

GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: 33394.1.1 ID: B-4027 COUNTY: Bertie

DESCRIPTION (1): Bridge No. 11 on SR 1219 over Cashie River

INFORMATION ON EXISTING BRIDGES Information obtained from field inspection
 microfilm (Reel: _____ Position: _____)
 other _____

COUNTY BRIDGE NO. 11 BRIDGE LENGTH 120' NO. BENTS 5 NO. BENTS IN CHANNEL 3 FLOOD PLAIN 2

FOUNDATION TYPE: Timber and concrete pile (5 additional I-Beams on H-piles)

EVIDENCE OF SCOUR (2): _____

ABUTMENTS OR END BENT SLOPES: None noted

INTERIOR BENTS: None noted

CHANNEL BED: None noted

CHANNEL BANKS: None noted

EXISTING SCOUR PROTECTION:

TYPE (3): Wooden end wall

EXTENT (4): 15 feet from outside edge of bridge

EFFECTIVENESS (5): Appears satisfactory

OBSTRUCTIONS (6) (DAMS, DEBRIS, ETC.): Beaver dam on upstream side of bridge

DESIGN INFORMATION

CHANNEL BED MATERIAL (7) (SAMPLE RESULTS ATTACHED): Fine to coarse sand (SS-1, SS-23)

CHANNEL BANK MATERIAL (8) (SAMPLE RESULTS ATTACHED): Fine to coarse sand (SS-12)

CHANNEL BANK COVER (9): Wooded

DESIGN INFORMATION CONT.

FLOOD PLAIN WIDTH (10): 300± feet

FLOOD PLAIN COVER (11): Wooded

STREAM IS DEGRADING AGGRADING EQUILIBRIUM (12)

OTHER OBSERVATIONS AND COMMENTS: 5 additional crutch piers support the structure

CHANNEL MIGRATION TENDENCY (13): North toward end bent 2

GEOTECHNICALLY ADJUSTED SCOUR ELEVATION (14): Calculations based on a correlation of scour-ability with the material strength of clay yields a scour depth of 22± feet. This scour elevation is approximatey 4± feet higher Than the respective maximum theoretical scour elevation provided by the Hydraulics Unit.

REPORTED BY: *JM West III*

DATE: 5/17/05

INSTRUCTIONS

- (1) GIVE THE DESCRIPTION OF THE SPECIFIC SITE GIVING ROUTE NUMBER AND BODY OF WATER CROSSED.
- (2) NOTE ANY EVIDENCE OF SCOUR AT THE EXISTING END BENTS OR ABUTMENTS (UNDERMINING, SLOUGHING, SCOUR LOCATIONS, DEGRADATIONS, ETC.)
- (3) NOTE ANY EXISTING SCOUR PROTECTION (RIP RAP, ETC.)
- (4) DESCRIBE THE EXTENT OF ANY EXISTING SCOUR PROTECTION.
- (5) DESCRIBE WHETHER OR NOT THE SCOUR PROTECTION APPEARS TO BE WORKING.
- (6) NOTE ANY DAMS, FALLEN TREES, DEBRIS AT BENTS, ETC.
- (7) DESCRIBE THE CHANNEL BED MATERIAL: A SAMPLE SHOULD BE TAKEN FOR GRAIN SIZE DISTRIBUTION. ATTACH LAB RESULTS.
- (8) DESCRIBE THE CHANNEL BANK MATERIAL: A SAMPLE SHOULD BE TAKEN FOR GRAIN SIZE DISTRIBUTION. ATTACH LAB RESULTS.
- (9) DESCRIBE THE BANK COVERING (GRASS, TREES, RIP RAP, NONE, ETC.)
- (10) GIVE THE APPROXIMATE FLOOD PLAIN WIDTH (ESTIMATE).
- (11) DESCRIBE THE FLOOD PLAIN COVERING (GRASS, TREES, CROPS, ETC.)
- (12) CHECK THE APPROPRIATE SPACE AS TO WHETHER THE STREAM IS DEGRADING, AGGRADING, OR EQUILIBRIUM.
- (13) DESCRIBE THE POTENTIAL OF THE BODY OF WATER TO MIGRATE Laterally DURING THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS).
- (14) GIVE THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION EXPECTED OVER THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS). THIS CAN BE GIVEN AS AN ELEVATION RANGE ACROSS THE SITE, OR ON A BENT BY BENT BASIS WHERE VARIATIONS EXIST. DISCUSS RELATIONSHIP BETWEEN THE HYDRAULICS THEORETICAL SCOUR AND THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION. THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION IS BASED ON THE ERODABILITY OF MATERIALS WITH CONSIDERATION FOR JOINTING, FOLIATION, BEDDING ORIENTATION AND FREQUENCY; CORE RECOVERY PERCENTAGE; PERCENTAGE RQD; DIFFERENTIAL WEATHERING; SHEAR STRENGTH; OBSERVATIONS AT EXISTING STRUCTURES; OTHER TESTS DEEMED APPROPRIATE; AND OVERALL GEOLOGIC CONDITIONS AT THE SITE.