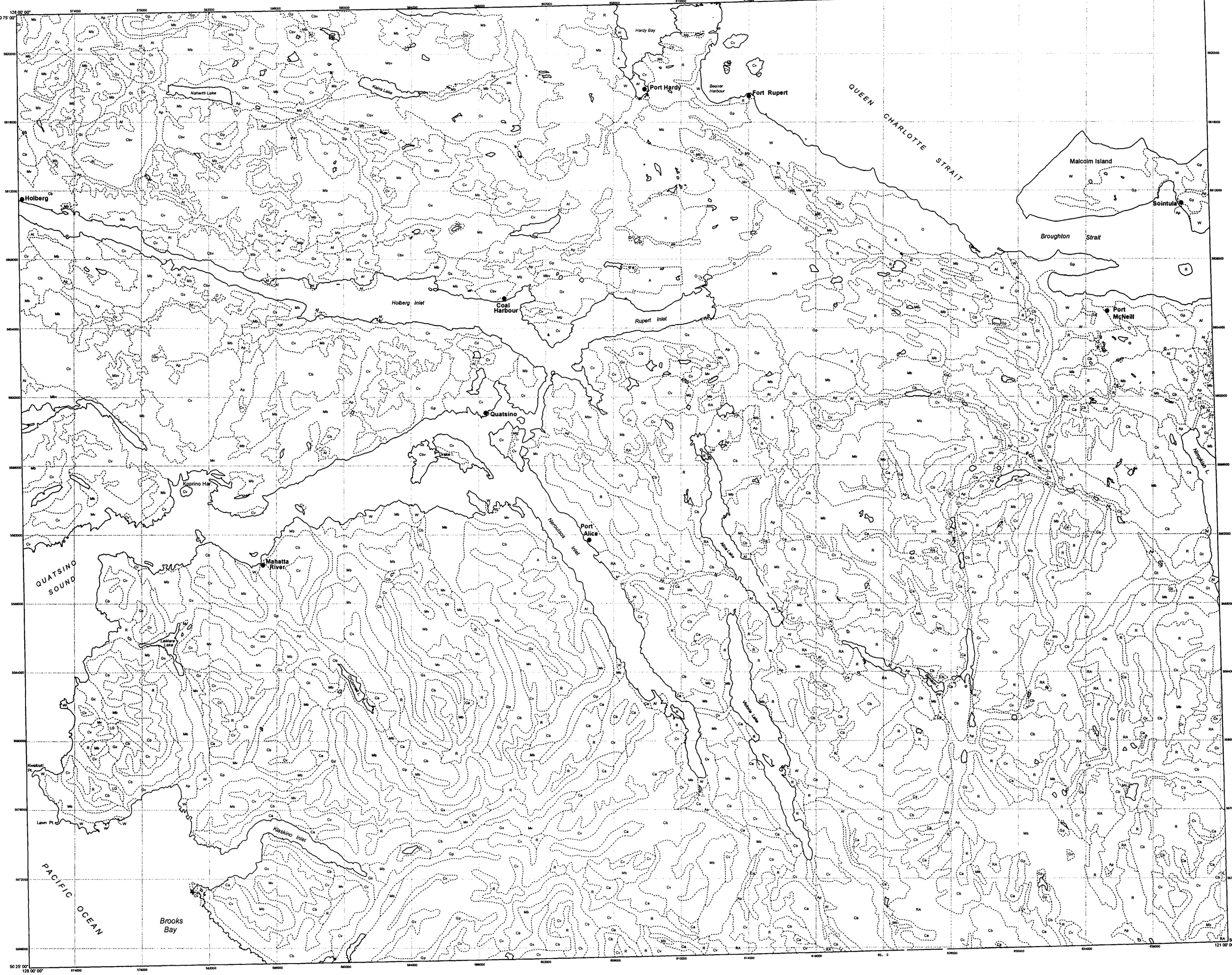

BRITISH COLUMBIA
Ministry of Employment and Investment
Energy and Minerals Division
Geological Survey Branch

Geological Survey Branch

OPEN FILE 1997-8

SURFICIAL GEOLOGY OF NORTHERN VANCOUVER ISLAND AREA

NTS 92 L/5, 6, 11 & 12

By P.T. Bobrowsky (P.Geo.)

Scale 1:100 000

km 2 0 2 4 6 8 10 12 14 km

For an overview of the Quaternary geology of the Northern Vancouver Island area, please refer to the following reports: Bobrowsky and Meldrum (1994a), Huntley and Bobrowsky (1995a), Bobrowsky *et al.* (1995). Map represents compilation and synthesis of 1:50 000 scale maps by Bobrowsky and Meldrum (1994b, 1994c), Chatterton (1980), Huntley and Bobrowsky (1995b). Geology based on air photo interpretation by Bobrowsky (92L/6 and 11) and Huntley (92L/5), followed by ground truthing in areas indicated on original maps.

LEGEND

QUATERNARY

HOLOCENE - POST PORT McNEILL GLACIATION

A **ANTHROPOGENIC DEPOSITS**: culturally disturbed and modified terrain.

O **ORGANIC DEPOSITS**: peat, muck and other vegetative materials at least 40 to 60 cm thick and often several metres thick, formed by the accumulation and decay of vegetative materials in depressions or level areas including bogs, fens and swamps

E **EOLIAN DEPOSITS**: well sorted, medium to fine sand and coarse silt; transported and deposited by wind action; generally > 1 m thick; occasionally forming dunes

COLLUVIAL DEPOSITS: clast and matrix-supported diamicton or rubble resulting from the alteration of bedrock and other surficial materials through physical and chemical weathering and the downslope movement of materials; massive to well-stratified; reworked and transported by gravitational processes including creep, sliding, debris flow, avalanching, topple and rockfall

Cb **Colluvial blanket sediments**: diamicton or rubble; > 1 m thick

Ca **Colluvial apron and failure sediments**: rubble or diamicton complex fans, aprons, talus cones; generally resulting from slope failures and localized movement including debris avalanches, debris slides, debris torrents and mudflows

Cv **Colluvial veneer sediments**: diamicton or rubble; < 1 m thick and/or discontinuous

ALLUVIAL DEPOSITS: gravel to silt size sediments deposited by rivers, streams and creeks; commonly well sorted and stratified; clasts often well rounded

Ap **Floodplain sediments**: cobble to pebble gravel, including minor sand, silt and clay; > 1 m thick; includes local organic and lacustrine deposits in abandoned channels, depressions and backswamp areas; floodplain areas subject to occasional stream flooding and sediment reworking

At **Alluvial terrace sediments**: cobble to pebble gravel, including minor sand, silt and clay; > 1 m thick; step-like topography, commonly marginal to channels and floodplains; well drained areas not subject to stream flooding

Af **Alluvial fan sediments**: cobble to pebble gravel, including sand, silt and clay and diamicton deposits; > 1 m thick; well sorted to massive; includes areas subject to debris flows, flooding and stream avulsion

WISCONSINAN - PORT McNEILL GLACIATION

GLACIOLACUSTRINE DEPOSITS: well stratified sand, silt and clay, including minor gravel and diamicton deposited in lakes adjacent to glacial ice; slump structures, irregular topography and kettles indicative of collapse from melting of buried ice commonly present

LGb **Glaciolacustrine blanket**: sand, silt and clay; > 1 m thick

LGv **Glaciolacustrine veneer**: sand, silt and clay; < 1 m thick

GLACIOMARINE DEPOSITS: well stratified silt and clay, including minor sand, gravel and diamicton deposited in ice-marginal depositional environments; dropstones and level topography is present

W **Glaciomarine sediments**: silt and clay, minor sand and gravel; > 1 m thick

GLACIOFLUVIAL DEPOSITS: cobble to pebble gravel, including minor sand and silt; generally > 1 m thick; deposited by rivers and streams flowing from or in contact with glacial ice, including glacial deltas; sorting good to poor; massive to well stratified; evidence of ice collapse including slumping, kettles and irregular topography common

Gp **Glaciofluvial plain**: cobble to pebble gravel, including minor sand and silt, planar topographic surface; generally > 1 m thick

Gt **Glaciofluvial terrace**: cobble to pebble gravel including minor sand and silt; planar topographic surface cut into step-like terraces; generally > 1 m thick

Gx **Glaciofluvial complex**: cobble to pebble gravel, including minor sand, silt and diamicton; generally several metres thick; includes areas consisting of up to 50 percent Gp, Gt, Mb and/or Mv

MORAINAL DEPOSITS: glacial diamicton, primarily till; generally consists of silty sand matrix and pebbles, cobbles and boulders; massive to stratified; deposited either directly or indirectly by glacial ice or by sediment gravity flow processes associated with ice

Mb **Morainal blanket**: diamicton; > 1 m thick

Mv **Morainal veneer**: diamicton; < 1 m thick

PRE-QUATERNARY

R **Bedrock**: includes areas of thin colluvial and morainal cover

RA Bedrock outcrop areas subject to mass wasting processes including rockfalls, topples, avalanches and weathering

REFERENCES

Bobrowsky, P.T. and D. Meldrum (1994a) Preliminary Drift Exploration Studies, Northern Vancouver Island (92L6, 92L/11). In: *B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1993*, Paper 1994-1, p. 87-99.

Bobrowsky, P.T. and D.G. Meldrum (1994b) Surficial Geology of the Port McNeill Area (NTS 92L/11). *B.C. Ministry of Energy, Mines and Petroleum Resources*, Open File 1994-4. Scale 1:50,000.

Bobrowsky, P.T. and D.G. Meldrum (1994c) Surficial Geology of the Alice Lake Area (NTS 92L/6). *B.C. Ministry of Energy, Mines and Petroleum Resources*, Open File 1994-5. Scale 1:50,000.

Bobrowsky, P.T., Best, M., Dunn, C.E., Huntley, D.H., Lowe, C., Roberts, M., Seemann, D.A., and S.J.N. Sibbick (1995) Integrated Drift Exploration Studies on Northern Vancouver Island (92L). In: *B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1994*, Paper 1995-1, p. 23-33.

Chatterton, A. (1980) Terrain geology map of Quatsino (92L/12). *B.C. Ministry of Environment*, scale 1:50 000.

Huntley, D.H. and P.T. Bobrowsky (1995a) Surficial Geology and Drift Exploration: Mahatta Creek Map Area (92L/5). In: *B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1994*, Paper 1995-1, p. 35-48.

Huntley, D.H. and P.T. Bobrowsky (1995b) Surficial Geology of the Mahatta Creek Area (NTS 92L/5). *B.C. Ministry of Energy, Mines and Petroleum Resources*, Open File 1995-11. Scale 1:50,000.