NORTH DONEGAL - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE Other names used for site IGH THEME TOWNLAND(S) NEAREST TOWN/VILLAGE SIX INCH MAP NUMBER ITM CO-ORDINATES 1:50,000 O.S. SHEET NUMBER 2 GIS Code ND033 Horn Head Slide Mickey's Hole IGH5 Precambrian Claggan Dunfanaghy 15 598775E 940044N GSI 1:100,000 Bedrock Sheet No. 1

Outline Site Description

This site comprises a 20–30m-high coastal cliff section on the western side of the Horn Head peninsula and the cliff-top platform above.

Geological System/Age and Primary Rock Type

The rocks are part of the Precambrian Dalradian Appin Group. Pelites of the inverted Ards Pelite Formation are thrust northwards over quartzite of the Ards Quartzite Formation.

Main Geological or Geomorphological Interest

A series of five major ductile tectonic slides or thrust faults is a key feature of the Dalradian geology of north Donegal. The slides are part of the regional D2 deformation attributed to subduction on the margin of the lapetus Ocean during the early-Ordovician Grampian orogeny. Thrusting in a northwestwards direction along these slides created a series of four thrust nappes, blocks of crust separated by thrust faults, stacked one upon another. The Horn Head Slide strikes east–west across the Horn Head peninsula. It is spectacularly well exposed at Mickey's Hole on the west coast.

The slide is very clearly exposed in the vertical cliff face above Mickey's Hole, easily visible from the south side of the inlet. On the cliff-top platform north of the inlet the slide has brought the cream-coloured quartzite into stark contact with the dark grey pelites. Quartzite immediately below the slide is intensely cleaved with a strong platy character. With increasing stratigraphic distance from the slide, the quartzite beds become thicker and more massive and sedimentary structures are visible. Dolerite sills north of the slide also show some intense deformation fabrics. Later D3 deformation has superimposed F3 folds and an axial planar schistosity.

Site Importance – County Geological Site; recommended for Geological NHA

This is an exposure of one of the five principal slides along which thrusting has led to the development of a series of stacked thrust nappes in the Dalradian rocks of north Donegal. The exposure at Mickey's Hole has been described as the best exposed example of a ductile thrust in Ireland or Britain, and possibly in Europe. It has long been a favoured destination for professional and student geological field trips. The site is immediately north of the Rough Point Sill site and together they present an excellent traverse through several key aspects of the geology of the Dalradian of Donegal.

Management/promotion issues

The site is reached by crossing private farmland used for grazing sheep and cattle. The site is very well known among members of the geological community and requires no further promotion in that context. Inclusion within geological heritage literature for the region could be considered.



Horn Head Slide: contact between dark grey pelites (upper right) and cream-coloured quartzite (below and left) clearly seen in cliff-face at Mickey's Hole (inlet in front of cliff).



Cleaved quartzite below grey pelites overthrust along the Horn Head Slide. View to northeast.



F3 fold in quartzite above slide, with fold axial plane dipping to northwest (left)



Hennessy et al. 2019. Geological Survey Ireland.