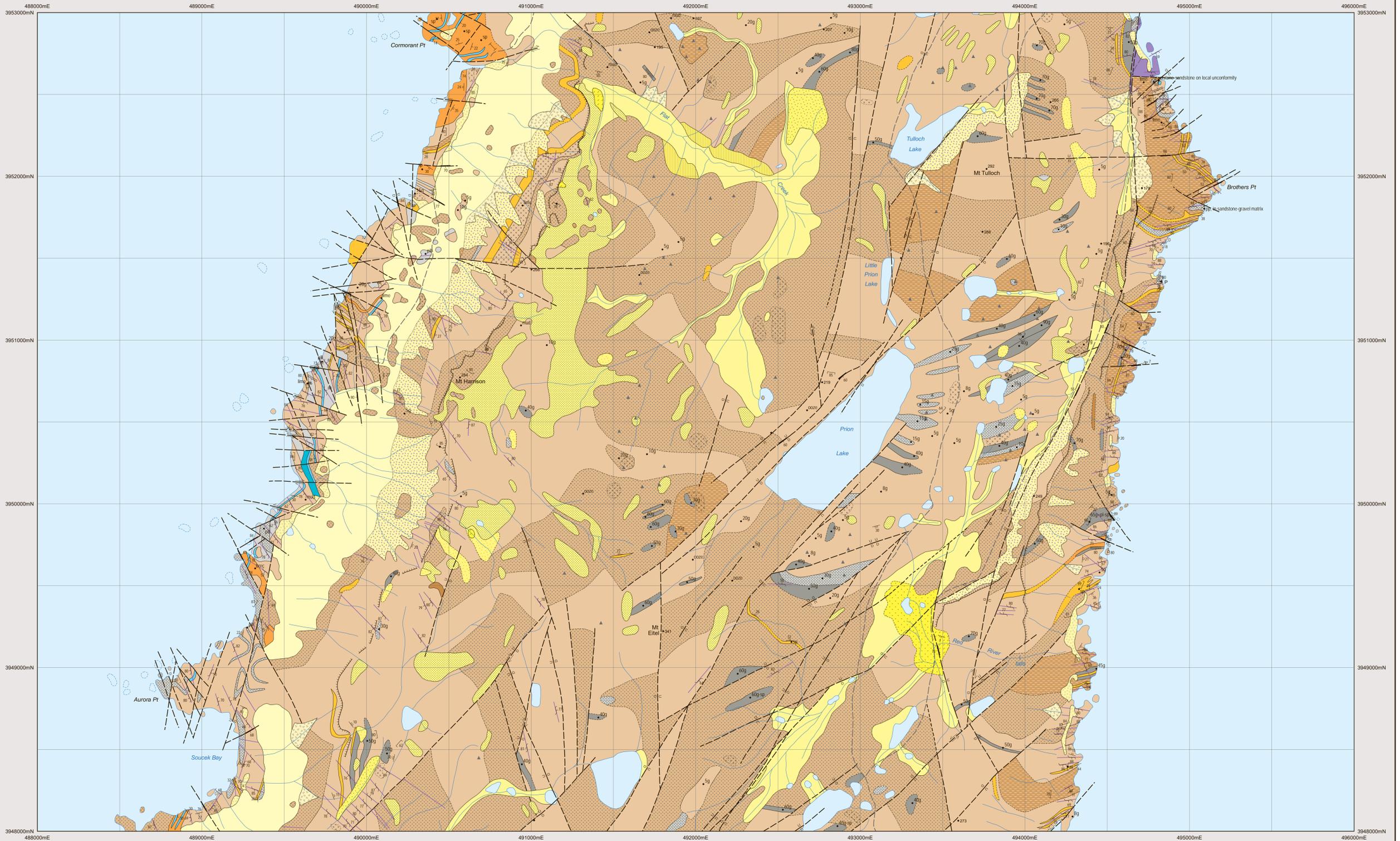


# GEOLOGY OF MACQUARIE ISLAND - SHEET 3



Geology by B.D. Goscombe, BSc (Hons), PhD and J.L. Everett, BSc (Hons), December 1984 - May 1985; September 1995 - January 1998. Project initiated and supervised by A.V. Brown, BSc (Hons), PhD, Director, Mineral Resources Tasmania, with funds provided by the Australian Antarctic Foundation, and logistical support provided by the Australian Antarctic Division.

Base map drawn from several sources: The Spot multispectral satellite mosaic produced by the Australian Centre for Remote Sensing (ACRS) 1994. Division of National Mapping Macquarie Island 1:50,000 topographic map (1971) warped to conform with the satellite mosaic along coastline and lakes. Incomplete aerial photography flown in 1976 (mainly in the north of the island). GPS positions and field observations.

Map produced by the Data Management Group, Mineral Resources Tasmania, using GIS software. Original map produced March 1998. Absolute position with respect to horizontal datum and topographic features is approximate.

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### ALLUVIAL, LACUSTRINE AND SWAMP DEPOSITS

- Alluvium, including deposits at the margin of lakes.
- Older alluvium of terraces.
- Colluvium of wash slopes.
- Flags, swamps and "waterbeds" (includes significant areas of peat without bedrock outcrop); on the north-west coast these peat deposits cover palaeo-beach deposits on an elevated level (see also 5.5m above sea level).
- Palaeo-lake deposits of laminated mud, silt and organic material; colour indistinct; usually concealed beneath younger alluvium (not shown). Exposed palaeo-lake deposits indicated (large dots).

### SLOPE DEPOSITS

- Snow slopes.
- Alluvial fans, with slopes of less than 22 degrees.

### BEACH AND AEOLIAN DEPOSITS

- Rubble to cobbly beach deposits.
- Aeolian silt and sand deposits, often with gravel lag; approximate thickness of deposit in metres indicated where known.
- Palaeo-beach deposits of rounded and smoothed cobbles and pebbles, less commonly with coarse sand; mostly on the plateau, but also below peat cover along the northern west coast (not indicated).

### SEDIMENTARY ROCKS

- Mudstone and siltstone, usually laminated and red (grey at 490400mE 3952000mN).
- Sandstone and pebbly sandstone with muddy to silty matrix; usually grey, greenish-grey or red.
- Sedimentary rock matrix between pillows in lavas or blocks in breccia indicated:

### VOLCANICLASTIC ROCKS

- Hyaloclastic breccia consisting of angular to sub-rounded blocks of usually aphyric basalt in a glass matrix.
- Plagioclase-phyric blocks indicated (sp); % proportion of glass indicated (Dg).
- Volcaniclastic breccia, matrix-supported, with blocks of usually aphyric basalt; plagioclase-phyric basalt blocks indicated (sp).
- Volcaniclastic breccia, clast-supported, with blocks of usually aphyric basalt; plagioclase-phyric basalt blocks indicated (sp).
- Block containing isolated pillows or lenticular zones of pillows indicated (sp).

### LAVAS

- Pillow basalt, aphyric to very sparsely phytic (<5% plagioclase phenocrysts); usually amygdaloidal.
- Pillow basalt, sparsely to moderately phytic (5-30% plagioclase phenocrysts); usually amygdaloidal.
- Pillow basalt, densely to very densely phytic (>30% plagioclase phenocrysts); usually amygdaloidal.

### INTRUSIVE ROCKS

- Mudstone and siltstone, usually laminated and red (grey at 490400mE 3952000mN).
- Disaggregated pillows indicated by overprint.
- Tabular basalt flows, medium- to fine-grained, usually aphyric; rarely sparsely plagioclase-phyric (sp) or densely plagioclase-phyric (sp). Rarely with zones of pillows (pl).
- Tabular basalt flows, medium- to coarse-grained with mesocrystally visible plagioclase laths; usually aphyric; rarely sparsely plagioclase-phyric (sp). Rarely with zones of pillows (pl). Autozonation indicated (brck).
- Hornblende-phyric massive subvolcanic basalt flows, medium-grained; rarely sparsely plagioclase-phyric (sp). Rarely with mesocrystally visible plagioclase laths (sp).

### INTRUSIVE ROCKS

- Shear-dike dykes, with sections of massive, coarse-grained gabbro; almost, mixed (c5%) or abundant (c.30%), plagioclase phenocrysts (20gsp) and individual gabbro screens indicated.

- Geological boundary - position approximate.
- Geological boundary - position inferred.
- Fault - position approximate.
- Fault - inferred.
- Dolerite dykes, trace or trend.
- Base of escarpment.
- Approximate top of escarpment.
- Track.
- Topographic high point.

### INTRUSIVE ROCKS

- Shear-dike dykes, with sections of massive, coarse-grained gabbro; almost, mixed (c5%) or abundant (c.30%), plagioclase phenocrysts (20gsp) and individual gabbro screens indicated.

- Bedding in sedimentary rock - right way up.
- Bedding defined by orientation of massive tabular lava units.
- Bedding defined by lithological layering of distinct rock units.
- "Bedding" defined by plane of pronounced flattening of pillows.
- Trend and plunge of flow of lava; indicated by long axes of pillows (P) or ripple lines (R).
- Strike and dip of palaeo-canyon or palaeo-slit, filled by conglomerate and/or block breccia.
- Strike and dip of dike or vein.
- Cleavage, fracture-cleavage or fractures - dipping, vertical.
- Strong penetrative cleavage with possible grain-refinement.
- Strike and dip of outcrop scale fault.
- Trend and plunge of slickenside, within indicated fault plane.
- Sense of movement on fault or ductile shear zone - dextral, sinistral (note: for scales on the plateau, the most recent, but not necessarily the most important, sense of movement is indicated).

- Scale 1:10 000
- Projection: Universal Transverse Mercator - Zone 57
- Horizontal datum - WGS1984

