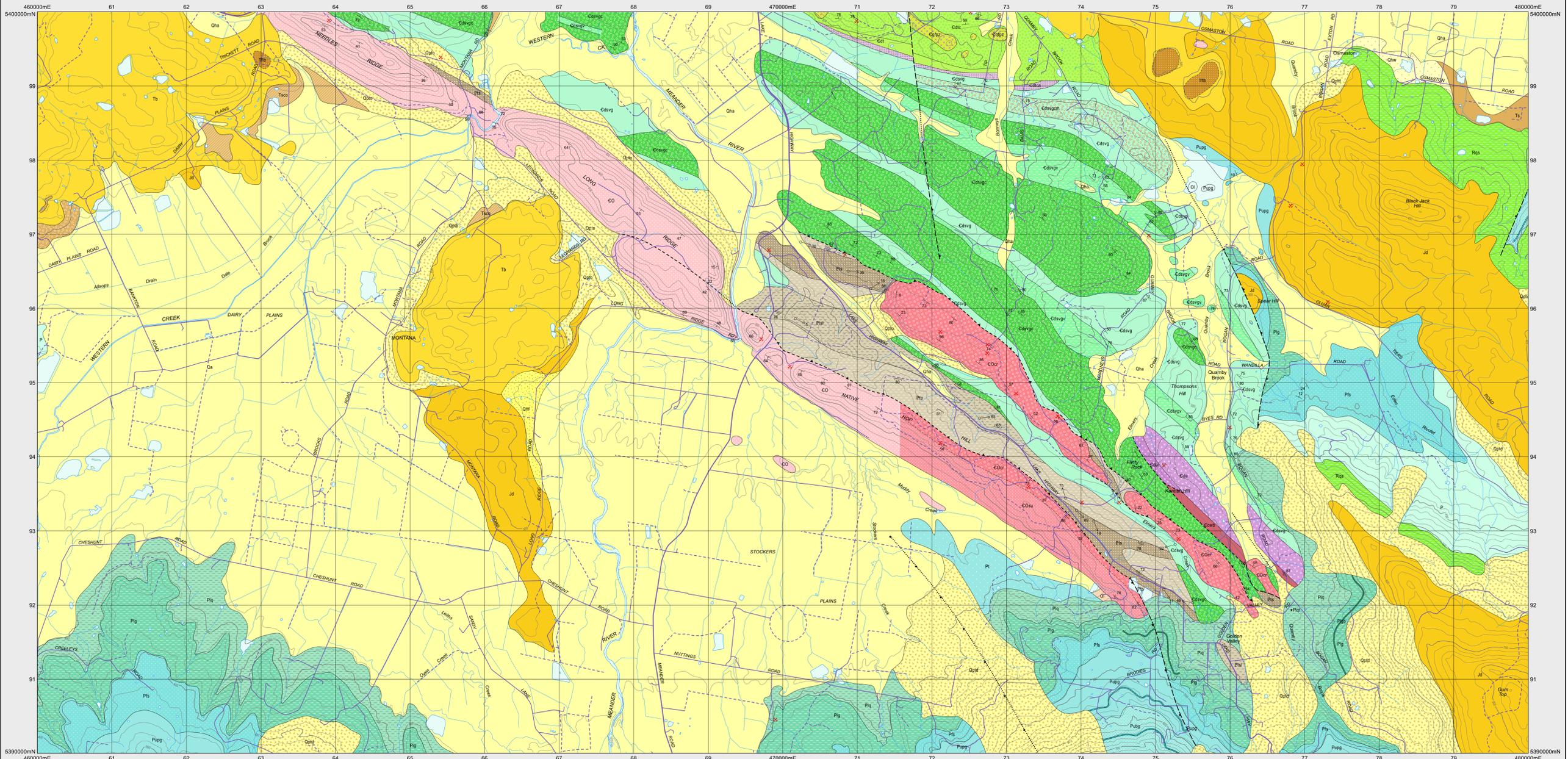


MONTANA

Scale 1:25 000



PERIOD	SUBPERIOD	QUATERNARY		PLEISTOCENE		PALEOCENE - NEOGENE		TRIASSIC		PERMIAN	
		Unit	Description	Unit	Description	Unit	Description	Unit	Description	Unit	Description
CENOZOIC	QUATERNARY	Qhw	Windblown and locally derived sand (Qhw).								
		Qha	Stream alluvium, swamp and marsh deposits (Qha).								
		Qa	Alluvial gravel, sand and clay (Qa).								
		Qhf	Ferricrete lag deposit (Qhf).								
	PLEISTOCENE	Qpbt	Basalt talus (Qpbt).								
		Qpdt	Talus consisting dominantly of dolerite boulders (Qpdt).								
		Qpco	Quartz sandstone and conglomerate talus derived from Owen Group corallites (Qpco).								
		Ttb	Laterite derived from Palaeogene - Neogene basalt (Ttb).								
	PALEOCENE - NEOGENE	Ts	Undifferentiated Palaeogene - Neogene sediments, dominantly non-marine sequence of quartz sand, silt, clay and regolith (Ts).								
		Tsa	Poorly consolidated clay, silt and clayey fine sands with rare gravel and lignite, some iron oxide-cemented layers and concretions (Tsa).								
		Tb	Basalt (Tb).								
		Tsco	Inter- and sub-basalt gravels of predominantly quartzite pebbles (Tsco).								
TRIASSIC	Tcst	Poorly sorted large boulder to pebble grade deposits, clasts dominantly of dolerite; clayey matrix (Tcst).									
	Rqs	Cross bedded quartz sandstone, feldspathic sandstone and shale (Rqs).									
	Pubp	Undifferentiated Permo-Carboniferous sediments (P) 1 to 2m thick resistant unit of siliceous granite to pebble conglomerate (Blackwood Conglomerate) (Pubp).									
	Pupb	3 to 4m thick resistant unit of unfossiliferous pebbly sandstone and conglomerate (Palmer Sandstone) (Pupb).									

PERIOD	SUBPERIOD	PERMIAN		ORDOVICIAN		CAMBRIAN		MOUNT READ VOLCANICS		TENNAN REGION METASEDIMENTS	
		Unit	Description	Unit	Description	Unit	Description	Unit	Description	Unit	Description
MESO- PROTEROZOIC	PERMIAN	Pt	Undifferentiated Permo-Carboniferous sediments (P) Dominantly well-sorted quartz sandstone, normally cross-bedded or laminated and commonly with interbedded and laminated carbonaceous shale, lesser conglomerate and rare coal (Lily Sandstone) (Pt).								
		Pp	Predominantly fossiliferous and erratic rich mudstone, shale, limestone and sandstone (Golden Valley Group) (Pp).								
		Ppib	6m thick resistant unit of fossiliferous, pebbly micaceous sandstone (Billip Sandstone) (Ppib).								
		Ppdm	Unfossiliferous dark, gray pyritic mudstone (Quamby Mudstone) (Ppdm), with local occurrence of Tasmantia Oil Shale at 478 Trome S 391 T40m (Ppdm).								
	ORDOVICIAN	Pt	Tillite and erratic rich mudstone (Stockers Tillite) (Pt).								
		Ol	Limestone (correlate of Gordon Limestone) (Ol).								
		CO	Undifferentiated shallow marine - non-marine siliciclastic conglomerate - sandstone sequence - Owen Group / Gordon Group and corallites (CO) pink quartzite with minor conglomerate, cross-bedded in places (COu).								
		COcr	Pale pink, quartzite-derived, closed- to open-framework, massive pebble-cobble conglomerate with minor pink quartzite beds (Corallites of Roland Conglomerate) (COcr).								
	CAMBRIAN	Cdc	Felsic to intermediate volcanoclastic, volcanic and sedimentary rocks, Late Middle Cambrian fossils in places. Tyndal Group and corallites (Cdc). Many volcanoclastic conglomerate and sandstone with minor mudstone. Sparse quartzite clasts and clasts of granite in places (Cdc).								
		Cdcl	Quartz-feldspar + pyroxene + hornblende phric porphyry, intrusive to locally extrusive (Cdcl).								
		Cdclr	Andesitic volcanoclastic conglomerate and sandstone, typically crystalline with plagioclase-quartz-pyroxene + biotite crystals. Abundant andesite lava and minor quartzite clasts (Cdclr).								
		Cdca	Andesitic lava and associated volcanoclastic rocks, typically plagioclase-pyroxene phric (Cdca).								
MOUNT READ VOLCANICS	Cdvg	Marine volcano-sedimentary and sedimentary sequences of sandstone, siltstone, mudstone conglomerate and breccia with some felsic to andesitic volcanic rocks (Ora Range Greywacke) (Cdvg).									
	Cdvgom	Polymict conglomerate with volcanic and metamorphic clasts (Cdvgom).									
	Cdvgp	Dominantly siliceous conglomerate and sandstone, typically rich in quartzite clasts (Cdvgp).									
	Cdvgv	Quartz-feldspar phric, pinkish volcanoclastic sandstone and siltstone (Cdvgv).									
TENAN REGION METASEDIMENTS	Pt	Massive, platy and banded quartzite (Pt).									
	Ptp	Quartz-muscovite schist and phyllite (Ptp).									
	Ptl	Schistose quartzite, quartzite and schist (Ptl).									

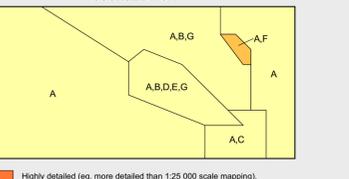
INTRUSIVE ROCKS	
Jd	Dolerite and related rocks (Jd).
Cdcpz	Quartz-feldspar + pyroxene + hornblende phric porphyry, intrusive to locally extrusive (Cdcpz).
Cdca	Clinopyroxene-olivine phric cumulate rock (Cdca).
Ccwb	Pillowed to massive fine- to medium-grained augite bearing tholeiitic basalt (probable correlate of Moton Metabasalt) (Ccwb).

CONTACTS	
—	Geological contact
- - - - -	Geological contact - inferred
.....	Limit of mapping of sub-unit within undifferentiated rock unit
.....	Limit of detailed mapping

FAULTS	
---	Fault
- - - - -	Fault - inferred
.....	Fault - concealed
— / —	Normal fault (downthrown side indicated)
— \ —	Normal fault (upthrown side indicated) - concealed
— / —	Thrust fault (teeth on upper plate) - inferred

SOURCE DIAGRAM	
■	Highly detailed (eg. more detailed than 1:25 000 scale mapping).
□	Detailed systematic (eg. 1:25 000 map or equivalent detail).
□	Regional systematic (eg. 1:50 000, 1:63 360 map or equivalent detail).
□	Regional mapping less detailed than 1:63 360 map or equivalent (all other scales).
□	Reconnaissance mapping with sparse ground traverses.
□	Remote sensing and/or geophysical interpretation with limited or no ground information.

REFERENCES	
▲	Strike and dip of bedding, right way up.
▲	Strike and dip of cleavage of unspecified type and relative age.
▲	Strike and dip of bedding, overturned.
▲	Strike and dip of compositional layering.
▲	Strike and vertical cleavage of unspecified type and relative age.
▲	Trend and plunge of lineation of unspecified type.
▲	Notable small outcrop with rock unit indicated.
▲	Mineral deposit location - hardrock.
▲	Construction material/industrial mineral/gemstone location.



Compiled by M.J. Vicary B.Sc (Hons), 2004 as part of the Western Tasmania Regional Minerals Program from the following sources (see source diagram):

A BARTON, C.M., BRAY, A.P., GULLINE, A.B., LONGMAN, M.J., MARSHALL, B., MATHEWS, W.I., MOORE, W.R., NAYLOR, L.H. and PREE, G.P., 1989. Geological atlas 1 mile series, Sheet 46 (8214N) Quarry, Tasmania Department of Mines.

B HERRMANN, W., 1991 Annual report to 3/8/92 EL 1630. Dalriana. Unpublished report Outokumpu Exploration Australia Proprietary Limited. TCR 91-0277.

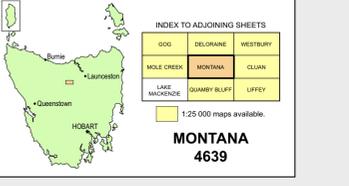
C CLARKE, M.J., 1968. A reappraisal of a Lower Permian type section, Golden Valley, Tasmania. Rec. Geol. Surv. Tasn. 7.

D WOODWARD, N.B., GRAY, D.R. and ELLIOTT, C.G., 1983. Repeated Palaeozoic thrusting and allochthonicity of Tasmanian basement, northern Tasmania. Aust. J. Earth Sciences, 40, 297-312.

E WELLS, A.T., 1967. Geology of the Dalriana-Quamby Valley area, Tasmania. Rec. Geol. Surv. N.S.W.

F MOORE, W.R., 1971. Geological investigation of the Quarry Brook No. 11 dam site. Tech. Rep. Department of Mines Tasmania, 14, 70-75.

G Vicary, M. 2006. Revisions to geological maps in the southern part of the Dalriana/Foxes Mountain Trough, northern Tasmania, with emphasis on Cambrian geology. Mineral Resources Tasmania, UR2006_01.



REFERENCE THIS MAP AS:
VICARY, M.J. (Compiler) 2008. Digital Geological Atlas 1:25 000 Scale Series, Sheet 4639 Montana. Mineral Resources Tasmania.

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Website: www.mrt.tas.gov.au

GDMS - MGA Zone 55. Contour Interval: 20 metres.

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