

LEGEND, NORTHEAST McBRIDE MAP AREA (93H/15,16), BRITISH COLUMBIA

- QUATERNARY**
- Q_{ls}** Landslide, large coherent blocks of nearby bedrock
 - Q_{ms}** Neoglacal moraines
 - Q_{rs}** Alluvium, colluvium, till, gravel, sand silt (only shown where bedrock is extensively covered)
- JURASSIC**
- J_{rs}** **FERNIE FORMATION** (approx. 750 m)
Upper part (approx. 500 m, only lower part exposed in map area)
Siltstone and silty sandstone; brown-grey, very fine to thin-bedded, red-brown weathering, calcareous splitting surfaces, large orange-brown weathering concretions locally; interbedded with shales grey, silty, brown weathering.
Brown, relatively recessive weathering unit with locally mappable resistant intervals 20 to 80 m thick dominated by silty sandstone.
 - J_{rl}** Lower part (approx. 250 m)
Shale; dark grey, locally rusty weathering, argillaceous concretions, and minor sandstone quartz, very fine grained or glauconitic with wood fragments.
Recessive poorly exposed unit. May include a few metres of interbedded black limestone and shale at base (Nesdog Member). A major disconformity occurs within the unit beneath the glauconitic sandstones (Bridford Green beds).
- TRIASSIC**
- T_w** **SPRAY RIVER GROUP** (T_w-7m)
WHITEHOUSE FORMATION (approx. 380 m; three members are recognizable in well exposed sections but were not mapped separately, described in descending order)
Winnifred Member
Dolomite and limestone; thin bedded, yellow-grey weathering, local dark chert lenses in upper part, minor sandstone, siltstone, intracrystalline breccia.
Brooker Limestone Member
Limestone with minor dolomite and intracrystalline breccia.
Prominent light grey weathering character.
Nearlight evaporite nodules.
Interbedded silty dolomite, sandstone, siltstone, sandy limestone, intracrystalline conglomerate and solution breccia, yellow-brown to grey weathering.
 - T_{sm}** **SULPHUR MOUNTAIN FORMATION** (approx. 450 m)
Siltstone, silty limestone, thin to medium-bedded siltstones often play to flaggy weathering, minor interbedded shale, dolomite and fine grained quartz sandstone, fossil commonly phosphatic.
Distinctive, red-brown, moderately resistant weathering unit.

- PERMIAN**
- P_u** **BELCOURT, RANGER CANYON AND HOWICH FORMATIONS**
Howich Formation (approx. 15 m; Upper Permian)
Sandstone; fine to medium-grained with siliceous and calcareous cement, locally phosphatic; occasional chert and carbonate lenses.
Chert pebble conglomerate; say be present at base.
Ranger Canyon Formation (approx. 15 m; Upper Permian)
Chert light to medium grey, commonly fractured. Resistant weathering dark lichen covered unit.
Belcourt Formation (approx. 10 m; Lower Permian)
Limestone; laminar, fine to coarse-grained, and fine crystalline dolomite.
Chert and carbonate pebble conglomerate at base. Resistant white weathering unit.

- CARBONIFEROUS**
- LOWER CARBONIFEROUS**
- C_u** **RUNDLE GROUP** (approx. 400 m; individual formations are recognizable in well exposed sections but were not mapped separately, described in descending order)
Mount Head Formation
Dolomite grainstone to finely crystalline, subordinate lime skeletal packstone and wackestone, and shale, chert nodules locally abundant.
Ribbed weathering unit.
Turner Valley Formation
Limestone or dolomite skeletal grainstone with subordinate packstone and wackestone.
Resistant, light grey or if dolomitized grey-orange weathering unit.
Livingstone Formation
Limestone or subordinate dolomite bryozoan, paleozoan grainstone.
Resistant, light grey weathering unit. Baseward correlative of the Turner Valley Formation and the upper part of the unnamed formation A.
Unnamed Formation A
Limestone skeletal lime wackestone, packstone, medium bedded, with minor interbedded grainstone, subordinate marlstone.
Moderately resistant, ribbed brown-grey weathering unit.
Pekisko Formation
Limestone skeletal grainstone with subordinate packstone or wackestone.
Resistant light grey weathering unit.
- DEVONIAN AND CARBONIFEROUS**
- UPPER DEVONIAN**
- D_{cu}** **ESHAH AND BANFF FORMATIONS**
Banff Formation (approx. 200m; Lower Carboniferous) (Upper Part)
Shale; black, brown weathering and lime grainstone skeletal, thin bedded, crossbedded, in coarsening (Lower Part)
Shale black, brown weathering and lime wackestone, in thin rhythmic interbeds, planar to nodular. Recessive, brown weathering marker unit.
Eshah Formation (5 to 15 m; Upper Devonian to Lower Carboniferous)
Black shale with minor sandstone and limestone. Irregular thickness.
Recessive, black weathering unit.

- DEVONIAN**
- UPPER DEVONIAN**
- D_u** **FALLISER FORMATION** (approx. 350 to 380 m) (Upper Part)
Limestone; brown-grey, mottled, medium to thick bedded, grey weathering, may contain black chert nodules; commonly crinoidal near top.
Resistant, light grey weathering unit. Locally, 10 metres of recessive weathering black and grey limestone and shale occurs at the base denoted by $\text{---} \times \text{---}$ on map.
Lower Part
Limestone; brown-grey, wavy bedded to nodular, light grey weathering with ledges of grainstone separated by more recessive mudstone units.
Lime packstone, silty limestone and flat pebble conglomerate for a relatively recessive and yellowish grey weathering unit at the base.
Resistant weathering unit.

- D_s** **SIMLA FORMATION** (approx. 70 m)
Limestone; biotriaxial, grainstone, algal laminated, cross laminated, thick bedded, with local chert bands and nodules.
Light grey weathering unit that forms prominent cliff beneath slightly more recessive weathering strata at the base of the Falliser Formation.
- D_{ms}** **MOUNT HANCOCK FORMATION** (approx. 140 m)
Limestone; bluish-grey, wackestone, thin bedded, nodular.
Dark grey weathering, with local oncolites, burrows, flat pebble conglomerate, white chert nodules, rare stromatolites, oolitic quartz or calcite filled blebs common; minor interbedded limestone; medium bedded, blue-grey weathering, with local oncolites, burrows, rare stromatolites and sandstone to sandy dolomite fine to coarse-grained, quartz, with local crossbeds (more common near base).
Dolomite; very fine crystalline, tan weathering, with grey argillite partings, local mudcracks, ripples.
(West of Back Range Fault; Walker Creek Syncline)
Limestone; medium bedded, locally laminated or wavy bedded, blue-grey weathering, interbedded with shaly limestone; dark grey with abundant brachiopods. Moderately recessive, grey weathering unit.
- D_u** **FLUME FORMATION** (approx. 70 to 100 m)
Upper Part (approx. 5 to 50 m)
Shaly limestone; dark grey with abundant brachiopods. Moderately recessive, grey weathering unit.
Lower Part (approx. 65 to 140 m)
Stromatoporeid biostrome.
Calcareous shale with discontinuous limestone beds, brachiopods locally abundant.
Quartzose sandstone.
Stromatoporeid biostromes form a resistant band between relatively recessive strata.

- MIDDLE DEVONIAN**
- D_o** **DUNDEN FORMATION** (approx. 60 m) (Upper Part approx. 15 m)
Limestone; bluish-grey, wackestone, medium to thick bedded, yellow-grey weathering.
Resistant weathering unit.
Lower Part (approx. 45 m)
Siltstone to coarse grained sandstone; quartzose, crossbedded, with thin limestone or dolomite interbeds.
Relatively recessive weathering unit.
- ORDOVICIAN**
- MIDDLE ORDOVICIAN**
- O_u** **UNNAMED DOLOMITE, QUARTZITE AND LIMESTONE UNIT** (approx. 80 m)
Dolomite and sandy dolomite; medium grey, very fine crystalline, thick bedded, tan weathering, with dark stylolitic or argillaceous partings and fine grained quartz sandstone interbeds.
Limestone; argillaceous, sandy, fossiliferous, wavy bedded, blue grey weathering, local chert nodules; recessive interval at top of unit. Not preserved in map area.
Most of unit is a distinctive, tan weathering, well bedded, resistant marker unit.
 - O_s** **SKOIKI FORMATION** (approx. 130 to 500 m)
Dolomite; very fine to fine crystalline, medium to thick bedded, grey weathering, locally laminated, with intracrystalline, oncolites, stromatolites, rare chert nodules; and minor interbedded platy limestone, platy dolomite with rare argillaceous partings and sandy dolomite; thick bedded, cross laminated, tan weathering.
Resistant weathering unit.

- LOWER ORDOVICIAN**
- O_l** **MONKMAN QUARTZITE** (approx. 0 to 40 m)
Quartzite; very fine to medium-grained, well sorted, siliceous or dolomite cement, thin bedded to shaly, light grey to brown weathering, burrows common, local crossbeds, ripple cross lamination.
Resistant weathering marker unit.
 - O_{rs}** **SURVEY PEAK** (approx. 400 to 525 m)
Upper Part (approx. 350 to 425 m)
Limestone; silty, nodular to wavy bedded, thin bedded to massive, brown-grey weathering, local bioturbation, partial dolomitization, rare chert nodules; minor interbedded calcareous siltstone to very fine grained sandstone locally with preferentially weathering limestone nodules.
Silty dolomite and dolomitic siltstone; wavy bedded, thin bedded, yellow-grey weathering, local bioturbation, cryptalgal lamination (Cecilia Lake area).
Resistant weathering unit.
Lower Part (approx. 50 to 190 m)
Calcareous shale and shaly limestone; thin bedded, planar to nodular, silty laminae, light greenish-grey weathering, minor flat pebble conglomerate near base.
Relatively recessive, light weathering marker unit informally named the "putty shale".

- CAMBRIAN**
- UPPER CAMBRIAN**
- C_u** **LYNX FORMATION** (approx. 550 to 850 m)
Upper Part (approx. 270 to 450 m)
Limestone; argillaceous, silty, nodular to wavy bedded, tan-grey to medium grey weathering, commonly cleaved; with thin to thick interbeds of more resistant limestone, light grey weathering, with common trilobite debris.
Calcareous argillite with limestone nodules for a relatively recessive interval 50 to 70 m thick at base. Green-grey weathering in Mt. Buchanan-Mishaw Mountain area (designated E_{u1} on map), grey weathering elsewhere.
Darker weathering unit between lighter weathering lower lynx and lower Survey Peak strata.
Lower Part (approx. 220 to 400 m) (East of Back Range Fault)
Dolomite; fine crystalline, medium bedded, light and dark grey weathering, with local oncolites, burrows, flat pebble conglomerate, white chert nodules, rare stromatolites, oolitic quartz or calcite filled blebs common; minor interbedded limestone; medium bedded, blue-grey weathering, with local oncolites, burrows, rare stromatolites and sandstone to sandy dolomite fine to coarse-grained, quartz, with local crossbeds (more common near base).
Dolomite; very fine crystalline, tan weathering, with grey argillite partings, local mudcracks, ripples.
(West of Back Range Fault; Walker Creek Syncline)
Limestone; medium bedded, locally laminated or wavy bedded, blue-grey weathering, interbedded with shaly limestone; dark grey with abundant brachiopods. Moderately recessive, grey weathering unit.

- C_l** **MURAL FORMATION** (approx. 130 to 470 m) (East of Back Range Fault; three units are recognized described in descending order)
Shale; grey weathering, with interbeds of fine grained quartzite.
Limestone; fine to medium-crystalline, wavy bedded to nodular, grey weathering; with local black argillite partings; 5 to 5 m thick orange weathering coarse crystalline limestone beds; unit locally dolomitized and brown weathering.
Silty and sandy dolomite, calcareous dolomite; medium crystalline, wavy bedded to nodular, red-brown to tan weathering, interbedded with very fine to very coarse-grained dolomitic quartzite and quartzite.
A relatively recessive weathering unit in Gog Group.
(West of Back Range Fault; five units are recognized described in descending order)
Dolomite; brown weathering, with interbeds of calcareous, bioturbated, with interbeds of dolomite, limestone and quartzite.
Dolomite; brown weathering, lesser limestone, rarely oolitic or bioclastic.
Argillite; grey with silty laminae, rusty weathering.
Limestone; grey, blue-grey weathering, commonly bioclastic, oolitic, bioturbated.
Calcareous argillite; green-grey, silty, brown weathering, with sandy limestone nodules that weather out preferentially.
Ribbed weathering unit.

- C_{uv}** **MCGAUGHTON FORMATION** (approx. 1100 to 2500 m)
Upper Part (approx. 1000 to 2250 m) (East of Back Range Fault)
Quartzite; white, very fine to very coarse-grained, thin bedded to massive, light grey or tan weathering, common crossbeds; minor argillite partings in upper part; minor pebbly quartzite near base.
Resistant white or black lichen covered unit.
(West of Back Range Fault)
Quartzite; white, greenish-grey, very fine to medium-grained, thin to thick bedded, light grey weathering, crossbeds, flaser bedding, grey rusty weathering; argillite partings and interbeds locally abundant; white feldspar 5% basal 300 m.
Siltite and argillite; interlaminated to lenticular bedded, dark weathering, load casts common interbedded with quartzite, and also in units tens of metres thick containing minor quartzite interbeds.
Resistant weathering unit.

- UPPER PROTEROZOIC**
- E_{u1}** **MIETTE GROUP** (E_{u1} - E_{u2})
UPPER MIETTE
ARGILLITE UNIT (approx. 800 to 1500 m)
Argillite; medium to dark grey, rusty weathering, with light grey and greenish grey siltite laminae to very thin graded interbeds, more common in upper part; minor interbedded fine grained argillaceous, grey quartzite near top; green and purple argillite from basal 50 m of unit in Wallop Mountain-McGregor River area. $\text{---} s \text{---}$ denotes a local band of gritty sandstone.
Recessive, rusty weathering unit.
 - E_{u2}** **MIDDLE MIETTE**
UPPER GRITTY SANDSTONE UNIT (approx. 600 to 700 m)
Sandstone; fine sand to pebble conglomerate, feldspathic, argillaceous, commonly graded, thin bedded to massive, light grey or orange-brown weathering, in intervals up to 30 m thick.
Argillite; medium grey, rusty weathering with light grey siltite laminae and minor interbeds of grey argillaceous siltite and rare silty limestone; in intervals up to 25 m thick.
Ribbed weathering unit.
 - E_{u3}** **ARGILLITE UNIT** (approx. 60 to 300 m)
Argillite; medium and dark grey, rusty weathering, minor green and purple-grey, with thin siltite laminae; rare olistostromal carbonate blocks are labelled E_{u3a}.
Dark, recessive weathering unit.
 - E_{u4}** **LOWER GRITTY SANDSTONE UNIT** (approx. 800 m)
Sandstone; fine sand to pebble conglomerate, feldspathic, argillaceous, commonly graded, thin bedded to massive, light grey or orange-brown weathering, in intervals up to 25 m thick.
Argillite; medium grey, rusty weathering with light grey siltite laminae and interbeds, in intervals up to 20 m thick.
Ribbed weathering unit.

- MIDDLE CAMBRIAN**
- C_a** **ARCTOMYS FORMATION** (approx. 40 to 170 m)
Shale and silty shale; red, minor green, dolomitic; laminated, with common mudcracks, ripple marks, salt casts; and minor interbeds of dolomite; thin bedded, tan weathering, with mudcracked red or green shale partings and minor dolomitic quartz sandstone.
Distinctive, red and tan, recessive weathering unit.
 - C_r** **PIKA FORMATION** (approx. 40 to 70 m)
Limestone; locally dolomitic, burrowed; interbedded with grey shale in units up to a few metres thick.
Dolomite; yellow-brown weathering, locally with black argillite partings, generally found at base. A ribbed weathering unit above massive weathering Eldon limestones.
 - C_l** **ELDON FORMATION** (approx. 250 to 350 m)
Limestone and dolomite; wavy bedded to nodular, thin bedded to massive, dark grey weathering, bioturbation common, burrows commonly dolomitized, local oncolites and ooids; rare lenses of orange-yellow weathering silty dolomite. Local patches of secondary dolomite; fine to medium crystalline, pink-grey or orange-brown weathering.
Resistant, dark weathering marker unit.

- C_{sl}** **SNAKE INDIAN FORMATION** (approx. 200 to 400 m)
Upper Part (approx. 150 to 200 m)
Limestone; wavy bedded to nodular, thin to thick bedded, grey weathering, bioturbation common, burrows commonly dolomitized, local oncolites.
Brown weathering argillaceous limestone, common in western Sir Alexander massif.
Shale and silty shale; red, green, laminated, commonly dolomitic, local mudcracks; interbedded with dolomite; laminated, tan weathering, with local sandy laminae and mudcracked argillite partings.
Ribbed weathering unit. Top defined by last thick (25 m) relatively recessive bright shale and dolomite unit.
Lower Part (approx. 120 to 300 m)
Shale and siltstone; green, red, grey, interlaminated, tan weathering, local mudcracks, salt casts, ripples; interbedded with lesser tan weathering dolomite and silty limestone, and tan weathering quartz sandstone.
(Western Sir Alexander massif)
Argillaceous limestone; nodular to wavy bedded, brown-grey weathering interbedded with calcareous argillite and siltstone; locally bioturbated, or with limestone nodules and minor limestone; blue-grey weathering, local intracast beds, ripples, lenticular bedding; quartz unit a bedded appearance.
Argillite; grey, parallel laminated, silty for a distinctive resistant, dark weathering unit (Mount Whyte Member; 30 to 50 m thick at base).
Recessive, tan weathering marker unit.

- LOWER CAMBRIAN**
- C_l** **NIETA FORMATION** (approx. 0 to 70 m)
Limestone, sandy limestone, calcareous shale.
Resistant weathering unit.

- C_{uv}** **GOG GROUP** (E_{uv} - E_{uv})
MAHO FORMATION (approx. 200 to 375 m)
Quartzite; white, maroon, fine to medium-grained, thin to thick bedded, weathering grey, maroon or tan, locally bioturbated; interbedded with laminated siltstone and argillite in western exposures (Walker Creek Syncline).
Dolomitic quartz sandstone and siltstone; cross-laminated, friable, medium bedded with occasional intervals of nodular limestone and sandy shale.
Relatively resistant weathering unit.

- C_{uv}** **MURAL FORMATION** (approx. 130 to 470 m) (East of Back Range Fault; three units are recognized described in descending order)
Shale; grey weathering, with interbeds of fine grained quartzite.
Limestone; fine to medium-crystalline, wavy bedded to nodular, grey weathering; with local black argillite partings; 5 to 5 m thick orange weathering coarse crystalline limestone beds; unit locally dolomitized and brown weathering.
Silty and sandy dolomite, calcareous dolomite; medium crystalline, wavy bedded to nodular, red-brown to tan weathering, interbedded with very fine to very coarse-grained dolomitic quartzite and quartzite.
A relatively recessive weathering unit in Gog Group.
(West of Back Range Fault; five units are recognized described in descending order)
Dolomite; brown weathering, with interbeds of calcareous, bioturbated, with interbeds of dolomite, limestone and quartzite.
Dolomite; brown weathering, lesser limestone, rarely oolitic or bioclastic.
Argillite; grey with silty laminae, rusty weathering.
Limestone; grey, blue-grey weathering, commonly bioclastic, oolitic, bioturbated.
Calcareous argillite; green-grey, silty, brown weathering, with sandy limestone nodules that weather out preferentially.
Ribbed weathering unit.

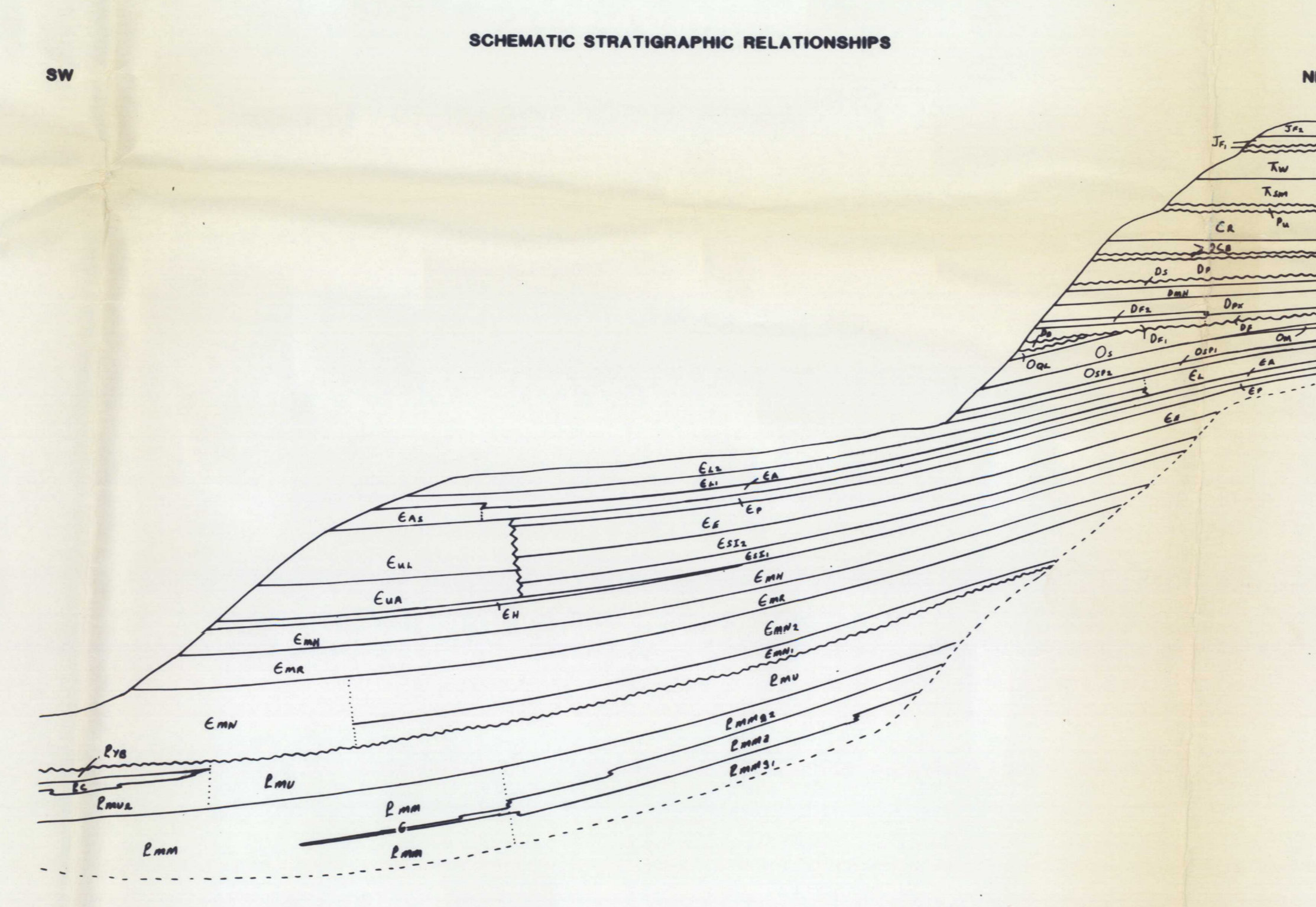
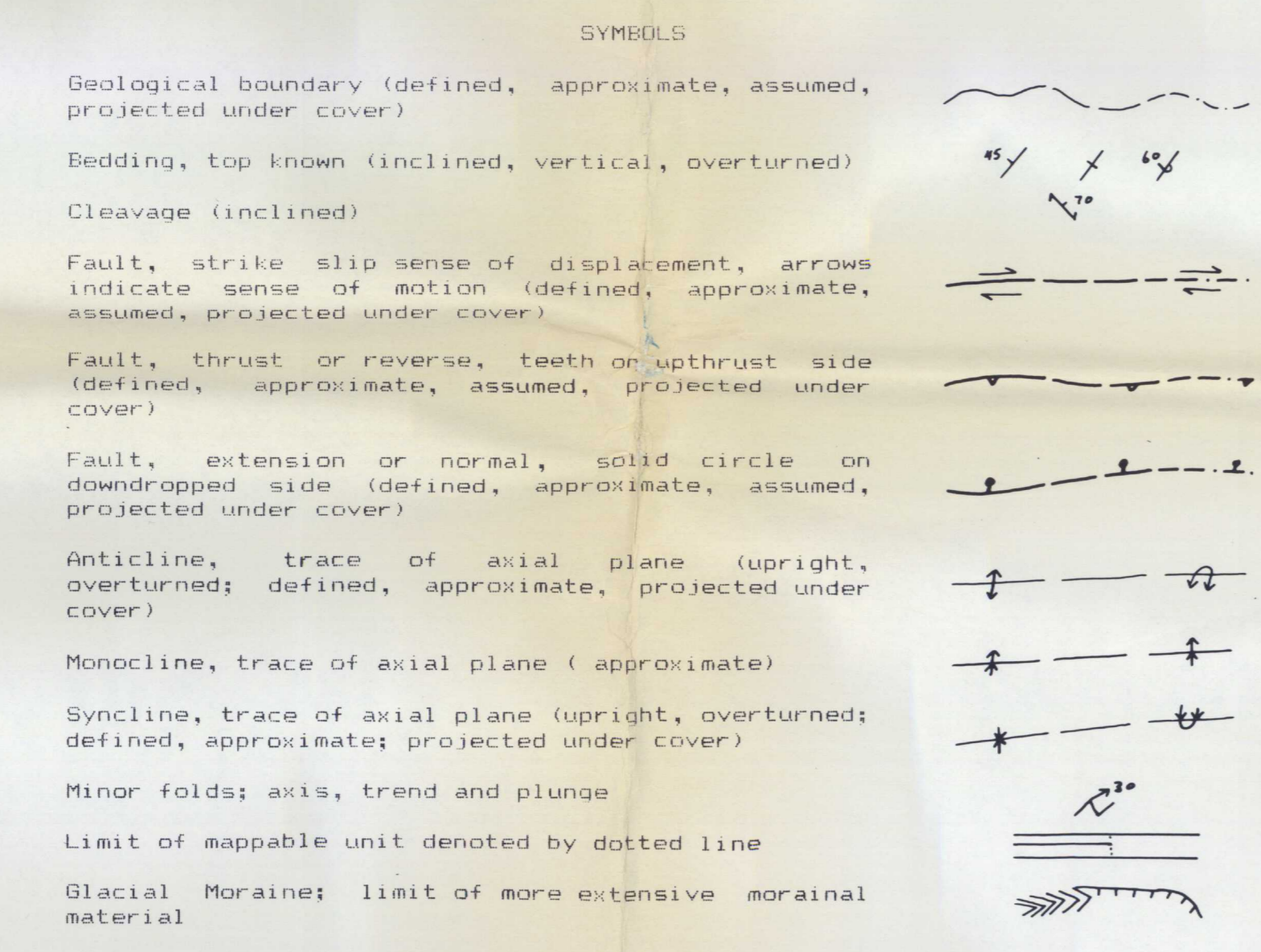
- E_{uv}** **MCGAUGHTON FORMATION** (approx. 1100 to 2500 m)
Upper Part (approx. 1000 to 2250 m) (East of Back Range Fault)
Quartzite; white, very fine to very coarse-grained, thin bedded to massive, light grey or tan weathering, common crossbeds; minor argillite partings in upper part; minor pebbly quartzite near base.
Resistant white or black lichen covered unit.
(West of Back Range Fault)
Quartzite; white, greenish-grey, very fine to medium-grained, thin to thick bedded, light grey weathering, crossbeds, flaser bedding, grey rusty weathering; argillite partings and interbeds locally abundant; white feldspar 5% basal 300 m.
Siltite and argillite; interlaminated to lenticular bedded, dark weathering, load casts common interbedded with quartzite, and also in units tens of metres thick containing minor quartzite interbeds.
Resistant weathering unit.

- UPPER PROTEROZOIC**
- E_{uv}** **MIETTE GROUP** (E_{uv} - E_{uv})
UPPER MIETTE
ARGILLITE UNIT (approx. 800 to 1500 m)
Argillite; medium to dark grey, rusty weathering, with light grey and greenish grey siltite laminae to very thin graded interbeds, more common in upper part; minor interbedded fine grained argillaceous, grey quartzite near top; green and purple argillite from basal 50 m of unit in Wallop Mountain-McGregor River area. $\text{---} s \text{---}$ denotes a local band of gritty sandstone.
Recessive, rusty weathering unit.
 - E_{uv}** **MIDDLE MIETTE**
UPPER GRITTY SANDSTONE UNIT (approx. 600 to 700 m)
Sandstone; fine sand to pebble conglomerate, feldspathic, argillaceous, commonly graded, thin bedded to massive, light grey or orange-brown weathering, in intervals up to 30 m thick.
Argillite; medium grey, rusty weathering with light grey siltite laminae and minor interbeds of grey argillaceous siltite and rare silty limestone; in intervals up to 25 m thick.
Ribbed weathering unit.
 - E_{uv}** **ARGILLITE UNIT** (approx. 60 to 300 m)
Argillite; medium and dark grey, rusty weathering, minor green and purple-grey, with thin siltite laminae; rare olistostromal carbonate blocks are labelled E_{uv}.
Dark, recessive weathering unit.
 - E_{uv}** **LOWER GRITTY SANDSTONE UNIT** (approx. 800 m)
Sandstone; fine sand to pebble conglomerate, feldspathic, argillaceous, commonly graded, thin bedded to massive, light grey or orange-brown weathering, in intervals up to 25 m thick.
Argillite; medium grey, rusty weathering with light grey siltite laminae and interbeds, in intervals up to 20 m thick.
Ribbed weathering unit.

- MIDDLE AND (?) UPPER CAMBRIAN**
- C_u** **ARCTOMYS, (?) SULLIVAN AND (?) WATERFALL FORMATIONS** (approx. 150 to 175 m)
Shale; green, commonly dolomitic, brown weathering, rare mudcracks; thin interbeds of orange weathering dolomite and minor grey limestone (more common near top).
Limestone; interbedded blue-grey, wavy bedded; and tan weathering, laminated, silty unit, a bedded appearance similar to lower lynx; local red, green argillite partings and stromatolites.
Shale; red, green, silty, local mudcracks; minor interbedded dolomite and bioturbated limestone.
A relatively recessive, ribbed weathering unit.

- MIDDLE CAMBRIAN**
- C_u** **UNNAMED LIMESTONE UNIT** (approx. 600 to 800 m) (Upper Part)
Limestone; faintly laminated to wavy bedded, thin bedded to massive, bioturbation common, burrows generally dolomitized, local beds of intracast conglomerate near base, grey weathering; minor cleaved argillaceous, nodular limestone. Local patches of secondary dolomite; fine crystalline, pink-grey weathering.
Lower Part
Limestone; wavy bedded to massive, locally abundant, crossbeds, intracast conglomerates, grey weathering; commonly overlies a few metres of brown weathering, argillaceous, wavy to nodular bedded, burrow mottled limestone and is overlain by a thin (2 m) band of light grey or tan weathering, laminated carbonate minor argillite green, red underlie a distinctive recessive interval in Desaki Range; denoted by $\text{---} A \text{---}$ on map. $\text{---} A \text{---}$ outlines the base of the stratigraphically highest brown and recessive weathering argillaceous limestone band in the lower part of the unnamed limestone unit.
Resistant weathering, colour banded in lower part.

- C_u** **UNNAMED ARGILLITE UNIT** (approx. 400 to 500 m; west of Back Range Fault)
Argillite; calcareous argillite and argillaceous limestone; calcareous and dark grey, laminated, tan brown or rusty (for argillite) weathering, cleaved; with two (2) locally resistant bands of blue-grey weathering, wavy bedded limestone 5 to 20 m thick. A distinctive unit of resistant, dark weathering, parallel laminated argillite and silty argillite approximately 80 m thick occurs at the base (Mount Whyte Member).
Thick, recessive, tan weathering marker unit.



OPEN FILE
DOCUMENT NUMBER
1229
GEOLOGICAL SURVEY
OF CANADA
OTTAWA
343

SCALE 1:50,000
Geology by M.E. McEachan based on ground and air observations (1981-1985).