Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

December 21, 2016

US Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403

Attention: Mr. Brad Shaver
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 Individual Permit and Section 401 Water Quality Certification** for the proposed SR 1409 (Military Cutoff Road) extension and US 17 Hampstead Bypass in New Hanover and Pender Counties. TIP Nos. U-4751 & R-3300. Debit $570 from WBS 40191.1.2.

The North Carolina Department of Transportation (NCDOT) proposes to construct a 5.5 mile six-lane divided roadway on new location from its current terminus at US 17 Business (Market Street) in Wilmington north to an interchange with the US 17 Wilmington Bypass (John Jay Burney Jr. Freeway). Partial and full control of access is proposed.

NCDOT is also proposing the future US 17 Hampstead Bypass to be constructed as a freeway mostly on new location. The US 17 Hampstead Bypass will connect to the proposed Military Cutoff Road Extension at the existing US 17 Wilmington Bypass and extend to existing US 17 north of Hampstead. Full control of access is proposed for the US 17 Hampstead Bypass.

The purpose of this letter is to request approval for a Section 404 Individual Permit and Section 401 Water Quality Certification. In addition to this cover letter, this application package includes the following for U-4751 & R-3300: ENG Form 4345, stormwater management plan, permit drawings, roadway plans, Transfer of Liability Form from Northeast Cape Fear Mitigation Bank, DMS Acceptance Letter, and 4B/4C merger meeting minutes.

Purpose and Need

The purpose of the project as stated in the State Record of Decision (SROD) is to improve the traffic carrying capacity and safety of the US 17 and Market Street corridor in the study area.

Project Description

The proposed action involves construction of SR 1409 (Military Cutoff Road) Extension in New Hanover County and the US 17 Hampstead Bypass in New Hanover and Pender Counties. Military Cutoff Road Extension will be constructed as a six-lane divided roadway on new location from its current terminus at US 17 Business (Market Street) in Wilmington north to an interchange with the US 17 Wilmington

Bypass (John Jay Burney Jr. Freeway). Limited and full control of access are proposed. The US 17 Hampstead Bypass will be constructed as a freeway mostly on new location. The US 17 Hampstead Bypass will connect to the proposed Military Cutoff Road Extension at the existing US 17 Wilmington Bypass and extend to existing US 17 north of Hampstead. Full control of access is proposed for the US 17 Hampstead Bypass. The total length of the selected alternative for the two projects is approximately 17.5 miles.

Project Schedule

U-4751 & R-3300, for planning purposes, were combined to evaluate them from a system-wide perspective. Considering them together allowed for a more comprehensive evaluation of direct and indirect impacts of the larger system. Currently, U-4751 is scheduled to let October 17, 2017 and R-3300 is currently not funded for construction in the 2016-2025 STIP. Permit drawings for the proposed U-4751 have been completed and preliminary estimates, based on preliminary slope stakes plus 25 feet have been calculated for R-3300. The NCDOT will apply for any relevant permit modifications for R-3300 when final design is complete. Construction will not commence on R-3300 until permit modifications have been received based on final design.

Summary of Impacts

For U-4751, proposed permanent impacts to jurisdictional areas total 59.99 acres of permanent wetland impacts, 2,122 linear feet of permanent stream impacts (including 55' of bank stabilization), and 7.76 acres of permanent surface water impacts. Preliminary proposed impacts (based on proposed slope stakes, plus 25 feet) for R-3300 include, 155.86 acres of permanent wetland impacts, 11,900 linear feet of permanent stream impacts, and 2.56 acres of permanent surface water impacts.

Summary of Mitigation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The proposed construction of U-4751 will result in unavoidable impacts 59.99 acres of non-riparian wetlands and 2,122 linear feet of jurisdictional stream that will require mitigation. The Department has acquired compensatory mitigation for the unavoidable impacts to non-riparian wetlands from the Northeast Cape Fear Mitigation Bank. The stream mitigation will be provided by the North Carolina Department of Environmental Quality (NCDEQ)-Division of Mitigation Services (DMS).

SEPA Document Status

The Final Environmental Impact Statement (FEIS) and the SROD were approved in July 2014 and September 2014 respectively for U-4751 & R-3300. These documents are available at https://xfer.services.ncdot.gov/pdea/EnvironmentalDocs/Documents/.

Resource Status

These projects are located in the Cape Fear and White Oak River Basins (Hydrologic Units 03030007 and 03020302), within the Southern Outer Coastal Plain eco-region. The project crosses several unnamed tributaries, surface waters, and wetlands. One stream, Howe Creek, within one mile downstream of the project area receives water from streams within the project area and has been designated as High Quality Water (HQW) and an Outstanding Resource Water (ORW) by the North Carolina Division of Water Resources (NCDWR). All tributaries within the project area of the downstream streams designated HQW

are classified as SA; HQW due to the classification of their receiving waters. However, most of the streams within the project area have a best usage classification of C; Sw.

Wetland and stream delineations were reviewed at various times between May 2010 and May 2015. Jurisdictional areas within the project study area were reviewed by the USACE (Brad Shaver) and by NCDWR (Mason Herndon) on November 6, 2014.

Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for U-4751 are summarized below in Tables 1 and 2 respectively. Wetland BWD at Permit Drawing Site 1 is located in the 8 digit hydrologic unit 03020202 of the White Oak River Basin. All other impacts are located in the 8 digit hydrologic unit 03030007 of the Cape Fear River Basin. Preliminary impacts to jurisdictional wetlands and surface waters for R-3300, based on proposed slop stakes plus 25 feet, are summarized in Tables 3 and 4 respectively.

Table 1. U-4751 Wetland Impacts

Permit Drawing Site Number	FEIS Label	Type	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Mitigation Required
1	BWD	Non-riparian	0.02	0	Yes
1	BWD	Non-riparian	1.31	0	Yes
2	BWC/BWB	Non-riparian	0.29	0	Yes
3	PD-04	Non-riparian	5.53	0	Yes
4	PD-03	Non-riparian	6.63	0	Yes
5	PD-01	Non-riparian	< 0.01	0	Yes
15	BWI	Non-riparian	0.03	0	Yes
16	CWA	Non-riparian	6.06	0	Yes
19	CWB	Non-riparian	0.52	0	Yes
21	CWB	Non-riparian	4.40	0	Yes
23	CWB/CSC	Non-riparian	6.89	0	Yes
24	CWB	Non-riparian	0.07	0	Yes
26	CWF	Non-riparian	11.77	0	Yes
28	CWD	Non-riparian	4.89	0	Yes
33	CWE	Non-riparian	6.16	0	Yes
37	CWE	Non-riparian	5.28	0	Yes
39	CWF	Non-riparian	0.13	0	Yes
41	ZWDD	Non-riparian	0.01	0	Yes
		Total:	**59.99**	**0**	

Table 2. U-4751 Surface Water Impacts

Permit Drawing Site Number	FEIS Label	Type	Permanent (lf)	Temporary (lf)	Permanent (ac.)	Temporary (ac.)	Mitigation Required
1	BDitch1	T-WoUS			0.03	< 0.01	No
6	BSL	T-WoUS			0.21	0.03	No
6*	BSJ	T-WoUS			< 0.01	0	No
7	BSJ	T-WoUS			0.16	0	No
8	BSK	T-WoUS			0.47	0	No
9	BPE	Pond			0.51	0	No

10	BSA	Perennial	373	201	0.34	0.19	Yes (2:1)
11	BSM/BSN	T-WoUS			0.28	0	No
12	BPF	Pond			0.70	0	No
13	BSM	T-WoUS			< 0.01	< 0.01	No
14	BSO/BSQ	T-WoUS			2.05	0.02	No
15	BSP/BWI	Perennial	303	58	0.15	0.02	Yes (2:1)
17	CSH	T-WoUS			0.06	< 0.01	No
18	CSI	Intermittent	231	19	0.07	< 0.01	Yes (1:1)
20	CSG	T-WoUS			0.11	0	No
22	CSD/CSE	T-WoUS			0.98	0.02	No
23	CSC	T-WoUS			0.42	0.04	No
25	CSB	Perennial	251	16	0.12	< 0.01	Yes (1:1)
27	CSA	Perennial	544	46	0.25	0.02	Yes (1:1)
27*	CSA	Perennial	14	0	< 0.01	0	Yes (1:1)
29	CSA	Perennial	34	46	< 0.01	0.02	Yes (1:1)
30	CSJ	T-WoUS			0.14	< 0.01	No
30*	CSJ	T-WoUS			< 0.01	0	No
31	CSJ	T-WoUS			0.08	0.01	No
32	CSA	Perennial	36	33	< 0.01	0.02	Yes (1:1)
34	CSA	Perennial	32	37	0.01	0.01	Yes (1:1)
35	CSK	T-WoUS			0.19	< 0.01	No
35*	CSK	T-WoUS			< 0.01	0	No
36	FSJ	Perennial	200	56	0.34	0.04	Yes (2:1)
36*	FSJ	Perennial	41	0	0.02	0	Yes (1:1)
38	ZSK	Perennial	43	10	0.01	0.02	Yes (2:1)
40	CSB	Perennial	20	0	0.06	0	Yes (1:1)
		Total:	**2,122**	**522**	**7.77**	**0.50**	

***Bank Stabilization**

T-WoUS – Tributary to Waters of the U.S.

Table 3. R-3300 Selected Alternative Preliminary Design Wetland Impacts

FEIS Label	Type	NCDWR Wetland Rating	Preliminary Impacts (acres)
FWB	Riparian	20	5.01
FWC2	Riparian	48	1.45
FWF	Non-riparian	37	5.83
	Riparian	37	1.08
FWHB	Non-riparian	24	0.04
FWI	Non-riparian	17	0.38
FWL	Non-riparian	19	0.03
FWY	Non-riparian	20	0.18
HBAA3	Riparian	32	0.25
HBAB	Non-riparian	27	1.09
HBWD4	Riparian	83	1.19
HBWF	Riparian	32	0.78
HBWK5	Riparian	83	1.47
HBWT	Non-riparian	14	0.39
HWB	Riparian	50	2.31
HWD	Non-riparian	21	0.35

FEIS Label	Type	NCDWR Wetland Rating	Preliminary Impacts (acres)
HWG6	Riparian	15	0.87
HWH	Non-riparian	26	0.15
HWH1	Non-riparian	26	0.08
HWH2	Non-riparian	26	0.03
HWH3	Non-riparian	26	0.07
HWH4	Non-riparian	26	0.02
HWH5	Non-riparian	26	0.23
HWY	Non-riparian	26	0.17
HWZ	Non-riparian	21	0.01
HWAA7	Non-riparian	40	8.52
	Riparian	40	1.64
HWHH	Non-riparian	34	0.90
HWMX	Non-riparian	40	0.05
IWA	Riparian	80	0.03
IWB	Riparian	25	0.09
IWC	Riparian	20	0.21
IWD	Non-riparian	31	17.71
	Riparian	31	0.39
IWE	Non-riparian	13	0.16
JWKX	Non-riparian	14	1.90
KWG	Non-riparian	43	0.71
LWA	Riparian	70	0.13
LWB	Riparian	72	8.36
LWD	Riparian	83	5.84
LWD1	Riparian	48	0.08
LWE	Non-riparian	29	0.49
LWF	Non-riparian	11	0.10
LWG	Non-riparian	46	0.01
LWH	Non-riparian	23	0.01
LWI	Riparian	80	2.50
LWJ	Non-riparian	40	5.50
LWK	Riparian	78	0.36
LWL	Riparian	76	0.28
MWA	Non-riparian	36	0.00
MWM(2)	Non-riparian	68	2.61
	Riparian	68	0.09
NWA	Non-riparian	12	0.01
NWB	Non-riparian	13	0.04
NWE	Non-riparian	12	0.03
NWF	Non-riparian	12	0.05
NWJ	Non-riparian	12	0.10
NWK	Non-riparian	12	0.04
NWM	Non-riparian	22	1.01
NWO	Non-riparian	17	3.69
NWP	Non-riparian	17	32.38

FEIS Label	Type	NCDWR Wetland Rating	Preliminary Impacts (acres)
ZWCC	Riparian	28	0.06
ZWDD	Non-riparian	26	0.92
	Riparian	26	0.24
PD-11	Non-riparian	N/A	0.04
PD-15	Non-riparian	N/A	0.53
PD-16	Non-riparian	N/A	0.63
PD-29	Non-riparian	N/A	10.58
PD-31	Non-riparian	N/A	2.02
PD-32	Non-riparian	N/A	2.44
	Riparian	N/A	0.92
PD-33	Non-riparian	N/A	7.79
	Riparian	N/A	0.67
PD-34	Non-riparian	N/A	2.30
PD-35	Non-riparian	N/A	7.24
		Total:	**155.86**

Table 4. R-3300 Selected Alternative Preliminary Design Stream Impacts

FEIS Label	Preliminary Impact (feet)	Compensatory Mitigation Required	Type
FSA	2,131	Yes	Perennial
FSE	331	Yes	Perennial
FSH	135	Yes	Intermittent
FSI	274	Yes	Perennial
FSJ	859	Yes	Intermittent
HBSAA	214	Yes	Intermittent
HBSC	350	Yes	Perennial
HBSD(1)	161	Yes	Intermittent
	117	Yes	Perennial
HBSH	320	Yes	Intermittent
HSC	408	Yes	Perennial
HSX	310	Yes	Perennial
LSB	1,499	Yes	Perennial
LSC	861	Yes	Perennial
LSCA	336	Yes	Intermittent
	107	Yes	Perennial
LSCAA	206	Yes	Perennial
LSCB	298	Yes	Perennial
LSCC	273	Yes	Perennial
LSCF	120	Yes	Intermittent
LSD	278	Yes	Perennial
LSDA	195	Yes	Intermittent
NSA	344	Yes	Intermittent

FEIS Label	Preliminary Impact (feet)	Compensatory Mitigation Required	Type
	110	Yes	Perennial
NSF	483	Yes	Intermittent
	290	Yes	Perennial
ZSK	850	Yes	Perennial
ZSL	40	Yes	Perennial
Total:	**11,900**		

Table 5. R-3300 Selected Alternative Preliminary Design Open Water Impacts

FEIS Label	Type	Impacts (acres)
IPE	Stormwater Pond	0.27
JPD	Depression	1.71
KPB	Depression	0.34
LPB	Pond	0.38
LPD	Pond	0.02
LPE	Pond	0.36
NPA	Pond	0.01
NPC	Stormwater Pond	0.06
NPE	Water Treatment Pond	0.70
FSH	Tributary to Waters of the US	0.05
FSH	Tributary to Waters of the US	0.02
NDITCH1	Tributary to Waters of the US	0.04
ZTRIB1	Tributary to Waters of the US	< 0.01
	Total:	**3.96**

Permanent Impacts: Proposed permanent impacts for U-4751 include 55.19 acres of fill and 4.80 acres of mechanized clearing in non-riparian wetlands. Proposed permanent impacts to surface waters include 2,122 linear feet of fill in jurisdictional streams, and 7.77 acres of fill in open water.

Proposed preliminary impacts for R-3300 include 155.56 acres of fill and mechanized clearing in jurisdictional wetlands. Proposed preliminary impacts to surface waters include 11,900 linear feet of fill in jurisdictional streams and 3.96 acres of fill in open water.
Temporary Impacts: There will be 522 linear feet of temporary impacts to jurisdictional streams and 0.50 acre of temporary impacts to open water due to pipe/culvert installations for U-4751.

Utility Impacts: There will be less than 0.01 acre of permanent fill and 0.03 acre of temporary fill in wetlands as a result of utility relocations. Please see the attached utility narrative and drawings for more detailed information.

Protected Species

The USFWS lists 17 species that are federally protected in both New Hanover and Pender Counties as of the April 2, 2015 and March 25, 2015 (respectively) listings (Table 5).

Table 5. Federally Protected Species Listed for New Hanover and Pender Counties

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion	County
Alligator mississippiensis	American alligator	T(S/A)	Yes	Not Required	New Hanover Pender
Chelonia mydas	Green sea turtle	T	No	No Effect	New Hanover Pender
Caretta caretta	Loggerhead sea turtle	T	No	No Effect	New Hanover Pender
Eretmochelys imbricata	Hawksbill (=carey) sea turtle	E	No	No Effect	New Hanover Pender
Lepidochelys kempii	Kemp's (=Atlantic) ridley sea turtle	E	No	No Effect	New Hanover Pender
Dermochelys coriacea	Leatherback sea turtle	E	No	No Effect	New Hanover Pender
Charadrius melodus	Piping plover	T	No	No Effect	New Hanover Pender
Picoides borealis	Red-cockaded woodpecker	E	Yes	MA-LAA	New Hanover Pender
Calidris canutus rufa	Red knot	T	No	No Effect	New Hanover Pender
Acipenser oxyrinchus oxyrinchus	Atlantic sturgeon	E	No	No Effect	New Hanover Pender
Acipenser brevirostrum	Shortnose sturgeon	E	No	No Effect	New Hanover Pender
Myotis septentrionalis	Northern long-eared bat	T	Yes	MA-LAA	New Hanover
Trichechus manatus	West Indian manatee	E	No	No Effect	New Hanover Pender
Schwalbea americana	American chaffseed*	E	Yes*	No Effect	Pender
Thalictrum cooleyi	Cooley's meadowrue	E	Yes	No Effect	New Hanover Pender
Carex lutea	Golden sedge	E	Yes	No Effect	Pender
Lysimachia sperulaefolia	Rough-leaved loosestrife	E	Yes	MA-NLAA	New Hanover Pender
Amaranthus pumilus	Seabeach amaranth	T	No	No Effect	New Hanover Pender

E – Endangered , T – Threatened, T(S/A) – Threatened due to Similarity of Appearance,
MA-LAA - May Affect, Likely to Adversely Affect, MA-NLAA - May Affect, Not Likely to Adversely Affect
* - Historic record (the species was last observed in the county more than 50 years ago)

Biological Conclusions for Federally Listed Species: NCDOT has determined the Biological Conclusion for the red-cockaded woodpecker (RCW) is May Affect, Likely to Adversely Affect. A Biological Opinion (BO) was signed by the USFWS on July 21, 2016 (additional copies are available upon request). In the BO the USFWS listed two Reasonable and Prudent Measures and three Terms and Conditions, which implement the Reasonable and Prudent Measures.

The Reasonable and Prudent Measures include the requirement that NCDOT completes the transfer of the conservation properties (outlined in the Conservation Measures section the BO) to the NC Wildlife Resources Commission (NCWRC) in a timely manner, and an RCW cavity tree survey and foraging habitat analysis data will be updated within the Section 7 action area prior to project construction.

The three Terms and Conditions are as follows: 1) Within 90 days of the completion of formal Section 7 consultation, NCDOT will initiate the execution of a Memorandum of Understanding with the NCWRC regarding the management and ownership of the referenced conservation properties, 2) within 180 days of the completion of formal Section 7 consultation, the NCDOT will convey the title to approximately 81.6 acres (i.e. portions of referenced Hampstead Commons, IBIS, and Pensco properties) to the NCWRC for inclusion into Holly Shelter Game Land, and 3) if at the projected date of project let for any portion of R-3300 that occurs within the defined Section 7 action area, the cavity tree survey data and foraging habitat analysis data is more than two years old, additional surveys and foraging habitat analysis will be conducted. At that time, the action agencies and the Service will determine if Section 7 consultation needs to be reinitiated prior to the project let date.

NCDOT provided the MOU to NCWRC and began the process to transfer the conservation properties in June 2016. Since the Section 7 action area is within the corridor of R-3300, NCDOT will schedule the cavity tree survey and foraging habitat analysis once R-3300 is programed in the STIP and a project letting date has been determined.

In addition to the RCW, NCDOT has concluded the Biological Conclusion for rough-leaved loosestrife is May Affect, Not Likely to Adversely Affect due to the proximity of the project to a known occurrence of this species; however, project construction will not have an impact on existing rough-leaved loosestrife habitat at the site (including future habitat management), nor will the hydrology of the site be affected by the project. A minimal amount of fill and clearing will occur along the existing US 17 bypass slope (approximately 0.14 acre along 750’ of slope). The fill and clearing is approximately 150’ from the rough-leaved loosestrife site.

The USFWS has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is "May Affect, Likely to Adversely Affect." The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes New Hanover and Pender Counties, where U-4751 and R-3300 are located.

For the remaining federally protected species, NCDOT has concluded these projects will have No Effect (see Table 4).

Bald and Golden Eagle Protection Act (BGPA): In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) became the primary law protecting bald eagles. Nesting and foraging habitat are not present in the project area, nor have bald eagle nests or individuals have been seen within a 660-foot radius of the project area.

Moratoria: There are no in-stream work moratoria required for U-4751 or R-3300.

Essential Fish Habitat: The project will not impact any Essential Fish Habitat afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C 1801 et seq.).

Cultural Resources

It was determined the project will have an adverse effect on the Mount Ararat AME Church and archaeological site (31PD344**), both of which have been deemed eligible for the National Register of Historic Places. As a result NCDOT, USACE, and NC State Historic Preservation Officer (SHPO) have signed a Memorandum of Agreement (MOA) stipulating steps to mitigate the adverse effects. Please reference the MOA (additional copies are available upon request) for more detailed information on these adverse effects and resultant stipulations.

FEMA Compliance

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

Mitigation Options

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during planning and SEPA compliance stages; minimization measures were incorporated as part of the project design.

Avoidance and Minimization: All jurisdictional features were delineated, field verified and surveyed within the corridor for U-4751 & R-3300. Using these features, preliminary designs were adjusted to avoid and/or minimize impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- The project was designed to avoid or minimize disturbance to aquatic life movements.
- NCDOT and its contractors will not fill or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project will be available to the USACE on request.
- Grass swale, median roadway ditches and riprap dissipater treatments have been incorporated where applicable.
- Proposed box culverts will be buried 1 ft. to provide for fish passage.
- Cross pipes in jurisdictional streams will be buried 1ft. for all pipes where possible.
- Sediment and erosion control devices will be utilized where appropriate.
- Bank stabilization at outlets of pipes will not impact the stream bed where possible.
- Considering environmental, hydraulic, and roadway perspectives, 3:1 slopes are proposed within the wetlands where most practical.

Compensation: The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. If and when R-3300 is programed in the STIP, NCDOT will provide compensatory mitigation for proposed impacts within the R-3300 project footprint prior to the permit modification request.

The proposed construction of U-4751 will result in unavoidable impacts 59.99 acres of non-riparian wetlands and 2,122 linear feet of jurisdictional stream that will require mitigation. The stream mitigation will be provided by the North Carolina Department of Environmental Quality (NCDEQ)-Division of Mitigation Services (DMS). The majority of the wetland impacts are in the 8 digit hydrologic unit 03030007 of the Cape Fear River Basin. Of the total impacts, only 1.32 acres are just outside this hydrologic unit in the adjacent 8 digit hydrologic unit 03020302 of the White Oak River basin. The 1.32 acres is comprised of Wetland BWD at Permit Site 1. This is a non-riparian wetland described in the NRTR as a Wet Pine Flatwood. It is surrounded by urban development with manipulated drainage. The Department proposes to provide wetland mitigation within the Cape Fear 03030007 for all wetland impacts.

The Department has acquired compensatory mitigation for the unavoidable impacts to non-riparian wetlands from the Northeast Cape Fear Mitigation Bank. The Northeast Cape Fear Mitigation Bank is located in Pender County within the USGS hydrologic unit 03030007 of the Cape Fear River. The bank is located immediately north of the intersection of NC Highway 21 and Shaw Highway (SR 1522) approximately 12 miles north of Wilmington, NC. It is situated between northeast Cape Fear River and the state protected Holly Shelter Game Lands in Pender County. NCDOT purchased 200 acres of non-riparian wetland credits from the bank in March 2016, of which 120.00 acres will be debited from the NECFM Bank's ledger for U-4751 as shown below. The transfer of liability form is attached below.

Mitigation Type	Debit Amount (acers)	Site TIP	Notes
Non-Riparian Wetland Restoration	2.64	U-4751 (03020302)	Impacts were 1.32 acers calculated with a 2:1 ratio
Non-Riparian Wetland Restoration	117.34	U-4751 (03030007)	Impacts were 58.67 Acres calculated with a 2:1 ratio

Indirect and Cumulative Effects

An Indirect and Cumulative Effects Screening Report and Land Use Scenario Assessment for the subject projects was completed in September 2013. Cumulatively, the construction of Military Cutoff Road Extension and the Hampstead Bypass combined with past NCDOT projects (US 17 Wilmington Bypass) that provide improved east-west regional access, and continued commercial and residential development within the study area, could contribute to cumulative impacts to environmental resources in the study area. Substantial development resulting exclusively from this project and the associated service roads is not expected. Any development that occurs would be implemented in accordance with local ordinances and land use plans. The proposed project is not likely to result in significant changes in land use. Therefore, cumulative effects beyond those discussed above are expected to be low.

Regulatory Approvals

within the study area, could contribute to cumulative impacts to environmental resources in the study area. Substantial development resulting exclusively from this project and the associated service roads is not expected. Any development that occurs would be implemented in accordance with local ordinances and land use plans. The proposed project is not likely to result in significant changes in land use. Therefore, cumulative effects beyond those discussed above are expected to be low.

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 requesting a Section 401 Water Quality Certification from NCDWR. We are providing this application to NCDEQ, for their approval. Authorization to debit the $570 Permit Application Fee from WBS Element 40191.1.2 is hereby given.

CAMA: Under separate cover, NCDOT is submitting a request for a CAMA Federal Consistency Review from the N. C. Division of Coastal Management for U-4751 & R-3300.

A copy of this permit request and its distribution list will be posted on the NCDOT website at: https://connect.ncdot.gov/resources/Environmental

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Tyler Stanton at tstanton@ncdot.gov or (919) 707-6156.

Sincerely,

Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head

cc:

NCDOT Permit Application Standard Distribution List

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 31-AUGUST-2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Philip Middle - S Last - Harris III	First - Middle - Last -
Company - NC Dept. of Transp.- Natural Environment Section	Company -
E-mail Address - tstanton@ncdot.gov	E-mail Address -
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 1548 Mail Service Center	Address-
City - Raleigh State - NC Zip - 27699 Country - USA	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business 919-707-6156 c. Fax 919-250-5785	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____ _____
SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

TIP U-4751 & R-3300 (SR 1409 extension and US 17 Hampstead Bypass in New Hanover and Pender COs.), WBS 40191.1.2

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
	Address
15. LOCATION OF PROJECT	City - State- Zip-
Latitude: °N Longitude: °W	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

17. DIRECTIONS TO THE SITE
See attached vicinity map

18. Nature of Activity (Description of project, include all features)
Construct a a 5.5 mile six-lane divided roadway on new location from its current terminus at US 17 Business (Market Street) in Wilmington north to an interchange with the US 17 Wilmington Bypass (John Jay Burney Jr. Freeway). Partial and full control of access is proposed.

NCDOT is also proposing the future US 17 Hampstead Bypass to be constructed as a freeway mostly on new location. The US 17 Hampstead Bypass will connect to the proposed Military Cutoff Road Extension at the existing US 17 Wilmington Bypass and extend to existing US 17 north of Hampstead. Full control of access is proposed for the US 17 Hampstead Bypass.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
To improve the traffic carrying capacity and safety of the US 17 and Market Street corridor in the study area.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
Wetlands and streams will be impacted by construction activities, i.e., widening of road, new locations, and replacement/extension of drainage structures.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

Please see attached permit drawings

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
Acres 59.99 acres of non-riparian wetlands
or
Linear Feet 2,122 feet of streams

23. Description of Avoidance, Minimization, and Compensation (see instructions)
See attached cover letter

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See attached mailing labels

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT — DATE: 12-21-2016

For PHILIP S. HARRIS III

SIGNATURE OF AGENT — DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

December 21, 2016

N.C. Division of Coastal Management
1638 Mail Service Center
Raleigh, NC 27699-1638

ATTN: Ms. Cathy Brittingham, NCDOT Coordinator

Subject: Certification for DCM Consistency for the proposed SR 1409 (Military Cutoff Road) extension and US 17 Hampstead Bypass in New Hanover and Pender Counties. TIP Nos. U-4751 & R-3300. WBS 40191.1.2

Dear Madam:

The purpose of this letter and information package is to request concurrence from the Division of Coastal Management (DCM) for the North Carolina Department of Transportation's (NCDOT) consistency certification for the above-mentioned project. This package consists of the supporting information, half size plan sheets, permit drawings, utility plans, Transfer of Liability Form from Northeast Cape Fear Mitigation Bank, and the Division of Mitigation Services (DMS) acceptance letter for U-4751 & R-3300.

NCDOT proposes to construct a 5.5 mile six-lane divided roadway on new location from its current terminus at US 17 Business (Market Street) in Wilmington north to an interchange with the US 17 Wilmington Bypass (John Jay Burney Jr. Freeway). Partial and full control of access is proposed. NCDOT is also proposing the future US 17 Hampstead Bypass to be constructed as a freeway mostly on new location. The US 17 Hampstead Bypass will connect to the proposed Military Cutoff Road Extension at the existing US 17 Wilmington Bypass and extend to existing US 17 north of Hampstead. Full control of access is proposed for the US 17 Hampstead Bypass.

The NCDOT is submitting an application for a U.S. Army Corps of Engineers (USACE) Section 404 Individual Permit as well as a N.C. Division of Water Quality (DWQ) Individual 401 Water Quality Certification.

NCDOT has reviewed the State's coastal program under 15 CFR 930.58 and 15A NCAC 07M. Specifically, we have considered the shoreline erosion, mitigation and coastal water quality policies, and the New Hanover and Pender County CAMA Core Land Use Plans as well as the City of Wilmington's *Choices, The Wilmington Future Land Use Plan, 2004- 2025*. The NCDOT certifies that the proposed activity complies with the enforceable policies of North Carolina's approved management program and will be conducted in a manner consistent with said program.

If you have any questions or need additional information please contact Tyler Stanton at (919) 707-6156 or tstanton@ncdot.gov.

Sincerely,

for Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head

cc: Mr. Stephen Lane, NCDCM

Coastal Zone Consistency Certification Supporting Information for the NCDOT's Request to Construct the Proposed SR 1409 (Military Cutoff Road) Extension and US 17 Hampstead Bypass in New Hanover and Pender Counties. TIP Nos. U-4751 & R-3300.

History

Feasibility studies were conducted for both Military Cutoff Road Extension (U-4751) and the US 17 Hampstead Bypass (R-3300). The Hampstead Bypass Feasibility Study was completed in draft form in February 1999, but was never published as final. In early 2004, the feasibility study was reinstated. A Feasibility Study for the Military Cutoff Road Extension was completed in June of 2004. The proposed project is included in local thoroughfare plans and shown in the 2012-2018 STIP, with both U-4751 and R-3300 shown as Strategic Highway Corridor projects. Project development studies for the proposed project began in 2005.

Decision to Combine Projects in One Environmental Document

During project development it was recognized that projects U-4751 and R-3300 may share a common terminus. Because they may be adjoining new location projects and together they would have a cumulative impact on the human and natural environment, it was decided the two projects should be addressed in a single environmental document. This combined document provides a way to communicate all direct and indirect impacts the projects would have on the environment, as well as the cumulative impact resulting from the incremental impacts of the two projects when added to other past, present, and reasonably foreseeable future actions.

Alternatives

Along with the No-Build alternative, a Transportation Systems Management (TSM) alternative, a Travel Demand Management (TDM) alternative, and Mass Transit alternatives, the NEPA/Section 404 merger team reviewed 23 preliminary build alternatives for R-3300 and two preliminary build alternatives for U-4751. Ultimately four new location build alternatives (E-H, O, R, and U) for R-3300 and the two new location build alternatives (M1 and M2) for U-4751 were carried forward for detailed study.

NEPA/404 Merger process

This project has followed the NEPA/404 Merger process. The Merger process is an interagency procedure integrating the regulatory requirements of Section 404 of the Clean Water Act into the National Environmental Policy Act decision making process. On September 21, 2006, the merger team concurred on the purpose and need (Concurrence Point 1) for this project. The Merger Team concurred on alternatives to be studied in detail at their August 23, 2007 meeting and reached concurrence on Bridging and Alignment Review (CP 2A) on May 27, 2010.

U-4751 Alternative M1 and R-3300 Alternative E-H were selected as the Least Environmentally Damaging Practicable Alternative (LEDPA) at the NEPA/ Section 404 Merger Team meeting on May 17, 2012. EPA conditionally concurred on selection of U-4751 Alternative M1 as the LEDPA for U-4751. EPA abstained from concurrence on R-3300 Alternative E-H as the LEDPA for R-3300.

The NEPA/Section 404 Merger Team met on June 14, 2012 to discuss Avoidance and Minimization (CP 4A) for U-4751. The Merger Team concurred on Avoidance and Minimization for U-4751 on September 25, 2012. The CP 4A meeting for U-4751 was conducted separately from the CP 4A meeting for R-3300 to maintain the U-4751 project schedule. The CP 4A meeting for R-3300 was postponed so NCDOT

could evaluate the northern interchange design and location in response to comments received from the public at the U-4751 and R-3300 corridor public hearings. The Avoidance and Minimization (CP 4A) meeting for R-3300 was held on February 20, 2013. The NEPA/Section 404 Merger Team concurred on Avoidance and Minimization for R-3300 on June 13, 2013, with EPA abstaining.

Document Status

The NCDOT completed the Final Environmental Impact Statement (FEIS) in July 2014 in compliance with State Environmental Policy Act (SEPA) guidelines. The FEIS explains the purpose and need for the project, provides a description of the alternatives considered, and characterizes the social, economic, and environmental effects. The SFEIS was approved and circulated to federal, state, and local agencies. Then following the FEIS, a State Record of Decision (SROD) was completed in September 2014. Copies of the project documents have been provided to regulatory review agencies involved in the approval process. Additional copies are available at https://xfer.services.ncdot.gov/pdea/EnvironmentalDocs/Documents/.

Project Description

The proposed U-4751 action involves construction of a 5.5 mile six-lane divided roadway on new location from its current terminus at US 17 Business (Market Street) in Wilmington north to an interchange with the US 17 Wilmington Bypass (John Jay Burney Jr. Freeway). Partial and full control of access is proposed.

NCDOT is also proposing the future R-3300 to be constructed as a freeway mostly on new location. The R-3300 will connect to the proposed U-4751 at the existing US 17 Wilmington Bypass and extend to existing US 17 north of Hampstead. Full control of access is proposed for the R-3300.

Avoidance and Minimization

All jurisdictional features were delineated, field verified and surveyed within the corridor for U-4751 & R-3300. Using these features, preliminary designs were adjusted to avoid and/or minimize impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- The project was designed to avoid or minimize disturbance to aquatic life movements.
- NCDOT and its contractors will not fill or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project will be available to the USACE on request.
- Grass swale, median roadway ditches and riprap dissipater treatments have been incorporated where applicable.
- Proposed box culverts will be buried 1 ft. to provide for fish passage.
- Cross pipes in jurisdictional streams will be buried 1ft. for all pipes where possible.
- Sediment and erosion control devices will be utilized where appropriate.

- Bank stabilization at outlets of pipes will not impact the stream bed where possible.
- Considering environmental, hydraulic, and roadway perspectives, 3:1 slopes are proposed within the wetlands where most practical.

Mitigation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The proposed construction of U-4751 & R-3300 will result in unavoidable impacts 59.99 acres of non-riparian wetlands and 2,122 linear feet of jurisdictional stream that will require mitigation. The stream mitigation will be provided by the North Carolina Department of Environmental Quality (NCDEQ)-Division of Mitigation Services (DMS).

The Department has acquired compensatory mitigation for the unavoidable impacts to non-riparian wetlands from the Northeast Cape Fear Mitigation Bank. The Northeast Cape Fear Mitigation Bank is located in Pender County within the USGS hydrologic unit 03030007 of the Cape Fear River. The bank is located immediately north of the intersection of NC Highway 21 and Shaw Highway (SR 1522) approximately 12 miles north of Wilmington, NC. It is situated between northeast Cape Fear River and the state protected Holly Shelter Game Lands in Pender County. NCDOT purchased 200 acres of non-riparian wetland credits from the bank in March 2016, of which 120.00 acres will be debited from the NECFM Bank's ledger for U-4751 as shown below (Table 1).

Table 1. NECFM Bank's ledger for U-4751

Mitigation Type	Debit Amount (acers)	Site TIP	Notes
Non-Riparian Wetland Restoration	2.64	U-4751 (03020302)	Impacts were 1.32 acers calculated with a 2:1 ratio
Non-Riparian Wetland Restoration	117.34	U-4751 (03030007)	Impacts were 58.67 Acres calculated with a 2:1 ratio

Protected Species

The USFWS lists 17 species that are federally protected in both New Hanover and Pender Counties as of the April 2, 2015 and March 25, 2015 (respectively) listings (Table 3).

Table 3. Federally Protected Species Listed for New Hanover and Pender Counties

Scientific Name	Common Name	Federal Status	Habitat Present	Biological Conclusion	County
Alligator mississippiensis	American alligator	T(S/A)	Yes	Not Required	New Hanover Pender
Chelonia mydas	Green sea turtle	T	No	No Effect	New Hanover Pender
Caretta	Loggerhead sea turtle	T	No	No Effect	New Hanover Pender
Eretmochelys imbricata	Hawksbill (=carey) sea turtle	E	No	No Effect	New Hanover Pender

Lepidochelys kempii	Kemp's (=Atlantic) ridley sea turtle	E	No	No Effect	New Hanover Pender
Dermochelys coriacea	Leatherback sea turtle	E	No	No Effect	New Hanover Pender
Charadrius melodus	Piping plover	T	No	No Effect	New Hanover Pender
Picoides borealis	Red-cockaded woodpecker	E	Yes	MA-LAA	New Hanover Pender
Calidris canutus rufa	Red knot	T	No	No Effect	New Hanover Pender
Acipenser oxyrinchus	Atlantic sturgeon	E	No	No Effect	New Hanover Pender
Acipenser brevirostrum	Shortnose sturgeon	E	No	No Effect	New Hanover Pender
Myotis septentrionalis	Northern long-eared bat	T	Yes	MA-LAA	New Hanover
Trichechus manatus	West Indian manatee	E	No	No Effect	New Hanover Pender
Schwalbea americana	American chaffseed*	E	Yes*	No Effect	Pender
Thalictrum cooleyi	Cooley's meadowrue	E	Yes	No Effect	New Hanover Pender
Carex lutea	Golden sedge	E	Yes	No Effect	Pender
Lysimachia sperulaefolia	Rough-leaved loosestrife	E	Yes	MA-NLAA	New Hanover Pender
Amaranthus pumilus	Seabeach amaranth	T	No	No Effect	New Hanover Pender

E – Endangered , T – Threatened, T(S/A) – Threatened due to Similarity of Appearance,
MA-LAA - May Affect, Likely to Adversely Affect, MA-NLAA - May Affect, Not Likely to Adversely Affect
* - Historic record (the species was last observed in the county more than 50 years ago)

Biological Conclusions for Federally Listed Species

NCDOT has determined the Biological Conclusion for the red-cockaded woodpecker (RCW) is May Affect, Likely to Adversely Affect. A Biological Opinion (BO) was signed by the USFWS on July 21, 2016. In the BO the USFWS listed two Reasonable and Prudent Measures and three Terms and Conditions, which implement the Reasonable and Prudent Measures.

The Reasonable and Prudent Measures include the requirement that NCDOT completes the transfer of the conservation properties (outlined in the Conservation Measures section the BO) to the NC Wildlife Resources Commission (NCWRC) in a timely manner, and an RCW cavity tree survey and foraging habitat analysis data will be updated within the Section 7 action area prior to project construction.

The three Terms and Conditions are as follows: 1) Within 90 days of the completion of formal Section 7 consultation, NCDOT will initiate the execution of a Memorandum of Understanding with the NCWRC regarding the management and ownership of the referenced conservation properties, 2) within 180 days of the completion of formal Section 7 consultation, the NCDOT will convey the title to approximately 81.6 acres (i.e. portions of referenced Hampstead Commons, IBIS, and Pensco properties) to the NCWRC for inclusion into Holly Shelter Game Land, and 3) if at the projected date of project let for any portion of R-

3300 that occurs within the defined Section 7 action area, the cavity tree survey data and foraging habitat analysis data is more than two years old, additional surveys and foraging habitat analysis will be conducted. At that time, the action agencies and the Service will determine if Section 7 consultation needs to be reinitiated prior to the project let date.

NCDOT provided the MOU to NCWRC and began the process to transfer the conservation properties in June 2016. Since the Section 7 action area is within the corridor of R-3300, NCDOT will schedule the cavity tree survey and foraging habitat analysis once R-3300 is programed in the STIP and a project letting date has been determined.

In addition to the RCW, NCDOT has concluded the Biological Conclusion for rough-leaved loosestrife is May Affect, Not Likely to Adversely Affect due to the proximity of the project to a known occurrence of this species; however, project construction will not have an impact on existing rough-leaved loosestrife habitat at the site (including future habitat management), nor will the hydrology of the site be affected by the project. A minimal amount of fill and clearing will occur along the existing US 17 bypass slope (approximately 0.14 acre along 750' of slope). The fill and clearing is approximately 150' from the rough-leaved loosestrife site.

The USFWS has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is "May Affect, Likely to Adversely Affect." The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes New Hanover and Pender Counties, where U-4751 and R-3300 are located.

For the remaining federally protected species, NCDOT has concluded these projects will have No Effect (see Table 3).

Bald and Golden Eagle Protection Act (BGPA)

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) became the primary law protecting bald eagles. Nesting and foraging habitat are not present in the project area, nor have bald eagle nests or individuals have been seen within a 660-foot radius of the project area.

Cultural Resources

Archaeology and Historic Architecture

It was determined the project will have an adverse effect on the Mount Ararat AME Church and archaeological site (31PD344**), both of which have been deemed eligible for the National Register of Historic Places. As a resulted NCDOT, USACE, and SHPO have signed an MOA stipulating steps to mitigate the adverse effects. Please reference the attached MOA for more detailed information on these adverse effects and resultant stipulations.

Indirect and Cumulative Effects

An Indirect and Cumulative Effects Screening Report and Land Use Scenario Assessment for the subject projects was completed in September 2013. Cumulatively, the construction of U-4751 and R-3300 combined with past NCDOT projects (US 17 Wilmington Bypass) that provide improved east-west regional access, and continued commercial and residential development within the study area, could contribute to cumulative impacts to environmental resources in the study area. Substantial development resulting exclusively from this project and the associated service roads is not expected. Any development that occurs would be implemented in accordance with local ordinances and land use plans. The proposed project is not likely to result in significant changes in land use. Therefore, cumulative effects beyond those discussed above are expected to be low.

Other Permits

In addition to the DCM Consistency Determination, permits to be obtained for this project include an Individual Section 404 permit and an Individual Section 401 Water Quality Certification.

Division of Coastal Management (DCM) General Policy Guidelines for the Coastal Area

The general policy guidelines in 15A NCAC 07M have been reviewed for applicability to this project in its entirety. Explicitly, the .0700 rules (mitigation), and the .0800 rules (water quality) were reviewed. This project will not affect shoreline erosion or shoreline access. However, this project will require compensatory mitigation and impact water quality. This project has been designed to avoid and minimize jurisdictional areas to the largest extent possible. Best Management Practices will be in place during construction; compensatory mitigation will be provided through NCDMS.

CAMA Land Use Plans

The City of Wilmington developed *Choices, The Wilmington Future Land Use Plan, 2004- 2025* to guide physical development within the City and to determine how to build or preserve certain aspects of the community. The plan has a long-range planning horizon of twenty years. The plan notes that Wilmington is nearing build-out and there is a need to redevelop aging or underutilized properties. A small part of the study area is included in this plan's boundaries. A few areas along Market Street south of Military Cutoff Road are classified as small infill tracts in Varied Use Areas. This area of Market Street is mostly a Tier Two Redevelopment Area. These areas are characterized by declining or marginal commercial enterprises and/or businesses that have not kept pace with more recent trends. Tier 2 properties are targeted for upgrade as opportunities arise.

The Market Street Corridor Study (July 2010) includes a long-term view on development along the Market Street corridor that is defined by efficient land use patterns, transportation choices, distinctive architecture, and high quality of life. Plans for redevelopment of areas around Military Cutoff Road are premised on the proposed U-4751. The design intent for this area is to create a compact neighborhood center with a walkable street network and neighborhood services. The Study presents the opinion that the U-4751 intersection with Market Street should be grade-separated.

Both New Hanover and Pender Counties participate in the cooperative state-local North Carolina Coastal Area Management Act (CAMA) program. CAMA requires local governments within the 20 coastal counties to prepare land use plans that provide a balance of protection, preservation, and orderly development.

The *Wilmington-New Hanover County Joint Coastal Area Management Plan 2006 Update* functions as the future plan for both the City of Wilmington and New Hanover County. The future land use for the New Hanover County portion of U-4751 and R-3300 study area is identified as Wetland Resource

Protection Area, Rural, and Conservation Areas (primarily flood prone). According to the plan document, the rural classification is comprised of low intensity land uses (agriculture, forest) and discourages urban-type uses. Only low density residential development (less than 2.5 units per acre) is permitted in the rural area.

New Hanover County does not have a separate land use plan outside of the Wilmington- New Hanover County Joint Coastal Area Management Plan 2006 Update. Small area plans exist for the Middle Sound and Porters Neck communities. However, New Hanover County considers these plans outdated as they are more than 20 years old.

The Pender County CAMA Land Use Plan 2005 Update focuses on policies designed to protect significant and irreplaceable natural systems. It includes a land use classification system as a tool to protect natural systems, but does not provide detailed guidance for land use decisions. In the CAMA plan, future land use for the Pender County portion of the study area is identified as an Urban Growth Area and Conservation Area. The Urban Growth Area classification provides for the continued development of areas provided with water and/or sewer services or where the County is actively engaged in planning these services. This area classification provides for higher net densities. The Conservation Area Classification is intended to protect natural systems from inappropriate development. The CAMA Land Use Plan shows Conservation Areas along Harrisons Creek, Godfrey Creek, and tributaries to Harrisons Creek, Godfrey Creek, and Island Creek.

The June 2010 *Pender County Comprehensive Land Use Plan* includes future land use classifications that are intended to reflect and expand on the land use classifications used in the CAMA Land Use Plan. The comprehensive plan incorporates a Coastal Pender Small Area Plan that includes the study area from the Pender County line near Sidbury Road to Holly Shelter Game Land and Sloop Point Loop Road. The small area plan designates a Mixed-Use future land use classification from Sidbury Road to near Harrison Creek Road, between NC 210 and US 17. The Mixed-Use classification applies to locations where a mix of higher density uses is to be encouraged. The Mixed-Use classification continues along US 17 to Sloop Point Loop Road, with the exception of a few areas classified as Conservation. Conservation areas have special significance or unique characteristics that make them worthy of preservation. These areas include South Topsail Elementary School, the Topsail Schools complex, and Holly Shelter Game Land. Northwest of US 17, from Harrison Creek Road to Holly Shelter Game Land, the future land use classification is predominantly Suburban Growth. The Suburban Growth classification identifies areas where significant residential growth is expected to occur. The Coastal Pender Small Area Plan indicates regulations should be revised to protect the R-3300 Corridor from future development and to encourage development that is in harmony with the bypass when a corridor alternative is selected.

After reviewing the various policy statements, NCDOT concludes that this project is consistent with the relevant *CAMA Land Use Plans*.

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

Mitigation Services
ENVIRONMENTAL QUALITY

December 5, 2016

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

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

U-4751, Wilmington – SR 1409 Extension (Military Cutoff Road) to the Wilmington Bypass, New Hanover County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on December 5, 2016, the impacts are located in CU 03030007 of the Cape Fear River basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Cape Fear	03030007	SOCP	0	0	2,122.0	0	0	0

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

DMS commits to implementing sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with 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 Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
Credit Management Supervisor

cc: Mr. Brad Shaver, USACE – Wilmington Regulatory Field Office
Ms. Amy Chapman, NCDWR
Ms. Cathy Brittingham, NCDCM
File: U-4751

NORTHEAST CAPE FEAR UMBRELLA MITIGATION BANK

Compensatory Mitigation Responsibility Transfer Form

Permittee: NC Department of Transportation

Project Name: NCDOT TIP Project U-4751 (Military Cutoff Road Extension)

County: New Hanover

Instructions to Permittee: The Bank Sponsor has signed this form to verify the transfer of the mitigation responsibility from the above-referenced Permittee to the Northeast Cape Fear Umbrella Mitigation Bank (Bank). Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager is in receipt of a signed copy of this form before conducting authorized impacts.

The Sponsor verifies that the mitigation requirements (credits) shown below are available at the Bank site. By signing below, the Sponsor is acknowledging receipt of payment in full for the mitigation type(s) and quantities listed in Table 1. In addition, the Sponsor is accepting full responsibility for the identified mitigation. Upon execution of this form, the Sponsor will update the bank ledger and provide a copy of the signed form and the updated bank ledger to the USACE Project Manager and the Wilmington District Mitigation Office.

Table 1. Mitigation Credits Requested and Debited for Above-Referenced Project

Mitigation Type	Credits Requested	Total Credits Debited from Bank
Stream	0.0	0.0
Non- Riparian Wetland	119.98	120.0
Riparian Wetland	0.0	0.0

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above). I also verify that released credits, as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: Shaw Hwy. Properties, LLC

Name of Sponsor's Authorized Representative: Cal Miller

Signature of Sponsor's Authorized Representative: Cal Miller

Date of Signature: 12/6/16

Conditions for Transfer of Compensatory Mitigation Credit:
Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the final Section 404/401 authorizations for the project.

Minutes from the Interagency 4B Hydraulic Design Review Meeting
U-4751 in New Hanover County
April 16, 2013
10:30 AM – 12:00 PM

Team Members:
Ron Lucas, FHWA (not in attendance)
Brad Shaver, USACE
Gary Jordan, USFWS
Travis Wilson, NCWRC
Chris Militscher, EPA (not in attendance)
Mason Herndon, DWR
Steve Sollod, NCDCM

Other Participants:
Paul Atkinson, Hydraulics
Scott Robidoux, STV
Will Hines, Sungate Design Group
Andre' Mullins - STV
Brad Smith, Sungate Design Group
Gary Lovering, Roadway Design
Chris Rivenbark, NES
Emily Murray, Structures
Jay McInnis, PDEA
Christopher H. Lee - Roadway
Mark Staley - REU
Keith Paschal - Structures
Cynthia Van Der Wiele - USEPA
Tyler Stanton – PDEA - NES
Jason Elliott – PDEA - NES
Collin Mellor – PDEA - NES
Kim Gillespie - PDEA
Kit Persiani – STV
Nikki Honeycutt – STV
Eddie Vance – STV

General introduction of the project was initiated by Scott Robidoux, STV hydraulic design engineer. Introductions were made by all in attendance. Scott Robidoux began the review by describing the overall project touching on the project details below.

General Project Details:

- Project is located in New Hanover County.
- For this project we will be extending SR1409 (Military Cutoff Road) approximately 4.156 miles, widening approximately 1.38 miles of existing US 17 (Market Street –Y1-). Interchanges between Military Cutoff Road and US 17 and I-140 will also be constructed as part of this project. There will also be work on Gordon Road (-Y-) including pavement overlay, realignment of the intersection of Jackboro Road and Lendire Road and relocation of Cape Harbor Drive. Tie-in work will occur on Lendire Road, Brittany Lakes Road, Ruth Avenue, Middle Sound Loop Road, El Ogden Drive and Prospect Cemetery Road.
- New Hanover County is a CAMA County. All new pipes 36" or greater in diameter will be buried 1 foot.

- Wherever possible, will utilize existing outfalls. Will utilize existing drainage structures wherever possible. Existing will be checked for capacity and velocity.

Information discussed by presenters for each plan sheet is provided below. Scott Robidoux went over plan sheets 4-10 and 24-30. Will Hines, Sungate Design Group hydraulic design engineer went over plan sheets 11-23 and 31-34. Comments from team members and other participants during the meeting are shown in "***italics"***.

Plan Review Minutes:

First Half – Presented by Scott Robidoux, STV

Plan Sheet 4

- No jurisdictional features.
- No impacts.
- ***No comments.***

Plan Sheet 5

- Jurisdictional features.
- Impacts to wetlands -Y1RPD- Sta. 11+00 to 16+00, -L- Sta. 28+00 (toe of fill)
- ***General discussion about existing detention ponds along left side of -L- (Military Cutoff Road). All ponds are part of existing site development projects of which some may have been constructed prior to the current local stormwater permit process. None of these pond sizes are being impacted by the U-4751 project.***
- ***Mason Herndon asked that we look into adding equalizer pipe at approx. Sta. 14+00 to 15+00. Team discussed that the wetland area above –Y1RPD- may be considered a total take if equalizer pipes can't be added.***
- ***Discussed the proposed culvert in the existing channel and that the proposed design attempts to feed as much stormwater into the wetland area as possible in order to keep the hydrology similar to what is there now.***

Plan Sheet 6

- Jurisdictional features.
- Impacts to wetlands -Y1RPB- Sta. 21+00 to 23+50 approx., L Sta. 49+00 approx.
- ***No comments.***

Plan Sheet 7

- Jurisdictional features.
- Impacts to wetlands -Y1RPB- Sta. 19+00 approx., L Sta. 49+00 approx. and 52+00 to 58+00 approx.
- ***Equalizer pipes have been added to this section of wetlands since the 4B meeting plans were uploaded for the Team Members review.***

Plan Sheet 8

- Jurisdictional features.
- Impacts to wetlands - L Sta. 58+00 to 70+00 approx.
- ***Mason Herndon and Brad Shaver asked that we look into adding equalizer pipes through approx. Sta.64+00 to 75+00 on sheets 8 and 9. Scott Robidoux mentioned that***

the existing topography doesn't indicate that the wetland drains across the proposed roadway. Paul Atkinson said we would look into it further.

Plan Sheet 9

- Jurisdictional features.
- Impacts to wetlands - L Sta. 70+00 to 76+00 approx.
- ***Mason Herndon and Brad Shaver asked that we look into adding equalizer pipes through approx. Sta. 64+00 to 75+00 on sheets 8 and 9.***

Plan Sheet 10

- Jurisdictional features.
- No impacts.
- ***Proposed retaining wall to stay out of wetland – Sta 85+00, Left***

Plan Sheet 24

- No jurisdictional features.
- No impacts.
- ***No comments.***

Plan Sheet 25

- No jurisdictional features.
- No impacts.
- ***No comments.***

Plan Sheet 26

- No jurisdictional features.
- No impacts.
- ***No comments.***

Plan Sheet 27

- Jurisdictional features.
- Impacts to wetlands –Y1RPD- Sta. 22+00 (culvert) and 25+00 approx. (roadway fill).
- ***No comments.***

Plan Sheet 28

- Jurisdictional features.
- Impacts to wetlands (Cores Branch) –Y1- Sta. 70+00 approx.
- ***Jurisdictional stream existing pipe extension with proposed bank stabilization rip rap.***

Plan Sheet 29

- No jurisdictional features.
- No impacts.
- ***No comments.***

Plan Sheet 30

- No jurisdictional features.
- No impacts.

- ***Brad Shaver asked if this section of the project was included in the jurisdictional study area. NCDOT said they thought it was and would confirm it was included in the study area. At this point we aren't showing any jurisdictional features on Sheet 30. If it turns out that this area wasn't included in the jurisdictional study, the design may need to be revisited.***
- ***Not impacting the adjacent pond (Y15 Sta 12+00 Right)***

Second Half – Presented by Will Hines, Sungate Design Group

Plan Sheet 11:

- Jurisdictional features.
- ***Will Hines stated that the preliminary design shows the roadway drainage flowing to a proposed Sand Filter and that we are waiting on Geotechnical information for feasibility of final design.***

Plan Sheet 12:

- Jurisdictional features.
- ***The JS designation ends just upstream of –Y4-.***
- ***Will Hines stated that the proposed double barrel box culvert will have a flood plain bench and a low flow channel.***
- ***Will Hines stated that the preliminary design shows the roadway drainage flowing to a proposed Sand Filter and that we are waiting on Geotechnical information for feasibility of final design.***
- ***There was a discussion of the existing Wet Detention Basin located at Station 114+50 - L- Rt. The proposed Roadway is filling in a portion of the Basin. The owner will need to expand the pond to make up for the lost capacity. The outlet structure will need to be relocated outside of the Right-of-way.***

Plan Sheet 13:

- Jurisdictional features.
- ***Will Hines stated that the preliminary design shows the roadway drainage flowing to a proposed Sand Filter and that we are waiting on Geotechnical information for feasibility of final design.***
- ***There was a discussion of the existing Wet Detention Basin located at Station 124+50 - L- Rt. The proposed Roadway is filling in a portion of the Basin. The owner will need to expand the pond to make up for the lost capacity. The outlet structure will need to be relocated and taken to the proposed outfall ditch at Station 133+50 -L- Rt.***

Plan Sheet 14:

- Jurisdictional features.
- ***Will Hines gave a description of the proposed storm drainage and jurisdictional streams.***
- ***Will Hines stated that the preliminary design shows the roadway drainage flowing to a proposed Sand Filter and that we are waiting on Geotechnical information for feasibility of final design.***
- ***Will Hines pointed out the location of the well and the 100 foot buffer associated with it.***

Plan Sheet 15:

- Jurisdictional features.
- Impacts to wetlands.
- ***Will Hines stated that the proposed double barrel box culvert will have a flood plain bench and a low flow channel.***
- ***The Team asked the Hydraulic Engineer to investigate using Equalizer Pipes in this area. Since the 4B Meeting, Equalizer Pipes have been added.***

Plan Sheet 16:

- Jurisdictional features.
- Impacts to wetlands.
- ***Will Hines stated that the jurisdictional stream located at Station 169+00 -L- Right is proposed to be filled from its beginning just outside of the Right-of-way to the slope stake line. No cross-pipe is proposed at this location. There were no objections.***
- ***The Team asked the Hydraulic Engineer to investigate using Equalizer Pipes in this area. Since the 4B Meeting, an Equalizer pipe has been added.***
- ***The Team stated that it is likely that the wetlands located on the west side of the project between Station 167+50 -L- and 173+00 -L- may be a total take.***

Plan Sheet 17:

- Jurisdictional features.
- Impacts to wetlands.
- ***The Team asked the Hydraulic Engineer to relocate the proposed cross-pipe at Station 185+30 -L- to Station 180+00 -L- and eliminate the ditch in wetlands between Station 179+00 -L- and 185+00 -L- Left. Since the 4B Meeting, this revision has been made.***

Plan Sheet 18:

- Jurisdictional features.
- Impacts to wetlands.
- ***No comments.***

Plan Sheet 19:

- Jurisdictional features.
- Impacts to wetlands.
- ***No comments.***

Plan Sheet 20:

- Jurisdictional features.
- Impacts to wetlands.
- ***No comments.***

Plan Sheet 21:

- Jurisdictional features.
- Impacts to wetlands.
- ***No comments.***

Plan Sheet 22:

- Impacts to wetlands.
- ***No comments.***

Plan Sheet 23:
- No Impacts.
- ***This Plan Sheet shows the future alignment to be designed by others.***
- ***No comments.***

Plan Sheet 31:
- Jurisdictional features.
- ***No comments.***

Plan Sheet 32:
- No Impacts.
- ***No comments.***

Plan Sheet 33:
- Impacts to wetlands.
- ***No comments.***

Plan Sheet 34:
- Impacts to wetlands.
- ***Tie proposed C/A line to the existing C/A line sooner instead of running it parallel to the existing C/A.***
- ***Avoidance of impacts to the NCDOT property located right of Station 115+00 -Y8- (Plantation Road Site) was discussed by NCDOT, Will Hines, Mason Herndon, Brad Shaver and Gary Jordan: Designers should make every effort not to impact the site due to an endangered plant, the rough-leaved loosestrife. This area was required to be set aside for the protection of the rough-leaved loosestrife during a previous Section 7 consultation. We also discussed keeping the hydrology the same so that there is no adverse impact to the area.***

General Comments:

- Discussed status of 4A and whether or not it had been signed yet. NCDOT indicated that as of the time of the 4B meeting (April 16, 2014), the 4A document had been signed.
- Mentioned that where the proposed Military Cutoff Extension ends for U-4751, the roadway is actually US17 and not US17/I-140 as indicated on some plan sheets.
- It was noted that the Redline plan set used during the 4B meeting was different than the one previously posted for review by the group. Redline Drainage Plans used during the 4B meeting have been made available to the group as a PDF.

U-4751, Division 3, New Hanover County
4C Concurrence Meeting (DRAFT)
April 20, 2016
8:15 to 10:15 am
Hydraulics Conference Room

Date: May 19, 2016

Team Members:

Ron Lucas, FHWA (Absent)
Brad Shaver, USACE (On Conference Call)
Gary Jordan, USFWS (Absent)
Stephen Lane, NCDCM (Present)
Cathy Brittingham, NCDCM (Present)
Travis Wilson, NCWRC (On Conference Call)
Dr. Cynthia Van Der Wiele, USEPA (On Conference Call)
Mason Herndon, DWR (On Conference Call)

Support Staff:

D. Chad Kimes, Division (On Conference Call)
Tyler Stanton, NES (Present)
Mark Staley, REU (Present)
Jay A. McInnis, PEDA (Present)
Paul Atkinson, Hydraulics (Present)

Other Attendees:

Hardee Cox, STIP
Paresh Patel, STIP
Leilani Paugh, NES
Patrick Holder, SMU
Sam St.Clair, Roadway
Tina Snell, Roadway
Will Hines, Sungate Design Group
Brad Smith, Sungate Design Group
Eddie Vance, STV Engineers

The 4C meeting began with a brief project overview by Eddie Vance (STV Engineers) and proceeded through the first half of the project sheet by sheet. The second half of the project was led by Will Hines (Sungate Design Group).

General Comments

900 WEST TRADE STREET, SUITE 715
CHARLOTTE, NORTH CAROLINA 28202-1144
(704) 372-1885 FAX: (704) 372-3393

- It was requested that Mechanized Clearing be limited to 5 feet in areas where the fill height is less than 10 feet and that Mechanized Clearing be limited to 10 feet in areas where the fill height is more than 10 feet.
- It was announced that there is a new Wetland File available where several Jurisdictional Streams have been reclassified as mitigable or non-mitigable.
- USACE requested that they receive a copy of the approved Culvert Survey Reports.

Plan Sheet 5

- It was requested that Mechanized Clearing be reduced to 5 feet for -Y1RPD- where the fill height is less than 10 feet.
- A comment was made to steepen the ditch slopes between the roadway shoulder (-Y1RPD-) and the Multiuse Path to 3:1 in order to move the path closer to the roadway reducing the wetland impacts. The Roadway Design Unit will look into the minimum safe distance between the Ramp and the MUP.
  Note: Based on information provided by the Department's Roadway Design Unit after the 4C Meeting, it's preferred to leave the separation between the Ramp & MUP as it's currently design for pedestrian safety. The current 4:1 slopes are recoverable, so steeping the slopes to 3:1 (non-recoverable) could potentially put pedestrians in harm's way if an errant vehicle were to leave the roadway.

Plan Sheet 6

- No Comments

Plan Sheet 7

- No Comments

Plan Sheet 8

- No Comments

Plan Sheet 9

- No Comments

Plan Sheet 10

- No Comments

Plan Sheet 12

- A comment was made requesting that an enlarged plan view for the Box Culvert be provided in the Permit Drawings and that it include the floodplain benches.
- A comment was made that both the low flow and high flow barrels of the Box Culvert be backfilled with native material. In response, Will Hines of Sungate Design stated that there is a note in the approved Culvert Survey Report stating that the low flow barrel be buried 1-foot, that the high flow barrel be backfilled to the sill height and that native material be used in both the low flow and high flow barrels. Sungate Design will place the Detail with these notes on the Permit Drawings and modify the note to call for backfilling the low flow barrel with native material.

Plan Sheet 13

- No Comments

Plan Sheet 14

- No Comments

Plan Sheet 15

- A comment was made that both the low flow and high flow barrels of the Box Culvert be backfilled with native material. In response, Will Hines of Sungate Design stated that there is a note in the approved Culvert Survey Report stating that the low flow barrel be buried 1-foot, that the high flow barrel be backfilled to the sill height and that native material be used in both the low flow and high flow barrels. The Detail from the Culvert Survey Report is also shown on the Permit Drawing. Sungate will modify the note to call for backfilling the low flow barrel with native material.
- A comment was made requesting that the width of the Mechanized Clearing be reduced to 5 feet due to the fill height being less than 10 feet.
- Permit Drawing Sheet 32 of 80 has the incorrect Site Number labeled. The label should read Site 15, not Site 16.

Plan Sheet 16

- No Comments

Plan Sheet 17

- No Comments

Plan Sheet 18

- No Comments

Plan Sheet 19

- No Comments

Plan Sheet 20

- A comment was made questioning why 4:1 fill slopes were used inside the interchange. The response from Roadway Design was that this is standard practice. Roadway Design will investigate further to determine if driver safety is of concern.
  Note: Based on information provided by the Department's Roadway Design Unit after the 4C Meeting, the maximum 4:1 slopes inside the interchange area is the DOT's policy in order to provide adequate sight distance and vehicle recovery.
- A comment was made questioning why the additional fill for future lanes was being done as part of this project and that the extension of this future roadway is not currently funded. The response from Jay McInnis (PEDA) was that the funding may change.
- Site 35, missing TS label with leader.

Plan Sheet 21

- No Comments

Plan Sheet 22

- No Comments

Plan Sheet 31

- Station 37+00 - 45+00 -Y8- Left: Provide 5 feet for Mechanized Clearing.

Plan Sheet 32

- No Comments

Plan Sheet 33

- No Comments

Plan Sheet 34

- No Comments

Wetland Permit Impact Summary

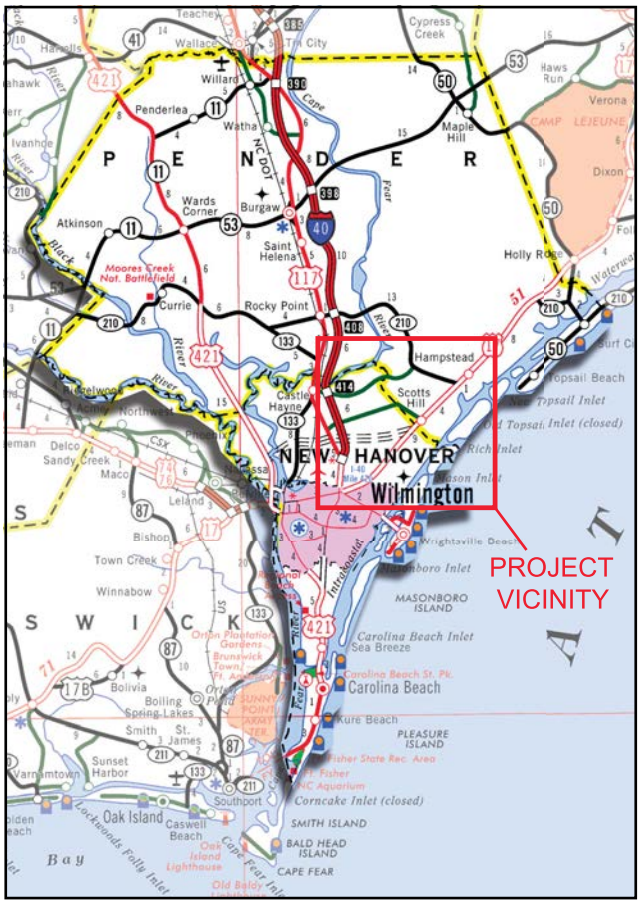
- The Summary Sheets will need to be updated to reflect the revised Mechanized Clearing and the updated Wetland File.

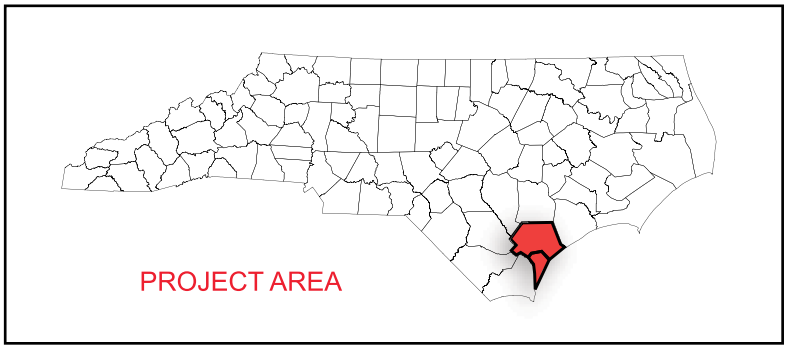
Figure 1

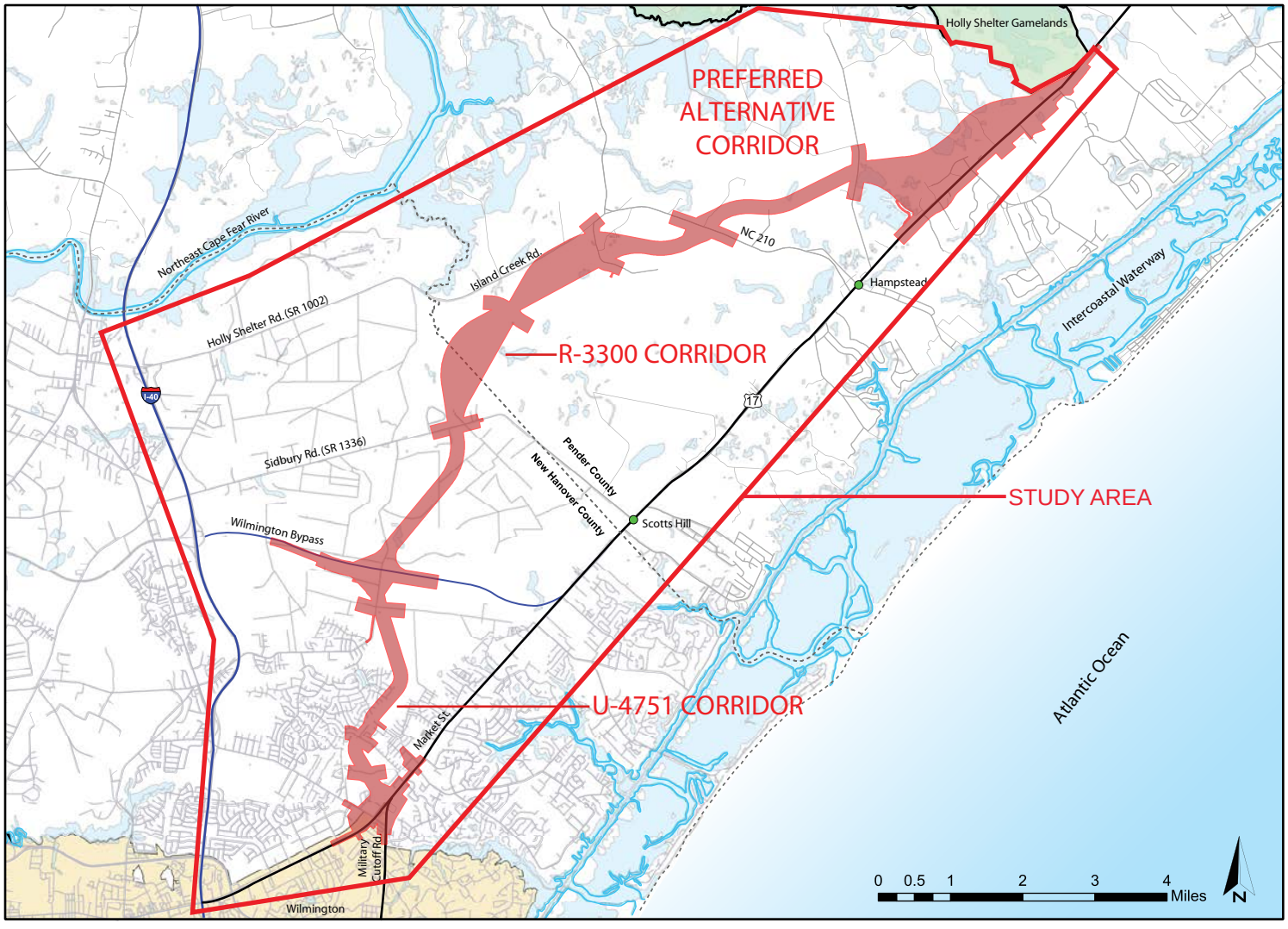
PROJECT VICINITY

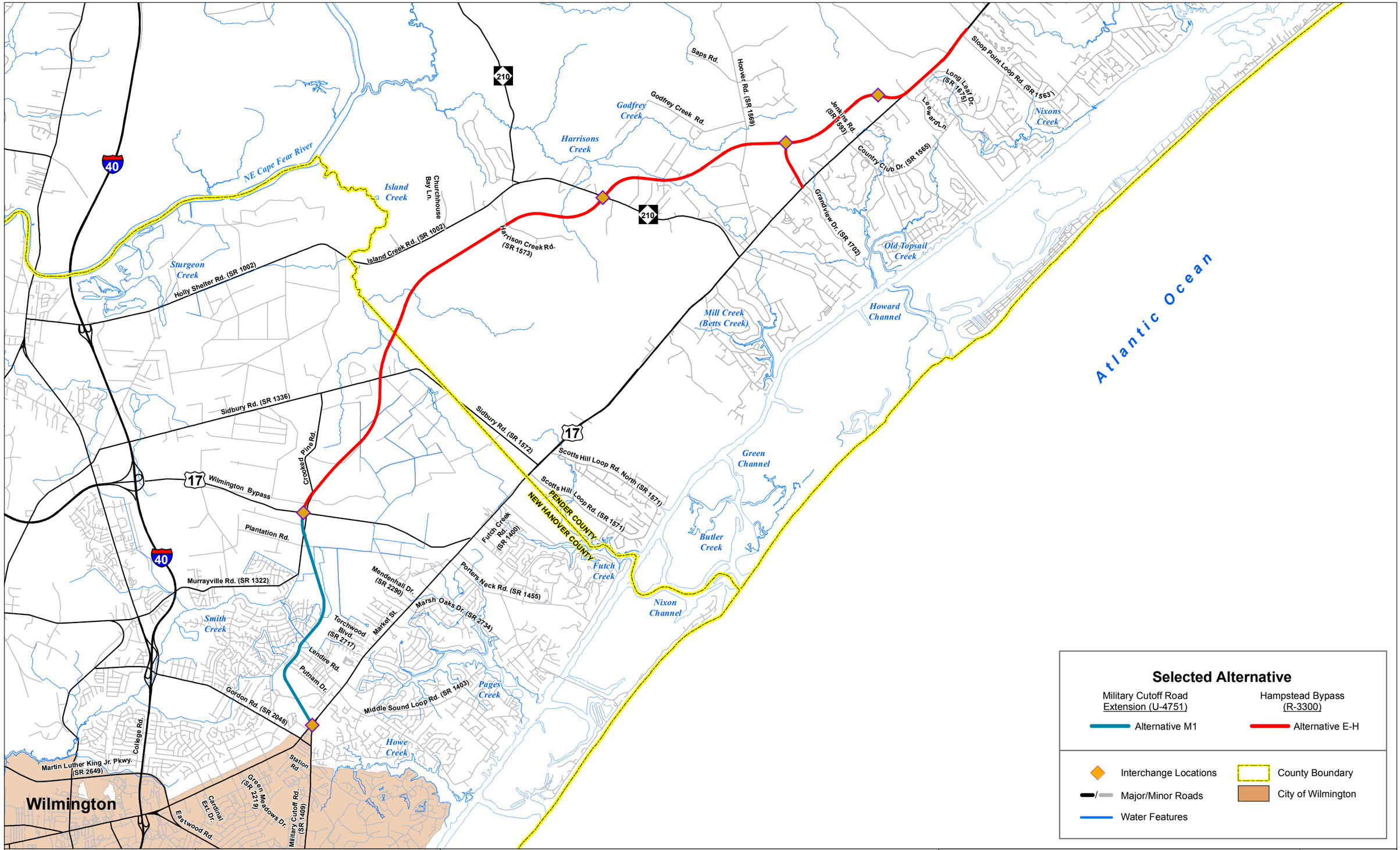
US 17 Corridor Study
NCDOT TIP Nos. U-4751 and R-3300
New Hanover and Pender Counties

North Carolina
Department of Transportation









Selected Alternative

Military Cutoff Road Extension (U-4751)	Hampstead Bypass (R-3300)
Alternative M1	Alternative E-H

- Interchange Locations
- Major/Minor Roads
- Water Features
- County Boundary
- City of Wilmington

Prepared by: MULKEY ENGINEERS & CONSULTANTS

Prepared for:

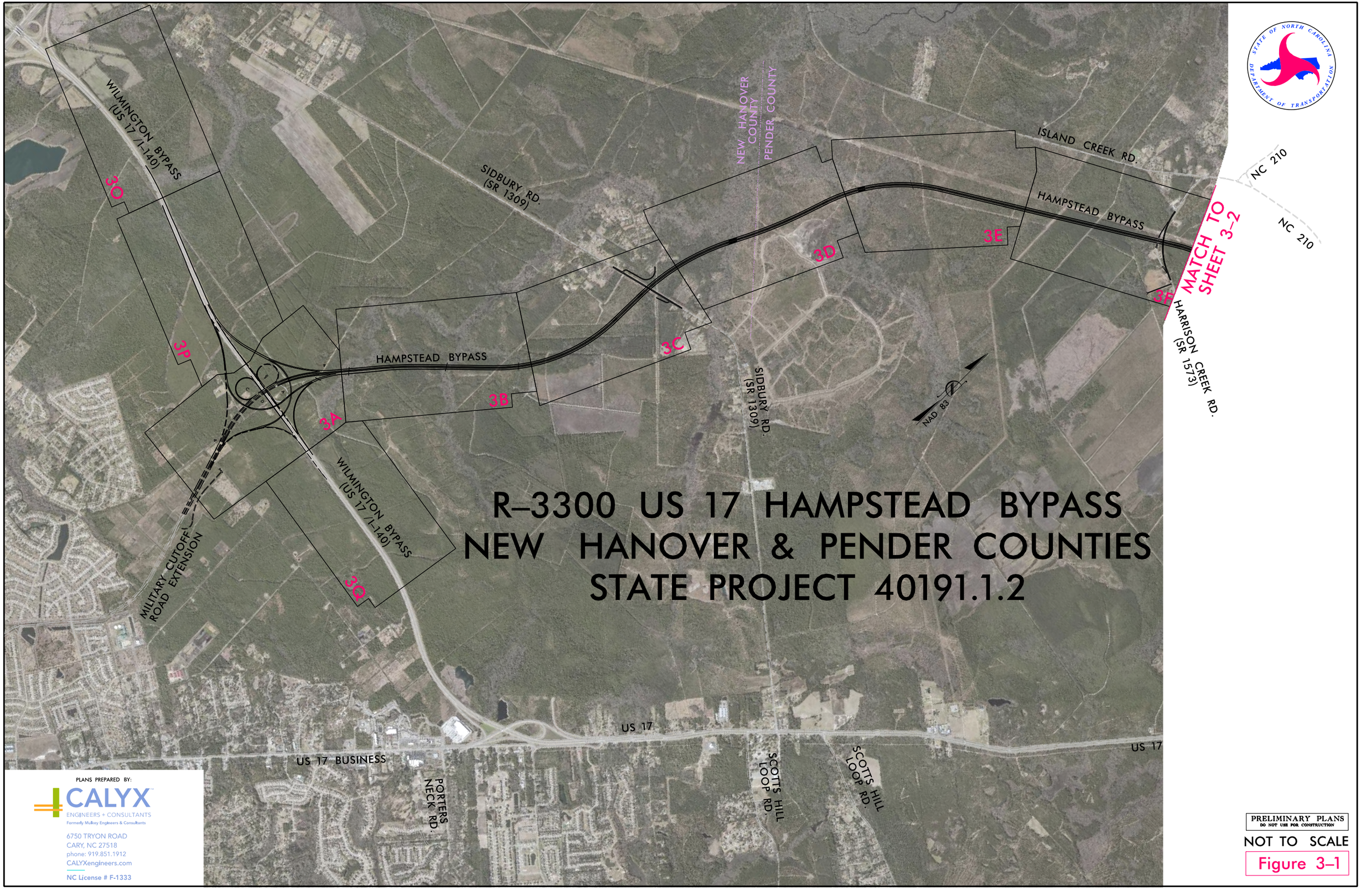
Selected Alternative

US 17 Corridor Study
NCDOT TIP Project Numbers U-4751 & R-3300
New Hanover & Pender Counties, NC

0 3,450 6,900 13,800 Feet

Data Sources: NCDOT and Mulkey GIS
Figure Prepared: 7/30/13

Figure No. 2



R–3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2

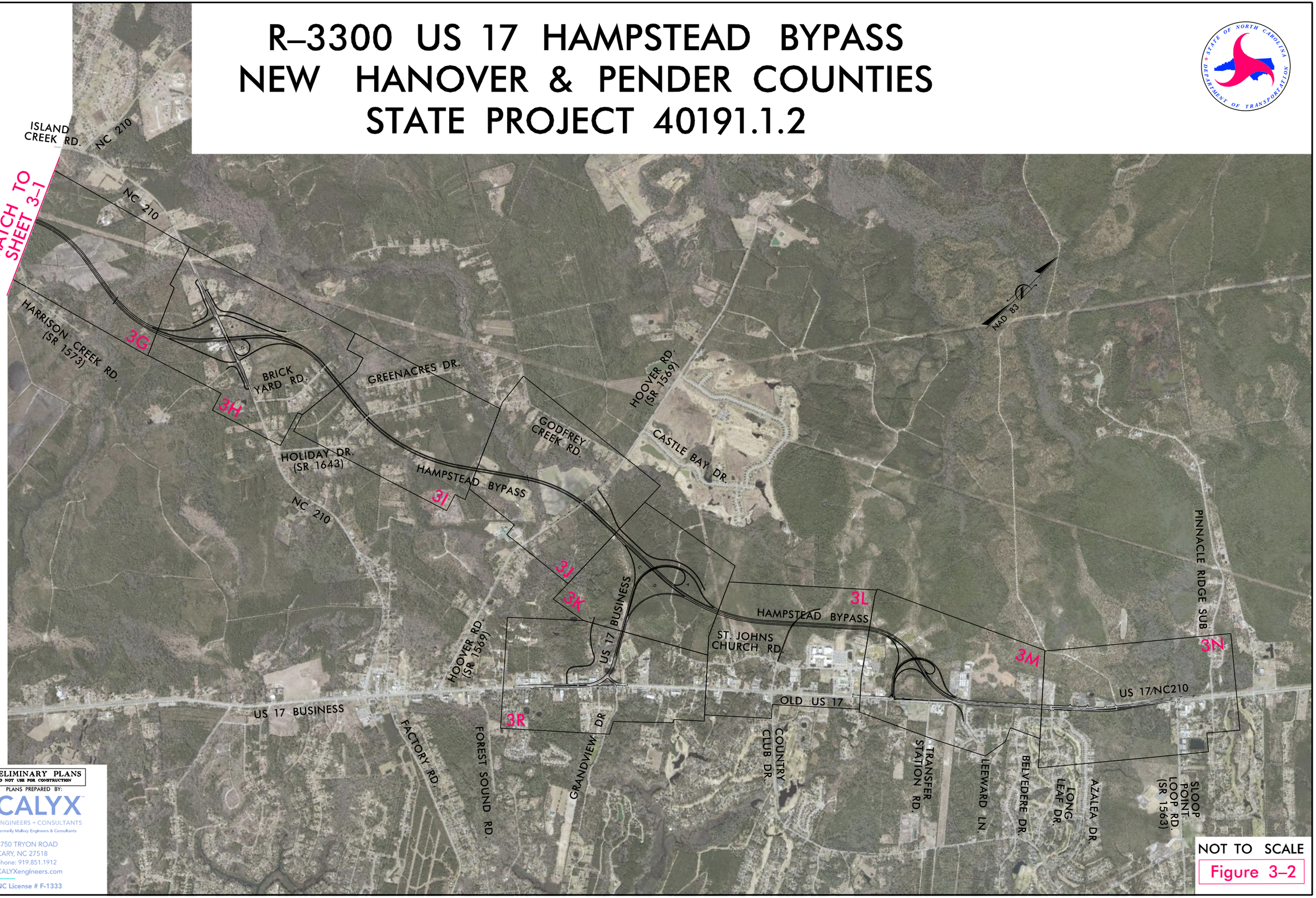
PLANS PREPARED BY:
CALYX
ENGINEERS + CONSULTANTS
Formerly Mulkey Engineers & Consultants
6750 TRYON ROAD
CARY, NC 27518
phone: 919.851.1912
CALYXengineers.com
NC License # F-1333

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOT TO SCALE

Figure 3–1

R–3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2



PRELIMINARY PLANS
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phone: 919.851.1912
CALYXengineers.com
NC License # F-1333

NOT TO SCALE

Figure 3–2

MATCHLINE 3P

MATCHLINE 3Q

MATCHLINE 3B

NAD 83

MILITARY CUTOFF ROAD EXTENSION

CWB

CWC

CWD

CWE

CWF

CSA

CSB

CSC

CSD

CSJ

CSK

FSA

FSB

FSD

FSJ

FWY

CORBETT STRIP RESIDUAL SITE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:

CALYX
ENGINEERS + CONSULTANTS
Formerly McKee Engineers & Consultants
6750 TRYON ROAD
CARY, NC 27518
phone: 919.851.1912
CALYXengineers.com
NC License # F-1333

LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON-MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U-4751 PROJECT (-M1-)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT-OF-WAY
- TRAFFIC SIGNAL

200' 0 200'
SCALE

R-3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2

Figure 3A

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

NAD 83

SIDBURY LAND & TIMBER LLC

MATCHLINE 3A

MATCHLINE 3C

FWB

FSA

FWC

FSE

FWX

FSH

PC Sta 261+75.99

PT Sta 277+12.36

TS Sta 292+45.36

SC Sta 292+45.36

ST Sta 77+74.03

N 39°48'45.4" E

N 49°49'13.2" E

JS MIT

RLB

CORBETT WALTER

CORB

SIDBURY LAND & TIMBER LLC

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:

CALYX
ENGINEERS + CONSULTANTS
Formerly Mulkey Engineers & Consultants
6750 TRYON ROAD
CARY, NC 27518
phone: 919.851.1912
CALYXengineers.com
NC License # F-1333

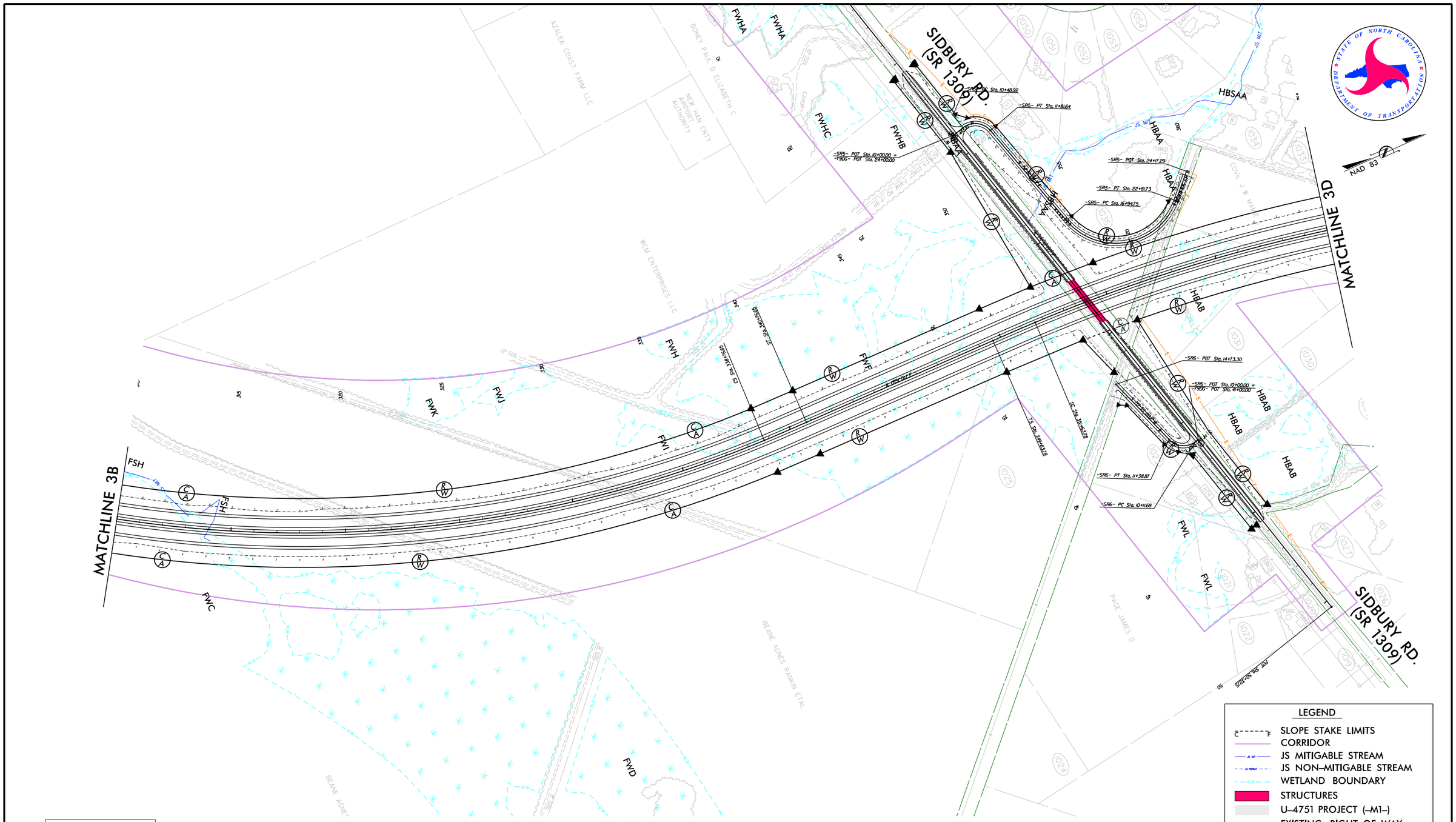
R–3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2

LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON–MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U–4751 PROJECT (–M1–)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT–OF–WAY
- TRAFFIC SIGNAL

200′ 0 200′
SCALE

Figure 3B



LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON-MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U-4751 PROJECT (-M1-)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT-OF-WAY
- TRAFFIC SIGNAL

200' 0 200'
SCALE

Figure 3C

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY:
CALYX ENGINEERS + CONSULTANTS
Formerly McKee Engineers & Consultants
6750 TRYON ROAD
CARY, NC 27518
phone: 919.851.1912
CALYXengineers.com
NC License # F-1333

R-3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
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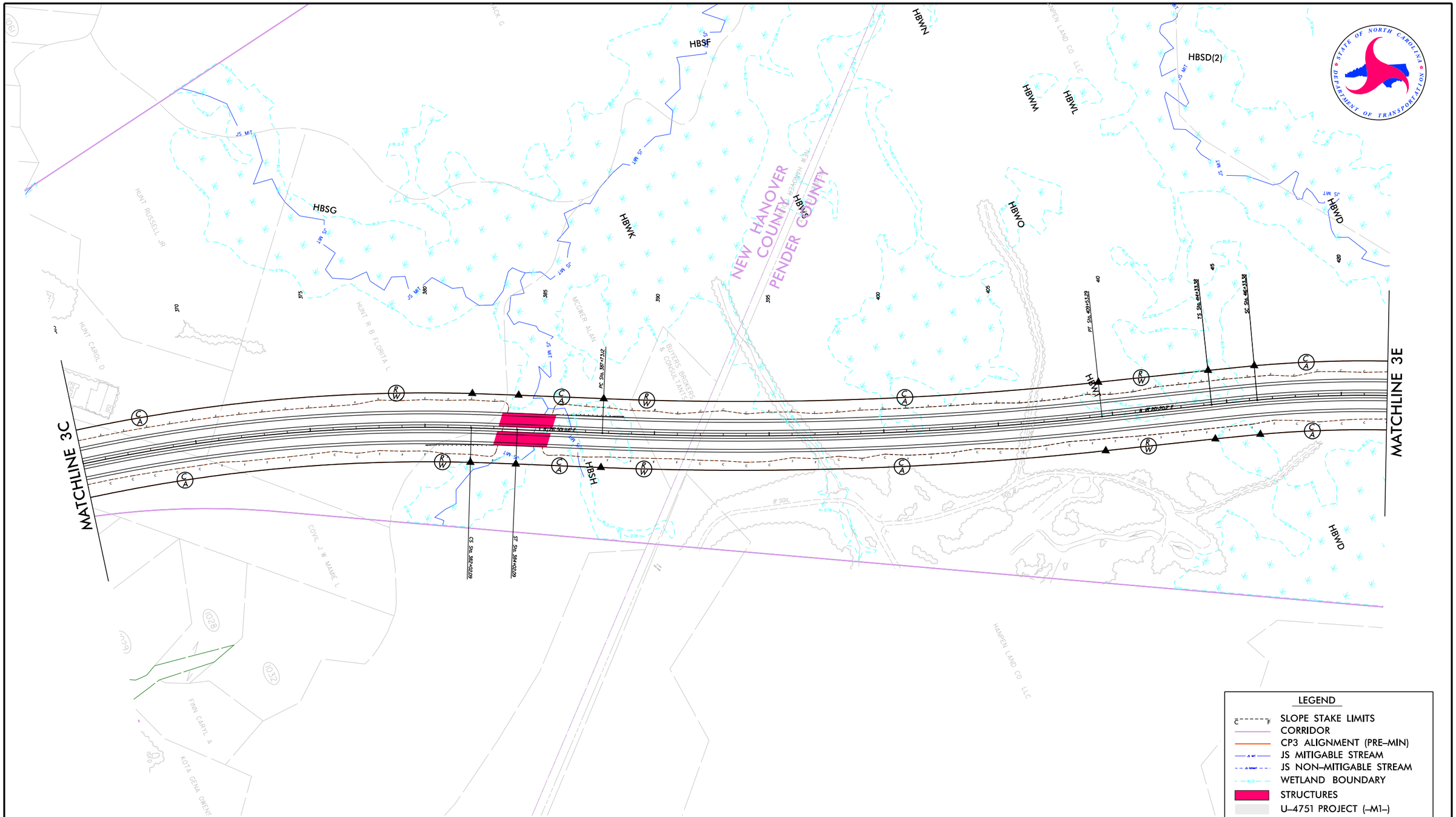

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LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- CP3 ALIGNMENT (PRE–MIN)
- JS MITIGABLE STREAM
- JS NON–MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U–4751 PROJECT (–M1–)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT–OF–WAY
- TRAFFIC SIGNAL

NAD 83

200' 0 200'
SCALE

Figure 3D

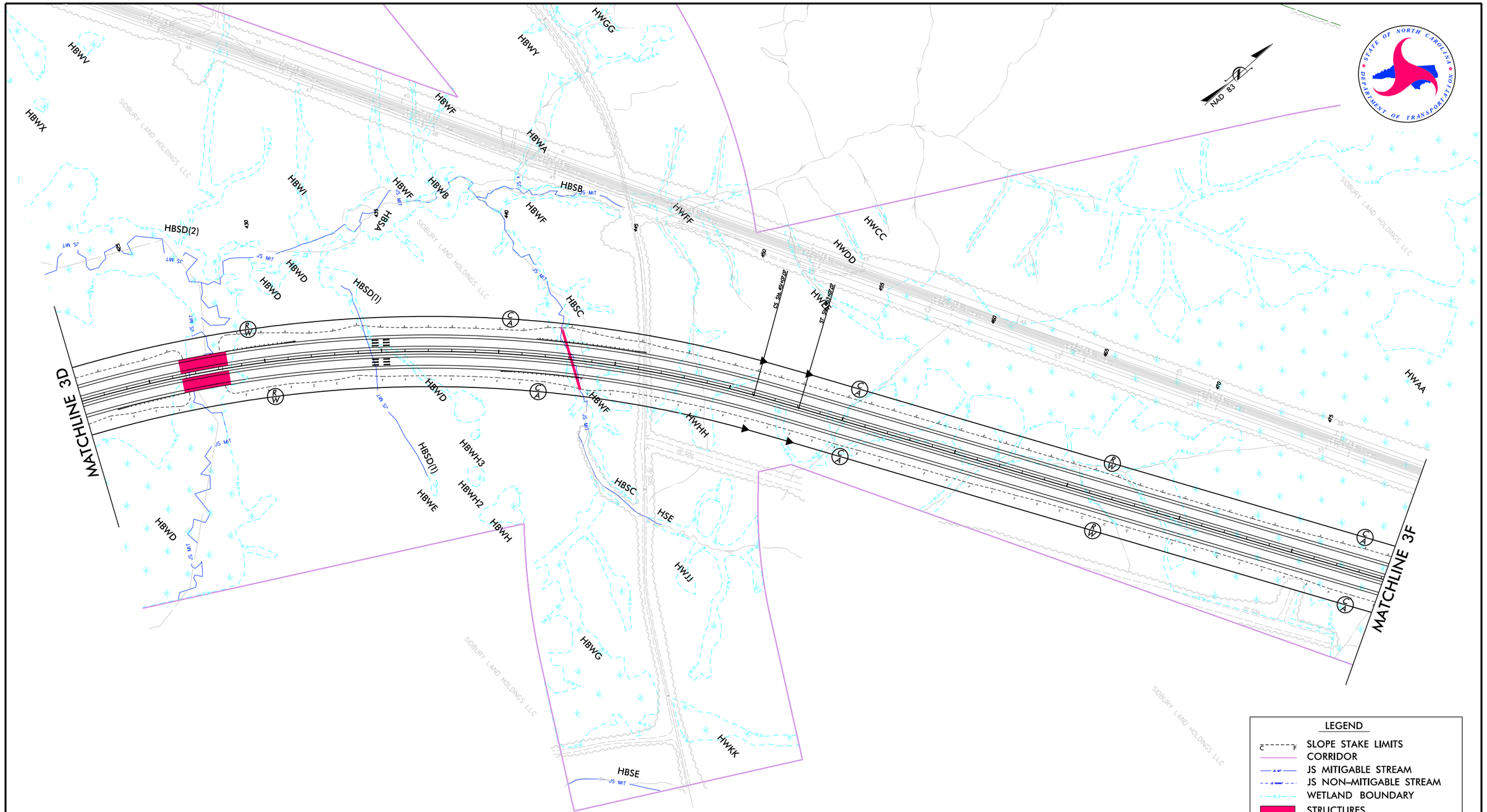

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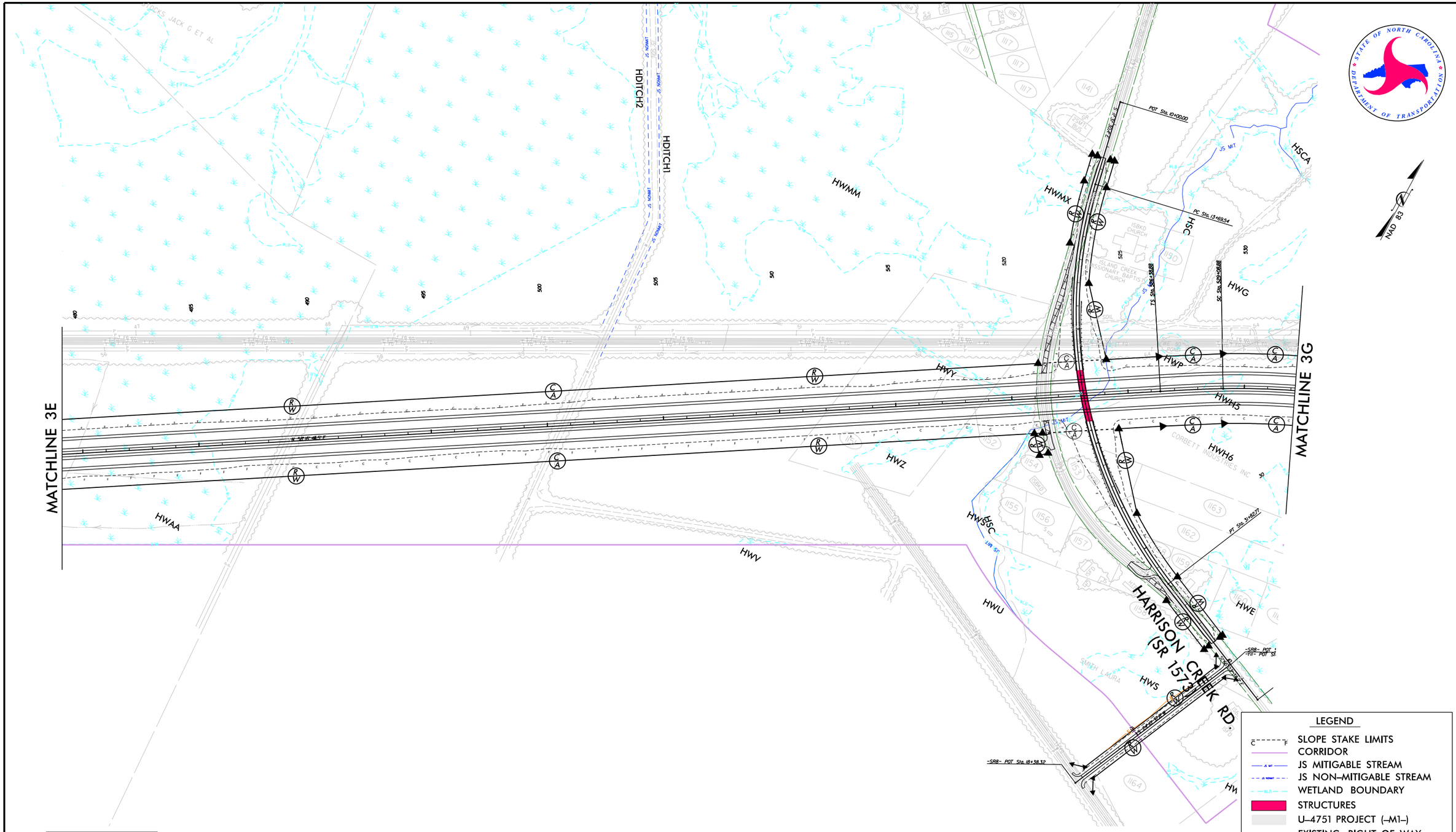
Figure 3E



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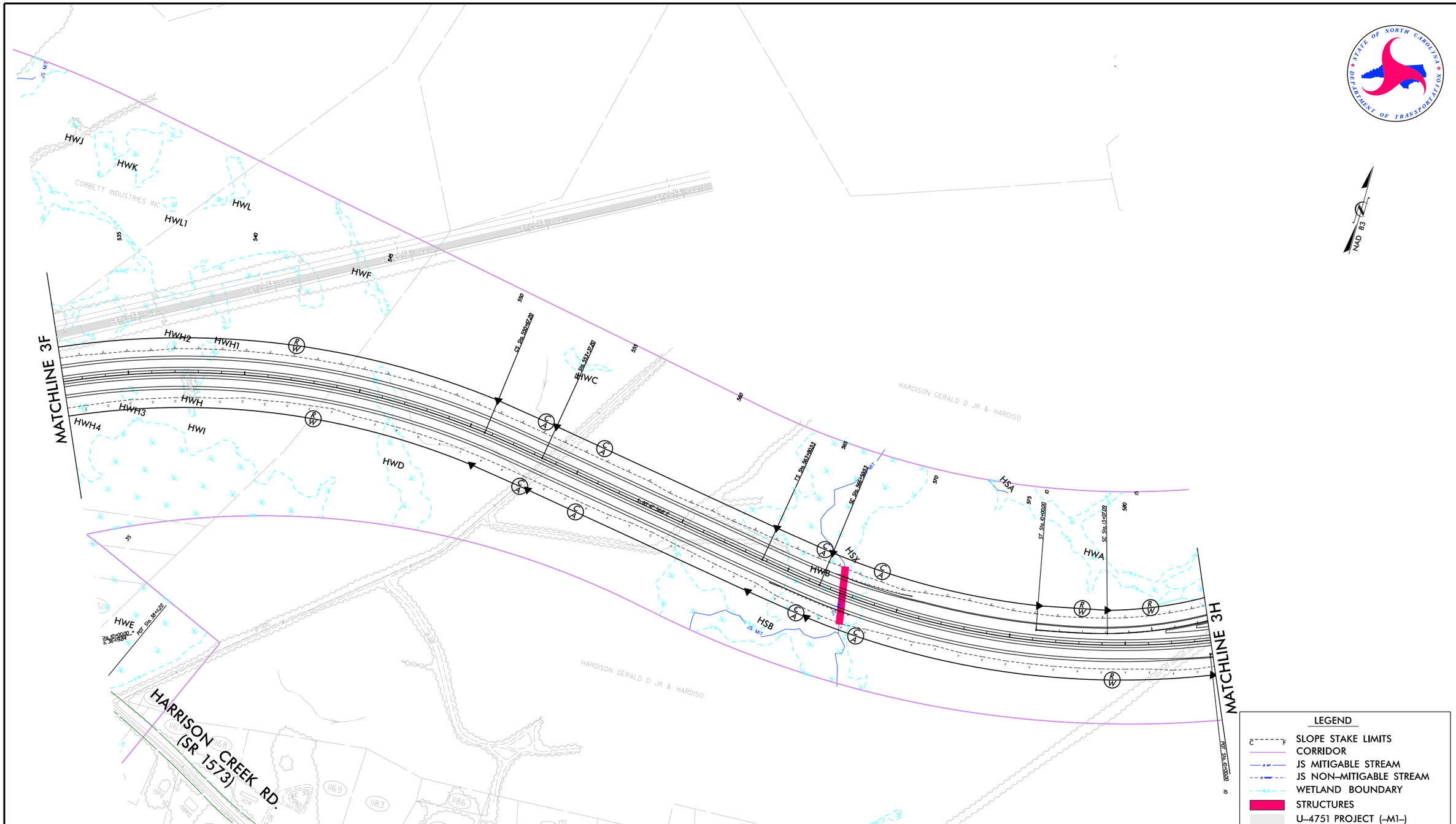
R-3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2

Figure 3F



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R-3300 US 17 HAMPSTEAD BYPASS
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STATE PROJECT 40191.1.2

Figure 3G

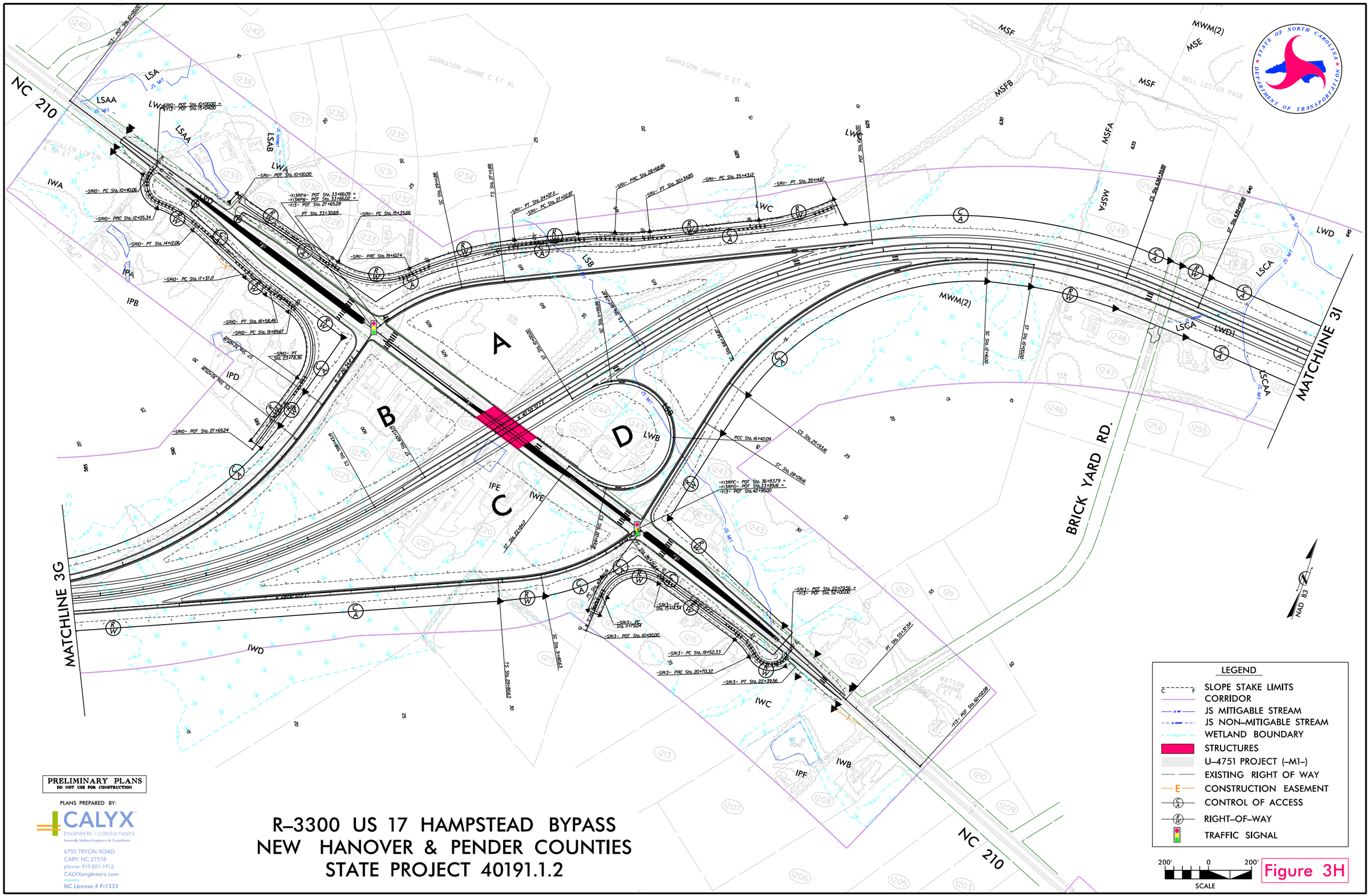

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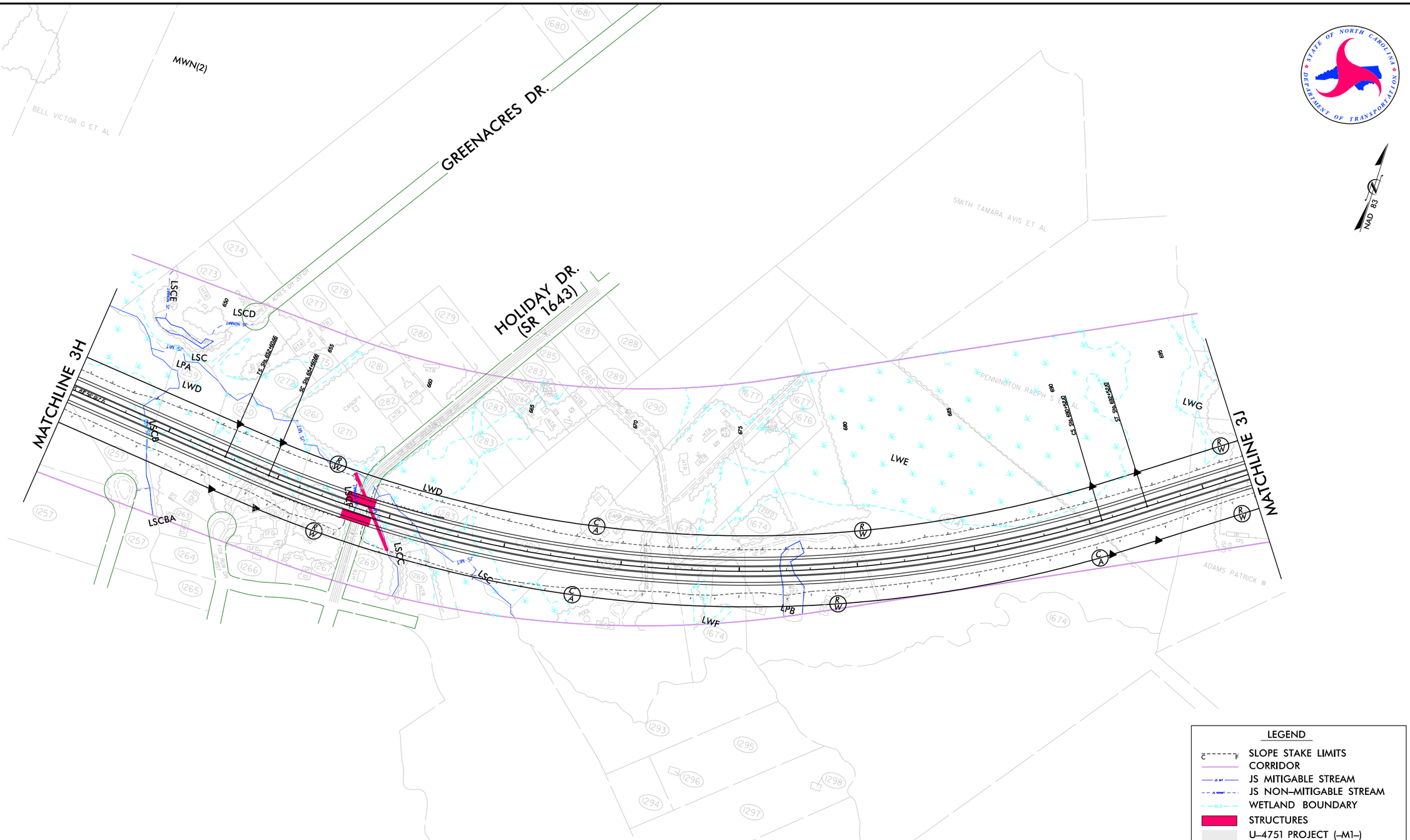
Figure 3H



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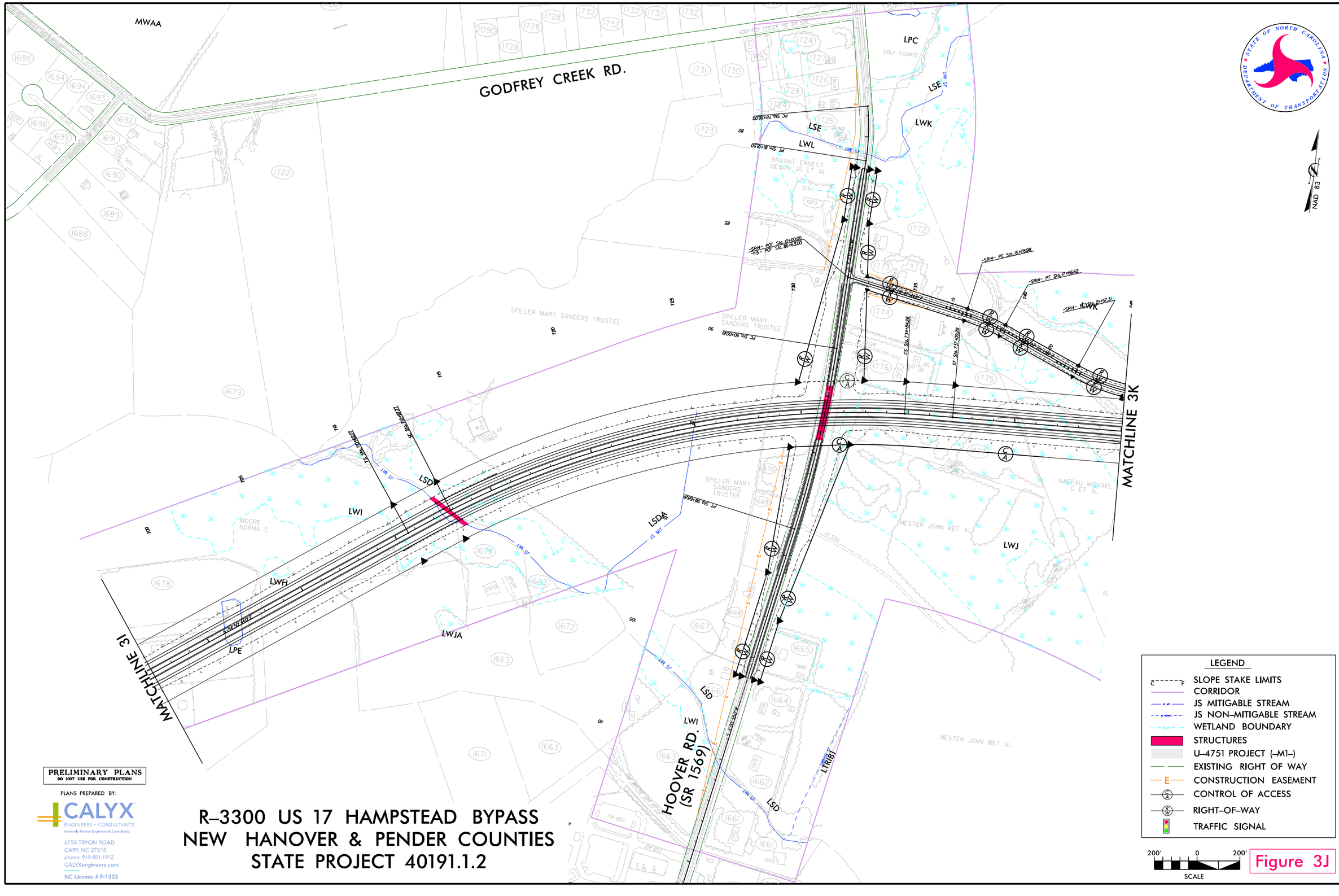
STATE PROJECT 40191.1.2

LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON–MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U–4751 PROJECT (–M1–)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT–OF–WAY
- TRAFFIC SIGNAL

200′ 0 200′
SCALE

Figure 3I



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LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
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- EXISTING RIGHT OF WAY
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- CONTROL OF ACCESS
- RIGHT–OF–WAY
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200' 0 200'
SCALE

Figure 3J

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STATE OF NORTH CAROLINA ★ DEPARTMENT OF TRANSPORTATION ★

NAD 83

MATCHLINE 3J

MATCHLINE 3L

MATCHLINE 3R

US 17 BUSINESS

A

C

D

NWO

NWP

LWK

LWJ

KWS

KWA

KWF

KPH

WACHOVIA BANK OF NC

NADEAU MICHAEL ET AL

DAVIS PETER R ET AL

-SR14- PT Sta 29+15.42

-SR14- PC Sta 34+10.40

-SR14- PRC Sta 41+11.02

-SR14- PT Sta 55+16.15

-SR14- PC Sta 57+88.62

PT Sta. 27+54.93

POT Sta. 28+16.18

PT Sta. 37+34.73

PT Sta. 48+39.30

POT Sta. 52+98.59

-SR16- PT Sta. 38+29.20

PT Sta. 35+27.36

R–3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2

LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
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- STRUCTURES
- U–4751 PROJECT (–M1–)
- EXISTING RIGHT OF WAY
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- CONTROL OF ACCESS
- RIGHT–OF–WAY
- TRAFFIC SIGNAL

200′ 0 200′
SCALE

Figure 3K

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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PVT 1

MATCHLINE 3K

MATCHLINE 3M

MATCHLINE 3R

MATCHLINE 3M

ST. JOHNS CHURCH RD.

OLD US 17

COUNTRY CLUB DR.

NAD 83

R–3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2

LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON–MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U–4751 PROJECT (–M1–)
- RCW FORAGING HABITAT (INCLUDES POTENTIALLY SUITABLE AND SUITABLE HABITAT)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT–OF–WAY
- TRAFFIC SIGNAL

200′ 0 200′
SCALE

Figure 3L

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R–3300 US 17 HAMPSTEAD BYPASS
NEW HANOVER & PENDER COUNTIES
STATE PROJECT 40191.1.2

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

NAD 83

HSGL 17A

HSGL 17

PVT 1

MATCHLINE 3L

MATCHLINE 3N

OLD US 17

BELVEDERE DR.

LEEWARD LN.

TRANSFER STATION RD.

PD–11 PD–16 PD–26 PD–31 PD–32 PD–33 PD–35 PD–36 PD–37

MWA NWS NPD NPE NPC NPA NPB NSE NSF NWQ NWN NWK NWG NWH NWJ NWM NWF NWL NSB

LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON–MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U–4751 PROJECT (–M1–)
- RCW FORAGING HABITAT (INCLUDES POTENTIALLY SUITABLE AND SUITABLE HABITAT)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT–OF–WAY
- TRAFFIC SIGNAL

200′ 0 200′
SCALE

Figure 3M

HSGL 17

HSGL EC

HSGL EC

MATCHLINE 3M

LONG LEAF DR.

AZALEA DR.

PINNACLE RIDGE SUB

US 17/NC210

SLOOP POINT LOOP RD. (SR 1563)

CHAMPION DR

NAD 83

NWA

NWB

NWC

NWD

NWE

NWF

NSA

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LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON-MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U-4751 PROJECT (-M1-)
- RCW FORAGING HABITAT (INCLUDES POTENTIALLY SUITABLE AND SUITABLE HABITAT)
- EXISTING RIGHT OF WAY
- CONSTRUCTION EASEMENT
- CONTROL OF ACCESS
- RIGHT-OF-WAY
- TRAFFIC SIGNAL

200' 0 200'
SCALE

R-3300 US 17 HAMPSTEAD BYPASS
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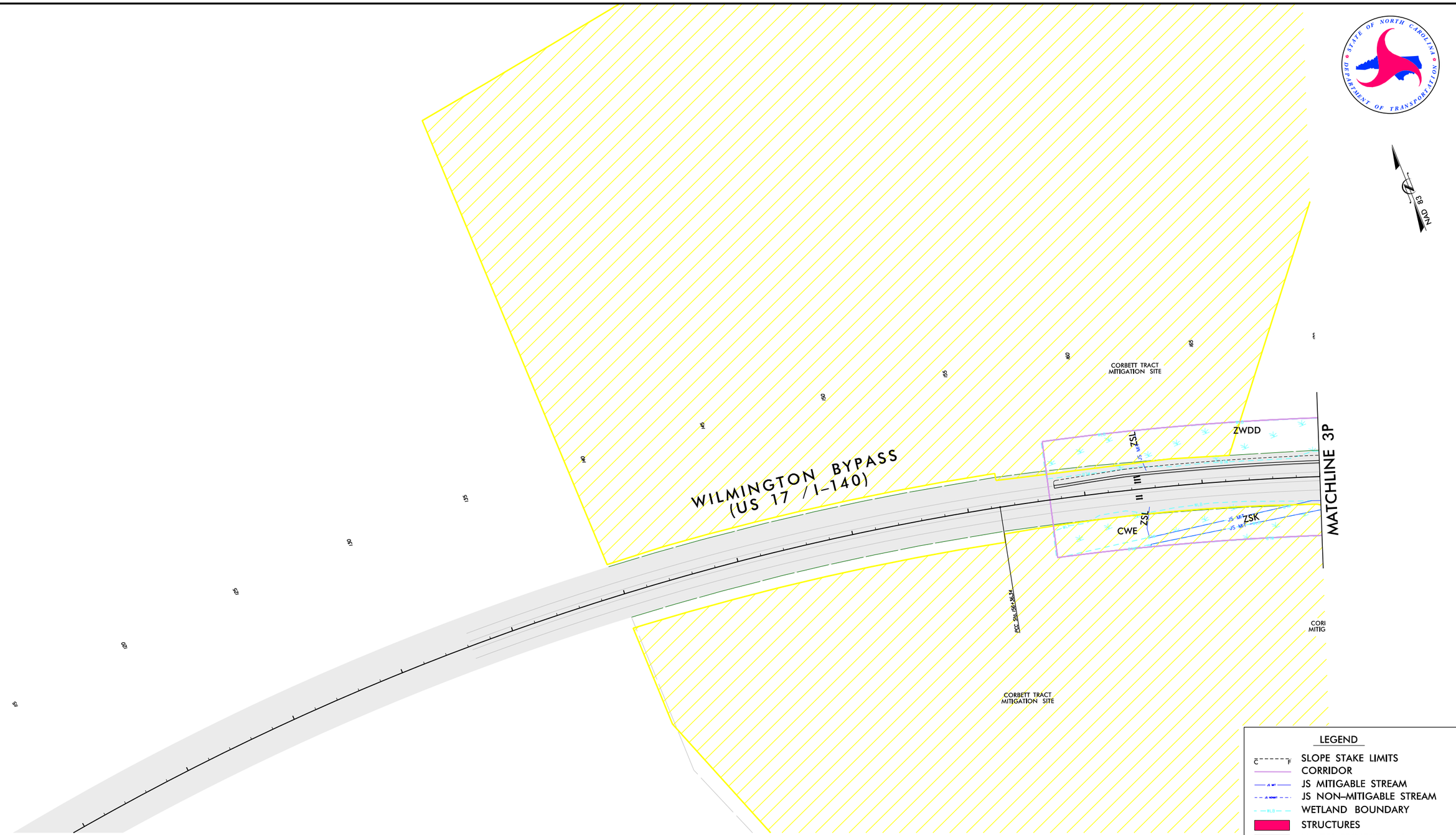
Figure 3N



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NEW HANOVER & PENDER COUNTIES
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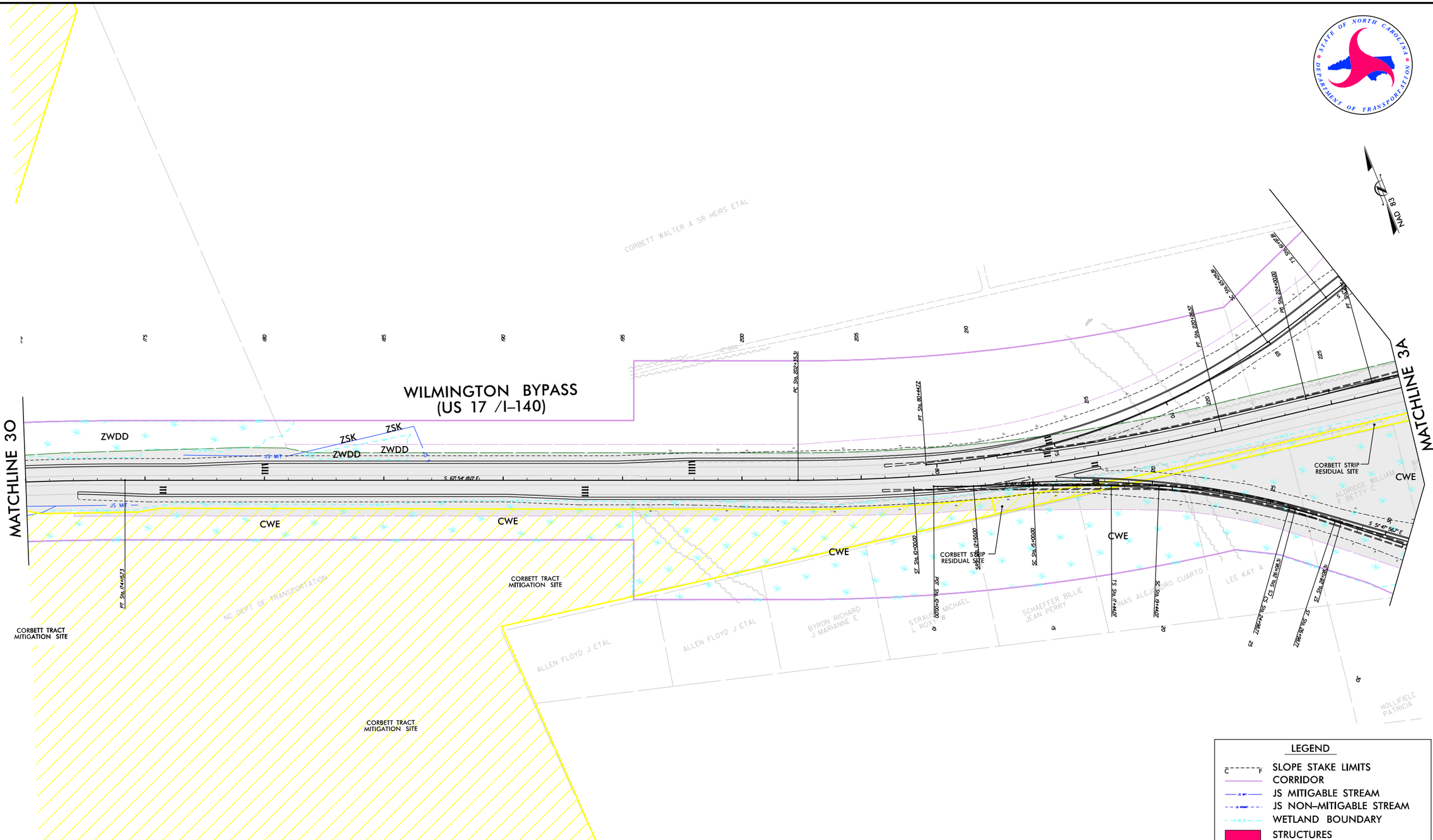
Figure 30



LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON–MITIGABLE STREAM
- WETLAND BOUNDARY
- STRUCTURES
- U–4751 PROJECT (–M1–)
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200′ 0 200′
SCALE

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R–3300 US 17 HAMPSTEAD BYPASS
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STATE PROJECT 40191.1.2

Figure 3P

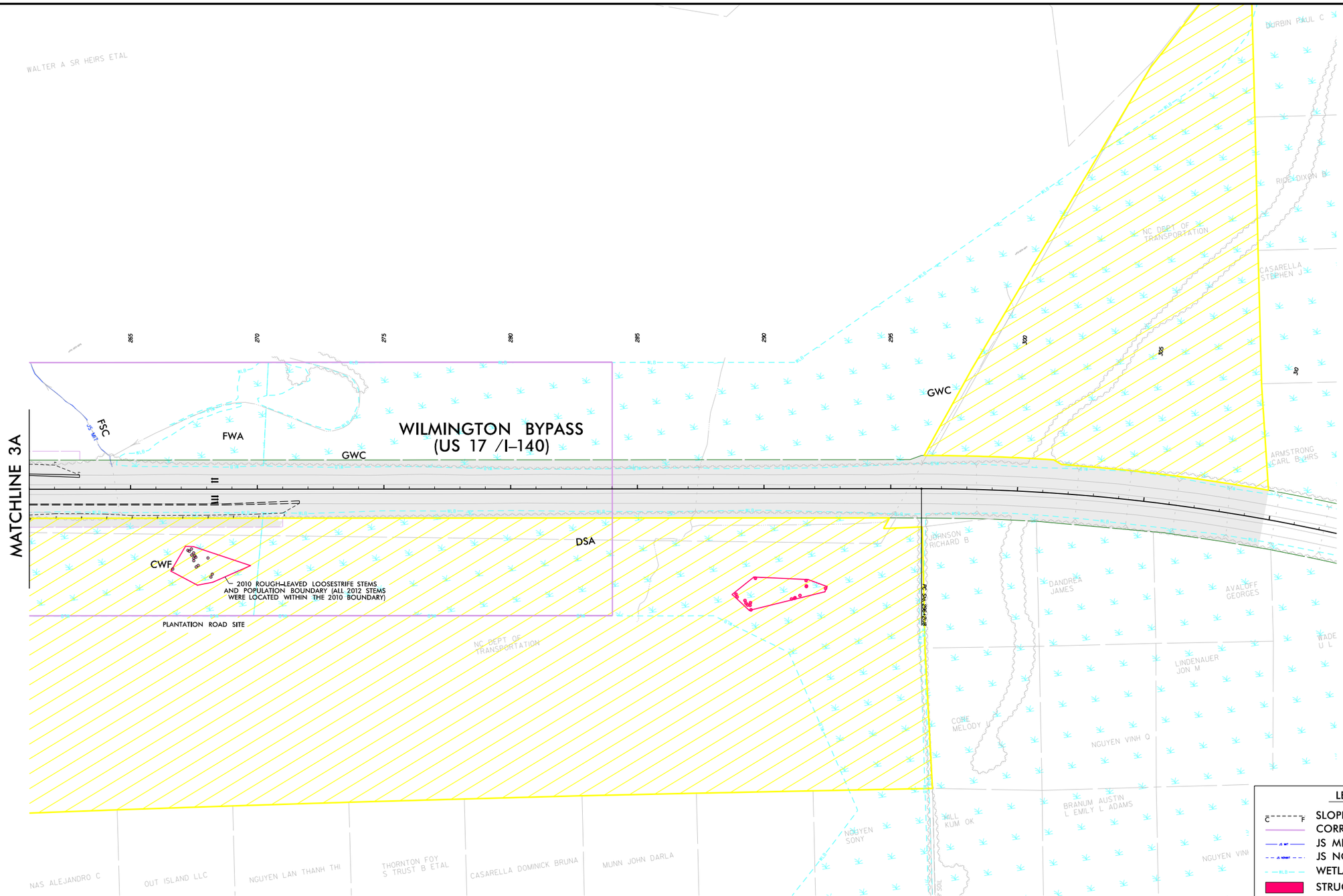

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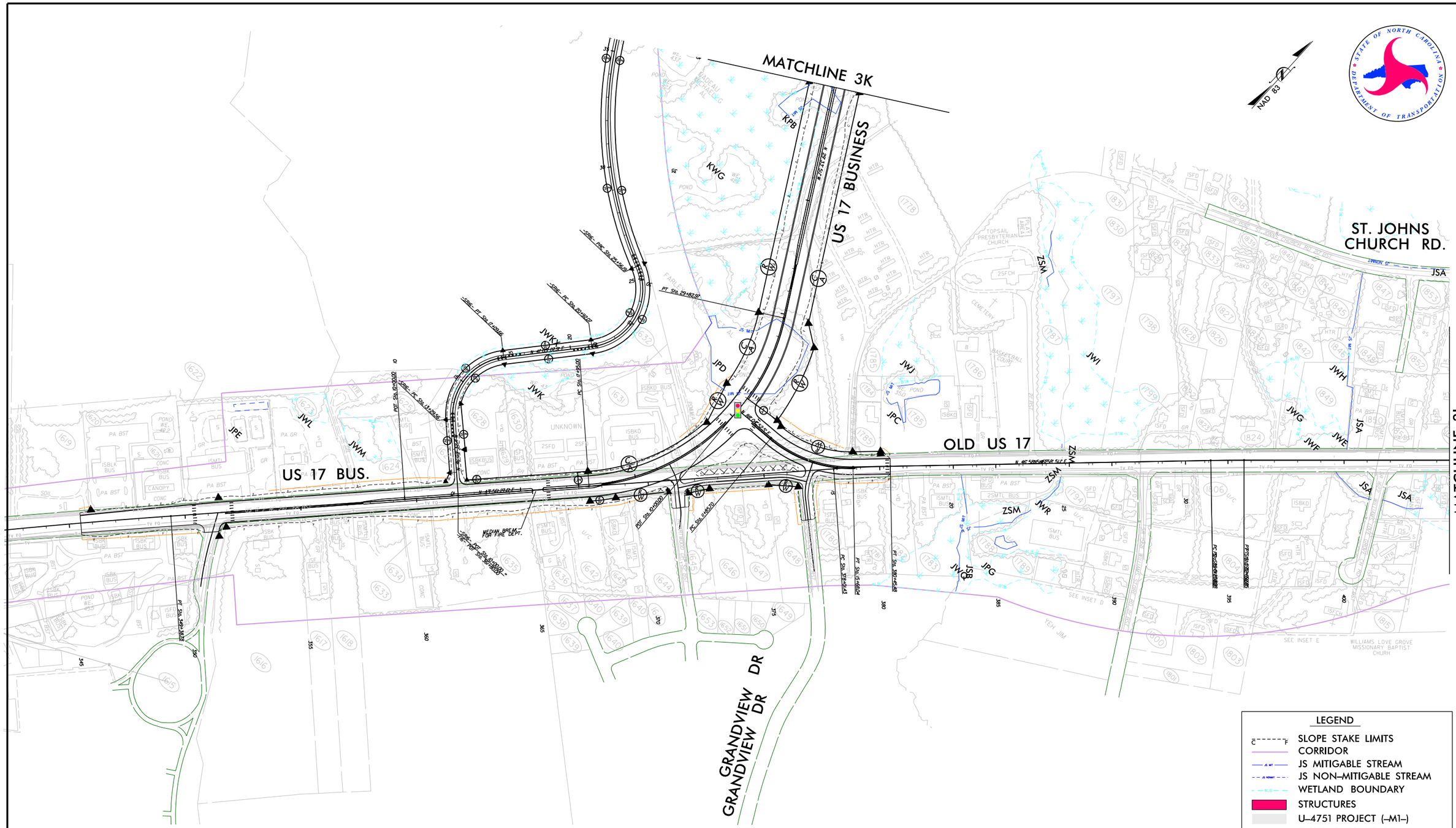
Figure 3Q



LEGEND

- SLOPE STAKE LIMITS
- CORRIDOR
- JS MITIGABLE STREAM
- JS NON–MITIGABLE STREAM
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200' 0 200'
SCALE

Figure 3R

Table 1. R-3300 Selected Alternative EH Preliminary Design Stream Impacts

Stream ID	Stream Name[1]	Figure No.	Stream Impact (feet)	Compensatory Mitigation Required	Stream Determination
FSA	UT to Island Creek	3-A, B	2,131	Yes	Perennial
FSE	UT to Island Creek	3-B	331	Yes	Perennial
FSH	UT to Island Creek	3-B, C	135	Yes	Intermittent
FSI	UT to Island Creek	3-B	274	Yes	Perennial
FSJ	UT to Island Creek	3-A	859	Yes	Intermittent
HBSAA	UT to Island Creek	3-C	214	Yes	Intermittent
HBSC	UT to Island Creek	3-E	350	Yes	Perennial
HBSD(1)	UT to Island Creek	3-E	161	Yes	Intermittent
			117	Yes	Perennial
HBSH	UT to Island Creek	3-D	320	Yes	Intermittent
HSC	UT to Harrisons Creek	3-F	408	Yes	Perennial
HSX	UT to Harrisons Creek	3-G	310	Yes	Perennial
LSB	UT to Harrisons Creek	3-H	1,499	Yes	Perennial
LSC	Harrisons Creek	3-I	861	Yes	Perennial
LSCA	UT to Harrisons Creek	3-H	336	Yes	Intermittent
			107	Yes	Perennial
LSCAA	UT to Harrisons Creek	3-H	206	Yes	Perennial
LSCB	UT to Harrisons Creek	3-I	298	Yes	Perennial
LSCC	UT to Harrisons Creek	3-I	273	Yes	Perennial
LSCF	UT to Harrisons Creek	3-I	120	Yes	Intermittent
LSD	Godfrey Creek	3-J	278	Yes	Perennial
LSDA	UT to Godfrey Creek	3-J	195	Yes	Intermittent
NSA	UT to AIWW[2]	3-N	344	Yes	Intermittent
			110	Yes	Perennial
NSF	UT to AIWW[2]	3-M	483	Yes	Intermittent
			290	Yes	Perennial
ZSK	UT to Prince George Creek	3-O, P	850	Yes	Perennial
ZSL	UT to Prince George Creek	3-O	40	Yes	Perennial
Total Delineated Stream Impacts (linear feet)					
			Perennial	**8,733**	
			Intermittent	**3,167**	
			Total	**11,900**	

[1]Smith Creek, Island Creek, Prince George Creek, Harrisons Creek, and Godfrey Creek are classified C; Sw. Nixons Creek and Old Topsail Creek are classified SA; HQW.
[2]Atlantic Intracoastal Waterway.

Table 2. R-3300 Selected Alternative EH Preliminary Design Surface Water Impacts

Feature ID	Appearance *or* Name	Figure No.	Connection *or* Compensatory Mitigation Requirement	Impacts	Additional Information
IPE	Stormwater Pond	3-H	No Connection	0.27 acres	No record of permit
JPD	Cypress/Gum Depression	3-R	KWG	1.71 acres	
KPB	Cypress/Gum Depression	3-R	KWA/KWG	0.34 acres	
LPB	Manmade/Maintained	3-I	LWF	0.38 acres	
LPD	Manmade/Maintained	3-H	LWA	0.02 acres	
LPE	Manmade/Maintained	3-J	No Connection	0.36 acres	
NPA	Small Borrow Pond	3-M	No Connection	0.01 acres	
NPC	Stormwater Pond	3-M	No Connection	0.06 acres	Permit No. SW8 040431
NPE	Water Treatment Pond	3-M	No Connection	0.70 acres	
FSH	UT to Island Creek[1]	3-B, C	Compensatory Mitigation not Required[3]	2,328 sq. ft./ 0.053 acres	OHWM[4]
FSH	UT to Island Creek[1]	3-B, C	Compensatory Mitigation not Required[2]	906 sq. ft./ 0.021 acres	OHWM[4]
NDITCH1[5]	UT to Old Topsail Creek[1]	3-M	Compensatory Mitigation not Required[2,3]	1,558 sq. ft./ 0.036 acres	OHWM[4]
ZTRIB1[5]	UT to Old Topsail Creek[1]	3-R	Compensatory Mitigation not Required[2]	181 sq. ft./ 0.004 acres	OHWM[4]
Total Surface Water Impacts					
Ponds with a connection to tributary waters (acres)			**2.45**		
Ponds with no connection to tributary waters (acres)			**1.40**		
Tributary waters determined to be jurisdictional based on the presence of an OHWM[4] (square feet/acres)			**4,973/0.114**		

[1]Old Topsail Creek is classified as SA; HQW. Island Creek is classified C; Sw.
[2]Tributary feature exists within the boundaries of an adjacent wetland and therefore does not require mitigation independent of the wetland.
[3]Tributary feature does not require stream mitigation but may require mitigation by USACE as a 'Water of the US' dependent upon the type of impact proposed at the time of permit application.
[4]Tributary waters determined to be jurisdictional based on the presence of an ordinary high water mark (OHWM). These waters are classified as 'Waters of the US' (impacts calculated in sq. ft.) and will not require compensatory mitigation.
[5]ZTRIB1 and NDITCH1 were added during Jurisdictional review based on current site conditions.

Table 3. R-3300 Selected Alternative EH Preliminary Design Wetland Impacts

Wetland ID	Figure No.	Cowardin Classification[1]	Hydrologic Classification	NCDWR Wetland Rating	Wetland Impacts (acres)
FWB	3-A, B	PFO	Riparian	20	5.01
FWC[2]	3-B, C	PFO	Riparian	48	1.45
FWF	3-C	PFO	Non-riparian	37	5.83
			Riparian	37	1.08
FWHB	3-C	PFO	Non-riparian	24	0.04
FWI	3-C	PFO	Non-riparian	17	0.38
FWL	3-C	PFO	Non-riparian	19	0.03
FWY	3-A	PFO	Non-riparian	20	0.18
HBAA[3]	3-C	PSS/PFO	Riparian	32	0.25
HBAB	3-C	PSS/PFO	Non-riparian	27	1.09
HBWD[4]	3-D, E	PSS/PFO	Riparian	83	1.19
HBWF	3-E	PEM/PSS	Riparian	32	0.78
HBWK[5]	3-D	PFO/PSS	Riparian	83	1.47
HBWT	3-D	PSS	Non-riparian	14	0.39
HWB	3-G	PFO	Riparian	50	2.31
HWD	3-G	PFO	Non-riparian	21	0.35
HWG[6]	3-F	PFO/PSS	Riparian	15	0.87
HWH	3-G	PFO	Non-riparian	26	0.15
HWH1	3-G	PFO	Non-riparian	26	0.08
HWH2	3-G	PFO	Non-riparian	26	0.03
HWH3	3-G	PFO	Non-riparian	26	0.07
HWH4	3-G	PFO	Non-riparian	26	0.02
HWH5	3-F	PFO	Non-riparian	26	0.23
HWY	3-F	PFO	Non-riparian	26	0.17
HWZ	3-F	PFO	Non-riparian	21	0.01
HWAA[7]	3-E, F	PFO	Non-riparian	40	8.52
			Riparian	40	1.64
HWHH	3-E	PFO	Non-riparian	34	0.90
HWMX	3-F	PFO	Non-riparian	40	0.05
IWA	3-H	PFO	Riparian	80	0.03
IWB	3-H	PFO	Riparian	25	0.09
IWC	3-H	PFO	Riparian	20	0.21
IWD	3-H	PFO	Non-riparian	31	17.71
			Riparian	31	0.39
IWE	3-H	PFO	Non-riparian	13	0.16
JWKX	3-R	Non-Riverine Swamp Forest[8]	Non-riparian	14	1.90
KWG	3-R	PFO1/2G	Non-riparian	43	0.71
LWA	3-H	PFO	Riparian	70	0.13
LWB	3-H	PFO	Riparian	72	8.36
LWD	3-H, I	PFO	Riparian	83	5.84
LWD1	3-H	PFO	Riparian	48	0.08

Table 3. R-3300 Selected Alternative EH Preliminary Design Wetland Impacts *continued*

Wetland ID	Figure No.	Cowardin Classification[1]	Hydrologic Classification	NCDWR Wetland Rating	Wetland Impacts (acres)
LWE	3-I	PFO	Non-riparian	29	0.49
LWF	3-I	PFO	Non-riparian	11	0.10
LWG	3-I	PFO	Non-riparian	46	0.01
LWH	3-J	PFO	Non-riparian	23	0.01
LWI	3-J	PFO	Riparian	80	2.50
LWJ	3-J, K	PFO	Non-riparian	40	5.50
LWK	3-J, K	PFO	Riparian	78	0.36
LWL	3-J	PFO	Riparian	76	0.28
MWA	3-M	PSS/PFO	Non-riparian	36	0.00
MWM(2)	3-H	PFO	Non-riparian	68	2.61
			Riparian	68	0.09
NWA	3-N	PFO	Non-riparian	12	0.01
NWB	3-N	PEM/PFO	Non-riparian	13	0.04
NWE	3-N	PEM/PFO	Non-riparian	12	0.03
NWF	3-M, N	PEM/PSS	Non-riparian	12	0.05
NWJ	3-M	PSS/PFO	Non-riparian	12	0.10
NWK	3-M	PSS	Non-riparian	12	0.04
NWM	3-M, N	PFO	Non-riparian	22	1.01
NWO	3-K	PFO4	Non-riparian	17	3.69
NWP	3-K, L	PSS	Non-riparian	17	32.38
ZWCC	3-N	PFO	Riparian	28	0.06
ZWDD	3-O, P	PFO	Non-riparian	26	0.92
			Riparian	26	0.24
PD-11	3-M	PFO/PSS	Non-riparian	N/A	0.04
PD-15	3-L	PFO/PSS	Non-riparian	N/A	0.53
PD-16	3-M	PFO/PSS	Non-riparian	N/A	0.63
PD-29	3-L	PFO/PSS	Non-riparian	N/A	10.58
PD-31	3-L, M	PFO/PSS	Non-riparian	N/A	2.02
PD-32	3-M	PFO/PSS	Non-riparian	N/A	2.44
			Riparian	N/A	0.92
PD-33	3-M	PFO/PSS	Non-riparian	N/A	7.79
			Riparian	N/A	0.67
PD-34	3-M	PFO/PSS	Non-riparian	N/A	2.30
PD-35	3-M	PFO/PSS	Non-riparian	N/A	7.24
Total Delineated Wetland Impacts (acres)					**155.86**

[1]Cowardin classifications are based on characteristics of each wetland at the specific time and location of observation. Wetlands having 'No ID' were not characterized due to impacted appearance at the time of observation.

[2]Includes wetland FEW

[3]Includes wetland HBAC

[4]Bridging at Site 16 reduces wetland impacts to HBWD from 1.71 acres to 1.19 acres.

[5]Includes wetland HBWP; bridging at Site 15 reduces wetland impacts to HBWK from 1.61 acres to 1.47 acres.

[6]Includes wetlands HWM, HWN, HWO

[7]Includes wetlands HWBB, HWII, HWLL

[8]NCWAM classifications were used for wetlands in extended study areas.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.04; Released November 2015)

WBS Element:	40191.1.2	TIP No.:	U-4751	County(ies):	New Hanover	Page	1	of	5

General Project Information

WBS Element:	40191.1.2	**TIP Number:**	U-4751	**Project Type:**	New Location	**Date:**	7/5/2016
NCDOT Contact:	Paul Atkinson, PE			**Contractor / Designer:**	Edward Vance, PE		
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590			**Address:**	STV, Inc. 900 West Trade Street, Suite 715 Charlotte, NC 28202		
Phone:	919-707-6707			**Phone:**	704-816-2555		
Email:	patkinson@ncdot.gov			**Email:**	edward.vance@stvinc.com		
City/Town:	Wilmington			**County(ies):**	New Hanover		
River Basin(s):	Cape Fear	Cape Fear		**CAMA County?**	Yes		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	4.156 miles	**Surrounding Land Use:**	Residential		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	ac.			ac.	
Typical Cross Section Description:	First Half: The typical consists of 2-12' paved lanes, 1-14' paved lane and a 10' grass shoulder in each direction with a raised median, C&G and 3:1 fill slopes. Second Half: The typical consists of 3-12' paved lanes, a 14' paved shoulder and 2' grass shoulder in each direction with a median ditch (6:1 sides) and 3:1 fill slopes.			N/A	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 47800	Year: 2036		Existing: 22600	Year: 2016
General Project Narrative: (Description of Minimization of Water Quality Impacts)	A combination of grassed swales, median roadway ditches and riprap dissipators were used to minimize the Water Quality Impacts. There are two existing Wet Detention Basins located adjacent to the project (Plan Sheet 12 and 13) that will capture some of the stormwater runoff from the proposed roadway. Also, there is a proposed Wet Detention Basin with a Forebay (Plan Sheet 6) that will capture and treat 4.89 acres of new pavement area at the proposed interchange with US-17 Business (Market Street).				

Waterbody Information

Surface Water Body (1):	UT 2 to Smith Creek		**NCDWR Stream Index No.:**	18-74-63		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	Swamp Waters (Sw)			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	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)						

WBS Element: 40191.1.2 **TIP No.:** U-4751 **County(ies):** New Hanover

Additional Waterbody Information

Surface Water Body (2):	UT to Smith Creek		**NCDWR Stream Index No.:**	18-74-63		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	Swamp Waters (Sw)			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	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):	UT to Island Creek		**NCDWR Stream Index No.:**	18-74-50		
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:				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (4):	UT to Howe Creek		**NCDWR Stream Index No.:**	18-87-23		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class SA			
		Supplemental Classification:	(ORW)			
Other Stream Classification:	None					
Impairments:	chlorophyll a	pH	turbidity			
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (5):	Kings Grant Trib. To Smith Creek		**NCDWR Stream Index No.:**	18-74-63		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	Swamp Waters (Sw)			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.04; Released November 2015)

WBS Element: 40191.1.2 **TIP No.:** U-4751 **County(ies):** New Hanover

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
11	98+00 -L- Rt. 34.2791317 / -77.8307540	(1)UT 2 to Smith Creek	0.0	3.0	3.0	0.7	70	105	1.24%	4.1	2.0	5.3	2.1	No	No
12	110+35 -L- Lt. 34.2823645 / -77.8294581	(1)UT 2 to Smith Creek	2.0	3.0	3.0	1.6	160	160	0.81%	7.6	1.9	10.0	2.1	No	No
12	117+50 -L- Rt. 34.2836198 / -77.8274364	(1)UT 2 to Smith Creek	2.0	3.0	3.0	1.9	190	200	0.50%	8.5	1.8	11.1	2.0	No	No
13	129+11 -L- Rt. 34.2859829 / -77.8248553	(2)UT to Smith Creek	6.0	3.0	3.0	1.9	190	405	0.17%	9.4	1.1	12.3	1.2	No	No
13	138+00 -L- Rt. 34.2879850 / -77.8230191	(2)UT to Smith Creek	6.0	3.0	3.0	1.0	100	565	0.17%	9.4	1.1	12.3	1.2	No	No
14	143+75 -L- Rt. 34.2895223 / -77.8223030	(2)UT to Smith Creek	3.0	3.0	3.0	3.4	340	360	0.42%	16.4	1.8	21.4	2.0	No	No

Additional Comments

Sheet 13: Please note that the longitudinal slope of the grass swales are less than 0.3% due to the topography.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.04; Released November 2015)

WBS Element: 40191.1.2 **TIP No.:** U-4751 **County(ies):** New Hanover

Level Spreaders, Hazardous Spill Basins, and Forebays

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Level Spreader, Hazardous Spill Basin, or Forebay?	Drainage Area (ac)	New Built-Upon Area (ac)	Required / Minimum Treatment			Treatment Achieved		BMP Associated w/ Buffer Rules?
6	-Y1- Sta. 45+00 to 49+00 34.26499 / -77.82560	(4)UT to Howe Creek	Forebay	24.00	4.89	0.1 inches of runoff from NBUA	1776.0	cf	3050.0	cf	N/A

*Hazardous spill basins are pollution prevention measures designed for spill containment rather than stormwater treatment. Under Required / Minimum Treatment and Treatment Achieved, provide the minimum required volume and the actual HSB volume, respectively. Refer to the NCDOT Stormwater Best Management Practices Toolbox (2014) for design guidance.

Additional Comments

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.04; Released November 2015)

WBS Element: 40191.1.2 **TIP No.:** U-4751 **County(ies):** New Hanover

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?
6	-Y1- Sta. 45+00 to 49+00 34.26499 / -77.82560	(4)UT to Howe Creek	Wet Detention Basin	24.0	4.9	8.35	21.56	No

Additional Comments

09/08/99

TIP PROJECT: U-4751

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

PERMIT DRAWING
SHEET 1 OF 81

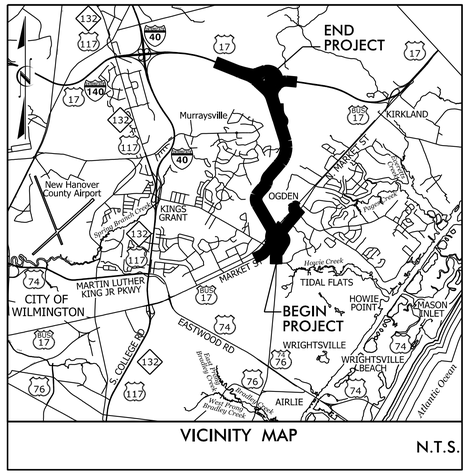
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4751	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40191.1.2		PE
40191.2.1		R/W

LOCATION: SR 1409 (MILITARY CUTOFF ROAD) TO US 17 IN WILMINGTON

TYPE OF WORK: GRADING, PAVING, DRAINAGE, RETAINING WALLS, SIGNALS, STRUCTURES & CULVERTS

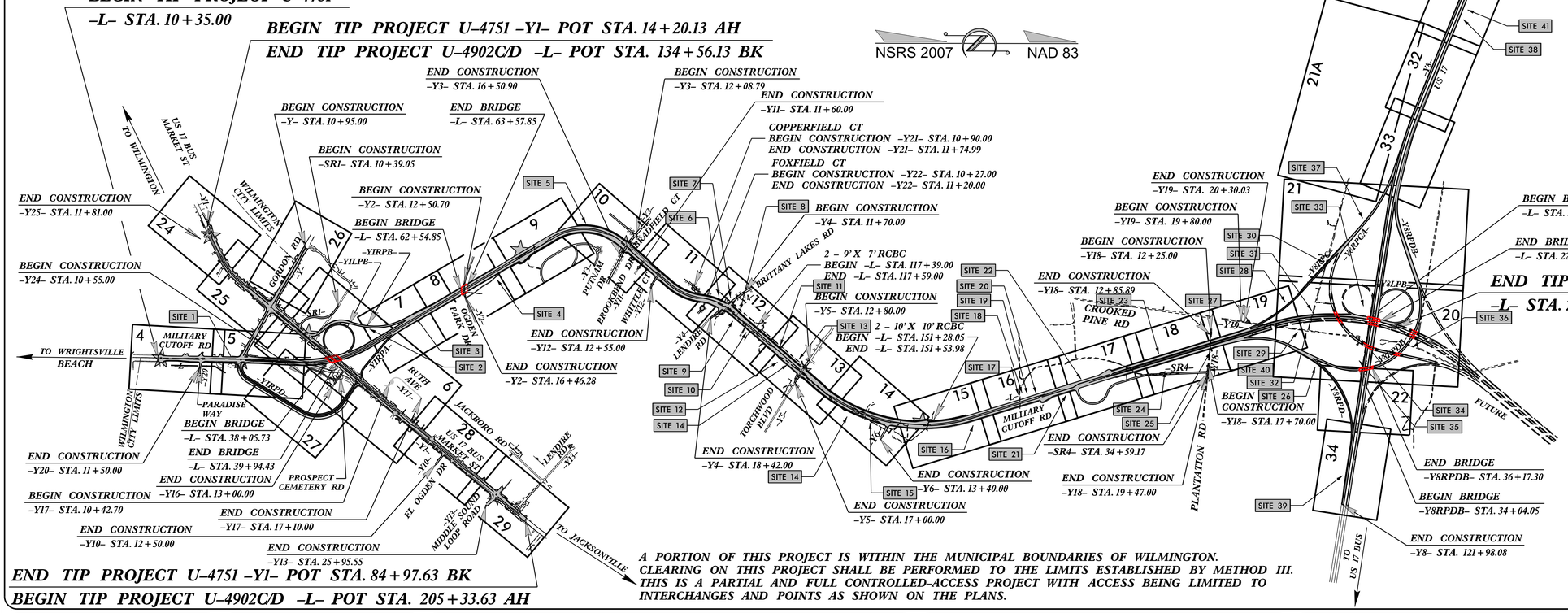
WETLAND AND SURFACE WATER IMPACTS PERMIT



BEGIN TIP PROJECT U-4751
-L- STA. 10+35.00

BEGIN TIP PROJECT U-4751 -Y1- POT STA. 14+20.13 AH
END TIP PROJECT U-4902C/D -L- POT STA. 134+56.13 BK

NSRS 2007 NAD 83



END TIP PROJECT U-4751 -Y1- POT STA. 84+97.63 BK
BEGIN TIP PROJECT U-4902C/D -L- POT STA. 205+33.63 AH

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WILMINGTON. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III. THIS IS A PARTIAL AND FULL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES AND POINTS AS SHOWN ON THE PLANS.

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 2017 = 23,900
ADT 2037 = 49,100
K = 12%
D = 60%
T = 7%*
V = 50 MPH
* (TTST = 3% + DUAL 4%)
FUNC CLASS = ARTERIAL/FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4751 = 5.394 MILES

LENGTH STRUCTURE TIP PROJECT U-4751 = 0.103 MILES

TOTAL LENGTH OF TIP PROJECT U-4751 = 5.497 MILES

PLANS PREPARED FOR THE NCDOT BY:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 17, 2015

LETTING DATE:
OCTOBER 17, 2017

JOHN N. JOHNSON, PE
PROJECT ENGINEER

SEAN C. STEPHENS, EI
PROJECT DESIGNER

GARY LOVERING, PE
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

R/W PLANS
6/30/2016

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 2 OF 81

NAD 83/NSRS 2007

MATCHLINE -L- STA 20+00 (SHEET 4)

MATCHLINE -L- STA 33+00 (SHEET 6)

MATCHLINE -Y- STA 27+00 (SHEET 25)

MATCHLINE -Y1RPD- STA 16+00 (SHEET 27)

-L- POT Sta. 23+80.96 =
-YIRPD- POT Sta. 10+00.00
-L- POT Sta. 23+78.20 =
-Y- POT Sta. 31+93.18

PC Sta. 24+08.58

PT Sta. 27+74.50

PC Sta. 10+94.36

PT Sta. 13+56.42

SITE 1

ODGEN PLAZA, LLC.
DB 2690 PG 425
DB 5443 PG 901
DB 4157 PG 115
DB 2689 PG 525
DB 2664 PG 677
DB 2615 PG 512
MB 4 PG 96

ZP NO. 173, LLC.
DB 5124 PG 680
DB 4024 PG 399
DB 2614 PG 594
MB 4 PG 96

BAY FOODS, INC.
DB 1242 PG 1782
DB 4274 PG 163
MB 4 PG 96

OGDEN VOLUNTEER RESCUE
DB 4034 PG 732
DB 1145 PG 1873
MB 4 PG 96

JOSEPH L. JOHNSON ET UX, ET AL
DB 5578 PG 254
DB 4886 PG 2471
MB 4 PG 96

PEBBLE COVE HOA, INC.
DB 4644 PG 978
MB 45 PG 122

JAMES L. BATEY, ET UX
DB 5383 PG 2070
MB 4 PG 96

B. P. A.
DB 4157 PG 148
DB 4024 PG 378
DB 1610 PG 851
DB 1426 PG 1059

ANGELINE B. SAFFO
DB 5042 PG 1460
DB 4264 PG 835
DB 1932 PG 303

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

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

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

LAT V DITCH
SEE DETAIL 44
(REFER SHEET 6)

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 45 FOR -Y- PROFILE
SEE SHEET 52 FOR -Y1RPD- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

GORDON RD
MILITARY CUTOFF RD
MILITARY CUTOFF RD
-Y1RPD-
10,300 / 13,300
9,700 / 12,700
600 / 600
29,500 / 42,300
20,400 / 30,200
2017 / 2037

7/6/2016
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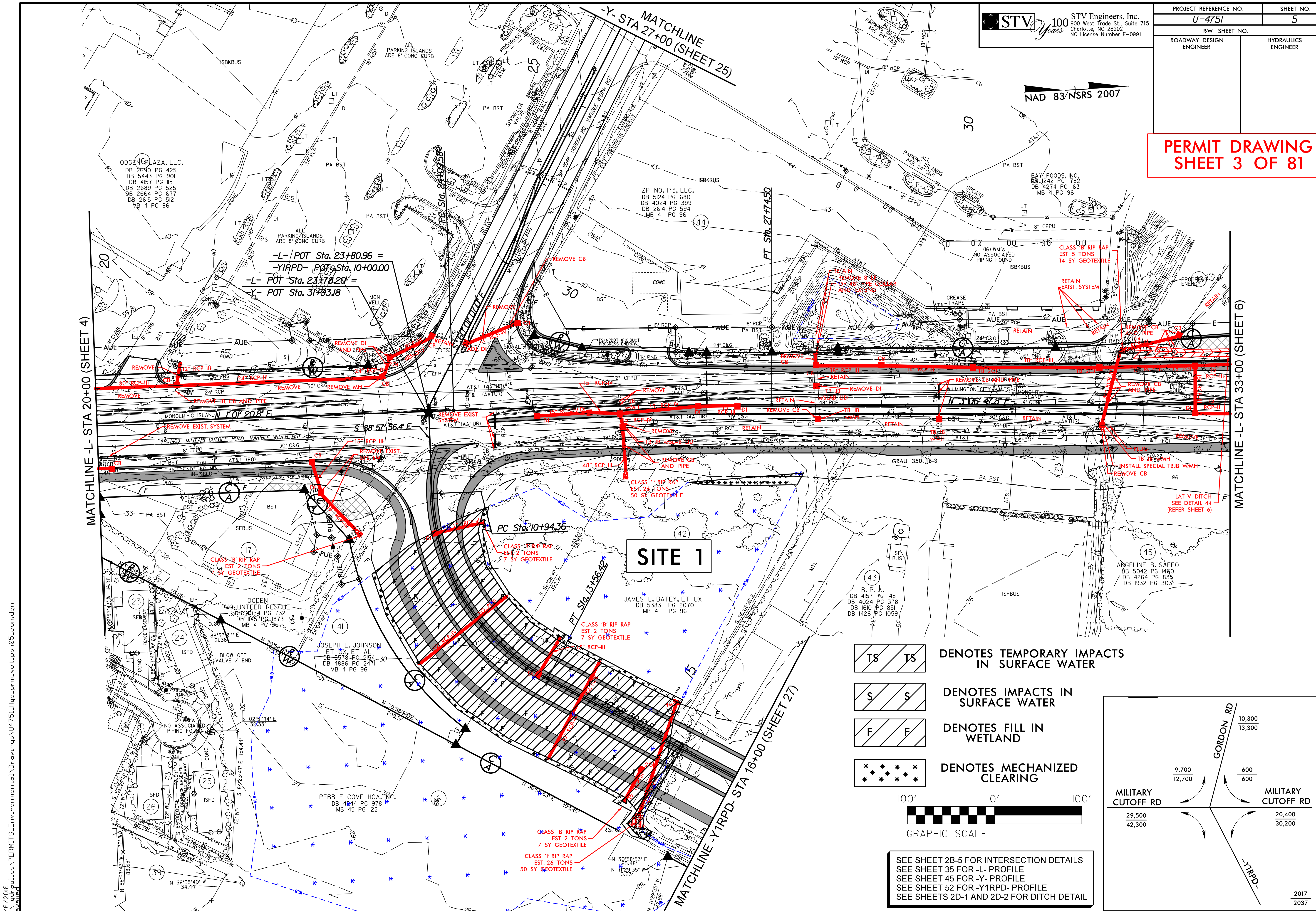

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991
PROJECT REFERENCE NO.
U-4751
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PERMIT DRAWING
SHEET 3 OF 81
NAD 83/NSRS 2007
MATCHLINE -Y- STA 27+00 (SHEET 25)
MATCHLINE -L- STA 20+00 (SHEET 4)
MATCHLINE -L- STA 33+00 (SHEET 6)
MATCHLINE -Y1RPD- STA 16+00 (SHEET 27)
-L- POT Sta. 23+80.96 =
-YIRPD- POT Sta. 10+00.00
-L- POT Sta. 23+78.20 =
-Y- POT Sta. 31+93.18
PC Sta. 24+09.58
PT Sta. 27+74.50
PC Sta. 10+94.36
PT Sta. 13+56.42
N 1°01' 20.8" E
S 88°57' 56.4" E
N 3°06' 47.8" E
N 30°58' 30.5" E
SR 1409 MILITARY CUTOFF ROAD VARIBLE WIDTH BST
SR 2048 GORDON RD VARIBLE WIDTH BST
ODGEN PLAZA, LLC.
DB 2690 PG 425
DB 5443 PG 901
DB 4157 PG 115
DB 2689 PG 525
DB 2664 PG 677
DB 2615 PG 512
MB 4 PG 96
ZP NO. 173, LLC.
DB 5124 PG 680
DB 4024 PG 399
DB 2614 PG 594
MB 4 PG 96
BAY FOODS, INC.
DB 1242 PG 1782
DB 4274 PG 163
MB 4 PG 96
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DB 4157 PG 148
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DB 1426 PG 1059
ANGELINE B. SAFFO
DB 5042 PG 1460
DB 4264 PG 835
DB 1932 PG 303
PEBBLE COVE HOA, INC.
DB 4544 PG 978
MB 45 PG 122
SITE 1
CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEOTEXTILE
CLASS 'I' RIP RAP
EST. 26 TONS
50 SY GEOTEXTILE
CLASS 'B' RIP RAP
EST. 5 TONS
14 SY GEOTEXTILE
RETAIN EXIST. SYSTEM
REMOVE EXIST. SYSTEM
REMOVE 8 LF OF 48" PIPE COLLAR AND EXTEND
INSTALL SPECIAL TBJB W/MH
LAT V DITCH
SEE DETAIL 44
(REFER SHEET 6)
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
100' 0' 100'
GRAPHIC SCALE
SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 45 FOR -Y- PROFILE
SEE SHEET 52 FOR -Y1RPD- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
GORDON RD
MILITARY CUTOFF RD
-Y1RPD-
10,300
13,300
9,700
12,700
600
600
29,500
42,300
20,400
30,200
2017
2037
7/6/2016
R:\Hydraulics\PERMITS_Environmental\Drawings\U4751_Hyd_prm_wet_psh05_con.dgn

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4751	X-153

PERMIT DRAWING SHEET 4 OF 81

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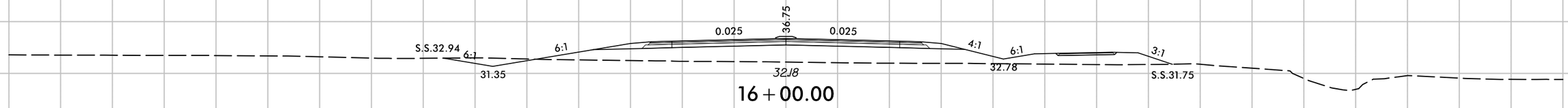
40 30 20



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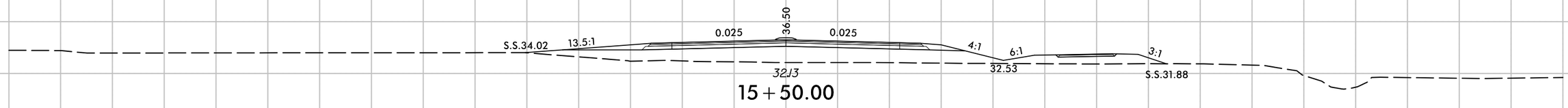

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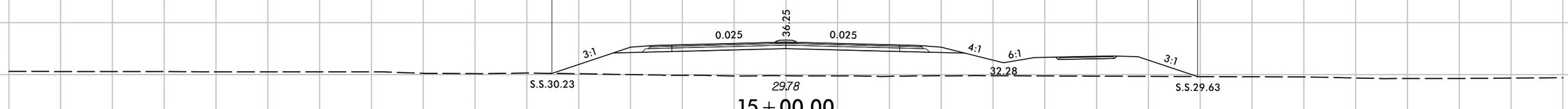

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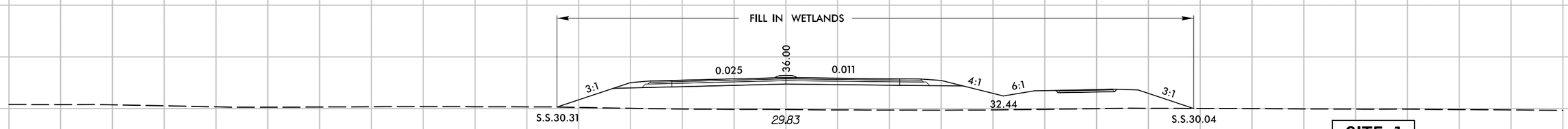
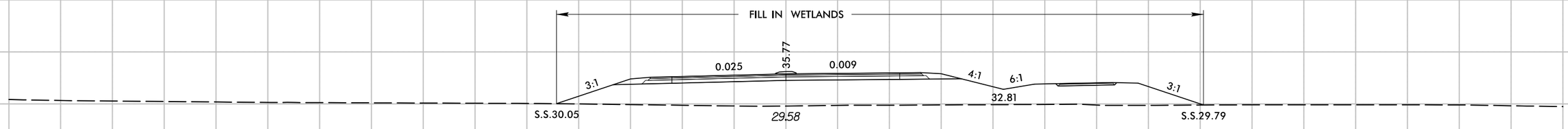


14 + 50.00

SITE 1



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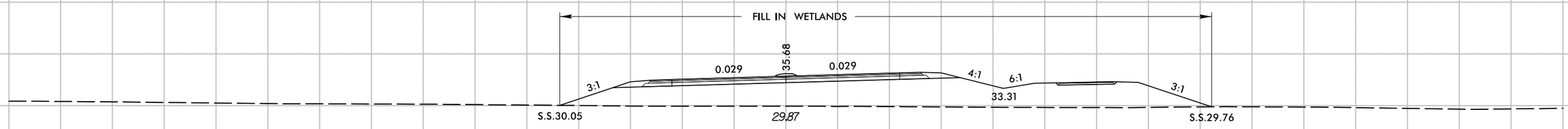

13 + 50.00

–YIRPD–

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Bswigard

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES EXCAVATION IN WETLAND

SEE PERMIT DRAWING SHEET 7 OF 81 FOR ENLARGEMENT

SITE 2

MATCHLINE -L- STA 19+50 (SHEET 7)

MATCHLINE -L- STA 43+00 (SHEET 9)

MATCHLINE -Y1- STA 34+00 (SHEET 25)

MATCHLINE -Y1- STA 62+00 (SHEET 28)

MATCHLINE (SHEET 27)

MATCHLINE -Y1RPD- STA 30+00 (SHEET 27)

NAD 83/NSRS 2007

PERMIT DRAWING SHEET 5 OF 81

STV Engineers, Inc. 100 200 West Street, Suite 715 Greenville, NC 27858 NC License Number F-0991

PROJECT REFERENCE NO. U-4751

SHEET NO. 6

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

GRAPHIC SCALE 50 25 0 50 100 PLANS

DETAIL 1 SPECIAL LATERAL V DITCH (Varies Scale)

DETAIL 3 STANDARD BASE DITCH (Varies Scale)

DETAIL 5 SPECIAL CUT DITCH (Varies Scale)

DETAIL 41 LATERAL V DITCH (Varies Scale)

DETAIL 48 LATERAL V DITCH (Varies Scale)

DETAIL 4 SPECIAL CUT DITCH (Varies Scale)

DETAIL 43 SPECIAL LATERAL V DITCH (Varies Scale)

DETAIL 44 LATERAL BASE DITCH (Varies Scale)

DETAIL 49 STANDARD "V" DITCH (Varies Scale)

	MILITARY CUTOFF RD	
US HWY 17 MARKET ST	21,900 46,500	US HWY 17 MARKET ST
8,700 20,500	3,200 7,300	
43,900 54,900		46,900 50,300
1,000 1,400	9,500 10,100	
	20,400 33,600	
MILITARY CUTOFF RD		

2017
2037

- SEE SHEET 2A-11 FOR CUL-DE-SAC DETAIL
- SEE SHEET 2B-6 AND 2B-7 FOR INTERSECTION DETAILS
- SEE SHEET 36 FOR -L- PROFILE
- SEE SHEET 47 FOR -Y1- PROFILE
- SEE SHEET 49 FOR -Y1RPA- PROFILE
- SEE SHEET 50 FOR -Y1LPB- PROFILE
- SEE SHEET 51 FOR -Y1RPB- PROFILE
- SEE SHEET 52 FOR -Y1RPD- PROFILE
- SEE SHEET 63 FOR -Y15- PROFILE
- SEE SHEET 63 FOR -Y17- PROFILE
- SEE SHEET 64 FOR -SR1- PROFILE
- SEE SHEET 69 FOR -Y24- PROFILE
- SEE SHEET 2B-1 FOR BRIDGE / PAVEMENT RELATIONSHIP SKETCH
- SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAILS
- SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS

200' 0' 200'
GRAPHIC SCALE

7/6/2016
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DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES EXCAVATION IN WETLAND

SEE PERMIT DRAWING SHEET 7 OF 81 FOR ENLARGEMENT

SITE 2

A

B

C

D

MATCHLINE -Y1- STA 34+00 (SHEET 25)

MATCHLINE -L- STA 43+00 (SHEET 7)

MATCHLINE -L- STA 33+00 (SHEET 9)

MATCHLINE (SHEET 27)

MATCHLINE -Y1RPD- STA 30+00 (SHEET 27)

MATCHLINE -Y1- STA 62+00 (SHEET 28)

	MILITARY CUTOFF RD	
US HWY 17 MARKET ST	8,700 / 20,500	3,200 / 7,300
	43,900 / 54,900	46,900 / 50,300
	1,000 / 1400	9,500 / 10,100
	MILITARY CUTOFF RD	20,400 / 33,600

2017 / 2037

SEE SHEET 2A-11 FOR CUL-DE-SAC DETAIL
SEE SHEET 2B-6 AND 2B-7 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 47 FOR -Y1- PROFILE
SEE SHEET 49 FOR -Y1RPA- PROFILE
SEE SHEET 50 FOR -Y1LPB- PROFILE
SEE SHEET 51 FOR -Y1RPB- PROFILE
SEE SHEET 52 FOR -Y1RPD- PROFILE
SEE SHEET 63 FOR -Y15- PROFILE
SEE SHEET 63 FOR -Y17- PROFILE
SEE SHEET 64 FOR -SR1- PROFILE
SEE SHEET 69 FOR -Y24- PROFILE
SEE SHEET 2B-1 FOR BRIDGE / PAVEMENT RELATIONSHIP SKETCH
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAILS
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS

200' 0' 200'
GRAPHIC SCALE

DETAIL 1 SPECIAL LATERAL 'V' DITCH
DETAIL 2 SPECIAL CUT DITCH
DETAIL 3 STANDARD BASE DITCH
DETAIL 4 SPECIAL CUT DITCH
DETAIL 5 SPECIAL CUT DITCH
DETAIL 43 SPECIAL LATERAL 'V' DITCH
DETAIL 43 LATERAL 'V' DITCH
DETAIL 44 LATERAL 'V' DITCH
DETAIL 48 LATERAL 'V' DITCH
DETAIL 49 STANDARD 'V' DITCH

NAD 83/NSRS 2007

STV Engineers, Inc. 100 200 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-451	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 6 OF 81

1/6/2026
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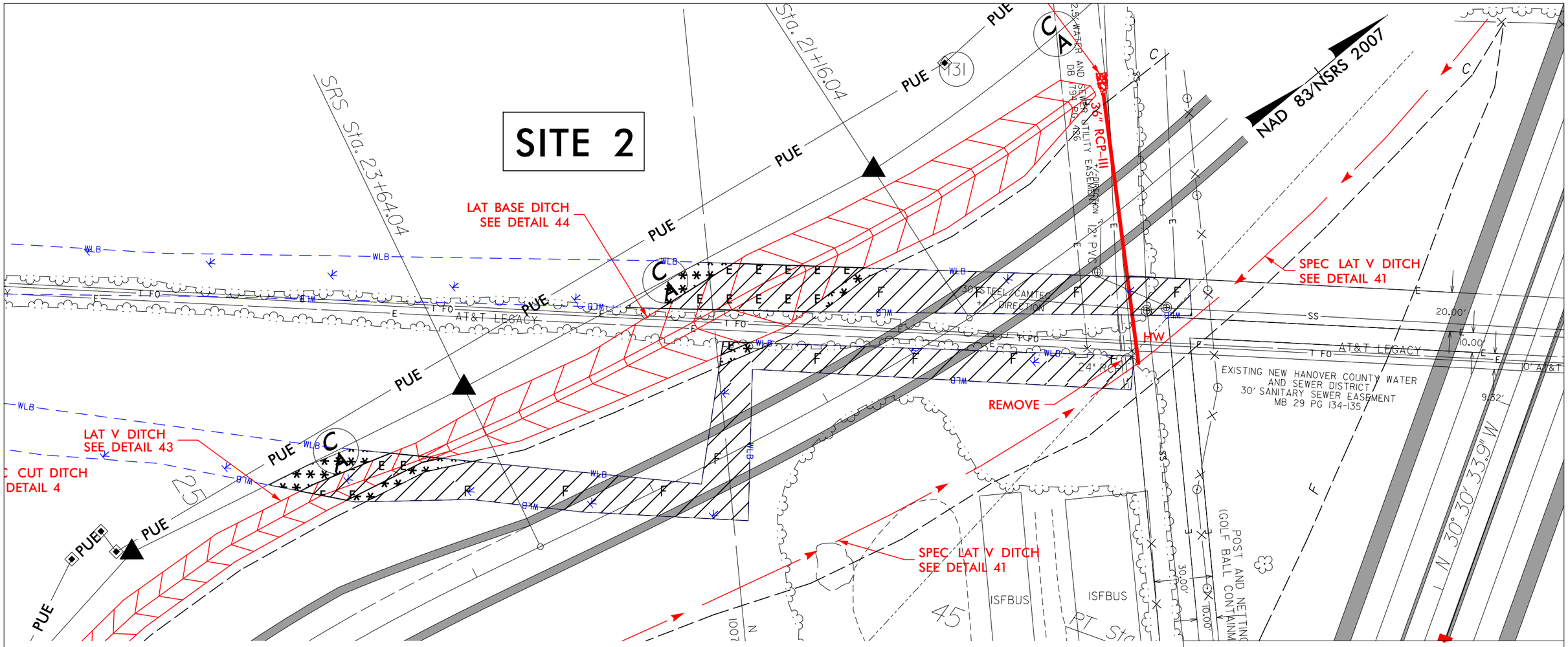


E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

* * * * * * * * * DENOTES MECHANIZED CLEARING

PLAN VIEW

50' 0' 50'

GRAPHIC SCALE

NCDOT

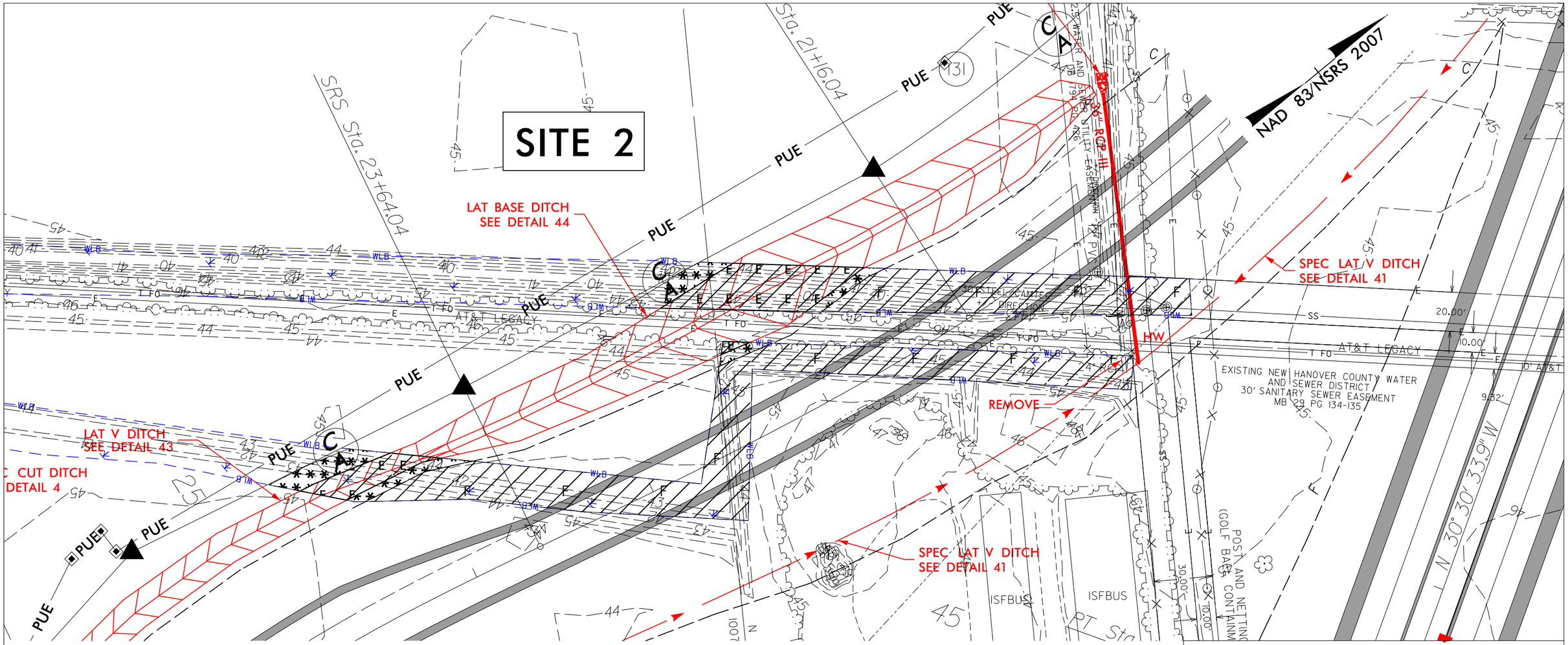
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

PROJECT: 40191.1.2 (U-4751)

SR 1409 (MILITARY CUTOFF ROAD) TO US 17 IN WILMINGTON

07 / 05 / 16



E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

* * * * * * * * * DENOTES MECHANIZED CLEARING

PLAN VIEW

50' 0' 50'

GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

PROJECT: 40191.1.2 (U-4751)

SR 1409 (MILITARY CUTOFF ROAD) TO US 17 IN WILMINGTON

07/05/16

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4751	X-147

PERMIT DRAWING SHEET 9 OF 81

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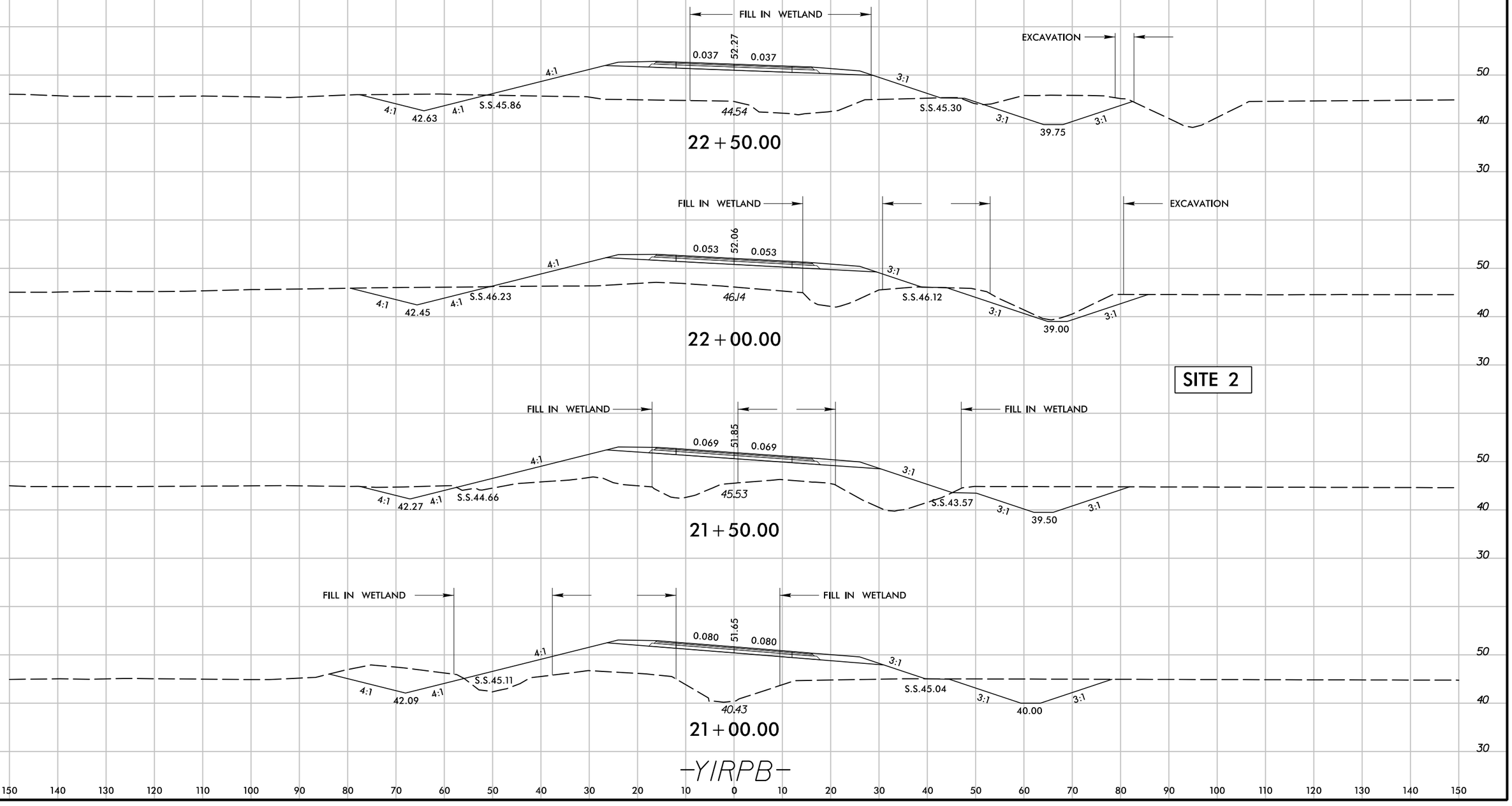

-YIRPB-

7/1/2016
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BewleyD

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900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 10 OF 81

NAD 83/NSRS 2007

MATCHLINE -Y1RPB- STA 19+50 (SHEET 6)

MATCHLINE -L- STA 49+00 (SHEET 6)

MATCHLINE -L- STA 58+00 (SHEET 8)

(131) G&I VI CAPE HARBOR LP
DB 5287 PG 2790
DB 1528 PG 459

(177) NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 25 PG 98
MB 2 PG 241

(128) NIXON ASSOCIATES, LLC.
DB 3174 PG 337
DB 4194 PG 582
MB 25 PG 98
MB 2 PG 241

CAROLINA POWER AND LIGHT CO
DB 1438 PG 500
DB 9765 PG 1442
DB 5352 PG 201
(MAP) DB 1438 PG 502

(176) POWER SUBSTATION

-YIRPB- POT Sta. 10+00.00 =
-L- POT Sta. 57+18.95, 35.50' LT
Δ = 4° 07' 00"

-YIRPA- POT Sta. 10+00.00 =
-L- POT Sta. 51+62.32, 35.50' RT
Δ = 0° 00' 00"

SITE 3

SITE 3

SC Sta. 16+48.00

TS Sta. 14+50.00

SC Sta. 11+68.00

CLASS 'B' RIP RAP
EST. 8 TONS
21 SY GEOTEXTILE
ON BANK ONLY

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

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

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

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

SPEC CUT DITCH
SEE DETAIL 5

CORRIDOR LIMIT LINE
MB 2 PG 241

30' RCP-III

42" RCP-III

48" RCP-III

72" CHL 35BW

PUE

30' EASEMENT

100' EASEMENT

N 55°41'54" W 300.30'

N 55°54'53" W 307.11'

N 35°43'59" E 216.66'

N 55°18'18" W 19.61'

S 55°48'39" E 62.26'

S 26°23'33.9" E

N 30°30'33.9" W

S 42°29'46" W 68.43'

100' 0' 100'
GRAPHIC SCALE

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 49 FOR -Y1RPA- PROFILE
SEE SHEET 51 FOR -Y1RPB- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/6/2016
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bowlag

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NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 11 OF 81

NAD 83/NSRS 2007

MATCHLINE -Y1RPB- STA 19+50 (SHEET 6)

MATCHLINE -L- STA 49+00 (SHEET 6)

MATCHLINE -L- STA 58+00 (SHEET 8)

(131) G&I VI CAPE HARBOR LP
DB 5287 PG 2790
DB 1528 PG 459

(177) NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 25 PG 98
MB 2 PG 241

(128) NIXON ASSOCIATES, LLC.
DB 3174 PG 337
DB 4194 PG 582
MB 25 PG 98
MB 2 PG 241

(176) CAROLINA POWER AND LIGHT CO.
DB 1438 PG 500
DB 976S PG 1442
DB 5352 PG 201
(MAP) DB 1438 PG 502

-YIRPB- POT Sta. 10+00.00 =
-L- POT Sta. 57+18.95, 35.50' LT
Δ = 4° 07' 00"

-YIRPA- TS Sta. 10+00.00 =
-L- POT Sta. 51+62.32, 35.50' RT
Δ = 0° 00' 00"

SITE 3

SC Sta. 16+48.00
TS Sta. 14+50.00
SC Sta. 11+68.00

CLASS 'B' RIP RAP
EST. 8 TONS
27 SY GEOTEXTILE
ON TANK ONLY

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

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

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

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

SPEC. CUT DITCH
SEE DETAIL D

CORRIDOR LIMIT LINE
MB 2 PG 241

PUE
30' EASEMENT
100' EASEMENT
EXISTING 30' CAROLINA WATER AND SEWER SERVICE EASEMENT
30' CAROLINA WATER AND SEWER SERVICE EASEMENT
DB 5287 PG 2790
DB 1528 PG 459

POWER SUBSTATION

S 26° 23' 33.9" E
N 30° 30' 33.9" W
S 55° 44' 39" E 62.26'
S 43° 29' 46" W 68.43'

72" CHL 35BW

100' 0' 100'
GRAPHIC SCALE

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 49 FOR -Y1RPA- PROFILE
SEE SHEET 51 FOR -Y1RPB- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/6/2016
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bowlag

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4751	X-22

PERMIT DRAWING
SHEET 12 OF 81

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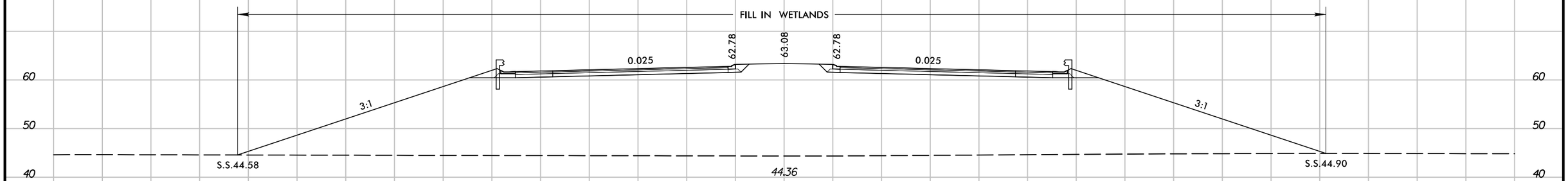
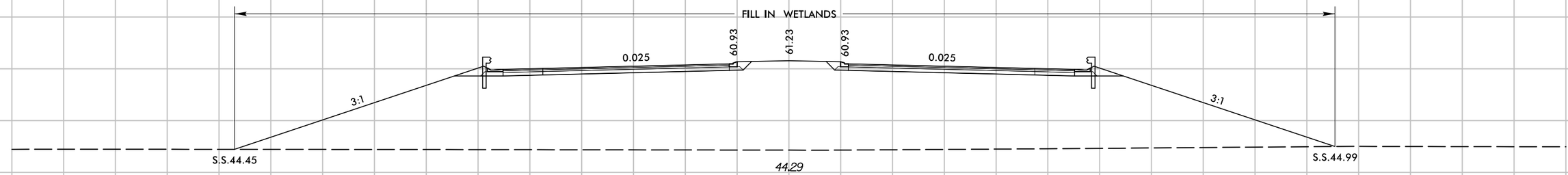
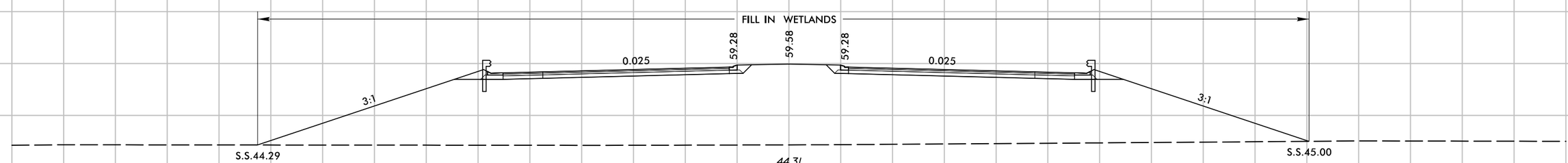


59 + 00.00

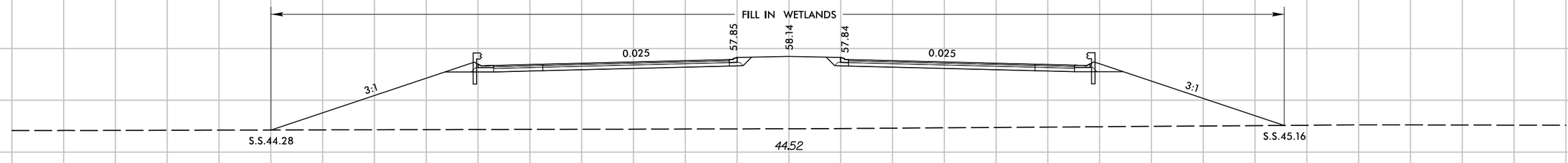


58 + 50.00

SITE 3



58 + 00.00



57 + 50.00

—L—

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Bowland

PROJECT REFERENCE NO.	SHEET NO.
U-4751	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PERMIT DRAWING SHEET 13 OF 81

NAD 83/NSRS 2007

SITE 3

SITE 4

POC Sta. 14+06.42

-L- POT Sta. 62+99.10 =
-Y2- POC Sta. 14+79.99

POT Sta. 9+92.33

PC Sta. 11+59.40

PT Sta. 17+37.25

POT Sta. 19+17.42

PCC Sta. 16+02.57

S 68°04'13.3" E

N 64°59'13.9" E

N 30°30'33.9" W

N 17°24'32" W
330.46'

N 84°41'37" W
326.68'

S 05°03'14" W
564.08'

MATCHLINE -L- STA 58+00 (SHEET 7)

MATCHLINE -L- STA 70+00 (SHEET 9)

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

CORRIDOR LIMIT LINE
MB 2 PG 241

30' CFPUA EASEMENT

EXISTING NEW HANOVER COUNTY WATER AND SEWER DISTRICT 30' SANITARY SEWER EASEMENT MB 36 PG 301-303

NCDOT GPS MON. U-4751-6

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 25 PG 98
MB 2 PG 241

177

178

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

PROGRESS ENERGY 100' R/W

PROGRESS ENERGY TRANSMISSION LINE

PROGRESS ENERGY POST

30' WD RAIL

10' RIP RAP

12' RWPD

CFPU

PUE

WD POSTS

100' 0' 100'
GRAPHIC SCALE

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 37 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS
SEE SHEET 2B-2 FOR BRIDGE / PAVEMENT RELATIONSHIP

7/6/2016
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Rowland

PROJECT REFERENCE NO.	SHEET NO.
U-4751	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Charlotte, NC 28202
NC License Number F-0991

PERMIT DRAWING SHEET 14 OF 81

NAD 83/NSRS 2007

SITE 3

SITE 4

POC Sta. 14+06.42

-L- POT Sta. 62+99.10 =
-Y2- POC Sta. 14+79.99

PCC Sta. 16+02.51

POT Sta. 19+17.42

PC Sta. 11+59.40

PT Sta. 17+37.25

POT Sta. 9+92.33

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

MATCHLINE -L- STA 58+00 (SHEET 7)

MATCHLINE -L- STA 70+00 (SHEET 9)

CORRIDOR LIMIT LINE
MB 2 PG 241

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 25 PG 98
MB 2 PG 241

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

30' CFPUA EASEMENT

EXISTING NEW HANOVER COUNTY WATER AND SEWER DISTRICT 30' SANITARY SEWER EASEMENT MB 36 PG 301-303

30' CFPUA EASEMENT

NCDOT GPS MON. U-4751-6

PROGRESS ENERGY 100' R/W

PROGRESS ENERGY 150' R/W

PUE

N 30° 30' 33.9" W

S 68° 04' 13.3" E

N 64° 59' 13.9" E

N 17° 24' 32" W
330.46'

N 84° 41' 37" W
326.68'

S 05° 03' 14" W
560.08'

100' 0' 100'
GRAPHIC SCALE

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 37 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS
SEE SHEET 2B-2 FOR BRIDGE / PAVEMENT RELATIONSHIP

7/6/2016
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Revised

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STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 15 OF 81

NAD 83/NSRS 2007
SUNCOM

MATCHLINE -L- STA 70+00 (SHEET 8)

MATCHLINE -L- STA 83+00 (SHEET 10)

SITE 4

SITE 4

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 2 PG 241

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

PROGRESS ENERGY EASEMENT
DB 5508 PG 2302
CORRIDOR LIMIT LINE MB 2 PG 241

PC Sta. 79+89.18

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

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

TORCHWOOD DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

STEVENS BUILDING, CO.
DB 5861 PG 2337
MB 59 PG 88-90

STEVENS BUILDING, CO.
DB 5861 PG 2384
MB 59 PG 88-90

TORCHWOOD DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 5705 PG 735
DB 5665 PG 1055
MB 57 PG 245
MB 2 PG 241

HILL
ABBY GLOVER
RONALD RAHIM III
DB 5649 PG 2178
MB 56 PG 170

KOSSLOW
ZACHARY W
DB 5643 PG 1693
MB 56 PG 170

COWELL
NICHOLAS ETAL

BAIN
BRANDON C ETAL
DB 5666 PG 598
MB 56 PG 170

LALOMIA
BARRY P
DB 5625 PG 2847
MB 56 PG 170

TRUONG
TOMMY V ETAL
DB 5684 PG 1444
MB 56 PG 170

EVANS
DAVID L & ELIZABETH
DB 5733 PG 1010
MB 56 PG 170

ANTWAN ROBINSON DALY
DB 5772 PG 85
MB 56 PG 170

TREVOR HUGHES
DB 5797 PG 1258
MB 56 PG 170

TIMOTHY TYRONE WILSON
DB 5839 PG 1183
MB 56 PG 170

BROWN
KASEY SARAH
DB 5663 PG 1515
MB 56 PG 170

BENTON
KENNETH H JR
DB 5696 PG 1967
MB 56 PG 170

MITIGATION RESERVED AREA
MB 56 PG 170

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 37 FOR -L- PROFILE

100' 0' 100'
GRAPHIC SCALE

7/6/2016
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900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 16 OF 81

NAD 83 NSRS 2007

MATCHLINE -L- STA 70+00 (SHEET 8)

MATCHLINE -L- STA 83+00 (SHEET 10)

SITE 4

SITE 4

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 2 PG 241

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

PROGRESS ENERGY EASEMENT
DB 8508 PG 2302
W CORRIDOR LIMIT LINE MB 2 PG 241

PC Sta. 79+89.18

TORCHWOOD DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

STEVENS BUILDING CO.
DB 5861 PG 2384
MB 59 PG 88-90

TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 2705 PG 735
DB 5665 PG 1055
MB 57 PG 245
MB 2 PG 241

HILL
ABBY GLOVER
RONALD RAHIM III
DB 5649 PG 2178
MB 56 PG 170

COWELL
NICHOLAS ETAL

KOSSLOW
ZACHARY W
DB 5643 PG 1693
MB 56 PG 170

BAIN
BRANDON C ETAL
DB 5666 PG 598
MB 56 PG 170

LALOMIA
BARRY P
DB 5625 PG 2847
MB 56 PG 170

TRUONG
TOMMY V ETAL
DB 5684 PG 1444
MB 56 PG 170

EVANS DAVID L & ELIZABETH
DB 5733 PG 1010
MB 56 PG 170

ANTWAN ROBINSON DALY
DB 5772 PG 85
MB 56 PG 170

TREVOR HUGES
DB 5757 PG 1258
MB 56 PG 170

TIMOTHY TYRONE WILSON
DB 5839 PG 1183
MB 56 PG 170

BROWN
KASEY SARAH
DB 5663 PG 1515
MB 56 PG 170

BENTON
KENNETH H JR
DB 5696 PG 1967
MB 56 PG 170

MITIGATION RESERVED AREA
MB 56 PG 170

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

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

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 37 FOR -L- PROFILE

100' 0' 100'
GRAPHIC SCALE

7/6/2016
R:\Highways\Projects\PERMITS_Environmental\Drawings\U4751_Hyd_prm_wet_psh09_con.dgn

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4751	X-28

PERMIT DRAWING
SHEET 17 OF 81

SITE 4

FILL IN WETLANDS

0.025 | 57.24 | 57.54 | 57.24 | 0.025

3:1 | 3:1 | 3:1 | 3:1

S.S.45.39 | S.S.43.52

43.66

68 + 50.00

FILL IN WETLANDS

0.025 | 59.11 | 59.41 | 59.11 | 0.025

3:1 | 3:1 | 3:1 | 3:1

S.S.44.73 | S.S.43.80

43.83

68 + 00.00

FILL IN WETLANDS

0.025 | 60.98 | 61.28 | 60.98 | 0.025

3:1 | 3:1 | 3:1 | 3:1

S.S.44.38 | S.S.44.00

43.77

67 + 50.00

FILL IN WETLANDS

0.025 | 62.85 | 63.15 | 62.85 | 0.025

3:1 | 3:1 | 3:1 | 3:1

S.S.44.18 | S.S.43.99

43.81

67 + 00.00

—L—

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

60 50 40 30

7/1/2016
R:\Hydraulics\PERMITS_Environmental\Drawings\U-4751_Hyd_prm_XPL_L1.dgn
Bowyjo

PROJECT REFERENCE NO.	SHEET NO.
U-4751	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PERMIT DRAWING SHEET 18 OF 81

F / F — DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SITE 5

SAVANA LAND COMPANY, LLC
DB 4885 PG 1389
MB 59 PG 164-165

TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 5705 PG 735
DB 5665 PG 1055
MB 57 PG 245
MB 2 PG 241

POT Sta. 10+00.00
-Y3- POT Sta. 12+35.00
-Y23- POT Sta. 11+85.00
-Y3- POT Sta. 12+35.00 = -Y23- POT Sta. 11+85.00
-L- POT Sta. 92+69.38
-Y3- POC Sta. 14+68.70
POT Sta. 9+92.51
PT Sta. 13+14.58
PT Sta. 15+57.35
POT Sta. 19+85.30

CLASS B RIP RAP EST 16 TONS w/ #2 ST GEOTEXTILE

REMOVE EXIST. FLUME

SPEC LAT DITCH SW CLASS A RIP RAP SEE DETAIL 8

MATCHLINE -L- STA 83+00 (SHEET 9)

MATCHLINE -L- STA 96+00 (SHEET 11)

NAD 83/NSRS 2007

100′ 0′ 100′
GRAPHIC SCALE

BRADFIELD CT	4,300 / 5,100		
MILITARY CUTOFF RD	1,200 / 1,500	1,600 / 1,800	MILITARY CUTOFF RD
	21,900 / 46,500		23,100 / 47,900
PUTNAM DR	900 / 1,200	1,600 / 2,400	
		4,000 / 5,300	
			2017 / 2037

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 6B FOR -L- PROFILE
SEE SHEET 6G FOR -Y3- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/6/2016
R:\STIPROJECTS\Projects\PERMITS_Environmental\Drawings\U4751_Hyd_prm_set_psh10.dgn
bowden

PROJECT REFERENCE NO.	SHEET NO.
U-4751	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PERMIT DRAWING SHEET 19 OF 81

F / F — DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SITE 5

SAVANA LAND COMPANY, LLC
DB 4885 PG 1389
MB 59 PG 164-165

TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 5705 PG 735
DB 5665 PG 1055
MB 57 PG 245
MB 2 PG 241

-Y3- POT Sta. 12+35.00
-Y23- POT Sta. 11+85.00
-Y3- POT Sta. 12+35.00 = -Y23- POT Sta. 11+85.00
POT Sta. 10+00.00
-L- POT Sta. 92+69.38
-Y3- POC Sta. 14+68.70
POT Sta. 9+92.51
PT Sta. 15+57.35
POT Sta. 19+85.30
POT Sta. 13+14.58

MATCHLINE -L- STA 83+00 (SHEET 9)

MATCHLINE -L- STA 96+00 (SHEET 11)

NAD 83/NSRS 2007

100' 0' 100'
GRAPHIC SCALE

	BRADFIELD CT	
MILITARY CUTOFF RD	4,300 / 5,100	1,600 / 1,800
	1,200 / 1,500	MILITARY CUTOFF RD
	21,900 / 46,500	23,100 / 47,900
	900 / 1,200	1,600 / 2,400
PUTNAM DR	4,000 / 5,300	2017 / 2037

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 3B FOR -L- PROFILE
SEE SHEET 3G FOR -Y3- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/6/2016
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4751	X-36

PERMIT DRAWING
SHEET 20 OF 81

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

50 40 30

3:1

S.S.47.43

51.23 0.040 49.63 49.25 48.82 0.040 47.11

41.87

86 + 50.00

3:1

S.S.46.71

51.48 0.040 49.88 49.50 49.07 0.040 47.36

41.86

86 + 00.00

51.73 0.040 50.13 49.75 49.32 0.040 47.61

41.40

85 + 50.00

SITE 5

MECHANIZED CLEARING

51.98 0.040 50.38 50.00 49.57 0.040 47.86

43.01

85 + 00.00

52.23 0.040 50.63 50.25 49.82 0.040 48.11

42.71

84 + 50.00

—℄—

7/1/2016
R:\Projects\PERMITS_Environmental\Drawings\U-4751_Hyd_prm_XPL_L1.dgn
Bowland

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900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 5

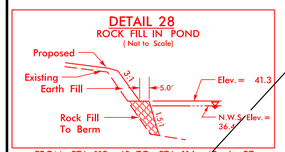
PERMIT DRAWING SHEET 21 OF 81

50 25 0 50 100
PLANS
NAD 83/NSRS 2007

DETAIL 9
LATERAL 'V' DITCH
(Not to Scale)

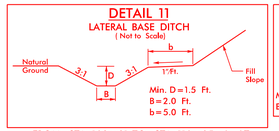
FROM STA. 13+25 TO STA. 14+20 -Y4- RT

DETAIL 28
ROCK FILL IN POND
(Not to Scale)



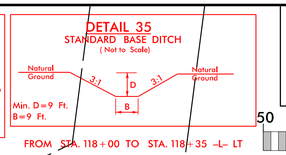
FROM STA. 112+40 TO STA. 116+40 -L- RT

DETAIL 11
LATERAL BASE DITCH
(Not to Scale)



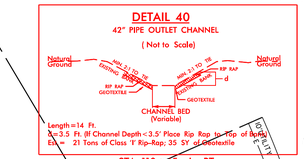
FROM STA. 108+91 TO STA. 110+35 -L- LT
FROM STA. 117+50 TO STA. 119+50 -L- RT

DETAIL 35
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 118+00 TO STA. 118+35 -L- LT

DETAIL 40
42" PIPE OUTLET CHANNEL
(Not to Scale)



STA. 110+45 -L- RT

DETAIL 54
LATERAL BASE DITCH
(Not to Scale)

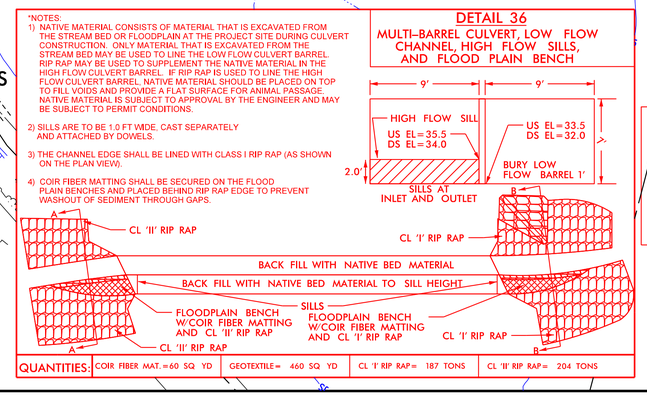
FROM STA. 104+25 TO STA. 110+35 -L- RT

PILAR ANDRADE HERNADEZ
LISA OTERO LOPEZ
KRISTIAN A SIEMON
DEAN K KITTLESON
LE H NGUYEN
LORAN H SMITH
AUSTIN TYLER MOZINGO
RICHARD D DUNCKLEE
MELISSA A MADSEN
COURTNEY PINES HOA
JIE MA CHEN
JEFFERY S POPE
DANIEL J BROWN
WHITNEY PINES HOA
BRIARPARK DR
WALKING HORSE COURT
WOODHALL DRIVE
BRIAR PARK LANE
ISFD
72" WD
40' DRAINAGE EASEMENT
20' UTILITY EASEMENT
UTILITY EASEMENT
EXISTING R/W
R=40'
R=250'
S 37° 27' 52.1" E
S 27° 42' 52.4" E
N 40° 53' 04.9" E
MILITARY CUT-OFF RD
MATCHLINE -L- STA 109+00 (SHEET 11)
MATCHLINE -L- STA 122+00 (SHEET 13)

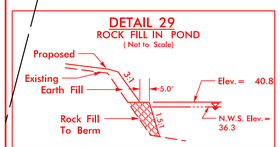
WHITNEY PINES HOA
CLASS 'B' RIP RAP
EST 2 TONS
7 SY GEOTEXTILE
OPEN SPACE / CLASS I DRAINAGE EASEMENT COMMON AREA
LAT V DITCH
SEE DETAIL 9
SITE 7
SITE 8
RWPD (RAW WATER - PEE DEE AQUIFER)
SITE 10
SITE 11
SITE 12
SITE 9
SITE 6
LAT 2' BASE DITCH
SEE DETAIL 11
CLASS 'B' RIP RAP
EST 17 TONS
34 SY GEOTEXTILE
CLASS 'I' RIP RAP
EST 22 TONS
39 SY GEOTEXTILE
9" BASE DITCH
EST DDE= +/- 1200 CY
SEE DETAIL 35
EXCAVATE TO NATURAL BED
EST DDE 1,110 CY
FLOODPLAIN BENCH
SEE DETAIL 36
15" RCP-IV
18" RCP-III
24" RCP-IV
CB
DI
JB
MH
JS
TS
TDE
DUE
PUE
S
SAVANA LAND COMPANY LLC
MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 241-250
20' DRAINAGE EASEMENT (MB 34 PG 78)
16" CPEP
13" SOIL
DITCH BLOCK
10' PUBLIC DRAINAGE INLET & EASEMENT MB 52 PG 324
BURY INLET & OUTLET 1.0'
2@42" RCP-IV
CLASS 'I' RIP RAP ON BANKS ONLY SEE DETAIL 40
LAT 2' BASE DITCH SEE DETAIL 54
CLASS 'I' RIP RAP EST. 25 TONS 40 SY GEOTEXTILE
HOLLY FIELD @ WEST BAY EST HOA
FLOODPLAIN BENCH SEE DETAIL 36
ROCK FILL SEE DETAIL 28 EST 11000 TONS
CLASS 'B' RIP RAP EST. 5 TONS 14 SY GEOTEXTILE
LAT 2' BASE DITCH W/ CL 'I' RIP RAP SEE DETAIL 12
LAT 2' BASE DITCH SEE DETAIL 11
ROCK FILL SEE DETAIL 29 EST 6200 TONS
TIDEWOOD DEVELOPMENT CORP
CHRISTOPHER M SMITH
LENDRE RD
PUBLIC DRAINAGE EASEMENT MB 52 PG 324
20' DRAINAGE EASEMENT MB 52 PG 324
EXISTING R/W

S:x0,y0,x1,y1 = S:0.113,0.080,0.211,0.192

DETAIL 36
MULTI-BARREL CULVERT, LOW FLOW CHANNEL, HIGH FLOW SILLS, AND FLOOD PLAIN BENCH

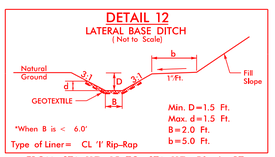


DETAIL 29
ROCK FILL IN POND
(Not to Scale)



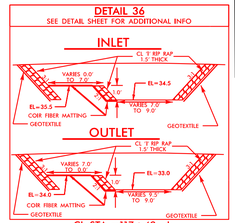
FROM STA. 120+35 TO STA. 127+70 -L- RT

DETAIL 12
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 117+15 TO STA. 117+50 -L- RT

DETAIL 36
SEE DETAIL SHEET FOR ADDITIONAL INFO



CL STA.=117+49 -L-

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 60 FOR -Y4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS

7/4/2016
U4751_hyd_prm_wet_psh_12.dgn
jasonpeven

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 5

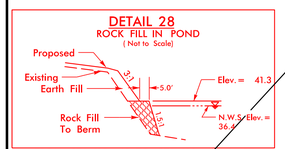
PERMIT DRAWING SHEET 22 OF 81

50 25 0 50 100
PLANS
NAD 83/NSRS 2007

DETAIL 9
LATERAL 'V' DITCH
(Not to Scale)

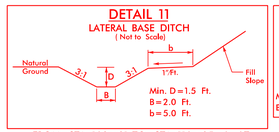
FROM STA. 13+25 TO STA. 14+20 -Y4- RT

DETAIL 28
ROCK FILL IN POND
(Not to Scale)



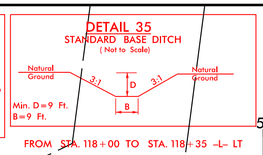
FROM STA. 112+40 TO STA. 116+10 -L- RT

DETAIL 11
LATERAL BASE DITCH
(Not to Scale)



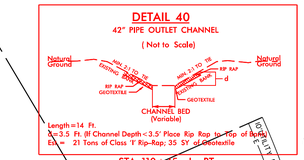
FROM STA. 108+91 TO STA. 110+35 -L- LT
FROM STA. 117+50 TO STA. 119+50 -L- RT

DETAIL 35
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 118+00 TO STA. 118+35 -L- LT

DETAIL 40
42" PIPE OUTLET CHANNEL
(Not to Scale)

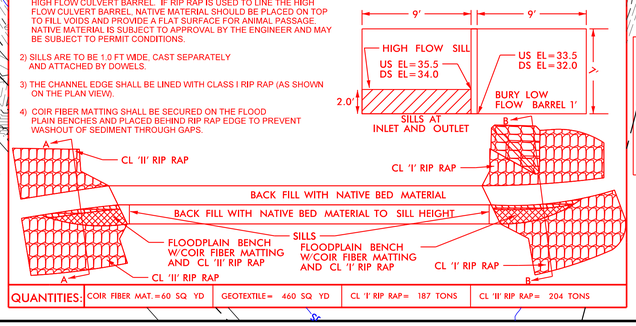


STA. 110+45 -L- RT

DETAIL 54
LATERAL BASE DITCH
(Not to Scale)

FROM STA. 104+25 TO STA. 110+35 -L- RT

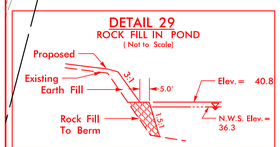
DETAIL 36
MULTI-BARREL CULVERT, LOW FLOW CHANNEL, HIGH FLOW SILLS, AND FLOOD PLAIN BENCH



*NOTES:
1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
2) SILLS ARE TO BE 1.0 FT WIDE. CAST SEPARATELY AND ATTACHED BY DOWELS.
3) THE CHANNEL EDGE SHALL BE LINED WITH CLASS I RIP RAP (AS SHOWN ON THE PLAN VIEW).
4) COIR FIBER MATTING SHALL BE SECURED ON THE FLOOD PLAIN BENCHES AND PLACED BEHIND RIP RAP EDGE TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.

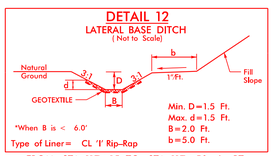
QUANTITIES: COIR FIBER MAT.=60 SQ YD | GEOTEXTILE= 460 SQ YD | CL 'I' RIP RAP= 187 TONS | CL 'II' RIP RAP= 204 TONS

DETAIL 29
ROCK FILL IN POND
(Not to Scale)



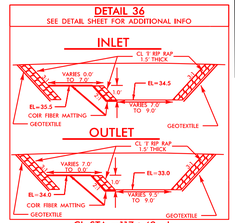
FROM STA. 120+35 TO STA. 127+70 -L- RT

DETAIL 12
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 117+15 TO STA. 117+50 -L- RT

DETAIL 36
SEE DETAIL SHEET FOR ADDITIONAL INFO



CL STA.=117+49 -L-

S DENOTES IMPACTS IN SURFACE WATER

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 60 FOR -Y4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS

MATCHLINE -L- STA 109+00 (SHEET 1)

MATCHLINE -L- STA 122+00 (SHEET 13)

SITE 6 | SITE 7 | SITE 8 | SITE 9 | SITE 10 | SITE 11 | SITE 12

PILAR ANDRADE HERNADEZ | LISA OTERO LOPEZ | KRISTIAN A SIEMON | DEAN K KITTLESON | LE H NGUYEN | LORAN H SMITH | AUSTIN TYLER MOZINGO | RICHARD D DUNCKLEE | MELISSA A MADSEN | COURTNEY PINES HOA | JIE MA CHEN | JEFFERY S POPE | DANIEL J BROWN | CHRISTOPHER M SMITH | HOLLY FIELD @ WEST BAY EST HOA | SAVANA LAND COMPANY,LLC

BRIARPARK DR | WALKING HORSE COURT | LENDIRE RD | MILITARY CUT-OFF RD | MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 241-250

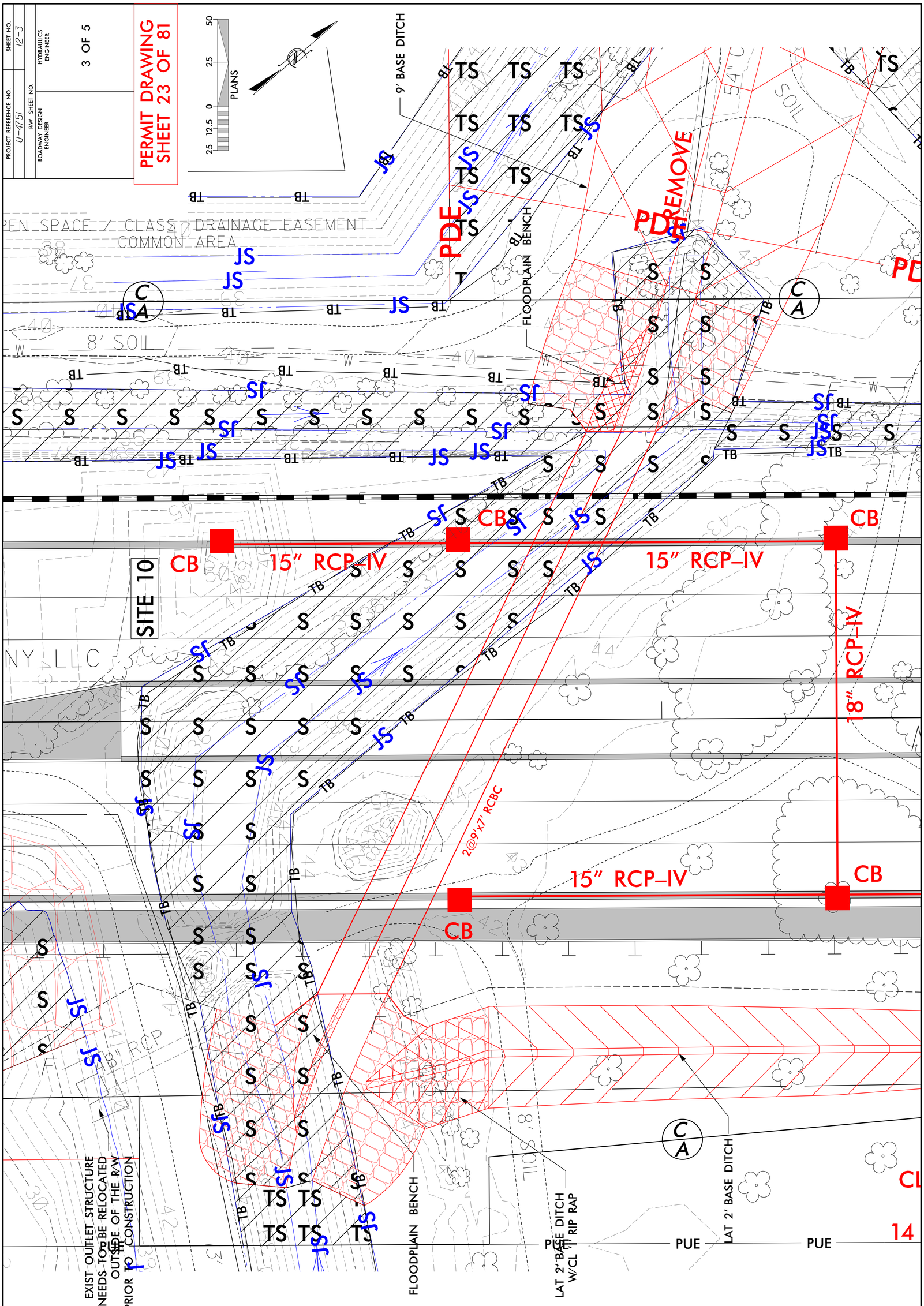
S 53° 27' 42" E 524.47' | S 53° 27' 52" E | S 53° 24' 26" E 267.47' | N 40° 53' 04" E

WHITNEY PINES HOA | OPEN SPACE / CLASS I DRAINAGE EASEMENT COMMON AREA | 20' DRAINAGE EASEMENT (MB 34 PG 78) | 40' DRAINAGE EASEMENT | 20' UTILITY EASEMENT | 20' PUBLIC DRAINAGE EASEMENT MB 52 PG 324

CLASS 'B' RIP RAP EST 2 TONS 7 SY GEOTEXTILE | LAT 'V' DITCH SEE DETAIL 9 | CLASS 'I' RIP RAP EST 20 TONS 39 SY GEOTEXTILE | LAT 2' BASE DITCH SEE DETAIL 11 | CLASS 'B' RIP RAP EST 17 TONS 34 SY GEOTEXTILE | DITCH BLOCK | CLASS 'I' RIP RAP EST 25 TONS 48 SY GEOTEXTILE | LAT 2' BASE DITCH SEE DETAIL 54 | 9' BASE DITCH EST DDE= +/- 1200 CY SEE DETAIL 35 | EXCAVATE TO NATURAL BED EST DDE 1,110 CY | FLOODPLAIN BENCH SEE DETAIL 36 | CLASS 'B' RIP RAP EST. 5 TONS 14 SY GEOTEXTILE | LAT 2' BASE DITCH W/CL 'I' RIP RAP SEE DETAIL 12 | LAT 2' BASE DITCH SEE DETAIL 11 | ROCK FILL SEE DETAIL 28 EST 11000 TONS | ROCK FILL SEE DETAIL 29 EST 6200 TONS | 890' R CLASS 'I' RIP RAP ON BANKS ONLY SEE DETAIL 40 | BURY INLET & OUTLET 1.0' | 2@42" RCP-IV | 18" RCP-III | 15" RCP-IV | 24" RCP-IV | 18" RCP-IV | 42" RCP-III | 18" RCP-III | 13' SOIL | 7' SOIL | 6' CFPD | 5' CFPD | 4' CFPD | 474.36' R | 360' L | 380' L | 1130' R | 890' R | 1120' R | 1110' R

PROJECT REFERENCE NO. U-4751 | SHEET NO. 12 | R/W SHEET NO. | ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER | 2 OF 5

7/4/2016
U4751_hyd_prm_wet_psh_12_con.dgn
jasonlaveen


PERMIT DRAWING
SHEET 23 OF 81
SHEET NO. 12-3
3 OF 5
HYDRAULICS ENGINEER
PROJECT REFERENCE NO. U-4751
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
PLANS
9' BASE DITCH
OPEN SPACE / CLASS I DRAINAGE EASEMENT
COMMON AREA
8' SOIL
FLOODPLAIN BENCH
PDE
REMOVE
SITE 10
CB
15" RCP-IV
18" RCP-IV
2@9'x7' RCBC
EXIST OUTLET STRUCTURE NEEDS TO BE RELOCATED OUTSIDE OF THE R/W PRIOR TO CONSTRUCTION
FLOODPLAIN BENCH
LAT 2' BASE DITCH W/CL
RIP RAP
LAT 2' BASE DITCH
PUE
PUE
CL
14
REVISIONS
8/17/99
7/1/2016
04751_hyd-prm_wet_psh_12-3_view-in.dgn
jasonbeaver

5/14/99

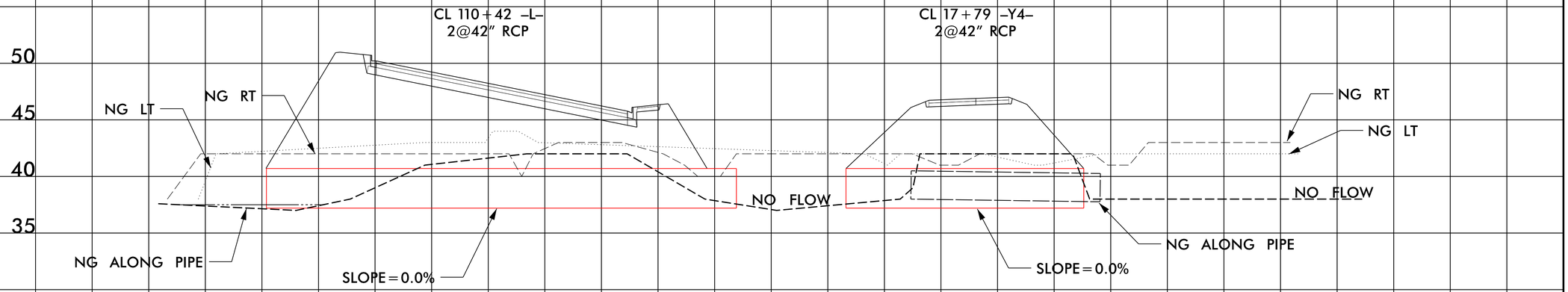
PROJECT REFERENCE NO.	SHEET NO.
	12-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	4 OF 5

25 12.5 0 25 50

PLANS

PERMIT DRAWING
SHEET 24 OF 81

SITE 6



7/1/2016
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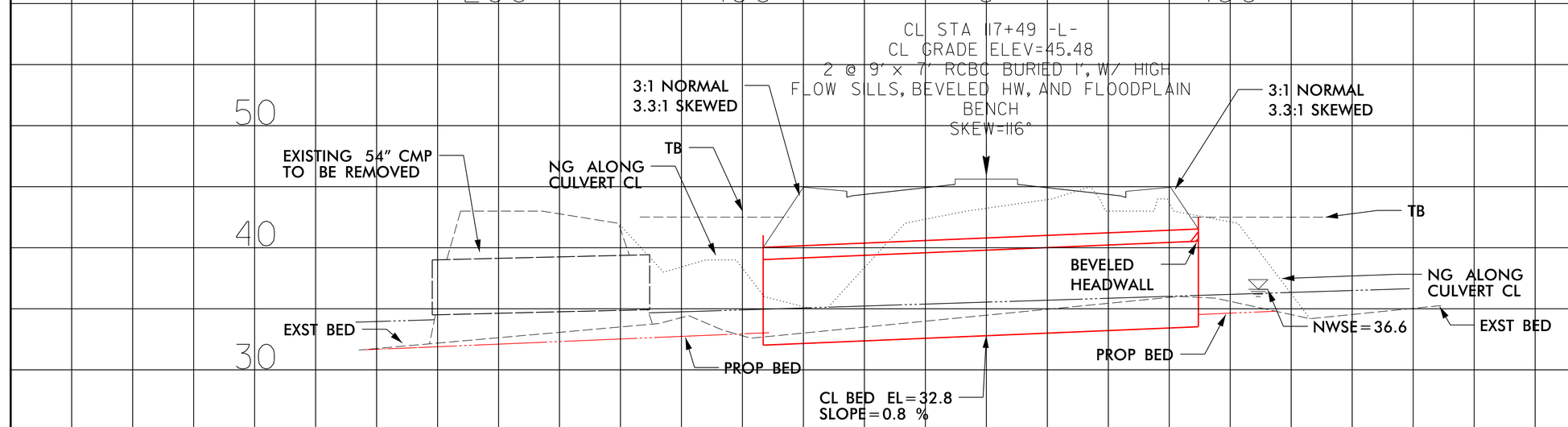
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
	12-4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	5 OF 5

25 12.5 0 25 50
PLANS

PERMIT DRAWING
SHEET 25 OF 81

SITE 10



7/1/2016
U4125_hyd_prm_wet_psh_12-5_xsc_10.dgn
dsanchez

50 25 0 50 100

PLANS

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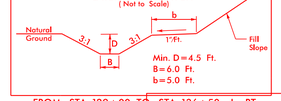
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 2

DETAIL 13
LATERAL BASE DITCH
(Not to Scale)



Min. D=4.5 Ft.
B=6.0 Ft.
b=5.0 Ft.

FROM STA. 129+00 TO STA. 136+50 -L- RT

PERMIT DRAWING
SHEET 26 OF 81

NAD 83/NSRS 2007

FIRST TROY SPE LLC
MORGAN B JOHNSON
FELICE FURINO
STACEY S SEARS
RANDY W CHANDLER
JOSHUA T FORYSTEK
THINH HUU PHAN
MICHAEL C MACGOVERN
THOMAS D HUGHES

MATCHLINE -L- STA 122+00 (SHEET 12)

MATCHLINE -L- STA 135+00 (SHEET 14)

TERRY LYNN BARNES
JANE A CONNOLLY
JACOB S RAINES
JAMIE P HOWELL
WILLIAM M BAYSDEN
ROY LANIER
KRISTOPHER M COTTLE
TONIA DAWN CABLE
KEVIN P MADSEN
PAUL TRAN
PATRICIA BARKER
GREG L BRYANT
DANIEL E CLEMENTS
DAVID E MOLKEY
BRIAN S HUNT
JASON C HERANDEZ
MATTHEW KYLE HOLCOMB
NATHAN S SNELL
JEFFREY C BASS
AMY R KROEPLIN
THERESA A KIDNEY
SAVANA LAND COMPANY, LLC

RAVENS GLASS COURT
BOW HUNTER DR
NEEDLEFISH CT
COURTNEY PINES HOA
TORCHWOOD BLVD
MILITARY CUTOFF RD
-L- MILITARY CUTOFF RD
-Y5- TORCHWOOD BLVD
-Y5A- TORCHWOOD BLVD
SR 2717 TORCHWOOD BLVD

SITE 11
SITE 12
SITE 13
SITE 14

LAT 2' BASE DITCH
SEE DETAIL 11

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

SPEC LAT 2' BASE DITCH W/CLASS 'B' RIPRAP
SEE DETAIL 10

LAT 6' BASE DITCH
SEE DETAIL 13

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

ROCK FILL
SEE DETAIL 29
EST 6200 TONS

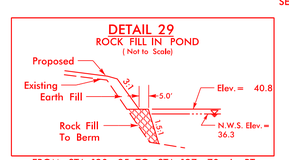
EXIST OUTLET STRUCTURE NEEDS TO BE REDESIGNED AND RELOCATED OUTSIDE OF THE R/W AND PIPED TO OUTFALL DITCH LOCATED AT STATION 129+00 -L- RT. REGRADING OF THE WET DETENTION BASIN MAY ALSO BE REQUIRED. (THE REDESIGN TO BE DONE BY DEVELOPER)

TORCHWOOD BLVD	3,300	3,900
MILITARY CUTOFF RD	900	900
MILITARY CUTOFF RD	1,000	1,200
MILITARY CUTOFF RD	23,600	48,700
MILITARY CUTOFF RD	23,900	49,100
	1,500	2,100
	1,600	2,200
TORCHWOOD BLVD	4,500	5,900
	2017	2037

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL 29
ROCK FILL IN POND
(Not to Scale)



FROM STA. 120+35 TO STA. 127+70 -L- RT

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 60 FOR -Y5- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/1/2016
U4751_plot_prm_wet_psh_13.dgn
jasonharvey

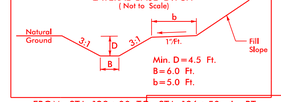
50 25 0 50 100

PLANS

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 2

DETAIL 13
LATERAL BASE DITCH
(Not to Scale)



Min. D=4.5 Ft.
B=6.0 Ft.
b=5.0 Ft.

FROM STA. 129+00 TO STA. 136+50 -L- RT

PERMIT DRAWING SHEET 27 OF 81

NAD 83/NSRS 2007

FIRST TROY SPE LLC
MORGAN B JOHNSON
FELICE FURINO
STACEY S SEARS
RANDY W CHANDLER
JOSHUA T FORYSTEK
THINH HUU PHAN
MICHAEL C MACGOVERN
THOMAS D HUGHES

MATCHLINE -L- STA 122+00 (SHEET 12)

MATCHLINE -L- STA 135+00 (SHEET 14)

TORCHWOOD BLVD
SR 2717
-Y5-
-L- MILITARY CUTOFF RD
RAVENS GLASS COURT
BOW HUNTER DR
NEEDLEFISH CT
SAVANA LAND COMPANY, LLC
MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 241-250
COURTNEY PINES
OPEN SPACE - COMMON AREA - CROSS DRAINAGE EASEMENT
20' DRAINAGE EASEMENT (MB 34 PG 78)
TORCHWOOD DEVELOPMENT 20' ACC

KRISTOPHER M COTTLE
TONIA DAWN CABLE
PAUL TRAN
KEVIN P MADSEN
JANE A CONNOLLY
JAMIE P HOWELL
TERRY LYNN BARNES
JACOB S RAINES
ROY LANIER
WILLIAM M BAYSDEN
FIRST TROY SPE LLC
PATRICIA BARKER
GREG L BRYANT
DANIEL E CLEMENTS
THERESA A KIDNEY
DAVID E MCKEY
MASON C HERANDEZ
MATTHEW KYLE HOLCOMBE
NATHAN S SNELL
JEFFREY C BASS
BRIAN S HUNT
AMY R KROEPLIN

SITE 11
SITE 12
SITE 13
SITE 14

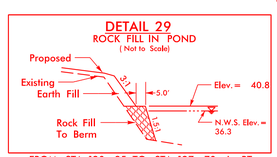
LAT 2' BASE DITCH SEE DETAIL 11
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
SPEC LAT 2' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 10
LAT 6' BASE DITCH SEE DETAIL 13
ROCK FILL SEE DETAIL 29 EST 6200 TONS
EXIST OUTLET STRUCTURE NEEDS TO BE REDESIGNED AND RELOCATED OUTSIDE OF THE R/W AND PIPED TO OUTFALL DITCH LOCATED AT STATION 129+00 -L- RT. REGRADING OF THE WET DETENTION BASIN MAY ALSO BE REQUIRED. (THE REDESIGN TO BE DONE BY DEVELOPER)
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 5 TONS 15 SY GEOTEXTILE
14 SY GEOTEXTILE
REMOVE

TORCHWOOD BLVD	3,300 / 3,900	
MILITARY CUTOFF RD	900 / 900	1,000 / 1,200
MILITARY CUTOFF RD	23,600 / 48,700	23,900 / 49,100
	1,500 / 2,100	1,600 / 2,200
TORCHWOOD BLVD	4,500 / 5,900	
		2017 / 2037

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL 29
ROCK FILL IN POND
(Not to Scale)



FROM STA. 120+35 TO STA. 127+70 -L- RT

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 60 FOR -Y5- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/1/2016
U-4751_plan_prm_wet_psh_13_con.dgn
jasonharvell

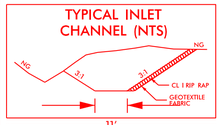
PROJECT REFERENCE NO.	SHEET NO.
U-4751	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 3

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

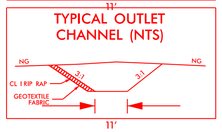
PERMIT DRAWING SHEET 28 OF 81

50 25 0 50 100
PLANS

TYPICAL INLET CHANNEL (NTS)



TYPICAL OUTLET CHANNEL (NTS)

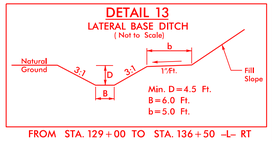


DETAIL 37
SINGLE BARREL RCBC
TYPICAL INLET AND
OUTLET CHANNELS

*CULVERT TO BE BACKFILLED WITH NATIVE MATERIAL TO A DEPTH OF 1.0'. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDTIONS.

CL STA. = 138 + 59 -L-

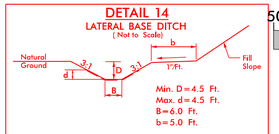
DETAIL 13
LATERAL BASE DITCH
(Not to Scale)



Min. D = 4.5 Ft.
B = 6.0 Ft.
b = 5.0 Ft.

FROM STA. 129 + 00 TO STA. 136 + 50 -L- RT

DETAIL 14
LATERAL BASE DITCH
(Not to Scale)

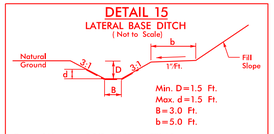


Min. D = 4.5 Ft.
Max. d = 4.5 Ft.
B = 6.0 Ft.
b = 5.0 Ft.

Type of Liner = COIR FIBER MATTING

FROM STA. 136 + 50 TO STA. 138 + 00 -L- RT

DETAIL 15
LATERAL BASE DITCH
(Not to Scale)

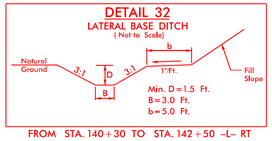


Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

Type of Liner = COIR FIBER MATTING

FROM STA. 142 + 50 TO STA. 143 + 75 -L- RT

DETAIL 32
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

FROM STA. 140 + 30 TO STA. 142 + 50 -L- RT

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007

MATCHLINE -L- STA 148+00 (SHEET 15)

MATCHLINE -L- STA 135+00 (SHEET 13)

LAT 6' BASE DITCH SEE DETAIL 20

SPEC LAT 2' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 10

CLASS 'I' RIP RAP EST. 88 TONS 185 SY GEOTEXTILE

CLASS 'B' RIP RAP EST. 8 TONS 21 SY GEOTEXTILE

CLASS 'B' RIPRAP EST. 8 TONS 21 SY GEOTEXTILE

CLASS 'B' RIP RAP EST. 73 TONS 153 SY GEOTEXTILE

LAT 3' BASE DITCH W/ COIR FIBER MATTING SEE DETAIL 15

LAT 3' BASE DITCH SEE DETAIL 32

LAT 6' BASE DITCH W/ COIR FIBER MATTING SEE DETAIL 14

LAT 6' BASE DITCH SEE DETAIL 12

REMOVE +/- 16FT EXIST 18" RCP

REMOVE

SITE 14

SITE 14

SAVANA LAND COMPANY, LLC

SAVANA LAND COMPANY, LLC

JANET M. VICK

BRADLEY R CARTER

TIMOTHY L ALLEN

JOHN HOLT

PROBERT THRONE

COURTNEY PINES HOA

JAMES R ROBERTSON

MARY ANNE MUNTO GEORGE A SCHMITT AMANDA MARSHALL

FRANKLIN RICHARD

MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 241-250

MILITARY CUT-OFF RD

CHARRED PINE DRIVE 50' PUBLIC R/W

NEW HANOVER COUNTY

PROGRESS ENERGY

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 61 FOR -Y6- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS

7/4/2016
U4751_hyd_prm_wet_psh_14.dgn
jasonharvey

PROJECT REFERENCE NO.	SHEET NO.
U-4751	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 3

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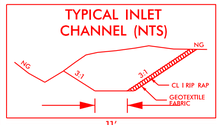
Charlotte, NC 28202
NC License Number F-0991

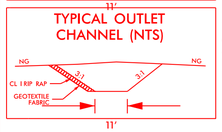
PERMIT DRAWING SHEET 29 OF 81

50 25 0 50 100
PLANS

TYPICAL INLET CHANNEL (NTS)



TYPICAL OUTLET CHANNEL (NTS)

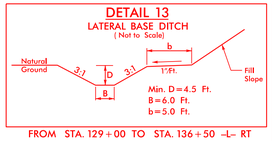


DETAIL 37
SINGLE BARREL RCBC
TYPICAL INLET AND
OUTLET CHANNELS

*CULVERT TO BE BACKFILLED WITH NATIVE MATERIAL TO A DEPTH OF 1.0'. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDTIONS.

CL STA. = 138+59 -L-

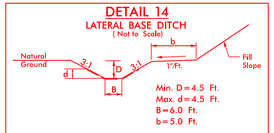
DETAIL 13
LATERAL BASE DITCH
(Not to Scale)



Min. D = 4.5 Ft.
B = 6.0 Ft.
b = 5.0 Ft.

FROM STA. 129+00 TO STA. 136+50 -L- RT

DETAIL 14
LATERAL BASE DITCH
(Not to Scale)

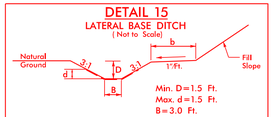


Min. D = 4.5 Ft.
Max. d = 4.5 Ft.
B = 6.0 Ft.
b = 5.0 Ft.

Type of Liner = COIR FIBER MATTING

FROM STA. 136+50 TO STA. 138+00 -L- RT

DETAIL 15
LATERAL BASE DITCH
(Not to Scale)

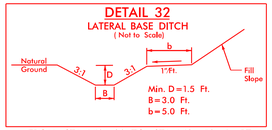


Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

Type of Liner = COIR FIBER MATTING

FROM STA. 142+50 TO STA. 143+75 -L- RT

DETAIL 32
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

FROM STA. 140+30 TO STA. 142+50 -L- RT

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007

MATCHLINE -L- STA 135+00 (SHEET 13)

MATCHLINE -L- STA 148+00 (SHEET 15)

SPEC LAT 2' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 10

CLASS 'I' RIP RAP EST. 88 TONS 185 SY GEOTEXTILE

LAT 6' BASE DITCH SEE DETAIL 20

CLASS 'B' RIP RAP EST. 8 TONS 21 SY GEOTEXTILE

LAT 3' BASE DITCH SEE DETAIL 32

CLASS 'B' RIPRAP EST. 8 TONS 21 SY GEOTEXTILE

LAT 3' BASE DITCH W/ COIR FIBER MATTING SEE DETAIL 15

CLASS 'B' RIP RAP EST. 75 TONS 156 SY GEOTEXTILE

LAT 6' BASE DITCH SEE DETAIL 12

LAT 6' BASE DITCH W/ COIR FIBER MATTING SEE DETAIL 14

SITE 14

SITE 14

SAVANA LAND COMPANY, LLC

SAVANA LAND COMPANY, LLC

JANET M. VICK

BRADLEY R CARTER

TIMOTHY L ALLEN

JOHN HOLT

ROBERT THRONE

COURTNEY PINES HOA

MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 241-250

MILITARY CUT-OFF RD

CHARRED PINE DRIVE 50' PUBLIC R/W

NEW HANOVER COUNTY

MARY ANNE MUNTO GEORGE A SCHMITT AMANDA MARSHALL

(2) WM'S ASSOCIATED ING FOUND

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 61 FOR -Y6- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS

7/4/2016
U4751_plot_prm_wet_psh_14_con.dgn
jasonharvey

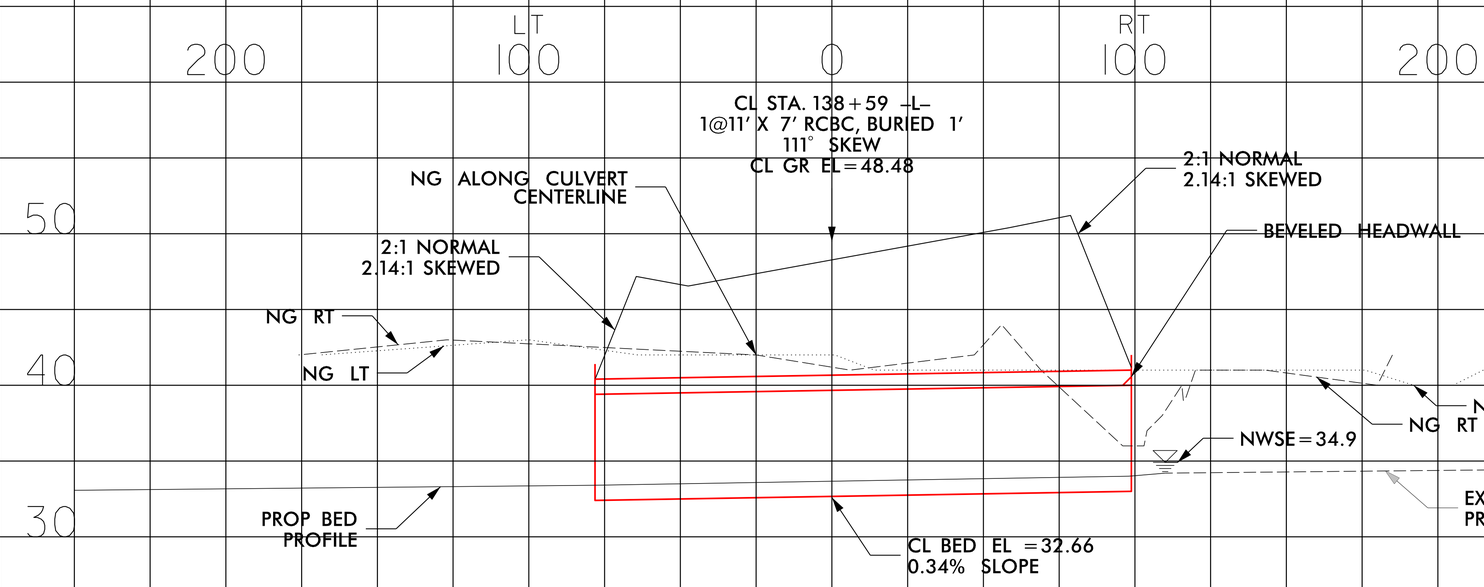
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
	14-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	3 OF 3

25 12.5 0 25 50
PLANS

PERMIT DRAWING
SHEET 30 OF 81

SITE 11



7/1/2016
U:\Projects\...\prm_wet_psh_14-3_xsc_14.dgn
jasonhyatt

PROJECT REFERENCE NO.	SHEET NO.
U-4751	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 4

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

50 25 0 50 100
PLANS

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

NAD 83/NSRS 2007

PERMIT DRAWING SHEET 31 OF 81

MATCHLINE -L- STA 148+00 (SHEET 14)

MATCHLINE -L- STA 161+00 (SHEET 16)

SITE 15

SITE 16

LAT 6' BASE DITCH SEE DETAIL 20

LAT B' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 15

FLOODPLAIN BENCH SEE DETAIL 38

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

CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE

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

ANDREW M. GALLACHER

HANOVER LAND, LLC

TURNSTONE PROPERTIES, INC

BOBBY R. CHESTER

ROMEO A. MISIERA

MILITARY CUT OFF RD

GRADE 350 TL-3

GRADE 250 TL-3

TYPE S-77

JB w/MH

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

10' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE

2435'R

2760'R

2720'R

2510'R

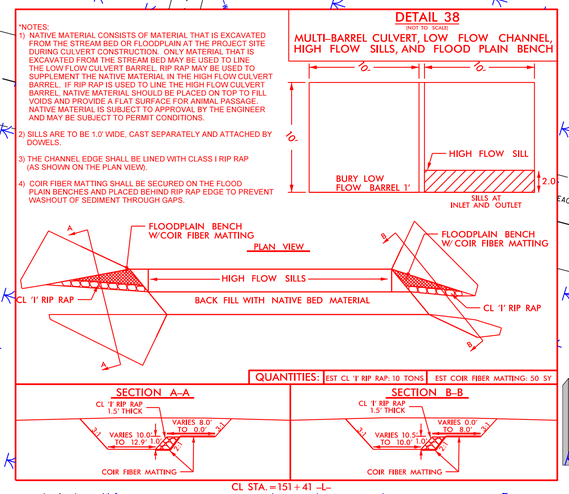
N 17°07'10.00" W

PT Sta. 158+02.80

DETAIL 38
NOT TO SCALE

MULTI-BARREL CULVERT, LOW FLOW CHANNEL, HIGH FLOW SILLS, AND FLOOD PLAIN BENCH

*NOTES:
1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
2) SILLS ARE TO BE 1.0' WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
3) THE CHANNEL EDGE SHALL BE LINED WITH CLASS I RIP RAP (AS SHOWN ON THE PLAN VIEW).
4) COIR FIBER MATTING SHALL BE SECURED ON THE FLOOD PLAIN BENCHES AND PLACED BEHIND RIP RAP EDGE TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.



QUANTITIES: EST CL 'I' RIP RAP: 10 TONS | EST COIR FIBER MATTING: 50 SY

CL STA. =151+41 -L-

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR STRUCTURE PLANS

7/4/2016
U4751_wetland_prm_wet_psh_15.dgn
jasonbarwell

PROJECT REFERENCE NO.	SHEET NO.
U-4751	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 4

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

50 25 0 50 100
PLANS

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

NAD 83/NSRS 2007

PERMIT DRAWING SHEET 32 OF 81

MATCHLINE -L- STA 148+00 (SHEET 14)

MATCHLINE -L- STA 161+00 (SHEET 16)

SITE 15

SITE 16

LAT 6' BASE DITCH SEE DETAIL 20

FLOODPLAIN BENCH SEE DETAIL 38

LAT B' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 15

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

CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE

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

ANDREW M. GALLACHER

HANOVER LAND, LLC

TURNSTONE PROPERTIES, INC

BOBBY R. CHESTER

ROMEO A. MISIERA

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

10' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE

MILITARY CUT OFF RD

N 17°07'10.00" W

PT Sta. 158+02.80

2435'R

2760'R

2720'R

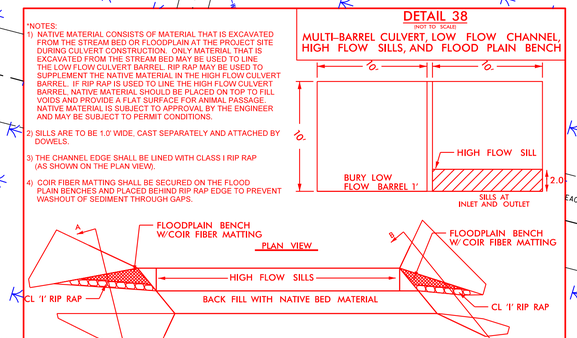
2510'R

GRAU 350 TL-3

JB w/MH

DETAIL 38
NOT TO SCALE
MULTI-BARREL CULVERT, LOW FLOW CHANNEL, HIGH FLOW SILLS, AND FLOOD PLAIN BENCH

*NOTES:
1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
2) SILLS ARE TO BE 1.0' WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
3) THE CHANNEL EDGE SHALL BE LINED WITH CLASS I RIP RAP (AS SHOWN ON THE PLAN VIEW).
4) COIR FIBER MATTING SHALL BE SECURED ON THE FLOOD PLAIN BENCHES AND PLACED BEHIND RIP RAP EDGE TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.



QUANTITIES: EST CL 'I' RIP RAP: 10 TONS | EST COIR FIBER MATTING: 50 SY

CL STA. =151+41 -L-

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR STRUCTURE PLANS

7/4/2016
U4751_roadprm_wet_psh_15_con.dgn
jasonharvell

PROJECT REFERENCE NO. | SHEET NO. 15-3

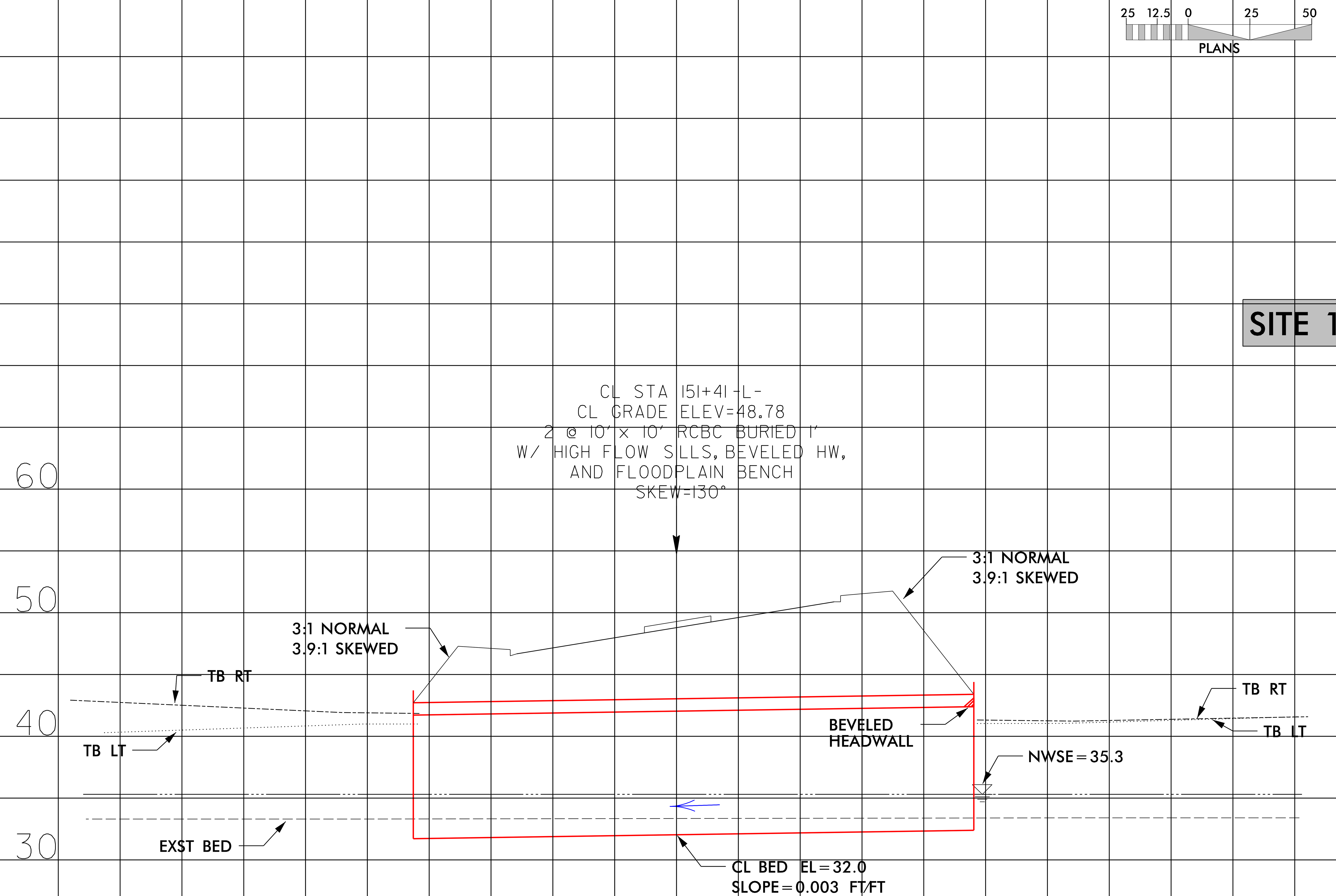
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

3 OF 4

PERMIT DRAWING
SHEET 33 OF 81

SITE 15



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7/1/2016
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jasonharvey

8/23/99

4 OF 4

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-69

PERMIT DRAWING
SHEET 34 OF 81

SITE 16

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

50
40
30

FILL IN WETLAND

3:1 S.S.42.20 46.16 0.040 47.87 48.30 48.68 0.040 50.28 3:1 S.S.42.14

42.21

155 + 00.00

FILL IN WETLAND

3:1 S.S.42.19 46.05 0.040 47.76 48.19 48.57 0.040 50.17 3:1 S.S.42.01

42.12

154 + 50.00

FILL IN WETLAND

3:1 S.S.42.14 46.01 0.040 47.72 48.15 48.53 0.040 50.13 3:1 S.S.41.96

41.99

154 + 00.00

FILL IN WETLAND

3:1 S.S.42.09 46.05 0.040 47.76 48.19 48.57 0.040 50.17 3:1 S.S.41.91

41.88

153 + 50.00

FILL IN WETLAND

3:1 S.S.42.04 46.16 0.040 47.87 48.30 48.68 0.040 50.28 3:1 S.S.41.85

41.85

153 + 00.00

7/1/2016
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asorhar vey

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 3

PERMIT DRAWING SHEET 35 OF 81

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007

MY 4TH TROUT

50 25 0 50 100

PLANS

MATCHLINE -L- STA 161+00 (SHEET 15)

MATCHLINE -L- STA 174+00 (SHEET 17)

HANOVER LAND, LLC

ROMEO A. MISIERA

FOY S. THORNTON TRUST B, ET AL

NOTE: DEED CONFLICTS WITH ROMEO A. MISIERA DB 858 PG 259

PAUL PRIDGEN, ET AL

HANOVER LAND, LLC

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

30' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE

SITE 16

SITE 17

SITE 18

SITE 19

SITE 20

SITE 21

MILITARY CUTOFF RD

CLASS 'B' RIP RAP
EST. 1 TONS
5 SY GEOTEXTILE

CLASS 'I' RIPRAP
EST 26 TONS
50 SY GEOTEXTILE

V10 = 4.2 FT/S

BURY OUTLET 1.0'

V10 = 5.4 FT/S

CLASS 'I' RIPRAP
EST 25 TONS
50 SY GEOTEXTILE

CLASS 'B' RIP RAP
EST. 1 TONS
5 SY GEOTEXTILE

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

15" RCP-IV

18" RCP-IV

BURY INLET 1.0'

SAG IN GUTTER DUE TO SUPER

FILL EXIST DITCH
EST 48 CY

REMOVE

N 47° 07' 10.0" W

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 41 FOR -L- PROFILE

7/1/2016
U4751_plan_prm_wet_psh_16.dgn
dsoohoo.vau

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 3

PERMIT DRAWING SHEET 36 OF 81

NAD 83/NSRS 2007

MY 4TH TROUT

50 25 0 50 100

PLANS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

MATCHLINE -L- STA 161+00 (SHEET 15)

MATCHLINE -L- STA 174+00 (SHEET 17)

HANOVER LAND, LLC

ROMEO A. MISIERA

FOY S. THORNTON TRUST B, ET AL

NOTE: DEED CONFLICTS WITH ROMEO A. MISIERA DB 858 PG 259

PAUL PRIDGEN, ET AL

HANOVER LAND, LLC

SITE 16

SITE 17

SITE 18

SITE 19

SITE 20

SITE 21

MILITARY CUTOFF RD

CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE

CLASS 'I' RIPRAP EST 26 TONS 50 SY GEOTEXTILE

V10 = 4.2 FT/S

BURY OUTLET 1.0'

V10 = 5.4 FT/S

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

15" RCP-IV

18" RCP-IV

BURY INLET 1.0'

SAG IN GUTTER DUE TO SUPER

REMOVE 15" RCP-IV

FILL EXIST DITCH EST 48 CY

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

60' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 41 FOR -L- PROFILE

7/1/2016
U4751_hyd_prm_wet_psh_16_con.dgn
dsoohar

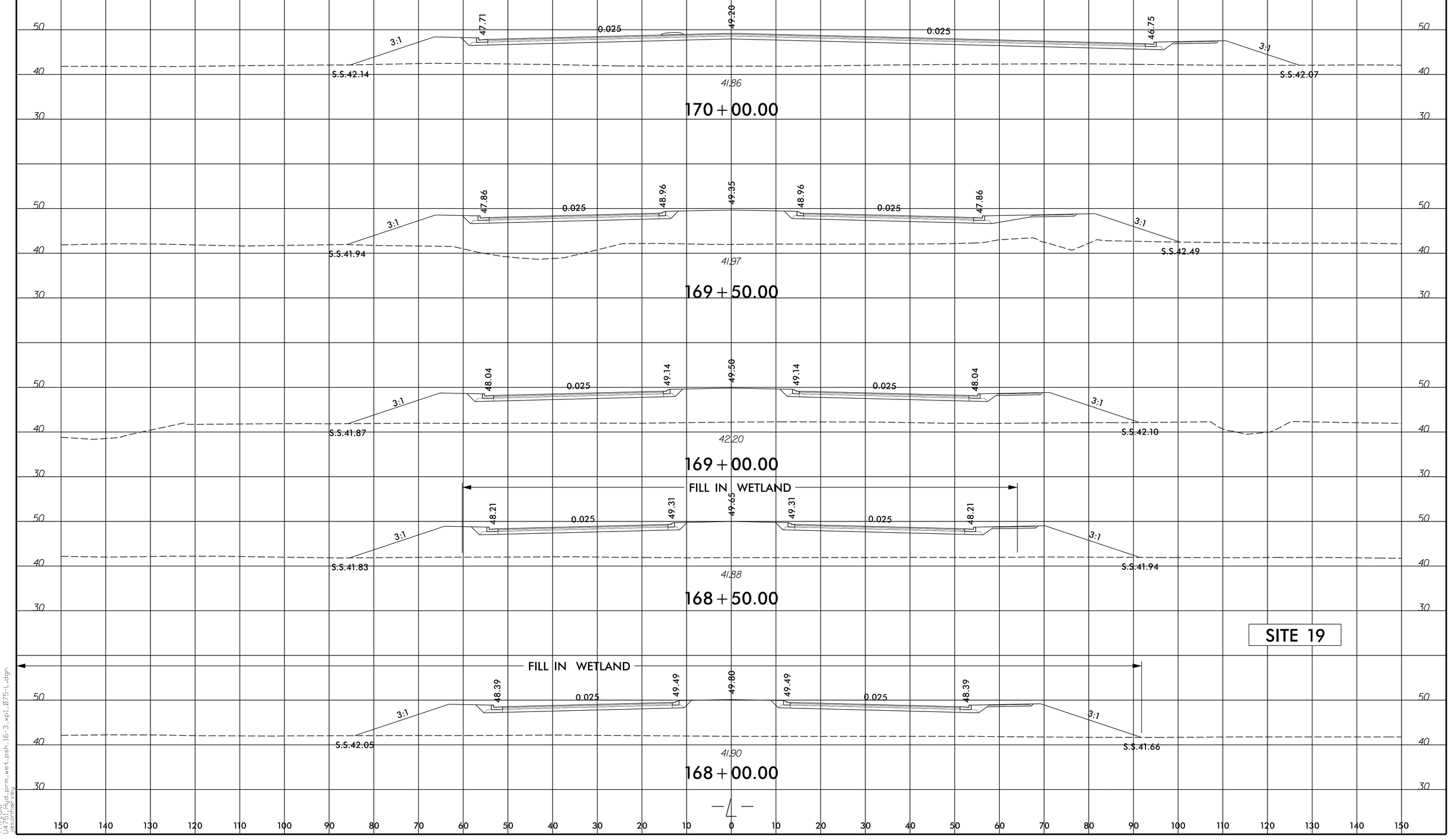
8/23/99

3 OF 3

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-75

PERMIT DRAWING
SHEET 37 OF 81



7/1/2016
U4751_Hyd_prm_wet_psh_16-3_xpl_075-L.dgn
dsonharvey

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 4

50 25 0 50 100
PLANS

PERMIT DRAWING
SHEET 38 OF 81

NAD 83/NSRS 2007

DETAIL 51
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, WLB, 3:1, d, D, B, b, 1'Ft., Fill Slope, GEOTEXTILE
When B is < 6.0'
Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.
Type of Liner = Class 'B' Rip-Rap
FROM STA. 175+25 TO STA. 176+25 -L- LT

DETAIL 52
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, d, D, B, b, 1'Ft., Fill Slope, GEOTEXTILE
When B is < 6.0'
Max. d = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.
Type of Liner = Class I Rip-Rap
FROM STA. 178+45 TO STA. 178+67 -L- LT

DETAIL 24
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground, WLB, 3:1, d, D, B, 3:1 or Flatter, Fill Slope
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 5.0 Ft.
Type of Liner = COIR FIBER MAT.
FROM STA. 23+00 TO STA. 27+00 -SR4- RT

DETAIL 26
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, WLB, 3:1, d, D, B, b, 1'Ft., Fill Slope
Min. D = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.
FROM STA. 176+25 TO STA. 178+45 -L- LT

DETAIL 31
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, d, D, B, b, 1'Ft., Fill Slope
Min. D = 2.5 Ft.
Max. d = 2.5 Ft.
B = 5.0 Ft.
b = 5.0 Ft.
Type of Liner = COIR FIBER MATTING
FROM STA. 182+05 TO STA. 185+00 -L- RT

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

MATCHLINE -L- STA 174+00 (SHEET 16)
MATCHLINE -L- STA 187+00 (SHEET 18)

MY THI TROUT
HANOVER LAND, LLC
SITE 23
SITE 22
SITE 21
SITE 22
HANOVER LAND, LLC
SYLVIA WHALEY LEWIS & KAREN WHALEY COBB

LAT 5' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 51 EST. 55 TONS 120 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEOTEXTILE
LAT 5' BASE DITCH SEE DETAIL 26
LAT 5' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 52 EST. 45 TONS EST GEOTEXTILE 75 SY
CLASS 'B' RIP RAP EST. 13 TONS 27 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 33 TONS 62 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 5 TONS 9 SY GEOTEXTILE
FILL EXIST DITCH EST 80 CY
FILL EXIST DITCH EST 8 CY
LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 31
CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE
SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 26
BURY OUTLET 1.0'
BURY INLET 1.0'
15" RCP-IV
18" RCP-IV
15" RCP-III
18" JB w/WH
15" CMP W/ GRATES
CB
DI
HW
N 17° 07' 10.0" W
MILITARY CUTOFF ROAD
10' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE
205'R
300'R
200'R
685'R

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 2B-6 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 65 FOR -SR4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/1/2016
U4751_plot_prm_wet_psh_17.dgn
jasonharvey

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 4

PERMIT DRAWING SHEET 39 OF 81

50 25 0 50 100
PLANS

NAD 83/NSRS 2007

DETAIL 51
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, WLB, d, D, 3:1, b, 1'Ft., 3:1, B, Fill Slope, GEOTEXTILE

When B is < 6.0'
Type of Liner = Class 'B' Rip-Rap
Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

FROM STA. 175+25 TO STA. 176+25 -L- LT

DETAIL 52
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, d, 3:1, b, 1'Ft., 3:1, B, Fill Slope, GEOTEXTILE

When B is < 6.0'
Type of Liner = Class I Rip-Rap
Max. d = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

FROM STA. 178+45 TO STA. 178+67 -L- LT

DETAIL 24
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, WLB, d, D, 3:1, 3:1 or Flatter, B, Fill Slope

Type of Liner = COIR FIBER MAT.
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 5.0 Ft.

FROM STA. 23+00 TO STA. 27+00 -SR4- RT

DETAIL 26
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, WLB, d, D, 3:1, b, 1'Ft., B, Fill Slope

Min. D = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

FROM STA. 176+25 TO STA. 178+45 -L- LT

DETAIL 31
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, d, 3:1, 3:1, b, 1'Ft., B, Fill Slope

Type of Liner = COIR FIBER MATTING
Min. D = 2.5 Ft.
Max. d = 2.5 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

FROM STA. 182+05 TO STA. 185+00 -L- RT

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

MATCHLINE -L- STA 174+00 (SHEET 16)
MATCHLINE -L- STA 187+00 (SHEET 18)

MY THI TROUT
HANOVER LAND, LLC
SYLVIA WHALEY LEWIS & KAREN WHALEY COBB

SITE 21
SITE 22
SITE 23

LAT. 5' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 51 EST. 55 TONS 120 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEOTEXTILE
LAT. 5' BASE DITCH SEE DETAIL 26
LAT 5' BASE DITCH W/CLASS 'I' RIPRAP SEE DETAIL 52 EST. 45 TONS EST GEOTEXTILE 25 SY
CLASS 'B' RIP RAP EST. 13 TONS 27 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 33 TONS 62 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 17 TONS 37 SY GEOTEXTILE
LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 31
CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE
SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 24
FILL EXIST DITCH EST 80 CY
FILL EXIST DITCH EST 8 CY
BURY OUTLET 3.0'
BURY INLET 1.0'
BURY INLET 2.0'
10' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

15" RCP-IV, 18" RCP-IV, 15" RCP-III, 24" RCP-III, CB, DI, HW, RCP, 15" CMP W, 18" CMP W, 24" CMP W

N 17° 07' 10.0" W
N 17° 07' 10.0" W
MILITARY CUT OFF RD

205'R, 300'R, 200'R, 685'R

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 2B-6 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 65 FOR -SR4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/1/2016
U4751_hyd_prm_xet_psh_17_con.dgn
jasonharvey

5/14/99

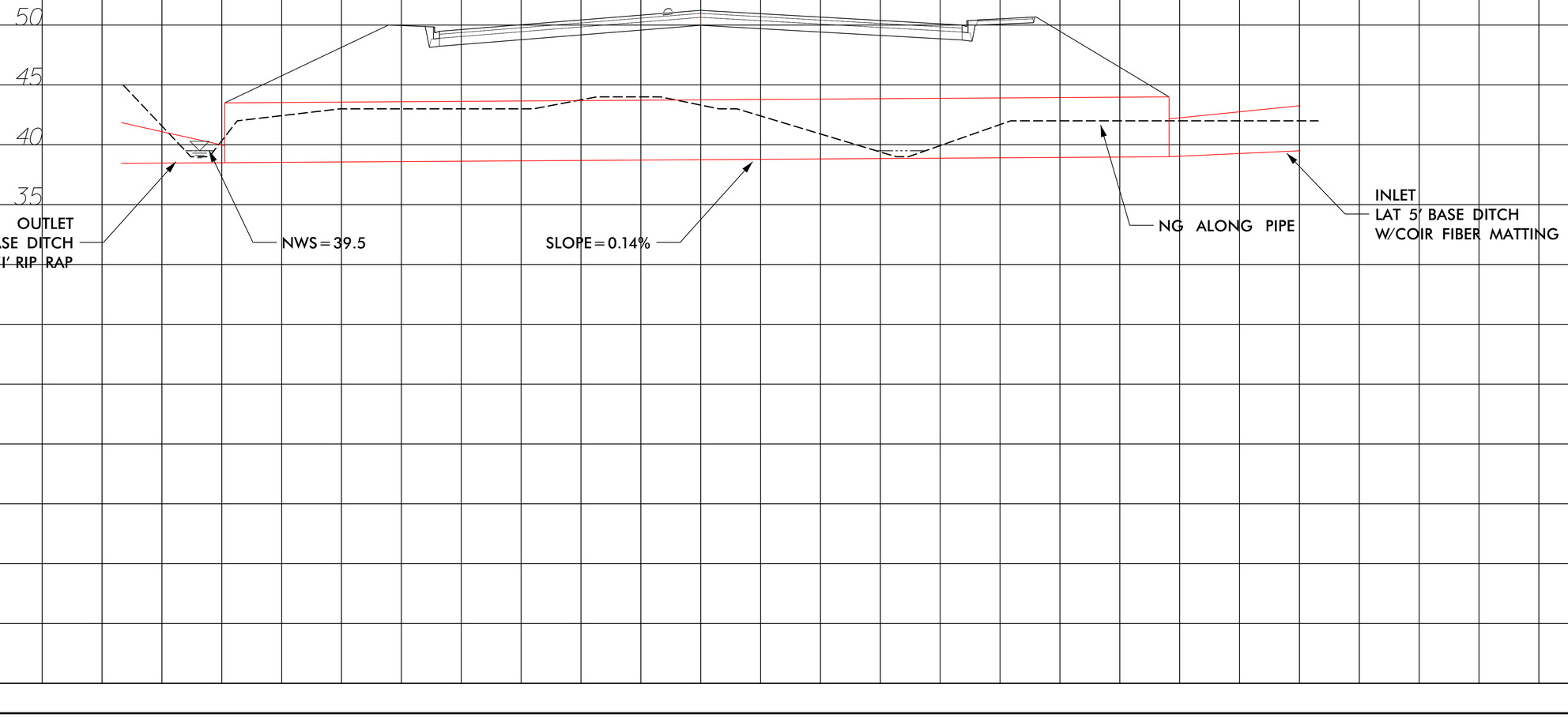
PROJECT REFERENCE NO.	SHEET NO.
	17-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	3 OF 4

25 12.5 0 25 50
PLANS

PERMIT DRAWING
SHEET 40 OF 81

SITE 22

CL STA 180+39 -L-
1@60" RCP

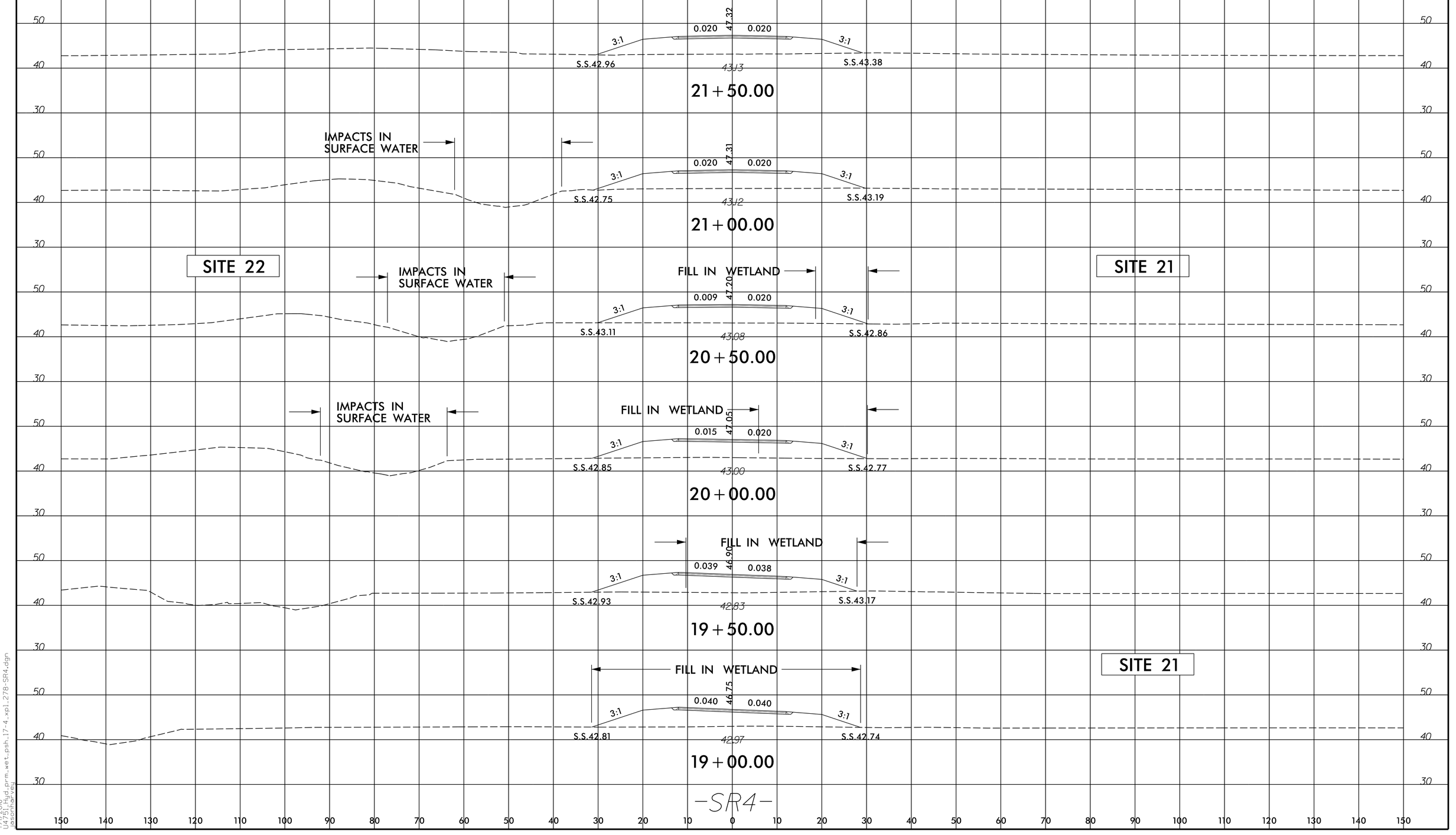


7/4/2016
U:\450\dgn\prm_wet_psh_17-3_xsc_22.dgn
jasonharvey

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-278

PERMIT DRAWING
SHEET 41 OF 81



8/23/99

7/1/2016
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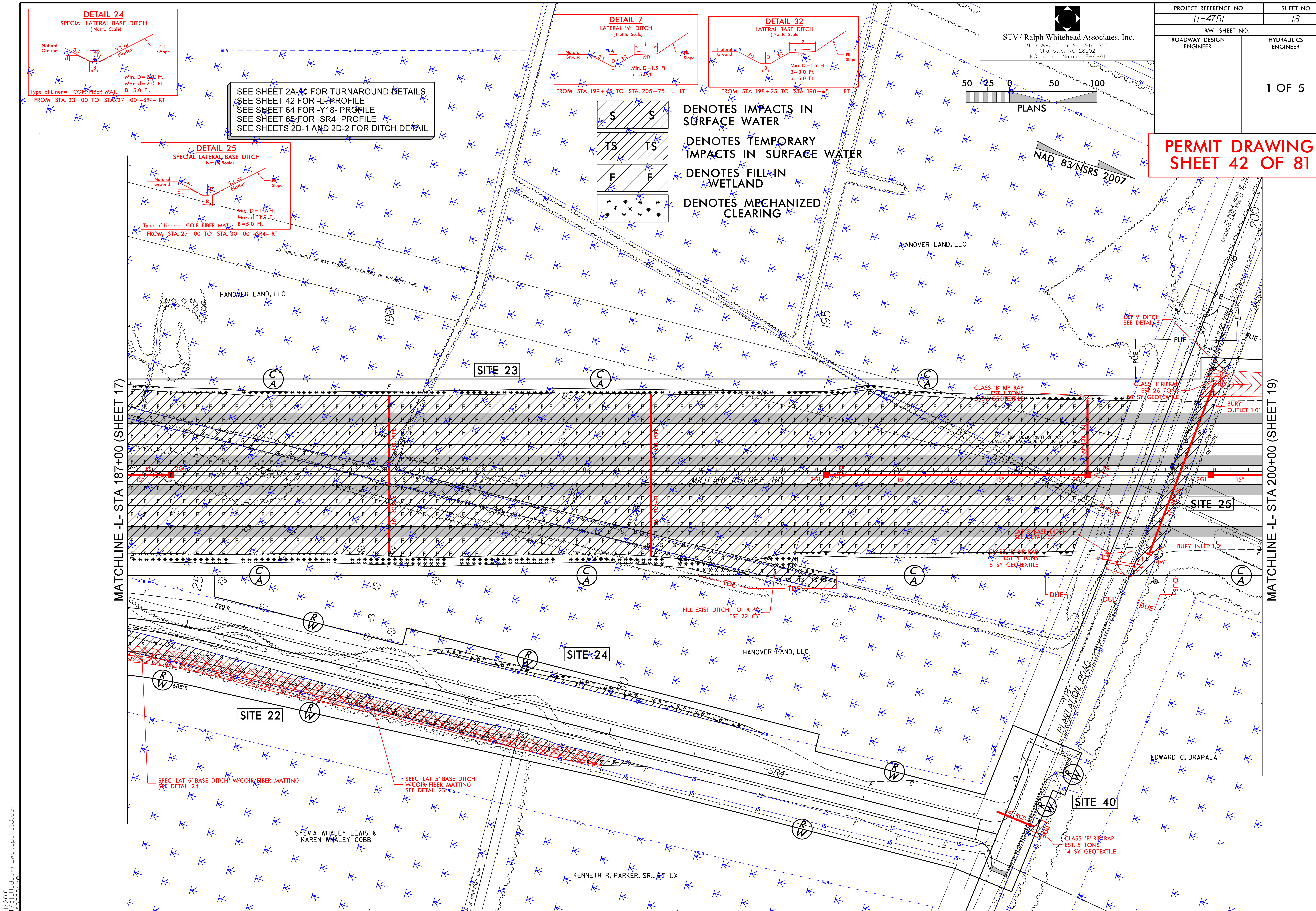
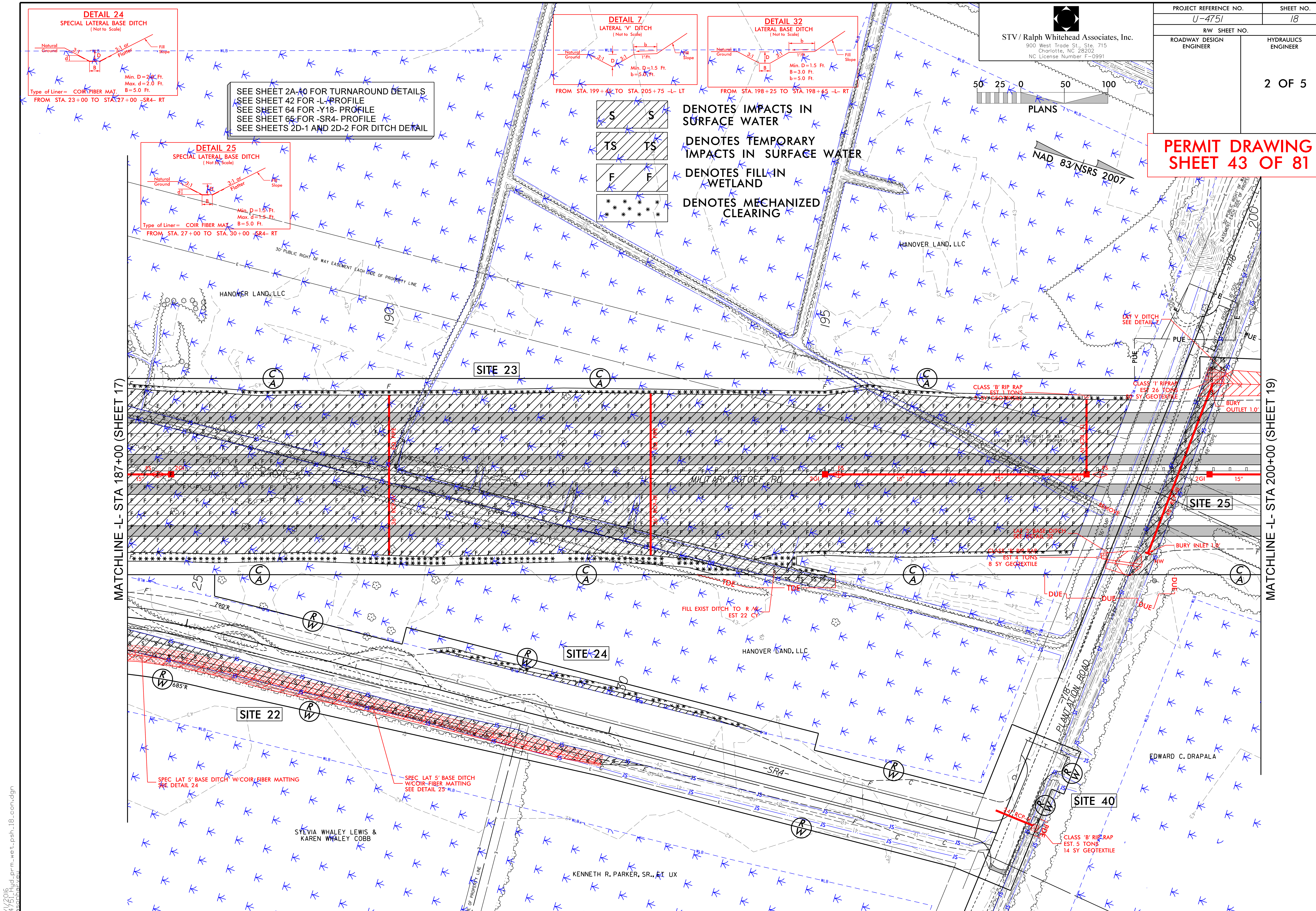
asonharvey



PROJECT REFERENCE NO.
U-4751
SHEET NO.
18
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
1 OF 5
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991
PERMIT DRAWING
SHEET 42 OF 81
50 25 0 50 100
PLANS
NAD 83/NSRS 2007
DETAIL 24
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
3:1
3:1 or Flatter
Fill Slope
Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=5.0 Ft.
Type of Liner= COIR FIBER MAT.
FROM STA. 23+00 TO STA. 27+00 -SR4- RT
DETAIL 25
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=5.0 Ft.
Type of Liner= COIR FIBER MAT.
FROM STA. 27+00 TO STA. 30+00 -SR4- RT
DETAIL 7
LATERAL 'V' DITCH
(Not to Scale)
Min. D=1.5 Ft.
b=5.0 Ft.
FROM STA. 199+45 TO STA. 205+75 -L- LT
DETAIL 32
LATERAL BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
B=3.0 Ft.
b=5.0 Ft.
FROM STA. 198+25 TO STA. 198+65 -L- RT
SEE SHEET 2A-10 FOR TURNAROUND DETAILS
SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 64 FOR -Y18- PROFILE
SEE SHEET 65 FOR -SR4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE
HANOVER LAND, LLC
SITE 23
SITE 24
SITE 22
SITE 25
SITE 40
MILITARY CUTOFF RD
-SR4-
-Y18- PLANTATION ROAD
MATCHLINE -L- STA 187+00 (SHEET 17)
MATCHLINE -L- STA 200+00 (SHEET 19)
36" RCP-IV
36" RCP-III
15" RCP-IV
48" RCP-III
24" RCP-IV
CLASS 'B' RIP RAP
EST. 1 TONS
5 SY GEOTEXTILE
CLASS 'I' RIPRAP
EST 26 TONS
50 SY GEOTEXTILE
BURY OUTLET 1.0'
BURY INLET 1.0'
LAT V DITCH
SEE DETAIL 7
LAT 3' BASE DITCH
SEE DETAIL 32
CLASS 'B' RIP RAP
EST 4 TONS
8 SY GEOTEXTILE
CLASS 'B' RIP RAP
EST. 5 TONS
14 SY GEOTEXTILE
FILL EXIST DITCH TO R/W
EST 22 CY
SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING
SEE DETAIL 24
SPEC LAT 5' BASE DITCH
W/COIR FIBER MATTING
SEE DETAIL 25
SYLVIA WHALEY LEWIS &
KAREN WHALEY COBB
KENNETH R. PARKER, SR., ET UX
EDWARD C. DRAPALA
7/1/2016
U4751_Hyd_prm_wet_psh_18.dgn
jasonharvey


PROJECT REFERENCE NO. U-4751
SHEET NO. 18
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
2 OF 5
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991
PERMIT DRAWING
SHEET 43 OF 81
50 25 0 50 100
PLANS
NAD 83/NSRS 2007
DETAIL 24
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
3:1
3:1 or Flatter
Fill Slope
Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=5.0 Ft.
Type of Liner= COIR FIBER MAT.
FROM STA. 23+00 TO STA. 27+00 -SR4- RT
DETAIL 25
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=5.0 Ft.
Type of Liner= COIR FIBER MAT.
FROM STA. 27+00 TO STA. 30+00 -SR4- RT
DETAIL 7
LATERAL 'V' DITCH
(Not to Scale)
Min. D=1.5 Ft.
b=5.0 Ft.
FROM STA. 199+45 TO STA. 205+75 -L- LT
DETAIL 32
LATERAL BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
B=3.0 Ft.
b=5.0 Ft.
FROM STA. 198+25 TO STA. 198+65 -L- RT
SEE SHEET 2A-10 FOR TURNAROUND DETAILS
SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 64 FOR -Y18- PROFILE
SEE SHEET 65 FOR -SR4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE
HANOVER LAND, LLC
SITE 23
SITE 24
SITE 25
SITE 22
SITE 40
MATCHLINE -L- STA 187+00 (SHEET 17)
MATCHLINE -L- STA 200+00 (SHEET 19)
MILITARY CUTOFF RD
36" RCP-IV
36" RCP-III
15" RCP-IV
48" RCP-III
EQ. PIPE
CLASS 'B' RIP RAP
EST. 1 TONS
5 SY GEOTEXTILE
CLASS 'I' RIPRAP
EST 26 TONS
50 SY GEOTEXTILE
BURY OUTLET 1.0'
LAT V DITCH
SEE DETAIL 7
LAT 3' BASE DITCH
SEE DETAIL 32
CLASS 'B' RIP RAP
EST 4 TONS
8 SY GEOTEXTILE
BURY INLET 1.0'
REMOVE
FILL EXIST DITCH TO R/W
EST 22 CY
SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING
SEE DETAIL 24
SPEC LAT 5' BASE DITCH
W/COIR FIBER MATTING
SEE DETAIL 25
-SR4-
-Y18- PLANTATION ROAD
24" RCP-IV
CLASS 'B' RIP RAP
EST. 5 TONS
14 SY GEOTEXTILE
SYLVIA WHALEY LEWIS &
KAREN WHALEY COBB
KENNETH R. PARKER, SR., ET UX
EDWARD C. DRAPALA
7/1/2016
U4751_Hyd_prm_wet_psh_18_con.dgn
jasonharvey

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-78

PERMIT DRAWING
SHEET 44 OF 81

SITE 23

IMPACTS IN SURFACE WATER

FILL IN WETLAND

48.57 | 0.025 | 50.06 | 0.025 | 48.57

S.S.42.20 | 3:1 | 38.36 | 3:1 | S.S.44.38 | 3:1 | 42.56 | 3:1 | S.S.42.56

177 + 50.00

SITE 22

IMPACTS IN SURFACE WATER

FILL IN WETLAND

48.37 | 0.025 | 49.87 | 0.025 | 48.37

S.S.42.50 | 3:1 | 38.30 | 3:1 | S.S.43.41 | 3:1 | 42.43 | 3:1 | S.S.42.69

177 + 00.00

SITE 21

IMPACTS IN SURFACE WATER

FILL IN WETLAND

48.18 | 0.025 | 49.67 | 0.025 | SR4

S.S.44.30 | 3:1 | 38.24 | 3:1 | S.S.41.92 | 3:1 | 42.46

176 + 50.00

SITE 22

IMPACTS IN SURFACE WATER

FILL IN WETLAND

47.98 | 0.025 | 49.47 | 0.025 | SR4

S.S.44.39 | 2:1 | 38.18 | 2:1 | S.S.41.73 | 42.57

176 + 00.00

IMPACTS IN SURFACE WATER

FILL IN WETLAND

47.79 | 0.025 | 49.28 | 0.025 | SR4

S.S.40.87 | 2:1 | 38.12 | 2:1 | 3:1 | S.S.41.71 | 42.45

175 + 50.00

8/23/99

7/1/2016
U4751_Hyd_prm_wet_psh_18-3_xpl_078-L.dgn
jasonharvey

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-79

PERMIT DRAWING
SHEET 45 OF 81

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

SITE 23

FILL IN WETLAND

49.55

0.025

IMPACTS IN SURFACE WATER

51.05

0.025

49.55

SITE 21

3:1

3:1

S.S.42.47

S.S.42.75

41.49

50

40

30

180 + 00.00

SITE 22

IMPACTS IN SURFACE WATER

FILL IN WETLAND

FILL IN WETLAND

49.35

0.025

50.85

0.025

49.35

3:1

3:1

S.S.42.41

S.S.42.49

38.55

179 + 50.00

FILL IN WETLAND

IMPACTS IN SURFACE WATER

FILL IN WETLAND

49.16

0.025

50.65

0.025

49.16

3:1

3:1

S.S.42.77

S.S.42.28

42.21

179 + 00.00

EXCAVATION

IMPACTS IN SURFACE WATER

FILL IN WETLAND

48.96

0.025

50.45

0.025

48.96

3:1

3:1

3:1

3:1

3:1

S.S.40.83

S.S.41.87

S.S.42.17

38.48

42.25

178 + 50.00

SITE 23

SITE 22

SITE 21

EXCAVATION

IMPACTS IN SURFACE WATER

FILL IN WETLAND

48.77

0.025

50.26

0.025

48.77

3:1

3:1

3:1

3:1

S.S.42.42

S.S.44.52

S.S.42.19

38.42

42.46

178 + 00.00

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

8/23/99

7/1/2016
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asonharvey

8/23/99

5 OF 5

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-282

PERMIT DRAWING
SHEET 46 OF 81

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

50 40 30

SITE 24

FILL IN WETLAND

0.020 0.020

44.31

3:1

3:1

S.S.41.75

39.73

S.S.34.43

30 + 50.00

IMPACTS IN SURFACE WATER

SITE 22

FILL IN WETLAND

0.020 0.020

44.47

3:1

3:1

S.S.40.35

43.00

S.S.40.09

40.00

S.S.34.47

30 + 00.00

IMPACTS IN SURFACE WATER

SITE 22

FILL IN WETLAND

0.020 0.020

44.63

3:1

3:1

S.S.41.61

42.76

S.S.40.07

39.97

S.S.34.69

29 + 50.00

SITE 24

IMPACTS IN SURFACE WATER

SITE 22

FILL IN WETLAND

0.020 0.020

44.78

3:1

3:1

S.S.41.61

42.30

S.S.40.10

39.94

S.S.35.49

29 + 00.00

-SR4-

7/1/2016
U4751_Hyd_prm_wet_psh_18-5_xpl_282_SR4.dgn
asonharvey

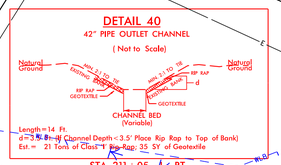
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 3

PERMIT DRAWING SHEET 47 OF 81

NAD 83/NSRS 2007

DETAIL 40
42" PIPE OUTLET CHANNEL
(Not to Scale)



STA. 211+05 -L- RT

DENNIS R. SMITH

MARGARET M. LANGLEY, HEIRS

GREGORY S. SHORTELL

EDWARD C. DRAPALA

EDWARD C. DRAPALA

CROOKED PINE ROAD (SR1117)

MILITARY CUTOFF RD

N 7° 29' 02.2" E

S 75° 18' 45" E

N 7° 33' 50.9" E 719.10'

N 13° 33' 50.9" E

N 17° 07' 10.0" W

N 13° 07' 10.0" W

-Y8RPC-

-Y8RPDB-

-L-

SITE 27

SITE 28

SITE 29

SITE 26

LAT V DITCH SEE DETAIL 7

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

BURY INLET 1.0'

CLASS I RIPRAP ON BANKS ONLY SEE DETAIL 40

CLASS I RIP RAP EST. 20 TONS 39 SY GEOTEXTILE

CLASS I RIPRAP EST. 2 TONS 7 SY GEOTEXTILE

BURY OUTLET 1.0'

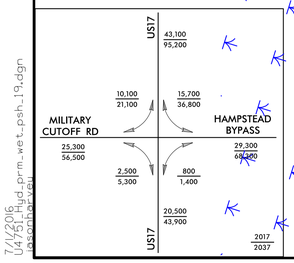
FUTURE (BY OTHERS)

MATCHLINE -L- STA 200+00 (SHEET 18)

MATCHLINE -L- STA 213+00 (SHEET 20)

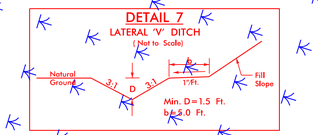
MATCHLINE -Y8RPC- STA 19+80 (SHEET 20)

MATCHLINE -Y8RPDB- STA 22+00 (SHEET 20)



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

DETAIL 7
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 199+45 TO STA. 205+75 -L- LT

50 25 0 50 100
PLANS

SEE SHEET 2A-10 FOR TURNAROUND DETAILS
SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 57 FOR -Y8RPDB- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/1/2016
U4751_hyd_pm_wet_psh_19.dgn
dasanpayan

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 3

PERMIT DRAWING SHEET 48 OF 81

NAD 83/NSRS 2007

DETAIL 40
42" PIPE OUTLET CHANNEL
(Not to Scale)

Length = 14 Ft.
d = 5.5 Ft. (d of Channel Depth < 3.5' Place Rip Rap to Top of Bank)
Est.= 21 Tons of Class "I" Rip Rap; 35 SY of Geotextile

STA. 211+05 -L- RT

DENNIS R. SMITH
MARGARET M. LANGLEY, HEIRS
GREGORY S. SHORTELL
EDWARD C. DRAPALA
EDWARD C. DRAPALA

CROOKED PINE ROAD (SR 1117)
N 7° 29' 02.2" E
S 85° 14' 23.5" E
N 7° 33' 50.9" E 719.10'
N 13° 30' 29.5" E
N 17° 07' 10.0" W
N 13° 07' 10.0" W
MILITARY CUTOFF RD

-Y8RPC-
-Y8RPDB-
-L-

SITE 27
SITE 28
SITE 29
SITE 26

MATCHLINE -L- STA 200+00 (SHEET 18)
MATCHLINE -Y8RPC- STA 19+80 (SHEET 20)
MATCHLINE -L- STA 213+00 (SHEET 20)
MATCHLINE -Y8RPDB- STA 22+00 (SHEET 20)

LAT V DITCH SEE DETAIL 7
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
BURY INLET 1.0'
CLASS I RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
CLASS I RIP RAP EST. 20 TONS 39 SY GEOTEXTILE
BURY OUTLET 1.0'
CLASS I RIPRAP ON BANKS ONLY SEE DETAIL 40

15" RCP-LV
24" RCP
42" RCP
48" RCP
48" WD RAIL
48" ROPE
48" 3SROPE
CHORD
CONC
HTR
JUNK
SHED
CGAU
FS
2GI
HW
TDE
GHS
RETAINING WALL
FUTURE (BY OTHERS)
EXISTING RIP RAP
EXISTING GEOTEXTILE
EXISTING CHANNEL BED
EXISTING CHANNEL BANK
RIP RAP
GEOTEXTILE
CHANNEL BED (Variable)
Natural Ground
Fill Slope

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE
15' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE
SIDE OF PROPERTY LINE
2330'R
1150'R
320'R

DETAIL 7
LATERAL 'V' DITCH
(Not to Scale)

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

FROM STA. 199+45 TO STA. 205+75 -L- LT

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

US17	43,100 / 95,200	
MILITARY CUTOFF RD	10,100 / 21,100	15,700 / 36,800 HAMPSTEAD BYPASS
	25,300 / 56,500	29,300 / 68,300
	2,500 / 5,300	800 / 1,400
US17	20,500 / 43,900	2017 / 2037

50 25 0 50 100
PLANS

SEE SHEET 2A-10 FOR TURNAROUND DETAILS
SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 57 FOR -Y8RPDB- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

7/1/2016
U4751_plan_prm_wet_psh_19_con.dgn
dasanchez

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-89

PERMIT DRAWING
SHEET 49 OF 81

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

SITE 27

IMPACTS IN SURFACE WATER

4:1 0.001 52.07 6:1 6:1 50.19 52.07 0.025 4:1

FUTURE PAVEMENT

FILL IN WETLAND

S.S. 42.57

42.29

207 + 50.00

-Y8RPC-
14+07.55

50.81

IMPACTS IN SURFACE WATER

3:1 0.012 52.04 6:1 6:1 50.16 52.04 0.025 4:1

FUTURE PAVEMENT

FILL IN WETLAND

42.05

207 + 00.00

SITE 26

-Y8RPC-
13+57.01

50.65

IMPACTS IN SURFACE WATER

3:1 0.023 51.92 6:1 6:1 50.04 51.92 0.025 4:1

FUTURE PAVEMENT

FILL IN WETLAND

41.75

206 + 50.00

-Y8RPC-
13+06.61

50.50

IMPACTS IN SURFACE WATER

TEMP IMPACTS IN SURFACE WATER

3:1 0.025 51.70 6:1 6:1 49.82 51.70 0.025 4:1

FUTURE PAVEMENT

S.S. 38.89

41.80

206 + 00.00

-Y8RPC-
12+56.33

50.35

0.05 3:1 S.S. 42.53 3:1 38.63 3:1 S.S. 42.99 0.025 51.41 6:1 6:1 49.41 51.41 0.025 4:1

42.18

205 + 50.00

8/23/99

7/1/2016
U4751_Hyd_prm_wet_psh_19-3_xpl_089-L2.dgn
dsonthalvey

PERMIT DRAWING SHEET 50 OF 81

PROJECT REFERENCE NO.	SHEET NO.
U-4751	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 10

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number: F-0991

GRAPHIC SCALE
50 25 0 50 100
PLANS

NAD 83/NSRS 2007

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

MATCHLINE (SHEET 21)
MATCHLINE -Y8- STA 85+50 (SHEET 21)
MATCHLINE -Y8RPDB- STA 22+00 (SHEET 19)
MATCHLINE -Y8RPDB- STA 17+50 (SHEET 22)
MATCHLINE -Y8- STA 101+25 (SHEET 22)
MATCHLINE -Y8RPCA- STA 18+50 (SHEET 23)
MATCHLINE -Y8RPB- STA 19+25 (SHEET 23)
MATCHLINE -Y8RPC- STA 239+00 (SHEET 23)

ENLARGEMENT SEE SHEET 21–3
ENLARGEMENT SEE SHEET 20–3
ENLARGEMENT SEE SHEET 20–5
ENLARGEMENT SEE SHEET 20–4

A
B
C
D

SITE 26
SITE 28
SITE 29
SITE 30
SITE 31
SITE 32
SITE 33
SITE 34
SITE 35
SITE 36

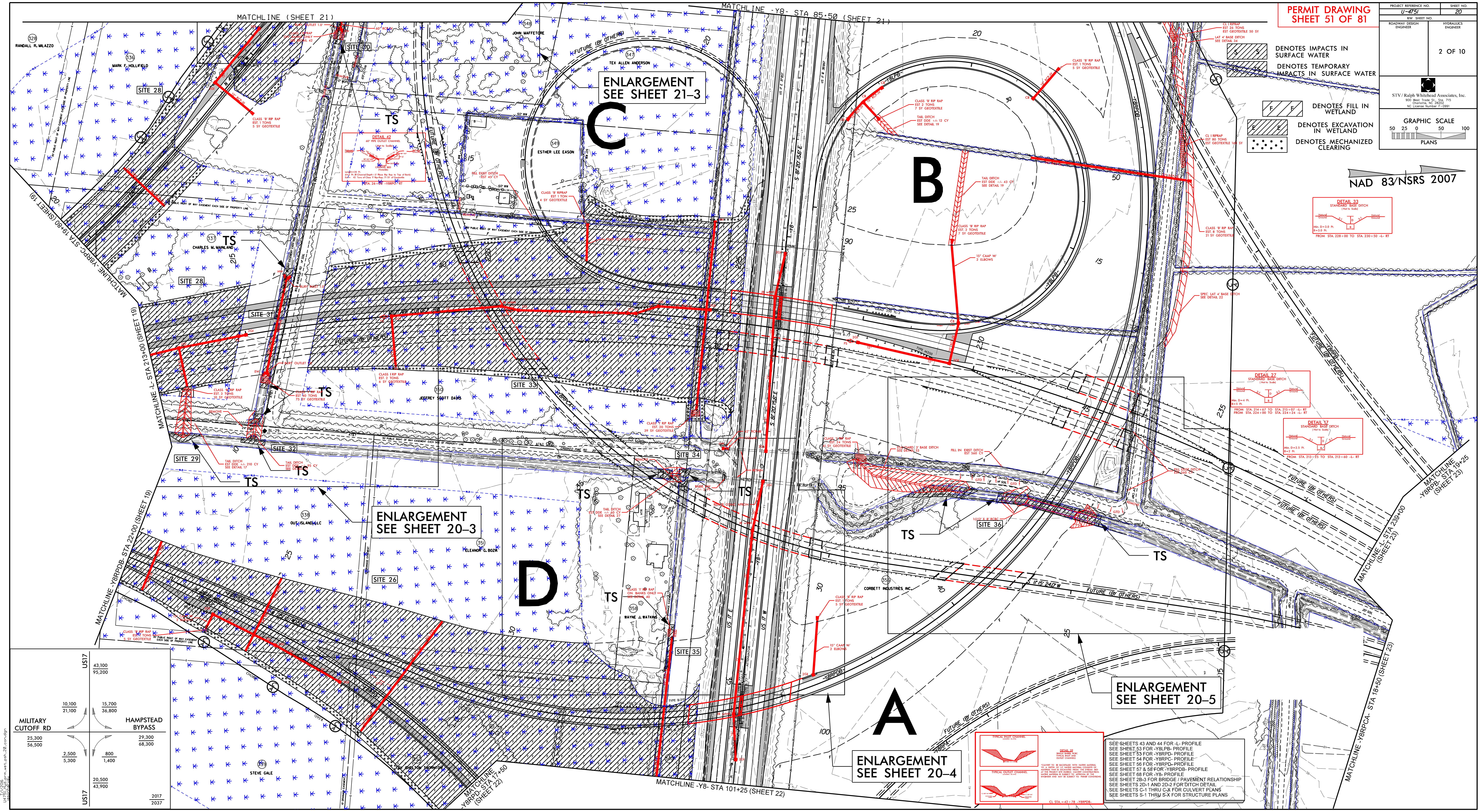
RANDALL R. MLAZZO
MARK F. WOLFFIELD
CHARLES M. MARKLAND
JEFFREY SCOTT DAVIS
JOHN MAFFETORE
TEX ALLEN ANDERSON
ESTHER LEE EASON
OUTLANDS LLC
ELEANOR C. BOZA
STEVE GALE
CORBETT INDUSTRIES INC.
WAYNE J. WATERS

DETAIL 42 60" RPM OUTLET CHANNEL (Not to Scale)
DETAIL 33 STANDARD V BASE DITCH (Not to Scale)
DETAIL 37 STANDARD V BASE DITCH (Not to Scale)
DETAIL 17 STANDARD V BASE DITCH (Not to Scale)
TYPICAL RIGHT CHANNEL
TYPICAL OUTLET CHANNEL
DETAIL 21 RIPRAP APRON FOR PIPE OUTLETS (Not to Scale)

SPEC. LAT. V BASE DITCH SEE DETAIL 33
SPEC. LAT. K BASE DITCH SEE DETAIL 22
STANDARD V BASE DITCH SEE DETAIL 33
FILL IN EXIST. DITCH EST 500 CY
TAB. DITCH EST QUAN. =± 310 CY SEE DETAIL 17
TAB. DITCH EST QUAN. =± 85 CY SEE DETAIL 17
TAB. DITCH EST QUAN. =± 12 CY SEE DETAIL 19
TAB. DITCH EST QUAN. =± 43 CY SEE DETAIL 19
TAB. DITCH EST QUAN. =± 45 CY SEE DETAIL 19
FILL EXIST DITCH EST 45 CY
CL II RIPRAP EST 35 TONS EST GEOTEXTILE 50 SY
CL II RIPRAP EST 80 TONS EST GEOTEXTILE 160 SY
CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE
CLASS 'B' RIP RAP EST 2 TONS 7 SY GEOTEXTILE
CLASS 'B' RIP RAP EST 3 TONS 11 SY GEOTEXTILE
CLASS 'B' RIP RAP EST 5 TONS 21 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 5 TONS 5 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 6 TONS 24 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 10 TONS 39 SY GEOTEXTILE
CLASS 'B' RIPRAP EST. 3 TONS 4 SY GEOTEXTILE
CLASS 'B' RIPRAP EST. 5 TONS ONLY BELOW EL 40 4 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 10 TONS 75 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 10 TONS 39 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 5 TONS 5 SY GEOTEXTILE
15" CAAP W/ 2 ELBOWS
60" RPM
72" RPM
54" RPM
48" RPM
42" RPM
36" RPM
24" RPM
18" RPM
Y8RPDB
Y8RPC
Y8RPB
Y8RPCA
Y8

SEE SHEETS 43 AND 44 FOR -L- PROFILE
SEE SHEET 53 FOR -Y8LPB- PROFILE
SEE SHEET 53 FOR -Y8RPD- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 56 FOR -Y8RPD- PROFILE
SEE SHEET 57 & 58 FOR -Y8RPDB- PROFILE
SEE SHEET 68 FOR -Y8- PROFILE
SEE SHEET 2B-3 FOR BRIDGE / PAVEMENT RELATIONSHIP
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS

US17
MILITARY CUTOFF RD
HAMPSTEAD BYPASS
43,100 95,200
10,100 21,100
15,700 36,800
25,300 56,500
29,300 68,300
2,500 5,300
800 1,400
20,500 43,900
2017 2037


PERMIT DRAWING
SHEET 51 OF 81
PROJECT REFERENCE NO. U-4751
SHEET NO. 20
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
2 OF 10
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
GRAPHIC SCALE
50 25 0 50 100
PLANS
NAD 83/NSRS 2007
MATCHLINE (SHEET 21)
MATCHLINE -Y8- STA 85+50 (SHEET 21)
MATCHLINE -Y8RPC- STA 19+80 (SHEET 19)
MATCHLINE -L- STA 213+00 (SHEET 19)
MATCHLINE -Y8RPDB- STA 22+00 (SHEET 19)
MATCHLINE -Y8RPD- STA 17+50 (SHEET 22)
MATCHLINE -Y8- STA 101+25 (SHEET 22)
MATCHLINE -Y8RPCA- STA 18+50 (SHEET 23)
MATCHLINE -L- STA 239+00 (SHEET 23)
MATCHLINE -Y8RPB- STA 19+25 (SHEET 23)
ENLARGEMENT SEE SHEET 21–3
ENLARGEMENT SEE SHEET 20–3
ENLARGEMENT SEE SHEET 20–4
ENLARGEMENT SEE SHEET 20–5
A
B
C
D
TS
SITE 26
SITE 28
SITE 29
SITE 30
SITE 31
SITE 32
SITE 33
SITE 34
SITE 35
SITE 36
RANDALL R. MILAZZO
MARK F. HOLLIFIELD
CHARLES M. MAINLAND
JOHN MAFFETORE
TEX ALLEN ANDERSON
ESTHER LEE EASON
JEFFREY SCOTT DAVIS
OUT ISLAND LLC
ELEANOR G. BOZIK
WAYNE J. WATKINS
CORBETT INDUSTRIES INC.
STEVE GALE
MILITARY CUTOFF RD
FUTURE (BY OTHERS)
DETAIL 42
60" PIPE OUTLET CHANNEL
DETAIL 33
STANDARD BASE DITCH
FROM STA. 228+00 TO STA. 230+50 -L- RT
DETAIL 27
STANDARD BASE DITCH
FROM STA. 214+67 TO STA. 215+07 -L- RT
FROM STA. 224+00 TO STA. 224+24 -L- RT
DETAIL 17
STANDARD BASE DITCH
FROM STA. 213+25 TO STA. 213+60 -L- RT
DETAIL 39
SINGLE BARREL RCBC TYPICAL INLET AND OUTLET CHANNELS
CL STA.=42+78 -Y8RPDB-
SEE SHEETS 43 AND 44 FOR -L- PROFILE
SEE SHEET 53 FOR -Y8LPB- PROFILE
SEE SHEET 53 FOR -Y8RPD- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 56 FOR -Y8RPD- PROFILE
SEE SHEET 57 & 58 FOR -Y8RPDB- PROFILE
SEE SHEET 68 FOR -Y8- PROFILE
SEE SHEET 2B-3 FOR BRIDGE / PAVEMENT RELATIONSHIP
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS
US17
43,100
95,200
10,100
21,100
15,700
36,800
MILITARY CUTOFF RD
HAMPSTEAD BYPASS
25,300
56,500
29,300
68,300
2,500
5,300
800
1,400
20,500
43,900
US17
2017
2037
7/1/2016
U4751_Hyd_prm_wet_psh_20_con.dgn

PROJECT REFERENCE NO.	SHEET NO.
	20-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	3 OF 10

PERMIT DRAWING SHEET 52 OF 81

25 12.5 0 25 50

PLANS

REVISIONS

8/17/99

7/4/2016
U4750_build_prm_wet_psh_20-3_View-in.dgn
psaphavej

SITE 28

SITE 29

SITE 31

SITE 32

SITE 33

CHARLES M. MAINLAND

337

215

TS

HW

BURY INLET 1.0'

WILD MAGNOLIA RD

14' SOIL

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF ℄

MILITARY CUTOFF RD

FUTURE (BY OTHERS)

2GI

FS

15"

18" RCP-III

60" RCP-III

REMOVE

BURY OUTLET 1.0'

EW

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

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

CLASS I RIP RAP
EST. 2 TONS
6 SY GEOTEXTILE

REMOVE

24" CMP

BL-29

AT&T

JEFFREY S

TAIL DITCH
EST DDE +/- 210 CY
SEE DETAIL 17

TAIL DITCH
EST DDE +/- 95 CY
SEE DETAIL 27

WLB

JS

SF

S

TS

F

E

DENOTES FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
	20-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	4 OF 10

PERMIT DRAWING SHEET 53 OF 81

REVISIONS

8/17/99

SITE 34

SITE 35

SITE 26

AT&T

CROOKED PINE RD

20' SOIL

REMOVE

TS

RETAIN

HW

2Gb

42" RCP

66" RCP

2GI

RAISE HW +/- 2 FT

REPAIR CONC APRON

15"

JB w/MH

WLB

TAIL DITCH
EST DDE +/- 60 CY
SEE DETAIL 27

HTR

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

CLASS 'I' RIP RAP
ON BANKS ONLY
SEE DETAIL 40

358

WAYNE J. WATKINS

10' DRAINAGE EASEMENT

42" RCP

US 17 E

US 17 W

TYPE B-77 ATTENUATOR

-Y8-

-Y8RPDB-

25 12.5 0 25 50

PLANS

CLASS
EST. 1
5 SY

15" CAAP
2 ELBOW

2GI

30' RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

D

7/1/2016
U:\7501\wetland_prm_wet_psh_20-4_View-in.dgn
(psashelvel)

PROJECT REFERENCE NO.	SHEET NO.
	20-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	5 OF 10

PERMIT DRAWING SHEET 54 OF 81

REVISIONS

8/17/99

STANDARD 3' BASE DITCH SEE DETAIL 33

FILL IN EXIST DITCH EST 560 CY

FILL EXIST DITCH EST 560 CY

GTD

14' SOIL

REMOVE

24" CMP

TYPE B-77

-Y8RPDB-

1@12' X 8' RCBC

SITE 36

TS

USTRIES INC.

S 11° 15' 24.0" W

FUTURE (BY OTHERS)

P P DENOTES IMPACTS IN SURFACE WATER (POND)

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25 12.5 0 25 50

PLANS

7/1/2016
U4726_plan_prm_wet_psh_20-5_View-in.dgn
jasonharvey

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
	20-6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	6 OF 10

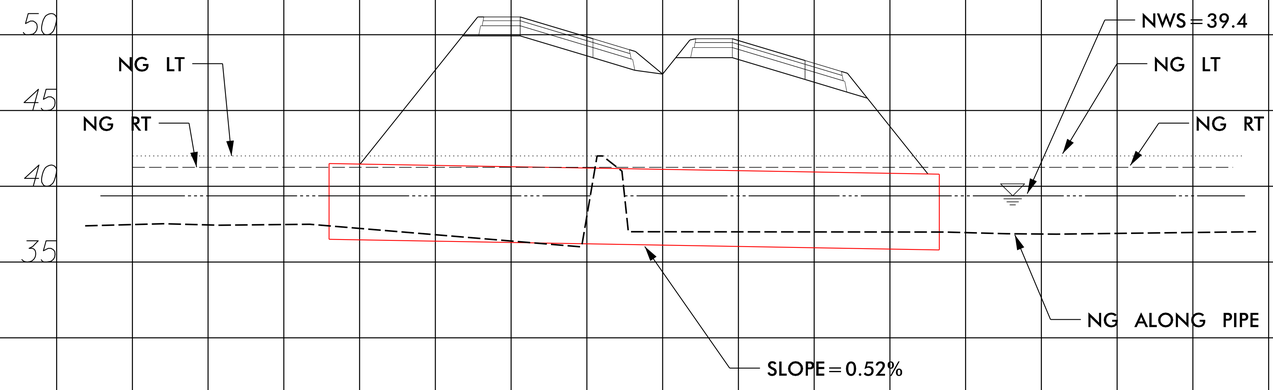
25 12.5 0 25 50

PLANS

PERMIT DRAWING
SHEET 55 OF 81

SITE 31

CL STA 215+62 -L-
1@60" RCP



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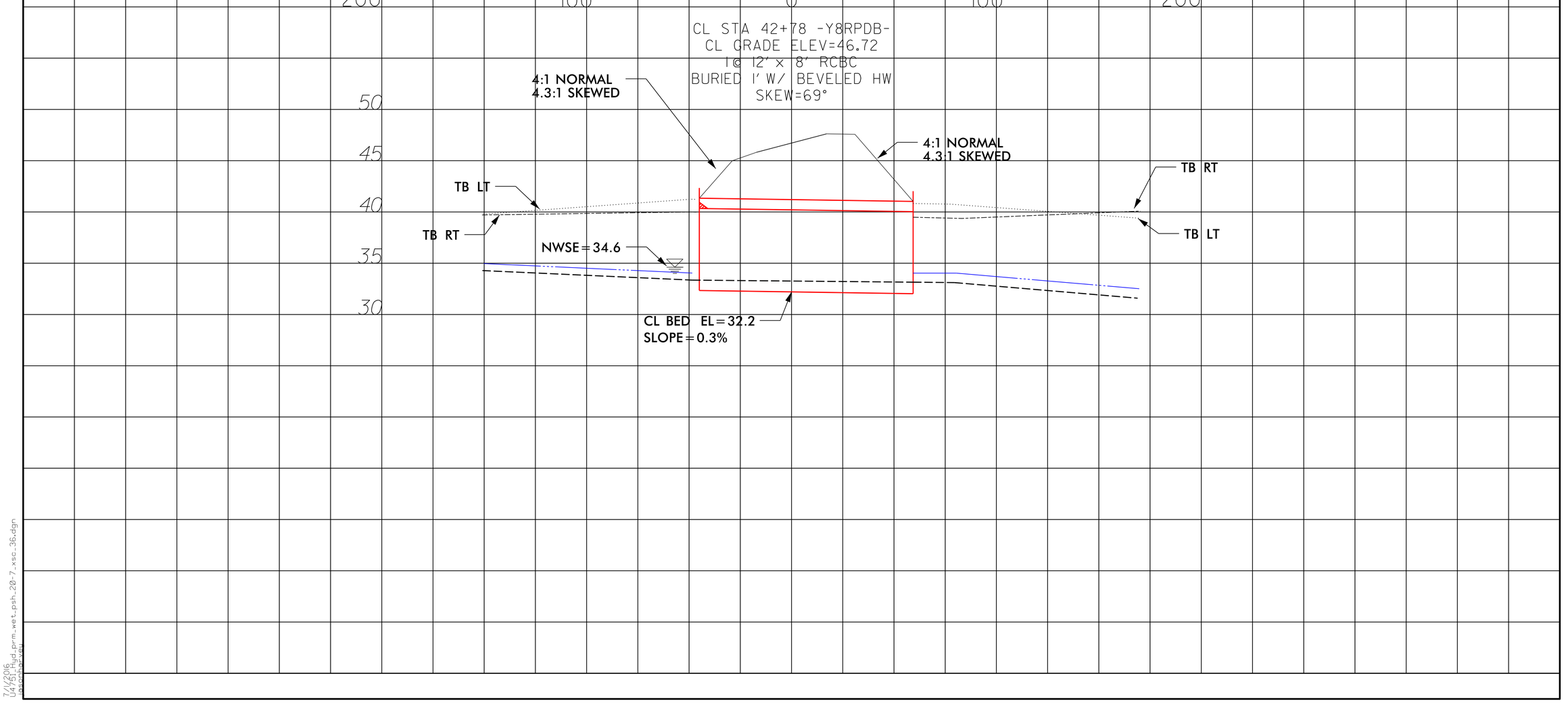
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
	20-7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	7 OF 10

25 12.5 0 25 50
PLANS

PERMIT DRAWING
SHEET 56 OF 81

SITE 36



7/1/2016
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psashby

8/23/99

SITE 28

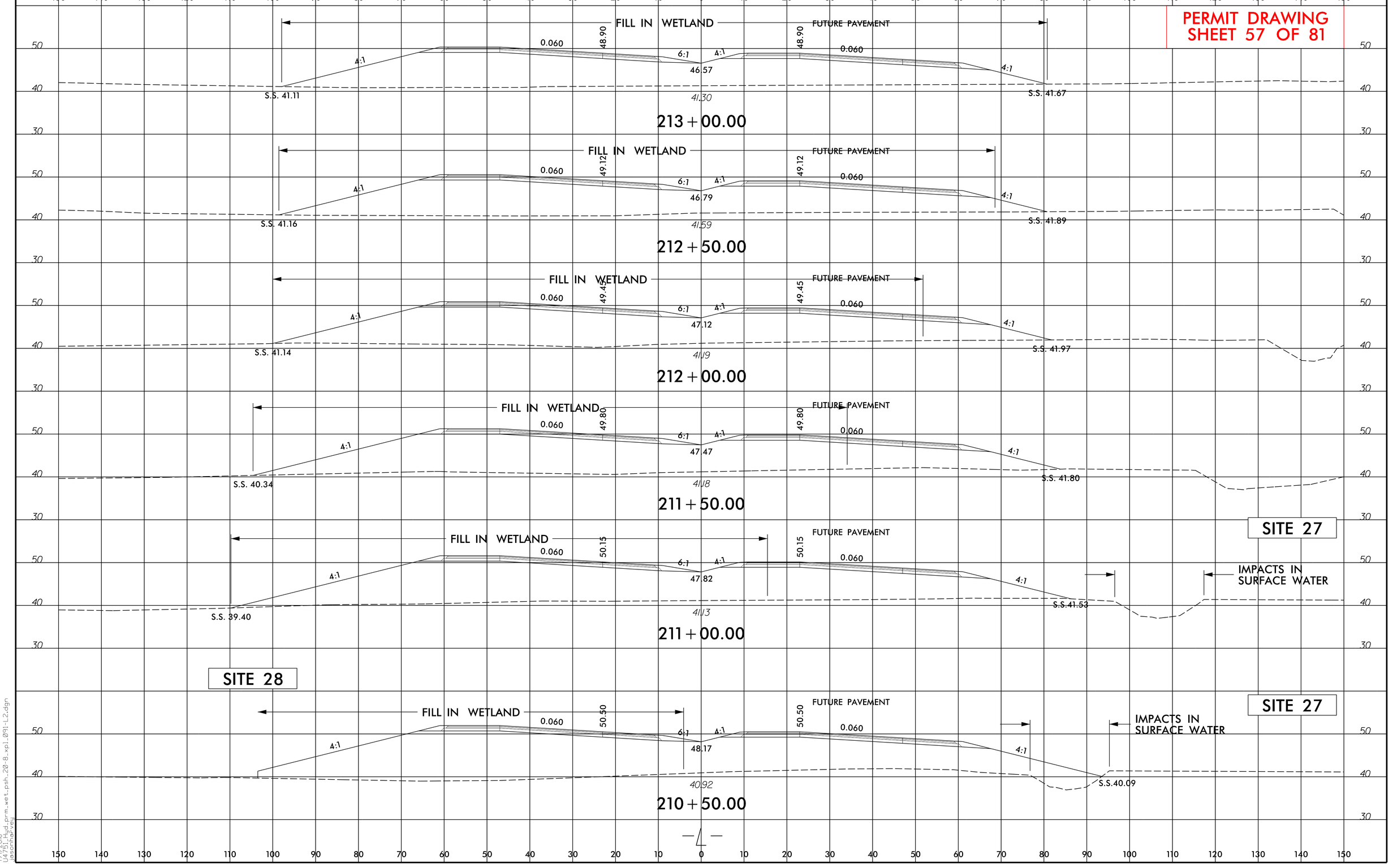
8 OF 10

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-91

PERMIT DRAWING
SHEET 57 OF 81

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



7/1/2016
U4751_Hyd_prm_wet_psh_20-8_xpl_091-L2.dgn
jasonharvey

8/23/99

9 OF 10

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-92

PERMIT DRAWING
SHEET 58 OF 81

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

50 40 30

SITE 31

TEMP IMPACTS IN SURFACE WATER

IMPACTS IN SURFACE WATER

FUTURE PAVEMENT

0.060 50.29 6:1 4:1 47.96 50.29 0.060 4:1

S.S. 38.63 42.25 S.S. 42.35

216 + 00.00

IMPACTS IN SURFACE WATER

FUTURE PAVEMENT

SITE 31

0.060 49.74 4:1 6:1 4:1 47.41 49.74 0.060 4:1

S.S. 41.70 41.55 S.S. 42.38

215 + 50.00

SITE 28

FILL IN WETLAND

FUTURE PAVEMENT

0.060 49.31 4:1 6:1 4:1 46.98 49.31 0.060 4:1

S.S. 41.85 41.03 S.S.41.10

215 + 00.00

FILL IN WETLAND

FUTURE PAVEMENT

0.060 49.01 4:1 6:1 4:1 46.68 49.01 0.060 4:1

S.S. 42.00 40.99 S.S. 41.06

214 + 50.00

FILL IN WETLAND

FUTURE PAVEMENT

0.060 48.84 4:1 6:1 4:1 46.51 48.84 0.060 4:1

S.S. 41.93 41.13 S.S. 41.43

214 + 00.00

SITE 28

FILL IN WETLAND

FUTURE PAVEMENT

EXCAVATION

0.060 48.80 4:1 6:1 4:1 46.47 48.80 0.060 4:1

S.S. 41.54 41.12 S.S. 41.48

213 + 50.00

7/1/2016
U4751_Hyd_prm_wet_psh_20-9_xpl_092-L2.dgn
asorihar\ej

8/23/99

10 OF 10

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-94

PERMIT DRAWING
SHEET 59 OF 81

SITE 33

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

60 50 40 30

FILL IN WETLAND — FUTURE PAVEMENT

0.060 59.00 6:1 4:1 56.67 59.00 0.060 4:1 4:1

S.S. 41.36 S.S. 41.32

41.48

220+00.00

FILL IN WETLAND — FUTURE PAVEMENT

0.060 57.67 6:1 4:1 55.34 57.67 0.060 4:1 4:1

S.S. 41.34 S.S. 41.32

41.50

219+50.00

FILL IN WETLAND — FUTURE PAVEMENT

0.060 56.34 6:1 4:1 54.01 56.34 0.060 4:1 4:1

S.S. 41.33 S.S. 41.79

41.56

219+00.00

FILL IN WETLAND — FUTURE PAVEMENT

0.060 55.02 6:1 4:1 52.69 55.02 0.060 4:1 4:1

S.S. 41.69 S.S. 41.49

41.75

218+50.00

SITE 33

— 4 —

7/1/2016
U4751_Hyd_prm_wet_psh_20-10_xpl_094-L2.dgn
jasonharvey

PROJECT REFERENCE NO.	SHEET NO.
U-4754	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 9

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWING
SHEET 60 OF 81

NAD 83/NSRS 2007

US17
43,100 / 95,200
10,100 / 21,100 — 15,700 / 36,800
MILITARY CUTOFF RD — HAMPSTEAD BYPASS
25,300 / 56,500 — 29,300 / 68,300
2,500 / 5,300 — 800 / 1,400
20,500 / 43,900
US17
2017 / 2037

MATCHLINE -Y8- STA 70+00 (SHEET 33)

ENLARGEMENT
SEE SHEET 21–4

ENLARGEMENT
SEE SHEET 21–3

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

DETAIL 16
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D=3 ft.
B=3 ft.
FROM STA 60+25 TO STA 61+50 –Y8RPCA– RT

JERRY E. FULLWOOD
KAY A. LEE
ALEJANDRO B. RIAS
MONKA L. ETSELL
MARK F. HOLLIFIELD
KENNETH WAYNE BARROW
DONALD D. ENGLEHART
LEMER FURR
ETTA P. WILSON, HEIRS
JOHN HEFFNER
MARK F. HOLLIFIELD

SITE 37
SITE 30
SITE 28

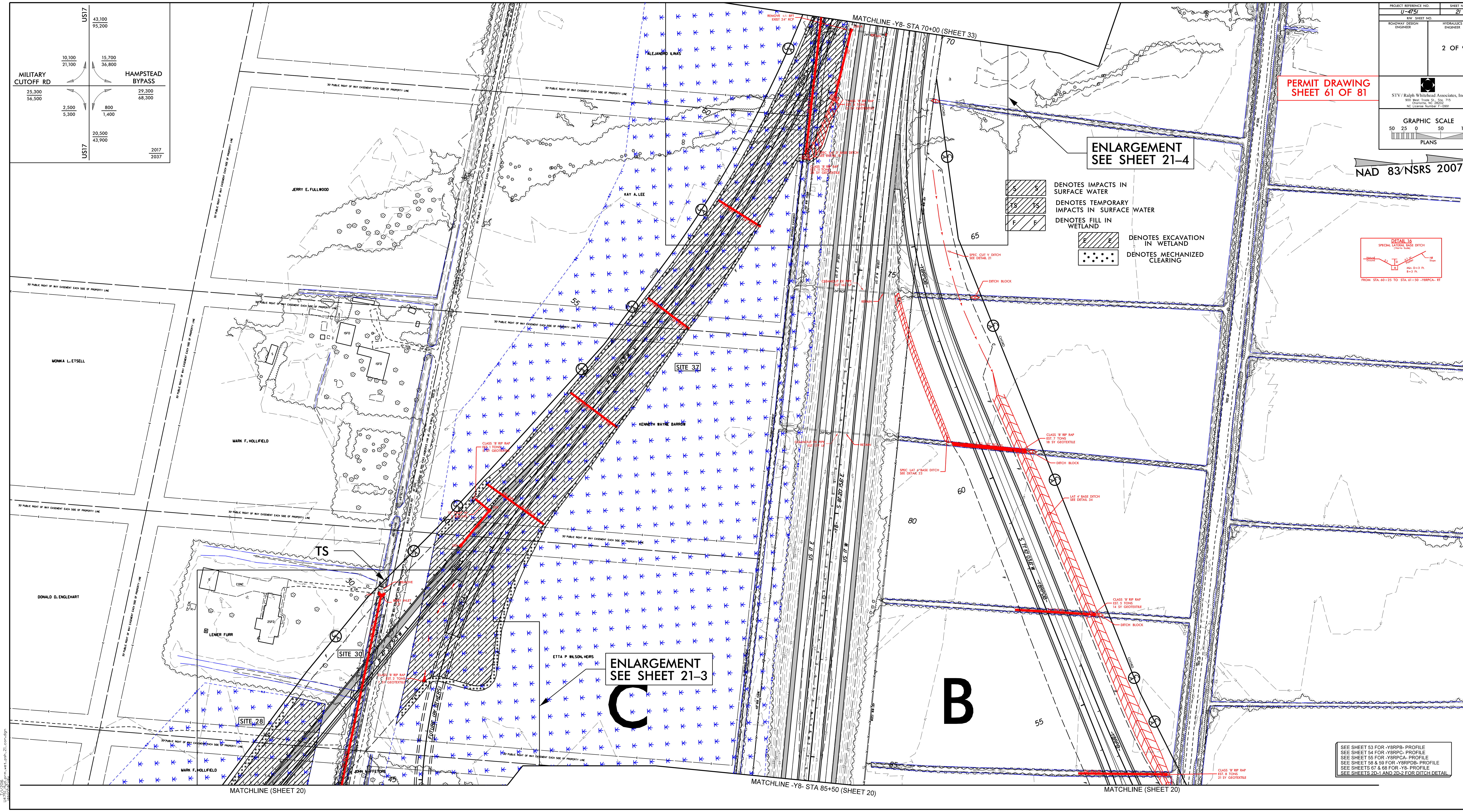
TS

C

B

MATCHLINE (SHEET 20)
MATCHLINE -Y8- STA 85+50 (SHEET 20)
MATCHLINE (SHEET 20)

SEE SHEET 53 FOR -Y8RPB- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 55 FOR -Y8RPCA- PROFILE
SEE SHEET 58 & 59 FOR -Y8RPDB- PROFILE
SEE SHEETS 67 & 68 FOR -Y8- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL


PROJECT REFERENCE NO.
U-4751
SHEET NO.
21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
2 OF 9
PERMIT DRAWING
SHEET 61 OF 81
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991
GRAPHIC SCALE
50 25 0 50 100
PLANS
NAD 83/NSRS 2007
US17
43,100
95,200
10,100
21,100
15,700
36,800
MILITARY CUTOFF RD
HAMPSTEAD BYPASS
25,300
56,500
29,300
68,300
2,500
5,300
800
1,400
20,500
43,900
US17
2017
2037
MATCHLINE -Y8- STA 70+00 (SHEET 33)
MATCHLINE -Y8- STA 85+50 (SHEET 20)
MATCHLINE (SHEET 20)
MATCHLINE (SHEET 20)
ENLARGEMENT
SEE SHEET 21-4
ENLARGEMENT
SEE SHEET 21-3
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES MECHANIZED CLEARING
DETAIL 16
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
4:1 or Flatter
Min. D=3 Ft.
B=3 Ft.
FROM STA. 60+25 TO STA. 61+50 -Y8RPCA- RT
JERRY E. FULLWOOD
MONIKA L. ETSELL
MARK F. HOLLIFIELD
DONALD D. ENGLEHART
LENIER FURR
ALEJANDRO ILINAS
KAY A. LEE
KENNETH WAYNE BARROW
ETTA P WILSON, HEIRS
JOHN MAFFETORE
SITE 37
SITE 30
SITE 28
TS
C
B
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE
REMOVE +/- 8FT EXIST 24" RCP
CLASS 'B' RIP RAP EST. 8 TONS 21 SY GEOTEXTILE
SPEC. LAT 3' BASE DITCH SEE DETAIL 16
CLASS 'B' RIP RAP EST. 11 TONS 28 SY GEOTEXTILE
CLEANOUT EX PIPE EST 162 LF
RETAIN
CLEANOUT EX PIPE EST 177 LF
SPEC CUT V DITCH SEE DETAIL 21
DITCH BLOCK
CLASS 'B' RIP RAP EST. 7 TONS 18 SY GEOTEXTILE
SPEC LAT 4' BASE DITCH SEE DETAIL 23
LAT 4' BASE DITCH SEE DETAIL 34
CLASS 'B' RIP RAP EST. 5 TONS 14 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
REMOVE
BUILT INLET
-Y8RPDB-
-Y8RPB-
-Y8RPC-
-Y8RPCA-
US 17 E
US 17 W
S 77°10'03.6" W
FUTURE (BY OTHERS)
WILD MAGNOLIA RD
CHORD
SEE SHEET 53 FOR -Y8RPB- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 55 FOR -Y8RPCA- PROFILE
SEE SHEET 58 & 59 FOR -Y8RPDB- PROFILE
SEE SHEETS 67 & 68 FOR -Y8- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
7/1/2016
U4751_Hyd_prm_wet_psh_21_con.dgn

PROJECT REFERENCE NO.	SHEET NO.
	21-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	3 OF 9

PERMIT DRAWING SHEET 62 OF 81

25 12.5 0 25 50

PLANS

REVISIONS

8/17/99

TS

REMOVE

HW

BURY INLET 1.0'

60" RCP-N

SF

JS

SITE 30

SITE 37

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

HP

FUTURE (BY OTHERS)

N 47° 39' 13" W

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

CONC

8' GR

2SFD

LENIER FURR

WLB

SITE 28

HOLLIFIELD

JOHN MAFFETORE

45

JOHN MAFFETO

30' PUBLIC RIGHT OF WAY EAS

BURY OUTLET 1.0'

60" RCP-N

CLASS 1 RIPRAP
ON BANKS ONLY
SEE DETAIL 42

2GI

15"

MOVE

TS

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

7/1/2016
U4760_prm_wet_psh_21-3_View-in.dgn
design view

PROJECT REFERENCE NO.	SHEET NO.
	21-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	4 OF 9

25 12.5 0 25 50

PLANS

PERMIT DRAWING SHEET 63 OF 81

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

MATCHLINE -Y8- STA 70+00 (SHEET 33)

REMOVE +/- 8FT EXIST 24" RCP

2GI-A

24" RCP

RETAIN

30" RCP

30" RCP

CLASS 'B' RIP RAP
EST. 8 TONS
21 SY GEOTEXTILE

SPEC LAT 3' BASE DITCH
SEE DETAIL 16

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

EQ. PIPE

36" RCP III

48" WW MSW

48" WW MSW

10' DRAINAGE EASEMENT

2340'R

CHORD

SITE 37

O ILINAS

REVISIONS

8/17/99

7/1/2016
U4750_hyd_prm_wet_psh_21-4_View-in.dgn
gsanchez

5/14/99

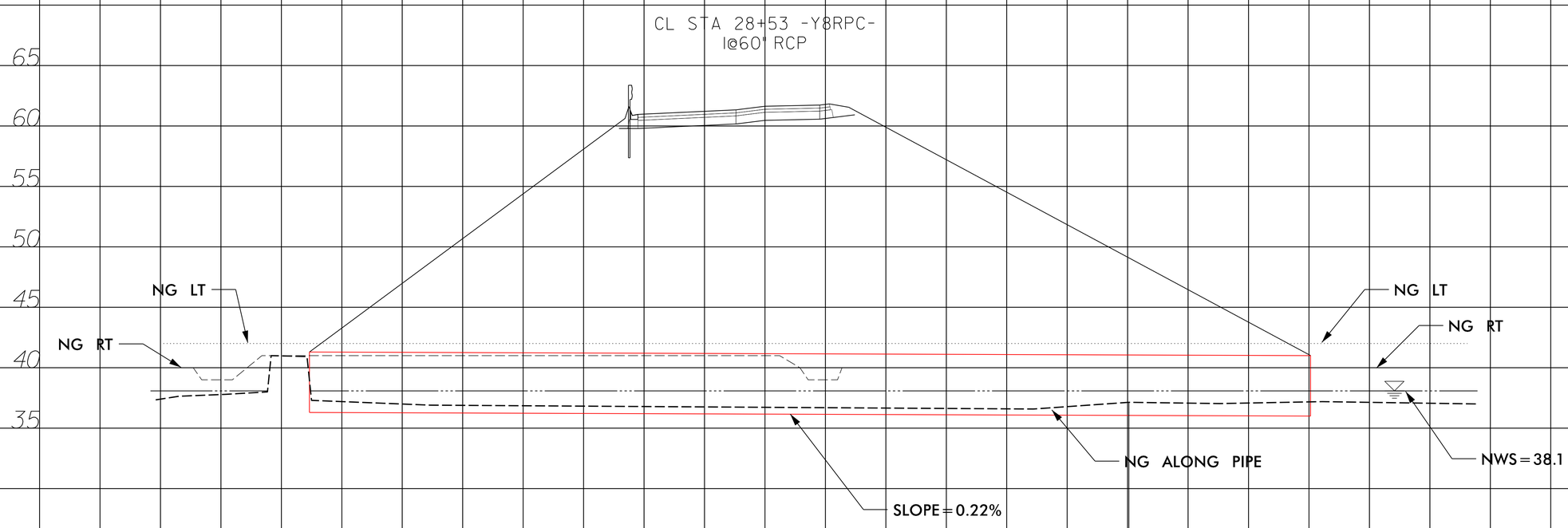
PROJECT REFERENCE NO.	SHEET NO.
	21-5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	5 OF 9

25 12.5 0 25 50

PLANS

PERMIT DRAWING
SHEET 64 OF 81

SITE 30



7/1/2016
U:\Projects\Hydraulics\Projects\Roadway\Standard\prm_wet_psh_21-5_xsc_30.dgn
psaphr.xsl

8/23/99

6 OF 9

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-182

PERMIT DRAWING
SHEET 65 OF 81

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

50 40 30

-Y8RPCA-
66+48.10
47.22

0.007 0.005

3:1 3:1

FILL IN WETLAND

0.030

S.S.40.25

S.S.41.14

44.11

66 + 50.00

SITE 37

-Y8RPCA-
66+98.67
47.51

0.008 0.024

FILL IN WETLAND

0.030

3:1 3:1

S.S.40.20

S.S.41.05

44.25

66 + 00.00

-Y8RPCA-
67+49.19
47.68

0.025 0.025

FILL IN WETLAND

0.030

3:1 3:1

S.S.39.77

S.S.41.04

44.54

65 + 50.00

-Y8RPCA-
67+99.66
47.79

0.025 0.025

FILL IN WETLAND

0.030

3:1 3:1

S.S.39.87

S.S.41.10

44.48

65 + 00.00

-Y8RPCA-
68+50.08
47.90

0.025 0.025

FILL IN WETLAND

0.030

3:1 3:1

S.S.40.40

S.S.41.35

44.96

64 + 50.00

FILL IN WETLAND

0.025

0.030

3:1 3:1

S.S.40.59

S.S.40.95

44.93

64 + 00.00

-Y8-

7/1/2016
U4751_Hyd_prm_wet_psh_21-6_xpl_182-Y8.dgn
asonharvey

8/23/99

7 OF 9

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-212

PERMIT DRAWING
SHEET 66 OF 81

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

60 50 40 30

SITE 28

FILL IN WETLAND

59.40 60.09

0.025 0.025

3:1

S.S.41.49

41.32

27 + 00.00

SITE 30

IMPACTS IN SURFACE WATER

4:1

S.S.41.37

FILL IN WETLAND

58.37 59.05

0.025 0.025

3:1

S.S.41.32

41.47

26 + 50.00

SITE 30

IMPACTS IN SURFACE WATER

4:1

S.S.41.62

SITE 28

FILL IN WETLAND

57.32 58.00

0.025 0.025

3:1

S.S.41.11

41.40

26 + 00.00

4:1

S.S.41.53

FILL IN WETLAND

56.27 56.95

0.025 0.025

3:1

S.S.40.90

41.15

25 + 50.00

4:1

S.S.41.33

-Y8RPC-

7/1/2016
U4751_Hyd_prm_wet_psh_21-7_xpl_212-Y8RPC.dgn
asonharvey

8/23/99

8 OF 9

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-213

PERMIT DRAWING
SHEET 67 OF 81

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

60 50 40 30

SITE 30

60.87 61.57 0.025 0.025

IMPACTS IN SURFACE WATER

FILL IN WETLAND

4:1

S.S.42.01

42.11

S.S.41.63

SITE 37

29+00.00

SITE 30

60.95 61.64 0.025 0.025

3:1

IMPACTS IN SURFACE WATER

4:1

S.S.40.60

38.03

S.S.41.89

28+50.00

SITE 30

60.73 61.42 0.025 0.025

3:1

IMPACTS IN SURFACE WATER

4:1

S.S.40.67

40.79

S.S.41.96

28+00.00

SITE 28

FILL IN WETLAND

60.21 60.90 0.025 0.025

3:1

SITE 30

IMPACTS IN SURFACE WATER

4:1

S.S.41.55

41.18

S.S.41.99

27+50.00

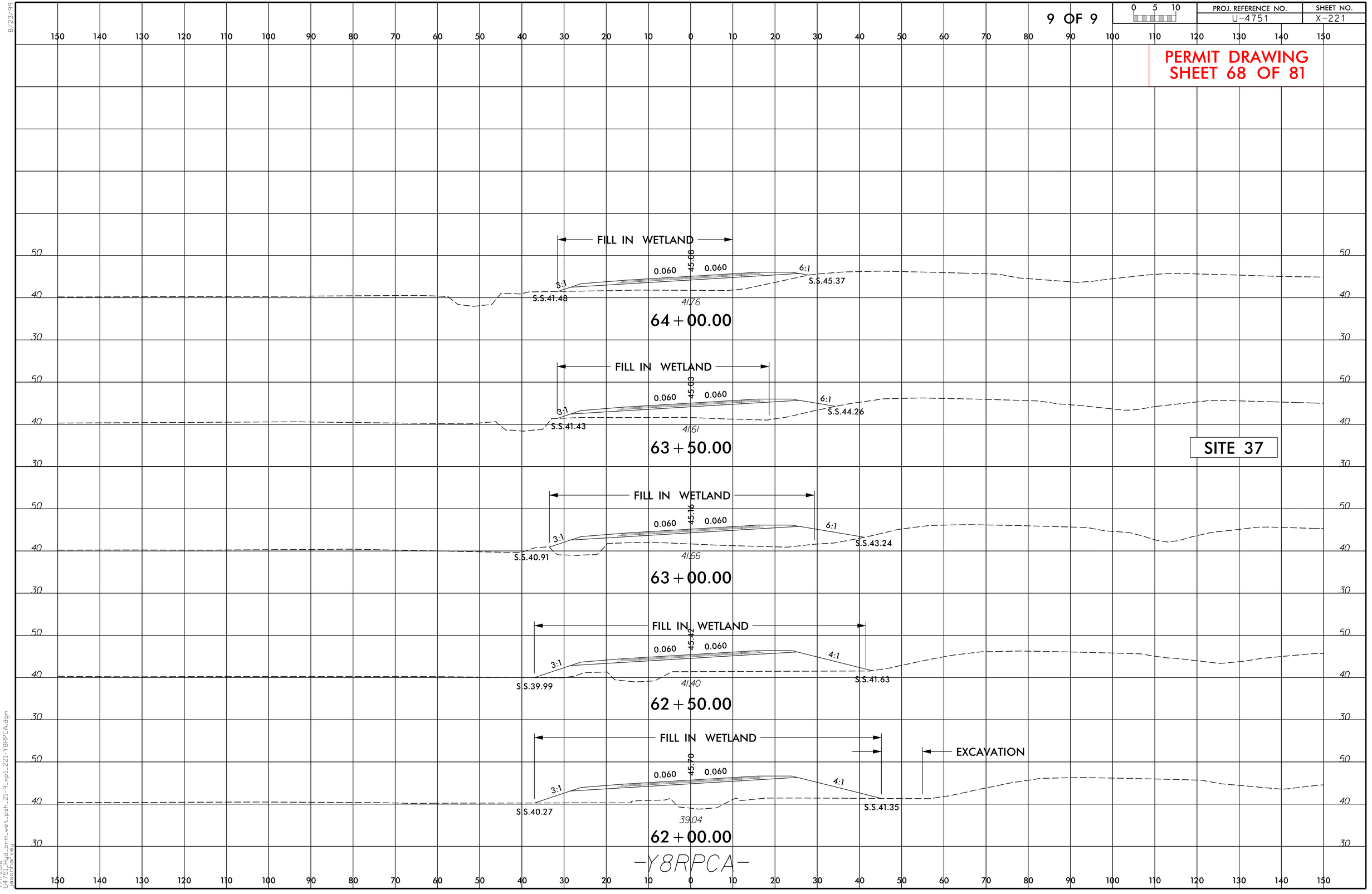
-Y8RPC-

7/1/2016
U4751_Hyd_prm_wet_psh_21-8_xpl_213-Y8RPC.dgn
asonharvey

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-221

PERMIT DRAWING
SHEET 68 OF 81



SITE 37

-Y8RPCA-

8/23/99

7/1/2016
U4751_Hyd_prm_wet_psh_21-9_xpl_221-Y8RPCA.dgn
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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 3

50 25 0 50 100
PLANS

NAD 83/NSRS 2007

US17
43,100 / 95,200
10,100 / 21,100
15,700 / 36,800
MILITARY CUTOFF RD
HAMPSTEAD BYPASS
25,300 / 56,500
2,500 / 5,300
800 / 1,400
29,300 / 68,300
20,500 / 43,900
US17
2017 / 2037

PERMIT DRAWING SHEET 69 OF 81

MATCHLINE -Y8RPD- STA 17+50 (SHEET 20)

MATCHLINE -Y8- STA 101+25 (SHEET 20)

SITE 26

SHELTON THORNTON

DIANE THI MINH CHAU TA

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

10' DRAINAGE EASEMENT

FUTURE (BY OTHERS)

US 17 E

S 8°20'56" E

US 17 W

-Y8RPA-

48" WW (SBW)

CLASS 'B' RIP RAP
EST. 1 TONS
5 SY GEOTEXTILE

CLASS 'A' RIP RAP
EST. 28 TONS
EST. 50 SY GEOTEXTILE

4' CMP FLARE END SECTION

-Y8RPB-

-Y8RPC-

-Y8RPD-

-Y8-

CHORD

105

120

125

30

25

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 56 FOR -Y8RPD- PROFILE

MATCHLINE -Y8- STA 109+50 (SHEET 34)

7/4/2016
U4751_hyd_prm_wet_psh_22.dgn
jpeachey

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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 3

50 25 0 50 100
PLANS

NAD 83/NSRS 2007

MATCHLINE -Y8RPD- STA 17+50 (SHEET 20)

MATCHLINE -Y8- STA 101+25 (SHEET 20)

MATCHLINE -Y8- STA 109+50 (SHEET 34)

SITE 26

SHELTON THORNTON

DIANE THI MINH CHAU TA

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

FUTURE (BY OTHERS) US 17 E

FUTURE (BY OTHERS) US 17 W

FUTURE (BY OTHERS) Y8RPA

Y8RPB

Y8RPC

Y8RPD

CLASS 'B' RIP RAP
EST. 1 TONS
5 SY GEOTEXTILE

CLASS 'I' RIPRAP
EST 276 TONS
EST GEOTEXTILE 50 SY

CLASS 'B' RIP RAP
EST. 1 TONS
5 SY GEOTEXTILE

CHORD

S 81°20'56" E

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SEE SHEET 56 FOR -Y8RPD- PROFILE

US17

43,100
95,200

10,100
21,100

15,700
36,800

MILITARY CUTOFF RD

HAMPSTEAD BYPASS

25,300
56,500

2,500
5,300

29,300
68,300

800
1,400

20,500
43,900

US17

2017
2037

PERMIT DRAWING
SHEET 70 OF 81

7/1/2016
U4751_wetland_prm_wet_psh_22_con.dgn
jaschnaidt

8/23/99

3 OF 3

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-197

PERMIT DRAWING
SHEET 71 OF 81

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

50 40 30

-Y8RPD-
28+70.59
47.55
0.046
0.020
3:1
S.S.40.10
45.64
111+50.00

-Y8RPD-
28+20.47
FILL IN WETLAND
47.43
0.020
0.020
3:1
S.S.40.17
45.65
111+00.00

SITE 26

-Y8RPD-
27+70.20
FILL IN WETLAND
47.15
0.020
0.020
3:1
S.S.40.30
45.62
110+50.00

-Y8RPD-
27+19.70
FILL IN WETLAND
46.75
0.020
0.020
3:1
S.S.40.22
46.05
110+00.00

-Y8RPD-
26+68.92
FILL IN WETLAND
46.40
0.020
0.025
3:1
S.S.40.68
46.66
109+50.00

46.13
109+00.00

-Y8-

7/1/2016
U4751_Hyd_prm_wet_psh_22-3_xpl_197-Y8.dgn
jasonharvey

PROJECT REFERENCE NO.	SHEET NO.
U-4751	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 2

STV / Ralph Whitehead Associates, Inc.
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Charlotte, NC 28202
NC License Number F-0991

PERMIT DRAWING SHEET 72 OF 81

50 25 0 50 100
PLANS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CORBETT INDUSTRIES INC.

30

35

40

SITE 41

SITE 38

TS

EXISTING R/W

48" WW JSBW

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

V10 = 8.9 FT/S

48" RCP-III

COLLAR

US 17 W

US 17 W 36'BST

-Y8-
S 67° 54' 42.7" E

229.66'

48" RCP

RETAIN

CONC

18" RCP

US 17 E

US 17 E 37'BST

12" BLK

48" WW ISBW

MATCHLINE -Y8- STA 44+00 (SHEET 32)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SEE SHEET 66 FOR -Y8- PROFILE

7/1/2016
U4751_mid_prm_wet_psh_31.dgn
jasonharvey

PROJECT REFERENCE NO.	SHEET NO.
U-4751	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 2

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PERMIT DRAWING SHEET 73 OF 81

50 25 0 50 100
PLANS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

CORBETT INDUSTRIES INC.

SITE 41

SITE 38

TS

CLASS 'I' RIP RAP
EST 24 TONS
50 SY GEOTEXTILE

48" MW JSBW

V10 = 8.9 FT/S

48" RCP III

COLLAR

48" RCP

RETAIN

CONC

18" RCP

12" BLK

48" WW ISBW

EXISTING R/W

US 17 W

US 17 W 36'BST

US 17 E

US 17 E 37'BST

-Y8-
S 67° 54' 42.7" E

229.66'

MATCHLINE -Y8- STA 44+00 (SHEET 32)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SEE SHEET 66 FOR -Y8- PROFILE

7/4/2016
U4751_mid_prm_wet_psh_31_con.dgn
dsoohar

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 2

PERMIT DRAWING SHEET 74 OF 81

50 25 0 50 100
PLANS

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 57+00 (SHEET 32)

MATCHLINE -Y8- STA 70+00 (SHEET 21)

CORBETT INDUSTRIES INC.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

MICHAEL L. STRAUSS

BILLIE JEAN SCHAEFFER

ALEJANDRO ILINAS

US 17 W

US 17 E

-Y8-

-Y8RPCA-

EXISTING R/W

48" WW ISBW

18" RCP-III

24" RCP-III

COLLAR

RETAIN

INV. 39.74'

INV. 40.00'

N 70° 56' 43.4" W

CHORD

2340'R

10' DRAINAGE EASEMENT

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

SITE 37

ELIMINATE CUT DITCH SHOWN IN CROSS SECTIONS STA 64+00 - 65+00 -Y8RPCA-

SEE SHEET 55 FOR -Y8RPCA- PROFILE
SEE SHEET 59 FOR -Y8RPDB- PROFILE
SEE SHEET 67 FOR -Y8- PROFILE

7/7/2016
U4751_plot_prm_wet_psh_33.dgn
dsconley

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 2

PERMIT DRAWING
SHEET 75 OF 81

50 25 0 50 100
PLANS

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 57+00 (SHEET 32)

MATCHLINE -Y8- STA 70+00 (SHEET 21)

CORBETT INDUSTRIES INC.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

MICHAEL L. STRAUSS

BILLIE JEAN SCHAEFFER

ALEJANDRO ILINAS

US 17 W

US 17 E

-Y8-

-Y8RPCA-

EXISTING R/W

48" WW ISBW

18" RCP-III

24" RCP-III

COLLAR

INV. 39.74

INV. 40.00

RETAIN

US 17 W 36"BST

US 17 E 37"BST

N 70° 56' 43.4" W

CHORD

2340'R

10' DRAINAGE EASEMENT

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

SITE 37

ELIMINATE CUT DITCH SHOWN IN CROSS SECTIONS STA 64+00 - 65+00 -Y8RPCA-

SEE SHEET 55 FOR -Y8RPCA- PROFILE
SEE SHEET 59 FOR -Y8RPDB- PROFILE
SEE SHEET 67 FOR -Y8- PROFILE

7/1/2016
U4751_plid_prm_wet_psh_33_con.dgn
jasonlevey

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	1 OF 3

PERMIT DRAWING SHEET 76 OF 81

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

50 25 0 50 100
PLANS

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 109+50 (SHEET 22)

110 115 120

EXISTING R/W

FUTURE (BY OTHERS)
-Y8RPA-
S 78° 20' 15.6" E

48" WW ISBW

US 17 W

US 17 W 36'BST

48" RCP

-Y8-
S 81° 20' 15.6" E

US 17 E

US 17 E 37'BST

-Y8RPD-

229.66'

1340'R

RETAIN 18" RCP

HW

COLLAR

EXTEND 18" RCP III

CLASS B RIP RAP
TYP 2 TONS
7 SY GEOTEXTILE

ADJUST SS

48" WW ISBW

SITE 26

SITE 39

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

10' DRAINAGE EASEMENT

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

30

CONG VU PHAM

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

WLB STM

SEE SHEET 56 FOR -Y8RPD- PROFILE
SEE SHEET 69 FOR -Y8- PROFILE

7/4/2016
U4751_prd_prm_wet_psh_34.dgn
jasonhevey

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	2 OF 3

PERMIT DRAWING SHEET 77 OF 81

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

50 25 0 50 100
PLANS

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 109+50 (SHEET 22)

110 115 120

EXISTING R/W

FUTURE (BY OTHERS)
-Y8RPA-
S 78° 20' 15.6" E

US 17 W

48" WW ISBW

48" RCP

RETAIN

US 17 W 36"BST

-Y8-
S 81° 20' 15.6" E

US 17 E

US 17 E 37"BST

-Y8RPD-

SITE 39

SITE 26

HW

COLLAR

EXTEND 48" RCP III

ADJUST SS

CLASS "B" RIP RAP
TYP 2 TONS
7 SY GEOTEXTILE

1340'R

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

10' DRAINAGE EASEMENT

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

CONG VU PHAM

30

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SEE SHEET 56 FOR -Y8RPD- PROFILE
SEE SHEET 69 FOR -Y8- PROFILE

7/7/2016
U4751_prd_prm_wet_psh_34_con.dgn
jasonhevey

8/23/99

3 OF 3

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-4751	X-199

PERMIT DRAWING
SHEET 78 OF 81

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

50 40 30

FILL IN WETLAND

0.025

3:1

45.88

117 + 50.00

S.S.39.58

0.025 FILL IN WETLAND

3:1

45.67

117 + 00.00

S.S.40.00

0.025 FILL IN WETLAND

3:1

45.74

116 + 50.00

S.S.40.30

SITE 39

0.025 FILL IN WETLAND

3:1

45.48

116 + 00.00

S.S.40.01

0.025 FILL IN WETLAND

3:1

45.34

115 + 50.00

S.S.39.16

0.025 FILL IN WETLAND

3:1

44.85

115 + 00.00

S.S.40.12

-Y8-

7/1/2016
U4751_Hyd_prm_wet_psh_34-3_xpl_199-Y8.dgn
asonharvey

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	27+77-28+11 -L- RT	ROADWAY FILL	< 0.01			0.02						
	+15-15+20 -Y1RPD- LT&	ROADWAY FILL	1.11			0.19						
	+20-15+29 -Y1RPD- LT&	48" PIPE						0.03	< 0.01			
2	+16-24+68 -Y1RPB- LT&	ROADWAY FILL	0.26		0.05	0.03						
3	52+3-63+29 -L- LT&RT	ROADWAY FILL	5.02			0.51						
4	63+20-77+3 -L- LT&RT	ROADWAY FILL	6.02			0.61						
5	84+90-85+68 -L- LT	ROADWAY FILL				< 0.01						
SHEET TOTALS*:			12.41		0.05	1.37		0.03	< 0.01	0	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
9-29-16
New Hanover
U-4751
40191.1.2
SHEET 79 OF 81

Revised 2013 10 24

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
6	110+42 -L- LT&RT	2@42" PIPE						0.21	0.03			
		Streambank Stabilization						< 0.01				
7	14+05 -Y4 LT&RT	42" PIPE						0.16				
8	110+41-117+49 -L- LT	ROADWAY FILL						0.47				
9	112+57-116+35 -L- RT	ROCK FILL						0.51				
10	117+49 -L- LT&RT	2@9'x7' RCBC						0.34	0.19	373	201	
11	118+15-217+87 -L- LT	ROADWAY FILL						0.28				
12	120+35-127.74-L- RT	ROCK FILL						0.70				
13	126+00-126+50 -L- LT	PIPE/TAIL DITCH						< 0.01	< 0.01			
14	124+39-145+48 -L- RT	ROADWAY FILL						2.05	0.02			
15	151+41 -L- RT	2@10'x10' RCBC	< 0.01		0.06	0.02		0.15	0.02	303	58	
16	151+41-165+59 -L- LT&RT	ROADWAY FILL	5.72			0.34						
17	166+32 -L- LT&RT	48" PIPE						0.06	< 0.01			
18	166+73 -L- LT&RT	48" PIPE						0.07	< 0.01	231	19	
19	165+51-168+79 -L- LT&RT	ROADWAY FILL	0.51			0.01						
20	163+73 -L- LT&RT	ROADWAY FILL						0.11				
21	169+92-180+39 -LLLT&RT	ROADWAY FILL	4.09			0.31						
22	175+00-184+16 -L- LT&RT	ROADWAY FILL						0.98	0.02			
23	177+13-198+17 -L- LT&RT	ROADWAY FILL	6.43		0.02	0.47		0.42	0.04			
24	27+55-31+96 -SR4- LT	ROADWAY FILL	0.03			0.04						
25	199+05 -L- LT&RT	ROADWAY FILL						0.12	< 0.01	251	16	
SHEET TOTALS*:			16.77		0.08	1.20		6.61	0.34	1158	294	0

*Rounded totals are sum of actual impacts

NOTES:

Revised 2013 10 24

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
9-29-16
New Hanover
U-4751
40191.1.2
SHEET 80 OF 81

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
26	15+94-29+38 -Y8RPDB-	ROADWAY FILL	10.83			0.94						
27	205+35-211+16 -L- LT&RT	42" PIPE						0.25	0.02	544	46	
		Streambank Stabilization						< 0.01		14		
28	208+35-214+86 -L- LT&RT	ROADWAY FILL	4.60		< 0.01	0.29						
29	212+90-213+70 -L- RT	TAIL DITCH						< 0.01	0.02	34	46	
30	+22-30+19 -Y8RPC- LT&	60" PIPE						0.14	< 0.01			
		Streambank Stabilization						< 0.01				
31	215+61.5 -L- LT&RT	60" PIPE						0.08	0.01			
32	214+85 -L- RT	TAIL DITCH						< 0.01	0.02	36	33	
33	216+46-225+15 -L- LT&RT	ROADWAY FILL	5.76			0.40						
34	223+72.58-224+45 -L- RT	TAIL DITCH						0.01	0.01	32	37	
35	33+79 -Y8RPDB- LT	TAIL DITCH						0.19	< 0.01			
		Streambank Stabilization						< 0.01				
36	-74-42+78 -Y8RPDB- LT &	TAIL DITCH/12'x8' RCBC						0.34	0.04	200	56	
		Streambank Stabilization						0.02		41		
37	4.6-62+90 -Y8RPCA- LT &	ROADWAY FILL	4.77		0.05	0.51						
38	40+46 -Y8- LT	48" PIPE						0.01	0.02	43	10	
39	112+37-120+42 -Y8- RT	ROADWAY FILL	0.05			0.08						
40	18+68 -Y18- LT	RIPRAP						0.06		20		
41	37+46-39+65 -Y8- LT	ROADWAY FILL				0.01						
TOTALS*:			55.19		0.19	4.80		7.77	0.50	2122	522	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
9-29-16
New Hanover
U-4751
40191.1.2

Revised 2013 10 24

April 29, 2016

U-4751 NEU Narrative

Utility Owners:

Power (Distribution)**:** Duke Energy Progress - contact Wayne Aycock
910-620-1487
wayne.aycock@duke-energy.com

Power (Transmission)**:** Duke Energy Progress - contact Jamie Loy
910-546-6034
Jamie.loy@duke-energy.com

Telephone: AT&T - contact Lance Lalibgrte
910-620-3901
Lancelalibgrte67@gmail.com

Telephone: AT&T Legacy - contact Homer Marona
910-638-1798
hmarona@embarqmail.com

Telecommunications: Level 3 Communications - contact Mike Weaver
919-710-8891
Mike.weaver@level3.com

Telecommunications: MCNC - contact Justin Calloway
336-692-7572
justin@tprcbroadbanr.com

Telecommunications: Spirit Communications - contact Justin Calloway
336-692-7572
justin@tprcbroadbanr.com

CATV: Time Warner Cable - contact Robert John
910-772-5757
Robert.john@twcable.com

Water: Cape Fear Public Utility Authority - contact David Dailey
910-332-6626
daviddailey@cfpua.org

General Utility Relocation:

All dry utility lines inside the project limits currently within construction limits will be adjusted as necessary or relocated away from construction before project let. All wet utility lines currently within construction limits will be adjusted as necessary or relocated by the Contractor during the construction of the project.

Existing Utilities:

- **Water:** Existing 8" water line runs along the east side of existing Military Cuttoff Road where it ties into the east side of Market Street at Sta. -Y- 52+00 and continues along Market Street.

  Existing 12" and 16" water line begins at Sta. -L- 119+00 along the west side of the -L- line and continues until Sta. -L- 138+00.

- **Power** (Distribution)**:** Duke Energy Progress has 3-Phase power along -L-, -Y-, and -Y1- both underground power and overhead. Poles in conflict with construction, and underground power in conflict with proposed drainage, cuts and fill will be relocated.

- **Joint Use:** AT&T, Level 3, and Charter Communications have overhead fiber along both sides of -L- and -Y1-. The overhead fiber is joint-use attached to Duke pole's and will be relocated to Duke's new power poles.

- **Power** (Transmission)**:** Duke Energy Progress will be shifting four of their transmission towers in line to avoid conflicts with the proposed roadway.

Proposed Utility Relocation:

- **Water:** Proposed 8" water line relocation will begin at Sta. -L- 24+00 on Military Cuttoff Road and continues along the inside of -Y1RPD- where it ties into the existing 8" water line along Market street. The 8" water line will be installed by open cut.

  Proposed 12" and 16" water lines at Sta. -L- 118+00 being relocated out and around to avoid conflicts with the proposed drainage design. The 12" and 16" water lines will be installed by open cut.

  Proposed 12" and 16" water lines being relocated to the east side of the -L- line at Sta. -L- 138+00 to avoid conflict with the proposed drainage ditch on the west side. The proposed 12" and 16" water lines will be installed by open cut.

- **CATV:** Proposed CATV serviced by Time Warner Cable to be installed on the eastern side of -Y1RPD-. The CATV line will be installed via trenchless install.

- **Joint Use:** Proposed overhead joint use line will include Duke Energy Progress power (distribution) and fiber optic communication serviced by AT&T Telephone, Charter and Level 3 Communications. The overhead line runs along the west side of -Y1RPD- until Sta. -L- 52+00 is reached and crosses the -L- line and continues in the opposite direction along -YRPD-.

  Proposed overhead joint use line will include Duke Energy Progress power (distribution) and fiber optic communication serviced by AT&T Telephone, and Level 3 Communications. Relocation begins at Sta. -L- 65+00 and ends at Sta. -L- 64+00.

- **Power** (Distribution)**:** Proposed overhead power serviced by Duke Energy Progress runs down a 30' easement that crosses the -L- line at Sta. -L- 54+00.

  Proposed underground power conduit serviced by Duke Energy Progress will be installed crossing the -L- line at Sta. -L- 65+00; the conduit will be installed by open cut.

  Proposed overhead power serviced by Duke Energy Progress crosses the -L- line at Sta. -L- 199+00 and ties into the existing alignment along -Y18-

- **Communication:** Proposed underground communication conduit serviced by Level 3 Communications will be installed crossing the -L- line at Sta. -L- 65+00; the conduit will be installed by open cut.

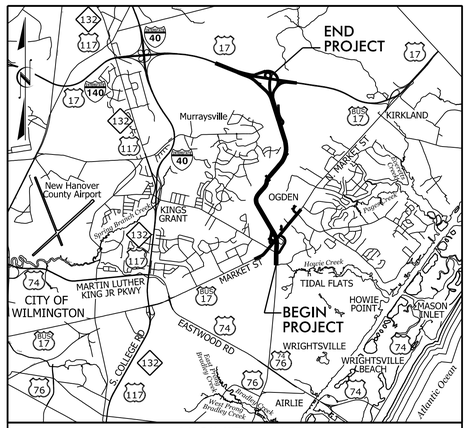
- **Power** (Transmission)**:** A total of four Duke Energy Progress transmission towers will be relocated two at St. -L- 67+00 and two at Sta. -L- 75+00.

09/08/99

TIP PROJECT: U-4751

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Standard Symbology Sheet



VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	U-4751	NES-01

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40191.1.2		PE

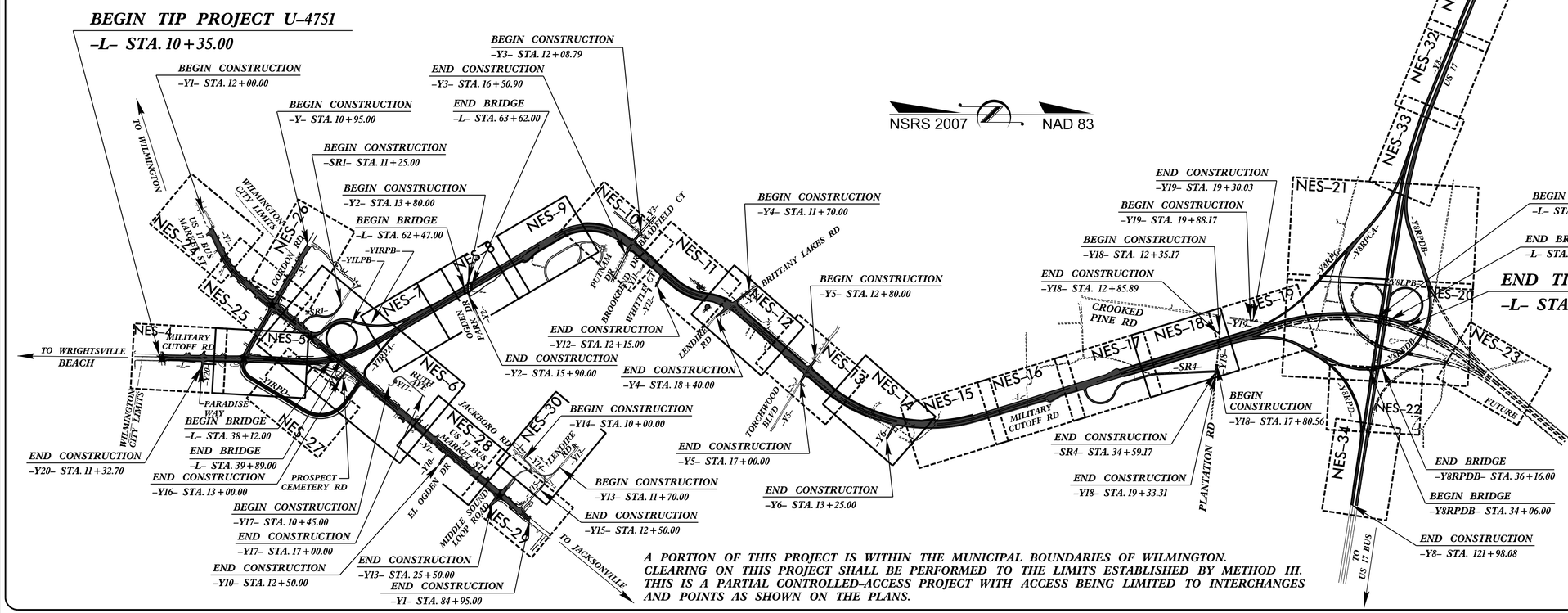
NES PERMIT DRAWING PLANS

NEW HANOVER COUNTY

LOCATION: SR 1409 (MILITARY CUTOFF ROAD) TO US 17 IN WILMINGTON

TYPE OF WORK: RELOCATION OF UTILITIES

INDICATES SHEETS WITH NO ENVIROMENTAL IMPACTS DUE TO UTILITIES



NSRS 2007 NAD 83

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WILMINGTON. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III. THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES AND POINTS AS SHOWN ON THE PLANS.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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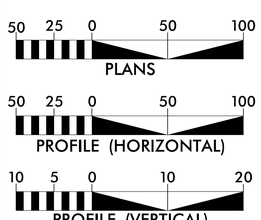
Charlotte, NC 28202
NC License Number F-0991

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 22,600
ADT 2036 = 47,800
K = 12%
D = 60%
T = 7%*
V = 50 MPH
* (TTST = 3% + DUAL 4%)
FUNC CLASS = ARTERIAL/FREEWAY
STATEWIDE TIER

NCDOT CONTACT: GARY LOVERING, PE
Project Engineer, Roadway Design

PLANS PREPARED FOR THE NCDOT BY:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
900 West Trade St., Ste. 715, Charlotte NC, 28202
NC License Number F-0991

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 17, 2015

LETTING DATE:
OCTOBER 17, 2017

KIT A. PERSIANI, PE
PROJECT ENGINEER

SEAN C. STEPHENS, EI
PROJECT DESIGNER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

PRE-FDFI PLANS
4/28/206

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

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PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-04

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NAD 83/NSRS 2007

PROP. 12" WATER LINE
PROP. 6" GAS LINE
PROP. 6" WATER LINE
PROP. OH POWER
PROP. JOINT USE OH POW & FO
PROP. 8" WATER LINE
PROP. 8" WATER LINE
PROP. UG CATV CABLES
PROP. 8" WATER LINE

ARBOR COURT, HOA.
DB 2644 PG 565
DB 4309 PG 268
DB 4157 PG 121
DB 3343 PG 158
DB 2756 PG 695
DB 2605 PG 696
MB II PG 324

PEACE BAPTIST CHURCH, INC OF WILMINGTON, NC
DB 4922 PG 672
DB 1100 PG 468
DB 1887 PG 495
DB 2605 PG 674
MB 45 PG 388

STATE OF NORTH CAROLINA
DB 4907 PG 254

WILLIAM TOWLES, ET UX
DB 2340 PG 603
DB 2340 PG 605
DB 2914 PG 1131
DB 2419 PG 452
DB 2444 PG 474
DB 2568 PG 074
DB 2620 PG 212
DB 4074 PG 766

ODGEN PLAZA, LLC.
DB 2630 PG 425
DB 5443 PG 901
DB 4157 PG 115
DB 2689 PG 525
DB/2654 PG 677
DB 268 PG 512
MB A PG 96

KEY COLONY AT COVIL ESTATES HOA, INC.
DB 4594 PG 437
MB 45 PG 122

LANDFALL COUNCIL ASSOCIATIONS, INC.
DB 2535 PG 598
DB 4134 PG 672
MB 36 PG 33

PEBBLE COVE HOA, INC.
DB 4853 PG 28
DB 4544 PG 978
MB 45 PG 122
MB 33 PG 190

OGDEN VOLUNTEER RESCUE
DB 4034 PG 732
DB 1145 PG 1873
MB 4 PG 96

PEBBLE COVE SUBDIVISON

WILMINGTON CITY LIMITS

MATCHLINE -L- STA 20+00 (SHEET UC-5)

4/28/2016
R:\Utilities\Rdy_Us\Proj\Utility Environmental Permit Drawings\U4751_ut_Rdy4_UC4_psh.dgn
FEGUS

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PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-05

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NAD 83/NSRS 2007

MATCHLINE -L- STA 20+00 (SHEET 4)

MATCHLINE -L- STA 33+00 (SHEET 6)

MATCHLINE -Y- STA 27+00 (SHEET UC-25)

MATCHLINE -Y1RPD- STA 16+00 (SHEET 27)

PROP. 12" WATER LINE

PROP. 8" WATER LINE

PROP. JOINT USE OH POW & FO

PROP. GUY POLE

PROP. 8" WATER LINE

SEE PROFILE SHEET 35

HAND CLEARING .02 ACRES SITE 3

POWER POLE: FILL IN WETLANDS <0.01 ACRES SITE 3

EXCAVATION =.02 ACRES SITE 2

HAND CLEARING =.17 ACRES SITE 1

PROP. 16" GRAVITY SEWER

PROP. JOINT USE OH POW & FO

POWER POLE: FILL IN WETLANDS <0.01 ACRES SITE 1

TEMP. FILL IN WETLANDS = .02 ACRES SITE 2

PROP. UG CATV CABLE

SEE PROFILE SHEET 35

STA. 11+07.63 -Y1RPD- 88.92' LT.

STA. 11+98.34 -Y1RPD- 46.54' LT.

STA.12+06.03 -Y1RPD- 88.61' LT

BEGIN PROFILE STA. 11+50.59 -Y1RPD- 95.00' RT.

STA. 12+49.01 -Y1RPD- 67.27' LT.

STA. 15+04.47 -Y1RPD- 49.18' LT.

STA. 26+76.71 -L- 100.32' RT.

STA. 26+66.38 -L- 125.23' RT.

STA.12+30.62 -Y1RPD- 101.59' LT

STA. 26+86.64 -L- 125.40' RT.

STA. 15+03.30 -Y1RPD- 99.98' LT.

-L- POT Sta. 23+80.96 = -Y1RPD- POT Sta. 10+00.00 -L- POT Sta. 22+78.20 = -Y- POT Sta. 31+93.18

ODGEN PLAZA, LLC.
DB 2690 PG 425
DB 5443 PG 901
DB 4157 PG 115
DB 2689 PG 525
DB 2664 PG 677
DB 2615 PG 512
MB 4 PG 96

BAY FOODS, Inc.
DB 1242 PG 1782
DB 4274 PG 163
MB 4 PG 96

DB 4024 PG 339
DB 2614 PG 594
MB 4 PG 96

JAMES L. BATEY, ET UX
DB 5383 PG 2070
MB 4 PG 96

JOSEPH L. JOHNSON ET UX, ET AL
DB 5578 PG 2154
DB 4886 PG 2471
MB 4 PG 96

ANGELINE B. SAFFO
DB 5042 PG 1460
DB 4264 PG 835
DB 1932 PG 303

OGDEN VOLUNTEER RESCUE
DB 4034 PG 732
DB 1062 PG 1073

B. P. A.
DB 4157 PG 148
DB 4024 PG 378

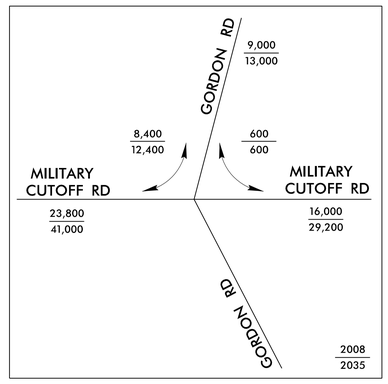
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE

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

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

F F	DENOTES FILL IN WETLAND
E E	DENOTES EXCAVATION IN WETLAND
T T	DENOTES TEMPORARY FILL IN WETLAND
HC HC	DENOTES HAND CLEARING

SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 47 FOR -Y- PROFILE
SEE SHEET 54 FOR -Y1RPD- PROFILE



PROJECT REFERENCE NO.	SHEET NO.
U-4751	RES-06

INCOMPLETE PLANS
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PRELIMINARY PLANS
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GRAPHIC SCALE
50 25 0 50 100
PLANS

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NAD 83/NSRS 2007

HC HC DENOTES HAND CLEARING

PROP. JOINT USE OH POW & FO

PROP. UG COMMUN CABLE

STA 22+73.57 -Y1RPB- 119.56' RT

STA 23+21.59 -Y1RPB- 116.94' RT

HAND CLEARING = .02 ACRES SITE 4

STA 24+56.33 -Y1RPB- 109.61' RT

STA 24+87.31 -Y1RPB- 109.96' RT

STA 22+19.51 -Y1RPB- 91.43' RT

HAND CLEARING = .03 ACRES SITE 5

STA 24+17.80 -Y1RPB- 80.88' RT

MATCHLINE -Y1RPB- STA 18+00 (SHEET 7)

MATCHLINE -L- STA 49+00 (SHEET 7)

PROP. JOINT USE OH POW & FO

PROP. 16" GRAVITY SEWER LINE

PROP. UG COMMUN CABLE

PROP. JOINT USE OH POW & FO

PROP. UG CATV CABLES

PROP. 12" WATER LINE

PROP. UG COMMUN CABLE

PROP. 8" WATER LINE

PROP. UG CATV CABLES

PROP. 8" WATER LINE

PROP. JOINT USE OH POW & FO

PROP. UG COMMUN CABLE

PROP. UG CATV CABLES

PROP. 8" WATER LINE

MATCHLINE -L- STA 33+00 (SHEET 5)

MATCHLINE -Y1- STA 34+00 (SHEET 25)

MATCHLINE -Y1- STA 60+00 (SHEET 28)

MATCHLINE -Y1RPD- STA 30+00 (SHEET 27)

A

B

C

D

	MILITARY CUTOFF RD	
US HWY 17 MARKET ST	3,400 / 19,300	1,400 / 6,900
	800 / 1,400	9,200 / 10,000
	16,000 / 29,200	
US HWY 17 MARKET ST	39,000 / 53,800	45,400 / 50,000
	MILITARY CUTOFF RD	10,800 / 44,000
		2008 / 2035

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 49 FOR -Y1- PROFILE
SEE SHEET 52 FOR -Y1LPB- PROFILE
SEE SHEET 54 FOR -Y1RPD- PROFILE
SEE SHEET 51 FOR -Y1RPA- PROFILE
SEE SHEET 53 FOR -YARPB- PROFILE
SEE SHEET 65 FOR -SR1- PROFILE
SEE SHEET 64 FOR -Y16- PROFILE
SEE SHEET 65 FOR -Y17- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-07

INCOMPLETE PLANS
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NAD 83/NSRS 2007

MATCHLINE -L- STA 49+00 (SHEET 6)

MATCHLINE -L- STA 58+00 (SHEET 8)

POWER POLE: FILL IN WETLANDS <.01 ACRES SITE 9

PROP. 16" GRAVITY SEWER

POWER POLE: FILL IN WETLANDS <.01 ACRES SITE 7

HAND CLEARING = .04 ACRES SITE 7

POWER POLE: FILL IN WETLANDS <.01 ACRES SITE 8

POWER POLE: FILL IN WETLANDS <.01 ACRES SITE 6

HAND CLEARING = .15 ACRES SITE 6

PROP. OH POWER

EXISTING POLE

PROP. JOINT USE OH POW & FO

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

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NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-8
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -L- STA 58+00 (SHEET 7)

MATCHLINE -L- STA 70+00 (SHEET 9)

30' CFPUA EASEMENT

EXISTING NEW HANOVER COUNTY WATER AND SANITARY SEWER DISTRICT EASEMENT MB 36 PG 301-303

NCDOT GPS MON U-4751-6

POT Sta. 9+92.33

TEMP. FILL IN WETLANDS
144.22 SQ FT =
.0033 ACRES SITE 12

NEW HANOVER
DB 1655 PG 1123
DB 1502 PG 298
MB 25 PG 98
MB 2 PG 241

STA. 65+36.00 -L-
162.00' LT

PC Sta. 11+59.40

STA. 65+56.53 -L-
154.71' LT

EXCAVATION
375.30 SQ FT =
.0086 ACRES SITE 12

PROP. UG COMMUN CONDUIT

PCC Sta. 14+06.12

-L- POT Sta. 62+99.10 =
-Y2- POC Sta. 14+79.99

SEE PROFILE SHEET 36

PROP. UG POW CONDUIT

STA.65+72.00 -L-
165.00' LT

POWER POLE:
FILL IN WETLANDS
<0.01 ACRES SITE 12

END PROFILE
STA.65+62.22 -L-
152.80' LT

END PROFILE
STA. 65+71.70 -L-
149.61' LT

STA. 70+00.00 -L-
150.80' LT

HAND CLEARING
=.31 SITE 12

PROP. JOINT USE
OH POW & FO

STA. 65+76.47 -L-
144.99' LT

STA. 68+32.03 -L-
140.89' LT

STA. 65+71.70 -L-
149.61' LT

POWER POLE:
FILL IN WETLANDS
<0.01 ACRES SITE 12

CORRIDOR LIMIT LINE
MB 2 PG 241

N 30° 30' 33.9" W

EXCAVATION
= .01 ACRES SITE 10

STA. 64+54.98 -L-
147.54' RT

RCC Sta. 16+02.57

TEMP. FILL IN WETLANDS
171.54 SQ FT =
.0040 ACRES SITE 10

SEE PROFILE SHEET 36

STA. 64+50.00 -L-
170.00' RT

STA. 64+79.39 -L-
143.96' RT

BEGIN PROFILES
STA. 64+60.07 -L-
182.61' RT

STA. 64+60.07 -L-
182.61' RT

HAND CLEARING
=.07 SITE 10

STA.64+79.14 -L-
214.52' RT

STA. 64+86.50 -L-
233.12' RT

STA. 67+68.33 -L-
145.35' RT

STA. 67+75.17 -L-
163.21' RT

PT Sta. 17+37.25

POWER POLE:
FILL IN WETLANDS
<0.01 ACRES SITE 11

POWER POLE:
FILL IN WETLANDS
<0.01 ACRES SITE 11

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 25 PG 98
MB 2 PG 241

STA.64+34.47 -L-
232.91' RT

STA. 64+48.89 -L-
237.24' RT

STA.64+33.77 -L-
260.31' RT

PROP. JOINT USE
OH POW & FO

POWER POLE:
FILL IN WETLANDS
<0.01 ACRES SITE 10

STA.64+53.34 -L-
264.41' RT

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

POT Sta. 19+18.42

PROGRESS ENERGY 100' R/W

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

7/27/2016
R:\U-4751_Utilities\Rdy_Ut\Proj\Utility Environmental Permit Drawings\U4751_ut_Rdy8_UC8_psh.dgn
mholzaz

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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-09
R/W SHEET NO.	

INCOMPLETE PLANS
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PRELIMINARY PLANS
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NAD 83/NSRS 2007

MATCHLINE -L- STA 70+00 (SHEET 8)

MATCHLINE -L- STA 83+00 (SHEET 10)

POWER POLE
FILL IN WETLANDS
<0.01 ACRES SITE 13

PROP. OH POW & FO

POWER POLE
FILL IN WETLANDS
<0.01 ACRES SITE 13

HAND CLEARING
= .27 ACRES SITE 13

POWER POLE
FILL IN WETLANDS
<0.01 ACRES SITE 14

POWER POLE
FILL IN WETLANDS
<0.01 ACRES SITE 14

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

END PROFILE
STA. 76+60.92 -L-
111.54' LT

-L-
MILITARY CUTOFF ROAD

PROP NOISE WALL

PROP MUP

BEGIN RETAINING WALL #4
-W4- POT STA 74+00.00 =
-L- STA 74+00.00, 108.50' RT

BEGIN PROFILE
STA. 74+18.50 -L-
158.63' RT

-W4- PI STA 75+38.86 =
-L- STA 75+35.00, 76.00' RT

-W4- PI STA 79+29.45 =
-L- STA 79+25.59, 76.00' RT

-W4- PC STA 79+94.48 =
-L- STA 79+90.73, 74.70' RT

-W4- PCC STA 81+65.48 =
-L- STA 81+75.65, 71.00' RT

SEE PROFILE SHEET 37

PROP. UG POW CONDUIT

STA. 70+91.80 -L-
132.24' LT

STA. 70+00.00 -L-
150.80' LT

STA. 73+56.00 -L-
139.00' LT

STA. 75+04.28 -L-
148.09' LT

STA. 73+55.09 -L-
123.34' LT

STA. 73+91.00 -L-
132.00' LT

STA. 75+11.12 -L-
130.22' LT

RC Sta. 79+89.18

PROGRESS ENERGY EASEMENT
DB 5508 PG 2302
CORRIDOR LIMIT LINE MB 2 PG 241

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 2 PG 241

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

MITIGATION RESERVED AREA
MB 56 PG 170

TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 5705 PG 735

KOSSLOW ZACHARY W
DB 5643 PG 1693
MB 56 PG 170

COWELL NICHOLAS ETAL

BAIN BRANDON C ETAL
DB 5695 PG 598
MB 56 PG 170

LALOMIA BARRY P
DB 5625 PG 2841
MB 56 PG 170

TRUONG TOMMY V ETAL

EVANS DAVID L & ELIZABETH

ANTWAN ROBINSON DALY
DB 5772 PG 85
MB 56 PG 170

HUGHES TIMOTHY TYRONE WILSON
DB 5797 PG 1258
DB 5839 PG 1183
MB 56 PG 170

BROWN KASEY SARAH
DB 5663 PG 1515
MB 56 PG 170

BENTON KENNETH H JR
DB 5696 PG 1967
MB 56 PG 170

STEVENS BUILDING, CO.
DB 5861 PG 2337
MB 59 PG 88-90

TORCHWOOD DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 37 FOR -L- PROFILE

F / F DENOTES FILL IN WETLAND

HC / HC DENOTES HAND CLEARING

7/27/2016
R:\Utilities\Rdy_Utl\Proj\Utility Environmental Permit Drawings\U4751_ut_Rdy9_UC9_psh.dgn
mharvey

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-10

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

PROP. 10" WATER LINE

PROP. UG CATV CABLES

PROP. UG POW CONDUIT (2)

PROP. 10" WATER LINE

PROP. UG COMMUN CABLES

MATCHLINE -L- STA 83+00 (SHEET 9)

MATCHLINE -L- STA 96+00 (SHEET 11)

BRADFIELD CT

MILITARY CUTOFF RD

PUTNAM DR

MILITARY CUTOFF RD

3,900 / 5,000

1,000 / 1,500

1,500 / 1,800

10,800 / 44,000

11,900 / 45,400

700 / 1,200

10,800 / 44,000

3,400 / 5,200

2008 / 2035

39 TORCHWOOD DEVELOPMENT COMPANY
DB 5644 PG 1291
MB 55 PG 165

62 CHRISTOPHER MCCONNELL AND REBECCA MCCONNELL
DB 5839 PG 2910

63 SHAWN BELSCHNER
DB 5051 PG 1822
MB 48 PG 61

64 ROGER A WOOD
DB 5432 PG 1118
MB 48 PG 61

65 NCDOT
DB 5878 PG 165
MB 48 PG 61

66 ELIZABETH A WRIGHT
DB 5284 PG 1338
MB 48 PG 61

67 NCDOT
DB 5878 PG 165
MB 48 PG 61

68 STEVEN A. KING
DB 5841 PG 1962
MB 48 PG 61

69 RYAN D BIRTLES
DB 5501 PG 595
MB 48 PG 61

70 DENNIS G STOKLEY
DB 5064 PG 2518
MB 46 PG 248

71 SARA ROBIN TOOTHMAN
DB 5802 PG 2059
MB 46 PG 248

72 TASHA L COLEY
DB 5477 PG 2963
MB 46 PG 248

73 CINDY B. GASKINS
DB 5696 PG 1672
MB 45 PG 206

74 MARY RADER HEINDENRICH, WIDOW
DB 5718 PG 978
MB 45 PG 206

925 KIMBERLY D. MALDONADO
DB 5811 PG 1422
MB 46 PG 248

925 NCDOT
DB 5168 PG 1727
MB 48 PG 61

58 MICHAEL J. JAEB
DB 5764 PG 2262
MB 56 PG 170

39 TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 5705 PG 735
DB 5665 PG 1055
MB 57 PG 245
MB 2 PG 241

REMOVE DIRT SPOIL
SHALLOW POND
NO ELEV.
+16.00
116.00'

END RETAINING WALL
+75.00, 71.00' LT

BEGIN RETAINING WALL
+50.00, 71.00' LT

END CHAIN LINK FENCE
BEGIN NOISE WALL
AND CONC. BARRIER
+10+42.64 85' LT

PROP. RET. WALL 5

PROP. 8'-6" C&G

PROP. 2'-6" C&G

PROP RAISED MEDIAN

PROP 12' GATE

OPEN SPACE DRAINAGE AREA MB 23 PG 90

MILITARY CUTOFF RD

100' LANE TAPER

100' BAY TAPER

PROP 5' MONO ISLAND

PROP 2'-6" C&G

BEGIN CONSTRUCTION
-Y3- POT STA. 10+02.00

POT Sta. 10+00.00

-Y3- POT Sta. 12+35.00

-Y23- POT Sta. 11+85.00

END CONSTRUCTION
-Y23- POT STA. 10+32.00

BEGIN NOISE WALL
AND CONC. BARRIER
+20.19, 93.52' RT

END CONSTRUCTION
-Y3- POT STA. 16+50.90

POT Sta. 19+85.30

POT Sta. 15+57.35

END RETAINING WALL
BEGIN WOVEN WIRE FENCE
+00.00, 83.00' RT

END NOISE WALL
AND CONC. BARRIER
+48.25, 70.86' RT

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

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

SPEC LAT V DITCH
W/CLASS 'B' RIP RAP
SEE DETAIL 8

REMOVE EXIST. FLUME

TIE TO EXIST C&G
+43.84, 37.97' LT

TIE TO EXIST C&G

2-30" RCP-IV

36" RCP-III

24" RCP-III

18" RCP-III

15" RCP-III

15" RCP-IV

12" RWPD CFPU

16" CFPU

8" CFPU

RIP RAP

RWPD (RAW WATER - PEE DEE AQUIFER)

PUTNAM DR -L- STA 205+00

COPPERFIELD CT 20' BST

MOSS AVE 20' BST

WOODLAWN AVE

BRADFIELD CT 20' BST

MILITARY CUTOFF RD 600' TYP.

NO ASSOCIATED PIPING FOUND

WM NO ASSOCIATED PIPING FOUND

OPEN SPACE / DRAINAGE AREA MB 49 PG 130

DB 5665 PG 055
MB 57 PG 245

TORCHWOOD DEVELOPMENTS
DB 5665 PG 055
MB 57 PG 245

STEVENS BUILDING CO
DB 5717 PG 896
MB 52 PG 245

NOTE:
NO ENVIRONMENTAL
IMPACTS DUE TO UTILITIES

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-11

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
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NAD 83/NSRS 2007

NDY B. GASKINS
: 5696 PG 1672
: 45 PG 206

ARY RADER
INDENRICH, WIDOW
: 578 PG 978
: 45 PG 206

ABERLY D. MALDONADO
: 5811PG 1422
: 46 PG 248

ROBERT STROUD JR
: 5207 PG 1831
: 46 PG 248

LLY M. BANKS
: 5716 PG 38
: 46 PG 248

78 EDWARD E BENTON, SR
DB 4930 PG 2279
MB 45 PG 206

79 MARY ELLEN DOSS
DB 4895 PG 386
MB 45 PG 206
MB 44 PG 194

80 DANA L BRITTLE
DB 4768 PG 861
MB 46 PG 248

81 JOYCE E KAYLOR
DB 5490 PG 2146
MB 46 PG 248

82 CHERI HUNT STAMM
DB 5655 PG 1187
MB 45 PG 206

83 NOAH S BOATRIGHT
DB 5127 PG 1126
MB 47 PG 206
MB 44 PG 194

84 KENNETH R CURLEY
DB 4515 PG 745
MB 44 PG 194
MB 45 PG 206

85 ROBERT HARRISON
DB 5490 PG 2146
MB 46 PG 248

86 WESLEY R SLAYTON
DB 5181 PG 458
MB 46 PG 248

87 THOMAS P MACNEISH
DB 4395 PG 827
MB 44 PG 194
MB 45 PG 206

88 FRANKLIN H PHILLIPS III
DB 5379 PG 2473
MB 46 PG 248

89 MATTHEW M HAYDEN
DB 4701 PG 665
MB 46 PG 248

90 AMERICAN RESIDENTIAL
LEASING COMPANY, LLC
DB 5786 PG 1180
MB 52 PG 323

92 DANIEL W PATTERSON
DB 4942 PG 1864
MB 46 PG 248

93 JOSEPH M VADINO
DB 4872 PG 698
MB 47 PG 380
MB 46 PG 248

94 JEREMY AKIN
DB 5444 PG 1484
MB 52 PG 323

95 BONITA ROWLEY, WIDOW
DB 5450 PG 1884
MB 52 PG 323

96 DERRICK SAUL
DB 5452 PG 1614
MB 52 PG 323

97 CHARLES S LINDSEY
DB 5468 PG 2497
MB 52 PG 323

98 CARRIE L CHEATHAM
DB 5472 PG 678
MB 52 PG 323

99 AMERICAN RESIDENTIAL
LEASING COMPANY, LLC
DB 5751 PG 2050
MB 52 PG 323

100 TIMOTHY L ALLENSWORTH
DB 5478 PG 375
MB 52 PG 323

101 SANTOS MURGUIA III
DB 5888 PG 2965
MB 52 PG 323

102 LESLIE HOWARD PARRIS
DB 5762 PG 553
MB 52 PG 323

103 CHRISTOPHER M SMITH
DB 5485 PG 970
MB 52 PG 323

918 NCDOT
DB 5641PG 2834

91A

91B

JS NEU

BEGIN CONSTRUCTION
-Y21- POT STA. 10+90.00

-L- POT Sta. 96+38.47 =
-Y11- POT Sta. 10+00.00

-L- POT Sta. 98+68.28 =
-Y12- POC Sta. 10+00.00

POC Sta. 10+49.48

POT Sta. 10+00.00

POT Sta. 12+00.00

PC Sta. 10+19.48

PT Sta. 12+52.00

PT Sta. 13+19.38

POC Sta. 11+65.89

POC Sta. 11+60.00

POT Sta. 11+20.00

PROP. 8" WATER LINE

PROP. UG POW CONDUIT

PROP. UG CATV CABLES

PROP. UG POW CABLES (2)

MATCHLINE -L- STA 96+00 (SHEET UC-10)

MATCHLINE -L- STA 109+00 (SHEET UC-12)

SPEC LAT 2' BASE DITCH
W/CLASS 'B' RIP RAP
SEE DETAIL 53

HEAD DITCH
EST. DDE +/- 3 CY
SEE DETAIL 30

SPEC LAT V DITCH
W/CLASS 'B' RIP RAP
SEE DETAIL 8

LAT V DITCH
SEE DETAIL 6

LAT V DITCH
SEE DETAIL 9

LAT V DITCH
SEE DETAIL 7

TAIL DITCH
EST DDE +/- 190 CY
SEE DETAIL 19

TAIL DITCH
EST DDE +/- 15 CY
SEE DETAIL 18

LAT 2' BASE DITCH
SEE DETAIL 54

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

CLASS 'B' RIP RAP
EST. 4 TONS
12 SY GEOTEXTILE

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

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

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

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

ADJUST CROSS-SLOPE AND WARP C&G
TO DRAIN PROPOSED PAVEMENT.

REM

REM

BEGIN NOISE
WALL AND CONC.
BARRIER
#12.47, 81.75' RT

END CONSTRUCTION
-Y22- POT STA. 11+20.00

END
-Y2- POC STA. 11+60.00

PROP NOISE WALL 10

PROP NOISE WALL 11

PROP RAISED MEDIAN

PROP 5' MONO ISLAND

PROP 2'-6" C&G

PROP 1'-6" C&G

MILITARY CUT-OFF ROAD EXTENSION
MB 2 PG 241-250

MILITARY CUT-OFF RD L

MASS AVE

COPPERFIELD CT

MONTEGO COURT

FAIRFIELD CT

OPEN SPACE / DRAINAGE AREA
MB 52 PG 323

OPEN SPACE / DRAINAGE EASEMENT
MB 52 PG 323

20' DRAINAGE EASEMENT (MB 34 PG 78)

40' BUFFER / DRAINAGE EASEMENT

10' UTILITY EASEMENT

THE NEIGHBORHOODS OF
WEST BAY ESTATES, INC.
DB 5388 PG 1682
MB 49 PG 383

VINCENT P MIKESKA
DB 5587 PG 1836
MB 52 PG 323

BARBARA J MILLER
DB 5514 PG 2354
MB 52 PG 323

MICHAEL GERHART
DB 5447 PG 1619
MB 52 PG 323

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 62 FOR -Y12- PROFILE

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-12

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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NAD 83/NSRS 2007

-L- STA 109+00 (SHEET 11) MATCHLINE

-L- STA 122+00 (SHEET 13) MATCHLINE

-L- POC Sta. 111+87.13 = -Y4- POT Sta. 15+47.72

POT Sta. 10+10.00

PC Sta. 10+60.71

PT Sta. 113+64.56

PROP. 12" WATER LINE

EXCAVATION
201.67 SQ FT =
.0042 ACRES SITE 15

TEMPORARY SURFACE WATER IMPACTS 205.43 SQ FT = .0053 ACRES SITE 15

STA.118+11.48 -L-
150.82' LT

STA.117+97.70 -L-
136.53' LT

BEGIN PROFILE
STA. 117+44.46 -L-
103.85' LT

BEGIN PROFILE
STA. 117+34.23 -L-
101.36' LT

STA.118+19.49 -L-
150.41' LT

SEE PROFILE SHEET 38

PROP. 16" WATER LINE

STA.118+29.74 -L-
119.76' LT

STA.118+28.66 -L-
116.22' LT

END PROFILE
STA. 118+60.29 -L-
94.55' LT

SEE PROFILE SHEET 37

PROP. 12" WATER LINE

END PROFILE
STA.118+50.96 -L-
97.44' LT

POT Sta. 19+65.22

POT Sta. 20+00.00

PC Sta. 18+40.00

PT Sta. 19+55.22

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

CLASS 'B' RIP RAP
EST 17 TONS
34 SY GEOTEXTILE

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

CLASS 'I' RIP RAP
ON BANKS ONLY
SEE DETAIL 40

CLASS 'I' RIP RAP
EST. 25 TONS
45 SY GEOTEXTILE

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

LAT V DITCH
SEE DETAIL 9

LAT 2' BASE DITCH
SEE DETAIL 11

LAT 2' BASE DITCH
SEE DETAIL 54

LAT 2' BASE DITCH
W/CL 'I' RIP RAP
SEE DETAIL 12

DITCH BLOCK

FLOODPLAIN BENCH
SEE DETAIL 36

EXCAVATE TO NATURAL BED
EST DDE 1,110 CY

ROCK FILL
SEE DETAIL 28
EST 11000 TONS

ROCK FILL
SEE DETAIL 29
EST 6200 TONS

EXIST OUTLET STRUCTURE NEEDS TO BE RELOCATED OUTSIDE OF THE R/W PRIOR TO CONSTRUCTION.

PROPOSED ROADWAY FILL REDUCES THE EXISTING BMP BY AN ESTIMATED +/- 7730 CY (BELOW EL 41.3).

BURY INLET & OUTLET 1.0'

BURY BOTH ENDS @ 1.0'

this should be under roadway permit

RWPD (RAW WATER - PEE DEE AQUIFER)

MILITARY CUT-OFF ROAD EXTENSION
MB 2, PG 241-250

WHITNEY PINES HOA
DB 4415 PG 976
MB 46 PG 183

LAVARGA BROWN, JR.
DB 5792 PG 1664
MB 46 PG 183

JENIFER CLAROS
DB 5897 PG 2528
MB 46 PG 183

LE H NGUYEN
DB 5209 PG 289
MB 46 PG 183

AUSTIN TYLER MOZINGO
DB 5368 PG 1403
MB 46 PG 183

COURTNEY PINES HOA
DB 4889 PG 3128
MB 48 PG 180

JIE MA CHEN
DB 5353 PG 92
MB 48 PG 180

SAVANA LAND COMPANY, LLC
DB 5857 PG 0032
MB 59 PG 164-165

D.R. HORTON, INC.
DB 5857 PG 0032
MB 59 PG 164-165

NEIGHBORHOODS OF WEST BAY ESTATES HOA
DB 5825 PG 2855
MB 59 PG 164-165

TORCHWOOD DEVELOPMENT CO INC
DB 5271 PG 1894

CHRISTOPHER M SMITH
DB 5485 PG 970
MB 52 PG 383

NCDOT
DB 5641 PG 2834

2@9' X 7' RCBC

18" RCP-III

15" RCP-IV

18" RCP-IV

24" RCP-IV

2@42" RCP-IV

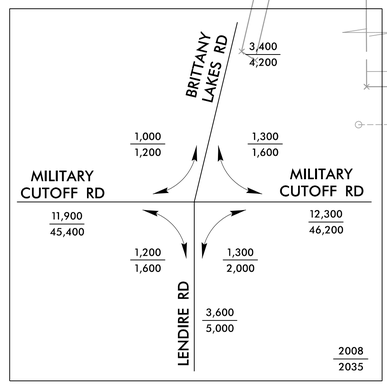
42" RCP-III

16" CFPU

12" RWPD CFPU

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND



SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 61 FOR -Y4- PROFILE

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-13

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
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NAD 83/NSRS 2007

114 COURTNEY PINES HOA DB 4889 PG 3128 MB 48 PG 180	123 MELISSA L. HUBBARD ANDERSON DB 5628 PG 1529 MB 48 PG 180	130 MICHAEL M. BISE DB 5734 PG 423 MB 52 PG 41
117 MORGAN B JOHNSON DB 5209 PG 2756 MB 48 PG 180	124 JASON G HERANDEZ DB 5479 PG 2822 MB 52 PG 41	131 BRIAN S HUNT DB 5470 PG 108 MB 52 PG 41
118 KRISTEN L GAMBILL DB 5350 PG 1013 MB 52 PG 41	125 JUSTIN ARTHUR MILLS DB 5813 PG 753 MB 48 PG 180	132 DANIEL E CLEMENT DB 5453 PG 2706 MB 48 PG 180
119 FELICE FURINO DB 5246 PG 453 MB 48 PG 180	126 MATTHEW KYLE HOLLOWAY DB 5464 PG 2380	133 MICHAEL C MACGO' DB 5452 PG 2548 MB 52 PG 41
120 THINH HUU PHAN DB 5306 PG 1344 MB 52 PG 41	127 KEITH MCBRIDE DB 5664 PG 523 MB 48 PG 180	134 GREG L BRYANT DB 5244 PG 1507 MB 48 PG 180
121 STACEY S SEARS DB 5413 PG 2589 MB 48 PG 180	128 AMBER HODGE DB 5760 PG 1715	135 THOMAS D HUGHES DB 5457 PG 2035 MB 52 PG 41
122 DAVID K MULKEY DB 5353 PG 190 MB 52 PG 41	129 ARP 2014-1BORROWER, LLC DB 5836 PG 2801 MB 48 PG 180	136 AMY R KROEPLIN DB 5451 PG 1390 MB 52 PG 41

PROP. UG CATV CABLES
PROP. 12" WATER LINE
PROP. 16" WATER LINE
PROP. UG POW CONDUIT
PROP. 16" WATER LINE
PROP. 12" WATER LINE

MATCHLINE -L- STA 122+00 (SHEET 12)
MATCHLINE -L- STA 135+00 (SHEET 14)

BEGIN CONSTRUCTION -Y5- POT STA. 12+80.00
END CONSTRUCTION -Y5- POT STA. 17+00.00
-L- POT Sta. 128+14.34 = -Y5- POC Sta. 14+95.70
-L- POT Sta. 131+60.53 = -Y5- POC Sta. 13+69.04

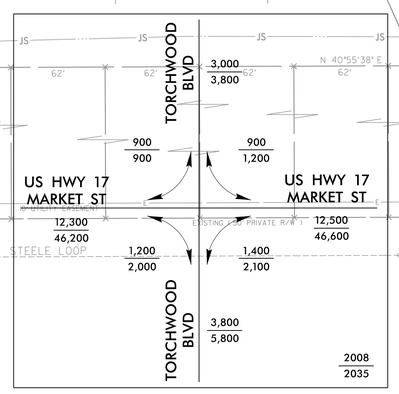
-L- MILITARY CUTOFF RD
TORCHWOOD BLVD -Y5-
RAVENS GLASS COURT
BOW HUNTER DR
TIE TO EXIST C&G +80.00, 17.98' RT
TIE TO EXIST C&G +97.86, 16.00' RT
BEGIN RETAINING WALL +68.86, 82.00' LT
BEGIN NOISE WALL AND CONC. BARRIER +70.22, 84.22' LT
END NOISE WALL AND CONC. BARRIER +23.00, 64.50' LT
END C&G +97.33, 16.00' RT

REGINA BLACKMAN DB 5981 PG 1461 MB 48 PG 180
KEVIN P MADSEN DB 5580 PG 2873 MB 48 PG 180
TORCHWOOD DEVELOPMENT CO INC DB 5271 PG 1894
NCDOT DB 5641 PG 2834
D.R. HORTON, INC. DB 5857 PG 0032 MB 59 PG 164-165

LAT 2' BASE DITCH SEE DETAIL 11
LAT 6' BASE DITCH SEE DETAIL 13
SPEC LAT 2' BASE DITCH W/ CLASS 'B' RIP RAP SEE DETAIL 10
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 5 TONS 14 SY GEOTEXTILE
ROCK FILL SEE DETAIL 29 EST 6200 TONS

PROPOSED ROADWAY FILL REDUCES THE EXISTING BMP BY AN ESTIMATED +/- 4390 CY (BELOW EL 40.8).

100' BAY TAPER
100' LANE TAPER
PROP NOISE WALL 11
PROP NOISE WALL 13
PROP RET WALL 6
PROP 5' MONO ISLAND
PROP 2'-6" C&G
PROP 6"R
REMOVE
RWPD (RAW WATER) (SEE DET. ADJUSTED)



SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 61 FOR -Y5- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-14

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

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F F DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007

MATCHLINE -L- STA 148+00 (SHEET 15)

MATCHLINE -L- STA 135+00 (SHEET 13)

-L- POC Sta. 145+00.00 = -Y6- POT Sta. 10+00.00

114 COURTNEY PINES HOA
DB 4889 PG 3128
MB 48 PG 180

134 GREG L BRYANT
DB 5244 PG 1507
MB 48 PG 180

136 AMY R KROEPLIN
DB 5451 PG 1390
MB 52 PG 41

138 JOHN HOLT
DB 5587 PG 1094
MB 48 PG 180

139 MARY ANNE MUNTO
DB 5470 PG 94
MB 52 PG 41

140 GEORGE A SCHMITT
DB 5462 PG 2757
MB 52 PG 41

141 RROBERT THRONE
DB 5233 PG 1624
MB 48 PG 180

142 AMANDA ROSE MARIE LABENNE
DB 5814 PG 2541
MB 52 PG 41

144 BRADLEY R CARTER
DB 5197 PG 2149
MB 48 PG 180

910 SAVANA LAND COMPANY, LLC
DB 4885 PG 1389
DB 2491 PG 213

145 CAPE FEAR PUBLIC UTILITY AUTHORITY
DB 5916 PG 2010
MB 45 PG 337

SPEC LAT 2' BASE DITCH W/CLASS 'B' RIP RAP SEE DETAIL 10

OUTLET CHANNEL SEE DETAIL 37

CLASS 'I' RIP RAP EST. 88 TONS 185 SY GEOTEXTILE

LAT 6' BASE DITCH SEE DETAIL 20

LAT 6' BASE DITCH SEE DETAIL 13

INLET CHANNEL SEE DETAIL 37

LAT 3' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 15

LAT 3' BASE DITCH SEE DETAIL 32

CLASS 'B' RIP RAP EST 8 TONS 21 SY GEOTEXTILE

TEMPORARY SURFACE WATER IMPACTS 114.94 SQ FT = .0026 ACRES SITE 16

EXCAVATION = .01 ACRES SITE 16

SEE PROFILE SHEET 38

SEE PROFILE SHEET 39

PROP. 16" WATER LINE

PROP. 12" WATER LINE

REMOVE

END NOISE WALL AND CONC.BARRIER BEGIN WOVEN WIRE FENCE +66.69,64.50' RT

END CONSTRUCTION -Y6- POT STA. 13+40.00

POT Sta. 14+53.45

100' WELL BUFFER
NO RIGHT-OF-WAY ACQUISITION OR CONSTRUCTION WILL OCCUR WITHIN A 100-FOOT RADIUS AROUND THE WELLS AND ACCESS TO THE WELL SITES WILL BE MAINTAINED AT ALL TIMES.

BEGIN PROFILE STA. 137+09.15 -L- 185.48' RT

STA. 138+07.56 -L- 155.54' RT

END PROFILE STA. 138+31.32 -L- 174.17' RT

END PROFILE STA. 138+28.26 -L- 182.04' RT

STA. 138+17.02 -L- 185.83' RT

STA. 138+05.67 -L- 183.53' RT

BEGIN PROFILE STA. 137+12.04 -L- 195.20' RT

BEGIN C&G +83.32, 12.00' LT

END C&G +28.25, 20.00' RT

PROP. 2'-6" C&G

PROP. 5' MONO ISLAND

100' BASE T APEX

MILITARY CUT-OFF ROAD MB 2 PG 241-250

PROP. RAISED MEDIAN

PROP. 11' x 7' RCBC

PROP. NOISE WALL 13

CHARRED PINE DRIVE 50' PUBLIC R/W

ISFD

NCDOT DB 5541 PG 0334

CAPE FEAR PUBLIC UTILITY AUTHORITY DB 5916 PG 2010 MB 45 PG 337

SOUTHERN POWER CO. DUKE ENERGY CORP. DB 2491 PG 213

(2) WM ASSOCIATES INC. FOUND

RWCH (RAW WATER - CASTLE HAYNE AQUIFER) 8" RWCH CFPU

RWPD (RAW WATER - PEE DEE AQUIFER) 12" RWPD CFPU

6" CFPU

N 59°10'18" W 38.90'

N 45°31'13" E 23.84'

N 25°03'05" W 30.22'

N 25°03'05" W 67.44'

N 25°25'05" W 96.16'

N 59°10'18" W 19.78'

S 24°27'18" E 96.58'

S 35°20'46" E 72.18'

S 16°12'40" E 15.68'

S 40°56'13" W 96.08'

S 40°56'13" W 57.13'

N 40°56'13" E 57.13'

N 40°56'13" E 96.08'

STV/ Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-15
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

VELOCITY CALCULATIONS FOR RIPRAP PADS AT PIPE OUTLETS USE:
MANNING'S n-VALUE = 0.06
2 YEAR INTENSITY = 5.9 IN /HR
10 YEAR INTENSITY = 7.7 IN /HR
WIDTH (FOR 15")=5 FT W/10:1 SIDES
WIDTH (FOR 18")=6 FT W/10:1 SIDES

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

MATCHLINE -L- STA 148+00 (SHEET 14)

MATCHLINE -L- STA 161+00 (SHEET 16)

DITCH
Sta.= 152+50 -L-
DA= 72.6 AC
Q5= 153 CFS
V5= 0.7 FT/S
d5= 7.4 FT
s= 0.0%
n= 0.045

DITCH
Sta.= 150+25 -L-
DA= 2.0 AC
Q5= 10.5 CFS
V5= 3.6 FT/S
d5= 0.6 FT
s= 3.8%
n= 0.045

STA 153+10 -L- LT
DA= 0.70 AC
C= 0.76
Q2= 3.1 CFS
V2= 0.68 FT/S
Q10= 4.0 CFS
V10= 0.73 FT/S

STA 154+00 -L- LT
DA= 0.54 AC
C= 0.74
Q2= 2.4 CFS
V2= 0.64 FT/S
Q10= 3.1 CFS
V10= 0.68 FT/S

STA 153+70 -L- LT
DA= 0.62 AC
C= 0.74
Q2= 2.7 CFS
V2= 0.66 FT/S
Q10= 3.5 CFS
V10= 0.71 FT/S

STA 157+00 -L- LT
DA= 0.99 AC
C= 0.73
Q2= 4.3 CFS
V2= 0.74 FT/S
Q10= 5.6 CFS
V10= 0.80 FT/S

SAVANA LAND COMPANY, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

ANDREW M. GALLACHER
DB 5184 PG 2308

BOBBY R. CHESTER
DB 1015 PG 244

ROMEO A. MISIERA
DB 858 PG 259
MB 8 PG 88

CHARLES V. ALLO
DB 1164 PG 550

PROPERTIES, INC
TO EC 997
35 PG 619
78 PG 84
6 PG 210

IF 1513, 1514 AND 1514 WERE CONNECTED, THE OUTLET AT 1517 WOULD BE 1-FOOT BELOW NG. THEREFORE, USED SEPARATE OUTLETS AT 1525, 1517 AND 1526.

LAT 6' BASE DITCH SEE DETAIL 20

LAT 3' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 15

FLOODPLAIN BENCH SEE DETAIL 39

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

PONDING 1.5' SAND, WOODED n=0.055

CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE

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

CLASS 'I' RIP RAP EST. 10 TONS

EST. 50 SY COIR FIBER MATTING

WET DETENTION BASIN #2:
WQv= (REQUIRED)=3450(1.5 IN)(1.79 AC)=9263 CF
WQv= (PROVIDED)=12989 CF
AVG PERM DEPTH=VOL/SA=20059 CF/6696 SF=3.0 FT

STA 148+50 -L- RT, UNABLE TO PLACE A SAND FILTER (OR DRY DETENTION BASIN) IN THIS AREA DUE TO THE SHWT BEING ABOVE THE ELEVATION NEEDED FOR THE BOTTOM OF THE BASIN.

BOTTOM OF THE BASIN ELEV = 38.4
SHWT ELEV = 41.8
HYD RATE 8.61 IN/HR

USING A 36" PIPE WOULD BE INTO THE SUBGRADE.

CREST IN GUTTER DUE TO SUPER (0.84' FT HIGHER THAN SAG)

2@10' X 10' RCBC

DETAIL 15
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, d, D, B, b, 1'Ft., Fill Slope

Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=3.0 Ft.
b=5.0 Ft.

Type of Liner= COIR FIBER MATTING

FROM STA. 149+25 TO STA. 150+25 -L- RT

DETAIL 20
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, b, 1'Ft., Fill Slope

Min. D=7.0 Ft.
B=6.0 Ft.
b=5.0 Ft.

FROM STA. 139+20 TO STA. 152+50 -L- LT

DETAIL 39
NOT TO SCALE
MULTI-BARREL CULVERT, LOW FLOW CHANNEL, HIGH FLOW SILLS, AND FLOOD PLAIN BENCH

*NOTES
1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAMBED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
2) SILLS ARE TO BE 1.0' WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
3) THE CHANNEL EDGE SHALL BE LINED WITH CLASS I RIP RAP (AS SHOWN ON THE PLAN VIEW).
4) COIR FIBER MATTING SHALL BE SECURED ON THE FLOOD PLAIN BENCHES AND PLUGGED BEHIND RIP RAP EDGE TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.

10', 10', HIGH FLOW SILL, BURY LOW FLOW "BARREL 1", 2.0, SILLS AT INLET AND OUTLET

PLAN VIEW
FLOODPLAIN BENCH W/COIR FIBER MATTING
HIGH FLOW SILLS
BACK FILL WITH NATIVE BED MATERIAL
CL 'I' RIP RAP
FLOODPLAIN BENCH W/COIR FIBER MATTING

QUANTITIES: EST CL 'I' RIP RAP: 10 TONS | EST COIR FIBER MATTING: 50 SY

SECTION A-A
CL 'I' RIP RAP 1.5' THICK
VARIES 10.0' TO 12.7'
VARIES 8.0' TO 0.0'
COIR FIBER MATTING

SECTION B-B
CL 'I' RIP RAP 1.5' THICK
VARIES 10.5' TO 10.0'
VARIES 0.0' TO 8.0'
COIR FIBER MATTING

CL STA. = 151+41 -L-

4/28/2016
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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-16
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

VELOCITY CALCULATIONS FOR RIPRAP PADS AT PIPE OUTLETS USE:
MANNING'S n-VALUE = 0.06
2 YEAR INTENSITY = 5.9 IN /HR
10 YEAR INTENSITY = 7.7 IN /HR
WIDTH (FOR 15")=5 FT W/10:1 SIDES
WIDTH (FOR 18")=6 FT W/10:1 SIDES

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

MATCHLINE -L- STA 161+00 (SHEET 15)

MATCHLINE -L- STA 174+00 (SHEET 17)

4/28/2016
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ERevis

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Charlotte, NC 28202 WLB
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-17
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

MATCHLINE -L- STA 174+00 (SHEET 16)

MATCHLINE -L- STA 187+00 (SHEET 18)

DETAIL 56
LATERAL BASE DITCH
(Not to Scale)

Min. D=3.0 Ft.
Max. d=3.0 Ft.
B=5.0 Ft.
b=5.0 Ft.

*When B is < 6.0'
Type of Liner= Class 'B' Rip-Rap
FROM STA. 175+29 TO STA. 176+25 -L- LT

DETAIL 57
LATERAL BASE DITCH
(Not to Scale)

Max. d=3.0 Ft.
B=5.0 Ft.
b=5.0 Ft.

*When B is < 6.0'
Type of Liner= Class I Rip-Rap
FROM STA. 178+45 TO STA. 178+67 -L- LT

DETAIL 24
SPECIAL LATERAL BASE DITCH
(Not to Scale)

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

Type of Liner= COIR FIBER MAT.
FROM STA. 23+00 TO STA. 27+00 -SR4- RT

DETAIL 26
LATERAL BASE DITCH
(Not to Scale)

Min. D=3.0 Ft.
B=5.0 Ft.
b=5.0 Ft.

FROM STA. 176+25 TO STA. 178+45 -L- LT

DETAIL 32
LATERAL BASE DITCH
(Not to Scale)

Min. D=2.5 Ft.
Max. d=2.5 Ft.
B=5.0 Ft.
b=5.0 Ft.

Type of Liner= COIR FIBER MATTING
FROM STA. 182+05 TO STA. 185+00 -L- RT

DITCH
Sta.= 175+50 -L-
DA= 40.3 AC
QS= 35.2 CFS
VS= 1.0 FTS
dS= 2.6 FT
s= 0.05%
n= 0.045

DITCH
Sta.= 182+05 -L-
DA= 25.7 AC
QS= 23.1 CFS
VS= 1.1 FTS
dS= 1.9 FT
s= 0.09%
n= 0.045

DITCH
Sta.= 186+14 -L- RT
DA= 0.89 AC
C= 0.64
n= 0.06
WIDTH=5 FT W/10:1 SIDES
I2= 5.9 IN/HR
Q2= 3.4 CFS
V2= 0.70 FT/S
I10= 7.7 IN/HR
Q10= 4.4 CFS
V10= 0.75 FT/S

DITCH
Sta.= 193+00 -SR4-
DA= 22.9 AC
QS= 18 CFS
VS= 0.9 FT/S
dS= 1.9 FT
s= 0.06%
n= 0.045

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 2B-6 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 65 FOR -SR4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

(148) HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

(151) MY THI TROUT
DB 1462 PG 755
MB 8PG 88

(185) SYLVIA WHALEY LEWIS & KAREN WHALEY COBB
DB 5606 PG 478

MANSEL S. ARMSTRONG, ET AL
WILL 9908 E759
WILL 9908 E758
DB 1187 PG 656
MB 8 PG 88

GARY L. DOETSCH
DB 5338 PG 440
MB 8 PG 88

4/28/2016
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Eskins

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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-18
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HC HC DENOTES HAND CLEARING

NAD 83/NSRS 2007

MATCHLINE -L- STA 187+00 (SHEET 17)

MATCHLINE -L- STA 200+00 (SHEET 19)

148 HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

915 NCDOT
DB 3171 PG 1604

STA 198+00 -L- LT
DA= 0.70 AC
C= 0.60
n= 0.06
WIDTH=5 FT W/10:1 SIDES
I2= 5.9 IN/HR
Q2= 2.5 CFS
V2= 0.65 FT/S
I10= 7.7 IN/HR
Q10= 3.3 CFS
V10= 0.70 FT/S

DITCH
Sta.= 199+45 -L-
DA= 2.2 AC
Q5= 8.0 CFS
VS= 2.2 FT/S
d5= 0.1 FT
s= 1.1%
n= 0.045

PROP. O/H POWER LINE

STA.199+72.04 -L- 150.98' LT

STA.199+52.77 -L- 151.93' LT

STA.198+59.73 -L- 151.57' LT

STA.198+58.72 -L- 131.59' LT

-L- POT Sta.198+62.34 = -Y18- POT Sta.14+48.81

LAT V DITCH STEEP DITCH Sta. 197+85.85 155.47' RT

PUE

PROP. O/H POWER LINE

HAND CLEARING = .01 ACRES SITE 18

CLASS B RIP RAP EST 4 TONS 7 GEOTEXTILE

BURY OUTLET 1.0'

191+40.3 -L- CREST

WOVEN WIRE FENCE

INV=43.1 F

INV=42.3

1809

EQ. RIPE

1808

1801 TOP=47.6 INV=44.9

36" RCP-IV

2GI

FS

15"

30" PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

30" PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

1807 TOP=46.5 INV=43.7

1803

1806 TOP=46.1 INV=43.4

18" RCP-IV

1805

POT Sta.14+59.97

REMOVE

LAT 3' BASE DITCH DETAIL 33

INV=42.3 INV=42.4

PROP. O/H POWER LINE

CLASS B RIP RAP EST 4 TONS 8 SY GEOTEXTILE

BURY INLET 1.0'

1807 INV=37.0

WOVEN WIRE FENCE

+00.00 115.00'

+24.00 40.00'

+45.10 40.00'

790'R

+45.00 60.00' 40.00'

+00.00 115.00'

TDE

+12.00 130.00'

FILL EXIST DITCH TO R/W EST 22 CY

+12.00 115.00'

+12.00 130.00'

STA.197+52.00 -L- 115.00' RT

148 HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

STA.197+52.55 -L- 136.67' RT

HAND CLEARING = .03 ACRES SITE 17

STA.197+95.15 -L- 141.63' RT

STA.198+08.25 -L- 141.63' RT

STA.198+38.36 -L- 141.64' RT

STA. 198+71.95 -L- 111.64' RT

STA.198+60.28 -L- 141.48' RT

EDWARD C. DRAPALA DB 1411 PG 330 PG 1087 PG 93

+70.00 55.00'

+34.15 40.00'

+22.00 40.00' 55.00'

+58.71 40.00' 50.00'

1810 INV= 40.0

24" RCP-IV

-SRA- POT Sta. 34+59.17 = -KIB- POT Sta. 18+92.42

INV=39.4 CLASS B RIP RAP EST 4 TONS 14 SY GEOTEXTILE

+78.71 40.00' 50.00'

+07.55 40.00'

+47.00 40.00'

+22.08 50.00'

POT Sta. 19+07.55

S 84° 41' 09.2" E

POT Sta. 19+19.94

155 HANH THI BICH LA
DB 1529 PG 841
DB 4453 PG 225,229
MB 8 PG 97

199+41.1 -L- SAG

+00.00 50.00'

685'R

+45.10 65.00'

WOODS

SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 24

SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 25

DITCH
Sta.= 27+50 -SR4
DA= 14.2 AC
Q5= 11.3 CFS
V5= 0.8 FT/S
d5= 1.5 FT
s= 0.06%
n= 0.045

153 SYLVIA WHALEY LEWIS & KAREN WHALEY COBB
DB 5606 PG 478
MB 8 PG 88

154 KENNETH R. PARKER, SR., ET UX
DB 5004 PG 1418
MB 8 PG 88

S 84° 41' 09.2" E

S 02° 41' 09" E 526.50'

N 2° 41' 09.2" W

S 2° 41' 09" E 558.28'

S 84° 41' 09" E 2.40'

S 84° 41' 09.2" E 329.9'

SAG

10' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE

7/27/2016
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mhafer

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-19
R/W SHEET NO.	

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900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

VELOCITY CALCULATIONS FOR RIPRAP PADS AT PIPE OUTLETS USE:
MANNING'S n-VALUE = 0.06
2 YEAR INTENSITY = 5.9 IN /HR
10 YEAR INTENSITY = 7.7 IN /HR
WIDTH (FOR 15") = 5 FT W/10:1 SIDES
WIDTH (FOR 18") = 6 FT W/10:1 SIDES

-Y18- POT Sta. 10+00.00 =
-Y19- PI Sta. 14+89.72
N 73° 29' 02.2" E

DETAIL 41
42" PIPE OUTLET CHANNEL
(Not to Scale)

Length = 14 ft
d = 3.5 Ft. (If Channel Depth < 3.5' Place Rip Rap to Top of Bank)
Est.= 21 Tons of Class 'I' Rip-Rap
35 SY of Geotextile

STA. 211+05 -L- RT

PROP. UTILITY POLE

BEGIN CONSTRUCTION
-Y19- POT STA. 20+50.00

END CONSTRUCTION
-Y19- POT STA. 20+96.35

-Y19- POT Sta. 21+43.78

POT Sta. 20+16.22

-Y8RPC- TS Sta. 10+00.00 =
-L- POT Sta. 202+94.01, 47.00' LT

SC Sta. 10+60.00

DITCH
Sta. = 199+45 -L-
DA= 2.2 AC
Q5= 8.0 CFS
V5= 2.2 FT/S
d5= 1.1 FT
s= 1.1%
n= 0.046

DITCH
Sta. = 205+75 -L-
DA= 1.0 AC
Q5= 3.7 CFS
V5= 1.6 FT/S
d5= 0.87 FT
s= 0.7%
n= 0.040

STA 211+00 -L- LT
DA= 0.61 AC
C= 0.49
Q2= 1.8 CFS
V2= 0.59 FT/S
Q10= 2.3 CFS
V10= 0.63 FT/S

BEGIN DITCH
DEPTH 1'

PONDING 8" OVERGROWN n=0.065

PONDING 8" OVERGROWN NCDOT
DB 5771 PG 1664

LAT 'V' DITCH SEE DETAIL 7

PROP SOIL TURNAROUND

CHORD

TS Sta. 20+55.32

SC Sta. 21+25.32

WOVEN WIRE FENCE

VERY FLAT

DIRECTION OF FLOW

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

BURY INLET 1.0'
INV = 37.0

INV = 38.9
INV = 40.1
INV = 40.5
INV = 40.9

15" RCP-IV
36" RCP-III
36" RCP-IV
42" RCP-III
36" RCP

EQ. PIPE

-Y8RPC-
-Y8RPDB-

CHARLES M. MAINLAND
DB 1050 PG 526
MB 8 PG 98

DENNIS R. SMITH
DB 1370 PG 372
MB 8 PG 98

MARGARET M. LANGLEY, HEIRS
EB 9912 PG 1889
DB 1019 PG 332
MB 8 PG 98

NCDOT
DB 5771 PG 1664

EDWARD C. DRAPALA
DB 1411 PG 330
DB 1561 PG 1087
MB 8 PG 97

CROOKED PINE ROAD (SR 1729)

MILITARY CUTOFF RD

N 17° 07' 10.0" W

N 13° 07' 10.0" W

N 73° 29' 37.3" E

S 07° 33' 51" W 731.96'

S 82° 26' 09" E 459.44'

CREST STA. 207+36.8 -L-

CREST 13+27.7 -Y8RPDB-

SAG 15+68.8 -Y8RPDB-

-L- MILITARY CUTOFF RD

PROP GUIDERAIL

FUTURE (BY OTHERS)

REMOVE EXIST. GUIDERAIL

BURY OUTLET 1.0'

SIZE REDUCED DUE TO INSUFFICIENT COVER

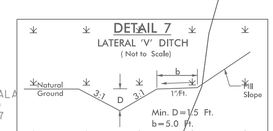
CLASS I RIPRAP ON BANKS ONLY SEE DETAIL 41
V10 = 2.7 FT/S

PONDING 6" OVERGROWN
n = 0.065
CLASS 'I' RIP RAP
EST. 20 TONS
39 SY GEOTEXTILE

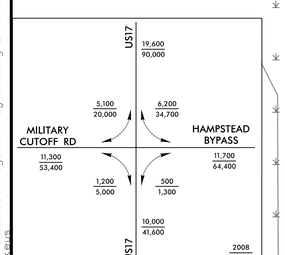
PONDING 8" OVERGROWN
n = 0.065

STA 207+37 -L- RT
DA = 0.40 AC
C = 0.64
Q2 = 1.5 CFS
V2 = 0.56 FT/S
Q10 = 2.0 CFS
V10 = 0.60 FT/S

DETAIL 7
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 199+45 TO STA. 205+75 -L- LT



MATCHLINE -L- STA 200+00 (SHEET 18)

MATCHLINE -Y8RPC- STA 19+00 (SHEET 20)

MATCHLINE -L- STA 213+00 (SHEET 20)

MATCHLINE -Y8RPDB- STA 22+00 (SHEET 20)

4/28/2016
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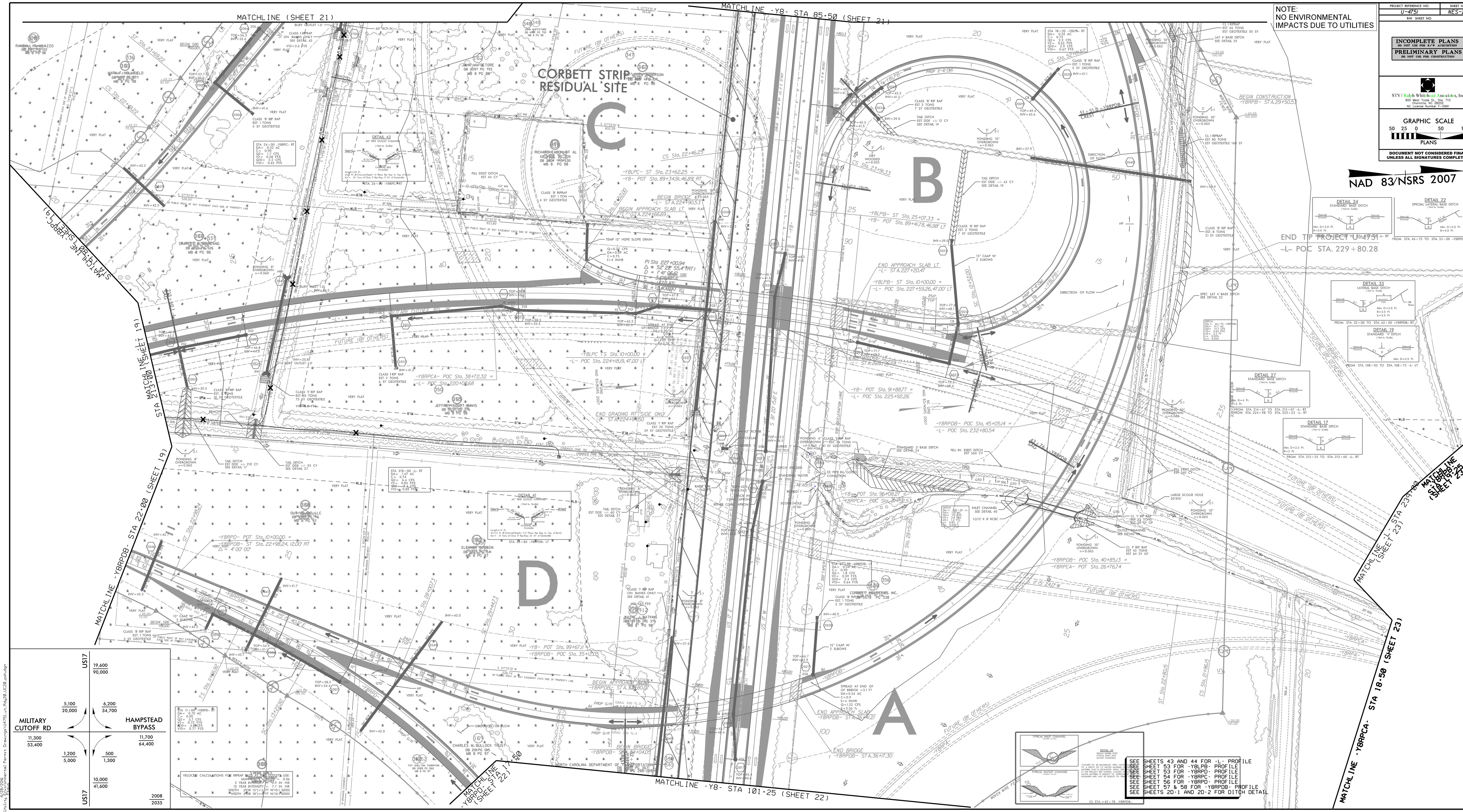
FEGUS



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4/28/2016
Ekeus

PROJECT REFERENCE NO.	SHEET NO.
U-4754	MES-21
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number: F-0991

GRAPHIC SCALE
50 25 0 50 100
PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 70+00 (SHEET 33)

MATCHLINE (SHEET 20)

MATCHLINE -Y8- STA 85+50 (SHEET 20)

MATCHLINE (SHEET 20)

	US17	
	19,600 / 90,000	
MILITARY CUTOFF RD	5,100 / 20,000	6,200 / 34,700
	11,300 / 53,400	11,700 / 64,400
	1,200 / 5,000	500 / 1,300
	10,000 / 41,600	
	US17	2008 / 2035

CORBETT STRIP RESIDUAL- STRIP SITE

-Y8RPC- POT Sta. 34+66.23 =
-Y8RPCA- POT Sta. 52+29.53,12.00 LT
Δ = 2° 30' 00"

-Y8RPB- ST Sta. 33+03.84 =
-Y8RPDB- POT Sta. 55+79.90, 24.00' RT
Δ = 17° 00' 00"

BEGIN CONSTRUCTION
-Y8RPCA- POT STA. 46+03.74

C

B

JASON RITTERBELL DB 4895 PG 666 MB 8 PG 98

ALEJANDRO ILINAS DB 4650 PG 248 MB 8 PG 98

LESLIE MONROE SIMS, ET AL DB 4404 PG 335 MB 8 PG 98

JERRY E. FULLWOOD DB 3758 PG 709 MB 8 PG 98

ELIZABETH B. WOOTEN DB 5108 PG 2985 MB 8 PG 98

MONIKA L. ETSELL DB 4897 PG 693 MB 8 PG 98

MARK F. HOLLIFIELD DB 2736 PG 880 MB 8 PG 98

KENNETH WAYNE BARROW DB 5034 PG 37 MB 8 PG 98

CORBETT INDUSTRIES INC. DB 5578 PG 338

DONALD D. ENGLEHART DB 2273 PG 172 MB 8 PG 98

LENER FURR DB 5533 PG 2205,2208 MB 8 PG 98

ETTA G. WILSON, HEIRS DB 4014 PG 598 MB 8 PG 98

MARK F. HOLLIFIELD DB 697 PG 877 MB 8 PG 98

JOHN MATTESON DB 4078 PG 783 MB 8 PG 98

R:\Utilities\Rdwy\Utilities Parcel Drawings\U4754_ut_Rdy21_UC21.dgn

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-22
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -Y8RPD- STA 17+50 (SHEET 20)

MATCHLINE -Y8- STA 101+25 (SHEET 20)

MATCHLINE -Y8- STA 109+50 (SHEET 34)

DIRECTION OF FLOW

CHARLES M. BULLOCK TRUST
DB 2011 PG 1761
MB 8 PG 97
VERY FLAT

DIANE THI MINH CHAU TA
DB 5503 PG 1237
MB 8 PG 97

CORBETT INDUSTRIES INC.
DB 5578 PG 338

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PG 367
MB 41 PG 289

CORBETT STRIP RESIDUAL SITE

STA 21+00 -Y8RPD- RT
DA= 0.27 AC
C= 0.89
n= 0.06
WIDTH= 3 FT W/10:1 SIDES
I2= 5.9 IN/HR
Q2= 1.5 CFS
V2= 0.56 FT/S
I10= 7.7 IN/HR
Q10= 1.9 CFS
V10= 0.60 FT/S

72" RCP-V
INV=37.8
HW
2203

INV=41.2
46" RCP-III EQ. PIPE
2204

3' 2:1 6' PONDING 8" OVERGROWN n=0.065

INV=42.7

+18.00 105.00'

TOP 2207B
INV=5.40
2G1

15" CAAP W
2 ELBOWS
L=42.2

CLASS I RIPRAP
EST 26 TONS
5 SY GEOTEXTILE

2201
2202

END SBG +01J4

CLASS I RIPRAP
EST 26 TONS
EST GEOTEXTILE 50 SY

INV=36.8

42" RCP-III
2205

INV=37.2
2206

42" RCP-III
2206

3' 2:1 6' PONDING 8" OVERGROWN n=0.065

26+19.0 -Y8RPD-

+00.00 90.00'

+00.00 145.00'

+15.00 60.00'

+89.09 90.00'

CS Sta. 28+89.09

ST Sta. 29+89.09

CHORD

WOVEN WIRE FENCE

PROP G/R

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

S 07°33'51" W 615.11'

S 07°33'51" W 601.46'

10' DRAINAGE EASEMENT

S 80°44'09" E 459.64'

FUTURE (BY OTHERS)

-Y8RPA-

US 17 E

US 17 W

S 81°20'15.6" E

-Y8-

NCDOT GPS MON. U4751-12

W OH-1 / ALBLTP W 35°BST

W OH-1 / ALBLTP E 37°BST

105

25

30

SEE SHEET 56 FOR -Y8RPD- PROFILE

4/28/2016
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ERains

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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-23
R/W SHEET NO.	

NOTE:
NO ENVIRONMENTAL
IMPACTS DUE TO UTILITIES

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -L- STA 239+00
-Y8RPB- STA 19+25
(SHEET 20)

MATCHLINE -L- STA 18+50
-Y8RPCA- STA 10+00
(SHEET 20)

SIDBURY LAND & TIMBER LLC
DB 4526 PG 835

CS Sta. 241+33.73

ST Sta. 244+03.73

SC Sta. 13+24.29

ST Sta. 12+24.29

FUTURE (BY OTHERS)
PIs Sta. 242+27.02
Θs = 21°16'29.9"
Ls = 270.00'
LT = 180.01'
ST = 90.01'

-Y8RPB- S 42° 48' 45.4" W

-Y8RPB- POT Sta. 10+00.00 =
-L- POC Sta. 248+20.54, 47.00' LT
△ = 3° 00' 00"

-L-
FUTURE (BY OTHERS) HAMPSTEAD BYPASS N 39° 48' 45.4" E
(TIP R3300)

-Y8RPCA-
FUTURE (BY OTHERS)

-Y8RPCA- TS Sta. 10+00.00 =
-L- POC Sta. 248+79.40, 59.00' RT

-Y8RPA- TS Sta. 10+00.00 =
-Y8RPCA- POC Sta. 16+83.78, 12.00' LT

SC Sta. 11+32.00

SC Sta. 10+84.00

170
CORBETT INDUSTRIES INC.
DB 5578 PG 338

RETAIN
48" CMP
IE=INV=29.85'

INV=31.94'
INV=30.45'
INV=35.42'

SEE SHEET 44 FOR -L- PROFILE

	US17	
	19,600 / 90,000	
MILITARY CUTOFF RD	5,100 / 20,000	6,200 / 34,700
	11,300 / 53,400	11,700 / 64,400
	1,200 / 5,000	500 / 1,300
	10,000 / 41,600	
	US17	2008 / 2035

4/28/2016
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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-24
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

DASHED LINES REPRESENT PROPOSED PROJECT U-4902C/D

BEGIN TIP PROJECT U-4751 -Y1- POT STA. 14+20.13 AH

END TIP PROJECT U-4902C/D -L- POT STA. 134+56.13 BK

-Y1- POT Sta. 15+23.56 =
-Y25- POT Sta. 10+00.00

POT Sta. 9+96.06

POT Sta. 14+00.00

END CONSTRUCTION
-Y25- POT STA. 11+81.00

PC Sta. 19+96.98

MATCHLINE -Y1- STA 19+00 (SHEET UC-25)

PROP. O/H POWER LINE

PROP. 8" WATER LINE

PROP. 8" SEWER LINE

PROP. U/G COMMUNICATION CABLES

PROP. U/G CATV CABLES

PROP. JOINT USE O/H POW & (FO) COMMUN. LINES

PROP. O/H POWER LINE

PROP. O/H POWER LINE

REMOVE DI AND PIPE

REMOVE EXIST SYSTEM

TIE TO U-4902C/D

TIE TO U-4902C/D

ROBERT L. YUNASKA
DB 1558 PG 1088
DB 1389 PG 1122
DB 1397 PG 656
DB 2664 PG 574

TRINITY GROUP OF WILMINGTON, INC.
DB 4528 PG 705
DB 2696 PG 686

NORTH MARKET COMMERCIAL PARK POA, INC.
DB 5486 PG 2254
DB 2685 PG 237
DB 1389 PG 1122
DB 1397 PG 656
MB 18 PG 151

HOWARD PROPERTIES OF WILMINGTON LLC
DB 5857 PG 949

PAUL C. MAKI
DB 5602 PG 827
MB 33 PG 251

H&S FAMILY HOLDINGS, LLC.
DB 5454 PG 691
DB 2714 PG 357
MB 362 PG 633

STATE OF NORTH CAROLINA
DB 628 PG 218
DB 1887 PG 499
DB 2805 PG 493
MB 25 PG 68
MB 45 PG 388

EUGENE N. FLOYD FAMILY TRUST
DB 5266 PG 1853
DB 2719 PG 865
MB 25 PG 68

CHRISTOPHER E. FLOYD, ET UX
DB 1928 PG 727
DB 2748 PG 452
MB 25 PG 68

US HWY 17 MARKET ST

40,000 / 56,000			40,000 / 57,000
2,000 / 3,500	STATION RD	2,000 / 4,500	
	4,000 / 8,000		
			2008 / 2035

SEE SHEET 48 FOR -Y1- PROFILE

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-25
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

PROP. JOINT USE O/H POWER &(FO) COMMUN. LINES

PROP. U/G CATV CABLES

PROP. U/G COMMUNICATION CABLES

PROP. 24" WATER

PROP. O/H POWER LINES

PROP. 6" GAS

PROP. U/G CATV CABLES

PROP. 8" WATER

PROP. 12" WATER

MATCHLINE (SHEET UC-26)

MATCHLINE -Y- STA 19+00 (SHEET UC-26)

MATCHLINE -Y1- STA 21+00 (SHEET 24)

MATCHLINE -Y1- STA 34+00 (SHEET UC-6)

MATCHLINE -Y- STA 27+00 (SHEET UC-5)

	GORDON RD	
9,000 / 13,000	23,400 / 31,000	8,500 / 10,000
US HWY 17 MARKET ST		US HWY 17 MARKET ST
40,000 / 57,000		39,000 / 53,800
1,800 / 2,600		1,300 / 2,400
	GORDON RD	
	9,000 / 13,000	
	2008 / 2035	

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-26
R/W SHEET NO.	

NAD 83/NSRS 2007

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE (SHEET UC-25)

MATCHLINE -Y- STA 19+00 (SHEET UC-25)

MATCHLINE (SHEET UC-25)

PROP. U/G CATV CABLES

PROP. U/G COMMUNICATION CABLES

BEGIN CONSTRUCTION
-Y- POT STA. 10+95.00

GORDON RD

CAPE HARBOR DR

CAPE HARBOR APTS

SHEFFIELD PROPERTIES, LLC
DB 2987 PG 710
DB 4558 PG 654
DB 5310 PG 909
DB 2705 PG 669
DB 2460 PG 715
DB 1883 PG 258
DB 1389 PG 122
DB 1397 PG 656
MB 17 PG 251

G&I VI CAPE HARBOR LP
DB 5287 PG 2790
DB 1528 PG 459

D. J. SKANDALAKIS, ET UX
DB 1471 PG 1909
DB 2609 PG 707
PG 1122
PG 656
MB 6 PG 29

JOHN B. [illegible]
DB [illegible]
DB 1389 PG 122
DB 1397 PG 656
MB 36 PG 29

ROBERT N. BATUYIOS, ET AL
DB 2774 PG 155
DB 2609 PG 707
MB 6 PG 29

C H REAL ESTATE, LLC.
DB 2698 PG 479
DB 2452 PG 990
DB 5474 PG 2645
DB 2463 PG 409
MB 6 PG 29

RETAIN
REMOVE CB AND PIPE
REMOVE CB COLLAR AND EXTEND
RELOCATE WATER METER
RETAIN EXIST SYSTEM
100' BAY TAPER
200' LANE TAPER (LT & RT)
275' TAPER

SEE SHEET 47 FOR -Y- PROFILE

STV/ Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-27
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

MATCHLINE (SHEET 6)

MATCHLINE -Y1RPD- STA 30+00 (SHEET 6)

MATCHLINE (SHEET 5)

MATCHLINE -Y1RPD- STA 16+00 (SHEET 5)

PROP. JOINT USE OH POW & FO

PROP. 8" WATER LINE

PROP. UG CATV CABLES

END PROFILE
STA. 19+69.08 -Y1RPD-
111.68' RT.

SEE SHEET 54 FOR -Y1RPD- PROFILE

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U4751	NES-28
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

MOUNT ARARAT AME CHURCH PROPOSED NATIONAL REGISTER BOUNDARY

PROP. OH POW

PROP. OH POW & FO (2)

PROP. OH POW & FO (2)

PROP. UG CATV CABLES

PROP. UG COMM CABLES

PROP. OH POWER

PIEDMONT NATURAL GAS TO LOWER IN PLACE 6" NATURAL GAS LINE

MATCHLINE -Y1- STA 62+00 (SHEET UC-6)

MATCHLINE -Y1- STA 75+00 (SHEET UC-29)

SEE SHEET 50 FOR -Y1- PROFILE
SEE SHEET 62 FOR -Y9- PROFILE
SEE SHEET 62 FOR -Y10- PROFILE

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Charlotte, NC 28208
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-29
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE SHEET 50 FOR -Y1- PROFILE
SEE SHEET 63 FOR -Y13- PROFILE

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

NAD 83/NSRS 2007

MATCHLINE -Y13- STA 17+50 (SHEET 30)

MATCHLINE (SHEET UC-30)

MATCHLINE -Y1- STA 75+00 (SHEET UC-28)

PROP. JOINT USE O/H POWER & (FO)COMMUN. LINES

PROP. U/G COMMUNICATION CONDUIT

PROP. 6" GAS

PROP. 8" WATER LINE

PROP. U/G CATV CABLES

PROP. 8" WATER LINE

PROP. U/G CATV CABLES

PROP. 8" WATER LINE

PROP. U/G COMMUNICATION CABLES

PROP. O/H POWER LINES

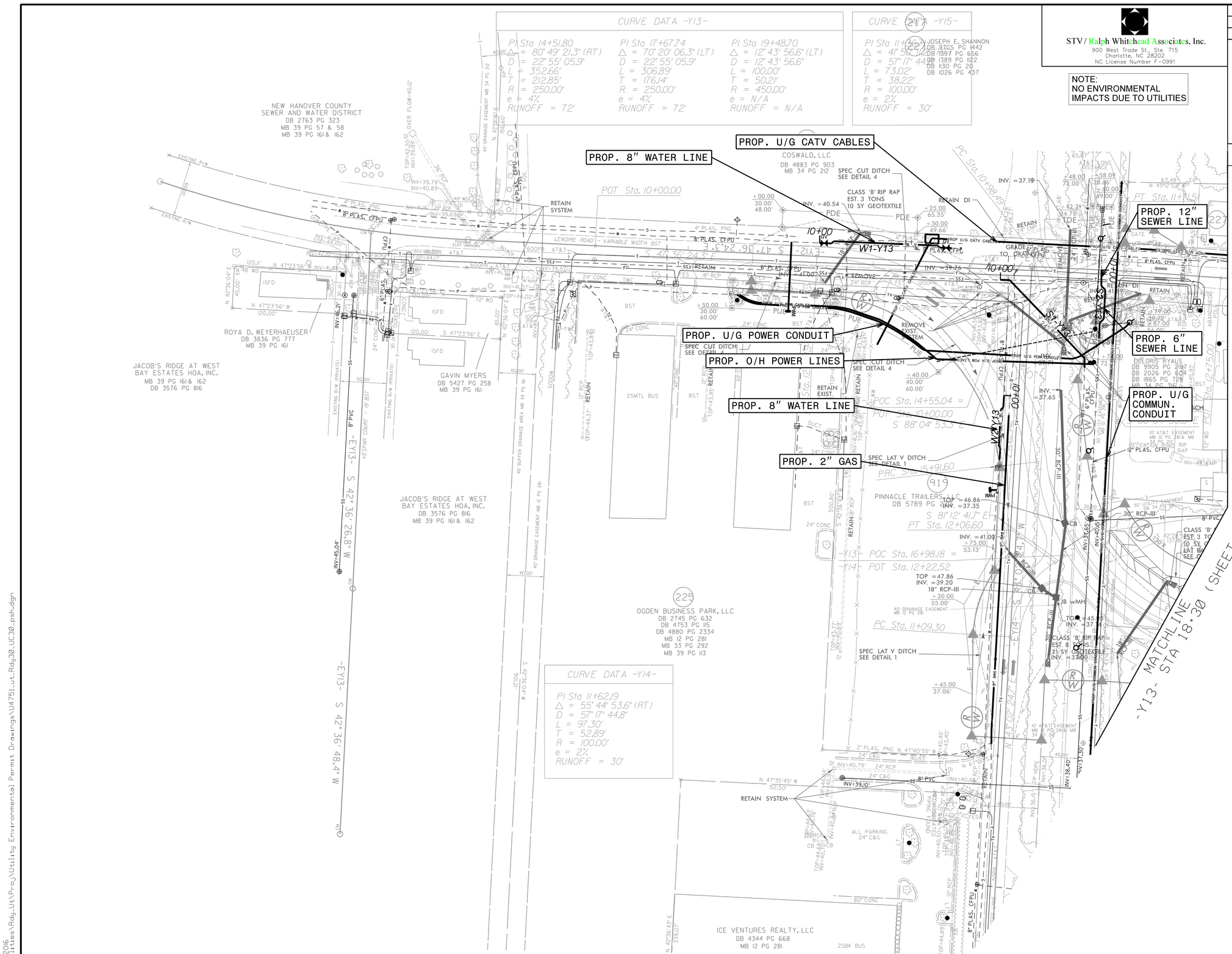
DASHED LINES REPRESENT PROPOSED PROJECT U-4902C/D

TIE TO U-4902C/D

END TIP PROJECT U-4751 -Y1- POT STA. 84+97.63 BK

BEGIN TIP PROJECT U-4902C/D -L- POT STA. 205+33.63 AH

US HWY 17 MARKET ST		US HWY 17 MARKET ST
45,400 / 50,000		41,400 / 45,400
7,000 / 7,800	MIDDLE SOUND LOOP RD	3,000 / 3,200
10,000 / 11,000		
2008 / 2035		



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900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751A	NES-30
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY :

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

4/28/2016
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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-31
R/W SHEET NO.	

NOTE:
NO ENVIRONMENTAL
IMPACTS DUE TO UTILITIES

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

170

BEGIN CONSTRUCTION
BEGIN MILLING AND RESURFACING
-Y8- POT STA. 31+20.00

WLB
87M
JS NEU
840' TAPER
8.67' +20.00
PS
F
35
40
4' 2:1
5'
FLOW 3" OVERGROWN
n=0.065
+54.00
133.00'
CLASS 'I' RIP RAP
ESTIMATED
50 SY GEOTEXTILE
+12.00
114.83'
PDE
V10=8.9 FT/S
310)
48" RCP-III
COLLAR
310)
310)
+60.00
4' PS
12
VERY FLAT
US 17 W
EX PIPE AND 2GI
IN GOOD CONDITION
RETAIN
REMAIN 2GI
STANDING WATER IN 2GI
-Y8-
S 67° 54' 42.7" E
US 17 E
US 17 / I-14
RETAIN
LOOSE BLOCKS ON TOP OF HW

MATCHLINE -Y8- STA 44+00 (SHEET 32)

4/28/2016
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NOTE:
NO ENVIRONMENTAL
IMPACTS DUE TO UTILITIES

STV/ Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-32
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 44+00 (SHEET 31)

MATCHLINE -Y8- STA 57+00 (SHEET 33)

CORBETT INDUSTRIES INC.
DB 5578 PG 338

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PG 367
MB 41 PG 288-289

CORBETT TRACT
MITIGATION SITE

US 17 W

US 17 E

840' TAPER

48" WW ISBW

INV. 39.66'

INV. 39.80'

INV. 39.90'

INV. 40.14'

PC Sta. 56+00.40

-Y8-
S 67° 54' 42.7" E

S 81°38'25" E
473.34'

S 81°01'56" E

4/28/2016
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NOTE:
NO ENVIRONMENTAL
IMPACTS DUE TO UTILITIES

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Charlotte, NC 28202
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PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-33
R/W SHEET NO.	

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 57+00 (SHEET 32)

MATCHLINE -Y8- STA 70+00 (SHEET 21)

US 17 W

US 17 E

-Y8-

-Y8RPDB- ST Sta. 69+87.19 =
-Y8- POC Sta. 69+54.22, 59.00' LT
△ = 0° 00' 00"

500' ACCELERATION LANE

600' TAPER

N 70° 56' 43.4" W

-Y8RPCA-

WLB

WOVEN WIRE FENCE

2340'R

CHORD

63.41'

240' TYP

ST Sta. 65+65.35

CS Sta. 64+81.35

+00.00
114.88

92.88
75.00'

END WOVEN WIRE FENCE
+00.00, 114.83'

BEGIN WIDENING RT
-Y8- POT STA. 61+09.36

-Y8RPCA- POT Sta. 68+92.88 =
-Y8- POC Sta. 64+07.54, 46.78' RT
△ = 3° 00' 59"

CORBETT STRIP
RESIDUAL SITE

4/28/2016
R:\Utilities\Rdy_Ut\Proj\Utility Environmental Permit Drawings\U4751_ut_Rdy33_UC33_psh.dgn
keris

NOTE:
NO ENVIRONMENTAL IMPACTS DUE TO UTILITIES

STV/ Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-34
R/W SHEET NO.	
ROADWAY DESIGN	HYDRAULICS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 109+50 (SHEET 22)

CORBETT INDUSTRIES INC.
DB 5578 PG 338

END WOVEN WIRE FENCE
+72.99, 68.00'

WOVEN WIRE FENCE

-Y8RPA- POT Sta. 33+72.99 =
-Y8- POT Sta. 111+63.61, 46.92' LT
△ = 0° 00' 00"

FLOW 36"
TALL GRASS
n = 0.055

BURIED 1.5'

INV=34.32'

FUTURE (BY OTHERS)
-Y8RPA-

EX PIPE IN GOOD CONDITION

-EY6- S 81° 20' 15.6" E

-Y8- S 81° 20' 15.6" E

EX PIPE AND 2GI IN GOOD CONDITION

US 17 W

US 17 E

-Y8RPD-

FLOW 2"

NO EXIST HW

HW 340

COLLAR 3403

3402

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

EXTEND 18" RCP III

WET AREA

NO DEFINED CHANNEL

VERY FLAT

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

NO DEFINED CHANNEL

VERY FLAT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PONDED AREA
MB 41 POSSIBLE BEAVER

340

END CONSTRUCTION
END MILLING & RESURFACING
-Y8- POT Sta. 121+98.08

300' TAPER

ADJUST SS

NO DEFINED CHANNEL

BURIED 3"

VERY FLAT

4" HOLE IN TOP OF PIPE

PERCHED 1'

FLOW 2"
TALL GRASS
n = 0.055

4' 3:1

48" WW ISBW

48" RCP

RETAIN 18" RCP

RETAIN 24" RCP

WLB

BTM

110

115

120

48" WOVEN WIRE FENCE

END WOVEN WIRE FENCE
+93.10, 60.00'

S 80°44'09" E 459.65'

10' DRAINAGE EASEMENT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PG 367
MB 41 PG 288-289

354

CONG VU PHAM
DB 5351 PG 2982
MB 8 PG 97

28+47.0 -Y8RPD-
CS Sta. 28+62.70

-Y8RPD- ST Sta. 30+18.70 =
-Y8- POT Sta. 112+98.08, 46.66' RT
△ = 0° 00' 00"

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3443 PG 183
MB 8 PG 87

STA 114+63 -Y8- RT
DA = 0.91 AC
C = 0.39
n = 0.06
WIDTH = 6 FT W/10:1 SIDES
I2 = 4.9 IN/HR
Q2 = 2.1 CFS
V2 = 0.52 FT/S
I10 = 7.7 IN/HR
Q10 = 2.7 CFS
V10 = 0.61 FT/S

50' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

2010 R
AND POP
WERE LO

SEE SHEET 56 FOR -Y8RPD- PROFILE

4/28/2016
R:\Utilities\Rdy_Ut\Proj\Utility Environmental Permit Drawings\U4751_ut_Rdy34_UC34_psh.dgn
ffeans

5/28/99

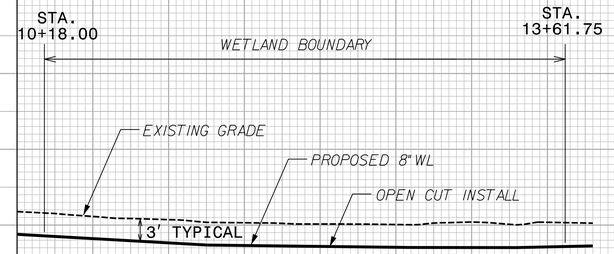
PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-35

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

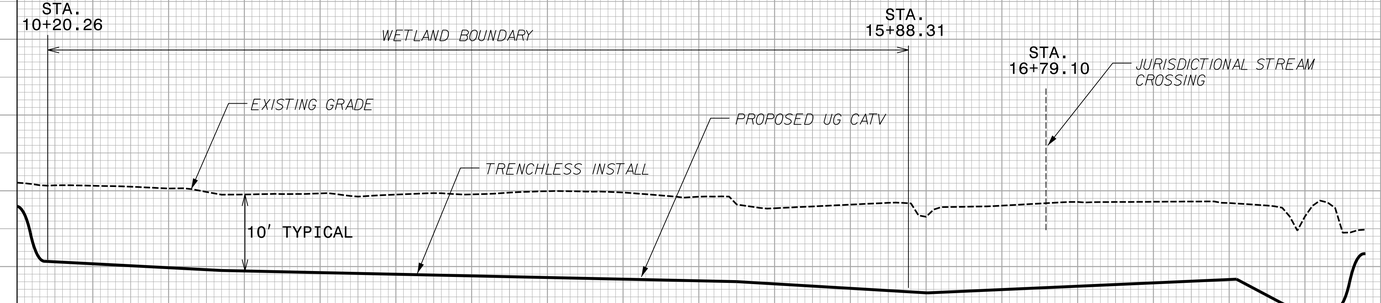
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 1
8" WATER LINE



PLAN SHEET NES-05
UNDERGROUND CATV



PLANS PREPARED BY :

RK&K

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

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

4/28/2016
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ekeis

5/28/99

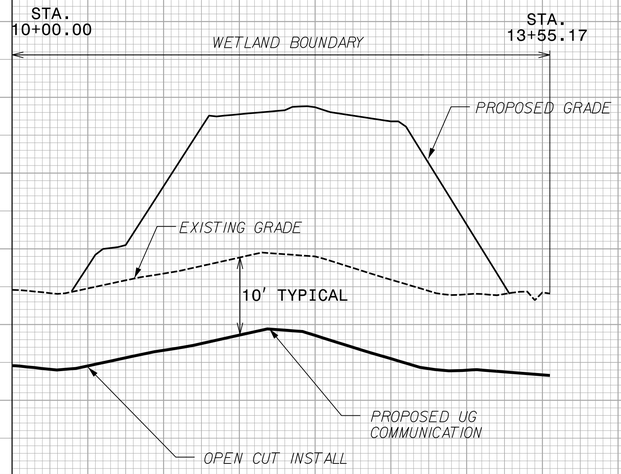
PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-36

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

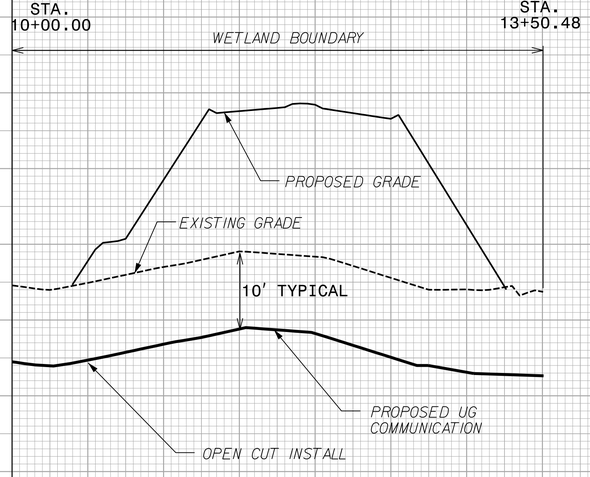
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 4
UNDERGROUND COMMUNICATION CABLE



SITE 4
UNDERGROUND POWER CONDUIT



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RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

4/28/2016
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ekeis

5/28/99

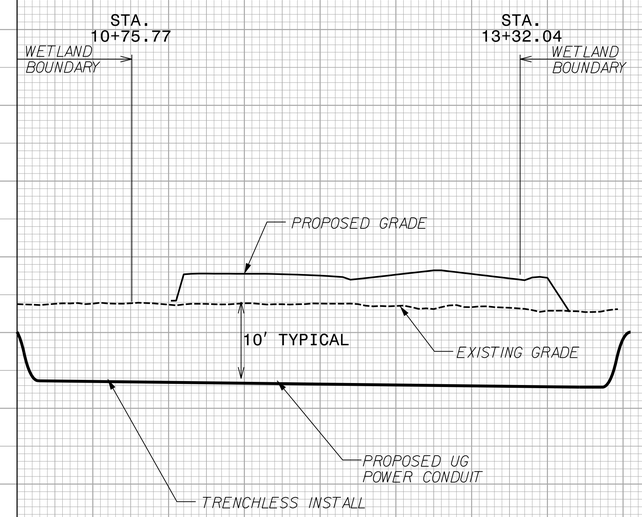
PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-37

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

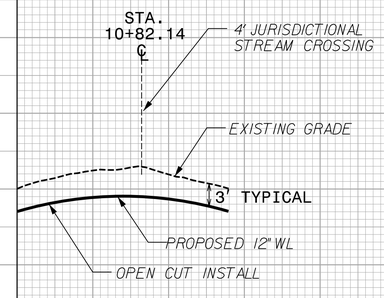
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLAN SHEET NES-09
UNDERGROUND POWER CONDUIT



PLAN SHEET NES-12
12" WATER LINE



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

90 80 70 60 50 40 30 20 10 0

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

4/28/2016
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tkeis

5/28/99

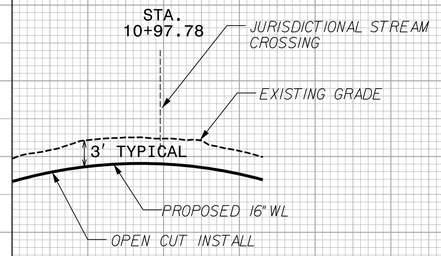
PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-38

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

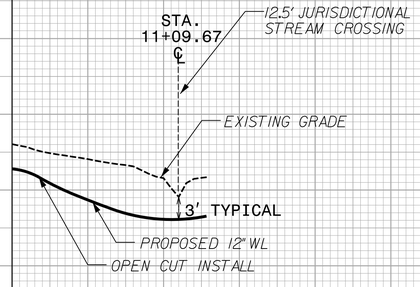
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLAN SHEET NES-12
16" WATER LINE



PLAN SHEET NES-14
12" WATER LINE



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

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

4/28/2016
R:\Utilities\Rdy_Ut\Proj\Utility Environmental Permit Drawings\U4751_Ut_UC_PFL _SHT_4.dgn
Ekeis

5/28/99

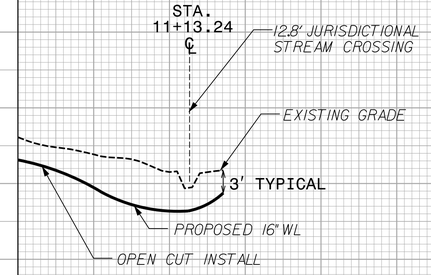
PROJECT REFERENCE NO.	SHEET NO.
U-4751	NES-39

PLAN SHEET NES-14
16" WATER LINE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



90 80 70 60 50 40 30 20 10 0

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

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

4/28/2016
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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	-Y1RPD- 11+98.34 to -Y1RPD- 15+03.30	Overhead Power & FO lines					0.17					
	(Sheet NES-05)											
1	-Y1RPD- 12+49.01	Power Pole	<0.01									
	(Sheet NES-05)											
2	-Y1RPD-11+07.63 to Y1RPD 15+04.47	Underground 8" Water Line		0.02	0.02							
	(Sheet NES-05)											
3	-L-26+76.71	Power Pole	<0.01									
	(Sheet NES-05)											
3	-L-26+66.38 to -L- 26+86.64	Guy Pole					0.02					
	(Sheet NES-05)											
4	-Y1RPD- 24+17.80 to -Y1RPD- 24+87.31	Overhead Power & FO Line					0.02					
	(Sheet NES-06)											
5	-Y1RPD- 22+19.51 to -Y1RPD- 23+21.59	Overhead Power & FO Line					0.03					
	(Sheet NES-06)											
6	-L- 52+62.23 to -L- 54+53.85	Overhead Power					0.15					
	(Sheet NES-07)											
6	-L- 54+17.56	Power Pole	<0.01									
	(Sheet NES-07)											
7	-L-51+91.93 to -L- 52+42.64	Overhead Power & FO Line					0.04					
	(Sheet NES-07)											
7	-L- 52+06.20	Power Pole	<0.01									
	(Sheet NES-07)											

8	-L- 53+33.1	Power Pole	<0.01									
	(Sheet NES-07)											
9	-L- 52+75.53	Power Pole	<0.01									
	(Sheet NES-07)											
10	-L- 64+48.89	Power Pole	<0.01									
	(Sheet NES-08)											
10	-L- 64+60.07	Power Pole	<0.01									
	(Sheet NES-08)											
10	-L- 64+50.00 to -L- 64+86.50	Overhead Power & FO lines					0.06					
	(Sheet NES-08)											
10	-L- 64+54.98 to -L- 64+79.39	Underground Power & Communication		<0.01	0.01							
	(Sheet NES-08)											
11	-L- 67+68.33	Power Pole	<0.01									
	(Sheet NES-08)											
11	-L- 67+75.17	Power Pole	<0.01									
	(Sheet NES-08)											
12	-L- 65+71.70	Power Pole	<0.01									
	(Sheet NES-08)											
12	-L- 68+32.03	Power Pole	<0.01									
	(Sheet NES-08)											
12	-L- 65+36.00 to -L- 70+00.00	Overhead Power & FO lines					0.31					
	(Sheet NES-08)											
12	-L- 65+56.53 to -L- 65+76.47	Underground Power & Communication		<0.01	<0.01							
	(Sheet NES-08)											
13	-L- 70+91.80	Power Pole	<0.01									
	(Sheet NES-09)											
13	-L- 73+55.09	Power Pole	<0.01									
	(Sheet NES-09)											
13	-L- 70+00.00 to -L- 73+91.00	Overhead Power & FO lines					0.27					

	(Sheet NES-09)											
14	-L- 75+04.28	Power Pole	<0.01									
	(Sheet NES-09)											
14	-L- 75+11.12	Power Pole	<0.01									
	(Sheet NES-09)											
15	-L- 117+97.70 to -L- 118+29.74	Underground 12" & 16" Water Line			<0.01				<0.01			
	(Sheet NES-12)											
16	-L- 138+07.56 to -L- 138+17.02	Underground 12" & 16" Water Line			0.01				<0.01			
	(Sheet NES-14)											
17	-L- 197+52 to -L- 198+71.95	Overhead Power					0.03					
	(Sheet NES-18)											
18	-L- 198+58.72 to 199+72.04	Overhead Power					0.01					
	(Sheet NES-18)											
TOTALS:			<0.01	0.03	0.05	0.00	1.12	0.00	0.01	0.00	0.00	0.00

Note : 4 sq. ft. (Each) = 0.0001 ac (Each) permanent impact in the wetlands from pole installation.
Total = 64 sq. ft.
= 0.001 ac
= < 0.01 ac

Note : 871.2 sq. ft. = .02 ac Temp. Fill in Wetlands.
171.54 sq. ft.= 0.0040 ac
144.22 sq. ft = 0.0033 ac
Total = 1186.96 sq. ft.
= 0.027 ac
= .03 ac

Note : 871.2 sq. ft. = 0.02 ac Excavation in Wetlands.
435.60 sq. ft = 0.01 ac
375.30 sq. ft.= .0086 ac
201.67 sq. ft.= .0042 ac
435.60 sq. ft = 0.01 ac
Total = 2319.37 sq. ft.
= 0.053 ac

= .05 ac

Note : 205.43 sq. ft. = 0.0053 ac Temp. SW Impacts.
114.94 sq. ft = 0.0026 ac
Total = 320.37 sq. ft.
= 0.007 ac
= .01 ac

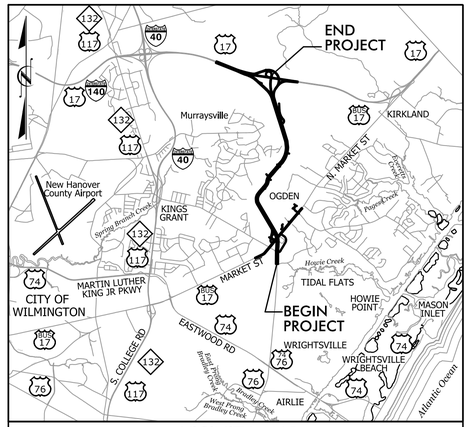
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ONSLOW COUNTY
TIP PROJECT (U-4751)

09/08/99

TIP PROJECT: U-4751

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4751	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40191.1.2		PE
40191.2.1		R/W

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

LOCATION: SR 1409 (MILITARY CUTOFF ROAD) TO US 17 IN WILMINGTON

TYPE OF WORK: GRADING, PAVING, DRAINAGE, RETAINING WALLS, SIGNALS, STRUCTURES & CULVERTS

BEGIN TIP PROJECT U-4751
-L- STA. 10+35.00

BEGIN TIP PROJECT U-4751 -Y1- POT STA. 14+20.13 AH
END TIP PROJECT U-4902C/D -L- POT STA. 134+56.13 BK

NSRS 2007 NAD 83

END TIP PROJECT U-4751 -Y1- POT STA. 84+97.63 BK
BEGIN TIP PROJECT U-4902C/D -L- POT STA. 205+33.63 AH

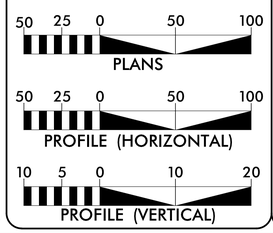
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WILMINGTON. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III. THIS IS A PARTIAL AND FULL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES AND POINTS AS SHOWN ON THE PLANS.

BEGIN CONSTRUCTION -Y8- STA. 31+20.00

END TIP PROJECT U-4751 -L- STA. 229+80.28

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 23,900
ADT 2037 = 49,100
K = 12%
D = 60%
T = 7%*
V = 50 MPH
* (TTST=3%+DUAL 4%)
FUNC CLASS = ARTERIAL/FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4751 = 5.394 MILES

LENGTH STRUCTURE TIP PROJECT U-4751 = 0.103 MILES

TOTAL LENGTH OF TIP PROJECT U-4751 = 5.497 MILES

PLANS PREPARED FOR THE NCDOT BY:

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 17, 2015

LETTING DATE:
OCTOBER 17, 2017

JOHN N. JOHNSON, PE
PROJECT ENGINEER

SEAN C. STEPHENS, EI
PROJECT DESIGNER

GARY LOVERING, PE
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

R/W PLANS
4/16/2015

8/17/99

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	1A

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INDEX OF SHEETS

1 ..... TITLE SHEET
1A ..... INDEX OF SHEETS, GENERAL NOTES, STANDARD DRAWINGS
1B ..... CONVENTIONAL SYMBOLS
1C -1 THRU 1C-9 ..... SURVEY CONTROL SHEETS
1C -10 THRU 1C-12 ..... CENTERLINE COORDINATE LIST SHEETS
2A-1 THRU 2A-11 ..... TYPICAL SECTION & DETAILS
2B-1 THRU 2B-4 ..... STRUCTURE RECOMMENDATIONS
2B-5 THRU 2B-7 ..... INTERSECTION DETAILS
2B-8 THRU 2B-14 ..... RETAINING WALL DETAILS
2B-15 THRU 2B-16 ..... ALIGNMENT CURVE DATA
2C-1 THRU 2C-5 ..... SPECIAL DETAILS
2D-1 THRU 2D-4 ..... DRAINAGE DETAILS
3B-1 ..... EARTHWORK SUMMARY
3B-2 ..... GUARDRAIL SUMMARY
3P-1 THRU 3P-2 ..... PARCEL INDEX SHEETS
4 THRU 34 ..... PLAN SHEETS
35 THRU 69 ..... PROFILE SHEETS
X-0 THRU X-284 ..... CROSS-SECTIONS

4/16/2015
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PROJECT REFERENCE NO.	SHEET NO.
U-4751	1B
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Note: Not to Scale

S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- 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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole — SS
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?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 (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

4/16/2015
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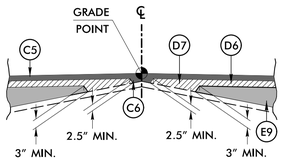
Stephen Sharpe

6/2/99

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

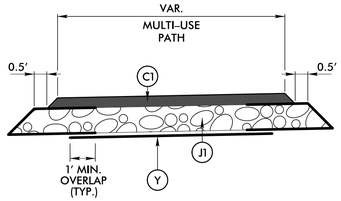
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



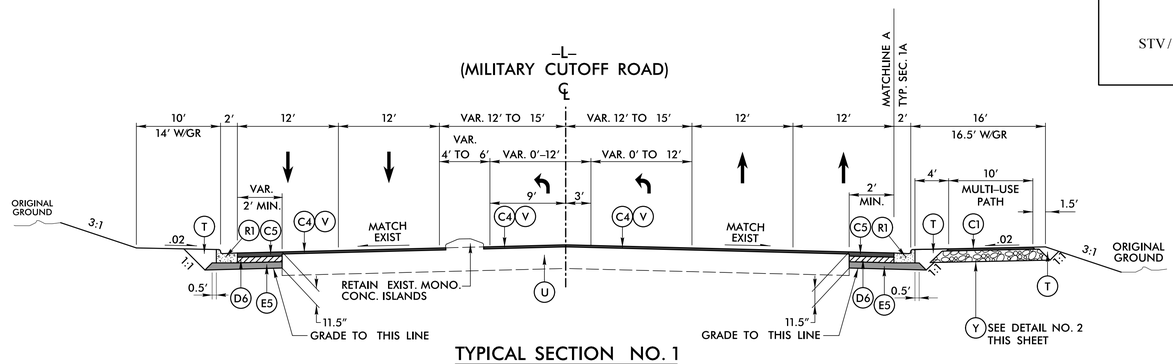
WEDGING DETAIL NO. 1

USE FOR TYPICAL SECTIONS 2, 8, 8A, & 8B



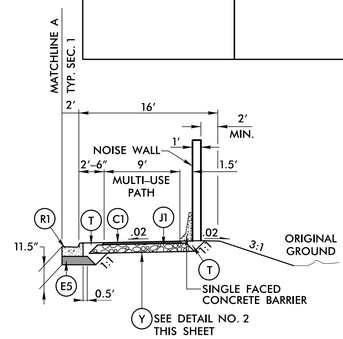
DETAIL NO. 2

USE AT ALL MULTI-USE PATH LOCATIONS



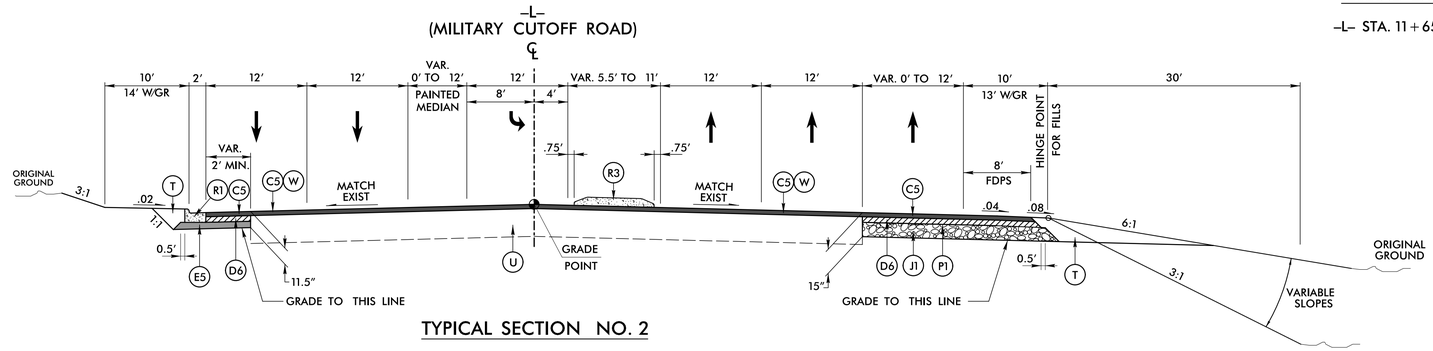
TYPICAL SECTION NO. 1

–L– STA. 10+35.00 TO 25+00.00



TYPICAL SECTION NO. 1A

–L– STA. 11+65.06 TO 16+14.50 RT



TYPICAL SECTION NO. 2

–L– STA. 25+00.00 TO 27+00.00

ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.	D7	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER
C2	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.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.	R2	1'-6" CONCRETE CURB AND GUTTER
C3	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 LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ.YD.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.	E3	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ.YD.	R4	SHOULDER BERM GUTTER
C5	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.	E4	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.	R5	2'-0" VALLEY GUTTER
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E5	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ.YD.	R6	CONCRETE MEDIAN BARRIER
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ.YD.	E6	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ.YD.	T	EARTH MATERIAL
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ.YD.	E7	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ.YD.	U	EXISTING PAVEMENT
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.	E8	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.	V	MILLING ASPHALT PAVEMENT, 1.5" DEPTH
D4	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.	E9	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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 5.5" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)
D5	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ.YD.	J1	PROP. 8" AGGREGATE BASE COURSE	Y	NON WOVEN GEOTEXTILE FABRIC
D6	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.	P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YARD		

4/6/2015
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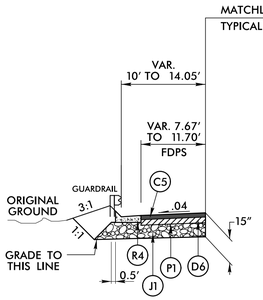
Stephen

6/2/99

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

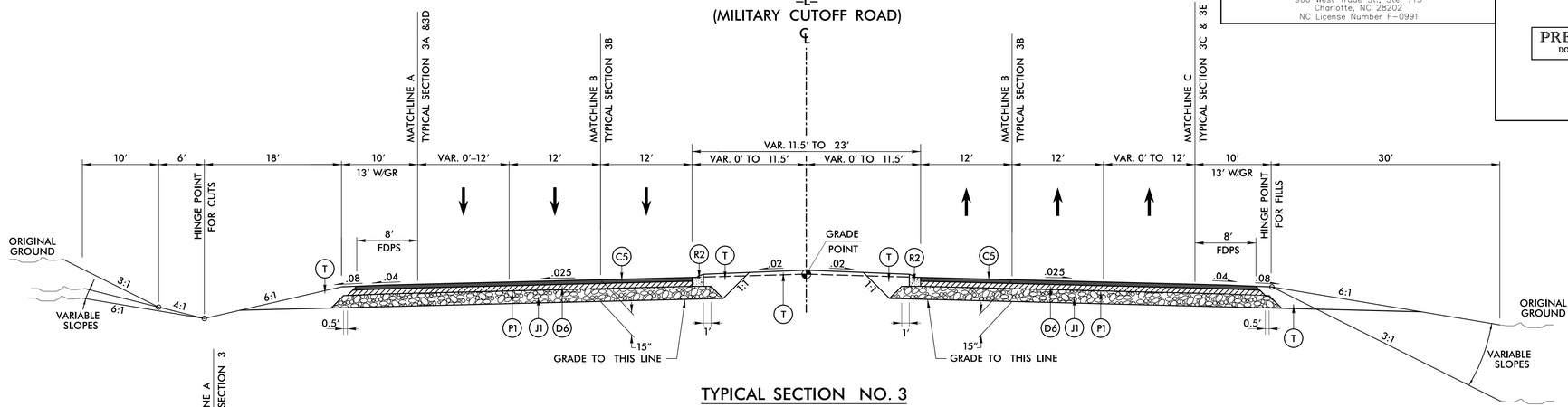
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 3E

–L– STA. 57+18.95 TO 62+60.71 LT
–L– STA. 64+11.44 TO 68+32.58 LT

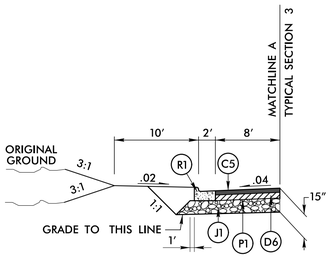


TYPICAL SECTION NO. 3

–L– STA. 27+00.00 TO 38+05.73 (BEGIN BRIDGE)
–L– STA. 39+94.43 (END BRIDGE) TO 62+54.85 (BEGIN BRIDGE)
–L– STA. 63+57.85 (END BRIDGE) TO 69+50.00

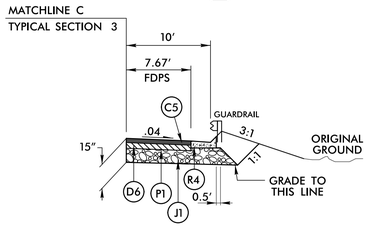
ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

C1	1.5" S9.5B
C2	3.0" S9.5B
C3	VAR. S9.5B
C4	1.5" S9.5C
C5	3.0" S9.5C
C6	VAR. S9.5C
D1	2.5" I19.0B
D2	3.0" I19.0B
D3	4.0" I19.0B
D4	VAR. I19.0B
D5	3.0" I19.0C
D6	4.0" I19.0C
D7	VAR. I19.0C
E1	4.0" B25.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E4	4.0" B25.0C
E5	4.5" B25.0C
E6	5.0" B25.0C
E7	5.5" B25.0C
E8	7.0" B25.0C
E9	VAR. B25.0C
J1	8.0" ABC
P1	PRIME COAT
R1	2' - 6" C&G
R2	1' - 6" C&G
R3	5" MONO. ISLAND
R4	SBG
R5	2.0' VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC



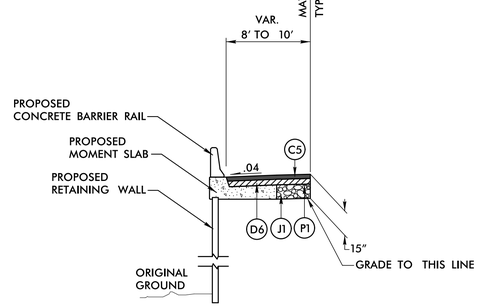
TYPICAL SECTION NO. 3D

–L– STA. 27+00.00 TO 30+00.00 LT



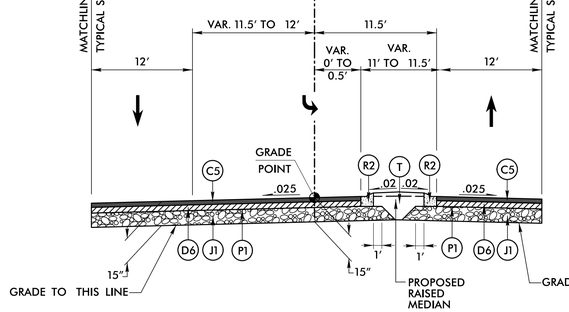
TYPICAL SECTION NO. 3E

–L– STA. 56+92.62 TO 62+01.25 RT
–L– STA. 63+51.98 TO 68+70.62 RT



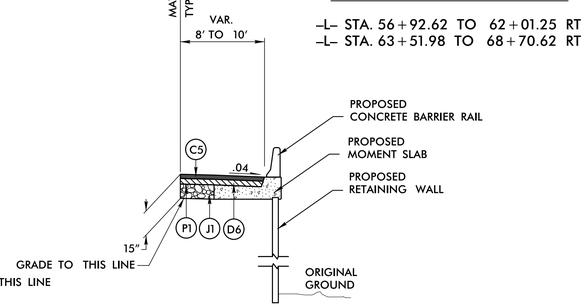
TYPICAL SECTION NO. 3A

–L– STA. 30+00.00 TO 37+67.50 LT



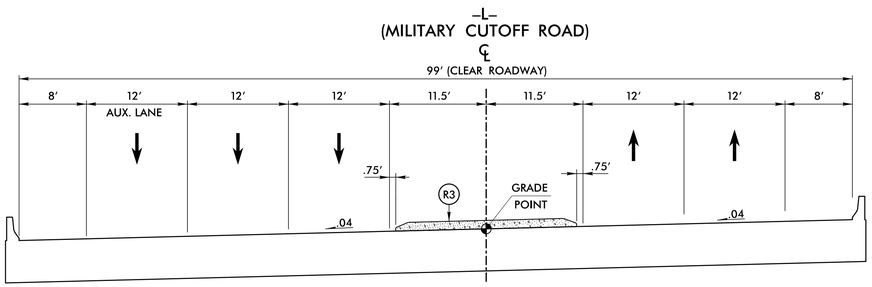
TYPICAL SECTION NO. 3B

–L– STA. 27+00.00 TO 31+25.00



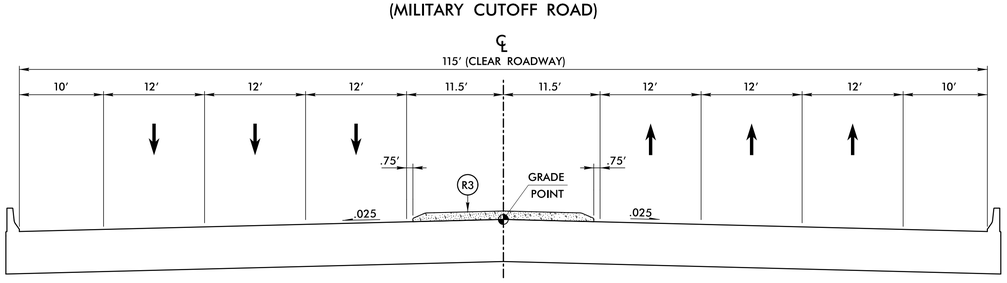
TYPICAL SECTION NO. 3C

–L– STA. 34+00.00 TO 38+52.39 RT



STRUCTURE TYPICAL SECTION NO. 3F

–L– STA. 38+05.73 (BEGIN BRIDGE) TO 39+94.43 (END BRIDGE)



STRUCTURE TYPICAL SECTION NO. 3G

–L– STA. 62+54.85 (BEGIN BRIDGE) TO 63+57.85 (END BRIDGE)

4/16/2015
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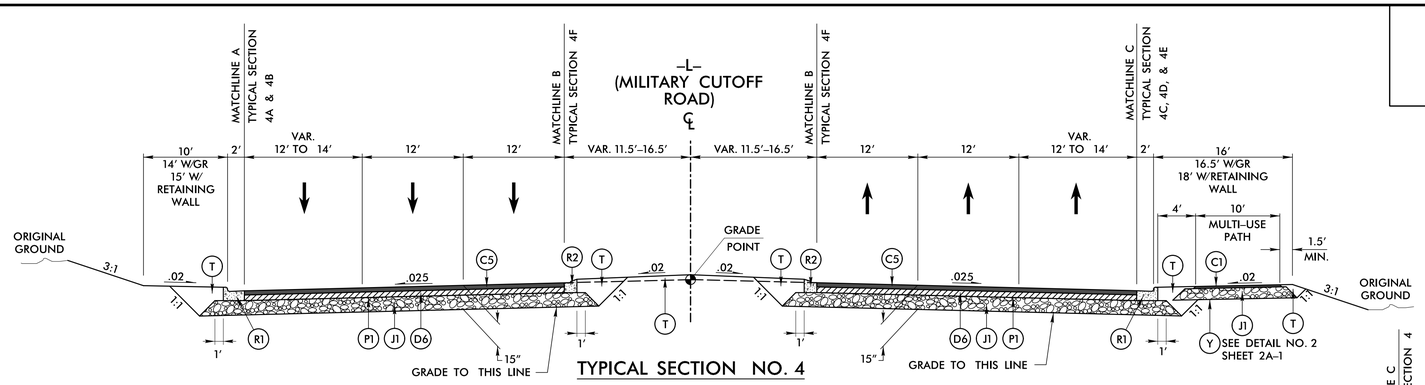
Section 2A

6/2/99

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



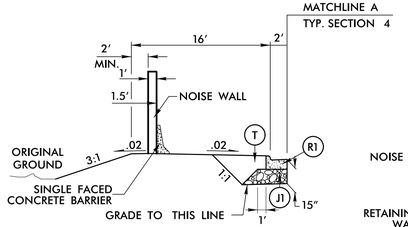
TYPICAL SECTION NO. 4

–L– STA. 69+50.00 TO 182+35.00

NOTE: SEE DETAIL SHEET 2A–11 FOR LEFT TURN LANE PAVEMENT SLOPE DETAIL

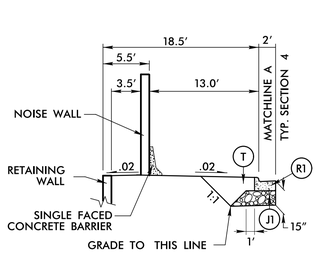
ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

C1	1.5" S9.5B
C2	3.0" S9.5B
C3	VAR. S9.5B
C4	1.5" S9.5C
C5	3.0" S9.5C
C6	VAR. S9.5C
D1	2.5" I19.0B
D2	3.0" I19.0B
D3	4.0" I19.0B
D4	VAR. I19.0B
D5	3.0" I19.0C
D6	4.0" I19.0C
D7	VAR. I19.0C
E1	4.0" B25.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E4	4.0" B25.0C
E5	4.5" B25.0C
E6	5.0" B25.0C
E7	5.5" B25.0C
E8	7.0" B25.0C
E9	VAR. B25.0C
J1	8.0" ABC
P1	PRIME COAT
R1	2' - 6" C&G
R2	1' - 6" C&G
R3	5" MONO. ISLAND
R4	SBG
R5	2.0' VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC



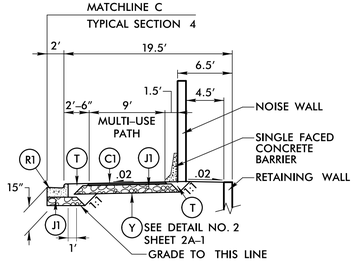
TYPICAL SECTION NO. 4A

–L– STA. 84+10.38 TO 84+50.00 LT
–L– STA. 85+75.00 TO 92+26.33 LT
–L– STA. 92+91.45 TO 111+68.11 LT
–L– STA. 112+70.28 TO 127+62.39 LT
–L– STA. 128+34.20 TO 128+68.86 LT
–L– STA. 135+74.32 TO 157+65.09 LT



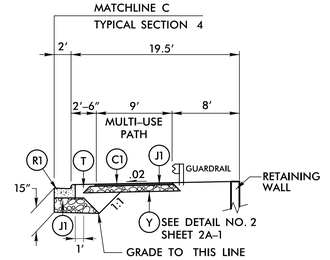
TYPICAL SECTION NO. 4B

–L– STA. 84+50.00 TO 85+75.00 LT
–L– STA. 128+68.86 TO 135+74.32 LT



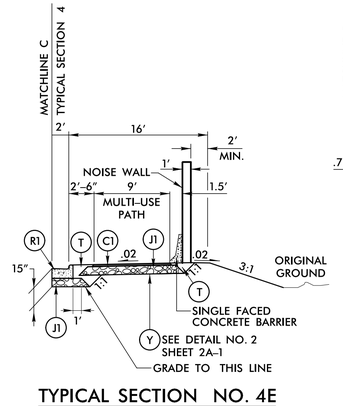
TYPICAL SECTION NO. 4C

–L– STA. 74+00.00 TO 88+48.25 RT



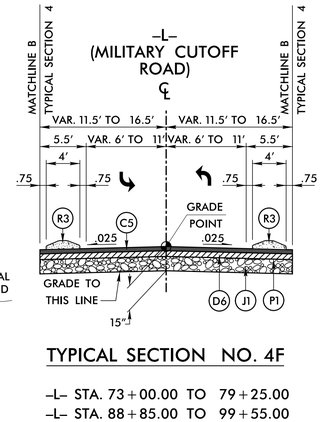
TYPICAL SECTION NO. 4D

–L– STA. 88+48.25 RT TO 90+00.00 RT



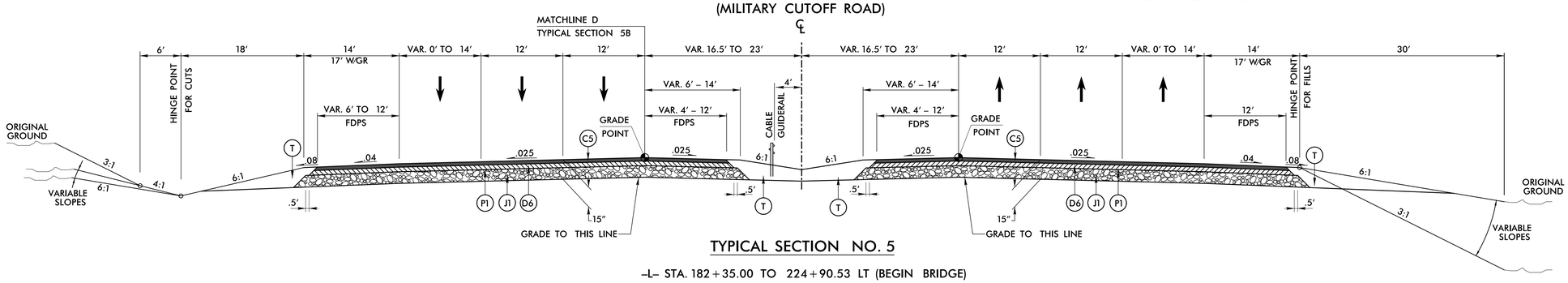
TYPICAL SECTION NO. 4E

–L– STA. 71+43.97 TO 74+00.00 RT
–L– STA. 93+28.19 TO 97+81.15 RT
–L– STA. 100+12.47 TO 107+65.18 RT
–L– STA. 128+70.72 TO 140+66.69 RT



TYPICAL SECTION NO. 4F

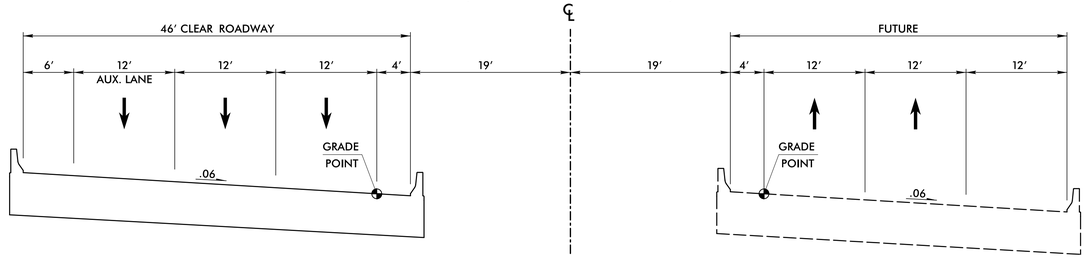
–L– STA. 73+00.00 TO 79+25.00
–L– STA. 88+85.00 TO 99+55.00
–L– STA. 107+02.00 TO 116+45.36
–L– STA. 121+30.36 TO 135+00.00
–L– STA. 145+00.00 TO 151+41.23
–L– STA. 169+65.00 TO 182+35.00



TYPICAL SECTION NO. 5

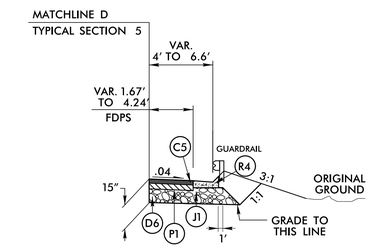
–L– STA. 182+35.00 TO 224+90.53 LT (BEGIN BRIDGE)
–L– STA. 226+96.64 LT (END BRIDGE) TO 229+80.28

NOTE: CONSTRUCT EMBANKMENT ONLY FROM STA. 205+86.84 RT TO STA 224+82.31 RT



STRUCTURE TYPICAL SECTION NO. 5A

–L– STA. 224+90.53 LT (BEGIN BRIDGE) TO 226+96.64 LT (END BRIDGE)



TYPICAL SECTION NO. 5B

–L– STA. 223+35.16 TO 224+66.71 LT

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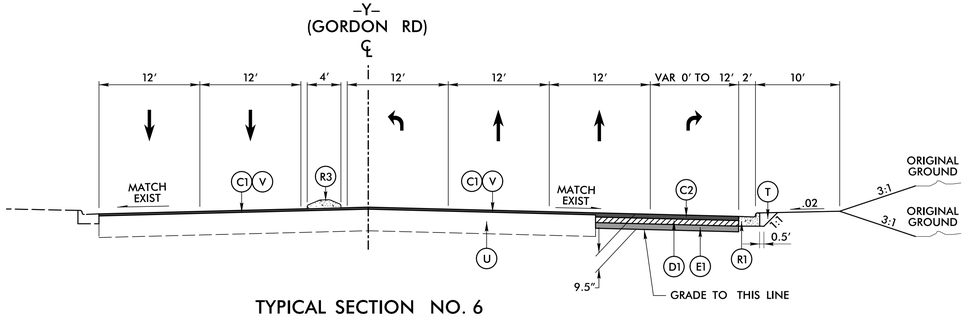
6/2/99

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

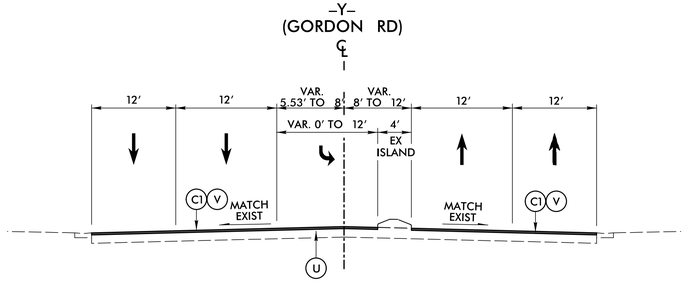
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 6

–Y– STA. 10+95.00 TO 21+58.45

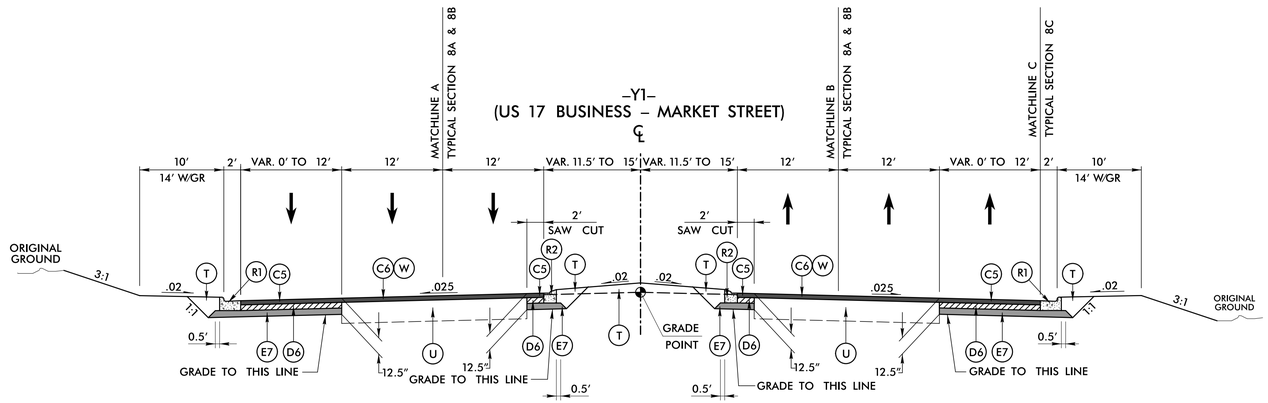


TYPICAL SECTION NO. 7

–Y– STA. 22+61.92 TO 31+48.60

ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

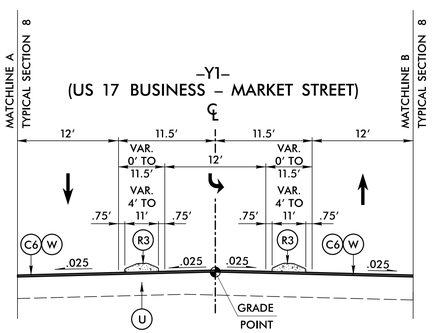
C1	1.5″ S9.5B
C2	3.0″ S9.5B
C3	VAR. S9.5B
C4	1.5″ S9.5C
C5	3.0″ S9.5C
C6	VAR. S9.5C
D1	2.5″ I19.0B
D2	3.0″ I19.0B
D3	4.0″ I19.0B
D4	VAR. I19.0B
D5	3.0″ I19.0C
D6	4.0″ I19.0C
D7	VAR. I19.0C
E1	4.0″ B25.0B
E2	4.5″ B25.0B
E3	5.5″ B25.0B
E4	4.0″ B25.0C
E5	4.5″ B25.0C
E6	5.0″ B25.0C
E7	5.5″ B25.0C
E8	7.0″ B25.0C
E9	VAR. B25.0C
J1	8.0″ ABC
P1	PRIME COAT
R1	2′ - 6″ C&G
R2	1′ - 6″ C&G
R3	5″ MONO. ISLAND
R4	SBG
R5	2.0′ VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC



TYPICAL SECTION NO. 8

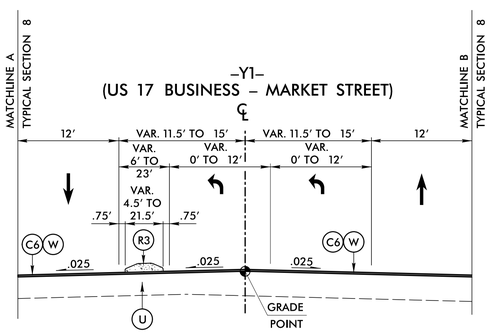
–Y1– STA. 14+64.00 TO 84+95.00

NOTE: SEE SHEET 2A–11 FOR LEFT TURN LANE PAVEMENT SLOPE DETAIL



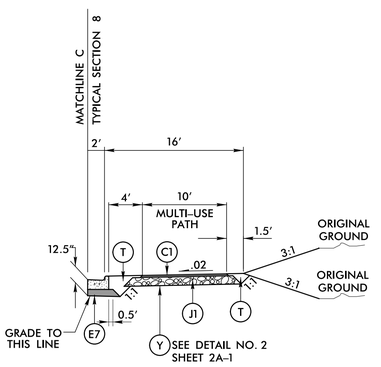
TYPICAL SECTION NO. 8A

–Y1– STA. 14+50.00 TO 19+47.00
–Y1– STA. 35+84.32 TO 40+59.45
–Y1– STA. 57+31.84 TO 65+25.00
–Y1– STA. 72+74.00 TO 78+25.84
–Y1– STA. 79+15.00 TO 83+70.36



TYPICAL SECTION NO. 8B

–Y1– STA. 24+30.00 TO 30+35.00



TYPICAL SECTION NO. 8C

–Y1– STA. 50+94.00 TO 78+26.00

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Steckbeck

6/2/99

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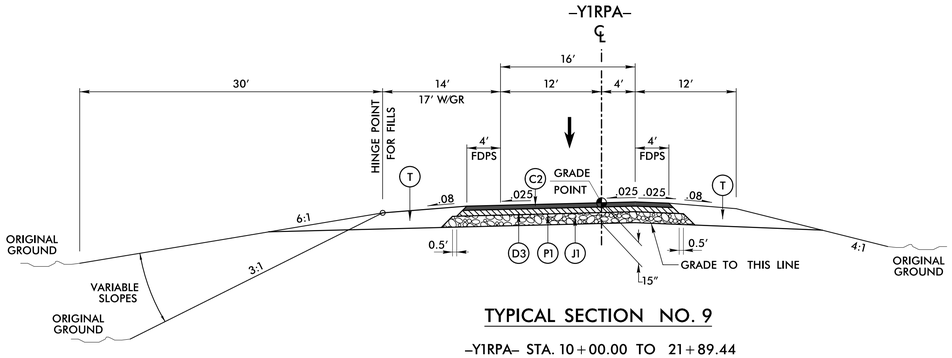
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

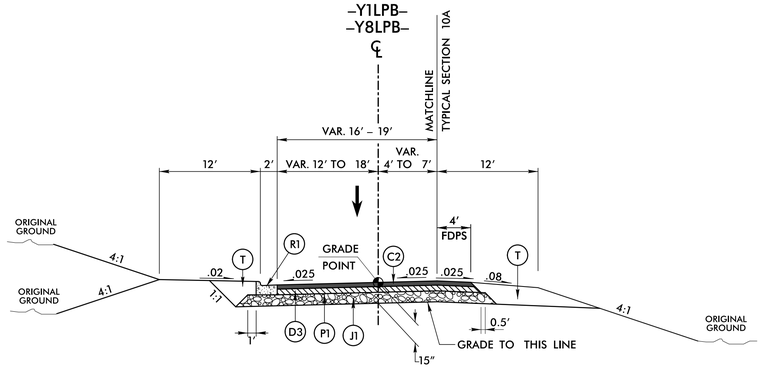
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-5
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



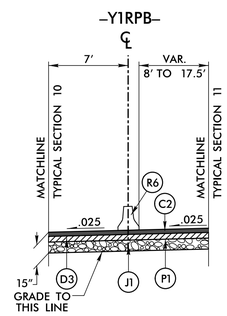
TYPICAL SECTION NO. 9

–Y1RPA– STA. 10+00.00 TO 21+89.44



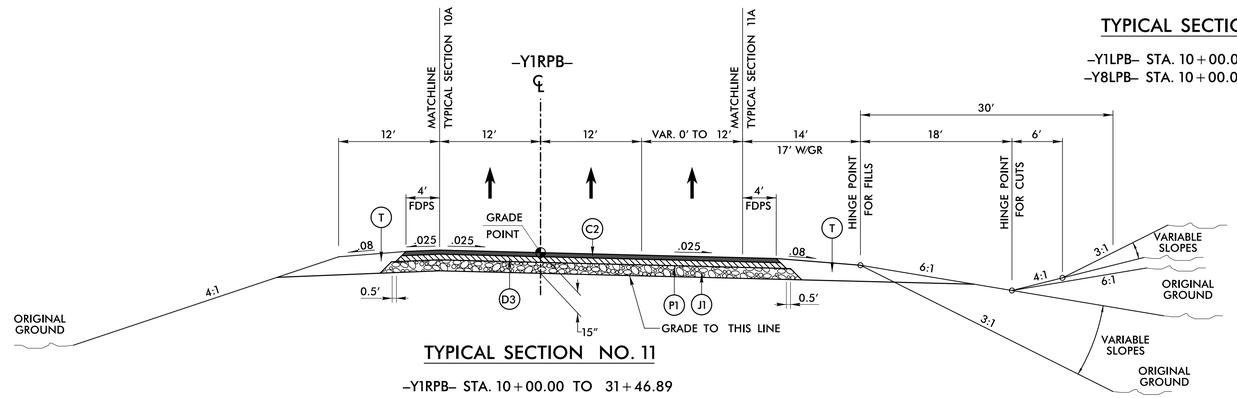
TYPICAL SECTION NO. 10

–Y1LPB– STA. 10+00.00 TO 24+40.21
–Y8LPB– STA. 10+00.00 TO 25+07.33



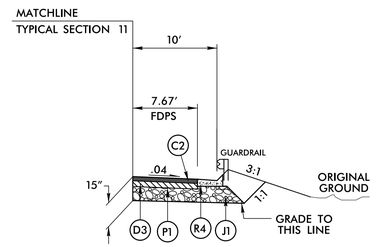
TYPICAL SECTION NO. 10A

–Y1RPB– STA. 25+73.45 TO 28+60.74
–Y1LPB– STA. 17+53.19 TO 20+13.64



TYPICAL SECTION NO. 11

–Y1RPB– STA. 10+00.00 TO 31+46.89

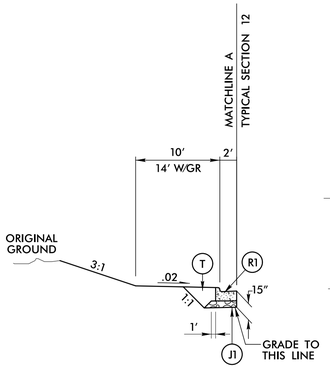


TYPICAL SECTION NO. 11A

–Y1RPB– STA. 10+00.00 TO 13+03.59 RT

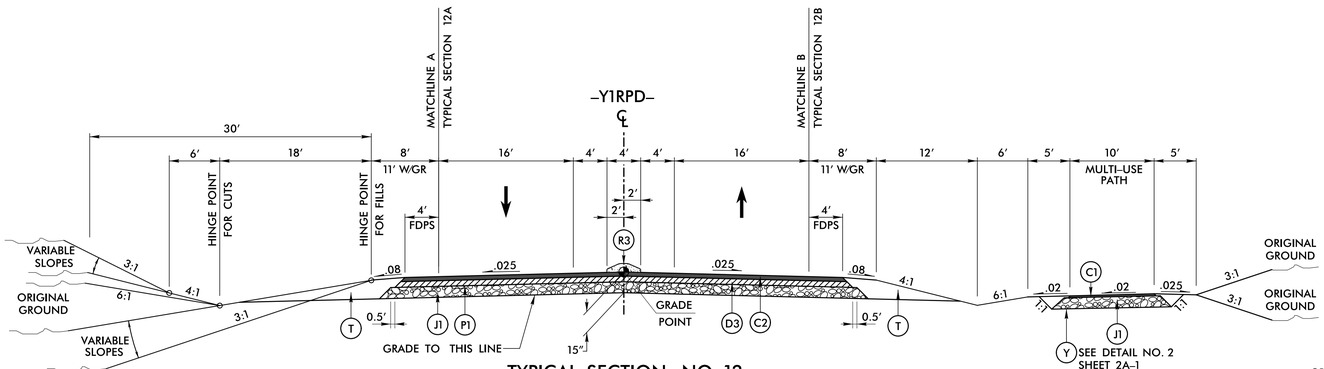
C1	1.5″ S9.5B
C2	3.0″ S9.5B
C3	VAR. S9.5B
C4	1.5″ S9.5C
C5	3.0″ S9.5C
C6	VAR. S9.5C
D1	2.5″ I19.0B
D2	3.0″ I19.0B
D3	4.0″ I19.0B
D4	VAR. I19.0B
D5	3.0″ I19.0C
D6	4.0″ I19.0C
D7	VAR. I19.0C
E1	4.0″ B25.0B
E2	4.5″ B25.0B
E3	5.5″ B25.0B
E4	4.0″ B25.0C
E5	4.5″ B25.0C
E6	5.0″ B25.0C
E7	5.5″ B25.0C
E8	7.0″ B25.0C
E9	VAR. B25.0C
J1	8.0″ ABC
P1	PRIME COAT
R1	2′ - 6″ C&G
R2	1′ - 6″ C&G
R3	5″ MONO. ISLAND
R4	SBG
R5	2.0′ VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC

ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE



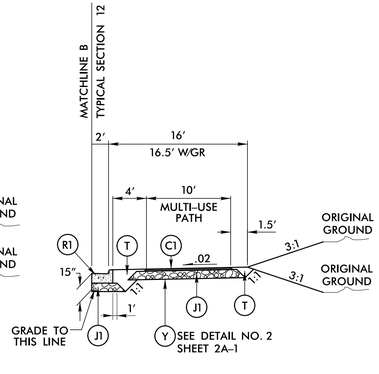
TYPICAL SECTION NO. 12A

–Y1RPD– STA. 31+99.29 TO 35+18.82



TYPICAL SECTION NO. 12

–Y1RPD– STA. 10+39.00 TO 35+18.82



TYPICAL SECTION NO. 12B

–Y1RPD– STA. 10+51.01 TO 11+26.09
–Y1RPD– STA. 31+99.29 TO 35+18.82

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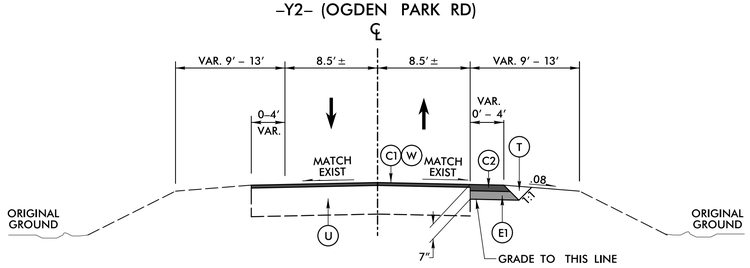
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-6
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

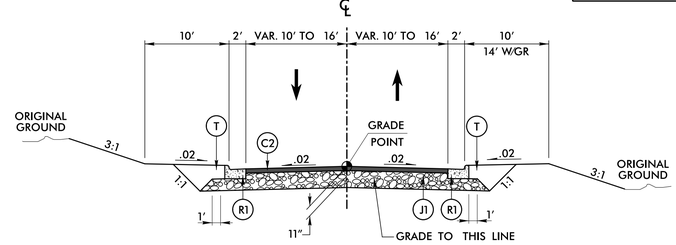
–Y2– (OGDEN PARK RD)



TYPICAL SECTION NO. 13

–Y2– STA. 13+80.00 TO 15+90.00
NOTE: VAR. OVERLAY FROM STA. 14+10 TO STA. 14+30 (1.5″ TO 4″)
VAR. OVERLAY FROM STA. 14+30 TO STA. 15+45 (4″ TO 1.5″)

–Y3– (PUTNAM DRIVE/BRADFIELD CT)
–Y4– (LENDIRE RD)
–Y5– (TORCHWOOD BLVD)



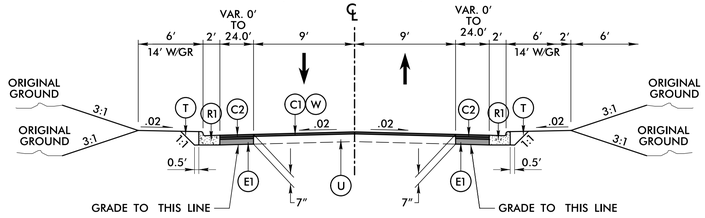
TYPICAL SECTION NO. 14

–Y3– STA. 12+08.79 TO 14+18.78
–Y3– STA. 15+19.01 TO 16+50.90
–Y4– STA. 11+70.00 TO 14+94.60
–Y4– STA. 16+01.27 TO 18+40.00
–Y5– STA. 13+25.00 TO 14+45.84
–Y5– STA. 15+45.72 TO 16+25.00

ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

C1	1.5″ S9.5B
C2	3.0″ S9.5B
C3	VAR. S9.5B
C4	1.5″ S9.5C
C5	3.0″ S9.5C
C6	VAR. S9.5C
D1	2.5″ I19.0B
D2	3.0″ I19.0B
D3	4.0″ I19.0B
D4	VAR. I19.0B
D5	3.0″ I19.0C
D6	4.0″ I19.0C
D7	VAR. I19.0C
E1	4.0″ B25.0B
E2	4.5″ B25.0B
E3	5.5″ B25.0B
E4	4.0″ B25.0C
E5	4.5″ B25.0C
E6	5.0″ B25.0C
E7	5.5″ B25.0C
E8	7.0″ B25.0C
E9	VAR. B25.0C
J1	8.0″ ABC
P1	PRIME COAT
R1	2′ - 6″ C&G
R2	1′ - 6″ C&G
R3	5″ MONO. ISLAND
R4	SBG
R5	2.0′ VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC

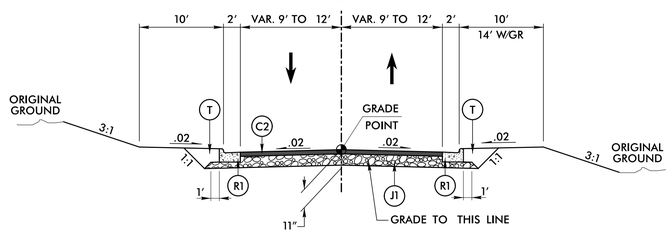
–Y11–
(BROOKBEND RD)



TYPICAL SECTION NO. 15

–Y11– STA. 11+18.49 TO 11+44.20

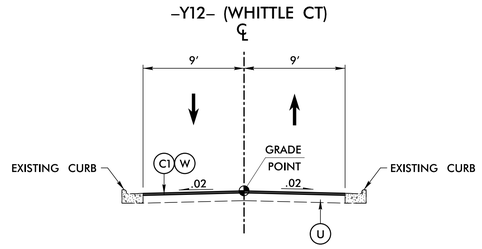
–Y12– (WHITTLE CT)



TYPICAL SECTION NO. 16

–Y12– STA. 10+49.52 TO 12+05.00

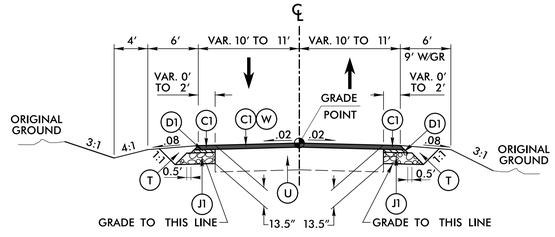
–Y12– (WHITTLE CT)



TYPICAL SECTION NO. 17

–Y12– STA. 12+05.00 TO 12+55.00

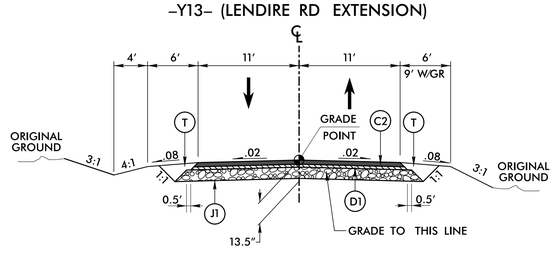
–Y13– (LENDIRE RD EXTENSION)



TYPICAL SECTION NO. 18

–Y13– STA. 11+70.00 TO 13+25.00

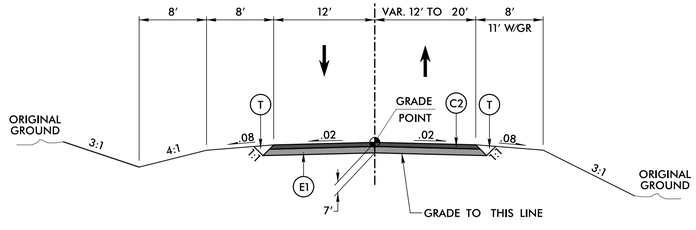
–Y13– (LENDIRE RD EXTENSION)



TYPICAL SECTION NO. 19

–Y13– STA. 13+25.00 TO 16+65.24

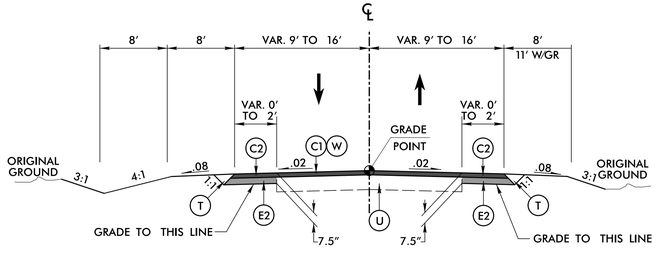
–Y6– (ACCESS RD)
–Y10– (EL OGDEN DR)
–SR1– (CAPE HARBOR DR)
–SR4–



TYPICAL SECTION NO. 22

–Y6– STA. 10+52.51 TO 13+25.00
–Y10– STA. 10+47.50 TO 11+92.00
–SR1– STA. 12+50.00 TO 18+75.88
–SR4– STA. 10+54.50 TO 34+36.28

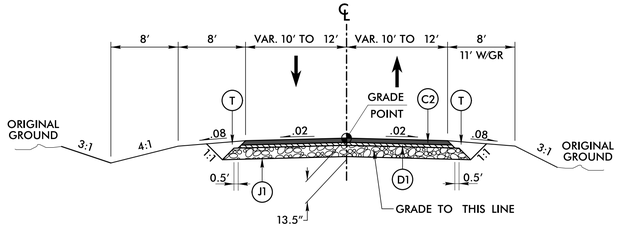
–Y5– (TORCHWOOD BLVD)



TYPICAL SECTION NO. 21

–Y5– STA. 12+80.00 TO 13+25.00
–Y5– STA. 16+25.00 TO 17+00.00

–Y14– (ACCESS RD)
–Y15– (EL OGDEN DR)



TYPICAL SECTION NO. 20

–Y14– STA. 10+00.00 TO 12+11.52
–Y15– STA. 10+11.00 TO 12+50.00

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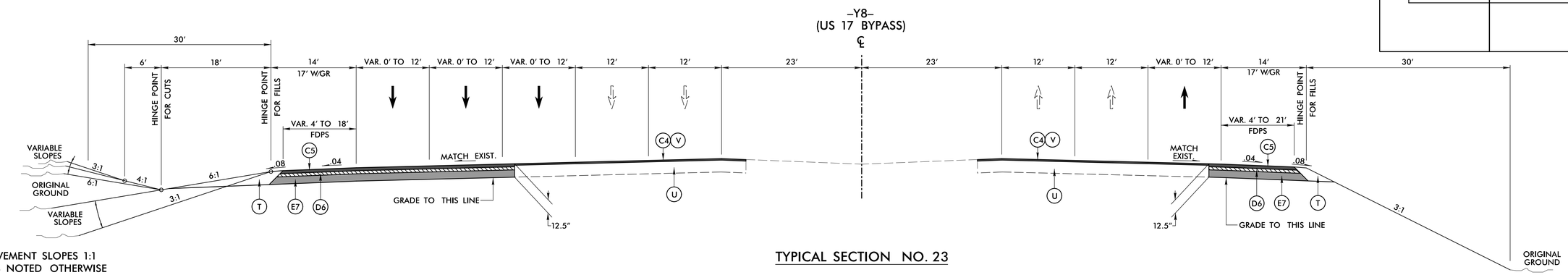
Stephen Hay

6/2/99

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-7
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



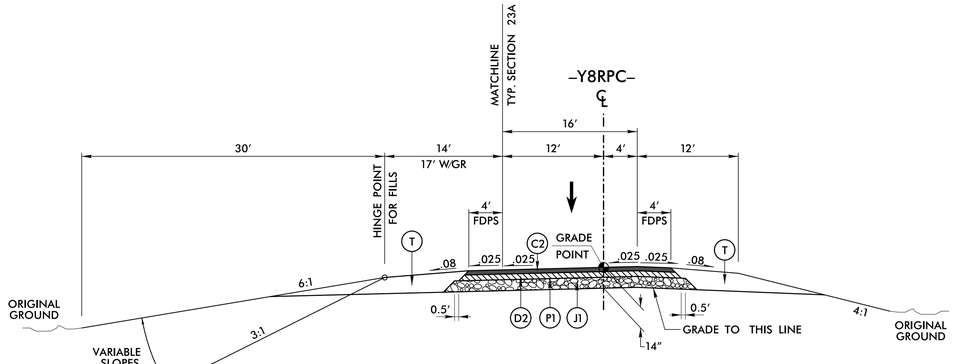
ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

C1	1.5″ S9.5B
C2	3.0″ S9.5B
C3	VAR. S9.5B
C4	1.5″ S9.5C
C5	3.0″ S9.5C
C6	VAR. S9.5C
D1	2.5″ I19.0B
D2	3.0″ I19.0B
D3	4.0″ I19.0B
D4	VAR. I19.0B
D5	3.0″ I19.0C
D6	4.0″ I19.0C
D7	VAR. I19.0C
E1	4.0″ B25.0B
E2	4.5″ B25.0B
E3	5.5″ B25.0B
E4	4.0″ B25.0C
E5	4.5″ B25.0C
E6	5.0″ B25.0C
E7	5.5″ B25.0C
E8	7.0″ B25.0C
E9	VAR. B25.0C
J1	8.0″ ABC
P1	PRIME COAT
R1	2′ - 6″ C&G
R2	1′ - 6″ C&G
R3	5″ MONO. ISLAND
R4	SBG
R5	2.0′ VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC

TYPICAL SECTION NO. 23

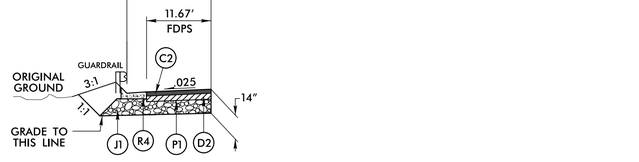
–Y8– STA. 31+20.00 TO 121+98.08
(MILL AND RESURFACE EXIST. NB AND SB PAVEMENTS)

FULL DEPTH WIDENING AT THE FOLLOWING LOCATIONS:
–Y8– STA. 31+20.00 TO 69+54.22 LT
–Y8– STA. 61+09.36 TO 69+87.83 RT (–Y8RPCA–)
–Y8– STA. 69+54.22 TO 73+31.71 LT (–Y8RPDB–)
–Y8– STA. 85+80.13 TO 89+41.78 LT (–Y8LPB–)
–Y8– STA. 88+90.00 TO 94+75.00 RT
–Y8– STA. 89+41.78 TO 96+60.25 LT
–Y8– STA. 96+90.00 TO 101+85.00 LT
–Y8– STA. 97+35.00 TO 102+30.00 RT
–Y8– STA. 109+34.55 TO 112+98.08 RT (–Y8RPD–)
–Y8– STA. 112+98.08 TO 121+98.08 RT



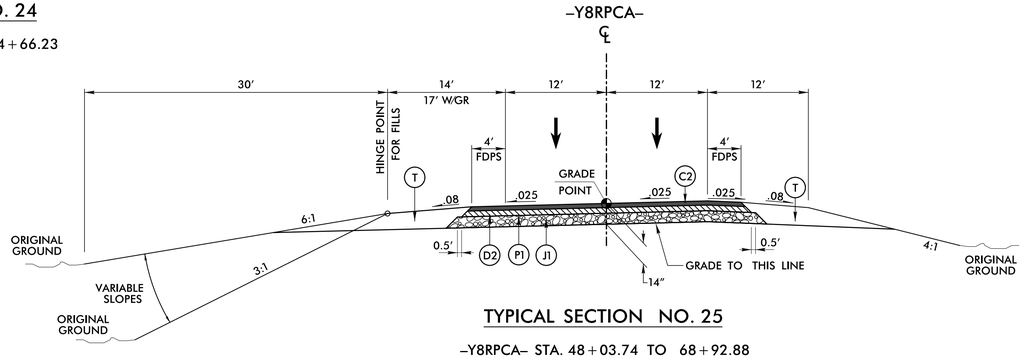
TYPICAL SECTION NO. 24

–Y8RPC– STA. 10+00.00 TO 34+66.23



TYPICAL SECTION NO. 24A

–Y8RPC– STA. 24+00.00 TO 33+00.00 LT



TYPICAL SECTION NO. 25

–Y8RPCA– STA. 48+03.74 TO 68+92.88

4/16/2015
Z:\Projects\proj\sht\U4751_RDY_psh02A_TYP.dgn
Standard

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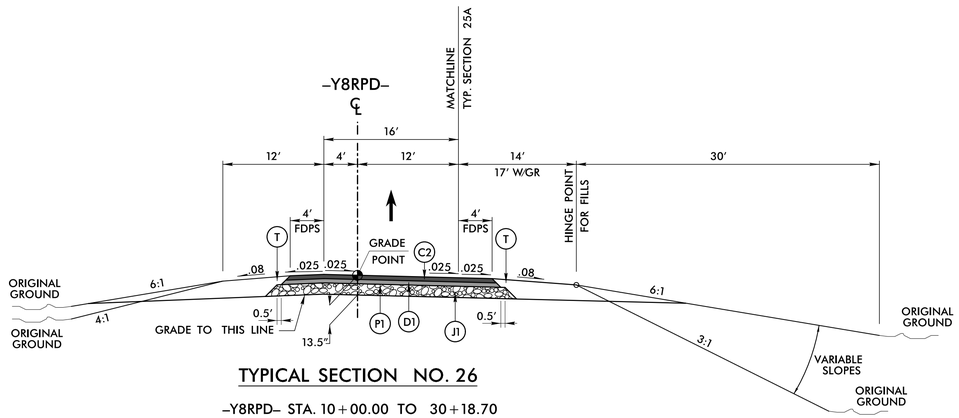
NC License Number F-0991

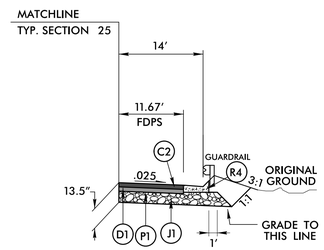
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-8
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 26

–Y8RPD– STA. 10+00.00 TO 30+18.70

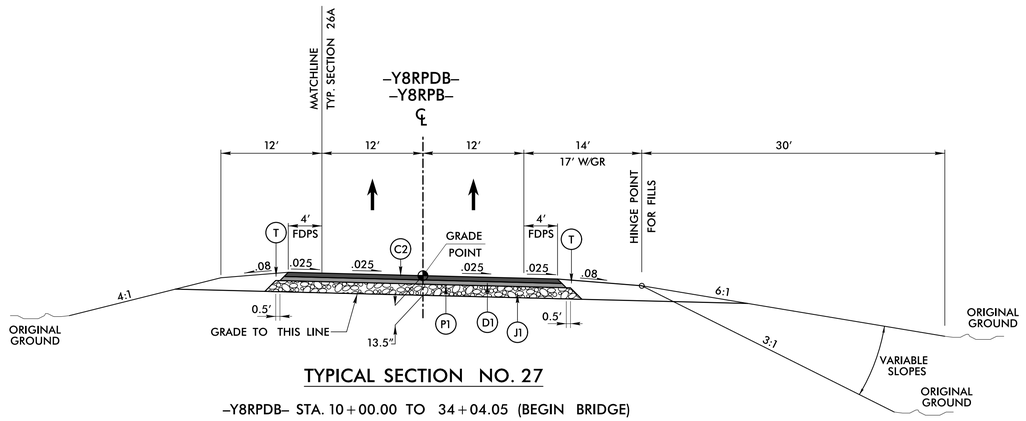


TYPICAL SECTION NO. 26A

–Y8RPD– STA. 11+00.00 TO 22+01.89 RT

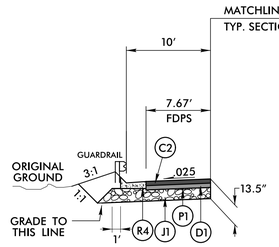
ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

C1	1.5″ S9.5B
C2	3.0″ S9.5B
C3	VAR. S9.5B
C4	1.5″ S9.5C
C5	3.0″ S9.5C
C6	VAR. S9.5C
D1	2.5″ I19.0B
D2	3.0″ I19.0B
D3	4.0″ I19.0B
D4	VAR. I19.0B
D5	3.0″ I19.0C
D6	4.0″ I19.0C
D7	VAR. I19.0C
E1	4.0″ B25.0B
E2	4.5″ B25.0B
E3	5.5″ B25.0B
E4	4.0″ B25.0C
E5	4.5″ B25.0C
E6	5.0″ B25.0C
E7	5.5″ B25.0C
E8	7.0″ B25.0C
E9	VAR. B25.0C
J1	8.0″ ABC
P1	PRIME COAT
R1	2′ - 6″ C&G
R2	1′ - 6″ C&G
R3	5″ MONO. ISLAND
R4	SBG
R5	2.0′ VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC



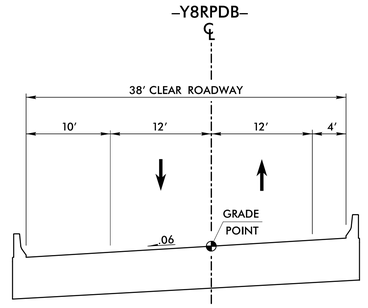
TYPICAL SECTION NO. 27

–Y8RPDB– STA. 10+00.00 TO 34+04.05 (BEGIN BRIDGE)
–Y8RPDB– STA. 36+17.30 (END BRIDGE) TO 55+79.90
–Y8RPB– STA. 29+50.53 TO 33+03.84



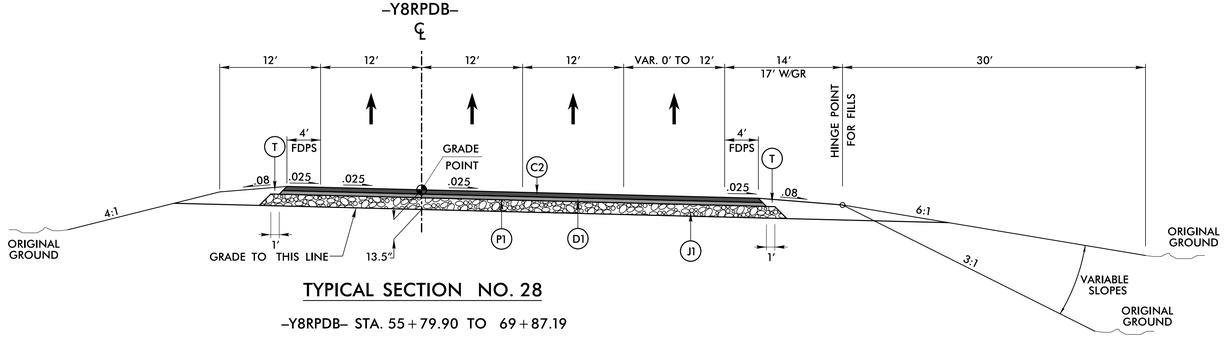
TYPICAL SECTION NO. 27A

–Y8RPDB– STA. 36+50.55 TO 36+82.81 LT



STRUCTURE TYPICAL SECTION NO. 27B

–Y8RPDB– STA. 34+04.05 (BEGIN BRIDGE) TO 36+17.30 (END BRIDGE)



TYPICAL SECTION NO. 28

–Y8RPDB– STA. 55+79.90 TO 69+87.19

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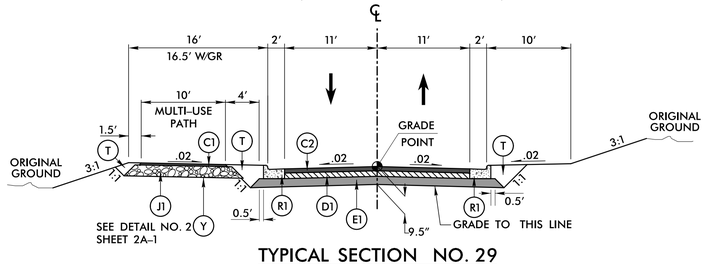
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-9
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

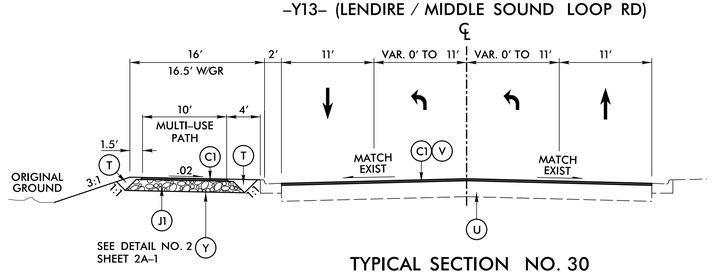
–Y13– (LENDIRE RD EXTENSION)



TYPICAL SECTION NO. 29

–Y13– STA. 16+65.24 TO 19+50.00

–Y13– (LENDIRE / MIDDLE SOUND LOOP RD)



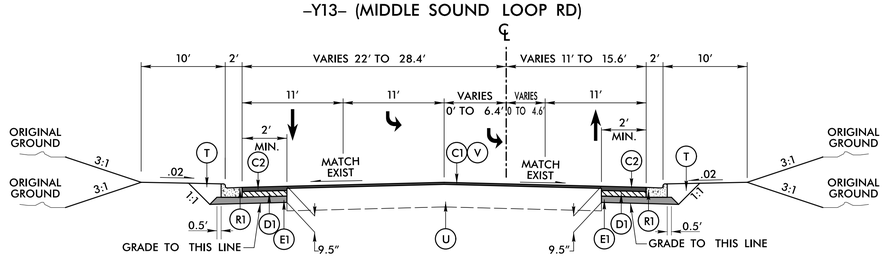
TYPICAL SECTION NO. 30

–Y13– STA. 19+50.00 TO 23+08.62

ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

C1	1.5″ S9.5B
C2	3.0″ S9.5B
C3	VAR. S9.5B
C4	1.5″ S9.5C
C5	3.0″ S9.5C
C6	VAR. S9.5C
D1	2.5″ I19.0B
D2	3.0″ I19.0B
D3	4.0″ I19.0B
D4	VAR. I19.0B
D5	3.0″ I19.0C
D6	4.0″ I19.0C
D7	VAR. I19.0C
E1	4.0″ B25.0B
E2	4.5″ B25.0B
E3	5.5″ B25.0B
E4	4.0″ B25.0C
E5	4.5″ B25.0C
E6	5.0″ B25.0C
E7	5.5″ B25.0C
E8	7.0″ B25.0C
E9	VAR. B25.0C
J1	8.0″ ABC
P1	PRIME COAT
R1	2′ - 6″ C&G
R2	1′ - 6″ C&G
R3	5″ MONO. ISLAND
R4	SBG
R5	2.0′ VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC

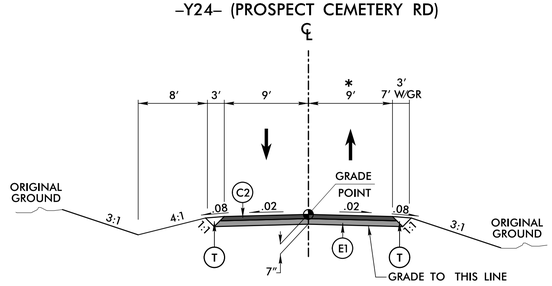
–Y13– (MIDDLE SOUND LOOP RD)



TYPICAL SECTION NO. 31

–Y13– STA. 23+91.69 TO 25+50.00

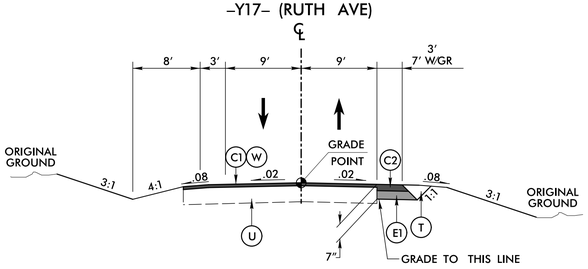
–Y16– (PROSPECT CEMETERY RD)
–Y17– (RUTH AVE)
–Y24– (PROSPECT CEMETERY RD)



TYPICAL SECTION NO. 32

–Y16– STA. 10+47.65 TO 13+00.00
–Y17– STA. 10+31.14 TO 17+00.00
∗ –Y17– VARIES 9′ TO 60′
–Y24– STA. 10+55.00 TO 16+64.43

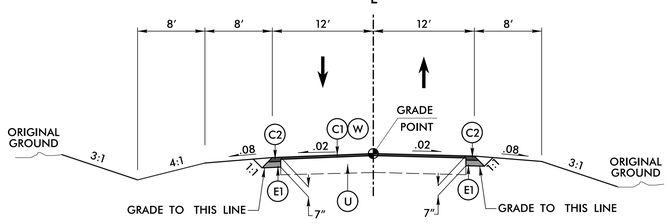
–Y17– (RUTH AVE)



TYPICAL SECTION NO. 33

–Y17– STA. 15+64.00 TO 17+00.00

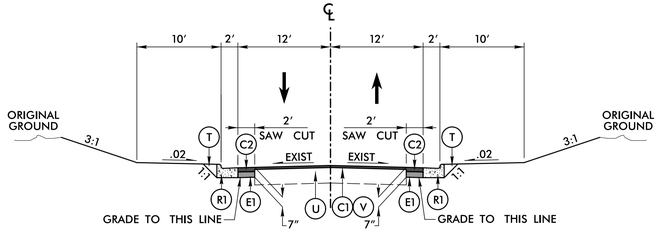
–Y10– (EL OGDEN DR)
–SR1– (CAPE HARBOR RD)
–Y25– (STATION RD)



TYPICAL SECTION NO. 34

–Y10– STA. 11+92.00 TO 12+50.00
–SR1– STA. 11+25.00 TO 12+50.00
–Y25– STA. 11+10.78 TO 11+60.78

–Y20– (PARADISE WAY)
–Y25– (STATION RD)



TYPICAL SECTION NO. 35

–Y20– STA. 10+39.44 TO 11+32.70
–Y25– STA. 10+47.96 TO 11+10.78

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17:26:39
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cstephens

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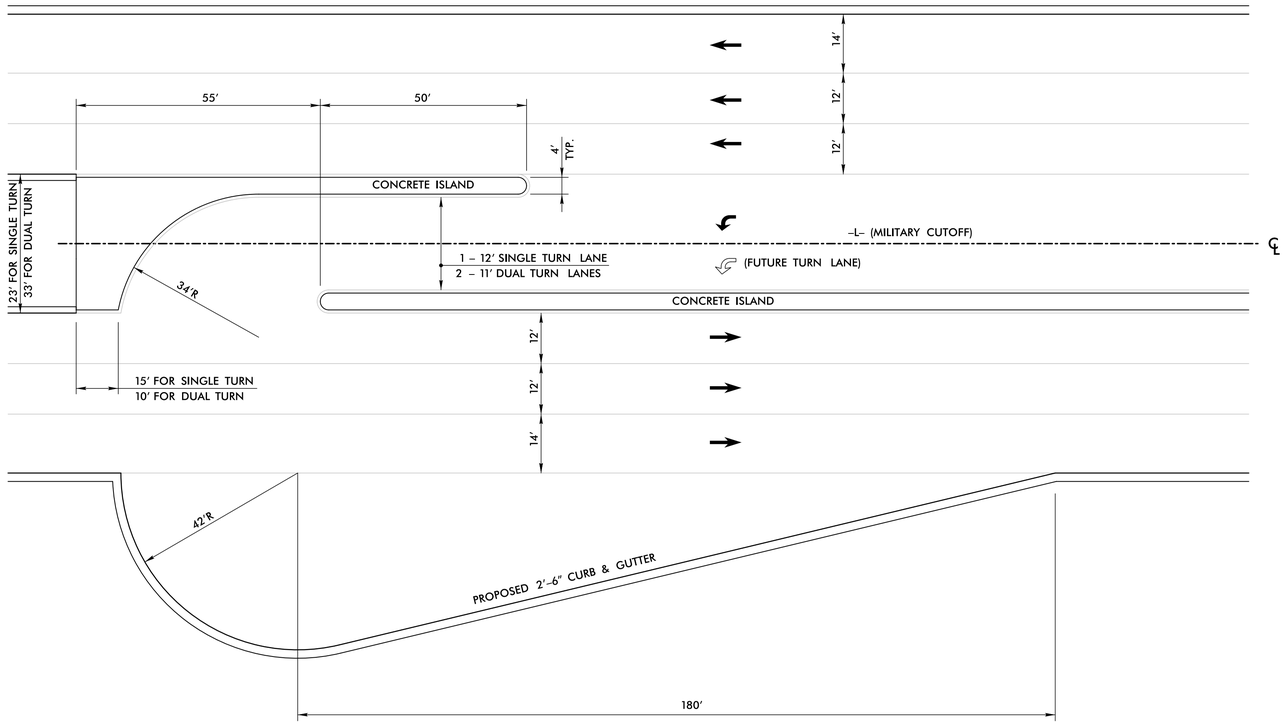
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-10
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

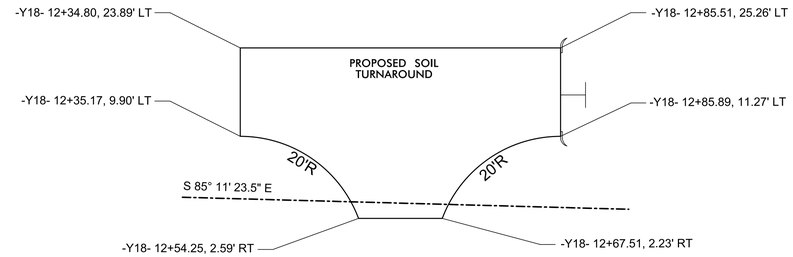
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



U–TURN BULB–OUT DETAIL

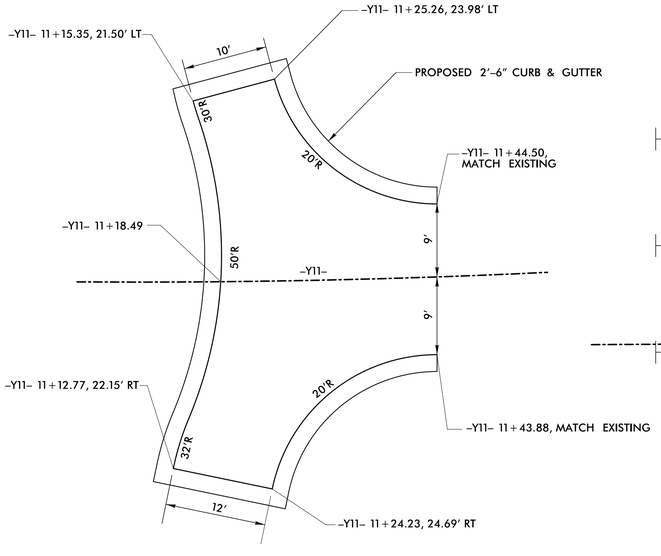
–L– STA. 73+00.00 TO 79+25.00, RT (DUAL)
–L– STA. 145+00.00 TO 151+41.23, LT (SINGLE)
–L– STA. 169+65.00 TO 176+49.73, RT (DUAL)
–L– STA. 175+50.27 TO 182+35.00, LT (DUAL)

NOT TO SCALE



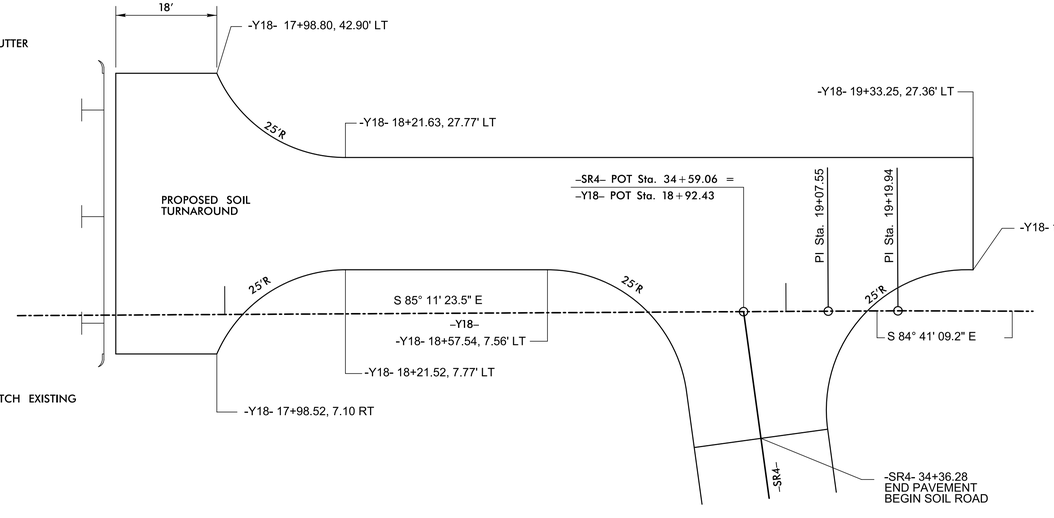
HAMMERHEAD TURNAROUND DETAIL

–Y18– (PLANTATION RD)



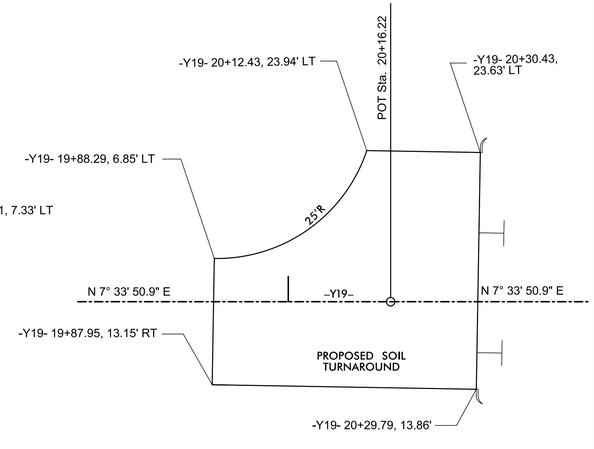
TURNAROUND DETAIL

–Y11– (BROOKBEND DR)
(SEE TYPICAL SECTION NO. 15, SHEET 2A–6 FOR PAVEMENT DESIGN)



HAMMERHEAD TURNAROUND DETAIL

–Y18– (PLANTATION RD)



HAMMERHEAD TURNAROUND DETAIL

–Y19– (CROOKED PINE RD)

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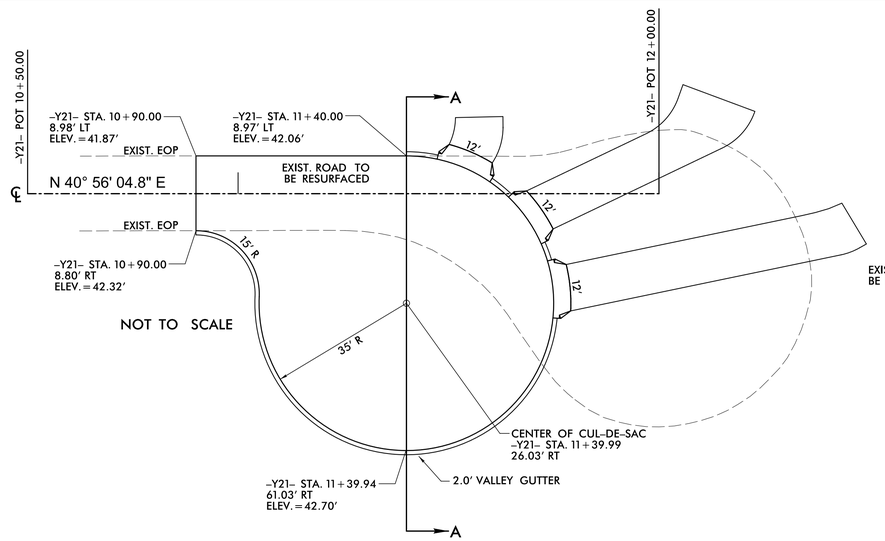
NC License Number F-0991

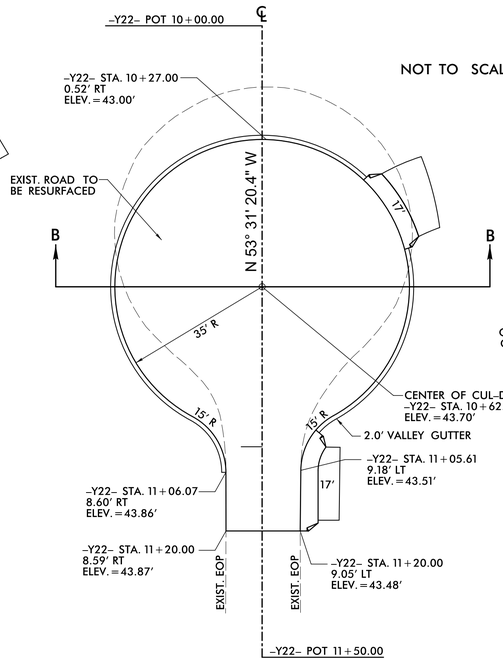
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2A-11
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

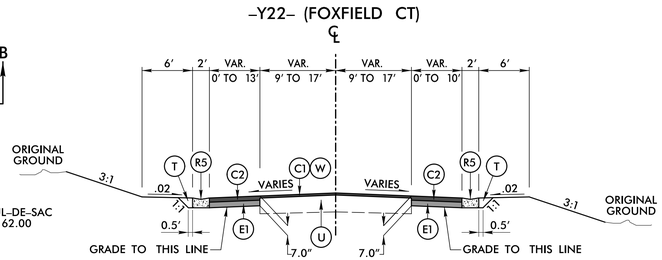
ALL PAVEMENT SLOPES 1:1
UNLESS NOTED OTHERWISE

C1	1.5" S9.5B
C2	3.0" S9.5B
C3	VAR. S9.5B
C4	1.5" S9.5C
C5	3.0" S9.5C
C6	VAR. S9.5C
D1	2.5" I19.0B
D2	3.0" I19.0B
D3	4.0" I19.0B
D4	VAR. I19.0B
D5	3.0" I19.0C
D6	4.0" I19.0C
D7	VAR. I19.0C
E1	4.0" B25.0B
E2	4.5" B25.0B
E3	5.5" B25.0B
E4	4.0" B25.0C
E5	4.5" B25.0C
E6	5.0" B25.0C
E7	5.5" B25.0C
E8	7.0" B25.0C
E9	VAR. B25.0C
J1	8.0" ABC
P1	PRIME COAT
R1	2' - 6" C&G
R2	1' - 6" C&G
R3	5" MONO. ISLAND
R4	SBG
R5	2.0' VG
R6	MEDIAN BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING
Y	NON WOVEN GEOTEXTILE FABRIC

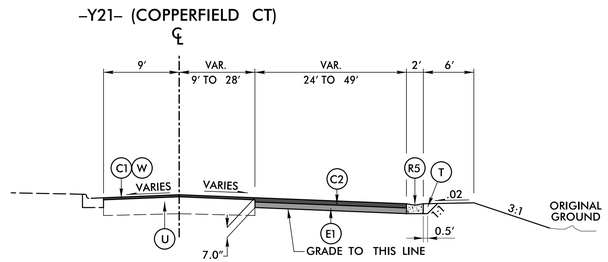




CUL-DE-SAC DETAIL
-Y22- (FOXFIELD CT)

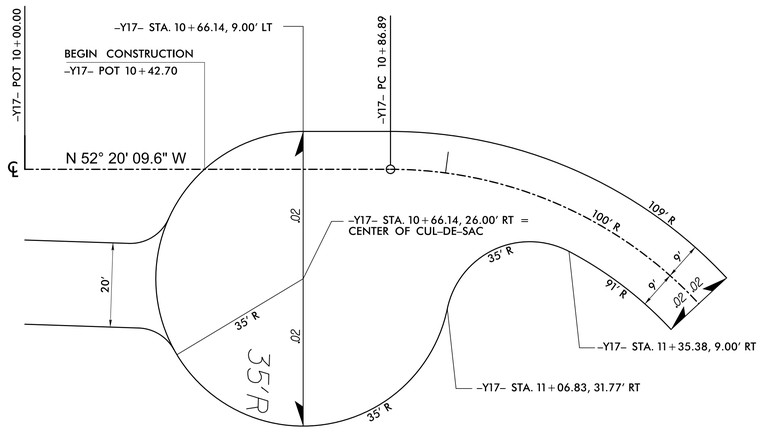


SECTION B-B

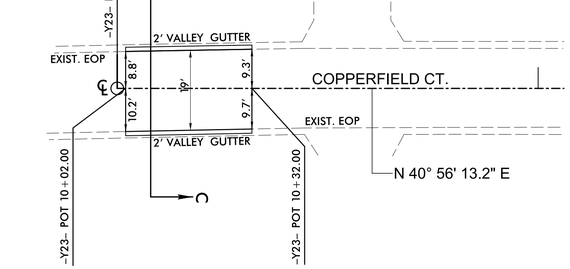


SECTION A-A

CUL-DE-SAC DETAIL
-Y21- (COPPERFIELD CT)

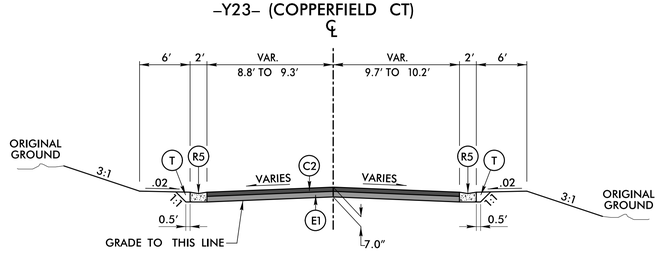


CUL-DE-SAC DETAIL
-Y17- (RUTH AVE)
(SEE TYPICAL SECTION NO. 30,
SHEET 2A-9 FOR PAVEMENT DESIGN)

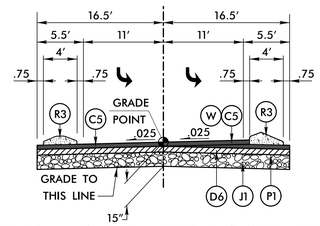


-Y23- COPPERFIELD COURT DETAIL

-Y23- STA. 10+02 TO 10+32

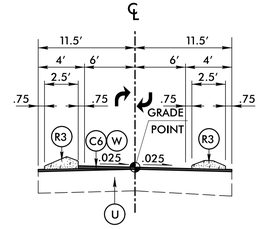


SECTION C-C



LEFT TURN LANE PAVEMENT SLOPE DETAIL 1

-L- STA. 74+00 TO 79+25



LEFT TURN LANE PAVEMENT SLOPE DETAIL 2

-Y1- STA. 15+15 TO 18+47
-Y1- STA. 25+18 TO 30+36
-Y1- STA. 74+89 TO 78+26
-Y1- STA. 79+15 TO 82+72 (MIRROR)

4/16/2015
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Stephen Kay

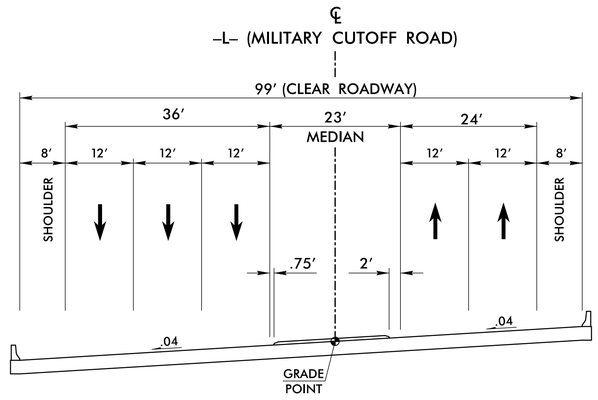
STRUCTURE 1: –L– (MILITARY CUTOFF RD.) OVER –Y1– (US 17 BUSINESS/MARKET ST.)

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

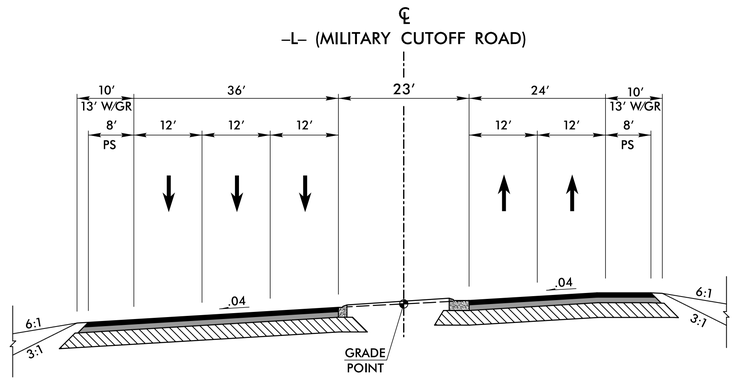
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

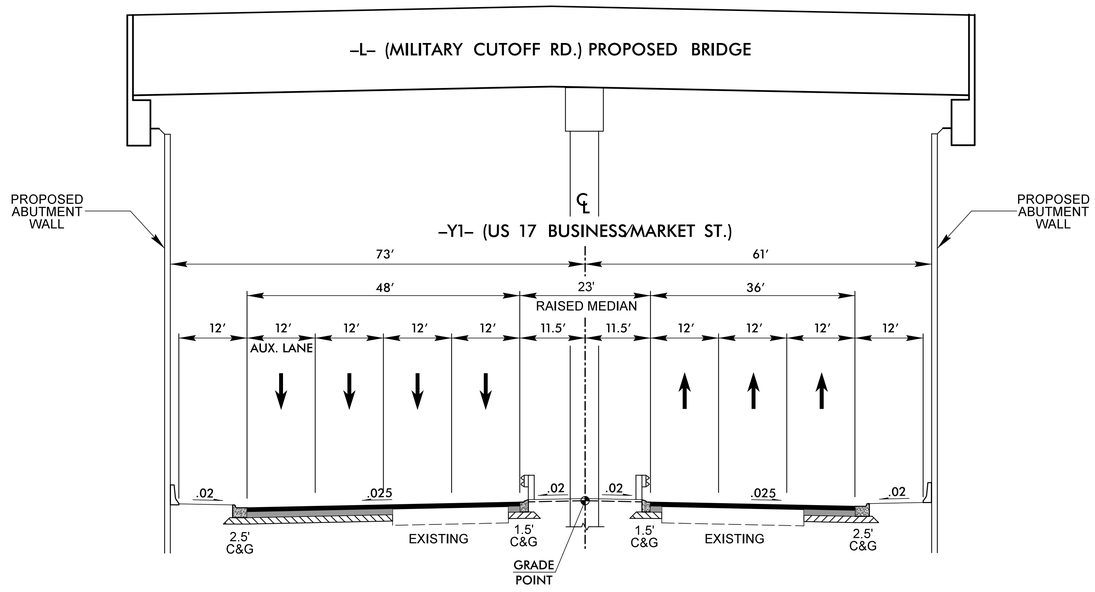


TYPICAL SECTION ON STRUCTURE
–L– 38+94.20



TYPICAL SECTION ON ROADWAY APPROACHING STRUCTURE

FUNCTIONAL CLASSIFICATION
ARTERIAL



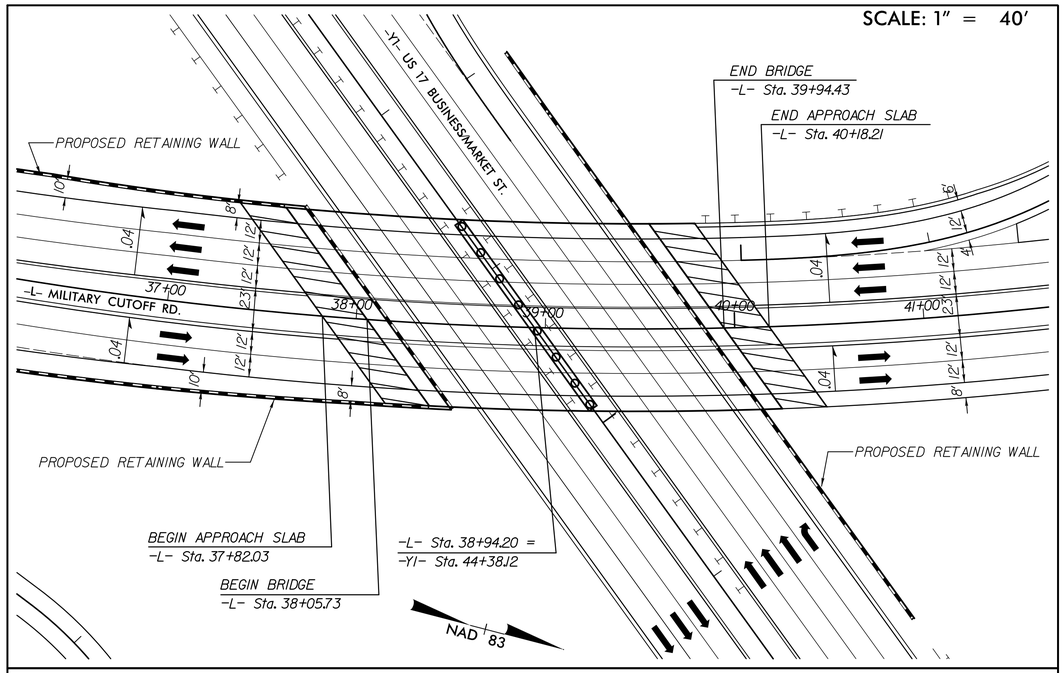
TYPICAL SECTION UNDER STRUCTURE
–Y1– 44+38.12

FUNCTIONAL CLASSIFICATION
URBAN ARTERIAL

–Y1– DESIGN DATA		
ADT 2017	=	49,300
ADT 2037	=	57,900
TTST	=	2%
DUAL	=	4%
DHV	=	11%
DIR	=	60%

MINIMUM VERTICAL CLEARANCE = 17′–0″

SCALE: 1″ = 40′



SKETCH SHOWING BRIDGE–PAVEMENT RELATIONSHIP FOR
–L– (MILITARY CUTOFF RD) OVER –Y1– (US 17 BUSINESS/MARKET ST.)

4/16/2015 r:\roadway\proj\shf\U475L_RDY_sht02B-01.dgn

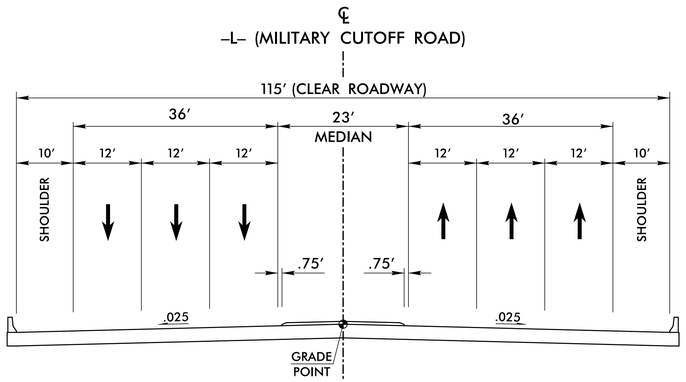
STRUCTURE 2: –L– (MILITARY CUTOFF RD.) OVER –Y2– (OGDEN PARK DR.)

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

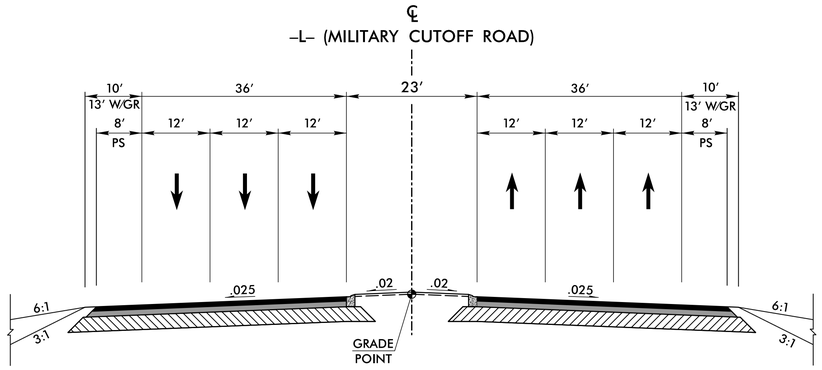
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

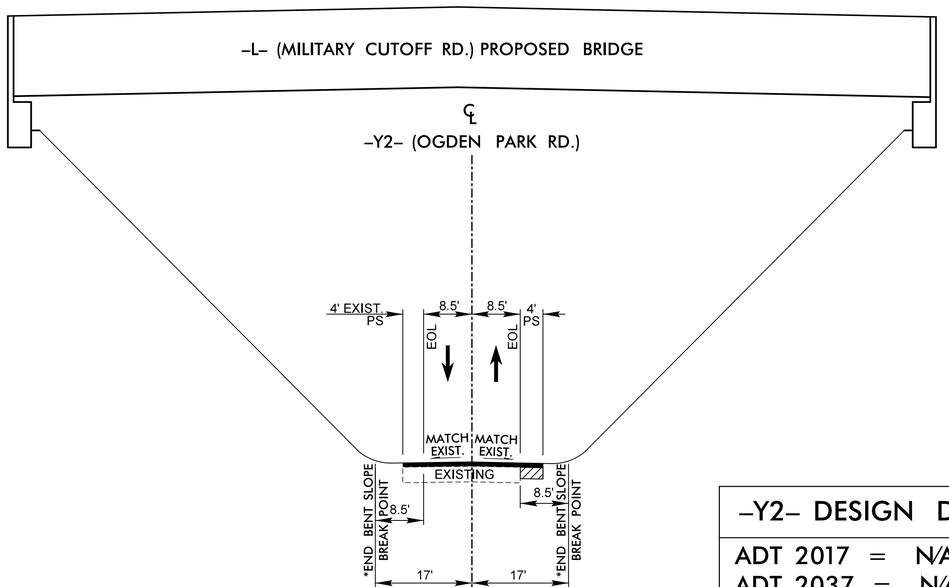


TYPICAL SECTION ON STRUCTURE
–L– 62+99.10



TYPICAL SECTION ON ROADWAY APPROACHING STRUCTURE

FUNCTIONAL CLASSIFICATION
ARTERIAL



TYPICAL SECTION UNDER STRUCTURE
–Y2– 14+79.99

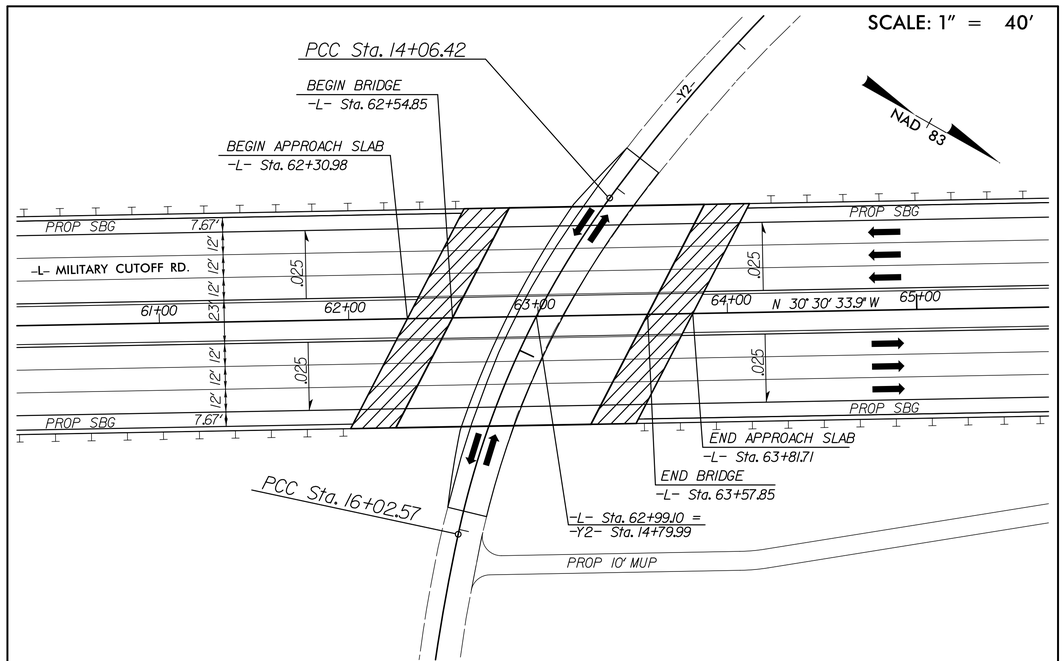
*SEE STD. 610.03

FUNCTIONAL CLASSIFICATION
RURAL LOCAL

–Y2– DESIGN DATA	
ADT 2017	= N/A
ADT 2037	= N/A
TTST	= N/A
DUAL	= N/A
DHV	= N/A
DIR	= N/A

NO TRAFFIC DATA AVAILABLE AT THIS TIME

MINIMUM VERTICAL
CLEARANCE = 15′–6″



SKETCH SHOWING BRIDGE–PAVEMENT RELATIONSHIP FOR
–L– (MILITARY CUTOFF RD.) OVER –Y2– (OGDEN PARK DR.)

r:\roadway\proj\stip\U4751_RDY_pst02B–02.dgn

4/16/2015

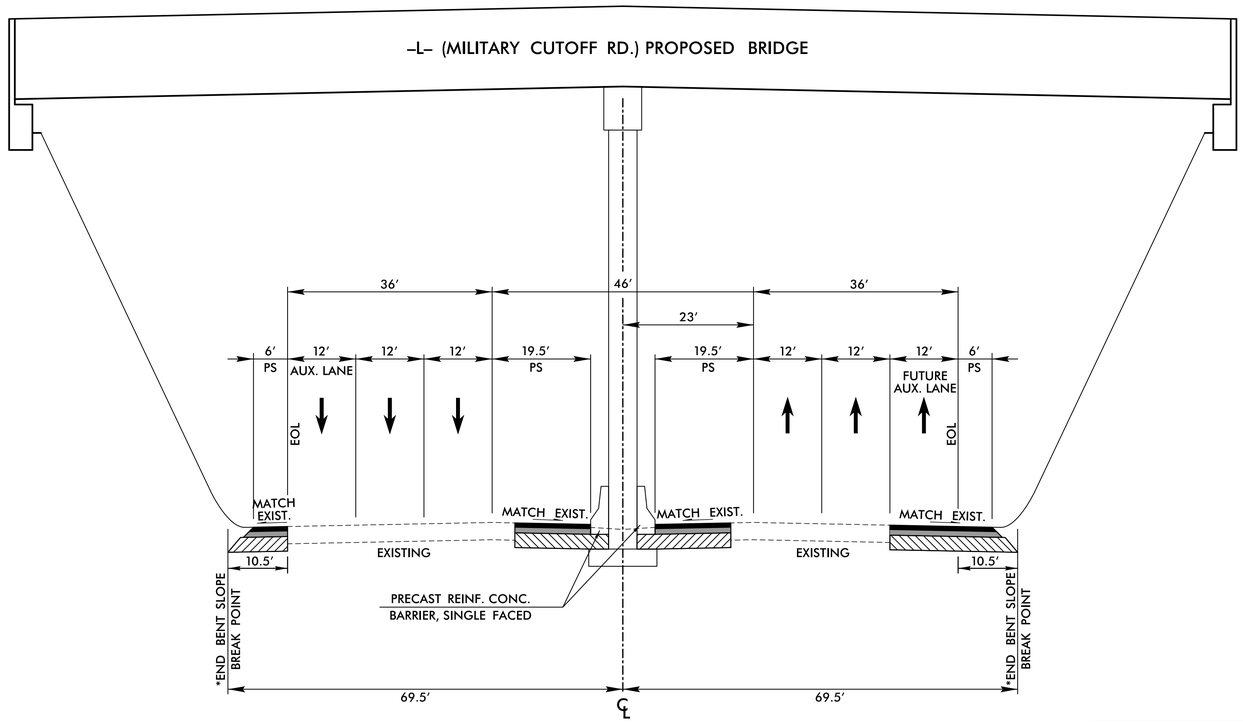
STRUCTURE 3: –L– (MILITARY CUTOFF RD.) OVER –Y8– (US 17 BYPASS)

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

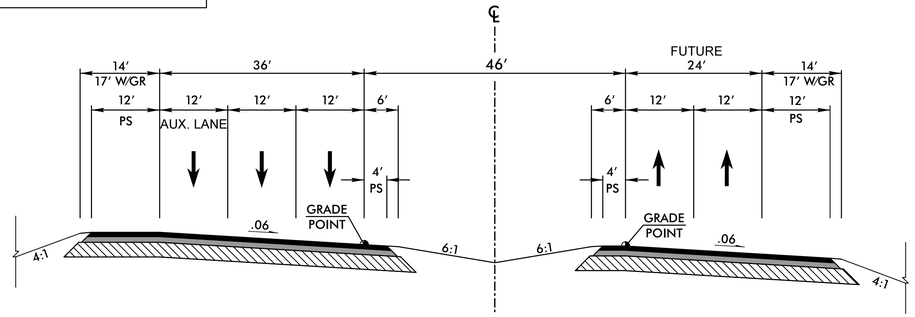


–Y8– (US17 BYPASS)
TYPICAL SECTION UNDER STRUCTURE
–Y8– 91+88.77

*SEE STD. 610.03

FUNCTIONAL CLASSIFICATION
RURAL FREEWAY

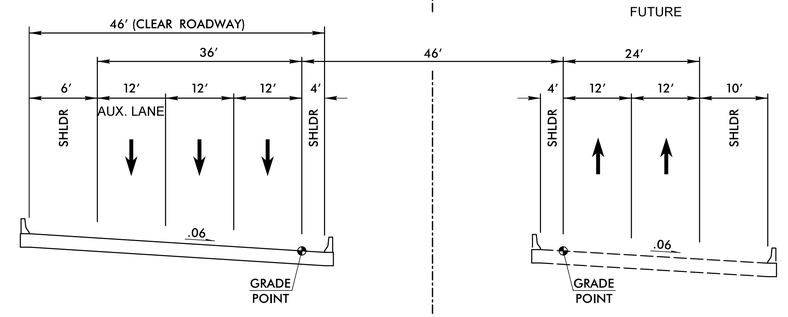
–L–
(MILITARY CUTOFF ROAD)



TYPICAL SECTION ON ROADWAY APPROACHING STRUCTURE
FUNCTIONAL CLASSIFICATION
FREEWAY

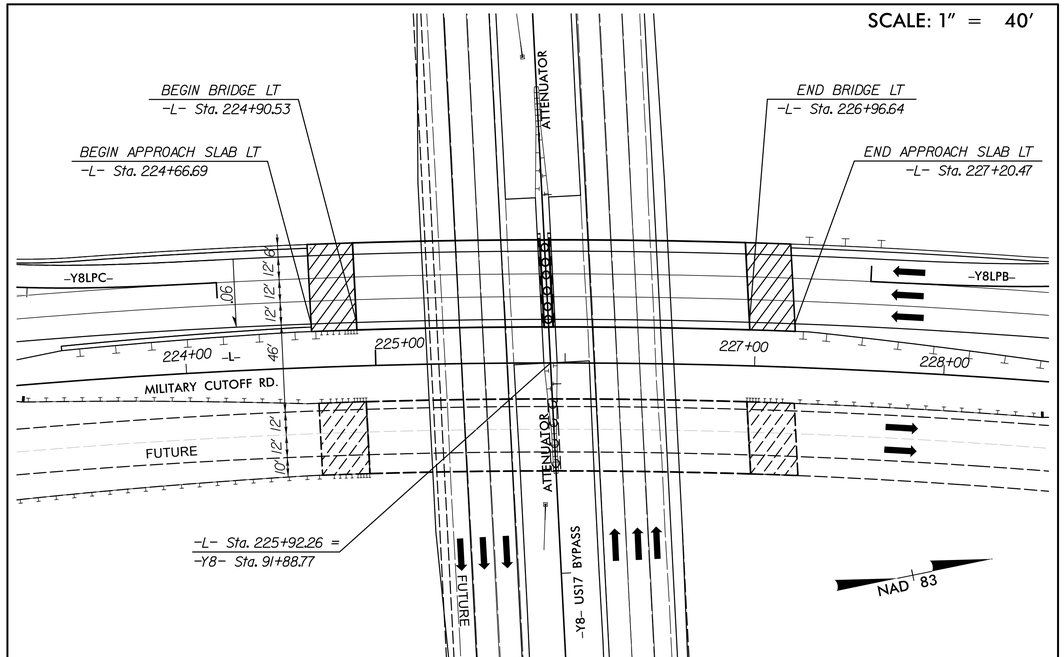
–Y8– DESIGN DATA	
ADT 2017	= 43,100
ADT 2037	= 95,200
TTST	= 6%
DUAL	= 4%
DHV	= 12%
DIR	= 60%

–L–
(MILITARY CUTOFF ROAD)



TYPICAL SECTION ON STRUCTURE
–L– 225+92.26

MINIMUM VERTICAL CLEARANCE = 17′–0″



SKETCH SHOWING BRIDGE–PAVEMENT RELATIONSHIP FOR
–L– (MILITARY CUTOFF RD.) OVER –Y8– (US 17 WILMINGTON BYPASS)

r:\roadway\proj\sht\U4751_RDY_sht02B-03.dgn
4/16/2015

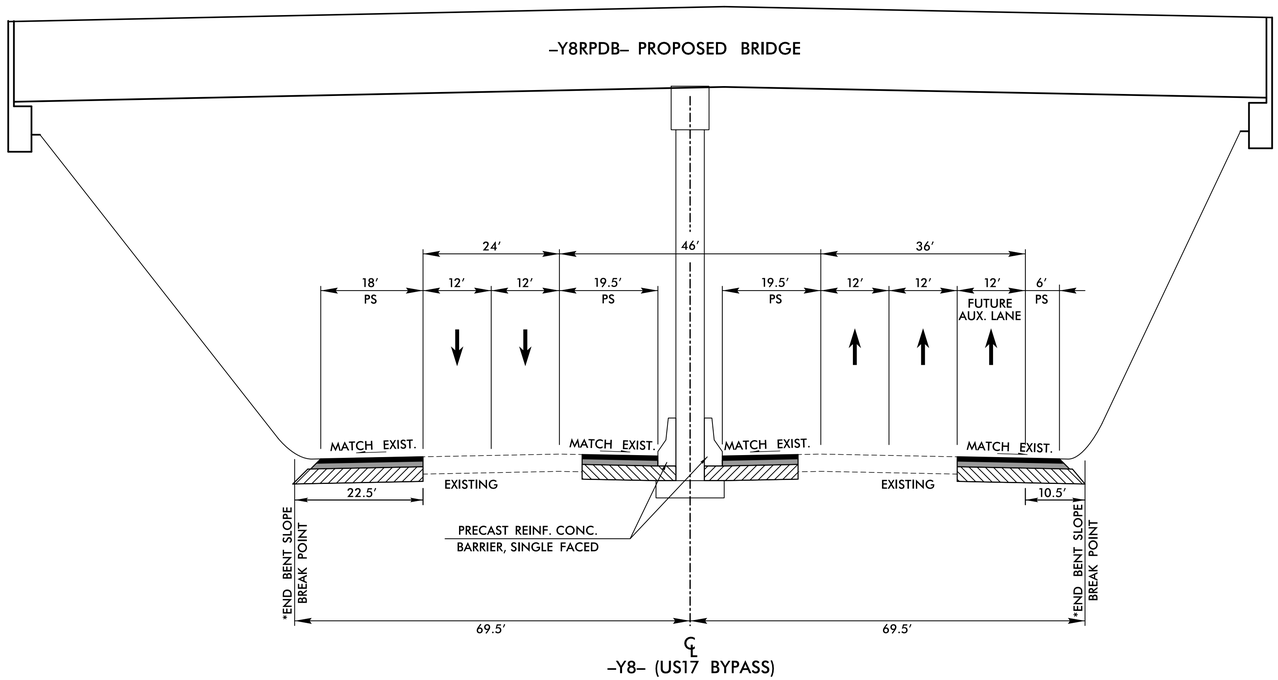
STRUCTURE 4: —Y8RPDB– OVER –Y8– (US 17 BYPASS)

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

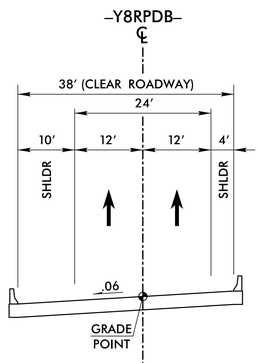


TYPICAL SECTION UNDER STRUCTURE
–Y8– 99+67.11
*SEE STD. 610.03

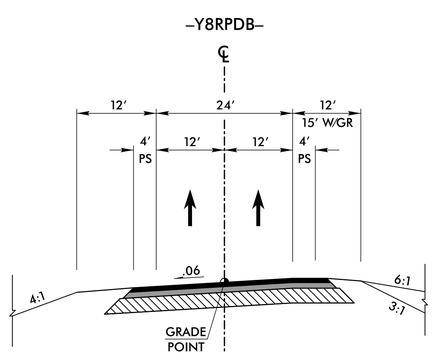
FUNCTIONAL CLASSIFICATION
RURAL FREEWAY

–Y8– DESIGN DATA	
ADT 2017	= 43,100
ADT 2037	= 95,200
TTST	= 6%
DUAL	= 4%
DHV	= 12%
DIR	= 60%

MINIMUM VERTICAL CLEARANCE = 17′–0″

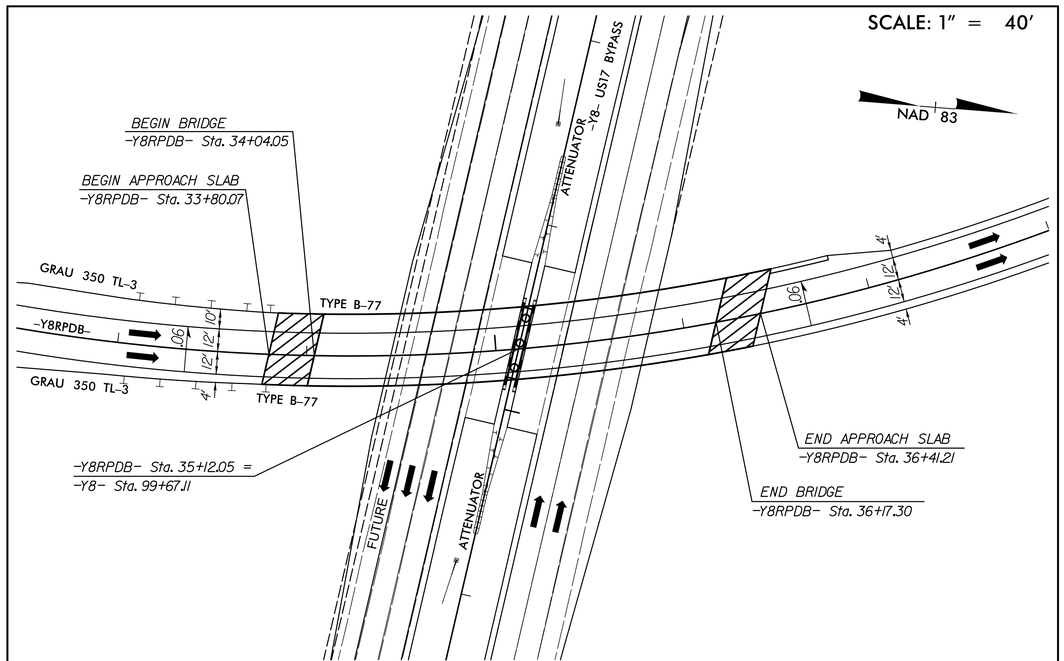


TYPICAL SECTION ON STRUCTURE
–Y8RPDB– 35+12.05



TYPICAL SECTION ON ROADWAY APPROACHING STRUCTURE

FUNCTIONAL CLASSIFICATION
RAMP



SKETCH SHOWING BRIDGE–PAVEMENT RELATIONSHIP FOR
–Y8RPDB– OVER –Y8– (US 17 WILMINGTON BYPASS)

r:\roadway\proj\stip\U4751_RDY_pst02B-04.dgn
4/16/2015

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

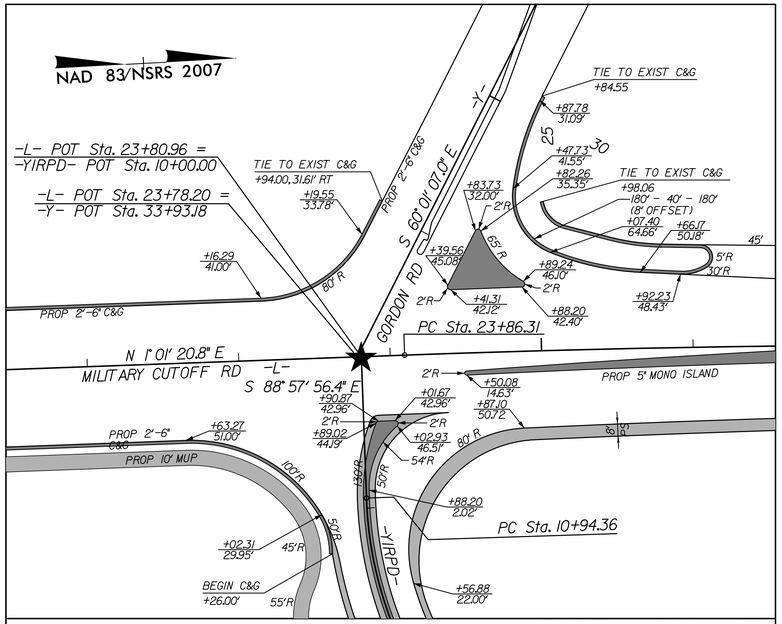
PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-5
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONCRETE CURB /GUTTER & MONOLITHIC ISLAND
FULL DEPTH PAVED SHOULDER

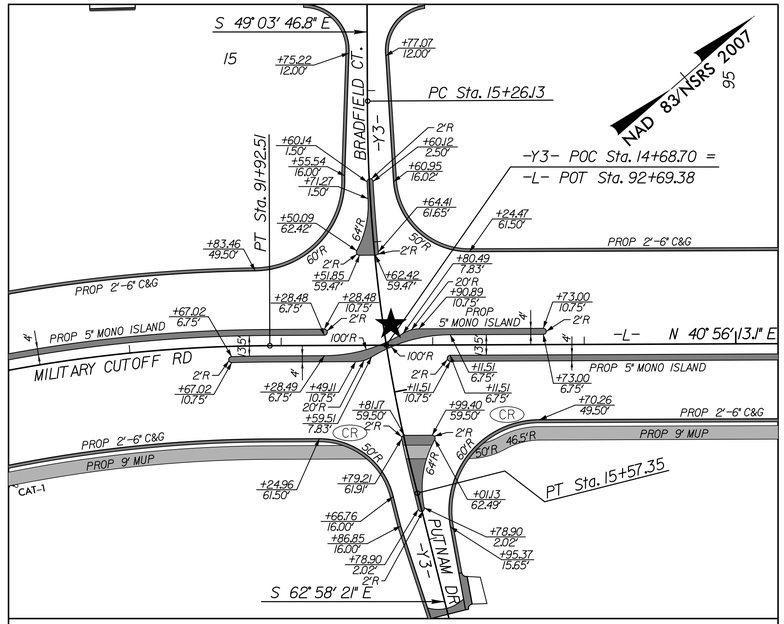
–L– MILITARY CUTOFF RD, –Y– & –Y1RPD



INTERSECTION DETAIL – A

SEE SHEET 5 FOR FULL PLAN VIEW
SCALE : 1" = 50'

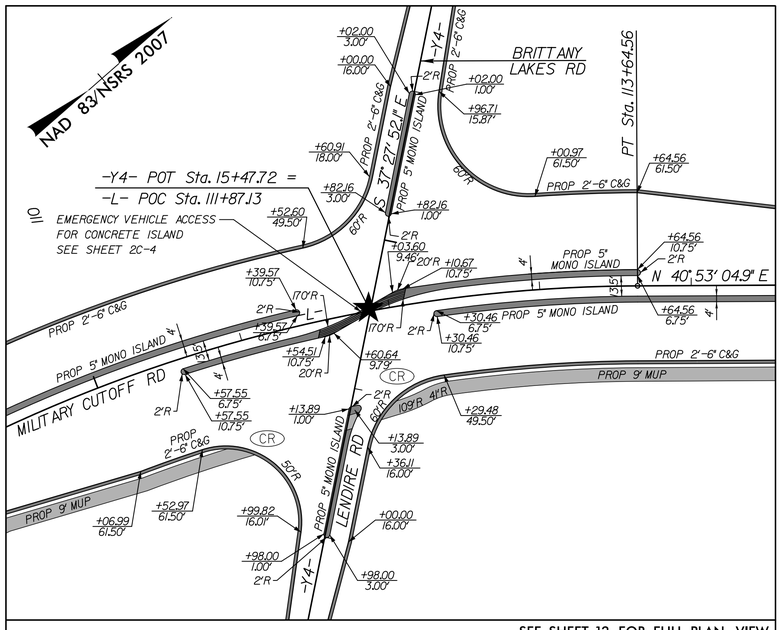
–L– MILITARY CUTOFF RD, –Y3–



INTERSECTION DETAIL – B

SEE SHEET 10 FOR FULL PLAN VIEW
SCALE : 1" = 50'

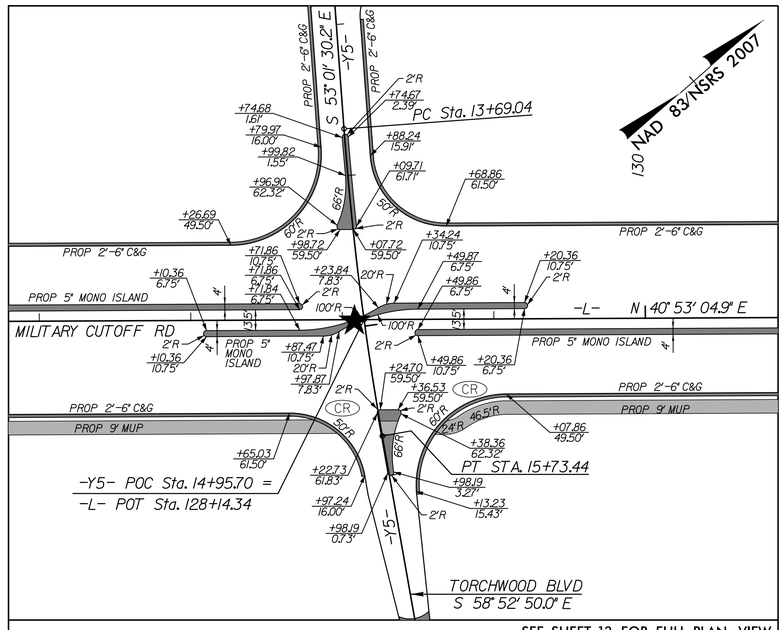
–L– MILITARY CUTOFF RD, –Y4–



INTERSECTION DETAIL – C

SEE SHEET 12 FOR FULL PLAN VIEW
SCALE : 1" = 50'

–L– MILITARY CUTOFF RD, –Y5–



INTERSECTION DETAIL – D

SEE SHEET 13 FOR FULL PLAN VIEW
SCALE : 1" = 50'

4/16/2015
C:\Projects\Military Cutoff\proj\sht\U4751_RDY_psh02B-05_Inter Details.dgn
Stephen Sill

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-6
R/W SHEET NO.	

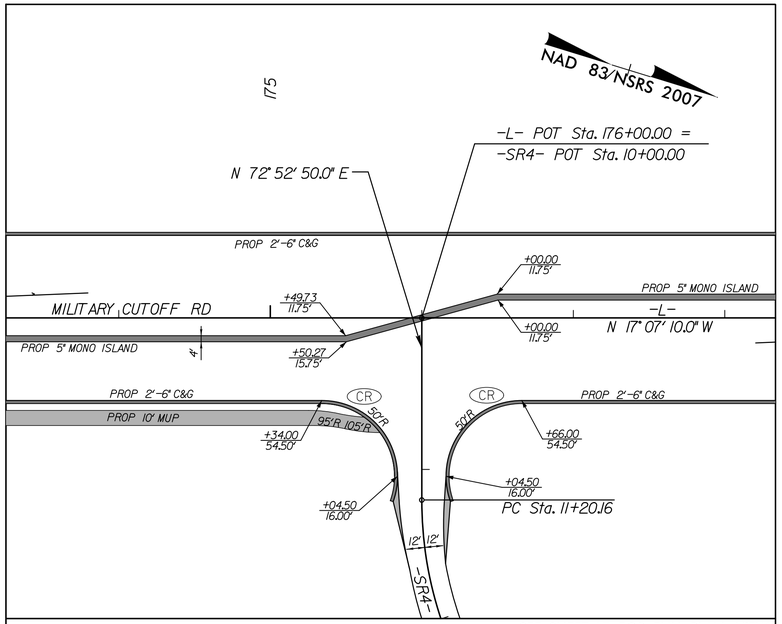
ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONCRETE CURB /GUTTER & MONOLITHIC ISLAND
FULL DEPTH PAVED SHOULDER

REVISIONS

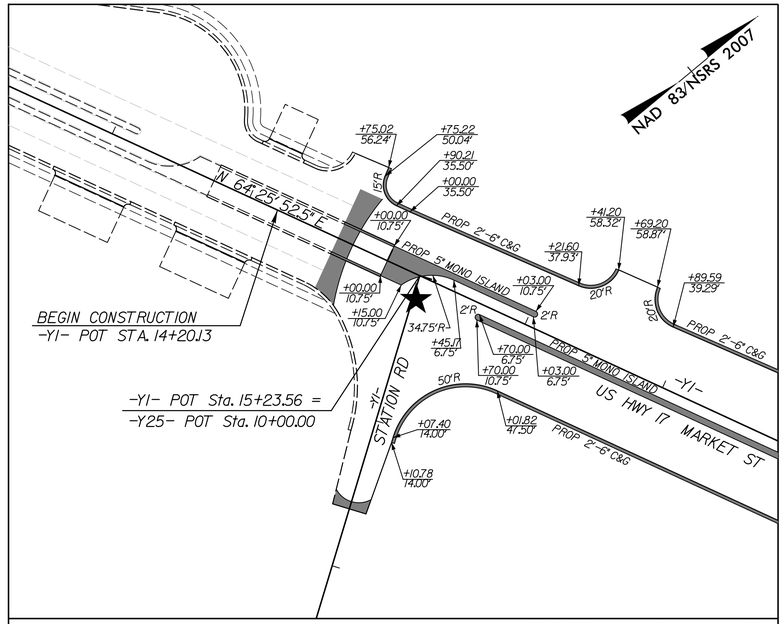
–L– MILITARY CUTOFF RD, –SR4–



INTERSECTION DETAIL – E

SEE SHEET 17 FOR FULL PLAN VIEW
SCALE : 1"=50'

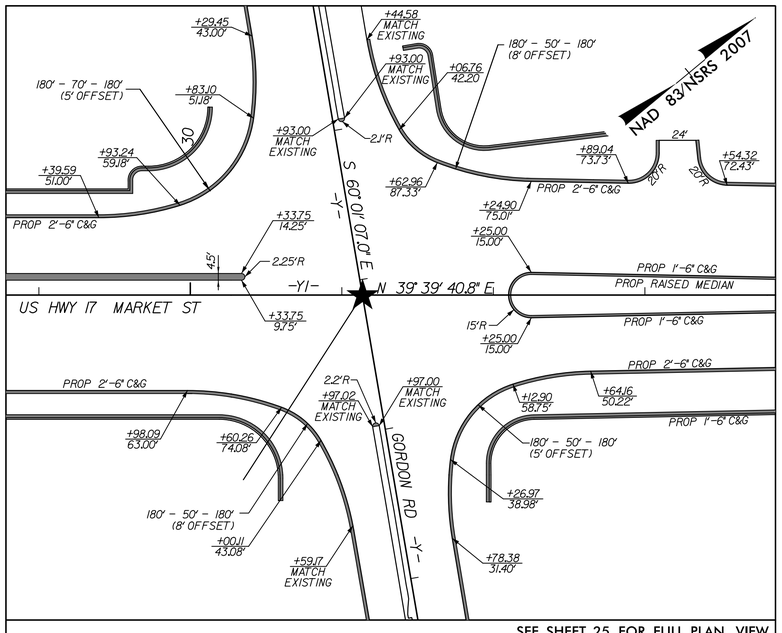
–Y1– US 17 BUS MARKET ST, –Y–



INTERSECTION DETAIL – F

SEE SHEET 24 FOR FULL PLAN VIEW
SCALE : 1"=50'

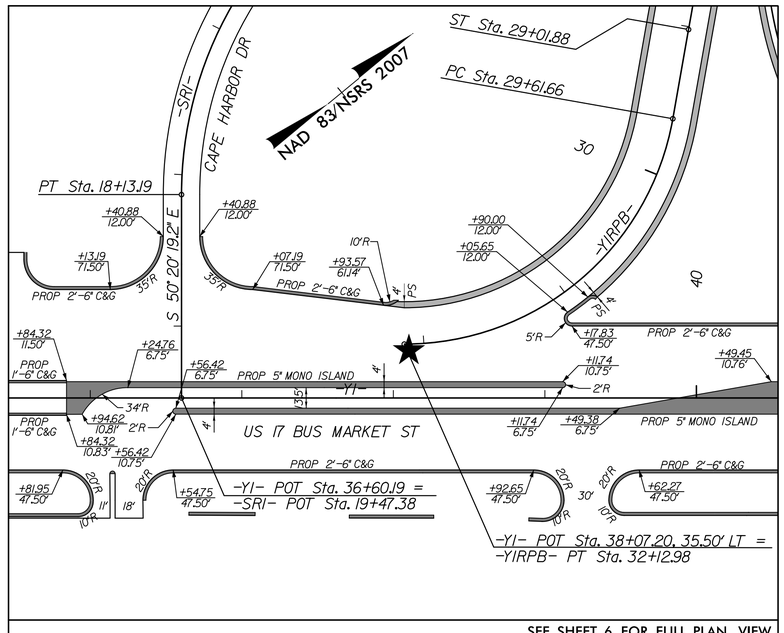
–Y1– US 17 BUS MARKET ST, –Y–



INTERSECTION DETAIL – G

SEE SHEET 25 FOR FULL PLAN VIEW
SCALE : 1"=50'

–Y1– US 17 BUS MARKET ST, –SR1– & –Y1RPB–



INTERSECTION DETAIL – H

SEE SHEET 6 FOR FULL PLAN VIEW
SCALE : 1"=50'

4/16/2015
Stephen Sharp
C:\Projects\proj\sh\U4751_RDY_psh02B-06_Inter Details.dgn

STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-7
R/W SHEET NO.	

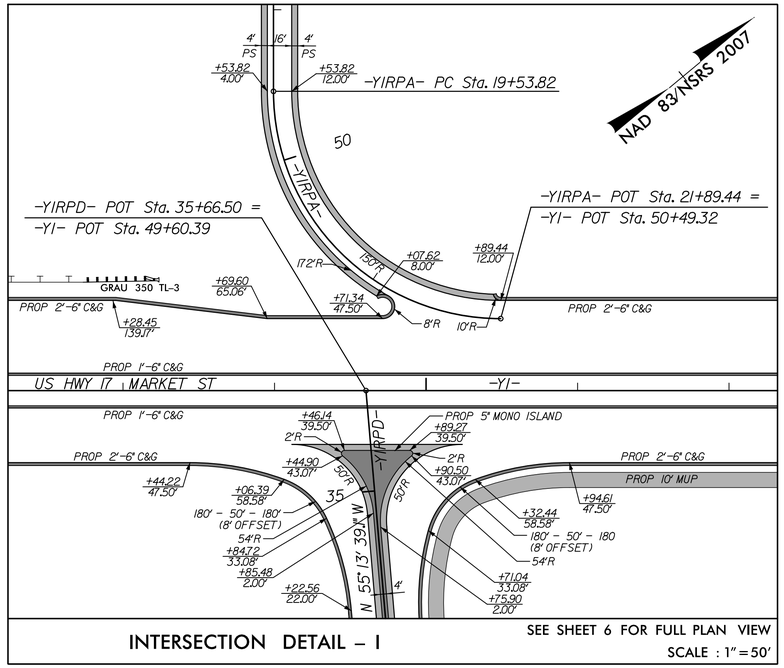
ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONCRETE CURB /GUTTER & MONOLITHIC ISLAND
FULL DEPTH PAVED SHOULDER

REVISIONS

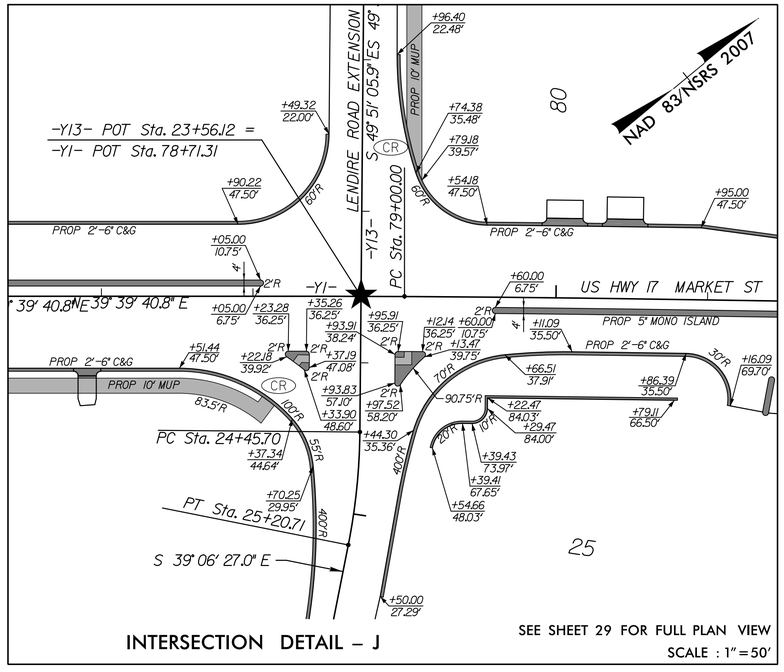
–Y1– US 17 BUS MARKET ST, –Y1RPA– & –Y1RPD–



INTERSECTION DETAIL – I

SEE SHEET 6 FOR FULL PLAN VIEW
SCALE : 1" = 50'

–Y1– US 17 BUS MARKET ST, –Y13–



INTERSECTION DETAIL – J

SEE SHEET 29 FOR FULL PLAN VIEW
SCALE : 1" = 50'

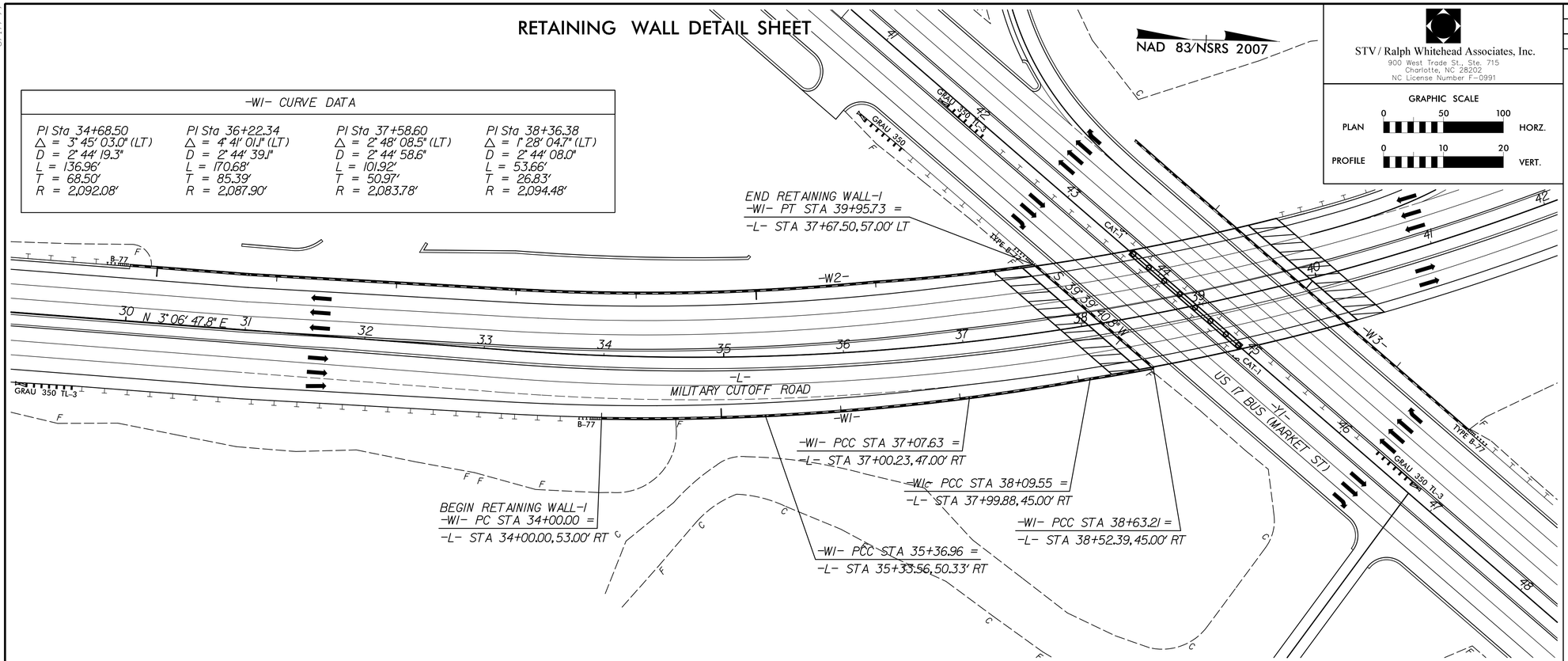
4/16/2015
15:27:58
Stephens
c:\projects\proj\sh\U4751_RDY_psh02B-07_Inter Details.dgn

8/17/99

RETAINING WALL DETAIL SHEET

NAD 83/NSRS 2007

-WI- CURVE DATA			
PI Sta 34+68.50	PI Sta 36+22.34	PI Sta 37+58.60	PI Sta 38+36.38
△ = 3° 45' 03.0" (LT)	△ = 4° 41' 01.1" (LT)	△ = 2° 48' 08.5" (LT)	△ = 1° 28' 04.7" (LT)
D = 2° 44' 19.3"	D = 2° 44' 39.1"	D = 2° 44' 58.6"	D = 2° 44' 08.0"
L = 136.96'	L = 170.68'	L = 101.92'	L = 53.66'
T = 68.50'	T = 85.39'	T = 50.97'	T = 26.83'
R = 2,092.08'	R = 2,087.90'	R = 2,083.78'	R = 2,094.48'



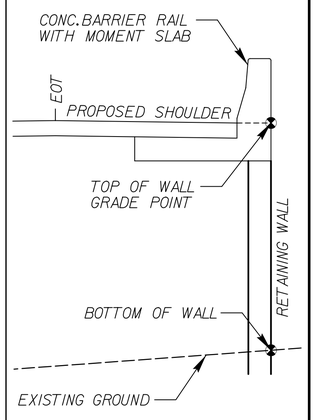
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

GRAPHIC SCALE
PLAN 0 50 100 HORZ.
PROFILE 0 10 20 VERT.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-8
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



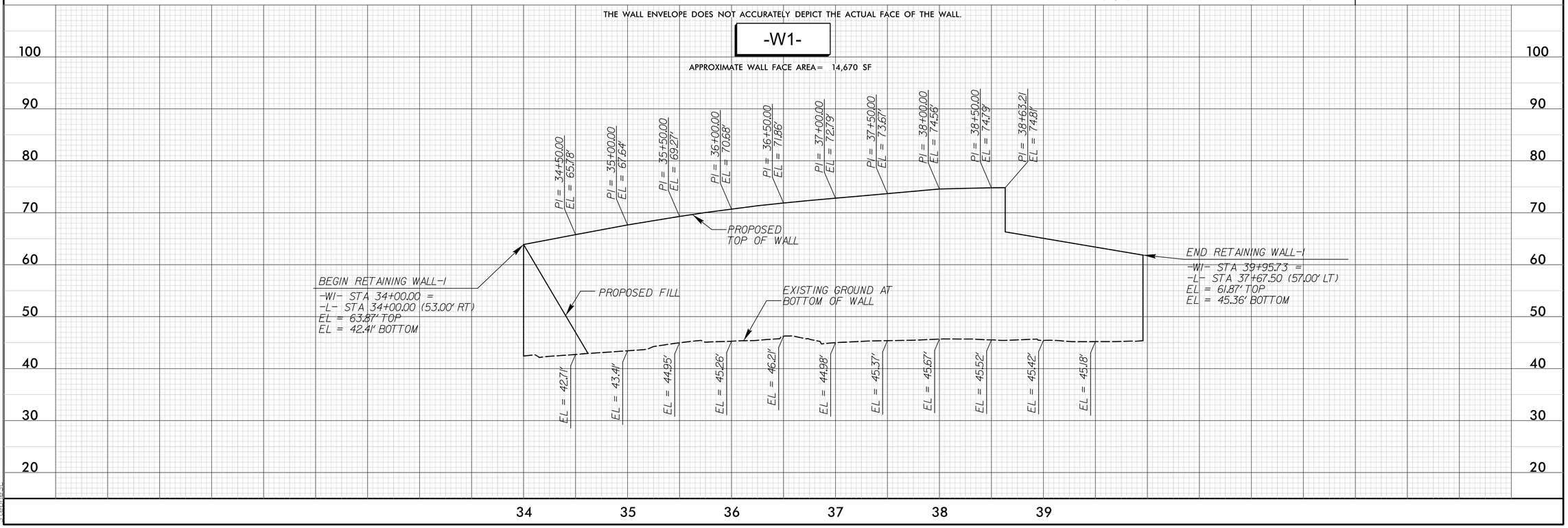
RETAINING WALL DETAIL

NOT TO SCALE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W1-

APPROXIMATE WALL FACE AREA = 14,670 SF



4/16/2015
z:\projects\proj\sht\U4751_RDY_psh02B-08.dgn
Stephen

8/17/99

RETAINING WALL DETAIL SHEET

NAD 83/NSRS 2007

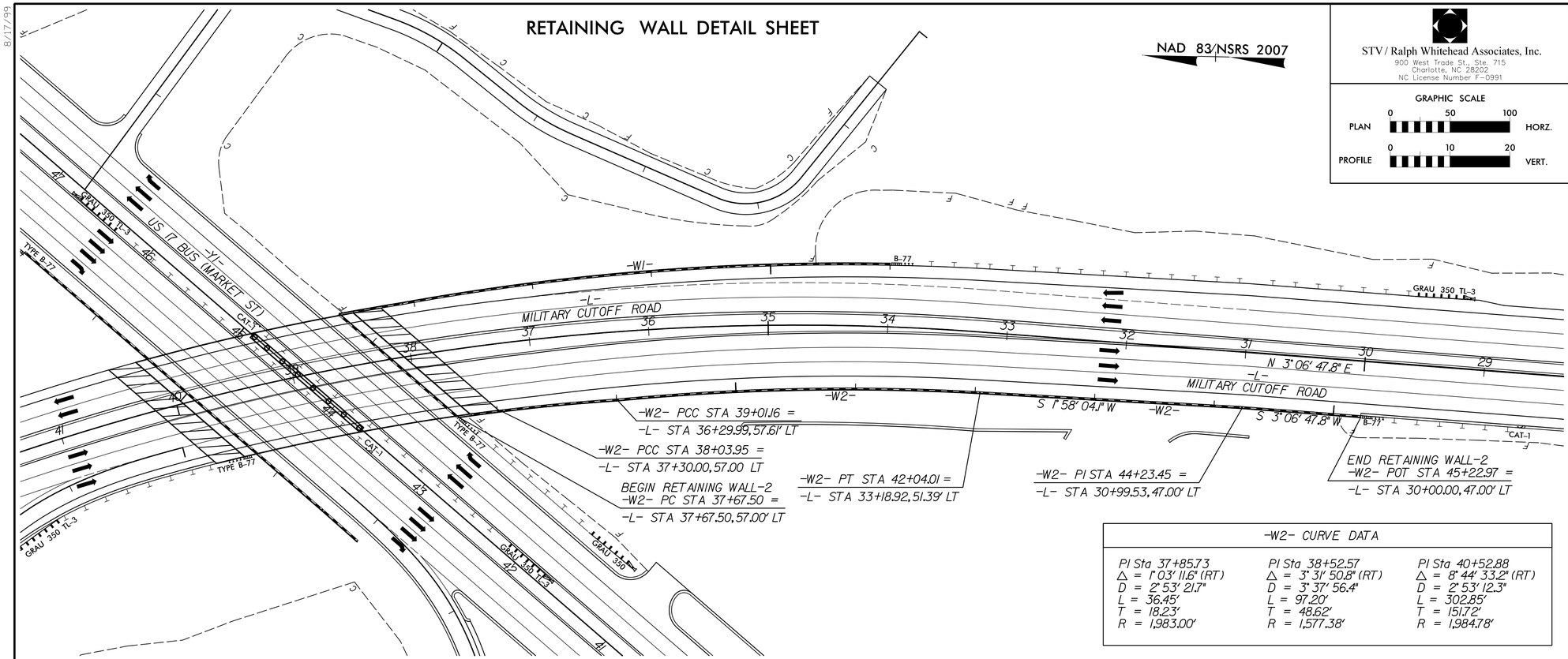
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

GRAPHIC SCALE
PLAN 0 50 100 HORZ.
PROFILE 0 10 20 VERT.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-9
RW SHEET NO.	

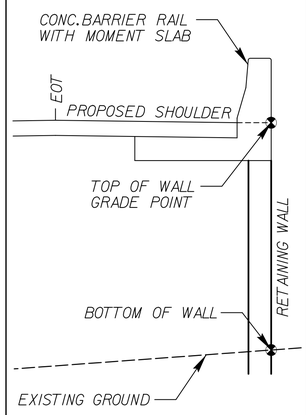
ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-W2- CURVE DATA

PI Sta 37+85.73	PI Sta 38+52.57	PI Sta 40+52.88
Δ = 1° 03' 11.6" (RT)	Δ = 3° 31' 50.8" (RT)	Δ = 8° 44' 33.2" (RT)
D = 2° 53' 21.7"	D = 3° 37' 56.4"	D = 2° 53' 12.3"
L = 36.45'	L = 97.20'	L = 302.85'
T = 18.23'	T = 48.62'	T = 151.72'
R = 1,983.00'	R = 1,577.38'	R = 1,984.78'



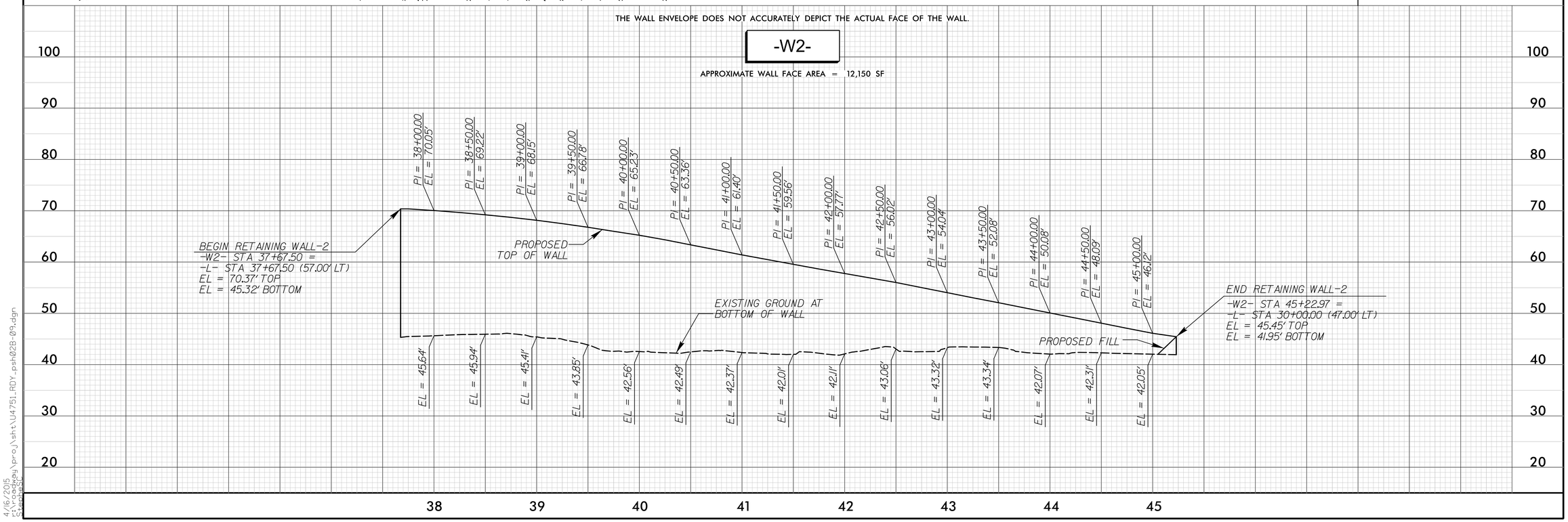
RETAINING WALL DETAIL

NOT TO SCALE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W2-

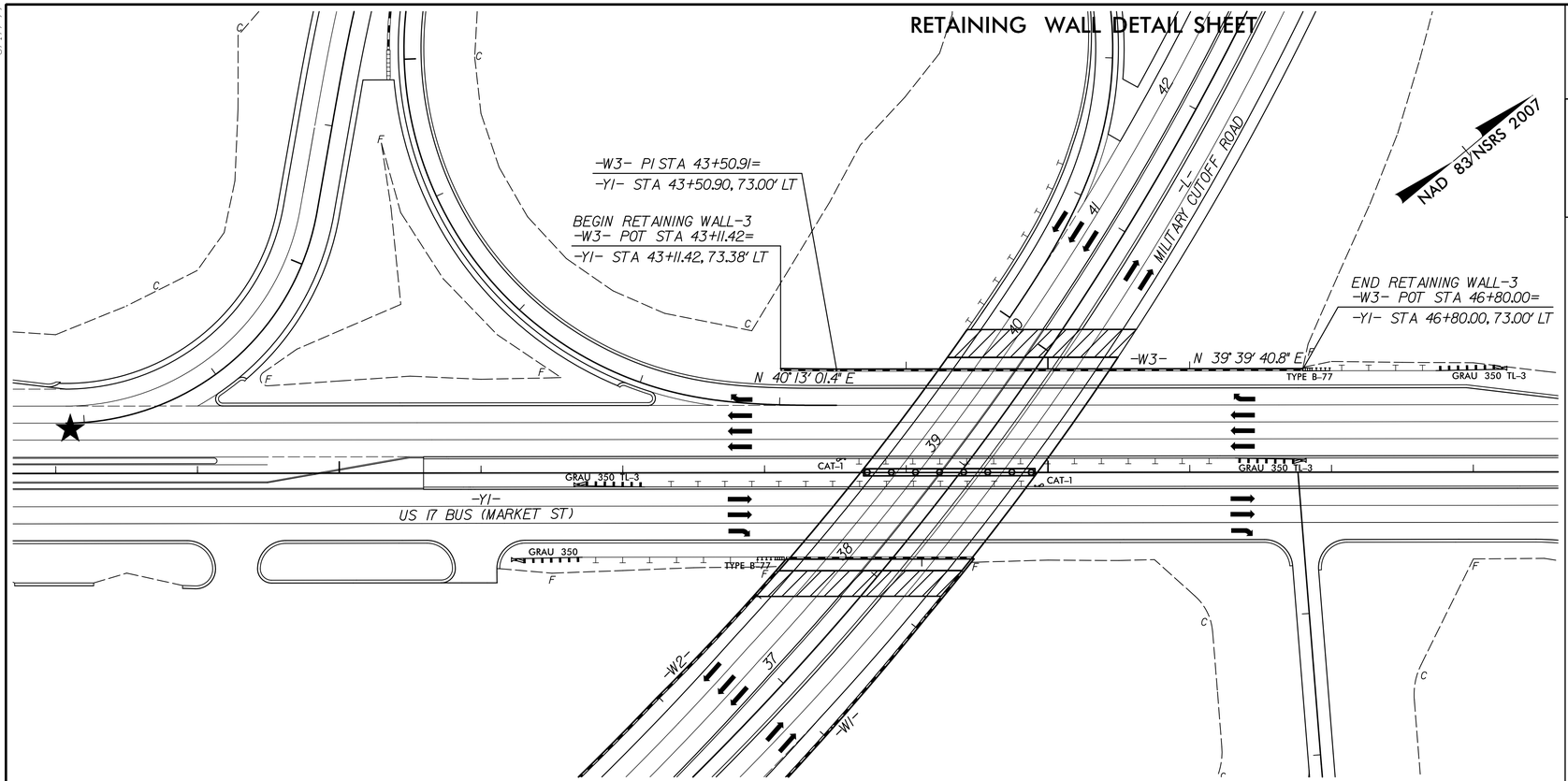
APPROXIMATE WALL FACE AREA = 12,150 SF



4/16/2015
rjrowland
C:\Projects\proj\sht\U4751_RDY_psh02B-09.dgn
Standard

8/17/99

RETAINING WALL DETAIL SHEET



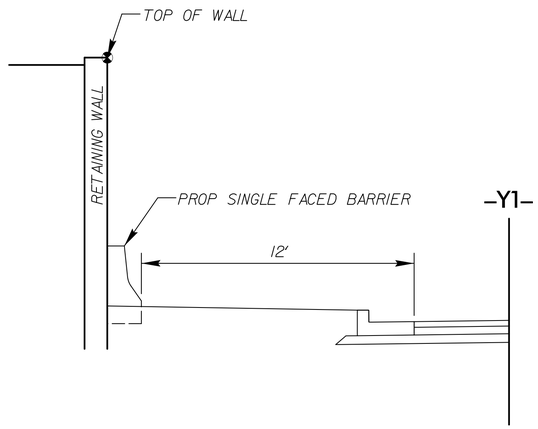
STV / Ralph Whitehead Associates, Inc.	PROJECT REFERENCE NO.	SHEET NO.
900 West Trade St., Ste. 715 Charlotte, NC 28202 NC License Number F-0991	U-4751	2B-10
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

GRAPHIC SCALE

PLAN 0 50 100 HORZ.

PROFILE 0 10 20 VERT.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



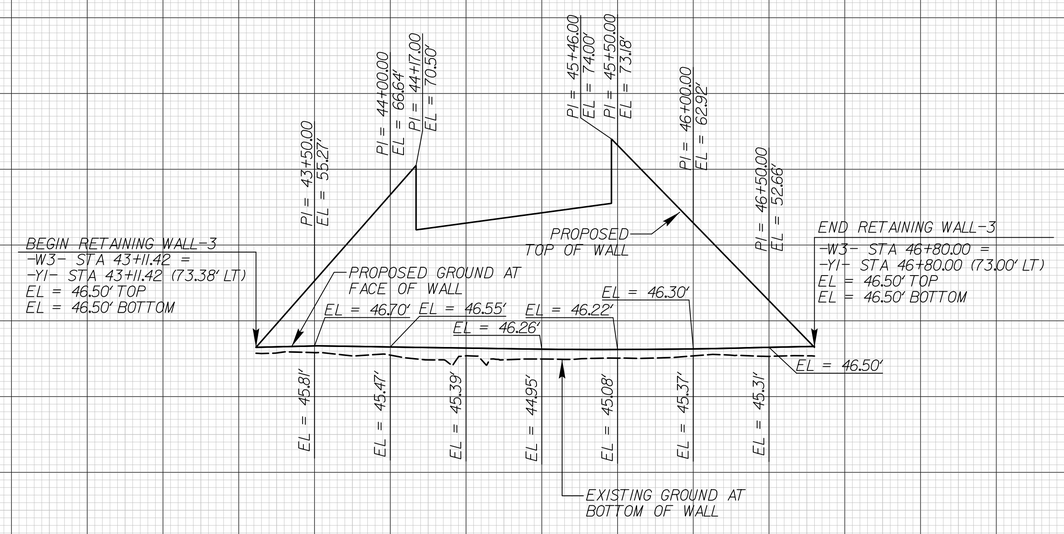
RETAINING WALL DETAIL

NOT TO SCALE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W3-

APPROXIMATE WALL FACE AREA = 5,800 SF



4/16/2015
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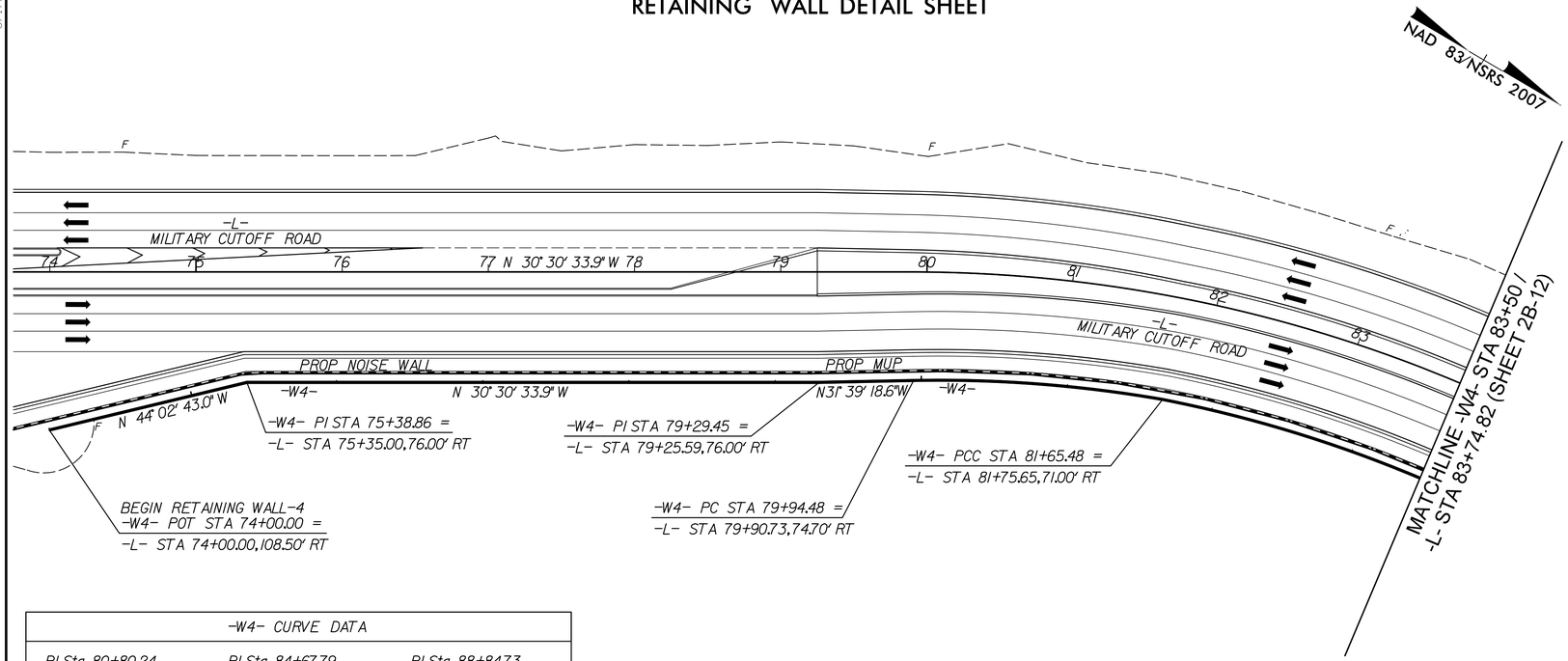
Stephens

8/17/99

RETAINING WALL DETAIL SHEET



-W4- CURVE DATA		
PI Sta 80+80.24	PI Sta 84+67.79	PI Sta 88+84.73
△ = 10° 59' 02.4" (RT)	△ = 37° 22' 01.4" (RT)	△ = 5° 38' 25.9" (RT)
D = 6° 25' 24.3"	D = 6° 24' 32.1"	D = 6° 29' 46.0"
L = 171.00'	L = 583.05'	L = 86.83'
T = 85.76'	T = 302.32'	T = 43.45'
R = 891.98'	R = 894.00'	R = 882.00'

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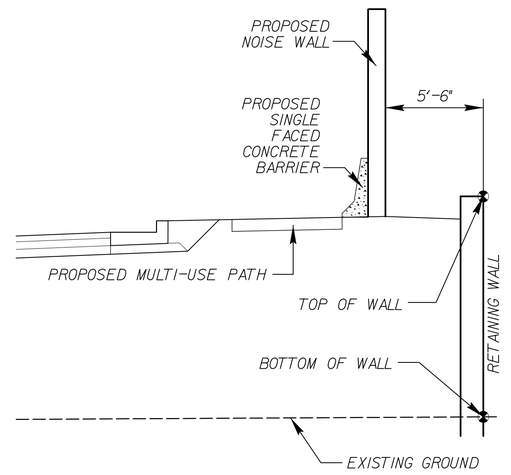
Charlotte, NC 28202
NC License Number F-0991

GRAPHIC SCALE
PLAN 0 50 100 HORZ.
PROFILE 0 10 20 VERT.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



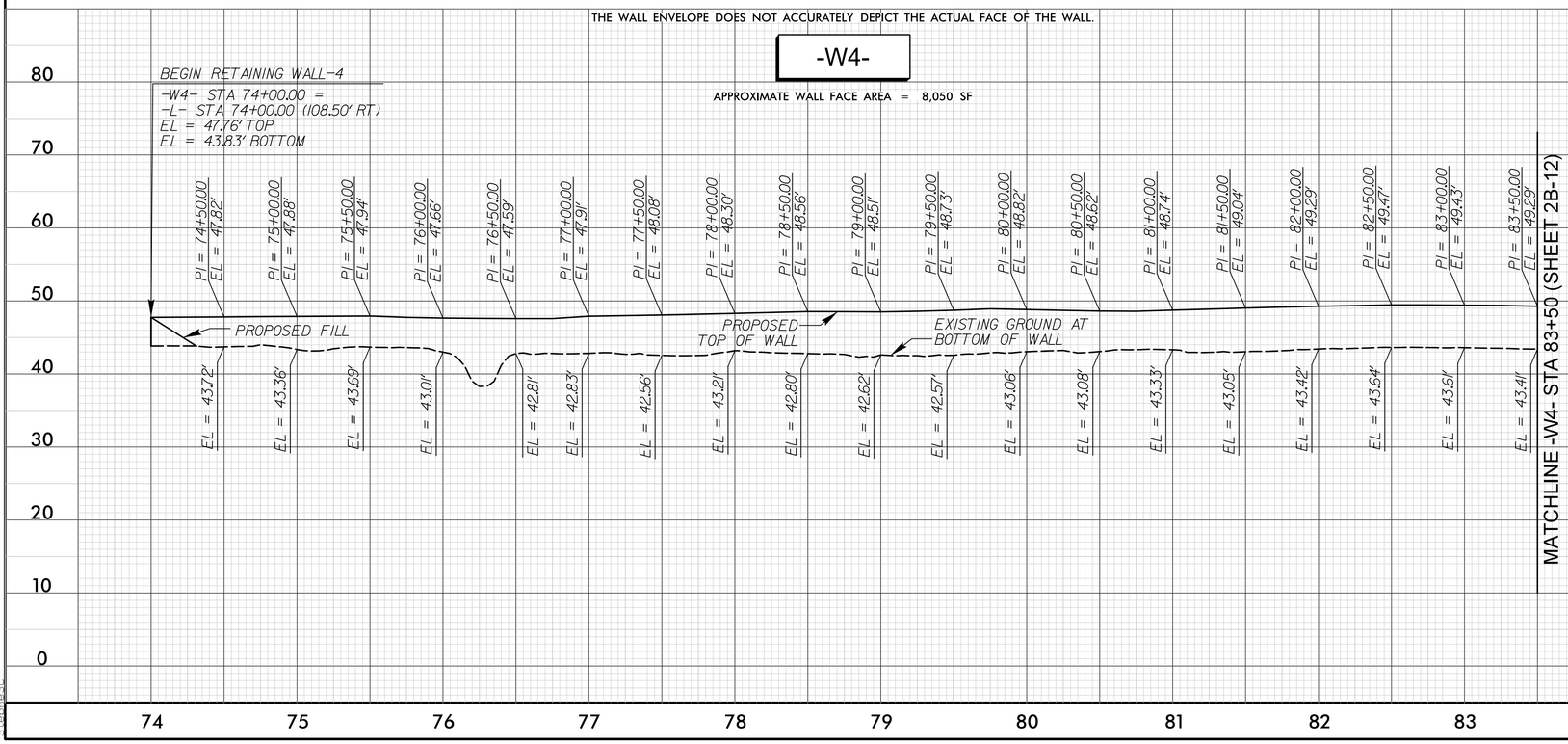
RETAINING WALL DETAIL

NOT TO SCALE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W4-

APPROXIMATE WALL FACE AREA = 8,050 SF



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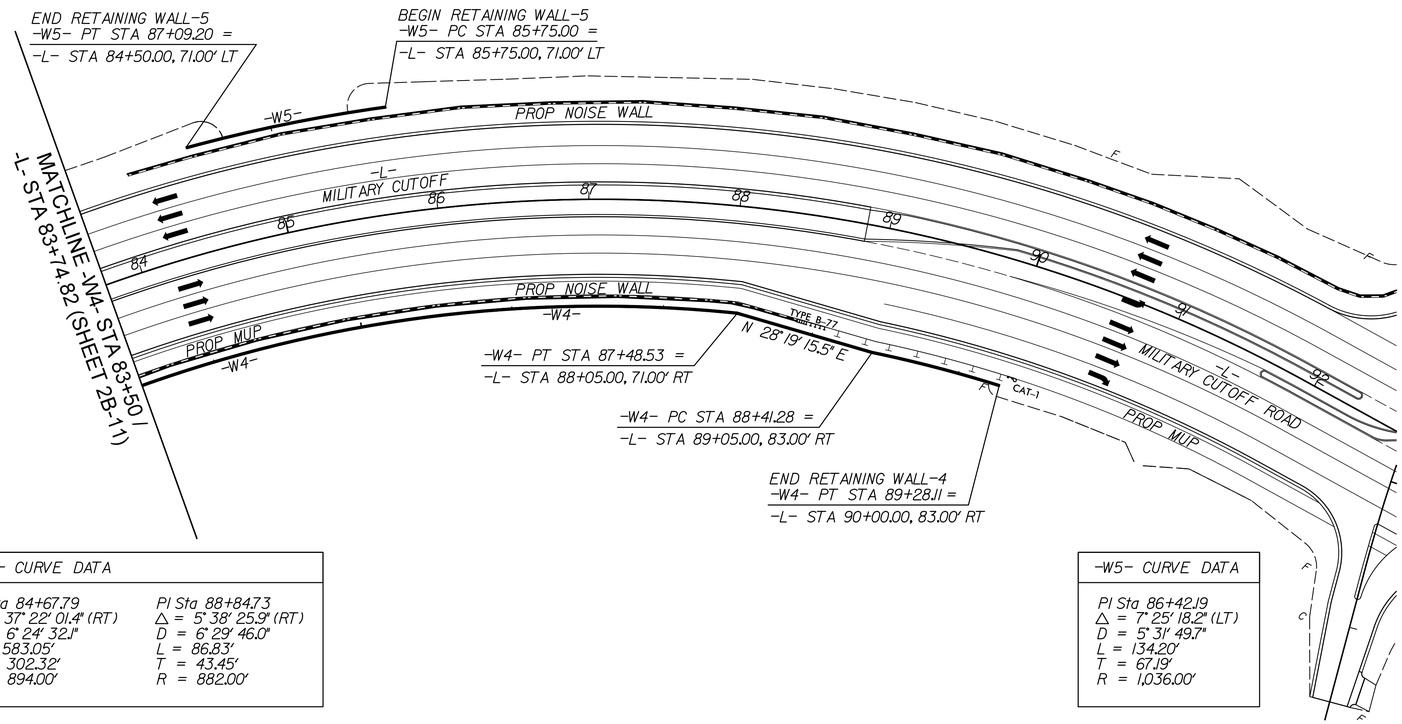
Stephen Sharp

8/17/99

RETAINING WALL DETAIL SHEET

NAD 83/NSRS 2007



-W4- CURVE DATA		
PI Sta 80+80.24	PI Sta 84+67.79	PI Sta 88+84.73
△ = 10° 59' 02.4" (RT)	△ = 37° 22' 01.4" (RT)	△ = 5° 38' 25.9" (RT)
D = 6° 25' 24.3"	D = 6° 24' 32.1"	D = 6° 29' 46.0"
L = 171.00'	L = 583.05'	L = 86.83'
T = 85.76'	T = 302.32'	T = 43.45'
R = 891.98'	R = 894.00'	R = 882.00'

-W5- CURVE DATA
PI Sta 86+42.19
△ = 7° 25' 18.2" (LT)
D = 5° 31' 49.7"
L = 134.20'
T = 67.19'
R = 1,036.00'

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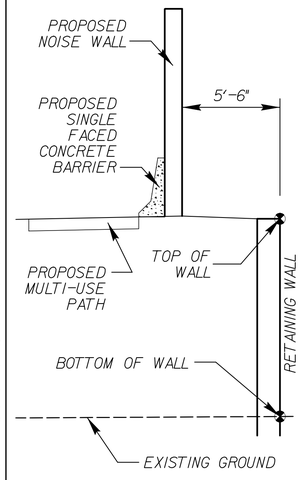
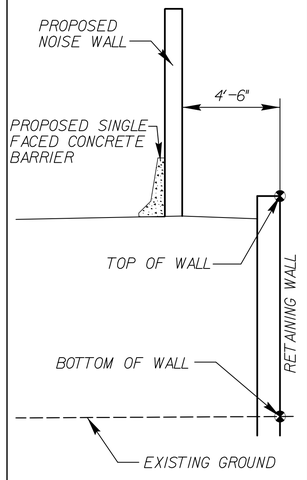
GRAPHIC SCALE
PLAN 0 50 100 HORZ.
PROFILE 0 10 20 VERT.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



RETAINING WALL -W4- DETAIL
NOT TO SCALE

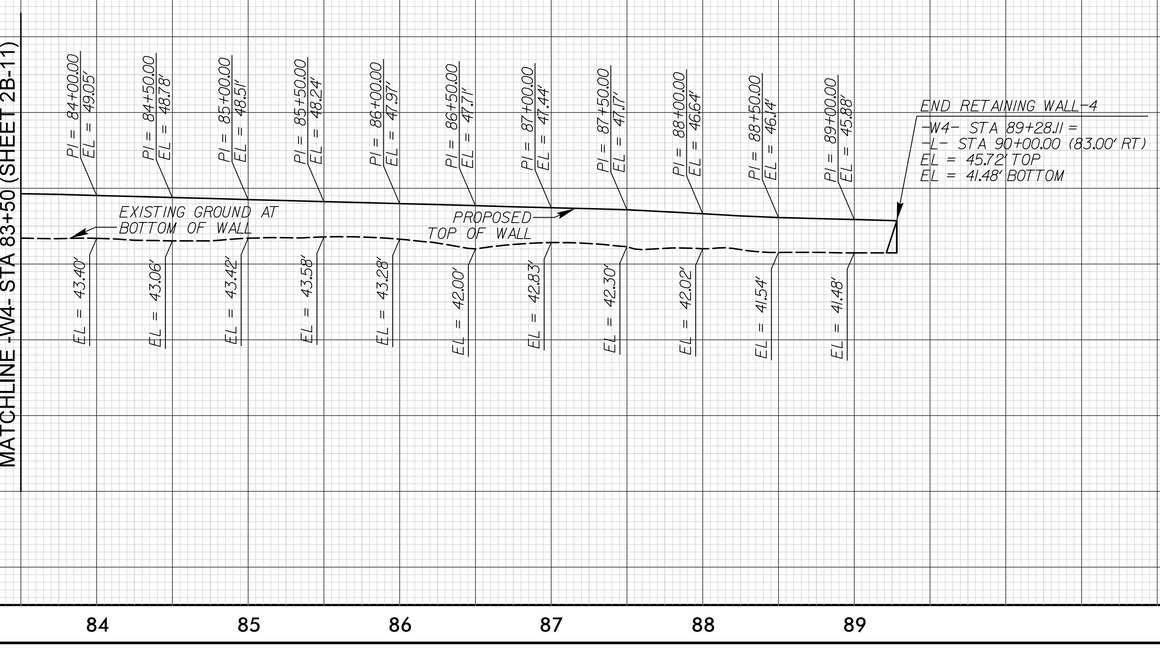


RETAINING WALL -W5- DETAIL
NOT TO SCALE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W4-

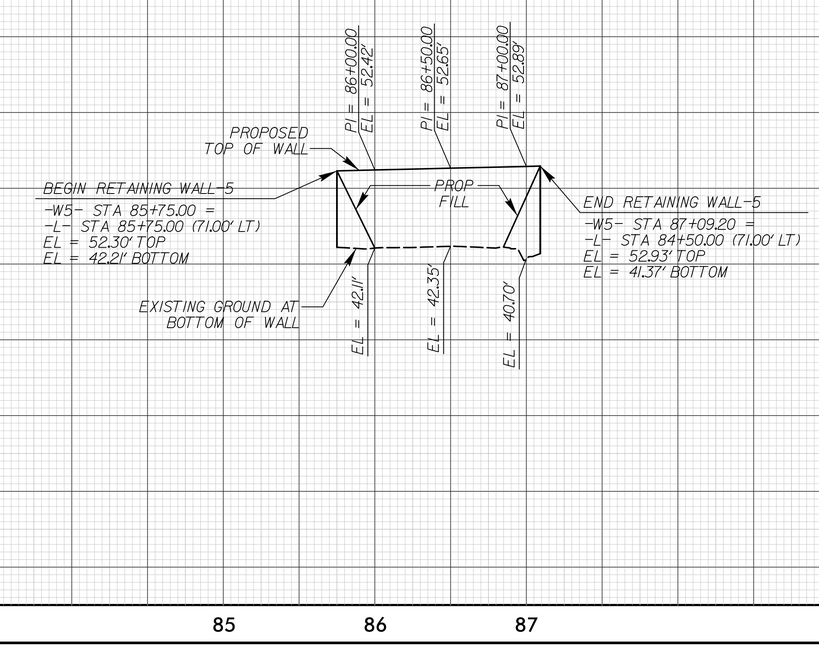
APPROXIMATE WALL FACE AREA = 8,050 SF



THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W5-

APPROXIMATE WALL FACE AREA = 1,160 SF



4/16/2015
rzimmerly
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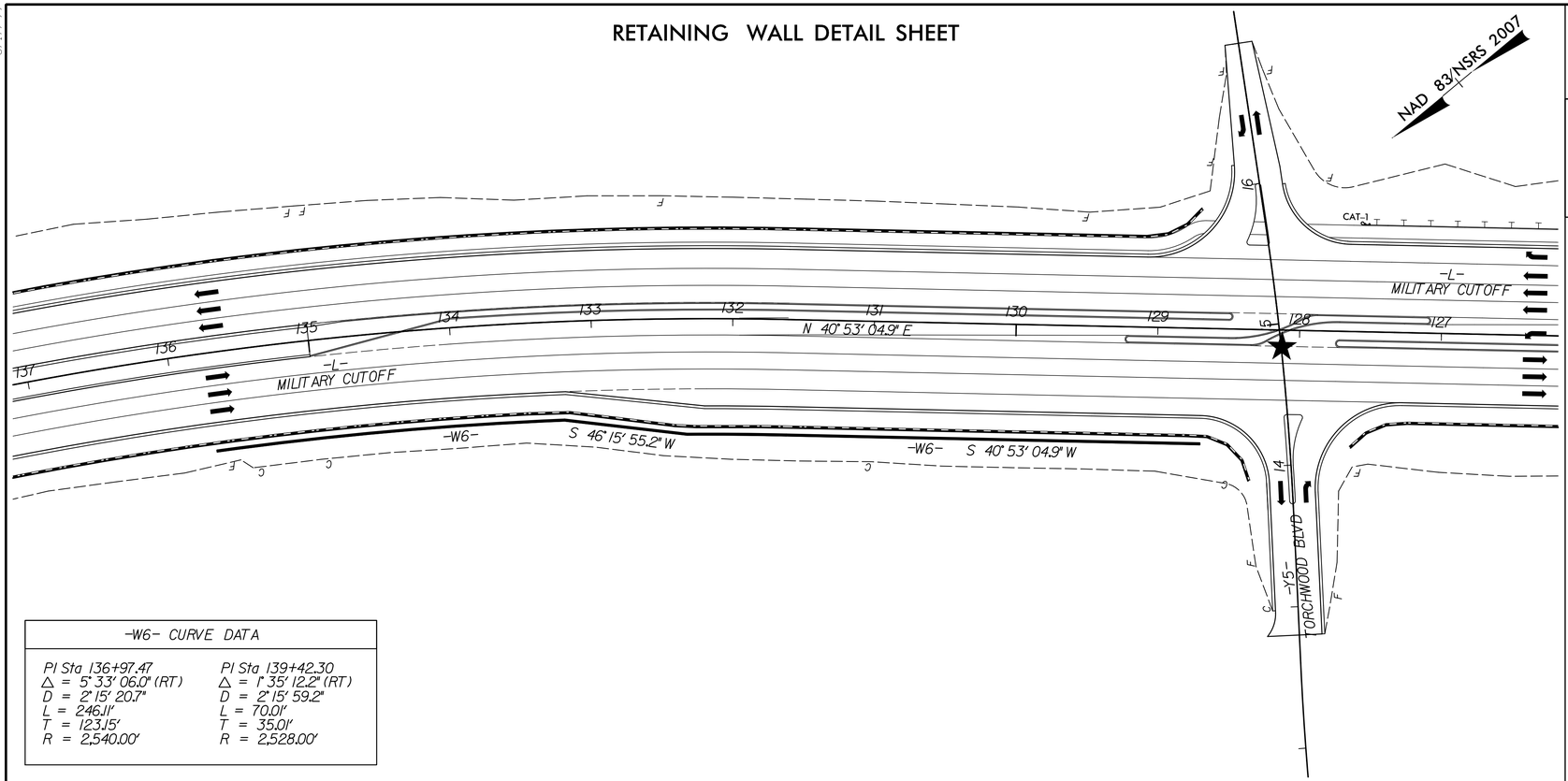
Standard

8/17/99

RETAINING WALL DETAIL SHEET



-W6- CURVE DATA	
PI Sta 136+97.47	PI Sta 139+42.30
△ = 5° 33' 06.0" (RT)	△ = 1° 35' 12.2" (RT)
D = 2° 15' 20.7"	D = 2° 15' 59.2"
L = 246.11'	L = 70.01'
T = 123.15'	T = 35.01'
R = 2,540.00'	R = 2,528.00'

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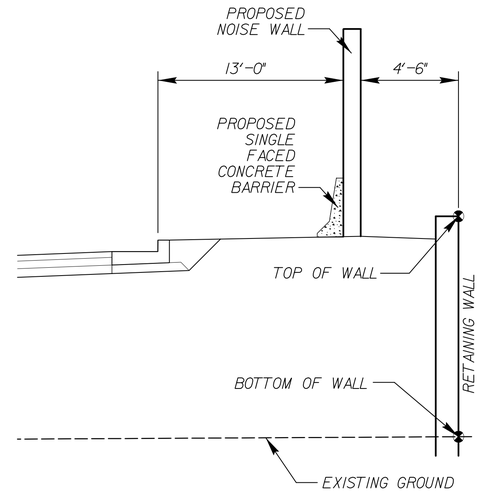
GRAPHIC SCALE
PLAN 0 50 100 HORZ.
PROFILE 0 10 20 VERT.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

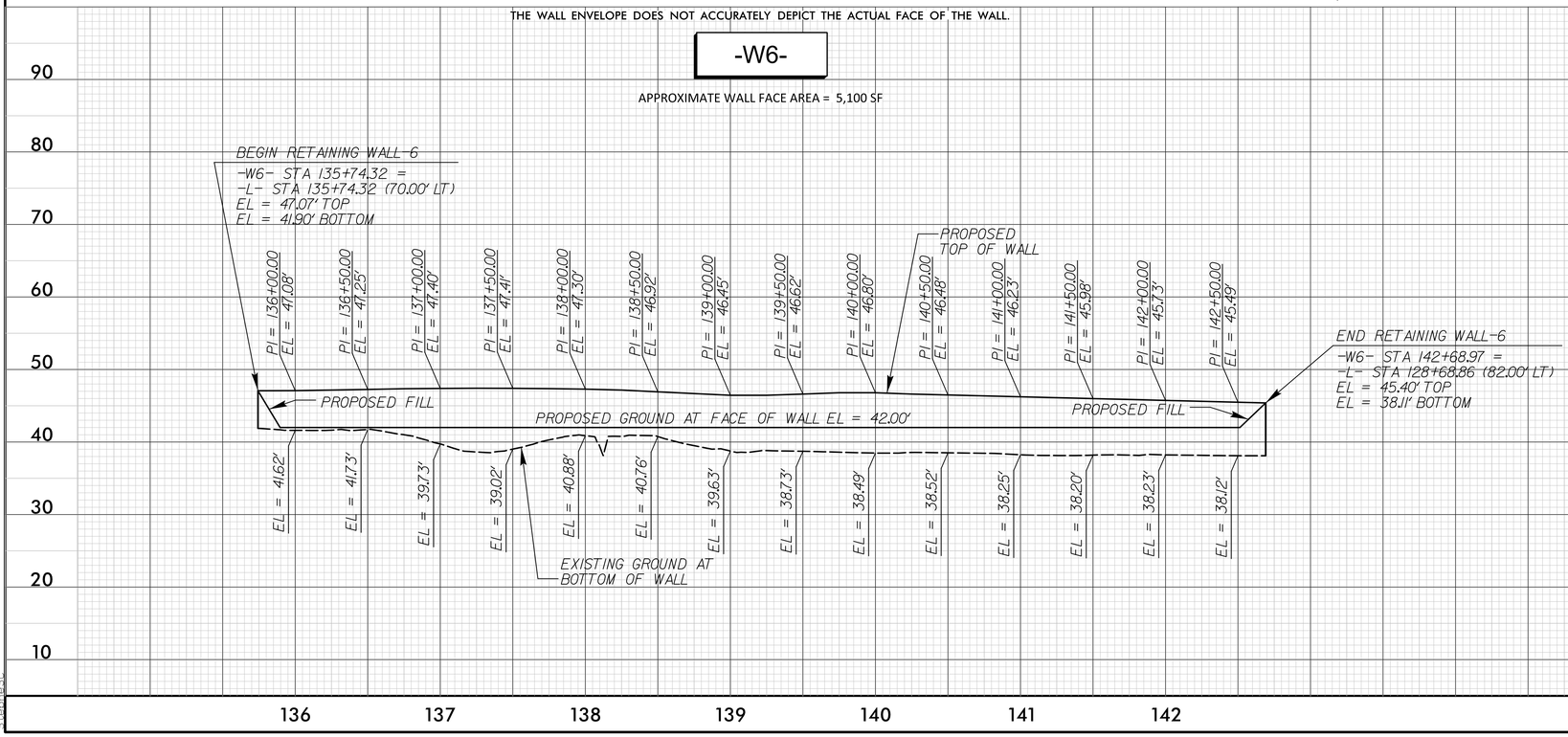


RETAINING WALL DETAIL
NOT TO SCALE

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W6-

APPROXIMATE WALL FACE AREA = 5,100 SF



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Stephen Gray
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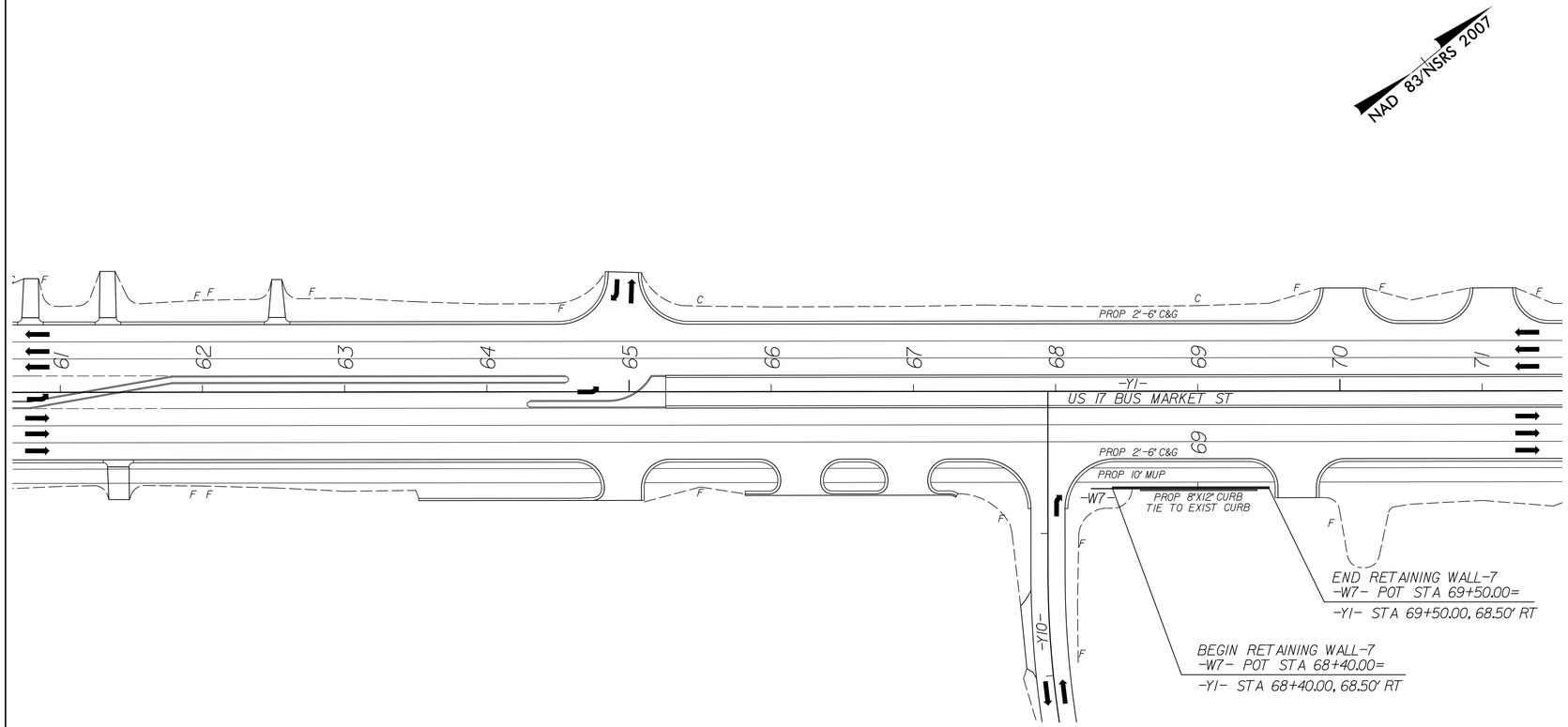
8/17/99

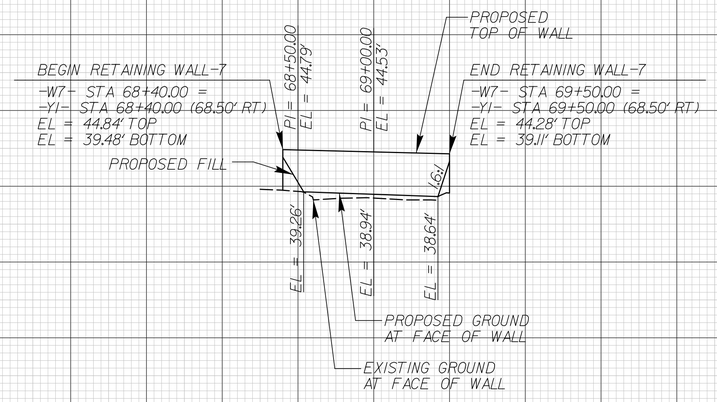
RETAINING WALL DETAIL SHEET



THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL.

-W7-

APPROXIMATE WALL FACE AREA = 570 SF



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Charlotte, NC 28202
NC License Number F-0991

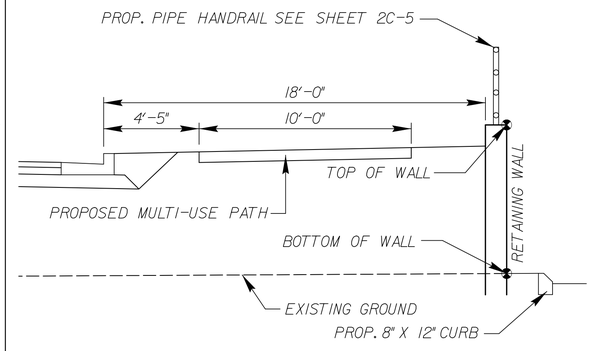
GRAPHIC SCALE

PLAN 0 50 100 HORZ.

PROFILE 0 10 20 VERT.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2B-14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



RETAINING WALL DETAIL

NOT TO SCALE

3/30/2015
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cgroves

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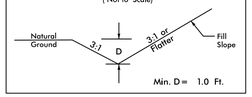
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2D-1
R/W SHEET NO.	
HYDRAULICS ENGINEER	HYDRAULICS ENGINEER

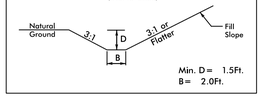
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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



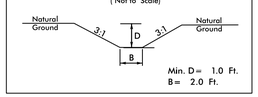
FROM STA. 17+70 TO STA. 19+60 –L– RT
FROM STA. 38+81 TO STA. 40+04 –L– LT
FROM STA. 36+98 TO STA. 38+07 –Y1– LT
FROM STA. 10+75 TO STA. 11+75 –Y14– LT
FROM STA. 10+00 TO STA. 23+90 –Y1LPB– LT
FROM STA. 31+50 TO STA. 34+19 –Y1RPD– LT

DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)



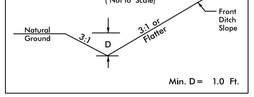
FROM STA. 11+76 TO STA. 16+88 –L– RT

DETAIL 3
STANDARD BASE DITCH
(Not to Scale)



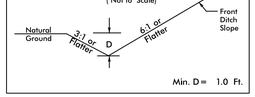
FROM STA. 10+00 TO STA. 18+43 –TD1–

DETAIL 4
SPECIAL CUT DITCH
(Not to Scale)



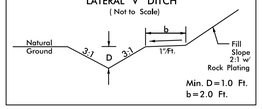
FROM STA. 11+30 TO STA. 15+50 –SR1– LT
FROM STA. 11+30 TO STA. 18+45 –SR1– RT
FROM STA. 17+50 TO STA. 18+50 –SR1– LT
FROM STA. 81+00 TO STA. 84+50 –Y1– LT
FROM STA. 11+65 TO STA. 12+50 –Y13– RT
FROM STA. 13+50 TO STA. 16+70 –Y13– RT
FROM STA. 10+50 TO STA. 13+50 –Y17– LT
FROM STA. 9+33 TO STA. 13+50 –Y17– RT

DETAIL 5
SPECIAL CUT DITCH
(Not to Scale)



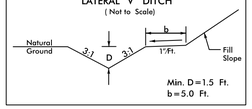
FROM STA. 12+18 TO STA. 14+50 –Y1RPA– LT
FROM STA. 14+50 TO STA. 20+39 –Y1RPA– RT
FROM STA. 20+50 TO STA. 21+89 –Y1RPA– LT
FROM STA. 28+50 TO STA. 32+12 –Y1RPB– RT
FROM STA. 16+00 TO STA. 31+50 –Y1RPD– LT

DETAIL 6
LATERAL 'V' DITCH
(Not to Scale)



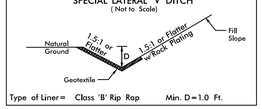
FROM STA. 97+85 TO STA. 102+00 –L– LT

DETAIL 7
LATERAL 'V' DITCH
(Not to Scale)



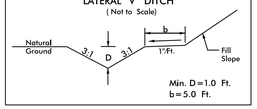
FROM STA. 97+00 TO STA. 98+05 –L– RT
FROM STA. 100+30 TO STA. 101+50 –L– RT
FROM STA. 199+45 TO STA. 205+75 –L– LT

DETAIL 8
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



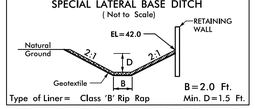
FROM STA. 93+15 TO STA. 97+80 –L– LT

DETAIL 9
LATERAL 'V' DITCH
(Not to Scale)



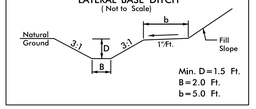
FROM STA. 98+10 TO STA. 99+25 –L– RT
FROM STA. 13+25 TO STA. 14+20 –Y4– RT

DETAIL 10
SPECIAL LATERAL BASE DITCH
(Not to Scale)



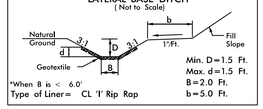
FROM STA. 128+50 TO STA. 135+50 –L– LT

DETAIL 11
LATERAL BASE DITCH
(Not to Scale)



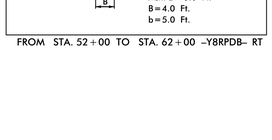
FROM STA. 108+91 TO STA. 110+35 –L– LT
FROM STA. 117+50 TO STA. 119+50 –L– RT
FROM STA. 126+40 TO STA. 127+60 –L– LT

DETAIL 12
LATERAL BASE DITCH
(Not to Scale)



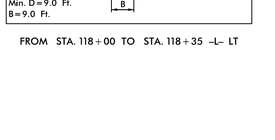
FROM STA. 117+15 TO STA. 117+50 –L– RT

DETAIL 13
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 129+00 TO STA. 136+50 –L– RT

DETAIL 14
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 136+50 TO STA. 138+00 –L– RT

DETAIL 15
LATERAL BASE DITCH
(Not to Scale)

FROM STA. 142+50 TO STA. 143+75 –L– RT
FROM STA. 149+25 TO STA. 150+25 –L– RT

DETAIL 16
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 60+25 TO STA. 61+50 –Y8RPCA– RT

DETAIL 17
STANDARD BASE DITCH
(Not to Scale)

FROM STA. 213+25 TO STA. 213+60 –L– RT

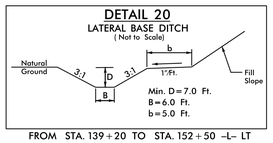
DETAIL 18
STANDARD BASE DITCH
(Not to Scale)

FROM STA. 101+65 TO STA. 101+75 –L– RT

DETAIL 19
STANDARD 'V' DITCH
(Not to Scale)

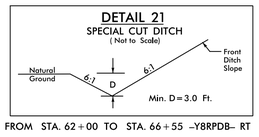
FROM STA. 108+05 TO STA. 108+75 –L– LT
FROM STA. 12+00 TO STA. 19+50 –Y8LPB– LT
FROM STA. 22+40 TO STA. 22+55 –Y8LPB– LT

DETAIL 20
LATERAL BASE DITCH
(Not to Scale)



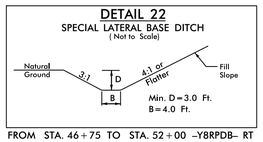
FROM STA. 139+20 TO STA. 152+50 –L– LT

DETAIL 21
SPECIAL CUT DITCH
(Not to Scale)



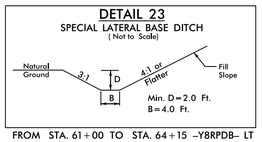
FROM STA. 62+00 TO STA. 66+55 –Y8RPDB– RT

DETAIL 22
SPECIAL LATERAL BASE DITCH
(Not to Scale)



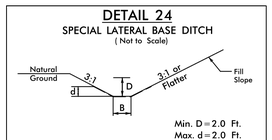
FROM STA. 46+75 TO STA. 52+00 –Y8RPDB– RT

DETAIL 23
SPECIAL LATERAL BASE DITCH
(Not to Scale)



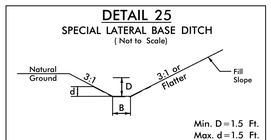
FROM STA. 61+00 TO STA. 64+15 –Y8RPDB– LT

DETAIL 24
SPECIAL LATERAL BASE DITCH
(Not to Scale)



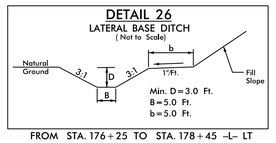
FROM STA. 23+00 TO STA. 27+00 –SR4– RT

DETAIL 25
SPECIAL LATERAL BASE DITCH
(Not to Scale)



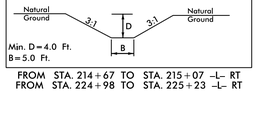
FROM STA. 27+00 TO STA. 30+00 –SR4– RT

DETAIL 26
LATERAL BASE DITCH
(Not to Scale)



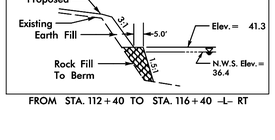
FROM STA. 176+25 TO STA. 178+45 –L– LT

DETAIL 27
STANDARD BASE DITCH
(Not to Scale)



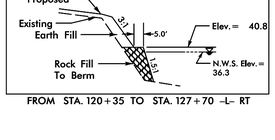
FROM STA. 214+67 TO STA. 215+07 –L– RT
FROM STA. 224+98 TO STA. 225+23 –L– RT

DETAIL 28
ROCK FILL IN POND
(Not to Scale)



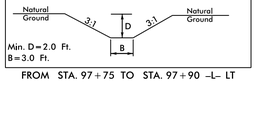
FROM STA. 112+40 TO STA. 116+40 –L– RT

DETAIL 29
ROCK FILL IN POND
(Not to Scale)



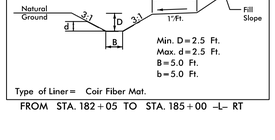
FROM STA. 120+35 TO STA. 127+70 –L– RT

DETAIL 30
STANDARD BASE DITCH
(Not to Scale)



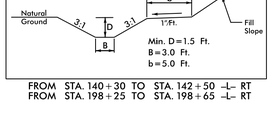
FROM STA. 97+75 TO STA. 97+90 –L– LT

DETAIL 31
LATERAL BASE DITCH
(Not to Scale)



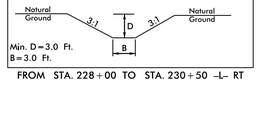
FROM STA. 182+05 TO STA. 185+00 –L– RT

DETAIL 32
LATERAL BASE DITCH
(Not to Scale)



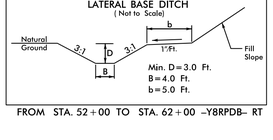
FROM STA. 140+30 TO STA. 142+50 –L– RT
FROM STA. 198+25 TO STA. 198+65 –L– RT

DETAIL 33
STANDARD BASE DITCH
(Not to Scale)



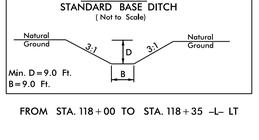
FROM STA. 228+00 TO STA. 230+50 –L– RT

DETAIL 34
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 52+00 TO STA. 62+00 –Y8RPDB– RT

DETAIL 35
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 118+00 TO STA. 118+35 –L– LT

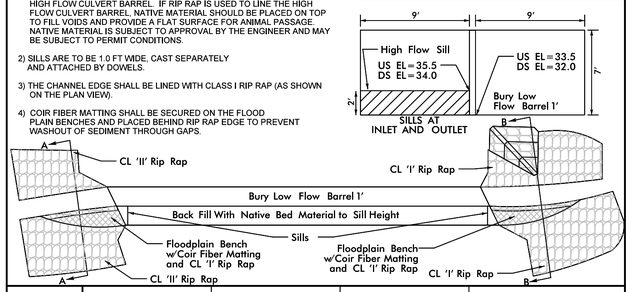
STV / Ralph Whitehead Associates, Inc.
900 West Trade St., Ste. 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	2D-2
R/W SHEET NO.	
HYDRAULICS ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

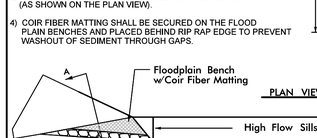
DETAIL 36
MULTI-BARREL CULVERT, LOW FLOW CHANNEL, HIGH FLOW SILLS, AND FLOOD PLAIN BENCH

*NOTES:
1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
2) SILLS ARE TO BE 1.0 FT WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
3) THE CHANNEL EDGE SHALL BE LINED WITH CLASS I RIP RAP (AS SHOWN ON THE PLAN VIEW).
4) COIR FIBER MATTING SHALL BE SECURED ON THE FLOOD PLAIN BENCHES AND PLACED BEHIND RIP RAP EDGE TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.

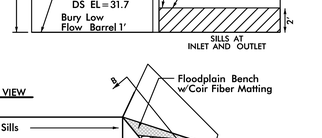


QUANTITIES:	COIR FIBER MAT. = 60 SQ YD	GEOTEXTILE = 460 SQ YD	CL 'I' RIP RAP = 187 TONS	CL 'II' RIP RAP = 204 TONS

SECTION A–A

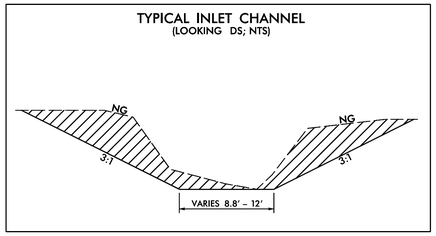


SECTION B–B

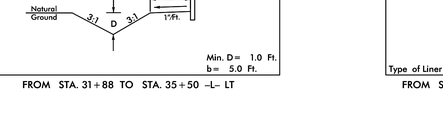


CL STA. = 117 + 49 –L–

TYPICAL INLET CHANNEL (LOOKING DS; NTS)



TYPICAL OUTLET CHANNEL (LOOKING DS; NTS)

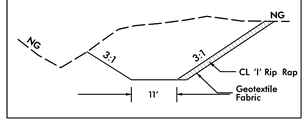


DETAIL 39
SINGLE BARREL RCBC TYPICAL INLET AND OUTLET CHANNELS

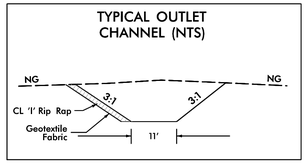
*CULVERT TO BE BACKFILLED WITH NATIVE MATERIAL TO A DEPTH OF 1.0'. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDTIONS.

CL STA. = 42 + 78 –Y8RPDB–

TYPICAL INLET CHANNEL (NTS)



TYPICAL OUTLET CHANNEL (NTS)



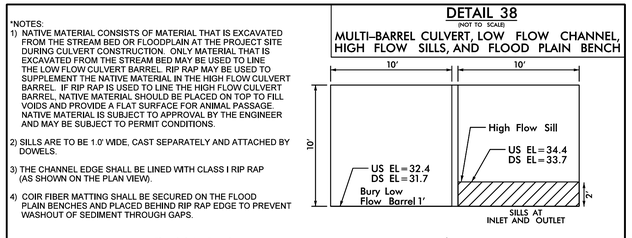
DETAIL 37
SINGLE BARREL RCBC TYPICAL INLET AND OUTLET CHANNELS

*CULVERT TO BE BACKFILLED WITH NATIVE MATERIAL TO A DEPTH OF 1.0'. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDTIONS.

CL STA. = 138 + 59 –L–

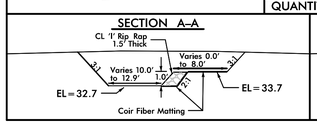
DETAIL 38
(NOT TO SCALE)
MULTI–BARREL CULVERT, LOW FLOW CHANNEL, HIGH FLOW SILLS, AND FLOOD PLAIN BENCH

*NOTES:
1) NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
2) SILLS ARE TO BE 1.0' WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
3) THE CHANNEL EDGE SHALL BE LINED WITH CLASS I RIP RAP (AS SHOWN ON THE PLAN VIEW).
4) COIR FIBER MATTING SHALL BE SECURED ON THE FLOOD PLAIN BENCHES AND PLACED BEHIND RIP RAP EDGE TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.

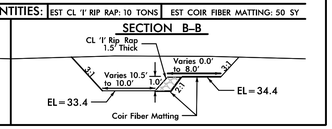


QUANTITIES:	EST CL 'I' RIP RAP: 10 TONS	EST COIR FIBER MATTING: 50 SY

SECTION A–A

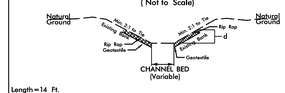


SECTION B–B



CL STA. = 151 + 41 –L–

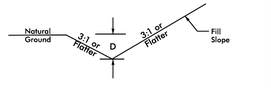
DETAIL 40
42" PIPE OUTLET CHANNEL
(Not to Scale)



Length = 14 Ft.
d = 3.5 Ft. (If Channel Depth < 3.5' Place Rip Rap to Top of Bank)
Est. = 21 Tons of Class 'I' Rip-Rap; 35 SY of Geotextile

STA. 110 + 45 –L– RT
STA. 211 + 05 –L– RT
STA. 33 + 85 –Y8RPDB– LT

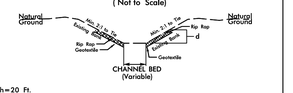
DETAIL 41
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FROM STA. 18 + 25 TO STA. 23 + 50 –Y1RPB– LT

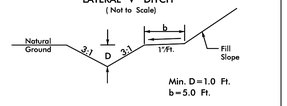
DETAIL 42
60" PIPE OUTLET CHANNEL
(Not to Scale)



Length = 20 Ft.
d = 5.0 Ft. (If Channel Depth < 5' Place Rip Rap to Top of Bank)
Est. = 42 Tons of Class 'I' Rip-Rap; 71 SY of Geotextile

STA. 26 + 50 –Y8RPC– RT

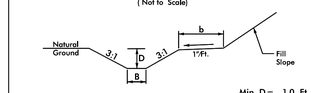
DETAIL 43
LATERAL 'V' DITCH
(Not to Scale)



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

FROM STA. 24 + 00 TO STA. 28 + 50 –Y1RPB– RT

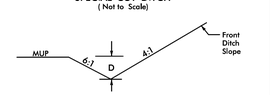
DETAIL 44
LATERAL BASE DITCH
(Not to Scale)



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

FROM STA. 20 + 00 TO STA. 24 + 00 –Y1RPB– RT

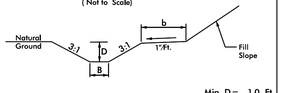
DETAIL 45
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FROM STA. 21 + 50 TO STA. 22 + 00 –Y1RPD– RT

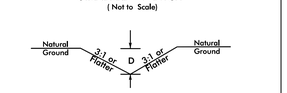
DETAIL 46
LATERAL BASE DITCH
(Not to Scale)



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

FROM STA. 17 + 00 TO STA. 20 + 10 –Y13– LT

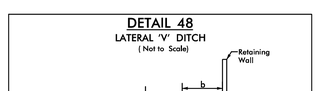
DETAIL 47
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1.0 Ft.

FROM STA. 13 + 25 TO STA. 13 + 86 –Y13– LT
FROM STA. 21 + 40 TO STA. 21 + 01 –Y1– LT

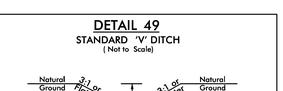
DETAIL 48
LATERAL 'V' DITCH
(Not to Scale)



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

FROM STA. 31 + 88 TO STA. 35 + 50 –L– LT

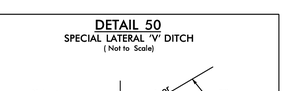
DETAIL 49
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip Rap
Min. D = 1 Ft.
Max. d = 1 Ft.

FROM STA. 45 + 75 –L– RT TO STA. 15 + 92 –Y1RPA– RT

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



Min. D = 2.5 Ft.

FROM STA. 11 + 43 TO STA. 14 + 25 –L– LT
FROM STA. 15 + 39 TO STA. 16 + 00 –L– LT

DETAIL 51
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'
Type of Liner = Class 'B' Rip Rap
Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

FROM STA. 175 + 29 TO STA. 176 + 25 –L– LT

DETAIL 52
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'
Type of Liner = Class 'I' Rip Rap
Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

FROM STA. 178 + 45 TO STA. 178 + 67 –L– LT

DETAIL 53
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Type of Liner = Class 'B' Rip Rap
Min. D = 1.0 Ft.
B = 2.0 Ft.

FROM STA. 103 + 00 TO STA. 106 + 80 –L– LT

DETAIL 54
LATERAL BASE DITCH
(Not to Scale)

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

FROM STA. 104 + 25 TO STA. 110 + 35 –L– RT

STV 100 Years
STV Engineers, Inc.
900 West Trade St, Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22115 ENGINEER JOHN N. JOHNSON

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029388 ENGINEER EDWARD J. VANCE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADDED AUE MONUMENTS ON PARCEL 4.
2016-05-26 - R/W REVISION (SCS) - CHANGED PARCEL 4 TO 4Z. NOISE WALL 4Z AND 1B WERE RELOCATED TO THE EAST. REVISED LIMITS OF C/A AND R/W ON PARCELS 4Z AND 9.
2016-12-2 - R/W REVISION (SCS) - CHANGED PARCEL 2 TO 2A AND CHANGED THE OWNER NAME TO W ESTATES I LLC.

ARBOR COURT, HOA.
DB 2644 PG 565
DB 4309 PG 268
DB 4157 PG 121
DB 3343 PG 158
DB 2756 PG 695
DB 2605 PG 696
MB 11 PG 324

1 PEACE BAPTIST CHURCH, INC OF WILMINGTON, NC
DB 4922 PG 672
DB 1100 PG 468
DB 1887 PG 495
DB 2605 PG 674
MB 45 PG 388

STATE OF NORTH CAROLINA
DB 4907 PG 254

2A W. ESTATES I, LLC.
DB 5999 PG 216
DB 2914 PG 1131
DB 2419 PG 452
DB 2444 PG 474
DB 2568 PG 074
DB 2620 PG 212
DB 4074 PG 766

3 ODGEN PLAZA, LLC.
DB 2630 PG 425
DB 5443 PG 901
DB 4157 PG 115
DB 2689 PG 525
DB/2654 PG 677
DB 2616 PG 512
MB A PG 96

KEY COLONY AT COVIL ESTATES HOA, INC.
DB 4594 PG 437
MB 45 PG 122

THE LANDFALL COUNCIL OF ASSOCIATIONS, INC.
DB 2535 PG 598
DB 4134 PG 672
MB 36 PG 33

4Z PEBBLE COVE HOA, INC.
DB 4853 PG 28
DB 4544 PG 978
MB 45 PG 122
MB 33 PG 190

9Z OGDEN VOLUNTEER RESCUE
DB 4034 PG 732
DB 1145 PG 1873
MB 4 PG 96

BEGIN TIP PROJECT U-4751
-L- POT STA. 10+35.00

POT Sta. 10+00.00
-L- POT Sta. 17+40.47 = -Y20- POT Sta. 10+00.00
POT Sta. 13+00.00 -Y20-
END CONSTRUCTION -Y20- POT STA. 11+50.00
MATCHLINE -L- STA 20+00 (SHEET 5)

200' SHIFT TAPER (LT & RT)
200' LANE TAPER (RT)
100' LANE TAPER

BEGIN C&G +17.59, 71.78' RT
BEGIN C&G +97.08, 52.24' LT
BEGIN NOISE WALL +44.93, 117.20' RT
END NOISE WALL +84.93, 117.31' RT
BEGIN NOISE WALL +56.65, 117.32' RT

TIE TO EXIST C&G +40.00, 100.12' LT
TIE TO EXIST C&G +65.00, 100.54' LT
TIE TO EXIST C&G +33.18
TIE TO EXIST C&G +54.21

DO NOT DISTURB SHRUBBERY

CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 11 TONS 28 SY GEOTEXTILE
SPEC LAT V DITCH SEE DETAIL 50
SPEC LAT V DITCH SEE DETAIL 1
SPEC LAT BASE DITCH SEE DETAIL 2
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GEOTEXTILE

PROP 2'-6" C&G
PROP 10' MUP
PROP NOISE WALL 1A
PROP NOISE WALL 1B
PROP 8'X12' CONCRETE CURB

REMOVE CB AND PIPE
REMOVE CB AND EXTEND
REMOVE MH
REMOVE CB
REMOVE JB COLLAR
RETAIN JB
RETAIN DI AND PIPE

30" RCP-III
36" RCP-III
15" RCP-III
15" RCP-IV
42" RCP-III

MILITARY CUTOFF RD
SR 1409 MILITARY CUTOFF ROAD VARIABLE WIDTH BST
WILMINGTON CITY LIMITS
NCDOT GPS MON. U4751-3
KEY COLONY AT COVIL FARM ROAD SR 1940 56' BST
PEBBLE COVE SUBDIVISON
PARADISE WAY
HALYARD CT. 24' BST (PRIVATE R/W)

SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 62 FOR -Y20- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

11/28/2016
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REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADJUSTED MONUMENT AT PARCEL 3, ADDED STATION OFFSET AT PARCEL 8, CORRECTED STATION OFFSET AT PARCEL 10.
2016-05-26 - R/W REVISION (SCS) - EXTENDED NOISE WALL 1B ON TO PARCEL 9.REVISED LOCATIONS OF CHAINLINK FENCE ON PARCELS 9 AND 10.

9/21/2016
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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: SEAL 22105 — ENGINEER JOHN N. JOHNSON
HYDRAULICS ENGINEER: SEAL 026368 — ENGINEER EDWARD J. VANCE

PRELIMINARY PLANS — NOT FOR CONSTRUCTION

NAD 83/NSRS 2007

PAVEMENT REMOVAL
PROPOSED SIGNAL

MATCHLINE -Y- STA 27+00 (SHEET 25)

MATCHLINE -L- STA 20+00 (SHEET 4)

MATCHLINE -L- STA 33+00 (SHEET 6)

MATCHLINE -Y1RPD- STA 16+00 (SHEET 27)

-L- POT Sta. 23+80.96 =
-Y1RPD- POT Sta. 10+00.00
-L- POT Sta. 23+78.20 =
-Y- POT Sta. 31+93.18

PC Sta. 24+09.58

PT Sta. 27+74.50

PC Sta. 10+94.36

PT Sta. 13+56.42

GORDON RD

MILITARY CUTOFF RD -L-
N 1°01' 20.8" E
S 88°57' 56.4" E
N 3°06' 47.8" E

-Y1RPD-

3 ODGEN PLAZA, LLC.
DB 2690 PG 425
DB 5443 PG 901
DB 4157 PG 115
DB 2689 PG 525
DB 2664 PG 677
DB 2615 PG 512
MB 4 PG 96

8 ZP NO. 173, LLC.
DB 5124 PG 680
DB 4024 PG 399
DB 2614 PG 594
MB 4 PG 96

8A BAY FOODS, INC.
DB 1242 PG 1782
DB 4274 PG 163
MB 4 PG 96

9 OGDEN VOLUNTEER RESCUE
DB 4034 PG 732
DB 1145 PG 1873
MB 4 PG 96

10 JOSEPH L. JOHNSON ET UX, ET AL
DB 5578 PG 2154
DB 4886 PG 2471
MB 4 PG 96

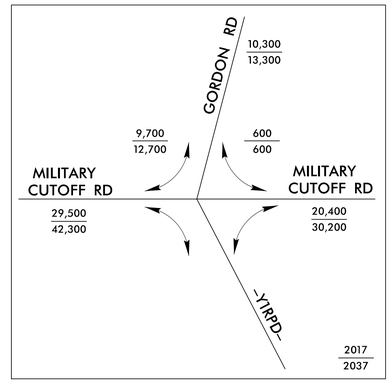
10A JAMES L. BATEY, ET UX
DB 5383 PG 2070
MB 4 PG 96

12 ANGELINE B. SAFFO
DB 5042 PG 1460
DB 4264 PG 835
DB 1932 PG 303

907 B. P. A.
DB 4157 PG 148
DB 4024 PG 378
DB 1610 PG 851
DB 1426 PG 1059

PEBBLE COVE HOA, INC.
DB 4944 PG 978
MB 45 PG 122

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 45 FOR -Y- PROFILE
SEE SHEET 52 FOR -Y1RPD- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL



REVISIONS

2015-05-14 - R/W REVISION (SCD) - ADDED TIE TO PARCEL 13 TO ENCOMPASS CONSTRUCTION LIMITS FROM STA.-Y24- 10+47 TO 11+80 RT. AND STA.11+43 TO 13+35 RT.
2016-03-29 - R/W REVISION (SCD) - REVISED TIE STATION OFFSETS AT PARCEL 6.
2016-06-21 - R/W REVISION (SCD) - ADDED TIE STATION OFFSET TO PARCEL 14 & 32, ADDED STATION OFFSET TO PARCEL 44 & 901,UPDATED STATION OFFSETS ON PARCEL 16 MODIFIED PROPERTY OWNER INFORMATION ON PARCEL 8 & 32, ADDED STATION OFFSET TO PARCEL 44 & 901,UPDATED STATION OFFSETS ON PARCEL 16 MODIFIED PROPERTY LINES FOR PARCEL 26 AND 28.
2016-09-28 - R/W REVISION (SCD) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 8 & 32, ADDED TIE TO PARCEL 15 FOR ADDITIONAL PROPOSED WORK RELATED TO EXTENSION OF -Y11- W/LADED NEW DRIVEWAY ACCESS TO PARCEL 8,AND REVISED CA FENCE TERMINUS.
2016-12-04 - R/W REVISION (SCD) - REMOVED ALL PROPOSED WORK RELATED TO EXTENSION OF -Y11- W/LADED NEW DRIVEWAY ACCESS TO PARCEL 8,AND REVISED CA FENCE TERMINUS.

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100 STV Engineers, Inc
300 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

GRAPHIC SCALE
50 25 0 50 100
PLANS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

PAVEMENT REMOVAL
PROPOSED SIGNAL

MATCHLINE -Y1- STA 34+00 (SHEET 25)
MATCHLINE -Y1- STA 62+00 (SHEET 28)
MATCHLINE (SHEET 27)
MATCHLINE -L- STA 33+00 (SHEET 9)
MATCHLINE -Y1RPD- STA 30+00 (SHEET 27)
MATCHLINE -L- STA 49+00 (SHEET 7)
MATCHLINE -Y1RPB- STA 19+50 (SHEET 7)

	MILITARY CUTOFF RD	
	21,900 / 46,500	
US HWY 17 MARKET ST	8,700 / 20,500	3,200 / 7,300
	1,000 / 1400	9,500 / 10,100
	20,400 / 33,600	
MILITARY CUTOFF RD	43,900 / 54,900	46,900 / 50,300
US HWY 17 MARKET ST		

2017 / 2037

SEE SHEET 2A-11 FOR CUL-DE-SAC DETAIL
SEE SHEET 2B-6 AND 2B-7 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 47 FOR -Y1- PROFILE
SEE SHEET 49 FOR -Y1RPA- PROFILE
SEE SHEET 50 FOR -Y1LPB- PROFILE
SEE SHEET 51 FOR -Y1RPB- PROFILE
SEE SHEET 52 FOR -Y1RPD- PROFILE
SEE SHEET 63 FOR -Y16- PROFILE
SEE SHEET 63 FOR -Y17- PROFILE
SEE SHEET 64 FOR -SR1- PROFILE
SEE SHEET 69 FOR -Y24- PROFILE
SEE SHEET 2B-1 FOR BRIDGE / PAVEMENT RELATIONSHIP SKETCH
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAILS
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS

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STV 100 Years
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PROJECT REFERENCE NO.	SHEET NO.
U-4751	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

REVISIONS
2015-08-12 - R/W REVISION (CEG) - ADJUSTED MONUMENT AT PARCEL 37.

MATCHLINE -L- STA 49+00 (SHEET 6)

MATCHLINE -L- STA 58+00 (SHEET 8)

MATCHLINE -Y1RPB- STA 19+50 (SHEET 6)

-YIRPB- POT Sta. 10+00.00 =
-L- POT Sta. 57+18.95, 35.50' LT
△ = 4° 07' 00"

-YIRPA- TS Sta. 10+00.00 =
-L- POT Sta. 51+62.32, 35.50' RT
△ = 0° 00' 00"

G&I VI CAPE HARBOR LP
DB 5287 PG 2790
DB 1528 PG 459

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 25 PG 98
MB 2 PG 241

NIXON ASSOCIATES, LLC.
DB 3174 PG 337
DB 4194 PG 582
MB 25 PG 98
MB 2 PG 241

CAROLINA POWER AND LIGHT CO
DB 1438 PG 500
DB 975S PG 1442
DB 5352 PG 201
(MAP) DB 1438 PG 502

CLASS 'B' RIP RAP
EST. 8 TONS
21 SY GEOTEXTILE
ON BANK ONLY

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

SPEC CUT DITCH
SEE DETAIL 5

PROP 1'-6" C&G
PROP RAISED MEDIAN
MILITARY CUTOFF RD -L-
N 30° 30' 33.9" W
S 26° 23' 33.9" E
PROP G/R
PROP SBG
-YIRPA-
-YIRPB-
CHAIN LINK FENCE
CORRIDOR LIMIT LINE
MB 2 PG 241
POWER SUBSTATION
72" CHL 35BW
100' EASEMENT
30' EASEMENT
WLB
BEGIN SBG +03.59
BEGIN SBG +92.62
SC Sta. 16+48.00
TS Sta. 14+50.00
SC Sta. 11+68.00

SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 49 FOR -Y1RPA- PROFILE
SEE SHEET 51 FOR -Y1RPB- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

8/7/2015
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PROJECT REFERENCE NO.	SHEET NO.
U-4751	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV 100 Years
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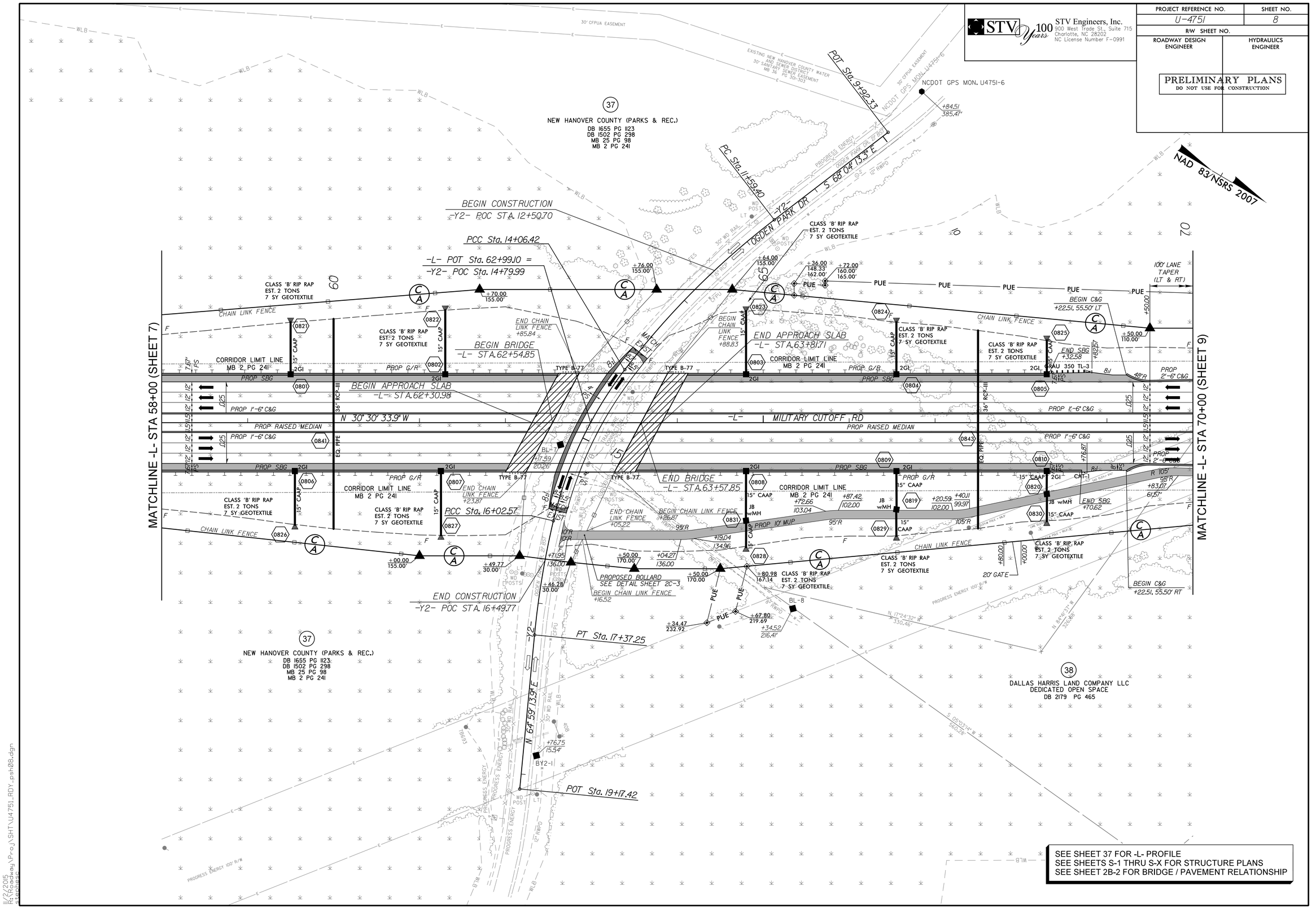
Charlotte, NC 28202
NC License Number F-0991

REVISIONS

2015-11-05 - R/W REVISION (SCS) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 38.



SEE SHEET 37 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS
SEE SHEET 2B-2 FOR BRIDGE / PAVEMENT RELATIONSHIP

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stevens

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Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADDED PROPERTY LINES FOR PARCEL 41, 41A, 41B, & 41C, UPDATED PROPERTY OWNER INFORMATION ON PARCEL 41, 41A, 41B, 41C, 46, 47, & 48.
2015-10-21 - R/W REVISION (SCS) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 39, ADDED PARCEL 41 AND CHANGED PARCEL 41 TO PARCEL 41D.
2015-11-05 - R/W REVISION (SCS) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 38.

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11/5/2015
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NAD 83/NSRS 2007

MATCHLINE -L- STA 70+00 (SHEET 8)

MATCHLINE -L- STA 83+00 (SHEET 10)

NEW HANOVER COUNTY (PARKS & REC.)
DB 1655 PG 1123
DB 1502 PG 298
MB 2 PG 241

DALLAS HARRIS LAND COMPANY LLC
DEDICATED OPEN SPACE
DB 2179 PG 465

MILITARY CUTOFF RD
PROP RAISED MEDIAN

PROP 5' MONO ISLAND

PROP NOISE WALL

PROP RET. WALL 4

PROGRESS ENERGY EASEMENT
DB 5508 PG 2302
CORRIDOR LIMIT LINE MB 2 PG 241

PC Sta. 79+89.18

100' BAY TAPER

250' SHIFT TAPER (LT & RT)

100' LANE TAPER (LT & RT)

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

TDE

PDE

20' GATE

CHAIN LINK FENCE

REMOVE DIRT SPOIL

BEGIN NOISE WALL AND CONC. BARRIER
+43.97, 66.39' RT

END WOVEN WIRE FENCE
BEGIN RETAINING WALL
+00.00, 108.50' RT

MITIGATION RESERVED AREA
MB 56 PG 170

SUNCOAST DRIVE

TORCHWOOD DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

STEVENS BUILDING, CO.
DB 5881PG 2337
MB 59 PG 88-90

STEVENS BUILDING, CO.
DB 5861PG 2384
MB 59 PG 88-90

TORCHWOOD DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

WILLOUGHBY DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

TORCHWOOD DEVELOPMENT CO. LLC.
DB 5665 PG 1055
MB 59 PG 88-90

TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 5705 PG 735
DB 5665 PG 1055
MB 57 PG 245
MB 2 PG 241

HILL
ABBY GLOVER
RONALD RAHIM III
DB 5649 PG 2178
MB 56 PG 170

KOSSLOW
ZACHARY W
DB 5643 PG 1693
MB 56 PG 170

COWELL
NICHOLAS ETAL

BAIN
BRANDON C ETAL
DB 5666 PG 598
MB 56 PG 170

LALOMIA
BARRY P
DB 5625 PG 2847
MB 56 PG 170

TRUONG
TOMMY V ETAL
DB 5684 PG 1444
MB 56 PG 170

EVANS DAVID L & ELIZABETH
DB 5733 PG 1010
MB 56 PG 170

ANTWAN ROBINSON DALY
DB 5772 PG 85
MB 56 PG 170

TREVOR HUGHES
DB 5797 PG 1258
MB 56 PG 170

TIMOTHY TYRONE WILSON
DB 5839 PG 1183
MB 56 PG 170

BROWN
KASEY SARAH
DB 5663 PG 1515
MB 56, PG 170

BENTON
KENNETH H JR
DB 5696 PG 1967
MB 56 PG 170

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 37 FOR -L- PROFILE

STV 100 Years — STV Engineers, Inc.
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NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

SEAL 22145 — NORTH CAROLINA PROFESSIONAL ENGINEER — JOHN N. JOHNSON

SEAL 025388 — NORTH CAROLINA PROFESSIONAL ENGINEER — EDWARD J. VANCE

PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 54, 56, 58, 68, 65, 67, 71, 73, 74, & 75. CHANGED PARCEL 59 TO PARCEL 41, MOVED MONUMENT AND CORRECTED STATION OFFSET AT PARCEL 925.
2015-10-21 - R/W REVISION (SCS) - CHANGED PARCEL 41 AND 57 TO 39, AND UPDATED PROPERTY OWNER INFORMATION ON PARCEL 39 AND 62.
2015-11-05 - R/W REVISION (SCS) - CHANGED PARCEL 41 TO 39 AND CHANGED PROPERTY OWNER INFORMATION ON PARCEL 39.
2016-05-26 - R/W REVISION (SCS) - MODIFIED TO TIE TO IRON PINS AT -L- STA.89+44.12 AND 90+37.62. INCORPORATED DEDICATED OPEN SPACES AS PARCEL 39A.
RIGHT OF WAY AND EASEMENT

NAD 83/NSRS 2007

MATCHLINE -L- STA 83+00 (SHEET 9)

MATCHLINE -L- STA 96+00 (SHEET 11)

BEGIN CONSTRUCTION
-Y3- POT STA. 10+02.00

POT Sta. 10+00.00

-Y3- POT Sta. 12+35.00 =
-Y23- POT Sta. 11+85.00

END CONSTRUCTION
-Y23- POT STA. 10+32.00

BEGIN CONSTRUCTION
-Y3- POT STA. 12+08.79
-Y3- POT Sta. 12+35.00 =
-Y23- POT Sta. 11+85.00

TIE TO EXIST C&G
+42.95, 41.91' RT

TIE TO EXIST C&G
+43.84, 37.97' LT

TEMP. CHAIN LINK FENCE TO BE INSTALLED PRIOR TO REMOVAL OF EXIST. 72" WOOD FENCE

-L- POT Sta. 92+69.38 =
-Y3- POC Sta. 14+68.70

PT Sta. 91+92.51

PC Sta. 13+14.58

BEGIN NOISE WALL AND CONC. BARRIER
+91.45, 99.91' LT

BEGIN TEMP. CHAIN LINK FENCE
+75.20, 108.00' LT

END NOISE WALL AND CONC. BARRIER
+66.33, 99.55' LT

SPEC LAT V DITCH W/CLASS 'B' RIP RAP SEE DETAIL 8

PROP NOISE WALL 8

PROP 2'-6" C&G

PROP 9' MUP

PROP NOISE WALL 9

PROP 5' MONO ISLAND

PROP G/R

PROP 2'-9" C&G

PROP RAISED MEDIAN
PROP T=6 C&G

PROP RET. WALL 5

PROP RET. WALL 4

PROP NOISE WALL 6

MILITARY CUTOFF RD

BRADFIELD CT

PUTNAM DR

100' BAY TAPER

100' LANE TAPER

REMOVE DIRT SPOIL

REMOVE

REMOVE EXIST. FLUME

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

END RETAINING WALL
+75.00, 71.00' LT

BEGIN RETAINING WALL
+50.00, 71.00' LT

END CHAIN LINK FENCE
BEGIN NOISE WALL
AND CONC. BARRIER
+10.42, 64.85' LT

END CHAIN LINK FENCE
+45.00, 100.00'

END RET. WALL
BEGIN CHAIN LINK FENCE
+00.00, 83.00'

END RETAINING WALL
BEGIN WOVEN WIRE FENCE
+00.00, 83.00' RT

END NOISE WALL
AND CONC. BARRIER
+48.25, 70.86' RT

BEGIN NOISE WALL
AND CONC. BARRIER
+28.19, 93.52' RT

TIE TO EXIST C&G
+50.30' LT & RT

END CONSTRUCTION
-Y3- POT STA. 16+50.90

POT Sta. 19+85.30

OPEN SPACE DRAINAGE AREA 59 AC.
MB 57 PG 245
100' R

TORCHWOOD DEVELOPMENT COMPANY, INC.
DB 5482 PG 1416
DB 5497 PG 2737
DB 5705 PG 735
DB 5665 PG 1055
MB 57 PG 245
MB 2 PG 241

TORCHWOOD DEVELOPMENTS
DB 5665 PG 1055
MB 57 PG 245

STEVENS BUILDING CO
DB 5717 PG 896
MB 57 PG 245

50	BENTON KENNETH H JR DB 5696 PG 1967 MB 56 PG 170	39	TORCHWOOD DEVELOPMENT COMPANY DB 5644 PG 1291 MB 55 PG 165	67	NCDOT DB 5878 PG 165 MB 48 PG 61	73	CINDY B. GASKINS DB 5696 PG 1672 MB 45 PG 206
52	CANNADY WILLIAM B III & SHEENA M DB 5652 PG 796 MB 56 PG 170	62	CHRISTOPHER MCCONNELL AND REBECCA MCCONNELL DB 5839 PG 2910	68	STEVEN A. KING DB 5841 PG 1962 MB 48 PG 61	74	MARY RADER HEINDENRICH, WIDOW DB 5718 PG 978 MB 45 PG 206
53	DUFFY TARALYN ETAL DB 5664 PG 689 MB 56 PG 170	63	SHAWN BELSCHNER DB 5051 PG 1822 MB 48 PG 61	69	RYAN D BIRTLES DB 5501 PG 595 MB 48 PG 61	75	KIMBERLY D. MALDONADO DB 5811 PG 1422 MB 46 PG 248
54	KATHY EPPERSON DB 5760 PG 2817 MB 56 PG 170	64	ROGER A WOOD DB 5432 PG 1118 MB 48 PG 61	70	DENNIS G STOKLEY DB 5064 PG 2518 MB 46 PG 248	925	NCDOT DB 5168 PG 1727 MB 48 PG 61
56	STEVEN SHADE DB 5733 PG 2080 MB 56 PG 170	65	NCDOT DB 5878 PG 165 MB 48 PG 61	71	SARA ROBIN TOOTHMAN DB 5802 PG 2059 MB 46 PG 248		
39	TORCHWOOD DEVELOPMENT COMPANY, INC. DB 5482 PG 1416 DB 5497 PG 2737 DB 5705 PG 735 DB 5665 PG 1055 MB 57 PG 245 MB 2 PG 241	66	ELIZABETH A WRIGHT DB 5284 PG 1338 MB 48 PG 61	72	TASHA L COLEY DB 5477 PG 2963 MB 46 PG 248		
58	MICHAEL J. JAEB DB 5764 PG 2262 MB 56 PG 170	39A	SAVANA LAND COMPANY, LLC DB 4885 PG 1389 MB 59 PG 164-165				

MILITARY CUTOFF RD	BRADFIELD CT	MILITARY CUTOFF RD
	4,300 / 5,100	
1,200 / 1,500		1,600 / 1,800
21,900 / 46,500		23,100 / 47,900
900 / 1,200		1,600 / 2,400
	4,000 / 5,300	

PUTNAM DR

2017 / 2037

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -Y3- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

8/25/2016
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stevens

(73) CINDY B. GASKINS
DB 5696 PG 1672
MB 45 PG 206

(74) MARY RADER
HEINDENRICH, WIDOW
DB 5718 PG 978
MB 45 PG 206

(75) KIMBERLY D. MALDONADO
DB 5811 PG 1422
MB 46 PG 248

(76) C ROBERT STROUD JR
DB 5207 PG 1831
MB 46 PG 248

(77) HOLLY M. BANKS
DB 5716 PG 38
MB 46 PG 248

(78) EDWARD E BENTON, SR
DB 4930 PG 2279
MB 45 PG 206

(79) MARY ELLEN DOSS
DB 4895 PG 386
MB 45 PG 206
MB 44 PG 194

(80) DANA L BRITTLE
DB 4768 PG 861
MB 46 PG 248

(81) JOYCE E KAYLOR
DB 5490 PG 2146
MB 46 PG 248

(82) CHERI HUNT STAMM
DB 5655 PG 1187
MB 45 PG 206

(83) NOAH S BOATRIGHT
DB 5127 PG 1126
MB 47 PG 206
MB 44 PG 194

(84) KENNETH R CURLEY
DB 4515 PG 745
MB 44 PG 194
MB 45 PG 206

(85) ROBERT HARRISON
DB 5490 PG 2146
MB 46 PG 248

(86) WESLEY R SLAYTON
DB 5181 PG 458
MB 46 PG 248

(87) THOMAS P MACNEISH
DB 4395 PG 827
MB 44 PG 194
MB 45 PG 206

(88) FRANKLIN H PHILLIPS III
DB 5379 PG 2473
MB 46 PG 248

(89) MATTHEW M HAYDEN
DB 4701 PG 665
MB 46 PG 248

(90) AMERICAN RESIDENTIAL LEASING COMPANY, LLC
DB 5786 PG 1180
MB 52 PG 323

(92) DANIEL W PATTERSON
DB 4942 PG 1864
MB 46 PG 248

(93) JOSEPH M VADINO
DB 4872 PG 698
MB 47 PG 380
MB 46 PG 248

(94) JEREMY AKIN
DB 5444 PG 1484
MB 52 PG 323

(95) BONITA ROWLEY, WIDOW
DB 5450 PG 1884
MB 52 PG 323

(96) DERRICK SAUL
DB 5452 PG 1614
MB 52 PG 323

(97) CHARLES S LINDSEY
DB 5468 PG 2497
MB 52 PG 323

(98) CARRIE L CHEATHAM
DB 5472 PG 678
MB 52 PG 323

(99) AMERICAN RESIDENTIAL LEASING COMPANY, LLC
DB 5751 PG 2050
MB 52 PG 323

(100) TIMOTHY L ALLENSWORTH
DB 5478 PG 375
MB 52 PG 323

(101) SANTOS MURGUIA III
DB 5888 PG 2965
MB 52 PG 323

(102) LESLIE HOWARD PARRIS
DB 5762 PG 553
MB 52 PG 323

(103) CHRISTOPHER M SMITH
DB 5485 PG 970
MB 52 PG 323

(918) NCDOT
DB 5641 PG 2834

(91A) THE NEIGHBORHOODS OF WEST BAY ESTATES, INC

(91B) SAVANA LAND COMPANY, LLC
DB 4885 PG 1389

(39A) SAVANA LAND COMPANY, LLC
DB 4885 PG 1389
MB 59 PG 164-165

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22105 ENGINEER JOHN N. JOHNSON

PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 73, 74, 75, 77, 82, 90, 91, 95, 96, 99, 101, & 102, ADDED STATION OFFSET AT PARCEL 84 AND 91
2016-01-20 - R/W REVISION (SCS) - ADDED PARCEL 91A AND 91B
2016-02-16 - R/W REVISION (SCS) - ADDED PARCEL 91A AND MOVED PARCEL 91B
2016-05-26 - R/W REVISION (SCS) - INCORPORATED DEDICATED OPEN SPACES AS PARCEL 39A.

NAD 83/NSRS 2007

MATCHLINE -L- STA 96+00 (SHEET 10)

MATCHLINE -L- STA 109+00 (SHEET 12)

-L- POT Sta. 96+38.47 = -Y11- POT Sta. 10+00.00

-L- POT Sta. 99+68.28 = -Y12- POC Sta. 10+00.00

PC Sta. 101+92.49

POT Sta. 10+00.00 105

POT Sta. 12+00.00

BEGIN CONSTRUCTION -Y21- POT STA. 10+90.00

PRC Sta. 107+78.98

TEMP. CHAIN LINK FENCE TO BE INSTALLED PRIOR TO REMOVAL OF EXIST. 72" WOOD FENCE

SPEC LAT 2' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 58

HEAD DITCH EST DDE +/- 3 CY SEE DETAIL 31

LAT V DITCH SEE DETAIL 6

SPEC LAT V DITCH W/CLASS 'B' RIPRAP SEE DETAIL 8

100' LANE TAPER

100' BAY TAPER

2 @ 18" RCP-III

PROP NOISE WALL 8

PROP NOISE WALL 9

PROP NOISE WALL 10

PROP 5' MONO ISLAND

PROP 15' MONO ISLAND

PROP 2'-6" C&G

PROP 1'-6" C&G

PROP RAISED MEDIAN

PROP 9' MUP

PROP 2'-0" VALLEY GUTTER

PROP 2" - 0" VALLEY GUTTER

END NOISE WALL AND CONC. BARRIER BEGIN CHAIN LINK FENCE +81.15, 64.50' RT

END CHAIN LINK FENCE +54.84, 25.00' RT

BEGIN NOISE WALL AND CONC. BARRIER +12.47, 81.75' RT

END NOISE WALL AND CONC. BARRIER BEGIN CHAIN LINK FENCE +65.18, 64.52' RT

END CHAIN LINK FENCE +157.2, 97.71' RT

CLASS 'B' RIPRAP EST 2 TONS 7 SY GEOTEXTILE

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

CLASS 'B' RIP RAP EST. 4 TONS 12 SY GEOTEXTILE

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

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

TAIL DITCH EST DDE +/- 190 CY SEE DETAIL 19

TAIL DITCH EST DDE +/- 15 CY SEE DETAIL 18

LAT V DITCH SEE DETAIL 7

LAT V DITCH SEE DETAIL 9

DITCH BLOCK

TIE TO EXIST C&G +01.15 RT

TIE TO EXIST C&G +91.34 LT

PT Sta. 12+52.20

PT Sta. 13+19.38

PCC Sta. 11+65.89

-Y11- POC STA. 11+60.00

-Y12- POC STA. 12+55.00

-Y22- POT STA. 11+20.00

-Y21- PROP 2"-0" VALLEY GUTTER N 40° 56' 04.8" E

R/W IS PL +99.00 90.00'

MILITARY CUTOFF RD

MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 249-250

NCDOT DB 5641 PG 2834

N 40° 56' 13.1" E

N 53° 31' 20.4" W -Y22-

BROOKBEND DR

MONTEGO COURT

FOXFIELD CT

THE NEIGHBORHOODS OF WEST BAY ESTATES, INC. DB 5388 PG 1682 MB 49 PG 383

VINCENT P MIKESKA DB 5587 PG 1836 MB 52 PG 323

BARBARA J MILLER DB 5514 PG 2354 MB 52 PG 323

MICHAEL GERHART DB 5447 PG 1619 MB 52 PG 323

BUFFER / DRAINAGE EASEMENT

OPEN SPACE / DRAINAGE AREA MB 52 PG 323

OPEN SPACE / DRAINAGE EASEMENT MB 52 PG 323

20' DRAINAGE EASEMENT (MB 34 PG 78)

SEE SHEETS 2A-11 FOR CUL-DE-SAC AND TURNAROUND DETAILS
SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 61 FOR -Y12- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

5/25/2016
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rlmorgan

REVISIONS

2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 105 & 106. ADDED HOUSE ON PARCEL 114. MOVED MONUMENTS AT PARCEL 905. MOVED PDE LINE & MONUMENT AT PARCEL 104.
2015-11-05 - R/W REVISION (CEG) - UPDATED PROPERTY LINES AND PROPERTY OWNER INFORMATION ON PARCEL 905, CREATING PARCELS 242, 243, AND 244.
2016-05-19 - R/W REVISION (SCS) - REVISED DUE TO PDE AND DELETED PUE ON PARCELS 242, 244 AND 115. UPDATED PROPERTY OWNER INFORMATION FOR 243 AND 244.
2016-06-09 - R/W REVISION (SCS) - COMBINED PARCEL 243 AND 244 INTO ONE PARCEL - D.R. HORTON, INC.

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PROJECT REFERENCE NO.	SHEET NO.
U-4751	12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

SEAL 22105 ENGINEER JOHN N. JOHNSON

PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION

NAD 83/NSRS 2007

MATCHLINE -L- STA 109+00 (SHEET 11)

MATCHLINE -L- STA 122+00 (SHEET 13)

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 60 FOR -Y4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS

8/8/2016
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dlhill

REVISIONS

2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCELS 114, 116, 123, 125, 127, 129 & 130, ADDED PUE MONUMENT AT PARCEL 115, ADDED STATION OFFSET AT PARCEL 117, CHANGED PARCEL 117 TO PARCEL 114, ADDED HOUSE TO PARCEL 116.
2015-11-05 - R/W REVISION (CEG) - CHANGED PARCEL 905 TO 243, UPDATED PROPERTY OWNER INFORMATION ON PARCEL 243.
2016-05-19 - R/W REVISION (CEG) - REVISED DUE TO PDE AND DELETED PUE ON PARCEL 115.

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PROJECT REFERENCE NO.	SHEET NO.
U-4751	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22105 ENGINEER JOHN N. JOHNSON

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

NAD 83/NSRS 2007

114 COURTNEY PINES HOA DB 4889 PG 3128 MB 48 PG 180	123 MELISSA L. HUBBARD ANDERSON DB 5628 PG 1529 MB 48 PG 180	130 MICHAEL M. BISE DB 5734 PG 423 MB 52 PG 41
117 MORGAN B JOHNSON DB 5209 PG 2756 MB 48 PG 180	124 JASON G HERANDEZ DB 5479 PG 2822 MB 52 PG 41	131 BRIAN S HUNT DB 5470 PG 108 MB 52 PG 41
118 KRISTEN L GAMBILL DB 5350 PG 1013 MB 52 PG 41	125 JUSTIN ARTHUR MILLS DB 5813 PG 753 MB 48 PG 180	132 DANIEL E CLEMENTS DB 5453 PG 2706 MB 48 PG 180
119 FELICE FURINO DB 5246 PG 453 MB 48 PG 180	126 MATTHEW KYLE HOLLOWAY DB 5464 PG 2380 MB 52 PG 41	133 MICHAEL C MACGOVERN DB 5452 PG 2548 MB 52 PG 41
120 THINH HUU PHAN DB 5306 PG 1344 MB 52 PG 41	127 KEITH MCBRIDE DB 5664 PG 523 MB 48 PG 180	134 GREG L BRYANT DB 5244 PG 1507 MB 48 PG 180
121 STACEY S SEARS DB 5413 PG 2589 MB 48 PG 180	128 AMBER HODGE DB 5760 PG 1715	135 THOMAS D HUGHES DB 5457 PG 2035 MB 52 PG 41
122 DAVID K MULKEY DB 5353 PG 190 MB 52 PG 41	129 ARP 2014-I BORROWER, LLC DB 5836 PG 2801 MB 48 PG 180	136 AMY R KROEPLIN DB 5451 PG 1390 MB 52 PG 41

MATCHLINE -L- STA 122+00 (SHEET 12)

MATCHLINE -L- STA 135+00 (SHEET 14)

TORCHWOOD BLVD -Y5-

PC Sta. 10+00.00

BEGIN CONSTRUCTION -Y5- POT STA. 12+80.00

PT Sta. 12+60.17

PC Sta. 13+69.04

PC Sta. 13+60.53

PT Sta. 15+73.44

END CONSTRUCTION -Y5- POT STA. 17+00.00

-L- POT Sta. 128+14.34 = -Y5- POC Sta. 14+95.70

-L- MILITARY CUTOFF RD

N 40° 53' 04.9" E

S 58° 52' 50.0" E (SR 2171)

RAVENS GLASS COURT

LAT 2' BASE DITCH SEE DETAIL 11

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

TIE TO EXIST C&G +80.00, 17.98' RT

REGINA BLACKMAN DB 5683 PG 1461 MB 48 PG 180

KEVIN P. MADSEN DB 5560 PG 2873 MB 48 PG 180

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

PROP NOISE WALL 11

PROP NOISE WALL 13

PROP RET WALL 6

PROP NOISE WALL 14

END NOISE WALL AND CONC. BARRIER +23.00, 64.50' LT

MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 241-250

NCDOT DB 5641 PG 2834

NCDOT GPS MON. HUNTER 8

PROP 2'-6" C&G

PROP 5' MONO ISLAND

PROP 9' MUP

PROP G/R

CHAIN LINK FENCE

ROCK FILL SEE DETAIL 29 EST. 6200 TONS

100' BAY TAPER

100' LANE TAPER

90° TAPER

BEGIN TEMP. CHAIN LINK FENCE +66.58, 35.05' LT

BEGIN NOISE WALL AND CONC. BARRIER +33.75, 108.26' LT

TEMP. CHAIN LINK FENCE TO BE INSTALLED PRIOR TO REMOVAL OF EXIST. 72" WOOD FENCE

SPEC LAT 2' BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 10

BEGIN RETAINING WALL +68.86, 82.00' LT

END TEMP. CHAIN LINK FENCE +59.03, 90.54'

BEGIN CHAIN LINK FENCE +72.26, 25.00'

END CHAIN LINK FENCE +30.00, 25.00'

BEGIN NOISE WALL 14 AND CONC. BARRIER +1022.84, 25.51' LT

END C&G +45.29, 15.62' LT

END C&G +97.33, 16.00' RT

TIE TO EXIST C&G +97.86, 16.00' LT

EXIST OUTLET STRUCTURE NEEDS TO BE REDESIGNED AND RELOCATED OUTSIDE OF THE R/W AND PIPED TO OUTFALL DITCH LOCATED AT STATION 129+00 -L- RT; REGRADING OF THE WET DETENTION BASIN MAY ALSO BE REQUIRED. (THE REDESIGN TO BE DONE BY DEVELOPER)

115 TORCHWOOD DEVELOPMENT CO. INC DB 5271 PG 1894

243 D.R. HORTON, INC. DB 5857 PG 0032 MB 59 PG 164-165

905 NCDOT DB 5641 PG 2834 MILITARY CUT-OFF ROAD EXTENSION MB 2 PG 241-250

SCARLETT E. SWAIN DB 5366 PG 535 MB 52 PG 41

MICHAEL D. RUFF TRUST DB 5332 PG 731 MB 52 PG 41

ROBERT E. WILLIAMS DB 5336 PG 1848 MB 52 PG 41

KRISTEN N. WEISBARTH DB 5340 PG 839 MB 52 PG 41

BARBARA J. HARRITOS DB 5424 PG 2733 MB 52 PG 41

MARISSA A. PRESTON DB 5462 PG 2663 MB 52 PG 41

PHILLIP J. DAVIDS DB 5362 PG 1459 MB 52 PG 41

CAROL L. PLOTNER DB 5347 PG 2232 MB 52 PG 41

LAT 6' BASE DITCH SEE DETAIL 13

	TORCHWOOD BLVD	
MILITARY CUTOFF RD	3,300 / 3,900	MILITARY CUTOFF RD
	900 / 900 — 1,000 / 1,200	
23,600 / 48,700		23,900 / 49,100
	1,500 / 2,100 — 1,600 / 2,200	
	TORCHWOOD BLVD 4,500 / 5,900	
	2017 / 2037	

SEE SHEET 2B-5 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 60 FOR -Y5- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

5/9/2016
rtreadway\proj\sht\U4751_RDY_psh13.dgn
ctreadway

PROJECT REFERENCE NO.	SHEET NO.
U-4751	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

NORTH CAROLINA PROFESSIONAL SEAL 22105 ENGINEER JOHN N. JOHNSON

PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

REVISIONS.

2015-08-12 – R/W REVISION (CEG) – UPDATED PROPERTY OWNER INFORMATION ON PARCEL 142, CHANGED PARCEL 137 TO PARCEL 114, ADDED STATION OFFSET AT PARCEL 140 & 145.
2015-10-21 – R/W REVISION (SCS) – UPDATED PROPERTY OWNER INFORMATION ON PARCEL 145.
2016-05-26 – R/W REVISION (SCS) – ADDED RIGHT TURN TAPER TO SERVE PARCEL 145.DESIGNATED ADDITIONAL RIGHT OF WAY AS PARCEL 1452.

(114) COURTNEY PINES HOA
DB 4889 PG 3128
MB 48 PG 180

(134) GREG L BRYANT
DB 5244 PG 1507
MB 48 PG 180

(136) AMY R KROEPLIN
DB 5451 PG 1390
MB 52 PG 41

(138) JOHN HOLT
DB 5587 PG 1094
MB 48 PG 180

(139) MARY ANNE MUNTO
DB 5470 PG 94
MB 52 PG 41

(140) GEORGE A SCHMITT
DB 5462 PG 2757
MB 52 PG 41

(141) RROBERT THRONE
DB 5233 PG 1624
MB 48 PG 180

(142) AMANDA ROSE MARIE LABENNE
DB 5814 PG 2541
MB 52 PG 41

(144) BRADLEY R CARTER
DB 5197 PG 2149
MB 48 PG 180

(910) SAVANA LAND COMPANY, LLC
DB 4885 PG 1389
DB 2491 PG 213

(905) NCDOT
DB 5641PG 2834

(145Z) CAPE FEAR PUBLIC UTILITY AUTHORITY
DB 5916 PG 2010
MB 45 PG 337

MATCHLINE -L- STA 135+00 (SHEET 13)

MATCHLINE -L- STA 148+00 (SHEET 15)

NAD 83/NSRS 2007

-L- POC Sta. 145+00.00 = -Y6- POT Sta. 10+00.00

POT Sta. 14+53.45

END CONSTRUCTION -Y6- POT STA. 13+40.00

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 61 FOR -Y6- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS

5/25/2016
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PROJECT REFERENCE NO.	SHEET NO.
U-4751	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADJUSTED MONUMENT AT PARCEL 148.

MATCHLINE -L- STA 148+00 (SHEET 14)

MATCHLINE -L- STA 161+00 (SHEET 16)

910 SAVANA LAND COMPANY, LLC
DB 4885 PG 1389
DB 2491 PG 213

148 HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

146 ANDREW M. GALLACHER
DB 5184 PG 2308

147 BOBBY R. CHESTER
DB 1015 PG 244

149 ROMEO A. MISIERA
DB 858 PG 259
MB 8 PG 88

TURNSTONE PROPERTIES, INC
DB 5370 PG 997
DB 2535 PG 619
DB 2278 PG 84
DB 1496 PG 210

CHARLES V. ALLO
DB 1164 PG 550

-L- STA.151+28.05 BEGIN CULVERT
LAT 6' BASE DITCH SEE DETAIL 20
PROP 2'-6" C&G
PROP NOISE WALL 13
PROP 4' MOND ISLAND
PROP 10' MUP
PROP G/R
PROP 1'-6" C&G
MILITARY CUTOFF RD -L-
PROP RAISED MEDIAN
PROP 2'-9" C&G
WOVEN WIRE FENCE
BEGIN WOVEN WIRE FENCE +84.37
END WOVEN WIRE FENCE +34.35
LAT 3' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 15
FLOODPLAIN BENCH SEE DETAIL 38
END NOISE WALL AND CONC.BARRIER
BEGIN WOVEN WIRE FENCE AND GUARDRAIL +65.09 64.50' LT
PT Sta. 158+02.80
-L- STA.153+53.98 END CULVERT
2@10' X 10' RCBC
GRAU 350 TL-3
JB w/MH
CAT-10
TYPE B-77
EQ. PIPE
CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 5 TONS 14 SY GEOTEXTILE
18" RCP-III
24" RCP-III
15" RCP-IV
30" RCP-V
36" RCP-IV
2GI
DI
CB
BL-18
BL-19
WLB
CMP
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE
10' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE
S 02°41'09" E 94.99'
S 02°41'09" E 526.50'
N 87°18'51" E 460.00'
N 17° 07' 10.0" W
S 87°54'39" W 209.87'
S 87°54'39" W 29.19'
N 87°54'39" E 461.40'
N 87°18'51" W 460.00'
2435'R
2760'R
2720'R
2510'R
150
155
160

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR STRUCTURE PLANS

8/7/2015
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cgroves

REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADJUSTED C/A RIGHT OF WAY TO ELIMINATE CLAIM ON PARCEL 150.

8/11/2015
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stephens

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NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

MATCHLINE -L- STA 161+00 (SHEET 15)

MATCHLINE -L- STA 174+00 (SHEET 17)

WLB
WOVEN WIRE FENCE
PROP 2'-6" C&G
PROP 1'-6" C&G
PROP RAISED MEDIAN
PROP 10' MUP
PROP 5' MONO ISLAND
MILITARY CUTOFF RD
-L-
CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE
CLASS 'I' RIP RAP EST 26 TONS 50 SY GEOTEXTILE
BURY OUTLET 1.0'
BURY INLET 1.0'
250' TAPER (LT & RT)
+41.00 100.00' 120.00'
+50.00 95.00' 120.00'
+65.00
+51.00 0.39'
+02.89 0.53'
BL-2L
BM20 +22.49 153.23'
+00.66 105.14'
+99.25 110.00'
+19.55 110.00'
+00.00 105.00'
+50.00 110.00' 145.00'
+46.00 110.00' 145.00'
+50.00 145.00'
FILL EXIST DITCH EST 48 CY
REMOVE
95'R
58.5'R
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEOTEXTILE
CLASS 'B' RIP RAP EST. 1 TONS 7 SY GEOTEXTILE
15" RCP-IV
18" RCP-IV
36" RCP-III
48" RCP-III
EQ. PIPE
CB
DI
HW
1601 1602 1603 1604 1605 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615 1616 1617 1618 1619 1620 1621 1622 1623 1624 1625 1626 1627 1628 1629

148
HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

149
ROMEO A. MISIERA
DB 858 PG 259
MB 8 PG 68

FOY S. THORNTON TRUST B, ET AL
DB 4924 PG 351
MB 8 PG 88
NOTE: DEED CONFLICTS WITH ROMEO A. MISIERA DB 858 PG 259

PAUL PRIDGEN, ET AL
DB 4408 PG 506
MB 8 PG 88

I65
I70
WOODS
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE
S 02°41'09"E 526.50'
S 02°41'09"E 408.40'
N 89°03'26" E 460.20'
N 87°56'51" E 460.70'
N 17° 07' 10.0" W

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 41 FOR -L- PROFILE

STV 100 Years	STV Engineers, Inc. 900 West Trade St, Suite 715 Charlotte, NC 28202 NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADDED STATION OFFSET AT PARCEL 148, ADJUSTED C/A RIGHT OF WAY TO ELIMINATE CLAIM ON PARCEL 152.

MATCHLINE -L- STA 174+00 (SHEET 16)

MATCHLINE -L- STA 187+00 (SHEET 18)

NAD 83/NSRS 2007

148 HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

151 MY THI TROUT
DB 1462 PG 755
MB 8PG 88

153 SYLVIA WHALEY LEWIS & KAREN WHALEY COBB
DB 5606 PG 478
MB 8 PG 88

MANSEL S. ARMSTRONG, ET AL
WILL 9908 E759
WILL 9908 E758
DB 1187 PG 656
MB 8 PG 88

GARY L. DOETSCH
DB 5338 PG 440
MB 8 PG 88

-L- POT Sta. 176+00.00 = -SR4- POT Sta. 10+00.00
N 72° 52' 50.0" E (BK)

-L- PC Sta. 11+20.16

PRC Sta. 17+50.97

PT Sta. 19+89.08

PC Sta. 23+56.17

MILITARY CUTOFF RD (-L-)

N 17° 07' 10.0" W

S 02°41'09" E 1579.50'

N 87°18'51" E 460.00'

S 02°41'09" E 354.40'

LAT 5' BASE DITCH W/CLASS 'B' RIP RAP. SEE DETAIL 51. EST. 55 TONS. 120 SY GEOTEXTILE

LAT 5' BASE DITCH W/CLASS 'I' RIP RAP SEE DETAIL 52. EST 40 TONS. EST GEOTEXTILE 75 SY

LAT 5' BASE DITCH SEE DETAIL 26

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

BURY OUTLET 1.0'

18" CAAP W/ 2 ELBOWS

60" RCP-III

15" RCP-IV

18" RCP-IV

36" RCP-IV EQ. PIPE

455' TAPER (LT & RT)

CLASS 'B' RIP RAP EST. 13 TONS. 27 SY GEOTEXTILE

END C&G +50.70, 66.65' LT

PROP 2'-6" C&G

PROP 5' MONO ISLAND

PROP 10' MUP

PROP GUIDERAIL

CGAU

TB JB w/MH

BURY INLET 1.0'

BURY INLET 2.0'

FILL EXIST DITCH EST 80 CY

FILL EXIST DITCH EST 8 CY

CLASS 'I' RIP RAP EST. 33 TONS. 62 SY GEOTEXTILE

CLASS 'B' RIP RAP EST. 1 TONS. 5 SY GEOTEXTILE

CLASS 'B' RIP RAP EST. 1 TONS. 5 SY GEOTEXTILE

LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 31

SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 24

BEGIN WOVEN WIRE FENCE +55.00, 105.00'

END WOVEN WIRE FENCE +50.40, 135.56'

WOVEN WIRE FENCE

END C&G +20.00, 16.00' (LT & RT)

END C&G +67.37, 66.82' RT

END LIMITED CA / BEGIN FULL CA

100' BAY TAPER

60' TAPER

205'R

300'R

200'R

295'R

685'R

SEE SHEET 2A-10 FOR U-TURN BULB-OUT DETAIL
SEE SHEET 2B-6 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 65 FOR -SR4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

8/10/2015
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stephens

PROJECT REFERENCE NO.	SHEET NO.
U-4751	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STV 100 Years — STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

NORTH CAROLINA PROFESSIONAL SEAL 22115 ENGINEER JOHN N. JOHNSON

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - AT PARCEL 156 REMOVED TDE INSIDE OF THE PUE, CORRECTED STATION OFFSET AT PARCEL 915.
2016-02-18 - R/W REVISION (SCS) - CHANGED PUE TO DUE ON PARCEL 156 AND 148.

SEE SHEET 2A-10 FOR TURNAROUND DETAILS
SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 64 FOR -Y18- PROFILE
SEE SHEET 65 FOR -SR4- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

NAD 83/NSRS 2007

MATCHLINE -L- STA 187+00 (SHEET 17)

MATCHLINE -L- STA 200+00 (SHEET 19)

148 HANOVER LAND, LLC
DB 4129 PG 437
DB 4129 PG 441
DB 4414 PG 403
DB 4476 PG 877
DB 4546 PG 380
DB 4736 PG 236
MB 8 PG 88

915 NCDOT
DB 5771 PG 1664

153 SYLVIA WHALEY LEWIS & KAREN WHALEY COBB
DB 5606 PG 478
MB 8 PG 88

154 KENNETH R. PARKER, SR., ET UX
DB 5004 PG 1418
MB 8 PG 88

156 EDWARD C. DRAPALA
DB 1411 PG 330
DB 1561 PG 1087
MB 8 PG 97

155 HANH THI BICH LA
DB 1529 PG 841
DB 4453 PG 225,229
MB 8 PG 97

-L- POT Sta. 198+62.34 =
-Y18- POT Sta. 14+48.81

BEGIN CONSTRUCTION
-Y18- POT STA. 12+25.00

END CONSTRUCTION
-Y18- POT STA. 12+85.89

PROP SOIL TURNAROUND

BEGIN CONSTRUCTION
-Y18- POT STA. 17+70.00

END PAVEMENT
+36.28

END CONSTRUCTION
-Y18- POT STA. 19+47.00

POT Sta. 14+59.97

PT Sta. 25+45.10

PI Sta. 19+07.55
S 84° 41' 09.2" E
POT Sta. 19+19.94

-SR4- POT Sta. 34+59.17 =
-Y18- POT Sta. 18+92.42

-Y18- S 85° 11' 23.5" E 200.00'

PLANTATION ROAD

N 2° 41' 09.2" W

N 17° 07' 10.0" W

MILITARY CUTOFF RD

PROP GUIDERAIL

SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 24

SPEC LAT 5' BASE DITCH W/COIR FIBER MATTING SEE DETAIL 25

LAT V DITCH SEE DETAIL 7

LAT 3' BASE DITCH SEE DETAIL 33

CLASS 'B' RIP RAP EST 1 TONS 5 SY GEOTEXTILE

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

CLASS 'B' RIP RAP EST 4 TONS 8 SY GEOTEXTILE

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

FILL EXIST DITCH TO R/W EST 22 CY

BURY OUTLET 1.0'

BURY INLET 1.0'

REMOVE

WOVEN WIRE FENCE

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

35' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE

1801 1802 1803 1804 1805 1806 1807 1808 1809 1810

35" RCP-IV
36" RCP-III
48" RCP-III
54" RCP-IV

790'R
685'R

WOODS

2/17/2016
R:\Roadway\Proj\SHTU4751.RDY_pshi18.dgn
ksmith

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - COMBINDED PARCEL 156 & 157 TO BE PARCEL 156, ADJUSTED MONUMENT AT PARCEL 915, SHIFTED TURNAROUND AND TCE NORTH TO ELIMINATE PARCEL 158.

NAD 83/NSRS 2007

MATCHLINE -Y8RPC- STA 19+80 (SHEET 20)

MATCHLINE -L- STA 200+00 (SHEET 18)

MATCHLINE -L- STA 213+00 (SHEET 20)

MATCHLINE -Y8RPDB- STA 22+00 (SHEET 20)

-Y18- POT Sta. 10+00.00 =
-Y19- PI Sta. 14+89.72

N 7° 29' 02.2" E

S 85° 11' 23.5" E

-Y18-

BL-27 +05.91 9.27'

N 7° 33' 50.9" E -Y19-

DENNIS R. SMITH
DB 1370 PG 372
MB 8 PG 98

MARGARET M. LANGLEY, HEIRS
EB 9912 PG 1889
DB 1019 PG 332
MB 8 PG 98

159

160

CHARLES M. MAINLAND
DB 1050 PG 526
MB 8 PG 98

915
NCDOT
DB 5771 PG 1664

156
EDWARD C. DRAPALA
DB 1411 PG 330
DB 1561 PG 1087
MB 8 PG 97

CROOKED PINE ROAD

BEGIN CONSTRUCTION
-Y19- POT STA. 20+50.00

POT Sta. 20+16.22

END CONSTRUCTION
-Y19- POT STA. 20+96.85

-Y19- POT Sta. 22+43.78

TS Sta. 207+55.32

SC Sta. 210+25.32

-Y8RPC- TS Sta. 10+00.00 =
-L- POT Sta. 202+94.01, 47.00' LT

SC Sta. 10+60.00

LAT V DITCH
SEE DETAIL 7

PROP SOIL TURNAROUND

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

WOVEN WIRE FENCE

CHORD

TDE

REMOVE

BURY INLET 1.0'

HW

PROP GUIDERAIL

-L- MILITARY CUTOFF RD

N 17° 07' 10.0" W

N 13° 07' 10.0" W

-Y8RPDB-

-Y8RPC-

FUTURE (BY OTHERS)

END PAVEMENT RT
-L- POT STA. 205+86.84

-Y8RPDB- POT Sta. 10+00.00 =
-L- POT Sta. 200+00.00, 47.00' RT
Δ = 4° 00' 00"

TS Sta. 12+54.39

SC Sta. 14+94.39

CS Sta. 20+58.24

CLASS 'I' RIP RAP
ON BANKS ONLY
SEE DETAIL 40

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

BURY OUTLET 1.0'

JB w/MH

EQ. PIPE

15" RCP-IV

30" RCP-IV

36" RCP-III

42" RCP-III

48" ROPE

WLB

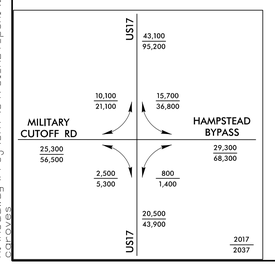
FS

2GI

CGAU

PS

SEE SHEET 2A-10 FOR TURNAROUND DETAILS
SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 57 FOR -Y8RPDB- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL



8/7/2015
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cgreves

REVISIONS

2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 169.
2015-12-02 - R/W REVISION (CEG) - REVISED CONTROLLED ACCESS ROW ON PARCEL 170.
2016-01-05 - R/W REVISION (SCS) - ADDED PARCEL NO.243.
2016-01-28 - R/W REVISION (SCS) - CHANGED PARCEL NUMBER 243 TO 248.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	20
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV Engineers, Inc.
4000 Westchase Blvd, Suite 715
Raleigh, NC 27607
NC License Number F-0991

GRAPHIC SCALE
50 25 0 50 100
PLANS

NAD 83/NSRS 2007

MATCHLINE (SHEET 21)

MATCHLINE -Y8- STA 85+50 (SHEET 21)

MATCHLINE -L- STA 213+00 (SHEET 19)

MATCHLINE -Y8RPC- STA 19+80 (SHEET 19)

MATCHLINE -Y8RPDB- STA 22+00 (SHEET 19)

MATCHLINE -Y8- STA 101+25 (SHEET 22)

MATCHLINE -Y8RPD- STA 17+50 (SHEET 22)

MATCHLINE -L- STA 239+00 (SHEET 23)

MATCHLINE -Y8RPCA- STA 18+60 (SHEET 23)

MATCHLINE -Y8RPB- STA 19+25 (SHEET 23)

END TIP PROJECT U-4751
-L- POC STA. 229+80.28

	43,100 / 95,200	
10,100 / 21,100		15,700 / 36,800
MILITARY CUTOFF RD		HAMPSTEAD BYPASS
25,300 / 56,500		29,300 / 68,300
2,500 / 5,300		800 / 1,400
	20,500 / 43,900	
US17		US17
	2017 / 2037	

SEE SHEETS 43 AND 44 FOR -L- PROFILE
SEE SHEET 53 FOR -Y8LPB- PROFILE
SEE SHEET 53 FOR -Y8RPD- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 56 FOR -Y8RPD- PROFILE
SEE SHEET 57 & 58 FOR -Y8RPDB- PROFILE
SEE SHEET 68 FOR -Y8- PROFILE
SEE SHEET 2B-3 FOR BRIDGE / PAVEMENT RELATIONSHIP
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL
SEE SHEETS C-1 THRU C-X FOR CULVERT PLANS
SEE SHEETS S-1 THRU S-X FOR STRUCTURE PLANS

REVISIONS

2015-08-12- R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 174, ADJUSTED MONUMENT AT PARCEL 173, ADDED PARCEL 240 & 241, UPDATED PROPERTY LINES

2016-01-05- R/W REVISION (SCS) - ADDED PARCEL NO.243,244,245,246,& 247, CHANGED PARCEL NUMBER 244 TO 245, 245 TO 246 AND PARCEL NUMBER 244 TO 245.

2016-01-28- R/W REVISION (SCS) - CHANGED PARCEL NUMBER 243 TO 248 AND 245 TO 246

MATCHLINE (SHEET 21A)

MATCHLINE -Y8- STA 70+00 (SHEET 33)

MATCHLINE (SHEET 20)

MATCHLINE -Y8- STA 85+50 (SHEET 20)

MATCHLINE (SHEET 20)

US17

MILITARY CUTOFF RD

HAMPSTEAD BYPASS

43,100 / 95,200
10,100 / 21,100
15,700 / 36,800
25,300 / 56,500
29,300 / 68,300
2,500 / 5,300
800 / 1,400
20,500 / 43,900
2017 / 2037

247 MATTHEW JOSEPH RUCK, JR., ET UX DB 5176 PG 0253 MB 8 PG 98

239 JASON R.FERRELL DB 4895 PG 666 MB 8 PG 98

175 ALEJANDRO ILINAS DB 4650 PG 248 MB 8 PG 55

246 LESLIE MICHAEL SIMS, ET AL DB 4404 PG 335 MB 8 PG 98

240 JERRY E.FULLWOOD DB 3758 PG 709 MB 8 PG 98

174 ELIZABETH B. WOOTEN DB 5708 PG 2985 MB 8 PG 98

245 MONIKA L. ETSELL DB 4897 PG 223 MB 8 PG 98

241 MARK F. HOLLIFIELD DB 2736 PG 880 MB 8 PG 98

173 KENNETH WAYNE BARROW DB 5024 PG 37 MB 8 PG 98

170 CORBETT INDUSTRIES INC. DB 5578 PG 338

248 DONALD D. ENGLEHART DB 2227 PG 272 MB 8 PG 98

171 LEINER FURR DB 5533 PG 2505,2206 MB 8 PG 98

172 ETTA P. WILSON, HEIRS DB 804 PG 298 MB 8 PG 98

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 5578 PG 338

247 RANDALL R. MLAZZO DB 2197 PG 522 MB 8 PG 98

161 MARK F. HOLLIFIELD DB 4897 PG 877 MB 8 PG 98

162 JOHN MATTESORE DB 2 PG 98

-Y8RPC- POT Sta. 34+66.23 =
-Y8RPCA- POT Sta. 52+29.53, 12.00' LT
Δ = 2° 30' 00"

-Y8RPB- ST Sta. 33+03.84 =
-Y8RPDB- POT Sta. 55+79.90, 24.00' RT
Δ = 0° 00' 00"

SC Sta. 56+29.64
TS Sta. 56+80.64
ST Sta. 51+85.73
CS Sta. 50+85.73
ST Sta. 54+25.52
TS Sta. 61+40.09
SC Sta. 61+60.09
CS Sta. 67+67.19
ST Sta. 73+19.54

-Y8RPC-
-Y8RPCA-
-Y8RPB-
-Y8RPDB-

BEGIN CONSTRUCTION
-Y8RPCA- POC STA. 48+03.74

REMOVE +/- 85 LF EXIST 24" RCP

BEGIN WOVEN WIRE FENCE STA.(LT) 70+00, 54.48'

END WOVEN WIRE FENCE STA.(LT) 70+00, 54.48'

CLASS 'B' RIP RAP EST. 5 TONS 10 SY GEOTEXTILE

SPEC. LAT. D BASE DITCH SEE DETAIL 36

CLASS 'B' RIP RAP EST. 10 TONS 20 SY GEOTEXTILE

CLEANOUT EX. PIPE EST 177 LF

RETAIN

SPEC. CUT 'V' DITCH SEE DETAIL 31

DITCH BLOCK

SPEC. LAT. 'A' BASE DITCH SEE DETAIL 23

LAT 'A' BASE DITCH SEE DETAIL 34

CLASS 'B' RIP RAP EST. 7 TONS 18 SY GEOTEXTILE

CLASS 'B' RIP RAP EST. 3 TONS 7 SY GEOTEXTILE

15" CAAP, W/ 2 ELBOWS

END 595' @0.00%

CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE

REMOVE

BURY INLET 1.0'

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

BEGIN CONSTRUCTION
-Y8RPCA- POC STA. 48+03.74

C

B

SEE SHEET 53 FOR -Y8RPB- PROFILE
SEE SHEET 54 FOR -Y8RPC- PROFILE
SEE SHEET 55 FOR -Y8RPCA- PROFILE
SEE SHEET 58 & 59 FOR -Y8RPDB- PROFILE
SEE SHEETS 67 & 68 FOR -Y8- PROFILE
SEE SHEETS 20-1 AND 20-2 FOR DITCH DETAIL

PROJECT REFERENCE NO.	SHEET NO.
U-4751	21
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV Engineers, Inc. 100 Regency Forest Drive, Suite 715 Cleveland, NC 27013 NC License Number F-0991

GRAPHIC SCALE
50 25 0 50 100
PLANS

NAD 83/NSRS 2007

I:\25-0246\Engineering\Roadway\Plans\Sheets\U4751_Sht_21.dgn

REVISIONS

2015-08-12- R/W REVISION (CEG) - ADDED PARCEL 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, & 241; UPDATED PROPERTY LINES.
2015-10-21- R/W REVISION (SCS) - ADDED PARCEL 233A.
2016-01-05- R/W REVISION (SCS) - ADDED PARCEL NO.247.

PROJECT REFERENCE NO.	SHEET NO.
U-4751	21A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV 100 YEARS
STV Engineers, Inc.
4000 Stuart Rd, Suite 715
Charlotte, NC 28217
NC License Number F-0991

GRAPHIC SCALE
50 25 0 50 100
PLANS

NAD 83/NSRS 2007

MATCHLINE (SHEET 32)

MATCHLINE (SHEET 33)

MATCHLINE (SHEET 21)

(228) FLOYD A. ALLEN, ET UX
DB 2187 PG 409
MB 8 PG 98

(229) JAMES B. ALLEN, JR., ET AL
DB 5682 PG 2862
MB 8 PG 98

(230) RICHARD J. BYRON, ET AL
DB 1493 PG 749
MB 8 PG 98

(231) MICHAEL L. STRAUSS
DB 1367 PG 48
MB 8 PG 98

(232) BILLIE JEAN SCHAEFFER
DB 1307 PG 1246
MB 8 PG 98

(472) ALEJANDRO S.MAS
DB 4630 PG 248
MB 8 PG 98

(233) FLOYD J. ALLEN, ET UX
DB 5648 PG 2366
MB 8 PG 98

(234) JAMES B. ALLEN, JR., ET AL
DB 5682 PG 2862
MB 8 PG 98

(235) ROSEMARY KOCH, ET AL
DB 1656 PG 233
MB 8 PG 98

(236) JUNG J. MEDRA
DB 28629 PG 714
MB 8 PG 98

(237) JOHN Y. MILLIKEN, ET UX
DB 1855 PG 352
MB 8 PG 98

(238) TRACY LOWE
DB 4981 PG 129
MB 8 PG 98

(239) JASON R. FERRELL
TR 4872 PG 1656
MB 8 PG 98

455.0' S 74°58'37" E

30' DRAINAGE EASEMENT EACH SIDE OF PROPERTY LINE

(233A) FLOYD J. ALLEN, ET UX
DB 5648 PG 2366
MB 8 PG 98

JAMES B. ALLEN, JR., ET AL
DB 5682 PG 2862
MB 8 PG 98

THOMAS DELORETO, ET UX
DB 5128 PG 2574
MB 8 PG 98

CHRISTA A. V. WALKER
DB 2210 PG 265
MB 8 PG 98

ELISHA P. CICCARELLI TRUST
DB 3220 PG 733
MB 8 PG 98

(247) MATTHEW JOSEPH RUCK, JR., ET UX
DB 5731 PG 1293
MB 8 PG 98

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

S 74°58'37" E
455.0'

S 74°58'37" E
455.0'

1/4/2016
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STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 169.

NAD 83/NSRS 2007

MATCHLINE -Y8RPD- STA 17+50 (SHEET 20)

MATCHLINE -Y8- STA 101+25 (SHEET 20)

MATCHLINE -Y8- STA 109+50 (SHEET 34)

SEE SHEET 56 FOR -Y8RPD- PROFILE

US17

43,100 / 95,200

MILITARY CUTOFF RD

10,100 / 21,100

15,700 / 36,800

HAMPSTEAD BYPASS

25,300 / 56,500

2,500 / 5,300

800 / 1,400

29,300 / 68,300

20,500 / 43,900

2017 / 2037

US17

169
CHARLES M. BULLOCK TRUST
DB 2011 PG 0115
MB 8 PG 97

176
DIANE THI MINH CHAU TA
DB 5503 PG 1237
MB 8 PG 97

170
CORBETT INDUSTRIES INC.
DB 5578 PG 338

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3098 PG 367
MB 41 PG 288-289

10' DRAINAGE EASEMENT

30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

S 07°33'51" W 615.11'

S 07°33'51" W 601.48'

S 80°44'09" E 459.64'

42" RCP-V

HW

2203

PROP G/R

36" RCP-III EQ. PIPE

2204

WOVEN WIRE FENCE

129'R

2201

26'

+18.00 / 105.00

15" CAAP W/ 2 ELBOWS

CLASS 'B' RIP RAP EST. 1 TONS 5 SY GEOTEXTILE

2202

-Y8RPD-

END SBG +01.14

CA-1

147.17'

42" RCP-III

2205

HW

2206

340'R

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

FUTURE (BY OTHERS)

US 17 E

S 8° 20' 15.6" E

US 17 W

-Y8-

NCDOT GPS MON. U4751-I2

417.39
489'

-Y8RPA-

WOVEN WIRE FENCE

915'R

+00.00 / 90.00'

+00.00 / 145.00'

970'R

105

CS Sta. 28+89.09

+89.09 / 90.00'

CHORD

ST Sta. 29+89.09

+89.09 / 90.00'

25

30

WLB

48" WW (SBW)

8/7/2015
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cgroves

STV 100 Years	STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADJUSTED MONUMENT AT PARCEL 170.
2015-12-02 - R/W REVISION (CEG) - REMOVED CONTROLLED ACCESS ROW FROM PARCEL 170 ON THIS SHEET.

MATCHLINE -L- STA 239+00
(SHEET 20)

MATCHLINE
-Y8RPB- STA 19+25
(SHEET 20)

MATCHLINE
-Y8RPCA- STA 18+50
(SHEET 20)

CS Sta. 241+33.73

ST Sta. 244+03.73

SC Sta. 13+24.29

TS Sta. 12+24.29

SC Sta. 11+32.00

SC Sta. 10+84.00

SIDBURY LAND & TIMBER LLC
DB 4526 PG 835

CORBETT INDUSTRIES INC.
DB 5578 PG 338

170

FUTURE (BY OTHERS)

-Y8RPB- S 42° 48' 45.4" W

-Y8RPB- POT Sta. 10+00.00 =
-L- POC Sta. 248+20.54, 47.00' LT
Δ = 3° 00' 00"

-L- HAMPSTEAD BYPASS N 39° 48' 45.4" E
(TIP R3300)

-Y8RPCA-

-Y8RPCA- TS Sta. 10+00.00 =
-L- POC Sta. 248+79.40, 59.00' RT

-Y8RPA- TS Sta. 10+00.00 =
-Y8RPCA- POC Sta. 16+83.78, 12.00' LT

240

245

250

15

WLB

R/W

20' SSWL

48" CMP

INV=35.11

INV=36.11

JS

SF

US17		
	43,100 95,200	
10,100 21,100	15,700 36,800	MILITARY CUTOFF RD
25,300 56,500	29,300 68,300	HAMPSTEAD BYPASS
2,500 5,300	800 1,400	
	20,500 43,900	
US17	2017 2037	

THE INTENT OF THIS SHEET IS TO SHOW FUTURE PROJECT BY OTHERS (TIP R-3300)

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11/10/2015

REVISIONS

2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 181 & 183, CORRECTED AUE STATION OFFSET AT PARCEL 180, ADDED MONUMENT AT PARCEL 178A, INCREASED DRIVES TO 36' WITH 20' RADII ON PARCEL 181.

2015-09-28 - R/W REVISION (SCS) - REVISED AUE ON PARCEL 180 AND 181.

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DASHED LINES REPRESENT PROPOSED PROJECT U-4902C/D

BEGIN TIP PROJECT U-4751 -Y1- POT STA. 14+20.13 AH

END TIP PROJECT U-4902C/D -L- POT STA. 134+56.13 BK

-Y1- POT Sta. 15+23.56 =
-Y25- POT Sta. 10+00.00

POT Sta. 9+96.06

POT Sta. 14+00.00

PC Sta. 19+96.98

END CONSTRUCTION
-Y25- POT STA. 11+81.00

MATCHLINE -Y1- STA 21+00 (SHEET 25)

NAD 83/NSRS 2007

ROBERT L. YUNASKA
DB 1558 PG 1088
DB 1389 PG 1122
DB 1397 PG 656
DB 2664 PG 574

TRINITY GROUP OF WILMINGTON, INC.
DB 4528 PG 705
DB 2696 PG 686

(180) NORTH MARKET COMMERCIAL PARK POA, INC.
DB 5486 PG 2254
DB 2685 PG 237
DB 1389 PG 1122
DB 1397 PG 656
MB 18 PG 151

(181) HOWARD PROPERTIES OF WILMINGTON LLC
DB 5857 PG 949

(183) PAUL C. MAKI
DB 5602 PG 827
MB 33 PG 251

(178A) STATE OF NORTH CAROLINA
DB 628 PG 218
DB 1887 PG 499
DB 2805 PG 493
MB 25 PG 68
MB 45 PG 388

H&S FAMILY HOLDINGS, LLC.
DB 5454 PG 691
DB 2714 PG 357
MB 362 PG 633

(182) EUGENE N. FLOYD, FAMILY TRUST
DB 5266 PG 1853
DB 2717 PG 865
MB 25 PG 68

(184) CHRISTOPHER E. FLOYD, ET UX
DB 1928 PG 727
DB 2748 PG 452
MB 25 PG 68

US HWY 17 MARKET ST

45,300 / 57,200			45,700 / 58,300
2,500 / 3,600	STATION RD	2,800 / 4,700	
		5,300 / 8,300	
			2017 / 2037

SEE SHEET 2B-6 FOR INTERSECTION DETAILS
SEE SHEET 46 FOR -Y1- PROFILE
SEE SHEET 69 FOR -Y25- PROFILE

9/24/2015
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stephens

STV 100 Years — STV Engineers, Inc.
900 West Trade St, Suite 715
Charlotte, NC 28202
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-4751	25
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22115 — ENGINEER JOHN N. JOHNSON

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029388 — ENGINEER EDWARD J. VANCE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2015-07-31 – R/W REVISION (SCS) – REVISED TCE, AUE, AND PROPOSED ROW LINES, MONUMENTS, AND STATION OFFSETS AT PARCEL 3 & 8. REVISED CHANNELIZATION CURB IN THE PARKING LOTS FOR PARCEL 3 & 8.

2015-08-12 – R/W REVISION (SCS) – UPDATED OWNER INFORMATION ON PARCEL 183 & 187. CHANGED AUE STATION OFFSET TO A ROW STATION OFFSET AT PARCEL 192. ADDED PROPERTY LINES TO PARCEL 8. PORTION OF PARCEL 8 ADDED TO PARCEL 3.

2015-12-09 – R/W REVISION (SCS) – ADDED NEW DRIVEWAY ACCESS TO PARCEL 190.

2016-01-20 – R/W REVISION (SCS) – REVISED AERIAL UTILITY EASEMENTS (AUE) ON PARCELS 184 & 185.

2016-12-02 – R/W REVISION (SCS) – ADDED PROPERTY LINE TO DIFFERENTIATE PARCELS 2 AND 2A.

NAD 83/NSRS 2007

MATCHLINE (SHEET 26)

MATCHLINE -Y- STA 19+00 (SHEET 26)

MATCHLINE -Y1- STA 21+00 (SHEET 24)

MATCHLINE -Y1- STA 34+00 (SHEET 6)

MATCHLINE -Y- STA 27+00 (SHEET 5)

186 W-3 SECURCARE PROPERTIES I, LLC.
DB 5247 PG 2682
DB 2673 PG 274
DB 1389 PG 122
DB 1397 PG 656
DB 878 PG 496
MB 33 PG 251

183 PAUL C. MAKI
DB 5602 PG 827
MB 33 PG 251

189 MILTED, LLC.
DB 4246 PG 945
DB 2720 PG 931
DB 1389 PG 122
DB 1397 PG 656

187 MARKET BEND HOLDINGS, LLC
DB 5739 PG 130
MB 33 PG 251

190 WILLIAM P. SAFFO, HEIRS, ETAL
DB 2025 PG 156
MB 45 PG 170

192 SBBH INVESTMENTS, LLC.
DB 5258 PG 1206
DB 4635 PG 419
DB 2808 PG 982
DB 2821 PG 754
MB 45 PG 170

193 OGDEN ASSOCIATES, LLC.
DB 2530 PG 835
DB 2530 PG 838
DB 2863 PG 024
DB 2462 PG 690
MB 37 PG 297

194 OLEARYPA BST PROPERTIES, LLC.
DB 5474 PG 211
DB2846 PG 379?X
DB 2815 PG 538?X
DB 2701 PG 621
DB 2517 PG 568
DB 2473 PG 010
DB 2412 PG 322
MB 37 PG 297

184 CHRISTOPHER E. FLOYD, ET UX
DB 1928 PG 727
DB 2748 PG 452
MB 25 PG 68

185 MICHAEL L. MERRITT, ET UX
DB 1298 PG 267
DB 2791 PG 342
MB 25 PG 68
MB 35 PG 124

188 3BS,LLC.
DB 2751PG 011
DB 2914 PG 1139
DB 2914 PG 1123
MB 4PG 96

2 WILLIAM TOWLES, ET UX
DB 2340 PG 603
DB 2340 PG 605
DB 2914 PG 1131
DB 2419 PG 452
DB 2444 PG 474
DB 2568 PG 074
DB 2620 PG 212
DB 4074 PG 766
MB 4 PG 96

2A W. ESTATES I, LLC.
DB 5999 PG 216
DB 2914 PG 1131
DB 2419 PG 452
DB 2444 PG 474
DB 2568 PG 074
DB 2620 PG 212
DB 4074 PG 766

191 WILKINSON PROPERTIES
DB 1485 PG 072
DB 2895 PG 1939
MB 4 PG 96

3 ODGEN PLAZA, LLC.
DB 2690 PG 425
DB 5443 PG 901
DB 4157 PG 115
DB 2689 PG 525
DB 2664 PG 677
DB 2615 PG 512
MB 4 PG 96

8 ZP NO. 173, LLC.
DB 5124 PG 680
DB 4024 PG 399
DB 2614 PG 594
MB 4 PG 96

US 17 BUS MARKET ST

GORDON RD

WILMINGTON CITY LIMITS

-Y1- POT Sta. 31+13.57 = -Y- POT Sta. 22+10.18

N 39°39'40.8" E

GORDON RD	25,900 / 31,600		
US HWY 17 MARKET ST	10,300 / 13,300	9,000 / 10,100	US HWY 17 MARKET ST
	45,700 / 58,300		43,900 / 54,900
GORDON RD	2,100 / 2,700	1,700 / 2,500	
	10,300 / 13,300		
			2017 / 2037

SEE SHEET 2B-6 FOR INTERSECTION DETAILS
SEE SHEET 45 FOR -Y- PROFILE
SEE SHEET 46 FOR -Y1- PROFILE
SEE SHEETS 2D-2 FOR DITCH DETAIL

11/28/2016
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NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

G&I VI CAPE HARBOR LP
DB 5287 PG 2790
DB 1528 PG 459

SHEFFIELD PROPERTIES, LLC
DB 2987 PG 710
DB 4558 PG 655
DB 3530 PG 901
DB 2705 PG 669
DB 2460 PG 575
DB 1883 PG 258
DB 1389 PG 122
DB 1397 PG 656
MB 17 PG 251

D. J. SKANDALAKIS, ET UX
DB 1471 PG 1909
DB 2609 PG 707
DB 1389 PG 122
DB 1397 PG 656
MB 6 PG 29

JOHN B. CHAUVIN, ET UX
DB 1851 PG 847
DB 2505 PG 977
DB 1389 PG 122
DB 1397 PG 656
MB 6 PG 29

ROBERT N. BATUYIOS, ET AL
DB 2774 PG 155
DB 2609 PG 707
MB 6 PG 29

C H REAL ESTATE, LLC.
DB 2698 PG 479
DB 2452 PG 990
DB 5474 PG 2645
DB 2463 PG 409
MB 6 PG 29

POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y- POT STA. 10+95.00

GORDON RD
SR 2048 GORDON RD.
VARIABLE WIDTH BST

PROP 5" MONO ISLAND

-Y- STA 19+00 (SHEET 25)

MATCHLINE (SHEET 25)

100' BAY TAPER
200' LANE TAPER (LT & RT)

100' RT LANE TAPER
275' TAPER

TIE TO EXIST ISLAND, +80.00

RETAIN
RETAIN JB AND PIPE
REMOVE CB AND PIPE
REMOVE CB COLLAR AND EXTEND
REMOVE
REMOVE DI AND PIPE
REMOVE DI
REMOVE CB AND PIPE
RETAIN EXIST. SYSTEM

18" RCP-IV
15" RCP-IV
15" RCP-III
PROP 2'-6" C&G

SEE SHEET 45 FOR -Y- PROFILE

4/16/2015
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Stephen

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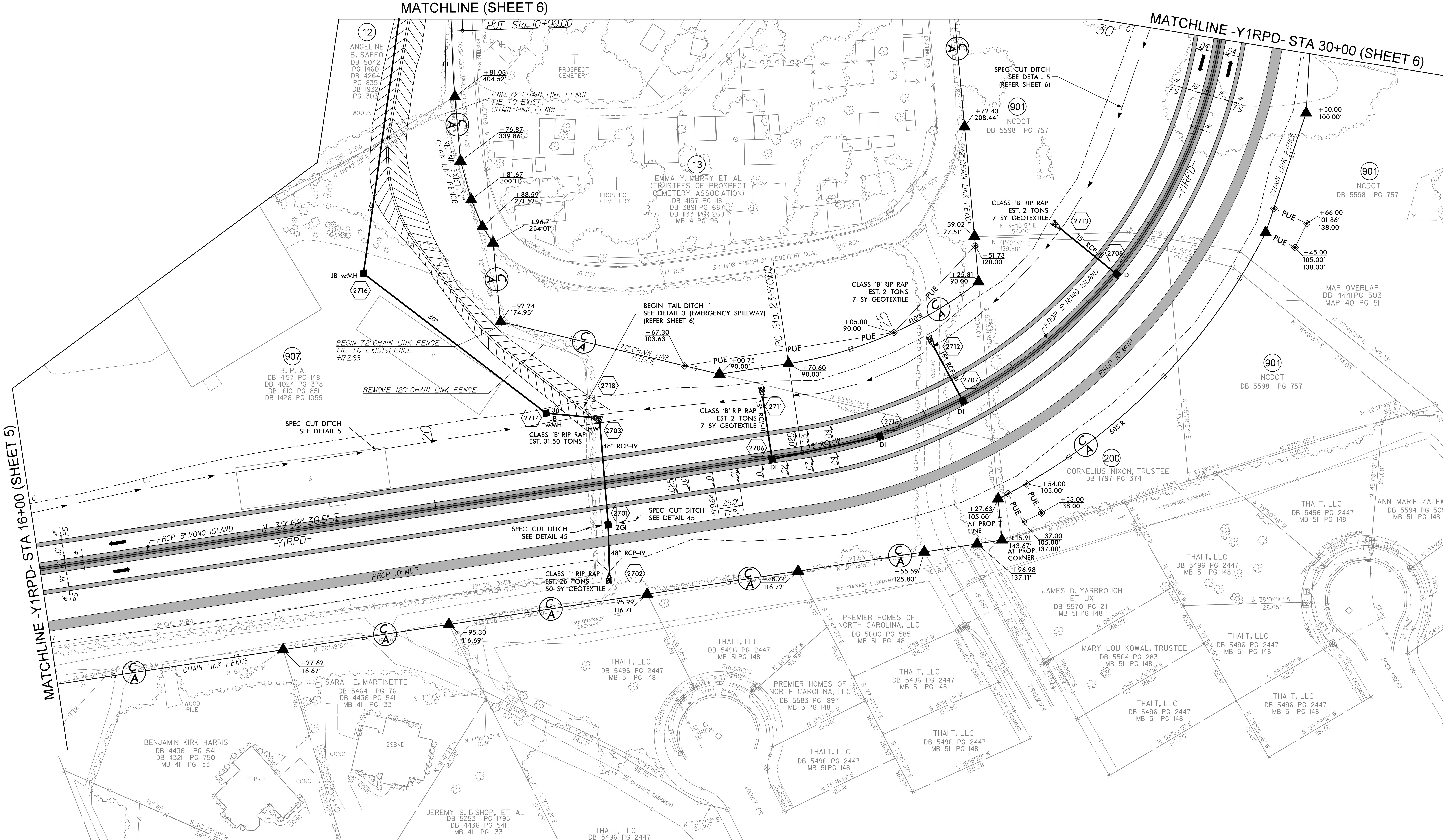
PROJECT REFERENCE NO.	SHEET NO.
U-4751	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

2015-08-12 - R/W REVISION (CEG) - MODIFIED C/A EASEMENT, MONUMENTS, AND STATION OFFSETS AT PARCEL 12, 13, 200 & 907, ADDED C/A MONUMENT AT PARCEL 13 & 901.



SEE SHEET 52 FOR -Y1RPD- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

8/7/2015
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cgroves

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NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	28
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22115 ENGINEER JOHN N. JOHNSON

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029388 ENGINEER EDWARD J. VANCE

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

REVISIONS

2015-06-15 - R/W REVISION (SCS) - CHANGED THE TCE TO AUE ON PARCEL 206 ALONG -Y1- RT.
2015-08-12 - R/W REVISION (CEG) - EXTENDED AUE LINE TO MONUMENT AT PARCEL 206, ADDED MONUMENT AT PARCEL 201.
2015-09-28 - R/W REVISION (SCS) - UPDATED PARCEL INFORMATION ON PARCELS 208,209,AND 212.
2015-10-21 - R/W REVISION (SCS) - UPDATED PARCEL INFORMATION ON PARCELS 21E AND 21F.
2015-11-05 - R/W REVISION (SCS) - ADDED DRIVEWAY ACCESS ON PARCEL 208.
2015-12-17 - R/W REVISION (SCS) - SHIFTED RETAINING WALL (-W7-) ON PARCEL 206 CLOSER TO MARKET ST.
2016-01-04 - R/W REVISION (SCS) - REMOVED ALL PROPOSED WORK RELATED TO EXTENSION OF RUTH AVE.
2016-02-17 - R/W REVISION (SCS) - WIDENED DRIVEWAY ON PARCEL 34 FROM 12' TO 20'.

MATCHLINE -Y1- STA 62+00 (SHEET 6)

MATCHLINE -Y1- STA 75+00 (SHEET 29)

RUTH M. NIXON
DB 1272 PG 960

MT. ARARAT AME CHURCH
DB 723 PG 364

DB 4575 PG 600
MB 50 PG 127

CORNELIUS E. NIXON JR.
(CARRIE NIXON)
DB 5099 PG 178
MB 49 PG 189

ROSS WASHINGTON, HEIRS
DB 57 PG 312

GATEWAY WILMINGTON, LLC
DB 5452 PG 1839
MB 47 PG 60
MB 50 PG 127

MT ARARAT AME CHURCH
DB 000 PG 83
DB 1304 PG 49

BELLA HIGHSMITH CEMETERY
DB 459 PG 41
DB 489 PG 314

ODGEN BAPTIST
CHURCH OF WILMINGTON
DB 2258 PG 390
DB 1766 PG 819
DB 1743 PG 594
MB 29 PG 135

ROBERT
LOUISE WILLIAMS
DB 943 PG 130

EDWARD FOYLES,
HEIRS
DB 2073 PG 508
DB 749 PG 194
DB 2381PG 566
DB 2381PG 562
MB 8 PG 53

GREGORY LEW, ET UX
DB 5192 PG 2481
MB 14 PG 42

K&J HOLDINGS, LLC.
DB 5471 PG 810
DB 5430 PG 2036
MB 14 PG 42

ROWAN ASSET
COMPANY, LLC.
DB 5477 PG 943
DB 5477 PG 939
DB 5491PG 2227
MB 14 PG 42

MARK JOHNSON
DB 5680 PG 2212
MB 2 PG 78

7134 MARKET ST LLC
DB 5697 PG 1813
MB 2 PG 78

CECIL THOMAS
COVIL, ET AL
DB 1369 PG 1512
MB 2 PG 78

EDNA F. DUPREE
DB 749 PG 199
MB 8 PG 53

LITHICIA ZAMBRANO
DB 5334 PG 2489
MB 14 PG 42

BRUCE E. PENNINGTON,
TRUSTEE
DB 4039 PG 768
MB 14 PG 42

RUSSELL MATHIS, SR., ET UX
DB 5330 PG 046
MB 14 PG 42

CHARLES H. DUNCAN
DB 3012 PG 131
MB 14 PG 42

J. W. & MAMIE L. COVIL, HEIRS
DB 1713 PG 907
DB 1713 PG 910
MB 2 PG 78

RANDOLPH F. SHIFFLETT, ET UX
DB 1474 PG 1074
MB 14 PG 42

PHILLIP H. TURNAGE, ET UX
DB 4904 PG 2222
MB 14 PG 42

ERIC T. GISLASON, ET UX
DB 2850 PG 463
MB 14 PG 42

-Y1- POT Sta. 67+94.56 =
-Y10- POT Sta. 10+00.00

PC Sta. 11+28.31

PT Sta. 14+27.88

END CONSTRUCTION
-Y10- POC STA. 12+50.00

TIE TO EXIST C&G +52.06,76.40' RT

TIE TO EXIST C&G +81.70,72.00' RT

TIE TO EXIST C&G +30.18,73.55' RT

-Y1- US 17 BUS MARKET ST N 39°39'40.8" E

OGDEN PARK DRIVE

EL OGDEN DRIVE

FORCE MAIN DEPICTIONS VIA VERBAL TESTIMONY FROM DAVID DAILEY (CFPU) - 910-332-6626

SEE SHEET 48 FOR -Y1- PROFILE
SEE SHEET 61 FOR -Y10- PROFILE

2/17/2016
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stevens

SEE SHEET 2B-7 FOR INTERSECTION DETAILS
SEE SHEET 48 FOR -Y1- PROFILE
SEE SHEET 62 FOR -Y13- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

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PROJECT REFERENCE NO.	SHEET NO.
U-4751	29
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
SEAL 22145 — ENGINEER JOHN N. JOHNSON

HYDRAULICS ENGINEER
SEAL 025388 — ENGINEER EDWARD J. VANCE

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REVISIONS

2015-05-14 - R/W REVISION (SCS) - ADDED PDE TO PARCELS 219,220,222,AND 223 TO ENCOMPASS DRAINAGE STR.NO.'S 2945,2955,2957,AND 2949 ALONG -Y1- LT.
2015-08-12 - R/W REVISION (CEG) - UPDATED PROPERTY OWNER INFORMATION ON PARCEL 211,214,221,222,& 223, ADDED MISSING PDE LINE AT PARCEL 220, CORRECTED TCE AND STATION OFFSET AT PARCEL 211 & 214,COMBINED PARCEL 211 & 213 TO BE PARCEL 211, UPDATED STATION OFFSET AT PARCEL 218.
2015-09-28 - R/W REVISION (SCS) - UPDATED PARCEL INFORMATION ON PARCELS 212,216,AND 218.
2015-11-05 - R/W REVISION (SCS) - PROVIDED ADDITIONAL DRIVEWAY ACCESS AND ADDED PDE,PUE,AND AUE ON PARCEL 221.ADDED PARCEL 242 DUE TO ADDITIONAL AUE ON PARCEL 221.
2015-12-02 - R/W REVISION (SCS) - CHANGED PARCEL NUMBER 242 TO PARCEL 242A
2015-12-09 - R/W REVISION (SCS) - REVISED PROPOSED ROW ON PARCEL 217 DUE TO NEW LEFT TURN LANE AND DRIVEWAY ACCESS ALONG LENDIRE EXTENSION.
REVISED TCE ON PARCEL 216.
2016-05-26 - R/W REVISION (ERW) - PARCEL 222 WAS CORRECTED AND MOVED TO THE ADJACENT PROPERTY.
REMOVED U-4902C/D TIE-IN AND TIED -Y1- TO EXISTING CONDITIONS.EXTENDED PROPOSED ROW TO MATCH Y1TERMINUS.
AUE WAS REVISED ON PARCEL 221.

MATCHLINE -Y1- STA 75+00 (SHEET 28)

MATCHLINE -Y13- STA 18+30 (SHEET 30)

MATCHLINE (SHEET 30)

NAD 83/NSRS 2007

216 TD BANK NA
DB 5899 PG 1279
MB 50 PG 127

215 SS REALTY, LLC
DB 5557 PG 296
MB 50 PG 127

212 SALEM SERVICE CORP.
DB 5696 PG 1466
MB 50 PG 127

217 JR DEVELOPERS, LLC.
DB 5318 PG 2405
MB 34 PG 316

220 DELORIS RYALS
DB 9905 PG 2197
DB 2026 PG 604
DB 1865 PG 728
MB 34 PG 316

227 JOSEPH E. SHANNON
DB 9TGS PG 1442
DB 1397 PG 656
DB 1389 PG 1122
DB 1130 PG 20
DB 1026 PG 437

223 MARY JANE SHOUB
DB 856 PG 600
DB 1240 PG 1612

JAY PATTERSON
DB 5141 PG 1119
DB 5707 PG 1734

MARY L. WALLACE
DB 9TGS PG 1442
DB 1397 PG 656
DB 1389 PG 1122
DB 941 PG 876

219 OCEANS 3, LLC.
DB 5459 PG 028
MB 39 PG 58

222 FERREIRA PROPERTIES, LLC
DB 5866 PG 1591
MB 39 PG 58

LENDIRE EXTENSION -Y13-

-Y1- POC Sta. 78+71.31 = -Y13- POT Sta. 23+56.19

PC Sta. 78+25.71

PT Sta. 19+98.49

PC Sta. 24+45.70

PT Sta. 25+20.71

PT Sta. 80+43.45

POT Sta. 85+62.72

POT Sta. 26+41.41

END CONSTRUCTION -Y1- POT STA. 84+98.37

END CONSTRUCTION -Y13- POT STA. 25+95.55

100' LANE TAPER
300' SHIFT TAPER (LT & RT)
100' BAY TAPER

US HWY 17 MARKET ST

PROP 2'-6" C&G
PROP 5' MONO ISLAND
PROP 10' MGP

211 CECIL THOMAS COVIL, ET AL
EB 966 PG 111
DB 1369 PG 1512
MB 2 PG 78

214 RICSS, LLC
DB 5305 PG 924

218 SHIRLEY S. COVIL
DB 1713 PG 903
DB 2419 PG 472

221 FOREHAND PROPERTIES, LLC
DB 5873 PG 2257
MB 2 PG 78

242A CAROLYN B. PARRISH
DB 3177 PG 364
MB 21 PG 61
MB 21 PG 38
MB 2 PG 78

JAMES R. RYAN
DB 5324 PG 2731
MB 2 PG 78

DENNIS G. STOKLEY
DB 2140 PG 259
MB 21 PG 38
MB 21 PG 52

BETTY BRAY COVIL
DB 5872 PG 1207
MB 2 PG 78

214A RODNEY E. MARTIN ET UX
DB 1507 PG 55
DB 589 PG 444
MB 2 PG 78

PALM COVE APARTMENTS LLC
DB 4186 PG 229
MB 2 PG 78

SPEC CUT DITCH SEE DETAIL 4

RETAIN DI
REMOVE DI
REMOVE

US HWY 17 MARKET ST
MIDDLE SOUND LOOP RD

46,900 / 50,300		42,700 / 45,700
7,300 / 7,900		3,100 / 3,200
	10,300 / 11,100	
		2017 / 2037

5/25/2016
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rlsmith

PROJECT REFERENCE NO.	SHEET NO.
U-4751	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

STV 100 Years
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REVISIONS

2015-05-14 - R/W REVISION (SCS) - ADDED PUE TO PARCEL 220 FROM -Y15- STA.10+74 TO 11+79 RT.
REVISED PUE ON PARCEL 919 FROM -Y13- STA.12+70 TO 14+40 RT.

2015-12-09 - R/W REVISION (SCS) - REVISED PROPOSED ROW ON PARCEL 217 DUE TO NEW LEFT TURN LANE AND DRIVEWAY ACCESS ALONG LENDIRE EXTENSION.

NAD 83/NSRS 2007

MATCHLINE (SHEET 29)

-Y13- STA 18+30 (SHEET 29)

MATCHLINE

NEW HANOVER COUNTY
SEWER AND WATER DISTRICT
DB 2763 PG 323
MB 39 PG 57 & 58
MB 39 PG 161& 162

ROYA D. WEYERHAEUSER
DB 3836 PG 777
MB 39 PG 161

GAVIN MYERS
DB 5427 PG 258
MB 39 PG 161

JACOB'S RIDGE AT WEST
BAY ESTATES HOA, INC.
MB 39 PG 161& 162
DB 3576 PG 816

JACOB'S RIDGE AT WEST
BAY ESTATES HOA, INC.
DB 3576 PG 816
MB 39 PG 161& 162

(217) JR DEVELOPERS, LLC.
DB 5318 PG 2405
MB 34 PG 316

(227) JOSEPH E. SHANNON
DB 975S PG 1442
DB 1397 PG 656
DB 1389 PG 122
DB 1130 PG 20
DB 1026 PG 437

(224) COSWALD, LLC
DB 4883 PG 903
MB 34 PG 212

(225) OGDEN BUSINESS PARK, LLC
DB 2745 PG 632
DB 4753 PG 115
DB 4880 PG 2334
MB 12 PG 281
MB 33 PG 292
MB 39 PG 113

(919) PINNACLE TRAILERS, LLC
DB 5789 PG 230

(220) DELORIS RYALS
DB 9905 PG 2197
DB 2026 PG 604
DB 1865 PG 728
MB 34 PG 316

ICE VENTURES REALTY, LLC
DB 4344 PG 668
MB 12 PG 281

POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y13- POT STA. 11+50.00

PC Sta. 10+98.49

PC Sta. 12+38.94

-Y13- POC Sta. 14+55.04 =
-Y15- POT Sta. 10+00.00
S 88° 04' 53.3" E

PRC Sta. 15+91.60

PT Sta. 12+06.60

-Y13- POC Sta. 16+98.18 =
-Y14- POT Sta. 12+22.52

PC Sta. 11+09.30

BEGIN CONSTRUCTION
-Y14- POT STA. 10+00.00

END CONSTRUCTION
-Y15- POT STA. 12+50.00

PT Sta. 11+71.5

POT Sta. 12+75.00

S 47° 36' 24.3" E

S 46° 14' 42.2" E

S 88° 04' 53.3" E

S 81° 12' 41.7" E

N 43° 02' 24.7" E

PAVEMENT REMOVAL

SEE SHEET 62 FOR -Y13- PROFILE
SEE SHEET 62 FOR -Y14- PROFILE
SEE SHEET 63 FOR -Y15- PROFILE
SEE SHEETS 2D-1 AND 2D-2 FOR DITCH DETAIL

12/8/2015
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PROJECT REFERENCE NO.	SHEET NO.
U-4751	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PG 344
DB 3099 PG 367
MB 41 PG 288-289

170
CORBETT INDUSTRIES INC.
DB 5578 PG 338

BEGIN CONSTRUCTION,
BEGIN MILLING AND RESURFACING
-Y8- POT STA. 31+20.00

840' TAPER

HEADWALL

8.67" +20.00 PS

+81.90
5.65' BY6-1

-Y8-
S 67° 54' 42.7" E

+96.49
100.67' BM61

+12.00
114.83'

+54.00
133.00'

+62.00
114.83'

PDE

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

3101

3102

48" RCP-III

+60.00 4" PS 12"

COLLAR

US 17 W

US 17 W 36'BST

US 17 E

US 17 E 37'BST

48" RCP

18" RCP

CONC

12" BLK

229.66'

EXISTING R/W

48" WW ISBW

WLB

MATCHLINE -Y8- STA 44+00 (SHEET 32)

SEE SHEET 66 FOR -Y8- PROFILE

4/16/2015
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Stephens

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NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

MATCHLINE -Y8- STA 44+00 (SHEET 31)

MATCHLINE -Y8- STA 57+00 (SHEET 33)

170
CORBETT INDUSTRIES INC.
DB 5578 PG 338

45 50 55

840' TAPER

+20.00

+60.00

PC Sta. 56+00.40

48" WW JSBW

3205 24" RCP-III COLLAR

3206 PIPE CLEANOUT EST 15 LF

3207 24" RCP-III

3208 COLLAR

4' PS

12'

US 17 W

US 17 W 36'BST

24' RCP RETAIN

-Y8-
S 67° 54' 42.7" E

BY6-2
+77.21
4.99'

229.66'

DI W/CONC

US 17 E

US 17 E 37'BST

REMOVE LAST SECTION OF EX PIPE

COLLAR

24" RCP-III

48" WW 15BW

WLB

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PG 367
MB 41 PG 288-289

S 81°38'25" E
473.34'

S 81°01'29" E
[illegible]

SEE SHEET 66 FOR -Y8- PROFILE

4/16/2015
R:\Roadway\Proj\SHT\U4751_RDY_psh32.dgn
Stephens

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

REVISIONS
2015-08-12 - R/W REVISION (CEG) - ADDED STATION OFFSET AT PARCEL 170, ADDED PARCELS 231 & 232.

8/7/2015
R:\Raleigh\Projects\SHT\U4751_RDY_psh33.dgn
cgroves

MATCHLINE -Y8- STA 57+00 (SHEET 32)

MATCHLINE -Y8- STA 70+00 (SHEET 21)

MATCHLINE (SHEET 21A)

170
CORBETT INDUSTRIES INC.
DB 5578 PG 338

-Y8RPDB- ST Sta. 69+87.19 =
-Y8- POC Sta. 69+54.22, 59.00' LT
△ = 0° 00' 00"

500' ACCELERATION LANE

600' TAPER

24" RCP-III
48" WW ISBW
18" RCP-III
PIPE CLEANOUT EST 15 LF
COLLAR
EXISTING R/W
US 17 W 36'BST
US 17 E 37'BST
RETAIN
+74.70 5.94'
BY6-3
+69.14 5.55'
BY6-4
-Y8-
-Y8RPCA-
N 70° 56' 43.4" W
30" RCP-III
HW
2340'R
CHORD
+65.35 63.41'
+81.35 60.00'
+29.35
24.0' TYP
WOVEN WIRE FENCE
WLB
+00.00 114.83'
+92.88 75.00'
BEGIN WIDENING RT
-Y8- POT STA. 61+09.36
END WOVEN WIRE FENCE
+00.00, 114.83'
-Y8RPCA- POT Sta. 68+92.88 =
-Y8- POC Sta. 64+07.54, 46.78' RT
△ = 3° 00' 59"
ST Sta. 65+65.35
CS Sta. 64+81.35
N 80°44'09" W 455.50'
15' DRAINAGE EASEMENT
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF -Y8-
S 01°33'51" W 535.38'

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PG 367
MB 41 PG 288-289

231
MICHAEL L. STRAUSS
DB 1362 PG 416
MB 8 PG 98

232
BILLIE JEAN SCHAEFFER
DB 1307 PG 1846
MB 8 PG 98

175
ALEJANDRO ILINAS
DB 4650 PG 248
MB 8 PG 98

SEE SHEET 55 FOR -Y8RPCA- PROFILE
SEE SHEET 59 FOR -Y8RPDB- PROFILE
SEE SHEET 67 FOR -Y8- PROFILE

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
U-4751	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/NSRS 2007

REVISIONS

2015-08-12 - R/W REVISION (CEG) - ADDED STATION OFFSETS AT PARCEL 170.

MATCHLINE -Y8- STA 109+50 (SHEET 22)

170
CORBETT INDUSTRIES INC.
DB 5578 PG 338

110 115 120

END WOVEN WIRE FENCE
+72.99, 68.00'
WOVEN WIRE FENCE
+72.99
68.00'
EXISTING R/W

-Y8RPA- POT Sta. 33+72.99 =
-Y8- POT Sta. 111+63.61, 46.92' LT
Δ = 3° 00' 00"

END CONSTRUCTION
END MILLING & RESURFACING
-Y8- POT STA. 121+98.08

FUTURE (BY OTHERS)
-Y8RPA- S 78° 20' 15.6" E

US 17 W
US 17 W 36'BST

-Y8- S 81° 20' 15.6" E
+19.68
5.43'
BY6-5

US 17 E
US 17 E 37'BST

-Y8RPD-
240' TYP
HW (3401)
COLLAR (3403)
(3402)
CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEOTEXTILE
EXTEND 18" RCP
RETAIN
+72.24
300' TAPER
+96.08
+98.08

48" WOVEN WIRE FENCE
+93.10
60.00'
1340'R
END WOVEN WIRE FENCE
+93.10, 60.00'
EXISTING R/W

CS Sta. 28+62.70

-Y8RPD- ST Sta. 30+18.70 =
-Y8- POT Sta. 112+98.08, 46.66' RT
Δ = 0° 00' 00"

S 80°44'09" E 459.65'
10' DRAINAGE EASEMENT
S 80°44'09" E 459.64'

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3099 PG 367
MB 41 PG 288-289

CONG VU PHAM
DB 5351 PG 2982
MB 8 PG 97

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 3443 PG 147
MB 8 PG 97

S 01°32'51" W
587.84'
30' PUBLIC RIGHT OF WAY EASEMENT EACH SIDE OF PROPERTY LINE

30

SEE SHEET 56 FOR -Y8RPD- PROFILE
SEE SHEET 69 FOR -Y8- PROFILE

8/17/2015
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cgroves