DUN LAOGHAIRE - RATHDOWN – COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Killiney Bay**
Other names used for site	Killiney section, Shanganagh Cliffs
IGH THEME	**IGH7 Quaternary**
TOWNLAND(S)	**Killiney, Hackettsland, Shanganagh, Cork Little, Cork Great**
NEAREST TOWN/VILLAGE	**Killiney, Shankill (Dun Laoghaire-Rathdown) Bray (Wicklow)**
SIX INCH MAP NUMBER	**23, 26**
ITM CO-ORDINATES	**726080E 722465N (Corbawn Lane beach entrance)**
1:50,000 O.S. SHEET NUMBER	**50, 56 GSI BEDROCK 1:100,000 SHEET NO. 16**

Outline Site Description
Along Killiney Bay, a 5km coastal section exposes a succession of several units of glacial till, separated in places by sand and gravel.

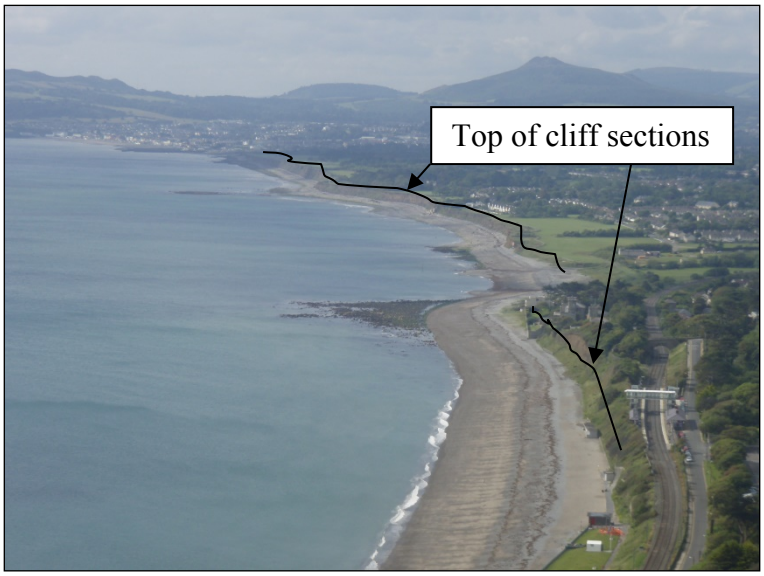
Geological System/Age and Primary Rock Type,
The till itself was deposited at the base of the last ice sheet to cover the area, during the late Quaternary Period, approximately 20,000 years ago. This till is deep in the locality but the sediments overlie slate and mica-schist bedrock of Ordovician age.

Main Geological or Geomorphological Interest
This sequence of sediments is one of the most renowned in Irish Quaternary literature and has been interpreted as 'glaciomarine' in origin (*i.e*. deposited under a floating ice sheet in the sea) by some academics. However, the general consensus is that the sediments are the product of a terrestrial ice sheet, interpreted as 'subglacial' tills deposited at the base of an ice sheet on land. Examining the sedimentology of the cliff shows that there are a number of till units stacked on top of each other. The tills include gravel beds, sand pockets and clay lenses, and are dominated by erratic limestone rocks. Large boulders of Leinster granite and limestone are also seen in the section and strewn across the beach. Small pebbles of a distinctive microgranite from Ailsa Craig in the Firth of Clyde can also be found.

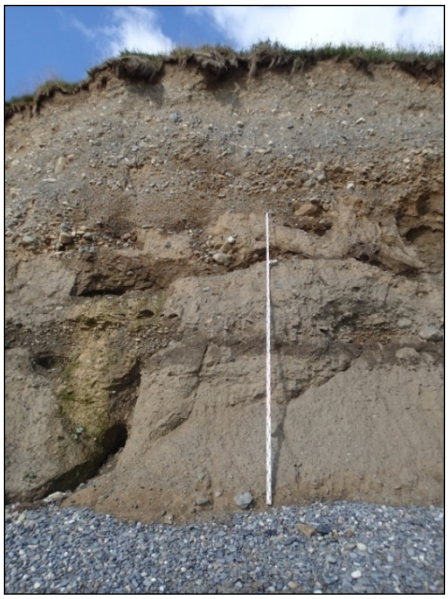
The southern portion of the section, between Bray and Shankill, hosts spectacular examples of clastic dykes, which are vertical beds of gravels set within consolidated, muddy till sediment, which result from expulsions of meltwater under a glacier. Micromorphological analysis of some of the sediment units at Killiney Bay has shown shear structures that can only have resulted from subglacial deposition.

Site Importance – County Geological Site; recommended for Geological NHA
This is a particularly impressive exposure of deep glacial tills, with several sedimentological characteristics well exposed. The site is effectively included within the existing proposed Dalkey Coastal Zone and Killiney Hill NHA.

Management/promotion issues
The site is accessible through public beach access and is therefore easily visited. The cliffs are prone to slumping, however, and care must be taken when close to the faces. The importance of the section could be highlighted in promotional material for the Dalkey Coastal Zone and Killiney Hill proposed NHA. Coastal erosion is a threat at Killiney Bay, as are the controlling measures such as erection of baffles and mesh-wire structures to stop recession of the cliffs. This now means many portions of the exposure at Killiney Bay are slumped, without the sea removing the slumped material, and the section is no longer continuously exposed. A commemorative plaque to Robert Mallet, the father of seismology, on a beach building is interesting, but could be supplemented by an explanatory signboard about his original experiments on Killiney Beach and on Dalkey Island.



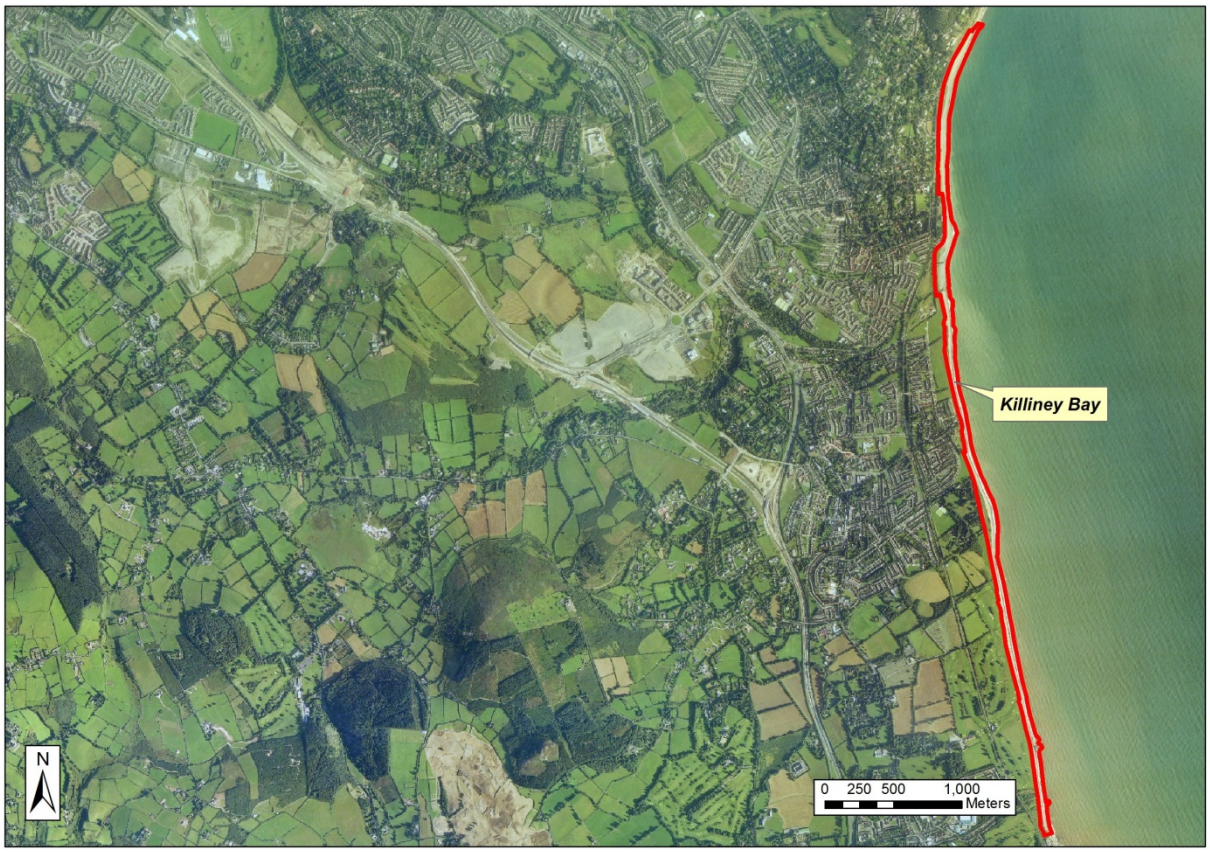
The section at Killiney Bay, looking south from the summit of Killiney Hill.



Left: Gravel beds resting on top of stiff, muddy glacial till sediment in the coastal section at Shanganagh Townland. Right: Looking south along the section from Corbawn Lane, with the huge recently installed 'rock armour' boulders set as coastal protection clearly seen.

Left: Looking north along the section towards Killiney Hill. Right: the plaque to Mallet on a building.


Killiney Bay
Killiney
Killiney Bay
Dalkey
Sorrento Point
Foxrock
Carraig an tSíomaigh
Cornelscourt
Cabinteely
Carrickmines
Carraig Mhaighin
Ballybrack
Loughlinstown
Shankill
Seanchill
Kingston
Phrompstown
Killegar
Old Connaught
Ballyman
Ravenswell
Willford
Cork Little
BRAY
Bré
CHANNEL
Bhreatan
EORGE'S


Killiney Bay
N
0 250 500 1,000
Meters