



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element: 35993.1.1 TIP No.: U-4700A County(ies): Catawba Caldwell Catawba Caldwell Burke Page 1 of 4

General Project Information

WBS Element:	35993.1.1	TIP Number:	U-4700A	Project Type:	Roadway Widening	Date:	10/19/2019
NCDOT Contact:	Bryon Sowell, PE		Contractor / Designer:	Audrey Burnette, PE			
Address:	NC Department of Transportation 1710 E. Marion St. Shelby, NC 28151-0047		Address:	900 Ridgefield Drive Suite 350 Raleigh, NC 27609			
	Phone: 980-552-4221			Phone: 919-878-9560			
	Email: bsowell@ncdot.gov			Email: aburnette@rkk.com			
City/Town:	Hickory		County(ies):	Catawba	Caldwell	Burke	
River Basin(s):	Catawba		CAMA County?	No	No	No	
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	4.77	Surrounding Land Use:	Commercial/Industrial/Residential				
Project Built-Up Area (ac.)			Proposed Project		Existing Site		
90.7 ac.			71.0 ac.				
Typical Cross Section Description:	The proposed typical cross section for US 321 will be a six lane median divided facility with curb and gutter. Three 12' lanes in each direction with a 30' wide concrete median. 12' outside shoulders.			The existing typical cross section for US 321 is four lane median divided facility. Two 12' lanes in each direction with 22' wide grassed median. 12' outside shoulders.			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	57,490	2041	Existing:	50,135	Year:	2021

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

The widening of US 321 from US 70 in Hickory to just south of US 321A/New Farm Road will involve paving, widening, drainage improvements and structures work. There are several major crossings on US 321 providing adequate cross sectional opening to allow water to travel under US 321 other side alignments. The mJOR crossings consists of a bridge over the Catawba River, a double 10'x10' RCBC to be extended with a 72" a new supplemental pipe at Frye Creek, a new single 8'x8' RCBC under Grace Chapel Road, Wolfe Road and the driveway to the pump station at UT Catawba. Drainage outfalls along the project have been analyzed to verify stability and outlet protection has been incorporated into the design for all proposed drainage improvements. The road way side slopes around jurisdictional features have incorporated steeper side slopes to minimize impacts. The project is located in the Catawba River Basin so the area crossing the main stem of the Catawba River adheres to the Catawba Buffer rules. Two Hazardous spill basins and one Hazardous spill ditch have been incorporated into the project to handle chemical spills that may happen along US 321. One energy dissipator will be installed at the outlet of the proposed culvert south of the bridge, to attenuate flow and velocity, before entering the existing 6'x6' RCBC under the railroad. The northern barrel of the existing double 10'x10' RCBC has been retrofitted with a 1' sill to create a floodplain bench at the inlet and outlet to establish a low flow channel through the southern barrel. 1' sills and low flow baffels were used in the 8'x8' RCBC's under Grace Chapel Road, Wolfe Road and DR4 to maintain existing channel widths through the culverts.

Waterbody Information

Surface Water Body (1):	Catawba River		NCDWR Stream Index No.:	11-53			
NCDWR Surface Water Classification for Water Body	Primary Classification:		Water Supply IV (WS-IV)	Class B	Critical Area (CA)		
	Supplemental Classification:						
Other Stream Classification:							
Impairments:	None						
Aquatic T&E Species?	Comments:						
NRTR Stream ID:				Buffer Rules in Effect:	Catawba		
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?	No	(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):	Frye Creek		NCDWR Stream Index No.:	11-54-1		
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)				
	Supplemental Classification:					
Other Stream Classification:						
Impairments:	None					
Aquatic T&E Species?	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)						



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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?
14	-L- 161+37 LT	(1)Catawba River	Riprap Energy Dissipator Basin	Class II	240.0	Culvert	8' x 8' RCBC	380.0	4.3	N/A

Additional Comments

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

