'

TOP=816.54'
INV=813.78'

REMOVE DI

EXISTING 72" RCP

MATCHLINE –Y15– STA. 21+00.00 (SEE INSET)

MATCHLINE –Y15– STA. 34+75.00 (SEE SHEET 17)

SPECIAL CUT DITCH SEE SHEET '2D–1' DETAIL 'C'

COLLAR AND EXTEND

REMOVE AND REPLACE 18" OF 24" RCP

SPECIAL CUT DITCH SEE SHEET '2D–1' DETAIL 'D'

SPECIAL CUT DITCH SEE SHEET '2D–1' DETAIL 'J'

PIPE CLEANOUT

JB w/Slab Top

REMOVE WW 2–2'x2' JBs AND REPLACE WITH 1–10' HW

PROP. 47" WW FENCE

4' BASE LATERAL DITCH SEE SHEET '2D–1' DETAIL 'T'

BANK STABILIZATION AT JS STREAM CLASS 'I' RIP RAP EST. 10 TONS 18 SY GEOTEXTILE SEE SHEET 2D–2 DETAIL 'III'

TIE TO EXIST. FENCE

CLAUDE STEVE ALLRED JR.
ANNE JONES ALLRED

JOHN

ESE–W46

SITE 14A

ESE–S49

ESE–W45

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)

NATURAL BED ELEVATION
Natural Ground
Natural Ground
1.5'
GEOTEXTILE
Type of Liner = CL I Rip-Rap

STA. 31+85 –Y15– RT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)

Natural Ground
2:1
b
2:1
Fill Slope
1 Ft.
B
Min. D = 1 Ft.
B= 4 Ft.
b= 5 Ft.

FROM STA. 29+00 TO STA. 31+85 –Y15– RT

PERMIT DRAWING SHEET 38 OF 78

REVISIONS

PLOT DRIVER: NCDOT.pdf_color_eng.100.plt
USER: NWOMACK
FILE: NCDOT\NCDOT-U2579AB\V6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\PERMITS_Environmental\Drawings\PENTABLE: NCDOT_permits_NOCON.tbl
DATE: 10/13/2020
TIME: 1:05:16 PM

LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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25 12.5 0 25 50
GRAPHIC SCALE

NAD 83/95

FIDDLERS CREEK (ESE-S11)

ESE-W27

ESE-S40

ESE-W34

ESE-W35

ESE-S49

ESE-W36

SITE 14

JOHN L. ARANT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

30' SANITARY SEWER EASEMENT

27" DI

EXISTING R/W

EIP

PIPE CLEAN OUT OUTLET FOUND

INV=809.54'

RETAIN DI

INV=(S) 819.61'
INV=(N) 819.44'

RETAIN

TB 2GI

12" RCP III n 2GI

REMOVE DI

EXISTING 72" RCP VERIFIED IN FIELD

INV=807.15'

INV=807.76'

TB 2GI

TOP=816.54'
INV=813.78'

REMOVE DI

MATCHLINE -Y15- STA. 21+00.00 (SEE INSET)

MATCHLINE SHEET 17 -Y15- STA. 34+75.00

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'C'

COLLAR AND EXTEND

REMOVE AND REPLACE 18" OF 24" RCP

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'D'

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'J'

EXISTING 72" RCP

PIPE CLEANOUT

REMOVE WW

72" RCP Blunted to 10° HW

JB w/Slab Top

TIE TO EXIST. FENCE

CLAUDE STEVE ALLRED JR.
ANNE JONES ALLRED

PROP. 47' WW FENCE

4' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'I'

BANK STABILIZATION AT JS STREAM
CLASS 'I' RIP RAP
EST. 10 TONS
18 SY GEOTEXTILE
SEE SHEET 2D-2
DETAIL 'III'

ESE-W46

SITE 14A

ESE-S49

ESE-W45

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)

NATURAL BED ELEVATION
Natural Ground
Natural Ground
1.5'
GEOTEXTILE
Type of Liner= CL I Rip-Rap

STA. 31+85 -Y15- RT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)

Natural Ground
2:1
b
1.5' Ft.
Fill Slope
B
Min. D= 1 Ft.
B= 4 Ft.
b= 5 Ft.

FROM STA. 29+00 TO STA. 31+85 -Y15- RT

MATCHLINE -Y15- STA. 21+00.00 (SEE THIS SHEET)

TYPE B-77

CONC

TOP=832.18'
INV=824.33'

INV=804.14'

INV=813.48'

PERMIT DRAWING SHEET 39 OF 78

REVISIONS

PLOT DRIVER: NCDOT.pdf_color_eng.100.plt
USER: NWOMACK
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\PERMITS_Environmental\Drawings\U2579AB_PRM_PSH.dgn
PENTABLE: NCDOT_permits_CON.tbl
DATE: 10/13/2020
TIME: 1:42:34 PM

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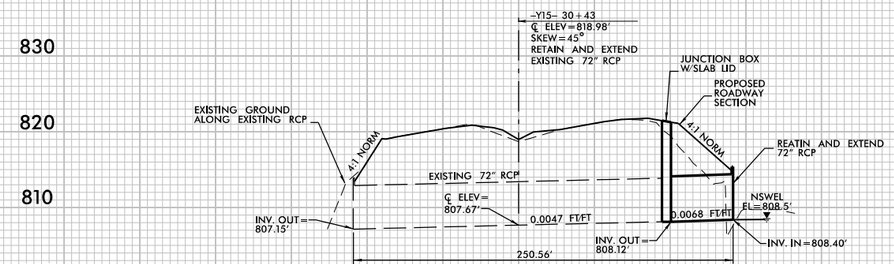
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

U-2579AB – SITE 14

150 100 50 0 50 100 150



PROFILE ALONG ℄ OF PIPE

PERMIT DRAWINGS
SHEET 40 OF 78

REVISIONS 5/14/99

PLOT DRIVER: NCDOT_pdf_color-eng_100.plt
USER: _USERNAME_
FILE: U2579AB_PRM_CSR_PSH
PENTABLE: NCDOT_PFL_XSC.tbl
DATE: 5/5/2020
TIME: 12:04:34 PM

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579AB	X-254

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

820
810
800

0.045
0.040
2:1
815.48

35+00.00

820
810
800

0.055
0.044
2:1
815.96

34+50.00

820
810
800

0.060
0.052
2:1
816.00

34+00.00

U-2579AB
PERMIT SITE 14A

WETLANDS
WETLANDS

820
810
800

0.060
0.055
2:1
816.48

33+50.00

820
810
800

0.060
0.056
2:1
816.88

33+00.00

-Y15-

PERMIT DRAWING
SHEET 41 OF 78

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
USER: .USERNAME.
FILE: u2579ab_PRM_xpl_y15beg_right

PENTABLE: NCDOT_PFL_XSC.tbl
TIME: 12:03:26 PM
DATE: 5/5/2020

LEGEND:

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

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

ESE–W29
ESE–W28
ESE–S43
ESE–S51
ESE–S53
FIDDLERS CREEK (ESE–S11)
SITE 27
SITE 14A
CITY OF WINSTON-SALEM
ROBBINS RD
JOHN L. ARANT
30' SANITARY SEWER EASEMENT
EXISTING R/W
RIMMON
CABLE
CHORD
TIE TO EXIST. FENCE
PROP. 47" WW FENCE

MATCHLINE SHEET 16 –Y15– STA. 34+75.00

MATCHLINE SHEET 18 –Y15– STA. 48+50.00

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

CLASS 'B' RIP RAP
EST. 11 TONS
28 SY GEOTEXTILE

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

STANDARD 4' BASE DITCH
SEE SHEET '2D-1'
DETAIL 'BB'
SLOPE = 1.25%

2GI W/FG
BEGIN SBG STA. +95
15" CSP W/ELBOWS
END SBG STA. +82
15" RCP-III
RCA W/FG

REMOVE 42" RCP-III
REMOVE 24" RCP-III
REMOVE DI
REMOVE HEADWALL
RETAIN 18" RCP-III

TB 2GI
15" RCP-III
24" RCP-III
36" RCP-III
INV=(S) 809.65'
INV=(N) 809.53'
INV=808.51'
INV=809.50'
INV=813.4

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'D'
SPECIAL CUT DITCH SEE SHEET '2D-2' DETAIL 'HHHH'
SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'D'

18" CSP W/ELBOWS
10' CONC HW
INV=810.2'
BDO
30" CSP W/ELBOWS
48" WW
STANDARD 2' BASE DITCH W/CLASS B RIP RAP EST. 15 TONS 41 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'LL'

COLLAR AND EXTEND 18" RCP-III
2GI
FS
18" CSP W/ELBOWS

BERM DITCH SEE SHEET '2D-1' DETAIL 'NN'

190'

48" RCP

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng.100.plt
USER: NWOMACK
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\PERMITS_Environment\Drawings\U2579AB_PRM_PSH.dgn
PENTABLE: NCDOT_permits_NOCON.tbl
DATE: 10/5/2020
TIME: 12:00:30 PM

PERMIT DRAWING
SHEET 42 OF 78

LEGEND:

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

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

ESE–W29
ESE–W28
ESE–S43
ESE–S51
ESE–S53
FIDDLERS CREEK (ESE–S11)
SITE 27
SITE 14A
JOHN L. ARANT
CITY OF WINSTON-SALEM
ROBBINS RD
30' SANITARY SEWER EASEMENT
EXISTING R/W
PERMANENT DRAINAGE EASEMENT
TIE TO EXIST. FENCE
PROP. 47" WW FENCE
CHORD
CABLE
RIMMON
CLASS 'B' RIP RAP EST. 11 TONS 28 SY GEOTEXTILE
PREFORMED SCOUR HOLE EST. 20 SY PSRM EST. 12 SY GEOTEXTILE EST. 9 TONS CLASS 'B' STONE DETAIL 'EEEE'
CLASS 'B' RIP RAP EST. 5 TONS 14 SY GEOTEXTILE
STANDARD 4' BASE DITCH SEE SHEET '2D-1' DETAIL 'BB' SLOPE = 1.25%
BEGIN SBG STA. +95
END SBG STA. +82
2GI W/FG
15" CSP W/ELBOWS
15" RCP-III
24" RCP-III
42" RCP-III
36" RCP-III
21" RCP-III
18" RCP-III
18" CSP W/ELBOWS
REMOVE 42" RCP-III
REMOVE 36" RCP-III
REMOVE HEADWALL
REMOVE DI
RETAIN 21" RCP-III
SPECIAL CUT DITCH SEE SHEET '2D-2' DETAIL 'HHHH'
SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'D'
STANDARD 2' BASE DITCH W/CLASS B RIP RAP EST. 15 TONS 41 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'LL'
COLLAR AND EXTEND
BERM DITCH SEE SHEET '2D-1' DETAIL 'NN'
BDO
TB 2GI
INV=809.50
INV=809.65
INV=809.53
INV=809.58
INV=808.5
INV=813.
MATCHLINE SHEET 16 –Y15– STA. 34+75.00
MATCHLINE SHEET 18 –Y15– STA. 48+50.00

PERMIT DRAWING SHEET 43 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color-eng.100.plt
USER: NWOMACK
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\PERMITS_Environment\Drawings\U2579AB_PRM_PSH.dgn
PENTABLE: NCDOT_permits_CON.tbl
DATE: 10/5/2020
TIME: 10:33:45 AM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	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

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 25 12.5 0 25 50

LEGEND:

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/95

ESE-W30

FIDDLERS CREEK (ESE-S11)

ESE-W31

ESE-W38

SITE 15

ESE-S53

ESE-W40

ESE-S52

DETAIL CC
STANDARD BASE DITCH
(Not to Scale)
Min. D = 2.6 Ft.
B = 4 Ft.
FROM STA. 48+85 TO STA. 48+89 -Y15REV- LT

JOHN L. ARANT

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

4' BASE TAILDITCH
SEE SHEET '2D-1'
DETAIL 'C'
SLOPE = 0.31%

CLASS 'I' RIP RAP
EST. 15 TONS
37 SY GEOTEXTILE

PROP. 47" WW FENCE

CLASS 'I' RIP RAP
EST. 26 TONS
50 SY GEOTEXTILE

ENERGY DISSIPATOR BASIN
SEE SHEET '2D-2'
DETAIL 'EEE'

CHORD

15" CSP W/ELBOWS

BEGIN SBG STA. +47

2GI W/FG

COLLAR AND EXTEND

END SBG STA. +13

TRENCHLESS INSTALLATION
42" WELDED STEEL, 0.375" THICK

TRENCHLESS INSTALLATION
48" WELDED STEEL, 0.500" THICK
OVERFLOW STRUCTURE

REMOVE DI

15" RCP-III

15" RCP-IV

EXISTING 60"RCP VERIFIED IN FIELD
REMOVE 27' OF 60" RCP

JB W/MH

REMOVE 18' 48" RCP

18" RCP-IV REMOVE

SPECIAL CUT BASE DITCH
W/CLASS 'B' RIP RAP
EST 146 TONS
325 SY GEOTEXTILE
SEE SHEET '2D-2'
DETAIL 'FFF'

SPECIAL CUT BASE DITCH
SEE SHEET '2D-2'
DETAIL 'GGG'

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'D'

TIE EXIST BERM DITCH
TO ROADWAY DITCH

SPECIAL CUT BASE DITCH
SEE SHEET '2D-1'
DETAIL 'L'

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'NN'

2' DITCH BLOCK

TIE EXISTING STREAM TO 42" RCP INLET SIDE OF PIPE EXTENTION. TRENCHLESS PIPE TO BE SET AT SAME ELEVATION.

INSTALL PVC COATED GABIONS 3 @ 3'Wx3'Lx2'H BURIED 1 FOOT (SEE DETAIL XXXX)

ESE-S52 SITE 15

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'NN'

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'D'

18" RCP-III

15" CSP W/ELBOWS

2GI(D)

BDO

PROP. 47" WW FENCE

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'OO'

BERM DITCH
W/CLASS 'B' RIP RAP
EST. 67 TONS
189 SY GEOTEXTILE
SEE SHEET '2D-2'
DETAIL 'PP'

DAVID MOTSINGER
WAYNE MOTSINGER

JOHN L. ARANT

DETAIL XXXX
PVC COATED GABION INSTALLATION DETAIL
CONCRETE HEADWALL
42" RCP-III
Existing ground
Ditch Flowline
INV=815.46'
Class B Rip Rap Keyed-in 1 foot
Type of Liner= Coir Fiber
PVC Coated Gabions buried 1 foot
3@ 3'Wx3'Lx2'H
STA. 12+58 -Y15FLYCA- RT

MATCHLINE SHEET 17 -Y15- STA. 48+50.00

MATCHLINE SHEET 19 -Y15REV- STA. 14+00.00

MATCHLINE SHEET 19 -Y15FLYCA- STA. 25+00.00

PERMIT DRAWING
SHEET 44 OF 78

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 25 12.5 0 25 50

LEGEND:

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/95

ESE-W30

FIDDLERS CREEK (ESE-S11)

ESE-W31

WINSTON-SALEM

ESE-W38
SITE 15

ESE-S53

ESE-W40

ESE-S52

DETAIL CC
STANDARD BASE DITCH
(Not to Scale)
Min. D = 2.6 Ft.
B = 4 Ft.
FROM STA. 48+85 TO STA. 48+89 -Y15REV- LT

JOHN L. ARANT

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

4' BASE TAIL DITCH
SEE SHEET '2D-1'
DETAIL 'CC'
SLOPE = 0.31%

CLASS 'I' RIP RAP
EST. 15 TONS
37 SY GEOTEXTILE

PROP. 47" WW FENCE

CLASS 'I' RIP RAP
EST. 26 TONS
EST. 50 SY GEOTEXTILE

ENERGY DISSIPATOR BASIN
SEE SHEET '2D-2'
DETAIL 'EEE'

CHORD

15" CSP W/ELBOWS

BEGIN SBG STA. +47

2GI W/FG

2GI W/ FG

COLLAR AND EXTEND

48" RCP-III

END SBG STA. 518

TRENCHLESS INSTALLATION
42" WELDED STEEL,
0.375" THICK

TRENCHLESS INSTALLATION
48" WELDED STEEL, 0.500" THICK
OVERFLOW STRUCTURE

TB 2GI

15" RCP-III

REMOVE DI

15" RCP-IV

EXISTING 60"RCP
VERIFIED IN FIELD
REMOVE 27'
OF 60" RCP

TB JB

JB W/MH

REMOVE 18"
48" RCP

36" CSP W/ELBOWS

2GI(D)

BDO

18" RCP-III

18" RCP-IV
REMOVE

SPECIAL CUT BASE DITCH
W/CLASS 'B' RIP RAP
EST 146 TONS
325 SY GEOTEXTILE
SEE SHEET '2D-2'
DETAIL 'FFF'

SPECIAL CUT BASE DITCH
SEE SHEET '2D-2'
DETAIL 'GGG'

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'D'

TIE EXIST BERM DITCH
TO ROADWAY DITCH

SPECIAL CUT BASE DITCH
SEE SHEET '2D-1'
DETAIL 'I'

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'NN'

2' DITCH BLOCK

TIE EXISTING STREAM
TO 42" RCP INLET SIDE
OF PIPE EXTENTION.
TRENCHLESS PIPE
TO BE SET AT SAME
ELEVATION.

INSTALL PVC
COATED GABIONS
3 @ 3'Wx3'Lx2'H
BURIED 1 FOOT
(SEE DETAIL XXXX)

ESE-S52 SITE 15

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'NN'

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'D'

18" RCP-III

15" CSP W/ELBOWS

15" RCP-III

PROP. 47" WW FENCE

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'OO'

BERM DITCH
W/CLASS 'B' RIP RAP
EST. 67 TONS
189 SY GEOTEXTILE
SEE SHEET '2D-2'
DETAIL 'PP'

DETAIL XXXX
PVC COATED GABION INSTALLATION DETAIL
CONCRETE HEADWALL
42" RCP-III
Existing ground
Ditch Flowline
INV=815.46'
Class B Rip Rap
Keyed-in 1 foot
Type of Liner= Coir Fiber
PVC Coated Gabions buried 1 foot
3@ 3'Wx3'Lx2'H
STA. 12+58 -Y15FLYCA- RT

DAVID MOTSINGER
WAYNE MOTSINGER

MATCHLINE SHEET 17 -Y15- STA. 48+50.00

MATCHLINE SHEET 19 -Y15REV- STA. 14+00.00

MATCHLINE SHEET 19 -Y15FLYCA- STA. 25+00.00

PERMIT DRAWING
SHEET 45 OF 78

REVISIONS

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5/14/99

REVISIONS

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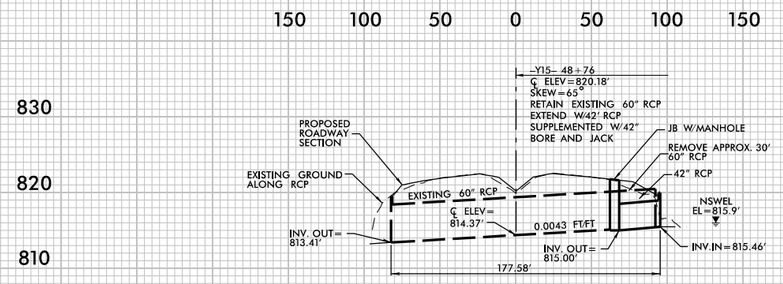
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

U-2579AB – SITE 15



PROFILE ALONG ℄ OF PIPE

PERMIT DRAWINGS
SHEET 46 OF 78

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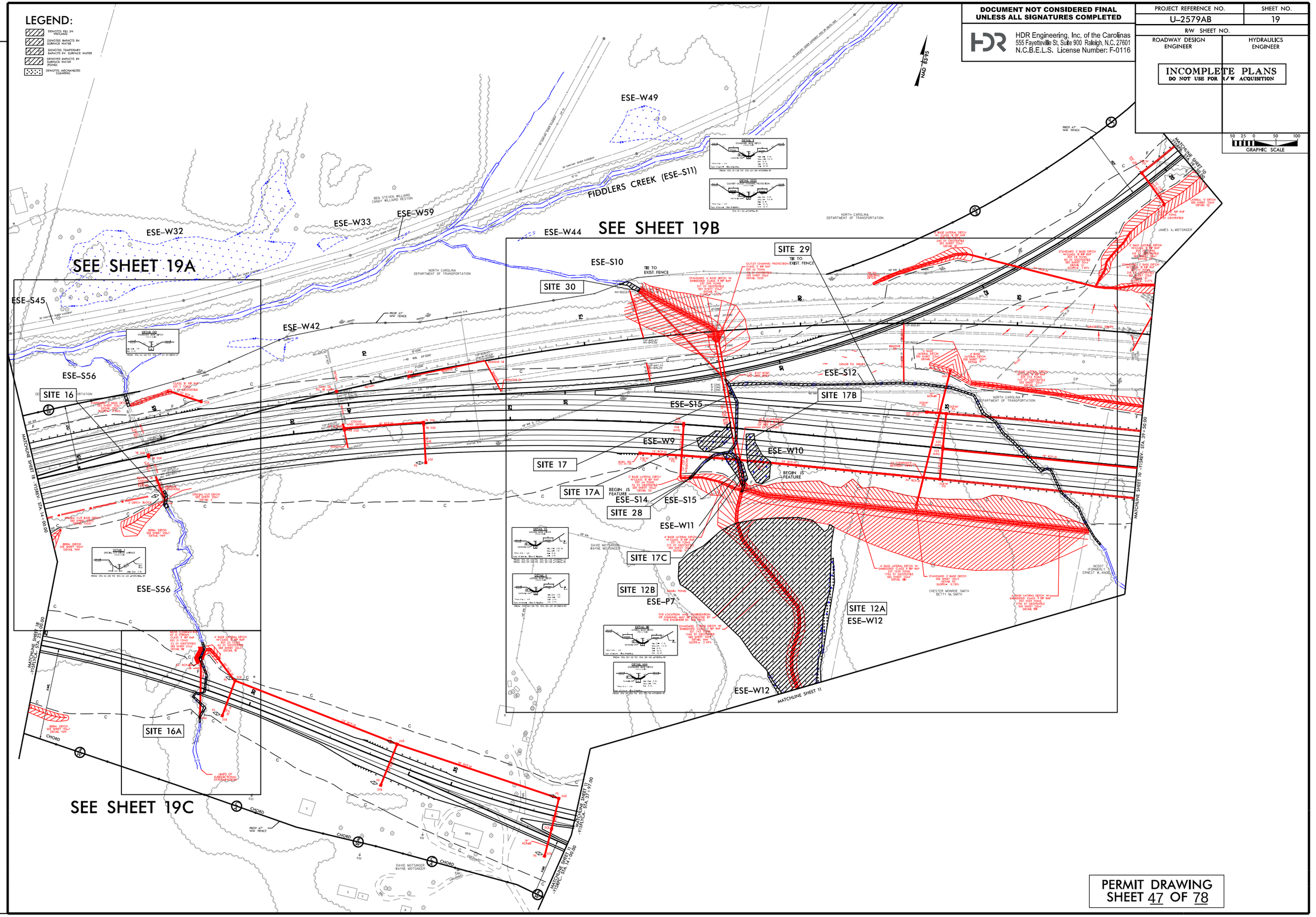

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

50 25 0 50 100
GRAPHIC SCALE

LEGEND:

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING

NAD 83/95

SEE SHEET 19A

SEE SHEET 19B

SEE SHEET 19C

FIDDLERS CREEK (ESE-S11)

ESE-W32 ESE-W33 ESE-W59 ESE-W49 ESE-W44

ESE-S45 ESE-S56 ESE-W42 ESE-S10 ESE-S12 ESE-S15 ESE-W9 ESE-W10 ESE-S14 ESE-W11 ESE-P7 ESE-W12

SITE 16 SITE 16A SITE 17 SITE 17A SITE 17B SITE 17C SITE 28 SITE 29 SITE 30 SITE 12A SITE 12B

MATCHLINE SHEET 18 -Y15REV- STA 14+00.00

MATCHLINE SHEET 10 -Y15REV- STA 39+50.00

MATCHLINE SHEET 10 -Y15REV- STA 37+97.00

MATCHLINE SHEET 11

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

JAMES A. MOTSINGER

DAVID MOTSINGER WAYNE MOTSINGER

CHESTER EDWRDE SMITH BETTY M. SMITH

PERMIT DRAWING
SHEET 48 OF 78

REVISIONS

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ESE–S56

SITE 16

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEOTEXTILE
15" RCP–III
2GI

STANDARD 2' BASE DITCH
SEE SHEET '2D–1'
DETAIL 'DD'
SLOPE = 0.36%

RETAIN EXST 54" RCP

TB 2GI

REMOVE DI COLLAR AND EXTEND

DO NOT BURY 54" RCP

REMOVE HEADWALL

2' DITCH BLOCK

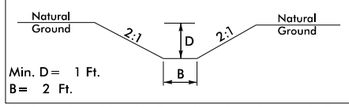
SPECIAL CUT DITCH
SEE SHEET '2D–1'
DETAIL 'J'

SPECIAL CUT BASE DITCH
SEE SHEET '2D–2'
DETAIL 'GGG'

BERM DITCH
SEE SHEET '2D–1'
DETAIL 'NN'

48" WW
48" RCP
150'
65'
TOP=827.95'
INV (SE)=820.70'
INV (NW)=820.40'
TOP=826.92'
INV (SE)=821.17'
INV (NW)=820.72'
24.76'
MTL
RWMON
-Y15-
665+20.20
89.96

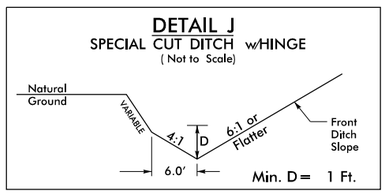
DETAIL DD
STANDARD BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
B = 2 Ft.

FROM STA. 16+40 TO STA. 17+35 –Y15REV– LT

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



FROM STA. 16+00 TO STA. 16+65 –Y15FLYBD– RT

NAD 83/95

LEGEND:

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	19A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 12.5 0 12.5 25

PERMIT DRAWING
SHEET 49 OF 78

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	19B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

SITE 29
TIE TO EXIST. FENCE
ESE–S10
TIE TO EXIST. FENCE
SITE 30
OUTLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 42 TONS 70 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'SSSS'
STANDARD 6' BASE DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 299 TONS 517 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'R' SLOPE = 1.16%
SEE SHEET '2D-1' DETAIL 'II'
TIE TO EXISTING DITCH
REMOVE DI
4' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'T'
4' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 274 TONS 747 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'V'
GRADE TO DRAIN
1 @ 8'X7' RCBC DO NOT BURY
ESE–S12
SITE 17B
ESE–S15
10.7' CLEARANCE BETWEEN INVERT OF PIPE AND TOP OF CULVERT
15" RCP-III
2GI W/FG
END SBG STA. 34+52
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ESE–W9
ESE–W10
SITE 17
BEGIN SBG STA. 28+00
24" CSP W/ELBOWS
24" RCP-III
18" RCP-III
12" RCP-III
24" RCP-IV
BEGIN JS FEATURE
2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 44 TONS 76 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'SS'
SITE 17A
ESE–S14
ESE–S15
SITE 28
ESE–W11
4' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 79 TONS 215 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'V'
DAVID MOTSINGER
WAYNE MOTSINGER
SITE 17C
6' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 1039 TONS 1796 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'IIII'
STANDARD 2' BASE DITCH SEE SHEET '2D-1' DETAIL 'EE' SLOPE = 0.78%
6' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 1039 TONS 1796 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'IIII'
NCDOT (FORMERLY ERNEST W. ANGEL)
SITE 12B
ESE–P7
DRAIN POND
THE LOCATION AND STABILIZATION OF CHANNEL MAY BE ADJUSTED BY THE ENGINEER IN THE FIELD.
STANDARD 5' BASE DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 742 TONS 1340 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'MM' SLOPE = 2.49%
SITE 12A
ESE–W12

DETAIL SSSS
CULVERT OUTLET CHANNEL PROTECTION
(Not to Scale)
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 12 Ft.
C= 12 FT.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
STA. 31+34 –Y15RPB– RT

DETAIL R
(Not to Scale)
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 12 Ft.
C= 12 FT.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 31+30 TO STA. 33+00 –Y15RPB– RT

DETAIL SS
LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.25 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 25+00 TO STA. 26+50 –Y15RPD– LT
FROM STA. 29+00 TO STA. 30+00 –Y15REV– RT

DETAIL V
LATERAL BASE DITCH
(Not to Scale)
Min. D= 1 Ft.
Max. d= 1 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 30+00 TO STA. 30+50 –Y15REV– RT

DETAIL IIII
LATERAL BASE DITCH
(Not to Scale)
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 12 Ft.
C= 12 FT.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 30+50 TO STA. 38+50 –Y15REV– RT

DETAIL MM
STANDARD BASE DITCH
(Not to Scale)
Min. D= 3 Ft.
Max. d= 1 Ft.
B= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 30+50 TO STA. 32+90 –Y15REV– RT

LEGEND:

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

PERMIT DRAWING SHEET 50 OF 78

REVISIONS

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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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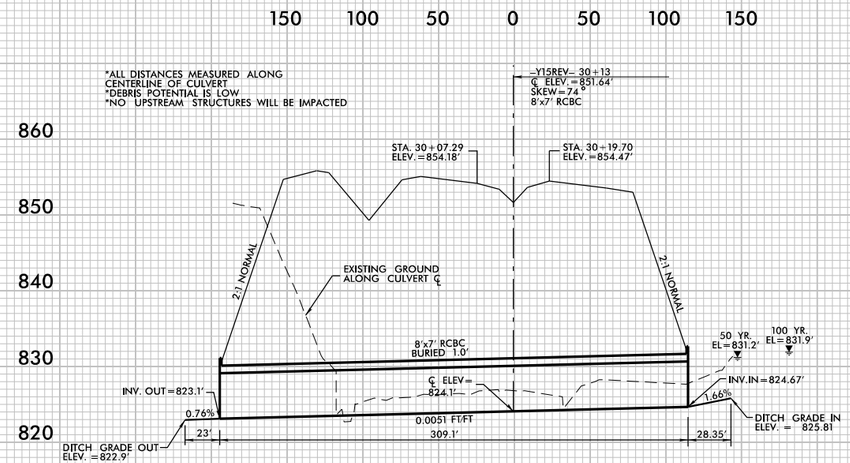
U-2579AB – SITE 17



PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 51 OF 78

REVISIONS

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5/14/99

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2579AB	X-281

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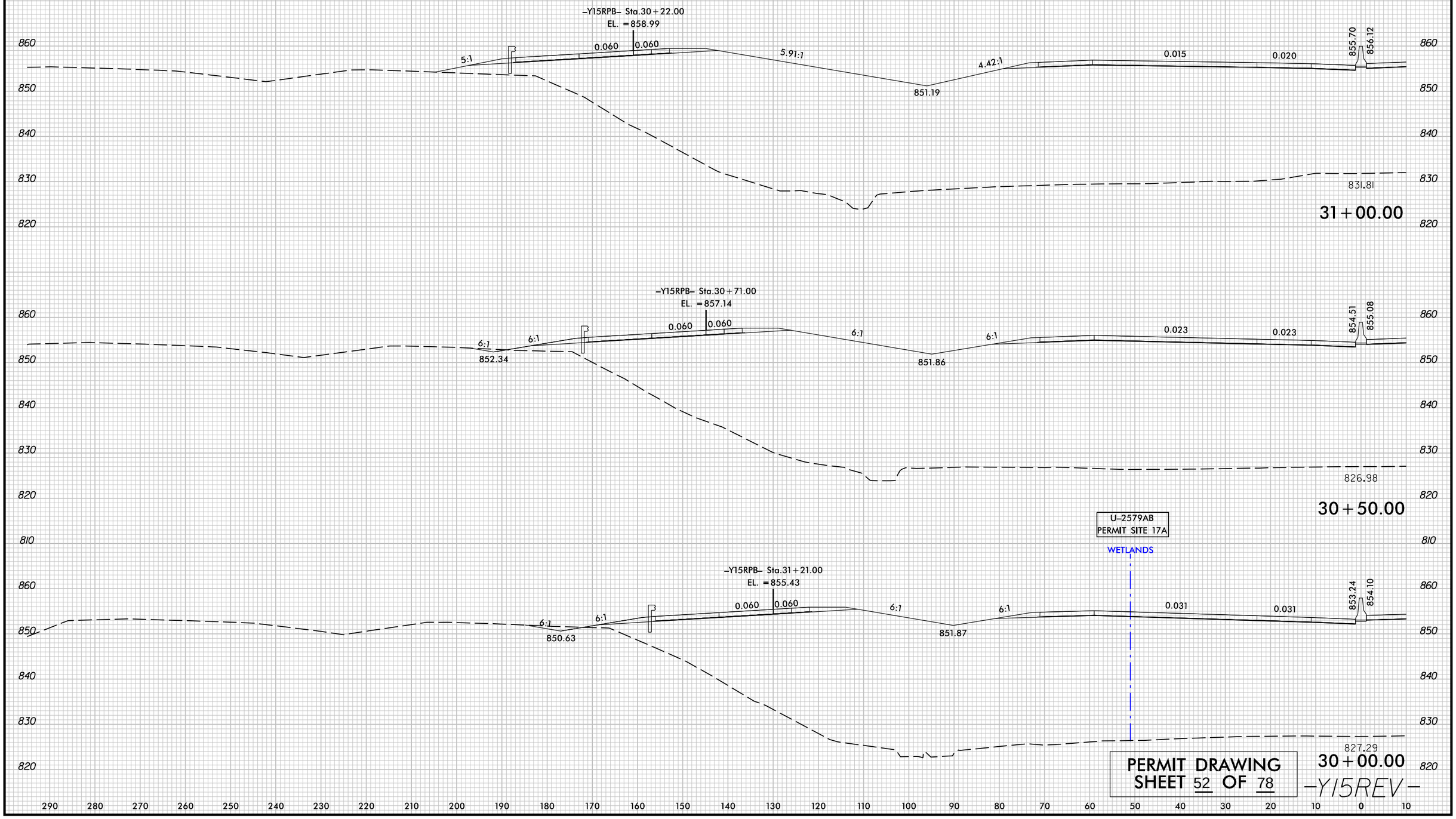

PERMIT DRAWING
SHEET 52 OF 78

–Y15REV–

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8/23/99

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	U-2579AB	X-332

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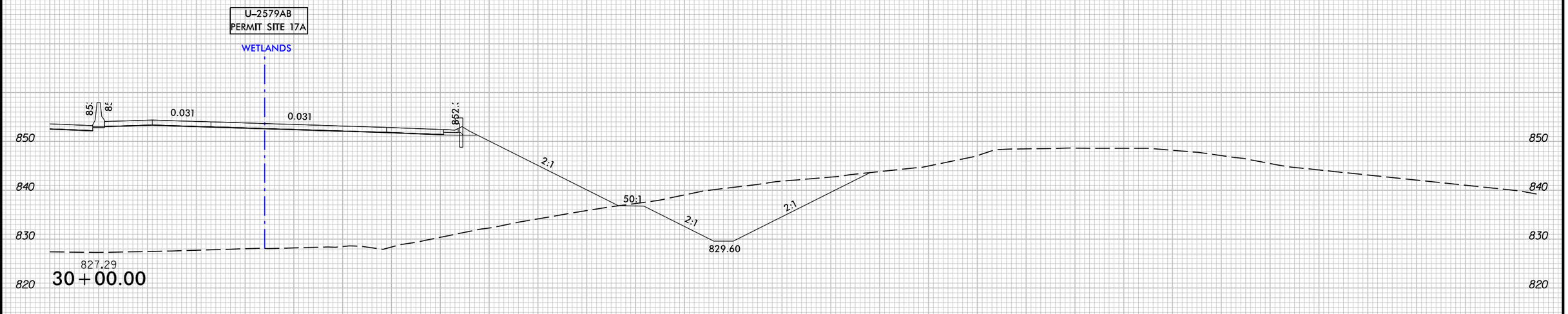
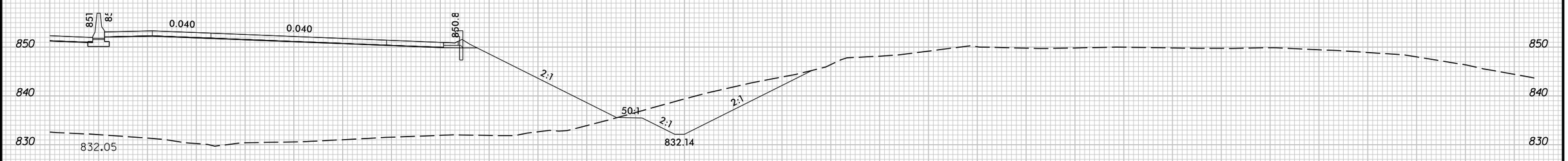
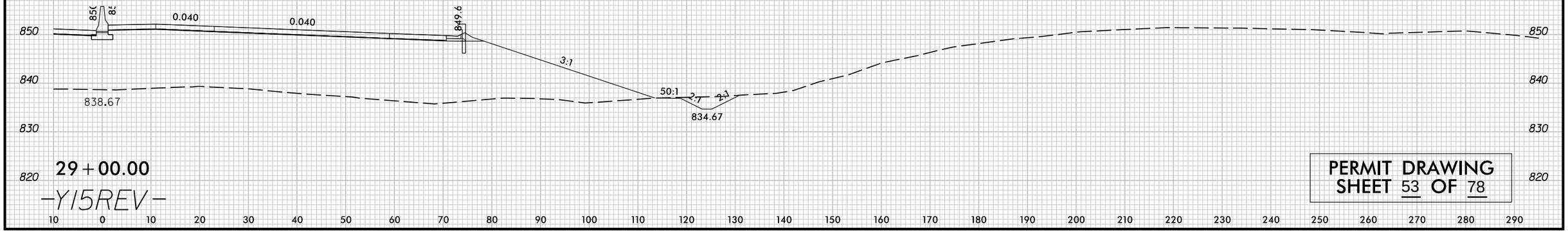
U-2579AB
PERMIT SITE 17A

WETLANDS







-Y15REV-

PERMIT DRAWING
SHEET 53 OF 78

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	U-2579AB	X-333

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

860 850 840 830 820

85 82 0.006 0.020 856

2:1 2:1 13:1 2:1 2:1 12:1 2:1

835.54

826.27

31+50.00

U-2579AB
PERMIT SITE 17B

WETLANDS WETLANDS

85 82 0.015 0.020 855

2:1 2:1 13:1 2:1 2:1 12:1 2:1

831.81

825.44

31+00.00

85 82 0.023 0.023 853

2:1 50:1 2:1 2:1

826.98

824.67

30+50.00

-Y15REV-

PERMIT DRAWING
SHEET 54 OF 78

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DATE: 5/5/2020
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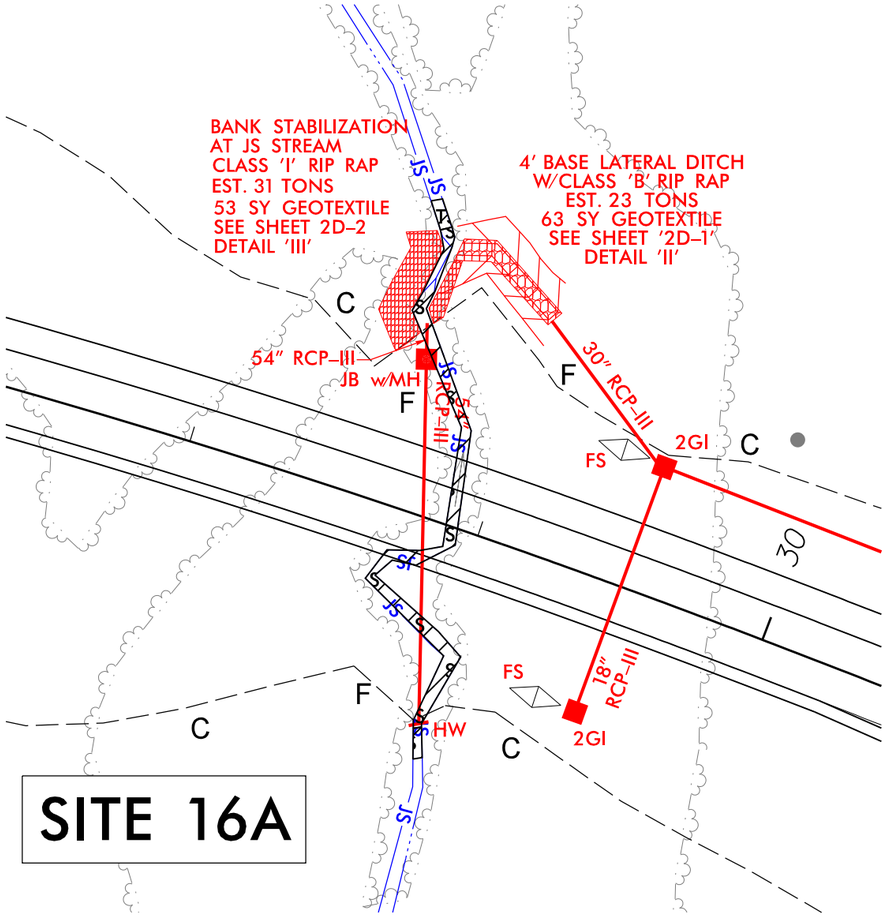
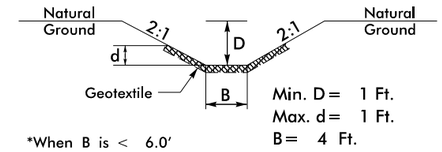


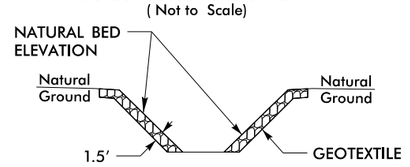
DETAIL II
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = Class B Rip-Rap

FROM STA. 28+65 TO STA. 29+00 –Y15FLYCA– LT

DETAIL III
BANK STABILIZATION AT
JURISDICTIONAL STREAM
(Not to Scale)



Type of Liner = CL I Rip-Rap

STA. 28+70 –Y15FLYCA– LT

LEGEND:

S / S — DENOTES IMPACTS IN SURFACE WATER

TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 55 OF 78

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	19C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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GRAPHIC SCALE 12.5 0 12.5 25

NAD 83/95

REVISIONS

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TIME: 11:26:57 AM

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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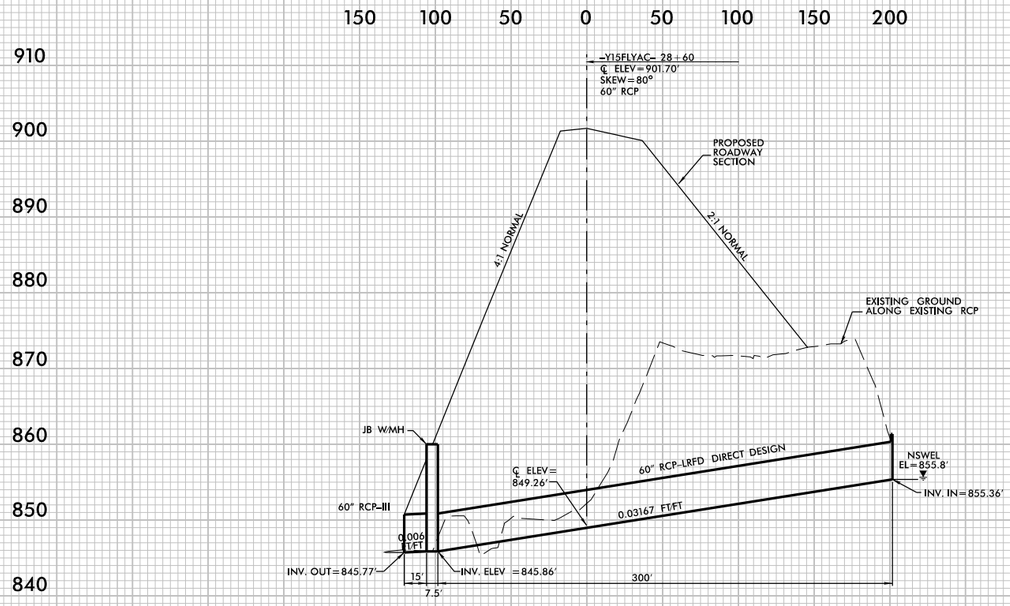
U-2579AB – SITE 19



PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 56 OF 78

REVISIONS

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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GRAPHIC SCALE 50 25 0 50 100

NAD 83/96 CON

LEGEND:

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 20A

SEE SHEET 20B

SEE SHEET 20C

FIDDLERS CREEK (ESE-S25)

SITE 18

SITE 19

ESE-S58

MATCHLINE SHEET 26 -Y5B- STA 13+50.00

MATCHLINE SHEET 10 -Y19PA- STA 23+00.00

MATCHLINE SHEET 10 -Y19PA- STA 46+00.00

MATCHLINE SHEET 10 -Y19ERV- STA 39+00.00

MATCHLINE SHEET 25

MATCHLINE SHEET 21 -Y19VAC- STA 18+50.00

MATCHLINE SHEET 21 -Y19VAC- STA 85+00.00

MATCHLINE SHEET 21 -Y19STER- STA 92+04.15

MATCHLINE SHEET 25 -Y19ARD- STA 5+50.00

PROP. NOISE WALL Y19SF19BD

PERMIT DRAWING
SHEET 57 OF 78

REVISIONS

ROW REV. - MAY 7, 2019 - MOVED TURN AROUND FROM PARCEL 668 TO PARCEL 268. SHIFTED TURN AROUND DESIGN DOWN FIFTEEN FEET AND SHIFTED CONTROL ACCESS DOWN TO ACCOMODATE DESIGN. REMOVED RIGHT-OF-WAY FROM PARCEL 668 AND REDUCED PERMANENT UTILITY EASEMENT TO PROPERTY LINE ON PARCEL 241. ADDED RIGHT-OF-WAY TO PARCEL 268 AND PERMANENT UTILITY EASEMENT TO PARCELS 241 AND 268. SMP
ROW REV. - OCTOBER 14, 2019 - UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y19FLYBD- FROM STATION 70+00 TO 92+19. JHG

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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GRAPHIC SCALE 50 25 0 50 100

SEE SHEET 20A

SEE SHEET 20B

SEE SHEET 20C

FIDDLERS CREEK (ESE-S25)

SITE 18

SITE 19

ESE-S58

LEGEND:
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCHLINE SHEET 10 -Y5PA- STA. 23+00.00

MATCHLINE SHEET 26 -Y5B- STA. 13+50.00

MATCHLINE SHEET 10 -Y5BEV- STA. 39+00.00

MATCHLINE SHEET 25

MATCHLINE SHEET 21 -Y5BEVD- STA. 2+50.00

MATCHLINE SHEET 21 -Y5BEVC- STA. 18+50.00

MATCHLINE SHEET 21 -Y5BEVC- STA. 83+00.00

MATCHLINE SHEET 21 -Y5BEVC- STA. 92+04.15

PROP. NOISE WALL Y15-LT-BD

PROP. 6' VINYL FENCE

PERMIT DRAWING
SHEET 58 OF 78

REVISIONS

ROW REV. - MAY 7, 2019 - MOVED TURN AROUND FROM PARCEL 668 TO PARCEL 268. SHIFTED TURN AROUND DESIGN DOWN FIFTEEN FEET AND SHIFTED CONTROL ACCESS DOWN TO ACCOMODATE DESIGN. REMOVED RIGHT-OF-WAY FROM PARCEL 668 AND REDUCED PERMANENT UTILITY EASEMENT TO PROPERTY LINE ON PARCEL 241. ADDED RIGHT-OF-WAY TO PARCELS 241 AND 268.-SMP
ROW REV. - OCTOBER 14, 2019 - UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y15PLYBD- FROM STATION 70+00 TO 92+19.-JHG

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	20A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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NAD 83/95

GRAPHIC SCALE 12.5 0 12.5 25

LEGEND:

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

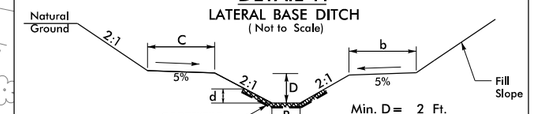
FIDDLERS CREEK (ESE–S25)

SITE 18

SITE 19

ESE–S58

DETAIL H
LATERAL BASE DITCH
(Not to Scale)



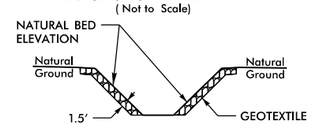
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.
*When B is < 6.0'
Type of Liner= Class I Rip–Rap

8' BASE LATERAL DITCH
W/CLASS 'I' RIP RAP
EST. 303 TONS
514 SY GEOTEXTILE
SEE SHEET '2D–2'
DETAIL 'H'

FROM STA. 26+82 TO STA. 28+87 –Y15FLYAC– RT

BANK STABILIZATION
AT JS STREAM
CLASS 'I' RIP RAP
EST. 50 TONS
75 SY GEOTEXTILE
SEE SHEET 2D–2
DETAIL 'III'

DETAIL III
BANK STABILIZATION AT JURISDICTIONAL STREAM
(Not to Scale)



Type of Liner= CL I Rip–Rap

STA. 28+88 –Y15FLYCA– RT

60" RCP–III
JB w/MH
SU RCSARD
DO NOT BURY
DIRECT DESIGN

CHORD
CHORD

PERMIT DRAWING
SHEET 59 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
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TIME: 12:01:29 PM

ESE–S58

SITE 19

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	20B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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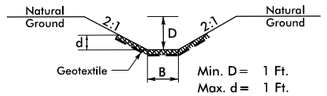
N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 12.5 0 12.5 25

NAD 83/95

DETAIL JJ
STANDARD BASE DITCH
(Not to Scale)

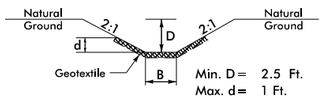


Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
*When B is < 6.0'

Type of Liner = Class B Rip–Rap

FROM STA. 75+24 TO STA. 75+65 –Y15REV– LT

DETAIL CCCC
STANDARD BASE DITCH
(Not to Scale)

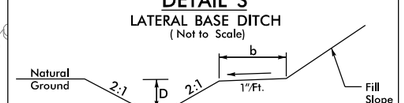


Min. D = 2.5 Ft.
Max. d = 1 Ft.
B = 4 Ft.
*When B is < 6.0'

Type of Liner = Class B Rip–Rap

STA. 76+70 –Y15REV– LT

DETAIL S
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
B = 2 Ft.
b = 5 Ft.

FROM STA. 76+50 TO STA. 77+00 –Y15REV– RT

LEGEND:

S / S — DENOTES IMPACTS IN SURFACE WATER

REMOVE
REMOVE
REMOVE
REMOVE
REMOVE
REMOVE DI
STANDARD 4' BASE DITCH W/CLASS 'B' RIP RAP SEE SHEET '2D–3' DETAIL 'CCCC' SLOPE = 0.72%
STANDARD 2' BASE DITCH W/CLASS 'B' RIP RAP SEE SHEET '2D–1' DETAIL 'JJ' SLOPE = 9.98%
CLASS 'B' RIP RAP EST. 16 TONS 42 SY GEOTEXTILE
LATERAL 'V' DITCH SEE SHEET '2D–1' DETAIL 'Q'
30" RCP–III
OTCB
30" CSP W/ELBOWS
30" CSP W/ELBOWS
COLLAR AND EXTEND
HW
JB w/MH
48" RCP–III DO NOT BURY
CONV. DI TO JB w/MH
CONV. DI TO TBJB w/MH
TB 2GI
TB 2GI
TB 2GI
18" RCP–III
2GI
FS
COLLAR AND EXTEND
COLLAR AND EXTEND
2' BASE LATERAL DITCH SEE SHEET '2D–1' DETAIL 'S'
SPECIAL CUT DITCH SEE SHEET '2D–1' DETAIL 'D'
RETAIN
RETAIN
RETAIN
RETAIN
RETAIN
RETAIN
30" RCP–III
FS
48" RCP–IV DO NOT BURY
JB w/MH
48" RCP–III
EXISTING R/W
EXISTING R/W
-Y15REV- 72+08.70 101.29'
NCDOT
NCDOT
NCDOT
NCDOT
NCDOT
2SFD
2SFD
2SFD
2SFD
ISFD
CAROLINA SARRIA
TARA D. MCCLELLAN
SHERRI J. LINVILLE
SANITARY SEWER EASEMENT
SANITARY SEWER EASEMENT
PRIVATE STORM DRAIN EASEMENT
VARIABLE
CABLE
OUTLET NOT FOUND

SITE 19

ESE–S58

PERMIT DRAWING
SHEET 60 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.pltt
USER: NWOMACK
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	20C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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GRAPHIC SCALE 12.5 0 12.5 25

NAD 83/95

LEGEND:

S S DENOTES IMPACTS IN SURFACE WATER

SITE 19

ESE-S58

2GI(A)

30" RCP-III

FS

HW

REMOVE

STANDARD 4' BASE DITCH
W/CLASS 'B' RIP RAP
EST. 38 TONS
103 SY GEOTEXTILE
SEE SHEET '2D-3'
DETAIL 'CCCC'
SLOPE= 0.72%

48" RCP-III
DO NOT BURY

2' BASE BERM DITCH
W/CLASS 'B' RIP RAP
EST. 162 TONS
458 SY GEOTEXTILE
SEE SHEET '2D-2'
DETAIL 'WW'

BDO

15" CSP
W/ELBOWS

CHORD DUE

CHANNEL PROTECTION
AT JS STREAM
CLASS 'I' RIP RAP
EST. 5 TONS
9 SY GEOTEXTILE
SEE SHEET 2D-2
DETAIL 'WWWW'

BERM DITCH
SEE SHEET '2D-2'
DETAIL 'VV'

DETAIL CCCC
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 2:1, d, D, 2:1, Natural Ground, Geotextile, B

Min. D= 2.5 Ft.
Max. d= 1 Ft.
B= 4 Ft.
*When B is < 6.0'

Type of Liner= Class B Rip-Rap
FROM STA. 83+86 TO STA. 84+00 -Y15FLYBD- RT

DETAIL WW
BERM BASE DITCH
(Not to Scale)

Natural Ground, 2:1, d, D, 2:1, b, B, GEOTEXTILE, RDWY

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
Type of Liner= Class B Rip-Rap
FROM STA. 83+87 TO STA. 87+72 -Y15FLYBD- RT
FROM STA. 93+00 TO STA. 94+41 -Y15FLYBD- RT

DETAIL WWWW
CHANNEL PROTECTION
(Not to Scale)

Natural Ground, Natural Bed Elevation, Natural Ground, 1.5', Geotextile, Channel Bed (Variable)

Type of Liner= CL I Rip-Rap
STA. 83+90 -Y15FLYBD- RT

PERMIT DRAWING
SHEET 61 OF 78

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
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DATE: 10/5/2020
TIME: 12:01:44 PM

REVISIONS

LEGEND:

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FIDDLERS CREEK (ESE–S25)

ESE–W41

ESE–S72

SITE 18

SITE 20

MATCHLINE SHEET 20 –Y15FLYAC– STA. 18+50.00

MATCHLINE SHEET 20 –Y15REV– STA. 85+00.00

MATCHLINE SHEET 20 –Y15FLYBD– STA. 92+04.15

MATCHLINE SHEET 22 –Y15– STA. 147+00.00

PROP. NOISE WALL Y15FLYBD

8' BASE SPECIAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 669 TONS 1132 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'X'

CLASS 'I' RIP RAP AT EMBANKMENT EST. 24 TONS 41 SY GEOTEXTILE SEE SHEET 2D–2 DETAIL 'HHH'

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

BASE LATERAL DITCH SEE SHEET '2D–1' DETAIL 'S'

LATERAL 'V' DITCH SEE SHEET '2D–1' DETAIL 'Q'

REMOVE

15" RCP–III

15" CSP W/ELBOWS

2GI W/FG

JB W/MH

CLASS 'B' RIP RAP EST. 16 TONS 42 SY GEOTEXTILE

24" RCP–III

24" RCP–IV

2GI–A

REMOVE DI

TOP=882.43' INV=(S) 877.24' INV=(E) 877.25' INV=(N) 877.09'

TOP=884.8' INV=(S) 878.02' INV=(N) 877.91'

TOP=889.8' INV=(S) 887.49' INV=(W) 887.38'

TB 2GI

REMOVE DI

CLEAN OUT 36" RCP

RETAIN

36" RCP

24" RCP

COLLAR AND EXTEND

18" RCP–III

2GI(D)

18" RCP–IV

PLUG

18" RCP

REMOVE 48" CMP

2-8' CONC WW 10' CONC HW

2-6' CONC WW 9' CONC HW

SPECIAL CUT DITCH SEE SHEET '2D–1' DETAIL 'J'

2' BASE LATERAL DITCH SEE SHEET '2D–1' 60" RCP–III BURIED 1.0' DETAIL 'S'

BERM DITCH SEE SHEET '2D–2' DETAIL 'YY'

5' BASE DITCH W/CLASS 'I' RIP RAP EST. 33 TONS 60 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'MM'

4' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 364 TONS 990 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'WW'

4' BASE BERM DITCH SEE SHEET '2D–2' DETAIL 'ZZ'

2' BASE BERM DITCH SEE SHEET '2D–2' DETAIL 'AAA'

2' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 59 TONS 168 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'WW'

PROP. 47" WW FENCE

CHORD

BEGIN SBG STA. 13+00

SANDBAG HW

CMP

BROOK BEND

THOMAS S. HART LOUISE HART

JOAN AL PETER AL

SECRETARY OF HOUSING AND URBAN DEVELOPMENT

RONNIE C. WATERS

RAQUEL FERNANDEZ

MARK A. KEITH CATHY E. KEITH

NEIL M. RISHEL MARIA RISHEL

HEAVEN'S GATE TRUST D. SIKES AS TRUSTEE

WILLIAM A. FRANK ROSE EMILY FRANK

ETTASTEIN G. HARRIS

DELMONT S. BROWN

MARGARET A. FREEDMAN MARK G. FREEDMAN

ABIEZER YAMBO

GERALD GENE CARTER NANCY JO CARTER

KYLE R. HICE AND GAYLE L. HICE

FLORENTINA NOLASCO AND VICTOR GATICA

NCDOT

20' SANITARY SEWER EASEMENT

60.00'

DETAIL S
LATERAL BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 16+00 TO STA. 17+60 –Y15FLYAC– RT
FROM STA. 93+05 TO 94+31 –Y15FLYBD– RT

DETAIL HHH
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CL 'I' Rip–Rap/Geotextile

STA. 17+50 –Y15FLYAC– RT

DETAIL X
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'
Type of Liner= Class I Rip–Rap

Min. D= 5.2 Ft.
Max. d= 1.5 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.

FROM STA. 17+60 TO STA. 22+19 –Y15FLYAC– RT

DETAIL MM
STANDARD BASE DITCH
(Not to Scale)

Min. D= 3 Ft.
Max. d= 1 Ft.
B= 5 Ft.

*When B is < 6.0'
Type of Liner= Class I Rip–Rap

STA. 94+32 –Y15FLYBD– RT

DETAIL WW
BERM BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
Type of Liner= Class B Rip–Rap

FROM STA. 83+87 TO STA. 87+72 –Y15FLYBD– RT
FROM STA. 93+00 TO STA. 94+31 –Y15FLYBD– RT

NAD 83/95

GRAPHIC SCALE 25 12.5 0 25 50

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	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

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

REVISIONS

ROW REV. – OCTOBER 14, 2019 – UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO –Y15FLYBD– FROM STATION 70+00 TO 92+19. JHG

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_permits_NOCON.tbl
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PERMIT DRAWING
SHEET 62 OF 78

LEGEND:

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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GRAPHIC SCALE 25 12.5 0 25 50

NAD 83/95

DETAIL S
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 2:1, D, B, 2:1, b, 1'/Ft., Fill Slope

Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 16+00 TO STA. 17+60 –Y15FLYAC– RT
FROM STA. 93+05 TO 94+31 –Y15FLYBD– RT

DETAIL HHH
RIP RAP AT EMBANKMENT
(Not to Scale)

10' min., Ditch Grade, 1.0' min., 1.5', GEOTEXTILE

Type of Liner= CL 'I' Rip-Rap/Geotextile

STA. 17+50 –Y15FLYAC– RT

DETAIL X
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 2:1, C, 5%, 2:1, D, d, GEOTEXTILE, B, 5%, 2:1, b, Fill Slope

Min. D= 5.2 Ft.
Max. d= 1.5 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.

*When B is < 6.0'
Type of Liner= Class I Rip-Rap

FROM STA. 17+60 TO STA. 22+19 –Y15FLYAC– RT

FIDDLERS CREEK (ESE–S25)

ESE–W41

SITE 18

ESE–S72

SITE 20

MATCHLINE SHEET 20 –Y15FLYAC– STA. 18+50.00

MATCHLINE SHEET 20 –Y15REV– STA. 85+00.00

MATCHLINE SHEET 20 –Y15FLYBD– STA. 92+04.15

MATCHLINE SHEET 22 –Y15– STA. 147+00.00

8' BASE SPECIAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 669 TONS 1332 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'X'

CLASS 'I' RIP RAP AT EMBANKMENT CLASS 'I' RIP RAP EST. 24 TONS 41 SY GEOTEXTILE SEE SHEET 2D-2 DETAIL 'HHH'

2-8' CONC WW 10' CONC HW

2' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'S'

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

LATERAL 'V' DITCH SEE SHEET '2D-1' DETAIL 'Q'

REMOVE

15" CSP WELDOWS

15" RCP-III

2GI W/FG

JB W/MH

CLASS 'B' RIP RAP EST. 16 TONS 42 SY GEOTEXTILE

24" RCP-III

2GI-A

REMOVE DI

TOP=882.43'
INV=(S) 877.24'
INV=(E) 877.25'
INV=(N) 877.09'

10JB W/MH

CLEAN OUT 36" RCP

RETAIN

36" RCP

TB 2GI

REMOVE DI

COLLAR AND EXTEND

24" RCP

18" RCP-III

2GI(D)

PROP. NOISE WALL Y15FLYBD

PROP. 47" WW FENCE

CHORD

REMOVE 48" CMP

5' BASE DITCH W/CLASS 'I' RIP RAP EST. 32 TONS 60 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'MM'

2' BASE LATERAL DITCH SEE SHEET '2D-1' 60" RCP-III BURIED 1.0'

BERME DITCH SEE SHEET '2D-2' DETAIL 'YY'

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'J'

2' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 59 TONS 168 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'WW'

4' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 364 TONS 990 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'YY'

4' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'ZZ'

2' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'AAA'

DETAIL MM
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 2:1, d, Geotextile, B, D, 2:1, Natural Ground

Min. D= 3 Ft.
Max. d= 1 Ft.
B= 5 Ft.

*When B is < 6.0'
Type of Liner= Class I Rip-Rap

STA. 94+32 –Y15FLYBD– RT

DETAIL WW
BERM BASE DITCH
(Not to Scale)

Natural Ground, 2:1, d, D, 2:1, B, GEOTEXTILE, b, RDWY

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 83+87 TO STA. 87+72 –Y15FLYBD– RT
FROM STA. 93+00 TO STA. 94+31 –Y15FLYBD– RT

PROPERTY OWNERS: THOMAS S. HART, LOUISE HART; SECRETARY OF HOUSING AND URBAN DEVELOPMENT; WILLIAM A. FRANK, ROSE EMILY FRANK; ETTIASTEIN G. HARRIS; DELMONT S. BROWN; MARGARET A. FREEDMAN, MARK G. FREEDMAN; GERALD GENE CARTER, NANCY JO CARTER; KYLE R. HICE AND GAYLE L. HICE; ABIEZER YAMBO; FLORENTINA NOLASCO AND VICTOR GATICA; MARK A. KEITH, CATHY E. KEITH; NEIL M. RISPOLI; HEAVEN'S GATE TRUST, D. SIKES AS TRUSTEE; RAQUEL FERNANDEZ ESTRADA; CONNIE

PERMIT DRAWING
SHEET 63 OF 78

REVISIONS
ROW REV. – OCTOBER 14, 2019 – UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO –Y15FLYBD– FROM STATION 70+00 TO 92+19. JHG

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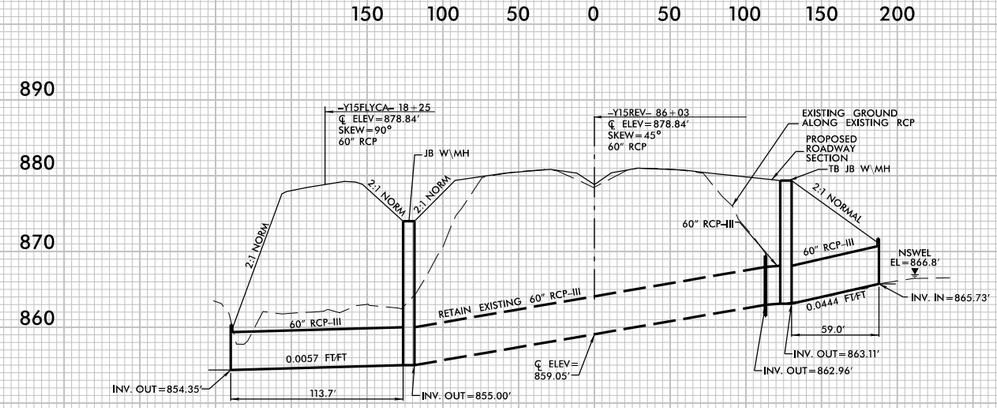
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

U-2579AB – SITE 18 AND 20



PROFILE ALONG ℄ OF PIPE

PERMIT DRAWINGS
SHEET 64 OF 78

REVISIONS

5/14/99

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TIME: 12:04:38 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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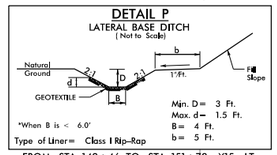
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

25 12.5 0 25 50
GRAPHIC SCALE

LEGEND:

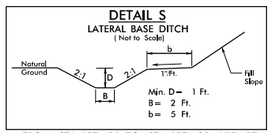
- S / S — DENOTES IMPACTS IN SURFACE WATER
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL P
LATERAL BASE DITCH
(Not to Scale)



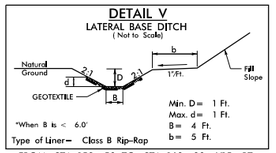
Min. D= 3 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 149+46 TO STA. 151+78 –Y15– LT
FROM STA. 152+50 TO STA. 154+24 –Y15– LT

DETAIL S
LATERAL BASE DITCH
(Not to Scale)



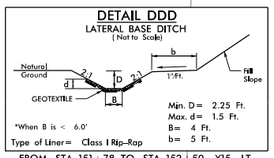
Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.
FROM STA. 157+20 TO STA. 157+99 –Y15– RT

DETAIL V
LATERAL BASE DITCH
(Not to Scale)



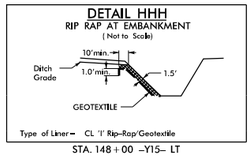
Min. D= 1 Ft.
Max. d= 1 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap
FROM STA. 159+50 TO STA. 160+00 –Y15– RT

DETAIL DDD
LATERAL BASE DITCH
(Not to Scale)



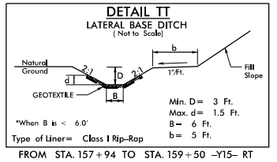
Min. D= 2.25 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 151+78 TO STA. 152+50 –Y15– LT
FROM STA. 154+24 TO STA. 156+10 –Y15– LT

DETAIL HHH
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap/Geotextile
STA. 148+00 –Y15– LT

DETAIL TT
LATERAL BASE DITCH
(Not to Scale)



Min. D= 3 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 157+94 TO STA. 159+50 –Y15– RT

NAD 83/95

ESE–S50

ESE–W43

NCDOT

FIRST CHRISTIAN CHURCH MINISTRIES

SITE 21

ESE–S50

ESE–W37

WANELL W. WALL
DB I225 PG 850

MARK S. RICHARDSON
MARISA T. RICHARDSON

BRIAN J. CLARK
MARIA E. CLARK

MICHELLE D. POULOS
JAY J. POULOS

GINGER L. SMITH and
TONYA A. COLEMAN

MARCIA CLARKE-CHUE
FRANLIN E. CHUE

JORGE L. AND ROSA M.
GONZALEZ

JOHN J. McCORMICK, III
and wife
CHRISTEN V. McCORMICK

KIM H. BUI
LAC H. HOANG

PRISCILLA FORD

JAMES S. FINCH
NANCY M. FINCH

CHARLES A. CARR and
JOY S. CARR

LINDA E. BURNETTE
and husband
THOMAS L. BURNETTE

MATCHLINE SHEET 21 –Y15– STA. 147+00.00

MATCHLINE SHEET 23 –Y15– STA. 160+50.00

PERMIT DRAWING
SHEET 65 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_permits_NOCON.tbl
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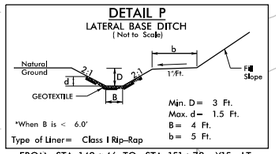
LEGEND:

S / S — DENOTES IMPACTS IN SURFACE WATER

TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

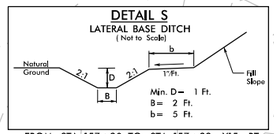
DETAIL P
LATERAL BASE DITCH
(Not to Scale)



Min. D= 3 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap

FROM STA. 149+46 TO STA. 151+78 –Y15– LT
FROM STA. 152+50 TO STA. 154+24 –Y15– LT

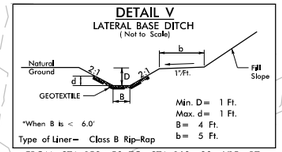
DETAIL S
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 157+20 TO STA. 157+99 –Y15– RT

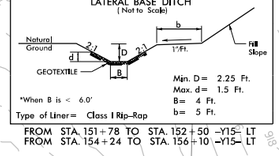
DETAIL V
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
Max. d= 1 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap

FROM STA. 159+50 TO STA. 160+00 –Y15– RT

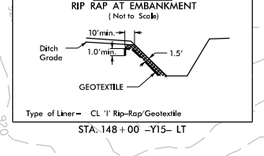
DETAIL DDD
LATERAL BASE DITCH
(Not to Scale)



Min. D= 2.25 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap

FROM STA. 151+78 TO STA. 152+50 –Y15– LT
FROM STA. 154+24 TO STA. 156+10 –Y15– LT

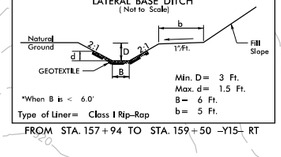
DETAIL HHH
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap/Geotextile

STA. 148+00 –Y15– LT

DETAIL TT
LATERAL BASE DITCH
(Not to Scale)



Min. D= 3 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap

FROM STA. 157+94 TO STA. 159+50 –Y15– RT

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	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

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

25 12.5 0 25 50
GRAPHIC SCALE

NAD 83/95

ESE–S50

ESE–W43

ESE–S50

SITE 21

ESE–S50

ESE–W37

SITE 22

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 197 TONS 350 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'P'

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 259 TONS 459 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'P'

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 82 TONS 145 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'DDD'

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 211 TONS 375 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'DDD'

RIP RAP AT EMBANKMENT CLASS 'I' RIP RAP EST. 20 TONS 35 SY GEOTEXTILE

12' GATE

PROP. 47" WW FENCE

BERM DITCH SEE SHEET '2D–1' DETAIL 'NN'

FILL WITH FLOWABLE FILL

FLOWABLE FILL

30" CSP W/ELBOWS

30" RCP–III

18" RCP–III

2GI

FS

COLLAR AND EXTEND

REMOVE DI

REMOVE 47" OF 15" RCP

STANDARD 2' BASE DITCH W/CLASS 'B' RIP RAP SEE SHEET '2D–1' DETAIL 'JJ'

2' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 96 TONS 273 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'CCC'

2' BASE BERM DITCH SEE SHEET '2D–2' DETAIL 'BBB'

BERM DITCH SEE SHEET '2D–1' DETAIL 'VV'

BERM DITCH SEE SHEET '2D–2' DETAIL 'VV'

2' BASE BERM DITCH SEE SHEET '2D–2' DETAIL 'AAA'

STANDARD 2' BASE DITCH SEE SHEET '2D–1' DETAIL 'S'

4' BASE LATERAL DITCH SEE SHEET '2D–1' DETAIL 'T'

4' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 28 TONS 75 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'V'

6' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 200 TONS 345 SY GEOTEXTILE SEE SHEET '2D–2' DETAIL 'TT'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 76 TONS 217 SY GEOTEXTILE SEE SHEET '2D–1' DETAIL 'U'

SPECIAL CUT DITCH SEE SHEET '2D–1' DETAIL 'J'

3.2' CLEARANCE

RETAIN

BEGIN SBG STA 157+50

MATCHLINE SHEET 21 –Y15– STA. 147+00.00

MATCHLINE SHEET 23 –Y15– STA. 160+50.00

FIRST CHRISTIAN CHURCH MINISTRIES

MARK S. RICHARDSON
MARISA T. RICHARDSON

BRIAN J. CLARK
MARIA E. CLARK

MICHELLE W. POULOS
JAY J. POULOS

JAMES S. FINCH
NANCY ...

PRISCILLA FORD

GINGER L. SMITH and TONYA A. COLEMAN

MARCIA CLARKE-CHUE
FRANLIN EL CHUE

JORGE L. AND ROSA M. GONZALEZ

JOHN J. McCORMICK, III and wife CHRISTEN V. McCORMICK

KIM H. BUI
LAC H. HOANG

CHARLES A. CARR and JOY S. CARR

LINDA E. BURNETTE and husband THOMAS L. BURNETTE

WANELL W. WALL
DB 1225 PG 850

PERMIT DRAWING
SHEET 66 OF 78

REVISIONS

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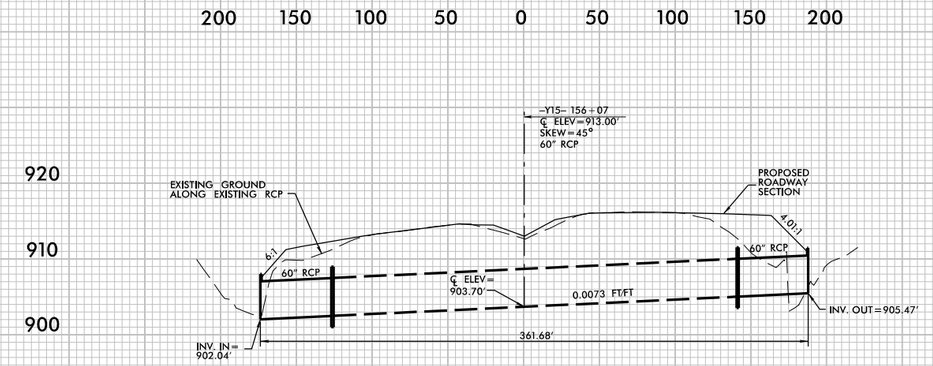
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

U-2579AB – SITE 21



PROFILE ALONG ℄ OF PIPE

PERMIT DRAWINGS
SHEET 67 OF 78

REVISIONS

5/14/99

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
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DATE: 5/5/2020
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TIME: 12:04:39 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	25
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
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N.C.B.E.L.S. License Number: F-0116

50 25 0 50 100
GRAPHIC SCALE

MATCHLINE SHEET 20

SEE SHEET 25A

MATCHLINE SHEET 20 Y=594,763.00 STA. 75+50.00

MATCHLINE SHEET 10 Y=594,763.00 STA. 70+00.00

MATCHLINE SHEET 11

LEGEND:

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ESE-S12

ESE-PT4

SITE 24

BEGIN JS FEATURE 1

ENGINEER MAY REVISE THE LOCATION OF THE DITCH THROUGH POND AS NEEDED

CLASS 'B' RIP RAP EST. 2 TONS/ 7 SY FILTER FABRIC

CHORD

GRADE TO DRAIN

PROP 47' NW FENCE

REVISIONS

ROW REV. – OCTOBER 14, 2019 – UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO –Y15FLYBD– FROM STATION 70+00 TO 92+19. JHG

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PERMIT DRAWING
SHEET 68 OF 78

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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N.C.B.E.L.S. License Number: F-0116

50 25 0 50 100
GRAPHIC SCALE

MATCHLINE SHEET 20

SEE SHEET 25A

MATCHLINE SHEET 20 (VERIFIED STA. 75+50.00)

MATCHLINE SHEET 11 (VERIFIED STA. 70+00.00)

LEGEND:

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ESE-S12

ESE-PT4

SITE 24

ENGINEER MAY REVISE THE LOCATION OF THE DITCH THROUGH POND AS NEEDED

BEGIN JS FEATURE

CLASS 'B' RIP RAP EXT. 2 TONS 7 SY FILTER FABRIC

GRADE TO DRAIN

PROP 47' R/W FENCE

CHORD

TERRY L. LANDINGHAM IRIS LANDINGHAM

GARY E. WINSLOW

DARRELL A. PURNELL CANDI CORNETT

MR. DAWN BOTT

JOHN W. HODGES BILLY J. HODGES

LARRY S. WATKINS BETH G. WATKINS

EVERETT DEAN HATT THERESA HORNE HATT

JAMES WHALEY

MARIAN H. CRINER

NCDOT

NICHOLAS R. CANTRELL PATRICIA B. CANTRELL

JEFFREY FARRARD

KENNETH LEE SMITH THERESA COMPTON

ROBERT M. WESTFALL KELLIE G. WESTFALL

TROY RAY BAKER

RICHARD M. HEARN JR. LOUISE M. HEARN

DANIEL C. VILLALOBOS and WIFE SARA D. VILLALOBOS

SHARON ATKINS MACHINE

EASTON V. THOMPSON

PAUL CALVAN AQUILAR

KEVIN ROBERT GILLESPIE and WENDY LEIGH PEABODY

BENARD B. HARRIS

LAFFERTY SHAW POLLY M. SHAW

GLEN VEW BAPTIST CHURCH

CHESTER MONROE CHURCH

NCDOT (FORMERLY - ERNEST R. ANGELL)

CLYDE ANGELL

JAMES A. SNIPES CARRIE A. SNIPES

FERNANDO DE LEON MICHELLE P. GOMEZ

JOHN S. LASSLER JR. JENNIFER L. MCCORMICK

LARRY SHEW

AULTON LAVERNE BOSTICK

WILLIAM M. RUTHERFORD JR. SARA E. RUTHERFORD

PHYLLIS ANN GRAHAM

GREGORY C. MAXEY

JUSTIN SHANE NELSON

REVISIONS

ROW REV. – OCTOBER 14, 2019 – UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO –Y15FLYBD– FROM STATION 70+00 TO 92+19. JHG

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PERMIT DRAWING
SHEET 69 OF 78

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	25A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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12.5 0 12.5 25
GRAPHIC SCALE

NAD 83/95

ESE–P14

SITE 24

BEGIN JS FEATURE

TIE TO EXISTING DITCH

REMOVE HDPE

ENGINEER MAY REVISE THE LOCATION OF THE DITCH THROUGH POND AS NEEDED

STANDARD 3' BASE DITCH
SEE SHEET '2D–1'
DETAIL 'F'
SLOPE = 1.17%

STANDARD 3' BASE DITCH
W/CLASS 1' RIP RAP
EST. 123 TONS
193 SY GEOTEXTILE
SEE SHEET '2D–1'
DETAIL 'DDDD'

2' BASE LATERAL DITCH
W/CLASS 'B' RIP RAP
SEE SHEET '2D–1'
DETAIL 'U'

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

15" CSP W/ELBOWS

END SBG STA. +00

2GI W/ FG

2GI W/ FG

36" RCP IV

15" RCP

INV=890.95

INV=893.98'

MARIAN H. CRINER

DAVID S. CAUDLE

CLYDE ANGELL

FERNANDO LUIS SIERRA
MELINDA P. SIERRA

ES A. SNIPES
RIE A. SNIPES

24' ACCESS EASEMENT DB 917 PG 180

RD 22' BST

15" RCP F.O.

306 W/LT

296 W/LT

308

314

48" WD RAIL

GLENN LAKE TRAIL

CONC

WALL

ISFD

FOUNDATION

SOIL

GR

EIP

S

B

1½SF

LEGEND:

P P — DENOTES IMPACTS IN SURFACE WATER (POND)

PERMIT DRAWING
SHEET 70 OF 78

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng.100.plt
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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N.C.B.E.L.S. License Number: F-0116

GRAPHIC SCALE 25 12.5 0 25 50

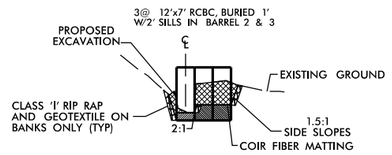
LEGEND:

- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

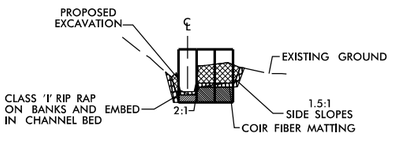
NAD 83/95

DETAIL 2

3@ 12'x7' RCBC, BURIED 1' W/2' SILLS IN BARREL 2 & 3



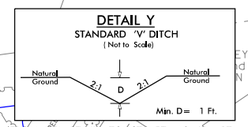
CULVERT INLET PROTECTION



CULVERT OUTLET PROTECTION

DETAIL Y

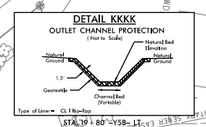
STANDARD 'V' DITCH
(Not to Scale)



FROM STA. 57+00 TO STA. 57+46 –Y4– RT
FROM STA. 20+18 TO STA. 20+55 –Y5B– RT
FROM STA. 39+00 TO STA. 40+28 –Y15REV– LT
FROM STA. 67+50 TO STA. 69+40 –Y15REV– LT

DETAIL KKKK

OUTLET CHANNEL PROTECTION
(Not to Scale)



STA. 19+80 –Y5B– LT

SITE 25

SITE 26

NO CLAIM

MATCHLINE –Y5B– STATION 13+50.00

MATCHLINE SHEET 20 –Y5B– STATION 13+50.00

OUTLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 109 TONS 154 SY GEOTEXTILE SEE DETAIL 2

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'B'

3 @ 7'X8' RCBC BURIED 1', BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

OUTLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 15 TONS 25 SY GEOTEXTILE SEE SHEET 2D-3 DETAIL 'KKKK'

STANDARD 'V' DITCH SEE SHEET '2D-1' DETAIL 'Y' SLOPE = 0.97% CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE

REMOVE CB

REMOVE 61' OF PIPE

CULVERT INLET BANK STABILIZATION SEE DETAIL 2 REPAIR LAST JOINT

INLET CHANNEL PROTECTION SEE DETAIL YYYY

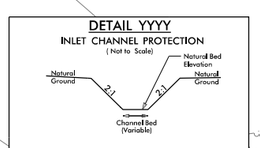
3 @ 12'X7' RCBC, BURIED 1' WITH 2' SILLS IN BARRELS 2 & 3 BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

FIDDLERS CREEK (ESE–S25)

ESE–S26

DETAIL YYYY

INLET CHANNEL PROTECTION
(Not to Scale)



STA. 19+75 –Y5B–

RONALD D. MOTSINGER
RENEE S. MOTSINGER

VANN ROGER MOTSINGER
ELIZABETH MOTSINGER

BROOKE B. SPARROW

DANIEL R. ATKINS
BETTY K. ATKINS

ASHLEY E. VASIL and CURTIS H. CHEEKS III

JOSE MIGUEL DERCIAN

NORTH CAROLINA PROPERTY, LP

JOHN E. THOMPSON
VIRGINIA S. THOMPSON

DANIEL COREY

THOMAS G. MANNEL
CAROL MANNEL

JAMES E. FINN
ELIZABETH

LEONARD CALLOWAY JR.

DANIEL K. SADDLER
KAREN M. SADDLER

RAY THOMAS MASTIN
VERA LAWS MASTIN

NICHOLAS CHAD MACK and spouse CAITLIN ELIZABETH MACK

MARTY DALE FOULKS AND WIFE LOU ANN FOULKS

BST ROBERT B. BARKER
LYNN S. BARKER

IAN GREGORY BARNES
KELLY ANN BOOE

BENJAMIN N. KIEFER

RENEE O. AND ALMUSTAFA MCINTOSH

LAKEANA A. JONES

MARTIN W. DELFONTE

BILLIE L. BAILEY

CYNTHIA LEIGH ARRINGTON-ZIGH

STEPHEN R. WHITENER
KATHRYN G. WHITENER

NAOMI W. DRIGGERS
DENNIS L. DRIGGERS

SARAH REBECCA VALENCIA and husband FERNANDO VALENCIA-ROJAS

CHADWICK G. CHEEK
JANEL D. CHEEK

WENDALL R. TRUESDALE
NATALIE O. TRUESDALE

OAKHURST HOA, INC.

RONALD BROWN

SILAS C. AND COURTNEY E. SWAIM

DEBRA L. MCGEE

JEREMIAH J. CAMPBELL

KENNETH EDWARD JOHNSON, SR. AND WIFE SHEILA MAE JOHNSON

TAPUWA MASANGO

U/C

SEE SHEETS C5-1 TRR
SEE SHEETS C6-1 TRI

PERMIT DRAWING SHEET 71 OF 78

REVISIONS

ROW REV. – FEBRUARY 26, 2020 – PUE ADJUSTED ON PARCELS 656 AND 657 TO AVOID BUILDING ON 656. CEH.
ROW REV. – APRIL 9, 2020 – TCE ELIMINATED FROM PARCEL 362 (CLAIM ELIMINATED). CEH.

PLOT DRIVER: NCDOT_pdf_color_eng.100.plt PENTABLE: NCDOT_permits_NOCON.tbl
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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25 12.5 0 25 50
GRAPHIC SCALE

LEGEND:

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/95

DETAIL 2

3@ 12'x7' RCBC, BURIED 1' W/2' SILLS IN BARREL 2 & 3

PROPOSED EXCAVATION — ℄ — EXISTING GROUND

CLASS 'I' RIP RAP AND GEOTEXTILE ON BANKS ONLY (TYP) — 2:1 — 1.5:1 SIDE SLOPES — COIR FIBER MATTING

CULVERT INLET PROTECTION

PROPOSED EXCAVATION — ℄ — EXISTING GROUND

CLASS 'I' RIP RAP ON BANKS AND EMBED IN CHANNEL BED — 2:1 — 1.5:1 SIDE SLOPES — COIR FIBER MATTING

CULVERT OUTLET PROTECTION

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

Natural Ground — 2:1 — D — 2:1 — Natural Ground

Min. D= 1 Ft.

FROM STA. 57+00 TO STA. 57+46 –Y4– RT
FROM STA. 20+18 TO STA. 20+55 –Y5B– RT
FROM STA. 39+00 TO STA. 40+28 –Y15REV– LT
FROM STA. 67+50 TO STA. 69+40 –Y15REV– LT

DETAIL KKKK
OUTLET CHANNEL PROTECTION
(Not to Scale)

Natural Ground — 1.5' Geotextile — Channel Bed (Variable) — Natural Bed Elevation — Natural Ground

Type of Liner = CL I Rip-Rap
STA. 19+80 –Y5B– LT

SITE 25

SITE 26

MATCHLINE –Y5B– STATION 13+50.00

MATCHLINE SHEET 20 –Y5B– STATION 13+50.00

OUTLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 109 TONS 154 SY GEOTEXTILE SEE DETAIL 2

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'B'

1 @ 7'X8' RCBC BURIED 1', BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

OUTLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 15 TONS 25 SY GEOTEXTILE SEE SHEET 2D-3 DETAIL 'KKKK'

STANDARD 'V' DITCH SEE SHEET '2D-1' DETAIL 'Y' SLOPE = 0.97% CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE

REMOVE CB — REMOVE 61' OF PIPE — JB — MH — CULVERT INLET BANK STABILIZATION SEE DETAIL 2 — REPAIR LAST JOINT

INLET CHANNEL PROTECTION SEE DETAIL 'YYYY'

3 @ 12'X7' RCBC, BURIED 1' WITH 2' SILLS IN BARRELS 2 & 3 BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

FIDDLERS CREEK (ESE–S25)

ESE–S26

DETAIL YYYY
INLET CHANNEL PROTECTION
(Not to Scale)

Natural Ground — 2:1 — 2:1 — Natural Bed Elevation — Natural Ground — Channel Bed (Variable)

STA. 19+75 –Y5B–

NO CLAIM

RONALD D. MOTSINGER
RENEE S. MOTSINGER

VANN ROGER MOTSINGER
ELIZABETH MOTSINGER

DANIEL R. ATKINS
BETTY K. ATKINS

ASHLEY E. VASIL and CURTIS H. CHEEKS III

BROOKE B. SPARROW

DANIEL COREY

THOMAS G. MANNEL and MANNEL

LEONARD CALLOWAY JR.

JAMES E. and ELIZABETH

RICHARD AND MOORE

SILAS C. AND COURTNEY E. SWAIM

DEBRA E. MCGEE

JEREMIAH J. CAMPBELL

RAY THOMAS MASTIN and VERA LAWS MASTIN

NICHOLAS CHAD MACK and spouse CAITLIN ELIZABETH MACK

MARTY DALE FOULKS AND WIFE LOU ANN FOULKS

KENNETH EDWARD JOHNSON, SR. AND WIFE SHEILA MAE JOHNSON

TAPUWA MASARIKO

DANIEL K. SADDLER and KAREN M. SADDLER

ROBERT B. BARKER and LYNN S. BARKER

IAN GREGORY BARNES and KELLY ANN BOOE

BENJAMIN N. KIEFER

RENEE Q. AND ALMUSTAFA MCINTOSH

LAKEANA A. JONES

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CYNTHIA LEIGH ARRINGTON

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WENDALL R. TRUESDALE and NATALIE O. TRUESDALE

SARAH REBECCA VALENCIA and husband FERNANDO VALENCIA-ROJAS

OAKHURST HOA, INC.

RONALD BROWN

CHADWICK G. CHEEK and JANEL D. CHEEK

U/C

SEE SHEETS C6-1 TRK
SEE SHEETS C6-1 TRI

PERMIT DRAWING SHEET 72 OF 78

REVISIONS

ROW REV. – FEBRUARY 26, 2020 – PUE ADJUSTED ON PARCELS 656 AND 657 TO AVOID BUILDING ON 656. CEH.
ROW REV. – APRIL 9, 2020 – TCE ELIMINATED FROM PARCEL 362 (CLAIM ELIMINATED). CEH.

PLOT DRIVER: NCDOT.pdf_color_eng.100.plt PENTABLE: NCDOT_permits_CON.tbl
USER: NWOMACK DATE: 10/19/2020 TIME: 11:31:34 AM
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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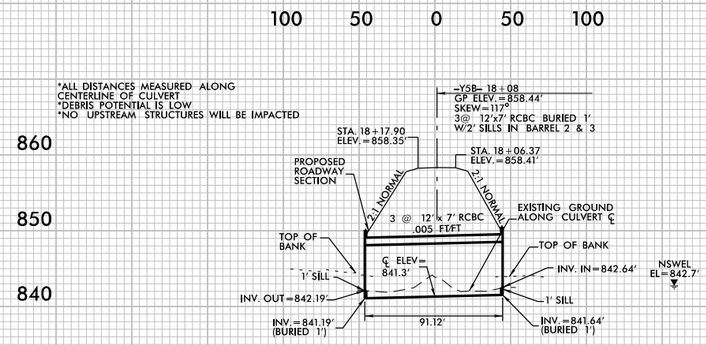
U–2579AB – SITE 25



PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 73 OF 78

REVISIONS
5/14/99

PLOT DRIVER: NCDOT_pdf_color-eng-100.plt
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TIME: 12:04:40 PM

HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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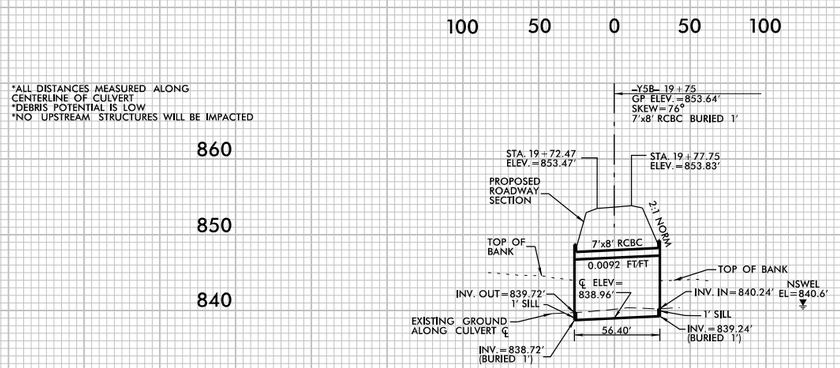
U–2579AB – SITE 26

*ALL DISTANCES MEASURED ALONG CENTERLINE OF CULVERT
*DEBRIS POTENTIAL IS LOW
*NO UPSTREAM STRUCTURES WILL BE IMPACTED



PROFILE ALONG ℄ OF CULVERT

PERMIT DRAWINGS
SHEET 74 OF 78

REVISIONS 5/14/99

PLOT DRIVER: NCDOT_pdf_color-eng-100.plt PENTABLE: NCDOT_PFL_XSC.tbl
USER: _USERNAME_ DATE: 5/5/2020 TIME: 12:04:41 PM
FILE: U2579AB_PRM_CSR_PSH

WETLAND PERMIT IMPACT 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	Y4RPB 20+29 RT	30" RCP-III						0.09	< 0.01	48		
1	Y4RPB 20+29 RT	4' BASE DITCH						0.10	< 0.01	76	18	
2	Y4 40+43 RT	36" CSP						< 0.01		51		
2	Y4 40+43 RT	ENERGY DISSIPATOR BASIN						< 0.01		20		
2	Y4 40+43 RT	BANK STABILIZATION						< 0.01		14		
2	Y4 40+43 RT	DETOUR							0.01		76	
3	L 746+02 RT	54" RCP-IV						0.10	< 0.01	137	12	
4	L 748+64 - 750+76 LT	ROADWAY FILL						0.01		74		
4A	L 750+02 - 753+80 LT	ROADWAY FILL	0.13									
4B	L 748+64 - 750+76 LT	FILL IN POND						0.89				
5	L 755+00 - 758+02 LT	PIPE REM./ PROP. DITCH						< 0.01	< 0.01	28	32	
5A	L 758+02 LT	PIPE REM./ PROP. DITCH				< 0.01						
6	L 768+62	2 @ 12' x 10' RCBC						0.13		589		
6	L 768+62	INLET CHANNEL FLOODPLAIN BENCH						< 0.01	0.01	26	41	
6	L 768+62	OUTLET CHANNEL PROTECTION						0.02	0.03	81	88	
6A	L 764+50 LT	ROADWAY FILL	0.03									
6B	L 760+00 LT	36" RCP SEGMENT REPLACEMENT /CLEAN							< 0.01		19	
7	Y15FLYBD	54" RCP						0.02		92		
7	Y15FLYBD	4' BASE DITCH						< 0.01	< 0.01	84	10	
7	Y15FLYBD	RIPRAP PAD						< 0.01	< 0.01	16	25	
7A	Y15FLYBD	54" RCP-IV	0.36									
8	L 781+44	42" RCP-III						0.05	< 0.01	444		
8	L 781+44	BANK STABILIZATION						< 0.01	< 0.01	17	10	
TOTALS*:			0.51			< 0.01		1.44	0.07	1797	331	

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/19/2020
FORSYTH COUNTY
U-2579AB
34839.1.8
SHEET 75 OF 78

Revised 2013 10 24

WETLAND PERMIT IMPACT 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	Y15RPDREV 36+18 RT	CULVERT INLET CHANNEL PROTECTION						< 0.01	< 0.01	66	10	
9	Y15RPDREV 35+55 CL	6' x 7' RCBC BURIED 1'						0.03		226		
9	Y15RPDREV 34+76 LT	CULVERT OUTLET CHANNEL PROTECTION						< 0.01		22		
9	Y15RPDREV 34+50 LT	6' BASE DITCH						0.02		149		
9	L 793+98 LT	CULVERT INLET CHANNEL PROTECTION						< 0.01		18		
9	L 793+98 CL	6' x 7' RCBC BURIED 1'						0.04		354		
9	Y15FLYBD 45+10 CL	6' BASE DITCH						0.02	< 0.01	195	10	
10	L 798+10	60" RCP-V						0.07		616		
10	L 798+10	5' BASE DITCH						< 0.01		52		
12	Y15REV 31+45 RT	5' x7' RCBC						0.07		372		
12	Y15REV 31+45 RT	CHANNEL STABILIZATION/ DITCH						0.07		277		
12A	Y15REV 31+45 RT	5' x7' RCBC	0.08			0.17						
12B	Y15REV 31+45 RT	FILL IN POND						2.37				
13	L 833+21 LT	36" RCP						0.06	< 0.01	504		
13	L 833+21 LT	BANK STABILIZATION						< 0.01		28	10	
13A	L 833+21	ROADWAY FILL	0.08									
14	Y15 31+20 RT	72" RCP-III						< 0.01	< 0.01	44	43	
14	Y15 31+20 RT	BANK STABILIZATION						< 0.01	< 0.01	22	14	
14A	Y15 31+99 RT	ROADWAY FILL	0.03			0.07						
15	Y15 48+97	42" RCP-III						< 0.01	< 0.01	36	10	
15	Y15 48+97	RIPRAP PAD/DITCH						< 0.01	< 0.01	23	48	
16	Y15 64+60 RT	54" RCP-III						< 0.01	< 0.01	44	26	
16A	Y15FLYCA 28+70 LT	BANK STABILIZATION						< 0.01	< 0.01	33	10	
16A	Y15FLYCA 28+80 CL	54" RCP-III						0.02	< 0.01	170	10	
TOTALS*:			0.19			0.24		2.80	0.02	3251	191	

*Rounded totals are sum of actual impacts

NOTES:
There is no site 11 for the project

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/19/2020
FORSYTH COUNTY
U-2579AB
34839.1.8

WETLAND PERMIT IMPACT 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)
17	Y15REV 30+00	8' x7' RCBC						0.03		427		
17	Y15REV 30+00	CHANNEL PROTECTION						< 0.01		35		
17A	Y15REV 30+00 RT	8' x7' RCBC	0.06									
17B	Y15REV 30+50 RT	8'x7' RCBC	0.09									
17C	Y15REV 30+50 RT	8' x7' RCBC	0.03									
18	Y15FLYAC 25+93 - 29+16 RT	ROADWAY FILL						0.16	0.02	900	102	
18	Y15FLYAC 25+93 - 29+16 RT	BANK STABILIZATION						< 0.01	< 0.01	44	11	
19	Y15FLYAC 28+72 RT	ROADWAY FILL						< 0.01		80		
19	Y15 124+35 LT	4' BASE DITCH						< 0.01		50		
19	Y15 124+40 LT	48" RCP-III						< 0.01		14		
19	Y15 125+82 RT	48" RCP-III						< 0.01		16		
19	Y15 126+00 RT	4' BASE DITCH						< 0.01		65		
19	Y15FLYBD 83+80 RT	48" RCP-III						< 0.01		18		
19	Y15FLYBD 83+85 RT	CHANNEL PROTECTION						< 0.01	< 0.01	6	6	
20	Y15FLYBD 93+75	60" RCP-III						0.01		100		
20	Y15FLYBD 94+22, 94+45	5' BASE DITCH						< 0.01	< 0.01	55	10	
20	Y15FLYBD 94+25	60" RCP-III						< 0.01		20		
21	Y15 149+41 - 154+60 LT	ROADWAY FILL						0.48	< 0.01	548	10	
21	Y15 157+53 - 159+59 RT	ROADWAY FILL						0.02	< 0.01	180	50	
22	Y4RPB 20+55 RT	2' BASE DITCH						< 0.01		67		
23	L 830+95 - 833+21 LT	ROADWAY FILL						< 0.01	< 0.01	62	10	
23A	L 832+00 LT	ROADWAY FILL	0.22		0.02	0.06						
24	Y15FLYFLBD 67+67 LT	FILL IN POND						0.35				
24	Y15FLYFLBD 66+00 LT	DITCH TIE IN							< 0.01		10	
TOTALS*:			0.41		0.02	0.06		1.10	0.03	2687	209	

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/19/2020
FORSYTH COUNTY
U-2579AB
34839.1.8

WETLAND PERMIT IMPACT 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)
25	Y5B 18+06	3 @ 12' x 7' RCBC						0.02		92		
25	Y5B 18+06	BANK STABILIZATION						< 0.01	< 0.01	35	5	
25	Y5B 18+06	OUTLET CHANNEL PROTECTION						0.01	< 0.01	48	13	
26	Y5B 19+75 RT	7' x8' RCBC						< 0.01		56		
26	Y5B 19+75 LT	INLET CHANNEL PROTECTION						< 0.01	< 0.01	18	14	
26	Y15 36+87 RT	OUTLET CHANNEL PROTECTION						< 0.01		33		
27	Y15 36+87 RT	42" RCP-III						< 0.01		14		
27	Y15REV 30+10 RT	RIPRAP PAD						< 0.01	< 0.01	12	10	
28	Y15REV 30+10 RT	8' x6' RCBC						0.13		114		
29	Y15REV 29+24-38+84	ROADWAY FILL						0.10	< 0.01	1023	10	
30	Y15RPB 31+30 RT	6' BASE DITCH							< 0.01		41	
		TOTALS SHEET 1	0.52			< 0.01		1.44	0.07	1797	331	
		TOTALS SHEET 2	0.19			0.24		2.80	0.02	3251	191	
		TOTALS SHEET 3	0.40		0.02	0.06		1.10	0.03	2687	209	
		TOTALS SHEET 4						0.28	0.02	1445	93	
TOTALS*:		Project Totals	1.11		0.02	0.29		5.63	0.14	9180	824	

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/19/2020
FORSYTH COUNTY
U-2579AB
34839.1.8

Revised 2013 10 24

09/08/99

CONTRACT: TIP PROJECT: U–2579AB

PLOT DRIVER: $PLTDRV$$ PENTABLE: $PENTBL$$
USER: $USER$ DATE: $DATE$ TIME: $TIME$
FILE: $PWVARVAULTPATHDESC$

See Sheet 1-A For Index of Sheets

VICINITY MAP
(NOT TO SCALE)

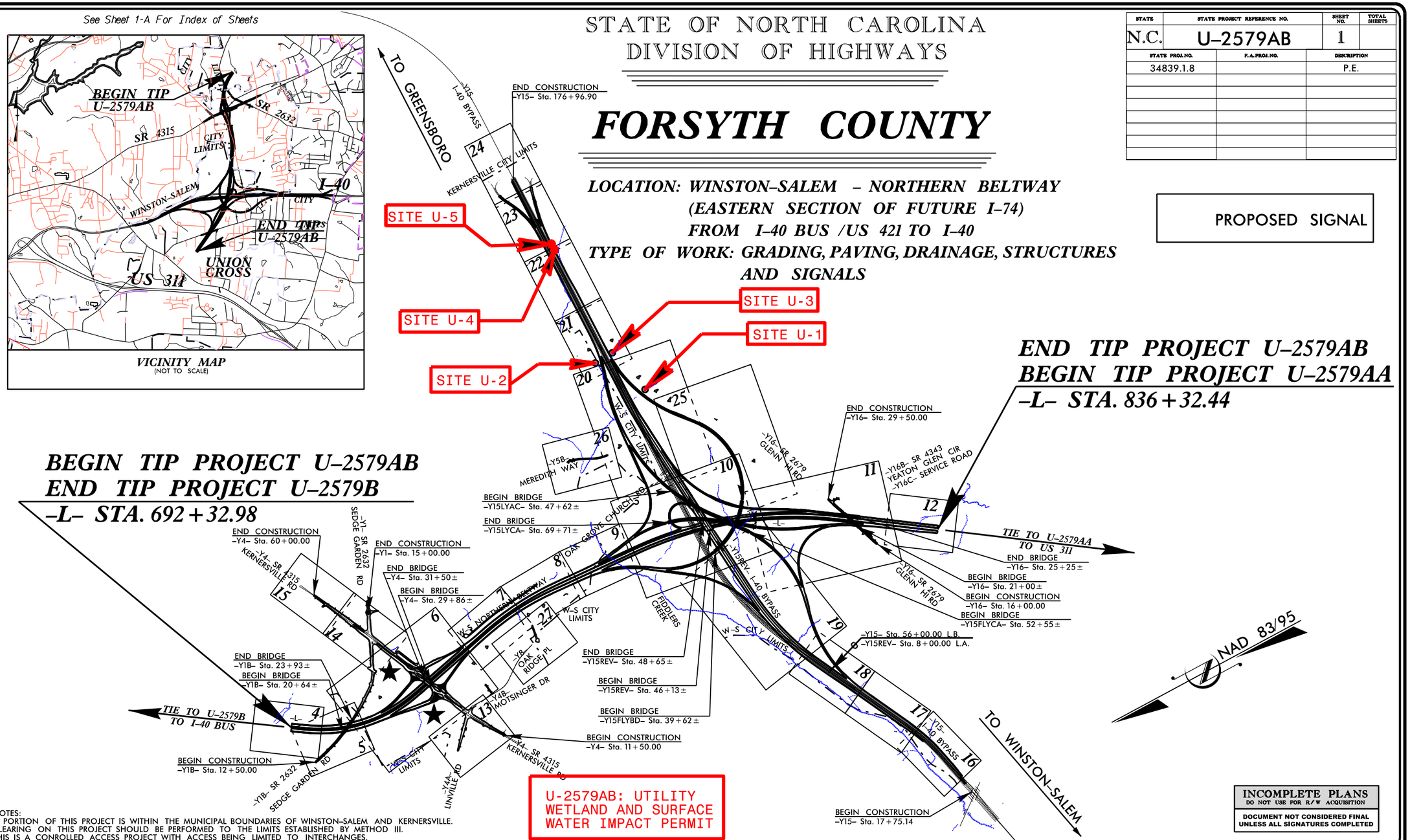
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U–2579AB	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34839.1.8		P.E.	

FORSYTH COUNTY

LOCATION: WINSTON–SALEM – NORTHERN BELTWAY
(EASTERN SECTION OF FUTURE I–74)
FROM I–40 BUS /US 421 TO I–40
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES AND SIGNALS

PROPOSED SIGNAL



U-2579AB: UTILITY WETLAND AND SURFACE WATER IMPACT PERMIT

NOTES:
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WINSTON–SALEM AND KERNERSVILLE.
CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A CONROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 14,700
ADT 2040 = 20,200
K = 9 %
D = 70 %
T = 7 % *
V = 70 MPH
* TTST = 4% DUAL = 3%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U–2579AB = 2.727 MILES
TOTAL LENGTH TIP PROJECT U–2579AB = 2.727 MILES

Prepared In the Office of:
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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 29, 2018

LETTING DATE:
OCTOBER 20, 2020

PHILLIP E. ROGERS, PE
PROJECT ENGINEER

CASEY E. HARRIS, PE
PROJECT DESIGN ENGINEER

ALLISON K. WHITE, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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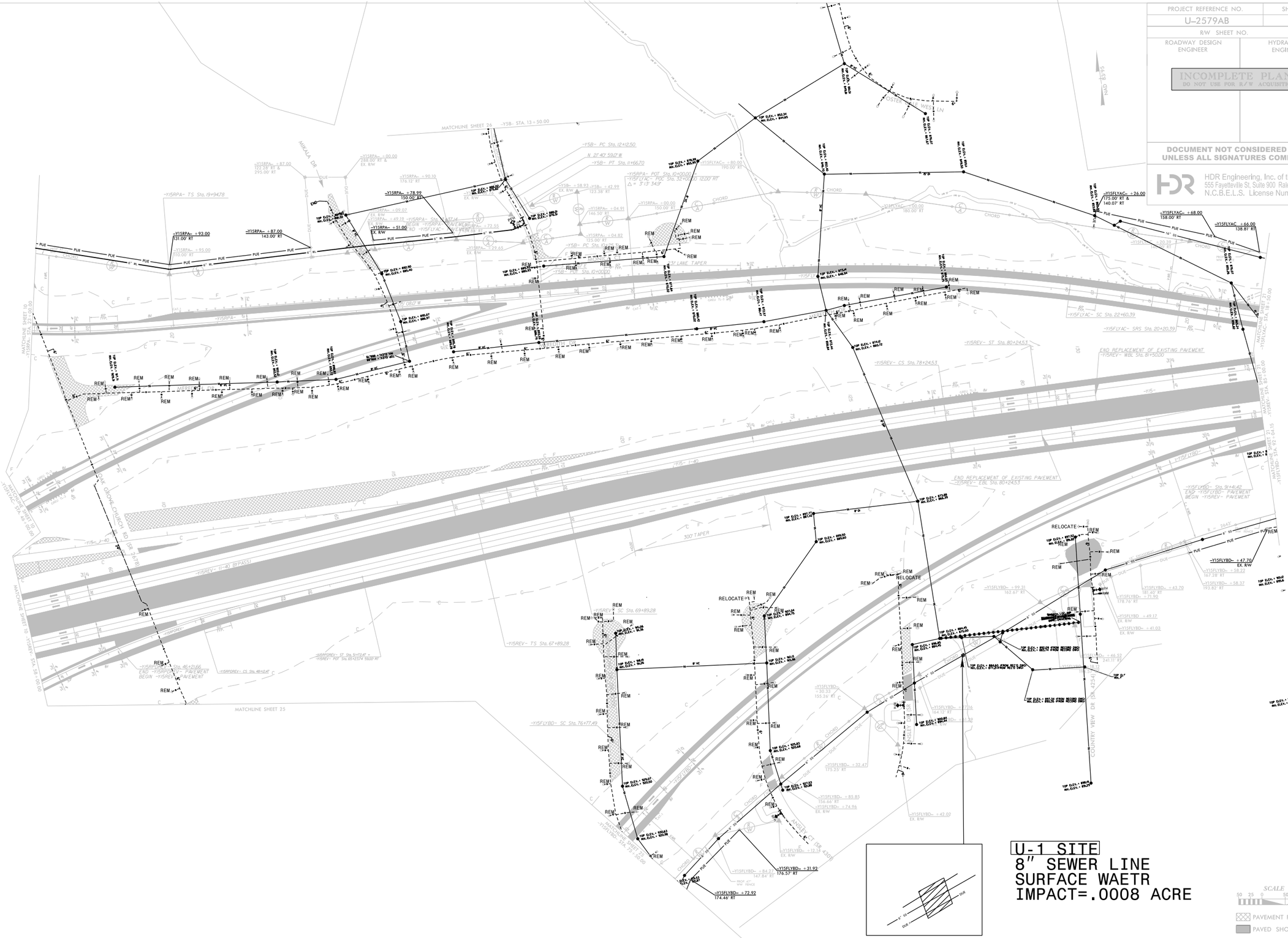
N.C.B.E.L.S. License Number: F-0116

REVISIONS

ROW REV.- MAY 7, 2019 - MOVED TURN AROUND FROM PARCEL 668 TO PARCEL 268 SHIFTED TURN AROUND DESIGN DOWN FIFTEEN FEET AND SHIFTED
FROM PARCEL 668 AND REDUCED PERMANENT UTILITY EASEMENT TO PROPERTY LINE ON PARCEL 241 ADDED RIGHT-OF-WAY CONTROL ACCESS DOWN TO ACCOMODATE DESIGN. REMOVED RIGHT-OF-WAY
ROW REV.- OCTOBER 14, 2019 - UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y15PLYBD- FROM STATION 70+00 TO 92+19. JHG

PLOT DRIVER: $PLTDRVS$ PENTABLE: $PENTBLS$
USER: $USER$ DATE: $DATE$ TIME: $TIME$
FILE: $PWVAARVAULTPATHOESC$



NOTES:
SEE SHEETS 49 AND 50 FOR -Y15REV- PROFILE
SEE SHEETS 52 AND 53 FOR -Y15FLYAC- PROFILE
SEE SHEETS 57 AND 58 FOR -Y15FLYBD- PROFILE
SEE SHEET 62 FOR -Y15RPA- PROFILE
SEE SHEETS 65 AND 66 FOR -Y15RPDREV- PROFILE
SEE SHEET 28-8 FOR MEDIAN CROSSOVER DESIGN AND TRAFFIC MAINTAINANCE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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U-2 SITE
FIDDLER CREEK
GRAVITY SEWER LINE
CROSSING=.0011 ACRES

–Y15FLYAC–	(FLYOVER)
PI Sta. 12+40.08	PI Sta. 15+10.50
Θs = 4° 26' 43.3"	Δ = 7° 25' 06.6" (RT)
Ls = 360.00'	D = 2° 28' 10.7"
LT = 240.08'	L = 300.39'
ST = 120.07'	T = 150.40'
INC = 60.00'	R = 2,320.00'
	SE = 06

	(FLYOVER)
PI Sta. 17+80.65	
Θs = 4° 26' 43.3"	
Ls = 360.00'	
LT = 240.08'	
ST = 120.07'	
INC = 60.00'	

–Y15FLYBD–	(FLYOVER)
PI Sta. 85+89.36	PI Sta. 95+36.59
Δ = 35° 37' 11.7" (RT)	Θs = 3° 02' 51.5"
D = 2° 01' 54.4"	Ls = 300.00'
L = 1,753.15'	LT = 200.03'
T = 905.94'	ST = 100.03'
R = 2,820.00'	INC = 60.00'
SE = 05	

–Y15FLYAC– +82.00
288.00' RT
–Y15FLYAC– +96.00
262.00' RT
–Y15FLYAC– +84.84
EX. R/W
–Y15FLYAC– +26.05
EX. R/W
–Y15FLYAC– +16.54
125.52' RT
–Y15FLYAC– +83.93
EX. R/W
–Y15FLYAC– +13.72
124.47' LT
–Y15FLYAC– +00.00
121.00' RT
–Y15FLYAC– ST Sta. 10+00.00 =
–Y15REV– POT Sta. 93+60.30 59.00' LT
–Y15REV– POT Sta. 96+28.30 LB.
–Y15– POT Sta. 145+00.00 L.A.
–Y15– +00.00
180.00' LT
–Y15– +00.00
240.00' RT
–Y15FLYAC– Sta. 16+36.24
BEGIN –Y15FLYAC– PAVEMENT
END –Y15REV– PAVEMENT
–Y15FLYAC– CS Sta. 16+60.33
–Y15FLYAC– SC Sta. 13+60.00
–Y15FLYAC– ST Sta. 97+19.92 =
–Y15REV– POT Sta. 90+19.61 71.00' RT
–Y15FLYBD– CS Sta. 94+19.92
–Y15FLYBD– +95.44
173.12' RT
–Y15FLYBD– +95.48
198.12' RT
–Y15FLYBD– +59.77
EX. R/W
–Y15FLYBD– +33.40
173.61' RT
–Y15REV– +24.49
EX. R/W
U-3 SITE
.0011 ACRE
BROOK BEND
LAKE VALLEY RD (SR 3883)
COVINGTON RIDGE RD (SR 4368)
MATCHLINE SHEET 20 –Y15FLYBD– STA. 84+50.00
MATCHLINE SHEET 20 –Y15REV– STA. 97+00.00
MATCHLINE –Y15– STA. 7+00.00
MATCHLINE –Y15FLYBD– STA.
CHORD
RELOCATE
REL
REM
RFH
PROP. 47" WW FENCE
1200' FULL LANE
16" SS
8" SS
18" ENCASEMENT 8" SS
PUE
60' TYP.
269
270
301
302
303
305
306
307
308
309

PAVEMENT REMOVAL
PAVED SHOULDER

NOTES:
SEE SHEET 50 FOR –Y15REV– PROFILE
SEE SHEET 50 FOR –Y15– PROFILE
SEE SHEET 52 FOR –Y15FLYAC– PROFILE
SEE SHEET 58 FOR –Y15FLYBD– PROFILE
SEE SHEET 2B-8 FOR MEDIAN CROSSOVER DESIGN AND TRAFFIC MAINTAINANCE

REVISIONS
ROW REV. – OCTOBER 14, 2019 – UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO –Y15FLYBD– FROM STATION 70+00 TO 92+19.JHG

PLOT DRIVER: $PLTDRVS$
USER: $USER$
FILE: $PWVAULTPATHDESC$
DATE: $DATE$
PENTABLE: $PENTBLS$
TIME: $TIME$

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	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

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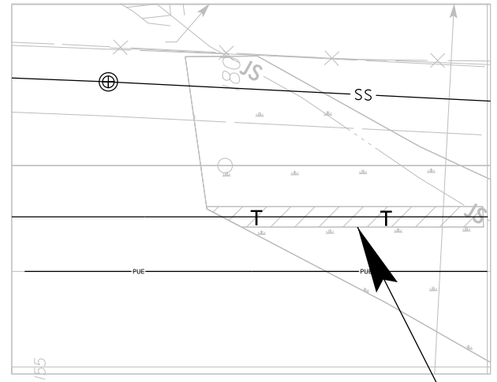
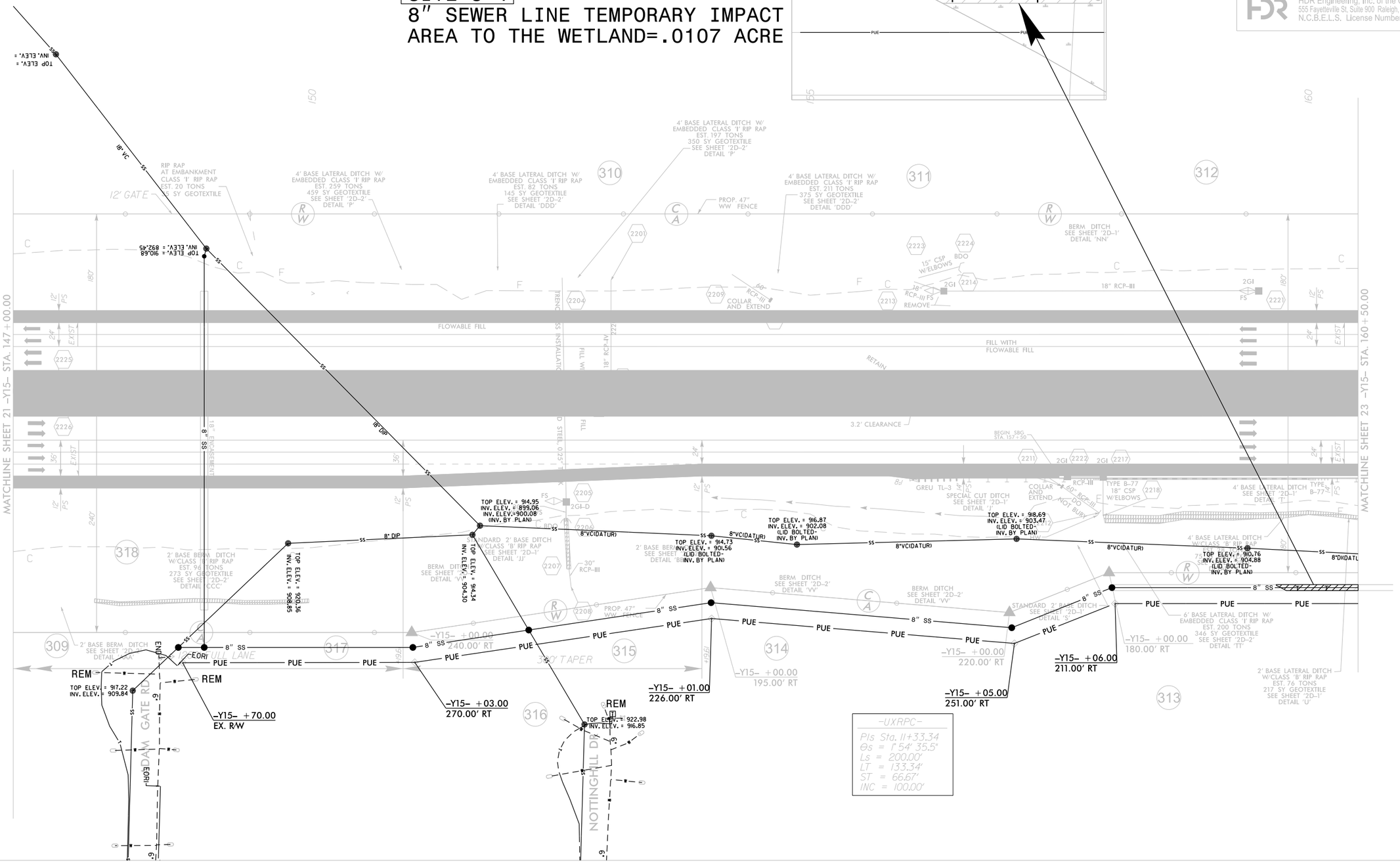
SITE U-4
8" SEWER LINE TEMPORARY IMPACT AREA TO THE WETLAND=.0107 ACRE



NAD 83/95



REVISIONS

PLOT DRIVER: $PLTDRV$ PENTABLE: $PENTBL$
USER: $USER$ DATE: $DATE$ TIME: $TIME$
FILE: $PWVARVAULTPATHDESC$

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	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

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N.C.B.E.L.S. License Number: F-0116

NAD 83/95

MATCHLINE SHEET 22 -Y15- STA. 160+50.00

MATCHLINE SHEET 24 -Y15- 174+00.00

-UXRPB- ST Sta. 10+00.00 = -Y15- POT Sta. 163+24.92 59.00' LT

-UXRPB- +00.00 121.00' LT

-UXRPB- SC Sta. 12+40.00

-UXRPB- Sta. 14+06.32 BEGIN -UXRPB- PAVEMENT END -Y15- PAVEMENT

-UXRPB- +35.12 EX. R/W, TIE TO EXIST. FENCE

-UXRPB- CS Sta. 17+86.95

-UXRPB- 20+00.00

-UXRPC- Sta. 15+83.97 BEGIN -UXRPC- PAVEMENT END -Y15- PAVEMENT

END WIDENING -Y15- EBL Sta. 167+52.27

-UXRPC- +00.00 211.00' RT

-UXRPC- SC Sta. 11+60.00

-UXRPC- ST Sta. 10+00.00 = -Y15- POT Sta. 160+85.47 59.00' RT

-Y15- +85.00 211.00' RT

-UXRPC- +40.00 EX. SS EASEMENT

-UXRPC- +63.97 EX. R/W, TIE TO EXIST. FENCE

-UXRPC- CS Sta. 19+88.14

-UXRPC- ST Sta. 21+48.14

END CONSTRUCTION -UXRPC- Sta. 23+20.00

CHORD

PROP. 47" WW FENCE

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 76 TONS 217 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

LATERAL 'V' DITCH SEE SHEET '2D-1' DETAIL 'Q'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 58 TONS 165 SY. GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

SPECIAL CUT DITCH SEE SHEET 2D-2 DETAIL '88'

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

CLASS 'B' RIP RAP EST. 15 TONS 37 SY GEOTEXTILE

PREFORMED SCOUR HOLE EST. 20 SY PSRM EST. 12 SY GEOTEXTILE EST. 9 TONS CLASS 'B' STONE DETAIL 'EEEE'

15" RCP-III

42" RCP-III

30" RCP-III

24" RCP-III

COLLAR AND EXTEND

END SBG STA. +49

CLEAN OUT 42" RCP

GRADE TO DRAIN

RETAIN DI

REMOVE DI

REMOVE

RETAIN

FILL WITH EXCAVATABLE FILL

150' TAPER TO EXISTING

MILL & OVERLAY EXIST. RE-STRIPE TO NEW PATTERN

S 14°30'59.1" E

8" SS

PUE

SITE U-5
8" SEWER LINE
TEMPORARY
IMPACT TO WETLAND
AREA=.0034 ACRE

PAVED SHOULDER

NOTES:
SEE SHEET 51 FOR -Y15- PROFILE
SEE SHEET 71 FOR -UXRPB- PROFILE
SEE SHEET 71 FOR -UXRPC- PROFILE

REVISIONS

PLOT DRIVER: $PLTDRVS$ PENTABLE: $PENTBL$
USER: $USER$ DATE: $DATE$ TIME: $TIME$
FILE: $PWVARVAULTPATHDESC$

WETLAND PERMIT IMPACT 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)
U-1	5FLYBD STA 83+91 182' I	8" GRAVITY SEWER LINE							< 0.01		6	
U-2	15FLYC STA. 17+30 120' F	16" GRAVITY SEWER LINE							< 0.01		8	
U-3	5FLYBD STA. 94+56 186'	8" GRAVITY SEWER LINE							< 0.01		8	
U-4	Y15 STA. 160+06 192' RT	8" GRAVITY SEWER LINE		0.01					0.01		78	
U-5	Y15 STA.160+64 193' RT	8" GRAVITY SEWER LINE		< 0.01					< 0.01		24	
TOTALS*:				0.01					0.02		124	

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
05/05/2020
FORSYTH COUNTY
U-2579AB
34839.1.8
SHEET OF

Revised 2013.10.24

09/08/99

TIP PROJECT: U-2579AB

CONTRACT:

See Sheet 1-A For Index of Sheets

VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34839.1.8		P.E.	

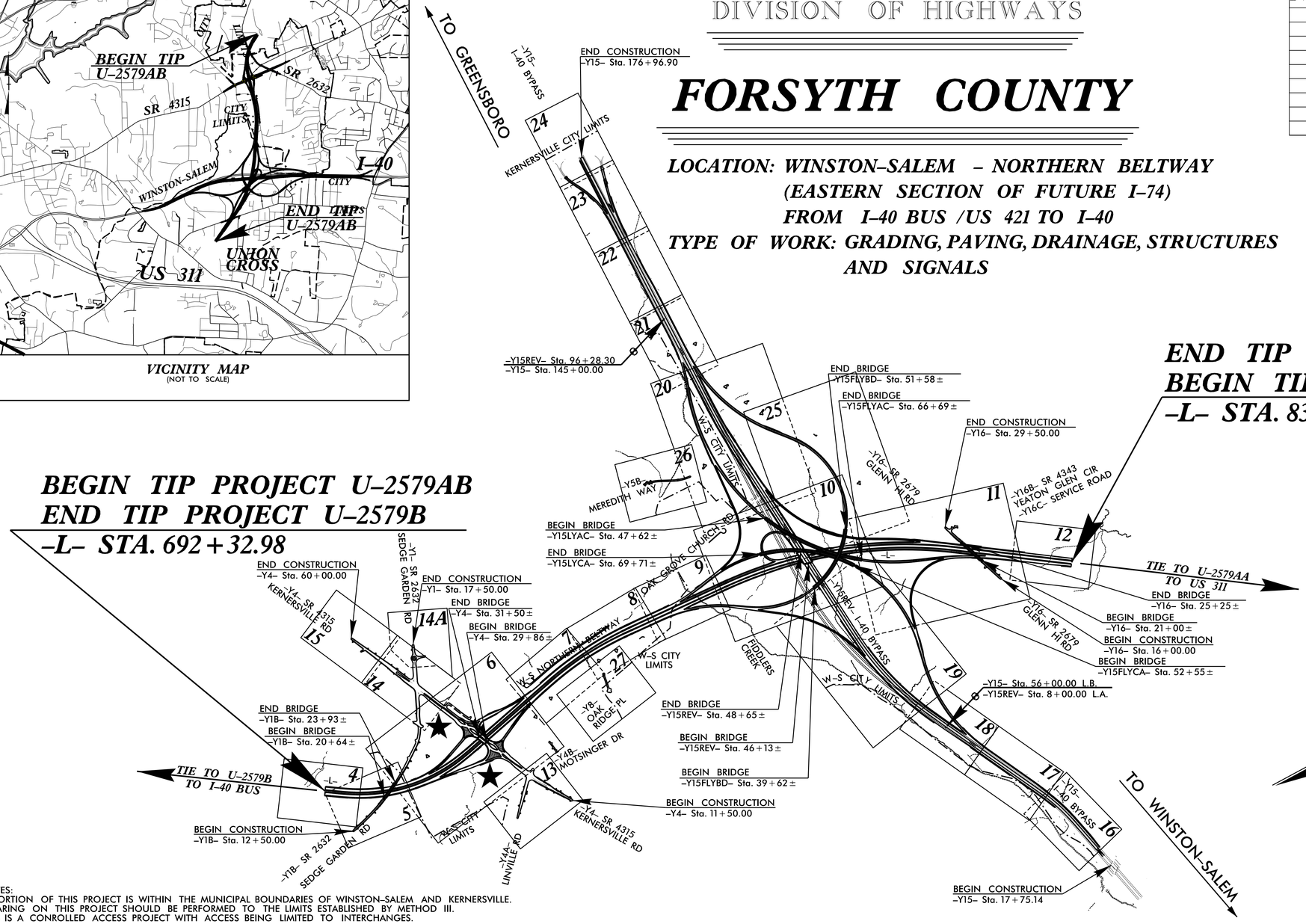
FORSYTH COUNTY

LOCATION: WINSTON-SALEM – NORTHERN BELTWAY
(EASTERN SECTION OF FUTURE I-74)
FROM I-40 BUS /US 421 TO I-40
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES AND SIGNALS

★ PROPOSED SIGNAL

END TIP PROJECT U-2579AB
BEGIN TIP PROJECT U-2579AA
-L- STA. 836+32.44

BEGIN TIP PROJECT U-2579AB
END TIP PROJECT U-2579B
-L- STA. 692+32.98



NOTES:
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WINSTON-SALEM AND KERNERSVILLE.
CLEARING ON THIS PROJECT SHOULD BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A CONROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2018 = 14,700
ADT 2040 = 20,200
K = 9 %
D = 70 %
T = 7 % *
V = 70 MPH
* TTST = 4% DUAL = 3%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2579AB = 2.727 MILES
TOTAL LENGTH TIP PROJECT U-2579AB = 2.727 MILES

Prepared In the Office of:
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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 29, 2018

LETTING DATE:
OCTOBER 20, 2020

PHILLIP E. ROGERS, PE
PROJECT ENGINEER

CASEY E. HARRIS, PE
PROJECT DESIGN ENGINEER

ALLISON K. WHITE, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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DATE: 5/11/2020
TIME: 5:18:36 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	1-B

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 Easement 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

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 (HH)
- 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.)

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DATE: 5/11/2020
TIME: 5:18:40 PM

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

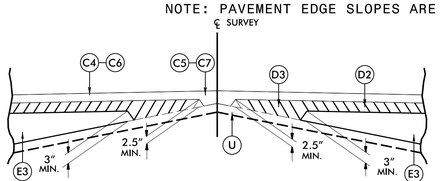
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PAVEMENT SCHEDULE

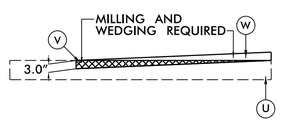
(PRELIMINARY PAVEMENT DESIGN)

A1	9" JOINTED PORTLAND CEMENT CONCRETE PAVEMENT WITH DOWELS.	E4	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
A2	9" JOINTED PORTLAND CEMENT CONCRETE PAVEMENT WITHOUT DOWELS.	J1	PROP. 4" AGGREGATE BASE COURSE.
A3	12" JOINTED PORTLAND CEMENT CONCRETE PAVEMENT WITH DOWELS.	J2	PROP. 6" AGGREGATE BASE COURSE.
A4	12" PORTLAND CEMENT CONCRETE PAVEMENT WITHOUT DOWELS.	J3	PROP. 8" AGGREGATE BASE COURSE.
A5	7" PORTLAND CEMENT JOINTED STAMPED CONCRETE PAVEMENT TRUCK APRON WITH 4x4 - W3.5xW3.5 WELDED WIRE REINFORCEMENT PLACED NEAR THE CENTER OF THE SLAB IN LIEU OF DOWELS.	K1	SUBGRADE STABILIZATION.
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YARD.	N	NONWOVEN GEOTEXTILE INTERLAYER
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.	P	PRIME COAT AT A RATE OF 0.35 GAL. PER SQ. YD.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	1'-6" CONCRETE CURB AND GUTTER.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R2	2'-6" CONCRETE CURB AND GUTTER.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN).
C6	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	CONCRETE BARRIER.
C7	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R5	DOUBLE FACE CONCRETE BARRIER (TYPE T).
C8	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R6	DDI BARRIER WITH MOMENT SLAB.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	R7	4" CONCRETE COVER.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R8	SHOULDER BERM GUTTER.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R9	MODIFIED CONCRETE 2'-6" CURB AND GUTTER.
D4	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R10	MODIFIED CONCRETE VALLEY GUTTER.
D5	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	T	EARTH MATERIAL.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	V	RUMBLE STRIPS.
		W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging



USE MILLING DETAIL

–Y1B– STA. 12+50.00 TO STA. 13+25.00
–Y1– STA. 16+75.00 TO STA. 17+50.00
–Y1A– STA. 11+50.00 TO STA. 12+00.00
–Y4– STA. 11+50.00 TO STA. 12+25.00
–Y4– STA. 59+25.00 TO STA. 60+00.00
–Y4A– STA. 18+00.00 TO STA. 18+75.00
–Y5B– STA. 14+50.00 TO STA. 15+25.00
–Y5B– STA. 22+25.00 TO STA. 23+00.00
–Y8– STA. 12+85.00 TO STA. 13+60.00
–Y8– STA. 15+75.00 TO STA. 16+50.00
–Y16B– STA. 12+50.00 TO STA. 13+25.00

REVISIONS

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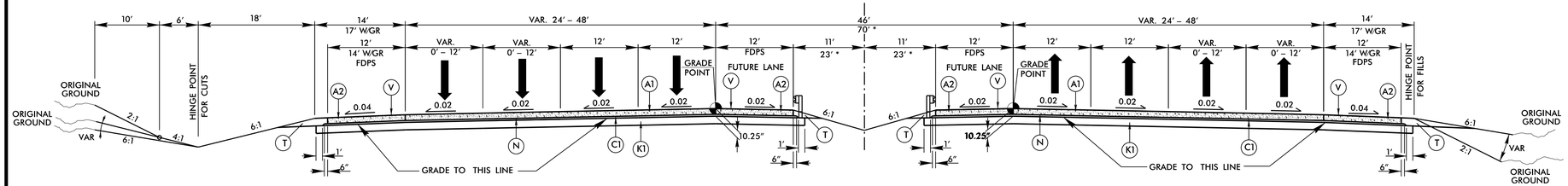
PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2A–2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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

℄ –L– (WINSTON–SALEM – NORTHERN BELTWAY)



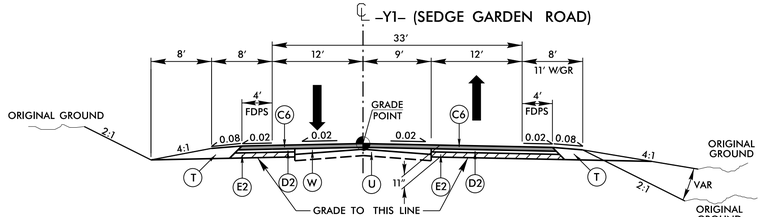
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 692+32.98 TO STA. 836+32.44

* MEDIAN TRANSITION OCCURS AT
–L– STA. 745+00.00 TO STA. 757+00.00

NOTE: NON–STANDARD INSIDE SHOULDER ROLLOVER TO ALLOW FOR FUTURE WIDENING.

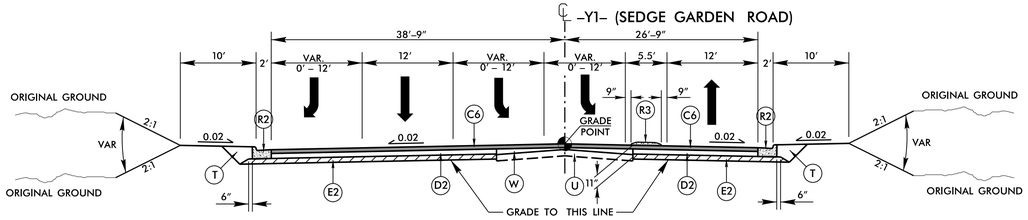
℄ –Y1– (SEDGE GARDEN ROAD)



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–Y1– STA. 15+63.94 TO STA. 17+50.00

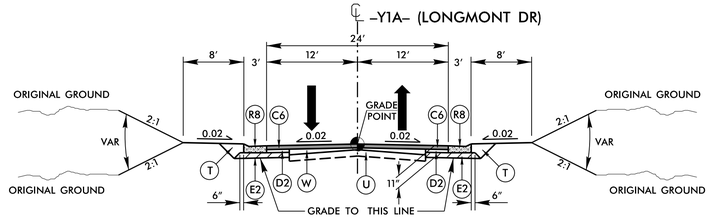
℄ –Y1– (SEDGE GARDEN ROAD)



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
–Y1– STA. 10+51.87 TO STA. 14+53.94

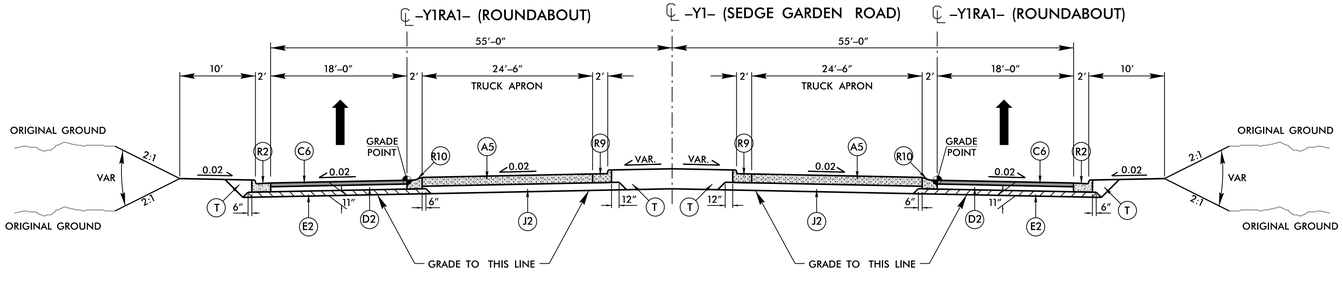
℄ –Y1A– (LONGMONT DR)



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
–Y1A– STA. 10+55.00 TO STA. 12+00.00

℄ –Y1RA1– (ROUNDABOUT) ℄ –Y1– (SEDGE GARDEN ROAD) ℄ –Y1RA1– (ROUNDABOUT)



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
–Y1RA1– STA. 10+00.00 TO STA. 12+32.48

PAVEMENT SCHEDULE	
A1	9″ DOW. JOINT. CON
A2	9″ JOINT. CONC.
A3	12″ DOW. JOINT. CON
A4	12″ JOINT. CONC.
A5	7″ CONC. TRUCK APRON
C1	1.25″ SF9.5A
C2	1.5″ SF9.5A
C3	2″ SF9.5A
C4	3″ SF9.5A
C5	VAR. SF9.5A
C6	3″ S9.5B
C7	VAR. S9.5B
C8	3″ S9.5C
D1	2.5″ I19.0B
D2	4″ I19.0B
D3	VAR. I19.0B
D4	3″ I19.0C
D5	4″ I19.0C
E1	3″ B25.0B
E2	4″ B25.0B
E3	VAR. B25.0B
E4	7″ B25.0C
J1	4″ ABC
J2	6″ ABC
J3	8″ ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1′-6″CONC. C&G
R2	2′-6″CONC. C&G
R3	5″ CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4″ CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2′-6″ CONC. C&G
R10	MOD. VALLEY GUT.
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING

REVISIONS

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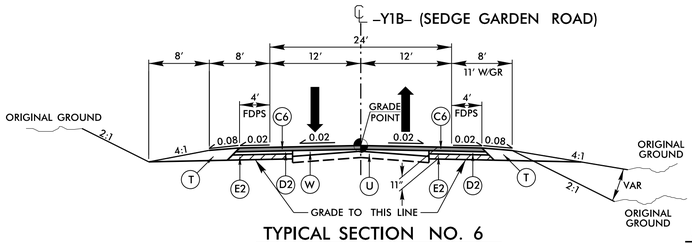
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

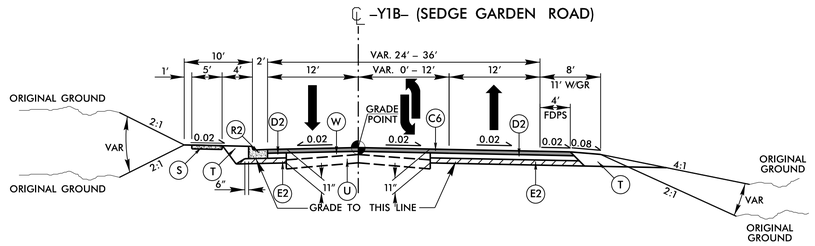
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



TYPICAL SECTION NO. 6

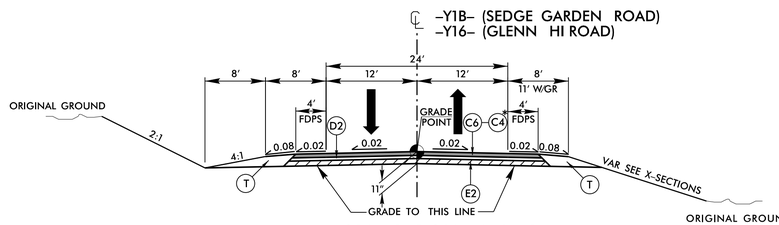
USE TYPICAL SECTION NO. 6
-Y1B- STA. 12+50.00 TO STA. 17+50.00



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
-Y1B- STA. 24+06.18(END BRIDGE) TO STA. 35+50.00

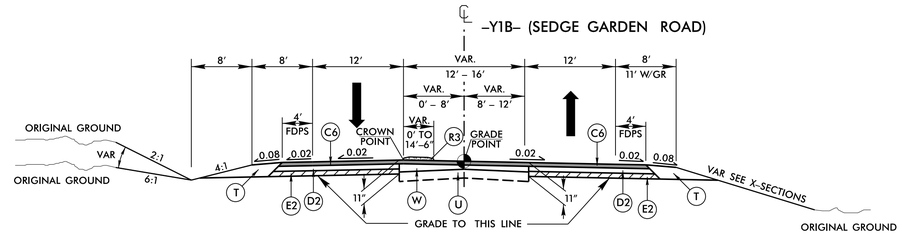
PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING



TYPICAL SECTION NO. 8

* USE C4 FOR -Y16-

USE TYPICAL SECTION NO. 8
-Y1B- STA. 17+50.00 TO STA. 20+50.39(BEGIN BRIDGE)
-Y16- STA. 16+00.00 TO STA. 20+73.53(BEGIN BRIDGE)
-Y16- STA. 25+49.53(END BRIDGE) TO STA. 29+50.00



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
-Y1B- STA. 35+50.00 TO STA. 41+31.58

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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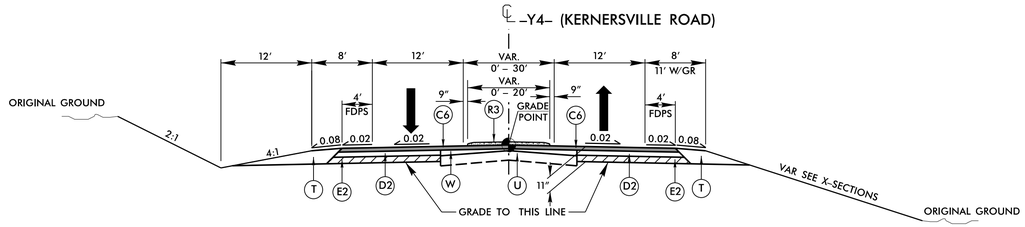
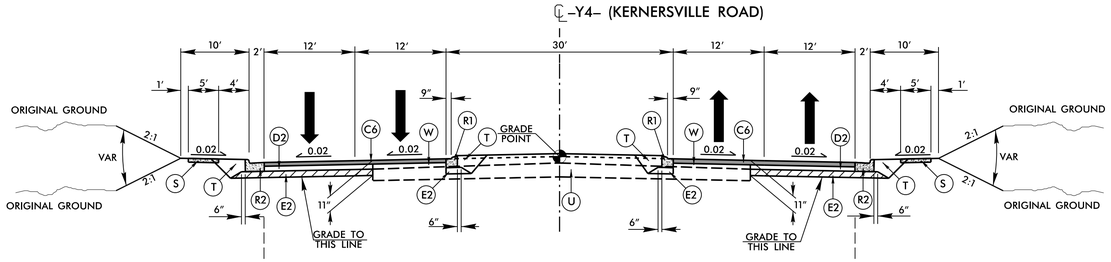
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



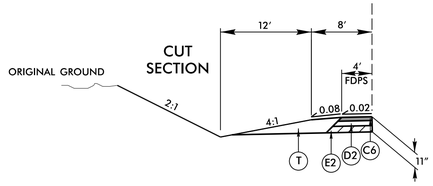
TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
-Y4- STA. 11+50.00 TO STA. 19+16.00
-Y4- STA. 50+00.00 TO STA. 60+00.00



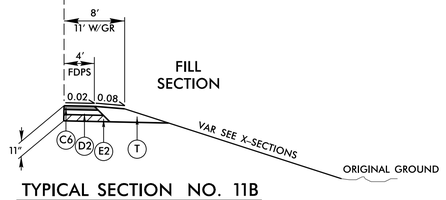
TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11
-Y4- STA. 19+16.00 TO STA. 23+25.00
-Y4- STA. 42+50.00 TO STA. 50+00.00



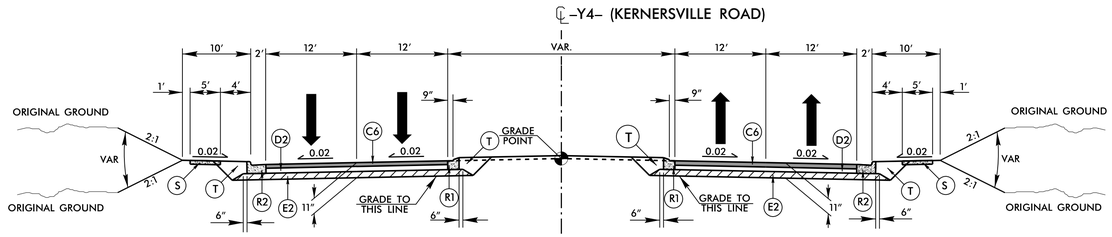
TYPICAL SECTION NO. 11A

USE TYPICAL SECTION NO. 11A IN CONJUNCTION WITH TYPICAL NO. 11
-Y4- STA. 45+65.98 TO STA. 50+00.00



TYPICAL SECTION NO. 11B

USE TYPICAL SECTION NO. 11B IN CONJUNCTION WITH TYPICAL NO. 11
-Y4- STA. 45+65.98 TO STA. 50+00.00



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
-Y4- STA. 23+25.00 TO STA. 26+93.01
-Y4- STA. 34+29.06 TO STA. 42+50.00

PAVEMENT SCHEDULE	
A1	9″ DOW. JOINT. CON
A2	9″ JOINT. CONC.
A3	12″ DOW. JOINT. CON
A4	12″ JOINT. CONC.
A5	7″ CONC. TRUCK APRON
C1	1.25″ SF9.5A
C2	1.5″ SF9.5A
C3	2″ SF9.5A
C4	3″ SF9.5A
C5	VAR. SF9.5A
C6	3″ S9.5B
C7	VAR. S9.5B
C8	3″ S9.5C
D1	2.5″ I19.0B
D2	4″ I19.0B
D3	VAR. I19.0B
D4	3″ I19.0C
D5	4″ I19.0C
E1	3″ B25.0B
E2	4″ B25.0B
E3	VAR. B25.0B
E4	7″ B25.0C
J1	4″ ABC
J2	6″ ABC
J3	8″ ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1′-6″CONC. C&G
R2	2′-6″CONC. C&G
R3	5″ CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4″ CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2′-6″ CONC. C&G
R10	MOD. VALLEY GUT.
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING

REVISIONS

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6/2/99

REVISIONS

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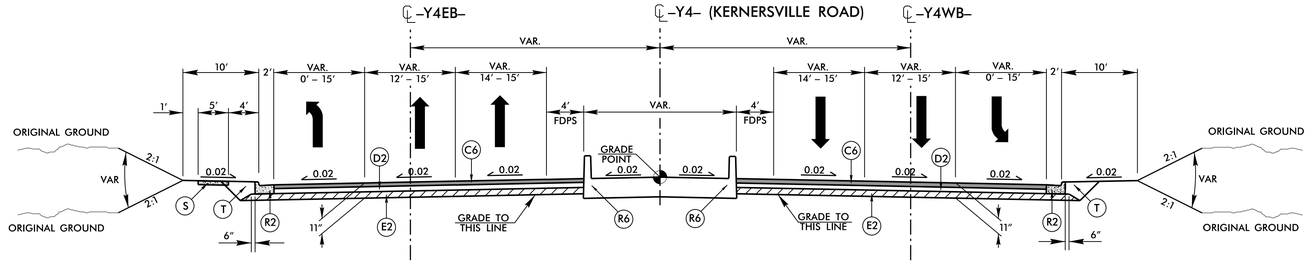
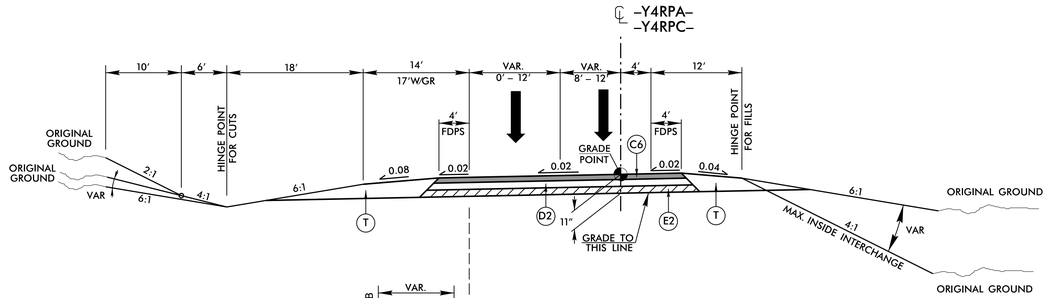
DATE: 5/11/2020
TIME: 5:21:05 PM



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13

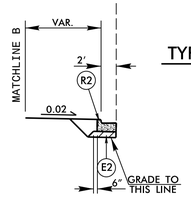
–Y4– STA. 26+93.01 TO STA. 29+85.66(BEGIN BRIDGE)
–Y4– STA. 31+49.65(END BRIDGE) TO STA. 34+29.06



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14

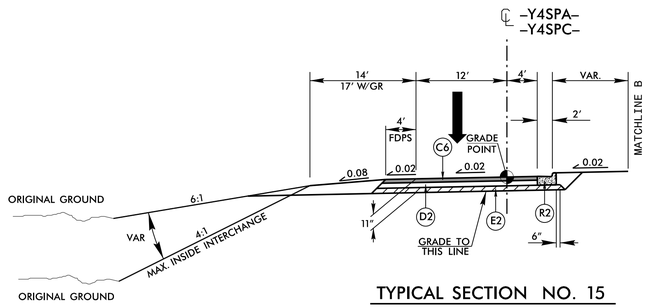
–Y4RPA– STA. 15+49.40 TO STA. 25+38.99
–Y4RPC– STA. 15+48.66 TO STA. 24+68.50



TYPICAL SECTION NO. 14A

USE TYPICAL SECTION NO. 14A IN CONJUNCTION WITH TYPICAL NO. 14

–Y4RPA– STA. 22+90.80 TO STA. 24+49.77
–Y4RPC– STA. 22+26.52 TO STA. 23+73.08



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15

–Y4SPA– STA. 22+21.97 TO STA. 25+41.78
–Y4SPC– STA. 21+69.21 TO STA. 24+77.56

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2A–5
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-6
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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HDR Engineering, Inc. of the Carolinas
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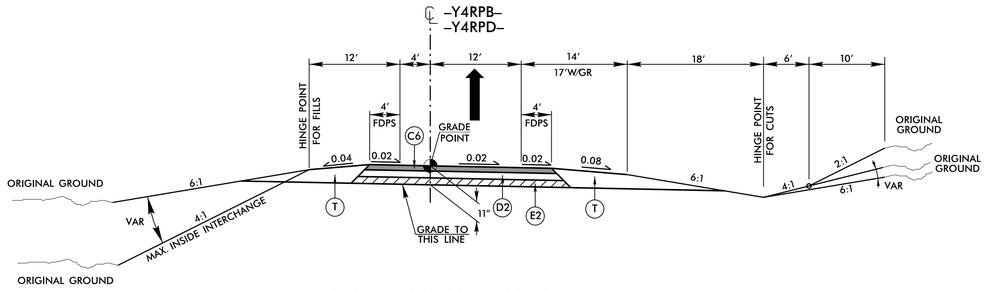
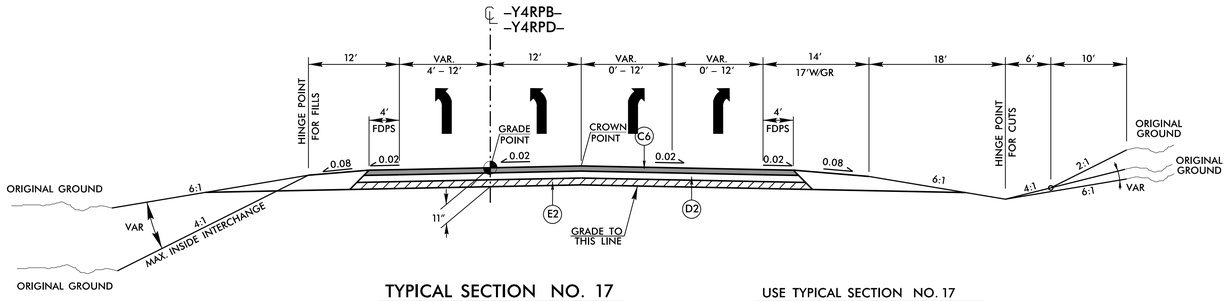
N.C.B.E.L.S. License Number: F-0116



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16

-Y4RPB- STA. 15+68.14 TO STA. 17+00.00
-Y4RPD- STA. 15+08.06 TO STA. 18+00.00

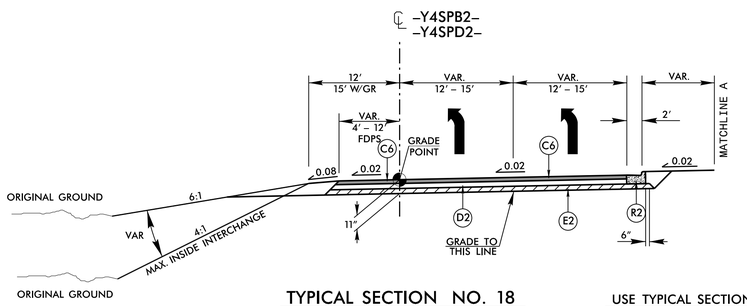


TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17

-Y4RPB- STA. 17+00.00 TO STA. 22+78.69
-Y4RPD- STA. 18+00.00 TO STA. 22+35.14

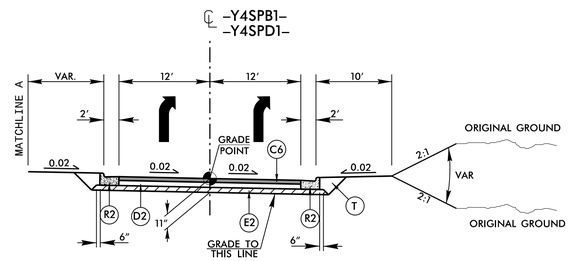
PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18

-Y4SPB2- STA. 22+78.69 TO STA. 25+73.07
-Y4SPD2- STA. 22+35.14 TO STA. 24+66.82



TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19

-Y4SPB1- STA. 22+78.69 TO STA. 26+52.15
-Y4SPD1- STA. 22+35.14 TO STA. 25+51.28

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-7
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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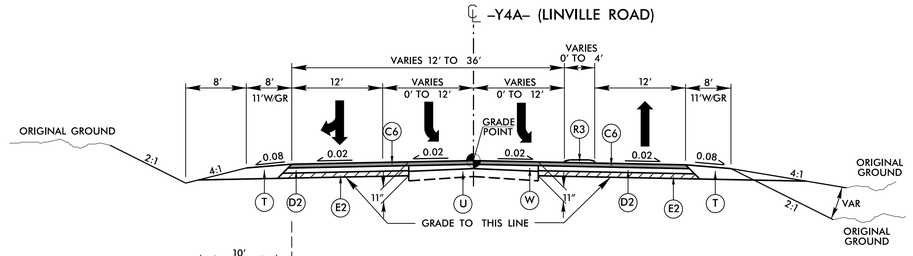
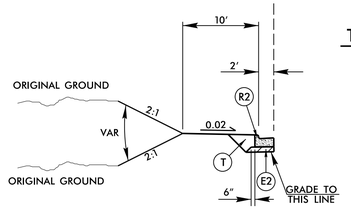
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



TYPICAL SECTION NO. 20

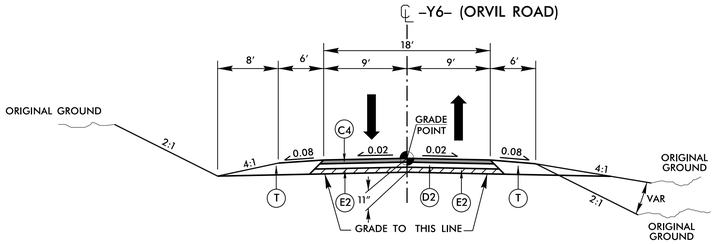
USE TYPICAL SECTION NO. 20
-Y4A- STA. 10+42.10 TO STA. 18+00.00



TYPICAL SECTION NO. 20A

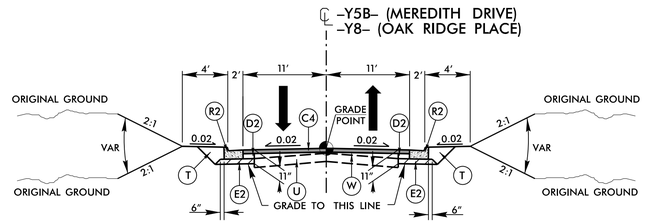
USE TYPICAL SECTION NO. 20A
IN CONJUNCTION WITH TYPICAL NO. 20
-Y4A- STA. 10+42.10 TO STA. 14+58.42 (LT)

PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING



TYPICAL SECTION NO. 21

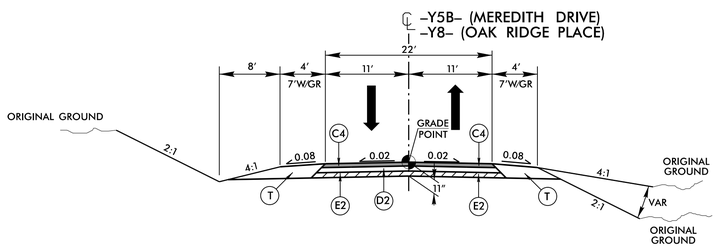
USE TYPICAL SECTION NO. 21
-Y6- STA. 10+10.77 TO STA. 12+50.00



TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22
-Y5B- STA. 14+00.00 TO STA. 16+50.00
-Y8- STA. 14+65.00 TO STA. 16+50.00

* USE FULL DEPTH PAVEMENT
-Y8- STA. 14+65.00 TO STA. 15+35.00



TYPICAL SECTION NO. 23

USE TYPICAL SECTION NO. 23
-Y5B- STA. 16+50.00 TO STA. 23+00.00
-Y8- STA. 13+43.63 TO STA. 14+65.00

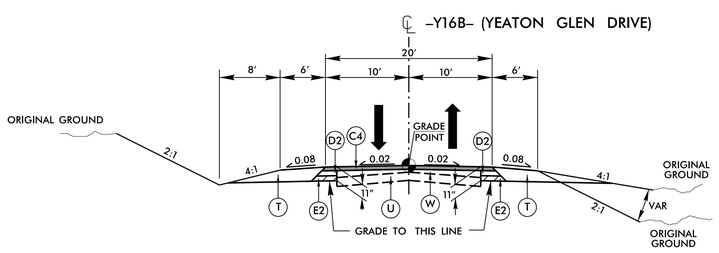
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:21:08 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-8
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

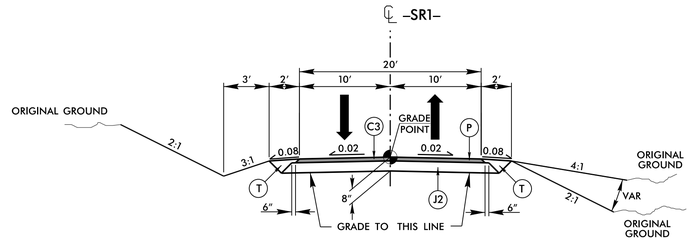
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



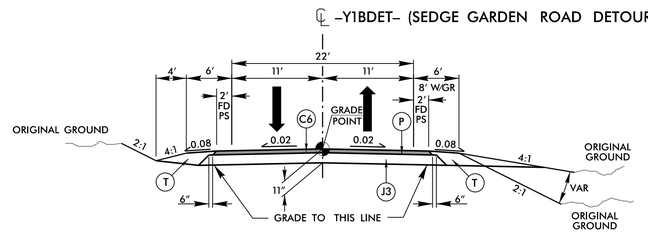
TYPICAL SECTION NO. 24

USE TYPICAL SECTION NO. 24
–Y16B– STA. 12+50.00 TO STA. 14+11.94



TYPICAL SECTION NO. 25

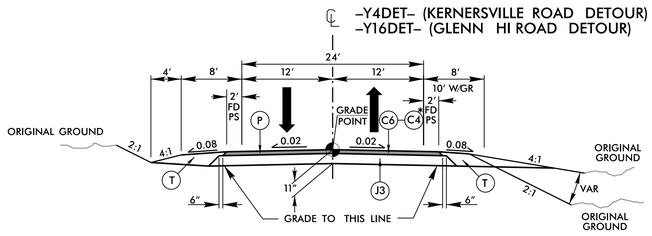
USE TYPICAL SECTION NO. 25
–SR1– STA. 10+60.00 TO STA. 29+00.00



TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26
–Y1BDET– STA. 14+35.97 TO STA. 28+39.28

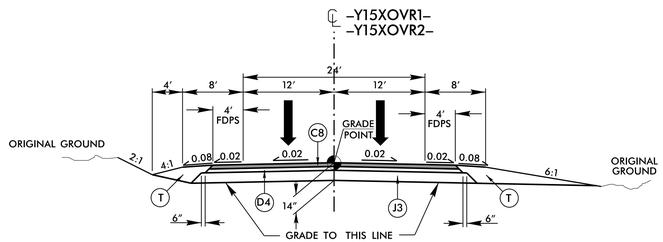
PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING



TYPICAL SECTION NO. 27

* USE C2 FOR –Y16DET–

USE TYPICAL SECTION NO. 27
–Y4DET– STA. 10+36.67 TO STA. 32+81.96
–Y16DET– STA. 14+52.63 TO STA. 32+41.73



TYPICAL SECTION NO. 28

USE TYPICAL SECTION NO. 28
–Y15XOVR1– STA. 13+47.37 TO STA. 18+41.52
–Y15XOVR2– STA. 13+52.06 TO STA. 18+41.34

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2A–9
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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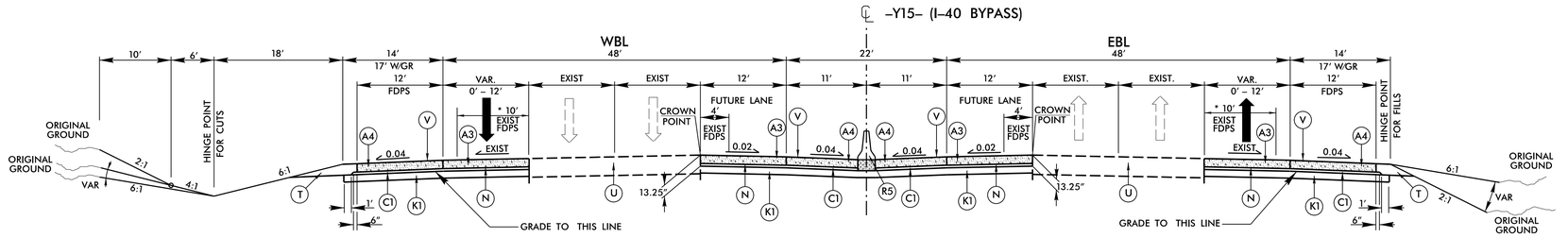


TYPICAL SECTION NO. 29

* TO BE REMOVED
** STATIONS INCLUDE AN EQUALITY WITH –Y15REV–

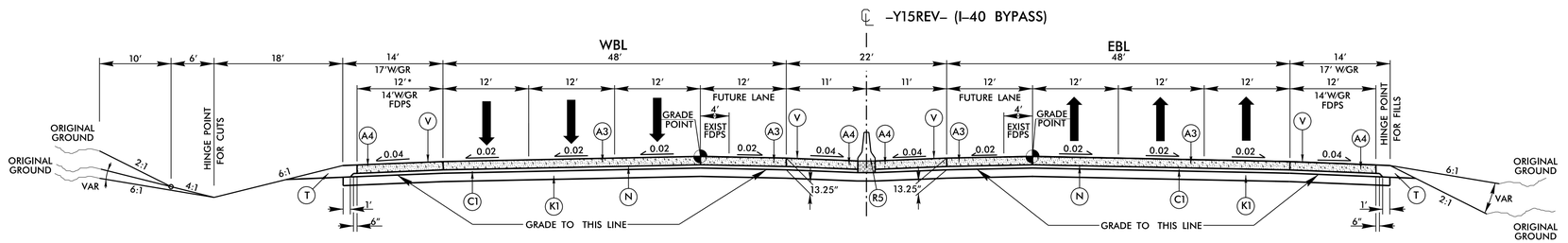
USE TYPICAL SECTION NO. 29 **

–Y15– STA. 21+50.00 TO STA. 56+00.00 L.B. =
–Y15REV– STA. 8+00.00 L.A.

–Y15REV– (WBL) STA. 81+50.00 TO STA. 96+28.30 L.B. =
–Y15– (WBL) STA. 145+00.00 L.A. TO STA. 176+96.90

–Y15REV– (EBL) STA. 80+24.53 TO STA. 96+28.30 L.B. =
–Y15– (EBL) STA. 145+00.00 L.A. TO STA. 176+96.90

PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING



TYPICAL SECTION NO. 30

USE TYPICAL SECTION NO. 31=0

–Y15REV– STA. 8+00.00 L.A. = –Y15– STA. 21+50.00 L.B.
TO –Y15REV– STA. 46+12.61(BEGIN BRIDGE)

–Y15REV– STA. 48+57.61(END BRIDGE) TO
–Y15REV– (EBL) STA. 80+24.53

–Y15REV– STA. 48+57.61(END BRIDGE) TO
–Y15REV– (WBL) STA. 81+50.00

REVISIONS

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6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-10
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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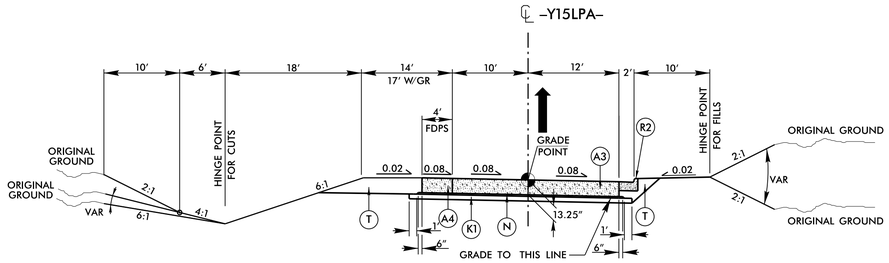
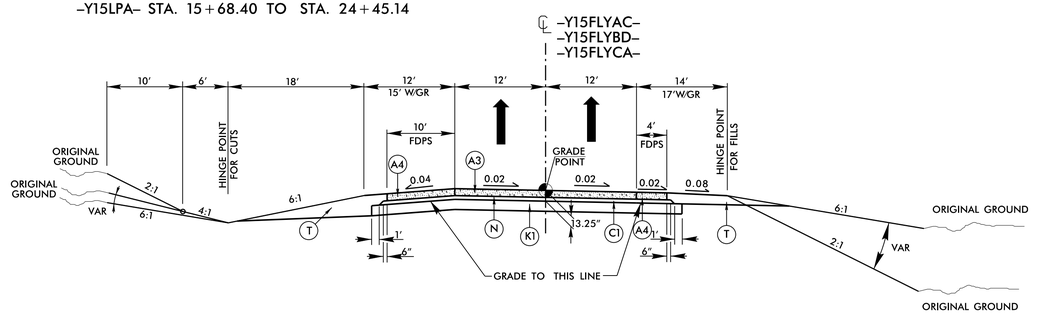


TYPICAL SECTION NO. 31

USE TYPICAL SECTION NO. 31

-Y15LPA- STA. 15+68.40 TO STA. 24+45.14

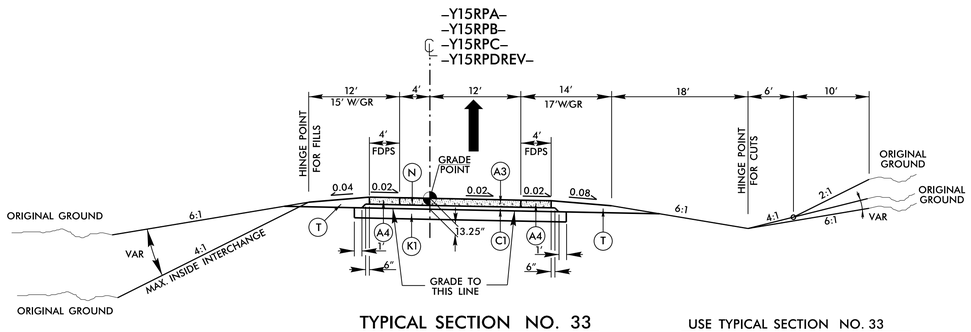


TYPICAL SECTION NO. 32

USE TYPICAL SECTION NO. 32

-Y15FLYAC- STA. 16+36.24 TO STA. 47+61.78(BEGIN BRIDGE)
-Y15FLYAC- STA. 66+44.78(END BRIDGE) TO STA. 86+31.83
-Y15FLYBD- STA. 16+38.98 TO STA. 39+40.31(BEGIN BRIDGE)
-Y15FLYBD- STA. 51+59.31(END BRIDGE) TO STA. 91+70.87
-Y15FLYCA- STA. 16+61.25 TO STA. 52+54.79(BEGIN BRIDGE)
-Y15FLYCA- STA. 69+71.79(END BRIDGE) TO STA. 84+89.13

PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING



TYPICAL SECTION NO. 33

USE TYPICAL SECTION NO. 33

-Y15RPA- STA. 13+37.14 TO STA. 32+54.11
-Y15RPB- STA. 13+70.02 TO STA. 32+92.63
-Y15RPC- STA. 13+31.92 TO STA. 27+48.21
-Y15RPDREV- STA. 18+75.11 TO STA. 46+21.66

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2A-11
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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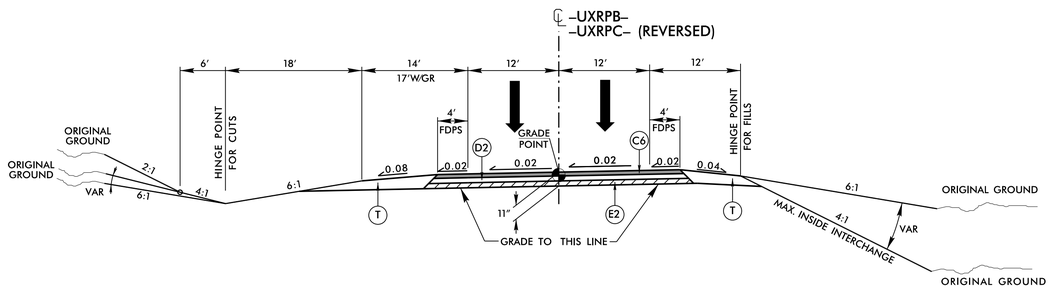
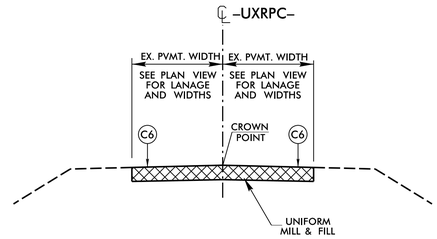


TYPICAL SECTION NO. 34

USE TYPICAL SECTION NO. 34

-UXRPB- STA. 14+06.32 TO STA. 22+70.00
-UXRPC- STA. 16+77.03 TO STA. 21+00.00

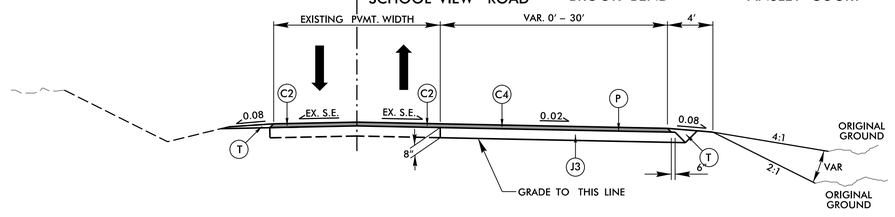


TYPICAL SECTION NO. 35

USE TYPICAL SECTION NO. 35

-UXRPC- STA. 21+00.00 TO STA. 23+20.00

-Y5B- (MEREDITH DRIVE) OLD WINSTON ROAD LAKE VALLEY ROAD
-Y6- (ORVIL LANE) GARDEN VIEW DRIVE COUNTRY VIEW DRIVE
-Y8- (OAK RIDGE PLACE) OAKSBURG COURT ANSLEY DRIVE
SCHOOL VIEW ROAD BROOK BEND ANSLEY COURT



TYPICAL SECTION NO. 36

USE TYPICAL SECTION NO. 36

SEE PLAN VIEW FOR TURNAROUND LOCATIONS AND PAVING LIMITS

NOTES:
OVERLAY THE EXISTING PAVEMENT WITH $1\frac{1}{2}$" OF SF9.5A (C8)

NO PROFILE PROVIDED FOR TURNAROUND
WIDEN OFF THE EXISTING

PAVEMENT SCHEDULE	
A1	9" DOW. JOINT. CON
A2	9" JOINT. CONC.
A3	12" DOW. JOINT. CON
A4	12" JOINT. CONC.
A5	7" CONC. TRUCK APRON
C1	1.25" SF9.5A
C2	1.5" SF9.5A
C3	2" SF9.5A
C4	3" SF9.5A
C5	VAR. SF9.5A
C6	3" S9.5B
C7	VAR. S9.5B
C8	3" S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
D4	3" I19.0C
D5	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	VAR. B25.0B
E4	7" B25.0C
J1	4" ABC
J2	6" ABC
J3	8" ABC
K1	SUBGRADE STAB.
N	NONWOV. GEO. INT.
P	PRIME COAT
R1	1'-6"CONC. C&G
R2	2'-6"CONC. C&G
R3	5" CONC. ISLAND
R4	CONCRETE BARRIER
R5	DO. FACE CON. BARR.
R6	DDI BARRIER
R7	4" CONC. COVER
R8	SHLD. BERM GUTTER
R9	MOD. 2'-6" CONC. C&G
R10	MOD. VALLEY GUT.
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	RUMBLE STRIPS
W	WEDGING

REVISIONS

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BRIDGE SKETCHES

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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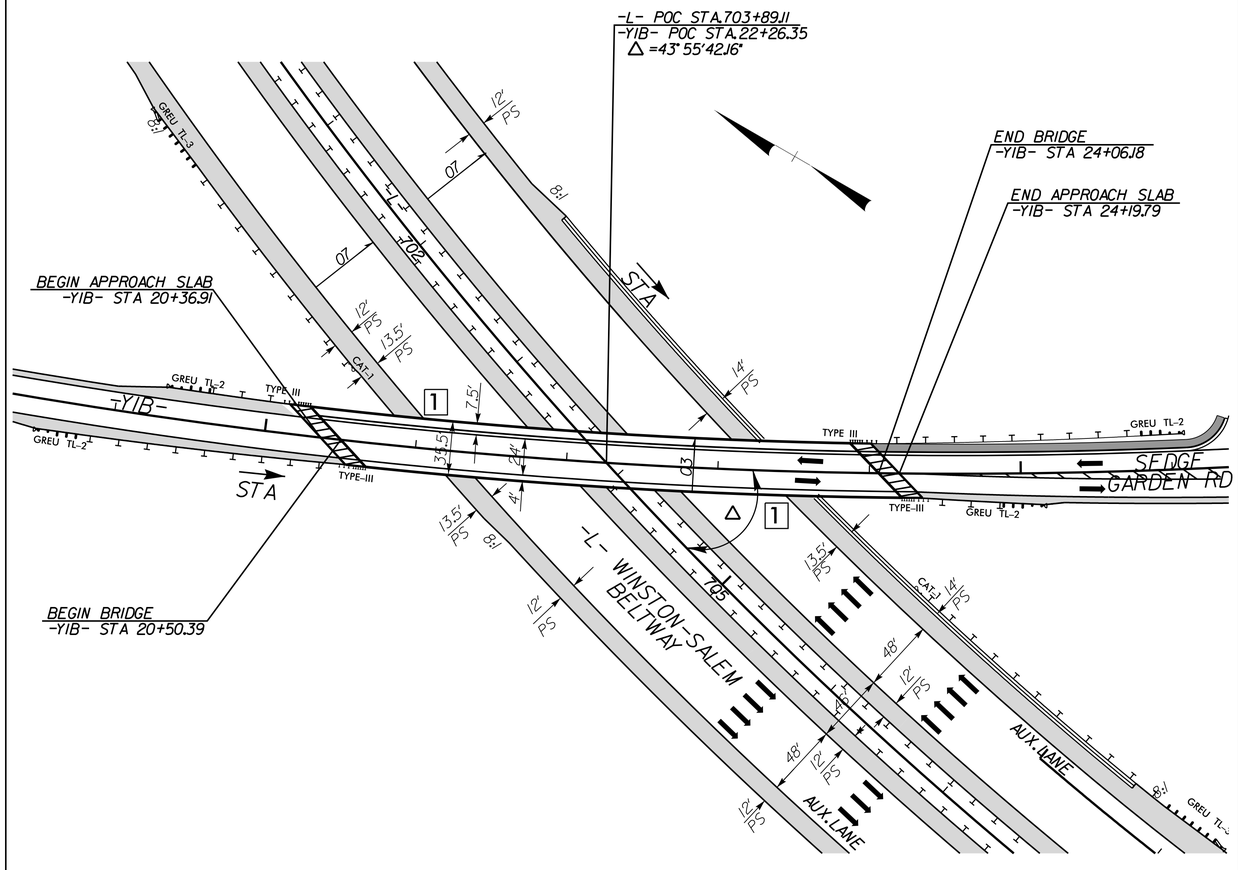
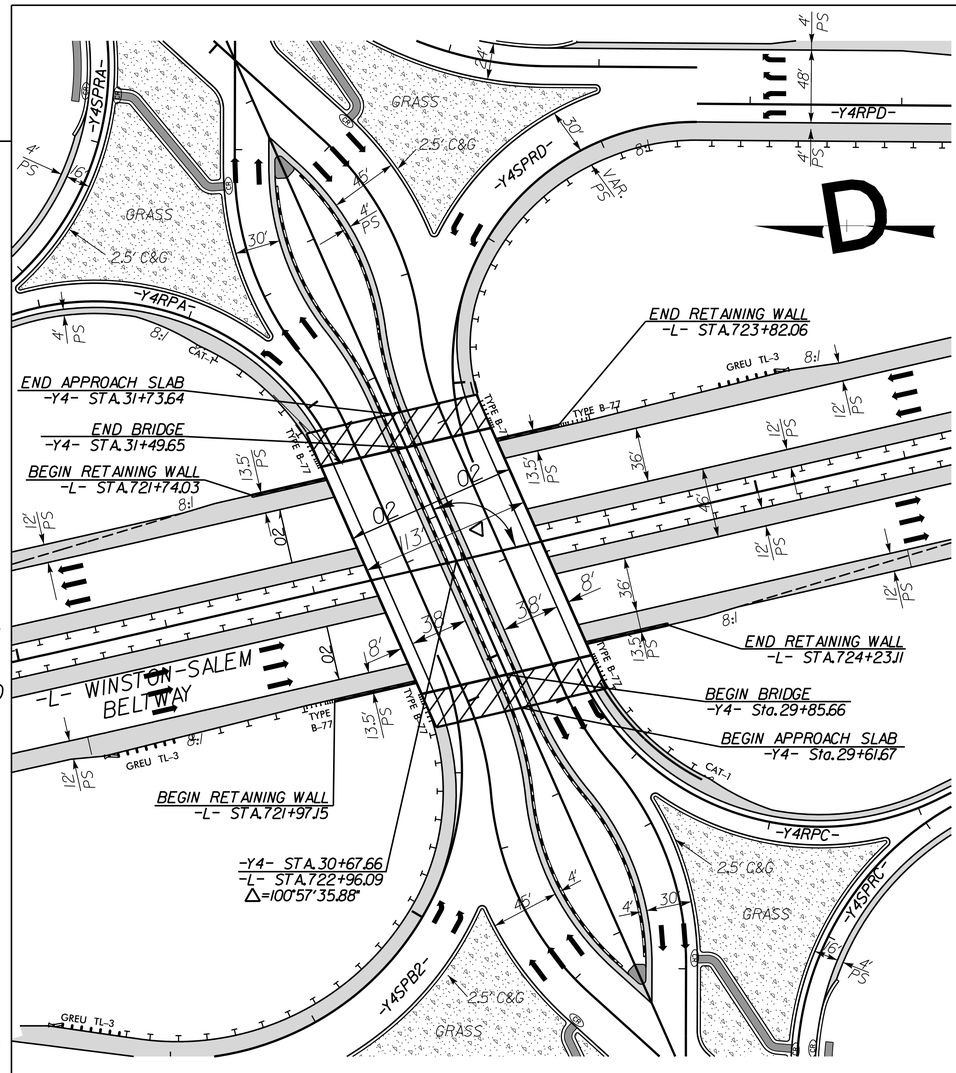
① DETAIL SHOWING PAVEMENT AND BRIDGE RELATIONSHIP FOR -YIB- OVER -L-



SCALE: 1" = 50'

1 NOTE: SEE NCDOT STD.610.03

② DETAIL SHOWING PAVEMENT AND BRIDGE RELATIONSHIP FOR -Y4- OVER -L-



SCALE: 1" = 50'

NOTES: SEE PLAN SHEET 5 FOR STRUCTURE ① ROADWAY PLAN
SEE PLAN SHEET 6 FOR STRUCTURE ② ROADWAY PLAN

REVISIONS

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BRIDGE SKETCHES

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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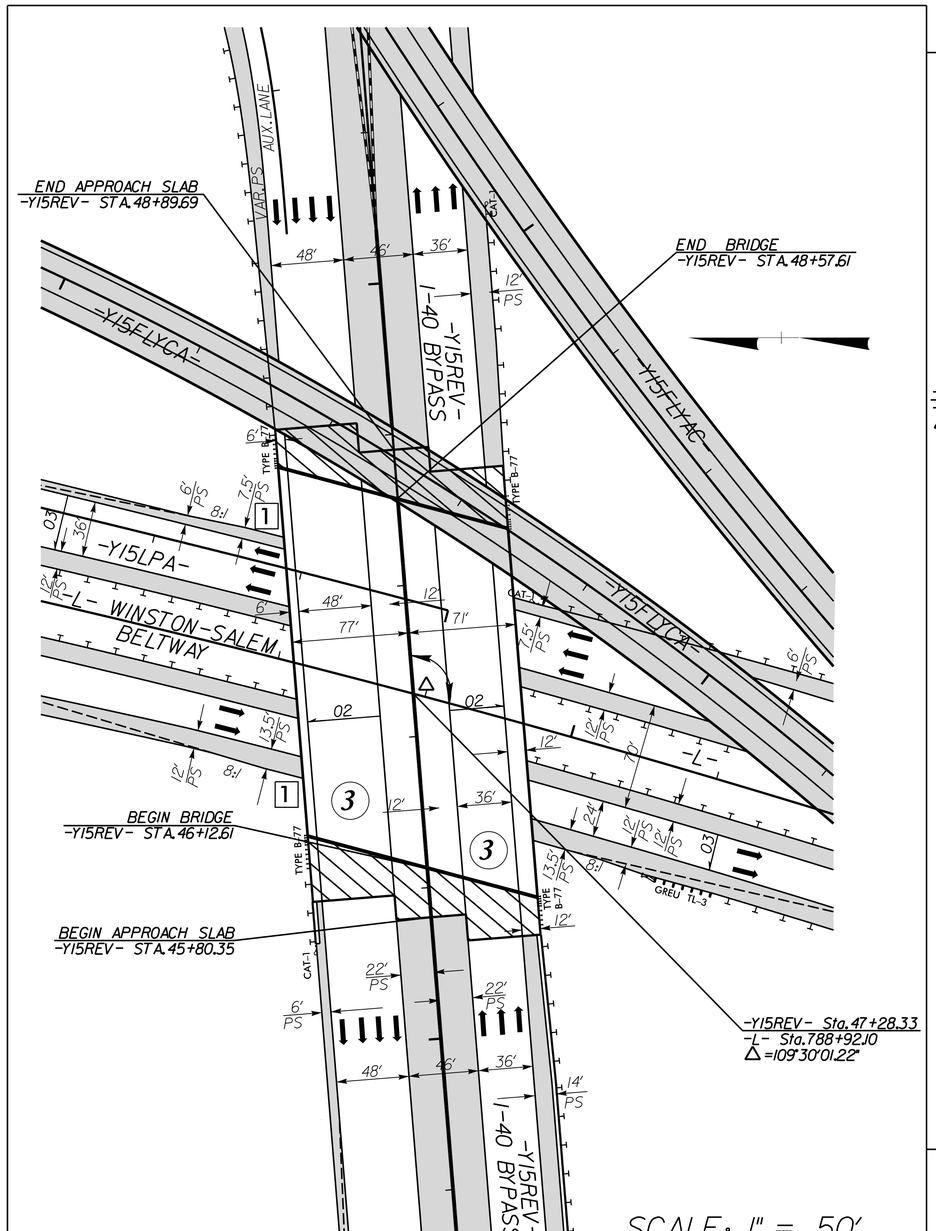
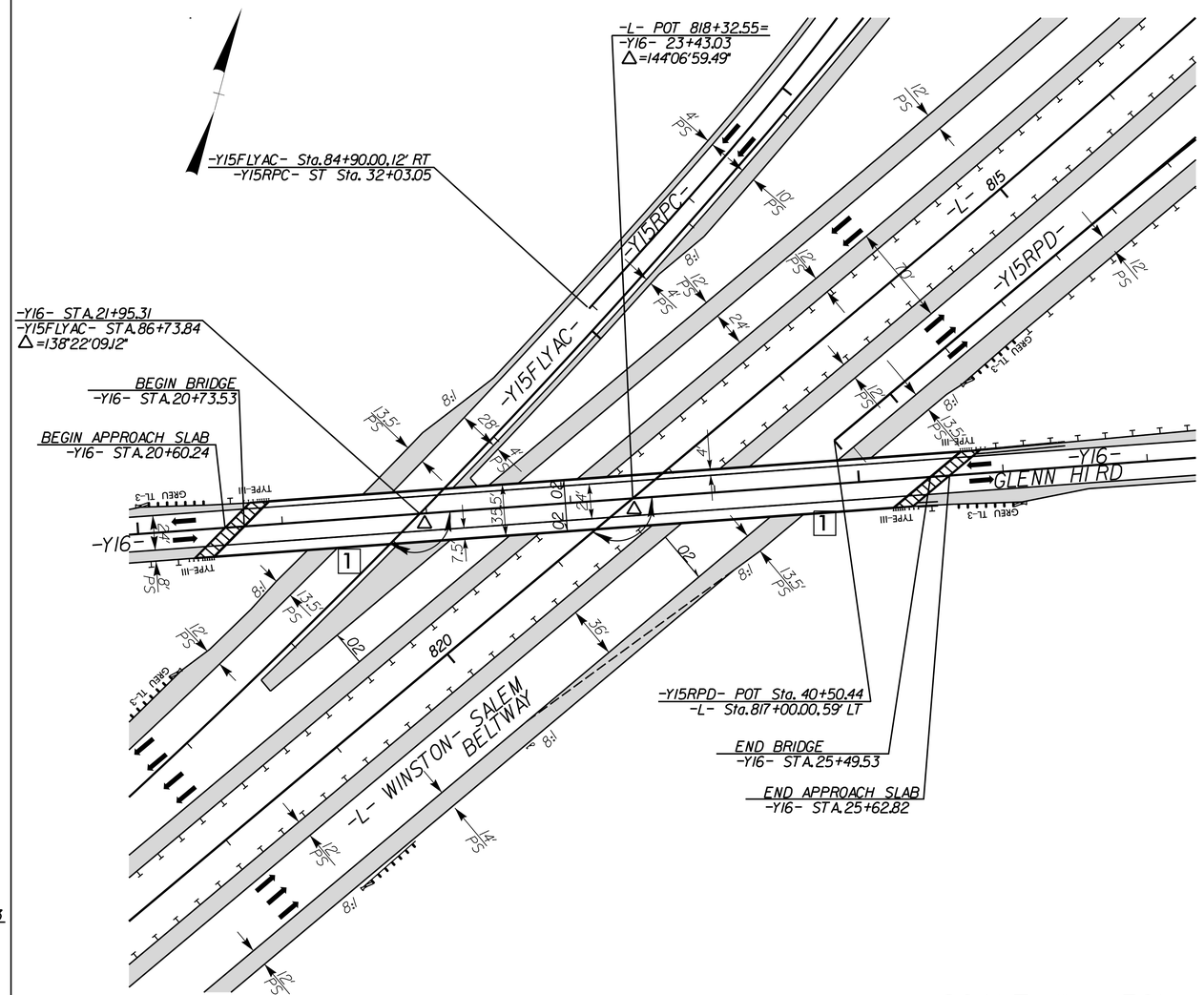
N.C.B.E.L.S. License Number: F-0116

(3) DETAIL SHOWING PAVEMENT & BRIDGE RELATIONSHIP FOR -Y15REV- OVER -L-



(7) DETAIL SHOWING PAVEMENT & BRIDGE RELATIONSHIP FOR -Y16- OVER -L- AND -Y15FLYAC-



NOTES: SEE PLAN SHEET 10 FOR STRUCTURE (3) ROADWAY PLAN
SEE PLAN SHEET 11 FOR STRUCTURE (7) ROADWAY PLAN

[1] NOTE: SEE NCDOT STD.610.03

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REVISIONS

BRIDGE SKETCHES

4 DETAIL SHOWING PAVEMENT AND BRIDGE RELATIONSHIP FOR -Y15FLYAC- OVER -L-,-Y15REV-,& -Y15LPA-

5 DETAIL SHOWING PAVEMENT AND BRIDGE RELATIONSHIP FOR -Y15FLYBD- OVER -L- & -Y15REV-

6 DETAIL SHOWING PAVEMENT AND BRIDGE RELATIONSHIP FOR -Y15FLYCA- OVER -L-,-Y15REV-,Y15FLYAC-,& -Y15FLYCA

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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N.C.B.E.L.S. License Number: F-0116

SCALE: 1" = 100'

-Y15FLYBD- Sta.41+06.36
-Y15REV- Sta.42+19.20
Δ=102°25'22.23"

BEGIN APPROACH SLAB
-Y15FLYBD- STA.39+83.31

BEGIN BRIDGE
-Y15FLYBD- STA.39+40.31

-Y15REV- I-40 BYPASS

-Y15FLYCA- Sta.69+02.32
-Y15LPA- Sta.17+83.56
Δ=73°08'35.26"

-L- WINSTON-SALEM OUTER LOOP

-Y15LPA-

END APPROACH SLAB
-Y15FLYCA- STA.69+95.79

END BRIDGE
-Y15FLYCA- STA.69+71.79

BEGIN BRIDGE
-Y15FLYAC- STA.47+61.78

BEGIN APPROACH SLAB
-Y15FLYAC- STA.47+37.78

-Y15FLYBD- Sta.46+27.33
-Y15FLYCA- Sta. 55+76.63
Δ=84°20'35.21"

-Y15FLYBD- Sta.46+82.68
-Y15FLYAC- Sta.58+26.40
Δ=69°28'10.27"

BEGIN BRIDGE
-Y15FLYCA- STA.52+54.79

BEGIN APPROACH SLAB
-Y15FLYCA- STA.52+30.79

-Y15FLYCA- Sta.62+52.47
-Y15REV- Sta.48+84.90
Δ=53°54'16.56"

-Y15FLYAC-

-Y15FLYCA-

-Y15- I-40

-Y15REV- (I-40 BYPASS)

END BRIDGE
-Y15FLYAC- STA.66+44.78

END APPROACH SLAB
-Y15FLYAC- STA.66+68.78

-L- POC 795+32.16=
-Y15FLYBD- POC 47+63.62
Δ=60°51'36.55"

-Y15FLYAC- Sta.53+01.37
-Y15REV- Sta.52+00.08
Δ=27°37'52.18"

-Y15FLYAC- POC 60+66.06
-L- POC 793+45.42=
Δ=152°29'59.42"

-L- POC 792+28.12
-Y15FLYCA- POC 58+33.94
Δ=155°35'13.12"

-Y15FLYBD- POC 50+20.41
-Y15RPDREV- POC 31+05.69=
Δ=89°25'19.31"

END BRIDGE
-Y15FLYBD- STA.51+59.31

END APPROACH SLAB
-Y15FLYBD- STA.51+83.31

-Y15RPDREV-

-L- WINSTON-SALEM BELTWAY

-Y15ENTRY-

1 SEE NCDOT STD.610.03

NOTES:
SEE PLAN SHEET 10 FOR STRUCTURE 4 5 6 ROADWAY PLAN

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_structurerecs.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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1" = 50'
50' 0' 50' 100'
25'

DETAIL FOR SEDGE GARDEN RD ON-SITE DETOUR (-YIBDET-)

-YIBDET-			
PI Sta 13+09.04	PI Sta 20+88.40	PI Sta. 25+04.30	PI Sta. 27+78.25
Δ = 4° 21' 34.6" (RT)	Δ = 15° 57' 55.7" (LT)	Δ = 30° 09' 11.2" (LT)	Δ = 20° 57' 31.2" (RT)
D=3° 49' 11.0"	D=8° 48' 53.0"	D=9° 14' 28.5"	D=9° 14' 28.5"
L=114.13'	L=181.12'	L=326.29'	L=226.79'
T=57.09'	T=91.15'	T=167.02'	T=114.68'
R=1,500.00'	R=650.00'	R=620.00'	R=620.00'
SE=NC	SE=04	SE=04	SE=01
INC=21.00'	INC=21.00'	INC=21.00'	INC=21.00'

BEGIN CONSTRUCTION
-YIBDET- Sta. 12+51.94 (11.66' RT)
-YIB- Sta. 12+48.68

END CONSTRUCTION
-YIBDET- Sta. 31+00.00 (9.63' RT)
-YIB- Sta. 30+53.84

-YIBDET- PC Sta. 12+51.94
S 14° 36' 03.0" E
-YIBDET- PT Sta. 13+66.08
-YIBDET- PC Sta. 19+97.25
-YIBDET- PT Sta. 21+78.38
-YIBDET- PC Sta. 23+37.28
-YIBDET- PRC Sta. 26+63.57
-YIBDET- PT Sta. 28+90.36
-YIB-
-L-
-Y4RPA-

S 10° 14' 28.2" E
S 26° 12' 24.1" E
S 35° 24' 04.1" E

PAVED SHOULDER

NOTES:
SEE SHEET 35 FOR -Y1BDET- PROFILE
SEE SHEETS 5, AND 6 FOR -Y1B- PLANS AND CURVE DATA

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:22:08 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_02B-04.dgn

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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BEGIN CONSTRUCTION
-Y4DET- Sta. 10+27.15 (60.54' RT)
-Y4- Sta. 20+63.73

END CONSTRUCTION
-Y4DET- Sta. 33+28.89 (14.00' RT)
-Y4- Sta. 43+52.59

DETAIL FOR KERNERSVILLE RD ON-SITE DETOUR (-Y4DET-)

1" = 100'

100' 0' 100' 200'

50'

-Y4DET-			
PI Sta 19+74.35	PI Sta 24+60.66	PI Sta 30+98.45	PI Sta 34+24.85
Δ = 22° 56' 27.4" (LT)	Δ = 12° 09' 16.1" (RT)	Δ = 20° 35' 43.3" (LT)	Δ = 19° 26' 40.3" (RT)
D = 3° 34' 51.6"	D = 3° 34' 51.6"	D = 4° 46' 28.7"	D = 8° 40' 52.2"
L = 640.63'	L = 339.42'	L = 431.35'	L = 223.99'
T = 324.67'	T = 170.35'	T = 218.03'	T = 113.08'
R = 1,600.00'	R = 1,600.00'	R = 1,200.00'	R = 660.00'
SE = 0.04	SE = 0.04	SE = 0.05	SE = RC
INC = 21.00'	INC = 21.00'	INC = 21.00'	INC = 21.00'

PAVED SHOULDER

NOTES:
SEE SHEET 38 FOR -Y4DET- PROFILE
SEE SHEETS 6, 13, 14, AND 15 FOR -Y4- PLANS AND CURVE DATA

-Y4DET- POT Sta. 10+00.00
-Y4DET- PC Sta. 15+49.68
-Y4DET- PRC Sta. 22+90.31
-Y4DET- PT Sta. 26+29.73
-Y4DET- PT Sta. 31+35.76
-Y4DET- PRC Sta. 33+11.77
-Y4DET- PC Sta. 28+80.42

REVISIONS

PLOT DRIVER: NCDOT_pdf_color-eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:22:36 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_02B-05.dgn

DETAIL FOR GLENN HI RD ON–SITE DETOUR (–Y16DET–)

1" = 100'

100' 0' 100' 200'

50'

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2B–6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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–Y16DET– POT Sta. 10+00.00

BEGIN DETOUR CONSTRUCTION
–Y16DET– Sta. 13+00.00 (11.34' LT)
–Y16– Sta. 13+00.00

–Y16DET– PC Sta. 13+38.16

–Y16DET– PRC Sta. 15+62.09

–Y16DET– PT Sta. 18+49.44

–Y16DET– PC Sta. 28+38.18

–Y16DET– PRC Sta. 31+05.78

–Y16DET– PT Sta. 33+67.44

–Y16B– POT Sta. 15+23.68
–Y16DET– POC Sta. 28+58.95

–L– POS Sta. 816+61.94 =
–Y16DET– POT Sta. 24+94.54

–Y16C– POT Sta. 22+52.21
–Y16DET– POT Sta. 26+68.28

END DETOUR CONSTRUCTION
–Y16DET– POT Sta. 33+76.97 (10.93' LT)
–Y16– Sta. 33+50.00

–Y16DET–			
PI Sta. 14+51.61	PI Sta. 17+07.67	PI Sta. 29+73.73	PI Sta. 32+38.25
Δ = 22° 42' 30.7" (LT)	Δ = 22° 42' 30.7" (RT)	Δ = 22° 32' 52.5" (RT)	Δ = 22° 02' 48.1" (LT)
D=10° 08' 27.0"	D=7° 54' 10.3"	D=8° 25' 33.1"	D=8° 25' 33.1"
L=223.93'	L=287.35'	L=267.60'	L=261.66'
T=113.45'	T=145.58'	T=135.56'	T=132.47'
R=565.00'	R=725.00'	R=680.00'	R=680.00'
SE=02	SE=04	SE=04	SE=02
INC=21.00'	INC=21.00'	INC=21.00'	INC=21.00'

PAVED SHOULDER

NOTES:
SEE SHEET 69 FOR –Y16DET– PROFILE
SEE SHEET 70 FOR –Y16B– PROFILE
SEE SHEET 11 FOR –Y16– & –Y16B– PLANS AND CURVE DATA

REVISIONS

ROW REV. – FEBRUARY 8, 2019 – REVISED TCE ON PARCELS 157 AND 158 TO AVOID SEPTIC TANK. SMP

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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DETAIL FOR –Y15XOVR1– ON–SITE DETOUR

1" = 50'

50' 0' 50' 100'

25'

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2B–7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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411.80'
N 77°04'03" E
266.96'
S 56°56'10" W
633.38'
S 77°11'20" W
DAVID R. JOHNSON
LORRAINE JOHNSON
DB 1222 PG 1033
50' SANITARY SEWER EASEMENT
CITY OF WINSTON-SALEM
DB 1777 PG 119
DB 1791 PG 449
226.55'
N 58°02'46" E
214.52'
N 71°43'30" E
227.50'
N 66°46'35" E
176.84'
N 65°29'30" E
412.78'
N 58°51'23" E
78.67'
N 64°
321
JOHN L. ARANT
DB 3023 PG 2447
DB 955 PG 670
DB 812 PG 281
DB 406 PG 273
DB 415 PG 116
PB 18 PG 144
PB 4 PG 46
BEGIN CONSTRUCTION
–Y15XOVR1– PC Sta. 10+00.00 (16.00' RT)
–Y15– POT Sta. 46+26.12
–Y15– POT Sta. 56+00.00 L.B.
–Y15REV– POT Sta. 8+00.00 L.A.
Sta. 10+00.00
–Y15XOVR1– PRC Sta. 16+19.90
CHORD
–Y15XOVR1– PT Sta. 22+39.81
EXISTING R/W
CAT–1
MTL
48" RCP
150'
190'
100'
7' CONC WW
9' CONC HW
5' CONC WW
GREU TL–3
14' CONC HW
12' R
24" RCP
BEGIN CONSTRUCTION
–Y15XOVR1– PT Sta. 21+89.81 (16.00' RT)
–Y15REV– POT Sta. 10+13.18
–Y15FLYCA–
BY15-266
–Y15XOVR1–

PI Sta. 13+10.34	PI Sta. 19+30.24
Δ = 7° 01' 59.6" (RT)	Δ = 7° 01' 59.6" (LT)
D=1° 08' 04.5"	D=1° 08' 04.5"
L=619.90'	L=619.90'
T=310.34'	T=310.34'
R=5,050.00'	R=5,050.00'
SE=04	SE=04
INC=50.00'	INC=50.00'

PAVED SHOULDER

NOTE:
SEE SHEET 72 FOR –Y15XOVR1– PROFILE

REVISIONS

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USER: CHARRIS
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_02B-07.dgn
PENTABLE: NCDOT_pshpfl_conventional.tbl
DATE: 5/11/2020
TIME: 5:23:31 PM

DETAIL FOR –Y15XOVR2– ON–SITE DETOUR

1" = 50'
50' 0' 50' 100'
25'

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2B–8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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–Y15XOVR2–	
PI Sta. 12+97.80	PI Sta. 18+92.70
Δ = 6° 44' 58.5" (LT)	Δ = 6° 44' 58.5" (RT)
D=1° 08' 04.5"	D=1° 08' 04.5"
L=594.90'	L=594.90'
T=297.80'	T=297.80'
R=5,050.00'	R=5,050.00'
SE=04	SE=04
INC=50.00'	INC=50.00'

BEGIN CONSTRUCTION
–Y15XOVR2– PC Sta. 10+00.00 (16.'00 RT)
–Y15REV– POT Sta. 80+24.53

END CONSTRUCTION
–Y15XOVR2– PT Sta. 21+89.81 (16'.00 RT)
–Y15REV– POT Sta. 92+11.59

–Y15XOVR2– PRC Sta. 15+94.90

DAVID J. SMITH
BETTY C. SMITH
DB 1009 PG 475

THOMAS S. HART
LOUISE HART
DB 2767 PG 953
DB 1167 PG 798

NCDOT
DB 1650 PG 3675

NCDOT
DB 3020 PG 4343
PB 40 PG 180

JEFFREY W. YOUNG
DB 2818 PG 2652
PB 40 PG 180

TANEKA A. SAPP AND
STEVEN B. SCALES
DB 2671 PG 3229
PB 40 PG 180

WILLIAM A. FRANK
ROSE EMILY FRANK
DB 1820 PG 2786

DONOVAN S. ADAMS
KYONG J. ADAMS
DB 2057 PG 2477

MICHAEL S. GREGG
KIMBERLY J. GREGG
DB 1649 PG 3810
PB 25 PG 157

SECRETARY OF HOUSING AND URBAN DEVELOPMENT
DB 3185 PG 2601

DELMONT S. BROWN
DB 2187 PG 2062

GERALD GENE CARTER
NANCY JO CARTER
DB 1649 PG 1319
PB 25 PG 157

ETTASTEIN
DB 1830
PB 36

PAVED SHOULDER

NOTE:
SEE SHEET 72 FOR –Y15XOVR2– PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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SHEAR POINT DIAGRAM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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N.C.B.E.L.S. License Number: F-0116

NAD 83/95

-Y4- POT Sta. 34+29.06 =
-Y4EB- POT Sta. 19+59.06 =
-Y4WB- POT Sta. 19+84.35

-Y4SPA- PT Sta. 25+41.78 =
-Y4WB- POC Sta. 21+11.68 22.50' LT
-Y4WB- PC Sta. 20+40.53

-Y4SPDI- PC Sta. 23+34.06

-Y4RPD- POT Sta. 22+35.14 =
-Y4SPDI- POT Sta. 22+35.14 (24.00' RT)
-Y4SPD2- PC Sta. 22+35.14 (12.00' LT)

S 89° 50' 34.3" E

N 42° 09' 25.7" E

-Y4EB- PT Sta. 18+89.79

-Y4WB- PT Sta. 19+06.65

-Y4RPA- ST Sta. 19+95.11

-Y4RPA- PC Sta. 22+72.72

-Y4SPA- PC Sta. 22+21.97 =
-Y4RPA- POT Sta. 22+21.97 8.00' LT

S 21° 01' 12.3" E

N 0° 26' 24.3" E

-Y4WB- PRC Sta. 17+61.98

-L- POT Sta. 722+96.99 =
-Y4- POT Sta. 30+67.66

-L- CS Sta. 717+01.65

S 12° 52' 58.4" E

OAK GROVE CH RD (SR 2678)

N 66° 09' 25.7" E

S 7° 10' 19.7" W

-Y4WB- PRC Sta. 14+46.60

-Y4RPC- PC Sta. 21+86.27

N 26° 14' 41.5" W

-Y4RPC- ST Sta. 19+46.27

-Y4SPC- PC Sta. 21+69.21 =
-Y4RPC- POT Sta. 21+69.21 8.00' LT

-Y4WB- PC Sta. 13+02.84

-Y4EB- PC Sta. 12+86.62

-Y4WB- PT Sta. 11+85.63

-Y4- POT Sta. 26+93.01 =
-Y4EB- POT Sta. 12+01.00 =
-Y4WB- POT Sta. 12+26.46

-Y4EB- PT Sta. 11+69.42

-Y4SPC- PT Sta. 24+77.56 =
-Y4EB- POC Sta. 10+88.22 22.50' RT

-Y4EB- PRC Sta. 10+42.82

-Y4EB- PC Sta. 10+00.00 =
-Y4- POT Sta. 24+97.82 21.00' RT

-Y4SPBI- PC Sta. 25+07.26

-Y4RPB- PT Sta. 22+78.69 =
-Y4SPBI- POT Sta. 22+78.69 (24.00' RT)
-Y4SPB2- POT Sta. 22+78.69 (12.00 LT)

SP 1 SP 2 SP 3 SP 4 SP 5 SP 6 SP 7 SP 8 SP 9 SP 10 SP 11 SP 12 SP 13 SP 14 SP 15 SP 16 SP 17 SP 18 SP 19 SP 20 SP 21 SP 22 SP 23 SP 24 SP 25 SP 26 SP 27 SP 28 SP 29 SP 30 SP 31 SP 32 SP 33 SP 34 SP 35 SP 36 SP 37 SP 38 SP 40 SP 41 SP 42 SP 43 SP 44 SP 45 SP 46 SP 47 SP 48 SP 49

A B C D

-Y4RPA- -Y4SPA- -Y4WB- -Y4EB- -Y4SPDI- -Y4RPD- -Y4SPD2- -Y4RPC- -Y4SPC- -Y4RPB- -Y4SPB2- -Y4SPBI-

20 25 30 35 725

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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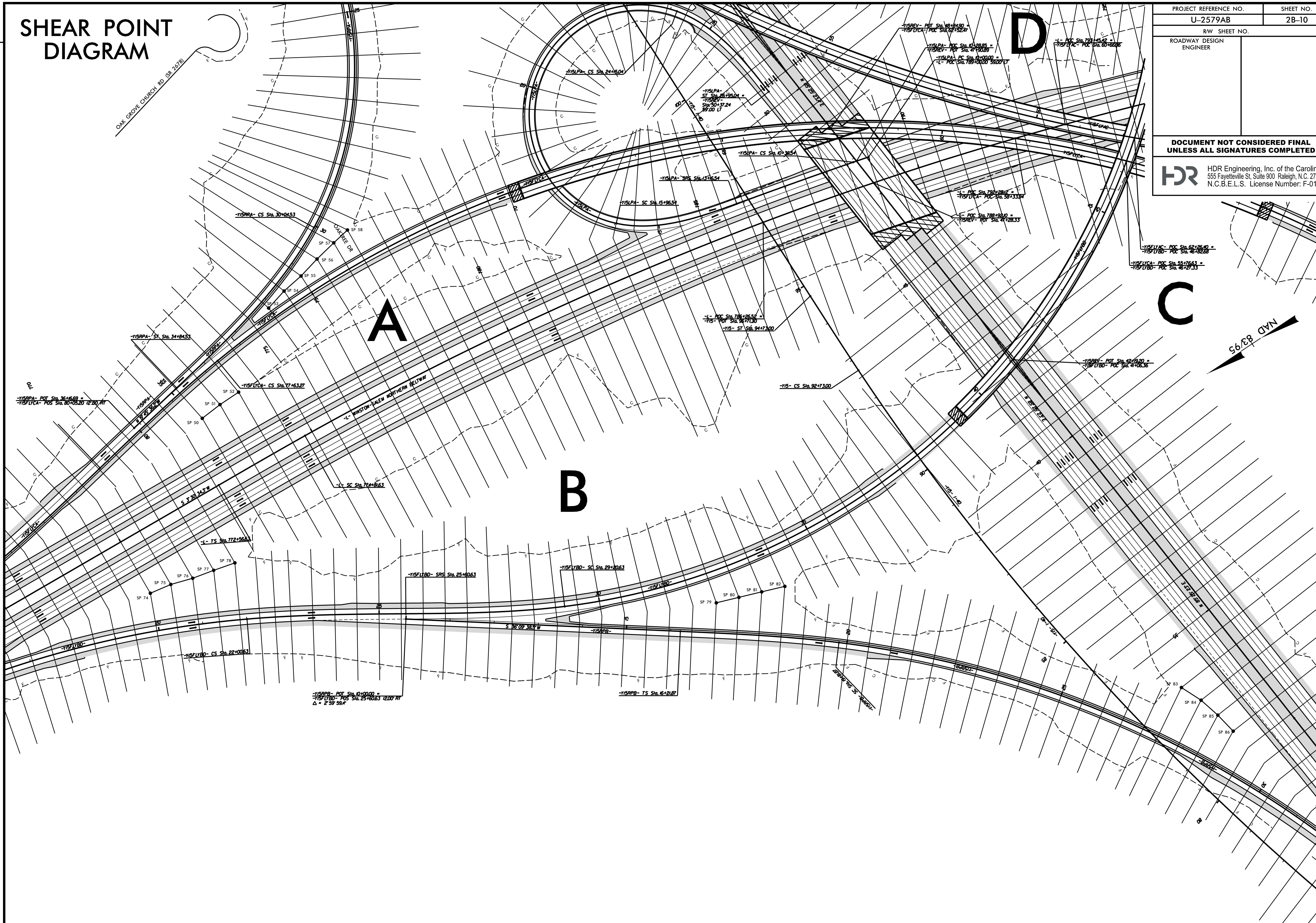
REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:24:36 PM
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SHEAR POINT DIAGRAM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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N.C.B.E.L.S. License Number: F-0116

NAD 83/95

A

D

C

NEW GARDEN RD

PIMLICO DR

-L- WINSTON-SALEM NORTHERN BELTWAY

YEATON GLENN CIR

-Y16- PT Sta. 29+78.29

-Y16B- PT Sta. 13+98.5

-Y16B- PC Sta. 13+34.34

-Y16B- POT Sta. 10+00.00

-Y16- PC Sta. 28+03.32

-Y16- POC Sta. 28+45.67 = -Y16B- POT Sta. 14+21.05

-Y15APD- CS Sta. 35+59.85

-Y15APD- SC Sta. 32+19.88

-Y15APC- CS Sta. 27+23.05

-Y15APC- ST Sta. 32+03.05 = -Y15FLYAC- Sta. 84+90.00 12.00 RT

-L- ST Sta. 816+82.50

-L- CS Sta. 814+57.50

-Y15FLYAC- CS Sta. 79+18.54

-Y15FLYAC- CRS Sta. 77+78.54

-Y15FLYAC- CS Sta. 75+38.54

-Y15FLYAC- POC Sta. 74+29.40 = -Y15FLYBD- POC Sta. 46+82.68

-Y15FLYBC- POC Sta. 27+63.82

-Y15FLYBC- Sta. 1735+32.65 = -Y15FLYBC- POC Sta. 27+63.82

-Y15FLYBD- POC Sta. 30+20.41 = -Y15FLYBD- POT Sta. 31+06.35

-Y15RPDREV- POC Sta. 31+06.35

-Y15RPDREV- SC Sta. 28+62.91

-Y15RPDREV- SRS Sta. 25+02.87

-Y15RPDREV- CS Sta. 23+02.32

-Y15RPDREV- SC Sta. 18+78.00

-Y15RPDREV- TS Sta. 16+78.00

-Y15RPDREV- POT Sta. 10+00.00 = -L- POT Sta. 817+00.00 59.00 LT

-Y15APD- POT Sta. 10+56.44 = -L- POT Sta. 817+00.00 59.00 LT

-L- POT Sta. 818+12.65 = -Y16- POT Sta. 23+43.03

-Y16A- POT Sta. 10+00.00

-Y16A- POT Sta. 12+49.55 -Y16- POT Sta. 37+33.53

-Y16- POT Sta. 28+03.32

-Y16- PC Sta. 28+03.32

-Y16- POC Sta. 28+45.67 = -Y16B- POT Sta. 14+21.05

-Y15APD- CS Sta. 35+59.85

-Y15APD- SC Sta. 32+19.88

-Y15APC- CS Sta. 27+23.05

-Y15APC- ST Sta. 32+03.05 = -Y15FLYAC- Sta. 84+90.00 12.00 RT

-L- ST Sta. 816+82.50

-L- CS Sta. 814+57.50

-Y15FLYAC- CS Sta. 79+18.54

-Y15FLYAC- CRS Sta. 77+78.54

-Y15FLYAC- CS Sta. 75+38.54

-Y15FLYAC- POC Sta. 74+29.40 = -Y15FLYBD- POC Sta. 46+82.68

-Y15FLYBC- POC Sta. 27+63.82

-Y15FLYBC- Sta. 1735+32.65 = -Y15FLYBC- POC Sta. 27+63.82

-Y15FLYBD- POC Sta. 30+20.41 = -Y15FLYBD- POT Sta. 31+06.35

-Y15RPDREV- POC Sta. 31+06.35

-Y15RPDREV- SC Sta. 28+62.91

-Y15RPDREV- SRS Sta. 25+02.87

-Y15RPDREV- CS Sta. 23+02.32

-Y15RPDREV- SC Sta. 18+78.00

-Y15RPDREV- TS Sta. 16+78.00

-Y16- SB 2579 GLENN WND

S 17°42'43.5" E 1270.74'

N 17°42'43.5" W

N 4°47'32.5" E

S 34°58'35.5" W

SP 92 SP 93 SP 94 SP 95 SP 96 SP 97 SP 98 SP 99 SP 100 SP 101 SP 102 SP 103 SP 104 SP 105

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TIME: 5:24:53 PM

REVISIONS

SHEAR POINT DIAGRAM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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NAD 83/95

-Y58- PT Sta. 17+17.18

-Y58- PC Sta. 14+07.85

-Y58- PT Sta. 13+96.49

N 5°45'25" E

MARLA CT

FOSTER DALE WEST LN

MIKALA DR

-Y58- PC Sta. 12+12.50

N 2°40'59.0" W

-Y58- PT Sta. 11+66.70

-Y15RPA- POT Sta. 10+00.00 =
-Y15FLYAC- POC Sta. 32+00.00 12.00 RT
Δ = 3°13'34.5"

-Y15RPA- TS Sta. 19+94.78

-Y58- PC Sta. 10+25.34

MONICA CT

N 7°14' 38.0" E

-Y58- POT Sta. 10+00.00

-Y15FLYAC-

-Y15FLYAC- CS Sta. 15+60.39

-Y15RPA-

N 88°05'08.0" W

MEREDITH DR

-Y15FLYAC- SC Sta. 22+60.39

-Y15FLYAC- SCS Sta. 20+20.39

-Y15REV- ST Sta. 80+24.53

-Y15REV- CS Sta. 78+24.53

-Y15-
S 82°02'00.0" E

-Y15FLYBO-

-Y15FLYBO- CS Sta. 94+19.92

-Y15- I-40

N 85°35'23" E

OAK GROVE CHURCH RD (SR 2178)

-Y15REV- II-40 BYPASS

-Y15REV- SC Sta. 69+89.28

-Y15REV- TS Sta. 67+89.28

-Y15REV- CS Sta. 64+89.28

-Y15REV- ST Sta. 64+89.28
-Y15REV- POT Sta. 63+63.74 SIGHT NB

BROOKMONT DR (SR 4299)

-Y15FLYBO- SC Sta. 76+77.49

-Y15FLYBO- SCS Sta. 73+77.49

ANSLEY DR (SR 4300)

ANSLEY CT (SR

COUNTRY VIEW DR (SR 4254)

SMITHDALE ST (SR 2680)

A

D

SP 59 SP 60 SP 61 SP 62 SP 63 SP 64 SP 65 SP 66 SP 67 SP 68 SP 69 SP 70 SP 71 SP 72 SP 73

REVISIONS

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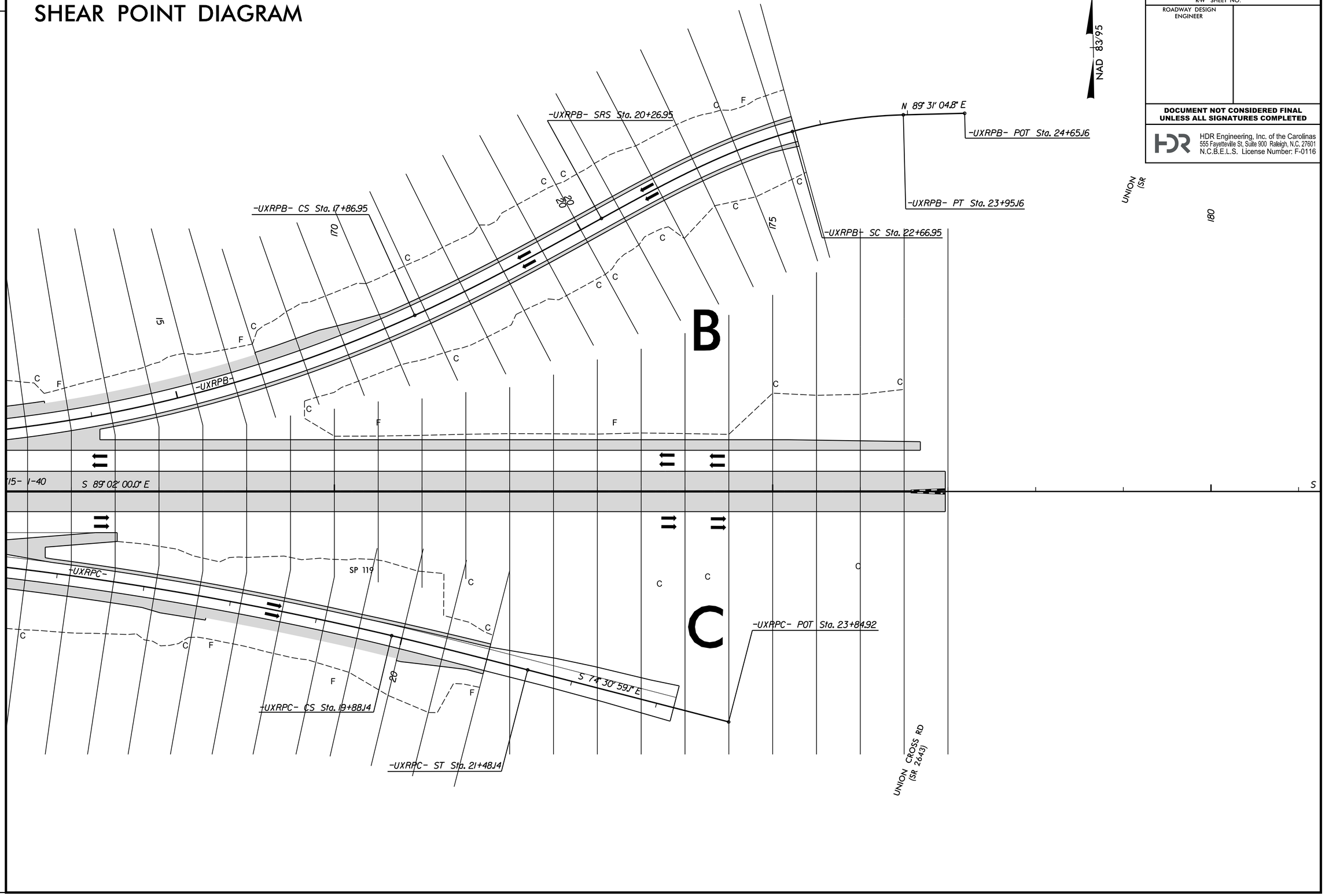
DATE: 5/11/2020
TIME: 5:25:11 PM

SHEAR POINT DIAGRAM



PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
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TIME: 5:25:31 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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20 10 0 20 40
SCALE

NAD 83/95

-Y4A- SR 2662 LINVILLE RD
2'-6" C&G
24'
12'
4'
12'
+26.83
+37.22
-Y4A- +10.83
30.05' RT
-Y4A- +93.40
28.00' RT
2'-6" C&G
+34.56
R 2'
-Y4A- +64.39
45.95' RT END SIDEWALK
-Y4- POC Sta. 20+43.42
-Y4A- POT Sta. 10+00.00
-Y4- PT Sta. 20+61.80
R 60'
R 75'
CR
5' SIDEWALK
2'-6" C&G
750' TRANS. LT & RT
-Y4- +80.00
41.71' LT
R 20'
2'-6" C&G
-Y4- +19.60
39.00' LT
-Y4- +02.02
51.00' LT
CR
20
4' PS
10'
12'
-Y4- +16.00
39.00' LT
+34.56
+77.32
R 1'
12'
12'
5'
+92.35
-Y4- SR 4315 KERNERSVILLE RD
12'
12'
12'
R 1'
+26.86
+70.47
+07.00
1'-6" C&G
+59.28
24'
+35.37
-Y4- +37.35
39.00' RT
R 75'
R 50'
CR
2'-6" C&G
5' SIDEWALK
8:1
2'-6" C&G
-Y4- +14.06
39.00' RT
-Y4- +90.97
42.51' RT
-Y4- +07.15
44.83' RT
-Y4- POC Sta. 20+43.66
-Y4B- POT Sta. 17+60.85
-Y4B- +73.21
33.00' RT END SIDEWALK
-Y4- PC Sta. 17+71.83
-Y4B- MOTSINGER DR
N 22° 48' 31.0" W
CR
-Y4B- +41.51
22.00' LT
2'-6" C&G
22'
22'
2'-6" C&G
-Y4B- +73.21
22.00' RT

BEGIN CONSTRUCTION
-Y4B- Sta. 16+30.00

INTERSECTION -Y4- WITH -Y4A-/Y4B-
SEE SHEET 13
5" MONOLITHIC CONC. ISLAND :
PROPOSED TRAFFIC SIGNAL:

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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25 12.5 0 25 50
SCALE

NAD 83/95

-Y4- SR 4315 KERNERSVILLE RD

-Y4SPB1-

-Y4SPB2-

-Y4EB-

-Y4WB-

-Y4SPC-

-Y4RPC-

N 42° 09' 25.7" E

S 66° 09' 25.7" W

S 89° 50' 34.3" E

CROSSOVER –Y4EB– WITH –Y4WB–

SEE SHEET 6

5" MONOLITHIC CONC. ISLAND :

PROPOSED TRAFFIC SIGNAL:

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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20 10 0 20 40
SCALE

NAD 83/95

-Y4SPA-
-Y4RPA-
-Y4EB-
-Y4WB-
-Y4SPDI-
-Y4SPD2-
-Y4- SR 4315 KERNERSVILLE RD

N 66° 09' 25.7" E
S 89° 50' 34.3" E
N 42° 09' 25.7" E
N 0° 26' 24.3" E

CROSSOVER –Y4EB– WITH –Y4WB–
SEE SHEET 6
5" MONOLITHIC CONC. ISLAND :
PROPOSED TRAFFIC SIGNAL:

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:26:22 PM
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2B-17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

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20 10 0 20 40
SCALE

NAD 83'95

-Y4- PT Sta. 47+04.09

-Y1B- POT Sta. 41+83.63 =
-Y4- POC Sta. 45+65.98 =
-Y1- POT Sta. 10+00.00 =

-Y4- PC Sta. 45+23.31

-Y1- PC Sta. 10+68.53

-Y1- PRC Sta. 11+80.27

-Y1- PT Sta. 12+76.63

-Y4- SR 4315 KERNERSVILLE RD

S 65° 27' 50.6" E

N 66° 09' 25.7" E

N 65° 00' 22.8" E

S 65° 27' 51.0" E

INTERSECTION –Y4– WITH –Y1B– AND –Y1–
SEE SHEET 14

5" MONOLITHIC CONC. ISLAND :

PROPOSED TRAFFIC SIGNAL:

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
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FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\U2579ab_rdy_detail_sheet_02B-17.dgn
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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DETAIL A
SPECIAL CUT BASE DITCH
(Not to Scale)

Min. D= 1.3 Ft.
Max. d= 1 Ft.
B= 2 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 10+40 TO STA. 12+00 –Y6– LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1 Ft.

FROM STA. 12+50 TO STA. 18+00 –Y1B– RT
FROM STA. 12+50 TO STA. 18+00 –Y1B– LT
FROM STA. 36+00 TO STA. 37+50 –Y1B– LT
FROM STA. 40+00 TO STA. 40+50 –Y1B– LT
FROM STA. 40+50 TO STA. 41+17 –Y1B– LT
FROM STA. 45+50 TO STA. 46+50 –Y4– LT
FROM STA. 47+50 TO STA. 54+50 –Y4– RT
FROM STA. 11+75 –Y1– LT TO STA. 47+50 –Y4– RT
FROM STA. 60+00 TO STA. 60+50 –Y4– RT
FROM STA. 57+70 TO STA. 60+50 –Y4– LT
FROM STA. 15+00 TO STA. 17+50 –Y4A– LT
FROM STA. 16+10 TO STA. 17+30 –Y4– RT
FROM STA. 12+30 TO STA. 12+50 –Y4– RT
FROM STA. 12+46 TO STA. 13+00 –Y4– LT
FROM STA. 12+00 TO STA. 13+25 –Y16B– RT
FROM STA. 12+50 TO STA. 13+91 –Y16B– LT
FROM STA. 13+25 TO STA. 13+87 –Y16B– RT
FROM STA. 16+00 TO STA. 17+50 –Y16– RT
FROM STA. 26+74 TO STA. 28+05 –Y16– RT
FROM STA. 28+81 TO STA. 29+60 –Y16– RT
FROM STA. 17+00 TO STA. 17+50 –Y5B– LT

DETAIL C
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1 Ft.

FROM STA. 23+50 TO STA. 25+02 –Y15– RT

DETAIL D
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1 Ft.

FROM STA. 704+50 TO STA. 706+00 –L– RT
FROM STA. 14+50 TO STA. 15+00 –Y8– RT
FROM STA. 25+02 TO STA. 26+00 –Y15– RT
FROM STA. 31+25 TO STA. 31+96 –Y15FLYAC– LT
FROM STA. 35+50 TO STA. 26+88 –Y15– RT
FROM STA. 36+88 TO STA. 39+36 –Y15– RT
FROM STA. 697+00 TO STA. 700+00 –L– RT
FROM STA. 706+00 TO STA. 712+50 –L– RT
FROM STA. 699+00 TO STA. 702+00 –L– LT
FROM STA. 708+00 TO STA. 712+50 –L– LT
FROM STA. 714+00 TO STA. 715+00 –L– RT
FROM STA. 713+50 TO STA. 715+00 –L– LT
FROM STA. 724+50 TO STA. 726+50 –L– RT
FROM STA. 742+50 TO STA. 743+50 –L– RT
FROM STA. 13+91 TO STA. 16+40 –Y4RPC– LT
FROM STA. 12+52 TO STA. 16+72 –Y15FLYCA– RT
FROM STA. 16+72 TO STA. 19+50 –Y15FLYCA– RT
FROM STA. 39+36 TO STA. 40+00 –Y15– RT
FROM STA. 75+00 TO STA. 76+50 –Y15REV– RT

DETAIL E
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1.0 Ft.
Max. d= 1 Ft.
B= 3 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 76+37 –Y15FLYAC– LT TO STA. 809+50 –L– RT

DETAIL F
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1.0 Ft.
B= 3 Ft.

FROM STA. 65+55 TO STA. 67+00 –Y15FLYBD– LT
FROM STA. 65+30 TO STA. 65+30 –Y15REV– RT

DETAIL G
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1 Ft.

FROM STA. 21+00 TO STA. 22+70 –UXRPB– RT
FROM STA. 54+00 TO STA. 56+25 –Y15REV– LT
FROM STA. 715+50 TO STA. 721+50 –L– RT

DETAIL H
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.

Type of Liner= Class I Rip-Rap

FROM STA. 26+82 TO STA. 28+87 –Y15FLYAC– RT

DETAIL I
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 1 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.
b= 5 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 18+95 TO STA. 21+10 –Y15FLYBD– RT
FROM STA. 33+13 TO STA. 35+87 –Y15RPDREV– RT
FROM STA. 793+00 TO STA. 794+75 –L– LT

DETAIL J
SPECIAL CUT DITCH wHINGE
(Not to Scale)

Min. D= 1 Ft.

FROM STA. 16+00 TO STA. 16+65 –Y15FLYBD– RT
FROM STA. 16+81 TO STA. 17+50 –Y15REV– RT
FROM STA. 26+00 TO STA. 29+00 –Y15– RT
FROM STA. 59+00 TO STA. 66+00 –Y15REV– LT
FROM STA. 72+00 TO STA. 72+46 –Y15REV– RT
FROM STA. 77+50 TO STA. 80+50 –Y15REV– RT
FROM STA. 154+00 TO STA. 157+00 –Y15– RT
FROM STA. 773+50 TO STA. 774+50 –L– LT

DETAIL K
SPECIAL CUT DITCH wHINGE
(Not to Scale)

Min. D= 1 Ft.

FROM STA. 818+00 TO STA. 823+00 –L– LT
FROM STA. 821+00 TO STA. 827+50 –L– RT
FROM STA. 823+00 TO STA. 824+00 –L– LT
FROM STA. 834+50 TO STA. 836+00 –L– RT

DETAIL L
SPECIAL CUT DITCH wHINGE
(Not to Scale)

Min. D= 1 Ft.
B= 2 Ft.

FROM STA. 20+00 TO STA. 22+00 –Y15FLYCA– LT

DETAIL N
LATERAL BASE DITCH
(Not to Scale)

Min. D= 2.25 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 66+50 TO STA. 68+43 –Y15FLYBD– RT

DETAIL O
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 813+00 TO STA. 818+50 –L– RT

DETAIL P
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 3 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 149+46 TO STA. 151+78 –Y15– LT
FROM STA. 152+50 TO STA. 154+24 –Y15– LT

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

Min. D= 1 Ft.
b= 5 Ft.

FROM STA. 12+08 TO STA. 18+16 –SR1– RT
FROM STA. 20+23 TO STA. 21+26 –SR1– RT
FROM STA. 15+74 TO STA. 16+00 –Y15FLYAC– RT
FROM STA. 18+75 TO STA. 20+50 –Y15RPB– LT
FROM STA. 19+00 TO STA. 19+50 –Y15RPC– RT
FROM STA. 20+50 TO STA. 21+50 –Y15RPB– LT
FROM STA. 22+30 TO STA. 23+75 –Y15FLYBD– LT
FROM STA. 25+50 TO STA. 27+09 –Y15FLYBD– LT
FROM STA. 41+00 TO STA. 43+50 –Y15FLYAC– RT
FROM STA. 43+95 TO STA. 45+70 –Y15REV– LT
FROM STA. 72+00 TO STA. 74+07 –Y15REV– LT
FROM STA. 161+70 TO STA. 162+50 –Y15– RT
FROM STA. 17+63 TO STA. 19+22 –UXRPC– RT
FROM STA. 23+75 TO STA. 25+50 –Y15FLYBD– LT

DETAIL R
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 12 Ft.
C= 12 FT.

Type of Liner= Class I Rip-Rap

FROM STA. 31+30 TO STA. 33+00 –Y15RPB– RT

DETAIL S
LATERAL BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 18+00 TO STA. 20+50 –Y1B– RT
FROM STA. 31+00 TO STA. 34+50 –Y1B– RT
FROM STA. 16+00 TO STA. 17+60 –Y15FLYAC– RT
FROM STA. 16+65 TO STA. 18+95 –Y15FLYBD– RT
FROM STA. 19+50 TO STA. 25+11 –Y15RPC– RT
FROM STA. 22+00 TO STA. 22+10 –Y15RPB– LT
FROM STA. 157+20 TO STA. 157+99 –Y15– RT
FROM STA. 73+00 TO STA. 73+81 –Y15REV– RT
FROM STA. 75+50 TO STA. 76+37 –Y15FLYAC– LT
FROM STA. 76+50 TO STA. 77+00 –Y15REV– RT
FROM STA. 827+95 TO STA. 829+50 –L– LT
FROM STA. 831+00 TO STA. 832+00 –L– RT
FROM STA. 832+25 TO STA. 833+00 –L– LT
FROM STA. 15+18 TO STA. 16+00 –UXRPC– LT
FROM STA. 70+00 TO STA. 71+50 –Y15FLYCA– RT
FROM STA. 93+05 TO 94+31 –Y15FLYBD– RT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
B= 4 Ft.
b= 5 Ft.

FROM STA. 29+00 TO STA. 31+85 –Y15– RT
FROM STA. 34+50 TO STA. 35+00 –Y15REV– LT
FROM STA. 35+00 TO STA. 35+50 –Y15REV– LT

DETAIL U
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 695+75 TO STA. 696+50 –L– RT
(Dimension b is 15' on this ditch for basin access, see Construction Sheet 4)
FROM STA. 21+50 TO STA. 22+00 –Y15RPB– LT
FROM STA. 25+00 TO STA. 25+11 –Y15RPC– RT
FROM STA. 34+50 TO STA. 37+30 –Y15FLYBD– LT
FROM STA. 37+30 TO STA. 39+00 –Y15FLYBD– LT
FROM STA. 43+62 TO STA. 48+00 –Y15FLYCA– RT
FROM STA. 68+43 TO STA. 70+00 –Y15FLYBD– RT
FROM STA. 68+50 TO STA. 69+00 –Y15FLYBD– LT
FROM STA. 69+90 TO STA. 71+50 –Y15FLYCA– LT
FROM STA. 72+00 TO STA. 75+50 –Y15FLYAC– LT
FROM STA. 160+00 TO STA. 161+70 –Y15– RT
FROM STA. 799+52 TO STA. 800+50 –L– LT
FROM STA. 829+50 TO STA. 832+25 –L– LT
FROM STA. 830+00 TO STA. 831+00 –L– RT
FROM STA. 831+00 TO STA. 834+50 –L– RT
FROM STA. 19+22 TO STA. 20+50 –UXRPC– RT
FROM STA. 49+89 TO STA. 52+50 –Y15FLYCA– LT

DETAIL V
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 4 Ft.
b= 5 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 30+00 TO STA. 30+50 –Y15REV– RT
FROM STA. 35+50 TO STA. 40+50 –Y15REV– LT
FROM STA. 159+50 TO STA. 160+00 –Y15– RT
FROM STA. 799+07 TO STA. 799+52 –L– LT
FROM STA. 43+25 TO STA. 43+62 –Y15FLYCA– RT

DETAIL W
LATERAL BASE DITCH
(Not to Scale)

Min. D= 2.75 Ft.
B= 6 Ft.
b= 5 Ft.

FROM STA. 54+55 TO STA. 55+77 –Y15FLYCA– LT

DETAIL X
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 5.2 Ft.
Max. d= 1.5 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.

Type of Liner= Class I Rip-Rap

FROM STA. 17+60 TO STA. 22+19 –Y15FLYAC– RT

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

Min. D= 1 Ft.

FROM STA. 57+00 TO STA. 57+46 –Y4– RT
FROM STA. 20+18 TO STA. 20+55 –Y5B– RT
FROM STA. 39+00 TO STA. 40+28 –Y15REV– LT
FROM STA. 67+50 TO STA. 69+40 –Y15REV– LT

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

Min. D= 1.25 Ft.

FROM STA. 823+00 TO STA. 824+00 –L– LT

DETAIL BB
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1.25 Ft.
B= 4 Ft.

FROM STA. 749+50 TO STA. 751+50 –L– RT
FROM STA. 41+77 TO STA. 42+03 –Y15– LT

DETAIL CC
STANDARD BASE DITCH
(Not to Scale)

Min. D= 2.6 Ft.
B= 4 Ft.

FROM STA. 48+85 TO STA. 48+89 –Y15REV– LT

DETAIL DD
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
B= 2 Ft.

FROM STA. 707+50 TO STA. 707+50 –L– RT
FROM STA. 736+87 TO STA. 736+97 –L– RT
FROM STA. 740+00 TO STA. 740+50 –L– RT
FROM STA. 746+70 TO STA. 749+50 –L– RT
FROM STA. 754+00 TO STA. 754+50 –L– RT
FROM STA. 796+75 TO STA. 797+29 –L– LT
FROM STA. 16+40 TO STA. 17+35 –Y15REV– LT
FROM STA. 39+00 TO STA. 40+28 –Y15FLYBD– LT
FROM STA. 809+00 TO STA. 809+50 –L– RT
FROM STA. 35+30 TO STA. 35+85 –Y1B– RT

DETAIL EE
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1.75 Ft.
B= 2 Ft.

STA. 34+52 –Y15REV– RT

DETAIL GG
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 734+50 TO STA. 735+50 –L– RT
FROM STA. 19+37 TO STA. 20+50 –Y15RPC– LT
FROM STA. 54+37 TO STA. 54+40 –Y15FLYCA– LT
FROM STA. 799+07 TO STA. 799+52 –L– LT

DETAIL HH
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 26+50 TO STA. 28+25 –Y1B– RT
FROM STA. 20+50 TO STA. 21+92 –Y15RPC– LT

DETAIL II
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'

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

Type of Liner= Class B Rip-Rap

FROM STA. 708+00 –L– LT TO STA. 26+50 –Y1B– RT
FROM STA. 28+25 TO STA. 31+00 –Y1B– RT
FROM STA. 25+00 TO STA. 27+35 –Y15RPB– LT
FROM STA. 28+65 TO STA. 29+00 –Y15FLYCA– LT
FROM STA. 27+05 TO STA. 28+40 –Y15FLYBD– LT

DETAIL JJ
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 695+82 TO STA. 696+03 –L– RT
FROM STA. 733+05 TO STA. 733+19 –L– RT
FROM STA. 20+00 TO STA. 20+29 –Y4RPB– RT
FROM STA. 22+25 TO STA. 22+79 –Y4RPB– RT
FROM STA. 22+79 TO STA. 24+80 –Y4SPB1– RT
FROM STA. 21+60 TO STA. 22+25 –Y4RPC– RT
FROM STA. 21+46 TO STA. 22+77 –Y15RPB– LT
FROM STA. 75+24 TO STA. 75+65 –Y15REV– LT
FROM STA. 152+55 TO STA. 152+56 –Y15– RT
FROM STA. 21+38 TO STA. 23+18 –Y15RPC– LT
FROM STA. 20+00 TO STA. 20+29 –Y4RPB– RT
FROM STA. 52+50 TO STA. 54+40 –Y15FLYCA– LT

DETAIL LL
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 1.5 Ft.
Max. d= 1 Ft.
B= 2 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 39+36 TO STA. 39+60 –Y15– RT

DETAIL MM
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'

Min. D= 3 Ft.
Max. d= 1 Ft.
B= 5 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 30+50 TO STA. 32+90 –Y15REV– RT
STA. 94+22 –Y15FLYBD– RT
STA. 94+32 –Y15FLYBD– RT

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

Min. D= 1 Ft.
b= 5 Ft.

FROM STA. 707+25 TO STA. 708+00 –L– LT
FROM STA. 42+50 TO STA. 43+50 –Y4– LT
FROM STA. 11+75 TO STA. 14+25 –Y15REV– RT
FROM STA. 12+23 TO STA. 12+52 –Y15LPA– RT
FROM STA. 12+52 TO STA. 13+02 –Y15LPA– RT
FROM STA. 15+70 TO STA. 16+81 –Y15REV– RT
FROM STA. 16+00 TO STA. 16+72 –Y15FLYCA– RT
FROM STA. 23+00 TO STA. 25+95 –Y15FLYCA– RT
FROM STA. 36+88 TO STA. 38+25 –Y15– RT
FROM STA. 42+00 TO STA. 43+30 –Y15– RT
FROM STA. 43+30 TO STA. 47+00 –Y15– RT
FROM STA. 71+50 TO STA. 72+50 –Y15FLYCA– RT
FROM STA. 156+50 TO STA. 160+50 –Y15– LT
FROM STA. 18+05 TO STA. 18+18 –Y15LPA– RT
FROM STA. 18+18 TO STA. 19+90 –Y15LPA– RT

DETAIL OO
BERM BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 702+89 TO STA. 705+50 –L– RT
FROM STA. 19+50 TO STA. 21+50 –Y15FLYCA– RT

REVISIONS

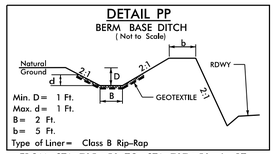
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:27:20 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\CADD\U2579AB_HYD_DETAILS

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-2
R/W 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

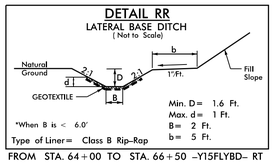
DETAIL PP
BERM BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 705+50 TO STA. 707+50 –L– RT
FROM STA. 18+75 TO STA. 20+50 –Y15LPA– LT
FROM STA. 21+50 TO STA. 23+00 –Y15FLYCA– RT
FROM STA. 65+76 TO STA. 66+25 –Y15REV– RT
FROM STA. 811+50 TO STA. 814+70 –L– LT
FROM STA. 20+19 TO STA. 15+57 –Y15RPDREV– RT

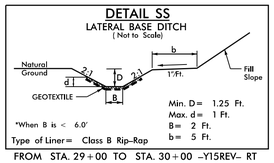
DETAIL RR
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.6 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap

FROM STA. 64+00 TO STA. 66+50 –Y15FLYBD– RT

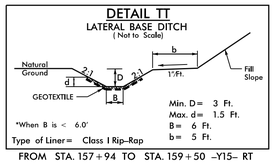
DETAIL SS
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.25 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap

FROM STA. 29+00 TO STA. 30+00 –Y15REV– RT

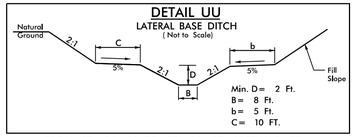
DETAIL TT
LATERAL BASE DITCH
(Not to Scale)



Min. D= 3 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap

FROM STA. 157+94 TO STA. 159+50 –Y15– RT

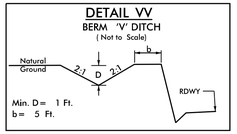
DETAIL UU
LATERAL BASE DITCH
(Not to Scale)



Min. D= 2 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.

FROM STA. 26+82 TO STA. 28+87 –Y15FLYAC– RT

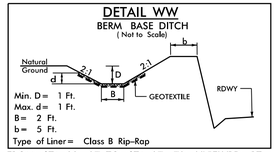
DETAIL VV
BERM 'V' DITCH
(Not to Scale)



Min. D= 1 Ft.
b= 5 Ft.

FROM STA. 732+67 TO STA. 733+70 –L– RT
FROM STA. 736+50 TO STA. 737+00 –L– RT
FROM STA. 70+00 TO STA. 73+61 –Y15FLYBD– RT
FROM STA. 75+02 TO STA. 76+58 –Y15FLYBD– RT
FROM STA. 76+58 TO STA. 83+23 –Y15FLYBD– RT
FROM STA. 87+72 TO STA. 88+39 –Y15FLYBD– RT
FROM STA. 88+39 TO STA. 93+00 –Y15FLYBD– RT
FROM STA. 149+97 TO STA. 152+60 –Y15– RT
FROM STA. 153+91 TO STA. 155+51 –Y15– RT
FROM STA. 155+51 TO STA. 157+10 –Y15– RT
FROM STA. 65+34 TO STA. 65+76 –Y15REV– RT

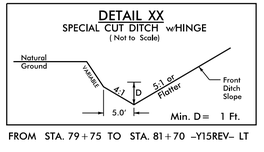
DETAIL WW
BERM BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 83+87 TO STA. 87+72 –Y15FLYBD– RT
FROM STA. 93+00 TO STA. 94+41 –Y15FLYBD– RT

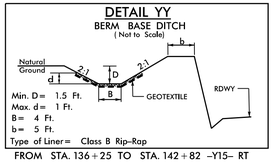
DETAIL XX
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 79+75 TO STA. 81+70 –Y15REV– LT

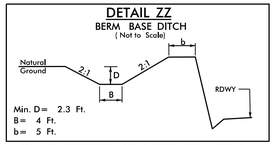
DETAIL YY
BERM BASE DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 1 Ft.
B= 4 Ft.
b= 5 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 136+25 TO STA. 142+82 –Y15– RT

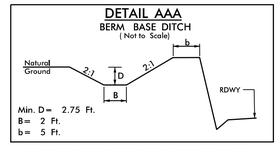
DETAIL ZZ
BERM BASE DITCH
(Not to Scale)



Min. D= 2.3 Ft.
B= 4 Ft.
b= 5 Ft.

FROM STA. 142+82 TO STA. 146+32 –Y15– RT

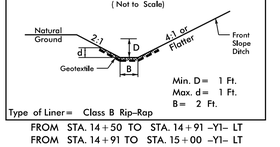
DETAIL AAA
BERM BASE DITCH
(Not to Scale)



Min. D= 2.75 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 737+31 TO STA. 740+05 –L– RT
FROM STA. 146+32 TO STA. 147+82 –Y15– RT

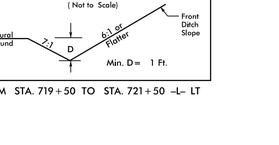
DETAIL BBB
BERM BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 10+55 TO STA. 17+38 –Y4RPC– LT
FROM STA. 73+61 TO STA. 75+02 –Y15FLYBD– RT
FROM STA. 152+60 TO STA. 153+91 –Y15– RT

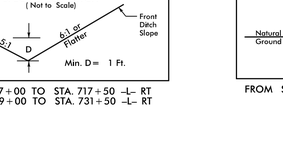
DETAIL CCC
BERM BASE DITCH
(Not to Scale)



Min. D= 2.1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 147+82 TO STA. 149+97 –Y15– RT

DETAIL DDD
LATERAL BASE DITCH
(Not to Scale)



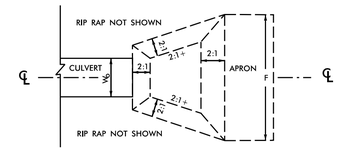
Min. D= 2.25 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.
*When B is < 6.0'
Type of Liner= Class I Rip-Rap

FROM STA. 151+78 TO STA. 152+50 –Y15– LT
FROM STA. 154+24 TO STA. 156+10 –Y15– LT

DETAIL EEE
RIP-RAPPED ENERGY DISSIPATOR BASIN

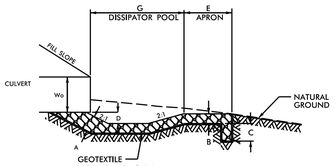
DIM. (ft)	RIP RAP BASIN #		
	1	2	3
A	3	3	3
B	2	2	2
C	2	2	2
D	1	1	1
E	10	10	10
F	25	12	12
G	25	12	12

ALL DIMENSIONS APPROXIMATE



PLAN

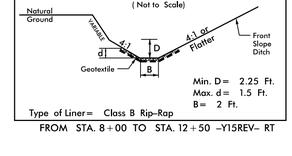
BASIN #	LOCATION (AT OUTLET)
1	–Y15– STA. 56+00
2	–Y4– STA. 40+43
3	–SR1– STA. 16+50



℄ SECTION

7/08

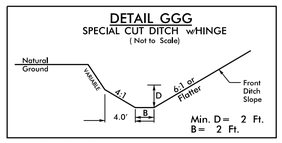
DETAIL FFF
SPECIAL CUT BASE wHINGE
(Not to Scale)



Min. D= 2.25 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 8+00 TO STA. 12+50 –Y15REV– RT

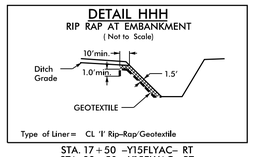
DETAIL GGG
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Min. D= 2 Ft.
B= 2 Ft.

FROM STA. 12+50 TO STA. 16+50 –Y15REV– RT

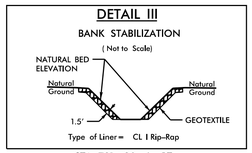
DETAIL HHH
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap/Geotextile

STA. 17+50 –Y15FLYAC– RT
STA. 22+50 –Y15FLYAC– RT
STA. 28+62 –Y15FLYCA– LT
STA. 28+88 –Y15FLYAC– RT
STA. 31+85 –Y15– RT
STA. 54+38 –Y15FLYCA– LT
STA. 149+50 –Y15– LT

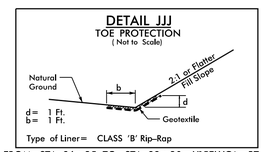
DETAIL III
BANK STABILIZATION
(Not to Scale)



Type of Liner= CL I Rip-Rap

STA. 781+20 –L– RT
STA. 18+40 –Y5B– LT
STA. 833+40 –L– LT

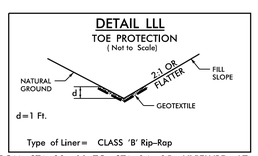
DETAIL JJJ
TOE PROTECTION
(Not to Scale)



d= 1 Ft.
b= 1 Ft.
Type of Liner= CLASS 'B' Rip-Rap

FROM STA. 86+25 TO STA. 89+20 –Y15FLYCA– RT

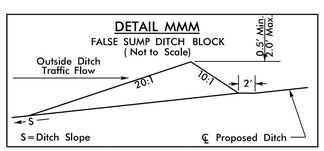
DETAIL LLL
TOE PROTECTION
(Not to Scale)



d=1 Ft.
Type of Liner= CLASS 'B' Rip-Rap

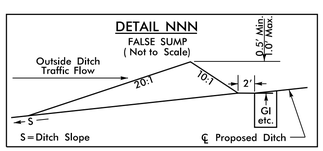
FROM STA. 33+00 TO STA. 34+25 –Y15FLYBD– LT

DETAIL MMM
FALSE SUMP DITCH BLOCK
(Not to Scale)

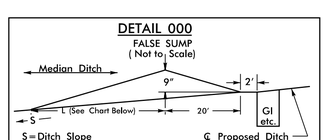


STA. 16+59 –Y15REV– RT
STA. 12+30 –Y15FLYCA– RT

DETAIL NNN
FALSE SUMP
(Not to Scale)

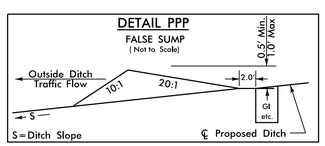


DETAIL 000
FALSE SUMP
(Not to Scale)

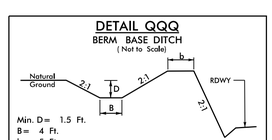


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL PPP
FALSE SUMP
(Not to Scale)



DETAIL QQQ
BERM BASE DITCH
(Not to Scale)



Min. D= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.

FROM STA. 699+00 TO STA. 705+00 –L– LT

DETAIL RRR
SPECIAL CUT BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
Type of Liner= Class B Rip-Rap

FROM STA. 14+50 TO STA. 14+91 –Y1– LT
FROM STA. 14+91 TO STA. 15+00 –Y1– LT

DETAIL SSS
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1 Ft.

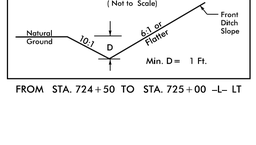
FROM STA. 719+50 TO STA. 721+50 –L– LT

DETAIL TTT
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1 Ft.

FROM STA. 717+00 TO STA. 717+50 –L– RT
FROM STA. 729+00 TO STA. 731+50 –L– RT

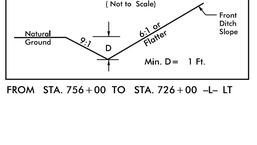
DETAIL UUU
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 724+50 TO STA. 725+00 –L– LT

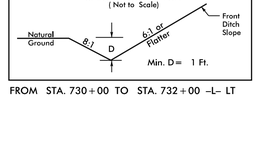
DETAIL VVV
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 756+00 TO STA. 726+00 –L– LT

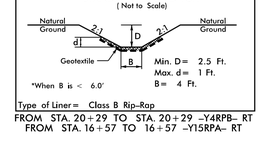
DETAIL WWW
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 730+00 TO STA. 732+00 –L– LT

DETAIL XXX
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.5 Ft.
Max. d= 1 Ft.
B= 4 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip-Rap

FROM STA. 20+29 TO STA. 20+29 –Y4RPB– RT
FROM STA. 16+57 TO 16+57 –Y15RPA– RT

REVISIONS

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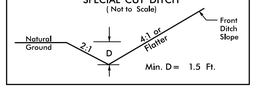
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

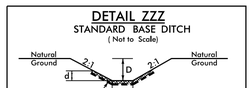
REVISIONS

DETAIL YYY
SPECIAL CUT DITCH
(Not to Scale)



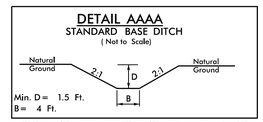
FROM STA. 17+50 TO STA. 18+25 –Y4A LT

DETAIL ZZZ
STANDARD BASE DITCH
(Not to Scale)



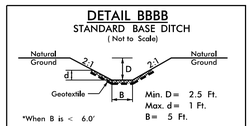
Type of Liner = Class B Rip–Rap
FROM STA. 754+50 TO STA. 755+50 –L– LT

DETAIL AAAA
STANDARD BASE DITCH
(Not to Scale)



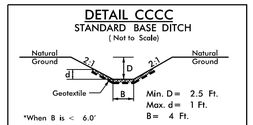
FROM STA. 751+50 TO STA. 754+00 –L– RT

DETAIL BBBB
STANDARD BASE DITCH
(Not to Scale)



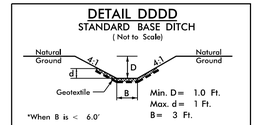
Type of Liner = Class I Rip–Rap
FROM STA. 750+50 TO STA. 754+50 –L– LT
FROM STA. 757+05 TO STA. 757+73 –L– LT

DETAIL CCCC
STANDARD BASE DITCH
(Not to Scale)



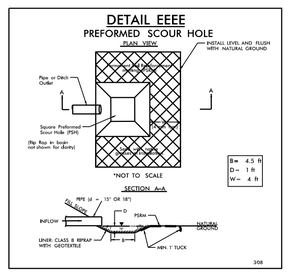
Type of Liner = Class B Rip–Rap
FROM STA. 83+86 TO STA. 84+00 –Y15FLYBD– RT

DETAIL DDDD
STANDARD BASE DITCH
(Not to Scale)



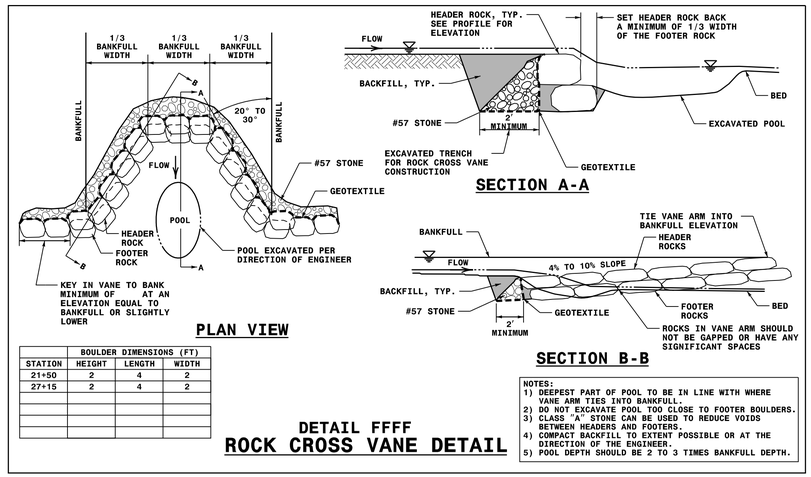
Type of Liner = Class I Rip–Rap
FROM STA. 67+00 TO STA. 68+50 –Y15FLYBD– LT

DETAIL EEEE
PREFORMED SCOUR HOLE



FROM STA. 40+35 –Y15– LT

DETAIL FFFF
ROCK CROSS VANE DETAIL

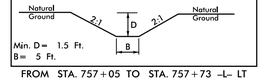


	BOULDER DIMENSIONS (FT)		
STATION	HEIGHT	LENGTH	WIDTH
21+50	2	4	2
27+15	2	4	2

NOTES:
1) DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2) DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3) CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5) POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

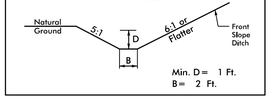
STA. 21+50 –Y15FLYAC– RT
STA. 27+15 –Y15FLYAC– RT

DETAIL GGGG
STANDARD BASE DITCH
(Not to Scale)



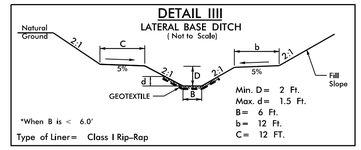
FROM STA. 757+05 TO STA. 757+73 –L– LT

DETAIL HHHH
SPECIAL CUT BASE DITCH
(Not to Scale)



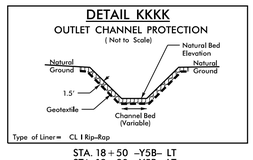
FROM STA. 39+36 TO STA. 40+00 –Y15– RT

DETAIL IIII
LATERAL BASE DITCH
(Not to Scale)



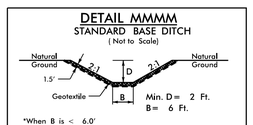
Type of Liner = Class I Rip–Rap
FROM STA. 30+50 TO STA. 38+50 –Y15REV– RT

DETAIL KKKK
OUTLET CHANNEL PROTECTION
(Not to Scale)



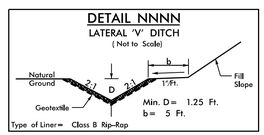
Type of Liner = CL I Rip–Rap
STA. 18+50 –Y5B– LT
STA. 19+80 –Y5B– LT
STA. 83+90 –Y15FLYBD– RT
STA. 35+55 –Y15RPDREV– LT

DETAIL MMMM
STANDARD BASE DITCH
(Not to Scale)



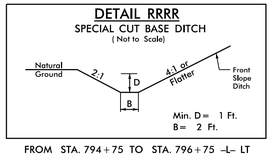
Type of Liner = Class I Rip–Rap
FROM STA. 792+70 TO STA. 792+86 –L– LT
FROM STA. 54+55 TO STA. 56+00 –Y15FLYCA– LT

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



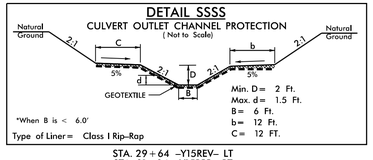
Type of Liner = Class B Rip–Rap
FROM STA. 36+93 TO STA. 39+40 –Y15RPDREV– RT
FROM STA. 25+67 TO STA. 28+32 –Y15RPDREV– RT

DETAIL RRRR
SPECIAL CUT BASE DITCH
(Not to Scale)



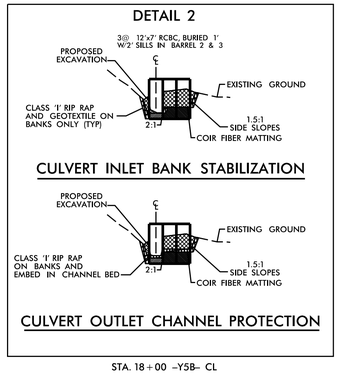
FROM STA. 794+75 TO STA. 796+75 –L– LT

DETAIL SSSS
CULVERT OUTLET CHANNEL PROTECTION
(Not to Scale)



Type of Liner = Class I Rip–Rap
STA. 29+64 –Y15REV– LT
STA. 31+34 –Y15RPB– RT

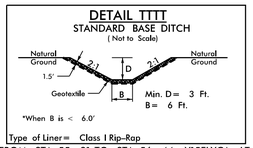
DETAIL 2



STA. 18+00 –Y5B– CL

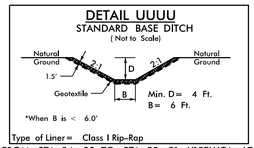
STA. 84+00 –Y15FLYCA– RT

DETAIL TTTT
STANDARD BASE DITCH
(Not to Scale)



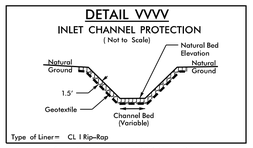
Type of Liner = Class I Rip–Rap
FROM STA. 55+31 TO STA. 56+44 –Y15FLYCA– LT

DETAIL UUUU
STANDARD BASE DITCH
(Not to Scale)



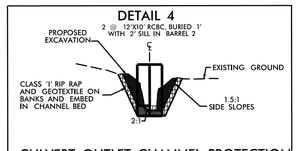
Type of Liner = Class I Rip–Rap
FROM STA. 54+39 TO STA. 55+31 –Y15FLYCA– LT

DETAIL VVVV
INLET CHANNEL PROTECTION
(Not to Scale)



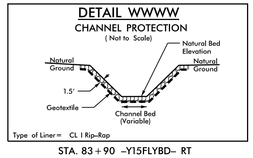
Type of Liner = CL I Rip–Rap
STA. 35+55 –Y15RPDREV– RT

DETAIL 4



STA. 20+90 –Y15FLYBD– RT

DETAIL WWWW
CHANNEL PROTECTION
(Not to Scale)



Type of Liner = CL I Rip–Rap
STA. 83+90 –Y15FLYBD– RT

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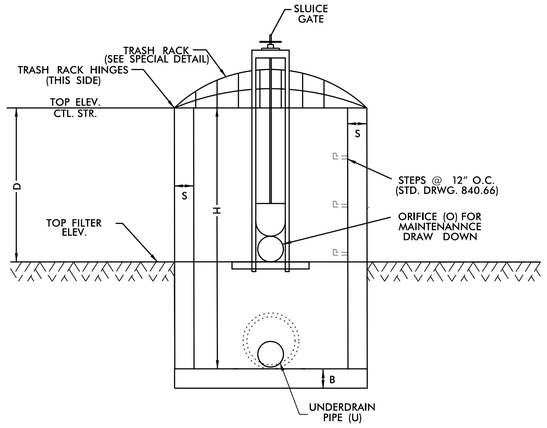
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\CADD\U2579AB_HYD_DETAILS

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-4
R/W SHEET NO.	
	HYDRAULICS ENGINEER

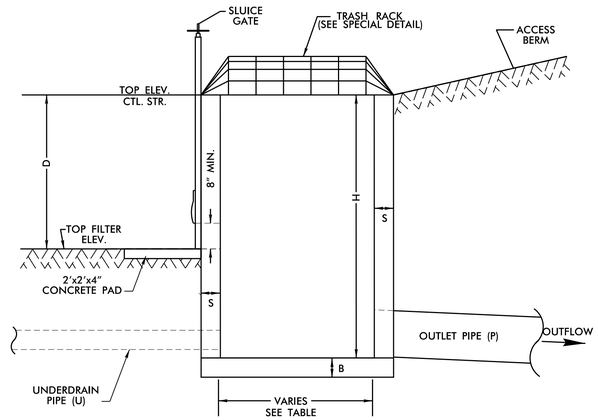
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

OUTLET CONTROL STRUCTURE

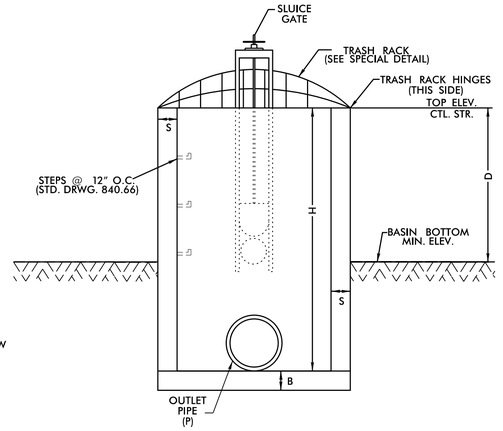
NOT TO SCALE



SIDE 1

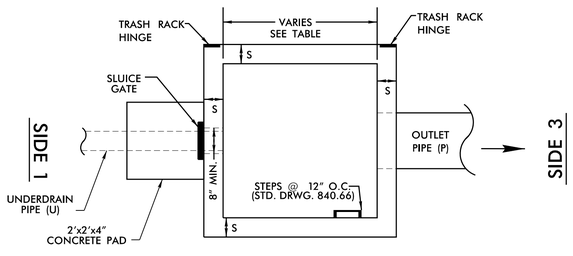


SIDE 2



SIDE 3

NOTES:
1. THE BASIN SHOULD BE DESIGNED TO HOLD THE WATER QUALITY VOLUME.
2. TOP ELEVATION OF CONTROL STRUCTURE (WEIR ELEVATION) SHOULD BE SET AT THE WATER QUALITY VOLUME.
3. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
4. 8" MIN. ORIFICE WITH SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION. A GATE VALVE MAY BE USED IN LIEU OF THE 8" SLUICE GATE.
5. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION AND FOR PROPER SEATING OF GATE OVER PIPE.
6. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
7. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATE.
8. FOOTER DIMENSION (B) IS ADJUST FOR ANTI-FLOTATION.
9. TOP ELEVATION OF OUTLET CONTROL STRUCTURE SHALL BE SET AT THE WATER QUALITY VOLUME (WQV) ELEVATION.
10. WATER TIGHT SEALS ARE REQUIRED AT ALL PIPE CONNECTIONS TO STRUCTURE.



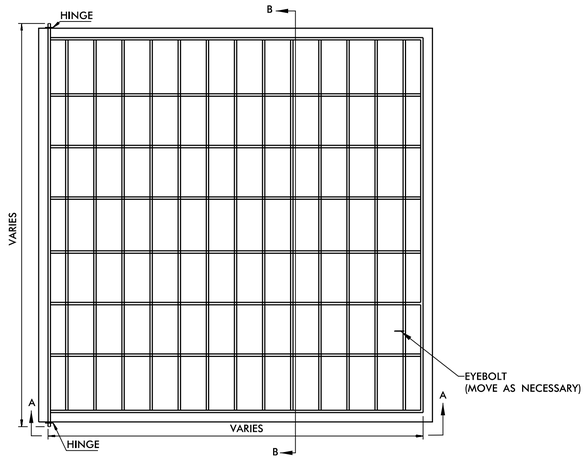
SIDE 2
PLAN VIEW
TRASH RACK NOT SHOWN FOR CLARITY

MINIMUM DIMENSIONS FOR OUTLET CONTROL STRUCTURE

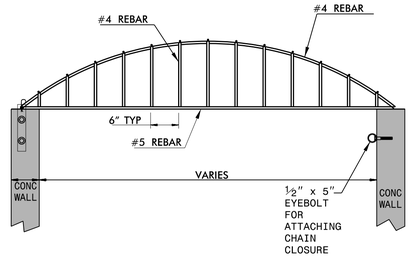
STATION	STRUCTURE NUMBER	S (INCHES) 6" MIN.	B (INCHES) 6" MIN.	TOP ELEVATION CONTROL STRUCTURE	MAX. STORAGE DEPTH(D) FEET	ORIFICE DIAMETER (O) INCHES	ORIFICE INV. ELEV.	CONTROL STRUCTURE INV. ELEV.	CTL. STR. DIMENSIONS (W x L x H)	OUTLET PIPE DIAMETER(P) INCHES
-L- 691+50 RT	0409	6	20	880.50	3.50	1.50	877.00	874.00	4.5x4.5x6.5	42
-SR1- 12+00 LT	0759	6	14	910.50	3.50	0.75	907.00	903.00	4.0x4.0x7.5	42

REMOVABLE ORIFICE TRASH RACK

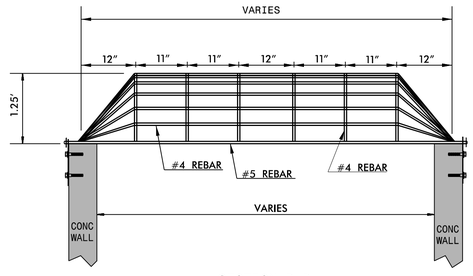
NOT TO SCALE



PLAN



SECTION A-A



SECTION B-B

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.
5. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATES.

REVISIONS

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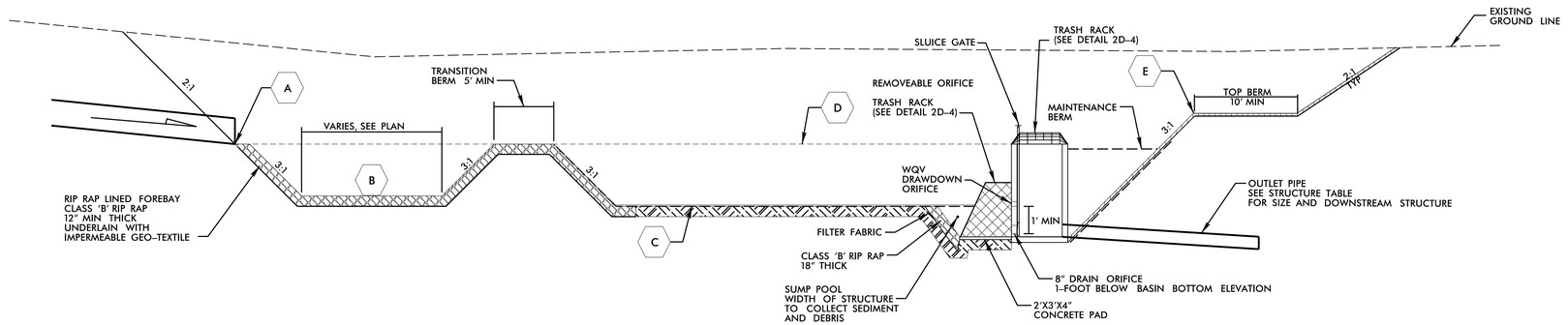
USER: CHARRIS
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\CADD\U2579AB_HYD_BASIN_DETAILS.dgn
PENTABLE: NCDOT_pshpfl_conventional.tbl
DATE: 5/11/2020
TIME: 5:27:44 PM

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2D–5
R/W SHEET NO.	
	HYDRAULICS ENGINEER

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

DRY DETENTION BASIN

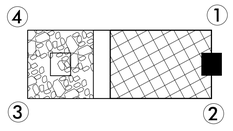
NOT TO SCALE



TYPICAL SECTION
NTS

DRY DETENTION BASIN CORNER LAYOUT POINTS & DIMENSIONS

POINT LOCATION	691+50 RT		12+00 LT	
	NORTH	EAST	NORTH	EAST
1	857,375.04	1,664,099.31	853,238.60	1,664,387.00
2	857,391.61	1,664,071.66	853,236.66	1,664,366.41
3	857,213.56	1,663,965.66	853,305.40	1,664,359.80
4	857,197.44	1,663,993.20	853,307.29	1,664,381.27
	TOP LENGTH	TOP WIDTH	TOP LENGTH	TOP WIDTH
BASIN	229.50	54.50	86.00	38.00
FOREBAY	54.50	37.00	41.00	31.00



BASIN LAYOUT POINT LOCATIONS
NTS

NOTES:

1. SEE PLANS FOR LOCATION AND BASIN DIMENSIONS.
2. IF SEASONAL HIGH WATER TABLE (SHWT) IS WITHIN 2' OF THE BASIN BOTTOM, CONTACT THE NCDOT HYDRAULIC UNIT PRIOR TO CONSTRUCTION.
3. MEDIA FILTER AND UNDERDRAIN SYSTEM SHALL BE CONSTRUCTED AFTER THE DRAINAGE AREA HAS BEEN STABILIZED
4. ALL DISTURBED BASIN SLOPES DRAINING INTO THE FILTRATION BASIN SHALL BE SODDED WITH FESCUE SOD.
5. ACCESS BERM SHOULD BE PROVIDED TO CONTROL STRUCTURE ON ALL BASINS AS SHOWN IN DETAIL.

TABLE 1

ELEVATIONS FOR DRY DETENTION BASIN

STATION	A (INLET PIPE INVERT)	B (FOREBAY BOTTOM)	C (BOTTOM OF BASIN)	D (WQV ELEV)	E (TOP OF BERM)
691+50 RT	880.50	877.25	877.00	880.50	882.70
12+00 LT	910.50	907.00	907.00	910.50	912.50

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	4
R/W 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 83/95

WANDA L. BOOTH
DB 1006 PG 551

JONAH R. MOTSINGER, JR. and wife
KATHRYN G. MOTSINGER
DB 3096 PG 1416
PB 9 PG 98

CHARLES JERRY HART
DB 1029 PG 918
PB 13 PG 203

BOBBY LEE MOORE
DB 1250 PG 444
DB 3174 PG 3815

NCDOT
DB 2771 PG 2940

CHARLES JERRY HART
DB 954 PG 8

NCDOT
DB 3152 PG 2664

FRANCIS L. MANUEL
BILLIE MANUEL
DB 1257 PG 1282
DB 1211 PG 125
DB 937 PG 28

ROBERT W. BROWN
SANDRA S. BROWN
DB 2110 PG 4859

JAMES R. MANUEL JR.
JANE MANUEL
DB 1014 PG 2

RIGHT OF WAY PURCHASED UNDER U-2579B

CONSTRUCTION BY OTHERS

EXISTING U-2579B

WINSTON SALEM NORTHERN BELTWAY

MATCHLINE SHEET 5 -L- STA. 698+00.00

BEGIN WOVEN WIRE FENCE +33.00

BEGIN EASEMENT
TIP PROJECT U-2579AB
-L- Sta. 687+80

BEGIN TIP PROJECT U-2579AB
END TIP PROJECT U-2579B
-L- POT Sta. 692+32.98

-L- TS Sta. 693+52.98

-L- SC Sta. 697+72.98

-L- +26.46 200.00' LT

-L- +52.98 200.00' LT

-L- +72.98 200.00' LT

-L- +80.00 200.00' RT

-L- +20.00 200.00' RT

-L- +90.00 280.00' RT

-L- +50.00 200.00' RT

-L- +10.00 258.00' RT

-L- +88.67 200.00' RT

-L- +72.98 200.00' RT

-L- +25.00 199.28' RT

-L- +06.00 286.00' RT

PROP. 47" WW FENCE

EASEMENT NEEDED FOR FLOATING TURBIDITY CURTAIN SEE EROSION CONTROL PLANS

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 103 TONS 290 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'XXX'

DRY DETENTION, SEE SHEET 2D-5 OUTLET CONTROL STRUCTURE SEE SHEET 2D-4 W/SLUICE GATE AND TRASH RACK

CLASS 'B' RIP RAP EST. 99 TONS 220 SY GEOTEXTILE

STANDARD 2' BASE DITCH W/CLASS 'B' RIP RAP EST. 13 TONS 36 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'J' SLOPE = 11.75%

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'D'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 35 TONS 99 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

TOP OF BERM 882.70

BOTTOM OF BASIN 877.0

-L-		
PIs Sta. 696+33.06	PI Sta. 707+75.32	PIs Sta. 718+41.72
Θs = 4° 11' 32.5"	Δ = 38° 30' 11.9" (LT)	Θs = 4° 11' 32.5"
Ls = 420.00'	D = 1° 59' 46.9"	Ls = 420.00'
LT = 280.08'	L = 1,928.67'	LT = 280.08'
ST = 140.07'	T = 1,002.34'	ST = 140.07'
INC = 60.00'	R = 2,870.00'	INC = 60.00'
	SE = 0.07	

PAVED SHOULDER

NOTES:
SEE SHEET 28 FOR -L- PROFILE

REVISIONS

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TIME: 5:28:16 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	5
R/W 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

TRAFFIC DATA

SEDGE GARDEN RD

2383 / 3300

WINSTON-SALEM OUTER LOOP — 10633 / 17600 — WINSTON- SALEM OUTER LOOP

YEAR 2018 ADT / YEAR 2040 ADT — SEDGE GARDEN RD

NAD 83/95

-YIB- PC Sta. 14+65.00

-L- POC Sta. 703+89.11 = -YIB- POC Sta. 22+26.35

-L- WINSTON-SALEM NORTHERN BELTWAY

MATCHLINE SHEET 4 -L- STA. 698+00.00

MATCHLINE SHEET 6 -L- STA. 706+50.00

MATCHLINE SHEET 6 -YIB- STA. 25+00.00

BEGIN CONSTRUCTION
-Y1B- Sta. 12+50.00

-YIB- SR 2632 SEDGE GARDEN RD

S 14°35'39" E

BEGIN BRIDGE
-YIB- Sta. 20+50.39

END BRIDGE
-YIB- Sta. 24+06.18

END APPROACH SLAB
-YIB- Sta. 24+19.79

BEGIN APPROACH SLAB
-YIB- Sta. 20+36.96

END FENCE +47.47

BEGIN FENCE +97.39

END FENCE +82.45

BEGIN FENCE -L- +49.46

BEGIN EXPRESSWAY GUTTER +50

-L- +85.22 200.00' LT

-L- +36.00 224.00' LT

-L- +80.00 250.00' LT & 200.00' LT

-L- +57.17 200.00' LT

-L- +65.00 200.00' RT

-Y1B- +00.00 50.28' LT

-Y1B- +75.00 50.00' LT END CA

-Y1B- +60.00 EX R/W & 40' LT

-Y1B- +65.00 40.00' LT

-Y1B- +50.00 EX R/W & 40.00' LT

-Y1B- +50.00 EX R/W & 45.00' RT

-Y1B- +41.00 EX. R/W 61.00' RT

-Y1B- +48.00 80.00' RT

-Y1B- +42.00 63.00' RT

-Y1B- +33.00 EX. R/W

-Y1B- +75.00 60.00' RT & EX. R/W

-L- +19.34 200.00' RT

-L- +80.41 EX. R/W

-L- +89.64 240.69' RT

-L- +57.80 274.84' RT

-L- +29.00 200.00' RT

-L- +55.00 351.00' RT

-L- +24.00 373.00' RT

PROP. 47" WW FENCE

2' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'QQQ'

HW (L Shape)

24" CSP W/ELBOWS

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'D'

CLASS 'B' RIP RAP EST. 5 TONS 14 SY FILTER FABRIC

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

2' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 105 TONS 297 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'PP'

2' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'S'

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'B'

6" DECK DRAINS @ 12'-0" SP.
BEGIN STA. 20+55 END STA. 20+74 LT Y1B
BEGIN STA. 21+83 END STA. 22+29 LT Y1B
BEGIN STA. 23+28 END STA. 23+64 LT Y1B

NCDOT DB 2771 PG 2940

NCDOT DB 2606 PG 3101

BOBBY LEE MOORE DB 1250 PG 444 DB 3174 PG 3815

ROBERT W. BROWN SANDRA S. BROWN DB 2110 PG 4859

CLINTON THOMAS BOBBIT MARGARET LONG DB 3210 PG 2949

KEITH E. MANUEL DB 3167 PG 299

WILLIAM C. RAMEY DB 699 PG 178

HARRY L. ROBERTS JILL ROBERTS DB 1200 PG 621

JAMES W. BAKER DB 2926 PG 1908

ROBIN M. MANUEL LESLIE A. MANUEL DB 2530 PG 208

ROBERT L. OGLESBY GLORIA OGLESBY DB 1282 PG 1574 DB 1015 PG 559

DAVID K. BROWN JR. JOY B. BROWN DB 2058 PG 3508

JERRY CURTIS MANUEL BONNIE MANUEL DB 1257 PG 1492

FRANCIS L. MANUEL BILLIE JO MANUEL DB 935 PG 443

-L-		
PIs Sta. 696+33.06	PI Sta. 707+75.32	PIs Sta. 718+41.72
Θs = 4° 11' 32.5"	Δ = 38° 30' 11.9" (LT)	Θs = 4° 11' 32.5"
Ls = 420.00'	D = 1° 59' 46.9"	Ls = 420.00'
LT = 280.08'	L = 1,928.67'	LT = 280.08'
ST = 140.07'	T = 1,002.34'	ST = 140.07'
INC = 60.00'	R = 2,870.00'	INC = 60.00'
	SE = 0.07	

-YIB-
PI Sta. 21+42.48
Δ = 20° 48' 25.4" (LT)
D = 1° 33' 09.8"
L = 1,340.03'
T = 677.48'
R = 3,690.00'
SE = 0.03
Ro = 72'

PAVED SHOULDER

NOTES:
SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 34 FOR -Y1B- PROFILE
SEE SHEETS 2B-4 FOR -Y1B- DETOUR PLANS
SEE SHEET 35 FOR -Y1BDET- PROFILE

REVISIONS

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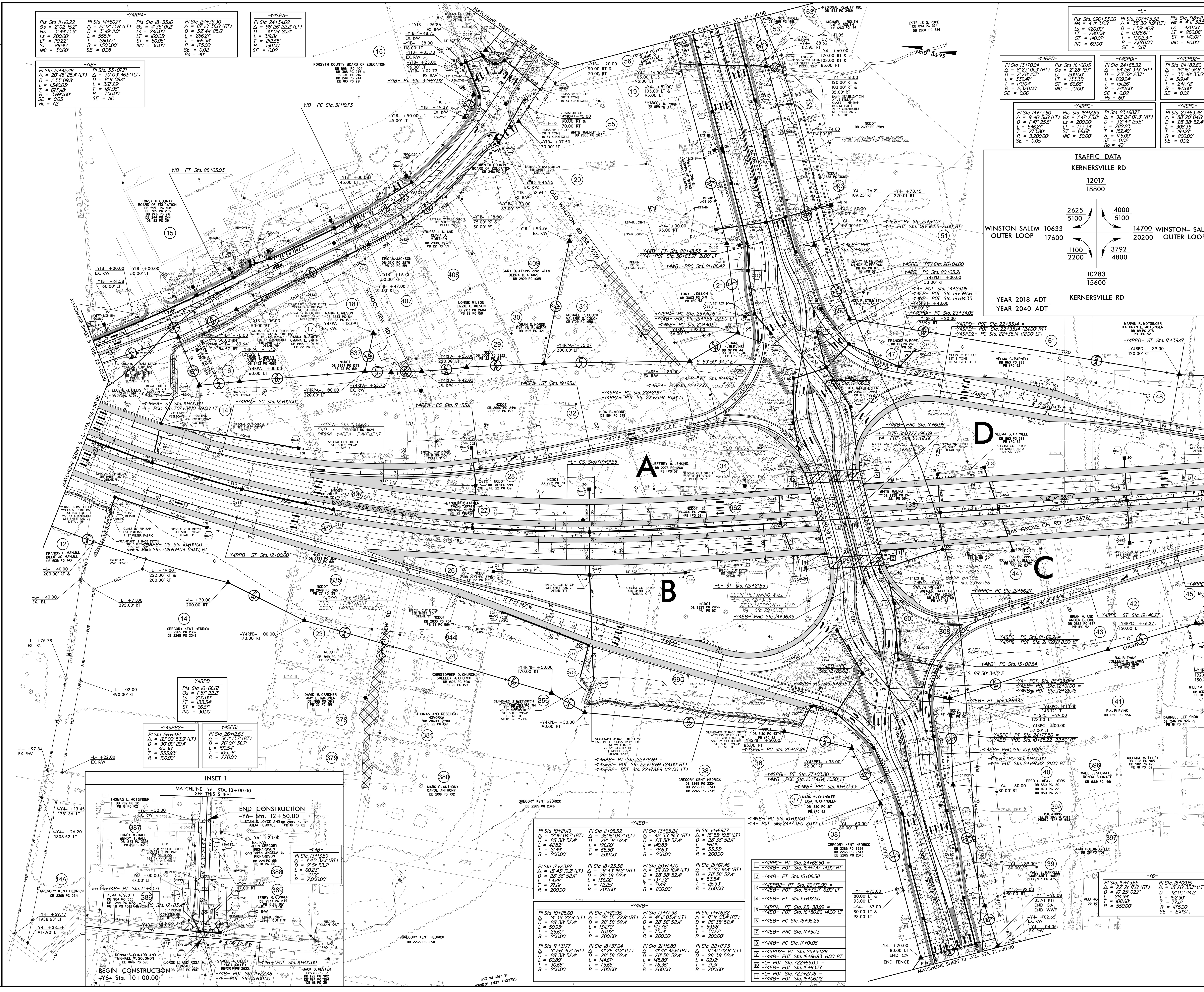


PROJECT REFERENCE NO.	SHEET NO.
	6

R/W 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

SCALE 50 25 0 50 100

-L-

PIs Sta. 696+33.06	PI Sta. 707+75.32	PIs Sta. 718+41.72
θs = 4° 11' 32.5"	Δ = 38° 30' 11.9" (LT)	θs = 4° 11' 32.5"
Ls = 420.00'	D = 1° 59' 46.9"	Ls = 420.00'
LT = 280.08'	L = 1,928.67'	LT = 280.08'
ST = 140.07'	T = 1,002.34'	ST = 140.07'
INC = 60.00'	R = 2,870.00'	INC = 60.00'
	SE = 0.07	

-Y4RPA-

PIs Sta 11+10.22	PI Sta 14+80.77	PIs Sta 18+35.16	PI Sta 24+39.30
θs = 2° 02' 15.2"	Δ = 21° 12' 13.6" (LT)	θs = 4° 35' 01.2"	Δ = 87° 10' 38.0" (RT)
θs = 3° 49' 13.5"	D = 3° 49' 11.0"	Ls = 240.00'	D = 32° 44' 25.6"
Ls = 200.00'	L = 555.11'	LT = 160.05'	L = 266.27'
LT = 110.22'	T = 280.77'	ST = 80.05'	T = 166.58'
ST = 89.95'	R = 1,500.00'	INC = 30.00'	R = 175.00'
INC = 30.00'	SE = 0.08		SE = 0.02
			Ro = 40'

-Y4SPA-

PI Sta 24+34.62
Δ = 96° 26' 22.2" (LT)
D = 30° 09' 20.4"
L = 319.81'
T = 212.65'
R = 190.00'
SE = 0.02

-Y1B-

PI Sta. 21+42.48	PI Sta. 33+07.71
Δ = 20° 48' 25.4" (LT)	Δ = 30° 03' 46.5" (LT)
D = 1° 33' 09.8"	D = 8° 11' 06.4"
L = 1,340.03'	L = 367.29'
T = 677.48'	T = 187.98'
R = 3,690.00'	R = 700.00'
SE = 0.03	SE = NC
Ro = 72'	

-Y4RPD-

PI Sta 13+70.04	PIs Sta 16+06.15
Δ = 8° 23' 01.3" (RT)	θs = 2° 28' 10.7"
D = 2° 28' 10.7"	Ls = 200.00'
L = 339.47'	LT = 133.35'
T = 170.04'	ST = 66.68'
R = 2,320.00'	INC = 30.00'
SE = 0.06	

-Y4SPD1-

PI Sta 24+85.32
Δ = 64° 26' 34.1" (RT)
D = 23° 52' 23.7"
L = 269.94'
T = 151.26'
R = 240.00'
SE = 0.02
Ro = 60'

-Y4SPD2-

PI Sta 24+82.86
Δ = 114° 16' 58.6" (LT)
D = 35° 48' 35.5"
L = 319.14'
T = 247.72'
R = 160.00'
SE = 0.02

-Y4RPC-

PI Sta 14+73.80	PIs Sta 18+12.95	PI Sta 23+68.77
Δ = 9° 46' 51.6" (LT)	θs = 1° 47' 25.8"	Δ = 92° 24' 07.3" (RT)
D = 1° 47' 25.8"	Ls = 200.00'	D = 32° 44' 25.6"
L = 546.27'	LT = 133.34'	L = 282.23'
T = 273.80'	ST = 66.67'	T = 182.49'
R = 3,200.00'	INC = 30.00'	R = 175.00'
SE = 0.05		SE = 0.02
		Ro = 40'

-Y4SPC-

PI Sta 23+63.48
Δ = 88° 20' 04.6" (LT)
D = 28° 38' 52.4"
L = 308.35'
T = 194.27'
R = 200.00'
SE = 0.02

TRAFFIC DATA

KERNERSVILLE RD

Approach / movement	YEAR 2018 ADT	YEAR 2040 ADT
Kernersville Rd (north)	12017	18800
Kernersville Rd (south)	10283	15600
Winston-Salem Outer Loop (west)	10633	17600
Winston-Salem Outer Loop (east)	14700	20200
Upper left turn	2625	5100
Upper right turn	4000	5100
Lower left turn	1100	2200
Lower right turn	3792	4800

-Y4RPB-

PIs Sta 10+66.67
θs = 1° 57' 22.2"
Ls = 200.00'
LT = 133.34'
ST = 66.67'
INC = 30.00'

-Y4SPB2-

PI Sta 26+14.61
Δ = 121° 00' 53.9" (LT)
D = 30° 09' 20.4"
L = 401.30'
T = 335.93'
R = 190.00'

-Y4SPB1-

PI Sta 26+12.63
Δ = 51° 11' 13.7" (RT)
D = 26° 02' 36.7"
L = 196.54'
T = 105.38'
R = 220.00'

INSET 1

MATCHLINE -Y6- STA. 13+00.00 SEE THIS SHEET

END CONSTRUCTION -Y6- Sta. 12+50.00

BEGIN CONSTRUCTION -Y6- Sta. 10+00.00

-Y4B-

PI Sta. 13+13.59
Δ = 1° 43' 32.1" (RT)
D = 2° 51' 53.2"
L = 60.23'
T = 30.12'
R = 2,000.00'

-Y4EB-

PI Sta 10+21.49	PI Sta 11+08.32	PI Sta 13+65.24	PI Sta 14+69.77
Δ = 12° 16' 04.7" (RT)	Δ = 36° 16' 04.7" (LT)	Δ = 42° 55' 19.5" (RT)	Δ = 18° 55' 19.5" (LT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 42.82'	L = 126.60'	L = 149.83'	L = 66.05'
T = 21.49'	T = 65.50'	T = 78.63'	T = 33.33'
R = 200.00'	R = 200.00'	R = 200.00'	R = 200.00'
PI Sta 17+23.87	PI Sta 18+23.38	PI Sta 20+74.70	PI Sta 21+67.46
Δ = 15° 43' 19.2" (LT)	Δ = 39° 43' 19.2" (RT)	Δ = 39° 20' 18.4" (LT)	Δ = 15° 20' 18.4" (RT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 54.88'	L = 138.66'	L = 137.32'	L = 53.54'
T = 27.61'	T = 72.25'	T = 71.49'	T = 26.93'
R = 200.00'	R = 200.00'	R = 200.00'	R = 200.00'

-Y4WB-

PI Sta 10+25.60	PI Sta 11+20.95	PI Sta 13+77.98	PI Sta 14+76.82
Δ = 14° 35' 22.9" (LT)	Δ = 38° 35' 22.9" (RT)	Δ = 41° 11' 03.4" (LT)	Δ = 17° 11' 03.4" (RT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 50.93'	L = 134.70'	L = 143.76'	L = 59.98'
T = 25.60'	T = 70.02'	T = 75.14'	T = 30.22'
R = 200.00'	R = 200.00'	R = 200.00'	R = 200.00'
PI Sta 17+31.77	PI Sta 18+37.64	PI Sta 21+16.89	PI Sta 22+17.73
Δ = 17° 26' 41.2" (RT)	Δ = 41° 26' 41.2" (LT)	Δ = 41° 47' 42.6" (RT)	Δ = 17° 47' 42.6" (LT)
D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"
L = 60.89'	L = 144.67'	L = 145.89'	L = 62.12'
T = 30.68'	T = 75.66'	T = 76.36'	T = 31.31'
R = 200.00'	R = 200.00'	R = 200.00'	R = 200.00'

1	-Y4RPC- PT Sta. 24+68.50 = -Y4WB- POT Sta. 15+14.47 14.00' RT
2	-Y4WB- PT Sta. 15+06.58
3	-Y4SPB2- PT Sta. 26+79.99 = -Y4EB- POT Sta. 15+36.17 6.00' LT
4	-Y4EB- PT Sta. 15+02.50
5	-Y4RPA- PT Sta. 25+38.99 = -Y4EB- POT Sta. 16+80.86 14.00' LT
6	-Y4EB- PC Sta. 16+96.25
7	-Y4EB- PRC Sta. 17+51.13
8	-Y4WB- PC Sta. 17+01.08
9	-Y4SPD2- PT Sta. 25+54.28 = -Y4WB- POT Sta. 16+66.93 6.00' RT
10	-L- POT Sta. 722+65.03 = -Y4EB- POT Sta. 15+93.77
11	-L- POT Sta. 723+27.16 = -Y4WB- POT Sta. 16+06.02

-Y6-

PI Sta. 15+75.65	PI Sta. 18+09.15
Δ = 22° 21' 17.0" (RT)	Δ = 18° 26' 35.7" (LT)
D = 10° 25' 02.7"	D = 12° 03' 44.2"
L = 214.59'	L = 152.90'
T = 108.68'	T = 77.12'
R = 550.00'	R = 475.00'
	SE = EXIST.

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEETS 28 AND 29 FOR -L- PROFILE
SEE SHEETS 2B-5 FOR -Y4DET- DETOUR PLANS AND CURVE DATA
SEE SHEETS 36 AND 37 FOR -Y4- PROFILE
SEE SHEET 38 FOR -Y4DET- PROFILE
SEE SHEET 39 FOR -Y4RPA- PROFILE
SEE SHEET 43 FOR -Y4SPA- PROFILE
SEE SHEET 40 FOR -Y4RPB- PROFILE
SEE SHEET 43 FOR -Y4SPB1- AND -Y4SPB2- PROFILES
SEE SHEET 41 FOR -Y4RPC- PROFILE
SEE SHEET 43 FOR -Y4SPC- PROFILE
SEE SHEET 42 FOR -Y4RPD- PROFILE
SEE SHEET 42 FOR -Y4SPD1- AND -Y4SPD2- PROFILES
SEE SHEETS 34 AND 35 FOR -Y1B- PROFILE
SEE SHEET 2B-4 FOR -Y1BDET- DETOUR PLANS AND CURVE DATA
SEE SHEET 35 FOR -Y1BDET- PROFILE
SEE SHEET 73 FOR -Y6- PROFILE

REVISIONS

ROW REV. – SEPTEMBER 10, 2018 – ROW LINE ON PARCEL 45 MODIFIED TO ELIMINATE DUE AND ENCOMPASS ENTIRE PARCEL IN ROW. DUE AND ROW LINE MODIFIED ON PARCEL 46 TO TIE TO NEW ROW LINE. CEH
ROW REV. – AUGUST 12, 2019 – PROPERTY LINE WAS ADDED TO PARCEL 39 FOR DRIVEWAY ACCESS. ADDITION OF PARCEL 39A. CEH.
ROW REV. – MARCH 25, 2020 – PERMANENT UTILITY EASEMENT ADDED TO PARCEL 14A (NEW CLAIM). SMP.

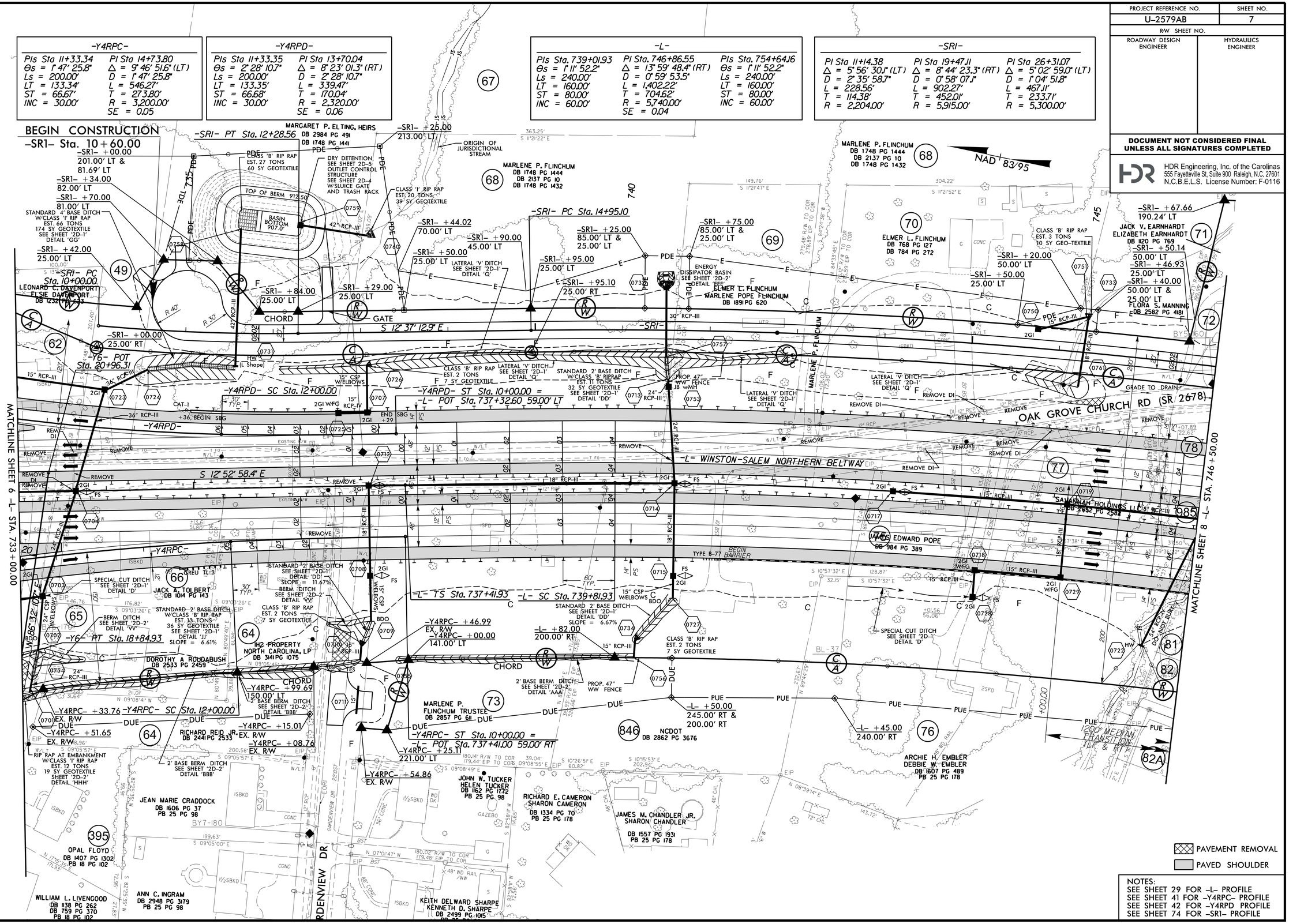
PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:47:01 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_06.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	7
R/W 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

-Y4RPC-		-Y4RPD-		-L-			-SRI-		
PIs Sta 11+33.34	PI Sta 14+73.80	PIs Sta 11+33.35	PI Sta 13+70.04	PIs Sta. 739+01.93	PI Sta. 746+86.55	PIs Sta. 754+64.16	PI Sta 11+14.38	PI Sta 19+47.11	PI Sta 26+31.07
Θs = 1° 47' 25.8"	Δ = 9° 46' 51.6" (LT)	Θs = 2° 28' 10.7"	Δ = 8° 23' 01.3" (RT)	Θs = 1° 11' 52.2"	Δ = 13° 59' 48.4" (RT)	Θs = 1° 11' 52.2"	Δ = 5° 56' 30.1" (LT)	Δ = 8° 44' 23.3" (RT)	Δ = 5° 02' 59.0" (LT)
Ls = 200.00'	D = 1° 47' 25.8"	Ls = 200.00'	D = 2° 28' 10.7"	Ls = 240.00'	D = 0° 59' 53.5"	Ls = 240.00'	D = 2° 35' 58.7"	D = 0° 58' 07.1"	D = 1° 04' 51.8"
LT = 133.34'	L = 546.27'	LT = 133.35'	L = 339.47'	LT = 160.00'	L = 1,402.22'	LT = 160.00'	L = 228.56'	L = 902.27'	L = 467.11'
ST = 66.67'	T = 273.80'	ST = 66.68'	T = 170.04'	ST = 80.00'	T = 704.62'	ST = 80.00'	T = 114.38'	T = 452.01'	T = 233.71'
INC = 30.00'	R = 3,200.00'	INC = 30.00'	R = 2,320.00'	INC = 60.00'	R = 5,740.00'	INC = 60.00'	R = 2,204.00'	R = 5,915.00'	R = 5,300.00'
	SE = 0.05		SE = 0.06		SE = 0.04				



REVISIONS

ROW REV. - FEBRUARY 22, 2019 - ROW ALTERED TO ENCOMPASS PARCEL 72 - SMP

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:29:04 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_07.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	8
R/W 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

-L-		
Pls Sta. 739+01.93	Pl Sta. 746+86.55	Pls Sta. 754+64.16
Θs = 1° 11' 52.2"	Δ = 13° 59' 48.4" (RT)	Θs = 1° 11' 52.2"
Ls = 240.00'	D = 0° 59' 53.5"	Ls = 240.00'
LT = 160.00'	L = 1,402.22'	LT = 160.00'
ST = 80.00'	T = 704.62'	ST = 80.00'
INC = 60.00'	R = 5,740.00'	INC = 60.00'
	SE = 0.04	

NAD 83/95

-SR1- +88.03
200.13' LT

-SR1- +72.47
50.00' LT
-SR1- PRC Sta. 23+97.36

-SR1- +40.00
66.00' LT &
40.00' LT &
EX. R/W

-SR1- +48.00
67.00' LT &
40.00' LT &
EX. R/W

-SR1- +64.47
EX. R/W

-SR1- +95.00
40.00' LT

-SR1- +33.69
25.00' LT

-SR1- +69.80
25.00' LT

-SR1- +97.36
25.00' LT

-SR1- +97.36
25.00' RT

-SR1- PT Sta. 28+64.47

-SR1- POT Sta. 29+85.45

END CONSTRUCTION
-SR1- Sta. 29+00.00

TIE TO EXISTING DITCH

-L- +78.66
EX. R/W

-L- +04.85
EX. R/W

-L- +43.82
EX. R/W

-L- +92.19
EX. R/W

-L- +60.68
200.00' LT

-L- ST Sta. 756+24.15

-L- CS Sta. 758+46.18

71 FLORA S. MANNING
DB 2582 PG 4181

72 JACK V. EARNHARDT
ELIZABETH EARNHARDT
DB 1120 PG 769

74 ZHANG LIN
DB 2981 PG 3868

78 JUSTIN W. STRICKLAND
DB 2910 PG 354
PB 45 PG 3

79 ROBERT B. BOYLES
SHARON B. BOYLES
DB 2079 PG 338

80 VIRGINIA L. SHEARD
DB 2411 PG 1580
PB 45 PG 3

81 PATRICIA CWYN SHELTON
DB 2476 PG 554
PB 45 PG 3

82 KIM E. BLACKWELL
DB 2766 PG 3269
PB 45 PG 3

83 MELBA RAE ATKINS
DB 613 PG 220
PB 61 PG 74

84 ASHLEY G. PELHAM
DB 2938 PG 3702

85 SHUGART ENTERPRISES LLC
DB 2271 PG 387
PB 45 PG 3

86 HELEN L. CORDON
DB 2445 PG 3256
PB 45 PG 3

87 ROBERT P. WILSON SR.
JOANNE E. WILSON
DB 2489 PG 3103
PB 45 PG 3

88 VILIAN M. CIFUENTES
DB 2461 PG 551
PB 45 PG 3

89 MARY M. RUTLEDGE
DB 2455 PG 1586
PB 45 PG 3

90 NCDOT
DB 3023 PG 2883
PB 45 PG 3

91 NCDOT
DB 3056 PG 2133
PB 45 PG 3

92 MEGAN PENNY EVERETT
DB 2458 PG 2191

93 GERALD DORSETTE
BEVERLY P. DORSETTE
DB 2477 PG 1194
PB 45 PG 3

94 BRENDA HOLT KWEON
DB 2434 PG 2810
PB 45 PG 3

95 DAVID L. WILLIAMS
DB 2743 PG 111
PB 45 PG 3

96 LORIN BAKER
DB 3103 PG 2529
PB 45 PG 3

97 TINA M. STEWART
and husband
MARK A. STEWART
DB 3206 PG 125
PB 45 PG 3

98 SCOTT E. GURSTEIN
DB 2469 PG 1892
PB 45 PG 3

99 NCDOT
DB 2785 PG 1280
PB 45 PG 3

100 LOUIS ROY HART JR. and WIFE MARSHA MARSHALL HART
DB 2345 PG 2160
PB 45 PG 3

101 SALOMON CISNEROS-HERNANDEZ
DB 2545 PG 3781
PB 45 PG 3

102 REESHEMAH HEMMINGWAY
DB 2552 PG 3983
PB 45 PG 3

103 SHELBY JEAN CONLEY
DB 2521 PG 3205
PB 45 PG 3

105 ANNA A. PRICE, TRUSTEE
DB 2026 PG 2484
DB 2390 PG 4195
DB 2970 PG 3585
PB 30 PG 151

106 NCDOT
DB 2646 PG 2038
PB 45 PG 3

107 GEORGE A. MITCHELL
SHEKINA MITCHELL
DB 2622 PG 1326
PB 45 PG 3

399 PATRICIA CONTRERAS DE AMADOR and MATIAS AMADOR VIZCAINO
DB 3096 PG 566
PB 45 PG 3

827 NCDOT
DB 2953 PG 3836
PB 30 PG 151

985 NCDOT
DB 2823 PG 123
PB 45 PG 3

992 NCDOT
DB 2646 PG 2038
PB 45 PG 3

CRAIG B. ATKINS
JULIA J. ATKINS
DB 1782 PG 2958

JACK BRADY ATKINS
DB 932 PG 237

CLINT BRADY ATKINS
JULIE C. ATKINS
DB 1963 PG 2517

JACK BRADY ATKINS
DB 932 PG 237

OAK GROVE CHURCH RD (SR 2678)

OAKSBURG CT

OAKSBURG DR

OAKSHIRE RD

OAKBURY CT

MATCHLINE SHEET 7 -L- STA. 746+50.00

MATCHLINE SHEET 9 -L- STA. 759+50.00

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEETS 29 AND 30 FOR -L- PROFILE
SEE SHEET 74 FOR -SR1- PROFILE

REVISIONS
ROW REV. - FEBRUARY 22, 2019 - ROW ALTERED TO ENCOMPASS PARCEL 72 - SMP
ROW REV. - JUNE 26, 2019 - DRIVEWAY ADDED TO PARCEL 84- SMP

PLOT DRIVER: NCDOT_pdf_color_eng.50.plt PENTABLE: NCDOT.pshpfl.conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:29:29 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\U2579ab_rdy_psh_08.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	9
R/W 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 83/95

OAK GROVE CHURCH RD (SR 2678)

OAK GARDEN DR

JORGE L. GONZALES
ROSA MARIE GONZALEZ
DB 2594 PG 3379

TERESA J. TUCKER
TIMOTHY E. TUCKER
DB 2438 PG 242
DB 1546 PG 618
DB 1636 PG 3540
DB 1597 PG 1229

SEDGE GARDEN SWIM & RACQUET CLUB
DB 1011 PG 416

NCDOT
DB 2953 PG 3836
PB 30 PG 151

LOREN A. LITTLE
MARGARET R. LITTLE
DB 1880 PG 3044
PB 30 PG 151

TERRY W. MOTSINGER and wife
ELLEN R. MOTSINGER
DB 3096 PG 1843
DB 2039 PG 1029
DB 559 PG 154

JOSEPH K. COFFEY
YVONNE COFFEY
DB 1676 PG 574
PB 30 PG 151

THOMAS F. RILEY
CHERYL RILEY
DB 1671 PG 30
PB 30 PG 151

-Y15FLYCA- ST Sta. 90+39.94 =
-L- POT Sta. 761+37.15 59.00' LT

-Y15FLYCA- CS Sta. 86+79.94

-Y15FLYCA- SC Sta. 84+83.27

-Y15FLYCA- SRS Sta. 81+23.27

-Y15RPA- POT Sta. 36+16.69 =
-Y15FLYCA- POS Sta. 80+05.20 12.00' RT

-Y15FLYCA- Sta. 84+89.13
END -Y15FLYCA- PAVEMENT
BEGIN -L- PAVEMENT

-L- +37.15
200.00' LT

-Y15FLYCA- +83.27
130.00' RT

-Y15FLYCA- +93.00
130.00' RT

-Y15FLYCA- +79.94
130.00' RT

-Y15FLYCA- +66.00
153.00' RT

-Y15FLYCA- +43.00
133.00' RT &
131.67' RT

-Y15FLYCA- +23.27
130.00' RT

-Y15FLYBD- ST Sta. 10+00.00 =
-L- POT Sta. 759+92.00 71.00' RT

-Y15FLYBD- SC Sta. 13+60.00

-Y15FLYBD- Sta. 16+38.98
BEGIN -Y15FLYBD- PAVEMENT
END -L- PAVEMENT

-Y15FLYBD- +00.00
120.00' RT

-Y15FLYBD- +60.00
120.00' RT

-Y15FLYBD- +63.00
150.00' RT &
120.00' RT

-Y15FLYBD- +00.00
120.00' RT

-Y15FLYBD- +97.00
151.00' RT

-Y15FLYBD- +43.00
166.00' RT &
135.21' RT

-Y15FLYBD- CS Sta. 22+00.63

-Y15FLYBD- +00.63
140.00' RT

MATCHLINE SHEET 8 -L- STA. 759+50.00

MATCHLINE SHEET 10 -L- STA. 773+00.00

MATCHLINE SHEET 10
-Y15FLYCA- STA. 35+00.00
-Y15RPA- STA. 78+88.50

MATCHLINE SHEET 10
-Y15FLYBD- STA. 23+00.00

-Y15FLYCA- (FLYOVER)

PIs Sta. 83+63.35	PI Sta. 85+81.66	PIs Sta. 88+00.01	PIs Sta. 78+83.34
Os = 4° 26' 43.3"	Δ = 4° 51' 25.3" (RT)	Os = 4° 26' 43.3"	Os = 4° 26' 43.3"
Ls = 360.00'	D = 2° 28' 10.7"	Ls = 360.00'	Ls = 360.00'
LT = 240.08'	L = 196.67'	LT = 240.08'	LT = 240.08'
ST = 120.07'	T = 98.39'	ST = 120.07'	ST = 120.07'
INC = 60.00'	R = 2,320.00'	INC = 60.00'	INC = 60.00'
	SE = 06		

-L-

PIs Sta. 774+06.63	PI Sta. 795+15.62	PIs Sta. 815+32.51
Os = 0° 50' 35.3"	Δ = 29° 47' 50.6" (RT)	Os = 0° 50' 35.3"
Ls = 225.00'	D = 0° 44' 58.0"	Ls = 225.00'
LT = 150.00'	L = 3,975.88'	LT = 150.00'
ST = 75.00'	T = 2,033.99'	ST = 75.00'
INC = 75.00'	SE = 0.03	INC = 75.00'
	R = 7645.00'	

-Y15FLYBD- (FLYOVER)

PIs Sta. 12+40.08	PI Sta. 17+84.98	PIs Sta. 23+20.70
Os = 4° 26' 43.3"	Δ = 20° 45' 38.3" (RT)	Os = 4° 26' 43.3"
Ls = 360.00'	D = 2° 28' 10.7"	Ls = 360.00'
LT = 240.08'	L = 840.63'	LT = 240.08'
ST = 120.07'	T = 424.98'	ST = 120.07'
INC = 60.00'	R = 2,320.00'	INC = 60.00'
	SE = 06	

PAVED SHOULDER

NOTES:
SEE SHEET 30 FOR -L- PROFILE
SEE SHEET 61 FOR -Y15FLYCA- PROFILE
SEE SHEET 55 FOR -Y15FLYBD- PROFILE
SEE SHEET 62 FOR -Y15RPA- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:29:53 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\U2579ab_rdy_psh_09.dgn

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	10
R/W 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

TRAFFIC DATA

I–40 BYPASS: 62650 / 84300

3017 / 5400 — 4625 / 8200

WINSTON–SALEM OUTER LOOP 14700 / 20200 — 10175 / 16500 WINSTON SALEM OUTER LOOP

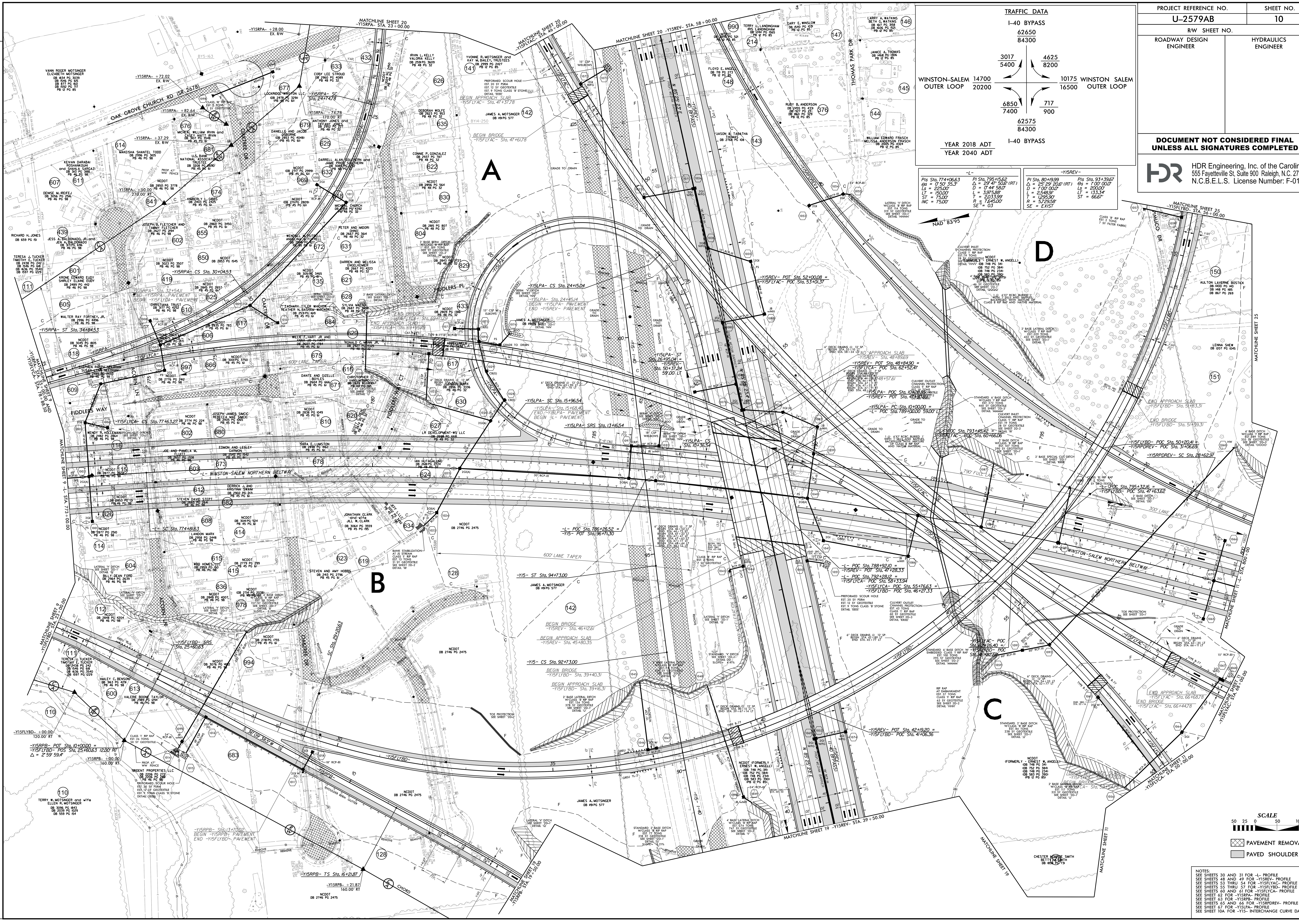
6850 / 7400 — 717 / 900

62575 / 84300 I–40 BYPASS

YEAR 2018 ADT / YEAR 2040 ADT

-L-	
PIs Sta. 774+06.63	PI Sta. 795+15.62
Θs = 0° 50' 35.3"	Δ = 29° 47' 50.6" (RT)
Ls = 225.00'	D = 0° 44' 58.0"
LT = 150.00'	L = 3,975.88'
ST = 75.00'	T = 2,033.99'
INC = 75.00'	R = 7,645.00'
	SE = .03

-Y15REV-	
PI Sta. 80+19.99	PIs Sta. 93+39.67
Δ = 25° 29' 20.6" (RT)	Θs = 1° 00' 00.0"
D = 1° 00' 00.0"	Ls = 200.00'
L = 2,548.91'	LT = 133.34'
T = 1,295.90'	ST = 66.67'
R = 5,729.58'	
SE = EXIST	



SCALE 50 25 0 50 100

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEETS 30 AND 31 FOR -L- PROFILE
SEE SHEETS 48 AND 49 FOR -Y15REV- PROFILE
SEE SHEETS 53 THRU 54 FOR -Y15FLYAC- PROFILE
SEE SHEETS 55 THRU 57 FOR -Y15FLYBD- PROFILE
SEE SHEETS 60 AND 61 FOR -Y15FLYCA- PROFILE
SEE SHEET 62 FOR -Y15RPA- PROFILE
SEE SHEET 63 FOR -Y15RPB- PROFILE
SEE SHEETS 65 AND 66 FOR -Y15RPDREV- PROFILE
SEE SHEET 67 FOR -Y15LPA- PROFILE
SEE SHEET 10A FOR -Y15- INTERCHANGE CURVE DATA

REVISIONS

ROW REV. – FEBRUARY 26, 2020 – SHIFTED CUL-DE-SAC ON OAK GROVE CHURCH RD. TO PROVIDE BETTER INGRESS & EGRESS FOR THE MOTSINGER PROPERTY. LINE ON PARCEL 677 CHANGED TO C/A TO ILLUSTRATE ENTIRE PARCEL PURCHASED FOR R/W. CEH.

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:47:32 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_10.dgn

–Y15– (I-40 BYPASS)

PIs Sta. 28+38.02
Θs = 2° 37′ 30.0″
Ls = 300.00′
LT = 200.02′
ST = 100.02′
INC = 50.00′

PI Sta. 31+82.43
△ = 8° 32′ 20.6″ (LT)
D = 1° 45′ 00.0″
L = 487.95′
T = 244.43′
R = 3,274.05′
SE = 06

PIs Sta. 35+25.97
Θs = 2° 37′ 30.0″
Ls = 300.00′
LT = 200.02′
ST = 100.02′
INC = 50.00′

PIs Sta. 66+57.43
Θs = 1° 00′ 00.0″
Ls = 200.00′
LT = 133.34′
ST = 66.67′
INC = 50.00′

PI Sta. 80+19.99
△ = 25° 29′ 20.6″ (RT)
D = 1° 00′ 00.0″
L = 2,548.91′
T = 1,295.90′
R = 5,729.58′
SE = 04

PIs Sta. 93+39.67
Θs = 1° 00′ 00.0″
Ls = 200.00′
LT = 133.34′
ST = 66.67′
INC = 50.00′

–Y15FLYAC– (FLYOVER)

PIs Sta. 12+40.08
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PI Sta. 15+10.50
△ = 7° 25′ 06.6″ (RT)
D = 2° 28′ 10.7″
L = 300.39′
T = 150.40′
R = 2,320.00′
SE = 06

PIs Sta. 17+80.65
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PIs Sta. 21+80.40
Θs = 1° 52′ 42.8″
Ls = 240.00′
LT = 160.01′
ST = 80.01′
INC = 60.00′

PI Sta. 54+77.32
△ = 82° 37′ 38.4″ (LT)
D = 1° 33′ 55.7″
L = 5,278.16′
T = 3,216.94′
R = 3,660.00′
SE = 04

PIs Sta. 76+18.55
Θs = 1° 52′ 42.8″
Ls = 240.00′
LT = 160.01′
ST = 80.01′
INC = 60.00′

PIs Sta. 79+18.55
Θs = 1° 06′ 35.9″
Ls = 210.00′
LT = 140.00′
ST = 70.00′
INC = 70.00′

PI Sta. 85+52.56
△ = 11° 52′ 54.5″ (RT)
D = 1° 03′ 25.6″
L = 1,123.98′
T = 564.01′
R = 5,420.00′
SE = 03

PIs Sta. 91+82.53
Θs = 1° 06′ 35.9″
Ls = 210.00′
LT = 140.00′
ST = 70.00′
INC = 70.00′

–Y15RPA– (RAMP)

PIs Sta. 23+16.47
Θs = 18° 08′ 28.1″
Ls = 480.00′
LT = 321.70′
ST = 161.54′
INC = 60.00′

PI Sta. 27+50.99
△ = 40° 02′ 35.6″ (RT)
D = 7° 33′ 31.7″
L = 529.76′
T = 276.21′
R = 758.00′
SE = 08

PIs Sta. 31+66.07
Θs = 18° 08′ 28.1″
Ls = 480.00′
LT = 321.70′
ST = 161.54′
INC = 60.00′

–Y15RPDREV– (RAMP)

PIs Sta 27+43.04
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PI Sta 38+99.44
△ = 48° 08′ 45.1″ (RT)
D = 2° 28′ 10.7″
L = 1,949.50′
T = 1,036.47′
R = 2,320.00′
SE = 06
V = 60MPH

PIs Sta 49+32.54
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

–Y15REV– (RELOCATED I-40 BYPASS)

PIs Sta. 11+73.18
Θs = 1° 21′ 41.3″
Ls = 240.00′
LT = 160.00′
ST = 80.00′
INC = 60.00′

PI Sta. 21+08.35
△ = 19° 13′ 21.3″ (RT)
D = 1° 08′ 04.5″
L = 1,694.26′
T = 855.17′
R = 5,050.00′
SE = 04

PIs Sta. 30+27.45
Θs = 1° 21′ 41.3″
Ls = 240.00′
LT = 160.00′
ST = 80.00′
INC = 60.00′

PIs Sta. 69+22.62
Θs = 0° 32′ 07.7″
Ls = 200.00′
LT = 133.33′
ST = 66.67′
INC = 100.00′

PI Sta. 74+07.12
△ = 4° 28′ 21.2″ (RT)
D = 0° 32′ 07.7″
L = 835.25′
T = 417.84′
R = 10,700.00′
SE = 02

PIs Sta. 78+91.20
Θs = 0° 32′ 07.7″
Ls = 200.00′
LT = 133.33′
ST = 66.67′
INC = 100.00′

–Y15FLYCA– (FLYOVER)

PIs Sta. 12+00.03
Θs = 3° 02′ 51.5″
Ls = 300.00′
LT = 200.03′
ST = 100.03′
INC = 60.00′

PI Sta. 21+26.72
△ = 32° 40′ 42.7″ (RT)
D = 2° 01′ 54.4″
L = 1,608.38′
T = 826.72′
R = 2,820.00′
SE = 05

PIs Sta. 30+08.41
Θs = 3° 02′ 51.5″
Ls = 300.00′
LT = 200.03′
ST = 100.03′
INC = 60.00′

PIs Sta. 34+48.46
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PI Sta. 65+16.52
△ = 103° 35′ 56.2″ (LT)
D = 2° 28′ 10.7″
L = 4,194.89′
T = 2,948.14′
R = 2,320.00′
SE = 06

PIs Sta. 78+83.34
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PIs Sta. 83+63.35
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PI Sta. 85+81.66
△ = 4° 51′ 25.3″ (RT)
D = 2° 28′ 10.7″
L = 196.67′
T = 98.39′
R = 2,320.00′
SE = 06

PIs Sta. 88+00.01
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

–Y15RPB– (RAMP)

PIs Sta. 18+61.95
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PI Sta. 26+54.22
△ = 32° 19′ 25.4″ (RT)
D = 2° 28′ 10.7″
L = 1,308.84′
T = 672.35′
R = 2,320.00′
SE = 06

PIs Sta. 34+10.78
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PIs Sta. 38+10.72
Θs = 1° 20′ 44.7″
Ls = 240.00′
LT = 160.00′
ST = 80.00′
INC = 60.00′

PI Sta. 40+11.87
△ = 2° 43′ 01.6″ (LT)
D = 1° 07′ 17.3″
L = 242.28′
T = 121.16′
R = 5,109.00′
SE = 04

–Y15LPA– (LOOP)

PI Sta. 10+18.27
△ = 0° 16′ 20.3″ (LT)
D = 0° 44′ 42.6″
L = 36.54′
T = 18.27′
R = 7,689.04′
SE = 08

PIs Sta. 11+29.88
Θs = 1° 02′ 35.6″
Ls = 280.00′
LT = 186.67′
ST = 93.34′
INC = 35.00′

PIs Sta. 15+06.37
Θs = 32° 05′ 08.3″
Ls = 280.00′
LT = 189.83′
ST = 96.21′
INC = 35.00′

PI Sta. 53+68.09
△ = 187° 35′ 04.9″ (RT)
D = 22° 55′ 05.9″
L = 818.49′
T = 3,771.54′
R = 250.00′
SE = 08

PIs Sta. 25+11.25
Θs = 32° 05′ 08.3″
Ls = 280.00′
LT = 189.83′
ST = 96.21′
INC = 35.00′

–Y15FLYBD– (FLYOVER)

PIs Sta. 12+40.08
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PI Sta. 17+84.98
△ = 20° 45′ 38.3″ (RT)
D = 2° 28′ 10.7″
L = 840.63′
T = 424.98′
R = 2,320.00′
SE = 06

PIs Sta. 23+20.70
Θs = 4° 26′ 43.3″
Ls = 360.00′
LT = 240.08′
ST = 120.07′
INC = 60.00′

PIs Sta. 28+00.80
Θs = 6° 36′ 39.8″
Ls = 360.00′
LT = 240.17′
ST = 120.15′
INC = 60.00′

PI Sta 88+39.55
△ = 150° 28′ 10.6″ (LT)
D = 3° 40′ 22.1″
L = 4,096.86′
T = 5,918.92′
R = 1,560.00′
SE = 06

PIs Sta 71+37.64
Θs = 6° 36′ 39.8″
Ls = 360.00′
LT = 240.17′
ST = 120.15′
INC = 60.00′

PIs Sta 75+77.52
Θs = 3° 02′ 51.5″
Ls = 300.00′
LT = 200.03′
ST = 100.03′
INC = 60.00′

PI Sta 85+77.53
△ = 35° 24′ 08.0″ (RT)
D = 2° 01′ 54.4″
L = 1,742.44′
T = 900.04′
R = 2,820.00′
SE = 05

PIs Sta 95+19.95
Θs = 3° 02′ 51.5″
Ls = 300.00′
LT = 200.03′
ST = 100.03′
INC = 60.00′

–Y15RPC– (RAMP)

PIs Sta. 16+73.91
Θs = 18° 08′ 28.1″
Ls = 480.00′
LT = 321.70′
ST = 161.54′
INC = 60.00′

PI Sta. 23+37.14
△ = 67° 20′ 12.2″ (RT)
D = 7° 33′ 31.7″
L = 890.84′
T = 504.92′
R = 758.00′
SE = 08

PIs Sta. 28+84.60
Θs = 18° 08′ 28.1″
Ls = 480.00′
LT = 321.70′
ST = 161.54′
INC = 60.00′

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	10A
R/W 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

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:47:51 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Pro\U2579ab_rdy_psh_10a.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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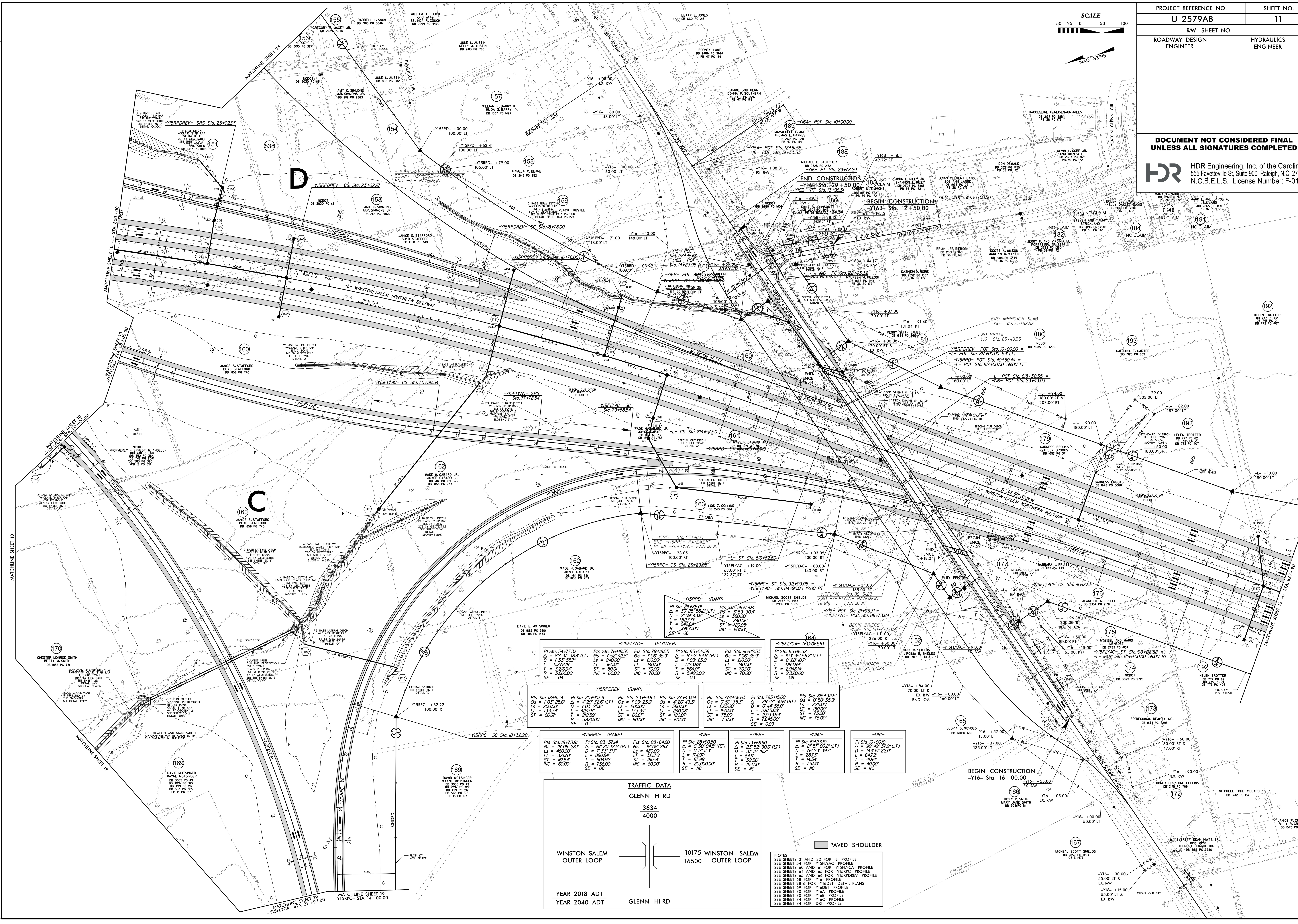
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



-Y15RPD- (RAMP)	
PI Sta. 26+85.01	PIs Sta. 36+79.14
Δ = 39° 25' 50.2" (LT)	θ_s = 3° 53' 30.4"
D = 2° 09' 43.6"	Ls = 360.00'
L = 1,823.71'	LT = 240.06'
T = 949.64'	ST = 120.05'
R = 2,650.00'	INC = 60.00'
SE = 06	

-Y15FLYAC- (FLYOVER)				
PI Sta. 54+77.32	PIs Sta. 76+18.55	PIs Sta. 79+18.55	PI Sta. 85+52.56	PIs Sta. 91+82.53
Δ = 82° 37' 38.4" (LT)	θ_s = 1° 52' 42.8"	θ_s = 1° 06' 35.9"	Δ = 11° 52' 54.5" (RT)	θ_s = 1° 06' 35.9"
D = 1° 33' 55.7"	Ls = 240.00'	Ls = 210.00'	D = 1° 03' 25.6"	Ls = 210.00'
L = 5,278.16'	LT = 160.01'	LT = 140.00'	L = 1,123.98'	LT = 140.00'
T = 3,216.94'	ST = 80.01'	ST = 70.00'	T = 564.01'	ST = 70.00'
R = 3,660.00'	INC = 60.00'	INC = 70.00'	R = 5,420.00'	INC = 70.00'
SE = 04			SE = 03	

-Y15FLYCA- (FLYOVER)
PI Sta. 65+16.52
Δ = 103° 35' 56.2" (LT)
D = 2° 28' 10.7"
L = 4,194.89'
T = 2,948.14'
R = 2,320.00'
SE = 06

-Y15RPDREV- (RAMP)			
PIs Sta 18+11.34	PI Sta 20+90.59	PIs Sta 23+69.63	PIs Sta 27+43.04
θ_s = 1° 03' 25.6"	Δ = 4° 29' 32.6" (LT)	θ_s = 1° 03' 25.6"	θ_s = 4° 26' 43.3"
Ls = 200.00'	D = 1° 03' 25.6"	Ls = 200.00'	Ls = 360.00'
LT = 133.34'	L = 424.97'	LT = 133.34'	LT = 240.08'
ST = 66.67'	T = 212.59'	ST = 66.67'	ST = 120.07'
	R = 5,420.00'	INC = 60.00'	INC = 60.00'
	SE = 03		

-L-		
PIs Sta. 774+06.63	PI Sta. 795+15.62	PIs Sta. 815+32.51
θ_s = 0° 50' 35.3"	Δ = 29° 47' 50.6" (RT)	θ_s = 0° 50' 35.3"
Ls = 225.00'	D = 0° 44' 58.0"	Ls = 225.00'
LT = 150.00'	L = 3,975.88'	LT = 150.00'
ST = 75.00'	T = 2,033.99'	ST = 75.00'
INC = 75.00'	R = 7,645.00'	INC = 75.00'
	SE = 0.03	

-Y15RPC- (RAMP)		
PIs Sta. 16+73.91	PI Sta. 23+37.14	PIs Sta. 28+84.60
θ_s = 18° 08' 28.1"	Δ = 67° 20' 12.2" (RT)	θ_s = 18° 08' 28.1"
Ls = 480.00'	D = 7° 33' 31.7"	Ls = 480.00'
LT = 321.70'	L = 890.84'	LT = 321.70'
ST = 161.54'	T = 504.92'	ST = 161.54'
INC = 60.00'	R = 758.00'	INC = 60.00'
	SE = 08	

-Y16-	-Y16B-	-Y16C-	-DR1-
PI Sta 28+90.80	PI Sta 13+66.90	PI Sta 19+23.10	PI Sta 10+96.19
Δ = 0° 30' 04.5" (RT)	Δ = 23° 52' 30.6" (LT)	Δ = 21° 57' 00.2" (LT)	Δ = 92° 42' 37.2" (LT)
D = 0° 17' 11.3"	D = 37° 12' 18.2"	D = 76° 23' 39.7"	D = 143° 14' 22.0"
L = 174.97'	L = 64.17'	L = 28.73'	L = 64.72'
T = 87.49'	T = 32.56'	T = 14.54'	T = 41.94'
R = 20,000.00'	R = 154.00'	R = 75.00'	R = 40.00'
SE = NC	SE = NC	SE = NC	SE = NC

TRAFFIC DATA

GLENN HI RD: 3634 / 4000

WINSTON-SALEM OUTER LOOP — 10175 / 16500 WINSTON-SALEM OUTER LOOP

GLENN HI RD

YEAR 2018 ADT / YEAR 2040 ADT

NOTES:
SEE SHEETS 31 AND 32 FOR -L- PROFILE
SEE SHEET 54 FOR -Y15FLYAC- PROFILE
SEE SHEETS 60 AND 61 FOR -Y15FLYCA- PROFILE
SEE SHEETS 64 AND 65 FOR -Y15RPC- PROFILE
SEE SHEETS 65 AND 66 FOR -Y15RPDREV- PROFILE
SEE SHEET 68 FOR -Y16- PROFILE
SEE SHEET 2B-6 FOR -Y16DET- DETAIL PLANS
SEE SHEET 69 FOR -Y16DET- PROFILE
SEE SHEET 70 FOR -Y16A- PROFILE
SEE SHEET 70 FOR -Y16B- PROFILE
SEE SHEET 74 FOR -Y16C- PROFILE
SEE SHEET 74 FOR -DR1- PROFILE

REVISIONS

ROW REV. – DECEMBER 5, 2018 – REVISED TCE ON PARCELS 182, 183, 184, 190 AND 191. CEH
ROW REV. – FEBRUARY 8, 2019 – REVISED TCE ON PARCELS 157 AND 158 TO AVOID SEPTIC TANK. SMP
ROW REV. – MARCH 29, 2019 – PARCEL 159 COMBINED WITH PARCEL 160 FOR JANICE & BOYD STAFFORD. SMP
ROW REV. – FEBRUARY 26, 2020 – REMOVED Y16C AND DR1 ALIGNMENTS. CLAIMS ELIMINATED ON PARCELS 182, 183, 184, 190 AND 191. ROW AND TCE REDUCED AND/OR ADJUSTED ON PARCELS 180, 181, 192 AND 193. PUE EXTENDED TO TIE TO ROW ON PARCEL 181. CEH.
ROW REV. – MARCH 13, 2020 – ELIMINATED TCE ON PARCEL 185 THEREBY ELIMINATING THE CLAIM. CEH.

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:48:18 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_11.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2759AB	12
R/W 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 83/95

MATCHLINE SHEET 11 -L- STA. 827+90.00

192 HELEN TROTTER DB 777 PG 62 DB 745 PG 21 DB 773 PG 407

-L- +00.00 250.00' LT

2' BASE LATERAL DITCH W/ EMBEDDED CLASS 'B' RIP RAP EST. 136 TONS 385 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

2' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'S'

-L- +00.00 250.00' LT

2' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'S'

TIE TO EXISTING STREAM

1202

BANK STABILIZATION CLASS 'I' RIP RAP EST. 21 TONS 32 SY GEOTEXTILE SEE SHEET 2D-2 DETAIL 'III'

1203 JB w/MH

24" RCP-III

24" CSP W/ELBOWS

1204 2GI W/FG

1205 2GI(A) FS

-L- WINSTON-SALEM NORTHERN BELTWAY

S 34° 59' 35.5" W

24" RCP-III

40' CLEARANCE BETWEEN PIPES

36" RCP-JIPP DIRECT DESIGN NOT BURIED

1206

15" RCP-III

1211

2GI W/ FG

2GI W/ CAT-1

END SBG STA. 833+50

15" CSP W/ELBOWS

1210 C

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

SPECIAL CUT DITCH SSEE SHEET '2D-1' DETAIL 'K'

300' LANE TAPER

1201

TIE TO EXISTING DITCH

30" RCP

1207

-L- +00.00 200.00' RT

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 45 TONS 128 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

-L- +00.00 255.00' RT

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 160 TONS 452 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'S'

-L- +00.00 200.00' RT

HELEN TROTTER DB 777 PG 62 DB 745 PG 21 DB 773 PG 407

JANICE W. CRAVER BILLY R. CRAVER DB 1573 PG 1364

192 HELEN TROTTER DB 777 PG 62 DB 745 PG 21 DB 773 PG 407

192 HELEN TROTTER DB 777 PG 62 DB 745 PG 21 DB 773 PG 407

END CONSTRUCTION U-2579AA -L- Sta. 15+68.79

U-2579AB -L- POT Sta. 836+32.44 LB = U-2579AA -L_AA- POT Sta. 10+00.00 LA

END TIP PROJECT U-2579AB -L- Sta. 836+32.44

-L AA- +69.36 199.13' LT

CHORD

-L AA- +57.86 200.00' LT

-L_AA- TS Sta. 12+55.83

FUTURE U-2579AA

S 34° 59' 35.5" W

CONSTRUCTION BY OTHERS

-L AA- +87.06 197.79' RT

-L AA- +57.86 200.00' RT

CHORD

-L_AA- SC Sta. 16+15.83

PROP. 47" WW FENCE

PAVED SHOULDER

NOTE:
SEE SHEETS 32 AND 33 FOR -L- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
USER: CHARRIS
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_12.dgn
PENTABLE: NCDOT_pshpfl_conventional.tbl
DATE: 5/11/2020
TIME: 5:30:19 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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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

MATCHLINE SHEET 6 -Y4- STA. 21+00.00

BEGIN CONSTRUCTION
-Y4B- Sta. 16+30.00

END CONSTRUCTION
-Y4A- Sta. 18+00.00

BEGIN CONSTRUCTION
-Y4- Sta. 11+50.00

NAD 83/95

LINVILLE RD N 46° 42' 55.4" W 2662

-Y4- SR 4315 KERNERSVILLE RD

-Y4B- NOT SINGLETARY DR N 2° 22' 50.3" W

-Y4B- PC Sta. 14+91.62

-Y4- PT Sta. 20+61.80

-Y4- POC Sta. 20+43.66

-Y4A- POT Sta. 17+60.85

-Y4- POC Sta. 20+43.42

-Y4A- POT Sta. 10+00.00

-Y4A- PC Sta. 17+71.83

-Y4B- PT Sta. 16+28.89

-Y4B-
PI Sta. 15+60.99
Δ = 20° 25' 40.7" (LT)
D = 14° 52' 55.3"
L = 137.27'
T = 69.37'
R = 385.00'
SE = EXIST.

-Y4-
PI Sta. 19+17.07
Δ = 8° 18' 25.7" (RT)
D = 2° 51' 53.2"
L = 289.97'
T = 145.24'
R = 2,000.00'
SE = 05
Ro = 120'

TRAFFIC DATA

KERNERSVILLE RD: 10284 / 15600 — YEAR 2018 ADT / YEAR 2040 ADT
LINVILLE RD: 5675 / 7600
MOTSINGER DR: 1417 / 1600
2059 / 3800 — 517 / 700
3017 / 3200 — 300 / 300
KERNERSVILLE RD: 11025 / 14600

NOTES:
SEE SHEET 36 FOR -Y4- PROFILE
SEE SHEET 44 FOR -Y4A- PROFILE
SEE SHEET 2B-5 FOR -Y4- DETOUR PLANS
SEE SHEET 38 FPR -Y4DET- PROFILE

PAVED SHOULDER

GREGORY KENT HEDRICK DB 2265 PG 2341
GREGORY KENT HEDRICK DB 2265 PG 2345 (38)
GREGORY KENT HEDRICK DB 2265 PG 2343, DB 2265 PG 2334, DB 2265 PG 2345
KAY B. WHITE DB 2859 PG 295, DB 542 PG 424
SHARON A. SNOW, KATHERINE M. HOFMAN DB 1963 PG 3809 (325)
ROBERT F. SIDES DB 1951PG 2292 (324)
CATHERINE E. BALLARD and MARK. A BALLARD DB 3096 PG 2662, PB 10 PG 61 (323)
WORD C. CLAY DB 2516 PG 1459, PB 10 PG 61
EVERETT D. AND VICKI S. CRUTHFIELD DB 2841PG 4173, PB 10 PG 61 (323A)
RITA H. WALKER, TRUSTEE DB 3187 PG 644, PB 10 PG 61
ROBERT E. SIDES JR. DB 705 PG 103, PB 17 PG 1
C.L. MONTGOMERY JR. DB 686 PG 201, PB 17 PG 1
JANET ANN SMITH DB 3088 PG 3107, PB 17 PG 1
JOHN M. SEATS, JR., LINDA C. SEATS DB 1709 PG 2192, PB 17 PG 1
GINA L. EAST DB 2892 PG 2587, PB 17 PG 1
GINA LEIGH EAST DB 2171PG 4300, PB 17 PG 1
ANN V. RHODES DB 1118 PG 1226, PB 17 PG 1
JAMES A. LANGHAM DB 686 PG 182, DB 647 PG 421, PB 17 PG 1, PB 10 PG 29 (327)
MARY E. BAKER DB 2949 PG 3935 (328)
MAGDELINE TEMPLE WILKINS DB 1836 PG 1578 (329)
TRUSTEES OF THE SEDGE GARDEN BAPTIST CHURCH DB 1286 PG 1452, DB 1337 PG 302, DB 1697 PG 154 (330)
TRUSTEES OF THE SEDGE GARDEN BAPTIST CHURCH DB 462 PG 31 (330A)
TRUSTEES OF THE SEDGE GARDEN BAPTIST CHURCH DB 1286 PG 1452, DB 1337 PG 302, DB 1697 PG 154 (331)
NCDOT DB 3168 PG 2223
MICHAEL D. CARTER DB 2612 PG 1774
SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY DB 1375 PG 1 (332)
OLA E. SAPP (333)
LOUISE WOOLARD DB 2571PG 1476
MATTHEW J. LANE DB 3040 PG 1627, DB 2457 PG 4900, PB 9 PG 123 (334)
CHARISSA M W HALTERMAN DB 3171PG 2008, PB 9 PG 123 (335)
TINA M. SHIPP DB 2953 PG 3163, PB 9 PG 123 (336)
SHAHID CHAUDHARY DB 3208 PG 308, PB 9 PG 123
EVERETT DEAN HYATT THERESA H. HIATT DB 2195 PG 2345, DB 2195 PG 2342 (337)
EVERETT DEAN HYATT THERESA H. HIATT DB 3172 PG 1568 (410)
DARRYL P. HELGESEN DB 2763 PG 3218, DB 3110 PG 2249 (339)
GARY W. PEAK DB 3043 PG 2160, DB 3110 PG 2252 (338)
PMJ HOLDINGS LLC DB 2854 PG 898

-Y4A- +09.00, EX. R/W & 55.00' RT
-Y4A- +17.00, EX. R/W & 55.00' RT
-Y4A- +15.00, 48.00' RT
-Y4A- +92.71, 55.00' RT
-Y4A- +00.00, 48.00' RT
-Y4A- +00.00, 44.00' LT
-Y4A- +55.00, 62.00' LT
-Y4A- +15.00, EX. R/W & 41.00' LT
-Y4A- +50.00, 44.00' LT
-Y4A- +40.13, 57.42' LT
-Y4A- +15.86, 70.00' LT
-Y4A- +75.00, 70.00' LT
-Y4- +71.83, 70.00' LT
-Y4- +73.08, EX. R/W
-Y4- +46.00, 103.00' RT
-Y4- +63.87, EX. R/W
-Y4- +20.00, 91.00' RT
-Y4- +71.83, 80.00' RT
-Y4- +50.00, 80.00' RT
-Y4- +50.00, 60.00' RT
-Y4- +21.00, 59.65' LT & 80.00' LT
-Y4- +12.00, 59.27' LT & 79.00' LT
-Y4- +87.33, 50.00' LT
-Y4- +38.00, 65.00' RT
-Y4- +25.17, EX. R/W
-Y4- +60.00, 50.00' LT & 65.00' LT
-Y4- +50.00, 50.00' LT & 65.00' LT
-Y4- +25.00, EX. R/W & 50.00' LT
-Y4- +63.00, EX. R/W & 50.00' RT

CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEOTEXTILE AT CF TRANSITION
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
CL B RIP RAP EST. 3 TONS, EST. 10 GEOTEXTILE
SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'B'
SPECIAL CUT DITCH SEE SHEET '2D-3' DETAIL 'YYY'
GRADE CUT TO DRAIN
REMOVE CB
REMOVE 15" RCP-III
REMOVE 18" RCP-III
100' BAY TAPER
450' MEDIAN TAPER
690' LANE TAPER
750' MEDIAN TAPER
100' MEDIAN TAPER
5" MONOLITHIC CONC. ISLAND

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
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TIME: 5:30:43 PM

REVISIONS
ROW REV. - SEPTEMBER 12, 2019 - PROPERTY LINES ADDED TO PARCEL 330 TO SEPARATE DIFFERENT TRACTS. ADDED PARCEL NO. 330A. CEH.

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	14
R/W 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

TRAFFIC DATA

SEDGE GARDEN RD

	YEAR 2018 ADT / YEAR 2040 ADT
	2384 / 3300
KERNERSVILLE RD	500 / 1600
	709 / 800
KERNERSVILLE RD	12017 / 18800
	1967 / 7100
	709 / 800
KERNERSVILLE RD	10967 / 11700
	3850 / 8800

SEDGE GARDEN RD

-Y4-
PI Sta. 46+13.70
Δ = 1° 09' 03.0" (LT)
D = 0° 38' 11.8"
L = 180.77'
T = 90.39'
R = 9,000.00'
SE = NC

MATCHLINE SHEET 6 -Y4- STA. 41+50.00

MATCHLINE SHEET 15 -Y4- STA. 53+50.00

MATCHLINE SHEET 14A -Y1- STA. 13+50.00

-Y1B- SR 2632 SEDGE GARDEN RD

-Y4- SR 4315 KERNERSVILLE RD

-Y4- PT Sta. 47+04.09

-Y4- PC Sta. 45+23.31

-Y1B- POT Sta. 41+83.62

-Y4- POC Sta. 45+65.98

-Y1- POT Sta. 10+00.00

S 65° 27' 50.6" E

N 66° 09' 25.7" E

N 65° 00' 22.8" E

NAD 83/95

STEVEN W. AND TIFFANIE M. DOYLE
DB 2707 PG 1569

PATSY A. EBERT
DB 1687 PG 2343
DB 970 PG 682
DB 733 PG 6
PB 9 PG 98

BILLIE J. EBERT
DB 733 PG 8
PB 9 PG 98

FORSYTH COUNTY BOARD OF EDUCATION
DB 245 PG 162

GEORGE NICK ANGEL
DB 1469 PG 1718

MARK R. AND ROBYN N. PEGRAM
DB 2901 PG 4072
PB 9 PG 98

ELIZABETH P. JOYNER
DENNIS MICHAEL JOYNER
DB 1963 PG 3204
PB 9 PG 98

CURTIS LEE HUNDLEY
LISA LEONTINE HUNDLEY
DB 2079 PG 2249
PB 9 PG 98

JOSHUA SCOTT KUEIDER
DB 3138 PG 1740
PB 9 PG 98

TAYLOR FAMILY PROPERTIES LLC
DB 2604 PG 3581
PB 15 PG 51

JOON M. BERRIER
LINDA BERRIER
DB 1359 PG 579

DELORES S. CLARKE
CARL C. CLARKE
DB 675 PG 118
PB 9 PG 98
REFERENCE
DB 1305 PG 38

MICHAEL J. SAPP
DB 376 PG 57
REFERENCE:
DB 394 PG 130

RICKY L. OAKLEY
DB 2934 PG 3500

DONALD W. MANUEL
JEFFREY L. MANUEL
DB 2316 PG 1065
PB 9 PG 98

MICHAEL J. ROUTH
SUE S. ROUTH
DB 1263 PG 174

REGIONAL REALTY INC.
DB 1793 PG 2469

C.D. WALKER PROPERTIES, LLC
DB 3106 PG 677

JIMMY D. HILL
DEBORAH HILL
DB 1237 PG 959

RONALD RAY AND TERESA KAY FRYE
DB 2186 PG 502

LEVADA DR

100' LANE TAPER

600' LANE TAPER

750' MEDIAN TAPER

PAVED SHOULDER

NOTES:
SEE SHEET 37 FOR -Y4- PROFILE
SEE SHEET 2B-5 FOR -Y4- DETOUR PLANS
SEE SHEET 38 FOR -Y4DET- PROFILE
SEE SHEETS 34 AND 35 FOR -Y1B- PROFILE
SEE SHEET 33 FOR -Y1- PROFILE

REVISIONS

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USER: CHARRIS
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579db_rdy_psh_14.dgn
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TIME: 5:31:09 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	14A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/95

MATCHLINE SHEET 14
-Y1- STA. 13+50.00

-Y1- PT Sta. 14+46.99

-Y1- POT Sta. 19+91.56

END CONSTRUCTION
-Y1- Sta. 17+50.00

-Y1- SR 2632 SEDGE GARDEN RD

-Y1- PT Sta. 16+97.94

-Y1- PC Sta. 15+78.08

-Y1A- POT Sta. 10+00.00

-Y1- PINC Sta. 15+08.35

-Y1A- PT Sta. 12+03.79

-Y1- +06.54
EX. R/W

END CONSTRUCTION
-Y1A- Sta. 12+00.00

LONGMONT DR

MICHAEL J. SAPP
DB 376 PG 57
REFERENCE:
DB 394 PG 130

J.R. INGRID EBERT
DB 1423 PG 1665

DONNA C. YOUNG
DB 2357 PG 1313

LESLIE BLANKENSHIP
KIMBERLY BLANKENSHIP
DB 2048 PG 2590

ROBERT J. PUGLISI
DB 2191 PG 99
PB 43 PG 105

SHERWIN B. RASCOE
CYNTHIA M. RASCOE
DB 2486 PG 3931
PB 43 PG 105

SHEENA DACHELLE HAZEL
DB 3152 PG 852

SHUGART ENTERPRISES, LLC
DB 2437 PG 127
PB 46 PG 154

CHARLES DENNY WALKER, TRUSTEE
DB 3084 PG 1614

JERILYN K. GARZA
DB 3026 PG 4084
PB 46 PG 154

GSD WALKER PROPERTIES, LLC
DB 3106 PG 677

SHUGART ENTERPRISES, LLC
DB 2729 PG 3052
PB 46 PG 154

AVDO ALJIC and
MAGGIE ALJIC
DB 3517PG 130
PB 46 PG 154

GLENN M. BURLESON and wife
RUTH O. BURLESON
DB 2699 PG 3500
PB 46 PG 154

THEODORE R. MEAD and wife
AMY J. MEAD
DB 2506 PG 250
PB 46 PG 154

AMERICAN HOMES 4 RENT
PROPERTIES NINE, LLC
DB 3125 PG 1397
PB 46 PG 154

HAROLD L. DOUB and wife
JUANITA P. DOUB
DB 2703 PG 982
PB 46 PG 154

ARP 2014-1BORROWER LLC
DB 3194 PG 3224
PB 46 PG 154

AMERICAN HOMES 4 RENT
PROPERTIES NINE, LLC
DB 3125 PG 3592
PB 46 PG 154

DENNIS R. WRIGHT
DB 3120 PG 1706
PB 46 PG 154

-Y1RA1-		
PI Sta 10+40.88	PI Sta 10+97.52	PI Sta 22+69.85
Δ = 95° 42' 11.1" (LT)	Δ = 87° 58' 42.8" (LT)	Δ = 176° 19' 06.1" (LT)
D = 154° 51' 12.4"	D = 154° 51' 12.4"	D = 154° 51' 12.4"
L = 61.80'	L = 56.81'	L = 113.86'
T = 40.88'	T = 35.72'	T = 1,151.23'
R = 37.00'	R = 37.00'	R = 37.00'

-Y1-	
PI Sta 13+96.44	PI Sta 16+38.04
Δ = 0° 57' 55.9" (LT)	Δ = 4° 02' 22.5" (RT)
D = 0° 57' 17.7"	D = 3° 22' 13.2"
L = 101.11'	L = 119.86'
T = 50.56'	T = 59.95'
R = 6,000.00'	R = 1,700.00'
SE = NC	SE = NC

-Y1A-
PI Sta 11+99.53
Δ = 0° 47' 07.7" (LT)
D = 9° 13' 13.6"
L = 8.52'
T = 4.26'
R = 621.40'
SE = NC

-Y1DR1-
PI Sta 11+43.61
Δ = 83° 30' 29.9" (RT)
D = 95° 29' 34.7"
L = 87.45'
T = 53.56'
R = 60.00'
SE = NC

PAVED SHOULDER

NOTES:
SEE SHEET 33 FOR -Y1- PROFILE
SEE SHEET 33 FOR -Y1A- PROFILE
SEE SHEET 35 FOR -Y1RA1- PROFILE
SEE SHEET 35 FOR -Y1DR1- PROFILE
DRIVEWAY RADII 10' UNLESS OTHERWISE NOTED

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/95

END CONSTRUCTION
–Y4D– Sta. 11+00.00

END CONSTRUCTION
–Y4– Sta. 60+00.00

MATCHLINE SHEET 14 –Y4– STA. 53+50.00

ROYCE E. VOSS and wife
CAROLYN R. VOSS
DB 2673 PG 2257
PB 9 PG 98
PB 17 PG 147

REHAN RIAZ
NIGHAT P. RIAZ
DB 2020 PG 3067
PB 9 PG 98

ROYCE ESMON VOSS
CAROLYN VOSS
DB 1508 PG 1673
PB 17 PG 147
PB 9 PG 98

ROYCE E. AND CAROLYN R. VOSS
DB 2680 PG 2327

REHAN RIAZ
NIGHAT P. RIAZ
DB 2020 PG 3067
PB 9 PG 98

KRISTI VAUGHN and
MICHEAL W. SPENCER
DB 3158 PG 4047

GENEVA C. PENDRY
DB 1252 PG 613

CURTIS W. CAMPBELL
DB 2107 PG 4180

PATRICIA ANN WALKER
DB 1591 PG 312

MAYNOR LEONEL PAYES
DB 3006 PG 3223
PB 43 PG 105

APRIL M. VARNER
DB 2241 PG 2155
PB 43 PG 105

ROBERT L. &
KAREN CULLER
DB 1495 PG 1042

DONALD W. MANUEL
JEFFREY L. MANUEL
DB 2316 PG 1062
PB 9 PG 98

JANE PAGE PERSONAL
PROPERTIES, LLC
DB 2980 PG 1705
PB 9 PG 98

ROGER W. SHERRELL
DONNA SAUNDERS SHERRELL
DB 2236 PG 418
PB 43 PG 105

ROBERT D. CAUDLE
TAMMY S. CAUDLE
DB 2230 PG 545
PB 43 PG 105

KERRI L. CLARK
DB 2227 PG 2136
PB 43 PG 105

INGRID Y. AND NELLY P. NOLASCO
DB 2869 PG 3844
PB 43 PG 105

SHIRLEY B. MOORE
DB 2252 PG 834
PB 43 PG 105

CD WALKER PROPERTIES LLC
DB 2561PG 4335

KARYL CREECH
DB 2309 PG 2489
PB 43 PG 105

ANGEL BRANCH HERNDON
DB 2435 PG 2492
PB 43 PG 103

HENRY FRANKLIN ROGERS
KIMBERLY MICHELLE ROGERS
DB 2424 PG 2456
PB 43 PG 105

TIMOTHY A. & TAMMIE J. UTT
DB 2283 PG 3798
PB 43 PG 105

–Y4D– POT Sta. 12+80.40

–Y4D– POT Sta. 10+00.00 =
–Y4– POT Sta. 56+88.59

–Y4– POT Sta. 61+00.00

–Y4D– +00.00
EX. R/W

–Y4– +65.00
60.00' LT

–Y4D– +90.00
29.00' LT

–Y4– +00.00
60.00' LT

–Y4– +64.81
EX. PL

–Y4– +52.19
EX. R/W

–Y4– +00.00
80.00' RT

–Y4– +00.00

750' MEDIAN TAPER

WILLA PLACE DR

–Y4– SR 4315
KERNERSVILLE RD

N 65°00' 22.8" E

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'B'

STANDARD 'V' DITCH
SEE SHEET '2D-1'
DETAIL 'V'
SLOPE = 6.04%

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

PAVED SHOULDER

NOTES:
SEE SHEET 37 FOR –Y4– PROFILE

REVISIONS

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TIME: 5:32:03 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15- (I-40 BYPASS)

PIs Sta. 28+38.02	PI Sta. 31+82.43	PIs Sta. 35+25.97
Θs = 2° 37' 30.0"	Δ = 8° 32' 20.6" (LT)	Θs = 2° 37' 30.0"
Ls = 300.00'	D = 1° 45' 00.0"	Ls = 300.00'
LT = 200.02'	L = 487.95'	LT = 200.02'
ST = 100.02'	T = 244.43'	ST = 100.02'
INC = 50.00'	R = 3,274.05'	INC = 50.00'
	SE = 06	

NAD 83/95

ROBBINS RD

JOHN L. ARANT
DB 3023 PG 2447
DB 955 PG 670
DB 812 PG 281
DB 406 PG 273
DB 415 PG 116
PB 18 PG 144
PB 4 PG 46

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 1650 PG 3667

CLAUDE STEVE ALLRED JR.
ANNE JONES ALLRED
DB 2163 PG 1714

BEGIN 12' FUTURE LANE AND MEDIAN BARRIER
-Y15- Sta. 21+50

-Y15- TS Sta. 26+38.00

-Y15- SC Sta. 29+38.00

600' LANE TAPER

-Y15- CS Sta. 34+25.95

BEGIN WIDENING
-Y15- WBL Sta. 32+00.00

MATCHLINE (SEE INSET) -Y15- STA. 21+00.00

MATCHLINE SHEET 17 -Y15- STA. 34+75.00

BEGIN WIDENINIG
-Y15- EBL Sta. 21+50.00

-Y15- +65.00
EX. R/W
TIE TO
EXIST. FENCE

-Y15- +50.00
155.00' RT

TIE TO
EXIST. FENCE
-Y15- +87.47
EX. R/W

300' LANE TAPER

950' FULL LANE

300' LANE TAPER

BEGIN CONSTRUCTION
-Y15- Sta. 17+75.14

MATCHLINE -Y15- STA. 21+00.00
(SEE THIS SHEET)

PAVED SHOULDER

NOTES:
SEE SHEET 46 FOR -Y15- PROFILE

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
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PENTABLE: NCDOT_pshpfl_conventional.tbl
DATE: 5/11/2020
TIME: 5:32:59 PM

-Y15-
(I-40 BYPASS)
PIs Sta. 35+25.97
Θs = 2° 37' 30.0"
Ls = 300.00'
LT = 200.02'
ST = 100.02'
INC = 50.00'

-Y15- ST Sta. 37+25.95

-Y15- +00.00
160.00' LT &
EX. R/W

-Y15- +00.00
EX. R/W &
150.00' LT

-Y15- +25.95
190.00' RT

-Y15- +50.00
190.00' RT

-Y15FLYCA- ST Sta. 10+00.00 =
-Y15- POT Sta. 46+50.00 59.00' RT

600' LANE TAPER

1200' FULL LANE

300' LANE TAPER

950' FULL LANE

N 63° 28' 39.4" E

-Y15- I-40

ROBBINS RD

DUKE POWER CO.
DB 873 PG 399

CITY OF WINSTON-SALEM
DB 1777 PG 119
DB 1791 PG 449

JOHN L. ARANT
DB 3023 PG 2447
DB 955 PG 670
DB 812 PG 281
DB 406 PG 273
DB 415 PG 116
PB 18 PG 144
PB 4 PG 46

CLASS 'B' RIP RAP
EST. 11 TONS
28 SY GEOTEXTILE

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

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

STANDARD 4' BASE DITCH
SEE SHEET '2D-1'
DETAIL '88'
SLOPE = 1.25%

15" CSP
WELBOWS

2GI W/FG CAT-1

15" RCP-III

24" RCP-III

42" RCP-III

36" RCP-III

18" CSP W/ELBOWS

30" CSP W/ELBOWS

STANDARD 2' BASE DITCH
W/CLASS B RIP RAP
EST. 15 TONS
41 SY GEOTEXTILE
SEE SHEET '2D-1'
DETAIL 'LL'

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'D'

SPECIAL CUT DITCH
SEE SHEET '2D-2'
DETAIL 'HHHH'

COLLAR AND EXTEND

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'NN'

PROP. 47" WW FENCE

PROP. MEDIAN BARRIER

TIE TO EXIST. FENCE

CHORD

-Y15FLYCA-

REMOVE DI

REMOVE HEADWALL

MATCHLINE SHEET 16 -Y15- STA. 34+75.00

MATCHLINE SHEET 18 -Y15- STA. 48+50.00

PAVED SHOULDER

NOTES:
SEE SHEETS 46 AND 47 FOR -Y15- PROFILE
SEE SHEET 59 FOR -Y15FLYCA- PROFILE
SEE SHEET 2B-7 FOR MEDIAN CROSSOVER DESIGN AND MAINTAINANCE OF TRAFFIC

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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N.C.B.E.L.S. License Number: F-0116

REVISIONS

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TIME: 5:33:25 PM

CITY OF WINSTON-SALEM
DB 1777 PG 119
DB 1791 PG 449

50' SANITARY SEWER EASEMENT

JOHN L. ARANT
DB 3023 PG 2447
DB 955 PG 670
DB 812 PG 281
DB 406 PG 273
DB 415 PG 116
PB 18 PG 144
PB 4 PG 46

1200' FULL LANE — 600' LANE TAPER — 1200' FULL LANE

-Y15- POT Sta. 56+00.00 L.B.
-Y15REV- POT Sta. 8+00.00 L.A.

-Y15REV- +00.00
150.00' LT

-Y15REV- +13.18
150.00' LT

-Y15REV- +53.18
150.00' LT

ENERGY DISSIPATOR BASIN
SEE SHEET '2D-2'
DETAIL 'EEE'

BEGIN REPLACEMENT OF EXISTING PAVEMENT
-Y15REV- WBL Sta. 8+00.00

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS STONE
DETAIL 'EEEE'

PROP. 47" WW FENCE

4' BASE TAIL DITCH
SEE SHEET '2D-1'
DETAIL 'CC'
SLOPE = 0.31%

CLASS 'B' RIP RAP
EST. 15 TONS
37 SY GEOTEXTILE

CLASS 'I' RIP RAP
EST. 26 TONS
50 SY GEOTEXTILE

15" CSP W/ELBOWS

BEGIN SBG STA. 50+52

END SBG STA. 58+13

2GI W/FG

COLLAR AND EXTEND

TRENCHLESS INSTALLATION
42" WELDED STEEL,
0.375" THICK

TRENCHLESS INSTALLATION
48" WELDED STEEL, 0.500" THICK
OVERFLOW STRUCTURE

N 63° 28' 39.4" E

-Y15- I-40

PROP. MEDIAN BARRIER

REMOVE DI

EXISTING 60"RCP
VERIFIED IN FIELD
REMOVE 27'
OF 60" RCP

JB W/MH

REMOVE 18'
48" RCP

18" RCP-III

REMOVE 18" RCP

SPECIAL CUT BASE DITCH
W/CLASS 'B' RIP RAP
EST 146 TONS
325 SY GEOTEXTILE
SEE SHEET '2D-2'
DETAIL 'FFF'

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'D'

SPECIAL CUT BASE DITCH
SEE SHEET '2D-1'
DETAIL 'L'

SPECIAL CUT BASE DITCH
SEE SHEET '2D-2'
DETAIL 'GGG'

TIE EXIST BERM DITCH
TO ROADWAY DITCH

-Y15REV- TS Sta. 10+13.18

-Y15REV- SC Sta. 12+53.18

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'NN'

BERM DITCH
SEE SHEET '2D-1'
DETAIL 'OO'

BERM DITCH
W/CLASS 'B' RIP RAP
EST. 67 TONS
189 SY GEOTEXTILE
SEE SHEET '2D-2'
DETAIL 'PP'

2' DITCH BLOCK

TIE EXISTING STREAM
TO 42" RCP EXTENTION,
INLET SIDE OF PIPE EXTENTION
AND TRNCHLESS PIPE
TO BE SET AT SAME ELEVATION

-Y15-266

-Y15FLYCA- +00.00
100.00' RT

-Y15FLYCA- SC Sta. 13+00.00

-Y15FLYCA- Sta. 16+61.25
BEGIN -Y15FLYCA- PAVEMENT
END -Y15- PAVEMENT

-Y15FLYCA-

BEGIN REPLACEMENT OF EXISTING PAVEMENT
-Y15REV- EBL 8+00.00

-Y15FLYCA- +00.00
100.00' RT

DAVID MOTSINGER
WAYNE MOTSINGER
DB 3055 PG 49
DB 1026 PG 327
DB 499 PG 212
DB 563 PG 305
PB 13 PG 127

CHORD

MATCHLINE SHEET 17 -Y15- STA. 48+50.00

MATCHLINE SHEET 19 -Y15REV- STA. 14+00.00

MATCHLINE SHEET 19
-Y15FLYCA- STA. 25+00.00

-Y15FLYCA- (FLYOVER)	
PIs Sta. 12+00.03	PI Sta. 21+26.72
Θs = 3° 02' 51.5"	Δ = 32° 40' 42.7" (RT)
Ls = 300.00'	D = 2° 01' 54.4"
LT = 200.03'	L = 1,608.38'
ST = 100.03'	T = 826.72'
INC = 60.00'	R = 2,820.00'
	SE = 05

-Y15REV- (RELOCATED I-40 BYPASS)	
PIs Sta. 11+73.18	PI Sta. 21+08.35
Θs = 1° 21' 41.3"	Δ = 19° 13' 21.3" (RT)
Ls = 240.00'	D = 1° 08' 04.5"
LT = 160.00'	L = 1,694.26'
ST = 80.00'	T = 855.17'
INC = 60.00'	R = 5,050.00'
	SE = 04

PAVED SHOULDER

NOTES:
SEE SHEET 47 FOR -Y15- PROFILE
SEE SHEET 47 FOR -Y15REV- PROFILE
SEE SHEET 59 FOR -Y15FLYCA- PROFILE
SEE SHEET 2B-7 FOR MEDIAN CROSSOVER DESIGN AND TRAFFIC MAINTAINANCE

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

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-Y15REV- (RELOCATED I-40 BYPASS)

PI Sta. 21+08.35	PI Sta. 30+27.45
Δ = 19° 13' 21.3" (RT)	Θs = 1° 21' 41.3"
D = 1° 08' 04.5"	Ls = 240.00'
L = 1,694.26'	LT = 160.00'
T = 855.71'	ST = 80.00'
R = 5,050.00'	INC = 60.00'
SE = 04	

-Y15- (I-40 BYPASS)

PI Sta. 66+57.43	PI Sta. 80+19.99
Θs = 1° 00' 00.0"	Δ = 25° 29' 20.6" (RT)
Ls = 200.00'	D = 1° 00' 00.0"
LT = 133.34'	L = 2,548.91'
ST = 66.67'	T = 1,295.90'
	R = 5,729.58'
	SE = EXIST.

-Y15RPB- (RAMP)

PIs Sta. 18+46.95	PI Sta. 26+54.22	PIs Sta. 34+40.78	PIs Sta. 38+10.72	PI Sta. 40+11.87
Θs = 4° 26' 43.3"	Δ = 32° 19' 25.4" (RT)	Θs = 4° 26' 43.3"	Θs = 1° 27' 44.7"	Δ = 2° 43' 01.6" (LT)
Ls = 360.00'	D = 21° 15' 43"	Ls = 360.00'	Ls = 240.00'	D = 1° 07' 11.3"
LT = 240.08'	L = 1,308.94'	LT = 240.08'	LT = 160.03'	L = 242.28'
ST = 120.07'	T = 672.35'	ST = 120.07'	ST = 80.00'	T = 121.16'
INC = 60.00'	R = 2,320.00'	INC = 60.00'	INC = 60.00'	R = 5,059.00'
	SE = 06			SE = 04

-Y15FLYCA- (FLYOVER)

PIs Sta. 12+00.03	PI Sta. 21+26.72	PIs Sta. 30+08.41	PIs Sta. 34+48.46
Θs = 3° 02' 51.5"	Δ = 32° 40' 42.7" (RT)	Θs = 3° 02' 51.5"	Θs = 4° 26' 43.3"
Ls = 300.00'	D = 2° 01' 54.4"	Ls = 300.00'	Ls = 360.00'
LT = 200.03'	L = 1,808.36'	LT = 200.03'	LT = 240.08'
ST = 100.03'	T = 928.72'	ST = 100.03'	ST = 120.07'
INC = 60.00'	R = 2,820.00'	INC = 60.00'	INC = 60.00'
	SE = 05		

-Y15RPC- (RAMP)

PIs Sta. 16+17.39
Θs = 18° 08' 28.1"
Ls = 480.00'
LT = 321.70'
ST = 161.54'
INC = 60.00'

NOTES:
SEE SHEETS 47 AND 48 FOR -Y15REV- PROFILE
SEE SHEETS 59 AND 60 FOR -Y15FLYCA- PROFILE
SEE SHEET 64 FOR -Y15RPC- PROFILE
SEE SHEET 63 AND 64 FOR -Y15RPB- PROFILE

SCALE
50 25 0 50 100

PAVEMENT REMOVAL
PAVED SHOULDER

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:48:45 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579db_rdy_psh_19.dgn

PROJECT REFERENCE NO.	SHEET NO.
	20

R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15REV- (RELOCATED I-40 BYPASS)		
PIs Sta. 69+22.62	PI Sta. 74+07.12	PIs Sta. 78+91.20
θs = 0° 32' 07.7"	Δ = 4° 28' 21.2" (RT)	θs = 0° 32' 07.7"
Ls = 200.00'	D = 0° 32' 07.7"	Ls = 200.00'
LT = 133.33'	L = 835.25'	LT = 133.33'
ST = 66.67'	T = 417.84'	ST = 66.67'
INC = 100.00'	R = 10,700.00'	INC = 100.00'
	SE = 02	

-Y15FLYAC- (FLYOVER)		
PIs Sta. 17+80.65	PIs Sta. 21+80.40	PI Sta. 54+77.32
θs = 4° 26' 43.3"	θs = 1° 52' 42.8"	Δ = 82° 37' 38.4" (LT)
Ls = 360.00'	Ls = 240.00'	D = 1° 33' 55.7"
LT = 240.08'	LT = 160.01'	L = 5,278.16'
ST = 120.07'	ST = 80.01'	T = 3,216.94'
INC = 60.00'	INC = 60.00'	R = 3,660.00'
		SE = 04

-Y15FLYBD- (FLYOVER)		
PIs Sta 75+77.52	PI Sta 85+77.53	PIs Sta 95+19.95
θs = 3° 02' 51.5"	Δ = 35° 24' 08.0" (RT)	θs = 3° 02' 51.5"
Ls = 300.00'	D = 2° 01' 54.4"	Ls = 300.00'
LT = 200.03'	L = 1,742.44'	LT = 200.03'
ST = 100.03'	T = 900.04'	ST = 100.03'
INC = 60.00'	R = 2,820.00'	INC = 60.00'
	SE = 05	

-Y15RPA- (RAMP)
PIs Sta. 23+16.47
θs = 18° 08' 28.1"
Ls = 480.00'
LT = 321.70'
ST = 161.54'
INC = 60.00'

-Y5B-	
PI Sta. 10+97.14	PI Sta. 12+85.91
Δ = 24° 55' 37.0" (LT)	Δ = 27° 30' 01.6" (RT)
D = 17° 37' 46.1"	D = 19° 05' 54.9"
L = 141.39'	L = 143.99'
T = 71.83'	T = 73.41'
R = 325.00'	R = 300.00'

-Y15RPDREV-	
PI Sta. 38+99.44	PIs Sta. 49+32.54
Δ = 48° 08' 45.1" (RT)	θs = 4° 26' 43.3"
D = 2° 28' 10.7"	Ls = 360.00'
L = 1,949.50'	LT = 240.08'
T = 1,036.47'	ST = 120.07'
R = 2,320.00'	INC = 60.00'
SE = 06	

SCALE
50 25 0 50 100

PAVEMENT REMOVAL
PAVED SHOULDER

NOTES:
SEE SHEETS 49 AND 50 FOR -Y15REV- PROFILE
SEE SHEETS 52 AND 53 FOR -Y15FLYAC- PROFILE
SEE SHEETS 57 AND 58 FOR -Y15FLYBD- PROFILE
SEE SHEET 62 FOR -Y15RPA- PROFILE
SEE SHEETS 65 AND 66 FOR -Y15RPDREV- PROFILE
SEE SHEET 2B-8 FOR MEDIAN CROSSOVER DESIGN AND TRAFFIC MAINTAINANCE

REVISIONS

ROW REV. – MAY 7, 2019 – MOVED TURN AROUND FROM PARCEL 668 TO PARCEL 268. SHIFTED TURN AROUND DESIGN DOWN FIFTEEN FEET AND SHIFTED CONTROL ACCESS DOWN TO ACCOMODATE DESIGN. REMOVED RIGHT-OF-WAY FROM PARCEL 668 AND REDUCED PERMANENT UTILITY EASEMENT TO PROPERTY LINE ON PARCEL 241. ADDED RIGHT-OF-WAY TO PARCELS 241 AND 268. SMP

ROW REV. – OCTOBER 14, 2019 – UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y15FLYBD- FROM STATION 70+00 TO 92+19. JHG

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:49:13 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_20.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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HDR Engineering, Inc. of the Carolinas
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-Y15FLYAC-		(FLYOVER)
PI Sta. 12+40.08	PI Sta. 15+10.50	PI Sta. 17+80.65
Θs = 4° 26' 43.3"	Δ = 7° 25' 06.6" (RT)	Θs = 4° 26' 43.3"
Ls = 360.00'	D = 2° 28' 10.7"	Ls = 360.00'
LT = 240.08'	L = 300.39'	LT = 240.08'
ST = 120.07'	T = 150.40'	ST = 120.07'
INC = 60.00'	R = 2,320.00'	INC = 60.00'
	SE = 06	

-Y15FLYBD-	(FLYOVER)
PI Sta. 85+89.36	PI Sta. 95+36.59
Δ = 35° 37' 11.7" (RT)	Θs = 3° 02' 51.5"
D = 2° 01' 54.4"	Ls = 300.00'
L = 1,753.15'	LT = 200.03'
T = 905.94'	ST = 100.03'
R = 2,820.00'	INC = 60.00'
SE = 05	

NAD 83/95

MATCHLINE SHEET 20 -Y15FLYAC- STA. 18+50.00

MATCHLINE SHEET 20 -Y15FLYBD- STA. 92+04.15

MATCHLINE SHEET 22 -Y15- STA. 147+00.00

MATCHLINE SHEET 20 -Y15REV- STA. 85+00.00

-Y15FLYAC- +82.00 288.00' RT

-Y15FLYAC- +96.00 262.00' RT

-Y15FLYAC- Sta. 16+36.24 BEGIN -Y15FLYAC- PAVEMENT END -Y15REV- PAVEMENT

-Y15FLYAC- CS Sta. 16+60.39

-Y15FLYAC- +60.23 130.00' RT

-Y15FLYAC- +16.54 125.52' RT

-Y15FLYAC- +83.93 EX. R/W

-Y15FLYAC- SC Sta. 13+60.00

-Y15FLYAC- +84.84 EX. R/W

-Y15FLYAC- +26.05 EX. R/W

-Y15FLYAC- +13.72 124.47' LT

-Y15FLYAC- +00.00 121.00' RT

-Y15FLYAC- ST Sta. 10+00.00 = -Y15REV- POT Sta. 93+60.30 59.00' LT

-Y15REV- POT Sta. 96+28.30 L.B. -Y15- POT Sta. 145+00.00 L.A.

-Y15- +00.00 180.00' LT

-Y15- +00.00 240.00' RT

-Y15FLYBD- CS Sta. 94+19.92

-Y15FLYBD- ST Sta. 97+19.92 = -Y15REV- POT Sta. 90+19.61 71.00' RT

-Y15FLYBD- +91.99 171.71' RT

-Y15FLYBD- +52.26 EX. R/W

-Y15FLYBD- +54.30 EX. R/W

-Y15FLYBD- +95.44 173.12' RT

-Y15FLYBD- +95.48 198.12' RT

-Y15FLYBD- +59.77 EX. R/W

-Y15FLYBD- +33.40 173.61' RT

-Y15REV- +24.49 EX. R/W

269 BROOK BEND

270 NCDOT DB 3020 PG 4343

303 JOAN ALLAN PETER ALLAN DB 1960 PG 144

NCDOT DB 1640 PG 4584

THOMAS S. HART LOUISE HART DB 2767 PG 953 DB 1167 PG 798

301 WILLIAM A. FRANK ROSE EMILY FRANK DB 1820 PG 2786

302 SECRETARY OF HOUSING AND URBAN DEVELOPMENT DB 3185 PG 2601

305 ETTASTEIN G. HARRIS DB 1830 PG 2465 PB 36 PG 95

306 DONNIE L. NEAL and wife RAQUEL HERNANDEZ-MEDINA DB 3062 PG 3387 PB 36 PG 95

307 MARK A. KEITH CATHY E. KEITH DB 1829 PG 2008 PB 36 PG 95

308 NEIL M. RISHEO MANAL RISHEO DB 1845 PG 912 PB 36 PG 95

309 HEAVEN'S GATE TRUST D. SIKES AS TRUSTEE DB 2817 PG 844 PB 33 PG 142

DONOVAN S. ADAMS KYONG J. ADAMS DB 2057 PG 2477

MICHAEL S. GREGG KIMBERLY J. GREGG DB 1649 PG 3810 PB 25 PG 157

GERALD GENE CARTER NANCY JO CARTER DB 1649 PG 1319 PB 25 PG 157

DELMONT S. BROWN DB 2187 PG 2062

MARGARET A. FREEDMAN MARK G. FREEDMAN DB 1831 PG 4383 PB 36 PG 95

KYLE R. HICE AND GAYLE L. HICE DB 2659 PG 3302 PB 36 PG 95

ABIEZER YAMBO DB 3010 PG 2330 PB 36 PG 95

FLORENTINA NOLASCO AND VICTOR GATICA DB 2651 PG 2538 PB 36 PG 95

LAKE VALLEY RD (SR 3883)

COVINGTON RIDGE RD (SR 4368)

BY15-261

BY15-260

PROP. MEDIAN BARRIER

-Y15- I-40

S 89°02'00.0" E

-Y15FLYAC-

-Y15FLYBD-

CHORD

PROP. 47" WW FENCE

CLASS 'B' RIP RAP EST. 16 TONS 42 SY GEOTEXTILE

8' BASE SPECIAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 669 TONS 1132 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'X'

RIP RAP AT EMBANKMENT CLASS 'I' RIP RAP EST. 24 TONS 41 SY GEOTEXTILE SEE SHEET 2D-2 DETAIL 'HHH'

2' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'S'

LATERAL 'V' DITCH SEE SHEET '2D-1' DETAIL 'Q'

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

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'J'

2' BASE LATERAL DITCH SEE SHEET '2D-1' 60" RCP-III DETAIL 'S' BURIED 1.0'

BERM DITCH SEE SHEET '2D-2' DETAIL 'VV'

5' BASE DITCH W/CLASS 'I' RIP RAP EST. 33 TONS 60 SY GEOTEXTILE SEE SHEET '2D-1 DETAIL 'MM'

2' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 59 TONS 168 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'WW'

4' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 364 TONS 990 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'YY'

4' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'ZZ'

2' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'AAA'

REMOVE 48" CMP

REMOVE 60" RCP

REMOVE 15" CSP

REMOVE DI

REMOVE 24" RCP

REMOVE 18" RCP

CLEAN OUT 36" RCP

COLLAR AND EXTEND

CONV DI TO TBJB

GREU TL-3

1200' FULL LANE

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEET 50 FOR -Y15REV- PROFILE
SEE SHEET 50 FOR -Y15- PROFILE
SEE SHEET 52 FOR -Y15FLYAC- PROFILE
SEE SHEET 58 FOR -Y15FLYBD- PROFILE
SEE SHEET 2B-8 FOR MEDIAN CROSSOVER DESIGN AND TRAFFIC MAINTAINANCE

REVISIONS

ROW REV. - OCTOBER 14, 2019 - UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO -Y15FLYBD- FROM STATION 70+00 TO 92+19. JHG

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl

USER: CHARRIS DATE: 5/11/2020 TIME: 5:33:51 PM

FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_21.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/95

MATCHLINE SHEET 21 –Y15– STA. 147+00.00

MATCHLINE SHEET 23 –Y15– STA. 160+50.00

NCDOT DB 1640 PG 4584

FIRST CHRISTIAN CHURCH MINISTRIES DB 3233 PG 3373

FIRST CHRISTIAN CHURCH MINISTRIES DB 3242 PG 1602

FIRST CHRISTIAN CHURCH MINISTRIES DB 3233 PG 2950

150 155 160

310 311 312

RIP RAP AT EMBANKMENT CLASS 'I' RIP RAP EST. 20 TONS 35 SY GEOTEXTILE

12' GATE

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 259 TONS 459 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'P'

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 82 TONS 145 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'DDD'

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 197 TONS 350 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'P'

4' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 211 TONS 375 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'DDD'

PROP. 47" WW FENCE

BERM DITCH SEE SHEET '2D-1' DETAIL 'NN'

15" CSP W/ELBOWS

18" RCP-III

COLLAR AND EXTEND

REMOVE

FILL WITH FLOWABLE FILL

FRONCHLESS INSTALLATION 30" WELDED STEEL, 0.125" THICK

FILL WITH FLOWABLE FILL

RETAIN

S 89° 02' 00.0" E –Y15– I-40

PROP. MEDIAN BARRIER

REMOVE DI

3.2' CLEARANCE

I-40 WBL 24' CONC

I-40 EBL 24' CONC

I-40 EBL VARIE

REMOVE HW

GREU TL-3

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'J'

4' BASE LATERAL DITCH TYPE B-77 SEE SHEET '2D-1' DETAIL 'T'

38" CSP W/ELBOWS

4' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 28 TONS 75 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'V'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 76 TONS 217 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

6' BASE LATERAL DITCH W/ EMBEDDED CLASS 'I' RIP RAP EST. 106 TONS 346 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'TT'

STANDARD 2' BASE DITCH SEE SHEET '2D-1' DETAIL 'S'

2' BASE BERM DITCH W/CLASS 'B' RIP RAP EST. 96 TONS 273 SY GEOTEXTILE SEE SHEET '2D-2' DETAIL 'CCC'

2' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'AAA'

2' BASE BERM DITCH SEE SHEET '2D-2' DETAIL 'BBB'

BERM DITCH SEE SHEET '2D-1' DETAIL 'VV'

BERM DITCH SEE SHEET '2D-2' DETAIL 'VV'

STANDARD 2' BASE DITCH W/CLASS 'B' RIP RAP SEE SHEET '2D-1' DETAIL 'II'

30" CSP W/ELBOWS

30" RCP-III

2GI-D

MARK S. RICHARDSON
MARISA T. RICHARDSON
DB 2135 PG 1565
PB 33 PG 142

MICHELLE D. POULOS
JAY J. POULOS
DB 2547 PG 4293
PB 33 PG 12

PRISCILLA FORD
DB 2074 PG 1485
PB 33 PG 12

JAMES S. FINCH
NANCY S. FINCH
DB 2108 PG 1838
PB 33 PG 12

BRIAN J. CLARK
MARIA E. CLARK
DB 2372 PG 3453
PB 33 PG 142

GINGER L. SMITH and
TONYA A. COLEMAN
DB 3003 PG 2943
PB 33 PG 142

MARCIA CLARKE-CHUE
FRANLIN E. CHUE
DB 2348 PG 3379
PB 33 PG 142

JORGE L. AND ROSA M. GONZALEZ
DB 2646 PG 1686
PB 33 PG 12

CHARLES A. CARR and
JOY S. CARR
DB 2978 PG 171
PB 33 PG 12

JOHN J. McCORMICK, III
and wife
CHRISTEN V. McCORMICK
DB 3140 PG 1462
PB 33 PG 142

KIM H. BUI
LAC H. HOANG
DB 2119 PG 1706
PB 33 PG 12

LINDA E. BURNETTE
and husband
THOMAS L. BURNETTE
DB 3186 PG 3010
PB 33 PG 12

WANELL W. WALL
REFERENCE:
DB 797 PG 451
DB 1225 PG 850

309 316 317 318 313 314 315

ADAM GATE RD

NOTTINGHILL DR

300' TAPER

300' FULL LANE

–Y15– +00.00 240.00' RT

–Y15– +03.00 270.00' RT

–Y15– +70.00 EX. R/W

–Y15– +01.00 226.00' RT

–Y15– +00.00 195.00' RT

–Y15– +00.00 180.00' RT

–Y15– +00.00 220.00' RT

–Y15– +05.00 251.00' RT

U2579AB GPS

–UXRPC–
Pls Sta. 11+33.34
θs = 1° 54' 35.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'
INC = 100.00'

PAVED SHOULDER

NOTES:
SEE SHEETS 50 AND 51 FOR –Y15– PROFILE
SEE SHEET 71 FOR –UXRPC– PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:34:18 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\U2579ab_rdy_psh_22.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	23
R/W 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

-UXRPB-		
PIs Sta. 11+60.05	PI Sta. 15+16.31	PIs Sta. 18+67.00
Θs = 4° 24' 26.5"	Δ = 20° 05' 18.6" (LT)	Θs = 4° 24' 26.5"
Ls = 240.00'	D = 3° 40' 22.1"	Ls = 240.00'
LT = 160.05'	L = 546.95'	LT = 160.05'
ST = 80.05'	T = 276.31'	ST = 80.05'
INC = 40'	R = 1,560.00'	INC = 40'
	SE = 06	

-UXRPC-		
PIs Sta. 11+06.67	PI Sta. 15+75.63	PIs Sta. 20+41.47
Θs = 1° 10' 31.1"	Δ = 12° 09' 58.8" (RT)	Θs = 1° 10' 31.1"
Ls = 160.00'	D = 1° 28' 08.8"	Ls = 160.00'
LT = 106.67'	L = 828.14'	LT = 106.67'
ST = 53.34'	T = 415.63'	ST = 53.34'
INC = 40'	R = 3,900.00'	INC = 40'
	SE = 04	

-UXRPB- CS Sta. 17+86.95

-UXRPB- Sta. 14+06.32
BEGIN -UXRPB- PAVEMENT
END -Y15- PAVEMENT

-UXRPB- ST Sta. 10+00.00 =
-Y15- POT Sta. 163+24.92 59.00' LT

-UXRPB- +00.00
121.00' LT

-UXRPB- SC Sta. 12+40.00

-UXRPB- +35.12
EX. R/W, TIE TO EXIST. FENCE

-UXRPB- RETAIN

-Y15- 1-40

S 89° 02' 00.0" E

-Y15- STA. 160+50.00

-Y15- STA. 174+00.00

-UXRPC- Sta. 15+83.97
BEGIN -UXRPC- PAVEMENT
END -Y15- PAVEMENT

-Y15- EBL Sta. 167+52.27
END WIDENING

-UXRPC- +00.00
121.00' RT

-UXRPC- SC Sta. 11+60.00

-UXRPC- ST Sta. 10+00.00 =
-Y15- POT Sta. 160+85.47 59.00' RT

-Y15- +85.00
211.00' RT

-UXRPC- +40.00
EX. SS EASEMENT

-UXRPC- +63.97
EX. R/W, TIE TO EXIST. FENCE

-UXRPC- CS Sta. 19+88.14

-UXRPC- ST Sta. 21+48.14

END CONSTRUCTION
-UXRPC- Sta. 23+20.00

MATCHLINE SHEET 22 -Y15- STA. 160+50.00

MATCHLINE SHEET 24 -UXRPB- 20+00.00

MATCHLINE SHEET 24 -Y15- 174+00.00

FIRST CHRISTIAN CHURCH MINISTRIES
DB 3233 PG 2950

FIRST CHRISTIAN CHURCH MINISTRIES
DB 3231 PG 3235

CHARLES O. WILLIARD JR.
DB 1211 PG 1524
DB 1037 PG 1008
DB 2747 PG 3988
REFERENCE:
DB 797 PG 451

WANELL W. WALL
REFERENCE:
DB 797 PG 451
DB 1225 PG 850

PRIME PROPERTY, LLC
DB 2770 PG 1477
PB 52 PG 85

PROP. 47" WW FENCE

PROP. MEDIAN BARRIER

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 76 TONS 217 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

LATERAL 'V' DITCH SEE SHEET '2D-1' DETAIL 'Q'

SPECIAL CUT DITCH SEE SHEET 2D-2 DETAIL '28'

2' BASE LATERAL DITCH W/CLASS 'B' RIP RAP EST. 58 TONS 165 SY GEOTEXTILE SEE SHEET '2D-1' DETAIL 'U'

PREFORMED SCOUR HOLE EST. 20 SY PSRM EST. 12 SY GEOTEXTILE EST. 9 TONS CLASS 'B' STONE DETAIL 'EEEE'

CLASS 'B' RIP RAP EST. 15 TONS 37 SY GEOTEXTILE

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

2' BASE LATERAL DITCH SEE SHEET '2D-1' DETAIL 'S'
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE

42" RCP-III COLLAR AND EXTEND

15" RCP-III

24" RCP-III

30" RCP-III

36" RCP

18" RCP

24" RCP

30" RCP

2GI W/FG

2GI

TB 2GI

JB W/ SLAB

END SBG STA. 161+00

BEGIN SBG STA. 161+00

END SBG STA. 167+75

BEGIN SBRS STA. 161+00

END SBRS STA. 161+50

END SBG STA. 201+00

GREU TL-3

CAT-1 8J

REMOVE DI

REMOVE

RETAIN

RETAIN DI

GRADE TO DRAIN

CLEAN OUT 42" RCP

FILL WITH FLOWABLE FILL

MILL & OVERLAY EXIST. RE-STRIPE TO NEW PATTERN

150' TAPER TO EXISTING

CABLE

FS

EXIST

PAVED SHOULDER

NOTES:
SEE SHEET 51 FOR -Y15- PROFILE
SEE SHEET 71 FOR -UXRPB- PROFILE
SEE SHEET 71 FOR -UXRPC- PROFILE

REVISIONS

PLOT DRIVER: NCDOT.pdf_color_eng_50.plt
USER: CHARRIS
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_23.dgn
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DATE: 5/11/2020
TIME: 5:34:46 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	24
R/W 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

-UXRPB-	
PIs Sta. 21+87.40	PI Sta. 23+31.39
θs = 13° 16' 23.4"	Δ = 14° 10' 53.1" (RT)
Ls = 240.00'	D = 11° 03' 39.5"
LT = 160.45'	L = 128.21'
ST = 80.41'	T = 64.43'
INC = 40'	R = 518.00'
	SE = 06

NAD 83/95

CRACKER BARREL OLD COUNTRY STORE, INC.
DB 3037 PG 1287

END CONSTRUCTION
-UXRPB- Sta. 22+70.00

-UXRPB- SRS Sta. 20+26.95

-UXRPB- POT Sta. 24+65.16

-UXRPB- PT Sta. 23+95.16

-UXRPB- SC Sta. 22+66.95

N 89° 31' 04.8" E

352.76'
N 89°52'36" E

35' TAPER TO EXISTING

15" RCP-III

Conv. DI To JB w/MH

2GI

RETAIN DI

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'G'

MATCHLINE SHEET 24 -UXRPB- 20+00.00

MATCHLINE SHEET 23 -Y15- STA. 174+00.00

B

END CONSTRUCTION
-Y15- Sta. 176+96.90

150' PS TAPER LT & RT

28.45'

VAR. WIDTH PS

RETAIN

18" CMP

18.45'

10' WBL 38' BST

PROP. MEDIAN BARRIER

25:1

40' EBL 37.5' BST

GREENSBORO

MTL

C

-UXRPC- POT Sta. 23+84.92

UNION CROSS RD (SR 2643)

CITY OF WINSTON-SALEM
CITY OF KERNERSVILLE

-Y15- I-40

S 89°02'00.0" E

CONSTRUCTED UNDER TIP PROJECT U-4909

GLENN CROSSING ASSOCIATES, LLC
DB 2770 PG 1473
PB 52 PG 85

PAVED SHOULDER

NOTES:
SEE SHEET 51 FOR -Y15- PROFILE
SEE SHEET 71 FOR -UXRPB- PROFILE

REVISIONS

PLOT DRIVER: NCDOT_pdf_color-eng-50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Proj\u2579ab_rdy_psh_24.dgn

PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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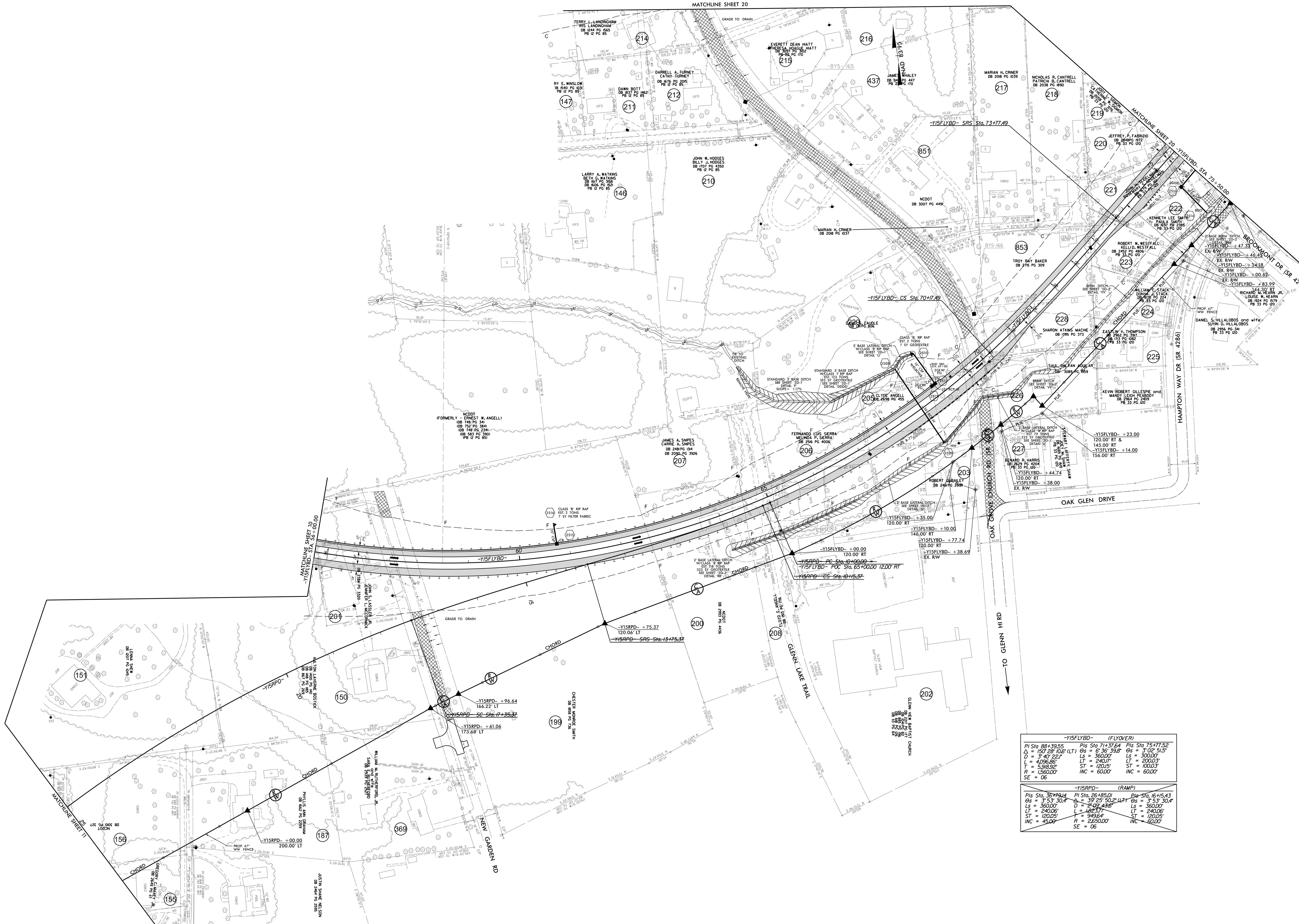
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



–Y15FLYBD– (FLYOVER)		
PI Sta 88+39.55	Pls Sta 71+37.64	Pls Sta 75+77.52
Δ = 150° 28' 10.6" (LT)	θs = 6° 36' 39.8"	θs = 3° 02' 51.5"
D = 3° 40' 22.1"	Ls = 360.00'	Ls = 300.00'
L = 4,096.86'	LT = 240.17'	LT = 200.03'
T = 5,918.92'	ST = 120.15'	ST = 100.03'
R = 1,560.00'	INC = 60.00'	INC = 60.00'
SE = 06		

–Y15RPD– (RAMP) (crossed out)		
Pls Sta. 36+79.14	PI Sta. 26+85.01	Pls Sta. 16+15.43
θs = 3° 53' 30.4"	Δ = 39° 25' 50.2" (LT)	θs = 3° 53' 30.4"
Ls = 360.00'	D = 2° 09' 43.6"	Ls = 360.00'
LT = 240.06'	L = 1,823.71'	LT = 240.06'
ST = 120.05'	T = 949.64'	ST = 120.05'
INC = 45.00'	R = 2,650.00'	INC = 60.00'
	SE = 06	

SCALE 50 25 0 50 100

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEET 57 FOR –Y15FLYBD– PROFILE

REVISIONS

ROW REV. – OCTOBER 14, 2019 – UPDATED STATION OFFSET CALL OUTS DUE TO DESIGN CHANGE TO –Y15FLYBD– FROM STATION 70+00 TO 92+19. JHG

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:49:42 PM
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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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

-Y5B-		
PI Sta. 12+85.91	PI Sta. 16+34.35	PI Sta. 21+40.17
Δ = 27° 30' 01.6" (RT)	Δ = 20° 46' 49.2" (RT)	Δ = 19° 49' 48.4" (LT)
D = 19° 05' 54.9"	D = 7° 09' 43.1"	D = 7° 09' 43.1"
L = 143.99'	L = 290.15'	L = 276.88'
T = 73.41'	T = 146.69'	T = 139.84'
R = 300.00'	R = 800.00'	R = 800.00'
	SE = 0.03	SE = 0.03

NAD 83/95

BEGIN CONSTRUCTION
-Y5B- Sta. 14+50.00

END CONSTRUCTION
-Y5B- Sta. 23+00.00

MATCHLINE SHEET 20
-Y5B- STATION 13+50.00

-Y5B- PT Sta. 13+56.49

-Y5B- PC Sta. 14+87.66

-Y5B- PT Sta. 17+77.81

-Y5B- PC Sta. 20+00.34

-Y5B- PT Sta. 22+77.22

-Y5B- POT Sta. 23+66.01

-Y5B- +51.17 EX. R/W

-Y5B- +54.00 45.00' LT

-Y5B- +77.81 40.00' LT

-Y5B- +58.00 101.00' LT

-Y5B- +05.00 60.00' LT & 40.00' LT

-Y5B- +80.00 90.00' LT & 40.00' LT

-Y5B- +00.34 40.00' LT

-Y5B- +19.66 45.00' LT

-Y5B- +19.19 EX. R/W

-Y5B- +34.75' LT

-Y5B- +77.55

-Y5B- +53.93 39.06' LT

-Y5B- +56.55 EX. R/W

-Y5B- +47.54 EX. R/W

-Y5B- +49.71 37.28' RT

-Y5B- +81.65 40.00' RT

-Y5B- +02.00 57.00' RT

-Y5B- +58.64 59.79' RT

-Y5B- +84.00 76.00' RT

-Y5B- +40.00 60.00' RT

-Y5B- +00.34 40.00' RT

-Y5B- +77.81 40.00' RT

-Y5B- +00.00 66.00' RT

-Y5B- +32.86 EX. R/W

-Y5B- +36.06 EX. R/W

-Y5B- +00.00 40.00' RT & EX. R/W

-Y5B- +51.33 EX. R/W

VANN ROGER MOTSINGER
ELIZABETH MOTSINGER
DB 1834 PG 3039
DB 1546 PG 615
DB 877 PG 160
DB 1592 PG 717
PB 12 PG 85

RONALD D. MOTSINGER
RENEE S. MOTSINGER
DB 2602 PG 22

DANIEL R. ATKINS
BETTY K. ATKINS
DB 1706 PG 156

JEFFREY C. SMITH
and wife
MEGAN M. SMITH
DB 3205 PG 4298
PB 37 PG 58

ASHLEY E. VASIL and
CURTIS H. CHEEKS III
DB 3199 PG 822
PB 37 PG 58

BROOKE B. SPARROW
DB 2571 PG 3696
PB 44 PG 53

EDWIN D. BURKHIMER
DB 2270 PG 2604
PB 44 PG 53

PREFERRED PROPERTIES, LLC
DB 2826 PG 2826
PB 44 PG 53

GARY L. WINSLOW
MARY L. OWENS
DB 2296 PG 3977
PB 44 PG 53

STEPHANIE BLAIR
MARK PRATT
DB 2759
PB 44 PG 53

DONALD J. OTEY
DB 2752 PG 4363
PB 44 PG 53

SAMUEL R. GREENE
JOAN C. GREENE
DB 1852 PG 1636
PB 37 PG 58

HERBERT WASHINGTON CAUDELL
BIRDIE ANN CAUDELL
DB 2188 PG 417
PB 37 PG 58

JAMES K. FINCH
ELIZABETH T. FINCH
DB 2242 PG 655
PB 37 PG 58

RICHARD A. HOWARD
DB 2405 PG 1416
PB 37 PG 58

GEORGE L. LANU
DB 2405 PG 300
PB 37 PG 58

NO CLAIM

DEBRA E. McGEE
DB 1987 PG 1706

SILAS C. AND COURTNEY R. SWAIM
DB 2321 PG 433
PB 37 PG 58

JEREMIAH CAMPBELL
DB 2704 PG 2563

NCDOT
DB 2669 PG 433
PB 44 PG 53

JESSE MIGUEL BERCIAN
DB 2297 PG 4006
PB 44 PG 53

NORTH CAROLINA, LP
DB 3444 PG 1259
PB 46 PG 53

JOHN E. THOMPSON
WIFE, S. THOMPSON
DB 2412 PG 314
PB 44 PG 53

GREGORY WHITAKER
DB 2282 PG 1362
PB 44 PG 53

LEONARD CALLOWAY SR.
DB 2849 PG 2472
PB 37 PG 58

THOMAS G. MANNEL
DONNA J. MANNEL
DB 1840 PG 850
PB 37 PG 58

3 @ 12'X7' RCBC, BURIED 1' WITH 2' SILLS IN BARRELS 2 & 3, BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

1 @ 7'X8' RCBC, BURIED 1', BACKFILLED WITH MIXTURE OF CLASS B RIP RAP AND NATIVE MATERIAL

OUTLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 109 TONS 154 SY GEOTEXTILE SEE DETAIL 2

OUTLET CHANNEL PROTECTION CLASS 'I' RIP RAP EST. 15 TONS 25 SY GEOTEXTILE SEE SHEET 2D-3 DETAIL 'AWW'

STANDARD 'V' DITCH SEE SHEET '2D-1' DETAIL 'Y' SLOPE = -0.97% CLASS 'B' RIP RAP EST 2 TONS 7 SY GEOTEXTILE

SPECIAL CUT DITCH SEE SHEET '2D-1' DETAIL 'B'

REMOVE CB

REMOVE 61' OF PIPE

CULVERT INLET BANK STABILIZATION DETAIL 2

REMOVE EXPANSION JOINT

REMOVE 6' 46' 03.3" E

DO NOT DISTURB

MEREDITH WAY

EMBACK DR

EMBACK CT.

MARLA CT

BLUE STONE LN

TRAVIS DANIEL PB

DOROTHY A. MALONE
DB 1833 PG 1551
DB 1870 PG 2409
PB 37 PG 58

MARTIN W. DELFONTE
DB 1923 PG 2692
PB 37 PG 58

BILLIE L. BAILEY
DB 2214 PG 2656
PB 37 PG 58

CHADWICK G. CHEEK
JANEL D. CHEEK
DB 1871 PG 3091
PB 37 PG 58

CYNTHIA LEIGH ARRINGTON ZICH
DB 1875 PG 125
PB 37 PG 58

STEPHEN R. WHITENER
KATHY G. WHITENER
DB 1984 PG 2156
PB 37 PG 58

WENDALL R. TRUESDALE
NATALIE O. TRUESDALE
DB 1857 PG 2653
PB 37 PG 58

BENJAMIN N. KIEFER
DB 2701 PG 3520
PB 37 PG 58

DANIEL K. SADDLER
KAREN M. SADDLER
DB 1844 PG 3238
PB 37 PG 58

RAY THOMAS MASTIN
VERA LAWS MASTIN
DB 1844 PG 2767
PB 37 PG 58

NICHOLAS CHAD MACK
and spouse CAITLIN ELIZABETH MACK
DB 3196 PG 3166
PB 37 PG 58

ROBERT B. BARKER
LYNN S. BARKER
DB 2229 PG 2353
PB 37 PG 58

MARTY DALE FOULKS
AND WIFE
LOU ANN FOULKS
DB 2172 PG 9

TAPUWA MASANGO
DB 2836 PG 1210

KENNETH EDWARD JOHNSON, SR.
AND WIFE
SHELA MAE JOHNSON
DB 2014 PG 833

IAN GREGORY BARNES
KELLY ANN BOOE
DB 2611 PG 571
PB 47 PG 129

RENEE J. AND ALMUSTAFA MCINTOSH
DB 2677 PG 482
PB 37 PG 58

LAKEANA A. JONES
DB 2605 PG 433
PB 47 PG 129

NAOMI W. DRIGGERS
DONALD L. DRIGGERS
DB 1907 PG 2712
PB 37 PG 58

DB 3196 PG 278
PB 47 PG 129
SARAH REBECCA VALENCIA and husband FERNANDO VALENCIA-ROJAS

OAKHURST HOA, INC.
DB 3045 PG 3241
PB 47 PG 129

RONALD BROWN
DB 2526 PG 1374
PB 37 PG 58

PAVEMENT REMOVAL

PAVED SHOULDER

NOTES:
SEE SHEET 45 FOR -Y5B- PROFILE

REVISIONS

ROW REV. - FEBRUARY 26, 2020 - PUE ADJUSTED ON PARCELS 656 AND 657 TO AVOID BUILDING ON 656. CEH.
ROW REV. - APRIL 9, 2020 - TCE ELIMINATED FROM PARCEL 362 (CLAIM ELIMINATED). CEH.

PLOT DRIVER: NCDOT.pdf_color-eng_50.plt PENTABLE: NCDOT.pshpfl_conventional.tbl
USER: CHARRIS DATE: 5/11/2020 TIME: 5:35:38 PM
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
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-Y8- POT Sta. 17+49.33

KWAMINA T. SCOTT
DB 2832 PG 2727
PB 45 PG 3

SCOTT PROVINCE
RONALD C. PROVINCE, JR.
DB 2687 PG 2257
PB 45 PG 3

TAMMY S. BURCHETTE
DB 2186 PG 3620
PB 25 PG 178

DAVID W. WILLARD
JOYCE S. WILLARD
DB 2859 PG 3914
PB 25 PG 178

KEITH E. BROWNE
DB 2482 PG 4212
PB 45 PG 3

MICHAEL SINNETT
DB 2509 PG 2399
PB 45 PG 3

BRANDON BILLINGS
DB 3163 PG 3178
PB 25 PG 178

CYNTHIA L. WATKINS
DB 2413 PG 694
PB 45 PG 3

LLATOSHA R. HARRIS
DB 3042 PG 210
PB 45 PG 3

GALE A. KEEGAN and DAVID M. KEEGAN
DB 2998 PG 3949
PB 45 PG 3

PAMELA SMITH SECI
DB 2569 PG 1
PB 45 PG 3

JO VAN D. TUR
DB 2742 PG 1
PB 45 PG 3

GUY AND CHF HORTON, TRU
DB 2161 PG 1
PB 45 PG 3

LAKISHA DE

MATTHEW BRINSON
DB 3032 PG 1956
DB 2745 PG 453
PB 25 PG 98

TERRY A. YODER
EVELYN YODER
DB 1230 PG 944
PB 25 PG 178

JANE F. ALLEN
DB 2202 PG 2167
PB 25 PG 178

VIRGEL WAYNE GUNTER
VIVIEN GUNTER
DB 1492 PG 538
DB 2516 PG 2911
PB 25 PG 98

SARAH J. OTTERBURN
DB 2292 PG 4504
PB 25 PG 178

BRENDA M. RANAQAN
DB 2273 PG 1439
PB 25 PG 178

KRISTEN A. BREECE
DB 2939 PG 243
PB 25 PG 98

ROY A. WILSON
BETTY WILSON
DB 1216 PG 1098
PB 25 PG 178

SHELBA J. TALLEY
JONAH R. MOTSINGER
DB 3096 PG 1416
DB 650 PG 244

TERRY W. MOTSINGER and wife
ELLEN R. MOTSINGER
DB 3096 PG 1843
DB 2039 PG 1029
DB 559 PG 154

JONAH RAY MOTSINGER JR.
KATHRYN MOTSINGER
DB 1336 PG 922
DB 2201PG 2173

RICHARD M. SMITH and wife
NATALYA I. SMITH
DB 2988 PG 2757
PB 25 PG 178

WANDA CASTEEL
CELESTE CASTEEL
DB 2584 PG 1596
PB 25 PG 178

JAMES S. BURNS
JENNIFER D. BURNS
DB 2403 PG 3459
PB 25 PG 178

WESLEY CT

NICHOLAS DR

MOTSINGER DR

SEDGEVIEW LN

OAK RIDGE PLACE

NAD 83/95

-Y8- PRC Sta. 12+76.29

-Y8- PC Sta. 11+26.98

-Y8- PT Sta. 13+93.79

-Y8- +75.00
50.00' LT &
EX. R/W

-Y8- +58.68
EX. R/W

-Y8- +05.00
50.00' RT &
EX. R/W

SPECIAL CUT DITCH
SEE SHEET '2D-1'
DETAIL 'D'

-Y8- +80.00
95.00' RT &
50.00' RT

-Y8- +50.00
95.00' RT &
EX. R/W

END CONSTRUCTION
-Y8- Sta. 16+50.00

BEGIN CONSTRUCTION
-Y8- Sta. 12+85.00

-Y8-

PI Sta. 12+02.11	PI Sta. 13+35.80
Δ = 15° 50' 31.1" (LT)	Δ = 22° 26' 27.9" (RT)
D = 10° 36' 37.2"	D = 19° 05' 54.9"
L = 149.31'	L = 117.50'
T = 75.13'	T = 59.51'
R = 540.00'	R = 300.00'
SE = EXIST.	SE = EXIST.

PAVED SHOULDER

NOTE:
SEE SHEET 45 FOR -Y8- PROFILE

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.	SHEET NO.
U-2579AB	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L- W-S BELTWAY

BEGIN PROFILE -L- STA 692+32.98
ELEV = 891.06', TIE TO U-2579B

BM #16
-L- STA 692+32.98
N14°47'4"E 1933.89'
ELEV. = 878.72'

PI = 695+95.00
EL = 898.64'
K = 232
VC = 210'

EXISTING GROUND

PROPOSED GRADE

-L- POC STA 703+89.11
-Y1B- STA 22+26.35

PI = 703+50.00
EL = 921.30'
K = 266
VC = 620'

(+)12.0948%

(+)3.0017%

(+)0.6667%

922.90'

932.30'

STA. 695+75.00 RT
ELEV. 881.76

2' Base Lateral Ditch w/Rib Rap @ 10.49%

STA. 696+50.00 RT
ELEV. 889.63

STA. 697+00.00 RT
ELEV. 901.46

STA. 699+00.00 LT
ELEV. 930.63

STA. 699+00.00 LT
ELEV. 900.72

STA. 700+00.00 RT
ELEV. 913.75

STA. 702+00.00 LT
ELEV. 911.53

STA. 702+89.00 RT
ELEV. 942.63

STA. 703+50.00 RT
ELEV. 941.00

STA. 704+50.00 RT
ELEV. 923.48

STA. 705+00.00 LT
ELEV. 939.18

STA. 705+50.00 RT
ELEV. 937.12

STA. 706+00.00 RT
ELEV. 925.88

Special Cut Ditch @ 4.10%

Special Cut Ditch @ 3.60%

Special Cut Ditch @ 1.60%

4' Base Berm Ditch @ 1.42%

2' Base Berm Ditch @ 2.70%

2' Base Berm Ditch @ 1.04%

NOTE:
SEE SHEETS 4 AND 5 FOR -L- ALIGNMENT

-L- POC STA 705+32.99, ELEV = 922.22'
-Y1BDET- STA 23+56.81, ELEV = 945.19'

-L- W-S BELTWAY

EXISTING GROUND

PROPOSED GRADE

STA. 706+00.00 RT
ELEV. 925.88

STA. 707+25.00 LT
ELEV. 934.35

STA. 707+50.00 RT
ELEV. 925.54

STA. 708+00.00 LT
ELEV. 933.15

STA. 708+00.00 RT
ELEV. 926.31

STA. 707+50.00 RT
ELEV. 923.54

STA. 708+00.00 LT
ELEV. 919.40

STA. 710+50.00 LT
ELEV. 918.15

STA. 711+00.00 LT
ELEV. 917.68

STA. 712+50.00 LT
ELEV. 918.13

STA. 712+50.00 RT
ELEV. 927.71

STA. 713+50.00 LT
ELEV. 923.55

STA. 714+00.00 RT
ELEV. 930.09

STA. 715+00.00 LT
ELEV. 922.47

STA. 715+50.00 RT
ELEV. 929.05

STA. 717+00.00 RT
ELEV. 923.86

STA. 717+50.00 RT
ELEV. 929.71

STA. 719+50.00 LT
ELEV. 927.38

STA. 719+50.00 RT
ELEV. 929.11

(+)0.6667%

(+)0.6667%

922.90'

932.30'

Special Cut Ditch @ 0.23%

Special Cut Ditch @ 0.38%

Special Cut Ditch @ 0.50%

Special Cut Ditch @ 0.47%

Special Cut Ditch @ 0.94%

Special Cut Ditch @ 0.30%

Special Cut Ditch @ 0.72%

Special Cut Ditch @ 0.69%

Special Cut Ditch @ 0.30%

Special Cut Ditch @ 0.30%

Special Cut Ditch @ 2.27%

Berm Ditch @ 1.60%

2' Base Berm Ditch w/Rib Rap @ 6.79%

DITCH LEGEND	
LEFT DITCH	—·—·—
RIGHT DITCH	----------

NOTE:
SEE SHEETS 5 AND 6 FOR -L- ALIGNMENT

REVISIONS

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HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L- W-S BELTWAY

-L- STA 722+96.09
-Y4- STA 30+67.66

-L- STA 725+97.86,
ELEV = 936.29'
-Y4DET- STA 20+36.74,
ELEV = 944.21'

PI = 734+40.00
EL = 941.90'
K = 250
VC = 810'

EXISTING GROUND

PROPOSED GRADE

932.30'

Special Cut Ditch @ 2.27%

Special Cut Ditch @ 1.51%

STA. 721+50.00 RT
ELEV. 932.13

STA. 721+50.00 LT
ELEV. 933.72

STA. 724+50.00 RT
ELEV. 933.86
(+)0.6667%

Special Cut Ditch @ 0.84%

STA. 724+50.00 LT
ELEV. 933.30

Special Cut Ditch @ 0.82%

STA. 725+00.00 RT
ELEV. 933.44

STA. 725+00.00 LT
ELEV. 932.89

Special Cut Ditch @ 0.84%

STA. 726+00.00 LT
ELEV. 932.05

Special Cut Ditch @ 0.72%

STA. 726+50.00 RT
ELEV. 932.34

STA. 729+00.00 RT
ELEV. 934.09

Special Cut Ditch @ 1.40%

STA. 730+00.00 LT
ELEV. 934.69

STA. 731+50.00 RT
ELEV. 937.60

Special Cut Ditch @ 1.58%

STA. 732+00.00 LT
ELEV. 937.85

STA. 732+50.00 RT
ELEV. 946.25

Berm Ditch @ 9.29%

STA. 732+84.00 RT
ELEV. 944.69

Berm Ditch @ 2.32%

STA. 733+18.00 RT
ELEV. 943.90

STA. 733+70.00 RT
ELEV. 949.09

(+)0.6667%

938.97'

Berm Ditch @ 10.15%

NOTE:
SEE SHEETS 6 AND 7 FOR -L- ALIGNMENT

720+00 721+00 722+00 723+00 724+00 725+00 726+00 727+00 728+00 729+00 730+00 731+00 732+00 733+00 734+00

980 970 960 950 940 930 920 910 900 890

-L- W-S BELTWAY

PI = 734+40.00
EL = 941.90'
K = 250
VC = 810'

BM #14
-L- STA. 742+94.99
616' LT.
ELEV. = 892.99'

STA. 738+05.48 RT
ELEV. 936.60

STA. 737+30.24 RT
ELEV. 943.00

STA. 738+81.55 RT
ELEV. 931.37

2' Base Berm Ditch @ 2.28%

STA. 739+07.09 RT
ELEV. 930.80

2' Base Berm Ditch @ 2.27%

STA. 739+25.54 RT
ELEV. 930.31

STA. 739+77.03 RT
ELEV. 929.75

Berm Ditch @ 0.93%

STA. 740+04.92 RT
ELEV. 929.50

Berm Ditch @ 1.12%

STA. 736+50.00 RT
ELEV. 941.42

Berm Ditch @ 3.84%

STA. 737+00.00 RT
ELEV. 939.50

Berm Ditch @ 6.92%

Berm Ditch @ 8.53%

(-)2.5796%

938.97'

4' Base Lateral Ditch w/Rip Rap @ 2.87%

STA. 734+50.00 LT
ELEV. 922.28

STA. 735+50.00 LT
ELEV. 919.41

EXISTING GROUND

PROPOSED GRADE

Special Cut Ditch @ 2.99%

STA. 742+50.00 RT
ELEV. 914.21

STA. 744+00.00 RT
ELEV. 910.78

906.82'

STA. 746+70.00 LT
ELEV. 890.48

2' Base Lateral Ditch @ 1.37%

PIPE HYDRAULIC DATA		
60" RCP-IV Sta.746+58		
DRAINAGE AREA	= 43.87	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120.00	CFS
DESIGN HW ELEVATION	= 884.39	FT
100 YEAR DISCHARGE	= 140.00	CFS
100 YEAR HW ELEVATION	= 885.21	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 230	CFS
OVERTOPPING ELEVATION	= 890.48	FT

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

NOTE:
SEE SHEETS 7 AND 8 FOR -L- ALIGNMENT

734+00 735+00 736+00 737+00 738+00 739+00 740+00 741+00 742+00 743+00 744+00 745+00 746+00 747+00 748+00

960 950 940 930 920 910 900 890 880 870

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-L- W-S BELTWAY

BM #2
-L- STA.759+77.80
680' LT.
ELEV.= 844.44'

906.82'
PROPOSED GRADE
(-)2.5796%
870.71'

2' Base Lateral Ditch @ 1.38%
STA. 749+00.00 RT ELEV. 887.33
2' Base Lateral Ditch @ 1.37%
STA. 749+50.00 RT ELEV. 886.64
4' Base Lateral Ditch @ 1.94%
STA. 750+50.00 LT ELEV. 876.14
STA. 751+50.00 RT ELEV. 882.77
5' Base Lateral Ditch w/Rip Rap @ 3.82%
EXISTING GROUND
4' Base Lateral Ditch @ 0.71%
STA. 754+00.00 RT ELEV. 885.00
STA. 754+50.00 RT ELEV. 882.40
2' Base Lateral Ditch @ 2.80%
STA. 754+50.00 LT ELEV. 860.88
5' Base Lateral Ditch w/Rip Rap @ 3.75%
STA. 755+00.00 LT ELEV. 859.00
5' Base Lateral Ditch w/Rip Rap @ 3.33%
STA. 757+00.00 LT ELEV. 852.63
STA. 757+73.00 LT ELEV. 850.20

DITCH LEGEND	
LEFT DITCH	——·——
RIGHT DITCH	----------

NOTE:
SEE SHEETS 8 AND 9 FOR -L- ALIGNMENT

-L- W-S BELTWAY

PI = 768+79.00
EL = 853.19'
K = 184
VC = 600'

870.71'
PROPOSED GRADE
(-)2.5796%
(+)0.6873%
858.15'
EXISTING GROUND

Special Cut Ditch @ 6.10%
STA. 773+50.00 LT ELEV. 847.70
Special Cut Ditch @ 4.44%
STA. 774+00.00 LT ELEV. 850.25
STA. 774+50.00 LT ELEV. 852.97

NOTE:
SEE SHEETS 9 AND 10 FOR -L- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

-L- W-S BELTWAY

EXISTING GROUND

-L- STA 788+92.10
-Y15REV- STA 47+28.33

-L- STA 786+26.52
ELEV = 865.20'
-Y15- STA 96+71.30
ELEV = 890.06'

PI = 790+12.00
EL = 867.85'
K = 253
VC = 350'

858.15'

(+)0.687 3%

868.29'
(+)0.687 3%

PROPOSED GRADE

NOTE:
SEE SHEET 10 FOR -L- ALIGNMENT

930 920 910 900 890 880 870 860 850 840

776+00 777+00 778+00 779+00 780+00 781+00 782+00 783+00 784+00 785+00 786+00 787+00 788+00 789+00 790+00

-L- W-S BELTWAY

PIPE HYDRAULIC DATA
66" RCP-IV Sta.793+60

DRAINAGE AREA	= 58.58	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 180.00	CFS
DESIGN HW ELEVATION	= 858.53	FT
100 YEAR DISCHARGE	= 200.00	CFS
100 YEAR HW ELEVATION	= 859.06	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 457	CFS
OVERTOPPING ELEVATION	= 870.95	FT

PIPE HYDRAULIC DATA
60" RCP-V Sta.797+42

DRAINAGE AREA	= 48.40	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 140.00	CFS
DESIGN HW ELEVATION	= 863.20	FT
100 YEAR DISCHARGE	= 150.00	CFS
100 YEAR HW ELEVATION	= 863.50	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 416	CFS
OVERTOPPING ELEVATION	= 879.04	FT

PI = 798+06.00
EL = 884.29'
K = 340
VC = 210'

PI = 804+10.00
EL = 893.07'
K = 433
VC = 400'

-L- POC STA 792+28.12
-Y15FLYCA- STA 58+33.94

-L- STA 793+45.42
-Y15FLYAC- STA 60+66.06

-L- STA 795+32.16
-Y15FLYBD- STA 47+63.62

868.29'
(+)2.0707%

PROPOSED GRADE

(+)2.0707%

(+)1.4523%

892.50
(+)1.4523%

EXISTING GROUND

STA: 797+00.00 RT
ELEV: 879.34

Special Cut Ditch @ 0.39%

STA: 798+50.00 RT
ELEV: 871.75

STA: 799+07.00 LT
ELEV: 857.89

4' Base Lateral Ditch w/Rip Rap @ 9.13%

STA: 799+52.00 LT
ELEV: 862.00

2' Base Lateral Ditch w/Rip Rap @ 8.16%

STA: 800+50.00 LT
ELEV: 870.00

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

NOTE:
SEE SHEETS 10 AND 11 FOR -L- ALIGNMENT

930 920 910 900 890 880 870 860 850 840

790+00 791+00 792+00 793+00 794+00 795+00 796+00 797+00 798+00 799+00 800+00 801+00 802+00 803+00 804+00

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-L- W-S BELTWAY

PI = 804+10.00
EL = 893.07'
K = 433
VC = 400'

(+)0.5276%

892.50

PROPOSED GRADE

EXISTING GROUND

Special Cut Ditch @ 1.62%
STA: 809+55.00 RT
ELEV: 890.00

Special Cut Ditch @ 2.03%
STA: 811+00.00 RT
ELEV: 897.43
STA: 811+50.00 LT
ELEV: 895.86
STA: 811+50.00 LT
ELEV: 897.46

Berm Ditch @ 6.95%
STA: 812+11.00 LT
ELEV: 900.10

Berm Ditch @ 4.43%
STA: 812+50.00 LT
ELEV: 893.49

Berm Ditch @ 8.67% w/Rip Rap
STA: 813+67.00 LT
ELEV: 904.35

Berm Ditch @ 9.35%
STA: 814+27.00 LT
ELEV: 914.76

STA: 814+95.01 LT
ELEV: 919.54

(+)0.5276%

900.47'

-L- STA 816+61.94,
-Y16DET- STA 24+94.54,
ELEV 928.47'

NOTE:
SEE SHEET 11 FOR -L- ALIGNMENT

-L- STA 818+32.55
-Y16- STA 23+43.03

PI = 819+10.00
EL = 900.98'
K = 552
VC = 400'

900.47'

(+)0.5276%

(+)1.2520%

STA: 818+00.00 LT
ELEV: 898.20

Special Cut Ditch @ 0.28%

STA: 821+00.00 RT
ELEV: 897.91

STA: 823+00.00 LT
ELEV: 896.89

Special Cut Ditch @ 4.78%

PROPOSED GRADE

STA: 824+00.00 LT
ELEV: 901.38

Special Cut Ditch @ 0.30%

EXISTING GROUND

(+)1.2520%

(-)2.3810%

899.44'

PI = 827+20.00
EL = 911.12'
K = 336
VC = 1,220'

STA: 827+50.00 RT
ELEV: 895.95

STA: 827+95.00 LT
ELEV: 865.45

2' Base Lateral Ditch @ 10.00%

STA: 828+85.00 LT
ELEV: 872.45

2' Base Lateral Ditch @ 10.00%

STA: 829+50.00 LT
ELEV: 865.95

2' Base Lateral Ditch w/Rip Rap @ 9.35%

2' Base Lateral Ditch w/Rip Rap @ 10.00%

STA: 830+00.00 RT
ELEV: 863.10

STA: 831+00.00 RT
ELEV: 854.03

2' Base Lateral Ditch w/Rip Rap @ 8.45%

STA: 832+00.00 RT
ELEV: 862.50

2' Base Lateral Ditch w/Rip Rap @ 4.77%

STA: 831+82.00 LT
ELEV: 842.75

DITCH LEGEND	
LEFT DITCH	—·—·—
RIGHT DITCH	----------

NOTE:
SEE SHEETS 11 AND 12 FOR -L- ALIGNMENT

804+00 805+00 806+00 807+00 808+00 809+00 810+00 811+00 812+00 813+00 814+00 815+00 816+00 817+00 818+00

818+00 819+00 820+00 821+00 822+00 823+00 824+00 825+00 826+00 827+00 828+00 829+00 830+00 831+00 832+00

960 950 940 930 920 910 900 890 880 870

930 920 910 900 890 880 870 860 850 840

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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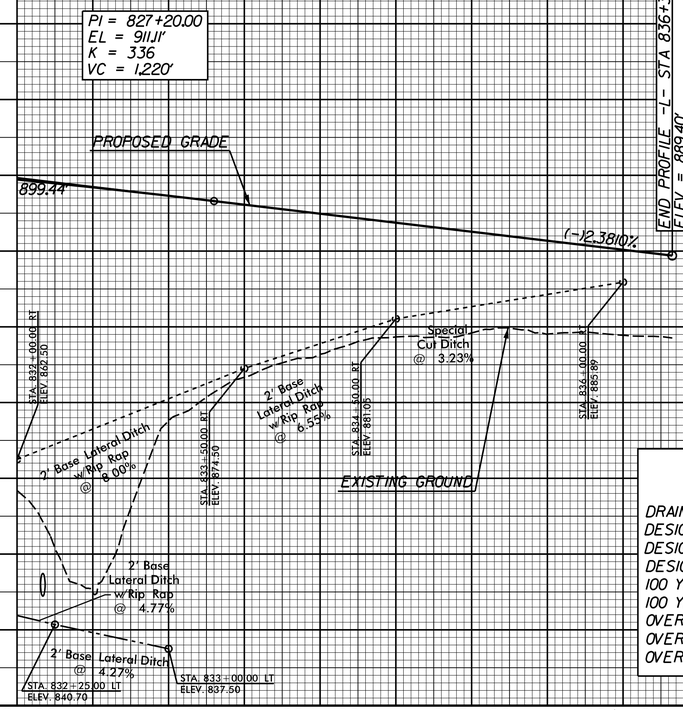
-L- W-S BELTWAY



PIPE HYDRAULIC DATA

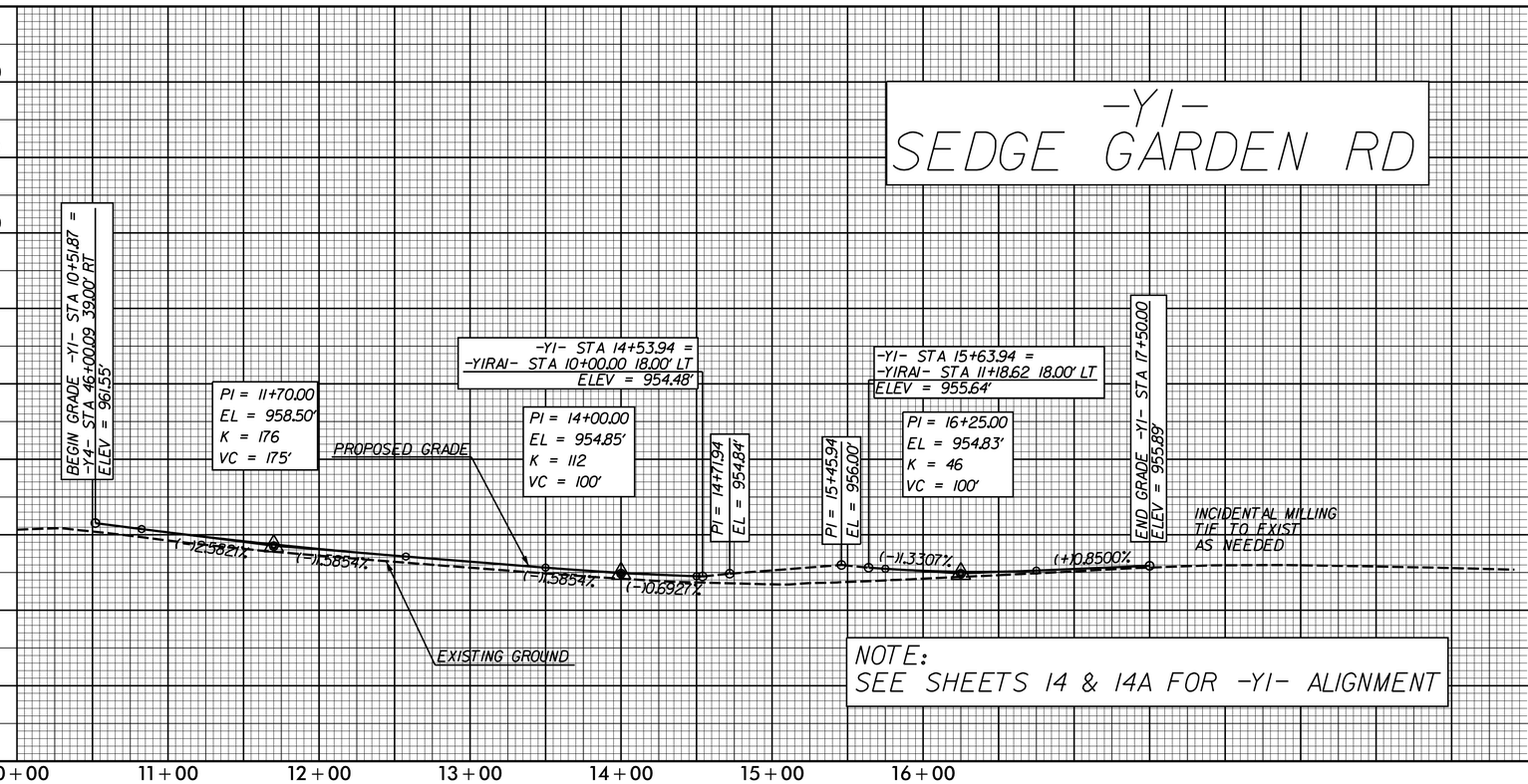
36" RCP-IV Sta.832+17

DRAINAGE AREA	= 12.27	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 41.00	CFS
DESIGN HW ELEVATION	= 857.19	FT
100 YEAR DISCHARGE	= 43.00	CFS
100 YEAR HW ELEVATION	= 857.29	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 189	CFS
OVERTOPPING ELEVATION	= 882.00	FT

DITCH LEGEND	
LEFT DITCH	—·—·—
RIGHT DITCH	----------

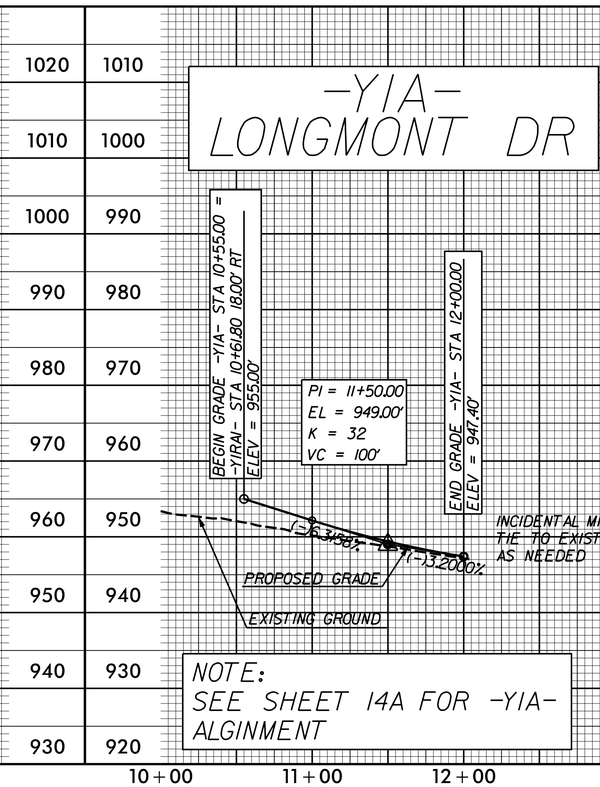
NOTE:
SEE SHEET 12 FOR -L- ALIGNMENT

-YI- SEDGE GARDEN RD



NOTE:
SEE SHEETS 14 & 14A FOR -YI- ALIGNMENT

-YIA- LONGMONT DR



NOTE:
SEE SHEET 14A FOR -YIA- ALIGNMENT

REVISIONS

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TIME: 5:53:58 PM

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	33A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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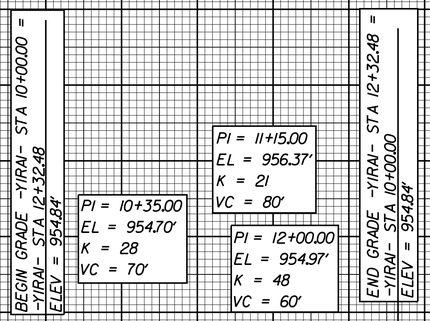
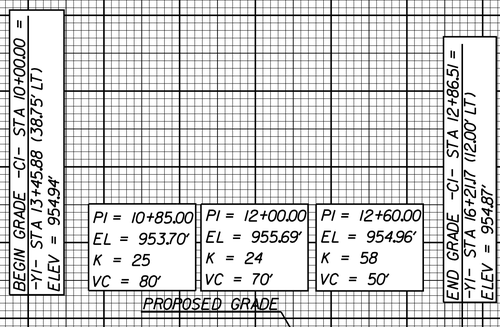
-YIRAI- ROUNDABOUT



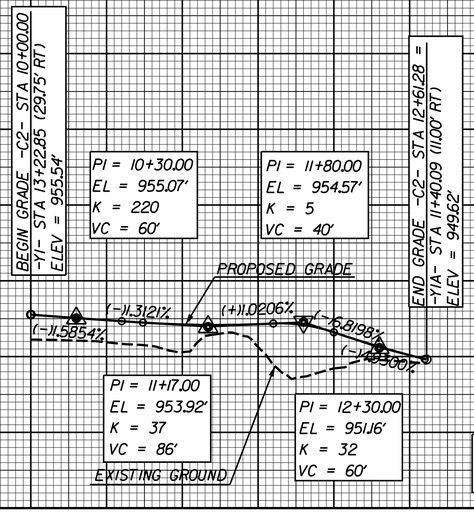
NOTE: SEE SHEET 14A FOR -YIRAI- ALIGNMENT

-CI-



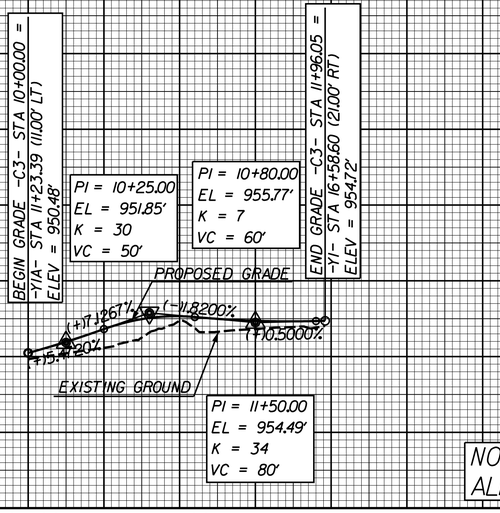
NOTE: SEE SHEET 14A FOR -CI- ALIGNMENT

-C2-



NOTE: SEE SHEET 14A FOR -C2- ALIGNMENT

-C3-



NOTE: SEE SHEET 14A FOR -C3- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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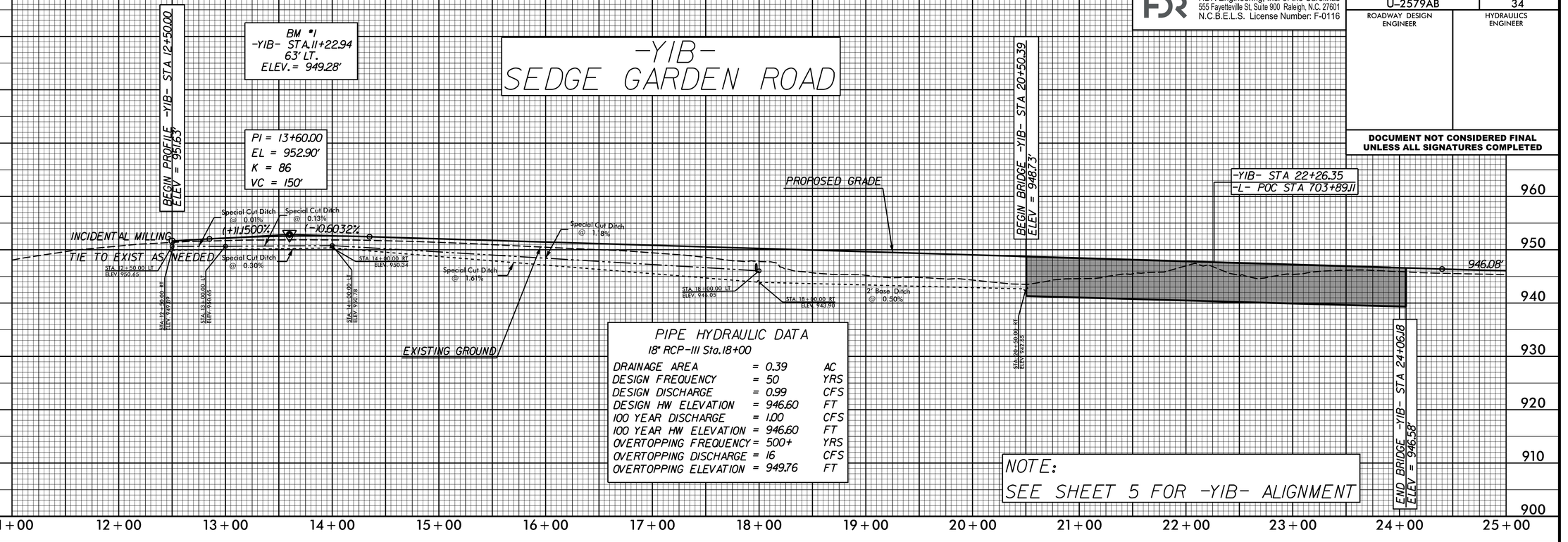
-YIB- SEDGE GARDEN ROAD

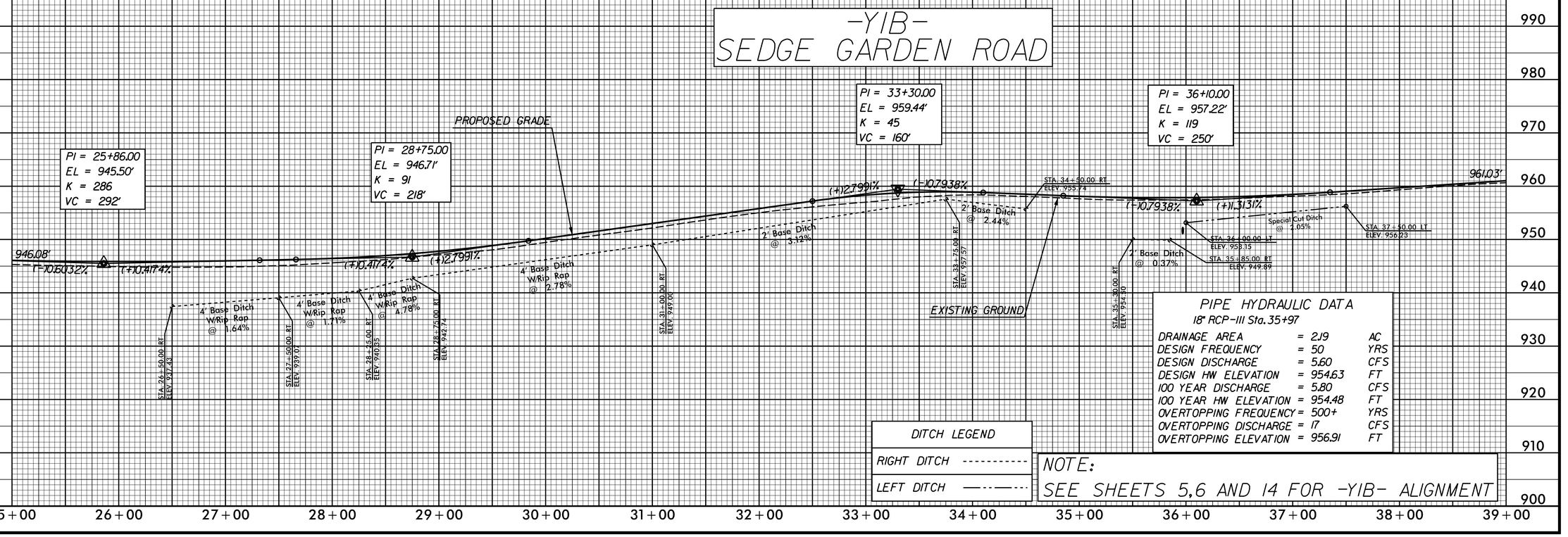


PIPE HYDRAULIC DATA
18" RCP-III Sta. 18+00

DRAINAGE AREA	= 0.39	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 0.99	CFS
DESIGN HW ELEVATION	= 946.60	FT
100 YEAR DISCHARGE	= 1.00	CFS
100 YEAR HW ELEVATION	= 946.60	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 16	CFS
OVERTOPPING ELEVATION	= 949.76	FT

NOTE:
SEE SHEET 5 FOR -YIB- ALIGNMENT

-YIB- SEDGE GARDEN ROAD



PIPE HYDRAULIC DATA
18" RCP-III Sta. 35+97

DRAINAGE AREA	= 2.19	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5.60	CFS
DESIGN HW ELEVATION	= 954.63	FT
100 YEAR DISCHARGE	= 5.80	CFS
100 YEAR HW ELEVATION	= 954.48	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 17	CFS
OVERTOPPING ELEVATION	= 956.91	FT

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—··—··—

NOTE:
SEE SHEETS 5,6 AND 14 FOR -YIB- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-YIB- SEDGE GARDEN ROAD

PI = 39+80.00
EL = 962.08'
K = 42
VC = 114'

EXISTING GROUND

(+)11.3131%

(-)1.4237%

961.03'

STA: 40+00.00 LT
ELEV: 959.36'

Special Cut Ditch @ 2.76%

Special Cut Ditch @ 0.31%

STA: 40+20.00 LT
ELEV: 959.78'

STA: 41+17.00 LT
ELEV: 958.19

PROPOSED GRADE

END PROFILE -YIB- STA 41+31.58 =
-Y4- STA 45+31.45 39.00' LT
ELEV = 959.92'

DITCH LEGEND

LEFT DITCH —··—···

NOTE:
SEE SHEET 14 FOR -YIB- ALIGNMENT

39+00 40+00 41+00 42+00

990 980 970 960 950 940 930 920 910 900

-YIBDET- SEDGE GARDEN RD DETOUR

BEGIN PROFILE -YIBDET- STA 14+35.97 =
-YIB- STA 14+32.39
ELEV.= 951.83

PROPOSED GRADE

PI = 21+25.00
EL = 946.05'
VC = 150'
K = 323

(-)0.8384%

(-)0.3742%

EXISTING GROUND

-YIBDET- STA 23+67.30,ELEV = 945.14' =
-L- STA 705+47.21,ELEV = 922.38'

NOTE:
SEE SHEET 2B-4 FOR -YIBDET- ALIGNMENT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

960 950 940 930

-YIBDET- SEDGE GARDEN RD DETOUR

PI = 26+86.00
EL = 943.95'
VC = 250'
K = 180

PROPOSED GRADE

(-)0.3742%

(+)1.0174%

EXISTING GROUND

END PROFILE -YIBDET- STA 28+39.28=
-YIB- STA 27+89.34
ELEV = 945.51'

NOTE:
SEE SHEET 2B-4 FOR -YIBDET- ALIGNMENT

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00

960 950 940 930 920

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y4- KERNERSVILLE RD

BM #6
-Y4- STA.10+00.00
S48°56'42"W 237.66'
ELEV.= 952.82'

BEGIN PROFILE -Y4- STA 11+50.00
ELEV = 955.97'

PI = 14+00.00
EL = 958.40'
VC = 200'
K = 446

PI = 16+00.00
EL = 961.24'
VC = 150'
K = 781

PI = 18+50.00
EL = 964.31'
K = 312
VC = 150'

PROPOSED GRADE

968.42'

TIE TO EXIST INCIDENTAL MILLING AS NEEDED

EXISTING GROUND

(+)0.9720%
(+)1.4200%
(+)1.4200%
(+)1.2280%
(+)1.2280%
(+)0.7479%

Special Cut Ditch @ 3.65%
Special Cut Ditch @ 1.30%
Special Cut Ditch @ 1.36%

STA 12+60.00 RT ELEV 953.27
STA 12+30.00 RT ELEV 954.00
STA 13+00.00 LT ELEV 953.70
STA 12+46.00 LT ELEV 953.00
STA 16+10.00 RT ELEV 957.80
STA 17+30.00 RT ELEV 958.63

-Y4- STA 20+43.42
-Y4A- STA 10+00.00, ELEV = 965.76

-Y4- STA 20+43.66
-Y4B- STA 11+60.35, ELEV = 965.76

PIPE HYDRAULIC DATA

18" RCP-III Sta.12+50

DRAINAGE AREA	= 1.29	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4.90	CFS
DESIGN HW ELEVATION	= 954.67	FT
100 YEAR DISCHARGE	= 5.10	CFS
100 YEAR HW ELEVATION	= 954.69	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 14	CFS
OVERTOPPING ELEVATION	= 956.50	FT

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—··—··—

NOTE:
SEE SHEETS 6 AND 13 FOR -Y4- ALIGNMENT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

1000 990 980 970 960 950 940 930 920 910

-Y4- KERNERSVILLE RD

PI = 26+10.00
EL = 969.99'
K = 152
VC = 450'

-Y4- STA 26+93.01
-Y4EB- STA 12+01.00
-Y4WB- STA 12+26.46
ELEV = 967.49'

-L- STA 722+96.09
-Y4- STA 30+67.66

BEGIN BRIDGE
-Y4- STA 29+85.66
ELEV = 961.67'

END BRIDGE
-Y4- STA 31+49.65
ELEV = 958.04'

-Y4- STA 34+29.06
-Y4EB- STA 19+59.06
-Y4WB- STA 19+84.35
ELEV = 951.85'

PROPOSED GRADE

968.42'

(+)0.7479%

(-)2.2157%

EXISTING GROUND

944.20'

NOTE:
SEE SHEET 6 FOR -Y4- ALIGNMENT

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

1000 990 980 970 960 950 940 930 920 910

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y4- KERNERSVILLE RD

PIPE HYDRAULIC DATA
30" RCP-IV Sta.40+69

DRAINAGE AREA	= 6.75	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 23.00	CFS
DESIGN HW ELEVATION	= 938.24	FT
100 YEAR DISCHARGE	= 24.00	CFS
100 YEAR HW ELEVATION	= 938.31	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 76	CFS
OVERTOPPING ELEVATION	= 945.05	FT

PROPOSED GRADE

PI = 40+25.00
EL = 938.64'
K = 96
VC = 660'

PI = 44+86.00
EL = 960.06'
K = 84
VC = 224'

-Y4- STA 45+65.98
-Y1B- STA 41+83.63
-Y1- STA 10+00.00
ELEV = 961.59'

PI = 47+80.00
EL = 965.91'
VC = 300'
K = 131

PI = 51+50.00
EL = 964.80'
VC = 300'
K = 500

944.20'

(-)2.2157%

(+)4.6459%

(+)4.6459%

(+)11.9898%

(-)0.3000%

(+)0.3000%

965.05'

Berm Ditch @ 2.69%

Special Cut Ditch @ 0.75%

STA. 42+50.00 LT
ELEV.953.49

STA. 43+50.00 LT
ELEV.956.18

STA. 47+50.00 RT
ELEV.958.50

EXISTING GROUND

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—··—··—

NOTE:
SEE SHEETS 6 AND 14 FOR -Y4- ALIGNMENT

-Y4- KERNERSVILLE RD

BM #5
-Y4- STA.58+69.75
317' LT.
ELEV. = 962.62'

PROPOSED GRADE

PI = 51+50.00
EL = 964.80'
VC = 300'
K = 500

PI = 54+00.00
EL = 965.55'
VC = 150'
K = 189

PI = 55+50.00
EL = 964.81'
VC = 150'
K = 89

PI = 57+20.00
EL = 961.12'
VC = 156'
K = 87

PI = 59+07.00
EL = 953.71'
VC = 186'
K = 100

END PROFILE -Y4- STA 60+00.00
ELEV = 948.30'

965.05'

(+)0.3000%

(-)0.4933%

(-)0.4933%

(-)12.1706%

(-)12.1706%

(-)13.9625%

(-)13.9625%

(-)15.8173%

Special Cut Ditch @ 0.47%

Special Cut Ditch @ 4.59%

Special Cut Ditch @ 1.88%

STA.51+50.00 RT
ELEV.962.24

STA.54+50.00 RT
ELEV.961.30

STA.54+70.00 LT
ELEV.956.88

STA.60+00.00 RT
ELEV.944.91

STA.60+50.00 RT
ELEV.944.66

STA. 60+50.00 LT
ELEV.944.03

-Y4- STA. 56+79.71
-Y4D- STA 10+00.00, ELEV = 961.91'

EXISTING GROUND

TIE TO EXIST INCIDENTAL MILLING AS NEEDED

PIPE HYDRAULIC DATA
18" RCP-III Sta.57+50

DRAINAGE AREA	= 0.63	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 1.60	CFS
DESIGN HW ELEVATION	= 956.80	FT
100 YEAR DISCHARGE	= 1.70	CFS
100 YEAR HW ELEVATION	= 956.83	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 15	CFS
OVERTOPPING ELEVATION	= 959.46	FT

NOTE:
SEE SHEETS 14 AND 15 FOR -Y4- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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BEGIN PROFILE -Y4DET- STA 10+36.67
ELEV = 964.86'

PI = 12+65.00
EL = 966.57'
K = 84
VC = 150'

(+)0.7479%

(-)1.0355%

PROPOSED GRADE

PI = 17+55.00
EL = 961.50'
K = 145
VC = 150'

(-)1.0355%

(-)12.0680%

PI = 23+00.00
EL = 950.23'
K = 89
VC = 150'

(-)12.0680%

(-)13.7616%

EXISTING GROUND

PROPOSED GRADE

PI = 28+00.00
EL = 931.42'
K = 110
VC = 850'

(-)13.7616%

(+)3.9855%

EXISTING GROUND

END PROFILE -Y4DET- STA 32+89.34
ELEV = 950.92'

NOTE:
SEE SHEET 2B-5 FOR -Y4DET- ALIGNMENT

REVISIONS

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TIME: 5:55:28 PM

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y4RPA-

BEGIN PROFILE -Y4RPA- STA 10+00.00 =
-L- STA 707+34.10 59.00' LT
ELEV = 921.34'

EXISTING GROUND

PI = 12+10.00
EL = 922.73'
K = 431
VC = 220'

PI = 18+00.00
EL = 923.61'
K = 141
VC = 650'

947.43'

PROPOSED GROUND

(+)0.6600%
(+)0.1500%
(+)0.1500%
(+)4.7638%

NOTE:
SEE SHEET 6 FOR -Y4RPA- ALIGNMENT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

960 950 940 930 920 910 900 890

-Y4RPA-

END PROFILE -Y4RPA- STA 25+38.99 =
-Y4EB- STA 16+80.86 14.00' LT
ELEV = 956.90'

EXISTING GROUND

PI = 24+60.00
EL = 955.06'
K = 41
VC = 100'

947.43'

PROPOSED GROUND

(+)2.3400%
(+)4.7638%

NOTE:
SEE SHEET 6 FOR -Y4RPA- ALIGNMENT

23+00 24+00 25+00 26+00 27+00

1000 990 980 970 960 950 940 930 920 910

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y4RPB-

BEGIN PROFILE -Y4RPB- STA 10+00.00 = -L- STA 708+09.09 59.00' RT
ELEV. = 926.88'

EXISTING GROUND

PI = 12+50.00
EL = 928.57'
K = 791
VC = 150'

PI = 16+70.00
EL = 932.20'
K = 144
VC = 450'

PROPOSED GRADE

(+)0.6750%
(+)0.8647%
(+)0.8647%
(+)4.0000%

2' Base Ditch W/Rip Rap @ 8.00%
STA. 22+25.00 RT
ELEV. 934.50

STA. 22+79.00 RT
ELEV. 938.82

2' Base Ditch W/Rip Rap @ 7.60%

Ditch continues to -Y4SPB1- Sta. 24+80 Elev. 954.10

END PROFILE -Y4RPB- STA. 22+78.69
ELEV. = 956.55'

DITCH LEGEND	
RIGHT DITCH	----------

NOTE:
SEE SHEET 6 FOR -Y4RPB- ALIGNMENT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

980 970 960 950 940 930 920 910 900 890

990 980 970 960 950 940 930 920 910 900

24+00 25+00 26+00 27+00 28+00

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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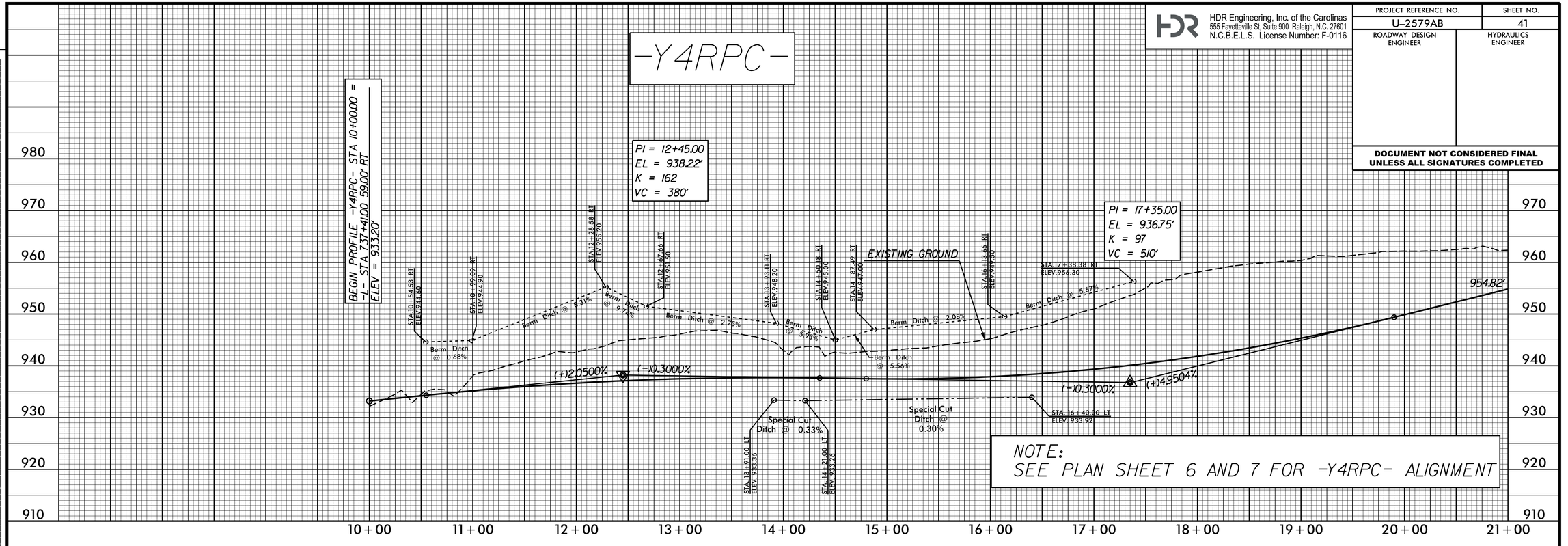
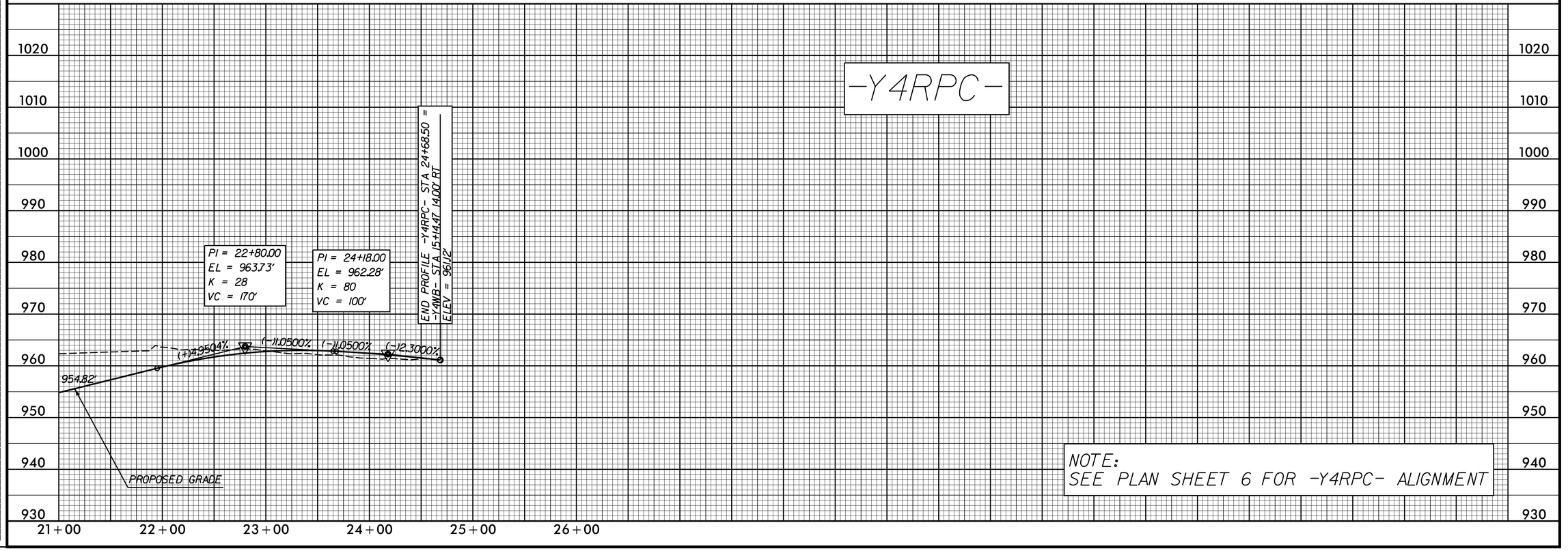
REVISIONS





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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y4RPD-

BEGIN PROFILE -Y4RPD- STA 10+00.00 = -L- STA 73+32.60 59.00' LT
ELEV = 934.05'

PI = 12+60.00
EL = 937.61'
K = 262
VC = 280'

EXISTING GROUND

PI = 16+50.00
EL = 938.78'
K = 231
VC = 300'

(+)1.3692%
(+)0.3000%
(+)0.3000%
(+)1.6000%

PROPOSED GRADE

END PROFILE -Y4RPD- STA 22+35.14
ELEV = 948.14'

NOTE:
SEE SHEET 6 AND 7 FOR -Y4RPD- ALIGNMENT

-Y4SPD1-

BEGIN PROFILE -Y4SPD1- STA 22+35.14 = -Y4RPD- STA 22+35.14 24.00' RT
ELEV = 948.14'

PROPOSED GRADE

PI = 24+20.00
EL = 951.10'
K = 71
VC = 220'

(+)1.6000%
(-)1.4836%

END PROFILE -Y4SPD1- STA 25+51.28 = -Y4EB- STA 20+43.98 22.50' RT
ELEV = 949.15'

EXISTING GROUND

NOTE:
SEE SHEET 6 FOR -Y4SPD1- ALIGNMENT

-Y4SPD2-

BEGIN PROFILE -Y4SPD2- STA 22+35.14 = -Y4RPD- STA 22+35.14 12.00' LT
ELEV = 947.90'

PI = 23+66.00
EL = 950.71'
K = 38
VC = 120'

PROPOSED GRADE

(+)1.2150%
(+)3.2896%
(+)3.1265%

END PROFILE -Y4SPD2- STA 24+66.82 = -Y4WB- STA 17+57.01 22.42' RT
ELEV = 955.60'

PI = 24+46.00
EL = 954.95'
K = 19
VC = 40'

EXISTING GROUND

NOTE:
SEE SHEET 6 FOR -Y4SPD2- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y4SPA-

BEGIN PROFILE -Y4SPA- STA 22+21.97 = -Y4RPA- STA 22+21.97 8.00' LT
ELEV = 943.62'

PI = 23+76.00
EL = 951.63'
K = 26
VC = 190'

END PROFILE -Y4SPA- STA 25+41.78 = -Y4WB- STA 24+11.68 22.50' LT
ELEV = 947.91'

(+)5.2000%
(-)12.2047%
EXISTING GROUND
PROPOSED GRADE

NOTE:
SEE SHEET 6 FOR -Y4SPA- ALIGNMENT

-Y4SPBI-

BEGIN PROFILE -Y4SPBI- STA 22+78.69 = -Y4RPB- STA 22+78.69 24.00' RT
ELEV = 956.55'

PI = 24+70.00
EL = 964.20'
K = 157
VC = 360'

END PROFILE -Y4SPBI- STA 27+03.80 = -Y4WB- STA 11+21.05 22.50' LT
ELEV = 967.32'

(+)4.0000%
(+)11.7116%
EXISTING GROUND
PROPOSED GRADE

NOTE:
SEE SHEET 6 FOR -Y4SPBI- ALIGNMENT

-Y4SPB2-

BEGIN PROFILE -Y4SPB2- STA 22+78.69 = -Y4RPB- STA 22+78.69 12.00' LT
ELEV = 956.31'

PI = 24+42.00
EL = 963.24'
K = 34
VC = 180'

END PROFILE -Y4SPB2- STA 25+73.07 = -Y4EB- STA 14+26.89 22.50' LT
ELEV = 961.93'

PROPOSED GRADE
(+)4.2450%
(-)11.0000%
EXISTING GROUND

NOTE:
SEE SHEET 6 FOR -Y4SPB2- ALIGNMENT

-Y4SPC-

BEGIN PROFILE -Y4SPC- STA 21+69.21 = -Y4RPC- STA 21+69.21 8.00' LT
ELEV = 958.29'

PI = 23+15.00
EL = 966.09'
K = 62
VC = 280'

END PROFILE -Y4SPC- STA 24+77.56 = -Y4WB- STA 10+88.22 22.50' RT
ELEV = 967.43'

(+)5.3500%
(+)10.8269%
EXISTING GROUND
PROPOSED GRADE

NOTE:
SEE SHEET 6 FOR -Y4SPC- ALIGNMENT

REVISIONS

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TIME: 5:56:44 PM

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y4A- LINVILLE RD

BEGIN PROFILE -Y4A- STA 10+42.10
ELEV = 967.49'

END PROFILE -Y4A- STA 18+00.00
ELEV = 958.90'

BM #12
-Y4A- STA. 21+94.02
N43°34'36"W 501.12'
ELEV. = 955.58'

PI = 12+50.00
EL = 966.55'
K = 160
VC = 150'

PROPOSED GRADE

(-)0.4539%

(-)1.3902%

EXISTING GROUND

TIE TO EXIST. INCIDENTAL MILLING AS NEEDED

Special Cut Ditch @ 0.97%

Special Cut Ditch @ 0.24%

STA. 15+08.00 LT
ELEV 959.35

STA. 17+50.00 LT
ELEV 956.93

STA. 18+25.06 LT
ELEV 956.75

1010 1000 990 980 970 960 950 940 930 920

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

DITCH LEGEND

LEFT DITCH —·—·—·—

NOTE:
SEE SHEET 13 FOR -Y4A- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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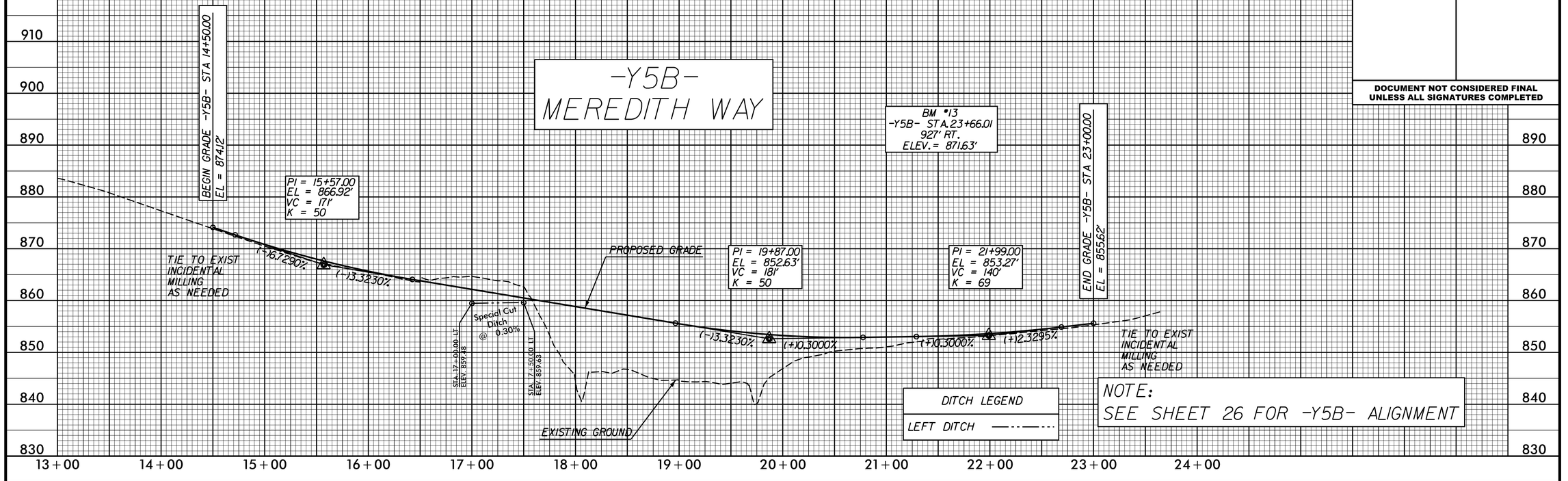
-Y5B- MEREDITH WAY

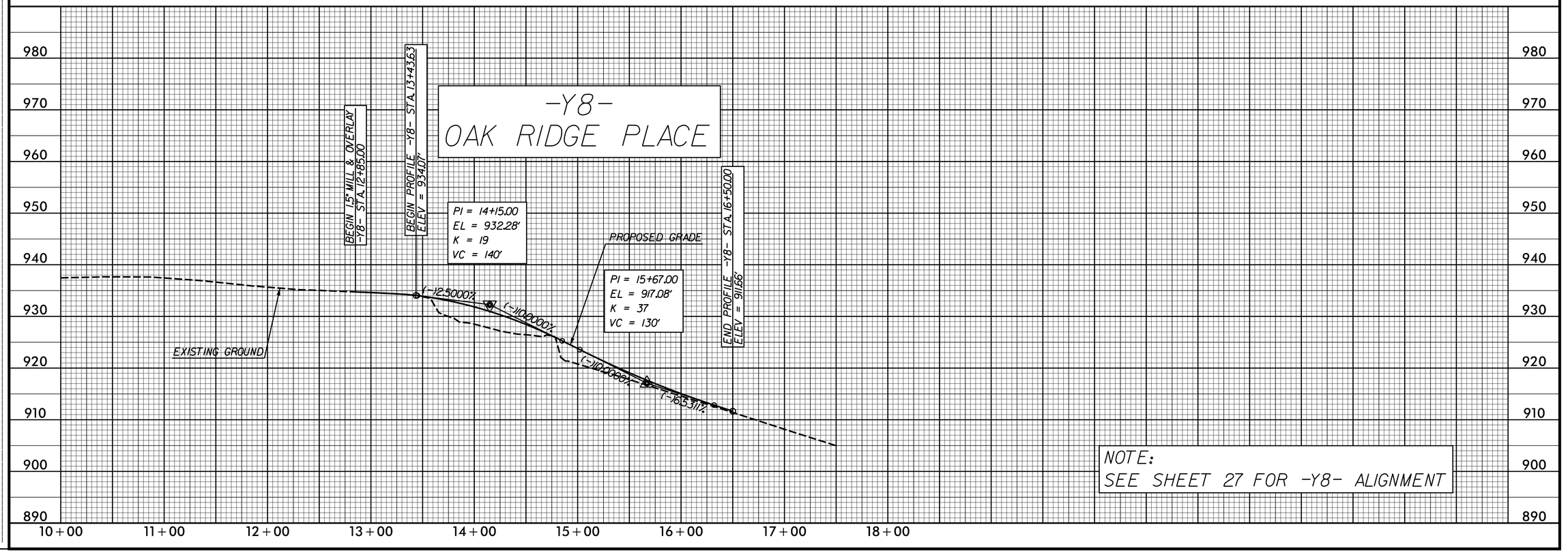


DITCH LEGEND

LEFT DITCH —··—···

NOTE:
SEE SHEET 26 FOR -Y5B- ALIGNMENT

-Y8- OAK RIDGE PLACE



NOTE:
SEE SHEET 27 FOR -Y8- ALIGNMENT

REVISIONS

PLOT DRIVER: NCDOT.pdf.color_eng_50.plt
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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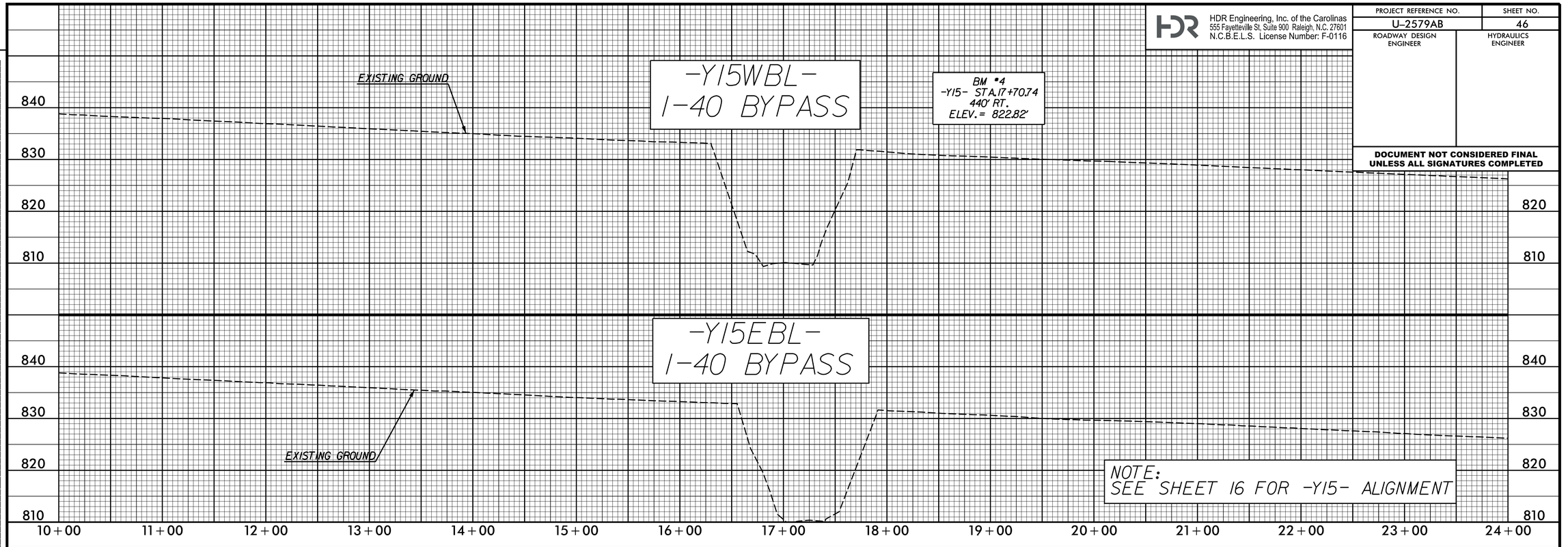

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

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-Y15WBL- I-40 BYPASS

BM #11
-Y15- STA. 43+55.99
789' LT.
ELEV. = 837.73'

EXISTING GROUND

-Y15EBL- I-40 BYPASS

EXISTING GROUND

NOTE:
SEE SHEETS 17 AND 18 FOR -Y15- ALIGNMENT

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

840 830 820 810

-Y15WBL- I-40 BYPASS

BEGIN PROFILE -Y15REVWBL- STA 8+00.00
ELEV = 825.96'

EXISTING GROUND

PI = 10+00.00
EL = 826.83'
VC = 210'
K = 1037

(+)0.4372% (+)0.6397%

-Y15REV- (WBL) I-40 BYPASS

BM #10
-Y15REV- STA. 14+55.85
526' LT.
ELEV. = 830.80'

EXISTING GROUND

PROPOSED GRADE

PI = 14+95.00
EL = 830.00'
VC = 210'
K = 3799

(+)0.6397% (+)0.5844%

END PROFILE -Y15REV- (WBL)
STA 16+00.00 23.00' LT
ELEV = 830.61'

-Y15REV- I-40 BYPASS

BEGIN PROFILE -Y15REV- STA 16+00.00 ELEV = 830.61'

PI = 14+50.00
EL = 829.73'
VC = 210'
K = 2093

STA. 15+70 RT ELEV. 836.62

Berm Ditch @ 9.92%

(+)0.5844%

831.78'

-Y15EBL- I-40 BYPASS

EXISTING GROUND

BEGIN PROFILE -Y15REVEBL- STA 8+00.00
ELEV= 826.07'

DITCH LEGEND
RIGHT DITCH ----------

-Y15REV- (EBL) I-40 BYPASS

Special Cut Ditch w/RIP RAP @ 1.74%

STA. 8+00.00 RT ELEV. 815.60

Special Cut Ditch w/Rip Rap @ 1.74%

STA. 8+00.00 RT ELEV. 815.60

PI = 12+40.00
EL = 828.30'
VC = 210'
K = 1166

Special Cut Ditch @ 0.62%

Ditch continues to -Y15REV- Sta. 16+81 Elev. 825.61

PROPOSED GRADE

Berm Ditch @ 9.92%

STA. 13+00.00 RT ELEV. 831.00

STA. 14+25.00 RT ELEV. 835.00

STA. 15+70.00 RT ELEV. 836.62

Berm Ditch @ 7.51%

STA. 12+50.00 RT ELEV. 827.75

Berm Ditch @ 6.50%

STA. 12+50.00 RT ELEV. 823.42

(+)0.5047% (+)0.6847% (+)0.5844%

STA. 11+76.00 RT ELEV. 822.12

Berm Ditch @ 3.20%

EXISTING GROUND

Special Cut Ditch @ 0.62%

NOTE:
SEE SHEETS 18 AND 19 FOR -Y15- AND -Y15REV- ALIGNMENTS

END PROFILE -Y15REV- (EBL)
STA 16+00.00 23.00' RT
ELEV = 830.61'

Ditch continues to -Y15REV- Sta. 16+50 Elev. 825.90

Special Cut Ditch @ 1.28%

STA. 16+50.00 RT ELEV. 825.90

STA. 16+81.00 RT ELEV. 825.61

STA. 17+50.00 RT ELEV. 826.49

STA. 16+50.00 RT ELEV. 825.90

STA. 16+81.00 RT ELEV. 825.61

52+00 53+00 54+00 55+00 56+00 <= > 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

840 830 820 810

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15REV- I-40 BYPASS

PIPE HYDRAULIC DATA
54" RCP-III Sta.16+60

DRAINAGE AREA	= 19.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21.50	CFS
DESIGN HW ELEVATION	= 827.61	FT
100 YEAR DISCHARGE	= 21.50	CFS
100 YEAR HW ELEVATION	= 827.61	FT
OVERTOPPING FREQUENCY	= <10	YRS
OVERTOPPING DISCHARGE	= 22	CFS
OVERTOPPING ELEVATION	= 828.00	FT

CULVERT HYDRAULIC DATA
8' X 7' RCBC (BURIED 1.0') Sta. 30+13

DRAINAGE AREA	= 0.33	SQ.MI.
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 370	CFS
DESIGN HW ELEVATION	= 831.24	FT
100 YEAR DISCHARGE	= 430	CFS
100 YEAR HW ELEVATION	= 831.93	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 1380	CFS
OVERTOPPING ELEVATION	= 851.93	FT

-Y15REV- STA 20+00.00, ELEV = 832.95'
-Y15RPB- STA 41+32.99, ELEV = 834.39'

PI = 21+27.00
EL = 833.69'
VC = 315'
K = 181

EXISTING GROUND

PROPOSED GRADE

831.78'

(±)0.5844%

(+)2.3275%

858.66'

2' Base Lateral Ditch w/Rip Rap @ 5.07%

4' Base Lateral Ditch w/Rip Rap @ 9.86%

STA. 29+00.00 RT
ELEV. 834.47

STA. 30+00.00 RT
ELEV. 829.60

STA. 30+50.00 RT
ELEV. 824.67

NOTE:
SEE SHEET 19 FOR -Y15REV- ALIGNMENT

-Y15REV- I-40 BYPASS

PIPE HYDRAULIC DATA
36" RCP-IV Sta.34+75

DRAINAGE AREA	= 11.69	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 30.00	CFS
DESIGN HW ELEVATION	= 835.05	FT
100 YEAR DISCHARGE	= 31.00	CFS
100 YEAR HW ELEVATION	= 835.10	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 168	CFS
OVERTOPPING ELEVATION	= 864.08	FT

PROPOSED GRADE

(+)2.3275%

858.66'

891.25'

4' Base Lateral Ditch w/Rip Rap @ 7.34%

6' Base Lateral Ditch w/Rip Rap @ 1.66%

4' Base Lateral Ditch @ 2.20%

4' Base Lateral Ditch w/Rip Rap @ 4.48%

4' Base Lateral Ditch w/Rip Rap @ 4.67%

Lateral 'V' Ditch @ 2.40%

STA. 34+50.00 LT
ELEV. 835.00

STA. 35+00.00 LT
ELEV. 832.33

STA. 35+50.00 LT
ELEV. 833.43

STA. 38+00.00 LT
ELEV. 844.63

STA. 40+50.00 LT
ELEV. 856.31

STA. 42+90.00 LT
ELEV. 879.30

STA. 45+70.00 LT
ELEV. 885.60

STA. 38+50.00 RT
ELEV. 837.95

EXISTING GROUND

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—··—··—

NOTE:
SEE SHEETS 10 AND 19 FOR -Y15REV- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15REV- I-40 BYPASS

-Y15REV- Sta.48+84.90
-Y15FLYCA- STA 62+52.47

-Y15REV- STA 47+28.33
-L- STA 788+92.10

BEGIN BRIDGE -Y15REV- STA 46+12.81
ELEV = 891.55'

-Y15REV- STA 50+37.24,ELEV = 901.06'
-Y15LPA- STA 26+95.04,ELEV = 900.34'

-Y15REV- STA 52+00.08
-Y15FLYAC- STA 53+01.37

PI = 53+15.00
EL = 907.89'
VC = 850'
K = 294

EXISTING GROUND

(+)2.3275% (-)10.5663%

904.01'

STA: 48+75.00 LT
ELEV. 895.05

Special Cut Ditch @ 0.43%

STA: 49+40.00 LT
ELEV. 894.77

END BRIDGE
-Y15REV- STA 48+57.61
ELEV = 897.24'

PI = 53+15.00
EL = 907.89'
VC = 850'
K = 294

STA: 54+00.00 LT
ELEV. 898.50

Special Cut Ditch @ 0.44%

STA: 56+25.00 LT
ELEV. 899.50

PROPOSED GRADE

STA: 59+00.00 LT
ELEV. 900.30

Special Cut Ditch @ 0.34%

-Y15REV- I-40 BYPASS

PROPOSED GRADE

EXISTING GROUND

904.01'

(-)0.5663%

Special Cut Ditch @ 0.34%

PROPOSED GRADE

STA: 65+34.00 RT
ELEV. 907.00

STA: 65+76 RT
ELEV. 905.90

STA: 66+75.00 RT
ELEV. 900.00

Berm Ditch @ 3.57%

2' Base Berm Ditch @ 9.18% w/ Rip Rap

Special Cut Ditch @ 2.71%

STA: 65+34.00 LT
ELEV. 898.16

STA: 66+00.00 LT
ELEV. 896.37

END PROFILE -Y15REV-
STA 67+00.00 ELEV = 900.05'

-Y15REV- (WBL) I-40 BYPASS

PROPOSED GRADE

(-)0.5663%

(-)1.6518%

BEGIN PROFILE -Y15REV- (WBL)
STA 67+00.00 23.00' LT
ELEV = 900.05'

PI = 70+00.00
EL = 898.35'
K = 249
VC = 270'

Ditch continues to -Y15REV- Sta. 74+07.00 Elev. 883.70

891.74'

STA: 73+50.00 LT
ELEV. 886.88

Lateral 'V' Ditch @ .48%

STA: 72+00.00 LT
ELEV. 888.10

Lateral 'V' Ditch @ 3.82%

EXISTING GROUND

-Y15REV- (EBL) I-40 BYPASS

PI = 70+40.00
EL = 898.12'
K = 247
VC = 365'

PROPOSED GRADE

(-)0.5688%

(-)2.0440%

Special Cut Ditch @ 2.20%

890.76'

BEGIN PROFILE -Y15REV- (EBL)
STA 67+00.00 23.00' RT
ELEV = 900.05'

STA: 72+00.00 RT
ELEV. 890.56

STA: 72+46.00 RT
ELEV. 889.55

EXISTING GROUND

STA: 73+00.00 RT
ELEV. 883.00

2' Base Lateral Ditch @ 2.77%

STA: 73+81.00 RT
ELEV. 880.76

PIPE HYDRAULIC DATA

30" CSP-III Sta.74+45

DRAINAGE AREA	= 5.56	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14.00	CFS
DESIGN HW ELEVATION	= 882.88	FT
100 YEAR DISCHARGE	= 15.00	CFS
100 YEAR HW ELEVATION	= 882.96	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 39	CFS
OVERTOPPING ELEVATION	= 885.46	FT

DITCH LEGEND

RIGHT DITCH ----------

LEFT DITCH —·—·—

NOTE:
SEE SHEET 20 FOR -Y15REV- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	50

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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-Y15REV- (WBL) I-40 BYPASS

PI = 79+80.00
EL = 882.16'
K = 287
VC = 250'

PROPOSED GRADE

891.74'

STA. 74+07.00 LT
ELEV. 883.70

STA. 79+75.00 LT
ELEV. 878.76

(-)11.6516%

(-)0.7808%

Special Cut Ditch
@ 7.08%

STA. 81+70.00 LT
ELEV. 864.95

END PROFILE -Y15REV- (WBL) STA 81+50.00 23.00' LT
ELEV = 880.83'

EXISTING GROUND

PIPE HYDRAULIC DATA
48" RCP-IV (BURIED 1.0') Sta.76+50

DRAINAGE AREA	= 46.05	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 140.00	CFS
DESIGN HW ELEVATION	= 873.80	FT
100 YEAR DISCHARGE	= 150.00	CFS
100 YEAR HW ELEVATION	= 874.53	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 209	CFS
OVERTOPPING ELEVATION	= 879.96	FT

PIPE HYDRAULIC DATA
60" RCP-III (BURIED 1.0') Sta.86+00

DRAINAGE AREA	= 73.74	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 140.00	CFS
DESIGN HW ELEVATION	= 871.20	FT
100 YEAR DISCHARGE	= 150.00	CFS
100 YEAR HW ELEVATION	= 871.56	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 223	CFS
OVERTOPPING ELEVATION	= 875.00	FT

PI = 77+25.00
EL = 884.12'
K = 194
VC = 225'

-Y15REV- (EBL) I-40 BYPASS

PROPOSED GRADE

890.76'

(-)12.0440%

(-)0.8866%

2' Base
Lateral Ditch
@ 10.00%

Special Cut Ditch
@ 6.29%

Special Cut Ditch
@ 1.99%

STA. 75+00.00 RT
ELEV. 884.44

STA. 76+50.00 RT
ELEV. 875.00

STA. 77+00.00 RT
ELEV. 870.00

STA. 77+50.00 RT
ELEV. 880.81

STA. 80+50.00 RT
ELEV. 874.85

END PROFILE -Y15REV- (EBL) STA 80+24.53 23.00' RT
ELEV= 881.46'

EXISTING GROUND

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—·—·—

NOTE:
SEE SHEETS 20 AND 21 FOR -Y15REV- ALIGNMENT

74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00

-Y15REV- (WBL) I-40 BYPASS

BM #8
-Y15REV- STA.96+28.30
617' RT.
ELEV.= 928.89'

-Y15REV- (WBL) STA 96+28.30 23.00' LT L.B. =
-Y15- (WBL) STA 145+00.00 23.00' LT L.A.

-Y15REVWBL- STA 96+28.30 23.00' LT L.B. =
-Y15WBL- STA 145+00.00 23.00' LT L.A.

-Y15WBL- I-40 BYPASS

-Y15REV- (EBL) I-40 BYPASS

EXISTING GROUND

-Y15REV- (EBL) STA 96+28.30 23.00' RT L.B. =
-Y15- (EBL) STA 145+00.00 23.00' RT L.A.

-Y15REVEBL- STA 96+28.30 23.00' RT L.B. =
-Y15EBL- STA 145+00.00 23.00' RT L.A.

-Y15EBL- I-40 BYPASS

NOTE:
SEE SHEETS 21 AND 22 FOR -Y15- AND -Y15REV- ALIGNMENTS

88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 145+00 146+00 147+00 148+00 149+00 150+00

REVISIONS

PLOT DRIVER: NCDOT.pdf.color_eng.50.plt
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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15WBL- I-40 BYPASS

EXISTING GROUND

-Y15EBL- I-40 BYPASS

EXISTING GROUND

NOTE:
SEE SHEETS 22 AND 23 FOR -Y15- ALIGNMENT

920
910
900
890
930

150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00 164+00

-Y15WBL- I-40 BYPASS

EXISTING GROUND

-Y15EBL- I-40 BYPASS

EXISTING GROUND

NOTE:
SEE SHEETS 23 AND 24 FOR -Y15- ALIGNMENT

940
930
920
910

164+00 165+00 166+00 167+00 168+00 169+00 170+00 171+00 172+00 173+00 174+00 175+00 176+00 177+00 178+00

REVISIONS

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TIME: 5:59:14 PM

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.	SHEET NO.
U-2579AB	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15FLYAC-

BEGIN PROFILE -Y15FLYAC- STA 10+00.00 = -Y15REV- STA 93+60.30 59' LT
ELEV = 889.42'

PI = 11+74.00
EL = 886.30'
K = 997
VC = 170'

PI = 13+03.00
EL = 884.21'
K = 464
VC = 72'

PI = 13+75.00
EL = 882.93'
K = 222
VC = 72'

PI = 18+56.00
EL = 875.94'
K = 156
VC = 617'

(-)11.792%
(-)11.621%
(-)11.621%
(-)11.777%
(-)11.453%
(-)11.453%
(+)2.511%

PROPOSED GRADE
889.60'
EXISTING GROUND

STA: 15+74.60 RT
ELEV: 861.00

Lateral V Ditch @ 2.04%

STA: 16+50.00 RT
ELEV: 859.45

2' Base Lateral Ditch @ 1.09%

STA: 17+60.00 RT
ELEV: 858.23

8' Base Lateral Ditch w/Rip Rap @ 0.77%

STA: 18+25.00 RT
ELEV: 857.76

8' Base Lateral Ditch w/Rip Rap @ 0.60%

STA: 21+82.00 LT
ELEV: 864.95

Special Cut Ditch @ 8.16%

STA: 22+19.00 RT
ELEV: 855.40

NOTE:
SEE SHEETS 20 AND 21 FOR -Y15FLYAC- ALIGNMENT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

930 920 910 900 890 880 870 860 850 840

-Y15FLYAC-

PIPE HYDRAULIC DATA
60" RCP(LRFD DESIGN) Sta.28+60

DRAINAGE AREA	= 64.67	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 130.00	CFS
DESIGN HW ELEVATION	= 860.38	FT
100 YEAR DISCHARGE	= 140.00	CFS
100 YEAR HW ELEVATION	= 860.66	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 640	CFS
OVERTOPPING ELEVATION	= 900.91	FT

-Y15FLYAC- STA 32+00.00,
ELEV = 909.70'
-Y15RPA- STA 10+00.00,
ELEV = 910.18'

PROPOSED GRADE
924.77'
(+)2.511%
889.60'

Special Cut Ditch @ 8.16%

STA: 24+50.00 LT
ELEV: 886.82

STA: 26+82.60 RT
ELEV: 847.43

8' Base Lateral Ditch w/Rip Rap @ 0.81%

STA: 28+87.00 RT
ELEV: 845.77

EXISTING GROUND

DITCH LEGEND
RIGHT DITCH ----------
LEFT DITCH —·—·—

NOTE:
SEE SHEET 20 FOR -Y15FLYAC- ALIGNMENT

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

930 920 910 900 890 880 870 860 850 840

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PIPE HYDRAULIC DATA
42" RCP-IV Sta. 38+75

DRAINAGE AREA	= 16.48	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 50.00	CFS
DESIGN HW ELEVATION	= 891.91	FT
100 YEAR DISCHARGE	= 52.00	CFS
100 YEAR HW ELEVATION	= 892.00	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 254.00	CFS
OVERTOPPING ELEVATION	= 925.93	FT

-Y15FLYAC-

PI = 42+98.00
EL = 937.28'
K = 200
VC = 600'

BEGIN BRIDGE
-Y15FLYAC- STA. 47+61.78
ELEV. = 934.99'

-Y15FLYAC- STA 48+72.29
-Y15- STA 104+53.34

PROPOSED GRADE

(+)2.5117%

(-)0.4937%

924.77'

932.82'

Lateral I/ Ditch @ 3.76%

EXISTING GROUND

STA. 41+00.00 Rt
ELEV. 907.60

STA. 43+59.00 Rt
ELEV. 917.00

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—·—·—

NOTE:
SEE SHEETS 10 AND 20 FOR -Y15FLYAC- ALIGNMENT

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

970 960 950 940 930 920 910 900 890 880

-Y15FLYAC- STA 53+01.37
-Y15REV- STA 52+00.38

932.82'

(-)0.4937%

PROPOSED GRADE

-Y15FLYAC- STA 60+66.06
-L- STA 793+45.42

-Y15FLYAC- STA 62+26.40
-Y15FLYBD- STA 46+82.68

925.91'

EXISTING GROUND

-Y15FLYAC-

NOTE:
SEE SHEET 10 FOR -Y15FLYAC- ALIGNMENT

52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00

930 920 910 900 890 880 870 860 850 840

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y15FLYAC-

PIPE HYDRAULIC DATA
42" RCP-IV Sta.75+57

DRAINAGE AREA	= 17.76	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 68.00	CFS
DESIGN HW ELEVATION	= 889.35	FT
100 YEAR DISCHARGE	= 71.00	CFS
100 YEAR HW ELEVATION	= 889.52	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 247	CFS
OVERTOPPING ELEVATION	= 913.60	FT

END BRIDGE
-Y15FLYAC- STA 66+44.78
ELEV = 925.69'

925.91'

PI = 69+86.00
EL = 924.00'
K = 266
VC = 400'

(-)0.4937%

(-)1.9988%

PROPOSED GRADE

903.74'

NOTE:
SEE SHEETS 10 AND 11 FOR -Y15FLYAC- ALIGNMENT

2' Base Lateral Ditch w/Rip Rap @ 7.57%

STA. 72+00.00 LT
ELEV. 902.70

EXISTING GROUND

STA. 73+15.00 LT
ELEV. 894.00

2' Base Lateral Ditch @ 3.62%

STA. 75+50.00 LT
ELEV. 885.30

2' Base Lateral Ditch @ 1.22%

STA. 76+37.00 LT
ELEV. 884.44

DITCH LEGEND
RIGHT DITCH ----------
LEFT DITCH —··—··—

66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00

960 950 940 930 920 910 900 890 880 870

-Y15FLYAC-

-Y15FLYAC- STA.86+73.84
-Y16- STA.21+95.31

EXISTING GROUND

END PROFILE -Y15FLYAC- STA 93+22.52 = -L- STA 826+00.00 59' RT
ELEV = 905.56'

PI = 83+80.00
EL = 896.14'
K = 154
VC = 520'

903.74'

(-)1.9988%

(+)1.3838%

(+)1.3838%

(+)0.7190%

(+)0.7190%

(-)0.1450%

PI = 89+75.00
EL = 904.38'
K = 226
VC = 150'

PI = 91+70.00
EL = 905.78'
K = 278
VC = 240'

PROPOSED GRADE

-Y15FLYAC- STA 84+90.00, ELEV = 898.40'
-Y15RPC- STA 32+03.05, ELEV = 898.04'

NOTE:
SEE SHEET 11 FOR -Y15FLYAC- ALIGNMENT

80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00

950 940 930 920 910 900 890 880 870 860

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

-Y15FLYBD-

BEGIN PROFILE -Y15FLYBD- STA 10+00.00 = -L- 759+92.00 71' RT
ELEV = 875.35'

PI = 12+62.00
EL = 868.53'
K = 426
VC = 200'

(-)12.60 39%

(-)13.07 33%

EXISTING GROUND

PROPOSED GRADE

PI = 19+65.00
EL = 846.92'
K = 137
VC = 980'

(-)13.07 33%

(+)4.00 0%

864.87'

Special Cut Ditch @ 5.86%

STA: 16+00.00 RT
ELEV: 841.11

STA: 16+66.00 RT
ELEV: 840.00

2' Base Lateral Ditch @ 4.04%

STA: 18+95.00 RT
ELEV: 841.00

2' Base Lateral Ditch w/Rip Rap @ 6.13%

STA: 20+50.00 RT
ELEV: 831.50

2' Base Lateral Ditch w/Rip Rap @ 9.54%

STA: 21+00.00 RT
ELEV: 826.73

STA: 22+30.00 LT
ELEV: 841.00

Lateral 'V' Ditch @ 5.79%

STA: 23+00.00 LT
ELEV: 835.05

Lateral 'V' Ditch @ 9.93%

STA: 23+75.00 LT
ELEV: 842.50

Lateral 'V' Ditch @ 0.31%

NOTE:
SEE SHEETS 9 AND 10 FOR -Y15FLYBD- ALIGNMENT

PIPE HYDRAULIC DATA
54" RCP-V Sta.26+83

DRAINAGE AREA	= 34.13	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 110.00	CFS
DESIGN HW ELEVATION	= 843.85	FT
100 YEAR DISCHARGE	= 120.00	CFS
100 YEAR HW ELEVATION	= 844.21	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 288	CFS
OVERTOPPING ELEVATION	= 855.00	FT

-Y15FLYBD- STA 25+60.63, ELEV = 871.32'
-Y15RPB- STA 10+00.00, ELEV = 871.34'

-Y15FLYBD-

PROPOSED GRADE

(+)4.00 0%

922.16'

864.87'

EXISTING GROUND

2' Base Lateral Ditch Lateral Ditch @ 8.00%

STA: 34+50.00 LT
ELEV: 900.56

2' Base Lateral Ditch w/Rip Rap @ 5.94%

STA: 36+50.00 LT
ELEV: 883.50

2' Base Lateral Ditch w/Rip Rap @ 3.97%

STA: 37+30.00 LT
ELEV: 879.76

Lateral 'V' Ditch @ 0.31%

STA: 25+50.00 LT
ELEV: 841.95

Lateral 'V' Ditch @ 7.90%

STA: 27+05.00 LT
ELEV: 839.00

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—··—··—

NOTE:
SEE SHEET 10 FOR -Y15FLYBD- ALIGNMENT

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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5/14/99

REVISIONS

-Y15FLYBD-

-Y15FLYBD- STA 46+82.68
-Y15FLYAC- STA 62+26.40

-Y15FLYBD- STA 47+63.62
-L- STA 795+32.16

-Y15FLYBD- STA 46+27.33
-Y15FLYCA- STA 55+76.63

-Y15FLYBD- STA 38+00.82
-Y15- STA 90+39.52

-Y15FLYBD- STA 41+06.36
-Y15REV- STA 42+19.20

PI = 49+00.00
EL = 967.26'
K = 160
VC = 1,000'

(+)4.1000%

(-)2.1665%

959.50'

PROPOSED GRADE

BEGIN BRIDGE
-Y15FLYBD- STA 39+40.31
ELEV = 927.91'

-Y15FLYBD- STA 50+20.41
-Y15RPDREV- STA 31+06.69

922.16'

END BRIDGE
-Y15FLYBD- STA 51+59.31
ELEV = 959.82'

2' Base Lateral Ditch w/Rip Rap @ 3.97%

STA. 39+00.00 LT
ELEV. 875.00

EXISTING GROUND

PIPE HYDRAULIC DATA
24" RCP LRFD DESIGN Sta. 39+12

DRAINAGE AREA	=	6.92	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	18.00	CFS
DESIGN HW ELEVATION	=	875.38	FT
100 YEAR DISCHARGE	=	18.00	CFS
100 YEAR HW ELEVATION	=	875.38	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	103	CFS
OVERTOPPING ELEVATION	=	924.81	FT

DITCH LEGEND	
LEFT DITCH	—·—·—

NOTE:
SEE SHEET 10 FOR -Y15FLYBD- ALIGNMENT

1040 1030 1020 1010 1000 990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

-Y15FLYBD-

959.50'

PROPOSED GRADE

(-)2.1665%

930.43'

STA. 54+00.00 RT
ELEV. 923.60

2' Base Lateral Ditch w/Rip Rap @ 4.29%

EXISTING GROUND

NOTES:
SEE SHEETS 10 AND 25 FOR -Y15FLYBD- ALIGNMENT

970 960 950 940 930 920 910 900 890 880

52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00

-Y15FLYBD-

BM #9
-Y15FLYBD- STA.78+13.31
368' RT.
ELEV.= 924.54'

930.43'

Berm Ditch @ 3.38%

Berm Ditch @ 1.99%

Berm Ditch @ 2.63%

Berm Ditch @ 2.03%

EXISTING GROUND

STA.73+6.00 RT
ELEV.931.00

Berm Ditch @ 2.13%

Berm Ditch @ 5.30%

Berm Ditch @ 5.19%

Berm Ditch @ 7.22%

(-)2.1665%

900.10'

PROPOSED GRADE

2' Base Lateral Ditch w/Rip Rap @ 4.29%

2' Base Lateral Ditch @ 0.45%

2' Base Lateral Ditch w/Rip Rap @ 9.55%

2' Base Lateral Ditch w/Rip Rap @ 7.44%

STA.66+50.00 RT
ELEV. 912.87

STA.68+13.00 RT
ELEV. 912.00

STA.68+50.00 LT
ELEV. 901.75

STA.69+00.00 LT
ELEV. 903.47

STA.70+00.00 RT
ELEV. 927.00

STA.70+71.71 RT
ELEV.928.35

STA.70+98.08 RT
ELEV.929.50

STA.72+51.79 RT
ELEV.933.25

STA.75+01.53 RT
ELEV.928.00

STA.76+57.79 RT
ELEV.936.00

STA.78+49.38 RT
ELEV.926.50

PIPE HYDRAULIC DATA
36" RCP-IV Sta.68+47

DRAINAGE AREA	= 14.17	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 36.00	CFS
DESIGN HW ELEVATION	= 914.96	FT
100 YEAR DISCHARGE	= 38.00	CFS
100 YEAR HW ELEVATION	= 915.08	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 129	CFS
OVERTOPPING ELEVATION	= 927.23	FT

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—··—··—

NOTES:
SEE SHEETS 20 AND 25 FOR -Y15FLYBD- ALIGNMENT

890 880 870 940 930 920 910 900 890 880 870

66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15FLYBD-

900.10'

Berm Ditch @ 1.22%

STA 83+22.74 RT
ELEV 894.00

Berm Ditch @ 1.79%

STA 83+84.71 RT
ELEV 877.40

PROPOSED GRADE

(-)2.7665%

STA 87+72.10 RT
ELEV 901.75

Berm Ditch @ 5.86%

STA 88+39.27 RT
ELEV 909.30

EXISTING GROUND

PI = 90+96.00
EL = 876.35'
K = 158
VC = 530'

Berm Ditch @ 9.95%

STA 90+42.26 RT
ELEV 888.80

(+)1.1883%

STA 91+31.26 RT
ELEV 887.00

Berm Ditch @ 2.31%

Berm Ditch @ 6.05%

STA 93+00.20 RT
ELEV 877.30

Special Cut Ditch @ 0.50%

STA 91+06.00 LT
ELEV 879.72

STA 92+55.00 RT
ELEV 879.98

STA 93+05.00 RT
ELEV 884.41

Berm Ditch w/Rip Rap @ 6.24%

2' Base Lateral Ditch @ 1.91%

PIPE HYDRAULIC DATA
54" RCP-IV Sta.84+18

DRAINAGE AREA	= 38.12	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120.00	CFS
DESIGN HW ELEVATION	= 881.71	FT
100 YEAR DISCHARGE	= 130.00	CFS
100 YEAR HW ELEVATION	= 882.11	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 204	CFS
OVERTOPPING ELEVATION	= 886.69	FT

DITCH LEGEND	
RIGHT DITCH	----------

NOTE:
SEE SHEETS 20 AND 21 FOR -Y15FLYBD- ALIGNMENT

-Y15FLYBD-

PI = 96+35.00
EL = 882.76'
K = 2956
VC = 150'

PROPOSED GRADE

(+)1.1883%

(+)1.1376%

Berm Ditch w/Rip Rap @ 6.24%

STA 94+31.00 RT
ELEV 864.00

STA 94+40.71 RT
ELEV 869.00

EXISTING GROUND

END PROFILE -Y15FLYBD- STA 97+19.72 =
-Y15REV- STA 90+96.71' RT
ELEV = 883.72'

DITCH LEGEND	
RIGHT DITCH	----------

NOTE:
SEE SHEET 21 FOR -Y15FLYBD- ALIGNMENT

930 920 910 900 890 880 870 860 850 840

80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00

920 910 900 890 880 870 860 850 840 830

94+00 95+00 96+00 97+00 98+00

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

BEGIN PROFILE -Y15FLYCA- STA 10+00.00 = -Y15- STA 461+50.00 59.00' RT
ELEV = 820.69'

PI = 12+21.00
EL = 821.77'
VC = 220'
K = 600

PI = 17+70.00
EL = 822.42'
VC = 385'
K = 146

PROPOSED GRADE

EXISTING GROUND

(+)0.4865%

(+)0.1193%

(-)0.1193%

(+)2.7484%

839.73'

STA. 12+52.00 RT
ELEV. 813.46

STA. 16+00.00 RT
ELEV. 824.00

STA. 16+72.00 RT
ELEV. 820.00

STA. 16+72.00 RT
ELEV. 819.50

STA. 17+50.00 RT
ELEV. 822.79

STA. 19+50.00 RT
ELEV. 832.50

STA. 19+50.00 RT
ELEV. 822.79

STA. 20+50.00 RT
ELEV. 837.25

STA. 20+00.00 LT
ELEV. 816.50

STA. 21+50.00 RT
ELEV. 844.50

STA. 22+00.00 RT
ELEV. 863.00

STA. 22+00.00 LT
ELEV. 831.60

Special Cut Ditch @ 0.96%

Berm Ditch @ 5.56%

Berm Ditch @ 3.58%

Special Cut Ditch @ 1.18%

Berm Ditch @ 4.86%

2' Base Berm Ditch @ 4.75%

2' Base Berm Ditch @ 7.25%

2' Base Berm Ditch w/Rip Rap @ 12.33%

Berm Ditch @ 6.3%

Special Cut Ditch @ 7.55%

NOTE:
SEE SHEETS 17 AND 18
FOR -Y15FLYCA- ALIGNMENT

-Y15FLYCA-

Berm Ditch @ 7.63%

STA. 25+92.00 RT
ELEV. 885.50

EXISTING GROUND

(+)2.7484%

839.73'

878.21'

PROPOSED GRADE

4' Base Lateral Ditch w/Rip Rap @ 9.71%

STA. 28+65.00 LT
ELEV. 840.00

STA. 29+00.00 LT
ELEV. 843.40

-Y15FLYCA- STA 34+00.00, ELEV = 867.22'
-Y15RPC- STA 10+00.00, ELEV = 867.60'

DITCH LEGEND

RIGHT DITCH ----------

LEFT DITCH —··—···

NOTE:
SEE SHEETS 18 AND 19 FOR -Y15FLYCA- ALIGNMENT

PIPE HYDRAULIC DATA
54" RCP-III Sta.28+86

DRAINAGE AREA	= 35.22	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 100.00	CFS
DESIGN HW ELEVATION	= 846.32	FT
100 YEAR DISCHARGE	= 110.00	CFS
100 YEAR HW ELEVATION	= 846.65	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 142	CFS
OVERTOPPING ELEVATION	= 847.90	FT

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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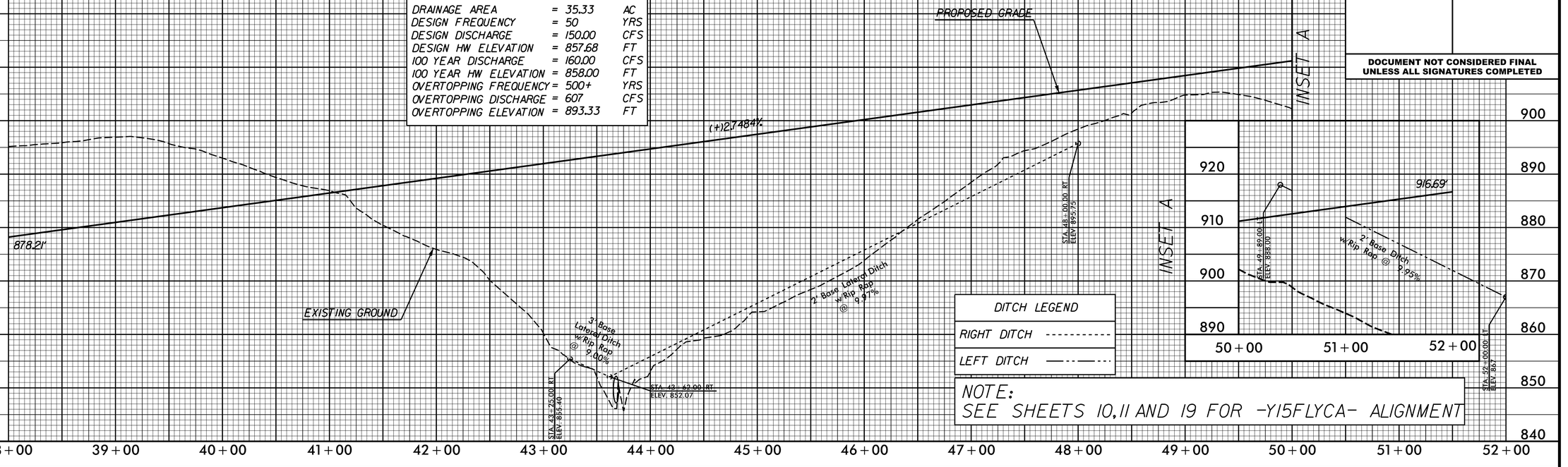
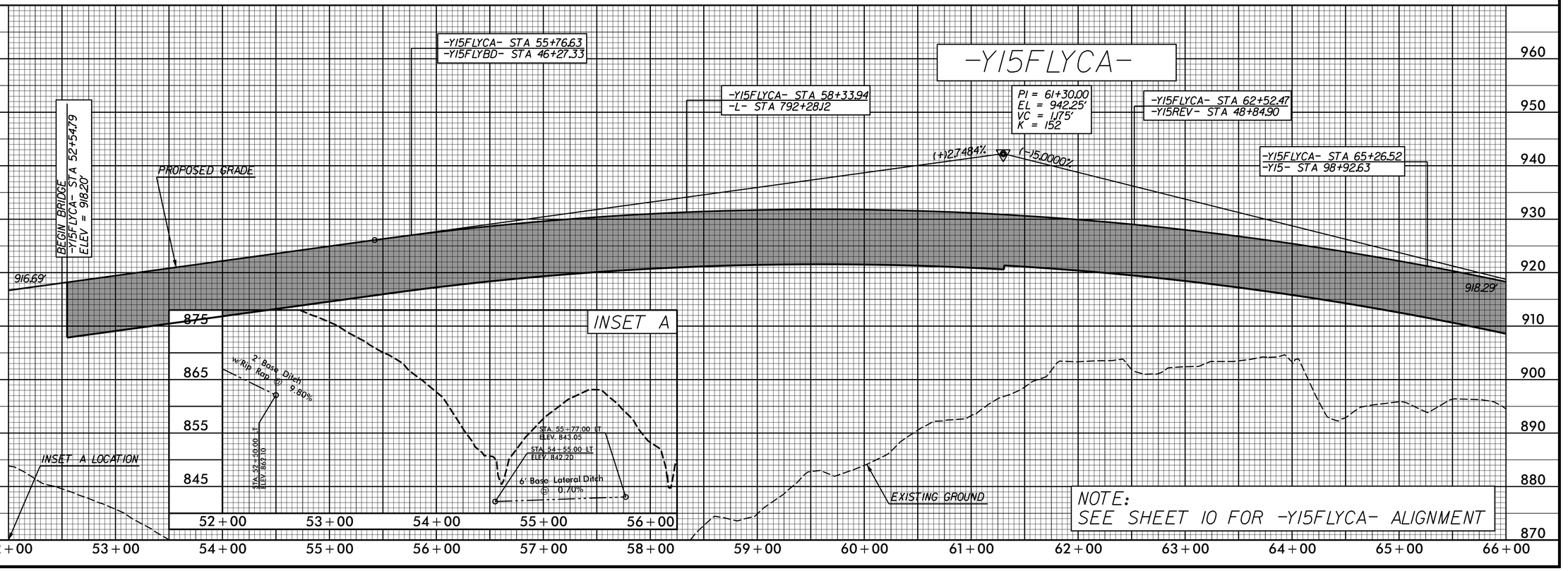
-Y15FLYCA-

PIPE HYDRAULIC DATA
60" RCP LRFD DESIGN Sta.43+68

DRAINAGE AREA	= 35.33	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 150.00	CFS
DESIGN HW ELEVATION	= 857.68	FT
100 YEAR DISCHARGE	= 160.00	CFS
100 YEAR HW ELEVATION	= 858.00	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 607	CFS
OVERTOPPING ELEVATION	= 893.33	FT





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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15FLYCA-

-Y15FLYCA- STA 69+02.32
-Y15LPA- STA 17+83.56

END BRIDGE
-Y15FLYCA- STA 69+71.79
ELEV = 900.16'

PIPE HYDRAULIC DATA
24" RCP-III Sta.71+50

DRAINAGE AREA	= 6.31	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 16.00	CFS
DESIGN HW ELEVATION	= 883.68	FT
100 YEAR DISCHARGE	= 17.00	CFS
100 YEAR HW ELEVATION	= 883.79	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 32	CFS
OVERTOPPING ELEVATION	= 886.07	FT

(-)5.0000%
918.29'

PI = 61+30.00
EL = 942.25'
VC = 1,175'
K = 152

EXISTING GROUND

STA: 70+00.00 RT
ELEV: 882.44

2' Base Lateral Ditch @ 0.65%

2' Base Lateral Ditch @ 0.60%

Berm Ditch @ 9.50%

STA: 72+50.00 RT
ELEV: 891.00

STA: 70+75.00 RT
ELEV: 881.95

2' Base Lateral Ditch w/Rip Rap @ 6.47%

2' Base Lateral Ditch w/Rip Rap @ 1.00%

STA: 69+90.00 LT
ELEV: 869.20

STA: 70+00.00 LT
ELEV: 869.30

STA: 71+50.00 LT
ELEV: 879.00

STA: 71+50.00 RT
ELEV: 881.50

PROPOSED GRADE

PI = 80+79.64
EL = 844.77'
VC = 1,073'
K = 136

856.42'

(-)5.0000%

DITCH LEGEND	
RIGHT DITCH	----------
LEFT DITCH	—··—··—

NOTE:
SEE SHEETS 9 AND 10 FOR -Y15FLYCA- ALIGNMENT

66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00

930 920 910 900 890 880 870 860 850 840

-Y15FLYCA-

-Y15FLYCA- STA 80+05.20, ELEV = 856.33'
-Y15RPA- STA 36+16.69, ELEV = 856.57'

PROPOSED GRADE

856.42'

(-)5.0000%

(+)2.8834%

PI = 80+79.64
EL = 844.77'
VC = 1,073'
K = 136

PI = 88+44.16
EL = 866.81'
VC = 150'
K = 484

(+)2.8834%

(+)2.5732%

EXISTING GROUND

END PROFILE -Y15FLYCA- STA 90+39.94
-L- STA 761+37.15 59' LT
ELEV = 871.85'

NOTE:
SEE SHEET 9 FOR
-Y15FLYCA- ALIGNMENT

80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00

910 900 890 880 870 860 850 840 830 820

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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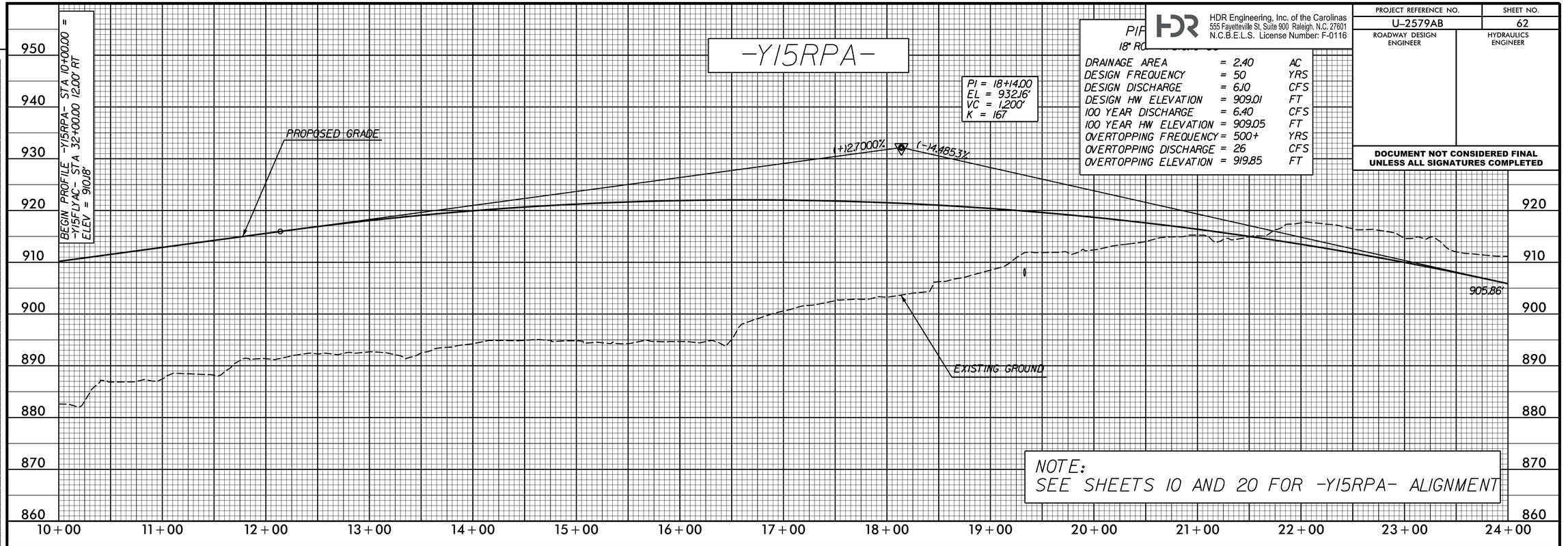
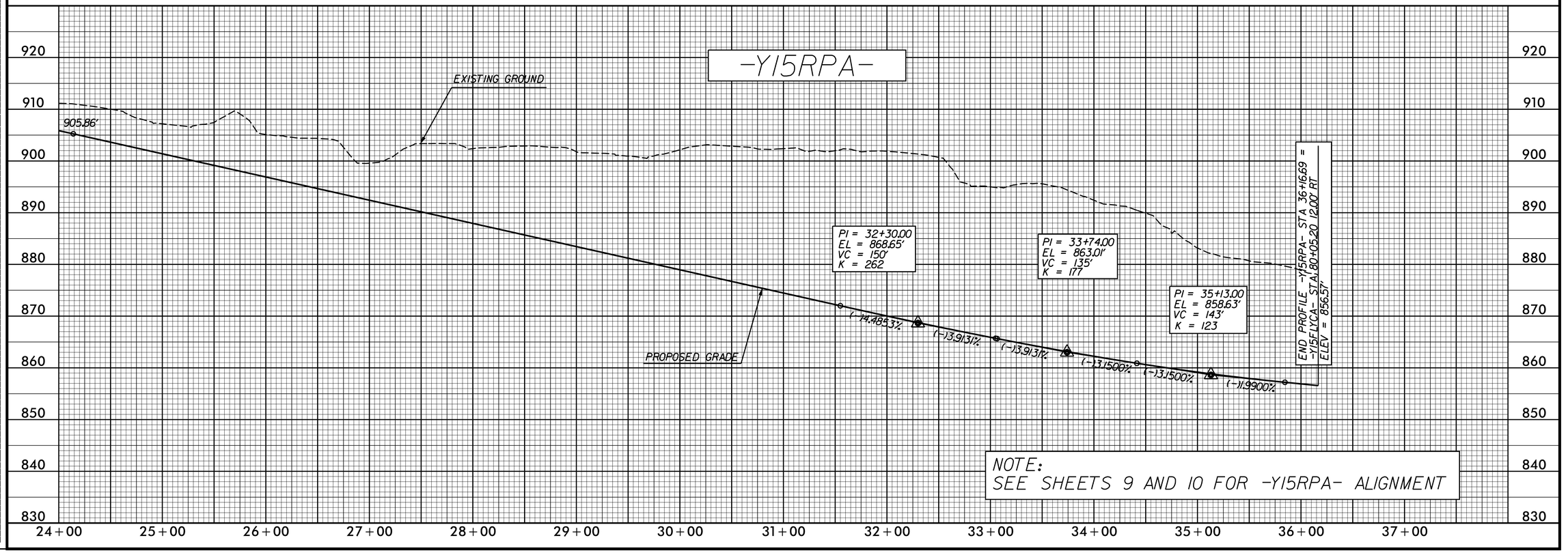
PIP
18" RC

DRAINAGE AREA	= 2.40	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 6.10	CFS
DESIGN HW ELEVATION	= 909.01	FT
100 YEAR DISCHARGE	= 6.40	CFS
100 YEAR HW ELEVATION	= 909.05	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 26	CFS
OVERTOPPING ELEVATION	= 919.85	FT





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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15RPB-

BEGIN PROFILE -Y15RPB- STA 10+00.00 = -Y15FLYBD- STA 25+60.63 12.00' RT
ELEV = 871.34'

BM #15
-Y15RPB- STA.15+66.22
1006' RT.
ELEV.= 838.80'

PI = 10+90.00
EL = 875.03'
K = 383
VC = 180'

PI = 18+10.00
EL = 907.94'
K = 128
VC = 1100'

PROPOSED GRADE

(+)4.000%
(+)4.5700%
(+)4.5700%
(-)4.0384%
884.11'

STA. 19+50.00 LT
ELEV. 879.25

Lateral 'V' Ditch @ 1.00%

Lateral 'V' Ditch @ 1.05%

Lateral 'V' Ditch @ 2.58%

2' Base Lateral Ditch w/Rip Rap @ 9.50%

2' Base Lateral Ditch w/Rip Rap @ 9.84%

2' Base Lateral Ditch w/Rip Rap @ 9.85%

STA. 18+50.00 LT
ELEV. 880.00

STA. 20+50.00 LT
ELEV. 878.40

STA. 21+50.00 LT
ELEV. 875.62

STA. 22+00.00 LT
ELEV. 871.20

STA. 22+10.30 LT
ELEV. 870.25

STA. 22+30.00 LT
ELEV. 868.28

EXSITING GROUND

NOTE:
SEE SHEETS 10 AND 19 FOR -Y15RPB- ALIGNMENT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

920 910 900 890 880 870 860 850 840 830

-Y15RPB-

-Y15RPB- STA 27+19.43, ELEV = 871.21'
-Y15- STA 82+18.20, ELEV = 859.36'

884.11'

PROPOSED GRADE

PI = 31+50.00
EL = 853.82'
K = 136
VC = 275'

PI = 34+72.00
EL = 847.33'
K = 1148
VC = 310'

(-)4.0384%
(-)2.0150%
(-)2.0150%
(-)2.2650%
839.84'

4' Base Lateral Ditch w/Rip Rap @ 5.42%

STA. 25+00.00 RT
ELEV. 862.18

STA. 27+35.00 RT
ELEV. 849.44

EXSITING GROUND

NOTE:
SEE SHEET 19 FOR -Y15RPB- ALIGNMENT

PIPE HYDRAULIC DATA
24" RCP-IV Sta.24+11

DRAINAGE AREA	= 6.10	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 15.00	CFS
DESIGN HW ELEVATION	= 865.76	FT
100 YEAR DISCHARGE	= 16.00	CFS
100 YEAR HW ELEVATION	= 865.86	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 34	CFS
OVERTOPPING ELEVATION	= 872.00	FT

DITCH LEGEND
RIGHT DITCH ----------
LEFT DITCH —··—···

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

900 890 880 870 860 850 840 830 820 810

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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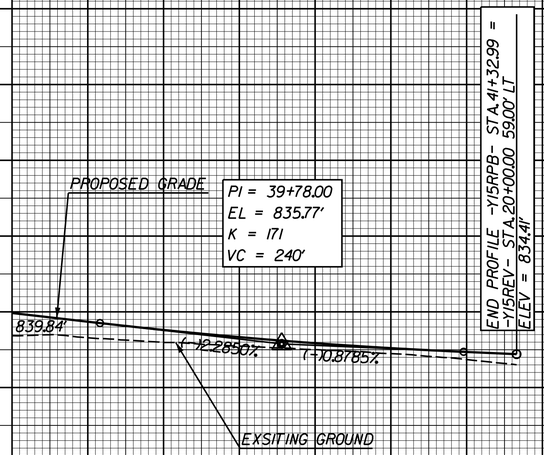
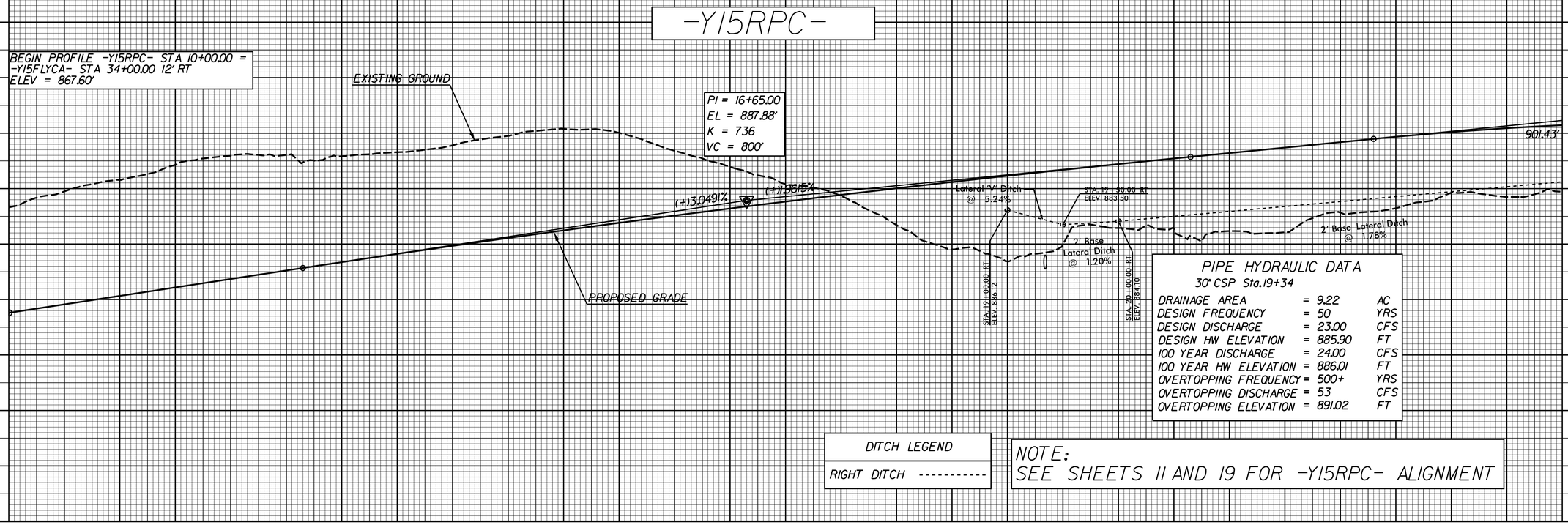
-Y15RPB-



NOTE:
SEE SHEET 19 FOR -Y15RPB- ALIGNMENT

-Y15RPC-



PIPE HYDRAULIC DATA
30" CSP Sta.19+34

DRAINAGE AREA	=	9.22	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	23.00	CFS
DESIGN HW ELEVATION	=	885.90	FT
100 YEAR DISCHARGE	=	24.00	CFS
100 YEAR HW ELEVATION	=	886.01	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	53	CFS
OVERTOPPING ELEVATION	=	891.02	FT

DITCH LEGEND	
RIGHT DITCH	----------

NOTE:
SEE SHEETS 11 AND 19 FOR -Y15RPC- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

-Y15RPC-

EXISTING GROUND

END PROFILE -Y15RPC- STA 32+03.05 = -Y15FLYAC- STA 84+90.12 12' RT
ELEV = 898.04

PI = 24+80.00
EL = 903.86'
K = 168
VC = 500'

PI = 30+85.00
EL = 897.68'
K = 151
VC = 200'

(+)1.96115%
(-)1.02116%
(-)1.02116%
(+)0.30000%

901.43'

2' Base Lateral Ditch @ 9.09%

Special Cut Ditch @ 0.35%

PROPOSED GRADE

STA. 25+00.09 RT
ELEV. 893.00'

STA. 25+11.00 RT
ELEV. 894.00'

STA. 25+25.09 RT
ELEV. 896.30'

STA. 28+90.00 RT
ELEV. 895.04

DITCH LEGEND	
RIGHT DITCH	----------

NOTE:
SEE SHEET 11 FOR -Y15RPC- ALIGNMENT

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00

-Y15RPDREV-

BEGIN PROFILE -Y15RPDREV- STA 10+00.00 = -L- STA 817+00.00 59.00' RT
ELEV = 899.81'

PI = 12+69.00
EL = 899.27'
K = 322
VC = 100'

PROPOSED GRADE

EXISTING GROUND

(-)0.20091%
(-)0.51181%
(-)0.51181%

STA. 14+77.00 LT
ELEV. 904.10'

2' Base Lateral Ditch @ 6.30%

STA. 17+00.00 LT
ELEV. 908.16'

2' Base Lateral Ditch @ 6.84%

STA. 18+16.00 LT
ELEV. 898.67

4' Base Lateral Ditch w/Rip Rap @ 9.94%

4' Base Lateral Ditch w/Rip Rap @ 5.89%

STA. 21+00.00 LT
ELEV. 892.50

4' Base Lateral Ditch @ 0.95%

STA. 24+00.00 LT
ELEV. 889.35

STA. 22+60.00 LT
ELEV. 884.25

PIPE HYDRAULIC DATA
48" RCP LRFD DESIGN Sta.20+58

DRAINAGE AREA	= 28.35	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 72.00	CFS
DESIGN HW ELEVATION	= 888.20	FT
100 YEAR DISCHARGE	= 75.00	CFS
100 YEAR HW ELEVATION	= 888.31	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 477	CFS
OVERTOPPING ELEVATION	= 949.22	FT

DITCH LEGEND	
LEFT DITCH	—··—··—

NOTE:
SEE SHEETS 10, 11 & 20 FOR -Y15RPDREV- ALIGNMENT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	66
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

-Y15RPDREV-

-Y15RPDREV- STA 31+06.69
-Y15FLYBD- STA 50+20.41

STA: 24+00.00 LT
ELEV: 899.55

STA: 25+60.00 LT
ELEV: 896.50

2' Base Lateral Ditch @ 1.25%

2' Base Lateral Ditch w/Rip Rap @ 4.36%

STA: 26+50.00 LT
ELEV: 903.13

2' Base Special Cut Ditch w/Rip Rap @ 2.96%

STA: 27+50.00 LT
ELEV: 906.10

(-)0.5118%

(+)0.5468%

PI = 27+00.00
EL = 891.95'
K = 283
VC = 300'

STA: 29+81.00 LT
ELEV: 914.00

PROPOSED GRADE

EXISTING GROUND

2' Base Berm Ditch w/Rip Rap @ 3.78%

STA: 33+65.00 LT
ELEV: 897.48

2' Base Berm Ditch w/Rip Rap @ 3.09%

STA: 34+82.00 LT
ELEV: 895.86

(+)0.5468%

STA: 34+89.00 LT
ELEV: 891.86

Special Cut Ditch @ 0.29%

STA: 35+30.00 LT
ELEV: 891.91

DITCH LEGEND	
LEFT DITCH	—··—··—

NOTE:
SEE SHEETS 10, 11, AND 20 FOR -Y15RPDREV- ALIGNMENT

-Y15RPDREV-

END PROFILE -Y15RPDREV- STA 51+72.47 =
-Y15REV- STA 65+23.74 59.00' LT
ELEV = 900.32'

EXISTING GROUND

PI = 47+05.00
EL = 902.91'
K = 581
VC = 640'

(+)0.5468%

(-)0.5548%

PROPOSED GRADE

(+)0.5468%

STA: 38+88.00 LT
ELEV: 888.00

STA: 39+40.00 RT
ELEV: 890

LATERAL 'V' DITCH w/RIP RAP @ 8.45%

LATERAL 'V' DITCH w/RIP RAP @ 3.85%

NOTE:
SEE SHEET 10, 11, & 20 FOR -Y15RPDREV- ALIGNMENT

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

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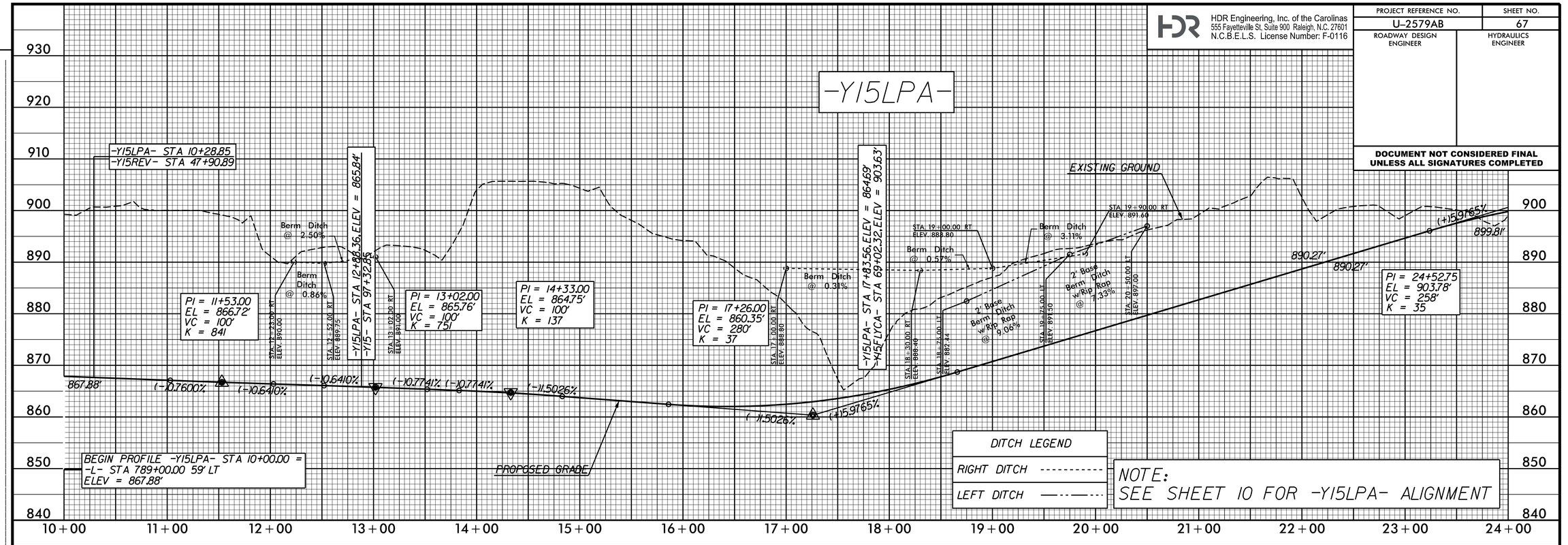

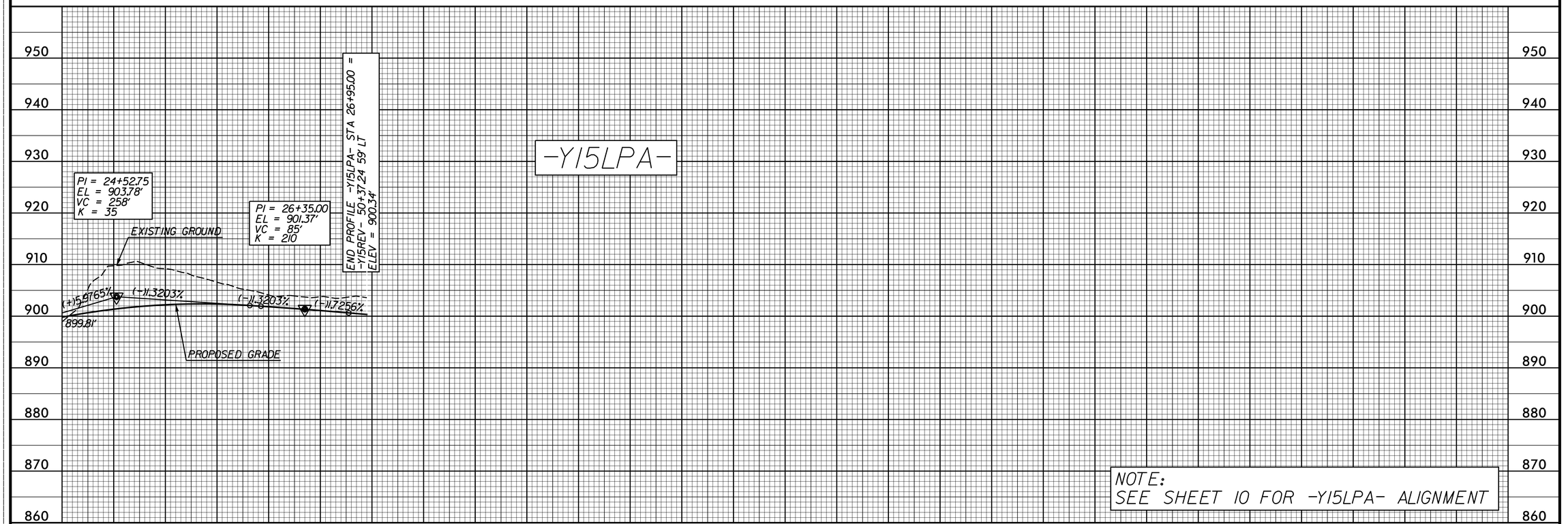

REVISIONS

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DATE: 5/11/2020
TIME: 6:04:07 PM

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.	SHEET NO.
U-2579AB	68
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y16- GLENN HI ROAD

PROPOSED GRADE

PI = 19+32.00
EL = 930.42'
K = 138
VC = 250'

BEGIN BRIDGE -Y16- STA.20+73.53
ELEV. = 929.71'

(+)1.3058%

(-)0.5000%

928.08'

INCIDENTAL MILLING

TIE TO EXIST AS NEEDED

STA. 16+00.00 RT
ELEV. 924.25

Special Cut Ditch @ 0.77%

STA. 17+50.00 RT
ELEV. 925.40

BEGIN PROFILE -Y16- STA 12+50.00
ELEV = 926.08'

EXISTING GROUND

NOTE:
SEE SHEET 11 FOR -Y16- ALIGNMENT

970 960 950 940 930 920 910 900 890 880

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

-Y16- GLENN HI ROAD

END BRIDGE -Y16- STA.25+49.53
ELEV = 927.33'

928.08'

PI = 26+55.00
EL = 926.80'
K = 102
VC = 190'

(-)0.5000%

(-)2.3539%

(-)2.3539%

(-)0.3000%

Special Cut Ditch @ 1.80%

Special Cut Ditch @ 2.00%

PROPOSED GRADE

STA. 26+74.00 RT
ELEV. 922.36

STA. 28+05.00 RT
ELEV. 921.00

PI = 28+50.00
EL = 922.21'
K = 97'
VC = 200'

STA. 28+81.00 RT
ELEV. 918.50

STA. 29+60.00 RT
ELEV. 916.92

-Y16- STA 28+46.67 OFF = 12'
-Y16B- STA 14+23.94 ELEV = 921.03'

END PROFILE -Y16- STA 33+50.00
ELEV = 921.91'

INCIDENTAL MILLING

TIE TO EXIST AS NEEDED

EXISTING GROUND

BM #3
-Y16- STA. 34+10.79
N59°8'29"E 151.54'
ELEV. = 925.47'

PIPE HYDRAULIC DATA
18" RCP-III Sta. 29+60

DRAINAGE AREA	= 2.04	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5.20	CFS
DESIGN HW ELEVATION	= 918.35	FT
100 YEAR DISCHARGE	= 5.40	CFS
100 YEAR HW ELEVATION	= 918.39	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 17	CFS
OVERTOPPING ELEVATION	= 921.00	FT

DITCH LEGEND
RIGHT DITCH ----------

NOTE:
SEE SHEET 11 FOR -Y16- ALIGNMENT

970 960 950 940 930 920 910 900 890 880

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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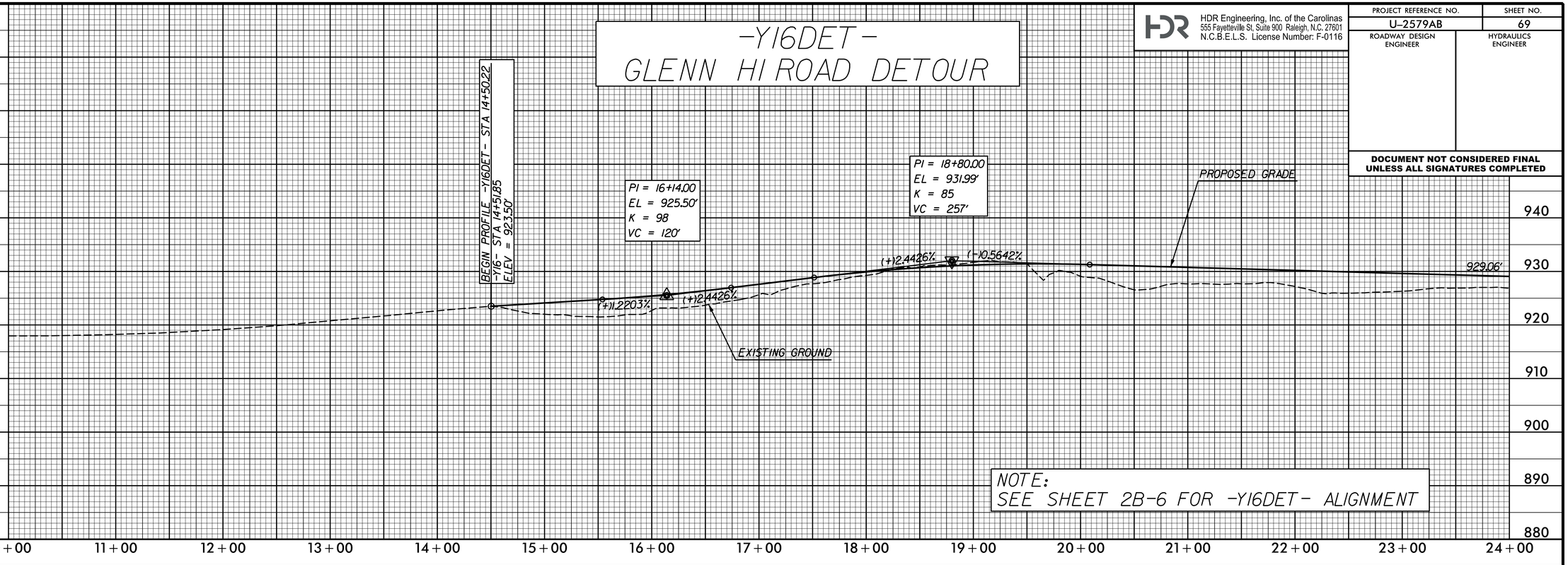
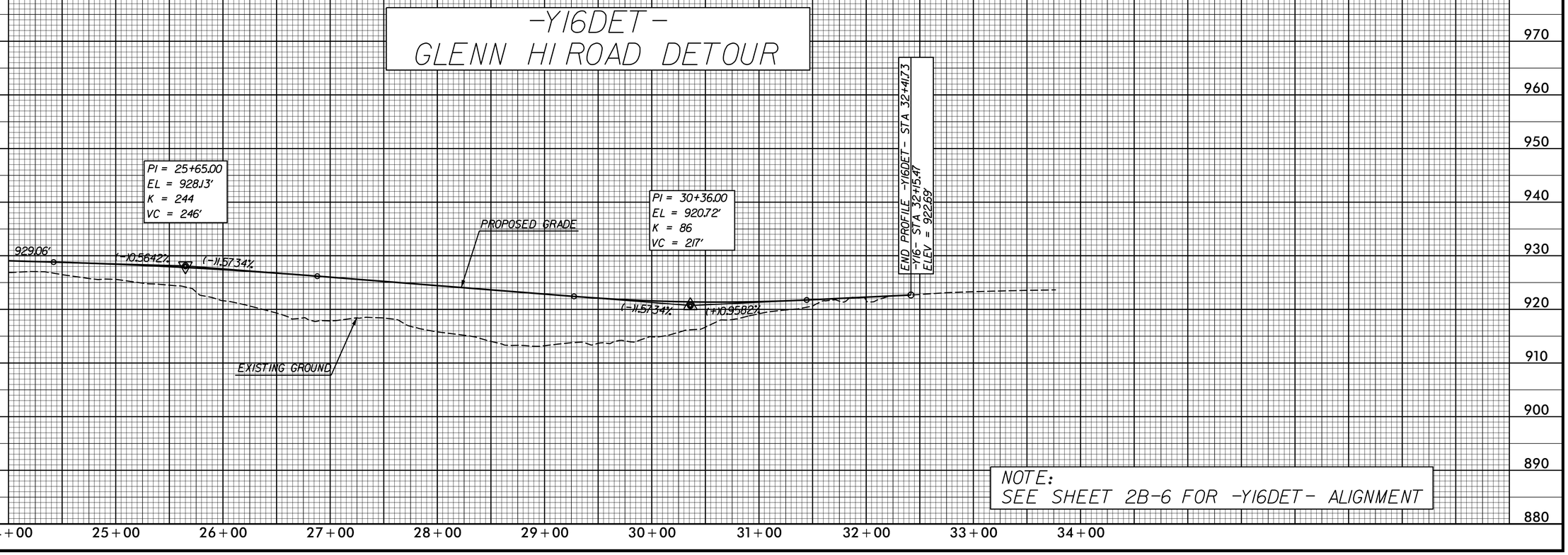
-Y16DET-
GLENN HI ROAD DETOUR



NOTE:
SEE SHEET 2B-6 FOR -Y16DET- ALIGNMENT

-Y16DET-
GLENN HI ROAD DETOUR



NOTE:
SEE SHEET 2B-6 FOR -Y16DET- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	70
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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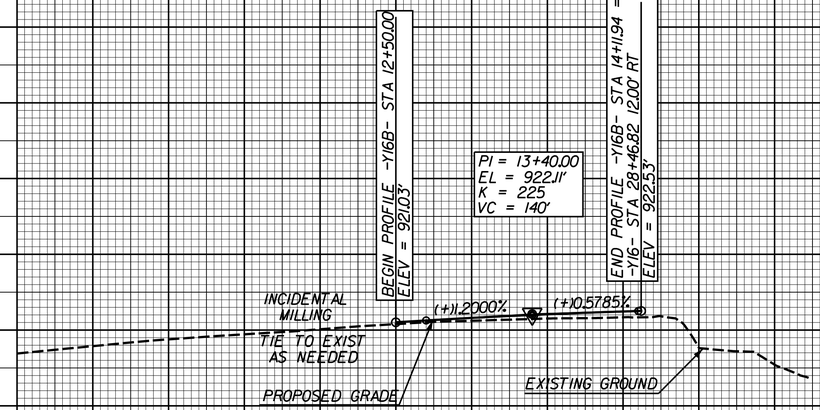
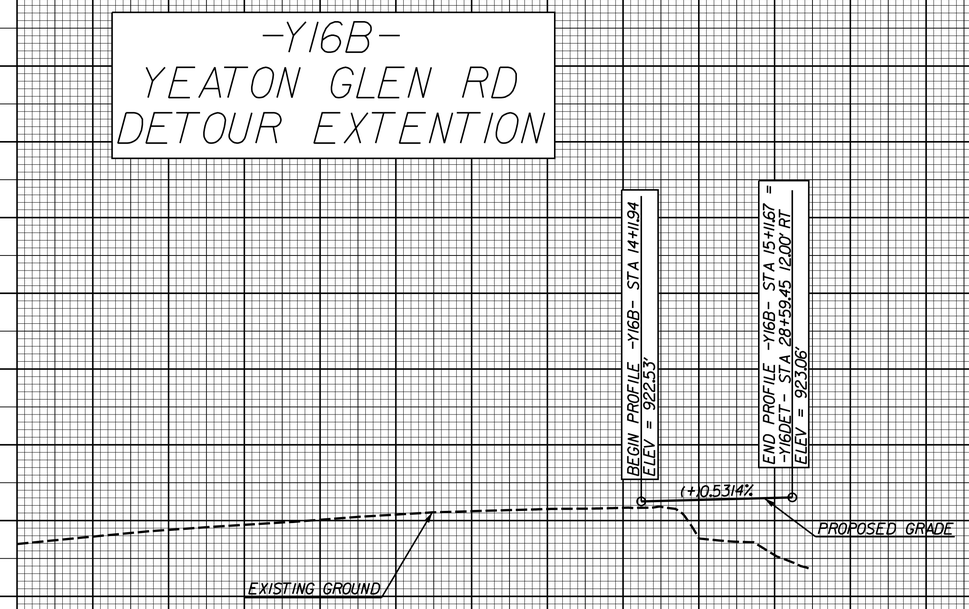
-Y16B- YEATON GLEN RD



NOTE:
SEE SHEET 11 FOR -Y16B- ALIGNMENT

-Y16B- YEATON GLEN RD DETOUR EXTENTION



NOTE:
SEE SHEET 11 FOR -Y16B- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	71
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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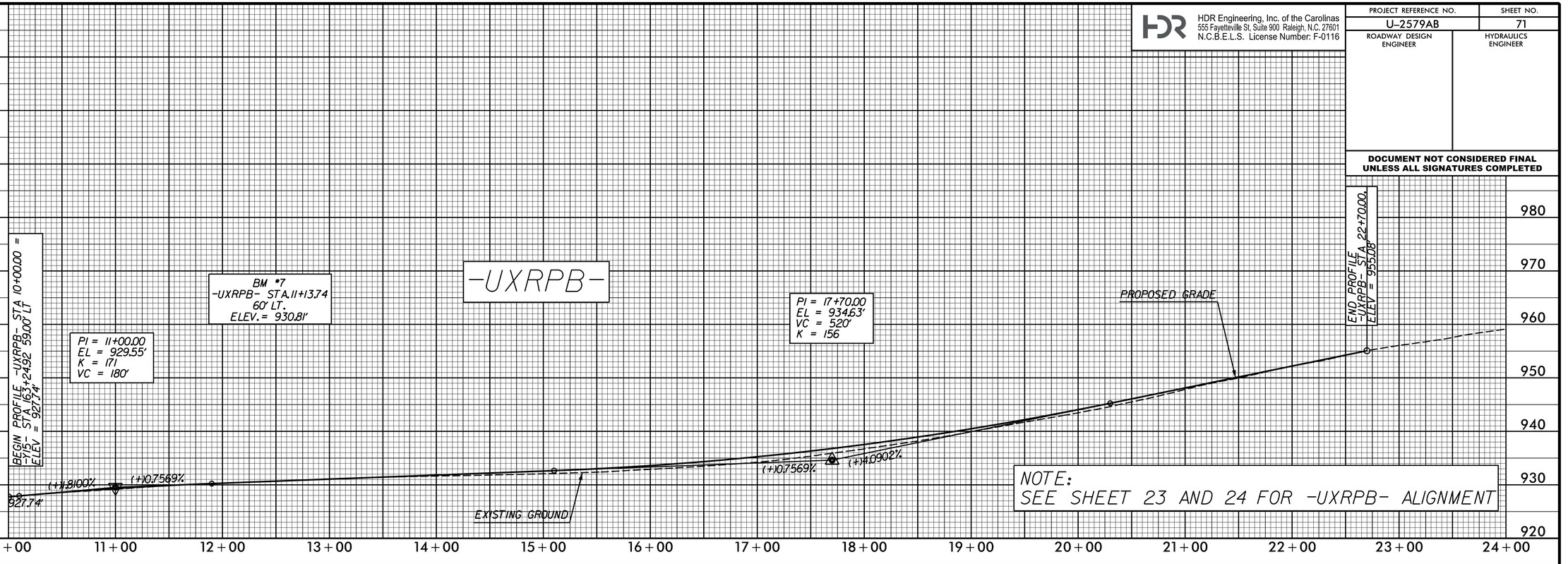
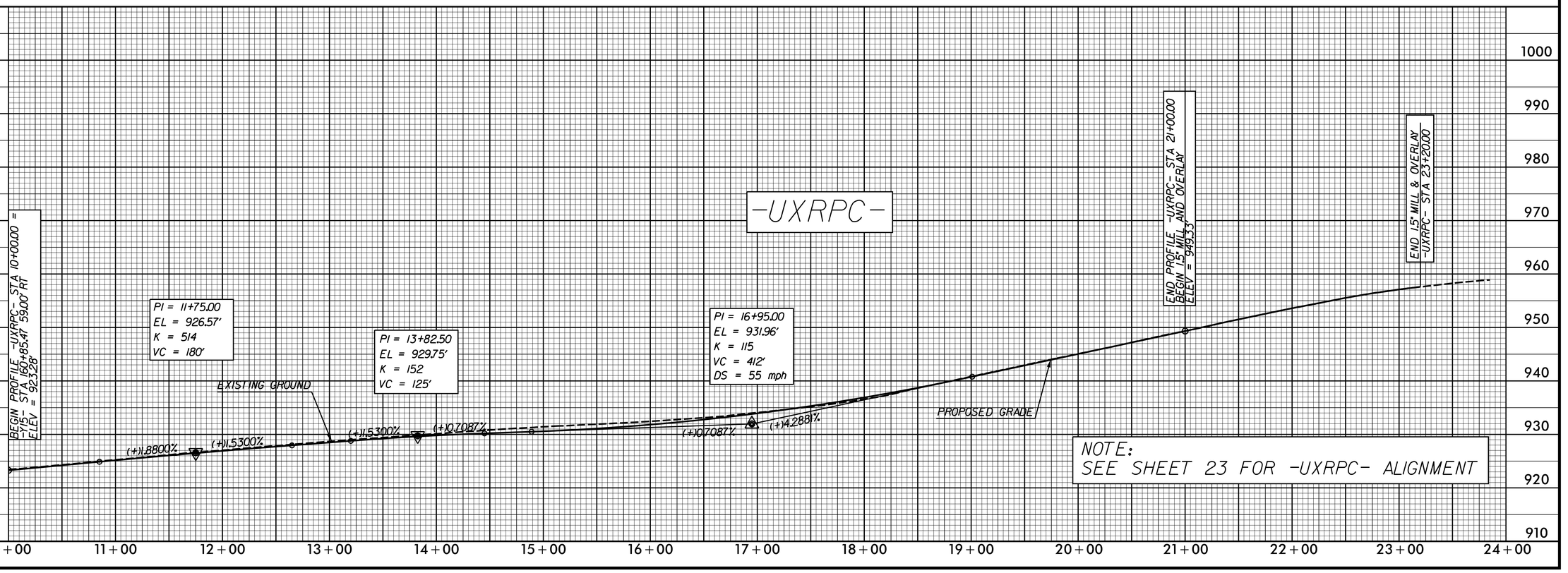
REVISIONS





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TIME: 6:05:17 PM

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	72
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-Y15XOVRI-

BEGIN GRADE -Y15XOVRI- 13+40.07
-Y15- 49+16.30
ELEV. = 822.60'

PI = 15+50.00
EL = 822.60'
K = 738
VC = 419'

END GRADE -Y15XOVRI- 20+00.00
-Y15- 55+73.46
ELEV. = 825.83'

PROPOSED GRADE

(+)0.8777%

(+)0.3095%

EXISTING GROUND

NOTE:
SEE SHEET 2B-7 FOR -Y15XOVRI- ALIGNMENT

-Y15XOVR2-

BEGIN GRADE -Y15XOVR2- 13+47.67
-Y15- 132+43.62
ELEV. = 880.20'

PI = 15+30.00
EL = 880.75'
K = 581
VC = 250'

END GRADE -Y15XOVR2- 18+50.57
-Y15- 137+44.30
ELEV. = 883.09'

PROPOSED GRADE

(+)1.1036000%

(+)0.7303%

EXISTING GROUND

NOTE:
SEE SHEET 2B-8 FOR -Y15XOVR2- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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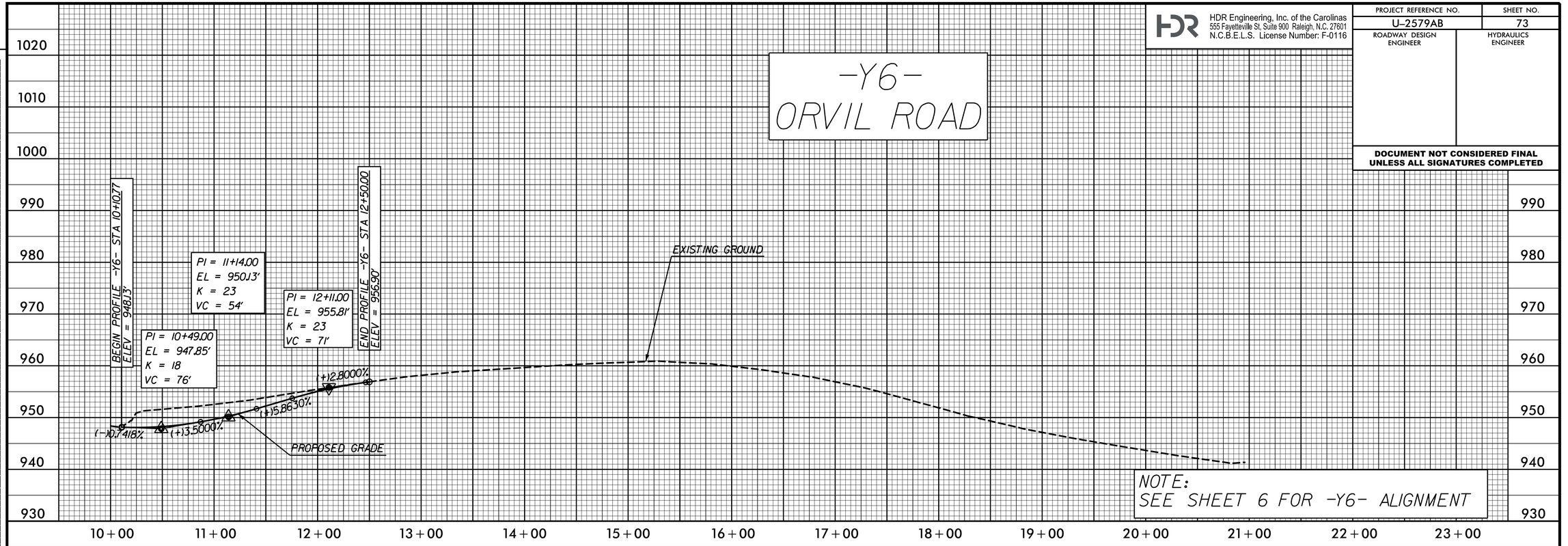
-Y6-
ORVIL ROAD



NOTE:
SEE SHEET 6 FOR -Y6- ALIGNMENT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	74

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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-SRI-

BEGIN PROFILE -SRI- STA 10+60.00
ELEV = 930.57

PIPE HYDRAULIC DATA
42" RCP-III Sta.11+58

DRAINAGE AREA	= 21.28	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 69.00	CFS
DESIGN HW ELEVATION	= 923.40	FT
100 YEAR DISCHARGE	= 76.00	CFS
100 YEAR HW ELEVATION	= 923.72	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 120	CFS
OVERTOPPING ELEVATION	= 926.45	FT

PI = 13+50.00
EL = 918.97'
K = 111
VC = 200'

PIPE HYDRAULIC DATA
30" RCP-III Sta.16+50

DRAINAGE AREA	= 6.85	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 23.00	CFS
DESIGN HW ELEVATION	= 908.37	FT
100 YEAR DISCHARGE	= 25.00	CFS
100 YEAR HW ELEVATION	= 908.53	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 53	CFS
OVERTOPPING ELEVATION	= 912.17	FT

PIPE HYDRAULIC DATA
18" RCP-III Sta.21+28

DRAINAGE AREA	= 0.85	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 3.20	CFS
DESIGN HW ELEVATION	= 896.99	FT
100 YEAR DISCHARGE	= 3.60	CFS
100 YEAR HW ELEVATION	= 897.08	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 19	CFS
OVERTOPPING ELEVATION	= 901.67	FT

STA. 12+08.00 RT
ELEV. 917.85

(-)14.0000%

(-)12.2000%

Lateral 'V' Ditch @ 3.42%

Lateral 'V' Ditch @ 11.38%

Lateral 'V' Ditch @ 4.17%

Lateral 'V' Ditch @ 0.20%

Lateral 'V' Ditch @ 5.57%

STA. 13+06.00 RT
ELEV. 914.50

STA. 15+08.00 RT
ELEV. 911.78

STA. 16+50.00 RT
ELEV. 905.86

STA. 18+14.00 RT
ELEV. 906.19

STA. 20+23.00 RT
ELEV. 901.86

STA. 21+26.00 RT
ELEV. 895.92

EXISTING GROUND

PROPOSED GRADE

NOTE:
SEE SHEETS 7 AND 8 FOR -SRI- ALIGNMENT

DITCH LEGEND

RIGHT DITCH ----------

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

960 950 940 930 920 910 900 890 880 870

-SRI-

PI = 26+00.00
EL = 891.47'
K = 124
VC = 150'

END PROFILE -SRI- STA 29+00.00
ELEV = 881.23'

(-)12.2000%

(-)3.4133%

PROPOSED GRADE

EXISTING GROUND

NOTE:
SEE SHEETS 8 FOR -SRI- ALIGNMENT

24+00 25+00 26+00 27+00 28+00 29+00

960 950 940 930 920 910 900 890 880 870

REVISIONS

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