

NICHOLAS J. TENNYSON Secretary

June 24, 2016

U. S. Army Corps of Engineers Regulatory Field Office 151 Patton Avenue, Room 208 Asheville, NC 28801-5006

ATTN:	Ms. Lori Beckwith
	NCDOT Coordinator

Subject: Application for Section 404 Nationwide Permit 23 and 33 and Section 401 Water Quality Certification for the proposed replacement of Bridge No. 21 over Henry Fork on SR 1803 in Burke County, Federal Aid Project No. BRZ-1803(1), Division 13, TIP No. B-5398, Debit \$240 from WBS 46113.1.1.

Dear Madam:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 21 over Henry Fork with a 190' long, three-span box beam bridge on the existing alignment. Traffic will be maintained during construction via an off-site detour.

As a result of the bridge replacement and new roadway slopes, there will be 31 linear feet of permanent stream impacts and 0.08 acre (184 linear feet) of temporary stream impacts.

Please see enclosed copies of the Pre-Construction Notification (PCN), DMS acceptance letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed on August 20, 2015 and distributed shortly thereafter. Additional copies are available upon request.

This project is located in a trout county, therefore comments from the NCWRC will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC Review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.

───Nothing Compares<sup>™</sup> √

This project calls for a letting date of January 17, 2017 and a review date of November 29, 2016; however, the let date may advance as additional funding beco

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: http://connect.ncdot.gov/resources/Environmental. If you have any questions or need additional information, please call Erin Cheely at (919) 707-6108.

Sincerely,

() Philip S. Harris III, P.E., C.P.M. Natural Environment Section Head

cc: NCDOT Permit Application Standard Distribution List



Office Use Only: Corps action ID no. \_\_\_\_\_ DWQ project no. \_\_\_\_\_ Form Version 1.3 Dec 10 2008

<b></b>							
	Pre-Construction Notification (PCN) Form						
Α.	A. Applicant Information						
1.	Processing						
1a.	a. Type(s) of approval sought from the Section 404 Permit Section 10 Permit						
1b.	Specify Nationwide Permit (NWP	) number: 2	23 & 33 or General Permit (GP) n	umber:			
1c.	Has the NWP or GP number bee	en verified b	by the Corps?	🗌 Yes	🛛 No		
1d.	Type(s) of approval sought from	the DWQ (	check all that apply):				
	A01 Water Quality Certification	on – Regula	r Non-404 Jurisdiction	al General Permi	it		
	401 Water Quality Certification	on – Expres	s 🗌 Riparian Buffer Autho	orization			
1e.	e. Is this notification solely for the record because written approval is not required? For the record only for DWQ 401 Certification: For the record only for Corps Permit:						
			🗌 Yes 🛛 No	🗌 Yes	🛛 No		
1f.	If. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program. □ No						
1g.	1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h ☐ Yes ⊠ No below.				🖾 No		
1h.	Is the project located within a NC	DCM Area	a of Environmental Concern (AEC)?	🗌 Yes	🖾 No		
2.	Project Information			·			
2a.	Name of project:	Replacen	nent of Bridge 21 over Henry Fork on	I SR 1803			
2b.	County:	Burke					
2c.	Nearest municipality / town:	Hildebran	1				
2d.	Subdivision name:	not applic	cable				
2e.	NCDOT only, T.I.P. or state project no:	B-5398					
3.	Owner Information						
За.	Name(s) on Recorded Deed:	North Ca	rolina Department of Transportation				
3b.	Deed Book and Page No.	not applic	cable				
Зс.	Responsible Party (for LLC if applicable):	not applic	cable				
3d.	Street address:	1598 Mai	I Service Center				
3e.	City, state, zip:	Raleigh, I	NC 27699-1598				
Зf.	Telephone no.:	(919) 707	7-6108				
3g.	Fax no.:	(919) 212	2-5785				
3h.	Email address:	ekcheely	@ncdot.gov				

4. Applicant Information (if diff	Applicant Information (if different from owner)				
4a. Applicant is:	Agent Other, specify:				
4b. Name:	not applicable				
4c. Business name (if applicable):					
4d. Street address:					
4e. City, state, zip:					
4f. Telephone no.:					
4g. Fax no.:					
4h. Email address:					
5. Agent/Consultant Informatio	n (if applicable)				
5a. Name:	not applicable				
5b. Business name (if applicable):					
5c. Street address:					
5d. City, state, zip:					
5e. Telephone no.:					
5f. Fax no.:					
5g. Email address:					

В.	Project Information and Prior Project History					
1.	Property Identification					
1a.	Property identification no. (tax PIN or parcel ID):	not applicable				
1b.	Site coordinates (in decimal degrees):	Latitude: 35.689432 Longitude: - 81.449746 (DD.DDDDDD) (-DD.DDDDDD)				
1c.	Property size:	5 acres				
2.	Surface Waters					
2a.	Name of nearest body of water (stream, river, etc.) to proposed project:	Henry Fork				
2b.	Water Quality Classification of nearest receiving water:	C				
2c.	River basin:	Catawba				
3.	Project Description					
За.	<ul> <li>Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application:</li> <li>The land use within the vicinity of the project consists of about 45% forest land. 20% developed or disturbed lands.</li> </ul>					
	(roadsides and residential areas), and 35% cultivated land (ag	ricultural fields and pastures).				
3b.	List the total estimated acreage of all existing wetlands on the	property:				
	0					
3c.	List the total estimated linear feet of all existing streams (intern 1370	ittent and perennial) on the property:				
3d.	Explain the purpose of the proposed project:					
	The purpose of this project is to replace a functionally obsolete of 9, and sufficiency rating 7 out of 100).	e bridge (structural evaluation 3 of 9, deck geometry rating 2				
3e.	Describe the overall project in detail, including the type of equi	pment to be used:				
	The project involves replacing a 200-foot five-span bridge with alignment. The bridge approaches will also be widened. All tr road building equipment, such as trucks, dozers, and cranes v	a 190-foot three-span box beam bridge on the existing affic will be detoured off-site during construction. Standard <i>i</i> ll be used.				
4.	Jurisdictional Determinations					
4a.	Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past?	🗌 Yes 🛛 No 📄 Unknown				
4b.	If the Corps made the jurisdictional determination, what type of determination was made?	Preliminary D Final				
4c.	If yes, who delineated the jurisdictional areas?	Agency/Consultant Company:				
4d	If yes, list the dates of the Corps jurisdictional determinations	or State determinations and attach documentation				
10.	The NCDOT requests a PJD with this permit application. PJD	package submitted to USACE 6/23/16.				
5.	Project History					
5a.	Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	🗌 Yes 🛛 No 📄 Unknown				
5b.	If yes, explain in detail according to "help file" instructions.					
6.	Future Project Plans					
6a.	Is this a phased project?	🗌 Yes 🛛 No				
6b.	If yes, explain.					

C. Proposed Impacts Inventory								
1. Impacts Sumi	1. Impacts Summary							
1a. Which sections	s were completed b	pelow for your project	t (check all that	apply):				
U Wetlands	$\boxtimes$	Streams - tributaries	В	uffers				
🗌 Open Wate	rs 🗌	Pond Construction						
2. Wetland Impa	cts							
If there are wetland	l impacts proposed	d on the site, then cor	mplete this que	stion for each wetland	area impacte	ed.		
2a. Wetland impact	2b.	2c.	2d.	2e. Type of jurisd	iction	2f.		
number – Permanent (P) or Temporary (T)	Type of impact	Type of wetland (if known)	Forested	(Corps - 404 DWQ – non-404	, 10 I, other)	Area of impact (acres)		
Site 🗌 P 🗌 T			☐ Yes ☐ No	Corps				
Site 🗌 P 🗌 T								
Site 🗌 P 🗌 T								
Site 🗌 P 🗌 T			☐ Yes ☐ No	Corps				
				2g. Total wetla	nd impacts	0 Permanent 0 Temporary		
2h. Comments:								
3. Stream Impact If there are perennia for all stream sites in	<b>ts</b> Il or intermittent stre mpacted.	am impacts (including	temporary impa	acts) proposed on the s	ite, then comp	plete this question		
За.	3b.	3c.	3d.	3e.	3f.	3g.		
Stream impact	Type of impact	Stream name	Perennial	Type of jurisdiction	Average	Impact length		
Permanent (P) or Temporary (T)			intermittent (INT)?	(Corps - 404, 10 DWQ – non-404, other)	width (feet)			
Site 1 🗌 P 🖾 T	Temporary Causeways	Henry Fork	PER	Corps	50	54 (0.07 ac)		
Site 2 🛛 P 🗌 T	Pipe Replacement	SA (UT to Henry Fork)	PER	Corps	4	31		
Site 2 🗌 P 🖂 T	Temporary Construction Access	SA (UT to Henry Fork)	☐ PER ☐ INT	☐ Corps ☐ DWQ	4	130 (<0.01 ac)		
Site 🗌 P 🗌 T			PER	Corps				
Site 🗌 P 🗌 T								
	31 Perm 3h. Total stream and tributary impacts (0.08 ac Temp							
3i. Comments: Ro causeways will be Temporary impacts pipe as well as a te	unded temporary in constructed in two to stream SA cov emporary crossing	mpact total is the sun phases and no more er the impervious dik that will be necessar	n of actual impa than 50% of th es and tempora y to access the	acts. There will be two le stream channel will ary dewatering necess work area.	temporary c be blocked a ary to replace	auseways. These t any given time. e the existing 96"		

4

4. Open	. Open Water Impacts										
If there are the U.S. th	e propose nen indivi	ed impacts to lakes dually list all open	s, ponds, e water imp	estuari acts b	es, tributar elow.	ies, sounds	s, the	e Atlantic Oo	cean, or	any othe	r open water of
4a.		4b.	4c.				4d.		4e		
Open v	vater	Name of		<b>T</b>	-f :		14/-	- 4 - 11		A	increase (a suppl)
Permaner	mber – ht (P) or	(if applicable)		туре	of impact		VVa	aterbody typ	e	Area of	impact (acres)
Tempora	ary (T)	(ii applicable)									
01 🗌 F	р∏т										
02 🗌 F	Γ										
O3 🗌 F	Γ□Υ										
04 🗌 F	р∏т										
					4	4f. Total op	ben v	water impa	cts	0 F 0 T	Permanent emporary
4g. Comm	4g. Comments: No open water within construction limits.										
5. Pond	5. Pond or Lake Construction										
If pond or	lake cons	struction proposed	, then con	nplete	the chart b	elow.					
5a.	5b.		5c.					5d.			5e.
Pond ID	Pror	nosed use or	V	Vetlan	d Impacts (	(acres)		Stream	Impacts	(feet)	Upland (acres)
number	pur	bose of pond	Flood	ed	Filled	Excavate	əd	Flooded	Filled	Exca vated	Flooded
P1											
P2											
		5f. Total									
5g. Comm	ients:										
5h. Is a dam high hazard permit required?				es	🗌 No	lf y	yes, permit l	D no:			
5i. Expec	cted pond	surface area (acr	es):								
5j. Size c	of pond w	atershed (acres):									
5k. Metho	od of cons	struction:									

6. Buffer Impacts (for DWQ)								
If project will impact impacts below	If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you <b>MUST</b> fill out Section D of this form.							
<sup>3</sup> a. □ Neuse □ Tar-Pamlico □ Other: Project is in which protected basin?								
	0-	0.1	0.	01	0			
6D. Buffor impost	6C.	60.	6e.	6f.	6g.			
number – Permanent (P) or Temporary (T)	Reason for impact	Stream name	Buffer mitigation required?	Zone 1 impact (square feet)	Zone 2 impact (square feet)			
B1 🗌 P 🗌 T			Yes					
B2 🗌 P 🗌 T	B2 □ P □ T □ Yes □ No							
ВЗ 🗌 Р 🗌 Т			☐ Yes ☐ No					
		6h. <b>Total</b>	buffer impacts					
6i. Comments: This	s project is not located withir	n a protected buffer	area.	•	•			

D. I	D. Impact Justification and Mitigation					
1.	Avoidance and Minimization					
1a.	Specifically describe measures taken to avoid or minimize t	the proposed impact	s in designing project.			
	The proposed replacement bridge will be on the same alignment as the existing bridge. It will only have three spans instead of 5 and it will span Henry Fork during normal flow (as opposed to the current bridge which has two piers in the water). Deck drains are required for the new bridge and will be positioned so that they will not directly discharge into Henry Fork. Rip rap deck drain dissipator pads will be installed below the deck drains to prevent erosion. 1.5:1 spill through slopes will been provided under the bridge and will be armored with Class II rip rap to promote stability and prevent erosion. Proposed grassed shoulders which are wider than the existing grassed shoulders will promote sheet flow and infiltration. The vegetative conveyance to Henry Fork has been maximized to the greatest extent possible and rip rap armoring has been provided where appropriate to prevent erosion.					
1b.	. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.					
	Traffic will be maintained via an off-site detour during construction. Best Management Practices (BMPs) will be utilized during construction to attempt to reduce the stormwater impacts to the receiving streams due to erosion and runoff.					
2.	Compensatory Mitigation for Impacts to Waters of the U	J.S. or Waters of th	e State			
2a.	a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?					
2b.	2b. If yes, mitigation is required by (check all that apply):					
2c.	If yes, which mitigation option will be used for this project? Mitigation bank Payment to in-lieu fee program Permittee Responsible Mitigation					
3.	Complete if Using a Mitigation Bank					
3a. N	Name of Mitigation Bank: not applicable					
3b. C	Credits Purchased (attach receipt and letter)	Туре	Quantity			
3c. C	Comments:					
4.	Complete if Making a Payment to In-lieu Fee Program					
4a. A	Approval letter from in-lieu fee program is attached.	🛛 Yes				
4b. S	Stream mitigation requested:	31 linear feet				
4c. I	If using stream mitigation, stream temperature:	🗌 warm 🛛	cool 🗌 cold			
4d. E	Buffer mitigation requested (DWQ only):	0 square feet				
4e. F	Riparian wetland mitigation requested:	0 acres				
4f. 1	Non-riparian wetland mitigation requested:	0 acres				
4g. (	Coastal (tidal) wetland mitigation requested:	0 acres				
4h. ( Thes not c	Comments: The NCDOT does not propose mitigation for the se impacts do not require permanent fill in the stream bed a constitute Loss of Waters of the U.S. and are not subject to	e 184 linear feet (<0. ind, therefore, under compensatory mitig	01 acre) of temporary stream impacts. Section 404 of the Clean Water Act, do ation.			

# Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ								
6a. Will the buffer n	project result in an impact wit nitigation?	n buffer that requires	🗌 Yes 🛛 No					
6b. If yes, th amount	6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.							
Zone	Zone6c. Reason for impact6d. Total impact (square feet)6e. MultiplierZone6c. Required mitigation (square feet)							
Zone 1			3 (2 for Catawba)					
Zone 2			1.5					
		6f. Total buffer	mitigation required:					
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).								
6h. Comme	nts:							

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)					
1. Diffuse Flow Plan					
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	🗌 Yes	🖾 No			
<ul><li>1b. If yes, then is a diffuse flow plan included? If not, explain why.</li><li>Comments: If required from 1a, see attached buffer permit drawings.</li></ul>	☐ Yes	🗌 No			
2. Stormwater Management Plan					
2a. What is the overall percent imperviousness of this project?	N/A				
2b. Does this project require a Stormwater Management Plan?	🛛 Yes	🗌 No			
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:					
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.					
2e. Who will be responsible for the review of the Stormwater Management Plan?	Certified Loc DWQ Storm DWQ 401 U	al Government water Program nit			
3. Certified Local Government Stormwater Review	1				
3a. In which local government's jurisdiction is this project?	not applicable				
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	Phase II NSW USMP Water Suppl Other:	y Watershed			
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	🗌 Yes	🗌 No			
4. DWQ Stormwater Program Review	I				
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<ul> <li>Coastal cou</li> <li>HQW</li> <li>ORW</li> <li>Session La</li> <li>Other:</li> </ul>	nties w 2006-246			
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes	No N/A			
5. DWQ 401 Unit Stormwater Review	1				
5a. Does the Stormwater Management Plan meet the appropriate requirements?	🗌 Yes	🗌 No N/A			
5b. Have all of the 401 Unit submittal requirements been met?	🗌 Yes	🗌 No N/A			

F.	Supplementary Information		
1.	Environmental Documentation (DWQ Requirement)		
1a.	Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	🛛 Yes	🗌 No
1b.	If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	🛛 Yes	🗌 No
1c.	If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.)	🖂 Yes	🗌 No
	Comments: Programmatic Categorical Exclusion (PCE) approved 8/20/15		
2.	Violations (DWQ Requirement)		
2a.	Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	🖾 No
2b.	Is this an after-the-fact permit application?	🗌 Yes	🖾 No
2c.	If you answered "yes" to one or both of the above questions, provide an explanation of	of the violation(s):	
3.	Cumulative Impacts (DWQ Requirement)		
За.	Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	□ Yes ⊠ No	
3b.	If you answered "yes" to the above, submit a qualitative or quantitative cumulative imp most recent DWQ policy. If you answered "no," provide a short narrative description.	bact analysis in a	ccordance with the
	Due to the minimal transportation impact resulting from this bridge replacement, this pland uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects st	project will neithe udy will not be ne	r influence nearby ecessary.
4.	Sewage Disposal (DWQ Requirement)		
4a.	Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge or discharge project, or available capacity of the subject facility.	arge) of wastewat	er generated from

5.	Endangered Species and Designate	ed Critical Habitat (Corps Requiremen	t)			
5a.	Will this project occur in or near an are habitat?	ea with federally protected species or	Yes [	No		
5b.	Have you checked with the USFWS c impacts?	oncerning Endangered Species Act	Yes [	No		
5c.	If yes, indicate the USFWS Field Offic	e you have contacted.	🗌 Raleigh 🛛 As	heville		
5d.	What data sources did you use to deta Habitat?	ermine whether your site would impact E	ndangered Species or De	esignated Critical		
	As of July 14, 2015 the USFWS lists nine federally listed species for Burke County. There is no habitat present for five of these species. Habitat is present for white irisette, small whorled pogonia, dwarf-flowered heartleaf and the northern long-eared bat. Surveys were conducted for the three plant species, and only dwarf-flowered heartleaf was identified within the project area. However, the populations of dwarf-flowered heartleaf are located just north of the construction footprint of this project. Per e-mail correspondence with Andrew Henderson of the USFWS on December 14, 2015, this project will have No Effect on dwarf-flowered heartleaf.					
	A memo was submitted to USFWS on June 16, 2016 indicating that NCDOT is in compliance with the 4(d) rule for the NLEB, therefore satisfying Section 7 of the Endangered Species Act (ESA) provided no response from them is received within 30 days of memo submission. The biological conclusion for this species is "May Affect".					
6.	Essential Fish Habitat (Corps Requ	irement)				
6a.	Will this project occur in or near an are	a designated as essential fish habitat?	☐ Yes	🛛 No		
6b.	What data sources did you use to dete NMFS County Index	ermine whether your site would impact E	ssential Fish Habitat?			
7.	Historic or Prehistoric Cultural Res	ources (Corps Requirement)				
7a.	Will this project occur in or near an are governments have designated as hav status (e.g., National Historic Trust de North Carolina history and archaeolog	ea that the state, federal or tribal ng historic or cultural preservation signation or properties significant in y)?	☐ Yes [	No No		
7b.	What data sources did you use to dete NEPA Documentation	ermine whether your site would impact h	istoric or archeological re	sources?		
8. F	lood Zone Designation (Corps Requ	irement)				
8a.	Will this project occur in a FEMA-desig	nated 100-year floodplain?	Yes [	] No		
8b.	If yes, explain how project meets FEM	A requirements: NCDOT Hydraulics Unit	coordination with FEMA			
8c.	What source(s) did you use to make th	e floodplain determination? FEMA Maps	3			
f	Applicant/Agent's Printed Name (Agent's signature is valid only if an authorization letter from the applicant is provided )					



DONALD R. VAN DER VAART Secretary

June 14, 2016

Mr. Philip S. Harris, III, P.E., CPM Project Development and Environmental Analysis Unit North Carolina Department of Transportation 1598 Mail Service Center Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

B-5398, Replace Bridge 21 on SR 1803 over Henry Fork, Burke County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on June 13, 2016, the impacts are located in CU 03050102 of the Catawba River basin in the Northern Mountains (NM) Eco-Region, and are as follows:

Catawba		Stream			Wetlands		Buffer (Sq. Ft.)	
03050102 NM	Cold	Cool	Warm	Riparian	Non- Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	31.0	0	0	0	0	0	0

\*Some of the stream and/or wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

The impacts and associated mitigation needs were under projected by the NCDOT in the 2016 impact data. DMS will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill Credit Management Supervisor

cc: Ms. Lori Beckwith, USACE – Asheville Regulatory Field Office Ms. Amy Chapman, NCDWR File: B-5398

Highway	sion 2.02; Released April 2015)				arolina Departm lighway Stormw RMWATER MAN FOR NCDOT I	ent of Transportatio rater Program NAGEMENT PLAN PROJECTS	on					A REAL PROPERTY OF THE PARTY OF
WBS Element:	46113.1.1	TIP No.:	B-5398		County(ies):	Burke				Page	1 (	of 1
				(	General Project	Information						
WBS Element:		46113.1.1		TIP Number:	B-5398		Project	t Type:	Bridge Replacement	Date	e: 2/1	2/2016
NCDOT Contact:		Bill Zerman, PE				Contractor / Desig	ner:	Sungate D	esign Group			
	Address:	Hydraulics Unit 1590 Mail Servic	e Center				Address:	915 Jones Raleigh, N	Franklin Road C 27606			
		Raleigh, NC 276	99-1590									
	Phone:	(919) 707-6755					Phone:	(919) 859-3	2243			
	Email:	bzerman@ncdot	.gov				Email:	jclemmons	@sungatedesign.com			
City/Town:			Hildebr	an, NC		County(ies):	Bur	rke				
River Basin(s):		Cat	awba			CAMA County?	N	0				
Wetlands within Pro	oject Limits?	No										
					Project Des	cription						
Project Length (lin.	miles or feet):	8	00'	Surrounding	Land Use:	Rural / Residential						
				Proposed Proje	ect				Existing S	ite		
Project Built-Upon	Area (ac.)		0.5		ac.			0.4	ac.			
Typical Cross Secti	on Description:	2 @ 11' Paved L	anes with 6' Gras	sed Shoulders			2 @ 11' Pave	ed Lanes wit	h 2' Grassed Shoulder	S		
Annual Avg Daily T	affic (veh/hr/day):	Design/Futur	e: 3	3,000	Year	2035	Existing:	:	2,740		Year:	2015
(Description of Mini Quality Impacts)	mization of Water	1@ 90', 1 @ 50' will be required f below the deck o opposed to the e armored with CL and infiltration. prevent erosion.	33" box beam with or the proposed b Irains to prevent e xisting bridge whi 'II" rip rap to pron The vegetative con	h 4' end bent cap ridge and have be prosion. The spans ch has 2 piers loc hote stability and p nveyance to Henr	Waterbody Ind	ridge is a 5 @ 40' co that they will not dis bridge have been di ream during normal Proposed grassed s maximized to the gre	ncrete deck o charge directly esigned so tha flow. 1.5:1 sp houlders which atest extent p	n steel I-bea y into Henry at no piers w ill through si h are wider t ossible and	ims and concrete piers Fork. Rip rap deck dra fill be located within the lopes have been provid than the existing grass rip rap armoring has be	with sloping al ain dissipator p e stream during ded under the b ed shoulders w een provided w	outments. Du ads will be in normal flow ridge and w ill promote s here approp	eck drains nstalled / as fill be sheet flow yriate to
Surface Water Body	, (1),		Hopp	/ Fork	waterbody in	NCDWR Stream In	day No.		11 1	20.1.(12.5)		
Surface water Body	(1).		пепіз	Primary Classif	ication:				11-1.	23-1-(12.3)		
NCDWR Surface Wa	ater Classification fo	r Water Body		Supplemental C	Classification:	None						
Other Stream Class	ification:	N	one									
Impairments:		N	one									
Aquatic T&E Specie	s?	No	Comments:									
NRTR Stream ID:		Henry Fork						Buffer Rul	les in Effect:		N/A	۱ <u>ــــــــــــــــــــــــــــــــــــ</u>
Project Includes Br	dge Spanning Wate	r Body?	Yes	Deck Drains Dis	scharge Over Bu	Iffer?	N/A	Dissipator	Pads Provided in Bu	Iffer?	N/A	4
Deck Drains Discha	rge Over Water Bod	y?	No	(If yes, provi	de justification in	the General Project	Narrative)	(If yes, o	describe in the General	I Project Narrat	ive; if no, jus	stify in the
(If yes, provide justification in the General Project Narrative)									General P	roject Narrative	*)	









				WE	LAND IMPA	CTS			SURFA	CF
			Democrat	Tama	<b>E</b> uropetice		Hand	Democrat	Т	
Cito	Station	Structure	Permanent	Temp.	Excavation	Niechanized	Clearing	Permanent	remp.	
Sile	Station (From (To)							SVV	SVV	١.
INO.	(From/10)	Size / Type	vvetiands	vvetiands	vetiands			impacts	impacts	1
4		Courses	(ac)	(ac)	(ac)	(ac)	(ac)	(ac)		-
1	16+12 to 16+75 -L-	Causeways							0.07	⊢
								0.04		┝
2	16+76 to 18+72 -L-	Pipe Replacement /						< 0.01	< 0.01	-
		Construction Access								
										-
									ļ	<u> </u>
									ļ	
									L	
										F
					1					F
										⊢
	II				1			< 0.01	0.08	┢

\*Rounded totals are sum of actual impacts

NOTES:

NC DEF

Revised 2013 10 24

SHEET

Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
	54	
31	130	
31	184	0

PARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS 2/12/2016 BURKE COUNTY B-5398 46113.1.1 5 OF 5



STATE	STATI	PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	B-5398			1	
STAT	B PROJ. NO.	F. A. PROJ. NO.		DESCRIPT	ION
46	5113.1.1	BRZ-1803(1)		P.E.	
46	113.2.1	BRZ-1803(1)	R/W		
46113.2.1		BRZ-1803(1)		UTILITIES	

# BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	<u>0</u>
Property Corner	EIP
Property Monument	·
	ECM
Existing Fence Line	xxx-
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	-
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary ——	EAB
Existing Endangered Plant Boundary	EPB
Existing Historic Property Boundary	нрв
Known Contamination Area: Soil ———	<u>w</u>
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water ——	
Contaminated Site: Known or Potential —	— XX XX
BUILDINGS AND OTHER CUI	
Gas Pump Vent or LVG Tank Cap	
	©
Sign	s O
	W KA
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	— <u> </u>
Dam	
HYDROLOGY:	
Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	<
Disappearing Stream	
Spring	-0
Wetland	<u> </u>
Proposed Lateral, Tail, Head Ditch ———	$\longrightarrow$
False Sump	

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL<br/>Note: Not to ScalePLAN<br/>\*S.U.E. =SHEET<br/>Subsurface<br/>Utility<br/>Engineering

# RAILROADS:

Standard Gauge	
RR Signal Milepost	€ MILEPOST 35
Switch	SWITCH
RR Abandoned	
RR Dismantled	
RIGHT OF WAY:	
Baseline Control Point	•
Existing Right of Way Marker	$\overset{\bullet}{\bigtriangleup}$
Existing Right of Way Line	
Proposed Right of Way Line	
Proposed Right of Way Line with Iron Pin and Cap Marker	
Proposed Right of Way Line with Concrete or Granite RW Marker	
Proposed Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
Proposed Control of Access	
Existing Easement Line	E
Proposed Temporary Construction Easement –	E
Proposed Temporary Drainage Easement ——	TDE
Proposed Permanent Drainage Easement ——	PDE
Proposed Permanent Drainage / Utility Easement	DUE
Proposed Permanent Utility Easement ———	PUE
Proposed Temporary Utility Easement ———	TUE
Proposed Aerial Utility Easement	AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	۲
ROADS AND RELATED FEATURE	<i>:S:</i>
Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	<u>C</u>
Proposed Slope Stakes Fill	F
Proposed Curb Ramp	CR
Existing Metal Guardrail	
Proposed Guardrail	<u> </u>
Existing Cable Guiderail	00
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
VEGETATION:	
Single Tree	යි
Single Shrub	\$
- Hedge	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Woods Line	-നഹ്നഹ്നഹ്നം-നം-

Orchard	승 순 순
Vineyard	Vineyard
EXISTING STRUCTURES:	
MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall-	) CONC WW (
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	
Footbridge	<u> </u>
Drainage Box: Catch Basin, DI or JB	СВ
Paved Ditch Gutter	
Storm Sewer Manhole ————	S
Storm Sewer	S
UTILITIES:	
POWER:	
Existing Power Pole	•
Proposed Power Pole	6
Existing Joint Use Pole	
Proposed Joint Use Pole	-6-
Power Manhole	®
Power Line Tower	$\boxtimes$
Power Transformer	$\bowtie$
U/G Power Cable Hand Hole	
H-Frame Pole	••
U/G Power Line LOS B (S.U.E.*)	P
U/G Power Line LOS C (S.U.E.*)	P
U/G Power Line LOS D (S.U.E.*)	P
TELEPHONE:	
Existing Telephone Pole	
Proposed Telephone Pole	-0-
Telephone Manhole	T
Telephone Pedestal	T
Telephone Cell Tower	, <b>I</b> ,
U/G Telephone Cable Hand Hole	HH
U/G Telephone Cable LOS B (S.U.E.*)	T
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	T
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	— — — — T FO— —
U/G Fiber Optics Cable LOS C (S.U.E.*)	T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	T F0

	B-5398
WATER:	
Water Manhole	W
Water Meter	0
Water Valve	⊗
Water Hydrant	
U/G Water Line LOS B (S LL F*) —	
1/G Water Line LOS C (SULE*)	
U/G Water Line LOS D (SULE*)	w
Above Ground Water Line	A/G Water
TV: TV Pedestal	C
TV Tower	×
U/G TV Cable Hand Hole	Fi
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.)	*)
U/G Fiber Optic Cable LOS C (S.U.I	E.*)
U/G Fiber Optic Cable LOS D (S.U.	E.*) Tv F0
GAS:	
Gas Valve	◊
Gas Meter	♦
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	C
Above Ground Gas Line	A/G Gas
SANITARY SEWER:	
Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	÷
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer —	A/G Sanitary Sew
SS Forced Main Line LOS B (S.U.E.*	)
SS Forced Main Line LOS C (S.U.E.	*)
SS Forced Main Line LOS D (S.U.E.	*)FSS
	,
MISCELLANEOUS:	
Utility Pole	•
Utility Pole with Base	·
Utility Located Object	· · · ·
Utility Traffic Signal Box	S
Utility Unknown U/G Line LOS B (S	U.E.*)
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Borina	<b></b>
U/G Test Hole LOS A (S.U.E.*) —	•
	•
Abandoned According to Utility Reco	ords AATUR



# SURVEY CONTROL SHEET B-5398 (PRELIMINARY)

# PERMANENT EASED TO THE PARTY OF THE PARTY OF

	PERMANE	NT EASEMENT	-E REBAR W/CA	P
ALIGN	STATION	OFFSET	NORTH	EAST
L	12+25.00	51.37	714397.3392	1272634.9674
L	13+75.00	30.00	714552.6618	1272638.9862
L	13+75.00	56.53	714549.0304	1272665.2631
L	14.10.00	30.00	714587.3323	1272643.7776
L	14+10.00	59.04	714583.3573	1272672.5411
L	17+05.13	-270.42	714920.8058	1272386.5891
L	17+37.35	-308.71	714957.9693	1272353.0673
L	17+37.40	-130.37	714933.5993	1272529.7389
L	17+72.97	-154.14	714972.0893	1272511.0588
L	18+75.00	60.00	715043.8477	1272737.1511
L	18+75.00	30.00	715047.9546	1272707.4335
L	18+75.00	47.20	715045.5999	1272724.4722
L	19+47.25	-30.00	715127.7381	1272657.8891
	20.25.00	43.28	715194.7242	1272741.1250

## NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS: B5398\_LS\_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

 INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

			PROJECT REFERENCE NO.	SHEET NO.
			B-5398	1C-2
		l	Location and S	Surveys
MA	IRKFRS			
			•	
		EAST		
	714415,5363	1272555,6564		
56	714412,5300	1272568,7579		
44	714405,3729	1272599,9478		
80	714402.1171	1272614,1365		
212	714491.4794	1272630.5311		
00	714499.6931	1272571.0960		
00				
	71 38 70	1272596.6629		
	7 468 <i>3</i> 055	1272596.6629 1272566.9454		
	584         70           7/468/         3055           1467         4850	1272596.6629 1272566.9454 1272656.0981		
	71 584 70 7 4685 3055 1 467 4850 7 46 37	1272596.6629 1272566.9454 1272656.0981 1272685.8156		
	71         38         75           7         4687         3055           1.467         4850           7         46           7         46           7         46           7         46           7         46           7         46           7         48           7         49           9         5538	1272596.6629 1272566.9454 1272656.0981 1272685.8156 1272726.8840		
	71 38 75 7468 3055 1467 4850 746 375 714969.5538 714973.6607	1272596.6629 1272566.9454 1272656.0981 1272685.8156 1272726.8840 1272697.1665		
	71 565 75 7/4687 3055 7/467 4855 7/469 375 7/4969.5538 7/14969.5538 7/14973.6607 7/15021.8265	1272596.6629 1272566.9454 1272656.0981 1272685.8156 1272726.8840 1272697.1665 1272612.9674		
	71 585 75 7/4687 3055 7/4687 3055 7/46 377 7/4969.5538 7/14973.6607 7/15021.8265 7/15059.4372 7/15020.0000	1272596.6629 1272566.9454 1272656.9454 1272685.8156 1272726.8840 1272697.1665 1272612.9674 1272648.4502		
20 20 20 20 20 20 20 20 20 20 20 20 20 2	71 385 75 7468 3055 1467 4850 746 375 714969,5538 714973.6607 715021.8265 715059,4372 715202.8396 71502 6404	1272596.6629 1272566.9454 1272656.0981 1272685.8156 1272726.8840 1272697.1665 1272612.9674 1272648.4502 1272648.4502		
00 00 00 00 00 00 00 00 00 00 00	71 38 76 7468 3055 1467 4850 7467 4850 7469 377 714969 538 714973 6607 715021 8265 715059 4372 715202 8396 715196 5424 715196 5424	1272596.6629 1272566.9454 1272656.0981 1272685.8156 1272726.8840 1272697.1665 1272612.9674 1272648.4502 1272648.4502 1272682.4008 1272727.9677		
00 00 00 00 00 00 00 00 00 00 00 00 00	71 38 76 7468 3055 1467 4850 7469 337 714969 5538 714973 6607 715021 8265 715059 4372 715202 8396 715196 5424 715198 4890	1272596.6629 1272566.9454 1272656.0981 1272685.8156 1272726.8840 1272697.1665 1272612.9674 1272648.4502 1272648.4502 1272682.4008 1272727.9677 1272665.526		

# DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5398-1" WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 713521.9030(f+) EASTING: 1272341.7500(f+) ELEVATION: 1044.34(f+) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999834166 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5398-1" TO -L- STATION 12+50.00 IS N 15°14'53.27" E 944.61' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

	FINAL PAVEMENT DESIGN
	PAVEMENT SCHEDULE
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE \$9.58 AT AN AVERAGE RATE OF 168 LBS. PER SG. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SO. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2″ IN DEPTH.
D1	PROP. APPROX. $2^{1}\!\!2''$ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SO. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN $2^{1}2^{"}$ IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER S0. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN $51\!\!\!/_2$ " IN DEPTH.
R1	CONCRETE EXPRESSWAY GUTTER.
R2	SHOULDER BERM GUTTER.
т	EARTH MATERIAL.
U	EXISTING PAVEMENT.
w	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)













-L- STA. 17 + 52.25 TO -L- STA. 17 + 65.00 RIGHT



COMPUTED BY: BAW DATE: <u>12/7/15</u> HECKED BY: DATE:

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
12 + 50	15+48.75	281	104		177
	SUBTOTAL	281	104		177
17.41+25	20+10	72	567	495	
	SUBTOTAL	72	567	495	
	SUBTOTAL	353	671	495	177
TOTAL		353	671	495	177
LOSS DUE TO CLE	ARING & GRUBBING	-50		50	
WASTE IN LIEU OF	BORROW			-177	-177
PROJECT TOTAL		303	671	367	0
EST. 5% TO REPLA BORRO	CE TOP SOIL ON W PIT			18	
GRAND	TOTALS:	303		385	
S	AY:	325		400	

SHALLOW UNDERCUT EXCAVATION CONTINGENCY PER GEOTECH REPORT = 50 CUBIC YARDS UNDERCUT EXCAVATION CONTINGENCY PER GEOTECH REPORT = 100 CUBIC YARDS SELECT GRANULAR MATERIAL PER GEOTECH REPORT = 100 CUBIC YARDS

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Asphalt Pavement will be paid for at the contract lump sum price for grading.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL. TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT. FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL. W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL. G = GATING IMPACT ATTENUATOR TYPE 350 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

/2016

140 -	NON-GAING IMPACT	ATTEINDATOR THE 33																						
SURVE	DEC STA	END STA			LENGTH		WARRA	NT POINT	"N" DIST.	TOTAL	FLARE L	ENGTH		w			ANCHORS		A	IMPACT TTENUATOR	SINGLE	REMOVE	REMOVE AND STOCKPILE	251112/2
LINE	BEG. STA.	END STA.	LOCATION	STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END	FROM E.O.L.	WIDTH	APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI XI MOD XI	GRAU 350 A	M-350 TYPE	BIC	C AT-1 E/	A G NO	CONCRETE BARRIER	GUARDRAIL	EXISTING GUARDRAIL	REMARKS
E L	14+56.25	15 + 50.00	LT	93.75				15 + 50				50		1		1	1							
L	13+68.75	15 + 50.00	RT	181.25			15 + 50				50		1			1	1							
L L	17 + 40.00	18+42.25	LT	74.75	56.75		17 + 40				50		1				1		1					
Γ L	17+40.00	19+21.25	RT	181.25				17 + 40				50		1		1	1							
ĥ		SUBTOTAL		531.00	56.75											3	4		1					
6		LESS ANCHOR DEDU	CTIONS																					
		GRAU-350 3 @	50′	-150.00																				
란		TYPE III 4 @ 18	3.75′	-75.00																				
NON NON																								
		TOTAL		306.00	56.75											3	4		1					
έĔ		SAY		312.50	62.50		5 ADDITIONAL GUA	RDRAIL POSTS								3	4		1					

GUARDRAIL SUMMARY

# SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD <sup>2</sup>
L	15 + 00	15 + 55	CL	122
L	17 + 55	18+40	CL	189
			TOTAL:	311
			SAY:	320

PROJECT REFERENCE NO.	SHEET NO.
B-5398	3B-I

# SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
L (LT SIDE)	17 + 52	17+65	13
L (RT SIDE)	17 + 52	17 + 65	13
		TOTAL:	26
		SAY:	30

# EXPRESSWAY GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
L (LT SIDE)	12 + 88	14+30	142
		TOTAL:	142
		SAY:	145

÷	w		DATE: DATE:	12/7/15		_																													S.	٢.	A'	T	E		0	F	I	N	0	R	R)	۲ŀ	ł	C	CA	¥ I	R	DI	JI.	N.	A																								
																						_	_	_			_							_	_		D		V	IS	510	0]	N		0	)F	7	F	II	G	H	W	A	. ¥	′S		_	_			_		_																		
																					1	L.	<u>I</u>	<b>S</b> 7	<u> </u>	(	0.	F	]	<b>P1</b>	P	? <b>}</b>	ES	<b>S</b> ,	E			)	<i>W</i> .	<b>A</b>			<b>S</b> ;	, 1			<u>'C</u>	5. ( T	( <b>F</b>	FO	DR	<b>?</b>	ŀ	<b>PI</b>	<b>P</b> ]	ES T	5	48	?"	8	ઝે		L			)	Ej	R T	:)	_				<b>–</b>		T		Τ.	_	<b>—</b>	
STATION	N (LT,RT, OR CL)	structure no.	ATION	LEVATION	LEVATION	RITICAL		(RCP, C	DRAINA SP, CAAI	.ge pipe P, hdpe,	; , or PVC)	)					C.S.	. PIPE	E							R.G CL	C. P .ASS	IPE III								R. Cl	.C. P LASS	PIPE S IV						DNTRACTOR DESIGN				51 5 51 0	TD. 8 TD. 8 TD. 8 TD. 8 (UN NO THE	WALI 838.0 838.0 838.8 9 838.8 1 ESS TED RWIS	D1, 11 80 5 5E)	QUANTITIES	FOR DRAINAGE STRUCTURES	* TOTAL L.F. FOR PAY	A Z QUANTITY SHALL BE COL	A + (I.3 A COL.B)	D. 840.02		FR/ A STAN	AME, ND IDAF	GR. HO	ATE: OD 840	s .03			CONCRETE TRANSITIONAL	SECTION						18 OF 840.27			COTO Mino come	0 N.S. SAG GRATES STD. 840.24	010 010 CTD 010 21 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0 N.S. FLAT GRATES STD. 840.29		
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THICKNESS OR GAUGE		FROM	!								DO NOT US	DO NOT US	DO NOT US	.064	.064	.064	.064	.079	079	109	201.	.109																						***" RC PIPE CU	15" SIDE DAIN	15" SIDE DKAIN	18" SIDE DRAIN		R.C.P.		C.S.P.	PER FACH (0'TH		5.0' THRU 10.0'			C.B. STD. 840.01	E	TYF	°E O F	F G	RAT	E				CATCH BASIN						"B" I TYPE		T.B.D.I. STD. 8,		G.D.I. FRAME V		G.D.I. FRAME V		
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STATION	(LT,RT, OR CL)	STRUCTURE NO.	ilevation		IT ELEVATION	T ELEVATION	: CRITICAL	1U)	CLAS NLESS N	S III R.C IOTED (	. PIPE OTHERW	VISE)				BIT	TUMI	INOL	us c		TED	- C.	.S. P	L	ТУР	<b>5</b> 2	<b>Г</b>	0	<b>D</b>	7	F	<b>P</b> ]		PE	<b>ES</b>	STR	<b>E</b> )	N.	<b>D</b>	LATI	E PI	<b>4</b> .) PE			<b>S</b> ,	, <b>I</b>	EI		<i>C</i> .	() REIII EI		DRCE	R			P.		40.02	54	<b>4 '''</b> ST	FRAM	ME, ID ID	GRA HOC D 8	ATES DD 340.0	<b>D</b>		51	CONCRETE TRANSITIONAL	section												
STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.	TOP ELEVATION		INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	(UN 54″ 60	CLAS ILESS N	S III R.C IOTED ( 72″ 71	2. PIPE OTHERW 8″ 84″	vise)				BIT 54	TUMI 4″	INOL			TED	, C.	.S. P	L. PIPE 66	TYPI "	<b>S</b> 7	<b>Г</b>	72″		7	I	<b>P1</b>	50"	<b>PE</b>		STR	<b>E</b> ) UCTI			LATI	E PI	<b>4</b> PE			<b>S</b> ,	, 1	E1		<i>C</i> .	() REIII EI		DRCE			DRAINAGE STRUCTURES	<b>P</b> .		0.01 OR 840.02	54	<b>4 '''</b>	FRAM	ME, ID ARI	GRA HOC D 8	ATES DD 340.0	<b>)</b>		E1	CONCRETE TRANSITIONAL	section (												
STATION SIZE	LOCATION (LT,RT, OR CL)	ROM STRUCTURE NO.	TOP ELEVATION		INVERT ELEVATION	Invert elevation	SLOPE CRITICAL	(Uh 554″ 60	CLASS N	S III R.C. IOTED ( 72″ 71	8" 84"	YISE)				BIT 54	4″ 4″		DP DP N- ED		60″	, C.	.S. P	L.	TYPI	<b>S</b> 7	<b>[</b>	72**		7	ŀ	<b>P</b>	50″			STR	<b>E</b> ]			LATI	<b>V</b> 2 E PI 72	<b>4 1</b> PE			<b>S</b> ,	, 1	<i>E1</i>		<i>C</i> .	TH R.C C.Y.			TH C.S C.Y.		ASONARY DRAINAGE STRUCTURES	IBIC YARDS		B. STD. 840.01 OR 840.02	54	<b>4</b> " sī	FRAA ANIE	ME, I ID I DARI	GRA HOC D 8	ATES DD 340.0	<b>)</b> 03			CONCRETE TRANSITIONAL	H BASIN	H BASIN											
STATION SIZE THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	FROM STRUCTURE NO.	TOP ELEVATION		INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	(UN 54″ 60	CLAS ILESS N	5 III R.C. IOOTED ( 72" 74	.: PIPE OTHERW 8″ 84″	VISE)		.109	.138	BIT 54	4″ 4″	SHOOL GATE	US C	.138	60″	, C.	.S. P	<b>L</b> PIPE 66	15 TYPI	<b>S</b> 7 жев		72 <sup>27</sup>			<b>F</b>	6	60″ 10			stri	66″ 10			LATI	E PI	<b>4</b> PE			<b>S</b> ,	, <b>I</b>			<i>C</i> .	WITH R.C C.Y.		DRCE	WITH C.S C.Y.		MASONARY DRAINAGE STRUCTURES	CUBIC VARDS		C.B. STD. 840.01 OR 840.02	54	<b>4 ***</b> ST			GRA HOO D 8	ATES DD 340.0	<b>D</b> 3 03			CONCRETE TRANSITIONAL	CATCH BASIN SECTION (	CATCH BASIN											
STATION SIZE THICKNESS OR GAUGE 18+55 17+69	II         IX         LOCATION (LIT,RT, OR CL)	2000 STRUCTURE NO.	TOP ELEVATION	96	NVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	(UN 554″ 60	CLASS N 1LESS N	S III R.C. IOTED ( 72″ 71	5. PIPE OTHERW 8" 84"	VISE)		.109	.138	54	4″ 4″	SHO ELON GATE	US C		60"	, 89I.	.S. P		TYPI 5" 891:	<b>У</b> Л		72 <sup>2</sup>		7	12	<b>P</b>	60″ 10			stri	66″					<b>4</b> <i>J</i> PE			<b>S</b> ,	, 1			<i>C</i> .	() REIII E	F (		WITH C.S C.Y.		MASONARY DRAINAGE STRUCTURES	CUBIC YARDS		C.B. STD. 840.01 OR 840.02	54	<b>4 **</b> ST			GRA HOC D 8	ATES DD 340.0	<b>)</b> 03			CONCRETE TRANSITIONAL	CATCH BASIN SECTION	CATCH BASIN											
STATION SIZE THICKNESS OR GAUGE 18+55 17+69	1         1         Location (LI,RT, or CL)	2100-00400 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-00000 2100-000000 2100-000000 2100-0000000000	TOP ELEVATION	96	INVERT ELEVATION	NVERT ELEVATION 14VVERT ELEVATION 963.2 963.2	SLOPE CRITICAL	(UN 54″ 60	CLAS NILESS N 66"	S III R.C. OOTED ( 72" 71	8" 84"	vise)		-109		BIT 54 89[-	4″ 4″		US C		60″	, 891	.S. P		ТУРІ 	S 7		72 <sup>27</sup> 89I.		7	12	6 <sup>-</sup>	60″ 10			2	66"					2″ 0			<b>S</b> ,	, 1			<i>C</i> .	() REIIE 6.3 6.3					MASONARY DRAINAGE STRUCTURES	CUBIC YARDS		C.B. STD. 840.01 OR 840.02	54	4 *** ST			GRA HOO D 8	ATES DD 340.0	<b>D</b> 03 =			CONCRETE TRANSITIONAL	Catch Basin Section	CATCH BASIN											
STATION SIZE THICKNESS OR GAUGE 18+55 17+69 TOTALS	1         13         14         Location (LT,RT, or CL)           11         13         Location (LT,RT, or CL)         Location (LT,RT, or CL)	LINCLURE NO. STRUCTURE NO. 0400 0400 0400 0400 04000 04000 04000 0400 0400 0400 0400 04000 04000 0400 0400 0		96 96 96	UNVERT ELEVATION 0.2 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	NOLEKI EFENATION 963.2 963.2	SLOPE CRITICAL	(UN 54″ 60 	CLASS N ILESS N 66" 120 120	S III R.C. 72" 71 72" 71 1 1 1 1 1 1 1 1 1 1 1 1 1	8" 84"	VISE)		60I.		54	4″ E C C C C C C C C C C C C C				60"	, C. 891.	.S. P		89[:	S 7	<b>C</b>	72 <sup>27</sup> 891			12		50″				66"					<b>4</b> PE			<b>S</b> ,					() REIII EI 6.3 6.3					MASONARY DRAINAGE STRUCTURES			C.B. STD. 840.01 OR 840.02	54	# *** ST				ATES DD 340.0	<b>○ I</b> 3 003 =			CONCRETE TRANSITIONAL	Catch Basin Section	CATCH BASIN											
STATION SIZE THICKNESS OR GAUGE 18+55 17+69 TOTALS	T         T         T           T         T         T           T         T         T	LO 0406 0407 0406 0407 0406 0407 0406 040 0407 0406 040 0407 0406 040 0407 0406 0407 0406 0407 0406 0407 0406 0406		96 96 96	INVERT ELEVATION	963.2 963.2	SLOPE CRITICAL	(UN 54" 60 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CLAS ILESS N 66" 120 120 120	S III R.C. 72" 71 72" 71 1 1 1 1 1 1 1 1 1 1 1 1 1	8" 84"	VISE)		601.	.138	54	4"			138	60"	, C.	.S. P		1 S			72 <sup>"</sup>		7							66°					2″			S,					() REILE 6.3 6.3			MITH C.S C.Y.		MASONARY DRAINAGE STRUCTURES	CUBIC VARDS		C.B. STD. 840.01 OR 840.02		# *** ST E				ATES 3D 340.0	<b>)</b>			CONCRETE TRANSITIONAL CONCRETE TRANSITIONAL		CATCH BASIN											
STATION SIZE THICKNESS OR GAUGE 18+55 17+69 TOTALS		LOW STRUCTURE NO 2000		96 96 96 96 96 96 96 96 96 96 96 96 96 9	INVERT ELEVATION 10.2010	963.2 963.2	SLOPE CRITICAL	(UN 54" 60 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CLASS N ALESS N 66" 120 120 120 120 120	S III R.C. IOTED ( 72" 71 71 71 71 71 71 71 71 71 71 71 71 71 7	8" 84"	VISE)		601.	138	54	4″ <u>8</u> 0 1 1 1 1 1 1 1 1 1 1 1 1 1					,,			891: 891:			72" 89!					50°′′			2 2 2	66"					2"			<u> </u>					() The second se			MIH C8 - CV.         82.03		MASONARY BRAINAGE STRUCTURES			C.B. 5TD. 840.01 OR 840.02		ST					E			CONCRETE TRANSITIONAL	SECTION SECTION	CATCH BASIN											

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												PROJ	ECT RI	EFEREN	ICE NO.	SHEET NO.
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				STC 3	STD										ABBRE	VIATIONS
				<b>RATE</b>	(ATES							40.7	72		С.В.	CATCH BASIN
		40.27		C C	1 GF						I I	10.8	840.		N.D.I. D.I.	NARROW DROP INLEI
		SR 8		S. SA	5. FL/						s s	S.Y.S	STD		G.D.I.	GRATED DROP INLET
		18 0		N.S.	z						Q Z	nc, c	C.Y.		G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
		. 840		TWC	ML I						30WS	7E PL	L. "B"	Ë	J.B.	JUNCTION BOX
		STD	40.35	VITH	MTH						ELE	N III	RS C	LIN.	м.н.	MANHOLE TRAFFIC BEARING
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(						SNOI	SNC	E		840.72			C.B. N.D.I D.J.		ABBREVIATIO CATCH BASI NARROW D DROP INLET	INS N ROP INLET
SECTION (						SECTIONS	ECTIONS	& SIZE	SIZE	.STD 840.72			C.B. N.D.I. G.D.I.		ABBREVIATIO CATCH BASI NARROW D DROP INLET GRATED DRO	INS N ROP INLET DP INLET
section (						IND SECTIONS	4D SECTIONS	NO. & SIZE	O. & SIZE	, C.Y. STD 840.72			C.B. N.D.I D.I. G.D.I	- I. I. (N.S.	ABBREVIATIO CATCH BASI NARROW D DROP INLET GRATED DRC I) GRATED DRC I) (NARROW S	INS ROP INLET OP INLET OP INLET LOT)
section (						ted end sections	D END SECTIONS	DWS NO.& SIZE	WS NO. & SIZE	.t. "B" C.Y. STD 840.72		.FT.	C.B. N.D.I. G.D.I. G.D.I J.B.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRK (NARROW S JUNCTION I JUNCTION I MANIHOLS	INS N ROP INLET OP INLET DP INLET LOT) BOX
SECTION (						FLARED END SECTIONS	FLARED END SECTIONS	ELBOWS NO. & SIZE	ELBOWS NO. & SIZE	ARS CL. "B" C.Y. STD 840.72		L LIN.FT.	C.B. N.D.I. G.D.I. G.D.I J.B. M.H. T.B.C		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRK (NARROW S JUNCTION I MANHOLE TRAFFIC BEA	INS N ROP INLET OP INLET DP INLET LOT) BOX RING DROP INLET
sin section (						ONC. FLARED END SECTIONS	ITEL FLARED END SECTIONS	ONC. ELBOWS NO. & SIZE	TEEL ELBOWS NO. & SIZE	COLLARS CL."B" C.Y. STD 840.72		AOVAL LIN.FT.	C.B. N.D.I. G.D.I. J.B. M.H. T.B.D T.B.J.	– I. I. (N.S. J.I. B.	ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC (NARROW S JUNCTION I MANHOLE TRAFFIC BEA TRAFFIC BEA	INS N ROP INLET OP INLET DP INLET LOT) BOX RING DROP INLET RING JUNCTION BOX
H BASIN SECTION (						NF. CONC. FLARED END SECTIONS	RR. STEEL FLARED END SECTIONS 2, 8, 512E	NF. CONC. ELBOWS NO. & SIZE	RR. STEEL ELBOWS NO. & SIZE	NC. COLLARS CL. "B" C.Y. STD 840.72		e removal lin.ft.	C.B. N.D.I. G.D.I J.B. M.H. T.B.D. T.B.J.	- I. I. (N.S. D.I. B.	ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC (NARROW S JUNCTION I MANHOLE TRAFFIC BEA TRAFFIC BEA	INS N ROP INLET OP INLET DP INLET LOT) BOX RING DROP INLET RING JUNCTION BOX
CATCH BASIN						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & STEE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.I. G.D.I J.B. M.H. T.B.D T.B.J.	– I. I. (N.S. D.I. B.	ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC I GRATED DRC I GARATED DRC I MARROW JUNCTION E MANHOLE TRAFFIC BEA TRAFFIC BEA TRAFFIC BEA	INS N ROP INLET OP INLET LOTJ BOX RING DROP INLET RING JUNCTION BOX
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CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORE STEEL FLARED END SECTIONS NO. 8. STEE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "8" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.J. G.D.I G.D.I J.B. T.B.J	- I. I. (N.S. J. (N.S. J. (N.S. R.	ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC (NARROW S JUNCTION E MANHOLE TRAFFIC BEA REMARKS REMARKS	N N ROP INLET DP INLET DP INLET LOT) BOX RING DROP INLET RING JUNCTION BOX
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. 8. STEE	REINE. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "8" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.J. G.D.I G.D.I J.B. M.H. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC I GRATED DRC I (NARROW S JUNCTION E MANHOLE TRAFFIC BEA TRAFFIC BEA REMARKS	INS N ROP INLET DP INLET DP INLET LOT BOX RING DROP INLET RING JUNCTION BOX
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. 8. SIZE	REINE. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN FT.	C.B. N.D.J. G.D.J. J.B. M.H. T.B.D. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC ) GRATED DRC ) GRATED DRC ) GRATED DRC ) GRATED DRC ) GRATED DRC ) JUNCTION E MANHOLE TRAFFIC BEA TRAFFIC BEA REMARKS EMOVE EXISTIN	INS N ROP INLET OP INLET DP INLET LOT BOX RING DROP INLET RING JUNCTION BOX
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL ELARED END SECTIONS	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.J. G.D.J. J.B. M.H. T.B.D. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRO ) GRATED DRO ) (NARROW SI JUNCTION E MANHOLE TRAFFIC BEA REMARKS REMARKS	INS N ROP INLET DP INLET DP INLET LOT) BOX RING DROP INLET RING JUNCTION BOX
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.J. G.D.J. J.B. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC ) (NARROW SI JUNCTION E MANHOLE TRAFFIC BEA REMARKS REMARKS	INS N ROP INLET DP INLET DP INLET LOT) BOX ARING DROP INLET ARING JUNCTION BOX
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & SIZE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.J. G.D.J. G.D.J. J.B. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC ) (NARROW SI JUNCTION E MANHOLE TRAFFIC BEA TRAFFIC BEA REMARKS	INS N ROP INLET DP INLET DP INLET LOT) BOX ARING DROP INLET ARING JUNCTION BOX
CATCH BASIN SECTION						RENF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL."B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.J. G.D.J. G.D.J. J.B. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRO ) (NARROW SI JUNCTION E MANHOLE TRAFFIC BEA TRAFFIC BEA REMARKS	INS N ROP INLET DP INLET DP INLET LOT) 30X RING DROP INLET RING JUNCTION BOX 5 G 96" SSP
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORE STEEL FLARED END SECTIONS	RENF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.I. G.D.I. G.D.I. J.B. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC (NARROW S JUNCTION E MANHOLE TRAFFIC BEA TRAFFIC BEA REMARKS	INS N ROP INLET DP INLET DP INLET LOT) 30X RING DROP INLET RING JUNCTION BOX 5 G 96" SSP
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORE STEEL FLARED END SECTIONS	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.I. G.D.I. G.D.I. T.B.D. T.B.D.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRG (NARROW S JUNCTION E TRAFFIC BEA TRAFFIC BEA REMARKS	INS N ROP INLET DP INLET DP INLET LOT) SOX RING DROP INLET RING JUNCTION BOX G 96" SSP
CATCH BASIN SECTION						REIN: CONC. FLARED END SECTIONS	CORE. STEEL FLARED END SECTIONS	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.I. G.D.I G.D.I J.B. T.B.D T.B.J		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC (NARROW S JUNCTION E MANHOLE TRAFFIC BEA REMARKS EMOVE EXISTIN	N ROP INLET DP INLET DP INLET LOT) RING DROP INLET RING JUNCTION BOX G G 96" SSP
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS	CORR. STEEL FLARED END SECTIONS	RENF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN.FT.	C.B. N.D.I. G.D.I. G.D.I. T.B.T. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRC (NARROW S JUNCTION E MANHOLE TRAFFIC BEA REMARKS EMOVE EXISTIN	N ROP INLET DP INLET DP INLET JP INLET IOT) RING DROP INLET RING JUNCTION BOX G G 96" SSP
CATCH BASIN SECTION						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LIN FT.	C.B. N.D.I G.D.I G.D.J J.B. T.B.J		ABBREVIATIO	INS N ROP INLET JP INLET JP INLET LOTJ 30X RING DROP INLET RING JUNCTION BOX 3 G 96" SSP
Catch Basin Section						REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72		PIPE REMOVAL LINIFI.	C.B. N.D.J. G.D.J. J.B. M.H. T.B.J.		ABBREVIATIO CATCH BASI NARROW DI DROP INLET GRATED DRO ) GRATED DRO ) GRATED DRO ) GRATED DRO STRAFFIC BEA TRAFFIC BEA REMARKS	INS N ROP INLET JP INLET JP INLET LOTJ JOX RING DROP INLET RING JUNCTION BOX

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

# SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location	Drain Type*	LF
	CONTIN	IGENCY		UD	250
				TOTAL LF:	250

\*UD = Underdrain \*BD = Blind Drain

\*SD = Subsurface Drain

# SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
L	1.5:1	17+40	1.5:1	17+75	LT	1	2	115
							TOTAL SY:	115

\*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

# SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
	CONTINGENC	Y	ASU		50	80	50		
			TOTAL	CY/TONS/SY:	50	80	50*	0	0

ASU = Aggregate Subgrade, AST = Aggregate Stabilization

\*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

PROJECT NO.	SHEET NO.
B-5398	3G-1





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