CATLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

GEOTECHNICAL UNIT FIELD SCOUR REPORT

NCDOT INFORMATION
PROJECT: 8.1442601
TIP #: U-0620
F.A. #: STP-0622(2)
COUNTY: Cumberland

CATLIN PROJECT: NCDOT GEO - BEAVER CREEK
CATLIN #: 201-075

SITE DESCRIPTION(1): Bridge on Hope Mills Bypass (-L-) over Beaver Creek

INFORMATION ON EXISTING BRIDGES:

Information obtained from: ✓ field inspection ____ microfilm(Reel: ____ Pos: ____) ____ other ____

COUNTY BRIDGE NO. 105 BRIDGE LENGTH ±105'

NO. BENTS IN: CHANNEL Bent 1 in channel / Bent 2 on edge FLOOD PLAIN 2 end bents

FOUNDATION TYPE: Steel H-Piles

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: End bent 2 = no scour ; End Bent 1 = scoured/under-cut on downstream side, fabric and rock placed as protection. appears to have stabalized

INTERIOR BENTS: Minor scour evident on downstream side of Bent 2

CHANNEL BED: ____

CHANNEL BANKS: Upstation side = sand & vegetation - minor undercut

EXISTING SCOUR PROTECTION: SEE SKETCH

TYPE(3): Fabric w/Rip Rap @ EB1

EXTENT(4): ± 2/3 of EB1

EFFECTIVENESS(5): Stable where Rip Rap is - minor erosion where only Fabric

OBSTRUCTIONS(6) (DAMS,DEBRIS,ETC.): None

DESIGN INFORMATION

CHANNEL BED MATERIAL(7) (SAMPLE RESULTS ATTACHED): Tan, brown, well sorted, v. Fine to fine sand w/ leaves, roots, + stems.

CHANNEL BANK MATERIAL(8) (SAMPLE RESULTS ATTACHED): Tan, well sorted, fine sand w/ trace well rounded gravels up to 2mm.

FOUNDATION BEARING MATERIAL(9): ____

CHANNEL BANK COVER(10): Grass, Rip Rap, Fabric, and none

FLOOD PLAIN WIDTH(11): ± 100'

FLOOD PLAIN COVER(12): Trees & Grass

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DESIGN INFORMATION CONT.

STREAM IS ✓ DEGRADING ____ AGGRADING (13)

OTHER OBSERVATIONS AND COMMENTS: ____

CHANNEL MIGRATION TENDENCY (14): upstation on right side of EB1

CRITICAL SCOUR ELEVATION (15): To be completed by NCDOT

REPORTED BY: Steve Hudson DATE: 5-31-01

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 CRITICAL 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 CRITICAL SCOUR ELEVATION. IF THE CRITICAL SCOUR ELEVATIONS DEPENDENT ON SCOUR COUNTER MEASURES, EXPLAIN. (RIP RAP ARMORING ON SLOPES, ETC.) THEORETICAL 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.