EXPLANATION

QUATERNARY

Holocene

Qal — Valley alluvium
Silt, sand, and gravel; includes all stream-valley alluvium of Holocene age. Yields moderate quantities of water to wells where saturated

Qls — Landslide deposits

Pleistocene

Qw — Willamette Silt
Clay, silt, and fine sand. Thickness ranges from 0 to over 70 feet in places. Sand layers yield small amounts of water to large-diameter dug wells

Qt — Terrace alluvium
Silt, sand, and gravel. Usually not more than 10 to 20 feet thick beneath terrace surfaces, but 60 to 100 feet thick beneath alluvial-fan remnants between Butte and Silver Creeks. Saturated, better sorted, and coarser grained beds yield small to moderate amounts of water to wells

Qs — Springwater Formation
Volcanic mudflow and piedmont deposits. Up to 100 feet thick in the Springwater area. May contain perched water bodies at places, but not known to yield water to wells

QTau — Alluvial deposits undivided
Conglomerate, gravel, sandstone, sand, siltstone, and silt. Include Troutdale Formation, Willamette Silt, terrace deposits, and valley alluvium. Provide a rather thin cover over Tertiary bedrock units

QTb — Boring Lava
Flows of light- to medium-gray, inflated open-textured olivine basalt and basaltic andesite. Ranges in thickness from a few feet to more than 200 feet. Contains many bodies of perched ground water that yield small to moderate quantities of water to wells

TERTIARY

Pliocene

Tt — Troutdale Formation
Claystone, siltstone, sandstone, conglomerate, and massive pumice tuff. Ranges in thickness from a few feet to more than 800 feet. Coarse sandstone and conglomerate beds of this unit are the principal aquifers in the area and yield moderate to large quantities of water to properly constructed wells

Miocene

Tsu, Tsa, Tst, Tsb, Tsb, Tsf — Sardine Formation
Tsu, *Sardine Formation undivided. Andesite and basaltic andesite flows, volcanic mudflow breccias, and pumice tuff. More permeable breccias, tuffs, and lava flows yield small to moderate amounts of water to wells*
Tsa, *pyroxene andesite flows. Caps other rocks of the Sardine Formation*
Tsb, *volcanic mudflow breccia, water-laid tuff, and pumice tuff (Sardine Formation of Hodge, 1933)*
Tsf, *massive pumice tuff, basaltic andesite flows, and tuffaceous agglomerate-conglomerate beds (Fern Ridge Tuffs of Thayer, 1939)*
Tsi, *intrusive rocks. Medium-grained felsic dike rock*

Tcr — Columbia River Group
Flows of gray to dark-gray fine-grained basalt. Thickness ranges from 0 to more than 500 feet. Permeable zones between successive flows yield small to large quantities of water to wells

UNCONFORMITY

Oligocene and Miocene

Tm — Marine rocks
Sandstone, siltstone, and tuff. Intertongues with Little Butte Volcanic Series. Total thickness not known; as much as 1,000 feet exposed in the report area. Permeable sandstone beds yield small to moderate quantities of water to wells. Water from deeper wells in this unit may be saline

Tlt, Tla, Tlb — Little Butte Volcanic Series
Andesitic basalt, basaltic andesite, tuffs, agglomerate, and welded tuff. Lower unit in area is basalt, basaltic andesite, and volcanic breccias. Upper unit is water-laid tuffs and agglomerate. Porphyritic andesite masses occur at places within upper unit. Lower unit appears to underlie marine rocks; upper unit overlies marine rocks
Tlt, *tuffs of Molalla River area, agglomerate and fluvial deposits. More than 700 feet of this unit exposed along the Molalla River. Tuffaceous beds yield only small amounts of water to wells, whereas breccias yield small to moderate amounts*
Tla, *porphyritic andesite*
Tlb, *olivine basalt, basaltic andesite, and volcanic breccias. At least 400 feet thick. Permeable zones between basalt flows or within the breccia yield small to moderate quantities of water to wells. Water from deep wells that tap this unit in the Willamette Valley may be saline*

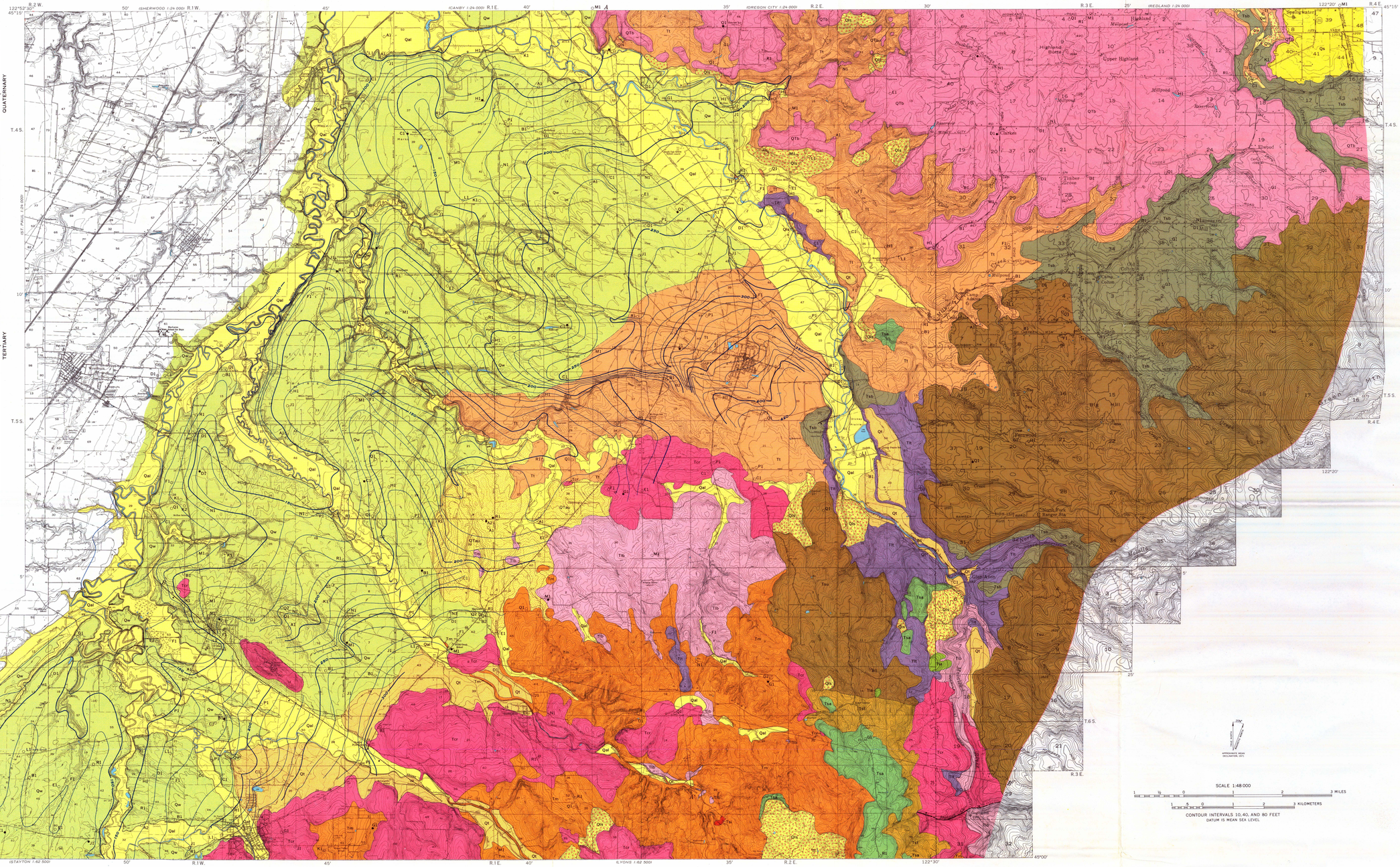
Contact
Dashed where approximately located

Fault
Dashed where inferred, dotted where concealed. Ball and bar on downthrown side

Strike and dip of beds or flows

300 — Approximate water-table contours
Show altitude of the regional unconfined water table. Contour interval 10 feet

M1 — Well described in this report
B1 — Well described in Hampton (1963)
Numbering system described in text


R.2 W.
122°52'30"
45°15'
50'
(SHERWOOD 1:24 000)
R.1 W.
45'
(CANBY 1:24 000)
R.1 E.
40'
M1
A
35'
(OREGON CITY 1:24 000)
R.2 E.
30'
R.3 E.
25'
(REDLAND 1:24 000)
122°20'
R.4 E.
45°15'
T.4 S.
T.5 S.
T.6 S.
R.3 W.
123°00'
(OREGON BOTTOM 1:24 000)
(FOREST GROVE 1:24 000)
(STAYTON 1:62 500)
(LYONS 1:62 500)
45°00'
Molalla River
Milk Creek
Mulino
Highland
Upper Highland
Springwater
Liberal
Elwood
Tonquin
Scotts Mills
Cedar Mill
Cornelius
Forest Grove
Gales Creek
Banks
Buxton
Timber
Vernonia
Scappoose
Mist
Clatskanie
Rainier
Deer Island
Columbia City
St Helens
Yankton
Scholls
Sherwood
Tualatin
Wilsonville
Aurora
Donald
Newberg
Dundee
Lafayette
Yamhill
Carlton
Amity
Sheridan
Willamina
Grand Ronde
Dallas
Falls City
Independence
Monmouth
Perrydale
Ballston
Dayton
Lafayette
Newberg
Hillsboro
Beaverton
Tigard
Tualatin
Sherwood
Wilsonville
Molalla
Canby
Oregon City
Milwaukie
Gresham
Troutdale
Fairview
Portland
Vancouver
Longview
Kelso
Cathlamet
Astoria
Seaside
Cannon Beach
Tillamook
Pacific City
Lincoln City
Newport
Waldport
Yachats
Florence
Reedsport
Coos Bay
North Bend
Bandon
Port Orford
Gold Beach
Brookings
Pacific Ocean
Columbia River
Willamette River
Tualatin River
Yamhill River
Nestucca River
Siuslaw River
Umpqua River
Coquille River
Rogue River
Chetco River
Sandy River
Clackamas River
Lewis and Clark River
Nehalem River
Wilson River
Trask River
Tillamook Bay
Nestucca Bay
Siuslaw Bay
Umpqua Bay
Coquille Bay
Rogue Bay
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