

MAYO - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Keem Bay, Achill Island
Other names used for site	
IGH THEME	IGH6 Mineralogy
TOWNLAND(S)	Keel West
NEAREST TOWN/VILLAGE	Dooagh/Keel
SIX INCH MAP NUMBER	53
ITM CO-ORDINATES	456380E 804610N
1:50,000 O.S. SHEET NO. 30	GS1 BEDROCK 1:100,000 SHEET NO. 6
GIS Code MO062	

Outline Site Description

The site comprises an extraction pit by the road to Keem Beach at the very west of Achill Island.

Geological System/Age and Primary Rock Type

Bedrock consists of Dalradian Supergroup (late Neoproterozoic age; c. 750–600 million years ago) quartz conglomerates and schists of the Keem Conglomerate Formation.

Main Geological or Geomorphological Interest

The amethyst from Achill has been featuring in mineral collections since Victorian times. The outcrop was exposed during the construction of the road to Keem Strand. The vein occurs in a 300m thick sequence (Keem Conglomerate Formation) of metamorphosed sedimentary rocks including psammites, pebbly psammites and cobble-size conglomerates. Heavy mineral bands (magnetite-zircon) also occur in the formation.

Amethyst is a variety of quartz (SiO₂). Varieties of amethyst discovered at the site have included purple, violet-blue and red coloured specimens. Individual amethyst crystals have measured several centimeters in width. Road-widening work carried out in the 1960s exposed new sections of bedrock, which subsequently encouraged renewed public interest in the site as a mineral collection site. Much of the vein has been extracted, though very tiny fragments can still be found. A report by mineralogist Sir Charles Lewis Giesecke (1761-1833) on the minerals in County Mayo published in 1826 described the vein as being over half a meter wide in places. The locality has been confused with the quartz mining operation on the nearby western slopes of Slievemore, which contained an estimated 85,000 tons of quartz.

The bedrock outcrop has for a long time been covered by slumped soils although specimens of the various quartz types can be found with diligent searching. The 2004 edition of the UK Journal of Mines and Minerals contains a photograph of a relatively recent specimen of well-formed amethyst with a coating of smaller drusy rock crystal.

Site Importance – County Geological Site, recommended for Geological NHA

The site is often described as Ireland's best location for the mineral amethyst. It is recommended for designation as a geological NHA. Achill amethyst can be found in numerous major collections throughout the world. This site is located within the Keem Bay to Rusheen Bay CGS.

Management/promotion issues

This is a very scenic location, situated above Keem Bay. Following successive attempts to extract the mineral, there is little amethyst to be seen at the site (a mechanical digger was used in the past to systematically dig into bedrock). The site is not deemed suitable for public promotion owing to the obscurity, or even lack of, the obvious attraction: amethyst. Any further large scale workings of site should be prohibited.



Keem Bay viewed from approach road, looking west. Amethyst location indicated by arrow.



Vein extraction workings (from 1960s) below the road to Keem Beach. Vein quarry located to right of road.



Extraction workings below the road to Keem Beach, looking east towards Doega Head cliffs.

