Traces of bedding shown locally to demonstrate internal structure in the rock layers. The Hogback Mountain thrust fault splays upward and eastward in a succession of imbricate sheets within thrust plates or complexly folded and faulted wedges bounded by normal faults. The fault is marked with a dashed line in the map. The Strike and dip of bedding are indicated, showing that beds in both limbs are overturned and dip away from the anticline. Unconformities are also marked, indicating periods of non-deposition. The Geological Map of the Hogback Mountain Quadrangle, Lewis and Clark and Meagher Counties, Montana, is used for a fold in which both limbs are inverted.

The Heath and Otter Formations, undivided (Upper Mississippian), are predominantly argillaceous rocks, with siltstone interbedded with sandstone. The Sawtooth Formation consists of sandstone and siltstone with discontinuous very thin basal conglomerate, light brownish orange to light gray. The Swift Formation is characterized by sandstone and siltstone with cross-laminated and laminated layers that split flaggy. The Ellis Group is approximately 134–168 meters thick and includes the Meagher Formation and the Kibbey Formation. The Meagher Formation is composed of limestone, with limestone and dolostone breccia at the base, yellowish gray, pale-grayish-red, and grayish-red calcareous rocks, and thickens eastward in progressively lower thrust plates. The Kibbey Formation includes the Meagher Limestone (Middle Cambrian) and the Belt Supergroup (Middle Proterozoic). The Belt Supergroup is a major rock unit composed of sedimentary rocks that range in age from Middle Proterozoic (about 1,400 million years B.P.) to Recent. It includes the Amsden Formation, Jurassic strata, and Cretaceous Kootenai Formation, which originated in nonmarine continental environments.

The Phosphoria Formation (Permian) is characterized by chert; light brownish orange; weathers same; cross-laminated and laminated; splits flaggy. The Clark tectonic zone includes the Heath and Otter Formations, with phosphoria formation (Permian) and the Little Mountains. The strike and dip of the rocks are shown with arrows, indicating the orientation of the layers. The tectonic zone includes the Heath and Otter Formations, with phosphoria formation (Permian) and the Little Mountains. The strike and dip of the rocks are shown with arrows, indicating the orientation of the layers.