GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: **33465.1.1** ID: **B-4110** COUNTY: **Durham**

DESCRIPTION(1): Bridge No. 5 on -L- (SR 1616) over Mountain Creek

at -L- Station 17+42

INFORMATION ON EXISTING BRIDGE

Information obtained from: ☑ field inspection ☐ microfilm (Reel: ____ Pos: ____) ☑ other: Hydro Report

BR. NO.: 5 BR. LENGTH: 52' NO. BENTS: 4 NO. BENTS IN: CHANNEL: 3 FLOODPLAIN: 1

FOUNDATION TYPE: Timber Piles on Spread footings (all visible except EB2)

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: Local scour has exposed Spread footing at EB1

INTERIOR BENTS: Bent 1 has some local scour around the footing

CHANNEL BED: None

CHANNEL BANKS: None

EXISTING SCOUR PROTECTION:

TYPE(3): End Bents have wooden abutments

EXTENT(4): Walls are 9' tall x 40' long

EFFECTIVENESS(5): Effective

OBSTRUCTIONS(6) (DAMS,DEBRIS,ETC.): Several large logs on bents-upstream side (1 crosses channel)

DESIGN INFORMATION

CHANNEL BED MATERIAL(7): Alluvial, green and brown, sand with weathered rock fragments (SS-11)

CHANNEL BANK MATERIAL(8): Alluvial, gray-brown silty and sandy clay with trace organics (SS-10 and SS-13)

CHANNEL BANK COVER(9): Grass, brush, and trees

FLOOD PLAIN WIDTH(10): +/- 200 feet

FLOOD PLAIN COVER(11): Grass, brush, and trees

DESIGN INFORMATION CONT.

STREAM IS: X DEGRADING ____ AGGRADING (12)

OTHER OBSERVATIONS AND COMMENTS: Old concrete abutments remain downstream approximately 90 feet; EB1 and B1 has a timber (brace) between the two bents left of center

CHANNEL MIGRATION TENDENCY (13): Southwest toward End Bent 1

GEOTECHNICALLY ADJUSTED SCOUR ELEVATIONS(14):

The Geotechnically Adjusted Scour Elevation is unchanged from the Hydraulic Unit's Theoretical Scour Elevation

REPORTED BY: Jaime Love Pedro Jaime Love Pedro DATE: 5-23-05

INSTRUCTIONS

(1) GIVE THE DESCRIPTION OF THE SPECIFIC SITE, INCLUDING 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 (RIR 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 BASED ON OBSERVATION AND/OR SAMPLES.
(8) DESCRIBE THE CHANNEL BANK MATERIAL BASED ON OBSERVATION AND/OR SAMPLES.
(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 OR AGGRADING.
(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 THE RELATIONSHIP BETWEEN THE HYDRAULICS THEORETICAL SCOUR AND THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION. IF THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION IS DEPENDENT ON SCOUR COUNTER MEASURES, EXPLAIN. (RIPRAP ARMORING ON SLOPES, ETC.) 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.