The general stratigraphy of the map area consists of a Precambrian crystalline basement overlain by Paleozoic and Mesozoic sedimentary rocks, and Paleozoic and Mesozoic sedimentary rocks.

Major tributaries to the Animas River are shown in addition to the major Tertiary volcano-tectonic structures related to the Silverton and San Juan volcanic fields. The map area also includes the Silverton Volcanics (Oligocene) and the Crystal Lake Tuff (Oligocene).

The Silverton Volcanics are nonwelded to densely welded red-brown rhyolitic ash-flow tuff, with xenocrysts of sanidine and plagioclase. They erupted from the Silverton caldera and contain 5% phenocrysts of sanidine and plagioclase. The thickness of the Silverton Volcanics is 1,000 m.

The Crystal Lake Tuff is a phenocryst-poor, rhyolitic ash-flow tuff and related caldera-collapse deposits. They are often pervasive and disseminated throughout the groundmass and within microveinlets. This unit hosts much of the Precambrian crystalline basement.

The Bear Creek Formation is a quartz arenite with interbedded fossiliferous greenish-gray shale, sandstone, and conglomerate. The thickness of the Bear Creek Formation is 0–70 m.

The Animas River is a major tributary to the Animas River. The map shows the major Tertiary volcano-tectonic structures related to the Silverton and San Juan volcanic fields.