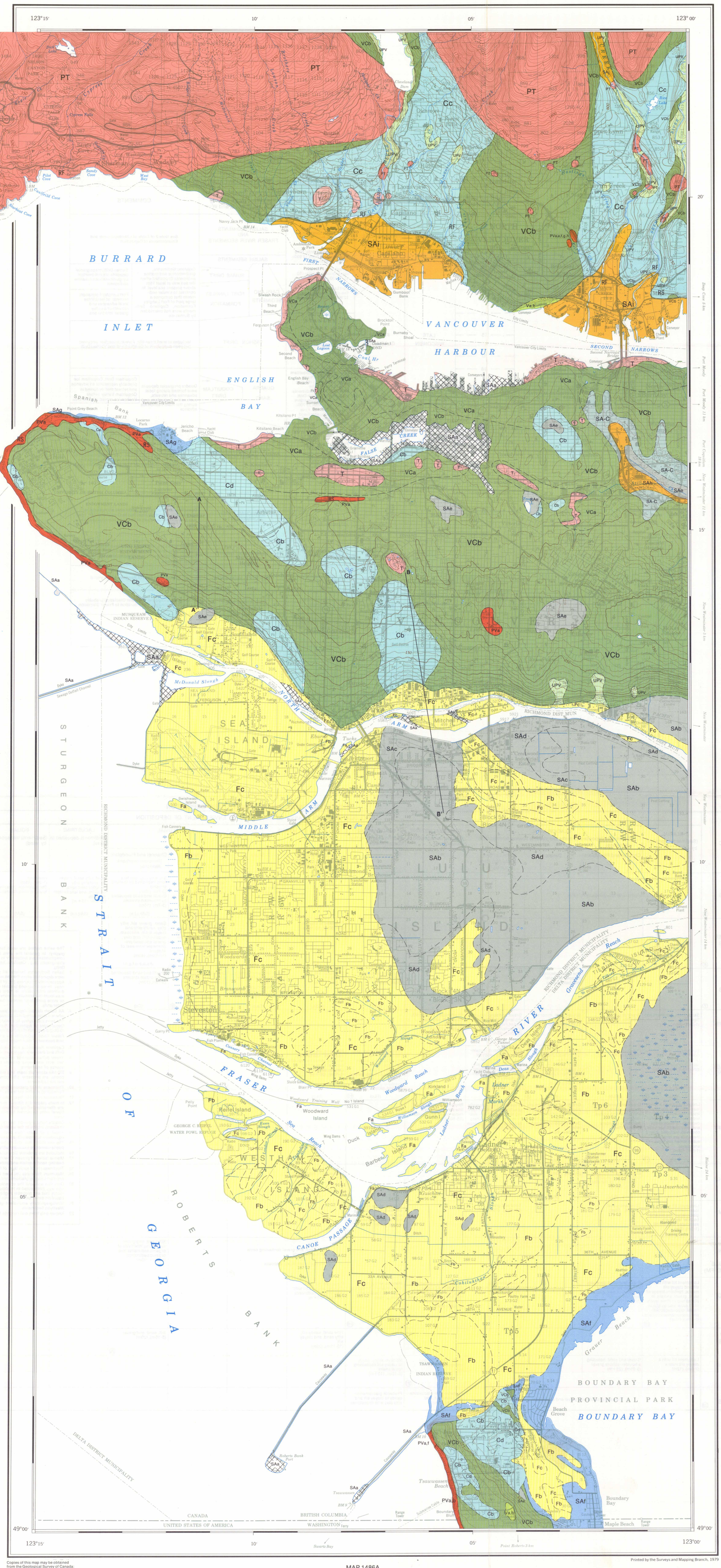
GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES



LEGEND

QUATERNARY

POSTGLACIAL

SALISH SEDIMENTS

SAa — *Landfill including sand, gravel, till, crushed stone, and refuse*

SAb-e — *Bog, swamp, and shallow lake deposits:* SAb, *lowland peat up to 8 m thick overlying* Fb, c; SAc, *lowland peat up to 1 m thick, underlying* Fb *(up to 2 m thick);* SAd, *organic-rich sandy loam to clay loam 15 to 45 cm thick overlying* Fd; SAe, *upland peat up to 8 m or more thick overlying* VC *units*

SAf,g — *Marine shore sediments (beach deposits):* SAf, *sand to sandy loam up to 2 m thick overlying* Fe; SAg, *sand to gravel up to 8 m thick*

SAh-j — *Lowland and mountain stream deltaic, channel fill, and overbank sediments:* SAh, *lowland stream channel fill and overbank sandy loam to clay loam, also organic sediments: up to 8 m thick;* SAi, *mountain stream marine deltaic medium to coarse gravel and minor sand up to 15 m or more thick.* SAj, *mountain stream channel fill sand to gravel up to 8 m thick*

FRASER RIVER SEDIMENTS

Fa-e — *Deltaic and distributary channel fill sediments overlying and cutting estuarine sediments and overlain in much of the area by overbank sediments:* Fa, *channel deposits, fine to medium sand and minor silt occurring along present day river channels;* Fb, *overbank sandy to silt loam normally less than 2 m thick overlying 15 m or more of* Fd; Fc, *overbank silty to silt clay loam normally less than 2 m thick overlying 15 m or more of* Fd; Fd*, *deltaic and distributary channel fill (includes tidal flat deposits), 10 to 25 m interbedded fine to medium sand and minor silt beds; may contain organic and fossiliferous material;* Fe*, *estuarine, fossiliferous, interbedded fine sand to clayey silt (sand content increases from bottom to top of sequence), 10 to 185 m thick*

POSTGLACIAL AND PLEISTOCENE

SA-C — *Marine shore and fluvial sand up to 8 m thick,* Cb *in part has been reworked and redeposited by lowland streams* (SAh)

PLEISTOCENE

CAPILANO SEDIMENTS

Ca-d — *Raised marine, deltaic, and fluvial deposits:* Ca, *raised marine beach, spit, bar, and lag veneer, poorly sorted sand to gravel (except in bar deposits) up to 10 m thick mantling older sediments and containing fossil marine shell casts up to 175 m above sea level;* Cb, *raised beach medium to coarse sand 1 to 5 m thick;* Cc, *raised deltaic and channel fill medium sand to cobble gravel up to 15 m thick deposited by proglacial streams and commonly underlain by silty to silty clay loam;* Cd, *marine and glaciomarine stony (including till-like deposits) to stoneless silt loam to clay loam with minor sand and silt, normally less than 3 m thick but up to 10 m thick in upland areas*

VASHON DRIFT AND CAPILANO SEDIMENTS

VCa,b — *Glacial drift including: lodgment and minor flow till, lenses and interbeds of substratified glaciofluvial sand to gravel, and lenses and interbeds of glaciolacustrine laminated stony silt; up to 25 m thick; in most places correlates with* Va, b; *overlain by glaciomarine and marine deposits similar to* Cd, *normally less than 3 m but in places up to 10 m thick. Marine derived* (Ca) *lag gravel normally less than 1 m thick containing marine shell casts has been found mantling till and glaciomarine deposits up to 175 m above sea level: above 175 m till is mantled by bouldery gravel that may be in part ablation till, in part colluvium, and in part marine.* VCa, *bedrock within 10 m or less of the surface;* VCb, *bedrock more than 10 m below surface*

VASHON DRIFT

Va,b — *Till, glaciofluvial, glaciolacustrine, and ice-contact deposits:* Va, *lodgment till (with sandy loam matrix) and minor flow till containing lenses and interbeds of glaciolacustrine laminated stony silts;* Vb, *glaciofluvial sandy gravel and gravelly sand outwash and ice-contact deposits*

PRE-VASHON DEPOSITS

PVa,b,e-h — *Pre-Vashon glacial, nonglacial, and glaciomarine sediments:* PVa, *Quadra fluvial channel fill and floodplain deposits, crossbedded sand containing minor silt and gravel lenses and interbeds;* PVb, *Quadra deltaic deposits and crossbedded sand and gravel;* PVe, *Cowichan Head organic sediments;* PVf, *Semiahmoo glaciomarine, glaciofluvial sediments and till;* PVg, *Highbury fluvial, marine, and bog and swamp deposits;* PVh, *Westlynn till and glaciomarine stony silty clay loam*

UNDIVIDED PRE-VASHON DEPOSITS

UPV — *Till, glaciofluvial, glaciolacustrine, fluvial, marine, and organic sediments*

TERTIARY

T — *Tertiary bedrock including sandstone, siltstone, shale, conglomerate, and minor volcanic rocks; where bedrock is not exposed it is covered by glacial deposits and colluvium*

PRE-TERTIARY

PT — *Mesozoic bedrock including granitic and associated rock types; where bedrock is not exposed it is covered by glacial deposits and colluvium*

CROSS-SECTIONS

Glacial sediments

Glaciofluvial sediments; mainly gravel

Glaciofluvial sediments; mainly sand

Glacial and glaciofluvial sediments

Glaciolacustrine sediments

Glaciomarine sediments

Marine sediments; offshore beach and intertidal

Glaciomarine and/or marine sediments

Fluvial sediments

Fluvial sediments with interbedded organic sediments

*Unit used only in cross-section

Note: Except in areas mapped as PT, T, and VCa, the Quaternary deposits are more than 10 m thick and may be up to 300 m thick. The materials at the surface are underlain by older deposits, for example PVa, b overlies PVa, b, e-h or Ca-d overlies VCa, b and Va, b*

For detailed lithology of cross-sections, see table of lithologic units on reverse

Geological boundary, mainly gradational .....
Area of recorded landslides ..... RS
Area of recorded flooding (except Fraser floodplain) ..... RF

Geology by J.E. Armstrong 1949-1952, 1973-1975, W.L. Brown 1949, 1952

Additional information in Richmond and Delta from Province of B.C. Soils Survey, 1967, 1968

For bedrock geology see GSC Memoir 335 by J.A. Roddick

Compiled by J.E. Armstrong and S.R. Hicock, 1976

Geological cartography by R.L. Allard and L.P. Renaud, Geological Survey of Canada

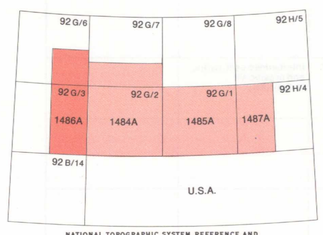
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base-map assembled by the Geological Survey of Canada from part of 93 G/3 and 93 G/6 published at the same scale by the Surveys and Mapping Branch in 1974

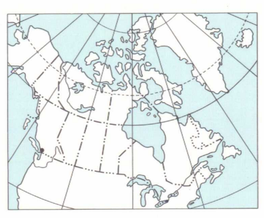
Copies of the topographical edition of these maps may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa

Approximate magnetic declination 1978, 22° 32′ E decreasing 4.1′ annually

Elevations in feet above mean sea level

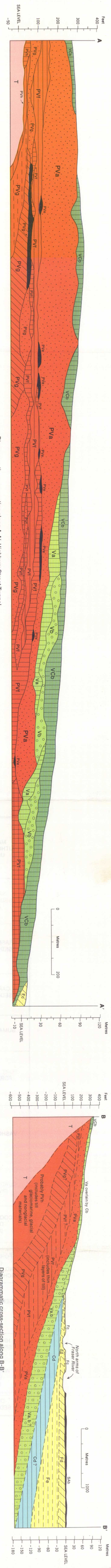


NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO GEOLOGICAL SURVEY OF CANADA MAPS



INDEX MAP

Title of this map should read Surficial Geology



Diagrammatic cross-section along A-A′, Highbury Street Tunnel (Vertical exaggeration 2:1)

Diagrammatic cross-section along B-B′ (Vertical exaggeration 5:1)

Copies of this map may be obtained from the Geological Survey of Canada:
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street N.W., Calgary, Alberta T2L 2A7
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Printed by the Surveys and Mapping Branch, 1979

MAP 1486A

SURFICAL GEOLOGY

VANCOUVER

BRITISH COLUMBIA

Scale 1:50,000

Kilometres 1 0 1 2 3 4 Kilometres

Miles 1 0 1 2 Miles

Universal Transverse Mercator Projection

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MAP 1486A
VANCOUVER
BRITISH COLUMBIA

1486A

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