

rock. The weathering profile is more complicated on the remainder of this project, where saprolite, weathered rock, and hard rock are found interlayered.

Hard rock is found at depths that vary from less than 0.5 meters to more than 15 meters from the base of alluvium. It consists almost wholly of metasiltstone and phyllite, which, when fresh, are both medium gray, moderately hard, very fine-grained, micaceous rocks derived from the metamorphism of silty or clayey sediment. Remnant sedimentary bedding a few centimeters or less in thickness is well preserved in the metasiltstone and serves as one of the preferred surfaces of jointing. A well developed foliation in phyllite more or less obscures bedding in that lithology due to shear on the foliation planes. Foliation is also present in the metasiltstone but is weakly developed. Foliation is the preferred plane of breakage in both lithologies. It consistently dips to the east at angles between 40° and 60°, whereas bedding attitude varies considerably.

Some sections of metasiltstone and phyllite are more or less calcareous. Preferred weathering along calcareous layers may account for the high variability from fresh to weathered intervals at depth.

Some sections contain thin beds, 10 to 30 centimeters thick, of calc-silicate granofels, commonly referred to as pseudodiorite. This is a medium- to coarse-grained rock that resembles diorite. Some of these layers contain open cavities that, as conduits for groundwater, may account for pockets of severe weathering below the hard rock line.

A 2-meter-thick bed of pale gray, very hard, fine-grained metaquartzite was found on the west-bound side of bent 5.

All of those rocks belong to the Mineral Bluff Formation, unit Zmb on the Geologic map of North Carolina, 1985.

Bent Descriptions

End Bent 1 (EB1):

This bent is located in a cultivated field on the west bank floodplain approximately 110 meters from the river bank and 10 meters from the base of the slope at the margin of the floodplain. Alluvial soil is 3.0 to 3.5 meters deep overlying approximately 0.5 to 3.0 meters of soft weathered rock.

A boring on the centerline of -L-Rev (EBL EB1-A) penetrated 2.7 meters of soft weathered rock beneath the alluvium. It in turn overlay slightly weathered, fractured phyllite. Fresh, good quality metasiltstone was encountered at a depth of 9 meters, and continued to the base of boring at 13.83 meters.