



NORTH CAROLINA
Department of Transportation



Technical Support Services Offered by the Hydraulics Unit

Preconstruction Workshop

May 8-9, 2018

Drainage Design Support

Hydraulic Scoping Preparation and Review

Drainage Design Support

Man-day Estimates and Negotiation

Drainage Design Support

15% / 25%
Plan Review


Drainage Design Support

Review and Approval of Bridge and Culvert Survey Reports (BSRs and CSRs)

CULVERT SURVEY & HYDRAULIC DESIGN REPORT
N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
HYDRAULICS UNIT
RALEIGH, N. C.

Project No. B-482 Project No. 33523LU Proj. Station 12+5 -L-
Country Madison Stream Big Laurel Creek Str. No. Br. 246
On Highway SR 1503 Between SR 1502 and SR 1407
Recommended Structure 2 @ 12' X 7' Reinforced Concrete Box Culvert with sills and
low flow channel
Recommended Width of Roadway 20' eop to eop skew 150.0 deg.
Recommended Location in R.P. 44' Eads 5' east from Existing Crossing AT
Benchmark to BM1 Chiseled square w/ punch hole on SR headwall
23' right of BL station B+35 Elev. 2997.79 Datum NAVD 88
Temporary Crossing N/A - Offsite Detour

Big Laurel Creek
Stream

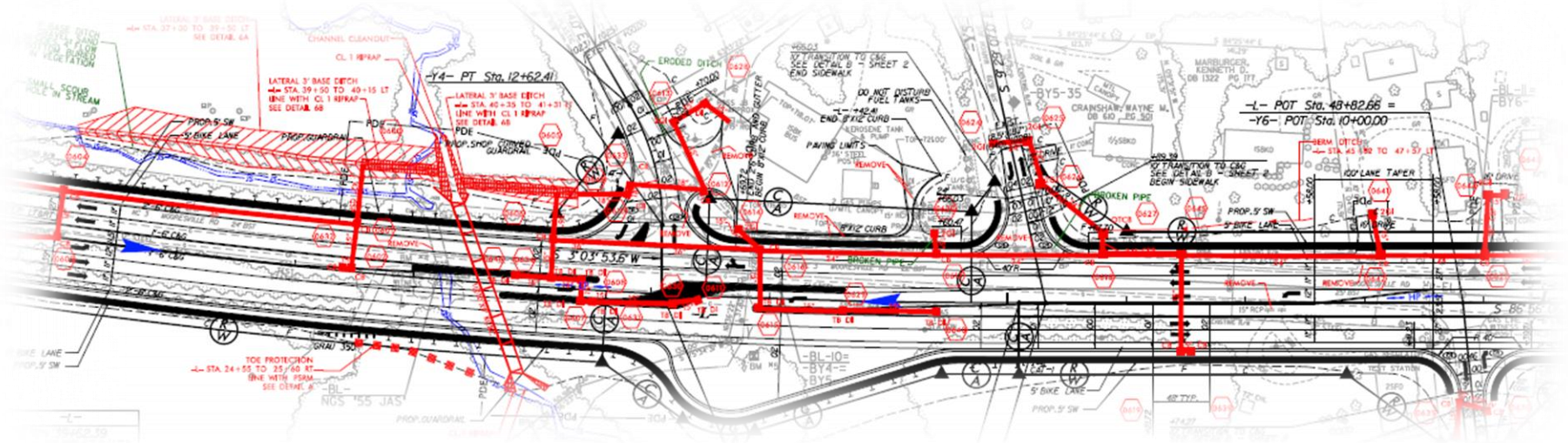


Designed by: _____ Date: _____
Assisted by: _____
Project Engineer: _____
Reviewed by: _____

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER

Drainage Design Support

Drainage Design Review

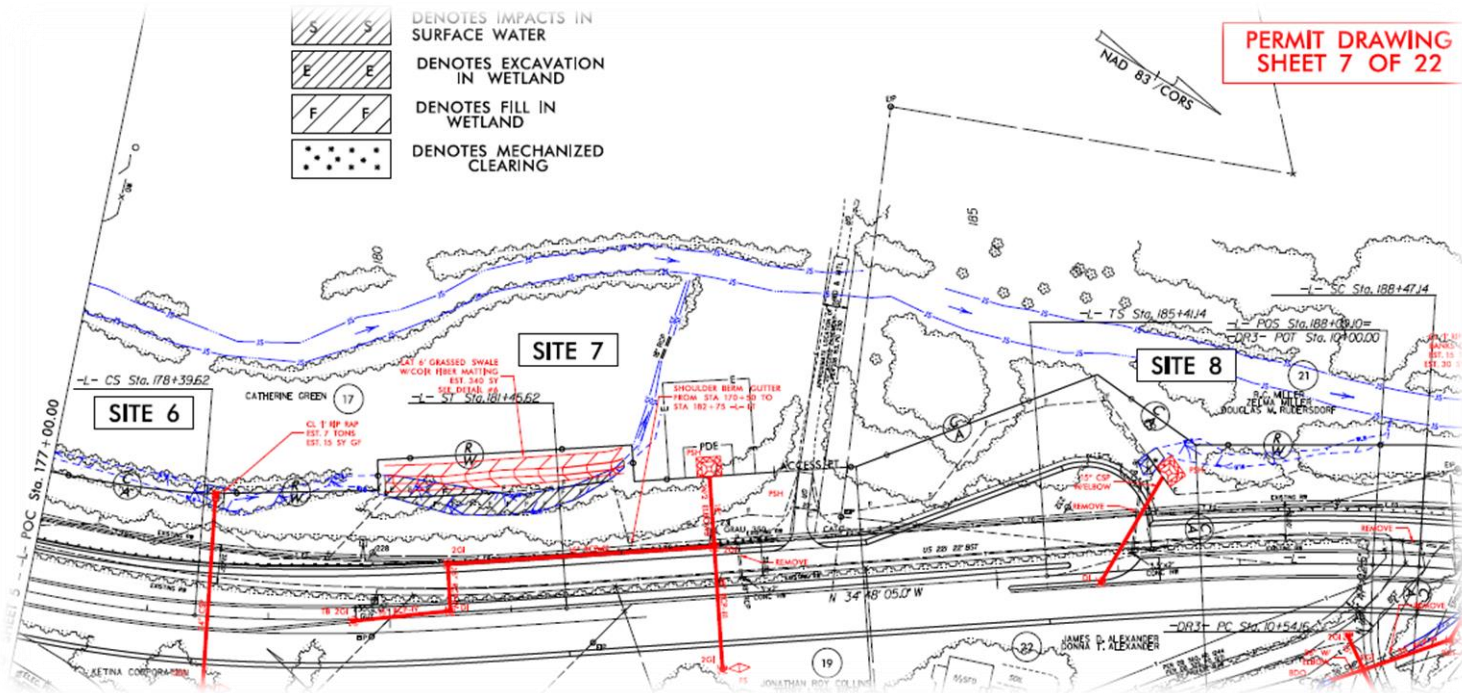


Drainage Design Support

Provide Hydraulic Design
or Review of Division
Managed Projects or
Division Reviews (GECs)

Drainage Design Support

Preparation and Review of Permit Drawings




Drainage Design Support

Review of

Stormwater Management Plans

(SMPs)

Highway Stormwater		North Carolina Department of Transportation					
Version 2.05; Released April 2018		Highway Stormwater Program				STORMWATER MANAGEMENT PLAN	
FOR NCDOT PROJECTS		WBS Element:				TIP No.:	
		County(ies):				Page 1 of 1	
General Project Information							
WBS Element:	TIP Number:		Project Type:		Date:		
NCDOT Contact:	Address:	Contractor / Designer:		Address:			
	Phone:			Phone:			
	Email:			Email:			
	City/Town:	County(ies):					
River Basin(s):	CA MA County?						
Wetlands within Project Limits?							
Project Description							
Project Length (lin. miles or feet):	Surrounding Land Use:						
		Proposed Project			Existing Site		
Project Built-Up Area (ac.):			ac.			ac.	
Typical Cross Section Description:							
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	Year:		Existing:	Year:		
General Project Narrative: (Description of Minimization of Water Quality Impacts)							
Waterbody Information							
Surface Water Body (1):		NCDWR Stream Index No.:					
NCDWR Surface Water Classification for Water Body		Primary Classification:					
Other Stream Classification:		Supplemental Classification:					
Impairments:							
Aquatic T&E Species? Comments:							
NRTR Stream ID:							
Project Includes Bridge Spanning Water Body?		Deck Drains Discharge Over Buffer?		Buffer Rules in Effect:			
(If yes, provide justification in the General Project Narrative)		(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)			
Deck Drains Discharge Over Water Body?		Dissipator Pads Provided in Buffer?					
(If yes, provide justification in the General Project Narrative)		(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)			

Drainage Design Support

Attendance and Representation at Various Meetings

(Scoping, Merger, Field Inspections, etc.)

Drainage Design Support

General Guidance on Steps in Project Delivery

Drainage Design Support

Set Expectations of PEF
work products for
Divisions

Drainage Design Support

Design-Build

- Serve on Technical Review Committee
 - Develop Hydraulics' portion of RFP
 - Review Hydraulic Design Submittals

Drainage Design Support

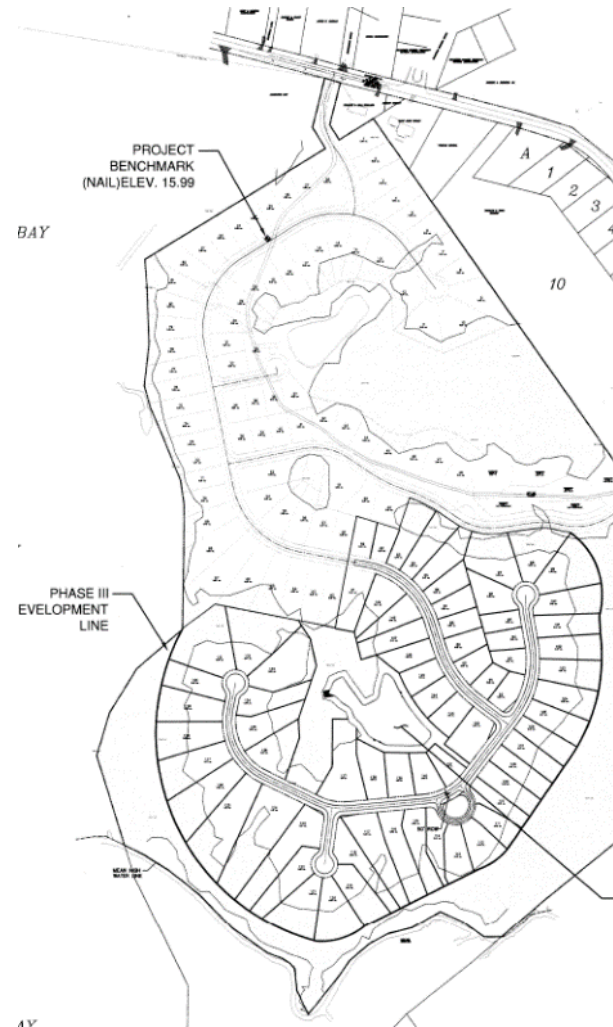
Prepare
Predesign Report
(PDR)

Drainage Design Support

Division Design and Construct (DDC)

Drainage Design Support

Subdivision Review



Drainage Design Support

Encroachments



Encroachment General Provisions

Our mission is to safely and efficiently manage and facilitate as much as practicable the accommodation of utilities along NCDOT Highways while protecting our public infrastructure.

Example Project

- TC** 1 NCDOT WORK ZONE TRAFFIC CONTROL QUALIFICATIONS AND TRAINING PROGRAM: a. Effective July 1, 2010, all flagging operations within NCDOT Right of Way require qualified and trained Work Zone Flaggers; b. Effective July 1, 2011, qualified and trained Work Zone Traffic Control Supervisors will be required on Significant Projects; c. Training for this certification is provided by NCDOT approved training sources and by private entities that have been pre-approved to train themselves. If you have questions, contact our web site at www.ncdot.org/wzte, or contact [redacted] [redacted] with NCDOT Work Zone Traffic Control Unit at (919) 250-4159 or [redacted]@ncdot.gov.
- G** 1 The encroaching party shall notify the District Engineer's Office prior to beginning construction and after construction is complete. Contact information: [redacted]
- G** 3 An executed copy of this encroachment agreement will be present at the construction site at all times during construction. If safety or traffic conditions warrant such an action, NCDOT reserves the right to further limit, restrict or suspend operations within the right of way.

Drainage Design Support

Mediation:

Serve as an advocate for the Department and assist with arbitration of hydraulic design issues, as well as audit and QA/QC oversight

Drainage Design Support Review of Major Drainage Structures



Drainage Design Support

Drainage Investigations

Drainage Design Support

Pipe Replacement Recommendations



Drainage Design Support Greenway Design Review



Drainage Design Support

Expert Witness



Drainage Design Support

Access to obtain
Structure Safety
(Inspection) Reports via
WIGINS

Drainage Design Support

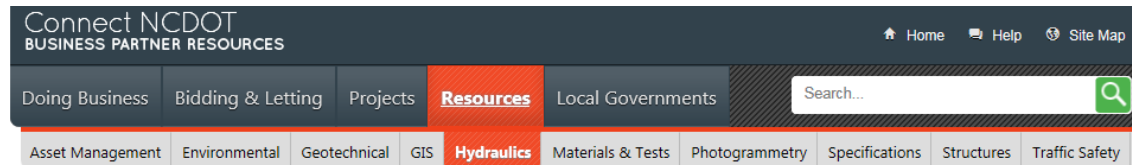
Level III Wave Vulnerability Study GIS Data

Drainage Design Support

Access to obtain
archived
BSRs and CSRs

Drainage Design Support

Hydraulic Design Guidance & Resources on Hydraulics Connect website



Hydraulics

Guidelines and resources for hydraulic design and highway drainage.

Home > Connect NCDOT > Resources > Hydraulics

Guidelines for Drainage Studies

Guidance in the methods, procedures, policies, and criteria for Drainage Studies and Hydraulic Design.

[Read More](#) →

Highway Floodplain Program

Floodplain guidance, FEMA coordination, forms, submittals, requests and other resources.

[Read More](#) →

Highway Stormwater Program (HSP)

Highway Stormwater Program products and useful links

Interagency Concurrence Meetings (Merger 4b / 4c)

Hydraulics Conference Room

Contact Us to reserve the **Hydraulics Conference Room**.

[Concurrence Meeting Agendas and Calendar](#)

[2018 Interagency and Project Meeting](#)

Highway Floodplain Program

Coordination with NC
Floodplain Mapping
Program (NCFMP) for
FEMA approvals on all
NCDOT projects

Highway Floodplain Program

Review & Submittal

of

CLOMRs & LOMRs

to

NCFMP & FEMA

Highway Floodplain Program

Review and approval

(per MOA with FMP)

of all NCDOT projects with

minor impacts to

Special Flood Hazard Areas

Highway Floodplain Program

Providing FEMA Flood
Insurance Study data
(hydraulic models, studies, etc.)
upon request

Highway Floodplain Program Provide FEMA Flood Insurance Study data



Highway Floodplain Program

Troubleshoot Hydraulic Model Issues related to NFIP

Stormwater Management

National Pollutant Discharge Elimination System (NPDES)

Permit

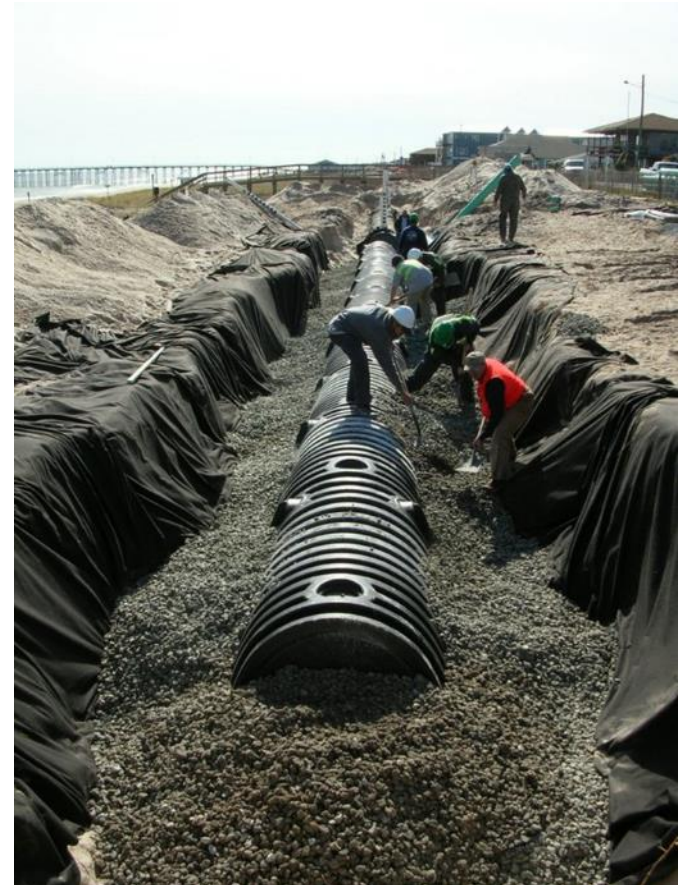


Stormwater Management

State Stormwater Regulations

Stormwater Management

Stormwater BMP Retrofits

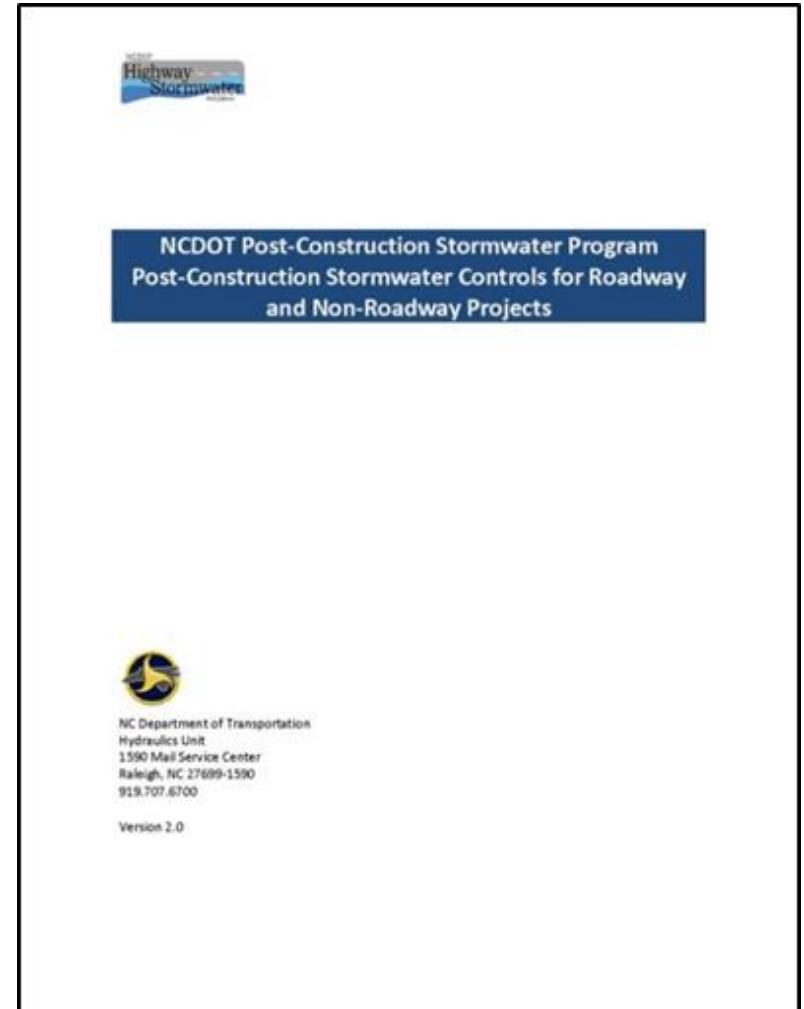


Stormwater Management

NPDES

Post-Construction
Stormwater
Program (PCSP)

Compliance
Consultations



Stormwater Management


Stormwater Treatment Requirement Consultations

Stormwater Management

Stormwater Best Management Practices (BMPs) Design Review Consultations

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

STORMWATER BEST MANAGEMENT PRACTICES TOOLBOX



North Carolina
Department of Transportation

Highway Stormwater
PROGRAM

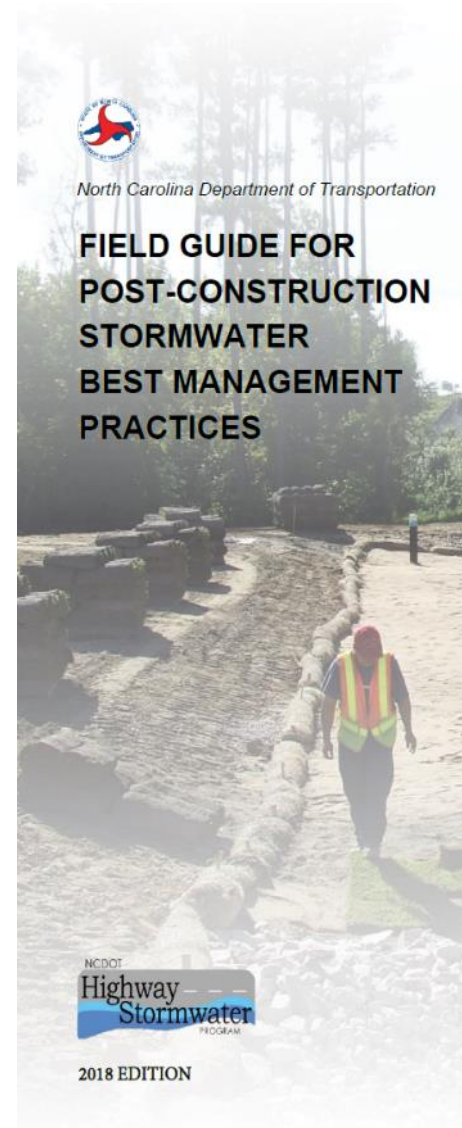
Version 2, April 2014

Stormwater Management

401 Certification Consultations

Stormwater Management

BMP Construction Issue Resolutions



Stormwater Management

Plan Review For NPDES Compliance

Stormwater Management

3rd Party BMP

Maintenance Agreement
Consultations

Stormwater Management

NPDES

Stormwater Management Plan (SMP) Preparation Consultations

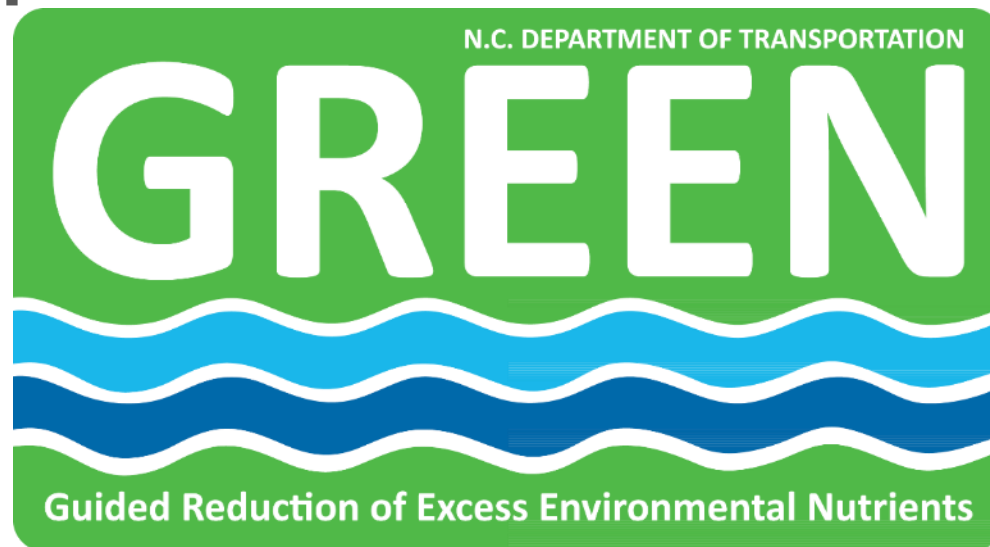
WBS Element		TIP No:	County(ies):		Page 1 of 1
General Project Information					
WBS Element:	TIP Number:		Project Type:		Date:
NC DOT Contact:	Contractor / Designer:		Address:		
Address:	Address:		Address:		
Phone:	Phone:		Phone:		
Email:	Email:		Email:		
City/Town:	County(ies):		CA MA County?		
River Basin(s):	County(ies):		CA MA County?		
Wetlands within Project Limits?					
Project Description					
Project Length (in miles or feet):	Surrounding Land Use:		Existing Site:		
Project Built-Upon Area (ac.):	Proposed Project:		Existing Site:		
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Annual Avg Daily Traffic (veh/hr/day):					
Design/Future:		Year:	Existing:		Year:
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NC/DWR Surface Water Classification for Water Body:		Supplemental Classification:			
Other Stream Classification:					
Impairment:		Comments:			
Aquatic T&E Species?					
Watershed ID:		Deck Drains Discharge Over Buffer?		Buffer Rules in Effect:	
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Stormwater Management

Jordan Lake & Falls Lake

Nutrient Load Reduction Rule

Compliance Consultations



Stormwater Management

Existing BMP
Identification Services within
Project Area