ground surface. The residual soils extend to at least the boring termination depths of ±24m to ±21m (Elevations ±242m to ±245m) at End Bent-1, to depths of ±23m to ±20m (Elevations ±235m to ±237m) at Bent-1, to a depth of ±21m (Elevation ±237m) at Bent-2, and to at least the boring termination depths of ±23m to ±24m (Elevations ±243m to ±242m) at End Bent-2. The residual soils generally consist of stiff to very stiff, coarse to fine sandy, silty, clay (A-7-5 and A-7-6), and variably clayey, coarse to fine sandy silt (A-4 and A-5); and of loose to very dense, silty, coarse to fine sand (A-2-4). Mica in concentrations varying from a trace to a little is present within much of the residual soil, and rock fragments are present within the resid ual soil at Boring B2-B between depths of ±12m and ±13m (Elevations ±246m and ±245m). Standard Penetration Resistance values within the residuum ranged from 7 and 73 bpf. The End Bent-1 and End Bent-2 borings were terminated within residual soil.

Weathered rock was encountered underlying the residual soils at the Bent-1 and Bent-2 borings. Weathered rock was not encountered at the End Bent-1 or End Bent-2 borings within the depths explored. The weathered rock generally consists of weathered granite. The weathered rock was encountered at 22.70m and 20.43m (Elevations 234.81m and 237.44m) at Borings B1-A and B1-B, respectively; and at 20.58m and 20.88m (Elevations 237.59 and 237.31m) at Borings B2-A and B2-B, respectively. The Bent-1 borings and Boring B2-A were terminated within weathered rock.

Crystalline rock was encountered at Boring B2-B. Crystalline rock was not encountered within the depths explored at the remaining seven borings. The crystalline rock at Boring B2-B was encountered at a depth of 22.88m (Elevation 235.31m), and the boring was terminated on crystalline rock consisting of granite.

3.5 GROUNDWATER

Groundwater was encountered in all of the borings drilled for this project. The groundwater elevation ranged from ±249m to ±252m. It should be noted that fluctuation of groundwater surface levels can occur with seasonal and climatic variations, with the highest groundwater levels expected in late winter and early spring. Seasonal low groundwater levels are expected in late summer and early fall.

4.0 NOTES TO THE DESIGNER

Rock fragments are present within some of the soil present at the site. Buried fiber optic lines parallel the Norfolk Southern Railroad tracks, and lie in close proximity to the proposed Bent-1 and Bent-2 foundations. The center of the existing outside foundations at the interior bents, based on a review of the as-built drawings, is 1.52m from the edge of the existing bridge.

5.0 CLOSURE

The geotechnical investigation, analysis, and general foundation recommendations are based on the Preliminary General Drawings, and the data obtained from our field and laboratory-testing program. If the proposed location and geometry, or finished grades are changed or are different from those outlined above, or if subsurface conditions are encountered during construction which differ from those indicated by our borings, we will require the opportunity to review these changed conditions and make any necessary modifications to the general recommendations presented in this report.

Cross-sections and profiles are a generalized interpretation of soil conditions between borings and should not be considered accurate other than at the boring locations. Subsurface conditions between boring locations or elsewhere on the site may vary, and subsurface anomalies may exist which were not detected.

Trigon Engineering Consultants, Inc. appreciates the opportunity to be of service to the NCDOT on this project. Should you have any questions concerning this report, please feel free to contact the undersigned.

Respectfully submitted,

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Attachments

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