GALWAY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Gortgarrow Spring**
Other names used for site	
IGH THEME	**IGH1 Karst, IGH16 Hydrogeology**
TOWNLAND(S)	**Gortgarrow**
NEAREST TOWN/VILLAGE	**Clonbern, Glenamaddy**
SIX INCH MAP NUMBER	**18**
ITM CO-ORDINATES	**557100E 759565N (spring emergence)**
1:50,000 O.S. SHEET No. 39	**GSI BEDROCK 1:100,000 SHEET NO. 11**

Outline Site Description
This site comprises the water supply compound around a large karstic spring, emerging at the southern edge of an extensive peat bog southwest of Glenamaddy.

Geological System/Age and Primary Rock Type
The spring is of karstic origin, formed in pure bedded limestones of the Knockmaa and Corranellistrum Formations, which are of Lower Carboniferous age.

Main Geological or Geomorphological Interest
The limestone across a wide area in northeast Galway comprises well bedded, well-jointed, pale, clean, coarse grained rock, with occasional thin shales. A large spring was known historically at this locality at Gortgarrow, which has then been used as a water supply source for the last forty years. Four other relatively large springs also occur in the vicinity of the site.

At these springs, groundwater emerges from the bedrock and filters through esker gravels and peat; bedrock is a number of metres from the surface and depths vary markedly over short distances, as revealed by a geophysical survey of the locality. In the Gortgarrow area the Viséan limestone aquifer is highly karstified, as illustrated by the high number of karst features, tracer test results and geophysical investigations carried out around the springs.

Water sinking into swallow holes at Tullaghaun, 6 km to the southeast, and at the base of Kiltullagh Lough, over 3 km to the east, has been traced to emerge at the springs at Gortgarrow. This point recharge allows the springs to respond rapidly to rainfall, and the tracer test recorded a response time of five to six days for the five springs, while temperature and conductivity measurements suggest a response time of one day associated with surface water in Kiltullagh Lough.

Continual monitoring of daily overflows has been undertaken by the EPA at Gortgarrow since 2008. These data indicate an annual discharge of approximately 4.2 million cubic metres per year, which averages a mean daily discharge of just under 12,000 m^3.

Site Importance – County Geological Site
This spring is worthy of recognition as a County Geological Site owing to the very detailed mapping and modelling that led to the delineation of its zone of contribution and Source Protection Zones in the early-2000s. This is potentially one of the best-studied spring localities in the country.

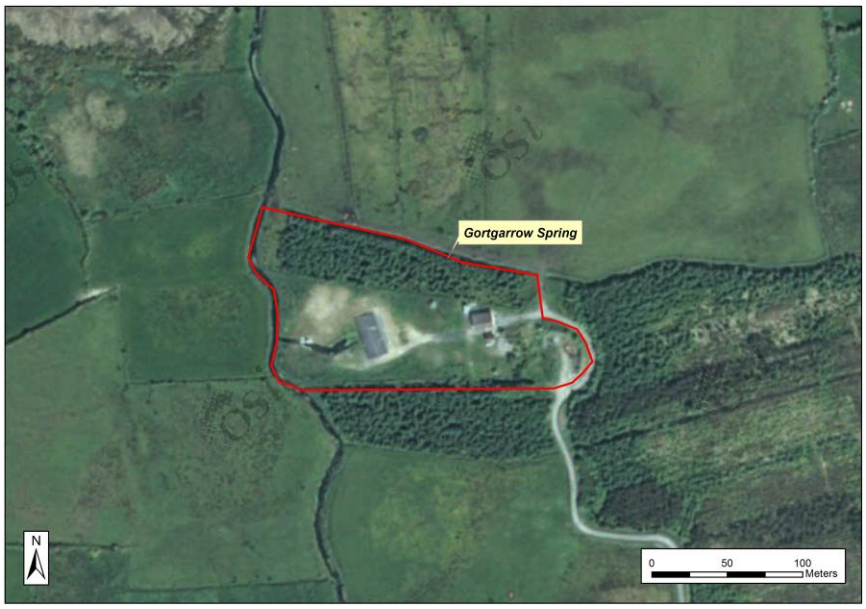
Management/promotion issues
The site is securely fenced off within its own compound, and the spring is surrounded by a wide, roofed chamber and is now almost completely covered over. Being a secure water supply vulnerable to contamination, the general promotion of the locality is not recommended. General education about the vulnerability of karst groundwater supplies to pollution from septic tanks and agricultural slurry spills and bad spreading practices is highly advisable.

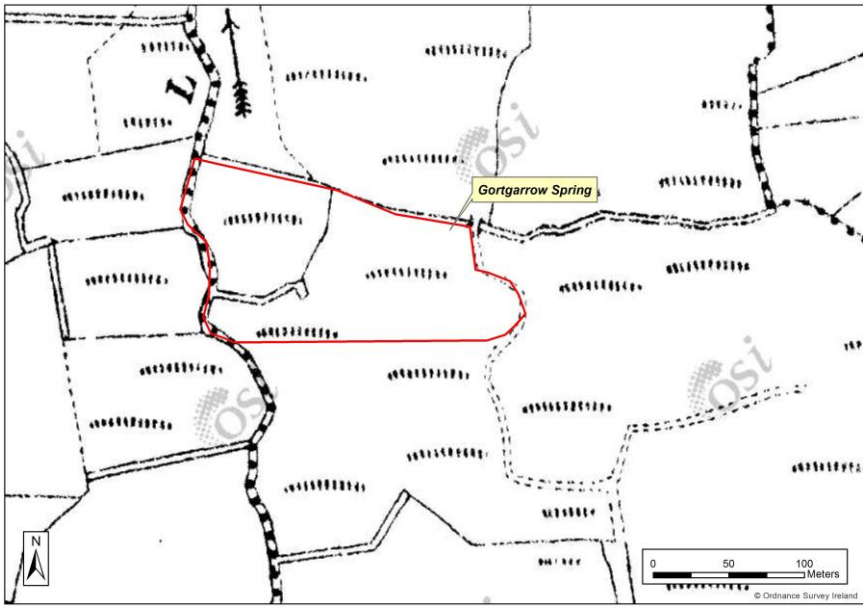
Gortgarrow Spring emerging from sump, viewed from the west, September 2007.

One of the water treatment tanks within the spring compound, July 2018.

The weir for measuring spring overflows at Gortgarrow, July 2018.

Slight greening of the spring water following dye injection at Kiltullagh Lough, July 2010.





Meehan et al. 2019. Geological Survey Ireland.