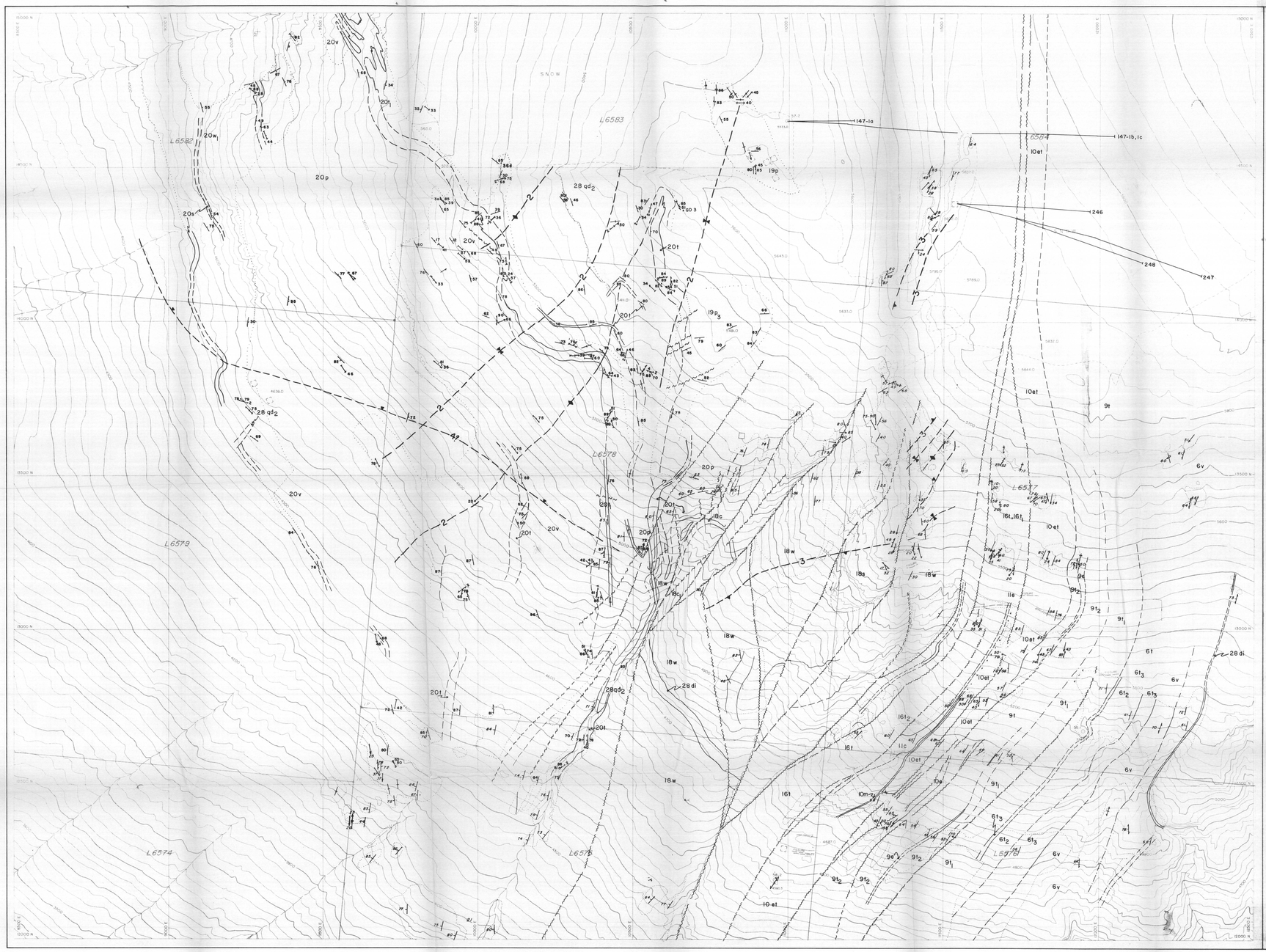


INTRUSIONS

28	JURASSIC AND YOUNGER POST-KYNEMATIC INTRUSIONS
$28qd_2$	Light grey, fine to medium grained quartz diorite dykes with chilled margins
28di	Light grey to green medium grained diorite
$28qd_3$	Coast Range intrusions; medium to coarse grained granodiorite and quartz diorite
27	UPPER TRIASSIC AND OLDER PRE TO SYN KYNEMATIC INTRUSIONS
27fi	Light green to white sulphidic, brecciated felsite dyke
27db	Dark green serpentinite, predominantly foliated lizardite
27di	Medium grained grey and green foliated diorite

GRANDUC SERIES - UPPER TRIASSIC AND OLDER (?)

HANGING WALL

23	UNDIFFERENTIATED HANGING WALL?
23w	Ls, siliceous + mafic wacke, siliceous banded siltstone
22	UPPER VOLCANIC UNIT
22t	Grey, white, and black chert interbedded with green volcanics
22v	Green foliated volcanics; felspar and augite-bearing andesite flows, green foliated tuff
$22v_1$	Dark green andesite with heavy magnetite and coarse actinolites
21	SILICEOUS WACKE UNIT
21w	Light grey to brown fine grained to medium grained siliceous wacke
21c	Light grey to black limestone
20	MAFIC WACKE UNIT
$20w_1$	Dark grey phyllite and wacke; minor sulphidic argillite, siliceous wacke and felspar porphyry flows near top
20c	Light purplish-grey calcareous tuff and limestone
$20w_2$	Dark green, grey and purple medium to fine grained wacke
20s	Bedded cream felspathic arenite
$20t, t_1$	Cream to light green laminated chert and siliceous argillite, grades laterally into laminated white chert marker horizon
20v	Dark green, foliated amphibolitic tuff, characterized by thin white stringers
20w	Grey, foliated tuff and wacke; laminated chert, minor argillite
20p	Light green, bedded argillite, minor black argillite
19	VARIED UNIT
$19p_3$	Light green and grey siliceous argillite, black pyritic argillite
$19p_2$	Light green bedded argillite, local calcareous horizons
19c	Light grey to black limestone
$19p_1$	Light brown to dark grey, well-bedded siliceous argillite
$19w_2$	Grey siliceous argillite, locally well bedded
$19v_4$	Dark green foliated andesites, fine, green acicular amphibole locally present
$19w_1$	Light grey siliceous wacke
$19v_1$	Light grey to cream dacite tuff
19	VARIED UNIT, rocks of uncertain facing and position
19pE	Green bedded argillite, black pyritic argillite
19cD	Light grey limestone, tuffaceous limestone
19pC	Light brown and grey laminated siliceous argillite; minor foliated green andesite
19cB	Dark grey graphitic limestone
19wA	Grey siliceous wacke; foliated andesite tuff, plagioclase-bearing andesite; minor argillite
18	HANGING WALL ANDESITE TUFF UNIT
18	Bedded green chloritic schistose andesite tuff
18v	Augite bearing andesite flows
$18c_2$	Grey to black limestone
$18p_2$	Brown to black pyritic siliceous siltstone and chert
18w	Light green to greenish grey phyllitic wacke, locally calcareous
$18c_1$	Light greenish-yellow to grey massive limestone, grades laterally into calcareous wacke (18w)
18s	Light green tuffaceous sandstone
$18w_1$	Light green well bedded, foliated fine-grained wacke
18v	Light to medium grey felspar porphyritic dacite flows (and tuff ?)
$18p_1$	Grey and black argillite and chert (in Granduc Fault Zone)
18	HANGING WALL ANDESITE TUFF UNIT, rocks of uncertain facing and position
18tA	Foliated, chloritic, banded andesite tuff

MINE SERIES - EAST ZONE

15	EAST ZONE VOLCANIC UNIT
15	Undifferentiated dacitic volcanics
15t	Dark grey pyritic dacite lapilli tuff with light grey dacite fragments
15f	Light grey very fine grained dacite flows and lesser pyritic light grey dacitic tuff

MINE SERIES - SOUTH ZONE

17	DACITE LAPILLI TUFF UNIT
17t	Medium to dark grey dacite lapilli tuff with light grey dacitic fragments
16	FELSPATHIC DACITE TUFF UNIT
16t	Hard, light grey to green m.g. felspathic dacite tuff, lesser soft greyish green chloritic dacite tuff, rarely calcareous light grey dacite tuff
$16t_4$	Amphibolitic dacite tuff
16f	Massive felspar porphyritic dacite flows
16r	Arkosic pebble conglomerate, lesser pebbley wacke
14	DACITIC CONGLOMERATE UNIT
14v	Greyish green dacitic conglomerate, probably a volcanic conglomerate, with light coloured sub-round to sub-angular fragments of chert, rhyolite (?) and dacite. Interbedded with lesser coarsely felspar porphyritic dacite flows and light grey fine grained dacite tuff. Minor interbedded interlaminated chert-dacite tuff. Minor limestone. Rare rhyolite tuff
14f	Felspar porphyritic dacite flow and felspar lapilli dacite tuff
14t	Light grey fine grained dacite tuff
$14f_1$	Augite porphyritic andesite or dacite flows or augitic tuff
14c	Limestone
13	CALCAREOUS DACITE TUFF UNIT
13t	Dark green medium grained chloritic calcareous dacite or andesite tuff
13c	Green to black tuffaceous limestone
13v	Dark green augitic andesite tuff and flows
12	CHERT - SILTSTONE UNIT
12p	White, black, green laminated chert, and siliceous siltstone; minor brown pyritic biotitic dacite tuff

MINE SERIES - MINE AREA AND NORTH ZONE

16	FELSPATHIC DACITE TUFF UNIT
16t	Light green to dark grey fine grained dacite tuff with lesser dark green chloritic dacite tuff
$16t_3$	Well banded foliated green chloritic medium grained tuff with scattered light lapilli sized fragments. Grades vertically and laterally into 11 and $16t_1$
$16t_1$	Grades from $16t_2$; dark grey and brown calcareous dacite lapilli tuff
11	GRANDUC LIMESTONE UNIT
11c	Tuffaceous grey to black limestone
11t	Medium grained green calcareous chloritic dacite tuff
10	UPPER MINE UNIT
10e	Finely laminated pyritic grey, brown and black chert and minor carbonaceous chert
10t	Fine grained pyritic green dacite tuff, and fine grained dacite tuff with coarse felspar
10et	Interbedded 10e + 10t
10m	Magnetite iron formation with disseminated pyrrhotite and chalcopyrite
9	MIDDLE MINE UNIT
$9t_3$	Finely interlaminated chert and pyritic light green dacite tuff and at base, finely banded pyritic dacite tuff
9e	Massive to weakly banded white chert marker
$9t_2$	Fine grained pyritic dacite tuff, with trace disseminated chalcopyrite
8	LOWER MINE UNIT
$8e_2$	Finely laminated, pyritic light brown, grey and black chert
$8t_2$	Medium grained biotitic dacite tuff with coarse felspar and disseminated magnetite, pyrrhotite and chalcopyrite
$8t_1$	Amphibolitic dacite tuff, magnetite rich
$8e_1$	Finely laminated pyritic light brown and grey chert
7	EXHALITIC TUFF UNIT, NORTH ZONE
7t	Fine to medium grained pyritic green dacite tuff, and dark green pyritic chloritic dacite tuff containing coarse chert lenses
7e	Light grey to white massive chert
7m	Magnetite iron formation with disseminated chalcopyrite and pyrrhotite

UPPER FOOTWALL

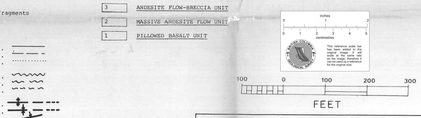
6	AUGITIC ANDESITE TUFF UNIT
$6t_3$	Medium grained green pyritic augitic andesite tuff
$6t_2$	Medium grained green augitic andesite tuff
$6t_1$	Medium grained green heavily pyritic augitic andesite tuff
6v	Fine to medium grained green andesite flows and augitic andesite tuff
$6v_1$	Graphitic andesite tuff, locally containing magnetite and chalcopyrite
5	UNDIFFERENTIATED UPPER FOOTWALL ANDESITE
$5v_1$	Dark green andesite lithic tuff, augitic crystal tuff and andesite flows

LOWER FOOTWALL

4	ULTRAMAFIC MARKER UNIT
3	ANDESITE FLOW-BRECCIA UNIT
2	MASSIVE ANDESITE FLOW UNIT
1	PILLOWED BASALT UNIT

Geological boundary	defined	
	approximate	
	assumed	
Fault	defined	
	approximate	
	assumed	
Axial surface trace	anticline (defined,approximate,assumed)	
	syncline (" , " , ")	
	inclined; examples, dipping northwest	
Bedding, facing determined	inclined	
	vertical	
	overturned	
Bedding, facing undetermined	inclined	
	vertical	
Foliation	inclined	
	vertical	
Lineation	mineral lineation	
	fold axis	
	fold axis, vergence known	
Fold (undetermined vergence, example, northwesterly vergence)*		
Limits of mapping		

*Vergence is the direction of the upper member of the rotational couple implied by the asymmetry of the fold. Example, northwesterly vergence implies anticline to northwest:



McElhanney
Ref. No. 06646-5

ESSO MINERALS CANADA

GRANDUC MINE AREA GEOLOGY

SCALE: 1" = 100'	N.T.S.: 104 B/1W
DATE: Sept. 1981	MINING DIVISION: Skeena
DRAWN BY: P. McGuigan	MAP NO.: 100-4

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R. V. KIRKHAM