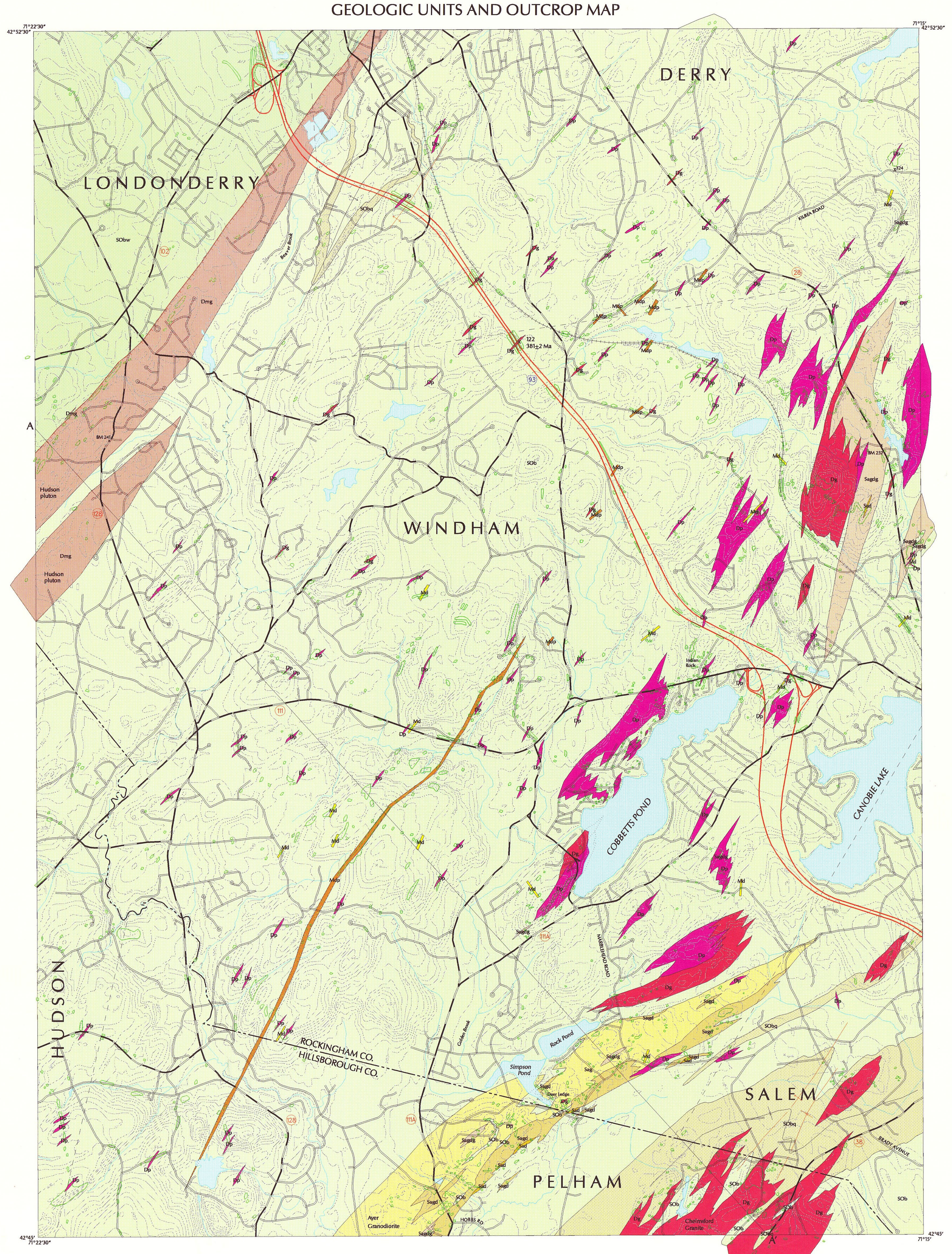
U.S. Department of the Interior
U.S. Geological Survey

Prepared in cooperation with the
New Hampshire Department of Environmental Services, Water Division

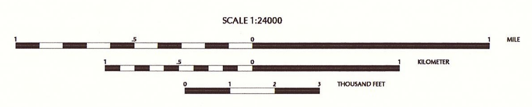
OPEN-FILE REPORT 99-8-A, v. 1.0
Plate 1 of 1
Explanatory pamphlet accompanies map

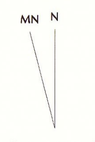
GEOLOGIC UNITS AND OUTCROP MAP



Topography from the Windham, NH 7.5′ quadrangle (1953 edition)
Contour Interval 20 feet
Digital map units in State Plane Coordinate System
National Geodetic Horizontal Datum of 1983
Roads, hydrography, and political boundaries from the
NH GRANIT system, State of New Hampshire

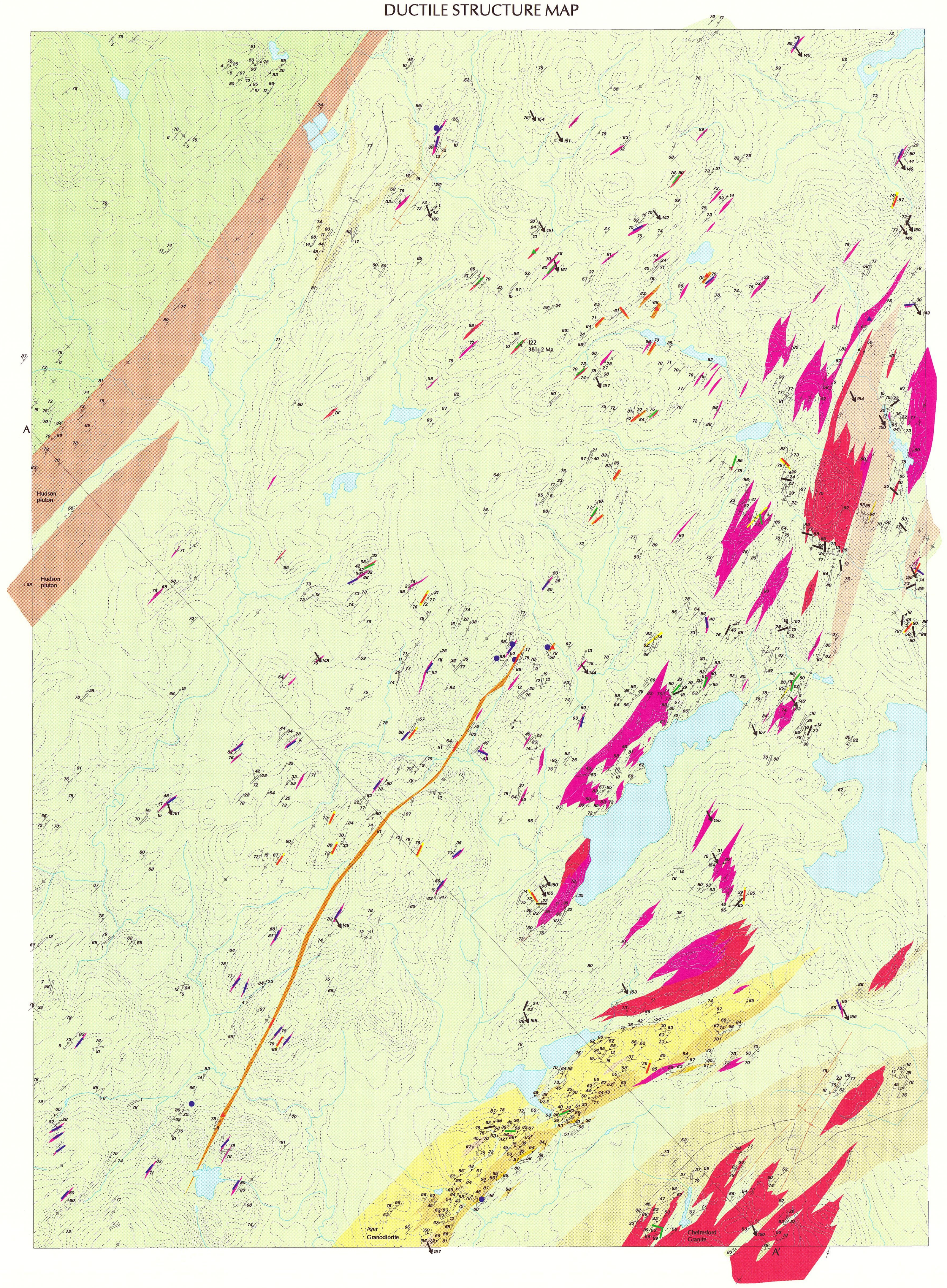
Geology mapped by Walsh and Clark in 1998,
Digitized by Walsh, Clark, and James Reddy[2].





Approximate Mean Declination
16°00′ West, 1985

DUCTILE STRUCTURE MAP



BRITTLE STRUCTURE MAP

Bedrock Geologic Map of the Windham Quadrangle Rockingham and Hillsborough Counties, New Hampshire

by
Gregory J. Walsh[1] and Stewart F. Clark, Jr.[1]
1999

AFFILIATIONS:
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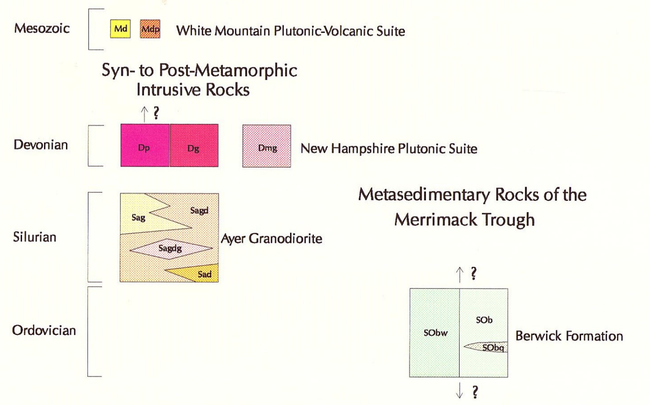
Reston, Virginia 20192

This plate was compiled from the digital bedrock geologic information for the Windham quadrangle located in Rockingham and Hillsborough Counties, New Hampshire. The database was digitally compiled in ARC/INFO version 7.0.4. The topography was obtained from a photographic negative separate of contour lines from the Windham (1953 edition) U.S.G.S. 7.5 minute topographic quadrangle. The negative was scanned on an Anatech Eagle scanner. The raster image was vectorized using GTX OSR Contour version 2.00 by GTX Corporation, Inc., and converted into an unattributed line coverage in ARC/INFO.

Correlation of Map Units



Simplified Description of Map Units

Minerals listed in order of increasing abundance (see accompanying text for complete description)

POST-METAMORPHIC INTRUSIVE ROCKS

White Mountain Plutonic-Volcanic Suite

Md	Diabase and lamprophyre dikes (Mesozoic)
Mdp	Porphyritic diabase dikes with plagioclase phenocrysts (Mesozoic)

SYN- TO POST-METAMORPHIC INTRUSIVE ROCKS

New Hampshire Plutonic Suite (includes Chelmsford Granite and Hudson pluton)

Dp	Pegmatite (Devonian?)
Dg	Binary granite and granitic pegmatite (Devonian)
Dmg	Muscovite granite (Devonian)

Rocks of the Ayer Granodiorite (Silurian)

Sag	Porphyritic granite to granodiorite
Sagd	Granodiorite
Sagdg	Garnetiferous granodiorite
Sad	Diorite

METASEDIMENTARY ROCKS OF THE MERRIMACK TROUGH

Berwick Formation (Ordovician and Silurian)

SOb	Biotite-plagioclase-quartz granofels and schist, and calc-silicate rocks
SObw	Well-bedded biotite-plagioclase-quartz granofels and schist, and calc-silicate rocks
SObq	Quartzite, biotite-plagioclase-quartz granofels, and calc-silicate rocks

Explanation of Map Symbols

Contacts, dotted where concealed
Outcrops (areas of exposed bedrock examined in this study)
Garnet isograd, hatchures in the garnet zone
F1 antiform
F1 synform
F2 anticline
F2 syncline
x 122 381 ± 2 Ma — Location and age of biotite granite dike at station 122 from Table 1 of Lyons and others (1997)

Minor Folds

Strike and dip of refolded Fn-1 (F1) axial surface
- Inclined

Strike and dip of Fn (F2 or undetermined age) axial surface
- Inclined
- Vertical

Strike and dip of Fn+1 (F2) axial surface
- Inclined
- Vertical

Strike and dip of Fn+2 (F3) axial surface
- Inclined

Planar Features

Strike and dip of bedding
- Inclined
- Vertical
- Inclined showing tops
- Vertical showing tops (ball on top side)
- Inclined, overturned

Strike and dip of layer-parallel schistosity (S1)
- Inclined
- Vertical
- Inclined, deformed

Strike and dip of dominant schistosity of undetermined age
- Inclined
- Vertical
- Inclined, deformed

Strike and dip of Sn+1 (S2) penetrative cleavage, schistosity, or gneissosity
- Inclined
- Vertical

Strike and dip of kink bands, younger than S2 but older than S3
- Inclined
- Vertical

Strike and dip of Sn+2 (S3) crenulation cleavage
- Inclined

Strike and dip of dikes
- Generalized strike but no dip, Sagdg
- Inclined, Dp
- Vertical, Dp
- Location of dike, but no strike or dip, Dp
- Inclined, Dg
- Vertical, Dg
- Location of dike, but no strike or dip, Dp
- Inclined, Md or Mdp
- Vertical, Md or Mdp
- Location of dike, but no strike or dip, Md or Mdp
- Generalized strike of vein

Strike and dip of brittle fault; U = up and D = down (shown on Brittle Structure Map)
- Inclined

Strike and dip of fracture zone (shown on Brittle Structure Map)
- Inclined
- Vertical

Strike and dip of joint (shown on Brittle Structure Map)
- Inclined
- Vertical

Linear Features

Trend and plunge of fold axes and lineations
- Refolded F1 fold axis
- Fn fold axis
- Fn+1 fold axis
- Fn+2 fold axis
- Intersection between layering and Sn
- Intersection between Sn and Sn+1
- Slickensides on brittle fault (shown on Brittle Structure Map)
- Trend of glacial striations or grooves (shown on Ductile Structure Map)

Other Features (shown on Ductile Structure Map)
- Quarry or prospect
- Spring

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards (or with the North American Stratigraphic Code). Any use of trade names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

This plate and the accompanying text are part A and the database is part B of this Open-File Report; both parts are available from: http://pubs.usgs.gov/openfile/of99-8/

This map was produced on request, directly from digital files, on an electronic plotter.

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