MINERAL RESOURCES TASMANIA

Tasmania

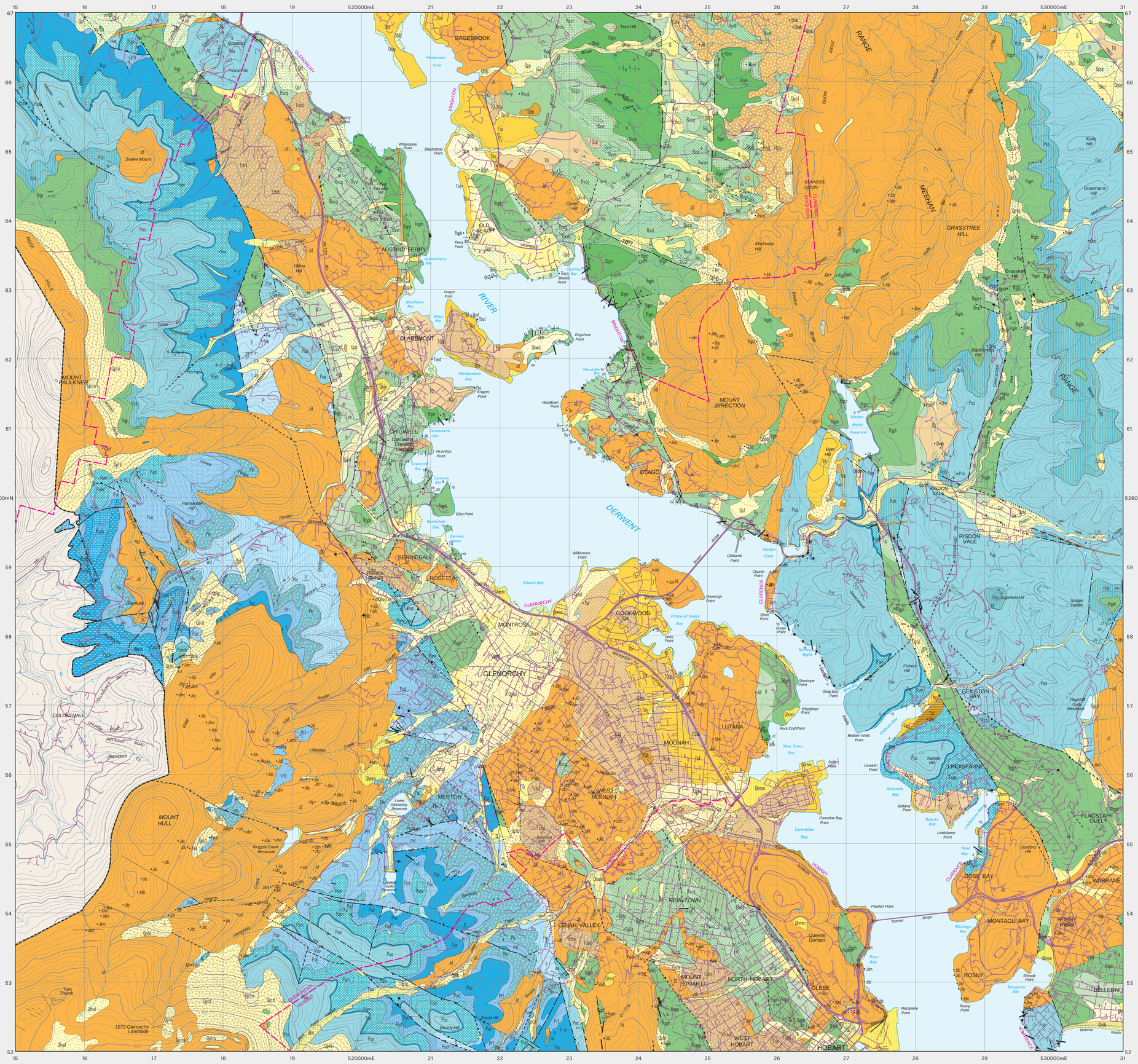
DEPARTMENT of INFRASTRUCTURE ENERGY and RESOURCES

TASMANIAN LANDSLIDE HAZARD SERIES

GLENORCHY – GEOLOGY

MAP 2 OF 5

GLENORCHY CITY
Where ideas happen



Scale: 1:25 000

0 500 1000 1500 2000 2500m

AGD66 – AMG Zone 55. Contour interval 20m

Citation:

Calver, C.R. Latinovic, M. Forsyth, S.M.F. Clarke, M.J. and Ezzy, A.R. 2004. Map 2, Hobart – Geology. Tasmanian Landslide Hazard Series. Mineral Resources Tasmania, Department of Infrastructure Energy and Resources, Hobart.

Acknowledgements:

Geology based on Mineral Resources Tasmania, Digital Geological Atlas 1:25,000 series. For source information refer to 1:25,000 series map sheets – see Location Diagram below.

Base data from the LIST, © State of Tasmania.

Map produced by the Data Management Branch, Mineral Resources Tasmania using G.I.S. software.

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QUATERNARY

- **Q** – Undifferentiated Quaternary sediments (Q).
- **Qa** – Alluvial gravel sand and clay (Qa), alluvial fans (Qaf).
- **Qhab** – Marsh and swamp deposits (Qhab), highland marsh deposits with common protruding dolerite outcrops and boulders (Qhad).
- **Qhag** – Alluvial gravel deposits (Qhag), alluvium and marsh deposits of modern flood plains (Qham).
- **Qhc** – Colluvium (Qhc), – clayey gravel derived from dolerite (Qhcd), sandy, derived from Upper Parmeener rocks (Qhcp), derived predominantly from Lower Parmeener rocks (Qhcl).
- **Qhdb** – Modern shore face and associated aeolian dune sand (Qhdb).
- **Qhi** – Paralic clay, silt, sand and minor gravel deposits (Qhi), of modern salt marsh and associated tidal flats (Qhis), of brackish delta marsh (Qhib), of lagoons (Qhil), predominantly coarse gravel with overlaying marsh at places (Qhig).
- **Qhm** – Selected mine tailings and man disturbed ground indicated (Qhm), man made deposits (Qhmm).
- **Qhw** – Aeolian and locally derived sand deposits locally reworked by alluvial processes (Qhw), aeolian dune and sheet sand (Qhwd), Holocene (Qhwh).
- **Ql** – Undifferentiated bay, estuarine, deltaic and alluvial deposits of sand, shelly sand, pebbly sand, pebble to boulder size gravels, clayey sand, silt and clay (Ql).
- **Qpa** – Deeply dissected alluvial fan, proximal alluvial terrace and minor talus deposits containing boulders of weathered dolerite and Parmeener derived rocks in places (Qpa).
- **Qpad** – Older alluvium of river terrace, predominantly dolerite derived (Qpad).
- **Qpao** – Alluvial terrace deposits (Qpao).
- **Qpf** – Undifferentiated probable Last Glacial alluvial fan deposits of predominantly coarse subangular gravel, and probable Last Interglacial alluvial terrace deposits of well-rounded gravel and sand (Qpf).
- **Qpp** – Probable Pleistocene low gradient alluvial fan and alluvial terrace deposits (Qpp), clasts predominantly of dolerite (Qppd), clasts predominantly of Parmeener rocks (Qppp).
- **Qpt** – Talus and remobilised talus deposits (Qpt), basalt talus (Qptb), talus consisting dominantly of dolerite boulders (Qptd), talus dominantly of Lower Parmeener Supergroup rocks and Jurassic dolerite (Qptdp), talus of dolerite with notable amounts of Upper Parmeener quartzose sandstone (Qptdq), talus dominantly Lower Parmeener rocks (Qptp), talus consisting of dolerite and subordinate Upper Parmeener rocks (Qptup).
- **Qptnv** – Periglacial non vegetated scree deposits (Qptnv).
- **Qptrf** – Dolerite scree deposits (Qptrf).
- **Qpw** – Pleistocene aeolian deposits (Qpw).
- **TQ** – Undifferentiated Cainozoic sediments (TQ).
- **TQbd** – Boulder deposits dominantly of weathered to extremely weathered dolerite and Parmeener clasts (TQbd).
- **TQbs** – Poorly-sorted clay to boulder deposit, variable proportion of clasts, predominantly Parmeener and occasionally dolerite derived, matrix of clay, sandy clay or sand (TQbs).
- **TQsf** – Undifferentiated fluviatile and swamp deposits of poorly-consolidated to unconsolidated sand, clayey labile sand and silt with wood pieces and cross-bedding at places and interbedded subordinate clay, minor line-gravel includes deposits related to probable former course of Derwent River, surficial swamp deposits and supra-basalt sand (TQz).

TERTIARY

- **TQds** – Poorly-consolidated to unconsolidated sand, clayey labile sand, silt and subordinate clay and fine-grained gravel; includes deposits related to probable former course of Derwent River (TQds).
- **TQh** – Undifferentiated piedmont, alluvial fan, alluvial terrace, exhumed alluvial, log and possible beach gravel and poorly-cemented conglomerate containing pebbles and cobbles of dolerite or Parmeener derived rocks (TQh), Clayey cobble deposits dominantly of dolerite and Parmeener rocks with notable silicified wood and hornfels clasts (TQhh).
- **TQi** – Silica stone and log of silica stone (TQi).
- **TQob** – Undifferentiated Cainozoic deposits with possible subsurface Tertiary basalt (TQob).
- **TQsp** – Partly consolidated granule sand (TQsp).
- **TQds** – Undifferentiated predominantly dolerite boulder talus and disrupted to insitu Jurassic dolerite sheet base, with overlaying alluvial gravel and fine-grained swamp deposits (TQts).
- **TQv** – Supra-basalt moderately lithified conglomerate with interbedded sandstone at places clasts of well rounded siliceous cobbles and pebbles, of Tertiary derived silica, and rarely of dolerite (TQv).
- **T** – Undifferentiated Tertiary (T).
- **Tb** – Basalt (Tb), alkali basalt (Tbq), hawaiite (Tbh), basaltic lava (dominantly sodic hawaiite) and pyroclastics, with rare to locally abundant lherzolite xenoliths (Tbhl), inferred basalt beneath soil or Cainozoic deposits (Tbi), basaltic lava (nepheline mugearite to nepheline benmoreite), locally interbedded with pyroclastics (Tbm), transitional alkaly basalt (Tbr), tholeiite (Tbs), quartz tholeiite (Tbq), olivine tholeiite (Tbt), olivine nephelinite (Tbn).
- **Tbat** – Basaltic volcanic agglomerate, tuff and associated rocks (Tbat).
- **Tcb** – Poorly-sorted large boulder to pebble grade deposits (Tcb), clasts dominantly of dolerite with traces to rarely dominant amounts of Parmeener mudstone and other rocks, clayey matrix (Tcbd), inferred dolerite boulder beds with possible shallow subsurface dolerite or Parmeener rock (Tcbd), clasts dominantly of Upper Parmeener sandstone with locally derived clasts of dolerite and Lower Parmeener rocks in some areas; clayey or sandy matrix (Tcbs).
- **Tf** – Ferricrete (Tf).
- **Tse** – Poorly-consolidated interbedded claystone, sandstone and pebble conglomerate (Tse), poorly-consolidated claystone with some horizons with lignitic material (Tsec), dominantly semiconsolidated silt and clay (Tses).
- **Tsed** – Dominantly plastic poorly-consolidated light cream, grey or tan coloured mudstone, siltstone and sandstone with some soft, friable sanstone (Tsed).
- **Tser** – Dominantly plastic poorly-consolidated light grey, green or brown mudstone, siltstone and sandstone with some friable sandstone, may include beds with granules and pebbles, common ferruginous cemented beds and laminae, leaf fossils at places (Tser).
- **Tsi** – Poorly-consolidated white siltstone, sandstone and claystone with Tertiary fossil flora (Tsi).
- **Tst** – Travertine spring deposits with fossil plants and freshwater fauna, associated with basalt at Gellston Bay (includes Gellston Travertine) (Tst).

TRIASSIC

- **R** – Undifferentiated Upper Parmeener Supergroup rocks (R).
- **Rm** – Unit Ru contact metamorphosed by Jurassic dolerite (Rm).
- **Rgm** – Interbedded micaceous brown, red-purple, green and grey carbonaceous siltstone, shale, mudstone and planar bedded, ripple-laminated or cross-bedded sandstone and notable thin beds of silicified bioturbated sandstone (Rgm).
- **Rgp** – Freshwater predominantly cross-bedded quartzose to feldspathic sandstone commonly with overturned cross-bedding and subordinate micaceous siltstone with some red-purple beds, sparse plant and vertebrate fossils (Rgp). – Knocklofty Formation (Rgpk), contact metamorphosed by Jurassic dolerite (Rgpm), intervals predominantly of siltstone, shale, mudstone and sandstone indicated (Rgpc) and (Poets Road Member) (Rgpp).
- **Rv** – Undifferentiated volcaniclastic, quartz-rich lithic and quartzose sandstone, siltstone, mudstone, carbonaceous beds and coal seams (Rv).
- **Rvcg** – Thick-to thin-bedded volcanic lithic sandstone, siltstone, mudstone and coal seams, fossil plants on some horizons (Newtown Coal Measures) (Rvcg), inferred from log of silicified wood, tuff and quartz porphyry clasts (Rvcgi).
- **Rvcg** – Interbedded cross-bedded white quartzose sandstone, quartz-rich lithic sandstone, siltstone and mudstone; upper interval with much dark grey carbonaceous mudstone, thin lenticular coal seams and fossil plants in places (Rvcg).
- **Rvcl** – Interbedded yellow brown or grey carbonaceous siltstone, mudstone and thin-to thick-bedded quartz-rich lithic, arkosic sandstone, some fossil plants, common siltstone pisteosoids (Rvcl). Inferred Rvcl unit with most outcrops steeply dipping, brecciated, disrupted or transported, with associated Tertiary weathered kaolinitic clay and quartz pebble log deposits at places (Rvcld).
- **Rvcp** – Lenticular variable medium-to coarse-grained sandstone, generally containing quartz granules or pebbles, less commonly cobbles and conglomerate, crowded vertical burrows at places (Rvcp).
- **Rvcr** – Predominantly brown, buff, grey carbonaceous and green siltstone and mudstone, interbedded with lithic sandstone, quartz sandstone and thin beds of silicified sandstone, horizons of crowded vertical burrows, siltstone pisteosoids, and plant fossils at places (Rvcr).
- **Rvcs** – Predominantly fine-grained quartz sandstone, commonly partly silicified, uncommon horizons with quartz granules and very rarely pebbles; interbedded with mudstone and lithic sandstone at places (Rvcs).

PERMIAN

- **P** – Undifferentiated Permo-Carboniferous sediments (P).
- **Pch** – Freshwater cross-bedded arkosic to quartzose sandstone and micaceous siltstone, lower interval with some carbonaceous sandstone, rare coalified wood and calcareous concretions and commonly with thin lenticular beds of quartz pebble conglomerate near base (Pch).
- **Pff** – Paralic, massive, laminated, flaser bedded or ripple cross-laminated micaceous sandstone and siltstone, thin beds of wavy- or cross-bedded sandstone and pebbly granule sandstone, marine bioturbated intervals with pebbles and rare shell fossils (Faulkner Group) (Pff).
- **Pw** – Sparsely to richly fossiliferous marine siltstone, mudstone, sandstone and impure limestone with lonestones (correlate of Bundella Formation) (Pw).
- **Pls** – Uniform, poorly-bedded, coarsely fretting grey marine siltstone with sparse lonestones and probable glendonite moulds (correlate of Woody Island Siltstone) (Pls).
- **PR** – Undifferentiated Parmeener Supergroup rocks (PR).
- **Pus** – Generally unfossiliferous glaciomarine interbedded non-fissile and fissile siltstone and silty sandstone, with common bioturbation and lonestones, rare pebbly beds (Pus), Lower Parmeener Supergroup rocks, mainly fissile siltstone with thin thin beds of well sorted sandstone (Abels Bay Formation) (Pus), contact metamorphosed by Jurassic dolerite (Pusm).
- **Puc** – Richly fossiliferous glaciomarine grey bioclastic to argillaceous limestone, calcareous siltstone and rare metabentonite (Berriedale Limestone), lower fossiliferous siltstone and calcareous siltstone (Nassau Siltstone), basal pebbly sandstone (Poyner Sandstone) (Puc), contact metamorphosed by Jurassic dolerite (Pucm).
- **Pucb** – Dominantly richly fossiliferous interbedded glaciomarine grey bioclastic and argillaceous limestone and calcareous siltstone (Berriedale Limestone) (Pucb).
- **Pucd** – Dark grey richly-to sparsely-fossiliferous siltstone and calcareous siltstone and basal poorly-sorted pebbly sandstone (Nassau Siltstone and Poyner Sandstone) (Pucn).
- **Pud** – Dominantly interbedded, richly fossiliferous glaciomarine siltstone and subordinate thin beds of granule sandstone, lonestones present, thin-to medium-bedded, commonly leached yellow-cream coloured (Deep Bay Formation) (Pud), contact metamorphosed by Jurassic dolerite (Pudm).
- **Pudc** – Generally poorly fossiliferous interbedded glaciomarine fine-to medium-grained sandstone, fissile and non-fissile siltstone, lonestones and pebble-rich patches, productid bed at top, basal interval commonly with thick beds of coarse-grained sandstone (Malbino Formation) (Pum), contact metamorphosed by Jurassic dolerite (Pumm).
- **Pus** – Undifferentiated fossiliferous glaciomarine sandstone, siltstone and limestone (Deep Bay Formation, Berriedale Limestone, Nassau Siltstone and Poyner Sandstone) (Pus), contact metamorphosed by Jurassic dolerite (Pusm).
- **Pur** – Cliff forming massive, bioturbated to homogeneous, moderately well-sorted fine-to coarse-grained marine feldspathic quartz sandstone with thin layers containing abundant pebbles or cobbles (Risdon Sandstone) (Pur).
- **Pus** – Undifferentiated generally unfossiliferous glaciomarine fissile and non-fissile siltstone and silty sandstone with lonestones (Abels Bay Formation, Malbino Formation, Risdon Sandstone) (Pus).

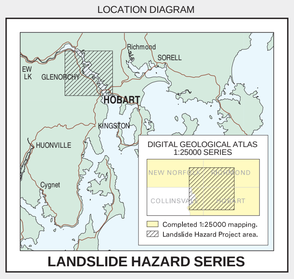
JURASSIC

- **Jd** – Dolerite (Jd), with orthopyroxene (Jdo), granophyre and pegmatite indicated (Jdg), dolerite intercepts at depth (Jdd), grain size 0.5 – 2.0mm (Jdm), medium grain size 2.0 – 6.0mm (Jdv), grain size 0.1 – 1.5mm (Jdf), grain size 1.5 – 5mm (Jdm), medium to coarse-grained > 15mm (Jdmc), grain size > 5mm (Jdc), granite > 6mm (Jdvc) indicated.

Strike and dip of bedding, right way up.
Strike of vertical bedding, facing indicated by single tic.
Horizontal bedding.
Trend and plunge of lineation of unspecified type.
Strike of outcrop-scale fault, type unspecified; downthrown side indicated.
Strike and dip of outcrop-scale fault, type unspecified; vertical; thrust fault.
Strike and dip of dominant joint set.
Strike of dominant joint set, vertical.
Strike and dip of cataclastic foliation.
Trend of dyke or vein, rock type or mineral specified by RCDIC in Point Attribute Table.
Generalised paleocurrent direction, showing sense of movement.
Trend and plunge of paleocurrent lineation polarity down-plunge.
Trend and plunge of slickensides, movement sense unspecified.
Field station for adjacent readings on the map.

Geological boundary – position accurate or approximate.
Geological boundary – inferred.
Geological boundary – transitional.
Geological boundary – concealed.
Intrusive boundary – position accurate or approximate.
Intrusive boundary – inferred.
Intrusive boundary with associated chilled or fine-grained marginal zone in igneous body – position accurate or approximate.
Slope break.
Scarp.
Photo lineament.
Lithological trend line.
(white line) Limit of mapping of sub-unit within undifferentiated rock unit.
Fault – unspecified type, position accurate or approximate.
Fault – unspecified type, inferred.
Fault – unspecified type, concealed.
Fault – position accurate or approximate, downthrown side indicated.
Fault – inferred, downthrown side indicated.
Fault – concealed, downthrown side indicated.
Small outcrop or log occurrence.
Limit of mapping of 1:25000 digital geological series.
Municipality boundary.

LOCATION DIAGRAM



LANDSLIDE HAZARD SERIES

Data correct & plotfile generated: 18-AUG-2006

WARNING:INKS ARE LIGHT SENSITIVE