

# Highway Stormwater Program STORMWATER MANAGEMENT PLAN



Version 3.00; Released August 2021) FOR NCDOT PROJECTS WBS Element: 35517.3.TA1 TIP/Proj No: R-2829A County(ies): Wake Page **General Project Information** WBS Element: 35517.3.TA1 TIP Number: R-2829A Project Type: **New Location** Date: 6/6/2024 **NCDOT Contact:** Ron McCollum, PE Contractor / Designer: JV; Branch Civil & ST Wooten/ RK&K: Alexis Burke, PE Address: NC Turnpike Authority Address: 8601 Six Fork Rd 1578 Mail Service Center Forum 1, Suite 700 Raleigh, NC 27615 Raleigh, NC 27699 Phone: 919-707-2708 Phone: 919-878-9560 Email: remccollum@ncdot.gov Email: aburke@rkk.com City/Town: Raleigh County(ies): Wake River Basin(s): Neuse CAMA County? No Wetlands within Project Limits? Yes **Project Description** Surrounding Land Use: Commericial / Industrial / Residential Project Length (lin. miles or feet): 4.16 **Existing Site Proposed Project** Project Built-Upon Area (ac.) 73.1 15.1 Typical Cross Section Description: A typical cross-section includes (3) 12-foot lanes in either direction with a 70-foot grassed White Oak Road: (2) 10' lanes with open shoulder & curb/gutter. US 70: 4-lane divided. median designed to accommodate a future through-lane in either direction. Outside E. Garner Rd: (2) 10' lanes with open shoulder shoulders are 12-14 feet. Annual Avg Daily Traffic (veh/hr/day): Existing: Design/Future: 22,040 Year: 2043 15,440 2023 Year General Project Narrative: The design-build project, R-2829A, is the extension of the Triangle Expressway from I-40 to south of SR 2542 (Rock Quarry Road) in Wake County. The project will construct a 70 (Description of Minimization of Water mph six-lane facility with two new interchanges and completion of the Toll NC 540/I-40/I-42 interchange. The beginning of the project ties into the R-2828 project inside the turbine interchange and consistents of primarily new location with interchanges at White Oak Rd & US 70. Additionally there are intersections at the railroad and E Garner Rd with the Quality Impacts) project ending at the R-2829B project tie before Rock Quarry Road. Design Minimizations for wetlands and streams include: Steepening of roadway fill slopes within jurisdictional areas. 2. Stormwater was designed to avoid direct discharge into jurisdictional features to the maximum extent practicable. 3. Stormwater design velocities entering jurisdictional features have been reduced to be non-erosive (less than 2 fps). 4. Open shoulder sections were maximized to promote sheet flow from the roadway. 5. Diffuse flow provided at outlets that do not have a well defined outfall. 6. RCBCs built offline. This provides faster construction in the dry, less time in / around the jurisdictional features, and a safer work area for the traveling public and construction 7. Buffer swales have been designed where practicable to provide filtration prior to water entering jurisdictional streams. 8. Energy dissipator basin provided to reduce the risk of erosion where outfall analyses dictated. R-2829A has (12) major crossings consisting of bridges over Bushy Branch & White Oak Creek, (8) new RCBCs, and (2) RCBC extensions with supplemental pipes. Drainage outfalls along the project have been analyzed to verify stability and countersunk Class I & Class II riprap pads have been incorporated at the inlet and outlet of all jurisdictional crossings. The project is located in the Neuse river basin so this area adheres to buffer rules. Buffer swales have been designed throughout the entire project providing filtration before water enters jurisdictional streams. Due to steep topography, existing features, and difficulty with reaching swale design requirements, additional swales have been added along the project cooridor in locations where buffered streams are not present in order to show a good faith effort to achieve additional filtration. (4) Stormwater detention basins are anticipated at this time along the project corridor to offset increases to critical outfalls as well as (2) energy dissipator basins.





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WD3 Element. 30017.3.1A1	TIP/Proj No.:	R-2829A	County(ies):	Wake			Page	2	of	15
			General Project I	nformation						
			Waterbody Info	ormation						
Surface Water Body (1):		White Oa	ak Creek	NCDWR Stream In	dex No.:		27-43-11			
NCDWR Surface Water Classification for	or Water Redy		Primary Classification:	Class (						
NCDWK Surface Water Classification in	or water body		Supplemental Classification:	Nutrient Sensitive V	Vaters (NSW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments:								
NRTR Stream ID:	SFV					Buffer Rules in Effect:		1	leuse	
Project Includes Bridge Spanning Wate	er Body?	Yes	Deck Drains Discharge Over Bu	ffer?	No	Dissipator Pads Provided i	in Buffer?		No	
Deck Drains Discharge Over Water Boo	dy?	No	(If yes, provide justification in	the General Project I	Narrative)	(If yes, describe in the Ge			o, justify in	the
(If yes, provide justification in the	General Project Na	rrative)				Gene	eral Project Nar	rative)		
Surface Water Body (2):		UT To Sv	vift Creek	NCDWR Stream In	dex No.:		27-43-(8)			
NODAR Confess Meter Classification for	a a Matau Da da		Primary Classification:	Class (	0					
NCDWR Surface Water Classification for	or water Body		Supplemental Classification:	Nutrient Sensitive V	Vaters (NSW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments:								
NRTR Stream ID:	SEW					Buffer Rules in Effect:		1	leuse	
Project Includes Bridge Spanning Wate	er Body?	No	Deck Drains Discharge Over Bu	ffer?	N/A	Dissipator Pads Provided i	in Buffer?	•	N/A	
Deck Drains Discharge Over Water Boo		N/A	(If yes, provide justification in	the General Project I	Narrative)	(If yes, describe in the Ge			o, justify in	the
(If yes, provide justification in the		rrative)				Gene	eral Project Nar	rative)		
Surface Water Body (3):		UT To Sv	vift Creek	NCDWR Stream In	dex No.:		27-43-(8)			
NODAND O SECONDARIO O SECONDARIO S			Primary Classification:	Class (			, ,			
NCDWR Surface Water Classification for	or water Body		Supplemental Classification:	Nutrient Sensitive V	Vaters (NSW)					
					, ,					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments:								
NRTR Stream ID:	SEY					Buffer Rules in Effect:			leuse	
Project Includes Bridge Spanning Wate		No	Deck Drains Discharge Over Bu	ffer?	N/A	Dissipator Pads Provided	in Buffer?		N/A	
Deck Drains Discharge Over Water Boo		N/A	(If yes, provide justification in		Narrative)	(If yes, describe in the Ge		larrative; if n	o, justify in	the
(If yes, provide justification in the		rrative)				Gene	eral Project Nar	rative)		



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			Additional Waterbo	dy Information						
Surface Water Body (4):		UT To S	wift Creek	NCDWR Stream I	ndex No.:		27-43-(8)			
NCDWR Surface Water Classification fo	w Water Body		Primary Classification:	Class						
NCDWR Surface water Classification to	or water Body		Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
					` '					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments								
NRTR Stream ID:	SFH					Buffer Rules in Effect:		N	leuse	
Project Includes Bridge Spanning Water	r Body?	No	Deck Drains Discharge Over Bu	uffer?	N/A	Dissipator Pads Provided	in Buffer?		N/A	
Deck Drains Discharge Over Water Bod	ly?	N/A	(If yes, provide justification in	the General Project	t Narrative)	(If yes, describe in the Ge			, justify in	n the
(If yes, provide justification in the	General Project Na	rrative)	1			Gene	eral Project Narr	ative)		
Surface Water Body (5):		UT To S	wift Creek	NCDWR Stream I	ndex No.:		27-43-(8)			
NCDWR Surface Water Classification fo	r Water Body		Primary Classification:	Class	C					
TODAN Surface Water Classification to	n water bouy		Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments								
NRTR Stream ID:	SFF					Buffer Rules in Effect:		N	leuse	
Project Includes Bridge Spanning Water	r Body?	No	Deck Drains Discharge Over Bu	uffer?	N/A	Dissipator Pads Provided			N/A	
Deck Drains Discharge Over Water Bod	ly?	N/A	(If yes, provide justification in	the General Project	t Narrative)	(If yes, describe in the Ge			, justify in	n the
(If yes, provide justification in the	General Project Na	ırrative)				Gene	eral Project Narr	ative)		
Surface Water Body (6):		UT To S	wift Creek	NCDWR Stream I	ndex No.:		27-43-(8)			
NCDWR Surface Water Classification fo	or Water Body		Primary Classification:	Class						
			Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
Other Stream Classification:										
Impairments:		ı								
Aquatic T&E Species?		Comments								
NRTR Stream ID:	SFE					Buffer Rules in Effect:			leuse	
Project Includes Bridge Spanning Water		No	Deck Drains Discharge Over Bu		N/A	Dissipator Pads Provided			N/A	
Deck Drains Discharge Over Water Bod	•	N/A	(If yes, provide justification in	tne General Project	t Narrative)	(If yes, describe in the Ge	eneral Project Na eral Project Narr		, justity ii	n the
(If yes, provide justification in the	General Project Na	rrative)				Gene	siai Fioject Nam	auve)		
Surface Water Body (7):		UT To S	wift Creek	NCDWR Stream I			27-43-(8)			
NCDWR Surface Water Classification fo	or Water Body		Primary Classification:	Class					-	
	-		Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
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Other Stream Classification:									-	
									1	
Impairments:		0 1								
Impairments: Aquatic T&E Species?	050	Comments				Duffer Dules to Effect				
Impairments: Aquatic T&E Species? NRTR Stream ID:	SFG				N/A	Buffer Rules in Effect:	in Doffe C	N	leuse	
Impairments: Aquatic T&E Species? NRTR Stream ID: Project Includes Bridge Spanning Wate	r Body?	No	Deck Drains Discharge Over Bu		N/A	Dissipator Pads Provided			N/A	n tho
Impairments: Aquatic T&E Species? NRTR Stream ID:	r Body? ly?	No N/A				Dissipator Pads Provided (If yes, describe in the Ge		arrative; if no	N/A	n the



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			Additional Waterbo	dy Information						
Surface Water Body (8):		UT To S	wift Creek	NCDWR Stream I	ndex No.:		27-43-(8)			
		330	Primary Classification:	Class						
NCDWR Surface Water Classification fo	or Water Body		Supplemental Classification:	Nutrient Sensitive					•	
			ouppiemental olassineation.	TAUTION OCHSIAVE	Waters (NOW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments								
NRTR Stream ID:	SFB	Comments	•			Buffer Rules in Effect:		N.	leuse	
		No	Barda Bardara Birahama Gura Bu	-#2	N/A		: D#2		N/A	
Project Includes Bridge Spanning Water		N/A	Deck Drains Discharge Over Bu (If yes, provide justification in			Dissipator Pads Provided (If yes, describe in the Ge				the.
Deck Drains Discharge Over Water Bod	•		(ii yes, provide justilication iii	the General Floject	( Namauve)		eral Project Narra		, justily ii	i uic
(If yes, provide justification in the	General Project Na	arrative)				Cont	orar i rojoot i tarre	ati ( )		
Surface Water Body (9):		UT To S	wift Creek	NCDWR Stream I			27-43-(8)			
NCDWR Surface Water Classification fo	or Water Body		Primary Classification:	Class						
	-		Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
Other Stream Classification:										
Impairments:		1								
Aquatic T&E Species?		Comments								
NRTR Stream ID:	SFA					Buffer Rules in Effect:		N	leuse	
Project Includes Bridge Spanning Wate	r Body?	No	Deck Drains Discharge Over Bu		N/A	Dissipator Pads Provided			N/A	
Deck Drains Discharge Over Water Bod	ly?	No	(If yes, provide justification in	the General Project	t Narrative)	(If yes, describe in the Ge	eneral Project Na	arrative; if no	o, justify in	ı the
(If yes, provide justification in the	General Project Na	arrative)				Gene	eral Project Narra	ative)		
Surface Water Body (10):		UT To S	wift Creek	NCDWR Stream I	ndex No.:		27-43-(8)			
NCDWR Surface Water Classification fo	or Water Rody		Primary Classification:	Class	C					
NODVIK Guriace Water Glassification to	or water body		Supplemental Classification:	<b>Nutrient Sensitive</b>	Waters (NSW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments								
NRTR Stream ID:	SFK					Buffer Rules in Effect:		N	leuse	
Project Includes Bridge Spanning Wate	r Body?	No	Deck Drains Discharge Over Bu	uffer?	N/A	Dissipator Pads Provided	in Buffer?		N/A	
Deck Drains Discharge Over Water Bod	•	N/A	(If yes, provide justification in	the General Project	t Narrative)	(If yes, describe in the Ge			, justify in	ı the
(If yes, provide justification in the		arrative)	7			Gene	eral Project Narra	ative)		
Surface Water Body (11):	UT	To White Oak	Creek (Austin Pond)	NCDWR Stream I	ndex No.:		27-43-11			
• ` '	=1		Primary Classification:	Class						
NCDWR Surface Water Classification for	or Water Body		Supplemental Classification:	Nutrient Sensitive						
				Tation Conomic					1	
Other Stream Classification:										
Impairments:									1	
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Aquatic T&F Species?		Commente								
Aquatic T&E Species?	SEC	Comments				Buffor Dulce in Effect:	ı	N.	louse	
NRTR Stream ID:	SFC		Dock Draine Discharge Coas Bu	iffor?		Buffer Rules in Effect:	in Buffor?	N	leuse	
NRTR Stream ID: Project Includes Bridge Spanning Wate	r Body?	No	Deck Drains Discharge Over Bu		N/A	Dissipator Pads Provided			N/A	the
NRTR Stream ID:	r Body? ly?	No N/A	Deck Drains Discharge Over Bu (If yes, provide justification in		N/A	Dissipator Pads Provided (If yes, describe in the Ge		arrative; if no	N/A	ı the



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			Additional Waterbo	dy Information						
Surface Water Body (12):	UT	To White Oak (	Creek (Austin Pond)	NCDWR Stream I	ndex No.:		27-43-11			
NCDWR Surface Water Classification for	y Water Body		Primary Classification:	Class						
NCDWR Surface Water Classification to	or water body		Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments:								
NRTR Stream ID:	SFD					Buffer Rules in Effect:		N	euse	
Project Includes Bridge Spanning Wate	r Body?	No	Deck Drains Discharge Over Bu		N/A	Dissipator Pads Provided			N/A	
Deck Drains Discharge Over Water Bod	y?	N/A	(If yes, provide justification in	the General Project	t Narrative)	(If yes, describe in the Ge			, justify ii	n the
(If yes, provide justification in the	General Project Na	rrative)				Gene	eral Project Narr	ative)		
Surface Water Body (13):		White Oak Cree	ek (Austin Pond)	NCDWR Stream I			27-43-11			
NCDWR Surface Water Classification for	or Water Body		Primary Classification:	Class	C					
The state of the s			Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments:								
NRTR Stream ID:	SFV					Buffer Rules in Effect:			euse	
Project Includes Bridge Spanning Wate		No	Deck Drains Discharge Over Bu		N/A	Dissipator Pads Provided			N/A	
Deck Drains Discharge Over Water Bod		N/A	(If yes, provide justification in	the General Project	t Narrative)	(If yes, describe in the Ge	neral Project Na eral Project Narr		, justity ii	n the
(If yes, provide justification in the	General Project Na	rrative)				Gene	erai Project Nam	alive)		
Surface Water Body (14):	UT	To White Oak (	Creek (Austin Pond)	NCDWR Stream I			27-43-11			
NCDWR Surface Water Classification for	r Water Body		Primary Classification:	Class						
			Supplemental Classification:	Nutrient Sensitive	Waters (NSW)					
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?	055	Comments:					1			
NRTR Stream ID:	SFR	NI-	Bart Brains Biaskanna Gran Br	-#0		Buffer Rules in Effect:	D#2		euse N/A	
Project Includes Bridge Spanning Water		No N/A	Deck Drains Discharge Over Bu (If yes, provide justification in		N/A	Dissipator Pads Provided (If yes, describe in the Ge				n the
Deck Drains Discharge Over Water Bod (If yes, provide justification in the	•		(ii yos, provide justification iii	and Contorain roject	. Hallauvej		eral Project Nam		, justily li	
(ii yes, provide justilication in the	General Floject Na	iiiauve)					,	,		
Surface Water Body (15):	LIT	To White Oak (	Creek (Austin Pond)	NCDWR Stream I	ndex No :		27-43-11			
		15 Wille Oak	Primary Classification:	Class			21-70-11			
NCDWR Surface Water Classification for	or Water Body		Supplemental Classification:	Nutrient Sensitive						
Other Stream Classification:										
Impairments:										
Aquatic T&E Species?		Comments:								
NRTR Stream ID:	SFN					Buffer Rules in Effect:		N	euse	
Project Includes Bridge Spanning Wate		No	Deck Drains Discharge Over Bu	iffer?	N/A	Dissipator Pads Provided	in Buffer?		N/A	
Deck Drains Discharge Over Water Bod		N/A	(If yes, provide justification in			(If yes, describe in the Ge		arrative; if no	, justify in	n the
(If yes, provide justification in the		· · ·	†	•		Gene	eral Project Narr	ative)		
(ii yes, provide justification in the	General Project Na	irrative)								i i





(If yes, describe in the General Project Narrative; if no, justify in the

General Project Narrative)

Deck Drains Discharge Over Water Body?

(If yes, provide justification in the General Project Narrative)

**Highway Stormwater Program** STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS Version 3.00; Released August 2021) TIP No.: R-2829A WBS Element: 35517.3.TA1 County(ies): Wake Page **Additional Waterbody Information** Surface Water Body (16): UT To White Oak Creek (Austin Pond) NCDWR Stream Index No.: 27-43-11 Primary Classification: Class C NCDWR Surface Water Classification for Water Body Supplemental Classification: Nutrient Sensitive Waters (NSW) Other Stream Classification: Impairments: Aquatic T&E Species? Comments: NRTR Stream ID: **Buffer Rules in Effect:** Neuse Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative) Surface Water Body (17): UT To White Oak Creek (Austin Pond) NCDWR Stream Index No.: 27-43-11 Primary Classification: Class C NCDWR Surface Water Classification for Water Body Supplemental Classification: Nutrient Sensitive Waters (NSW) Other Stream Classification: Impairments: Aquatic T&E Species? Comments: NRTR Stream ID: SFS Buffer Rules in Effect: Neuse Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative) UT To White Oak Creek (Austin Pond) NCDWR Stream Index No.: 27-43-11 Surface Water Body (18): Primary Classification: Class C NCDWR Surface Water Classification for Water Body Supplemental Classification: Nutrient Sensitive Waters (NSW) Other Stream Classification: Impairments: Aquatic T&E Species? Comments: NRTR Stream ID: Buffer Rules in Effect: Neuse Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? General Project Narrative) (If yes, provide justification in the General Project Narrative) UT To White Oak Creek (Austin Pond) NCDWR Stream Index No.: Surface Water Body (19): 27-43-11 **Primary Classification:** NCDWR Surface Water Classification for Water Body Nutrient Sensitive Waters (NSW) Supplemental Classification: Other Stream Classification: Impairments: Aquatic T&E Species? Comments: Neuse NRTR Stream ID: Buffer Rules in Effect: Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A

(If yes, provide justification in the General Project Narrative)

N/A



# **Highway Stormwater Program**



General Project Narrative)

Deck Drains Discharge Over Water Body?

(If yes, provide justification in the General Project Narrative)

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N/A





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				Additional Waterboo	dy Information				
Surface Water Body	<i>(</i> (24):	UT	To White Oak C	Creek (Austin Pond)	NCDWR Stream Index No.:		27-43-11		
NCDWP Surface Wa	ator Classification fo	r Water Body		Primary Classification:	Class C				
NCDWK Surface Wa	ater Classification io	or water body		Supplemental Classification:	Nutrient Sensitive Waters (NSW)				
Other Stream Classi	ification:								
Impairments:									
Aquatic T&E Specie	s?		Comments:						
NRTR Stream ID:		SGF				Buffer Rules in Effect:		N	leuse
Project Includes Bri	idge Spanning Wate	r Body?	No	Deck Drains Discharge Over Bu		Dissipator Pads Provided			N/A
Deck Drains Discha	rge Over Water Bod	y?	N/A	(If yes, provide justification in	the General Project Narrative)	(If yes, describe in the Ge	•		o, justify in the
(If yes, provi	de justification in the	General Project Na	rrative)			Gene	eral Project Nari	rative)	
Surface Water Body	inter Body (24):  Inface Water Classification for Water Body  Inface Water Classification for Water Body  Inface Water Classification in the General Project  Inface Water Classification for Water Body  Inface Water Classification for Water Body  Inface Water Classification for Water Body  Inface Water Classification in the General Project  Inface Water Classification for Water Body  Inface Water Body?  Inface Water Body?  Inface Water Body?  Inface Water Body?  Inface Water Classification in the General Project  Inface Water Classification for Water Body		UT to Sw	vift Creek	NCDWR Stream Index No.:		27-43-(8)		
NCDWR Surface Wa	ator Classification fo	r Water Rody		Primary Classification:	Class C				
NODVIN Gariace Via	ater Glassification re			Supplemental Classification:	Nutrient Sensitive Waters (NSW)				
Other Stream Classi	ification:								
Impairments:									
Aquatic T&E Specie	s?		Comments:						
NRTR Stream ID:		SKR				Buffer Rules in Effect:		N	leuse
Project Includes Bri	idge Spanning Wate	r Body?	No	Deck Drains Discharge Over Bu		Dissipator Pads Provided			N/A
Deck Drains Discha	rge Over Water Bod	y?	N/A	(If yes, provide justification in	the General Project Narrative)	(If yes, describe in the Ge			o, justify in the
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(If yes, provi	de justification in the	General Project Na	rrative)			Gene	eral Project Nari	alive)	
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Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS

TIP No.:								
	R-2829A	County(ies):	Wake		Page	9	of	15
		Additional Waterbo	dy Information					
	UT to Sv	vift Creek	NCDWR Stream Index No.:		27-43-(8)			
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Water Body		Supplemental Classification:	Nutrient Sensitive Waters (NSV	()			1	
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#### **Highway Stormwater Program** STORMWATER MANAGEMENT PLAN



Version 3.00; Released August 2021)

FOR NCDOT PROJECTS TIP No.: R-2829A 10 WBS Element: 35517.3.TA1 County(ies): Wake Page **Additional Waterbody Information** Surface Water Body (32): UT To White Oak Creek (Austin Pond) NCDWR Stream Index No.: 27-43-11 Primary Classification: Class C NCDWR Surface Water Classification for Water Body Supplemental Classification: Nutrient Sensitive Waters (NSW) Other Stream Classification: Impairments: Aquatic T&E Species? Comments: NRTR Stream ID: SGD **Buffer Rules in Effect:** Neuse Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative) Surface Water Body (33): NCDWR Stream Index No.: Primary Classification: NCDWR Surface Water Classification for Water Body Supplemental Classification: Other Stream Classification: Impairments: Aquatic T&E Species? Comments: NRTR Stream ID: Buffer Rules in Effect: Neuse Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative) UT to White Oak Creek (Austin Pond) NCDWR Stream Index No.: 27-43-11 Surface Water Body (34): Primary Classification: Class C NCDWR Surface Water Classification for Water Body Supplemental Classification: Nutrient Sensitive Waters (NSW) Other Stream Classification: Impairments: Aquatic T&E Species? Comments: NRTR Stream ID: Buffer Rules in Effect: Neuse Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? General Project Narrative) (If yes, provide justification in the General Project Narrative) NCDWR Stream Index No.: Surface Water Body (35): **Primary Classification:** NCDWR Surface Water Classification for Water Body Supplemental Classification: Other Stream Classification: Impairments: Aquatic T&E Species? Comments: NRTR Stream ID: **Buffer Rules in Effect:** Neuse Project Includes Bridge Spanning Water Body? No Deck Drains Discharge Over Buffer? N/A Dissipator Pads Provided in Buffer? N/A (If yes, provide justification in the General Project Narrative) (If yes, describe in the General Project Narrative; if no, justify in the Deck Drains Discharge Over Water Body? N/A General Project Narrative) (If yes, provide justification in the General Project Narrative)





# **Highway Stormwater Program**

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(Version 3.00; Released A WBS Element:	35517.3.TA1	TIP No.:	R-2829A	FOR NCDOT F County(ies):				Pogo	11	of	15
WDS Element.	30017.3.1A1	IIP NO	K-2029A	*				Page		OI	10
				Additional Waterbo							
Surface Water Body	(36):				NCDWR Stream In	dex No.:					
NCDWR Surface Wa	ter Classification fo	r Water Body		Primary Classification:						4	
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WBS Element: 35517.3.TA1

### North Carolina Department of Transportation

### **Highway Stormwater Program** STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS TIP/Proj No.: R-2829A County(ies): Wake Page 12

						33317.3.1A1	TIF/FTOJ NO			County(les).	Swale					rage	12	<u> </u>	13
Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	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?
9	L1	1013+77	LT	35.6499071	-78.5476612	(6)UT To Swift Creek	4.0	4.0	3.0	4.7	470	185	0.58%	12.9	1.9	16.5	2.1		
11	L1	1058+50	LT	35.6618531	-78.5440995	(11)UT To White Oak Creek (Austin Pond)	4.0	6.0	3.0	2.3	225	200	0.48%	7.7	1.9	9.9	2.0		
12	L1	1060+50	LT	35.6623849	-78.5439286	(11)UT To White Oak Creek (Austin Pond)	4.0	6.0	3.0	5.2	517	50	0.30%	14.2	1.9	18.2	2.0		
12	Y23DR	44+43	RT	35.6625762	-78.5426941	(11)UT To White Oak Creek (Austin Pond)	4.0	4.0	3.0	0.7	67	100	1.34%	2.1	1.8	2.7	1.9		
13	L1	1085+06	LT	35.6689521	-78.5421225	(13)White Oak Creek (Austin Pond)	4.0	3.0	3.0	6.6	661	99	0.35%	23.6	1.9	18.4	1.8		
13	L1	1084+71	RT	19.9307687	-21.3314573	(13)White Oak Creek (Austin Pond)	4.0	3.0	3.0	8.3	828	229	0.35%	22.7	1.9	29.1	2.0		
14	L1	1089+50	RT	35.6700506	-78.5410785	(13)White Oak Creek (Austin Pond)	4.0	3.0	3.0	4.4	441	68	0.50%	14.1	1.9	18.1	2.0		
13	L1	1086+70	LT	35.6695049	-78.5423782	(13)White Oak Creek (Austin Pond)	8.0	3.0	3.0	10.0	1003	330	0.30%	34.4	1.9	41.1	2.0		
14	L1	1090+00	LT	35.6703076	-78.5420096	(13)White Oak Creek (Austin Pond)	4.0	3.0	3.0	3.4	337	200	0.35%	13.1	1.6	16.8	1.7		
14	L1	1094+00	LT	35.6713084	-78.5418021	(13)White Oak Creek (Austin Pond)	4.0	4.0	3.0	0.6	60	216	1.39%	2.3	1.6	3.0	1.7		
14	L1	1097+00	RT	35.6720953	-78.5407270	(14)UT To White Oak Creek (Austin Pond)	4.0	4.0	3.0	0.8	83	150	1.17%	2.7	1.8	3.4	2.0		
14	L1	1098+50	RT	35.6724301	-78.5406640	(14)UT To White Oak Creek (Austin Pond)	4.0	3.0	3.0	0.9	91	30	1.67%	3.3	1.9	3.7	1.9		
14	L1	1098+83	RT	35.6725928	-78.5406578	(14)UT To White Oak Creek (Austin Pond)	4.0	3.0	3.0	2.2	217	34	0.59%	7.9	1.7	10.2	1.8		
14	L1	1099+17	RT	35.6728397	-78.5405920	(14)UT To White Oak Creek (Austin Pond)	4.0	3.0	3.0	2.0	202	83	0.78%	7.4	1.8	9.5	2.0		
16	L1	1118+85	RT	35.6778594	-78.5391516	(16)UT To White Oak Creek (Austin Pond)	4.0	3.0	3.0	1.0	98	15	1.47%	3.6	1.8	4.6	2.0		
16	L1	1119+00	RT	35.6779282	-78.5392012	(16)UT To White Oak Creek (Austin Pond)	4.0	6.0	3.0	0.9	92	275	1.48%	3.4	1.8	4.3	1.9		
16	L1	1121+75	RT	35.6786983	-78.5388845	(17)UT To White Oak Creek (Austin Pond)	4.0	6.1	3.0	2.1	210	275	0.55%	7.7	1.6	9.8	1.7		
17	Y24RP C	21+50	RT	35.6808085	-78.5373557	(17)UT To White Oak Creek (Austin Pond)	4.0	6.0	3.0	0.7	70	300	1.47%	2.6	1.6	3.3	1.8		
19	L1	1179+10	RT	35.6931701	-78.5314707	(23)UT To White Oak Creek (Austin Pond)	4.0	6.0	3.0	2.0	200	240	1.30%	5.5	2.0	7.0	2.2		
34	Y24R	19+17	LT	35.6861283	-78.5445784	(30)UT To White Oak Creek (Austin Pond) (29)UT To White Oak	4.0	3.0	3.0	3.1	307	117	0.64%	9.8	1.8	12.6	2.0		
34	Y24R	20+11	RT	35.6854669	-78.5446550	Creek (Austin Pond)	4.0	3.0	3.0	6.2	621	111	0.36%	19.9	1.8	25.4	1.9		
35	Y24A	20+50	LT	35.6847572	-78.5399187	(18)UT To White Oak Creek (Austin Pond)	4.0	3.0	3.0	1.0	104	99	2.02%	3.3	2.0	4.3	2.2		
35	Y24R	34+68	RT	35.6839879	-78.5401182	(18)UT To White Oak Creek (Austin Pond)	4.0	3.0	3.0	3.2	320	218	0.68%	10.2	1.9	13.1	2.0		
9	L1	1007+00	RT	35.6479122	-78.5472059	(4)UT To Swift Creek	4.0	6.0	3.0	0.4	43	150	0.49%	1.4	1.0	1.8	1.1		
9	L1	1009+03	LT	35.6486306	-78.5479394	(4)UT To Swift Creek	4.0	3.0	3.0	3.2	315	247	0.73%	10.1	1.9	12.9	2.1		
9	L1	1012+50	RT	35.6494834	-78.5467708	(5)UT To Swift Creek	4.0	5.0	3.0	0.9	88	200	0.79%	2.8	1.0	3.6	1.1		
9	L1 L1	1013+77	LT LT	35.6499095 35.6510065	-78.5476673 -78.5471406	(6)UT To Swift Creek (6)UT To Swift Creek	4.0 4.0	3.0 6.0	3.0	4.7 2.1	470 211	173 100	0.58%	12.9	1.9 1.9	16.5	2.1		
10	L1 L1	1018+00 1019+00	LT	35.6510065	-78.5471406 -78.5470935	(6)UT To Swift Creek	4.0	6.0	3.0	0.5	211 54	250	0.60% 2.16%	6.8 2.0	2.0	8.6 2.5	2.1		
10	L1	1019+00	RT	35.651116	-78.5462213		4.0	6.0	3.0	0.8	75	100	1.50%	2.4	1.9	3.1	2.0		
10	LT	1019+00	KI	35.051116	-78.5462213	(0)01 10 SWITT Creek	4.0	0.0	3.0	ს.ზ	/5	100	1.50%	2.4	1.9	3.1	2.0		

10	L1	1023+00	LT	35.6523544	-78.5468779	(8)UT To Swift Creek	4.0	3.0	3.0	1.0	98	84	0.95%	3.1	1.5	4.0	1.6	
10	L1	1024+18	RT	35.652514	-78.5458684	(8)UT To Swift Creek	4.0	6.0	3.0	0.6	56	168	0.48%	1.8	1.2	2.3	1.2	
10	L1	1024+18	RT	35.652514	-78.5458684	(8)UT To Swift Creek	4.0	3.0	3.0	5.3	525	82	0.55%	14.4	1.9	18.4	2.1	
10	L1	1026+00	RT			(8)UT To Swift Creek	4.0	6.0	3.0	2.7	267	350	0.57%	8.5	1.9	10.9	2.0	
28	Y23J	14+00	LT			(34)UT to White Oak Creek (Austin Pond)		4.0	3.0	0.4	35	85	3.53%	1.0	1.8	1.2	2.0	
29	Y23DI	29+85	LT			(34)UT to White Oak Creek (Austin Pond)		4.0	3.0	1.0	100	265	1.13%	2.7	1.8	3.5	1.9	
29	Y23DI	36+00	LT	35.6604656	-78.5422755	(34)UT to White Oak Creek (Austin Pond)	4.0	4.0	3.0	0.6	60	100	3.00%	1.4	2.0	1.8	2.1	
26	Y23F	59+00	RT	35.6618133	-78.5481363	(26)UT to Swift Creek	4.0	4.0	3.0	3.4	340	100	0.40%	12.4	1.9	15.9	2.0	

Additional Comments

Additional locations of buffer swales have been provided along the project corridor to provide extra filtration to offset the lengths unachievable, however the ranges shown above are only the swales outletting water into the buffered jursidictional streams.



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# **Highway Stormwater Program**

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STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS WBS Element: 35517.3.TA1 TIP No.: R-2829A County(ies): Wake Page 13 of

											Swales								
Sheet No.	Line	Station	Location (LT,RT,CL)	l atitude	Longitude	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)		BMP Associated w/ Buffer Rules?
26	Y23R	60+00	RT			(26)UT to Swift Creek	4.0	3.0	3.0	3.6	355	95	0.47%	13.5	1.8	17.2	1.9	-	Zunor runoo .
26	Y23R	60+95	RT	35.6619879	-78.5486925	(26)UT to Swift Creek	4.0	3.0	3.0	1.8	180	105	0.95%	5.4	1.8	6.8	1.9		
31	Y23FR	10+25	LT			(26)UT to Swift Creek	4.0	3.0	3.0	1.8	182	90	1.00%	5.4	1.8	6.9	2.0		
31	Y23AR	13+30	RT			(26)UT to Swift Creek	4.0	4.0	3.0	1.7	170	120	0.50%	5.1	1.6	5.5	1.7		
31	Y23FR	11+69	RT			(26)UT to Swift Creek	4.0	3.0	3.0	0.4	35	71	3.90%	0.8	2.0	1.0	2.2		
31	Y23FR	11+94	LT	35.6599418	-78.5486143	(26)UT to Swift Creek	4.0	3.0	3.0	0.5	50	156	4.50%	1.3	1.8	1.6	2.0		

**Additional Comments** 

Additional locations of buffer swales have been provided along the project corridor to provide extra filtration to offset the lengths unachievable, however the ranges shown above are only the swales outletting water into the buffered jursidictional streams.



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# Highway Stormwater Program

STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

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WBS Element: TIP/Proj No.: R-2829A County(ies): Wake

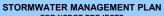
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Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	Surface Water Body	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe (in) / Structure Dimensions (ft)	Q10 (cfs)	V10 (fps)	BMP Associated w/ Buffer Rules?
11	Y23RPB	23+64	LT	35.658732	-78.546198	(10)UT To Swift Creek	Riprap Energy Dissipator Basin	Class I	9.4	Pipe	42"	30.4	0.8	N/A
15	L1	1105+37	LT	35.674927	-78.541210	(15)UT To White Oak Creek (Austin Pond)	Riprap Energy Dissipator Basin	Class I	6.5	Pipe	36"	30.0	1.0	N/A
								A -1-1141 1 O						

**Additional Comments** 

<sup>\*</sup> 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.



### **Highway Stormwater Program**



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#### **Other Toolbox Best Management Practices New Built-Upon Precipitation Depth** Sheet Drainage Area Area Volume Treated Treated over NBUA **BMP Associated** Location BMP Type w/ Buffer Rules? No. Station (LT,RT,CL) Latitude Longitude **Surface Water Body** (ac-ft) Line (ac) (ac) (in) (36) PAD Dry Detention Basin 11 L1 1036+35 LT Dry Detention Basin Dry Detention Basin 11 23+50 RT (10)UT To Swift Creek Y23LPB 19+00 RT (26)UT to Swift Creek 11 (24)UT To White Oak 20 1190+00 LT Dry Detention Basin Creek (Austin Pond)

**Additional Comments** 

Stormwater Detention Ponds have not been designed at this time.

