

LIST OF MAP UNITS
SURFICIAL DEPOSITS

HUMAN-MADE DEPOSITS

af **Artificial fill (uppermost Holocene)** — Riprap, engineered fill, and refuse placed during construction of roads, railroads, buildings, dams, gravel landfills. Generally consists of unsorted silt, sand, clay, and rock fragments. The average thickness of the unit is less than 20 feet. Artificial fill may be subject to settlement, slumping, and erosion if not adequately compacted.

ALLUVIAL DEPOSITS

Qa **Alluvium one (upper Holocene)** — Tan to pale-brown, poorly to moderately sorted, poorly to moderately consolidated, sand, gravel, silt, and minor clay and sparse boulders in the currently active stream channels or in low stream-terrace deposits less than 5 feet higher than the current stream channel. Clasts are subrounded to well rounded and the dominant sediment is sandy gravel with a sandy silt matrix. The unit correlates with the Post-Piney Creek alluvium described by Hunt (1954) in the Denver area and of Maberry and Lindvall (1972). The unit is subject to frequent flooding and is a source of sand and gravel. Maximum exposed thickness of the unit locally exceeds 5 feet.

Qa₂ **Alluvium two (upper Holocene)** — Dark gray to brown, poorly to well sorted, moderately to well consolidated, silt, sand, gravel, and minor clay and sparse boulders in stream terrace deposits approximately 6-12 feet higher than the modern flood plain or as non-terrace forming alluvium in valley headwaters. Clasts are subrounded to well rounded and the dominant sediment is sandy gravel with a silty sand matrix. Thinly-bedded (3-10 cm thick) clay seams are present in the lower parts of the unit. The unit is generally correlative, by virtue of height and soil characteristics, with the Piney Creek alluvium described by Hunt (1954) in the Denver area and of Maberry and Lindvall (1972). The unit is subject to occasional flooding and is a potential source of sand and gravel. Maximum exposed thickness of the unit locally exceeds 20 feet.

Qa₃ **Alluvium three (upper Pleistocene)** — Dark brown to grayish brown, poorly sorted, moderately consolidated, poorly to moderately stratified silt, sand, gravel, and cobbly gravel and sparse boulders in stream terrace deposits approximately 10-20 feet higher than the modern flood plain or as non-terrace forming alluvium in valley headwaters that underlies the younger alluviums. The unit contains dark gray clay beds that may be expansive. Clasts are subrounded to well rounded and the dominant sediment is sandy gravel with a sandy matrix. The unit is generally correlative, by virtue of height and soil characteristics with the Broadway Alluvium described by Hunt (1954) in the Denver area and of Maberry and Lindvall (1972). The unit is a potential source of sand and gravel. Maximum exposed thickness of the unit locally exceeds 20 feet.

Qau **Alluvium, undivided (Holocene to upper Pleistocene)** — Gray brown to tan brown, poorly sorted sand and fine gravel in valley heads in the upper parts of drainages and in main trunk streams where differentiation of specific alluvial units was not possible due to poor exposure. The unit includes sheetwash and stream-deposited alluvium that are undivided. The unit may be overlain by thin laminae of eolian sand. Maximum exposed thickness of the unit locally exceeds 15 feet.

Qf₁ **Alluvial fan deposit one (upper Holocene)** — Tan to pale-brown, poorly to moderately sorted, poorly consolidated clay, silt, sand, and gravel deposited as alluvial fans at the mouths of perennial streams. They have a fan-like shape and consist of subangular to well-rounded clasts of varied lithology that are derived from local surficial deposits; however, sand and gravel derived from the Dawson Arkose is a major constituent. These deposits are similar to and positionally related to unit Qa₁. Sediments are deposited primarily by streams with significant input from sheetwash, debris flows, and hyperconcentrated flows. Deposits locally exceed 10 feet in thickness. Areas mapped as alluvial fans are subject to future flash floods and debris flow events. Deposits may be prone to collapse, hydrocompaction, or slope failure when wetted or loaded. Deposit is a potential source of sand and gravel.

Qf₂ **Alluvial fan deposit two (lower Holocene)** — Dark gray to brown, poorly to moderately sorted, poorly consolidated clay, silt, sand, and gravel deposited as alluvial fans at the mouths of perennial streams. They have a fan-like shape and consist of subangular to well-rounded clasts of varied lithology that are derived from local surficial deposits; however, sand and gravel derived from the Dawson Arkose is a major constituent. These deposits are similar to and positionally related to unit Qa₂. They have a fan-like shape, but are more dissected than younger Qf₁ deposits. Sediments are deposited primarily by streams with significant input from sheetwash, debris flows, and hyperconcentrated flows. The apex of the fan is as much as 15 feet higher than modern streams. Deposit locally exceeds 15 feet in thickness. Areas mapped as alluvial fans are subject to future flash floods and debris flow events. Deposits may be prone to collapse, hydrocompaction, or slope failure when wetted or loaded. Deposit is a potential source of sand and gravel.

Qf₃ **Alluvial fan deposit three (upper Pleistocene)** — Dark brown to grayish brown, poorly to moderately sorted, moderately consolidated clay, silt, sand, gravel, and boulders deposited as alluvial fans at the mouths of perennial streams. Clasts are subangular to well rounded and have varied lithology that are derived from local surficial deposits and the Dawson Arkose. These deposits are similar to and positionally related to unit Qa₃. They have a fan-like shape, but are more dissected and their axial profile is flatter than younger Qf₂ deposits. Sediments are deposited primarily by streams with significant input from sheetwash, debris flows, and hyperconcentrated flows. The apex of the fan is as much as 20 feet higher than modern streams. Deposit locally exceeds 20 feet in thickness. Areas mapped as alluvial fans are subject to future flash floods and debris flow events. Deposits may be prone to collapse, hydrocompaction, or slope failure when wetted or loaded. Deposit is a potential source of sand and gravel.

QTg **High-level gravel deposits (late Tertiary? to upper Pleistocene)** — Light-reddish brown to yellowish brown, poorly sorted, fine to coarse sand interbedded with moderately to poorly stratified pebble and cobble gravel. Clasts are subrounded to round. Matrix typically consists of feldspar and quartz sand likely derived from the Dawson Arkose. Clast types within the gravel are predominantly pink granite, white vein quartz, quartzite, and rare welded tuff. Top of gravel deposit is 150 to 200 higher than mainstem creeks. The unit locally exceeds 10 feet in thickness. The deposit forms a stable building surface, but excavations may be prone to slumping. The unit is a potential source of sand and gravel.

Qsw **Sheetwash alluvium (Holocene to upper Pleistocene)** — Light-grayish-brown, pale-brown, to brown, poorly sorted sand, silty and clayey sand, and minor amounts of gravel including some cobbles. Unit consists chiefly of local materials transported on moderate slopes (~10 percent grade) by sheet flow but also includes some sediment delivered by runoff in rills and minor gullies. Maximum exposed thickness is 20 feet.

EOLIAN or ALLUVIAL DEPOSITS

Qs **Sand deposits (Holocene to upper Pleistocene)** — Yellowish-brown to tan, fine- to coarse-grained, frosted sand and silt deposited by wind or sheetflow. Typically this unit is faintly stratified and non-cohesive; dune forms are not present. The lower, older parts of the unit are weakly cemented by calcium carbonate and can hold a face where recently excavated. The unit is likely deposited as a sandsheet by winds capable of moving very fine gravel-sized clasts. The surface of unit may be reworked locally by alluviation. While mapping the Spring Creek golf course, a Paleolithic (~9,000 years old) blade possibly made from Kremmling chert (S. Holen, DMNS, personal commun., 2012) was found approximately 6 feet below the ground surface. These sand deposits are moderately compacted, easily excavated, however, they can hold surface water. Unit locally may exceed 10 feet in thickness.

POND DEPOSITS

Qp **Pond deposits (Holocene)** — Gray to dark brown, moderately well sorted, moderately consolidated, clay, silt, sand, and scattered granules. Forms flat-surfaced seasonal ponds within eolian sand (Qes). In some areas this unit may be overlain by windblown sand and sheetwash deposits.

BEDROCK

Denver Basin Group

Tda **Dawson Arkose (Paleocene to Eocene)** — White and tan thick to massive, cross-bedded arkoses, pebbly arkoses, and arkosic pebble conglomerates. Contains beds of white and tan fine- to medium-grained feldspathic cross-bedded friable sandstone that are poorly sorted, have high clay contents, and are commonly thin or medium bedded. The unit also contains sparse interbeds of thin-bedded gray claystone and sandy claystone or dark-brown, organic-rich siltstone to coarse sandstone that contains fossilized plant fragments. Thickness may reach 1000 feet in the Monument area; however, the exposed thickness in the Cabin Gulch quadrangle is approximately 530 feet. The unit is prone to swelling when wet. The Dawson Arkose is described in detail by Thorson (2011).

Tbs **Black Squirrel Formation (Paleocene)** — Shown on cross section only.

TKjc **Jimmy Camp Formation (Paleocene)** — Shown on cross section only.

TKdb **Denver Basin Group, undivided (Upper Cretaceous to Paleocene)** — Shown on cross section only.

Contact — Approximately located

Strike and dip of inclined bedding — Showing direction and angle of dip

Alignment of cross section

References

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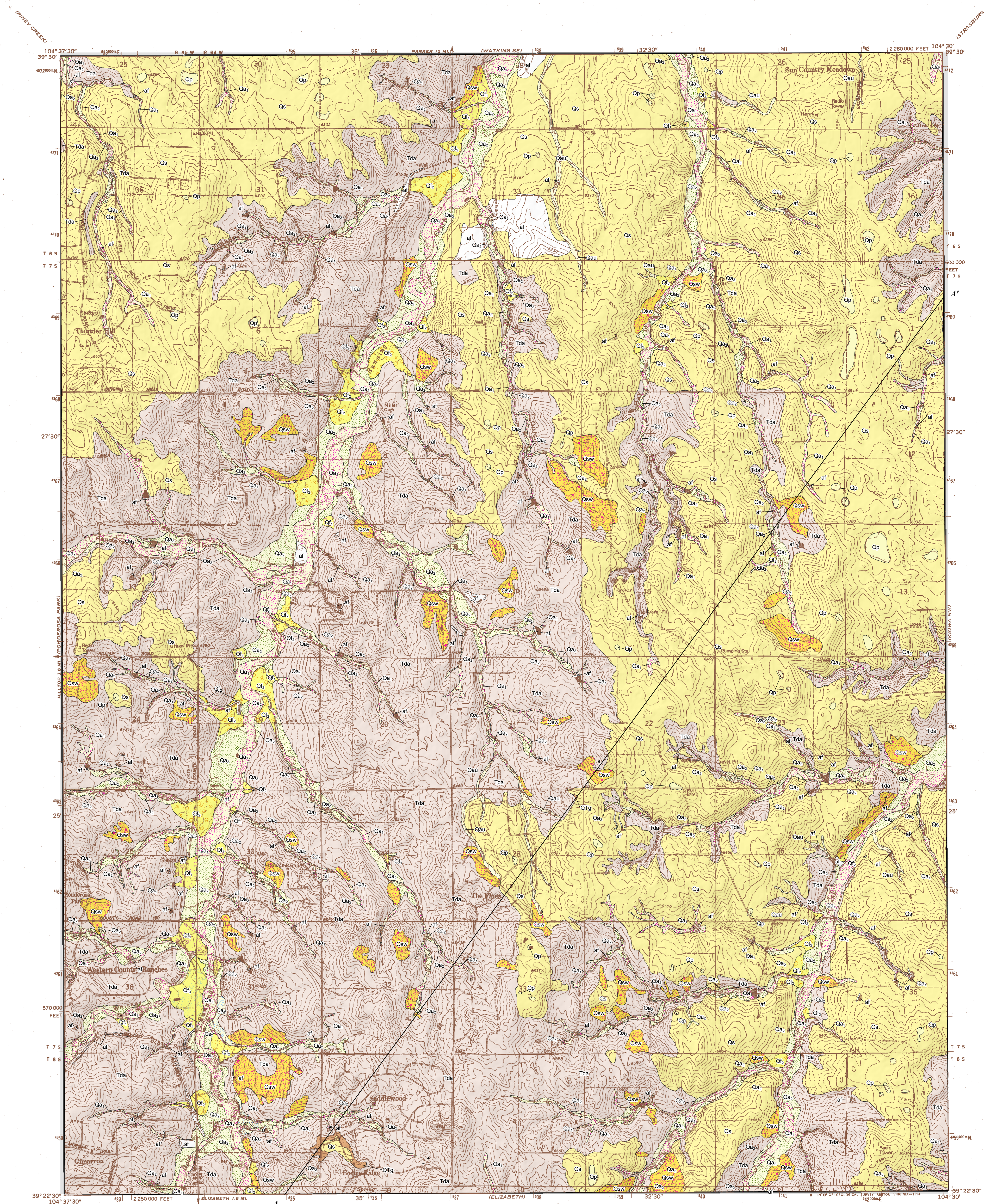
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Compiled from aerial photographs taken 1988. Revisions shown in purple compiled from aerial photographs taken 1988 and other sources and have been field checked. Map edited 1994. Conflicts may exist between some updated features and previously mapped contours.

North American Datum of 1927 (NAD 27). Projection and 10,000-foot ticks: Colorado Coordinate System, central zone (Lambert Conformal Conic).
Blue 1000-meter Universal Transverse Mercator ticks, zone 13
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are obtainable from National Geographic Survey NADCON software.

UTM GRID AND 1984 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24 000
1 000 2 000 3 000 4 000 5 000 6 000 7 000 FEET
1 2 3 4 5 6 7 8 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEOLOGIC VERTICAL DATUM OF 1929

COLORADO
QUADRANGLE LOCATION

1 2 3
4 5
6 7 8
ADJOINING 7.5' QUADRANGLES

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GEOLOGIC MAP OF THE CABIN GULCH QUADRANGLE, ELBERT COUNTY, COLORADO

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