

NORTH DONEGAL - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Carndonagh Fan
Other names used for site	Carndonagh Flat, Carndonagh Late Glacial Fan
IGH THEME	IGH7 Quaternary
TOWNLAND(S)	Carndonagh, Glenmakee, Glebe, Churchland Quarters, Gort Glebe, Carrowreagh, Magheradrumman, Tullanree, Carrickafodan, Cashel, Drumaville, Drumballycaslan, Drumcarbit, Carrowmore (part), Norrira (part)
NEAREST TOWN/VILLAGE	Carndonagh
SIX INCH MAP NUMBER	11
ITM CO-ORDINATES	646106E 947172N (crossroads north of Tirnaleague)
1:50,000 O.S. SHEET NUMBER 3	GSi BEDROCK 1:100,000 SHEET NO. 1
GIS Code ND014	

Outline Site Description

A low-lying landscape underlain by sand and gravels extending north from Carndonagh to the head of Trawbreaga Bay.

Geological System/Age and Primary Rock Type

The feature is Quaternary in age, having formed between at least 17,000 and 14,000 years ago, during the closing stages of the last Ice Age. Most of the sands and gravels are overlain by peat deposits, formed in the last 10,000 years (Holocene), and by similar aged alluvium deposits alongside river courses. The gravels comprise a variety of rock types, including diorite, schist, quartz, coarse and fine grained metamorphic grits, burnt and unburnt chalk flints, chalk, basalt and granite.

Main Geological or Geomorphological Interest

Somewhat elusive as an 'identifiable' landscape feature, Carndonagh Fan is the flat low-lying land that slopes gently northwards from Carndonagh town to Trawbreaga Bay, covering an area of c. 12km². The feature is formed of poorly-sorted gravels on the southern margins (near Carndonagh), with old gravel pits along the R238 Carndonagh-Malin road, and fine-grained marine muds at the northern end of the flat near the head of Trawbreaga Bay (see Corvish CGS report). Depressions in this low-lying landscape seen to the northeast of the town have been interpreted as ice contact depressions and kettle holes. The feature has been dissected deeply by the Glennagannon River and Donagh River, and exhibits fine Holocene terraces and alluvial floodplains up to 250m wide. Radiocarbon dating (AMS C₁₄) of microfaunas in the marine muds at Corvish indicates that initial deglaciation of the continental shelf occurred prior to 17,000 years ago. Muds and sands overlying the aforementioned fossiliferous marine muds indicate that an ice sheet re-advanced northwards into Trawbreaga Bay, as far north as Ballycramsey c. 15,000 years ago. A 2m thick section of marine muds just north of Carndonagh (and at Corvish) has been interpreted as marking the final ice-withdrawal and deglaciation of the Inishowen Peninsula around 14,000 years ago.

Site Importance – County Geological Site

This County Geological Site is a very fine example of a low fan-shaped outwash feature. The feature is an important groundwater body and is the main water supply source for Carndonagh town and nearby areas.

Management/promotion issues

Urban sprawl north from Carndonagh, and isolated new dwellings off the R238 road to Malin, are impacting on the flat appearance of the feature. Its national significance in terms of understanding environmental change towards the end of the last glaciation should be highlighted in any literature or educational material relating to the region.



Drainage ditch (July 2014) at southeastern side of Tirnaleague crossroads (646100N 947160E) exposing muds, sands and gravels.



View over Carndonagh Fan from Church at Tullanree, looking northwest. Trawbreaga Bay in distance.



Sand and gravel exposed in drainage ditch near Tirnaleague crossroads.



Alluvial sand and gravel bar on Glenagannon River (647920 947200) near Strawbridge Bridge.

