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 3 GIS Code ND003 Malin Flat Malin postglacial flat IGH7 Quaternary Norrira, Balleelaghan, Goorey Malin 4 645350E 950250N (at centre of feature) GSI BEDROCK 1:100,000 SHEET NO. 1

Outline Site Description

A low-lying, exceptionally level tract of coastal land on the northern margin of Trawbreaga Bay, between Malin village and Balleelaghan, bounded by the R242 on its northeastern side.

Geological System/Age and Primary Rock Type

The raised coastal platform is Quaternary in age and formed since the last Ice Age during the Holocene, or post-glacial, period. The beach flat is cut mainly in schists.

Main Geological or Geomorphological Interest

This post-glacial marine flat is exceptionally level and low-lying (elevation 2m-5m), and has no relief except for the isolated sea-stacks and fossil cliffs. The isolated fossil sea-stacks (often covered by wooded copses), are separated by swash gullies, cobble beach flats and low beach ridges. Collectively, these features represent a post-glacial (in the last 12,000 years ago) shoreline that abutted an adjacent marine flat, probably similar to the present-day shoreline of Trawbreaga Bay. The fossil sea stacks protrude as rocky knobs up to 4m-8m high.

Found along the Donegal and the north of Ireland coast, raised shorelines such as this have been elevated above the adjacent shoreline by a relative fall in sea-level. Throughout the last major Ice Age, the land surface was depressed under the weight of the ice. The drop in sea-level (relative to the land) is a response to a general upward rebounding of the land following the retreat, and eventual disappearance in Ireland of the thick ice-sheets after the last Ice Age when the great weight of the ice was removed.

Site Importance – County Geological Site; recommended for Geological NHA

Scientifically, the site records former higher post-glacial sea level and is a pristine example of an extensive planated shoreface, together with isolated sea stacks, fossil cliffs and intervening swash gullies. The majority of the site already occurs within the North Inishowen Coast SPA/SAC/NHA (002012). The geomorphological importance should be highlighted within this designation and in any promotion of these designations.

Management/promotion issues

This area of actively mainly pasture land is along a scenic stretch of the Trawbreaga Bay shoreline. The traditional pattern of farming has worked 'around' the sea-stacks and cliffs, and damage/removal is unlikely. Housing development (owing to the proximity to Malin village) is a threat along this scenic area. Sea stacks and cliff features are situated on private land, and the promotion of the site does not require access to the features – the site should be considered as a whole. The tidal area along the shoreline is licensed for the cultivation of oysters, the operations of which are not considered to affect the site.



Fossil cliffs and sea stack in field beside farm buildings looking N from R242-L5191 junction.



Flat coastal landscape between R242 and Trawbreaga Bay (Balleelaghan and Norrira townlands) looking northwest.



Fossil sea stacks covered in tree copses (645800E 950200N).



Flat landscape between R242 and Trawbreaga Bay shoreline in Balleelaghan and Norrira townlands looking southeast.



Hennessy et al. 2019. Geological Survey Ireland.