U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Anchor the DOI/USGS headnote in the upper left corner, flush with the map's left edge (neatline).

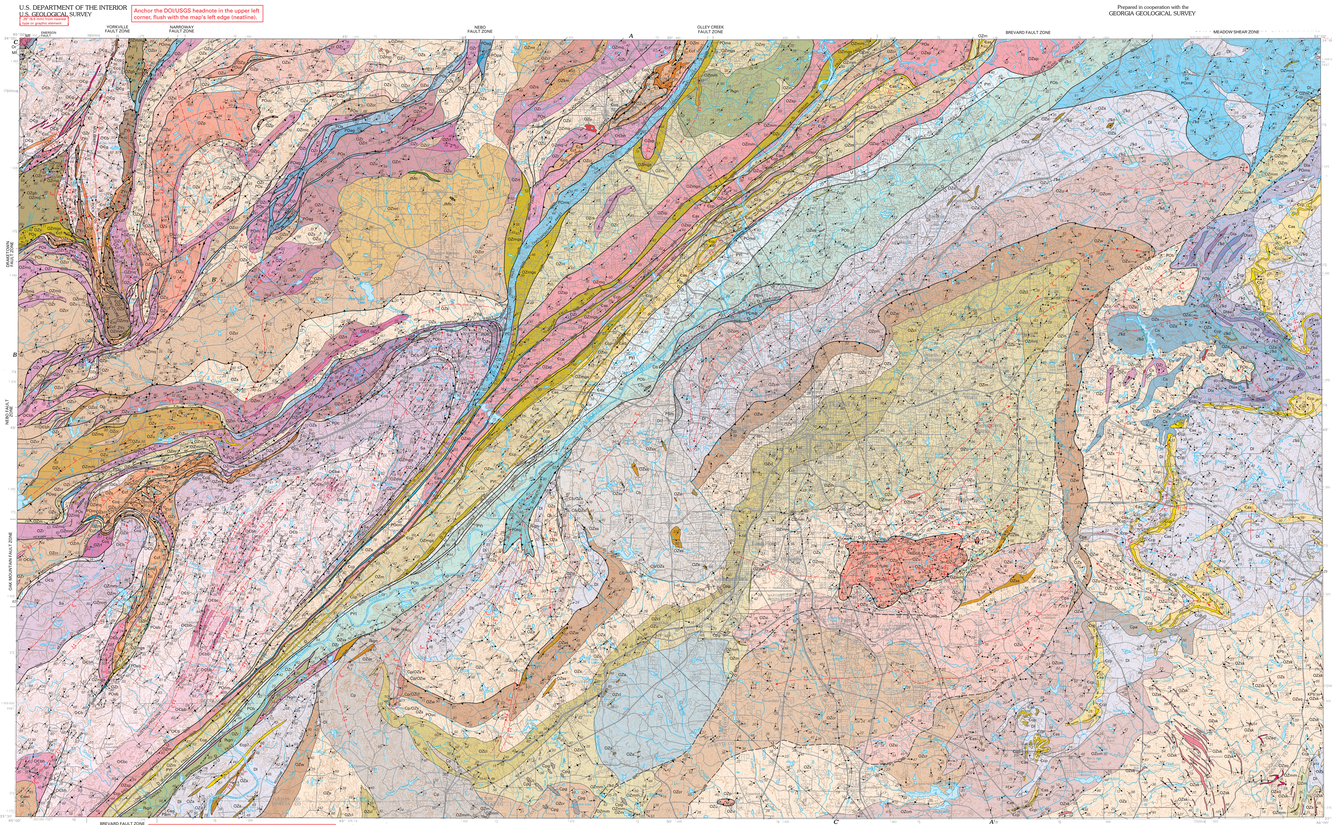
Prepared in cooperation with the
GEORGIA GEOLOGICAL SURVEY

# SCIENTIFIC INVESTIGATIONS MAP 2602

*Explanatory pamphlet accompanies map*

Second Rank Heading
Souvenir Medium (9pt Caps)

Standard column width for running text is 28 picks.
Paragraph or first line indent is 10 point.




Base from U.S. Geological Survey, 1981
1927 North American datum
25,000-foot grid ticks based on Georgia coordinate system, west zone
10,000-meter Universal Transverse Mercator grid ticks, zone 16

This map uses the traditional fonts identified for geologic maps. For a comparison of the Digital Cartographic Standards (DCS) recommended fonts see the following examples:

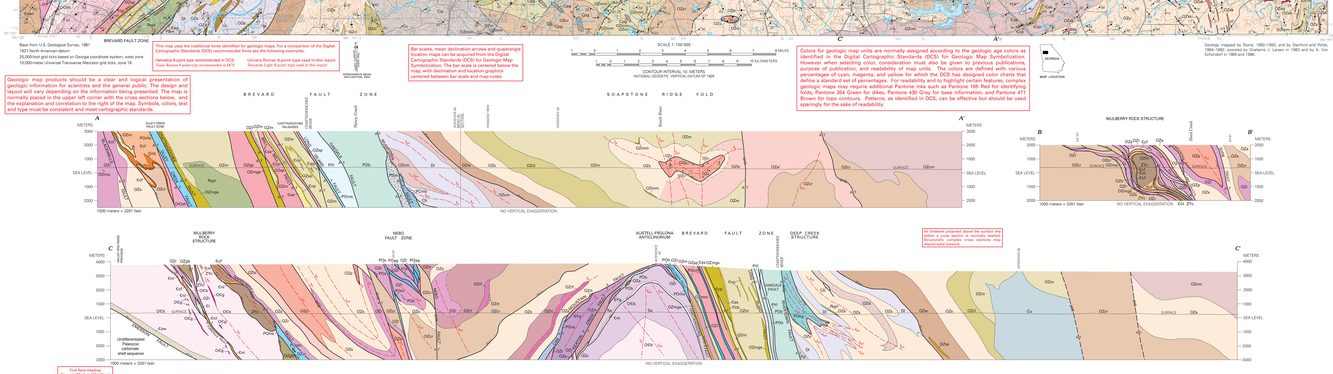
Helvetica 8-point type recommended in DCS
Times Roman 8-point type recommended in DCS

Univers Roman 8-point type used in this report
Souvenir Light 8-point type used in this report

Geologic map products should be a clear and logical presentation of geologic information for scientists and the general public. The design and layout will vary depending on the information being presented. The map is normally placed in the upper left corner with the cross sections below, and the explanation and correlation to the right of the map. Symbols, colors, text and type must be consistent and meet cartographic standards.

Bar scales, mean declination arrows and quadrangle location maps can be acquired from the Digital Cartographic Standards (DCS) for Geologic Map Symbolization. The bar scale is centered below the map, with declination and location graphics centered between bar scale and map notes

Colors for geologic map units are normally assigned according to the geologic age colors as identified in the Digital Cartographic Standards (DCS) for Geologic Map Symbolization. However when selecting colors, consideration must also be given to previous publications, presence of subsidiary and non-geologic of map units, and the number of map units and percentages of each. Fortunately, most of the geologic age colors share that define a standard set of percentages. For readability and to highlight certain features, complex geologic maps may require additional Pantone inks such as Pantone 185 Red for identifying folds, Pantone 364 Green for dikes, Pantone 430 Gray for base information, and Pantone 471 Brown for topo contours. Patterns, as identified in DCS, can be effective but should be used sparingly for the sake of readability.




All linework projected above the surface line of section. Projection of structures beyond surface topographic complex cross sections may require solid linework.

Geology mapped by Stone, 1962–1982, and by Stanford and Wilde, 1984–1992; assisted by Grahame J. Larsen in 1983 and by A. Von Schmacht in 1985 and 1986

## DESCRIPTION OF MAP UNITS

Geologic map units are listed in descending order of age. Within each age, units are listed in alphabetical order.

Second Rank Heading
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Geologic map unit symbols are set in Univers 55 Roman 8-point type. Text is composed in a Roman font.

Qg **Gneiss (Holocene?)**—Dark-brown, iron-rich, siliceous, porous-textured, poorly sorted, angular to subrounded gravel, sand, silt, and clay in the Cook Creek Wetlands (Gill), in inland part of the swamp assemblage, and in shaded and altered rocks in fault zones, generally near magnetite quarries.

Ꝑ̄d **Diabase (Proterozoic?)**—Dark-green, very fine grained, dark-gray to black aphanitic diabase, locally containing small amounts of dolerite, hypersthene, hornblende, magnetite, and pyrite (see Lanier and Allen, 1993). In dikes generally less than 30 m wide, commonly weathered to a depth of 3 m or more, the same thickness. The diabase weathers to dark-red clay, and that contains abundant boulders with fresh rock inside are amazing, otherworldly-red, the weathered rock in the boulders exhibits fine lines on a braid of college.

## FAULT ROCKS—PROTOLITH UNKNOWN

Pzfu **Mylonitized granitoid (Permian? to Mississippian?)**—Light-gray to white, locally pinkish, generally clearly fliedgrayseamy, silicified microcinema fliedy rock. Rock is composed of microscopic quartz, muscovite, and minor feldspar. Quartz fibs anchor, most are seen to be multigly-lineated. To the east, in the Athens 30' x 60' quadrangle, large thick bodies of microcinema have carried large amounts of granitic material from the Austell-Fredonia gneiss. The contact edges of broken quartz-rock lenses of magnitude that the microcinema are later or post-metamorphic features and implying Paleozoicness to Permian ages for the last movement on the Brevard fault zone. Similar ages for mylonites are indicated by offset Late Triassic to Early Jurassic diabase dikes in the western part of the Athens 30' x 60' quadrangle (Jones, 1970; W.M. Higgins, T.J. Crawford, unpublished mapping). In the eastern part of Athens Co., 30' x 60' quadrangle, but displacements may be relatively small.

Pzfu **Mylonitized granitoid (Permian? to Silurian?)**—Light-gray to nearly white granite, weathers to a dark-red clay. Rock is composed of microscopic quartz, Dacite style of deformation indicates for building one synmetamorphic and thus Permian or older

PDfu **Brittle schist and sheared amphibolite (dated by shearing of mined unit (Ediz) (Permian? to Upper Ordovician?)**—Gray to silvery, tan-weathering biotite-muscovite-quartz-sericite schist (Higgins, 1971); with c.l.5 percent fine-grained, dark-gray to black, fine-grained amphibolite (Higgins, 1971). Rock is fish-scale texture and locally displaying fish-flash (Simpson, 1986, p. 252); locally metagabbroic, in many places including (c)biotite-sericite-quartz-plagioclase phyllonite with trace-talc and fish-flash, and, locally, lenses and slivers of sheared chlorite-sericite (fibrolitic)-plagioclase and chlorite-actinolite-plagioclase phyllonite (Higgins, 1971). Rock is fish-flash, and, locally, lenses and slivers of sheared chlorite-actinol