

Vancouver (NM 9/10)

LEGEND FOR QUATERNARY OF CANADIAN CORDILLERA

R.J. Fulton

HOLOCENE

- m Made-land: mixed texture materials dumped to provide additional unstable land or built during disposal of waste materials; includes mill tailings dumps and spoil ground.
I Alpine glaciers and ice caps: ice and debris covered ice; includes minor associated glacial deposits and small areas of rock (mainly nunataks).
O Organic deposits: peat, mucky peat and muck; brown to black in color; in many places underlain by grey to light brown muck consisting largely of fine grained carbonate mud and mollusc fragments.
S Landslide: rubble and diamicton with texture dependant on the position of the material in which the slope failure occurred.
Fc Fo Fluvial sand, silt, and gravel: medium grained sand and gravel and fine grained sand and silt occurring as modern and Holocene floodplain, terrace and fan deposits.
Fc Fc Fo, dominantly channel sands and gravels and associated sand and gravel terraces.
Fo Fo, dominantly fine grained sand and silt overbank deposits including associated organic materials and channel deposits.
FF FF, diamicton and gravel occurring as alluvial fan deposits.
Fx Fx, a complex of channel and overbank deposits, and intertonguing colluvial and alluvial fans.
Lt Lx Lacustrine silt, clay and sand: commonly light grey in color; dominantly rhythmites consisting of thick silt (<1 m) and thin (<1 cm) clay couplets.
Lt Lt, thick lacustrine deposits generally seen as a terrace or partly dissected valley fill but also often underlies Holocene fluvial deposits.
Lx Lx, lacustrine silt, sand and clay and minor ice contact sand and gravel: stratification generally parallel but contorted and faulted due to melting of buried ice.

HOLOCENE AND FRASER

- Wt Wv Marine and glaciomarine deposits: clay, silt, sand, gravel, and diamicton deposited in lowland areas transversed by the sea during latest Pleistocene and Holocene time.
Wt Thick marine and glaciomarine deposits masking details of relief of underlying units, and with surface expression reflecting genesis of deposit.
Wb Marine and glaciomarine deposits thick enough to mask minor irregularities in the underlying units, but which still conform to the general underlying topography.
Wv Discontinuous, thin marine and glaciomarine deposits; relief details of underlying units generally visible; outcrops of underlying units may be common.
Gt Gx Glaciofluvial sand and gravel: dominantly coarse grained sand, pebbly sand and fine gravel but locally poorly sorted and bouldery.
Gt Gt, sand and gravel in the form of terraces and deltas associated with the ice retreat drainage regime.
Gx Gx, sand and gravel in the form of ridges and hummocks (kames, kame complexes and eskers) and other features associated with deposition of sand and gravel in contact with ice.

- 1M Loamy till: Olive-brown, brown, grey-brown or reddish brown till. Slightly to moderately calcareous.
1Mt 1Mb 1Mv 1Mw dM dMt dMb dMv sM sMt sMb sMv Ra Rs Rm Qv
1Mv: thin to discontinuous till with scattered outcrops; thickness generally >2 m.
dM: Sandy loamy till: olive-grey, olive, olive-brown, grey-brown, grey and pale olive till.
dMt dMb: dMt dMb: continuous till cover with thicknesses >10 m on valley walls and lower slopes.
sM: Sandy till: olive grey, grey and pale olive till.
sMt sMb: sMt sMb: continuous till cover with thicknesses up to 10 m on valley floors and lower slopes.
Ra: Rock with discontinuous colluvium and till - alpine mountains: major rock landforms consist of arêtes, cirques, glaciated valleys and various other alpine glacial forms.
Rs: Rock with discontinuous colluvium and till - steep slopes: rock landforms consist dominantly of steep slopes.
Rm: Rock with minor colluvium and till - low relief: flat to gently rolling areas of rock.
Qv: Quaternary volcanics: lava flows, breccia and ash, dominantly basaltic and andesitic composition.

Geology compiled by R.J. Fulton and J.J. Clague, Geological Survey of Canada and J.M. Ryder, British Columbia Department of the Environment. Compilation co-ordination by R.J. Fulton.

SYMBOLS

- Cirque or group of cirques (not shown in areas of Ra).
Direction of ice movement: erosional features (grooves, striae, chattermarks etc).
Drumlin or group of drumlins.
Streamlined topography indicating direction of ice movement (includes grooves in drift, drumlinoid ridges etc.).
Crest of transverse till ridges.
Esker or ice fracture filling.
Abandoned channel; includes meltwater channels and underfit streams.
Spillway threshold of glacial lake.
Deltas too small to appear as a map unit.
Surface unit overlies a thick (<600 m) of Quaternary sediments.
Volcanic ash locality (Bridge River, St. Helen's Y, Mazama ), Olympia "Interglacial").
Important stratigraphic section (brief description given in Table II).
Important radiometric date locality (date and brief explanation given in Table I).

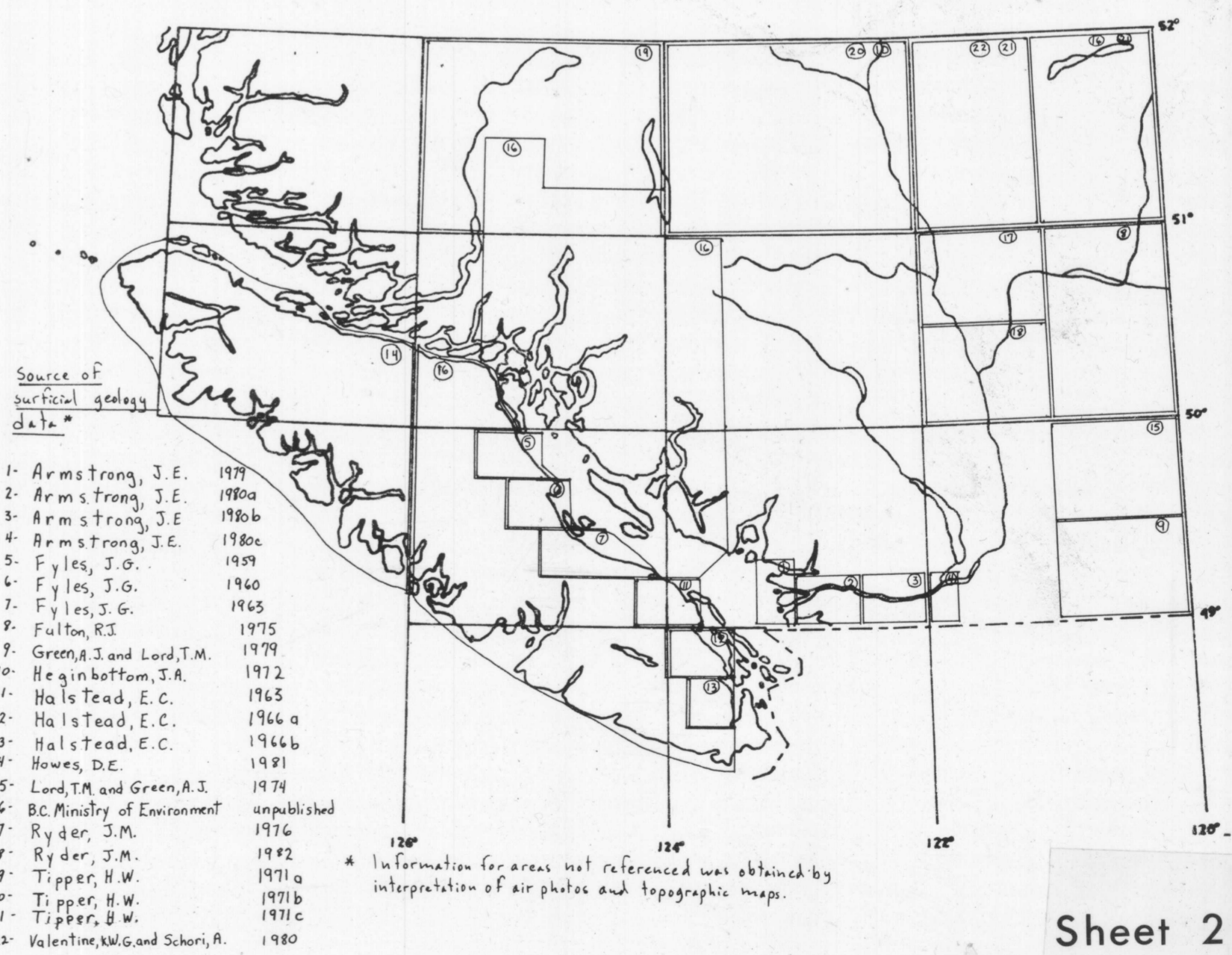
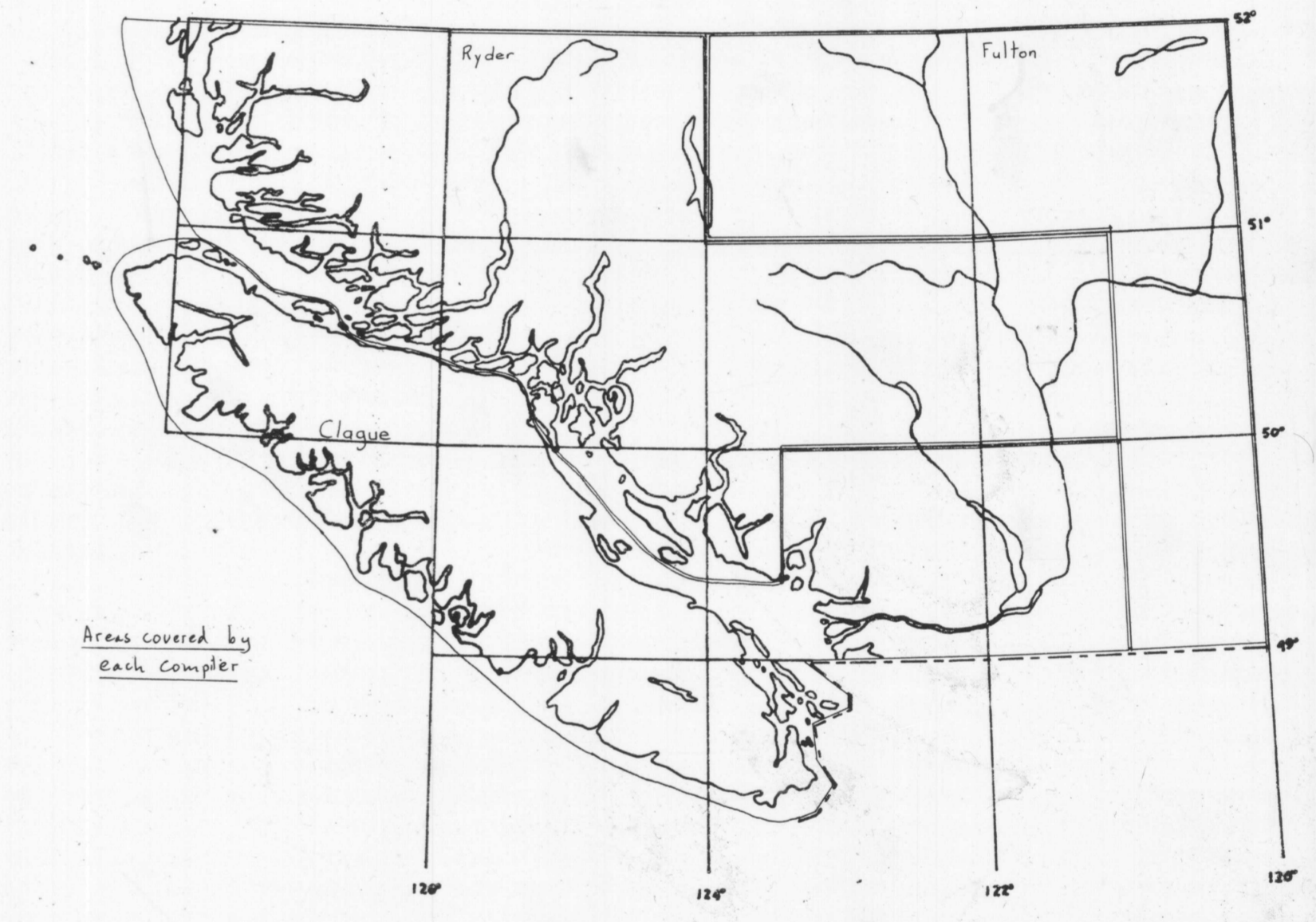
Armstrong, J.E. 1979: Surficial geology Vancouver, British Columbia: (92 G3); Geol. Surv. Can., Map 1486A (1:50 000).
Armstrong, J.E. 1980a: Surficial geology New Westminster, British Columbia: (92 G2); Geol. Surv. Can., Map 1484A (1:50 000).
Armstrong, J.E. 1980b: Surficial geology Mission, British Columbia: (92 G1); Geol. Surv. Can., Map 1485A (1:50 000).
Armstrong, J.E. 1980c: Surficial geology Chilliwack, British Columbia: (92 H4M); Geol. Surv. Can., Map 1487A (1:50 000).
Armstrong, J.E. 1981: Post-Vashon Wisconsin glaciation, Fraser Lowland, British Columbia: Geol. Surv. Can., Bull. 322, 34 p.
Armstrong, J.E. and Clague, J.J. 1977: Two major Wisconsin lithostratigraphic units in southwestern British Columbia; Can. Jour. Earth Sci., Vol. 14, p. 1471-1480.
Clague, J.J., Armstrong, J.E. and Mathews, W.H. 1980: Advance of the Late Wisconsin Cordilleran ice sheet in southern British Columbia since 22 000 yr. B.P.; Quat. Res., Vol. 13, p. 322-326.
Dyck, W. and Fyles, J.G. 1962: Geological Survey of Canada radiocarbon dates I; Geol. Surv. Can., Paper 63-21, p. 1-14.
Dyck, W., Lowdon, J.A., Fyles, J.G. and Blake, W. Jr. 1966: Geological Survey of Canada radiocarbon dates V: Radiocarbon, Vol. 8, p. 96-127.
Fulton, R.J. 1971: Radiocarbon geochronology of southern British Columbia; Geol. Surv. Can., Paper 71-37, p. 28.
Fulton, R.J. 1975: Quaternary geology and geomorphology, Nicola-Vernon Area, British Columbia, 82 LW4 and 92 IE1; Geol. Surv. Can., Memoir 380, 50 p. (1:126 720).
Fulton, R.J. and Smith, G.W. 1978: Late Pleistocene stratigraphy of south-central British Columbia; Can. Jour. Earth Sci., Vol. 15, p. 971-980.
Fyles, J.G. 1959: Surficial geology, Oyster River, British Columbia (92 F14); Geol. Surv. Can., Map 49-1959 (Scale 1:63 360).
Fyles, J.G. 1960: Surficial geology, Courtenay, British Columbia (92F 11E + 10W) Geol. Surv. Can., Map 32-1960. (1:63 360).
Fyles, J.G. 1963: Surficial geology of Horne Lake and Parksville map-areas, Vancouver Island, British Columbia; Geol. Surv. Can., Memoir 318, 142 p. (Scale 1:63 360, 92F7, 92F8).
Green, A.J. and Lord, T.M. 1979: Soils of the Princeton area of British Columbia: (92 H sw) Agriculture Canada, British Columbia Soil Survey Report 14. (1:125 000).
Halstead, E.C. 1963: Surficial geology, Nanaimo British Columbia: (92 G4, 92 F 1E) Geol. Surv. Can., Map 27-1963. (1:63 360).
Halstead, E.C. 1966a: Surficial geology Duncan area, British Columbia: (92 B/13) Geol. Surv. Can., Map 14-1965. (1:63 360).
Halstead, E.C. 1966b: Surficial geology Shawigan area, British Columbia: (92 B/12) Geol. Surv. Can., Map 15-1965. (1:63 360).
Heginbottom, J.A. 1972: Surficial geology of Taseko Lakes map-area, British Columbia (92 O) Geol. Surv. Can., Paper 72-14. (1:250 000).
Hicock, S.R. 1980: Pre-Fraser Pleistocene stratigraphy, geochronology, and paleoecology of the Georgia Depression, British Columbia; Dept. of Geology, University of Western Ontario, London, Ont. Unpub. Ph.D. Thesis.
Hicock, S.R. and Armstrong, J.E. 1981: Coquitlam Drift: a pre-Vashon Fraser glacial formation in the Fraser Lowland, British Columbia; Can. Jour. Earth Sci., Vol. 18, p. 1443-1451.
Howes, D.E. 1981: Terrain inventory and geological hazards: northern Vancouver Islands: British Columbia Ministry of Environment, APD Bulletin 5, 105 p. (1:250 000).
Lord, T.M. and Green, A.J. 1974: Soils of the Tulameen area of British Columbia: (92 H NE) Agriculture Canada, British Columbia Soil Survey Report No. 13, (1:125 000).
Lowdon, J.A., Robertson, I.M. and Blake, W. Jr. 1977: Geological Survey of Canada radiocarbon dates XVII; Geol. Surv. Can. Paper 77-7, 25 p.
Mathews, R.W., Borden, C.E. & Rouse, G.E. 1972: New radiocarbon dates from the Yale Area of the Lower Fraser River Canyon, British Columbia; Can. Jour. Earth Sci., V. 9, p. 1055-1057.
Ministry of Environment Unpublished: Terrain and landform maps. British Columbia Ministry of Environment, Assessment and Planning Division Manuscript Maps, Map Library 765 Broughton St., Victoria, British Columbia. (1:50 000).
Roddick, J.A., Muller, J.E. and Okulitch, A.V. 1979: Fraser River, British Columbia-Washington; Geological Survey of Canada, Geological Atlas Series, Scale 1:1 000 000, sheet 92, Map 1386 A.
Ryder, J.M. 1976: Terrain inventory and Quaternary geology Ashcroft, British Columbia: (92 I NE); Geol. Surv. Can., Paper 74-49 (1:126 720).
Ryder, J.M. 1982: Terrain inventory and Quaternary geology Lytton area, British Columbia: (92 I SW); Geol. Surv. Can., Paper 79-25. (1:126 720).
Tipper, H.W. 1971a: Surficial geology, Mount Waddington, British Columbia (92 N); Geol. Surv. Can., Map 1291 A (1:250 000).
Tipper, H.W. 1971b: Surficial geology, Taseko Lakes, British Columbia (92 O); Geol. Surv. Can., Map 1292 A (Scale 1:250 000).
Tipper, H.W. 1971c: Surficial geology Bonaparte Lake, British Columbia (92 P); Geol. Surv. Can., Map 1293 A (Scale 1:250 000).
Valentine, K.W.G. and Schori, A. 1980: Soil association map of the Lac la Hache-Clinton area, British Columbia: (92 P W); Agriculture Canada, British Columbia Soil Survey Report, No. 25 (1:125 000).

Table I

Table with columns: Locality, Date, Material, Significance, Reference. Contains radiometric dates from various sites.

Table II

Table with columns: Locality, Significance, Reference. Lists important stratigraphic sections.



OPEN FILE DOSSIER PUBLIC 837 1982 GEOLOGICAL SURVEY COMMISSION GEOLOGIQUE OTTAWA

This map has been produced from a scanned version of the original map. Reproduction par numérisation d'une carte sur papier.