Volcanic-hosted massive sulfide (VHMS) deposits provide a significant contribution to global base metal production. The Cambrian Mount Read Volcanics (MRV) in western Tasmania are one of the most mineralized VHMS provinces worldwide. The MRV comprise a thick sequence of dominantly submarine volcanic rocks interbedded with sedimentary rocks. They host the Hellyer, Que River, Rosebery, Hercules, Henty and Mount Lyell VHMS deposits. These deposits contain nearly 397 million tonnes of pre-mining resources and have a total in-ground value (2009) of approximately 79 billion Australian dollars.

It is possible that all the major deposits were formed more or less at the same time but within very different host volcanic units; however, the use of this concept in exploration is hampered by problems of correlation in areas between the well drilled and described successions that host the VHMS deposits. We have therefore been using geological mapping and drill core logging of the upper Central Volcanic Complex and overlying volcano-sedimentary sequences to establish regional- and local-scale stratigraphic relationships in the area between the Rosebery and Hellyer deposits.

In the north of the study area a normally graded polymictic mass-flow unit has been identified as a stratigraphic marker and can be traced along strike for at least 3.5 km. This unit overlies basaltic and dacitic rocks that are possible equivalents of lithologies in mineralized areas. Chemical and mineralogical studies will be used to contribute to a refined understanding of the geological setting of VHMS deposits in the MRV that can used to guide future exploration.