

The Cambrian unit in the Black Bluff area consists of rhyolitic lavas, intrusives, tuffs, dacitic andesitic lavas and tuffs and various volcanoclastic sediments (Weste, 1978).

The Ordovician rocks occur throughout the central portion of the licence. The Roland Conglomerate is a lenticular body of quartz conglomerate which varies in thickness from a few metres up to a maximum of about 300 m. The formation consists of thick beds of white, pink and purple quartz conglomerate interbedded with occasional thinner beds of white and pink quartzite. Except for the basal beds, the pebbles are almost exclusively siliceous, consisting of reef quartz, quartzite and quartz schist set in a dense, frequently recrystallized fine-grained siliceous matrix. The conglomerate is well sorted, sometimes showing a rough imbricate texture and rarely cross-bedded. The pebbles are almost always subrounded to rounded.

The basal beds near the unconformity sometimes reflect the composition of the underlying Cambrian rocks.

The Roland Conglomerate is overlain by a sequence of quartz sandstone and shale with minor grit and some conglomerate beds, called the Moina Sandstone. The formation is about 300 m thick, fine grained, dense and siliceous. It consists largely of quartzite and quartz sandstone with minor bands of shale, conglomerate and grit. Shaly bands are more common and thicker toward the top of the formation and conglomerate beds more common toward the base of the sequence.

Some beds in the Moina Sandstone contain abundant spherulitic pyrite. Characteristic also of the formation is the presence, in certain beds, of abundant worm burrows orientated at right angles to the bedding.

The Gordon Limestone conformably overlies the Moina Sandstone in preserved synclines throughout the area, at Moina, Taylors Flats, Lorinna and Liena.