

R-2576 Mid-Currituck Bridge

Attachment 10:

**Highway Stormwater
Program, Stormwater
Management Plan,
July 24, 2023**



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element: 34470.1.TA1 TIP No.: R-2576 County(ies): Currituck Dare Page 1 of 6

General Project Information

WBS Element:	34470.1.TA1	TIP Number:	R-2576	Project Type:	New Location	Date:	7/24/2023
NCDOT Contact:	Paul C. Williams		Contractor / Designer:	Wetherill Engineering/Kevin B. Alford			
Address:	Highway Division 1 113 Airport Drive Suite 100 Edenton, NC 27932		Address:	1223 Jones Franklin Rd Raleigh, NC 27606			
	Phone:	9252) 482-1861		Phone:	919-851-8077		
	Email:	pcwilliams2@ncdot.gov		Email:	kalford@wetherilleng.com		
City/Town:	Adylett		County(ies):	Currituck	Dare		
River Basin(s):	Pasquotank		CAMA County?	Yes	Yes		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	6.677 miles	Surrounding Land Use:	Rural Area with large residential lots or farming.					
	Proposed Project			Existing Site				
Project Built-Upon Area (ac.)	75.5	ac.	22.1	ac.				
Typical Cross Section Description:	2-Lane to 6-Lane (at toll plaza) Highway. Pavement varies from 28' to 118' with 12' lanes and a minimum of 8' shoulders (4' paved).			New Location				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	18,000	Year:	2040	Existing:	11,800	Year:	2020
General Project Narrative: (Description of Minimization of Water Quality Impacts)	<p>The Mid-Currituck Bridge project connects US 158 (Caratoke Highway) south of Coinjock to NC 12 (Ocean Trail) south of Corolla with a toll road. The project mainline will consist of 6.2 miles of bridge with 5.8 miles of the bridge having a overall width of 36'. Wetland Swales will be used to the maximum extent practical to treat the newly built upon area. The proposed bridges will have deck drains installed in the form of 6" scuppers placed on 12' centers, deck drains were eliminated from the east end of the bridge over the Currituck Sound to the maximum extent practical over SAVs. Permaeable Pavement is being used in the parking lot for the Proposed Toll Maintenance Facility off of alignment -Y2A- Sta. 18+50 Lt, and for the three blocks of parking for the Toll Collection Building at -Y2A- Sta. 28+00. Turbidity curtains will be used at bridge bent locations that involve pile driving. Infiltration Basins were designed to treat runoff equivalent to and smaller than the design storm. The infiltration Basin located at -L- Sta. 19+00 Rt was designed to treat the runoff occurring from the toll plaza. The second infiltration basin located at -L- Sta. 364+49 Rt was designed to treat the roadway runoff occurring on the pavement located off the end of the bridge. Preformed scour holes were used to treat water being discharged at the beginning and ending of the bridge in order to diffuse the flow of the storm drain systems at these locations.</p>							

Waterbody Information

Surface Water Body (1):	Maple Swamp		NCDWR Stream Index No.:	NA			
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class SC					
	Supplemental Classification:						
Other Stream Classification:							
Impairments:							
Aquatic T&E Species?	Comments:						
NRTR Stream ID:				Buffer Rules in Effect:	N/A		
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A		
Deck Drains Discharge Over Water Body?	Yes	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
	(If yes, provide justification in the General Project Narrative)						



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Additional Waterbody Information

Surface Water Body (2):	Currituck Sound		NCDWR Stream Index No.:	30-1	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class SC		
	Supplemental Classification:				
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?	Comments:				
NRTR Stream ID:			Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	Yes	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					



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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?
4	-YNB- 20+00 to 22+40 LT 36.3228,-75.9398	(1)Maple Swamp	0.0	4.5	4.4	0.5	50	240	1.15%	1.1	1.3	1.4	1.3	No	No
4	-Y-41+50 RT to YNB 20+00 LT 36.3231,-75.9405	(1)Maple Swamp	0.0	4.4	4.5	0.3	28	194	1.50%	0.8	1.3	1.1	1.4	No	No
4	-YSB- 32+50 to 35+50 RT 36.3295,-75.9439	(1)Maple Swamp	6.0	4.0	4.0	2.3	230	300	0.70%	4.7	1.5	5.9	1.3	No	No
4	-YNB- 20+00 to 24+50 RT 36.3228,-75.9398	(1)Maple Swamp	0.0	3.0	3.0	2.4	240	450	0.57%	7.0	1.8	9.2	2.4	No	No
19	-Y2- 10+65 to 15+50 RT 36.3176,-75.9369	(1)Maple Swamp	0.0	4.0	3.0	2.5	250	485	0.40%	5.1	1.5	5.5	2.5	No	No
19	-Y2- 10+85 to 15+50 LT 36.3176,-75.9369	(1)Maple Swamp	0.0	4.0	3.0	0.4	44	465	2.00%	1.3	1.9	1.8	1.8	No	No
22	-Y-69+50 to 73+00 MED 36.3295,-75.9439	(1)Maple Swamp	0.0	4.0	4.0	0.4	40	350	0.58%	0.8	0.9	1.0	1.0	No	No
22	-Y-69+50 RT to YNB 46+14 LT 36.3295,-75.9439	(1)Maple Swamp	6.0	4.0	4.0	0.5	51	70	2.04%	1.0	1.3	1.3	1.4	No	No
21	-Y2- 26+00 to 31+75 RT 36.3211,-75.9368	(1)Maple Swamp	2.0	4.0	4.0	4.5	450	575	0.32%	6.2	1.4	7.8	1.5	No	No
21	-Y2- 28+50 to 31+75 LT 36.3217,-75.9363	(1)Maple Swamp	0.0	4.0	4.0	0.7	70	325	0.50%	1.7	1.3	2.2	1.3	No	No
22	-Y- 70+50 to 84+50 RT 36.3301,-75.9439	(1)Maple Swamp	6.0	6.0	3.0	11.2	1120	1450	0.40%	17.9	1.2	23.0	1.3	No	No
21	-Y2B- 14+00 to 16+00 RT 36.3211,-75.9378	(1)Maple Swamp	0.0	4.0	4.0	0.6	60	200	0.40%	1.8	1.1	2.3	1.2	No	No
21	-Y2B- 14+00 to 16+00 LT 36.3211,-75.9378	(1)Maple Swamp	0.0	4.0	4.0	0.2	20	200	0.40%	0.8	0.9	1.0	1.0	No	No
20	-Y2B- 14+00 to 12+00 RT 36.3211,-75.9378	(1)Maple Swamp	0.0	4.0	4.0	1.0	100	400	0.30%	1.3	1.2	1.6	1.3	No	No
12	-L- 112+00 to 114+00 LT 36.3330,-75.9103	(2)Currituck Sound	0.0	3.0	3.0	1.5	150	200	0.30%	2.9	1.2	3.2	1.2	No	No
12	-L- 114+00 to 116+00 LT 36.3328,-75.9099	(2)Currituck Sound	0.0	3.0	3.0	1.8	176	200	0.90%	3.4	1.8	3.9	1.9	No	No
18	-Y4- 39+50 to 42+50 RT 36.3509,-75.8230	(2)Currituck Sound	6.0	3.0	3.0	0.9	91	200	0.60%	2.0	0.9	2.6	1.4	Yes	No

Additional Comments



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Preformed Scour Holes and Energy Dissipators

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
5	19+65 -L- Lt	(1)Maple	PSH	Class 'B'	0.8	Pipe	18	4.4	1.1	No
	36.3258907/-75.9383769	Swamp								
18	366+85 -L- Rt	(2)Currituck	PSH	Class 'B'	1.0	Pipe	18	5.7	1.2	No
	39.5121059/-51.6880776	Sound								

Additional Comments

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



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Other Best Management Practices

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Up Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
4	36+00 TO 41+50 -Y- RT	(1)Maple	Linear Wetland Swale	7.5	0.8		0.00	No
	36.3225347/-75.9406513	Swamp						
4	10+59 TO 15+00 -RPD- LT	(1)Maple	Linear Wetland Swale	4.7	0.6		0.00	No
	36.3245387/-75.9400747	Swamp						
4	13+00 TO 20+50 -RPA- RT	(1)Maple	Linear Wetland Swale	9.9	0.9		0.00	No
	36.3266533/-75.9406824	Swamp						
4	30+40 TO 36+00 -YNB- LT	(1)Maple	Linear Wetland Swale	21.7	2.1		0.00	No
	36.3262432/-75.9418793	Swamp						
4	38+50 TO 42+00 -YNB- LT	(1)Maple	Linear Infiltration Swale	4.2	0.9		0.00	No
	36.3281509/-75.9429965	Swamp						
11	103+50 TO 110+50 -L- LT	(1)Maple	Linear Infiltration Swale	1.1	0.6		0.00	No
	36.3333424/-75.9090874	Swamp						
11	103+50 TO 110+50 -L- RT	(1)Maple	Linear Infiltration Swale	1.1	0.6		0.00	No
	36.3330119/-75.908930	Swamp						
18	367+00 -L2- Rt	(2)Currituck	Infiltration Basin	1.4	1.4	0.17	1.53	No
	36.3511638/-75.8245745	Sound						
18	11+60 TO 12+77 -Y5R-	(2)Currituck	Linear Infiltration Swale	0.4	0.2		0.00	No
	36.3519037/-75.8235966	Sound						
18/27	12+80 TO 13+50 -Y5R-/10+00 TO 19+00 -Y5-	(2)Currituck	Linear Wetland Swale	1.6	0.4		0.00	No
19	22+85 TO 32+50 -Y- RT	(1)Maple	Linear Wetland Swale	8.7	0.7		0.00	No
	36.3178358/-75.9380675	Swamp						
5	19+00 -L- RT	(1)Maple	Infiltration Basin	0.5	0.3	0.036	1.57	No
	9.5020396/52.0923602	Swamp						
20/21	16+50 TO 26+00 -Y2- RT	(1)Maple	Linear Wetland Swale	0.9	0.5		0.00	No
	36.3210572/-75.9368528	Swamp						
20/21	18+00 TO 25+50 -Y2- LT	(1)Maple	Linear Wetland Swale	2.0	0.0		N/A	No
	36.3210972/-75.937166	Swamp						
21	12+00 TO 16+00 -Y2A- LT	(1)Maple	Linear Wetland Swale	5.7	0.1		0.00	No
	36.3226048/-75.9379012	Swamp						
21	12+00 TO 17+00 -Y2A- RT	(1)Maple	Linear Wetland Swale	0.5	0.1		0.00	No
	36.3229154/-75.9378953	Swamp						
4	24+00 TO 25+00 -Y2A- LT	(1)Maple	Linear Wetland Swale	0.6	0.0		N/A	No
	36.3245/-75.9392	Swamp						
18	11+60 TO 13+10 -Y5R- RT	(2)Currituck	Infiltration Swale	1.4	0.3		0.00	No
	36.3524349/-75.8242032	Sound						
18/27	10+30 TO 19+00 -Y5- RT	(2)Currituck	Infiltration Swale	1.6	1.0		0.00	No
	36.3527420/-75.8248007	Sound						

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Other Best Management Practices

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Up Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
25	20+50 TO 22+50 -Y4- RT	(2)Currituck	Infiltration Swale	0.2	0.0		0.00	No
	36.3464892/--75.85210171	Sound						
25	21+00 TO 26+00 -Y4- LT	(2)Currituck	Infiltration Swale	1.1	0.2		0.00	No
	36.3472073/-75.8217924	Sound						
26	36+00 TO 39+50 -Y4- LT	(2)Currituck	Linear Wetland Swale	0.8	0.3		0.00	No
	36.3504813/-75.8232445	Sound						
								No
								No

Additional Comments