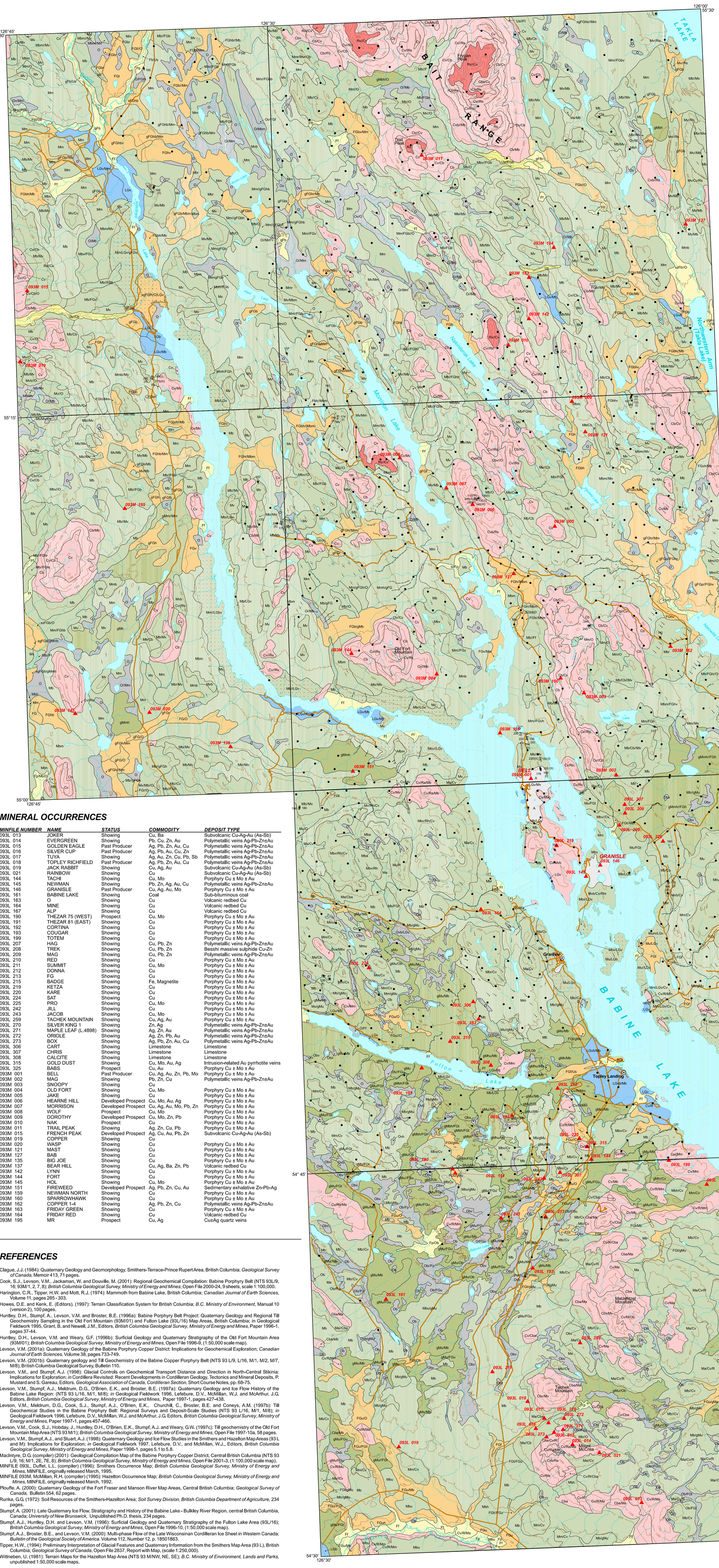

MINERAL OCCURRENCES

MINFILE NUMBER	NAME	STATUS	COMMODITY	DEPOSIT TYPE
093L 013	JOKER	Showing	Cu, Ba	Subvolcanic Cu-Ag-Au (As-Sb)
093L 014	EVERGREEN	Showing	Pb, Cu, Zn, Au	Polymetallic veins Ag-Pb-Zn±Au
093L 015	GOLDEN EAGLE	Past Producer	Ag, Pb, Zn, Au, Cu	Polymetallic veins Ag-Pb-Zn±Au
093L 016	SILVER CUP	Past Producer	Ag, Pb, Au, Cu, Zn	Polymetallic veins Ag-Pb-Zn±Au
093L 017	TUYA	Showing	Ag, Au, Zn, Cu, Pb, Sb	Polymetallic veins Ag-Pb-Zn±Au
093L 018	TOPLEY RICHFIELD	Past Producer	Ag, Pb, Zn, Au, Cu	Polymetallic veins Ag-Pb-Zn±Au
093L 019	JACK RABBIT	Showing	Cu, Ag, Au	Subvolcanic Cu-Ag-Au (As-Sb)
093L 021	RAINBOW	Showing	Cu	Subvolcanic Cu-Ag-Au (As-Sb)
093L 144	TACHI	Showing	Cu, Mo	Porphyry Cu ± Mo ± Au
093L 145	NEWMAN	Showing	Pb, Zn, Ag, Au, Cu	Polymetallic veins Ag-Pb-Zn±Au
093L 146	GRANISLE	Past Producer	Cu, Ag, Au, Mo	Porphyry Cu ± Mo ± Au
093L 161	BABINE LAKE	Showing	Coal	Sub-bituminous coal
093L 163	O	Showing	Cu	Volcanic redbed Cu
093L 164	MINE	Showing	Cu	Volcanic redbed Cu
093L 167	ALP	Showing	Cu	Volcanic redbed Cu
093L 190	THEZAR 75 (WEST)	Prospect	Cu, Mo	Porphyry Cu ± Mo ± Au
093L 191	THEZAR 81 (EAST)	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 192	CORTINA	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 193	COUGAR	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 199	TOTEM	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 207	HAG	Showing	Cu, Pb, Zn	Polymetallic veins Ag-Pb-Zn±Au
093L 208	TREK	Showing	Cu, Pb, Zn	Besshi massive sulphide Cu-Zn
093L 209	MAG	Showing	Cu, Pb, Zn	Polymetallic veins Ag-Pb-Zn±Au
093L 210	RED	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 211	SUMMIT	Showing	Cu, Mo	Porphyry Cu ± Mo ± Au
093L 212	DONNA	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 213	FG	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 215	BADGE	Showing	Fe, Magnetite	Porphyry Cu ± Mo ± Au
093L 219	KETZA	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 220	KARE	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 224	SAT	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 225	PRO	Showing	Cu, Mo	Porphyry Cu ± Mo ± Au
093L 242	JILL	Showing	Cu	Porphyry Cu ± Mo ± Au
093L 243	JACOB	Showing	Cu, Mo	Porphyry Cu ± Mo ± Au
093L 259	TACHEK MOUNTAIN	Showing	Cu, Ag, Au	Porphyry Cu ± Mo ± Au
093L 270	SILVER KING 1	Showing	Zn, Ag	Polymetallic veins Ag-Pb-Zn±Au
093L 271	MAPLE LEAF (L.4898)	Showing	Ag, Zn, Au	Polymetallic veins Ag-Pb-Zn±Au
093L 272	ORIOLE	Showing	Ag, Zn, Pb, Au	Polymetallic veins Ag-Pb-Zn±Au
093L 273	BOX	Showing	Ag, Pb, Zn, Au, Cu	Polymetallic veins Ag-Pb-Zn±Au
093L 306	CART	Showing	Limestone	Limestone
093L 307	CHRIS	Showing	Limestone	Limestone
093L 308	CALCITE	Showing	Limestone	Limestone
093L 315	GOLD DUST	Showing	Cu, Mo, Au, Ag	Intrusion-related Au pyrrhotite veins
093L 325	BABS	Prospect	Cu, Au	Porphyry Cu ± Mo ± Au
093M 001	BELL	Past Producer	Cu, Ag, Au, Zn, Pb, Mo	Porphyry Cu ± Mo ± Au
093M 002	MAG	Showing	Pb, Zn, Cu	Polymetallic veins Ag-Pb-Zn±Au
093M 003	SNOOPY	Showing	Cu	
093M 004	OLD FORT	Showing	Cu, Mo	Porphyry Cu ± Mo ± Au
093M 005	JAKE	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 006	HEARNE HILL	Developed Prospect	Cu, Mo, Au, Ag	Porphyry Cu ± Mo ± Au
093M 007	MORRISON	Developed Prospect	Cu, Ag, Au, Mo, Pb, Zn	Porphyry Cu ± Mo ± Au
093M 008	WOLF	Prospect	Cu, Mo	Porphyry Cu ± Mo ± Au
093M 009	DOROTHY	Developed Prospect	Cu, Mo, Zn, Pb	Porphyry Cu ± Mo ± Au
093M 010	NAK	Prospect	Cu	Porphyry Cu ± Mo ± Au
093M 011	TRAIL PEAK	Showing	Ag, Zn, Cu, Pb	Porphyry Cu ± Mo ± Au
093M 015	FRENCH PEAK	Developed Prospect	Ag, Cu, Au, Pb, Zn	Subvolcanic Cu-Ag-Au (As-Sb)
093M 019	COPPER	Showing	Cu	
093M 020	WASP	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 121	MAST	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 127	BAB	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 135	BIG JOE	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 137	BEAR HILL	Showing	Cu, Ag, Ba, Zn, Pb	Volcanic redbed Cu
093M 142	LYNN	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 144	FORT	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 145	HOL	Showing	Cu, Mo	Porphyry Cu ± Mo ± Au
093M 151	FIREWEED	Developed Prospect	Ag, Pb, Zn, Cu, Au	Sedimentary exhalative Zn-Pb-Ag
093M 159	NEWMAN NORTH	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 160	SPARROWHAWK	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 162	COPPER 1-4	Showing	Ag, Pb, Zn, Cu	Polymetallic veins Ag-Pb-Zn±Au
093M 163	FRIDAY GREEN	Showing	Cu	Porphyry Cu ± Mo ± Au
093M 164	FRIDAY RED	Showing	Cu	Volcanic redbed Cu
093M 195	MR	Prospect	Cu, Ag	Cu±Ag quartz veins

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BRITISH COLUMBIA
Ministry of Energy and Mines
Minerals Division
Geological Survey Branch

Geological Survey Branch
GEOSCIENCE MAP 2002-2

SURFICIAL GEOLOGY COMPILATION MAP OF THE BABINE PORPHYRY DISTRICT

NTS 93L/9, 16; 93M/1, 2, 7, 8
(Figure 2, to accompany Bulletin 110)

Geology compiled by V.M. Levson (P.Geo.)

Digital Cartography by: J. Dubois and T. Ferbey (2000-2001)

Field Mapping by: V. Levson (1995-1998); A. Stumpf and E. O'Brien (1995-1997); C. Churchill and D. Meldrum (1996); J. Hobday, D. Huntley and G. Weary (1995); Wittneben (1974-1977); G. Runka, N. Gough, J. Jungen, G. Young and U. Wittneben (1969-1970).

SCALE 1:100 000

5 0 5 10 15

Kilometres

SURFICIAL GEOLOGY

QUATERNARY SEDIMENTS

HOLOCENE

A — ***Anthropogenic Deposits:*** *artificial materials or culturally disturbed geological materials with altered physical properties; mainly includes large areas of modified terrain around communities and minesites (open pit and tailings areas)*

C — ***Colluvium:*** *materials deposited by mass-wasting processes including creep, debris flows, landslides, rockfalls and avalanches; generally unsorted or very poorly sorted diamicton with abundant angular clasts of bedrock; massive to crudely stratified and often clast supported; occurs mainly as veneers over bedrock in upland areas and as thick blankets along and at the base of steep slopes.*

- **Cb** — ***Colluvial blanket:*** *colluvial materials one to several metres thick, that conform to the underlying topography but mask minor irregularities; mainly occurs around bedrock highs in hilly and mountainous areas; rubbly talus slopes* ***(rCb)****, comprised of angular to subangular coarse gravel blocks, are rare and occur mainly in the Bait Range.*
- **Cv** — ***Colluvial veneer:*** *colluvial materials less than 1 m thick, mainly on the tops and steep sides of hills and mountains; generally overlying bedrock and interspersed with bedrock outcrops; surface expression derived from topographic irregularites in the underlying unit.*

F — ***Fluvial deposits:*** *gravelly* ***(gF)*** *to sandy* ***(sF)*** *sediments deposited by rivers and streams; generally well stratified and moderately to well sorted; clasts typically rounded to well rounded; low floodplains are often capped by silts and fine sands* ***(szF)****; generally occurs as blankets one to several metres thick* ***(Fb)****; includes floodplain, terrace, alluvial fan and minor modern delta deposits.*

- **Fp** — ***Fluvial plain****: flat to gently sloping fluvial surfaces; mainly includes floodplains along modern stream channels and the adjacent valley-floors; typically associated with or veneered by organic deposits; features such as scroll bars and oxbow lakes locally present; water table commonly shallow; subject to flooding and stream avulsion; locally includes fluvial terraces* ***(Ft)*** *elevated slightly above the valley floor.*
- **Ff** — ***Alluvial fan:*** *mainly pebble to cobble gravels and gravelly diamicton; sediments typically a few to tens of metres thick, poorly sorted and crudely stratified; fans occur at the mouths of confined valleys and have surface slopes up to about 15°; includes areas subject to episodic debris flows and flood flows.*

O — ***Organic deposits:*** *peat or other vegetative materials occurring in bogs, fens and swamps; formed by the accumulation of organic matter in depressions or poorly drained areas; water table typically at or near the surface; locally includes small areas of glaciolacustrine, morainal, fluvial, glaciofluvial, or colluvial deposits too small to be mapped individually.*

- **Ob** — ***Organic blanket:*** *mainly peat bogs and swamps with organic accumulations more than 1 m thick; level to nearly level surfaces.*
- **Ov** — ***Organic veneer:*** *organic deposits less than 1 m thick; mainly occurring in fens and swampy areas with shallow water tables.*

LATE PLEISTOCENE

LG — ***Glaciolacustrine sediments:*** *dominantly fine to medium sands, silts and clays deposited in glacial lakes; sediments are well sorted, laminated or thinly bedded; includes ice-rafted stones, gravel lenses and diamicton deposited in lakes adjacent to glacial ice; normal faults, slump structures and kettles locally indicating collapse from melting of buried ice; unit occurs mainly along the periphery of Babine Lake (areas with secondary LG cover are stippled).*

- **LGv** — ***Glaciolacustrine veneer:*** *less than 1m of sand, silt and clay; discontinuous; surface expression derived from irregularities in the underlying unit; commonly undulating topography.*
- **LGb** — ***Glaciolacustrine blanket:*** *sand, silt and clay, one to several metres thick; clay rich sediments commonly occur at the surface and overlie more silty and sandy sediments at depths of 2-5 m; surface generally conforms to the underlying topography but masks minor topographic irregularities; unit locally grades upslope into sandy, raised-delta deposits (see FGd).*

FG — ***Glaciofluvial deposits:*** *mainly pebble to boulder gravels* ***(gFG)*** *and sandy gravels* ***(sgFG)*** *deposited by meltwater flowing from or in contact with glacial ice; includes glaciofluvial outwash plains, terraces, kames and eskers; rarely dominated by sands and silts* ***(szFG)****; typically moderately to well sorted and moderately well stratified; locally interbedded with poorly sorted glacial debris flow deposits; includes ice-contact features such as kettles, slump structures and normal faulting; sediments generally much thicker than 1 m* ***(FGb)*** *but locally occur as veneers less than 1 m thick* ***(FGv)*** *overlying till; glaciofluvial map units are commonly interspersed with or overlie morainal deposits.*

- **FGp** — ***Glaciofluvial outwash plains:*** *glaciofluvial sands and gravels generally occur as level plains near valley bottoms but also as gently undulating topography* ***(Fgu)*** *with hill slopes generally less than 15° and as valley-side terraces* ***(FGt)****; horizontal bedding typical; commonly associated with organic deposits (Ob,v) in poorly drained areas.*
- **FGh** — ***Ice-contact deposits:*** *coarse gravels and sands, typically several metres thick occurring mainly as kames in hummocky topography* ***(FGh)*** *and as esker ridges* ***(FGr)****; hillslopes typically greater than 15°; steeply dipping strata and collapse structures common; includes kettled outwash and kame terraces high on the valley sides.*
- **FGf** — ***Glaciofluvial fans and deltas:*** *sands and gravels associated with glaciofluvial fans, deltas and fan-delta complexes; surface slopes up to about 15° on fans and nearly level on deltas; sediments are typically well-bedded and strata dip steeply (up to 35°); common on valley sides well above modern lakes and streams and at the lower ends of meltwater channels; includes sandy glaciolacustrine deposits; interbedded diamicton locally common in fan sequences.*

M — ***Morainal deposits:*** *unsorted to very poorly sorted diamicton originally deposited directly by or from glacial ice; dominantly basal meltout and lodgement tills and glacially-derived debris flow deposits; compact; massive or crudely stratified; matrix sandy silt to silty clay; clasts up to boulder size and often striated; the upper 50-200 cm of this unit is commonly loose and sandy due to reworking by slope processes, water washing and pedogenesis (areas with secondary LG cover are stippled).*

- **Mb** — ***Morainal blanket:*** *glacially-derived diamicton more than 1 m thick; mainly basal tills in areas of undulating topography* ***(Mu)*** *and supraglacial tills in areas of hummocky topography* ***(Mh)****; common on lower valley slopes and in valley bottoms; locally present on steeper slopes* ***(Ma)*** *up to about 25°.*
- **Mv** — ***Morainal veneer:*** *glacially-derived diamicton less than 1 m thick; dominantly basal tills; typically occurs on upper valley slopes and around bedrock highs; unit includes small regions of exposed rock or colluvium, especially in upland areas and in regions with crag-and-tail ridges.*
- **Mm** — ***Fluted moraine:*** *morainal areas with flutings, drumlins and crag-and-tail ridges; topography varies from gently rolling* ***(Mm)*** *with slopes usually less than about 10° (but up to 15°), to strongly ridged* ***(Mr)*** *in areas with well developed crag-and-tail ridges and drumlins with steep sides (15°-35°).*
- **gM** — ***Resedimented glacial debris:*** *gravelly to sandy diamicton; dominantly melt-out tills and glacially-derived debris flow deposits that accumulated on or near the margins of melting glaciers; interbedded sands and gravels and crude stratification locally present; topography varies from undulating* ***(gMu)*** *to hummocky* ***(gMh)****; small meltwater channels and areas of kettled topography common; this unit often occurs in association with glaciofluvial, fluvial, and organic deposits, especially in low areas.*

TERTIARY AND OLDER

Rs — ***Bedrock:*** *rock at or near the surface; most common on steep slopes (>35°) in the Bait Range; also on more gentle (16°-26°) slopes* ***(Ra)*** *and hummocky rocky uplands* ***(Rh)*** *in more southerly areas; rock outcrops generally discontinuous and interspersed with small areas of thin (< 1 m) colluvial or morainal sediments; subject to mass wasting processes such as rockfalls, topples and avalanches; areas of bedrock outcrop too small to be mapped occur throughout the region, especially in areas mapped as colluvial and morainal veneers (see Cv and Mv).*

UNDIFFERENTIATED

Us — ***Undifferentiated materials:*** *Includes areas where 3 or more map units occur in proximity and cannot be mapped individually; mainly along the sides of steep (>35°) narrow gulleys and meltwater channels.*

NOTE: Composite symbol delimiters on the map separate more extensive (single slash, /) and considerably more extensive (double slash, //) surficial units from less extensive units (e.g. Cv//Mm - Cv is considerably more extensive than Mm).

SYMBOLS

- till sample site
- mineral occurrence (MINFILE number) — 093L 001
- stratigraphic section
- road
- geological contact (approximate)

GLACIAL FEATURES

- esker
- meltwater channel
- striae
- crag and tail
- drumlin
- flute

QUATERNARY GEOLOGY

Introduction

This surficial geology map is a compilation following on the work of several authors including Runka (1972), Wittneben (1981), Huntley *et al.* (1996a, b), Stumpf *et al.* (1996) and Levson *et al.* (1997a, 1998). The terrain mapping conventions used are those of Howes and Kenk (1997). A discussion of the surficial geology of the map area was recently provided by Levson (2001a) and this map accompanies a detailed discussion of the Quaternary geology and till geochemistry of the region (Levson 2001b). The earliest surficial geology mapping in the study region was conducted during a soil resources inventory of the Smithers-Hazelton area (NTS 93 L/SE, NE, NW and M/SW) that included preliminary landform mapping at 1:50 000 scale (Runka, 1972). Wittneben (1981) completed 1:50 000 scale terrain mapping in the Hazelton map sheet (NTS 93 M/NW, NE, SE). As part of the current mapping program, the surficial geology and Quaternary stratigraphy of the Old Fort Mountain (93L/16), Fulton Lake (93M/1) and Nakinilerak Lake (93M/8) map areas were described and mapped by Huntley *et al.* (1996a, b), Stumpf *et al.* (1996) and Levson *et al.* (1997a), respectively. The ice flow history of the map area was described by Levson *et al.* (1998), Levson and Stumpf (1998), Stumpf *et al.* (2000) and Levson (2001a). The Quaternary geology and geomorphology of the areas to the west, east and south of the map area, were described by Clague (1984), Plouffe (2000) and Stumpf (2001), respectively. Summaries of till geochemical studies in the map area were provided by Levson *et al.* (1997b, c), Levson (2001a, b) and Cook *et al.* (2001). A bedrock geology compilation map of the Babine porphyry district was recently completed by MacIntyre (2001).

Glaciation

Evidence of glaciation dates mainly to the Late Wisconsinan (~23 ka to 10 ka) as indicated by radiocarbon dates on organic materials recovered from rare lacustrine and fluvial deposits under till at several sites in the Nechako Plateau (Harington *et al.,* 1974; Levson, 2001a). Quaternary sediments predating the last glaciation are rarely exposed in the map region but at a few sites thick sequences of advance-phase glaciolacustrine and glaciofluvial deposits overlain by till have been described (Levson *et al.,* 1997a; Levson, 2001a). These sediments are best exposed in the Dust Creek and Babine River valleys where basal gravels (Unit 1, Figure 1) are overlain by stratified, dense sands, silts and clays (Unit 2, Figure 1) interpreted as advance-phase, Late Wisconsinan, glaciolacustrine deposits. They were deposited when glaciers from the Skeena mountains occupied the Babine and Takla Lake valleys, damming the Babine River drainage and tributary streams in the Takla Lake valley. The glaciolacustrine deposits are overlain by a thick sequence of gravels and sands interpreted as deltaic and glaciofluvial deposits (Unit 3, Figure 1).

Glacial deposits include a complex sequence of glacigenic diamictons consisting of several facies. Most common are massive, matrix supported, dense, fine-grained diamictons, interpreted as lodgement and melt-out basal tills (Unit 4, Figure 1) that typically unconformably overlie bedrock or glaciofluvial deposits. Also common are loose, massive to stratified, sandy to gravelly diamictons (Unit 5, Figure 1) of inferred glacigenic debris-flow origin. These diamictons are often interbedded with stratified silt, sand or gravel and commonly overlie basal till. Morainal sediments of the last glaciation are the most widespread Quaternary deposits. They form a cover of variable thickness across much of the area and occur as fluted or drumlinized terrain (map units Mm and Mr), hummocky or kettled moraine (Mh or gMh), undulating topography (Mu or gMu) or as a till mantle on steep slopes (Ma). Basal tills seldom occur at the surface, usually being overlain by glacigenic debris-flow deposits (map unit gM), glaciofluvial deposits (Unit 6, Figure 1; map unit FG), glaciolacustrine sediments (Unit 7, Figure 1; map unit LG) and, on steep slopes, by resedimented diamictons of colluvial origin (map unit C). Till thickness varies from a few to several metres (Mb) in valleys to less than a metre (Mv) along bedrock ridges and steep slopes. Well developed flutings and drumlinoid ridges, oriented roughly parallel to the Babine Lake valley, are dominant features. The trend of flutings gradually shifts from southeasterly in the north to easterly in the south. Till thickness in areas with crag-and-tail ridges (map unit Mr) is greatest on the lee (southeast) side of the ridges and least at the stoss ends where bedrock is often exposed. Thick exposures of till (up to 10 m) occur locally in the lee of large bedrock hills, in main valleys and in narrow valleys oriented perpendicular to the regional ice-flow direction.

Ice-flow History

During the Late Wisconsinan, ice initially moved from the Skeena Mountains southeasterly through the area. The well developed, southeasterly to easterly, trend of flutings and drumlinoid ridges throughout the map area indicates that valley-parallel flow dominated landscape development during the Late Quaternary. At the glacial maximum, the area was entirely ice covered and movement appears to have been relatively unaffected by topography. In the Bait Range for example, the ice surface was in excess of 1950 metres as indicated by glacial erratics and regionally trending striae and flutings on top of Frypan Peak (elevation 1931 m; Levson *et al.,* 1997a). At the height of the last glaciation, ice flowed from ice domes/divides located east of the Babine Lake valley toward the Coast. Ice-flow indicators, including well-developed roche-moutonnée, drumlinoids, rat-tails and striae, indicate a regional, west to southwest flow event over the Babine Range and Hazelton Mountains (Levson *et al.,* 1997a, 1998; Levson and Stumpf, 1998; Stumpf *et al.,* 2000). In many areas this westerly flow was independent of topography as indicated, for example, by upslope flows in the Dome Mountain area (Tipper, 1994; Levson *et al.,* 1997a, 1998). Evidence of westerly flow is commonly seen at elevations above 2000 m but also is present locally in valleys such as the Babine Lake valley, especially in the lee of topographic obstructions, where it was preserved from later valley-parallel flow. Cross-cutting striae suggest that the westward event occurred at the maximum of the Late Wisconsinan glaciation, prior to late-stage, retreat-phase flow that was topographically controlled in many areas. Evidence for west flow is most readily found west of the Babine Lake valley and diminishes eastward indicating that the Babine valley was near the eastward limit of the divide or that ice-center migration east of that area was not long-lived. Consequently, westward flow apparently did not influence glacial dispersal to any great extent in the Babine Lake valley but it did have a significant effect farther west. In the Babine area, valley-parallel, southeastward flow occurred at the end of the last glaciation. However, since evidence for westward flow is preserved in the Babine Lake area and in other valleys at unprotected, low elevation sites, the erosional effects of the later, valley-parallel flows must have been minimal. These observations suggest that the maximum buildup of interior ice extended late into the last glaciation.

During deglaciation, ice flow was increasingly controlled by topography as the glaciers thinned. Topographic control of ice flow during the latter phases is clearly indicated by the presence of well developed cirque basins on the north and east facing sides of large mountains in the northern part of the map area. Deglaciation appears to have occurred largely as a result of regional downwasting of the ice sheet, with only local reactivation of valley glaciers. This is consistent with the preservation of westerly ice flow indicators in settings exposed to later valley-parallel flows. This model of deglaciation is also supported by the abundance of meltwater channels, by the presence of hummocky moraine and gravelly surface tills, and by the rarity of terminal or lateral moraines. Regional stagnation apparently began when the ice surface lowered below about 1600 m.

Deglaciation and Holocene Sedimentation

Deposits formed during deglaciation include both glaciofluvial and glaciolacustrine sediments. Glaciofluvial deposits occur as outwash plains (map units FGp and FGu), terraces (FGt), eskers (FGr), kames (FGh), and fans and deltas (FGf). They consist mainly of poorly to well sorted, stratified, pebble and cobble gravels and sands of variable thickness. Glaciolacustrine sediments (map unit LG) occur in low-lying areas near modern lakes, generally below about 750 m in elevation. Maximum lake levels indicated by deltaic deposits are about 850 m above sea level. Exposures in these raised deltas reveal steeply-dipping, well-stratified, foreset gravels. Sandy units are common in some areas in the topset sequence. Glacial lake levels at the end of the last glaciation were locally controlled by ice dams with the lakes developing along the margins of melting glaciers in the main valleys and in some tributary valleys.

The most dominant Holocene deposits are extensive areas of organic deposits including both thin organic sediments (map unit Ov) in marshes and thicker (>1 m) organic deposits (Ob) in peat bogs. Holocene fluvial sediments are dominated by floodplain silts, fine sands and organics and channel gravels (map unit Fp) and fluvial terraces (Ft). A number of large postglacial alluvial fans and fan deltas (Ff) occur, especially along the margins of lakes such as Morrison, Nakinilerak, Babine, and Takla lakes. Colluvial deposits, consisting of a thin veneer (map unit Cv) of weathered and broken bedrock clasts in a loose sandy matrix, are most common in steep, high relief areas. These deposits grade downhill into thicker (>1 m) colluvial diamicton (Cb). Colluvial veneers commonly overlie thin tills on steep slopes. Thick accumulations of talus (rCb) are relatively uncommon due to the overall subdued topography, but they do occur below steep rocky cliffs in the more mountainous, northerly parts of the area.

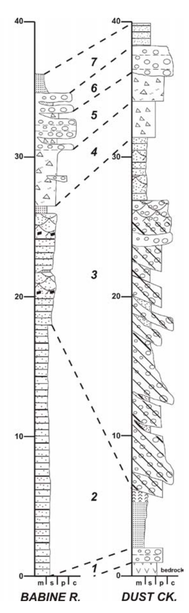

Figure 1: Representative stratigraphic sections of late Quaternary sediments in the study area. Vertical scale in metres; horizontal scale: m = muds, s = sands, p = pebble gravel, c = cobble gravel.

Digital base map from British Columbia Ministry of Environment, Lands, and Parks. Modified from 1:20,000 TRIM digital data

North American Datum 1983
Universal Transverse Mercator, Grid Zone 9
Contour interval 100 m

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