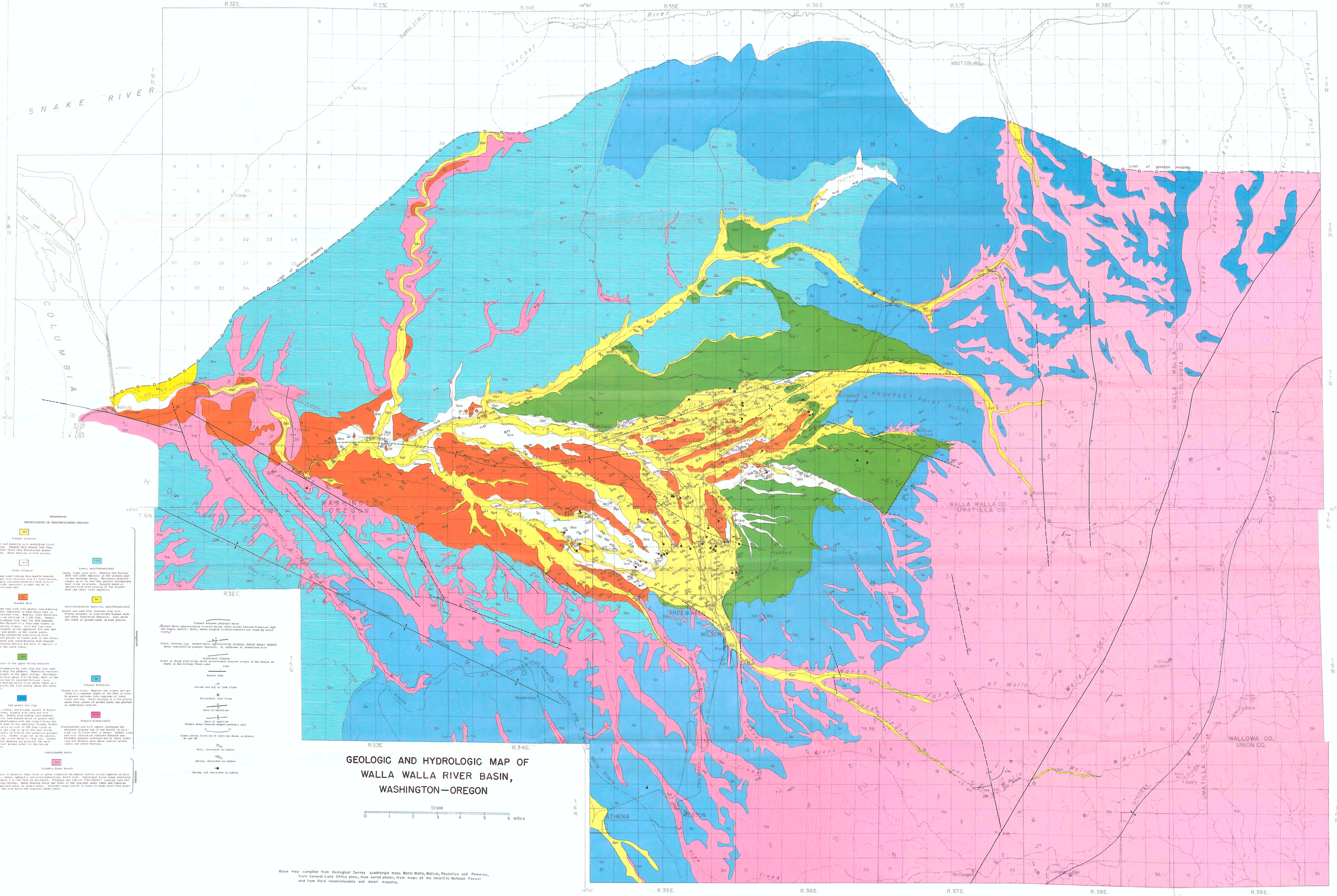


GEOLOGIC AND HYDROLOGIC MAP OF WALLA WALLA RIVER BASIN, WASHINGTON—OREGON

Scale

0 1 2 3 4 5 6 miles

Base map compiled from Geological Survey quadrangle maps Walla Walla, Wallula, Pendleton and Pomeroy, from General Land Office plats, from aerial photos, from maps of the Umatilla National Forest and from field reconnaissance and detail mapping.

EXPLANATION

UNCONSOLIDATED OR SEMICONSOLIDATED DEPOSITS

Recent

Qpv — Younger alluvium

Gravel and generally silt underlying flood plains. Largely thin veneer less than 10 feet thick over Pleistocene gravel Qpgh. Water bearing in most places.

Qpa — Older alluvium

Silt and sand forming thin mantle beneath slopes from terraces down to flood plains. Largely reworked materials from some of older deposits or part may be of Pleistocene age.

Pleistocene

Qtb — Touchet Beds

Silt and sand with some gravel, horizontally bedded, deposited in Lake Lewis late in Pleistocene time. Massive older materials up to an altitude of 1,150 feet. Ranges from about 50 feet thick in the Dayton-Waitsburg Terrace to a thin edge higher on the valley slopes. Silt and fine sand predominate in the uppermost 100 feet and sand and gravel in the lowest parts. Largest accumulations of gravel are exposed places on lowest part of the basin. Contains some water-bearing beds beneath the Dayton Terrace but much of deposit is above the water table.

Qvt — Deposits of the upper valley terraces

Silt accompanied by some clay and fine sand and a very few pebbles. Underlies terraces and slopes in the upper valley. Thickness ranges from about 5 to 50 feet. Much of the silt is above the water table. Contains water bearing below local water table in a few places but lies mostly above the water table.

Qgc — Old gravel and clay

Pebbles, cobble, and boulder gravel of basaltic rocks, largely with sand and silt matrix. Gravel zone mostly lies beneath silt and sand of Qpa and Qtb. Silt, clay and interfingers with the clay filling the lowest part of the regional troughs. Gravel thickness is as much as 300 feet beneath plateaus, but is up to 50 feet in most places. Not seen on the surface but underlies younger deposits. Gravel caps out in few places. But clay is not known to cap out. Gravel is water bearing and may be the main "shallow" ground water for the valley plains.

Qlb — Loess, undifferentiated

Sandy, light gray silt. Mantles the Touchet Beds on the slopes from the terraces down to the drainage basin. Thickness observed ranges up to 10 feet but greater thicknesses must occur in places. Largely water ld derived from wind erosion of the Touchet Beds and other older deposits.

Qfs — Glaciofluviatile deposits, undifferentiated

Gravel and sand that includes some silt. Mostly remnants of sand eroded Touchet Beds and other fluviatile deposits. Less above the level of ground water in most places.

Tertiary

Qp — Palouse Formation

Clayey silt loess. Mantles the slopes and uplands to a maximum depth of 100 feet or more. Thickness is less than 10 feet on the lower slopes and sub. Water bearing in a few places where thin lenses of ground water are perched on underlying bedrock.

Ttb — Ringold Formation(?)

Conglomerate and silt layers overlying the westward slipping top of the basalt in sulphur cut 3½ miles west of Dayton. Pebble cobble and silt indicates inferred Ringold age. Probably extends westward and at depth underlies the Palouse. Water bearing where similar gravel layers are water bearing.

CONSOLIDATED ROCKS

Miocene and Pliocene (?)

Tcb — Columbia River Basalt

A sequence of basaltic lava flows of great composite thickness; bottom is not exposed in this basin. Dense, aphanitic and microcrystalline, black rock. Individual flows range generally from about 5 to 100 feet in thickness. Columns and colonnades characterize the rock into blocks. Water bearing below the level of the regional water table and contains large quantities of water in large grains of water to deep cracks that penetrate the rock below the regional water table.

Contact between geologic units
Dashed where approximately located except where around Palouse Formation (Qp) and loess, unlift. Solid, where roughly located contacts are shown by solid lines.

Fault, showing dip. Dashed where approximately located, dotted (short dashes) where concealed by younger deposits. U, upthrown side; D, downthrown side

Horizontal flexure
Fault or sharp fold along which groundwater barrier occurs on the basalt at depth in the College Place area

Dike

Basalt dike

Strike and dip of lava flows

Horizontal lava flows

Axis of anticline

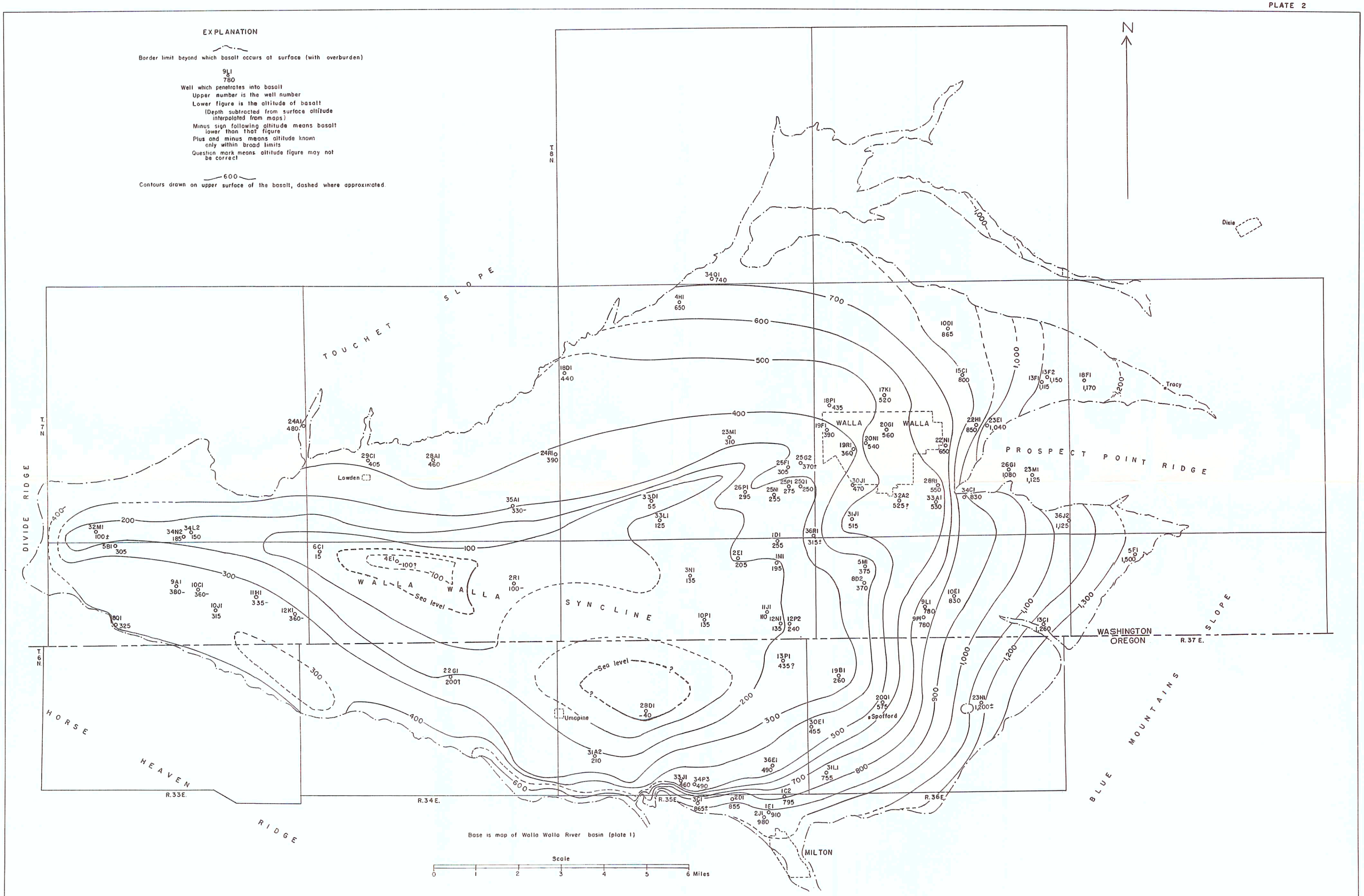
Axis of syncline
Dashed where beneath mapped geologic unit

A — A'
Lines giving location of sections shown in plates 4A and 4B

Well, described in tables

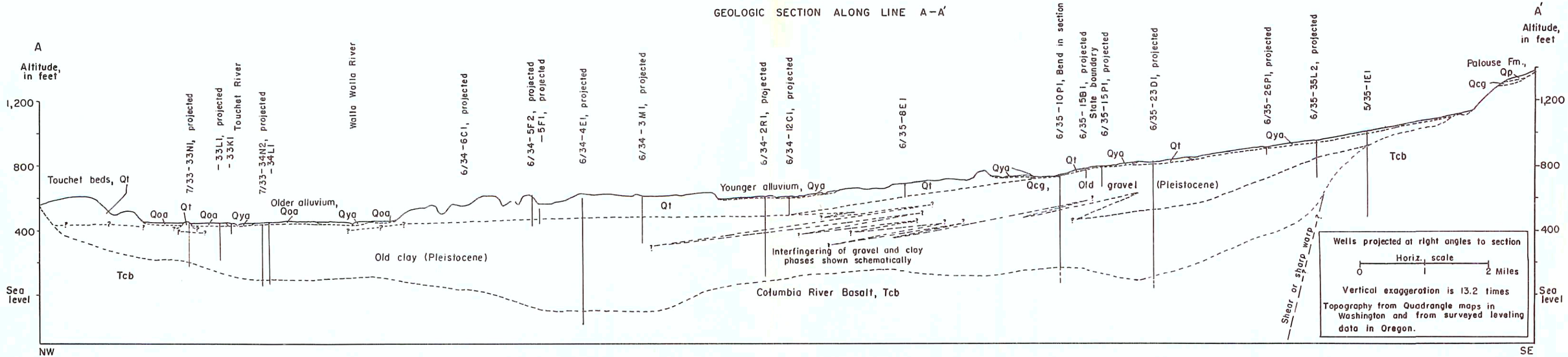
Spring, described in tables

Spring, not described in tables



MAP SHOWING ALTITUDE OF COLUMBIA RIVER BASALT (BEDROCK SURFACE) BENEATH THE WALLA WALLA VALLEY

GEOLOGIC SECTION ALONG LINE A–A′



GEOLOGIC SECTION ALONG LINE B-B′

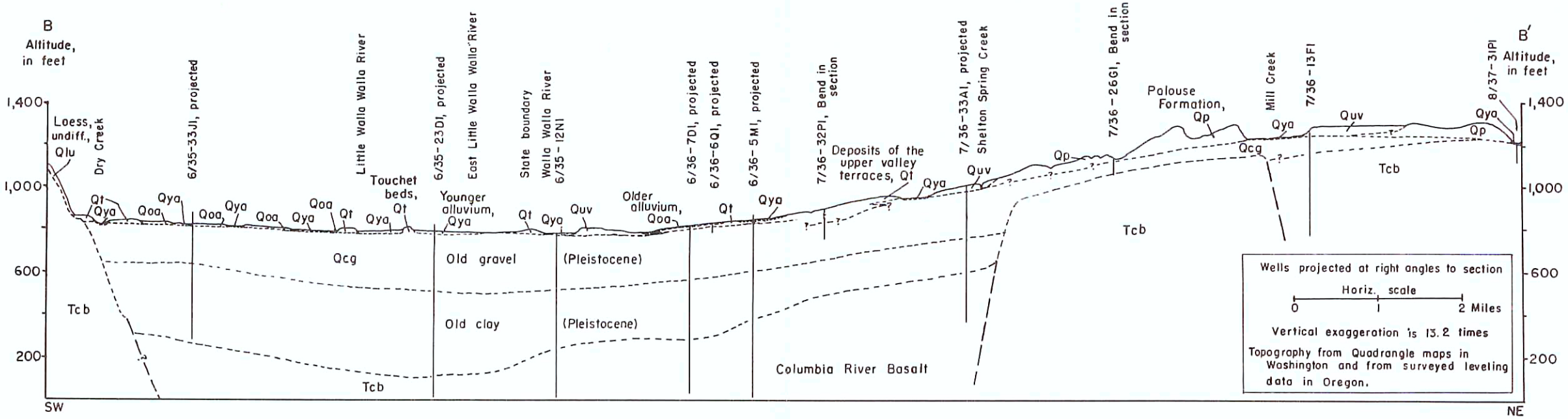



PLATE 3B