



The geology of the Davey-Crossing River area

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Cover: View looking NE towards Greystone Bluff, showing dip slope of conglomerate in middle distance.

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The geology of the Davey-Crossing River area

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INTRODUCTION

This area was investigated by Mike Hall, Clive Calver and Jacob Mulder in early 2015. Geological observations are summarised in the geological maps presented in Appendix 1.

GEOLOGY

The Cambro-Ordovician succession can be divided into three mappable units, from oldest to youngest: conglomerate (Cc on the maps), turbiditic sandstone-shale (Ct), and bioturbated sandstone (Om). Cc and Ct are correlates of the Owen Group, and are probably Cambrian in age, while Om is assigned to the Gordon Group, and is Ordovician. The rocks are moderately to tightly folded, and crop out around the southern end of the Olga-Hardwood Syncline. Tight, upright minor folds (wavelength ~100 m) plunge gently north, and are well displayed in aerial imagery of unit Om.

Unit Cc, boulder conglomerate with interbedded quartz-arenite towards the top, was found on the higher country to the east of the Davey River. Bedding dips moderately west toward the main syncline, and much of the west-facing flank of this higher area is a dip slope (Figure 1). South of 5227000 mN, the conglomerate has been dissected into an unusual landscape of extremely large (~10 m) boulders. Conglomerate outcrop continues further east at least as far as Greystone Bluff (incorrectly shown as Proterozoic on current maps). The conglomerate is stratigraphically impersistent, and one or other of the two younger units is in contact with the Proterozoic on the S and SW side of the main synclinal structure. Bowen and McLean (1971) mapped a separate area of similar conglomerate in the Piners Peak area.



Figure 1. View looking NE towards Greystone Bluff, from about [419800 5227100], showing dip slope of conglomerate in middle distance.

Unit Ct is inferred to conformably overlie Cc. Unit Ct is unfossiliferous, coarse- to very fine-grained, quartz-rich sandstone interbedded with pale grey-green or pink, silty shale, about 500 m thick. The sandstone beds commonly display grading and other features typical of turbidites (Figure 2). To the south-west, Ct has a steep (unexposed) NW-trending contact with Proterozoic rocks (P), possibly a growth fault. Ct could be broadly correlative with the Newton Creek Sandstone (western Tasmania) or the Long Bay Shale (Bathurst Harbour area).

Unit Om overlies Ct with inferred low-angle unconformity, and overlaps the possible growth fault to rest directly on the Proterozoic in the southwest of the investigated area. Om, about 120 m thick, is strongly bioturbated, fine-grained quartzarenite and minor conglomerate.

Basal pebble conglomerate, up to about 5 m thick, is best developed on the SW flank of the major syncline, and is thinner and impersistent elsewhere. U-shaped vertical burrows are present amongst a diverse assemblage of trace-fossil forms (Figure 3). Herringbone cross-bedding is locally preserved, and a shallow-marine paleoenvironment is indicated. Poorly preserved, fragmentary shelly fossils are present, but only a gastropod (cf. *Ophileta* sp.) could be tentatively identified to genus level, and suggests an Early Ordovician age (Figure 4). Om forms two subequal strike ridges reflecting upper and lower, more resistant stratigraphic sub-units, separated by poorly exposed, cleaved siltstone. Om is thought to be conformably overlain by Ordovician limestone of the Gordon Group, but no exposure of the limestone was seen.



Figure 2. Shale overlain by sandstone with convolute lamination (Unit Ct), at [419750 5227091].



Figure 3. Bedding-parallel burrows in fine-grained quartz sandstone of unit Om. [417422 5226464].



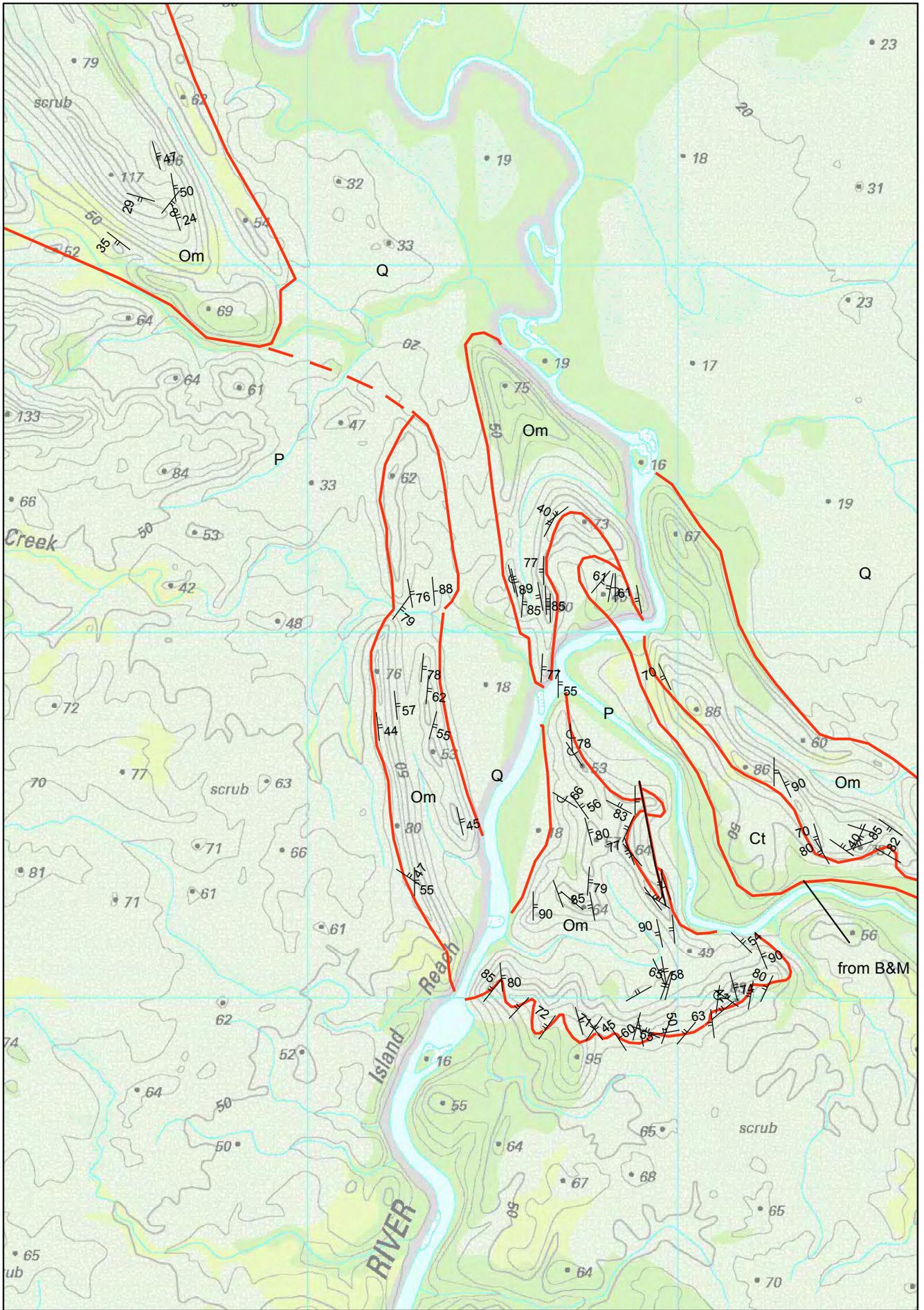
Figure 4. Gastropods in Unit Om (cf. *Ophileta* sp.). [419575 5225328].

REFERENCES

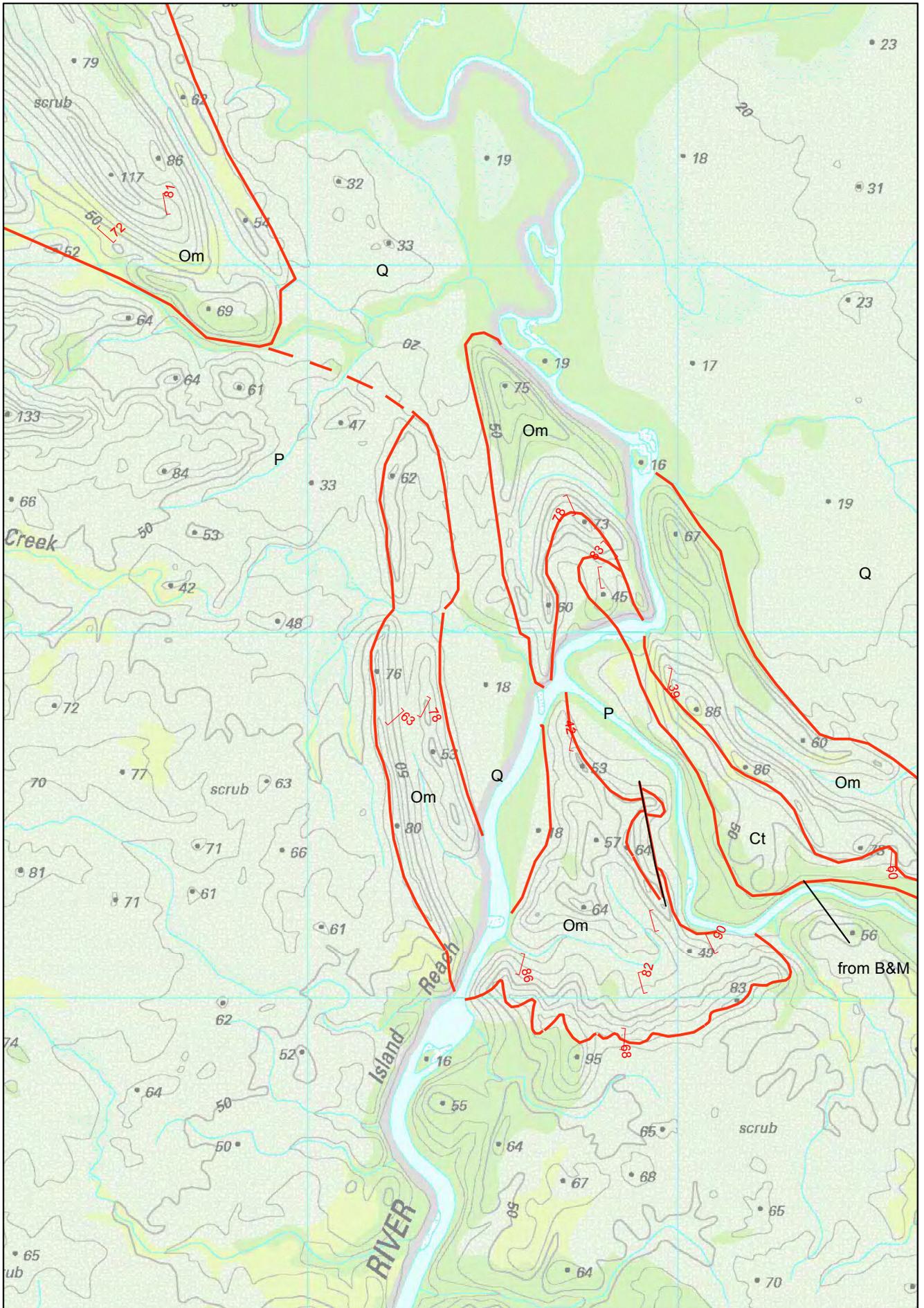
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APPENDIX 1

**Bedding and cleavage maps of the
Davey-Crossing River areas**



Map 1. Bedding west.



Map 2. Cleavage west.



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