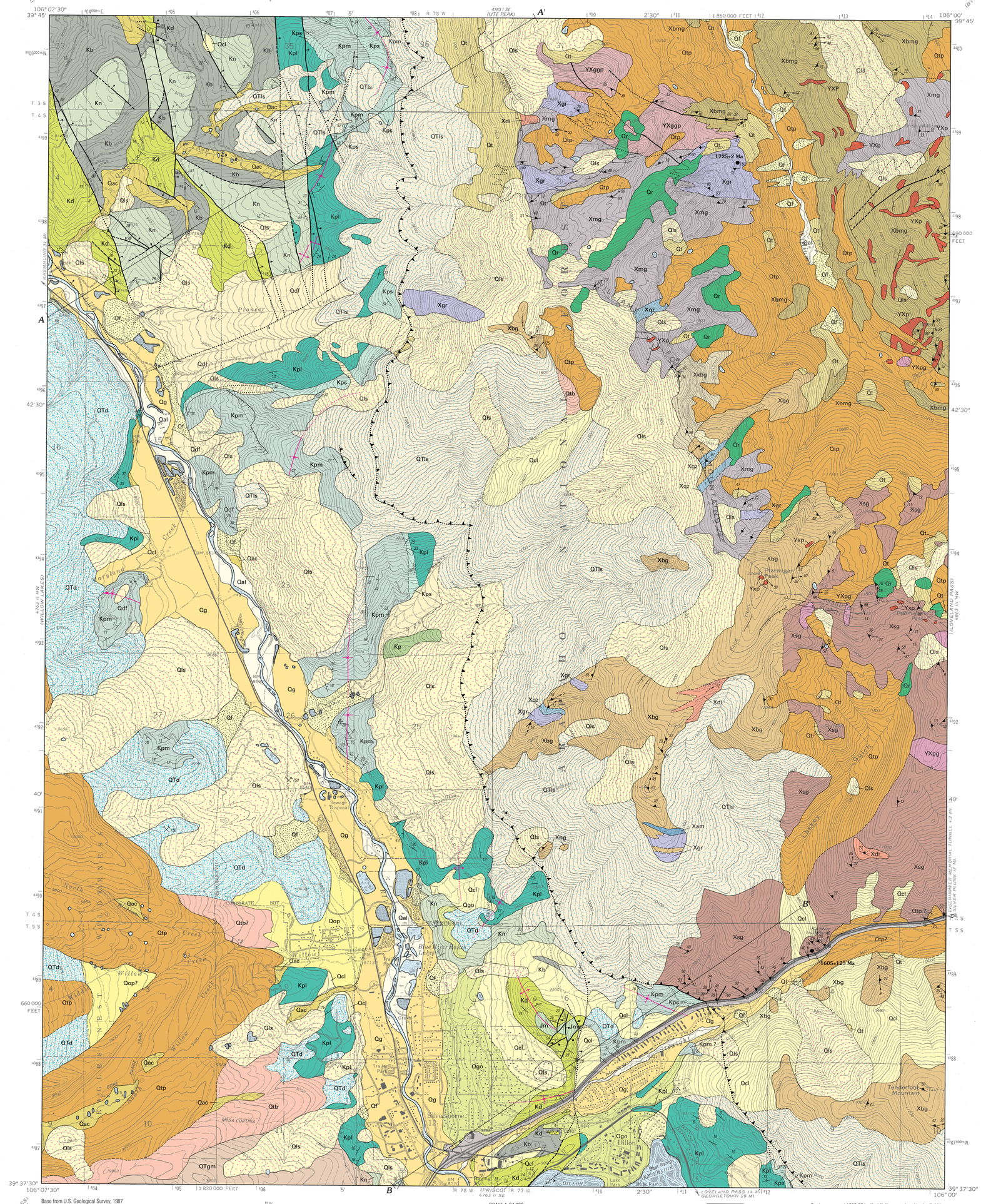
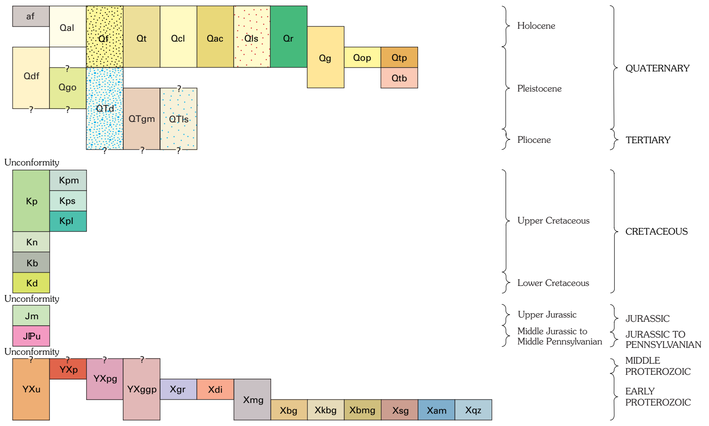
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES MAP MF–2390
Version 1.0
Pamphlet accompanies map



CORRELATION OF MAP UNITS



LIST OF MAP UNITS

[See accompanying pamphlet for detailed descriptions of map units.]

af **Artificial fill (recent)**
Qal **Alluvium (Holocene)**
Qf **Fan deposits (Holocene and upper Pleistocene)**
Qt **Talus (Holocene and upper Pleistocene)**
Qcl **Colluvium and loess, undivided (Holocene and upper Pleistocene)**
Qac **Alluvium and colluvium, undivided (Holocene and upper Pleistocene)**
Qls **Younger landslide deposits (Holocene and upper Pleistocene)**
Qr **Rock-glacier deposits (Holocene and upper Pleistocene)**
Qg **Terrace gravel (Holocene to middle Pleistocene)**
Qop **Pinedale outwash gravel (upper Pleistocene)**
Qtp **Pinedale Till (upper Pleistocene)**
Qtb **Bull Lake Till (middle Pleistocene)**
Qdf **Debris-flow deposits (upper to lower? Pleistocene)**
Qgo **Older outwash gravel (middle or lower Pleistocene)**
QTd **Diamicton (middle Pleistocene to Pliocene?)**
QTgm **Bouldery gravel of Mesa Cortina ("Buffalo placers") (middle Pleistocene to Pliocene?)**
QTls **Older landslide deposits (middle? Pleistocene to Pliocene?)**
Kp **Pierre Shale, undivided (Upper Cretaceous)**
Kpm **Shale and sandstone member**
Kps **Sandstone member**
Kpl **Lower shale member**
Kn **Niobrara Formation (Upper Cretaceous)**
Kb **Benton Shale (Upper Cretaceous)**
Kd **Dakota Sandstone (Lower Cretaceous)**
Jm **Morrison Formation (Upper Jurassic)**
JPu **Entrada Sandstone (Middle Jurassic), Chinle Formation (Upper Triassic), and Maroon Formation (Lower Permian to Middle Pennsylvanian), undivided**—Shown only in cross sections

PROTEROZOIC ROCKS

[Grain sizes for both plutonic and metamorphic rocks follow Compton (1962): fine-grained, less than 1 mm; medium-grained, 1-5 mm; and coarse-grained, greater than 5 mm.]

YXu **Middle? and Early Proterozoic rocks, undivided**—Shown only in cross sections
YXp **Pegmatite (Middle? and Early Proterozoic)**
YXpg **Pegmatite and granite complex (Middle? and Early Proterozoic)**
YXggp **Granitic rocks, biotite gneiss, and pegmatite, undivided (Middle? and Early Proterozoic)**
Rocks of the Routt Plutonic Suite (Early Proterozoic)
Xgr **Granodiorite and quartz monzonite**
Xdi **Diorite and quartz diorite**
Xmg **Migmatite (Early Proterozoic)**
Xbg **Biotite gneiss (Early Proterozoic)**
Xkbg **Microcline-biotite gneiss (Early Proterozoic)**
Xbmg **Biotite-muscovite gneiss and schist (Early Proterozoic)**
Xsg **Biotite-muscovite-sillimanite gneiss and schist (Early Proterozoic)**
Xam **Amphibolite (Early Proterozoic)**
Xqz **Quartzite (Early Proterozoic)**

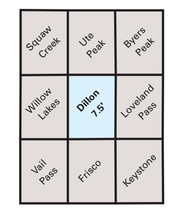
Contact—Dashed where approximately located; dotted where concealed
Normal fault—Dashed where approximately located; dotted where concealed. Bar and ball on downthrown side. Dip of fault plane shown where known
Thrust fault—Dashed where approximately located; dotted where concealed. Teeth on upper plate. Dip of fault plane shown where known
Anticline or antiform—Showing trace of axial plane. Dotted where concealed
Syncline or synform—Showing trace of axial plane. Dotted where concealed

Strike and dip of beds
Inclined
Strike and dip of foliation
Inclined
Vertical
Strike and dip of foliation and bearing and plunge of lineation—Lineation defined by aligned mineral grains, mullion structures, and small fold axes. In most cases, lineation interpreted to be stretching direction during ductile deformation
Scarp—Linear zone of steepening associated with downslope creep. Represents insipient landslide scarp
Sackung structure—Scarp (commonly facing upslope), trench, or prominent fracture associated with gravitational spreading of entire mountain range (Varnes and others, 1989)
● 1725±2 Ma **Uranium-lead age from zircon**—Granite sample D96-180 (1725 ± 2 Ma), pegmatite sample D95-2A (1605 ± 125 Ma) (D.M. Unruh, unpub. data, 1997)
Fluorite prospect

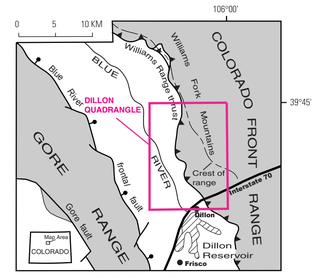
CONVERSION FACTORS

Multiply	By	To obtain
centimeters (cm)	0.3937	inches (in.)
meters (m)	3.281	feet (ft)
kilometers (km)	0.6214	miles (mi)

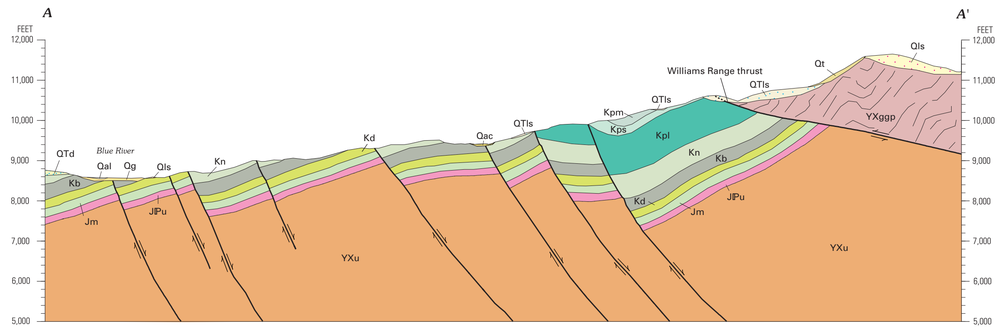
Multiply	By	To obtain
inches (in.)	2.54	centimeters (cm)
feet (ft)	0.3048	meters (m)
miles (mi)	1.609	kilometers (km)

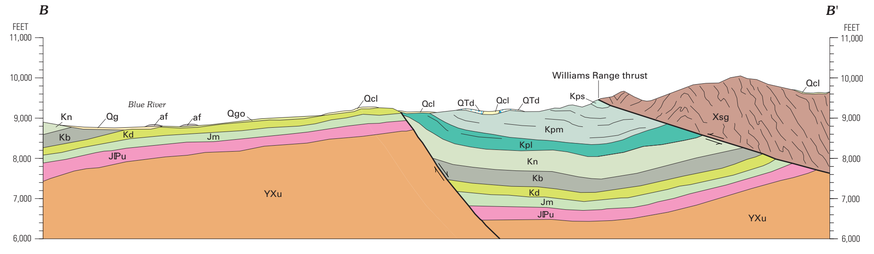


INDEX MAP SHOWING SURROUNDING QUADRANGLES



TECTONIC LOCATION MAP





GEOLOGIC MAP OF THE DILLON QUADRANGLE, SUMMIT AND GRAND COUNTIES, COLORADO

By

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2002

For sale by U.S. Geological Survey Information Services
Box 25286, Federal Center, Denver, CO 80225

This map was produced on request, directly from digital files, on an electronic plotter. It is also available as a PDF file at http://geology.cr.usgs.gov