Attachment 13:

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)

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)	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 he 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.		

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 36.3258907/-75.9383769	(1)Maple Swamp	PSH	Class 'B'	0.8	Pipe	18	4.4	1.1	No
18	366+85 -L- Rt 39.5121059/-51.6880776	(2)Currituck Sound	PSH	Class 'B'	1.0	Pipe	18	5.7	1.2	No

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.

WBS Element: 34470.1.TA1 **TIP No.:** R-2576 **County(ies):** Currituck Dare

Other Best Management Practices

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Upon Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
4	36+00 TO 41+50 -Y- RT 36.3225347/-75.9406513	(1)Maple Swamp	Linear Wetland Swale	7.5	0.8		0.00	No
4	10+59 TO 15+00 -RPD- LT 36.3245387/-75.9400747	(1)Maple Swamp	Linear Wetland Swale	4.7	0.6		0.00	No
4	13+00 TO 20+50 -RPA- RT 36.3266533/--75.9406824	(1)Maple Swamp	Linear Wetland Swale	9.9	0.9		0.00	No
4	30+40 TO 36+00 -YNB- LT 36.3262432/-75.9418793	(1)Maple Swamp	Linear Wetland Swale	21.7	2.1		0.00	No
4	38+50 TO 42+00 -YNB- LT 36.3281509/-75.9429965	(1)Maple Swamp	Linear Infiltration Swale	4.2	0.9		0.00	No
11	103+50 TO 110+50 -L- LT 36.3333424/-75.9090874	(1)Maple Swamp	Linear Infiltration Swale	1.1	0.6		0.00	No
11	103+50 TO 110+50 -L- RT 36.3330119/-75.908930	(1)Maple Swamp	Linear Infiltration Swale	1.1	0.6		0.00	No
18	367+00 -L2- Rt 36.3511638/-75.8245745	(2)Currituck Sound	Infiltration Basin	1.4	1.4	0.17	1.53	No
18	11+60 TO 12+77 -Y5R- 36.3519037/-75.8235966	(2)Currituck Sound	Linear Infiltration Swale	0.4	0.2		0.00	No
18/27	12+80 TO 13+50 -Y5R-/10+00 TO 19+00 -Y5- 36.3527415/-75.248014	(2)Currituck Sound	Linear Wetland Swale	1.6	0.4		0.00	No
19	22+85 TO 32+50 -Y- RT 36.3178358/-75.9380675	(1)Maple Swamp	Linear Wetland Swale	8.7	0.7		0.00	No
5	19+00 -L- RT 9.5020396/52.0923602	(1)Maple Swamp	Infiltration Basin	0.5	0.3	0.036	1.57	No
20/21	16+50 TO 26+00 -Y2- RT 36.3210572/-75.9368528	(1)Maple Swamp	Linear Wetland Swale	0.9	0.5		0.00	No
20/21	18+00 to 25+50 -Y2- LT 36.3210972/-75.937166	(1)Maple Swamp	Linear Wetland Swale	2.0	0.0		N/A	No
21	12+00 TO 16+00 -Y2A- LT 36.3226048/-75.9379012	(1)Maple Swamp	Linear Wetland Swale	5.7	0.1		0.00	No
21	12+00 TO 17+00 -Y2A- RT 36.3229154/-75.9378953	(1)Maple Swamp	Linear Wetland Swale	0.5	0.1		0.00	No
4	24+00 TO 25+00 -Y2A- LT 36.3245/-75.9392	(1)Maple Swamp	Linear Wetland Swale	0.6	0.0		N/A	No
18	11+60 TO 13+10 -Y5R- RT 36.3524349/-75.8242032	(2)Currituck Sound	Infiltration Swale	1.4	0.3		0.00	No
18/27	10+30 TO 19+00 -Y5- RT 36.3527420/-75.8248007	(2)Currituck Sound	Infiltration Swale	1.6	1.0		0.00	No

Additional Comments

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25	20+50 TO 22+50 -Y4- RT 36.3464892/--75.85210171	(2)Currituck Sound	Infiltration Swale	0.2	0.0		0.00	No
25	21+00 TO 26+00 -Y4- LT 36.3472073/-75.8217924	(2)Currituck Sound	Infiltration Swale	1.1	0.2		0.00	No
26	36+00 TO 39+50 -Y4- LT 36.3504813/-75.8232445	(2)Currituck Sound	Linear Wetland Swale	0.8	0.3		0.00	No
								No
								No

Additional Comments