

DESCRIPTION OF MAP UNITS (PLATE 4)

MAN-MADE DEPOSITS

dg Disturbed Ground:
Includes areas of artificial fill and surfaces modified by man-made excavations.

FAN DEPOSITS

Qf Fan Deposits (Undifferentiated):
Small fans at the mouths of intermittent streams and gullies along mountain front; consist primarily of poorly sorted gravelly silty fine sand and silty sandy gravel deposited by debris flows; locally interbedded with eolian and/or reworked eolian fine sand. Repeated slip along the Wasatch fault has produced fan segments of different ages in many places; segments not differentiated except on fan at mouth of Deadmans Hollow.

Deadmans Hollow Fan Complex:
The fan complex at the mouth of Deadmans Hollow is composed of four segments:

Qf₄ Fan segment 4. The youngest fan segment lies on east flank of the fan complex along the toe of the main fault scarp; unlike the older fan segments, this segment has an active source that breaches the fault scarp.

Qf₃ Fan segment 3. Debris flow deposits that form a small fan segment having a steeper gradient at the apex of the fan complex; partly buries main fault scarp; (see description of unit 5B in trench HC-1).

Qf₂ Fan segment 2. Debris flow deposits filling graben on northwest flank of fan complex; buried in most places by Qf₃ (see description of units 3B and 3C in trench HC-1).

Qf₁ Fan segment 1. The oldest fan segment buries Provo age gravel and grades to a terrace underlain by post-Provo pre-Utah Lake alluvium (see description of unit 2 in trench HC-1).

HOLOCENE ALLUVIUM

Qal₁ Post-Provo Pre-Utah Lake Alluvium:
Poorly sorted boulder, cobble, and pebble gravel inset below Provo age terraces; underlies terraces and fan surface that grade to approximately the 1370 m elevation; the upper part of this unit has been modified in places by erosion and/or deposition due to historical floods.

Qal₂ Utah Lake Age Alluvium:
Stream and flood-plain deposits that grade to present Utah Lake (elevation 1368 m) and are inset below the post-Provo pre-Utah lake alluvium (Qal₁).

EOLIAN DEPOSITS

Qe Eolian Deposits:
Well sorted fine sand and silt.

STRATH TERRACES

tp, tk, tg, tb Strath Terraces:
One unpaired (tb) and three paired (tp, tk, and tg) strath terraces along Hobbie Creek eroded into Provo fan-delta deposits (Qp) on the upthrown side of the Wasatch fault.

BONNEVILLE GROUP

Qab Alpine-Bonneville Lake Deposits (Undifferentiated):
Well sorted, thinly bedded and laminated fine sand, silt, and clay; sand and gravel are common locally.

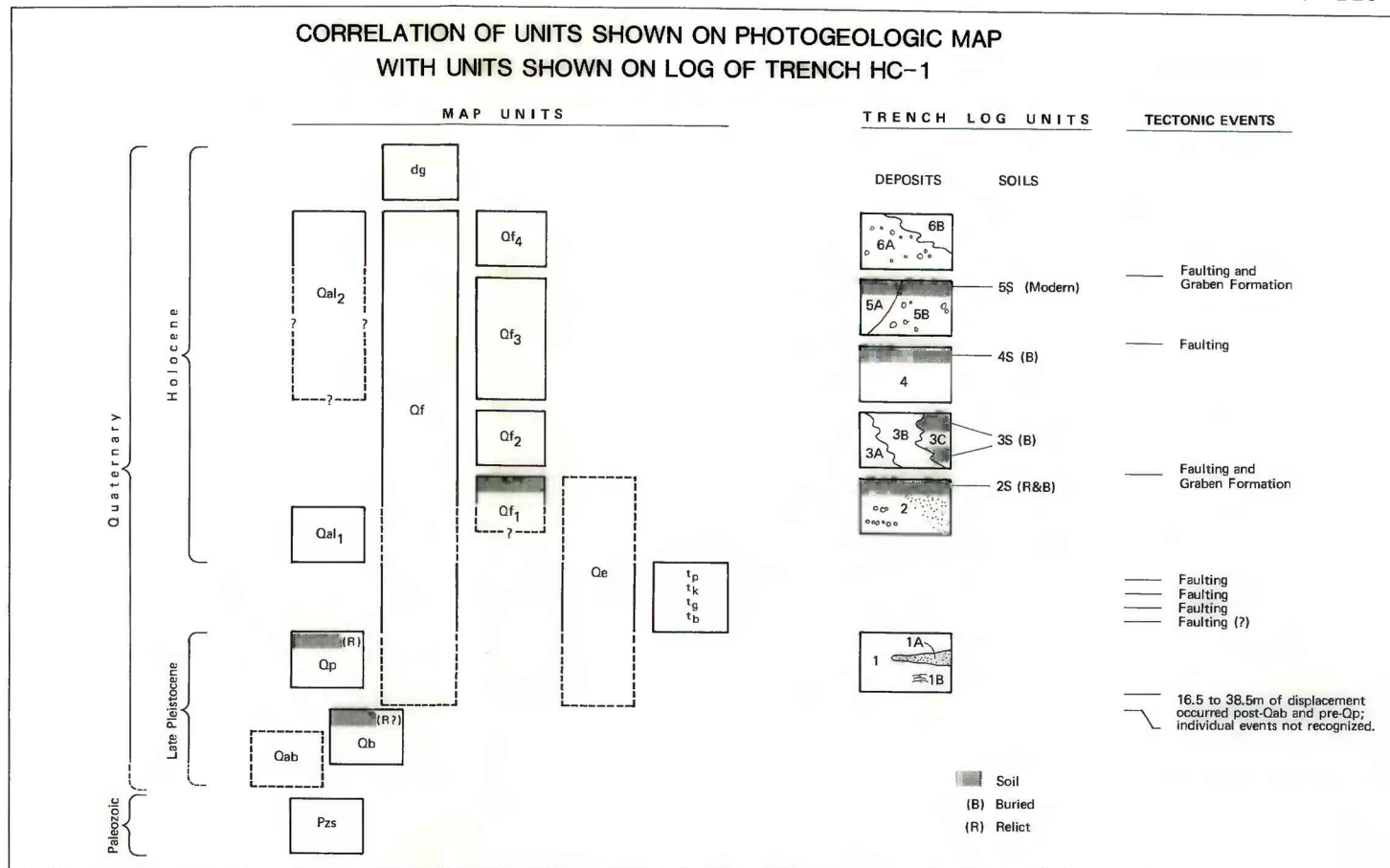
Qb Bonneville Gravel:
Sandy cobble gravel having pebbles and some boulders; typically occurs as a gravel cap, less than a meter to approximately 10 m thick; overlies the Alpine-Bonneville lake deposits and underlies the topographic bench at elevation 1555 m.

Qp Provo Fan-Delta Deposits:
Alluvial gravel and lake deposits that underlie terrace remnants of a composite fan-delta complex that extends from approximately elevation 1490 m at the mouths of Hobbie Creek Canyon and other major drainages westward down to approximately elevation 1430 m; consists primarily of well stratified sandy gravel, gravelly sand, and gravel; locally contains beds of finely laminated lake deposits; equivalent to unit 1 in trench HC-1. A relict paleosol has developed on post-Provo fan-delta surface; soil is characterized by A/B/C_{ca} soil profile that extends to depths of about 2 m.

BEDROCK

Pzs Paleozoic Sedimentary Rocks:
Primarily calcareous and quartzitic sandstones, limestone, and cherty limestone of the Quirrh Formation.

CORRELATION OF UNITS SHOWN ON PHOTOGEOLOGIC MAP
WITH UNITS SHOWN ON LOG OF TRENCH HC-1



DESCRIPTION OF TRENCH LOG UNITS (Plate 6)

FILL

fill Man-made fill; spoil from construction of farm-access road.

YOUNG SCARP COLLUVIUM AND ASSOCIATED CHANNEL DEPOSITS

(6A) Colluvium. Pebbly silty sand; contains 10 to 30 percent rounded, subangular and some angular pebbles, mode 3 to 5 cm; maximum size 20 cm; calcareous; friable; long axes of pebbles parallel slope creating a pronounced fabric; some roots.

(6B) Channel deposits. Between stations 9 and 10 unit 6A grades laterally into unit 6B. Unit 6B consists of sand beds 3 to 25 cm thick separated by lenses of silty coarse sand and gravelly silt. The sand beds consist of light yellowish brown (10 YR 6/4, 4.5/4 moist) poorly sorted silty very fine and fine sand. In the upper part of the channel the sand is grayish brown (10 YR 5/2, 4/2 moist); organic-rich root mats occur in places between the sand beds. The sand is weakly cemented by calcium carbonate. Sand aggregates readily disintegrate to loess; sand when moderate pressure is applied. The weak (A/C) soil profile developed on this unit is similar to unit 5S, except that it is sandier.

CHANNEL AND FAN DEPOSITS (Equivalent to Qf₂)

(5S) Soil profile developed on unit 5. Weak (A/C) soil profile developed on unit 5; similar to 3S except thicker (15 to 25 cm thick).

(6A) Channel facies. Stratified, poorly sorted to moderately well sorted sand, gravelly sand, and some fine gravel; pebbles are generally subangular to subrounded, some rounded and angular clasts; mode < 3 cm; few cobbles except at the base of the unit and at the contact with the overlying unit 6B where the contacts are defined, in part, by layers of cobbles and boulders; grades southward into 5B.

(5B) Mudflow facies. Pale brown (10 YR 6/4; 3/3 moist) gravelly silt (very plastic, slightly sticky) and silty gravel; contains 30 to greater than 50 percent (locally) subangular and angular pebbles with some (as much as 10 percent) cobbles and small boulders (less than 5 percent of larger clasts are rounded), mode 2 to 3 cm, maximum size 20 cm; poorly sorted, moderately dense; calcareous (carbonate generally not apparent, reacts to hydrochloric acid); grit and poorly sorted silty coarse sand lenses occur locally. Individual mudflow units are separated by buried A soil horizons (unit 5B).

COLLUVIUM

(4S) Buried C_{ca} soil horizon developed on unit 4. Pink (7.5 YR 6/4, 5.5/6 moist) silty pebbly sand, contains 20 to 30 percent angular to rounded pebbles and some cobbles, mode 3 to 5 cm, maximum size 15 to 20 cm; medium granular to medium angular blocky structure; vesicular; clear wavy lower boundary.

(4) Reddish yellow (6.5/6, 5.5/6 moist) poorly sorted sandy gravel derived primarily from Provo terrace deposits; contains 40 percent rounded pebbles, cobbles, and a few boulders, mode 3 to 5 cm, maximum size 15 cm.

FAN DEPOSITS AND ASSOCIATED COLLUVIUM (Equivalent to Qf₂)

Within most of the graben unit 3 consists of a sequence of mudflow deposits (unit 3C) and buried A soil horizons (unit 3S) developed on individual mudflow units. These deposits grade laterally into an alluvial facies (unit 3B) at the northeastern margin of the graben (between stations 15 and 17) and a colluvial facies (unit 3A) adjacent to the main fault scarp (station 3 to approximately station 9).

(3S) Buried A soil horizons (paleo-entisols). Grayish brown to dark grayish brown (10 YR 4.5/2; 3/2 moist) plastic, nonsticky, pebbly silt; similar to 3C, contains only 10 to 40 percent pebbles; slightly calcareous; upper contact is generally clear to abrupt, lower soil boundary is gradual to diffuse. Where these buried soils can be used as marker beds across faults they are designated by subscripts (3S₁, 3S₂, etc.).

(3A) Colluvial facies. Pale brown (10 YR 6/3; 4/3 moist) pebbly sandy silt; contains 15 to 20 percent angular and subangular pebbles, maximum size 14 cm, mode 1 to 3 cm; massive; fairly compact.

(3B) Alluvial facies. Pale brown to yellowish brown (10 YR 5.5/3-5, 3.5/2.5 moist) gravelly silty fine sand, contains 10 to 30 percent angular to rounded fine gravel, mode 0.5 to 2 cm, maximum size 10 cm, a few (less than 1 percent) cobbles and boulders up to 25 cm; poorly sorted; very weakly stratified to massive; slightly calcareous (< 1 percent filamentous carbonate).

(3C) Mudflow facies. Pale brown (10 YR 6/3; 4.5 moist) poorly sorted fine sand to silty gravel and gravelly silt to fine sand; contains 60 to 20 percent angular and subangular pebbles, small cobbles, and a few large cobbles and boulders (mode 0.2 to 5 cm, maximum size 45 cm; 10 to 20 cm common); massive; slightly calcareous, weakly developed filamentous carbonate locally.

ALLUVIAL FAN AND LOESS DEPOSITS (Equivalent to Qf₁)

(2S) Post-unit 2 soil. Weakly to moderately well developed soil profile (A/B/C_{ca}) formed on unit 2; see text for measured profile.

(2) Interbedded alluvial fan, loess and/or reworked loess deposits. North of the main antithetic fault scarp (station 67) the sequence consists primarily of mudflow units separated by very weakly developed A soil horizons. Adjacent to and south of the main antithetic fault scarp the sequence is predominantly loess with some gravelly units. The coarser mudflow deposits consist of gravelly silt to silty gravel; contain 20 to 30 percent subangular to angular grit, pebbles and cobbles; slightly calcareous (filamentous carbonate locally). Individual mudflows are locally separated by very weakly developed A soil horizons. The loess deposits are light brown (7.5 YR 6/4, 5/4 moist) silt; locally contain layers, lenses, and some stringers of fine sand and gravelly fine sandy silt; weakly to moderately cemented when dry by approximately 1 to 2 percent carbonate (3 to 5 percent carbonate in upper 30 to 50 cm locally).

PROVO FAN-DELTA DEPOSITS (Equivalent to Qp)

(1) Interbedded sandy gravel, gravelly sand, and gravel; layers of poorly sorted boulder and cobble gravel having a coarse sand matrix alternate with layers of sorted pebble gravel and pebbly coarse sand; crudely stratified to well bedded, some layers exhibit graded bedding; pebbles, cobbles, and boulders are rounded and well rounded; mode 5 cm, cobbles and boulders up to 20 cm are abundant in some layers, maximum size is approximately 30 cm; the dominant color of gravel layers is reddish yellow (5 YR 7/7, 5/7 moist).

(1A) White to light gray (10 YR 7.5/2, 6.5/3 moist), pink (7.5 YR 8/4, 6/4 moist), and very pale brown (10 YR 8/3, 7/5 moist) massive silt; the lower 2 to 8 cm is finely laminated; overlain by 1 to 3 cm of bedded fine sand.

(1B) Fine crossbedded sand contains a few 2 to 12 mm thick layers of laminated silt.

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.