

NCDOT HYDRAULICS UNIT PREDESIGN-PRESURVEY REPORT

PRE-FIELD SCOPING MEETING RECOMMENDATION:

TIP No.:	B-5507	Let Date:		WBS No.:	55007.1.1	County:	Chowan
Bridge No.:	200021	Road No.:	NC 32	Stream:	Sand Run		
Bridge Length Recommendation:	1 @ 25', 1 @ 45' 36" PS Girder						

Date:	1/20/2015	Company:	Ecological Engineering	Assigned To:	R. Robol
Checked By:	F. Fleming				

EXISTING BRIDGE INFORMATION:

Location:	Located on NC 32 1.0 Mile South of SR 1303						
ADT:	2100	ADT Year:	2014	Does 100 Yr. WSEL Overtop Roadway:	NO		
Length(ft):	32.0'	Ex. Structure Depth=	1.5'	Bed-To-Crown(ft):	11.7'	Water Depth(ft):	3.2'
Type of Structure:	Continuous Slab on RC Abuts. RC Caps on Timber Piles w/ Crutch Bents						
Type of Spans:	4 @ 7.5' (2 @ 16' prior to rehab)						
Prior Survey Date: (Attach Copy of Prior Survey)	03/1952						
Study by Scour:	11/09/2010	Code:	5				
Flood Zone:	AE	Study Type:		Date:	08/03/2009	Panel No.:	6982
BM Info:							
Quad Map:	Miltonsville/Hobbs ville	Drainage Area:	4.7 Sq. Mi.	From:	Quad/Streamstats		
Q25:	627 CFS	Q50:	782 CFS	Q100:	953 CFS	Method:	USGS SIR 2009-5158

HIGH WATER INFORMATION:

Division Bridge and County Maintenance High Water Observations:	
Local Users High Water Observations:	Joseph Ward – 40 yrs of knowledge- Never over Road. Never close to bridge

OTHER STRUCTURES:

Upstream Structure Description:	NA- No equivalent comparison		
Location:	NA		
Bed-To-Crown:	NA	Prior Survey Date:	
Downstream Structure Description:	200008- 2@45' PPC Cored Slab on Steel Piles		
Location:	Located on SR 1232 0.4 Mile North of SR 1233		
Bed-To-Crown:	9.8'	Prior Survey Date:	7/1987

ENVIRONMENTAL:

River Basin:	Chowan	Primary Stream Classification:	C	Cama Cnty:	YES
Secondary Stream Classification/Other:	☐ FWS ☐ HQW ☐ ORW ☒ NSW ☐ SW ☐ TR ☐ UWL ☐ PNA ☐ Within ½ Mile of Critical Area ☐ Anadromous Fish				

Notes:

May consider 2 @ 35' 21" Cored Slab to reduce approach work by +/- 4"
FEMA- No model on Sand Run- Flooding Source is Chowan River

HYDRAULICS UNIT (COMPLETED BY HYDRAULICS UNIT STAFF PRIOR TO THE FSM)

WILL THIS PROJECT REQUIRE A FEMA PERMIT? **NO**

IS THERE UNUSUAL SCOUR POTENTIAL? **NO** IS PROTECTION NEEDED? **NO**

ARE BANKS STABLE? **Yes** IS PROTECTION NEEDED? **No**

DOES STREAM CARRY APPRECIABLE AMOUNT OF LARGE DEBRIS? **No**

WILL THE PLACEMENT OF BENTS IN THE WATER BE ALLOWED **Yes** COMMENTS

WERE HYDRAULIC ALTERNATIVES BESIDES A BRIDGE CONSIDERED **No** COMMENTS

POSSIBLE SPAN LAYOUT: **1 @ 25', 1 @ 45' 36" PS GIRDER**

GEOTECHNICAL UNIT (COMPLETED BY GEOTECHNICAL UNIT PRIOR TO THE FSM)

EXISTING FOUNDATION REPORTS? ----- IF SO, ATTACH.

KNOWN GEOLOGICAL FEATURES IN AREA WHICH MAY AFFECT DESIGN

ARE PERMITS NEEDED FOR INVESTIGATIVE WORK AT SITE ----- COMMENTS:

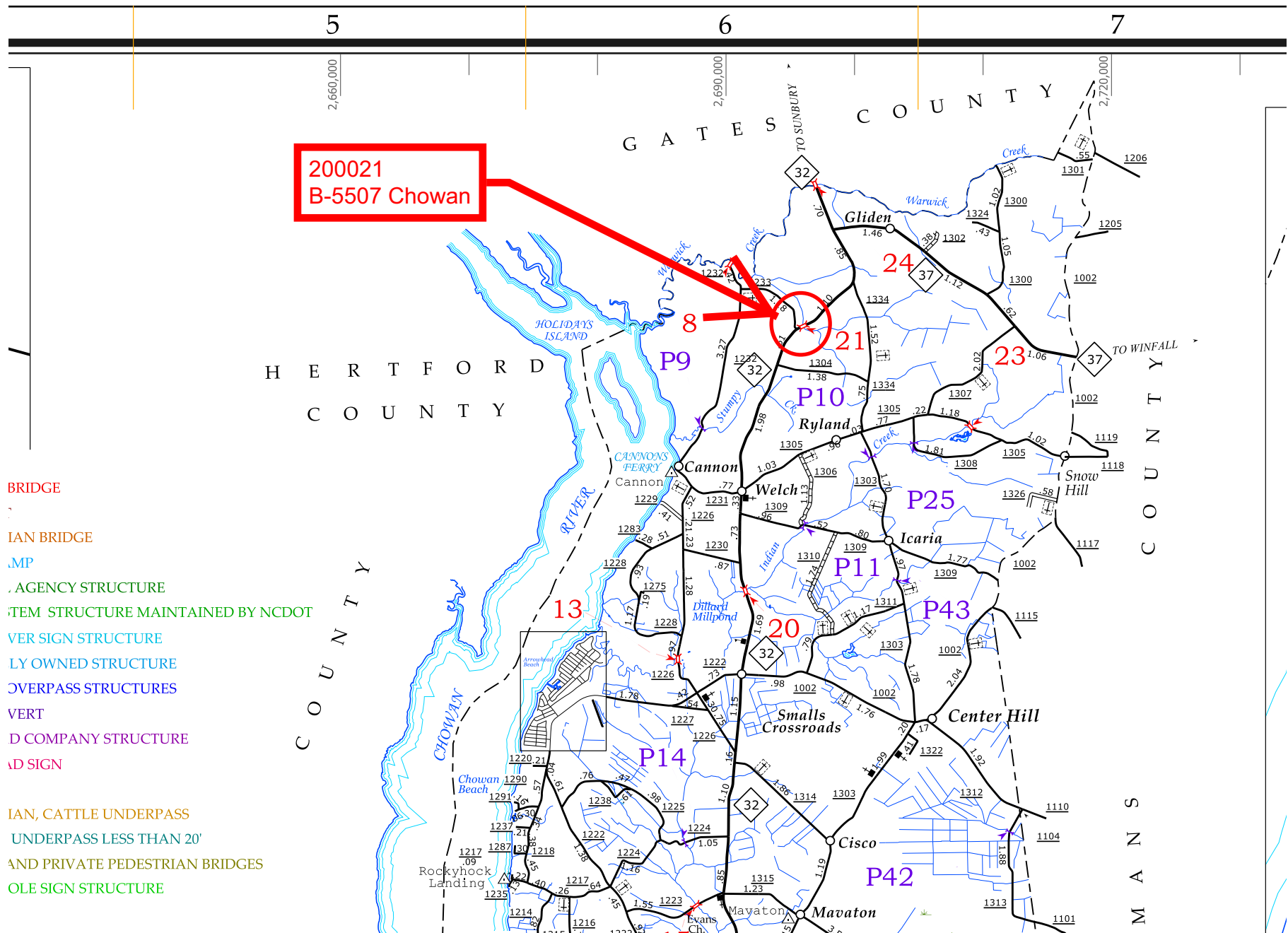
ARE THERE ANY HISTORICAL AND / OR VIBRATION SENSITIVE STRUCTURES NEAR BY ----- COMMENTS:

ARE THERE ANY KNOWN LANDFILLS AND / OR GEOENVIRONMENTAL HAZARD SITES AT OR WITHIN CLOSE PROXIMITY TO THE PROJECT SITE ----- COMMENTS:

DEPTH OF WEATHERED ROCK OR ROCK BELOW STREAMBED (FT.)

ARE ANY IMPACTS ANTICIPATED TO NATURAL SPRINGS OR ARTESIAN WELLS ----- COMMENTS:

POSSIBLE FOUNDATION TYPE: **Driven piles; 3:1 or flatter side slopes needed for vegetation and erosion control.**





NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY CHOWAN BRIDGE NUMBER 200021 INSPECTION CYCLE 2 YRS
ROUTE NC32 ACROSS SAND RUN M.P. 0

LOCATION 1.0 MI S JCT SR 1303

SUPERSTRUCTURE CONT MONOLITHIC SLAB

SUBSTRUCTURE RC FULL HGT ABUT;INT.BT:RC CAP/TIM.PILES;STL.CRUTCH BTS

SPANS 4@7.5' CONT.

LONGITUDE 76° 38' 17.55"

LATITUDE 36° 18' 1.46"

INSPECTION DATE 11/19/2012

PRESENT CONDITION FAIR

PRESENT POSTING Not Posted Not Posted

PROPOSED POSTING

OTHER SIGNS PRESENT 4 DELINEATORS



LOOKING NORTH

SIGN NOTICE
ISSUED FOR

NUMBERED
REQUIRED

No WEIGHT LIMIT
No DELINEATORS
No NARROW BRIDGE
No ONE LANE BRIDGE
No LOW CLEARANCE

NATIONAL BRIDGE INVENTORY----- STRUCTURE INVENTORY AND APPRAISAL

Run Date: 01/24/2013

IDENTIFICATION					
(1) STATE NAME -NORTH CAROLINA	BRIDGE	200021		SUFFICIENCY RATING =	44.67
(8) STRUCTURE NUMBER(FEDERAL)		00000000410021		STATUS =	Functionally Obsolete
(5) INVENTORY ROUTE (ON/UNDER) - ON		31000320			
(2) STATE HIGHWAY DEPARTMENT DISTRICT		3		CLASSIFICATION	CODE
(3) COUNTY CODE 41 (4) PLACE CODE		0		(112)NBIS BRIDGE SYSTEM -	YES
(6) FEATURE INTERSECTED - SAND RUN				(104)HIGHWAY SYSTEM Is not on NHS	0
(7) FACILITY CARRIED NC32				(26) FUNCTIONAL CLASS - Minor Arterial	06
(9) LOCATION 1.0 MI S JCT SR 1303				(100)STRAHNET HIGHWAY - Not a STRAHNET Route	0
(11)MILEPOINT		0		(101)PARALLEL STRUCTURE - No Parallel Structure	N
(16)LAT 36° 18' 1.46" (17)LONG 76° 38' 17.55"				(102)DIRECTION OF TRAFFIC - 2-way Traffic	2
(98)BORDER BRIDGE STATE CODE	PCT SHARE			(103)TEMPORARY STRUCTURE -	
(99)BORDER BRIDGE STRUCTURE NO				(110)DESIGNATED NATIONAL NETWORK - On the National Network	1
				(20) TOLL On Free Road	3
				(31) MAINTAIN - State Highway Agency	01
				(22) OWNER - State Highway Agency	01
				(37) HISTORICAL SIGNIFICANCE - Not Eligible	5
STRUCTURE TYPE AND MATERIAL					
(43) STRUCTURE TYPE MAIN: Concrete continuous					
TYPE - Slab		CODE 201			
(44) STRUCTURE TYPE APPR :				CONDITION	CODE
TYPE -		CODE 000		(58) DECK	5
(45) NUMBER OF SPANS IN MAIN UNIT		4		(59) SUPERSTRUCTURE	5
(46) NUMBER OF APPROACH SPANS				(60) SUBSTRUCTURE	5
(107)DECK STRUCTURE TYPE - 1		CODE		(61) CHANNEL & CHANNEL PROTECTION	5
(108)WEARING SURFACE / PROTECTIVE SYSTEM :				(62) CULVERTS	N
(A) TYPE OF WEARING SURFACE -		CODE			
(B) TYPE OF MEMBRANE -		CODE		LOAD RATING AND POSTING	CODE
(C) TYPE OF DECK PROTECTION -		CODE		(31) DESIGN LOAD H 15	2
				(63) OPERATING RATING METHOD - Load Factor	
				(64) OPERATING RATING - HS-16	128
				(65) INVENTORY RATING METHOD - Load Factor	
				(66) INVENTORY RATING - HS-9	116
				(70) BRIDGE POSTING - No Posting Required	5
				(41) STRUCTURE OPEN, POSTED ,OR CLOSED	A
				DESCRIPTION - Open, No Restriction	
AGE AND SERVICE					
(27) YEAR BUILT		1922			
(106)YEAR RECONSTRUCTED		1952			
(42) TYPE OF SERVICE : ON - Highway					
UNDER - Waterway		CODE 15			
(28) LANES: ON STRUCTURE 2 UNDER STRUCTURE		0			
(29) AVERAGE DAILY TRAFFIC		2400		APPRAISAL	CODE
(30) YEAR OF ADT 2011 (109) TRUCK ADT PCT		8%		(67) STRUCTURAL EVALUATION	4
(19) BYPASS OR DETOUR LENGTH		5 MI		(68) DECK GEOMETRY	3
				(69) UNDERCLEARANCES,VERTI & HORIZ	N
GEOMETRIC DATA					
(48) LENGTH OF MAXIMUM SPAN		7 FT		(71) WATERWAY ADEQUACY	7
(49) STRUCTURE LENGTH		30 FT		(72) APPROACH ROADWAY ALIGNMENT	8
(50)CURB OR SIDEWALK: LEFT 1.667 FT RIGHT 1.667 FT				(36) TRAFFIC SAFETY FEATURES	0000
(51) BRIDGE ROADWAY WIDTH CURB TO CURB		26.083 FT		(113)SCOUR CRITICAL BRIDGES	5
(52) DECK WIDTH OUT TO OUT		27.833 FT			
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS)		20 FT		PROPOSED IMPROVEMENTS	
(33) BRIDGE MEDIAN - No Median		CODE 0		(75) TYPE OF WORK -	CODE
(34) SKEW 0° (35) STRUCTURE FLARED		0		(76) LENGTH OF STRUCTURE IMPROVEMENT	
(10) INVENTORY ROUTE MIN VERT CLEAR		999.9 FT		(94) BRIDGE IMPROVEMENT COST	
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR		26.083 FT		(95) ROADWAY IMPROVEMENT COST	
(53) MIN VERT CLEAR OVER BRIDGE RDWY		999.9 FT		(96) TOTAL PROJECT COST	
(54) MIN VERT UNDERCLEAR REF Not a Highway or Railroad		0 FT		(97) YEAR OF IMPROVEMENT COST ESTIMATE	
(55) MIN LAT UNDERCLEAR RT REF Not a Highway or Railroad		000 FT		(114)FUTURE ADT 4800 (115) YEAR FUTURE ADT 2025	
(56) MIN LAT UNDERCLEAR LT REF -		000 FT			
NAVIGATION DATA					
(38) NAVIGATION CONTROL - No Navigational Control		CODE 0		INSPECTIONS	
(111)PIER PROTECTION -		CODE		(90) INSPECTION DATE	11/19/2012
(39) NAVIGATION VERTICAL CLEARANCE		0		(92) CRITICAL FEATURE INSPECTION :	(93) CFI DATE
(116)VERT - LIFT BRIDGE NAV MIN VERT CLEAR		FT		A) FRACTURE CRIT DETAIL - NO	A)
(40) NAVIGATION HORIZONTAL CLEARANCE		0 FT		B) UNDERWATER INSP - NO	B)
				C) OTHER SPECIAL INSP NO	C)
				SCOUR	

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 01/24/2013

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :	
CHOWAN	1	3	200021	30	FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
NC32	SAND RUN

LOCATED :	BRIDGE NAME :	CITY :
1.0 MI S JCT SR 1303		

FUNC. CLASS :	SYST.ON :	SYST.UNDER :	ADT & YR :	RAIL TYPE :
06	FA	NFA	2400 2011	LT 141 RT 141

BUILT :	BY :	PROJ :	FED.AID PROJ :	DESIGN LOAD :
1922	SHPWC	1143	264 (4)	H 15

REHAB :	BY :	PROJ :	ALIGNMENT :	SKEW :	LANES :		
1952	SHPWC		TAN	90	ON 2	UNDER	0

NAVIGATION :			HT. CRN. TO BED :		WATER DEPTH :		
VC 0 FT	HC 0 FT		11 FT		3		FT

SUPERSTRUCTURE :	CONT MONOLITHIC SLAB
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SUBSTRUCTURE :	RC FULL HGT ABUT;INT.BT:RC CAP/TIM.PILES;STL.CRUTCH BTS
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SPANS :	4@7.5' CONT.
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BEAMS OR GIRDERS :	CONT.MONOLITHIC SLAB
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FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
12 RC/2 AWS		27.833 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
26.083 FT	29.417 FT	LT 1.667 FT RT 1.667 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :		DATE
HS-9	HS-16	Monolithic slab	SV	TTST	04/06/1995

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

UNDER ROUTES AND CLEARANCES

REMARKS :

Structure Data Worksheet

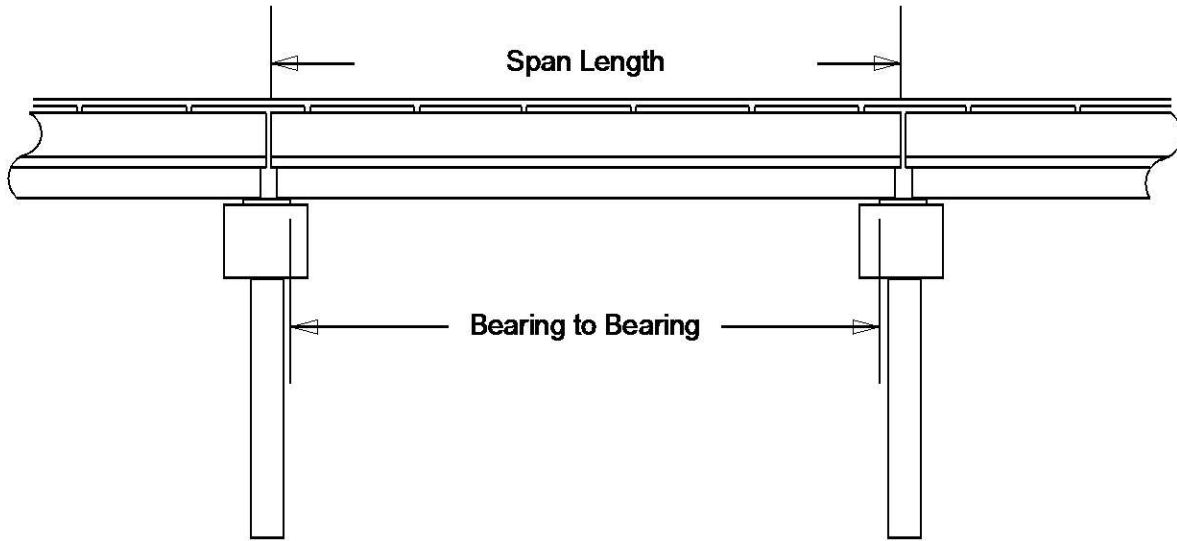
Spans

County: **CHOWAN**

Structure No: **200021**

Date: **11/19/2012**

Inspected By: **ZSD**



Span No	Span Length	Bearing to Bearing	Comments
1	7.5'	7'	
2	7.5'	7'	
3	7.5'	7'	
4	7.5'	7'	

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 200021 County: CHOWAN Date: 11/19/2012 By: ZSD

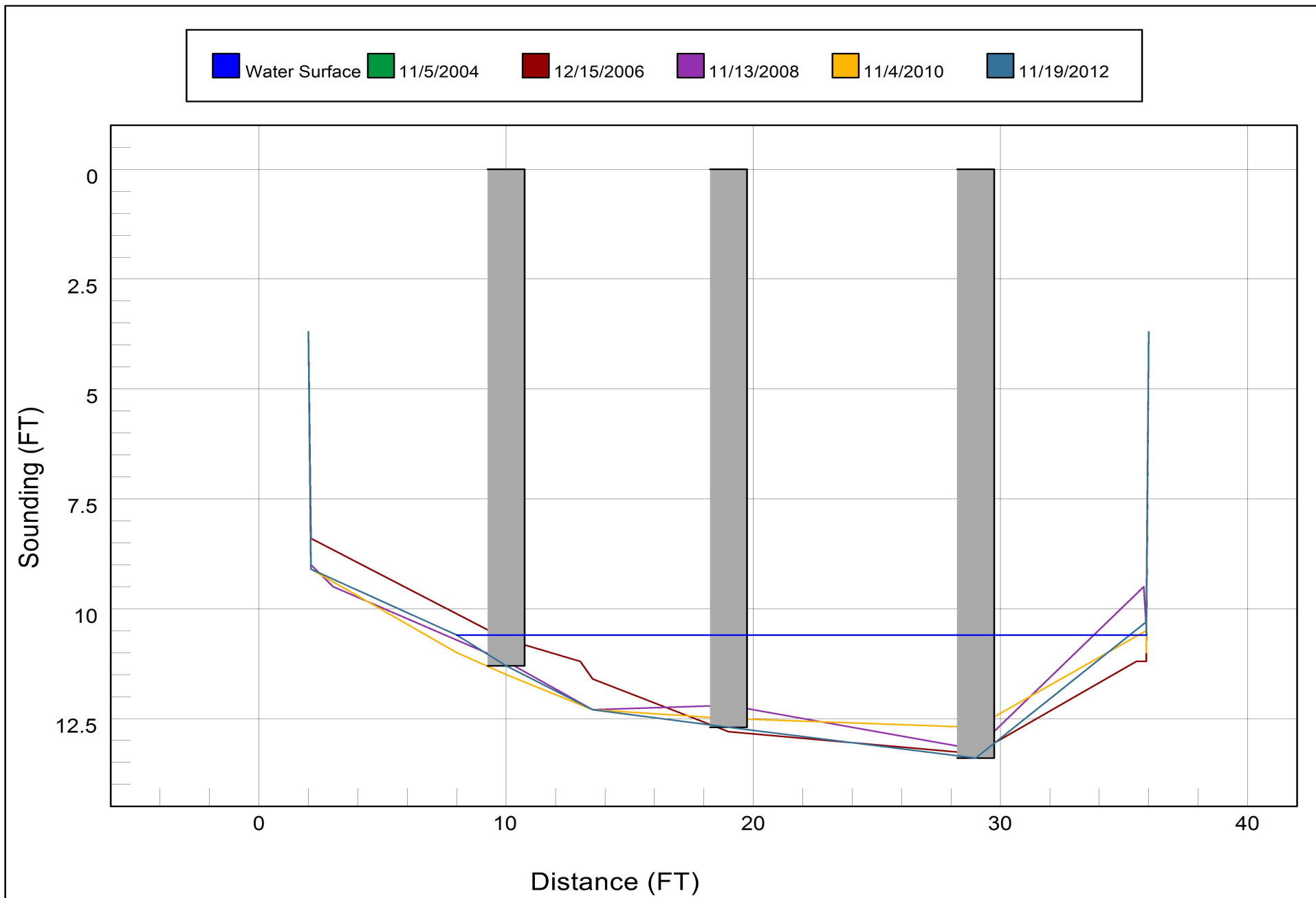
Record sounding from top of rail. Other location if needed: _____

Distance from Highwater Mark to top of rail: _____ Location of Highwater Mark: _____

DOWNSTREAM			UPSTREAM		
Distance (Station) (ft)	Sounding (ft)	Description	Distance (Station) (ft)	Sounding (ft)	Description
2	3.7	TOP OF CAP			
2.1	9.1	ABUT 1	2.1	7.9	ABUT 1
8	10.6	WSWE			
10	11.3	BENT1	10	11.4	BENT1
13.5	12.3	GROUND			
19	12.7	BENT 2	19	12.9	BENT 2
29	13.4	BENT 3	29	13.2	BENT 3
35.9	10.3	ABUT 2	35.9	12.9	ABUT 2
35.9	10.6	WSWE			
36	3.7	TOP OF CAP			

STREAMBED PROFILE (Downstream)

Top of Rail = 0 FT (Sounding)



Bridge Inspection Field Sketch



Roadway	20ft Wide	2 Paved Lanes	Looking North
Left Shoulder	8ft Wide		8ft Unpaved
Right Shoulder	8ft Wide		8ft Unpaved
Left Guardrail			
Right Guardrail			

Title
APPROACH ROADWAY

Description
APPROACH ROADWAY

Bridge No: 200021

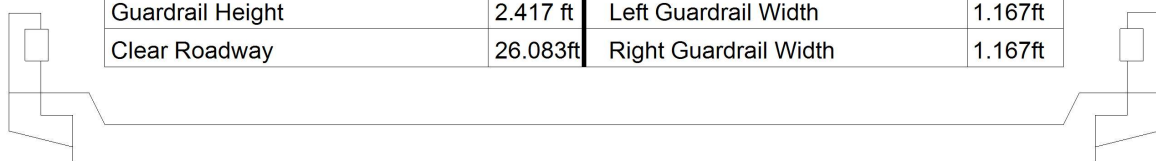
Drawn By: GLH

Date: 11/19/2012

File Name: S0034000132

Bridge Inspection Field Sketch

Out to Out	27.833ft	Wearing Surface	0.167ft
Between Rails	29.417ft	Median Width	
Curb Height	0.667ft	Median Height	
Guardrail Height	2.417 ft	Left Guardrail Width	1.167ft
Clear Roadway	26.083ft	Right Guardrail Width	1.167ft



Measurements for Span #	1		
Deck Thickness	1	Left Overhang	
Top of Rail to Bottom of Beam	3.917	Right Overhang	

Title

TYPICAL SECTION

Description

TYPICAL SECTION

Bridge No: 200021

Drawn By: GLH

Date: 11/19/2012

File Name: S0034000138

Bridge Inspection Field Sketch



Bent #	2		
Cap - Pre-Cast			
Cap Size	26.833ft Long	2.25ft Wide	2.083ft High
Left Overhang	1.417ft		
Right Overhang	1.417ft		

Pile #	Material	Pile Type	Spacing	Length	Width/Diam.	Height	Orientation
1	Wood or Timber	Pile Bent	4.5 ft		1.250 ft		Vertical
2	Wood or Timber	Solid Pier	5 ft		1.250 ft		Vertical
3	Wood or Timber	Pile Bent	5 ft		1.250 ft		Vertical
4	Wood or Timber	Pile Bent	5 ft		1.250 ft		Vertical
5	Wood or Timber	Pile Bent	4.5 ft		1.250 ft		Vertical
6	Wood or Timber	Pile Bent			1.250 ft		Vertical

Title

BENT 2 SUBSTRUCTURE

Description

PILE DIAGRAM FOR BENT 2

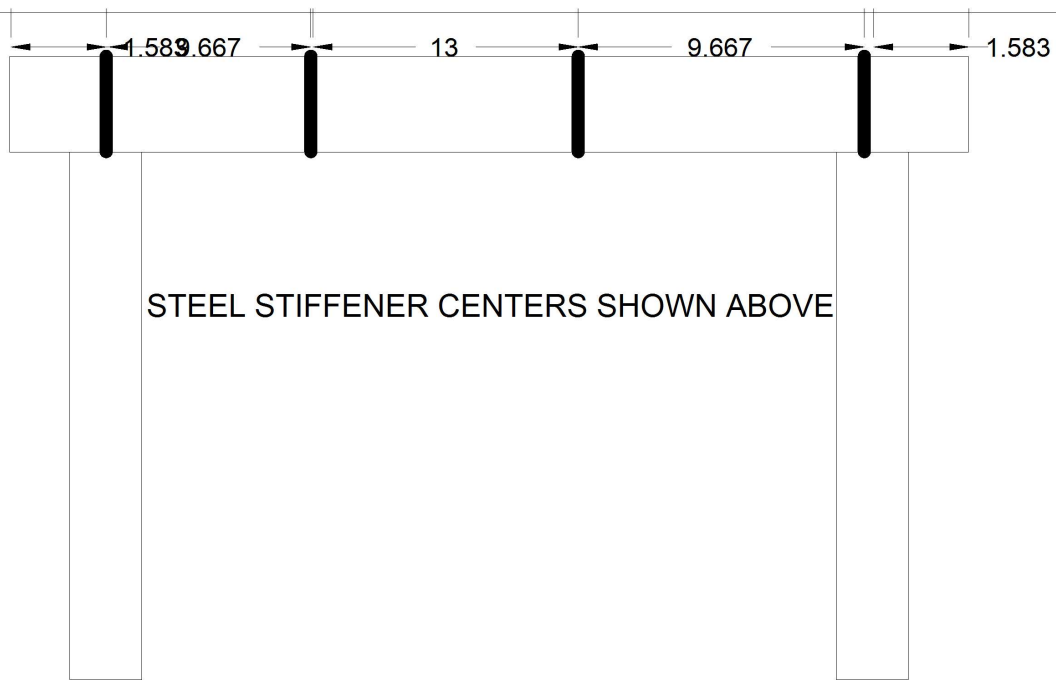
Bridge No: 200021

Drawn By: GLH

Date: 11/19/2012

File Name: S0034000139

Bridge Inspection Field Sketch



Bent #	1	Bents 3 similar	
Cap - Beam Type (Wood or Steel)			
Cap Size	35.5ft Long	0.958ft Wide	2.75ft High
Left Overhang	1.417ft		
Right Overhang	1.417ft		

Pile #	Material	Pile Type	Spacing	Length	Width/Diam.	Height	Orientation
1	Steel	Pile Bent	33 ft		1 ft		Vertical
2	Steel	Pile Bent			1 ft		Vertical

Title

BENT 1 AND 3 SUBSTRUCTURE

Description

PILE DIAGRAM FOR BENT 1 AND 3

Bridge No: 200021

Drawn By: GLH

Date: 11/19/2012

File Name: S0034000140



North Bridge End



South Bridge End



Downstream



Upstream



Upstream 2



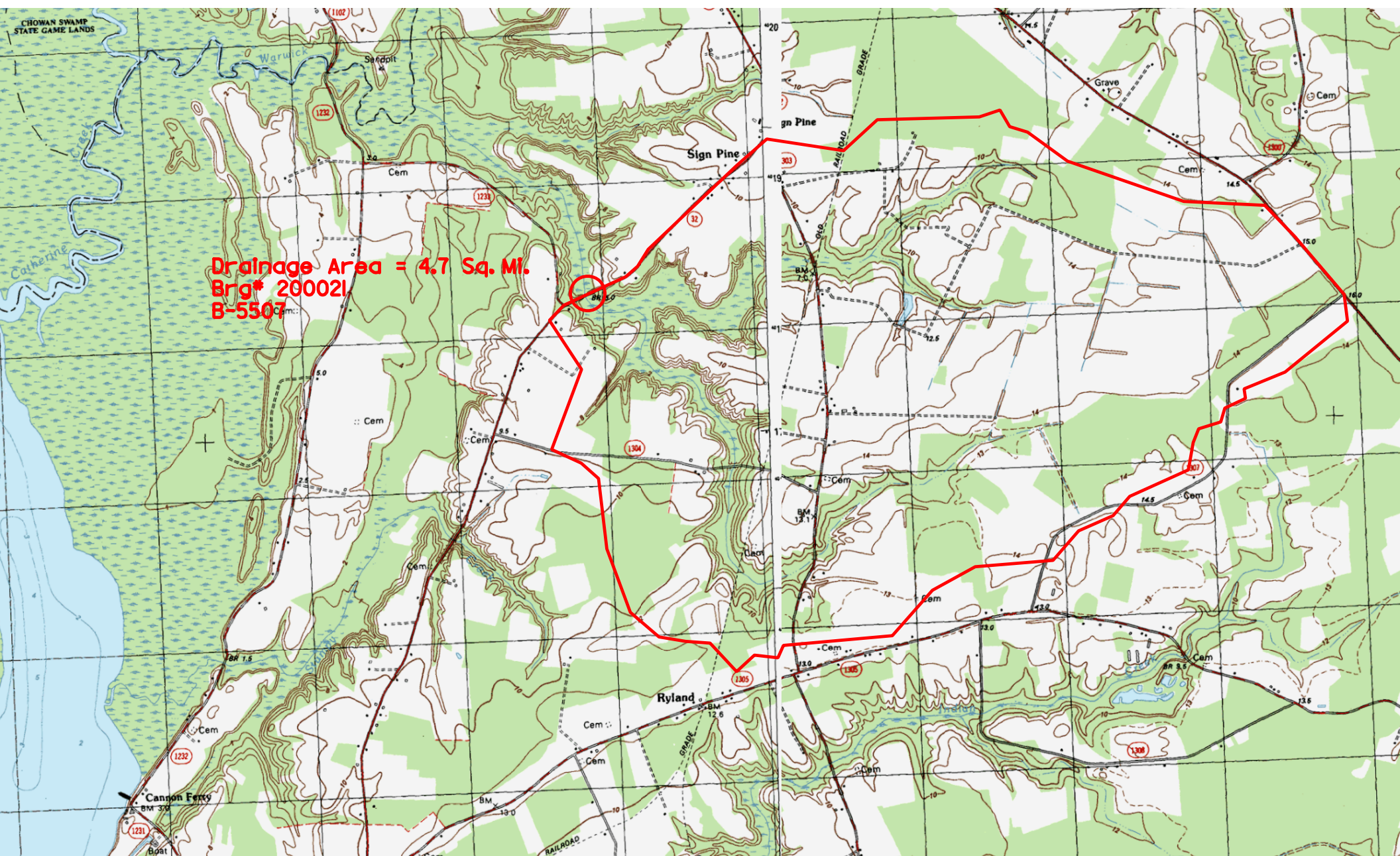
Upstream 3



Upstream Face



Downstream Face



PRELIMINARY DESIGN AND ASSESSMENT
STREAM CROSSING AND ENCROACHMENTS

COUNTY Chowan

PROJECT# B-5507_#21

STREAM : Sand Run

ROUTE NC 32

ASSESSMENT PREPARED BY Ecological Engineering, LLP

DATE __1/20/2015__

HYDROLOGIC EVALUATION

NEAREST GAUGING STATION ON THIS STREAM _____ (NONE __X__) _____

ARE FLOOD STUDIES AVAILABLE ON THIS STREAM: __No_____

FLOOD DATA:

Q10 __450__cfs EST. BKWTR. _____FT. Q25 __627__cfs EST. BKWTR. _____FT.

Q50 __782__cfs EST. BKWTR. _____FT. Q100 __953__cfs EST. BKWTR. _____FT.

Q500 __1350__cfs OR OVERTOPPING CFS EST. BKWTR. _____FT.

DRAINAGE AREA __4.7 Sq. Mi.____ METHOD USED TO COMPUTE Q __USGS SIR 2009-5158__

PROPERTY RELATED EVALUATIONS

DAMAGE POTENTIAL: LOW __X__ MODERATE _____ HIGH _____

COULD THIS BE SIGNIFICANTLY INCREASED BY PROPOSED

ENCROACHMENT: YES _____ NO __X__

EXPLANATION: _____

LIST BUILDINGS IN FLOOD PLAIN __None_____ LOCATION _____

FLOOR ELEVATION: _____

UPSTREAM LAND USE: __Swamp/Agriculture__

ANTICIPATE ANY CHANGE? __No_____

ANY FLOOD ZONE? (FIA STUDIES, ETC.) YES __X__ NO _____

TYPE OF STUDY __NA__ Zone AE- Flood Source is Chowan River _____

BASE FLOOD ELEVATION __7.0'_____ (100yr.)

REGULATORY FLOODWAY WIDTH __NA_____ (AS NOTED IN FIA STUDIES)

COMMENTS: _____

TRAFFIC RELATED EVALUATIONS

PRESENT YEAR 2014 TRAFFIC COUNT 2100 VPD %TRUCKS _____

DESIGN YEAR 2025 TRAFFIC COUNT 4800 VPD % TRUCKS _____

EMERGENCY ROUTE _____ SCHOOL BUS ROUTE _____ MAIL ROUTE _____

DETOUR AVAILABLE? _____ LENGTH OF DETOUR _____ MILES

DOES THE LEVEL OF TRAFFIC SERVICE OF AN EXISTING CROSSING VARY GREATLY FROM
STANDARD DESIGN LEVELS? No _____

IS THE TRAFFIC VOLUME , TYPE, USAGE SUCH TO WARRANT CONSIDERATION FOR VARIANCE
FROM STANDARDS OR EXISTING LEVEL OF INTERRUPTION? No _____

COMMENTS: _____

HIGHWAY AND BRIDGE (CULVERT) RELATED EVALUATIONS

NOTE ANY OUTSIDE FEATURES WHICH MIGHT AFFECT STAGE, DISCHARGE OR FREQUENCY.

LEVEES NA AGGRADATION/DEGRADATION NA RESERVOIRS NA

DIVERSIONS NA DRAINAGE DISTRICT NA NAVIGATION NA

BACKWATER FROM ANOTHER SOURCE _____ CHOWAN RIVER _____

EXPLANATION: _____

ROADWAY OVERFLOW SECTION (NONE X) LENGTH _____ ELEVATION _____

EMBANKMENT: SOIL TYPE SAND TYPE SLOPE COVER GRASS

COMMENTS: _____

PAGE 2 OF 3

ENVIRONMENTAL CONSIDERATIONS

LIST SPECIAL CONDITIONS OR CONSIDERATIONS WHICH AFFECT HYDRAULIC DESIGN (_____)

CAMA _____

MISCELLANEOUS COMMENTS

IS THERE UNUSUAL SCOUR POTENTIAL? YES _____ NO ☒ PROTECTION NEEDED _____ NO _____

ARE BANKS STABLE? _____ YES _____ PROTECTION NEEDED _____ NO _____

DOES STREAM CARRY APPRECIABLE AMOUNT OF LARGE DEBRIS? _____ MODERATE _____

COMMENTS: _____

ALTERNATIVES

RECOMMENDED DESIGN _____ 1 @ 25', 1@45' 36" PS GIRDER _____

DETOUR STRUCTURE _____ 60' Bridge on West side _____

LOW ROAD GRADE _____ Match Existing Low Steel _____ DETOUR GRADE _____ Match Existing _____

BRIDGE WATERWAY OPENING _____ >450Sq. Ft. _____ CULVERT OPENING _____ NA _____

WERE OTHER HYDRAULIC ALTERNATIVES CONSIDERED? YES _____ NO ☒

DISCUSSION: _____

THIS SITE ASSESSMENT INDICATES THE DESIGN SHOULD FOLLOW:

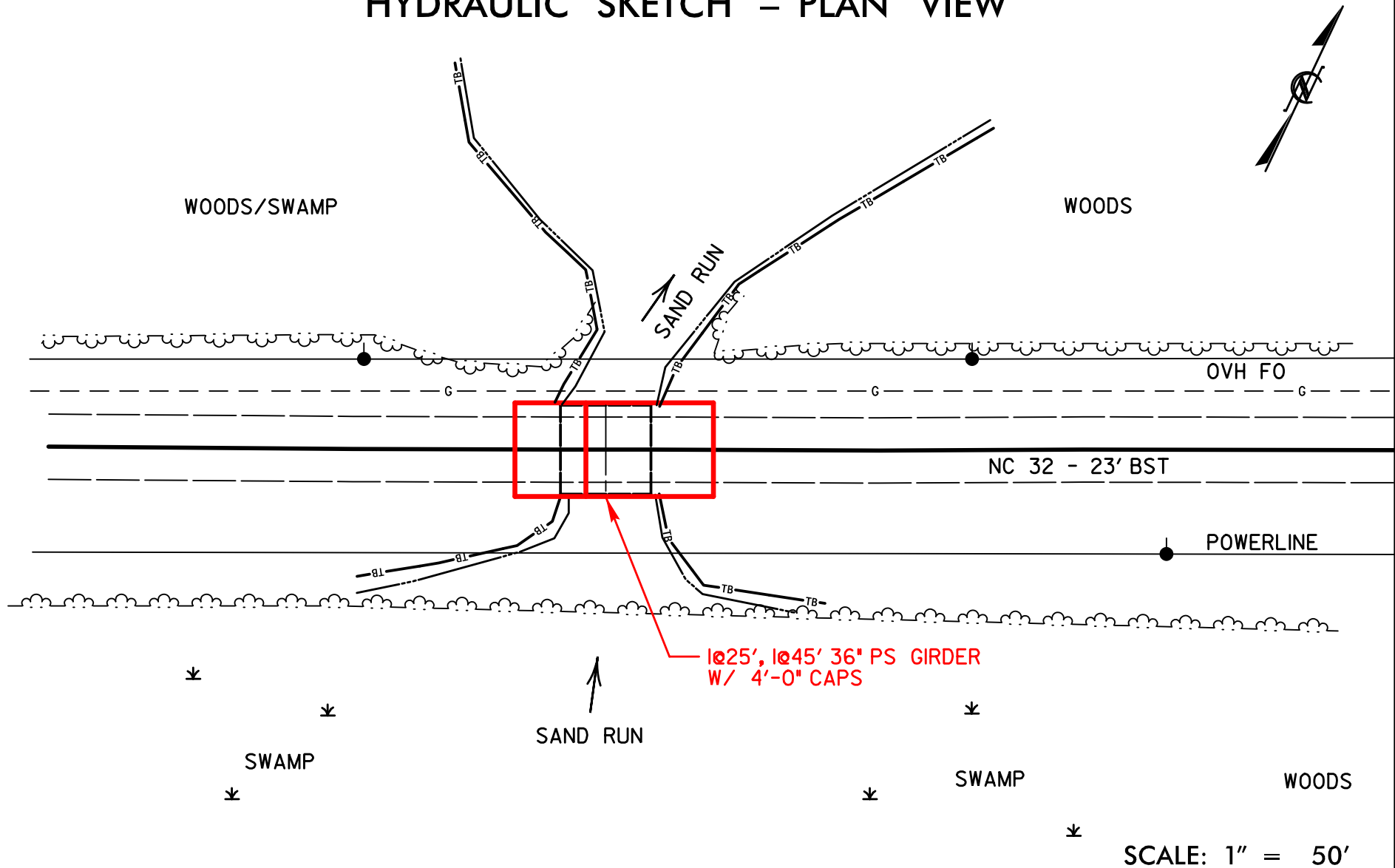
(1) ☒ NORMAL PROCESS

(2) _____ NORMAL PROCESS WITH SPECIAL SPECIFIC CONSIDERATION FOR

(3) _____ SPECIFIC DESIGN PROCESS WITH APPROPRIATE RISK/ECONOMIC EVALUATION

ADDRESSING: _____

HYDRAULIC SKETCH – PLAN VIEW

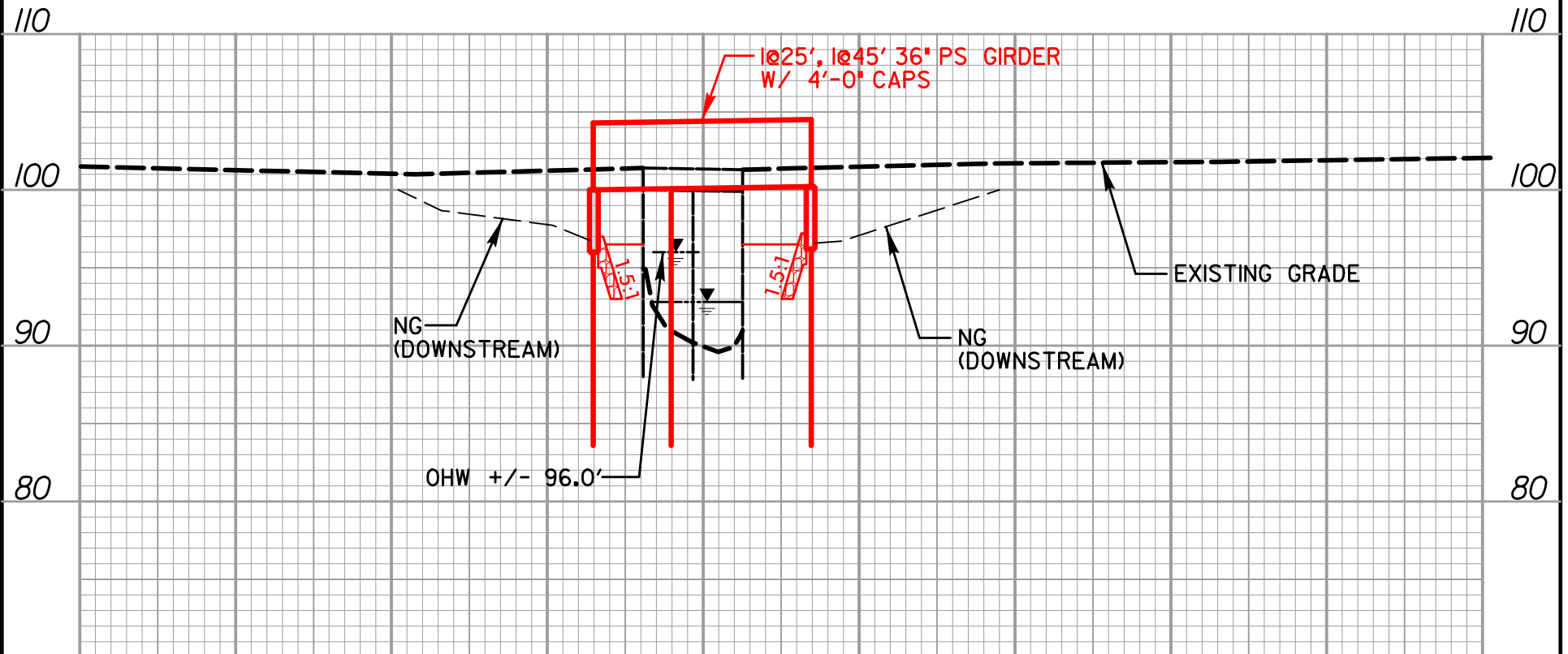


I.D. No.: B-5507

COUNTY: CHOWAN

BRIDGE No.: 200021

HYDRAULIC SKETCH – PROFILE VIEW



SWAMP IS ADJACENT TO UPSTREAM APPROACHES.
 $32' + 2[10 + 1.5(6.0)] = 70'$ SAY 70'
 PROPOSED SUPERSTRUCTURE DEPTH: $4'(\text{FIG. 6-1}) + 0.02(16.5') = 4.3'$
 MAINTAIN EX. LOW STEEL, RAISE GRADE +/- 2.8'

HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 10'
 VERTICAL DATUM IS ASSUMED

I.D. No.: B-5507

COUNTY: CHOWAN

BRIDGE No.: 200021



This digital Flood Insurance Rate Map (FIRM) was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long term approach to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map flood hazard areas at the local level. As a part of this effort, the State of North Carolina has joined in a Cooperating Technical State agreement with FEMA to produce and maintain this digital FIRM.

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTP://FRIS.NC.GOV/FRIS](http://FRIS.NC.GOV/FRIS)

SPECIAL FLOOD HAZARD AREAS

Without Base Flood Elevation (BFE)
Zone A, V, A99

With BFE or Depth Zone AE, AO, AH, VE, AR

Regulatory Floodway

0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average Depth Less Than One Foot or With Drainage Areas of Less Than One Square Mile Zone X

Future Conditions 1% Annual Chance Flood Hazard Zone X

Area with Reduced Flood Risk due to Levee See Notes Zone X

Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X

Channel, Culvert, or Storm Sewer Accredited or Provisionally Accredited Levee, Dike, or Floodwall

Non-accredited Levee, Dike, or Floodwall

North Carolina Geodetic Survey bench mark

National Geodetic Survey bench mark

Contractor Est. NCFMP Survey bench mark

Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)

Coastal Transect

Coastal Transect Baseline

Profile Baseline

Hydrographic Feature

Limit of Study

Jurisdiction Boundary

OTHER AREAS OF FLOOD HAZARD

OTHER AREAS

GENERAL STRUCTURES

OTHER FEATURES

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at <http://msc.fema.gov>. An accompanying Flood Insurance Study report, Letter of Map Revision (LOMR) or Letter of Map Amendment (LOMA) revising portions of this panel, and digital versions of this FIRM may be available. Visit the North Carolina Floodplain Mapping Program website at <http://www.ncfloodmaps.com>, or contact the FEMA Map Service Center.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the North Carolina Floodplain Mapping Program (NCFMP). The source of this information can be determined from the metadata available in the digital FLOOD database and in the Technical Support Data Notebook (TSDN).

ACCREDITED LEEVE NOTES TO USERS: If an accredited levee note appears on this panel check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at <http://www.fema.gov/business/nfip/index.shtm>.

PROVISIONALLY ACCREDITED LEEVE NOTES TO USERS: If a Provisionally Accredited Levee (PAL) note appears on this panel, check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicates the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at <http://www.fema.gov/business/nfip/index.shtm>.

LIMIT OF MODERATE WAVE ACTION NOTES TO USERS: For some coastal flooding zones the AE Zone category has been divided by a Limit of Moderate Wave Action (LMWA). The LMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LMWA (or between the shoreline and the LMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

Limit of Moderate Wave Action (LMWA)

COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE

This map may include approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see http://www.fws.gov/habitatconservation/coastal_barrier.html, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

CBRS Area **Otherwise Protected Area**

SCALE

PANEL LOCATOR

FEDERAL EMERGENCY MANAGEMENT AGENCY

National Flood Insurance Program

North Carolina

NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

NORTH CAROLINA

PANEL 6982

Panel Contains:

COMMUNITY

CHOWAN COUNTY

GATES COUNTY

HERTFORD COUNTY

CID

370301

370103

370130

PANEL

6982

6982

6982

SUFFIX

K

K

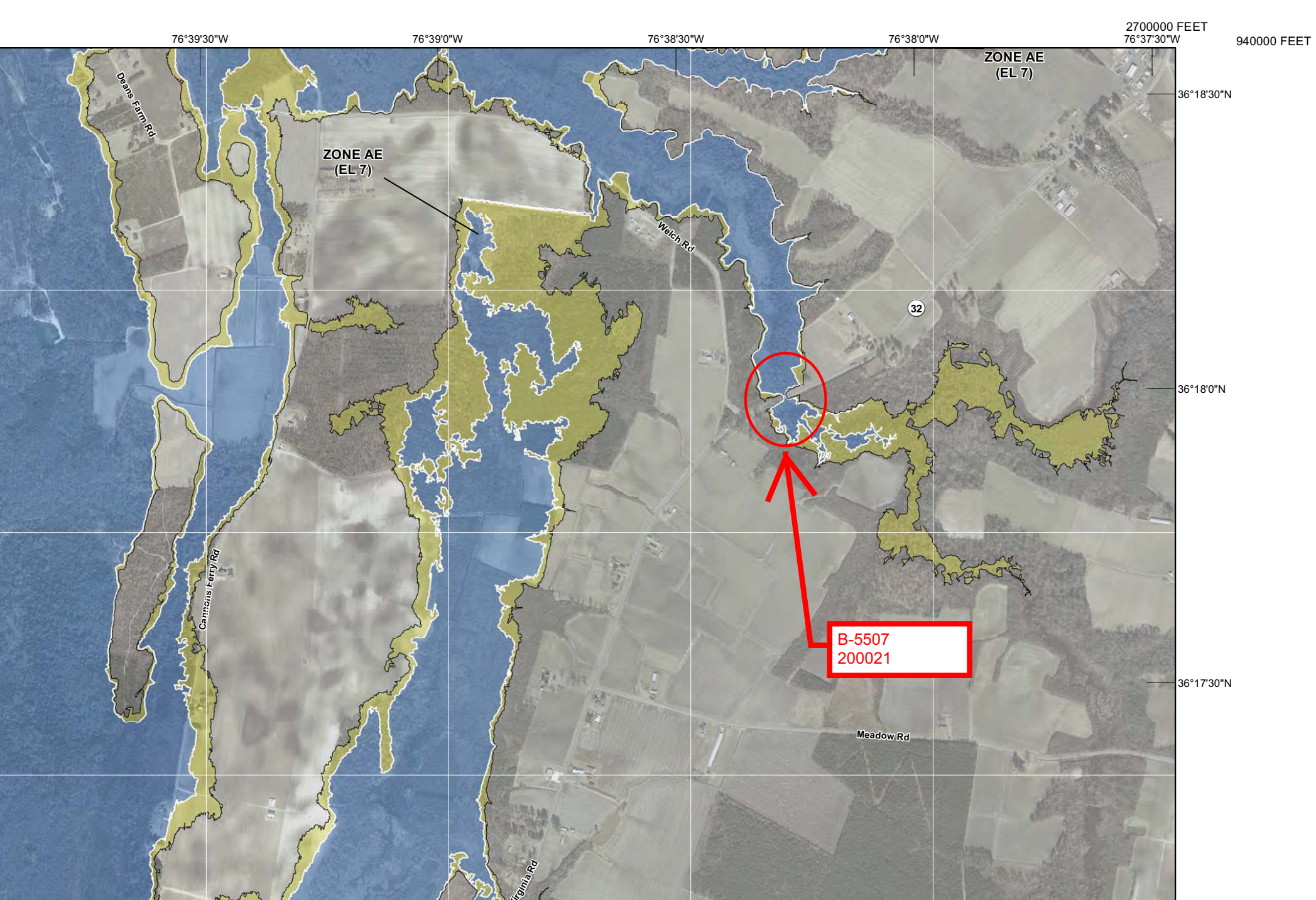
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MAP NUMBER

3720698200K

MAP REVISED

08/03/09



HIS 8/7/89 Photo - Hobbs

BRIDGE DEPARTMENT
N. C. STATE HIGHWAY & PUBLIC WORKS COMMISSION
RALEIGH, N. C.

BRIDGE SURVEY REPORT

PROJECT NO. 1143 CHOWAN-GATES COUNTY, STA. 953+00 OLD PROJ.
BRIDGE OVER SANDY RUN Known as BR #21
On NC 32 between EDENTON and SUNBURY
Recommended Width of Roadway 26' Skew 90°
Recommended Structure SUPERSTRUCTURE ON PRESENT 10' 30" ±
CLEAR SPAN R.C.T.G. TO BE REPLACED, AND
SUBSTRUCTURE TO BE WIDENED AS REQUIRED
FOR WIDER ROADWAY
Rip Rap _____
Temporary Crossing IS REQD.
Present Structure SUPERSTRUCTURE TO BE REMOVED, SUBSTRUCTURE RETAINED.
New Location is AT Up, Down Stream from Crossing on Present Road
Nearest Shipping Point EDENTON On NORFOLK-SOUTHERN R. R.
Distance from Shipping Point to Bridge Site is 17 3/4 miles.
Elevations From B. M. NAIL IN TRUNK 12" CYPRESS 30' LT. 2+70 Elev. 97.24
(ORIGINAL BR PLANS DATUM)

USE THIS SPACE FOR PHOTOGRAPH
OF PROPOSED SITE, SHOWING CEN-
TER LINE, DIRECTION OF FLOW
AND OTHER IMPORTANT POINTS ON
PHOTOGRAPH.

Surveyed by C. P. EDGERTON Assisted by F. M. C. & J. L. H. Date MAR. 52

Drainage Area 5.7 SQ. MI. Obtained from SOIL MAP
Character of Drainage Area FLAT SWAMPY
Waterway Required by Formula 9.5 Sq. Ft. Formula Used TOL. C. 0.2
Maximum Stream Discharge _____ Sec. ft. Date _____
Discharge Data Obtained From _____
Period Covered by Discharge Records _____
Discharge Used for Design of Waterway _____ Sec. Ft.
Waterway Area Considered Necessary _____ Sq. Ft.
Waterway Area Provided by Recommended Structure _____ Sq. Ft.
Data on Existing Structure 1 @ 30' R.C.T.G. 18' RDWY.
Data on other Structures Up or Down Stream _____
Method Used in Determining Foundation Material DRIVING 1/2" φ RODS
Is Additional Foundation Investigation Considered Advisable _____
Other Information _____

20 0021 1952 NO TIP SANDY RUN NC 32 WO_1143.PDF
BR #21
SANDY RUN

Use 953+00

CROWN = 100.81

TOP OF WING RT. ELEV. 100.45
TOP OF WING LT. ELEV. 100.36
BRIDGE SEAT. RT. ELEV. 99.28
BRIDGE SEAT. LT. ELEV. 99.19
TIP OF WING RT. ELEV. 97.67
TIP OF WING LT. ELEV. 97.52
TOP OF FOOTING ELEV. 92.83

W.S. 3-12-52 EL. 94.3
(± 1.0' ABOVE NORMAL)

TOP OF WING RT. ELEV. 100.38
TOP OF WING LT. ELEV. 100.36
BRIDGE SEAT. RT. ELEV. 99.21
BRIDGE SEAT. LT. ELEV. 99.19
TIP OF WING RT. ELEV. 97.38
TIP OF WING LT. ELEV. 97.45
TOP OF FOOTING ELEV. 92.76

FOUNDATIONS ARE ON
UNTR. TIM. PILES
AVERAGE LENGTH 29.6' ±

A
92.8
1.25
91.55
28
63.55
MIN
E1
91.55
25
66.55 MAX
E1

B
91.55
32
59.55
MIN
91.55
22.58
68.97
MAX

FOR ADDITIONAL DETAIL
SEE ORIGINAL BR. PLANS
PROJ. 114 STA 953+00

SCALE: 1" = 10'

TO EDENTON

TO SUNBURY

18' B.S.T.
TO BE WIDENED
TO 22' BY STATE FORCES

SANDY
98.35

①

B-SSD7-21
CHOWAN COUNTY
1/20/2015
SUNNY 57°

KFE ?

ZBR T

④					
30	TOP	ABUT			
31	CRUH	SEAT			
32	CRUH	SEAT			
33	TOP	ABUT			
34	TOP	RAIL			
□ 35	BOTTOM	ABUT			
□ 36	BRIDGE	OPENING			
□ 37	WE				
□ 38	BED				
□ 39	BED	⊙ PIER			
□ 40	BED				
□ 41	BED				
□ 42	BRIDGE	OPENING / BED			
□ 43	BOTTOM	ABUT			
□ 44	BOTTOM	ABUT			
□ 45	BRIDGE	OPENING			
□ 46	BED	⊙ PIER			
□ 47	WE				
□ 48	BRIDGE	OPENING			
□ 49	BOTTOM	ABUT			
□ 50					
□ 51	OHW				

1	5000	5000	100	4020 Nail-1
2	5040.982	5000	101.373	3008 BOB CL
3	5069.144	4985.132	101.339	3008 EOB CL
10	5140.388	4947.862	101.709	3008 CL ROAD
11	5203.673	4914.058	101.767	3008 CL ROAD
12	5384.294	4819.144	102.348	3008 CL ROAD
13	4976.191	5033.977	101.005	3008 CL ROAD
14	4880.974	5083.309	101.476	3008 CL ROAD
15	5031.23	4979.077	94.968	4002 TB
16	5035.231	4977.8	92.822	3620 WE/WS
17	5031.395	4952.372	93.455	4002 TB
18	5033.829	4950.732	92.759	3620 WE
19	5031.359	4987.526	103.805	3301 TOP RAIL
20	5031.738	4986.47	101.006	3119 TOP ABUT
21	5039.809	4982.855	99.925	3201 SEAT - CRUTCH BENT
22	5055.811	4974.513	99.928	3201 SEAT - CRUTCH BENT
23	5063.652	4970.361	100.975	3119 TOP ABUT
24	5064.758	4970.249	103.772	3301 TOP RAIL
25	5060.042	4957.085	93.053	3620 WE
26	5063.649	4955.201	94.884	4002 TB
27	5066.962	4934.095	93.798	4002 TB
28	5065.025	4931.982	92.38	3620 WE
29	5079.055	4997.566	103.768	3301 TOP RAIL
30	5078.395	4998.039	101.01	3119 TOP ABUT
31	5070.515	5002.015	99.863	3201 SEAT - CRUTCH BENT
32	5054.396	5010.594	99.857	3201 SEAT - CRUTCH BENT
33	5046.631	5014.547	101.04	3119 TOP ABUT
34	5045.532	5014.952	103.801	3301 TOP RAIL
35	5047.786	5013.472	95.009	4000 BOTTOM ABUT
36	5048.611	5012.856	94.852	4000 BRIDGE OPENING
37	5050.634	5012.071	92.638	3620 WE
38	5054.871	5010.073	91.115	6043 BED
39	5062.392	5006.594	90.218	6043 BED @ PIER
40	5069.491	5002.586	89.575	6043 BED
41	5073.833	5000.524	89.935	6043 BED
42	5075.607	4999.213	90.574	6043 BED - BRIDGE OPENING
43	5077.925	4998.437	91.643	4000 BOTTOM ABUT
44	5063.162	4970.267	91.356	4000 BOTTOM ABUT
45	5060.974	4971.54	91.376	4000 BRIDGE OPENING
46	5056.363	4974.002	89.986	6043 BED @ PIER
47	5047.857	4978.332	91.067	3620 WE
48	5037.447	4984.058	92.43	4000 BRIDGE OPENING
49	5034.392	4985.578	94.096	4000 BOTTOM ABUT
50	5031.986	4986.429	95.468	4000
51	5026.617	4983.027	96.262	6044 OHW