

Hydraulics Unit Pre-Design Report (Pre-Scoping) for Structure #: 420234

Date: _____

County: Harnett Stream: Gum swamp

Road #: SR 1210 Road Name: Hover Rd.

Division: 6 Location: 0.7 MI. N. JCT. NC27

Latitude: 35.33392 Longitude: -79.07250 Decimal degrees, a min of 5 decimal points

Assigned to: _____

Prepared By E. Akpuogu

Hydro Reviewer: _____

Project Type: _____

Existing Structure

Structure Type PRESTRESSED CONC.CHANNEL Yr Built: 1967

Span Arrangement: 3@25' OAL (ft): 75.0 Skew: 90 Abutment Type: _____

Number of Barrels: @ Span (ft): x Rise (ft):

Bed to Crown (ft): 11.0 Clear Roadway (ft): 24.0 Water Depth (ft) 4.0 Superstructure Depth: _____

ADT: 1,000 Year ADT: 2012 Scour Code (item113): _____ Prior Survey Completed: _____ Survey Date: NOT FOUND

Drainage Area: 21.0 Sq. Mi. Drainage Area Source: USGS Stream Stats Roadway Overtops at Q100: No

Discharge Method: USGS Regression Equations USGS Region: 4- Coastal Stream Gage Number(if applicable): _____

Q10 (cfs): 1,140.0 Q25 (cfs): 1,550.0 Q50 (cfs): 1,920.0 Q100 (cfs): 2,320.0 QBFE (cfs): 2,650.0

Structure in Flood Hazard Zone Yes Panel #: 9566 Panel Date: 10/03/2006 Type of FIS: LIMITED Date of FIS: 10/03/2006

Enviromental

Quad Map: OLIVIA, NC River Basin: Cape Fear Buffer Rule: N/A

Primary Stream Classification

☐ Class B ☒ Class C ☐ SA ☐ SB

☐ SC ☐ SWL ☐ WL ☐ WS I

☐ WS II ☐ WS III ☐ WS IV ☐ WS V

Supplemental Stream Classification

☐ FWS ☐ HQW ☐ NSW ☐ ORW

☐ Sw ☐ Tr ☐ UWL ☐ w/in 0.5mi. of CA

Other Stream Classification

☐ Anadromous Fish ☐ Area of Environmental Concern

☐ CAMA County ☐ Federal Wild & Scenic Rivers

☐ HSB Required ☐ NC Natural & Scenic Rivers

☐ Impaired [303d] ☐ Primary Nursery Area

☐ TVA ☐ Designated Shellfish Harvesting Area

☐ Designated Public Mountain Trout Waters

Up/Down Stream Features

Upstream Feature: Culvert-420038, 420025

Location: 0.1 MI. N. JCT. SR 1320

Structure #: 420038 Route: NC 87

Latitude: 35.32780 Longitude: -79.09359

Prior Survey Completed: Yes Survey Date: 7/20/98 Bed to Crown (ft): 13.0 Year Built: 1928

Structure Type: RCCB

Span Arrangement: _____ OAL (ft): _____

Number of Barrels: @ Span (ft): x Rise (ft):

Downstream Feature: Bridge

Location: 0.4MI. N. JCT. NC 27

Structure #: 420048 Route: SR 1209

Latitude: 35.33817 Longitude: -79.04540

Prior Survey Completed: No Survey Date: NOT FOUND Bed to Crown (ft) 12.0 Year Built: 1979

Structure Type: PRESTRESSED CONC. CORED

Span Arrangement: _____ OAL (ft): _____

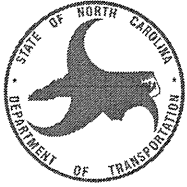
Number of Barrels: @ Span (ft): x Rise (ft):

Preliminary Structure Estimate [Office Estimate]

Structure Type: _____ Skew: 90

Dimensions/Spans: Office estimated min. brg. length= 85'

Notes



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURE MANAGEMENT UNIT

ATTENTION: PRIORITY MAINTENANCE

Structure Safety Report

Routine Element Inspection - Contract

COUNTY: HARNETT STRUCTURE NUMBER: 420234 FREQUENCY: 24 MONTHS

FACILITY CARRIED: SR1210 Hover Rd. MILE POST: _____

LOCATION: 0.7 MI. N. JCT. NC27

FEATURE INTERSECTED: BARBECUE SWAMP

LATITUDE: 35° 20' 2.12" LONGITUDE: 79° 4' 21"

35.3339222

-79.0725

SUPERSTRUCTURE: PRESTRESSED CONCRETE CHANNELS

SUBSTRUCTURE: E.BTS&INT.BTS:PPC.CAPS/TIMBER PILES @ 5'9 CTS

SPANS: 3@25'

☐ FRACTURE CRITICAL ☐ TEMPORARY SHORING ☐ SCOUR CRITICAL ☒ SCOUR PLAN OF ACTION

PRESENT CONDITION: Fair INSPECTION DATE: 05/18/2016

POSTED SV: 33 POSTED TTST: 37

OTHER SIGNS PRESENT: 4 DELINEATORS



Sign noticed issued for		Number Required
NO	WEIGHT LIMIT	<u>0</u>
NO	DELINEATORS	<u>0</u>
NO	NARROW BRIDGE	<u>0</u>
NO	ONE LANE BRIDGE	<u>0</u>
NO	LOW CLEARANCE	<u>0</u>

Gum Swamp?

SOUTH APPROACH

INSPECTED BY B. CHAD HOUSER, PE	SIGNATURE <i>B. Chad Houser</i>	ASSISTED BY THOMAS L. FLETCHER, PE
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BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 11/28/2016

COUNTY : HARNETT DIVISION : 6 DISTRICT : 2 STRUCTURE NUMBER : 420234 LENGTH : 75 FEET

ROUTE CARRIED : SR1210 FEATURE INTERSECTED : BARBECUE SWAMP

LOCATED : 0.7 MI. N. JCT. NC27 BRIDGE NAME : CITY :

FUNC. CLASS : 09 SYST.ON : NFA SYST.UNDER : NFA ADT & YR : 1000 2012 RAIL TYPE : LT 233 RT 233

BUILT : 1967 BY : BMU PROJ : FED.AID PROJ : DESIGN LOAD : H 15

REHAB : BY : PROJ : ALIGNMENT : TAN. SKEW : 90 LANES : ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 11 FT WATER DEPTH : 4 FT

SUPERSTRUCTURE : PRESTRESSED CONCRETE CHANNELS

SUBSTRUCTURE : E.BTS&INT.BTS:PPC.CAPS/TIMBER PILES @ 5'9 CTS

SPANS : 3@25'

BEAMS OR GIRDERS : 10 LNS 31" PRESTRESSED CONCRETE CHANNEL SECTIONS

FLOOR : PPC.C.S/1.5" AWS ENCROACHMENT : DECK (OUT TO OUT) : 25.5 FT

CLEAR ROADWAY : 24 FT BETWEEN RAILS : 24.917 FT SIDEWALK OR CURB : LT .4585 FT RT .4585 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-1 OPE.RTG. : HS-1 CONTR.MEMBER : Pile POSTED : SV 33 TTST 37 DATE 07/07/2010

SYSTEM : Secondary S.R. Route GREEN LINE ROUTE : N

UNDER ROUTES AND CLEARANCES

REMARKS :

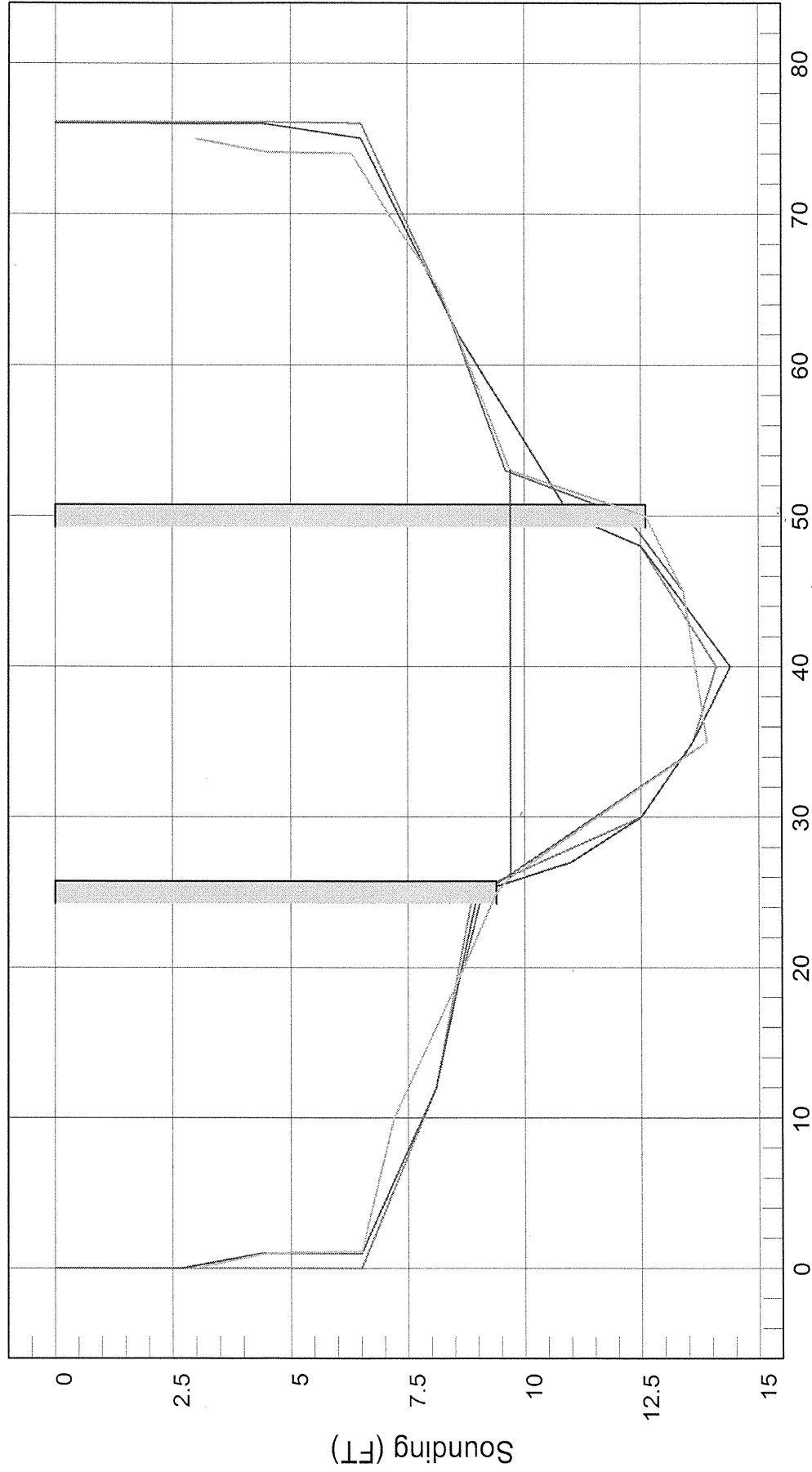
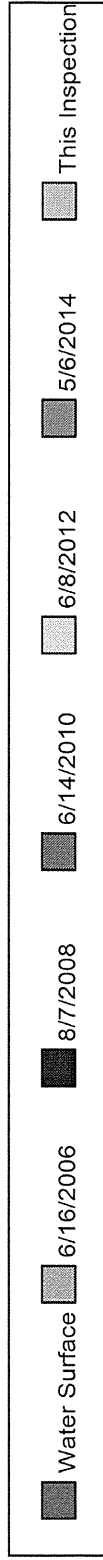
Bridge: 420234

County HARNETT

Date:

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



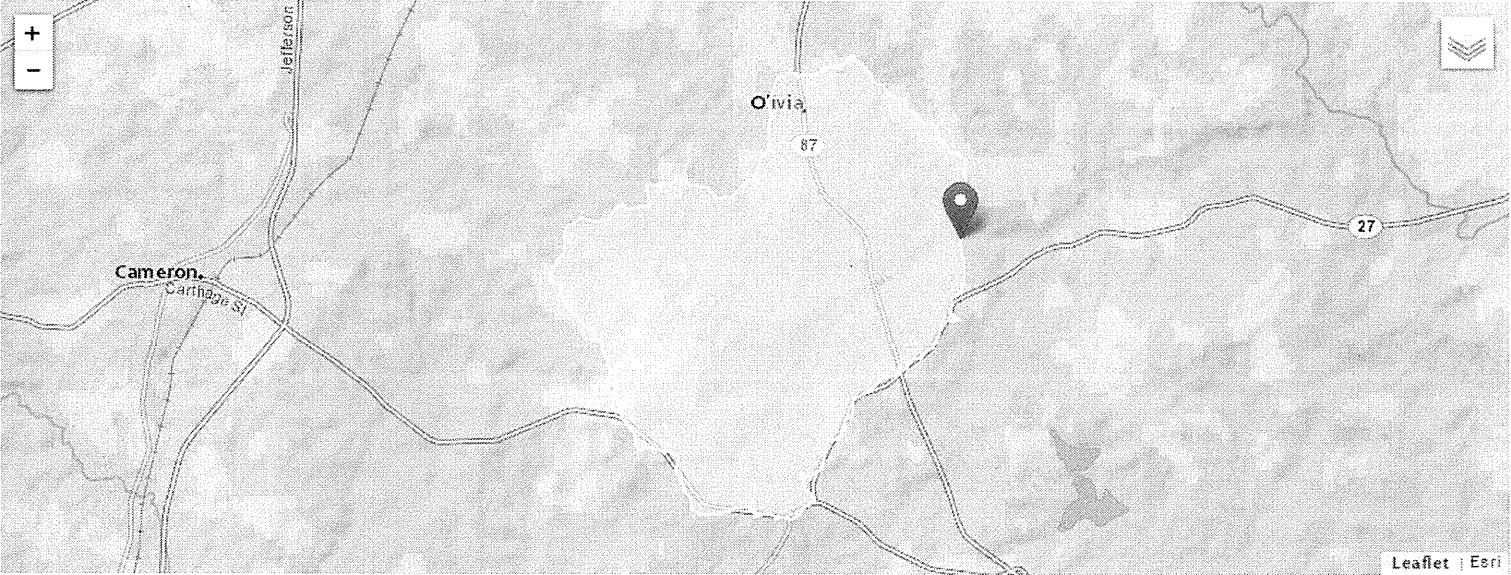
$$11 \times 1.5 = 16.5 \times 2 = 33 + 20 + 30 = 83 \text{ (85')} \\ \text{Distance (FT)}$$

Some comments here

StreamStats Report

Region ID:
Workspace ID:
Clicked Point (Latitude, Longitude):
Time:

NC
NC20180613123814442000
35.33449, -79.07247
2018-06-13 08:38:29 -0400



Basin Characteristics

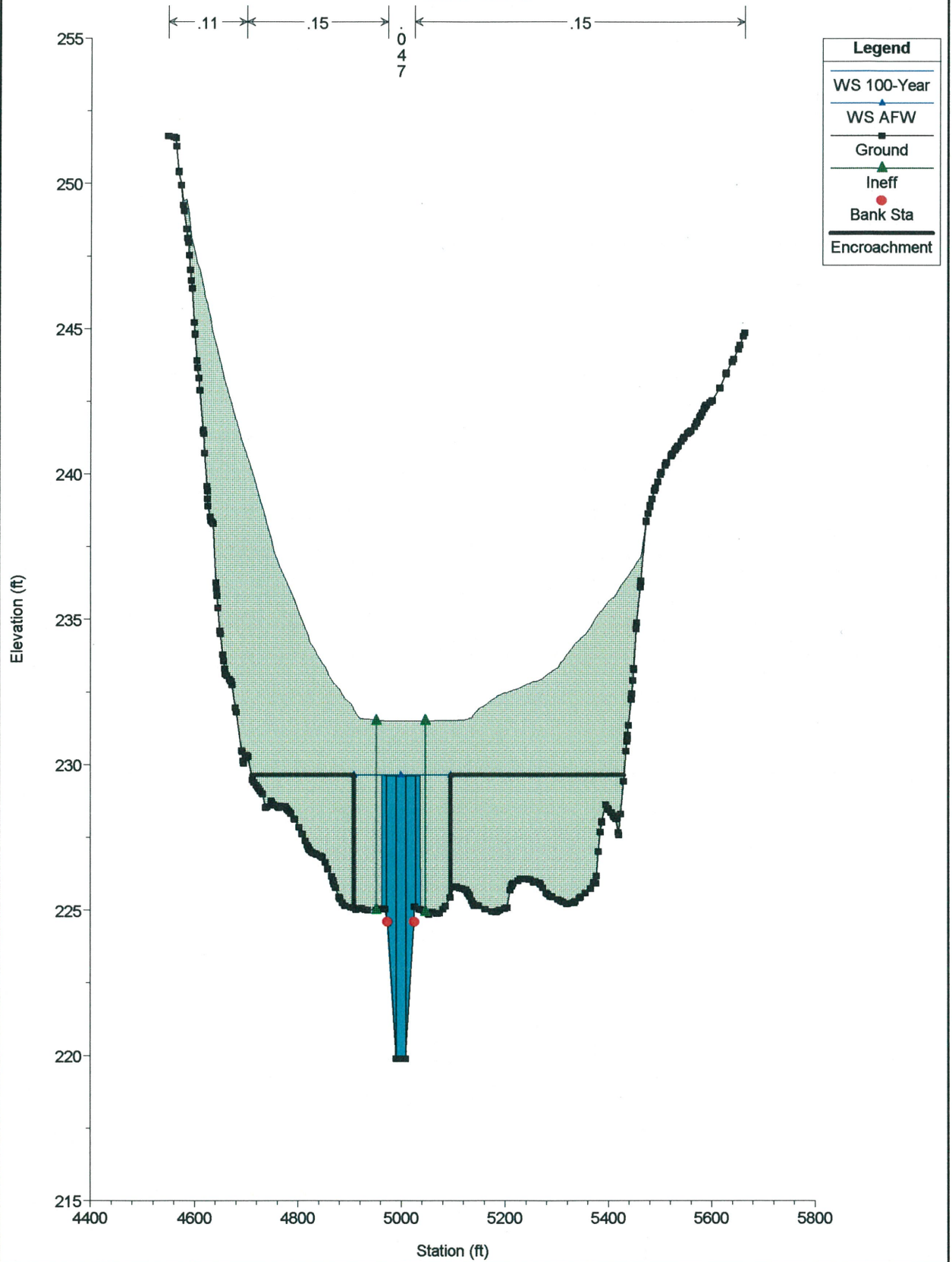
Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	20.7	square miles
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	7.33	inches
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	2.04	percent

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for

Gum SwampADJ

Plan: 100-Year-Single 6/13/2018

Hoover Road tor



Summary of Discharges

(square miles)

Chance

Chance

Chance

Chance

- Barbecue Creek

Confluence of Gum Swamp	8.60	*	*	1580	*
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- Cypress Creek (into Gum Swamp)

Confluence with Gum Swamp	7.40	*	*	1450	*
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- Dry Creek

Confluence with Gum Swamp	4.25	*	*	1060	*
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Approximately 0.80 mile
upstream of the confluence with Gum
Swamp.

3.19	*	*	902	*
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- Gum Swamp

Confluence with Barbecue Creek	21.42	*	*	2650	*
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Confluence of Dry Creek	16.14	*	*	2260	*
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Confluence of Cypress Creek	7.28	*	*	1440	*
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BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 04/26/2016

COUNTY : HARNETT DIVISION : 6 DISTRICT : 2 STRUCTURE NUMBER : 420038 LENGTH : 29 FEET

ROUTE CARRIED : NC87 FEATURE INTERSECTED : CYPRESS CREEK

LOCATED : 0.1 MI. N. OF JCT. SR1320 BRIDGE NAME : CITY :

FUNC. CLASS : 02 SYST.ON : FA SYST.UNDER : NFA ADT & YR : 15000 2012 RAIL TYPE : LT 0 RT 0

BUILT : 1928 BY : SHPWC PROJ : 4420 FED.AID PROJ : DESIGN LOAD : HS 20

REHAB : 1956 BY : SHPWC PROJ : 3456 ALIGNMENT : TAN SKEW : 60 LANES : ON 4 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 13 FT WATER DEPTH : 2 FT

SUPERSTRUCTURE : TRIPLE 8'X6' RCBC, 157' ALONG CENTERLINE OF CULVERT

SUBSTRUCTURE :

SPANS :

BEAMS OR GIRDERS :

FLOOR : ENCROACHMENT : DECK (OUT TO OUT) : 0 FT

CLEAR ROADWAY : 0 FT BETWEEN RAILS : 0 FT SIDEWALK OR CURB : LT 0 FT RT 0 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-20 OPE.RTG. : HS-26 CONTR.MEMBER : RCBC POSTED : SV TTST DATE

SYSTEM : Primary N.C. Route GREEN LINE ROUTE : N

UNDER ROUTES AND CLEARANCES

Upstream Structure.

REMARKS :

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 07/12/2016

COUNTY : HARNETT DIVISION : 6 DISTRICT : 2 STRUCTURE NUMBER : 420025 LENGTH : 21 FEET

ROUTE CARRIED : NC87 FEATURE INTERSECTED : BARBEQUE SWAMP

LOCATED : 0.1 MI S JCT SR 1320 BRIDGE NAME : CITY :

FUNC. CLASS : 02 SYST.ON : FA SYST.UNDER : NFA ADT & YR : 15000 2012 RAIL TYPE : LT 0 RT 0

BUILT : 1928 BY : BMU PROJ : FED.AID PROJ : DESIGN LOAD : HS 20

REHAB : 1958 BY : BMU PROJ : ALIGNMENT : TAN. SKEW : 90 LANES : ON 4 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 16 FT WATER DEPTH : 2 FT

SUPERSTRUCTURE : DOUBLE 10'X8'RCBC,155' ALONG CENTERLINE OF CULVERT

SUBSTRUCTURE :

SPANS :

BEAMS OR GIRDERS :

FLOOR : ENCROACHMENT : DECK (OUT TO OUT) : 0 FT

CLEAR ROADWAY : BETWEEN RAILS : SIDEWALK OR CURB : LT 0 FT RT 0 FT

VERT.CL.OVER : 999.9 FT

INV.RTG. : HS-20 OPE.RTG. : HS-26 CONTR.MEMBER : RCBC POSTED : SV TTST DATE

SYSTEM : Primary N.C. Route GREEN LINE ROUTE : N

UNDER ROUTES AND CLEARANCES

Upstream Structure

REMARKS :

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 11/09/2016

COUNTY : HARNETT DIVISION : 6 DISTRICT : 2 STRUCTURE NUMBER : 420048 LENGTH : 105 FEET

ROUTE CARRIED : SR1209 FEATURE INTERSECTED : BARBECUE SWAMP

LOCATED : 0.4MI N. OF JCT.NC27 BRIDGE NAME : CITY :

FUNC. CLASS : 07 SYST.ON : FA SYST.UNDER : NFA ADT & YR : 4100 2013 RAIL TYPE : LT 253 RT 253

BUILT : 1979 BY : BMU PROJ : 5.4451 FED.AID PROJ : DESIGN LOAD : HS 15

REHAB : BY : PROJ : ALIGNMENT : TAN. SKEW : 90 LANES : ON 2 UNDER 0

NAVIGATION : VC 0 FT HC 0 FT HT. CRN. TO BED : 12 FT WATER DEPTH : 1 FT

SUPERSTRUCTURE : PRESTRESSED CONCRETE CORED SLAB,STD.BMD-19-34-90

SUBSTRUCTURE : EBTS&IBTS:RC CAP/H-PILES@5'6 CTS.

SPANS : 1@35'1,1@35',1@35'1

BEAMS OR GIRDERS : 13 LINES OF 33" PRESTRESSED CONCRETE CORED SLAB SECTIONS

FLOOR : PPCCS; 2.5" AWS ENCROACHMENT : DECK (OUT TO OUT) : 36 FT

CLEAR ROADWAY : 34.333 FT BETWEEN RAILS : 34.333 FT SIDEWALK OR CURB : LT 0 FT RT 0 FT

VERT.CL.OVER : 999.9 FT

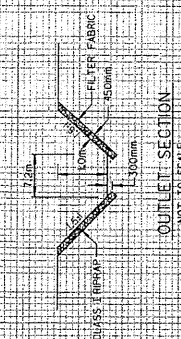
INV.RTG. : HS-18 OPE.RTG. : HS-31 CONTR.MEMBER : Cored Slab POSTED : SV TTST DATE

SYSTEM : Secondary S.R. Route GREEN LINE ROUTE : N

UNDER ROUTES AND CLEARANCES

Downstream Structure

REMARKS :

[illegible]

Upstream Structure C-420025

