

DORSET LOCAL GEOLOGICAL SITES SURVEY

Site number GSY58/14

Site name Red Lane quarry, Abbotsbury

Summary description

Jurassic, Kimmeridge Clay Passage Beds, Abbotsbury Iron Ore.

The Abbotsbury Iron Ore is a unique deposit within the *Cymodoce* zone of the Kimmeridge Clay. It consists of an iron rich oolitic clayey sandstone. The section is cut by horizontal and vertical iron rich veins. The sediments yield fossil wood, bivalves, worms and brachiopods, indicating a shallow water nearshore environment, such as a subtidal barrier bar. This section was cut in the late 19th century in the course of an attempt to exploit the iron ore. The ore is in the form of chamosite, and proved to contain too much silica to be economically viable.

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On entering the site there are exposures of rock on the west side of the quarry running approximately NW-SE. Going north-west, this face merges into the original landscape – a valley running approximately WNW-ESE. This valley is steeply cut into the ironstone with good exposures on its southern side. It is here, at the western end of the site that the most complete section is exposed in an almost vertical valley side.

Visit to site on 22.6.1997. Section recorded by Dr. Mike Cosgrove and Steve Etches.

The following section was measured – (Dip 25- 33° on a bearing of 190°)

	Metres	
Oolitic ironstone	2.00+	(estimated thickness, not closely examined as inaccessible).
Oolitic ironstone	2.70	well developed millet-seed-like dark coloured ooliths in a sandy matrix, the whole weathered to a rich brown. Scattered fossils but also well defined clusters. One layer 2.40m above base with <i>Rasenia</i> ammonites, gastropods, brachiopods and bivalves.
Hard sandstone	0.80	Four well-cemented sandstone beds with intervening relatively unconsolidated sand. Quartz and mud clasts (small lumps within the bed). Deep red-brown colour weathering ochreous (yellowish). Some gastropods and bivalves.
Soft sandstone	0.80+	(base not seen). Friable. Sub-mm sand grains in a finer matrix. Yellowish brown.
Total	6.30+	

Towards the quarry entrance, the upper 2m of the measured section forms the exposed western face. This shows well-developed dark millet-seed-like ooliths in a sandy matrix with dark red-brown veins cutting across the bedding. The latter tend to resist the erosion of the softer host rock which is weathered ochreous. The section yielded *Rasenia*, well-preserved wood (lignite) bivalves, gastropods and brachiopods.

In all there is some 100m of exposed quarry/valley side. The valley side opposite the near-vertical measured section showed only poorly exposed and weathered soft deposits. This lack of matching exposures across the valley suggests that the valley follows the course of a fault. Mike Cosgrove July 1997.

In May 1872 the Earl of Ilchester granted a lease to Chas Moore of the city of Bath for the extraction of iron ore. A letter of 13th Jan 1871 states that best ore has only 30% iron, top part only 20 - 24%, and will be returned to the ground. At first a tramway was proposed to take the ore to the beach, but eventually a branch railway was built from Upwey. However, the ore proved to contain too much silica and the extraction was abandoned.

The OS map of 1888 shows a tramway built from the Upwey direction, including a branch from Portesham quarry, close to a working marked Shale Works. The Victoria County History states that iron ore may have been quarried in the medieval period, but there is no documentary evidence.

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