

Topfloor Properties

Appropriate Assessment of Proposed Coastal Walkway at Rockview Farm (Fauna and flora of the coastal embankment)

April 2007

TOBIN CONSULTING ENGINEERS



REPORT

PROJECT:

**Appropriate Assessment of Coastal Walkway
– Fauna and flora of embankment**

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DOCUMENT AMENDMENT RECORD

Client: Topfloor Properties

Project: Appropriate assessment of Coastal Walkway

Title: Appropriate assessment of Coastal Walkway – Fauna and Flora of Embankment

PROJECT NUMBER:				DOCUMENT REF:			
	Report	DR	12/4/07	DG	23/04/07		
Revision	Description & Rationale	Originated	Date	Checked	Date	Authorised	Date
TOBIN Consulting Engineers							

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1 INTRODUCTION

1.1 BACKGROUND

TOBIN Consulting Engineers are involved in the production of a Local Area Plan (LAP) for a proposed housing and associated amenities development at Rockview Farm, Dundalk. One of the issues to be addressed by the LAP is flood protection for this land. Currently, a raised embankment provides protection from flooding by the sea at high tides. The condition and status of this embankment is to be examined. At the same time, consideration is to be given to the provision of a coastal walkway along this embankment. The walkway would form part of a longer route that would link Soldier's Point, Dundalk to the village of Blackrock.

The development site at Rockview Farm lies adjacent to the Dundalk Bay. Dundalk Bay has been designated as a Special Area of Conservation (SAC) and a Special Protection Area (SPA). These are European designations for sites that have an international importance for nature conservation and are designated under the EU Habitats Directive and the EU Birds Directive respectively. Sites with such a designation are afforded special protection measures. As such, the National Parks and Wildlife Service (NPWS) have requested that an appropriate assessment be carried out to ensure that the provision of a coastal walkway does not impact on the nature conservation features of the SAC and SPA. Dundalk Bay has also been proposed for designation as a Natural heritage Area, a proposed Natural Heritage Area (pNHA).

The appropriate assessment is to look at two elements:

- Ornithological interest of the SPA
- Fauna and flora on the existing embankment and the adjacent SAC

The ornithological element is assessed in a separate report by Brian Madden. This report addresses the fauna and flora of the existing coastal embankment and the adjacent SAC and is confined to the section of the embankment that is adjacent to the proposed development area at Rockview Farm and also addresses the option of extending the embankment directly south to Blackrock village.

1.2 GENERAL DESCRIPTION OF THE EXISTING EMBANKMENT

The embankment runs from Soldier's Point, Dundalk southwards towards Blackrock. Before reaching Blackrock, it turns to the west to meet the Blackrock road. It provides a defence against tidal inundation for the low-lying land located behind the embankment and housing that exists in this area. The embankment was created in the 18th Century to reclaim agricultural land. It runs for approximately 3.2km.

Direct access on to the embankment is restricted with three main access points:

- At the northern end, close to Soldier's Point
- At the far, eastern end of Shore road, and
- An informal access at the southern end where the embankment meets the Blackrock road.

The section of the embankment that adjoins the development site at Rockview Farm runs from the southern end at the Blackrock road to the army firing range, a distance of approximately 1.6km. Drainage of the low-lying land behind the embankment is via a series of ditches that lead to an outfall pipe that is controlled by a tidal flap. This outfall pipe goes through the embankment approximately halfway along this section.

2 METHODOLOGY

The aim of this assessment is to describe the vegetation and fauna of the section of the embankment that is adjacent to the proposed Rockview Farm development, to assess the potential for protected species of fauna and flora and to assess the potential impacts of the proposed coastal walkway on flora and fauna and the SAC. This assessment comprised both field and desk studies.

The desk study comprised the compilation of a list of rare or protected flora known to occur within the same 10km grid square of the development site.

The field study comprised a walkover survey of the embankment in order to provide a description of the existing vegetation. Plant identification and nomenclature principally follows Webb *et al.* (1996). Grass identification and nomenclature was further assisted by Rose (1989).

The field study was undertaken on March 21st, 2007 by TOBIN Consulting Engineers. This is not the optimal period to undertake botanical surveys and it is possible that some plant species may have been overlooked or under-recorded due to seasonal factors.

The general faunal survey primarily involved searching the site for evidence/signs of mammals, reptiles and amphibians (e.g. tracks, scats, dwellings and occasionally direct sightings). An assessment of the habitats in terms of their importance for fauna was also undertaken.

3 EXISTING ENVIRONMENT

3.1 VEGETATION OF THE EMBANKMENT

In general, the embankment is grass covered interspersed with areas of scrub. The areas of scrub are found in older, less disturbed sections of the embankment indicating that lack of management through grazing or cutting allows scrub to develop.

For the purposes of this report, three different sections of the embankment are described, representing changes in the vegetation. These three sections are:

1. The southern boundary of the embankment that runs east from the Blackrock road and then north having turned the corner of the embankment. This section is approximately 400m long.
2. A central section running north from section 1 to just north of the outfall pipe, a distance of approximately 650m.
3. The northern section that runs from just north of the outfall pipe to the boundary with the army firing range, a distance of approximately 520m.

3.1.1 Section 1

This section has the highest levels of scrub cover, with scrub making up more than 50% of the cover. At the western end of this section, the scrub consists of bramble (*Rubus fruticosus* agg.), hawthorn (*Crataegus monogyna*), holly (*Ilex aquifolium*), gorse (*Ulex europaeus*) with occasional elm (*Ulmus procera*) and oak (*Quercus robur*). Dog rose (*Rosa canina*) occurs at the western end. The scrub that occurs in the middle of this section includes sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), elder (*Sambucus nigra*) and some beech (*Fagus sylvatica*) as well as the main species mentioned above. The scrub vegetation grows on the top of the embankment and also on the slope of the landward side of the bank.

Bramble and gorse make up the main understorey species but ivy (*Hedera helix*), cleavers (*Galium aparine*) and nettle (*Urtica dioica*) are also common components of the understorey.

Some of the tree species, notably ash and hawthorn, achieve a height of 9-10m, which for hawthorn in particular indicates a mature tree. In some of the isolated clumps of scrub, the hawthorns have acquired a mature, spreading growth form.

The grass cover between the patches of scrub is provided chiefly by three main species; cocks-foot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*) and scutch grass (*Elymus repens*). Cocks-foot tends to be the main species over much of this section, with scutch becoming more abundant towards the western end, close to the Blackrock road. Common vetch (*Vicia cracca*) is also a common component growing amongst the tussocky, coarse grass areas

The grassy vegetation grows right down the embankment to the edge of the ditch that runs on the inside of the embankment and also down to the ditch on the outside of the embankment. The ditch on the outside of the embankment runs from the Blackrock road and follows the course of the embankment for approximately 130m before turning south and running through the adjacent saltmarsh. From this point on, the vegetation on the embankment grades into saltmarsh or accumulated tidal debris and litter at the seaward foot of the embankment.

At the northern end of this section, the outside (seaward) face of the embankment appears to have slumped towards the saltmarsh producing an uneven slope profile and an extended area of cocks-foot dominated grass growth.

3.1.2 Section 2

The central section of the embankment. This area has very little scrub development and has a distinctive grassy appearance. The main grass species are again cocks-foot, Yorkshire fog and scutch, with Yorkshire fog being the dominant species. There are few other plant species growing in the grass sward, but those that do occur include common vetch, common mouse-ear (*Cerastium fontanum*) and occasional plants of angelica (*Angelica sylvestris*).

This section appears to have been maintained or reformed in the recent past. It has a regular form and a flat, level top to the embankment. On the landward side, a level area (or berm) has been formed at the foot of the embankment before dropping into the main drainage ditch.

The scattered scrub vegetation comprises isolated, small hawthorn bushes that are no more than 2.5m in height and young willow (*Salix* sp.) trees. These willows are 2-3m in height and have a slender growth form, suggesting that they have been planted, possibly to provide some stability to the bank following remedial works. These willows are located at the foot of the embankment where it meets the berm.

3.1.3 Section 3

This is the northernmost section and runs up to the boundary with the army firing range. It has a mix of scrub and grass vegetation. The scrub areas chiefly comprise thick clumps of bramble and gorse and are largely confined to the top of the embankment and to the landward slope; there is very little scrub development on the seaward side of the embankment. At the foot of the embankment, the ground levels off to form a berm before meeting the drainage ditch. A number of mature alders grow on the edge of the ditch and the berm.

As mentioned, the scrub comprise bramble and gorse clumps. The bramble patches show signs of localised enrichment with the growth of other species such as nettle and cleavers.

The grass cover is again dominated by cocks-foot, Yorkshire fog and scutch; there are also patches of red fescue (*Festuca rubra*). Where red fescue occurs, it can be locally abundant.

The seaward side of the embankment again slopes down to meet the saltmarsh vegetation, although the foot of the bank has an accumulation of tidal debris and litter from the saltmarsh plants; mainly the leaves from sea purslane (*Halimione portulacoides*).

3.2 VEGETATION OF THE ADJACENT SPECIAL AREA OF CONSERVATION (SAC)

The coastal embankment abuts the Dundalk Bay SAC. This large site is listed as a SAC as it contains five habitats listed under the EU Habitats Directive, i.e. perennial vegetation of stony banks, tidal mudflats, salt marshes, *Salicornia* mudflats and estuaries.

The vegetation that abuts the embankment can be divided into two types and corresponds to the following areas:

- Saltmarsh vegetation that adjoins the main length of the embankment running south from the army range to the southernmost point.
- *Salicornia* mudflat that lies next to the section of the embankment that runs west from the southernmost point back to the Blackrock road.

The saltmarsh vegetation largely consists of common cord-grass (*Spartina anglica*) with common saltmarsh-grass (*Puccinellia maritima*) while sea purslane is also a main component of the vegetation. Leaves from the sea purslane form large swathes of litter that gathers against the foot of the embankment. At the northern end of the embankment, the ground rises slightly giving rise to a fine leaved grass sward, consisting of red fescue and then common saltmarsh-grass.

Where the embankment turns to the west, the vegetation becomes more open and more akin to *Salicornia* mudflat. Bare mud makes up 50% or more of the cover. A ditch carrying water from underneath the Blackrock road follows the embankment at its western end before turning south and emptying into Dundalk Bay. The ground slopes towards this ditch and the vegetation reflects the increased levels of saltwater inundation arising from the change in the topography. On the slightly higher, drier ground, plants such as thrift (*Armeria maritima*), scurvy-grass (*Cochlearia officinalis*) and common cord-grass occur. As the ground slopes towards the ditch, bare mud increases and plants such as sea blite (*Suaeda maritima*), sea lavender (*Limonium humile*), sea purslane and common saltmarsh-grass increase in abundance.

The option to extend the embankment southwards to link up with Blackrock village would cross this last area of mudflat, the outfall of the ditch and then crossing a field that has a grass sward. This field was assessed by viewing from the Blackrock road. The grass sward appears to be chiefly red fescue and common saltmarsh-grass at the seaward end with fiorin grass (*Agrostis stolonifera*) and soft rush (*Juncus effusus*) becoming dominant towards the road.

3.3 FAUNA

3.3.1 Mammals

No direct sightings of mammals were recorded. There are two fox earths along the embankments, both in patches of scrub; one was close to the southernmost point whilst the second was found close to the northern boundary. Both earths appear to be inactive as there was no fresh earth dug out of the burrows and no signs of hair or tracks near the earths. A fox dropping was found close to the southern earth whilst the remains of a herring gull outside of the embankment showed signs of having been eaten by a fox. No signs of otter were recorded.

A baseline survey for the Rockview farm development found a number of inactive badger setts elsewhere on the site. No signs of badger were found on the embankment but it is recommended that a pre-construction survey should be undertaken to ensure that no new badger setts have become established on the embankment. Badgers and their setts are protected under Irish Wildlife law.

No other sightings or signs of mammals were found. A bat survey was carried out by Conor Kelleher as part of the baseline survey work for the Rockview Farm development. This study suggested that bat activity was likely to be concentrated around the old farm buildings. The scrub present on the embankment, particularly at the southern end, does provide suitable feeding habitat for bats as it would

provide sheltered conditions above the main drainage ditch on the landward side of the embankment. The trees present on the embankment are not thought to provide suitable roosting locations for bats.

3.3.2 Amphibians and reptiles

No signs or sightings of either common frog or viviparous lizard were made. Viviparous lizard favours open, sunny, undisturbed and well drained habitats. Examples of typical habitats include rough grassland, open woodland, sand dunes, dry-stone walls, hedgerows, roadside verges, suburban wasteland and golf courses. The habitats present on the embankment do provide suitable conditions for viviparous lizard.

Common frog is the only species of frog found in Ireland and is listed as an internationally important species (Whilde 1993). Frogs like to be near ponds which have plenty of algae and plants near the edge, usually with shallow edges so that they can easily climb out. But they also use garden ponds, streams, bog pools, drains and ditches as breeding sites. The land around the breeding site or pond needs to be rough with long grass and some scrub to give cover for terrestrial foraging. The ditch on the inside of the embankment is likely to have a brackish element and so is unsuitable for frog.

3.3.3 Rare or Protected Flora

The site is located in the Ordnance Survey National Grid 10 km square J00. A plant species list for this 10 km square was generated from the CD-Rom version of the New Atlas of British and Irish Flora (Preston *et al.*, 2002). This list was then compared to the list of species protected under the Flora (Protection) Order, 1999 and that are included in the Irish Red Data Book (Curtis and McGough, 1988). Table 1 presents the protected or rare species with records occurring in this grid square.

Rare or Protected Flora for Grid Square J00		
Species	Status	Category
Shepherd's needle (<i>Scandix pecten-veneris</i>)	Protected	Extinct
Smooth brome (<i>Bromus racemosus</i>)		Vulnerable
Henbane (<i>Hyoscyamus niger</i>)		Vulnerable
Annual Knawel (<i>Scleranthus annuus</i>)		Data Deficient Species

Table 1: Rare or protected flora in J00

No specimens of the species listed in table 1 above were recorded. Conditions on the embankment are not thought to be suitable for any of these plants.

4 IMPACT OF THE PROPOSED WALKWAY ON THE FLORA AND FAUNA OF THE EMBANKMENT AND THE ADJACENT SAC

There are three areas of concern associated with development of the proposed walkway:

- Permanent removal of habitats on the embankment
- Disturbance to the adjacent SAC during the construction phase
- Disturbance to the adjacent SAC through unrestricted public access from the walkway

There are three proposed options as to where the walkway would run:

- 1) Following the top of the existing coastal embankment.

- 2) Following the foot of the coastal embankment on the landward side (with two alternative heights for the stepped down walkway, ie 3.4m and 2.8m)
- 3) Set back at some distance from the embankment in the existing fields.

None of the habitats found on the embankment are of high ecological value as they consist of coarse grassland and scrub habitats. No rare or protected species of flora were recorded. Permanent removal of any of these habitats would only incur a minor impact. The habitats on the embankment do not form part of the SAC and would incur no direct impact on the SAC. No protected species of mammal, amphibian or reptile was recorded using the embankment. Therefore, options 1 and 2 for the walkway given above would produce only minor impacts on the habitats present on the embankment. Option 3 avoids the embankment altogether and would obviously incur no impact

It can be assumed that the development of a walkway would lead to an increase in the number of people being attracted to this area and potentially an increase in people trying to access the mudflats and saltmarsh as a result. Habitats based on soft sediments such as exist within the SAC are vulnerable to damage through uncontrolled access, particularly if machinery such as motorbikes can also access the area. Options 1 and 2 above would lead to potential impacts on the SAC although mitigation measures should be implemented to prevent this.

Additionally, an extension to the embankment southwards to Blackrock has been proposed. This extension would cross the SAC and the pNHA and would impact on the mudflat habitats. A culvert would need to be installed where this extension to the embankment crosses the outflow of the ditch and would presumably require a tidal flap control on the culvert to provide flood protection. This could give rise to a potential impact on this section of the pNHA, as it could lead to a change in the vegetation through a reduction in the brackish conditions that currently exist. In relation to the area that the Dundalk Bay SAC and pNHA covers, this represents a minor impact on the area of the designated site.

5 MITIGATION MEASURES

Section 4 above outlines the impacts or potential impacts that could arise through the development of a coastal walkway. Mitigation measures are proposed in order to minimise these impacts.

- Any scrub or vegetation removal should be carried out in the period September to February, ie outside of the bird breeding season. All birds and their nests are protected under the Irish Wildlife Acts
- A pre-construction survey should be to ensure that no active badger setts have become established on the embankment.
- The finished walkway should be fenced to prevent public access onto the saltmarsh habitats of the SAC. Vehicle access, including motorbikes, should also be prevented by providing appropriate fencing and gate measures at any points that provide access onto the walkway.
- Where possible, mature hawthorn trees should be left intact as they have a high intrinsic and aesthetic appeal as mature specimens of this species.
- If possible, the extension of the walkway from the southern end of the embankment to Blackrock should avoid crossing the SAC and pNHA. Instead consideration should be given to following the existing embankment, westwards to the Blackrock road.
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6 SUMMARY

This study is confined to the section of the embankment that is adjacent to the proposed Rockview Farm development. It has found that there are no rare or protected species of flora growing on the existing coastal embankment. No rare or protected species of mammal, reptile or amphibian were recorded.

Of the three options for a walkway given above, option 3 would produce no impact on the embankment or the SAC.

Options 1 and 2 would produce only minor permanent impacts on the embankment.

Options 1 and 2 also give rise to potential indirect impacts to the SAC through unrestricted public and vehicular access onto the saltmarsh and mudflats but mitigation measures through appropriate fencing would prevent this from occurring.

7 REFERENCES

Curtis, T. & McGough, H. 1988. *The Irish Red Data Book: 1 Vascular Plants*. Wildlife Service Ireland, Dublin. The Stationary Office.

Preston, C.D, Pearman, D.A. & Dines, T.D. 2002. *New Atlas of the British and Irish Flora*. Oxford University Press, Oxford.

Rose, F. 1989. *Colour Identification Guide to the Grasses, Sedges, Rushes and Ferns of the British Isles and north-western Europe*. Viking

Webb, D.A., Parnell, J., & Doogue, D. 1996. *An Irish Flora*. Dundalgan Press (W. Tempest) Ltd., Dundalk.

Whilde, A. (1993) *Threatened Mammals, Birds, Amphibians and Fish in Ireland. Irish Red Data Book 2 - Vertebrates*. HMSO, Belfast: 224pp

