

It is difficult to sub-divide these lithologies due to poor exposure north of 11400N but in the southern part of the grid a nose of greywacke and shale is flanked to the east and west by volcanoclastics. Bedding in this nose of sediment is steeply NW to NE dipping suggesting a north plunging anticlinal closure however, the larger scale structure of this area is poorly understood.

Southwell sub-group lithologies are overlain by Tyndall Group correlates, purple-green polymict volcanoclastic sandstone and conglomerate. The apparent kink in the contact around 11800N, 8350E may be the result of fault complication.

No obvious source for the stream sediment anomalies was located but intense quartz  $\pm$  k-feldspar-carbonate veins in parts of the rhyolitic lava/intrusives are a potential source. The source of anomaly iv (McNeill 1989b) would appear to be a zone of pyrite veined, pyrite-sericite  $\pm$  silica altered rhyolitic lava around 11600N, 7800E. Alteration within this zone is patchy with apparently unaltered lithologies intercalated with strongly altered types.

#### 4.3 Geochemistry

A total of 12 rock chip samples were submitted for assay from the Southwell Valley grid. Results and sample locations are included in appendix 10. Results from these samples were disappointing with base metal, As and precious metal values in apparently quite intensely altered lithologies all much lower than would be expected from stringer envelope zone type alteration. A maximum of 485 ppm Pb and 17 ppm As was recorded from a pyritic ash volcanoclastic. Cu and Zn values were all low.

Ti/Zr ratios indicate all lava samples are rhyolitic (Ti/Zr <6) although Cr values are variable but, generally low, with a maximum of 140 ppm in sample 563726.

#### 4.4 Geophysics

##### 4.4.1 UTEM

A one loop UTEM survey, completed over lines 11200N - 12200N from 8000E - 7400E, resulted in the collection of 3.6 line km of 50m spaced Hz component data. Results and interpretations are included in appendix 11. No responses attributable to massive sulphide accumulations were located.