

DEPARTMENT OF THE ENVIRONMENT FOR NORTHERN IRELAND

DECLARATION OF AREA OF SPECIAL SCIENTIFIC INTEREST AT WATERLOO, COUNTY ANTRIM.
ARTICLE 24 OF THE NATURE CONSERVATION AND AMENITY LANDS (NORTHERN IRELAND)
ORDER 1985.

The Department of the Environment for Northern Ireland (the Department), having consulted the Council for Nature Conservation and the Countryside and being satisfied that the area described and delineated on the attached map (the area) is of special scientific interest by reason of its geological features and accordingly needs to be specially protected, hereby declares the area to be an area of special scientific interest to be known as the 'Waterloo area of special scientific interest'.

The area is of special scientific interest because of the sequence of Penarth Group, formerly Rhaetic, (Upper Triassic, some 201 million years old) and Lower Lias (Lower Jurassic, 184-200 million years old) strata, offering some of the best exposures in Ireland. Earlier (Triassic Keuper) and later (Cretaceous) strata are also present. During this period Ireland was positioned in sub-tropical latitudes, some 30°-40° north. Outcrop mainly takes the form of a wave-cut platform and former seacliffs.

The lowest beds (southernmost) seen are poorly-exposed red Mercia Mudstones of the Port More Formation. A short distance north 'Tea-Green Marls' of the Collin Glen Formation - actually greenish gray mudstones - are seen in the cliffs and on the foreshore. These mudstones are about 12m thick with numerous pseudo-pisoliths and pseudo-oolites, probable signs of low-grade metasomatism connected to the proximity of the Larne Lough Fault, here not far offshore.

The Penarth Waterloo Mudstone succession recorded on the foreshore consists of a series of calcareous and non-calcareous mudstones and shales, together with minor sandstones. The Penarth holds an abundant marine bivalve fauna characterised by the presence of Rhaetavicula contorta and Protocardia rhaetica.

In the Larne No 1 Borehole, about 2km to the south-west of Waterloo, the Penarth Group is about 20 m thick, but the succession at Waterloo totals only about 14 m. Two small faults seen on the foreshore may have cut out some of the Mudstone succession.

At the top of the Waterloo Mudstones, there is an apparently conformable passage to the lowest beds of the Jurassic, the Psiloceras planorbis Zone of the Lower Lias. The lowest beds are shales and a thin limestone with a few fossils, including Protocardia cf. rhaetica and Pteromya tatei, but after about 7m the lithology changes to massive gray mudstones with abundant fossils, including the Zone fossil Psiloceras planorbis.

These planorbis beds, totalling some 26m, can be followed as a series of small reefs up to the line of a Tertiary dolerite dyke which crosses the foreshore following the strike of the Lias beds.

North-west of the dyke, a poorly exposed sequence of mudstones, rotten basalt and sheared strata suggests another fault zone trending north-east to south-west. Beyond this, the foreshore is heavily covered by loose boulders and only small, scattered exposures are seen. This shows that the strike swings to nearly north-south, while the dip remains about 25° to the west.

West of the small low-water embayment, the lithology changes from the grey mudstones of the planorbis Zone, through an unproved thickness of mudstones of the liasicus Zone, to the alternating mudstones and thin limestones of the angulata Zone. The foreshore, some 27m east of Waterloo Cottages, shows a section with nearly 7m of angulata Zone beds, consisting principally of limestone, calcareous shale with Schlotheimia sp. in places, together with coprolites (fossilised faecal pellets) towards the base. Higher beds of more massive mudstones are seen in a small cliff immediately south of the Cottages. The planorbis, liasicus and angulata Zones are within the Hettangian stratigraphic stage.

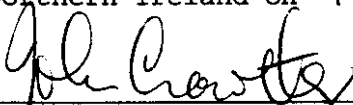
About 150m north of these exposures, a small outcrop of a shelly crinoidal limestone and gray mudstones is seen among the boulders just east of Pebble Cottage, apparently separated by a fault from an exposure of gray shale and limestone with a northerly dip, about 20m north. Although no diagnostic fossils are presently evident in either outcrop, specimens in collections, apparently from these exposures, include Coroniceras (Metaphioceras) sp. and Arnioceras cf. bodleyi indicating the presence of the bucklandi and possibly the semicostatum Zones within the Sinemurian stratigraphical stage.

SCHEDULE

The following operations and activities appear to the Department to be likely to damage the geological features of the area:

1. Any activity or operation which involves the damage or disturbance by any means of the surface and subsurface of the land, including extraction of minerals, sand and gravel.
2. The storage or dumping, spreading or discharge of any material.
3. Construction, removal or disturbance of any permanent or temporary structure including building, engineering or other operations.
4. Alteration of natural or man-made features, the clearance of boulders or stones and grading of rock faces.
5. The following activities undertaken in a manner likely to damage the interest of the area:
 - (i) Educational activities;
 - (ii) Research activities;
 - (iii) Recreational activities.
6. Excessive sampling of rocks, minerals, fossils or any other material forming a part of the site.


Sealed with the Official Seal of the
Department of the Environment for
Northern Ireland on 17 July, 1995



J CROWTHER

Assistant Secretary

ASI95006/CWB


CIVIL SERVANT
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/LMB

FOOTNOTES

- (a) Please note that consent by the Department to any of the above operations or activities does not constitute planning permission. Where required, planning permission must be applied for in the usual manner to the Department under Part IV of the Planning (Northern Ireland) Order 1991. Operations or activities covered by planning permission are not normally covered in the list of Notifiable Operations.
- (b) Also note that many of the operations and activities listed above are capable of being carried out either on a large scale or in a very small way. While it is impossible to define exactly what is "large" and what is "small", the Department would intend to approach each case in a common sense and practical way. It is very unlikely that small scale operations would give rise for concern and if this was the case the Department would give consent, particularly if there is a long history of the operation being undertaken in that precise location.