

**GEOTECHNICAL UNIT FIELD SCOUR REPORT**

PROJECT: 34383.1.1 TIP NO.: R-2206C COUNTY: Catawba

DESCRIPTION(1): Bridges on NC 16 Bypass over Reed Creek between SR 1855 and NC 16

◆ **INFORMATION ON EXISTING BRIDGES** Information obtained from  Field Inspection  
 Microfilm (Reel:                    Position:                    )  
 Other

COUNTY BRIDGE NO. N/A BRIDGE LENGTH N/A NO. BENTS NO. BENTS IN: CHANNEL FLOODPLAIN

FOUNDATION TYPE: None - New Structure

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: N/A

INTERIOR BENTS:

CHANNEL BED: None - Rock outcrops where SBL crosses and sand and gravel at NBL

CHANNEL BANKS: Trees leaning in toward creek channel

◆ **EXISTING SCOUR PROTECTION:**

TYPE(3): None - New Structure

EXTENT(4):

EFFECTIVENESS(5):

OBSTRUCTIONS(6) (DAMS, DEBRIS, ETC.): No current structure exists but there is a lot of debris from logging operation

◆ **DESIGN INFORMATION**

CHANNEL BED MATERIAL(7) (Sample Results Attached): Rock, gravel and sand

CHANNEL BANK MATERIAL(8) (Sample Results Attached): Sand

CHANNEL BANK COVER(10): Mature Trees

FLOOD PLAIN WIDTH(11): Approximately 60 meters

FLOOD PLAIN COVER(12): Mature trees, Grass, Shrubs

STREAM IS:  DEGRADING  AGGRADING (13)

OTHER OBSERVATIONS AND COMMENTS:

◆  
◆  
◆ **DESIGN INFORMATION CONT.**

CHANNEL MIGRATION TENDENCY(14): Slight

GEOTECHNICAL ADJUSTED SCOUR ELEVATIONS (15):

The Hydraulics Unit Theoretical Scour elevations for the interior bents fall between 279.5 to 281.6 meters for both NBL and SBL structures. Channel scour is predicted at approximate elevation 277.5 to 278.0 meters..

**BENT 1:**

Boring data obtained at Bent 1 indicates that scour may reach a potential depth of approximately 280.0 meters on the SBL structure and 273.4 meters for the NBL structure. The delineating scour boundary for Bent 1 SBL is hard rock. Peak scour for the NBL structure is delineated by weathered rock and very dense residual sand at approximate elevation 273.4 meters

**BENT 2:**

There is between 1.5 and 2 meters of variation in the weathered rock / rock boundary across both SBL and NBL structures. Weathered rock should be used as the delineating feature for scour across this bent. Scour elevations based on the weathered rock horizon are elevation 276.5 - 277.8 meters for SBL and 274.7 - 276.9 meters for NBL.

REPORTED BY: JEB / JKS DATE: 2-5-04

**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 (RIPRAP, 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, RIPRAP, 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 GEOTECHNICAL 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 GEOTECHNICAL ADJUSTED SCOUR ELEVATION. IF THE GEOTECHNICAL ADJUSTED SCOUR ELEVATION IS DEPENDENT ON SCOUR COUNTER MEASURES, EXPLAIN. (RIPRAP ARMORING ON SLOPES, ETC.) THE GEOTECHNICAL ADJUSTED SCOUR ELEVATION IS BASED ON THE ERODABILITY OF MATERIALS WITH CONSIDERATION FOR JOINTING, FOLIATION, BEDDING ORIENTATION AND FREQUENCY; CORE RECOVERY PERCENTAGE; PERCENT RQD; DIFFERENTIAL WEATHERING; SHEAR STRENGTH; OBSERVATIONS AT EXISTING STRUCTURES; OTHER TESTS DEEMED APPROPRIATE; AND OVERALL GEOLOGIC CONDITIONS AT THE SITE.