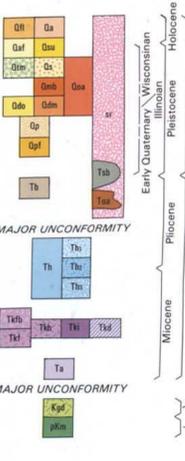
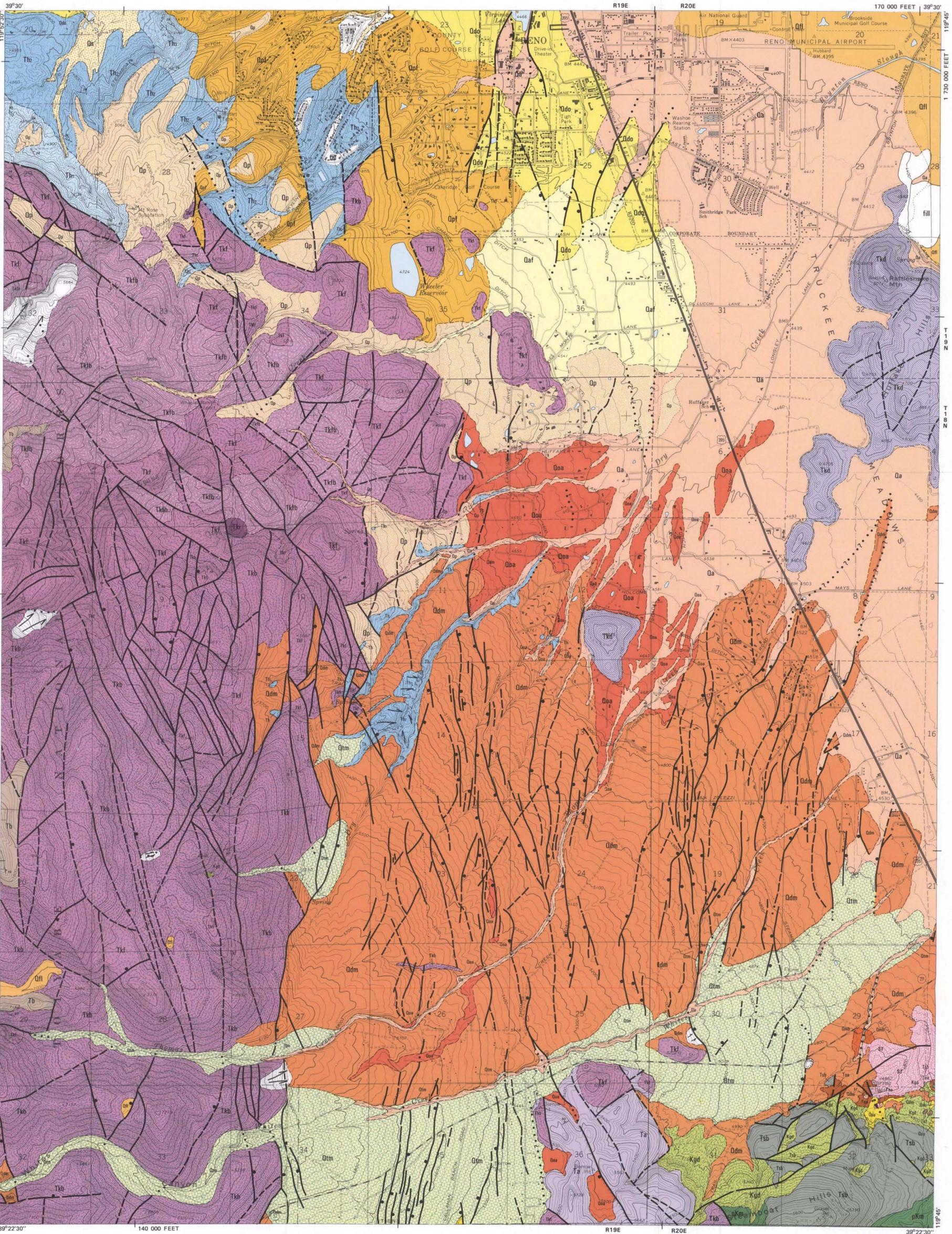


MT  
ROSE  
NE  
QUAD

GEOLOGY



**Qaf** Floodplain and lake deposits. Interbedded gray to pale grayish-yellow silt and fine sand; contains thin lenses of peat; fluvial and lacustrine deposits up to 7 m (23 ft) thick. Little or no soil development (entisols).

**Qa** Alluvial bajada deposits. Thin sheet-like aprons of fine to medium-grained clayey sand and intercalated muddy, medium pebble gravel; deposits of low gradient streams that reworked older gravely outwash and alluvial fan deposits; weakly weathered and largely undifferentiated. Little or no soil development (entisols).

**Qaf** Alluvial fan of Windy Hill. Locally derived silty to muddy, medium pebble gravel transported from the large Evans Creek drainage area; engulfs high-standing remnants of Donner Lake Outwash. These fan deposits intertongue with and become part of the alluvial bajada, Qa. Generally undifferentiated, but contains scattered remnants of older alluvium.

**Qau** Alluvium. Highly dissected remnants of muddy, sandy large cobble to boulder gravel containing characteristically fresh granitic lag gravel. Strongly developed 1-m (3 ft) thick soil profile; dark yellowish-brown, prismatic argillic B-horizon; typically no siliceous or calcic durpan development; granitic boulders partly to thoroughly decomposed where buried in soil. Deposits locally only thin veneers; some undifferentiated areas.

**Qoe** Older alluvium. Highly dissected remnants of muddy, sandy fine pebble gravel in alluvial deposits transported from Thomas Creek; soil profile 1-2 m (3-6 ft) thick with strongly developed argillic B-horizon; local durpan development. Also includes areas of older alluvium in Steamboat Hills.

**Qa** Sidestream deposits. Fluvial silt and medium sand associated with Tahoe Outwash deposits along the Truckee River; soil profile similar to Qtm.

**Qmb** Mud-volcanic breccia. Heterogeneous mixture of bleached and non-stained boulders and fragments of volcanic rocks opaline and chalcocyanic sinter, and disintegrated granitic debris.

**Qdo** Donner Lake outwash. Boulderly outwash forming strath terraces on bedrock; extensive mantle thickening eastward; unconsolidated small cobble gravel and interbedded coarse sand. Highly rounded clasts; unit locally contains very large, deeply weathered boulders of basalt and quartz monzonite more than 2 m (6 ft) in diameter. Strongly developed soil profile 2-3 m (6-10 ft) thick; prismatic argillic B-horizon; weakly to strongly developed siliceous and calcic durpan, 1.2 m (3-6 ft) thick; granitic clasts thoroughly disintegrated in weathered profile.

**Qdm** Donner Lake Outwash—Mount Rose Fan Complex. Pediment and thin fan deposits from major streams draining alpine glaciers on Mount Rose; brown to brownish-gray, sandy, muddy, poorly sorted large pebble gravel; cobbles and small boulders common. Clasts dominantly volcanic (porphyritic andesite and latite); surface granitic clasts rare. Deeply weathered, strongly developed soil profile similar to Qdo; locally overlain by undifferentiated veneer of Qtm; well cemented and/or hydrothermally altered in Steamboat Hills area.

**Qp** Pediment gravel. Veneers of moderately to poorly sorted medium pebble to cobble gravel < 3 m (10 ft) thick; commonly occurs as gravel sheet < 1 m (3 ft) thick over bedrock and older pediment and alluvial fan gravels; clast content dominantly volcanic. Strongly developed soil profile; thick argillic B-horizon locally overlying siliceous and calcic durpan.

**Qpf** Alluvial fan deposits of Peavine Mountain. Yellowish-brown gravel and gravely muddy sand consisting of angular pebbles to small cobble-sized clasts of andesite and white bleached andesite in matrix of muddy sand; unconformably overlies steeply dipping beds of sandstone of Hunter Creek (Th). Strongly developed soil profile; argillic B-horizon 1/2 m (2 ft) or more thick; typically overlies thick calcic and siliceous durpan.

**sr** Hot-spring sinter. Siliceous sinter ranging in age from late Pliocene to present. Older sinter is white to gray chalcocyanic; locally contains mercury sulfides; younger sinter is light gray to tan porous opal.

**Tsb** Basaltic andesite of Steamboat Hills. Dark gray flows with phenocrysts of plagioclase and olivine in intergranular matrix of pyroxene, plagioclase, Fe-Ti oxides. Source of flows is cinder cone in SW/4 S32.T18N.R20E. K-Ar age: 2.53 ± 0.1 m.y.

**Toe** Old alluvium of Steamboat Hills. Pediment deposits underlying Tsb. Pebble to cobble gravel consisting of angular to subangular granitic, volcanic, and metamorphic clasts and arkosic sands. Locally well cemented and/or strongly hydrothermally altered.

**Tb** Basalt and basaltic andesite of Carson Range. Dark gray basaltic appearing flows with prominent platy flow jointing; mineralogically similar to Tsb.

**Th** Sandstone of Hunter Creek. Th. Undifferentiated. Th: Brown to gray, medium- to thick-bedded, sub-angular coarse sand; intercalated tuff and subordinate andesite pebble to cobble conglomerate; grades upward into thin-bedded silt and diatomaceous silt. Th: White to light gray, massive to thin-bedded diatomaceous siltstone with minor beds of yellowish-tan medium sand; iron oxide staining of fractures in siltstone common. Th: Tan, gray to reddish-brown, thin- to thick-bedded, alternating layers of fine to coarse sand; intercalated layers of well rounded pebbles; cross-bedding common in sand fractions; basal contact conformable with Th.

**Th** Basaltic andesite of Steamboat Hills. Th: Hornblende-pyroxene and dacite flows with minor breccia and volcanic conglomerate. Tktb: Hydrothermally

**Tki** bleached Tki. Tkb: Hornblende-pyroxene dacite and andesite lahars, pyroclastic breccia, volcanic conglomerate, and sandstone with minor flows. Tki: Invasive hornblende-pyroxene-biotite dacite. Tkt: Flow-dome complexes of hornblende-biotite rhyodacite porphyry.

**Ta** Alta Formation. Flows of dark fine-grained soda trachyte; occurs in Steamboat Hills area.

**Kgd** Biotite-hornblende granodiorite.

**pkm** Metasedimentary and metavolcanic rocks. Graywacke, argillite, slate, phyllite, hornfels, metatuff and breccia, volcanic conglomerate, and marble.

**Undifferentiated landslide deposits**

**Artificial fill.** Not all fill areas shown

**Strike and dip of beds**

**Strike and dip of flow layering**

**Phreatic explosion crater.** (Steamboat Hills)

Contact. Dashed where approximately located; dotted where concealed

Fault. Dashed where approximately located; dotted where concealed; queried where presence uncertain

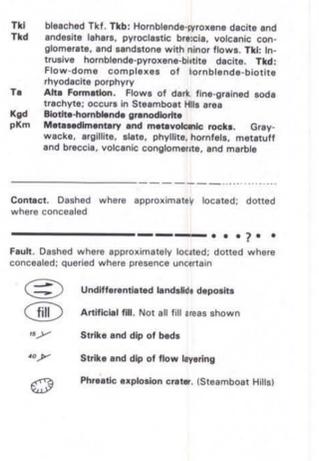
**H. F. Bonham, Jr. and David K. Rogers, 1983**

Supplementary mapping was provided by John W. Bell, E. C. Bingley, and Dennis T. Trexler. Geology of Steamboat Hills area modified from White and others (1964).

**REFERENCES**

Silberman, M. L., White, D. E., Keith, T. E. C., and Dockter, R. D. (1979) Duration of hydrothermal activity at Steamboat Springs, Nevada, from ages of spatially associated volcanic rocks: U.S. Geological Survey Professional Paper 458-D, 14 p.

White, D. E., Thompson, G. A., and Sandberg, C. H. (1964) Rocks, structure, and geologic history of Steamboat Springs thermal area, Washoe County, Nevada: U.S. Geological Survey Professional Paper 458-B, 82 p.



**Scale 1:24,000**

0 0.5 1 KILOMETER

0 1000 METERS

0 0.5 1 MILE

0 2000 4000 FEET

CONTOUR INTERVAL 20 FEET  
DOTTED LINES ARE 10-FOOT CONTOURS  
DATUM IS MEAN SEA LEVEL

Topographic base from U.S. Geological Survey Mt. Rose NE 7 1/2' quadrangle, 1969

Cartography by Larry Jacox

NEVADA BUREAU OF MINES AND GEOLOGY  
UNIVERSITY OF NEVADA RENO  
RENO, NEVADA 89557-0088  
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