

MONAGHAN - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Knocknacran Gypsum Mine
Other names used for site	Knocknacran
IGH THEME	IGH9 Upper Carboniferous and Permian, IGH15 Economic Geology; IGH7 Quaternary
TOWNLAND(S)	Drummond, Derrynascore, Knocknacran West, Knocknacran East, Derrynaglah
NEAREST TOWN/VILLAGE	Carrickmacross
SIX INCH MAP NUMBER	34
ITM CO-ORDINATES	680985E 799515N (centre of quarry)
1:50,000 O.S. SHEET NUMBER	35 GSI BEDROCK 1:100,000 SHEET NO. 8/9

Outline Site Description

This is a large open-cast gypsum mine, with numerous intersections into old underground mine workings. It is probably the largest man-made excavation in Ireland.

Geological System/Age and Primary Rock Type

The Kingscourt Gypsum Formation is of Permian age.

Main Geological or Geomorphological Interest

Aside from some sections in County Antrim, especially in coastal sites, rocks of Permian or Triassic age are very rare on the island of Ireland. The outlier (younger rocks surrounded entirely by older rocks) to the east of Kingscourt is the only significant example. It is a small half graben – the rocks have been downthrown on one side of a large fault structure. Vertical movement on the fault may have been as much as 2100m.

Two formations occur in this basin, with a total thickness of up to 550m. The lowest formation is the Kingscourt Gypsum Formation, which comprises mostly mudstones, but also contains two major gypsum units. The lower 20–35m-thick gypsum unit is separated by red mudstones from the 6-10m-thick upper gypsum unit. These units are both mined at Knocknacran. Overburden is removed to access the gypsum, and the worked out the resulting space is then backfilled with overburden. The open cast is nearing the end of its life because, as the beds of gypsum dip to greater depths below the surface, removing overburden becomes too expensive. A new underground mine, Drummond Mine, is now operational and will replace open-cast mining. The open cast already intersects former underground mine workings from the Drumgoosah Mine.

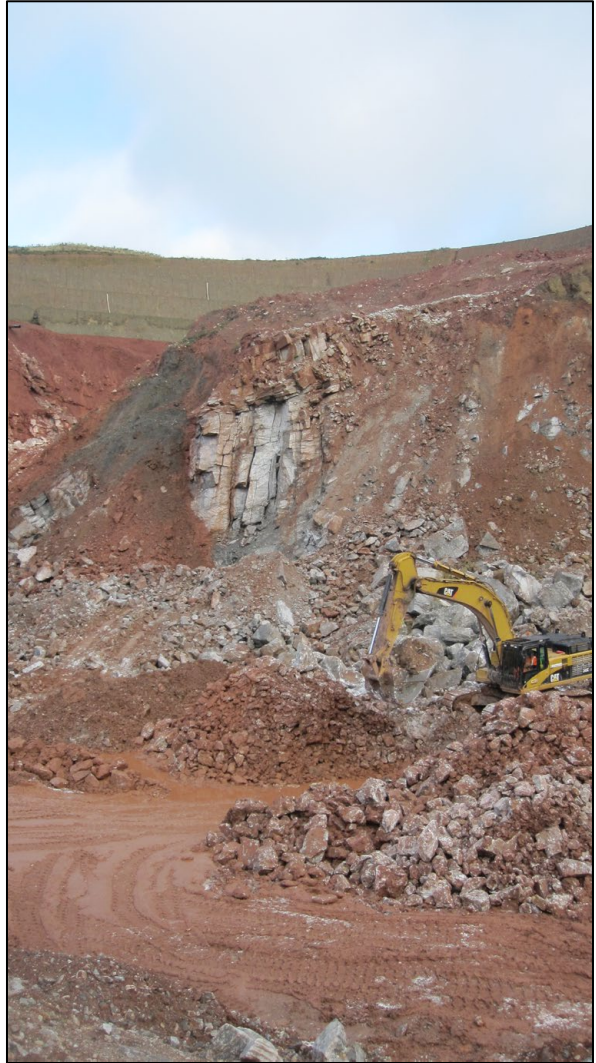
Excavation of the open cast has previously opened some sections through interglacial deposits that are preserved within karstic depressions (dolines) in the gypsum, which is quite soluble in rainwater. Large tree trunks and pollen in these peaty deposits have given very important data on interglacial periods, which rarely leave a record. In addition, exposure of an inland cutting, up to 50m deep, into till forming a drumlin, is unusual in itself.

Site Importance – County Geological Site; may be recommended for Geological NHA

The long history of gypsum mining in this district is demonstrated in the site by the pillars and stalls of the former mine. The Kingscourt gypsum deposit has fuelled the construction industry demand for cement, plaster and plasterboard as well as minor applications like mushroom compost. It is an economic mineral deposit of considerable importance to Ireland.

Management/promotion issues

The mines, both Knocknacran and Drummond, are unsuitable for promotion, unless the company (Gypsum Industries (Ireland) Ltd, part of the Saint Gobain Group) elected to install public viewing or other safe facilities as a PR exercise. The open-cast mine will be closed in the near future, but dewatering of the Drummond Mine for the duration of its working life may keep some faces at the northeastern end visible for a couple of decades or more. Once pumping of mine water ceases the remaining pit will flood.



Left: Gypsum beds with a karstic doline filled with interglacial peat and a glacial till overburden in benches above. Right: Gypsum rock being broken for loading, after blasting.



Two gypsum horizons are visible with old mine workings (pillars and stalls) intersected within the lower, thicker bed.

