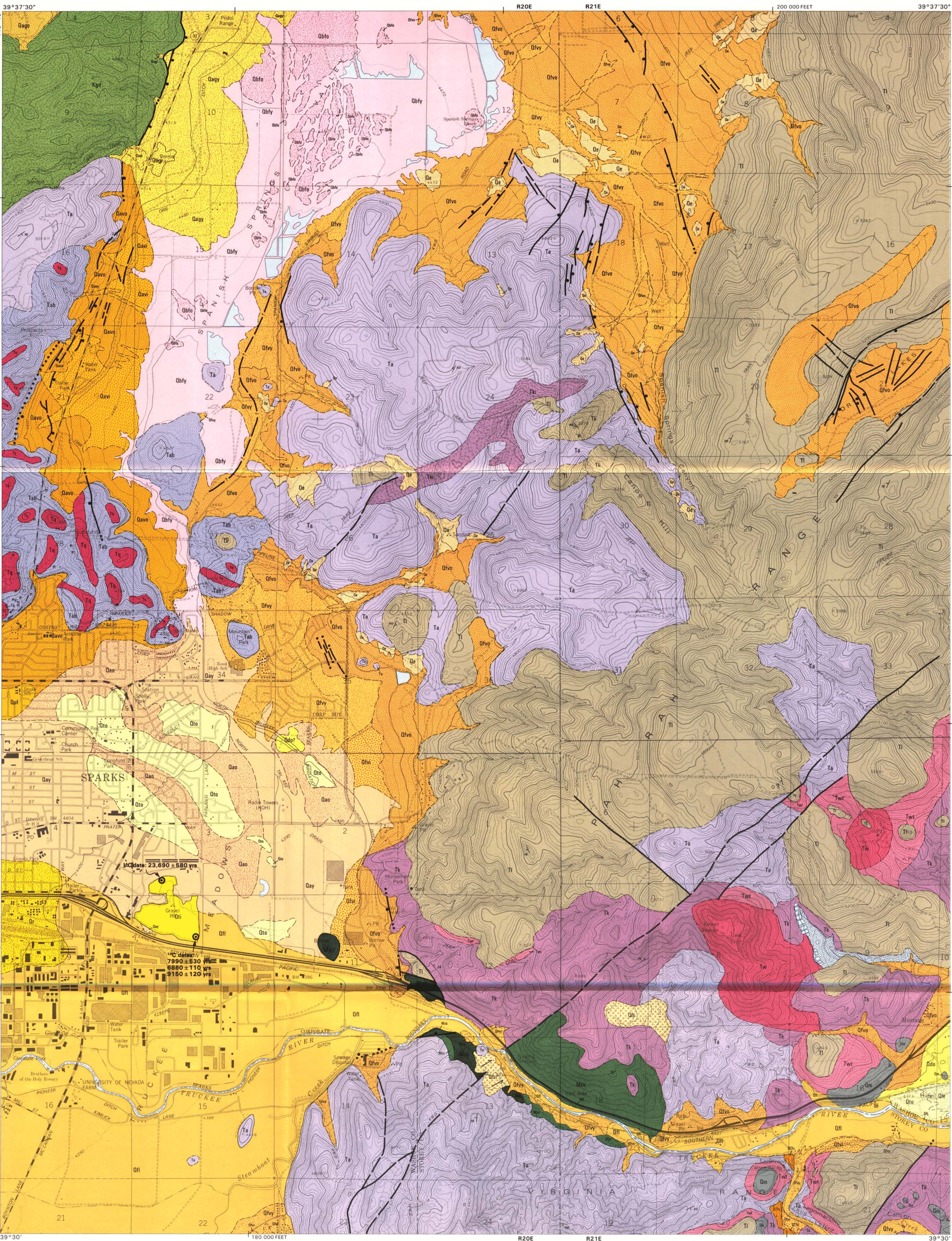
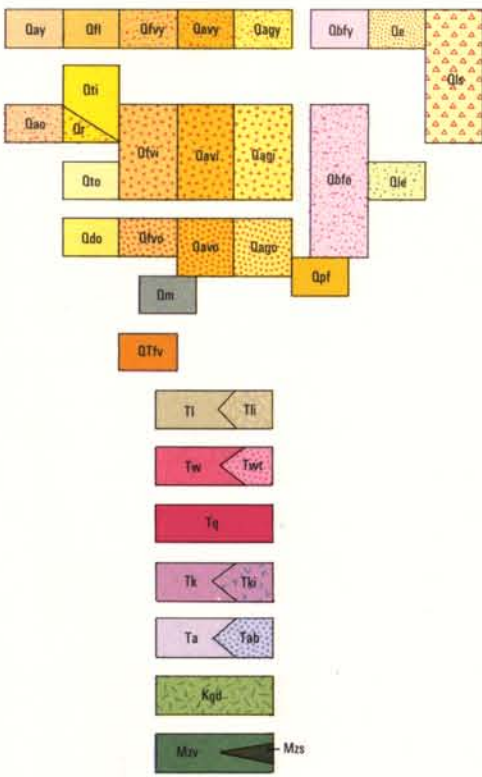


VISTA
QUAD



GEOLOGY



Qay Qao Alluvium of the Truckee Meadows. Qay: gray to brown, pebbly to cobbly sand and medium sand, silty sand, and sandy silt; derived from reworking of Truckee River deposits and deposition along large drainages from Sun Valley and Spanish Springs Valley; typically occurs as veneer overlying Qao. Qao: brown, medium sand and silty sand with scattered well-sorted volcanic and granitic pebbles and clasts; derived largely from reworking of Qto, but may in part include Qti. Soil typically has argillic B horizon about 30 cm (12 in.) thick.

Qti Tioas Outwash Gray, sandy pebble to cobbly gravel exposed in Helms gravel pit; contains layers and lenses of light brown fine sandy silt, fine to medium sand, and light gray clayey silt. Occurs only in subsurface; total extent is uncertain; thickness is at least 23 m (75 ft). Interbedded layers of peat and twigs have yielded ¹⁴C dates ranging from 8860 to 23,690 years (see map).

Qr Fluvial gravel of the Truckee River Gray, sandy, cobbly to boulder gravel composed dominantly of well-sorted volcanic and granitic clasts; derived from river channeling through Qto. Probably stratigraphically equivalent to Qao, and may in part include Qti. Soil has 30-45 cm (12-18 in.) thick argillic B horizon. Mapped as Qto by Bonham and Binger (1973).

Qto Tahoe Outwash Gray, sandy, cobbly to boulder gravel with lenses of light brown to light gray medium sand and light gray clayey silt. Gravel and sand are well stratified with fluvial crossbedding, and are moderately to poorly sorted. Gravel composed dominantly of well-sorted volcanic and granitic clasts; granitic boulders as much as 3 m (10 ft) in diameter occur in Truckee Meadows and giant Mzv blocks as much as 10 m (33 ft) in diameter occur at Mustang. Deposits typically occur in terrace remnants and underlie much of Truckee Meadows at shallow depths. Soil typically has strongly developed argillic B horizon 30-60 cm (12-24 in.) thick.

Qta Eatsa Formation Light gray silt, sandy silt, and light brown medium sand of late Pleistocene Lake Lahontan; massive to well

bedded. Westernmost occurrence in Truckee Canyon is at Mustang where unit is interbedded with Qto. Soil typically has a strongly developed argillic B horizon 30 cm (12 in.) thick (the Churchill Soil).

Qdo Donner Lake Outwash Gray to brown, sandy cobbly to boulder gravel composed dominantly of well-sorted volcanic and granitic clasts. At Mustang deposit is deeply channelled and contains giant Mzv boulders 3 m (10 ft) or more in diameter. Soil typically has a strongly developed argillic B horizon 60-100 cm (2-3 ft) thick underlain by a siliceous and calcareous duripan about 60 cm (2 ft) thick.

Qfvy Qfvi Alluvial-fan deposits of the Virginia and Pah Rah Ranges Deposits derived from andesitic, basaltic, and, locally, metamorphic rocks of the Virginia and Pah Rah Ranges; generally poorly sorted, subangular to subrounded clasts. Qfvy: in Truckee Meadows and Spanish Springs Valley, deposits are gray to brown silty sand and pebbly medium sand; in the Truckee Canyon, deposits are gray sandy cobbly to boulder gravel. Soils have A-C to cambic B profiles. Qfvi: gray silty, pebbly sand and brown sandy pebble to cobbly gravel. Soil typically has argillic B horizon about 30 cm (12 in.) thick. Qfvi: brown sandy to boulder gravel; in Spanish Springs Valley, unit also consists of brown medium sand and is widely veneered by unmapped eolian sand. Soil typically has a strongly developed argillic B horizon 60-100 cm (2-3 ft) thick, underlain by a siliceous and calcareous duripan 60-100 cm (2-3 ft) thick.

Qavv Qavv Alluvial-fan deposits of the Pyramid Lake Highway Deposits derived from altered volcanic and unaltered granitic rocks of the Weedkind Hills and the range separating Sun Valley and Spanish Springs Valley; generally poorly sorted, subangular to subrounded clasts. Qavv: gray, volcanic, pebbly to cobbly sand. Soils have A-C to cambic B profiles. Qavv: brown, granitic, pebbly sand. Soils have A-C to cambic B profiles. Qavv: gray, volcanic, sandy, pebble to cobbly gravel; forms thin (<3 m) veneer over Qavv. Soil has a strongly developed argillic B horizon 45-60 cm (18-24 in.) thick. Qavv: brown, granitic, pebbly sand. Soil has an argillic B horizon 45-60 cm (18-24 in.) thick, underlain by a siliceous and calcareous duripan about 1 m (3 ft) thick.

Qbfv Qbfv Basin-fill deposits of Spanish Springs Valley Generally fine-grained deposits derived from volcanic and granitic alluvial-fan sources. Qbfv: light gray to brown, silty, clayey sand and sandy silt and clay. Soils have A-C to cambic B profiles. Qbfv: light gray to brown sand, and silty, clayey sand. Soils generally have argillic or natric B horizons and locally have duripans.

Qe Eolian sand deposits Light brown, well-sorted, medium sand; only major dunes or sheets mapped. Inactive; deposits generally have a moderately to strongly developed cambic soil.

Qls Landslide Deposits Range in age from late Pleistocene to Holocene.

Qpf Alluvial-fan deposits of Peavine Mountain Yellow to red-brown, pebbly, silty sand containing altered and unaltered volcanic clasts. Soil has a strongly developed argillic B horizon and may have a duripan.

Qm McClean Peak Olivine Basalt Flow of black to dark gray basalt with prominent green olivine phenocrysts. Age approximately 900,000 years.

Qfth Fongomonte of Lagomastino Canyon Light to dark gray, well-indurated cobbly to boulder gravel and sandstone; underlies Qm. Deposit consists of subangular to well-sorted volcanic clasts derived from the Virginia Range; at mouth of canyon deposit is highly altered and decomposed. Soil has an argillic B horizon more than 1.5 m (5 ft) thick.

Ti Loup River Formation Flows of platy basaltic andesite and basalt. Flows typically dark gray to black, dark brown on weathered surfaces. TE: intrusive plugs of basalt and basaltic andesite. Age 6-7 m.y.

Tw Washington Hill Rhyolite Tw: rhyolite flow-domes, in part composed of pumiceous glass, perlite and minor obsidian, sparsely porphyritic with glomeroporphyritic, sodic plagioclase and biotite. Tw: rhyolite air-fall tuff, pyroclastic flows, water-laid tuff and tuffaceous mudstone. Equivalent in part to rocks of the Truckee and Coal Valley Formations and the sandstone of Hunter Creek. Age approximately 10 m.y.

Tk Kate Peak Formation Tk: flows, domes, pyroclastic flows, lahars, plugs and dikes, air-fall tuff and tuffaceous sedimentary rocks. Tk: plugs and dikes. Composition chiefly porphyritic dacite

and rhyodacite containing prominent phenocrysts of sodic plagioclase, clinopyroxene and orthopyroxene, hornblende, and usually biotite in a felsitic matrix. Flow rocks typically are somewhat porous, exhibit spheroidal weathering, and are brown. Age 12-15 m.y.

Ta Alta Formation Ta: pyroxene, pyroxene-hornblende, and hornblende andesite flows; debris flows; and pyroclastic flows. Phenocrysts of plagioclase (An 40-60) clinopyroxene and/or basaltic hornblende in a fine-grained matrix of plagioclase, pyroxene, hornblende, apatite, and magnetite. Flow rocks typically medium to dark gray on fresh surfaces, weathering to brown shades. Tab: bleached Alta Formation, light-colored rocks derived from both hypogene hydrothermal alteration and supergene alteration of hydrothermally altered pyritic rocks. These rocks are typically argillized and consist predominantly of montmorillonite and/or kaolinite. Hydrothermal alteration is time-equivalent to Tq.

Qm Granddiorite Granddiorite, medium to coarse-grained plutonic rock with sodic plagioclase, microcline, quartz, hornblende and biotite and accessory sphene, magnetite, apatite and zircon. In places hornblende is altered to actinolite, and biotite is chloritoid.

Mzv Peavine sequence Mzv: metadiabase and meta-andesite flows, flow breccia and lahars. Metadiabase has phenocrysts of sodic plagioclase, potassium feldspar and sparse quartz in a fine-grained, recrystallized matrix of biotite, blue-green amphibole, quartz and potassium feldspar. Meta-andesite has sodic plagioclase, epidote, chlorite, actinolite, and biotite. Mzv: red-brown to maroon siltstone, sandstone and conglomerate. Sandstone and conglomerate contain abundant volcanic detritus and appear to be interlayered with metavolcanic rocks.

Contact Dashed where approximately located.

Fault Dashed where approximately located, dotted where concealed, queried where probable. Ball on downthrown side.

Strike and dip of beds.

Strike and dip of flow layering. Inclined and vertical.

Landfill

REFERENCES

Binger, E. C., and Bonham, H. F., Jr. (1976) Reno field: Nevada Bureau of Mines and Geology environmental series, p. 24-34.

Bonham, H. F., Jr., and Binger, E. C. (1973) Geologic map [of the Reno quadrangle]: Nevada Bureau of Mines and Geology Map 4Ag.

John W. Bell and Harold F. Bonham, Jr., 1987
Fieldwork in support of the U.S. Geological Survey COGEOGRAPHIC program

Scale 1:24,000
CONTOUR INTERVAL 20 FEET
DOTTED LINES ARE 10-FOOT CONTOURS

0 0.5 1 kilometer
0 1000 2000 3000 4000 5000 feet

NEVADA BUREAU OF MINES AND GEOLOGY
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Base map: U.S. Geological Survey Vista 7 1/2' quadrangle, 1982
First edition, first printing, 1987; 1000 copies
Printing: Dick Meuwyn
Cartography: Larry Jacob
Typesetting: Rayetta Buckley
Festus: Matt Stephens

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