



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Parks							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-1		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 6.7 ft		NORTHING 830,802		US ft		EASTING 2,608,471							
TOTAL DEPTH 100.1 ft		DRILL MACHINE CME 550		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/2/04		COMPLETED 10/3/04		SURFACE WATER DEPTH NA									
FLEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
6.7													
6.7	0.0	1	12	12							1	M	6.7
3.1	3.6	1	5	10							2	W	3.1
-1.9	8.6	1	2	1							3	M	-0.3
-6.9	13.6	1	1	1							4	M	
-11.9	18.6	2	2	2							5	M	
-16.9	23.6	2	3	4							6	W	-15.3
-21.9	28.6	1	3	4							7	M	-20.3
-26.9	33.6	1	3	3							8	M	
-31.9	38.6	2	4	8							9	M	
-36.9	43.6	8	8	9							10	W	-35.3
-41.9	48.6	6	8	9							11	W	
-46.9	53.6	6	5	20							12	W	-44.3
-51.9	58.6	9	23	30							13	W	
-56.9	63.6	19	26	23							14	W	
-61.9	68.6	6	8	10							15	W	-60.3
-66.9	73.6	9	14	14							16	M	-65.3

0808.GPJ NC DOT.GDT 10/6/04

NC DOT BORE LOG

24

15

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7

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12

17

17

25

53

49

18

28

Alluvium: Light gray to gray, f. sandy SILT (A-4)

Alluvium: Tan brown to gray, silty f. to cse. SAND (A-2-6)

CPU: Gray blue, silty CLAY (A-6)

CPU: Dark gray to brown, silty, f. SAND (A-2-4) with trace mica

CPU: Gray blue to brown and light gray, f. sandy, silty CLAY (A-7-6) with trace organics, mica and wood fragments

CPU: Light gray to gray, silty, f. to cse. SAND (A-2-4) with trace mica and interbedded gray clay (A-7-6) lenses

CPU: Gray, silty, f. to cse. SAND (A-3) with trace mica and interbedded gray CLAY (A-7-6) lenses

Yorktown Fm.: Green to dark green, silty, f. SAND (A-2-4) with trace mica and shell fragments

Yorktown Fm.: Green to bright green, clayey SILT (A-5) with trace mica



MACTEC

N.C.D.O.T. GEOTECHNICAL UNIT BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Parks							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashic River						GROUND WATER (ft)							
BORING NO. MB-1		BORING LOCATION		OFFSET	ALIGNMENT -L-	0 HR. 0.0							
COLLAR ELEV. 6.7 ft		NORTHING 830,802		US ft	EASTING 2,608,471	US ft	24 HR.						
TOTAL DEPTH 100.1 ft		DRILL MACHINE CME 550		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/2/04		COMPLETED 10/3/04		SURFACE WATER DEPTH NA									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-68.1					Continued from previous page								
-71.9	78.6	24	9	22	●31					17	M	-70.3 Yorktown Fm.: Light gray to green, silty CLAY (A-7-6) with trace mica and shell fragments 77.0	
-76.9	83.6	12	23	29	●52					18	W	-75.3 Yorktown Fm.: Green to dark green, clayey, silty, f. SAND (A-2-4) with trace to little shell fragments 82.0	
-81.9	88.6	19	27	28	●55					19	W	-80.3 Yorktown Fm.: Light gray to green and brown, silty, f. to cse. SAND (A-2-4) with trace mica and trace to little shell fragments 87.0	
-86.9	93.6	24	27	23	●50					20	W		
-91.9	98.6	28	31	15	●46					21	W	-93.4 100.1	
Boring terminated at 100.1 ft (Elev. -93.4 ft.) in Yorktown Fm.: Light gray to green and brown, silty, f. to cse. SAND (A-2-4) with trace mica and trace to little shell fragments													
Bits used: 0.3' Side-discharge finger bit and 0.3" Roller cone													
Drilling fluid: Water													
Boring Terminated at Elevation -93.4 ft													



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-2		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 1.0 ft		NORTHING 830,774 US ft		EASTING 2,608,397 US ft		0 HR.							
TOTAL DEPTH 100.7 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/1/04		COMPLETED 10/1/04		SURFACE WATER DEPTH NA									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
1.0													
1.0	0.0	1	0	1	1						1	W	1.0 Alluvium: Brown and gray, silty CLAY (A-7-6) with roots 0.0
-3.3	4.3												-1.0 CPU: Orange and gray, silty CLAY (A-7-6) with trace organics 2.0
		2	4	4							2	M	
-8.2	9.2												-8.5 CPU: Gray, f. SAND (A-3) 9.5
		7	7	8							3	M	-9.5 CPU: Gray, silty CLAY (A-7-6) 10.5
-13.2	14.2												-11.5 CPU: Gray, silty, f. to cse. SAND (A-2-4) with trace wood fragments 12.5
		2	1	3							4	W	
-18.2	19.2												
		8	8	14							5	W	-21.5 CPU: Gray, micaceous, f. SAND (A-3) with trace organics 22.5
-23.2	24.2												
		10	15	17							6	W	
-28.2	29.2												
		7	15	22							7	W	
-33.2	34.2												
		12	16	9							8	W	
-38.2	39.2												
		12	11	12							9	W	-38.2 CPU: Gray, micaceous, f. SAND (A-3) with thinly bedded gray silty CLAY (A-7-6) 39.2
-43.2	44.2												
		6	5	10							10	W	
-48.2	49.2												
		15	27	52							11	W	-48.2 CPU: Gray, micaceous, f. to cse. SAND (A-3) 49.2
-53.2	54.2												
		11	18	22							12	W	
-58.2	59.2												
		3	7	4							13	W	56.5 Mixed new mud - Gravel in wash advanced to 59.2 ft 59.2
-63.2	64.2												
		8	13	13									
-68.2	69.2												
		7	21	79/3							15	M	-59.0 CPU: Gray, micaceous, f. to cse. SAND (A-2-4) with trace gravel and thinly bedded clay Yorktown Fm.: Gray, f. sandy, silty CLAY (A-6) with trace shell fragments 62.5
-73.2	74.2												
													-61.5 Yorktown Fm.: Gray, silty CLAY (A-7-6) 67.5
													-66.5 Yorktown Fm.: Gray to blue green, f. to cse. sandy, clayey SILT (A-4) at 74.2 feet with trace shell fragments and moderately indurated limestone fragments 67.5
													Hard drilling from 76 ft. to 77 ft.

NC DOT BORE LOG 0808 CPU NC DOT GDT 10/6/04



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald					
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River							GROUND WATER (ft) 0 HR. 24 HR.				
BORING NO. MB-2		BORING LOCATION		OFFSET		ALIGNMENT -L-					
COLLAR ELEV. 1.0 ft		NORTHING 830,774 US ft		EASTING 2,608,397 US ft							
TOTAL DEPTH 100.7 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual					
DATE STARTED 10/1/04		COMPLETED 10/1/04		SURFACE WATER DEPTH NA							
ELEV. (ft)	DEPTH (ft)	BLOW COUNT 0.5ft 0.5ft 0.5ft			BLOWS PER FOOT 0 20 40 60 80 100			SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
-73.8					Continued from previous page						
-78.2	79.2	20	80	20/2				16	M		Yorktown Fm.: Gray to blue green, f. to cse. sandy, clayey SILT (A-4) at 74.2 feet with trace shell fragments and moderately indurated limestone fragments
		22	32	61				17	M		Hard drilling from 76 ft. to 77 ft. (continued)
-83.2	84.2	20	40	48				18	M		Yorktown Fm.: Blue-green, silty, f. SAND (A-2-4) with trace shell fragments
-88.2	89.2	15	24	23				19	M		
-93.2	94.2	17	24	26				20	M		
-98.2	99.2	11	10	15				21	M		Yorktown Fm.: Blue-green, f. sandy, silty CLAY (A-6)
											Boring terminated at 100.7 ft (Elev. -99.7 ft) in Yorktown Fm.: Blue-green, f. sandy, silty CLAY (A-6)
											Bit used: 0.22' Roller cone
											Drill fluid: Water
											Boring Terminated at Elevation -99.7 ft



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-3		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 2.2 ft		NORTHING 830,721 US ft		EASTING 2,608,293 US ft		0 HR. 0.5							
TOTAL DEPTH 101.2 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/1/04		COMPLETED 10/2/04		SURFACE WATER DEPTH NA									
ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
2.2													
2.2	0.0	1	2	3	●5						1	W	2.2
-2.9	5.1												-1.3
		5	7	8	●15						2	W	
-7.5	9.7				●13						3	W	
		5	6	7									
-12.5	14.7				●23						4	W	
		5	10	13									
-17.5	19.7				●17						5	W	-15.8
		6	8	9									
-22.5	24.7				●10						6	W	-20.8
		3	4	6									
-27.5	29.7				●23						7	W	
		7	10	13									
-32.5	34.7				●21						8	W	
		9	9	12									
-37.5	39.7				●16						9	W	
		7	8	8									
-42.5	44.7				●10						10	W	
		3	3	7									
-47.5	49.7				●14						11	W	
		5	5	9									
-52.5	54.7				●29						12	W	-50.8
		9	12	17									
-57.5	59.7				●11						13	W	
		16	6	5									
-62.5	64.7				●11						14	M	-58.8
		4	4	7									
-67.5	69.7										15	M	-60.8
		8	13	28	●41								
-72.5	74.7												

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PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-3		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 2.2 ft		NORTHING 830,721		EASTING 2,608,293		0 HR. 0.5							
TOTAL DEPTH 101.2 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		24 HR.							
DATE STARTED 10/1/04		COMPLETED 10/2/04		SURFACE WATER DEPTH NA									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-72.6					Continued from previous page								
		16	28	41	●69						16	M	Yorktown Fm.: Gray to blue green and white, f. to cse. sandy, clayey SILT (A-4) with trace and little shell fragments (continued)
-77.5	79.7	20	49	27	●75						17	M	
-82.5	84.7	19	26	34	●60						18	M	
-87.5	89.7	17	16	23	●39						19	M	Yorktown Fm.: Blue green, silty, f. to cse. SAND (A-2-4) with trace shell fragments
-92.5	94.7	7	16	21	●37						20	M	
-97.5	99.7	13	13	19	●32						21	M	Yorktown Fm.: Gray-green, silty, f. sandy CLAY (A-6)
													Boring terminated at 101.2 ft (Elev. -99 ft) in Yorktown Fm.: Gray-green, silty, f. sandy CLAY (A-6)
													Bit used: 0.22' Roller cone
													Drill Fluid: Water
													Boring Terminated at Elevation -99.0 ft



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-10		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. -5.0 ft		NORTHING 830,271		EASTING 2,607,244		0 HR. Water							
TOTAL DEPTH 102.2 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		24 HR. Boring							
DATE STARTED 10/2/04		COMPLETED 10/3/04		SURFACE WATER DEPTH 5.8									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-5.0	0.0	WOR	WOR	WOR	0						1	Sat.	5.0
-5.0	0.0												0.0
-11.2	6.2	2	3	5							2	Sat.	-7.5
-16.3	11.3	4	5	4							3	Sat.	2.5
-21.0	16.0	2	2	4							4	W	Alluvium: Gray-tan, f. to cse. SAND (A-3) with trace organic debris
-26.0	21.0	2	2	3							5	Sat.	-18.0
-30.7	25.7	2	2	2							6	W	13.0
-36.0	31.0	3	3	4							7	W	CPU: Dark gray-brown, micaceous, silty CLAY (A-7-6) with trace organic debris
-41.0	36.0	5	5	5							8	W	-25.0
-45.7	40.7	4	7	27							9	W	20.0
-50.7	45.7	3	4	5							10	W	CPU: Brown PEAT
-55.7	50.7	8	14	20							11	W	-28.0
-60.9	55.9	7	8	12							12	W	23.0
-65.8	60.8	8	18	38							13	W	CPU: Gray, silty, CLAY (A-7-6) with trace organics
-70.2	65.2	20	31	32							14	W	-34.0
-75.7	70.7	18	27	26							15	W	29.0
													43.5
													48.5
													54.0
													59.0
													69.0

0808 GPJ NC DOT.GDT 10/6/04

NC DOT BORE LOG



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear								
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)								
BORING NO. MB-10		BORING LOCATION		OFFSET		ALIGNMENT -L-								
COLLAR ELEV. -5.0 ft		NORTHING 830,271		EASTING 2,607,244		0 HR. Water								
TOTAL DEPTH 102.2 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		24 HR. Boring								
DATE STARTED 10/2/04		COMPLETED 10/3/04		SURFACE WATER DEPTH 5.8										
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100				
-79.8					Continued from previous page									
-80.7	75.7	17	22	26	●48						16	W	Yorktown Fm.: Dark green to gray, glauconitic, silty, f. to cse. SAND (A-3) with trace shell fragments (continued)	
-85.7	80.7	22	15	15	●30						17	W		
-90.7	85.7	15	15	15	●30						18	W		
-95.7	90.7	51	46	16	●62						19	M	Yorktown Fm.: Dark gray-brown, clayey, f. to cse. sandy SILT (A-4) with trace very thinly bedded indurated limestone layers and shell fragments	
-100.7	95.7	6	5	7	●12						20	M		
-105.7	100.7	10	14	18	●32						21	M	-107.2	102.2
Boring terminated at 102.2 feet (Elev. -107.2 ft.) in Yorktown Fm.: Hard, clayey, f. to cse. sandy SILT (A-4) with trace thinly bedded indurated limestone layers and shell fragments														
Bits used: 3" Side-discharge finger bit														
Drilling fluid: Water														
Boring Terminated at Elevation -107.2 ft														



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear					
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)					
BORING NO. MB-11		BORING LOCATION		OFFSET		ALIGNMENT -L-					
COLLAR ELEV. -10.4 ft		NORTHING 830,251 US ft		EASTING 2,607,195 US ft		0 HR. Water					
TOTAL DEPTH 101.9 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		24 HR. Boring					
DATE STARTED 10/2/04		COMPLETED 10/2/04		SURFACE WATER DEPTH 11.2							
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100	
-10.4	0.0	2	2	3	5						1 Sat. -10.4 0.0
-16.0	5.6	8	5	5	10						2 Sat. -18.9 8.5
-21.2	10.8	2	3	3	6						3 W -33.4 23.0
-26.2	15.8	5	5	7	12						4 W -38.4 28.0
-30.8	20.4	3	3	4	7						5 W -44.4 34.0
-35.8	25.4	4	6	5	11						6 W -48.4 38.0
-40.8	30.4	7	7	11	18						7 W -58.4 48.0
-45.8	35.4	4	14	11	25						8 W -63.4 53.0
-50.8	40.4	10	9	13	22						9 W -69.9 59.5
-55.8	45.4	4	13	21	34						10 W -72.9 62.5
-60.8	50.4	7	11	15	26						11 W
-65.8	55.4	3	8	15	23						12 W
-70.8	60.4	36	45	55/4	71						13 W
-75.8	65.4	26	30	41							14 W
-80.8	70.4	24	76/4								15 W

NCDOT BORE SITE - 0808.GPJ NC DOT.CDT 10/6/04



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-11		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. -10.4 ft		NORTHING 830,251		EASTING 2,607,195		0 HR. Water							
TOTAL DEPTH 101.9 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		24 HR. Boring							
DATE STARTED 10/2/04		COMPLETED 10/2/04		SURFACE WATER DEPTH 11.2									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-85.2					Continued from previous page								
-85.8	75.4	11	16	17	●33						16	W	Yorktown Fm.: Gray-green, glauconitic, silty, f. to cse. SAND (A-3) with trace shell fragments (continued)
-90.8	80.4	17	23	28	●51						17	W	
-95.8	85.4	10	6	7	●13						18	W	94.4 Yorktown Fm.: Dark gray, glauconitic, silty, clayey, f. to cse. SAND (A-2-6) with trace shell fragments 84.0
-100.8	90.4	5	6	10	●16						19	W	-98.4 Yorktown Fm.: Dark gray-green, f. sandy, clayey SILT (A-4) with trace shell fragments 88.0
-105.8	95.4	7	8	9	●17						20	W	
-110.8	100.4	6	5	7	●12						21	W	-112.3 Boring terminated at 101.9 ft. (Elev. -112.53 ft) in Yorktown Fm.: Dark gray-green, f. sandy, clayey SILT (A-4) with trace shell fragments 101.9
													Bit used: 3" Side-discharge finger bit
													Drilling fluid: Water
													Boring Terminated at Elevation -112.3 ft

NCDOT BORE SIGNAGE 0808.GPJ NC DOT.GDT 10/6/04



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-12		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. -5.7 ft		NORTHING 830.223		US ft		EASTING 2.607.138							
TOTAL DEPTH 101.5 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/1/04		COMPLETED 10/1/04		SURFACE WATER DEPTH 6.5									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-5.7	0.0	1	2	3	●5						1	Sat.	-5.7 0.0
-11.2	5.5	2	5	10	●15						2	W	Alluvium: Gray, brown and white, silty, f. to cse. SAND (A-3) with trace gravel and organic debris
-15.7	10.0	3	5	4	●9						3	W	
-20.7	15.0	2	3	4	●7						4	M	-18.2 12.5 CPU: Dark brown green, micaceous, f. sandy, silty CLAY (A-6) with trace to little organic debris
-25.7	20.0	3	4	5	●9						5	M	-23.2 17.5 CPU: Dark brown-green, micaceous, f. sandy, silty CLAY (A-7-6) with very thinly to thinly bedded peat layers
-30.7	25.0	5	4	7	●11						6	M	-29.7 24.0 CPU: Dark brown, sandy clayey PEAT
-35.7	30.0	5	6	5	●11						7	W	-32.7 27.0 Yorktown Fm.: Light gray-green, f. sandy, silty CLAY (A-6) with thinly bedded f. to cse. SAND (A-3) and trace gravel layers
-40.7	35.0	3	4	13	●17						8	W	
-45.7	40.0	4	8	6	●14						9	W	
-50.7	45.0	5	9	10	●19						10	W	-48.2 42.5 Yorktown Fm.: Gray, f. to cse. SAND (A-3) with trace gravel
-55.7	50.0	19	13	12	●25						11	W	
-60.7	55.0	7	9	13	●22						12	M	-58.2 52.5 Yorktown Fm.: Gravel (Not sampled) -59.2 53.5 Yorktown Fm.: Dark gray-green, glauconitic, f. sandy, silty CLAY (A-4)
-65.7	60.0	16	22	39	●61						13	M	-63.7 58.0 Yorktown Fm.: Gray-white and dark green glauconitic, f. sandy, silty CLAY (A-6) with trace shell fragments
-70.7	65.0	60/0									14	W	-70.7 65.0 Yorktown Fm.: Very thinly to thinly bedded, friable to indurated calcite cemented sandstone with shell fragments
-75.7	70.0	28	56	40/4							15	W	-71.2 65.5 Yorktown Fm.: Gray-green, glauconitic, clayey, silty, f. to cse. SAND (A-2-4) with trace shell fragments
-80.7	75.0												

0808.GPJ NC DOT.GDT 10/6/04

NC DOT BORE SI



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-12		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. -5.7 ft		NORTHING 830,223 US ft		EASTING 2,607,138 US ft		0 HR. Water							
TOTAL DEPTH 101.5 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		24 HR. Boring							
DATE STARTED 10/1/04		COMPLETED 10/1/04		SURFACE WATER DEPTH 6.5									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-80.5		Continued from previous page											
		26	23	24	●47					16	W	-83.2	77.5
-85.7	80.0	18	23	27	●50					17	W		
-90.7	85.0	19	21	25	●46					18	W		
-95.7	90.0	15	8	9	●17					19	W	-94.7	89.0
-100.7	95.0	5	5	8	●13					20	M	-98.7	93.0
-105.7	100.0	6	6	5	●11					21	M	-107.2	101.5
											Boring terminated at 101.5 ft. (Elev. -107.2 ft.) in Yorktown Fm.: Dark gray-green, glauconitic, f. sandy, clayey, SILT (A-4)		
											Bit used: 3" Side-discharge finger bit		
											Fluid used: Water		
											Boring Terminated at Elevation -107.2 ft		



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Parks							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-13		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 7.8 ft		NORTHING 830,749 US ft		EASTING 2,608,493 US ft		0 HR. 0.5							
TOTAL DEPTH 99.9 ft		DRILL MACHINE CME 550		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/1/04		COMPLETED 10/2/04		SURFACE WATER DEPTH NA									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
7.8													7.8 0.0
7.8	0.0	3	4	3							1	M	Alluvium: Tan brown to brown, f. sandy SILT (A-4) with trace organics 3.1
4.7	3.1	2	5	6							2	M	Alluvium: Tan brown, f. sandy clayey SILT (A-5) 8.4
-0.6	8.4	7	7	9							3	M	Alluvium: Tan brown, f. sandy, silty CLAY (A-7-6) with trace wood fragments 9.4
-5.6	13.4	1	1	1							4	M	Alluvium: Gray to white, f. to cse. SAND (A-3) 11.5
-10.6	18.4	1	1	2							5	M	CPU: Gray blue, silty CLAY (A-6)
-15.6	23.4	1	2	4							6	M	CPU: Grayish blue, f. sandy, clayey SILT (A-5) with trace mica 24.2
-20.6	28.4	2	2	4							7	M	CPU: Grayish blue, silty CLAY (A-7-6) with trace organics 26.5
-25.6	33.4	2	3	4							8	W	CPU: Blue to gray, f. sandy clayey SILT (A-5) with trace mica and organics 31.5
-30.6	38.4	4	5	6							9	W	CPU: Dark gray, silty, f. to cse. SAND (A-2-4) with trace mica 38.4
-35.6	43.4	5	8	9							10	W	CPU: Dark gray, f. sandy, silty CLAY (A-7-6) with trace mica 39.6
-40.6	48.4	2	5	6							11	W	CPU: Gray, silty, f. to cse. SAND (A-2-4) with trace mica 41.5
-45.6	53.4	5	12	14							12	W	CPU: Gray, silty CLAY (A-6) 46.5
-50.6	58.4	5	9	13							13	W	CPU: Gray, silty, f. to cse. SAND (A-3) with trace mica 49.6
-55.6	63.4	15	19	20							14	W	CPU: Gray, silty, f. to cse. SAND (A-2-4) with trace mica and gray CLAY (A-7-6) interbedded lenses 51.0
-60.6	68.4	2	3	4							15	W	CPU: Gray, f. to cse. SAND (A-3) 61.5
-65.6	73.4	8	11	14							16	M	Yorktown Fm.: Grayish green, clayey, silty f. to cse. SAND (A-2-6) with trace mica and shell fragments 66.5
													Yorktown Fm.: Green, f. sandy, silty CLAY (A-7-6) 71.5

NCDOT BORE SILENCE - 0808.GPJ NC DOT.GDT 10/6/04



SHEET 2 OF 2

NC DOT BORE SIN - 0808.GPJ NC DOT.GDT 10/6/04



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Parks					
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)					
BORING NO. MB-14		BORING LOCATION		OFFSET		ALIGNMENT -L-					
COLLAR ELEV. 1.0 ft		NORTHING 830,717		US ft		EASTING 2,608,401					
TOTAL DEPTH 100.1 ft		DRILL MACHINE CME 550		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual					
DATE STARTED 10/3/04		COMPLETED 10/4/04		SURFACE WATER DEPTH NA							
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100	
1.0											
0.1	0.9										
-2.6	3.6	1	1	1							1.0
											Alluvium: Light gray to brown, f. sandy, silty CLAY (A-7-6) with trace organics
-7.6	8.6	2	3	5							
-12.6	13.6	woh	3	5							
-17.6	18.6	4	6	4							
-22.6	23.6	4	6	10							
-27.6	28.6	14	18	24							
-32.6	33.6	12	14	15							
-37.6	38.6	20	29	30							
-42.6	43.6	10	13	13							
-47.6	48.6	6	8	12							
-52.6	53.6	5	17	26							
-57.6	58.6	11	12	18							
-62.6	63.6	16	18	23							
-67.6	68.6	15	15	36							
-72.6	73.6	9	16	25							
		60	36	67/0.3							

NC DOT BORE LOG 0808 GPI NC DOT.CDT 10/6/04



SHEET 2 OF 2

NC DOT BORE SIN - 0808.GPJ NC DOT.GDT 10/6/04



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-15		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 0.5 ft		NORTHING 830.647 US ft		EASTING 2.608.257 US ft		0 HR. Water							
TOTAL DEPTH 101.3 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/2/04		COMPLETED 10/3/04		SURFACE WATER DEPTH NA									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	▼ MOI	I O G	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
0.5													
-0.5	0.0	1	0	1	●1						1	Sat.	0.5 MUCK 0.0
-4.2	4.7												-2.0 Alluvium: Gray, silty CLAY (A-7-6) 2.5
-9.2	9.7	1	1	2	●3						2	W	-8.5 PEAT 9.0
-14.3	14.8	4	5	8	●13						3	Sat.	-10.5 Alluvium: Gray, f. sandy CLAY (A-6) 11.0
-19.3	19.8	5	8	7	●15						4	Sat.	-12.5 Alluvium: Gray, f. to cse. SAND and GRAVEL (A-1-b) 13.0
-24.3	24.8	10	12	15	●27						5	W	-17.5 CPU: Gray, micaceous, f. SAND (A-3) with trace organics 18.0
-29.3	29.8	7	11	16	●27						6	W	-27.5 CPU: Gray, micaceous, f. to cse. SAND (A-2-4) with trace organics 28.0
-34.3	34.8	11	15	19	●34						7	W	-37.5 CPU: Gray, silty, CLAY (A-7-6) with very thinly bedded sand and trace organics 38.0
-39.3	39.8	9	13	16	●29						8	W	-47.5 CPU: Gray, f. to cse. SAND (A-3) 48.0
-44.3	44.8	woh	2	3	●5						9	W	-57.5 Yorktown Fm.: Gray to blue-green, f. sandy, clayey SILT (A-4) with trace shell fragments 58.0
-49.3	49.8	1	2	1	●3						10	W	
-54.3	54.8	5	10	13	●23						11	W	
-59.3	59.8	19	21	24	●45						12	W	
-64.3	64.8	5	6	3	●9						13	Sat.	
-69.3	69.8	6	7	11	●18						14	W	
-74.3	74.8	100/5									15	M	

NCDOT BORE SIL 0808.GPJ NC DOT.GDT 10/6/04



PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-15		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 0.5 ft		NORTHING 830,647 US ft		EASTING 2,608,257 US ft		0 HR. Water							
TOTAL DEPTH 101.3 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		24 HR. Boring							
DATE STARTED 10/2/04		COMPLETED 10/3/04		SURFACE WATER DEPTH NA									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-74.3					Continued from previous page								
		18	66	34/1							16	W	Yorktown Fm.: Gray to blue-green, f. sandy, clayey SILT (A-4) with trace shell fragments (continued)
-79.3	79.8												-77.5
		30	33	40							17	W	Yorktown Fm.: Blue-green, silty, f. to cse. SAND (A-2-4) with trace shell fragments
-84.3	84.8												
		25	42	50							18	W	
-89.3	89.8												
		12	14	18							19	W	
-94.3	94.8												
		14	20	27							20	W	
-99.3	99.8												
		12	14	17							21	W	-97.5
													-100.8
													Yorktown Fm.: Gray-green, f. sandy, silty CLAY (A-6)
													Boring terminated at 101.3 ft (Elev. -100.8 ft) in Yorktown Fm.: Gray-green, f. sandy, silty CLAY (A-6)
													Bits used: 0.22' Roller cone
													Drilling fluid: Water
													Boring Terminated at Elevation -100.8 ft



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-16		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 0.5 ft		NORTHING 830.593 US ft		EASTING 2.608.141 US ft		0 HR. Water							
TOTAL DEPTH 100.9 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/4/05		COMPLETED 10/5/04		SURFACE WATER DEPTH 0.2									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
0.5	0.0	woh	woh	woh	0						1	Sat.	0.5 Alluvium: Muck 0.0
-4.5	5.0	1	3	4	7						2	W	-2.0 Alluvium: Tan and gray, silty CLAY (A-7-6) with trace wood fragments 2.5
-9.5	10.0	6	12	23	35						3	Sat.	-7.5 Alluvium: Gray, f. SAND (A-3) with trace wood fragments 8.0
-14.2	14.7	3	2	4	6						4	W	-12.5 Alluvium: Brown and gray, silty CLAY (A-7-6) with trace roots and wood fragments 13.0
-19.2	19.7	4	7	8	15						5	W	-19.2 CPU: Gray, micaceous, f. to cse. SAND (A-3) with trace gravel 19.7
-24.2	24.7	8	11	8	19						6	W	
-29.2	29.7	11	12	18	30						7	W	
-34.2	34.7	11	14	8	22						8	W	
-39.2	39.7	2	4	5	9						9	M	-37.5 CPU: Gray, silty CLAY (A-7-6) with very thinly bedded sand and trace wood fragments 38.0
-44.2	44.7	9	24	32	56						10	W	-45.0 CPU: Gray, f. to cse. SAND (A-2-4) with trace gravel and trace organics 45.5
-49.2	49.7	14	17	19	36						11	W	
-54.2	54.7	11	15	24	39						12	W	
-59.2	59.7	4	3	6	9						13	Sat.	-57.5 Yorktown Fm: Gray, f. sandy, clayey SILT (A-4) with little to trace shell fragments 58.0
-64.2	64.7	8	14	19	33						14	W	
-69.2	69.7	31	50	50/0.3							15	M	
-73.9	74.4												

NCDOT BORE SII 0808 GFI NC DOT.GDT 10/6/04



PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Deobald							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-16		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 0.5 ft		NORTHING 830.593 US ft		EASTING 2,608,141 US ft		0 HR. Water							
TOTAL DEPTH 100.9 ft		DRILL MACHINE CME 45 on Buggy		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/4/05		COMPLETED 10/5/04		SURFACE WATER DEPTH 0.2									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80				
-74.3					Continued from previous page								
		36	64/0.2							16	M		Yorktown Fm: Gray, f. sandy, clayey SILT (A-4) with little to trace shell fragments (continued)
-78.9	79.4	58	42/0.5							17	M		
-83.9	84.4	18	33	67/0.4						18	W		82.5 Yorktown Fm: Blue green, silty, clayey, f. to cse. SAND (A-2-4) with trace shell fragments 83.0
-88.9	89.4	14	20	21						19	W		
-93.9	94.4	15	23	31						20	W		
-98.9	99.4	10	14	26						21	W		-97.5 Yorktown Fm: Gray green, f. to cse. sandy silty CLAY (A-6) 98.0
													-100.4 Boring terminated at Elevation -100.4 ft in Yorktown Fm. Gray green, f. to cse. sandy, silty, CLAY (A-6) 100.9
													Bits Used: 0.22' Roller Cone
													Drilling Fluid: Water



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-21		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. -1.0 ft		NORTHING 830,226		US ft		EASTING 2,607,301							
TOTAL DEPTH 101.2 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/3/04		COMPLETED 10/4/04		SURFACE WATER DEPTH 1.8									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	▼ MOI	L O G	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-1.0	0.0	wor	wor	wor	0						1	Sat.	Alluvium: Muck - No recovery after 3 attempts
-6.0	5.0	wor	wor	wor	0						2	Sat.	
-11.3	10.3	2	2	2	4						3	Sat.	Alluvium: Gray-tan, f. to cse. SAND (A-3) with trace organic debris
-16.4	15.4	1	2	2	4						4	Sat.	
-21.3	20.3	2	2	4	6						5	W	CPU: Dark gray-brown, micaceous, silty CLAY (A-7-6) with trace to little organics
-26.3	25.3	11	7	9	16						6	W	
-31.3	30.3	2	2	2	4						7	W	
-36.3	35.3	3	3	4	7						8	W	Yorktown Fm: Light gray-green, clayey, silty, f. SAND (A-2-4) with thinly bedded CLAY (A-6) layers
-41.0	40.0	7	7	6	13						9	W	
-45.7	44.7	2	3	3	6						10	W	
-50.7	49.7	4	7	8	15						11	W	Yorktown Fm: Dark green-gray, clayey, silty, f. SAND (A-2-4)
-55.7	54.7	11	12	14	26						12	W	Yorktown Fm: Dark gray, f. to cse. SAND (A-3)
-60.7	59.7	5	7	12	19						13	M	Yorktown Fm: Dark green gray, glauconitic, clayey, sandy SILT (A-4)
-65.7	64.7	13	18	20	38						14	M	
-70.7	69.7	31	50/0.3								15	W	Yorktown Fm: Dark green and white, glauconitic, clayey, silty, f. to cse. SAND (A-2-4) with trace very thinly bedded, calcite cemented shelly sandstone and trace shell fragments
-75.7	74.7												

NCDOT BORE SIL - 0808.GEJ NC DOT GDT 10/6/04



SHEET 2 OF 2

NCDOT BORE SII 0808.GPJ NC DOT.GDT 10/6/04



SHEET 1 OF 2

NC DOT BORE SI - 0808.GPJ NC DOT.CDT 10/6/04



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear						
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)						
BORING NO. MB-22		BORING LOCATION		OFFSET		ALIGNMENT -L-						
COLLAR ELEV. -9.9 ft		NORTHING 830,207 US ft		EASTING 2,607,210 US ft		0 HR. Water						
TOTAL DEPTH 102.6 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual						
DATE STARTED 10/4/04		COMPLETED 10/5/04		SURFACE WATER DEPTH 10.4								
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100		
-84.7					Continued from previous page							
-86.0	76.1	13	14	19	● 33					16	W	Yorktown Fm: Dark green and gray, glauconitic, clayey, silty, f. to cse. SAND (A-3) with trace to little shell fragments (continued)
-91.0	81.1	15	13	14	● 27					17	W	Yorktown Fm: Dark green, glauconitic, silty, f. to cse. SAND (A-2-4) with trace shell fragments
-96.0	86.1	13	8	8	● 16					18	W/M	Yorktown Fm: Dark brown-green, glauconitic, f. to cse. sandy, clayey, SILT (A-4) with trace fragments and indurated calcite cemented sandstone fragments
-101.0	91.1	5	6	13	● 19					19	W/M	
-106.0	96.1	60/0								20		
-111.0	101.1	5	4	5	● 9					21	W	
												Boring terminated at Elevation -112.5 ft in Yorktown Fm: Dark brown-green, glauconitic, f. to cse. sandy, clayey, SILT (A-4) with trace fragments and indurated calcite cemented sandstone fragments
												Bits Used: 0.25' side-discharge Finger Bit
												Drilling Fluid: Water

NCDOT BORE SL. 0808.GPJ NC DOT.GDT 10/6/04



SHEET 1 OF 2

PROJECT NO. 34424.1.1			ID. R-2404A			COUNTY BERTIE			GEOLOGIST B. Parks							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River									GROUND WATER (ft)							
BORING NO. MB-23			BORING LOCATION			OFFSET			ALIGNMENT -L-							
COLLAR ELEV. 6.8 ft			NORTHING 830,691			US ft			EASTING 2,608,531							
TOTAL DEPTH 100.3 ft			DRILL MACHINE CME 550			DRILL METHOD Mud Rotary			HAMMER TYPE 140-lb Manual							
DATE STARTED 10/1/04			COMPLETED 10/1/04			SURFACE WATER DEPTH NA										
ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT						SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100						
6.8																
6.8	0.0	1	1	3								1	M			Alluvium: Tan brown to brown, f. to cse. sandy, silty, CLAY (A-7-6) with trace organics and mica
3.0	3.8											2	W			
		11	6	7												
-2.0	8.8											3	M			CPU: Dark gray to blue, silty CLAY (A-6)
		woh	woh	woh												
-7.0	13.8											4	M			
		1	2	1												
-12.0	18.8											5	M			
		1	2	2												
-17.0	23.8											6	M			CPU: Tan brown to brown, f. sandy SILT (A-4) with wood fragments and trace mica
		2	2	3												
-22.0	28.8											7	M			CPU: Blue gray, silty CLAY (A-7-6) with trace organics and mica
		3	4	5												
-27.0	33.8											8	M			CPU: Dark gray, silty, f. to cse. SAND (A-2-4) with trace mica and gray CLAY (A-7-6) interbedded
		14	9	8												
-32.0	38.8											9	W			
		12	9	10												
-37.0	43.8											10	W			CPU: Gray, cse. to f. SAND (A-3) with trace mica
		7	10	9												CPU: Gray, silty, CLAY (A-7-6) with trace mica
-42.0	48.8											11	W			Yorktown Fm.: Gray, silty, f. to cse. SAND (A-3) with trace mica and few thinly bedded gray, CLAY (A-7-6) lenses
		9	10	8												
-47.0	53.8											12	W			
		12	14	23												
-52.0	58.8											13	W			
		20	22	24												
-57.0	63.8											14	W			
		19	21	22												
-62.0	68.8											15	W			Yorktown Fm.: Green, f. sandy, silty CLAY (A-7-6) with trace mica
		4	8	9												
-67.0	73.8											16	M			Yorktown Fm.: Dark green, f. sandy, clayey, SILT (A-5)
		8	10	12												

NC DOT BORE SI 2 0808.GPJ NC DOT.GDT 10/6/04



SHEET 2 OF 2

NCDOT BORE SI 0808.GPJ NC DOT.CDT 10/6/04



SHEET 1 OF 2

NCLOT BORE SI , 0808.GPJ NC DOT.GDT 10/6/04



MACTEC

N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Parks								
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)								
BORING NO. MB-24		BORING LOCATION		OFFSET		ALIGNMENT -L-								
COLLAR ELEV. 2.2 ft		NORTHING 830,670 US ft		EASTING 2,608,424 US ft		0 HR. 3.1								
TOTAL DEPTH 99.6 ft		DRILL MACHINE CME 550		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual								
DATE STARTED 10/4/04		COMPLETED 10/4/04		SURFACE WATER DEPTH NA										
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION			
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100				
-72.6					Continued from previous page									
-75.9	78.1	60/2			17						W	-76.1	78.3	Yorktown Fm: Green to dark green, silty CLAY (A-7-6) with trace mica (continued)
-80.9	83.1	40	40	48	18						W			Yorktown Fm: Green to brown, silty, f. to cse. SAND (A-2-4) with trace mica and trace to little shell fragments
-85.9	88.1	36	48	35	19						W			
-90.9	93.1	12	11	19	20						W			
-95.9	98.1	18	20	17	21						W	-97.4	99.6	Boring terminated at Elevation -97.4 ft in Yorktown Fm: Green to brown, silty, f. to cse. SAND (A-2-4) with trace mica and trace to little shell fragments
														Bits Used: 0.25' side-discharge Finger Bit and 0.3' roller cone
														Drilling Fluid: Water



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Parks							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-25		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. 2.5 ft		NORTHING 830,628 US ft		EASTING 2,608,340 US ft		0 HR. 1.8							
TOTAL DEPTH 95.6 ft		DRILL MACHINE CME 550		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/5/04		COMPLETED 10/5/04		SURFACE WATER DEPTH NA									
ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
2.5													
2.5	0.0	1	2	5							1	M	2.5 Alluvial: Tan brown to gray, silty, f. SAND (A-2-4) with trace organics 0.0
-2.1	4.6										2	W	-0.4 Alluvial: Tan brown to brown, silty, clayey, f. to cse. SAND (A-2-5) with trace organics 2.9
-6.7	9.2										3	M	-5.0 CPU: Gray blue, silty, CLAY (A-6) 7.5
-11.7	14.2										4	M	-10.0 CPU: Dark gray blue, silty, f. sandy CLAY (A-7-6) with trace mica 12.5
-16.7	19.2										5	W	-15.0 CPU: Gray blue, silty, f. to cse SAND (A-3) with trace mica 17.5
-21.7	24.2										6	W	
-25.7	28.2										7	W	
-31.7	34.2										8	W	
-36.7	39.2										9	W	
-41.7	44.2										10	M/W	-40.0 CPU: Gray, silty CLAY (A-7-6) with trace organics with interbedded gray, silty, cse. to f. SAND (A-2-4) lenses 42.5
-46.7	49.2										11	W	-45.0 CPU: Gray, silty, f. to cse. SAND (A-3) with trace mica 47.5
-51.7	54.2										12	W	
-56.7	59.2										13	W	
-61.7	64.2										14	W	-60.0 Yorktown Fm: Dark green, clayey, silty, f. SAND (A-2-4) with trace mica and shell fragments 62.5
-66.7	69.2										15	M	-65.0 Yorktown Fm: Dark green to light green, f. sandy, silty CLAY (A-7-6) with trace mica and interbedded silty shell hash (A-1-b) lenses 67.5
-71.7	74.2												

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N.C.D.O.T. GEOTECHNICAL UNIT BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST B. Parks								
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)								
BORING NO. MB-25		BORING LOCATION		OFFSET		ALIGNMENT -L-								
COLLAR ELEV. 2.5 ft		NORTHING 830,628 US ft		EASTING 2,608,340 US ft		0 HR. 1.8								
TOTAL DEPTH 95.6 ft		DRILL MACHINE CME 550		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual								
DATE STARTED 10/5/04		COMPLETED 10/5/04		SURFACE WATER DEPTH NA										
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100				
-72.3					Continued from previous page									
		7	21	69	●90					16	M/W			
-70.7	79.2													
		44	48	52/0.3	●					17	M/W		-75.0	
-81.7	84.2													
		28	34	45	●79					18	W			
-86.7	89.2													
		20	61	27	●88					19	W			
-91.7	94.2													
		34	12	88/0.4	●					20	W		-93.1	
													95.6	
													Boring terminated at Elevation -93.1 ft in Yorktown Fm: Dark green to green, silty, f. SAND (A-2-4) with trace mica and trace to some shell fragments and gravel (A-1-b) with indurated lenses	
													Bits Used: 0.25' side-discharge Finger Bit and 0.3' roller cone	
													Drilling Fluid: Water	



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 1 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear							
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)							
BORING NO. MB-32		BORING LOCATION		OFFSET		ALIGNMENT -L-							
COLLAR ELEV. -10.0 ft		NORTHING 830,177 US ft		EASTING 2,607,309 US ft		0 HR. Water							
TOTAL DEPTH 102.8 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual							
DATE STARTED 10/5/04		COMPLETED 10/6/04		SURFACE WATER DEPTH 10.5									
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100			
-10.0	0.0	1	1	1	2						1	Sat.	-10.0 Alluvium: Tan-brown, f. to cse. SAND (A-3) with trace to little organics 0.0
-16.7	6.7	4	3	2	5						2	Sat.	-19.5 CPU: Dark gray-brown, micaceous, silty CLAY (A-7-6) with trace organics 9.5
-21.3	11.3	woh	2	2	4						3	W	
-26.4	16.4	2	4	7	11						4	W	
-31.0	21.0	1	2	2	4						5	W	
-36.0	26.0	7	4	4	8						6	Sat.	-34.0 Yorktown Fm: Light gray-green, silty, f. to cse. SAND (A-3) and thinly bedded CLAY (A-6) 24.0
-41.0	31.0	3	17	15	32						7	W	
-46.0	36.0	13	10	6	16						8	Sat.	-49.0 Yorktown Fm: Gray, f. to cse. sandy, clayey SILT (A-4) 39.0
-51.0	41.0	2	3	4	7						9	W	-53.5 Yorktown Fm: Gray, f. to cse. SAND (A-3) 43.5
-56.0	46.0	9	12	10	22						10	W	-59.0 Yorktown Fm: Dark green and gray, glauconitic, f. sandy, clayey SILT (A-4) 49.0
-61.0	51.0	8	9	11	20						11	M	
-66.0	56.0	10	10	17	27						12	W	-66.8 Yorktown Fm: Dark green and white, glauconitic, silty, clayey, f. to cse. SAND (A-7-6) with shell fragments 56.8
-71.0	61.0	62	38/0.2								13	W	-70.5 Yorktown Fm: Dark green and white glauconitic, silty, clayey, f. to csc. SAND (A-7-6) with trace shell fragments and very thinly bedded calcite cemented sandstone layers 60.5
-76.0	66.0	24	35	59	94						14	W	-75.0 Yorktown Fm: Dark green and gray, glauconitic, silty, f. to csc. SAND (A-3) with trace shell fragments 65.0
-81.3	71.3	16	21	24	45						15	W	

0808.GEJ NC DOT.GDT 10/6/04

NCDOT BORE SIN



N.C.D.O.T. GEOTECHNICAL UNIT
BORING LOG

SHEET 2 OF 2

PROJECT NO. 34424.1.1		ID. R-2404A		COUNTY BERTIE		GEOLOGIST M. Lear					
SITE DESCRIPTION Dual Structures on US 17 (Windsor Bypass) over Cashie River						GROUND WATER (ft)					
BORING NO. MB-32		BORING LOCATION		OFFSET		ALIGNMENT -L-					
COLLAR ELEV. -10.0 ft		NORTHING 830,177 US ft		EASTING 2,607,309 US ft		0 HR. Water					
TOTAL DEPTH 102.8 ft		DRILL MACHINE CME 55 Barge		DRILL METHOD Mud Rotary		HAMMER TYPE 140-lb Manual					
DATE STARTED 10/5/04		COMPLETED 10/6/04		SURFACE WATER DEPTH 10.5							
ELEV. (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT			SAMP NO.	LOG	SOIL AND ROCK DESCRIPTION	
		0.5ft	0.5ft	0.5ft	0	20	40	60	80	100	
-84.8					Continued from previous page						
-86.3	76.3	9	8	10					16	W	Yorktown Fm: Dark green and gray, glauconitic, silty, f. to cse. SAND (A-3) with trace shell fragments (continued)
-91.3	81.3	15	16	16					17	W	
-96.3	86.3	62	29	15					18	M	Yorktown Fm: Dark gray and brown, clayey, f. sandy SILT (A-4) with thinly bedded friable to moderately indurated calcite cemented sandstone layers
-101.3	91.3	7	6	6					19	M/W	
-106.3	96.3	67	33/0.1						20	M	
-111.3	101.3	7	7	7					21	M/W	
											Boring terminated at Elevation -112.8 ft in Yorktown Fm: Dark gray and brown, clayey, f. sandy SILT (A-4) with thinly bedded friable to moderately indurated calcite cemented sandstone layers
											Bits Used: 0.25' side-discharge Finger Bit
											Drilling Fluid: Water