

Natura Impact Statement for proposed  
Strategic Housing Development (SHD)  
Estuary West Lands  
Holybanks, Swords  
Co. Dublin

Compiled by OPENFIELD Ecological Services

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For Cairn Homes Properties Ltd.



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### The Purpose of this document

This document provides information to allow the planning authority to carry out an Appropriate Assessment of the proposed project. This document will assess whether, based on best scientific knowledge, the project, alone or in combination with other plans and projects, will adversely affect the integrity of the European Sites, light of their specific conservation objectives It will determine whether mitigation measures are required to ensure that negative effects can be avoided to the Natura 2000 network.

**A separate Screening Report for AA has been prepared by Openfield Ecological Services and which has concluded that significant effects to the Malahide Estuary SAC and SPA could not be ruled out.**

**It should be noted that there is no prescribed format for an NIS. This report therefore follows the generally accepted format for AA provided by the European Commission.**

### About OPENFIELD Ecological Services

OPENFIELD Ecological Services is headed by Pádraic Fogarty who has worked for 25 years in the environmental field and in 2007 was awarded an MSc from Sligo Institute of Technology for research into Ecological Impact Assessment (EclA) in Ireland. Since its inception in 2007 OPENFIELD has carried out numerous EclAs for Environmental Impact Assessment (EIA), Appropriate Assessment in accordance with the EU Habitats Directive, as well as individual planning applications. Pádraic is a full member of the Institute of Environmental Management and Assessment (IEMA). Pádraic is a competent expert for the purpose of carrying out ecological field surveys and impact assessments.

### Methodology

The methodology used for this assessment is set out in 'Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (EC, 2021) as well as a document prepared for the Environment DG of the European Commission entitled 'Assessment of plans and projects significantly affecting Natura 2000 sites 'Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (Oxford Brookes University, 2001). Annex 2 provides the template for an AA report to be used.

In accordance with this guidance, the following methodology has been used to produce this screening statement:

**Step 1: Information Required**

This assesses whether adequate information is available in order to complete the AA or if, taking the Precautionary Principle into account, additional data are required.

**Step 2: Impact Prediction**

This identifies the likely impacts that may arise as a result of the project.

**Step 3: Conservation Objectives**

An assessment of whether or not there will be adverse effects on the integrity of the Natura 2000 site having regard to the conservation objectives of the site.

**Step 4: Mitigation Measures**

Mitigation through avoidance of adverse effects must be proposed. Where it is likely that significant effects will remain despite mitigation then a full assessment of alternative options must be undertaken and an application for the project to proceed made under Article 6(4) of the Habitats Directive: Imperative Reasons of Overriding Public Interest.

The steps are compiled into an AA report, a template of which is provided in Appendix II of the EU methodology. This NIS has been prepared in line with this guidance.

Reference is also made to guidelines for Local Authorities from the Department of the Environment, Heritage and Local Government (DoEHLG, 2009).

A full list of literature sources that have been consulted for this study is given in the References section to this report while individual references are cited within the text where relevant.

AA Report (Natura Impact Statement) as per Annex 2 of EU methodology:

## **Step 1 – Information Required**

**Describe the elements of the project (alone or in combination with other projects or plans) that are likely to give rise to significant effects on the Natura 2000 site (from the screening report prepared by Openfield)**

*The proposed development will consist of a residential scheme of 621 no. units (145 no. 1-bed units, 278 no. 2-bed units, 187 no. 3-bed units and 11 no. 4-bed units) along with ancillary childcare facility (506.5 sq.m) and a range of residential amenity facilities (573 sq.m) including gym, concierge, meeting room and multi-purpose room.*

*The development will include the construction of:*

- *118 no. houses comprising: 8 no. 1-storey, 1-bed maisonette units; 99 no. 2-storey, 3-bed units (18 no. mid-terrace and 81 no. semi-detached) and 11 no. 2-storey, 4-bed units (semi-detached).*
- *349 no. apartment units (137 no. 1-bed units, 201 no. 2-bed units, and 11 no. 3-bed units) provided within 2 no. blocks ranging in height from 1 no. to 7 no. storeys (over basement level) to the south side of the site along Glen Ellan Road. A single level basement has been provided for Block B and an under-croft area is provided within Block A incorporating parking areas, waste management areas, plant rooms and other ancillary services.*
- *154 no. duplex units that are arranged within 14 no. 3-storey blocks comprising of 77 no. 2-bed units (ground floor) and 77 no. 3-bed units.*
- *Apartments and duplexes are provided with balconies/terraces along all elevations and dedicated services / bin store areas.*
- *The development will also provide for an ancillary childcare facility (506.5 sq.m), and residential amenity facilities (573 sq.m) including gym, concierge, meeting room and multi-purpose room within the ground floor of Block B.*
- *Provision of 705 no. car parking spaces, 856 no. bicycle parking spaces and 21 no. motorbike parking spaces (within basement, under-croft and at surface levels);*
- *The landscape proposal includes extensive public open space (10,008 sq.m.), in addition to a new public park measuring 29,400 sq.m as an extension of Broadmeadow Riverside Park to the north of the site.*
- *Principal vehicular access to the site is from Glen Ellan Road, with an additional new secondary site entrance provided from Jugback Lane/Terrace. New pedestrian connections are provided to the site from Jugback Lane/Terrace, Glen Ellan Road and the proposed Broadmeadow Riverside Park extension to the north of the site. Further, a segregated pedestrian/cycle path is proposed along a central green spine, connecting Glen Ellan Road in the south with Broadmeadow Riverside Park extension in the north.*

- *Junction and road improvement works are proposed to the Glen Ellan / Balheary Road junction and R132/R125 Seatown West Roundabout. This will include widening of Balheary Road (South), upgrade works to cycle/pedestrian facilities and for the partial signalisation of R132/R125 junction. The application also contains proposals to upgrade existing Irish Water infrastructure including the construction of a stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River.*
- *All associated site development works above and below ground including hard and soft landscaping, roads/footpaths/cycle paths, play areas, public art, boundary treatments, lighting, SuDs, pumping station, EV charging points, green roofs, ESB substations and services to facilitate the development.*
- *As part of the proposed development, temporary permission (3 no. years) is sought for a single-storey Marketing Suite and associated signage (including hoarding) during the development construction stage.*

The development includes the installation of a new stormwater tank on the Balheary Road and an overflow pipe to the River Broadmeadow.

The development site is currently occupied by disused agricultural lands and is directly adjacent to the River Broadmeadow. The site location is shown in figures 1 and 2.

The AA screening report provided follows accepted methodologies. It highlights the fact that the site is within the hydrological catchment of the Malahide Estuary SAC (site code: 0205) and SPA (site code: 4025), although physically separated from it.

The proposed site for the Stormwater storage tank is located on the junction of the Glen Ellan Road and the Balheary Road, Swords, Co. Dublin. The purpose of this tank is to alleviate known constraints in the foul water network that services the Oldtown / Mooretown / Holybanks lands catchments. While it is not desirable from an environmental perspective to have an storm water overflow to water courses, it is preferable to surcharging of the tank and network to adjacent roads, footpaths and nearby residential units. Currently this foul line overflows in an uncontrolled manner to the River Ward. While this proposed storage tank will have an overflow outfall to the Broadmeadow River, the construction of the storage tank itself will ultimately *reduce* the quantum of current overflows experienced on the existing network which will **have a positive net impact on the environment**.

Site surveys were carried out on the 2<sup>nd</sup> of August 2017, November 30<sup>th</sup> 2018, the 29<sup>th</sup> of May 2020, the 27<sup>th</sup> of April 2021 and the 16<sup>th</sup> of March 2022 in fair weather. The site was surveyed in accordance with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).

The subject site comprises a series of fields which were formerly in agricultural production but which are no longer managed for this purpose. Open fields can be described as **dry meadows – GS2** with abundant grasses and common broad-leaved herbs including Willowherbs *Epilobium sp.*, Silverweed *Potentilla anserine*, Lesser Stitchwort *Stellaria graminea*, Common Mouse-ear *Cerastium fontanum* etc. Infrequently mown meadows such as these can have an abundance of flowers when compared with more managed systems, and so are important for common insects, such as butterflies and bees. Where meadows are never mown, a gradual process of succession takes place, which sees the replacement of open habitats with woodland. This intermediate phase is known as **scrub – WS1** and the formation of scrub can be seen in the emergence of dense banks of Brambles *Rubus fruticosus agg.* and Blackthorn *Prunus spinosa*.

Remnants of traditional field boundaries can be found and these are composed of **treelines – WL2** or **hedgerows – WL1**. These habitats differ in that treelines are composed of tall trees over 5m in height, however the species composition can be similar in both. Here, tall treelines have mature Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna*, Wild Cherry *Prunus avium*, Elder *Sambucus nigra* and Elm *Ulmus sp.* Hedgerows meanwhile, have abundant Brambles, with Ash, Blackthorn *Prunus spinosa*, Apple *Malus sylvestris* and Rose *Rosa sp.* The structure of the hedgerow along the western boundary is poor at its southern end, with large gaps and the presence of non-native species, such as Snowberry *Symphoricarpos albus*. To the north it is dense and composed of native species. Guidance is available from the Heritage Council to distinguish 'higher significance' field boundaries and this is based upon their age, species composition, and structure (Foulkes et al., 2013). Boundaries to the north and east, as well as the treeline running up the centre of the site, are townland boundaries, and so are considered to be of particular antiquity. To the north-west this is associated with a **dry ditch** which is shown on maps as a tributary of the Broadmeadow. Treelines to the east of the site appear on original Ordnance Survey Ireland (OSI) maps and so are at least 150 years old. These too are of higher significance due to their age, although they are outside the site boundary. Along the boundary with the Glen Ellen Road, there is a band of scrub, but no treeline or hedgerow.

There is a band of **broadleaved woodland – WD1** running across the northern site boundary. Trees here include Ash, Hawthorn, Elder, Blackthorn and a specimen or two of Horse Chestnut *Aesculus hippocastanum*. Wood Dock *Rumex sanguineus*, Wood Avens *Geum urbanum*, Herb Robert *Geranium robertianum*, and Soft-shield Fern *Polystichum setiferum* can be found on the forest floor. This is a rare feature in an urban context and particularly in light of the scarcity of broadleaved woodland anywhere in Ireland. It is marked as woodland on original maps from OSI and so is of some age. It may be associated with the original path of the Broadmeadow River, which has been subjected to arterial drainage schemes. To the north of this woodland lies the channel of the Broadmeadow River, a **lowland river – FW2**. Due to historic drainage, the banks are straight and steep and dominated by grassy vegetation, with Reed Canary-grass *Phalaris arundinacea* and Common Nettle *Urtica*

*dioica*. Despite pollution issues in the river, it is a feature of county value to biodiversity.

The lands are not suitable for populations of wintering/wading birds which are qualifying interests of coastal Natura 2000 sites and the Malahide Estuary SPA in particular (and listed in table 2). The site visit of November 2018 and March 2022, which lie within the main wintering bird season, did not record any wintering/wading birds. There is no available data to show any such species are using these lands.

The location of the proposed storage tank lies within an area of **dry meadow – GS2** with Dandelions *Taraxacum sp.*, Thistles *Cirsium sp.*, Docks *Rumex sp.*, Cock's-foot *Dactylis glomerata*, Ribwort Plantain *Plantago lanceolata* and patches of Brambles *Rubus fruticosus agg.*

The route of the proposed outfall pipe passes an area of **amenity grassland – GA2** with a line of mid-aged Ash *Fraxinus excelsior* and Maple *Acer sp.* trees. However the pipe itself will be installed under the existing road.

The route then passes through another area of dry meadow at the riparian zone of the River Broadmeadow. The river in this location is a **lowland river – FW2** with grassy banks and is close to a bridge/road crossing. There are no trees or natural riparian vegetation in this location. The riverbank at the location of the proposed outfall pipe is composed of granite boulders installed to prevent erosion. The water at the time of survey was shallow and the river substrate was characterised by cobbles and stones with growths of the green algae *Cladophora sp.*

There are no habitats on the development site which are examples of those listed in Annex II of the Habitats Directive. There are no plant species which are listed as alien invasive on Schedule 3 of SI No. 477 of 2011.

Currently there is no attenuation of rain run-off and this enters the soil or finds surface pathways to the River Broadmeadow. In accordance with the Greater Dublin Strategic Drainage Study this project will incorporate sustainable drainage systems (SUDS) that will ensure no changes will occur to the quantity or quality of run-off. This will include a suitably sized attenuation tank with restricted flow device and oil/grit interceptor. Additional SUDS measures will include green roofs, rainwater harvesting, a detention basin, swales and filter drains. Following attenuation surface water will discharge to the River Broadmeadow via a new outfall pipe.

Foul wastewater from the proposed development will be sent to the wastewater treatment plant at Swords. This plant is operated by Irish Water and discharges treated effluent to the Broadmeadow Estuary under licence from the EPA (D0024-01). The Annual Environmental Report (AER) for the plant for 2020 showed that the discharge was fully compliant with emission limit standards. Monitoring of the receiving environment suggested that “The discharges from the wastewater treatment plants do not have an observable negative impact on the Water Framework Directive status”. The Swords plant discharges into the

Broadmeadow River which in turn enters the sea at Malahide estuary. The treatment capacity is 90,000 P.E. (population equivalent). According to the AER the remaining capacity is 32,506 P.E. The AER states that capacity will not be exceeded within the next three years. The additional projected addition from this development will be 328,245.5 l/d.

Water for domestic purposes will be sourced from a mains supply which originates in the River Liffey at an abstraction point at Leixlip. This reservoir is not within, or upstream of any freshwater Natura 2000 sites.

There are no point air emissions from the site while some dust and noise can be expected during the construction phase.

Modelling carried out by Irish Water, the full results of which are presented in the Stormwater Storage Tank Report prepared for this application by Waterman Moylan, show that the stormwater tank will be capable of containing a 1-in-5 year storm event, i.e. no overflow will arise during this scenario.

In exceptional circumstances, i.e. during a 1-in-10 to 1-in-30 year rainfall event, the storm water tank will overflow to the River Broadmeadow. The modelling shows that the maximum overflow during a 1-in-10 year event, and accounting for climate change, will be 7m<sup>3</sup>. This increases to 606m<sup>3</sup> during a 1-in-20 year event and 938m<sup>3</sup> during the 1-in-30 year event.

Currently storm water overflows occur on this line, leading to discharges to the River Ward. The proposed development will reduce the frequency and intensity of overflow events. A comparison figure under the 1-in-10 year event, and in the absence of the proposed stormwater tank, shows that the overflow will be 1,242m<sup>3</sup>. According to the Waterman Moylan report

*Upon comparison of all figures given above for the different scenarios, rainfall event frequencies, and whether inclusive or non-inclusive of climate change factors, it is demonstrated that the construction of the proposed storage tank will prevent or significantly reduce the frequency and/or volume of overflow, compared to if a “do nothing approach” were to be taken to the situation.*

*[...]*

*The provision of the proposed off-line stormwater storage tank will ensure that there will be significantly less surcharge events, or at worst significantly reduced surcharge overflow volumes occurring to the Broadmeadow River.*

The proposed development will eliminate the current uncontrolled overflows of foul water, and so a source of pollution, to the River Ward but add a new source to the Broadmeadow. However, at the Malahide Estuary, downstream of the confluence of these rivers, the net impact on water quality will be positive, primarily by reducing the frequency and magnitude of overflow events.

During the construction phase there will be disturbance of soil as well as works at the banks of the River Broadmeadow.



## Step 2 - Impact Prediction

The AA screening report describes the elements of the project which “have the potential to cause environmental impact”. These are site clearance and preparation, construction using standard materials and, during operation, connection to essential infrastructure including water, wastewater and surface water sewers. The following impacts may arise:

### Construction Phase

#### **Habitat Loss**

The site is approximately 1.5km from the boundary of the Malahide Estuary SPA/SAC as the crow flies and the intervening land is occupied by residential development and transport links, including the M1 motorway. Because of the distance separating the two areas there is no terrestrial/surface pathway for loss or disturbance of habitats listed in table 1 or other semi-natural habitats that may act as ecological corridors for important species associated with the qualifying interests of the Natura 2000 sites.

No significant effects to the Malahide Estuary SAC/SPA are likely to arise from this aspect of the development.

#### **Habitat Disturbance/Ex-situ impacts**

No habitats will be disturbed within or directly connected to Natura 2000 sites due to the physical separation distance between the development site and Natura 2000 sites. This development will not significantly increase recreational pressure on Malahide Estuary or any other Natura 2000 site as it lies a significant distance (1.5km) to accessible areas likely to be used by birds.

The development site lands themselves are not suitable for regularly occurring populations of wetland or wading birds which are qualifying interests of Natura 2000 sites at Malahide Estuary and which are listed in table 2.. There are no habitats for such species on the development site.

No significant effects to the Malahide Estuary SAC/SPA are likely to arise from this aspect of the development.

#### **Hydrological Impacts – surface water/construction phase**

During the site clearance and construction phases some sediment may become entrained in rain run-off. While sediment can be detrimental to the ecological quality in rivers, the same is not the case for estuaries and tidally influenced habitats, which rely on vast quantities of sediment for their functioning.

Nevertheless, extensive works are planned close to the Broadmeadow River and using a precautionary approach, and in the absence of any mitigation measures, the potential for large quantities of silt to be washed downstream (1.5km) means that significant effects to the Malahide Estuary SAC and SPA cannot be ruled out.

## Operational Phase

### **Hydrological Impacts**

There is a pathway to Malahide Estuary from the development site via exceptional overflow events from the stormwater storage tank to the Broadmeadow River and via the Swords wastewater treatment plant during normal operation.

- **Hydrological Impacts – wastewater**

Sufficient capacity exists at the Swords wastewater treatment plant to accommodate the proposed development. The additional loading to the plant has been calculated at 328,245.5L/d (c. 328m<sup>3</sup>/day). Total hydraulic capacity at the plant is 60,750m<sup>3</sup>/day while average loading in 2020 was 14,148m<sup>3</sup>/day (and so leaving 46,602m<sup>3</sup>/day). The 2020 AER states that there is organic capacity of 11,391 P.E and the additional loading from this development will be 2,615 P.E. The most recent AER for this plant has indicated that it is having no observable impact on the WFD status of the receiving waters and that treatment capacity will not be exceeded within the next three years.

This development can have no significant effect on the Malahide Estuary SAC/SPA.

- **Hydrological Impacts – exceptional overflow events**

The data presented in this report has shown that the installation of the proposed storage tank will reduce the frequency and intensity of the overflow incidents and significantly reduce the volume of untreated effluent entering the Malahide Estuary. The project will have a net positive effect on water quality and WFD status from this source.

No significant effects are likely to occur therefore to the Malahide Estuary SAC/SPA arising from this source.

- **Hydrological Impacts – surface water/operation phase**

New surface water attenuation measures are designed so that there will be no net change to the quantity or quality of surface water leaving the site. These are standard measures which are included in all development projects and are not included here to reduce or avoid any effect to a Natura 2000 site.

No significant effects can occur to the Malahide Estuary SAC/SPA arising from this source.

### **Dust**

During the construction phase it can be expected that some dust emission will occur. It is difficult to quantify this but is likely to be localised and temporary in nature. The Air and Climate chapter of the EIAR accompanying this application has assessed the potential for dust emission arising from the proposed works. Dust deposition can impact upon ecosystems through blocking the stomata of leaves, thus retarding plant growth. Research has found however that this

impact is localised in nature and typically occurs where there are significant dust emissions (Bell & Treeshow, 2002).

Given the distance to Natura 2000 sites and the lack of natural vegetation in the vicinity of the site, no significant effect is likely to occur to the Malahide Estuary SAC or SPA.

### **Abstraction**

There is no pathway between the development site, and any Natura 2000 site.

No negative effects to the Malahide Estuary SAC/SPA are likely to arise from this aspect of the development.

### **In combination effects**

#### Plans

##### River Basin Management Plan

Implementation of the WFD and the third cycle of the River Basin Management Plan will result in continued improvements to water quality in the Malahide Estuary. Environmental water quality can be impacted by the effects of surface water run-off from areas of hard standing. These impacts are particularly pronounced in urban areas and can include pollution from particulate matter and hydrocarbon residues, and downstream erosion from accelerated flows during flood events. There can be no negative impact to surface water quality leaving the site due to the attenuation measures which are planned.

In 2005 the Greater Dublin Drainage Study (GDDS) was published as a policy document designed to provide for drainage infrastructure to 2030. The implementation of this policy will see broad compliance with environmental and planning requirements in an integrated manner. This is likely to result in a long-term improvement to the quality and quantity of storm water run-off in the capital. This project is compliant with the requirements of this policy.

#### Development Plan

The Final County Development Plan 2017-2023 provides for the forward planning of development through this administrative area. This was subject to Appropriate Assessment by the planning authority which concluded that "Fingal County Council has determined, pursuant to Section 177V of the Planning and Development Act 2000 (as amended), taking into account all matters relevant and subject to the full and proper implementation of the mitigation measures outlined in the NIR, that the Fingal Development Plan 2017-2023 will not adversely affect the integrity of any European Site.

#### Masterplan



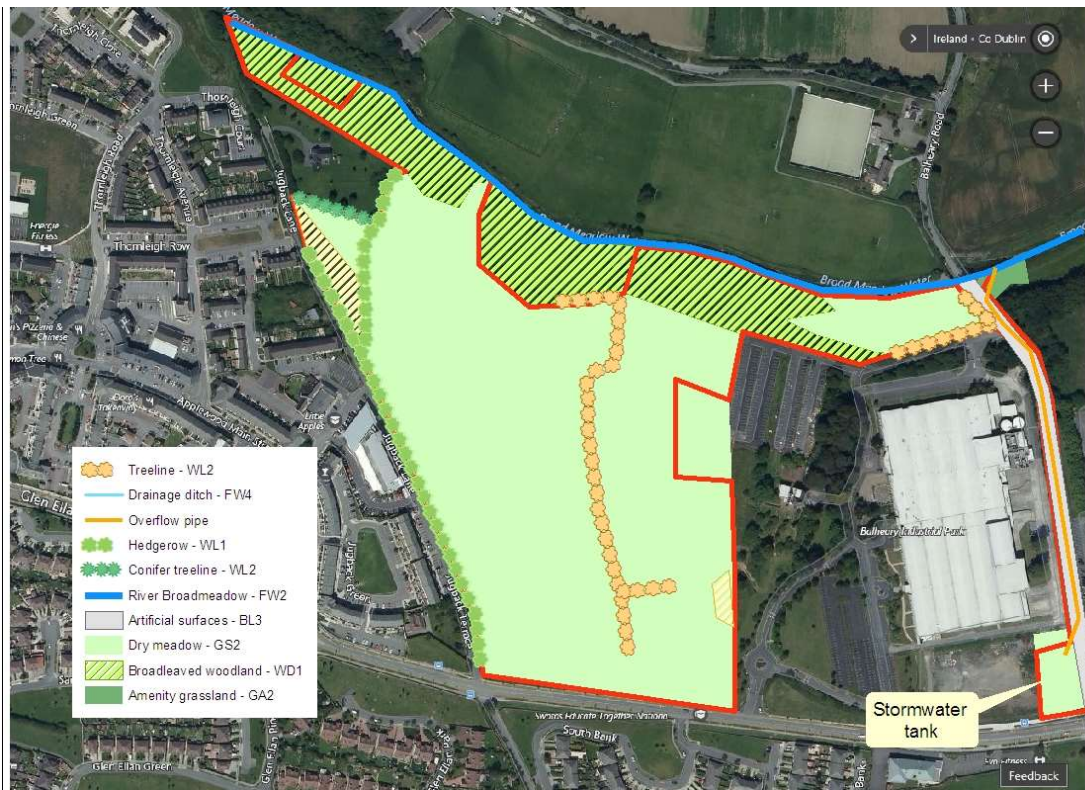


Figure 2 – Site boundary and habitats



Figure 3 – Site layout

### Step 3 – Conservation Objectives

#### Set out the conservation objectives of the site

#### Malahide Estuary SAC and SPA (code: 0205 and 4025)

The estuary is designated for its intertidal habitats and important wintering bird population.

In addition to its Natura 2000 designations it is also a Ramsar site (Broadmeadow estuary no. 833) and a Marine Protected Area under the OSPAR Convention (site code: O-IE-0002967).

The qualifying interests for the SAC (the reasons why the site is of European value) are detailed in table 1 while the Special Conservation Interests (analogous to qualifying interests for SPAs) for the SPA are given in table 2.

**Table 1 – Site qualifying interests for the Malahide estuary SAC**

Aspect	Level of Protection	Status
Fixed coastal dunes with herbaceous vegetation (grey dunes) (code: 2130)	Habitats Directive Annex I priority habitat	Bad
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') (code: 2120)	Habitats Directive Annex I	Inadequate
Salicornia and other annuals colonizing mud and sand (code: 1310)		Inadequate
Mediterranean salt meadows (code: 1410)		Inadequate
Atlantic salt meadows (code: 1330)		Inadequate
Mudflats and sandflats not covered by seawater at low tide (code: 1140)		Inadequate

- **Tidal mudflats (1140)**. This is an intertidal habitat characterised by fine silt and sediment. Most of the area in Ireland is of favourable status however water quality and fishing activity, including aquaculture, are negatively affecting some areas.
- **Salicornia mudflats (1310)**: This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependent upon a supply of fresh, bare mud and can be promoted by damage to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases this is a natural process.
- **Atlantic and Mediterranean salt meadows (1330 & 1410)**: these are intertidal habitats that differ somewhat in their vegetation composition. They are dynamic habitats that depend upon processes of erosion, sedimentation and colonisation by a typical suite of salt-tolerant organisms. The main pressures are invasion by the non-native *Spartina anglica* and overgrazing by cattle and sheep.

- **Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (2120).** These are the second stage in dune formation and depend upon the stabilising effects of Marram Grass. The presence of the grass traps additional sand, thus growing the dunes. They are threatened by erosion, climate change, coastal flooding and built development.
- **Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130 – priority habitat).** These are more stable dune systems, typically located on the landward side of the mobile dunes. They have a more or less permanent, and complete covering of vegetation, the quality of which depends on local hydrology and grazing regimes. They are the most endangered of the dune habitat types and are under pressure from built developments such as golf courses and caravan parks, over-grazing, under-grazing and invasive species.

**Table 2 – Special Conservation Interests for Malahide Estuary SPA**

Species	National Status <sup>1</sup>
<i>Anas acuta</i> Pintail	Amber (Wintering)
<i>Branta bernicula hrota</i> Light-bellied brent goose	Amber (Wintering)
<i>Bucephala clangula</i> Goldeneye	Red (Wintering)
<i>Calidris alpina</i> Dunlin	Red (Breeding & Wintering)
<i>Calidris canutus</i> Knot	Red (Wintering)
<i>Haematopus ostralegus</i> Oystercatcher	Red (Breeding & Wintering)
<i>Limosa lapponica</i> Bar-tailed godwit	Red (Wintering)
<i>Limosa limosa</i> Black-tailed godwit	Red (Wintering)
<i>Mergus serrator</i> Red-breasted Merganser	Amber (Breeding & Wintering)
<i>Pluvialis apricaria</i> Golden Plover	Red (Breeding & Wintering)
<i>Pluvialis squatarola</i> Grey Plover	Red (Wintering)
<i>Podiceps cristatus</i> Great-crested Grebe	Red (Breeding & Wintering)
<i>Tadorna tadorna</i> Shelduck	Amber (Breeding & Wintering)
<i>Tringa totanus</i> Redshank	Red (Breeding & Wintering)
Wetlands & Waterbirds	

- **Pintail.** Dabbling duck wintering on grazing marshes, river floodplains, sheltered coasts and estuaries. It is a localised species and has suffered a small decline in distribution in Ireland for unknown reasons.
- **Light-bellied Brent Goose.** There has been a 67% increase in the distribution of this goose which winters throughout the Irish coast. The light-

<sup>1</sup> Birds of Conservation Concern in Ireland. Gilbert et al., 2021



bellied subspecies found in Ireland breeds predominantly in the Canadian Arctic.

- **Goldeneye.** This duck wintering throughout Ireland on suitable coastal areas, river valleys and wetlands. There has been an 11% contraction in its Irish wintering range since the early 1980s and a 37% decline in abundance since the 1990s.
- **Dunlin.** Although widespread and stable in number during the winter season, the Irish breeding population has collapsed by nearly 70% in 40 years. Breeding is now confined to just seven sites in the north and west as habitat in former nesting areas has been degraded.
- **Knot.** These small wading birds do not breed in Ireland but gather in coastal wetlands in winter. Their numbers have increased dramatically since the mid-1990s although the reasons for this are unclear.
- **Oystercatcher.** Predominantly coastal in habit Oystercatchers are resident birds whose numbers continue to expand in Ireland.
- **Bar-tailed Godwit.** These wetland wading birds do not breed in Ireland but are found throughout the littoral zone during winter months. They prefer estuaries where there are areas of soft mud and sediments on which to feed.
- **Black-tailed Godwit.** Breeding in Iceland these waders winter in selected sites around the Irish coast, but predominantly to the east and southern halves. Their range here has increase substantially of late.
- **Red-breasted Merganser.** A widely distributed duck in winter Red-breasted Mergansers also breed in Ireland at certain coastal and inland locations to the north and west. They have suffered small declines in both their wintering and breeding ranges and possible reasons have been cited as predation by American Mink and shooting.
- **Golden Plover.** In winter these birds are recorded across the midlands and coastal regions. They breed only in suitable upland habitat in the north-west. Wintering abundance in Ireland has changed little in recent years although it is estimated that half of its breeding range has been lost in the last 40 years.
- **Grey Plover.** These birds do not breed in Ireland but winter throughout coastal estuaries and wetlands. Its population and distribution is considered to be stable.
- **Great-crested Grebe.** These birds breed predominantly on freshwater sites north of the River Shannon while coastal areas along the east and south are used for wintering. Numbers in Ireland have decline by over 30% since the 1990s.
- **Shelduck.** The largest of our ducks, Shelduck both breed and winter around the coasts with some isolate stations inland. Its population and range is considered stable.
- **Redshank.** Once common breeders throughout the peatlands and wet grasslands of the midlands Redshanks have undergone a 55% decline in distribution in the past 40 years. Agricultural intensification, drainage of wetlands and predation are the chief drivers of this change.

Site-specific conservation objectives for this SAC and SPA have been set out (NPWS, 2013) and these are summarised here.

**Mudflats (code 1140)**

Permanent habitat area stable or increasing (estimated at 311 hectares); Maintain the extent of the *Zostera*-dominated community and the *Mytilus edulis*-dominated community complex, subject to natural processes; Conserve the high quality of the *Zostera*-dominated community, subject to natural processes; Conserve the following community types in a natural condition: Fine sand with oligochaetes, amphipods, bivalves and polychaetes community complex; Estuarine sandy mud with Chironomidae and *Hediste diversicolor* community complex; and Sand to muddy sand with *Peringia ulvae*, *Tubificoides benedii* and *Cerastoderma edule* community complex.

**Salicornia mudflats (1310)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

**Atlantic/Mediterranean Salt Meadows (1330/1410)**

Maintain habitat area and distribution including physical structure (sediment supply, creeks and pans, flooding regime). Maintain vegetation structure as measured by vegetation height, vegetation cover, typical species and sub-communities. Absences of the invasive *Spartina anglica*.

**Fixed Coastal Dunes/Shifting Dunes (2130/2120)**

Maintain habitat area and distribution including physical structure (functionality and sediment supply, percentage of bare ground, sward height). Maintain vegetation structure as measured by zonation, vegetation cover, typical species and sub-communities. Absences of the invasive *Hippophae rhamnoides*.

**Birds (similar for all species)**

Long term population trend stable or increasing; there should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation.

**Describe how the project will affect key species and key habitats. Acknowledge uncertainties and any gaps in information.**

Direct, hydrological pathways exist to the Malahide Estuary SAC and SPA. Conservation objectives have been set to maintain the area of habitat for each of the qualifying interests and to maintain the species communities. Given the potential for large quantities of sediment and other construction pollutants to enter the River Broadmeadow, it is considered that effects to habitat and species, including bird species in the SPA, cannot be ruled out.

**Describe how the integrity of the site (determined by structure and function and conservation objectives) is likely to be affected by the project**

Very large quantities of sediment could increase deposition beyond normal levels, thereby affecting the areas of habitats for which the SAC has been designated. Construction pollutants could result in toxic effects to invertebrate communities which are essential for maintaining the integrity of the SAC. As wading birds (as listed in table 2) depend upon these invertebrates communities identified in the conservation objectives for mudflat habitats in the SAC for food, the integrity of the SPA may also be affected.

#### **Step 4 - Mitigation**

**Describe what mitigation measures are to be introduced to avoid, reduce or remedy the adverse effects on the integrity of the site. Acknowledge uncertainties and any gaps in information.**

- Pollution prevention during construction

Construction will follow guidance from Inland Fisheries Ireland (IFI, 2016) for the protection of fish habitat. This will include the erection of a robust silt curtain (or similar barrier) along the northern boundary to prevent the ingress of silt to the River Broadmeadow. Water leaving the site will pass through an appropriately-sized silt trap or settlement pond so that only silt-free run-off will leave the site.

The surface water outfall and the stormwater tank overflow headwalls will be constructed behind temporary coffer dams so that works will be undertaken 'in the dry'.

Dangerous substances, such as oils, fuels etc., will be stored in a bunded zone. Emergency contact numbers for the Local Authority Environment Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.

Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.

The site manager will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of works, and a record of these inspections will be maintained. A specification brochure is included as an addendum to this report.

These measures have been incorporated into a preliminary Construction Environmental Management Plan (CEMP) which is included as an addendum to this NIS. The CEMP is an integral part of the NIS. It specifically states that the following sediment control measures will be employed:

Sediment entrapment facilities are necessary to reduce sediment discharges to downstream properties and receiving waters. All run-off leaving a disturbed area will pass through a sediment entrapment facility before it exits the site and flows downstream.

- Straw Bales

Straw bales will be placed at the base of a slope to act as a sediment barrier. These are not recommended for use within a swale or channel. Straw bales are temporary in nature and may perform for only a period of weeks or months and so will be replaced as necessary. Proper installation and maintenance are necessary to ensure their performance.

- Silt Fencing

A silt fence is made of woven synthetic material, geotextile, and acts to filter run-off. Silt fencing will be placed as a temporary barrier along the contour at the base of a disturbed area but is not recommended for use in a channel or swale. The material is durable and will last for more than one season if properly installed and maintained. Silt fencing is not intended to be used as a perimeter fence or in an area of concentrated flow. If concentrated flow conditions exist, a more robust filter will be used if necessary.

- Silt Barriers

Silt barriers can also be temporarily installed in any road gullies of partially constructed roads to prevent sediment movement into downstream drainage systems or SUDS components.

When the catchment area is greater than that allowed for straw bale barriers or silt fences, the runoff will be collected in diversion drains and routed through temporary sediment basins.

- Diversion Drains

Diversion drains are simple linear ditches, often with an earth bund, for channelling water to the desired location. If the drains are being eroded they will be lined with geotextile fabric or large stones or boulders.

- Silt Traps

Will be placed at the base of a slope as a sediment barrier or as a temporary filter prior to discharge into a stream. Silt traps are deemed temporary and proper installation and maintenance is needed to ensure their performance.

## **The Assessment of Significance of Effects – Conclusion of Stage 2**

This report contains an analysis of the proposed project and its relationship with the Malahide Estuary SAC and SPA. Pathways exist between the development site and these Natura 2000 sites and these have been described in.

Following this analysis, it is concluded that based on best scientific knowledge the project, alone or in combination with other plans and projects, would not adversely affect the integrity of the Malahide Estuary SPA and SAC, in light of their specific conservation objectives.

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