GALWAY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Lough Nahasleam**
Other names used for site	
IGH THEME	**IGH5 Precambrian, IGH11 Igneous intrusions**
TOWNLAND(S)	**Knockaphreaghaun**
NEAREST TOWN/VILLAGE	**Maam Cross**
SIX INCH MAP NUMBER	**53**
ITM CO-ORDINATES	**497520E 743810N**
1:50,000 O.S. SHEET No. 45	**GSI BEDROCK 1:100,000 SHEET NO. 10**

Outline Site Description
This site comprises several large outcrops in a bog, close to road.

Geological System/Age and Primary Rock Type
Dalradian schists that have undergone migmatization during high-grade metamorphism. Ordovician granite gneiss, part of the 475 – 462 Ma Connemara Metagabbro and Orthogneiss Complex.

Main Geological or Geomorphological Interest
The Dalradian schists at this site display examples of migmatization, produced both by injection of igneous material and by partial melting of the original metasedimentary rock. The leucosomes in pelitic rocks are abundant and occur as veins and segregations typically a few millimetres to a few centimetres across. Coarser granitic or quartz- and feldspar-rich bodies represent injected material. Large euhedral pink garnets occur within pelitic lithologies at the site and formed during thermal metamorphism. Quartz diorite gneiss and K-feldspar gneiss are exposed south of the migmatite outcrops.

Migmatization is a consequence of melting of the pelitic material as well as injection of igneous material under conditions of D3 dynamic contact or thermal metamorphism within the inner aureole of the gabbro and granitic intrusions of the Ordovician magmatic arc. These igneous rocks were subsequently metamorphosed to metagabbros and gneisses that now form the Connemara Metagabbro and Gneiss complex. The contact between the schists and the gneiss complex, represented by quartz diorite gneiss and K feldspar gneiss, lies less than 300 m south of the migmatite outcrops.

Site Importance – County Geological Site
The site is not within any designated area although Lough Nahasleam itself and the area west of the road are part of the Connemara Bog Complex SAC and proposed NHA (site code 002034). This site contains excellent exposures of pelitic migmatites formed in the dynamic inner thermal aureole of the Ordovician magmatic arc that is now preserved as the Connemara Metagabbro and Gneiss complex. Coarse garnets formed during thermal metamorphism of the schists are well exposed. This is a significant County Geological Site.

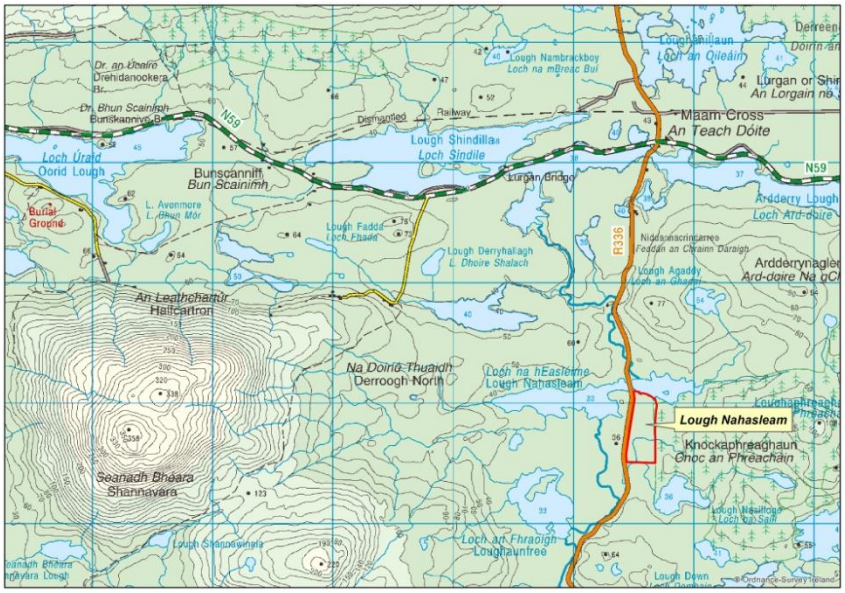
Management/promotion issues
To the east, the site is bounded by forestry. Turf cutting appears to be an ongoing activity on the site but neither it nor afforestation appear as likely threats to the site. The site is likely to be of interest mainly to researchers and students of geology and as such does not require promotion beyond that afforded by inclusion in this audit and any related publications.

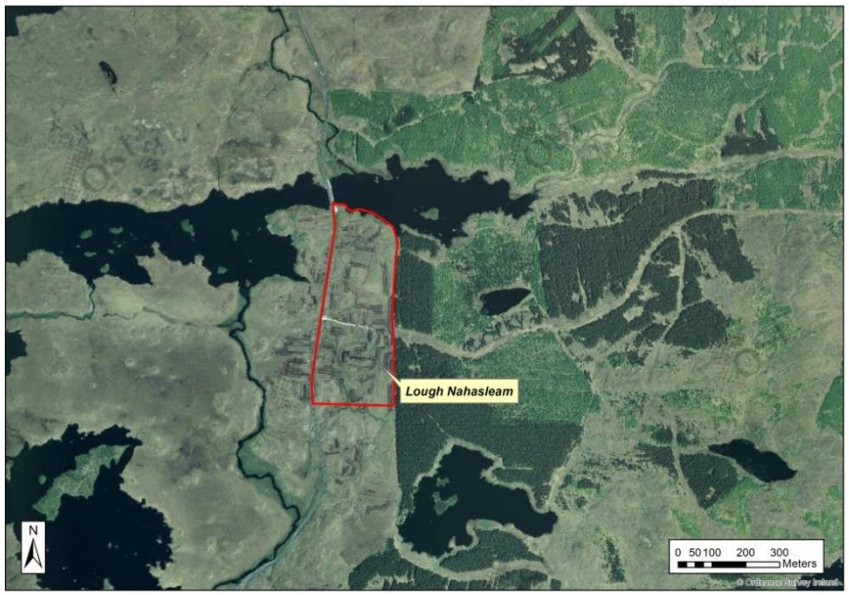
General view of main outcrops at Lough Nahasleam site, view north from forestry road.

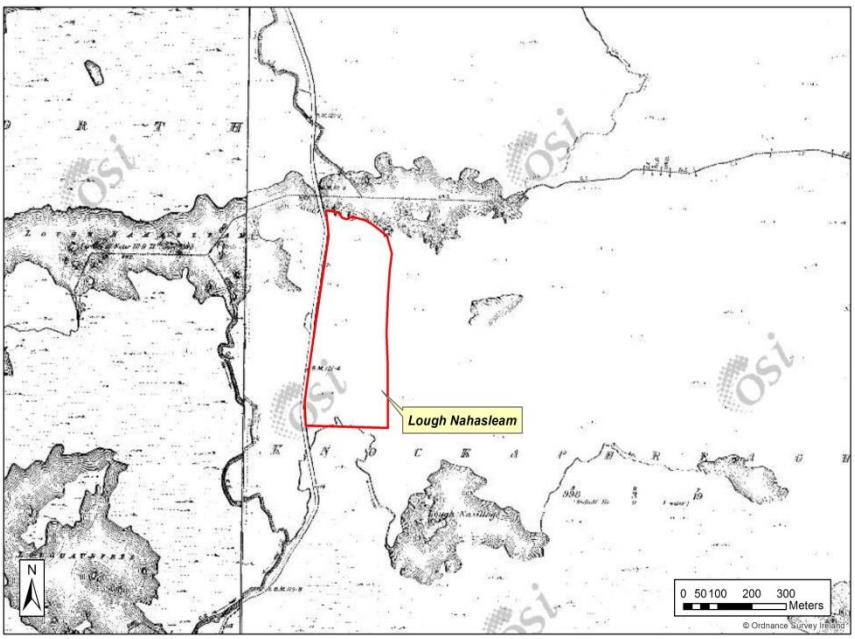
Pelitic migmatite displaying fine-grained quartz-feldspar leucosomes in intensely foliated pelite.

Resistant psammitic layers in migmatite zone show disrupted layering.

Abundant red garnets in pelite.







Meehan et al. 2019. Geological Survey Ireland.