Department of State Growth
MINERAL RESOURCES TASMANIA

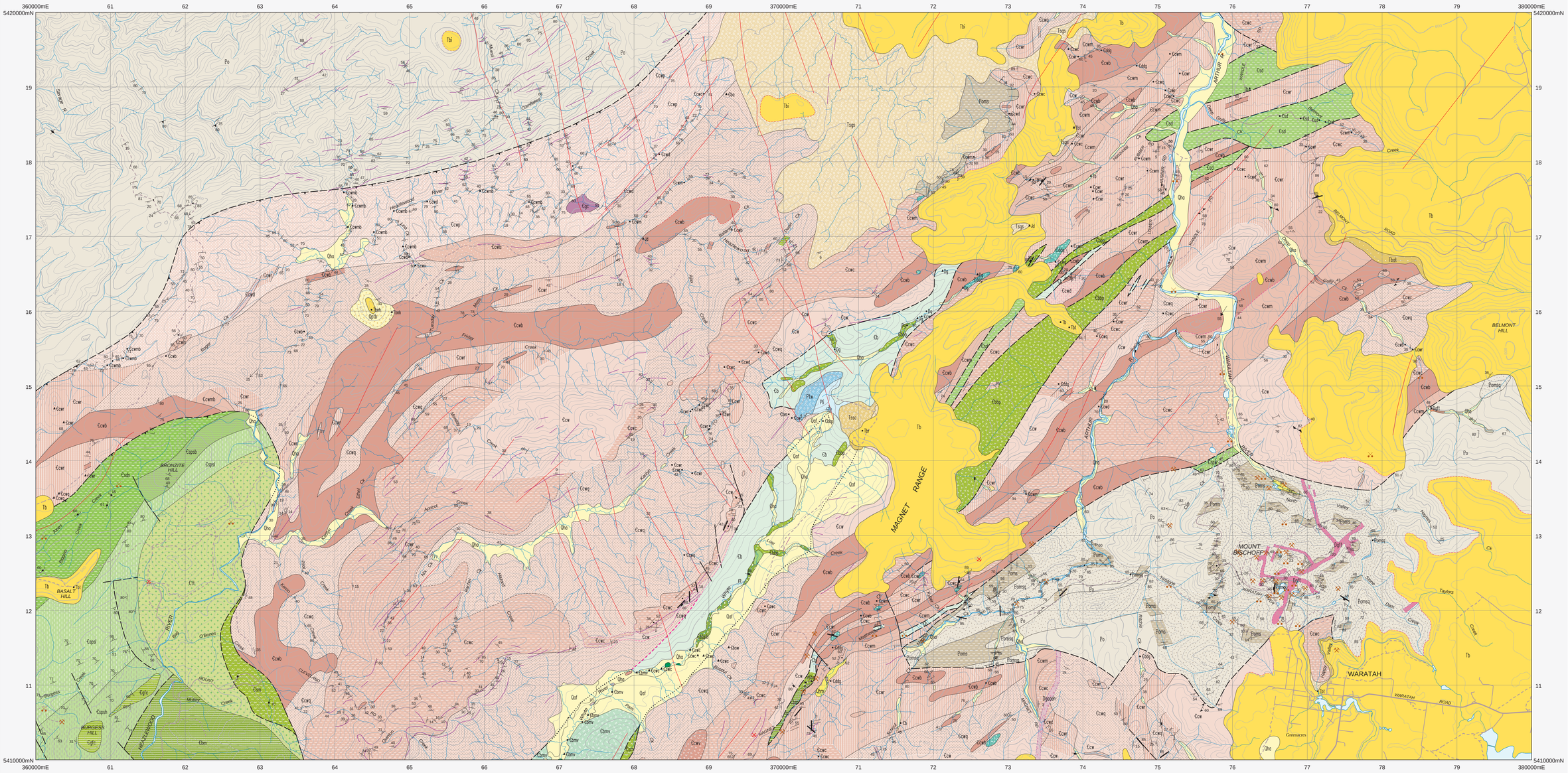
DIGITAL GEOLOGICAL ATLAS 1:25 000 SCALE SERIES
WARATAH, SHEET 3641

WARATAH

Scale: 1:25 000

0 500 1000 1500 2000 2500m

Tasmanian Government



CENOZOIC

QUATERNARY

HOLOCENE

- **Qhm** — *Mine tailings and man-disturbed ground (Qhm).*
- **Qha** — *Stream alluvium, swamp and marsh deposits (Qha).*

PLEISTOCENE

- **Qaf** — *Alluvial fan deposits (Qaf).*
- **Qptb** — *Basalt talus (Qptb).*

NEOGENE(?)

- **Tb / Tbat** — *Basalt (Tb); basalt inferred from air photographs and/or geophysical data (Tbi); olivine tholeiite (Tbt); transitional olivine basalt (Tbr); alkali olivine basalt (Tba) and nepheline hawaite (Tbn) indicated. Agglomerate and tuff (Tbat).*

PALEOGENE

- **Tsgs** — *Interbedded siliceous gravel, quartz sand and clay (Tsgs).*
- **Tssc** — *Sand, silt and conglomerate (interlayered with basalt) (Tssc).*
- **Tcbc** — *Dolerite boulders in a light brown clayey gravel matrix (Tcbc).*

Unconformity

CARBONIFEROUS – PERMIAN (?)

FARMERNER SUPERGROUP (LOWER DIVISION)

- **Pli** — *Grey poorly-bedded siltstone, mudstone and fine–grained sandstone, locally micaceous or pyritic with marine fossils near the top (correlate of Inglis Siltstone) (Pli).*
- **Pte** — *Interbedded diamictite (including tillite), pebbly mudstone and laminated mudstone (rhythmite), with minor conglomerate and sandstone (correlate of Wynyard Tillite) (Pte).*

Unconformity

PALEOZOIC

EARLY CAMBRIAN

LUINA GROUP

- **Ccwq** — *Micaceous quartzose lithicwacke with interbedded siltstone, mudstone, and minor mafic tuff (including Crescent Spur Sandstone) (Ccwq).*
- **Ccwc** — *Interbedded grey, brown and maroon chert, shale and argillite (Ccwc).*
- **Ccwm** — *Volcaniclastic lithicwacke with interbedded siltstone, mudstone and minor mafic tuff (Ccwm); dominantly basaltic lithic sandstone +/– detrital spinel (Ccwmb).*
- **Ccwr** — *Red, maroon and brown argillaceous siltstone and mudstone (Ccwr).*
- **Ccwd** — *Interbedded fine–grained grey dolomite and chert; generally strongly to variably silicified (Ccwd).*
- **Ccwv** — *Coarse–grained massive mafic breccia, derived dominantly from tholeiitic basalt (Ccwv).*
- **Ccwb** — *Fine– to coarse–grained, aphyric to plagioclase +/– clinopyroxene–phyric tholeiitic basalt, with locally developed pillows and minor intercalated tuff (Ccwb); dominantly planar flow basalt indicated (Ccwbf). (Ccwb, Ccwbf; includes correlates of Deep Creek Volcanics).*
- **Ccwls** — *Well–sorted quartz sandstone (Ccwls).*
- **• Ccwx** — *Pyritic diamictite with chert clasts at 365090mE 5416610mN (Ccwx).*
- **Ccwp** — *Sequence of interbedded phyllite, phyllitic mudstone and siltstone, basaltic lithicwacke and dolomite in the upper Heazlewood River area (Ccwp).*

PALEOZOIC

EARLY CAMBRIAN

- **Cb** — *Coarse–grained mafic volcaniclastics, derived dominantly from low–titanium tholeiite lavas (Cbmv).*
- **Cbm** — *Fine– to coarse–grained, massive to amygdaloidal, locally pillowed flows of aphyric to sparsely and finely plagioclase–phyric basalt (low titanium tholeiite), with intercalated breccia, agglomerate and minor sedimentary rocks. Interstitial primary quartz commonly present; locally grades to granophyre (Cbm).*
- **Cbs** — *Fine– to coarse–grained, commonly vesicular and locally pillowed or flow–banded boninitic lava (high magnesium andesite and basalt), intercalated with breccia and agglomerate. Usually porphyritic with pseudomorphed phenocrysts of clinoenstatite, orthopyroxene and chromite. Typically deeply weathered and/or silicified (Cbs).*
- **Cbbp** — *High–magnesium basalt (picrite) lava, usually porphyritic with euhedral olivine phenocrysts in a glassy groundmass composed of dendritic pyroxene and olivine microlites, commonly variably serpentinised and fractured (Cbbp).*
- **Cbbpb** — *Associated monomictic picritic breccia with picritic lava (Cbbpb).*

Faulted contacts attributed to major thrusting.

MESOPROTEROZOIC

- **Po** — *Dominantly greywacke and pelitic siltstone/mudstone (Poms).*
- **Pomsq** — *Dominantly massive quartz sandstone with rare, thinly bedded to stratified and ripple–laminated sandstone and minor greywacke, pelitic siltstone and mudstone (Pomsq).*
- **Pomd** — *Dolomite and minor dolomitic breccia interbedded with quartz sandstone and/or pelitic siltstone (Pomd). (Poms, Pomsq, Pomd – possible correlate of upper Oonah Formation).*
- *Dominantly quartzwacke turbidite (Po – Oonah Formation).*

INTRUSIVE ROCKS

MESOZOIC

JURASSIC

- **▲ Jd** — *Dolerite; float boulders at 368115mE 5416945mN and 373274mE 5417148mN (Jd).*

DEVONIAN

- **Dgft** — *Dykes, sills and irregular bodies of quartz–feldspar porphyry, commonly altered to topaz +/– fluorite +/– muscovite +/– sulphide +/– carbonate +/– cassiterite–bearing quartz porphyry (Bischoff porphyries) (Dgft).*
- **Dgaoeh** — *Monzogranite, consisting of quartz, K–feldspar, plagioclase, biotite and minor hornblende (altered dyke related to the Wombat Flat Granite) (Dgaoeh).*
- **▲ Dg** — *Fine–grained quartz–feldspar–biotite–(chlorite) granite, similar to the Meredith Granite; occurring as boulders (>1m) in creek beds near 371654mE 5415809mN and 372442mE 5416282mN (Dg).*

PALEOZOIC

EARLY CAMBRIAN

- **Cddg** — *Dolerite and microgabbro; equigranular interlocking crystal framework of feldspar, biotite, pyroxene and abundant opaque phases (Cddg).*
- **Cbsw** — *Massive, variably serpentinised wehrlite and plagioclase (hydrogrossular) wehrlite (Cbsw).*
- **Cgfc** — *Fine– to coarse–grained gabbro with interlocking crystal framework of large twinned feldspars, lesser pyroxene and replaced pyroxene. Geochemically similar to low titanium tholeiite (Cgfc).*
- **Cgc** — *Coarse– to very coarse–grained gabbro (Cgc).*

PALEOZOIC

EARLY CAMBRIAN

- **Ctt** — *Massive, fine– to medium–grained tonalite and related rocks; modally and compositionally highly variable but commonly consisting of plagioclase, quartz, uralitised clinopyroxene +/– orthopyroxene and Fe–Ti oxides with secondary actinolite, chlorite +/– epidote +/– hydrograssular. Dated at 513.6 +/– 5.0Ma (U–Pb on zircon, Black et al. 1997) (Heazlewood Tonalite) (Ctt).*

HEAZLEWOOD RIVER ULTRAMAFIC COMPLEX

- **Cspsh** — *Well–layered adcumulate to orthocumulate sequence of harzburgite and plagioclase harzburgite, subordinate serpentinised dunite, plagioclase dunite, troctolite and orthopyroxenite, and minor websterite, plagioclase orthopyroxenite and anorthosite, with cross–cutting gabbronorite and anorthosite dykes (Brassey Hill Harzburgite) (Cspsh).*
- **Cspsl** — *Strongly serpentinised, layered mesocumulate to adcumulate sequence of plagioclase lherzolite, plagioclase dunite, plagioclase harzburgite and troctolite with minor anorthosite and cross–cutting plagioclase pyroxenite, gabbronorite and anorthosite dykes (upper lherzolite member of Purcells Plain Lherzolite) (Cspsl).*
- **Cspsb** — *Strongly deformed adcumulate sequence of dominantly massive orthopyroxenite and olivine orthopyroxenite, with rare thinly layered zones containing harzburgite (Bronzite Hill Orthopyroxenite) (Cspsb).*
- **Cspdn** — *Strongly deformed adcumulate sequence of massive, variably serpentinised dunite with subordinate thin (10mm–1m) layers of harzburgite and orthopyroxenite (Nineteen Mile Creek Dunite) (Cspdn).*
- **Csd** — *Serpentinised interlayered dunite and minor orthopyroxenite (includes LDH succession) (Csd).*
- **Csps** — *Serpentinised interlayered orthopyroxenite, dunite and pyroxene–bearing dunite (includes LPD succession) (Csps).*
- **Csm** — *Massive serpentinite (Csm).*
- **Cspw** — *Serpentinitic melange (Cspw).*

Geological boundary – position approximate.
Geological boundary – inferred.
Geological boundary – inferred from airborne magnetic data.
Geological boundary – inferred from airborne LiDAR data.
Geological boundary – inferred from airborne radiometric data.
Unconformable boundary – position accurate or approximate.
Fault – position accurate or approximate.
Fault – concealed.
Fault – inferred from airborne radiometric data.
Thrust fault (teeth on upper plate) – position accurate or approximate.
Lineament visible in airborne magnetic data.
Lineament visible in airborne LiDAR data.
(white line) Limit of mapping of sub–unit within undifferentiated rock unit.

Strike and dip of bedding – right way up; facing indicated by single tic, overturned; facing unknown; vertical.
Strike and dip of bedding, facing unknown, derived from remote sensing data including LiDAR.
Strike and dip of cleavage – dipping; vertical.
Strike and dip of penetrative cleavage; vertical.
Strike and dip of cleavage, relative local age S1 – dipping; vertical; S2 – dipping; vertical.
Strike and dip of cleavage, relative local age S3.
Strike and dip of cleavage, relative local age S4.
Strike and dip of cleavage of unspecified type and relative age, parallel to bedding, facing unknown; vertical.
Strike of outcrop–scale fault of unspecified type and relative age; with dip; vertical.
Strike and dip of outcrop–scale fault of unspecified type and relative age; normal; thrust.
Trend and plunge of minor fold hinge line, unspecified relative age.
Trend and plunge of minor fold hinge line, unspecified relative age, vergence sinistral.
Trend and plunge of hinge line of minor fold, unspecified relative age: antiform; synform.
Trend and plunge of hinge line of minor antiform, relative local age F1.
Trend and plunge of minor fold hinge line, relative local age F1.
Trend and plunge of minor fold hinge line, relative local age F2.
Strike and dip of dominant joint set.
Sense of lateral offset on wrench or oblique–slip faults: sinistral.
Strike and dip of primary igneous banding or platy alignment, and schlieren in granitic rocks.
Strike and dip of metamorphic foliation other than cleavage; dipping; vertical.
Field station for adjacent readings on the map.
Notable small outcrop with rock unit indicated.
Notable small float or lag occurrence, with rock type indicated.
Mineral deposit location – hardrock
Mineral deposit location – alluvial/tailings
Construction material/industrial mineral/gemstone location

Data derived from Mineral Resources Tasmania DEPOSITS data base. Data point position has not been verified in every case.

REFERENCE THIS MAP AS:

CUMMING, G.V. and EVERARD, J.L. (compilers) 2016. Digital Geological Atlas 1:25 000 Scale Series. Sheet 3641 Waratah. Mineral Resources Tasmania.

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Website: www.mrt.tas.gov.au

GDA94 – MGA Zone 55. Contour Interval: 20 metres.

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Compiled by G.V. Cumming, B.Sc. (Hons) and J.L. Everard, B.Sc.(Hons) 2016 from the following sources (see responsibility diagram):

A G.V. Cumming. Field mapping 2013 – 2016.

B J.L. Everard. Field mapping 2013 – 2016.

C BAILLIE, P.W., WILLIAMS, P.R., SEYMOUR, D.B., LENNOX, P.G. & GREEN, G.R. 1986. Geological Atlas 1:50 000 Series. Sheet 36 (8015N), St Valentines. Tasmania Department of Mines.

D PECK, D.C. 1990. The platinum–group element geochemistry and petrogenesis of the Heazlewood River Mafic–ultramafic Complex Tasmania. PhD thesis, University of Melbourne.

E GUNSTON, J., SUMPTON, J.D.H. & TURLEY, S.D. 1984. Detailed grid mapping, EL6/1983 Mt Cleveland Annual Report. Geopeko Ltd (TCR 84 – 2156).

F GARDNER, D. 1993. EL45/1989 Savage River. Relinquishment and Annual Report, December 1992 – December 1993. Peko-Wallsend Operations Ltd. (TCR 93 – 3530).

G Comstaff Pty. Ltd. 1974. Heazlewood geology. Plans lodged with the Department of Mines (TCR 12 – 6386, 4068.tif).

H WASHAUSEN, G.F.A. 1980. Report on grids HAB and HAC in the Heazlewood area, February 1980, EL1/1968. Comstaff Pty Ltd (TCR 80 – 1438).

I RANDELL, J.P. and HUNGERFORD, N. 1989. EL46/1988 Waratah, progress report on exploration to 23rd December 1989. Billiton Australia (TCR 89 – 3053).

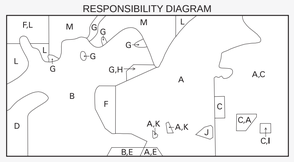
J BROWN, A.V. 1986. 1:25000 Regional Geology of the Mt Youngback – Magnet Area, Geological Survey Bulletin 62. Tasmania Department of Mines.

K ELLIS, P.D. 1990. EL47/1988 Magnet. Relinquishment Report, December 1989, Placer Exploration Limited (TCR 90 – 3070).

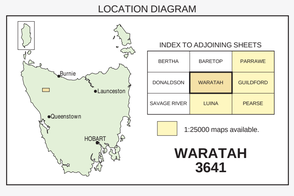
L G.V. Cumming and J.L. Everard. Geophysical and airphoto interpretation.

M G.V. Cumming and J.L. Everard. Geophysical and airphoto interpretation (including LiDAR).

RESPONSIBILITY DIAGRAM



LOCATION DIAGRAM



INDEX TO ADJOINING SHEETS

BERTHA	BARETOP	PARRAWE
DONALDSON	WARATAH	GUILDFORD
SAVAGE RIVER	LUINA	PEARSE

1:25000 maps available.

WARATAH 3641

Plotfile for this map generated from digital data as at: 13-APR-2017

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