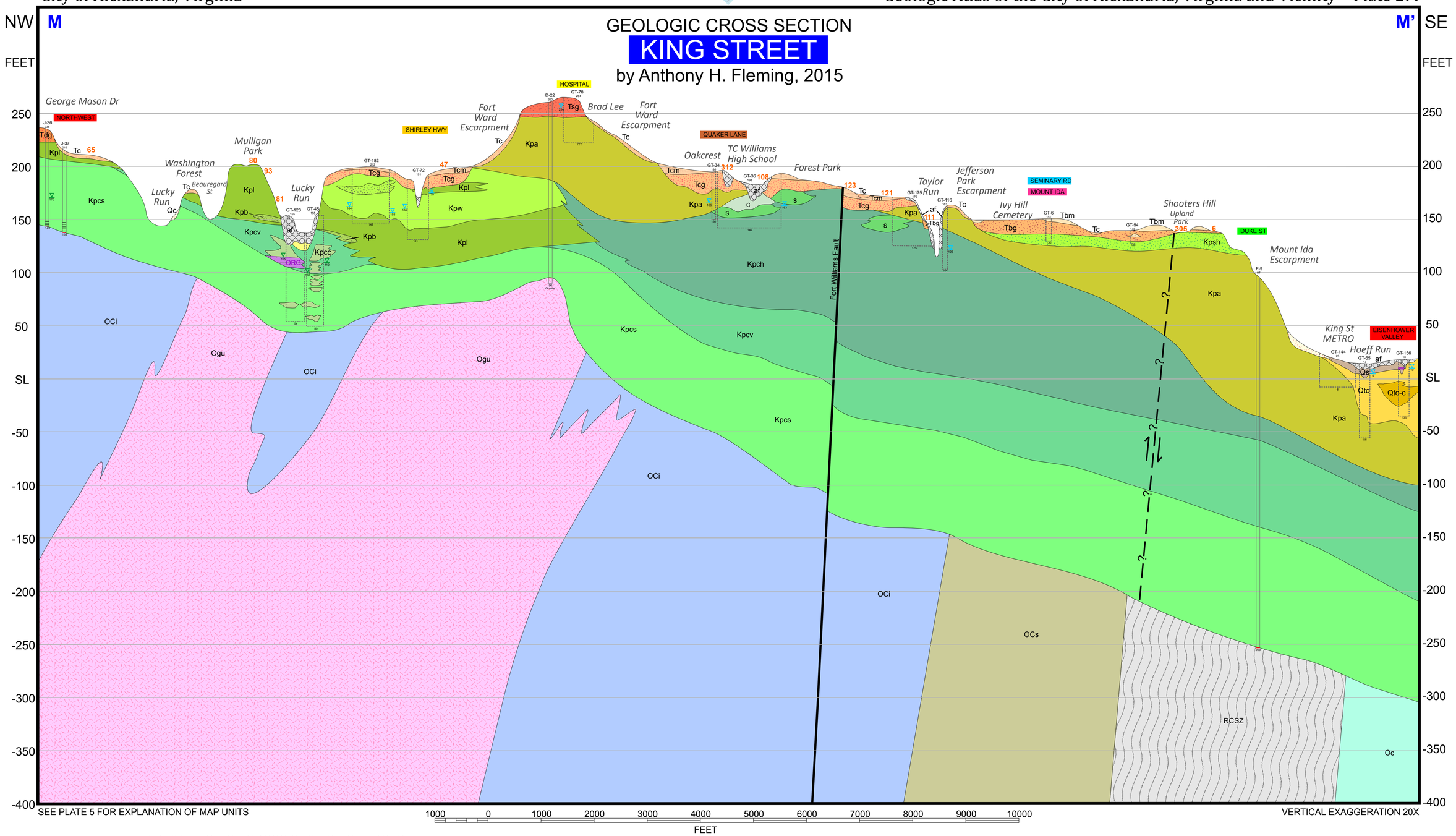

EXPLANATION OF CROSS SECTION SYMBOLS:

WATER WELL

- WELL ID NUMBER AND SURFACE ELEVATION (SOURCE: J-JOHNSTON; D-DARTON; F-FROELICH)
- WELL CASING
- WATER LEVEL
- WELL SCREEN
- REPORTED BEDROCK LITHOLOGY
- BOTTOM ELEVATION

BEDROCK SURFACE

BOREHOLE IN BEDROCK

GEOTECHNICAL BORING SITES

- ID NUMBER AND HIGHEST SURFACE ELEVATION
- APPROXIMATE LATERAL AND VERTICAL EXTENT OF SITE ALONG CROSS SECTION LINE
- WATER LEVEL
- BOTTOM ELEVATION OF DEEPEST BORING

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

OTHER SYMBOLS

- 47 — SURFACE EXPOSURE. SOME EXCAVATIONS COINCIDE WITH GEOTECHNICAL BORING SITES
- GRAVELLY ZONES IN THE WINKLER SAND (Kpw) REPORTED IN GEOTECHNICAL BORINGS
- ORG — ORGANIC ZONES REPORTED IN GEOTECHNICAL BORINGS FROM THE POTOMAC FORMATION, QUATERNARY ALLUVIUM, AND OTHER SEDIMENTS. INCLUDES WOOD, PEAT, LIGNITE, LEAVES, DARK ORGANIC SILT, AND OTHER ORGANIC MATERIALS
- DUKE ST — INTERSECTION WITH ANOTHER CROSS SECTION. CROSS SECTIONS ARE DISTINGUISHED BY NAME AND COLOR-CODED SECTION LINES AND TITLES
- –?– –?– SPECULATIVE POST-CRETACEOUS FAULT OR FLEXURE ASSOCIATED WITH THE ROCK CREEK SHEAR ZONE

GEOLOGIC CROSS SECTION 2M– KING STREET

Cross section 2M originates near the northwest corner of the City and follows the King Street corridor southeastward to the west edge of Old Town. The western part of the section crosses the deeply dissected terrain of the Lucky Run watershed on its way to the summit of the Seminary terrace, while the eastern part exemplifies the step-like series of upland terrace surfaces that dominate the highlands in the northeastern part of the City. Bends in the section capture geotechnical boring sites, historical water wells, exposures, and sites of cultural, historical, and environmental interest, all of which are indicated by labels and symbols along the cross section. The specific location of the cross section is indicated on Plate 1 by a dark blue section line.

The cross sections are intended to be used together with the geologic maps, particularly Plate 5, to illustrate the third dimension of the map units and their relations to landforms and water resources. Contacts between map units are approximately located and, in the Potomac Formation, may be gradational or transitional. 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 using the same colors, patterns, and labels as on Plate 5, and the explanation of map units on Plate 5 serves as the legend. The section also depicts some bedrock units, gravelly zones in the Potomac Formation, and organic horizons that are present only in the subsurface and do not appear on Plate 5.

The dominant physiographic features are the many terrace remnants, which manifest as nearly level upland surfaces underlain by alluvial sand and gravel. They range from small erosional scraps hanging on the sides of the large ravines in the northwest part of the City, to rather extensive plains in the less dissected eastern part of the section. The part of the section between Shirley Highway and Shooters Hill is perhaps the best illustration of the physiographic relations between the upland terraces in the City, because it crosses them in sequence, with little interruption of the original terrace straths by subsequent ravine incision.

The section closely parallels the structural dip of the bedrock surface, thereby tracing the rapid southeastward increase in thickness of the Potomac Formation across the map area. Although the stratigraphic relations shown within the formation at depth are somewhat speculative, the interpretation presented in the cross section shows the formation to consist of two major sequences: a lower, predominantly sandy sequence composed of the Cameron Valley sand (Kpcs, Kpcv) and Winkler sand (Kpw), sandwiched around the Lincolnia silty clay (Kpl); and an upper, finer-grained sequence composed of the Chinquapin Hollow fine sandy clay (Kpch) and the Arell clay (Kpa), with smaller intercalated sand bodies. Relations depicted in the cross section show the upper sequence cutting across contacts in the lower sequence, highlighting the potential unconformity between the two. As suggested elsewhere in this atlas, the upper sequence, and especially the Arell clay, may be filling an erosional cutout in the lower sequence. The Fort Williams fault is also prominent in this section, offsetting both the Potomac Formation as well as the Chinqupin Village terrace (Tcg/Tcm). The age of the fault motion is poorly constrained; all that can be said is that it post dates deposition of the Chinquapin Village terrace, making it Pliocene(?) or younger. Changes in slope of the bedrock surface beneath Shooters Hill and Brad Lee may signify other faults.