

GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: 8.2711901 ID: B-3607 COUNTY: ASHE

DESCRIPTION(1): BRIDGE # 503 ON SR 1674 OVER BUFFALO CREEK

INFORMATION ON EXISTING BRIDGES Information obtained from:  field inspection  
 microfilm(Reel: Pos: )  
 other  hydro report

COUNTY BRIDGE NO. 503 BRIDGE LENGTH 178 NO. BENTS IN: CHANNEL 1 FLOOD PLAIN 2

FOUNDATION TYPE: STEEL I BEAM ON TIMBERS WITH CONCRETE ABUTMENTS

**EVIDENCE OF SCOUR(2):**

ABUTMENTS OR END BENT SLOPES: EAST SIDE MINOR SCOUR FROM RUNOFF NOT FROM STREAM

INTERIOR BENTS: B2 (CONCRETE FOOTING) SHOWS SOME SCOUR ON SE SIDE OF CONCRETE

CHANNEL BED: NONE

CHANNEL BANKS: NORTHWEST SIDE NO FLOODPLAIN AND UPSTREAM WEST SIDE

**EXISTING SCOUR PROTECTION:**

TYPE(3): RIPRAP, ARMORING, LARGE BOULDERS 1-4' DIAMETER

EXTENT(4): NW BANK, DOWNSTREAM OF EXISTING STRUCTURE

EFFECTIVENESS(5): VERY EFFECTIVE, NO SIGNS OF INCREASED MIGRATION IN NW DIRECTION

OBSTRUCTIONS(6) (DAMS, DEBRIS, ETC.): TREE DEBRIS LONG. TO BENT IN CHANNEL, BAR LOCATED DS OF T

**DESIGN INFORMATION**

CHANNEL BED MATERIAL(7) (SAMPLE RESULTS ATTACHED): GRAVEL AND COBBLES WITH OCCASIONAL 1-3' BOULDER WITH INTERSTICIAL SAND

CHANNEL BANK MATERIAL(8) (SAMPLE RESULTS ATTACHED): EAST BANK SILTY SAND W/ MICA AND GRAVEL

SW BANK SILTY SAND WITH COBBLES, NW BOULDERS WITH INTERSTICIAL GRAVEL AND SANDS

FOUNDATION BEARING MATERIAL(9): WR AMD CR AMPHIBOLITE GNEISS AND SCHIST

CHANNEL BANK COVER(10): DOWNSTREAM SHRUBS, GRASSES, A FEW YOUNG TREES

FLOOD PLAIN WIDTH(11): 50 + FEET. FLOODPLAIN ALTERED BY FILL ON EAST SIDE

FLOOD PLAIN COVER(12): GRASS AND SHRUBS

**DESIGN INFORMATION CONT.**

STREAM IS  DEGRADING  AGGRADING (13)

OTHER OBSERVATIONS AND COMMENTS: AGGRADING UNDER EXISTING BRIDGE ON WEST BANK

LARGE BOULDERS ON WEST BANK FILL. OUTCROP EXISTS WITHIN STREAM AND ON WEST BANK

CHANNEL MIGRATION TENDENCY (14): WEST

REPORTED BY: Christina M. Brino DATE: 5/6/03  
 TIERRA, INC

GEOTECHNICALLY ADJUSTED SCOUR ELEVATION (15):

	100 Year GASE		500 Year GASE	
	Left	Right	Left	Right
End Bent 1	2669.4'	2668.8'	End Bent 1	2669.2' 2668.8'
End Bent 2	2677.7'	2679.9'	End Bent 2	2676.2' 2678.4'

REPORTED BY: David DATE: 7/10/03  
 NCDOT GEOTECHNICAL UNIT

**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 FOUNDATION BEARING MATERIAL,
- (10) DESCRIBE THE BANK COVERING (GRASS, TREES, RIP RAP, NONE, ETC.)
- (11) GIVE THE APPROXIMATE FLOOD PLAIN WIDTH (ESTIMATE).
- (12) DESCRIBE THE FLOOD PLAIN COVERING (GRASS, TREES, CROPS, ETC.)
- (13) CHECK THE APPROPRIATE SPACE AS TO WHETHER THE STREAM IS DEGRADING OR AGGRADING
- (14) DESCRIBE THE POTENTIAL OF THE BODY OF WATER TO MIGRATE LATERALLY DURING THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS).
- (15) 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.