

KERRY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Red Cliff
Other names used for site	
IGH THEME	IGH10 Devonian, IGH7 Quaternary
TOWNLAND(S)	Ardrinane
NEAREST TOWN/VILLAGE	Annascaul
SIX INCH MAP NUMBER	55
ITM CO-ORDINATES	460280E 600230N
1:50,000 O.S. SHEET NUMBER	70, 71
GSi BEDROCK 1:100,000 SHEET NO.	20
GIS CODE	KY070

Outline Site Description

A deep road cutting adjacent to the coastline, south of Annascaul.

Geological System/Age and Primary Rock Type

The bedrock comprises sandstone of the mid-Devonian Kilmurry Sandstone Formation (c. 385 million years old). The till deposits above the cliff section date from the last Ice Age during the Quaternary Period, while the solifluction structures are periglacial in origin, dating from a cold phase towards the end of the same Ice Age.

Main Geological or Geomorphological Interest

The Kilmurry Formation comprises pale red sandstones that have been interpreted as aeolian in origin, *i.e.* deposited as sand dunes. The Red Cliff outcrop, on the north side of the R561 road, is one of a number of locations in Dingle where the large-scale cross bedding that is a feature of the formation is well displayed. The Kilmurry Formation is considered to represent an ancient dune field and the cross-bedding is interpreted to have been formed by a series of migrating sand dunes, with erosion causing truncation of the dune bedding of one set of dunes followed by deposition, on top of the truncated set, of a further set of dunes. The Kilmurry Formation is considered to represent a sedimentary environment downstream of the alluvial fans of the older, underlying Inch Conglomerate Formation. At Red Cliff, two sets of dune beds are very well exposed approximately 300 m west of a small lay-by popular as a viewing point over Dingle Bay.

Closer to the lay-by the roadside outcrops display some interesting Quaternary features. A relatively thin layer of Quaternary age till (diamict) overlies the bedrock, which is broken and folded immediately below the contact with the till. The deformation observed in the bedrock is a consequence of *solifluction*, the downslope mass movement of soil. The solifluction is a periglacial feature, *i.e.* not a consequence of direct ice action, but rather of the very cold conditions preceding or following an Ice Age. The pressure of the downslope movement of the soil has deformed the sandstone beds in the upper parts of the outcrop.

Site Importance – County Geological Site

This is a good and readily accessible site for examining the aeolian sandstones of the Kilmurry Formation and its characteristic large-scale cross-bedding. The periglacial features provide some additional interest.

Management/promotion issues

The site is on the north side of the R561 road and within the Dingle Peninsula SPA (site code 004153). The outcrop is immediately adjacent the road and must be considered to be vulnerable to future road-widening plans, albeit the R561 is a relatively modern road. The lay-by presents an opportunity for a signboard or QR code-linked digital equivalent outlining the geology of the site and the development of the Kilmurry Formation dune structures. Caution should be exercised when viewing these outcrops as the R561 road can be very busy, particularly in summer.



General view eastwards of Red Cliff road cutting at bend in road: steeply-dipping beds of aeolian or dune sandstone of the Kilmurry Sandstone Formation that display large-scale cross-bedding.



Close-up of Red Cliff road cutting at bend in road: steeply dipping beds (foresets) (dashed yellow line to illustrate), truncated by less steeply inclined erosional surfaces (dashed red lines).



Close-up of Red Cliff road cutting at bend in road: steeply dipping beds (foresets) (dashed yellow line to illustrate), truncated by less steeply inclined erosional surfaces (dashed red lines).



Road cutting at Red Cliff, east of the road bend, showing bending and extensive shattering and break-up of sandstone beds in contact with overlying glacial till in response to solifluction.



Road cutting at Red Cliff, close to lay-by east of the road bend, showing bending and extensive shattering and break-up of sandstone beds in contact with overlying glacial till in response to solifluction.

