

NCDOT HYDRAULICS UNIT PREDESIGN-PRESURVEY REPORT

PRE-FIELD SCOPING MEETING RECOMMENDATION:

TIP No.:	B-5507	Let Date:		WBS No.:	55077.1.1	County:	Chowan
Bridge No.:	200020	Road No.:	NC 32	Stream:	Indian Creek (Dillard Creek)		
Bridge Length Recommendation:		1 @ 35', 1 @ 50' 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 0.3 Mile South of SR 1230						
ADT:	2100	ADT Year:	2014	Does 100 Yr. WSEL Overlap Roadway:	NO		
Length(ft):	56.0'	Ex. Structure Depth=1.5'		Bed-To-Crown(ft):	13.3'	Water Depth(ft):	5.2'
Type of Structure:	Continuous Slab on conc. abuts./conc./timber piles with Crutch Bents.						
Type of Spans:	8 @ 7.0' with Crutch Bents (4 @ 14' prior to Rehab)						
Prior Survey Date: (Attach Copy of Prior Survey)	03/1952						
Study by Scour:	11/19/2010	Code:	5				
Flood Zone:	AE	Study Type:		Date:	10/16/2008	Panel No.:	6980
BM Info:							
Quad Map:	Valhalla	Drainage Area:	16.8 Sq. Mi.	From:	Quad/Streamstats/DASS		
Q25:	1360 CFS	Q50:	1680 CFS	Q100:	2030 CFS	Method:	USGS SIR 2009-5158

HIGH WATER INFORMATION:

Division Bridge and County Maintenance High Water Observations:	
Local Users High Water Observations:	Ron Parr- Never over Road- 12 years of knowledge. Highest seen was Hurricane Isabell (2003) and the water did not reach the bridge.

OTHER STRUCTURES:

Upstream Structure Description:	NA- No equivalent comparison		
Location:	NA		
Bed-To-Crown:	NA	Prior Survey Date:	
Downstream Structure Description:	200013--1@55', 1@56', 1@55' PS Cored Slab		
Location:	Located on SR 1226 0.7 Mile West of SR 1222		
Bed-To-Crown:	10.3	Prior Survey Date:	3/20/2006

ENVIRONMENTAL:

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

Notes:

FEMA- No model- Flood Source is Chowan River
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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: **Recommended: 1@35', 1@50', 36" PS Girder**

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

EXISTING FOUNDATION REPORTS? **NO** IF SO, ATTACH.

KNOWN GEOLOGICAL FEATURES IN AREA WHICH MAY AFFECT DESIGN **NONE**

ARE PERMITS NEEDED FOR INVESTIGATIVE WORK AT SITE **NO** COMMENTS:

ARE THERE ANY HISTORICAL AND / OR VIBRATION SENSITIVE STRUCTURES NEAR BY **NO** COMMENTS:

ARE THERE ANY KNOWN LANDFILLS AND / OR GEOENVIRONMENTAL HAZARD SITES AT OR WITHIN CLOSE PROXIMITY TO THE PROJECT SITE **NO** COMMENTS:

DEPTH OF WEATHERED ROCK OR ROCK BELOW STREAMBED **N/A (FT.)**

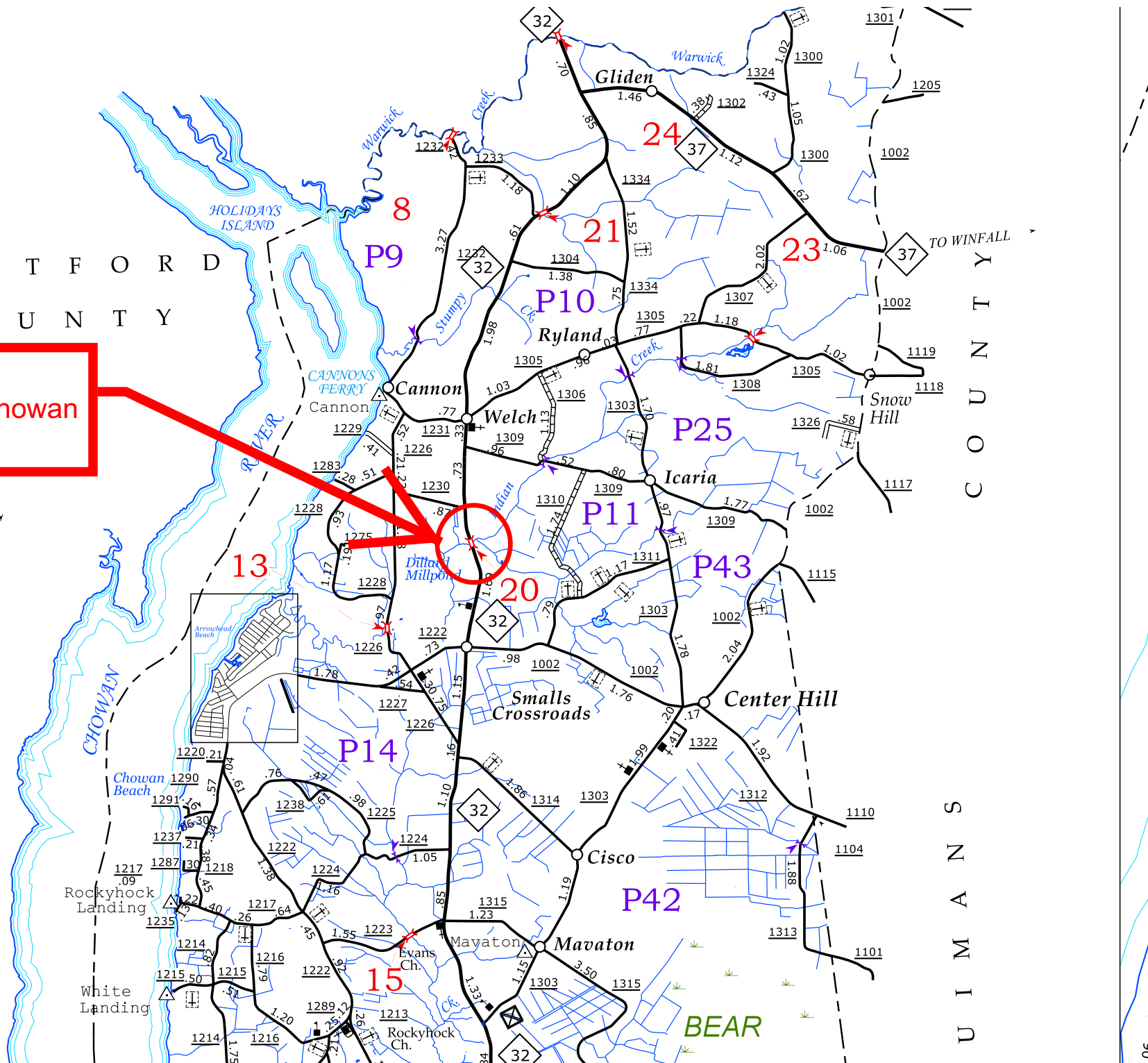
ARE ANY IMPACTS ANTICIPATED TO NATURAL SPRINGS OR ARTESIAN WELLS **NO** COMMENTS:

POSSIBLE FOUNDATION TYPE: **PILES**

H E R T F O R D
C O U N T Y

200020
B-5507 Chowan

C O U N T Y



TO WINFALL
C O U N T Y
U I M A N S



NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE MANAGEMENT UNIT

ATTENTION

PRIORITY MAINTENANCE ISSUED (PILE 4 AT BENT 2)
SHORED STRUCTURE

BRIDGE INSPECTION REPORT

INSPECTION TYPE: Routine Inspection

COUNTY CHOWAN BRIDGE NUMBER 200020 INSPECTION CYCLE 2 YRS
ROUTE NC32 ACROSS DILLARD CREEK M.P. 0

LOCATION 0.3 MI S JCT SR 1230.

SUPERSTRUCTURE MONOLITHIC SLAB

SUBSTRUCTURE ABUTS:RC,BTS1&3RC CAP/TIM.PILE;BTS2&4:RC PIER;STL.CRUTCH BTS

SPANS 8@7'CONTINUOUS

LONGITUDE 76° 39' 18.00"

LATITUDE 36° 14' 37.97"

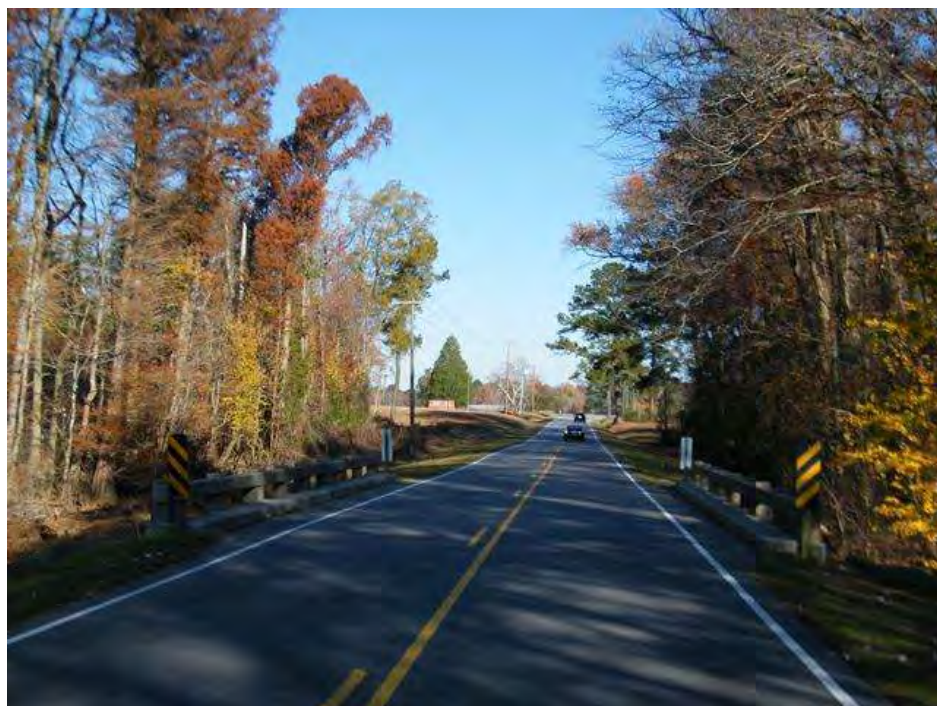
INSPECTION DATE 11/21/2012

PRESENT CONDITION FAIR

PRESENT POSTING N **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	200020		SUFFICIENCY RATING =	17.73
(8) STRUCTURE NUMBER(FEDERAL)		00000000410020		STATUS =	Structurally Deficient
(5) INVENTORY ROUTE (ON/UNDER) - ON		31000320			
(2) STATE HIGHWAY DEPARTMENT DISTRICT		3			
(3) COUNTY CODE	41	(4) PLACE CODE	0		
(6) FEATURE INTERSECTED -	DILLARD CREEK				
(7) FACILITY CARRIED	NC32				
(9) LOCATION	0.3 MI S JCT SR 1230.				
(11) MILEPOINT		0			
(16) LAT	36° 14' 37.97"	(17) LONG	76° 39' 18.00"		
(98) BORDER BRIDGE STATE CODE		PCT SHARE			
(99) BORDER BRIDGE STRUCTURE NO					
STRUCTURE TYPE AND MATERIAL				CLASSIFICATION	
(43) STRUCTURE TYPE MAIN:	Concrete continuous			(112) NBIS BRIDGE SYSTEM -	YES
TYPE -	Slab	CODE	201	(104) HIGHWAY SYSTEM	Is not on NHS 0
(44) STRUCTURE TYPE APPR :				(26) FUNCTIONAL CLASS -	Minor Arterial 06
TYPE -		CODE	000	(100) STRAHNET HIGHWAY -	Not a STRAHNET Route 0
(45) NUMBER OF SPANS IN MAIN UNIT			8	(101) PARALLEL STRUCTURE -	No Parallel Structure N
(46) NUMBER OF APPROACH SPANS				(102) DIRECTION OF TRAFFIC -	2-way Traffic 2
(107) DECK STRUCTURE TYPE -	1	CODE		(103) TEMPORARY STRUCTURE -	Temporary Structure/Conditions T
(108) WEARING SURFACE / PROTECTIVE SYSTEM :				(110) DESIGNATED NATIONAL NETWORK -	Not on the National Network 0
(A) TYPE OF WEARING SURFACE -		CODE		(20) TOLL	On Free Road 3
(B) TYPE OF MEMBRANE -		CODE		(31) MAINTAIN -	State Highway Agency 01
(C) TYPE OF DECK PROTECTION -		CODE		(22) OWNER -	State Highway Agency 01
				(37) HISTORICAL SIGNIFICANCE -	Not Eligible 5
				CONDITION	
				(58) DECK	5
				(59) SUPERSTRUCTURE	5
				(60) SUBSTRUCTURE	4
				(61) CHANNEL & CHANNEL PROTECTION	5
				(62) CULVERTS	N
				LOAD RATING AND POSTING	
				(31) DESIGN LOAD	H 15 2
				(63) OPERATING RATING METHOD -	Load Factor
				(64) OPERATING RATING -	HS-1 101
				(65) INVENTORY RATING METHOD -	Load Factor
				(66) INVENTORY RATING -	HS-1 101
				(70) BRIDGE POSTING -	No Posting Required 5
				(41) STRUCTURE OPEN, POSTED ,OR CLOSED	D
				DESCRIPTION -	Open Temporary Shoring
				APPRAISAL	
				(67) STRUCTURAL EVALUATION	3
				(68) DECK GEOMETRY	3
				(69) UNDERCLEARANCES, VERTI & HORIZ	N
				(71) WATERWAY ADEQUACY	7
				(72) APPROACH ROADWAY ALIGNMENT	8
				(36) TRAFFIC SAFETY FEATURES	0000
				(113) SCOUR CRITICAL BRIDGES	5
				PROPOSED IMPROVEMENTS	
				(75) TYPE OF WORK -	CODE
				(76) LENGTH OF STRUCTURE IMPROVEMENT	
				(94) BRIDGE IMPROVEMENT COST	
				(95) ROADWAY IMPROVEMENT COST	
				(96) TOTAL PROJECT COST	
				(97) YEAR OF IMPROVEMENT COST ESTIMATE	
				(114) FUTURE ADT	4800
				(115) YEAR FUTURE ADT	2025
				INSPECTIONS	
				(90) INSPECTION DATE	11/21/2012
				(92) CRITICAL FEATURE INSPECTION :	(93) CFI DATE
				A) FRACTURE CRIT DETAIL -	NO A)
				B) UNDERWATER INSP -	YES 48Mo B) 02/15/2010
				C) OTHER SPECIAL INSP	NO C)
				SCOUR	
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		
(30) YEAR OF ADT	2011	(109) TRUCK ADT PCT	8%		
(19) BYPASS OR DETOUR LENGTH			5 MI		
GEOMETRIC DATA					
(48) LENGTH OF MAXIMUM SPAN			7 FT		
(49) STRUCTURE LENGTH			56 FT		
(50) CURB OR SIDEWALK: LEFT	1.5415 FT	RIGHT	1.5415 FT		
(51) BRIDGE ROADWAY WIDTH CURB TO CURB			26.25 FT		
(52) DECK WIDTH OUT TO OUT			27.833 FT		
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS)			20 FT		
(33) BRIDGE MEDIAN -	No Median	CODE	0		
(34) SKEW	0°	(35) STRUCTURE FLARED	0		
(10) INVENTORY ROUTE MIN VERT CLEAR			999.9 FT		
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR			26.25 FT		
(53) MIN VERT CLEAR OVER BRIDGE RDWY			999.9 FT		
(54) MIN VERT UNDERCLEAR REF	Not a Highway or Railroad		0 FT		
(55) MIN LAT UNDERCLEAR RT REF	Not a Highway or Railroad		000 FT		
(56) MIN LAT UNDERCLEAR LT REF -			000 FT		
NAVIGATION DATA					
(38) NAVIGATION CONTROL -	No Navigational Control	CODE	0		
(111) PIER PROTECTION -		CODE			
(39) NAVIGATION VERTICAL CLEARANCE			0		
(116) VERT - LIFT BRIDGE NAV MIN VERT CLEAR			FT		
(40) NAVIGATION HORIZONTAL CLEARANCE			0 FT		

BRIDGE MANAGEMENT UNIT

DATA ON EXISTING STRUCTURE

Run Date: 01/24/2013

COUNTY :	DIVISION :	DISTRICT :	STRUCTURE NUMBER :	LENGTH :	
CHOWAN	1	3	200020	56	FEET

ROUTE CARRIED :	FEATURE INTERSECTED :
NC32	DILLARD CREEK

LOCATED :	BRIDGE NAME :	CITY :
0.3 MI S JCT SR 1230.		

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	114	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		12 FT		6		FT

SUPERSTRUCTURE :	MONOLITHIC SLAB
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SUBSTRUCTURE :	ABUTS:RC,BTS1&3RC CAP/TIM.PILE;BTS2&4:RC PIER;STL.CRUTCH BTS
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SPANS :	8@7'CONTINUOUS
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BEAMS OR GIRDERS :	MONOLITHIC SLAB
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FLOOR :	ENCROACHMENT :	DECK (OUT TO OUT) :
10.5 RC/3 AWS		27.833 FT

CLEAR ROADWAY :	BETWEEN RAILS :	SIDEWALK OR CURB :
26.25 FT	29.333 FT	LT 1.5415 FT RT 1.5415 FT

VERT.CL.OVER :
999.9 FT

INV.RTG. :	OPE.RTG. :	CONTR.MEMBER :	POSTED :		DATE
HS-1	HS-1	mono slab	SV	TTST	04/10/1995

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

UNDER ROUTES AND CLEARANCES

REMARKS :

Structure Data Worksheet

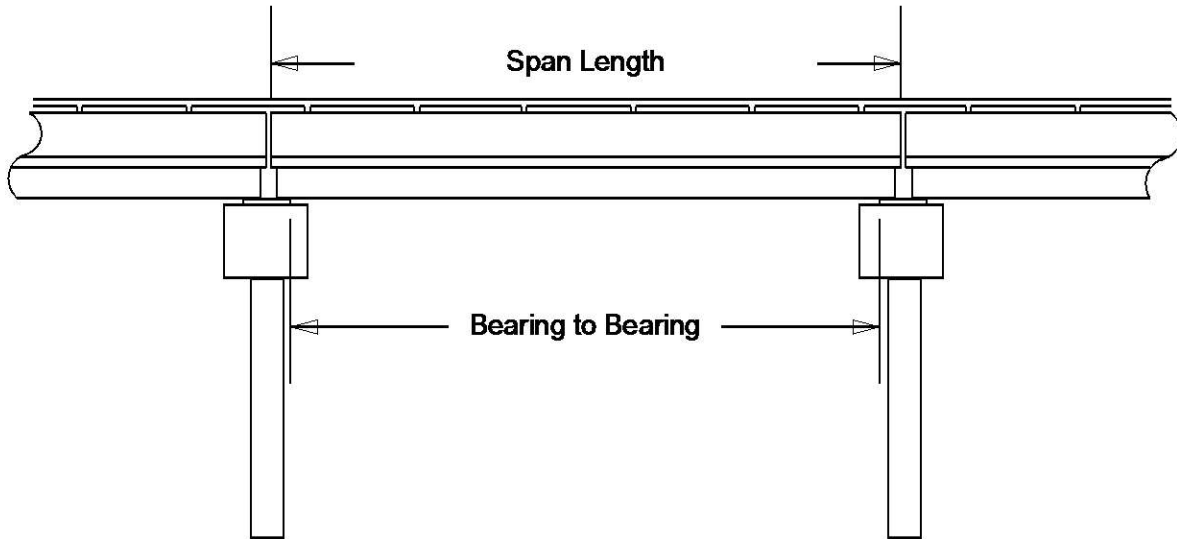
Spans

County: CHOWAN

Structure No: 200020

Date: 11/21/2012

Inspected By: ZSD



Span No	Span Length	Bearing to Bearing	Comments
1	7'	6.5'	
2	7'	7'	
3	7'	7'	
4	7'	5'	
5	7'	7'	
6	7'	7'	
7	7'	7'	
8	7'	6.5'	

Stream Bed Soundings

(See next sheet for profile sketch)

Bridge No: 200020 County: CHOWAN Date: 11/21/2012 By: ZSD

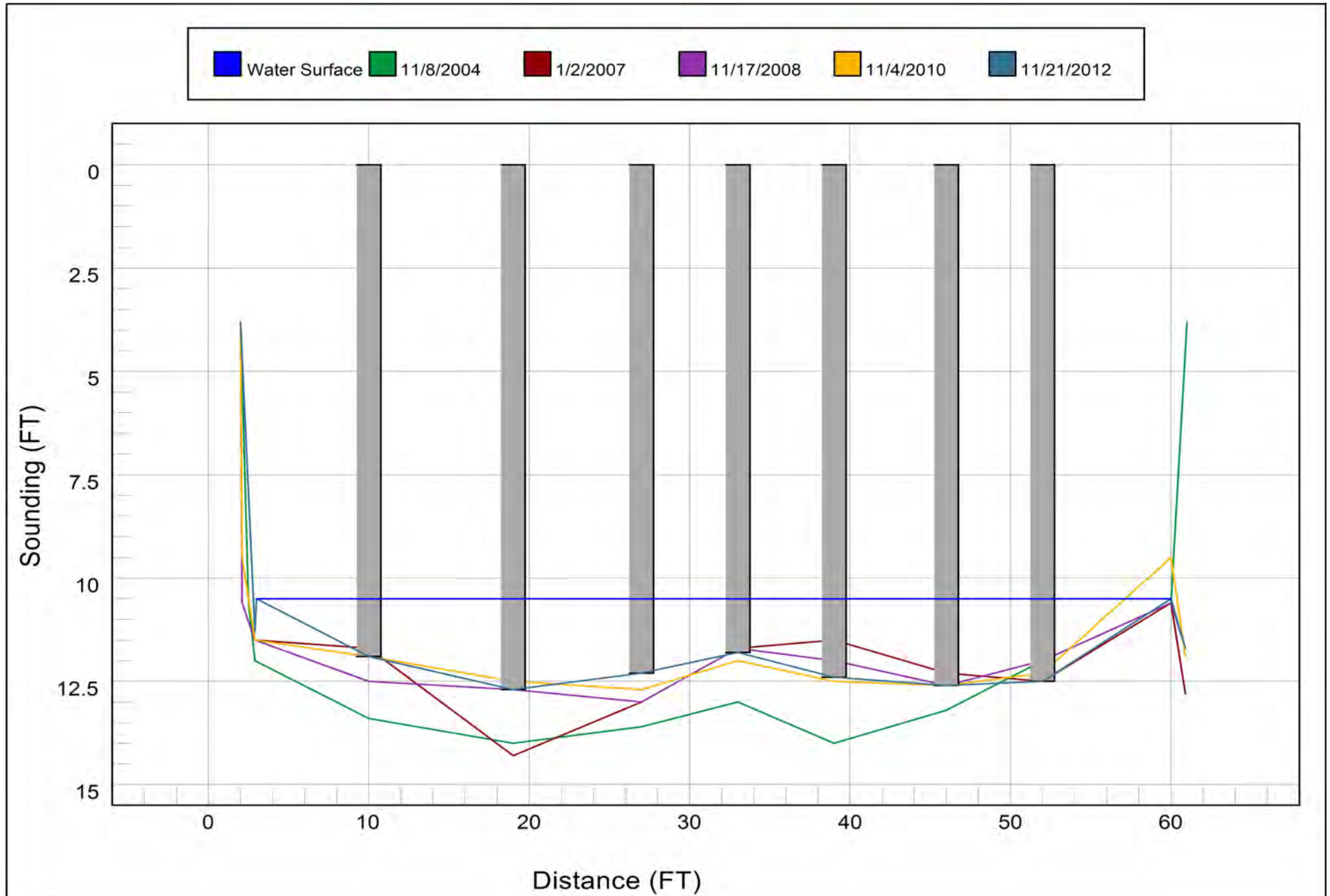
Record sounding from top of rail. Other location if needed: _____

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	3.8	TOP OF CAP			
2.9	11.3	ABUT1	2.9	11.6	ABUT1
3	10.5	WSWE			
10	11.9	BENT1	10	10.9	BENT1
19	12.7	BENT 2	19	13.6	BENT 2
27	12.3	BENT 3	27	14.4	BENT 3
33	11.8	BENT 4	33	14.9	BENT 4
39	12.4	BENT 5	39	14.2	BENT 5
46	12.6	BENT 6	46	14.4	BENT 6
52	12.5	BENT 7	52	14.7	BENT 7
60	10.5	WSWE			
60.9	11.7	ABUT2	60.9	13.5	ABUTMENT 2

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: 200020

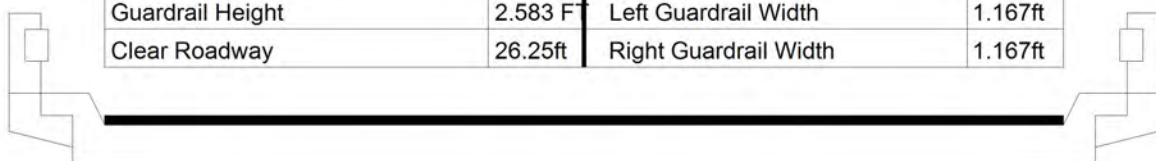
Drawn By: GLH

Date: 11/21/2012

File Name: S0034000147

Bridge Inspection Field Sketch

Out to Out	27.833ft	Wearing Surface	0.25ft
Between Rails	29.333ft	Median Width	
Curb Height	0.6667	Median Height	
Guardrail Height	2.583 F	Left Guardrail Width	1.167ft
Clear Roadway	26.25ft	Right Guardrail Width	1.167ft



Measurements for Span #	1		
Deck Thickness	0.875	Left Overhang	
Top of Rail to Bottom of Beam	3.417	Right Overhang	

Title

TYPICAL SECTION

Description

TYPICAL SECTION

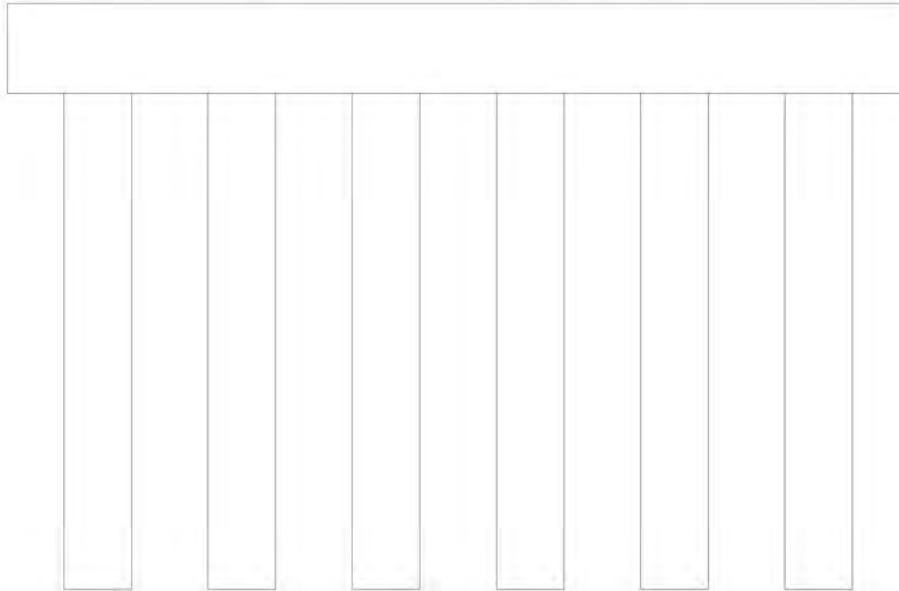
Bridge No: 200020

Drawn By: GLH

Date: 11/21/2012

File Name: S0034000148

Bridge Inspection Field Sketch



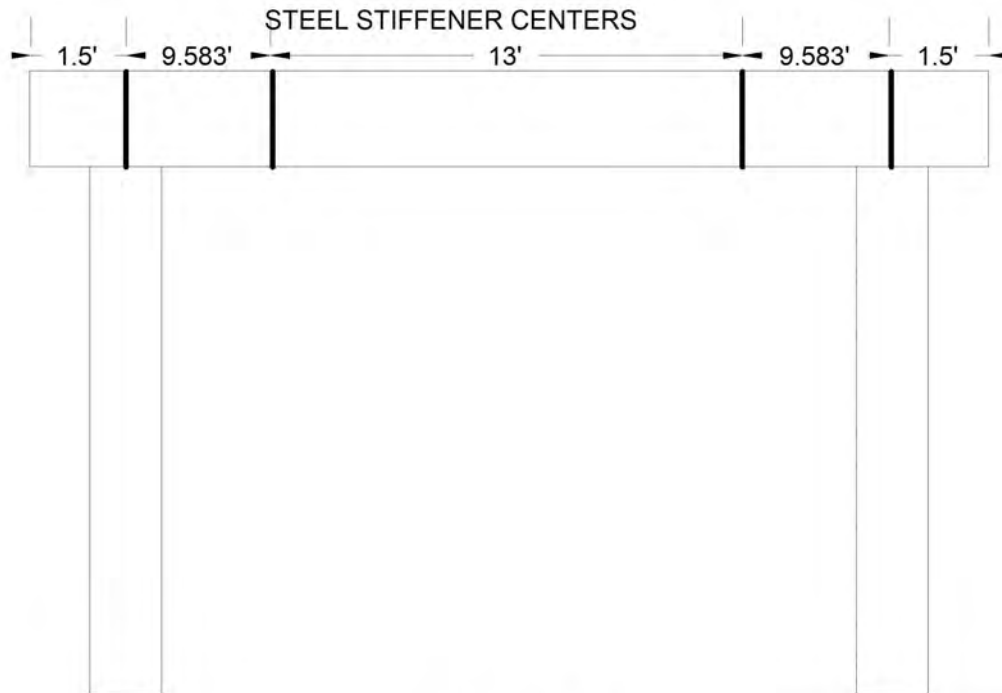
Bent #	2	Bents 6 similar	
Cap - Pre-Cast			
Cap Size	28.333ft Long	2.25ft Wide	2.083ft High
Left Overhang	1.417ft		
Right Overhang	1.417ft		

Pile #	Material	Pile Type	Spacing	Length	Width/Diam.	Height	Orientation
1	Wood or Timber	Pile Bent	4.5 ft		1.417 ft		Vertical
2	Wood or Timber	Pile Bent	5 ft		1.417 ft		Vertical
3	Wood or Timber	Pile Bent	5 ft		1.417 ft		Vertical
4	Wood or Timber	Pile Bent	5 ft		1.417 ft		Vertical
5	Wood or Timber	Pile Bent	6 ft		1.417 ft		Vertical
6	Wood or Timber	Pile Bent			1.417 ft		Vertical

ABUTMENT 1 AND 2 ARE REINFORCED CONCRETE
 PIER 4 IS REINFORCED CONCRETE
 PILE 1 AND PILE 6 ARE ENCASED WITH CONCRETE 2' AROUND AT BENT 6
 PILE 6 AT BT2 ENCASED .

Title		Description	
BT2 ABND BT6 SUBSTRUCTURE		PILE DIAGRAM FOR BENT 2 AND BENT 6	
Bridge No: 200020	Drawn By: GLH	Date: 11/21/2012	File Name: S0034000149

Bridge Inspection Field Sketch



Bent #	1	Bents 3,5,7 similar	
Cap - Beam Type (Wood or Steel)			
Cap Size	35.5ft Long	1ft Wide	2.75ft High
Left Overhang	1.5ft		
Right Overhang	1.5ft		

Pile #	Material	Pile Type	Spacing	Length	Width/Diam.	Height	Orientation
1	Steel	Pile Bent	32.5 ft		1 ft		Vertical
2	Steel	Pile Bent			1 ft		Vertical

Title

BENT 1, 3, 5, AND 7 SUBST.

Description

PILE DIAGRAM FOR BENTS 1,3,5, AND 7

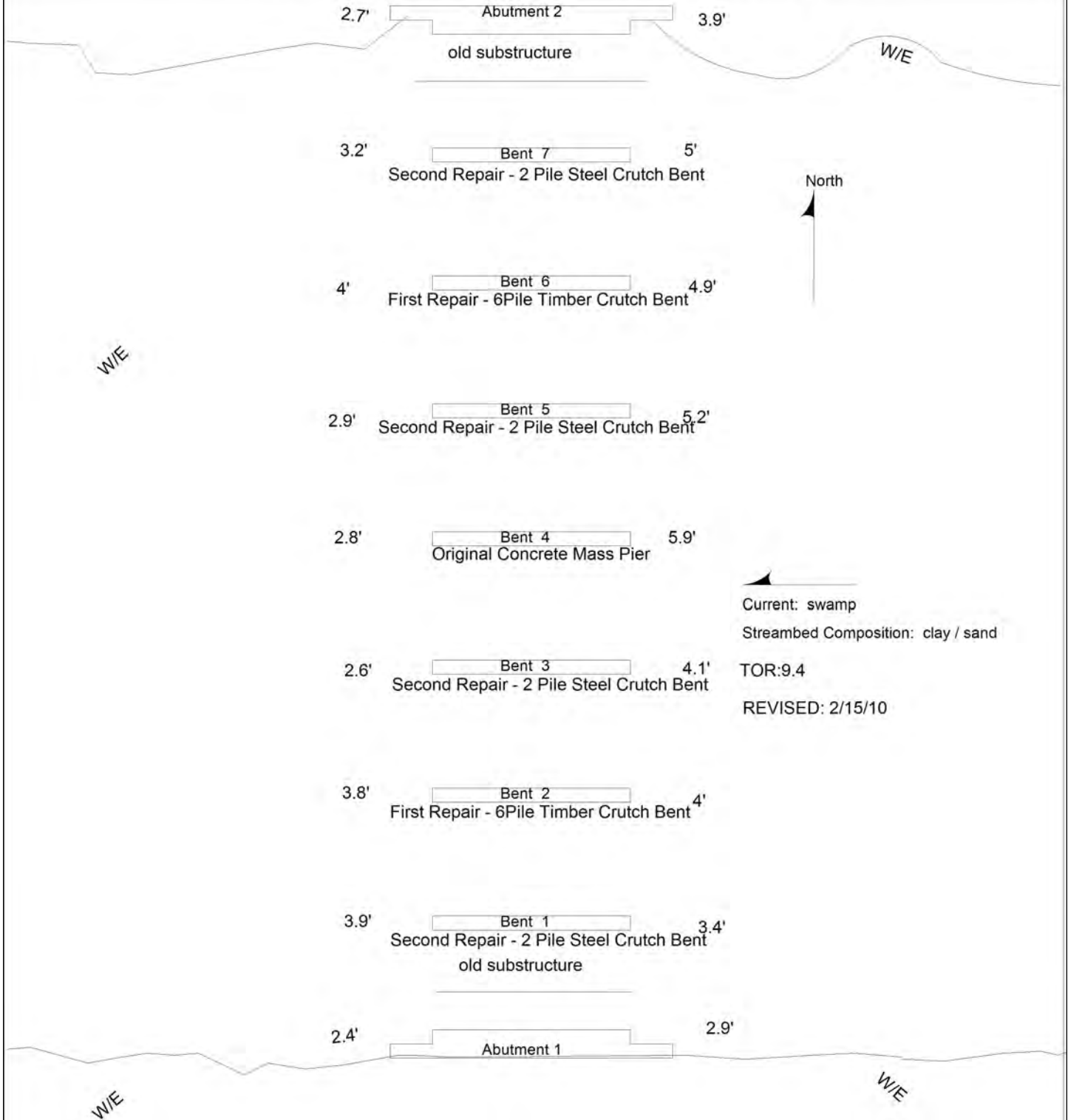
Bridge No: 200020

Drawn By: GLH

Date: 11/21/2012

File Name: S0034000150

Bridge Inspection Field Sketch



Title

Chowan 20 Plan View

Description

Channel Plan View

Bridge No: 200020

Drawn By: Bk

Date: 02/08/2006

File Name: S0170000057



North Bridge End



South Bridge End



Downstream



Upstream



Upstream Face



Upstream Face 2



Downstream 2



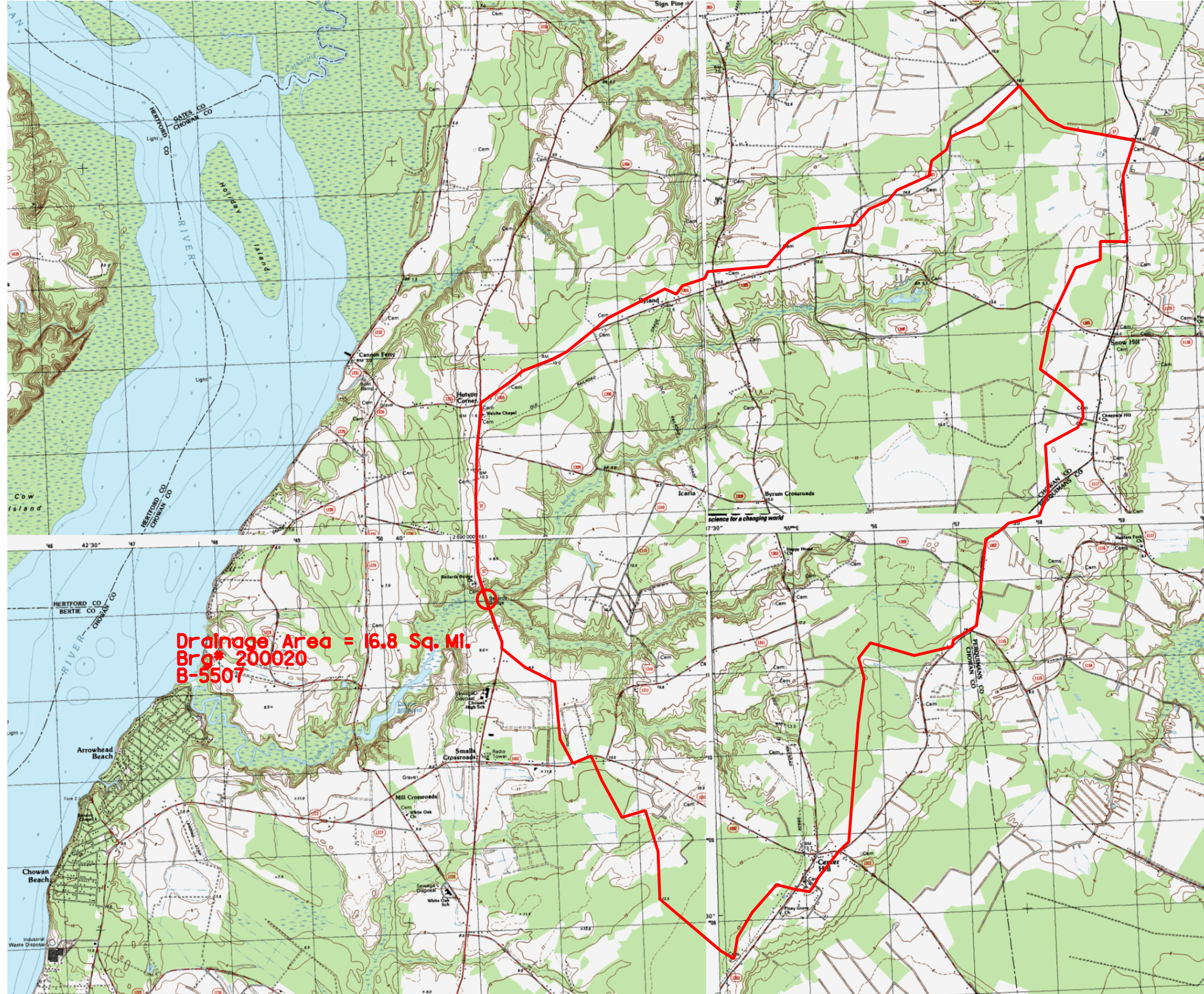
Downstream Face



Look North



Look South



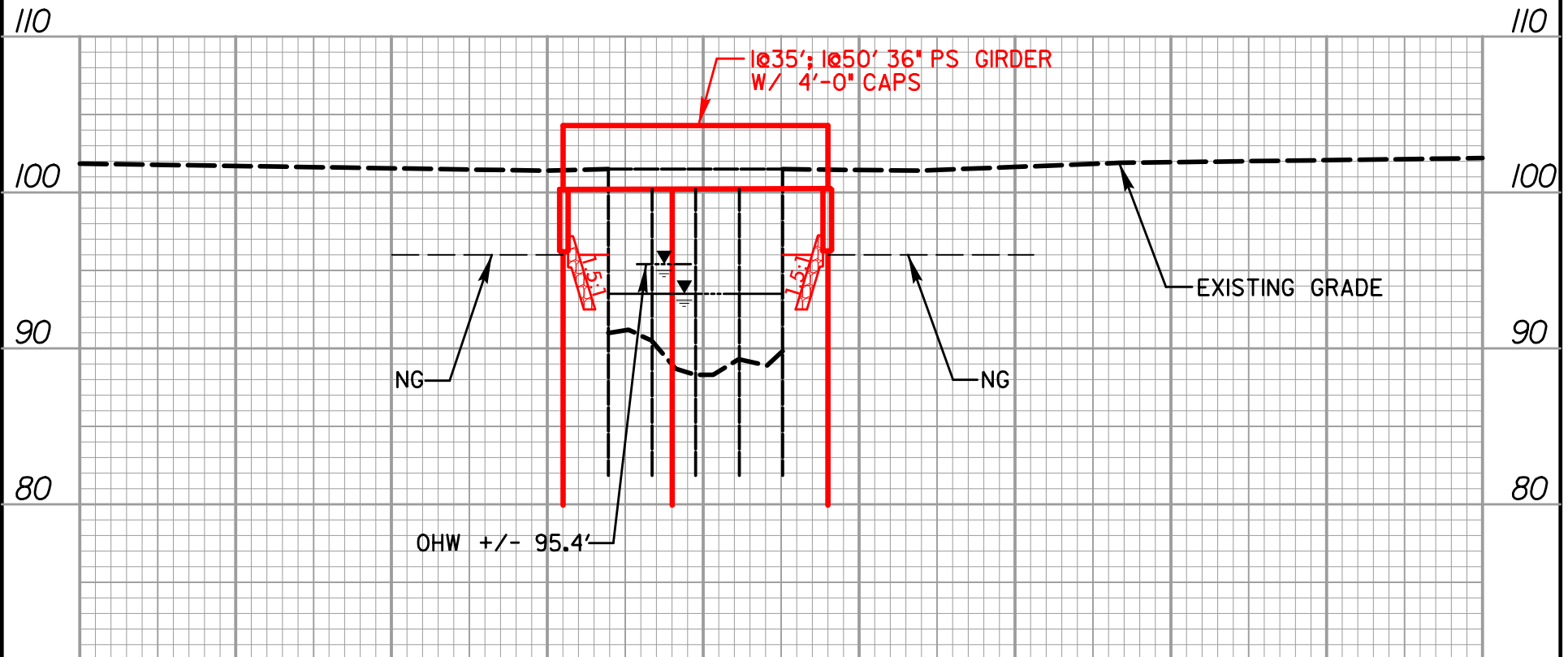
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I.D. No.: B-5507

COUNTY: CHOWAN

BRIDGE No.: 200020

HYDRAULIC SKETCH – PROFILE VIEW



PROVIDE 5.0' BENCH AT EL. 96.0' ON EACH SIDE OF CHANNEL.
 SWAMP SURROUNDS BRIDGE.
 $56' + 2[5 + 1.5(5.5)] = 82.5'$ SAY 85'
 $1@35'; 1@50'$ TO OFFSET EXISTING BENT BY 5.0'
 PROPOSED SUPERSTRUCTURE DEPTH: $4.0'(\text{FIG. 6-I}) + .02(16.5') = 4.3'$
 MAINTAIN EX. LOW STEEL, RAISE GRADE $\pm 2.8'$

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

I.D. No.: B-5507

COUNTY: CHOWAN

BRIDGE No.: 200020

PRELIMINARY DESIGN AND ASSESSMENT
STREAM CROSSING AND ENCROACHMENTS

COUNTY Chowan

PROJECT# B-5507-#20

STREAM Indian Creek

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 _990_cfs EST. BKWTR. _____ FT. Q25 _1360_cfs EST. BKWTR. _____ FT.

Q50 _1680_cfs EST. BKWTR. _____ FT. Q100 _2030_cfs EST. BKWTR. _____ FT.

Q500 _2850_cfs OR OVERTOPPING CFS EST. BKWTR. _____ FT.

DRAINAGE AREA _16.8 Sq. Mi. _____ METHOD USED TO COMPUTE Q _USG 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: ___Agriculture/Swamp___

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 _____ EI 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 (BMU) 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 @ 35', 1 @ 50' 36" PSCG W/ 4.0' Caps _____

DETOUR STRUCTURE _____ +/- 80" Bridge on West Side _____

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

BRIDGE WATERWAY OPENING _____ >705 Sq. Ft. _____ CULVERT OPENING _____

WERE OTHER HYDRAULIC ALTERNATIVES CONSIDERED? YES _____ NO ☒ _____

DISCUSSION: _____

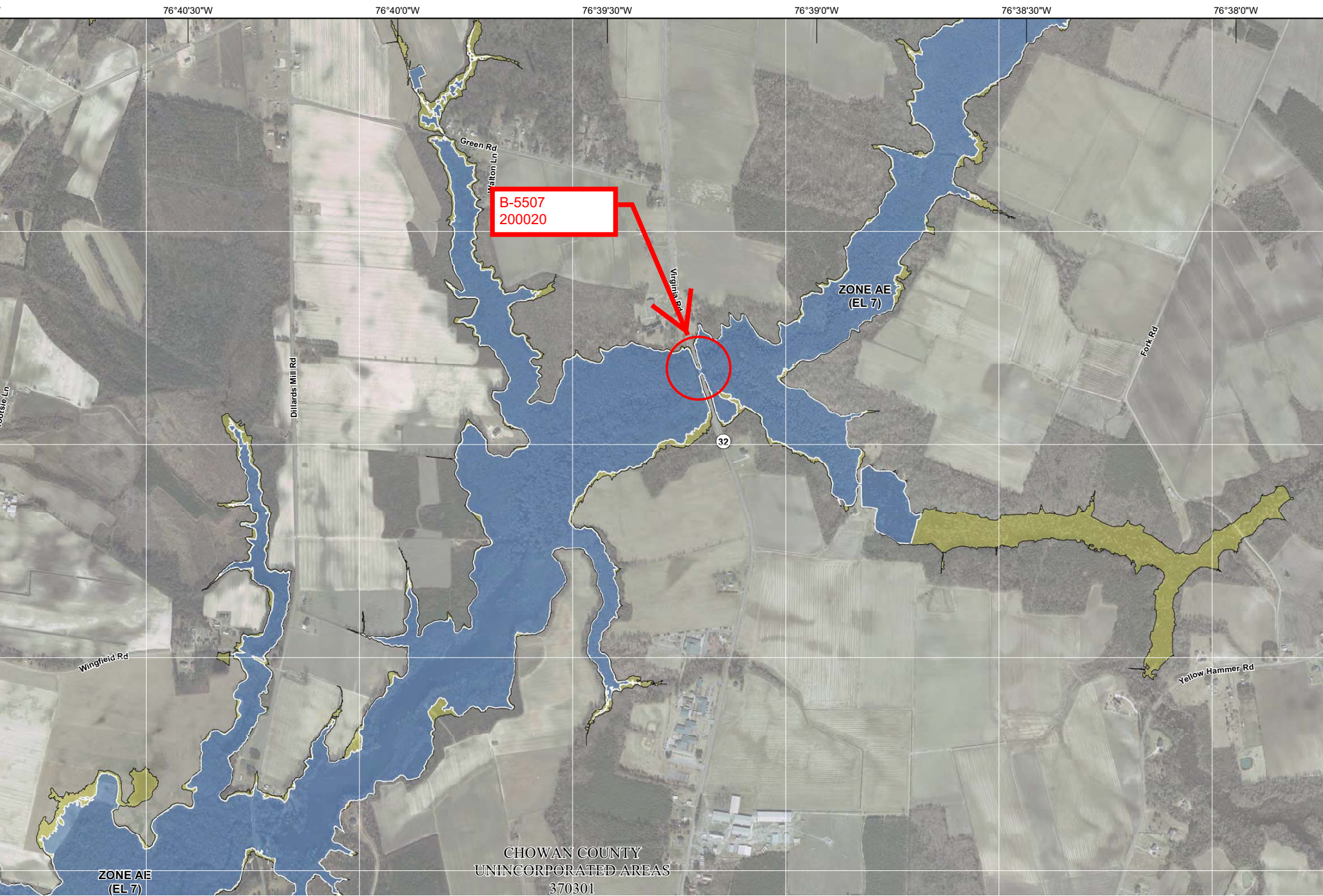
THIS SITE ASSESSMENT INDICATES THE DESIGN SHOULD FOLLOW:

(1) ☒ NORMAL PROCESS

(2) _____ NORMAL PROCESS WITH SPECIAL SPECIFIC CONSIDERATION FOR

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

ADDRESSING: _____



B-5507
200020

ZONE AE
(EL 7)

ZONE AE
(EL 7)

CHOWAN COUNTY
UNINCORPORATED AREAS
370301

Drainage Area 18 SQ MI. Obtained from SOIL MAP

Character of Drainage Area FLAT SWAMPY

Waterway Required by Formula 240 Sq. Ft. Formula Used TAL 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 2 @ 26' RECTG 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 CRACK IN ABUTTS & PIERS SHOW SOME

DETERIORATION BELOW USUAL HW FROM ACIDITY

OF WATER.

20 0020 1952 NO TIP DILLARDS CR NC 32 WO_1143.PDF

BR# 20

DILLARDS CREEK

BRIDGE DEPARTMENT

N. C. STATE HIGHWAY & PUBLIC WORKS COMMISSION

RALEIGH, N. C.

BRIDGE SURVEY REPORT

PROJECT NO. 1143, CHOWAN COUNTY, STA. 133+60 OLD PROJ.

BRIDGE OVER DILLARDS CREEK Known as BR# 20

On NC 32 between EDENTON and SUNBURY

Recommended Width of Roadway 26' Skew 90°

Recommended Structure SUPERSTRUCTURE ON PRESENT 2 @ 26' $\pm$

CLEAR SPAN RECTG. TO BE REPLACED, AND

SUBSTRUCTURE TO BE EXTENDED AS REQUIRED

FOR WIDER RDWY

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 13.4 $\pm$ miles.

Elevations From B. M. NAIL IN BASE 12" GUM 40' LT. 0+00 Elev. 95.83

(ON ORIG. 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. REDGERTON Assisted by F. MC & J. L. H. Date MAR 52

28-06

1+50

2000
Remedy

2+00

2+50

3+00

Use 733+60

for Seat 97.57
 $\frac{1.25}{96.32}$ air-off shear
 33.00 - Allowing 2' cut off
 $\frac{63.32}{}$

TOP WING RT. EL. 98.47
 TOP WING LT. EL. 98.46
 BR. SEAT RT. EL. 97.30
 BR. SEAT LT. EL. 97.29
 TIP WING RT. EL. 91.21
 TIP WING LT. EL. 90.91

TOP PIER RT. EL. 97.29
 TOP PIER LT. EL. 97.29

TOP FIG. EL. 86.9

TOP FIG. EL. 88.4

TOP FIG. EL. 87.0

TOP WING RT. EL. 98.42
 TOP WING LT. EL. 98.51
 BR. SEAT RT. EL. 97.25
 BR. SEAT LT. EL. 97.34
 TIP WING RT. EL. 91.20
 TIP WING LT. EL. 90.65

FOR ADDITIONAL DETAIL
 SEE ORIGINAL PLANS
 PROJ. 114 STA. 733+60

FOUNDATIONS ARE ON
 UNTR. TIM. PILES
 AVERAGE LENGTH 18.0'

W.S. 3-12-32 EL. 93.8
 (+ 2.0' ABOVE NORMAL)

Flow 92.05 Normal W.S.

← TO EDENTON

TO SUNBURY →

18' BST
 (TO BE WIDENED TO 22' BY STATE FORCES)

20

SCALE 1" = 10'

A
 $\frac{86.7}{1.25}$
 $\frac{85.65}{1.5}$
 $\frac{19.56}{68.07}$
 MIN
 $\frac{85.65}{1.5}$
 $\frac{70.65}{}$
 MAX

Bier
 $\frac{88.4}{1.25}$
 $\frac{87.15}{1.5}$
 $\frac{21.25}{65.90}$
 MIN
 $\frac{87.15}{1.5}$
 $\frac{72.57}{}$
 MAX

88.4
 $\frac{1.25}{87.15}$

B
 $\frac{85.65}{1.58}$
 $\frac{69.65}{71.07}$
 MIN
 MAX

FLOW

DILLARDS CREEK

TEL. LINE

96.20

96.20

96.83
 94.42
 91.75

98.78 = Crown proposed

98.46

98.70

98.67

98.31

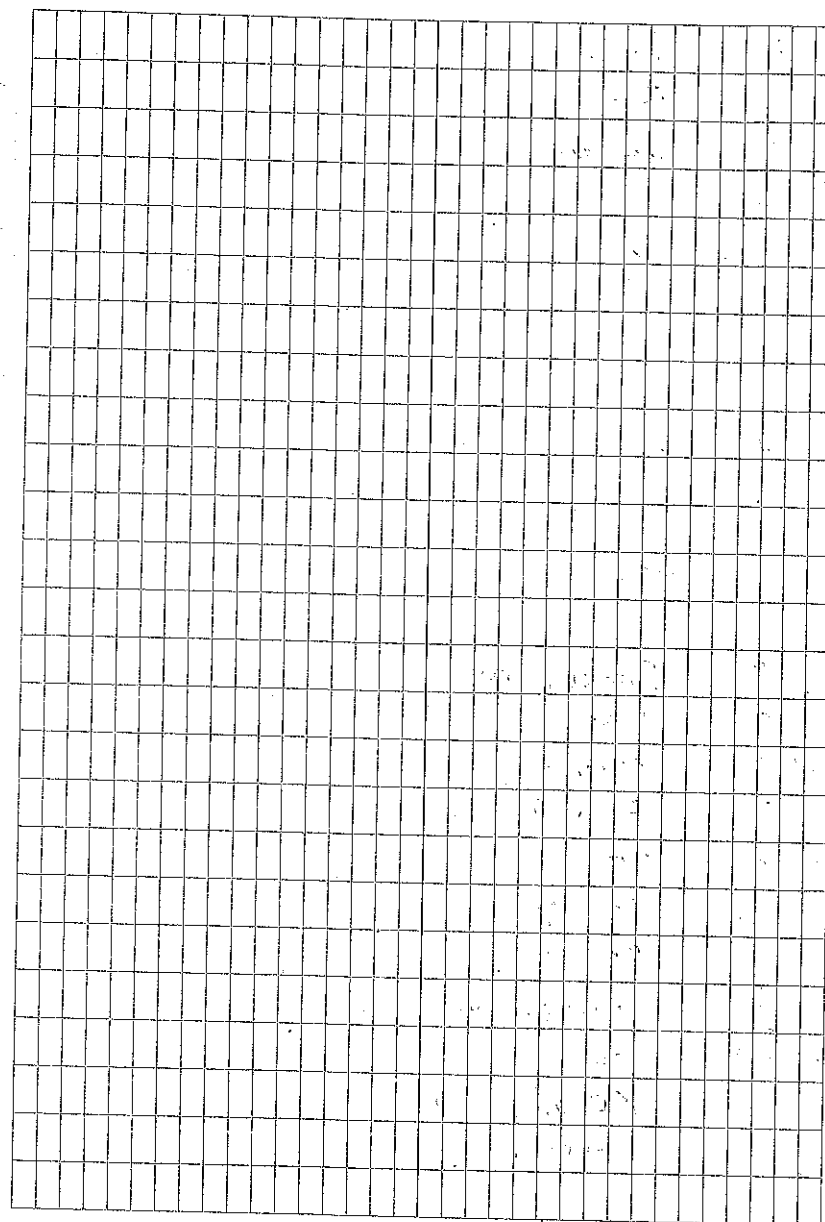
B-55071-20
 CHOWAN COUNTY
 1/20/2015
 SUNNY 60°

9 FEE
 TR B/R

②

H1	5.17				
1	OCUPY PT				
2	BOD BS				
3	EOB				
10	CL				
11	CL				
12	CL				
13	CL				
14	CL				
15	TOP RAIL				
16	TOP ABUT				
17	CRUIT/SEAT				
18	CRUIT/SEAT				
19	CRUCH/SEAT				
20	CRUCH/SEAT				
21	TOP ABUT				
22	TOP RAIL				
23	TOP RAIL				
24	TOP ABUT				
25	CRUCH/SEAT				
26	CRUIT/SEAT				
27	CRUIT/SEAT				
28	CRUCH/SEAT				
29	TOP ABUT				

③



6

61	BoA			
62	BRIDGE OPENING			
63	BED			
64	BED @ PIER			
65	BED			
66	BED @ PIER			
67	BED			
68	BED @ PIER			
69	BED			
70	BRIDGE OPENING			
71	BoA			

1	5000	5000	100	4020 Nail-1
2	5043.359	5000	101.532	3008 BOB CL
3	5093.288	5025.201	101.534	3008 EOB CL
10	5190.037	5073.072	101.884	3008 CL ROAD
11	5326.043	5140.073	102.264	3008 CL ROAD
12	5132.532	5044.415	101.447	3008 CL ROAD
13	5024.905	4991.114	101.436	3008 CL ROAD
14	4878.055	4918.744	101.911	3008 CL ROAD
15	5033.163	5012.166	103.932	3301 TOP RAIL
16	5034.627	5013.177	101.137	3119 TOP ABUT
17	5041.3	5016.645	100.231	3201 SEAT - CRUTCH BENT
18	5054.877	5023.503	100.224	3201 SEAT - CRUTCH BENT
19	5067.376	5029.777	100.206	3201 SEAT - CRUTCH BENT
20	5081.158	5036.639	100.263	3201 SEAT - CRUTCH BENT
21	5088.114	5040.131	101.134	3119 TOP ABUT
22	5089.37	5040.502	103.908	3301 TOP RAIL
23	5103.169	5012.93	103.942	3301 TOP RAIL
24	5102.208	5012.335	101.083	3119 TOP ABUT
25	5095.344	5008.761	100.162	3201 SEAT - CRUTCH BENT
26	5081.576	5001.751	100.18	3201 SEAT - CRUTCH BENT
27	5069.138	4995.539	100.142	3201 SEAT - CRUTCH BENT
28	5055.279	4988.534	100.192	3201 SEAT - CRUTCH BENT
29	5047.977	4984.858	101.069	3119 TOP ABUT
30	5046.991	4984.606	103.913	3301 TOP RAIL
31	5043.927	4967.306	95.368	6044 OHW
32	5049.232	4985.642	92.059	4000 BOTTOM ABUT
33	5050.865	4986.178	91.662	6043 BED
34	5053.99	4987.725	89.968	6043 BED
35	5058.945	4990.316	90.033	6043 BED
50	5049.273	4985.805	92.044	4000 BOTTOM ABUT
51	5054.531	4988.072	89.978	6043 BED
52	5050.759	4986.202	91.858	4000 BRIDGE OPENING
53	5063.028	4992.185	90.475	4043 BED @ PIER
54	5070.416	4995.495	90.663	6043 BED
55	5075.478	4998.259	90.629	6043 BED @ PIER
56	5081.039	5001.146	89.938	6043 BED
57	5088.445	5004.448	90.489	6043 BED @ PIER
58	5094.905	5007.72	90.877	6043 BED
59	5100.39	5011.039	91.2	4000 BRIDGE OPENING
60	5101.781	5011.929	91.877	4000 BOTTOM ABUT
61	5087.568	5040.135	89.989	4000 BOTTOM ABUT
62	5086.094	5039.067	89.839	4000 BRIDGE OPENING
63	5081.498	5037.28	88.922	6043 BED
64	5073.478	5033.052	89.315	6043 BED @ PIER
65	5066.282	5029.188	88.254	6043 BED
66	5061.093	5026.959	88.33	6043 BED @ PIER
67	5055.412	5023.981	88.742	6043 BED

68	5048.555	5020.485	90.541	6043 BED @ PIER
69	5042.033	5016.96	91.17	6043 BED
70	5036.642	5014.317	90.951	4000 BRIDGE OPENING
71	5034.732	5013.482	91.018	4000 BOTTOM ABUT