WICKLOW - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Greystones (Appinite)**
Other names used for site	Greystones Harbour
IGH THEME	**IGH11 – Igneous Intrusions**
TOWNLAND(S)	**Rathdown Lower**
NEAREST TOWN/VILLAGE	**Greystones**
SIX INCH MAP NUMBER	**8**
ITM CO-ORDINATES	**729690E 712610N (appinite outcrop)**
1:50,000 O.S. SHEET NUMBER	**56 GSI BEDROCK 1:100,000 SHEET NO. 16**

Outline Site Description
A section of rocky coastline on the scenic and popular Greystones waterfront.

Geological System/Age and Primary Rock Type
The predominant rock type at Greystones are the Cambrian age meta-sedimentary Bray Group greywackes. The coarse-grained hornblende-rich appinite rocks were emplaced into the Cambrian rocks either at the same time as, or just before, the emplacement of the main Leinster Granite, 405 million years ago (Devonian). The Greystones appinites are described as hornblende lamprophyre dykes in some geological literature.

Main Geological or Geomorphological Interest
Part of a suite of Late Caledonian appinite intrusions associated with the Leinster Granite, the Greystones appinites are dark-grey coloured igneous rocks that occur (for about 50m, east-west) within the rocky Greystones waterfront, to the south of the harbour. The location of the appinite dykes is marked by a conspicuous eroded gully cut into the rocky coastline at the north end of the 'grey stones'. The appinites were intruded (squeezed into bedrock or crust) into the greywackes around 405 million years ago. Appinites are ultrabasic igneous rocks that crystalise from molten magma that is rich is water. The intrusion appears as two sills that are separated by a U-bend fold (syncline) in the greywackes, and roughly follows the same bedding patterns of the greywackes.

The appinitic rocks comprise dark medium-to-coarse textured rock composed of the minerals hornblende and biotite, set in a groundmass of the minerals plagioclase, orthoclase, and quartz. Contact (thermal) metamorphism (when hot rocks are squeezed into and alter or 'bake' the cooler rocks) is evident in the greywacke rocks alongside and in contact with the appinites. The appinite dykes occur around five kilometres east of, and quite remote from, the eastern margin of the Leinster Granites. Xenoliths (large rock fragments torn from the walls of the magma chamber) up to a metre in length are present in the Greystones appinites. The Cambrian greywackes are understood to be the origin of the town's name.

Site Importance – County Geological Site
Easy to access at low tide, the appinites at Greystones are fine examples of igneous rocks intruded into older (immediately adjacent) meta-sedimentary rocks. The appinites exhibit very well-developed hornblende crystals which are clearly visible with the naked-eye. One of at least 18 appinites bodies that comprise a sub-group of Caledonian igneous intrusions in the region, Greystones represents one of the best sites for appinite rocks in Wicklow.

Management/promotion issues
The site is on the rocky section of the Greystones waterfront, alongside a scenic and popular amenity area. The features are not deemed to be of significant public interest, as access to the appinite outcrops requires a shoreline scramble. There are no apparent threats to this site. However, a smaller appinitic body previously exposed near the harbour to the north has been obscured by harbour developments.

Appinite outcrops (dark) in the gully below road level.

Appinite – close-up.

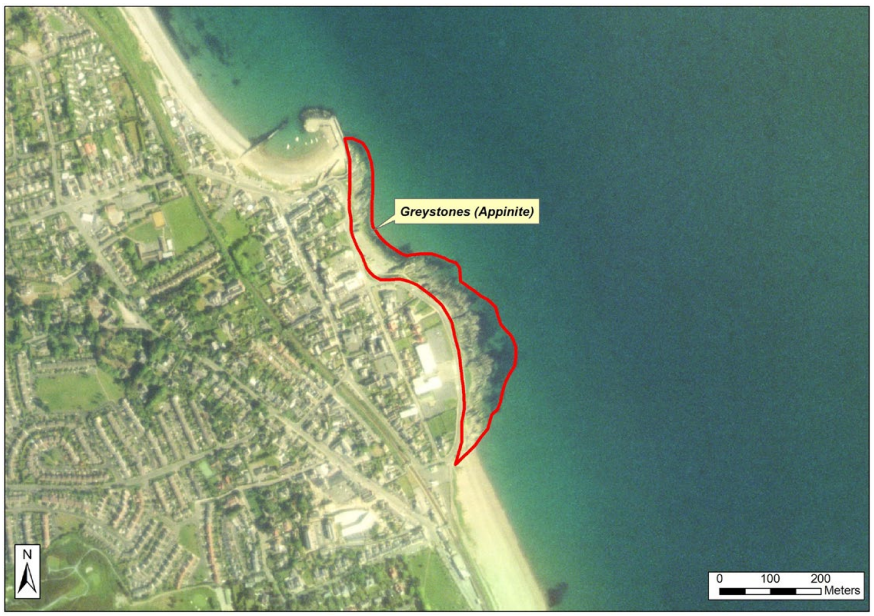
View eastwards from the head of gully where appinites are exposed on both sides.

View westwards at gully (left) where appinites are exposed. Strata folded into syncline to right (north).

The “Grey Stones” – looking south along coast towards Cobbler Bulk.

Bray Head, viewed looking north along coast from near location of appinite outcrop.


Rathdown
Redford
Redford Br.
Church
16MP
GREYSTONES
Na Clocha Liatha
Greystones (Appinite)
Fire Stn
Coast & Cliff Rescue
agad
Blacklion
Sch
The Grey Stones
PO
17MP
Castle
18


Greystones (Appinite)
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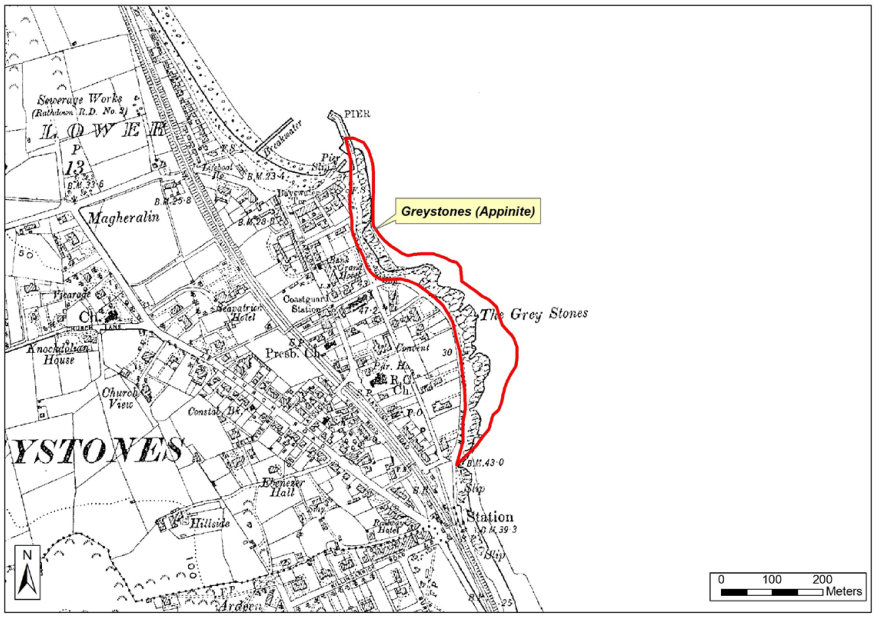
Meters


Sewerage Works
PIER
Greystones (Appinite)
Magheralin
The Grey Stones
Presb. Ch
Church View
Station
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