

ID	WBS ELEMENT	SHEET NO.	TOTAL SHEETS
N/A	41732.1	01	12

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO.: 41732.1 F.A. PROJ. N/A
COUNTY: Carteret
PROJECT DESCRIPTION: Bridge No. 6 on NC 58 over Intracoastal
Waterway
SITE DESCRIPTION: _____

CONTENTS

SHEET: DESCRIPTION

- 01 NCDOT STRUCTURE SUBSURFACE TITLE SHEET
- 02 NCDOH GEOTECHNICAL ENGINEERING UNIT SOIL AND ROCK CLASSIFICATION SHEET (pg 1)
- 03 NCDOH GEOTECHNICAL ENGINEERING UNIT SOIL AND ROCK CLASSIFICATION SHEET (pg 2)
- 04 SITE VICINITY MAP
- 05 SITE PLAN
- 06 PROFILE
- 07-08 FINAL NCDOT BORING LOGS
- 09-10 AASHTO SOIL TEST ANALYTICAL RESULTS
- 11-12 SITE PHOTOGRAPHS

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DATE:

September 25, 2008

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

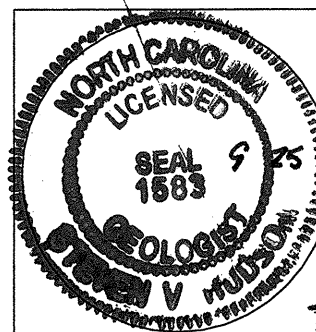
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

DRAWN BY: Steven V. Hudson, LG, CWD



SEAL

[Signature]
SIGNATURE

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS**

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED OR WEATHERED EARTH MATERIALS WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM AND BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:
VERY STIFF, GRAY SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (< 35% PASSING #200)							SILT-CLAY MATERIALS (>35% PASSING #200)							ORGANIC MATERIALS		
	A-1	A-3	A-2		A-4	A-5	A-6	A-7	A-1, A-2, A-3	A-4, A-5, A-6, A-7							
GROUP CLASS.	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7-5	A-7-6						
SYMBOL																	
% PASSING	= 10 = 40 = 200	30 MX 50 MX 51 MN	35 MX 35 MX 35 MX	35 MX 35 MX 35 MX	35 MX 35 MX 35 MX	36 MN 36 MN 36 MN	36 MN 36 MN 36 MN	36 MN 36 MN 36 MN	36 MN 36 MN 36 MN	36 MN 36 MN 36 MN	36 MN 36 MN 36 MN						
LIQUID LIMIT			40 MX 41 MN	40 MX 41 MN	40 MX 41 MN	40 MX 41 MN	40 MX 41 MN	40 MX 41 MN	40 MX 41 MN	40 MX 41 MN	40 MX 41 MN						
PLASTIC INDEX			6 MX	N.P.	10 MX 10 MX	11 MN 11 MN	10 MX 10 MX	10 MX 10 MX	11 MN 11 MN	10 MX 10 MX	11 MN 11 MN						
GROUP INDEX	0	0	0	0	4 MX	8 MX	12 MX	16 MX	NO MX	NO MX	NO MX						
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS GRAVEL AND SAND		FINE SAND		SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS				SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD				FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE						

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS ARE DESIGNATED BY THE TERMS; **ANGULAR SUBANGULAR SUBROUNDED** OR **ROUNDED**

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 30
MODERATELY COMPRESSIBLE	LIQUID LIMIT 31 - 50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GRATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT-CLAY SOILS	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER

WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
 STATIC WATER LEVEL AFTER 24 HOURS
 PERCHED WATER, SATURATED ZONE OR WATER BEARING STRATA
 SPRING OR SEEPAGE

MISCELLANEOUS SYMBOLS

	ROADWAY EMBANKMENT WITH SOIL DESCRIPTION		SPT TEST BORING	S	BULK SAMPLE
	SOIL SYMBOL		AUGER BORING	SS	SPLIT SPOON SAMPLE
	ARTIFICIAL FILL OTHER THAN ROADWAY EMBANKMENTS		CORE BORING	ST	SHELBY TUBE SAMPLE
	INFERRED SOIL BOUNDARIES		MONITORING WELL	RS	ROCK SAMPLE
	INFERRED ROCK LINE		PIEZOMETER INSTALLATION	RT	RECOMPACTED TRIAXIAL SAMPLE
	ALLUVIAL SOIL BOUNDARY		SLOPE INDICATOR INSTALLATION	CBR	CBR SAMPLE
	DIP/DIP DIRECTION OF ROCK STRUCTURES		SPT N-VALUE		
	SOUNDING ROD		SPT REFUSAL		

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE OPENING (mm)	4	10	40	60	200	270
	4.76	2.0	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F. SD.)	SILT (SL.)	CLAY (CL.)
GRAIN SIZE MM 305	75	2.0	0.25	0.05	0.005	
IN. 12	3					

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL - LIQUID LIMIT PL - PLASTIC LIMIT PI - PLASTICITY INDEX	- SATURATED - (SAT)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM - OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL - SHRINKAGE LIMIT	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

ABBREVIATIONS

AR - AUGER REFUSAL	M.A.D. - MID ATLANTIC DRILLING
BLS - BELOW LAND SURFACE	MED. - MEDIUM
BT - BORING TERMINATED	N/A - NOT APPLICABLE
CL - CLAY	NE - NOT ENCOUNTERED
CPT - CONE PENETRATION TEST	NM - NOT MEASURED
CSE - COARSE	PMT - PRESSUREMETER TEST
DMT - DILATOMETER TEST	R.C.P. - RECENT COASTAL PLAIN
DPT - DYNAMIC PENETRATION TEST	SA - SAME AS ABOVE
e - VOID RATIO	SD - SAND, SANDY
F - FINE	SL - SILT, SILTY
FIAD - FILLED IMMEDIATELY AFTER DRILLING	SLI - SLIGHTLY
FOSS - FOSSILIFEROUS	TCR - TRICONE REFUSAL
FRAC - FRACTURED	W - MOISTURE CONTENT
FRAGS. - FRAGMENTS	V - VERY
	VST - VANE SHEAR TEST

γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0 - 5	VERY LOW
LOW PLASTICITY	6 - 15	SLIGHT
MED. PLASTICITY	16 - 25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:
<input checked="" type="checkbox"/> DIEDRICH D-50	<input type="checkbox"/> CLAY BITS	<input type="checkbox"/> AUTOMATIC <input checked="" type="checkbox"/> MANUAL
<input type="checkbox"/> DIEDRICH D-25	<input type="checkbox"/> 6" CONTINUOUS FLIGHT AUGER	CORE SIZE:
<input type="checkbox"/> CME-45B ATV	<input type="checkbox"/> 8" HOLLOW AUGERS	<input type="checkbox"/> - B _____ <input type="checkbox"/> - H _____
<input type="checkbox"/> CME-550	<input type="checkbox"/> HARD FACED FINGER BITS	<input type="checkbox"/> - N _____ <input type="checkbox"/> - _____
<input type="checkbox"/> PORTABLE HOIST	<input type="checkbox"/> TUNG.-CARBIDE INSERTS	HAND TOOLS:
<input type="checkbox"/> AMS POWER PROBE	<input checked="" type="checkbox"/> CASING <input type="checkbox"/> W/ADVANCER	<input type="checkbox"/> POST HOLE DIGGER
<input checked="" type="checkbox"/> OTHER JACK-UP BARGE	<input checked="" type="checkbox"/> TRICONE 2 7/8" STEEL TEETH	<input type="checkbox"/> HAND AUGER
	<input type="checkbox"/> TRICONE _____ " TUNG.-CARBIDE	<input type="checkbox"/> SOUNDING ROD
	<input type="checkbox"/> CORE BIT	<input type="checkbox"/> VANE SHEAR TEST
	<input type="checkbox"/> OTHER _____	<input type="checkbox"/> OTHER _____

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YEL-BRN, BLUE-GRAY) MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

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ROCK DESCRIPTION		TERMS AND DEFINITIONS	
<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WHEN TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.</p> <p>ROCK MATERIALS ARE TYPICALLY AS FOLLOWS:</p>		<p>ALLUVIUM (ALLUV.) - SOILS WHICH HAVE BEEN TRANSPORTED BY WATER.</p> <p>AQUIFER - A WATER BEARING FORMATION OR STRATA.</p> <p>ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.</p> <p>ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.</p> <p>ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.</p> <p>CALCAREOUS (CALC.) - SOILS WHICH CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.</p> <p>COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.</p> <p>CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.</p> <p>DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.</p> <p>DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.</p> <p>DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.</p> <p>DIRECT PUSH - ADVANCEMENT OF SAMPLE TOOLING UTILIZING DIRECT PUSH METHODOLOGY (ex. GEOPROBE).</p> <p>FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.</p> <p>FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.</p> <p>FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.</p> <p>FLOOD PLAIN (F.P.) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.</p> <p>FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.</p> <p>HYDRAULIC PUSH (HP) - ADVANCEMENT OF SAMPLING TOOLS UTILIZING MECHANICAL/HYDRAULIC DOWN-FORCE OF DRILLING MACHINE.</p> <p>JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.</p> <p>LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.</p> <p>LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.</p> <p>MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.</p> <p>PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.</p> <p>RESIDUAL SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.</p> <p>ROCK QUALITY DESIGNATION (R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.</p> <p>SAPROLITE (SAP.) - RESIDUAL SOIL WHICH RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.</p> <p>SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, WHICH HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.</p> <p>SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.</p> <p>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR B.P.F.) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS LESS THAN 0.1 FOOT PENETRATION WITH 60 BLOWS.</p> <p>STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.</p> <p>STRATA ROCK QUALITY DESIGNATION (S.R.Q.D.) - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.</p> <p>TOPSOIL (T.S.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>	
<p>WEATHERED ROCK (WR)  NON-COASTAL PLAIN MATERIAL THAT YIELDS SPT N VALUES >100 BLOWS PER FOOT</p> <p>CRYSTALLINE ROCK (CR)  FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.</p> <p>NON-CRYSTALLINE ROCK (NCR)  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p> <p>COASTAL PLAIN SEDIMENTARY ROCK (CP)  COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>			
WEATHERING			
FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.		
VERY SLIGHT (V. SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.		
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.		
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.		
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL.</i>		
SEVERE (SEV.)	ALL ROCKS EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i>		
VERY SEVERE (V. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i>		
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.		
ROCK HARDNESS			
VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.		
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.		
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.		
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.		
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.		
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.		
FRACTURE SPACING		BEDDING	
TERM	SPACING	TERM	SPACING
VERY WIDE	> 10 FEET	VERY THICKLY BEDDED	> 4 FEET
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET
MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET
CLOSE	0.16 TO 3 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET
VERY CLOSE	< 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET
		THINLY LAMINATED	< 0.008 FEET
INDURATION			
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.		<p>BENCH MARK: Temporary benchmark set on interior bent. Elevation determined with survey grade GPS.</p> <p style="text-align: right;">ELEVATION: 100.00</p>	
FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	<p>NOTES:</p>	
MODERATELY INDURATED	BREAKS EASILY WHEN HIT WITH HAMMER. GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;		
INDURATED	DIFFICULT TO BREAK WITH HAMMER.		
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.		

DESCRIPTION:
 Bridge No. 6 on NC 58
 Over
 Intracoastal Waterway



WBS ELEM.: 41732.1	FIGURE NO. 04
TIP NO.: N/A	TOTAL FIGURES: 12
F.A. NO.: N/A	
COUNTY: Carteret	



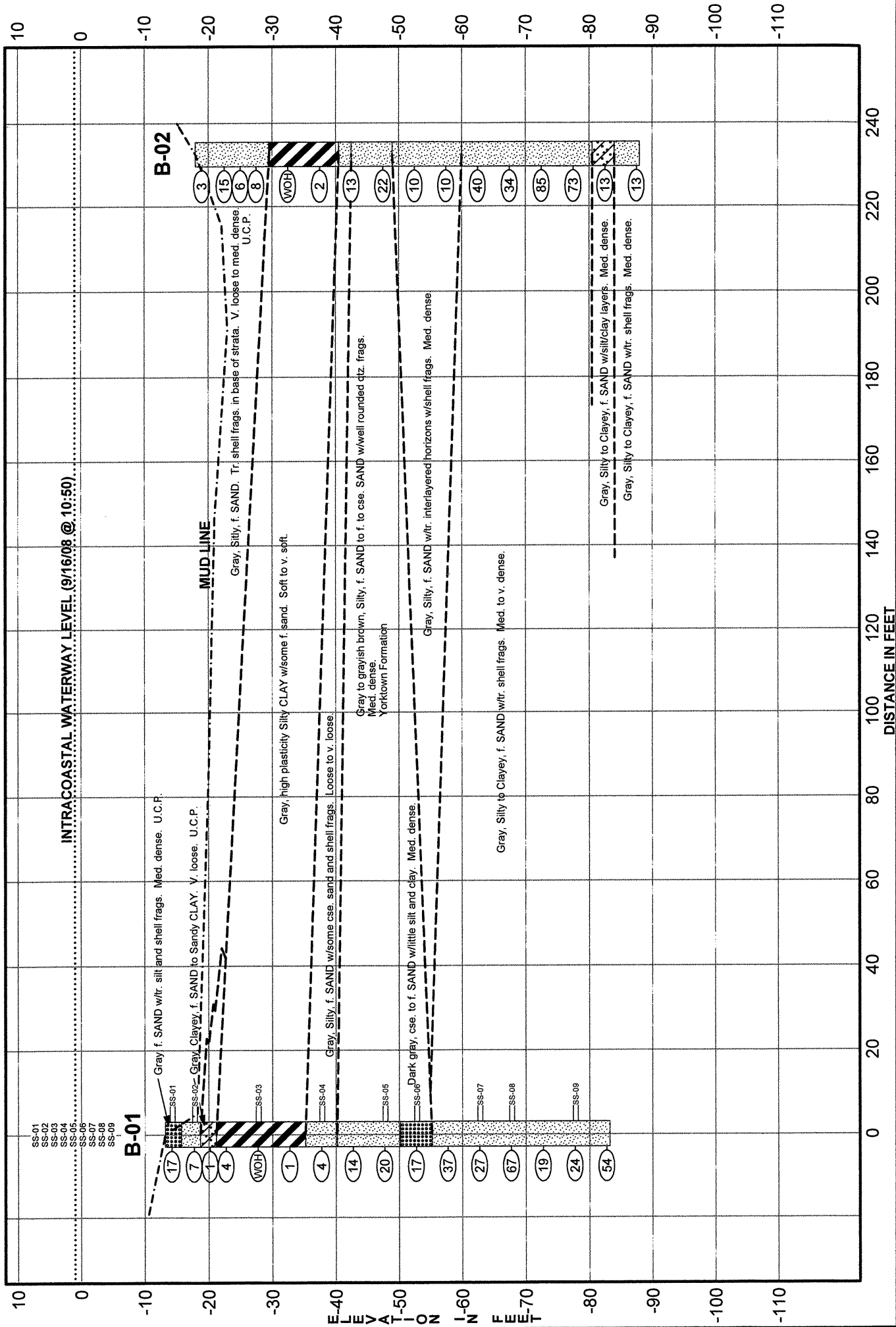
SITE LOCATION



SCALE IN FEET

SWANSBORO, N.C.
 CONTOUR INTERVAL 5 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 DEPTH CURVES AND SOUNDINGS IN FEET - DATUM IS MEAN LOW WATER

PROFILE BETWEEN B-01 AND B-02





NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

ID	WBS ELEMENT	SHEET NO.	TOTAL SHEETS
N/A	41732.1	07	12

PROJECT NO. 41732.1	ID. N/A	COUNTY Carteret	GEOLOGIST Tom Stetler
SITE DESCRIPTION Bridge No. 6 on NC 58 over Intracoastal Waterway			GROUND WTR (ft)
BORING NO. B-01	STATION N/A	OFFSET N/A	ALIGNMENT N/A
COLLAR ELEV. -13.2 ft	TOTAL DEPTH 70.0 ft	NORTHING 341,934	EASTING 2,581,556
DRILL MACHINE Diedrich D-50	DRILL METHOD Mud Rotary	HAMMER TYPE Manual	
START DATE 09/12/08	COMP. DATE 09/12/08	SURFACE WATER DEPTH 13.2ft	DEPTH TO ROCK N/A

ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
		0.5ft	0.5ft	0.5ft	0	25	50	75	100				
0													
-13.2	0.0										▼	WATER SURFACE (09/12/08)	
												MUD LINE	0.0
-16.7	3.5	7	9	8	17					SS-01	Sat.	UNDIFFERENTIATED COASTAL PLAIN Gray, f. SAND w/tr. silt and shell frags. Med. dense.	2.5
-19.2	6.0	10	4	3	7					SS-02	Sat.	Gray, f. SAND w/little interlayered silt. Loose.	5.5
-21.7	8.5	9	1	0	1						Sat.	Gray, Clayey, f. SAND to Sandy CLAY. V. loose.	8.0
-26.7	13.5	WOH	3	1	4						Sat.	Gray, high plasticity Silty CLAY w/some f. sand. Soft to v. soft.	
		WOH	WOH	WOH	WOH					SS-03	Sat.		
-31.7	18.5				1						W		
-36.7	23.5	1	0	1	1								
		3	1	3	4					SS-04	Sat.	Gray, Silty, f. SAND w/some cse. sand and shell frags. Loose.	22.0
-41.7	28.5	6	7	7	14						Sat.	COASTAL PLAIN Gray, well graded Silty, f. SAND w/tr. shell and rock (L.S.) frags. Med. dense. Driller Note: Well rounded qtz. gravel in cuttings from depth of 27 to 28.5 ft. Yorktown Fm.	27.0
-46.7	33.5	8	8	12	20					SS-05	Sat.		
-51.7	38.5	8	8	9	17					SS-06	Sat.	Dark gray, cse. to f. SAND w/little silt and clay. Med. dense.	37.0
-56.7	43.5	15	16	21	37						Sat.	Gray, Silty to Clayey, f. SAND w/tr. shell frags. Med. to v. dense.	42.0
-61.7	48.5	8	11	16	27					SS-07	W		
-66.7	53.5	27	34	33	67					SS-08	M		
-71.7	58.5	5	9	10	19						M		
-76.7	63.5	10	11	13	24					SS-09	M		
-81.7	68.5	21	29	25	54						M		
												Boring Terminated at Elevation -83.2 ft in v. dense Silty, f. SAND w/shell frags. Yorktown Formation	70.0

NEW NCDOT BORE SINGLE 208-058 NCDOT BRIDGE #6 OVER ICM GP L CATLIN GDT 9/19/08



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

ID	WBS ELEMENT	SHEET NO.	TOTAL SHEETS
N/A	41732.1	08	12

PROJECT NO. 41732.1	ID. N/A	COUNTY Carteret	GEOLOGIST Tom Stetler
SITE DESCRIPTION Bridge No. 6 on NC 58 over Intracoastal Waterway			GROUND WTR (ft)
BORING NO. B-02	STATION N/A	OFFSET N/A	ALIGNMENT N/A
COLLAR ELEV. -18.0 ft	TOTAL DEPTH 70.0 ft	NORTHING 342,126	EASTING 2,581,687
DRILL MACHINE Diedrich D-50	DRILL METHOD Mud Rotary	HAMMER TYPE Manual	
START DATE 09/15/08	COMP. DATE 09/15/08	SURFACE WATER DEPTH 17.3ft	DEPTH TO ROCK N/A

ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
		0.5ft	0.5ft	0.5ft	0	25	50	75	100					
-18.0	0.0												WATER SURFACE (09/15/08)	
-18.0	0.0	12	2	1	3								MUD LINE	0.0
-21.5	3.5	2	6	9	15							Sat.	UNDIFFERENTIATED COASTAL PLAIN Gray, Silty, f. SAND. Tr. shell frags. in base of strata. V. loose to med. dense.	
-24.0	6.0	2	2	4	6							Sat.		
-26.5	8.5	8	5	3	8							Sat.		
-31.5	13.5	WOH	WOH	WOH	WOH							W	Gray, high plasticity Silty CLAY. V. soft to soft.	11.5
-36.5	18.5	WOH	WOH	2	2							W		
-41.5	23.5	2	1	12	13							Sat.	Gray, Silty, f. SAND. V. loose.	22.5
-46.5	28.5	24	15	7	22							Sat.	COASTAL PLAIN Gray to grayish brown, f. SAND grading to f. to cse. SAND w/well rounded qtz. frags. Med. dense. Driller Note: Well rounded qtz. gravel in cuttings from depth of 27 to 28.5 ft. Yorktown Fm.	31.0
-51.5	33.5	5	4	6	10							Sat.	Gray, Silty, f. SAND w/tr. interlayered horizons w/shell frags. Med. dense.	
-56.5	38.5	8	4	6	10							Sat.		
-61.5	43.5	15	19	21	40							Sat.	Gray, Silty to Clayey, f. SAND w/tr. shell frags. Med. to v. dense.	42.0
-66.5	48.5	10	15	19	34							W		
-71.5	53.5	30	41	44	85							M		
-76.5	58.5	27	31	42	73							M		
-81.5	63.5	5	6	7	13							M	Gray, Silty to Clayey, f. SAND w/silt/clay layers. Med. dense.	62.5
-86.5	68.5	8	6	7	13							W	Gray, Silty to Clayey, f. SAND w/tr. shell frags. Med. dense.	66.0
													Boring Terminated at Elevation -88.0 ft in med. dense Silty, f. SAND. Yorktown Formation	70.0

NEW NCDOT BORE SINGLE 208-058 NCDOT BRIDGE #6 OVER ICW G.P. CATLIN.GDT 9/19/08



GEOTECHNICAL LABORATORIES

Wilmington, NC

LABORATORY SUMMARY SHEET

PROJECT #: 41732.1
TIP #: N/A
F.A. #: N/A
COUNTY: Carteret

SHEET NO.	TOTAL SHEETS
09	12

CATLIN PROJECT:
NCDOT - Bridge No. 6 over ICW
CATLIN PROJECT: **208-058**

SITE DESCRIPTION:
Bridge No. 6 on NC 58 over Intracoastal Waterway

AASHTO Standard Specifications

(As modified by NCDOT, Material and Tests Unit, 2000.)

Submitted By: SVH Date Submitted: 9/15/2008 Report By: MDM Report Date: 9/19/2008

TEST RESULTS

Field Sample Number	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06
Lab Sample Number	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06
Retained #4 Sieve %	1.7	1.9	0	1.4	0.1	0
Passing #10 Sieve %	96.9	97.8	100	97.4	99.7	99.6
Passing #40 Sieve %	98	100	100	88	97	95
Passing #200 Sieve %	5	15	85	16	11	8

MINUS NUMBER 10 FRACTION

SOIL MORTAR - 100%						
Coarse Sand Ret.-#60 %	6.2	0.8	0.3	21.7	13.4	21.2
Fine Sand Ret.-#270 %	88.9	86.5	19.3	65.3	78.2	71.3
Silt 0.05 - 0.005mm %	2.1	5.9	36.6	7.2	4.5	2.6
Clay <0.005mm %	2.8	6.8	43.8	5.8	3.9	4.9

Liquid Limit (LL)	17	21	68	19	24	23
Plasticity Index (PI)	NP	NP	46	NP	NP	NP
AASHTO Classification /Group Index	A-3(0)	A-2-4(0)	A-7-6(42)	A-2-4(0)	A-2-4(0)	A-3(0)
Station						
Offset						
Alignment						
Boring Identification	B-01	B-01	B-01	B-01	B-01	B-01
Depth ()	0.0	3.5	13.5	23.5	33.5	38.5
to	1.5	5.0	15.0	25.0	35.0	40.0
Field Moisture Content						

NP = Non-Plastic

Laboratory Manager

DOT LAB 8.5X11 208-058_NCDOT-BRIDGE #6 OVER ICW.GPJ CATLIN.GDT 9/19/08



GEOTECHNICAL LABORATORIES

Wilmington, NC

LABORATORY SUMMARY SHEET

PROJECT #: 41732.1
TIP #: N/A
F.A. #: N/A
COUNTY: Carteret

SHEET NO.	TOTAL SHEETS
10	12

CATLIN PROJECT:
NCDOT - Bridge No. 6 over ICW
CATLIN PROJECT: **208-058**

SITE DESCRIPTION:
Bridge No. 6 on NC 58 over Intracoastal Waterway

AASHTO Standard Specifications

(As modified by NCDOT, Material and Tests Unit, 2000.)

Submitted By: SVH Date Submitted: 9/15/2008 Report By: MDM Report Date: 9/19/2008

TEST RESULTS

Field Sample Number	SS-07	SS-08	SS-09		
Lab Sample Number	SS-07	SS-08	SS-09		
Retained #4 Sieve %	0	0	0		
Passing #10 Sieve %	100	100	99.9		
Passing #40 Sieve %	99	99	99		
Passing #200 Sieve %	15	13	17		

MINUS NUMBER 10 FRACTION

SOIL MORTAR - 100%					
Coarse Sand Ret.-#60 %	3.2	4.8	3.9		
Fine Sand Ret.-#270 %	84.6	84.3	81.3		
Silt 0.05 - 0.005mm %	5.3	5.0	5.8		
Clay <0.005mm %	6.9	5.9	9.0		

Liquid Limit (LL)	24	23	22		
Plasticity Index (PI)	NP	NP	NP		
AASHTO Classification /Group Index	A-2-4(0)	A-2-4(0)	A-2-4(0)		
Station					
Offset					
Alignment					
Boring Identification	B-01	B-01	B-01		
Depth ()	48.5	53.5	63.5		
to	50.0	55.0	65.0		
Field Moisture Content					

NP = Non-Plastic

Laboratory Manager

DOT LAB 8.5X11 208-058 NCDOT-BRIDGE #6 OVER ICW.GPJ CATLIN.GDT 9/19/08

ID	WBS ELEMENT	SHEET NO.	TOTAL SHEETS
N/A	41732.1	11	12



WEST OF BRIDGE #6 FACING EAST
NORTH FENDER ON LEFT SOUTH FENDER ON RIGHT



WEST OF BRIDGE #6 FACING ENE
SOUTH FENDER IN FOREGROUND

ID	WBS ELEMENT	SHEET NO.	TOTAL SHEETS
N/A	41732.1	12	12




EAST OF BRIDGE #6 FACING WEST
NORTH FENDER ON RIGHT SOUTH FENDER ON LEFT



WEST OF BRIDGE #6 FACING SE
NORTH FENDER IN FOREGROUND

BRIDGE INSPECTION RECORD AND SUMMARY

REV. 5-30-97

INSPECTION TYPE		SUPPLEMENTAL (U/W)		INSPECTION DATE		5/9/06	
BRIDGE NO.	150006	COUNTY	CARTERET	ROUTE	NC-58	OVER	INTRACOASTAL WATERWAY
STRUCTURE TYPE		TIMBER FENDER SYSTEM		YEAR BUILT		1971	
LENGTH	N/A	ROUTE ORIENTATION	S - N	FOR SPANS	33	OF	59 SPANS
EVALUATION CODE: 0 - 2 CRITICAL, 3 & 4 POOR, 5 & 6 FAIR, 7 - 9 GOOD							
INSPECTION ITEM				ITEM 61		GRADE	
DECK ITEMS				GRADE		45 CHANNEL & CHANNEL PROT.	
1 WEARING SURFACE						a. WATERWAY 8	
2 DECK NO. OF EA.				a. CONCRETE		b. ALIGNMENT 8	
TYPE SPN.				b. TIMBER		c. SCOUR 7	
GRADE				c. STEEL PLANK		d. SLOPE PROT., DIKES RIP-RAP ETC.	
RATES				d. OPEN GRID		50 APPROACH ROADWAY CONDITION	
SI & A ITEM 58						51 APPROACH SLABS	
3 RAILING						52 PAINT SYSTEMS CODE	
				a. CONCRETE		53 UTILITIES	
				b. TIMBER		54 RESPONSE TO LIVE LOAD	
				c. ALUMINUM		55 ESTIMATED REMAINING LIFE	
				d. STEEL		60 REGULATORY SIGN NOTICE ISSUED NO	
4 CURBS - WHEELGUARDS - PARAPETS - MEDIANS						61 PROMPT - ACTION NOTICE ISSUED YES	
5 WALKWAYS (ON OR ATTACHED TO STRUCTURE)						62 PRESENTLY POSTED N/A	
6 DECK EXP. JTS. OR DEVICES				a. STEEL PL. OR FINGER PL.		63 TOT. FIELD INSP. TIME (INCLUDE WRITE UP)(M/H) 34 M/H	
NO. OF EACH				b. MISC. PREFAB DEVICES		64 TOTAL SNOOPER INSP. TIME (HRS)	
				c. COMPRESSION SEALS		65 TOTAL TRAFFIC CONTROL TIME (M/H)	
				d. STANDARD JOINTS			
				BORER DECAYED PILES & BORER DECAYED WALER			
7 DECK DEBRIS (INCLUDE EXCESS SAND / GRAVEL)						70 SI&A GENERAL CONDITION RATINGS	
SUPER STR. (FM. 1 (90) B TRUSS) ITEM 59						a. DECK ITEM 58	
10 LONGITUDINAL BEAMS OR GIRDERS						b. SUPERSTRUCTURE ITEM 59	
11 LONGITUDINAL JOIST OR STRINGERS						c. SUBSTRUCTURE ITEM 60 ** 3	
12 INT. DIAP'S, X-FRAMES, BRACING, & CONN'S						d. CHANNEL & CHANNEL PROT. ITEM 61 7	
13 END DIAP'S, CURTAIN WALLS, & CONN'S						71 SI&A FIELD APPRAISAL RATINGS	
14 FLOOR BEAMS AND CONNECTIONS						a. WATERWAY ADEQUACY N/A	
15 BEARINGS ASSEMBLIES (INCLUDE MISALIGN)						b. APPR. RDWY. ALIGNMENT	
16 DRAINAGE SYSTEMS (ON STRUCTURES)							
17 MOVABLE SPAN MACHINERY						72 FIELD SCOUR EVALUATION N/A	
SUB STR ITEMS, ITEM 60 (INCLUDE SCOUR)						USE OF INSP. ACCESSIBILITY EQUIPMENT	
35 TIM. SUB STR.				a. ABUT. & INT. BENT CAPS & RISERS		SNOOPER (CODE P, S, 4 or N) N	
				b. PILES, POST, SILLS, & BRACING		LADDER Y/N N	
				c. BULKHEADS, WING'S, & TIE BACKS		OVERSIDE LADDER Y/N N	
36 CONC. SUB STR.				a. ABUT. & INT. BENT CAPS		BUCKET TRUCK Y/N N	
				b. ABUT. & BENT COL'S & BREASTWALLS		BOAT Y/N Y	
				c. ABUT. & INT. BENT PILES		OTHER Y/N N	
				d. BACKWALLS - WING'S - RETAIN. WALLS			
				e. ABUT. AND BENT FOOTINGS & SILLS			
37 STEEL SUB. STR.				a. ABUT. & INT. BENT CAPS & RISERS		NOTE:	
				b. PILES AND BRACING AND BULKHEADS		ITEM 70 C ** FENDER SYSTEM ONLY	
38 FOUNDATION PILES TYPE MATERIAL							
39 SLOPE PROT., RIP - RAP (INCLUDE DRAINAGE)							
40 FENDER SYSTEMS				3			
41 DRIFT				7		80 INSPECTED BY :	
						81 REVIEWED BY : 	
SPECIAL INSPECTION REQUESTED FOR :							

BRIDGE INSPECTION RECORD AND SUMMARY

INSPECTION TYPE ROUTINE

BRIDGE NO. 150006 COUNTY CARTERET
STRUCTURE TYPE RC DECK ON PPC GIRDERS

ROUTE NC58

OVER INTRACOSTAL WATERWAY

ROUTE ORIENTATION S-N

SPANS 1@65'4;12@65;12@92;1@96;1@132;1@96;12@92;18@65;1@65'4

EVALUATION CODE : 0-2 CRITICAL, 3 & 4 POOR, 5 & 6 FAIR, 7-9 GOOD

INSPECTION ITEM		GRADES		ITEM 61		
DECK ITEMS				45 CHANNEL & CHANNEL PROT.	a. WATERWAY	8
1. WEARING SURFACE					b. ALIGNMENT	8
2 DECK NO. OF EA TYPE SPN GRADE RATES SI & A ITEM 58	a. CONCRETE	59	6		c. SCOUR	8
	b. TIMBER				d. SLOPE PROT., RIP-RAP, DIKES, ETC.	
	c. STEEL PLANK			50 APPROACH ROADWAY CONDITION		6
	d. OPEN GRID			51 APPROACH SLABS		
3 RAILING	a. CONCRETE		6	52 PAINT SYSTEM	CODE	
	b. TIMBER			53 UTILITIES		7
	c. ALUMINUM			54 RESPONSE TO LIVE LOAD		8
	d. STEEL			55 ESTIMATED REMAINING LIFE		34
4. CURBS, WHEELGUARDS, PARAPETS, MEDIANS						
5. WALKWAYS (ON OR ATTACHED TO STRUCTURE)				60 REGULATORY SIGN NOTICE ISSUED		No
6. DECK EXP. JTS. OR DEVICES. NO OF EACH	a. STEEL PL OR FINGER			61 PROMPT-ACTION NOTICE ISSUED		Yes
	b. MISC PREFAB DEVICES	10	8	62 PRESENTLY POSTED		No
	c. COMPRESSION SEAL			63 TOT. FIELD INSP TIME (INCLUDE WRITE UP)(M/H)		70
	d. STANDARD JOINTS	22	8	64 TOTAL SNOOPER INSP. TIME (HRS)		8
	e. OPEN JOINTS			65 TOTAL TRAFFIC CONTROL TIME (M/H)		8
7. DECK DEBRIS (INCLUDE EXCESS SAND/GRAVEL)		7		70 SI&A GENERAL CONDITION RATINGS		
SUPER STR. (FM. 1 (90)B TRUSS) ITEM 59				a. DECK	ITEM 58	6
10. LONGITUDINAL BEAMS OR GIRDERS		5		b. SUPERSTRUCTURE	ITEM 59	5
11. LONGITUDINAL JOIST OR STRINGERS				c. SUBSTRUCTURE	ITEM 60	5
12. INT. DIAP'S, X-FRAMES, BRACING & CONN'S		7		d. CHANNEL & CHANNEL PROT.	ITEM 61	8
13. END DIAP'S, CURTAIN WALLS, & CONN'S		7				
14. FLOOR BEAMS AND CONNECTIONS				71 SI&A FIELD APPRAISAL RATINGS		
15. BEARING ASSEMBLIES (INCLUDE MISALIGN)		7		a. WATERWAY ADAQUACY		8
16. DRAINAGE SYSTEM (ON STRUCTURE)		7		b. APPR. RDWY. ALIGNMENT		8
17. MOVABLE SPAN MACHINERY						
				72 FIELD SCOUR EVALUATION		0
SUB STR. ITEMS. ITEM 60 (INCLUDE SCOUR)				USE OF INSP. ACCESSIBILITY EQUIPMENT		
35. TIM SUB STR.	a. ABUT. & INT. BENT CAPS & RISERS			SNOOPER (CODE P, S, 4, OR N)		Yes
	b. PILES, POST, SILLS, & BRACING			LADDER		No
	c. BULKHEADS, WING'S & TIE BACKS			OVERSIDE LADDER		No
36. CONC SUB STR.	a. ABUT. & INT. BENT CAPS	5		BUCKET TRUCK		No
	b. ABUT. & BENT COL'S BREASTWALLS	5		BOAT		Yes
	c. ABUT. & INT. BENT PILES	7		OTHER		
	d. BACKWALLS, WING'S, RETAIN. WLLS	7				
	e. ABUT. & BENT FOOTINGS & SILLS	7				
37 STEEL SUB STR	a. ABUT. & INT. BENT CAPS & RISERS			SPECIAL INSPECTION REQUESTED FOR		
	b. PILES, BRACING, AND BULKHEADS					
38 FOUNDATION PILES TYPE MATERIAL		7		NOTE		
39. SLOPE PROT., RIP-RAP (INCLUDE DRAINAGE)		7				
40 FENDER SYSTEMS		8		80 INSPECTED BY:		R.D. Hunt
41 DRIFT		7		81 REVIEWED BY		

BRIDGE INSPECTION RECORD AND SUMMARY

REV. 5-30-97

INSPECTION TYPE		SUPPLEMENTAL (U/W)		INSPECTION DATE		6/19/01	
BRIDGE NO.	150006	COUNTY	CARTERET	ROUTE	NC-58	OVER	INTRACOASTAL WATERWAY
STRUCTURE TYPE		TIMBER FENDER SYSTEM		YEAR BUILT		1971	
LENGTH	N/A	ROUTE ORIENTATION	S - N	FOR SPANS	33	OF	59 SPANS
EVALUATION CODE: 0 - 2 CRITICAL, 3 & 4 POOR, 5 & 6 FAIR, 7 - 9 GOOD							
INSPECTION ITEM				ITEM 61		GRADE	
DECK ITEMS				GRADE		45 CHANNEL & CHANNEL PROT.	
1 WEARING SURFACE						a. WATERWAY 8	
2 DECK NO. OF EA. TYPE SPN. GRADE RATES SI & A ITEM 58						b. ALIGNMENT 8	
a. CONCRETE						c. SCOUR 7	
b. TIMBER						d. SLOPE PROT., DIKES RIP-RAP ETC.	
c. STEEL PLANK							
d. OPEN GRID						50 APPROACH ROADWAY CONDITION	
						51 APPROACH SLABS	
						52 PAINT SYSTEMS CODE	
						53 UTILITIES	
3 RAILING						54 RESPONSE TO LIVE LOAD	
a. CONCRETE						55 ESTIMATED REMAINING LIFE	
b. TIMBER							
c. ALUMINUM							
d. STEEL						60 REGULATORY SIGN NOTICE ISSUED NO	
4 CURBS - WHEELGUARDS - PARAPETS - MEDIANS						61 PROMPT - ACTION NOTICE ISSUED NO	
5 WALKWAYS (ON OR ATTACHED TO STRUCTURE)						62 PRESENTLY POSTED N/A	
6 DECK EXP. JTS. OR DEVICES NO. OF EACH				a. STEEL PL. OR FINGER PL. b. MISC. PREFAB DEVICES c. COMPRESSION SEALS d. STANDARD JOINTS BORER DECAYED PILES & BORER DECAYED WALER		63 TOT. FIELD INSP. TIME (INCLUDE WRITE UP)(M/H) 22 M/H	
						64 TOTAL SNOOPER INSP. TIME (HRS)	
						65 TOTAL TRAFFIC CONTROL TIME (M/H)	
						70 SI&A GENERAL CONDITION RATINGS	
7 DECK DEBRIS (INCLUDE EXCESS SAND / GRAVEL)				a. DECK		ITEM 58	
SUPER STR. (FM. 1 (90) B TRUSS) ITEM 59				b. SUPERSTRUCTURE		ITEM 59	
10 LONGITUDINAL BEAMS OR GIRDERS				c. SUBSTRUCTURE		ITEM 60 ** 5	
11 LONGITUDINAL JOIST OR STRINGERS				d. CHANNEL & CHANNEL PROT.		ITEM 61 7	
12 INT. DIAP'S, X-FRAMES, BRACING, & CONN'S							
13 END DIAP'S, CURTAIN WALLS, & CONN'S						71 SI&A FIELD APPRAISAL RATINGS	
14 FLOOR BEAMS AND CONNECTIONS				a. WATERWAY ADEQUACY		N/A	
15 BEARINGS ASSEMBLIES (INCLUDE MISALIGN)				b. APPR. RDWY. ALIGNMENT			
16 DRAINAGE SYSTEMS (ON STRUCTURES)							
17 MOVABLE SPAN MACHINERY				72 FIELD SCOUR EVALUATION		N/A	
SUB STR ITEMS, ITEM 60 (INCLUDE SCOUR)							
35 TIM. SUB STR.				a. ABUT. & INT. BENT CAPS & RISERS b. PILES, POST, SILLS, & BRACING c. BULKHEADS, WING'S, & TIE BACKS		USE OF INSP. ACCESSIBILITY EQUIPMENT	
						SNOOPER (CODE P, S, 4 or N) N	
						LADDER Y/N N	
36 CONC. SUB STR				a. ABUT. & INT. BENT CAPS b. ABUT. & BENT COL'S & BREASTWALLS c. ABUT. & INT. BENT PILES d. BACKWALLS - WING'S - RETAIN. WALLS e. ABUT. AND BENT FOOTINGS & SILLS		OVERSIDE LADDER Y/N N	
						BUCKET TRUCK Y/N N	
						BOAT Y/N Y	
						OTHER Y/N N	
37 STEEL SUB. STR.				a. ABUT. & INT. BENT CAPS & RISERS b. PILES AND BRACING AND BULKHEADS		NOTE:	
						ITEM 70 C ** FENDER SYSTEM ONLY	
38 FOUNDATION PILES TYPE MATERIAL							
39 SLOPE PROT., RIP - RAP (INCLUDE DRAINAGE)							
40 FENDER SYSTEMS				5			
41 DRIFT				7		80 INSPECTED BY <i>me</i>	
						81 REVIEWED BY :	
SPECIAL INSPECTION REQUESTED FOR :							

State of North Carolina
 Dept. of Transportation
 Division of Highways

FIELD INSPECTION REPORT
 BRIDGE INSPECTION & ANALYSIS

Bridge No. **150006**

Route **NC-58**

County **CARTERET**

Date: **5/9/06**

Bridge Maint. Unit
 Bridge Inspection Sect.

Team Leader: **W.H. LOTZ**
 Assisted By: **D.A. HANCOCK, P.G. RUTHERFORD**

Item No. _____

40 FENDER (5)

CCA PILES SHOW EVIDENCE OF MINOR BORER ACTIVITY IN THE TIDAL ZONE.
 RANDOM PILES RANDOM LOCATIONS SHOW BORER HOLES TO 1" DEEP X 1" DIAMETER.
 MOST PILES SHOW VERTICAL CRACKS TO 1/16" WITH A FEW CRACKS OPEN TO 3/8".
 RANDOM AREAS OF SURFACE DELAMINATION TO 1/2" DEEP.
 VERTICAL CLEARANCE MARKERS ARE INEFFECTIVE, BOARDS DECAYED, NUMBERS MISSING.

ORIGINAL CREOSOTE PILES ARE HEAVILY BORER DECAYED AND ARE SEPARATED FROM
 THEIR STUBS, CREATING AN UNDESIRABLE DEAD LOAD ON FENDER.

NORTH FENDER

NORTH SIDE MISALIGNED AND LEANING TOWARDS CHANNEL +/- 18" AT EACH END.
 MISALIGNMENT AT CENTER SECTIONS. RANDOM AREAS SHOW IMPACT DAMAGE.
 FENDER SHOWS EXCESSIVE MOVEMENT WHEN SUBJECTED TO LARGE BOAT WAKES.

CLUSTER 1 (7 PILES)

KING PILE 2 IN. DIAMETER BORER HOLE TO 1 1/2" DEEP IN TIDAL ZONE.
 1 PILE N. SIDE BORER HOLE 9" V X 2" W X 2" DEEP NEAR LOW TIDE MARK.
 1 PILE N. SIDE BORER HOLE 14" V X 3 1/2" W X 2 1/2" DEEP NEAR LOW TIDE MARK.
 CLUSTER 7 PLUMB PILE 8" BROKEN SHELL HOLLOW TO 14" V X 10" DIAMETER (PA ISSUED)
 CLUSTER 11 PLUMB PILE 4" BROKEN SHELL HOLLOW TO 9" V X 9" DIAMETER (PA ISSUED)
 CLUSTER 12 BATTER PILE BORER DAMAGE TO 3' V X 2" W X 2" DEEP NEAR LOW TIDE MARK.
 CLUSTER 15 PLUMB PILE HAS A BORER HOLE TO 26" V x 6" W(BROKEN SHELL)
 WHICH IS HOLLOWED OUT INSIDE TO 33" V x 10" DIAMETER (PA ISSUED)
 CLUSTER 28 BATTER PILE 6" BROKEN SHELL HOLLOW TO 9" V X 11" DIAMETER (PA ISSUED)
 CLUSTER 29 BATTER PILE 9" BROKEN SHELL HOLLOW TO 13" V X 9 1/2" DIAMETER (PA ISSUED)
 CLUSTER 31 BATTER PILE BORER DAMAGE TO 8" V X 3" W X 3" DEEP NEAR LOW TIDE MARK.
 CLUSTER 31 BATTER PILE BORER DAMAGE TO 9" V X 4" W X 2" 4' ABOVE M/L.
 CLUSTER 31 BATTER PILE BORER DAMAGE TO 8" V X 2" W X 2" 5.5' ABOVE M/L.
 CLUSTER 36 (7 PILES) 1 PILE (NE) SHOWS SECTION LOSS 10" w x 1" DEEP FROM HIGH TIDE
 MARK DOWN 6' WITH BORER HOLES TO 1 1/2" DEEP

SOUTH FENDER

GENERAL CONDITIONS AS LISTED ABOVE

CLUSTER 5 BATTER PILE BORER DAMAGE TO 14" V X 6" W x 5" DEEP NEAR LOW TIDE MARK
 CLUSTER 7 PLUMB PILE 5" BROKEN SHELL HOLLOW TO 10" V X 8" W X 9" DEEP
 4' ABOVE M/L (PA ISSUED)

Field Inspection Report (cont.)

Item No.

FENDER CONT.

LOWER WALERS ARE HEAVILY BORER DECAYED ON ENDS, FACES AND AROUND BOLT CONNECTIONS. LOWER WALERS SHOW LOSS OF SECTION UP TO + / - 90%. WITH MANY LOWER WALERS MISSING. BOLT CONNECTIONS ARE RUSTED WITH SOME SURFACE LOSS.

DOLPHIN CLUSTER PILES ARE IN SIMILAR CONDITION TO CCA PILES. SE DOLPHIN CLUSTER HAS 2 BROKEN PILES. NE DOLPHIN CLUSTER BROKEN PILE UNDER CLEARANCE MARKER. STEEL H-PILES ARE RUSTED WITH MODERATE LOSS (+ / - 70%) OF SECTION NEAR W/L. WITH RANDOM HOLES TO 3/8". FLANGES NEAR M/L ARE HEAVILY RUSTED AND MALLEABLE WITH LOSS TO 80%. RANDOM H-PILE FLANGE EDGES REDUCED TO KNIFE EDGE & RAGGED WITH LOSS TO 1" AND DEEP PITTING THROUGHOUT. NW CLUSTER LEANING AND OUT OF PLUMB. POSSIBLE BROKEN PILES BELOW M/L INDETERMINATE AT THIS TIME.

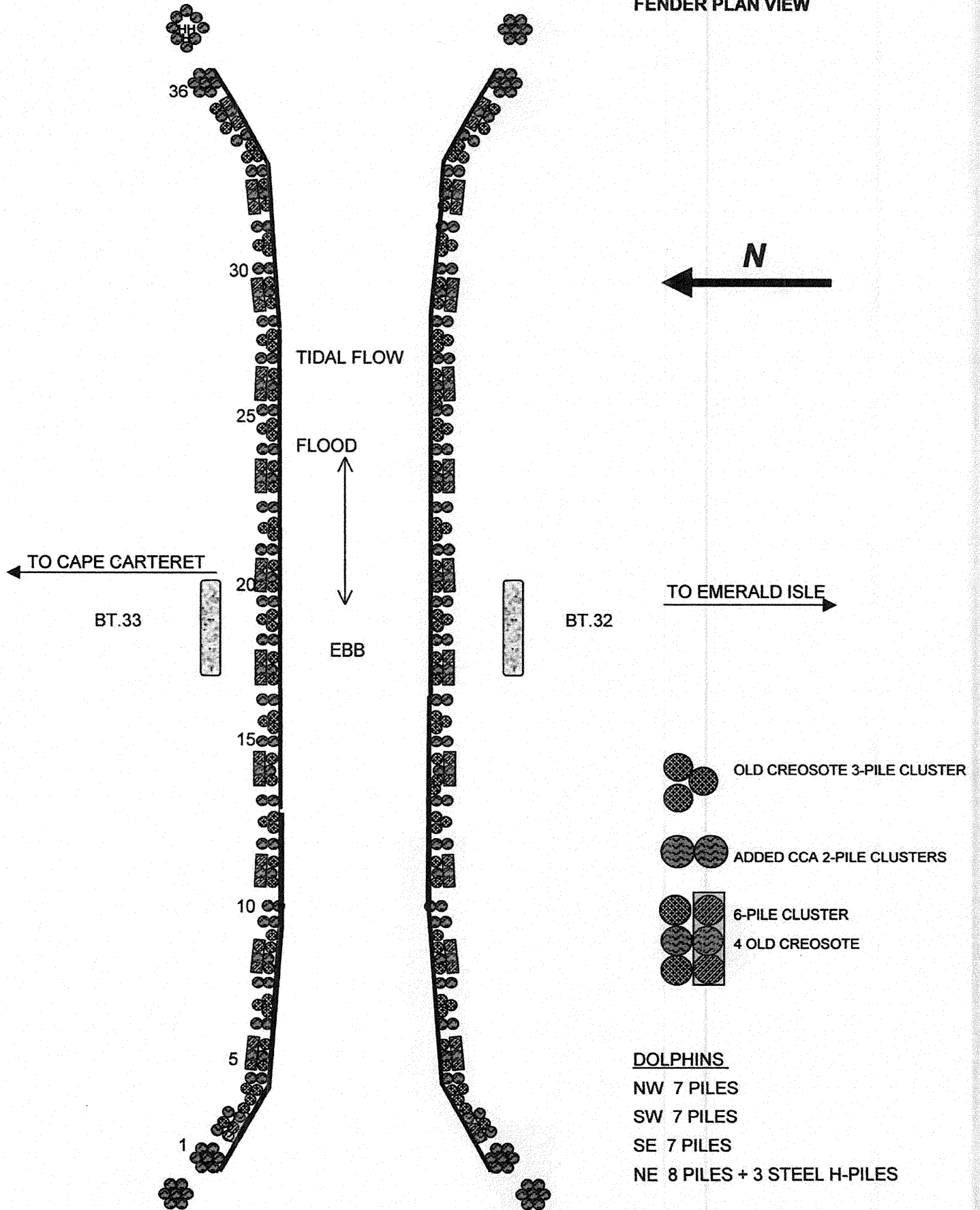
41 DRIFT (7)


MINOR TRASH, DEBRIS AND OLD CABLE SCATTERED THROUGHOUT. 2 OLD PILES LYING ON BOTTOM NEAR SW DOLPHIN CLUSTER.

45-C SCOUR (7)

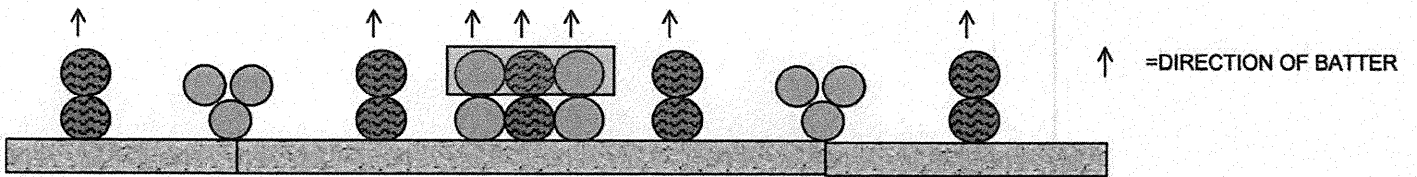
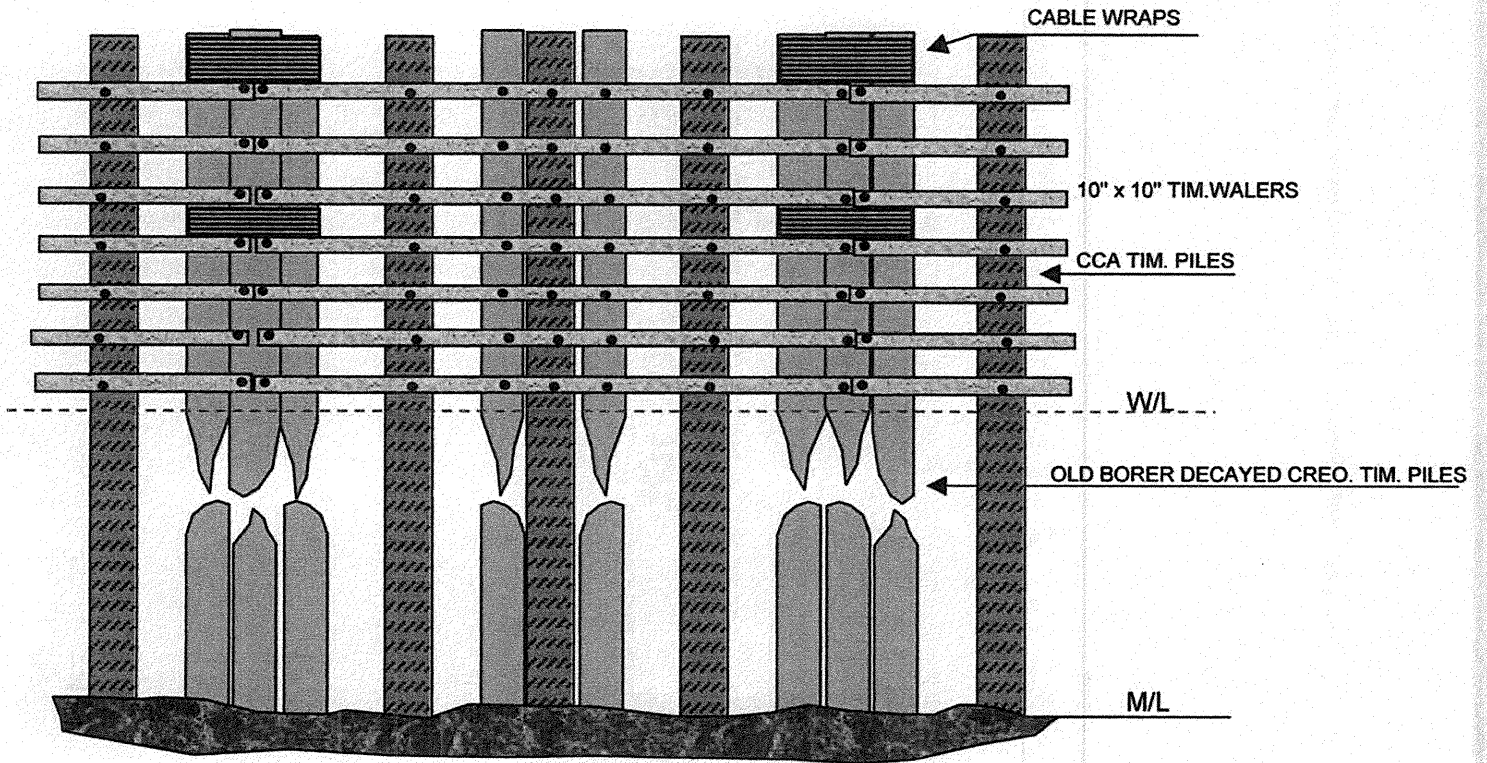
STREAMBED HAS DEGRADED + / - 2' EXPOSING HARD CLAY BOTTOM MATERIALS RATHER THAN THE NORMAL SAND / SHELL MIX COMMON TO THIS AREA. RANDOM PILES SHOW NO MARINE GROWTH +/- 6" OF M/L.

FENDER PLAN VIEW



 OLD CREOSOTE 3-PILE CLUSTER

 ADDED CCA 2-PILE CLUSTERS

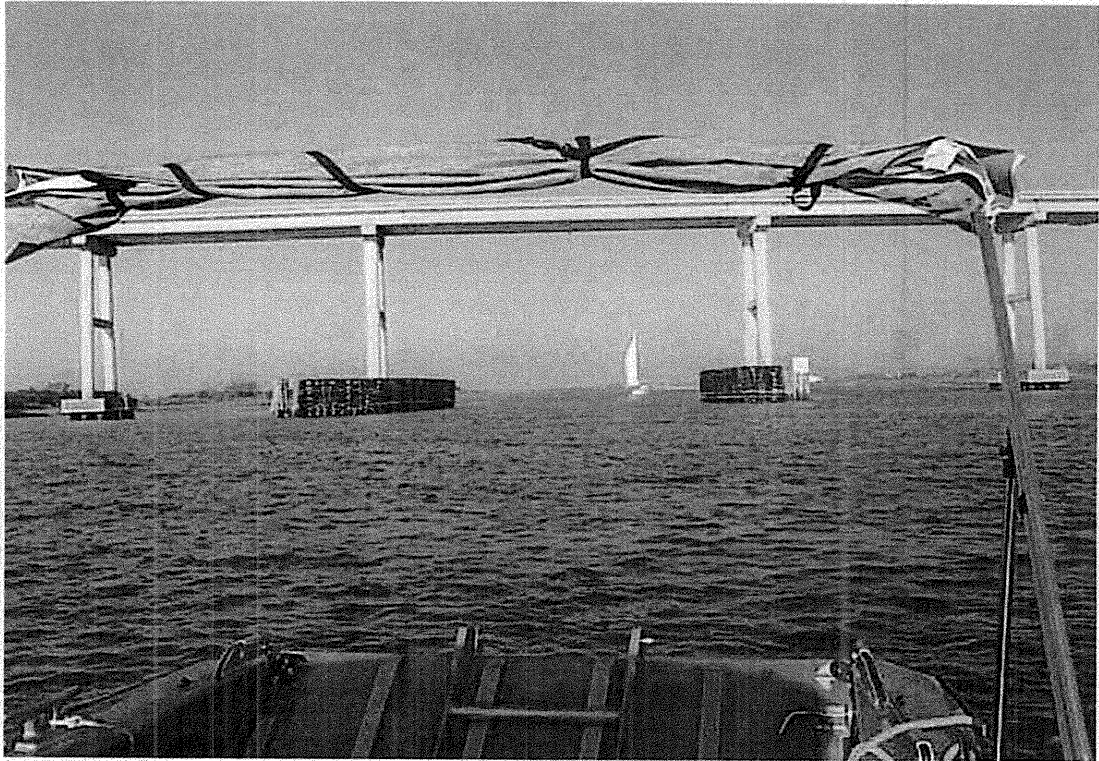


BRIDGE INSPECTOR'S RECOMMENDATIONS FOR MAINTENANCE REPAIRS

Bridge: **150006** County: **CARTERET** Division: **2**
 Insp. By **W.H. LOTZ** Date **5/9/06** Check By: Date

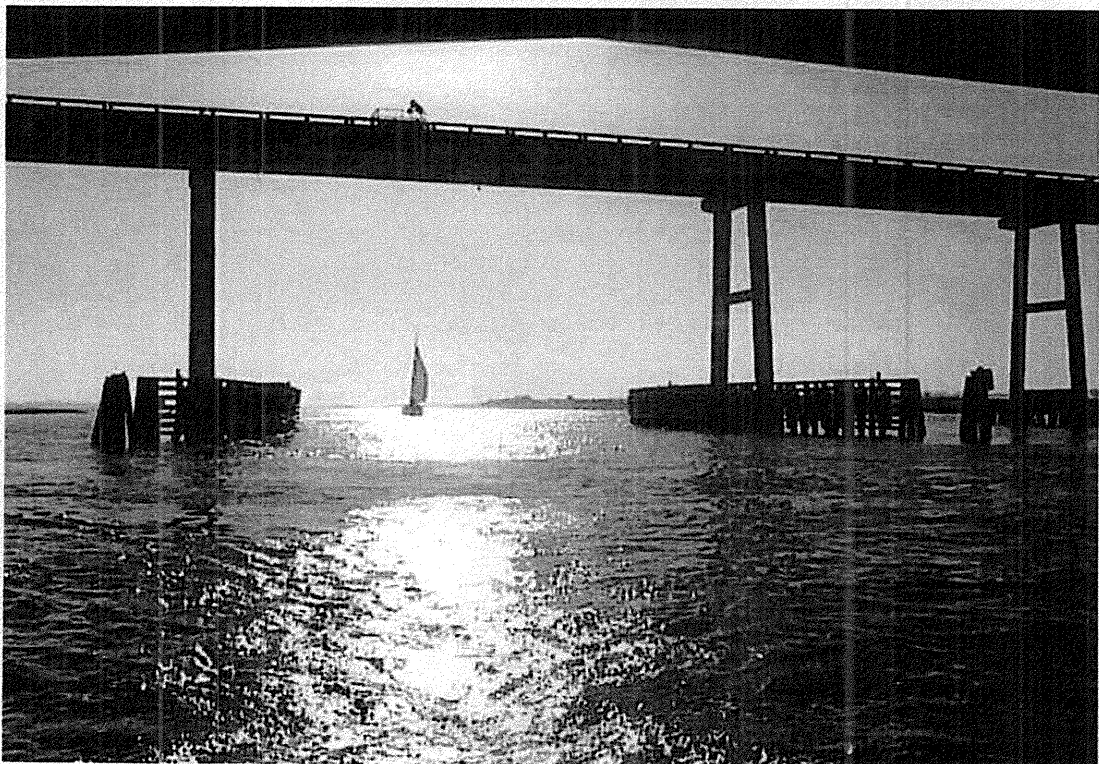
These Repairs Should Be Made Within Twelve Months From The Date Of This Inspection.

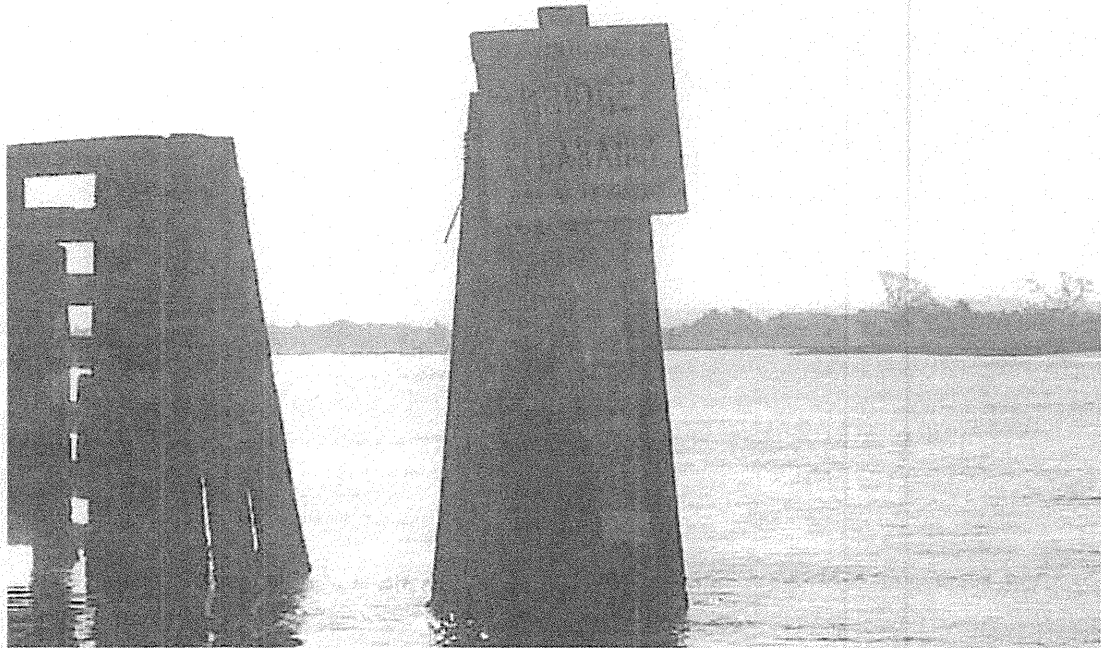
Function Code	Description of Function	Unit	Quantity	Remarks	Est. cost
587	MAINT. OF FENDER SYSTEMS	M/H	1200	REPLACE / REPAIR BORER DECAYED WALERS REMOVE OLD PILE SECTIONS TO REDUCE DEAD LOAD STABILIZE MISALIGNMENT AND MOVEMENT REPAIR/REPLACE DETERIORATED STEEL PILES NE DOLPHIN	
587	MAINT. OF FENDER SYSTEMS	M/H		REPAIR/REPLACE BORER DAMAGED PILES PA ISSUED NORTH SIDE CLUSTER 7 PLUMB PILE CLUSTER 11 PLUMB PILE CLUSTER 15 PLUMB PILE CLUSTER 28 BATTER PILE SOUTH SIDE CLUSTER 7 PLUMB PILE	



LOOKING WEST

LOOKING EAST





VERTICAL CLEARANCE MARKER SW DOLPHIN

(PA ISSUED)

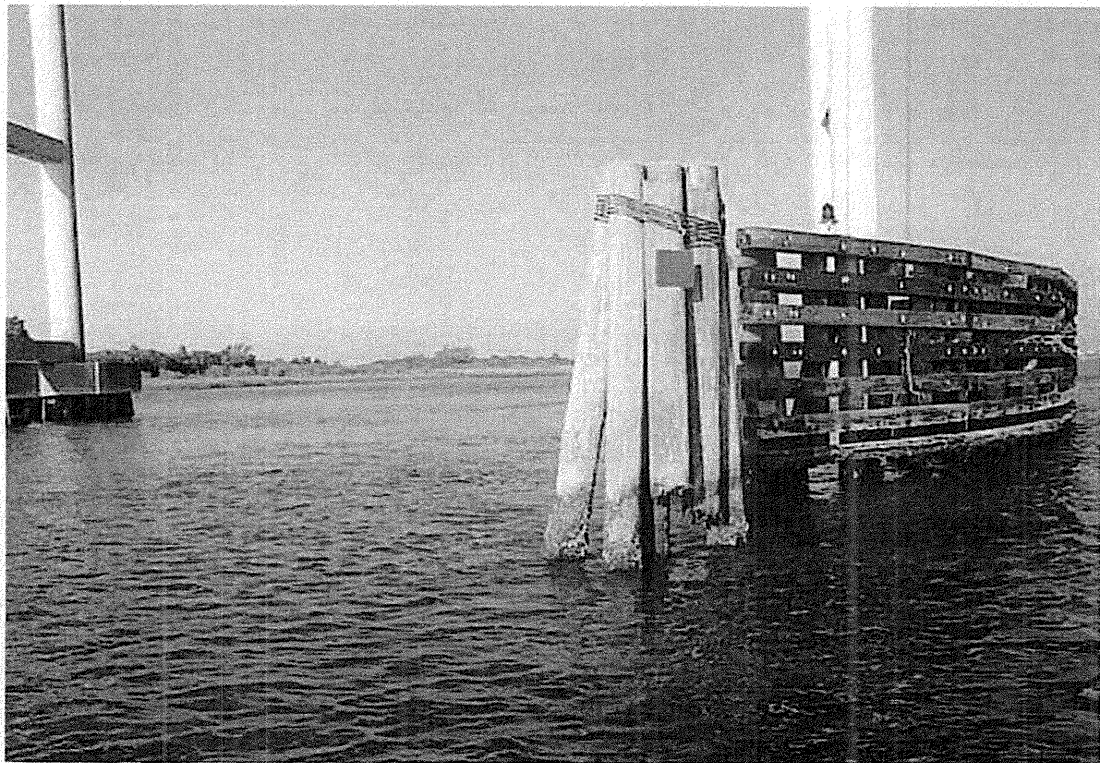
VERTICAL CLEARANCE MARKER NE DOLPHIN





NW DOLPHIN LEANING

SE DOLPHIN 2 BROKEN PILES

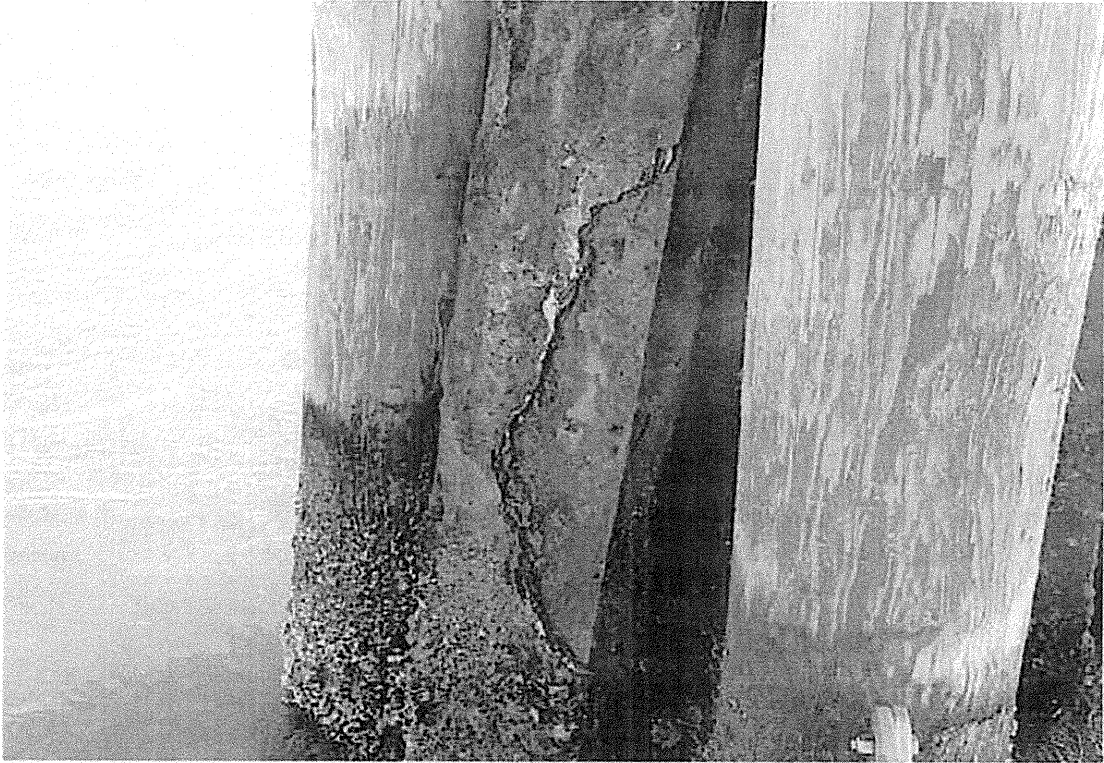




NE DOLPHIN BROKEN PILE

NE DOLPHIN RUSTED H-PILE





NE DOLPHIN H-PILES WITH RUST INDUCED HOLES



OVERVIEW BACKSIDE





LOWER WALER DETACHED AND HANGING N. SIDE OTHERS SIMILAR

WALERS MISSING S. SIDE OTHER AREAS SIMILAR





BORER DAMAGE LOWER WALERS

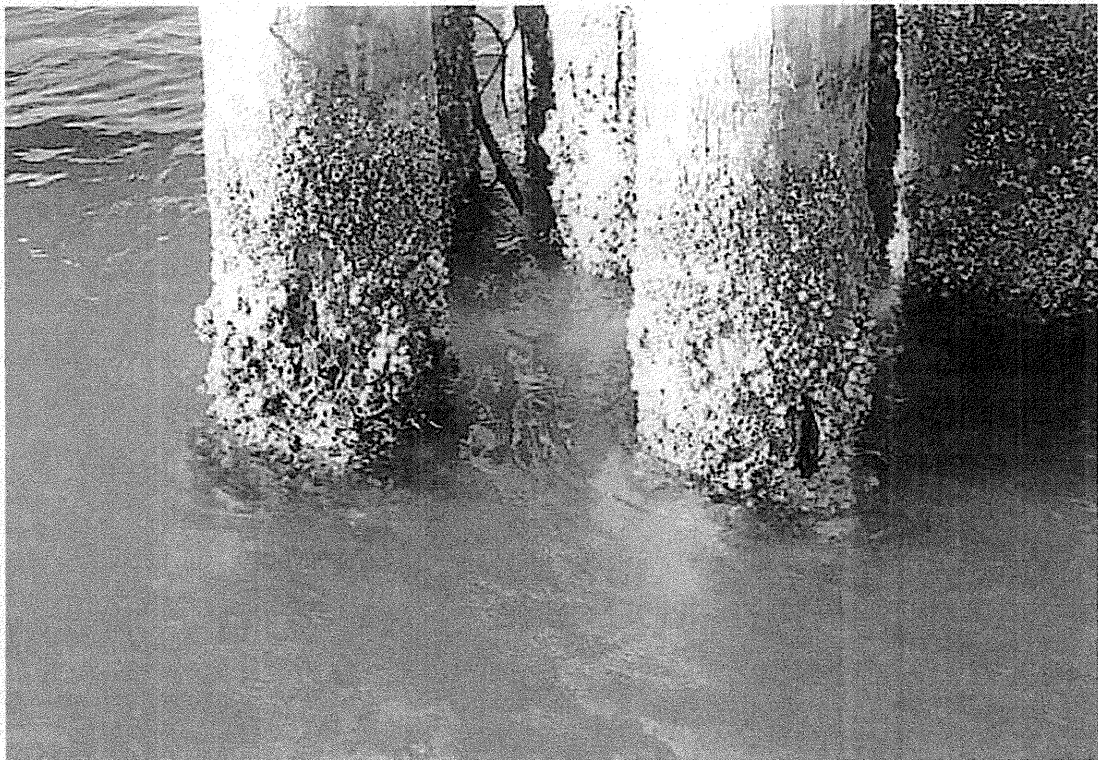
OLD CREO. PILES BORER DESTROYED CREATE ADDED DEAD LOAD

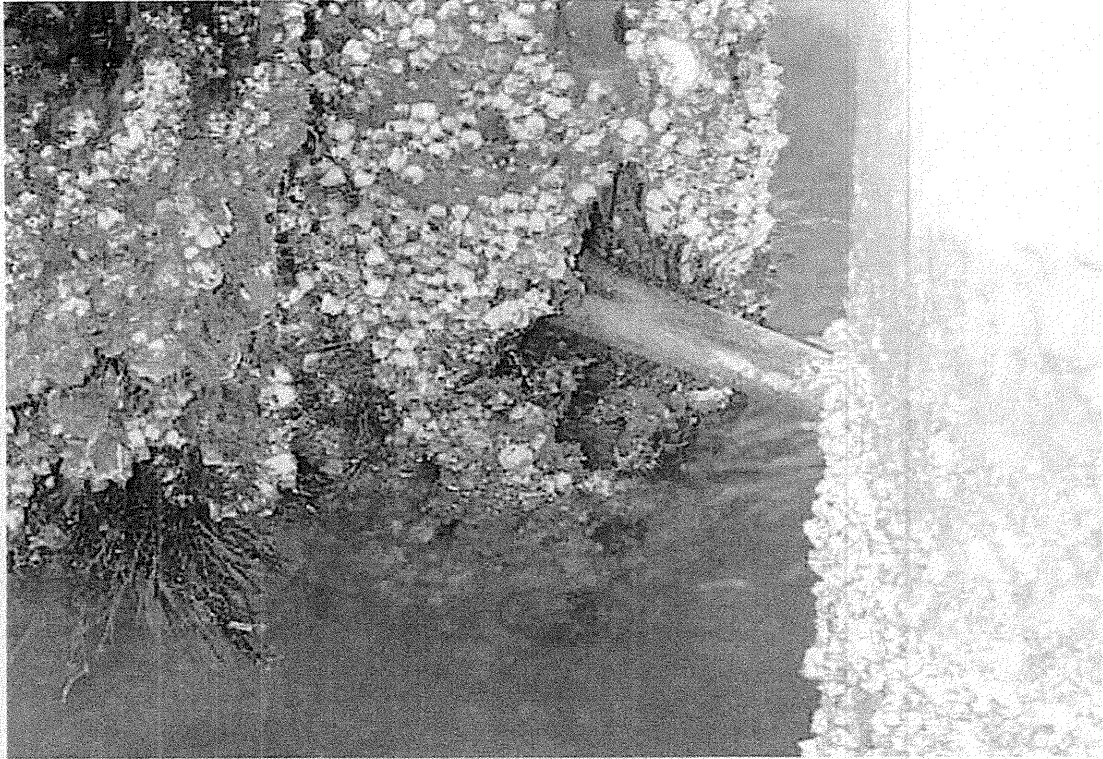




BORER DAMAGED LOWER WALERS

N SIDE CLUSTER 1 BORER DAMAGE

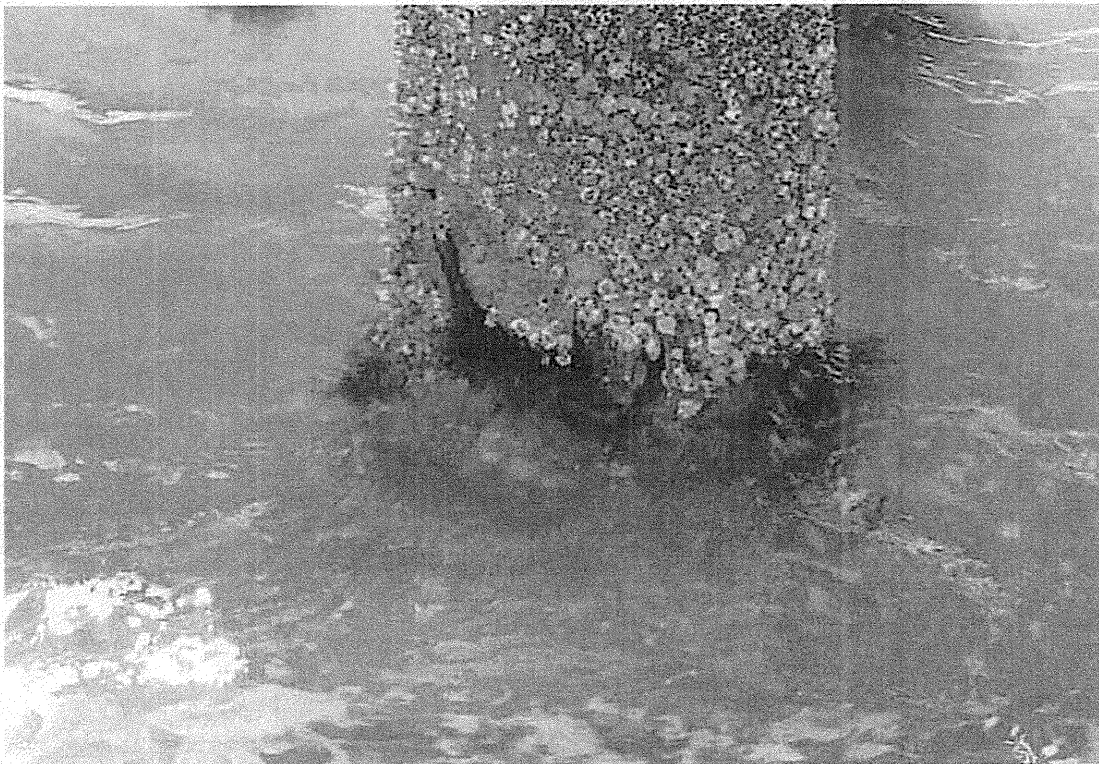


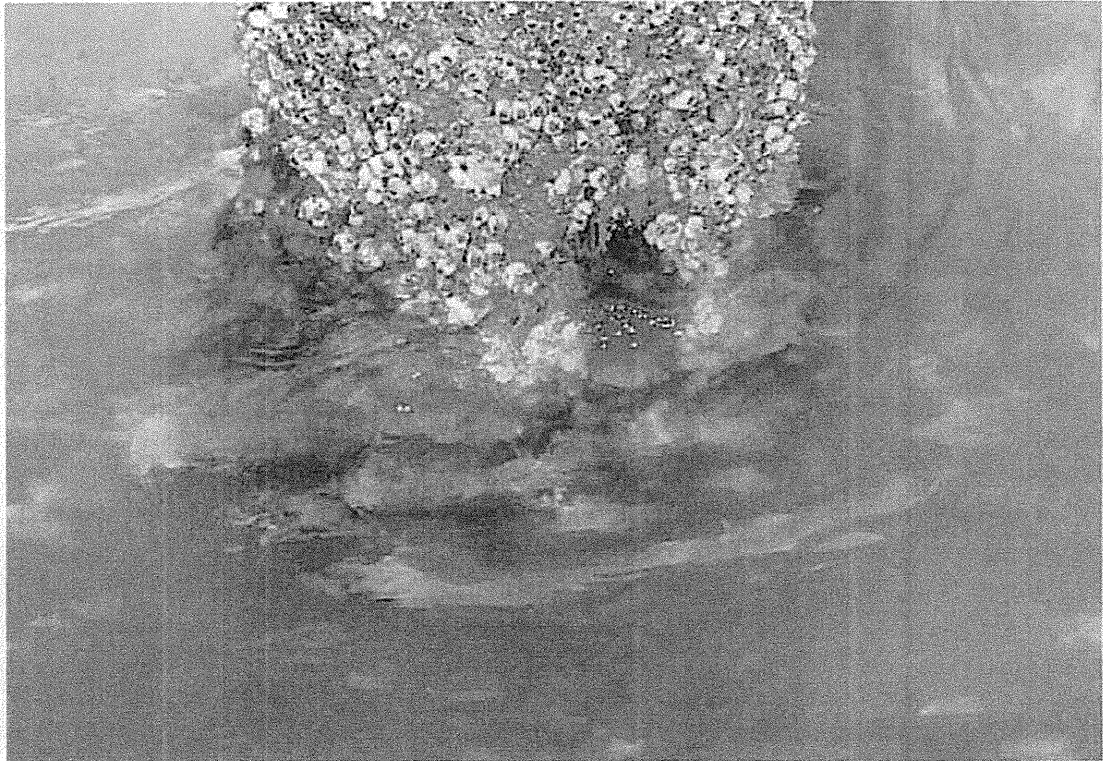


N. SIDE CLUSTER 15 NOTE HATCHET IMBEDDED IN PILE

N. SIDE CLUSTER 29 BORER DAMAGE

} PA ISSUED





CLUSTER 28 N. SIDE BORER DAMAGE

PA ISSUED

NORTH CAROLINA

Revised 6/13/97

DEPARTMENT of TRANSPORTATION

DIVISION of HIGHWAYS

BRIDGE MAINTENANCE UNIT

STRUCTURE DATA FILE

COUNTY CARTERET BRIDGE NO 150006

- CONTENTS:
- DATA CARD
 - STRUCTURE DATA WORK SHEETS
 - STREAM BED SOUNDINGS & PROFILE SKETCH
 - FORM 501 or 502
 - FORM BMD - 9
 - RETURNED PROMPT ACTION NOTICE SHOWING REPAIRS
 - OTHER SKETCHES & NOTES SHOWING STRUCTURE DETAILS
 - PHOTOGRAPHS

NOTE: STRUCTURE ANALYSIS - CHECK _____ YES or NO _____
WHEN PLANS ARE AVAILABLE

FIELD INSPECTOR _____

FATHOMETER RUN NUMBERS ENCLOSED WEST SIDE ONLY

DATE: 4/17/06

BY: W.H. LOTZ

WEST SIDE RUN TAKEN S-N +/- 10' FROM BENTS 1-58 W/S TO TOP OF FOOTING AT BT.# 19 = 6.1'

BT. #	W/D	BT. #	W/D	BT. #	W/D	BT. #	W/D	BT. #	W/D
2		14		26		36		48	
3		15		27		37		49	
4		16		28		38		50	
5		17		29		39		51	
6		18		30		40		52	
7		19		31		41		53	
8		20		32		42		54	
9		21		S. FEN.		43		55	
10		22		N. FEN		44		56	
11		23		33		45		57	
12		24		34		46		58	
13		25		35		47			

