

GEOLOGIC CROSS SECTION 2I – VAN DORN STREET
Cross section 2I runs northward from Oakwood to the southern edge of Baileys Crossroads. The section follows Van Dorn Street across the wide valley of Backlick Run and through the Landmark area, before turning and paralleling Holmes Run Gorge through Dowden Terrace to Sunset Manor. Geotechnical borings are concentrated in the more urbanized southern and central parts of the section, while outcrops are more numerous in the north, near Holmes Run Gorge. These features, and other sites of cultural and environmental interest, are indicated by labels and symbols along the cross section. The specific location of the cross section is indicated on Plate 1 by a violet section line.

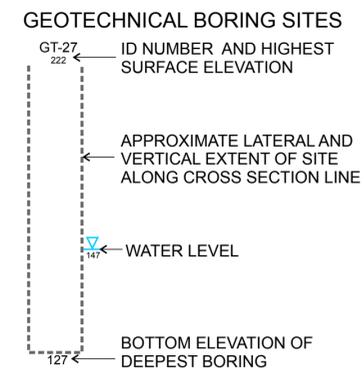
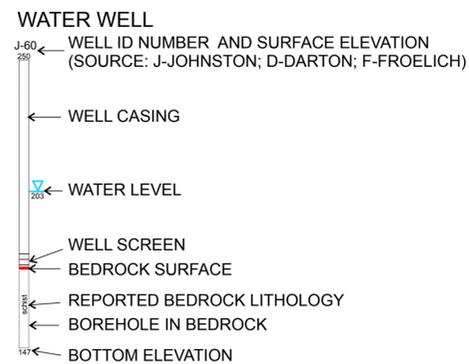
The cross sections are designed to be used with the geologic maps, particularly Plate 5, to illustrate the third dimension of the map units and their relations with landforms and water resources. Contacts between map units are approximately located; the abundance of control points (surface exposures, wells, geotechnical sites) along the cross section provides a general indication of the reliability of contact locations. Map units are depicted with the same colors, patterns, and labels as on Plate 5, and the explanation of map units on Plate 5 serves as the legend.

The dominant physiographic features in this section are the deeply entrenched valleys of Backlick and Holmes Runs, along with the dissected terrace remnants that cap the intervening uplands. Most of the

hillsides along the section line are underlain by the lower part of the Potomac Formation, which features the thick, water-bearing, sandy strata of the lower Cameron Valley sand member (Kpcs) at the base. Springs and seeps issuing from this unit support the baseflow of the major ravines. The upper parts of many slopes are underlain by the Lincolnia silty clay (Kpl), a hard, fractured, poorly permeable unit with a high percentage of expandable clay minerals. Landslides are very common on these upper slopes, especially just below the contact with the overlying upland terrace gravels, where perched water tends to soften the underlying silt and clay, causing a reduction in strength and seasonally high pore pressures in fractures. The Winkler sand (Kpw) comprises a system of channels cut into the Lincolnia silty clay along the Shirley Highway corridor; as seen in this section, the Lincolnia and Winkler appear to occupy a similar interval as the upper part of the Cameron Valley sand (Kpcv), and it seems likely that the Lincolnia and Winkler are simply in a large-scale, lateral facies relation to the Cameron Valley sand.

Further to the north, the Potomac Formation thins toward its updip edge, and bedrock crops out extensively in Holmes Run Gorge and its tributaries. The Indian Run Formation and Occoquan Granite make up most of the bedrock in this area. By the time the section reaches the outskirts of Baileys Crossroads, at the far north end, the Potomac Formation has been entirely stripped off by erosion, and late Tertiary gravel of the Dowden terrace directly overlies the weathered bedrock.

EXPLANATION OF CROSS SECTION SYMBOLS:



OTHER SYMBOLS: 47 SURFACE EXPOSURE. SOME EXCAVATIONS COINCIDE WITH GEOTECHNICAL BORING SITES

WATER LEVELS REPORTED IN WELLS AND GEOTECHNICAL BORINGS

- ▽ 119 WATER LEVEL MEASURED IN WELL OR CASED GEOTECHNICAL BORING COMPLETED IN THE CAMERON VALLEY SAND (LOWER AQUIFER OF THE POTOMAC FORMATION)
- ▽ 132 WATER LEVEL MEASURED IN 1976 FROM WELL COMPLETED IN CAMERON VALLEY SAND (JOHNSTON AND LARSON, 1977)
- ▽ 210 WATER LEVEL MEASURED IN WELL OR GEOTECHNICAL BORING COMPLETED IN OTHER AQUIFERS. MAY REPRESENT A COMPOSITE OR AVERAGE WATER LEVEL AT GEOTECHNICAL SITES WITH MANY BORINGS

INTERSECTION WITH ANOTHER CROSS SECTION. CROSS SECTIONS ARE DISTINGUISHED BY NAME AND COLOR-CODED SECTION LINES AND TITLES