



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

June 20, 2014

STATE PROJECT: 40158.1.1 (B-4967)
FEDERAL PROJECT: BRZ-1203 (2)
COUNTY: HOKE/SCOTLAND

DESCRIPTION: Bridge No. 8 over Lumber River on SR 1203/SR 1412
(Turnpike Road)

SUBJECT: Geotechnical Report – Inventory

The Geotechnical Engineering Unit has completed a subsurface investigation for this project and presents the following inventory. No plans, profiles, or cross-sections will be submitted for this roadway project.

Project Description

The project consists of the proposed replacement of Bridge No. 8 on SR 1203/SR 1412 (Turnpike Road), along the existing alignment. The total length of the roadway portion of the project is 0.118 miles. The majority of the widening proposed consists of sliver fills, pavement replacement and improvement, with vertical grades at or less than 1 foot higher than existing grades.

A geotechnical investigation consisting of one boring was performed in association with the PDEA report, provided by the Western Regional Office. No soil samples were tested. A copy of boring log is attached.

Physiography & Geology

The project is located 5 miles north of the town of Wagram, on the boundary between Hoke and Scotland County. The topography in the area is generally flat with upland terracing. The project area is comprised mostly of dense forest with some farmland and occasional residential structures.

The project corridor is located in the Coastal Plain Physiographic Province within the Middendorf Formation. Geologically, the project area consists of recent alluvial deposits overlying Cretaceous-aged sands and clays.

Lumber River is also referred to as Drowning Creek at this bridge location, and serves as the primary drainage basin for Moore, Hoke, Richmond and Scotland County. It flows in

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TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

a southeasterly direction, and often characterized by a wide, swampy floodplain. However, at this site, a more defined channel with 2 to 3 feet steep banks was observed.

Soils Properties

Soils encountered along the project corridor consist of roadway embankment, alluvial soils deposited by the Lumber River, and Coastal Plain, Cretaceous-aged soils of the Middendorf Formation.

Roadway embankment soils are present along existing SR 1203/1412 consist of less than approximately 11 feet of loose to medium dense, silty clayey sand (A-2-6).

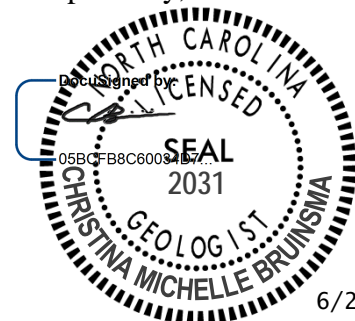
Alluvial soils are located within the floodplain of the Lumber River, and consist of stiff, sandy clay (A-6) with trace organics (associated with rootmat). Softer alluvial clays may be present outside of the footprint of the existing roadway, where alluvium has likely consolidated under the weight of embankment fills. Fine to coarse sands with possible gravel may be present within the channel of the River.

Coastal Plain soils we encountered at approximately 224 feet in elevation. These soils consist of Cretaceous-aged very loose to very dense silty and clayey sands interbedded with fine sandy clay (A-2-4, A-2-6, A-6).

Groundwater

The groundwater table is anticipated to be at elevations similar to Lumber River. Seasonal fluctuations in the water table can be expected.

Prepared by,



6/26/2014

Christina M. Bruinsma, LG
Project Geological Engineer

JLP/KBM/cmb

Attachments: Field Boring Logs - 2 pgs.



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

WBS 40158.1.1	TIP B-4967	COUNTY HOKE	GEOLOGIST Murray, C. C.
SITE DESCRIPTION BRIDGE NO. 8 OVER LUMBER RIVER ON SR 1412/SR1203 (TURNPIKE ROAD)			GROUND WTR (ft)
BORING NO. EB1	STATION 15+45	OFFSET 5 ft RT	ALIGNMENT -L-
COLLAR ELEV. 241.9 ft	TOTAL DEPTH 80.1 ft	NORTHING 445,545	EASTING 1,886,738
DRILL RIG/HAMMER EFF./DATE CME-550		DRILL METHOD NW Casing w/ SPT	HAMMER TYPE Automatic
DRILLER Estep, J. E.	START DATE 03/15/10	COMP. DATE 03/16/10	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
245															241.9	0.0
240	238.8	3.1	5	6	6											
235	233.8	8.1	3	2	2											
230	228.8	13.1	2	4	5											
225	223.8	18.1	9	12	12											
220	217.9	24.0	13	27	43											
215	213.3	28.6	4	6	6											
210	208.3	33.6	16	21	24											
205	203.3	38.6	4	4	7											
200	198.3	43.6	3	2	4											
195	193.3	48.6	0	1	1											
190	188.3	53.6	0	2	5											
185	183.3	58.6	2	2	1											
180	178.3	63.6	3	4	5											
175	173.3	68.6	18	32	46											
170	168.3	73.6	14	26	17											
165																

NCDOT BORE SINGLE B4967 GEO_RDWY.GPJ NC_DOT.GDT 6/20/14



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165																
	163.3	78.6	2	11	14	Match Line										
													W		161.8	80.1
Boring Terminated at Elevation 161.8 ft IN COASTAL PLAIN SAND (MIDDENDORF FORMATION)																

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